NAVSEA
STANDARD ITEM

FY-14

ITEM NO: 009-57
DATE: ***17 JAN 2013***
CATEGORY: II

1. SCOPE:

1.1 Title: Reduction Gear Security Requirements; accomplish

2. REFERENCES:

2.1 Standard Items

2.2 S9086-H7-STM-010/CH-262, Lubricating Oils, Greases, Specialty Lubricants, and Lubrication Systems

2.3 S9086-HK-STM-010/CH-241, Propulsion Reduction Gears, Couplings, Clutches, and Associated Components

3. REQUIREMENTS:

3.1 Accomplish the requirements of Paragraph 262-3.10 of 2.2 to prevent entry of foreign matter into the lube oil system during work accomplished by the Work Item.

3.1.1 Notify the ship's Engineering Officer via the SUPERVISOR before opening and closing each main reduction gear or main reduction gear attached components.

3.1.2 Accomplish the requirements of Paragraph 241-3.5.2 of 2.3 to prevent rust/moisture damage to components when the reduction gear is going to remain inoperative in excess of 8 weeks.

3.2 Remove and dispose of system fluids to accomplish the requirements of the Work Item.

3.3 Provide and install temporary machinery protection in accordance with 2.3 and the following requirements:

3.3.1 Establish a limited access area and the physical boundary of the security control area.

3.3.2 The security control area shall be established prior to and maintained during the time an access to the reduction gears is opened.

(V)(G) "INSPECTION/APPROVAL OF SECURITY CONTROL AREA"

3.3.3 Notify the SUPERVISOR prior to opening any clean system or component within the area. The SUPERVISOR shall inspect and approve the security control area prior to start of work.

3.3.4 Maintain on site Accountability Logs, Attachments A and B, of all tools and equipment entering and leaving the security control area to verify adherence to the requirements set forth in 3.6.

3.3.4.1 Inspect the log at the beginning and end of each shift to ensure that it describes the equipment and tools within the security control area.

3.3.4.2 Use Attachment A to log all tools and equipment.

3.3.4.3 Use Attachment B for shift turnover verification.

3.3.5 Post warning signs at the entry points to the security control area and limited access area to maintain control of the area and inform personnel that the reduction gear is open.

3.3.5.1 Set up Limited Access Area with rope/line and signs to restrict unnecessary traffic.

3.3.6 Provide 24-hour continuous on-site surveillance by contractor personnel in the area as long as the reduction gear is exposed.

3.3.6.1 Policing of limited access area shall be routine while gear is exposed.

3.4 Observe Ship's Force security control/accountability measures.

3.5 Provide reduction gear security during periods that require the gear train to be exposed from access openings where direct or indirect paths to gearing will result.

3.5.1 Notify the ship's Engineering Officer or designated representative prior to disassembly and removal of the following gear casing components:

3.5.1.1 Hinged, pinned, or bolted gear casing covers, inspection ports, and plates

3.5.1.2 Sight flow indicators, gear mesh spray nozzles, thermometers, and associated fittings

3.5.1.3 Oil supply and return piping, vent lines, fittings, and plugs.

3.5.2 The ship's Engineering Officer or designated representative shall be present at all times when external connections are attached to the reduction gear casing, oil sump, and oil piping.

3.5.3 The surrounding limited access area shall be secured and policed to remove overhead or local dirt, loose objects, or any potential security violating objects prior to and during gear exposure.

(V)(G) "PRE-OPENING CLEANLINESS"

3.5.4 Prior to opening casing, ensure no foreign material exists on adjacent surfaces that could contaminate the internal areas upon lifting casing covers, piping, and associated equipment.

3.5.5 Construct a temporary cover over openings of the gear train, in addition to the required limited access area controls, if it becomes necessary to stop work with the casing/covers removed.

3.6 Protective coverings:

3.6.1 When repairs require the removal of main bolted cover plates, assemble an enclosure made from Herculite or canvas covering conforming to A-A-55308 over the top of the reduction gear housing, lashing the bottom of the enclosure to the deck structure or piping at deck level.

3.6.1.1 Snaps, staples, or similar shall not be used on enclosure. Utilize heavy duty zippers and Velcro hook-pile. Secure all grommets attached to enclosure with line or lanyard to prevent loss of grommets.

3.6.1.2 Lash the top edge of the enclosure to overhead structural members to form a work area over and around the reduction gear casing.

3.6.1.3 Lace the top flaps to the sides. The top shall utilize a center joint if lifting gear is utilized. Unlace center joint when utilizing lifting gear.

3.6.1.4 Lace all but one of the corners to each other, utilizing stiffeners, to form a secure work area. The unlaced corner shall be used for a security door constructed to be capable of being secured. Stencil "CONTROLLED AREA – AUTHORIZED PERSONNEL ONLY" on the sides and top of the enclosure or install signs at enclosure boundaries.

3.6.2 For non-nuclear ships, when repairs do not require removal of main bolted cover plates, protect planned open and accessible areas of the reduction gear by assembling an enclosure made from Herculite or canvas covering conforming to A-A-55308.

3.6.2.1 Submit one legible drawing or sketch of proposed enclosure(s) to the SUPERVISOR 5 working days prior to entering the reduction

gear. Drawing shall include enclosure access for installation of lifting gear (if required).

3.6.2.2 Snaps, staples, or similar shall not be used on enclosure. Utilize heavy duty zippers and Velcro hook-pile. Secure all grommets attached to enclosure with line or lanyard to prevent loss of grommets.

3.6.2.3 Stencil “CONTROLLED AREA – AUTHORIZED PERSONNEL ONLY” on the sides and top of the enclosure or install signs at enclosure boundaries.

3.7 Prepare an Accountability Log, Attachment A, immediately after limited access area has been approved by the SUPERVISOR, but prior to opening an access. Maintain the Accountability Log while reduction gears and attached components are open.

3.7.1 Station a Control Watch at the enclosure door/flap and maintain Attachment A for all material and hardware which is small enough to fit inside access opening.

3.7.2 The Control Watch shall record the date and time in the appropriate block on Attachment A each time accountability is started or stopped, and each time access is opened or closed. The log shall be turned over to another Control Watch before the access is closed. The outgoing Control Watch and the incoming Control Watch shall sign Attachment B to show that all items recorded as "in" are accounted for.

3.7.3 Any material permanently or temporarily installed shall be noted as such in the remarks column on Attachment A.

3.8 Inspection equipment, tools, and personnel clothing shall be captured, secured, and accounted for to preclude introduction of foreign matter into the reduction gear.

3.8.1 Acceptable methods of capturing are:

3.8.1.1 Drilling and lockwiring

3.8.1.2 Tackwelding or silver brazing

3.8.1.3 Using nylock-type locking devices

3.8.1.4 Upsetting or staking threads

3.8.1.5 Attaching a lanyard

3.8.1.6 Taping with duct tape

3.8.2 All personnel working in or around an open gear casing shall have all eye glasses, buttons, zippers, and other loose items on their

clothing properly taped to prevent them from breaking loose and falling into the gear casing. All jewelry, pens, change, metal objects, loose items, etc., shall be removed from the person and clothing pockets prior to entering area.

3.9 Notify the SUPERVISOR in all matters involving foreign material retrieval from the reduction gear. Report all incidents breaching reduction gear security to the ship's Engineering Officer or Engineering Duty Officer via the SUPERVISOR, followed by a written Critique Report Form, Attachment C.

3.9.1 Submit one legible copy, in hard copy or approved transferrable media, of each incident report within 4 hours after notification to the SUPERVISOR.

3.9.2 The SUPERVISOR will review each incident report and decide if a trouble report is required.

3.9.2.1 Use Attachment D for the trouble report.

(V)(G) "INSPECTION PRIOR TO CLOSURE"

3.10 Accomplish a visual inspection of the exposed reduction gear and associated components prior to each closing (daily and final). Ensure no foreign matter has entered or remains within the reduction gear and/or components. Inspect ledges, including the underside of ledges, pockets, gear teeth, and bearing journals and caps, using mirrors, periscopes, and borescopes.

3.10.1 The inspection shall be made jointly with the SUPERVISOR and the ship's Engineering Officer or designated representative.

3.10.2 Prior to each closing verify that all tools and equipment listed on Attachments A and B have been either logged out satisfactorily or are annotated as installed, permanently or temporarily, in the remarks column.

3.10.2.1 Accountability shall stop when the access is closed.

3.10.3 Attachments A and B shall be available for review by the SUPERVISOR at time of final closure.

3.10.3.1 Submit one legible copy, in hard copy or approved transferrable media, of completed Attachments A and B to the SUPERVISOR within 2 days of final closure.

3.11 Disassemble and remove the enclosure and limited area boundary when directed by the SUPERVISOR.

3.12 Accomplish the requirements of 009-32 of 2.1 for new and disturbed surfaces.

4. NOTES:

4.1 In support of emergency inspections, limited inspections or minor repairs to the propulsion reduction gear, the requirements for a security control area may be omitted at the discretion of the SUPERVISOR with the concurrence of the ship's Engineering Officer. If the security control area is precluded during these special circumstances, the security of the reduction gear shall be maintained.

4.1.1 The requirements for contractor accountability cannot be waived.

4.2 Definitions of terms used are:

4.2.1 Clean Work Area: An area requiring a cleanliness/ accountability level at least equal to that required for in-shop repair of similar equipment to permit the easy recovery of any dropped tools, material, etc. This area shall be free of excess moisture and contaminants, i.e., abrasive materials resulting from blasting, grinding, or other particle generating processes. Areas where this condition would apply are inspection and/or access covers removed or open.

4.2.2 Security Control Area: An area or enclosure that provides a physical boundary around access opening (Herculite) which will preclude the inadvertent introduction of any uncontrolled personnel, tools, equipment or foreign material. This area shall always meet the requirements of a Clean Work Area and can be upgraded to a Limited Access/Exclusion Area. A Controlled Area shall always require Physical Separation.

4.2.3 Full Enclosure: An enclosure that has all edges (sides, top, and bottom) secured with cabling that is woven through grommets and secured to stanchions, foundations, deck grating, etc. The enclosure will be considered adequately secured if a person cannot enter through any opening other than the designed entry accesses.

4.2.4 Limited Access Area: An area requiring the maximum level of concern and accountability for personnel and material. During this condition a Full Enclosure is required. This type of area isolation is required where the recovery of dropped or broken material would be difficult and/or requires extensive rework of the task in progress. The Full Enclosure shall be locked when unattended by production and during the unattended time keys shall be controlled by the Ship's Engineering Office. An area established outside the security control area to limit the personnel allowed to enter the reduction gear area and is intended to prevent unnecessary traffic.

4.2.5 Accountability: The method used to maintain foreign material exclusion from reduction gears by keeping a formal record (accountability log) of all materials, including tools and hardware that may pass through access opening.

ATTACHMENT A

ACCOUNTABILITY LOG SHEET_____OF_____

SHIP/HULL_____ SPEC. ITEM_____ SYSTEM-LOCATION _____

Item No.	Item/ Description	Material Use	Qty	Item In - SAT Date/Time	Inspector*	Qty	Item Out - SAT Date/Time	Inspector*	Remarks

* The person designated to sign for an action verifies, based on personal observation, and certifies by their signature that the action has actually been performed in accordance with the specified requirements.

ATTACHMENT B
ACCOUNTABILITY LOG (SHIFT TURNOVER VERIFICATION)

SHIP/HULL_____ SPEC. ITEM_____ SYSTEM-LOCATION_____

Logged items remaining within the exposed location at the change of shift shall be verified present by the in-coming and out-going control watches. This verification shall be accomplished by physically checking the area and confirming those items required to be logged. Both the outgoing and incoming shift control watches shall sign the shift turnover verification to certify that the remaining items have been physically verified, no unnecessary items are left in accountability area, containments are satisfactory, and area is cleaned.

Crl Watch Start	Date/Time Started	Crl Watch Stop	Date/Time Stopped	Date/Time		Line Supervisor/QA Inspector	
				System Open	System Closed	Log and Area Inspector* Date/Time	Remarks

THIS LOG IS CLOSED. ALL ITEMS ARE ACCOUNTED FOR AS INDICATED.

Inspector**_____ Date/Time_____ Supervisor**_____ Date/Time_____

* The person designated to sign for an action verifies, based on personal observation, and certifies by their signature that the action has actually been performed in accordance with the specified requirements.

** The person designated to sign for an action verifies, based on personal observation, certified records of direct reports from control watches, and certifies by their signature that the action has been performed in accordance with the specified requirements.

ATTACHMENT C
CRITIQUE REPORT FORM

SHIP NO. PREPARED BY:

TIME/DATE: CRITIQUE SER NO: _____
(Code Yr. Seq. No)

NOTE:

(1) If the information of items 1-14 is available, a formal critique meeting is not required.
(2) Provide the following information on supplemental sheets. List all facts in detail and in sequences. Provide timing of events and list individuals involved with their respective shop or code number. List temporary corrective actions and determine causes.

Topic of Discussion and Report	Sign	Topic of Discussion and Report	Sign
1. Description of incident		8. List damage incurred	
2. Location of incident.		9. What is the basic cause of this problem? Include background info.	
3. Discovered by/time/date.		10. Is a trouble report recommended? List reason.	
4. List in order the immediate actions taken/actions taken by whom/identify persons notified.		11. Was a formal critique meeting necessary to provide the above info?	
5. Identify any work stopped and by whom; identify what must be accomplished prior to resuming work stopped.		12. Include Ship's CO or EDO or EOOW remarks.	
6. Identify work in progress/related to problem and include system or plant conditions.		13. Provide applicable shop/technical code concurrence.	
7. Were temporary corrective actions adequate? Were additional actions necessary and taken? Identify.		14. Supplementary info attached to this critique report form.	

ATTACHMENT C
SUPPLEMENTAL PAGES

1. DESCRIPTION OF INCIDENT

_____

_____

_____

_____

2. LOCATION OF INCIDENT

SPACE (NAME)_____

FRAME_____

LEVEL_____

3. DISCOVERED BY:

NAME_____

RANK OR POSITION_____

TIME (NAVY)_____DATE_____

4. LIST IN ORDER THE IMMEDIATE ACTIONS TAKEN AND BY WHAT PERSONS:

_____

_____

_____

IDENTIFY PERSONS NOTIFIED:

NAME_____ RANK/POSITION_____

NAME_____ RANK/POSITION_____

NAME_____ RANK/POSITION_____

NAME_____ RANK/POSITION_____

NAME_____ RANK/POSITION_____

5. IDENTIFY ANY WORK STOPPED AND BY WHOM:

_____

_____

_____

_____

(a). IDENTIFY WHAT MUST BE ACCOMPLISHED BEFORE THIS WORK MAY BE RESTARTED:

_____

_____

6. IDENTIFY WORK CURRENTLY IN PROGRESS WHICH IS RELATED TO THE INCIDENT:

OPERATING CONDITIONS OF SHIP AND/OR STATUS OF SYSTEMS OR COMPONENTS AT TIME OF INCIDENT:

7. WERE TEMPORARY CORRECTIVE ACTIONS ADEQUATE?

YES ☐
NO ☐ IDENTIFY:

(a) WERE ADDITIONAL ACTIONS NECESSARY?

YES ☐
NO ☐ IDENTIFY:

8. LIST DAMAGE INCURRED:

9. WHAT IS THE BASIC CAUSE OF THE PROBLEM?

PERSONNEL ☐
PROCEDURE ☐
EQUIPMENT ☐
OTHER ☐

BRIEF DESCRIPTION:

_____

_____

_____

_____

_____

_____

10. IS A TROUBLE REPORT RECOMMENDED?

YES ☐

NO ☐ IDENTIFY:

_____

_____

_____

11. WAS A FORMAL CRITIQUE MEETING NECESSARY TO PROVIDE THE ABOVE INFORMATION?

YES ☐

NO ☐

12. SHIP'S CO, EDO, OR EOOW REMARKS:

_____

_____

_____

13. APPLICABLE SHOP/TECHNICAL CODE CONCURRENCE:

NAME: _____ SHOP/CODE: _____

SIGNATURE: _____

14. SUPPLEMENTARY INFORMATION:

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

ORIGINATOR
(PRINT OR TYPE)

NAME: _____

POSITION: _____

DATE: _____

_____
SIGNATURE

ATTACHMENT D

TROUBLE REPORT NO. _____

SHIP _____ DATE OF ISSUE _____

TIME/DATE OF INCIDENT _____

PRELIMINARY _____ FINAL _____

1. Summary of incident.

_____

_____

_____

_____

2. Description of incident and general description of apparent cause.

Design ☐ Material ☐ Personnel ☐ Procedure ☐

A. Description of incident.

_____

_____

_____

_____

_____

B. Discussion of apparent cause.

_____

_____

_____

_____

3. Operating conditions of ship and/or status of system or components.

_____

_____

_____

4. Immediate temporary corrective action taken and results.

_____

_____

5. PERMANENT CORRECTIVE ACTION.

_____

_____

_____

_____

_____

_____

6. AREAS OF RESPONSIBILITY FOR FURTHER SHIPYARD EVALUATIONS.

_____

_____

_____

7. SIMILAR TROUBLE REPORTS.

_____

_____

_____

8. ORIGINATOR(S):

_____ DATE: _____

_____ DATE: _____

9. CONCURRENCES:

_____ DATE: _____
Repair Dept Control Mgr

_____ DATE: _____
Quality Assurance Officer

_____ DATE: _____
Chief Design Engineer

10. Approved:

_____ DATE: _____
Repair Officer