

DIGITAL	FCO	CATEGORY [0]	PAGE 1 OF 9
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FIELD CHANGE ORDER	NUMBER: ORV20-0001
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APPLICABILITY: This FCO is applicable to the options and FRU's listed on Page 2. ALL Serial numbers are affected. There are no specific operating systems, applications, configurations or environments. This FCO incorporates the following ECO's: RV20-SH003, RV20-SH004 and RV20-SH005, RV20-SH006 RV20-SH007 (See Page 2 for more detail and Page 3 for Minimum Acceptable Revision Levels). This FCO supersedes prev. rev. dated 04 DEC 1989.

PROBLEM & SYMPTOM: Written data cannot be read, fatal controller faults, motor speed faults, track faults, P.S. crowbars. See Page 2 for more detail.

SOLUTION: Circuit and code changes to SDC, ISI, BPT and LESI PCA's.

QUICK CHECK: LESI PCA Rev. 06, ISI PCA Rev. 11, SDC PCA Rev. 08, BPT PCA Rev. 00 See Page 3 for more detail.

PRE/COREQUISITE FCO: N/A	MTTI HRS
1.5 Hr.	

TOOL/TEST EQUIPMENT:  
FS Tool Kit, RV02K-01 test cartridge, Velostat Kit (29-11762)

## FCO PARTS INFORMATION

FCO KIT NO.	DESCRIPTION OF CONTENTS	EQ KIT VARIATION APPLICABILITY
EQ-01565-02	See Page 3 for Contents of EQ Kits	N/A
EQ-01565-04		
FA-04876-02		
	FCO Document	

## FCO CHARGING INFORMATION

WARRANTY/CONTRACT				NONWARRANTY/NONCONTRACT				
ON-SITE		OFF-SITE		ON-SITE		OFF-SITE		MATERIAL ONLY
TRAVEL/ INSTALL	EQ KIT	INSTALL	EQ KIT	TRAVEL/ INSTALL	EQ KIT	INSTALL	EQ KIT	ORDER-ADMIN, HANDLING PKG, SHIPPING & EQ KIT
DEC	DEC	DEC	DEC	CUS	CUS	CUS	CUS	CUS

## APPROVALS

CSSE Donna Reusch	FSHQ LOGISTICS Dennis King	FS PRODUCT SAFETY Robert Brister
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CSSE MANAGER Gerd Wegmann	This document is published on multiple media including hardcopy, Customer Services	FCO RELEASE DATE 11 February 1991
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MICROMEDIA	Microfiche Libraries,	FCO REVISION
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Diane MacDonald	Customer Services CD-ROM and	B
POPULATION	MDS Microfiche Libraries.	
65	PARTS AVAILABILITY	
	February 1991	

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APPLICABILITY: (Continued from Page 1)

**\*\*NOTE\*\***Spares in SR17 as well as RV20 drives in DEC Stockrooms will be covered by the ECO's listed above. All other spares locations will be upgraded per this FCO.

OPTION DESIGNATORS AND VARIANTS:  
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Option Designation:	Contains:
RV20-A	1 RV20 (master)
RV20-B	1 RV20 (slave, no LESI PCA)
RV20-PA/PD	1 RV20-A
RBV20-A/PA/PD	1 RV20-A
RQV20-A/PA/PD	1 RV20-A
RUV20-A/PA/PD	1 RV20-A
RV20-SA/SB/SD	1 RV20-A

PART IDENTIFIERS AND FIELD REPLACEMENT UNITS:  
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DEC_PN	Vendor_PN	Description	Location
29-26459	75112281	Drive subsystem controller (LESI PCA)	Slot 1(master only)
29-26427	75115225	ISI Bus controller (ISI PCA)	Slot 3
29-26435	75115226	Servo/drive controller (SDC PCA)	Slot 4
29-26457	75116011	Baseplate terminator (BPT PCA)	Baseplate
		or	
29-28058	75116012	Baseplate terminator (BPT PCA)	Baseplate

PROBLEM/SYMPTOMS: (Continued from Page 1):

Problem	Symptom	Vendor_PN	New Rev
Lost sectors.	Data written cannot be read.	7515225	-11
Slow tape mark skipping.	Optimize code.		
Port errors.	Errorlog entry.	75112281	-06
Postfield problem. faults, hangs.	Fatal controller	75115225	-11

Host bus parity errors.      Errorlog entry.  
 Track faults.                      Errorlog entries.      75115226      -08  
 Motor speed faults.  
 Track seek failures.

(Continued on Page 3)

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PROBLEM/SYMPTOMS (Continued)

Motor speed faults.      Errorlog entry.      75116011      -08  
 Pwr Supply crowbars.      No power to drive.

or

Motor speed faults.      Errorlog entry.      75116012      -00  
 Pwr Supply crowbars.      No power to drive.

QUICK CHECK: (Continued from Page 1):

FRU	Quick Check	FRU	Code
---	-----	Rev	Rev
		---	----
SDC	EProms at D216 & H524 should be 75110915-14 & 75110917-14	-08	-14
ISI	EProm at location A423 should be 75119029-10	-11	-10
BPT	EProm at loc. A532 (2764) should be 75114498-05	-08	-05
	or	-00	
LESI	EProms at E18 & E19 should be 23-251E7-00 & 23-252E7-00, or 75119814-11 & 75119815-11	-06	-11

FCO PARTS INFORMATION (Cont. from Page 1):

Contents of EQ-01565-02:

Quantity:	Part Number:	Description:	Used On:
-----	-----	-----	-----
1	29-26435-00	SDC PCA, 75115226-08	FRU Swap
1	29-26457-00	BPT PCA, 75116011-08	FRU Swap
	or		
1	29-28058-01	BPT PCA, 75116012-00	FRU Swap
1	29-26459-00	LESI PCA, 75112281-06	FRU Swap

1 29-26427-00 ISI PCA, 75115225-11 FRU swap  
 1 FA-04876-02 FCO Document

Contents of EQ-01565-04:

Quantity:	Part Number:	Description:	Used On:
1	29-26435-00	SDC PCA, 75115226-08 or	FRU Swap
1	29-26459-00	LESI PCA, 75112281-06	FRU Swap
1	29-26427-00	ISI PCA, 75115225-11	FRU swap
1	FA-04876-02	FCO Document	

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MINIMUM ACCEPTABLE FRU REVISION LEVEL:

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DEC_PN	Vendor_PN	Description	Minimum rev *
29-26459	75112281	Drive subsystem controller (LESI PCA)	-06 (master only)
29-26427	75115225	ISI Bus controller (ISI PCA)	-10
29-26435	75115226	Servo/drive controller (SDC PCA)	-08
29-26457	75116011	Baseplate terminator (BPT PCA)	-08
		or	
29-28058	75116012-00	Baseplate terminator (BPT PCA)	-00

\* The FRU's do not have a DEC 29 class number on them. The part number on the FRU is in the form 7511xxxx-rr where -rr is the revision. The DEC 29- number and the vendor part number are located on the FRU container.

FIELD INSTALLATION PROCEDURE

RV20-0001 FCO Rework Instructions

THIS DOCUMENT TO BE USED FOR NON-WARRANTY/NON-CONTRACT CUSTOMERS ONLY. THIS INCLUDES SELF-MAINTENANCE, PER-CALL, AND THIRD PARTY MAINTENANCE CUSTOMERS.

\*\*\*\*\*  
 \* WARNING \*  
 \*  
 \* This FCO should only be installed by trained Customer Services \*  
 \* Engineers. It requires gaining access to the inside of the \*  
 \* RV20 drive and may pose a threat to personal safety. Failure \*  
 \* to adhere to this warning may result in voiding the warranty \*  
 \* or contract on the RV20 subsystem. \*  
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\*\*\*\*\*  
 \* CAUTION \*  
 \*  
 \* The RV20 FRU's are STATIC SENSITIVE devices. They must only \*  
 \* be handled after proper electrostatic precautions have been \*  
 \* taken. DO NOT remove modules from static-proof bags until \*  
 \* installer has been properly grounded, Velostat mat has been \*  
 \* laid out and all non-conductive material has been removed \*  
 \* from the work area. (Velostat kit PN - 29-11762) \*  
 \*  
 \*\*\*\*\*

1.0 BEFORE WORK IS STARTED

1.1 Tools needed - Hex key for H9643 rear door removal, medium and small Phillips screwdriver, wrist grounding strap, static mat, appropriate 28-pin (socketed) EPROM removal tool, test cartridge (RV02K-01), and RV20 Service Guide (EK-ORV20-SV-002)

**\*\*NOTE\*\***The Service Guide is very important!

1.2 Integrity of drive - The integrity of the drive to be upgraded should be verified before the rework is started. This can be done without taking down the operating system.

**\*\*NOTE\*\*** Be sure to use the Test Cartridge provided in the RV20 spares kit for any diagnostic testing.

To do this, run EVRVC as described in the Service Guide, section 2.5. This will test the integrity of the drive as thoroughly as possible. It will also verify the diagnostic for use in testing the drive after the FCO is installed. EVRVC takes 10 minutes to completion.

1.3 Customer courtesy -

- A. Check with the system manager and assure that the RV20's in the subsystem (the master and up to 3 slaves on the same Klesi controller) are not in use. They must all be powered down.
- B. Remove any data cartridge (RV02K) from the drive if present.

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2.0 GAINING ACCESS TO THE RV20 FRU's

- 2.1 From the front of the cabinet, extend the stabilizer leg into the service position.
- 2.2 From the back of the H9643 cabinet, remove the bustle door to expose the rear of the RV20 drive.

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*
*           POWER DOWN THE DRIVES      *
* All the RV20's in the same subsystem MUST be powered down. *
* Pull the power cord and trip the circuit breaker of all the *
* drives in the subsystem to be upgraded (right side of drive). *
* Drives in the same cabinet on a different subsystem can be *
* left operational, but caution must be exercised not to *
* disturb these drives.          *
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- 2.3 From the rear of the drive, back off the two ESD/hold-down brackets from each side of the RV20 and slide the RV20 forward about six inches.
- 2.4 From the front of the cabinet, pull the drive forward to expose the entire RV20 top cover.
- 2.5 Remove the two captive Phillips screws from the back of the top cover. The back section of the top cover can now be removed. Slide the front section of the cover to the rear and lift up to remove.

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* At this point, the static wrist strap should be worn *
* by the Cust. Engineer with the banana plug end firmly*
* inserted in the jack provided in the middle of the *
* center cross member stiffener in the drive. Lay ALL *
* material on the static mat.                          *
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2.6 Set the card rack assembly into the service position (reference Service Guide, Figure 4-6). Remove the PCA mounting brackets (Reference Service Guide, Figure 4-7).  
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### 3.0 UPGRADING THE FRUs

At this point, the following FRUs can be upgraded:

FRU	Vendor PN	Location	Slot	Rework required
LESI PCA	75112281	card rack	1	FRU Swap (master only)
ISI PCA	75115225	card rack	3	FRU Swap
SDC PCA	75115226	card rack	4	FRU Swap
BPT PCA	75116011	See note 1		FRU Swap
or				
BPT PCA	75116012			

Note 1: The baseplate terminator (BPT) PCA sets in the baseplate the front-right looking down from the front.

Proceed with the upgrade as follows:

#### 3.1 LESI PCA - (Master drive only)

Remove the FRU from slot 1. Do not install the upgraded FRU (LESI PCA only) from the kit at this time.

#### 3.2 ISI PCA

Remove the FRU from slot 3. Replace this FRU with the ISI PCA, 75115225-10.

#### 3.3 SDC PCA

Remove the FRU from slot 4. Replace this FRU with the SDC PCA, 75115226-08.

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NOTE: SECTION 3.4 INSTRUCTIONS ARE FOR EQ-01565-02 ONLY. EQ-01565-04 (Rev B3)  
 GO STRAIGHT TO SECTION 4.0

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#### 3.4 BPT PCA

Remove the FRU from the baseplate. Reference the Service Guide, Section 4.5.8 as follows:

- A. Disconnect all leads on the baseplate terminator noting their locations and orientation. J25 and J26 on the front are particularly important because they are identical. Make sure you do not confuse the two.
- B. Disconnect the 4 screws that hold the baseplate terminator to the baseplate (Reference Service Guide, Figure 4-13).

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- C. Make sure the cartridge door is in the OPEN position to make removal easier. Slide the BPT PCA toward the front and out.
- D. Install the new BPT PCA (PN 75116011-08) provided. Be careful not to damage the thin metal handle on the micro switch. If it is misaligned, the symptom will be that the cartridge can not be properly write-enabled.

At this point, we have upgraded the card rack PCAs and the BPT PCA. All the FRUs are in except the LESI PCA, slot 1.

#### 4.0 TESTING THE RV20 (OFF-LINE)

##### 4.1 Internal microdiagnostics (CE mode).

- A. Power on the drive.
- B. Run CE mode internal microdiagnostics, reference Service Guide, Section 3.5. Refer to the same service guide to rectify any problems.

##### 4.2 Lesi controller (LESI PCA) self tests (master drive only).

- A. Power-off the drive.
- B. Install the LESI PCA into the card rack slot 1.
- C. Power on the drive.
- D. Observe the red and amber LEDs on the LESI PCA. Consult the Service Guide, Section 2.7 for proper operation.





to verify the operation of the RV20. Do this only with a scratch disk.

C. Check the terminal and the errorlog for any errors.

8.0 Report this FCO activity in the Site Management Guide.

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