

THE ASSIST

June, 1997

Issue No. 10

**** *Serving the RAST Fleet* ****

CLOSE TO \$400,000 SPENT TO CLEAN-UP LOW BID HYDRAULIC SYSTEM DISASTER

It started as a CASREP to an FFG-class RAST System for a tandem pump failure in December '96. When system checkout also revealed excessive RA pump leakage, local ASIR Curtis Strickland recommended fluid samples be taken from the reservoir, servo, traverse and TGW circuits. Most of the samples registered Class 11. Shipsforce and ASIR found visible non-metallic particles in fluid samples and filter bowls. At this point all were in agreement a complete system flush in accordance with MIL-STD-419 and NAVSEA 6686867 should be done with all the components removed and cleaned.

A contractor was awarded the job on a bid of \$40,000. This should have been the first red flag. The next lowest bid was \$80,000; and previous system flushes were successfully completed for around \$100,000. The contractor elected to exercise options in the general specs to tank clean the tubes and not disassemble the components. The contractor's work in general was reported to be extremely poor quality.

Strickland and NAWC In-Service Engineering warned of further failures if the system were started

without proper cleaning and verification of fluid cleanliness. The warnings were not heeded and the contractor started the system. The TGW pump quickly developed a high leakage rate. Fluid samples indicated Class 12, following system "cleaning" and start-up.

The contractor's work was re-scoped to perform the initially requested hot oil flush and component cleaning. The contractor, not capable of performing this work, subcontracted out the entire job. Problems with the subcontractor's flushing rig, and with getting parts, caused the ship to miss her certification schedule and deploy for fleet exercises with her RAST system disassembled. (The original plan was for heavy flight ops.)

The ship returned to port and completed the system flushing and cleaning. By the time the CASCOR was issued, six months and almost \$400,000. was spent.

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Internet Access:

The March 96 issue (no.6) of "THE ASSIST" can be found on the Navy Lakehurst Home Page at:
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All issues of "THE ASSIST" should be available on this page shortly. Update: software ordered!!

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This was the background that caused In-Service Engineering to generate a **RAST specific stand alone flushing procedure**. The procedure is issued as NAWCADLKE-MISC-48J200-0033 entitled, "FLUSHING PROCEDURE FOR THE RECOVERY ASSIST, SECURING AND TRAVERSING (RAST) MACHINERY ROOM HYDRAULIC SYSTEM". If the procedure is followed it will not allow anyone to exercise unwanted options when tasked to flush *your* RAST System.

The RAST flushing procedure is divided into two parts. The first part is for flushing whenever system fluid cleanliness degrades to Class 9 or 10 . This is a fairly easy and inexpensive procedure. The only help ships' force will need is to task a hydraulics shop to install a temporary, 5-micron, 20 gpm filter in-line to port L of the hydraulic interface panel. The rest of the procedure can be done at O-level. We encourage the use of this procedure any time the fluid cleanliness exceeds Class 8 down stream of the 5-micron filters; and whenever a major hydraulic system repair is done, such as replacing flex hoses or tubing.

Use of the Class 9 and 10 procedure will help prevent the need to perform the second part of the document, which is the procedure for Class 11 and dirtier fluid. The Class 11 procedure is a major effort requiring

removal of all of the hydraulic components. It also has some risk, as the outcome is greatly dependent on getting a competent contractor. And if everything goes well, the bill will come to about \$100,000.

The final word of advice is to keep on top of your fluid sampling. And if you need (or even think you need) a system clean-up; contact your local ASIR, or Lakehurst directly, to discuss your problem or for a copy of the procedure.

Submitted by:
Dave Leung

NOTE: The above article is a true account, and was written for both the "lessons learned" and to inform the RAST community that there is now a way to avoid future incidents. It serves no purpose to disclose the ship's name. ED.

"THE ASSIST" is an unclassified, quarterly publication issued by the RAST team of the Recovery Branch, SE/ALRE In-Service Engineering Division, Engineering Group - Naval Air Warfare Center, Aircraft Division, Lakehurst, New Jersey.

The information herein is unofficial and is provided to assist the RAST community in the operation and maintenance of the RAST system.

NAWC Lakehurst RAST Points of Contact

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TAIL GUIDE WINCH MOTOR GOES BOTH WAYS

Have you ever needed a Recovery Assist (RA) Motor (PN 6534D504-1), and couldn't get one due to supply shortages? Well, one possible way to satisfy the need is to convert an RFI Tail Guide Winch (TGW) Motor (PN 6544E024-3) to an RA Motor (PN 6534E508-1). There are two differences between the motors: (a) The RA Motor has a ported end plate (DOWTY PN 538-411-1) and the TGW Motor has a blank end plate (DOWTY PN 006-2302-1), and (b) The Drain Port location is rotated 90 degrees (either direction).

To convert a TGW Motor to an RA Motor, perform the following procedure (we recommended you contact your friendly, neighborhood ASIR for assistance).

1. Follow Removal and Replacement directions in the OMI Manual, IAW paras. 6-67 and 6-209.
2. Procure a ported end plate from Indal Corporation

- (call your ASIR rep or NAWC Lakehurst for assistance-see POCs, pg 2). The cost is \$1,500.
3. Also, procure two fittings (PN 6534C662-5) and two packings (PN MS28778-8).
 4. Install the fittings and packings onto the ported end plate. Replace the blank end plate on the RFI TGW Motor with the threaded end plate/fittings assembly.
 5. Rotate the TGW Motor casing 90 degrees so that the drain port is on top. The casing can be rotated by unbolting the flange and turning the casing 90 degrees. CAUTION, when rotating the casing, DO NOT SEPARATE THE HALVES (ie., the flanges must almost touch) or else you'll have a lot of high precision parts, with absolutely no way to properly assemble your motor.

Submitted by:
Marc Friedman

We have distributed ten (10) newsletters covering a wide range of RAST maintenance tips, technical guidance, supply and logistical info, status of on-going system upgrades, RAST historical background, survey feedback, and answers to your various questions - 41 articles in all. An index of all published articles is listed below:

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|--------------------------|--|
| Issue No. 1
(Jul '94) | <ol style="list-style-type: none"> 1. Word from the Fleet Liaison - Introduction 2. LRC No. 57 Introduces "-14" RSDs 3. RAST RA CAL Kit Survey Results 4. Tip of the Quarter - Proper Servicing of the RSD Accumulator |
| Issue No. 2
(Jan '95) | <ol style="list-style-type: none"> 1. Maintenance Tip: Cycle Your Equipment 2. RSD Electric Cables 3. ECA Fuses 4. Tip of the Quarter - Proper Servicing of the Rope Accumulator 5. Word from the Fleet Liaison - Documenting System Maintenance |
| Issue No. 3
(Apr '95) | <ol style="list-style-type: none"> 1. Your RAST System's Biggest Threat - Hydraulic System Contamination 2. On the Horizon - A look at the Ongoing Efforts to Improve the System: <ul style="list-style-type: none"> *RSD Block II Upgrade, Flexible RSD Electric Cable, Electric Cable Passing Tube *Elimination of ECR and Gutters 3. Tip of the Quarter - How to Avoid Electric Cable & Gutter Problems 4. Word from the Fleet Liaison - RSD Electric Cable Failures |

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- Issue No. 4 (Jul '95)
1. How do you Gage a Failure? - RSD Pressure Gage Failures
 2. Touch and Go - Track Plate Lifting Tool and TGW Pump Bearing Failure
 3. Keeping RAST Systems Up and Running
 4. Word from the Fleet Liaison - CASREPs and CASCORs
- Issue No. 5 (Nov '95)
1. Stripped Marotta Valve Threads
 2. Everything You Ever Wanted to Know About Traverse Cable Lube
 3. Maintenance Review Conference for RAST System
 4. Listing of Latest HLS Tech Manuals
- Issue No. 6 (Mar '96)
1. How Big is Your Connector? - Changing RA Cables
 2. RAST AVCERT Preparations
 3. RSD Turn-In Procedure
 4. HRS ISD and Lamp Bar Turn-In Procedures
 5. Touch and Go - Protecting RAST During SRAs and Smoking Prelube 19 Rags
- Issue No. 7 (Jun '96)
1. Hydraulic Fluid Filtration Cart Info
 2. Machinery Room Improvements Upgrade Status
 3. Demand Only Requisition Procedure
 4. Tip of the Quarter - Proper Servicing of RSD Accumulator (Issue no. 1 repeat)
 5. Word from the Fleet Liaison - Fleet Feedback Questions Answered
- Issue No. 8 (Oct '96)
1. Top Five Reasons Why You Will CASREP Your RSD
 2. It's the Little Things That Count (Importance of Proper Maintenance)
 3. Tip of the Quarter - Avoiding Hydraulic Contamination
- Issue No. 9 (Mar '97)
1. Word from the Fleet Liaison - RSD Accumulator Charging Valve, Track Plate Lifting Tool
 2. RSD Overhaul - Accessory Parts SIMA Needs
 3. RSD Wiring Guidance
 4. Traverse Cable Changeout and Related Maintenance
 5. Tip of the Quarter - How to Avoid Electric Cable & Gutter Problems (Issue no. 3 repeat)
- Issue No. 10 (Jun '97)
1. \$400,000 Spent to Clean-up Low Bid Hydraulic System Disaster
 2. TGW Motor Goes Both Ways (Convert a TGW Motor to an RA Motor)
 3. Be Kind to Your Local ASIR
 4. On the Horizon-Upcoming & Ongoing Efforts to Improve Your RAST Life
 - *RSD Block II Upgrade ("-14"RSDs Become "-15"s starting in fall '97)
 - *Machinery Room Improvements (LRC 63)

If you see a subject that interests you, or are missing an issue(s) that you would like to have, give us a call or mail the enclosed feedback sheet to us detailing your request. Please give us some feedback (your own maintenance tip, comments on "THE ASSIST", a topic for a future article, or the biggest pain in your RAST neck) as compensation for "shipping and handling".

BE KIND TO YOUR LOCAL ASIR

The RAST In-Service Engineers and Logisticians are in constant contact with the ASIRs in our field offices. Hardly a day goes by that we aren't on the phone with one or more ASIRs: troubleshooting system malfunctions, correcting discrepancies, providing technical information from the drawings and/or manuals, recording data, clarifying supply info to expedite a CASREP, or asking about system tendencies that are developing in the fleet. The purpose of these conversations we have with the field offices is to improve the readiness, reliability, and performance of the RAST system through changes in maintenance, procedure or design.

ASIRs are a RAST tech's best resource - not their worst nightmare. They have developed a wealth of RAST (as well as other aviation systems) knowledge by resolving numerous RAST issues over many years in the field. When it comes to RAST failures - *they have seen and fixed it all* - from twisted RSD electric cable gutters that look like linguini to WHPU reservoirs with gallons of seawater inside to runaway RA winches. They have access to all the points of contact at NAVICP for supply issues, in the shipyards during availabilities, at NAVSEA, NAVAIR, Type Commanders, and are only a phone call away from all of us at Lakehurst and you RAST techs, too. The ASIR's goal is to identify any serious problems as early as possible, give the ship the most effective game

plan to resolve those issues, and return the system to a fully operational, certifiable condition that will last long into any ship's upcoming deployment. Nothing more - nothing less.

***ASIRs are a RAST tech's
best resource - not their worst
nightmare.***

There are 85 RAST ships in the fleet and only 2-3 ASIRs in each homeport who work RAST. When your local ASIR takes the time to assist a ship, he should be met with full cooperation. Those visits should be considered a golden opportunity to attack and solve the difficult issues. *RAST tech's: make good use of your ASIR's time and expertise.*

Working with the ASIRs to address outstanding problems early on in a shipyard availability is certainly preferable to dealing with the inevitable failure alone during night ops in the middle of a deployment. The daily efforts of the ASIRs are a substantial factor in the high rate of RAST System readiness that exists across the fleet. The valuable service they provide should be acknowledged, respected and appreciated.

***Submitted by:
Dave Hoffman***

ON THE HORIZON

Besides taking care of the daily in-service RAST business like answering requests for technical assistance from the fleet and our ASIRs, revising manuals and MRCs, and supporting the RSD overhaul efforts; we are putting the finishing touches on two major design changes. These changes targeted the RAST trouble spots reported to us by NAVICP failure data, fleet feedback, and ASIR input.

The first change that will be coming to a RAST system near you will upgrade the RSD. It is Launch and

Recovery Change (LRC) 62 (a.k.a. "RSD Block II Change") and will convert a "-14" RSD to a "-15". The improvements are:

1. More durable latch switch (requires less adjustment)
2. A more effective hydraulic line filter with differential bypass indicator
3. Sampling valve between pump output and line filter
4. An air filter in the reservoir
5. A more durable cover plate no. 5 (forward)
6. Application of Teflon-S coating to the unlatch bar (to prevent seizing)
7. An improved (nylon) bearing in the pulley base assy

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(to reduce corrosion and overhaul costs)

Design and testing of the “-15” improvements are complete and SIMA San Diego is verifying the first kit “as we speak”. By the fall of ‘97, the SIMAs should be incorporating LRC 62 (thereby generating “-15” RSDs) during the RSD overhaul.

The second major change that will improve RAST systems in the fleet is LRC 63 (a.k.a. “Machinery Room Improvements”). Although the name implies that the upgrades are limited to below decks, the following improvements will be installed:

1. More durable MSA gasket (material change)
2. Protective rubber boot over the RA seat switch
3. Improved RA tension meter (anti-static) on the LSO Control Console
4. Addition of a snubber to regulate pressure to Test Control Panel gages, and removal of the unreliable gage cutouts
5. Improved bearing material for the RA seat switch actuator and TGW exit sheaves (eliminate seizing).
6. Redesigned traverse winch brake to allow easy

cleaning and brake band replacement; and to eliminate loose mounting bolts

7. Removal of RSD electric cable gutters and clamp from the trough
8. Addition of WHPU reservoir low fluid level indicator on the LSO Control Console. A warning will allow the operator to shut down before running dry and damaging equipment in the event of a major hydraulic leak in the machinery room.

The first four LRC 63 upgrades on the list above will be available in spring 98 and will be installed by ships’ force. The other parts of the LRC will require installation by VRT and, due to the large hardware cost and VRT scheduling, will be procured and installed over the next 4 years, beginning in ‘98 (27 kits per year). So, if you are experiencing some of the problems listed above, help is on the way!

***Submitted by:
Dave Hoffman***

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