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APPROVALS

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VAX 7000 BLOWER REWORK PROCEDURE

This rework procedure gives step by step instructions on how to remove the blower from a system, disassemble the blower to access the Driver/Servo Module and identify and remove the suspect capacitor.

Blowers Affected

Blower assemblies (DEC P/N 12-35173-01) with serial numbers in the range, S/N 245 through S/N 675 are suspect and are to be upgraded as per this procedure. To identify blowers by serial number, note a white adhesive label is applied to the "front" bezel of the blower housing and can be seen in the system or expander cabinet with the cabinet's front door opened. A sample of the label is shown below:

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ebm K3G480-AA03-05

48 +2/-3 VDC      max. 6.8 A

P/N 12-35173-01  A01  S/N0164 02/92

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↑
BLOWER SERIAL NUMBER

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* CAUTION *
* *
* The blower assembly is a large, cumbersome and heavy assembly. *
* This procedure requires TWO (2) Service Engineers to handle *
* removal and re-installation of the blower. *

Removing Blower from System

1. If the system is running, broadcast a shutdown notice to users affording them reasonable time to log off/stop processes.
2. Disable the 48 VDC Buss which powers the blower by turning the front panel keyswitch to the "OFF" position. This is sufficient to de-energize the blower for this procedure. As a reasonable back-up, turn off input AC power to the platform by switching the main circuit breaker (located at the back of the machine) to "OFF" (handles DOWN).
3. Disconnect the power and signal cable (P/N 17-03126-01) from the blower at the rear of the system and remove the four Phillips Head mounting screws using a short #2 Phillips Driver as shown in Figure 1. Set these screws aside.
4. At the front of the system, open the cabinet door, and locate the eight Phillips head screws which anchor the blower in place. (Refer to Figure 2). Remove these eight screws and set aside. Note also, the unit label shown at the upper left edge of the blower front bezel which identifies the blower serial number.
5. Extract the blower assembly FROM THE FRONT OF THE CABINET. This operation requires two people. Note the molded in hand-holds in the lower blower half molding (two places on each side as shown in Figure 3).

****Suggestion**** Have one service engineer push the blower part way out from the rear while the other guides the blower out the front. Then both Engineers lift the blower free from the cabinet.

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Blower Dis-assembly and Capacitor Removal

6. Dis-assemble the blower by removing the eight Phillips head screws (four at each side) using a long shanked #2 Phillips screwdriver. (Refer to Figure 4)
7. Lift the upper blower half molding up and away to expose the interior. Note the exhaust grills at front and back may fall loose when the upper molding is lifted clear.
8. Locate the Driver/Servo Module in the corner of the lower blower half molding. (Refer to Figure 5)
9. Remove the single Phillips head mounting screw which anchors the Driver/Servo Module in place (Refer to Figure 6). Note how the Driver/Servo module rests in slots molded into the lower blower half molding.
10. Remove the Phillips head screw which bonds the grounding jumper wire to the motor frame. (See "A" in Figure 7)
11. Disconnect the two connectors/cables from the Driver/Servo Module (See "B" and "C" in Figure 7).
Joining screws on the D-Sub connector at "B" must first be unscrewed.
12. Remove the Driver/Servo Module from its location in the lower half molding by pulling up.

NOTE: Be careful not to disturb the small printed circuit board which protrudes at a right angle through the sheet metal cover of the Driver/Servo Module. This small "appendage" carries a temperature sensor used by the Driver/Servo Module to sense airspeed. This sensor is used by the blower to control blower motor speed. The sensor is somewhat fragile. Exercise care to avoid damaging this part.

13. To remove the sheet metal cover on the Driver/Servo Module, remove the four TORX #10 head screws, two at the "front" of the module (Figure 8) and two at the "rear" (See "A" and

"B" in Figure 9).

Note the loose spacer between the module and rear plate at one of the "front" screws which will fall out when the screw is removed. The spacer goes with the screw closest to 1X5 Mat-N-Lok connector.

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14. With the cover removed, locate "C49" using Figure 10. C49 is a small 680 nF capacitor located near the large(r) input filter choke. To remove "C49", clip its leads using diagonal cutters making sure not to disturb surrounding components. There may be some epoxy resin covering a portion of "C49". If so, carefully remove enough of the resin to allow for the removal of the capacitor. DO NOT LEAVE "C49" IN PLACE BY ONLY CUTTING ONE LEAD.

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*                                     *
*                               NOTE   *
*                                     *
* IF UPON INSPECTION, C49 IS FOUND TO HAVE ALREADY RUPTURED *
* OR EXPLODED, CLEAN UP ANY RESIDUE OR DEBRIS LEFT ON THE *
* MODULE FROM THE CAPACITOR'S FAILURE. RETURN THE BLOWER TO *
* SERVICE AS PER THE REMAINING STEPS IN THIS PROCEDURE. *
*                                     *
* RECORD THE SERIAL NUMBER OF THE BLOWER AND THE CONDITIONS *
* FOUND DURING THIS REWORK PROCEDURE. *
*                                     *
* ORDER A REPLACEMENT BLOWER ASSEMBLY AND SCHEDULE A RETURN *
* CALL TO REPLACE THE "DAMAGED" BLOWER. FAILURE OF C49 WHILE *
* IN OPERATION MAY RESULT IN HIGH FAULT CURRENTS WHICH IN *
* TURN MAY WEAKEN OTHER PORTIONS OF THE DRIVER/SERVO MODULE. *
* TO MAINTAIN LONG TERM PERFORMANCE, IT IS THEREFORE REQUIRED *
* THAT "DAMAGED" BLOWERS BE REPLACED. *
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Blower Re-assembly and Rework Marking

1. Re-attach the Driver/Servo Module cover using the four #10 TORX screws. Pay attention to the loose spacer at one of the two "front" screws. Hold the spacer in position with tweezers or needle nose pliers while getting the screw started in the cover.

2. Re-install the Driver/Servo Module in the blower assembly

by first re-attaching the grounding lead to the motor frame, then re-connecting the two connectors/cables and finally sliding the Driver/Servo Module back into its mounting slots. Insure screws on D-sub connector are tightened down.

3. Secure the Driver/Servo Module in place by its single Phillips head screw as shown in Figure 6.

Caution: Do not overtighten the Driver/Servo Module mounting
----- screw. It engages threads in plastic which can easily strip.

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4. Apply one of the small self adhesive "green dots" to the Driver Serve Module as shown in Figure 6.

5. Re-assemble the blower upper and lower halves using eight Phillips Head Screws. Pay attention to re-installing front and rear grills in the upper and lower molding half slots. Note the Grill at the back has a cutout at one corner to allow clearance for the blower power cable.

Caution: Do not overtighten the screws which secure upper and lower halves of the blower housing. They engage threads in the lower pastic molding and can strip if overtightened.

6. Before sliding the blower assembly back into the system, apply a light coating of silicone lubricant to the upper and lower gaskets which surround the air inlet holes. Apply the lubricant to a paper towel or rag first and then wipe the lubricant onto the upper and lower rubber gaskets. This will make insertion the blower easier and avoid damaging the gaskets.
7. Secure the blower at the front with eight Phillips head screws (Refer to Figure 2). Do not fully tighten these screws until the four rear mounting screws have been started (See next step).
8. Secure the rear of the blower with the remaining four binder head Phillips head screws. Note: To line up the holes in the mounting tabs of the blower with the mating threaded inserts in the cabinet may require shifting the blower back and forth to engage screws.
9. Tighten all twelve mounting screws.

10. Re-attach the blower power cable at the rear of the blower.
11. Re-power the system and check for proper blower operation.
12. Insure the system powers up and passes its power-up self tests. If the system fails to pass power-up self tests, refer to the appropriate diagnostics and troubleshooting procedures as the power-up self test failures would indicate.
13. Record the serial number of the blower just reworked on the labor reporting sheet. Engineering requires this information to be reported to keep track of blower rework activity.
14. Report this FCO activity on the LARS form in the "Fail Area/Module/FCO/Comments" column as follows: FCO 7XXX-F001 (See Appendix A).

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LARS

CATEGORY	F	USA	GIA	EUROPE
Activity -				
(a) Contract and Warranty		W	U	Y
(b) IN-DEC Contract		K	U	
Non Contract/Non Warranty	F	F	F	F
(c) RTD/Off-site Agreement		F	U	
Hardware Segment Code		111	111	
Product Line		031		
DEC Option		7XXX	7XXX	7XXX
Option ID		X	N/A	N/A
Type of Call		M	M	M
Action Taken		D	D	I
Fail Area-Module-FCO-Comments		7XXX-F001	7XXX-F001	7XXX-F001
Material Used		EQ-01656-01	EQ-01656-01	EQ-01656

- (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".

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FIGURE 1

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FIGURE 2

d	i	g	i	t	a	l
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FIGURE 3

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FIGURE 4

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FIGURE 5

d	i	g	i	t	a	l
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FIGURE 6

d	i	g	i	t	a	l
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FIGURE 7

d	i	g	i	t	a	l
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FIGURE 8

d	i	g	i	t	a	l
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FIGURE 9

d	i	g	i	t	a	l
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FIGURE 10

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