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FIELD CHANGE ORDER	NUMBER: TSV05-I002
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APPLICABILITY: This FCO applies to all TSV05-Sx (-SA Thru -SN) subsystems configured on MicroVAX 3300 and later CPU's.

PROBLEM & SYMPTOM: The TSV05_Sx mag Tape subsystem does not provide optimum performance on MicroVAX 3300 and later systems due to a change in the way these systems handle data transfers on the QBUS.

SOLUTION: The new Revision (TSV05-SX-B1) of the TSV05-Sx Controller from a single word DMA to a Block Mode DMA transfer QBUS device. This change optimizes ths MagTape's performance on the newer MicroVAX systems (MicroVAX 3300 and later).

QUICK CHECK: Check the controller module in the CD kit. The upgraded kit should contain a M7530-PA module. The non-upgraded kit contains a M7206-PA module.

PRE/COREQUISITE FCO:	None	MTTI HRS 1.0
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TOOL/TEST EQUIPMENT:	N/A
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FCO PARTS INFORMATION

FCO KIT NO.	DESCRIPTION OF CONTENTS	EQ KIT VARIATION APPLICABILITY
EQ-01557-02	1 See Page 2 for Description of Contents.	N/A
FA-04867-02	1 FA 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
n/a	DEC	n/a	DEC	CUS	CUS	CUS	CUS	DEC

APPROVALS

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FCO REVISION
A

POPULATION
tbs

PARTS AVAILABILITY

_	_	_	_	_	_	_	_	_
d	i	g	i	t	a	l		
_	_	_	_	_	_	_	_	_

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Contents of the EQ-01557-02: (Continued from Page 1)

QTY:	Part Number:	Description:
1	20-32011-01	M7530-PA Controller Module
2	17-02487-01	16 Ft. Cable Assemblies
1	EK-TSV05-IN	TSV05 Installation/Owner's Manual
1	EK-TSV05-PG	TSV05 Pocket Service Guide
1	FA-04867-02	FCO Document

FIELD INSTALLATION AND TEST PROCEDURE FOR FCO TSV05-I002

```

*****
*                                     *
*                               NOTE   *
*                                     *
*   The following reference material and tools should be *
*   available prior to FCO installation: *
*                                     *
*   TSV05-S Installation/Owners Manual, EK-TSV05-IN *
*   (Chapter 2, TSV05 Installation) *
*                                     *
*   TSV05 Tape Transport Subsystem Pocket Service Guide, *
*   EK-TSV05-PG *
*                                     *
*   MDM diagnostic REV. 129 or later *
*                                     *
*   Medium Phillips Screwdriver *
*****

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I. INSTALLATION

Reference Figures 1 and 2.

C A U T I O N

Shut the operating system down and turn the power off for both the TSV05 and the CPU and remove the power cord from the Power Source.

1. Locate the new set of cables part number 17-02487-01. Locate and remove the M7530-PA TSV05 Controller from its shipping box. The switch settings on the Controller are set to the default. No additional set-up is needed.
2. Remove the front cover from the CPU enclosure by lowering the door and pulling out the tab. Apply pressure upward and the front door will slide up and off the CPU enclosure. (See Figure 2)
3. Remove the M7206-PA module and Cables.
4. Install the new 17-02487-01 cable assemblies. Dress the cables under and up through the front of the CPU Cabinet. (See Figure 1)
5. Plug the 17-02487-01 cables into P1 and P2 of the TSV05 M7530 controller board.
6. Install the new M7530-PA controller in slot 4 of the CPU backplane.

```
*****  
*                               CAUTION                               *  
* DO NOT REMOVE a grant jumper from slots 1, 2, or 3, and install   *  
* the board there since these slots are for dual boards only.       *  
* Installing a quad board in one of these slots could damage the    *  
* CPU or the quad board.                                             *  
*****
```
7. Insure that the connectors are seated into the controller board connectors before proceeding. Lock the connectors in place by pushing the tabs down.
8. Using a Phillips screw driver, lock the top and bottom screws in place. Turning 1/4 turn should be sufficient. Do not force the screws.

```
  _ _ _ _ _
 | | | | | | | |
 | d | i | g | i | t | a | l |
 | _ | _ | _ | _ | _ | _ |
```

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9. Connect the other end of the 17-02487-01 cables J1 and J2 on the tape drive (Refer to Figure 1). The keyed mark should always go to the right when viewed from the rear. Dress and tie wrap the cables as necessary to complete the installation.
10. Plug the TSV05 into the power source and turn it on. Install a scratch tape with a write ring (minimum length 600 feet).
11. Continue on to Section II, ACCESSING M7530 BUILT-IN CONTROLLER DIAGNOSTICS For MICROVAX CPU's or Section III, ACCESSING M7530 BUILT-IN CONTROLLER DIAGNOSTICS PDP LSI-11 CPU's.
12. Insure after the BUILT-IN CONTROLLER DIAGNOSTICS are run that SW1-4 is off.

NOTE: Reference Page 12 of 12 of this FCO for switch settings and definitions.

```
  _ _ _ _ _
 | | | | | | | |
 | d | i | g | i | t | a | l |
 | _ | _ | _ | _ | _ | _ |
```

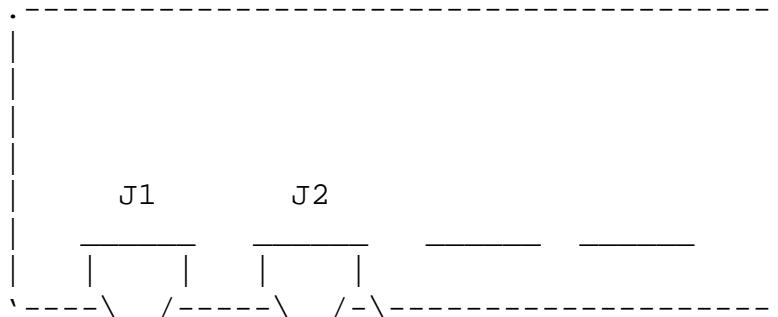
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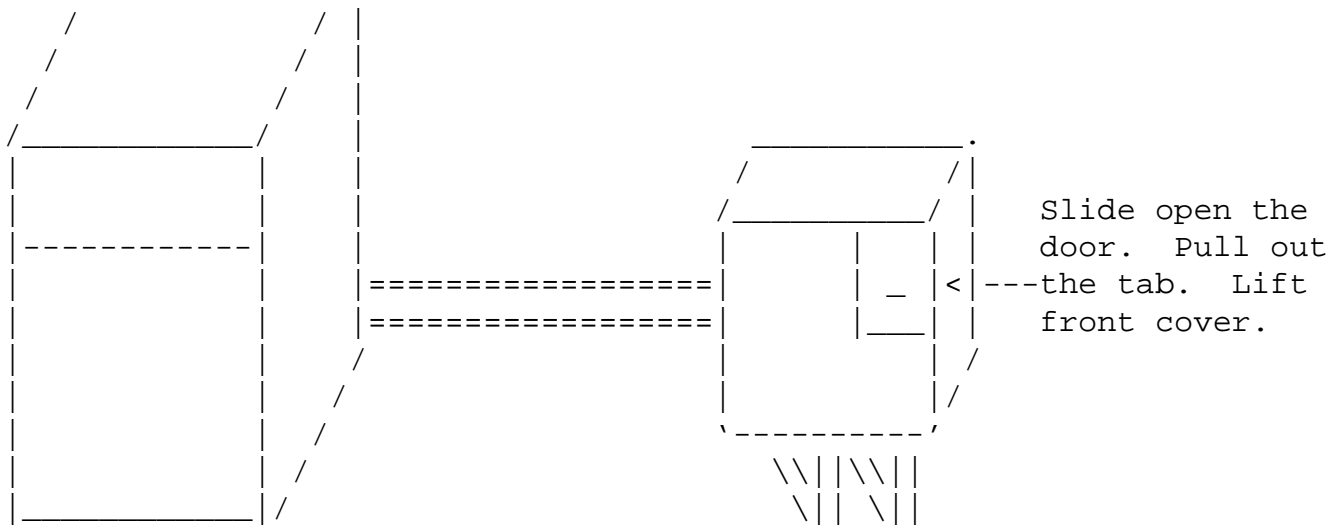
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FIGURE 1

TSV05 Cable Configuration.

TSV05 Back View.





Run Cables Down
and under the
CPU enclosure.

```

|_|_|_|_|_|_|_|_|_|
|d|i|g|i|t|a|l|
|_|_|_|_|_|_|_|_|_|

```

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TEST PROCEDURE USING BUILT-IN CONTROLLER DIAGNOSTICS

```

*****
*
*           NOTE
*
* The M7530 Controller Contains Built-in Diagnostics.  These should be
* run before the XXDP or MDM Diagnostics are booted or before the
* system is booted.  If the Built-in Diagnostics run without any
* problem no additional testing is needed.  If however the system does
* not boot, then it will be necessary to run MDM or XXDP diagnostics.
*
*****

```

II. ACCESSING M7530 BUILT-IN CONTROLLER DIAGNOSTICS FOR MICROVAX CPU'S.

NOTE: A ball point pen can be used as a tool to change switch settings.

1. Set SW1-1 Off
2. Plug the CPU and TSV05 Cabinet back into the power source.
3. Connect the Power Power Cord to the Power source and Power up the CPU. Do not allow the operating system to boot. Enter a Control P on the console terminal or push the halt button

momentarily until the console prompt appears. (>>>).
(Disabling the Auto Boot Switch on the CPU accomplishes the same thing.)

Note: Immediately upon power-up, all three LEDs will illuminate on the M7350. Within a second LED 3 will go off. Within 5 seconds LEDs 1 and 2 will also go off.

4. Set SW1-3 and SW1-4 on. This selects the HOST console and CPU processor.

5. Set SW1-2 ON to select Diagnostic mode.

Note: LED 1 and 2 will illuminate briefly.

6. At the console Prompt (>>>) enter the following:

```
>>> D/P/W 20001F40 20 Return
```

```
>>> D/P/L 20088000 80000000 Return
```

```
>>> D/P/L 20088004 80000001 Return
```

7. Toggle switch SW-1 from OFF (Run) to ON (Reset) to OFF. All 3 LEDs come on. LED 3 then goes off followed by LED 1 and 2.

8. At the console prompt (>>>) enter:

```
>>> ST 80 Return
```

Note: LED 1 goes on then off. LED 2 goes on and stays on. The revision information, Digital Logo ETC. will appear on the terminal.

```
  _ _ _ _ _  
 |d|i|g|i|t|a|l|  
 | _ _ _ _ _ |
```

```
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```

```
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```

III. ACCESSING M7530 BUILT-IN CONTROLLER DIAGNOSTICS For PDP LSI-11 CPU's.

1. Perform a system reset, either from power-up or reset.

2. Set SW1-3 ON to select the Host console and SW1-4 Off to select the PDP LSI-11 processor.

3. Halt the system and enter OG in response to the ODT prompt.

4. Set SW1-2 ON to select Diagnostic Mode.

5. Set SW1-2 ON to select Diagnostic mode.

Note: LED 1 and 2 will illuminate briefly, indicating that the drive is being uploaded.

6. Load 200 (octal) in Register 7:

R7/XXXXXX 200 Return

7. At the system prompt, enter:

P

IV. RUNNING THE BUILT-IN M7530 CONTROLLER DIAGNOSTICS

```
*****
*                                     *
*               NOTE                 *
* The Controllers On Board Diagnostic will now start. The initial *
* Diagnostic screen shows the revision level of the diagnostic *
* firmware being used, drive online or offline status, and CSR *
* address location. You are prompted to specify whether a video *
* or hardcopy terminal will be used to run the diagnostics. *
*                                     *
*       Video display mode supports VT1XX/VT2xx or *
*       compatible terminals. Use hardcopy mode for *
*       non-VT100/VT200 terminals. *
*****
```

1. After you specify the type of terminal and enter "Return", the Main Menu is displayed.

```
|_|_|_|_|_|_|_|_|_|
|d|i|g|i|t|a|l|
|_|_|_|_|_|_|_|_|_|
```

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2. The Main Menu for a video display is shown in the figure 3 that follows. This menu present choice for running diagnostic tests, configuring the subsystem for tape transport characteristics, and for displaying the switch settings. For the purpose of checking out the controller we only need to be concerned with A, Q and X.

2.1 Select Q and press <CR> "Enable quick test" will appear and you will be prompted to enter <CR> to continue. Enter <CR>, you will return to the main menu.

2.2 Select A and press <CR>. Another message will appear warning you

to use a scratch tape or the data will be lost. You will also be prompted "Are your sure? (Y/N, def=n): Enter Y only if data on the tape can be lost. Your then will be prompted "Enter number of loops to execute (0-255, def=1 dec) :". Select the default by entering <CR>. The test now starts. The following will appear: (Each test will appear before it starts)

Retry Limit of 10

Quick Test

```
--> Start of pass 1
BOT/Rewind test
Write/Read test
File Mark test
Space forward/reverse test
Position test
Erase test
Host memory DMA test
-->End of pass 1
```

Executing pass 1

Test Summary:

Total # of errors = 0 (0 Hard, 0 Soft, 0 Device, 0 DMA)

The test should complete without any errors. If it does not, consult the TSV05 Users Manual EK-TSV05-UG for trouble shooting instructions.

- 2.3 Enter return if you have not already returned to the main menu. Select X to exit the diagnostics and halt the system. Boot the operating system.

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FIGURE 3

MAIN MENU

- A-All tests
- R-Retry limit value
- N-NOVRAM Maintenance
- T-Test selection Menu

Q - Quick test on positioning erase. Causes the Erase and Position Test to terminate after 256 records instead of running all the way to EOT. Once set, the option remains in effect until reset by the operator in the Main Menu.

X - Exit Maintenance Mode after resetting switches. After resetting the Operational/Diagnostics and Loop/Continue switches, "X" will return you to the operation mode. If you have not reset any switches, "X" will return you to the initial diagnostic screen.

```

|_|_|_|_|_|_|_|_|
|d|i|g|i|t|a|l|
|_|_|_|_|_|_|_|_|

```

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CAUTION

Ensure that SW1-3 and SW1-4 are set before SW1-2, or data corruption may result. Also, ensure that SW2-6 and SW2-7 are never ON or OFF simultaneously.

Switch	OFF(0)	ON(1)	Factory	Purpose
SW1-1	Run	Reset	OFF(0)	M7530-PA Tape Controller Reset
SW1-2	Operational	Diagnostic	OFF(0)	Mode Select
SW1-3*	Disable	Enable	OFF(0)	Record Buffering
SW1-4	Continue	Loop	OFF(0)	Loop on Self-Test Error
SW1-4*	Continue	MicroVAX	OFF(0)	Host Type Select
SW2-1	Address Sel	-	OFF(0)	Q-Bus Address Select (1 of 8)
SW2-2	Address Sel.	-	OFF(0)	Q-Bus Address Select
SW2-3	Address sel	-	OFF(0)	Q-Bus Address Select
SW2-4	-	-	-	Not Used
SW2-5	Disable	-	ON(1)	22-bit addressing
SW2-6	Edge Select	-	OFF(0)	WDS Leading/Trailing Edge Select
SW2-7	Edge Select	-	ON(1)	EDS Leading/Trailing Edge Select
SW2-8	--	OFF	Reserved.	

ON(1) = ON * = Dual Purpose Switch
 OFF(0) = OFF WDS = Write Data Strobe

Jumper	Function	Factory
BC	Clock	IN
DE	Factory Test	OUT
FG	Monitor IRQ Level 6	OUT
GH	Monitor IRQ Level 5	In
JK	IRQ Level 5 Request	OUT

For additional information refer to the TSV05 Tape Transport Subsystem Pocket Service Guide Paragraph 3 Board Configuration Pages 15 - 24; or refer to the TSV05 Tape Transport Subsystem Installation/Owner's Manual Paragraph 2.5.4.1 Switch Configuration on pages 56 - 59.

\^ TSV05
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 \\TSV05-I002
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