From: Commander, Naval Sea Systems Command (SEA 04)

Subj: TAG-OUT USERS MANUAL (TUM), NAVSEA 0400-AD-URM-010, ADVANCE CHANGE NOTICE 2/A TO REVISION 07

Ref: (a) NAVSEA 0400-AD-URM-010 Rev 07

Encl: (1) NAVSEA 0400-AD-URM-010/TUM, ACN 2/A to Rev 07

1. Purpose. This letter issues the enclosure (1) change to the subject manual. Guidance is included in paragraph 3.b of this letter for use with reference (a).

2. Discussion.
   a. This ACN provides tagout requirements in paragraph 1.5.2 (a)(2), Appendix B and Appendix C paragraph 3(f) for hatches and protection against gravitational force. The current verbiage in the above sections of the TAGOUT USERS MANUAL (TUM) doesn’t clearly delineate the requirements for danger tagging of hatch securing devices/pins that are currently controlled by procedures or technical direction.

   b. To provide the required clarification on the control of hatches and hatch securing devices/pins, enclosure (1) has been issued to amplify the requirements.


3. Action
   a. Implement ACN 2/A to Rev 07 or make the required pen and ink changes to reference (a),

   b. If maintaining a hard copy of this manual, remove and destroy existing pages 6, B-2, B-3, F-2 through F-5. Replace with enclosure (1) pages. Record this action in the Record of Changes on page ii.
c. For platforms still using reference (b), make the following pen and ink changes and record this action in the Record of Changes on page ii:

1) Paragraph 1.5.2 a (2): Replace the following sentence, "For indicating the presence of safety devices required for safety of personnel or equipment not consistent with normal operations, except as excluded in Appendix F, paragraph 3. (f)."

2) Appendix B: Replace Safety Device/Measures definition to read:
Safety Devices/Measures - Items installed for the purpose of protecting personnel or equipment. Some examples of safety devices/measures are chaining or locking valves, removing fuses, racking out circuit breakers, freeze seals, blank flanges, mast clamps, securing devices/pins for Hatches (not in their normal operational condition) and breaker clips.

3) Appendix F Paragraph 3(f): Replace the following sentences:
"f. Temporary Equipment, not consistent with normal operations (e.g. Blanks, Freeze Seals, securing devices/pins/locking devices for Hatches, Restraining Devices such as mast shoring and clamps, etc.). Danger tags will be used to indicate the presence (status) of all safety devices/measure required for safety of personnel or ship’s equipment during maintenance.

(1) This does not apply to Lifting and Handling equipment utilized during rigging evolutions done IAW approved lifting and handling procedures (e.g. NAVSEA Corporate Lifting and Handling Manual or equivalent instruction). If Lifting and Handling equipment must remain in place for maintenance on the tied back/ suspended ship’s equipment and not constantly tended by certified lifting and handling personnel, it will be considered a safety device/measure.

(2) Securing devices/pins/locking devices required to establish and maintain a safe work area for access hatches, VLS/missile hatches, Weapons Hatches, etc., are considered a safety device/measure and not rigging/blocking gear. Securing devices will
be installed and danger tagged when hatch maintenance affects the normal operation, counterbalance mechanisms, springs, hinges, latches, hatch fairings, etc. Hatch maintenance that does not disable normal restraint against gravity doesn’t require a securing device to be installed and danger tagged. Refer to the NAVSEA Corporate Lifting and Handling Manual or equivalent instruction for how to properly tie back/secure a piece of equipment.

(3) Components and ships equipment that can be secured using the ships normal operating procedure do not require a separate temporary equipment securing device to be installed and danger tagged. Danger tagging the ships installed securing device used for isolation (e.g. hydraulic valve, securing pins, operators, etc.) is acceptable. “

d. Request the Joint Fleet Maintenance Manual Manager at SUBMEPP and the Naval Systems Data Support Activity update their applicable sites with this advance change notice, and include it on their next editions of JFMM and Monthly Ship Initial Distribution CD-ROMs, respectively. The electronic file will be uploaded separately. Note that electronic and paper forms have different national stock numbers for the same form number.

e. Private Shipyards. The action taken by this manual change notice is considered by NAVSEA to be within the scope of existing contracts, and no change in contract delivery or completion dates or in current negotiated price or amount of any Government contract is authorized. If the Contractor considers that implementation of this manual revision requires a contract change, the Contractor should not implement such part but should promptly, and in any event within 30 days of receipt of this manual revision, notify the Contracting Officer in writing via the Supervisor of Shipbuilding of the facts and reasons for considering that a contract change is required. In addition to revising local instructions, contractors are requested to review all NAVSEA approved documents under their cognizance and determine if changes are needed to fully implement this manual revision. Changes to NAVSEA approved documents should be recommended to this contract change where the base document is used.
4. Implementation

a. Fleet Forces, Naval Supervising Authorities and other work authorizing activities are to implement this change when operationally feasible. Both ships and repair activities working aboard should use the same revision and advance change notice.

5. Engineering Manager for the Tag-out Users Manual is Mr. Bill Gembach, SEA 04X6, at (202) 781-4345 or willaim.gembach@navy.mil.

[Signature]

PAUL T. COLAHAN
By direction

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Blind copy to:
SEA 00C
SEA 04R
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TAG-OUT USERS MANUAL

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</table>
(2) For indicating the presence of safety devices required for safety of personnel or equipment not consistent with normal operations, except as excluded in Appendix F, paragraph 3.(f).

(3) For controlling status of equipment or components placed Out-of-Commission/service.

(4) To indicate the presence of electrical jumpers unless specifically controlled by other formal methods such as troubleshooting records, wire removal forms, or written procedures.

(5) When required by operating procedures.

a. When line items are used:

(1) Use enough tags to prevent injury or damage to personnel and equipment by completely isolating the work area.

(2) The use of tags is not a substitute for other safety measures such as chaining or locking valves, removing fuses, or racking out circuit breakers. However, tags shall be attached to the fuse panel, racked out circuit breaker cabinet, or locked valve to indicate such action.

(3) Minimize the number of tags used through careful work planning in an effort to maintain better control of the tag-out process.

(4) A work item may be supported by more than one line item when different parties are cognizant of the items being tagged (e.g., tags in propulsion plant #1 needed to isolate work in propulsion plant #2 or when both nuclear and non-nuclear components are tagged for work).

b. Use danger tags to prohibit the operation or removal of equipment that could jeopardize safety of personnel or endanger equipment, systems or components.

c. Use caution tags to provide temporary special instruction(s) or to indicate that unusual action must be exercised to operate equipment. Caution tags must state the specific reason that the tag is installed. Use of a phrase such as "DO NOT OPERATE WITHOUT EOOW PERMISSION" is not appropriate since equipment or systems are not operated unless permission from the responsible supervisor has been obtained. A caution tag is not used if personnel or equipment can be endangered while performing evolutions using normal operating procedures. A danger tag is used in this case.

d. Any person having knowledge of a situation requiring tags or labels should request that they be issued and applied.

e. Tags should:

(1) Be removed as soon as possible after all line item(s) listing a component are cleared. Only tags not shared with other line items and listed on the TRS may be removed.

(2) Never be used for component identification or to mark leaks.

(3) Not be reused, except as authorized in Appendix L for Planned Maintenance System (PMS) procedures.

1.6 ESTABLISHING TAG-OUTS.

a. Use enough tags to completely isolate the system, piping, or circuit being worked on and to prevent operation of a system or component from all stations that could exercise control. As a minimum, system diagrams or circuit schematics shall be used by preparers and reviewers to determine the adequacy of all tag-out actions. The system/component identification (for example, IMS-V1, HYDRAULIC PUMP BKR @ 1S-4P-F(1)) and position/condition (for example, OPEN, SHUT, BLANK FLANGE INSTALLED) of the tagged item should be indicated by the most easily identifiable means. As a minimum, the System Component ID/#Location block of the THS and System/Component ID block on the tag must include the actual label-plate component identifier (e.g., valve number or circuit designation). If slight differences between the identifiers are noted, (e.g., 64-4P-K(1) LO PMP #3 on the tag when label-plate identifier reads 64-4P K(1) L.O. PUMP No. 3, etc.) it is not necessary to re-create and hang a new tag provided that there is no doubt that the correct component has been tagged. If doubt exists, contact the Authorizing Officer for resolution. Appendix I provides the administrative procedures for naming components when creating, updating and maintaining the electronic tag-out program.
<table>
<thead>
<tr>
<th>TERM</th>
<th>DEFINITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Issued</td>
<td>Authorizing Officer function. When a tag-out line item is “issued”, tag numbers are assigned to the components referenced on the line item. Some tags may have been issued by a previous line item and will be shared by the newly issued line item. For any tags that are not shared with a previous line item, the Authorizing Officer will print the THS and tag labels and issue the new tag(s) to personnel for hanging (if applicable).</td>
</tr>
<tr>
<td>Line Item</td>
<td>An individual entry in a tag-out that details the isolation, hazards, and work required for completion of a specific job.</td>
</tr>
<tr>
<td>Line Item Record Sheet (LIRS)</td>
<td>Provides necessary information required for isolating equipment for work including a list of required tags and verifying signatures. This sheet is similar to the front of the Tag-out Record Sheet (TORS) used in the manual tag-out system. This record sheet need not be printed if the ship is utilizing electronic signatures, but printed sheets may be maintained as a back-up to the electronic version and/or for documenting CO concurrence or RA Witness check of shared.</td>
</tr>
<tr>
<td>Master Tag-out</td>
<td>As used in Appendix J, the master tag-out is a concept used to provide for the isolation of multiple work items within a common boundary of a Master.</td>
</tr>
<tr>
<td>Maximum</td>
<td>As used in Appendix G, Barrier Criteria, the maximum calculated draft during the period of the maintenance action(s) that requires the barrier(s) for protection. The calculation is based upon the worst-case cumulative effect at any one time of all expected weight changes during the period of the maintenance action(s). (Submarines will use the condition &quot;N&quot; diving trim waterplane unless the maximum calculated draft during the period of the maintenance action(s) is.</td>
</tr>
<tr>
<td>Anticipated Waterline</td>
<td></td>
</tr>
<tr>
<td>Out-of-Calibration Labels</td>
<td>An orange label used to identify instruments that are out of calibration and will not accurately indicate parameters.</td>
</tr>
<tr>
<td>Out-of-Commission Labels</td>
<td>A red label used to identify instruments that will not correctly indicate parameters because they are defective, or isolated from the system. This label indicates that the instrument cannot be relied on and must be repaired and re-calibrated, or reconnected to the system, before use.</td>
</tr>
<tr>
<td>Repair Activity</td>
<td>A RA is any activity other than Ship's Force involved in the construction, testing, repair, overhaul, refueling, or maintenance of the ship.</td>
</tr>
<tr>
<td>Repair Activity Witness</td>
<td>The individual authorized to concur in the accuracy and adequacy of proposed tag-outs.</td>
</tr>
<tr>
<td>Safety Devices/Measures</td>
<td>Items installed for the purpose of protecting personnel or equipment. Some examples of safety devices/measures are chaining or locking valves, removing fuses, racking out circuit breakers, freeze seals, blank flanges, mast clamps, securing devices/pins for Hatches (not in their normal operational condition) and breaker clips.</td>
</tr>
<tr>
<td>Sea Connected System</td>
<td>A system with a connection open to the sea and the connection is located below the maximum anticipated waterline.</td>
</tr>
<tr>
<td>Ship's Force</td>
<td>Personnel assigned to the ship who are responsible for maintenance and operation of ship's systems and equipment.</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
</tr>
<tr>
<td>------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Tag-out Sheet (THS)</td>
<td>Provides a consecutive listing of tags to be hung for a particular line item. Personnel use this sheet to hang new tags. This sheet will not list shared tags; it will only print if there are new tags to hang for a new line item. A LIRS must be printed to document RA Witness checks when more than one RA shares the tag(s).</td>
</tr>
<tr>
<td>Tag-out</td>
<td>a. A process of hanging danger or caution tags to isolate a system or equipment to protect personnel or equipment.</td>
</tr>
<tr>
<td></td>
<td>b. The container (folder) where individual line items are stored in the electronic tag-out system.</td>
</tr>
<tr>
<td>Tag-out Log</td>
<td>a. Each electronic tag-out log (topside, central control station, etc.) contains all tag-outs in effect in that plant/space/department as applicable. Also includes the Tag-Out Binder per paragraph 1.5.1.e.</td>
</tr>
<tr>
<td></td>
<td>b. When using the manual tag-out system of Appendix K, this control document is used for administering tag-out procedures and a record of authorization for each active tag-out action.</td>
</tr>
<tr>
<td>Tag-out Record Sheet (TORS)</td>
<td>A record of all tags associated with the tag-out when using the manual tag-out system of Appendix K.</td>
</tr>
<tr>
<td></td>
<td>a. Active TORS are those in effect and are kept in a separate section of the Tag-out Log.</td>
</tr>
<tr>
<td></td>
<td>b. Cleared TORS are those not in effect and are kept in another section of the Tag-out Log.</td>
</tr>
<tr>
<td>Tags to be Removed Sheet (TRS)</td>
<td>A document generated by the electronic tag-out system when the Authorizing Officer clears a line item. This sheet lists only those components no longer referenced on any active line item and is used to authorize and document tag clearance.</td>
</tr>
<tr>
<td>Watch/Duty Officer</td>
<td>The Ship's Force person responsible for supervising the tag-out log.</td>
</tr>
<tr>
<td>Work Center Representative</td>
<td>The Work Center Representative is normally the POIC of a specific work item or the WCS of the work center performing the work item. Where a work center representative signature is required by this manual, the signature also may be made by the Authorizing Officer or a superior in the performing WCS's chain of command who has personal knowledge that the work item is complete.</td>
</tr>
</tbody>
</table>
For valves with multiple operating handwheel/stations, danger tags must be posted at each location.

d. Control Valves:
   (1) Control valves, such as hydraulic directional control valves, may be used to provide control fluid isolation to secure a system valve operator, such as a hydraulic actuator of a main seawater system valve, in a required position (e.g. shut, open, port C to A, etc.). Ensure the control valve is in the required position and all modes (e.g., manual, mechanical, electrical, etc.) of operation are secured and danger tagged to prevent inadvertent repositioning.
   
   (a) For control valves with manual operating lever, post the tag on the associated control valve-operating lever to provide control fluid isolation to the associated component/actuator (e.g., HP-580 with the required position of neutral for control fluid isolation of ASW-28 actuator).
   
   (b) For mechanically operated control valves, means must be provided to secure (e.g., detent mechanism) and tag the valve mechanical operator to prevent inadvertent operations.
   
   (c) For pilot operated control valves, appropriate means must be provided to secure the valve in the required position. Pilot operated valves without a means of securing the valve spool in the desired position shall not be used to provide control fluid isolation.
   
   (d) For solenoid operated control valves, the electrical input must be disconnected by a positive means, such as disconnection of the electrical connector or removal of the fuses from the solenoid circuit. To prevent inadvertent operation of the solenoid, the following must be tagged: (1) Manual overrides for the solenoid operator; and (2) the disconnected Amphenol connection on the control valve or fuse panel.
   
   (e) For control valves with one or more manual overrides on the control valve, the posting of one danger tag on the control valve as “Not Overridden” is all that is required. To ensure that the tag posted is readily apparent to anyone who may attempt to operate/override or remove the control valve once tagged, the tag should be posted on the control valve body.

(2) Control valves may be used as the second pressure barrier if they have a position with the required port(s) blocked and caution is used to ensure the leakage does not adversely affect personnel or equipment during the maintenance. Control valves cannot be used as the upstream pressure barrier. Additionally, all requirements identified in paragraph (1) above apply.

(3) Hydraulic control valves that are used for tag-out isolation that have operating levers in high traffic areas that can be easily bumped or mistakenly grabbed, must have the levers physically secured in the required position with lockwire or pin.

e. Remotely Operated Equipment with Control Fluid (Hydraulic/Air/Water). When utilizing remotely operated valves for pressure barriers, the tag must reflect both the position of the remote operator and the valve that it operates. For example, to prevent operation of ASW-28, post tag on associated manual operator on the control valve HP-580. The tag should be filled out as follows: HP-580 in the System/Component/Identification block and HP-580 Neutral/ASW-28 Shut in the Position or Condition of Item Tagged block.

f. Temporary Equipment, not consistent with normal operations (e.g. Blanks, Freeze Seals, securing devices/pins/locking devices for Hatches, Restraining Devices such as mast shoring and clamps, etc.). Danger tags will be used to indicate the presence (status) of all safety devices/measure required for safety of personnel or ship’s equipment during maintenance.

(1) This does not apply to Lifting and Handling equipment utilized during rigging evolutions done IAW approved lifting and handling procedures (e.g NAVSEA Corporate Lifting and Handling Manual or equivalent instruction). If Lifting and Handling equipment must
remain in place for maintenance on the tied back/suspended ship's equipment and not constantly tended by certified lifting and handling personnel, it will be considered a safety device/measure.

(2) Securing devices/pins/locking devices required to establish and maintain a safe work area for access hatches, VLS/missile hatches, Weapons Hatches, etc., are considered a safety device/measure and not rigging/blocking gear. Securing devices will be installed and danger tagged when hatch maintenance affects the normal operation, counterbalance mechanisms, springs, hinges, latches, hatch fairings, etc. Hatch maintenance that does not disable normal restraint against gravity doesn't require a securing device to be installed and danger tagged. Refer to the NAVSEA Corporate Lifting and Handling Manual or equivalent instruction for how to properly tie back/secure a piece of equipment.

(3) Components and ships equipment that can be secured using the ships normal operating procedure do not require a separate temporary equipment securing device to be installed and danger tagged. Danger tagging the ships installed securing device used for isolation (e.g. hydraulic valve, securing pins, operators, etc.) is acceptable.

4. Electrical. Electrical systems only require a single isolation point in each conductor path (e.g., open circuit breaker, removed fuses, disconnected plugs/wires, etc.)

a. Fuses.

(1) Follow the applicable section of reference (g) when removing fuses for electrical isolation.

(2) For Dead Front fuse installations, the removable fuseholders/carriages shall also be removed and the fuseholder receptacle taped over, or non-conductive plastic plugs installed in accordance with reference (g).

b. Breakers.

(1) Electrical breakers with remote operating capabilities shall be tagged both at the breaker and at all remote operating stations.

(2) Breaker clips or covers may be used to prevent inadvertent operation of tagged breakers. Use of breaker clips or covers should be reviewed on a case basis to determine if use of such devices is warranted and appropriate. Ships and Repair Activities should agree on where breaker clips or covers will be installed, as part of their pre-availability agreements. Reference (g) provides methods for attachment and National Stock Numbers for available clips.

c. Switches. The term “switches” includes rotary switches, snap action switches, pushbutton switches, and other types of mechanical switches. A Danger tagged switch shall not normally be used for electrical isolation or as a single means for preventing operation. If the circuit requiring isolation cannot be de-energized by other means, e.g., opening circuit breakers or removing fuses, without significantly affecting current operational requirements, a tagged switch may be used except as prohibited in paragraph 4.c.(1). In addition to danger tagging required circuit breakers and/or fuse holders, tags may also be attached to a switch to indicate that the associated circuit is danger tagged, and to prevent inadvertent operation of that switch.

(1) Use of a tagged switch for electrical isolation or as a single means for preventing operation is expressly prohibited in the following cases:

(a) The switch’s physical location makes it subject to inadvertent operation.

(b) The switch is a pushbutton or touch pad whose external appearance without electrical power cannot be used to positively ascertain its position (this includes spring return pushbuttons with illuminated position indicators, and all flat panel displays or touch screens). Subject to not meeting the conditions of paragraph (a) above, mechanical indication (e.g., a pump differential pressure indication) in the immediate vicinity of the pushbutton satisfies the ability to positively ascertain the component’s energy status. This allowance does not apply to voltage or current indications.
For switches that have multiple positions that control multiple circuits (such as the electric plant control panel ground detection switch), individual circuits shall be de-energized (e.g., fuses removed and Danger tagged) to allow the switch to operate the remaining circuits. If that is not possible (due to system configuration or current operational requirements) and the work requiring the tag-out cannot be reasonably deferred, then the switch shall be tagged in a position that will isolate the required circuit.

Tagging of Ground Isolate Switches that are located internal to a panel shall be minimized. Caution shall be used to ensure that the close proximity of the panel internals and the presence of the tag does not present a repositioning hazard of the respective switch when the internal tag may actually push/reposition switches upon the closure of the panel cover/sub-assembly reinstallation. Ground isolate switches, located internal to a panel, could possibly be operated when the panel is closed after attaching the danger tag to the switch. To ensure that the close proximity of the panel internals and the presence of the tag do not present a repositioning hazard, the tags may be attached to the external portion of the panel following the requirements of paragraph 1.6.4 of this manual.

d. Electrical Jumpers. Per paragraph 1.5.2.a(4), electrical jumpers which are not controlled by formal methods, such as troubleshooting records, wire removal forms, or written procedures, shall be tagged to indicate their presence.

e. Electrical Connectors. Post the tag at one end of the disconnected electrical connector. For cord and plug connected equipment, danger tagging the plug is only required for situations in which the worker does not have exclusive control of the cord during the maintenance.

f. Troubleshooting and Simple Maintenance. The Department Head may authorize specific maintenance and troubleshooting situations that can be performed without a tag-out. The Authorizing Officer and Repair Activity (when applicable) may authorize simple electrical maintenance or troubleshooting actions such as equipment drawer or circuit card removal/installation, test point measurements, and fuse removal/replacement without the use of a danger tag, providing all of the following are met:

(1) The work area is verified deenergized.

(2) The component(s) providing isolation is within arms-reach and in sight of the worker such that the worker can directly prevent operation of the component(s).

(3) Access to the work area is limited.

(4) The worker remains continuously in the area until isolation is no longer required.

(5) The work takes no longer than one shift.

(6) The work is covered by a TWD or other formal procedure which specifies the isolation.

When these conditions are met, this simple electrical maintenance or troubleshooting is considered work on deenergized equipment per reference (g).

g. In general, tag-outs should not rely on solid state devices (voltage-current control devices) to provide a safe means of circuit isolation. All applicable power sources should be tagged. The tag-out boundary should be a device that provides a physical "air gap" within the circuit (e.g., circuit breaker, switch, fuse, disconnected solid state relay, lifted terminal lead, etc.).

5. Common tag-out situations during industrial maintenance periods.

a. Multiple tag-outs for a single work item/WAF when using the manual tag-out process of Appendix K. During normal ship’s maintenance, Ship’s Force is accustomed to seeing the situation that for every work item, there is only one (1) associated tag-out. But to better coordinate large number of jobs/tag-out actions and minimize the amount of redundant danger tags posted on the same component(s), it is not unusual for a RA Representative/Work Control Group to propose system oriented tag-outs. The RA’s Work Control Group (if invoked) will normally only post one tag on a component and assign that tag to other applicable line/work items on the TORS as required. Therefore, a single work item/WAF may require an open line item on several Tag-out Record Sheets to provide proper isolation for the single work item/WAF. The respective work item/WAF will be annotated with all the active tag-outs.
that cover the work item/WAF. When revising an individual tag-out, the impact of the revision on all TORS line items must be addressed to ensure any changes do not adversely impact other work items/WAFs.

b. Temporary Label-Plate/Tag (for commissioned ships only). If a permanent label-plate is not installed, a temporary label-plate/tag shall be installed with a two party independent check/verification based on plans and/or shipcheck of system/component by knowledgeable parties (both parties may be from the same activity). The temporary label-plate/tag must have sufficient information (checked/verified based on plans and/or shipcheck of system/component) to clearly identify the component. The temporary label-plate/tag must be installed, signed and dated by the first knowledgeable party and independently verified, signed and dated by the second knowledgeable party. A danger tag may be posted only after the required component is properly labeled.

c. For availabilities involving shipyards, work items may be added to an existing Work Authorization Form rather than require a new line item/TORS entry if the item is within the boundaries and scope of the WAF (see reference (h)).