

TABLE OF CONTENTS

TABLE OF CONTENTS	1
1- OVERVIEW	2
2- Prerequisites	2
3- TEST SWITCH AND TEST LED DEFINITIONS	2
4- PRE-CALIBRATION CHECK	6
5- SSM CAL SWITCH	9
6- TR VOLTAGE ADJUSTMENT WITH PULSE TRAIN	10
6-1 Hardware Preparation	10
6-2 TR Voltage (Positive) Adjustments.....	11
6-3 Cable and Test Switch Restoration	14
7- MULTI-COIL OPTION	15
7-1 Multi-Coil Driver Enable/Disable	15
7-1-1 Via the Software (Alternate Proprietary GE Procedure)	15
7-1-2 Via the Front Panel Switches.....	17
7-2 Multi-Coil –5 VDC Power Supply Adjustments	18
8- PAC VOLTAGE CONFIGURATION	19
8-1 Via the Software (Alternate Proprietary GE Procedure)	19
8-2 Via the Front Panel Switches	22
9- POWER MONITOR TYPE CONFIGURATION	23
9-1 Via the Software (Alternate Proprietary GE Procedure)	23
9-2 Via the Front Panel Switches	25
10- SYSTEM RESTORATION	26
REVISION HISTORY	27

1- OVERVIEW

This procedure describes the setup and calibration of the Communications Pin Driver (CPD) Board in the System Support Module (SSM) for the following:

- **0.7T GRFD Power Cabinet**

Any SSM with a serial number of 99211029 and higher does not require Power Monitor FMI 60525 (2 identical micro's on the APM and 1 micro on the CPD).

2- PREREQUISITES

The SSM High Voltage (HV) Board Jumper, JP1, must be set to the 1000V position (same setting as 1.5T systems). This 1000V bias is for the Body 1 and Body 2 Dynamic Disable Circuits. The Direct Drive Circuitry (DD) is not used. Jumper JP1 should come preset for all new installations and should not require changing. If the HV board ever fails, however, the position of this jumper should be checked before the new board is installed.

WARNING

FAILURE TO PROPERLY CONFIGURE JUMPER JP1 ON THE HIGH VOLTAGE BOARD COULD POSSIBLY RESULT IN SNR DEGRADATION AND MAY RESULT IN DYNAMIC DISABLE AND HYBRID DIRECT DRIVE FAILURES.

3- TEST SWITCH AND TEST LED DEFINITIONS

The following Table lists the SSM Test Switch positions and Test LED Definitions. This table is referenced when using the Front Panel Switches sections.

TABLE 3-1
TEST SWITCH AND TEST LED DEFINITIONS

Task	Switch Number	Position	Item Controlled	LED Bank 1	LED Bank 2
Normal Operation:	1	Down		MDS comm status	Head T/R fault
	2	-----	(When one of these 10 is in use, the others are inactive)	NB comm status	Body T/R fault
	3	-----		Monitor A comm status	Spectro T/R fault
	4	-----		Monitor B comm status	Body Coil 1 fault
	5	-----		PS fault	Dyn Disable fault
	6	-----		top cover open	Body Coil 2 fault
	7	-----		MC faults disabled	Multi-coil 1 fault
	8	-----		T/R faults disabled	Multi-coil 2 fault
	9	-----		DD faults disabled	Multi-coil 3 fault
	10	-----		DD open ckt adj failure	Multi-coil 4 fault
Static Control of Drivers:	1	UP			Head T/R open
	2	DOWN		Head T/R short	Dyn Disable short
	3	DOWN		Body T/R open	Multi-coil 1 short
	4	DOWN		Body T/R short	Multi-coil 1 open
	5	UP	MC1 drv enable	Spectro T/R open	Multi-coil 2 short
	5	DOWN	MC1 drv disable		
	6	UP	MC2 drv enable	Spectro T/R short	Multi-coil 2 open
6	DOWN	MC2 drv disable			
T/Rs Disabled:	7	UP	MC3 drv enable	Body Coil 1 open	Multi-coil 3 short

Task	Switch Number	Position	Item Controlled	LED Bank 1	LED Bank 2
	7	DOWN	MC3 drv disable		
	8	UP	MC4 drv enable	Body Coil 1 short	Multi-coil 3 open
	8	DOWN	MC4 drv disable		
	9	UP	Source Mode	Body Coil 2 open	Multi-coil 4 short
	10	UP			
	9	DOWN	Sink Mode	Body Coil 2 short	Multi-coil 4 open
	10	DOWN			

3- TEST SWITCH AND TEST LED DEFINITIONS (continued)

TABLE 3-1 (CONTINUED)
 TEST SWITCH AND TEST LED DEFINITIONS

Task	Switch Number	Position	Item Controlled	LED Bank 1	LED Bank 2
Pulse Control of Drivers:	1	UP		Head T/R open	Dyn Disable open
	2	DOWN		Head T/R short	Dyn Disable short
	3	UP		Body T/R open	Multi-coil 1 short
	4	DOWN		Body T/R short	Multi-coil 1 open
	5	UP	MC1 drv enable	Spectro T/R open	Multi-coil 2 short
	5	DOWN	MC1 drv disable		
	6	UP	MC2 drv enable	Spectro T/R short	Multi-coil 2 open
	6	DOWN	MC2 drv disable		
	7	UP	MC3 drv enable	Body Coil 1 open	Multi-coil 3 short
	7	DOWN	MC3 drv disable		
	8	UP	MC4 drv enable	Body Coil 1 short	Multi-coil 3 open
	8	DOWN	MC4 drv disable		
	9	UP	Source Mode	Body Coil 2 open	Multi-coil 4 short
	10	UP			
PS Override Tests	9	DOWN	Sink Mode	Body Coil 2 short	Multi-coil 4 open
	10	DOWN			
	1	UP		Dock enable	-----
	2	DOWN		PAC 8V	-----
	3	DOWN		PAC 9V	-5V Supply too high
	4	UP			-15V Supply too high
	5	UP	Dock disable	Bore vent	+15V Supply too high
	5	DOWN	Dock enable		
	6	UP	PAC 9V	Patient Alignment Light	HV Sense too high
	6	DOWN	PAC 8V		
7	UP	Bore light enable	Bore light	-5V Supply too low	
7	DOWN	Bore light disable			
8	UP	PAL enable	-----	-15V Supply too low	
8	DOWN	PAL disable			
9	UP	Bore vent enable	MCD enable	+15V Supply too low	
9	DOWN	Bore vent disable			
10	-----		-----	HV sense too low	

3- TEST SWITCH AND TEST LED DEFINITIONS (continued)

TABLE 3-1 (CONTINUED)
 TEST SWITCH AND TEST LED DEFINITIONS

Task	Switch Number	Position	Item Controlled	LED Bank 1	LED Bank 2
				<u>Monitor A</u>	<u>Monitor B</u>
Monitor Fault Summary	1	UP		RF without unblank	RF without unblank
	2	UP		-15V Supply fault	-15V supply fault
	3	DOWN		Body Pwr limit fault	Body pwr limit fault
	4	UP		Head Pwr limit fault	Head pwr limit fault
	5	-----		Spectro Pwr limit fault	Spectro pwr limit fault
	6	-----		Duty Cycle fault	Duty cycle fault
	7	-----		RF Pulse Width fault	RF pulse width fault
	8	-----		+15V Supply fault	+15V supply fault
	9	-----		Body Cable fault	Body cable fault
	10	-----		Head/Spectro Cable fault	Head/spectro cable fault
Multi-coil Configuration	1	UP		Multi-coil 1 enable	-----
	2	DOWN		Multi-coil 2 enable	-----
	3	UP		Multi-coil 3 enable	-----
	4	UP		Multi-coil 4 enable	-----
	5	UP	MC1 enable	-----	-----
	5	DOWN	MC1 disable		
	6	UP	MC2 enable	-----	-----
	6	DOWN	MC2 disable		
	7	UP	MC3 enable	-----	-----
	7	DOWN	MC3 disable		
	8	UP	MC4 enable	-----	-----
	8	DOWN	MC4 disable		
	9	-----		-----	-----
	10	UP, then DOWN	Program	-----	-----
Monitor Type Configuration	1	UP		-----	-----
	2	UP		Monitor A 1.0T	Monitor B 1.0T
	3	UP		-----	-----
	4	UP		Monitor A 1.5T w/EFB	Monitor A 1.5T w/EFB
	5	UP, 6 DOWN=1.0T		-----	-----
	5	UP AND 6 UP=1.5T		-----	-----
	7	-----		-----	-----
	8	-----		-----	-----
	9	-----		-----	-----
	10	UP, then DOWN	Program	-----	-----

4- PRE-CALIBRATION CHECK

Perform the pre-calibration check once during the installation before performing the SSM Calibration. It is not necessary to perform the steps in this section again after the installation unless the dynamic disable bias lines in the magnet room (J72, J73, J75, and J76 at the pen panel) have been reconnected or circuitry connected to these lines has been removed or replaced.



THE SSM WILL NOT FAULT IF IT IS CALIBRATED WITH A DISCONNECTION OR POOR CONNECTION TO ONE OF THE 4 MAGNET ROOM DYNAMIC DISABLE BIAS LINES (J72, J73, J75, AND J76 ON THE MAGNET ROOM SIDE OF THE PENETRATION PANEL). IMAGE SNR DEGRADATION WILL BE NOTICED BUT THE SSM MAY NOT FAULT.

1. Power the SSM off from the System Support Module (SSM) breaker on the front of the PDU.
2. Check that the fans on the front of the SSM are not running.
3. Open the rear door of the RF Amplifier Cabinet and locate connectors J42 (Body 1) and J43 (Body 2) on the rear of the SSM. Verify that the cables are properly labeled.
4. Remove both cables from J42 (Body 1) and J43 (Body 2) on the rear of the SSM.
5. Obtain a Digital Multimeter (DMM) equipped with a diode check function (most Fluke and Beckman DMMs possess this function). Set the meter to diode check function.
6. Locate the cable removed from J42 (Body 1) on the SSM. At the cable touch the DMM black lead (negative) to the male-BNC center pin and the red (positive) lead to the BNC shell. Record the reading in Table 4-1.
7. Reverse the leads and touch the DMM red lead (positive) to the male-BNC center pin and the black lead (negative) to the BNC shell. Record the reading in Table 4-1.
8. Reconnect the cable to J42 (Body 1).
9. Locate the cable removed from J43 (Body 2) on the SSM. At the cable touch the DMM black lead (negative) to the male-BNC center pin and the red (positive) lead to the BNC shell. Record the reading in Table 4-1.
10. Reverse the leads and touch the DMM red lead (positive) to the male-BNC center pin and the black lead (negative) to the BNC shell. Record the reading in Table 4-1.
11. Reconnect the cable to J43 (Body 1).

4- PRE-CALIBRATION CHECK (CONTINUED)

TABLE 4-1
 DYNAMIC DISABLE DIODE DROP MEASUREMENT TABLE

DMM POLARITY	DMM READING	TYPICAL
Black (negative) to cable J42 center pin Red (positive) to BNC shell	_____VDC	0.424 +/- 0.005 VDC
Red (positive) to cable J42 center pin Black (negative) to BNC shell	METER READS "OL" (OPEN CIRCUIT)? ___YES ___NO	"OL" (OPEN CIRCUIT)
Black (negative) to cable J43 center pin Red (positive) to BNC shell	_____VDC	0.424 +/- 0.005 VDC
Red (positive) to cable J43 center pin Black (negative) to BNC shell	METER READS "OL" (OPEN CIRCUIT)? ___YES ___NO	"OL" (OPEN CIRCUIT)



THE DMM IS FERROUS AND SHOULD NOT BE TAKEN INTO THE MAGNET ROOM. SERIOUS INJURY CAN RESULT IF FERROUS OBJECTS ARE TAKEN INTO THE MAGNET ROOM. WHEN TROUBLESHOOTING, USE A LONG CABLE WITH BNC CONNECTORS TO MAKE REMOTE MEASUREMENTS OUTSIDE OF THE MAGNET ROOM WITH THE DMM.

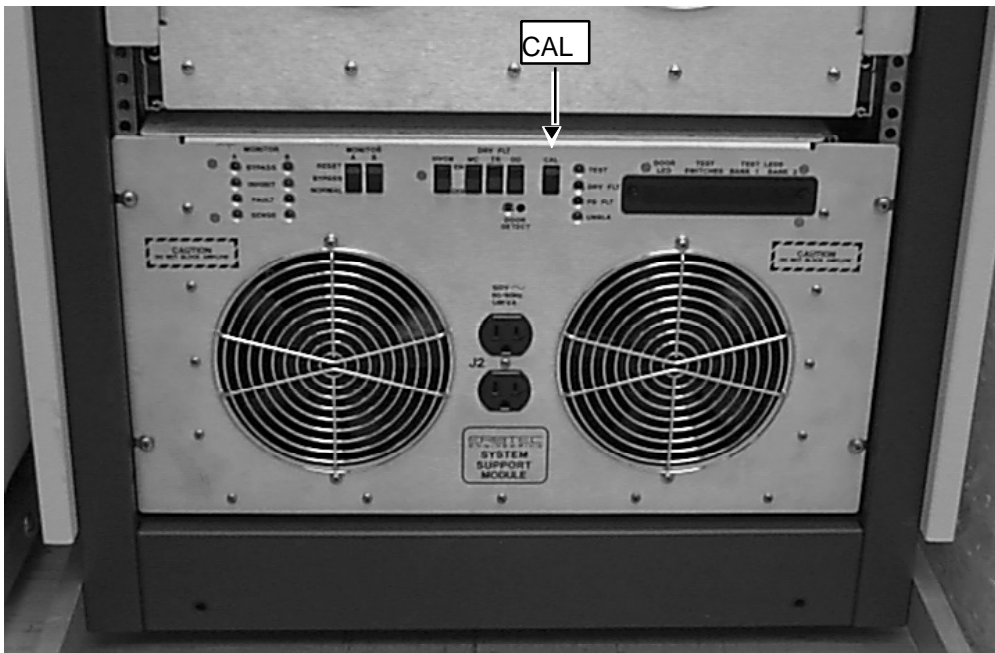
12. Compare the voltage readings between the J42 and J43 cables when the black lead (negative) was contacting the center pin of the male-BNC connector and the red lead (positive) was contacting the BNC shell. Assuming that the bias line lengths and hardware used in these two circuits is the same, these readings ideally should be identical. In practice there shouldn't be more than 0.010 VDC difference in voltage drop between the two. Also, a reading of 0.450 VDC or more may indicate that one of the bias circuits is open. In both cases check for poor connections in the circuit that has an excessively high voltage drop. Refer to the Block Diagrams Document on the Service Methods CDRom, if necessary, for a diagram of these circuits.
13. Both circuits should have measured "OL" (Open Load or Open Circuit) on the DMM when the red lead (positive) was contacting the center pin of the male-BNC and the black lead (negative) was contacting the BNC shell. If something other than this was seen then check for a possible short circuit condition in one of the dynamic disable bias circuits. Check that one of the diodes in the dynamic disable bias circuits is not shorted. Check for damaged circuit components or cables. Refer to the Block Diagrams Document on the Service Methods CDRom, if necessary, for a diagram of these circuits.
14. Verify that the correct cables (read the cable labels) are connected to J42 (Body 1) and J43 (Body 2) on the rear of the SSM.
15. Close the door on the rear of the RF Amplifier Cabinet.

4- PRE-CALIBRATION CHECK (CONTINUED)

16. Reset the breaker for the System Support Module from the front of the PDU.
17. Verify that the fans are running on the front of the SSM.
18. Reset the TPS.

5- SSM CAL SWITCH

1. Press and release the CAL switch on the front of the SSM (see Illustration 5-1). This samples the open circuit fault detect signals and adjusts the threshold accordingly for the Dynamic Disable Circuits: J42 (Body 1) and J43 (Body 2). When the CAL switch is pressed the LEDs labeled TEST, DRV FLT, and PS FLT will illuminate (this does not indicate a fault).



SSM CAL SWITCH LOCATION
ILLUSTRATION 5-1

2. View the front panel LEDs. Ensure the Bank 1, LED #10 is OFF (see Illustration 5-2). This LED indicates the adjustment process was successful.



SSM FRONT PANEL LEDs
ILLUSTRATION 5-2

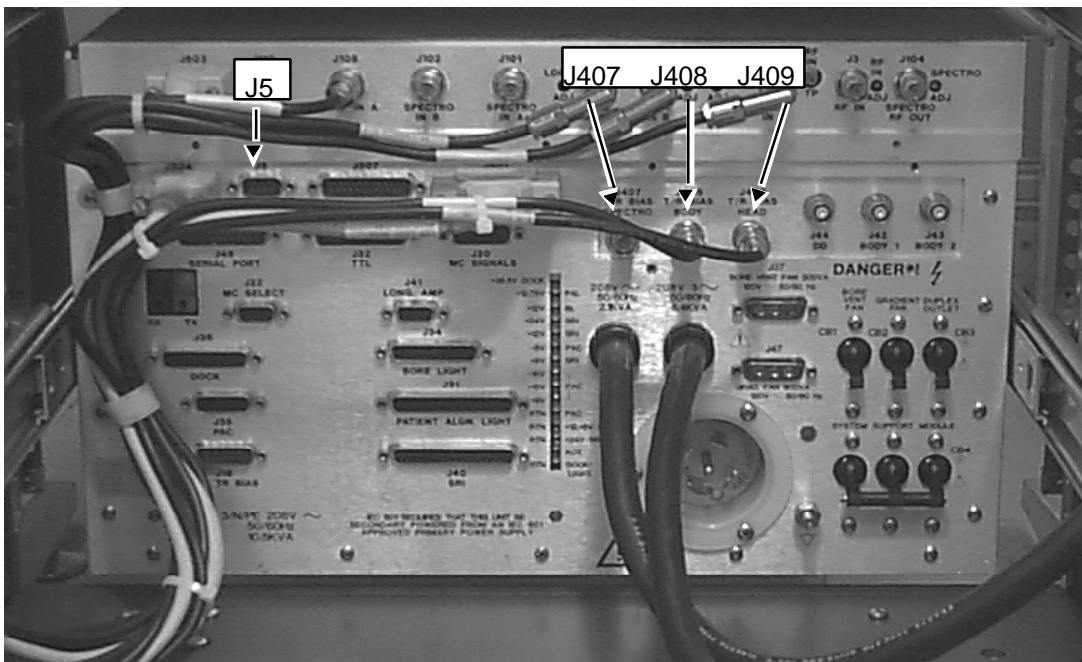
6- TR VOLTAGE ADJUSTMENT WITH PULSE TRAIN

Note

The TR Voltages are factory set and should not require adjustment. If verification of the TR Voltages is required perform the following procedure.

6-1 Hardware Preparation

1. Extend the SSM chassis. Allow sufficient cable slack to avoid pinching or straining. Open the lids.
2. Verify cables (and their respective loads) are properly connected to J409 (Head TR) and J408 (Body TR); see Illustration 6-1.



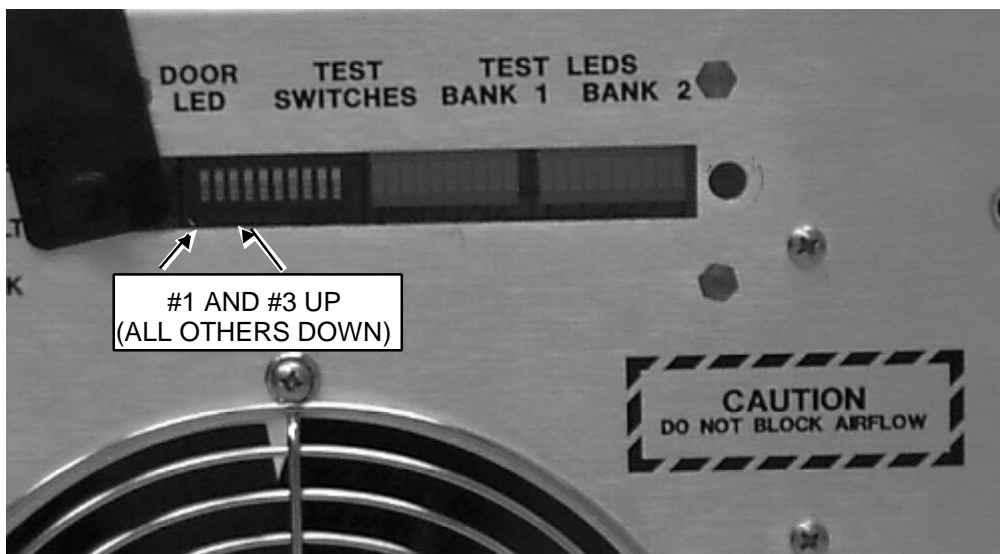
CABLES LOCATIONS ON SSM
ILLUSTRATION 6-1

3. At the SSM disconnect J5 (UNBLK EN); see Illustration 6-1.

4. Configure the front panel DIP switches as shown in Illustration 6-2. This should generate a periodic unblank pulse train. Refer to Table 3-1 for the test switch and test LED definitions.

Note

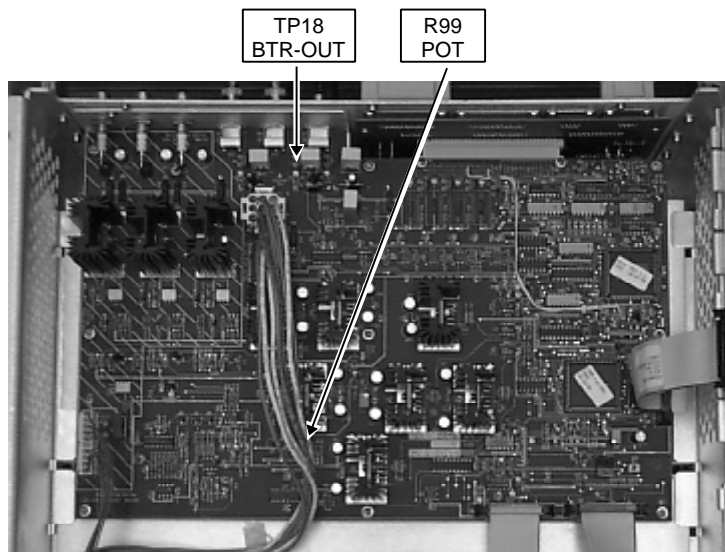
Order of DIP switch placement is important, otherwise, system will not recognize changes. Place DIP Switch #3 in the UP position first and **then Switch #1** in the UP position. Entering test mode may cause RF Amp fault; this is normal and maybe disregarded.



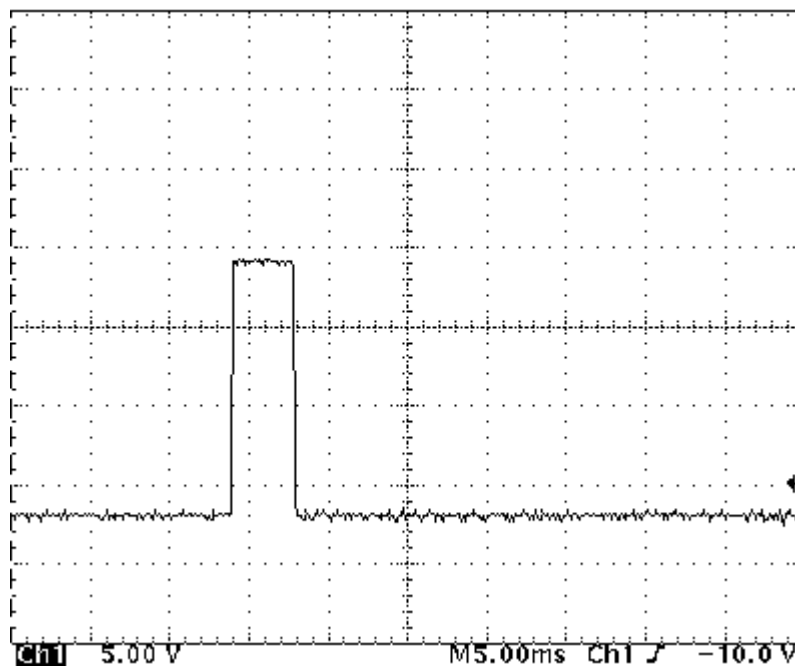
DIP SWITCH CONFIGURATION
ILLUSTRATION 6-2

6-2 TR Voltage (Positive) Adjustments

1. Connect an oscilloscope to monitor the Body TR at J408 rear of SSM. Verify the positive going portion of the Body TR pulse is 4.00 VDC (± 0.10 VDC) as referenced to ground level. The negative portion (not adjustable) will measure approximately -12.25 VDC as referenced to ground. If the positive Body TR bias is not correct open the SSM and proceed with step A.
 - A. Connect an oscilloscope to monitor the Body TR at TP18 (BTR-OUT); see Illustration 6-3. Adjust R99 until the positive going portion of the Body TR pulse is 4.00 VDC as referenced to ground level. See Illustration 6-4. The negative portion (not adjustable) will measure approximately -12.25 VDC as referenced to ground.

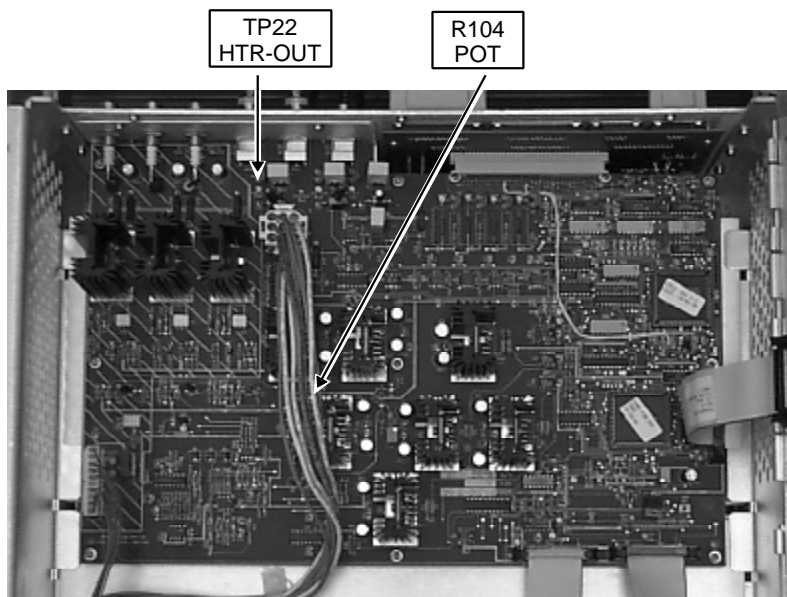


TR VOLTAGE ADJUSTMENT/BODY TR TEST POINT
ILLUSTRATION 6-3

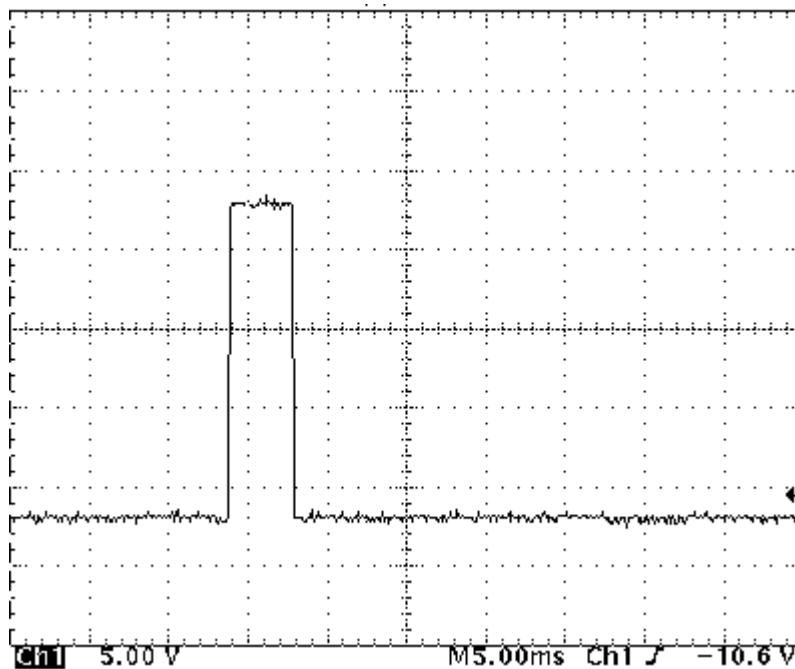


BODY TR SCOPE WAVEFORM SEEN AT TP18 (BTR-OUT)
ILLUSTRATION 6-4

2. Connect an oscilloscope to monitor the Head TR at TP22 (HTR-OUT); see Illustration 6-5. Adjust R104 until the positive going portion of the Head TR pulse is 8.00 VDC as referenced to ground level. See Illustration 6-6. The negative portion (not adjustable) will measure approximately -12.25 VDC as referenced to ground.



TR VOLTAGE ADJUSTMENT/HEAD TR TEST POINT
ILLUSTRATION 6-5



HEAD TR SCOPE WAVEFORM SEEN AT TP22 (HTR-OUT)
ILLUSTRATION 6-6

Note

For Spectro TR adjustments please refer to the appropriate Spectroscopy (MNS) Subsystem Setup and Calibration Tab.

6-3 Cable and Test Switch Restoration

1. Place DIP switch #3 and #1 (respectively) in the Down position. Place all other switches in the Down position.
2. Reconnect J5 (UNBLK EN) at the rear of the SSM.
3. If not proceeding to next section, refer to Section 10, System Restoration.

7- MULTI-COIL OPTION

Note

Disabling is not normally required (even on systems without the Multi-Coil Option). Each SSM (CPD Board) is shipped from the factory with all four Multi-Coil Drivers enabled.

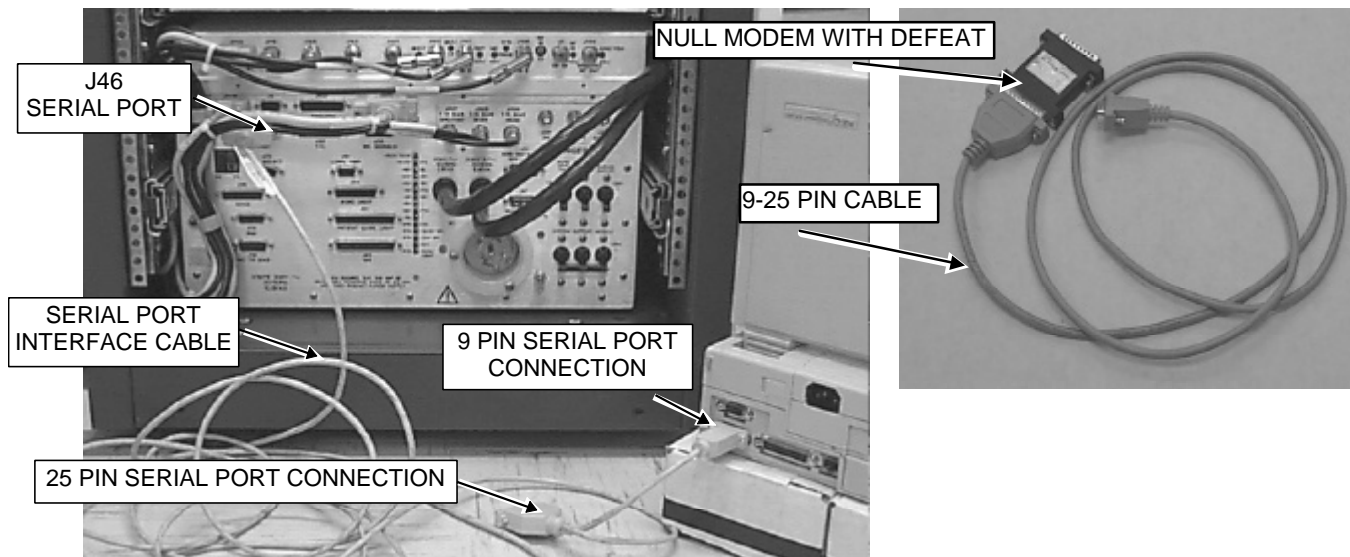
7-1 Multi-Coil Driver Enable/Disable

The Multi-Coil Drivers can be enabled and disabled in one of two ways: an alternate proprietary GE procedure via the laptop diagnostic software (Section 7-1-1) or via the front panel switches (Section 7-1-2).

The setting should be verified if the spare board seal is broken.

7-1-1 Via the Software (Alternate Proprietary GE Procedure)

1. Connect the laptop to J46 Serial Port of the SSM via the null modem serial cable. See Illustration 7-1.



LAPTOP CONNECTED TO SSM
ILLUSTRATION 7-1

7-1-1 Via the Software (Alternate Proprietary GE Procedure) (continued)

2. Run the program CPD.EXE. See Table 7-1.

TABLE 7-1
ALTERNATE PROPRIETARY PROCEDURE — LAPTOP SOFTWARE

1. Start the software diagnostic program MONS.EXE on the laptop.

Note

The CPD.exe program, if not loaded on the service laptop, can be loaded from the MR Service Methods 8.X CD-ROM. Insert your latest 8.X MR Service Methods CD-ROM into the drive. Under Windows 95 use the cursor to select "**Start**" and then "**Run.**" In the edit box type the following (include the quotes):

"d:\MR tools setup.exe"

Follow the instructions of the setup program to install the Service Tools. The CPD.EXE must be run from DOS. In Windows95 perform the following steps:

- 1) **[Start], [Shut Down...], Restart the computer in MS-DOS mode?, [Yes]**
- 2) At the C:\Windows> prompt, type **cd \cclass\erbtec<ENTER>**
- 3) At the C:\CCLASS\ERBTEC> prompt type **cpd.exe<ENTER>**

3. Enter the password per the screen instructions.
4. Select the *C) Perform Special Operations* menu.
5. Select *F) Change Multi-coil Configuration*.
6. Answer the questions. See Illustration 7-2.

```
Current Multi-coil configuration is : 0N
Multi-coil 1      ENABLED
Multi-coil 2      ENABLED
Multi-coil 3      ENABLED
Multi-coil 4      ENABLED
Do you wish to change any of them? y or n

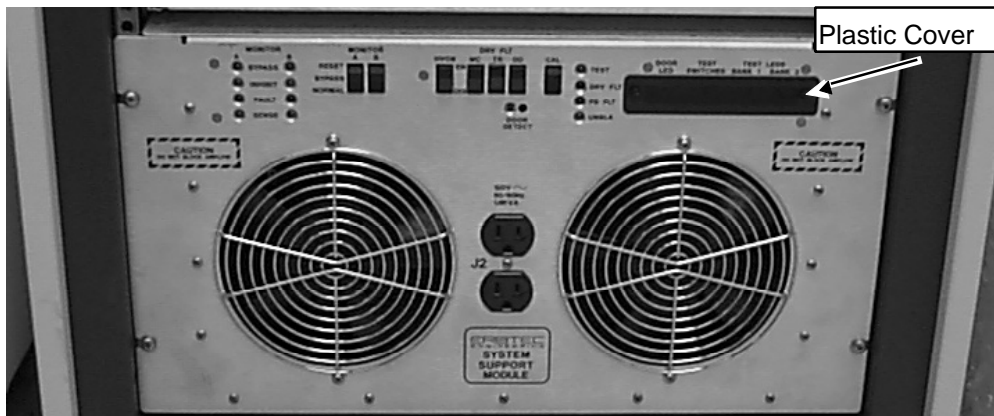
Enter the numbers of the Multi-coils you wish to change state separated by
spaces
(i.e. 1 3 will change Multi-coils 1 and 3)
Enter 0 to leave the Multi-coils as they are
```

SELECTION: F) CHANGE MULTI-COIL CONFIGURATION
ILLUSTRATION 7-2

7. Press **<Esc>** twice to exit to DOS. To return to Windows, type **exit<ENTER>**.
8. Cycle the main breaker power at the SSM by turning CB4 to the OFF position, waiting 15 seconds, then setting CB4 to the ON position. This step saves the changes to the SSM.

7-1-2 Via the Front Panel Switches

1. Remove the plastic cover from the Test Switch and Test LEDs window on the front of the SSM. See Illustration 7-3.



TEST SWITCH AND TEST LEDs WINDOW
ILLUSTRATION 7-3

Note

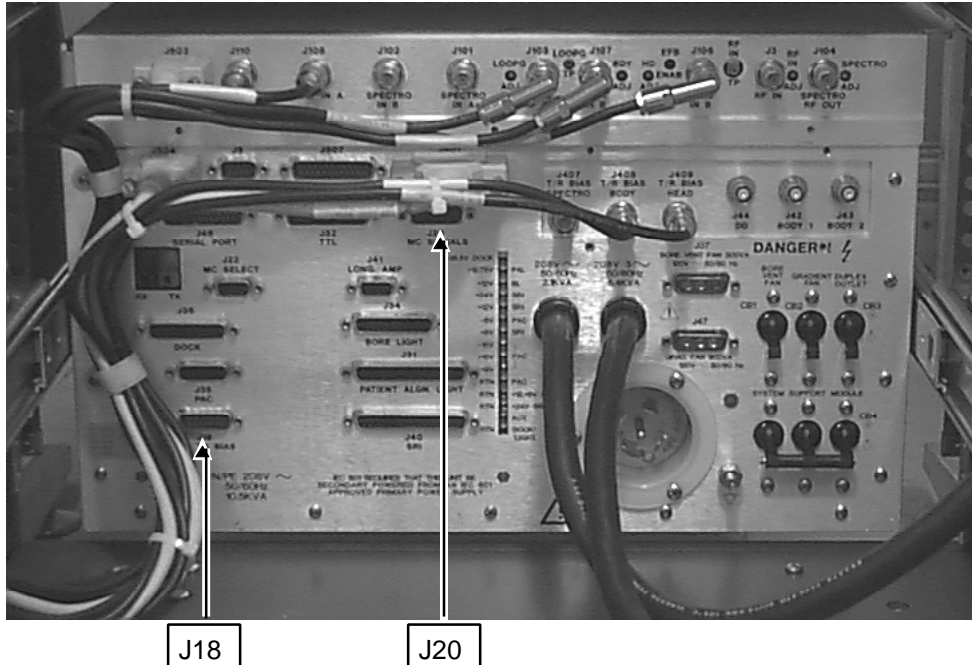
Place DIP Switch #1 in the UP position last. Order of DIP switch placement is important otherwise system will not recognize changes.

2. Place switches 3, 4, and 1 in the Up position. Ensure that all other switches are in the Down position.
3. To program the correct Multi-Coil Driver configuration to the CPD Board, perform one of the following steps. This procedure references Table 2-1, Multi-Coil Driver Configuration.
 - a. To disable all Multi-Coil Drivers, place switches 5, 6, 7, & 8 in the Down position and proceed to step 4.
 - b. To disable Multi-Coil Drivers 3 & 4, place switches 5 & 6 in the Up position and proceed to step 4.
 - c. To enable all Multi-Coil Drivers, place switches 5, 6, 7, & 8 in the Up position and proceed to step 4.
4. Place switch #10 in the Up position.
5. Place switch # 10 in the Down position. Bank 1 LEDs 1, 2, 3, & 4 are illuminated and remain illuminated once switch #10 is in Down position.
6. Place switch #1 in the Down position. Bank 1 LEDs 3 & 4 will be illuminated.
7. Place all switches in the Down position.
8. Cycle the main circuit breaker power at the SSM by turning CB4 to the OFF position, waiting 15 seconds, then setting CB4 to the ON position. This step saves the changes to the SSM.
9. Replace the plastic cover on the front of the SSM.

7-2 Multi-Coil -5 VDC Power Supply Adjustments

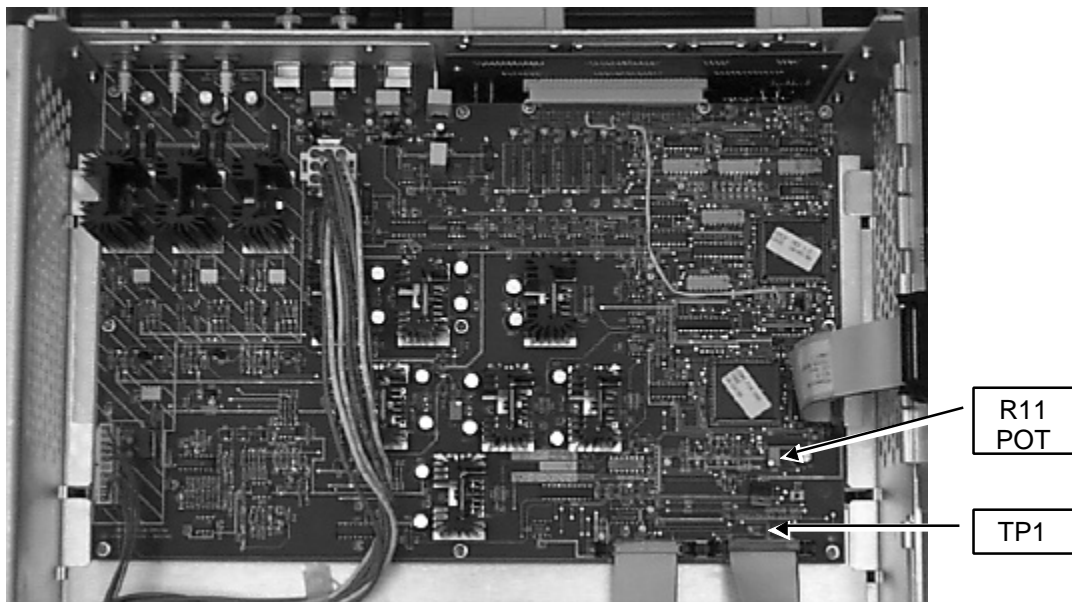
Note

Verify that the cables are properly connected (not swapped) at J20 (Multi-Coil Signals, labeled MR1-A7-J20) and J18 (Multi-coil TR Bias, labeled MR1-A7-J18); see Illustration 7-4.



**CABLES CONNECTED TO CORRECT LOCATIONS — MULTI-COIL
ILLUSTRATION 7-4**

1. Connect an oscilloscope or a Digital Volt-Meter to the CPD Board test point TP1 (-5VDC) with reference to ground; see Illustration 7-5. Adjust R11 until the voltage measured is -5.00 VDC (± 0.05 VDC).



MULTI-COIL ADJUSTMENT/ -5VDC AT TP1
ILLUSTRATION 7-5

8- PAC VOLTAGE CONFIGURATION

The PAC is preset to 9 VDC at the factory (setting should be verified if the spare board seal is broken).

The PAC Voltage can be verified via an alternate proprietary GE procedure using the laptop diagnostic software (Section 8-1). To change the PAC voltage setting use, Section 8-2, Via the Front Panel Switches.

Note

Systems with a without fiber optic repeater at the Pen wall need to set the PAC voltage to 8 Volts DC.



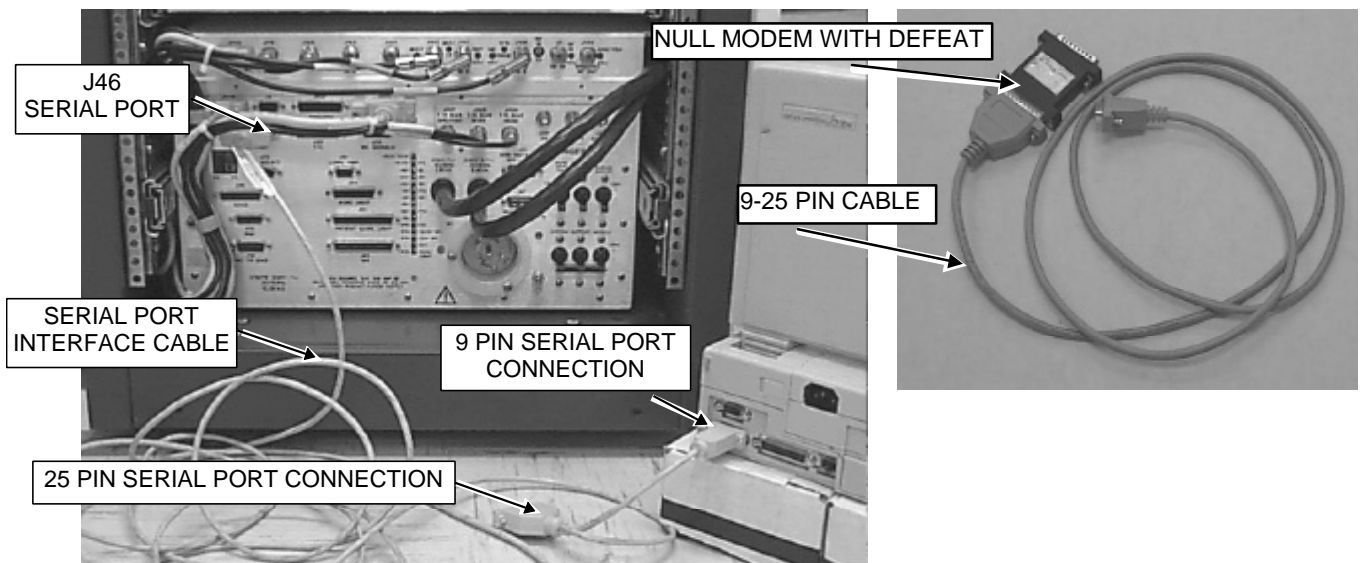
POSSIBLE EQUIPMENT DAMAGE. TO PREVENT POSSIBLE DAMAGE TO EQUIPMENT DUE TO INCORRECT VOLTAGE SETTINGS, SYSTEMS WITHOUT FIBER OPTIC REPEATER AT THE PEN WALL NEED TO SET THE PAC VOLTAGE TO 8 VOLTS DC.

8-1 Via the Software (Alternate Proprietary GE Procedure)

Note

The alternate proprietary GE procedure via the laptop software does not work properly for setting the PAC voltage, but can be used to verify the current PAC voltage setting. The following steps describe the PAC voltage setting verification procedure. To change settings use section 8-2, Via the Front Panel Switches.

1. Connect the laptop to J46 of the SSM via the null modem serial cable. See Illustration 8-1.



LAPTOP CONNECTED TO SSM
ILLUSTRATION 8-1

2. Run the program CPD.EXE. See Table 8-1.

TABLE 8-1
ALTERNATE PROPRIETARY PROCEDURE — LAPTOP SOFTWARE

1. Start the software diagnostic program MONS.EXE on the laptop.

Note

The CPD.exe program, if not loaded on the service laptop, can be loaded from the 8.X MR Service CD-ROM. Insert your latest 8.X MR Service Methods CD into the CD ROM drive. Under Windows 95 use the cursor to select "**Start**" and then "**Run**". In the edit box type the following (include the quotes):

"d:\MR tools setup.exe"

Follow the instructions of the setup program to install the Service Tools. The CPD.EXE must be run from DOS. In Windows95 perform the following steps:

- 1) **[Start], [Shut Down...], Restart the computer in MS-DOS mode?, [Yes]**
- 2) At the C:\Windows> prompt, type **cd /cclass/erbtec<ENTER>**
- 3) At the C:\CCLASS\ERBTEC> prompt type **cpd.exe<ENTER>**

3. Enter the password per the screen instructions.
4. Select the *C) Perform Special Operations* menu.
5. Select *H) Change PAC Power Supply Voltage (8V, 9V)*.
6. The current PAC configuration is shown (see Illustration 8-2).

Current PAC 8/9 V configuration is : 9V

Do you wish to change it? <Y> or <N>

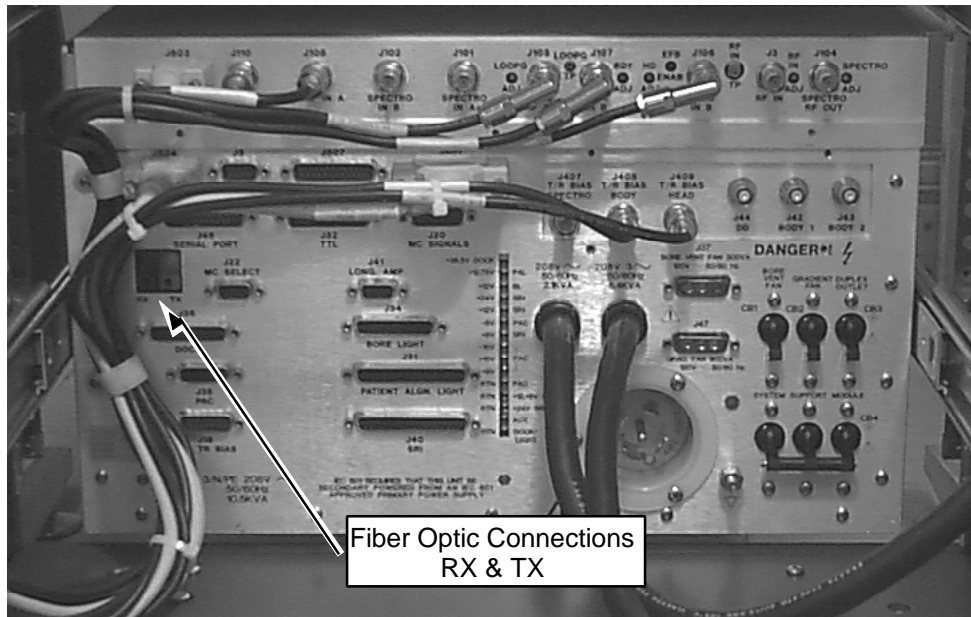
SELECTION: H) CHANGE PAC POWER SUPPLY VOLTAGE (8V, 9V)

ILLUSTRATION 8-2

7. Type **N<ENTER>**.
8. Press **<Esc>** twice to exit to DOS. To return to Windows, type **exit<ENTER>**.
9. Cycle the main breaker power at the SSM by turning CB4 to the OFF position, waiting 15 seconds, then setting CB4 to the ON position. This step saves the changes to the SSM.

8-2 Via the Front Panel Switches

1. Remove Fiber Optic cables from rear of SSM (RX & TX). See Illustration 8-3.



FIBER OPTIC CABLE CONNECTIONS
ILLUSTRATION 8-3

2. Remove the plastic cover on the front of the SSM.

Note

Place DIP Switch #1 in the UP position last. Order of DIP switch placement is important otherwise system will not recognize changes.

3. To change the PAC voltage setting, perform one of the following steps:
 - a. **For systems without the fiber optic repeater, set to 8 VDC.** Place switch 6 in the Down position and switches 4 & 1 in the UP position. Ensure that all other switches are in the Down position.

Verify system is recognizing change by the LED display; Bank 1 LEDs 1, 2, & 5 will be illuminated.

- b. **For systems with the fiber optic repeater, set to 9 VDC,** place switches 6, 4, and 1 in the UP position.

Verify system is recognizing change by the LED display; Bank 1 LEDs 1, 3, & 5 will be illuminated.

4. Place switch 1 in the Down position.

8-2 Via the Front Panel Switches (continued)

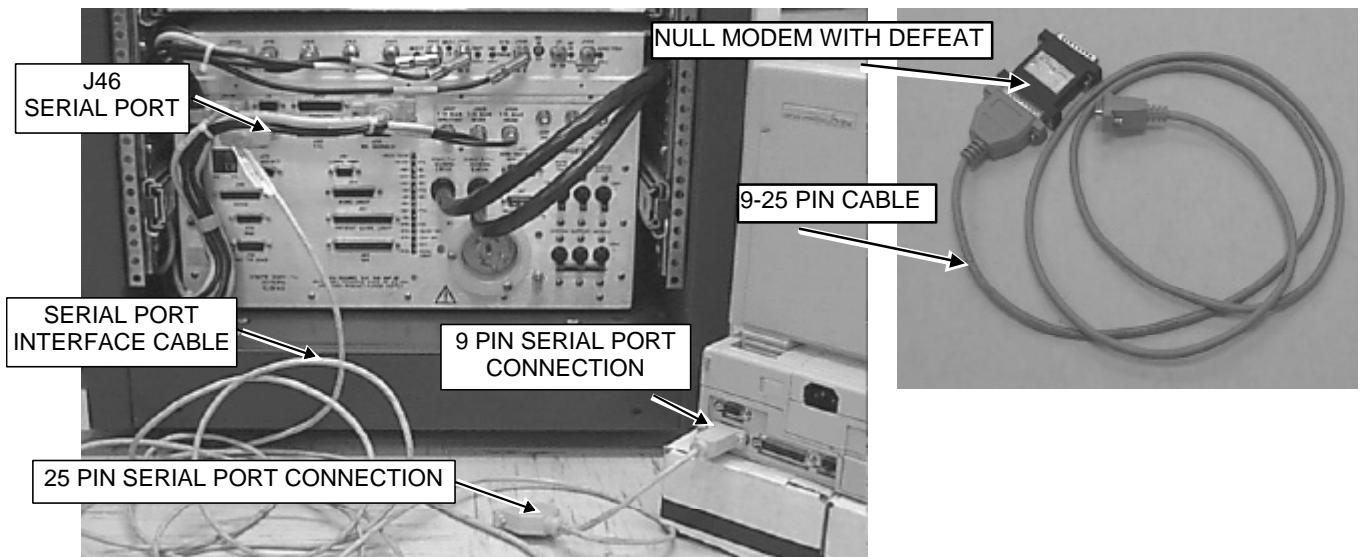
5. Place all other switches in the Down position.
6. Cycle the main breaker power at the SSM by turning CB4 to the OFF position, waiting 15 seconds, then setting CB4 to the ON position. This step saves the changes to the SSM.
7. Replace the plastic cover on the front of the SSM.
8. Connect the Fiber Optic cables to RX & TX on rear of SSM.
9. Perform TPS Reset by clicking the **[Service Desktop]** icon and clicking the **[TPS Reset]** button on the Service Rx.

9- POWER MONITOR TYPE CONFIGURATION

The power monitor type is preset to 1.5T or 1.0T, depending on what type of RF cabinet it is placed in. The default setting for replacement boards is 1.5T (setting should be verified if the spare board seal is broken). The power monitor type can be changed one of two ways: an alternate proprietary GE procedure via the laptop diagnostic software (Section 9-1) or via the front panel switches (Section 9-2). GRFD Cabinets (0.7T systems) shall set the power monitor to the 1.0T setting.

9-1 Via the Software (Alternate Proprietary GE Procedure)

1. Connect the laptop to J46 of the SSM via the null modem serial cable. See Illustration 9-1.



LAPTOP CONNECTED TO SSM
ILLUSTRATION 9-1

9-1 Via the Software (Alternate Proprietary GE Procedure) (continued)

2. Run the program CPD.EXE. See Table 9-1.

TABLE 9-1
ALTERNATE PROPRIETARY PROCEDURE — LAPTOP SOFTWARE

1. Start the software diagnostic program MONS.EXE on the laptop.

Note

The CPD.exe program, if not loaded on the service laptop, can be loaded from the 8.X MR Service Methods CD-ROM. Insert your latest 8.X CD into the CD ROM drive. Under Windows 95 use the cursor to select "**Start**" and then "**Run**". In the edit box type the following (include the quotes):

"d:\MR tools setup.exe"

Follow the instructions of the setup program to install the Service Tools. The CPD.EXE must be run from DOS. In Windows95 perform the following steps:

- 1) [**Start**], [**Shut Down...**], **Restart the computer in MS-DOS mode?**, [**Yes**]
- 2) At the C:\Windows> prompt, type **cd \cclass\erbtec<ENTER>**
- 3) At the C:\CCLASS\ERBTEC> prompt type **cpd.exe<ENTER>**

3. Enter the password per the screen instructions.
4. Select the *C) Perform Special Operations* menu.
5. Select *G) Change Power Monitor Type*.
6. Type **y<ENTER>** and type letter of one of the following power monitor types. See Illustration 9-2.
 - a. **For the 0.7T GRFD Cabinet:**
Choose the 1.0T setting: **B**.

Current Power Monitor Configuration is : 1.0T

Do you wish to change it? <Y> or <N> y

Choose one of the following configurations:

- A) 0.5T
- B) **1.0T**
- C) 1.5T
- D) 1.5T w/efb

SELECTION: G) CHANGE POWER MONITOR TYPE (1.0T, 1.5T)

ILLUSTRATION 9-2

9-1 Via the Software (Alternate Proprietary GE Procedure) (continued)

7. Press <Esc> twice to exit to DOS. To return to Windows, type **exit<ENTER>**.
8. Cycle the main breaker power at the SSM by turning CB4 to the OFF position, waiting 15 seconds, then setting CB4 to the ON position. This step saves the changes to the SSM.

9-2 Via the Front Panel Switches

1. Remove the plastic cover on the front of the SSM.

Note

Place DIP Switch #1 in the UP position last. Order of DIP switch placement is important otherwise system will not recognize changes.

2. Place switches 3, 2, 4, and 1 in the Up position. Ensure that all other switches are in the Down position (See Illustration 9-3). Depending on the current configuration of the Power Monitor LED BANK 1 and LED BANK 2 will each show either LED # 2 or LED # 4 illuminated. LED # 2 illuminated signifies a 1.0T Power Monitor and LED # 4 illuminated signifies a 1.5T Power Monitor. It is not necessary to continue this procedure if the Power Monitor is already correctly configured.



DIP SWITCH CONFIGURATION FOR SETTING POWER MONITOR TYPE
ILLUSTRATION 9-3

- a. **To set the type to a 0.7T(1.0T)**, place switch 5 in the Up position and switch 6 in the Down position.
3. Place switch #10 in the Up position followed by the Down position. LED BANK 1 and LED BANK 2 will now change to show either LED # 2 (1.0T/0.7T) or LED # 4 (1.5T) illuminated depending on the new setting of the Power Monitor.
4. Place switch #1 in the Down position. None of the LEDs in LED BANK 1 and LED BANK 2 should now be illuminated.
5. Place all other switches in the Down position.
6. Cycle the main breaker power at the SSM by turning CB4 to the OFF position, waiting 15 seconds, then setting CB4 to the ON position. This step saves the changes to the SSM.
7. Replace the plastic cover on the front of the SSM.

10- SYSTEM RESTORATION

1. Close the SSM lid(s), replace all the lid screws, slide the SSM chassis back into the rack, and replace the four front screws.
2. Remove Laptop computer connection to SSM (J46), if applicable.
3. Replace cabinet covers.
4. Verify J5 is connected.
5. Perform a TPS reset.
6. Perform a Head Scan, Body Scan, and Multi-Coil scan to verify the system is scanning normally.

REVISION HISTORY

REV	DATE	AUTHOR	PRIMARY REASONS FOR CHANGE
A	October 18, 1999	Resa Lambert	Initial release, Section 7 is not completed at this time.
B	October 28, 1999	Resa Lambert	Added 1.0T setting for Power Monitor. Added note concerning DD Loads.
C	January 25, 2000	Resa Lambert	SPR's MRlge56704 & MRlge56649---Corrected page 17 (pathname and CD-ROM part numbers) and page 18 (Illustration number, step 7-2-2 and 7-2-4 to indicate correct LED).
D	March 23, 2000	Resa Lambert	Added a note in the Overview section to set JP1 to the 1000V position—changed document title.
0	June 7, 2000	Don Thome'	Added warning about missing dd bias cables. Added a prerequisite section. Changed added note concerning jumper JP1 to warning. Corrected cpd.exe software load and execution instructions. Created 0.7T specific, class C document.