JSP 862

MOD MARITIME
EXPLOSIVES REGULATIONS
Part 1 SURFACE SHIPS
Issue 5

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NAG EXP2a
DES NAG
Larch 3a
Mail point #2315
MOD Abbey Wood

Bristol
BS34 8JH

E Mail: DES NAG-EXP2a@mod.uk
## Summary of Changes

### Issue 5

<table>
<thead>
<tr>
<th>Chapter / Article</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>Numerous email tally and SMA changes</td>
</tr>
<tr>
<td>All</td>
<td>All telephone contacts verified</td>
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<tr>
<td>All</td>
<td>Addition of Appendix A listing all telephone contacts. Telephone contacts removed from the text and signposted to Appendix A</td>
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<tr>
<td>All</td>
<td>Changes to reflect new platforms and equipment and platforms and equipment no longer in service.</td>
</tr>
<tr>
<td>Ch1</td>
<td>Changes to ERO roles and responsibilities to ensure the guidance remains generic.</td>
</tr>
<tr>
<td>Ch 1</td>
<td>Changes to roles and responsibilities of OOQ to reflect RNTM 118/14 and changes to the duration of Explosive Course Qualifications iaw RMTM 231/14.</td>
</tr>
<tr>
<td>Ch 3</td>
<td>Changes to the Extraordinary Embarkation of Explosives (E3) policy</td>
</tr>
<tr>
<td>Ch 3 Annex D</td>
<td>Introduction of a new E3 permission flowchart</td>
</tr>
<tr>
<td>Ch 2</td>
<td>Changes to adjacent compartment rounds policy</td>
</tr>
<tr>
<td>Ch 5</td>
<td>Alignment of the CFFE process with JSP 482</td>
</tr>
<tr>
<td>Ch 5 Annex L</td>
<td>Introduction of DOSR guidance detailing responsibilities in the dockyard during explosive activities.</td>
</tr>
<tr>
<td>Ch 7 Annex A</td>
<td>Addition of a Service Life Expiry Date (SLED) Extension Template</td>
</tr>
<tr>
<td>Ch 9 Annex A</td>
<td>Changes to AIDE MEMOIRE Emergency involving Explosives</td>
</tr>
<tr>
<td>Ch 12</td>
<td>Changes to Figure 12A-1 to reflect current procedures</td>
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**AMENDMENT RECORD**

**Note:** The incorporation of Temporary Amendments such as signals and Advance Information Leaflets etc. are to be recorded overleaf.

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### AMENDMENT PROPOSAL FORM

<table>
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#### DETAILS OF COMMENTS

<table>
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<th>Comment</th>
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**FORWARD TO THE SPONSOR LISTED ON THE BACK OF FRONT COVER**
## CONTENTS

### PRELIMINARY MATERIAL

- Front Cover (title page) ........................................ Page (i)
- Sponsor Details .................................................. Page (ii)
- Summary of Changes ........................................ Page (iii)
- Amendment Record ........................................... Page (iv)
- Temporary Amendment Record ......................... Page (v)
- Amendment Proposal Form .............................. Page (vi)
- Contents .......................................................... Page (v)
- Foreword ....................................................... Page (vi)

### ORGANISATION

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>RESPONSIBILITIES AND APPLICATION</td>
</tr>
<tr>
<td>2</td>
<td>PROCEDURES FOR ONBOARD EXPLOSIVES SAFETY MANAGEMENT</td>
</tr>
</tbody>
</table>

### REGULATION AND GUIDANCE

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>CARE AND STOWAGE OF EXPLOSIVES</td>
</tr>
<tr>
<td>4</td>
<td>MUNITIONS ACCOUNTING AND APPLICATION</td>
</tr>
<tr>
<td>5</td>
<td>EMBARKATION, DISEMBARKATION AND HANDLING OF EXPLOSIVES</td>
</tr>
<tr>
<td>6</td>
<td>EXPLOSIVES SAFETY MANAGEMENT IN PORTS</td>
</tr>
<tr>
<td>7</td>
<td>RESTRICTION OF USE, EXAMINATIONS AND TRIALS</td>
</tr>
<tr>
<td>8</td>
<td>INCIDENTS, DEFECTS AND DISPOSAL</td>
</tr>
<tr>
<td>9</td>
<td>EMERGENCIES INVOLVING MUNITIONS</td>
</tr>
</tbody>
</table>

### RISK MANAGEMENT

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>RISK MANAGEMENT AND VERTREP</td>
</tr>
</tbody>
</table>

### POLICY

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>REGULATION, CERTIFICATION AND PERMISSIONING OF EXPLOSIVE STORES</td>
</tr>
</tbody>
</table>

### SUPPORTING INFORMATION

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>MOD EXPLOSIVE INCIDENT RESPONSE</td>
</tr>
<tr>
<td>13</td>
<td>CLASSIFICATION AND CHARACTERISTICS OF EXPLOSIVES</td>
</tr>
<tr>
<td>14</td>
<td>DEFINITIONS</td>
</tr>
<tr>
<td>15</td>
<td>GLOSSARY, REFERENCES AND INDEX</td>
</tr>
</tbody>
</table>
MOD MARITIME EXPLOSIVES REGULATIONS (MMERs) - FOREWORD

COMPLIANCE WITH THE REGULATIONS

1. Records show that the majority of incidents involving explosives are attributable to insufficient appreciation of risk and safety precautions, or to neglect of regulations. The problem is exacerbated by the fact that familiarity in handling explosives may lead to their dangerous nature being overlooked, with the result that insufficient care and attention to detail is taken. These regulations have been framed to guard against unnecessary risk and as such, strict adherence is essential.

APPLICATION

2. Management of explosives safety within MOD, for the maritime environment, is a three-stage process as described in JSP 430, comprising the following:

   **Stage 1** Verifying the inherent safety arrangements of an item of WOME for Maritime use.

   The Platform Duty Holder shall verify that the safety of maritime WOME is appropriate for maritime use and has been independently reviewed by an authoritative body. The successful outcome of this process is a Certificate of Safety, typically a CSOME/OAS and relevant safety information.

   **Stage 2** Delivery of arrangements for safe integration of WOME and verified through Certification.

   Design and delivery of arrangements shall be undertaken by the relevant Duty Holder. Arrangements are independently reviewed by the Naval Authority; the successful outcome of this is a Certificate of Safety.

   **Stage 3** The operation of the explosive safety management arrangements.

   Design and implementation of the operational management arrangements shall be undertaken by the relevant Duty Holder against general requirements set by the Naval Authority. The outcome of this is a permission to embark explosives and conduct of safe operation.

3. These regulations are mandatory for regulating the safe embarkation, storing, handling and use of explosives in ships owned by, operated by and operated on behalf of the MOD (JSP 430 Ships), i.e. HM Surface Ships, HM Submarines, Royal Fleet Auxiliary (RFA), Government owned Contractor Operated (GOCO) vessels, Contractor Owned Contractor Operated (COCO) vessels and ships on MOD/DTMA charter. Departure from these regulations is not permitted without prior approval of Naval Authority Explosives (NAEXP). For miscellaneous small craft with limited military capability and no permanent explosive stowages these regulations may be dis-applied or applied proportionately within operating procedures to the level of explosives risk as agreed with NAEXP. For ships operating under statutory regulations in a non-military role, e.g. training craft, an alternative onboard safe system of work may be an acceptable substitute to the use of MMERs subject to NAEXP approval. These regulations form part of the mandatory requirements for establishment and maintenance of ship safety which is promulgated in JSP 430. MMERs form the core of the Commanding Officers Ship Explosives Safety Management System and are one component of Naval Authority Explosives Regulations.
COMPOSITION

4. MMERs are ordered as follows:
   a. Part 1 Surface Ships
   b. Part 2 Submarines
   c. JSP 862 Addendum

Note: JSP 862 Addendum is specific to each platform and should be compiled by Ship’s Staff. It shall include: Certificate of Safety Explosives (CSE) (including the Authorised List of Explosive Stores (ALES)), relevant Ship Explosive Store Safety Instructions (SEXSSIs) and Replenishment and Stowage at Sea (RASS) Specifications.

Note: Explosive Safety related material is available on the Defence Intranet (through NAVY CMD EXP and NAEXP websites) and is also contained on the FIMU library sent to ships monthly. Electronic copies of JSP862 can be obtained from the NAKMO website, which can be linked from the NAEXP website on the Intranet, or can be found on the Internet by searching for ‘NAKMO’. A password is not required to access the JSP, select ‘enter library only’.

RN AND RM OFFICERS’ RESPONSIBILITIES WITH REGARD TO MMERs

5. The general principles governing the responsibility of officers for explosives are stated in QRRN Chapter 28. QRRN Chapter 28 directs the Captain or Commanding Officer to take care that all orders contained in MMERs are strictly adhered to or an alternative safe system of work is in place and agreed with NAEXP. No other publication is to be construed as overriding the regulations contained herein in regard to safeguarding explosives or to the handling and care of explosives in HM Surface Ships and Submarines.

RFA, DSTL and QINETIQ OFFICERS RESPONSIBILITIES WITH REGARD TO MMERs

6. Explosives to be used, fired or expended from RFA, DSTL and QINETIQ ships are governed by the regulations in this publication. RFA, DSTL and QINETIQ officers in charge of such activities are required to conform to the regulations in MMERs and to undergo and maintain in date the appropriate training. When the Solid Support Officer (SSO) is borne in an RFA Solid Support Ship and is ERO qualified, having completed the necessary training iaw article 0105, they will be the ERO for the Fleet Solid Support Load. Their responsibilities as an ERO are those laid down in MMERs.

DEPARTURES FROM REGULATIONS

7. Requests to depart from these regulations are to be forwarded to NAVY CMD EXP copied to NAEXP and the Platform Duty Holder.

AMENDMENTS TO MMER

8. Proposed amendments to the regulations should be forwarded through the appropriate authority using the form on Page iv.
CHAPTER 1

RESPONSIBILITIES AND APPLICATION

CONTENTS

0101 Acquaintance with and enforcement of regulations
0102 Issue of copies of regulations and other orders
0103 General definitions of terms used
0104 Responsibilities of the Executive Officer (XO)
0105 The Explosives Responsible Officer (ERO) - Application and Responsibilities
0106 Delegated Explosives Responsible Officer (DERO) - Duties
0107 Spare
0108 The Officer of the Quarter (OOQ) - application and responsibilities
0109 Duty Officer of the Quarters (DOOQ) - application and responsibilities
0110 Competent Maintainer (CM)
0111 Specialist User Officer (SUO)
0112 Temporary Ammunition Custodian (TAC) - application and responsibilities
0113 Competent User (CU)
0114 Accounting for Naval Armament Stores
0115 Other officers with particular responsibilities for explosives safety
0116 Acquaintance with general safety arrangements
0117 Authority to move explosives outside magazines
0118 Location of the Explosives Delivery Point (EDP)
0119 Responsibilities for the care and custody of explosives in JSP 430 ships not manned by the Royal Navy

0101 ACQUAINTANCE WITH AND ENFORCEMENT OF REGULATIONS

1. Every person as required by their duties are to make themselves acquainted with, duly observe, obey and enforce these and all other regulations, orders or instructions that may be issued for the safe custody, stowage, handling and use of explosives.

2. Where the regulations refer to particular officers, these officers are to ensure that the safety and efficiency of explosives are not jeopardised through inadequate knowledge of the regulations on the part of their subordinates.

0102 ISSUE OF COPIES OF REGULATIONS AND OTHER ORDERS

1. Commanding Officers, Masters and Officers in Charge are to ensure that copies of these and other relevant regulations (including DINs / RNTMs etc.) are made available for use by those individuals to whom authority for explosives is delegated. In addition, they are to ensure that copies of all amendments to these regulations and new orders or instructions are distributed to all holders of these regulations.
GENERAL DEFINITIONS OF TERMS USED

1. Definitions used in these regulations conform to those listed in the "Explanation of Terms" given in the Introductory Notes of BR 2, Queens Regulations Royal Navy (QRRN) and at Chapter 14 of this publication (For RFA see BR 875).

2. For ease of reference, the definitions used to designate Officers and Ratings specific responsibilities for explosives are included in the appropriate Articles of this Chapter. The term Officer is to be taken to include RN, Royal Marines, RFA, Army and RAF Officers and MOD employees of equivalent rank. Senior Rating and Leading Rating are used in the following context:

   a. **Senior Rating.** The term "Senior Rating" when used in these regulations is to be taken to include Warrant Officers, Chief Petty Officers, Petty Officers and RM/Army/RAF NCOs and MOD employees of equivalent rate/rank.

   b. **Leading Rating.** The term "Leading Rating" when used in these regulations is to be taken to include RM/Army/RAF Junior NCOs and RFA/MOD employees of equivalent rank.

RESPONSIBILITIES OF THE EXECUTIVE OFFICER

1. In accordance with QRRN/BR 875 the XO is responsible to the Commanding Officer for the organisation and overall co-ordination of whole ship activities affecting the safety of explosives in the ship. This covers:

   a. Ensuring that the ships organisation complies with the mandatory rules and regulations contained in JSP 862 MOD Maritime Explosives Regulations (MMERs).

   b. Specifying in Standing Orders the allocation of departmental responsibility for the inspection, stowage, cleanliness, custody, movement (including drill) and safety of explosives and the stowages containing them.

   c. Ensuring that all explosives held onboard are accounted for by the Logistics Officer.

   d. Ensuring that all explosives held onboard are under the responsibility of the Explosives Responsible Officer, Officer(s) of the Quarter, Temporary Ammunition Custodian or Specialist User Officers.

   e. Ensuring that the measures, inspections, rounds, and tests required in accordance with Chapter 2 are carried out and correctly recorded in the Daily Record of Inspections pages in the Explosives Log. In platforms where the XO is an SO1, this may be formally delegated to the 1Lt provided they have also completed the XO’s Course and Explosives Safety Module for the vessel.

   f. The co-ordination of whole ship and inter departmental activities affecting the safety of explosives and the production of orders for those activities to direct and ensure that they are conducted in accordance with MMERs. In particular; any explosives embarkation and disembarkation including RIH (including Small Quantity Top Up), RAS (A), VERTREP or boat transfer.

   g. The co-ordination of whole ship activities affecting the safety of explosives whilst any military force is embarked. This includes production of orders for assault or embarkation/disembarkation procedures and in particular to cover loading/unloading of personal weapons and control of ammunition not being held in magazines.
h. Ensuring that the appropriate authorities or officers are called for assistance or advice as necessary, particularly with regard to the intentions for disposal of explosives that are in a dangerous condition.

i. Co-ordinating the whole ship arrangements made to render safe all own or enemy explosive stores that are in a dangerous condition, and all unexploded ordnance which has landed onboard, been placed onboard by the ill-disposed, found or recovered.

j. Co-ordinating the whole ship arrangements, when advised by EOD teams, to safeguard life and the ship during the disposal of any explosives that are in a dangerous condition.

k. Co-ordinating the whole ship arrangements made when it is essential to immediately dispose of any explosives that are in a dangerous condition.

0105 THE EXPLOSIVES RESPONSIBLE OFFICER (ERO) - APPLICATION AND RESPONSIBILITIES

Application

1. The Explosives Responsible Officer (ERO) is a commissioned officer designated in accordance with QRRN/BR 875 to ensure that the regulations for the safety of all explosives held onboard the ship are enforced at all times. For non RN or RFA vessels it is to be a suitably qualified and experienced person with the equivalent level of responsibility. They are responsible specifically for magazines and the competence of Officers of Quarters in the safety and handling of explosives.

2. An ERO will be identified in the Unit Establishment List (UEL) and must have successfully completed the mandatory Pre-Joining Training at the Explosives Training Unit HMS COLLINGWOOD prior to taking up their duties. Re-qualification will be required if more than 5 years has elapsed since completion of the training course. Additionally, officers appointed to QEC, LPH, LPD, LSD(A) and SSO’s in AFSH and AOR are to complete the Palletised Ammunition course. RFA Officers additionally undertake the Stowage Planning course at HMS COLLINGWOOD. SSO’s appointed to RFA with ERO responsibilities must be ERO qualified.

Responsibilities

4. In accordance with QRRN/BR 875 or Terms of Reference, the ERO is responsible to the Commanding Officer for:

   a. Ensuring the safety of all explosives by monitoring the compliance of MMERs throughout the ship.

   b. Ensuring that all explosives held onboard are under the custody of a qualified OOQ or TAC.

   c. Ensuring that all explosives are safe and suitable for operational use.

   d. Supervising the embarkation and disembarkation of explosives during ammunition ship baring SQTU, where a suitably qualified DERO who fulfils the criteria (Article 0106 refers) may be used.
e. Ensuring safe and timely conduct of assembly, test, maintenance, preparation, handling, supply and operational use that forms part of the weapon system tests or procedures.

f. Assessing the risk of all operations involving or potentially affecting explosives. The Design Authorities are responsible for specific procedures (drills) involving weapons and for ammunition/assault routes. Risk assessments specific to the platform are to be conducted and documented for all appropriate operations not covered by drills and MOD authorised procedures. Guidance on the coverage and content of such risk assessment is available through NAVY CMD EXP and in BR 9147. The risk assessments are to be made available to all personnel exposed to risk.

g. Promulgating and exercising emergency procedures. Risk assessments, drills and procedures for handling, stowage, movement or use of munitions may require emergency procedures. All such procedures are to be readily available for training and are to be exercised at regular suitable intervals.

h. Ensuring the maintenance is conducted and the efficient working order of all equipment associated with the safety, stowage, handling, testing, assembly and operational use of the explosives and their associated stowages. They are to ensure that all persons working on such equipment within the magazine are competent to do so.

i. Ensuring the safe and correct handling of explosives during or at embarkation/disembarkation points or Explosives Delivery Points (EDPs) and any abnormal movement of explosives which do not form part of standard weapon system drills, tests or procedures.

j. Rendering safe and/or disposal of explosives where approved drill procedures exist i.e. misfire, hangfire, hang-up or failure to function.

(1) Otherwise, and in the absence of EOD qualified personnel, they are to limit their action to supervision of the necessary work as advised by Chapter 8 and 9, SEXSSIs and Defence Instructional Notices (DINs), ensuring that operations do not go beyond measures essential for the preservation of safety, in respect of:

   (i) Damaged or hazardous explosive stores.

   (ii) Unexploded enemy ordnance which has landed onboard.

   (iii) Explosives placed onboard by Criminal or Terrorist Organisations.

(2) They are then to seek advice and/or assistance from other authorities as detailed in Chapter 8.

(3) They are to advise the Executive Officer on the whole ship organisational requirements to achieve a safe condition.

(4) They are to provide for the safe custody of explosives found or recovered.

k. Rendering periodic reports, defect reports, accident and incident reports and reports on malfunctioned or misfired explosives. Aviation reports are also to be raised in accordance with current air regulations.
I. Personally visit each Quarter containing explosives at the intervals specified in Chapter 2.

m. Ensuring that all defective items are segregated from all other stores and are visibly labelled with a Defective Naval Armament Stores Label Form S3086.

n. Ensuring that they or a relevant OOQ/DOOQ/TAC is in attendance whenever testing, maintenance, assembly, or fitting of explosives is being carried out prior to transfer to the SUO.

o. Ensuring that they or the relevant OOQ/DOOQ/TAC is in attendance to ensure the safety of explosives whenever maintenance or the testing of equipment in a magazine is carried out.

p. The direction of work or drill in magazines involving the handling of explosives.

q. Monitoring of ship general explosives safety considerations and provision of advice after the transfer of responsibility of explosives at EDPs.

r. Ensuring that all ammunition BAN and CONSTRAINT signals are logged, actioned and cross checked with the extant monthly BAN list and details of CONSTRAINTs on the Joint Service Munitions Control Register which can be accessed via the NAVY CMD EXP Website/Munitions Technical Publications (and Associated Documents) Publication.

s. Inspecting all OOQ Logs (MoD Form S3139) on a 3 monthly basis, to ensure completeness and accuracy. They are to ensure that the Interim and 6 monthly Command Musters have cross referenced relevant OOQ Log entries to check for discrepancies in transfers.

t. Ensuring that all relevant SEXSSIs are up to date and held within JSP 862 Addendum.

u. The reporting of completed Departure/Non-Compliance items.

v. Producing a stowage plan when the outfit to be carried does not match the stowage plans provided by the Platform Duty Holder (PDH).

w. Providing a copy of any locally produced stowage plan for HQ1/HQ2 to be available during Emergency and Action Stations.

5. The ERO is to advise the Executive Officer on:

a. The content of ships orders relevant to explosives safety to ensure that such orders governing the safety, control and handling of explosives meet MMERs.

b. The correct completion of the Explosives Log.

c. The planning and execution of embarking, disembarking and movement of explosives which do not form part of standard weapon system drill, tests or procedures, particularly their embarkation and disembarkation by RIH, RAS(A), VERTREP, boat transfers or for Extraordinary Embarkations of Explosives (E3).
d. The explosives safety content of orders to cover assault or embarkation/disembarkation procedures to be utilised for any military force that is embarked.

e. The appropriate authorities or officers for assistance or advice as necessary, particularly with regard to the intentions for disposal of explosives that are in a dangerous condition.

f. The requirement to immediately dispose of any explosives that are in a dangerous condition and any specific whole ship safety arrangements needed during their disposal.

g. The application of the security rules for classified explosives and stores Attractive to Criminal and Terrorist Organisations (ACTO).

h. Explosives safety training to be completed by ship’s staff (Guidance on requirements can be found in BR 9600 Ch 19 Annex E). They are to maintain a log of those personnel who have been trained to undertake specific roles relating to explosives safety, especially:

(1) Delegated Explosive Responsible Officers (including Air Weapon Supply Officers).

(2) OOD/Duty Officers.

(3) OOQ/TAC/DOOQ.

(4) Competent Maintainers approved to conduct Magazine Spray Checks and Temporary Stowage inspections of explosives within their weapon system.

0106 DELEGATED EXPLOSIVE RESPONSIBLE OFFICER (DERO) – DUTIES

1. Another Commissioned Officer, Warrant Officer, RFA Officer or Civilian Equivalent is normally nominated in the Establishment List for Ships as the Delegated Explosive Responsible Officer (DERO) to undertake ERO duties and temporarily assume the ERO’s responsibility in their absence. Additionally, this duty may be assigned to a Senior Rate on MCM platforms who conduct the WEO role in accordance with the Establishment List for that ship. The DERO detailed in the Establishment List must:

a. Have successfully completed the relevant mandatory training course at the Explosives Training Centre HMS COLLINGWOOD.

b. Before taking up their duties, pass a practical and oral examination by the ERO in the explosives safety aspects of ALL Quarters on board. This should normally be gained within a short period of joining and Certification is to be recorded in the Explosives Safety Training Log and placed at the rear of the Explosives Log.

c. Not be tasked to deputise for the ERO during any explosives embarkation or disembarkation exceeding the limits of a Small Quantity Top Up, and only when both the ERO and the Commanding Officer are satisfied that they have gained sufficient experience to manage the risks involved and support an explosives incident defined as ‘Serious’ or above at Chapter 8.

d. Re-qualify if more than 5 years has elapsed since completion of the training course.
2. For short term ERO absences where no other suitably qualified officer is borne such as the DERO, the Commanding Officer is to detail either a suitably experienced commissioned officer, SSO or RFA officer to carry out the duties of the ERO, or the XO is to undertake this duty in addition to their other duties.

3. During leave periods longer than 7 days a duty commissioned officer, SSO, RFA officer, or a Senior Rating approved to undertake duties in the same roster as the Ship’s Commissioned Officers or RFA officers, is to be specifically detailed to undertake the ERO’s/DERO’s inspections.

0107 SPARE

0108 THE OFFICER OF THE QUARTER (OOQ) - APPLICATION AND RESPONSIBILITIES

Application

1. An OOQ is the Officer, Senior Rating or a Leading Rate listed in the UEL(Article 0108.4 refers) nominated for each Quarter who has direct accountability to the ERO for the safe custody of all explosives in that Quarter. Each Quarter can only have one nominated OOQ; however, it is permissible for a trained and endorsed OOQ to undertake the duties of a Competent Maintainer (CM) for another Quarter at the discretion of the ERO.

2. They must have successfully completed the mandatory training course (E104X) at HMS COLLINGWOOD to qualify as an OOQ before joining. Re-qualification will be required if more than 5 years has elapsed since completion of the training course.

3. Before taking up their duties they must pass a practical and oral examination in the explosives safety aspects of the Quarter concerned, carried out by the unit’s ERO. Guidance on the subjects on which OOQs should be examined is contained within Ship General Orders Chap 19 Annex E. This qualification should normally be gained within a short period of joining and Certification is to be recorded in the Explosives Safety Training Log.

4. An LET (WE) nominated to undertake the duties of an OOQ will be nominated in the Unit Establishment List (UEL). The ERO is to ensure the LET is SQEP taking particular care to provide the guidance and direction to the Leading Rate carrying out this role. The ship’s Senior OOQ will assist the ERO in providing guidance, leadership, advice and direction to the LET with respect to their OOQ duties and administration of their Quarter. This will be mainly through the Explosive Shareholders Working Group and weekly magazine rounds.

OOQ - Absence from the Ship

5. In the event of an OOQ being absent from the ship, the ERO is to assume this duty or nominate a qualified alternative. This will normally be another OOQ however the Duty OOQ may undertake the role of OOQ outside of the normal working day and during short and main leave periods.

6. Allowing an LET to cover a Quarter in the absence of an OOQ is at the ERO’s discretion. Due consideration should be made of the level of experience and qualification of all members of the explosives safety organisation to ensure an appropriate OOQ is nominated, taking into account their workload and capacity to undertake this additional responsibility.
Responsibilities

7. The OOQ is accountable to the ERO for ensuring that:

a. All personnel in their Quarter are aware of the explosives safety regulations concerned with and pertaining to the performance of their duties.

b. All explosives safety regulations and orders laid down for the Quarter for the stowage, handling, test assembly, preparation and safe custody of the explosives and associated non-explosive stores are enforced at their Quarter.

c. That all SEXSSIs are up to date and held in JSP 862 Addendum for the explosives stores associated with their Quarter.

d. A trained and endorsed OOQ may undertake the duties of a Competent Maintainer (CM) for another Quarter in the pursuance of their duties at the discretion of the ERO. The OOQ remains accountable and responsible for the correct management of their Quarter.

8. The OOQ is responsible for the safety and completion of the following daily duties in their Quarter on behalf of, and as required by, the ERO. This includes:

a. To carry out inspections of magazines and adjacent compartments as required by these regulations.

b. Responsible for the explosives safety arrangements, cleanliness and inspections of their Quarter and for notifying the ERO if any related equipment appears to be defective.

c. Responsible for the supply of explosives to the EDP and associated non-explosive armament stores in a safe and serviceable condition when required.

d. Responsible for the custody of all relevant weapon and explosive store History Sheets appropriate to their Quarter and to ensure correct completion.

e. To maintain an accurate OOQ Log (MoD Form S3139 - record of the movement and stock of explosives stores held within their Quarter). Not Applicable to SSO for FSS Load.

f. To understand the principles of stowage planning and mitigation as laid down in Chapters 3 and to advise the ERO when changes in stockholding could necessitate a change of stowage plan.

g. To record the temperature of magazines and bring to the notice of the ERO any excessive temperatures that may occur (Articles 0222 and 0334 refer).

h. To ensure the Quarter is left in a safe condition on completion of the testing of flooding and spraying equipment, before and after embarkation of explosives, after de-ammunitioning and at such other times as is necessary e.g. rough weather.

i. To carry out Certified Free From Explosives (CFFE) procedures as required by these regulations (Article 0539 refers).
0109 DUTY OFFICER OF QUARTER (DOOQ) - APPLICATION AND RESPONSIBILITIES

Application

1. A Duty OOQ is a locally trained Officer or Senior Rating nominated by the ERO in ship's Explosives Orders to carry out the basic roles of an OOQ during the period of their duty out of working hours and during leave periods. The role is normally undertaken by a Duty Technical Senior Rating and they will have custody of all Quarters except where the nominated OOQ continues to work beyond normal working hours. Where possible, the DOOQ should make use of OOQ expertise. The DOOQ is not to undertake daily magazine inspections during a normal working day in substitution for an available qualified OOQ.

2. Before taking up their duties they must pass a practical and oral examination by the ERO in the explosives safety aspects of ALL Quarters on board and Certification is to be recorded in the Explosives Safety Training Log. There may be a requirement for an LET (WE) to undertake the duties of the DOOQ, the ERO is to ensure they are satisfied that all DOOQ are maintained at a SQEP level.

Responsibilities

3. The DOOQ is accountable to the OOD/Duty Officer for:

   a. Ensuring that all explosives safety regulations and orders laid down for the stowage, handling, test assembly, preparation and safe custody of the explosives and associated non-explosive stores are enforced in the absence of the nominated OOQ outside of normal working hours or during leave periods.

   b. Providing initial explosives safety advice to the OOD following a Conventional Weapon Incident.

4. The DOOQ is accountable to the ERO for:

   a. Ensuring that all personnel entering any Quarters are aware of the explosives safety regulations concerned with and pertaining to the performance of their duties.

   b. Carrying out inspections of magazines (in accordance with Articles 0205 and 0206) and adjacent compartments on the occasions required in Chapter 2.

   c. Monitoring explosives safety arrangements and cleanliness of the Quarters and notifying the relevant OOQ if any related equipment appears to be defective.

   d. The supply of explosives to the EDP and associated non-explosive armament stores in a safe and serviceable condition when required (typically explosives for SPF/RF or sea safety).

   e. To record the temperature of magazines and bring to the notice of the ERO any excessive temperatures that may occur (Articles 0222 and 0334 refer).

0110 COMPETENT MAINTAINER (CM)

1. A Competent Maintainer is a trained person authorised to carry out work, maintenance or preparation in Quarters as part of their duties. Personnel tasked with such work must be competent for the task by virtue of approved career course or pre-joining training and endorsed
by the ERO in the Explosives Log. They are restricted to drawing keys for the purposes of: supplying ammunition to a TAC, CU or weapon system, defect rectification and routine maintenance, husbandry and cleaning (iaw extant Maintenance Schedules). They are to be conversant with the regulations for entering and working within a magazine and ensure that on completion of any work the magazine is left in a safe condition until the OOQ can inspect the magazine in accordance with Article 0209.

2. Competent Maintainers nominated to conduct weekly spray tests are to be locally examined by the ERO and Certification is to be recorded in the Explosives Safety Training Log.

3. The Competent Maintainer is accountable to the ERO for:
   
a. Supplying and receiving explosives stores at the EDP or their station on behalf of the nominated OOQ when required in accordance with their duties on the Watch and Station Bill and where the use of live ammunition has been authorised by Command.

   b. Ensuring that the relevant OOQ are informed of any receipt and expenditure of explosives stores and that it is subsequently accurately recorded in the relevant OOQ Log.

4. Leading Ratings and below are not authorised to conduct defect rectification unsupervised in magazines unless they are the suitably trained and nominated maintainer for the equipment.

5. Competent Maintainers are not permitted to conduct Daily Magazine Inspections.

0111 SPECIALIST USER OFFICER (SUO)

1. SUOs are trained Officers nominated in orders, who are charged with the temporary responsibility for explosive stores once they have passed the EDP.

2. SUOs must have successfully completed the mandatory Pre-Joining Training, E113, at the Explosives Training Unit HMS COLLINGWOOD prior to taking up their duties. Re-qualification will be required if more than 5 years has elapsed since completion of the training course. These Officers will ensure the safe custody, control, handling, drill, preparation and accounting for such explosives at the EDP (Article 0118 refers) until they are expended or returned.

3. The SUO is accountable to the ERO and their Head of Department and are to ensure that:

   a. All explosives held onboard in Temporary Stowages are under their control or the custody of a qualified TAC.

   b. Any person handling explosives is competent to do so by their career or PJT training and is being directly supervised by a Temporary Ammunition Custodian (TAC) or Competent User of Leading Rate or above.

   c. Control and safeguarding of explosives is transferred between delegated Competent Users at watch changes and when a watch is stood down for periods which do not justify returning the explosives to main magazines.

   d. Any expenditures and transfers that have occurred are properly authorised by them and recorded in the relevant OOQ Log (MoD Form S3139).
e. Inspecting all OOQ Logs on a monthly basis, to ensure completeness and accuracy in the recording of ammunition expenditure.

f. S156 demands are placed with the Logistics Officer for replenishment of stock, as required, and returns are made to the Logistics Officer in accordance with Article 0114.

g. All TACs and Competent Users are made aware of any relevant information contained within the SEXSSI.

4. The SUO is to maintain a page within the Explosive Safety Training Log of those personnel nominated as Competent Users.

5. The SUO is to seek the advice of the ERO on all matters affecting the safety of explosive stores for which they have responsibility.

0112 TEMPORARY AMMUNITION CUSTODIAN (TAC) - APPLICATION AND RESPONSIBILITIES

Application

1. A TAC is the officer or Senior Rating nominated by the SUO for the safe management after the EDP of all explosives associated with the temporary Quarter as listed in the Explosives Log.

2. They must have successfully completed a qualifying course as a TAC before joining:
   a. E104X at the Explosive Training Unit in HMS COLLINGWOOD.
   b. TEM 83 for air weapons.

Re-qualification will be required if more than 5 years has elapsed since completion of the training course.

3. Before taking up their duties they must pass a practical and oral examination in the explosives safety aspects of the Quarter concerned, carried out by the ERO. ERO Certification is to be recorded in the Explosives Safety Training Log.

4. Though a TAC will normally be at least a Senior Rating, a Leading Rating may be nominated in the UEL to manage sea safety (SOLAS) and RAS explosives stores. Any Leading Ratings so nominated will be subject to the requirements of 0112.2 above and their TAC duties will be limited to these explosives stores only. They may not substitute for any other TAC or OOQ.

Tri-Service Personnel

5. An embarking SNCO/NCO fulfilling the function of TAC is to have completed the appropriate career and PJT/TEM training i.e. RM ammunition storeman, RAF armourer and Army Air Corp ground crewmen. Before taking up their duties they must be deemed competent via a practical and oral examination in the explosives safety aspects of the Quarter concerned, carried out by the ERO. ERO Certification is to be recorded in the Explosives Safety Training Log.
TAC - Absence from the Ship

6. In the event of a TAC being absent from the ship, the ERO is to assume this duty or nominate a qualified alternative, noting the caveat at 0112.4. Outside of the normal working day and during short and main leave periods the DOOQ may undertake this duty (Chapter 2).

Responsibilities

7. The TAC is accountable to the ERO for ensuring that:
   a. All personnel under their charge are aware of the explosives safety regulations concerned with and pertaining to the performance of their duties.
   b. All explosives safety regulations and orders laid down for the Quarter for the stowage, handling, test assembly, preparation and safe custody of the explosives and associated non-explosive stores under their charge are enforced.

8. The TAC is responsible for safety and for carrying out the detailed day-to-day duties on their stowages on behalf of and as required by, the ERO. Specifically, they are responsible to the ERO for:
   a. Carrying out inspections of explosive stowages and adjacent compartments as required by these regulations.
   b. The explosives safety arrangements, cleanliness and inspections of their stowages and for notifying the ERO if any related equipment appears to be defective.
   c. Recording the temperature of the temporary stowages in their care and bringing to the notice of the ERO any excessive temperatures that may occur (articles 0222 and 0334 refer).
   d. Ensuring their stowages are left in a safe condition on completion of the testing of flooding and spraying equipment, before and after embarkation of explosives, after de-ammunitioning and at such other times as is necessary.

9. The TAC is responsible to the SUO for:
   a. The supply of explosives from the EDP and associated non-explosive armament stores in a safe and serviceable condition when required to meet the operational requirement as detailed by the SUO.
   b. Accounting for the ammunition in their care, issued to them temporarily by the OOQ from that OOQ’s ALR.

0113 COMPETENT USER (CU)

1. A competent user is a person who is required to handle or operate explosives stores to meet operational requirements in terms of Magazine Explosive Safety when working on behalf of a nominated TAC. They are restricted to drawing keys for the purposes of: supplying ammunition to a weapon system or mounting, routine maintenance, husbandry and cleaning (iaw extant Maintenance Schedules). All persons handling explosives to meet operational tasks must be supervised by a Leading Rate or above who is trained in the supervisory role being
undertaken. They are to be conversant with the regulations for entering and working within a
magazine and ensure that on completion of any work the magazine is left in a safe condition
until the OOQ or TAC can inspect the magazine in accordance with Article 0211. Competent
Users are nominated by the SUO and are responsible to the SUO for:

a. Safe conduct of drill involving the handling of explosives.

b. Receiving explosives stores at the EDP or their station on behalf of the nominated
TAC when required in accordance with their duties on the Watch and Station Bill and
where the use of live ammunition has been authorised by the Command.

c. Ensuring that the relevant TAC and OOQ are informed of any receipt and
expenditure of explosives stores and that it is subsequently accurately recorded in the
relevant OOQ Log.

2. Competent Users are to conduct an ‘on-closing’ inspection of any stowages for which they
are responsible for securing in accordance with Article 0211 and 0217.4.

3. Competent Users are not permitted to conduct the Permanent or Temporary Stowage
Daily Inspections or sign for any ammunition.

4. Competent Users nominated to assist TACs are to be locally endorsed by the SUO and
Certification is to be recorded in the Explosives Safety Training Log.

5. Personnel qualified in the use of specific OME, by virtue of approved training, are not
Competent Users as defined by this JSP. They do not therefore need to be recorded as a
Competent User within the Explosives log.

0114 ACCOUNTING FOR NAVAL ARMAMENT STORES

1. Explosive and non-explosive Armament Stores are to be demanded, returned and
accounted for in accordance with JSP 886, additional guidance is given in Chapter 4.

2. Explosives embarked for Tests and Trials are to be accounted for in accordance with the
authorised Trial Orders.

0115 OTHER OFFICERS WITH PARTICULAR RESPONSIBILITIES FOR EXPLOSIVES
SAFETY

1. Other officers with particular responsibility for Explosives Safety are:

a. The Officer of the Watch/Officer of the Day/Duty Officer.

b. The Marine Engineer Officer.

c. The CBRNDC Officer.

d. Officers responsible for adjacent compartments.

e. The Flight Deck Officer.

f. The Air Weapon Supply Officer.

g. Captains of Aircraft.
h. Logistics Officer.

i. Heads of Department.

j. Embarked Squadron Air Engineer Officer.

Duty Officer

2. At sea; the Officer of the Watch (OOW) and the Officer of the Day (OOD) in harbour is responsible to the Commanding Officer for ensuring that appropriate ship safety measures are enforced before Officers and Senior Ratings with the requisite authority (Article 0117) are permitted to move explosive stores outside magazines or weapon stowage compartments. In this context, appropriate ship safety measures are to include actions such as:

   a. Correct use of handling equipment and procedures.
   b. Restrictions of Radar/Radio transmissions (including mobile telephones) hazardous to explosives.
   c. Selection of the appropriate Damage Control state, fire precautions and smoking restrictions.
   d. Restriction on the simultaneous supply of fuels or tank cleaning except as permitted in Chapter 5.
   e. Ensuring that all ammunition is struck down from the weather decks prior to the onset of external hazards such as foul weather (Chapter 5), or the approach of another ship whose Radar/Radio transmissions constitute a danger (BR 2924 refers).
   f. Ensuring that only weapon and explosive store movements within the ship authorised by FLAGOs and these regulations are conducted.
   g. Conduct of Magazine Inspections as a Delegated Officer, on those occasions specified in Chapter 2.

3. Before taking up their duties they must pass an oral examination by the ERO and Certification is to be recorded in the Explosives Safety Training Log.

4. All fully approved OODs in harbour are designated as Delegated Officers for the purposes of SPF and to undertake the ERO’s inspections in the absence of the ERO or the formally appointed Delegated Officer during leave periods of over 7 days.

Marine Engineer Officer

5. The Marine Engineer Officer is responsible for the maintenance and efficient working order of magazine services, in addition to the responsibility for tank tops in Chapter 2 (Article 0210 refers).
CBRNDC Officer

6. The CBRNDC Officer is responsible, in conjunction with the XO for advising the command when the “venting condition” for magazines containing propellant should be imposed. In wartime the “venting condition” is ordered when action is imminent (Damage Control State 1). In peacetime the “venting condition” is ordered if in the proximity of a hostile shore-line or ship or the threat from dissidents/saboteurs creates a potentially dangerous situation. In this case one clip of the relevant door or hatch is to remain locked, except when the “ACCESS” condition has been ordered (Chapter 2).

7. They may be authorised to initiate flooding or spraying of magazines (Chapter 3 refers).

Officers responsible for adjacent compartments

8. Officers who have adjacent compartments (Chapter 2) within their departments are responsible to the XO that the regulations concerning those compartments as specified in MMERs are complied with.

Flight Deck Officer

9. The Flight Deck Officer is responsible for overall safety on the flight deck as detailed in QRRN and AP100Q-0101.

10. They are responsible for taking general charge of all incidents and accidents on the flight deck. Where explosives are involved they are to take advice from the relevant TACs and OOQs until relieved of this responsibility by the ERO.

Air Weapon Supply Officer

11. The Air Weapon Supply Officer (AWSO) is a delegated officer in accordance with Paragraph 0106 and is accountable to the:

   a. ERO for:

      (1) The safe stowage, handling and preparation of all aircraft explosives stores prior to their transfer to SUOs, TACs or nominated Competent Users.

      (2) Supervision of OOQs of air magazines.

   b. Logistics Officer for the receipt and control of explosives prior to their transfer to the SUO.

12. The AWSO is to meet the training requirements of Para 0106.1.

Captains of Aircraft

13. Captains of Aircraft are Competent Users and are responsible for the overall explosives safety of the aircraft whilst explosives are in their charge. All explosives loaded into the aircraft are to be recorded in accordance with JAP100A-01.
Logistics Officers

14. Logistics Officers, Logistic Supply Officers and SSO, in addition to their other OME responsibilities, are responsible for the accurate accounting of OME in accordance with JSP 886.

Solid Support Officer (SSO)

15. SSO is responsible for all aspects of the management of the Inventory on their charge including, when embarked, the safety, stowage, custody and handling of munitions carried as part of the re-issue load or embarked and stowed within the magazines in the ship’s holds in support of operations, exercises or training. The ERO retains overall responsibility for the overall explosive safety of the vessel. The SSO’s responsibilities extend to all munitions in their custody or those for which they oversee embarkation which fall within the following criteria:

   a. On embarkation when the load is taken off the hook.
   b. On disembarkation when the load is presented to the hook.
   c. For issue to other departments on board up to the point the munition is handed over to the recipient ERO (RFA officer or AVSO).

16. SSO is supported by a team of personnel; those with the relevant munition competences will be delegated to conduct the duties of DERO or OOQ as appropriate for the management of the munition stockpile. SSO operates a Duty Officer roster for silent hour cover; when munitions are embarked the roster will be made up of two officers, one of whom will have the relevant munitions competences.

Heads of Department

17. Heads of Department are responsible to the CO for SUOs within their departments. They are to ensure their SUOs are correctly qualified.

Embarked Squadron Air Engineer Officer

18. When borne and qualified, a Squadron Air Engineer Officer shall undertake the duty of Specialist Air ERO and is responsible to the Ship’s SUO for embarked OME safety and Standards and Practices for formally delegated tasks. The Specialist Air ERO is to seek the advice of the Ship’s ERO on all matters affecting the safety of explosives stores for which they have responsibility and is to be delegated specific responsibility for:

   a. The safe custody, control, handling and loading of all aircraft explosives stores after the EDP until formal custody of the aircraft and OME transfers to the First Pilot/Aircraft Commander via the MOD Form 700 Aircraft Documentation.
   b. Ensuring that all explosives held onboard in designated Temporary Stowages are under the custody of a qualified and authorised TAC.
   c. Ensuring that any person handling the explosives is competent to do so by virtue of their career or PJT/TEM training and is being directly supervised by a TAC or Competent User of Leading Rate or above.
d. Ensuring that control and safeguarding of explosives is transferred between delegated Competent Users at watch changes and when a watch is stood down for periods which do not justify returning the explosives to main magazines.

e. Ensuring that, where required, the temperatures of stowages containing explosives are recorded daily in accordance with Chapters 2 and 3.

f. Ensuring that all TACs and Competent Users are made aware of any relevant information contained within the SEXSSI.

g. Ensuring that all Squadron aircraft/UAVs are armed/re-armed/de-armed in accordance with the relevant armament schedule.

19. A Specialist Air ERO is to have completed the appropriate career and PJT/TEM training and, before taking up their duties, pass a practical and oral examination by the ERO in the explosives safety aspects of all relevant Temporary Quarters and Designated Danger Areas. This should normally be gained within a short period of joining and Certification is to be recorded in the Explosives Safety Training Log and placed at the rear of the Explosives Log.

0116 ACQUAINTANCE WITH GENERAL SAFETY ARRANGEMENTS

1. In addition to departmental responsibilities, all Officers and Ratings concerned with the operation, inspection and safeguarding of explosives are to make themselves thoroughly acquainted with the construction, stowage, ventilation, cooling, flooding, spraying and fire alarm systems of magazines. They are to ensure that their subordinates are similarly acquainted.

0117 AUTHORITY TO MOVE EXPLOSIVES OUTSIDE MAGAZINES

1. Movement of explosives outside magazines, launchers and weapon system compartments may only be authorised by Officers, Senior Rates and Leading Rates specifically delegated to do so in Ship's General Orders. These orders are to stipulate whether or not prior approval from the Command is required for SHIPHAZ, Damage Control, SEXSSI compliance or Safety reasons and whether restrictions apply to movements of explosives in harbour.

2. All munition movements onboard RFA Solid Support Ships are to be in accordance with Standard Operating Procedures.

0118 LOCATION OF THE EXPLOSIVES DELIVERY POINT (EDP)

1. The EDP for specific weapons in each ship are to be detailed in the Explosives Safety Section of Ship's General Orders. EDPs will generally be located:

   a. At the point of launch or firing for MTLS, GWS 26, GWS 45, GWS 60, Medium Calibre Guns and decoy rockets or for munitions that are stowed in a permanent magazine directly adjacent to the weapon delivery system; for example Small Calibre Gun on Type 45.

   b. Certain Point Defence, Close Range and Decoy systems (such as DLH, Phalanx and ASCG) may have a requirement to stow ammunition on the mounting or launcher or in its immediate vicinity (RU Magazines) when weapons are at a high state of readiness. In these cases the Competent Maintainer (as well as the OOQ) is authorised to conduct and sign for daily rounds of the temporary stowages.
**Note:** In effect these explosives are not issued to the SUO but expended by them from the permanent stowage.

c. At the magazine or locker door for:

   1. Small Arms, Close Range Guns (including Cannons no greater than 50mm).

   2. Bridge, ships' boats and man-overboard pyrotechnics.

   3. RAMSETT cartridges, engine start generators, MSS etc.

d. Sweep deck in respect of mine countermeasures.

e. Ship's boat or brow for explosives to be used away from the ship (excludes boat fitted safety pyros).

f. For Air Explosives and Air Launched Weapons, the point at which custody is transferred to the user unit, flight or squadron.

2. The explosives for which each SUO or TAC is accountable are to be listed in Ship's Orders and are to include those under the control of specialists, e.g. Diving, Demolition, Landing Party, Boats and Mining Officers as well as OIC RM Detachment, Embarked forces, Squadron and Flight Officers, Weapon Systems Officers, WEO and officers in charge of close range weapons and countermeasures.

3. In instances where ratings working for a SUO collect explosives from the custodian's magazine these ratings will be accountable to the ERO for their safe delivery to the EDP.

4. E3 stores retained in vehicles or upper deck dumps, ISO containers or minicons for passage remain the responsibility of the Military Force Commander iaw Chapter 3.

**0119 RESPONSIBILITIES FOR THE CARE AND CUSTODY OF EXPLOSIVES IN JSP 430 SHIPS NOT MANNED BY THE ROYAL NAVY**

**RN and RM detachments**

1. All the responsibilities and regulations for explosives laid down in this book are applicable to RN Flight or Contingent and RM Flight or Detachment personnel embarked in ships, vessels and craft not manned by the Royal Navy as amplified by Articles in this Chapter.

**Army and Royal Air Force detachments**

2. The responsibilities are applicable to Army and Royal Air Force personnel as follows:

   a. The responsibilities and regulations for explosives laid down in this JSP are equally applicable to Army and Royal Air Force contingent personnel embarking with explosive stores for passage or service in JSP 430 ships.

   b. The regulations within this JSP equally apply to all JSP 430 vessels with a current Certificate Safety Explosives (CSE) operated by the UK Army or RAF.

**RFA, DE&S, DSTL and other personnel**

3. The responsibilities of RFA, DE&S, DSTL or other personnel are as follows:
a. Non-RN ship's officers or staff responsibilities are detailed in this and other chapters. Operating Authorities will either issue similar Standing Regulations to cover these responsibilities or call up Articles in this book. When called up, Articles become mandatory for non-RN/RM personnel.

b. The Commanding Officer/Master of the ship, in accordance with the instructions of the Operating Authority, is to ensure that the Senior Officer of an embarked force conforms with and enforces all MMERs that appertain to the type of explosives stores carried for operational use by the forces.

c. The Commanding Officer/Master of the ship is to ensure that their ship's staff comply with the adjacent compartment regulations laid down in this book whenever magazines contain ship armament explosives. The Senior Officer of the service contingent, detachment or group is to advise the Master on the requirements.

Responsibilities for "ship safety" explosives

4. The responsibilities for "ship safety" explosives are:

a. Registered ships. The Commanding Officer/Master of registered ships is responsible for conforming with and enforcing DfT(MCA) regulations for the care and custody of all "ship safety" explosive stores in accordance with MCA and Operating Authority requirements.

5. The ERO is responsible for all ship armament explosives with the exception of the following:

a. RFA ARGUS. The ERO is the Senior Naval Officer (SNO).

b. FORT AUSTIN/ROSALIE/VICTORIA. The Aviation Support Officer (AVSO)/Aviation Officer (AVO) is to be the ERO for air launched weapons up to the EDP throughout the period for which flight explosives are embarked. They are responsible for their preparation, safety and maintenance of all flight magazine spaces. Whenever munitions are not embarked or disembarked as part of an SSO ammunitioning/de-ammunitioning the Ship’s ERO is to supervise ammunitioning/de-ammunitioning procedures personally and is to retain onboard key members of the RN organisation to ensure that the de-ammunitioning is satisfactorily completed. On completion of de-ammunitioning they are to hand over the responsibility for all flight magazine spaces and their continued maintenance to the RFA ERO.

c. Wave Class. When live torpedoes or depth charges are delivered prior to embarkation of an Air Detachment or left subsequent to disembarkation, the parent squadron is to provide a suitably qualified rating to be onboard to provide specialist technical advice to the command. The embarking Flight is to determine the serviceability of all Air Weapon Handling Equipment prior to embarkation, and is to maintain the equipment whilst embarked in accordance with the relevant maintenance schedules and publications.

d. Rover Class. Specific responsibilities for any air launched weapons embarked remain with suitably qualified service personnel. The embarking AEO/SMR is additionally responsible for air weapon maintenance requirements.

e. LSD(A) Class. All explosive stores, including E3 munitions stowed in EMF magazines and/or vehicle decks, dock areas and weatherdecks are the responsibility of the vessel's ERO. Chapter 3 of this publication refers to the regulations appertaining to an
EMF and their associated equipment. Additionally, JSP 767 Ch 8 generalises on the Amphibious Operational Role and responsibilities of key personnel with respect to explosive stores and ammunition.

6. The embarking flight AEO is to liaise with NAVY CMD EXP RFA, the RFA ERO and the SSO onboard Solid Support RFAs as necessary to determine and hence enable timely demands to be made for:
   a. The operational load of underwater weapons.
   b. The outfit of aircraft pyrotechnics.
   c. Drill weapons.

7. Following de-ammunitioning of air launched weapons the RFA ERO is to assume responsibility for air weapon magazine spaces when the AVSO/AVO disembarks. They are to ensure that they have the maintenance schedules for the ship’s weapons and magazines.

**Responsibilities for the stowage of the Fleet Solid Support Load**

8. The Commanding Officer/Master is responsible for ensuring that the SSO conforms with and enforces these regulations for UN Class 1 Dangerous Goods and IMDG Code as expanded by JSP 800 Volume 4b for the stowage of UN Class 2-9 Dangerous Goods and their relationships with UN Class 1.
Chapter 2

PROCEDURES FOR ONBOARD EXPLOSIVES SAFETY MANAGEMENT

CONTENTS

Article

0201 Explosives Regulatory Authority
0202 Maritime Explosives Regulatory Process
0203 Application of CSE in Ships
0204 The Ship Explosive Store Safety Instruction (SEXSSI)
0205 Routine onboard inspections of explosives stowages
0206 Points to receive attention at routine inspections of explosives stowages
0207 Compartments and lockers to be kept locked
0208 Securing of approaches
0209 Security inspections of magazine hatches, doors, locked approaches and adjacent compartments
0210 Inspections of adjacent compartments
0211 Points to receive attention prior to locking and at inspections of adjacent compartments
0212 Stores not to be stowed in compartments adjacent to magazines
0213 Safety boundary for launchers/tubes/containers/magazine lockers/RU lockers
0214 Record of inspections
0215 The Explosives Log
0216 Keys
0217 Issue of keys
0218 Keyboard
0219 Spare
0220 Action stations - issue of keys
0221 Emergency - issue of keys
0222 Temperature record Form S285C
0223 The Combined Daily Key and Inspection Register
0224 Maintenance and testing of spray and drainage systems
0225 Explosives responsibilities for 3 watch manning vessels

Annex

A Inspections of Magazines and Adjacent Compartments
B Daily Records of Seal Numbers for Magazines in the Access and Operational Access Conditions
C Guide to completion of RN Explosives Log
D Onboard Explosive Safety Documentation for Patrol Boats

0201 EXPLOSIVES REGULATORY AUTHORITY

1. Management of explosives safety within MOD, for the maritime environment, is a three-stage process as shown in the foreword section of this JSP and JSP 430. Naval Authority Explosives (NAEXP) is formally authorised as a regulatory authority responsible for providing safety regulation in the area of shipborne explosives hazards as outlined in JSP 430.
0202  MARITIME EXPLOSIVES REGULATORY PROCESS

1. NAEXP regulates the platform and onboard explosives safety management process under the auspices of JSP 430. NAEXP promulgates this process in Naval Authority Regulations (NAR) JSP 430 Chapter 8. This sets out the safety policy and safety regulations for the embarkation, carriage, stowage, handling and use of explosive stores in ships owned by, operated by and operated on behalf of the MOD.

2. The second stage of the process for management of explosives safety in the maritime environment is the requirement for a Certificate of Safety Explosives (CSE) to be in place before embarking, stowing, handling and use of explosives onboard platforms. The CSE is approved by NAEXP following demonstration by the Platform Duty Holder (PDH) that residual explosives safety risks are ALARP and tolerable as described in Chapter 11.

3. NAEXP also promulgates JSP 862 (this document) which sets out the regulations and supporting guidance for onboard explosives safety management.

4. Navy Command is responsible for confirming that personnel responsible for onboard explosives safety management are and remain competent. This is achieved by a Permissioning Inspection (Pl) by NAVY CMD EXP and confirmatory signal, by FOST training and inspection and by audits by NAVY CMD EXP when required as described in Chapter 11.

0203  APPLICATION OF CSE IN SHIPS

1. The CSE is specific to the Platform and authorises the embarkation, stowage, handling, carriage and use of explosive stores as listed in the in Annex B of the CSE, Authorised List of Explosives Stores (ALES), subject to a Navy Command permissioning signal. The CSE comprises: CSE certificate; Scope of certification; ALES; conditions and mandatory requirements; non compliances.

2. The existence of a CSE provides assurance that for the named Platform the explosives hazards are satisfactorily ALARP and tolerable from the point at which the named explosives are embarked in the receiving vessel to the point at which the explosives are disembarked or discharged. If discharged, then this assurance is maintained until the explosives present no hazards to the firing vessel or to unintended third parties.

3. Where the design cannot achieve the full magazine construction requirements of NARs, the Platform Duty Holder (PDH) will have submitted a safety justification to support this non-compliance (see Chapter 11). The CSE issued will list non-compliances approved by NAEXP in Annex C or D and state any corresponding caveats or limitations to the stowage of munitions.

4. Ships' Officers are to report any apparent or suspected omissions in the construction elements of the magazine and/or its systems to NAVY CMD EXP and the PDH by letter or S2022. Ships’ Officers are to report completion of Ships Staff A&As in magazines to the PDH. In addition to routine inspections, the attendance of MCTA to verify the material state of the magazine should be requested if any major repair work or significant A&A work is conducted during Fleet Time.

5. A CSE will be issued where a ship is required to embark ammunition prior to Acceptance in order to support Sea Trials. This will indicate any caveats or limitations to be imposed on the stowage of munitions for the duration of trials.
6. The Certificate will normally remain extant while the Ship remains in Fleet Time and will expire if the conditions of the certificate are not complied with or when the Ship enters Upkeep and is fully de-ammunitioned and ceases to apply JSP 862 regulations. At this point ALES will be withdrawn. The Ship is to signal the PDH, NAVY CMD EXP and NAEXP that it has ceased JSP 862 regulations. Ships are not permitted to embark or stow any explosive store (except those items retained onboard, iaw Article 0602.1, until the CSE is re-instated on completion of a satisfactory submission from the PDH and an authorisation signal from NAVY CMD EXP. A process diagram and examples of required signals can be found at Chapter 11 Annex A.

7. If any changes are made during Fleet Time to either the ship’s explosive stowage or weapon mounts, including those in seaboats, an addition to the CSE will be required before these enhancements can be used. Ship’s Officers in conjunction with the PDH are to ensure that time is allowed to complete the CSE process.

8. The procedure for achieving a CSE for PAC24s fitted with GPMG is detailed in BR 7960. The Procedure is to be conducted by Ship’s Staff each time the custody of the RIB is transferred from one Ship to another and after a period of 1 year if custody of the PAC24 remains with the same ship. The CSE together with a copy of the signal of compliance is to be kept in the PAC 24 RIB mother ships JSP862 addendum.

9. For the purposes of work in a magazine that requires a partial de-ammunition a condition will be applied to the CSE and ALES will be amended where necessary and re-issued to reflect the de-ammunition. ALES will be re-issued on removal of the condition.

10. RFA vessels that de-ammunition prior to SRP/CSP are to continue to adhere to JSP 862 regulations. On completion of SRP the RFA is to signal the PDH (info NAVY CMD EXP RFA and DES Bristol for NAEXP) confirming that the ships explosive organisation is in place and is materially fit to re-embark her outfit of explosive stores.

11. A CSE is not applicable for Inshore Patrol Boats (including Survey Motor Launch), instead a Naval Authority Certificate Group certificate and a supporting letter from NAEXP in lieu of ALES are issued. These are to be retained within JSP862 Addendum.

12. Further details of the CSE processes can be found in Chapter 11.

0204 THE SHIP EXPLOSIVE STORE SAFETY INSTRUCTION (SEXSSI)

1. The Ship Explosive Store Safety Instruction (SEXSSI) is a compendium of safety data, instructions and references for each explosive store that is promulgated by NAEXP. The PDH and/or NAEXP compile the SEXSSI based upon the OME Safety Instruction generated by the OME PT. A SEXSSI is to be held onboard for all explosive stores embarked. The latest version of all SEXSSIs are available via the NAEXP website or direct from NAEXP on request.

2. The ERO is to ensure that the relevant SEXSSIs are available in hard copy for use in an emergency by the OOQ, other officers with delegated explosives responsibilities and by duty personnel in accordance with Chapter 1.
0205 ROUTINE ONBOARD INSPECTIONS OF EXPLOSIVES STOWAGES

1. All explosive stowages as defined in Chapter 14 which contain explosives are to be inspected in accordance with Ch 2 Annex 2A Table 1 by a suitably qualified person at the intervals shown and signed to record the inspection in the Explosives Log. This applies to all vessels detailed in article 0202. These inspections will also apply to the DE&S Consolidated Load List in Solid Support Ships except where specifically stated or where the routine does not apply (e.g. Access Condition, Article 0207.4 refers, maintenance of installed test equipment etc.).

2. MCA Pyro lockers fitted on RFA vessels are to be considered the same as all other explosive stowages with the respect to the frequency of rounds and the recording of daily temperatures. They will not be issued with a dedicated S285K. These explosive stowages are to be listed in the Explosives Log as a permanent Quarter under the care of the OOQ.

Weekly Inspections

3. All explosive stowages which contain explosives, are to be inspected weekly by the ERO. In the absence or unavailability of the ERO the following apply:
   a. If the ERO is unavailable or absent then rounds must be conducted by a SQEP DERO, noting that the ERO must conduct weekly rounds at least twice a month. This should be noted in the Remarks and Report page of the Explosive Log.
   b. For main leave periods an appropriately trained and qualified OOD is to carry out these rounds. This must detailed by a Commanding Officers Temporary Memorandum.
   c. RU magazines, RU magazine lockers and temporary stowages (including mountings with ammunition provided) defined in Chapter 14 which contain explosives are to be inspected by the ERO within 4 days of placing the explosives in the stowage and weekly thereafter.

Daily Inspections

4. All Permanent and Temporary Quarters defined in Chapter 14 which contain explosives are to be inspected daily by one or more of the following (in priority order if onboard):
   a. The appropriate Officer of the Quarter (OOQ) or Temporary Ammunition Custodian (TAC) of the explosives stowage.
   b. Another trained and qualified OOQ or TAC (or a DOOQ if out of normal working hours or on non-working days).
   c. The ERO or his trained Delegated ERO.
   d. Another Duty Officer nominated by the Executive Officer, SSO.

5. Assault Craft. The following processes for the custody of ammunition on Assault Craft under the control of ASRM are to be applied:
   a. Craft inboard. Assault craft whilst unmanned and inboard are to be emptied of ammunition and certified Free from Explosives by ERO/ASRM TAC.
      (1) Stowages secured with Padlock key set as detailed in S285A.
(2) Type E rounds to be conducted monthly.

(3) Remarks and Report page to be annotated.

b. **Craft Armed.** ERO/ASRM TAC are to conduct Type P rounds 24 hrs prior to planned tasking and declare stowages fit for purpose.

   (1) ASRM TAC signs for and takes custody of explosives stores as detailed in Orders for serial.

   (2) Remarks and report to be annotated.

   (3) Issue to be authorised by SUO with a Firing Order and expenditure to be recorded and passed to the SUO for approval with S156 and S1091 or a Management of Joint Deployed Inventory (MJDI) voucher is raised as applicable within 48 Hrs.

c. **Craft Deploy.** Stowages to be put into the Operational Access condition and Explosive Log duly annotated.

   (1). S285A keys to be returned to keyboard and 2" Soft Brass padlocks placed on stowages under the direct control of the coxswain of the craft.

   (2). In the event that the craft deploys for more than 10 days between ERO’s Type W rounds then ERO may be defer weekly rounds if justified, but they must be conducted as is practicable.

6. Periodic and occasional inspections are also to be made of each magazine and magazine locker (including RU magazines and RU magazine lockers containing explosives or compartments in which explosives may be temporarily held) on the following occasions:

   a. An internal inspection is to be conducted once each watch by a Senior Rating (or with the Commanding Officer's authority, a selected junior rating) when magazines containing explosives are unlocked in accordance with Article 0207.4 (Access Condition).

   b. Once every four hours if the Waterflow/Smoke/Heat alarm system is defective.

   c. At intervals not exceeding 1 month by the ERO for magazines which have been emptied of explosives but in which either other stores have been stowed (Article 0315.3 refers) or are empty of explosives. While the outfit is embarked, empty RU magazines are to be inspected by the ERO at intervals not exceeding 1 month to ensure that they are in all respects ready to receive explosives.

   d. Competent Maintainers authorised to draw keys for access to magazines to conduct maintenance and Competent Users given access to magazines to conduct drills are to ensure on completion of work that the magazine keys are returned to HQ1/SCC or the appropriate OQQ. CMs and CUs are to carry out closing down inspections in accordance with Art 0206 and 0217.4. This is not in lieu of OQQ’s daily inspections.

   e. If there is a rough weather warning and as soon as possible after rough weather to check that the methods of securing explosives are satisfactory.
f. Before explosives are placed in empty stowages such as RU magazines, RU magazine lockers or permanent stowages that have been emptied for defect rectification or maintenance.

g. Before and after embarking/disembarking explosives to or from the ship, including RU magazines or RU lockers prior to embarkation of Small Quantity Top Ups whilst ships are alongside.

h. After use and before securing, hoists and lifts are to be worked through at least one full cycle by the OOQ, to ensure that they are empty.

i. Thirty minutes to one hour after testing of spraying arrangements.

j. Before carrying out maintenance of installed test equipment to see that the magazine or Weapon Preparation Space is clear of explosives. Also, on completion of carrying out maintenance of installed test equipment to see that ancillary test equipment has been removed and power supplies to it are switched off.

k. Before and after using magazines, RU magazines, magazine lockers or RU magazine lockers as store rooms in accordance with Chapter 3.

0206 POINTS TO RECEIVE ATTENTION AT ROUTINE INSPECTIONS OF EXPLOSIVES STOWAGES

1. The following points (under the mnemonic “STOCKFULL”) are to receive attention at all inspections of magazines, RU magazines, magazine lockers and RU magazine lockers containing explosives:

S  Stowages - Magazines and contents properly and securely stowed and any necessary pins, battens, stanchions and securing clips are correctly in place. All empty containers or packages are clean, empty and dry. Decks including munition bays are clean and free from dust, oil or water; particular attention is to be paid to spaces below and behind stowages.

T  Temperatures - Are correct and recorded in accordance with Chapter 3.

O  Oils and Greases - No hydraulic leaks. No oily rags. Any oil leaking from glands is efficiently caught by save-alls.

C  Clips - WT doors, hatches, hoists, escape hatches and oil-tight manholes are serviceable and properly secured.

K  Keys - All hatches and doors are locked with all keys controlled iaw Article 0207 and 0216.

F  Firefighting - Spraying arrangements are serviceable and free from leaks with all protective devices in place. No cleaning gear, rags or flammable material to be present and portable fire fighting equipment is to be serviceable and in place. Clear access is to be available to portable equipment for firefighting/boundary cooling purposes.

U  Unauthorised items - No article that is not on the Contents List is to be in the magazine.

L  Lids - Lids of all packages are fitted and properly secured.
L Lights - All electrical equipment and lighting in magazines is to be switched off, when the magazine is not in use. Fittings and cabling are to be firmly secured.

0207 COMPARTMENTS AND LOCKERS TO BE KEPT LOCKED

1. In peacetime all magazines are to be kept locked whether explosives are actually stowed therein or not (see also Article 0315.3). The exception is muzzle doors and access hatches not capable of being completely secured, or not lockable (VLSW / Sea Viper Canister covers, Harpoon containers, DLF(3) end cover and MTLS muzzle doors). A further exception can be endorsed by the Commanding Officer for certain Magazines, Ready Use Magazine Lockers and Ready Use Lockers for specific Operational Tasking where easy and quick access is required for particular munitions.

2. In time of war, increased operational readiness and emergency, the decision whether or not to lock magazines containing explosives is at the discretion of the Commanding Officer.

3. When security considerations are paramount, all doors and hatches, trunks or hoists giving direct access to magazines containing explosives are to be kept locked. This is known as the "SECURITY Condition" and the door or hatch giving direct access is the "security door".

4. When rapid access to magazines containing explosives is likely to be required in order to bring armament quickly into action - normally in Damage Control States 1 or 2, the "ACCESS Condition" is to be assumed. In this condition magazines need not be locked, however, doors and hatches are to remain shut and conform to CBRNDC orders. Magazines being unlocked does not imply that they must be open. Once the magazines have been unlocked magazine keys are returned to the Armament and Magazine Keyboard in HQ1. Rounds each watch are to be conducted. When in the ACCESS Condition the key box on the Combined Daily Key and Inspection Register S285B page for the relevant stowage is to be annotated 'UNLOCKED'.

5. When on Operational Tasking or Exercise with the ship in either Damage Control State 2 or 3 depending on the nature of tasking or training, Command may direct that certain Munition Stowages be in the "OPERATIONAL ACCESS (OA) Condition". This allows quick and easy access to munitions for specific armaments or weapon systems in support of directed operational tasks such as Boarding or Embarked Military Force activities. The remainder of the Explosive Stowages will remain in the SECURITY Condition. The keys to these Explosive Stowages collectively will be known as 'Operational Access Keys'. These stowages are to be identified in the Explosive Log – S285A List of Explosive Stowages and Keys to be kept on the Magazine Key Board (JSP 862 Articles 0216 and 0217).

6. During long periods in ACCESS or OPERATIONAL ACCESS condition a soft one inch padlock or red security seal, or both, are to be used on the hasp lock to secure the magazine. In this case the padlock key is to remain with appropriate personnel (OOQ/TAC/CM/CU) and rounds conducted as detailed in Chapter 2 Annex A. Security Seals are authorised for use as an alternative to 1 inch padlocks. These allow easy and quick access to magazines while maintaining security. The seals are 5 inches long with a ridged surface at the extremity of the tail. If this is not present it indicates that the seal has been broken and re-made. If the seals are intact, rounds as detailed at Chapter 2 Annex A are sufficient. Use can be made of both a soft 1" padlock and seal to allow access for rounds without breaking the seal, but still maintaining access as required operationally. The ERO is to hold the seals and issue as required. When in use, seal serial numbers are to be annotated on the Daily Record of Security Seals held within the Explosives Log as part of the Combined Daily Key and Inspection Register S285B.
7. When ‘OA’ has been assumed the keys for stowages nominated are to be recorded in the Explosive Log Combined Daily Key and Inspection Register (S285B) as Operational Access Keys and signed out and in by the relevant OOQ/TAC/CM/CU.

a. When directed by Command to assume ‘OA’ the key box on the Combined Daily Key and Inspection Register S285B page for the relevant stowage is to be annotated ‘OA’ for the top two rows after signing out the keys. The bottom row is to be used when returning the Magazine to the Security Condition. An Example is at Annex C.

b. The key for the ‘OA’ stowage is to be signed out in the Operational Access Key Table so that there is a record when the stowage was transferred to the ‘OA Condition’. Each subsequent access to any ‘OA’ stowage is to be recorded by the authorised person entering the stowage. If a Security Seal is replaced as part of this the new serial number is to be formally recorded within the Explosive Log Daily Record of Security Seals retained as part of the Combined Daily Key and Record of Inspection Register S285B.

c. When falling out of ‘OA’ a set of Type D rounds and an on closing inspection is recorded in the bottom row of the Key Table.

d. The Security State for all other Explosive Stowages that have not been defined as ‘OA’ is to be SECURITY.

e. Detailed orders to implement these general principles are to be given by the Commanding Officer following advice from the ERO as to which Explosive Stowages should be utilised.

Examples of when OA may be Employed

<table>
<thead>
<tr>
<th>Munition</th>
<th>Stowage</th>
<th>Security Condition</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marine Sound Signals (MSS)</td>
<td>MSS RULs</td>
<td>SECURITY</td>
<td>Positive control of keys under the control of the OOW signed for in the Ships Log at each watch and every 24 hrs in the Explosive Log by the TAC or CU. Type D rounds by TAC.</td>
</tr>
<tr>
<td>Ship Protection Force (SPF) Ammunition</td>
<td>SPF Locker</td>
<td>SECURITY</td>
<td>Positive control of keys under the control of the OOD/SPF Team Leader signed for, on handover, every 24 hrs in the Explosive Log. Type D rounds by TAC.</td>
</tr>
<tr>
<td>Force Protection Ammunition (FP)</td>
<td>Nominated FP/ML/RUML</td>
<td>OPERATIONAL ACCESS</td>
<td>1st Soft Padlock or Red Security Seal with Type D rounds conducted by TAC / OOQ.</td>
</tr>
<tr>
<td>Embarked Military Force (EMF)</td>
<td>Nominated Stowage</td>
<td>OPERATIONAL ACCESS</td>
<td>1st Soft Padlock or Red Security Seal with Type D rounds conducted by TAC / OOQ.</td>
</tr>
<tr>
<td>Boarding Party Ammunition</td>
<td>Nominated Stowage</td>
<td>OPERATIONAL ACCESS</td>
<td>1st Soft Padlock or Red Security Seal with Type D rounds conducted by TAC / OOQ.</td>
</tr>
</tbody>
</table>
0208 SECURING OF APPROACHES

1. Embarkation hatches of magazines are to be secured by bolts from inside the magazine. When these hatches are used as vents from the magazine, the arrangements fitted for locking the hatch in the venting position are to be used.

2. Access into magazines through auxiliary weapon lifts, hoists or doors is to be prevented by pinning the doors in the closed position from the magazine side. Where such doors are used as vents; arrangements must be made to secure the doors in a partially closed position by means of pins, chains and padlocks in such a manner as to prevent access into the magazine.

3. This order is applicable whether in the ‘security condition’ or the magazine ‘operational access condition’ or ‘access condition’. The door or hatch to be unlocked in the latter states is to be the one giving normal direct access entry.

0209 SECURITY OF MAGAZINE HATCHES, DOORS, APPROACHES AND ADJACENT COMPARTMENTS

1. When in the ‘Security Condition’ or when padlocks are used in the ‘Access Condition’ the maintenance of security is to be achieved by ensuring that all magazines containing explosives are locked when not manned. At sea and in harbour the security door of each magazine containing explosives is to be examined for security against unauthorised entry by an Officer, Senior Rating, Leading Hand or Able Rating of the Department responsible not more than one hour after completion of normal daily work. Where authorised work is continuing after normal working hours, the rounds are to be completed on the relevant magazine door not more than one hour after completion of work. On-going work in a magazine containing explosives and time of completion is to be recorded in the remarks page of the Explosives Log.

2. When in harbour the maintenance of security is to be enhanced by ensuring that all adjacent compartments and approaches to magazines containing explosives are wherever possible locked. Compartments requiring routine access may be left unlocked during the working day. This security is to be checked not more than one hour after completion of normal daily work by an Officer or Senior Rating. Where authorised work is continuing after normal working hours, the check is to be completed not more than one hour after completion of work. On-going work in an adjacent compartment or approach to a magazine containing explosives and time of completion is to be recorded in the remarks page of the Explosives Log.

3. The security checks in 0209.1 and 0209.2 are to be repeated once during the silent hours (0001-0600) by an Officer, Senior Rating, Leading Hand or Able Rating with particular regard to examining doors and locks for security against unauthorised entry.

4. On any occasion, as directed by the Executive Officer, the inspections are to be increased commensurate with the security state or danger of unauthorised access.

0210 INSPECTIONS OF ADJACENT COMPARTMENTS

1. All adjacent compartments under departmental responsibility are to be inspected internally daily by an Officer, Senior Rating, Leading Hand or Able Rating of the appropriate department not more than one hour after completion of normal daily work. Where authorised work is continuing after normal working hours, the check is to be completed not more than one hour after completion of work. All personnel conducting adjacent compartment rounds are to be assessed for competency by the ERO who may delegate accordingly.
2. All unlocked adjacent compartments are to be inspected internally once during the silent hours (between 0001-0600) by an Officer, Senior Rating, Leading Hand or Able Rating of the department responsible for the compartment. These rounds may be dispensed with for compartments fitted with a fire detection system. Adjacent compartments containing running machinery/powered equipment are to be inspected iaw BR300 Chapter 4/BR3000 Chap 1.

3. All adjacent compartments are to be inspected internally weekly and within 24 hours prior to embarking explosives into an empty magazine by the OOQ of the adjacent magazine. Where a compartment bounds 2 magazines or more, the Explosives Log is to specify the responsible OOQ. Departures from the requirements of JSP 862, if unable to be resolved at that time are to be recorded in the Explosives Log remarks page and brought to the attention of the ERO and responsible HOD. Rounds are best completed near the end of each working week; however, they should be conducted such that the interval between rounds does not exceed 10 days.

4. All adjacent compartments are to be inspected internally monthly by the ERO or their Delegated ERO. These monthly inspections (Type 8) are in lieu of Weekly inspection by OOQ (Type 7); the OOQ should accompany the ERO/DERO on these inspections. Explosives Log remarks from the Weekly OOQ adjacent compartment inspections and repeated shortcomings are to be brought to the attention of the ERO.

5. When magazines are empty of all explosives stores adjacent compartment inspections need not be conducted.

6. Air spaces, watertight and oil-tight compartments adjacent to magazines containing explosives which are closed by bolted access plate are to be inspected by an Engineer Officer immediately before they are closed and they are responsible for the efficient closing of the manhole doors immediately after such inspections. Compliance with this instruction is to be recorded in the Explosives Log prior to embarking explosives into a magazine.

7. Prior to embarking explosives in to an empty magazine, the MEO is to inspect that all tank tops in magazines are properly secured and is to record this in the Explosives Log.

0211 POINTS TO RECEIVE ATTENTION PRIOR TO LOCKING AND AT INSPECTIONS OF ADJACENT COMPARTMENTS

1. The following are to receive attention during inspections of adjacent compartments:
   a. All combustible material such as paint pots and waste paper to be removed.
   b. All electrical lighting is to be switched off when the compartment is not in use.
   c. All electrical equipment and circuits are to be switched off when the compartment is not occupied apart from alarm circuits or those required to be left switched on for operational, maintenance or other essential purposes.
   d. All fire fighting equipment is to be correct and in position.
   e. Any shortcomings or excessive temperatures are to be reported to the Head of Department (HOD) responsible for the adjacent compartment and the ERO.
   f. Contents are to be securely stowed and any necessary pins, battens, stanchions and securing clips correctly in place.
   g. Stores or items of equipment are not to be placed against a magazine bulkhead.
h. Store room fittings are to be clear of obstructions and in working condition.

i. That stowage regulations are not infringed and any unauthorised stores are removed (see Article 0212).

0212 STORES NOT TO BE STOWED IN COMPARTMENTS ADJACENT TO MAGAZINES

1. The following stores are not to be stowed in compartments adjacent to magazines, except where specific permission is made in the CSE (or legacy certificate).
   a. Highly flammable materials (Products having a flash point of below 33°C).
   b. Solvents and inflammable solvent based paints.
   c. Materials liable to spontaneous combustion.
   d. Acids.
   e. Pressurised gas bottles.

2. The following stores are exceptionally allowed to be stowed in adjacent compartments:
   a. Small quantities of personal hygiene items which have a flash point below 33°C if the adjacent compartment is an accommodation space.
   b. Damage Control and fire fighting pressurised cylinders, such as Emergency Escape Breathing Device (EEBD) and fire extinguishers.

3. Solid Support RFAs - SSO Re-issue Load; the relationship between Munitions and UN Classes 2 to 9 Dangerous Goods stowed in adjacent compartments, or others within the vicinity, is governed by the IMDG Code and, where appropriate, reflected in the stowage plan.

0213 SAFETY BOUNDARY FOR LAUNCHERS/ TUBES/ CONTAINERS/ MAGAZINE LOCKERS/ RU LOCKERS

1. The following restrictions are placed on the areas of the weather decks of any Launcher/Tube/ Container/ Magazine Locker or RU Locker:
   a. At any time. Petrol containers and pressurised gas bottles are not to be stowed so as to cause unacceptable risk (not closer than 6 metres). No ship to shore electrical connections are to be within 2 metres.
   b. When loaded. No welding or burning operations are to take place within 3 metres. No ad hoc stowage of the stores listed at Article 0212 is permitted.

0214 RECORD OF INSPECTIONS

1. A complete record of all inspections ordered above is to be kept in the Combined Daily Key and Inspection Register (Form S285B in the Explosives Log), the entry being made and initialed by the person making the inspection. All inspections for P2000 1PBS, Survey Boats, Faslane and Gibraltar Squadrons are to be recorded in the Ship’s Log.
0215 THE EXPLOSIVES LOG

1. The Explosives Log is to be maintained by Ships at all times when explosives are embarked, but is to be suspended when the whole outfit has been returned to a DM Site and taken off the ship's charge. The Explosives Log has been provided electronically by NAVY CMD EXP for ships staff use and is available on the NAVY CMD EXP website. There is no requirement for an Explosive Log for either P2000 1PBS, Survey Boats, Faslane or Gibraltar Squadrons.

2. The Explosives Log is the XOs responsibility and is to be held by the Damage Control Watchkeeper, Magazine Keyboard/Safe or Combined Keyboard/Safe Sentry, Quartermaster, Officer of the Day or Officer of the Watch as appropriate to the ship’s designed build standard and standing orders.

3. All entries are to be recorded in black or blue ink only.

4. The log consists of five parts, three contained in the log and two held in their relevant explosive stowage.

5. Form S285A consists of instructions for completing the forms and pages outlining the ship’s organisation for the safety of explosives held onboard, detailed as follows:
   a. Instructions for the use of the Log and relevant regulations.
   b. List of all qualified OOQs/TACs.
   c. List of persons to who keys may be issued. The keys are to be listed for the stowages that have been granted approval for access to.
      
      (1) Personnel should only be authorised for the keys directly relevant to their Quarter. OOQs when forming part of the Duty Watch and therefore requiring access to other keys should be listed.

      (2) This list is to be validated against a genuine requirement for access to those keys. Keys are to be listed (the term ‘All in Course of Duty’ should not be used). When a TAC / OOQ has to stand-in for another TAC / OOQ, this should be duly noted in the Remarks and Report page and authorised by the ERO.

   d. Lists of keys to be kept on the magazine keyboard, showing the number of each set of magazine keys.

   Note: Magazine and Armament Keys are to be exchanged with the duplicates every six months to provide even wear and tear on the keys (Article 0216.2 refers).

   e. List of explosives stowages.

   f. Adjacent compartments to be inspected.
g. Remarks and reports. This page should be used to record any incident of note or any departure from normal routine. Examples could include ammunitiioning (SQTU), Spray system leaks, prolonged isolation of systems, an OOO assuming responsibility for a Quarter other than his own due to leave or sickness, certification of a magazine free from explosives or empty, Three Watch Handovers, Authorising Operational Access as directed by Command etc. Stowages that can be utilised in ‘OA’ should be annotated as such in brackets after the name. Any item, which in the ERO’s opinion, should be formally recorded, or an event within the bounds of the explosive organisation, should be listed here. The DOOQ is to read the Remarks and Reports page on assuming the duty.

h. Record of tests of magazine spray systems.

Note: The log cover and Form S285A are to be completely renewed at the end of each commission or after a period of two years, whichever is the shorter.

6. Form S285B consists of the Combined Daily Key and Inspection Register:
   a. It contains instructions to personnel returning the keys.
   b. Keys are to be referred to by the number of each set of keys.
   c. Only one month of key register pages is required is to be inserted in the log at any one time.
   d. A space is provided for the daily signature of the keyboard/safe sentry, ensuring that keyboard has been mustered correctly (Article 0217 refers).
   e. Instructions for completion and destruction of the Register are contained in Article 0223.
   f. A space is provided for the daily signature of the OOD and the Executive Officer ensuring that keyboard has been mustered correctly (Article 0217 refers) and that Inspections detailed in Ch 2 Annex A have been completed correctly and accurately to the satisfaction of the Executive Officer.

Note: The individual S285B pages cover a 24 hour Duty Period, e.g. if the duty day commences at 0800 then the Day of Duty will end 0800 the following day. The month’s supply of loose leaf pages of the key register are to be removed at the end of each month and retained onboard by the XO for a period of six months before destruction.

7. Form S285C consists of the individual temperature record cards for Magazines/Magazine Lockers containing Explosive Stores.
   a. Each card is designed for a single calendar month.
   b. Current individual Form S285C are retained in their respective magazines.

   a. Details all personnel who have Explosive Safety responsibilities onboard. It will record the date of appropriate courses and training, along with the date of endorsement by the ERO or by the SUO (Competent Users only).

a. All inspections, instructions, incidents and abnormal events involving magazines and/or explosives are to be recorded in the ship’s log.

b. The minimum acceptable level of documentation to be held onboard is at Annex D. This is to carried at all times and be maintained at the correct amendment state.

10. Form S285K - MAGAZINE DESIGNED CAPACITY LIST

a. Each magazine is to be fitted with a Contents Board. The magazine contents board is to contain a Form S285K Magazine Designed Capacity List, authorised by the PDH, giving details of all explosive and non-explosive stores (including portable fittings and lifting equipment but excluding securing devices such as strops, wedges etc. authorised for stowage in that magazine).

b. For dedicated assault/amphibious magazines (declared platform roles) magazine stowage plans are to be produced by the ship in conjunction with the PDH in addition to S285Ks (Chapter 3 refers). For E3 embarkations, changes to S285Ks or changes to assault/amphibious configuration, stowage plans are to be forwarded to NAVY CMD EXP and the PDH for approval.

c. For Solid Support RFAs the SSO Stowage Plan approved by NAVY LOG INFRA-OPS SPT DACOS is the substitute for Form S285K; the SSO is to produce “kill cards” for each magazine compartment (including inner compartments) and place these at appropriate locations outside the entrance to each.

11. Further guidance on completion of the RN Explosives Log can be found in Ch2 Annex C.

0216 KEYS

1. Magazine keys are keys which give personnel direct access to magazines, magazine lockers, RU magazines and RU magazine lockers. It is the responsibility of the person who has drawn the key of the magazine to ensure that it is maintained in a safe condition at all times. Magazine keys are to be listed in the Explosives Log. When explosives are stowed in these magazines their keys must be signed for in the Explosives Log (S285B) by those personnel so authorised by the XO in the Explosive Log (S285A).

2. Two sets of keys are provided, one set of which is to be kept on the magazine keyboard/safe and issued only as laid down in these regulations. The duplicate set of keys is to be kept in a locked stowage, both in harbour and at sea. The key of this stowage is to be kept as directed by the Commanding Officer. The two sets of keys are rotated at six monthly intervals to ensure key and lock wear is consistent.

3. The position selected for the duplicate keys is normally to be such as to render it improbable that both sets of keys will be inaccessible in the event of fire, flooding or damage to the ships structure.

4. The name of the magazine/opening is to be entered in the Explosive Log and is to be referred to in the key register by the key number only.

5. Armament Important Keys include keys to weapon transfer spaces, weapon lifts/hoists/trunks, gun houses, magazine spraying and ventilation arrangements and small arms stowages. These keys are to be held on the Armament Important Keyboard and signed for in the Armament Important key log by selected personnel only.
6. The duplicate spraying keys are to be kept for emergency use, in a glass fronted and red painted box, adjacent to the control valve. For emergency use, duplicate keys for the flow alarm may be kept in a glass fronted, red painted box adjacent to the angle cock for the flow alarm valve.

7. Details and regulations for Armament Important Keys are contained in JSP 440.

8. NAVYPSyA Build Ships is the single point of advice for the selection or approval of security graded locks or padlocks to meet requirements for the security of magazine doors.

9. Key tallies are to have number stamps only and are to be of the shape and material specified in Def Stan 02-141.

10. The Type 45 master magazine key is to be under the control of the ERO at all times and under no circumstances is the master key to be routinely used.

0217 ISSUE OF KEYS

1. In the security condition, the issue of keys listed on the S285A of the Explosives Log is restricted to the XO, selected officers, SUOs, OOQs, TACs, CMs and CU{s whose duties, in accordance with Chapter 1, require them to have access to magazines.

2. Other persons who require temporary access to magazines for tests, maintenance or repair are to apply to the OOQ concerned, who will arrange the drawing of the keys required and provide a suitably trained sentry to ensure that the explosives regulations are maintained.

3. Personnel selected to draw keys are to have their names recorded on S285A of the log, their usual initials are to be entered against their names in their own handwriting. Names are to be countersigned by the XO.

4. Only those persons authorised to draw keys are permitted to sign for them. The person signing out the keys is to be made aware that he is responsible for them all the time they are off the keyboard/safe, and that he is responsible for signing the keys in on return. When the person signs for its return, he certifies that he has locked the magazine/opening concerned and has completed an inspection in accordance with Article 0206 and Chapter 2 Annex A. The Key Register of the Combined Daily Key and Inspection Register is to be maintained on a daily basis. Response Force (RF)/DF keys are to be signed in by the off going individual and signed out by the person assuming the duty to maintain positive control of the keys at time of handover. There is no longer a requirement to sign the RF/DF keys in and out at midnight.

5. When a Keyboard Sentry is borne; keys are to be mustered at the end of every watch and are to be signed for as correct by the oncoming Keyboard Sentry. Where no Keyboard Sentry is borne; the keys must be mustered at least three times over a 24 hour period: first thing in the morning, the end of work and prior to the middle watch security rounds, this task is to be conducted by a suitably qualified and experienced person. The Officer of the Day is to sign daily. It is to be made quite clear to the Keyboard Sentry/OOD that their signature in the Key Register represents a certificate that the day's entries constitute a true reflection of the state of the keyboard.

6. All armament and magazine keys on either P2000 1PBS, Survey Boats, Faslane or Gibraltar Squadrons are to be under positive control at all times and managed by the XO.
0218  KEYBOARD

1. The keys of all magazines are to be kept in an authorised lockable keyboard or key safe, (referred to as the keyboard/safe).

2. In ships with only a small number of magazine keys, the keyboard/safe may be combined with the Important Keyboard/Safe and is to be known as the Combined Keyboard/Safe.

3. The keyboard/safe and duplicate keyboard/safe are to be secured in approved positions, one of which is to be sited in the NBCDHQ or Ship Control Centre or for RFA vessels, the Bridge.

4. In minor war vessels where a permanent keyboard/safe sentry is not normally posted, or where it is not practicable to comply with Article 0216.3, the Magazine (or Combined) Keyboard/Safe is to be made portable, and, at the Commanding Officer's discretion, is to be kept:
   a. In harbour - in the Commanding Officer's cabin or Quartermaster's Lobby.
   b. At sea - in the Commanding Officer's sea cabin, or in the vicinity of the bridge.

5. In small ships, the Keyboard/Safe is to be fitted in the vicinity of the Wardroom, or in the Wardroom itself.

6. One key of the Keyboard/Safe is to be kept in the possession of the keyboard/safe sentry, (or a commissioned officer where no sentry is posted). The sentry/officer is personally to lock and unlock the keyboard/safe when issuing and returning the keys and is to ensure that each transaction is initialled in the Explosives Log.

7. The keys of each magazine are to be gathered together to form a set to conform to the ship's organisation for the drawing of keys. The set number of the keys is to be distinctly marked over the hook or drawer on the keyboard/safe so that the absence of a set can be readily seen.

0219  SPARE

0220  ACTION STATIONS - ISSUE OF KEYS

1. On closing up at action stations, the magazine key security regulations will be relaxed, openings which give direct access to explosives, magazine ventilation valves and local spray isolating valves will be unlocked under arrangements made in the ship's organisation (see Articles 0207 and 0332). Unlocked/opened padlocks are to be left in position. Keys are to be returned to the keyboard as soon as practicable after unlocking but are not to be signed in. Instead, the sentry will make a notation "UNLOCKED" in the key register.

2. Immediately after securing from action stations, the OOQ is to draw the appropriate keys and inspect the magazines/openings concerned. On completing the inspection, the OOQ is to return the keys to the keyboard, signing to this effect in the key register.

3. On board Solid Support RFAs the SSO magazine compartments are to be secured with either a security seal or a 1 inch soft padlock. Permission is to be sought from HQ1 prior to these devices being breached. The peacetime security arrangement will remain in force whilst the ship participates in FOST staffed serials.
0221 EMERGENCY - ISSUE OF KEYS

1. In an emergency, when in the security condition, the OOD may authorise the keyboard sentry or OOQ to issue all keys required, to the persons stationed at the compartments and openings concerned. The person authorising the emergency issue of keys is to sign the register as having done so. Keys are to be returned to the keyboard as soon as practicable after unlocking but are not to be signed in. Instead, the sentry will make a notation "UNLOCKED" in the key register.

2. Immediately after securing from the emergency, the OOQ or other officer listed on the S285A in the Explosive Log is to draw the appropriate keys and inspect the magazines/openings concerned. On completing the inspection, the OOQ or other officer listed on the S285A is to return the keys to the keyboard, signing to this effect in the key register.

0222 TEMPERATURE RECORD FORM S285C

1. Temperature records for magazine/magazine lockers containing Explosive Stores are to be maintained for all magazine/magazine lockers. Temperatures are to be recorded daily commencing initially on the day on which the Explosive Stores are embarked. The maximum temperatures are to be recorded in degrees centigrade.

2. The temperature record card (Form S285C) for the month is to be retained in a convenient position in the magazine/magazine lockers concerned.

3. Subject to no adverse temperatures having been recorded (see Articles 0334.1 and 0334.4), the temperature record card (Form S285C) for each magazine/magazine locker is to be retained for a period of one month after the final day recorded and then destroyed.

4. For regulations concerning acceptable magazine temperatures see Chapter 3.

0223 THE COMBINED DAILY KEY AND INSPECTION REGISTER

1. The Combined Daily Key and Inspection Register (Form S285B) is designed to assist Commanding Officers and Executive Officers to carry out their responsibilities for the safety of explosives as required by QRRN. Proper use of the form allows early identification of shortcomings in the departmental organisation, enabling the Executive Officer to take immediate corrective action.

2. The form for the day is to be retained by the keyboard/safe sentry or Officer of the Day as appropriate. It collates all the rounds required by the regulations, relevant to the inspection of explosives and compartments concerned. The form is to be signed by the Officer of the Day once all signatures for rounds and key issues have been checked for accuracy. The form is to be presented to the Executive Officer or the First Lieutenant who will countersign the form.

3. Completed forms are to be retained onboard for a period of 6 months to provide a record of responsibilities should retrospective investigation be necessary, and also to prove the effectiveness of the organisation at inspections. Forms are to be destroyed locally at the end of the 6 month period referred to above.

0224 MAINTENANCE AND TESTING OF SPRAY AND DRAINAGE SYSTEMS

1. The maintenance and testing of magazine spray systems is to be carried out in accordance with the appropriate maintenance schedule.
2. A record of 6 monthly testing of magazine spray systems, witnessed by the ERO, is to be kept in the Explosives Log.

3. Where magazine drains with water seals are fitted, the seals are to be topped up iaw PMS for CBRNDC purposes. Normally drains are to be locked open.

4. Automatic air escapes are to be accessible at all times for a functional test to be carried out, including when magazines are fully stowed. It is acceptable to have to move boxes and replace them after the test.

5. Testing of magazine flood and spray systems is to be carried out iaw the relevant Maintenance Schedule only by those personnel authorised by the ERO

**0225 EXPLOSIVES RESPONSIBILITIES FOR 3 WATCH MANNING VESSELS**

1. Vessels operating under Three Watch Manning (3WM) are to implement the following processes to ensure that transfer of explosives responsibilities and custodianship of OME is conducted in an auditable and unambiguous manner:

   a. ERO. At watch change over the Reports and Remarks section of the Explosives Log (S285A) is to be annotated to record that the responsibility for explosives onboard has been transferred (to another ERO qualified Officer). Similar annotations are to be used to record the changeover of OOQ and TAC.

   b. OOQ. For changes of custodianship in excess of 28 days a full Armament Loan Record muster is to be completed. For changes in custodianship of less than 28 days the S3139 page in the OOQ Log is to be annotated using the “internal transfer” process.
# CHAPTER 2 ANNEX A

## INSPECTIONS OF MAGAZINES AND ADJACENT COMPARTMENTS

<table>
<thead>
<tr>
<th>Type</th>
<th>Occasion</th>
<th>Periodicity</th>
<th>Inspecting Officer (Priority order if onboard)</th>
<th>Notes</th>
</tr>
</thead>
</table>
| D    | Daily Inspection | Daily | Custodian OOQ or TAC Other OOQ or TAC<sup>1</sup> DOOQ<sup>2</sup> ERO/DERO<sup>4</sup> OOD<sup>3</sup> | 1TACs can only substitute for TACs,(not OOQs) and must be SRs or above iaw 0112.4.  
2DOOQ may conduct daily inspections on non-working day  
3OOD may inspect SPF Locker on non-working day. |
| W    | Weekly Inspection | Weekly | ERO<sup>6</sup> OOD | DERO to inspect ALL stowages in the absence of the ERO.  
4ERO within 4 days of placing explosives in temporary stowage and weekly thereafter. |
| A    | Access Condition | Once per watch | On watch SR Nominated LR | Does not negate other rounds. As DC State 2 (normally 4 watches /day i.e. 6/6 or 7/5). |
| S    | Defective smoke, heat or waterflow alarms | 4 hourly | OOQ or TAC DOOQ Nominated SR | |
| E    | When not containing explosives | Monthly | ERO | Not required in upkeep prior to the MCTA PEI when JSP 862 dis-applied. |

## OTHER OCCASIONAL CHECKS

| I    | Inclement weather or considerable motion on ship | Occasional | Custodian OOQ or TAC Other OOQ or TAC<sup>1</sup> ERO/DERO<sup>4</sup> | |
| R    | Immediately prior to re-using any empty explosive stowage | Occasional | Custodian OOQ or TAC Other OOQ or TAC<sup>1</sup> DOOQ ERO/DERO<sup>4</sup> | Includes temp and permanent stowages emptied for defect rectification or maintenance. |
| P    | Pre and post dis/embarkation to ship | Occasional | ERO | Stowages affected within prior 24 hours; includes SQTUs |
| H    | After using Hoists | Occasional | Custodian OOQ or TAC | Cycle hoists to confirm empty of explosives |
| T    | After testing spray systems | Occasional | Custodian OOQ or TAC Other OOQ or TAC<sup>1</sup> DOOQ ERO/DERO<sup>4</sup> | Within 30-60 minutes.  
5Should normally be with the OOQ who has tested the sprays. |
| M    | Before and after carrying out maintenance of installed test equipment. | Occasional | Custodian OOQ or TAC Other OOQ or TAC<sup>1</sup> DOOQ ERO/DERO<sup>4</sup> OOD | Within 30 minutes |
| U    | Before and After Changing use of the magazine to a temporary store | Occasional | ERO | |

Table 1 – Magazine inspections and checks
<table>
<thead>
<tr>
<th>Type</th>
<th>Occasion</th>
<th>Periodicity</th>
<th>Delegate</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Daily Inspection</td>
<td>All Adjacent Compartments (AC) not more than one hour after end of normal working day</td>
<td>Officer, SR, LH or AB of Department</td>
<td>0210.1</td>
</tr>
<tr>
<td>2</td>
<td>Daily Security Check</td>
<td>Not more than one hour after end of normal working day</td>
<td>Officer, SR, LH or AB of Department</td>
<td>0209.2 (in harbour) note 0209.1 Magazines Security check (at sea and in harbour)</td>
</tr>
<tr>
<td>3</td>
<td>Silent Hours Inspection</td>
<td>ACs without fire detection system 0001 – 0600</td>
<td>Officer, SR, LH or AB of Department</td>
<td>0210.2</td>
</tr>
<tr>
<td>4</td>
<td>Silent Hours Security Check</td>
<td>All locked ACs Daily between 0001 - 0600</td>
<td>Officer, SR, LH or AB of Department</td>
<td>0209.3</td>
</tr>
<tr>
<td>5</td>
<td>Occasional Inspection</td>
<td>Not more than one hour after completion of work</td>
<td>Officer, SR, LH or AB of Department</td>
<td>0210.1</td>
</tr>
<tr>
<td>6</td>
<td>Occasional Security Check</td>
<td>Not more than one hour after completion of work or as specifically directed</td>
<td>Officer, SR, LH or AB of Department</td>
<td>0209.2, 0209.4</td>
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<tr>
<td>7</td>
<td>Weekly Inspection</td>
<td>No more than 10 days between inspections</td>
<td>Relevant OOQ</td>
<td>0210.3</td>
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<tr>
<td>8</td>
<td>Monthly Inspection</td>
<td>Each calendar month</td>
<td>ERO/DERO</td>
<td>0210.4 In lieu of weekly inspection</td>
</tr>
<tr>
<td>9</td>
<td>Pre-Embarkation</td>
<td>As required</td>
<td>OOQ/MEO WEO/MEO</td>
<td>0210.3, 0210.7 0501</td>
</tr>
</tbody>
</table>

1 Inspections and security checks may be combined.

Table 2 - Adjacent Compartment Inspections and Checks
CHAPTER 2 ANNEX B

DAILY RECORDS OF SEAL NUMBERS FOR MAGAZINES IN THE ACCESS AND OPERATIONAL ACCESS CONDITIONS

<table>
<thead>
<tr>
<th>Date</th>
<th>Page No.</th>
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</table>

Daily Record of Seal Numbers for a Stowage in the Access or Operational Access Condition

<table>
<thead>
<tr>
<th>STOWAGE</th>
<th>KEY NO</th>
<th>SEAL NO</th>
<th>REMARKS &amp; OOQ INITIALS</th>
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<tr>
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</table>
CHAPTER 2 ANNEX C

GUIDE TO COMPLETION OF RN EXPLOSIVE LOG

1. RN Form S285A (Explosive Log)
   a. Explosives Log Foreword and General Instructions.
   b. OOQ (Article 0108 refers), TAC (Article 0112 refers) Key Authorisation.
      (1) Only designated OOQs/TACs as laid down in the Establishment and Ship’s General Orders Chapter 19 should be listed here.
      (2) Initials, not signatures must be used, as initials are used when drawing keys.
      (3) Quarter number / Temporary Quarter number as opposed to a list of magazines should be used here.
      (4) The number of keys each OOQ / TAC is authorised to draw should be kept to a minimum (i.e. for his own Quarter only). Any additional keys required in course of Duty (e.g. as DOOQ or DPO) should be entered under the next section. In the absence of an OOQ the assignment of that Quarter to another OOQ, authority to draw additional keys is to be detailed by the ERO at the Remarks and Reports section of the Log.
      (5) The Executive Officer must countersign each individual entry to authorise the named personnel to draw the keys listed. Care should be taken that initials are used and that they can be used in the key register
   c. Other Personnel to Whom Keys May be Issued (Article 0217 refers).
      (1) All other personnel that are required to have access to magazine keys in order to fulfil their daily work or duty should be listed here in role order – OOD, DOOQ etc. Separate tables for each role can be used if required.
      (2) This list of personnel should be kept to a minimum. The question should be asked, ‘Does this person require regular access to Explosive Stowage Keys?’ The keys should be listed separately, the term ALL is not to be used; this will allow access to the SPF lockers to be tightly controlled as legally required.
      (3) Initials not signatures must be used, as initials will be used when drawing keys.
      (4) The Executive Officer must countersign each individual entry to authorise the named personnel to draw the keys listed.
   d. List of Explosive Stowages and Keys to be kept on the Magazine Key Board (Article 0216 / 0217 refers).
      (1) Key Number - this is the allocated number that is signed against in the Key Register.
      (2) The number of keys on each key ring (i.e. rim lock and padlock keys) should be listed, this is for security mustering purposes.
(3) The Stowage name.

(4) The code for the “type” of stowage (M, ML etc.) as listed on this page should be entered in the relevant column. If the Stowage is designated for Operational Access then it should be appended with OA (Article 0207.5 refers) in brackets.

(5) The Damage Control Location Marking of each explosive stowage is also to be recorded here.

(6) The column SUO/ERO refers to with whom the responsibility for each stowage lays.

For example;
4.5" Magazine - ERO, Ship Protection Force Locker – SUO (i.e. PWO (A)).

(7) Description of key:

For example;
Rim lock.

(8) Serial Number of Key

For example;
XXYYZZAABB.

Example

<table>
<thead>
<tr>
<th>Key Set Number</th>
<th>Number of Keys</th>
<th>Stowage</th>
<th>Type of Stowage</th>
<th>Location Marking</th>
<th>SUO/ERO (See Note)</th>
<th>Description</th>
<th>Key Serial No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>SPF Locker</td>
<td>RUML</td>
<td>2CA2</td>
<td>SUO</td>
<td>Outer Door</td>
<td>123ABC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Inner Door</td>
<td>XYZ123</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
<td>4.5&quot; Magazine</td>
<td>M</td>
<td>3BZ1</td>
<td>ERO</td>
<td>Rim Lock</td>
<td>XXYYZZAABB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2” Padlock</td>
<td>123456</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>mod 1 Padlock</td>
<td>Nil</td>
</tr>
</tbody>
</table>

For example;
Adjacent Compartments and Locked Approaches to be Inspected (Article 0209 / 0210 refers). The table is to be completed following the guidance below:

(1) The relevant magazine stowage/adjacent compartment should be entered first followed by a list of all compartments and approaches adjacent to it.

(2) The Damage Control Location Marking of each adjacent compartment is also to be recorded here.
(3) The Department responsible for each compartment is to be identified e.g. Warfare, ME etc. The person who actually carries out the rounds in each compartment is also to be nominated by title.

(4) The condition (normal state) of the compartment i.e. “locked” or “open” is to be recorded.

(5) The type of inspection (1, 2, 3 or 4 as detailed in Art 0209 and 0210) to be detailed. (All Adjacent Compartments on Submarines are inspected 4 hourly, so will all be listed as interval B).

Example

<table>
<thead>
<tr>
<th>Magazine/Adjacent Compartment</th>
<th>Location Marking</th>
<th>Department Responsible</th>
<th>Condition</th>
<th>End of Work</th>
<th>Silent Hours</th>
<th>By Whom</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.5 Mag/2C Flat</td>
<td>2CA1</td>
<td>WAR</td>
<td>Always open</td>
<td>Type 1</td>
<td>Type 3</td>
<td>OOD/DPO</td>
</tr>
<tr>
<td>4.5 Mag/4.5&quot; Gun Workshop</td>
<td>2BZ2</td>
<td>WE</td>
<td>Locked out of working hours</td>
<td>Type 1,2</td>
<td>Type 4</td>
<td>DWESR</td>
</tr>
<tr>
<td>4.5 Mag/4.5&quot; Power Room</td>
<td>2BA1</td>
<td>WE</td>
<td>Always Locked</td>
<td>Type 1,2</td>
<td>Type 4</td>
<td>DWESR</td>
</tr>
</tbody>
</table>

f. Remarks and Reports.

(1) This page should be used to record any incident of note or any departure from normal routine. Examples could include ammunitioning (SQTU), Spray system leaks, prolonged isolation of systems, an OOQ assuming responsibility for a Quarter other than his own due to leave or sickness, certification of a magazine being free from explosives, Three Watch Handovers, Authorising Operational Access as directed by Command etc. Any item, which in the XO’s, ERO’s or SUO’s opinion, should be formally recorded, or an event within the bounds of the explosive organisation, should be listed here. The DOOQ is to read the Remarks and Reports page on assuming the duty in order to be fully aware of the Explosive Safety Organisation status.

(2) Any entry should be authorised by the XO’s/ERO’s/SUO’s signature, or exceptionally by the DERO.

(3) Entries are to be annotated complete, initialled and red-lined through when complete or no longer applicable.

g. Record of Testing of Magazine Flood and Spray Systems.

(1) These tests must be in date at all times that explosives are stowed within the relevant magazine.

(2) The date the test is successfully completed is to be recorded under ‘Date’.

(3) The test is not to be treated as complete until both the OOQ and ERO have signed in their respective signature blocks.

(4) Additional pages may be locally produced if required.

h. Permanent and Temporary Quarters Listing.
(1) The XO should ensure completion of the tables, firstly listing all the different magazines contained in each Permanent Quarter, and secondly detailing all Temporary Quarters for ammunition (RF Lockers, MSS RU Stowages etc.) with the DC Location Marking for each stowage.

i. List of Magazine Inspections and Checks to be recorded in the Explosive Log.

j. List of Adjacent Compartment Inspections and Checks to be recorded in the Explosive Log.

2. **RN Form S285B (RN Combined Daily Key and Inspection Register)**

   a. **Cover page** containing ship’s name and Month. Instructions for completing the Combined Daily Key and Inspection Register (S285B) are on the reverse of this page.

   b. **Daily Key Register Signature Pages.**

      (1) The Security State is to be completed (Article 0207 refers) (Security, Operational Access or Access).

      (2) The date and location at the top of page are to be completed. E.g. **1 JAN 11 at SEA**, or **7 JAN 11 at PORTSMOUTH**.

      (3) Keys should not be removed from the keyboard without an authorised set of initials and a time being entered under the relevant key.

      (4) Keys 1 to 20 are on the first page, with keys 21 to 60 on the reverse. Additional pages may be produced if key numbers are greater than 60.

      (5) When a Keyboard Sentry is borne, keys are to be mustered at the end of every watch, and are to be signed for as correct by the oncoming Keyboard Sentry. Where no Keyboard Sentry is borne, the keys must be mustered at least three times, first thing in the morning, at the end of work and prior to middle watch security rounds by a suitably qualified and experienced person (SQEP).

      (6) **Ship Protection Force Keys.** RF/DF keys are to be signed in by the off-going SPF Team Leader/OOD and signed out by the person assuming the duty to maintain positive control of the keys at time of handover. **There is no longer a requirement to sign the RF/DF keys in and out at midnight.**

      (7) **Bridge Pyrotechnic and Force Protection Keys.** When SOLAS pyrotechnics or force protection ammunition are stowed in the Bridge Ready Use Lockers and the ship is in Damage Control State 3 the following guidelines should be followed. It is recommended that the key is signed out by the TAC but with the Explosives Log Remark and Report page annotated to reflect that the key is under the positive control of the OOW. The key is to be handed to the OOW, who signs for the key in the Ships log. At each subsequent watch changeover, the oncoming OOW is to sign for the custody of the key. Every 24 hours the key is to be resigned for in the Explosive Log by either the TAC or by one of the nominated and endorsed Competent Users (CUs) for that Temporary Quarter. On returning alongside, the TAC or nominated CU is to return the key to HQ1 annotating the Remarks and
Reports page accordingly. The TAC remains responsible for conducting daily inspections. (Article 0205 refers).

(8) **Access / Operational Access keys.** Should the Explosive Stowage be required to be left in the “ACCESS” condition or declared as an “OPERATIONAL ACCESS KEY”, then the key(s) should be returned as soon as practicable after unlocking, with the return time annotated, but not signed in. The return signature box should be annotated “UNLOCKED” when in ACCESS.

(a) When directed by Command to assume ‘OA’ the key box on the Daily Key and Inspection Register S285B page for the relevant stowage is to be annotated ‘OA’ for the top two rows after signing out the keys. The bottom row is to be used when returning the Magazine to the SECURITY Condition, although this might not be on the same day.

(b) The key for the ‘OA’ stowage is to be signed out in the Operational Access Key Table so that there is a record when the stowage was transferred to the ‘OA’ condition. Each subsequent access to any ‘OA’ stowage is to be recorded by the authorised person entering the stowage. If a Security Seal is replaced as part of this the new serial number is to be formally recorded within the Explosive Log Daily Record of Security Seals retained as part of the Combined Daily Key and Record of Inspection register S285B.

Example:

<table>
<thead>
<tr>
<th>Security State</th>
<th>OPERATIONAL ACCESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>(i.a.w. JSP 862 0207)(Security, Access or Operational Access condition)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Issue Time</th>
<th>Init.</th>
<th>Ret’ n</th>
<th>Init.</th>
<th>Issue Time</th>
<th>Ret’ n</th>
<th>Init.</th>
<th>Ret’ n</th>
<th>Init.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0800</td>
<td>GE</td>
<td>OA</td>
<td>0800</td>
<td>GE</td>
<td>1200</td>
<td>GE</td>
<td>1200</td>
<td>GE</td>
</tr>
<tr>
<td>2200</td>
<td>GE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Operational Access Keys (JSP 862 0207.5)**

(Key Number to be inserted when Directed by Command)

<table>
<thead>
<tr>
<th>Time</th>
<th>Time</th>
<th>Tim</th>
<th>Tim</th>
<th>Tim</th>
<th>Tim</th>
<th>Tim</th>
<th>Tim</th>
<th>Tim</th>
</tr>
</thead>
<tbody>
<tr>
<td>0800</td>
<td>1600</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1200</td>
<td>2200</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
(c) When falling out of ‘OA’ a set of Type D Rounds and on closing inspection is recorded in the Bottom row of the Key Table.

(d) The Security State for all other Explosive Stowages that have not been defined as ‘OA’ is to be SECURITY.

(e) Detailed orders to implement these general principles are to be given by the Commanding Officer following advice from the Explosive Responsible Officer (ERO) as to which Explosive Stowages should be utilised.

(9) When placing the magazine back to the “SECURITY” condition (i.e. on reversion to cruising watches), the OOQ is to draw the appropriate keys, carry out an Inspection and secure the magazine. The keys are then to be returned to the keyboard with the register signed accordingly. The security state box is to be annotated "SECURITY". All changes of security state within the same day are to be annotated with the time of the change.

(10) The return time of keys is to relate to the time of the internal inspection which is to be carried out by the TAC, OOQ or other authorised person, for example the DOOQ.

c. Daily Record of Inspections – Permanent Quarters.

(1) Date to be recorded at the header of this page.

(2) All Permanent Explosives Stowages detailed in S285A are to be listed here. Any Permanent Stowages free from explosives are to be annotated “Empty” in the remarks column.

(3) All inspections that have been carried out on each Permanent Quarter are to be signed for here (Detailed in S285A). Common examples include Type D (Daily Inspection by OOQ) and Type W (Weekly Inspection by ERO). Any other type of inspection as listed at Art 0205.3 should also be recorded as listed in the S285A.

(4) OOQ / ERO remarks may also be listed here if the remarks are valid for a single day (such as a reason for an additional set of Type D rounds to be conducted). Time is also to be recorded for all entries. It should be noted that this remarks column does not supersede the Remarks and Reports Page (S285A).

d. Daily Record of Inspections – Temporary Quarters.

(1) Date to be recorded at the header of this page.

(2) All Temporary Explosives Stowages detailed in S285A are to be listed here. Any Temporary Stowages free from explosives are to be annotated “Empty” in the remarks column.

(3) The custodian OOQ / TAC is to ensure that daily rounds are conducted on all Temporary Stowages that contain ammunition and that these rounds are correctly signed for on this page. Common examples of Temporary stowage inspections are Type D (Daily Inspection by TAC) and Type W (Weekly Inspection by ERO). Any other type of inspection as listed (Article 0205.3 refers) should also be recorded within the S285A.
(a) Daily Rounds (Type D) are to be conducted and signed for by the custodian OOQ / TAC or in his absence another OOQ or DOOQ for Temporary Stowages, for example SPF Lockers. The Officer of the Day or Duty Petty Officer are not to sign for these rounds in normal circumstances, the correct level of signatory is detailed in priority order with JSP 862(1) Chapter 5 and replicated in S285A.

(4) TAC / ERO remarks may also be listed here if the remarks are valid for a single day (such as a reason for an additional set of rounds to be conducted). Time is also to be recorded for all entries. It should be noted that this remarks column does not supersede the Remarks and Reports Page (S285A).

e. Adjacent Compartment Inspections and Security Checks (Article 0209/0210 refers)

(1) The person completing the End of Working Day and Silent Hours Adjacent Compartment Rounds is to complete the respective section of Table 3.

(2) The End of Working Day Adjacent Compartment rounds are to be inspected not more than one hour after completion of normal daily work.

(3) If any out of hours work has been conducted, Adjacent Compartment rounds are to be conducted not more than 1 hour after completion of this work, and signed for by the respective Department rounds person at Table 3.

(4) The WE Department will assume responsibility for Air Department Rounds upon a satisfactory handover of facilities from the flight prior to disembarkation.

(5) Table 4 is used for recording Routine and Occasional Adjacent Compartment checks (e.g. Type 7 - OOQ weekly Adjacent Compartment checks or Type 9 - MEO Pre-Embarkation Planned Maintenance). When the OOQ signs for weekly Adjacent Compartment rounds, the Quarter inspected is to be detailed in the Remarks column, or annotated “All” if full set of rounds conducted.

(6) Table 5 is to be completed by the Officer Of the Day / Duty Officer to certify that the days’ entries in the Combined Daily Key and Inspection Register (S285B) are complete, accurate and correct. It is recommended that the off going OOD signs Table 5 at the handover of their duty prior to presentation to the XO.

(7) The Executive Officer (XO) is to inspect and countersign the Explosives Log daily. This is a final check and certifies that the Explosives Log has been accurately and fully completed to XO’s satisfaction. If the XO is absent and not available to sign the log; the log is to be validated upon their return and countersigned accordingly noting any issues.
CHAPTER 2 ANNEX D

ONBOARD EXPLOSIVE SAFETY DOCUMENTATION FOR PATROL BOATS

1. A central folder for all Explosive Safety documentation divided into:
   a. Part 1 Accounting, comprising:
      (1) OOQ S3139S for explosive stores held.
      (2) OOQ S3139As for FRAC explosive stores held below 12.7 mm.
      (3) ALR Print
      (4) AMANDA R17 for explosive stores held
   b. Part 2 Bans and Constraints for explosive stores held
   c. Part 3 JSP 862 Addendum
      (1) NACG certificate (in lieu of CSE)
      (2) NAEXP Letter (in lieu of ALES)
      (3) SEXSSIs for explosive stores held on ALR
   d. Part 4 Explosive Safety Standing Orders
      (1) Populated extract from Chapter 19 of SGOs
CHAPTER 3
CARE AND STOWAGE OF EXPLOSIVES

CONTENTS

Article

General Regulations

0301 Stripping down or tampering with explosives and pyrotechnics
0302 Footwear and Clothing
0303 Smoking

Regulations related to Magazines, Stowage and Handling

0304 Stowage compartments for explosives stores
0305 Movement of explosive stores
0306 Allowable quantities for safe stowage
0307 Stowage Plans – General
0308 Requirements for Stowage Plans
0309 Stowage Plans – Applicability
0310 Approved Stowage Plans provided by the PDH
0311 Locally produced Stowage Plans for HM Ships and LSD(A)
0312 Locally produced Stowage Plans for Solid Support Ships
0313 Principles for locally produced Stowage Plans
0314 Non-Magazine stowage for RFAs
0315 Use of Magazines for purposes other than the permitted stowage, test or assembly of explosives
0316 Test and Assembly Magazines
0317 Cleanliness of stowages containing explosives
0318 Fumigation
0319 Response to ATTack on AMmunition (RATTAM)
0320 Work or drill in magazines
0321 Extraordinary Embarkation of Explosives (E3)
0322 Group and Classification of E3 stores
0323 Stowage of E3 munitions
0324 Stowage of munitions in Vehicle/Tank Decks, Dock areas, Hangars and weatherdecks
0325 Embarked Forces Representative
0326 Stowage of E3 stores not approved by NAEXP

Emergency Procedures for Magazines

0327 Policy for spraying in an emergency
0328 Explosives involved in fire

EEDs and RADHAZ

0329 Radio and static electrical hazards
0330 RF susceptibility of demolition stores
0331 Wiping and de-perming
Flooding and Spraying of Magazines

0332 Operation of spray valves

Temperature of Magazines

0333 Thermometers
0334 Temperatures of all magazines and lockers
0335 Temperature of loaded conventional weapon systems
0336 Temperature of magazines with adjacent fresh water tanks

Use of Tools and Electrical Equipment in Magazines

0337 Authority for work or drill in magazines
0338 Use of tools
0339 Portable Electrical Equipment
0340 Use of corrosion preventive compounds
0341 Use of tools on Depth Charges and demolition stores

Safety Precautions for Stowage at RU Positions and Ammunition on Mountings

0342 Stowage at gun, launcher and ready use positions
0343 Weapon security
0344 Fixed ammunition and decoy rounds removed from a gun mounting or launcher
0345 Assembly of belts from loose small arms ammunition
0346 Excess temperature of loaded conventional weapon systems
0347 Small arms ammunition - use of wetted or exposed ammunition below 20 mm
0348 Solar radiation
0349 RATTAM precautions for ammunition on mountings and in RU positions
0350 Safety precautions for E3 munitions in Weapon Parks

Pyrotechnics

0351 General regulations for pyrotechnics
0352 Signals distress stowed in ship life rafts
0353 Signals distress stowed in aircraft life rafts
0354 Pyrotechnic displays

Emergency Procedures for ammunition and weapons

0355 Potential damage to fixed ammunition
0356 Packages exposed to weather
0357 Ammunition and explosives exposed to CBRN agents
0358 Weapon/explosive store jettisoning positions

Drill Ammunition and Weapons

0359 Drill ammunition, drill or practice torpedoes and acquisition or test missiles
0360 Use of ammunition for drill and instructional purposes
Packaging, Examination of Packages and Filling of Packages

0361 Care and Design of Packages and Containers
0362 Empty and partially empty packages or containers
0363 Use of package examination room (PER)
0364 Sealing of packages of ammunition

Air Weapons, AEDs and Aircraft Pyrotechnics

0365 Air explosives stores - application
0366 Air explosives stores - stowage and handling
0367 Prepared weapons and explosives stored in aircraft hangars
0368 Ready use magazine lockers for smoke and pyrotechnic stores located in hangar
0369 Power cartridges
0370 Preparation and testing
0371 Radio hazards to air weapons
0372 Loading and unloading air weapons
0373 Aircraft armament stores in exposed positions
0374 Loading and unloading of weapons and stowage of armed aircraft in hangars
0375 Landing on ships with weapons loaded
0376 Regulations for the servicing and stowage or aircrew escape and survival equipment containing pyrotechnics
0377 Loaded aircraft armament anti icing fluid contamination

Issue and return of Personal and Military Explosives

0378 Provision of ammunition for Practices and Force Protection
0379 Issue and return of Personal Explosives

Safety Precautions for Weapon Parks

0380 Safety precautions for ammunition parked in weapon parks or DDA
0381 Temporary Mitigation Barriers

Emergency Procedures for Air weapons

0382 Misfire and Hangup Procedure
0383 Air Weapon/Explosives store jettisoning position

Provision of Explosives for Demonstrations/Displays/Film/TV/Fireworks

0384 Provision of explosives for demonstrations and displays

Private Ammunition

0385 Regulations for private ammunition

Annex

A Principles for locally produced stowage plans
B Guidance on interpretation of the principles
C Anti-Fragmentation Barriers
D E3 Permission Flowchart
GENERAL REGULATIONS

0301 STRIPPING DOWN OR TAMPERING WITH EXPLOSIVES AND PYROTECHNICS

WARNING

THE STRIPPING DOWN OF OR TAMPERING WITH EXPLOSIVES AND PYROTECHNIC STORES IS HIGHLY DANGEROUS AND STRICTLY FORBIDDEN.

0302 FOOTWEAR AND CLOTHING

1. Anti-Static footwear and approved working dress is to be worn during the general handling of explosives stores, (with the exception of Embarked Forces/SF personnel when being issued with E3 restricted and unrestricted explosives stores during assault procedures - disembarkation/embarkation). Approved working dress will be enhanced to include PPE for specific tasks including RAS(A).

2. For specific weapon preparation activities, equipment BRs/manuals/operating procedures are to be consulted for conductive/anti-static procedures and precautions (Article 0329 refers).

0303 SMOKING

1. Matches, cigarette lighters, E cigarettes and smoking materials of any description are never to be taken into magazines in which explosives are stowed. Naked lights, i.e. exposed flame are not to enter or be used in any compartment containing explosives.

2. Smoking is prohibited in the vicinity of magazines/lockers containing explosives, weapon parks and ammunition routes during the transit of explosive stores.

REGULATIONS RELATED TO MAGAZINES, STOWAGE AND HANDLING

0304 STOWAGE COMPARTMENTS FOR EXPLOSIVE STORES

1. The following compartments are designed for or associated with the stowage of explosive stores: Magazine, Silo-Magazine, Small Magazine, Magazine Locker, Ready Use Magazine, Ready Use Magazine Locker, Small Quantity Top Up Magazine/Locker, White Phosphorus Magazine, Weapon Test Assembly Magazine, Designated Danger Area, Weapon Handling/Transfer Space, Package Examination Room, Adjacent Compartment and Approach Compartment (see Definitions at Chapter 14)

2. Certain JSP 862 applied ships have magazines designed to the appropriate standards for the stowage of explosives outfits which are variable in the types and quantities of individual stores e.g. LPH & RFAs (Article 0306 refers). Within these compartments special to type stowages may be used or stowages may be made up in compartments with flow-forging grids using binning poles or racking. Flow-forge with binning poles and/or wooden shoring should be applied in such a manner that avoids damage to munitions and weapon containers. The nailing of shoring to containers is prohibited, though where wooden wedges are used to secure bulk explosives, other than those used as part of the flow-forge/bin pole stowages, they should be dogged/nailed wherever possible to prevent release. During loading, binning poles and shoring should be applied at frequent intervals within flexibly stowed explosives to ensure adequate securing and to avoid large blocks of explosives being unsecured when breaking into stacks for issue.
Where web straps have to be used, care must be taken to ensure that straps are only attached to securing points of suitable strength and are not attached to deck/deckhead flow-forges, sprinkler pipes or other ships services. When applying shoring and securing, access for boundary cooling by personnel wearing BA is to be considered (see also below). When not in use cargo lift platforms should be positioned at the lowest deck so as not to obstruct blast routes.

3. When associated with explosives safety, the terms "Ready Use" and "Locker" have specific meanings as defined in Chapter 14.

0305 MOVEMENT OF EXPLOSIVE STORES

1. Explosive stores are to remain in their authorised safe stowage until required for use or embarkation/disembarkation. With the exception of 1.4S stores and detonators, the permanent stowage for all explosives is only to be in a Magazine or floodable Magazine Locker. RU Magazines and non-floodable RU magazine lockers may only be used for the temporary stowage of explosives to maintain the required operational notice – see 0305.4 below.

2. Exceptionally, at sea, explosive stores may be moved within a magazine to facilitate maintenance and servicing using procedures and equipment approved specifically under the provisions of this chapter, for the purposes of ammunition musters and to conduct authorised drills subject to Article 0360. Solid Support Ships are authorized to move munitions at sea to prepare for Replenishment, BackRAS, Load Adjustments and for load management (Bans and Constraints or lifting issues etc.) whenever sea state permits.

3. Before proceeding into Naval Base or commercial ports; gunbays, mountings, RU magazines and lockers are to be emptied of explosives and all munitions returned to their appropriate permanent magazine. Where there is an operationally essential requirement to have ammunition at immediate notice the CO is to seek dispensation from NAVY CMD EXP and the NBC/Port Authority (Article 0605.2 refer).

4. For restrictions on movement of explosives when alongside in HM Naval Bases or ports (Article 0601 refer).

0306 ALLOWABLE QUANTITIES FOR SAFE STOWAGE

1. Only the authorised outfit of explosives, as printed on the individual Magazine Designed Capacity List (Form S285K), is to be stowed in magazines of HM Ships and RFAs in active commission. This will not apply to quantities for temporary carriage on operational service, under the provisions of this chapter or where Stowage Plans are used as required by Articles 0307 to 0313.

2. Any requirement for carriage of munitions in excess of the quantity detailed in the S285K or in the approved Stowage Plans are to be signalled iaw Article 0402 and Ch 4 Annex A.

3. Explosive stores belonging to other British, NATO or foreign services may only be embarked in JSP 430 applied platforms, in support of an Extraordinary Military Task if listed in the E3 ALES (Article 0321 refer). Submissions for additions to E3 ALES should be forwarded to NAVY CMD EXP.

4. Temporary carriage of equipment and test instrumentation for trials purposes is to be cleared with NAEXP (Articles 0339 and 0706 refer).
5. As far as possible the mass of explosives in large quantity stowage should be evenly distributed throughout the magazines or holds to assist ship stability; see also Article 0313 below for the principles and guidance for large quantity stowage and optimisation for mitigation. Major ammunitioning and replenishment activity should be distributed to ease the congestion of munition movements.

6. All stowages must be adequately secured before sailing.

0307 STOWAGE PLANS - GENERAL

1. This Article describes the regulations for the production of stowage plans by HM Ships and RFAs. For the RFA this Article represents a change of policy. All RFA stowage plans for UN Class 1 munitions and explosives carried for whatever purpose; will now be fully covered by JSP 862. RFAs will no longer use the International Maritime Dangerous Goods (IMDG) code for explosives stowage plans.

Note: The IMDG Code covers the nine UN Classes of Dangerous Goods and explosive stores are UN Class 1 Dangerous Goods. The other UN Classes 2 to 9 cover such things as flammable gases and liquids, toxic and corrosive substances etc. JSP 862 regulates only explosives (UN Class 1).

2. In the past RFAs stowed explosive stores (UN Class 1) as follows:
   a. In accordance with the code from the IMDG code:
      (i) Explosives carried for re-issue to the fleet.
      (ii) Explosives carried in support of amphibious forces.
      (iii) Explosives carried as freight between ports.
   b. In accordance with the regulations and code in JSP 862:
      (i) Explosives carried for self-defence.
      (ii) Explosives carried for ship’s own use.

3. RFAs will now carry ALL explosive stores in accordance with the regulations in JSP 862. RFA holds and other spaces used for storage of explosives will be referred to as magazines and the requirements of JSP 862 and Def Stan 00-101 will be applicable.

4. UN Classes 2 to 9 do not fall under the regulation and code of JSP 862 except in respect of the threat they represent to the safety of explosives and only in this respect are UN Classes 2-9 addressed in JSP 862 (e.g. in the rules for adjacency & adjacent compartments etc.). Exceptionally, those compartments designed as magazines for the carriage of the re-issue load on board the Solid Support RFAs may be utilised for the compliant carriage of other dangerous cargo when the compartment is not required for munitions and the condition of this Chapter relaxed.

5. Stowage Plans are also to show non-explosive items to be stowed in the magazine.

0308 REQUIREMENTS FOR STOWAGE PLANS

1. In the majority of instances HM Ship’s magazines are designed for specific outfits and the design includes the stowage plan. These stowage plans, provided by the PDH, have been
optimised from an explosive safety perspective using the principles in Def Stan 00-101. The
designed stowage plan shall be used unless PDH approval has been given to do otherwise.

2. Some magazines (or parts of magazines), especially those in RFAs, are designed to be
multi-purpose and therefore do not have particular munition stowages identified. These
magazines are specifically designed for flexible use. Explosives stowed in multi-purpose
magazines may be in palletised form or in individual munition containers or boxes.

0309 STOWAGE PLANS - APPLICABILITY

1. The stowage regulations in this chapter apply to both RFAs and HM Ships.

2. These stowage regulations within this chapter do not apply to:
   a. Holds used for stowage of explosives in MOD/DTMA Charter vessels (but JSP 862
      will apply to explosives of embarked forces in these ships).
   b. Time Charter Ships (including RoRo).

0310 APPROVED STOWAGE PLANS PROVIDED BY THE PDH

1. For magazines with specific-to-type stowage arrangements; these stowage arrangements
effectively provide the stowage plan. The stowage plan will have been optimised by the PDH
for explosive safety during the design process.

2. For multi-purpose magazines, where explosive outfits are predictable, optimised stowage
plans will be provided by the PDH, and these should be kept in JSP 862 Addendum.
Predictable outfits will include those defined by the ALES sections for declared ship roles.

3. Where an outfit matches one for which a stowage plan has been provided, the stowage
plan should be complied with; unless NAVY CMD EXP approval has been given to do
otherwise.

0311 LOCALLY PRODUCED STOWAGE PLANS FOR HM SHIPS AND LSD(A)

1. Where the actual outfit to be carried does not match a PDH provided stowage plan, a
locally produced stowage plan is to be compiled by the ERO to show the proposed layout and
be optimised for explosive safety using the instructions contained hereinafter in this chapter.
The PDH provided stowage plans should be adjusted whenever possible to take account of
small variations in the standard outfits. Only rarely should it be necessary to generate a
completely new stowage plan.

2. Where possible, draft locally produced stowage plans are to be generated well in advance
of the planned embarkation date. Before embarkation commences all locally produced stowage
plans are to be submitted to PDH or, for Solid Support Ships, NAVY LOG INFRA-OPS SPT
DACOS for approval with a copy to NAVY CMD EXP. Embarkation is not to proceed until
explicit NAVY CMD EXP approval of the stowage plan has been received by the ship.

3. The stowage plan shall include the nomenclature of the explosives, HCC, proposed
mitigation measures (Article 0313 refers), munition orientation and the total NEQ.

4. Stowage plans should be kept under review as stocks are depleted or increased through
use or replenishment etc. The changes in stocks may necessitate some alteration in the
stowage plan. The principles of Article 0313 are to be followed when making any alteration. Major changes of stowage plan should be notified to the appropriate authorities (sub-para 2 refers).

5. EROs should seek subject matter advice as necessary on the compilation of locally produced stowage plans. Advice is available from PDH, NAVY CMD EXP and NAVY LOG INFRA-OPS SPT DACOS.

0312  LOCALLY PRODUCED STOWAGE PLANS FOR SOLID SUPPORT SHIPS

1. Onboard RFAs; the SSO has delegated responsibility by NAVY LOG INFRA-OPS SPT DACOS for producing all stowage plans for multi-purpose magazines.

2. Stowage plans are to be prepared by SSO at least 4 weeks ahead of any major storing or load adjustment and submitted to NAVY LOG INFRA-OPS SPT DACOS for validation and referral to NAVY LOG INFRA-OPS SPT DACOS for authorisation. Once authorised the plans will be returned to SSO as his authority to embark explosives in compliance with the authorised plan. NAVY LOG INFRA-OPS SPT DACOS will forward copies of authorised plans to NAVY CMD EXP and the PDH.

3. Stowage plans held by NAVY LOG INFRA LOG SPT DACOS are to accurately reflect the load held in the magazine at all times; this includes all transit and exercise stores carried in support of units in company with the task group. SSO is to ensure that as RAS activity and other evolutions reduce/increase the load, this is reflected in the plans and forwarded at the earliest opportunity.

4. The stowage plan shall include the nomenclature of the explosives and their HCC. Proposed mitigation measures (Article 0313 refers); munition orientation and any supplementary risks e.g. toxic smoke are to be shown. The total NEQ for each HCC in each compartment is to be annotated on all elevation drawings.

5. Stowage plans should be kept under review as stocks are depleted, increased or an adjustment to the load is required. The changes in stocks may necessitate some alteration in the stowage plan. The principles of this chapter are to be followed when making any alteration (Article 0313 refers).

6. SSO should seek subject matter advice as necessary on the compilation of locally produced stowage plans. Advice is available from the PDH, NAVY LOG INFRA-OPS SPT DACOS and NAVY CMD EXP.

0313  PRINCIPLES FOR LOCALLY PRODUCED STOWAGE PLANS

1. Ch 3 Annex A contains a set of principles which should be used for generation of a locally produced safe stowage plan.

2. To achieve optimisation of the stowage plan, from an explosive safety perspective, the plan should seek to comply, as far as is reasonably practicable, with the principles. They are generically listed in order of application but for a particular circumstance this order may not be valid and adjustment must then be made based upon best judgement by the ERO.

3. Ch 3 Annex B provides further explanation and guidance on interpretation of the principles in Annex A.
0314 NON MAGAZINE STOWAGE FOR RFAs

1. Exceptionally when operational circumstances dictate and where the amount of explosives exceeds magazine capacity, ISO containers, Minicons (these containers are sometimes referred to as Closed Cargo Transport Units) or other non-standard methods of stowing the explosives may have to be used under the guidance given in this chapter (Articles 0323 and 0324 refers).

2. Multi-purpose magazine capacity may also be insufficient because of the need to segregate incompatible explosives (Compatibility Group definitions and the extent of authorised mixing of Groups are shown in Chapter 13 Annex A Tables 1 and 2).

3. Particular segregation and separation principles for explosives are contained in Annex A.

0315 USE OF MAGAZINES FOR PURPOSES OTHER THAN THE PERMITTED STOWAGE, TEST OR ASSEMBLY OF EXPLOSIVES

1. Compartments or lockers are not to be used or modified for other purposes in any way without prior approval of the PDH.

2. Certain other non-flammable and non-explosive stores, portable fittings and equipment required in connection with the magazines may also be stowed in magazines containing explosives provided that they are included on the S285K by the PDH and approved by NAEXP, or shown in the authorised stowage plan (Article 0307.5 refers).

3. Ship compartments designed for carrying explosives, but having no explosives embarked, may be used as store rooms. Nothing is to be stored therein which in any way impairs the suitability of the compartment for the subsequent use of stowing explosives, there is to be no fittings of any kind altered or damaged and:

   a. The temporary use of the compartment for other purposes is authorised by the Commanding Officer/Master.

   b. Annotation is made under "Remarks" in the Explosives Log. (Article 0315.3a refers).

   c. Stores placed in the compartment comply with the regulations governing adjacent compartments if applicable.

0316 TEST AND ASSEMBLY MAGAZINES

1. A Test and Assembly Magazine is provided solely as a safe area where test, assembly and maintenance can be carried out on stores containing explosives and where explosive disciplines can be maintained. It is not to be used as a workshop for non-explosive stores, as a stowage space or for any other purposes, except as authorised in Article 0315.3.

2. Test and Assembly Magazines are to be used in all respects in accordance with the regulations for magazines. In particular:

   a. All equipment fitted, stowed and used in this magazine is to be authorised for use in magazines and listed on the S285K.

   b. Only electrical test and maintenance equipment compliant with Article 0339 may be stowed or used in this magazine.
3. The following additional special regulations apply to Test and Assembly Magazines:

   a. Whenever work is being carried out on an explosive store, all hatches, hoists and doors interconnecting with an adjacent stowage magazine or aircraft hangar are to be shut and a drill/SOP enforced to prevent their being opened. Other doors are to be shut but may be opened momentarily to allow passage of personnel.

   b. Weapon schedules and other literature relating to the explosive stores that will be worked on in this magazine may be permanently stowed in the magazine provided such literature is stowed in lockable metal containers.

   c. The stowage of FIAM (Ready Use stocks) is only permitted in Test and Assembly Magazines if listed on the S285K.

   d. Boxed personal and weapon tool kits may be stowed in this magazine.

   e. Magazine explosive safety disciplines are to be observed in the magazine at all times, even when weapons are not under test.

   f. The deck may need to be conductive; anti-static footwear is to be worn whilst working in the magazine in accordance with BR 2924.

   g. Suitable stowage for a ready use supply of flammable liquids and material required for maintenance or cleaning of explosive stores is to be provided outside and adjacent to the Test and Assembly Magazine.

0317 CLEANLINESS OF STOWAGES CONTAINING EXPLOSIVES

1. Magazines and explosives stowages are to be kept free of dust.

2. Cleaning materials of any kind, oil or other unauthorised materials of any description are NOT to be stowed in any explosives stowage.

3. Cloths containing nylon yarn are not to be used for cleaning purposes inside magazines containing explosives.

4. Where leaks of oil into compartments containing explosives are discovered, use of cloths for mopping up is permitted, but special arrangements are to be made to ensure that no oily swabs are left inside the compartment. Particular attention is to be paid to the open ends of suction pipes to ensure that they are kept clear of all materials likely to choke them.

0318 FUMIGATION

1. When it is necessary to fumigate HM Ships or RFAs, the whole outfit of explosives is to be landed beforehand.

2. In times of emergency when it is essential to fumigate with explosives retained onboard, the special precautions listed below are to be taken.

   a. Ethylene oxide is not to be used.

   b. Sulphur dioxide is not to be used if other means of fumigation are available, and then only provided that all explosives in cardboard containers not in sealed packages and all flexibly stowed explosives are landed before-hand.
c. "Carboxide" may be used provided that the proportion of ethylene oxide in the mixture does not exceed 10 per cent in volume.

d. Hydrocyanic acid (HCN) may be used provided that:

(1) The ambient temperature is not below 7°C.

(2) All explosives are stowed in their normal sealed packages, or are such that they are stowed bare.

(3) Pyrotechnics with cardboard bodies and not stowed in sealed packages are landed.

e. Methyl bromide involves no risk to the explosives and may be used provided approval is sought and received in accordance with JSP 418 Vol 2.

3. Methods of fumigation other than in Article 0318.2c, d and e are not to be used without prior NAEXP approval.

4. Whatever method is used, the instructions given by the fumigating officer to ensure safety of personnel are not to be allowed to prejudice the safety of the explosives.

0319  RESPONSE TO ATTACK ON AMMUNITION (RATTAM)

1. In peacetime, or in times of unrest/confrontation, the most likely external threat to explosives comes from the limited capability weapons used by saboteurs, dissidents or terrorists. RATTAM is the concept of providing protection to explosive stores against such threats. Full details are given in Def Stan 00-101 (and NAN/EXP 03 - not normally held by ship’s staff).

2. All munitions are tested or assessed during acquisition for response to 12.7 mm bullet attack. If the munition requires RATTAM protection against bullet attack this will be stated in the SEXSSI.

3. Stowage below the waterline in any ship is considered to provide adequate RATTAM protection.

4. Certain magazines above the waterline are provided with RATTAM protection or are protected because of their position in the ship. Details are given in ship’s drawings.

5. Where protection is not provided, RATTAM susceptible stores stowed above the waterline are to be protected by positioning of non-susceptible munitions, equipment or stores between the ship’s side and susceptible items.

6. If a BIKINI or RATTAM threat is advised by the Naval Base or Operational Commander, RATTAM precautions should be taken during replenishment in harbour and when munitions are exposed on the upper deck in littoral regions. As a minimum, susceptible munitions should be exposed for the shortest practicable time. Considerations should be given to erecting screens or placing equipment to deny the terrorist a point of aim on the munitions.

0320  WORK OR DRILL IN MAGAZINES

1. No work is to be conducted in a magazine with weapons/explosives embarked unless the work is covered by routine care and maintenance (Article 0337 refers).
2. Work or drill that involves handling of explosives is to be under the direct supervision of a competent Leading Rating or above. In all cases the work or drill involving the handling of explosives is to be at the direction of the ERO or OOQ responsible for the explosive stores. (See Chapter 1)

3. Leading Ratings authorised in accordance with Chapter 1 may assist Officers and Senior Ratings who have tasks delegated to them in accordance with Chapter 1 and issue explosives as directed by these officers/senior ratings when necessary.

0321 EXTRAORDINARY EMBARKATION OF EXPLOSIVES (E3)

1. E3 covers any embarkation of explosives where carriage is not for ship’s own use. Details of the embarkation (i.e. which Platform/which explosive stores) will vary depending on the tasking or operation and thus it is not possible to address this issue in the individual platform’s EMMA Entitlement List.

2. NAEXP holds a list of E3 approved stores that is common to all platforms and details those E3 explosive stores where inherent OME safety has been assessed. The E3 list does not form part of the ship’s ALES and therefore does not give authorisation for these stores to be carried. However, vessels whose primary role requires the carriage of E3 stores (such as LPD, LPH, LSDA) will have an E3 list as part of their ALES, specific to their platform, that details the stores they can carry according to the E3 facilities they have.

3. E3 stores may not have had their inherent OME safety assessed by virtue of them being new to service, under a UOR, SF munitions, foreign munitions, seized or enemy explosives. In these circumstances they may not appear on the E3 list and, in the event they are required to be embarked, an OME assessment will be required which will increase the time needed for authorisation to be given.

4. Authorisation to embark E3 stores is to be sought using the direction iaw 0321.6, further guidance can be found at Ch 3 Annex D.

5. The ERO is to ensure that he is aware at all times of the quantity, location and risk that E3 munitions pose so as to be able to react correctly and provide the correct advice in the event of a ship emergency.

Approval to embark E3 explosives stores

6. If time and circumstances allow, authorisation to embark E3 explosives stores is to be obtained from NAVY CMD EXP prior to embarkation. Requests for approval are to include full details of the proposed inventory to be embarked (NSN, ADAC, NEQ, HCC as a minimum) and the proposed stowage plan. NAVY CMD EXP will confirm whether the stores are on the E3 list and seek PDH and NAEXP concurrence. If approved by all parties, the ship’s ALES will be updated to include the authorised E3 stores. If approval by the PDH and/or NAEXP is not possible, due to timeframes or lack of information, NCHQ may give their own permission to embark (see 0326).

0322 GROUPS AND CLASSIFICATION OF E3 EXPLOSIVES STORES

1. The stores on the E3 list are assigned Restricted or Unrestricted categories for use.

   a. Restricted. These are explosives stores that may be embarked for carriage only and will not be broken out of their standard issue packaging.
b. **Unrestricted.** These are explosives stores that may be embarked and are required to be broken out of their transit packaging for issue to individuals as part of previously defined Assault Procedures prior to disembarkation.

**0323 STOWAGE OF E3 MUNITIONS**

1. Where space and operational needs allow, E3 explosives stores are to be stowed in magazines of the same HCC in accordance with the categorisation and grouping rules of Chapter 13 Annex A and Chapter 3 Annex A and B. The ERO is to ensure that SEXSSIs are held onboard for all of the explosives stores to be embarked.

2. Due to space restrictions or to comply with Assault Procedures, it may be necessary to utilise other areas (Vehicle/tank decks, dock areas, hangars and weather decks) of the ship for the stowage of E3 explosives stores. Where a requirement to utilise Vehicle/tank decks, dock areas, hangars and weather decks is detailed in Assault Procedures or justified by the ship, the requirements of Article 0324 are to be applied.

3. For stowage in ships magazines, the ERO is to ensure the following precautions are adhered to; following NAVY CMD EXP approval, they are to temporarily amend the S285Ks to reflect the nature and number of munitions stowed (Article 0306.2 refers). For stowage plans the principles and guidance below are to be applied.

   a. Munitions are to be under a fully developed spray cover pattern.

   b. A minimum clearance of 300 mm below spray heads is to be maintained.

   c. A minimum clearance of 60 mm from bulkheads is to be maintained, a greater clearance may be desirable if access for boundary cooling is required.

   d. Lashings (where approved) and bin poling combined with wooden wedges are to be sufficiently secure to prevent movement of the pallets or loads and should take into account the possibility of underwater shock. They are not to be stowed to form a false deck.

   e. When stowing munitions access must be maintained for operation, maintenance and inspection of ship fittings (e.g. firefighting and ventilation).

   f. Orientate hard case munitions with nose pointing at 90° to adjacent munitions or in the direction of the base or tail of the adjacent munition with maximum separation. This places the munitions in the arcs of least energy emanating from a detonation and reduces probabilities of propagation.

   g. Orientate munitions so that the least presented area of susceptible explosive composition is facing a threat. For example direct the nose or the base towards the threat or adjacent munition.

   h. Munitions may be orientated and configured so that the non-explosive components of the weapon are placed to act as a buffer between the susceptible explosive compositions of adjacent munitions.

   i. Directed energy weapons should be orientated such that the high velocity jets or fragments are aimed in the least vulnerable direction.

   j. Propulsive ammunition is to be located as in Para a. above but oriented such that if ignited they will travel outboard from the ship or in the direction of least vulnerability.
k. Munitions which are less sensitive to Sympathetic Reaction, bullet and fragment attack - for example HD 1.4S munitions, should be used as buffers between more sensitive munitions. (Articles 0380 and Chapter 13 Annex A refer). Advice on this topic may be sought from NAEXP.

l. Refer to Articles 0380, Chapter 13 Annex A and Chapter 3 Annex A and B for further details on characterisation of explosion effects and for guidance on stowage techniques to reduce propagation and consequences.

0324 STOWAGE OF MUNITIONS IN VEHICLE/TANK DECKS, DOCK AREAS, HANGARS AND WEATHER DECKS

1. Vehicle/tank decks, dock areas hangars and weather decks are not considered as magazines; however magazine disciplines are to be imposed as far as practicable whenever munitions are stowed in these areas. The major hazards in these areas would be fire due to the presence of fuels, oil and ignition sources. With the exception of weather decks, these areas are to be restricted access and constructed in accordance with the provisions of BR 1754.

2. Exceptionally, explosive stores may be carried in vehicles in these spaces, subject to the following rules:

a. Munitions permitted for such stowage should be detailed in Assault Procedures and approved by NAVY CMD EXP in consultation with the PDH.

b. Bulk supplies of petroleum and kerosene are to be segregated from explosives stores to the maximum distance available. Vehicles containing ammunition are not to be positioned closer than 3 metres from the vehicle refuelling points or fuel stowages.

c. An access gap of at least 600 mm is to be maintained around vehicles containing explosives to permit effective firefighting. Spray systems are to be tested prior to embarkation. In addition, vehicles in hangars are to be under a fully developed spray pattern.

d. Explosives in vehicles are to be securely stowed to prevent movement in rough weather.

e. Vehicles are to have their canopies rolled back to facilitate fire fighting.

f. Once the Ship has deployed, individual rounds and ammunition may also be carried unboxed in dedicated racks and stowages of armoured vehicles providing they are unrestricted explosives stores. All other explosives stores embarked in any vehicle are to be packed in their approved containers and are to remain packed whilst onboard.

g. Vehicle/tank deck, dock areas and hangar control positions are to be restricted access and have sentries placed. Specific orders for sentries are to be included in ships general orders and are to cover the following requirements:

(1) Preventing off-duty personnel having access to vehicles.

(2) Preventing smoking.

(3) Fire sentry duties and immediate action drills.
(4) Checking that vehicles and their contents remain properly secured against ship motion.

h. The removal of an explosive containing an EED from its approved packaging is only to be conducted for operational reasons with the express permission of the ship’s Commanding Officer. It is then only to be carried out on the vehicle deck or weather decks, having imposed radar and radio restrictions in accordance with BR 2924 to comply with the relevant SEXSSI.

i. Vehicles loaded with UN Compatibility Group H (White Phosphorus) or UN Compatibility Group G explosives are to be stowed on weather decks. The packages are to be protected from the weather and direct sunlight by the use of vehicle canopies or other suitable means. Such vehicles are to be parked as far apart from other munitions as is practicable.

j. ISO containers/Mini Cons. Subject to PDH and NAVY CMD EXP approval (Article 0321.4), E3 explosives stores may be embarked in ISO containers/Mini Cons.

0325 EMBARKED FORCES REPRESENTATIVE

1. When E3 explosives are carried with an accompanying Embarked Force, the Embarked Force OIC is to nominate a representative to provide specialist advice on the embarked E3 explosives. This officer is functionally accountable to the ship’s Commanding Officer through the ship’s ERO. He is to be conversant with the regulations contained in this chapter and is to ensure that they are complied with.

2. The Logistics Officer is not required to take these explosives on ledger charge.

0326 STOWAGE OF E3 STORES NOT APPROVED BY NAEXP

1. There will be occasions where E3 requests cannot be authorised by the PDH and/or NAEXP. This may be due to a lack of safety information on the stores; (for example, SF stores, seized or enemy ammunition) or due to the timescales that permission is required being too short for a full safety assessment to be completed. On these occasions permission may be given by the ODH, subject to a clearly defined requirement (see flowchart at Annex D of this chapter).

2. To achieve this; NAVY CMD EXP will require as much information about the E3 store as possible, if permission is given, to give storage instructions to the ship.

3. In the exceptional circumstances that a vessel is required to carry out an E3 embarkation without contact with NAVY CMD EXP (for example a very short notice and silent hours or covert operation); the CO may, on acceptance of the risk, grant permission. The ERO will be required to provide the information that will allow the CO to make an informed decision to accept the risk. To aid the decision process, the E3 list is available on the NAEXP website and the FIMU monthly CD library if connectivity allows. If the store to be embarked appears on the E3 list it provides a higher level of assurance that the risk is ALARP and that the store has a relevant SEXSSI.
Special dispensation has been granted for the CO to self-permission; when self permissioned deviations from the regulation allow:

a. For short notice embarkation of explosive stores (including fully prepared explosive stores or Bergens containing explosive stores) they are to be collected and held centrally with a sentry posted and then re-issued in time for SF disembarkation (Article 0380 refers).

b. Solid Support Ship cargo magazines are not to be used for the stowage of unpackaged OME, however the Package Examination Room (PER) or other empty secure magazine stowage can be utilised if available.

c. The preparation of E3 Unrestricted explosives stores in time for disembarkation.

4. For Special Forces, ships will be advised by HQDSF of the requirement to embark and stow explosive stores for or by SF by exclusive signal (for CO/Master). SF Units are to nominate a representative to undertake the responsibilities of Article 0325.

EMERGENCY PROCEDURES FOR MAGAZINES

0327 POLICY FOR SPRAYING IN AN EMERGENCY

1. Automatic spray systems should activate before explosives are endangered by fire, including when it is necessary to boundary cool. Nevertheless, the normal principles of boundary cooling are to be applied as soon as possible after the detection of a fire (BRd 2170 refers).

2. In ships with manually operated arrangements, Commanding Officers should consider the following policy:

   a. In Action. The initiation of spraying explosives as a Command decision as late as possible if that armament system is being used to fight the action.

   b. At other times. To authorize the Damage Control organisation to initiate early precautionary action if magazines are endangered by fire in order to reduce the explosive hazard.

0328 EXPLOSIVES INVOLVED IN FIRE

1. The Hazard and Risk times measured during fuel fire tests are published in individual weapon SEXSSIs and are to be used as guidance. Further information with emphasis on fire, explosives and aviation aspects can be found in Article 0380.

EEDs AND RADHAZ

0329 RADIO AND STATIC ELECTRICAL HAZARDS

1. There is risk of electro-explosive devices (EED) firing inadvertently from an external source of electrical energy; such sources are identified in BR 2924.

Policy for protecting explosives stores from electro-static discharge (ESD)

2. Measures are to be put in place to eliminate hazards to explosives stores from ESD in terms of the explosives stores remaining safe and, where possible, serviceable. Due recognition is to be paid to ESD hazards affecting personnel in terms of electric shock.
Precautions to be observed when handling explosive stores containing EEDs

3. Personnel required to work on or handle explosive stores containing EEDs are to take positive measures as stated in BR 2924 and/or weapon handbooks, drill books, assembly or maintenance schedules:

   a. To keep themselves free from electro-static charges.

   b. To prevent static from any source discharging into the circuitry of an electro-explosive device.

4. To avoid mishandling, gloves are not to be worn when assembling or testing stores containing EEDs. When overriding operational circumstances dictate that NBC or anti-flash gloves must be worn, this requirement may be waived.

5. A notice "Observe Anti-Static Precautions" is to be displayed at the entrances to compartments or areas containing weapons or explosive stores for which anti-static precautions are necessary.

6. There are no restrictions on the wearing of clothing made from nylon or other materials when entering magazines provided personnel are wearing anti-static footwear, which is mandatory and that such clothing is not removed in magazines or in the vicinity of explosives containing EEDs (BR 2924 refers).

Precautions to be observed when using mobile phones

7. Mobile phones are not to be taken into magazines. A minimum safe distance of 3.65 m (12 feet) is to be maintained between all mobile phones and fully assembled, undamaged weapon stores containing EEDs. All mobile phone use is to cease in the event of a casualty weapon, article 0808 and 0907 refers.

   Note: Mobile phones transmit even when calls are not being made, without warning. They are not to be taken within the minimum safe distance, even if not in active use.

Precautions to be observed when using Airwave radios

8. Hand held portable radios are not to be used on the upper deck in the vicinity of ammunition routes when explosive stores are being handled unless a separation distance of 10 metres is maintained. The location of each individual ammunition route in use will necessitate onboard controls to ensure the 10 m safety separation distance is maintained.

0330 RF SUSCEPTIBILITY OF DEMOLITION STORES

1. Some fitted demolition stores are susceptible to Radio Hazards. Details are contained in BR 2924 Volumes 1 and 2. General precautions for detonators and demolition stores are detailed within the relevant SEXSSI and further guidance can be found in JSP 364.

0331 WIPING AND DE-PERMING

1. On no account is ammunition to be embarked or disembarked during wiping and de-perming operations.

2. Certain munitions may be damaged by wiping or de-perming. Any such susceptibility is described in the SEXSSI. Munitions at risk are to be disembarked prior to wiping or de-perming and re-embarked on completion.
FLOODING AND SPRAYING OF MAGAZINES

0332  OPERATION OF SPRAY VALVES

Note: Red security seals as described in Chapter 2, may be used in lieu of 1 inch padlocks for seawater isolating valves up to but not including the Operating valve. They are not to be used on operating, testing, grid isolation, drain valves or rod gearing. A record of these seals is to be maintained within the explosives log, including date of fitting.

1. Quartzoid bulbs and metron activated spray systems
   a. In DC States 1 and 2, the seawater isolating valves and the spray shut off valve are to remain "Open". The hasp of the opened padlock is to be inserted through the locking pin or cotter.
   b. In DC State 3, whenever there are explosives in the compartment, the seawater isolating valves and Spray Shut Off valve are to be kept locked "Open".
   c. The angle cock to flow alarm units is to be kept locked "Open" in all DC States.
   d. In DC States 1 and 2, if a semi-automatic spray system is fitted, the fire pumps are to be running.

2. Rapid Reaction Spray Systems
   a. In DC States 1 and 2, the Pneumatic Spray Control Valve Cage is to be left "Shut", but not locked. All seawater isolating valves are to remain "Open" with the hasp of the opened padlock inserted through the locking pin or cotter.
   b. In DC State 3, whenever there are explosives in the compartment, the Pneumatic Spray Control Valve Cage is to be kept "Shut", and locked. All seawater isolating valves are to be kept locked "Open".

3. Manual spray systems
   a. In DC States 1 and 2, all seawater isolating valves are to remain "Open". The Spray Valve is to remain "Shut". All valves are to have the hasp of the opened padlock inserted through the locking pin or cotter.

These valves need not be manned, but each valve must be clearly marked and directions for working it are to be placed close by. Indicators at each valve must show whether it is in the open or closed position. Couplings at secondary and compartment positions are to be prepared accordingly.

b. In DC State 3, all seawater isolating valves are to be locked "Open". The Spray Valve is to be locked "shut". The handwheel at the valve is to be connected to the rod gearing. Couplings at secondary and compartment positions are to be kept connected and locked to "Shaft".
4. Helicopter operations from flight deck (where manually operated spray valves are provided).
   a. During take-off and landing and during periods of helicopter operations away from the ship, spray valves for magazines adjacent to the flight deck are to be kept “Shut” and not manned. The hasp of the unlocked padlock is to be inserted through the locking pin or cotter.
   b. When VERTREP is in progress, the magazines and associated spraying arrangements adjacent to the VERTREP area are to be unlocked and not manned. The hasp of the unlocked padlock is to be inserted through the locking pin or cotter.

5. Sea-water main pressure.
   a. Firefighting systems and seawater supplies are to be at the required readiness iaw Def Stan 00-101. Vessels fitted with manual or semi-automatic spray systems or dry firemain, where pumps are not continuously running, are to establish the necessary drill to ensure that pumps are started immediately on receipt of an alarm from the magazine smoke/fire detector.
   b. If explosives are retained onboard vessels which are not manned, or if the SW pump machinery cannot be run, the SW firemain is to be connected to the shore firemain and pressure maintained.

TEMPERATURE OF MAGAZINES

0333 THERMOMETERS

1. Each magazine and magazine locker is to be fitted with a Maximum and Minimum Thermometer which is to be placed so as to register the highest temperature experienced in the compartment. In large magazines comprising several compartments, each separate compartment is to be fitted with a thermometer. Thermometers and S285C are not required for Ship’s Protection Force Lockers, Night/Bridge Signal Lockers and Bridge and Life Boat Distress Sets (pyrotechnic polybottles).

0334 TEMPERATURES OF ALL MAGAZINES AND LOCKERS

1. All magazines and magazine lockers containing Explosive Stores must be kept at a temperature below 32°C (unless otherwise stated in the SEXSSI) in so far as the resources of the ship permit.

2. There is a requirement to record, and in some cases, report the temperatures (Article 0334.6 refers) that Explosive Stores are subjected to while they are carried on HM Ships and RFA. There is specific guidance regarding temperatures in each munitions SEXSSI. The reason for this is that Explosive Stores in-service lives may be affected (reduced) if they are subjected to prolonged high temperatures. The main cause of concern is the safety of propellant in Rocket Motors and in Guided Weapons. The RN therefore has a policy of using specific penalty point systems for certain Guided Weapons which can be applied to reduce the residual in-service lives of the Rocket Motors.
3. In the context of recording temperatures for Explosive Stores on HM Ships which involve energetic materials/charges other than propellants, they can be assumed to be thermally stable. However, instances must be reported to the relevant OME PT for advice when stores such as high explosive and pyrotechnics are exposed to temperatures above 49°C. It has been shown that it is possible for Explosive Stores to be subjected to this temperature e.g. Guided Weapons sited in their launch canisters on ships weather decks when in Arabian Gulf waters. The exposure of TNT based high explosives to temperatures at which exudation may start (63°C) is not considered credible on HM Ships and RFA in peacetime.

4. Maximum temperatures are to be taken daily and recorded on the temperature record card (S285C) for all magazines and magazine lockers containing Explosive Stores. There is no longer a requirement to record minimum temperatures; however the minimum temperature of magazines fitted with a spray system incorporating quartzoid bulbs is to be maintained above 0°C.

5. In the event of a ventilation failure resulting in a magazine temperature rising above 40°C and remaining so for a period in excess of 12 hours, temporary ventilation is to be provided (e.g. by portable fan and flexible trunking).

6. In the unlikely event that the weekly average storage temperature exceeds 43°C or any individually recorded temperature exceeds 49°C, a signalled report is to be made to DES BRISTOL for the relevant OME PT, with a copy to the nearest DM Munitions Depot, respective FWO and NCHQ PORTSMOUTH for NAVY CMD EXP.

7. Where RU magazines, lockers or similar stowages are liable to excessive temperatures, the stowage is to be shaded by awnings and/or cooled by the use of wet matting, canvas or other suitable expedient, where possible.

0335 TEMPERATURE OF LOADED CONVENTIONAL WEAPON SYSTEMS

1. When ammunition is loaded into conventional weapon systems, temperatures are to be recorded when the ambient temperature exceeds 32°C.

2. If the temperature exceeds 49°C action is to be taken as laid down in Article 0334.6.

0336 TEMPERATURE OF MAGAZINES WITH ADJACENT FRESH WATER TANKS

1. As far as possible, fresh water tanks adjacent to magazines are not to be filled direct from the ship's distilling machinery, unless the water is cooled first.

2. If this is not possible, the temperature of the magazine is to be carefully monitored to ensure that it does not rise beyond the limits allowed.

USE OF TOOLS AND ELECTRICAL EQUIPMENT IN MAGAZINES

0337 AUTHORITY FOR WORK OR DRILL IN MAGAZINES

1. No work is to be conducted in a magazine containing weapons/explosives unless the work is covered by routine care and maintenance. Routine care and maintenance are activities that do not require the magazine to be empty of explosives/weapons.
2. The use of tools when working on weapons or within magazines is only to be authorised by the ERO and supervised by an Officer of the department concerned. Qualified personnel may, at the discretion of the Officer concerned, be left to continue such work without direct supervision.

3. Routine work for the care and maintenance of the magazine is to be supervised by the OOQ or CM.

4. When operational reasons require high states of readiness to be maintained and the magazine arrangements do not justify the complementing of a leading rate or above, a qualified able rating may supervise the normal ammunition supply operation. The conduct of the operation is to be under the direction of the OOQ. The ERO is to satisfy himself that the able rating in charge is competent before approving his selection for the task.

5. In Approach Compartments or spaces controlled by Armament Important Keys (see Chapter 2), the ERO’s authority for work or drill is required.

0338 USE OF TOOLS

1. No cutting, grinding or drilling tools, of any description, are to be used in magazines containing explosives or on decks/bulkheads bounding magazines containing explosives unless there is prior approval from the Commanding Officer or the magazine has been cleared of explosives. Use of burning, welding or brazing equipment is to be in accordance with Article 0607.

2. Exceptionally SSO working parties are authorised to carry and use tools with a cutting edge used for the construction and break-down of loads within the hold magazines.

0339 PORTABLE TEST ELECTRICAL EQUIPMENT

1. Certain Magazines and Designated Danger Areas (DDAs) are classified in accordance with Def Stan 00-101 Part 3 as Zone 2 areas (i.e. areas where an explosive atmosphere is not likely to occur in normal operation and if it occurs it will exist only for a short time).

Portable lighting and portable electrical equipment

2. Only portable lighting and portable electrical equipment that meets the requirements of Def Stan 00-101 Part 3 is to be used in magazines or handling rooms containing explosives. This equipment is not to be stowed in magazines or handling rooms with the exception that safety torches may be stowed in approved weapon tool boxes.

Approval for temporary use of portable electrical equipment

3. Any request for the temporary use of Def Stan 00-101 non-compliant portable electrical equipment to be used in a magazine is to be submitted to the PDH. Any such request should be accompanied by a safety assessment, equipment technical specification and Certificates of Compliance.

Portable equipment precautions

4. The following precautions are to be observed for any portable electrical equipment taken into a magazine:

a. The fitting, charging or exchange of any type of battery in a magazine area is prohibited.
b. The battery compartments of portable test equipment are to be sealed with tape.

c. Use of an AVO meter in an environment with exposed EEDs is prohibited.

d. The equipment is only to be used by trained personnel and strictly in accordance with maintenance schedules for the munition/equipment being tested and the test set operating instructions.

Emergency lighting

5. Each magazine that is capable of being entered is to be provided with emergency lighting. Either a safety torch approved for use in a magazine or, where the method chosen is Cyalume Chemical Illuminators (CCIs), a fitted stowage box is to be filled with a full outfit of CCIs comprising:

a. NSN 0583-01-315-1029 - 10" Yellow (10 per magazine).

b. NSN 0583-01-074-4230 - 6" Yellow (10 per magazine).

c. NSN 0583-01-255-3346 - Magnetic Base Holder (4 per magazine) (not MCMVs).

d. NSN 0583-01-196-0637 - Combat Light Device (2 per magazine).

Note: The shelf lives of the CCIs are dependent on the hermetically sealed wrappers not being removed or damaged and the packages not being subjected to abnormally high temperatures. The shelf lives are as follows:

(1) The 6" yellow light stick is issued with a USE BY date on the wrapper.

(2) The 10" yellow light stick is issued with a MANUFACTURE DATE and the shelf life is nominally 3 years from this date. The Manufacture Date is no longer on the light stick packaging and must be transferred from the delivery packaging it was issued in.

Cameras

6. Wet film and digital cameras incorporating dry cells may be used in magazines with explosives present subject to the following restrictions:

a. Cameras with external flash units or replacable flash units (e.g. bulbs or cubes) are not allowed.

b. The precautions with batteries as stated in Article 0339.4 are to be complied with.

c. Self-developing instant picture type cameras (e.g. Polaroid) may be used but the removal of exposed film and the "tearing" which starts the development must be undertaken outside the magazine. The discarded negative is to be kept out of contact with all explosives.

d. Requests to use video cameras are to be referred to NAVY CMD EXP for approval stating make and model of equipment.

Personal electrical/electronic equipment

7. The following low energy digital devices are assessed as presenting very low risk to munitions and may be worn or carried in a magazine:
a. Digital watches.

b. Hearing aids.

c. Heart pacemakers.

8. Recreational electrical/electronic equipment, pagers, mobile telephones including all smart devices and any other electronic devices with Wi-Fi or Bluetooth capability are not to be taken into a magazine. Disc or motor drives cannot be regarded as acceptable unless they have been satisfactorily tested to Def Stan 00-101 Part 3.

**General Service Life Jackets**

9. GSLJs contain a battery in the pouch and are not to be taken into magazines.

0340 **USE OF CORROSION PREVENTIVE COMPOUNDS**

1. PX-10 or any other PX-24 corrosion preventive compound containers:

   a. May be taken into Test and Assembly Magazines for use during maintenance or cleaning operations, during which its use is authorized in the schedule, but not stowed therein.

   b. May not be taken into Stowage or combined Stowage and Test and Assembly Magazines,

   c. Are classified as a Class II POL for flash point and POL Class I regulations in accordance with BR 1754.

2. Weapons in Stowage or combined Stowage and Test and Assembly magazines may be wiped with a cloth lightly impregnated with any other PX-24 corrosion preventive compound, but not PX-10.

3. Any PX-24 corrosion preventive compound may only be used as above provided:

   a. Ventilation is adequate to dispense any volatile or toxic fumes.

   b. Any cloth impregnated with the liquid is disposed of immediately on completion of use.

4. PX-10 used on a weapon is to be allowed to dry before that weapon is taken into a stowage magazine.

5. No explosive store or pyrotechnic is to be cleaned with oil except when as detailed in authorised maintenance schedules.

0341 **USE OF TOOLS ON DEPTH CHARGES AND DEMOLITION STORES**

1. If it is necessary to use any tools on an explosive filled mine disposal weapon charge, depth charge or demolition store, other than the tools supplied for fitting and preparation as detailed in Drill/Handbooks, the work is to be under the direct supervision of a suitably qualified Officer, Senior Rate or nominated Leading Rate (Article 0105 refers). They are to ensure that all filling plugs/doors are in place and properly secured.
SAFETY PRECAUTIONS FOR STOWAGE AT READY-USE POSITIONS AND AMMUNITION ON MOUNTINGS

0342 STOWAGE AT GUN, LAUNCHER AND READY-USE POSITIONS

1. The overriding requirement is that ammunition should be held in its permanent stowage at all times unless Operational circumstances dictate that limited quantities must be held either on the mounting/launcher or in ready use stowages.

2. Weapons may be required to keep their ammunition on the mounting and loaded into the gun for protracted periods. When ammunition is provided to the mount it is to be considered as a temporary stowage and is to be inspected daily iaw Article 0205.

3. Provided adequate protective measures are maintained (maintenance schedules and drill routines) guns may remain loaded indefinitely; however the proof by firing as a gun functioning is to be carried out at least every four weeks, as the gun is not to be loaded indefinitely with the same ammunition.

4. All ammunition will deteriorate over time unless it is protected. Firings at more frequent intervals may be ordered should it be thought desirable or advice sought from the Equipment PT. Additional protection from both sun and bad weather should be given, as can be improvised.

5. Practice ammunition corresponding to the types of service ammunition used in war maybe held in ready use stowages and at the mount/launcher during weapon training periods. This includes medium range gun ammunition during PWO firings.

6. Lockers provided for the RU stowage of bridge pyrotechnics, smokes etc. may be filled up to 72 hours prior to sailing.

7. When a ready use magazine or locker contains ammunition; a portable painted sign “DANGER EXPLOSIVES” (red lettering on a grey background) is to be displayed.

8. For stowage of ammunition at mountings, launchers or ready use positions whilst in harbour refer to Article 0601.

0343 WEAPON SECURITY

1. The security and control of small arms weapons is to be in accordance with JSP 440 Part 5 section 7 Chapter 3.

0344 FIXED AMMUNITION AND DECOY ROUNDS REMOVED FROM A GUN MOUNTING OR LAUNCHER

1. Rounds that have been removed from their packages and passed out of a magazine, but have not been entered into a gun or contaminated in any way, may be returned to normal stowages in the magazine after inspection by the ERO or a DERO. They are to be satisfied that:

   a. Any oil or dirt has been wiped off the cartridge cases.

   b. The protective clip, where provided, has been replaced over the primer.

   c. The cartridge case has not been damaged.
2. When fixed ammunition is withdrawn from a cold gun, no special precautions other than those laid down in Article 0344.1 are necessary and the cartridges are to be treated in the same manner as those which have not been entered into a gun.

3. Hot guns should not be left loaded, if avoidable. The best state for a hot gun is empty with the breech open. Retention of a round in a hot gun may cause spontaneous ignition of the shell or the cartridge, or a premature burst on firing.

4. Rounds of which the shell and cartridge have become separated when unloading are best disposed of by firing, whether the gun is hot or cold. To this end a clearing charge is provided for many guns, should separation occur when withdrawing the cartridge after a misfire. If clearing the gun by firing is not possible, an ejector should be used and the round dealt with as follows:
   a. Cold gun, wipe clean, replace protecting clip if fitted and return round to the DM Munitions Depot.
   b. Withdrawn from a hot gun, the round is to be lowered over the side in deep water.

5. Unfired decoy rounds removed from the launchers are to be wiped clean and dry as necessary and returned to stowage. No special precautions or restrictions are applicable.

0345 ASSEMBLY OF BELTS FROM LOOSE SMALL ARMS AMMUNITION
1. Ammunition belts may be attached in accordance with weapon user instructions. The assembly of belts from loose small arms ammunition (Ball, Tracer, Blank and loose Links) is forbidden. Assembly of belts without tools or jigs is likely to result in jams.

0346 EXCESS TEMPERATURE OF LOADED CONVENTIONAL WEAPON SYSTEMS
1. If the ambient temperature of ammunition loaded into conventional weapon systems exceeds 49°C action is to be taken as laid down in Article 0334.6.

0347 SMALL ARMS AMMUNITION - USE OF WETTED OR EXPOSED AMMUNITION BELOW 20 MM
1. Whenever a package containing Small Arms Ammunition (SAA) of any calibre is opened, the package, the packing material and the ammunition itself are to be carefully examined. If the cartons, felt strips etc. are damp or show signs of having been damp recently, or if the ammunition is discoloured or corroded, it is not to be used.

2. Ammunition which is apparently in good condition, but which has been found in a damaged or leaky lining, is to be treated as "suspect" and used under precautions as stated below.

3. Use of "suspect" ammunition:
   a. If one misfire or one hangfire occurs in 50 rounds or less, the contents of that box of ammunition are not to be used.
   b. Ammunition which is "suspect" as in Article 0347.2 is not to be used in rapid fire, pistol practices or in machine guns.
   c. "Suspect" ammunition is not to be used if any other is available.
4. SA ammunition sentenced and labelled “for practice only” is to be subjected to the restrictions above (Article 0347.3 refers).

0348 SOLAR RADIATION

1. Warheads, bombs and other explosive stores are not to be left exposed to direct solar radiation for prolonged periods when the shade ambient temperatures exceed 20°C. Where operational necessity requires long periods of exposure, steps are to be taken to cover or shade stores. Covers must be raised well clear of stores to permit free air circulation.

0349 RATTAM PRECAUTIONS FOR AMMUNITION ON MOUNTINGS AND IN RU LOCKERS

1. If a Counter Terrorism Response Level (CTRL) or RATTAM threat is advised by the Naval Base or Operational Commander, RATTAM precautions should be taken when munitions are exposed on the upper deck in harbour or in littoral regions. As a minimum, susceptible munitions should be exposed for the shortest practicable time. Considerations should be given to erecting screens or placing equipment to deny the terrorist a point of aim on the munitions.

0350 SAFETY PROCEDURES FOR E3 MUNITIONS IN WEAPON PARKS/DUMPS

1. The general precautions in Article 0380 are to be followed.
2. Adequate firefighting arrangements are to be readily available.
3. Munitions which are less sensitive to sympathetic reaction, bullet and fragment attack should be used as buffers between more sensitive munitions. Alternatively, pallet loads of sensitive munitions should be separated by a minimum distance of 2 metres or as advised in SEXSSI.
4. Where authorised E3 dumps are in the hangar, the precautions in Article 0373 and 0374 are to be applied.
5. E3 weapon park/dumps are to be supervised by suitably competent persons to ensure that risks are minimised and potential hazards are identified and removed.

PYROTECHNICS

0351 GENERAL REGULATIONS FOR PYROTECHNICS

1. Containers in which pyrotechnics are packed are not to be opened until the store is required for use.
2. All pyrotechnics which have been removed from their containers but not used, are to be carefully examined before being re-stowed.
3. Pyrotechnics which have been prepared for firing but not subsequently used are to be carefully examined, returned to the “SAFE” condition where applicable, repacked and used at the next opportunity. This does not apply to pyrotechnics fitted with a tear-off disc which must either be expended or lowered into deep water.
4. Non service pattern pyrotechnics are not to be stowed without NAEXP approval.
0352 SIGNALS DISTRESS STOWED IN SHIP LIFERAFTS

1. A complete outfit of Signals Distress is supplied as part of a life-raft outfit within the GRP container. The life-raft outfit is returned to stores when its service date is due and unless used, the container should never be opened. These signals are not accounted for on any Ship accounts.

0353 SIGNALS DISTRESS STOWED IN AIRCRAFT LIFERAFTS

1. A complete outfit of Signals Distress is to be inserted in aircraft life Rafts and lifejackets and the date of insertion and the date due for removal 60 weeks later is to be indelibly marked on each signal.

2. Before being placed in the pack the sealing’s of all the signals are to be examined to ensure that they are intact and in good condition. These sealing’s are also to be inspected periodically during bay servicing.

3. If during inspection any signals are found to be in a poor condition they are to be replaced and the poor specimens fired for training purposes. The date of withdrawal of replacement signals is to coincide with the date on the originally packed signals.

4. Records of periodical inspections and any action taken with the signals are to be entered on the life-raft/lifejacket Log Card (MOD Form 715) dated and signed by the officer or rating inspecting.

5. The installation of Signals Distress in aircraft life Rafts is to be carried out in accordance with the appropriate AP.

0354 PYROTECHNIC DISPLAYS

1. Service pyrotechnics are not to be used for firework displays.

2. Application for approval for firework displays is to be made to the PDH in accordance with Article 0384.

EMERGENCY PROCEDURES FOR AMMUNITION AND WEAPONS

0355 POTENTIAL DAMAGE TO FIXED AMMUNITION

1. Any rounds which have been accidentally dropped, or otherwise roughly handled, should not be loaded until they have been inspected to ascertain that they have not been distorted. If damaged in any way the ammunition is to be quarantined in a separate package and returned to a DM Munitions Depot. Other precautions to be taken are:

   a. The protecting clips of ammunition fitted with a percussion means of ignition are not to be removed until the ammunition has passed through the last manual handling position on the way to the gun.

   b. If laid upon the deck, care should be taken that primers are protected from accidental blows. Care is to be taken that clips are replaced if live ammunition has to be re-stowed.
0356 PACKAGES EXPOSED TO WEATHER

1. Packages containing explosives which have been wetted at any time are to be carefully wiped dry before being re-stowed. Where the package is suspected, or known not to be watertight, it is to be opened and the ammunition inside inspected and if necessary dried carefully round by round. Packages containing ammunition or explosives are not to be opened prematurely or unnecessarily. For special precautions with certain types of ammunition that have been thoroughly wetted see Chapter 5 (Article 0517 refers).

0357 AMMUNITION AND EXPLOSIVES EXPOSED TO CBRN AGENTS

1. No adverse effects are likely to arise unless an agent in liquid form, or in a vapour concentration comes into contact with the explosive filling.

2. It is extremely unlikely that the gas will penetrate to the filling compositions of warheads, bombs, shells or rounds. It is essential that where risk is entailed, the explosive should be destroyed, but the unnecessary destruction of large quantities of explosive merely because gas has been experienced is to be avoided. For the risks involved from contamination of explosive fillings by war gases and remedial action to be taken, BR 2170(2) refers.

0358 WEAPON/EXPLOSIVES STORE JETTISONING POSITIONS

1. Where adjacent constructed jettisoning facilities are provided they are to be used. Where no constructed facility exists the most expedient authorised area is to be employed.

2. Jettisoning positions and priorities are to be authorised by the Commanding Officer in Ship's General Orders.

DRILL AMMUNITION AND WEAPONS

0359 DRILL AMMUNITION, DRILL OR PRACTICE TORPEDOES AND ACQUISITION OR TEST MISSILES

1. Drill ammunition is not to be stowed or mixed with live ammunition. It is to be provided with a separate stowage that may, or may not be, in a magazine. Exceptionally, drill books may order drill rounds to form part of belted loads.

2. Drill or practice torpedoes, bombs, acquisition and test missiles are normally to be stowed in main magazines in lieu of a warshot torpedo, bomb or missile.

0360 USE OF AMMUNITION FOR DRILL AND INSTRUCTIONAL PURPOSES

1. Live explosive stores are not to be used for loading, handling drills or non-firing trials without prior NAVY CMD EXP approval. Operational Authorities may exceptionally authorise the use of specific weapons to exercise operational drills subject to NAVY CMD EXP approval, if:

   a. Drill weapons cannot be made available.

   b. The requirement has been justified as being operationally essential and is ALARP and tolerable.

   c. The weapon is not liable to damage.
2. Drill ammunition for small arms is always to be examined before use to ensure that no live ammunition is present.

3. Drill ammunition that can be assembled from more than one detachable part (i.e. fuze and store body or rocket head and motor) is always to be examined before use to ensure that no live parts are present.

4. Inspection cartridges are replicas of live ammunition, except that they are tinned or chrome coloured. They are for testing mechanisms and are not to be used for drill purposes.

5. Armament stores held for display/demonstration purposes are to be examined and Certified Free From Explosives (CFFE) (Article 0539 refers).

PACKAGING, EXAMINATION OF PACKAGES AND FILLING OF PACKAGES

0361 CARE AND DESIGN OF PACKAGES AND CONTAINERS

1. Packaging containing ammunition is frequently either a flash tight or damp proof container in which the contents are protected from damage or deterioration. Rough usage of lids, which may reduce their resistance, may be a source of danger and certainly of accelerated deterioration of the ammunition.

2. Packaging and pallets will frequently be metallic to reduce/minimise the fire risk. Metal package designs may incorporate devices to provide venting and reduce confinement in the event of an unintended initiation. Wooden packaging is authorised for certain MCMV munitions to conform to magnetic hygiene requirements. For other situations where wood packaging is being considered, the Platform Duty Holder must seek NAEXP approval. Pallets should be made of metal where practicable.

0362 EMPTY AND PARTIALLY EMPTY PACKAGES OR CONTAINERS

1. When empty; packages and containers are always to be treated with care and kept clean and dry, particularly packages made of aluminium-silicon alloy or galvanised steel.

2. They are to be sealed and endorsed in accordance with CFFE procedures (Article 0539 refers) and segregated from live stores prior to return, at the earliest opportunity, to the DM Site.

3. Partially empty packages are to be clearly marked to show their condition (i.e. defective, or for return/examination etc.) or contents remaining (Article 1302.1.e refers).

0363 USE OF PACKAGE EXAMINATION ROOM (PER)

1. Where a PER is provided it is to be used for:

a. “Broken Seal” examination.

b. Repacking of small arms ammunition to make up full boxes.

c. Certifying expended small arms ammunition as Contaminated Brass (Article 0539 refers).

d. Preparation of decoys for aircraft – where required by SEXSSI.
e. Making fraction issues of those boxed munitions when to do otherwise undermines the maintenance of OC - e.g. to meet demands for singleton aircraft power cartridges.

f. Any other activity or process requiring approval (Approval To Process) from the Operating Authority

g. Stencil cutting and stencilling, removal of markings and seals and the preparation of packaging pieces

h. Temporary stowage for E3 munitions.

2. Only personnel deemed by the ERO as WOME suitably qualified and experienced (SQEP) are authorised to use the tools and materials required to undertake these tasks as specified in the RAS Allowance List and process documentation.

0364 SEALING OF PACKAGES OF AMMUNITION

1. The lids of explosive packages are to be sealed with seals bearing the monogram of the closing station. When returning packages containing explosives to DM Sites; any packages with broken seals or tapes are to be kept separate and the DM Site informed five weeks prior to the de-ammunition date.

2. Authenticity sealing is only to be carried out by, or under the supervision of, those NCOs and Officers (or civilian equivalent) qualified by an appropriate departmental course to certify the contents of the package and authorised to do so by the ERO.

AIR WEAPONS, AEDs AND AIRCRAFT PYROTECHNICS

0365 AIR EXPLOSIVES STORES - APPLICATION

1. When used in these regulations the term "aircraft" refers to all types of fixed wing, rotary wing or VSTOL aircraft and UAVs.

0366 AIR EXPLOSIVES STORES - STOWAGE AND HANDLING

1. When assembled, weapons are to be placed and handled on an air weapon transporter, cradle pallet trolley or stowage rack of the approved type. They are to be stowed only in an approved air weapons magazine or parked in an approved weapon park.

2. When transferring and handling missiles, torpedoes or bombs any special "to type" protective cover supplied should remain fitted as long as possible. Weapons and components should at all times be handled with care. Prepared weapons are to be lashed down when not being moved.

3. Assembled missiles or missile components are to be treated as defective if they have been dropped by more than the distances specified in the relevant SEXSSI, whether or not there is any visible sign of damage. Defective stores are to be disposed of in accordance with the instructions in Chapter 8.

0367 PREPARED WEAPONS AND EXPLOSIVES STORES STOWED IN AIRCRAFT HANGARS

1. When operational circumstances demand it, prepared weapons and explosive stores stowed in their respective trolleys or packages may be stowed in a hangar that is adjacent to the flight deck.
2. When weapons or explosive stores are stowed in the hangar it becomes a Designated Danger Area as defined in Chapter 14 and a Weapons Park. Regular physical inspection of the hangar is required and the following rules are to be observed:

a. The explosives stowage position is to be close to the hangar door so that in the event of an incident within, or adjacent to, the hangar there is a clear route for removal and jettison of the weapons and explosives stores if necessary.

b. The quantity of explosive stores is to be limited to that necessary to meet the operational need.

c. Loose cleaning gear, rags or flammable material are not to be left in the hangar in the vicinity of weapons or other explosive stores.

d. De/refuelling of aircraft with fuel or oils, the application of paints or the use of cutting tools in the hangar is forbidden.

0368 READY USE MAGAZINE LOCKERS FOR SMOKE AND PYROTECHNIC STORES LOCATED IN THE HANGAR

1. RU magazine lockers in small ship flight hangars for decoys, smoke and pyrotechnic stores are only to contain the quantity of explosive stores required to meet the immediate operational need. In ships not fitted with RU magazine lockers for these stores, packages stowed in the hangar for RU operations are to be restrained from movement with the lids/cover replaced.

2. Lids and doors to RU magazine lockers are to be kept closed except when transferring explosive stores.

3. Loose cleaning gear, rags or flammable materials are not to be left in the hangar in the vicinity of RU stores including those in RU magazine lockers.

4. De/refuelling of Aircraft with fuel or oils, the application of paints or dope or the use of cutting tools is forbidden in the hangar when transferring explosive stores to or from RU magazine lockers or when explosive stores are being transferred via the hangar.

0369 POWER CARTRIDGES

1. Power cartridges may remain installed in aircraft in the hangar. When it is necessary to remove them for aircraft maintenance or other reasons; they are to be kept in a locker which may be sited in or adjacent to the hangar. The locker is provided solely for power cartridges due to be replaced in aircraft and is not a ready-use store. The lockers are normally to be kept locked and the keys are to be under the supervision of the Air Engineer Officer or the Senior Maintenance Rating/Flight Commander in ships where no Engineer Officer is borne. He is to ensure that the keys are returned to the Armament Key Board on completion of work.

0370 PREPARATION AND TESTING

1. The ERO, their OOQ or Competent Maintainer is to be present during the preparation, assembly or testing of live weapons or stores. Preparation, assembly and testing is to be carried out in test and assembly magazines, hangars, designated danger areas or on weather decks clear of RADHAZ danger areas given in BR 2924 Volumes 1 and 2. This is to be in accordance with approved schedules as authorised by the Commanding Officer in ship's orders.
2. Electrical circuits of weapons, with the exception of those circuits supplying EEDs are to be tested using authorised test equipment and procedures as laid down in the appropriate Air Publications.

3. For Electro-Explosive Devices (EEDs), i.e. Power Cartridges and all devices fitted to Air Weapons including Guided Weapons and Torpedoes, the test policy is as follows:

   a. Routine tests for continuity, insulation, resistance and RADHAZ filter continuity (where the filter is integral with the EED) are not to be carried out by Service Units on EEDs prior to installation, while installed or on removal unless specific provision is made for such testing by the inclusion of test facilities in either an aircraft installation or in an authorised weapon test equipment and only where details of tests and the test equipment to be used are provided in aircraft or weapon maintenance and preparation publications. Exceptionally, routine tests may be authorised by the relevant OME PT for a specific trial or investigation. In these cases the equipment and methods to be used will be specified.

   b. Non-routine Tests may be carried out at the discretion of the AEO/ERO to determine cause of malfunction of combined Aircraft and EED systems. Tests are only to be permitted when full details of the circuit to be tested, and the approved test equipment, are known. The correct safety precautions and documented test procedures must be complied with.

4. In the case of air launched guided weapons, if as a result of tests, covered by Article 0370.3a and 3b, a sub-assembly containing EEDs is found to be suspect or defective, the sub-assembly is to be double packed in its primary container and returned to a DM Site. NAVYHQ Portsmouth (ACOS(AV)) and DES SE Air are to be informed. Prior warning is to be given to the DM Site, who will provide an outer transit container.

5. Where special-to-type assembly jigs, stands or benches are provided; assembly or disassembly is only to take place on those items. The authorised tools and procedures are always to be used.

0371 RADIO HAZARDS TO AIR WEAPONS

1. The regulations for the safety of air weapons exposed to Radio Hazards whilst carried on airborne aircraft are covered in BR 2924 Volumes 1 and 2.

2. Additional hazards may arise once an air weapon is in physical contact with or attached by a loading device to an aircraft. The background reasons for the additional hazards, which are peculiar to each particular type of weapon, are discussed in BR 2924.

3. The regulations for particular air weapons and other airborne EEDs while being loaded on to or unloaded from aircraft and while armed aircraft are parked on the flight deck are contained in BR 2924, DINs and Aircraft Arming Schedules.

4. With some weapons it is necessary to specify certain danger areas included in the regulations above. Ship's orders are to state which parts of the flight deck lie outside these areas and are to include an organisation for extending this area by switching off transmitters or reducing their power. These orders must be framed so that their administration and execution are simple.

5. The following precautions increase the safety margin from radio hazard accidents and are to be complied with as far as practicable.
a. Aircraft being armed are to be spotted so that weapons are pointing on a safe bearing and so that personnel and other aircraft are clear of the line of fire and of blast if a weapon were inadvertently discharged.

b. Personnel engaged in assembly, testing, maintenance or handling of air weapons is to take anti-static measures in accordance with BR 2924.

c. Weapons attached to armed aircraft must not be touched unless strictly necessary.

**0372 LOADING AND UNLOADING AIR WEAPONS**

1. Time is to be allowed for the correct procedure to be carried out as laid down in the relevant Air Publications, or other special orders as may be issued to the Fleet.

2. When loading, arming, re-arming, de-arming or unloading any explosive store or weapon on an aircraft:
   
a. Adequate arrangements are to be taken to prevent any movement of that aircraft.
   
b. Aircraft engines are to be stopped except in the case of helicopters for which schedules have been issued to cover loading/unloading of weapons in certain circumstances with rotors running.
   
c. Radio or radar installed in that aircraft is not to be caused to transmit except for those systems which are identified in the relevant aircraft Air Publication Armament Procedure Sheets. There is no danger in using the intercom facilities of the aircraft radio installation.
   
d. During thunderstorms the operation of loading explosives to or from aircraft is to be suspended from the time of first thunder until the storm has ceased. This regulation may be waived if it is essential to do so during wartime operations.

3. Loading and unloading explosive stores or weapons is to take place on the Flight Deck except when specifically authorised that it may be done in the hangar in accordance with Article 0374.

4. Firing circuit safety breaks in aircraft, launchers and missiles are to be connected just prior to take-off and are to be disconnected as soon as possible after landing; as described in the relevant Air Publications.

5. Electrical testing of aircraft armament circuits while bombs, torpedoes and armament stores are loaded on to aircraft may only be carried out as authorised in the relevant Air Publications.

6. Air launched weapon components (excluding safety pins) must not be inserted in, or withdrawn from weapons, when loaded on an aircraft except in an emergency for the purpose of rendering a dangerous weapon safe.

**0373 AIRCRAFT ARMAMENT STORES IN EXPOSED POSITIONS**

1. Aircraft armament stores stowed in exposed positions or repeatedly carried externally on aircraft are to be frequently examined. Any found to be deteriorating or in a damp or thoroughly wetted condition should be jettisoned if containing explosives or pyrotechnics. Bomb pistols and other mechanical items similarly affected should be returned to a DM Site for cleaning and overhaul, quoting this Article.
2. Aircraft armament stores are not to be exposed to high temperatures for prolonged periods (Article 0348 refers).

**0374 LOADING AND UNLOADING OF WEAPONS AND STOWAGE OF ARMED AIRCRAFT IN HANGARS**

1. Explosive stores that may be loaded, unloaded or remain loaded to an aircraft in hangars under normal operating conditions are as follows:

   a. All Aircraft Power Cartridges may remain loaded and may also be unloaded/loaded, in accordance with current maintenance schedules, in hangars provided that the necessary safety precautions are observed.

   b. When aircraft canopies fitted with Miniature Detonating Cords (MDC) are removed for servicing or held as spares, they may be stored in aircraft hangars. For this purpose the canopies are to be labelled "Explosives Fitted", and stowed in their containers in a designated area of the hangar. This area is to be suitably defined under local arrangements. A notice "Danger Explosives" is to be prominently displayed.

2. Pyrotechnics in general and smoke stores are a considerable risk in the event of fire. All pyrotechnics carried externally or internally are always to be removed from aircraft prior to their stowage in hangars and are to be returned to an authorised stowage except the Signals Distress Day and Night stowed in aircraft life-rafts.

3. All pyrotechnics, including those at Article 0374.2, are to be removed from the aircraft at all times when specified in Aircraft Schedules; e.g. when the aircraft is placed "in suspension" or in a non-flying period and such other times when the AEO or the Senior Maintenance Rating of the Squadron, Flight or Unit considers that the presence of pyrotechnics in the aircraft may be hazardous.

4. When it is essential to the conduct of Operations, armed aircraft required at Alert State 30 or higher, the Commanding Officer may authorise that offensive explosive stores may be loaded to, remain loaded to and be unloaded from aircraft in the hangar. The quantity of explosive stores is to be limited to that necessary to meet the immediate operational need. Explosive stores not being immediately loaded to aircraft in the hangar but required at a ready-use state are to be held on the flight deck adjacent to a quick jettison facility. The clearance given by this paragraph does not include the stores listed in Article 0374.2. Forward firing or propulsive weapons are to be disconnected electrically and mechanically locked in the "safe" condition. Flight in Air Material (FIAM) may also be fitted to all Air Launched Torpedoes in the hangar of Single Unit Ships to meet re-arm requirements prior to loading aircraft or transporting to Ready Use Weapon Parks.

5. Maintenance to an armed aircraft in the hangar is forbidden if it involves the supply of electrical power to the aircraft, replenishment of fuel or oils, the application of paints or dope or mechanical maintenance to the weapon system.

**0375 LANDING ON SHIPS WITH WEAPONS LOADED**

1. A measure of risk is attached to the landing of aircraft that are carrying weapons since it cannot be certain that the weapon may not have become armed since being loaded.

2. If the inspection after landing reveals a doubt as to the safe condition of a loaded weapon the ship's organisation is to provide for the retention of the aircraft on the flight deck until appropriate action has been taken.
REGULATIONS FOR THE SERVICING AND STOWAGE OF AIRCREW ESCAPE AND SURVIVAL EQUIPMENT CONTAINING PYROTECHNICS

1. Pyrotechnics removed from items of equipment in accordance with bay servicing schedules are to be returned to magazine stowages, or stowed in a Ready Use Locker, until required for re-installation. The pyrotechnics include:
   a. Signal Kit Pyrotechnic.
   b. Signal Distress Day Night.
   c. Safety Matches.

2. Items of equipment not undergoing bay servicing are to be stowed as follows:
   a. In dedicated racks or lockers within the aircrew clothing and survival equipment room where provided.
   b. In designated lockable aircrew clothing and equipment lockers situated in or close to aircraft hangars in ships without a dedicated stowage as in a. above, the key to such a locker is to be positively controlled by the Flight department. When equipment containing pyrotechnics is stowed in the locker a “Pyros Within” sign is to be displayed on the outside.
   c. In designated lockable aircrew flying clothing lockers in aircrew locker rooms in aircraft carriers.

3. Aircrew survival equipment containing pyrotechnic stores is not to be stored or left in offices, cabins, stores or accommodation spaces.

LOADED AIRCRAFT ARMAMENT ANTI-ICING FLUID CONTAMINATION

1. All aircraft launched pyrotechnic stores which may have been contaminated by anti-icing fluids are to be set aside for early use.

2. All weapons and attached hardware are to be thoroughly cleaned of all traces of anti-icing fluids before stowage in magazines/stores.

3. VT fuzes, particularly the loop aerials, are to be wiped dry should contamination by anti-icing fluids occur.

ISSUE AND RETURN OF PERSONAL AND MILITARY EXPLOSIVES

PROVISION OF AMMUNITION FOR PRACTICES AND FORCE PROTECTION

1. Ammunition is not to be prepared, removed from magazines, placed in RU lockers or package seals broken until the last practical moment prior to firing. All internal packaging material is to be retained as intact as possible to facilitate re-packaging should return become necessary (e.g. Response Force ammunition).
 ISSUE AND RETURN OF PERSONAL EXPLOSIVES

1. In ships without dedicated assault routes/procedures, assault routes/procedures (utilising ammunition routes where possible) are to be provided by the PDH for E3 explosives stores issue for subsequent disembarkation/re-embarkation. Requirements for ammunition routes and assault procedures are identified in Naval Authority Regulations Chapter 8 and Def Stan 00-101.

   a. Assault routes/procedures are to be developed by the PDH for ships with dedicated assault roles and for E3 situations using input and advice from COMATG, NAVY CMD EXP and other appropriate user organisations. Issues that are required to be addressed include:

      (1) Assault Procedures: Embarkation, Pre assault (assembly points, munitions dump, preparation areas), Assault and Re-embarkation

      (2) Assault Routes: Covering each of the above phases (where different to normal ammunition routes) and including vehicle/tank decks and any special handling equipment.

2. The issue of explosives is to take place at the last practicable moment in time for disembarkation and at the discretion of the Ship's Commanding Officer. The priming of grenades is not to take place within the ship and weapons are not to be loaded until the last practicable moment before disembarking.

3. Issue of primed grenades to troops for stowage on personal equipment immediately prior to disembarkation may take place in assembly areas.

4. Ammunition dumps are to be guarded by sentries. Arrangements are to be made to confirm the safe state of all personal weapons on re-embarkation and collect all explosives from returning personnel immediately on their arrival onboard ship.

SAFETY PRECAUTIONS FOR WEAPON PARKS

 SAFETY PRECAUTIONS FOR AMMUNITION PARKED IN WEAPON PARKS OR DDA

1. This instruction provides guidance to Commanding Officers of HM Ships in which ammunition may possibly be exposed to fire, fragmentation or shock when temporarily located on flight decks, weather decks or in hangars. Explosives may cook off, or fragments or shock from the detonation of one weapon may cause detonation of others.

Hazard reduction

2. The following actions should be taken to reduce the risk of an explosive incident:

   a. Weapon parks are to be in areas protected from possible fuel fires caused by a crash on deck or RAS fuelling point accidents. Adequate fire-fighting arrangements are to be readily available.

   b. Weapon park/dumps are to be supervised by suitably competent persons to ensure that risks are minimised and potential hazards are identified and removed.
c. Minimise the quantities of ammunition in exposed positions. Ammunition is to be retained in magazines until required for operational use. In establishing weapon parks on the upper deck consideration is to be given to the methods and routines to be used to jettison ammunition over the side in an emergency and the routes by which this will be accomplished. Large explosive stores such as bombs, torpedoes or guided missiles required on the flight deck prior to aircraft loading are to remain on their trolley or cradles.

d. Loaded aircraft are always to be parked with forward firing and propulsive weapons pointed in the safest possible direction unless specifically authorised to the contrary by the Flight Deck Officer. The risk of inadvertent firing of weapons into ship's structure during take-off and landing of helicopters must be accepted but except in adverse weather conditions, it should be possible to park helicopters armed with forward firing weapons safely. However due note must be taken of the armament stores loaded, and the aircraft positioned, to afford maximum all round safety.

3. If explosives are exposed to a fuel fire, the recommended action is that they are to be removed from the danger area if possible and if necessary jettisoned while endeavouring to put the fire out as quickly as possible with the appropriate fire-fighting measures (AFFF or copious quantities of water) (BR 2170 refers).

4. Explosive stores which have been heated should be cooled by water for at least 30 minutes after extinguishing the fire.

5. It should be noted that:

   a. If two or more similar or different types of weapons are involved in a fuel fire the results could be different, as there is then a possibility that a reaction from one will cause a quicker or more violent reaction of another due to the projection of fragments and/or effect of jets of intense flame torching from burning explosive or propellant

   b. The rapid application of fire-fighting techniques may contain the situation by preventing the explosive reaching ignition temperature. Explosive composition ignition temperature is typically around 180°C.

6. In a fire heat will be passed from a munition case to the filling and the internal temperatures will continue to rise. It is therefore possible that the cook-off time may be reached some considerable time after the flames have been put out. The danger will remain for at least 30 minutes after the fire is extinguished. Ammunition exposed to fire must be cooled with water for at least 30 minutes after the flames have been put out.

7. Commanding Officers are to assess the consequences of weapons liable to be involved in a fuel fire and are to issue appropriate orders within the following guidelines to cover the jettisoning of explosives in emergency and fire-fighting policy.

   a. Ditching before fire envelopment. If there is a danger of explosives (including weapons on aircraft or in weather-deck weapon parks) being enveloped by a fire every effort is to be made to ditch, safely jettison, or keep cool weapons/explosive stores that could cripple the ship or cause extensive damage if they detonate or explode in the fire. The relative acceptability of a major explosion on deck or one close alongside is to be assessed and when it is considered preferable to ditch, the risk of the weapon detonating on impact with the water is to be accepted.
b. Bulky explosive stores that have survived being enveloped by fire. Explosive stores that are not hydrostatically initiated, and that could seriously damage the ship if they detonate close to the ship's side if ditched, are to be thoroughly cooled and then lowered into the water before being slipped.

c. Hydrostatically activated stores that have survived being enveloped by fire. Explosive stores that are hydrostatically initiated may be ditched in the safest practical manner after being cooled if the risk of retaining them onboard is the greater. Care must be taken to ensure that stores have lanyards fitted, and fuzes safe, before ditching.

d. Small explosives that have survived being enveloped by fire. Explosive stores that would not endanger the ship if they detonated close to the ship's side are to be ditched as soon as possible after being cooled with water.

e. Explosive stores subjected to heat. Stores which have been exposed to fire or excessive temperatures may be in a sensitive condition due to chemical reactions and/or exudation and should be handled with great care. Special attention to avoid dropping, knocking, vibration or impacts of any kind is essential.

Fire-fighting personnel and equipment

8. Detonation or explosion of ammunition in fires may cause casualties and destroy equipment. For this reason, substitute fire-fighting crews and equipment are to be available in a position where they are unlikely to be affected by such an occurrence.

Reducing the effects of unplanned initiation of munitions when stowed in Weapon Park area.

9. Refer to Chapter 13 Article 1306 for further information on the characteristics of explosion effects and Chapter 13 Annex A for explosive effects of Hazard Classification Codes.

10. To reduce the effect of unplanned initiation of munitions the following rules should be followed as far as possible:

   a. Aircraft bombs are to be oriented in a staggered line with nose pointing in the direction of the base or tail of the adjacent bomb with at least 2 metres separation. This places the bombs in the arcs of least energy emanating from a detonating bomb and reduces probabilities of propagation.

   b. Aircraft bombs are to be placed in such a manner that the wind down the deck will rotate the arming vanes in a safe direction.

   c. Orientate munitions so that the least presented area of susceptible explosive composition is facing a threat. For example, direct the nose or the base towards the threat or adjacent munitions.

   d. Munitions may be orientated and configured so that the non-explosive components of the weapon are placed to act as a buffer between the susceptible explosive compositions of adjacent munitions.

   e. Directed energy weapons should be orientated such that the high velocity jets or fragments are aimed in the least vulnerable direction.

   f. Propulsive ammunition is to be located as in a. above but oriented so that it will go over the side if fired.
g. Place non explosive items or munitions with HCC 1.4 in between susceptible munitions to act as buffers and induce separation between them.

h. Where water barriers are provided they should be filled and placed in the weapon park at times of high Operational Readiness. Water barriers as detailed in Article 0381 and Annex A may be constructed and used as mitigation between susceptible munitions in the weapon park.

i. If mitigation barriers are not available, pallet loads of sensitive munitions should be separated by a minimum distance of 2 metres or as advised in SEXSSI.

0381 TEMPORARY MITIGATION BARRIERS

1. The use of anti-fragmentation water barriers as detailed in Annex C will provide sufficient protection (up to Effective NEQs of 300 kg TNT equivalent) to prevent propagation of explosion between stowed susceptible munitions by reducing fragment velocities and shockwave over-pressures. These barriers may be fabricated from materials held onboard.

EMERGENCY PROCEDURES FOR AIR WEAPONS

0382 MISFIRE AND HANG-UP PROCEDURE

1. If an Aircraft carrying a blocked or misfired gun, a misfired or hung-up missile/bomb, has to be recovered; the following sequence of operations is to be carried out as far as possible:
   a. An interval of 10 minutes is to have elapsed since the last attempt to fire. If this 10 minute interval is operationally unacceptable the weapon is to be jettisoned.
   b. All armament switches are to be put to Safe before landing on.
   c. The aircraft is to be landed last if flying conditions permit.
   d. The aircraft is to be parked with the weapon pointing in a safe direction. The areas in front of, and immediately behind the weapon, are to be considered danger areas.
   e. Weapon and aircraft circuits are to be made safe. The weapon and aircraft are to be examined in accordance with the relevant APs, and subsequent action taken in accordance with Chapter 8 if the weapon is discovered to be defective. A MF760 may be required.

2. It should be borne in mind that a weapon may detach from the aircraft on landing. If this occurs it should be handled with extreme care whether it remains visibly intact or is in pieces. It should be either disposed of by lowering over the side (Chapter 8 refers) or set on one side pending advice post release of an Incident Report and returned to the DM Site for examination at the earliest opportunity.

3. Weapons seriously damaged in aircraft accidents may become armed. They should be handled with care and disposed of by lowering over the side (Chapter 8 refers). Full RADHAZ and electrostatic precautions are to be observed in accordance with BR 2924.

0383 AIR WEAPON/EXPLOSIVES STORE JETTISONING POSITION

1. Air Weapon jettisoning position constructional requirements are provided in Def Stan 00-133 Part 2.
2. Where constructed jettisoning facilities are provided they are to be used; where no constructed facility exists the most expedient authorised area is to be employed.

3. Jettisoning positions are to be authorised by the Commanding Officer in Ship's General Orders.

PROVISION OF EXPLOSIVES FOR DEMONSTRATIONS/DISPLAYS/FILM/TV/FIREWORKS

0384 PROVISION OF EXPLOSIVES FOR DEMONSTRATIONS AND DISPLAYS

1. HM Ships and RFAs having a requirement for any form of explosives to be used in demonstrations or displays, media coverage (e.g. simulated bomb explosions or special blank ammunition at Navy Days or Filming for TV) are to make application to NAEXP through their PDH and Administrative Authority giving the following details:

   a. Nature of demonstration/display/filming.
   b. Place and dates of demonstration/display.
   c. A description of the required effect.
   d. Suggested way of producing effect.
   e. A detailed safe system of work.

2. No person under the age of 18 is to be made responsible for any part of the display.

3. On approval, NAEXP will issue temporary conditions to the ships CSE.

4. Applications should be submitted to NAEXP as early as possible before the date of the demonstration/display (Articles 0351 and 0354 refers).

PRIVATE AMMUNITION

0385 REGULATIONS FOR PRIVATE AMMUNITION

1. Privately owned SAA and cartridges (including ammunition purchased by ship's welfare funds etc.) for use in sporting guns (excluding handguns) may be taken onboard HM Ships and RFAs only with the approval of the Commanding Officer and providing there is space available and the magazine spray coverage is not compromised. It is to be packaged in approved service ammunition containers which are to be clearly marked 'PRIVATE AMMUNITION' and stowed in a HDD 1.4/equivalent Compatibility Group Magazine. Private Ammunition is not to be mixed in the same container with other service ammunition.

2. Private ammunition is not to be stowed with any firearms.

3. The embarkation of Private Ammunition is to be conducted in accordance with Chapter 5 and is subject to formal agreement by NBC or other port authority in accordance with Article 0513. The owner or person transporting the ammunition to the ship is responsible for the adherence to civil and dockyard regulations for the transport of explosives and is to prove possession of the appropriate civil licences when application is made.
4. This ammunition is to be inspected on receipt by the ERO or his Delegated ERO. If it is found to be in a poor condition, or at any time is found to have deteriorated since receipt, it is to be disposed of in accordance with current regulations.

5. After receipt, its use is to be controlled and accounted for in accordance with Naval Armament Stores regulations in force. A new OOQ Log page is to be raised for each nature.

6. The S258K for the magazine containing the private ammunition is to be temporarily amended. Magazine contents board to be amended to reflect the additional ammunition and the ‘remarks’ page in the explosives Log to be annotated accordingly.
CHAPTER 3 ANNEX A

PRINCIPLES FOR LOCALLY PRODUCED STOWAGE PLANS

Layout of stowages, configuration and orientation of munitions within stowages should be optimised for both protection and operability. The aim is to prevent sympathetic reaction or reduce consequences to tolerable levels. This must be considered along with the requirements for operating the weapon system safely and providing adequate restraint.

To achieve optimisation of the stowage plan, from an explosive safety perspective, the plan should seek to comply, as far as is reasonably practicable, with the following principles. They are generically listed in order of application but for a particular circumstance this order may not be valid and adjustment must then be made.

The stowage of the very high NEQ re-issue load on board the solid support RFAs has to balance the explosive safety issues with Navy Command’s requirement to provide OC and will, wherever relevant and practicable, follow the principles described below.

<table>
<thead>
<tr>
<th>No.</th>
<th>Principle</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The maximum Effective NEQ (ENEQ) of HD 1.1 munitions placed in a 'unit' should be less than the quantity that could cause intolerable damage. (This principle is generally called 'unitisation'). The unit values for each class of ship will be shown in CB 8844 in due course. In the interim these values may be obtained from NA EXP or the PDH.</td>
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<tr>
<td>2</td>
<td>UN Hazard Classification Codes are to be applied. Compatibility Groups (CG) of explosive stores/munitions are to be separated by Group unless mixing by Group is authorised.</td>
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<tr>
<td>3</td>
<td>Munitions that are less susceptible to Sympathetic Reaction, Bullet or Fragment Attack should be used as barriers between more susceptible munitions (e.g. pallets of HD 1.4S munitions between units of HD 1.1). Other inert barrier materials should be used if there are insufficient pallets of munitions with lower susceptibility.</td>
</tr>
<tr>
<td>4</td>
<td>Spatial relationships with other adjacent magazines (above, below, forward and aft) are to be considered when positioning units of HD 1.1. Pallets of HD 1.1 should not be positioned 'adjacent' to other pallets of susceptible munitions.</td>
</tr>
<tr>
<td>5</td>
<td>Susceptible munitions are to be protected from RATTAM and anti-ship missile threats by placing them in protected magazines/holds within the Platform e.g. behind armour, under the waterline.</td>
</tr>
<tr>
<td>6</td>
<td>Where possible, ship’s structure should be utilised to provide shielding for susceptible HD 1.1 munitions.</td>
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<tr>
<td>7</td>
<td>Consideration must be given to stowing HD 1.1 munitions the maximum distance inboard from ships side plating.</td>
</tr>
<tr>
<td>8</td>
<td>Munitions should be stowed with the maximum available separation between units of HD 1.1.</td>
</tr>
<tr>
<td>9</td>
<td>Munitions in pallet loads or in individual ACAs are required to be secured to prevent movement due to ship's motion and securing arrangements are to take into account the possibility of underwater shock. Spanset poles will be used to provide restraint for munitions stored on flow forge grids. The need for additional restraints, securing points, chocking etc. is to be considered.</td>
</tr>
<tr>
<td>10</td>
<td>Consideration must be given to the heights of pallets when arranging barriers between susceptible munitions to avoid line of sight communication from</td>
</tr>
<tr>
<td>11</td>
<td>A minimum clearance of 300 mm below the level of magazine spray heads is to be maintained.</td>
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<tr>
<td>12</td>
<td>The ability to boundary cool all bulkheads must be considered. A minimum clearance of 60 mm from bulkheads is to be maintained. A clearance of 450 mm is desirable.</td>
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<tr>
<td>13</td>
<td>Munitions should be oriented so that the non-explosive components are placed to act as a buffer between the susceptible compositions of adjacent munitions.</td>
</tr>
<tr>
<td>14</td>
<td>Munitions should be oriented to present the least susceptible area to the threat (i.e. directing the nose/base of a susceptible munition towards the threat or adjacent munition).</td>
</tr>
<tr>
<td>15</td>
<td>Hard cased munitions should be oriented so that their nose is at 90° to adjacent munitions e.g. 105 mm HE Shell pallets should be placed at 90° to each other.</td>
</tr>
<tr>
<td>16</td>
<td>Stow rocket motors adjacent to over-pressure venting arrangements.</td>
</tr>
<tr>
<td>17</td>
<td>Directed energy weapons should be oriented such that the high velocity jet or fragments are aimed away from vulnerable munitions/high value compartments/external infrastructure – ideally not within 1 metre of the ship structure.</td>
</tr>
<tr>
<td>18</td>
<td>Rocket propelled munitions must be secured such that they remain constrained if they initiate propulsively.</td>
</tr>
<tr>
<td>19</td>
<td>Rocket propelled munitions should be oriented to prevent the efflux from playing on susceptible munitions and structures or a barrier should be placed to deflect the efflux.</td>
</tr>
<tr>
<td>20</td>
<td>The positioning of munitions is to be such that access to ship fittings (e.g. firefighting equipment) within the magazine for operation, maintenance and inspection is to be maintained i.e. clearways are to be maintained.</td>
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</table>

**Additional principles applying to RFAs**

| 21 | Due cognisance of the regulations for the Stowage and Segregation of Dangerous Goods UN Classes 2 through 9 in relation to UN Class 1 are to be applied. |
| 22 | When explosives in different compatibility groups are transported on a weather deck, they shall be stowed not less than 6 m apart unless their mixed stowage is allowed according to Chapter 13 Annex A Table 2. |
| 23 | Containers carrying different UN Class 1 goods do not require segregation if the mixing of the compatibility groups is authorised. Where this is not permitted, containers shall be in separate magazines or compartments if below deck or separated by a solid intervening deck if containers are both on deck and below deck. For containers on deck, Principle 20 applies as regards access. |
### CHAPTER 3 ANNEX B

**GUIDANCE ON INTERPRETATION OF STOWAGE PLAN PRINCIPLES**

<table>
<thead>
<tr>
<th>No.</th>
<th>Guidance</th>
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<tbody>
<tr>
<td>1</td>
<td>Unitisation of munitions to limit their combined ENEQ, by stowing together in a group with allowance for boundaries or barriers to segregate from other groups (units) of munitions, will contribute to achieving ALARP solutions to intolerable consequences. A balance is to be achieved between space for barriers, standoff and stowage density.</td>
</tr>
<tr>
<td>2</td>
<td>The rules for segregation of UN Hazard Division (HD) and Compatibility Groups (CG) of explosive stores/munitions are contained in Chapter 13 Annex A.</td>
</tr>
<tr>
<td>3</td>
<td>Munitions and ULCs classified as HCC 1.4S may be used as buffers between HD 1.1 and 1.2 allocated munitions and ULCs to reduce or prevent propagation between similar classified munitions and ULCs. The 1.4S items will provide both separation and some shielding and blast absorption/deflection from the effects of higher classification items reducing the potential for Practically Instantaneous Propagation (PIP) and sympathetic reaction. See also Item 8 below.</td>
</tr>
<tr>
<td>4</td>
<td>Consideration is to be given to the standoff of munitions from crucial structure and to the position of munitions in adjacent magazines. For example, placing HD 1.1 munitions close to the deck above other HD 1.1 munitions in an adjacent compartment could lead to direct shock holing of the deck and propagation of an explosive event within the magazine below.</td>
</tr>
<tr>
<td>5</td>
<td>Protection of all RATTAM susceptible munitions against the RATTAM threat should be optimised.</td>
</tr>
<tr>
<td>6</td>
<td>Increasing the amount of ship’s structure between susceptible 1.1 munitions and a threat (e.g. bullet or fragment attack) will reduce the likelihood of munition initiation; see RATTAM protection.</td>
</tr>
<tr>
<td>7</td>
<td>Distance from side plating reduces the consequence to ship survivability in the event of initiation and improves the protection from an asymmetric attack on the ship’s hull and from collisions and grounding impacts.</td>
</tr>
<tr>
<td>8</td>
<td>Maximising the separation between units of HD1.1 munitions will reduce the risks associated with PIP of an explosion, given that one unit is initiated. Blast decreases as an inverse cube law and so distance is critical in reduction of blast overpressure to below the threshold level that will cause initiation in adjacent “units” of munitions. A balance is to be achieved between space for barriers and standoff and stowage density.</td>
</tr>
<tr>
<td>9</td>
<td>Movement of pallets and individual ACAs is to be prevented and restraint achieved. The effect of underwater shock is to be considered. On flow forge Spanset poles will be used but additional restraint may be necessary. Stowage for any restraining devices, chocking etc. is to be provided when not in use. As far as possible noises and rattles are to be avoided in the magazine to reduce the noise signature of the ship to a minimum.</td>
</tr>
<tr>
<td>10</td>
<td>Standard barriers could be defeated if the munitions stacks are higher than them and line of sight communication between stacks could then occur.</td>
</tr>
<tr>
<td>11</td>
<td>In general, munitions should be stowed below the level at which the spray system will develop an even spray coverage. The aim is to ensure that spray water would flow over the top, sides and ends of munition containers/ACAs. Where this is not practicable, the best compromise should be chosen that ensures that the sides and top facing the next ‘unit’ would be wetted.</td>
</tr>
<tr>
<td>12</td>
<td>Heat transfer from an adjacent compartment fire or tank heating may be reduced to tolerable levels by a free air space of 70 mm (-10 mm tolerance) being maintained between bulkheads and stowages and between the lowest tier of</td>
</tr>
</tbody>
</table>
stowages and the deck. Trials have shown a tenfold reduction in temperature at this distance from 700°C to 70°C. This space would permit limited boundary cooling of the bulkhead/deck to be carried out. A space of 450 mm is desirable to allow boundary cooling by a fire fighter equipped with BA.

13 Place munitions in stowage so that warheads are placed next to non-explosive elements or motors rather than other warheads (i.e. nose to tail) or other similar orientation options. This increases the warhead to warhead distance to the diagonal distance.

14 Worst case is where enemy or secondary fragments can strike a munition normal to the casing containing the explosive composition. Presenting a smaller target (base) or a tangential target (nose) is better. Best is to present a part of the munition that does not contain an explosive component.

15 Orientate hard case munitions with the nose pointing at 90° to adjacent munitions or in the direction of the base or tail of the adjacent munition with maximum separation. This places the munitions in the arcs of least energy emanating from a detonation and reduces probabilities of propagation. See also Item 4 above.

16 No additional guidance needed.

17 The orientation of shaped charges, in their stowages, should be arranged to reduce the risk to other munitions and the ship to levels that are ALARP and tolerable. Stowage positions for munitions with shaped charge warheads should be chosen so that the warhead is directed away from other adjacent munitions. If possible these munitions should be placed facing ship structure, ideally not within 1.0 m, so that the shaped charge effect is dispersed and scattered. Account is to be taken of compartments or the environment on the other side of the warhead direction and the consequences of high velocity jets escaping to these areas.

18 Missiles (and sub-munitions) must be prevented from flight, which can arm their fuzing systems.

19 Missile efflux can initiate other munitions by torching if allowed to play on other weapons. Combustible materials may not withstand the flame torching when a missile is fired and should therefore not be used or fitted in the path of efflux.

20 Movement of munitions should be minimised and space allowed for safe use of tools, test equipment and personnel access.

Additional guidance applying to RFAs

21 Dangerous Goods UN Classes 2 - 9 present a significant risk to explosives. Adequate segregation between other dangerous goods and explosives is essential to ensure that in the event of an accident there is no adverse effect on the explosives. Such segregation can be achieved by maintaining certain distances between the incompatible Dangerous Goods or by the use of separate compartments.

22 Compatibility Groups and their permitted mixing are defined in order to reduce overall risk thus these principles of collocation should also be applied to the upper deck situation.

23 See Item 20 above with reference to access requirements.
CHAPTER 3 ANNEX C

ANTI-FRAGMENTATION BARRIERS

AFFF CONTAINERS OR SIMILAR

WATER BARRIER CONFIGURATION
Using AFFF or Similar Containers

- Encase with plywood front and back and secure with ratchet straps to hold shape.
- Secure to deck
- One container is sufficient depth (approx 300 mm)
Wooden Water Barrier with Liner

WATER BARRIER CONFIGURATION

Required Height to suit

336 mm

50 mm Square Timber Frame

18 mm

Restraining Straps

- Place liner inside container and fill.
- Secure top of liner once settled to prevent collapse inside container.

Restraining Straps
The barriers are to be configured as follows:

**VERTREP/WEAPONS PARK ON FLIGHT DECK AND IN HANGAR**

- **Anti-Fragmentation Barrier**
- At least 300 mm deep

![Diagram showing the barriers configuration]
CHAPTER 3 ANNEX D

E3 PERMISSION FLOWCHART

1. Treat as an INXS S285K request at JSP 862 Ch 4 Annex A.
2. Is item already on the Ship’s ALES?
   - Yes
   - No
3. Is there any equivalent information available for PDH approval?
   - Yes
   - No
4. Is item listed on E3 list held by NCHQ?
   - Yes
   - No
5. Forward Inventory and proposed stowage plan to NCHQ
   - Yes
   - No
6. Does timeframe/ circumstances allow NCHQ approval?
   - Yes
   - No
7. CODH Self Permission Required
   - iaw JSP862 0326.3
   - NCHQ permission is to be obtained at the earliest opportunity if circumstances allow.
8. ODH Self Permission required
   - iaw JSP862 0326.1
9. Has PDH given approval?
   - Yes
   - No
10. PDH forward inventory and stowage plan to NAEXP for inclusion on CSE
    - Yes
    - No
11. Temporary ALES issued
    - Yes
    - No
CHAPTER 4
MUNITIONS ACCOUNTING AND APPLICATION

CONTENTS

Article

0401 Introduction
0402 Demands / INXS
0403 Unit Receipt
0404 Internal Transactions
0405 Custody of Issued Ammunition
0406 Expenditure
0407 Checks and Controls
0408 Temporary receipts from visiting personnel
0409 External Issues and returns
0410 Accounting for containers

Annex

A Guide to INXS Signal
B Format of OOQ Log
C Instructions for completion of revised RN Form S3139
D Instructions for completion of revised RN Form S3139A
E Munitions Accounting – Check Sheet for OOQ Logs

0401 INTRODUCTION

1. All explosives are to be accounted for on the Naval Stores Accounting System. No reference is to be made to War Reserve levels either on the Naval Stores Accounting System or on any of the vouchers produced. Unit’s ammunition entitlements are contained in the Electronic Management of Munitions Allowances (EMMA) system, with the approved ammunition for embarkation in the Authorised List of Explosives (ALES).

2. JSP 886 Vol 6 Part 1 remains the authoritative reference for ammunition accounting; these revised procedures remain fully compliant with the direction therein. Command and Armament Loan Record (ALR) musters are to be conducted iaw JSP 886, noting that Inspecting Officers must sight the ammunition issued from the Quarter to Temporary Ammunition Custodians (TAC), since it remains on the ALR.

3. The following processes are to be adopted to ensure consistent and effective accounting with in the Explosive Safety Organisation onboard. These principles will remain central to any future changes within JSP 886 Vol 6 Part 1, noting that with the introduction of the Management of the Joint Deployed Inventory (MJDI) there may be a convergence of RN Forms used within the logistic chain.

0402 DEMANDS / INXS

1. RN entitlements are managed via EMMA, which is overseen by NAVY LOG INFRA-SSM MUNS EMMA and the Platform Duty Holder (PDH). Identification of when and what quantities of munitions are required should be confirmed against the EMMA system. Requirements above,
or additional to standing data on EMMA, are to be confirmed with NAVY LOG INFRA-SSM MUNS EMMA before submission.

2. If, owing to operational circumstances, ammunition in excess of the Magazine design Statement (S285K) is required to be embarked an INXS signal is to be raised in the format at Ch 4 Annex A. The "INXS" request will only be approved for operational necessity and where spare magazine/locker stowage can be demonstrated to be available. The signal should contain precise detail of the explosive stores required to be embarked, the proposed stowage and duration. A minimum clearance of 300mm below the spray heads and 60 mm from the bulkheads/hold sparring is to be maintained. The Explosives Log is to be annotated accordingly and the justification and approval recorded.

3. DM requires a minimum of five weeks’ notice for major embarkations, i.e. those conducted at harbour ammunitioning facilities. When being conducted as a Small Quantity Top Up (SQTU) iaw the regulations two weeks’ notice is required. OASIS/MJDI Munitions replenishment demands are to be submitted by electronic transfer using OASIS/MJDI to Base Munitions Centre, included with replenishment demands for other stores ranges. Manually raised demands, on MOD Form 2100 or OASIS/MJDI, should be sent to the Base Munitions Centre for first/initial outfit and replenishment. Alternatively, demands may be submitted on Form S145 via email. MATDEMs are acceptable for high priority demands, but late notice supplementary demands should be avoided as munitions are pre-planned, loaded and the lighters sealed in advance of major harbour ammunitioning.

4. A robust system for the management of the Service Life Expiry Date (SLED) for explosives stores is to be maintained and reviewed at least monthly iaw article 0403.4. This ensures explosive stores that are approaching the end of their service life can be correctly managed and exchanged for replacement items at a convenient time in the ship’s programme.

0403 UNIT RECEIPT

1. The Logistics Organisation for the maritime unit is to check off receipts at each loading point. Serial numbers of small arms, security classified and Attractive to Criminal and Terrorist Organisations (ACTO) items are to be immediately cross checked with issue vouchers and the Munitions Centre representative. On completion all issue vouchers are to be receipted and passed to the Munitions Centre representative. Packages with broken seals or defects are to be immediately referred to the DM Munitions representative for return and vouchers annotated accordingly.

2. Munitions and associated items are brought on to the main account using a copy of depot issue document as receipt voucher by the Logistics Department. Munitions are to be brought on charge to OASIS/MJDI using D2801A or AMANDA Report Form 17 (Form R17) and directly posted to the appropriate ALR. The NAWBUS Sales Order number on the Form R17 is to be used as the issue voucher number.

3. The Officer of the Quarter (OOQ) / ALR Custodian is to be given copies of the supply vouchers (D2801A /AMANDA R17) for items supplied to their Quarter. Receipt is to be confirmed by initial signature against each line item. Each item is also to be recorded on an associated S3139 for each nature in each Stowage/Quarter. Any discrepancies are to be notified immediately to the Logistics Officer for investigation. Receipted vouchers are to be passed to the Logistics Officer, with a copy retained within the OOQ Log attached to the relevant S3139, to provide additional assurance with the management of SLED.
4. The SLED of munitions, as detailed on the Amanda R17 voucher, is to be recorded on a database utilising the template on the JSMCR website. Where no SLED is detailed at the point of embarkation, the DM representative is to be requested to investigate the SLED, and if not forthcoming, consideration should be given to returning the explosive store, cognisant of the impact to capability.

5. Additional controls to be maintained are detailed in the following Articles.

0404 INTERNAL TRANSACTIONS

1. Explosive items may be issued within the unit for use or temporary stowage in an approved Ready Use Magazine, Ready Use Magazine Locker or Weapon Position/Park (WP). The issuing OOQ is to record the quantity of each nature of ammunition issued on the associated S3139s in their log; the authorised individual (either a TAC or CU) receiving the stores is to sign against each of these S3139 entries at the time of issue.

2. Explosive items may be transferred between OOQs within the unit for storage in an approved stowage. The issuing OOQ is to record the quantity of each nature of ammunition issued on the associated S3139s in their log, recording the serial number of the supporting documentation. The authorised OOQ receiving the stores is to sign against each of these S3139 entries at the time of receipt. The receiving OOQ is to raise an S3139 for that nature to be held in their Quarter. The transferred stores must be transferred to the receiving OOQs ALR by normal logistic processes.

3. In order to maintain traceability of small arms ammunition and to avoid unnecessary waste, ammunition issues should be of the same batch number for each individual stock item where possible. This will assist in the identification of any unused items returned to store.

4. There is no requirement to record transfers of ammunition between stowages in the same Quarter, however it is good ALR management to do so. The ERO and OOQs are at liberty to use this box and have a separate S3139 for each nature of ammunition for every stowage licensed for that nature if they feel it gives them greater clarity of accounting (while assuring themselves they do not increase the risk of introducing errors when copying between pages).

5. No explosive stores subject to a Ban or Constraint detailed in the Joint Services Munitions Control Register (JSMCR) should be expended; they must be quarantined and segregated in approved stowages and marked accordingly. All details of such ammunition should also be recorded on the relevant S3139 with all supporting references.

0405 CUSTODY OF ISSUED AMMUNITION

1. Explosive stores issued to authorised operators are to be regarded as on loan until expended and are to be under the custody of a TAC. The OOQ is to record in the S3139 at the time of issue, the description and quantity of each item issued together with the particulars of the TAC taking receipt of the store and any amplifying remarks (e.g. Firing Order reference). The TAC is to sign for the items and detail the intended stowage or weapon location. The OOQ is to update the quantity of ammunition “Out on Loan” in Column 8 of the S3139. It is vital that entries are both accurate and legible. Entries are to be in ink with any mistakes corrected by lining through the entire line, signing and the transaction re-entered in full in the next transaction line. Ch 4 Annex C gives detailed instruction on the completion of RN Form S3139.

2. Any explosives held on loan by a TAC can be temporarily sealed and held as ‘Safe Custody’ on behalf of a TAC; these are to be brought on charge by an OOQ and are to be
recorded for on an appropriate S3139. The quantity is to be recorded in the “Safe Custody” column (Column 10) with the full details of the individual concerned and the temporary anti-tamper seal serial number annotated in the remarks column. Munitions held as ‘Safe Custody’ must only be returned to the depositing TAC. These munitions are not to be included in the “Serviceable” column (Column 7) as they are already on-loan in Column 8.

3. All natures of 12.7mm and below that are stored in unsealed packages (FRACTION or FRAC Boxes) are to be duly accounted for each time ammunition is drawn from or returned to them. Each FRACTION Box is to be emptied and the contents mustered for any type of Command/Interim Muster. In order to provide security FRACTION Boxes are to be temporarily sealed with a RED Anti Tamper Seal when under the custody of the OOQ with the serial number recorded on RN Form S3139A. FRACTION Boxes are to be stowed with the red seal visible, without having to move boxes, wherever possible. The OOQ/DOOQ is to verify the status of all Red Sealed FRACTION Boxes weekly to ensure that they have not been tampered with. If a broken seal is discovered the OOQ (or DOOQ) is to muster the contents immediately to confirm the correct quantity of ammunition is present referring to the original S3139A entry. If the quantity is different they are take appropriate action iaw JSP440 (unless an expenditure has occurred which has been authorised and recorded correctly).

4. During periods of high tempo; EMF activity where bulk ammunition is issued to and returned from Land Forces, the ERO can exercise discretion and relax the regulation for FRACTION/FRAC Boxes to be sealed as detailed at Para 3 above.

0406 EXPENDITURE

1. All firing orders are to be raised by the SUO using UAMMS. Once authorised, they are to be passed to the Logistics Department and the relevant OOOs and TACs. They will verify its authority against the Commanding Officer Temporary Memorandum (COTM) detailing the nominated Specialist User Officers (SUO) onboard. The OOQ is then authorised to issue the specified ammunition to support the stipulated serial(s). At the time of issue, the OOQ is to record in the S3139; the description and quantity of each item together with the particulars of the TAC taking receipt of the store, the TAC is to sign for the items. It is important that entries are accurate and legible.

2. On completion of firing, any unused munitions are to be returned to the OOQ and recorded in the relevant S3139. The TAC confirms the actual quantity expended, which the OOQ records as a separate entry in the S3139. The TAC then reports the quantity expended to the SUO who is to sign against the S3139 entry as authorisation of that expenditure. The OOQ raises Form S1091 for the quantity of ammunition expended (which cross refers to the S3139) and submits it to the Logistic Department to remove that ammunition from the ALR. Only the SUO can authorise expenditure of ammunition.

3. The SUO raises Form S156 (Expenditure), marked ‘Training/Practice/Operational’ as appropriate, detailing the quantity and nature of the expended munitions. The Firing Order / Local Certificate, (authorised by the SUO and cross referred to the S3139) is attached and passed to the Logistics Officer within 48 hrs of firing. Details of the S156 and S1091 or MJDI voucher are to be made in the remarks columns on the S3139.

4. On receipt of properly authorised Forms S156 and S1091 or MJDI voucher, the Logistics Department must cross refer them to ensure accuracy and then action accordingly. The purpose of the S1091 is to bring on charge the expended quantity to OASIS/MJDI from the OOQ’s ALR. The S156 then enables that expended quantity to be issued off the OASIS/MJDI Main Account, thereby reducing the record of the Ship’s holdings for that nature of ammunition.
by the amount that has been expended. On completion, the ALR as recorded in both OASIS/MJDI and the OOQ Log will match the physical quantities held in the magazines.

5. The Logistics Department will conduct confidence checks with the OOQs throughout, comparing OASIS/MJDI records with the OOQ Logs (i.e. the S3139s) to ensure all the quantities of expended munitions are correct. Any discrepancies are to be investigated by the ERO who is to liaise with the Logistics Officer as appropriate.

0407 CHECKS AND CONTROLS

1. Stocktaking of explosives is to be carried out in accordance with the regulations laid down in JSP 866 Volume 6 Part 1:

   a. All explosive stock must be accounted for. There should be no discrepancy between the stock record and the actual stock held. Any discrepancy found is to be resolved by the Logistic Officer.

   b. Quantities of explosives recorded as outstanding on the Form S3139 must be physically checked and accounted for.

2. OOQ Form S3139s are to be inspected monthly by the SUO for expenditures and quarterly by the ERO for accuracy of accounting. EROs are to examine all entries, referring to OOQs and supporting documentation as necessary. They are to satisfy themselves that Forms S3139 have been completed accurately with Forms S156 raised for all quantities expended and Forms S1091 to bring that expended ammunition off charge. The serial numbers of all Forms S156, S1091 or MJDI, along with Firing Orders, should be clearly referenced in the remarks column.

3. The six monthly Command Muster (Type C) must include a full inspection of Forms S3139 held within the OOQ log as well as a 100% stock check of the inventory against the ALR; the use of the 'Investigative ALR Print Out' is strongly recommended, as this provides an audit trail for S156, S1091 and MJDI transactions which can be checked against those listed on the S3139s.

4. The Command Muster can be conducted by a nominated Officer, Warrant Officer or Chief Petty Officer; they should not be associated with the custodian departments (e.g. WE or Logs). A Young Officer must not conduct these musters, but can accompany an appointed person to witness the muster for training purposes. The Logistics department must sponsor a Captain's Temporary Memorandum (CTM) nominating conducting officers and providing clear direction on how to conduct the musters.

5. The OOQ Logs must be cross-checked to ensure the transactions correlate and that the total held as stated in the OOQ log matches the amount mustered in the magazines. It is a requirement for the OOQs when carrying out their six monthly ALR musters (Interim Command Muster Type B) to also inspect the ammunition signed out on loan to the TACs to confirm accuracy and physical holdings compared to the ALR print out.

6. On handover, any SUO or TAC that has signed explosives stores out from an OOQ are to ensure that they are mustered, returned and resigned for by their approved relief in the relevant OOQ Log.

7. In order to confirm the accuracy of the holdings, all ammunition in unsealed packages (FRAC Boxes) is to be counted individually. Ammunition Containers that are unopened, with an
intact monogram seal, need not be opened and are assumed to hold the correct amount of ammunition as detailed on the container.

8. On completion of the Command Muster, the row below the last transaction on each S3139 page (all logs) Columns 2, 3, 4 and 5 are ruled through in red ink and annotated ‘Command Muster’. The date of the muster is entered in red in Column 1 and the quantities of ammunition sighted during the muster by the Conducting Officer entered in Columns 7, 8, 9 and 10 as appropriate, again in red ink. The Conducting Officer then completes Column 6 in red ink with his name and signature and annotates the status as correct or incorrect with amplifying remarks. This procedure (in blue/black ink) is to be adopted at OOQ custodian change (Type A), and also six monthly Interim Muster (Type B).

9. A check sheet to aid nominated officers in the conduct of carrying out a Command Muster is at Annex E.

0408 TEMPORARY RECEIPTS FROM VISITING PERSONNEL

1. Any explosives held as ‘Safe Custody’ on behalf of visiting personnel are to be brought on charge by an OOQ and are to be recorded for on an appropriate S3139. There must be supporting documentation for the quantity and type of natures required to be embarked from the visiting personnel prior to embarkation so that appropriate stowages can be allocated and the risk assessed. The quantity is to be recorded in the “Safe Custody” column (Column 10) with the full details of the individual concerned and the parent unit annotated in the remarks column. Munitions returned to visiting personnel are to be signed for by an appropriate person for that unit. These munitions are not to be expended by the host platform and they are not to be included in the “Serviceable” column (Column 7).

2. Any explosive natures to be embarked for more than a period of 28 days must be brought on charge through the Logistic Department and not treated as ‘Safe Custody’.

3. In the event of ammunition held on ‘Safe Custody’ from visiting personnel being required to be expended within the 28 day period, either onboard or away from the unit, then this must be brought on to a separate ALR and accounted for.

0409 EXTERNAL ISSUES AND RETURNS

1. Returns from the unit are to be recorded using Form S331. Temporary receipts will be obtained on MF 1142/1143 / SITPRO 1999 (MF 1042). A separate S331 is to be used for ACTO and security classified items/ other munitions and empty packages (arisings). The Munitions Centre representative accepts the items on behalf of the Ammunition Depot once he has satisfied himself as to the quantities and condition of the stores. The Unit is to confirm that there are no Bans or Constraints outstanding against the items being returned using the form at Annex 5H. The Munitions Centre representative completes and signs the S331 (copy 3) bringing the ammunition onto the Depot’s account and returns one copy to the supplying unit.

2. Discrepancies are to be dealt with in accordance with JSP 886 Vol 4 Part 1 (Defence Logistics Support Chain Manual). All unresolved discrepancies are to be reported to the Consignor, using MOD Form 445 (Discrepancy Reporting), within 24 hours of the discrepancy being identified.

3. Annex 5J details the process and certification required to be conducted when disembarking all variants of 4.5” Mk 8 Ammunition in N36 Mk 2 containers by ships staff to the Government Authorised Explosive Representative (GAER).
0410 ACCOUNTING FOR CONTAINERS

1. Ammunition containers are only accountable when they are empty. As specialist explosives packaging is extremely expensive, the Logistics Officer, ERO, SUO, OOQ and TAC are to be aware of the standard disposal instructions contained in AP 110A-0401-1A Chapter 1-3.

2. It is recommended that all internal furniture of ammunition containers (dunnage) is retained within open boxes to enable FRAC Boxes to be sealed ready for return without the need to fabricate new dunnage (internal furniture, packing).

3. All empty ammunition containers must be Free from Explosives (CFFE) in accordance with chapter 5 of this publication.
CHAPTER 4 ANNEX A

GUIDE TO INXS SIGNAL

ACTION: NCHQ PORTSMOUTH, DES BRISTOL

INFO: COMPORFLOT / COMDEVFLOT / COMFASFLOT (as appropriate)
NBC PORTSMOUTH/NBC DEVONPORT/NBCCLYDE/
HQBF GIBRALTAR + QHM GIBRALTAR (as appropriate)

SIC: ORN

SUBJ: REQUEST TO HOLD AMMUNITION INXS OF MAGAZINE S285K

NCHQ PORTSMOUTH FOR NAVY CMD EXP
DES BRISTOL FOR PDH
COMPORFLOT / COMDEVFLOT / COMFASFLOT (as appropriate) FOR DSWEO
NBC PORTSMOUTH/NBC DEVONPORT/NBCCLYDE (as appropriate) FOR P/D/C ESAG
HQBF GIBRALTAR + QHM GIBRALTAR (as appropriate)

SSOs to signal: NCHQ PORTSMOUTH FOR NAVY LOG INFRA LOG SPT DACOS (e mail
signal DTG to NAVY LOG INFRA LOG SPT DACOS)

1. REQUEST TO HOLD AMMUNITION INXS OF *** MAGAZINE (location marking)
   S285K/EMMA ENTITLEMENT. (** = detail magazine or magazines)

2. TOTAL NEQ OF CURRENT HOLDINGS WITHIN *** MAGAZINE READ IN 2 COLOMNS
   HCC/TOTAL NEQ (If request is for more than one magazine, then each magazine and its
   holdings must be listed)
   HCC 1.1/**KG
   HCC 1.2/**KG
   HCC 1.3/**KG
   HCC 1.4/**KG

3. ITEMS TO BE HELD INXS OF **** MAGAZINE S285K READ IN 5 COLUMNS
   ITEM/NSN/QTY/TOTAL NEQ(KG)/HCC (if request is for more than one magazine, then each
   magazine and the items INXS of the S285K must be listed)

4. AMMUNITION REQUIRED FROM/TO/FOR. (Include any mitigation for request and
   measures which will be put in place to make INXS risk ALARP e.g. using HCC 1.4S stores as a
   barrier between items to reduce risk of possible sympathetic reaction or to reduce
   consequences to tolerable levels. Other mitigation can be found in JSP 862 Ch 3 Annex A and
   B: Principles for Locally Produced Stowage Plans).

5. INXS REQUIRED (whilst alongside in ** from ** to **/for duration of Op Deployment/until
   disembarkation of ammunition at **** on *****)

6. SSPOC
CHAPTER 4 ANNEX B

FORMAT OF OOQ LOG

The format and layout of the OOQ log should be as follows:

a. The Log front cover must state the Quarter and the sponsor.

b. Contents sheet.

c. OOQ signature page recording that the JSMCR Bans & Constraints and SLED data have been reviewed on a monthly basis.

d. Dividers:

   (1) Instructions for Use.
   (2) Temporary Memoranda.
   (3) RN Forms S3139A – FRAC Seals.
   (4) RN Forms S3139 – Munitions on charge.
   (5) Logistic Information.
   (6) Archive (to be retained for 3 years).

1. **Instructions for use**

   a. A set of instructions for completing RN Forms S3139
   b. A worked example of an RN Form S3139.
   c. A set of instructions for completing RN Forms S3139A.
   d. A worked example of an RN Form S3139A.

2. **Temporary Memoranda**

   a. Relevant RNTMs/DINs,
   b. Relevant XTM/WTMS.
   c. Relevant CTMs.

      (1) Command Musters.
      (2) NAS Accounting.
   d. Certificates of Assurance (where applicable).
3. **RN Form S3139A FRAC Seals**
   a. RN Forms S3139A in sequential order.

4. **RN Form S3139 - Munitions on charge**
   a. RN Forms S3139 in sequential order - Flagged and Tagged. A copy of the AMANDA R17 is to be attached to the S3139 to provide Batch Key Indicators, Lot Numbers and details of Life Expiry Dates.
   b. Relevant signals (JSMCR etc.).

5. **Logistic Information**
   a. Copy of the last ALR Command Muster Type C Print Out. (Recommend the investigative version as this details all transactions).

6. **Archive**
   a. Completed RN Forms S3139 to be retained for 3 years in accordance with JSP 886.
   b. Completed RN Forms S3139A to be retained for 3 years.
   c. Certificates of Assurance for N36 Ammunition containers (where applicable) for 6 months.
CHAPTER 4 ANNEX C

INSTRUCTIONS FOR COMPLETION OF RN FORM S3139

1. **Quarter**: identifies the OOQ on whose ALR the ammunition is held (e.g. OOQ1).

2. **Stowage**: to be the approved stowage or mount, with DC Location Marking, as detailed in Annex A of the Ship’s CSE for the nature in question (e.g. 4H Small Arms Magazine). Completion of this box is optional (Article 0404.4 refers).

3. **Item Description**: as listed on Amanda Report 17/ ALES/EMMA/ OASIS/ MJDI.

4. **Stores Reference Number**: the NSN listed on Amanda Report 17 for the natures issued to the Ship. Note if the same ammunition has a different NSN then a separate page is to be raised.

5. **Hazard Code**: for the ammunition in full (e.g. 1.4S).

6. **Page Number**: sequential numbering for each page for that nature and NSN to maintain audit trail.

7. **Column 1 - Date**: the date of the transaction. The entry must be completed that day.

8. **Column 2 - In**: the quantity of that nature brought onto the Quarter by that transaction.

9. **Column 3 - Out**: the quantity of that nature taken out of the Quarter.

10. **Column 4 - Expended**: the quantity of that nature expended. The associated S156, S1091 or MJDI details must be referenced in Column 11 “Remarks”. Note that with the withdrawal of the SOOQ Log all expenditure will now appear in the OOQ Log. When the expended ammunition has been signed out to a TAC, the “Out on Loan” (Column 8) total is decreased by that amount: if the ammunition was still held by the OOQ, the “Serviceable” (Column 7) total is decreased.

11. **Column 5 – Source/Destination**: for “In” transactions this is the source location from where the ammunition was received (e.g. “S2 GPMG Mount”). For “Out” transactions this is the destination to where the ammunition was issued (i.e. beyond the EDP, not the EDP itself) (e.g. “Bridge Pyro Locker” or “Tipner Range”). For “Expended” transactions this is the point of firing (e.g. “P4 20mm GAMBO” or “HMS Raleigh Range”).

12. **Column 6 - Name & Signature**: of the person receiving the stores. For “In” transactions the OOQ must sign. For “Out” transactions the person receiving the stores must sign (e.g. TAC, OOQ, CU or rep). For “Expended” transactions the SUO must sign, indicating that the ammunition has been expended and recorded correctly, and the S156 referenced in Column 11 “Remarks”. Every transaction must have a signature that corresponds to one of the sample signatures in S285A of the Explosive Log.

13. **Column 7 - Serviceable**: total quantity of that nature held in the Quarter and fit for operational use.

14. **Column 8 - Out on Loan**: cumulative total quantity of that nature signed out on loan.
15. Column 9 - **Quarantine**: cumulative total quantity of that nature not available to Command to expend due to being under a ban or constraint, because of damage or other reason.

16. Column 10 - **Safe Custody**: total quantity of that nature held on the Quarter on behalf of a TAC or another unit or EMF. In the instance of another unit or EMF; then the ammunition is not available to Command to expend, this does not include EMF ammunition that can be deployed by the Command (e.g. RMBT).

17. Column 11 - **Remarks**: relevant supporting information, especially cross-references such as S331 Voucher numbers, S156 Ref No, S1091 Ref No, Firing Order serial number.

**Further Notes of Direction**

18. Each S3139 page is to be closed off once full by completing the “carried forward” boxes at the bottom of columns 7, 8, 9 and 10 stating the quantities to be recorded on the following page: the OOQ must assure himself that these figures are accurate and the page is a true record of the transactions for that period. A new S3139 page for that nature of ammunition is to be raised immediately that the old page is closed, i.e. on the day that the final transaction takes place: it should not be left until the next transaction occurs.

19. Every RN Form S3139 is to be retained for 3 Years from the date of the last entry iaw JSP 886.

20. While 1.4S ammunition can now remain in RUMLs while alongside, the return of ammunition from the mount to the locker needs to be recorded in the S3139 because responsibility for it reverts to the OOQ once in the locker.

21. Entries made in error must be ruled through along the whole line and a complete new line entered below. Individual column entries are never to be amended separately.

22. Only one box of Columns 2, 3 or 4 can be filled in for each entry: the other two must be entered as “Nil” (not “0” or “-“). Simultaneous “In”, “Out” and “Expended” transactions from the Quarter require separate lines on the S3139.

23. At all times, the sum of the quantities listed in Columns 7, 8, and 9 should equal the total quantity of that nature held on the ALR for that Quarter.

24. On completion of Command Musters, Columns 2, 3, 4 and 5 are ruled through in red ink and annotated ‘Command Muster’. The date of the muster is entered in red in Column 1 and the quantities of ammunition sighted during the muster by the Conducting Officer entered in Columns 7, 8, 9 and 10 as appropriate, again in red ink. The Conducting Officer then completes Column 6 in red ink with his name and signature and annotates the status as correct or incorrect with amplifying remarks.

25. Periodical and occasional ALR musters (e.g. upon change of custodian) are to be recorded in the S3139 in the same manner as for Command Musters but using blue or black ink.

26. On handover, any SUO, TAC or CU that has signed explosives stores out from an OOQ are to ensure that they are mustered, returned and resigned for by their approved relief in the relevant OOQ Log.
### Officer of the Quarter Log

**Quarter:** OOQ 1  
**Stowage + Location Marking:** 3B 4.5 DEEP MAG

**RN FORM S3139 – WORKED EXAMPLE**

<table>
<thead>
<tr>
<th>Description</th>
<th>Store Reference Number</th>
<th>Stowage + Location Marking</th>
<th>Hazard Code</th>
<th>Page No</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.62mm 4B/1T</td>
<td>1305-99-602-1616</td>
<td>3B 4.5 DEEP MAG</td>
<td>1.4S</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Date</th>
<th>In</th>
<th>Out</th>
<th>Expended</th>
<th>Source / Destination</th>
<th>Name &amp; Signature</th>
<th>Serviceable</th>
<th>Out on Loan</th>
<th>Quarantine</th>
<th>Safe Custody</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>01/01/15</td>
<td></td>
<td></td>
<td></td>
<td>DM Gosport</td>
<td>SMITH (OOQ)</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
<td>Ammunition Ship Stores Voucher REF: **********</td>
</tr>
<tr>
<td>05/01/15</td>
<td>400</td>
<td></td>
<td></td>
<td>FP Weapons</td>
<td>JAMES (TAC 1)</td>
<td>4600</td>
<td>400</td>
<td>Nil</td>
<td>Nil</td>
<td>Sail Portsmouth assumption of FP Posture B</td>
</tr>
<tr>
<td>07/01/15</td>
<td>600</td>
<td></td>
<td></td>
<td>P1, P2</td>
<td>EVANS (TAC 2)</td>
<td>4000</td>
<td>1000</td>
<td>Nil</td>
<td>Nil</td>
<td>Continuation Shoot. Firing Order REF *******</td>
</tr>
<tr>
<td>07/01/15</td>
<td>Nil</td>
<td>300</td>
<td></td>
<td>P2</td>
<td>JONES (SUO)</td>
<td>4000</td>
<td>700</td>
<td>Nil</td>
<td>Nil</td>
<td>S156 REF ******* / S1091 REF ******* / MJDI VOUCHER REF</td>
</tr>
<tr>
<td>07/01/15</td>
<td>300</td>
<td></td>
<td></td>
<td>P1</td>
<td>SMITH (OOQ)</td>
<td>4300</td>
<td>400</td>
<td>Nil</td>
<td>Nil</td>
<td>Stoppage P1 during CT Shoot: unused rounds returned</td>
</tr>
<tr>
<td>08/01/15</td>
<td></td>
<td></td>
<td></td>
<td>COMMAND MUSTER</td>
<td>BROWN (OOW)</td>
<td>4300</td>
<td>400</td>
<td>Nil</td>
<td>Nil</td>
<td>CORRECT</td>
</tr>
<tr>
<td>10/01/15</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
<td>FP Weapons</td>
<td>SMITH (OOQ)</td>
<td>4300</td>
<td>Nil</td>
<td>Nil</td>
<td>400</td>
<td>Alongside Portsmouth: FP return to safe custody Safe Custody Tally No.**********</td>
</tr>
<tr>
<td>15/01/15</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
<td>FP Weapons</td>
<td>JAMES (TAC 1)</td>
<td>4300</td>
<td>400</td>
<td>Nil</td>
<td>Nil</td>
<td>Sail Portsmouth assumption of FP Posture B</td>
</tr>
<tr>
<td>15/01/15</td>
<td>400</td>
<td></td>
<td></td>
<td>P1, P2</td>
<td>SMITH (OOQ)</td>
<td>4900</td>
<td>400</td>
<td>Nil</td>
<td>Nil</td>
<td>Entered in Error</td>
</tr>
<tr>
<td>16/01/15</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
<td>JSMCR BAN</td>
<td>SMITH (OOQ)</td>
<td>4000</td>
<td>400</td>
<td>300</td>
<td>Nil</td>
<td>JSMCR Ban DTG ******* : 300 Effected Rounds</td>
</tr>
<tr>
<td>17/01/15</td>
<td>400</td>
<td></td>
<td></td>
<td>FP Weapons</td>
<td>SMITH (OOQ)</td>
<td>4400</td>
<td>Nil</td>
<td>300</td>
<td>Nil</td>
<td>Arrive Portsmouth Fall Out from FP Posture B</td>
</tr>
<tr>
<td>01/02/15</td>
<td></td>
<td></td>
<td></td>
<td>Change of Custodian Interim ALR Muster</td>
<td>SMITH (OOQ)</td>
<td>4400</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
<td>CORRECT</td>
</tr>
<tr>
<td>01/02/15</td>
<td></td>
<td></td>
<td></td>
<td>Carried Forward:</td>
<td></td>
<td>4400</td>
<td>Nil</td>
<td>300</td>
<td>Nil</td>
<td></td>
</tr>
</tbody>
</table>
CHAPTER 4 ANNEX D

INSTRUCTIONS FOR COMPLETION S3139A.

1. **Quarter**: identifies the OOQ on whose ALR the ammunition is held (e.g. OOQ1)
2. **Page Number**: sequential numbering for each page for that nature to maintain audit trail.
3. Column 1 - **Serial**: the sequential number of the log entry.
4. Column 2 - **Date**: the date that a Red Seal was placed on a FRACTION Box.
5. Column 3 - **Nature**: as listed on Amanda Report 17/ ALES /EMMA/ OASIS/ MJDI.
6. Column 4 - **Quantity**: the quantity of that nature in the Red Sealed FRACTION Box.
7. Column 5 – **NSN**: listed on Amanda Report 17 for the natures issued to the Ship.
8. Column 6 - **Location**: to be the approved stowage or mount, with DC Location Marking, as detailed in Annex A of the Ship’s CSE for the nature in question (e.g. 4H Small Arms Magazine) where that red Sealed FRACTION Box is stowed within the Quarter.
9. Column 7 – **Seal No**: Seal serial number securing the FRACTION Box.
10. Column 8 - **Name & Signature**: of the person sealing the FRACTION Box with a Red Seal, ensuring that the quantity is correctly recorded.
11. When a Red Anti-Tamper Seal is broken (for any reason) the entry corresponding to the seal is to be ruled through in red ink.
12. When the OOQ receives a FRACTION Box back from TAC, the quantities of all opened boxes must be counted and recorded. A Red Anti-Tamper Seal is then to be placed on the box, preventing it being opened without breaking the seal. The serial number of the seal along with the information detailed in columns 1 through 7 are to be recorded and signed by the OOQ securing the FRACTION Seal.
13. Each S3139A page is to be closed off once complete (all entries lined through in red). Every RN Form S3139A is to be retained for 6 months from the date of the last entry.
14. Entries made in error **must** be ruled through along the whole line and a complete new line entered below. Individual column entries are **never** to be amended separately.
15. When a new seal has to be placed on a store, the amount contained within that sealed box is to be checked and a new entry recorded. If the FRACTION Box has previously been sealed, that entry is to be ruled through in red ink indicating that it is no longer valid.
16. The OOQ is to verify the status of all Red Sealed FRACTION Boxes weekly to ensure that they have not been tampered with.
17. If a broken seal is discovered, the OOQ (or DOOQ) is to muster the contents immediately, and confirm the correct quantity of ammunition is present referring to the original S3139A entry. If the quantity is different they are take appropriate action iaw JSP440 (unless an expenditure has occurred which has been authorised and recorded correctly).

**Further Notes of Direction**

18. All natures of 12.7mm and below that are stored in unsealed packages (FRACTION/FRAC Boxes) are to be duly accounted for each time ammunition is drawn from
or returned to them. Each FRACTION Box is to be emptied and the contents mustered for any type of Command/Interim Muster. In order to provide security FRACTION Boxes are to be temporarily sealed with a Red Anti-Tamper Seal when under the custody of the OOQ with the serial number recorded on RN Form S3139A. FRACTION Boxes are to be stowed with the Red Seal visible, without having to move boxes, wherever possible. The OOQ/DOOQ is to verify the status of all Red Sealed FRACTION Boxes weekly to ensure that they have not been tampered with.

19. During periods of high tempo EMF activity where bulk ammunition is issued to and returned from Land Forces, the ERO can exercise discretion and relax the regulation for FRACTION/FRAC Boxes to be sealed as detailed at Para 18 above.
## RN FORM S3139A – WORKED EXAMPLE

### Officer of the Quarter Log - FRAC SEALS

<table>
<thead>
<tr>
<th>Serial</th>
<th>Date</th>
<th>Nature</th>
<th>Quantity</th>
<th>HSN</th>
<th>Location</th>
<th>Seal No.</th>
<th>Name and Signature</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>29/09/2010</td>
<td>5.60mm</td>
<td>750</td>
<td>A357-92-978-3103</td>
<td>3B</td>
<td>MZH204967</td>
<td>S Shooter</td>
</tr>
<tr>
<td>2</td>
<td>29/09/2010</td>
<td>5.58mm</td>
<td>500</td>
<td>A357-92-978-3183</td>
<td>3B</td>
<td>OAFC98765E</td>
<td>S Shooter</td>
</tr>
<tr>
<td>ACCOUNTING</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are the logs being sighted and checked regularly as detailed in JSP 862(1): Monthly by SUO? 3 Monthly by ERO?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are the latest S3139 pages being used? Sheet header details to be fully populated.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are the header details on each S3139 page correctly annotated to reflect person responsible for the page?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are the pages for each explosive store sequentially numbered for auditing? Is there an archive file? All pages must be retained for 3 years.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does the Stowage (where used: this is optional) align with CSE Annex A and include DC location markings?</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does every S3139 page have the correct NSNs and do they correlate against other logs, if appropriate?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Is there a master contents list included for ease of reference?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Is there a worked example of an S3139 inserted in the front of the log as an aide-memoir for completion?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are appropriate personnel being nominated to conduct Command Musters? No LOG or WE personnel.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Has each S3139 been red-lined across below the last entry and signed, annotated and dated by the conducting Officer to confirm correct on completion of Command Musters?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are ALR Musters being routinely conducted and are they spaced appropriately between Command Musters?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Has each S3139 page been black or blue-lined across below the last entry and signed, annotated and dated by the conducting Officer to confirm correct on completion of ALR musters?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are transactions being recorded correctly; expenditure on separate line/ totals balanced at page footer etc.?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are the Logs “flagged and tagged” for ease of use?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are Munitions being signed for by the person receiving the ammunition?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are Munitions being signed off by the SUO for expenditure?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Are the “Carry Forward” and “Brought Forward” boxes being fully utilised on all pages?  

Are totals being completed for each column before starting new page?  

Is "Nil" being inserted where there is no entry? No box is to be left blank, “-” or “0” are not to be used.  

Is the “Quarantine” column (Column 9) used correctly for natures that are Banned or Constrained? Are the DTGs of the relevant Bans and Constraints Signals being recorded in the remarks column?  

Are errors and mistakes being correctly annotated? If an entry is made in error, the whole row on the S3139 page must have a single line out through it, signed by OOQ. The corrected transaction is to be entered in its entirety in the next row below. TIPEX is not to be used to correct an entry.  

Is the “Location” column (Column 5) correctly annotated for each transaction? This should state where the store is going to when leaving the Quarter or where it has been supplied from when being taken onto the Quarter: it should not refer to the stowage in that Quarter. For expenditures, it should state the location where that expenditure took place (e.g. “S2 GPMG mount” or “Tipner Range”).  

Is the “Remarks” column (Column 11) appropriately completed, especially with expenditure authority – i.e. Firing Order / S156 reference etc. when applicable?  

Is there a clear audit trail for all stores? Check all transactions between relevant OOQs and TACs.  

### FRAC BOXES  

Are the latest S3139A pages being used to record the seal numbers of the Red Anti-Tamper tallies used on temporarily sealed ammunition containers?  

**Note:** Seals are to be broken for all Command Musters and new seals placed on completion.  

Are the header details on each S3139A page correctly annotated to reflect person responsible for the page?
# CHAPTER 5

EMBARKATION, DISEMBARKATION AND HANDLING OF EXPLOSIVES

## CONTENTS

<table>
<thead>
<tr>
<th>Article</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0501</td>
<td>General</td>
</tr>
<tr>
<td>0502</td>
<td>Programming Ammunition/De-ammunition Serials</td>
</tr>
<tr>
<td>0503</td>
<td>Accounting Requirements</td>
</tr>
<tr>
<td>0504</td>
<td>Responsibilities during transfer of ammunition</td>
</tr>
<tr>
<td>0505</td>
<td>Embarkation (excluding certain guided weapons)</td>
</tr>
<tr>
<td>0506</td>
<td>Disembarkation (excluding certain guided weapons)</td>
</tr>
<tr>
<td>0507</td>
<td>Embarkation of certain guided weapons (Harpoon, VLSW and Sea Viper)</td>
</tr>
<tr>
<td>0508</td>
<td>Disembarkation of certain guided weapons (Harpoon, VLSW and Sea Viper)</td>
</tr>
<tr>
<td>0509</td>
<td>On Deposit Facilities</td>
</tr>
<tr>
<td>0510</td>
<td>Incident during movements of explosives stores</td>
</tr>
<tr>
<td>0511</td>
<td>Responsibility for cranes used for transfer of ammunition</td>
</tr>
<tr>
<td>0512</td>
<td>Simultaneous Transfer of Flammable Liquids and Explosives Stores</td>
</tr>
<tr>
<td>0513</td>
<td>Choice of berth for embarking or disembarking explosives and conditions of use</td>
</tr>
<tr>
<td>0514</td>
<td>Replenishment of Munitions</td>
</tr>
<tr>
<td>0515</td>
<td>Co-operation with DM Sites</td>
</tr>
<tr>
<td>0516</td>
<td>Unit loads</td>
</tr>
<tr>
<td>0517</td>
<td>Embarking and disembarking in wet weather</td>
</tr>
<tr>
<td>0518</td>
<td>Danger from lightning</td>
</tr>
<tr>
<td>0519</td>
<td>Embarkation while on shore electrical supply</td>
</tr>
<tr>
<td>0520</td>
<td>Unauthorised persons onboard ship</td>
</tr>
<tr>
<td>0521</td>
<td>General precautions during movement of explosive stores</td>
</tr>
<tr>
<td>0522</td>
<td>Preparation</td>
</tr>
<tr>
<td>0523</td>
<td>Supervision during movements of explosive stores</td>
</tr>
<tr>
<td>0524</td>
<td>Cranes / handling</td>
</tr>
<tr>
<td>0525</td>
<td>Weapon lifts and hoists</td>
</tr>
<tr>
<td>0526</td>
<td>Mechanical Handling Equipment (MHE)</td>
</tr>
<tr>
<td>0527</td>
<td>Use and examination of approved lifting equipment</td>
</tr>
<tr>
<td>0528</td>
<td>General precautions when lifting ammunition</td>
</tr>
<tr>
<td>0529</td>
<td>Secondary ammunition re-supply routes</td>
</tr>
<tr>
<td>0530</td>
<td>Handling of guided weapons and torpedoes</td>
</tr>
<tr>
<td>0531</td>
<td>Inspection on receipt of explosive stores</td>
</tr>
<tr>
<td>0532</td>
<td>General precautions for handling explosives</td>
</tr>
<tr>
<td>0533</td>
<td>Inspection on completion of movement of explosive stores</td>
</tr>
<tr>
<td>0534</td>
<td>Examination of Packages</td>
</tr>
<tr>
<td>0535</td>
<td>Care of empty packages, containers and fittings</td>
</tr>
<tr>
<td>0536</td>
<td>Explosive stores landed on deposit</td>
</tr>
<tr>
<td>0537</td>
<td>Return of explosive stores to armament support ship</td>
</tr>
<tr>
<td>0538</td>
<td>Broken Seal returns</td>
</tr>
<tr>
<td>0539</td>
<td>Certified Free from Explosives (CFFE) - Return of empty ammunition packages, containers and arisings</td>
</tr>
<tr>
<td>0540</td>
<td>Road Transportation of Explosives</td>
</tr>
<tr>
<td>0541</td>
<td>Embarkation of Special Forces Munitions</td>
</tr>
<tr>
<td>0542</td>
<td>Interchange of Ammunition with NATO Forces</td>
</tr>
</tbody>
</table>
JSP 862 Part 1

0543 Embarkation of Allied Explosives
0544 Embarkation and Stowage of Seized Ammunition
0545 NBC Explosives Safety Groups
0546 Defence Munitions (DM) – Gosport
0547 Defence Munitions (DM) – Plymouth
0548 Defence Munitions (DM) - Forth Area
0549 Defence Munitions (DM) - Clyde Area
0550 Armaments Depot (AD) – Gibraltar
0551 Royal Fleet Auxiliary Solid Support Ships (RFA SSS)
0552 Defence Ordnance Assurance Service (Guns) DOAS

Tables

5 - 1 Ammunition/De-ammunition - Full Outfit / Part Outfit Top-Up

Annex

A Preparations For Ammunitioning Serials
B Specimen Ammunition / De-Ammunition XTM
C Full Outfit/Top-Up Greater Than That Allowed By JSP 862 For Small Quantity Top-Up (SQTU)
D Small Quantity Top-Up (SQTU) Ammunition signal format
E Portsmouth UHAF/Bedenham Pier signal format.
F Retention of explosives in the Faslane Ship lift signal format
G FFE Violation Investigation Report Format
H Certificate of Assurance – Bans and Constraints Affecting Munitions for Disembarkation
I Restrictions on the use of explosive stores handling/lifting equipment
J Return of ammunition in N36 containers - Certificate of Assurance
K MOD Form 2257 – CFFE Certificate
L Responsibilities regarding explosive activities on licensed munitions sites
0501 GENERAL

Policy for handling ammunition

1. The risk when handling ammunition shall be reduced to a level which is as low as reasonably practicable (ALARP) to safeguard the explosive store, the handler and the ship.

Implementation of the policy for handling ammunition

2. The Policy for handling ammunition is to be implemented in accordance with the instructions and directions in this chapter. The term "HM Ships" is deemed to apply equally to RFA vessels and all other MOD vessels under JSP 430.

General information

3. The embarkation of explosives is not to commence unless the XO has satisfied himself that the requirements of Chapter 11 have been met and that all the inspections required in Chapter 2 have been completed, the Daily Record of Inspections has been signed and that the ERO has satisfied himself that Planned Maintenance Schedules of all systems fitted in magazines are completed and in date.

4. Normally explosive stores may be embarked by:
   a. Replenishment in Harbour (RIH) (alongside or by lighter/workboat/mexi-float).
   b. Replenishment at Sea (Ammunition) (RAS (A) by jackstay, workboat and mexi-float).
   c. Vertical Replenishment (VERTREP), see Ch 5 Annex H for restrictions.

5. General guidance on RAS (A) is given in JSP 862 Addendum, Replenishment At Sea Specifications (RASS) and Ammunition Handling Guides. Other regulations concerning RAS and VERTREP are contained in ATP16D, AP 101A-1105 and AP 101A-1105-1.

6. Disembarkation of explosive stores is normally to be conducted in harbour. Back RAS may be considered where it will be advantageous for reasons of effectiveness e.g. to offload life-expired items to make room for "in-date" weapons or operational efficiency subject to NAVY CMD EXP and NAVY LOG INFRA LOG SPT DACOS approval.

7. Embarkation and disembarkation of all explosive stores, including E3 explosives stores, is to take place along the approved Ammunition Routes.

Conduct of Ammunition/De-Ammunition

8. Access. The ship is responsible for providing safe access between the ship and the ammunition facility.
   a. Ships. Ammunitioning in Devonport at the Tamar buoys are to ensure the accommodation ladder is rigged.
   b. Procedure at Portsmouth is access between the vessel and UHAF. Ships ammunitioning / de-ammunitioning at Portsmouth "Z" moorings are to lower their starboard side accommodation ladder.
9. **Security.**

   a. Arrangements for embarking/disembarking Security Classified (SC)/Attractive to Criminal and Terrorist Organisations (ACTO) Naval Armament Stores (NAS) are to be made in accordance with JSP 440 and confirmed in advance with the area DM.

   b. The ship will be informed of the name of the person collecting NAS and proof of identify is to be obtained prior to transfer; detailed instructions are given in JSP 886.

10. **OME Safety Assurance.** An NBC OME Safety Assurance Officer will normally be present during ammunitioning/de-ammunitioning and may be consulted for OME safety advice.

### 0502 PROGRAMMING AMMUNITIONING/DE-AMMUNITIONING SERIALS

1. When ships programmes are being arranged; ample time is to be allowed, wherever possible, for the embarkation or the disembarkation of explosives during normal working hours. A spare day is to be included as a contingency for unforeseen delays and is not to be planned for any other overriding activity. Indicative times are provided in the following table.

<table>
<thead>
<tr>
<th>Ship Class</th>
<th>Full Outfit</th>
<th>Partial Outfit</th>
</tr>
</thead>
<tbody>
<tr>
<td>QEC¹</td>
<td>4 days + 1 Spare</td>
<td>2 days + 1 Spare</td>
</tr>
<tr>
<td>SSBN</td>
<td>3 days + 1 Spare</td>
<td>2 days + 1 Spare</td>
</tr>
<tr>
<td>SSN</td>
<td>4 days + 1 Spare</td>
<td>2 days + 1 Spare</td>
</tr>
<tr>
<td>LPH</td>
<td>4 days + 1 Spare</td>
<td>2 days + 1 Spare</td>
</tr>
<tr>
<td>LPD</td>
<td>2 days + 1 Spare</td>
<td>1 day + 1 Spare</td>
</tr>
<tr>
<td>Type 45</td>
<td>4 days + 1 Spare</td>
<td>2 day + 1 Spare</td>
</tr>
<tr>
<td>Type 23</td>
<td>3 days + 1 Spare</td>
<td>1 day + 1 Spare</td>
</tr>
<tr>
<td>MM</td>
<td>1/2 day + 1/2 Spare</td>
<td>1/2 day + 1/2 Spare</td>
</tr>
<tr>
<td>PP</td>
<td>1/2 day + 1/2 Spare</td>
<td>1/2 day + 1/2 Spare</td>
</tr>
</tbody>
</table>

**Table 5 -1 Ammunition/De-ammunition - Full Outfit / Part Outfit Top-Up**

2. Operational reasons may on occasion require explosives to be handled with despatch and this will usually be the case when replenishing at sea. Care is to be taken to maintain all safety regulations and to prevent damage to the stores or their containers.

3. All ammunition requests are to be made in accordance with the guidance in this chapter.

4. Permission to work ammunition is to be obtained by signal, normally no later than 2 weeks prior to the event, using one of the following signal formats:

   a. Full outfit/Top-up greater than that allowed by JSP 862 for Small Quantity Top-Up (SQTU) is at Annex C.

   b. For SQTU under JSP 862 the following information is required **only for the magazines to be worked** and is to be shown in three columns entitled: HAZARD DIVISION/TOTAL NEQ/MAGAZINE; the format is at Annex D.

¹ Subject to confirmation at initial embarkation of full/partial outfit of munitions.
0503 ACCOUNTING REQUIREMENTS

1. Naval Armament Stores are to be accounted for in accordance with JSP 886; guidance on accounting is at Chapter 4. If stores are required in excess of authorised allowances, as stated in the Electronic Management of Munitions Allowance (EMMA) and Annual Practice Allowance controlled by the Unit Ammunition Management System (UAMS), ships are to consult their administrative authority before placing demands.

Accounting for Transit Ammunition

2. Occasions may arise when ships in company with a Solid Support Ship take the opportunity to utilise the larger magazine capacity to deposit “transit” ammunition. Such occurrences must be discussed with the SSO of the SSS before placing demands on DM. The ammunition will be demanded by, and remain on, the Naval Armament Stores account of the relevant FLEET unit whilst “in transit” on the SSS. For larger deployments all bids for magazine storage space in the SSS must be made to NAVY LOG INFRA-PLANS SO2A, NAVY LOG INFRA SSM POL and the SSO.

0504 RESPONSIBILITIES DURING TRANSFER OF AMMUNITION

Inspector of Explosives (NAVY) (IE (NAVY))

1. The Inspector of Explosives (NAVY) has the delegated responsibility for overseeing the issue of explosives Licences to authorise the presence and handling of explosives at nominated embarkation/disembarkation sites. The licence holder, who for HM Naval Base berths, buoys, anchorages and trots is the Naval Base Commander, is responsible for ensuring that all explosives embarkation or disembarkation activities are conducted strictly in accordance with the conditions specified on the licence.

Naval Base Commander (NBC)

2. Within the Port Area the Naval Base Commander (NBC) has responsibility for safeguarding the public from any MOD initiated event which might occasion harm or injury. The movement of explosives is such an event. The NBC has functional authority over all users and participants in the movement of explosive stores within the geographical area of his responsibility for the purposes of both prescribing and adhering to the requirements of explosives safety associated with all tasks carried out in that area.

Defence Equipment & Support (DE&S)

3. The DE&S has responsibility for the movement of armament stores up to the point when the stores are onboard the receiving ship and in the charge of the ship’s personnel (and at de-ammunition from the point when the stores are removed from the ship). There is an occasional need to deliver minor quantities of explosives (e.g. for exchange of pyrotechnics) by road through HM Naval Bases. On these occasions, the DM should seek prior approval from the Naval Base Commander.

4. DM will supply a Government Authorised Explosive Representative (GAER), manning parties and control crane operations for explosive activities on any DM licensed lighter or jetty, to the point of handover.

5. In the case of most loads which are deposited on the deck and subsequently struck down by ship’s personnel, the point of handover of stores from DM to the Commanding Officer will be when the stores are on the receiving ship’s deck and the weight comes off the crane. DM will provide two banksmen to direct the crane both from the lighter or jetty and the ship.
6. In the case of certain Guided Weapon systems where stores are not being landed on deck, such as Harpoon, VLSW and Sea Viper, the Commanding Officer's nominated representative (OOQ) will take charge of the final stage of seating the weapon, their directions for crane operations being relayed by the onboard DM banksman. During de-ammunition, the OOQ will be responsible for ensuring such weapons are clear to lift from the ship’s structure.

Base Safety Organisation

7. All ammunition and de-ammunition activities will be attended by a SQEP representative from the Base Safety Organisation who will report immediately to the Commanding Officer and ERO any shortfall in safety standards shown by personnel (both Service and Civilian) involved in the transfer of armament stores between depot facility and the ship. If safety to personnel is at risk, they will advise the Commanding Officer that the operation will be suspended until such time as the risk is removed.

Port and Maritime Regiment

8. Where a warship or RFA embarks explosives at a Military Port (e.g. Marchwood Sea Mounting Centre) and the local Port and Maritime Regiment/Detachment is employed for the handling of explosives on to/off the vessel, the regiment/detachment have responsibility up to the point where the load is deposited on the deck.

Commanding Officers

9. Commanding Officers are responsible for the seamanship, security and safety of lighters once they have been secured alongside.

10. Commanding Officers are responsible for manning of HM Ship activities and for the conduct and transfer of explosive stores between handover points and magazines.

11. Commanding Officers are responsible for the seamanship, security and safety for the ship; they are to ensure that for the duration of the evolution, the ship is to be upright with no list greater than 2° from the vertical. Where wind and/or tidal range influences a change in list then tanks are to be balanced and lines to be monitored and adjusted as required to bring the list tolerance within limits.

12. The specific duties of XO, ERO, Delegated Officers and OOQ are detailed in Chapter 1.

13. An Officer nominated by the Commanding Officer is to be in overall charge of the ship activities. This officer is to be fully conversant with the requirements of this JSP and is:
   
a. To prepare, on behalf of the XO, a ships temporary memorandum to cover embarkation and disembarkation.

   b. Responsible for ensuring that all onboard preparations and precautions for embarkation/disembarkation have been satisfactorily completed.

   c. To station ships officers and ratings in such a manner as to:

   (1) Ensure appropriate care is taken in handling stores from handover points to magazines.

   (2) Ensure that during disembarkation, the loads are securely and safely made up by ships working parties. Advice on these matters can be sought from the DM Liaison Officer.

   (3) Suspend operations if the effects of harbour traffic make this necessary.
0505 EMBARKATION (EXCLUDING CERTAIN GUIDED WEAPONS)

DM responsibilities

1. DM are responsible for the manning of the lighter and the safe lifting of loads from the lighter or jetty to the handover point.

2. DM will provide a banksman on each lighter or at each jetty lifting point and receipt point onboard the vessel. The banksmen will direct the operation of each crane used in transferring loads on to the ship's deck.

3. DM will provide personnel to man steadying lines until the load passes over the ship’s side when the ship's staff will assume responsibility for manning steadying lines.

HM Ship/RFA responsibilities

4. The Commanding Officer will be responsible for providing personnel to man steadying lines as required and as directed by the banksman.

5. Once the weight is off the crane the banksman passes authority to ship's staff.

6. Ship’s personnel are responsible for receiving loads on to the deck and detaching slings/lifting appliances and are to indicate to the banksman when the crane hook, slings etc. are clear of the load.

7. Following receipt on the deck, ship’s personnel are responsible for removing the load from the landing point and striking down.

8. If an off ship crane or ships lifting appliance is to be used for uncrating/crating etc. a suitably qualified controller provided from the ship’s personnel is to direct the operations.

0506 DISEMBARKATION (EXCLUDING CERTAIN GUIDED WEAPONS)

HM Ship / RFA responsibilities

1. The Commanding Officer of the vessel is responsible for the movement of ammunition/stores from onboard stowages to an agreed checking point. They are also responsible for presenting the compliant munitions and associated documentation, including the Certificates of Assurance, for 4.5” Mk 8 munitions (Article 0409.3 and Annex 5J refers), Bans and Constraints (Article 0409.1 and Annex 5H refers) to DM or for BackRAS munitions to the receiving Solid Support RFA. After checking and marking by DM personnel; ship’s staff will position stores at the crane loading point.

Note: There is no requirement for DM Staff to check/mark munitions being disembarked from the Fleet Solid Support Load.

2. The Commanding Officer or nominated representative at Article 0504.12 is to ensure that OME is correctly packed in an approved package or container and is in a stable and safe condition to lift.

3. Ship’s staff are to attach slings/lifting appliances to loads and man any steadying lines under direction of DM banksmen until the load is clear of the ship's structure.

Return of Embarked Military Forces (EMF) Munitions

4. Any EMF munitions ashore must be examined by a fully qualified Ammunition Technician (AT) before transfer to an RN/RFA vessel.
5. The AT ashore is to confirm munitions are safe to be returned onboard and that they are clearly labelled and identified on supporting paperwork as being either:
   a. Fit to be returned, safe for stowage, handling and re-issue.
   b. Fit to be returned, safe for stowage and handling but not for re-issue.
   c. Empty packages or fired cases.
6. Munitions 'Fit to be Returned' are to be in authorised containers, properly sealed using authorised seals and palletised wherever practicable. Munitions ('Empty Packages or Fired Cases') are to bear a Certified Free from Explosives (CFFE) label and returned in accordance with instructions detailed in paragraph "Return of Armament Stores and Explosives" above. Munitions not fit for carriage at sea are to be disposed of ashore.

**DM responsibilities**

7. DM will provide a qualified slinger onboard at each crane loading point to confirm that loads are safe to lift.
8. DM will control the movement of loads from the ship's deck and man the lighters or jetty landing points.
9. DM staff will provide personnel onboard to check all stores, inspect and seal "broken seal" packages and mark stores, packages and containers as required.

**0507 EMBARKATION OF CERTAIN GUIDED WEAPONS (Harpoon, VLSW and Sea Viper)**

**DM responsibilities**

1. DM will provide personnel for manning the jetty or hold of the lighter and attaching any slings/lifting appliances.
2. DM will provide a banksman on each lighter or at each jetty lifting point and at each receipt point onboard the vessel. The banksman will direct the operation of each crane used in transferring weapons to their fixing points; during the final stage of seating the weapon, the banksman will be guided by the nominated ship's representative in charge of the final seating of the missile (normally the OOQ).
3. Where a crane operator's view of the banksman positioned at the receipt point is obscured, as when a Type 45 is embarking Sea Viper, DM is to provide an additional banksman positioned onboard the vessel to relay signals to the crane.
4. DM will provide personnel to man steadying lines until the load passes over the ship's side when the ship's staff will assume responsibility for manning steadying lines.

**HM Ship responsibilities**

5. The Commanding Officer is to provide personnel to man steadying lines when the missile is over the ship's structure and in the case of Sea Viper, 3 x personnel (including the WO ET (WE)) to the UHAF dockside to support DM staff for canister pre-load/post-load preparations.
6. The Commanding Officer's nominated representative is responsible for positioning the missile as required, securing clamps etc., detaching slings/lifting appliances and advising the DM banksman when the crane is free to move.
7. While remaining the Ship’s responsibility when the munition is over the ship’s structure, the Commanding Officer’s nominated representative should acknowledge that the DM staff may have more experience in the operation and should be used for advice and guidance.

0508 DISEMBARKATION OF CERTAIN GUIDED WEAPONS (Harpoon, VLSW and Sea Viper)

HM Ship responsibilities

1. The Commanding Officer’s nominated representative is responsible for safely positioning the weapon for offload, detaching any clamps etc. and attaching slings/lifting appliances, under the guidance of the DM slinger.

2. The Commanding Officer’s nominated representative is responsible for advising the DM slinger when the weapon is free to be lifted and for providing personnel to steady and guide the weapon as it is lifted free of the ship’s structure.

3. Ship’s personnel are to man steadying lines up to the point where they can be passed to DM personnel and in the case of Sea Viper, 3 personnel (including the WO Wpns) to the UHAF dockside to support DM staff for canister pre-load/post-load preparations.

4. While remaining the Ship’s responsibility when the munition is over the ship’s structure, the Commanding Officer’s nominated representative should acknowledge that the DM staff may have more experience in the operation and should be used for advice and guidance.

DM responsibilities

5. DM will provide a qualified slinger onboard to ensure correct attaching of slings/lifting appliances and that the load is safe to lift, and to direct the crane until the weapon is clear of the ship’s side.

6. Where a crane operator’s view of the slinger positioned at the lifting point is obscured, as when a Type 45 is disembarking Sea Viper, the DM is to provide an additional banksman positioned onboard the vessel to relay signals to the crane.

7. A banksman will be provided on the lighter or jetty to direct crane movements into the lighter or onto the jetty. DM staff will man steadying lines when these are handed over from ship’s staff and will provide all manpower required on the lighter or jetty.

0509 ON DEPOSIT FACILITIES.

1. HM Ships/Submarines wishing to land explosive stores "ON DEPOSIT" are to conduct a detailed check on the expiry date of the stores to be landed. This check is to be carried out in good time before the stores are due to be landed. For safety reasons, out of date (i.e. past expiry) stores may not be issued/reissued to a vessel. Accordingly, the following is to be noted:

   a. Only In Date stores, and stores which will remain In Date throughout the period ashore, may be landed "ON DEPOSIT".

   b. If any of the stores intended for "ON DEPOSIT" are already out of Life, or if they will go out of Life during the period "ON DEPOSIT" (e.g. before the re-embarkation date) they are to be permanently returned to Depot under normal Returns accounting procedures.

   c. At the same time as the "ON DEPOSIT" requirement is raised, the landing vessel is to notify the relevant DM depot of any LIFEX anomalies. Advice can then be given with regard to returning / ordering replacement stock, as required.
0510 INCIDENTS DURING MOVEMENTS OF EXPLOSIVES STORES

1. In the event of an accident or incident during embarkation or disembarkation of explosive stores, the responsibility for immediate follow-up action including the decision either to terminate or continue working is authorised as follows:

   a. Managing Director/Superintendent DM. Any accident within a DM Site, on a DM jetty, within a lighter secured alongside a DM jetty or surface ship and up to the handover point of explosive stores. Superintendent DM must inform NBC and the Commanding Officer if he plans to abort or terminate a planned explosive stores transfer.

   b. NBC. Any accident involving a lighter or lighter content, when lighter is not relevant, the equipment PT, IE(NAVY) and DM should assist on explosive safety matters.


2. Further guidance on responsibilities regarding explosive activities within the licensed ammunition sites can be found in chapter 5 Annex L.

3. Where the accident results in damage to explosive stores, action is to be taken in accordance with Chapter 8, Casualty Weapons.

0511 RESPONSIBILITY FOR CRANES USED FOR TRANSFER OF AMMUNITION

1. It is the responsibility of the providing authority to ensure that any off-ship supplied crane or lifting appliance for embarking/disembarking of ammunition is fit for purpose, serviceable and in date for statutory test.

2. Ship mounted cranes used for explosive lifts shall be identified in the ammunition route drawings and compliant with JSP 467 or carry formal concession. Lifting appliances, MHE and ancillary equipment involved in the movement and lifting of Class 1 goods shall comply with the usage and inspections stated in this Chapter.

3. In the unlikely circumstance of having to handle ammunition using cranes which are not the responsibility of DE&S, Commanding Officers are to obtain Quality Assurance evidence of the crane and its associated equipment’s fitness for purpose before use.

0512 SIMULTANEOUS TRANSFER OF FLAMMABLE FLUIDS AND EXPLOSIVES

1. When explosive stores are being transferred at sea simultaneously with the transfer of flammable fuel, stockpiles of explosives on deck are to be kept to a minimum and sufficient personnel are to be available to promptly clear all ammunition dumps on the supply route. The fuelling transfer point is to be downwind of the ammunition transfer point.

2. When in harbour, explosive stores are not to be embarked/disembarked simultaneously when any flammable fluid is also being embarked or discharged.
0513 CHOICE OF BERTH FOR EMBARKING OR DISEMBARKING EXPLOSIVES AND CONDITIONS OF USE

GENERAL

1. Selected berths, buoys, anchorages and trots are licensed by IE (NAVY) to permit the handling and presence of a specified Net Explosives Quantity (NEQ). Details of the authorised NEQs for licensed berths, buoys, anchorages and trots are provided to Naval Base Commanders by local DM Explosives Licensing Officers, acting on behalf of IE (NAVY), together with copies of the individual licenses. Naval Base Commanders are responsible for ensuring that any ammunitioning/de-ammunitioning undertaken within their port area conforms to the NEQ limit granted by the Explosives Licence for the berth/buoy in use.

2. The NEQ for each licence conforms to the United Nations Hazard Division System and Hazard Division aggregation rules apply (Article 0513.6.b refers).

3. The licences reflect the risks associated with the handling of explosives, especially embarkation and disembarkation. Where only small quantities of explosives are involved this may be undertaken at a "Permitted Relaxation" licensed berth, or alternatively for very small quantities, at an unlicensed berth (Article 0513.6 and 0513.7 refers). Embarkation of larger quantities of explosives must take place at designated remote ammunitioning sites. Appropriate location for the planned activity, and any associated licensing constraints, should be determined by early consultation with NBC and DM staff.

Full outfit/large quantity embarkation/disembarkation

4. Unless explicitly authorised as a special case by IE (NAVY), the UN Hazard Division 1.1 licensed NEQ for the remote ammunitioning site must not be exceeded by the total aggregation of explosives of all UN Hazard Divisions present (excluding HD 1.4). The aggregation must include the explosives that are:

   a. Held in lighters or other craft alongside;
   b. Actually being handled;
   c. Stored/fitted in launchers;
   d. Held within magazines, regardless of whether these are open or closed.

5. Information on the NEQ already held onboard is to be provided by ships in accordance with Chapter 5 Annex C and D. This will enable the Naval Base Commander to allocate the appropriate berth. In certain circumstances the permitted licensed NEQ may be insufficient to cover the proposed evolution. Careful pre-planning of all embarkation/disembarkation is therefore essential so that any difficulties are highlighted and resolved as early as possible. Where appropriate, NBC staff should consult with the appropriate DM Site, who may in turn need to seek guidance from IE (NAVY).

Small quantity top-up (SQTU) under permitted relaxation rules

6. Small Quantity ammunitioning/de-ammunitioning may be undertaken at certain berths in HM Naval Bases under ‘Permitted Relaxation Rules’. The following conditions apply:

   a. The quantities permitted are:

      (1) HD 1.1 to a limit of 25 kg.
      (2) HD 1.2 to a limit of 200 kg.
(3) HD 1.3 to a limit of 200 kg.

(4) HD 1.4 to a limit of 200 kg.

b. With the exception of HD 1.4, aggregation rules are applied to these limits. Hence, wherever any HD 1.1 is involved, all explosive stores of 1.2 and 1.3 being embarked/disembarked count as HD 1.1 and the total NEQ for HD 1.1, 1.2 and 1.3 must not exceed 25 kg. Similarly where no HD 1.1 is present and a mixture of HD 1.2 and 1.3 is involved, their combined NEQ must not exceed 200 kg.

c. If only HD 1.4 is being embarked/disembarked then dispensation may be sought from NBC and NAEXP to embark/disembark up to 400 kg.

d. During embarkation/disembarkation no explosive stores other than those to be embarked/disembarked are to be handled in any way. Any explosive stores (excluding HCC 1.4S) that require handling must be segregated to upper deck stowages prior to entering harbour. When transferring munitions (excluding HCC 1.4S) to upper deck stowages only one stowage may be open at any one time. Detonators may be embarked/disembarked directly to/from the detonator locker, providing the total NEQ of the locker does not exceed 25kg.

e. The striking down of HD 1.1, HD 1.2 and HD 1.3 explosives to below deck magazines is not permitted with the exception of 4.5 ammunition which may be transferred to an empty Gunbay.

f. In view of the above restriction, and where no designed SQTU Magazines are available, NAEXP has authorised the use of each upper deck ready use magazine and ready use magazine lockers, including Gunbays not authorised as Magazines, for the short term stowage of Small Quantity Top Up ammunition up to a maximum limit of 25 kg HD 1.1 or 200 kg of HD 1.2/HD 1.3. These explosives stores are to be struck down once the ship is at sea (assuming not immediately to be expended during practice firings). Furthermore, pyrotechnics, smoke and chaff/IR natures may be loaded/unloaded direct to their authorised stowages providing these are upper deck magazines/magazine lockers.

g. When stowing explosives into a HD 1.1 upper deck magazine the total NEQ of explosives already within the magazine and that being embarked must not exceed 350 kg. There is no corresponding limit for HD 1.2 or HD 1.3 magazines.

Small quantity top-up at unlicensed berth

7. Small Quantity Top-Ups may also be undertaken at unlicensed berths in HM Naval Bases, as permitted by HSE under the Dangerous Substances in Harbour Regulations 1987. The maximum permitted quantities allowed are:

a. Up to 200 kg of HD 1.4 (Aggregation with other HDs is not required).

b. Up to 10 kg of HD 1.1 or HD 1.2 or HD 1.3, except explosives in Compatibility group L (Aggregation within the total limit of 10 kg applies).

8. Operations must be conducted in accordance with the conditions outlined above in Para’s 6c to 6f inclusive.
Ammunitioning at a non-MOD berth

9. There may be occasions when ships need to ammunition at a non-military port. In this situation, the ERO must ensure that the Port Authority is consulted at the planning stage to ensure statutory requirements are observed and to confirm that any equipment provided by the Port Authority during the ammunition serial will be fit for purpose. The ERO is to ensure that the relevant authorities are advised of any movement of explosives in a commercial port to enable the provision of a GAER if required (JSP 800 Vol 4B refers).

0514 REPLENISHMENT OF MUNITIONS

1. Storage and Handling Instructions for Munitions (SHIM) prescribe the safe system of work for DM. Included within the SHIM is a section for Replenishment In Harbour (RIH). RIH provides a safe system of work for DM staff to work to when loading/offloading munitions through a DE&S Waterfront or via lighter or barge.

2. Replenishment and Stowage at Sea Specifications (RASS Specs) provide a safe system of work for Replenishment of munitions at sea and for stowage on Solid Support Ships. Underslung loads are only to be transferred by helicopter if the load has been approved by JATEU; (these are listed in AP101A-1105-1B) and cleared for VERTREP (Chapter 10 refers). Ammunition Handling Guides replace the previously titled RASAG and contain information relating to the handling of munitions on the receiving ship. They are to be held in JSP 862 Addendum. At time of this issue there are currently no extant AHG.

3. Replenishment at Sea (Armaments)(RAS(A)) including BACKRAS. This article should be read in conjunction with ATP 16(D) Chapter 7. In addition to the requirements of ATP 16(D), the following applies:

   a. Supplying Ship Responsibilities (RFA):

      (1) The Commanding Officer is responsible for ensuring that the SSOW prescribed in SOP No 20 is complied with in full.

      (2) The supplying ship will identify munitions susceptible to RADHAZ and notify the receiving ship.

      (3) All loads prepared for Replenishment are to comply in full with the relevant RASS Spec.

      (4) Explosive loads are not to be transferred while ships manoeuvre during RAS Corpen November.

      (5) Ships and Equipment, including cargo handling equipment, are designed to operate up to Sea State 6; however, some munition transfers are restricted to lower sea states (relevant SEXSSI refers).

      (6) Loads that contain explosive are not to be fitted with intermediate strops or snotters unless the relevant RASS Spec specifically authorises this.

      (7) Explosive loads or combinations of inert and explosive loads are NOT to be twinned.

   b. Receiving Ship Responsibilities. The receiving ship must acknowledge receipt of RADHAZ notification prior to commencement of transfer.
Return of Armament Stores and Explosives by RAS (BACKRAS)

4. Where operational constraints prevent the return of armament and explosives in harbour, or where it can be shown to be advantageous to operational efficiency, BackRAS will be considered as an alternative. De-ammunitioning (full or part) by BackRAS requires significant engagement and planning by the receiving RFA. In most cases this will require the embarkation of additional empty containers prior to the deployment; these will be held by the SSO and transferred to the warship to be made up into compliant loads in the period preceding the serial.

5. The term BackRAS covers Jackstay and VERTREP transfers at Sea.

6. The operational capability of an AFSH/AOR to accept a BACKRAS is constrained by:
   a. Strict safety regulations.
   b. Limited onboard stowage capacity and segregation requirements.
   c. Availability of suitable empty boxes/containers and packaging on the AFSH/AOR.
   d. Duration and type of deployment being undertaken by the RFA.

7. Items for BackRAS fall into 4 “Conditions”.
   a. **Condition 1.** Any packaged explosive store with sound seals that have been permanently stored in designated magazines, magazine lockers or ready use lockers and which have not been subjected to any abnormal environmental or physical conditions and which can be certified by the returning ships as being safe and serviceable in all respects. Aircraft Bombs and Depth Charges may be considered as being in this condition providing they are not fuzed or fitted with any additional components. Providing the above requirements are met this condition may include A1, RA and R3 items.
   b. **Condition 2.** As for condition 1, in its original package with all packing present and properly packed, but has broken seals.
   c. **Condition 3.** Non explosive/non-hazardous returns i.e. fired cases or empty packages certified by the HM Ships as being Free from Explosives.
   d. **Condition 4.** Items which have an unknown condition, and/or which gives cause for concern, such as items subjected to abnormal/harmful conditions, wetted, damaged, misfires/failure to function, flown and subjected to kinetic heating or in any way other way deemed as suspect.

8. Acceptance of a BACKRAS is on condition that the items involved, other than for condition 3, have the appropriate RAS clearances and is dictated by the following:
   a. **For items in Conditions 1 to 3.** The SSO, in the supporting RFA, will make the decision to accept or refuse the BackRAS task based on the constraints in the work content involved and other local factors. SSO should seek advice in respect to any concerns as to the safety or clearance status of the items involved from NAVY LOG INFRA-SSM POL, who will act as the NCHQ focal point. Dependent on the circumstances of the BackRAS, the items and work involved, SSO may be able to offer SME assistance to the returning ship in preparing the items for return.
b. **Condition 4.** Items will require a full statement of circumstances, will be treated as exceptional, and need NAVY LOG INFRA SSM POL evaluation on the risks involved before approval. Considerations will include the level of expertise, facilities and equipment on the RFA and in consultation with NAVY SHIPS-EXP SO2. SSO must not accept the BackRAS of condition 4 items without NAVY LOG INFRA SSM POL signalled acceptance of the task.

9. Ships are to request a BackRAS of Armament Stores and Explosives as early as possible by signal using the following procedures.

a. **Condition 1 to 3 Stores.** Signal to the supporting RFA copied to NCHQ PORTSMOUTH (for NAVY LOG INFRA SSM POL), CTG, DM using the SICs ORN/OEC/ORJ, giving the following information:

   1. Justification for BackRAS.
   2. Full description of stores to be returned (including Store Reference numbers), the quantities involved by each heading and their “condition”.
   3. Packages, packaging (packing pieces), pallets and/or any special to type container requirements.
   4. A statement that the items for BackRAS are safe for transfer.

b. **Condition 4 Stores.** Signal to NCHQ PORTSMOUTH (for NAVY LOG INFRA SSM POL), the RFA concerned, CTG, DM Gosport using the SICs ORN/OEC/ORJ giving details of the circumstances and item/s involved. On receipt of the signal, SSO is to notify the signal DTG and customer ship details to NAVY LOG INFRA SSM POL via e mail with subject: BackRAS COND 4.

c. Where the supporting RFA has reported as not capable of meeting a BackRAS requirement the HM ship can signal their requirements to NCHQ PORTSMOUTH following the procedures outlined above using the signal addressing as defined above.

10. For First of Class and for new, large munitions a trial is required to prove the procedures for embarkation/disembarkation (Known as a ‘Slow Run Through’ - Def Stan 00-101 refers).

11. Standardisation between ships of the same class simplifies the task of the armament depot or RFA and leads to the development of optimum methods. The existence of instructions does not, in any way, lessen the need for close personal liaison between the receiving ship and the SSO RFA.

12. The instructions are to be followed explicitly so that adequate time and resources are allocated to ensure the task is carried out safely and that the risk of damage to stores and their protective packages is minimised. Deviation from the instructions for RFA Solid Support Ships is not permitted without the authority of NAVY LOG INFRA LOG SPT DACOS.

**0515 CO-OPERATION WITH DM SITES**

1. Whenever possible before embarking or disembarking explosives stores in harbour Commanding Officers are to liaise with the Head of Establishment (HoE) of the DM Site to discuss:

   a. The handling equipment required.
   b. Any priorities or preferences for the loading of lighters.
c. Any safety measures required for individual weapons.

d. The supply of explosives in packages, and to confirm that the quantities listed in the Entitlement Listing are compatible with the magazine designed capacity lists (Form S285K) or approved Stowage Plans of the ship.

e. The provision of meals for Ammunition Parties.

2. DM establishments are required to provide a small SQEP explosives maintenance team to undertake safety/identification checks and packing of items as safe to handle and transport.

3. Before DM can begin these inspections, the DM HoE needs to be fully satisfied that a Safe System of Work (SSOW) is in place to carry out the task. This will involve the undertaking of Risk Assessments associated with the specific task and the facility provided prior to any work being started, advising the ERO of any impact DM operations will have on the Ship.

4. Upon arrival the nominated DM Team Leader will undertake a Task Assessment in conjunction with the ship’s nominated representative using a set proforma. Points of contact are the Customer Service Desks for the DM establishment concerned.

0516 UNIT LOADS

1. All palletised munitions and those supplied in special to type containers/frames are made up as Unit Loads which have been tested and meet the requirements of STANAG 2828. Particulars of Unit Loads are given in the munitions packaging data in the JSMCR and the munitions SEXSSI. More specific information for RFA Solid Support Ships is given in the Replenishment and Stowage at Sea Specifications (RASS).

2. Where the quantity supplied is less than that contained within a full ULS the pallet will be broken down and packaged munitions will be supplied on either a fraction pallet or within an Armament post pallet in the appropriate approved container.

0517 EMBARKING AND DISEMBARKING IN WET WEATHER

1. OME, both explosive and non-explosive, are supplied either bare or in splash or waterproof packages/boxes or in containers. As such the majority of OME is afforded partial or complete protection from inclement (wet) weather.

2. Although inclement weather may not adversely affect OME protected by most packaging arrangements, Commanding Officers, on the advice of onsite DM Staff when replenishing in harbour, are to give careful consideration to the cessation of operations during inclement weather, cognisant of:

   a. The severity of weather conditions.

   b. The ability of receiving staff to effectively dry all OME, packaged, boxed or bare prior to stowage in main magazines, in accordance with Article 0356.

   c. The safety of both individual stores and personnel when handling OME.

   d. The operational requirement. When this is an overriding factor, suitable and appropriate protection should be afforded to the OME being transferred and personnel briefed accordingly.
0518  DANGER FROM LIGHTNING

1. Explosives stores are never to be transferred during electrical storms. In most cases, the response of the munitions to a lightning strike is unknown. It is likely that stores containing EEDs are at risk unless the container provides protection.

2. On receipt of a thunderstorm warning, explosive stores are to be removed immediately from direct exposure to the sky.
   a. Exposed stores may be moved into the hangar, unless aircraft are present.
   b. Embarkation hoists should be emptied and embarkation hatches closed.
   c. In Fort Class RFAs the Clearway will provide adequate protection for items previously exposed in RAS pockets, and similarly the hangar for items on the flight deck which cannot be returned immediately to the Clearway; the RAS pocket doors are to be closed.
   d. Lifts which expose explosive holds when lowered are to remain raised until the risk is passed.

3. If no warning is received the operation of embarking or disembarking explosives is to be suspended from time of the first thunder until the storm has ceased. Any hoisting whip is to be removed from the load during the period. The area should be evacuated as far as practicable.

4. The operation of loading or unloading explosives to or from an aircraft is to be suspended from the time of the first thunder until the storm has ceased. This regulation may be waived if it is essential to do so during wartime operations.

0519  EMBARKATION WHILE ON SHORE ELECTRICAL SUPPLY

1. Ammunition may be handled while the ship is on shore supplies provided that:
   a. The Dockyard Officers are satisfied that the shore supply system, including the flexible cables to the ship and all protective devices, are mechanically and electrically in good working order.
   b. The prior approval of the Naval Base Commander (or the Commanding Officer of the Naval Establishment) is given.
   c. The path of the ammunition is kept well clear of the shore cables and that, when circumstances permit, it is not to cross or come within 2 m of the cables. This restriction does not apply when the path and cables are separated by a bulkhead, deck or safety covers.
   d. The MEO is responsible for the inspection of the flexible cables immediately prior to and during the ammunition serial and for the safety of those cables up to but not including their point of connection to the shore system.

0520  UNAUTHORISED PERSONS ONBOARD SHIP

1. No personnel, other than ships staff and DM staff are to be onboard when ships are embarking or disembarking explosives except as allowed in this Article.
2. Commanding Officers may at their discretion allow onboard a few workmen for a particular purpose, having no connection with any of the compartments containing explosives, when progress of the work is urgent. Alternatively workmen may remain onboard when only a small consignment of explosives is being embarked, via small quantity top up. Commanding Officers must when exercising their discretion under this clause:

   a. Make suitable arrangements on the general lines of Chapter 5 to ensure safety.

   b. Institute any special arrangements to ensure the physical security of “attractive” explosive stores.

   c. Ensure that workmen/contractors onboard are fully briefed.

3. Civilian visitors are not to be onboard when ships are embarking or disembarking explosives unless the purpose of their visit is to witness the ammunitioning process in strict accordance with their professional duties. They must be escorted by a member of ships staff at all times. Service personnel from other ships/establishments are to be kept to a minimum.

0521 GENERAL PRECAUTIONS DURING MOVEMENT OF EXPLOSIVE STORES

1. Smoking is only permitted in areas designated by Commanding Officers onboard and within those facilities provided by DM ashore. Commanding Officers and DM will prohibit smoking and smoking materials in areas where munitions are present.

2. Visitors, to ships that are ammunitioning, must be met at the gangway and escorted to an office, cabin or mess room where they are to be requested to deposit any prohibited materials by their host if a visit to the magazines or transit through an ammunition route is intended.

3. Radar and radio transmissions constitute a potential source of danger when handling ammunition. Current regulations in BRd 2924 must be carefully checked before each occasion of embarkation or disembarkation. Permitted transmissions and safe distances are to be included in the orders for the operation.

4. All ammunition is to be moved through the ship to the respective magazine taking the route, and using the correct handling equipment, specified in the Embarkation, Striking Down and Ammunition Route Drawings held in the Ship’s Datum Pack. Where the opening of an ammunition route for handling ammunition by MHE requires that self-closing fire doors or hatches are to remain open, the necessary Permit to Work procedure should be carried out in good time.

5. Where explosives in bulk quantities and heavy munitions are being moved, when underway, care is required to ensure that munitions are secured when not being handled. There is no method of securing munitions streamed for RAS, however the streaming of loads should only be authorised locally at sea states forecast at six or below.

6. All loads for replenishment are to comply with RASS Specs, SHIM/SSATS as appropriate. All material should be secure so as not to cause a personnel, ship or FOD hazard. Steadying lines are to be used when transferring, embarking or disembarking long or awkward loads.

7. The ERO/SSO is to ensure that PPE, e.g. anti-static/conducting boots, hard hats, life jackets, ear defenders etc. are available to weapon supply parties and that they understand when these are to be worn as laid down in Ships Standing Orders/ SSO SOP No 20 Munitions Transfer.
8. The magnetic fields produced by degaussing systems have been identified as a potential hazard to explosive stores during the embarkation process. The onboard degaussing system and that of adjacent vessels is NOT to be operated/energized during the embarkation/disembarkation of EED stores.

**0522 PREPARATION**

1. Prior to embarking ammunition the following preparations should be made:
   
   a. Inspect all compartments which are to contain explosives and the adjacent compartments in accordance with Chapter 2.
   
   b. Check tank tops and spraying arrangements in accordance with Chapter 2.
   
   c. Check all electrical equipment, air conditioning and ventilation units, fire alarm systems and any monitoring system within explosive compartments are in date for test.
   
   d. Rig ammunition routes in accordance with ship's Ammunition Route Drawings. Where drawings do not reflect the ships current outfit or allowance, advice is to be sought from the ship's Administrative Authority before the relevant stores are moved.
   
   e. Check the route to be taken by explosive stores. Hazardous projections are to be temporarily removed for the duration of embarkation and disembarkation of explosive stores. All unavoidable projections, edges or corners are to be covered/protected by the use of solid wood chocks, fenders, shot mats, rubber sheeting/mouldings or other appropriate cushioning material.
   
   f. Provide fenders and ladders for use with ammunition lighters.
   
   g. Open up hatches, rig derricks, place shot mats where the ammunition is to be embarked and dumped and place ramps over coamings.
   
   h. Provide tarpaulins for covering the ammunition in the event of rainfall.
   
   i. When embarking or disembarking ammunition in harbour or at sea fire hoses are to be rigged ready for use, each with a firefighter nozzle. They should be positioned such that they can be trained on the ammunition dumps inboard.
   
   j. If possible have a direct telephone link with the DM Site.
   
   k. Act in accordance with Naval Base Commanders directive for the situation prevailing at the time requiring special precautions to prevent possible subversive acts by dissidents or saboteurs.
   
   l. Take required SHIPHAZ precautions to restrict Radio/Radar transmissions hazardous to explosives. Ensure Naval Base Commanders direct ships and standby tugs within the RF distance criteria of BRd 2924 to do the same.
   
   m. Ensure that the onboard degaussing system and that of adjacent vessels is not operated/energized during embarkation/disembarkation of EED stores.
   
   n. On arrival of ammunition lighters hoist flag Bravo and Code Romeo Yankee, enforce "No Smoking" in all areas concerned. ("No Smoking" should be piped or broadcast at 15 minute intervals.)

**Note:** It is no longer necessary to earth bond the ship to jetties, crane platforms or lighters.
When lighters with ring mains capable of connection to the ships fire main are used, fire hoses are to be rigged and connected dry to the ring main circuits in the lighters. Water pressure is to be available up to the ships hydrant connection, the spraying control valve in the lighter if fitted, is to be left open before hatches are removed and work commences.

Pressure must be maintained in the fire main at all times while ammunition is being handled or when the there is a lighter alongside.

Solid Support Ships main engines to be on standby and a standby tug is to be in attendance in accordance with local orders.

Brief all personnel involved at an appropriate time.

0523 SUPERVISION DURING MOVEMENTS OF EXPLOSIVE STORES

Movements of explosive stores within the ship are to be supervised by the ERO/SSO, a Delegated Officer, an OOQ or a CM, who is to be present on or adjacent to the route throughout the movement.

0524 CRANES / HANDLING

Explosive stores (General)

Care is to be taken, when berthing against a jetty or securing lighters or other vessels alongside, for an ammunitioning/de-ammunitioning serial to ensure, through the judicious use of catamarans or fenders, that a clear window of water is provided under the entire lift trajectory at the ammunition points. When it is not possible to achieve a satisfactory window of water the Commanding Officer is to assess the risks, referring to the SEXSSIs for guidance on the munitions response to drop tests, to decide whether or not to proceed.

Plan beforehand the routes of the explosive stores over the deck and the positioning of the cranes to ensure that they pass over the minimum number of dangerous projections (spigots).

The authority responsible for the movement of explosive stores is to ensure that all personnel involved obey the following regulations:

a. Before any embarkation/disembarkation is carried out, the crane to be used must establish a safe load trajectory over water wherever possible using a test load.

b. When lifting, handling or transporting explosive stores, ensure that:

   (1) Explosives and packages containing explosives are hoisted and lowered with care.

   (2) Loads are lifted or lowered by contour lifting with no more than minimal clearance over the jetty, ship or lighter sides or other obstructions and with the vertical movements over clear water.

   (3) The window of water is to ensure that in the event of a store being dropped the munitions will fall into the water rather than onto a hard surface.

   (4) When crossing a deck edge the longitudinal axis of weapons should be parallel to the deck edge.

   (5) The routes are to be clear of obstructions created by parked trolleys, empty pallets etc.
Ammunition is not lifted over other ammunition.

Access to the area used for embarkation/disembarkation is to be restricted to personnel taking part.

All personnel involved in embarking/disembarking ammunition, including the crane drivers, are carefully briefed on the procedures involved.

Missiles, pallets, trolleys, crates or cages are lifted only at the specified points and with the lifting gear supplied for the purpose.

Shot mats are placed at embarkation/disembarkation points to protect ammunition, packages and ships decks. Where projections/spigots exist that are less than 50 mm in diameter/dimension they should be covered by double thickness shot mats.

Ammunition is always lowered gently on to the shot mats and is then to be formed into dumps, clear of the reception points, as the rate of hoisting inboard is generally faster than the rate of striking down.

For ammunitioning, de-ammunitioning, RAS, VERTREP or weapons delivered in special containers/trolleys, shot mats are not used on the deck at reception points where they would impede the use of Handling Equipment (MHE, Tug Bars etc.)

c. When packages containing explosives are lifted by their handles, becketts or lifting rings; care is to be taken that:

   (1) The weight is borne equally by all the handles, becketts or lifting rings fitted. This is particularly important where packages, in order to facilitate replenishment, are supplied with lids not completely secured (e.g. toggle catches not protected by split pins).

   (2) The handles, becketts or lifting rings are not taking a strain greater than that of the normally filled package. (This is equally applicable if items are manhandled).

   (3) They are not jolted, dropped or rolled.

d. When embarking/disembarking large numbers of pallets, provision should be made for repalletisation of loads if necessary due to failure of pallets/securing. Spare pallets and banding equipment should be made available in a suitable location.

Details of special equipment used for RAS and VERTREP are to be held in JSP 862 Addendum.

When ammunition is being passed up or down a series of hatchways:

a. Millers Flaps, where provided, are to be rigged at all times.

b. Cruets, where provided, are to be used at all times.

c. Guide wires, where provided, are to be used for the transfer of ammunition at sea. The Command may negate this rule when sea conditions allow. When guide wires are not used/provided; care is required to prevent the load from swinging and catching on hatchways.
WEAPON LIFTS AND HOISTS

1. Particular attention is required to ensure that weapon lifts and hoists are maintained and operated correctly. The following instructions are to be observed:
   
a. Lifts and hoists are only to be operated by personnel trained and competent for the task.
   
b. A register of qualified personnel is to be maintained by the ERO/SSO.
   
c. All lift and hoist interlocks are to be maintained in a serviceable condition and not interfered with.
   
d. Lifts not designed for man-riding are not to be used to carry personnel.
   
e. Lifts opening onto flight decks and hangar decks may be subject to positive control by Flyco/HCO/Command.
   
f. Operating procedures for lifts and hoists are to be followed.
   
g. Risk assessments are to be produced for all lift and hoist evolutions for munitions not covered by operating procedures.

MECHANICAL HANDLING EQUIPMENT (MHE)

1. The use of MHE while underway at sea is inevitably more hazardous than when alongside or at anchor. Care is required to ensure that MHE is maintained and operated correctly. The following instructions are to be observed:
   
a. MHE is only to be operated by personnel trained and competent for the task and holding a valid permit. Section 1 of the RASS Specs contains general safety notes for the handling and movement of munitions with MHE.
   
b. A register of qualified personnel is to be maintained by the ERO/SSO.
   
c. MHE should only be operated within the designed Sea States. The ERO/SSO is to assess the safety of any hazardous evolution, taking account of ship motion and operational necessity and may personally approve operations outside normal limits under supervision.
   
d. Only tyres approved for the MHE are to be fitted. These are designed for maximum grip and to provide a leakage path for electrostatic potential to earth. MHE may alternatively be fitted with copper braid earthing straps to provide the leakage path.
   
e. MHE protected to Cat C standard is to be used for moving ammunition. Only Cat A Zone 2 equipment is to be used to handle and move 1.1 J stores or to operate in fuel danger areas.
   
f. Operating procedures for MHE are to be followed.
   
g. Risk assessments are to be produced for all MHE evolutions with munitions not covered by operating procedures.
**0527 USE AND EXAMINATION OF APPROVED LIFTING EQUIPMENTS**

1. Stringent safety requirements are an inherent part of all ammunition handling activities onboard ship. Equipment used during the movement of explosive stores is designed and manufactured to a higher safety standard than other handling/lifting equipment. Consequently, tighter controls on its upkeep and usage are imposed in service.

2. In order to increase the flexibility available to ships staff when handling explosive and non-explosive stores while maintaining the necessary level of safety, all handling/lifting equipment onboard ship has been classified into four groups. Annex I gives details of these groups for ammunition and non-ammunition handling/lifting equipment and the restrictions on use that apply. The equipment listed in Group 1 remains dedicated to the explosive store for which it was designed, and its purpose will be specified on the ship's Ammunition Route Drawings.

3. Only the equipment specified in Ships Ammunition Route Drawings is to be used for the lifting/handling of ammunition. Care is to be taken to ensure that all equipment is in a fully serviceable condition and that it is within test date.

4. A "Safe System of Work", as defined in BRd 3027, is to be established and implemented at all positions after the handover point where the movement of explosive stores involves lifting plant and equipment.

5. Before and after each occasion that lifting gear is to be used for embarkation/dismbarkation of ammunition, or during ammunition resupply, it is to be given the "Check" listed in BRd 3027 to ensure that there is no sign of deterioration or damage to cordage or wire. It is also to be visually inspected at regular intervals during use. Particular care is to be taken over fitting and use of gear for lifting guided missiles or torpedoes.

6. The periodicity for "Thorough Examination" and "Test" of lifting plant and equipment used for the lifting and movement of explosives stores are laid down in BRd 3027 and are to be complied with.

7. Use of power operated winches to facilitate the hoisting or lowering of explosive stores is only permissible if detailed on the list of approved associated equipment on relevant Ammunition Route Drawings.

8. Wire ammunition whips are to have the standing part secured to the drum of the winch/bollard and the load is to be lowered by reversing the motor. Where no powered facilities exist, the whip may be rendered round bollards or cleats using at least 4 turns or the maximum number which will allow the whip to render.

9. The use of man-made cordage for handling explosive stores was previously prohibited because of the electrostatic risk associated with such materials and the difficulties of handling when wet. However, the use of natural fibres (e.g. manila) for ammunition handling presents other problems, particularly the tendency to rot unless kept dry, to swell and kink when wet in use and the increasing short supply of the raw material. Present policy permits the use of cordage manufactured from polypropylene as an alternative to natural fibres and its use includes lifting bare 4.5 inch Mk 8 ammunition. This policy of using man-made cordage does not apply when lifting explosive stores with exposed EED wiring or bare EED because of the possible presence of an electrostatic charge on the rope; in such instances the appropriate MOD safety authorities are to be consulted, advice can be sought from NAVY CMD EXP.

**0528 GENERAL PRECAUTIONS WHEN LIFTING AMMUNITION**

1. Solid Support Ships are to note the precautions contained within SOP No 20 and RASS Specs. All other vessels are to note the following:
a. Tackle hooks (if not spring loaded) and shackles are to be moused.

b. Plain steel wire nets, even when lined with hide, are not to be used for lifting ammunition packages.

c. Strops must be so adjusted that splices do not bear on the hook or on edges of the load. Edges and projections of heavy loads must be padded when chain is used.

d. Rope handles of packages are not to be used for moving packages except by manhandling.

e. Where a package has two handles, both must be hooked on before hoisting; should only one of the handles be serviceable, a bale sling strop must be used.

f. Where a package, because of its length cannot be lowered through a hatch horizontally using both handles, the whip should be passed through both handles around the package, and secured to its own part. The package should then be lowered vertically.

g. To ensure that the weight of each package containing explosives is borne proportionately by all lifting handles, beackets, lugs or rings fitted to the package - only the approved design of sling is to be used on the appropriate package (i.e. a 2 legged sling is never to be used on a package with 3 or more lifting points).

2. In a legged sling, the strain in each leg is inversely proportional to the number of legs (e.g. in a 4 legged sling) each leg bears a quarter of the load, when used in the manner for what they are designed for.

3. When heavy objects are being rigged, unrigged, hoisted or lowered, personnel below are to be kept well clear. All personnel involved in the evolution or in the area are to wear industrial safety helmets.

0529 SECONDARY AMMUNITION RESUPPLY ROUTES

1. A nominated Senior Rate is to be responsible for the supervision and safe operation, including rigging and unrigging, of each secondary supply route.

2. Only the approved rig as per Ships Course of Ammunition Route Drawings is to be used.

0530 HANDLING OF GUIDED WEAPONS AND TORPEDOES

1. Guided Weapons and torpedoes are more susceptible to physical damage than most armament stores and are to be handled with particular care. In some munitions there is a risk of deflagration, explosion or detonation if the explosive composition is penetrated by a sharp object. As with other explosive stores the measures listed in Article 0522 minimise the risk.

0531 INSPECTION ON RECEIPT OF EXPLOSIVE STORES

1. All explosives, other than fixed ammunition stowed onboard boxed, are to be inspected upon receipt as to their external condition in accordance with the relevant documentation.

2. Armament stores found to be defective in any way are not to be accepted onboard, but are to be returned to the DM Site or the support ship, the stores being clearly marked as to the fault by DM staff. All Air Launched torpedoes damaged on transfer between custodians are also subject to additional defect reporting procedures (Article 0531.5 refers).
3. All GW and torpedo containers, pallet trolleys or trolleys must be in date for test and are to be examined for damage on receipt. Items out of date for test, or found defective, are not to be accepted.

4. An S1148D defect report is to accompany all items returned as defective or out of date for test in accordance with Chapter 8.

5. All torpedoes are very susceptible to physical damage of both the external hull surface and the control fittings. The permissible limits of damage are contained in the relevant publications. Forms S2022 are to be forwarded for all instances of damage within these limits, including heavy scores or cracks in the hull surfaces, distortion of the propellers, rudders, fins or shroud rings in accordance with Chapter 8.

6. Damage outside these limits will entail rejection of the torpedo and initiation of the appropriate reporting action in accordance with Chapter 8. During embarkation, disembarkation or transfer of torpedoes, approved representatives of both donor and recipient authorities, are to be in attendance to jointly examine and agree upon the physical state of the stores.

7. Ships Staff are to inspect visually all receipts for conformance of the store, STC crates, pallets or containers, the integrity of the unit load and of all seals, markings and labels. Ships Staff are also to ensure that all receipts are cleared for embarkation, have sufficient life and, when necessary, are accompanied by log cards.

**0532 GENERAL PRECAUTIONS FOR HANDLING EXPLOSIVES**

1. Rough usage of ammunition packages and their contents is liable to cause misfires, hangfires or other incidents. Packages roughly handled cannot be expected to retain their water tightness and general integrity. Therefore, whenever explosives of any kind are being handled, care is to be taken to avoid damage to the explosives or the packages in which they are packed.

2. Explosive stores which have been roughly handled, found in damaged packages or have been wetted are to be examined by the ERO/Delegated ERO before the can be stowed with other explosives. The ERO/DERO is to be satisfied that the safety and efficiency of the weapon has not been affected. Where the ERO/DERO is not satisfied, and in particular if it is known or suspected that the explosive stores have been dropped, subjected to a heavy blow or penetrated by moisture and may therefore have suffered internal damage, the stores are to be disposed of or returned in accordance with Chapter 8.

3. Damaged packages and containers which are unserviceable are to be disposed of or returned in accordance with Chapter 8. If returned to DM, they are to be sealed and endorsed (CFFE), (Article 0539 Refers).

4. If explosives or their packages appear to have been roughly handled by negligence, the Commanding Officer is to investigate the circumstances or if outside their jurisdiction is to report the matter.

5. Packages containing explosives that have been opened for any purpose are to be inspected initially by the OOQ before closing with ammunition still inside, to ensure that no foreign substance has been enclosed. Where appropriate the ERO is to inspect all such packages before they are restowed in magazines other than Ready Use magazines.

6. Additional special regulations governing surface launched Guided Weapons, Air Weapons, torpedoes and depth charges are laid down in the appropriate SEXSSI.
0533 INSPECTION ON COMPLETION OF MOVEMENT OF EXPLOSIVE STORES

1. On completion of embarkation, disembarkation, transfer of explosive stores and before each magazine, magazine locker, RU magazine or RU magazine locker is closed it is to be inspected by the ERO/Delegated ERO.

2. After embarkation or transfer of stores, the ERO/Delegated ERO is to see that all explosive stores are securely stowed in their proper stowage and that all necessary battens, stanchions, clips, pins or bin-poles are secured in place.

3. After complete disembarkation of ammunition, the ERO/Delegated ERO is to be satisfied that no explosive stores remain in the magazine; it is important that all hoists are run to ensure that they are empty and that ammunitioning routes are thoroughly checked. It is also necessary to check all RU lockers and pyrotechnic stowages, including those pyrotechnics stowed in boats or attached to lifebuoys.

0534 EXAMINATION OF PACKAGES

1. Packaging containing ammunition is frequently either a flash tight or damp proof container in which the contents are protected from damage or deterioration. Rough usage of lids, which may reduce their resistance, may be a source of danger and certainly of accelerated deterioration of the ammunition.

2. Packaging and pallets are frequently metallic to reduce the risk of fire. Metal package designs may incorporate devices to provide venting and reduce confinement in the event of an unintended initiation. Wooden packaging is authorised for certain MCMV munitions to conform with magnetic hygiene requirements. For other situations where wood packaging is being considered, the Platform Duty Holder must seek NAEXP approval. Pallets should be made of metal where practicable.

3. Where sealing devices or labels are fitted, they are to be examined as soon as the packages are received onboard. Station labels (e.g. linen labels), affixed as a seal on explosive packages, are not to be removed until the contents are required for use. Care is to be taken that these labels are not accidentally broken. Any package found with broken seals is to be returned to the DM Site or the Armament support ship accompanied by a report (Ch 4 refers); during embarkation such packages may be examined and resealed by DM staff.

4. Packages which must be opened up immediately upon receipt onboard so that the contents may be stowed below decks are exempt from the previous clause, provided the contents are given a careful visual examination by a senior rating or above.

5. When landing explosives stores, ships are to notify the DM Site of details of packages required for packing stores stowed loose. Care must be exercised in packing to prevent distortion of ammunition and to ensure that the packages are properly closed.

6. Packages supplied partly filled are to be returned to the DM Site and full packages demanded if there is insufficient space in the dedicated stowage onboard.

0535 CARE OF EMPTY PACKAGES, CONTAINERS AND FITTINGS

1. During disembarkation, empty packages and containers are to be handled with care to prevent damage and are to be kept segregated from filled and partially filled packages. On return they are to be sealed and endorsed (CFFE) in accordance with Article 0539.

2. Packages are to be returned with their own lids and all fittings properly fixed and secured (Ch 5 refers). All protective covers and devices used during transit must be returned to the DM Site or the support ship.
EXPLOSIVE STORES LANDED ON DEPOSIT

1. Explosive stores may be landed on deposit to a DM depot for short periods. The stores will remain on the ship’s books and the ship remains responsible for ensuring any bans and constraints action is taken and for ensuring that any maintenance required on the stores is agreed with DM staff in advance. JSP 886 provides further guidance.

RETURN OF EXPLOSIVE STORES TO ARMAMENT SUPPORT SHIP

1. The regulations governing the return of explosive stores to RFA Solid Support Ships are contained in ATP 16 (Article 0514 and 0551 refers).

BROKEN SEAL RETURNS

1. When returning packages containing explosives to DM Sites, any having broken seals or tapes are to be kept separate, and DM informed whenever possible five weeks prior to the de-ammunition date. If it is likely that a firing or use of munitions will occur within five weeks of de-ammunitioning and will result in a broken seal return, the DM depot are to be made aware and the exact quantities made known expeditiously. Under no circumstances are seals or labels to be re-affixed other than by DM staff.

CERTIFIED FREE FROM EXPLOSIVES (CFFE) - RETURN OF EMPTY AMMUNITION, PACKAGES, CONTAINERS AND ARISINGS

1. The Certification Free From Explosives (CFFE) procedure is applicable to all packages which have contained explosives. This includes arisings from ammunition firings, munitions kept as souvenirs for displays or training aids, arisings from the breakdown and disposal of ammunition/explosives and vehicles or equipment expected to use or hold munitions. CFFE is required when such items are to be transported as non-explosives or sent to recipients for re-cycling who, because of a lack of knowledge of explosives, would be at risk if explosives were to be inadvertently left in a nominally empty article or package.

2. CFFE is to be conducted by the OOQ as detailed in Chapter 1; however, the ERO may detail other suitably competent (by virtue of Training and Experience with a specific nature of ammunition) personnel e.g. embarked Ammunition Technicians or RAF Armourers.

3. All articles and packages are to be inspected and a thorough examination carried out to ensure that they are free from explosives. For packages this is to include the removal and inspection of all internal packing fitments and furniture, although they can be subsequently replaced if required. If it can be stated with certainty that it is free from explosives a CFFE certificate (MOD Form 2257) will be issued by the OOQ or competent individual. If it cannot be stated with absolute certainty that an item is completely free from explosives, or an explosive item is found during this process, the ERO is to be advised and the item removed to the correct explosive storage.

4. Hazard Classification Code markings, Supplementary Symbols, Proper Shipping Name and UN Serial Number details are to be removed or obliterated as part of the CFFE process for packages only. For all items, CFFE certificates (MOD Form 2257) are to be prepared for each item and are to be signed by the OOQ or the person authorised to carry out the inspection. This person is to be present during the whole process.

Documentation

5. CFFE certificates are to be accountable documents. The completed certificate is to be placed in the CFFE package or securely attached to the CFFE article. A copy of the certificate template (MOD Form 2257) is at Annex K.
Consignment of CFFE

6. Details from the CFFE Certificates of a consignment of CFFE packages are to be summarised on the Consignment Note. A copy of the Consignment Note must be kept by the issuing unit for three years. The Consignment Note must be signed by a Petty Officer or above and include the following statement:

“The items in this consignment have been subjected to a method of checking such as to exclude the possibility of the consignment containing any explosives material”.

Sealing of Containers

7. Once articles and packages have been CFFE they must be sealed and isolated in such a way that there is no possibility of any uncertified article or package finding its way into the CFFE area/store or of uncertified articles being placed in CFFE packages.

FFE Violation

8. If, during the processing of ammunition salvage any live ammunition and/or explosives are found, a Violation Report (MF 1671) is to be raised by the unit undertaking the process and forwarded to MID Cell, Fir 3A, Mail point 4304, Abbey Wood South, Bristol BS34 8JH; together with copies of the documentation accompanying the consignment.

9. On receipt of a violation report the details of the violation are entered onto the Munitions Incident Database where it is allocated a register number. A Free From Explosives (FFE) violation is classed as a Near Miss and a letter is raised requesting that an investigation be carried out by the unit involved. This letter includes a blank Unit FFE Violation Investigation Report and copies of all original documentation received by the MID cell.

10. The unit responsible for the FFE violation will be required to complete a Unit FFE Violation Investigation Report, following onboard investigation, using the format shown in Annex G. The report is to be returned to the MID cell within 8 weeks of issue, with a copy sent to NAVY CMD EXP. The report does not override the requirement for a Ship’s Investigation in accordance with FLAGOs.

CFFE Violation categorisation and Unit response

11. For all Serious Violations, or those from ships or submarines which persistently incur violations, Fleet will be requested by the MID Cell to carry out a full review of onboard procedures. To ensure that appropriate action is taken, the Categories detailed in Annex G page 2 have been applied to FFE Violations. A response from the ship or submarine should be made against each category, with a copy to NAVY CMD EXP.

Closing Out of FFE Violation

12. On receipt of the completed Unit FFE Violation Investigation report the FFE Violation database is updated and the incident is closed. Any incident where a violation investigation is not concluded satisfactorily will be referred to NAVY CMD EXP for action.

CFFE of expended cartridge cases above 12 mm

13. All Cartridge cases are to be certified Free From Explosives in accordance with the generic instructions within this Article. A CFFE Certificate must be included with the consignment.

14. Cartridge cases should not be returned grossly contaminated. Care is to be taken to remove all grit and dirt.

15. Cartridge cases other than brass are to be segregated and returned separately.
Procedures for the disposal of small arms ammunition (SAA) expended cartridge cases up to 12 mm.

16. Due to the large quantities involved, there is potential for the inadvertent mixing of live rounds with expended SAA cartridge cases up to 12 mm calibre. SAA cases up to 12 mm can only be declared FFE after they have been formally recovered as scrap. This procedure does not remove the need to physically check SAA cases for live rounds, both at the point of collection, packing or at recovery facility. No CFFE certificate is to be completed using this process.

17. All fired SAA cases up to 12 mm (12.7 mm/0.5 inch not included) should be returned to the nearest DM site as applicable as contaminated arising in approved metal ammunition containers from the unit. These containers should normally be the containers in which the ammunition was issued. Only if metal ammunition containers are unavailable should strong wooden boxes be utilised. Suitable packing materials should be used to fill the void in part filled containers and the lids are to be secured with wire / cable ties.

18. All original markings are to be obliterated and the containers are to be marked “Contaminated Brass under 12 mm”. All accompanying paperwork is to be similarly endorsed. These brass arising are not classified as dangerous goods, therefore, hazard markings and dangerous goods notes are not required.

19. The packed arising can be stored in any secure MOD premises, and may be stored in an ammunition store with HD 1.4S if necessary, but physically separated from the ammunition. During transportation the vehicle does not require hazard marking, placarding or vocationally trained drivers or attendants.

Empty SAA containers

20. All empty SAA containers and internal furniture are to be returned to the nearest DM site as applicable for re-use and will continue to require full FFE certification at the point of dispatch in accordance with this Article. Any surplus internal furniture, removed from containers used for the return of fired cases, should also be returned.

Munitions retained for static display

21. Any munitions kept as a souvenir for static display purposes, or items that could have or did contain munitions, must be examined by a competent person to ensure that all components are entirely free from explosives and any other hazardous substances. Any item that may be confused with a live store, such as a training round (but not purpose manufactured training aids obtained from official sources), will be subject to this process. A formal CFFE certificate will then be issued and this is to be kept in an onboard register.

22. The details held in the register must include information enabling each item of “inert” munitions to be uniquely identified (including a brief description of the item and a unique number), the name of the person who carried out the CFFE certification, the date on which it was carried out and the method of certification: Visual, X-Ray, breakdown or dismantlement. The item of “inert” munitions may retain its original service colours but must be marked or tagged with the unique number from the register and also be labelled as INERT or FREE FROM EXPLOSIVES.

0540 ROAD TRANSPORTATION OF EXPLOSIVES

1. With the exception of Solid Support RFAs the requirement for ships or submarines to transport explosive stores by road is likely to be limited to the movement of small consignments of Small Arms Ammunition for the conduct of own ship Annual Personal Weapons Tests (APWTs). This transportation is to be conducted in accordance with JSP 800 Vol 4b.
2. SSOs are to consign UN Class 1 munitions in accordance with the appropriate national or international modal regulation.

0541 EMBARKATION OF SPECIAL FORCES MUNITIONS

1. All embarkations of Special Forces (SF) munitions are to be carried out iaw E3 approval process detailed in Article 0321.

0542 INTERCHANGE OF AMMUNITION WITH NATO FORCES

1. In exceptional cases it may become necessary to interchange munitions with other NATO units to provide additional sources of supply. It may also be a requirement to exercise this capability. It is essential that munitions which are considered for interchange are assessed as safe to embark, handle, stow and use in ships prior to being embarked.

2. AOP-6 lists the munition types that have a degree of commonality within NATO and which have been assessed as technically interchangeable. Guidance on the exchange procedures is given in AOP-6 for peacetime and wartime exchanges.

3. All embarkations of NATO Forces’ explosives are to be conducted iaw E3 approval process detailed in article 0321.

0543 EMBARKATION OF ALLIED EXPLOSIVES

1. All embarkations of Allied Forces’ explosives are to be conducted iaw E3 approval process detailed in article 0321.

0544 EMBARKATION AND STOWAGE OF SEIZED AMMUNITION

1. The embarkation of seized or enemy ammunition is to be conducted iaw E3 approval process (Article 0321 refers).

Stowage of seized ammunition

2. The requirements for the stowage of seized ammunition are as follows:

   a. Unfired seized or enemy ammunition, when authorised for embarkation and stowage, is not to be stowed below decks. It should be retained until it can be landed for examination purposes in a suitable, secure upper deck stowage (e.g. SQTU or RU magazine/locker) with adequate fire fighting arrangements.

   b. Unexploded foreign ammunition that has been fired is to be lowered into deep water. No attempt is to be made to break it up onboard.

   c. Any seized ammunition which known to be unreliable is not to be embarked.

0545 NBC EXPLOSIVES SAFETY GROUPS

1. Advice on explosives handling/explosives safety related matters can also be obtained from the Local NBC Explosive Safety Groups:

   Portsmouth Explosive Safety Advisory Group (PESAG)
   Ordnance Munitions Explosive Safety Officers (OME0) (Tel No. iaw Appendix A.1)
   Silent Hours: Contact PNB Duty Officer Semaphore Tower (Tel No. iaw Appendix A.2)
   Explosive Safety Advisors (ESA)
Devonport Explosive Safety Advisory Group (DESAG)
Explosive Safety Advisors (ESA) (Tel No. iaw Appendix A.3)
Explosive Risk Advisor (Nuclear) (Tel No. iaw Appendix A.4)
Silent Hours: Contact DNB Duty Officer, NBHQ, MO49

NBC CLYDE Explosives Safety Cell
Rm 217, Tyne Building, HMNB Clyde
Explosives Responsible Officer (Tel No. iaw Appendix A.5)
24 hr answer phone (Tel No. iaw Appendix A.6)
Silent Hours: (Tel No. iaw Appendix A.7)

0546 DEFENCE MUNITIONS (DM) – Gosport

General
1. All communications concerning supply of missiles, torpedoes and conventional ammunition are to be addressed to DM Gosport. A Customer Services desk is provided at Gosport to deal with all matters concerning ammunitioning/de-ammunitioning (Tel No. iaw Appendix A.8).

2. Normal Working Hours are:
   a. Office 0800-1630 Monday to Thursday (Friday 1230).
   b. Depot 0730-1600 Monday to Thursday (Friday 1230).

3. During silent hours and over weekends a duty officer may be contacted with any priority operational requirement on the following numbers:
   Mobile: (Tel No. iaw Appendix A.9)
   Civil: (Tel No. iaw Appendix A.9)
   MOD Ext: (Tel No. iaw Appendix A.9)
   The MDPGA can also be contacted on Extension: (Tel No. iaw Appendix A.9)

4. Ships are to liaise with Defence Munitions (DM) Gosport Customer Services (Tel No. iaw Appendix A.8) and discuss Up Harbour Ammunitioning Facility (UHAF)/Bedenham Pier availability. Once dates have been agreed units are to signal NBC Portsmouth (Copy DM Gosport) with dates requested including any spare days (see Annex E).

Demands/Returns
5. All stores are to be demanded on Form S145, hard copy demand or by signal (SMA DM GOSPORT) and forwarded to DM Gosport, Customer Services Section, Fareham Road, Gosport Hants PO13 0AH. Demands can also be faxed: (Tel No. iaw Appendix A.10). MJD1 demands cannot be seen and will not be actioned.
   a. Demands for stores to be issued at UHAF require a minimum of 5 weeks’ notice. A minimum of 2 weeks’ notice is required for smaller quantity top-ups alongside.
   b. Short notice demands must be fully justified and kept to a minimum, predominantly where there is a time-limited operational imperative. Reason for late demand and penalty for non-supply are to be advised.
   c. Details of all armament stores for return via UHAF must be notified to DM Gosport's Customer Services section giving at least 5 weeks’ notice. Stores for return by road should be notified giving at least 10 days’ notice.
d. The details needed for each item to be returned include: the item stock reference number, quantity, description and, for explosive stores, the number of boxes good seal and broken seal.

Methods of Supply

6. Large amounts of ammunition can be transferred only at the Up Harbour Ammunitioning Facility (UHAF) or ‘Z’ mooring. Arrangements must be made well in advance and whenever possible proposed dates should be discussed with DM Gosport before formally signalling request to NBC Portsmouth.

7. When ships are ammunitioning at the UHAF; a maximum of four lighters, two forward and two aft, are normally provided at any one time.

**Note:** Use of the UHAF can be severely limited by high wind conditions. The Portsmouth ‘Z’ mooring is authorized as an alternative ammunitioning/deammunitioning facility. PNB Ships’ Facilities Coordinator will advise accordingly.

A floating “hastie” crane is used for munitions evolutions at “Z” moorings. Ships need to be aware that there are no longer telephone facilities at UHAF. In emergency telephone contact can be made via ships mobile telephone.

8. MM/PP vessels are authorised to use Bedenham Pier for major ammunitioning/de-ammunitioning evolutions. The channel to Bedenham pier is dredged to a depth of 5 metres. A pilot is always required and vessels may move hot or cold.

9. For Small Quantity Top Ups (SQTU) within the limitations in JSP 862, PNB has a number of ‘Permitted Relaxation’ explosive licensed berths/jetties approved for use. PNB Ships’ Facilities Coordinator will advise accordingly. DM Gosport can transport small amounts of explosive stores to approved ammunitioning berths in Portsmouth Harbour by either:

   a. Road.

   b. Naval Armament Lighter (NAL) from Bedenham Pier (by exception)

   **Note:** Fendering for lighters berthing on the ship’s bow is to be arranged by the ship.

0547 DEFENCE MUNITIONS (DM) – PLYMOUTH

1. DM Plymouth administers Magazine stores, Electronic Torpedoes, Guided Missiles, Gun stores and their ancillaries.

2. Contacts

   a. All correspondence is to be addressed to DM Plymouth:

      (1) Liaison on ammunition/de-ammunitioning and supply matters in general; CSM (Service Manager) – DM Plymouth Ext: *(Tel No. iaw Appendix A.11)*.

      (2) Supply matters connected with armament stores; CSM Ext: Explosives *(Tel No. iaw Appendix A.12)*, Ordnance Non-Explosive Ext: *(Tel No. iaw Appendix A.13)* and Returns Ext: *(Tel No. iaw Appendix A.14)*.

      (3) Ships returns; MM2 Ext: *(Tel No. iaw Appendix A.15)*.
b. NBCDEV contact is NBFCC1 - Naval Base Ext: *(Tel No. iaw Appendix A.16).*

c. During silent hours priority operational requirements are to be referred to the Duty Control Officer on DM Plymouth Ext: *(Tel No. iaw Appendix A.17)* or through the Duty Station Officer, MGS, Ernesettle Ext: *(Tel No. iaw Appendix A.18).* Working hours are detailed below.

- Office: 0800-1630, Monday - Thursday (Friday 1230);
- Depot: 0800-1600 Monday - Thursday (Friday 1230).

### Demands/Returns

3. All items are to be demanded on Form S145 (1 copy), hard copy demand or by signal and forwarded to DM Plymouth, Customer Services Section, Ernesettle Lane, Plymouth, PL5 2TX. Demands can also be sent by e-mail to DM Plymouth-CSM or faxed to ext: *(Tel No. iaw Appendix A.19).* MJDI demands cannot be seen and will not be auctioned.

a. Five weeks’ notice is to be given.

b. Short notice demands cannot be guaranteed and are to be kept to a minimum. Reason for late demand and penalty for non-supply (capability/operational impact) are to be advised.

c. Details of all armament stores returns (NSN), including drill & non-explosive items and any packages or special handling gear required, must be notified to CSM DM Plymouth at least 25 days before return date by letter or signal, Fax ext: *(Tel No. iaw Appendix A.20)* or E-Mail. The details of sound seal and broken seal items must also be stated.

### Methods of Supply

4. Large quantities of explosives stores from DM Plymouth to surface vessels are supplied by water to nominated buoys in the Hamoaze or in the Sound, normally by dumb lighter. Non-explosive stores can be supplied by road.

5. For Small Quantity Top Ups within the limitations in JSP 862 (Article 0513 refers) DNB has a number of 'Permitted Relaxation' explosive licensed berths/jetties approved for use. DNB Ships’ Facilities Coordinator will advise accordingly. DM Plymouth can transport small amounts of explosive stores to approved ammunition berths in Devonport NB by either:

a. Road

b. Naval Armament Lighter (NAL)

**Note:** Appropriate fenders for the berthing of lighter on the ship’s bow are to be arranged by the ship.

**Note:** Devonport NB operate a Can Consignee Accept (CCA) system for all explosives delivered by road. Consignors of explosives loads, of any hazard division, are to request authority to deliver/enter the NB from DESAG (Article 0545 refers).

**Note:** Submarine weapons are delivered to Devonport NB by road transport and transferred to the submarine using dockside cranes. During the ammunition evolution exclusion and ALARP zones are enforced which will have an effect on surface vessels at adjacent berths.
c. All ammunition movements to/from Army or RM Contingents in HM Ships and Submarines are to be in accordance with current explosive limit regulations via DM Plymouth by lighter:

(1) Mounting Headquarters are to arrange with Southern Area Command Ammunition Inspectorate (Western District) for an Ammunition Technician to meet returning ships at the Naval Base and carry out Safe to Travel (STT) inspection on returned ammunition. DM Plymouth will arrange its return.

(2) Vessels are to give DM Plymouth as much notice as possible when handling returned army ammunition. Opened boxes are to be resealed by an Ammunition Technician and STT Certificates prepared and signed before ammunition is moved.

Embarking/Disembarking Personnel at Tamar Ammunition Berths.

6. Whilst at NATO Ammunition Buoys, ships are required to lower their accommodation ladder. A purpose fitting catamaran will be provided. Ships unable to lower their ladders are to inform SERCO DENHOLM Ops Room on Ext: (Tel No. iaw Appendix A.21) or CH 73 so a suitable alternative Harbour Launch can be booked.

0548 DEFENCE MUNITIONS (DM)- FORTH AREA


2. Contacts

   a. All communications concerning ammunitioning / de-ammunitioning and supply matters in general should be directed to the Customer Services Section – Crombie Ext: (Tel No. iaw Appendix A.22).

   b. Correspondence. All correspondence is to be addressed to:

      Customer Services
      Room 8, Building 21,
      DM Crombie,
      Crombie, Dunfermline,
      Fife,
      KY12 8LA.

   c. Stores. All stores are to be consigned to DM Crombie.

   d. Signals. All signals are to be addressed to DM Crombie.

   e. Telephone.

      BT: (Tel No. iaw Appendix A.23) + Ext No.
      During working hours, (0730 – 1615 Mon to Thur, 0730 – 1230 Fri), the first point of contact is the Ships Customer Liaison Officer, Ext: (Tel No. iaw Appendix A.23).

      During silent hours priority operational requirements are to be referred to the Duty Control Officer on Crombie Ext: (Tel No. iaw Appendix A.24).

Demands/Returns.

3. All items are to be demanded via Form S145 and forwarded to Crombie.
a. Five weeks’ notice is to be given for demands/returns.

b. Short notice demands of less than five weeks, cannot be guaranteed and should be kept to a minimum.

c. Details of all explosives stores returns including any packages or special handling gear required must be notified to DM Crombie at least 20 working days before the return date, either by e-mail or letter. This is particularly relevant to items of broken seal.

**Methods of Supply**

4. All explosive stores from DM Crombie are supplied direct to the ship whilst alongside Crombie Jetty.

5. Crombie Jetty has the capability of working 2 points for loading/unloading.

6. Non-explosive stores and Sea Safety Pyro’s etc. will be supplied by road through Rosyth.

**Ammunition Evolutions**

7. *Major Ships Entering Refit at Rosyth*

   a. Major Ships can either de-ammunition full outfits at DM Crombie or their Base Port prior to arrival at Rosyth, except for SPF ammunition which is to be stowed in the RF locker and SOLAS Pyrotechnics.

   b. Collection of SOLAS Pyrotechnics and SPF Ammunition is to be arranged direct with DM Glen Douglas on Ext: *(Tel No. iaw Appendix A.25).*

8. *Major Ships Leaving Refit at Rosyth*

   a. SOLAS Pyrotechnics, Response Force and Trials Ammunition are to be demanded on DM Crombie.

   b. Full outfits of ammunition can be embarked on return to Base Port DM, however DM Crombie will carry-out this task as required.

   c. *Other Vessels.* DM Crombie has full facilities to support Minor War Vessels and Royal Fleet Auxiliaries.

**Berthing Arrangements**

9. *Crombie Jetty.* The jetty is capable of berthing all classes of HM Ships and Submarines, including AOR or Type 45 on the seaward berth; vessels to the size of a Type 23 Frigate can be berthed on the landward side. Dual berthing can be accommodated subject to the qualifying conditions.

10. The jetty also has the capacity of loading/offloading troop carrying ships with side loading ramps.

**Mooring Buoys**

9. There are currently 2 mooring buoys in the Forth Estuary, neither is licensed.

   a. *No 1 Buoy.* For major and minor vessels berthing.

   b. *No 2 Buoy.* For major vessels and minor berthing.
0549 DEFENCE MUNITIONS (DM)- CLYDE AREA

1. The Clyde area is supported by 3 local armament support facilities; DM Glen Douglas, RNAD Coulport and DM Beith.

   a. DM Glen Douglas is the end provider for the majority of conventional explosives stores handled in the Clyde area (including commercial yards & jetties). Most conventional naval explosive stores are held at DM Glen Douglas. To avoid unnecessarily lengthy supply/return routes from ‘home’ but distant depots’ visiting vessels should place all demands for ordnance on DM Glen Douglas using the signal SMAs as detailed below. DM Glen Douglas, if unable to meet the demand, will re-demand and obtain the stores from other depots as required. MJDI demands cannot be seen and will not be actioned.

   Contact Numbers as follows:

   Customer Services Ext: (Tel No. iaw Appendix A.26)

   Out Of Hours Duty Officer Ext: (Tel No. iaw Appendix A.27)

2. RNAD Coulport provides strategic weapon support to the submarine flotilla.

   Contact Numbers as follows:

   Ship’s Liaison Officer Ext: (Tel No. iaw Appendix A.26)

   Out Of Hours Duty Officer Ext: (Tel No. iaw Appendix A.29)

3. DM Beith provides Spearfish torpedoes and TLAM.

   Contact numbers as follows:

   Weapons Demand Manager Ext: (Tel No. iaw Appendix A.30)

   Out Of Hours Duty Officer Ext: (Tel No. iaw Appendix A.31)

Ammunitioning Sites/Jetties.

4. Within the CLYDE area there are 3 IE (Navy) licensed sites that will support embarking, disembarking and/or working of explosives. Two sites have full Licenses that will support Major/Full Outfit evolutions whilst the third is restricted to Permitted Relaxation Licences only. They are:

<table>
<thead>
<tr>
<th>Site</th>
<th>Activity</th>
<th>Type of Licence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glen Mallen Jetty</td>
<td>Surface Ship Ammunitioning</td>
<td>Full</td>
</tr>
<tr>
<td>(DM Glen Douglas, Loch Long)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Explosives Handling Jetty</td>
<td>Submarine Ammunitioning</td>
<td>Full</td>
</tr>
<tr>
<td>(RNAD Coulport, Loch Long)</td>
<td></td>
<td></td>
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<tr>
<td>Faslane Berths 1 to 12</td>
<td>Submarine &amp; Ship Permitted</td>
<td>Relaxation*</td>
</tr>
<tr>
<td>(HMBN CLYDE, Gareloch)</td>
<td>Ammunitioning</td>
<td></td>
</tr>
</tbody>
</table>

*Small quantities only (Article 0513 refers) or maximum quantities and aggregation rules.

5. Outside of the Clyde area the nearest IE (DE&S) licensed site that will support a major ammunitioning evolution for:
a. A surface ship is Crombie Jetty (DM Crombie)

b. A submarine is HM Naval Base Devonport (DM Plymouth)

**Method of Supply**

6. All weapons, explosives and ammunition – including pyrotechnics - in the Clyde area are transported by road.

**Approval to Work Ammunition Alongside**

7. NBC Explosive Safety Cell issue a Faslane Ammunition Approval Signal (FAAS) which is the authoritative document that approves explosive evolutions at HMNB Clyde facilities. The FAAS provides a four week rolling programme of ammunitioning activities.

8. Requests to embark, disembark or work ammunition whilst alongside HM Naval Base Clyde are to be made, by signal, to NBC Clyde. Requests to DM Glen Douglas, RNAD Coulport or DM Beith are to be made to customer services by E-mail or Telephone.

9. If approved formal notification will be given in the next issue of the FAAS.

10. NBC Clyde is to be an info addressee on all signals relating to explosives that will be handled at Clyde berths (e.g. Matdems etc.).

**Retention of Explosives in Faslane Ship lift**

11. In addition to any other permissions and approvals (e.g. Facility Operator), vessels entering the Ship lift must obtain the prior and specific approval of NBC Clyde if they wish to retain explosives onboard during the docking period. NBCs approval must be obtained even if only small quantities of explosives (e.g. Pyros/SAA) are being carried onboard. Requests are to be sent by signal in the format detailed at Annex F.

12. There is also a requirement for the risk presented by retaining explosives to be formally Assessed and therefore the signal is to state the type, variant, number of tactical weapons and any other explosives to be retained. The formal assessment will be carried out, on behalf of the NBC, by the Base Explosives Safety Cell.

13. There is no fixed format for this signal but it should provide sufficient information to permit a viable risk assessment to be conducted without recourse to unnecessary or extended communications (e.g. state docking duration, natures, types of weapons/explosives carried and total NEQ by HD). A suggested signal format is available and is detailed in Annex F.

14. Vessels are to submit Form D231B (Ammunition Certificate) to the Ship lift Dockmaster prior to entering the Ship lift.

**Commercial Yards/Jetties.**

15. Surface ships frequently berth at, and carry out short term dry dockings in, commercially owned yards in the Clyde area. Vessels are to note that local commercial dry docks do not have an explosives licence and all explosives will need to be disembarked at a properly licensed site before entering the dock. Similarly, NBC CLYDE cannot give approval for explosives to be worked at commercially owned jetties. Not all commercial yards have an HSE explosives licence and vessels are to obtain the approval of the yard owner/managing authority before organising an on-load/off-load of Service explosives at a commercial site.
0550 ARMAMENTS DEPOT (AD) – GIBRALTAR

1. Principal contacts are:

Stock Controller (E1 Navy)
Tel: Mil - (Tel No. iaw Appendix A.32)
Civ - (Tel No. iaw Appendix A.32)
E-Mail: GIB-ADG-E1NAVY

Stock Controller (E1 Army/RAF)
Tele: Mil - (Tel No. iaw Appendix A.33)
Civ - (Tel No. iaw Appendix A.33)
E-Mail: GIB-ADG-E1 Army-RAF

Officer Commanding Armaments Depot (OCAD)
Tele: Mil - (Tel No. iaw Appendix A.34)
Civ - (Tel No. iaw Appendix A.34)
E-Mail: GIB_ADG_OCAD
Fax: Mil - (Tel No. iaw Appendix A.34)
Fax Civ - (Tel No. iaw Appendix A.34)

2. AD Working Hours

a. Winter Period 0800 - 1630 Monday-Thursday (Friday 0800 - 1400).
b. Summer Period 0800 - 1400 Monday - Friday. (Beginning first week of July ending last week of August).
c. Out of Hours the Armament Depot Duty Control Officer (ADCO) can be contacted on mobile: (Tel No. iaw Appendix A.35).

3. Range of Armament Stores/Facilities

a. Gibraltar can provide a range of conventional ammunition through normal demand procedures.
b. Surface ships requiring to land explosives in Gibraltar are to obtain permission from NAVY CMD EXP, due to difficulties with the reverse supply chain.
c. Any evolution out of working hours will be charged to the Ships UIN.
d. Ammunition Technician Services are available on request.

4. Berthing Arrangements

a. RFAs and Commercial Vessels which are carrying bulk ammunition are to report NEQ to Port Services Manager (PSM), E-mail GIB_HQBF_PSM, Telephone Military Ext: (Tel No. iaw Appendix A.36). Info HQBF Gibraltar.
b. All vessels requiring to embark/disembark explosives are to signal HQBF GIBRALTAR and QHM GIBRALTAR at the earliest opportunity the NEQ of Explosive Stores as Total 1.1 to 1.3 held onboard.
c. HM Ships, RFAs or MSG vessels entering the commercial yard for refit/repair may land the explosives on deposit with AD Gibraltar but advance arrangements must be made.

0551 ROYAL FLEET AUXILIARY SOLID SUPPORT SHIPS (RFA SSS)

1. General
   a. ‘Fort Class’ SSS carry a wide range of munitions and General Stores which, subject to availability, can be supplemented to meet specific deployment requirements. The munitions cargo allowances are published in ship specific EMMA lists; embarkation is subject to munitions appearing in the ship specific ALES. All communications concerning supply of munitions are to be addressed to the supporting RFA SSS, FAO SSO.

   b. Forts Austin and Rosalie (AFSH Class) have larger storage capacity than Fort Victoria (AOR Class); the munitions loads in both classes are configured to provide support to the fleet as directed by NCHQ, subject to the respective capacities. Loads can comprise Maritime Back Up Reserve (BUR), Opstock (Lead Commando Group), operational theatre specific natures and transit stocks for accompanying ships.

Transit stores

2. Depending upon storage availability on the SSS, a unit can request a tailored or deployment specific outfit of stores be carried in transit onboard the accompanying support shipping. Bids for such space are generally made through and co-ordinated by NAVY LOG INFRA-SSM POL SO1 and NAVY LOG INFRA-OPS PLANS A SO2 and copied to the relevant SSO. If “in transit” cargo is authorised the requesting unit is to liaise with the SSO to agree required delivery date and port of embarkation before submitting demand(s) to DM; the demanding unit is to account for in transit munitions.

Demands/Returns

3. Demands for stores are to be forwarded iaw JSP 886 to the supporting RFA FAO SSO.
   a. Short notice demands must be fully justified and kept to a minimum, predominantly where there is a time-limited operational imperative. Reason for late demand and penalty for non-supply (capability/operational impact) are to be advised.
   b. All returns are subject to BackRAS approval (Article 0514 refers).
   c. Exceptionally SQTUs of specific natures may also be available from Solid Support Ships operating in the FOST area to bring allowances to approved levels.

Methods of Supply

4. RAS, VERTREP (if cleared) or Replenishment in Harbour (RIH) methods are subject to clearance iaw relevant SEXSSI and RASS.

0552 DEFENCE ORDNANCE ASSURANCE SERVICE (GUNS) DOAS

1. The Defence Ordnance Assurance Service (DOAS) (Guns) support teams (previously known as NOIO) at Gosport, Portsmouth, Plymouth and Crombie has transferred to the Stores Inspection Directorate (SID) within the Defence Storage and Distribution Centre North (DSDCN). The teams have remained located at their current sites and offer the same service as before. These are:
a. Conduct ordnance and gun/launcher inspections in accordance with BR 291 Tables 1 and 2.

b. Advice and support in emergencies involving ordnance (e.g. hangfires, misfires, hot gun etc.). Shore side advice if required is to be sought from the Naval Base explosive safety groups, initial responsibility for ship generated incidents rest with the vessel/NAVY CMD EXP with guidance/assistance being sought from NB ES groups.

c. Pre and post-firing inspections at Installation test Firings, providing recommendations and reports as required.

d. Periodic inspection of small arms in accordance with AESP, afloat and ashore when requested.

2. The teams will also provide an on call service through the contact numbers below:

   DOAS (Guns) Portsmouth (HM Ships) (Tel No. iaw Appendix A.37)
   DOAS (Guns) Gosport (RFA) (Tel No. iaw Appendix A.37)
   DOAS (Guns) Plymouth (Tel No. iaw Appendix A.37)
   DOAS (Guns) Crombie (Tel No. iaw Appendix A.37)

   During Silent Hours the relevant Duty Officer can be contacted using the following numbers to activate pagers:

   DOAS (Guns) Portsmouth & Gosport (Tel No. iaw Appendix A.38)
   DOAS (Guns) Plymouth (Tel No. iaw Appendix A.38)
   DOAS (Guns) Crombie (Tel No. iaw Appendix A.38)

3. The following procedures are to be carried out when requesting series inspections on Main
   tenance requests on guns other than small arms.

   a. Requests should show required start and finish dates.

   b. Ship to state which guns require inspection listing serial number and how many rounds
      fired since last inspection.

   c. Date of last inspection.

   d. Ship to confirm crane is booked.

   e. On start date, ship to ensure access is clear for removal of guns if required, i.e. free of
      scaffolding, no painting in progress etc.

   f. For those tasks where work is carried out onboard (i.e. DLB), ship is to ensure that
      access to all positions are clear between start and finish times and power is on where
      applicable.

   g. On completion of inspection and where guns are being returned, DOAS (Guns) will
      confirm the ships responsibility to book the crane. Ship to ensure access free to fit guns.

4. Ships proceeding to areas where DOAS (Guns) support is not available are to arrange full
   Series Inspections of their guns prior to leaving the UK, whether or not the number of rounds
   permitted between inspections has been fired or time related.
CHAPTER 5 ANNEX A
PREPARATIONS FOR AMMUNITIONING SERIALS

AMMUNITIONING DATE MINUS 8 WEEKS

Paperwork

1. The Officer in Charge must co-ordinate the initial preparations to ensure that all pre-requisites are in place. These include:
   a. Demands.
      (1) A full outfit/Top Ups. 5 weeks
      (2) Guided Weapons. 5 weeks
      (3) Small Quantity Top Ups. 2 weeks
   b. Book the Ammunition Facility.
   c. Send permission to work signal.
   d. Arrange for SCS visit to the Ship.

Inspection of Stowages

2. EROs and OOQs should carry out a thorough inspection of all magazines, magazine lockers, ready use stowages and hoists, in order to ensure that all work has been completed. XOs should ensure that adjacent compartments, including tank tops, are similarly checked by the OOQs/MEO and that the appropriate entries are made in the Explosives Log. This activity should be repeated during the third phase. Special attention should be paid to the "Magazine Designed Capacity List". Form 285K provides the approved “safe” capacity of each magazine. For dedicated EMF magazines on LPH, LPD(R) or LSLs a magazine stowage plan is to be produced by the ship and submitted to NAVY CMD EXP and NA EXP. Once NAVY CMD EXP and NA EXP have agreed the stowage plan, the Platform Duty Holder will issue a S285K.

Ammunition Routes

3. All ammunition routes and handling appliances should be checked against the ship’s Course of Ammunition Route Drawings, to ensure that they are clear of obstructions and that only approved equipment is used.

AMMUNITION DATE MINUS 2 WEEKS

Planning Meeting

4. This meeting should be convened with the: XO (Chairman), ERO, LO, HODs and SUO, Whole Ship Co-ordinator and the Duty Officer(s) on the ammunitoning day(s) being present. DM should also be present to give details of the evolution schedule. The agenda should include:
   a. The organisation for the completion of the third phase and the final preparations.
   b. Manpower requirements.
c. Possible effects on own and other ships’ routines.

d. Arrangements for meals and refreshments for ammunitioning parties.

e. The arrangements for the enforcement of constraints.

f. XTM to be published.

**Inspection of Stowages and Ammunition Routes**

5. Check that the Ammunition Route as detailed on the approved Ammunition Route Drawings are serviceable and free from obstructions.

**AMMUNITION DATE MINUS 1 DAY**

**Checks**

6. The following should be checked:

   a. All magazines and stowages to ensure that they are ready in all respects to receive the explosive stores that have been demanded and that the approved ammunition route is free from obstructions.

   b. Adjacent compartments.

   c. The Explosives Log.

   d. The availability of equipment.

   e. All fixtures (eyebolts, fixed travellers, lifts, millers flaps, whips and slings etc.) and that they are fit for purpose.

   f. Fenders for lighters, fire hoses, shot mats, heaving lines and safety nets.

   g. Firemain pressure (100psi)

   h. Smoke/fire detectors and spray/flood alarms.

   i. Flood/spray services.

**Non-uniformed personnel**

7. Ensure that arrangements have been made to control civilian and Naval Base personnel who are not involved with the ammunition event.

**Briefing of key personnel**

8. All personnel involved in key ammunition tasks should be given a clear briefing to ensure that:

   a. They understand the preparations and tasks for which they are responsible.

   b. They are aware of appropriate dress codes.
c. They understand the incident reporting procedures.

d. The procedures which they are to follow, in particular those applicable to ACTO/UID stores and CFFE, and those applicable to specific weapons.

e. They are aware of the general safety precautions.

f. All under 18s should be briefed separately.

**FINAL PREPARATIONS - AMMUNITIONING DAY**

9. The following preparations should be completed before the arrival of the first lighter:

a. Warning notices positioned at brows, ammunition dumps and along ammunition routes.

b. Shot mats, lifting and handling appliances to be in position.

c. Access routes to be made available between lighter and ship.

d. Walk ammunition routes.

e. Strike ladders.

f. All magazine and stowages to be open and prepared.

g. Fire fighting equipment to be in position and proved.

h. RF Hazard. OOD to collect all “Safe to Transmit” keys iaw the deammunition event on the SHIPHAZ board, or as advised by the SHIPHAZ competent person.

i. Fenders to be in position.

j. Smoking restrictions to be enforced and warning pipes made.

k. Safety nets to be rigged.

l. Hoist Flags BRAVO and CODE ROMEO YANKEE.

10. Throughout the ammunitioning event the ERO should be available and should endeavour to visit all areas where explosive stores are being handled or moved.
CHAPTER 5 ANNEX B
SPECIMEN AMMUNITIONING / DE-AMMUNITIONING XTM

EXAMPLE OF EXECUTIVE TEMPORARY MEMORANDUM ON AMMUNITIONING / DE-AMMUNITIONING SHIPS REPLENISHMENT IN HARBOUR (RIH)

HMS ....................  Executive Temporary Memorandum No..................

AMMUNITION/DE-AMMUNITION SHIP

References:
A. JSP862 (1) Chapter 5, MOD Maritime Explosive Regulations (MMERs)
B. JSP862 (ADDM)
C. BRd 9600 Ship's Explosive Orders (SGO Ch 19).
D. BRd 3027 Lifting Equipment Procedures
E. BRd 2924 RF Hazards in the Naval Service
F. JSP 886 Vol 6 Part 1 Commodity Supply Manual (Explosives)

1. The ship will embark/disembark a full/part outfit of ammunition on ................................ with a spare day....................... The ammunitioning/de-ammunitioning will take place at ................................ from lighters. The first lighters are expected alongside at ....................... The ammunitioning/de-ammunitioning party, as detailed at Annex A, is to muster on/in the ................................ at ....................... on the day of ammunitioning/de-ammunitioning for briefing.

AIM

2. To carry out a SAFE and successful ammunitioning/de-ammunitioning.

RESPONSIBILITIES

3. a. First Lieutenant  Overall responsibility to Command
   b. ERO and OOQ  Safe handling and stowage
   c. Logistics Officer  Explosive accounting
   d. OIC  Lt/Lt Cdr is to be nominated as OIC i.a.w. Ref A Article 0504.13.

Note: AMMUNITION IS NOT TO BE LEFT UNATTENDED AT ANY TIME

DRESS

4. a. (1) Working dress or overalls.
   (2) All members of the ammunitioning party are to wear non-slip, protective toe cap footwear.
   (3) Gloves are not to be worn by personnel handling ammunition with the exception of anti-flash gloves for the handling of 4.5" Mk 8 containers (glass fibre).
Nylon foul weather jackets may be worn if required provided they are properly zipped up. They are not to be removed whilst in the vicinity of explosive stores.

Hard hats are to be in date for test and are to be worn by all personnel required to enter the dump area. Chin-stays are to be down.

Rigging sets are not to be carried by members of ammunition parties.

Protective gloves and goggles are to be worn when unbanding palleted loads.

**GENERAL**

5. a. Smoking materials are not to be carried by anyone involved in the working of ammunition.

b. All explosives are potentially dangerous if mishandled or dropped/damaged. **ALL** incidents, however small they may seem, are to be reported to the ERO/DM Staff immediately.

c. Detonators. (Applicable Ships Only) Detonators are to be transported in an approved haversack secured to a ratings back with shoulder straps when being carried up or down vertical ladders.

d. For the duration of any ammunition evolution ships are to be upright with no list greater than 2° from the vertical. Where wind and/or tidal range influence a change in list then tanks are to be balanced (Action MEO) and lines are to be monitored and adjusted as required (Action NO) to bring the list tolerance within limits.

**HANDLING AMMUNITION**

6. a. Portable ammunition is to be carried from the dump to its destination by individual personnel. Exceptionally, where access is limited, and no other means provided, ammunition may be passed carefully from hand to hand. Ammunition boxes are to be carried using both handles. Heavy boxes will require more than one person to safely transfer the ammunition.

b. Only approved handling routes and equipment’s are to be used when ammunition is being moved. The rope is to be passed through both handles, under the box, and attached to itself using the spring hook. A steadying line is to be attached to the load.

c. Where dump stools are not provided at the bottom of ladders, shot mats are to be used.

d. DM will provide banksmen for crane control. DM have responsibility for the explosives stores until the weight comes off the load. Ship’s staff take control of steadying lines as the load passes over the ship’s side.

e. DLH Rounds are not hard cased ordnance and can be very easily damaged. The approved method of transporting these stores is in their packaging. In the case of DLH, approved lifting aids are to be used.

f. A Leading Hand to be detailed at each point where 4.5 inch Mk 8 tanked round is inserted or removed from the hoist. He is to position himself within reach of the Emergency Off switch.
g. A minimum supervision level of a Leading Hand to be used at all areas of transfer of explosives and at all lifting/lowering evolutions.

WEATHER

7. a. In the event of a thunderstorm, all embarking/disembarking is to cease. Explosives on deck are to be struck down as soon as possible. Any hoisting whips are to be removed during this period.

b. If it is raining, a decision will be made as to whether ammunitioning will continue or not. If it is decided to continue, explosives are to be struck down from the dumps immediately and I/C of dumps are to slow down the pace of transfer from lighter to the ship accordingly. ERO and OOQs are to ensure that all stores are thoroughly dried and inspected before stowing in the magazines

CATERING

8. a. The C/POLOG is to provide appropriate refreshments forward and aft throughout the day.

b. Lunch will be taken at a convenient time (between 1145 – 1230). Ammunition parties will have priorities in lunch queues

ACCOUNTING

9. **Unit Receipt.** Maritime units are to check off receipts at each loading point. Serial numbers of small arms, security classified and Attractive to Criminal and Terrorist Organisations (ACTO)² items are to be immediately cross checked with issue vouchers and DM representative. On completion all issue vouchers are to be receipted and passed to DM representative by the Logistics Department. Packages with broken seals or defects are to be immediately referred to the DM representative for return and vouchers annotated.

10. Munitions and associated items are brought on to the main account using a copy of depot issue document as receipt voucher. Munitions are to be brought on charge to OASIS using D2801A or AMANDA Report Form 17 (Form R17) and directly posted to the appropriate Armament Loan Record (ALR)³. The NAWBUS Sales Order number on the Form R17 is to be used as the issue voucher number.

11. The Officer of the Quarter (OOQ)⁴/ ALR Custodian is to be given copies of the supply vouchers (D2801A /AMANDA R17) for items supplied to their Quarter. Receipt is to be confirmed by initial signature at each line item. Each item is also to be recorded on an associated S3139 for each nature for each Quarter. Any discrepancies are to be notified immediately to the Logistics Officer for investigation. Receipted vouchers are to be passed to the Logistics Officer.

BRIEFING

12. a. A general Safety brief will be given by the OIC *(state time and place)* *(NB to be well in advance of the evolution commencing)*. *(The evening before if possible)*.

---

² JSP 440 The Defence Manual of Security
³ JSP 886 Vol 1 Part 6 Commodity Supply Management – Munitions
⁴ JSP 862(1) MOD Maritime Explosive Regulations Article 0108
b. On completion of the above brief a detailed brief will be given by the OOQ to the separate parties detailed. This will include a demonstration of how to rig and use all lifting appliances along the route.

c. Young persons under the age of 18 are to be fully briefed on all aspects of the ammunitioning process individually and before the evolution commences.

d. A young person’s capabilities are to be assessed before they are detailed to man handle explosive stores. If in doubt a two person lift is to be employed.

**COMPLETION OF AMMUNITIONING/DE-AMMUNITIONING**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Personnel</th>
</tr>
</thead>
<tbody>
<tr>
<td>FWD DUMP TO MAGAZINES</td>
<td>1 x S/R + numbers decided</td>
</tr>
<tr>
<td>FWD DUMP</td>
<td>1 x S/R + L/HAND + numbers decided</td>
</tr>
<tr>
<td>MAGAZINES</td>
<td>OOQs + numbers decided</td>
</tr>
<tr>
<td>AFT DUMP</td>
<td>1 x S/R + L/HAND + numbers decided</td>
</tr>
<tr>
<td>AFT DUMP TO MAGAZINES</td>
<td>1 x S/R + L/HAND + numbers decided</td>
</tr>
<tr>
<td>MISSILE PARTY</td>
<td>OOQ + nominated handlers</td>
</tr>
<tr>
<td>TORPEDO PARTY</td>
<td>OOQ + nominated handlers</td>
</tr>
</tbody>
</table>

**REGULATIONS APPLYING TO THE DISEMBARKATION OF EXPLOSIVES IN HARBOUR**

15. When de-ammunition has taken place the following information is provided as an aide memoir only, and in no way supersedes Official Books of Reference or Fleet Orders.

a. After complete disembarkation of ammunition the ERO/Delegated Officer is to satisfy himself/herself that no explosive stores remain in the magazines, and it is important that all hoists are run, to ensure that they are empty and ammunition routes are thoroughly checked. It is also necessary to check all RU lockers and pyrotechnic stowages, not forgetting those pyrotechnics stowed in boats or attached to life buoys.

b. Explosives Log to be signed "As specially directed" and "de-ammunitioning complete" annotated in Remarks Column.

c. The Explosives Log is to be suspended when the whole outfit has been returned to the DM Depot and taken off ship's charge and the ship have ceased compliance with JSP 862.

d. Your attention is drawn to Article 0315, "Use of Magazines for purpose other than the Permitted Stowage, Test, or Assembly of Explosives."

e. Magazines which are empty of explosives, are to be inspected at intervals not exceeding one month by the ERO/Delegated Officer. A notation to this effect is to be made in the Deck Log when no explosives are embarked. (Article 0205.6.c refers)

f. On all occasions specified (Article 0604.3 refers), Form D231B (Ammunition Certificate) will be forwarded to the Commanding Officer by the refit/repair contractor, it is to be
completed and returned to the originator prior to entering the Naval Base. (Article 0611.2 refers)

g. Magazine Lockers - Landing. When lockers designed for the stowage of explosives stores are landed for return to store, they are to be inspected sealed and endorsed, (Article 0539.1 and 0610 refers).

h. When not containing explosives, magazine keys may be signed for by selected authorised personnel, (Article 0217 refers)

j. The return of empty ammunition lockers, packages, containers and arisings will need a declaration of 'Certified Free From Explosives'(CFFE), (Article 0539 refers). It would also aid the DM site if the contents of ammunition containers, if any, were stipulated on the white banding tape securing the container (e.g. spent 5.56 cartridges, 7.62 links etc.).
CHAPTER 5 ANNEX C

FULL OUTFIT/TOP-UP GREATER THAN THAT ALLOWED BY JSP 862 FOR SMALL QUANTITY TOP-UP (SQTU)

To: NBC PORTSMOUTH/NBC DEVONPORT/NBCCLYDE/
HQBFGIBRALTAR (as appropriate)

Info: Area DMGOSPORT/COMPORFLOT / COMDEVFLOT / COMFASFLOT (as appropriate)

Note: DM Plymouth, DM Crombie, DM Glen Douglas do not receive signals.

SUBJ: REQUEST TO WORK AMMUNITION

Precedence: As Appropriate

Classification: OFFICIAL SENSITIVE

SIC: ORN

First Line of Text: NCHQ PORTSMOUTH For NAVY SSM-SS E EXP SO2 (For Surface Ships)

or NAVY AFSUP-EXP SO3 (For RFAs)

or NAVY SSM-SM E WEPOL SO2 (For Submarines)


A. Date, time and place of transfer/movement of ammunition.
B. Magazine(s) to be worked. (To be listed read in two columns Magazine/Damage Control Location Marking)
C. Total Net Explosive Quantity (NEQ) of each Hazard Division embarked at commencement of evolution.
D. NEQ of each Hazard Division to be disembarked.
E. NEQ of each Hazard Division to be embarked – or NEQ and Hazard Division of each explosive to be moved from (ESL/magazine) to (ESL/magazine) (SM ONLY)
F. Alternative dates for ammunition.
G. Reactor Plant State (SM only).
H. SS Point of Contact (POC) ERO/DERO Name & Tel/Mobile Number.
CHAPTER 5 ANNEX D

SMALL QUANTITY TOP-UP (SQTU) AMMUNITIONING SIGNAL FORMAT

To: NBC PORTSMOUTH/NBC DEVONPORT/NBCCLYDE/
HQBF GIBRALTAR (as appropriate)

RFA FORT (as appropriate) (if in company with)

Info: Area DMGOSPORT

COMPORFLOT / COMDEVFLOT / CAPFASFLOT (as appropriate)

HQBF GIBRALTAR (as appropriate)

SUBJ: SQTU REQUEST TO WORK AMMUNITION ALONGSIDE

Precedence: As Appropriate

Classification: OFFICIAL SENSITIVE

SIC: ORN

First Line of Text: NCHQ PORTSMOUTH For NAVY SSM-SS E EXP SO2 (For Surface Ships)

or NAVY AFSUP-EXP SO3 (For RFAs)

or NAVY SSM-SM E WEPOL SO2 (For Submarines)


A. Date, time and place of transfer/movement of ammunition
B. Magazine(s) to be worked. (to be listed read in two columns Magazine/Damage Control Location Marking)
C. Net Explosive Quantity (NEQ) of each Hazard Division embarked at commencement of task in each magazine to be worked (Read in three columns HD/NEQ/Magazine).
D. NEQ and Hazard Division of explosives to be landed from each Magazine(s) (Read in three columns HD/NEQ/Magazine)
E. NEQ and Hazard Division of explosives to be embarked in each Magazine(s) (Read in three columns HD/NEQ/Magazine)
F. Alternative dates for ammunition.
G. Reactor Plant State (SM only).
H. S.S Point of Contact (POC) ERO/DERO Name & Tel/Mobile Number.

Note: NBC COB PORTSMOUTH/NBCCLYDE/ NBC DEVONPORT/LOGUGIB are to copy NCHQ PORTSMOUTH for NAVY COMMAND EXP with their response signal stating date/time/berth and type of event.
CHAPTER 5 ANNEX E

PORTSMOUTH UHAF/BEDENHAM PIER SIGNAL FORMAT.

1. An example of UHAF / BEDENHAM PIER booking signal format is as follows:

TO:      NBC PORTSMOUTH

INFO:    DM GOSPORT
          NCHQ PORTSMOUTH

SUBJ:    HMS NONSUCH UHAF ALLOCATION

REF TELECON PWO(A) NONSUCH / ADAMS DMGOSPORT 03 JAN 11 (NOTAL)

1. AS DISCUSSED AT REF, RQST UHAF ALLOCATED NONSUCH 16 JAN 15 WITH 17 JAN 15
   AS SPARE DAY.
2. POC LT CDR BOOKINGS – PWO(A)
CHAPTER 5 ANNEX F

RETENTION OF EXPLOSIVES IN THE FASLANE SHIPLIFT SIGNAL FORMAT

Fm: HMS NONSUCH

To: NBC CLYDE

Info: CAPFASFLOT and parent authority if different - COMDEVFLOT/COMPORFLOT etc.
QHM CLYDE
NCHQ PORTSMOUTH

Precedence: As Appropriate

Classification: OFFICIAL SENSITIVE

SIC: ORN

First Line of Text: NBC CLYDE For CESAG, NCHQ PORTSMOUTH for NAVY SHIPS-EXP SO2 or NAVY SSM-SSM E WEPOL SO2 (For Submarines)

SUBJ: RETENTION OF EXPLOSIVES IN THE FASLANE SHIPLIFT

1. REQUEST PERMISSION TO RETAIN EXPLOSIVES ONBOARD DURING DOCKING IN THE SHIPLIFT FROM (date) TO (date).

2. IT IS CONFIRMED THAT THE REQUIREMENTS OF
   - (for G/S) JSP 862 PT 1 ARTICLES 0602.2.A, B & C, ARTICLES 0605 AND 0606
   - (for S/Ms) JSP 862 PT 2 ARTICLES 0502.2.A, B & C AND 0506 WILL BE MET IN FULL.

3. EXPLOSIVES TO BE RETAINED: (READ IN TWO COLUMNS QTY/NATURE)
   Examples:
   200 / 30MM HE
   120 / 30MM TPT
   Standard / pyro outfit
   SOLAS / pyros only
   SWS / embarked (SSBNs only)

4. TOTAL NEQ (READ IN TWO COLUMNS NEQ/HD):
   xxx KG HD 1.1
   xxx KG HD 1.2
   xxx KG HD 1.3
   xxx KG HD 1.4

5. SS Point of Contact (POC) ERO/DERO Name and Tel/Mobile Number.
# FFE VIOLATION INVESTIGATION REPORT FORMAT

<table>
<thead>
<tr>
<th>UNIT</th>
<th>MID CELL REF NO</th>
</tr>
</thead>
</table>

A. Confirmation is required that the FFE Violation has been fully investigated.

B. Provide confirmation that current procedures for the disposal of ammunition salvage, including fired cartridge cases, fired tubes and primers, ammunition containers and recoverable fitments have been reviewed and are considered to be satisfactory.

C. Provide confirmation that procedures are in accordance with applicable regulations e.g. JSP 862 etc.

D. Confirmation is required that all personnel involved with this incident have re-read and full understood local Operating Procedures and have signed an appropriate auditable document to say that they have done so.

E. Confirmation is required that details of this violation have been entered on the Unit FFE Violation file.

F. Confirmation of any disciplinary action taken. If disciplinary action was taken what form did it take?

G. Provide a summary of any other relevant details found in the investigation.

Signature:    Rank / Name:
Appointment:  Date:
### FFE VIOLATION CATEGORIES

<table>
<thead>
<tr>
<th>Category</th>
<th>Example</th>
<th>Level Of Investigation Required</th>
<th>Required Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>SERIOUS</td>
<td>Multiple explosive items, items Attractive to Criminal and Terrorist Organisations (ACTO), any gun ammunition above 12.5 mm or any other significant find.</td>
<td>Full investigation of the circumstances and proposals from the ship or submarine for active measures to prevent re-occurrence.</td>
<td>From Commanding Officer</td>
</tr>
<tr>
<td>SIGNIFICANT</td>
<td>Any violation viewed as significant by the MID Cell. This would mainly occur when clear evidence exists of a lack of correct procedures or negligence.</td>
<td>Full investigation of the circumstances and proposals from the ship or submarine for active measures to prevent re-occurrence.</td>
<td>From WEO</td>
</tr>
<tr>
<td>REPORTABLE</td>
<td>All other violations.</td>
<td>No investigation required by the offending unit. However personnel involved in FFE procedures should be reminded of responsibilities and ship or submarine procedures reviewed.</td>
<td>Acknowledgment from WEO.</td>
</tr>
</tbody>
</table>

The report does not override the requirement for an immediate Ship’s Investigation to be forwarded in accordance with FLAGO 1685.7.
CHAPTER 5 ANNEX H

CERTIFICATE OF ASSURANCE
BANS AND CONSTRAINTS AFFECTING MUNITIONS FOR DISEMBARKATION

HMS

DATE(s) OF DISEMBARKATION

POINT OF DISEMBARKATION

CERTIFICATION:

The undersigned confirms that there are no known bans or constraints affecting the safe handling and transportation of the munitions programmed for disembarkation during the above evolution.

Details of Certifying Authority (Ship’s Representative – Explosive Responsible Officer)

Name (Block Capitals):

Rank: Signature:

Note: This certificate is to be handed to the Authorised Defence Munitions Representative / Government Authorised Explosives Representative (GAER) to provide assurance that the specific Batch Key Indicators (BKIs) of the munitions to be disembarked are not the subject of a ban or constraint affecting their ability to be safely handled and transported.
CHAPTER 5 ANNEX I

RESTRICTIONS ON THE USE OF EXPLOSIVES STORES HANDLING/LIFTING EQUIPMENT

EQUIPMENT RESTRICTIONS

1. Restrictions on the use of handling/lifting equipment used with explosive stores are divided into four specific groups, designated as Equipment Groups 1 to 4.

Notes:

(1) Whichever criteria apply, all equipment used for transferring explosive stores shall comply with the testing/examination requirements of BRd 3027/MMS and be fit for purpose.

(2) Ammunition handling equipment is only to be operated with the approval of a competent person, as defined in BRd 3027.

(3) The items contained in the four equipment groups may not be exhaustive. Any equipment used for lifting explosive stores which is not listed is to be reported to the PDH who will give a ruling on the use.

(4) Equipment designed specifically for lifting explosive stores incorporates safety features additional to those found on other lifting equipment. For this reason, other lifting equipment may be physically capable of lifting an explosive store, but not necessarily be fit for the purpose. Confirmation of equipment suitability should be sought from DES Ships MPS-MES-MCH-DLC through the PDH.

(5) The Material Handling Equipment and Lifting Equipment used by the SSO Dept. on board Solid Support Ships to lift, handle, stow and transfer munitions are procured and manufactured against the relevant Engineering and Defence Standards and maintained by suitably qualified personnel in compliance with OEM and DM instructions.

Equipment Group 1

2. Group 1 equipment shall not be used for any purpose other than the transfer of those explosive stores for which its use is specified on the Ammunition Route Drawing. The equipment comprises:

   a. Ammunition transfer boxes.
   b. Embarkation rails.
   c. Cradles, cruets, chutes, harnesses, lifting bands and trolleys.
   d. Weapon hoists.
   e. Special to Type or Weapon Pallet trolleys.

Equipment Group 2

3. Group 2 equipment’s primary use is for the transfer of those explosive stores as specified on the Ammunition Route Drawing. The equipment may be used for other tasks for which it is fit for purpose, but only in the position in which it is rigged for its primary task. The equipment comprises:

   a. Blocks, hooks, rings, rollers, shackles, sheaves and turnbuckles.
   b. Chains, guide wires, jackstays, ropes, slings strops and whips.
c. Portable lifting machines.

**Equipment Group 3**

4. Group 3 equipment’s primary use is for the transfer of explosive stores as specified on the Ammunition Route Drawing, but it may be used for other tasks for which it is fit for purpose. Special restrictions may be applied. The equipment comprises:

   a. Lifting beams and frame assemblies.
   
   b. Weapon lifts.

**Equipment Group 4**

5. Group 4 equipment shall be available for use for both the transfer of explosive stores, as specified on the Ammunition Route Drawing, and other tasks without any special restriction, but with the agreement of NAEXP, until the requirement for competent persons specified in BR 3027 is met. The equipment comprises:

   a. Aircraft lifts.
   
   b. Capstans and winches.
   
   c. Davits, gantries and cranes.
   
   d. Eyeplates.
   
   e. Forklift trucks and other Mechanical Handling Equipment (MHE).
   
   f. Goosenecks.
   
   g. Overhead travellers.
   
   h. Runways, ship internal ramps and covers.
CHAPTER 5 ANNEX J

RETURN OF AMMUNITION IN N36 CONTAINERS
CERTIFICATE OF ASSURANCE

1. The process and certification required to be conducted when disembarking all variants of 4.5" Mk 8 Ammunition in N36 Mk 2 containers by ships staff to Government Authorised Explosive Representative (GAER) is detailed in the following paragraphs.

2. The packaging of explosives and associated components provides a major contribution towards maintaining their safety, serviceability and reliability. The design of packages, mitigation in packages, and the increasing use of the all–up–round (AUR) packaging concept has resulted in high cost packaging which must be preserved because of the nature of the contents and to ensure a long economical in–service life. Wherever possible packaging and ancillaries used for packing must be retained for reuse. For all variants of 4.5" Mk 8 Ammunition, rounds for return to should be re-packaged in the original N36 container with the requisite Batch and Lot number of the round that is to be inserted. The Defence Munitions Publication 0307 for 4.5" Mk 8 Gun munitions gives full details and is précised below.

3. Rounds that are declared as being either "Failure to Function" or "Casualty Weapons" must be segregated from routine disembarkation rounds and must be clearly identified to Authorised Staff / GAER. The supporting documentation (S1148D) specified in MMERS must also be supplied.

Process

4. Remove the cover of the container N36 Mk2 using the extraction tool AS11127b.
5. Remove the retaining plate from the container and check that the groove is clean and dry and that the disc is in place for RADHAZ protection.

6. Prior to inserting a 4.5" Mk 8 Round into the N36 container check that the interior of the container is dry and free of debris.
7. The round is to be kept horizontal to N36 container whilst inserting or extracting. When inserting round into the N36 container, ensure that it is fully entered to prevent damage to the fuze.

8. Check that the seal and seal groove and inner contact surfaces of the cover assembly are lightly coated with silicon compound (grease QX to DEFSTAN 68-131). If grease is unavailable contact DGM PT 9355 72429. Under no circumstance is the cover assembly to be assembled dry to the body assembly.

9. Refit the retaining plate.

10. Ensure that the cover assembly is marked and labelled and corresponds with the markings on the cartridge case, prior to refitting the cover assembly.

Certification

11. Complete the Certificate of Assurance, attached to this Annex, for each batch of 4.5” Mk 8 ammunition to be returned. This certificate is assurance that the rounds that have been packed by Ship’s Staff are to Full Standard Service Pack (FSSP) in the correctly marked package for the Batch Number. Full assurance is thereby given and accepted by the Representative/Government Authorised Explosive Representative (GAER) that they are packed in accordance with the Explosive Storage and Transport Code (ESTC) certification and are safe for handling and transportation.

12. The certificate is to be handed to the authorised Representative/GAER to provide assurance that broken seal N36 containers being crated for disembarkation are safe for handling and transportation. Authorised Staff/GAER will red seal the N6 crate for disembarkation and external transportation. When any variant of 4.5” Mk 8 ammunition is transferred to an RFA Vessel for onward transit; the receiving RFA SSO should retain the certificate of assurance and pass to a representative at the disembarkation facility, in order that the N6 crate can be red sealed for onward transportation.

13. A copy of the certificate(s) duly signed is to be retained by the returning unit for a period of 6 calendar months.

14. A copy of this Annex is to be kept in the Officers of the Quarters Log which holds 4.5” Ammunition.
CERTIFICATE OF ASSURANCE FOR DISEMBARKATION OF 4.5" Mk 8 AMMUNITION PACKED BY SHIP's STAFF

<table>
<thead>
<tr>
<th>HMS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Date:</td>
<td></td>
</tr>
<tr>
<td>Point of Disembarkation:</td>
<td></td>
</tr>
<tr>
<td>Number of N36 Containers</td>
<td></td>
</tr>
<tr>
<td>Batch and Lot Number</td>
<td></td>
</tr>
<tr>
<td>S331 Voucher Number</td>
<td></td>
</tr>
</tbody>
</table>

It is confirmed that all broken seal N36 containers packed by the Ship's Staff are to Full Standard Service Pack (FSSP) as detailed in DMP0307 in the correctly marked package for the relevant Batch Number.

As such, full assurance is accepted by the Authorised DM Representative/GAER, given that they are packed in accordance with their ESTC certification and are safe for handling and transportation.

**Details of Certifying Authority** (Ship's Representative – Officer of the Quarter)

- **Name** (Block Capitals):  
- **Rank**:  
- **Signature**:  

**Details of Receiving Authority** (Authorised DSDA Representative/GAER)

- **Name** (Block Capitals):  
- **Grade**:  
- **Signature**:  

Note 1. This certificate is to be handed to the Authorised DM Representative / Government Authorised Explosives Representative (GAER) to provide assurance that the broken seal N36 containers being packed into N6 crates are safe for handling and transportation. On receipt of this assurance, DM staff/ GAER will red seal the N6 crate for disembarkation and external transportation. A copy of this certificate duly signed is to be retained by the returning unit for a period of 6 calendar months.

Note 2. Rounds that are declared as being either "Failure to Function" or "Casualty Weapons" must be segregated from routine disembarkation rounds and must be clearly identified to Authorised DM Staff / GAER. The supporting documentation specified in JSP 862 must also be supplied.
CHAPTER 5 ANNEX K

MOD FORM 2257 – CFFE CERTIFICATE

ITEM CERTIFIED FREE FROM EXPLOSIVES (CFFE)

1. This certificate may only be signed by a Competent Person as defined by JSP 482 Chapter 27 - MOD EXPLOSIVES REGULATIONS.

2. I, NAME ...........................................................................................................................................................................

SIGNATURE:

3. UNIT/SHIP/ESTABLISHMENT*:

4. UIN

5. PARENT UNIT/SHIP/ESTABLISHMENT:

<table>
<thead>
<tr>
<th>Certify that I have personally examined:</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. THE CONTENTS OF THIS CONTAINER*</td>
</tr>
<tr>
<td>B. THE CONTENTS OF THIS ARTICLE/VEHICLE*</td>
</tr>
</tbody>
</table>

UNIT STAMP

WARNING: THIS CONTAINER/PLATFORM/ARTICLE MAY BE SUBJECT TO FUTURE REPAIR/REFURBISHMENT/MAINTENANCE AND A FAILURE TO COMPLETE THE FFE PROCESS COULD ENDANGER OTHERS.
# RESPONSIBILITIES REGARDING EXPLOSIVE ACTIVITIES ON LICENSED MUNITION SITES

<table>
<thead>
<tr>
<th>REGULATOR</th>
<th>DSA - DOSR</th>
<th>DLSR</th>
<th>DSA - DMR</th>
<th>DSA - DOSR</th>
<th>DSA - DMR</th>
<th>DSA - DOSR</th>
<th>DLSR</th>
</tr>
</thead>
<tbody>
<tr>
<td>REGULATION</td>
<td>JSP 467 /482 / 800 Vol 4b</td>
<td>JSP 430/482</td>
<td>JSP 430 / 482</td>
<td>JSP 862 / 482</td>
<td>JSP 430 / 862</td>
<td>JSP 467/ 482 / 800 Vol 4b / 862</td>
<td></td>
</tr>
<tr>
<td>DUTY HOLDER</td>
<td>DM</td>
<td>NBC</td>
<td>NBC</td>
<td>NBC</td>
<td>NBC</td>
<td>DM / NBC</td>
<td></td>
</tr>
</tbody>
</table>

**Notes:**

1. The **Regulator** for all activities is the **DSA**; within the DSA, a lead Regulator (DMR | DOSR | DLSR) will be identified for each activity.
2. The **Duty Holder** for the overall activity (1-7 above) will either be **DMHOE** or **NBC** depending on who has geographical jurisdiction. **DMHOE** or **NBC** will be held accountable for the safe conduct of the overall activity and only **DMHOE** or **NBC** can permission that activity. **DMHOE** or **NBC** will maintain functional authority over all other Duty Holders involved in the activity. **DMHOE** or **NBC** will own the Emergency Procedures (and will lead on post incident recovery) although other Duty Holders may have responsibility for carrying out elements of the Emergency Procedures.  
3. Defence Marine Services are responsible for owning and managing the contract with SERCO; this includes ensuring that all MOD requirements are included and communicated to SERCO.  
4. The GAER is responsible for ensuring that all movement of Military Explosives to/from vessels that takes place on MoD property (harbour area) is safe i.a.w. the relevant Regulations.  
5. Each activity is explained further in this Annex.  

---

**DMHOE** or **NBC** are to obtain assurance from other Duty Holders, where appropriate, that the delivery of elements or phases of the activity where they have a Duty of Care responsibility will be conducted safely and that all risks have been mitigated ALARP.
# Activity 1 – Storage and Handling of OME at DM Licensed Sites

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>DUTY HOLDER / ACTIVITY OWNER</th>
<th>RESPONSIBILITIES</th>
<th>REGULATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>OVERALL ACTIVITY</td>
<td>DM</td>
<td>DM is the duty holder for the activity within their jurisdiction (includes the NAL when tied up alongside).</td>
<td>DSA DOSR (Regulator)</td>
</tr>
<tr>
<td>Material state of transport/ lifting equipment.</td>
<td>DM</td>
<td>DM is responsible for ensuring that all transport and MHE, including cranage, is fit for purpose prior to use.</td>
<td>DSA DOSR - JSP 482  DSA DLSR - JSP 800 Vol 4b  DES SHIPS - JSP 467</td>
</tr>
<tr>
<td>Material state of NAL and Tug.</td>
<td>SERCO</td>
<td>SERCO is responsible for the provision of NALs and Tugs such that are fully fit for purpose.  NA EXP is responsible for providing assurance that the NALs are safe to carry explosives</td>
<td>DSA DMR - JSP 862 / Def Stan 101  NAEXP - NAL CSE</td>
</tr>
<tr>
<td>Safe System of Work SSOW</td>
<td>DM</td>
<td>DM is responsible for ensuring that suitable risk assessed safe systems of work are in place before commencement of activity. Staff must be fully briefed on requirements and risks.</td>
<td>JSP 482-(ASHE / SHIM Certification)</td>
</tr>
<tr>
<td>Site/Berth License</td>
<td>IE (NAVY)</td>
<td>IE (NAVY) is responsible for licensing the ammunition facility.  DM is responsible for managing compliance with the licensing limitations applicable to the site.</td>
<td>DSA DOSR -JSP 482  IE (DE&amp;S) - Site Explosive License</td>
</tr>
<tr>
<td>Load / Unload stores to or from NAL</td>
<td>DM</td>
<td>DM is responsible for the loading and unloading of the NAL whilst it is tied up alongside the jetty.</td>
<td>DSA DOSR - JSP 482  DSA DLSR - JSP 800 Vol 4b</td>
</tr>
<tr>
<td>Stowage of the load</td>
<td>DM</td>
<td>DM is responsible for the safe stowage of the load.  DM is responsible for meeting all packaging and labelling requirements and associated documentation.</td>
<td>JSP 482  JSP 800 Vol 4b</td>
</tr>
<tr>
<td>Position / remove barge boards</td>
<td>SERCO</td>
<td>SERCO is responsible for the fitting and removal of the barge boards and king and queen beams, and for handing the security keys to DM on completion of loading. DM hold the keys and lock the barges.</td>
<td>NA EXP – JSP 862  JSP 440</td>
</tr>
<tr>
<td>Security of the load</td>
<td>DM</td>
<td>DM is responsible for the safe custody of the security keys once SERCO has secured the barge boards.  DM is also responsible for the security of the NAL whilst tied up at a DM Jetty</td>
<td>JSP 440</td>
</tr>
</tbody>
</table>
## Activity 2 – OME Transit by Naval Ammunition Lighter (NAL)

<table>
<thead>
<tr>
<th>2</th>
<th>ACTIVITY</th>
<th>DUTY HOLDER / ACTIVITY OWNER</th>
<th>RESPONSIBILITIES</th>
<th>REGULATION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OVERALL ACTIVITY</td>
<td>NBC</td>
<td><strong>NBC</strong> is responsible for the activity within their jurisdiction.</td>
<td>DSA DMR (Regulator)</td>
</tr>
<tr>
<td></td>
<td>• Safe Movement of the NAL</td>
<td>SERCO</td>
<td><strong>SERCO</strong> is responsible for the safe movement of the NAL.</td>
<td>DES DMR - JSP 430 DES SHIPS - JSP 467</td>
</tr>
<tr>
<td></td>
<td>• SSOW</td>
<td>SERCO</td>
<td><strong>SERCO</strong> is responsible for operating a MOD approved Safety Management System (SMS) while moving the NAL. <strong>NA EXP</strong> is responsible for providing assurance that the NALs are safe to carry explosives.</td>
<td>DES DMR - JSP 430 NAEXP - NAL CSE</td>
</tr>
<tr>
<td></td>
<td>• Carry out Emergency Procedures</td>
<td>SERCO</td>
<td><strong>SERCO</strong> is responsible for carrying out the Emergency Procedures in accordance with their SMS and MOD Emergency Procedures.</td>
<td>DES DMR - JSP 430</td>
</tr>
<tr>
<td></td>
<td>• Security of the NAL</td>
<td>NBC</td>
<td><strong>NBC</strong> is responsible for the security of the NAL.</td>
<td>JSP 440</td>
</tr>
<tr>
<td></td>
<td>• Possession of the load</td>
<td>DM</td>
<td><strong>DM</strong> is responsible for the possession and custody of the load for the period of transit.</td>
<td>JSP 440</td>
</tr>
</tbody>
</table>
## Activity 3 – OME Transit and Mooring at Buoy

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>DUTY HOLDER / ACTIVITY OWNER</th>
<th>RESPONSIBILITIES</th>
<th>REGULATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>OVERALL ACTIVITY</td>
<td>NBC</td>
<td>NBC is responsible for the activity within their jurisdiction.</td>
<td>DSA DOSR</td>
</tr>
</tbody>
</table>
| • NAL/TUG movement and mooring    | SERCO                        | SERCO is responsible for safe carriage and towage to and from the buoy and for ensuring that the NAL is correctly secured at the buoy. | DSA DMR - JSP 430  
|                                  |                              |                                                                                  | DSA DOSR – JSP 482 |
| • Site/Berth License (includes UHAF and buoy) | NBC                          | IE (NAVY) is responsible for licensing the ammunition facility.  
|                                  |                              | NBC is responsible for compliance with licensing limitations at the buoy. At Portsmouth, this includes the Upper Harbour Ammunitioning Facility (UHAF). | DSA DOSR - JSP 482  
|                                  |                              |                                                                                  | IE (Navy) - Site Explosive License |
| • Security of the NAL             | NBC                          | NBC is responsible for ensuring that satisfactory arrangements are in place for the security of NALs tied up at the buoy. | JSP 440    |
| • Possession of the load          | DM                           | DM is responsible for the possession and custody of the load.                    | JSP 440    |
### Activity 4 – NAL Alongside Platform

<table>
<thead>
<tr>
<th></th>
<th>ACTIVITY</th>
<th>DUTY HOLDER / ACTIVITY OWNER</th>
<th>RESPONSIBILITIES</th>
<th>REGULATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>OVERALL ACTIVITY</td>
<td>NBC</td>
<td>NBC is responsible for the activity within his jurisdiction.</td>
<td>DSA DMR - JSP 430 NA EXP - JSP 862</td>
</tr>
<tr>
<td></td>
<td>Site/Berth License (includes the buoy and the UHAF)</td>
<td>NBC</td>
<td>IE (NAVY) is responsible for licensing the ammunition facility. NBC is responsible for compliance with licensing limitations at the buoy. At Portsmouth, this includes the Upper Harbour Ammunitioning Facility(UHAF).</td>
<td>DSA DOSR - JSP 482 IE (Navy) - Site Explosive License</td>
</tr>
<tr>
<td></td>
<td>Munitions Transfer</td>
<td>DM</td>
<td>DM is responsible for the load until the weight comes off the crane on embarkation to the Platform and until the weight goes on the crane on disembarkation from the Platform. DM is responsible for ensuring that a suitably risk assessed safe systems of work is in place before commencement of activity. Staff must be fully briefed on these requirements</td>
<td>DSA DOSR - JSP 482 DSA DOSR - JSP 482</td>
</tr>
<tr>
<td></td>
<td>Use of Floating Crane</td>
<td>SERCO</td>
<td>SERCO is responsible for ensuring that the floating crane is certified and fit for purpose prior to use and for its operation.</td>
<td>DES SHIPS - JSP 467</td>
</tr>
<tr>
<td></td>
<td>Facility (e.g. UHAF) / Fixed Crane material state / certification</td>
<td>NBC</td>
<td>NBC is responsible for ensuring that the facilities and equipment provided are fully fit for purpose</td>
<td>DSA DOSR – JSP 482 DES SHIPS - JSP 467</td>
</tr>
<tr>
<td></td>
<td>NAL Activity</td>
<td>SERCO</td>
<td>SERCO is responsible for removing or replacing the barge boards and king and queen beams. SERCO is responsible for the safe carriage of the load when the weight comes off the crane on loading after it has been stowed by DM</td>
<td>NA EXP – JSP 862</td>
</tr>
<tr>
<td></td>
<td>HM WARSHIP / RFA Munitions movement onboard / striking down</td>
<td>CO</td>
<td>The CO is responsible for the load when the weight comes off the crane on embarkation and until the weight goes on the crane on disembarkation.</td>
<td>DSA DMR - JSP 430 NA EXP – JSP 862</td>
</tr>
<tr>
<td></td>
<td>Possession of the load</td>
<td>DM</td>
<td>DM is responsible for the possession and custody of the load.</td>
<td>JSP 440</td>
</tr>
</tbody>
</table>
Activity 5 – Risks from Munitions in the Quiescent State Stowed in Warships Alongside

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>DUTY HOLDER / ACTIVITY OWNER</th>
<th>RESPONSIBILITIES</th>
<th>REGULATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>OVERALL ACTIVITY</td>
<td>NBC</td>
<td>NBC is responsible for the activity within their jurisdiction.</td>
<td>DSA DMR (Regulator)</td>
</tr>
<tr>
<td>- Identify &amp; assess warship explosive hazards</td>
<td>PDH</td>
<td>PDH is responsible for producing a Warship Hazard Footprint Statement for each class of vessel (and provide it to the NBC to support the berth/vessel risk assessments).</td>
<td>DSA DMR - JSP 430 NA EXP – WIH Methodology NAEXP - CSE(NB)</td>
</tr>
<tr>
<td>- Conduct Risk Assessment of vessel / berth combination</td>
<td>NBC</td>
<td>NBC is responsible for conducting a risk assessment and implementing a SMS for managing Warships in Harbour (Inc. producing a Berthing Matrix). NA EXP is responsible for providing assurance that an appropriate SMS is in place.</td>
<td>DSA DMR - JSP 430 NA EXP – WIH Methodology NAEXP - CSE(NB)</td>
</tr>
<tr>
<td>- Implement the Berthing Matrix</td>
<td>NBC</td>
<td>NBC is responsible for implementing the Berthing Matrix</td>
<td>DSA DMR - JSP 430</td>
</tr>
<tr>
<td>- Maintain the Quiescent State</td>
<td>CO</td>
<td>The vessel CO is responsible for ensuring that the quiescent state of all OME is maintained while the vessel is alongside</td>
<td>DSA DMR - JSP 430</td>
</tr>
</tbody>
</table>
Activity 6 – Ammunition Alongside (SQTU)

<table>
<thead>
<tr>
<th>6</th>
<th>ACTIVITY</th>
<th>DUTY HOLDER / ACTIVITY OWNER</th>
<th>RESPONSIBILITIES</th>
<th>REGULATION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OVERALL ACTIVITY</td>
<td>DM Jetty 6</td>
<td>DM is the duty holder for activities undertaken at both Glen Mallen and Crombie jetties.</td>
<td>DSA DOSR - JSP 482 NA EXP – JSP 862 DSA DLSR - JSP 800 Vol 4b</td>
</tr>
<tr>
<td></td>
<td>Naval Base</td>
<td>NBC</td>
<td>NBC is the duty holder for activities undertaken alongside in the Naval Bases</td>
<td>DSA DOSR - JSP 482 NA EXP – JSP 862 DSA DLSR - JSP 800 Vol 4b</td>
</tr>
<tr>
<td></td>
<td>Site/Berth License</td>
<td>DM</td>
<td>DM is responsible for managing compliance with the licensing limitations applicable to both Crombie and Glen Mallen jetties.</td>
<td>DSA DOSR - JSP 482</td>
</tr>
<tr>
<td></td>
<td>NBC</td>
<td>NBC is responsible for managing compliance with the licensing limitations applicable to the Naval Bases</td>
<td>DSA DOSR - JSP 482</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Platform Safety aspects (Ship Explosive Safety Case) SSOW in JSP 862</td>
<td>PDH</td>
<td>The CO is responsible for activities undertaken onboard the Platform.</td>
<td>DSA DMR - JSP 430 DSA DMR – JSP 862</td>
</tr>
</tbody>
</table>

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6 Munitions transfers to warships do not take place at DM Gosport or DM Plymouth Jetties. The UHAF is used at Gosport and the buoy is used at Plymouth. Both Gosport and Plymouth jetties may be used for small quantity exchanges to MDP patrol boats and other small craft.
## Activity 7 - Ammunitioning by Crane Alongside a DM Jetty or Within the Naval Base

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>DUTY HOLDER / ACTIVITY OWNER</th>
<th>RESPONSIBILITIES</th>
<th>REGULATION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>OVERALL ACTIVITY</strong>&lt;br&gt;DM Jetty</td>
<td>DM</td>
<td>DM is the duty holder for activities undertaken at Glen Mallen and Crombie jetties and at Bedenham Pier in DM Gosport.</td>
<td>DSA DOSR - JSP 482&lt;br&gt;DSA DLSR - JSP 800 Vol 4b&lt;br&gt;DSA DMR - JSP 430 / NA EXP - JSP 862&lt;br&gt;DES SHIPS – JSP 467</td>
</tr>
<tr>
<td>Naval Base</td>
<td>NBC</td>
<td>NBC is the duty holder for activities undertaken alongside in the Naval Bases.</td>
<td>DSA DOSR - JSP 482&lt;br&gt;DSA DLSR - JSP 800 Vol 4b&lt;br&gt;DSA DMR – JSP 430 / NA EXP - JSP 862&lt;br&gt;DES SHIPS – JSP 467</td>
</tr>
<tr>
<td>• Material state of transport / lifting equipment</td>
<td>DM - Explosives Site</td>
<td>DM is responsible for ensuring that all transport and MHE, including cranage, is fit for purpose prior to use.</td>
<td>DES SHIPS – JSP 467&lt;br&gt;DSA DOSR - JSP 482&lt;br&gt;DSA DLSR - JSP 800 Vol 4b</td>
</tr>
<tr>
<td></td>
<td>NBC - Naval Base/UHAF</td>
<td>NBC is responsible for ensuring that the facilities and equipment provided are fully fit for purpose.</td>
<td>DES SHIPS – JSP 467&lt;br&gt;DSA DMR – JSP 430&lt;br&gt;NA EXP - JSP 862</td>
</tr>
<tr>
<td>• Site/Berth License</td>
<td>DM</td>
<td>DM is responsible for managing compliance with the licensing limitations applicable to both Crombie and Glen Mallen jetties and at Bedenham Pier in DM Gosport.</td>
<td>DSA DOSR - JSP 482</td>
</tr>
<tr>
<td></td>
<td>NBC</td>
<td>NBC is responsible for managing compliance with the licensing limitations applicable to the Naval Bases.</td>
<td>DSA DOSR - JSP 482</td>
</tr>
<tr>
<td>• Munitions transfer</td>
<td>DM</td>
<td>DM is responsible for the load until the weight comes off the crane on embarkation to the Platform and until the weight goes on the crane on disembarkation from the Platform.</td>
<td>DSA DOSR – JSP 482&lt;br&gt;NA EXP – JSP 862</td>
</tr>
<tr>
<td>• Platform Safety aspects (Ship Explosive Safety Case)&lt;br&gt;SSOW in JSP 862</td>
<td>PDH</td>
<td>The CO is responsible for activities undertaken onboard the Platform.</td>
<td>DSA DMR - JSP 430&lt;br&gt;NA EXP – JSP 862</td>
</tr>
</tbody>
</table>
CHAPTER 6

EXPLOSIVES SAFETY MANAGEMENT IN PORTS

CONTENTS

Article

0601 Berthing alongside wharves or jetties in HM Naval Bases or commercial ports.
0602 Berthing in non-tidal basins or dry docks
0603 Explosives stowed outside integral magazines
0604 General instructions for refitting, repairs or dry docking
0605 Dry docking – Emergency Repairs
0606 Tests and examination in dry dock with ammunition onboard
0607 Retaining explosives onboard during maintenance and repair periods
0608 Maintenance and Upkeep Periods
0609 Damaged ships
0610 Magazine lockers/magazine ready use lockers - landing
0611 Paying off into naval base control
0612 Leaving naval bases
0613 Pyrotechnics which may be retained onboard in a naval base
0614 Commercial ports
0615 Foreign ports
0616 Regulations for berthing non-RN manned ships and craft in an HM Naval Base or British commercial port when explosives are embarked

Annex

A RN Form D231b - Explosives Declaration

0601 BERTHING ALONGSIDE WHARVES OR JETTIES IN HM NAVAL BASES OR COMMERCIAL PORTS

1. When berthing and whilst berthed alongside explosive stores are not be handled or moved and are to remain in their authorised stowage in an immobile state except for the following:

   a. Small Quantity Top Ups (Article 0513.6 refers)
   
   b. SOLAS explosive stores (Article 0342.6 refers) in preparation for or on return from sailing.
   
   c. Small Arms Ammunition (HCC 1.4S) for Force Protection may only be moved if in so doing no munitions of a higher HCC have to be moved altered or traversed.
   
   d. Non explosives stores, for example DRILL weapons (e.g.TVT), may only be moved to conduct a scheduled, documented and approved training or practice serial, so long as no munitions of a higher HCC have to be moved altered or traversed.

2. Any operationally essential exceptions to this rule must be specifically approved by NAVY CMD EXP and the Site Duty Holder and, where a requirement is on-going, that authority permanently recorded in JSP 862 Addendum in order to satisfy the requirements of ‘Warships in Harbour’ as given in JSP 430 Chapter 8.
3. Small Arms Ammunition classified as HD 1.4 can be left in Ready Use Magazines or Ready Use Magazine Lockers whilst alongside to meet the operational or Operational Sea Training (OST) requirements.

For protracted periods alongside such as leave and maintenance periods, especially when hot work may be required in the vicinity of the RU stowages, the ammunition is to be moved to the permanent stowages, except when the readiness state dictates that ammunition is to be rapidly available. Similarly when the requirement to hold high levels of ammunition at high readiness alters, any ammunition not required should be returned to its permanent stowage.

4. Except for the purpose of complying with Article 0603.2, priming or fuzing of ammunition is not to take place while ships are alongside in HM Naval Bases or Commercial Ports.

5. Ammunition embarked as a SQTU whilst ships are berthed alongside wharves or jetties in HM Naval Bases may be temporarily stowed in SQTU magazines/upperdeck RU magazines or lockers between the time of embarkation and the time that the ship is clear of the Naval Base area if the explosives cannot be struck down immediately on embarkation (Article 0513 refers). In these circumstances "DANGER EXPLOSIVES" warning notices are to be displayed on or adjacent to RU magazines and RU magazine lockers containing explosives.

6. The Commanding Officer of the ship remains responsible for ensuring that the regulations for the safety of embarked explosives are maintained.

7. Regulations for MOD Ships, vessels and craft that are not manned by the RN, but which are carrying explosives in HM Naval Bases or Commercial Ports are at Article 0616.

0602 BERTHING IN NON-TIDAL BASINS OR DRY DOCKS

1. Before HM Ships or RFAs berth in non-tidal basins or dry docks, explosives may only be retained onboard if it is operationally imperative to do so. Permission must be sought from the Naval Base Commander (NBC) for Naval Bases, or the port operator/berth owner for commercial ports.

2. In granting such approval the NBC/port operator will make an assessment of the risk taking into consideration the following:
   a. Explosives must be landed if it is practicable to do so.
   b. Explosives must be landed if no effective means of operating the fire main or satisfactory alternatives sources are available. (Article 0332 refers).
   c. The ship's company must be retained at sufficient strength to comply with the regulations contained herein. If this is not likely to be the case, explosives are to be landed at a suitably licensed facility/berth before personnel are withdrawn. This is particularly relevant during leave periods and the NBC or Commanding Officer of the Establishment should issue the necessary directives to Commanding Officers.
   d. Any special precautions required are to be identified (Article 0607 refers).

3. The Commanding Officer of the ship remains responsible for ensuring that the regulations for the safety of embarked explosives are maintained. For specific activities more than one Risk Assessment may be produced by different parties:
   a. The ship Risk Assessment for specific work packages (WHAT is required).
b. Relevant contractors Method Statement (HOW it is to be done, including equipment to be used and what SQEP is required).

c. NBC for the location of the activity (site specific).

4. The NBC/Port Authority will review these documents to ensure their validity and that any special precautions required are identified, consulting with NAEXP, NAVY CMD EXP and PDH as required. Once they are content with the submission they will grant permission for the activity.

0603 EXPLOSIVES STOWED OUTSIDE INTEGRAL MAGAZINES

1. The munitions listed below may be stowed outside integral magazines providing Naval Base work involving naked lights, riveting, welding, cutting or burning is carried out in accordance with Articles 0607.1b (3), (4) and (5), otherwise they are to be landed. If retained onboard, the running of temporary electric leads in the vicinity is to be prohibited.

   a. Decoy rounds, rockets, pyrotechnics and smoke stores stowed in magazine lockers.

   b. Loaded Surface to Surface Guided Weapon containers in their stowages.

2. In time of war or emergency, the NBC will give instructions concerning the manning of defensive armament and for the retention of ammunition for the protection and safety of the ship whilst in the Naval Base.

0604 GENERAL INSTRUCTIONS FOR REFITTING, REPAIRS OR DRY DOCKING

1. When HM Ships or RFA vessels proceed into Naval Bases for a refit/repair period or dry docking they are to be free of explosives. Exceptionally, where there is sufficient operational imperative, explosives may be retained onboard by permission of the Site Duty Holder (either the NBC, Commercial Port Authority Representative or Ship Repair Contractor as appropriate) and agreement of NAVY CMD EXP. This procedure requires the production of a risk assessment by the ERO with PDH and NAEXP endorsement iaw the procedure detailed in JSP 375, keeping NAVY CMD EXP informed. Guidance for NBC requirements can be sought from the relevant Explosives Safety Advisory Group for the port in question. If permission has been given from the relevant authorities, Commanding Officers of HM Ships or RFA vessels remain responsible for ensuring that the regulations for the safety of embarked explosives are maintained.

2. HM Ships or RFAs refitting, repairing or dry docking in commercial ports are to de-ammunition if the total Net Explosive Quantity embarked is greater than the explosive licence limit of the commercial facility.

3. Commanding Officers of HM Ships and RFAs are to forward Form D231B (Explosives Declaration) prior to the "take in hand" date of a repair period or entering a dry dock, floating dock or shiplift (see Annex A). The D231B is to be forwarded to the relevant authorities as follows:

   a. In Naval Bases or Dockyards:

      (1) Repair periods. To NBC, PDH and NAVY CMD EXP.

      (2) Unprogrammed docking, floating dock and shiplift. To NBC and repair contractor. Ship is also to signal NAEXP and NAVY CMD EXP informing of the continued application of JSP 862 regulations if not completely free of explosives.

   b. In commercial ports:
0605 DRY DOCKING - EMERGENCY REPAIRS

1. Occasionally HM Ships/Submarines are required to dock during operational periods for the undertaking of emergency repairs or inspections. These dockings are categorised by a short notification period and are to be of a short duration with the work undertaken confined to specific areas. In such cases explosives may be retained onboard provided that:

   a. A Risk Assessment for the specific work package has been conducted by the ship’s ERO and advice sought from key stakeholders (at a minimum the PDH and NAEXP are to be consulted).

   b. The regulations in Article 0607 can be applied.

   c. Prior approval is obtained from the NBC/MPC, info IE (NAVY) (Article 0604 refers).

2. When conducting the Risk Assessment, factors such as the extent of work, hotwork, maintenance of temperatures in magazines and lockers, capability to jettison and the continued provision of magazine safety systems when compared with the risks associated with disembarkation and subsequent re-embarkation of the munition are among those to be considered before the retention onboard or the landing of all or part of a ship’s outfit of explosives is ordered.

Emergent Work

3. Should additional work emerge during the course of the approved work package, before that additional work is commenced the Risk Assessment is to be reviewed to ensure that the safety of explosives is not compromised. The only exception to this rule is when delaying the work would threaten the safety of personnel, platform or site.

4. If, subsequent to a ship docking emergent work dictates that explosives are required to be moved or removed this may only be undertaken without hindrance or prejudice to the safety of the ship or Naval Base.

5. The NBC may authorise the retention of a limited quantity of small arms ammunition during repair periods for safeguarding the ship.

0606 TESTS AND EXAMINATION IN DRY DOCK WITH AMMUNITION ONBOARD

1. To ensure that water is available in magazine compartments or compartments containing explosives, spraying arrangements are to be tested immediately after the dockyard hydrants have been connected to the system.

0607 RETAINING EXPLOSIVES ONBOARD DURING MAINTENANCE AND REPAIR PERIODS

1. When explosives are retained onboard during upkeep, docking or maintenance periods in which Naval Base or contractors' workmen are employed onboard, the following precautions are to be observed for work in magazines or adjacent compartments.
a. Naval Base or contractor's work to be undertaken in a magazine containing explosives is to be limited to Non-Destructive Testing (NDT), survey and/or measurement only.

b. The ERO is to be briefed on the nature of the work and is to specify any special safety measures considered necessary. At a minimum these are to include:

   (1) Magazine and adjacent compartment inspection on completion - recorded in Explosives Log.

   (2) Adequate briefing of workmen prior to commencement of work. This brief is to include a safety brief and is to be recorded in the remarks column of the Explosives Log.

   (3) Welding, burning, brazing or any work involving the use of a naked flame within 3m of decks or bulkheads bounding magazines or other spaces containing explosives, or loaded missile/torpedo launcher/barrel/containers, may only be authorised with additional safety measures above those applied by the normal PTW (Hotwork) procedure (sub-para 5 refers).

   (4) Welding, burning or heating on pipes or trunking, any portion of which passes through a magazine containing explosives within 6m of any magazine boundary may only be authorised with additional safety measures above those applied by the normal PTW (Hotwork) procedure (sub-para 5 refers).

   (5) Subject to informing NBC and the Principle Contractor, who retain right of veto, work within the distances detailed in sub-para 3 and 4 may be authorised by the ERO on the basis of a written Method Statement and Risk Assessment. The ERO is to ensure that a Competent Maintainer/OOQ is present throughout the operation to monitor temperature at the magazine boundary. The temperature of the unlagged boundary or pipe/trunking entering the magazine is not to exceed that which is comfortable for hand contact. The Competent Maintainer/OOQ is to be thoroughly conversant with all the safety precautions necessary.

   (6) Electric arc welding is not to be used on trunking, pipes or vents opening into a magazine to avoid any possibility of hazard problems with EEDs.

   (7) Workmen in a magazine are to be accompanied by a competent sentry. The sentry is to be briefed by the OOQ/DOOQ and have the required level of supervision.

   (8) No workmen's tools or belongings are to be stowed in a magazine or adjacent compartment.

2. The following additional precautions may be included at the ERO's discretion:

   a. A representative of the HOD responsible for the adjacent compartment or maintenance of the item being worked upon to be present throughout.

   b. Placing of additional competent sentries and/or warning notices.

   c. Additional rounds.

0608 MAINTENANCE AND UPKEEP PERIODS

1. Explosives need not be removed from HM Ships carrying out self or assisted maintenance provided the requirements of Articles 0601 and 0607 are met.
2. When it is necessary to dismantle the air-conditioning systems for maintenance or repair, propellants are to be removed if it is expected that temperatures will rise above 32°C (27°C in the case of some propellants, see individual SEXSSI).

0609 DAMAGED SHIPS

1. Ships which arrive at a Naval Base in a damaged or wrecked state are to be thoroughly searched for explosives by ship's staff before any Naval Base workmen are allowed onboard. Assistance is to be sought from the PDH and the relevant OME PT, to determine the action to be taken. Any explosives which cannot be certified safe to handle and transport are to be reported to the EOD authority. The search party is to be in the charge of the ERO and a representative of the NBC is to be present.

0610 MAGAZINE LOCKERS/MAGAZINE READY USE LOCKERS - LANDING

1. When magazine lockers or magazine ready use lockers designed for the stowage of explosives are landed for return to store, they are to be inspected, sealed and endorsed (CFFE) in accordance with Chapter 5.

0611 PAYING OFF INTO NAVAL BASE CONTROL

1. On all occasions when ships pay off into Naval Base control, a systematic search of the ship is to be carried out by the ERO to ensure that no explosives remain onboard. Drill ammunition is also to be removed. The search is to include:
   
   a. All ammunition routes - primary, secondary and resupply.
   
   b. Lifting all deck plates in magazines unless welded in position. Where deck plates cannot be lifted every effort is to be made to inspect under the plate using lights and mirrors. Particular attention is to be paid to small arms and close range magazines.
   
   c. All other areas where ammunition handling has taken place, particularly around fixed close range weapons and in the vicinity of small arms loading/unloading.

2. Explosives Declaration D231B signed by the Commanding Officer is to be forwarded to the NBC prior to the “take in hand” date.

3. Magazines and compartments governed by these regulations are to be locked and all the keys that have been kept on the magazine keyboard and their duplicates are to be delivered to the NBC. A detailed list (in triplicate) signed by the Commanding Officer of the ship is to accompany the keys on their surrender to the NBC, who is required to acknowledge the receipt.

0612 LEAVING NAVAL BASES

1. Except for the purpose of complying with Article 0603.2, priming or fuzing of ammunition is not to take place while until the ship is clear of the Naval Base precincts, and all workmen have left the ship.

0613 PYROTECHNICS WHICH MAY BE RETAINED ONBOARD IN A NAVAL BASE

1. Signals Distress Day and Night packed in GRP liferaft containers, and Man Overboard Markers fitted in lifebuoy racks, may be retained onboard during docking or repairs in accordance with the directions given in the appropriate SEXSSI. All other Marker Man Overboards (MMOB) must follow the directions stated in the appropriate SEXSSI.
COMMERCIAL PORTS

1. Outfits of explosives can only be landed and re-embarked at a DM Site, HM Naval Base or SMC Marchwood which has an explosive licence adequate for the NEQ of explosives to be handled. The use of commercial ports for the embarkation and disembarkation of explosives is only to be considered if operational or ship safety reasons make this unavoidable. The prior approval of NAEXP and NAVY CMD EXP is to be obtained for HM Ships before arranging to land or re-embark outfits in commercial ports. In addition, the advice of IE(NAVY) is to be sought on the special statutory regulations involved. A GAER will be required to supervise the ammunitioning / de-ammunitioning for all evolutions other than some small quantity top-ups.

FOREIGN PORTS

1. The above regulations are to be followed as far as possible, subject to the regulations of the foreign port.

2. Exceptionally RFA (Solid Support Ships/LSDA) will be used to transport palletised ammunition between Sea Port of Embarkation (SPOE) and Sea Port of Disembarkation (SPOD) for delivery to deployed forces, NATO or other alliance partners.

REGULATIONS FOR BERTHING NON-RN MANNED SHIPS AND CRAFT IN AN HM NAVAL BASE OR BRITISH COMMERCIAL PORT WHEN EXPLOSIVES ARE EMBARKED

Ship safety explosives

1. The berthing of ships, vessels and craft carrying ship safety explosives (SOLAS) and the safe custody of these explosives in harbour is to be in accordance with Department for Transport (DfT) regulations.

Ship armament explosives

2. The berthing of ships and vessels carrying offensive and non-offensive ship armament explosives and/or explosives intended to be expended or fired from the ship and the safe custody of these explosives in harbour is to be in accordance with this book (Ch 2, 3 and 6 refers).

Navy Command Load List (NCLL)

3. The NCLL details the authorised holdings of munitions and their components held onboard RFA Solid Support Ships, as required by NCHQ planners, in support of other units. The NCLL is used primarily by the SSO to manage the munitions load onboard. SSO will use the NCLL as authority to embark ammunition once it has been checked for compliance with the relevant clearance processes.

4. The berthing and anchoring of ships and vessels carrying explosives in bulk is to be in accordance with local Port explosive license and Administrative Orders. Separation distances and regulations will depend on the net quantity of explosives carried. Dangerous Substances in Harbour Areas Regulations (DSHAR) are to be followed.

Trials and demonstration explosives

5. The berthing and anchoring of ships and vessels carrying explosives for trials or demonstration purposes, where dedicated magazines are not fitted, are to be in accordance with the sponsors Trials/Operation Order as approved by NAEXP (Ch 7 refers).
CHAPTER 6 ANNEX A

RN Form D231b/S1238b
(Revised May 08)
Explosives Declaration

From (Enter the contractors name and address)

To: The Commanding Officer/Master
HMS/RFA/Other
At

It is requested that the declaration below be completed, signed and returned to me before:
HMS/RFA/Other
At

Signed

I, Commanding Officer/Master of HMS/RFA/Other certify that

* (a) all explosives stores have been disembarked

or

* (b) explosives stores detailed at Annex A have been retained onboard and

(1) Permission has been obtained from the Port Authority/NBC

(2) JSP 862 regulations will be complied with

(3) Arrangements have been made to meet the requirements for firemains delivery rate and pressure

(* delete as appropriate)

Signed

Date

Annexes:
A. List of explosives and compartments containing explosives

Notes:
(a) Permission from Port Authority/NBC to retain explosives stores onboard during docking is also required to be attached
ANNEX A TO
D231b

LIST OF EXPLOSIVES STORES AND COMPARTMENTS CONTAINING EXPLOSIVES

<table>
<thead>
<tr>
<th>Explosives stores retained onboard</th>
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List of compartments containing explosives

<p>| |</p>
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CHAPTER 7
RESTRICTION OF USE, EXAMINATION AND TRIALS

CONTENTS

Article

0701  Purpose and management of routine examination
0702  Landing of explosive stores for routine examination
0703  Joint Services Munitions Control Register (JSMCR)
0704  Return of explosive stores for examination
0705  Arrangements for Trials of Explosives
0706  Marking of Packaging of Explosive Stores for Trials

Annex

A.  Short term SLED extension template

0701  PURPOSE AND MANAGEMENT OF ROUTINE EXAMINATION

1.  Explosive stores issued to HM ships as part of standard outfits are subject to routine examination at a DM Site to confirm that they remain safe and suitable for service. Additionally, examination over and above the routine requirement may be called for where there is evidence of need and may be carried out ashore or afloat in accordance with instructions issued in each particular case.

2.  For complex stores such as guided weapons and torpedoes, routine examination forms part of a comprehensive activity which prepares the store for further periods of service (i.e. to extend the Service Life). The expiry date is shown in the log book, mini log or record card for the store. For other explosive stores, examinations are conducted by DOSG at intervals by In Service Surveillance. Initial Service Life is determined by DOSG as a result of tests and assessments following manufacture.

3.  In all cases the aim is to issue ships with explosive stores having sufficient life remaining to fit the ship's programme. It is important therefore for ships to check the life of the explosive stores on receipt against the current DIN/JSMCR for life details and to ensure that stores are landed at the appropriate time.

4.  Exceptionally (e.g. due to supply difficulties), it may be necessary to:
   
   a.  Embark stores having remaining life which will expire before the ship's programme will conveniently permit their exchange. SUCH STOCKS ARE TO BE USED FIRST.
   
   b.  Seek a TEMPORARY extension of life for onboard stocks in order to maintain operational capability in the event that replacements are not immediately available.

5.  Application for extension of life in respect of Munitions should be made by e-mail through NAVY CMD EXP, using the template in Annex A (Log MUNS for Solid Support Ships and LSDA palletised ammunition). Applications with suitable operational imperative are then forwarded to the appropriate EA capability area for consideration.
The decision process can be protracted, as supporting evidence is collated, and Ship’s Staff should submit requests at least 4 weeks in advance of the actual SLED date to allow a considered approach. Each application will be considered on individual merit and if granted will be relevant only to that particular case. Ship’s staff should note that applications will only be granted when the operational necessity is beyond doubt.

0702 LANDING OF EXPLOSIVE STORES FOR ROUTINE EXAMINATION

1. Lightweight torpedoes and Guided Weapons are to be landed for examination by the test date shown in the Mini Logbook or Record Card.

0703 JOINT SERVICES MUNITIONS CONTROL REGISTER (JSMCR)

1. The Joint Service Munitions Control Register (JSMCR) provides the means by which the users are informed of restrictions in the use of a munition. The JSMCR has four separate parts.


b. Part 2 – Constraints Register.

c. Part 3 – Lifed Items Register.


2. The following definitions replace all existing terminology:

a. Ban. A temporary or permanent instruction ordering the immediate prohibition in the use, transportation or carriage of a munition. This prohibition may be imposed at nature, Batch, Lot or Serial Number level.

b. Constraint. The imposition of a limitation or restriction in the use, transportation, carriage, issue, storage or inspection of a munition.

c. LUMAT. A Limitation in the Use of Missiles and Ammunition for Training (LUMAT) is placed upon a munition if there is an additional limitation during training only for safety or other purposes above those general precautions laid down in other technical publications. These limitations may also have been generated as a Constraint or may only exist within LUMATs if they apply purely to training.

3. Amendments to entries will be in two forms:

a. Advance Notice of Amendment. The new entry will be disseminated by signal.

b. Formal Amendment. A formal amendment will be issued at pre-defined intervals.

4. The JSCMR is maintained by DOSG MID Cell and all information is available from their Web Page on DI Intranet in Excel format.

5. Examination of Outfits for withdrawal of suspect stores:

a. Ban. Outfits to be examined for the suspect item without undue delay.
b. **Constraint.** Outfits to be examined at the first convenient opportunity or when all or part of the outfit is landed.

### 0704 RETURN OF EXPLOSIVE STORES FOR EXAMINATION

1. When explosive stores are landed for examination the following requirements are to be applied:
   a. Explosive stores are to be kept separate from any other stores and conspicuously marked "FOR EXAMINATION". Separate items of each description are to be marked in bright red paint with the name of the ship and numbered consecutively.
   b. A label is to be securely affixed giving ship's name and the authority for the return to enable the store to be identified.
   c. The labels or markings are to be plainly visible when the package is upright.
   d. A written notification of the return addressed to the DM Site, the origin of the stores is to be given to DM staff on site.
   e. Return Notes (S331.S)/Issue Notes (from D1200) are to be endorsed accordingly and despatched on the same day as the stores are landed (see Chapter 8 if returning defective explosive stores).

### 0705 ARRANGEMENTS FOR TRIALS OF EXPLOSIVES

1. PDH approval must be sought before arranging or ordering trials involving the use of explosives stores in ships or submarines owned by, operated by and/or operated on behalf on the MOD. The PDH is to seek NAEXP Certification for such trials.

2. NAEXP certification is to be obtained to cover all trials involving the use of explosive stores, for example:
   a. The use of explosive stores **not listed** in the Authorised List of Explosive Stores.
   b. The use of explosives stores **listed** in the Authorised List of Explosive Stores. (In this case NAEXP certification will be issued to cover the trials aspects use).
   c. The use of explosives stores other than those of approved service pattern.
   d. The use of any explosives stores in connection with other components which are not of approved service pattern.
   e. The discharge or firing of any explosives stores from a weapon or launcher not previously cleared for use with the store.
   f. The use of any approved service explosives store for a purpose other than that for which the particular store was introduced into service.
   g. Trials or operations which could be outside the design intent of the munition.
   h. The use of any munition of an experimental nature.

3. Representative(s) of the Trials Sponsoring PT, the Weapon Project and/or the Contractor are to attend all trials, to ensure the safe use of the explosive store involved.
0706 MARKING OF PACKAGING OF EXPLOSIVE STORES FOR TRIALS

1. Explosives stores of a design not yet formally accepted, are to be marked "EXPTL" either on the stores or on the package containing them. A statement of material design and build standard is to be supplied to NAEXP who will liaise with DOSG as appropriate.
# SLED EXTENSION TEMPLATE

## ISSUE DETAILS:

<table>
<thead>
<tr>
<th>Ref</th>
<th>Date Closed</th>
</tr>
</thead>
</table>

**Nature Descriptive Title:**

**ADAC:**

**BKI:**

**Requester (Theatre/Unit/Post/Name):**

**Key Circumstances (Include note of date of request):**

## Subject Matter Expert Advice

**Senior Project Manager: Name & Post**

**Decision & Rationale**

**DOSG: Name & Post**

*Decision & Rationale (If not engaged, note circumstances why)*

**DA / Manufacturer Name & Post**

*Decision & Rationale (If not engaged, note circumstances why)*

## Other Input

**Decision & Rationale (Name, Post, relevance & comment)**

## Capability Manager Decision

**Decision & Rationale**

**Action Taken (Output, & recommendations for SECR review etc.):**

**Signed**

<table>
<thead>
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<th>Capability Manager &amp; Post</th>
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</table>

Jul 15
CHAPTER 8
INCIDENTS, DEFECTS AND DISPOSAL

CONTENTS

<table>
<thead>
<tr>
<th>Article</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0801</td>
<td>General</td>
</tr>
<tr>
<td>0802</td>
<td>Definitions</td>
</tr>
<tr>
<td>0803</td>
<td>Purpose of reporting incidents, failures and defects with explosives and associated stores</td>
</tr>
<tr>
<td>0804</td>
<td>Actions to be taken</td>
</tr>
<tr>
<td>0805</td>
<td>Incident Commander</td>
</tr>
<tr>
<td>0806</td>
<td>Spare</td>
</tr>
<tr>
<td>0807</td>
<td>Fleet Incident Response Cell (FIRC)</td>
</tr>
<tr>
<td>0808</td>
<td>Casualty Weapons</td>
</tr>
<tr>
<td>0809</td>
<td>Investigation of Explosive Incidents</td>
</tr>
<tr>
<td>0810</td>
<td>Flooded Compartment / Magazine</td>
</tr>
<tr>
<td>0811</td>
<td>Casualty weapons - reduction of risk</td>
</tr>
<tr>
<td>0812</td>
<td>Reporting/defect report forms</td>
</tr>
<tr>
<td>0813</td>
<td>Non-availability of appropriate forms</td>
</tr>
<tr>
<td>0814</td>
<td>Spare</td>
</tr>
<tr>
<td>0815</td>
<td>Failure to function of armament stores - method of reporting</td>
</tr>
<tr>
<td>0816</td>
<td>Failure to function of guided weapons - method of reporting</td>
</tr>
<tr>
<td>0817</td>
<td>Failure to function of torpedoes and depth charges - method of reporting</td>
</tr>
<tr>
<td>0818</td>
<td>Failure to function of Flight in Air Material (FIAM)</td>
</tr>
<tr>
<td>0819</td>
<td>Naval Ordnance Defect Reporting</td>
</tr>
<tr>
<td>0820</td>
<td>Disposal of hazardous unexploded explosive ordnance - EOD</td>
</tr>
<tr>
<td>0821</td>
<td>Disposal of defective explosive stores and non-explosive components</td>
</tr>
<tr>
<td>0822</td>
<td>Disposal of gun ammunition</td>
</tr>
<tr>
<td>0823</td>
<td>Disposal of wet or contaminated rounds, cartridges and rocket motors</td>
</tr>
<tr>
<td>0824</td>
<td>Disposal of 3 pdr charges when cartridges cannot be lowered overboard in deep water</td>
</tr>
<tr>
<td>0825</td>
<td>Disposal of unserviceable detonators</td>
</tr>
<tr>
<td>0826</td>
<td>Disposal of fuzes projectile</td>
</tr>
<tr>
<td>0827</td>
<td>Disposal of contaminated missile sections</td>
</tr>
<tr>
<td>0828</td>
<td>Disposal of jammed primers and detonators</td>
</tr>
<tr>
<td>0829</td>
<td>Disposal of pyrotechnics</td>
</tr>
<tr>
<td>0830</td>
<td>Disposal of explosive stores showing TNT or Torpex exudation</td>
</tr>
<tr>
<td>0831</td>
<td>Disposal of Plastic Explosive</td>
</tr>
<tr>
<td>0832</td>
<td>Spare</td>
</tr>
<tr>
<td>0833</td>
<td>Reporting stores disposed of in deep water</td>
</tr>
<tr>
<td>0834</td>
<td>Deep water</td>
</tr>
</tbody>
</table>

Annex

<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Requests for explosive ordnance disposal</td>
</tr>
<tr>
<td>B</td>
<td>Signal format for explosive stores disposed of in deep water</td>
</tr>
<tr>
<td>C</td>
<td>Definitions of explosives incidents</td>
</tr>
<tr>
<td>D</td>
<td>RN Form S1148 (D)</td>
</tr>
</tbody>
</table>
0801 GENERAL

1. This chapter contains regulations for the actions to be taken and the reporting of Explosives Incidents, Casualty Weapons, Failures to Function and Defects involving own and enemy ordnance and Improvised Explosive Devices (IED) in ships owned by, operated by and operated on behalf of the MOD.

2. The presence of unexploded enemy ordnance or IED is always to be regarded as a Serious Incident. Instances of injury, damage or loss by "friendly fire" should also be reported as a Serious Incident.

3. Reporting of Explosives Incidents in accordance with this Chapter is additional to the requirements for RIDDOR reporting and CHASP records specified in BR 9147/JSP442.

4. The effectiveness of the arrangements for reporting of incidents and the emergency response will be exercised periodically. Any such exercises are to be authorised by NAVY CMD EXP.

0802 DEFINITIONS

1. Incident is the term used to describe Incidents and Near Misses involving explosives. Incident categories are defined at Annex C. Casualty Weapon (Article 0808 refers), Failure to Function, Premature Burst and Early Burst are defined in Chapter 14.

0803 PURPOSE OF REPORTING INCIDENTS, FAILURES AND DEFECTS WITH EXPLOSIVES AND ASSOCIATED STORES

1. Units must report any incident involving Explosives however trivial, even if the cause of the incident is not initially assessed as being attributable to the munition, e.g. perceived equipment failure or fault. Reporting actions are essential in order to maintain a safe and fit for purpose stockpile. Formal reporting ensures that:
   
   a. Authorities concerned are alerted and can take action concerning recovery and any need to constitute an Incident Response Cell (IRC).
   
   b. Action can be taken to identify the basic or root causes and instructions can be provided to prevent further occurrences.
   
   c. Intentions concerning investigations and disposal are made known.
   
   d. The risk of damage or injury is minimised in the case of subsequent incidents, failures and defects.
   
   e. To enable the Munitions Incident Database (MID) Cell within DOSG to build up a body of information which can be used for future consultation and training purposes.

0804 ACTIONS TO BE TAKEN

1. In the event of an explosives incident, where the ship requires urgent assistance or advice, the Duty Fleet Controller (DFC) is to be the first point of contact (Tel No. iaw Appendix A.39). The DFC will then activate external authorities on behalf of the ship including NAVY CMD EXP (Tel No. iaw Appendix A.40) and the appropriate Platform Duty Holder (PDH). In silent hours the PDH and other Equipment Authorities will be notified by the DE&S Incident Manager (IcM) (Tel No. iaw Appendix A.41) who will act as the single point of contact on behalf of the DE&S.
2. In addition, if alongside, entering/leaving harbour or within any Port Area the Naval Base Commander (NBC) or the Local Military is to be informed by telephone using the local emergency numbers as soon as possible. Local Standing Orders provided by the Port Authority/QHM are to be followed should Emergency Services (e.g. Fire Brigade) be required. When there is no Naval Base / Military Port Authority the Dangerous Substances in Harbour Area Regulations (DSHAR) 1987 will apply and assistance should be sought via the Harbour Authority.

3. All explosives incidents are to be reported using the Naval Lessons and Incident Management System (NLIMS) process. If an Incident occurs, an Initial Report Form (IRF) is to be sent using NLIMS. Where additional data is required, the dedicated NLIMS Explosive Form is to be completed and forwarded as a follow-up within 10 days of the IRF. Guidance on situations that constitute an explosive incident can be found throughout this chapter and at Annex C.

4. A Memorandum of Understanding between the MOD, the Maritime and Coastguard Agency (MCA) and the Marine Accident Investigation Branch (MAIB) on “Operation and Coordination of the Safety Management of MOD Shipping on Non-Commercial Service” specifies that:

   a. The MAIB will not investigate accidents occurring on RN warships (as these are the subject of MOD Board of Inquiry / Service Inquiry).

   b. The MAIB reserves the right to conduct preliminary examination or investigation for accidents involving RFA or other MOD vessel on commercial service.

5. **Reporting by RFA vessels.** Incidents, Casualty Weapons, Failures and Defects that occur with any explosive store onboard RFA vessels are to be reported in accordance with these regulations.

6. **Failure to function or defective explosive stores.** Failures to function and defects of explosive stores requiring urgent action, such as those which affect safety or seriously effect operational capability, are to reported to NAVY CMD EXP. The incident should also be reported as an explosive incident using the NLIMS process, giving the nature of the occurrence, any request for advice and advance warning of landing. Depending on the severity of the incident sub-para 1 should be considered, such occurrences not requiring urgent action are to be reported using the procedures which follow.

7. **Normal reporting.** Whenever explosive stores or non-explosive components are defective or fail to function correctly it is essential that a defect report form should be furnished as early as possible in order that steps may be taken to ascertain the causes of failure and to remedy defective material or improve methods of manufacture. Every factor, even if it appears to be of trivial importance should be included in the report. Details should include; Mark, Serial Number, Modification Number, Lot Number, Filler and Date. Photographs or video footage should be provided whenever possible to assist in the identification of failure mode.

8. All defects and failures of explosive stores reported in accordance with these regulations will be investigated by the Munitions Incident and Defect (MID) cell and the relevant OME PT, to which copies of the report are sent. They will make joint reports to their appropriate parent MOD departments. Should the Administrative/Aircraft Engineering Authority wish to make any observations these should be sent to the relevant OME PT who will circulate copies of the investigation reports to the appropriate authorities.

9. **Near Miss Reporting.** The aim of Explosive Near Miss Reporting is to address the following occurrences:

   a. When potential for an Explosives Incident is noticed - however remote.

   b. When an Explosives Incident is narrowly averted by quick thinking or good fortune.
c. Failure of Explosive Lifting or Handling Equipment (munition not damaged).

The object of Near Miss Reporting is to obtain fuller information on the likely causes of incidents and hence initiate action to prevent more serious occurrences in the future. Reports are to be rendered using the NLIMS process, selecting ‘Near Miss’ as the incident severity on the IRF. Near Miss reports may be made anonymously, this may be requested on the IRF. On occasions where additional information is provided in support of a Near Miss, then the dedicated NLIMS Explosives Form is to be completed.

9. NAVY CMD EXP will make the final decision on the classification assigned to an incident and may amend the original classification of a reported incident.

0805 INCIDENT COMMANDER

1. The Incident Commander can be defined as the senior officer in charge at the scene of the incident and will initially be the Commanding Officer of the ship. He is responsible for all actions taken within the ship to safeguard personnel and minimise damage, taking appropriate First Aid measures based on best information and expertise available.

2. If the ship is in a Naval Base and the situation warrants the setting up of the NBC Emergency Response Cell, the NBC will assume the role of Military Co-ordinating Authority (MCA) as soon as practically possible. The MCA will be responsible for the co-ordination of shoreside supporting agencies. Should the Incident Commander be required to evacuate the ship they should collocate with the MCA.

3. If the ship is outside a Naval Base, the CO will remain as Incident Commander until returning to a Naval Base where the role of Incident Commander may pass to NBC.

0806 SPARE

0807 FLEET INCIDENT RESPONSE CELL (FIRC)

1. Incident recovery operations may require the consideration and co-ordination of various and potentially conflicting factors which are the responsibility of NCHQ, MOD Organisations, Civilian Authorities or even Foreign Governments. In such situations the Fleet Incident Response Cell (FIRC) will have authority over the Incident Commander.

2. The FIRC, activated through the Duty Fleet Controller (FLOOs refer), will be headed by DACOS(OPS), acting on behalf of the authority holding OPCOM/OPCON. Representation from other organisations will be called for as necessary.

3. Seeking advice from the PDH or OME PT, the FIRC is responsible for:
   
a. Identifying and co-ordinating all post-recovery support requirements and safety imperatives, keeping the authority with OPCOM/OPCON fully advised.

b. Securing the assistance of the appropriate internal or external agencies and authorities.

c. Ensuring that all post-Serious Incident recovery activities are fully assessed, particularly from a safety perspective, formally agreed by all appropriate IRC members and recorded before implementation and execution.

4. Details of lines of communications for explosives incidents requiring assistance are outlined in Chapter 9 and 12.
0808 CASUALTY WEAPONS

1. Damaged, suspected damaged, defective, failure to function or misfired explosive stores are categorised as Casualty Weapons when there is a reason to believe that the damage or reliability problem has safety implications. HCC 1.4S munitions are excluded, provided they are retained within their original packaging. Casualty Weapons are not to be returned to a DM Site without the prior approval of DM and the NBC. Where Casualty Weapons are offloaded with the ultimate destination being a DM Site, the Head of Establishment must be informed prior to the item being dispatched. The Head of Establishment must be issued with a letter from the OME PT detailing that the munition is safe to handle, transport, store and, where necessary, process. The letter must detail all potential hazards, their ramifications and what actions are to be taken. Guidance on whether a store is a Casualty Weapon can be sought from NAVY CMD EXP.

2. In the event that the Casualty Weapon is considered unsafe, the Commanding Officer is to seek assistance from EOD personnel or consider disposal (Articles 0821-0832 refer).

0809 INVESTIGATION OF EXPLOSIVES INCIDENTS

1. Whilst all incidents entered into NLIMS will require a degree of investigation to establish the facts, if an Incident categorised “Serious” or above occurs the Commanding Officer is to investigate in accordance with QRRNs, FLAGOs and BR 875 as appropriate.

2. Such investigations should endeavour to establish the cause of the incident in terms of:
   a. The correct functioning of materiel.
   b. The proficiency of the person(s) involved, and the standard of training.
   c. The adequacy of supervision and competence of the supervisor.
   d. The coverage of related instructions or regulations.

0810 FLOODED COMPARTMENT / MAGAZINE

1. Magazines or any compartments containing explosives that are flooded for any reason are to remain flooded unless stability or survivability of the vessel is compromised. Urgent advice and assistance should be sought using the emergency response call-out procedures contained at Annex 12 before any effort is made to drain or pump out the compartment.

0811 CASUALTY WEAPONS - REDUCTION OF RISK

1. The handling, stripping down, movement, examination or disposal of any store containing explosives (any one or more of primary initiating explosive, secondary explosive, propellant or pyrotechnic mixture) which has been involved in an incident of any type can be highly dangerous and should only be undertaken by suitably qualified and experienced personnel. Hazardous or dangerous ordnance is to be dealt with by EOD trained personnel ONLY (Annex A refers).

2. Guidance for the ERO for occasions when local action is necessary is in Chapter 9, Emergencies Involving Explosives, an Aide Memoire can be found in Annex 9A.
0812 REPORTING/DEFECT REPORT FORMS

1. Failure of munitions to function correctly may be attributable to any of a number of contributing factors. To ensure the reason for the failure is correctly recorded and the correct actions are taken, forms S1148D, standard S2022 and MOD Form 760 dependant on munition type (Articles 0815-0818 refers) are to be rendered on the occasion of any failures, quoting the following information:

   a. General.
      (1) Date of failure.
      (2) Nature of failure.
      (3) Height of release, air speed and angle of dive/climb (if applicable).
      (4) Nature of target (e.g. water, soft ground etc.).
      (5) Aircraft Type, Mark and Serial Number (if applicable).
      (6) Any other remarks which may have a bearing on the cause of the failure.

   b. Particulars of munitions.
      (1) Type, NSN, ADAC, mass (weight) and Mark.
      (2) Serial number, BKI.
      (3) Manufacturer of empty body and date of manufacture.
      (4) Nature of filling, date of filling, lot number and monogram of filling station.

   c. Particulars of fuze if fitted. Type of fuze, Mark, date of filling, lot number and monogram of filling station.

   d. Particulars of pistol and detonator/fuze if fitted.
      (1) Type and Mark of pistol/fuze/SAU.
      (2) Type of detonator, Mark, log number, date of filling and filling contractor's initials or trade mark.
      (3) Period during which the munition has been kept in the ready-use condition with pistol/fuze/SAU and detonator fitted.
      (4) Degree of exposure to, and nature of, atmospheric conditions in the ready-use stowage position.

   e. Particulars of FIAM.
      (1) Type and Mark.
      (2) Date of manufacture and name of manufacturer.

This list is not considered to be exhaustive. All relevant information should be included in the report.
0813 NON-AVAILABILITY OF APPROPRIATE FORMS

1. In the event of an appropriate form being unavailable, defects and failures are to be reported in manuscript giving as much detail as possible to the authorities appropriate to the store.

0814 SPARE

0815 FAILURE TO FUNCTION OF ARMAMENT STORES - METHOD OF REPORTING

1. Form S1148D is to be used to report all defects and failures of Naval Armament Stores with the exception of those detailed in Articles 0816 and 0817.

2. Forms S1148D are to be rendered as follows:
   a. The Administrative Authority; NAVY CMD EXP for surface ships or DES SE Air for aviation stores. This is in order that precautionary steps may be taken prior to any MOD action subsequently deemed necessary.
   b. Munitions Incident and Defect (MID) Cell, Fir 3B Mail point 4304, Abbey Wood South, BRISTOL BS34 8JH, E-mail: DES WpnsEng-MID Mailbox (MULTIUSER).
   c. Relevant OME PT.
   d. The DM Site at the next port of call.
   e. The DM Site at which the defective store is landed if different from d. above, preferably accompanying the defective store where applicable.
   f. One copy retained by originator.

3. The defective store (or empty box) is to be clearly labelled using S3086 (Defective Naval Armament Stores Label) (available from NAVY CMD EXP website) with the name of the ship, with a reference to the defect report and marked “For special examination”. The same marking is to appear on the outside of the package.

4. In ships outside home waters, if a considerable time is likely to elapse before the next opportunity of landing such contaminated, defective or misfired stores, advice is to be sought by signal from relevant OME PT (including SIC:ORN) and the Administrative Authority.

0816 FAILURE TO FUNCTION OF GUIDED WEAPONS - METHOD OF REPORTING

1. Failures and defects occurring in all Guided Weapons are to be rendered on Form A21(GW)/S2022, unless the relevant SEXSSI specifies otherwise. In particular, Air Weapon defects are to be reported on MOD Form 760. Distribution is to be as follows:
   a. Translucent (original) with equipment to DM.
   b. One copy to the DM Site where equipment is to be landed (see note below).
   c. One copy to the Administrative Authority in order that precautionary steps may be taken prior to any further MOD action that is subsequently deemed necessary.
   d. One copy retained by originator.
Note: To be sent in advance of equipment as soon as it has been ascertained to which DM Site the equipment is to be landed.

2. Where there is no equipment to return (e.g. an In-flight failure), the distribution is to be:
   a. Translucent (original) to the DM Site which issued the missile.
   b. One copy to the Administrative Authority in order that precautionary steps may be taken prior to any further MOD action that is subsequently deemed necessary.
   c. One copy retained by originator.

3. All air launched GW non-explosive components being returned to the appropriate DM Site are to have a MOD Form 731 label attached and completed in accordance with JSP 886. MOD Form 760 or S2022 may be required.

4. Attention is also drawn to the instructions on defect reporting of Guided Weapons given in the appropriate handbooks.

0817 FAILURE TO FUNCTION OF TORPEDOES AND DEPTH CHARGES - METHOD OF REPORTING

1. Reports of failures and defects occurring in these stores when found in MOD Ships are to be rendered on Forms S2022. The form is to be completed by ship’s staff utilising the procedures detailed in BR 1313 Chapter 5.

2. The defective store (or empty box) is to be clearly labelled using S3086 (Defective Naval Armament Stores Label) with the name of the ship and/or establishment and a reference to the defect report and marked "For special examination". The same marking is to appear on the outside of the package.

0818 FAILURE TO FUNCTION OF FLIGHT IN AIR MATERIAL (FIAM)

1. All FIAM faults are to be reported on MOD Form 760 - Narrative Fault Report, in accordance with JAP (D) 100A-01

0819 NAVAL ORDNANCE DEFECT REPORTING

1. Naval Ordnance Defects are to be reported using form S2022.

0820 DISPOSAL OF HAZARDOUS UNEXPLODED EXPLOSIVE ORDNANCE - EOD

1. Explosive Ordnance Disposal (EOD) assistance to render safe and/or dispose of all unexploded ordnance or explosives of either UK or foreign origin, including Improvised Explosive Devices (IEDs) is usually provided by RN Clearance Diving Units (CDU). Ship’s Staff must request for EOD assistance; application for EOD assistance is to be made iaw Annex 8A.

In UK waters

2. In UK waters, RN CDUs have responsibility for all EOD on the coastline up to the High Water Mark in tidal waters, in RN ships/submarines, RFAs, civilian vessels, offshore installations at sea or in port and on or near Naval property. The CDU organisation within UK is summarised as follows:

   a. Northern Diving Group (NDG). HQ at Faslane, comprising:
(1) Northern Diving Unit 1 (NDU 1) - based in HMNB Clyde with responsibility for submarine support.

(2) Northern Diving Unit 2 (NDU 2) - based in HMNB Clyde with EOD responsibility for whole of northern area of UK.

b. Southern Diving Group (SDG). HQ at Devonport, comprising:

(1) Southern Diving Unit 1 (Plymouth) (SDU 1) - based in HMNB Devonport with EOD responsibility for the western region of southern UK area.

(2) Southern Diving Unit 2 (Portsmouth) (SDU 2) - based at Portsmouth with EOD responsibility for the eastern region of southern UK area.

3. The above RN CDUs are tasked for all maritime EOD incidents by the appropriate local Flag Officer (i.e. FOSNNI or FOST) or by NCHQ in emergencies.

Outside UK waters

4. Outside UK waters, the Fleet Diving Group (FDG) based at Horsea Island, Portsmouth is responsible for EOD assistance to ships owned by, operated by or operated on behalf of the MOD and to UK-flagged merchant vessels.

5. Parts of enemy ammunition (e.g. large splinters or other non-explosive components) should, if clearly inert, be carefully preserved until they can be landed for examination. Items not clearly inert should, unless deemed useful for intelligence purposes, be disposed of at the earliest opportunity. Advice is to be sought from the relevant EOD unit (Annex 8A refers).

0821 DISPOSAL OF DEFECTIVE EXPLOSIVE STORES AND NON-EXPLOSIVE COMPONENTS

1. The term "explosives" in this article is also to be taken as including any stores which have contained explosives, such as fired rounds, cartridges, tubes, fuzes etc. Stores visibly damaged, or where internal damage is known or suspected, unless clearly superficial are categorised as Casualty Weapons and are to be handled in accordance with Article 0808.

2. Any explosive stores which fail to function or found to be defective onboard HM Ships are to be reported and landed at the earliest opportunity for examination at a DM Site, except in particular cases when they are specially ordered to be lowered overboard in deep water taking care to ensure that the store will sink. Explosives should only be lowered overboard in deep water in extreme circumstances, when ship safety and life would be compromised by the damaged munitions. For pyrotechnics see Article 0829 and the relevant SEXSSI. Otherwise explosives should be retained onboard until opportunity exists to return to a DM Site (Article 0808 refers). Empty boxes and packing notes should be returned. Under no circumstances is ammunition to be opened or stripped down onboard for examination.

3. Normal peacetime drill for all misfires is to be observed.

4. Ships in dock and ships alongside or in shallow water and which are required to man guns are to have a suitable tank available into which misfired rounds can be placed.

5. It is essential that the place, day, month and year of manufacture of small arms ammunition as shown on the outside of the package and the state of the ammunition disclosed by the visual inspection on opening the box is stated in the report.
6. In addition to the action already described, the following stores of the same Mark and date (or as many as may be possible) are to be set aside ready for return for examination if required:

a. Propellant Cartridges One package/box or four other rounds of fixed ammunition of 76 mm or greater. (including aircraft power cartridges)
b. Primers Contents of one cartridge package.
c. Small Arms Ammunition Residue of opened box, plus one unopened box.
d. Fuzes (supplied boxed) and Detonators Residue of opened box, plus one unopened box.
e. Fuzed Projectiles Four other projectiles with fuzes of same lot and filling.

7. If defective explosives of different natures are being returned at the same time, each nature of explosive is to be returned in a separate package and no defective explosives are to be returned with any other explosives.

8. Attention is drawn to Chapter 5 for the return of weapons that have become detached from aircraft on landing and weapons seriously damaged in aircraft incidents.

9. Non-explosive components which are found to be defective are to be returned to the appropriate DM Site for examination under this Article. They are to be clearly labelled and accompanied by a copy of the report of the defect.

10. All stores that have been dropped may not be landed until inspected. Details of the store(s) involved and the drop height are to be signalled to the appropriate NBC and DM with a cross-reference to the relevant IRF in NLIMS.

11. To ensure that defective items, explosive and non-explosive, are dealt with promptly in DM Sites; ships are to give advance warning, by signal if necessary, to the appropriate DM Site of the intention to land any stores which are the subject of a defect report.

12. Armament stores found to be defective on receipt in accordance with Article 0531 are to be returned to DM for investigation.

0822 DISPOSAL OF GUN AMMUNITION

1. Ammunition found to be defective on the gun, is to be returned to the armament depot clearly marked to indicate that it has been exposed on gun mountings. Misfired rounds should only be lowered overboard in deep water in extreme circumstances, when ship safety would be compromised by retaining damaged rounds. For pyrotechnics see Article 0829 and the relevant SE SSSI. Otherwise, explosives must be retained onboard until opportunity exists to return to DM.

0823 DISPOSAL OF WET OR CONTAMINATED ROUNDS, CARTRIDGES AND ROCKET MOTORS

1. The circumstances are to be reported by IRF (Article 0804 refers). The following instructions have as their main objectives the avoidance of wet or contaminated charges being returned to their packages and then being lost sight of. There is no immediate danger from water, oil or grease, but if charges so contaminated are left, a chemical reaction may occur and the charge may ultimately become unstable. It is therefore clearly undesirable to return such cartridges to their packages or racks in the magazines.
2. Fixed ammunition which appears to have been contaminated is to be dealt with as follows:
   a. If contaminated with salt or fresh water only, either by rain, spray or shallow submergence for a period of less than one hour, the cartridges and their stowages should be cleaned and dried in accordance with Article 0823.5 and marked in accordance with Article 1405. Ammunition weathered through being mounted for force protection should be carefully monitored for deterioration of condition and wherever possible used for practice firings.
   b. If sub-para 2a does not apply, the whole cartridge or round is to be lowered overboard in deep water. If this is impracticable it is to be treated as in sub-para 2c.
   c. If a large number of cartridges are concerned (e.g. the flooding of a magazine), they are to be returned, where practicable to the nearest DM Site at the earliest opportunity. The packages involved should be clearly marked with paint to indicate contaminated contents. An S1148D report is to be forwarded to the DM Site concerned.

3. Packages containing ammunition affected by damp or suspected of being so are to be disposed of as follows:
   a. 20 mm and 30 mm HE, Incendiary and SAP types are to be lowered overboard in deep water with as little delay as possible. The use of ‘SUSPECTED WETTED’ HE 20 mm and 30 mm ammunition is not permitted.
   b. Other munitions not containing HE filling are to be returned to the nearest DM Site for examination.
   c. Packages containing other types of ammunition which have been submerged or partially submerged are to be opened and the contents dried if necessary. They should then be landed at a DM Site at the first opportunity, clearly marked ‘SUSPECTED WETTED’ and a report sent to DM.

4. Rocket motors which have been submerged or heavily wetted should be considered contaminated and are to be lowered overboard in deep water. If this is impracticable, they are to be returned to the nearest DM Site at the earliest opportunity, the packages involved being clearly marked with paint to indicate contaminated contents.

5. Cartridges, rounds and rocket motors which have been merely slightly wetted (e.g. by rain or spray) may be cleaned with fresh water, wiped dry and returned to their correct stowage.

6. SAA recovered from damaged vessels.
   a. No attempt is to be made to repack or examine small arms ammunition recovered from sunken or damaged vessels, or that which may otherwise have been underwater, if there are signs that water has entered the box.
   b. Such ammunition is to be lowered overboard in deep water.

7. In the case of vessels damaged by fire; all small arms, incendiary and tracer ammunition which may have been subjected to the heat of the fire is to be lowered overboard in deep water.
0824 DISPOSAL OF 3 PDR CHARGES WHEN CARTRIDGES CANNOT BE LOWERED OVERBOARD IN DEEP WATER

1. If it is not possible to lower misfired or contaminated cartridges overboard in deep water, they are to be placed in a package on the weather deck or an otherwise empty RU magazine locker until opportunity occurs, either of doing this or of returning them to DM for destruction. In the latter event, each package is to be marked “Propellant for destruction” and the depot is to be notified separately of the number and markings of the cartridges so returned, quoting this Article.

0825 DISPOSAL OF UNSERVICEABLE DETONATORS

1. Detonators which become wetted or damaged or which may have misfired or become overage are to be considered unserviceable and are to be disposed of by lowering singly in deep water. Detonators are not to be disposed of in their cylinders.

2. If detonators cannot be disposed of (Article 0825.1 refers), arrangements are to be made with the nearest DM Site for disposal.

4. The contents of opened cylinders or tins should also be returned for destruction on life expiry, by arrangement with the nearest DM Site.

0826 DISPOSAL OF FUSES PROJECTILE

Wetted Fuzes (including VT) etc. wetted

1. Fuzes and gains (boosters) if wetted may corrode and become dangerous if stored for any length of time.

2. Special instructions are given in Article 0823 for the disposal of certain types of explosives which have been wetted. Except for these, explosives fitted with fuzes which have been wetted are to be wiped dry and labelled “Suspect Wetted” and the date of the wetting shown on the label.

3. Such explosives are to be returned to the nearest DM Site within one month of the date of wetting. If it is not practicable to land such explosives within one month of the date of wetting, they are to be lowered overboard in deep water. No attempt is to be made to remove the fuzes.

0827 DISPOSAL OF CONTAMINATED MISSILE SECTIONS

1. Missile sections which have been submerged for more than one hour or have been heavily wetted are to be treated as contaminated or suspected of contamination and are to be returned to the nearest DM Site.

0828 DISPOSAL OF JAMMED PRIMERS AND DETONATORS

1. If a fuze primer or detonator becomes jammed, the whole mine or demolition store is either to be countermined or lowered into deep water

0829 DISPOSAL OF PYROTECHNICS

1. Pyrotechnics which fail to ignite or misfire are to be lowered overboard into deep water or disposed of in accordance with any special instructions in the SEXSSI.
2. Any pyrotechnic that has been wetted is not to be returned to normal store. Pyrotechnics showing signs of dampness, mildew, bulging or swelling of metal, cardboard or paper containers/casings are not to be used, but are to be lowered into deep water. A report on Form S1148D must be raised. A sharp odour from a pyrotechnic is a sign of deterioration.

**0830 DISPOSAL OF EXPLOSIVE STORES SHOWING TNT OR TORPEX EXUDATION**

1. Where TORPEX type fillings of explosives stores show sign of exudation, an IRF should be raised (Article 0804 refers) asking for advice. The response will detail whether the store will be dealt with under Casualty Weapons procedures (Article 0808 refers).

2. Primers filled CE or CE/TNT that have been contaminated with TNT exudations, may become sensitive and should be lowered overboard in deep water.

3. Where there is splitting of the case, corrosion of the filling bung or its seating, wetting of the explosive or when the filling bung cannot be replaced securely, the store must be lowered in deep water.

**0831 DISPOSAL OF PLASTIC EXPLOSIVE**

1. At temperatures above 70°C, PE 7/8 is liable to exude the desensitising plasticiser and becomes unserviceable. Such PE 7/8 should be set aside and returned to the nearest DM Site for destruction.

**0832 SPARE**

**0833 REPORTING STORES DISPOSED OF IN DEEP WATER**

1. Disposal of explosive stores at sea, and articles previously containing explosives, is governed by Article V of the London Convention on the Dumping of Wastes at Sea (1972), Annex V of the International Convention for the Prevention of Pollution from Ships ('MARPOL', 1973) and Article IV of the Convention for the Protection of the Marine Environment of the North-East Atlantic (1992). Under these conventions disposal of explosive stores at sea is only permitted in emergencies (whether natural force majeure or otherwise) where the disposal is necessary to ensure either the safety of life at sea, or to ensure the safety of the vessel or aircraft.

2. In circumstances where explosive stores have either failed to function or are damaged, contaminated or wetted and would constitute a risk to human life, the vessel or aircraft if retained onboard or the Naval Bases or DM Sites if returned, they should be lowered into deep water (Article 0834 refers). Guidance on the risks posed by such items can be found in the following articles and the relevant SEXSSI.

3. All explosives stores disposed at sea in accordance with the directives in this chapter or have failed to function and have sunk, are to be reported by signal using the format at Annex 8B.

**0834 DEEP WATER**

1. Deep water is to be considered as:

   a. For disposal of individual stores, water of over 550 metres (300 fathoms) in depth.

   b. For disposal of TORPEX type filling exudations, water of over 910 metres (500 fathoms) in depth.
c. For the disposal of bulk stores off the Continental Shelf, 150 miles from land in water of over 1850 metres (1000 fathoms) in depth.

2. To ensure that they sink, packages containing explosives which are to be lowered in deep water are to be weighted by adding a weight to the package and contents in accordance with the following formula:

\[
\text{Weight in kg} = \frac{\text{Volume (cubic centimetres)}}{800}
\]

3. If immediate disposal is essential for safety reasons (i.e. a misfired round, loaded 20 mm barrel) and the "deep water" requirement cannot be met, the deepest water operationally available with a bottom unsuitable for trawling is to be selected.

4. Unless the store can be disposed of where the depth exceeds 550 m, or in a recognised dumping area, it is preferable that it be lowered into water of less than 42 m and marked for subsequent action.
## CHAPTER 8 ANNEX A

### REQUESTS FOR EXPLOSIVE ORDNANCE DISPOSAL

Requests for EOD assistance are to be made as follows:

<table>
<thead>
<tr>
<th>TYPE OF ORDNANCE</th>
<th>LOCATION</th>
<th>AUTHORITY</th>
<th>METHOD</th>
</tr>
</thead>
<tbody>
<tr>
<td>British or foreign munitions and all explosives or detonators from Military or civilian sources, other than Improvised Explosive Devices (IEDs).</td>
<td>All</td>
<td>DFC</td>
<td>Telephone and NLIMS</td>
</tr>
<tr>
<td>IEDs</td>
<td>In UK Naval Port</td>
<td>DFC/MOD Police</td>
<td>Telephone</td>
</tr>
<tr>
<td></td>
<td>In UK Non-Naval Port</td>
<td>DFC/Civil Police (Note 1)</td>
<td>Telephone</td>
</tr>
<tr>
<td></td>
<td>At Sea</td>
<td>DFC</td>
<td>Telephone</td>
</tr>
</tbody>
</table>

**Note:**

(1) The civil police will inform the Joint Service Explosive Ordnance Disposal Operations Centre (JSEODOC), Didcot, Oxon (Signal address: JSEODOPDCEN DIDCOT), Tel Ext: (Tel No. iaw Appendix A.42). The nearest available Joint Services EOD team will normally be deployed.
CHAPTER 8 ANNEX B

SIGNAL FORMAT FOR EXPLOSIVE STORES DISPOSED OF IN DEEP WATER

1 The following signal format is to be used to report all lowering of explosive stores into deep water in accordance with Chapter 8:

RESTRICTED

FROM: ............

TO: FLEET COMMANDER
    CTF 311

INFO: NCHQ PORTSMOUTH
      DES BRISTOL

SIC: ORN (For MW stores include the SIC: LVM)

DES BRISTOL FOR NAEXP

SUBJ: EXPLOSIVE STORES DISPOSED OF IN DEEP WATER JSP 862 CHAP 8

A. STORE NATURE/TITLE
B. STORE REFERENCE NUMBER (NSN)
C. QUANTITY
D. DATE/TIME
E. POSITION IN LATITUDE AND LONGITUDE
F. DISTANCE FROM NEAREST LAND
G. CHARTED DEPTH
H. REASON/AMPLIFYING REMARKS
## CHAPTER 8 ANNEX C
### DEFINITIONS OF EXPLOSIVES INCIDENTS

#### CATEGORIES FOR INCIDENTS INVOLVING EXPLOSIVES

<table>
<thead>
<tr>
<th>Term</th>
<th>Explosive Incident Definitions to be used within the Maritime Environment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>INVOIVLING</strong></td>
<td><strong>PERSONNEL</strong></td>
</tr>
<tr>
<td>MAJOR</td>
<td>A fatality or severe injury which may result in long term illness or disability to military or civilian personnel. Severe injury resulting in hospital admission to military or civilian personnel.</td>
</tr>
<tr>
<td>SERIOUS</td>
<td>More than 7 (RFA 3) days lost time, requiring medical treatment but not admission to hospital. Requiring formal report to HSE under RIDDOR.</td>
</tr>
<tr>
<td>MINOR</td>
<td>Any injury that results in up to 7 (RFA 3) days lost time and is not reportable under RIDDOR.</td>
</tr>
<tr>
<td>NEAR MISS</td>
<td>An occurrence, or potential occurrence, involving an explosive, or an occurrence potentially involving an explosive, which could have caused:</td>
</tr>
<tr>
<td></td>
<td>1. Injury to, or illness of, military personnel, MoD civilian personnel or members of the public.</td>
</tr>
<tr>
<td></td>
<td>2. Damage to, or contamination of, military or civilian equipment, property or the environment.</td>
</tr>
<tr>
<td></td>
<td>3. Threat to the structural integrity of, or to cause damage to, platform or the environment.</td>
</tr>
</tbody>
</table>

The definitions above are equivalent to MOD Accident/Incident definitions in JSP 375 Vol 2 Leaflet 14. The term “dangerous occurrence” is not used in explosive reporting due to the need to respond to all incidents when munitions are damaged and are captured in the above categories for explosive incidents.

### NON EXPLOSIVE INCIDENTS (included for information)

<table>
<thead>
<tr>
<th>Term</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>NEGLIGENT DISCHARGE</td>
<td>A discharge of a weapon as a result of preventable human failing where no injury or damage has occurred and the weapon and munition performed to the designed specification. ND reports are to be completed iaw BR 8988 (Royal Navy Military Training Manual). The term Negligent Discharge is only used with SAA up to 9 mm in calibre.</td>
</tr>
<tr>
<td>LOSS</td>
<td>Physical loss of Arms, Ammunition or Explosives is to be reported iaw JSP 440 Part 5Section 7 Ch 1, copy NAVY CMD EXP.</td>
</tr>
</tbody>
</table>
REPORT OF FAILURE/DEFECT IN NAVAL ORDNANCE

Originator __________________________   Defect signal reference _____________ (if appropriate)

Originator’s Reference ________________

Depot at which Landed _________________

Equipment/Ordnance _________________   Date of Failure/Defect _________________

Full details of ordnance and stores must be inserted overleaf. JSP 862 Part 2 Chapter 8 defines Defect Reporting Procedure

Report Narrative in Addition to Details Over (all sections to be completed)

Brief Statement of Facts

Opinion of Cause

Action to Prevent Recurrence
Part 1 – Ordnance Details

Gun No. .......................... Rounds Fired to Date .......................... Date of Last Inspection ..........................
Barrel No. .......................... Rounds Fired to Date ..........................
Number of Rounds Fired Immediately Before Failure/Defect .......................... and Afterwards ..........................

Part 2 – Ammunition / Store Details

<table>
<thead>
<tr>
<th>Type / Mark</th>
<th>Lot No. / Part No.</th>
<th>Manufacturer</th>
<th>Date</th>
<th>Filler</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Store</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Component</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Component</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Number of rounds/stores of same type and lot which functioned correctly ..........................
Quantity Remaining ..........................
Has store been previously loaded but not fired .......................... YES / NO
Misfired Rounds: Firing Pin Contact Indication .......................... YES / NO Firing Pulse Passed .......................... YES / NO
Depth of Release (If applicable) ..........................

Part 3 – Air Flown / Dropped Stores Detail

Aircraft Type .......................... Mark .......................... Serial No .......................... Air Speed ..........................
Height of Release .......................... Angle of Climb/Dive ..........................
Insert Ammunition details in Part 2
Insert Bomb Details in Part 4
Period on Ready Use Condition ..........................
Degree of Exposure ..........................

Part 4 – Bomb Details

<table>
<thead>
<tr>
<th>Type</th>
<th>Mark</th>
<th>Lot No. / Serial No.</th>
<th>Manufacturer</th>
<th>Date</th>
<th>Filler</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bomb</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fuze</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CCE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Bomb Tail Type .......................... Mark .......................... Date of Manufacture .......................... Manufacturer ..........................

Part 5 – Packaging (To be completed if Packaging is thought to be a Contributory Factor)

Date Store Received .......................... From .......................... Via ..........................
Type of Package .......................... Condition .......................... Date Unpacked ..........................
Condition of Store ..........................
CHAPTER 9

EMERGENCIES INVOLVING MUNITIONS

CONTENTS

Article

SECTION 1  EMERGENCIES INVOLVING MUNITIONS

0901  Introduction
0902  General
0903  The threat
0904  Initial safety precautions
0905  Unexploded Ordnance (UXO) - Assessment of Hazards

SECTION 2  REACTIONS

0906  General
0907  Safety requirements - General
0908  Immediate actions
0909  Initial assessment and stabilising the situation
0910  Assessment of condition of store and remedial actions
0911  Actions before disposal overboard
0912  Risk if hazardous store is moved
0913  Damaged stores - Assessment of serviceability
0914  Damaged stores - Return
0915  Historic ordnance - Procedures

SECTION 3  CONVENTIONAL WEAPON INCIDENTS

0916  Conventional Weapon Incidents - Background
0917  Required standing operating procedures
0918  Organisation
0919  Execution

SECTION 4  IDENTIFICATION

0920  General
0921  Types of explosive ordnance

Annex

A.  Aide memoire – Emergencies involving munitions
B.  Miscellaneous explosive incidents aide memoire
SECTION 1  EMERGENCIES INVOLVING MUNITIONS

0901  INTRODUCTION

1. This chapter provides guidance to Commanding Officers and their Explosives Responsible Officers (EROs) on first aid actions in respect of casualty or hazardous weapons including unexploded enemy ordnance but excluding:

   a. Nuclear Weapons, where advice will be found in:
      
      (1) JSP 576 Defence Nuclear Accident Response Supporting Information.
      
      (2) CB 8890 - Instructions for the Safety and Security of Trident Weapon Systems in HM Submarines.
      
      (3) 0D5651 6 Vol 4 - Officers Guide for Vanguard Class SSBN - Strategic Systems (05) ‘Trident Casualty Manual (U)’.

   b. Air Weapon hang-ups, where advice will be found in the appropriate Air Publications.

   c. Underwater Sabotage Charges and IEDs which are dealt with in BR 8988 and BRd 5063.

   d. The threat to explosives posed by accidents or other non-explosive incidents which are covered in Damage Control manuals.

2. Further information is contained in the following publications:

   a. CB 8844 Weapon Effect in Ships.
   
   b. BR 2924 Radio Hazards in the Naval Service.
   
   c. NATO Explosive Publication System (NEPS).
   
   d. BRd 0002 Queen’s Regulations for the Royal Navy.
   
   e. BR 5063 Clearance Diving Operations.

0902  GENERAL

1. A damaged weapon threatens not only the safety of personnel in its immediate vicinity but also puts ship survivability at risk either directly or indirectly by reaction with fuel or other explosive stores. Ship survivability is also threatened when explosives are jeopardised by external influences such as fire, shockwaves, RF energy or mechanical stress from non-explosive incidents. This chapter provides some basic advice on First Aid reactions to the damaged or unexploded weapon and subsequent identification of the weapon where applicable.

2. First Aid is defined as the minimum actions required. In many instances, particularly in peacetime, these actions are limited to those which sufficiently stabilise a situation to allow for the provision of expert assistance.

3. The initial actions to be taken when an incident involving explosives occurs will be determined by the exact nature of the incident and the tactical situation. As a general rule, such initial action should be confined to ensuring, as far as possible, that the situation will not deteriorate further.
4. After the initial actions the incident should be assessed, the hazards identified, and the best course of action planned. The best course of action will be dependent upon the full operational situation. However, with the exception of an incident which results in a fire or for which Standard Recovery Action Drills or Standard Operating Procedures exist, it is possible that any action taken prior to making this assessment may in fact exacerbate the hazards. Consequently, no actions are to be made in respect of casualty weapons or unexploded enemy ordnance, other than in situations excepted above, unless directed by the Explosive Responsible Officer (ERO); who will be guided by the simple self-question:

\[
\text{‘FOR WHAT REASON MUST I MAKE A DECISION TO DO SOMETHING TO THE WEAPON NOW?’}
\]

Any reasons dictating a quick answer will not only be obvious but will also determine the initial recovery actions necessary.

5. It is recognised that there are situations which cannot be stabilised with confidence and First Aid advice may be that weapons have to be inhibited, lowered overboard or jettisoned. The tactical situation may be such that retention of a malfunctioned or casualty but stable weapon will prejudice operations.

0903 THE THREAT

1. The various causes of incidents involving explosives which may pose hazards can be stated as follows:

a. **Own Ship Casualty Weapons.** Incidents can be caused by misfires, hangfires, mishandling of the weapon, Machinery Handling Equipment (MHE) malfunction, mistakes in testing/drills or physical damage sustained from non-explosive sources as a result of fire, flood, accident, sabotage, enemy action or other extraneous events. These weapons are likely to have many more sensitive devices than those remaining in enemy launched weapons. Although not deliberately armed the damage may have affected not only the arming of the warhead but also the motor, flare etc. and any initiating device. Hazard assessment benefits from the considerable amount of weapon data available onboard.

b. **Friendly Forces Casualty Weapon.** Incidents may arise from weapons which belong to part of the weapon fit or belong to embarked forces or visiting forces such as an armed helicopter. In extreme cases a weapon may arrive on board having been fired or dropped inadvertently. All of these examples present the same problems as Own Ship Casualty Weapons but information to assist hazard assessment may not be readily available.

c. **Hostile Forces Ordnance.** This may be divided into two classes:

   (1) **Enemy Launched Ordnance.** This includes bombs, rockets, guided missiles, shells and torpedoes. In one sense these incidents are the easiest to deal with logically but unfortunately they occur in high stress situations. It is usually reasonable to assume either that the ordnance was armed and that the actuation phase malfunctioned or that it was not armed. In either case, given a few basic rules for protection/handling, the threat posed will be low even though specific data on the weapon is unlikely to be available.

   (2) **Enemy Placed Ordnance.** This includes underwater sabotage charges, IEDs and letter bombs. These carry the greatest risks and procedures for dealing
with them will be found in BR 8988. They will not be considered further in this guidance.

d. **Historic Ordnance.** This includes all weapons and explosive stores which have been exposed to the elements for considerable periods of time and then are dredged up, dug up or discovered. The procedures for dealing with historic ordnance are given in this chapter (Article 0915 refers). The procedures given elsewhere in this chapter Do Not apply to historic ordnance.

**0904 INITIAL SAFETY PRECAUTIONS**

1. Except in cases of own ship weapon damage or if the exact nature of the ordnance involved, and thus the hazards, are fully known only the minimum number of personnel should approach the area. Any approach should be limited to that required to answer the following questions:
   a. Is it an explosive device?
   b. What is its size and type?
   c. Are there any hazards in addition to the explosive content? (e.g. unspent fuel, toxic substances).
   d. Is it secure?
   e. What condition is it in?
   f. Where is it?

2. It must be understood that many modern weapons have (possibly interlinked) warheads, homing-head fuzes, boost and sustainer motors, flares, explosive actuators and command/auto destruct devices. Very nearly all are vulnerable to RADHAZ especially when their casings have been breached or their protective filters disabled. Some munitions may contain non-explosive but highly toxic materials or otherwise hazardous reactive elements.

3. **IS TIME IMPORTANT?** The temptation to ‘do something’ must be resisted until there has been a full hazard assessment. Analysis of past reactions to hazardous explosive incidents shows that in most cases decisions were made before a full assessment had been attempted in the belief that time was the dominant factor. Although in the past, the risks of clearing a strike carrier’s flight deck or ditching a hangfire weapon were operationally acceptable because the probabilities and penalties of an explosive event from relatively unsophisticated weapons were well known. However, time is rarely a dominant factor except in the case of a fire. It is most unlikely that any enemy anti-ship ordnance (missile, shell, bomb or torpedo) has a significant delayed action fuze. Own ship weapons may have had their delayed arming sequence triggered or partially activated in an accident. However, arming or actuation of the fuze is unlikely as long as no action is taken that could provide the necessary stimuli. There are some weapon procedures, to render a fuze safe, available onboard.

4. Even though sabotage charges are likely to have time related detonating devices none can be dealt with as a matter of instinctive reaction as they are also likely to be fitted with effective anti-handling devices. This will dictate that initial actions are not directed at the weapons but towards protecting the ship’s company should the devices actuate.
0905 UNEXPLODED ORDNANCE (UXO) - ASSESSMENT OF HAZARDS

1. When assessing the hazard posed by a UXO of enemy origin the following should be considered:

   a. Most weapons when launched as warshot weapons follow the sequence:

      (1) Arm. This will require a combination of events (probably in a pre-set order) such as removal of arming link/wire, predetermined time/distance, pressure and/or acceleration.

      (2) Actuation. An impact or influence device initiates the functioning sequence.

      (3) Functioning. An electrical or percussive explosive device initiates an explosive train culminating in detonation of the main HE charge.

   b. Why, therefore, did the UXO not explode? Arming mechanisms from all countries are designed to withstand considerable stress and most air-launched weapons will not arm when jettisoned. There are therefore five possibilities to consider:

      (1) It did not arm. Arming criteria not received or arming mechanism malfunction. In both cases it is most unlikely that it could be made to arm without receiving further stimuli appropriate to the weapon.

      (2) It is on the threshold of arming. Applies to an arming process or part of an arming process associated with a mechanical timer or measurement of distance. The odds are hundreds to one against.

      (3) It did arm, but did not receive the designed actuation criteria. All designed actuation criteria were available hence malfunction of the sensing units. It is unlikely that the sensing units can be triggered by normal handling when not triggered by impact.

      (4) It did arm and it did receive the designed actuation criteria, but failed to function. Malfunction in firing system or in explosives train. In both cases it is unlikely to function unless significant further stimulus is applied.

      (5) It is fitted with a delay actuation device. Can be discounted in the Naval environment.

   c. Subsequent Action. There is no certain way that the ERO can establish which of these states applies, but the balance of probabilities can be assessed. Actions are to be limited to preventing the munition arming if not occurred. Typical arming influences are: acceleration, spinning, pulling at lanyards. Typical actuation influences are: impact, pressure, proximity and Infra-red. Although there is no such thing as a ‘safe’ casualty weapon the hazards can be reduced by:

      (1) Securing the casualty weapon in position/place, minimizing any movement.

      (2) Making sure that inadvertent arming is prevented if possible (e.g. stop arming vanes/T bars from moving).

      (3) Making the electromagnetic environment as safe as possible.

      (4) Avoiding static discharge through the weapon.
Tampering with it as little as possible. Any attempt to de-fuze the weapon by non-EOD trained personnel will increase the risks. Action should be taken in accordance with Annex A.

d. **Time.** Time is not a relevant factor in the high probability situations, but only in the possible but not probable cases of a ‘hangfire’ (e.g. the weapon has a low rate of chemical activity which has the potential to escalate) or a delay actuation device. There is no way that these cases can be detected with the resources available to the ERO, and therefore he must avoid making hasty judgements.

### SECTION 2 REACTIONS

0906 GENERAL

1. The flow chart given in Annex A is an ‘aide-memoir’ to ensure that all reasonable precautions have been taken in a logical manner. This flow chart applies to ALL casualty explosives or weapons involved in an incident including unexploded enemy ordnance (Except IEDS, Sabotage Charges and Historic Ordnance).

2. Additional information in support of Annex A is given in the following paragraphs. However, the guidance given is in no way a substitute for more detailed guidance from such sources as EOD publications (JSP 364, BRd 5063), Ship Explosive Store Safety Information (SEXSSIs) documents and weapon handbooks, should such sources be available.

3. The handling, stripping down, movement, examination or disposal of any store containing explosives (any one or more of primary (initiating) explosive, secondary explosive, propellant or pyrotechnic mixture) which has been involved in an accident of any type can be highly dangerous and should be undertaken only by suitably qualified and experienced personnel (Annex 8A refers). Requests for assistance should be in law Ch 8 and BR 8988 for capabilities and location of Clearance Diving Units (Article 0820 and Annex 8A refers).

0907 SAFETY REQUIREMENTS - GENERAL

1. Damage to explosive stores can be categorized as follows depending upon the extent of the damage:
   a. **Explosive Material NOT Exposed.** Where the damage is such that explosive material has not been exposed and other damage is minor, (e.g. the store is essentially intact and in one piece and will not distort on lifting). In these cases it will usually be safe to move the store and the regulations concerning the specific weapon should be followed if available.
   
b. **Explosive Material Exposed.** Where the damage is such that explosive material has been exposed. Extreme caution must be exercised in handling both the store and any loose or exposed explosive material. In principle no action shall be taken which introduces any new hazard stimuli to the explosive store.
   
c. **RF and Electrostatic Hazards.** Where any electrically initiated explosive store has suffered serious damage resulting in:
      
      1. Breaches of the external casing of the store.
      
      2. Suspected damage to the screening or filtering of any circuitry (unless it can be ascertained that no EEDs are involved).
      
      3. Exposure of the firing circuits.
2. It will be impossible in most cases to assess the radio hazard, except that such a hazard will not be present below metal decks. For stores outside any metal enclosed spaces; changing the position of the store, changing the sources of RF energy (e.g. by switching aerials) or increasing RF energy (new transmitters) could increase the RF hazard. Unless the operational situation dictates otherwise, all transmissions except for I band navigational radars and certain low powered communications (BR 2924 refers) should be switched off.

3. Stores which have been exposed to fire or excessive temperatures may be in a sensitive condition due to chemical change, loss of inhibitor and/or exudation and should be handled with great care. Special attention to avoid dropping, knocking, vibration or impacts of any kind is essential.

4. Detonators which have been damaged, if only by denting, or other items containing exposed or loose initiatory explosives are extremely hazardous, especially if they are in proximity to other explosives. Such items should be moved as little as possible, while exercising anti-static precautions. A means of dealing with such items remotely should be considered.

5. The actions required following an incident will be scenario-dependent. Annex 9A and 9B give generic guidance and suggested actions that should be taken, the paragraphs below provide further information as needed:

0908  IMMEDIATE ACTIONS

1. The first concern must be to prevent any major escalation of the incident and the most likely cause of such escalation is fire. The rescue of any casualties may be carried out simultaneously.

   a. **Firefighting.** If the situation is complicated by fire at the scene of, or in the vicinity of, an explosives incident it is obviously necessary to extinguish the fire before attempting any further action. There are slight advantages in using AFFF even when burning fuel is not present as the film is more adhesive to vertical surfaces than water. The following must be borne in mind:

      (1) **Would a change of course help the situation?** Essentially this is a compromise between keeping flames away from adjacent explosive or other hazardous stores and keeping the firefighters clear of smoke. The best initial response, if safe to do so, is to turn the ship to bring relative wind to the bow opposite the fire without heeling the ship significantly. A different course and a change in speed may be advised when the situation becomes clearer.

      (2) The time available for firefighting before the explosive object ‘cooks off’ and explodes cannot be given precisely even if the identity of the object is known. The hazard and risk times as witnessed during fuel fire tests are published in individual weapon SEXSSI and should be included within JSP 862 Addendum.

   b. **Rescue.** The hazards consequent upon explosives in a fire are likely to cause further casualties unless the fire is quickly extinguished. Fighting fire in the vicinity of explosives should take precedence over rescue.

0909  INITIAL ASSESSMENT AND STABILISING THE SITUATION

1. **Identification.** Identify the ordnance involved using Section 4 of this chapter.

2. **Whole Ship Precautions.** The chances are that unexploded enemy ordnance will not pose an immediate threat. Nevertheless the risk must be considered for both ‘friendly’ and ‘enemy’ incidents. If the risk of detonation is high (e.g. EOD personnel working on enemy UXO) appropriate
damage control and evacuation precautions must be taken. Where unknown weapons are concerned the size and type of the weapon may enable an estimate of explosive content (Article 0920 refers). 500 Kg of explosive will approximately occupy a cylinder of 50 cm diameter and about 1.6 m in length, further guidance on the effects of explosives detonations on board can be found in CB 8844 Weapon Effects.

3. **Action when Fire is Extinguished.** As soon as the fire is extinguished the weapon must be cooled. There are no advantages in using anything other than water for this purpose. Water cooling must continue for at least 30 minutes to remove the heat because hazardous mechanical expansion stresses will continue to be set up within dry explosive material due to its very poor thermal conductivity. Also heat increases the sensitiveness of the explosive materials.

4. **RF and Electrostatic Hazards.** In the case of enemy UXO or where RF or electrostatic hazards exist (Article 0907 refers), SHIPHAZ/RADHAZ precautions should be taken in accordance with BR 2924 and anti-static precautions must be taken before handling the store. If the operational situation precludes these RADHAZ precautions; the Commanding Officer should be informed of the risk, noting that existing transmissions have not initiated further explosive events but starting further transmissions could increase the electro-magnetic field around the store in question.

5. **Uncontrolled Movement.** Weapons with deformed casings or exposed or loose explosives can be initiated by nipping. If the weapon/store is not secure and is likely to move around as the ship moves it should be secured to prevent this. Chocks, padding, shores and lashings should be used in any combination as is convenient, taking care not to expose more than the minimum number of personnel needed to reduce the risk. Remote methods should be used if possible.

6. **Vibration Hazard.** Any vibration could increase the risk of nipping and therefore ship’s speed and manoeuvres may need to be limited as appropriate. Care is to be exercised when securing the damaged store; do not use fitments such as fins or fuzes as securing points.

**ASSESSMENT OF CONDITION OF STORE AND REMEDIAL ACTIONS**

1. **Chemical Contamination.** Where exposed explosives have been, or could be, contaminated by reactive chemicals (e.g. electrolyte), the area should normally be drenched with water.

2. **Exposure and/or Sensitising of Explosive.** Where explosive material is exposed or explosive has been contaminated with sensitising agents, such as grit, action should be taken to de-sensitise the explosive and dispose of any loose material as follows:

   a. Except for water activated stores and pyrotechnic stores, apply sufficient water to wet both the surface of the intact explosive and any loose explosive. Carefully collect and dispose of any wetted loose explosive. Explosives of different types must be kept separate at all times.

   b. Exposed filling of water activated stores or pyrotechnic stores can be inhibited by the application of oil (preferably light mineral oil such as OM13). Dispose of the wetted loose explosive by dispersal overboard.

   c. Where an explosive store contains both a water activated item and explosives (non-pyrotechnic), care must be taken to avoid water contacting the water activated item(s). It may be more convenient, and it is acceptable, to use oil to de-sensitise all items including the explosive.

   d. Particular care must be taken with stores which have been exposed to fire or excessive temperatures as they may be in a sensitive condition due to chemical change, loss of inhibitor
and/or exudation. They must not be dropped or knocked nor subjected to vibration or impact of any kind.

3. **Release of Explosive Material from its Container.** Nipping explosive material between surfaces must be avoided. Spilt explosive materials must be dealt with according to the category of explosive involved.

4. **RF and Electrostatic Hazards.** Anti-static precautions must be taken before handling a damaged explosive store. SHIPHAZ precautions should also be taken, in accordance with BR 2924, if the damaged store is outside metal enclosed spaces, changing the position of the store or changing emissions could increase the RF Hazard.

5. **Arming and Start Sequences.** It is important to determine whether a weapon, which appears intact, has been subjected to drop or other shock. Internal damage to protection devices may pose an immediate threat and there may be a latent hazard due to damage which would cause a malfunction if the weapon were to be fired. For some stores there are indications which show whether a Fuze or Safety and Arming Unit is in the Armed condition. For some stores there are connectors which inhibit start sequences. Information may be available on whether the store has been connected to the launching system and whether that system has started a launch sequence. Some stores have a readily accessible means of disarming or inhibiting a start sequence. Consideration should be given to whether supplies have been available in the weapon to operate sequences or power initiating circuits. The equipment handbooks and relevant SEXSSIs will provide further information.

**0911 ACTIONS BEFORE DISPOSAL OVERBOARD**

1. Where any doubt of safety remains, the stores should be lowered over the side, special care being taken to avoid impact with the water surface, ship's side and propellers. When return of stores is not acceptable and the stores are safe in their current condition/storage, disposal should be in deep water (Article 0834 refers) and the weighting requirements of that Article taken into account. Before disposal overboard, the following should be considered:


   b. Safe lifting procedure and appliance.

   c. Means of lowering over the side.

   d. Depth of water. Unless the store can be disposed of where the depth exceeds 550 m, or in a recognised dumping area, it is preferable that it be lowered into water of less than 42 m and marked for subsequent action.

   e. SHIPHAZ/RADHAZ.

   f. Electro static precautions.

   g. Water activated devices. In particular, those associated with propulsion systems.

   h. Necessity to inhibit propulsion system (e.g. by chaining propellers) of weapon store.
0912 RISK IF HAZARDOUS STORE IS MOVED

1. If there is an operational requirement to move a store which may be hazardous, the following should be taken into account when making a risk assessment:

   a. How great is the need to move the store? What are the risks of leaving it where it is?

   b. Can appropriate RADHAZ precautions be taken if the store is to be moved outside metal enclosed spaces?

   c. What other hazards might be involved in moving the store and lowering it overboard? These might include:

      (1) Initiation due to increased explosive sensitiveness.

      (2) Initiation by nipping.

      (3) Arming.

      (4) Start sequence.

   d. Is time a significant factor? Is the risk increased by waiting for advice/help?

0913 DAMAGED STORES - ASSESSMENT OF SERVICEABILITY

1. If the store is essentially intact following accidental dropping, the regulations concerning the weapon type and specific weapon should be followed (e.g. JSP 862 Addendum, SEXSSI and Weapon Handbooks). Where possible a check that the safety devices incorporated are in an unarmed state should be made before movement is permitted.

0914 DAMAGED STORES – RETURN

1. The DM establishment should be provided with full details before damaged or potentially damaged stores are returned (Article 0812 refers).

0915 HISTORIC ORDNANCE – PROCEDURES

1. Historic ordnance is any weapon or explosive store which has been exposed to the elements for a considerable period of time and subsequently discovered. In ships this will normally be by dredging it up from the sea bed inadvertently. These stores will have been subjected to corrosion; the products of the corrosion and the effects of explosive migration will be unpredictable and the explosives may be in a highly unstable state.

2. Historic ordnance is to be dealt with by EOD trained personnel ONLY. BRd 8988 details the locations of all RN EOD teams. Requests for assistance, inside and outside of UK waters, should be made as directed by Chapter 8 (Article 0820 AND Annex 8A refers).

3. If the ordnance has been dredged from the sea bed it should be carefully lowered back to the sea bed, marked and reported for subsequent action. If this is not possible the ordnance must be continuously wetted with sea-water until disposal assistance/instruction is received.

4. In the event of the ordnance being on land it should be marked, reported and arrangements made to prevent anyone approaching within 400m if buried (ordnance is considered buried where its depth below ground is at least 2.5 times its length) or 2000m if not buried. These distances are for
2000 kg of explosive and may be reduced if the explosive charge is obviously smaller (BR 5063 refers).

**SECTION 3 CONVENTIONAL WEAPON INCIDENT**

**0916 CONVENTIONAL WEAPON INCIDENT - BACKGROUND**

1. A casualty weapon threatens not only the safety of personnel, in its immediate vicinity, but also puts ship survivability at risk either directly or indirectly by reaction with fuel or other explosive stores. Ship survivability is also threatened when explosives are jeopardised by external influences such as fire, shock, RF energy or mechanical stress from non-explosive incidents.

2. Any incident which causes or is likely to cause damage to explosive stores is to be classed as a ‘Conventional Weapon Incident’ (CWI). Initial reactions, an appreciation of the differences in approach required for States 1/2/3 and information flow are key to successfully dealing with a CWI.

**0917 REQUIRED STANDARD OPERATING PROCEDURES**

1. A CWI could occur at any time, under a wide variety of operational conditions. Numerous factors therefore need to be taken into consideration, and it would be impossible to develop SOPs for every possible munition accident scenario. However, prior thought and planning on methods to deal with major weapon incidents are required, accordingly SOPs are to be developed using templates available from NAVY CMD EXP and made readily available as listed below:

   a. Harpoon.
   
   b. Stingray Torpedo.
   
   c. Seagnat Mk 245 IR Seduction Round.
   
   d. Generic Casualty Munition.

2. Once an SOP is in place, ships are to conduct exercises to prove their procedures as required by PRISM. CWI Table Tops and Exercise requirements are detailed in PRISM under WSB and Weapon Repair Training.

**0918 ORGANISATION**

1. A CWI could happen at any time with the ship in any of several different manpower states. Where procedures differ due to manpower states these will be highlighted.

2. The differing whole ship reactions for dealing with a CWI are as follows:

   a. **Alongside.** A CWI alongside will normally be a low key event due to the restrictions applied to the movement of ammunition in harbour, any incident would generally include ammunition utilised by the ship’s RF/DF personnel. Therefore the chances of an incident occurring will be much less than at sea. The DWESR/DWETR should advise the OOD in HQ1 and will ensure a suitable rating is on hand to provide access to all relevant references. Attention should be drawn to the statement:

      "If you don't have to, then don't do it" and wait for the specialist shore side authorities. In any case the WEO, DWEO or WSO should be informed as soon as possible.
b. **At Sea.** A CWI at sea is most likely to occur in conjunction with helicopter operations and might involve, but not be exclusive to, Stingray Torpedoes, Sea Skua Missiles and Depth Charges. Ammunition Ship is also a high-risk activity and an incident could involve any type of explosive store.

3. Figures 9-1 and 9-2 illustrates those personnel with specific responsibilities during a CWI in State 3 and State 2.

4. **State 3.** Any incident at sea requires a full reaction from the SSEP. The DCO will receive advice from DWEO/WSO in HQ1, whilst WO1 ET(WE) and WSO/DWEO will close up in the WSB in order to provide a co-ordination point for the Weapon Incident Teams and the Forward Control Point or scene of incident and to utilise the references held in the WSB. Ultimate command decisions will be the responsibility of the CO/WEO.

5. **Out of Working Hours.** In the event of an incident occurring alongside and out of working hours the OOD is to assume the responsibilities of the Command Advisor with the assistance of the DWESR/DWETR. The DWESR/DWETR will also assume the responsibility of the Conventional Weapon Incident Team. Their actions are to be sufficient only to reduce further risk/damage and concurrently inform the relevant authorities. To assist in the conduct of their duties the CWI Information Pack, held in the SCC/HQ1, is to be referred to immediately. The Containment L/H will remain I/C of containment.
6. **RESPONSIBILITIES**

   a. **WEO / OOD**

      (1) Inform relevant outside authorities (Article 0804 refers).

      (2) Brief the Command of hazards including probability of explosion.

      (3) Advise the Command on actions and priorities.

      (4) Assess CWI using all relevant information. (e.g. CB 8844 and SEXSSIs).

   a. **DWEO/WSO**

      (1) Manage incident from HQ1/SCC using all relevant documentation, 
          (e.g. CB 8844 and SEXSSIs).

      (2) Support WEO by supplying technical information from above documents as 
          required.

      (3) Inform the WEO of the situation and any developments, paying particular attention 
          to scene of incident aspects.

   b. **Senior Officer Of the Quarter (OOQ) (CPOET(WE))**

      (1) Support I/C FCP in all aspects of his role.

      (2) Designate the boundaries of the scene and relay these to the SCC/HQ1 to 
          instigate non-essential personnel evacuation.

      (3) Brief Conventional Weapon Incident Team I/Cs on arrival.

   c. **WO1ET(WE)**

      (1) Detail Communications to scene of incident.

      (2) With consideration of the weapon involved, it's placement and any possible 
          subsequent sympathetic incidents, task effective containment of the area.

      (3) Outline and implement any blast routes required.

   d. **Conventional Weapon Incident Teams A & B/DWESR/DWETR**

      (1) By use of the CWI Equipment Box effect sufficient actions to stabilise a situation to 
          allow for the provision of expert assistance where available.

      (2) In the absence of expert assistance, deal with the incident as directed by the WEO.

      (3) The I/C of the CWI teams should be suitably qualified OOQs where possible.

7. **State 2.** In State 2 initial responses will be dealt with by the on watch WE Warrant Officer and the on watch members of the CWI Teams. Figure 9 – 2 gives a schematic of the On-Watch organisation.
8. **State 1.** If a CWI occurs whilst the Ship is in State 1 the WEO’s role as Command Advisor remains unchanged. The DWEO, WO1 ET (WE) will conduct their responsibilities from the Weapon Section Base (WSB). The I/C of the CWI Team and scene will be nominated by the WSB (would normally be the OOQ).

0919 EXECUTION

1. In the event of a CWI not detailed under an SOP, the OOW / SCC is to be informed immediately, and the following pipe is to be made.

   "Weapon Incident, Weapon Incident, Weapon Incident."
   "No smoking, no naked lights, no mobile phones, no transmissions to be made throughout the ship," "location of incident is ‘state location’"
   "Weapon Incident Teams to muster"
   "Duty Watch / SSEP to muster at ‘state location’"

2. In the event of the CWI having an SOP, the initial pipe should be as detailed in the relevant SOP.

3. The person discovering the incident is to report to the SCC/HQ1 immediately.

4. All non-essential personnel are to evacuate the immediate area.

5. The Duty Watch or Standing Sea Emergency Party (SSEP) will be required to muster in the Combined Workshop/EMR for any containment tasking required. Members of the Attack Party are not to be used for containment. In the event of a fire running concurrently with a CWI, the Duty Watch or SSEP will assume their normal fire-fighting roles.

6. The following Command considerations should be made, which may impact on the way in which the incident is approached:
   a. Ship’s CBRND state.
   b. Tactical scenario.
   c. Weapon Posture.
   d. Location.
   e. Sea state.
   f. Is an aircraft involved?
g. Cause of the incident.
h. What other hazards are there.
i. Surrounding shipping.
j. External assistance required.

7. In the contingency of an Air Weapon being damaged whilst in flight or through heavy landing, the casualty munition is to be removed by Ship’s Flight/Squadron personnel who will be responsible for confirming/rendering the weapon safe.

SECTION 4 IDENTIFICATION

0920 GENERAL

1. Ideally, before the safest course of action can be planned, the weapon should be positively identified and therefore all possible hazards posed by its presence taken into account. However, because there are so many items of an explosive nature in service throughout the world it is not practicable to provide weapon data sheets for all of them. Nor is it practicable for ships to carry the full range of Explosive Ordnance Disposal (EOD) publications. The aim of the subsequent paragraphs is therefore to give Ships’ Officers who are not EOD trained sufficient information to identify the type of ordnance/explosive device and some general guidance on hazards.

2. Thereafter, if time and the operational situation permit, exact identification of the object and specific guidance on disposal may be sought (Ch 8 refers) giving the information listed.

0921 TYPES OF EXPLOSIVE ORDNANCE

1. The items of explosive ordnance which must be considered can be listed as:

   a. **Projectiles.** A projectile may be launched from a recoil-less weapon or may be a shell fired from a gun. Projectiles contain a fuze to cause them to explode and normally an HE filling.

   (1) **Identification Features**

   (a) Length to diameter ratio normally high.

   (b) Body of one piece construction with tapered nose.

   (c) If fired from a gun, the projectile will have a driving band. This is a cylindrical ring or softer metal or plastic which engages in the rifling in the gun barrel to impart spin to the projectile and to ensure a gas-tight seal in the barrel. A typical shell is shown in Fig 9-3.
Fig 9-3 Typical Projectile

(2) **Types of Shell.** The main types of shell likely to be encountered are:

(a) **High Effect (HE).** This has a charge to weight ratio of about 50%, is normally ogival in shape and may be nose or base fuzed.

(b) **Armour Piercing (AP)/Semi Armour Piercing (SAP).** AP/SAP shell has a very low charge to weight ratio and is always base fuzed. There is often a streamlined nose cap to restore ballistic properties to a blunt nosed round.

(c) **Carrier.** Carrier shell is designed to carry its contents to the target area then dispense or eject them. The contents in the maritime environment are likely to be:

(i) Illuminant (Star Shell).
(ii) Decoy (Chaff).

**Note:** Carrier shell are normally nose fuzed and may have weakened bases or noses to allow ejection of the contents.

b. **Bombs.** This designation covers all free-falling weapons other than A/S weapons. They are usually fin or parachute stabilised and may be fitted with retarding devices. The shape and construction of the case will be adapted to the function of the weapon as will the type and position of the fuze.

(1) **Identification Features.** In view of the wide range of bomb types it is not practicable to give even generalised guidance other than to distinguish between the various types. However if time permits the seeking of advice is recommended (Article 0804 and Annex 9A refers), the recognition of the country of origin and the particular weapon can be obtained from the following features:

(a) Position of the fuze, i.e. a nose fuze or a ‘tail’ fuze in the body of the weapon, or both.

(b) Type and number of suspension lugs.

(c) Shape and design of Tail Unit. However this unit may be detached from the body of the weapon or heavily distorted.

(d) Basic shape of the weapon body.

(e) Markings and colour (if present).
(2) **Types of Bomb.** The following list of types is not exhaustive, but should cover those likely to be used in the maritime environment.

(a) **HE General Purpose/Medium Capacity.** These have a charge/weight ratio of approximately 50% and medium length/diameter ratio.

(b) **HE High Capacity (Blast Bombs).** These have a very high charge/weight ratio (approx. 80%) and are often unstreamlined cylinders.

(c) **Armour Piercing/Semi Armour Piercing (AP/SAP).** These have a very low charge/weight ratio (approx. 15%) and a high length/diameter ratio.

c. **Unguided Rockets.** This designation covers unguided self-propelled weapons.

(1) **Identification Features.** This type of weapon comprises of a simple tube filled with propellant (the rocket motor) which has at the front provision to mount a warhead or practice head, and at the rear a venturi opening and stabilising fins. Typically the diameter is in the range 50-80 mm and the length in the range 0.5-0.75 m. A modern UK aircraft rocket is shown in Figs 9-4.

(2) **Types of Warhead.** There are several different types which may be fitted, but all except solid Anti-submarine shot conform to the same basic dimensions and outline. Types which could be encountered are:

(a) High Explosive.

(b) High Explosive shaped charge.

(c) Armour Piercing/Semi Armour Piercing (AP/SAP).

(d) Solid Shot.

(e) Flare or Smoke.
d. **Guided Missiles.** This designation covers all forms of self-propelled guided weapons. The size, method of guidance and propulsion system will vary widely depending upon the launch platform and the purpose for which the weapon is intended. However, all guided missiles whether an ICBM or a small air-to-air weapon are built up of three basic components namely: Warhead, Guidance System and Propulsion System. A typical missile is shown at Fig 9-5.

(1) **Categories of Missile.** Guided missiles are categorised by the launching and target environment. Those categories applicable to the maritime battle can be listed, with their identification characteristics, as follows:

(a) **Surface to Surface (SSM).** Large missile typically 55-100cm in diameter and up to 12m long.

(b) **Air to Surface (ASM).** Medium sized missiles typically 20-50cm in diameter and up to 5m long.

(c) **Sub-Surface to Surface (Tactical).** As surface to surface.

(d) **Sub-Surface to Surface (Strategic).** Very large missiles in excess of 1m in diameter and 10m in length.

(e) **Surface to Air (SAM).** Ship mounted missiles are large typically 30-90cm in diameter and up to 10m long. Hand held SAM may also be encountered (e.g. JAVELIN) these are small typically 10cm in diameter and 1 to 1.5m in length.
(f) Air to Air (AAM). Small slender missiles typically 12-25cm in diameter and up to 4m long. They usually have solid fuel motors without boosters.

(2) **Types of Warhead.** All warheads will pose an explosive hazard, but the form and method of operation depend upon the purpose for which the missile was designed. Some current types are:

(a) **Blast.** These have a thin case and high charge/weight ratio.

(b) **Fragmentation.** These have a thick case which breaks up into a known pattern of fragments on detonation.

(c) **Continuous Rod.** These have a hoop of steel developed by a shaped detonating wave, giving complete circular coverage within a designed miss distance.

(d) **Shaped Charge.** These have a conical shape to concentrate the explosive effect and direct a slug of molten metal into the target.

(e) **Nuclear.**

(f) **Chemical.**

(3) **Types of Propulsion Systems.** These are of particular importance because unused fuel can pose additional hazards of fire and toxicity. They are divided into two categories; air breathing engines and rocket motors. A missile may be fitted with either a single propulsion unit or multiple units. However booster motors are normally designed to detach from the missile when their task is complete.

(a) **Air Breathing Engines.** These use atmospheric air and an internally stored fuel such as Kerosene. Any unburnt fuel will pose a fire and explosion hazards.

(b) **Rocket Motors.** Both the fuel and the oxygen are internally stored, either as a solid or liquid propellant. Liquid propellants may be either mono-propellants or bi-propellants. In mono-propellants both the fuel and the oxidant are present in a single liquid; in bi-propellants there are two separate liquids, one is the fuel and the other an oxidant.
e. **Torpedoes.** The torpedo is an underwater guided missile which may be launched from a torpedo tube aboard a ship, submarine or dropped from an aircraft. It is built up of the same basic components as a guided missiles, namely: Warhead, Guidance System and the Propulsion System.

(1) **Categories of Torpedo.** Torpedoes may be categorised by weight, propulsion system or guidance system. For the purposes of this book the first method is the more convenient and there are only two categories:

(a) **Lightweight.** These are anti-submarine torpedoes. They are normally electrically propelled with acoustic homing guidance systems. They are designed to be air dropped, but may be launched from surface ships. Typically diameter varies between 254 and 482mm and warhead weight is less than 100Kg. When air dropped the ‘flight in air’ material, which is designed to detach on entering the water, is used to stabilise and retard the torpedo; this may be found with the torpedo.

(b) **Heavyweight.** These are anti-submarine and anti-surface ship torpedoes which are normally launched from the torpedo tubes of a submarine. They may however be launched from surface ships or, in certain cases, dropped from aircraft.
The propulsion system may be electrical or chemical and the typical diameter is 21 inches (533mm) or greater. The warhead weight is approximately between 100 and 350Kg.

(2) **Types of Propulsion System.** The type of propulsion system is relevant in that particular systems may present additional hazards to the explosive hazard of the warhead. Types of propulsion system and the hazards they may impose are:

(a) **Electrical.** Power for this type is provided by batteries. They may be either secondary (e.g. lead/acid, silver cell) or primary (one shot). The hazards presented include high voltages, hydrogen in the battery compartments and toxic or corrosive elements in the batteries themselves.

(b) **Chemical.** These may be oxidant and fuel (e.g. hydrogen peroxide and alcohol), solid mono-propellant or liquid mono-propellant (e.g. Otto Fuel). The hazards posed will be those appropriate to the actual propellant(s) involved. Solid propellants are susceptible to ignition and must be protected from flames and sparks.

f. **A/S Weapons (other than torpedoes).** This designation covers all anti-submarine weapons launched from aircraft such as depth charges. Charge weights may be up to 100Kg. These stores are now only dropped from aircraft, examples of which are shown at Fig 9-6. Depth charges are normally cylindrical, typically with diameter between 76 and 448mm and length between 190mm and 2m, with a tube running through the centre which carries the hydrostatically operated firing mechanism.

![Fig 9 - 6 Typical Air Dropped Depth Charges](image-url)
g. **Miscellaneous Explosive Stores.** It should be borne in mind that marine pyrotechnics often contain a small explosive charge as the initiator. The pyrotechnic content will also present a fire or chemical hazard. Other miscellaneous stores that contain explosives/propellants are Small Arms Ammunition (SAA), decoys, power cartridges, damage control ammunition and any miscellaneous RN and Army EMF stores.
CHAPTER 9 ANNEX A
AIDE MEMOIRE – EMERGENCIES INVOLVING MUNITIONS

Phase 1 - Stabilise the Explosive Hazard

Weapon Incident

Are there Casualties at the Incident?

Yes → Rescue Casualties

No → Initial Actions

"FOR WHAT REASON MUST I MAKE A DECISION TO DO SOMETHING TO THE WEAPON NOW?"

Take Wholeship Measures

Assess the Situation

See Note 1 Overleaf

Is there a Fire at the Incident?

Yes → Extinguish the Fire

No → Initial Actions

CASUALTY WEAPON (0808)

Is the weapon assessed as SAFE after initial actions?

Yes → A

Annex A Pg 3

No → Take any further precaution and whole ship safety measures indicated by hazard assessment.

Request urgent advice via the DFC (0804.2-3)

Is the weapon assessed as SAFE?

Yes → A

Annex A Pg 3

No → Does the weapon still threaten ship survivability?

Yes → Conduct a full hazard assessment using relevant technical publications and onboard specialist advice.

(0909/0910)

See Note 2 Overleaf

Assess the risk posed by the weapon and advise Command

No → Take any further precaution and whole ship safety measures indicated by hazard assessment.

Request urgent advice via the DFC (0804.2-3)

Is there time to request shoreside advice?

Yes → Yes

No → No

Consider Disposal/Jettison if threat to ship survivability remains.

(0911/0912/0833/0834)

Report law Ch 8 Annex B

Contact NAVY CMD EXP

Annex A Pg 3
**AIDE MEMOIRE – ADDITIONAL NOTES**

During a Weapon Incident all actions are guided by one simple question:

“For what reason must I make a decision to do something to the weapon now?”

All the information below is referenced in chapter 8 and Chapter 9 (Section 2), further expansion can be found in the sub paragraphs indicated in bold:

**Note 1: INITIAL ACTIONS (0904)**

At this stage it is important that the situation does not deteriorate any further, stabilise the situation to allow for the provision of expert assistance. There is no such thing as a ‘safe’ casualty weapon, but the hazards can be reduced by considering the following points during initial actions:

1. Deal with any other incident that endangers the safety of the weapon and increases the risk to ship survivability. (0908)
2. Is it an explosive device?
   - Casualty Weapon (0808), UXO (0905)
3. Identify the size and type of explosive hazard?
   - Assess magnitude of hazard and does it require whole-ship measures i.e. damage control and evacuation of personnel (0909.2)
   - Guidance within Chapter 9 Section 4, relevant SEXSSI, CWI SOP and CB 8844.
4. What condition or state is the weapon in?
   - Is it possible to inhibit the weapon? (determine start-up/arming sequence) (0910.5)
   - Consider the need to jettison or lower into deep water. (0911) (0833/0834)
5. Are there any additional hazards that pose a threat to the explosive incident?
   - Fuel, other explosives, toxic substances. (0907)
   - RF Hazard. (If operations allow inhibit all emitters except I band) (0907.1.C)
   - Does the weapon need cooling? (0909.3)
6. Is it secure?
   - Prevent uncontrolled movement (0909.5)
   - Limit vibration or mechanical stress (0909.6)

**Note 2: HAZARD ASSESSMENT**

Is time important, the temptation to do something must be resisted until there has been a full hazard assessment.

1. Review Note 1.
2. Interrogate further SEXSSI, CWI SOP, System Technical Documents, CB 8844 and Onboard Expertise.
3. Where is it? : Assess how easy it is to move the weapon. (0912) Does it threaten ship survivability? Consider ease of disposal. (0911), (0812-0834)
4. Consider RF Susceptibility if the store is moved.
5. Is the explosive exposed, sensitised or contaminated (0910)
6. Are there any indications the weapon is armed?
   - Start-up sequence, arming indications from system analysis
7. Does operational tempo or level of risk to the ship allow time to gain advice from shore?

**Note 3:** If there is any doubt whatsoever presume unserviceable and request advice via NAVY CMD EXP.
Phase 2 – Recovery and Report

FOR WHAT TECHNICAL OR OPERATIONAL REASON MUST I MAKE A DECISION TO DO SOMETHING TO THE WEAPON NOW?

Is the weapon safe to move? (0910-0912)

Does the operational tempo allow weapon movement?

Secured the weapon in-situ

Is there an operational need to move the weapon?

Re-assess the risk posed by the weapon and advise Command (0912)

Consider lowering into deep water (0833/0834)

Is the weapon serviceable? (0913)

Note 3

Yes

Stow and quarantine the weapon.
Request further advice ASAP via NAVY CMD EXP
Inform Port Authorities/NBC (0804.3)
Report via NLIMS (0804)

No

Take any further precautions/whole ship safety measures indicated by risk assessment.
Request further advice ASAP via NAVY CMD EXP
Inform Port Authorities/NBC (0804.3)
Report via NLIMS (0804)

Yes

Report via Ch 8 Annex B
Contact NAVY CMD EXP
Report via NLIMS (0804)

No

Consider lowering into deep water (0833/0834)

Yes

Stow the weapon for re-use.
Report via NLIMS (0804)

No

Inform Port Authorities/NBC (0804.3)
Report via NLIMS (0804)

Secure Weapon in-situ until completion of operations
# CHAPTER 9 ANNEX B

## MISCELLANEOUS EXPLOSIVE INCIDENT AIDE MEMOIRE

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>ACTION</th>
<th>COMP</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOUND THE MAIN BROADCAST ALARM. CRASH STOP VENT.</td>
<td>HQ1</td>
<td></td>
</tr>
<tr>
<td><strong>WEAPON EMERGENCY, WEAPON EMERGENCY, WEAPON EMERGENCY</strong></td>
<td>HQ1</td>
<td></td>
</tr>
<tr>
<td>• Weapon emergency in (location)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Attack party muster at the scene of the incident</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Support party muster at the fwd/aft section base</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Containment party muster (as piped)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Weapon hazard team muster (as piped)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• No smoking, no naked lights throughout the ship</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weapon handling teams close up</td>
<td>I/C’s</td>
<td></td>
</tr>
<tr>
<td>Make area safe</td>
<td>I/C SSEP</td>
<td></td>
</tr>
<tr>
<td>Set up fire fighters to deal with any possible further escalation of the incident</td>
<td>DCO/I/C SSEP</td>
<td></td>
</tr>
<tr>
<td><strong>FOR WHAT TECHNICAL OR OPERATIONAL REASON MUST I MAKE A DECISION TO DO SOMETHING TO THE WEAPON NOW?</strong></td>
<td>DCO/ERO</td>
<td></td>
</tr>
<tr>
<td>This may require the explosive store to be disposed of</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Follow flow diagram for weapon incident</td>
<td>ERO</td>
<td></td>
</tr>
</tbody>
</table>

**Note:** The Duty Fleet Controller (DFC) (Tel No. iaw Appendix A.39) should be the first point of contact if any urgent advice/support is required iaw JSP 862 Ch 8 Article 0804 and Ch 9 Annex A.

**Note:** There is also a Duty Officer 24/7 within Abbey Wood, the DE&S Incident Manager (IcM) (Tel No. iaw Appendix A.41) has contact details for all PDH and OME project teams for expert advice.
CHAPTER 10
RISK MANAGEMENT AND VERTREP

CONTENTS

Article

1001 Operational Risk Management
1002 Guidance on Weapon Effects
1003 Background to VERTREP Risk Management
1004 VERTREP Permissioning Authority
1005 Approval to VERTREP (Mun) Category A Munitions
1006 Approval to VERTREP (Mun) Category B Munitions
1007 Emergency Clearance Procedure – Category A Munitions
1008 Approval to VERTREP (Mun) Category C Munitions
1009 VERTREP Policy Ownership and Audit
1010 Support and Advice

Annex

A Safety Case Template for VERTREP of Cat A Munitions

1001 OPERATIONAL RISK MANAGEMENT

1. The Ship Explosives Safety Case Reports (SESCR) for Platforms may identify caveats and limitations on the operational or exercise use of weapons and munitions. These caveats and limitations should be submitted by the PDH to NAEXP for inclusion in the CSE for the Platform. The approved CSE will contain Conditions and Mandatory Instructions in Annex C. These Conditions and Mandatory Instructions are those considered by Naval Authority Explosives to bound the safe envelope of use of the weapons/munitions concerned.

2. During peacetime exercises and firings these Conditions and Mandatory Instructions are to be adhered to. If it is a requirement of the exercise or trial to depart from a condition or instruction prior approval is to be obtained from NAVY CMD EXP copied to PDH and NAEXP using SIC ORN.

3. In operations and wartime it must be recognised that operation of weapons outside the stated conditions and mandatory instructions introduces additional risk. In most cases such risks cannot be quantified as they lie outside the boundary of the trials or assessments undertaken on the weapon or munition during design, development and integration. The risk may include risk to personnel, the environment, own ship and/or other parties. Where time permits, advice may be sought from NAVY CMD EXP copied to PDH and NAEXP. Commanding Officers should also seek advice from the ERO and ships in company with the same or similar weapon systems.

4. Ultimately, the Commanding Officer must make a judgement that balances the increased risk against the operational benefit to be gained by the action proposed. In other words, the increased risk is weighed against the chances of increased survival of his ship and ship’s company or of the mission to achieve a rational balance of the safety (and hence continued use in further action of his ship) and the Operational Imperative of the achievement of the Aim.

5. If operating outside the Certificate of Clearance for Use (CCU) or procedures in onboard technical or user documentation; the CO is advised to put in place additional mitigation. This mitigation may include increased supervision or monitoring of the state of the system, safe arcs and
areas and user actions to ensure that warnings, faults and error indications are immediately recognised ensuring any stop action/check fire can be initiated in a timely manner. Non-essential personnel are to be removed from potentially hazardous areas.

6. In all cases where a task has to be conducted, which is not routine, even if it remains within the regulations, if the ERO is at all in doubt it is recommended that a formal risk assessment is conducted. MoD Form 5010a iaw JSP 375 is the recognised quantitative risk assessment methodology; advice can be sought from both NAVY CMD EXP and the appropriate NBC explosives advisory team, if in harbour.

1002 GUIDANCE ON WEAPON EFFECTS

1. CB 8844 gives guidance to the CO and ERO on the damage radius likely to be caused by own or enemy weapons detonating in or near the ship. Guidance on casualty weapons can also be found in Chapter 9.

1003 BACKGROUND TO VERTREP RISK MANAGEMENT

1. Many of the munitions carried by RN Warships and RFAs for own use and for use by Embarked Forces represent a high explosive risk if subjected to unplanned stimuli. This affects their suitability for VERTREP (Mun), which in the past has led to restricted VERTREP (Mun) clearances. In peacetime, the risk presented by the VERTREP (Mun) of these munitions may be difficult to justify, resulting in a complete restriction on VERTREP evolutions. However, during operations if safety risks are balanced against the operational benefits of the replenishment, then it has been recognised that the risk may be justified. Recognising this, NAEXP has endorsed a revised policy for VERTREP (Mun) which is operationally focussed.

2. In the past, munitions have been cleared for VERTREP (Mun) according to the severity of their reaction to unplanned stimuli (specifically fuel fire testing). Revised policy recognises that the decision to VERTREP (Mun) on any particular occasion should be a balance of the risk to ship and personnel versus the benefit to the operation of conducting the evolution. The probability of an accident when conducting VERTREP (Mun) is usually independent of the type of load carried; whereas the consequence of an accident is dependent upon the munition load makeup. The benefits of the VERTREP are dependent upon the operational situation at the time.

3. Consideration of consequences and probabilities associated with all munition transfers should, wherever possible take place in the early stages of planning for operations and exercises and any plan generated must seek to minimise risk as far as possible. Assessment of high risk munitions would indicate that VERTREP (Mun) poses a greater hazard than other methods of transfer, such as Replenishment At Sea (RAS) or Replenishment In Harbour (RIH) which should therefore be the preferred solution. However, the option for lower risk transfer methods may be unavailable and/or may not be operationally expedient.

1004 VERTREP PERMISSIONING AUTHORITY

1. A mandatory requirement for VERTREP clearance is JATEU Underslung Load Clearance (ULC) in accordance with AP 101A 1105 1 A (Carriage of Cargo by Helicopters) and AP 101A 1105 1 B (Carriage of Cargo by Helicopters USLCs).

2. Despite the significant risks associated with VERTREP (Mun) of some munitions it is accepted that the movement may be justified on operational grounds. It is therefore essential that the correct level of control be exerted by command when placing potentially mission critical units at risk. Accordingly, levels of VERTREP (Mun) permissioning have been established to reflect the level of risk. This is shown in the table below.
3. The Permissioning Authority must be clear in their undertaking that an accident during a VERTREP (Mun) has the potential to inflict considerable damage to the vessel(s) concerned with associated loss of capability and a corresponding injury or loss of life. The general guidance within these regulations and AP 101A 1105 1 A (Carriage of Cargo by Helicopters) should be taken into account, together with the operational situation and any other pertinent issues before final approval is given.

4. The possibility of all alternative methods of supply, such as RAS(A), via an alongside berth or overland must be explored before VERTREP (Mun) is considered.

5. Ultimate approval to VERTREP for all categories of munitions is at the discretion of the Commanding Officer. Agreement to conduct the evolution would have to be gained from COs of all units involved (eg. Supplying RFA).

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>DESCRIPTION</th>
<th>LEVEL OF PERMISSIONING</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Those munitions which if involved in a VERTREP accident, may cause critical structural damage to the deck (shock holing) that allows the spread of fire and damage below decks. The mechanisms that cause shock holing (blast) would also result in major damage to structures and personnel on the upper decks. Extensive fragmentation damage below decks and on the upper decks could accompany the blast damage. Operational capability would be severely reduced to the extent of damage, with potential to lead to loss of ship.</td>
<td>Operational Commander (normally NCHQ or PJHQ)</td>
</tr>
<tr>
<td>B</td>
<td>Those munitions which, if subjected to a VERTREP accident may impose significant fire and damage, but restricted to the deck on which the accident occurred. No shock holing, but significant damage on the same level from fragmentation/debris and significant additional fire hazard. May be blast damage but not sufficient to hole the deck. This situation could include damage to exposed aircraft, weapons, sensors and other systems that would significantly reduce operational capability for that platform, but is not likely to lead to the loss of the ship.</td>
<td>Task Group Commander</td>
</tr>
<tr>
<td>C</td>
<td>Those munitions which, if subjected to a VERTREP accident, would impose no significant damage/loss of capability additional to that caused by the crashed helicopter.</td>
<td>Commanding Officer of ALL participating platforms</td>
</tr>
</tbody>
</table>

Notes:

- Categories apply to Unit Loads of Munitions and are defined in the Ship Explosive Safety Store Instruction (SEXSSI). The mixing of different category munitions within a load is to be avoided wherever possible. If categories are mixed, the overall load category is to be taken from the munition of highest risk.

- It must be noted that the above descriptions address potential damage caused by the VERTREP(Mun) load only. Further damage could result from sympathetic reaction from other munitions if involved in the accident.
Many Cat C VERTREP (Mun) evolutions may well result in a hazard that is no more serious than other routine hazardous activities conducted in the ship.

For VERTREP category refer to the SEXSSI for that munition. Any questions with respect to categories should be directed to NAVY CMD EXP (Ch 10 Annex (Subject Matter Specialists) refers).

1005 APPROVAL TO VERTREP (MUN) CATEGORY A MUNITIONS

1. The VERTREP (Mun) of Category A munitions is only to be contemplated with due regard to the significant consequence in the event of an accident. The Officer holding Operational Command (normally at PJHQ) is to give approval. When conducting strategic planning for an operation, PJHQ logistics staff may have to consider bulk movement of munitions. During this planning, VERTREP (Mun) is an option that, due to its high risk should only be considered as a last resort. Contingency planning for the movement of munitions under changing operational circumstances should also be considered.

2. Decisions on the necessity to conduct the VERTREP (Mun) must be taken early in the planning stages of an operation and a brief but comprehensive safety case is required to justify the action. A safety case proforma and a Flow Chart showing the procedure for approval of a Cat “A” VERTREP (Mun) are shown at Annex A. The safety case will normally be drafted by NCHQ Logistics staff and presented to PJHQ J4 staff for consideration.

1006 APPROVAL TO VERTREP (MUN) CATEGORY B MUNITIONS

1. Permission to transfer Category B munitions will be given by the Task Group Commander. A signalled, less rigorous safety case will need to be made and should follow the Category A proforma.

1007 EMERGENCY CLEARANCE PROCEDURE - CATEGORY A MUNITIONS

1. The procedures described in these instructions target strategic logistic planning processes. In exceptional circumstances due to rapid operational developments, Group Logistics Co-ordinators in theatre may find that the unplanned movement of Category A munitions by VERTREP(Mun) becomes essential. The responsibility for such action rests with the Operational Commander and subordinate officers are to seek his approval as far as time and operational circumstances allow.

1008 APPROVAL TO VERTREP (MUN) CATEGORY C MUNITIONS

1. For Category C munitions, Commanding Officers may approve VERTREP(Mun) without external approval. COs of all units involved must be very clear in their understanding that an accident during a VERTREP (Mun) has the potential to inflict damage to their vessel and could result in a corresponding injury or loss of life. The potential risks must therefore be balanced with the operational advantages.

2. The vessel’s ERO, having consulted with the munitions SEXSSI, should advise the CO on the risks involved and any specific safety issues or restrictions that exist.

1009 VERTREP POLICY OWNERSHIP AND AUDIT

1. NAEXP retains ownership of the policy for VERTREP (Mun) and is responsible for independent audit of the operation of the system. For VERTREP (Mun) involving Category A and B munitions, NAEXP will be copied on all safety case justifications.
1010 SUPPORT AND ADVICE

1. SEXSSIs contain details of VERTREP Category, JATEU Clearance, unit load configuration, potential accident damage and general advice on mitigation measures to be taken. In the event of no category being assigned, a worst case of Category A should be assumed. Further advice should be sought from NAVY CMD EXP.
# SAFETY CASE TEMPLATE FOR VERTREP (MUN) OF CAT A MUNITIONS

A safety case as outlined below is to be approved at PJHQ by the Officer with Operational Command in advance of the CAT A VERTREP (Mun) serial.

<table>
<thead>
<tr>
<th>Serial</th>
<th>Consideration</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Munition Type/s</td>
<td>To include specific variant of nature (e.g. 4.5 inch Mk8 HE or Illumination)</td>
</tr>
<tr>
<td>2</td>
<td>Quantities</td>
<td>Self explanatory - of each nature. To include number of Unit Loads.</td>
</tr>
<tr>
<td>3</td>
<td>Planned Timeframe</td>
<td>Permissioning for high risk VERTREP serials can be extended across an operational window, but must be time limited to one month. If the required capability continues, it is to be reviewed for extension.</td>
</tr>
<tr>
<td>4</td>
<td>Operational Justification</td>
<td>A brief description of the operational justification for the serial, including an assessment of the impact of not completing the replenishment.</td>
</tr>
<tr>
<td>5</td>
<td>Alternative Replenishment</td>
<td>A comprehensive review of all other methods considered possible methods of replenishment are to be stated, with reasons for inability to carry out lower risk serials.</td>
</tr>
<tr>
<td>6</td>
<td>Other Units Involved</td>
<td>Statement of all other units involved in the VERTREP (Mun), (e.g. RFAs and Beach Head ammunition dump).</td>
</tr>
</tbody>
</table>
| 7      | Assessment of potential Damage to Unit’s involved in Event of an Accident | Guidance on potential damage from a unit load will be held in the munition Ship Explosive Store Safety Instructions (SEXSSIs). This will give a general indication of the level of damage to a vessel that could be expected in a worst-case scenario. The safety case damage statement must be unit specific (e.g. the consequence of an accident for a given unit load could result in loss of a frigate or major damage to a larger unit). Example - potential damage in *HMS OCEAN*:  

   In the event that an example Ammunition is involved in a helicopter crash on deck whilst being transferred by VERTREP, it is assessed that a Type 1 (detonation) reaction may result. In such circumstances the blast may breach 1 and 2 decks and cause significant damage to 3 deck over an area of 80ft diameter. Fragmentation would penetrate 1, 2, 3 and 4 decks, and burning AVCAT from the crashed helicopter would then fall through the blast/fragmentation deck breach spreading major fire between decks. This scenario could worsen depending on the site of the crash site and the quantity of the explosive store exposed. “Notes:  

1. SEXSSIs include the above potential consequence analysis for the full munition inventory.  
2. Consequence analysis is required for all units involved (e.g. supplying RFA and receiving ship) |
| 8      | Operational Impact of an Accident Resulting from the Planned Vertrep (Mun) serial. | A statement on the likely operational impact of damage to, or loss of unit(s) involved in the VERTREP. |

**Section 9 - Statement by Authorising Officer**

I consider the operational need outweighs the risk involved to conduct a VERTREP(Mun) serial as described above.  
Signed ................................................................. (Operational Commander)
**Note:** PJHQ and NCHQ staff may require to liaise with subject matter specialists when developing the above safety case. These are detailed below.

## SUBJECT MATTER SPECIALISTS FOR ADVICE TO PERMISSIONING AUTHORITIES WHEN FORMULATING VERTREP(MUN) SAFETY CASES

<table>
<thead>
<tr>
<th>TALLY</th>
<th>SUBJECT</th>
<th>CONTACT</th>
</tr>
</thead>
<tbody>
<tr>
<td>NAVY SHIPS-EXP SO2</td>
<td>General advice on Explosives Safety issues in Fleet</td>
<td><em>(Tel No. iaw Appendix A.40)</em> OOWH via DFC</td>
</tr>
<tr>
<td>NAEXP</td>
<td>Central poc for VERTREP consequence analysis</td>
<td><em>(Tel No. iaw Appendix A.43)</em></td>
</tr>
<tr>
<td>DES Ships WSpt-AMPH-CE4</td>
<td>Platform specific Explosive damage limitation/mitigation for T23, MCMV, LPH, LPD, QEC.</td>
<td><em>(Tel No. iaw Appendix A.44)</em></td>
</tr>
<tr>
<td>DES SHIPS WSpt-T45-CE1</td>
<td>Platform specific Explosive damage limitation/mitigation for T45</td>
<td><em>(Tel No. iaw Appendix A.45)</em></td>
</tr>
<tr>
<td>DES SHIPS CSS-CSDA-CON2</td>
<td>Platform specific Explosive damage limitation/mitigation for RFA</td>
<td><em>(Tel No. iaw Appendix A.46)</em></td>
</tr>
<tr>
<td>NAVY LOG INFRA-SSM POL SO1</td>
<td>SSS/SSO advice</td>
<td><em>(Tel No. iaw Appendix A.47)</em></td>
</tr>
<tr>
<td>NAVY AFSUP EXP SO3</td>
<td>RFA General Explosives Advice</td>
<td><em>(Tel No. iaw Appendix A.48)</em></td>
</tr>
</tbody>
</table>
VERTREP OF CATEGORY A MUNITIONS – DECISION ALGORITHM

**J3/N3 Activity**

Identify requirement to move Type A Munitions

Propose routes, quantities and type of munitions could take

Yes

Non-VERTREP Option

No

Non VERTREP option meets OP need

Yes

Execute and file. Update database

No

Raise Safety Case Justification & complete Sections 1-3

Prepare formal Operational justification (Section 4)

Operational Commander assesses risk/benefit balance and signs Section 9

Complete Sections 7 & 8 using advice from technical & safety staffs in ACOS(E) as appropriate

Execute and file. Update database
CHAPTER 11

REGULATION, CERTIFICATION AND PERMISSIONING OF EXPLOSIVE STORES

CONTENTS

Article

1101 Regulatory Context
1102 Hierarchy of Responsibility
1103 Introduction of Munitions into Naval Service
1104 Maritime Ordnance Munitions and Explosives Integration Safety Forum (MOI-SF)
1105 Naval Authority Explosives (NAEXP)
1106 Certificate of Safety Explosives (CSE)
1107 Revised Certificate Annexes Arrangements
1108 Maritime Capability Trials and Assessment (MCTA)
1109 Material Inspection on Build and Post Upkeep
1110 Navy Command Explosives Officer (NAVY CMD EXP)
1111 Explosives Permissioning
1112 Review of Explosives Permissioning
1113 Audit by Navy Command
1114 Occasions for Explosives Safety Organisation Audit
1115 Fleet Explosives Safety Working Group (FESWG)
1116 Audit by Naval Authority Explosives

Annex

A Permission Process Flow Chart
B Explosive Safety Organisation Assurance Visit - Agenda
C Explosive Safety Organisation Assurance Visit - Documentation

1101 REGULATORY CONTEXT

1. The Health and Safety at Work Act 1974 (HSAW) and the Explosives Regulations 2014 (ER 14) are the chief elements of legislation which control the storage, handling and use of explosives in the UK. ER 14 Regulation exempts all JSP 430 vessels, activities to which the Dangerous Substances in Harbour Areas Regulations (DSHAR) 1987 applies and most aspects of shore storage at sites under the control of the Secretary of State for Defence. Various Orders in Council and the policy statements of the Secretary of State for Defence have established MOD control and regulation of manufacture, conveyance, storage and use of explosives to standards equivalent to or more stringent than the provisions of ER 14. The regulations in this publication (JSP 862 MOD maritime Explosive Regulations (MMERs)) include the directives of the Secretary of State for the safe conveyance, stowage, handling and use of explosives in ships owned by, operated by and operated on behalf of the MOD. The regulations in MMERs are intended to conform to the requirements of the Health and Safety at Work Act 1974 and subsequent Regulations and Statutory Instruments made under that Act so far as they apply to the Naval Service and its Support Agencies and organisations in accordance with JSP 375.

2. The Commanding Officer of an RN Ship or Submarine is instructed by Queens Regulations for the Royal Navy (QRRN) (BRd 0002) to ensure that the regulations contained in MMERs are carried out. BR 875 directs the Captain (Engineering) of an RFA to take care that all regulations contained in MMERs are strictly complied with.
HIERARCHY OF RESPONSIBILITY

1. The Ship Environment and Safety Board (SESB) and the Defence Ordnance and Environment Safety Board (DOESB) have responsibility on behalf of the Navy Board for all explosives safety related matters across TLB boundaries; achieving action through the line management activities and directives of its Members. The Controller of the Navy (C of N) (or a nominated 2-star officer) is Chairman of the SESB. The C of N has overall responsibility for all matters relating to safety of explosive stores embarked in JSP 430 ships; they delegate this duty to the Head of Naval Authority Explosives, NAEXP.

2. The DOESB is responsible for directing the formulation of MOD Ordnance Munitions and Explosives (OME) safety policy and standards and for ensuring the effectiveness of the MOD OME Safety Management System (JSP 520). The DOESB is responsible for assuring the inherent explosive safety of OME pre platform integration. The SESB is responsible for assuring the explosives safety of OME post platform integration.

3. NAEXP is authorised by the SESB on behalf of the Secretary of State, to prescribe and keep under review explosive safety policy and regulations. NAEXP is authorised by the SESB to approve and issue Certificates of Safety Explosives (CSE) assuring the embarkation, carriage and use of explosive stores in accordance with Naval Authority Regulations (NARs).

4. The assurance role for OME system safety is the responsibility of DOSG who sponsor JSP 520. In the course of discharging this function, DOSG will independently assure OME Safety Case Reports through review by the OME Safety Review Panel (OSRP). This assurance will take the form of a Certificate of Safety Ordnance Munition Explosive (CSOME/OAS). DOSG will assess the status of all OME systems and report to DOESB on a regular basis.

5. For maritime platforms, the Platform Duty Holder (PDH) is the Platform Project Team Leader (PPTL). They are responsible for integrating the Ordnance Munitions and Explosives (OME) and associated equipment explosive safety cases into the Ship Explosives Safety Case (SESC) and for obtaining the necessary NAEXP Platform certification (see Article 1105).

6. The Chief Inspector Explosives CIE(MOD) is responsible for ensuring that all MOD berths, wharves, buoys and trots are licensed and audited in accordance with policy and criteria, which in turn conforms to Health and Safety Executive (HSE) best practice. In the maritime environment these responsibilities are delegated to IE (NAVY).

7. The Chief of Defence Materiel (CDM) within Defence Equipment and Support (DE&S) is responsible for the safe condition and serviceability on issue to the Naval Service of:
   a. All weapons, missiles or armament stores containing substances designed specifically to produce an explosive, propulsive, incendiary or pyrotechnic effect; their packaging and handling equipment.
   b. Non-explosive armament stores.

8. CDM discharges this responsibility by the prescription, implementation and inspection of the safety practices and procedures laid down in MOD Ordnance, Munitions and Explosives Safety Management System (JSP 520), the Acquisition Operating Framework, Munitions Engineering Control Procedures (MECP 020) and MOD Explosive Regulations (JSP 482).
INTRODUCTION OF MUNITIONS INTO NAVAL SERVICE

1. JSP 430 identifies embarked Ordnance Munitions and Explosives (OME) as a key hazard requiring independent safety approval and certification. NAEXP is formally authorised by the SESB as an authority that is independent of the Duty Holder and Operating Authority (normally Fleet Commander) and responsible for providing safety regulation in the area of shipborne explosives hazards.

2. Management of explosives safety within MOD, for the maritime environment, is a two-stage process. The first stage addresses the inherent explosive safety of the OME and is undertaken using the processes required by JSP 520 (UK MOD’s OME Safety Management System). This process is a MOD wide process for all environments, and is undertaken by the OME PT as the duty holder. The JSP 520 process sponsored by the DOESB is external to JSP 430 and Naval Authority Regulations (NARs). The second stage concerns the management of explosives safety onboard JSP 430 applied platforms and this is a JSP 430 process undertaken by the PDH.

3. JSP 520 describes the approach that is to be taken by the OME PT (Equipment Duty Holder), to ensure that the OME, from an inherent explosives safety perspective, remains safe and residual risks are ALARP and tolerable throughout its service life. The JSP 520 process is a risk-based approach, which requires the OME PT to generate a Safety Case Report and submit it to the Ordnance Safety Review Panel (OSRP) for independent review. The review outcome is a Certificate of Safety Ordnance, Munitions and Explosives (CSOME/OAS).

4. The PDH is responsible for integrating OME Safety Cases (CSOME/OASs and associated safety data) into the Ship Explosives Safety Case (SESC) and for obtaining the necessary NAEXP platform certification (Articles 1105 and 1106 refer).

MARITIME ORDNANCE MUNITION EXPLOSIVES INTEGRATION SAFETY FORUM (MOI-SF)

1. The Maritime Ordnance Munitions and Explosives Integration Safety Forum (MOI-SF) provides advice to NAEXP with respect to policy and regulation of explosives safety in JSP 430 platforms. The MOI-SF considers all aspects of safety relating to the embarkation, handling, stowage and use of explosives in JSP 430 ships.

NAVAL AUTHORITY EXPLOSIVES (NAEXP)

1. Management of explosive safety at the maritime platform level is undertaken using a risk based approach under the auspices of JSP 430. NAEXP promulgate safety policy and safety regulations for the embarkation, carriage, stowage, handling and use of explosive stores in ships owned by, operated by and operated on behalf of the MOD (JSP 430 ships).

2. The foundation of the NAEXP process is the requirement for a Certificate of Safety Explosives (CSE) to be in place before embarking, stowing, handling and use of explosives onboard platforms. The CSE is granted following demonstration by the PDH that residual explosives safety risks are ALARP and tolerable. This demonstration is facilitated by a Ship Explosives Safety Case (SESC) whose acceptance is judged against performance levels set by JSP 430 Part 3 Naval Authority Regulations NARs (Explosives) Chapter 8 and the supporting standards.

3. JSP 430 Part 3 Naval Authority Regulations (Explosives) Chapter 8 details the policy procedures to be followed by Duty Holders (Platform PTs) to obtain a CSE.
The CSE is specific to the Platform and authorises the embarkation, stowage, handling, carriage and use of explosive stores as listed in the Authorised List of Explosives Stores (ALES), subject to a NCHQ permissioning signal.

4. Where the design cannot achieve the full magazine construction requirements of NARs, the PDH is to submit a request for non-compliance from the regulations. NAEXP will assess the submission and if it is judged that it represents a tolerable risk to explosives safety, the non-compliance will be approved and it will be entered into the Magazine Database maintained by NAEXP. The CSE issued will list non-compliances in Annex C or D and state any corresponding caveats or limitations to the stowage of munitions. Submissions not approved will be returned to the PDH with reasons for rejection.

5. The existence of a CSE provides assurance that for the named platform the integration of explosives are satisfactorily ALARP and tolerable from the point at which the explosives are embarked in the receiving vessel to the point at which the explosives are disembarked or discharged. If discharged, then this assurance is maintained until the explosives present no hazards to the firing vessel or to third parties.

1106 CERTIFICATE OF SAFETY EXPLOSIVES (CSE)

1. Covering Letter. The formal endorsement of the CSE by NAEXP, which details review and or expiry dates.

2. Scope of Certification (CSE Annex A). The Scope of Certification defines those explosives stowage areas and weapon installations covered by the certificate.

3. Authorised List of Explosives Stores (CSE Annex B). Issue of a CSE assures the material state arrangements for the embarkation, handling, stowage, and use of the explosive stores listed on the accompanying ships ALES.

   a. The munitions listed in the ALES have been issued with an extant CSOME/OAS and have been integrated into the platform by the PDH and are approved for embarkation in that platform, subject to a valid CSE being in place and a permissioning signal from NAVY CMD EXP. ALES are sectionalised as detailed below:

      (1) Section 1a. Platform Usage – Standard Ships Outfit.

      (2) Section 1b. Unrestricted E3 stores.

      (3) Section 2. Restricted E3 stores.

   Note: With the exception of vessels whose primary role requires the carriage of E3 stores, Section 1b and 2 will normally be blank and will be temporarily amended when embarkations are authorised.

   b. Individual surface ship and submarine ALES are issued to DM Sites and are the notification of approval by the NAEXP to DM for the issue of those explosive stores to that unit.

   c. In the case of registered MOD ships and craft that are not manned by the Royal Navy, the ALES may include explosive stores for navigation, signalling and life-saving that are required by Department for Transport (DfT) regulations.

4. Conditions of Certification (CSE Annex C). NAEXP may impose Conditions and Mandatory Requirements upon CSEs where:
a. There are important and unique requirements for a safe system of work which are not adequately covered by JSP862, the SEXSSI or other operating procedures.

b. There are material state defects (build standard non-compliance with safety case) whose rectification is required within a specific timescale. (E.g. Non failing items defects identified by material state inspecting authority).

5. **Record of Non-Compliances (CSE Annex C or D (Article 1107 refers)).** Used to record any areas of non-compliance relative to the SESC.

### 1107 REVISED CERTIFICATE ANNEXES ARRANGEMENTS

1. From 2013; newly issued CSEs will contain Annexes A to C only. The contents of the previous Annex D will be combined with Annex C. The original CSEs, with Annexes A to D, will remain extant until the next time a new CSE is issued to that vessel.

### 1108 MARITIME CAPABILITY TRIALS AND ASSESSMENT (MCTA)

1. MCTA provides Suitably Qualified and Experienced Personnel to act on behalf of the PDH responsible for the material inspection of all explosive stowages, ammunitioning routes and handling arrangements, in all Ships on build, Upkeep and following Alteration and Additions (A&As).

### 1109 MATERIAL INSPECTION ON BUILD AND POST UPKEEP

1. **Pre-Embarkation Inspections (Magazines) - (PEI (M)).** The PEI(M)\(^7\) is called for and presented by Ships Staff (ERO) and conducted by MCTA, on behalf of the PDH, or by other Suitably Qualified and Experienced Personnel (SQEP). The inspection confirms that all areas designated for the stowage and transit of explosives are at the required standard following a docking, upkeep or repair period so that the vessel is fit to embark, carry, handle and stow the OME listed in the required Authorised List of Explosive Stores (ALES). Areas covered by the inspection are all magazines, magazine lockers, RU magazine lockers, Designated Danger Areas (DDAs), adjacent compartments and ammunition & embarked forces transit routes in Surface Ships and RFAs.

2. The PEI(M) also includes all ship services feeding magazines i.e. spray systems, ventilation, suction and drainage arrangements, portable equipment and lifting appliances, ammunition lifts and RAS equipment that form part of embarkation or disembarkation points as detailed in the platform ammunition route drawings.

3. The ERO is to ensure that all members of the onboard explosive organisation are available for the duration of the inspection with particular input required by respective OOs. The List of Non-Compliances in Annex C or D of the CSE will also be audited. Discrepancies and changes will be included in the inspection report and forwarded to the appropriate PDH, copied to NAEXP for action as appropriate.

4. The PEI(M) should be programmed at least 2 weeks before Ready For Sea Date (RFSD) to provide sufficient time for contracted work to be fully completed and the correct standard of cleanliness to be achieved. A PEI (M) can be considered equivalent to a good set of engineering standard rounds against set defence standards. The standards and conduct of a FOST MASC are a good example of how a PEI (M) should be presented. The inspection normally lasts for 5 working days for a DD/FF (longer for First of Class). The 2 week period is necessary for the PDH and NAEXP to complete and endorse the CSE, which permits the relevant OME listed in ALES to be embarked.

\(^7\)DBR 9463 Chapter 7 Article 0714
5. SFM/PCMRFA/PCO are advised to request MCTA attendance on behalf of ship staff, giving 10 working days' notice of the proposed inspection dates. Prior to the inspection, all magazine spray systems are to be fully commissioned and proof tested either by the Ship Repairer or Ship Staff. Ammunition routes and emergency re-supply arrangements are to be thoroughly checked by the ERO and fully rigged in accordance with the latest copy of the ships ammunition route drawings. MCTA also conduct Installation Inspections (II)/Trials for any new Addition & Alteration (A&A) but these are to be completed prior to the PEI(M). For RFAs, MCTA will inspect self-defence magazines only; cargo holds will only be inspected on request by the appropriate authority.

6. Immediately on completion of the inspection, MCTA will signal an assessment of the material state of each magazine, locker and ammunition route with a recommendation of the suitability to embark OME. Failing items listed in the signal must be cleared prior to the intended ammunitioning date. The Ship is required to signal when all PEI(M) failing items have been cleared. All signals are sent to the appropriate PDH with copies to NAEXP, the relevant SFM and NAVY CMD EXP. A formal written report will also be provided, normally within 10 working days.

1110 NAVY COMMAND EXPLOSIVES OFFICER (NAVY CMD EXP)

1. The Navy Command Explosives Officer (NAVYCMD EXP) in Navy Command HQ is responsible for ensuring that the explosives safety management system in Surface ships under the control of the Operating Authority is maintained at a satisfactory level. Any requirement to depart from the regulations which may require either Operating or Platform Duty Holder approval will be staffed by NAVY CMD EXP staff.

1111 EXPLOSIVES PERMISSIONING

1. As part of the CSE process, the suitability of a ship to embark, handle, stow and use explosives is subject to a formal Permissioning process. Correct accounting and care of OME during stowage, handling and use in accordance with extant regulations, munitions safety guidance and operating procedures is essential to ensure the safe management of all explosive items onboard.

2. Following New Build or Upkeep Periods, including those under Continuous Engineering Support (CES) within FLEET Time, when the ship has de-ammunitioned and ceased to apply JSP 862 regulations, a Permissioning Inspection (PI) will be conducted by NAVY CMD EXP. The visit aim is to provide Direction and Guidance on setting up and implementing an Explosive Safety Organisation approximately 7 to 10 days prior to Ship Staff Move on Board (SSMOB) or assuming Arming State 3 (AS3). Any areas for improvement identified at the PI are to be addressed and reported complete to NAVY CMD EXP within the time limits outlined in the accompanying report. NAVY CMD EXP will issue a report on the Explosive Safety Organisation within 7 days of the PI. For RFA vessels, a Pre-Embarkation Inspection (Administration) (PEI (A)) will be conducted by RFA AFSUP EXP SO3.

3. Immediately prior to SSMOB or assuming AS3, the Explosive Safety Organisation is to stand up and comply with JSP 862 with rounds routines fully implemented. The ERO is to inspect the Response Force (RF) Locker and send a ‘Permission to Embark Ammunition’ signal to NAVY CMD EXP using SIG ORN, making a statement on its condition. A CSE with ALES for RF can then be issued, subject to a PDH submission to NAEXP. When a CSE is in place, Ship’s Protection Force (SPF) ammunition can be embarked on receipt of approval from NAVY CMD EXP.

4. When the material state is deemed to be satisfactory, following inspection by MCTA, the PDH will make a submission to NAEXP for a re-issue of the CSE to clear further stowages for use and increase the ALES allowing further stores to be embarked.

---

*BRd 8988 Chapter 21*
5. No explosives stores are to be embarked without NAVY CMD EXP approval. A signal template for this request is at Annex A.

6. An Explosive Advisory Visit is to be conducted by NAVY CMD EXP six months after the PI to ensure the explosives safety organisation is operating in accordance with the regulations.

7. A flowchart of the Permissioning Process is at Annex A.

8. For small boats/ships/craft with limited permanent stowage arrangements, carrying limited amounts of explosives (e.g. SOLAS/1.4S/and walk on/walk off munitions), NAVY CMD EXP will assess the level of explosives risk and agree with NAEXP if there is a requirement for NAVY CMD EXP Permissioning.

1112 REVIEW OF EXPLOSIVES PERMISSIONING

1. NAVY CMD EXP permission is also reviewed on the following occasions:
   a. Following de-ammunitioning for docking during Fleet Time.
   b. Following work on magazines that requires subsequent MCTA inspection.
   c. Following the re-issue or amendment of the CSE.
   d. On completion of a NAVY CMD EXP visit.

2. Ships are to notify NAEXP and NAVY CMD EXP (Article 0203.6 refers) by signal using SIC ORN on entering an Upkeep or CES period when the ship has de-ammunitioned and ceased to apply JSP 862 regulations. Once this notification has been received, ship’s ALES will be withdrawn by NAEXP and NAVY CMD EXP permission will be required prior to re-embarking any explosive stores.

1113 AUDIT BY NAVY COMMAND (NAVY CMD EXP)

1. The effectiveness of a ship’s Safety Management System is assessed by external audit. The aim of the audit is to ensure that:
   a. The onboard Explosive Safety Organisation complies with JSP 862 and that the ship’s Explosive Log is being managed effectively.
   b. Mandatory training for personnel with explosives responsibilities has been completed and recorded correctly in the Explosive Safety Training Log.
   c. Continuation training for personnel with explosives responsibilities is being programmed, completed and recorded.
   d. Documentation relating to explosives is correct and is being correctly utilised and is subject robust management oversight.

2. NAVY CMD EXP may also conduct assurance oversight of all ship fitted Ordnance, including, Small Arms and Close Range Weapon Systems (CRWS), but not Close in Weapon Systems (CIWS).
OCCASIONS FOR EXPLOSIVES SAFETY ORGANISATION AUDIT

1. These visits are conducted by NAVY CMD EXP for surface ships and NAVY CMD EXP RFA for RFAs, on behalf of Chief Staff Officer Engineering (CSO(E)) as the Operating Authority Duty Holder for surface ships. A report on the standard of the Explosive Safety Organisation onboard will be produced for each type of visit. Annex B and C detail the agenda for the visit and the publications and documentation to be checked.

   a. **Explosive Safety Advisory Visit (ESAV).** For RN Vessels NAVY CMD EXP will conduct annual visits preferably at a point prior to a Pre-Deployment OST. RFA Vessels will be visited annually by NAVY CMD EXP RFA. The visit is to provide assurance that the Explosive Safety Organisation onboard is being effectively managed. Ship’s staff will be updated on any change of policy relating to explosive safety.

   b. **Roulement Explosive Safety Organisation Check (RESOC).** Vessels deployed from their base ports for extended periods and have crew rotations on a regular basis, e.g. MCMs based in Bahrain, will have an Explosive Safety Organisational Check every 6 months. This is to provide assurance that the onboard Explosives Safety Organisation remains fully compliant with JSP 862 regulations. This does not apply to vessels employing 3 Watch Manning e.g. Hydrographical Units and the Falkland Islands Patrol Vessel which receive an annual ESAV.

   c. **Explosive Safety Organisation Health Check (HC).** Vessels can request NAVY CMD EXP attend to provide assurance that the onboard Explosives Safety Organisation remains fully compliant with JSP 862. This Health Check can be requested at any point within a ship’s programme, e.g. pre-deployment or pre-OST.

   d. **Explosive Safety Organisation Spot Check (SC).** Conducted at any time by NAVY CMD EXP where there may be doubt about the robustness of the Explosive Safety Organisation onboard a particular vessel. NAVY CMD EXP will provide direction and guidance to ensure that onboard routines are fully in place and compliant with JSP 862. In extremis, notice of intent to visit may not be given.

FLEET EXPLOSIVE SAFETY WORKING GROUP (FESWG)

1. The Fleet Explosives Safety Working Group (FESWG) is chaired by the Fleet Explosives Officer (FLEET Weapon Engineering Officer Surface Ships (FWEO (SS)), who co-ordinates ordnance, munitions and explosives (OME) safety throughout the Fleet, utilising specialist knowledge and experience from OME safety practitioners across SS, SM, AV, RFA and Logistics.

2. FESWG’s primary purposes are:

   a. To maintain and seek to improve OME safety standards throughout the Fleet by providing a forum in which all OME safety concerns can be discussed between OME safety practitioners across all environmental areas.

   b. To maximise operational capability when stowing, handling and using OME within the constraints of safety regulations.

3. The full Terms of Reference for the Fleet Explosives Safety Group are detailed in BRD 9147, the RN Safety and Environmental Management System.

4. The FESWG Chairman is a member of the Maritime OME Integration Safety Forum (MOI-SF)
1116 AUDIT BY NAVAL AUTHORITY EXPLOSIVES

1. NAEXP audits the submissions prepared by the PDH covering the Ship Explosives Safety Case Report (SESCR) prior to approving the CSE for each vessel. In the lead up to submission of the SESCRAudio (Continued)

2. In the lead up to submission of the SESCRAudio (Continued)

3. NAEXP receives copies of all Material State Inspection reports for Magazines.

4. NAEXP reserves the right to carry out audit of Surface ships in exceptional cases, keeping NAVY CMD EXP informed.

5. NAVY CMD EXP will forward copies of Ship’s Investigations and Boards of Inquiry reports to NAEXP where action is required in respect of JSP 862 documentation, Def Stan 00-101 standards or Naval Authority Regulations or for information on lessons learned in relation to onboard explosives safety management processes.

6. NAVY CMD EXP will forward copies of Ship’s Investigations and Boards of Inquiry reports to NAEXP where action is required in respect of JSP 862 documentation, Def Stan 00-101 standards or Naval Authority Regulations or for information on lessons learned in relation to onboard explosives safety management processes.

7. NAVY CMD EXP will forward copies of Ship’s Investigations and Boards of Inquiry reports to NAEXP where action is required in respect of JSP 862 documentation, Def Stan 00-101 standards or Naval Authority Regulations or for information on lessons learned in relation to onboard explosives safety management processes.
CHAPTER 11 ANNEX A

PERMISSIONING PROCESS FLOW CHART

START
(see note 1)

ER0
INSPECTS
RF/DF
LOCKER

LOCKER
FIT FOR
PURPOSE?

Y

N

NAVY CMD EXP to
conduct PI 7-10 days
prior to SSMOB/AS3 iaw
JSP 862(1), 1111.

REPORT PI ITEMS AS
COMPLETE
(on report return).

REQUEST
PERMISSION TO
EMBARK EXPLOSIVES
STORES (see note 2).

APPROVAL GIVEN TO
EMBARK
AMMUNITION iaw CSE
& LIMITATIONS
WITHIN (see note 3).

SSMOB
&
EMBARK RF/DF
AMMUNITION

NAVY CMD EXP
EAV to be
conducted 6
months after
SSMOB.

FINISH

PDH submits
requests for CSE
issue/updates to
NAGEXP, for RF/DF
Locker initially and
then as magazines
are cleared for use.

PE(IM) conducted
by SQEP iaw JSP
862(1), 1109, and
DBR 9463. At least
10 days prior to
RFSD.

NAGEXP approve
request and issue
CSE for RF/DF
Locker and
Ammunition only.

Priority 1 & 2 items
reported as
complete.

NAGEXP approve
request and update
CSE for magazines
that are cleared.

Notes follow on next page
Note 1:  EXAMPLE SIGNAL FOR CESSATION OF JSP 862 REGULATIONS

TO:    NCHQPORTSMOUTH
INFO:  DES BRISTOL (FOR PLATFORM PT)
       DES BRISTOL (FOR NAEXP)
SIC:   ORN
SUBJ:  CESSATION OF JSP 862 REGULATIONS.

First Line of Text: NCHQ FOR NAVY CMD EXP

1.  HMS NONSUCH ENTERED UPKEEP OR CES DOCKING AND HAS DE-AMMUNITIONED WEF
    FROM DATE.

2.  KEY DATES ARE READ IN THREE COLUMNS SSMOB/RFSD/FD
    DDMMYY/DDMMYY/DDMMYY

3.  SSPOC TEL NO / EMAIL ADDRESS.

Note 2:  EXAMPLE SIGNAL FOR PERMISSION TO EMBARK AMMUNITION

TO:    NCHQPORTSMOUTH
INFO:  DES BRISTOL (FOR PLATFORM PT)
       DES BRISTOL (FOR NAEXP)
SIC:   ORN
REF:   FLEET SECURITY CHECK IF APPLICABLE.
SUBJ:  PERMISSION TO EMBARK SPF AMMUNITION ONLY.

First Line of Text: NCHQ FOR NAVY CMD EXP

1.  REQUEST PERMISSION TO EMBARK AMMUNITION. SPF LOCKER HAS BEEN INSPECTED
    BY ERO AND DEEMED FIT FOR PURPOSE.

2.  SSPOC TEL NO / EMAIL ADDRESS.

Note 3:  Permission will be granted by NAVY CMD EXP to embark explosives, iaw the conditions on
the CSE, on receipt of Note 2 and following a successful PI.
CHAPTER 11 ANNEX B

EXPLOSIVES SAFETY ASSURANCE VISIT - AGENDA

1. The following areas will be covered:

<table>
<thead>
<tr>
<th>Item</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Meet XO, ERO, SUO.</td>
<td>Introduction, purpose of visit and procedure, current issues, updates, ship issues discussion.</td>
</tr>
<tr>
<td>2. Explosive Shareholders Brief</td>
<td>Can be supported by NAVY CMD EXP at the request of the ship.</td>
</tr>
<tr>
<td>4. Check of EMMA against current ship’s holdings.</td>
<td></td>
</tr>
<tr>
<td>5. Ordnance Checks.</td>
<td>An assurance check of all ordnance including MCG and CRWS.</td>
</tr>
<tr>
<td>6. RF/DF Weapons and Procedures.</td>
<td>Checked with the AWW team.</td>
</tr>
<tr>
<td>8. Control and maintenance of issued ammunition.</td>
<td></td>
</tr>
<tr>
<td>9. CWI Organisation.</td>
<td></td>
</tr>
<tr>
<td>11. Deployment ammunition and stowage.</td>
<td></td>
</tr>
<tr>
<td>12. Final Discussion.</td>
<td>Highlighted areas of the inspection</td>
</tr>
</tbody>
</table>
CHAPTER 11 ANNEX C
EXPLOSIVES SAFETY ASSURANCE VISIT – DOCUMENTATION

1. The following publications and documentation will be checked for validity and amendment status:

<table>
<thead>
<tr>
<th>Publication</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CB 8844 Vol 1</td>
<td>Weapon Effect</td>
</tr>
<tr>
<td>CB 8844 Vol 2</td>
<td>Weapon Effect</td>
</tr>
<tr>
<td>CB 8844 Vol 3</td>
<td>Weapon Effect</td>
</tr>
<tr>
<td>JSP 862(1)</td>
<td>MOD Maritime Explosive Regulations - Surface Ships</td>
</tr>
<tr>
<td>JSP 862 (ADDM)</td>
<td>Hard copy log consisting of:</td>
</tr>
<tr>
<td></td>
<td>- Ships Explosive Safety Instructions (SEXSSIs).</td>
</tr>
<tr>
<td></td>
<td>- Muster SEXSSI holdings against ALES list.</td>
</tr>
<tr>
<td></td>
<td>- Major SEXSSI’s to be flagged for ease of use.</td>
</tr>
<tr>
<td></td>
<td>- Authorised List of Explosive Stores (ALES)</td>
</tr>
<tr>
<td></td>
<td>- List of Non-Compliances</td>
</tr>
<tr>
<td></td>
<td>- Replenishment as Sea Specifications</td>
</tr>
<tr>
<td></td>
<td>- Hard copy of Certificate of Safety Explosives</td>
</tr>
<tr>
<td>Explosive</td>
<td>Signed hard copy of:</td>
</tr>
<tr>
<td>Standing</td>
<td>Explosive Safety Standing Orders (Ship’s General Orders (SGOs)</td>
</tr>
<tr>
<td>Orders</td>
<td>Chapter 19). Annexes are Ship Specific and sponsored by Flotilla for</td>
</tr>
<tr>
<td></td>
<td>Class.</td>
</tr>
<tr>
<td></td>
<td>- EDPs</td>
</tr>
<tr>
<td></td>
<td>- Quarters</td>
</tr>
<tr>
<td>OOQ Logs</td>
<td>Explosive Accounting Documents</td>
</tr>
<tr>
<td></td>
<td>- Aide memoire</td>
</tr>
<tr>
<td></td>
<td>- S3139</td>
</tr>
<tr>
<td></td>
<td>- S3139A</td>
</tr>
<tr>
<td></td>
<td>- LIFEX</td>
</tr>
<tr>
<td>Explosive Log</td>
<td>Explosive Log</td>
</tr>
<tr>
<td></td>
<td>- S285A, S285B, S285L</td>
</tr>
<tr>
<td>Explosive</td>
<td>To be held within covers of the Explosives Log - populated correctly</td>
</tr>
<tr>
<td>Safety Training</td>
<td></td>
</tr>
<tr>
<td>Log</td>
<td></td>
</tr>
<tr>
<td>Preparations for</td>
<td>Preparation for Firing (PFF) Certification as detailed in BRd 0300</td>
</tr>
<tr>
<td>Firing</td>
<td>Chapter 2.</td>
</tr>
<tr>
<td>Certification</td>
<td></td>
</tr>
<tr>
<td>Gun Memoranda</td>
<td>All Ordnance Memoranda/Logs to be maintained at correct state.</td>
</tr>
<tr>
<td>Weapon Logs</td>
<td></td>
</tr>
<tr>
<td>Ammunitioning</td>
<td>As issued for Magazines fitted and include all weapon systems for both</td>
</tr>
<tr>
<td>Drawings</td>
<td>primary and secondary routes.</td>
</tr>
<tr>
<td>CWI</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SGO’s chapter 19 Annex J ship specific CWIs.</td>
</tr>
<tr>
<td></td>
<td>Ship’s CWI temporary memorandum.</td>
</tr>
<tr>
<td></td>
<td>Note: FOST will check CWI organisation response during SARC 2.</td>
</tr>
</tbody>
</table>
CHAPTER 12

MOD EXPLOSIVES INCIDENT RESPONSE

CONTENTS

Article

1201 MOD Response to Explosives Incident

Annex:

A. Incident Flow Chart – MOD Activities – Fig 12A-1

1201 MOD RESPONSE TO EXPLOSIVES INCIDENT

1. During an Explosive Incident the Incident Commander (IC) may require guidance, advice or assistance as identified in JSP 862 Chapter 8. The purpose of this Chapter is to detail the management of that advice within the DE&S when responding to such a request.

2. In the event of an Incident the relevant Equipment OME PTs may be required to provide advice to make affected munitions safe to move/handle.

3. When discharging these duties it is important that staff do not give advice that contradicts that given by another MOD officer. Therefore, a hierarchy of response has been introduced to ensure that for any Serious Accident there is only one consolidated source of advice.

4. The method of emergency response call-out and lines of communication between all the authorities that can be involved are detailed at Fig 12A-1 at Annex A.

5. If the Incident is a ship incident, all OME advice communications with the Fleet Co-ordinating Authority (FCA) must be routed via the relevant Platform Duty Holder, as they are the lead authority.

Note 1: For all Emergency Explosive Incidents requiring urgent assistance; the Duty Fleet Controller (DFC) is to be the first point of contact (Article 0804.2 refers). A signal can be sent with IMMEDIATE precedence for ACTION addressees (OPCON, NCHQ Portsmouth, DES Bristol for relevant OME PT and PDH) and INFO addressees (Appropriate DM and NBC and NAEXP).

Note 2: NAVY CMD EXP will be the prime contact for the DFC regarding Explosive Incidents. They will decide the type of response needed (e.g. standing up the FIRC (Article 0807 refers)) depending on the severity of the incident. In most cases NAVY CMD EXP will co-ordinate advice/assistance to the Incident Commander (Article 0804 refers)

Note 3: In silent hours the DE&S Incident Manager (IcM) will be the prime contact to notify the relevant authorities within Abbey Wood of the request for assistance/advice. For RFA Solid Support Ships NAVY LOG INFRA-OPS SPT DACOS is to be informed.
CHAPTER 12 ANNEX A

INCIDENT FLOW CHART – MOD ACTIVITIES

Explosive Incident requiring assistance
Incident Commander (IC) contact
Duty Fleet Controller (DFC)
(See Note 1)

Chap 12 Annex A
Page 1
Incident Commander (I/C) (See 0805)

Serious Accident Made Safe

Yes

Dispose of OME at sea or return to Defence Munitions Centre, as advised by FIRC/FCA

No

Incident Commander (IC) seek further advice

I/C send Accident Follow Up Signal

(Article 0804 & Annex 9A refers)

FCA Stand Down Response Organisations

FCA/FIRC Report

Platform PT and/or OME PT Report(s)

Fig 12A-1 Emergency response call-out and lines of communication
CHAPTER 13

CLASSIFICATION OF EXPLOSIVES AND EXPLOSIVES CHARACTERISTICS

CONTENTS

Article

1301 Classification and stowage of explosives
1302 Marking of ammunition and packages
1303 Sealing of packages and containers
1304 Identification marks
1305 Re-stowing ammunition in packages - marking of packages
1306 General characteristics of explosion effects

Annex

A Classification of explosives and stowage instructions.
B Classification of types of OME response.

1301 CLASSIFICATION AND STOWAGE OF EXPLOSIVES

1. The classification of explosives on the basis of their characteristics and the hazards associated with them is done for the purpose of regulating the conditions under which they may be made, stored or conveyed with regard to safety. The classifications also describe the potential explosive effects to the surrounding environment, providing information on how a response may be made to deal with an incident.

2. Stowage is defined as the act of securing those items stored onboard in such a manner that they do not shift or move during periods at sea, using approved methods and equipment.

3. Designs of surface ship classes with an Invitation to Tender (ITT) after 1 Jan 96 and current in-service surface ship classes, on a transitional basis as agreed with NAEXP, are to have their explosive stores classified and stowed under the United Nations (UN) International System of Classification. Explosive stores are to be stowed in accordance with the appropriate Hazard Classification Code (HCC) Label, as detailed in Annex A. In all other respects the regulations below apply.

4. Detailed instructions relating to stowage of explosives are contained in Chapter 3.

Explosive stores carried in RFAs

5. JSP 862 regulations apply to all UN Class 1 explosive stores carried in RFAs. UN Classes 2-9 are regulated by the International Maritime Dangerous Goods (IMDG) Code.

6. All UN Class 1 explosive stores embarked to Solid Support Ships are to comply with the packaging and labelling regulations prescribed by Modal regulations.

Stowage of Allied ammunition

7. The contents of any package considered to contain explosives are to be dealt with as follows:

   a. **No UN Classification Label.** Treat packages with no label in the same way as seized/enemy ammunition.
b. Has no UN Classification Label. If munition is listed in E3 lists, stow in accordance with Chapter 3.

1302 MARKING OF AMMUNITION AND PACKAGES

1. Ammunition, ammunition containers and packages are marked in accordance with Def Stan 00-810.

Markings are applied to ammunition and its packages;

a. To provide all necessary manufacturing and filling details to assist inspection, to guard against the supply of faulty or unproven ammunition to users, to trace suspect ammunition and to aid investigation into the cause of premature bursts, early bursts or other failures or defects.

b. To facilitate the issue of correct nature and type of ammunition, to enable ammunition to be clearly and easily identified by the user under all conditions of service, and to provide the user with maximum information possible concerning the nature, type and function of the ammunition supplied.

c. To provide sufficient information to ensure that all ammunition is correctly stowed, handled and transported according to the nature of the explosive or other risk under which it is classified.

d. The processes in use for the application of markings to ammunition and associated packages may be broadly grouped under two headings, permanent or non-permanent. In addition significant coding colours may also be used for certain markings. Whatever process is used it will result in markings which remain durable, legible and colour fast for the nominal life of the package.

e. Packages containing less than the intended full quantity of stores are to have the word "FRACTION" or "FRAC" stencilled on the front and right hand end in white. Part filled packages are not to be issued to ships, unless requested to make up the current allowance. The designated capacity of the magazine is not to be exceeded.

1303 SEALING OF PACKAGES AND CONTAINERS

1. All packages supplied containing explosives are to be sealed in such a manner that the package cannot be opened without breaking the seal. Two "Station Seals" are used which bear the initials or monogram of the station, establishment, unit or factory consigning the package, both are mandatory. The seals signify that at the time of sealing the package and its contents were acceptable and packed in an approved manner. Linen or metal and wire seals may be used.

2. Regulations for the return of empty packages and containers and certification of the same are detailed in Chapter 5.

1304 IDENTIFICATION MARKS

1. Care is to be taken not to alter or render unreadable the identification marks on packages or explosive stores or to transfer the ammunition into incorrectly marked packages. No unauthorised marking is to be applied to any explosive stores in HM Ships. Neglect in this respect may result in the conveyance of incorrect information as to contents of the packages that could cause incidents and an inappropriate response.
2. Propellants of different "Lot Numbers" should not be stowed in the same package if it can be avoided. If unavoidable, the package is to be specially marked by a label or by stencilling showing precisely the different lot numbers of propellant it contains.

3. Should it be found on opening a package of ammunition after receipt that the contents do not correspond with the marking on the package a report is to be made to the OME PT and the supplying DM Site is to be informed.

1305 RE-STOWING AMMUNITION IN PACKAGES - MARKING OF PACKAGES

1. When returning unused explosive stores to their stowages, they are to be replaced in their proper packages. Such packages are to be marked "Open Case" or "Open Box" by the SUO, with date of opening and the quantity remaining. Such boxes should be stowed in a conspicuous position to prevent their being lost sight of. Such explosives are always to be used at the next firing opportunity.

2. If any "Open Case" explosives remain unexpended when the outfit is next landed at an armament depot, the DM Site is to be informed so that "broken seal" examination may take place onboard before the packages are returned. Alternatively the packages are to be returned separately, specially labelled for examination of contents.

"RU" Marking

3. The marking "RU" in quick drying black paint supplied for the purpose, is to be placed on the package containing explosive stores removed from stowage in Ready Use Magazine Lockers on return to magazines. DM will assess penalties arising from reduced life of store should the store ever be returned to a depot.

4. Explosives whose normal stowage by group classification is in Magazine Lockers are exempt from "RU" marking.

"FIRST USE" Marking

5. The marking "FIRST USE" in quick drying black paint is to be placed on the package containing ammunition removed from a gun or mounting prior to stowage in a magazine.

"SUSPECT WETTED" Marking

6. Packages containing ammunition that have been submerged or partially submerged are to be marked "SUSPECT WETTED" and disposed of in accordance with Chap 8.

1306 GENERAL CHARACTERISTICS OF EXPLOSIVE EFFECTS

General

1. Explosive effects fall into five categories; detonations, partial detonations, explosions, deflagrations and burning. Secondary HE compositions and in some instances certain cast and extruded double base rocket motor propellant grains may detonate or partially detonate. HE and non-HE can explode, deflagrate or burn fiercely; an explosion being caused by very close confinement of a deflagration.
Detonations and Partial Detonations

2. The high power of a detonation is transmitted via blast, in the form of a severe air shockwave. The actual power will depend on the amount of HE detonating. If two adjacent munitions, each with HE detonate almost simultaneously, the blast power could be that of all the HE they both contain. This also applies to adjacent magazines, if they “communicate” - leading to mass sympathetic reaction which produces blast damage equivalent to all the HE contained within. This gives the measure of a mass explosion - termed Effective Net Explosive Quantity (ENEQ) and it is this quantity that will cause propagation leading to damage of structure.

3. If the propagation of a detonation between two munitions or magazines is such that they seem to detonate simultaneously, Practically Instantaneous Propagation (PIP) is said to have occurred. A relatively small air gap, around 2 metres between munitions, depending on ENEQ, can stop PIP caused by shockwave only. However, the most common mechanism for PIP is impact into the adjacent munition by hypersonic metal fragments arising from the heavy casing of shell or warheads designed to fragment upon detonation, about 3000 per item. Their range for effective PIP could be up to 300 metres.

4. A detonation could be initiated by electrical charge, mechanical impact or by fire. It could result in catastrophic or severe structural blast damage, the degree and range of damage being determined by the amount of HE detonating and whether positioned in free-air or confined internally inside a compartment. The damage is caused by the blast wave both in free air and internally and the pressure produced from the internal confinement of the expanding gas fireball, termed Quasi-Static over Pressure (QSP). This releases pressure in the form of an impulse loading on the structure exceeding its shear strength, causing it to rupture. Parts of a ship’s structure including doors and hatches are expected to be torn away and fly as subsonic but heavy secondary debris.

5. If heavy cased munitions are involved there will be a release of a cloud of highly energetic, hypersonic metal fragments that will perforate through surrounding structure and equipment until their residual velocity is reduced to a level that no long perforates.

6. Other blast effects include shaped charge, which may produce jets of molten metal travelling at hyper-velocities allowing perforation through many layers of structure.

7. AOP 39 classifies these types of reaction as Type I or II responses. For response definitions see Ch 13 Annex B.

Explosions and Deflagrations

8. An explosion and deflagration is in effect a severe pressure burst with a slower rate of high temperature gas release producing limited or no blast shockwave but still producing considerable internal Quasi Static over-Pressure. No hypersonic metal fragments will arise and PIP is almost impossible, as the velocities of shockwave to cause detonation are not reached. Propagation slower than PIP between munitions and magazines can occur but there will be little or no aggregation of blast pressures and Effective NEQs.

9. It is possible for a transition to detonation, known as DDT (deflagration to detonation transition) to occur in most in-service HE compositions (TNT/EDX based etc.) This could occur if suitable confinement and other factors are present.
10. Very little blast shockwave arises from an explosion or deflagration. The pressure burst of the casing causes a rapid release of gas which could produce significant internal QSP and could cause structural damage to the surrounding structural boundaries, especially if confined within a magazine or compartment leading to rupture of the boundaries. The pressure burst of the munition with regard to explosions, will produce larger fragments that will travel with some velocity or in the case of deflagration, cause the casing to peel open. In both cases, surrounding munitions and debris will be projected from the point of initiation.

11. AOP 39 classifies these types of reaction as Type III or IV responses. For response definitions see Ch 13 Annex B.

**Burning**

12. Burning of explosive compositions is a fierce phenomenon with extreme temperatures in excess of 3000°C being produced. If the confinement of the composition is insufficient to cause transition to detonation, a short lived but fierce fire will result. Duration varies from a few seconds up to a few hours and is a function of quantity, composition, burn rate, presence of stabilisers in the composition and degree of confinement. A burning munition has its own oxidisers contained within the composition. It is not expected that a magazine spray system or other fire fighting appliances, other than specialist thermal lances would extinguish a munition already burning. Spray systems will reduce the heat transfer rates but may not stop initiation of adjacent munitions. Bare explosives composition ignition temperatures are around 180°C.

13. If the amount of gas produced by a deflagrating or burning composition (Quasi Static over-Pressure) and the rate of release of that gas, produces pressure impulses that exceed the structural withstand levels of the boundaries by plastic deformation or shear at connections and openings, there may be resulting structural damage. This might be in the form of rupture of magazine bulkheads. This resultant effect is related to the burn rate of the propellant or explosive composition, the quantity, the compartment volume and the structural strength of the boundaries. The design of a magazine or preparation area will provide a venting route with blow off plates to relieve the gas pressure if design disclosure shows a requirement. It is primarily rocket motors and propellants which will produce this type of response requiring the presence of venting arrangements. Venting will only relieve pressure if the speed of reaction is slow enough for the blow-off plates to react. This therefore applies to slower reacting deflagration or burning responses (Type IV or V).

14. Munitions classified as Compatibility Group G and H will produce copious quantities of smoke. All munitions that burn could release products that are toxic. Refer to individual munition SEXSSIs for COSHH information. AOP 39 classifies this type of reaction as Type V responses. For response definitions see Ch 13 Annex B.
CHAPTER 13 ANNEX A
CLASSIFICATION OF EXPLOSIVES AND STOWAGE INSTRUCTIONS

INTRODUCTION

1. Designs of surface ship classes with an ITT after 1 Jan 96 are to have ammunition and explosives which are to be stowed in ships' magazines classified as recommended by the United Nations (UN) in the "Recommendations on the Transport of Dangerous Goods" (known colloquially as "The Orange Book"). This is by Hazard Division and Compatibility Group amalgamated together as Hazard Classification Codes (HCC).

2. The UN Hazard Classification Code system is outlined below, accompanied by notes on expected explosive effects as guidance when designing magazines or allocating ammunition and explosives to them. (Article 0322 and 1306 refers)

3. The UN Hazard Classification Code of each explosive store for stowage onboard surface ships is given in the weapon specific Ship Explosive Store Safety Instruction (SEXSSI). Explosive stores in Naval Service authorised to be embarked in specific surface ships are listed alphabetically in the JSP 862 Addendum - Authorised List of Explosive Stores (ALES).

HAZARD CLASSIFICATION CODES

4. The combination of a Hazard Division (HD) and a UN Compatibility Group allocated to an item of ammunition is called the Hazard Classification Code (HCC). Each package of ammunition displays the UN HCC on a label; examples of which are shown in Fig 1.

5. The HCC is allocated to all packaged munitions, but where the munition is unpackaged a separate HCC may apply. This may well be for a higher division than for the equivalent bare munition – e.g. packaged is HD 1.2, unpackaged the munition shows HD 1.1 tendencies.

UN HAZARD CLASS DIVISIONS

6. The UN stipulates that all explosives are Class 1 Dangerous Goods (i.e., their Hazard Division (HD) is 1). The UN subdivides HD 1 according to the expected explosive behaviour as defined verbatim below:

   a. HD 1.1 - Substances and articles that have a mass explosion hazard (A mass explosion affects almost the entire load simultaneously).
      (1) Produce blast, high velocity projections and other projections of relatively lower velocity.

   b. HD 1.2 - Substances and articles that have a projection hazard but not a mass explosion hazard.
      (1) Result in items burning and exploding progressively, a few at a time.
      (2) Fragments, firebrands and unexploded items may be projected in considerable numbers, some of these may explode on impact and cause fires or explosions.
      (3) Blast effects are limited to the immediate vicinity.

   c. HD 1.3 - Substances and articles that have a fire hazard and either a minor blast hazard or a minor projection hazard or both, but not a mass explosion hazard.
      This division comprises substances and articles which:
Includes some items that burn with great violence and intense heat, emitting considerable thermal radiation (mass fire hazard) and others which burn sporadically.

Items in this division may explode but do not usually form high velocity fragments.

Firebrands and burning containers may be projected.

d. HD 1.4 - Substances and articles that present no significant hazard.

This division comprises substances and articles which:

1. Comprise substances and articles that present only a small hazard in the event of ignition or initiation.
2. The effects are largely confined to the package and no projection of fragments of appreciable size or range is expected.
3. An external fire should not cause virtually instantaneous explosion of almost the entire contents of the package.
4. Ammunition and explosives of this division are in Compatibility Group S if they are so packaged or designed that any hazardous effects arising from un-intended functioning are confined within the package unless the package has been degraded by fire, in which case all blast or projection effects are limited to the extent that they do not significantly hinder fire-fighting or other emergency response efforts in the immediate vicinity of the package.

e. HD 1.5 - Very insensitive articles that have a mass explosion hazard.

This division comprises substances and articles which:

1. Comprises substances which have a mass explosion hazard but are so insensitive that there is little probability of initiation or of transition from burning to detonation under normal conditions of transport.
2. For stowage purposes, such items are treated as Hazard Division 1.1 since, if an explosion should occur, the hazard is the same for items formally assigned to HD1.1 (e.g. Blast).
3. The probability of transition from burning to detonation (DDT) is greater when large quantities are carried in a ship.

f. HD 1.6 - Extremely insensitive articles which do not have a mass explosion hazard.

This division comprises substances and articles which:

1. Contain only extremely insensitive detonating substances and which demonstrate a negligible probability of accidental initiation or propagation.

Note: The risk from articles of Division 1.6 is limited to the explosion of a single article.
STORAGE SUB DIVISIONS FOR HD 1.2 AND 1.3

7. HD 1.2 and HD 1.3 explosives can be further divided into Storage sub-Divisions (SsD) 1.2.1, 1.2.2, 1.2.3 and 1.3.3 and 1.3.4. However this is not recognised by UN HD and is used only for assessing storage requirements iaw MOD Explosives Storage and Transport Committee (ESTC) regulation; ESTC has assessed the level of hazard from different types of explosives in HD 1.2 and HD 1.3 and placed more hazardous items and less hazardous items into different sub-groups (SsD).

Note: Due to legacy accounting systems the SsD is often displayed without the second “point”, i.e. 1.22 or 1.34. They have also been displayed as HD 1.2* and 1.3* but us of these terms have been discontinued.

8. For SsD 1.2.1 and 1.2.2 the selection is based on the range of fragments and lobbed explosives items that may be projected in an explosive event. The more hazardous items (SsD 1.2.1) are those with an individual HE content of 0.73 kg or above. It is important not to exaggerate the significance of this value. The less hazardous items (SsD 1.2.2) are those with an individual HE content of less than 0.73 kg. A special storage subdivision, SsD 1.2.3, with its own unique set of quantity-distances, is applicable to munitions that have gained qualification as Insensitive Munitions (IM) and exhibit at most a burning reaction to external stimulus.

9. SsD 1.3.3 contains the more hazardous items, generally bulk packed propellants, which produce a fireball with intense radiant heat, firebrands and some fragments. The firebrands may be only small glowing particles of packaging material, but sometimes they may be massive fiery pieces of burning propellant. SsD 1.3.4 contains the less hazardous items that burn sporadically, with minor projections and firebrands but limited thermal effects.

EXPLOSIVE EFFECTS OF HD 1.1 AND HD 1.2

10. The explosive effects of HDs 1.1 and 1.2 are complex and depend on whether they are filled HE or not. They are outlined below. OME containing both HE and non-HE will be classed based on the response of the overall weapon system - usually based on HE response. The actual classification will depend on the configuration of the ammunition itself, its Unit Load Configuration (ULC), its packaging and how this responds to the various threats. For classification purposes the threats are simulated into tests and cover fire and sympathetic reaction when packaged.

11. The potential threats that may occur in the Naval Environment may be more energetic than the tests used to base UN classifications. While for the most part this will not change the potential response, there may be potential for more damaging effects to be produced than the description for that HD. For example, some HD 1.2 may behave more like HD1.1 in the Naval Environment.

12. A "starred" ESTC Hazard Class Division (e.g. 1.1*) indicates that the reaction of the item tends more towards the next division - in this case towards 1.2 rather than the more sensitive 1.1. The use of "starred" Hazard Division is peculiar to RN use. Army/RM ammunition may use a second digit to indicate the same trend (e.g. 1.22 tends towards 1.3).

HD 1.1

13. HE - A mass detonation should be expected for all ammunition filled with HE. If heavy cased ammunition is involved then a large number of hypersonic metal fragments will be projected on initiation. Shaped Charge warheads will produce deformed molten metal jets directed to some angle within the front sector of the warhead. Examples of HD 1.1 heavy cased ammunition are Rounds 4.5 inch HE, 1000 lb bombs, PGB.
14. Non-HE - A mass explosion or deflagration should be expected, except for in the case of some Cast and Extruded Double base rocket motor propellant grains which could detonate e.g. Brimstone and Hellfire rocket motors.

HD 1.2

15. Items are likely to deflagrate singly in succession during the course of a normal fire. Each single explosion should give rise to heavy subsonic fragments. Only 5-50% of the items are expected to explode depending partly on the efficiency of the spray system in dealing with the normal fire. With HE filled items a detonation instead of a deflagration might occur by Deflagration to Detonation Transition (DDT). If these HE items are heavy cased, detonations could give rise to hypersonic fragments capable of Practically Instantaneous Propagation (PIP). Examples of heavy cased HD 1.2 HE items are Rounds 30 mm HE KCB (BMARC), Mortar Bomb 81 mm HE L36A2, Round 4.5” Mk8 Sup N7a2 PRF N97 (HD1.2*)

16. If HD 1.2 items are stowed together with HD 1.1 items then in some cases the HD 1.2 items could also respond as HD 1.1 and mass explode. For example GM MILAN HEAT Missile.

17. Packaged munitions allocated with a HD1.2 may behave as HD 1.1 munitions when un-packed.

HD 1.3

18. 1.3 items will produce intense heat and thermal radiation. Depending on the degree of confinement, there may be resulting deflagrations which produce small blast over-pressures externally but Quasi Static over-Pressures (QSP) internally. These effects could be sufficient to over-pressurise a compartment leading to structural failure either by plastically deforming structure or by shear failure at connections and openings (blow-off routes, if fitted, will reduce pressure sufficiently to minimise structural damage).

19. The deflagration will have sufficient force to cause projection hazards including firebrands and burning containers. Examples of HD 1.3 items include Sidewinder Rocket Motors, Cartridge LMDE N12 Mk 1.

Explosive Effects of other Hazard Divisions

20. The explosive effects of the rest of the HDs are self explanatory. Some missiles and decoys may achieve significant propulsive energy constituting a severe hazard.

21. The UK MOD’s Insensitive Munitions Policy will introduce munitions that could be classified as HD 1.5. While this improves the vulnerability of munitions there is still a potential for these munitions to react as HD 1.1 if the stimulus to initiate is very energetic and Shock to Detonation thresholds are exceeded.

22. HD 1.5 classified munitions, where the HE composition is designed to only initiate by Shock to Detonation Transition (SDT) mechanisms and will not in all probability initiate by Deflagration to Detonation Transition (DDT). The response produced will significantly reduce consequences to both adjacent munitions and to the surrounding environment when compared to blast shockwaves with the potential to Practically Instantaneous Propagate (PIP). However, the burning reaction that is produced by these compositions will be at intensely high temperatures over 3000°C and sufficient to burn independently to atmosphere due to self-contained oxidisers. This could produce a large amount of hot gas and result in significant Quasi-Static over-Pressures.
Optimum stowage and mitigation techniques of explosion effects

23. HCCs are allocated to ammunition as packed. Often the package design will reduce the explosive effects enough to justify a reduction in classification e.g. items out of their packaging might behave as HD 1.1, but once packed behave as HD 1.2 and are classed as such.

24. Where munitions have no HCC allocation (generally smaller natures including SAA) when unpacked, professional technical judgement may be needed when stowing Ready Use (RU) magazines or deciding what should be stowed in them, rather than relying on the HCC as packed.

25. Munitions and ULCs classified as HCC 1.4S may be used as buffers between HD 1.1 and 1.2 allocated munitions and ULCs to reduce or prevent propagation between similar classified munitions and ULCs. The 1.4S items will provide both separation and some shielding from the effects of higher classification items, thus reducing the potential for PIP to occur.

26. Orientation of HD 1.1 and 1.2 items can also reduce the potential for propagation by presenting a less vulnerable component in the munition to the effects of an explosion. This strategy provides a buffer between the explosive effect and the sensitive composition of the target munition. Alternatively, for heavy cased munitions, orientating the casing of the shell or bomb so that the nose is facing the target direction ensures the minimum number of slowest moving fragments are projected towards the adjacent munitions or ULC.

27. Munitions subject to fire will become more sensitised the greater the heat transfer into them. This will require more care in response to tackling any incident especially for HD 1.1, 1.2, 1.3 and 1.5.

28. Reference should also be made to Article 0380, 0323 and 0307 to 0313 for stowage of susceptible munitions.

COMPATIBILITY GROUP

29. The Hazard Divisions help judge what the likely consequences would be if there was a detonation or an explosion. It is possible by design to also limit the chances of these actually occurring and sometimes to limit the effects. Part of this design process is the allocation of a UN Compatibility Group to ammunition and explosives.

30. In the "Orange Book" the UN define the Compatibility Group and tabulate their recommended groupings. The Compatibility Group definitions are repeated at Table 1. NAEXP has authorised mixing of compatibility groups in magazines and armament cargo holds which fully meet Def Stan 00-101 and JSP 862 requirements. (Ch 13 Annex A Table 2 refers).

31. Compatibility Group G natures should be stowed in magazines on the weather deck. These natures produce considerable quantities of smoke and toxic products and it is preferable to prevent these escaping into the platform. Magazines that stow these natures within the platform must contain a separate HVAC system exhausting to atmosphere.

32. Compatibility Group H natures are to be in floodable tanks within magazines, or floodable magazines or lockers. Such magazines should open onto the weatherdeck. White phosphorus will spontaneously combust if exposed to air. The risk is reduced by stowing the all-up round in a magazine or a locker that is floodable to a level above the store and its packaging.

33. Stowage by Compatibility Group may sometimes be impossible or unworkable in which case advice should be sought from the PDH.
### TABLE 1 - COMPATIBILITY GROUP DEFINITIONS

<table>
<thead>
<tr>
<th>GROUP</th>
<th>EXPLOSIVE STORE</th>
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<tbody>
<tr>
<td>A</td>
<td>Primary explosive substance.</td>
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<tr>
<td>B</td>
<td>Article containing a primary explosive substance and not containing two or more effective protective features.</td>
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<tr>
<td>C</td>
<td>Propellant explosive substance or other deflagrating explosive substance or article containing such explosive substance.</td>
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<tr>
<td>D</td>
<td>Secondary detonating explosive substance or black powder or article containing secondary detonating explosive substance, in each case without means of initiation and without a propelling charge, or article containing a primary explosive substance and containing two or more effective protective features.</td>
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<tr>
<td>E</td>
<td>Article containing a secondary detonating explosive substance, without means of initiation, with a propelling charge (other than one containing an inflammable or hypergolic liquid).</td>
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<td>F</td>
<td>Article containing a secondary detonating explosive substance, with its own means of initiation, with a propelling charge (other than an inflammable or hypergolic liquid) or without a propelling change.</td>
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<td>G</td>
<td>Pyrotechnic substance, or article containing pyrotechnic substance, or article containing both an explosive substance and an illuminating, incendiary, lachrymatory or smoke-producing substance (other than a water-activated article or one containing white phosphorus, phosphide or flammable liquid or gel).</td>
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<td>H</td>
<td>Article containing both an explosive substance and white phosphorus.</td>
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<td>J</td>
<td>Article containing both an explosive substance and a flammable liquid or gel.</td>
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<td>K</td>
<td>Article containing both an explosive substance and toxic chemical agent.</td>
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<td>L</td>
<td>Explosive substance or article containing explosive substance and presenting a special risk needing isolation of each type.</td>
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<td>N</td>
<td>Articles which contain only extremely insensitive detonating substances and which demonstrate a negligible probability of accidental initiation or propagation.</td>
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<td>S</td>
<td>Substance or article so packed or designed that any hazardous effects arising from an accidental functioning are confined within the package unless the package has been degraded by fire in which case all blast or projection effects are limited to the extent that they do not significantly hinder or prohibit fire fighting or other emergency response efforts in the immediate vicinity of the package.</td>
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### NOTES

1. There are currently no Compatibility Group A articles, substances or propellants on general issue in Naval Service.
2. Munitions containing toxic chemical agents are prohibited by the Chemical Weapons Convention. No such munitions are in Naval Service.
### TABLE 2 - AUTHORISED MIXING OF COMPATIBILITY GROUPS

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</table>

✓ = mixed stowage authorised

**Notes:**

1. Ammunition and explosives of Compatibility Group L should not be stowed together with ammunition and explosives of other Compatibility Groups. Furthermore, ammunition and explosives of Compatibility Group L should only be stowed with the same type of ammunition and explosives within Compatibility Group L.

2. When ammunition in Compatibility Group N is stowed with munitions in Compatibility Groups C, D and E, the ammunition of Compatibility Group N should be considered as having the characteristics of Compatibility Group D.

3. Mixed stowage of Compatibility Group G with Groups C, D, E and F may be authorised by Naval Authority Explosives, for elements of the same family of ammunition, based on a risk assessment of the munition provided by the PDH and that it is operationally necessary.

4. Compatibility group J may be stowed with Compatibility Groups C, D, E and F providing special authorisation has been given by the PDH.

5. Compatibility Group F are to be segregated in storage from other articles by a means that is effective in the prevention of propagation of those other articles, e.g. in a separate compartment or by use of a suitable barrier.
Fig 1  UN Hazard Classification Code Label (signs are orange)
CHAPTER 13 ANNEX B

CLASSIFICATION OF TYPES OF ORDNANCE MUNITIONS AND EXPLOSIVES RESPONSE


For the purpose of IM Assessment the standard NATO response descriptors are used:

Type I – Response (Detonation):
The most violent type of explosive event. A supersonic decomposition reaction (detonation) propagates through the energetic material to produce an intense shock in the surrounding medium (e.g. air or water) and a very rapid plastic deformation of metallic cases followed by extensive fragmentation. All energetic materials will be consumed. The effects will include large ground craters for munitions on or close to the ground, perforation, plastic deformation or fragmentation of adjacent metal plates and blast overpressure damage to nearby structures.

Type II – Response (Partial Detonation):
The second most violent type of explosive event. Some but not all the energetic material reacts as in a Type I Response. An intense shock occurs; a part of the case is broken into small fragments; a ground crater can be produced, the adjacent metal plates can be damaged as in a Type I Response and there will be blast overpressure damage to nearby structures. A Type II Response can also produce large case fragments as in a violent pressure rupture (brittle fracture). The amount of damage, relative to a Type I Response, depends on the portion of material that detonates.

Type III – Response (Explosion):
The third most violent type of explosive event. Ignition and rapid burning of the confined energetic material build up high local pressures leading to violent pressure rupture of the confining structure. Metal cases are fragmented (brittle fractures) into large pieces that are often thrown long distances. The un-reacted and/or burning energetic material is also scattered about. Air shocks are produced that can cause damage to nearby structures. Fire and smoke hazards will exist. The blast and high velocity fragments can cause minor ground craters and damage (break up, tearing, gouging) to adjacent metal plates. Blast pressures are lower than for Type I or Type II Responses.

Type IV – Response (Deflagration):
The fourth most violent type of explosive event. Ignition and burning of the confined energetic materials lead to non-violent pressure release as a result of a low strength case or venting through the case walls (outlet gap, initiation capsule, etc.). The case may rupture but does not fragment, orifice covers may be expelled and un-burnt energetic material may be scattered and spread the fire. Pressure releases may propel an unsecured test item, causing an additional hazard. No blast effect or significant fragmentation damage to the surrounding area, only heat and smoke damage from the burning energetic material.

Type V – Response (Burning):
The least violent type of explosive event. The energetic material ignites and burns non-propulsive. The case may split up non-violently; it may melt or weaken sufficiently to allow slow release of combustion gases; the case covers may be dislodged by the internal pressure. Debris stays in the
area of the fire although covers may be thrown up to 15 metres. This debris is unlikely to cause fatal wounds to personnel.

**Propulsion:**
A reaction whereby adequate force is produced to impart flight to the test item.

**No-Reaction:**
A non-explosive event in which there is no perceptible reaction of the energetic materials to the applied stimulus.
## CHAPTER 14

### DEFINITIONS

The Definitions, terms and abbreviations used in these regulations are given below.

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accident</td>
<td>An unintended event, or sequence of events, that causes harm [Def Stan 00-56/JSP 520].</td>
</tr>
<tr>
<td>Adjacent Compartment</td>
<td>A compartment which has decks, deckheads or bulkheads in common with a Magazine.</td>
</tr>
<tr>
<td>ALARP</td>
<td>A risk is considered to be As Low As Reasonably Practicable when the cost of any further risk reduction is demonstrated as grossly disproportionate to the benefit obtained from the risk reduction. The cost includes the loss of defence capability as well as financial or other resource costs [Def Stan 00-56/JSP 520].</td>
</tr>
<tr>
<td>Authorised List of Explosive Stores (ALES)</td>
<td>ALES is an Annex to the CSE which details those munitions that have been cleared for embarkation into the platform. Only those items specified in ALES may be embarked.</td>
</tr>
<tr>
<td>Ammunition</td>
<td>Generic term related mainly to articles of military application consisting of all kinds of bombs, grenades, rockets, mines, projectiles and other similar devices and contrivances [Orange Book](^9). See also MUNITION</td>
</tr>
<tr>
<td>Ammunition Route</td>
<td>Any route used for the movement of explosive stores.</td>
</tr>
<tr>
<td>Approach Compartment</td>
<td>A compartment which has direct access to a compartment associated with the stowage of explosive stores.</td>
</tr>
<tr>
<td>Arm</td>
<td>To make a fuzing system ready for functioning by removal of all the safety constraints thus permitting the munition to function on receipt of a specified firing stimulus [JSP 482].</td>
</tr>
<tr>
<td>Armament Important Keys</td>
<td>Keys to magazine flooding, spraying, lighting and ventilation arrangements, approach compartments and small arms stowages.</td>
</tr>
<tr>
<td>Armament Stores</td>
<td>Any item of equipment issued by DM identified by an Armament Class and Group. The majority of Armament Stores are explosive filled, but this definition also includes inert filled or handling variants of weapons and test equipment. All of the latter, whilst inert in themselves, will be used at the same time in conjunction with explosive filled items.</td>
</tr>
<tr>
<td>Blast</td>
<td>A destructive wave produced in the surrounding atmosphere by an explosion. The blast includes a shock front, high pressure behind the shock front and a rarefaction following the high pressure [Cranfield University EOT module]</td>
</tr>
<tr>
<td>Bomb</td>
<td>An unpowered air-launched weapon filled with explosive or incendiary material detonated by a fuzing system and employed against surface or sub-surface targets [Def Stan 07-85]. Explosive articles which are dropped from aircraft. They may contain a flammable liquid with bursting charge, a photo flash composition or a bursting charge. Related to walk-on bomb, bomb delivered by surface craft etc.</td>
</tr>
<tr>
<td>Broadly Acceptable</td>
<td>A level of risk that is sufficiently low that it may be tolerated without the need to demonstrate that the risk is ALARP [Def Stan 00-56/JSP 520].</td>
</tr>
</tbody>
</table>

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\(^9\) UN Recommendations on the Transport of Dangerous Goods 16\(^{th}\) Revised Edition – Known as Orange Book
### Broken Seal

Containers of explosive stores are fitted with two seals. If both seals are missing or broken the condition of the explosive stores within the container is doubtful.

### Bulk Explosives

Packaged or pallets of packaged Class 1 Dangerous Goods for which there is not specific stowage space identified in the ship (i.e. not listed in Form S285K), and which will remain in the same transit packaging configuration and stowage until removed from the magazine for use or off load from the ship. This includes munitions carried for the re-supply of HM Ships, for the supply of troops onboard prior to landing, for the carriage of munitions as cargo from a point to point of off-load, whether for the supply of troops ashore or for general disembarkation.

### Cartridge

A cased quantity of propellant complete with its own means of ignition [Def Stan 07-85].

### Casualty Weapon

Damaged, suspected damaged, defective, failure to function or misfired explosive stores are categorised as Casualty Weapons when there is a reason to believe that the damage or reliability problem has safety implications. 1.4S munitions are excluded, provided they are retained within their original packaging.

### Certificate of Safety Explosives (CSE)

The CSE is issued by NAEXP following a demonstration by the PDH that the residual explosive safety risks are ALARP. The certificate must be issued before explosives / ammunition can be embarked. The CSE comprises: CSE; scope of certificate; ALES; conditions and mandatory requirements; non compliances.

### Certificate Safety Ordnance, Munitions and Explosives. (CSOME) or OSRP Assurance Statement (OAS)

The CSOME/OAS is a certificate of assurance applied to an individual munition, following a review of the munition safety case report by the OME Safety Review Panel (OSRP) as presented by DOSG. The CSOME/OAS is then used by the PDH during integration into a platform and the granting of a CSE.

### Classification

The allocation of a United Nations Hazard Division, Compatibility Group and Serial Number to an explosive according to its general properties and characteristics and to those of its packaging during storage and transport. Military explosives are classified by the ESTC and commercial explosives by HM Chief Inspector of Explosives, Health and Safety Executive [JSP 482].

### Compatibility

Dangerous Goods of Class 1 are considered to be compatible if they can be safely stowed or transported together without significantly increasing either the probability of an accident or, for a given quantity, the magnitude of the effects of such an accident [IMDG Code].

### Compatibility Group

UN Dangerous Goods of Class I are assigned to one of six divisions, depending on the types of hazard they present and to one of thirteen compatibility groups which identify the kinds of explosive substance and articles that are deemed to be compatible [Orange Book]. In the UN Classification System for Dangerous goods, each explosive is put into a compatibility group denoted by the code letters A to H, J, K, L or S. The letters are defined in the UN “Orange Book” and identify explosive stores deemed to be compatible for storage and transport and those that have to be segregated (Ch 13 Annex A Table 1 refers).
<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
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<tbody>
<tr>
<td>Competent Maintainer</td>
<td>A trained Senior Rating or Leading Rating (or ET on MCMs) competent by virtue of approved PJT for the task of work, maintenance or preparation in a magazine.</td>
</tr>
<tr>
<td>Competent User</td>
<td>Trained officers and ratings, and civilians, tasked with the safeguarding and control of explosive stores in accordance with JSP 445 Articles 4.430 and 4.431.</td>
</tr>
<tr>
<td>Cook-Off</td>
<td>The premature explosion of an explosive device due to excessive heat. The initiation of an enclosed explosive by the conduction of heat through its container. Applicable to, for example, munitions exposed to conflagrations or to live cartridges left loaded in hot guns [Cranwell University EOT module]</td>
</tr>
<tr>
<td>Defence Ordnance Safety Group (DOSG)</td>
<td>DOSG is a Joint Service, professionally independent body providing advice on safety and suitability for service and service life of munitions and weapons. In the OME Safety Management System the Assurance function is provided principally by DOSG who generate policy, audit against the policy and provide independent review by the Ordnance Safety Review Panel of safety documentation produced to demonstrate compliance with the policy [JSP 520].</td>
</tr>
<tr>
<td>Designated Danger Area (DDA)</td>
<td>Compartments and spaces not fitted out specifically for the stowage of munitions, but where there is likely to be an increased hazard to a ship safety because of the presence of munitions. The following spaces are typical DDAs iaw Def Stan 00-101: Weapon Lifts, hoists/trunks. Areas around gunbay, gunhouses/turrets/mountings, U/D launch positions and testing, assembly, unpacking, preparing explosive stores/munitions (outside of magazines). Upperdeck weapon and vehicle parks. Package Examination Room (PER). Specific to type weapon facilities as defined in the SRD. Ammunition/Weapon Transfer Spaces within a hold/magazine complex. LCVP recesses/sponsons and any sponson housing an armed boat. Ammunition routes.</td>
</tr>
<tr>
<td>Detonator</td>
<td>A device containing a sensitive explosive intended to produce a detonation wave [JSP 482]. An explosive device for starting a detonation. It is usually small and is designed to be initiated by impact, friction, electricity, flame or heat.[Cranfield University EOT module]</td>
</tr>
<tr>
<td>Drill</td>
<td>A set of sequential activities, laid down in the appropriate DNO/CinC Fleet/ Navy Command sponsored publication, which ensures the correct and safe operation of a weapon or weapon system, normally to achieve the engagement process, and which is covered and controlled by specific command and control orders. Drill is not to be confused with the routine preparation of a weapon system, weapon or explosive store for operational use, the responsibility for which normally, but not always, is vested in one of the Engineering (WE/AE) Departments.</td>
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<tr>
<td>Drill Ammunition</td>
<td>An inert replica of ammunition specifically manufactured for drill and instructional purposes [JSP 482].</td>
</tr>
<tr>
<td>Duty Holder</td>
<td>A MOD party/person with specific responsibilities for the safety management of the system [Def Stan 00-56/JSP 520/JSP 430]. Duty Holder means the Project Team Leader, sometimes also referred to as the Warship or Equipment Project Manager or Business Team Leader responsible for the safety and environmental management of ships or equipment throughout the Acquisition Cycle. The Policy assumes that any person acquiring a service, including a ship charterer or logistics movement’s manager is a Duty Holder.</td>
</tr>
<tr>
<td>Duty OOQ</td>
<td>A locally trained Officer, Senior Rating or Leading Hand nominated by the ERO to carry out basic roles of a OOQ during the period of his duty out of working hours and during leave periods.</td>
</tr>
<tr>
<td>Early Burst</td>
<td>A malfunctioning in which a munition explodes or functions after a safe separation but before the expected time or circumstance.</td>
</tr>
<tr>
<td>Effective Net Explosives Quantity (ENEQ)</td>
<td>The effective NEQ is the sum of the NEQ that will contribute significantly to the dominant hazard for the Hazard Division concerned [JSP 482]. When explosive components in a weapon system are initiated by unplanned stimuli and propagate a shock wave that results in Practically Instantaneous Propagation (PIP) with adjacent munitions leading to mass initiation, the combined NEQ that produced the response of blast overpressures with the ability to damage structural integrity is called the Effective NEQ [Def Stan 00-101]. The summation of the explosive compositions of stores that, if initiated, are assessed as directly contributing to damaging effects from an explosion (in particular blast Overpressure). Generally assessed from all HD 1.1 and 1.2 natures and some HD 1.3 (if sufficiently confined). ENEQ is measured as kg TNT equivalence, and is a more accurate assessment of damaging explosive effects from stores. It is usually, but not always, a lower value than NEQ [NAN/EXP 03].</td>
</tr>
<tr>
<td>Electro-Explosive Device (EED)</td>
<td>A one-shot explosive or pyrotechnic device used as the initiating element in an explosive or mechanical train, which is activated by the application of electrical energy [Def Stan 08-124/JSP 482].</td>
</tr>
<tr>
<td>Electro-Magnetic Compatibility (EMC)</td>
<td>The capability of electrical and electronic systems, equipments, and devices to operate in their intended electromagnetic environment within a defined margin of safety, and at design levels of performance without suffering or causing unacceptable degradation as a result of electromagnetic interference [Def Stan 07-85]. The ability of a system to meet its design parameters when in a specified electromagnetic environment.</td>
</tr>
<tr>
<td>Electro-Magnetic Pulse (EMP)</td>
<td>EMP – associated primarily with nuclear explosion. The effects may be experienced over long ranges.</td>
</tr>
<tr>
<td>Embarkation/Disembarkation</td>
<td>The activity during which ammunition is lifted into/out of a ship. The point of embarkation is established in the Ship’s drawings.</td>
</tr>
<tr>
<td>Exploder</td>
<td>An intermediate explosive charge used to augment the impulse from the initiatory explosive to a magnitude sufficient to cause detonation of the main secondary explosive charge.</td>
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<td>Term</td>
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<tr>
<td>Explosion</td>
<td>A nuclear, chemical or physical process leading to the sudden release of energy (and usually gases and heat) giving rise to external pressure waves [JSP 482]. (see also Chapter 13)</td>
</tr>
<tr>
<td>Explosive</td>
<td>A substance (or mixture of substances) which is capable by chemical reaction of producing gas at such a temperature and pressure as to cause damage to the surroundings. Included are pyrotechnic substances even when they do not evolve gases. The term “explosive” thus includes all solid and liquid materials variously known as high explosives and propellants, together with igniters, primer, initiatory and pyrotechnic (e.g., illuminants, smoke, delay, decoy, flare and incendiary) compositions [AOP 38/JSP 520]. This may be summarised as: All weapons, missiles or stores containing substances especially designed to produce an explosive, propulsive, incendiary or pyrotechnic effect.</td>
</tr>
<tr>
<td>Explosive Ordnance</td>
<td>All munitions containing explosives, nuclear fission or fusion materials and biological and chemical agents. This includes bombs and warheads; guided and ballistic missiles; artillery, mortar, rocket and small arms ammunition; all mines, torpedoes and depth charges, demolition charges; pyrotechnics; clusters and dispensers; cartridge and propellant actuated devices; electro-explosive devices; clandestine and improvised explosive devices; and all similar or related items or components explosive in nature [AAP-6].</td>
</tr>
<tr>
<td>Explosive Ordnance Disposal (EOD)</td>
<td>The detection, identification, field evaluation, rendering safe, recovery and final disposal of unexploded ordnance.</td>
</tr>
<tr>
<td>Explosives Delivery Point (EDP)</td>
<td>The EDP is a formally agreed position to where explosives may be delivered and a formal transfer of responsibility for their custody be undertaken between the Explosives Responsible Officer, Specialist User Officers or their representatives.</td>
</tr>
<tr>
<td>Explosives Responsible Officer (ERO)</td>
<td>Explosives Responsible Officer (ERO) is an officer designated in accordance with QRRN to ensure that the regulations for the safety of all explosives held onboard the ship/submarine are enforced at all times. He is specifically responsible for magazines and the competence of Officers of Quarters in the safety and handling of explosives.</td>
</tr>
<tr>
<td>Explosive Train</td>
<td>The initiation train beginning with the first explosive element (e.g. primer, detonator) and terminating in the main charge (e.g. munition functioning mechanism, HE pyrotechnic substance etc) [JSP 482].</td>
</tr>
<tr>
<td>Failure to Function</td>
<td>The failure of an explosive store to function in an intended manner such as a misfire, blind, early burst, premature or hangfire.</td>
</tr>
<tr>
<td>Flares</td>
<td>Articles containing pyrotechnic substances which are designed for use to illuminate, identify, signal or warn. The term includes: Flares, Aerial and Flares, Surface.</td>
</tr>
<tr>
<td>Fuse</td>
<td>An igniting or explosive device in the form of a cord or a tube. (See also Fuze).</td>
</tr>
<tr>
<td>Fuze</td>
<td>Articles designed to start a detonation or deflagration in ammunition. They incorporate mechanical, electrical, chemical or hydrostatic components and generally protective features [Orange Book]. (See also Fuse and Pistol).</td>
</tr>
<tr>
<td>Guided Missile/Weapon</td>
<td>A missile whose flight path can be controlled during flight [JSP 482].</td>
</tr>
</tbody>
</table>

**JSP 862 Part 1**
### Handling
The movement of munitions, either by man-handling or by use of approved appliances, from the point of embarkation/disembarkation along the ammunition routes, within the magazine and from the magazine to the RU Magazine Locker or weapon launcher.

### Hangfire
An undesired delay in the functioning of a firing system.

### Hangup
The unintended retention of the weapon after the Launch Sequence has been completed.

### Harm
Death, physical injury or damage to the health of people or damage to property or the environment [Def Stan 00-56 and JSP520 from ISO Guide 51]

### Hazard
A physical situation, often following from some initiating event that can lead to an accident [Def Stan 00-56].

### Hazard Classification Code (HCC)
An alpha-numeric symbol which denotes the complete HCC for a particular nature. The code consists of two digits indicating the Hazard Division followed by a letter corresponding to the Compatibility Group e.g. 1.3G [JSP 482]. (See Chapter 13)

### Hazard Division
A division of the UN Dangerous Goods Class 1 (Explosives), indicating the type of hazard to be expected in the event of an accident. There are six Class 1 HDs: 1.1, 1.2, 1.3, 1.4, 1.5 and 1.6. [JSP 482]. (Ch 13 refers)

### Hazard Time
The time taken from reaching 550°C to the occurrence of an event is measured and this is known as the “Hazard Time” when the event is an explosion or detonation and as the “Risk Time” [see below] when the event is burning or deflagration of the weapon or explosive store. The term “Risk Time” is used as it is normally impossible to carry out sufficient trials to ensure that only burning or deflagration occurs; there is always a possibility of a more violent response [CINO Spec P001].
Gives an indication of the time available for effective fire fighting before an explosion or detonation may occur which will project fragments or otherwise injure fire fighting personnel.

### Hazardous Fragment
A fragment with residual energy of 80 J or more (which strikes a person) [BR 8541][JSP 482].

### Hot Gun
After a predetermined period of continuous fire the barrel of a gun will be considered heated to a level where a hot gun condition exists. The number of rounds that will bring a gun to the condition of being hot varies with the type of gun, type of ammunition and rate of fire. HOT GUN conditions for individual weapons are specified in BR 1043 Gunnery and Guided Weapon User Instructions.

### Incident
The occurrence of a hazard that might have progressed to an accident, but did not [Def Stan 00-56].
An accident or near miss. (See Accident and Near Miss)

### Inherent Safety
The ability of an Ordnance System, Munition or Explosive to retain its safety under specified stimuli (both intended and accidental), due to the nature of its design, its safety features and materiel employed as an inseparable part of the system [JSP 520].

### Insensitive Munition
Munitions which reliably fulfil their performance, readiness and operational requirements on demand but which minimise the probability of inadvertent initiation and severity of subsequent collateral damage to weapon platforms, logistic systems and
<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instructional Ammunition</td>
<td>Inert replicas of ammunition, which may be sectioned, used for classroom instruction only [JSP 482].</td>
</tr>
<tr>
<td>Key Hazard</td>
<td>A key hazard area is one that represents a significant danger to the lives of several people, loss or severe damage to the platform or significant damage to the environment. Due to the severity of such consequences the Ship Environment and Safety Board requires particular safety assurance of specific key hazard areas by means of Naval Authority safety certification [JSP 430]. Significant danger to the lives of several persons and whose consequence may cause the loss of the ship or significant damage to the environment. Due to the severity of such consequences, the SESB mandates Naval Authority regulation of these elements of the Safety Case.</td>
</tr>
<tr>
<td>Leading Rating</td>
<td>The term &quot;Leading Rating&quot; when used in these regulations is to be taken to include JNCOs of equivalent rank.</td>
</tr>
<tr>
<td>Lighter Ammunition</td>
<td>A barge used to load and unload ships/submarines not lying at piers, or to move explosive cargo around a harbour</td>
</tr>
<tr>
<td>Loading/Unloading</td>
<td>The activity associated with ammunition being placed into/removed from the Weapon launcher.</td>
</tr>
<tr>
<td>Magazine</td>
<td>A compartment within the ship’s structure, which is specifically designed and constructed for the safe, permanent stowage of the main outfit of the designated explosive stores/munitions.</td>
</tr>
<tr>
<td>Magazine Keys</td>
<td>Keys which give personnel direct access to compartments designed for or associated with the stowage of explosive stores.</td>
</tr>
<tr>
<td>Magazine Locker</td>
<td>A self contained locker, designed for the permanent stowage of the whole or part of the ship’s outfit of the designated explosive store(s) for which built-in magazine facilities have not been provided. It is free standing or recessed into the ship’s structure, but its boundaries are not part of the ship’s structure. It is surrounded by an air gap. A locker does not have an “adjacent compartment” because of this air gap and is of such a shape or size that it does not permit “walk-in” and the contents are handled while standing outside.</td>
</tr>
<tr>
<td>Magazine – Silo Magazine</td>
<td>A compartment designed for the permanent stowage of vertically launched missiles. A Silo Magazine serves a dual purpose in that it is designated a launcher when the missile leads are connected.</td>
</tr>
<tr>
<td>Misfire</td>
<td>Failure to initiate or explode properly after the correct application of the firing sequence.</td>
</tr>
<tr>
<td>Missile</td>
<td>An armament store designed to be released from an aircraft or discharged from a gun or launcher towards a selected point usually to cause damage at that point [JSP 482].</td>
</tr>
<tr>
<td>Munition / Ammunition</td>
<td>A device charged with explosives, propellants, pyrotechnics, initiating composition, or nuclear, biological or chemical material for use in connection with defence or offence, including demolitions. Certain ammunition can be used for training, ceremonial or non-operational purposes [AAP-6]. A complete device, (e.g., Missile, shell, mine, demolition store etc.) charged with explosives, propellants, pyrotechnics, initiating compositions or nuclear, biological or chemical material, for use in connection with offence, or defence, or training, or non-operational purposes, including those parts of weapon systems containing explosives [AOP 38/JSP 520].</td>
</tr>
<tr>
<td>----------------------</td>
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</tr>
<tr>
<td>Naval Authority</td>
<td>An authority, formally appointed by the SESB, that is independent of Duty Holders and Commanding Officers and responsible for providing regulation advice associated with key hazards and specified areas approved by the SESB. They are responsible for facilitating the risk-based selection and use of appropriate civil standards and for issuing certification after satisfactory audit of a Duty Holder’s submission. The Naval Authority is also responsible for producing/identifying standards or codes of practice and for providing advice and guidance relating to their specialist subject [JSP 430].</td>
</tr>
<tr>
<td>Near Miss</td>
<td>When potential, however remote, for an explosives accident is noticed or when an explosives accident is narrowly averted by quick thinking or good fortune.</td>
</tr>
<tr>
<td>Negligent Discharge</td>
<td>A term used in Small Arms Ammunition (SAA) up to and including 9mm in calibre. Negligent Discharge (ND) is deemed to have occurred when the initiation of the SAA is unauthorised and unintentional or inadvertent. No death, injury or damage to equipment or property is to have occurred, and the weapon and ammunition performed to the designed specification.</td>
</tr>
<tr>
<td>Net Explosives Quantity (NEQ)</td>
<td>The total explosives contents of an ammunition [AOP-38]. The quantity in kilograms of the explosive substance present in a container, magazine, etc. It does not include such substances as white phosphorus, war gases or smoke and incendiary compositions unless the substances contribute significantly to the dominant hazard of the Hazard Division concerned [JSP 482 – with slight amendment].</td>
</tr>
<tr>
<td>Operating Authority</td>
<td>A military service organisation, MOD directorate, agency or civil organisation with delegated or contracted responsibility for the direction, control and operational command (incl. maintenance) of MOD owned or employed ships. The service Operating Authority is referred to as Second Customer within the MOD and “ship manager” in statute, e.g. CinC Fleet [JSP 430].</td>
</tr>
<tr>
<td>Ordnance</td>
<td>The sub-system of a weapon system with its associated munitions and auxiliary material needed to fire the munition [JSP 520 amending AOP 38].</td>
</tr>
<tr>
<td>OME</td>
<td>Ordnance, Munitions and Explosives [JSP 520].</td>
</tr>
<tr>
<td>Overpressure</td>
<td>The pressure (generally transient) resulting from the blast wave of an explosion.</td>
</tr>
<tr>
<td>Permanent Quarter</td>
<td>A combination of Magazines and Magazine Lockers in which explosives are held for which an OOQ is nominated.</td>
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<tr>
<td>Term</td>
<td>Definition</td>
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<tr>
<td>Pistol</td>
<td>A device incorporating mechanical and/or hydrostatic components to initiate a detonator. (See Fuze)</td>
</tr>
<tr>
<td>Platform Duty Holder</td>
<td>The person charged with development of the safety regime for a ship and its subsequent maintenance throughout the acquisition cycle. This is normally the Project Team or Business Team Leader unless that responsibility is formally transferred to another appropriate and competent body.</td>
</tr>
<tr>
<td>Premature Burst</td>
<td>A malfunctioning in which a munition explodes or functions before a safe separation distance has been achieved.</td>
</tr>
<tr>
<td>Primary Ammunition Route</td>
<td>The main route, from the point of embarkation to the magazine and from the magazine to the Weapon Launcher along which the ammunition is moved and vice versa [Def Stan 00-101].</td>
</tr>
<tr>
<td>Primary Explosive</td>
<td>An explosive which is extremely sensitive to stimuli such as heat, friction and/or shock and requires special care in handling [JSP 482].</td>
</tr>
<tr>
<td>Primer</td>
<td>In a gun cartridge it is the explosive device containing a cap and a charge of pyrotechnic or other flame-producing material which ignites the propellant charge. The term is loosely used to describe any component of a disruptive explosive train which is interposed between the detonator and the main charge [Cranfield University EOT module]. An item using a primary substance or a composition with such characteristics.</td>
</tr>
<tr>
<td>Private Ammunition</td>
<td>Ammunition supplied from non service sources for private use.</td>
</tr>
<tr>
<td>Projectile</td>
<td>A missile projected from a gun, howitzer, mortar or launcher e.g. shot, shell, rocket or bomb [JSP 482]. Articles such as a shell or bullet which are projected from a cannon or other artillery gun, sub ammunition, rifle or other small arm. They may be inert, with or without tracer, or may contain a burster or expelling charge or a bursting charge.</td>
</tr>
<tr>
<td>Propellant</td>
<td>A substance on its own or in a mixture with other substances that can be used for the chemical generation of gas at the controlled rate required for propulsive purposes [JSP 482]. A substance or mixture capable, by burning at a controlled rate, of producing gases to do work, e.g. propel a missile or gun round or function a mechanical device.</td>
</tr>
<tr>
<td>Propulsive response</td>
<td>An explosive reaction whereby adequate force is produced to impart flight to the explosive store.</td>
</tr>
<tr>
<td>Proximity Fuze</td>
<td>A device that senses the proximity of the target and then initiates the warhead explosive train.</td>
</tr>
<tr>
<td>Pyrotechnic</td>
<td>A substance or mixture of substances which, when ignited, undergo an energetic chemical reaction at a controlled rate intended to produce effects such as light, smoke, sound or flame [JSP 482]. A compound or mixture designed to produce an effect by heat, light, sound, gas or smoke or a combination of these as a result of a non-detonative self-sustaining exothermic chemical reaction.</td>
</tr>
<tr>
<td>Radio Hazards (RADHAZ)</td>
<td>The inadvertent ignition of electro-explosive devices (EED) resulting from exposure to radio frequency radiation, or coupled transient energy [Def Stan 08-124]. The danger of the accidental initiation of an electro-explosive device by radio or radar frequency electro-magnetic radiation.</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
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<tr>
<td>RATTAM</td>
<td>The threat from wartime and terrorists presents potential hazards to unprotected munitions. This is known as RATTAM, Response to ATTack on Ammunition and is defined by a threat weapon that will cause an intolerable reaction from susceptible munitions [Def Stan 00-101]. The RATTAM Scale quantifies the characteristics of magazines and weapons in surface warships and RFAs when subjected to small arms bullet attack (see NAN/Exp 03).</td>
</tr>
<tr>
<td>Ready-Use</td>
<td>Temporary stowage of explosive stores/munitions to facilitate quick supply when the relevant weapon is required to be in a high state of operational readiness [Def Stan 00-101].</td>
</tr>
<tr>
<td>Ready Use Magazine</td>
<td>A compartment within the ship's structure designed for the temporary stowage of designated explosive stores at the point of ammunition expenditure.</td>
</tr>
<tr>
<td>Ready-Use Magazine Locker</td>
<td>A self-contained magazine locker designed for the temporary stowage of small amounts of explosives stores.</td>
</tr>
<tr>
<td>Replenishment in Harbour</td>
<td>The activity during which munitions are transferred to/from an ammunition lighter (NAL) or alongside a licensed jetty into/out of a ship, whilst in harbour. The ship can be secured to a buoy, a jetty or at an ammunitions facility.</td>
</tr>
<tr>
<td>Response Force Locker</td>
<td>A specially designed locker authorised to hold small arms and ammunition as required by BR 8988.</td>
</tr>
<tr>
<td>Rigging Warrant</td>
<td>The Rigging Warrant details all the items of standing and running rigging and materials from which each are made in the ship so that the ship could replace them if the materials were available [Manual of Seamanship Vol II]. A list which includes all the lifting equipment required when striking down or supplying explosive stores. As well as detailing the number of whips and ropes required, it specifies the block type, cordage and relevant pattern numbers. Illustrations can be included to clarify how the equipment is to be rigged.</td>
</tr>
<tr>
<td>Risk</td>
<td>The possibility of danger. In quantitative assessments this involves the combination of the likelihood of harm and the severity of that harm [JSP 430]. Combination of the likelihood of harm and the severity of that harm [Def Stan 00-56]. The combination of the probability of harm, and the consequences of that event [JSP 520 adapting IEC 51].</td>
</tr>
<tr>
<td>Risk Time*</td>
<td>This gives an indication of the time available before ignition or deflagration of the store commences. Although deflagration did not lead to explosion in the trial, the risk of explosion at this time is a possibility. [See Hazard Time above]</td>
</tr>
<tr>
<td>Rocket</td>
<td>A missile whose motion is due to reaction propulsion and whose flight path cannot be controlled during flight [JSP482]. Articles consisting of a rocket motor and a payload which may be an explosive warhead or other device.</td>
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<tr>
<td>Routine Care</td>
<td>Routine care and maintenance in magazines and adjacent compartments is defined as that work detailed in the relevant maintenance schedule and which does not require them to be empty of explosives.</td>
</tr>
<tr>
<td><strong>Safety Case</strong></td>
<td>It follows that the repair of defects arising must also be possible under similar conditions, within the time in hand and as permitted by Article 0337.</td>
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<td><strong>Safety Case Report</strong></td>
<td>A set of structured arguments, supported by a body of evidence that provides compelling, comprehensible and valid evidence that a ship or equipment is safe for given applications in given operating environments [JSP 520 adapting Def Stan 00-56].</td>
</tr>
<tr>
<td><strong>Save-All</strong></td>
<td>A report that summarises the arguments and evidence of the Safety Case and documents progress against the safety programme [Def Stan 00-56/JSP 520].</td>
</tr>
<tr>
<td><strong>Secondary Ammunition Route</strong></td>
<td>A receptacle positioned or suspended beneath a fluid leakage or a potential leakage position to collect any drips.</td>
</tr>
<tr>
<td><strong>Senior Rating</strong></td>
<td>The route from the point of embarkation to the magazine and from the magazine to the Weapon Launcher, and vice versa, along which the ammunition is moved if the Primary Ammunition Route is not available.</td>
</tr>
<tr>
<td><strong>Silo Magazine</strong></td>
<td>When used in these regulations is to be taken to include Warrant Officers, Chief Petty Officers, Petty Officers and NCOs, Royal Marines, Army, RAF and RFA personnel of equivalent rate/rank.</td>
</tr>
<tr>
<td><strong>Small Magazine</strong></td>
<td>Any organisation, with specialist technical or professional expertise, considered competent in their subject area (JSP 430 Pt 1, Annex B). They may also be responsible for producing/identifying standards and codes of practice and/or for providing advice and guidance relating to specialist areas not subject to Naval Authority regulation [JSP 430].</td>
</tr>
<tr>
<td><strong>Stowage</strong></td>
<td>An organisation, possibly a Duty Holder, operating, training or support authority with specialist knowledge and who may provide advice and guidance relating to specified hazards not subject to regulation. They may also be responsible for producing/identifying standards or codes of practice.</td>
</tr>
<tr>
<td><strong>Supply Route</strong></td>
<td>The Primary and Secondary ammunition routes from the Magazine to the RU stowage or direct to the weapon launcher/gun if no ready use stowage exists and vice versa [Def Stan 00-101].</td>
</tr>
<tr>
<td><strong>Temporary Quarter</strong></td>
<td>The Primary and Secondary ammunition routes from the Magazine to the RU stowage or direct to the weapon launcher/gun if no ready use stowage exists and vice versa [Def Stan 00-101].</td>
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</tbody>
</table>
| **Tolerable** | A willingness to live with a risk so as to secure certain benefits and in the confidence that the risk is one that is worth taking and that it is being properly controlled [R2P2].
  A risk is Tolerable when it is at a level that can be accepted [JSP 520].
  A level of risk between broadly acceptable and unacceptable that may be tolerated when it has been demonstrated to be ALARP [Def Stan 00-56]. |
| **Tolerability Criteria** | Quantitative or Qualitative measures for determining whether a risk is unacceptable, tolerable or broadly acceptable [Def Stan 00-56/JSP 520]. |
| **Transient Radiation Electronic Effect (TREE)** | Produced in electrical equipment primarily by a nuclear explosion. |
| **Unacceptable** | A level of risk that is only tolerated under exceptional circumstances [Def Stan 00-56/JSP 520]. |
| **Unitisation** | The use of appropriate design techniques and operating procedures to minimise the consequences of a credible munitions incident aboard a JSP 430 applied vessel [Def Stan 00-101]. |
| **Vertical Replenishment (VERTREP)** | The use of a helicopter for the transfer of materiel to or from a ship. In Accordance With AOP-06 (2013) |
| **WeaponPark** | An area designated for the pre-positioning of explosive stores prior to loading onto aircraft, landing craft, vehicle or for immediate use (e.g. by E3 troops) [Def Stan 00-101].
  See DESIGNATED DANGER AREA. |
| **Weapon Preparation** | The conversion of an explosive store(s) into a weapon by the addition of items to facilitate its firing, release or operational delivery. |
| **Weapon Preparation Area/Space** | A Designated Danger Area specified for weapon preparation. |
| **Weapon System** | An aggregate of an ordnance system, including any associated munitions launching system, together with sufficient munitions and ancillary equipment necessary to test, aim, launch and guide those munitions as applicable [JSP 520 adapting AAP-6].
  The weapon and other directly associated equipment needed to operate, maintain and support it. [Def Stan 07-85] |
<p>| <strong>Working a Magazine</strong> | The process of moving explosive stores within a magazine, either for embarkation, dis-embarkation, handling or use. Permission to work ammunition, in a magazine or magazine locker, including Ready Use, alongside is to be obtained by signal from the relevant NBC, normally no later than 2 weeks prior to the event. |
| <strong>Working in a Magazine</strong> | Approved routine maintenance, husbandry and security of stowages within a magazine, including approved practices with DRILL weapons. DRILL weapons or INERT stores must not be moved across any live munitions. |</p>
<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACA</td>
<td>AMMUNITION CONTAINER ASSEMBLY</td>
</tr>
<tr>
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<td>APPROVED CODE OF PRACTICE</td>
</tr>
<tr>
<td>ACTO</td>
<td>ATTRACTIVE TO CRIMINAL AND TERRORIST ORGANISATIONS</td>
</tr>
<tr>
<td>AI</td>
<td>ADMINISTRATION INSPECTION</td>
</tr>
<tr>
<td>ALARP</td>
<td>AS LOW AS REASONABLY PRACTICABLE</td>
</tr>
<tr>
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<td>AUTHORISED LIST OF EXPLOSIVE STORES</td>
</tr>
<tr>
<td>AOP</td>
<td>ALLIED OPERATIONS PUBLICATION</td>
</tr>
<tr>
<td>AP</td>
<td>AIR PUBLICATION</td>
</tr>
<tr>
<td>APWT</td>
<td>ANNUAL PERSONAL WEAPON TEST</td>
</tr>
<tr>
<td>BR</td>
<td>BOOK OF REFERENCE</td>
</tr>
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<td>CLYDE EXPLOSIVE SAFETY ADVISORY GROUP</td>
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<td>CFFE</td>
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<td>CENTRAL HEALTH &amp; SAFETY PROJECT</td>
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<td>CHIEF INSPECTOR OF EXPLOSIVES MINISTRY OF DEFENCE</td>
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<tr>
<td>CO</td>
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<tr>
<td>COSHH</td>
<td>CONTROL OF SUBSTANCES HAZARDOUS TO HEALTH</td>
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<td>CSE</td>
<td>CERTIFICATE OF SAFETY EXPLOSIVES</td>
</tr>
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<td>CSE(P)</td>
<td>CERTIFICATE OF SAFETY EXPLOSIVES (PRESCRIPTIVE)</td>
</tr>
<tr>
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<td>CERTIFICATE OF SAFETY ORDNANCE, MUNITIONS AND EXPLOSIVES</td>
</tr>
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<tr>
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</tr>
<tr>
<td>Def Stan</td>
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</tr>
<tr>
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<td>DEFENCE EQUIPMENT AND SUPPORT</td>
</tr>
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</tr>
<tr>
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<td>DLSR</td>
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</tr>
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<td>DM</td>
<td>DEFENCE MUNITIONS (Formally DSDA/JSCS)</td>
</tr>
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<td>DEFENCE MARITIME REGULATOR</td>
</tr>
<tr>
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<td>DEFENCE ORDNANCE and ENVIRONMENT SAFETY BOARD</td>
</tr>
<tr>
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</tr>
<tr>
<td>Abbreviation</td>
<td>Definition</td>
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<tr>
<td>--------------</td>
<td>------------------------------------------------</td>
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<tr>
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</tr>
<tr>
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</tr>
<tr>
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</tr>
<tr>
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</tr>
<tr>
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</tr>
<tr>
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</tr>
<tr>
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</tr>
<tr>
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</tr>
<tr>
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</tr>
<tr>
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</tr>
<tr>
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</tr>
<tr>
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<tr>
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</tr>
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</tr>
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</tr>
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</tr>
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<tr>
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</tr>
<tr>
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<td>INVITATION TO TENDER</td>
</tr>
<tr>
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<td>JOINT SERVICE MUNITIONS CONTROL REGISTER</td>
</tr>
<tr>
<td>JSP</td>
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<td>LOAD</td>
<td>LIST OF APPROVED DEPARTURES</td>
</tr>
<tr>
<td>LPD</td>
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</tr>
<tr>
<td>LPH</td>
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<tr>
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<td>LIMITATION IN THE USE OF MUNITIONS AT TRAINING</td>
</tr>
<tr>
<td>MCA</td>
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</tr>
<tr>
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</tr>
<tr>
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</tr>
</tbody>
</table>

Chap 15
Page 2
Jul 15
<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NAEAC</td>
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<td>NAVAL ARMAMENT STORES</td>
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<td>NAVAL EXPLOSIVE REGULATIONS</td>
</tr>
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<td>OA</td>
<td>OPERATIONAL ACCESS</td>
</tr>
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</tr>
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<td>OOQ</td>
<td>OFFICER OF THE QUARTER</td>
</tr>
<tr>
<td>OOW</td>
<td>OFFICER OF THE WATCH</td>
</tr>
<tr>
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</tr>
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<td>PRIME CONTRACTING OFFICE</td>
</tr>
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</tr>
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<td>PORTSMOUTH EXPLOSIVE SAFETY ADVISORY GROUP</td>
</tr>
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<td>PIP</td>
<td>PRACTICALLY INSTANTANEOUS PROPAGATION</td>
</tr>
<tr>
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<td>PROJECT TEAM</td>
</tr>
<tr>
<td>QRRRN</td>
<td>QUEENS REGULATIONS ROYAL NAVY</td>
</tr>
<tr>
<td>QSP</td>
<td>QUASI-STATIC OVER PRESSURE</td>
</tr>
<tr>
<td>RAS</td>
<td>REPLENISHMENT AT SEA RAS(A) = (AMMUNITION)</td>
</tr>
<tr>
<td>RDAR</td>
<td>ROLLING DESIGN AUTHORITY REQUIREMENT</td>
</tr>
<tr>
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</tr>
<tr>
<td>RFSD</td>
<td>READY FOR SEA DATE</td>
</tr>
<tr>
<td>RIDDOR</td>
<td>REPORTING OF INJURIES, DISEASES AND DANGEROUS OCCURRENCES REGULATIONS</td>
</tr>
<tr>
<td>RIH</td>
<td>REPLENISHMENT IN HARBOUR</td>
</tr>
<tr>
<td>RM</td>
<td>ROYAL MARINE</td>
</tr>
<tr>
<td>RMPP</td>
<td>ROYAL MARINE PROTECTION PARTY</td>
</tr>
<tr>
<td>SAA</td>
<td>SMALL ARMS AMMUNITION</td>
</tr>
<tr>
<td>SDU</td>
<td>SOUTHERN DIVING UNIT</td>
</tr>
<tr>
<td>SESC</td>
<td>SHIP EXPLOSIVE SAFETY CASE</td>
</tr>
<tr>
<td>SEXSSI</td>
<td>SHIP EXPLOSIVE STORE SAFETY INSTRUCTION</td>
</tr>
<tr>
<td>SF</td>
<td>SPECIAL FORCES</td>
</tr>
<tr>
<td>SFM</td>
<td>SUPERINTENDENT FLEET MAINTENANCE</td>
</tr>
<tr>
<td>SI</td>
<td>SAFETY INSTRUCTION</td>
</tr>
<tr>
<td>SOLAS</td>
<td>SAFETY OF LIFE AT SEA</td>
</tr>
<tr>
<td>SPF</td>
<td>SHIP’S PROTECTION FORCE</td>
</tr>
<tr>
<td>Abbreviation</td>
<td>Description</td>
</tr>
<tr>
<td>--------------</td>
<td>--------------------------------------</td>
</tr>
<tr>
<td>SPOD</td>
<td>SEAPORT OF DISEMBARKATION</td>
</tr>
<tr>
<td>SPOE</td>
<td>SEAPORT OF EMBARKATION</td>
</tr>
<tr>
<td>SQEP</td>
<td>SUITABLY QUALIFIED AND EXPERIENCED PERSONNEL</td>
</tr>
<tr>
<td>SESB</td>
<td>SHIP ENVIRONMENT AND SAFETY BOARD</td>
</tr>
<tr>
<td>SME</td>
<td>SUBJECT MATTER EXPERT</td>
</tr>
<tr>
<td>SSMOB</td>
<td>SHIPS STAFF MOVE ONBOARD</td>
</tr>
<tr>
<td>SSS</td>
<td>SOLID SUPPORT SHIP</td>
</tr>
<tr>
<td>SSO</td>
<td>SOLID SUPPORT OFFICER</td>
</tr>
<tr>
<td>SUO</td>
<td>SPECIALIST USER OFFICER</td>
</tr>
<tr>
<td>TAC</td>
<td>TEMPORARY AMMUNITION CUSTODIAN</td>
</tr>
<tr>
<td>ULC</td>
<td>UNIT LOAD CONFIGURATION</td>
</tr>
<tr>
<td>ULS</td>
<td>UNIT LOAD SPECIFICATION</td>
</tr>
<tr>
<td>UN</td>
<td>UNITED NATIONS</td>
</tr>
<tr>
<td>WEO</td>
<td>WEAPON ENGINEER OFFICER</td>
</tr>
<tr>
<td>WHP</td>
<td>WEAPON HANDLING PARTY</td>
</tr>
<tr>
<td>XO</td>
<td>EXECUTIVE OFFICER</td>
</tr>
</tbody>
</table>
REFERENCES AND ASSOCIATED PUBLICATIONS
(in relation to JSP 862 Part 1)

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BR 2924 Radio Hazards in Naval Service
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JSP 8622(8)  Floating Mine Disposal Equipment
SSP 54  Procedures, Practices and Instructions for Resident Project Officers
TIAD  Technical Instructions for Armament Depots
INDEX

Access Condition 0208
Accident – see Incident 0114, Chap 4, 0503
Accounting for Naval Armament Stores 0101
Acquaintance with and enforcement of regulations 0116
Acquaintance with general safety arrangements 0359
Action stations - issue of keys 0221
Adjacent compartments:
  Inspection 0210
  Points to receive attention 0211
  Stores not to be stowed within 0212
Advice on risk to ships officers 1001
Air explosives stores:
  Application 0365
  Stowage and handling 0366
Air Weapon Supply Officer 0115
Aircraft armament stores in exposed positions 0373
Aircraft hangars:
  Ready use magazine lockers for smoke and pyrotechnic stores 0368
  Storage of prepared weapons and explosives 0367
Airwave Radios 0329
Allowable quantities of explosive stores 0306
ALES 1106
Amendment proposal form - JSP 862 Page iv
Ammunition:
  Small arms ammunition - Assembly of belts from loose rounds 0345
  Embarkation while on shore electrical supply 0519
  Embarking and disembarking in wet weather 0517
  Exposed to war gases 0357
  General precautions when lifting 0528
  On board in dry dock 0605
  On the mounting in time of war or High Readiness 0342
  Parked in weapon parks 0380
  Private 0385
  Programme 0502
  Provision for practices and force protection 0378
  Secondary resupply routes 0529
  Unit loads 0516
Ammunitioning:
  Cranes/handling 0524
  In commercial ports 0614
  In foreign ports 0615
  Inspection on receipt of explosive stores 0531
  Preparation 0522, Annex 5A
  Supervision during movements of explosive stores 0523
  Signals Annex 5C-F
  Unauthorised persons to be out of the ship 0520
  XTM Annex 5B
Ammunition packages - Marking of 1302
Application and responsibilities: The Explosives Responsible Officer (ERO) 0105
Application of MMER in JSP 430 not manned by the RN 0119
Approval to embark E3 explosive stores 0321
Approval to embark SF stores 0326
Armament Stores - Failure to function of - Method of reporting 0815
Assault craft 0205
Assembly: Belts from loose small arms ammunition 0345
Associated publications Chapter 15
Audit Chapter 11
Authorised List of Explosive Stores (ALES) 1106
Authorised Stowage in Magazines 0315, 0306
Authority for work or drill 0337
Authority to move explosives outside magazines 0117

BackRAS 0514
Bans and Constraints 0703
Berthing:
HM Naval Bases/commercial ports (Non-RN manned ships and Craft) 0616
HM Naval Bases/commercial ports (RN manned ships and Craft) 0601
In basins 0602
Broken Seal returns 0538
Build and refit/repair - Inspection 1109
Bulk Explosives 0307
Burning/Welding 0213, 0338, 0607

Cameras 0339
Care/custody of explosives in MOD ships/craft not manned by the RN –
   Responsibilities 0119
Care of empty packages, containers and fittings 0535
Carriage in Excess 0306
Carriage of explosives in support of a military force 0321- 0325
Casualty weapons 0808
Casualty Weapons - reduction of risk 0811
CBRN Agents-munitions exposed to 0357
Certificate of Assurance – Return of 4.5 Ammunition Annex 5J
Certificate of Safety – Explosives – CSE 0203, 1106
Certificate of Safety Explosives (Prescriptive) 1106
Certified empty - Magazine lockers - On landing 0610
Certificate Free From Explosives (CFFE) 0539
Choice of berth for embarking or disembarking explosives 0513
Class Ammunition Guides (CAG) 0514
Classification of Explosives 1301
Cleaning with oil 0340
Cleanliness of explosives stowages 0317
Co-operation with Defence Munition Centres (DMCs) 0515
Combined Daily Key and Inspection Register 0223
Commercial ports:
   Ammunitioning restrictions 0614
   Berthing 0614
   Berthing (RN manned ships and Craft) 0601
Compartments and lockers to be kept locked 0208
Competent Maintainer (CM) 0110
Competent User (CU) 0113
Conductive footwear in magazines 0302
Constraints 0703
Corrosion preventive compounds in magazines 0340
Cranes/handling - During ammunitioning 0524
Cranes used for transfer of ammunition 0511
CWI – Conventional Weapon Incident 0916

Damaged ships - Search for explosives 0609
Danger from lightning 0518
Decoy rounds removed from a launcher 0344
De-perming and wiping 0331
Deep water 0834
Deep water - Reporting stores disposed of in 0833
Defect reporting: Non-availability of appropriate forms 0813

S1148D Annex 8D

Naval Ordnance 0819
Defence Munition Centres Co-operation with 0515
Defence Ordnance Safety Group (DOSG) 1102
Definitions of explosives incidents Annex 8C
Definitions of terms used 0103, Chap 14
Delegation of Explosives Responsible Officer duties 0106
Demolition stores 0341, 0330
Demonstrations - Provision of explosives 0384
Departures from JSP 862 (MMERs) Foreword 7
Depth charge - Failure to function - method of reporting 0817
Depth Charges and demolition stores 0341
DERO responsibilities 0106
Development trials 0705, 0706
Disembarkation: (Excluding Certain Guided Weapons) 0506
Disembarkation of Harpoon, VLSW and Sea Viper 0508
Displays - Provision of explosives 0384

Disposal:
Defective explosive stores 0821
Deep water 0834
3 pdr charges 0824
Gun ammunition 0822
Explosive stores showing TNT or Torpex exudation 0830
Fuzes projectile 0826
Hazardous unexploded explosive ordnance - EOD 0820
Jammed primers and detonators 0828
PE 0831
Pyrotechnics 0829
Stores in deep water - Reporting 0833
Unserviceable detonators 0825
Wet or contaminated rounds, cartridges and rocket motors 0823

DM:
Gosport 0546
Plymouth 0547
Forth Area 0548
Clyde Area 0549
DOAS 0552
DOOQ responsibilities 0109
DOSG 1102
Drill ammunition 0359
Drill and Practice torpedoes 0359
Dry dock with ammunition on board - Tests and examination 0606
Dry docking, refitting or repairs 0604/0605
Duty Fleet Controller (DFC) 0804
Duty Holder (Platform PT) Responsibilities

Embarkation - E3 explosive stores

Embarkation: (Excluding Certain Guided Weapons)

Embarkation of Harpoon, VLSW and Sea Viper

Embarkation of Allied E3 explosives

Embarkation of ammunition while on shore electrical supply

Embarkation of seized or enemy ammunition

Embarkation of Special Forces

Extraordinary Embarkation of Explosives (E3)

Embarking and disembarking ammunition in wet weather

Embarking or disembarking explosives - Choice of berth

Emergencies involving explosives

Chapter 9

Emergencies involving explosives – Aide Memoire

Emergency:

Advice/Assistance

Issue of keys

Lighting

Policy for spraying

E3 explosive stores:

Application for certification

Stowage

Restricted/Unrestricted

Issue and return of personal explosives

Embarked Forces/SF Representative

E3 Weapon Parks/Dumps

Empty and partially empty packages

Enforcement of regulations

EOD: Explosive ordnance disposal - Requests for assistance

ERO responsibilities

Examination of outfits for withdrawal of suspect stores

Excessive temperatures

Executive Officer - Responsibilities

Explosives Incident - Action to be taken

Explosives Incident - Definitions

Explosives Incident - MOD Response

Explosive ordnance disposal - Requests for

Explosive responsibilities for 3 watch manning vessels

Explosive safety - Other officers responsibilities

Explosive stores - Precautions during movement

Explosive stores landed on deposit

Explosive stores lowered in deep water - Signal format

Explosives - Classification

E3 Restricted

E3 Unrestricted

E3 Flowchart

Damaged ships

Exposed to war gases

Identification marks

Involved in fire

Jettisoning position

Special Forces

Stowed outside magazines

1102

0321

0505

0507

0543

0519

0544

0541

0321

0517

0513

Chapter 9

Annex 9A

0804, Annex 9A

0221

0339

0327

0322

0323

0322

0379

0325

0350

0362

0101

Annex 8A

0105

0703

0334

0104

0804, Chapter 9

Annex 8C

Chapter 12

Annex 8A

0225

0115

0521

0536

Annex 8B

1301

0322

0322

Annex 3D

0609

0357

1304

0328

0358, 0383

0326, 0541

0603
<table>
<thead>
<tr>
<th>Trials</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Whilst leaving naval bases</td>
<td>0706</td>
</tr>
<tr>
<td>Explosives Delivery Points - (EDPs) - Location</td>
<td>0612</td>
</tr>
<tr>
<td>Explosives during maintenance periods</td>
<td>0118</td>
</tr>
<tr>
<td>Explosives Log</td>
<td>0607</td>
</tr>
<tr>
<td>Explosives outside magazines - Authority to move</td>
<td>0215</td>
</tr>
<tr>
<td>Explosives Responsible Officer (ERO): Application and responsibilities</td>
<td>0117</td>
</tr>
<tr>
<td>Explosives Responsible Officer (ERO): Delegation of duties</td>
<td>0105</td>
</tr>
<tr>
<td>Explosives stowages - Inspections</td>
<td>0106</td>
</tr>
<tr>
<td>Exposed positions - Aircraft armament stores</td>
<td>0206</td>
</tr>
<tr>
<td>Extraordinary Military Tasks</td>
<td>0373</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Failure: Armament Stores - Method of reporting</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Depth charge - Method of reporting</td>
<td>0815</td>
</tr>
<tr>
<td>Flight in air material</td>
<td>0817</td>
</tr>
<tr>
<td>Guided weapons - Method of reporting</td>
<td>0818</td>
</tr>
<tr>
<td>Naval Ordnance</td>
<td>0816</td>
</tr>
<tr>
<td>Torpedoes - Method of reporting</td>
<td>0818</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fireworks / displays</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed ammunition and clearing charges</td>
<td>0819</td>
</tr>
<tr>
<td>Fixed ammunition removed from a gun</td>
<td>0355</td>
</tr>
<tr>
<td>Flight in air material - Failure to function</td>
<td>0344</td>
</tr>
<tr>
<td>Footwear</td>
<td>0818</td>
</tr>
<tr>
<td>Foreign ports - Ammunitioning restrictions</td>
<td>0302</td>
</tr>
<tr>
<td>Fumigation</td>
<td>0615</td>
</tr>
<tr>
<td>Fundamental precautions during movement of explosive store</td>
<td>0318</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>General precautions for handling explosives</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>General precautions when lifting ammunition</td>
<td>0532</td>
</tr>
<tr>
<td>General safety arrangements</td>
<td>0528</td>
</tr>
<tr>
<td>Gibraltar</td>
<td>0116</td>
</tr>
<tr>
<td>Groups of E3 explosive stores</td>
<td>0550</td>
</tr>
<tr>
<td>Guided weapons: Failure to function - Method of reporting</td>
<td>0322</td>
</tr>
<tr>
<td>Handling of</td>
<td>0816</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Handling explosives - General precautions</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Handling of guided weapons and torpedoes</td>
<td>0530</td>
</tr>
<tr>
<td>HM Naval Bases/commercial ports:</td>
<td></td>
</tr>
<tr>
<td>Berthing (RN manned ships and Craft)</td>
<td>0530</td>
</tr>
<tr>
<td>Berthing (Non-RN manned ships and Craft)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Illuminators Chemical</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Incident Commander</td>
<td>0339</td>
</tr>
<tr>
<td>Incident Reporting</td>
<td>0805</td>
</tr>
<tr>
<td>Incident / Serious Incident during movement of explosive stores</td>
<td>0804/Annex 9A</td>
</tr>
<tr>
<td>Incidents - Actions to be taken</td>
<td>0510</td>
</tr>
<tr>
<td>Inflammable fluids/explosive stores</td>
<td>0804, 0908</td>
</tr>
<tr>
<td>Inspection - Record of</td>
<td>0512</td>
</tr>
<tr>
<td>Inspection on completion of movement of explosive store</td>
<td>0224</td>
</tr>
<tr>
<td>Inspections:</td>
<td></td>
</tr>
<tr>
<td>Assault craft</td>
<td>0533</td>
</tr>
<tr>
<td>Magazines/compartment/hoists/stowages</td>
<td></td>
</tr>
<tr>
<td>Points to receive attention</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Inspections - magazines and adjacent compartments schedule</th>
<th></th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Annex 2A</th>
<th></th>
</tr>
</thead>
</table>
MOD Incident Response
Movement of explosive stores

N36 Containers Certificate of Assurance
Naked lights in Magazines
Naval Armament Stores - Accounting
Naval Authority Explosives (NA EXP)
NBC explosive safety groups
Near Miss
Non-availability of appropriate forms
Non-RN manned ships/craft required to carry explosives

OOQ log format
OOQ log check sheet
OOQ responsibilities
Operation of spray valves
Operational Access condition
Operational Risk
OSRP
Other officers - Responsibilities - Explosive safety

Pac 24
Package Examination Room (PER)
Packages
Packages exposed to weather
Packages: Identification marks
Sealing of
Paying off into Naval Base control - Removal of all explosives
Permission to embark explosive stores

Power cartridges
Pre-embarkation inspections/visits
Preparation for ammunitioning
Prepared weapons and explosives stored in aircraft hangars
Private ammunition
Provision of ammunition for practices
Provision of explosives for demonstrations and displays
Purpose of reporting incidents, failures and defects associated with explosive
Pyrotechnic displays
Pyrotechnics – movement prior to sailing

Quantity of explosive stores allowed

Radio and static hazards
Radio hazards to air weapons
RATTAM
Re-stowing ammunition in packages
Record of inspection
Record of inspections
Refit, dry docking or repairs - Retaining explosives on board
Refitting, repairs or dry docking
Regulations - Non-RN manned ships/craft required to carry explosives
Removal of all explosives - Paying off into Naval Base control
Reporting of Injuries, Diseases and Dangerous Occurrences Regulations

(RIDDOR)
Reporting stores disposed of in deep water 0833
Reporting/defects - Form S1148D 0815
Requests for Explosive Ordnance Disposal Annex 8A
Response Force ammunition 0342, 0378, 1111
Responsibilities and application - The Officer of Quarters 0108
Responsibilities during transfer of ammunition by lighter 0504
Responsibilities - Ministry of Defence - MMERs 1102
Responsibilities of the Executive Officer 0104
Responsibility - Care and custody of explosives - MOD ships/craft not manned by RN 0119
Responsibility for cranes used for transfer of ammunition 0511
Responsibility of the E3/SF Representative 0325
Restriction of the VERTREP of explosive stores Chapter 10
Restrictions on handling/lifting equipment Annex 5I
Retaining explosives on board during maintenance and repair periods 0607
Return of explosive stores for examination 0704
Return of explosive stores to armament support ship 0537
Return of empty ammunition lockers, packages, containers and arisings - Declaration "CFFE" 0539
RFA SSS 0551
Risk Management – Operational 1001
Risk Management – VERTREP 1003
Road Transportation of explosive stores 0540
Rounds – see Inspections
Routine examination: Landing of explosive stores 0702
Purpose and management 0701
RU magazine lockers - Smoke and pyrotechnic stores in hangars 0368

S1148D - Reporting/defect forms 0815
S31319 guidance Annex 4C, 4D
Safe custody 0408
Safe stowage of explosives 0304, 0306
Safety boundary for launchers/tubes/containers 0213
Safety precautions - Ammunition parked in weapon parks 0380
Sealing of packages and containers 1303
Sealing of packages of ammunition 0364
Secondary ammunition resupply routes 0529
Securing of approaches 0209
Security Condition 0208
Security Seals 0207
Serious Incidents - Actions to be taken 0804
Ship Explosive Store Safety Instruction (SEXSSI) 0204
Ship life rafts - Stowage of signals distress 0352
Ship Protection Force ammunition 0305, 0342, 1111
Ship Environment and Safety Board and Defence Ordnance Safety Board 1102
Classification of Explosives 1301
Ships officers’ responsibilities - MMERs Foreword 5, 6
Shore electrical supply 0213/0519
Seized ammunition 0544
Signal format:
   Full Outfit/Top up greater than SQTU Annex 5C
   SQTU Annex 5D
   Portsmouth UHAF/Bedenhem Pier Booking Annex 5E
   Retention of Explosives in Faslane Shiplift Annex 5F
Explosive stores lowered in deep water
  Annex 8B
Cease JSP 862/Disembark all explosives
  Annex 11A
Embark Sea Pyros/SPF Ammunition
  Annex 11A

Simultaneous transfer of flammable fluids and explosives during RAS 0512
Small arms - Assembly of belts from loose rounds 0345
Small arms ammunition: Wetted or exposed - Below 20 mm 0347
Small Quantity Top Up (SQTU) 0513
Solar radiation 0348
Special Forces 0326, 0541
Specialist User Officers (SUO) 0111
Spray systems - Maintenance and testing 0224
Spray valves - Operation 0332
Spraying in an emergency 0332
Squadron Air Engineer Officer 0115
Stores disposed of in deep water - Reporting 0833
Stowage at gun, launcher and ready use positions 0342
Stowage of armed aircraft in hangars 0374
Stowage of E3 stores 0323
Stowage of SF Munitions 0326
Stowage of seized ammunition 0544
Stowage Plans 0307 to 0313
Stripping down or tampering with explosives and pyrotechnics 0301
Supervision - Movement of explosive stores during ammunitioning 0523
Supervision of work or drill in magazines 0320

Temporary Ammunition Custodian (TAC) 0112
TAC – Tri Service Personnel 0112
Tampering with explosives and pyrotechnics 0301
Temperature of magazines with adjacent fresh water tanks 0336
Temperature - Loaded conventional weapon system 0335, 0346
Temperature Record Card 0222
Temperatures - Magazine and lockers 0334
Test and Assembly Magazines 0316
Testing - Live weapons or stores 0370
Thermometers 0333
Torpedoes: Failure to function - Method of reporting 0817
Handling of 0530
Transfer of ammunition by lighter - Responsibilities 0504
Transition arrangements – certification 1107
Transportation – Small arms ammunition 0540
Trials involving the use of explosive stores 0706

Unauthorised persons - To be out of ship during ammunitioning 0520
Unauthorised Stowage in Magazines 0315, 0212
Unit loads 0516
Unloading air weapons 0374
Use and examination of approved lifting appliances 0527
Use of ammunition for drill and instruction 0360
Use of tools in Magazines 0338, 0341

VERTREP 1003 - 1008
Visitors - To be out of ship during ammunitioning 0520
<table>
<thead>
<tr>
<th>Task Description</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>War Gasses - Ammunition and explosives exposed to</td>
<td>0357</td>
</tr>
<tr>
<td>Wartime - Ammunition on the mounting</td>
<td>0342</td>
</tr>
<tr>
<td>Weapon/explosives store jettisoning position</td>
<td>0358, 0383</td>
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<tr>
<td>Weapon Lifts/Hoists</td>
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<tr>
<td>Weapon security</td>
<td>0343</td>
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<tr>
<td>Welding/Burning</td>
<td>0213, 0338, 0607</td>
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<tr>
<td>Wet weather - Embarking and disembarking ammunition</td>
<td>0517</td>
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<tr>
<td>Wetted or exposed small arms ammunition below 20 mm</td>
<td>0347</td>
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<tr>
<td>Wiping and de-perming</td>
<td>0331</td>
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<tr>
<td>Work or drill in magazines</td>
<td>0320</td>
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<tr>
<td>XO responsibilities</td>
<td>0104</td>
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