

**Navy Advancement Center**

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# **Advancement Handbook for Torpedoman's Mate**

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## **PREFACE**

The purpose of the Advancement Handbook is to help you focus your preparation for Navywide advancement-in-rating examinations. The bibliographies (BIBs) together with this handbook form a comprehensive examination study package. Since this handbook provides skill and knowledge components for each paygrade of the Torpedoman's Mate rating, it helps you concentrate your study on those areas that may be tested. This feature will help you get the most out of your study time.

Each page in Parts 1 through 4 of this Advancement Handbook presents general skill areas, specific skill areas, the knowledge factors associated with each skill area, the pertinent references that address each skill, and the subject areas that may be covered on the examination. The skill statements describe the skills you are expected to perform for each paygrade. The skill statements are cumulative; that is, you are responsible for the skills for the paygrade you are competing for, your present paygrade, and all paygrades below.

Although this handbook is very comprehensive, it cannot cover all the tasks performed in the rating. As a result, the advancement examinations may contain questions more detailed than described in the "*Exam Expectations*" section of the skill areas.

Remember that advancement competition is keen, so your keys to advancement include not only comprehensive advancement examination study but also sustained superior performance.

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# CONTENTS

PARTS		PAGE
1	Advancement Handbook for TM3.....	1-1
2	Advancement Handbook for TM2.....	2-1
3	Advancement Handbook for TM1.....	3-1
4	Advancement Handbook for TMC.....	4-1
Appendix 1	References Used in This Advancement Handbook	A-1

# Part 1

## Advancement Handbook for TM3

## Advancement Handbook for TM3

<p>General TM <i>Skill Area</i></p>	<p><b>Ordnance/Component Maintenance/Operations</b></p>
<p>A <i>skill</i> you are expected to perform from the General Skill Area above:</p>	<p><b>Perform receipt and transfer inspections on weapons</b></p>
<p><i>Knowledge</i> you should have to perform this skill:</p>	<p>How to:</p> <ul style="list-style-type: none"> <li>• Inspect torpedo joint bands</li> <li>• Inspect transducers for damage</li> <li>• Inspect torpedoes for Otto Fuel leaks</li> <li>• Inspect torpedo exploders</li> <li>• Inspect exercise head section</li> <li>• Clean and inspect propellers</li> <li>• Clean and inspect rotors and stators</li> <li>• Conduct torpedo continuity checks</li> <li>• Inspect missiles</li> <li>• Inspect A-cables</li> </ul> <p>Clean, inspect, and test torpedo mounted dispensers (TMDs)</p>
<p><i>References</i> you should study to gain the knowledge you need to perform this skill:</p>	<ul style="list-style-type: none"> <li>• <i>Mk 46 Torpedo/Mk46 REXTORP Flight Accessories, SW512-AO-ASY-010</i></li> <li>• <i>Heavyweight Torpedo, Submarine Tenders (AS) and Shore Facilities Ready-For-Issue (RFI) Activity Procedures, OP4024 Vol 3 Rev. 5</i></li> <li>• <i>Procedures Manual for Lightweight Torpedo Firing Craft, SW515-AO-PRO-020/MK46</i></li> <li>• <i>Lightweight Torpedo Shipboard Handling, Storage, and Firing Procedures, SW515-AO-PRO-040/MK50</i></li> <li>• <i>Heavyweight Torpedo Submarine Tenders (AS) and Shore Facilities Ready-For-Issue (RFI) Activity Procedures, NAVSEA OP 4024 VOL. 3</i></li> </ul>

	<ul style="list-style-type: none"> <li>• <i>Firing Craft Operating Procedures and Checklists</i>, OD 44979 Volume 14 Part 1 Rev. 4</li> <li>• <i>Ammunition Afloat</i>, NAVSEA OP 4</li> <li>• <i>Ammunition and Explosives Ashore</i>, NAVSEA OP 5</li> <li>• <i>Inspection Requirements for Receipt, Segregation, Storage and Issue</i>, NAVSEA TW010-AC-ORD-010</li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions on receipt and transfer inspection procedures; acceptance and rejection criteria; record books and documentation.</p>

## Advancement Handbook for TM3

<p>General TM <i>Skill Area</i></p>	<p><b>Ordnance/Component Maintenance/Operations</b></p>
<p>A <i>skill</i> you are expected to perform from the General Skill Area above:</p>	<p><b>Prepare torpedoes for launch</b></p>
<p><i>Knowledge</i> you should have to perform this skill:</p>	<p>How to:</p> <ul style="list-style-type: none"> <li>• Prepare exercise torpedoes for launch</li> <li>• Conduct torpedo firing transmission checks</li> <li>• Preset torpedoes</li> <li>• Install and remove aircraft accessories</li> </ul>
<p><i>References</i> you should study to gain the knowledge you need to perform this skill:</p>	<ul style="list-style-type: none"> <li>• <i>Mk 46 Torpedo/Mk46 REXTORP Flight Accessories</i>, SW512-AO-ASY-010</li> <li>• <i>Procedures Manual for Lightweight Torpedo Firing Craft</i>, SW515-AO-PRO-020/MK46</li> <li>• <i>Lightweight Torpedo Shipboard Handling, Storage, and Firing Procedures</i>, SW515-AO-PRO-040/MK50</li> <li>• <i>Ammunition Afloat</i>, NAVSEA OP 4</li> <li>• <i>Ammunition and Explosives Ashore</i>, NAVSEA OP 5</li> <li>• Planned Maintenance System (PMS) applicable Maintenance Requirement Cards (MRCs)</li> <li>• <i>Torpedo Setting Panel MK 331 MOD 3</i>, SW189-AD-MMO-010</li> <li>• <i>Torpedo Workshop Equipment Presetter MK 473 MOD 0</i>, SW515-AE-INS-010/MK 437 MOD 0</li> <li>• <i>Torpedo Presetter Test Set MK 432 MOD 4</i>, ST890-C4-MAN-010/MK 432 MOD 4</li> </ul>

<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions on the installation and removal of aircraft accessories; preparation of torpedoes for launch from fixed-wing aircraft, LAMPS helicopters, and surface vessel torpedo tubes; torpedo presetting; prefire checks and required indications.</p>
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## Advancement Handbook for TM3

<p>General TM <i>Skill Area</i></p>	<p><b>Ordnance/ Component Maintenance/ Operations</b></p>
<p>A <i>skill</i> you are expected to perform from the General Skill Area above:</p>	<p><b>Conduct torpedo post-run maintenance</b></p>
<p><i>Knowledge</i> you should have to perform this skill:</p>	<p>How to:</p> <ul style="list-style-type: none"> <li>• Perform fresh water washdown on torpedoes</li> <li>• Clean and preserve weapons surfaces</li> <li>• Conduct torpedo post-run maintenance</li> </ul>
<p><i>References</i> you should study to gain the knowledge you need to perform this skill:</p>	<ul style="list-style-type: none"> <li>• <i>Mk 46 Torpedo/Mk46 Rextorp Flight Accessories</i>, SW512-AO-ASY-010</li> <li>• <i>Ammunition Afloat</i>, NAVSEA OP 4</li> <li>• <i>Ammunition and Explosives Ashore</i>, NAVSEA OP 5</li> <li>• Planned Maintenance System (PMS) applicable Maintenance Requirement Cards (MRCs)</li> <li>• <i>Localization and Recovery of Lightweight Torpedoes</i>, SW515-AO-PRO-010/MK46</li> <li>• <i>Recoverable Exercise Torpedo (REXTORP) MK46</i>, SW515-AG-OMP-010/MK46 REXTORP</li> <li>• <i>Recoverable Exercise Torpedo (REXTORP) MK50</i>, SW516-AB-MMO-010/MK50 REXTORP</li> <li>• <i>Recoverable Exercise Torpedo (REXTORP) MK50</i>, SW516-AC-MMI-010/MK50 REXTORP</li> <li>• <i>Heavyweight Torpedo Submarine Tenders (AS) and Shore Facilities Ready-For-Issue (RFI) Activity Procedures</i>, NAVSEA OP 4024 VOL. 3</li> </ul>

<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions on post-run maintenance requirements for the MK46 exercise torpedo, MK46 REXTORP, MK50 exercise torpedo, and MK50 REXTORP; torpedo flushing, and cleaning and preservation of the weapons' surfaces.</p>
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## Advancement Handbook for TM3

<p>General TM Skill Area</p>	<p><b>Ordnance/ Component Maintenance/ Operations</b></p>
<p>A <i>skill</i> you are expected to perform from the General Skill Area above:</p>	<p><b>Perform weapons maintenance</b></p>
<p><i>Knowledge</i> you should have to perform this skill:</p>	<p>How to:</p> <ul style="list-style-type: none"> <li>• Remove corrosion and salt deposits on torpedoes</li> <li>• Inspect torpedo joint bands</li> <li>• Inspect transducers for damage</li> <li>• Inspect torpedoes for Otto Fuel leaks</li> <li>• Clean warhead sections</li> <li>• Inspect warhead sections</li> <li>• Inspect torpedo exploders</li> <li>• Clean exercise head sections</li> <li>• Inspect exercise head sections</li> <li>• Clean and preserve weapons surfaces</li> <li>• Connect torpedoes to test sets</li> <li>• Clean and inspect propellers</li> <li>• Clean and inspect rotors and stators</li> <li>• Conduct torpedo continuity checks</li> <li>• Inspect missiles</li> <li>• Clean and inspect tomahawk hose assemblies</li> <li>• Splice torpedo communication wires</li> <li>• Inspect A-cables</li> <li>• Clean, inspect, and test torpedo mounted dispensers (TMDs)</li> <li>• Install TMD on torpedoes</li> <li>• Install and remove aircraft accessories</li> </ul>
<p><i>References</i> you should study to gain the knowledge you need to perform this skill:</p>	<ul style="list-style-type: none"> <li>• <i>Mk 46 Torpedo/Mk46 REXTORP Flight Accessories, SW512-AO-ASY-010</i></li> <li>• <i>Ammunition Afloat, NAVSEA OP 4</i></li> <li>• <i>Ammunition and Explosives Ashore, NAVSEA OP 5</i></li> </ul>

- PMS, applicable MRCs
- *Localization and Recovery of Lightweight Torpedoes*, SW515-AO-PRO-010/MK46
- *Maintenance Manual for MK 46 MOD 5 Torpedo*, SW515-A5-MIB-010/(U) MK 46 MOD 5
- *Maintenance Manual for MK 46 MOD 5 Torpedo*, SW515-A5-MIB-020/(U) MK 46 MOD 5
- *Recoverable Exercise Torpedo (REXTORP) MK46*, SW515-AG-OMP-010/MK46 REXTORP
- *Recoverable Exercise Torpedo (REXTORP) MK50*, SW516-AB-MMO-010/MK50 REXTORP
- *Recoverable Exercise Torpedo (REXTORP) MK50*, SW516-AC-MMI-010/MK50 REXTORP
- *Tomahawk Cruise Missile UGM-109-1*, SW820-AA-MMI-010/UGM-109-1
- *Torpedoes Mark 48 and Mark 48 ADCAP Torpedo Mounted Dispenser Mark 10 Mods 0 and 1*, NAVSEA OP 4443
- *Intermediate Maintenance Activity, Assembly, Test, and Turnaround Procedures*, NAVSEA OP 4024 VOL. 1 (parts 1 & 2)
- *Intermediate Maintenance Activity, Troubleshooting Procedures*, NAVSEA OP 4024 VOL. 2 (parts 1 & 2)
- *Torpedo MK 48 All Mods, Intermediate Maintenance Activity, Piece Part Inspection Procedures*, SW513-EO-PRO-030
- *Torpedo MK 48 ADCAP, Intermediate Maintenance Activity, Assembly, Test, and Turnaround Procedures (part 1)*, SW513-EO-PRO-040
- *Turnaround Procedures (part 2)*, SW513-EO-PRO-050
- *Torpedo MK 48 ADCAP, Intermediate Maintenance Activity, Assembly, Test, and*
- *Torpedo MK 48 ADCAP, Intermediate Maintenance Activity, Troubleshooting Procedures*, SW513-EO-PRO-060

<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions on the inspection and maintenance of missiles, torpedoes, torpedo groups; and inspection, maintenance, installation and removal of torpedo-mounted dispensers, aircraft accessories, and missile hose assemblies.</p>
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## Advancement Handbook for TM3

<p>General TM <i>Skill Area</i></p>	<p><b>Small Arms Maintenance</b></p>
<p>A <i>skill</i> you are expected to perform from the General Skill Area above:</p>	<p><b>Maintain small arms (pistols, rifles and shotguns)</b></p>
<p><i>Knowledge</i> you should have to perform this skill:</p>	<p>How to:</p> <ul style="list-style-type: none"> <li>• Clean and inspect pistols</li> <li>• Clean and inspect magazines</li> <li>• Clean and inspect rifles</li> <li>• Clean and inspect shotguns</li> </ul>
<p><i>References</i> you should study to gain the knowledge you need to perform this skill:</p>	<ul style="list-style-type: none"> <li>• <i>Gunner's Mate</i>, NAVEDTRA 12443</li> <li>• PMS, applicable MRCs</li> <li>• <i>Military Shotgun, 12 Gauge Pump Action Model 870</i>, TO11W3-6-2-1</li> <li>• <i>Operator's Manual for Rifle, 5.56mm, M16, Rifle, 5.56mm, M16A1</i>, TM 9-1005-249-10</li> <li>• <i>Operator's Manual w/Components List Rifle 5.56mm, M16A2</i>, TM9-1005-319-10</li> <li>• <i>Operator's Manual for Rifle, 7.62mm, M14, Rifle, 7.62mm, M14A1, Bipod, Rifle, M2</i>, TM 9-1005-223-10</li> <li>• <i>Organizational Maintenance Manual Including Repair Parts And Special Tools Lists for Rifle, 7.62mm, M14, Rifle, 7.62mm, M14A1, Bipod, Rifle, M2</i>, TM 9-1005-223-20</li> <li>• <i>Pistol, CAL .45, Automatic</i>, TM 9-1005-211-12</li> <li>• <i>Pistol, Semiautomatic, 9mm, M9</i>, SW370-AA-MMO-010</li> <li>• <i>.38 S/M Wesson</i>, TM 9-1005-206-14&amp;P-1</li> <li>• <i>.50 Cal Machine Gun</i>, TM 9 1005-213-10</li> <li>• <i>M60 Machine Gun</i>, TM 9 1005-224-24</li> </ul>

<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions on how to assemble, disassemble, maintain, and repair small arms.</p>
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## Advancement Handbook for TM3

General TM <i>Skill Area</i>	<b>Small Arms Maintenance</b>
A <i>skill</i> you are expected to perform from the General Skill Area above:	<b>Clean and inspect line throwing rifle adapter kits</b>
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• How to clean and inspect line throwing rifle adapter kits</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• <i>Gunner's Mate</i>, NAVEDTRA 12443</li> <li>• PMS, applicable MRCs</li> <li>• <i>Description, Operation, and Maintenance MK87 MOD1 Line Throwing Rifle Adapter Kit</i>, SW350-A1-MMO-010</li> </ul>
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on the operation, maintenance, installation, and removal of the MK87 MOD 1 line throwing rifle adapter kit.

## Advancement Handbook for TM3

General TM <i>Skill Area</i>	<b>Small Arms Maintenance</b>
A <i>skill</i> you are expected to perform from the General Skill Area above:	<b>Maintain security force equipment</b>
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• How to clean and inspect security force equipment</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• <i>Gunner's Mate</i>, NAVEDTRA 12443</li> <li>• PMS, applicable MRCs</li> </ul>
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on the inspection, maintenance, and repair of security force equipment.

## Advancement Handbook for TM3

<p>General TM <i>Skill Area</i></p>	<p><b>Torpedo Tube System Maintenance/ Operation</b></p>
<p>A <i>skill</i> you are expected to perform from the General Skill Area above:</p>	<p><b>Conduct maintenance on torpedo tubes</b></p>
<p><i>Knowledge</i> you should have to perform this skill:</p>	<p>How to:</p> <ul style="list-style-type: none"> <li>• Conduct overall combat systems operability tests (OCSOT)</li> <li>• Test connectors for pin continuity</li> <li>• Test cables for insulation resistance</li> <li>• Clean and lubricate torpedo tubes</li> <li>• Inspect seals, gaskets, and o-rings</li> <li>• Replace seals, gaskets, and o-rings</li> <li>• Inspect torpedo tube operating mechanisms</li> <li>• Test and inspect torpedo tube hydraulic systems</li> <li>• Test and inspect torpedo tube pneumatic systems</li> <li>• Test and inspect torpedo tube mechanical systems</li> <li>• Clean and lubricate torpedo tube locking rings</li> <li>• Inspect torpedo tube locking rings</li> <li>• Conduct torpedo prefiring tests</li> <li>• Inspect torpedo tube operating mechanisms</li> <li>• Test operate torpedo tubes</li> <li>• Remove and replace breech mechanisms</li> <li>• Charge breech mechanisms</li> <li>• Remove and replace firing valves on breech mechanisms</li> <li>• Perform a hydrostatic test of breech mechanisms</li> <li>• Lock the torpedo securing mechanism in the tube</li> <li>• Test and inspect torpedo tube barrel heaters</li> </ul>

	<ul style="list-style-type: none"> <li>• Remove the torpedo securing mechanism from the tube</li> <li>• Replace torpedo tube barrel heaters</li> </ul>
<p><i>References you should study to gain the knowledge you need to perform this skill:</i></p>	<ul style="list-style-type: none"> <li>• Combat Systems Operational Sequencing System (CSOSS), as applicable.</li> <li>• PMS, applicable MRCs</li> <li>• <i>Description, Operation, Maintenance, and Illustrated Parts Breakdown Surface Vessel Torpedo Tube Mark 32 MOD 5 and 7, SW395-AC-MMO-010</i></li> <li>• <i>Description, Operation, Maintenance, and Illustrated Parts Breakdown Surface Vessel Torpedo Tube Mark 32 MOD 9, SW395-AD-MMO-010</i></li> <li>• <i>Description, Operation, Maintenance, and Illustrated Parts Breakdown Surface Vessel Torpedo Tube Mark 32 MOD 14 and Bulkhead Mounted Control Box Mark 60 MOD 0, SW395-AE-MMO-010</i></li> <li>• <i>Description, Operation, Maintenance, and Illustrated Parts Breakdown Surface Vessel Torpedo Tube Mark 32 MOD 15 and Interface Junction Box Mark 70 MOD 0, SW395-AJ-MMO-010</i></li> <li>• <i>Description, Operation, Maintenance, and Illustrated Parts Breakdown Surface Vessel Torpedo Tube Mark 32 MOD 17/18, SW395-AM-MMO-010</i></li> <li>• <i>Description, Operation, Maintenance, and Illustrated Parts Breakdown Surface Vessel Torpedo Tube Mark 32 MOD 19 and Bulkhead Mounted Control Box Mark 60 MOD 0, SW395-AQ-MMO-010</i></li> <li>• <i>Workshop Equipment Use and Maintenance Surface Vessel Torpedo Tubes Mark 32 All MODs, NAVSEA OD 46508</i></li> <li>• <i>Description, Installation, Operation, Maintenance, and Illustrated Parts</i></li> <li>• <i>Breakdown Air Charging Panel and Cabinet Assembly MK429 MOD 0, SW395-AH-MMM-010</i></li> </ul>

	<ul style="list-style-type: none"> <li>• <i>Description, Operation, Maintenance, and Illustrated Parts Breakdown Air Charging Panel and Cabinet Assembly MK429 MOD 1, SW395-AL-MMO-010</i></li> <li>• <i>Description, Installation, Operational Use, and Illustrated Parts Breakdown Torpedo Loading Tray Mark 7 MOD 0, SG420-BG-MMO-010</i></li> <li>• <i>Description, Installation, Operational Use, and Illustrated Parts Breakdown Torpedo Loading Tray Mark 8 MOD 0, SG420-BG-MMO-010</i></li> <li>• <i>Description, Installation, Operational Use, and Illustrated Parts Breakdown Torpedo Loading Tray Mark 9 MODs 0,1,2, and 3, SG420-BH-MMO-010</i></li> <li>• <i>Torpedo Loading Tray Mark 3 MOD 0 and 1, NAVORD OD 4066</i></li> <li>• <i>Shipboard Installation, Inspection, and Acceptance Testing Surface Vessel Torpedo Tube Mark 32 MOD 14 and Interface Junction Box Mark 70 MOD 0, SW395-AJ-IIN-010</i></li> <li>• <i>Shipboard Installation, Inspection, and Acceptance Testing Surface Vessel Torpedo Tube Mark 32 MODs 5 and 7, SW395-AC-MME-010</i></li> <li>• <i>Torpedo Setting Panel MK 331 MOD 3,SW189-AD-MMO-A10</i></li> <li>• <i>Torpedo Presetter Test Set Mark 432 MODs 2 and 3, ST890-A5-MMA-010</i></li> <li>• <i>Torpedo Presetter Test Set MK 432 MOD 4, ST890-C4-MAN-010/MK 432 MOD 4</i></li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions on torpedo tube operation, inspection, testing, maintenance, and repair of surface vessel torpedo tubes and associated equipment including breech mechanisms, torpedo securing mechanisms, and loading trays.</p>

## Advancement Handbook for TM3

<p>General TM <i>Skill Area</i></p>	<p><b>Torpedo Tube System Maintenance/ Operation</b></p>
<p>A <i>skill</i> you are expected to perform from the General Skill Area above:</p>	<p><b>Conduct maintenance on torpedo doors</b></p>
<p><i>Knowledge</i> you should have to perform this skill:</p>	<p>How to:</p> <ul style="list-style-type: none"> <li>• Conduct overall combat systems operability tests (OCSOT)</li> <li>• Clean and lubricate torpedo doors</li> <li>• Inspect torpedo doors</li> <li>• Test torpedo doors</li> <li>• Repair torpedo doors</li> <li>• Test connectors for pin continuity</li> <li>• Test cables for insulation resistance</li> <li>• Inspect seals, gaskets, and o-rings</li> <li>• Replace seals, gaskets and o-rings</li> </ul>
<p><i>References</i> you should study to gain the knowledge you need to perform this skill:</p>	<ul style="list-style-type: none"> <li>• CSOSS, as applicable</li> <li>• PMS, applicable MRCs</li> <li>• <i>Installation, Operation, Maintenance and Repair Instructions With Parts List Torpedo Doors</i>, 0916-LP-042-4010</li> <li>• <i>Description, Operation, Maintenance, and Illustrated Parts Breakdown Surface Vessel Torpedo Tube Mark 32 MOD 14 and Bulkhead Mounted Control Box Mark 60 MOD 0</i>, SW395-AE-MMO-010</li> <li>• <i>Description, Operation, Maintenance, and Illustrated Parts Breakdown Surface Vessel Torpedo Tube Mark 32 MOD 19 and Bulkhead Mounted Control Box Mark 60 MOD 0</i>, SW395-AQ-MMO-010 Junction</li> <li>• <i>Shipboard Installation, Inspection, and Acceptance Testing Surface Vessel Torpedo Tube Mark 32 MOD 14 and Interface</i></li> </ul>

	<ul style="list-style-type: none"> <li>• <i>Box Mark 70 MOD 0, SW395-AJ-IIN-010</i></li> <li>• <i>Torpedo Setting Panel MK 331 MOD 3,SW189-AD-MMO-A10</i></li> <li>• <i>Torpedo Presetter Test Set Mark 432 MODs 2 and 3, ST890-A5-MMA-010</i></li> <li>• <i>Torpedo Presetter Test Set MK 432 MOD 4, ST890-C4-MAN-010/MK 432 MOD 4</i></li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions on testing, operation, maintenance, and repair of torpedo doors, associated systems, and equipment.</p>

## Advancement Handbook for TM3

<p>General TM <i>Skill Area</i></p>	<p><b>Torpedo Tube System Maintenance/ Operation</b></p>
<p>A <i>skill</i> you are expected to perform from the General Skill Area above:</p>	<p><b>Maintain and replace fire control cables and circuits</b></p>
<p><i>Knowledge</i> you should have to perform this skill:</p>	<p>How to:</p> <ul style="list-style-type: none"> <li>• Conduct overall combat systems operability tests (OCSOT)</li> <li>• Test connectors for pin continuity</li> <li>• Test cables for insulation resistance</li> <li>• Test and inspect torpedo tube fire control circuits</li> <li>• Inspect fire control cables</li> <li>• Replace fire control cables</li> <li>• Conduct torpedo prefiring tests</li> </ul>
<p><i>References</i> you should study to gain the knowledge you need to perform this skill:</p>	<ul style="list-style-type: none"> <li>• CSOSS, as applicable.</li> <li>• PMS, applicable MRCs</li> <li>• <i>Description, Operation, Maintenance, and Illustrated Parts Breakdown Surface Vessel Torpedo Tube Mark 32 MOD 5 and 7, SW395-AC-MMO-010</i></li> <li>• <i>Description, Operation, Maintenance, and Illustrated Parts Breakdown Surface Vessel Torpedo Tube Mark 32 MOD 9, SW395-AD-MMO-010</i></li> <li>• <i>Description, Operation, Maintenance, and Illustrated Parts Breakdown Surface Vessel Torpedo Tube Mark 32 MOD 14 and Bulkhead Mounted Control Box Mark 60 MOD 0, SW395-AE-MMO-010</i></li> <li>• <i>Description, Operation, Maintenance, and Illustrated Parts Breakdown Surface Vessel Torpedo Tube Mark 32 MOD 15 and Interface Junction Box Mark 70 MOD 0, SW395-AJ-MMO-010</i></li> </ul>

	<ul style="list-style-type: none"> <li>• <i>Description, Operation, Maintenance, and Illustrated Parts Breakdown Surface Vessel Torpedo Tube Mark 32 MOD 17/18, SW395-AM-MMO-010</i></li> <li>• <i>Description, Operation, Maintenance, and Illustrated Parts Breakdown Surface Vessel Torpedo Tube Mark 32 MOD 19 and Bulkhead Mounted Control Box Mark 60 MOD 0, SW395-AQ-MMO-010</i></li> <li>• <i>Shipboard Installation, Inspection, and Acceptance Testing Surface Vessel Torpedo Tube Mark 32 MOD 14 and Interface Junction Box Mark 70 MOD 0, SW395-AJ-IIN-010</i></li> <li>• <i>Shipboard Installation, Inspection, and Acceptance Testing Surface Vessel Torpedo Tube Mark 32 MODs 5 and 7, SW395-AC-MME-010</i></li> <li>• <i>Torpedo Setting Panel MK 331 MOD 3, SW189-AD-MMO-A10</i></li> <li>• <i>Torpedo Presetter Test Set Mark 432 MODs 2 and 3, ST890-A5-MMA-010</i></li> <li>• <i>Torpedo Presetter Test Set MK 432 MOD 4, ST890-C4-MAN-010/MK 432 MOD 4</i></li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions on fire control circuits and required indications; and testing, maintenance and repair of fire control cables and circuits.</p>

## Advancement Handbook for TM3

<p>General TM <i>Skill Area</i></p>	<p><b>Torpedo Tube System Maintenance/ Operation</b></p>
<p>A <i>skill</i> you are expected to perform from the General Skill Area above:</p>	<p><b>Conduct torpedo prefiring tests</b></p>
<p><i>Knowledge</i> you should have to perform this skill:</p>	<p>How to:</p> <ul style="list-style-type: none"> <li>• Test torpedo doors</li> <li>• Conduct torpedo prefiring tests</li> <li>• Test operate torpedo tubes</li> <li>• Remove and replace breech mechanisms</li> <li>• Charge breech mechanisms</li> <li>• Mount the torpedo securing mechanism to torpedo exhaust valves</li> <li>• Lock the torpedo securing mechanism in the tube</li> <li>• Remove the torpedo securing mechanism from the tube</li> </ul>
<p><i>References</i> you should study to gain the knowledge you need to perform this skill:</p>	<ul style="list-style-type: none"> <li>• CSOSS, as applicable.</li> <li>• PMS, applicable MRCs</li> <li>• <i>Description, Operation, Maintenance, and Illustrated Parts Breakdown Surface Vessel Torpedo Tube Mark 32 MOD 5 and 7, SW395-AC-MMO-010</i></li> <li>• <i>Description, Operation, Maintenance, and Illustrated Parts Breakdown Surface Vessel Torpedo Tube Mark 32 MOD 9, SW395-AD-MMO-010</i></li> <li>• <i>Description, Operation, Maintenance, and Illustrated Parts Breakdown Surface Vessel Torpedo Tube Mark 32 MOD 14 and Bulkhead Mounted Control Box Mark 60 MOD 0, SW395-AE-MMO-010</i></li> <li>• <i>Description, Operation, Maintenance, and Illustrated Parts Breakdown Surface Vessel Torpedo Tube Mark 32 MOD 15 and Interface Junction Box Mark 70 MOD 0, SW395-AJ-MMO-010</i></li> </ul>

	<ul style="list-style-type: none"> <li>• <i>Description, Operation, Maintenance, and Illustrated Parts Breakdown Surface Vessel Torpedo Tube Mark 32 MOD 17/18, SW395-AM-MMO-010</i></li> <li>• <i>Description, Operation, Maintenance, and Illustrated Parts Breakdown Surface Vessel Torpedo Tube Mark 32 MOD 19 and Bulkhead Mounted Control Box Mark 60 MOD 0, SW395-AQ-MMO-010</i></li> <li>• <i>Description, Installation, Operation, Maintenance, and Illustrated Parts Breakdown Air Charging Panel and Cabinet Assembly MK429 MOD 0, SW395-AH-MMM-010</i></li> <li>• <i>Description, Operation, Maintenance, and Illustrated Parts Breakdown Air Charging Panel and Cabinet Assembly MK429 MOD 1, SW395-AL-MMO-010</i></li> <li>• <i>Shipboard Installation, Inspection, and Acceptance Testing Surface vessel Torpedo Tube Mark 32 MOD 14 and Interface Junction Box Mark 70 MOD 0, SW395-AJ-IIN-010</i></li> <li>• <i>Shipboard Installation, Inspection, and Acceptance Testing Surface vessel Torpedo Tube Mark 32 MODs 5 and 7, SW395-AC-MME-010</i></li> <li>• <i>Torpedo Setting Panel MK 331 MOD 3, SW189-AD-MMO-A10</i></li> <li>• <i>Torpedo Presetter Test Set Mark 432 MODs 2 and 3, ST890-A5-MMA-010</i></li> <li>• <i>Torpedo Presetter Test Set MK 432 MOD 4, ST890-C4-MAN-010/MK 432 MOD 4</i></li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions on prefire tests, procedures, indications, fault isolation, and troubleshooting.</p>

## Advancement Handbook for TM3

<p>General TM <i>Skill Area</i></p>	<p><b>Torpedo Tube System Maintenance/ Operation</b></p>
<p>A <i>skill</i> you are expected to perform from the General Skill Area above:</p>	<p><b>Fire torpedo tubes from local and remote stations (including casualty procedures)</b></p>
<p><i>Knowledge</i> you should have to perform this skill:</p>	<p>How to:</p> <ul style="list-style-type: none"> <li>• Conduct overall combat systems operability tests (OCSOT)</li> <li>• Conduct torpedo prefiring tests</li> <li>• Test operate torpedo tubes</li> <li>• Remove and replace breech mechanisms</li> <li>• Charge breech mechanisms</li> <li>• Mount the torpedo tube securing mechanism to torpedo exhaust valves</li> <li>• Lock the torpedo securing mechanism in the tube</li> <li>• Fire torpedo tubes from the torpedo room</li> <li>• Fire torpedo tubes from the torpedo deck</li> <li>• Fire torpedo tubes locally using torpedo tube casualty procedures</li> </ul>
<p><i>References</i> you should study to gain the knowledge you need to perform this skill:</p>	<ul style="list-style-type: none"> <li>• CSOSS, as applicable.</li> <li>• PMS, applicable MRCs</li> <li>• <i>Description, Operation, Maintenance, and Illustrated Parts Breakdown Surface Vessel Torpedo Tube Mark 32 MOD 5 and 7, SW395-AC-MMO-010</i></li> <li>• <i>Description, Operation, Maintenance, and Illustrated Parts Breakdown Surface Vessel Torpedo Tube Mark 32 MOD 9, SW395-AD-MMO-010</i></li> </ul>

	<ul style="list-style-type: none"> <li>• <i>Description, Operation, Maintenance, and Illustrated Parts Breakdown Surface Vessel Torpedo Tube Mark 32 MOD 14 And Bulkhead Mounted Control Box Mark 60 MOD 0, SW395-AE-MMO-010</i></li> <li>• <i>Description, Operation, Maintenance, and Illustrated Parts Breakdown Surface Vessel Torpedo Tube Mark 32 MOD 15 and Interface Junction Box Mark 70 MOD 0, SW395-AJ-MMO-010</i></li> <li>• <i>Description, Operation, Maintenance, and Illustrated Parts Breakdown Surface Vessel Torpedo Tube Mark 32 MOD 17/18, SW395-AM-MMO-010</i></li> <li>• <i>Description, Operation, Maintenance, And Illustrated Parts Breakdown Surface Vessel Torpedo Tube Mark 32 MOD 19 and Bulkhead Mounted Control Box Mark 60 MOD 0, SW395-AQ-MMO-010</i></li> <li>• <i>Description, Installation, Operation, Maintenance, and Illustrated Parts Breakdown Air Charging Panel and Cabinet Assembly MK429 MOD 0, SW395-AH-MMM-010</i></li> <li>• <i>Description, Operation, Maintenance, and Illustrated Parts Breakdown Air Charging Panel and Cabinet Assembly MK429 MOD 1, SW395-AL-MMO-010</i></li> <li>• <i>Description, Installation, Operational Use, and Illustrated Parts Breakdown Torpedo Loading Tray Mark 7 MOD 0, SG420-BG-MMO-010</i></li> <li>• <i>Description, Installation, Operational Use, and Illustrated Parts Breakdown Torpedo Loading Tray Mark 8 MOD 0, SG420-BH-MMO-010</i></li> <li>• <i>Description, Installation, Operational Use, and Illustrated Parts Breakdown Torpedo Loading Tray Mark 9 MODs 0,1,2, and 3. SG420-CG-MMO-010</i></li> </ul>
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	<ul style="list-style-type: none"> <li>• <i>Torpedo Loading Tray Mark 3 MOD 0 and 1, NAVORD OD 4066</i></li> <li>• <i>Shipboard Installation, Inspection, and Acceptance Testing Surface Vessel Torpedo Tube Mark 32 MOD 14 and Interface Junction Box Mark 70 MOD 0, SW395-AJ-IIN-010</i></li> <li>• <i>Shipboard Installation, Inspection, and Acceptance Testing Surface Vessel Torpedo Tube Mark 32 MODs 5 and 7, SW395-AC-MME-010</i></li> <li>• <i>Torpedo Setting Panel MK 331 MOD 3, SW189-AD-MMO-A10</i></li> <li>• <i>Torpedo Presetter Test Set Mark 432 MODs 2 and 3, ST890-A5-MMA-010</i></li> <li>• <i>Torpedo Presetter Test Set MK 432 MOD 4, ST890-C4-MAN-010/MK 432 MOD 4</i></li> <li>• <i>Procedures Manual for Lightweight Torpedo Firing Craft, SW515-AO-PRO-020/MK46</i></li> <li>• <i>Preliminary Manual for Lightweight Torpedo Shipboard Handling, Storage, and Firing Procedures, SW515-AO-PRO-040/MK50</i></li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions on torpedo tube firing from local and remote stations, including safety precautions, prefire tests, required procedures, indications, emergency firing, fault isolation, and troubleshooting.</p>

## Advancement Handbook for TM3

General Tm <i>Skill Area</i>	<b>Test Equipment Maintenance/ Operation</b>
A <i>skill</i> you are expected to perform from the General Skill Area above:	<b>Operate general-purpose test equipment</b>
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• How to use general purpose test equipment</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• NEETS Modules 1 through 9, 12 through 16, and 19 through 23</li> <li>• PMS, applicable MRCs</li> <li>• Applicable manufacturer-supplied operator's manuals</li> </ul>
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on basic electrical, and electronic circuits; schematic reading; the operation of general purpose test equipment; and procedures for measuring voltage, current, resistance, and power.

## Advancement Handbook for TM3

<p>General TM <i>Skill Area</i></p>	<p><b>Test Equipment Maintenance/ Operation</b></p>
<p>A <i>skill</i> you are expected to perform from the General Skill Area above:</p>	<p><b>Operate special-purpose test equipment</b></p>
<p><i>Knowledge</i> you should have to perform this skill:</p>	<ul style="list-style-type: none"> <li>• How to use special purpose test equipment</li> </ul>
<p><i>References</i> you should study to gain the knowledge you need to perform this skill:</p>	<ul style="list-style-type: none"> <li>• <i>Torpedo MK 48 ADCAP, Propulsion System Flushing Stand MK 120 MOD 0, SW513-AD-PRO-010</i></li> <li>• <i>Torpedo MK 48 ADCAP/MK 48, Preservative Flushing Stand, SW513-AE-PRO-010</i></li> <li>• <i>Torpedo MK 48 ADCAP, Weapon System In-service Support Equipment, Description, SW513-EO-MMA-010</i></li> <li>• <i>Torpedo MK 48 ADCAP, Weapon System In-service Support Equipment, Physical and Functional Description, SW513-EO-MMI-010</i></li> <li>• <i>Torpedo MK 48 ADCAP, Intermediate Maintenance Activity, Assembly, Test and Turnaround Procedures, SW513-EO-PRO-040</i></li> <li>• <i>Torpedo MK 48 ADCAP, Intermediate Maintenance Activity, Assembly, Test and Turnaround Procedures, SW513-EO-PRO-050</i></li> <li>• <i>Torpedo MK 48 ADCAP, Intermediate Maintenance Activity, Troubleshooting Procedures, SW513-EO-PRO-060</i></li> <li>• <i>Torpedo MK 48 ADCAP, Automatic Test Equipment, MK 660 MOD 1 (part 1), ST820-AE-MMI-010</i></li> </ul>

- *Torpedo MK 48 ADCAP, Automatic Test Equipment, MK 660 MOD 1 (part 2), ST820-AE-MMI-020*
- *Torpedo MK 48 ADCAP, Automatic Test Equipment, MK 660 MOD 1 (part 3), ST820-AE-MMI-030*
- *Torpedo MK 48 ADCAP, Automatic Test Equipment, MK 660 MOD 1 (part 4), ST820-AE-MMI-040*
- *Torpedo MK 48 ADCAP, Automatic Test Equipment, MK 660 MOD 1 (part 5), ST820-AE-MMI-050*
- *Torpedo MK 48 ADCAP, Automatic Test Equipment, MK 660 MOD 1 (part 6), ST820-AE-MMI-060*
- *Torpedo MK 48 All MODs, Automatic Test Equipment, MK 660 MOD 2, ST820-AP-MMI-010*
- *Torpedo MK 48 All MODs, Automatic Test Equipment, MK 660 MOD 2, ST820-AP-MMI-020*
- *Torpedo MK 48 All MODs, Automatic Test Equipment, MK 660 MOD 2, ST820-AP-MMI-030*
- *Torpedo MK 48 All MODs, Automatic Test Equipment, MK 660 MOD 2, ST820-AP-MMI-040*
- *Torpedo MK 48 All MODs, Automatic Test Equipment, MK 660 MOD 2, ST820-AP-MMI-050*
- *Torpedo MK 48 MODs 4, 5, and 6, Fleet Data Reduction System (FDRS), ST890-AW-MMI-010*
- *Torpedo MK 48 MODs 5, and 6, Fleet Data Reduction System (FDRS), ST890-AW-MMI-020*
- *Torpedo MK 48 MOD 4, Fleet Data Reduction System (FDRS), ST890-AW-MMI-040*
- *Torpedo MK 48 All MODs, Calibration Console, ST890-AX-MMI-010*
- *Torpedo MK 48 ADCAP, Cable Test Set MK 556 MOD 4/5, ST890-BA-MMI-030*
- *Exploder Mechanism Test Set MK 525 MOD 3, ST890-BB-MMI-010*

- *Torpedo MK 48 ADCAP, Fuel Delivery Assembly Test Set MK 658 MOD 0, ST890-BD-MMI-010*
- *Torpedo MK 48 ADCAP, Steering Assembly Test Set MK 659 MOD 0, ST890-BE-MMI-010*
- *Heavyweight Torpedo Ancillary Equipment (part 1), ST890-BJ-PRO-010*
- *Heavyweight Torpedo Ancillary Equipment (part 2), ST890-BJ-PRO-020*
- *Common Exercise Head Test Set MK 562 MOD 3, ST890-BY-MMI-010*
- *Common Exercise Head Test Set MK 562 MOD 3, ST890-BY-MMI-020*
- *Intermediate Maintenance Activity, Assembly, Test and Turnaround Procedures, NAVSEA OP 4024 Volume 1 (parts 1 & 2)*
- *Torpedo Instrumentation and Exercise System Test Set Mark 562 MOD 1, NAVSEA OP 4026 Volume 2 (parts 1 & 2)*
- *Torpedo Instrumentation and Exercise System Test Set Mark 562 MOD 2, NAVSEA OP 4026 Volume 4*
- *Ancillary Equipment (Part 1), NAVSEA OP 4027 (parts 1&2)*
- *Test Set, Exploder Mechanism, Mark 525 MOD 1, NAVSEA OP 4029*
- *Afterbody Test Set MK 486 MOD 0, NAVSEA OP 3418*
- *Electrical Cable Test Set MK 444 MOD 0, NAVSEA OP 3421*
- *Exploder Well Test Set MK445 MOD 0, NAVSEA OP 3455*
- *Exercise Test Set MK 641 MOD 0, ST800-AQ-MMA-010*
- *Maintenance Manual for Intermediate Level Torpedo System Test Set MK 540 MOD 4, ST822-AC-MMI-A10*
- *Maintenance Manual for Intermediate Level Torpedo System Test Set MK 540 MOD 4, ST822-AC-MMI-A20*
- *MK 62 MOD 0 Leak Test Stand, SW515-AB-MMI-010*

	<ul style="list-style-type: none"> <li>• Gyroscope Test Set MK 484 MOD 1, SW515-AM-MEB-010</li> <li>• Maintenance Manual for MK 46 MOD 5 Torpedo, SW515-A5-MIB-010</li> <li>• Maintenance Manual for MK 46 MOD 5 Torpedo, SW515-A5-MIB-020</li> <li>• Maintenance Manual for MK 46 MOD 5 Torpedo, SW515-A5-MIB-030</li> <li>• Maintenance Manual for MK 46 MOD 5 Torpedo, SW515-A5-MIB-040</li> <li>• Maintenance Manual for MK 46 MOD 5 Torpedo, SW515-A5-MIB-050</li> <li>• Maintenance Manual for MK 46 MOD 5 Torpedo, SW515-A5-MIB-060</li> <li>• Maintenance Manual for MK 46 MOD 5 Torpedo, SW515-A5-MIB-070</li> <li>• Maintenance Manual for MK 46 MOD 5 Torpedo, SW515-A5-MIB-080</li> <li>• Maintenance Manual Intermediate Level for Automatic Torpedo Presetter Test Set MK 646 MOD 0, SW515-BO-MMI-010</li> <li>• Leak Test Stand MK 62 MOD; for Torpedo MK 50, SW516-AD-MEB-010</li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions on the different types of test equipment used in torpedo IMAs; and the purpose, use, and operation of special-purpose test equipment used during torpedo turnaround.</p>

## Advancement Handbook for TM3

<p>General TM <i>Skill Area</i></p>	<p><b>Test Equipment Maintenance/ Operation</b></p>
<p>A <i>skill</i> you are expected to perform from the General Skill Area above:</p>	<p><b>Maintain Otto Fuel detectors</b></p>
<p><i>Knowledge</i> you should have to perform this skill:</p>	<ul style="list-style-type: none"> <li>• How to clean, inspect, and test Otto Fuel detectors</li> </ul>
<p><i>References</i> you should study to gain the knowledge you need to perform this skill:</p>	<ul style="list-style-type: none"> <li>• <i>Organizational Manual for Otto Fuel Vapor Detector Mark 15 MOD 0, S6340-AF-MMO-010</i></li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions on inspection, operation, and maintenance of the MK 15 Otto Fuel detector.</p>

## Advancement Handbook for TM3

<p>General TM <i>Skill Area</i></p>	<p><b>Test Equipment Maintenance/ Operation</b></p>
<p>A <i>skill</i> you are expected to perform from the General Skill Area above:</p>	<p><b>Maintain test equipment and test set cables</b></p>
<p><i>Knowledge</i> you should have to perform this skill:</p>	<p>How to:</p> <ul style="list-style-type: none"> <li>• Clean and inspect test equipment</li> <li>• Remove and replace test set cables</li> <li>• Inspect test set cables</li> <li>• Conduct continuity tests with portable test equipment</li> </ul>
<p><i>References</i> you should study to gain the knowledge you need to perform this skill:</p>	<ul style="list-style-type: none"> <li>• PMS, applicable MRCs</li> <li>• <i>Torpedo Presetter Test Set Mark 432 MODs 2 and 3, ST890-A5-MMA-010</i></li> <li>• <i>Torpedo Presetter Test Set MK 432 MOD 4, ST890-C4-MAN-010/MK 432 MOD 4</i></li> <li>• <i>Torpedo MK 48 ADCAP, Propulsion System Flushing Stand MK 120 MOD 0, SW513-AD-PRO-010</i></li> <li>• <i>Torpedo MK 48 ADCAP/MK 48, Preservative Flushing Stand, SW513-AE-PRO-010</i></li> <li>• <i>Torpedo MK 48 ADCAP, Weapon System In-service Support Equipment, Description, SW513-EO-MMA-010</i></li> <li>• <i>Torpedo MK 48 ADCAP, Weapon System In-service Support Equipment, Physical and Function Description, SW513-EO-MMI-010</i></li> <li>• <i>Torpedo MK 48 ADCAP, Intermediate Maintenance Activity, Assembly, Test and Turnaround Procedures, SW513-EO-PRO-040</i></li> <li>• <i>Torpedo MK 48 ADCAP, Intermediate Maintenance Activity, Assembly, Test and Turnaround Procedures, SW513-EO-PRO-050</i></li> </ul>

- *Torpedo MK 48 ADCAP, Intermediate Maintenance Activity, Troubleshooting Procedures, SW513-EO-PRO-060*
- *Torpedo MK 48 ADCAP, Automatic Test Equipment, MK 660 MOD 1 (part 1), ST820-AE-MMI-010*
- *Torpedo MK 48 ADCAP, Automatic Test Equipment, MK 660 MOD 1 part 2), ST820-AE-MMI-020*
- *Torpedo MK 48 ADCAP, Automatic Test Equipment, MK 660 MOD 1 (part 3), ST820-AE-MMI-030*
- *Torpedo MK 48 ADCAP, Automatic Test Equipment, MK 660 MOD 1 (part 4), ST820-AE-MMI-040*
- *Torpedo MK 48 ADCAP, Automatic Test Equipment, MK 660 MOD 1 (part 5), ST820-AE-MMI-050*
- *Torpedo MK 48 ADCAP, Automatic Test Equipment, MK 660 MOD 1(part 6), ST820-AE-MMI-060*
- *Torpedo MK 48 All MODs, Automatic Test Equipment, MK 660 MOD 2, ST820-AP-MMI-010*
- *Torpedo MK 48 All MODs, Automatic Test Equipment, MK 660 MOD 2, ST820-AP-MMI-020*
- *Torpedo MK 48 All MODs, Automatic Test Equipment, MK 660 MOD 2, ST820-AP-MMI-030*
- *Torpedo MK 48 All MODs, Automatic Test Equipment, MK 660 MOD 2, ST820-AP-MMI-040*
- *Torpedo MK 48 All MODs, Automatic Test Equipment, MK 660 MOD 2, ST820-AP-MMI-050*
- *Torpedo MK 48 MODs 4, 5, and 6, Fleet Data Reduction System (FDRS), ST890-AW-MMI-010*
- *Torpedo MK 48 MODs 5, and 6, Fleet Data Reduction System (FDRS), ST890-AW-MMI-020*
- *Torpedo MK 48 MOD 4, Fleet Data Reduction System (FDRS), ST890-AW-MMI-040*

- *Torpedo MK 48 All MODs, Calibration Console, ST890-AX-MMI-010*
- *Torpedo MK 48 ADCAP, Cable Test Set MK 556 MOD 4/5, ST890-BA-MMI-030*
- *Exploder Mechanism Test Set MK 525 MOD 3, ST890-BB-MMI-010*
- *Torpedo MK 48 ADCAP, Fuel Delivery Assembly Test Set MK 658 MOD 0, ST890-BD-MMI-010*
- *Torpedo MK 48 ADCAP, Steering Assembly Test Set MK 659 MOD 0, ST890-BE-MMI-010*
- *Heavyweight Torpedo Ancillary Equipment (part 1), ST890-BJ-PRO-010*
- *Heavyweight Torpedo Ancillary Equipment (part 2), ST890-BJ-PRO-020*
- *Common Exercise Head Test Set MK 562 MOD 3, ST890-BY-MMI-010*
- *Common Exercise Head Test Set MK 562 MOD 3, ST890-BY-MMI-020*
- *Intermediate Maintenance Activity, Assembly, Test and Turnaround Procedures, NAVSEA OP 4024 Volume 1 (parts 1 & 2)*
- *Torpedo Instrumentation and Exercise System Test Set Mark 562 MOD 1, NAVSEA OP 4026 Volume 2 (parts 1 & 2)*
- *Torpedo Instrumentation and Exercise System Test Set Mark 562 MOD 2, NAVSEA OP 4026 Volume 4*
- *Ancillary Equipment (Part 1), NAVSEA OP 4027 (parts 1 & 2)*
- *Test Set, Exploder Mechanism, Mark 525 MOD 1, NAVSEA OP 4029*
- *Afterbody Test Set MK 486 MOD 0, NAVSEA OP 3418*
- *Electrical Cable Test Set MK 444 MOD 0, NAVSEA OP 3421*
- *Exploder Well Test Set MK445 MOD 0, NAVSEA OP 3455*
- *Exercise Test Set MK 641 MOD 0, ST800-AQ-MMA-010*
- *Maintenance Manual for Intermediate Level Torpedo System Test Set MK 540 MOD 4, ST822-AC-MMI-A10*

	<ul style="list-style-type: none"> <li>• <i>Maintenance Manual for Intermediate Level Torpedo System Test Set MK 540 MOD 4, ST822-AC-MMI-A20</i></li> <li>• <i>MK 62 MOD 0 Leak Test Stand, SW515-AB-MMI-010</i></li> <li>• <i>Gyroscope Test Set MK 484 MOD 1, SW515-AM-MEB-010</i></li> <li>• <i>Maintenance Manual for MK 46 MOD 5 Torpedo, SW515-A5-MIB-010</i></li> <li>• <i>Maintenance Manual for MK 46 MOD 5 Torpedo, SW515-A5-MIB-020</i></li> <li>• <i>Maintenance Manual for MK 46 MOD 5 Torpedo, SW515-A5-MIB-030</i></li> <li>• <i>Maintenance Manual for MK 46 MOD 5 Torpedo, SW515-A5-MIB-040</i></li> <li>• <i>Maintenance Manual for MK 46 MOD 5 Torpedo, SW515-A5-MIB-050</i></li> <li>• <i>Maintenance Manual for MK 46 MOD 5 Torpedo, SW515-A5-MIB-060</i></li> <li>• <i>Maintenance Manual for MK 46 MOD 5 Torpedo, SW515-A5-MIB-070</i></li> <li>• <i>Maintenance Manual for MK 46 MOD 5 Torpedo, SW515-A5-MIB-080</i></li> <li>• <i>Maintenance Manual Intermediate Level for Automatic Torpedo Presetter Test Set MK 646 MOD 0, SW515-BO-MMI-010</i></li> <li>• <i>Leak Test Stand MK 62 MOD; for Torpedo MK 50, SW516-AD-MEB-010</i></li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions on the testing, inspection, removal, and installation of test set cables, including portable test equipment.</p>

## Advancement Handbook for TM3

<p>General TM <i>Skill Area</i></p>	<p><b>Test Equipment Maintenance/ Operation</b></p>
<p>A <i>skill</i> you are expected to perform from the General Skill Area above:</p>	<p><b>Clean, inspect and conduct operability check on torpedo setting panels (TSP)</b></p>
<p><i>Knowledge</i> you should have to perform this skill:</p>	<p>How to:</p> <ul style="list-style-type: none"> <li>• Conduct operability checks on torpedo setting panels (TSP)</li> <li>• Clean and inspect TSP</li> </ul>
<p><i>References</i> you should study to gain the knowledge you need to perform this skill:</p>	<ul style="list-style-type: none"> <li>• PMS applicable MRCs</li> <li>• <i>Torpedo Setting Panel MK 331 MOD 3, SW189-AD-MMO-A10</i></li> <li>• <i>Torpedo Presetter Test Set Mark 432 MODs 2 and 3, ST890-A5-MMA-010</i></li> <li>• <i>Torpedo Presetter Test Set MK 432 MOD 4, ST890-C4-MAN-010/MK 432 MOD 4</i></li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions on the operation and maintenance of the MK331 torpedo setting panel and associated equipment.</p>

## Advancement Handbook for TM3

<p>General TM <i>Skill Area</i></p>	<p><b>Test Equipment Maintenance/ Operation</b></p>
<p>A <i>skill</i> you are expected to perform from the General Skill Area above:</p>	<p><b>Conduct operability checks on torpedo presetters</b></p>
<p><i>Knowledge</i> you should have to perform this skill:</p>	<ul style="list-style-type: none"> <li>• How to conduct operability checks on torpedo presetters</li> </ul>
<p><i>References</i> you should study to gain the knowledge you need to perform this skill:</p>	<ul style="list-style-type: none"> <li>• PMS, applicable MRCs</li> <li>• <i>Torpedo Presetter Test Set Mark 432 MODs 2 and 3</i>, ST890-A5-MMA-010</li> <li>• <i>Torpedo Presetter Test Set MK 432 MOD 4</i>, ST890-C4-MAN-010/MK 432 MOD 4</li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions on inspection, operation, maintenance, and testing of torpedo presetters.</p>

## Advancement Handbook for TM3

<p>General TM <i>Skill Area</i></p>	<p><b>Weapons/Component Handling</b></p>
<p>A <i>skill</i> you are expected to perform from the General Skill Area above:</p>	<p><b>Perform weapons handling evolutions (including recovery of expended exercise torpedoes)</b></p>
<p><i>Knowledge</i> you should have to perform this skill:</p>	<p>How to:</p> <ul style="list-style-type: none"> <li>• Break out and set up weapons handling equipment (including over-the-side handling equipment)</li> <li>• Break down and stow weapons handling (including over-the-side handling equipment)</li> <li>• Stow weapons in magazines</li> <li>• Conduct on-load/off-load of weapons and ammunition</li> <li>• Perform recovery of expended exercise torpedoes</li> </ul>
<p><i>References</i> you should study to gain the knowledge you need to perform this skill:</p>	<ul style="list-style-type: none"> <li>• PMS, applicable MRCs</li> <li>• <i>Ammunition Afloat</i>, NAVSEA OP 4</li> <li>• <i>Ammunition and Explosives Ashore</i>, NAVSEA OP 5</li> <li>• <i>United States Navy Ordnance Safety Precautions</i>, NAVORD OP 3347</li> <li>• <i>Localization and Recovery of Lightweight Torpedos</i>, SW515-AO-PRO-010</li> <li>• <i>Procedures Manual For Lightweight Torpedo Firing Craft</i>, SW515-AO-PRO-020</li> <li>• <i>Recoverable Exercise Torpedo (REXTORP) MK 46</i>, SW515-AG-OMP-010</li> <li>• <i>Lightweight Torpedo Shipboard Handling, Storage, and Firing Procedures</i>, SW515-AO-PRO-040/MK50</li> <li>• <i>Recoverable Exercise Torpedo (REXTORP) MK 50</i>, SW516-AB-MMO-010</li> </ul>

	<ul style="list-style-type: none"> <li>• <i>Heavyweight Torpedo Submarine Tenders (AS) and Shore Facilities Ready-For-Issue (RFI) Activity Procedures, NAVSEA OP 4024</i></li> <li>• <i>Approved Handling Equipment For Weapons And Explosives, NAVSEA OP 2173</i></li> <li>• <i>DD 963 AND DDG 993 Strikedown Lift System, SG420-AX-MMO-010</i></li> <li>• <i>Maintenance and Repair Instructions For Strikedown Lift System For CG 62 Through CG 73 Ships, SG420-BQ-MMA-010</i></li> <li>• <i>Naval Ships' Technical Manual, S9086-XG-STM-010/CH-700</i></li> <li>• <i>Transshipment Activity Procedures TOMAHAWK Cruise Missile, SW820-AH-WHS-010</i></li> <li>• <i>Torpedo Handling System, SG420-BD-MMA-010</i></li> <li>• <i>Handlift Truck MK 45 MODS 0 And 2 Description, Operation, Maintenance and Illustrated Parts Breakdown, SG420-DO-MMO-010</i></li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions on ordnance safety, types of handling equipment, setup and breakdown of handling equipment, recovery of exercise torpedoes, and ordnance onload/offload procedures.</p>

## Advancement Handbook for TM3

<p>General TM <i>Skill Area</i></p>	<p><b>Weapons/Component Handling</b></p>
<p>A <i>skill</i> you are expected to perform from the General Skill Area above:</p>	<p><b>Package and unpackage weapons and components</b></p>
<p><i>Knowledge</i> you should have to perform this skill:</p>	<p>How to:</p> <ul style="list-style-type: none"> <li>• Package weapons and components</li> <li>• Unpackage weapons and components</li> <li>• Read relative humidity indicators</li> <li>• Replace desiccant bags</li> <li>• Replace relative humidity indicators</li> </ul>
<p><i>References</i> you should study to gain the knowledge you need to perform this skill:</p>	<ul style="list-style-type: none"> <li>• <i>Mk 46 Torpedo/Mk46 REXTORP Flight Accessories</i>, SW512-AO-ASY-010</li> <li>• <i>Heavyweight Torpedo, Submarine Tenders (AS) and Shore Facilities Ready-For-Issue (RFI) Activity Procedures</i>, OP4024 Vol 3 Rev. 5</li> <li>• <i>Procedures Manual for Lightweight Torpedo Firing Craft</i>, SW515-AO-PRO-020/MK46</li> <li>• <i>Lightweight Torpedo Shipboard Handling, Storage, and Firing Procedures</i>, SW515-AO-PRO-040/MK50</li> <li>• <i>Firing Craft Operating Procedures and Checklists</i>, OD 44979 Volume 14 Part 1 Rev. 4</li> <li>• <i>Ammunition Afloat</i>, NAVSEA OP 4</li> <li>• <i>Ammunition and Explosives Ashore</i>, NAVSEA OP 5</li> <li>• <i>Inspection Requirements for Receipt, Segregation, Storage and Issue</i>, NAVSEA TW010-AC-ORD-010</li> <li>• <i>Heavyweight Torpedo Submarine Tenders (AS) and Shore Facilities Ready-For-Issue (RFI) Activity Procedures</i>, NAVSEA OP</li> </ul>

	<ul style="list-style-type: none"> <li>• 4024 VOL. 3</li> <li>• <i>Supply Afloat Fleet and Field Packaging Procedures</i>, NAVSUP P-484</li> <li>• <i>Heavyweight Torpedo Intermediate Maintenance Activity Quality Assurance Manual</i>, SW513-AF-MMI-010</li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions on weapons containers, material condition code tags, container marking, container use and maintenance, weapons/weapons component packaging and unpackaging.</p>

## Advancement Handbook for TM3

General TM <i>Skill Area</i>	<b>Weapons/Component Handling</b>
A <i>skill</i> you are expected to perform from the General Skill Area above:	<b>Conduct tube loads/down loads</b>
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• How to conduct tube loads/down loads</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• PMS, applicable MRCs</li> <li>• <i>Ammunition Afloat</i>, NAVSEA OP 4</li> <li>• <i>Ammunition and Explosives Ashore</i>, NAVSEA OP 5</li> <li>• <i>United States Navy Ordnance Safety Precautions</i>, NAVORD OP 3347</li> <li>• <i>Procedures Manual For Lightweight Torpedo Firing Craft</i>, SW515-AO-PRO-020</li> <li>• <i>Lightweight Torpedo Shipboard Handling, Storage, and Firing Procedures</i>, SW515-AO-PRO-040/MK50</li> <li>• <i>Approved Handling Equipment For Weapons and Explosives</i>, NAVSEA OP 2173</li> <li>• <i>Naval Ships' Technical Manual</i>, S9086-XG-STM-010/CH-700</li> <li>• <i>Torpedo Handling System</i>, SG420-BD-MMA-010</li> <li>• <i>Description, Installation, Operational Use, and Illustrated Parts Breakdown Torpedo Loading Tray Mark 7 MOD 0</i>, SG420-BG-MMO-010</li> <li>• <i>Description, Installation, Operational Use, and Illustrated Parts Breakdown Torpedo Loading Tray Mark 2 MODS 0 and 1</i>, SG420-CO-MMO-010</li> <li>• <i>Description, Installation, Operational Use, and Illustrated Parts Breakdown Torpedo Loading Tray Mark 8 MOD 0</i>, SG420-BH-MMO-010</li> </ul>

	<ul style="list-style-type: none"> <li>• <i>Description, Installation, Operational Use, and Illustrated Parts Breakdown Torpedo Loading Tray Mark 9 MODS 0,1,2 and 3, SG420-BG-MMO-010</i></li> <li>• <i>Torpedo Loading Tray Mark 3 MODS 0 and 1, NAVORD OP 4066</i></li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions on ordnance safety, types of loading trays and handling equipment, setup and breakdown of handling equipment and torpedo loading trays, and torpedo tube loading/ downloading procedures.</p>

## Advancement Handbook for TM3

<p>General TM <i>Skill Area</i></p>	<p><b>Weapons/ Handling Equipment Maintenance/Operation</b></p>
<p>A <i>skill</i> you are expected to perform from the General Skill Area above:</p>	<p><b>Maintain, repair, and operate weapons hoists (hand chain, pneumatic, hydraulic, and electric)</b></p>
<p><i>Knowledge</i> you should have to perform this skill:</p>	<p>How to:</p> <ul style="list-style-type: none"> <li>• Clean and lubricate weapons hoists, (hand chain, pneumatic, hydraulic, and electric)</li> <li>• Inspect and test weapons hoists (hand chain, pneumatic, hydraulic, and electric)</li> <li>• Use hoists during weapons evolutions</li> <li>• Make repairs to weapons hoists (hand chain, pneumatic, hydraulic, and electric)</li> </ul>
<p><i>References</i> you should study to gain the knowledge you need to perform this skill:</p>	<ul style="list-style-type: none"> <li>• PMS, applicable MRCs</li> <li>• <i>Ammunition Afloat</i>, NAVSEA OP 4</li> <li>• <i>Ammunition and Explosives Ashore</i>, NAVSEA OP 5</li> <li>• <i>United States Navy Ordnance Safety Precautions</i>, NAVORD OP 3347</li> <li>• <i>Approved Handling Equipment For Weapons and Explosives</i>, NAVSEA OP 2173</li> <li>• <i>Naval Ships' Technical Manual</i>, S9086-XG-STM-010/CH-700</li> <li>• <i>Torpedo Handling System</i>, SG420-BD-MMA-010</li> <li>• Applicable manufacturer-supplied operator's manuals</li> <li>• <i>Periodic Testing Arrangements For Ordnance Handling Equipment</i>, SG420-AP-MMA-010</li> <li>• <i>Procedures Manual For Lightweight Torpedo Firing Craft</i>, SW515-AO-PRO-020</li> </ul>

	<ul style="list-style-type: none"> <li>• <i>Lightweight Torpedo Shipboard Handling, Storage, and Firing Procedures, SW515-AO-PRO-040/MK50</i></li> <li>• <i>Ordnance Lubrication, NAVSEA OD 3000</i></li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect to see questions on operation, inspection, maintenance, repair, and testing of hand chain, pneumatic, hydraulic, and electric hoists.</p>

## Advancement Handbook for TM3

<p>General TM <i>Skill Area</i></p>	<p><b>Weapons/Handling Equipment Maintenance/Operation</b></p>
<p>A <i>skill</i> you are expected to perform from the General Skill Area above:</p>	<p><b>Conduct maintenance on, and operate weapons handling equipment</b></p>
<p><i>Knowledge</i> you should have to perform this skill:</p>	<p>How to:</p> <ul style="list-style-type: none"> <li>• Inspect weapons monorails</li> <li>• Clean and lubricate weapons AERO skids/dollies</li> <li>• Inspect and test weapons AERO skids/dollies</li> <li>• Use AERO skids/dollies during weapons evolutions</li> <li>• Make repairs to weapons AERO skids/dollies</li> <li>• Clean inspect, and lubricate weapons loading trays</li> <li>• Make repairs to weapons loading trays</li> <li>• Torque weapons stowage and handling lashing straps</li> <li>• Service weapons handling vehicles</li> <li>• Perform premovement weapons carrier/vehicle inspections</li> <li>• Conduct prior-to-use inspection and maintenance on portable handling equipment (taglines, nose pieces, wire ropes, fiber/synthetic lines, slings, torque wrenches, etc.)</li> </ul>
<p><i>References</i> you should study to gain the knowledge you need to perform this skill:</p>	<ul style="list-style-type: none"> <li>• PMS, applicable MRCs</li> <li>• <i>Ammunition Afloat</i>, NAVSEA OP 4</li> <li>• <i>Ammunition and Explosives Ashore</i>, NAVSEA OP 5</li> <li>• <i>United States Navy Ordnance Safety Precautions</i>, NAVORD OP 3347</li> </ul>

- *Approved Handling Equipment For Weapons and Explosives*, NAVSEA OP 2173
- *Naval Ships' Technical Manual*, S9086-XG-STM-010/CH-700
- *Naval Ships' Technical Manual*, S9086-UU-STM-010/CH-613
- *Torpedo Handling System*, SG420-BD-MMA-010
- Applicable manufacturer-supplied operator's manuals
- *Periodic Testing Arrangements For Ordnance Handling Equipment*, SG420-AP-MMA-010
- *Procedures Manual For Lightweight Torpedo Firing Craft*, SW515-AO-PRO-020
- *Lightweight Torpedo Shipboard Handling, Storage, and Firing Procedures*, SW515-AO-PRO-040/MK50
- *Description, Installation, Operational Use, and Illustrated Parts Breakdown Torpedo Loading Tray Mark 7 MOD 0*, SG420-BG-MMO-010
- *Description, Installation, Operational Use, and Illustrated Parts Breakdown Torpedo Loading Tray Mark 2 MODS 0 And 1*, SG420-CO-MMO-010
- *Description, Installation, Operational Use, and Illustrated Parts Breakdown Torpedo Loading Tray Mark 8 MOD 0*, SG420-BH-MMO-010
- *Description, Installation, Operational Use, and Illustrated Parts Breakdown Torpedo Loading Tray Mark 9 MODS 0,1,2 and 3*, SG420-BG-MMO-010
- *Torpedo Loading Tray Mark 3 MODS 0 and 1*, NAVORD OP 4066
- *Motor Vehicle Driver's Handbook*, NAVSEA OP 2239
- *Ordnance Lubrication*, NAVSEA OD 3000

<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions on inspection, operational use, maintenance, and repair of torpedo loading trays, dollies, AERO skids, slings, and handling equipment.</p>
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## Advancement Handbook for TM3

<p>General TM <i>Skill Area</i></p>	<p><b>Weapons/ Handling Equipment Maintenance/Operation</b></p>
<p>A <i>skill</i> you are expected to perform from the General Skill Area above:</p>	<p><b>Maintain, repair and operate bridge cranes</b></p>
<p><i>Knowledge</i> you should have to perform this skill:</p>	<p>How to:</p> <ul style="list-style-type: none"> <li>• Clean and lubricate bridge cranes</li> <li>• Inspect and test bridge cranes</li> <li>• Make repairs to bridge cranes</li> <li>• Operate cranes during weapons handling evolutions</li> </ul>
<p><i>References</i> you should study to gain the knowledge you need to perform this skill:</p>	<ul style="list-style-type: none"> <li>• PMS, applicable MRCs</li> <li>• <i>Ammunition Afloat</i>, NAVSEA OP 4</li> <li>• <i>Ammunition and Explosives Ashore</i>, NAVSEA OP 5</li> <li>• <i>United States Navy Ordnance Safety Precautions</i>, NAVORD OP 3347</li> <li>• <i>Approved Handling Equipment For Weapons and Explosives</i>, NAVSEA OP 2173</li> <li>• <i>Naval Ships' Technical Manual</i>, S9086-XG-STM-010/CH-700</li> <li>• <i>Naval Ships' Technical Manual</i>, S9086-UU-STM-010/CH-613</li> <li>• <i>Torpedo Handling System</i>, SG420-BD-MMA-010</li> <li>• <i>Ordnance Lubrication</i>, NAVSEA OD 3000</li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions on inspection, operational use, maintenance, and repair of bridge cranes.</p>

## Advancement Handbook for TM3

<p>General TM <i>Skill Area</i></p>	<p><b>Weapons/ Handling Equipment Maintenance/Operation</b></p>
<p>A <i>skill</i> you are expected to perform from the General Skill Area above:</p>	<p><b>Conduct maintenance on torpedo strikedown lift systems</b></p>
<p><i>Knowledge</i> you should have to perform this skill:</p>	<p>How to:</p> <ul style="list-style-type: none"> <li>• Clean and lubricate torpedo strikedown lift system</li> <li>• Test and inspect torpedo strikedown lift systems</li> <li>• Adjust and align torpedo strikedown lift systems</li> </ul>
<p><i>References</i> you should study to gain the knowledge you need to perform this skill:</p>	<ul style="list-style-type: none"> <li>• PMS, applicable MRCs</li> <li>• <i>Ammunition Afloat</i>, NAVSEA OP 4</li> <li>• <i>Ammunition and Explosives Ashore</i>, NAVSEA OP 5</li> <li>• <i>United States Navy Ordnance Safety Precautions</i>, NAVORD OP 3347</li> <li>• <i>Naval Ships' Technical Manual</i>, S9086-XG-STM-010/CH-700</li> <li>• <i>Torpedo Handling System</i>, SG420-BD-MMA-010</li> <li>• <i>DD 963 AND DDG 993 Strikedown Lift System</i>, SG420-AX-MMO-010</li> <li>• <i>Maintenance and Repair Instructions For Strikedown Lift System For CG 62 Through CG 73 Ships</i>, SG420-BQ-MMA-010</li> <li>• <i>Technical Manual Supplement For Strikedown Lift System</i>, SG420-BQ-SUP-010/CG 47-48</li> <li>• <i>Ordnance Lubrication</i>, NAVSEA OD 3000</li> </ul>

	<ul style="list-style-type: none"> <li>• <i>Technical Manual Supplement For Strikedown Lift System, SG420-BQ-SUP-020</i></li> <li>• <i>Technical Manual Supplement For Strikedown Lift System, SG420-BQ-SUP-030.</i></li> <li>• <i>Technical Manual Supplement For Strikedown Lift System, SG420-BQ-SUP-040</i></li> <li>• <i>Technical Manual Supplement For Strikedown Lift System, SG420-BQ-SUP-050.</i></li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions on inspection, operational use, maintenance, and repair of torpedo strikedown lift systems, and associated handling equipment.</p>

## Advancement Handbook for TM3

<p>General TM <i>Skill Area</i></p>	<p><b>Magazine and Magazine Sprinkler Maintenance/Operation</b></p>
<p>A <i>skill</i> you are expected to perform from the General Skill Area above:</p>	<p><b>Inspect and test magazines and associated equipment</b></p>
<p><i>Knowledge</i> you should have to perform this skill:</p>	<p>How to:</p> <ul style="list-style-type: none"> <li>• Inspect magazine thermometers</li> <li>• Inspect magazine temperature record cards</li> <li>• Inspect and test magazine hand lanterns</li> <li>• Inspect magazines for cleanliness and security</li> </ul>
<p><i>References</i> you should study to gain the knowledge you need to perform this skill:</p>	<ul style="list-style-type: none"> <li>• PMS, applicable MRCs</li> <li>• CSOSS, as applicable</li> <li>• <i>Ammunition Afloat</i>, NAVSEA OP 4</li> <li>• <i>Ammunition and Explosives Ashore</i>, NAVSEA OP 5</li> <li>• <i>Magazine Sprinkler Systems</i>, S9522-AA-HBK-010.</li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions on magazines and required magazine inspections.</p>

## Advancement Handbook for TM3

<p>General TM <i>Skill Area</i></p>	<p><b>Magazine and Magazine Sprinkler Maintenance/Operation</b></p>
<p>A <i>skill</i> you are expected to perform from the General Skill Area above:</p>	<p><b>Conduct maintenance on magazine sprinkler systems and associated components</b></p>
<p><i>Knowledge</i> you should have to perform this skill:</p>	<p>How to:</p> <ul style="list-style-type: none"> <li>• Inspect magazine control system piping and components</li> <li>• Test operate magazine sprinkler systems</li> <li>• Inspect heat sensing device (HSD) fusible links</li> <li>• Inspect and test magazine sprinkler systems</li> <li>• Replace magazine sprinkler systems components</li> </ul>
<p><i>References</i> you should study to gain the knowledge you need to perform this skill:</p>	<ul style="list-style-type: none"> <li>• PMS, applicable MRCs</li> <li>• CSOSS, as applicable</li> <li>• <i>Ammunition Afloat</i>, NAVSEA OP 4</li> <li>• <i>Ammunition and Explosives Ashore</i>, NAVSEA OP 5</li> <li>• <i>Magazine Sprinkler Systems</i>, S9522-AA-HBK-010.</li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions on inspection, testing, maintenance, and repair of magazine sprinkler systems and associated components.</p>

## Advancement Handbook for TM3

<p>General TM <i>Skill Area</i></p>	<p><b>Magazine and Magazine Sprinkler Maintenance/Operation</b></p>
<p>A <i>skill</i> you are expected to perform from the General Skill Area above:</p>	<p><b>Inspect non-containerized ammunition stowage and securing devices</b></p>
<p><i>Knowledge</i> you should have to perform this skill:</p>	<ul style="list-style-type: none"> <li>• How to inspect non-containerized ammunition stowage and securing devices</li> </ul>
<p><i>References</i> you should study to gain the knowledge you need to perform this skill:</p>	<ul style="list-style-type: none"> <li>• PMS, applicable MRCs</li> <li>• CSOSS, as applicable</li> <li>• <i>Ammunition Afloat</i>, NAVSEA OP 4</li> <li>• <i>Ammunition and Explosives Ashore</i>, NAVSEA OP 5.</li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions on inspection, operation, maintenance, and repair of ammunition stowage and securing devices.</p>

## Advancement Handbook for TM3

<p>General TM <i>Skill Area</i></p>	<p><b>Magazine and Magazine Sprinkler Maintenance/Operation</b></p>
<p>A <i>skill</i> you are expected to perform from the General Skill Area above:</p>	<p><b>Inspect and test magazine alarms</b></p>
<p><i>Knowledge</i> you should have to perform this skill:</p>	<p>How to:</p> <ul style="list-style-type: none"> <li>• Inspect and test flooding alarm float switches</li> <li>• Inspect and test magazine alarms</li> <li>• Inspect and test magazine high-temperature alarms</li> </ul>
<p><i>References</i> you should study to gain the knowledge you need to perform this skill:</p>	<ul style="list-style-type: none"> <li>• PMS, applicable MRCs</li> <li>• CSOSS, as applicable</li> <li>• <i>Ammunition Afloat</i>, NAVSEA OP 4</li> <li>• <i>Ammunition and Explosives Ashore</i>, NAVSEA OP 5</li> <li>• <i>Magazine Sprinkler Systems</i>, S9522-AA-HBK-010.</li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions on inspection, testing, maintenance, and repair of magazine alarms.</p>

## Advancement Handbook for TM3

<p>General TM <i>Skill Area</i></p>	<p><b>Magazine and Magazine Sprinkler Maintenance/Operation</b></p>
<p>A <i>skill</i> you are expected to perform from the General Skill Area above:</p>	<p><b>Inspect magazine ventilation system components</b></p>
<p><i>Knowledge</i> you should have to perform this skill:</p>	<ul style="list-style-type: none"> <li>• How to inspect magazine ventilation systems</li> </ul>
<p><i>References</i> you should study to gain the knowledge you need to perform this skill:</p>	<ul style="list-style-type: none"> <li>• PMS, applicable MRCs</li> <li>• CSOSS, as applicable</li> <li>• <i>Ammunition Afloat</i>, NAVSEA OP 4</li> <li>• <i>Ammunition and Explosives Ashore</i>, NAVSEA OP 5</li> <li>• <i>Magazine Sprinkler Systems</i>, S9522-AA-HBK-010.</li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions on inspection, testing, maintenance, and repair of magazine ventilation systems and components.</p>

## Advancement Handbook for TM3

<p>General TM <i>Skill Area</i></p>	<p><b>Magazine and Magazine Sprinkler Maintenance/Operation</b></p>
<p>A <i>skill</i> you are expected to perform from the General Skill Area above:</p>	<p><b>Inspect and test magazine eductor systems</b></p>
<p><i>Knowledge</i> you should have to perform this skill:</p>	<ul style="list-style-type: none"> <li>• How to inspect and test magazine eductor systems</li> </ul>
<p><i>References</i> you should study to gain the knowledge you need to perform this skill:</p>	<ul style="list-style-type: none"> <li>• PMS, applicable MRCs</li> <li>• CSOSS, as applicable</li> <li>• <i>Ammunition Afloat</i>, NAVSEA OP 4</li> <li>• <i>Ammunition and Explosives Ashore</i>, NAVSEA OP 5</li> <li>• <i>Magazine Sprinkler Systems</i>, S9522-AA-HBK-010.</li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions on inspection, testing, maintenance, and repair of magazine eductor systems and components.</p>

## Advancement Handbook for TM3

<p>General TM <i>Skill Area</i></p>	<p><b>Magazine and Magazine Sprinkler Maintenance/Operation</b></p>
<p>A <i>skill</i> you are expected to perform from the General Skill Area above:</p>	<p><b>Inspect and maintain ready stowage lockers</b></p>
<p><i>Knowledge</i> you should have to perform this skill:</p>	<ul style="list-style-type: none"> <li>• How to inspect and maintain ready stowage lockers</li> </ul>
<p><i>References</i> you should study to gain the knowledge you need to perform this skill:</p>	<ul style="list-style-type: none"> <li>• PMS, applicable MRCs</li> <li>• CSOSS, as applicable</li> <li>• <i>Ammunition Afloat</i>, NAVSEA OP 4</li> <li>• <i>Ammunition and Explosives Ashore</i>, NAVSEA OP 5</li> <li>• <i>Magazine Sprinkler Systems</i>, S9522-AA-HBK-010.</li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions on inspection, maintenance, repair, and use of ready stowage lockers.</p>

## Advancement Handbook for TM3

<p>General TM <i>Skill Area</i></p>	<p><b>Quality Assurance</b></p>
<p>A <i>skill</i> you are expected to perform from the General Skill Area above:</p>	<p><b>Conduct acceptance inspection on weapons and weapons component containers</b></p>
<p><i>Knowledge</i> you should have to perform this skill:</p>	<p>How to:</p> <ul style="list-style-type: none"> <li>• Conduct acceptance inspections on weapon component containers</li> <li>• Conduct torpedo acceptance inspections</li> <li>• Conduct torpedo and missile receipt and transfer inspections</li> </ul>
<p><i>References</i> you should study to gain the knowledge you need to perform this skill:</p>	<ul style="list-style-type: none"> <li>• <i>Mk 46 Torpedo/Mk46 REXTORP Flight Accessories, SW512-AO-ASY-010</i></li> <li>• <i>Heavyweight Torpedo, Submarine Tenders (AS) and Shore Facilities Ready-For-Issue (RFI) Activity Procedures, OP4024 Vol. 3 Rev. 5</i></li> <li>• <i>Procedures Manual for Lightweight Torpedo Firing Craft, SW515-AO-PRO-020/MK46</i></li> <li>• <i>Lightweight Torpedo Shipboard Handling, Storage, and Firing Procedures, SW515-AO-PRO-040/MK50</i></li> <li>• <i>Firing Craft Operating Procedures and Checklists, OD 44979 Volume 14 Part 1 Rev. 4</i></li> <li>• <i>Ammunition Afloat, NAVSEA OP 4</i></li> <li>• <i>Ammunition and Explosives Ashore, NAVSEA OP 5</i></li> <li>• <i>Inspection Requirements for Receipt, Segregation, Storage and Issue, NAVSEA TW010-AC-ORD-010</i></li> <li>• <i>Quality Program For Lightweight Torpedo/REXTORP Fleet Maintenance Activities, SL855-AB-PMM-010</i></li> </ul>

	<ul style="list-style-type: none"> <li>• <i>Heavyweight Torpedo Intermediate Quality Assurance Manual, SW513-AF-MMI-010/QA</i></li> <li>• <i>Naval Ordnance Quality Assurance Procedures, NAVSEA QAP 100</i></li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions on quality assurance inspection procedures for weapons, weapons components, containers, and containerized weapons and weapons components.</p>

## Advancement Handbook for TM3

<p>General TM <i>Skill Area</i></p>	<p><b>Pneumatic/Hydraulic Maintenance</b></p>
<p>A <i>skill</i> you are expected to perform from the General Skill Area above:</p>	<p><b>Conduct maintenance on pneumatic systems</b></p>
<p><i>Knowledge</i> you should have to perform this skill:</p>	<p>How to:</p> <ul style="list-style-type: none"> <li>• Clean, drain, and inspect air system lubricators</li> <li>• Inspect air system lubricator oil levels</li> <li>• Fill, bleed, and charge pneumatic systems</li> <li>• Remove, repair, and replace pneumatic system components</li> </ul>
<p><i>References</i> you should study to gain the knowledge you need to perform this skill:</p>	<ul style="list-style-type: none"> <li>• PMS, applicable MRCs</li> <li>• CSOSS, as applicable</li> <li>• <i>Ammunition Afloat</i>, NAVSEA OP 4</li> <li>• <i>Ammunition and Explosives Ashore</i>, NAVSEA OP 5</li> <li>• Applicable technical manuals.</li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions on inspection, maintenance, and repair of pneumatic systems and associated components.</p>

## Advancement Handbook for TM3

<p>General TM <i>Skill Area</i></p>	<p><b>Pneumatic/Hydraulic Maintenance</b></p>
<p>A <i>skill</i> you are expected to perform from the General Skill Area above:</p>	<p><b>Conduct maintenance on hydraulic systems</b></p>
<p><i>Knowledge</i> you should have to perform this skill:</p>	<p>How to:</p> <ul style="list-style-type: none"> <li>• Fill, bleed, and charge hydraulic systems</li> <li>• Remove, repair, and replace hydraulic system components</li> </ul>
<p><i>References</i> you should study to gain the knowledge you need to perform this skill:</p>	<ul style="list-style-type: none"> <li>• PMS, applicable MRCs</li> <li>• CSOSS, as applicable</li> <li>• <i>Ammunition Afloat</i>, NAVSEA OP 4</li> <li>• <i>Ammunition and Explosives Ashore</i>, NAVSEA OP 5</li> <li>• <i>Fluid Power</i>, NAVEDTRA 82964</li> <li>• Applicable technical manuals.</li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions on inspection, maintenance, and repair of hydraulic systems and associated components.</p>

## Advancement Handbook for TM3

<p>General TM <i>Skill Area</i></p>	<p><b>Pneumatic/Hydraulic Maintenance</b></p>
<p>A <i>skill</i> you are expected to perform from the General Skill Area above:</p>	<p><b>Inspect, test and rebuild pneumatic and hydraulic valves and system filters</b></p>
<p><i>Knowledge</i> you should have to perform this skill:</p>	<p>How to:</p> <ul style="list-style-type: none"> <li>• Test and inspect valves (pneumatic and hydraulic)</li> <li>• Rebuild valves (pneumatic and hydraulic)</li> <li>• Clean and inspect pneumatic/hydraulic system filters</li> </ul>
<p><i>References</i> you should study to gain the knowledge you need to perform this skill:</p>	<ul style="list-style-type: none"> <li>• PMS, applicable MRCs</li> <li>• CSOSS, as applicable</li> <li>• <i>Ammunition Afloat</i>, NAVSEA OP 4</li> <li>• <i>Ammunition and Explosives Ashore</i>, NAVSEA OP 5</li> <li>• Applicable technical manuals</li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions on inspection, testing, maintenance, repair, and replacement of pneumatic/hydraulic system valves, filters, and associated components.</p>

## Advancement Handbook for TM3

<p>General TM <i>Skill Area</i></p>	<p><b>Pneumatic/ Hydraulic Maintenance</b></p>
<p>A <i>skill</i> you are expected to perform from the General Skill Area above:</p>	<p><b>Maintain pneumatic reducers</b></p>
<p><i>Knowledge</i> you should have to perform this skill:</p>	<p>How to:</p> <ul style="list-style-type: none"> <li>• Clean and inspect pneumatic reducers</li> <li>• Test and adjust pneumatic reducers</li> <li>• Repair and replace pneumatic reducers</li> </ul>
<p><i>References</i> you should study to gain the knowledge you need to perform this skill:</p>	<ul style="list-style-type: none"> <li>• PMS, applicable MRCs</li> <li>• CSOSS, as applicable</li> <li>• <i>Ammunition Afloat</i>, NAVSEA OP 4</li> <li>• <i>Ammunition and Explosives Ashore</i>, NAVSEA OP 5</li> <li>• Applicable technical manuals</li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions on inspection, testing, maintenance, repair, and replacement of pneumatic reducers, and associated components.</p>

## Advancement Handbook for TM3

<p>General TM <i>Skill Area</i></p>	<p><b>Electrical/Electronic Maintenance</b></p>
<p>A <i>skill</i> you are expected to perform from the General Skill Area above:</p>	<p><b>Conduct electrical checks (voltage, current, resistance, and continuity)</b></p>
<p><i>Knowledge</i> you should have to perform this skill:</p>	<p>How to:</p> <ul style="list-style-type: none"> <li>• Conduct point-to-point voltage and current measurements</li> <li>• Conduct point-to-point resistance and continuity measurements</li> </ul>
<p><i>References</i> you should study to gain the knowledge you need to perform this skill:</p>	<ul style="list-style-type: none"> <li>• NEETS Modules 1 through 9, 12 through 16, and 19 through 23</li> <li>• PMS applicable MRCs</li> <li>• Applicable manufacturer-supplied operator's manuals</li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions on the operation of general-purpose test equipment, and procedures for measuring voltage, current, resistance, and power.</p>

## Advancement Handbook for TM3

General TM <i>Skill Area</i>	<b>Technical Administration</b>
A <i>skill</i> you are expected to perform from the General Skill Area above:	<b>Review conventional weapons manuals prior to weapons evolutions</b>
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• How the contents of weapons manuals are organized</li> <li>• How to review conventional weapons manuals prior to weapons evolutions</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• <i>Guide for User Maintenance of NAVSEA Technical Manuals, S0005-AA-GYD-030</i></li> <li>• <i>Ammunition Afloat, NAVSEA OP 4</i></li> <li>• <i>Ammunition and Explosives Ashore, NAVSEA OP 5</i></li> <li>• CSOSS, as applicable</li> <li>• Applicable conventional weapons manuals</li> <li>• Applicable type commander instructions</li> </ul>
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on the organization, content, and use of conventional weapons manuals, and type commander instructions as they apply to ordnance operations.

## Advancement Handbook for TM3

General TM <i>Skill Area</i>	<b>Technical Administration</b>
A <i>skill</i> you are expected to perform from the General Skill Area above:	<b>Complete weapons maintenance data forms (CAR, TMIS, TMDER, etc.)</b>
<i>Knowledge</i> you should have to perform this skill:	<p>How to:</p> <ul style="list-style-type: none"> <li>• Submit corrective action requests (CAR)</li> <li>• Write and submit torpedo maintenance data forms (TMIS, TMDER, etc)</li> <li>• Submit technical feedback reports</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• <i>Naval Ordnance Quality Assurance Procedures, NAVSEA QAP 100</i></li> <li>• <i>Heavyweight Torpedo Intermediate Maintenance Activity Quality Assurance Manual, SW513-AF-MMI-010</i></li> <li>• <i>Lightweight Torpedo/REXTORP Torpedo Management Information System, TW510-AA-PRO-010</i></li> <li>• <i>Heavyweight Torpedo Documentation Control Policy, SW510-AG-DOC-010</i></li> <li>• <i>Torpedo Management Information System, TW510-AA-PRO-040/MK48</i></li> <li>• <i>Guide for User Maintenance of NAVSEA Technical Manuals, S0005-AA-GYD-030</i></li> </ul>
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on required reports and requests, including TMIS, TMDER, CAR, DR, and technical feedback reports.

## Advancement Handbook for TM3

General TM <i>Skill Area</i>	<b>Technical Administration</b>
A <i>skill</i> you are expected to perform from the General Skill Area above:	<b>Maintain weight test and calibration logs</b>
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• How to maintain weight test and calibration logs</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• <i>Naval Ships' Technical Manual, S9086-XG-STM-010/CH-700</i></li> <li>• <i>Naval Ships' Technical Manual, S9086-T4-STM-010/CH-589</i></li> <li>• <i>Periodic Testing Arrangements for Ordnance Handling Equipment, SG420-AP-MMA-010</i></li> <li>• Applicable type commander instructions</li> </ul>
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on weight tests, calibration, marking, and associated documentation.

## Advancement Handbook for TM3

<i>General TM Skill Area</i>	<b>Technical Administration</b>
A <i>skill</i> you are expected to perform from the General Skill Area above:	<b>Use drawings (blueprints, schematics, etc.)</b>
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• How to use drawings (blueprints, schematics, etc.)</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• NEETS Modules 1 through 9, 12 through 16, and 19 through 23</li> <li>• PMS applicable MRCs</li> <li>• Applicable manufacturer-supplied operator's manuals</li> <li>• <i>Blueprint Reading and Sketching</i>, NAVEDTRA 82014</li> </ul>
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on basic electrical and electronic circuits, schematic reading, and the use of basic formulas to solve unknown values (voltage, current, resistance, and power, etc.).

## Advancement Handbook for TM3

<p>General TM <i>Skill Area</i></p>	<p><b>Damage Control</b></p>
<p>A <i>skill</i> you are expected to perform from the General Skill Area above:</p>	<p><b>Perform torpedo/missile casualty procedures (simulated or actual)</b></p>
<p><i>Knowledge</i> you should have to perform this skill:</p>	<p>How to:</p> <ul style="list-style-type: none"> <li>• Perform torpedo/missile casualty procedures</li> <li>• Clean up T-H Dimer spills</li> <li>• Clean up Otto Fuel spills</li> </ul>
<p><i>References</i> you should study to gain the knowledge you need to perform this skill:</p>	<ul style="list-style-type: none"> <li>• <i>Ammunition Afloat</i>, NAVSEA OP 4</li> <li>• <i>Ammunition and Explosives Ashore</i>, NAVSEA OP 5</li> <li>• CSOSS, as applicable</li> <li>• Applicable technical manuals</li> <li>• Applicable SOPs</li> <li>• <i>TOMAHAWK Cruise Missile</i>, SW820-AA-MMI-010</li> <li>• <i>Safety, Storage and Handling, Otto Fuel II</i>, S630-AA-MMA-010</li> <li>• <i>Naval Ships' Technical Manual</i>, S9086-S3-STM-010, CH/ 555</li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions on basic torpedo casualty procedures.</p>

## Advancement Handbook for TM3

<i>General TM Skill Area</i>	<b>Damage Control</b>
A <i>skill</i> you are expected to perform from the General Skill Area above:	<b>Maintain toxic and hazardous material spill lockers</b>
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Contents of Otto Fuel and T-H Dimer spill lockers</li> <li>• How to maintain Otto Fuel, and T-H Dimer spill lockers</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• Applicable technical manuals</li> <li>• Applicable SOPs</li> <li>• <i>Tomahawk Cruise Missile</i>, SW820-AA-MMI-010</li> <li>• <i>Safety, Storage and Handling, Otto Fuel II</i>, S630-AA-MMA-010</li> </ul>
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on the contents of spill lockers and how the lockers should be maintained.

## Advancement Handbook for TM3

<p>General TM <i>Skill Area</i></p>	<p><b>Damage Control</b></p>
<p>A <i>skill</i> you are expected to perform from the General Skill Area above:</p>	<p><b>Maintain and test breathing apparatus</b></p>
<p><i>Knowledge</i> you should have to perform this skill:</p>	<p>How to:</p> <ul style="list-style-type: none"> <li>• Inspect breathing apparatus cylinder pressure</li> <li>• Clean and inspect breathing apparatus</li> <li>• Test breathing apparatus</li> </ul>
<p><i>References</i> you should study to gain the knowledge you need to perform this skill:</p>	<ul style="list-style-type: none"> <li>• PMS, applicable MRCs</li> <li>• Applicable technical manuals</li> <li>• Applicable SOPs</li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions on the inspection, operation, maintenance, and repair of compressed air breathing apparatus.</p>

## Part 2

### Advancement Handbook for TM2

## Advancement Handbook for TM2

<p>General TM <i>Skill Area</i></p>	<p><b>Torpedo Tube System Maintenance/ Operations</b></p>
<p>A <i>skill</i> you are expected to perform from the General Skill Area above:</p>	<p><b>Conduct torpedo tube inspections</b></p>
<p><i>Knowledge</i> you should have to perform this skill:</p>	<ul style="list-style-type: none"> <li>• How to conduct torpedo tube inspections</li> </ul>
<p><i>References</i> you should study to gain the knowledge you need to perform this skill:</p>	<ul style="list-style-type: none"> <li>• Combat Systems Operational Sequencing System (CSOSS), as applicable.</li> <li>• Planed Maintenance System (PMS) applicable Maintenance Requirement Cards (MRCs)</li> <li>• <i>Description, Operation, Maintenance, and Illustrated Parts Breakdown Surface Vessel Torpedo Tube Mark 32 MOD 5 and 7, SW395-AC-MMO-010</i></li> <li>• <i>Description, Operation, Maintenance, and Illustrated Parts Breakdown Surface Vessel Torpedo Tube Mark 32 MOD 9, SW395-AD-MMO-010</i></li> <li>• <i>Description, Operation, Maintenance, and Illustrated Parts Breakdown Surface Vessel Torpedo Tube Mark 32 MOD 14 and Bulkhead Mounted Control Box Mark 60 MOD 0, SW395-AE-MMO-010</i></li> <li>• <i>Description, Operation, Maintenance, and Illustrated Parts Breakdown Surface Vessel Torpedo Tube Mark 32 MOD 15 and Interface Junction Box Mark 70 MOD 0, SW395-AJ-MMO-010</i></li> <li>• <i>Description, Operation, Maintenance, and Illustrated Parts Breakdown Surface Vessel Torpedo Tube Mark 32 MOD 17/18, SW395-AM-MMO-010</i></li> </ul>

- *Description, Operation, Maintenance, and Illustrated Parts Breakdown Surface Vessel Torpedo Tube Mark 32 MOD 19 and Bulkhead Mounted Control Box Mark 60 MOD 0, SW395-AQ-MMO-010*
- *Workshop Equipment Use and Maintenance Surface Vessel Torpedo Tubes Mark 32 All MODs, NAVSEA OD 46508*
- *Description, Installation, Operation, Maintenance, and Illustrated Parts Breakdown Air Charging Panel and Cabinet Assembly MK429 MOD 0, SW395-AH-MMM-010*
- *Description, Operation, Maintenance, and Illustrated Parts Breakdown Air Charging Panel and Cabinet Assembly MK429 MOD 1, SW395-AL-MMO-010*
- *Description, Installation, Operational Use, and Illustrated Parts Breakdown Torpedo Loading Tray Mark 7 MOD 0, SG420-BG-MMO-010*
- *Description, Installation, Operational Use, and Illustrated Parts Breakdown Torpedo Loading Tray Mark 8 MOD 0, SG420-BG-MMO-010*
- *Description, Installation, Operational Use, and Illustrated Parts Breakdown Torpedo Loading Tray Mark 9 MODs 0, 1, 2, and 3, SG420-BH-MMO-010*
- *Torpedo Loading Tray Mark 3 MOD 0 and 1, NAVORD OD 4066*
- *Shipboard Installation, Inspection, and Acceptance Testing Surface Vessel Torpedo Tube Mark 32 MOD 14 and Interface Junction Box Mark 70 MOD 0, SW395-AJ-IIN-010*
- *Shipboard Installation, Inspection, and Acceptance Testing Surface Vessel Torpedo Tube Mark 32 MODs 5 and 7, SW395-AC-MME-010*
- *Torpedo Setting Panel MK 331 MOD 3, SW189-AD-MMO-A10*
- *Torpedo Presetter Test Set Mark 432 MODs 2 and 3, ST890-A5-MMA-010*

	<ul style="list-style-type: none"><li>• <i>Torpedo Presetter Test Set MK 432 MOD 4, ST890-C4-MAN-010/MK 432 MOD 4</i></li></ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions on inspection requirements for torpedo tubes and associated equipment.</p>

## Advancement Handbook for TM2

<p>General TM <i>Skill Area</i></p>	<p><b>Torpedo Tube System Maintenance/ Operations</b></p>
<p>A <i>skill</i> you are expected to perform from the General Skill Area above:</p>	<p><b>Install ordnance alterations</b></p>
<p><i>Knowledge</i> you should have to perform this skill:</p>	<p>How to:</p> <ul style="list-style-type: none"> <li>• Perform ordnance alterations (ORDALTS)</li> <li>• Install field changes</li> </ul>
<p><i>References</i> you should study to gain the knowledge you need to perform this skill:</p>	<ul style="list-style-type: none"> <li>• CSOSS, as applicable.</li> <li>• PMS, applicable MRCs</li> <li>• <i>Description, Operation, Maintenance, and Illustrated Parts Breakdown Surface Vessel Torpedo Tube Mark 32 MOD 5 and 7, SW395-AC-MMO-010</i></li> <li>• <i>Description, Operation, Maintenance, and Illustrated Parts Breakdown Surface Vessel Torpedo Tube Mark 32 MOD 9, SW395-AD-MMO-010</i></li> <li>• <i>Description, Operation, Maintenance, and Illustrated Parts Breakdown Surface Vessel Torpedo Tube Mark 32 MOD 14 and Bulkhead Mounted Control Box Mark 60 MOD 0, SW395-AE-MMO-010</i></li> <li>• <i>Description, Operation, Maintenance, and Illustrated Parts Breakdown Surface Vessel Torpedo Tube Mark 32 MOD 15 and Interface Junction Box Mark 70 MOD 0, SW395-AJ-MMO-010</i></li> <li>• <i>Description, Operation, Maintenance, and Illustrated Parts Breakdown Surface Vessel Torpedo Tube Mark 32 MOD 17/18, SW395-AM-MMO-010</i></li> <li>• <i>Description, Operation, Maintenance, and Illustrated Parts Breakdown Surface Vessel Torpedo Tube Mark 32 MOD 19 and Bulkhead Mounted Control Box Mark 60</i></li> </ul>

- *MOD 0, SW395-AQ-MMO-010*
- *Workshop Equipment Use and Maintenance Surface Vessel Torpedo Tubes Mark 32 All MODs, NAVSEA OD 46508*
- *Description, Installation, Operation, Maintenance, and Illustrated Parts Breakdown Air Charging Panel and Cabinet Assembly MK429 MOD 0, SW395-AH-MMM-010*
- *Description, Operation, Maintenance, and Illustrated Parts Breakdown Air Charging Panel and Cabinet Assembly MK429 MOD 1, SW395-AL-MMO-010*
- *Description, Installation, Operational Use, and Illustrated Parts Breakdown Torpedo Loading Tray Mark 7 MOD 0, SG420-BG-MMO-010*
- *Description, Installation, Operational Use, and Illustrated Parts Breakdown Torpedo Loading Tray Mark 8 MOD 0, SG420-BG-MMO-010*
- *Description, Installation, Operational Use, and Illustrated Parts Breakdown Torpedo Loading Tray Mark 9 MODs 0, 1, 2, and 3, SG420-BH-MMO-010*
- *Torpedo Loading Tray Mark 3 MOD 0 and 1, NAVORD OD 4066*
- *Shipboard Installation, Inspection, and Acceptance Testing Surface Vessel Torpedo Tube Mark 32 MOD 14 and Interface Junction Box Mark 70 MOD 0, SW395-AJ-IIN-010*
- *Shipboard Installation, Inspection, and Acceptance Testing Surface Vessel Torpedo Tube Mark 32 MODs 5 and 7, SW395-AC-MME-010*
- *Torpedo Setting Panel MK 331 MOD 3, SW189-AD-MMO-A10*
- *Torpedo Presetter Test Set Mark 432 MODs 2 and 3, ST890-A5-MMA-010*
- *Torpedo Presetter Test Set MK 432 MOD 4, ST890-C4-MAN-010/MK 432 MOD 4*

<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions on the verification, and installation of ordnance alterations (ORDALTs), and field changes.</p>
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## Advancement Handbook for TM2

<p>General TM <i>Skill Area</i></p>	<p><b>Magazine and Magazine Sprinkler Maintenance/Operations</b></p>
<p>A <i>skill</i> you are expected to perform from the General Skill Area above:</p>	<p><b>Repair magazine sprinkler systems</b></p>
<p><i>Knowledge</i> you should have to perform this skill:</p>	<p>How to:</p> <ul style="list-style-type: none"> <li>• Repair magazine sprinkler systems</li> <li>• Replace HSDs</li> </ul>
<p><i>References</i> you should study to gain the knowledge you need to perform this skill:</p>	<ul style="list-style-type: none"> <li>• PMS, applicable MRCs</li> <li>• <i>Ammunition Afloat</i>, NAVSEA OP 4</li> <li>• <i>Ammunition and Explosives Ashore</i>, NAVSEA OP 5</li> <li>• <i>Magazine Sprinkler Systems</i>, S9522-AA-HBK-010</li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions on inspection, maintenance and repair of magazine sprinkler systems.</p>

## Advancement Handbook for TM2

General TM <i>Skill Area</i>	<b>Quality Assurance</b>
A <i>skill</i> you are expected to perform from the General Skill Area above:	<b>Submit quality discrepancy reports (QDR)</b>
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• How to submit quality discrepancy reports (QDR)</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• <i>Heavyweight Torpedo Intermediate Quality Assurance Manual, SW513-AF-MMI-010/QA</i></li> <li>• <i>Naval Ordnance Quality Assurance Procedures, NAVSEA QAP 100</i></li> <li>• <i>Unsatisfactory Material Reporting Processing Guide, T0850-AB-GDY-010</i></li> <li>• <i>Quality Program for Lightweight Torpedo/REXTORP Fleet Maintenance Activities, SL855-AB-PMM-010</i></li> </ul>
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on requirements for quality discrepancy reports, including preparation and submission.

## Advancement Handbook for TM2

<p>General TM <i>Skill Area</i></p>	<p><b>Quality Assurance</b></p>
<p>A <i>skill</i> you are expected to perform from the General Skill Area above:</p>	<p><b>Conduct acceptance inspection on weapons and components</b></p>
<p><i>Knowledge</i> you should have to perform this skill:</p>	<p>How to:</p> <ul style="list-style-type: none"> <li>• Conduct acceptance inspection on weapons and components</li> <li>• Conduct quality assurance (QA) material storage audits</li> </ul>
<p><i>References</i> you should study to gain the knowledge you need to perform this skill:</p>	<ul style="list-style-type: none"> <li>• <i>Mk 46 Torpedo/Mk46 REXTORP Flight Accessories, SW512-AO-ASY-010</i></li> <li>• <i>Heavyweight Torpedo, Submarine Tenders (AS) and Shore Facilities Ready-For-Issue (RFI) Activity Procedures, OP4024 Vol. 3 Rev. 5</i></li> <li>• <i>Procedures Manual for Lightweight Torpedo Firing Craft, SW515-AO-PRO-020/MK46</i></li> <li>• <i>Lightweight Torpedo Shipboard Handling, Storage, and Firing Procedures, SW515-AO-PRO-040/MK50</i></li> <li>• <i>Firing Craft Operating Procedures and Checklists, OD 44979 Volume 14 Part 1 Rev. 4</i></li> <li>• <i>Ammunition Afloat, NAVSEA OP 4</i></li> <li>• <i>Ammunition and Explosives Ashore, NAVSEA OP 5</i></li> <li>• <i>Inspection Requirements for Receipt, Segregation, Storage and Issue, NAVSEA TW010-AC-ORD-010</i></li> <li>• <i>Heavyweight Torpedo Intermediate Quality Assurance Manual, SW513-AF-MMI-010/QA</i></li> <li>• <i>Naval Ordnance Quality Assurance Procedures, NAVSEA QAP 100</i></li> </ul>

<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions on acceptance inspections and quality assurance material storage audits.</p>
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## Advancement Handbook for TM2

<p>General TM <i>Skill Area</i></p>	<p><b>Technical Administration</b></p>
<p>A <i>skill</i> you are expected to perform from the General Skill Area above:</p>	<p><b>Inventory ammunition, weapons and components</b></p>
<p><i>Knowledge</i> you should have to perform this skill:</p>	<ul style="list-style-type: none"> <li>• How to inventory ammunition, weapons, and components</li> </ul>
<p><i>References</i> you should study to gain the knowledge you need to perform this skill:</p>	<ul style="list-style-type: none"> <li>• <i>Small Arms and Weapons Management Policy and Guidance Manual, NAVSEAINST 8370.2</i></li> <li>• <i>Department of the Navy Physical Security Instruction for Conventional Arms, Ammunition, and Explosives, OPNAVINST 5530.13B</i></li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions on inventory requirements for ammunition, weapons, and components.</p>

## Advancement Handbook for TM2

<p>General TM <i>Skill Area</i></p>	<p><b>Technical Administration</b></p>
<p>A <i>skill</i> you are expected to perform from the General Skill Area above:</p>	<p><b>Maintain technical libraries</b></p>
<p><i>Knowledge</i> you should have to perform this skill:</p>	<ul style="list-style-type: none"> <li>• How to maintain technical libraries</li> </ul>
<p><i>References</i> you should study to gain the knowledge you need to perform this skill:</p>	<ul style="list-style-type: none"> <li>• <i>Heavyweight Torpedo Intermediate Quality Assurance Manual, SW513-AF-MMI-010/QA</i></li> <li>• <i>Naval Ordnance Quality Assurance Procedures, NAVSEA QAP 100</i></li> <li>• <i>Directives Issuance System, SECNAVINST 5215.1C</i></li> <li>• <i>Standard Subject Identification Codes, SECNAVINST 5210.11D</i></li> <li>• <i>Department of the Navy Personnel Security Program, SECNAVINST. 5510.30A</i></li> <li>• <i>Department of the Navy (DON) Information Security Program (ISP) Regulation, SECNAVINST. 5510.36</i></li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions on the use and maintenance of technical manuals including the installation of ACNs and operation of technical libraries.</p>

## Part 3

### Advancement Handbook for TM1

# Advancement Handbook for TM1

General TM <i>Skill Area</i>	<b>Small Arms Maintenance</b>
A <i>skill</i> you are expected to perform from the General Skill Area above:	<b>Coordinate familiarization firing for security forces</b>
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• How to coordinate familiarization firing for security forces</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• PMS, applicable MRCs</li> <li>• <i>Gunner's Mate</i>, NAVEDTRA 12443</li> <li>• <i>Military Shotgun, 12 Gauge Pump Action Model 870</i>, TO11W3-6-2-1</li> <li>• <i>Operator's Manual for Rifle, 5.56mm, M16, Rifle, 5.56mm, M16A1</i>, TM 9-1005-249-10</li> <li>• <i>Operator's Manual w/Components List Rifle 5.56mm, M16A2</i>, TM9-1005-319-10</li> <li>• <i>Operator's Manual for Rifle, 7.62mm, M14, Rifle, 7.62mm, M14A1, Bipod, Rifle, M2</i>, TM 9-1005-223-10</li> <li>• <i>Organizational Maintenance Manual Including Repair Parts And Special Tools Lists for Rifle, 7.62mm, M14, Rifle, 7.62mm, M14A1, Bipod, Rifle, M2</i>, TM 9-1005-223-20</li> <li>• <i>Pistol, CAL .45, Automatic</i>, TM 9-1005-211-12</li> <li>• <i>Pistol, Semiautomatic, 9mm, M9</i>, SW370-AA-MMO-010</li> <li>• <i>Description, Operation, and Maintenance MK87 MOD1 Line Throwing Rifle Adapter Kit</i>, SW350-A1-MMO-010</li> <li>• <i>38 S/M Wesson</i>, TM 9-1005-206-14&amp;P-1</li> <li>• <i>.50 Cal Machine Gun</i>, TM 9 1005-213-10</li> <li>• <i>M60 Machine Gun</i>, TM 9 1005-224-24</li> <li>• <i>Small Arms Training and Qualification</i>, OPNAVINST 3591.1C</li> </ul>

<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions on coordination of familiarization firing for security forces, range safety, and weapons familiarization.</p>
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## Advancement Handbook for TM1

<p>General TM <i>Skill Area</i></p>	<p><b>Torpedo Tube System Maintenance/ Operations</b></p>
<p>A <i>skill</i> you are expected to perform from the General Skill Area above:</p>	<p><b>Coordinate torpedo prefiring tests</b></p>
<p><i>Knowledge</i> you should have to perform this skill:</p>	<ul style="list-style-type: none"> <li>• How to coordinate torpedo prefiring tests</li> </ul>
<p><i>References</i> you should study to gain the knowledge you need to perform this skill:</p>	<ul style="list-style-type: none"> <li>• CSOSS, as applicable.</li> <li>• PMS, applicable MRCs</li> <li>• <i>Description, Operation, Maintenance, and Illustrated Parts Breakdown Surface Vessel Torpedo Tube Mark 32 MOD 5 and 7, SW395-AC-MMO-010</i></li> <li>• <i>Description, Operation, Maintenance, and Illustrated Parts Breakdown Surface Vessel Torpedo Tube Mark 32 MOD 9, SW395-AD-MMO-010</i></li> <li>• <i>Description, Operation, Maintenance, and Illustrated Parts Breakdown Surface Vessel Torpedo Tube Mark 32 MOD 14 and Bulkhead Mounted Control Box Mark 60 MOD 0, SW395-AE-MMO-010</i></li> <li>• <i>Description, Operation, Maintenance, and Illustrated Parts Breakdown Surface Vessel Torpedo Tube Mark 32 MOD 15 and Interface Junction Box Mark 70 MOD 0, SW395-AJ-MMO-010</i></li> <li>• <i>Description, Operation, Maintenance, and Illustrated Parts Breakdown Surface Vessel Torpedo Tube Mark 32 MOD 17/18, SW395-AM-MMO-010</i></li> <li>• <i>Description, Operation, Maintenance, and Illustrated Parts Breakdown Surface Vessel Torpedo Tube Mark 32 MOD 19 and Bulkhead Mounted Control Box Mark 60 MOD 0, SW395-AQ-MMO-010</i></li> </ul>

- *Workshop Equipment Use and Maintenance Surface Vessel Torpedo Tubes Mark 32 All MODs, NAVSEA OD 46508*
- *Description, Installation, Operation, Maintenance, and Illustrated Parts Breakdown Air Charging Panel and Cabinet Assembly MK429 MOD 0, SW395-AH-MMM-010*
- *Description, Operation, Maintenance, and Illustrated Parts Breakdown Air Charging Panel and Cabinet Assembly MK429 MOD 1, SW395-AL-MMO-010*
- *Description, Installation, Operational Use, and Illustrated Parts Breakdown Torpedo Loading Tray Mark 7 MOD 0, SG420-BG-MMO-010*
- *Description, Installation, Operational Use, and Illustrated Parts Breakdown Torpedo Loading Tray Mark 8 MOD 0, SG420-BG-MMO-010*
- *Description, Installation, Operational Use, and Illustrated Parts Breakdown Torpedo Loading Tray Mark 9 MODs 0, 1, 2, and 3, SG420-BH-MMO-010*
- *Torpedo Loading Tray Mark 3 MOD 0 and 1, NAVORD OD 4066*
- *Shipboard Installation, Inspection, and Acceptance Testing Surface Vessel Torpedo Tube Mark 32 MOD 14 and Interface Junction Box Mark 70 MOD 0, SW395-AJ-IIN-010*
- *Shipboard Installation, Inspection, and Acceptance Testing Surface Vessel Torpedo Tube Mark 32 MODs 5 and 7, SW395-AC-MME-010*
- *Torpedo Setting Panel MK 331 MOD 3, SW189-AD-MMO-A10*
- *Torpedo Presetter Test Set Mark 432 MODs 2 and 3, ST890-A5-MMA-010*
- *Torpedo Presetter Test Set MK 432 MOD 4, ST890-C4-MAN-010/MK 432 MOD 4*

<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions on coordination of torpedo prefiring tests, conducting overall combat systems operability tests (OCSOT), and sonar system consolidated operability test (SCOT).</p>
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## Advancement Handbook for TM1

<p>General TM <i>Skill Area</i></p>	<p><b>Weapons/Component Handling</b></p>
<p>A <i>skill</i> you are expected to perform from the General Skill Area above:</p>	<p><b>Coordinate shipboard recovery of expended exercise torpedoes</b></p>
<p><i>Knowledge</i> you should have to perform this skill:</p>	<ul style="list-style-type: none"> <li>• How to coordinate shipboard recovery of expended exercise torpedoes</li> </ul>
<p><i>References</i> you should study to gain the knowledge you need to perform this skill:</p>	<ul style="list-style-type: none"> <li>• PMS, applicable MRCs</li> <li>• <i>Ammunition Afloat</i>, NAVSEA OP 4</li> <li>• <i>Ammunition and Explosives Ashore</i>, NAVSEA OP 5</li> <li>• <i>United States Navy Ordnance Safety Precautions</i>, NAVORD OP 3347</li> <li>• <i>Localization and Recovery of Lightweight Torpedoes</i>, SW515-AO-PRO-010</li> <li>• <i>Procedures Manual For Lightweight Torpedo Firing Craft</i>, SW515-AO-PRO-020</li> <li>• <i>Recoverable Exercise Torpedo (REXTORP) MK 46</i>, SW515-AG-OMP-010</li> <li>• <i>Lightweight Torpedo Shipboard Handling, Storage, And Firing Procedures</i>, SW515-AO-PRO-040/MK50</li> <li>• <i>Recoverable Exercise Torpedo (REXTORP) MK 50</i>, SW516-AB-MMO-010</li> <li>• <i>Approved Handling Equipment For Weapons And Explosives</i>, NAVSEA OP 2173</li> <li>• <i>Torpedo Handling System</i>, SG420-BD-MMA-010</li> <li>• <i>Handlift Truck MK 45 MODS 0 And 2 Description, Operation, Maintenance And Illustrated Parts Breakdown</i>, SG420-DO-MMO-010</li> </ul>

<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions on ordnance safety, setup and breakdown of handling equipment, and requirements for shipboard recovery of expended exercise torpedoes.</p>
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# Advancement Handbook for TM1

General TM <i>Skill Area</i>	<b>Weapons/ Component Handling</b>
A <i>skill</i> you are expected to perform from the General Skill Area above:	<b>Coordinate weapons/component handling evolutions</b>
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• How to coordinate weapons/component handling evolutions</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• <i>Ammunition Afloat</i>, NAVSEA OP 4</li> <li>• <i>Ammunition and Explosives Ashore</i>, NAVSEA OP 5</li> <li>• <i>United States Navy Ordnance Safety Precautions</i>, NAVORD OP 3347</li> <li>• <i>Procedures Manual For Lightweight Torpedo Firing Craft</i>, SW515-AO-PRO-020</li> <li>• <i>Lightweight Torpedo Shipboard Handling, Storage, and Firing Procedures</i>, SW515-AO-PRO-040/MK50</li> <li>• <i>Heavyweight Torpedo Submarine Tenders (AS) and Shore Facilities Ready-For-Issue (RFI) Activity Procedures</i>, NAVSEA OP 4024</li> <li>• <i>Approved Handling Equipment For Weapons and Explosives</i>, NAVSEA OP 2173</li> <li>• <i>DD 963 AND DDG 993 Strikedown Lift System</i>, SG420-AX-MMO-010</li> <li>• <i>Maintenance And Repair Instructions For Strikedown Lift System For CG 62 Through CG 73 Ships</i>, SG420-BQ-MMA-010</li> <li>• <i>Transshipment Activity Procedures Tomahawk Cruise Missile</i>, SW820-AH-WHS-010</li> <li>• Applicable TYCOM Instructions</li> <li>• <i>Torpedo Handling System</i>, SG420-BD-MMA-010</li> </ul>

	<ul style="list-style-type: none"> <li>• <i>Handlift Truck MK 45 MODS 0 And 2</i></li> <li>• <i>Description, Operation, Maintenance And Illustrated Parts Breakdown, SG420-DO-MMO-010</i></li> <li>• <i>Submarine Convention Weapons Manual, COMSUBLANTINST/COMSUBPACINST 8500.4A</i></li> <li>• <i>U.S Navy Explosives Safety Policies, Requirements, and Procedures, OPNAVINST 8023.2C</i></li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions on ordnance safety, coordination, requirements for weapons/component handling evolutions, and ordnance onload/offload procedures.</p>

# Advancement Handbook for TM1

<p>General TM <i>Skill Area</i></p>	<p><b>Quality Assurance</b></p>
<p>A <i>skill</i> you are expected to perform from the General Skill Area above:</p>	<p><b>Coordinate and maintain QA material storage audits and schedules</b></p>
<p><i>Knowledge</i> you should have to perform this skill:</p>	<p>How to:</p> <ul style="list-style-type: none"> <li>• Coordinate and maintain QA material storage audits and schedules</li> <li>• Conduct weapons safety inspections</li> </ul>
<p><i>References</i> you should study to gain the knowledge you need to perform this skill:</p>	<ul style="list-style-type: none"> <li>• <i>Ammunition Afloat</i>, NAVSEA OP 4</li> <li>• <i>Ammunition and Explosives Ashore</i>, NAVSEA OP 5</li> <li>• <i>Inspection Requirements for Receipt, Segregation, Storage and Issue</i>, NAVSEA TW010-AC-ORD-010</li> <li>• <i>Heavyweight Torpedo Intermediate Quality Assurance Manual</i>, SW513-AF-MMI-010/QA</li> <li>• <i>Naval Ordnance Quality Assurance Procedures</i>, NAVSEA QAP 100</li> <li>• <i>Quality Program for Lightweight Torpedo/REXTORP Fleet Maintenance Activities</i>, SL855-AB-PMM-010</li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions on coordination of required quality assurance storage audits, and schedules.</p>

## Advancement Handbook for TM1

<p>General TM <i>Skill Area</i></p>	<p><b>Technical Administration</b></p>
<p>A <i>skill</i> you are expected to perform from the General Skill Area above:</p>	<p><b>Supervise non-nuclear explosives handling and stowage programs</b></p>
<p><i>Knowledge</i> you should have to perform this skill:</p>	<ul style="list-style-type: none"> <li>• How to plan and supervise a non-nuclear explosives handling and stowage program</li> </ul>
<p><i>References</i> you should study to gain the knowledge you need to perform this skill:</p>	<ul style="list-style-type: none"> <li>• <i>Ammunition Afloat</i>, NAVSEA OP 4</li> <li>• <i>Ammunition and Explosives Ashore</i>, NAVSEA OP 5</li> <li>• <i>U.S. Navy Safety Policies, Requirements, and Procedures</i>, OPNAVINST. 8023.2</li> <li>• <i>Submarine Force Conventional Weapons Manual</i>, COMSUBLANTINST/ COSUBPACINST 8500.4</li> <li>• Applicable TYCOM Instructions</li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions on training, qualification, certification, and maintenance of records for the non-nuclear explosives handling and stowage program.</p>

# Advancement Handbook for TM1

<p>General TM <i>Skill Area</i></p>	<p><b>Technical Administration</b></p>
<p>A <i>skill</i> you are expected to perform from the General Skill Area above:</p>	<p><b>Maintain and submit ordnance documentation reports</b></p>
<p><i>Knowledge</i> you should have to perform this skill:</p>	<p>How to:</p> <ul style="list-style-type: none"> <li>• Submit ORDALT documentation</li> <li>• Maintain and update CARS</li> <li>• Submit and maintain ammunition transaction reports (ATR)</li> <li>• Maintain and update master stock record cards</li> </ul>
<p><i>References</i> you should study to gain the knowledge you need to perform this skill:</p>	<ul style="list-style-type: none"> <li>• <i>Small Arms and Weapons Management Policy and Guidance Manual, NAVSEAINST 8370.2</i></li> <li>• <i>Department of the Navy Physical Security Instruction for Conventional Arms, Ammunition, and Explosives, OPNAVINST 5530.13B</i></li> <li>• <i>Conventional Ammunition Integrated Management System, SPCCINST 8010.12D</i></li> <li>• <i>Management of Conventional Ammunition, NAVORDCENINST 8010.2</i></li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions on maintenance, preparation, and submission of required ordnance documentation and reports.</p>

## Advancement Handbook for TM1

General TM <i>Skill Area</i>	<b>Technical Administration</b>
A <i>skill</i> you are expected to perform from the General Skill Area above:	<b>Change safe combinations</b>
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Requirements for changing safe combinations</li> <li>• Procedures for changing safe combinations</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• <i>Department of the Navy Personnel Security Program, SECNAVINST. 5510.30A</i></li> <li>• <i>Department of the Navy (DON) Information Security Program (ISP) Regulation, SECNAVINST 5510.36</i></li> </ul>
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on storage, secure room requirements, and policies governing frequency of combination changes.

## **Part 4**

# **Advancement Handbook for TMC**

# Advancement Handbook for TMC

General TM <i>Skill Area</i>	<b>Technical Administration</b>
A <i>skill</i> you are expected to perform from the General Skill Area above:	<b>Review, maintain and submit reports (TRP, TCP, ATR, etc.)</b>
<i>Knowledge</i> you should have to perform this skill:	<p>How to:</p> <ul style="list-style-type: none"> <li>• Review Torpedo Readiness Acceptance (TRA) Inspection reports</li> <li>• Review Torpedo Certification Program (TCP) Inspection reports</li> <li>• Maintain ATR</li> <li>• Submit ammunition reconciliation reports</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• <i>Submarine Force Conventional Weapons Manual, COMSUBLANTINST/ COSUBPACINST 8500.4</i></li> <li>• <i>Small Arms and Weapons Management Policy and Guidance Manual, NAVSEAINST 8370.2</i></li> <li>• <i>Department of the Navy Physical Security Instruction for Conventional Arms, Ammunition, and Explosives, OPNAVINST 5530.13B</i></li> <li>• <i>Conventional Ammunition Integrated Management System, SPCCINST 8010.12D</i></li> <li>• <i>Management of Conventional Ammunition, NAVORDCENINST 8010.2</i></li> </ul>
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on the review, preparation, submission, and maintenance of required reports and documentation.

# Advancement Handbook for TMC

<p>General TM <i>Skill Area</i></p>	<p><b>Technical Administration</b></p>
<p>A <i>skill</i> you are expected to perform from the General Skill Area above:</p>	<p><b>Maintain weapons audit files</b></p>
<p><i>Knowledge</i> you should have to perform this skill:</p>	<ul style="list-style-type: none"> <li>• Requirements for maintaining weapons audit files</li> <li>• Procedures for maintaining weapons audit files</li> </ul>
<p><i>References</i> you should study to gain the knowledge you need to perform this skill:</p>	<ul style="list-style-type: none"> <li>• <i>Heavyweight Torpedo Intermediate Maintenance Activity Quality Assurance, SW513-AF-MMI-010</i></li> <li>• <i>Quality Program for Lightweight Torpedo/REXTORP Fleet Maintenance Activities, SL855-AB-PMM-010</i></li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions on the maintenance of weapons audit files.</p>

## Advancement Handbook for TMC

General TM <i>Skill Area</i>	<b>Technical Administration</b>
A <i>skill</i> you are expected to perform from the General Skill Area above:	<b>Conduct physical security surveys</b>
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Requirements for physical security surveys</li> <li>• Procedures for conducting physical security surveys</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• <i>Department of the Navy Physical Security Instruction for Conventional Arms, Ammunition, and Explosives, OPNAVINST 5530.13B</i></li> </ul>
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect question on the requirements, and procedures for conducting physical security surveys.

# Advancement Handbook for TMC

<p>General TM <i>Skill Area</i></p>	<p><b>Technical Administration</b></p>
<p>A <i>skill</i> you are expected to perform from the General Skill Area above:</p>	<p><b>Implement non-nuclear explosive handling and stowage training programs</b></p>
<p><i>Knowledge</i> you should have to perform this skill:</p>	<ul style="list-style-type: none"> <li>• Requirements for non-nuclear explosive handling and stowage training programs</li> <li>• Procedures for implementing non-nuclear explosive handling and stowage training programs</li> </ul>
<p><i>References</i> you should study to gain the knowledge you need to perform this skill:</p>	<ul style="list-style-type: none"> <li>• <i>Ammunition Afloat</i>, NAVSEA OP 4</li> <li>• <i>Ammunition and Explosives Ashore</i>, NAVSEA OP 5</li> <li>• <i>U.S. Navy Safety Policies, Requirements, and Procedures</i>, OPNAVINST. 8023.2</li> <li>• <i>Submarine Force Conventional Weapons Manual</i>, COMSUBLANTINST/ COSUBPACINST 8500</li> <li>• Applicable TYCOM Instructions</li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions on training, qualification, certification, and maintenance of records for the non-nuclear explosives handling and stowage program.</p>

# Advancement Handbook for TMC

General TM <i>Skill Area</i>	<b>Technical Administration</b>
A <i>skill</i> you are expected to perform from the General Skill Area above:	<b>Requisition weapons and components</b>
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• How to requisition weapons and components</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• <i>Conventional Ammunition Integrated Management System</i>, SPCCINST 8010.12D</li> <li>• <i>Management of Conventional Ammunition</i>, NAVORDCENINST 8010.2</li> </ul>
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on the preparation of requisitions for weapons and components.

**Appendix 1**  
**References Used in This Advancement Handbook**

Short Title	Long Title	Stocking Point
0916-LP-042-4010	Installation, Operation, Maintenance and Repair Instructions With Parts List Torpedo Doors	NOTE 1
COMSUBLANTINST/ COMSUBPACINST 8500.4A	Submarine Convention Weapons Manual	NOTE 5
CSOSS	Combat Systems Operational Sequencing System	NOTE 9
NAVEDTRA 12443	Gunner's Mate	NOTE 3
NAVED TRA 82014	Blueprint Reading and Sketching	NOTE 3
NAVEDTRA B72-01-00-92	NEETS Module 1, Introduction to Matter, Energy, and Direct Current	NOTE 3
NAVEDTRA 172-02-00-91	NEETS Module 2, Introduction to Alternating Current and Transformers	NOTE 3
NAVEDTRA B72-03-00-93	NEETS Module 3, Introduction to Circuit Protection, Control, and Measurement	NOTE 3
NAVEDTRA B72-04-00-92	NEETS Module 4, Introduction to Electrical Conductors, Wiring Techniques, and Schematic Reading	NOTE 3
NAVEDTRA B72-05-00-94	Module 5, Introduction to Generators and Motors	NOTE 3
NAVEDTRA B72-06-00-92	NEETS Module 6, Introduction to Electronic Emission, Tubes, and Power Supplies	NOTE 3
NAVEDTRA B72-07-00-92	NEETS Module 7, Introduction to Solid-state Devices and Power Supplies	NOTE 3
NAVEDTRA 172-08-00-82	NEETS Module 8, Introduction to Amplifiers	NOTE 3
NAVEDTRA 172-09-00-83	NEETS Module 9, Introduction to Wave-Generation and Wave-Shaping Circuits	NOTE 3
NAVEDTRA 172-12-00-83	NEETS Module 12, Modulation Principles	NOTE 3
NAVEDTRA B72-13-00-94	NEETS Module 13, Introduction to Number Systems and Logic Circuits	NOTE 3
NAVEDTRA 172-14-00-84	NEETS Module 14, Introduction to Microelectronics	NOTE 3
NAVEDTRA B72-15-00-93	NEETS Module 15, Principles of Synchros, Servos, and Gyros	NOTE 3
NAVEDTRA B72-16-00-96	NEETS Module 16, Introduction to Test Equipment	NOTE 3
NAVEDTRA B72-23-00-91	NEETS Module 23, Magnetic Recording	NOTE 3
NAVEDTRA 82964.	Fluid Power	NOTE 3
NAVORD OD 4066	Torpedo Loading Tray Mark 3 MOD 0 and 1	NOTE 1
NAVSEA OP 3000	Ordnance Lubrication	NOTE 1
NAVORD OP 3347	United States Navy Ordnance Safety Precautions	NOTE 1
NAVORDCENINST 8010.2	Management of Conventional Ammunition	NOTE 8
NAVSEA OP 2173	Approved Handling Equipment For Weapons And Explosives	NOTE 1
NAVSEA OP 2239	Motor Vehicle Driver's Handbook	NOTE 1
NAVSEA OP 3418	Afterbody Test Set MK 486 MOD 0	NOTE 1
NAVSEA OP 3421	Electrical Cable Test Set MK 444 MOD 0	NOTE 1
NAVSEA OP 3455	Exploder Well Test Set MK445 MOD 0,	NOTE 1
NAVSEA OP 4	Ammunition Afloat	NOTE 1
NAVSEA OP 4024 VOL. 2(parts 1 & 2)	Intermediate Maintenance Activity, Troubleshooting Procedures	NOTE 1
NAVSEA OP 4024 Volume 1 (parts 1 & 2)	Intermediate Maintenance Activity, Assembly, Test and Turnaround Procedures	NOTE 1
NAVSEA OP 4026 Volume 2 (parts 1 & 2)	Torpedo Instrumentation and Exercise System Test Set Mark 562 MOD 1	NOTE 1
NAVSEA OP 4026 Volume 4	Torpedo Instrumentation and Exercise System Test Set Mark 562 MOD 2	NOTE 1

NAVSEA OP 4027 (parts 1&2)	Ancillary Equipment (Part 1)	NOTE 1
NAVSEA OP 4029	Test Set, Exploder Mechanism, Mark 525 MOD 1	NOTE 1
NAVSEA OP 5	Ammunition and Explosives Ashore	NOTE 1
NAVSEA QAP 100	Naval Ordnance Quality Assurance Procedures	NOTE 6
NAVSEA TW010-AC-ORD-010	Inspection Requirements for Receipt, Segregation, Storage and Issue	NOTE 1
NAVSEAINST 8370.2	Small Arms and Weapons Management Policy and Guidance Manual	NOTE 1
NAVSUP P-484	Supply Afloat Fleet And Field Packaging Procedures	NOTE 1
OD 44979 Volume 14 Part 1 Rev. 4	Firing Craft Operating Procedures and Checklists	NOTE 2
OD 46508	Workshop Equipment Use and Maintenance Surface Vessel Torpedo Tubes Mark 32 All MODs	NOTE 1
OP 4443	Torpedoes Mark 48 and Mark 48 ADCAP Torpedo Mounted Dispenser Mark 10 Mods 0 and 1	NOTE 1
OP4024 Vol. 3 Rev. 5	Heavyweight Torpedo, Submarine Tenders (AS) and Shore Facilities Ready-For-Issue (RFI) Activity Procedures	NOTE 1
OPNAVINST 3591.1C	Small Arms Training and Qualification	NOTE 4
OPNAVINST 5530.13B	Department of the Navy Physical Security Instruction for Conventional Arms, Ammunition, and Explosives	NOTE 4
OPNAVINST 8023.2C	U.S Navy Explosives Safety Policies, Requirements, and Procedures	NOTE 4
S0005-AA-GYD-030	Guide for User Maintenance of NAVSEA Technical Manuals	NOTE 1
S630-AA-MMA-010	Safety, Storage and Handling, Otto Fuel II	NOTE 1
S6340-AF-MMO-010	Organizational Manual for Otto Fuel Vapor Detector Mark 15 MOD 0	NOTE 1
S9086-S3-STM-010, CH/ 555	Naval Ships' Technical Manual, Chapter 555	NOTE 1
S9086-T4-STM-010/CH-589	Naval Ships' Technical Manual, Chapter 589	NOTE 1
S9086-UU-STM-010/CH-613	Naval Ships' Technical Manual, Chapter 613	NOTE 1
S9086-XG-STM-010/CH-700	Naval Ships' Technical Manual, Chapter 700	NOTE 1
S9522-AA-HBK-010	Magazine Sprinkler Systems	NOTE 1
SL855-AB-PMM-010	Quality Program for Lightweight Torpedo/REXTORP Fleet Maintenance Activities	NOTE 1
SECNAVINST 5210.11D	Standard Subject Identification Codes	NOTE 4
SECNAVINST 5215.1C	Directives Issuance System	NOTE 4
SECNAVINST. 5510.30A	Department of the Navy Personnel Security program	NOTE 4
SECNAVINST. 5510.36	Department of the Navy (DON) Information Security Program (ISP) Regulation	NOTE 4
SG420-AP-MMA-010	Periodic Testing Arrangements For Ordnance Handling Equipment	NOTE 1
SG420-AX-MMO-010	DD 963 AND DDG 993 Strikedown Lift System	NOTE 1
SG420-BD-MMA-010	Torpedo Handling System	NOTE 1
SG420-BG-MMO-010	Description, Installation, Operational Use, and Illustrated Parts Breakdown Torpedo Loading Tray Mark 7 MOD 0	NOTE 1
SG420-BH-MMO-010	Description, Installation, Operational Use, and Illustrated Parts Breakdown Torpedo Loading Tray Mark 8 MOD 0	NOTE 1
SG420-BQ-MMA-010	Maintenance And Repair Instructions For Strikedown Lift System For CG 62 Through CG 73 Ships	NOTE 1
SG420-BQ-SUP-010/CG 47-48	Technical Manual Supplement For Strikedown Lift System	NOTE 1

SG420-BQ-SUP-020	Technical Manual Supplement For Strikedown Lift System	NOTE 1
SG420-BQ-SUP-030.	Technical Manual Supplement For Strikedown Lift System	NOTE 1
SG420-BQ-SUP-040	Technical Manual Supplement For Strikedown Lift System	NOTE 1
SG420-BQ-SUP-050.	Technical Manual Supplement For Strikedown Lift System	NOTE 1
SG420-CG-MMO-010	Description, Installation, Operational Use, and Illustrated Parts Breakdown Torpedo Loading Tray Mark 9 MODs 0,1,2, and 3	NOTE 1
SG420-CO-MMO-010	Description, Installation, Operational Use, And Illustrated Parts Breakdown Torpedo Loading Tray Mark 2 MODS 0 and 1	NOTE 1
SG420-DO-MMO-010	Handlift Truck MK 45 MODS 0 and 2 Description, Operation, Maintenance and Illustrated Parts Breakdown	NOTE 1
SPCCINST 8010.12D	Conventional Ammunition Integrated Management System	NOTE 8
ST800-AQ-MMA-010	Exercise Test Set MK 641 MOD 0	NOTE 1
ST820-AE-MMI-010	Torpedo MK 48 ADCAP, Automatic Test Equipment, MK 660 MOD 1 (part 1)	NOTE 1
ST820-AE-MMI-020	Torpedo MK 48 ADCAP, Automatic Test Equipment, MK 660 MOD 1 (part 2)	NOTE 1
ST820-AE-MMI-030	Torpedo MK 48 ADCAP, Automatic Test Equipment, MK 660 MOD 1 (part 3)	NOTE 1
ST820-AE-MMI-040	Torpedo MK 48 ADCAP, Automatic Test Equipment, MK 660 MOD 1 (part 4)	NOTE 1
ST820-AE-MMI-050	Torpedo MK 48 ADCAP, Automatic Test Equipment, MK 660 MOD 1 (part 5)	NOTE 1
ST820-AE-MMI-060	Torpedo MK 48 ADCAP, Automatic Test Equipment, MK 660 MOD 1 (part 6)	NOTE 1
ST820-AP-MMI-010	Torpedo MK 48 All MODs, Automatic Test Equipment, MK 660 MOD 2	NOTE 1
ST820-AP-MMI-020	Torpedo MK 48 All MODs, Automatic Test Equipment, MK 660 MOD 2	NOTE 1
ST820-AP-MMI-030	Torpedo MK 48 All MODs, Automatic Test Equipment, MK 660 MOD 2,	NOTE 1
ST820-AP-MMI-040	Torpedo MK 48 All MODs, Automatic Test Equipment, MK 660 MOD 2	NOTE 1
ST820-AP-MMI-050	Torpedo MK 48 All MODs, Automatic Test Equipment, MK 660 MOD 2	NOTE 1
ST822-AC-MMI-A10	Maintenance Manual for Intermediate Level Torpedo System Test Set MK 540 MOD 4	NOTE 1
ST822-AC-MMI-A20	Maintenance Manual for Intermediate Level Torpedo System Test Set MK 540 MOD 4	NOTE 1
ST890-A5-MMA-010	Torpedo Presetter Test Set Mark 432 MODs 2 and 3	NOTE 1
ST890-AW-MMI-010	Reduction System (Torpedo MK 48 MODs 4, 5, and 6, Fleet Data FDRS)	NOTE 1
ST890-AW-MMI-020	Torpedo MK 48 MODs 5, and 6, Fleet Data Reduction System (FDRS)	NOTE 1
ST890-AW-MMI-040	Torpedo MK 48 MOD 4, Fleet Data Reduction System (FDRS)	NOTE 1
ST890-AX-MMI-010	Torpedo MK 48 All MODs, Calibration Console	NOTE 1
ST890-BA-MMI-030	Torpedo MK 48 ADCAP, Cable Test Set MK 556 MOD 4/5	NOTE 1
ST890-BB-MMI-010	Exploder Mechanism Test Set MK 525 MOD 3	NOTE 1

ST890-BD-MMI-010	Torpedo MK 48 ADCAP, Fuel Delivery Assembly Test Set MK 658 MOD 0	NOTE 1
ST890-BE-MMI-010	Torpedo MK 48 ADCAP, Steering Assembly Test Set MK 659 MOD 0	NOTE 1
ST890-BJ-PRO-010	Heavyweight Torpedo Ancillary Equipment (part 1)	NOTE 1
ST890-BJ-PRO-020	Heavyweight Torpedo Ancillary Equipment (part 2)	NOTE 1
ST890-BY-MMI-010	Common Exercise Head Test Set MK 562 MOD 3	NOTE 1
ST890-BY-MMI-020	Common Exercise Head Test Set MK 562 MOD 3	NOTE 1
ST890-C4-MAN-010/MK 432 MOD 4	Torpedo Presetter Test Set MK 432 MOD 4	NOTE 1
SW189-AD-MMO-010	Torpedo Setting Panel MK 331 MOD 3	NOTE 1
SW350-A1-MMO-010	Description, Operation, and Maintenance MK87 MOD1 Line Throwing Rifle Adapter Kit	NOTE 1
SW370-AA-MMO-010	Pistol, Semiautomatic, 9mm, M9	NOTE 1
SW395-AC-MME-010	Shipboard Installation, Inspection, and Acceptance Testing Surface Vessel Torpedo Tube Mark 32 MODs 5 and 7	NOTE 1
SW395-AC-MMO-010	Description, Operation, Maintenance, and Illustrated Parts Breakdown Surface Vessel Torpedo Tube Mark 32 MODs 5 and 7	NOTE 1
SW395-AD-MMO-010	Description, Operation, Maintenance, and Illustrated Parts Breakdown Surface Vessel Torpedo Tube Mark 32 MOD 9	NOTE 1
SW395-AE-MMO-010	Description, Operation, Maintenance, and Illustrated Parts Breakdown Surface Vessel Torpedo Tube Mark 32 MOD 14 and Bulkhead Mounted Control Box Mark 60 MOD 0	NOTE 1
SW395-AH-MMM-010	Description, Installation, Operation, Maintenance, and Illustrated Parts Breakdown Air Charging Panel and Cabinet Assembly MK429 MOD 0	NOTE 1
SW395-AJ-IIN-010	Shipboard Installation, Inspection, and Acceptance Testing Surface Vessel Torpedo Tube Mark 32 MOD 14 and Interface Junction Box Mark 70 MOD 0	NOTE 1
SW395-AJ-MMO-010	Description, Operation, Maintenance, and Illustrated Parts Breakdown Surface Vessel Torpedo Tube Mark 32 MOD 15 and Interface Junction Box Mark 70 MOD 0	NOTE 1
SW395-AL-MMO-010	Description, Operation, Maintenance, and Illustrated Parts Breakdown Air Charging Panel and Cabinet Assembly MK429 MOD 1	NOTE 1
SW395-AM-MMO-010	Description, Operation, Maintenance, and Illustrated Parts Breakdown Surface Vessel Torpedo Tube Mark 32 MOD 17/18	NOTE 1
SW395-AQ-MMO-010	Description, Operation, Maintenance, and Illustrated Parts Breakdown Surface Vessel Torpedo Tube Mark 32 MOD 19 and Bulkhead Mounted Control Box Mark 60 MOD 0	NOTE 1
SW510-AG-DOC-010	Heavyweight Torpedo Documentation Control Policy	NOTE 1
SW512-AO-ASY-010	Mk 46 Torpedo/Mk46 REXTORP Flight Accessories	NOTE 1
SW513-AD-PRO-010	Torpedo MK 48 ADCAP, Propulsion System Flushing Stand MK 120 MOD 0	NOTE 1
SW513-AE-PRO-010	Torpedo MK 48 ADCAP/MK 48, Preservative Flushing Stand	NOTE 1
SW513-AF-MMI-010	Heavyweight Torpedo Intermediate Maintenance Activity Quality Assurance Manual	NOTE 1
SW513-EO-MMA-010	Torpedo MK 48 ADCAP, Weapon System In-service Support Equipment, Description	NOTE 1

SW513-EO-MMI-010	Torpedo MK 48 ADCAP, Weapon System In-service Support Equipment, Physical and Functional Description	NOTE 1
SW513-EO-PRO-030	Torpedo MK 48 All Mods, Intermediate Maintenance Activity, Piece Part Inspection Procedures	NOTE 1
SW513-EO-PRO-040	Torpedo MK 48 ADCAP, Intermediate Maintenance Activity, Assembly, Test and Turnaround Procedures	NOTE 1
SW513-EO-PRO-050	Torpedo MK 48 ADCAP, Intermediate Maintenance Activity, Assembly, Test and Turnaround Procedures	NOTE 1
SW513-EO-PRO-060	Torpedo MK 48 ADCAP, Intermediate Maintenance Activity, Troubleshooting Procedures	NOTE 1
SW515-A5-MIB-010	Maintenance Manual for MK 46 MOD 5 Torpedo	NOTE 1
SW515-A5-MIB-020/(U) MK 46 MOD 5	Maintenance Manual for MK 46 MOD 5 Torpedo	NOTE 1
SW515-A5-MIB-030	Maintenance Manual for MK 46 MOD 5 Torpedo	NOTE 1
SW515-A5-MIB-040	Maintenance Manual for MK 46 MOD 5 Torpedo	NOTE 1
SW515-A5-MIB-050	Maintenance Manual for MK 46 MOD 5 Torpedo	NOTE 1
SW515-A5-MIB-060	Maintenance Manual for MK 46 MOD 5 Torpedo	NOTE 1
SW515-A5-MIB-070	Maintenance Manual for MK 46 MOD 5 Torpedo	NOTE 1
SW515-A5-MIB-080	Maintenance Manual for MK 46 MOD 5 Torpedo	NOTE 1
SW515-AB-MMI-010	Leak Test Stand MK 62 MOD 0	NOTE 1
SW515-AE-INS-010/MK 437 MOD 0	Torpedo Workshop Equipment Presetter MK 473 MOD 0	NOTE 1
SW515-AG-OMP-010/MK46 REXTORP	Recoverable Exercise Torpedo (REXTORP) MK46	NOTE 1
SW515-AM-MEB-010	Gyroscope Test Set MK 484 MOD 1	NOTE 1
SW515-AO-PRO-010/MK46	Localization and Recovery of Lightweight Torpedoes	NOTE 1
SW515-AO-PRO-020/MK46	Procedures Manual for Lightweight Torpedo Firing Craft	NOTE 1
SW515-AO-PRO-040/MK50	Lightweight Torpedo Shipboard Handling, Storage, and Firing Procedures	NOTE 1
SW515-B0-MMI-010	Maintenance Manual Intermediate Level for Automatic Torpedo Presetter Test Set MK 646 MOD 0	NOTE 1
SW516-AB-MMO-010/MK50 REXTORP	Recoverable Exercise Torpedo (REXTORP) MK50	NOTE 1
SW516-AC-MMI-010/MK50 REXTORP	Recoverable Exercise Torpedo(REXTORP) MK50	NOTE 1
SW516-AD-MEB-010	Leak Test Stand MK 62 MOD; for Torpedo MK 50	NOTE 1
SW820-AA-MMI-010	Tomahawk Cruise Missile	NOTE 1
SW820-AA-MMI-010/UGM-109-1	Tomahawk Cruise Missile UGM-109-1	NOTE 1
SW820-AH-WHS-010	Transshipment Activity Procedures Tomahawk Cruise Missile	NOTE 1
T0850-AB-GDY-010	Unsatisfactory Material Reporting Processing Guide	NOTE 1
TM 9-1005-211-12	Pistol, CAL .45, Automatic	NOTE 7
TM 9-1005-223-10	Operator's Manual for Rifle, 7.62mm, M14, Rifle, 7.62mm,M14A1, Bipod, Rifle, M2	NOTE 7
TM 9-1005-223-20	Organizational Maintenance Manual Including Repair Parts And Special Tools Lists for Rifle, 7.62mm, M14, Rifle, 7.62mm,M14A1, Bipod, Rifle, M2	NOTE 7
TM 9-1005-249-10	Operator's Manual for Rifle, 5.56mm, M16, Rifle, 5.56mm,M16A1	NOTE 7

TM9-1005-319-10	Operator's Manual w/Components List Rifle 5.56mm, M16A2	NOTE 7
TO11W3-6-2-1	Military Shotgun, 12 Gauge Pump Action Model 870	NOTE 1
TW510-AA-PRO-010	Management Information System	NOTE 1
TW510-AA-PRO-040/MK48	Torpedo Management Information System	NOTE 1

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Note 9 – These pubs are furnished to ships that have CSOSS installed onboard. Ships that do not have CSOSS should refer to the System Operational Manuals for their class ship