2.0 TECHNICAL DESCRIPTION

2.5 Alignment Procedure

Connect the RF output (J8) of the driver transmitter to the RF input (J2) of the amplifier tray. Connect the RF output (J4) of the amplifier tray to a RF power meter through a suitable directional coupler. Connect the main output of the coupler to a suitable load.

PFC SWITCHING POWER SUPPLY (A3, A5) VS3-73-450-0001

The 2000W Power Factor Corrected Switching Power Supply operates from a standard 220 line voltage and outputs + 390VDC which is applied to a DC to DC converter in the 25W Power Amplifier Assembly. The PFC Switching Power Supply contains no user adjustments.

40W SWITICHING POWER SUPPLY (A6) LPS-23

The 40W Switching Power Supply supplies +12 VDC to the various boards within the tray. No user adjustments are provided..

80W SWITICHING POWER SUPPLY (A4) LPS-63

The 80W Switching Power Supply supplies -12 VDC to the various boards within the tray. No user adjustments are provided..

25 WATT AMPLIFIER Assembly (A1, A2, A3, A4) 1586-1117

The 25 Watt Amplifier Assembly is a wideband GaAs FET array that is factory pre-tuned to cover the particular channel frequency.

This Amplifier module does not contain any RF tuning adjustments. The module contains GaAs FET amplifiers. The operating current for each device (Q4, Q5, Q6, Q7, Q8, Q9, Q10, Q11 and Q12), with no drive applied, is controlled by a pot mounted on a bias board within the module, next to each corresponding FET, and can be set by measuring the voltage drop across the the corresponding 0.05 Ω resistors on the bias protection board. See chart below.

GaAs FET Transistor	Potentiometer Adjustment	Bias Protection Board Resistor	Voltage Across Bias Protection Resistor	Drain Current Calculated
Q4	R802	R58	.175V	7.0A
Q5	R802	R64	.175V	7.0A
Q6	R802	R121	.175V	7.0A
Q7	R802	R67	.175V	7.0A
Q8	R802	R122	.175V	7.0A
Q9 & Q10	R802	R63	.175V	2.38A
Q11	R802	R2	.175V	7.0A
Q12	R802	R1	.175V	7.0A

2.4 Alignment Procedure - continued

8 SECTION BIAS PROTECTION BOARD (A1) 1586-1109

There is one 8 Section Bias Protection Board located in each of the two 25 Watt Power Amplifier Assemblies.

These boards provide over current fuse protection and operating status LED indication of the amplifier modules. These boards also contain bias resistors used to set the operating current of the FET amplifiers within the amplifier modules (see 25 Watt Amplifier Assembly set up above). No user adjustments are provided on the board.

POWER DETECTOR/CONTROL BOARD (A6) 1586-1118

Using a dummy load and a directional coupler with a calibrated power meter the Forward and Reflective power may be calibrated as follows:

1. To calibrate forward power on the front panel meter, first connect a suitable rated load and a calibrated power meter through a directional coupler to the RF output jack (J4) on the rear of the tray. Place the driver transmitter into manual mode operation.

2. Place the driver transmitter into the Operate mode.

3. Apply a digital IF test signal to the input of the driver transmitter and adjust the manual gain potentiometer of the driver transmitter for the full rated average output power level of the amplifier.

4. Adjust potentiometer R17 on the Power Detector/Control Board for 1V at TP2.

5. Remove the load connected to the amplifier and quickly Reflective Metering potentiometer for 1V at TP3. Note: This step must be performed quickly as to not sustain damage to the FET devices.