FIELD CHANGE ORDER

FCO NUMBER: HSWBC-S-0003

APPLICABILITY: RA310-xx, SWXRC-03, SWXRC-Zx, HSZ20

PROBLEM & SYMPTOM:

Batteries manufactured during calendar year 1996 and shipped in the HSZ20 based storage array controller are at risk from a manufacturing defect that results in an early life 'open' failure condition.

Risk: The sudden unavailability of customers RAID/Mirrorsets.

SOLUTION:

Replace identified batteries with production units from 1997 or later.

QUICK CHECK: (UTILIZE ATTACHED PROCEDURES BEFORE TAKING RA310/SWXRC-03/ SWXRC-Zx Controller out of service)

All identified subsystems with serial number on/before NI720xxxxx date code and ALL subsystems manufactured by CX should have their battery checked and replaced if it is a 1996 battery.

RE/CO-REQUISITE FCO:

NONE

MFIT HRS 0.6 HRS

TOOL/TEST EQUIPMENT:

29-26947-01 #10 Torx Head Screwdriver

FCO PARTS INFORMATION

FCO KIT NO. DESCRIPTION OF CONTENTS

EQ-01754-01 including:

70-32162-02 WBC Battery Kit
FA-05089-01 FCO Installation Document (Rev E) (4 steps added between steps 8 and 9. Identified web site location for patches

FCO CHARGING INFORMATION

NON-DIGITAL SERVICE PROVIDERS

Authorization, Ordering and Claims directions will be sent to you from the Digital AWSP office.
All request should be directed to 1-800-398-2977 (AWSP) #2.
ESD SAFETY PROCEDURES:

When removing / handling any of the modules during execution of this FCO, follow carefully the safety procedures as follows:

Use ALL ESD safety precautions to prevent DOA’s on material in kit. (Include the following caution statements and instructions for setting up the Velostat Kit or using an ESD module box, depending on the FCO)

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* CAUTION *

* The module, as with all modules, contain electrostatic discharge sensitive devices (ESDS). The use of the Velostat Kit or ESD module box is essential to prevent damage which may not be noticed immediately.

******************************************************************************

Setting up Velostat Kit 29-27224-01(wrist strap) & 29-26240-00 (mat)

a. Unfold the Velostat mat to full size (24" x 24")
b. Attach the 15 foot ground cord to the Velostat snap fastener on the mat.
c. Attach the alligator clip end of the ground cord to a good ground on the cabinet.
d. Attach the wrist strap to either wrist and the alligator clip to a convenient portion of the mat.

TOOL List:
29-26947-01   #10 Torx Screwdriver
Medium sized Phillips Screwdriver
Medium sized Screwdriver

******************************************************************************

NOTE  **************************************************************************

* Discard the old batteries by following proper disposal procedures for your location.

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The following versions are the minimum necessary as recommended by Digital Storage Business.

HSZ20/SWXRC : V27Z-2 ; V30Z-3 ; V31Z-4

Examples of insufficient versions are:
for the HSZ20      : V27Z-0 ; V30Z-1
/RA310
/SWXRC

If the firmware of either the controller is below the recommended revision, the appropriate patches should be installed. See Revision Table below for details. Once done, proceed with FCO rework at page 5 at step 2.

NOTE: Patches must be installed sequentially, i.e., if ----- patch 3 is required, patches 1 and 2 are required to be installed prior to installation of patch 3.

Patch 1 and 2 are pre-requisites to 3.

* NOTE: Digital Storage Business Segment highly recommends that run with the latest released version of HSOF software and patches.

* It is recommended that you contact an MCS CSC for the absolute latest patch information available.

Patch Revision Table

<table>
<thead>
<tr>
<th>Controller</th>
<th>Patch Number</th>
<th>Patch Name</th>
<th>Description</th>
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<tbody>
<tr>
<td>HSZ20/RA310/SWXRC-03</td>
<td>patch_v27z-1</td>
<td>Patch to permit HSZ40-BX and HSZ40-CX modules to be intermixed in dual configurations</td>
<td></td>
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<tr>
<td>HSZ20/RA310/SWXRC-Zx</td>
<td>patch_v27z-2</td>
<td>Fix for Battery Test failures</td>
<td></td>
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</tbody>
</table>
FIELD APPLICATION DOCUMENT (FA), Continuation Page

PROCEDURE:

Use the following procedure WITH RAIDsets or Mirrorsets:

1) Schedule controller downtime

2) Connect to controller through the CLI

   issue CLI> SHUTDOWN THIS_CONTROLLER

3) Wait for SHUTDOWN to complete - May take up to 5 minutes.
   SHUTDOWN is complete when the controllers GREEN LED stops flashing.

4) Power off by pulling the AC power cord(s) to the subsystem cabinets.

5) Follow the instructions in the document EK-Z20BR-RP document enclosed within the EQ kit. Open up the subsystem cabinet, remove the controller assembly and replace the WBC battery.

6) Re-install the controller and restore configuration and cabling.

7) Restart subsystem by restoring AC power.

8) A fully charged battery state should show status "good" in a few minutes. You may verify this by issuing "show this" command.

   NOTE: A fully discharged battery may take 5 hours to re-charge.
If the batteries are NOT "good", Cache_Policy=A will prohibit access to your RAID/Mirrorsets. Cache_Policy=B will allow write through access to your RAID/Mirrorsets for up to 10 hours.

9) Connect to the maintenance console port of the controller and do:

   CLI> SHOW THIS_CONTROLLER

10) If the controller reports an invalid cache error, enter one of the following CLI commands to clear the error for EACH controller that shows cache errors:

    For V2.7 of HSOF:
    CLEAR_ERRORS INVALID_CACHE THIS_CONTROLLER DESTROY_UNFLUSHED_DATA

    For V3.x of HSOF:
    CLEAR_ERRORS THIS_CONTROLLER INVALID_CACHE DESTROY_UNFLUSHED_DATA

11) From the maintenance console port, invoke the following command:

    Show UNITS FULL

12) If any <unit> (i.e. Dxxx) shows "lost data", then invoke the following command:

    CLEAR <unit> LOST_DATA

for each unit that indicates "lost data". Note that this indication does NOT mean that the customer lost data, but that the logic controls that are held in cache memory are "out of sync" as a result of the battery replacement procedure. This process clears any such improper conditions.

13) Report this FCO activity on the LARS form in the "Fail Area/Module/FCO/Comments" column as follows: FCO HSWBC-S-0003

14) Digital field engineers should report this FCO activity on their LARS form per the attached instructions.
LARS

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>USA</th>
<th>APA</th>
<th>EUROPE</th>
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**Activity - Coverage Code**

(a) Contract
   Warranty: W
   Inhouse: A
   Invoiced per Call: F

(b) IN-DEC Contract
   Non Contract/Non Warranty: F
   (c) RTD/Off-site Agreement

**Mkt/FS/Seg Code**

Code for W,K: 111
Code for F: 031
BBC Code for K,W,A: 111
BBC Code for F: 031

**DEC Option**

Option ID: X
Type of Call: M
Request Type: I
Action Taken: D
Quality Codes: M,L,J,R,X,A,Y,Z
Fail Area-Module

**FCO-Comments**

**Material Used**

(a) Warranty Optimum, Warranty Standard and Warranty Basic (on-site) Agreements; * Note material (only) free of charge for all customers.

(b) Applies to IN-DEC Area Only

(c) RTD=Return to Digital or Off-site Agreements; If Field Engineer On-site, use Activity Code "F".

### FCO CHARGING INFORMATION

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