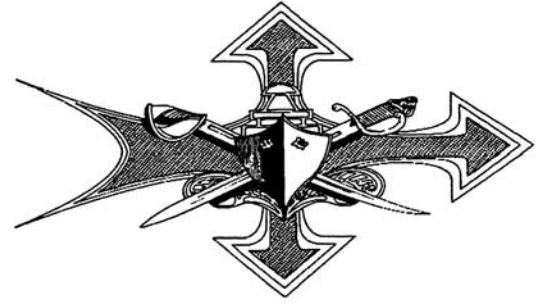


SHIPS' SAFETY BULLETIN

Prepared by Naval Safety Center
RADM Arthur J. Johnson, Commander
Steve Scudder, Editor
(757) 444-3520 ext. 7115 DSN 564
E-mail: safe-afloat@navy.mil
Homepage:
<http://www.safetycenter.navy.mil>
HMCS(SW/AW) Walker, Writer



JAN - MAR 2009

Suggested routing should include CO, XO, department heads, division officers,
CMC, CPO mess, petty officers' lounge, work-center supervisors, and crew's mess.
Blanks provided for initials following review:

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Remote Operators, Mechanical Remote- Operating Gear (ROG)

By GSCS(SW) Ben Clarke
Naval Safety Center

During safety surveys, I often find many discrepancies with mechanical valve operators. Most common discrepancies noted are: disconnected or inoperative remote operators; short, misaligned or improperly supported connections; broken or missing connecting pins or keys; excessive side loading of rigid parts due to improper installation; corroded, stuck or binding operators due to lack of lubrication; and degradation of the valves being actuated.

Faulty valves should be overhauled or replaced to avoid potential damage to the remote operating-gear system. Remote operating-gear systems have historically been identified as the culprit in a minor casualty cascading into a major one. In many instances, valve

failures are misidentified as remote operating-gear failures. PMS MIP 5000/005 delineates maintenance requirements for valves and operators.

There are three different types of remote valve operators:

- (1) Trip mechanisms - such as a fuel quick-closing valve.
- (2) Open/shut situations - such as completely opening or closing a valve for damage control purposes.
- (3) Throttling - such as when precise positioning of the valve is needed for flow or pressure control.

You can find selection criteria on which mechanical remote operating gear is approved for any particular shipboard application in Chapter 12 of NSTM 505, *Piping Systems*.

There are six different types of mechanical remote operating gear (ROG) systems approved for use on naval ships. Always refer to the applicable tech manual when conducting maintenance on any of these systems:

- (1) Rigid Rod - (commonly referred to as "reach-rods") uses tubular or solid shafting, bearings for support,

universal joints, gearboxes, and swivel gears for changing direction. Pay particular attention during replacement or reassembly of universal joints. The forks of the joints should be mounted parallel to one another. This will provide uniform rotation to the driven shaft because the second joint compensates the rotational error introduced by the first joint.

(2) Rotary Flexible Shaft Uniflex - uses a stainless steel flexible shaft that rotates within a conduit to transmit torque to a remote valve (manufacturer B.W.Elliott Mfg. Co. LLC, Technical Manual S6435-SM-MMM-010).

(3) Single Linear - uses linear motion to transmit torque the same as dual linear system. This system is used for remote trip mechanisms (manufacturer Triumph Controls Inc. formally Teleflex, Technical Manual: S6438-AA-DDT-010).

(4) Dual Linear - uses a flexible steel shaft within a conduit that transmits torque by linear motion (manufacturer Triumph Controls Inc. formally Teleflex, Technical Manual: S6435-QJ-MMI-010).

(5) Single Linear Ball Bearing - uses linear motion to transmit torque; however, it uses ball bearings to reduce friction (manufacturer AeroControlex Corp, Technical Manual: S6435-NS-MMA-010).

(6) Dual Linear Ball Bearing - uses linear motion to transmit torque plus ball bearings for reduced friction. This system is used for multi-turn valves (manufacturer AeroControlex Corp, Technical Manual: S6435-GZ-MMA-010).

Malfunctioning or inoperative remote operators frequently do not

receive immediate and proper attention because watch-standers have become accustomed to operating the valves locally instead of according to the standard operating procedures. The consequences of a major failure in a valve remote control system make proper maintenance and operation of valves and associated operating gear essential. For example, during a flooding casualty, the remote sea valve operator may fail to function properly causing progressive flooding to machinery spaces. Conduct prompt and proper maintenance on your valve remote operating gear- it may save your ship, yours and your shipmate's life!

NavSafeCen Points of Contact:
(757) 444-3520 ext. 7834 (DSN 564)
E-mail: Safe-Code34@navy.mil

General Specifications for Overhaul, GSO

*By GSCS (SW) Ben Clarke
Naval Safety Center*

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hat is the GSO? The GSO is exactly what its title says, *General Specifications for Overhaul of Surface Ships*. The GSO also contains an *AEGIS Supplement* for anything AEGIS related.

Why do I need to know about it and use it? When you can't find the requirement for something in an NSTM or specific technical manual, you can probably find it in the GSO.

When I go to a ship for a safety survey, I ask Sailors if they know what the GSO is, have they seen it, or do they know how to get to it. The answer is normally a deer-in-the-headlights look followed by a resounding, "No."

So how do you get the GSO? Read the article "GSO available on the WEB," which was adapted from a story on the Navy Newsstand. However, new users of the GSO module first must acquire an account through the SEA04RM/05N website at <https://fleetreadiness.jdsr.navy.mil/maintenance/Sea04M/04m2Home.asp> and associate it with their valid PKI certificate before they can access the module.

GSO Available on Web

(Synopsis: Since March 2006, Sailors and Navy contractors have been able to access an online version of the General Specifications for Overhaul of Surface Ships.)

In March 2006, the *General Specifications for Overhaul of Surface Ships* (NavSea S9AA0-AB-GOS-010), or GSO, as it's more commonly known, went on the World Wide Web. It's available at https://fleetreadiness.jdsr.navy.mil/domin/GSO/GSO/gso_main.asp.

As noted by Paul Horacek, the GSO program manager at Naval Sea Systems Command (NavSea), "Putting GSO on the Web has made Sailors' jobs a little easier when it comes to surface-ship overhaul, maintenance or repair."

They can download the most current version of the section they are

interested in and know they have the most up-to-date version. They also can track a record of change for each section, receive real-time updates of individual sections, and have access to a combined, searchable document.

The basic GSO and *Aegis Supplement* are no longer published and forwarded via CD-ROM. However, the nuclear supplement remains and is forwarded as hard copy CD-ROM because of security requirements. Requests for copies of this supplement must be made to Norfolk Naval Shipyard, Code 223.

New users of the GSO module first must acquire an account through the SEA04RM/05N website at <https://fleetreadiness.jdsr.navy.mil/maintenance/Sea04M/04m2Home.asp> and associate it with their valid PKI certificate before they can access the module.

Uniformed and civilian Navy personnel can obtain more information on obtaining a PKI certificate at <https://infosec.navy.mil/pki> or by contacting the Navy PKI help desk at 1-800-304-4636, DSN 588-4286, e-mail: itac@infosec.navy.mil.

NavSea contractors can find PKI information on Verisign's website at www.verisign.com/products-services/security-services/pki/index.html. Otherwise, contractors should contact their local PKI resource for support.

Help in navigating the online GSO is available on the Web page through the help-guide link.

Take the GSO and put it in your toolbox for future use and to train your Sailors on the different references available to them.

NavSafeCen Points of Contact:
(757) 444-3520 ext. 7834 (DSN 564)
E-mail: Safe-Code34@navy.mil

Do You Apply ORM on a Daily Basis?

*By EMC(SW) James Simpson
Naval Safety Center*

Operational Risk Management(ORM) is not a new concept or some fancy acronym! It is a tool used to minimize potential risk by managing it to accomplish the mission.

This is done in five steps; identify the hazards, assess the hazards, make a risk decision based on what is identified, implement controls, and then supervise to see if the controls are actually working. So, you're probably wondering what ORM has to do with you? Well, ORM involves everyone whether at home or at work. But for now, we will discuss some questions that should be asked when conducting operations and maintenance at work using the five steps identified above.

Scenario #1-Working on energized electrical equipment. What are the risks? Well, the biggest one of course is electrical shock. But, that's not a good enough reason to skip the maintenance due to the risk involved. Remember, ORM is there to help accomplish the job

by putting controls in place to minimize the risk, and not keep us from doing the work. Some questions that ORM will raise in this scenario are:

- Will insulated tools be used?
- Has a "Working on Energized Equipment" chit been filled out and routed to the commanding officer for approval?
- Is all personal protective equipment available for the evolution?
- Are enough personal available to perform the evolution? This includes the safety observer and CPR qualified individual.
- Is the individual you assigned to conduct this maintenance well rested and knowledgeable in the maintenance being performed?
- Will working on this equipment now, impact the ships operational commitment?

Scenario #2 - Working on de-energized electrical equipment. Does the risk of electrical shock still exist? Absolutely! However, ORM will help reduce that risk by asking some questions and getting answers before conducting the maintenance.

- Are all sources of power identified, isolated, and tagged out?
- Were danger tags hung in accordance with the Tag-Out Users Manual, NAVSEA S0400-AD-URM-010/TUM (Rev. 04)?
- Is an operational voltage tester on hand and tested?
- Are all technical references and tools readily available to conduct the maintenance in a timely fashion so that the equipment can be returned to full operation within design specifications?
- Has the person assigned to conduct this maintenance read and understand all

safety precautions listed on the MRC and technical manual?

- Will working on this equipment now, impact the ships operational commitment?

These are just a few questions to consider before commencing any maintenance involving electricity. However, there are other basic questions that should be asked for overall electrical safety of the ship?

Is electrical safety training conducted from OPNAVINST 5100.19E and NSTM 300, Electric Plant - General?

Is everyone in the work center CPR and PQS qualified? Did you train them?

ORM training should be held frequently during divisional training and included in any formal evolution brief.

NavSafeCen Points of Contact:
(757) 444-3520 ext. 7834 (DSN 564)
E-mail: Safe-Code34@navy.mil

Life Critical Equipment!! How Are You Maintaining Yours?

*DCC(SW) Joseph Barrois
Naval Safety Center*

Safety surveyors are finding more problems with SCBA charging systems onboard naval vessels. During surveys in fleet concentration areas, we have found procedures stated on the MRCs are not being followed.

One class of ship surveyed has an electric motor driven high pressure breathing air compressor that requires changing the air filters monthly. Of the five ships surveyed, only one was conducting the air quality test monthly. After filters are changed on any SCBA charging systems, the air quality test is required. Another ship had not conducted an air quality test in the past six months. Most naval vessels require an air quality test at least quarterly, and it could be conducted more often depending maintenance being conducted on the system.

On a different class of ship, the Naval Safety Center surveyors found two SCBA charging systems with relief valves removed for testing. Again, several steps on the MRC were never accomplished. The MRC tells the maintenance person to clean the area around the relief valve with cleaning solution and rinse with fresh water and wipe dry. It was apparent that this step was not accomplished by all the dust, debris and paint chips found around the relief valve opening. Yes, you read that right, around the opening. A cap or plug was never installed in the relief valve opening as directed by the MRC.

The MRC clearly states that “Maintenance on this MRC involves LIFE CRITICAL equipment and applicable procedures must be followed.”

NavSafeCen Points of Contact:
(757) 444-3520 ext. 7834 (DSN 564)
E-mail: Safe-Code34@navy.mil

SHML/SFR and Cleaning Catalog

*Sarah Aschenbach
Environmental Quality In-Service
Engineering Branch Philadelphia, PA*

The Shipboard Hazardous Materials List (SHML) controls what materials are used on ships. The list is divided into authorized, prohibited, restricted and obsolete materials. Authorized materials can be purchased by any ship. Restricted materials can be purchased only for certain applications, such as photographic materials in photo labs or certain paints or cleaners for certain spaces. Prohibited materials cannot be purchased or used on ships. Obsolete materials are no longer supported by the supply system.

There are several reasons that a material may be prohibited. One may be that the material contains dangerous chemicals that pose a health or safety risk. Another reason may be that there is no requirement found for the material, so the material is prohibited in order to reduce excess HAZMAT.

In instances where a material is prohibited but is required for a shipboard application, you must submit a SHML Feedback Report (SFR). The SFR should include the justification for the request. NAVICP-Mechanicsburg has recently redesigned the SFR submission form. This redesigned form will reduce the time needed to complete the form and make the process simpler.

SFR submission is important for several reasons. First, it helps to keep the SHML up to date and reflect the current needs of the fleet. Second, it can lead to a recommendation safer or cheaper alternative material. Purchasing prohibited materials without submitting an SFR can increase disposal costs, since a prohibited material may need to be offloaded and an authorized material purchased in its place. Also, prohibited materials may not have MSDSs or other safety information entered into Navy systems. This increases the chance of a mishap occurring either through improper handling and storage or improper usage.

For questions regarding SFRs, contact NAVICP. The contact information is: phone (717) 605-8319, DSN 430-8319 or email mike.celona@navy.mil. They can provide the updated SFR form and instructions for completing.

The Navy developed a shipboard cleaning products catalog which lists authorized household-type cleaning products. These products have been reviewed against environmental and personal health guidelines to ensure that the Navy can purchase cleaning products that are both green and effective. NSWC Philadelphia is preparing to release the latest revision of the shipboard cleaning catalog. This document will be available on the Navy's Shipboard Environmental Information Clearinghouse (SEIC) website (<https://navyseic.dt.navy.mil/index.cfm>). This website, along with housing the

cleaning catalog, is a repository of other environmental information.

Sarah Aschenbach, NSWC Code 635
sarah.aschenbach@navy.mil
215-897-7401

Where is Your Tag-Out Log?

*By EMCS(SW) Andrew Fanning,
Naval Safety Center*

I have noticed, during some recent surveys of ships, that tag-out logs are different from ship to ship.

Ships, which are still using the manual tag-out system, generally, have the same five sections identified in the Tag-Out Users Manual (TUM) Rev 4 (1.5.1.c). These sections are Instruction, Index, Active Tag-out Record Sheets (TORS), Cleared TORS, and Instrument log. Standardized forms used in the Tag-out log can be found in Appendix D of the TUM. These forms can be modified to include information important to the ship. For example, most ships add a work center or petty officer in charge column to the index sheet, to help during audits.

Eventually, all ships will move from the manual tag-out system to the Shift Operations Management System (SOMS). This system also requires a tag-out log. Part 1 of the log, is the master tag-out log, and is considered to be the computer terminal normally used by the authorizing officer.

In a binder near the master tag-out log, the following sections are required:

- Part 2 - Tag-Out Users Manual (TUM).
- Part 4 - Active Tag Record Sheets (Listing of all tags hanging similar to the back of a TORS)
- Part 6 - Cleared Tag Record Sheets.
- Part 7 - Record of Audits.

If a ship is not utilizing electronic signatures, or wishes to maintain a paper back-up copies, then Part 3 - Line Item Record Sheets (LIRS) and Part 6 - Cleared LIRS are required. The LIRS is similar to the front of the TORS in the manual tag-out system. More about the tag-out logs used in SOMS can be found in TUM Appendix I (5.1-5.6)

Audits are required in both the manual tag-out system and SOMS. Normally, audits are conducted every two weeks, but if the ship enters an overhaul, conversion, or restricted availability, audits are required weekly. Both tag-out systems require a visual inspection of all active tags, by visually comparing the information and position of the tag with the equipment. The manual system requires the TORS to be compared with the information in the index of the tag-out log, while SOMS requires LIRS to be audited against the SOMS program.

Problems I normally find with a ship's tag-out logs include:

- Not having the current revision of TUM. We are currently using revision 4.
- Audits not conducted at proper intervals.

- Ship's tag-out instruction identifies tag-out logs maintained at department level, but log has been broken up into divisions.
- Ship's utilizing SOMS do not have all the required parts of their tag-out binder.
- Danger tags hanging on equipment, but TORS/LIRS has been cleared.

More information about tag-out logs, SOMS, and the tag-out program can be found in the Tag-Out Users Manual (TUM) Rev 4.

NavSafeCen Points of Contact:
 (757) 444-3520 ext. 7834 (DSN 564)
 E-mail: Safe-Code34@navy.mil

How Does That Life Saving Device Work?

*By BMCS(SW) Charles Gum,
 Naval Safety Center*

The recent loss of a Sailor's life while launching a small boat has made the Naval Safety Center and NAVSEA 05P14 aware of the unsafe practice of utilizing a 20-gram carbon dioxide (CO₂) cylinder (NSN 4220-01-499-8806) in the inflation assembly of the MK-1 life preserver. This configuration is not in accordance with the PMS maintenance requirement card configuration and has the potential for catastrophic failure. This CO₂ cylinder may not fully inflate the MK-1 life preserver causing reduced fit and buoyancy and thus is not authorized for use on this life preserver. The MK-1 life

preserver shall utilize one of the following two bladder/CO₂ configurations:

A. Commercial type MK-1 life preserver made by Stearns, Mustang Survival, or Eastern Switlik - use only bladder (NSN 4220-01-487-2926) in combination with a 24-gram CO₂ cylinder (NSN 4220-01-487-2878) installed in the inflation assembly (NSN 1377-01-302-2560 or NSN 4220-01-470-9906). note that the CO₂ cylinder will have a 24-gram marking engraved on the casing.

B. Mil-Spec type MK-1 life preserver – use only bladder (NSN 4220-00-935-5528) in combination with a 29-gram CO₂ cylinder (NSN 4220-00-543-6693/Mil spec C-25369) installed in the inflation assembly (NSN 1377-01-302-2560 or NSN 4220-01-470-9906.) Note that the CO₂ cylinder will have either a 29-gram marking or the above referenced mil spec number marked on the casing. See allowance equipment lists 2-330014161 to 2-330014166 for remainder of authorized MK-1 NSNs. Other configurations are not authorized.

Previous guidance allowed interchanging bladders and CO₂ cylinders between life preservers to minimize the impact during the transition MK-1. In a message to type commanders COMNAVSEASYS COM 031933Z MAR 09 (NOTAL) requires the configurations noted above.

In addition to the correct inflation assembly configuration, the fit of the MK-1 life preserver to the individual wearer must be selected carefully to ensure the wearer is properly retained in

the MK-1 when deployed. All users of the MK-1 life preserver must ensure that they select an appropriate sized life preserver (printed inside collar) for their particular body size according to the following guidance:

Size	Chest
Small	36-38
Medium	40-42
Large	44-46
X-Large	48-50
2X-Large	52-54

It is imperative that all hands become familiar with the operation and proper selection of the life saving devices that are available to you..... The time to figure out that you do not know how to operate the life saving device you are wearing, or you have selected the wrong size device is not while you are treading water, **or not treading water!!!**

The NAVSEA message recommends inspecting your MK-1s to ensure they are configured correctly.

NavSafeCen Points of Contact:
 (757) 444-3520 ext. 7834 (DSN 564)
 E-mail: Safe-Code34@navy.mil

Are Your Deck Bills Up-to-Date?

By BMCS(SW) Charles E Gum, Naval Safety Center

Have you recently reviewed your ship's bills--especially boat and or crane bills? Does the abandon-ship bill

list methods of releasing lifeboats? Are boat capacities and designated lifeboats listed, along with a list of abandon-ship stations? Article 640 of OPNAVINST. 3120.32C, *Standard Organization and Regulations of the U.S. Navy*, requires you to include this information in your abandon-ship bill.

The boat bill should also indicate the maximum personnel-hoisting and water-borne capacities of lifeboats. Also, are all Sailors assigned as boat crew members qualified and officially designated as second class, or above, swimmers? Are there provisions for inspecting the wire rope for proper spooling on the cable drum before and during hoisting and lowering? Do your boat and crane bills list launching and recovering a boat from the crane as a critical lift? OPNAVINST 5100.19E, *Navy Safety and Occupational Health (SOH) Program Manual for Forces Afloat*, and NSTMs 583 *Boats and Small Craft* and 589 *Cranes*, both require this information to be included in your bills.

These are just a few examples of your ship's bill contents that should periodically be reviewed and kept current.

NavSafeCen Points of Contact:
 (757) 444-3520 ext. 7834 (DSN 564)
 E-mail: Safe-Code34@navy.mil