9167

7/28/99

Ser 03W4/018

From: Commander, Naval Sea Systems Command (SEA 03W)
Subj: **WATERTIGHT CLOSURES IMPROVEMENT PLAN**
Ref: (a) NAVSEA ltr 9167 Ser 03W4/058 of 02 May 1997
Encl: (1) Watertight Door Improvement Plan

1. PRESINSURV has highlighted the poor material condition of watertight closures in recent briefs to the CNO. Over the last three years, an average 33% of all closures inspected have not been watertight. In addition, the numerous discrepancies found point to a huge maintenance burden borne by the Fleet. The purpose of this letter is to provide Type Commanders and Program Sponsors with a brief overview of ongoing watertight door efforts, present our plan to correct and assess watertight door problems, and solicit continued watertight door resource support.
2. In May 1997, the Watertight Closure Maintenance Process Improvement Team (PIT) was chartered by reference (a) with an objective to improve the tightness and material condition of surface ship watertight closures while significantly reducing the cost of maintenance. Since that time, numerous actions have been taken, including several significant waterfront training initiatives. Enclosure (1) provides an overview of the watertight door improvement plan, which was approved by the Watertight Closure Maintenance PIT at the 28 April 1998 meeting.
3. NSWCCD-SSES (Code 97) is the Navy’s Center of Excellence for watertight closures. Continued funding of ISEA support at NSWCCD-SSES is essential to the success of the plan and is considered critical to sustaining gains made in reducing maintenance required for both existing and new design doors.
4. The NAVSEA point of contact is 03W4 703-602-9393 ext419 or DSN 332-9393.

03W

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Subject: WATERTIGHT DOOR IMPROVEMENT PLAN 7/17/98

Existing Condition: The Navy is currently spending between 20-30 million dollars per year in watertight door repair costs. Approximately ½ of the repair effort is expended on aluminum doors, though they represent only 15% of the entire population of doors. Despite this effort, recent INSURV data indicates that 33% of the watertight doors inspected are not watertight. Recent shipboard surveys indicate substantial differences in material condition of individual ships can be attributed to effort and attitude, but even under the best conditions a destroyer type ship will expend over 2 man-years of effort in their upkeep.

Goal: Increase watertight readiness of door population from 67% to 85% in two years, as measured by INSURV inspections, while maintaining or reducing current repair and training costs as measured by efforts in the Southwest and Mid Atlantic Regions (see figures 1 & 2).

Approach (existing closures):

1. Design. Component parts have been identified that are the principal cause of door failure and high maintenance - door hinges, bushings, gaskets, and handle clips. Direct replacement parts are being designed and will be available for replacement of the existing high maintenance components. An AER for aluminum doors has proven effective in dramatically reducing galvanic corrosion and has reduced the required repair interval by an estimated 500% (5 years vice 1 year). It is recommended that TYCOMs direct repair activities to install applicable AERs on all aluminum doors that are slated for repair or replacement.

2. Planned Maintenance. A simplified Maintenance Requirement Card for each type of door that reduces scheduled maintenance manhours has been developed, issued, and authorized for immediate use. The Watertight Closures Technical Manual is being updated to include identity and installation of improved components. A NAVSEA Watertight Closure web site (http://www.navsea.navy.mil/03w/closures.html) that includes door advisories, maintenance information and links to other sites has been created.

3. Parts Support. A Common Repair Part APL that identifies common replacement parts for both steel and aluminum doors has been developed. NAVSEA is working with the FISCs to create a direct vendor delivery contract in each major Fleet concentration which will allow easy access to commonly required repair parts and which will be automatically replenished as parts are issued.

4. Training. Improving shipboard watertight closure training and level of knowledge through increased TYCOM and NAVSEA sponsored assessment and onboard maintenance training programs (TARGET, CEMAT, SEMAT, etc.). The onboard DCPO STEP CD course is being revised to include watertight closure maintenance and two new training videos are being developed. Surface Warfare Officer School courses are adding increased emphasis to make Officers aware of door issues and hands on watertight closure training is being integrated into the existing DCA course. CNET is further reviewing DCPO training to determine if a more effective training process can be developed.

5. Monitoring. TYCOMs have committed to identifying, inspecting and tracking 200 doors at six-month intervals. The data from this 200-door sample will be used to help assess the effectiveness of onboard training visits and component redesign efforts. In addition

to monitoring the 200-door sample, Regional Maintenance activity data in Southwest and Mid-Atlantic Regions, 3M and INSURV data will be reviewed at each working group meeting.

New Door Designs (forward fit): NAVSEA is developing a new door performance specification and is providing lessons learned to both Industry and Government activities involved in new door design efforts. It is recognized that the ultimate solution to current watertight door problems is the introduction of a new zero maintenance design door. There are several significant redesign efforts underway, including:

a. DDG 93 and higher ships will be delivered with Mafo-Holtcamp watertight doors. These doors will have stainless steel panels, and dog systems fully on the inboard side of the bulkhead, thus avoiding bulkhead penetrations that lead to many of the current maintenance requirements.

b. Ingall's Shipbuilding is developing a composite, low observable door design under a Navy sponsored Independent Research and Development program. Their goal is to make this design applicable for most internal and external watertight door applications.

c. As part of the Navy's MANTECH program, the Great Lakes Consortium is developing a low observable, composite door for a composite radar house that will be installed and evaluated in the forward director room aboard a DDG-51 Class ship during FY 00.

d. BIW is developing a weather deck low observable watertight door and an improved interior door based on the Mafo-Holtcamp design as part of the LPD-17 design effort.

e. Under the Integrated Topside Design R&D effort managed by PEO DD-21, two contracts have been awarded for integrated hull and deck machinery system analysis and concept development. It is anticipated that advanced design closures will be part of this effort.

Continued Support: To accomplish the Watertight Improvement Plan goals it is necessary for the Type Commanders to continue their funding support of Onboard Maintenance Training Programs and Intermediate Maintenance Activity repair billets. It is also necessary that the Resource Sponsors continue their POM Issue support and provide sustained funding of Life Cycle Engineering Support at NSWCCD-SSES.

WTD Repair Costs

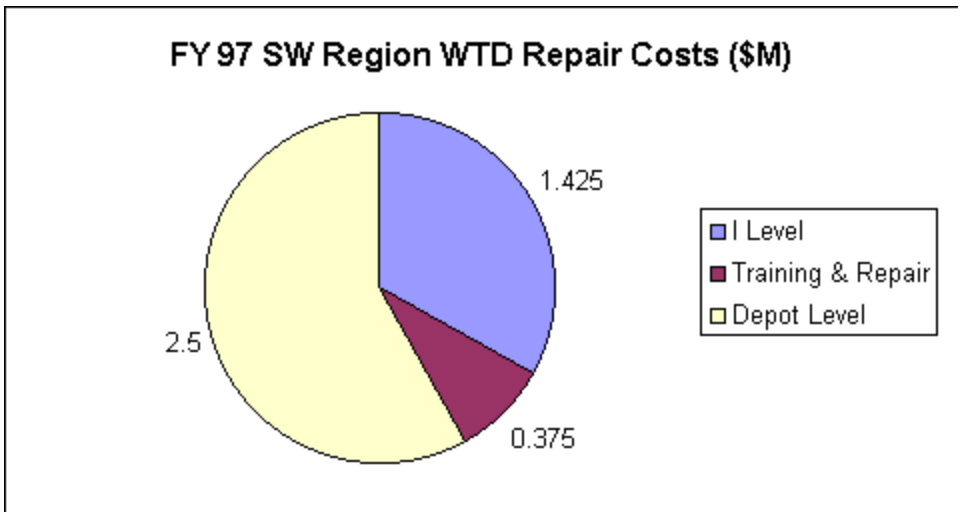

Figure 1.

Current SW Region WTD Repair Costs

I Level	1.425
Training & Repair	0.375
Depot Level	2.5
Total:	4.3

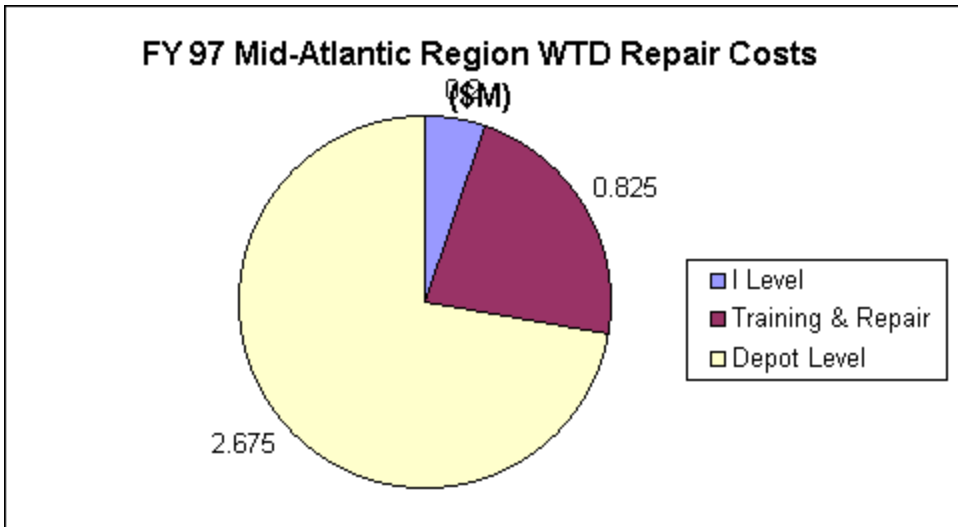

Figure 2.

Current Mid-Atlantic Region WTD Repair Costs

I Level	0.2
Training & Repair	0.825
Depot Level	2.675
Total:	3.7