

V06301

MICROFICHED

Operating and Service Manual

MODEL

50W1000

PART NUMBER

1001809-501

SERIAL NUMBER

5230

FORM 144 REV0884



Souderton, PA 18964-9990 USA

TABLE OF CONTENTS

SECTION I:	GENERAL INFORMATION	
	1.1 General Description.....	1-1
	1.2 Power Supplies.....	1-1
	1.3 Specifications.....	1-1
SECTION II:	OPERATING INSTRUCTIONS	
	2.1 General.....	2-1
	2.2 Amplifier Operation.....	2-2
SECTION III:	THEORY OF OPERATION	
	3.1 Introduction.....	3-1
	3.2 Amplifier Section.....	3-2
	3.3 Power Supply Section.....	3-4
SECTION IV:	MAINTENANCE	
	4.1 General Maintenance Information.....	4-1
	4.2 Covers and Amplifier Assembly Removal..	4-1
	4.3 Troubleshooting.....	4-3
	4.4 Servicing Etched Circuit Boards.....	4-3
SECTION V:	REPLACEABLE PARTS	
	5.1 Introduction.....	5-1
	5.2 Ordering Information.....	5-1
	5.3 Nonlisted Parts.....	5-1
	5.4 Designators.....	5-2
	5.5 Parts Lists.....	5-2
SECTION VI:	SCHEMATICS	

NOTICE

This manual is applicable to the following models:

50W1000

80W1000M1

Whenever the words "Model 50W1000" are used in the text, they should be considered to be replaced by the appropriate model number.

SECTION I GENERAL INFORMATION

1.1 GENERAL DESCRIPTION

The Model 50W1000 Amplifier is a self-contained, broadband unit designed for laboratory applications where instantaneous bandwidth, high gain, and moderate power output are required. Solid state technology is used exclusively to offer significant advantages in reliability and cost. A Model 50W1000 used with a frequency swept signal source will provide 40 watts of linear swept power output. Typical applications include Antenna and Component Testing, Wattmeter Calibration, EMI Susceptibility Testing, use as a Driver for Frequency Multipliers and High Power Amplifiers and as an RF Source for Nuclear Magnetic Resonance studies.

1.2 POWER SUPPLIES

This unit has two self-contained 115/230 VAC, 50/60 Hz, regulated power supplies. The power consumption is a nominal 1900 watts. Primary circuit fusing is provided.

1.3 SPECIFICATIONS

Refer to Amplifier Research Data Sheet on next page for detailed specifications.

SECTION II

OPERATING INSTRUCTIONS

2.1 GENERAL

Operation of the Model 50W1000 broadband amplifier is quite simple. The input signal, whether swept or fixed in frequency, is fed into the jack marked INPUT and the amplifier output signal is taken from the jack labeled OUTPUT. The unit is turned on by activating two power switches. In the event of a unit malfunction, protection is provided by fusing located at the rear of the unit. Two polarized, three (3) wire AC power cords are also included with the unit to provide cabinet and chassis grounding to the power mains.

CAUTION:

THE MODEL 50W1000 AMPLIFIER IS NOT CRITICAL IN REGARDS TO SOURCE AND LOAD VSWR AND WILL REAMIN UNCONDITIONALLY STABLE WITH ANY MAGNITUDE AND PHASE OF SOURCE AND LOAD VSWR. IT ALSO HAS BEEN DESIGNED TO WITHSTAND, WITHOUT DAMAGE, RF INPUT POWER UP TO TWENTY (20) TIMES ITS RATED INPUT OF 1mW: HOWEVER, SIGNAL LEVELS HIGHER THAN 20mW OR TRANSIENTS WITH HIGH PEAK VOLTAGES CAN DAMAGE THE AMPLIFIER. ALSO, ACCIDENTAL CONNECTION OF THE 50W1000 OUTPUT TO THE INPUT CAUSES OSCILLATION WHICH WILL PERMANTLY DAMAGE THE INPUT TRANSITOR. INTERNAL CROWBAR PROTECTION IS DESIGNED INTO THE AMPLIFIER TO PROTECT AGAINST INPUT OVERDRIVE.

The amplifier is protected by a fast acting Crowbar circuit. The Crowbar may be activated by an input signal greater than required for full output power. When the input signal reaches a level that may cause damage to the amplifier power stages, the 26 volts power supply to the low level driver is turned OFF and the red Overload light on the panel is activated. Typically, the input level required to activate the Crowbar is approximately +2 to +3dBm.

To reset the Crowbar, reduce the input RF to 0dBm or lower, and push the Reset switch (S3) located by the Overload light on the front panel.

2.2 AMPLIFIER OPERATION

Figure 2.1 shows the Model 50W1000 Amplifier in pictorial form.

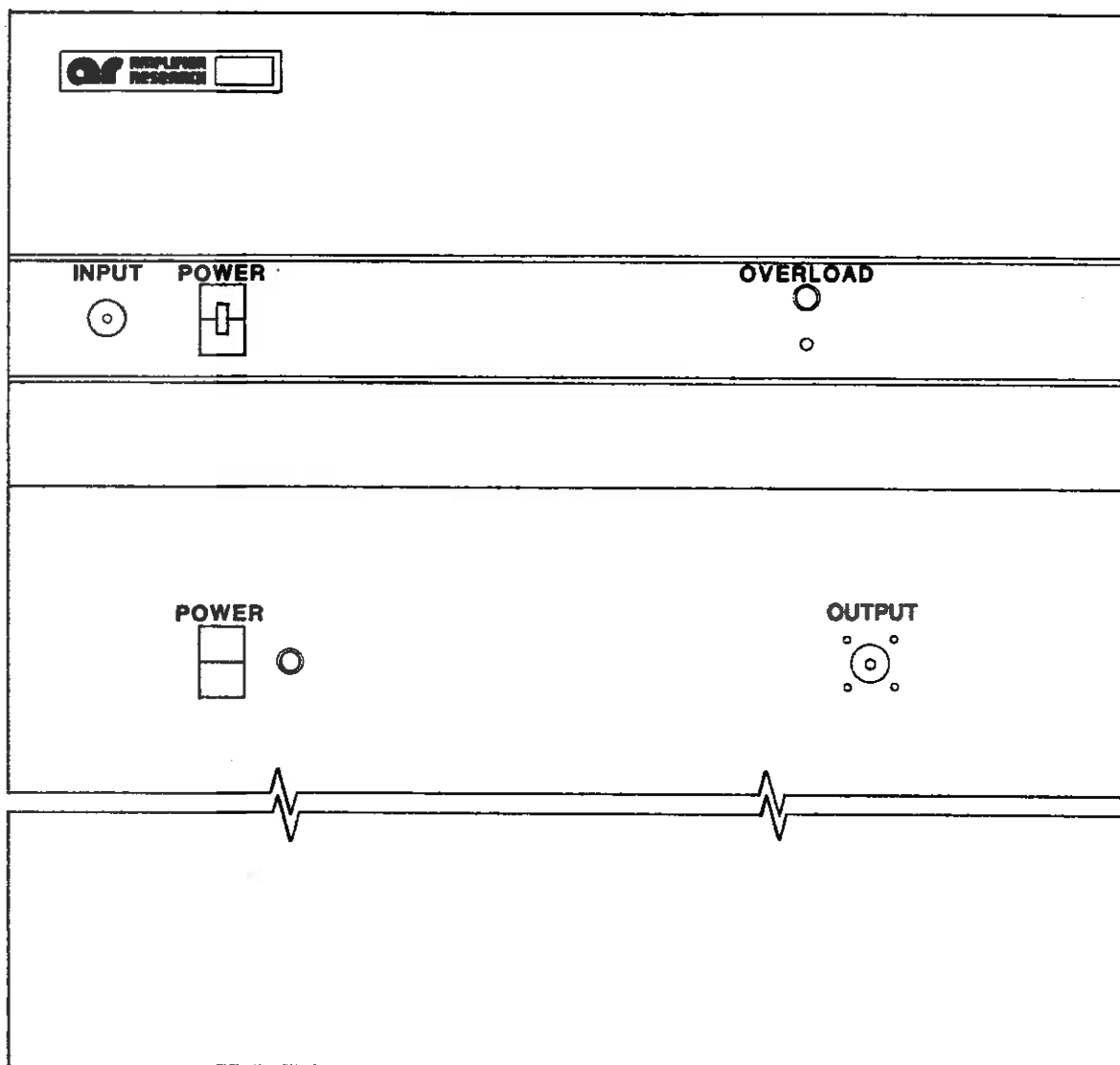


FIGURE 2.1

2.2 AMPLIFIER OPERATION (Continued)

Turn On Sequence:

1. Connect input signal to INPUT connector.
2. Connect load to OUTPUT connector.
3. Select either 115/230 VAC operation by means of switches located on rear of Driver and Final Amplifiers.

CAUTION:

WHEN CHANGING PRIMARY VOLTAGES, DRIVER AND FINAL AMPLIFIER SWITCHES MUST BE SET INDIVIDUALLY. USE NO LESS THAN 14 GAGE LINE CORD IN FINAL AMPLIFIER RECEPTACLE. USE OF INCORRECT LINE CORD OR PRIMARY VOLTAGE WILL CAUSE EXTENSIVE DAMAGE.

4. Activate two power switches to ON position. Red indicator lights will light when power is applied.

CAUTION:

DO NOT CONNECT UNIT TO 230 VAC MEASURED LINE TO LINE. TO DO SO WOULD RESULT IN ONE SIDE OF THE LINE NOT BEING FUSED, CREATING A HAZARDOUS SITUATION. THE 230 VAC FEATURE IS DESIGNED PRIMARILY FOR USE IN COUNTRIES HAVING 230 VAC MEASURED LINE TO NEUTRAL.

2.2 AMPLIFIER OPERATION (Continued)

Turn On Sequence:

1. Connect input signal to INPUT connector.
2. Connect load to OUTPUT connector.
3. Select either 115/230 VAC operation by means of switches located on rear of Driver and Final Amplifiers.

CAUTION:

WHEN CHANGING PRIMARY VOLTAGES, DRIVER AND FINAL AMPLIFIER SWITCHES MUST BE SET INDIVIDUALLY. USE NO LESS THAN 14 GAGE LINE CORD IN FINAL AMPLIFIER RECEPTACLE. USE OF INCORRECT LINE CORD OR PRIMARY VOLTAGE WILL CAUSE EXTENSIVE DAMAGE.

4. Activate two power switches to ON position. Red indicator lights will light when power is applied.

CAUTION:

DO NOT CONNECT UNIT TO 230 VAC MEASURED LINE TO LINE. TO DO SO WOULD RESULT IN ONE SIDE OF THE LINE NOT BEING FUSED, CREATING A HAZARDOUS SITUATION. THE 230 VAC FEATURE IS DESIGNED PRIMARILY FOR USE IN COUNTRIES HAVING 230 VAC MEASURED LINE TO NEUTRAL.

SECTION III

THEORY OF OPERATION

3.1 INTRODUCTION

Refer to Block Diagram No. 1001212, 1001671 and 1001674.

The input signal to the RF Driver Amplifier as shown on Diagram No. 1001674 is connected through directional coupler (A3A4) and gain equalizer (A3A5) to J1 of low level/driver amplifier (A1). A1 consists of low level amplifier (A1A1) and driver amplifier (A1A2). The gain of A1 is 36dB minimum.

The output of A1 drives the input of Penultimate Amplifier (A2), where the input signal is split by A2A5 into four equal signals and drives power amplifiers A2A1, A2A2, A2A3, and A2A4.

Their outputs are coupled individually to drive four Final RF Amplifier assemblies as shown in Block Diagram No. 1001671. Each Final Amplifier output is combined by the Power Combiner and drives the 50 watt RF output.

The low level/driver Amplifier A1 consists essentially of five (5) cascaded stages of broadband transistor amplifiers and a push-pull stage which yield a total power gain greater than 36dB. Input and output matching networks are utilized to provide optimum power transfer of the signal to and from the amplifier with a 50 ohm source and load impedance. Intra-stage feedback is also used to further flatten the frequency response and bias stabilization of the individual stages is provided.

The RF portion of Power Amplifiers A2A1, A2A2, A2A3, and A2A4 is similar to Driver Amplifier A1A2 and will be explained.

The RF portion of the Final Amplifier Assembly as shown on Diagram No. 1001671 consists of four (4) identical RF Amplifiers. Only one will be explained. The RF signal from the Driver amplifier is connected to Splitter A5, as shown on Diagram No. 1001212, where the signal is divided into four equal signal paths. Each is connected to identical RF Board Assemblies A1, A2, A3, and A4 where the signal is amplified and recombined through Power Combiner A6 to drive the 10 watt RF output.

3.1 INTRODUCTION (Continued)

The RF Driver Assembly has its own self-contained power supply and employs a full wave rectifier, two (2) integrated circuit regulators to provide stable, low ripple, regulated output voltages.

The RF Final Amplifier Assembly has its own self-contained Power Supply and employs full wave Rectifiers and Regulators to provide stable, low ripple, regulated output voltages.

CAUTION:

WHEN CHANGING PRIMARY VOLTAGE BOTH DRIVER AND FINAL AMPLIFIER ASSEMBLY POWER SWITCH MUST BE ACTIVATED TO PROPER VOLTAGE OF 115V OR 230 VAC.

3.2 AMPLIFIER OPERATION

3.2.1 Low Level Driver Amplifier

Refer to Schematic Diagrams No. 1001495 and 1002044.

The input signal to the amplifier is fed from the input connector through a matching network to the base of the first transistor amplifier stage. The component values in this network are chosen to effect a compromise between obtaining the best VSWR and the lowest insertion loss.

The first stage is connected in the common emitter mode with the emitter connected to ground through two resistors. This configuration allows the selection of the emitter resistors to achieve the desired stage gain. The collector voltage (+) is supplied to this stage from the transistor immediately above it (refer to Diagram No. 1001495). This allows the RF transistor to operate at a constant DC current and provides a high degree of protection since the transistor current is independent of overdrive and/or short circuits. Temperature dependence is also avoided. The required decoupling and bypassing of the positive supply is provided by ferrite beads and capacitors.

A coupling network is used to route the output of the first stage to the base of the second stage. The first five stages are coupled in substantially the same manner with the fifth stage matched to a 50 ohm output impedance.

The output of the fifth stage (refer to Diagram No. 1002044) is applied through an input matching network to the input of the 2 stage output amplifier, Q2. The output is transformer coupled to the output, which has a 50 ohm impedance. Q1 and Q3 are bias stages for Q2 and helps to operate Q2 at a constant DC current.

3.2.2 Penultimate Amplifier

Refer to Schematic No. 1001673, and 1002044.

The output of the Low Level Amplifier drives the Penultimate Amplifier input. The input signal is split by A2A5 into four equal signals and drives four identical power amplifiers. The signal is amplified and supplies four identical RF outputs to the Final Amplifier.

Transformer T1 is used to match to the Q2 input. Transformer T2 is used to match to 50 ohm output. Q1 and Q3 are bias stages for Q2 and helps to operate Q2 at a constant DC current.

3.2.3 Final RF Amplifier

Refer to Schematic No. 1001212, 1001779, and 1001671.

The Final RF Amplifier is shown in Block Diagram No. 1001671 and consists of four RF amplifiers and one output power combiner.

The RF Amplifiers are identical and shown in Schematic No. 1001212. The input RF is split into four equal signal paths by splitter A5, amplified by amplifiers A1, A2, A3, and A4, and recombined by combiner A6. Only one RF Board Assembly will be explained.

The RF Board Assembly is shown in Schematic No. 1001779.

The input signal is matched through T1 to the bases of transistor amplifier Q2. The amplified output is transformer coupled through T2 to the 50 ohm output. Transistors Q1 and Q3 are bias stages for Q2 and help to operate Q2 at a constant DC current.

3.2.2 Penultimate Amplifier

Refer to Schematic No. 1001673, and 1002044.

The output of the Low Level Amplifier drives the Penultimate Amplifier input. The input signal is split by A2A5 into four equal signals and drives four identical power amplifiers. The signal is amplified and supplies four identical RF outputs to the Final Amplifier.

Transformer T1 is used to match to the Q2 input. Transformer T2 is used to match to 50 ohm output. Q1 and Q3 are bias stages for Q2 and helps to operate Q2 at a constant DC current.

3.2.3 Final RF Amplifier

Refer to Schematic No. 1001212, 1001779, and 1001671.

The Final RF Amplifier is shown in Block Diagram No. 1001671 and consists of four RF amplifiers and one output power combiner.

The RF Amplifiers are identical and shown in Schematic No. 1001212. The input RF is split into four equal signal paths by splitter A5, amplified by amplifiers A1, A2, A3, and A4, and recombined by combiner A6. Only one RF Board Assembly will be explained.

The RF Board Assembly is shown in Schematic No. 1001779.

The input signal is matched through T1 to the bases of transistor amplifier Q2. The amplified output is transformer coupled through T2 to the 50 ohm output. Transistors Q1 and Q3 are bias stages for Q2 and help to operate Q2 at a constant DC current.

3.3 POWER SUPPLY SECTION

The Model 50W1000 has two independent Power Supplies; one for the RF Driver Assembly and one for the RF Final Amplifier Assembly. Each will be discussed.

CAUTION:

WHEN CHANGING PRIMARY VOLTAGE BOTH DRIVER AND FINAL AMPLIFIER ASSEMBLY POWER SWITCHES MUST BE ACTIVATED TO PROPER VOLTAGE OF 115V OR 230 VAC.

3.3.1 Power Supply for RF Driver Assembly

Refer to Schematic Diagram No. 1001208.

Input AC power is fed through RFI filter FL1 before being switched by the main power switch, S1. The AC power indicator is an integral part of S1. S2 serves to select the primary tap configuration of T1 for operation on either 115 or 230 VAC.

CAUTION:

DO NOT CONNECT UNIT TO 230 VAC MEASURED LINE TO LINE. TO DO SO WOULD RESULT IN ONE SIDE OF THE LINE NOT BEING FUSED, CREATING A HAZARDOUS SITUATION. THE 230 VAC FEATURE IS DESIGNED PRIMARILY FOR USE IN COUNTRIES HAVING 230 VAC MEASURED LINE TO NEUTRAL.

The Power Supply utilizes a full wave rectifier on A1 and A3 assemblies. DC output from the rectifiers is filtered by C1. A1 supplies regulated +VDC to the low level amplifier (A1A1) and A3 supplies regulated +VDC to the driver amplifier (A1A2). Both A1 and A3 supply +VDC to the protection circuit assembly, A2.

3.3.1.1 Regulator MPLV

3.3.1.1.1 Regulator A3A3

Refer to Schematic Diagram No. 1001098.

The full wave rectifier consists of CR1 and CR2. Capacitors C1 and C2 are connected in parallel across the rectifiers to suppress transients caused by the reverse recovery of the diodes. The filtered DC output from the rectifiers pass through the series regulator U1, pre-regulator and current boost transistor located external to regulator assembly. U1 is a linear integrated circuit with adjustable output current and voltage. R2 adjusts the output current and R3 adjusts the output voltage. U1 also contains power limiting, thermal shutdown and input overvoltage protection.

The overload light DS2 is located on the front panel and will light when regulated VDC approaches zero. A crowbar will cause DS2 to light and must be reset to restore proper operation. To reset the crowbar, reduce the input to 0dBm and push the red switch (S3) located under the overload light on the front panel.

3.3.1.1.2 Regulator A3A1

Refer to Schematic Diagram No. 1001507.

The full wave rectifier consists of CR1 and CR2. Capacitors C1 and C2 are connected in parallel across the rectifiers to suppress transients caused by the reverse recovery of the diodes. The filtered DC output from the rectifiers pass through the series regulator U1. U1 is a linear integrated circuit with adjustable output current and voltage. R2 adjusts the output current and R3 adjusts the output voltage. U1 also contains power limiting, thermal shutdown and input overvoltage protection.

R1 and VR1 output voltage goes to DS2 and protection circuit.

3.3.1.2 Protection Circuit

Refer to Schematic Diagram No. 1001132.

The Protection Circuit consists of a DC amplifier U1 with its bias circuit, an SCR crowbar Q2, and optical coupler U2. The input signal at E2 originates from a peak detector which detects the RF input level and delivers an equivalent DC potential to the DC amplifier. The input signal is amplified to the desired level. R15 adjusts the threshold setting which turns ON Q2. With Q2 turned ON, the +28VDC at E5 is pulled close to ground and the A1 regulator output is near zero thus removing the DC power to the driver amplifier (A1A1). Holding current is supplied to E1 from the A1 regulator, through R8 and CR2 and Q2 anode. Thus when Q2 turns ON, it stays ON until the RF amplifier is reset. To reset, reduce the input RF to 0dBm and push the red switch (S3) located on the front panel.

The Optical Coupler U2 is used to sense when any Driver or Final regulator output voltage has decreased below a preset value. Should this happen, the output of the Optical Coupler(U2) will turn Q2 ON and cause the RF to the Driver and Final amplifiers to turn OFF, thus protecting the output circuits. The red overload light on the front panel will light. To reset, reduce the input to 0dBm and push S3 located on the front panel.

3.3.2 Power Supply For RF Final Amplifier Assembly

Refer to Schematic No. 1001998 1001098.

Input AC power is fed through RFI filter FL1 before being switched by the main power switch, S1. The AC power indicator is located near S1. S2 serves to select the primary tap configuration of T1 for operation on either 115 or 230 VAC.

CAUTION:

DO NOT CONNECT UNIT TO 230 VAC MEASURED LINE TO LINE. TO DO SO WOULD RESULT IN ONE SIDE OF THE LINE NOT BEING FUSED, CREATING A HAZARDOUS SITUATION. THE 230 VAC FEATURE IS DESIGNED PRIMARILY FOR USE IN COUNTRIES HAVING 230 VAC MEASURED LINE TO NEUTRAL.

The secondary of T1 supply AC power through current surge limiting resistors RT1 through RT8 to output power connectors J1 through J4. The sixteen Regulator assemblies are all identical and are located in the final RF Amplifier Assembly. Only one will be discussed.

3.3.2.1 Regulator MPLV

Refer to Schematic Diagram No. 1001098.

The full wave rectifier consists of CR1 and CR2. Capacitors C1 and C2 are connected in parallel across the rectifiers to suppress transients caused by the reverse recovery of the diodes. The filtered DC output from the rectifiers pass through the series regulator U1. U1 is a linear intergrated circuit with adjustable output current and voltage. R2 adjusts the output current and R3 adjusts the output voltage. U1 also contains power limiting, thermal shutdown and input overvoltage protection.

The overload light DS2 is located on the front panel of the RF Driver Amplifier Assembly and will light when regulated VDC approaches zero. A crowbar will cause DS2 to light and must be reset to restore proper operation. To reset the crowbar reduce the input to 0dBm and push the red switch (S3) located under the overload light on the front panel of the RF Driver Amplifier Assembly.

SECTION IV MAINTENANCE

4.1 GENERAL MAINTENANCE INFORMATION

The Model 50W1000 should require very little maintenance since it is a relatively simple instrument. It is built with etched circuit wiring and solid state devices which should ensure long, trouble-free life. However, should trouble occur, special care must be taken in servicing to avoid damage to the devices or the etched circuit boards.

Since the components are soldered in place, substitution of components should not be resorted to unless there is some indication that they are faulty. In addition, take care when troubleshooting not to short voltages across the amplifier. Small bias changes may ruin the amplifier due to excessive dissipation or transients.

Components within Amplifier Research instruments are conservatively operated to provide maximum instrument reliability. In spite of this, parts within an instrument may fail. Usually, the instrument must be immediately repaired with a minimum of "down time". A systematic approach can greatly simplify and thereby speed up the repair.

However, due to the importance of the amplifier's alignment, it is recommended that when failure is caused by breakdown of any of the components in the signal circuits, the amplifier be returned to the factory for part replacement and amplifier realignment. Shipping instructions are as follows: Ship PREPAID via United Parcel Service to Amplifier Research Corporation, 160 School House Road, Souderton, PA 18964.

4.2 Covers And Amplifier Assembly Removal

The Model 50W1000 consists of the Driver Amplifier and the Final Amplifier. Each will be treated separately.

CAUTION:

REMOVE BOTH POWER CORDS FROM RECEPTACLES
BEFORE SERVICING. DO NOT BLOCK AIR FLOW
INTO UNIT WHEN TESTING.

4.2.1 To Remove Driver Amplifier Assembly

1. Remove 4 front panel screws.
2. Disconnect 5 coax cables on rear.
3. Slide Driver Amplifier forward out of case.

4.2.1.1 Remove Top Cover For Access To Penultimate Amplifier and remove bottom access cover (near rear), to gain access to Low Level Amplifier. Reverse above procedure to reassemble unit.

4.2.2 To Remove Final Amplifier Assembly

1. Remove 4 front panel screws.
2. Disconnect 5 coax cables on rear.
3. Slide final amplifier forward out of case. Remove side and top covers to gain access to RF amplifiers.

4.2.2.1 To Remove RF Amplifier Assembly

1. Remove 7 mounting screws.
2. Disconnect input and output RF cables.
3. Disconnect power connector.
4. Raise RF assembly slowly out of unit.

To reassemble final RF Amplifier Assembly, reverse the above procedure.

4.3 TROUBLESHOOTING

The technique used in troubleshooting solid state instruments are similar to those used in vacuum tube instruments. For instance, a good way to start troubleshooting is to check the supply voltage at the amplifier supply voltage terminal. If it is low or nonexistent, check the power supply components starting with the AC fuse.

The power supply output voltage should be nominally +26 volts. Incorrect voltage could result in over dissipation of the transistors or severe distortion and non-linearity of the amplifier. The power supply may be disconnected from the RF board to enable troubleshooting without danger of damaging the RF board. Connect the power supply output to an external load resistor to simulate the amplifier load.

The red overload light on the front panel will light if the input RF is above a preset value (Approximately +3dBm) or if one of the regulators output voltage drops below a preset value. Each regulator has a red indicator on the PC Board. Thus a visual check for a red light will tell which regulator or amplifier, stage is at fault.

First remove the input RF signal and press the reset switch if the overload light is on then look for a regulator problem.

Finally, determine if the individual amplifier stages are operational by injecting a signal into the transistor base and looking for an indication of output.

4.4 SERVICING ETCHED CIRCUIT BOARDS

When soldering leads, use a hot forty watt or smaller iron. Apply heat sparingly to the leads, not to the printed wiring on the board. Before installing new parts, clean holes to receive new part without forcing. Have new leads tinned to receive solder quickly with a minimum of heat and without residue.

SECTION V

REPLACEABLE PARTS

5.1 INTRODUCTION

This section contains information to ordering replacement parts. The following parts list show the parts in alphanumeric order of their reference designators and indicate the description; and, together with any applicable notes, provide the following:

- a. Description of the part.
- b. Manufacturer's part number.
- c. Typical manufacturer of the part.

Miscellaneous parts are listed at the end of the parts list.

5.2 ORDERING INFORMATION

To obtain replacement parts, address order to Amplifier Research, 160 School House Road, Souderton, PA 18964. Identify and include instrument model and serial numbers.

5.3 NONLISTED PARTS

To obtain a part that is not listed, include:

- a. Instrument model number.
- b. Instrument serial number.
- c. Description of the part.
- d. Function and location of the part.

5.4 REFERENCE DESIGNATIONS

A = assembly
B = fan
BT = battery
C = capacitor
CB = circuit breaker
CR = diode
DS = lamp
E = terminal
F = fuse
IC = integrated circuit
J = jack
K = relay
L = inductor
M = meter
P = plug
Q = transistor, semiconductor
R = resistor, potentiometer
RT = temperature sensing element
S = switch
T = transformer
TB = terminal block
TP = test point
U = integrated circuit
V = vacuum tube, neon bulb, photocell, etc.
VR = zener diode
W = wire, cable
X = socket

5.5 PARTS LISTS

See the following sheets for Parts Lists.

ML 100/809-501

MODEL 50W1000

DESCRIPTIVE INFORMATION	SUPPORT DOCUMENTS
FREQUENCY 1-1000MHz	TEST DATA SHEET 1000892
POWER OUT 50WATTS	TEST PROCEDURE 1002015
PRIMARY POWER 115/230VAC, 50/60Hz	ENVELOPE DWG
COOLING INTERNAL FANS	SALES DATA SHEET INFORMAL PRINTED
PACKAGE 19" RACK 22 3/4" PANEL	MANUAL CLASS I (SEE REVERSE SIDE)
OPTIONS INCLUDED	REMARKS

[illegible]

FORM 109 REV0378



AMPLIFIER RESEARCH

DATE	R	DATE	R
14 FEB 83	-	7 JUL 85	D
12 MAR 84	A		
9 AUG 84	B		
4 DEC 84	C		

MASTER LIST

www.valuetronics.com

[illegible]

 AMPLIFIER RESEARCH						APPROVED E.E.		DATE	APPROVED M.E.	DATE	ORIGINATOR W.C. SPINDLER	DATE 21 MAY 81	
TITLE RF BOARD Assy												DWG. NO. PL1000787	
												SHEET 15 OF	REV AA

QUANTITY REQUIRED										ITEM OR SYMBOL	PART NO.	DESCRIPTION	VALUE	TOL	RATING	SPECIFICATION OR VENDOR
518	517	516	515	514	513	512	511	510								
					1	1	1	1	1	C15	196D105X9035HAI	CAP, FXD TANT	1.0uf		35V	SPRAGUE
					1	1	1	1	1	C14	5835-000Y5U203Z	CAP, FXD CER	.02uf		25V	ERIE
					1	1	1	1	1	C13	196D105X9035HAI	CAP, FXD TANT	1.0uf		35V	SPRAGUE
					1	1	1	1	1	C12	5835-000Y5U203Z	CAP, FXD CER	.02uf		25V	ERIE
					1	1	1	1	1	C11	196D105X9035HAI	CAP, FXD TANT	1.0uf		35V	SPRAGUE
					1	1	1	1	1	C10	5835-000Y5U203Z	CAP, FXD CER	.02uf		25V	ERIE
					1	1	1	1	1	C9	196D105X9035HAI	CAP, FXD TANT	1.0uf		35V	SPRAGUE
					1	1	1	1	1	C8	5835-000Y5U203Z	CAP, FXD CER	.02uf		25V	ERIE
					1	1	1	1	1	C7	196D105X9035HAI	CAP, FXD TANT	1.0uf		35V	SPRAGUE
					1	1	1	1	1	C6	5835-000Y5U203Z	CAP, FXD CER	.02uf		25V	ERIE
					1	1	1	1	1	C5	5855-000Y5U503Z	CAP, FXD CER	.05uf		25V	ERIE
					1	1	1	1	1	C4	5855-000Y5U503Z	CAP, FXD CER	.05uf		25V	ERIE
					1	1	1	1	1	C3	196D336X9035TE4	CAP, FXD TANT	33uf		35V	SPRAGUE
					1	1	1	1	1	C2	5855-000Y5U503Z	CAP, FXD CER	.05uf		25V	ERIE
					1	1	1	1	1	C1	5855-000Y5U503Z	CAP, FXD CER	.05uf		25V	ERIE



APPROVED E.E.	DATE	APPROVED M.E.	DATE	ORIGINATOR W.C. SPINDLER	DATE 21 MAY 81
TITLE RF BOARD ASSY			DWG. NO. PL1000787		
SHEET 16 OF			REV A		

ORIGINATOR W.C. SPINDLER	DATE 21 MAY 81
DWG. NO. PL1000787	
SHEET 17 OF	REV A

[illegible]

 AMPLIFIER RESEARCH	APPROVED E.E.		DATE	APPROVED M.E.	DATE	ORIGINATOR <i>D.W.ROTH</i>	DATE <i>21MAY81</i>	
	TITLE <i>RF BOARD Assy</i>						DWG. NO. <i>PL1000787</i>	
							SHEET <i>22</i> OF <i>REV AA</i>	

															QUANTITY REQUIRED					ITEM OR SYMBOL	PART NO.	DESCRIPTION	VALUE	TOL	RATING	SPECIFICATION OR VENDOR
518	517	516	515	514	513	512	511	510																		
					/	/	/	/	/	/	/	/	/	/	R30		RES, FXD, COMP	180	5%	1/4W						
					/	/	/	/	/	/	/	/	/	/	R29		RES, FXD, COMP	120	5%	1/4W						
					/	/	/	/	/	/	/	/	/	/	R28		RES, FXD, COMP	120	5%	1/4W						
					/	/	/	/	/	/	/	/	/	/	R27		RES, FXD, COMP	180	5%	1/4W						
					/	/	/	/	/	/	/	/	/	/	R26		RES, FXD, COMP	1.0K	5%	1/4W						
					/	/	/	/	/	/	/	/	/	/	R25		RES, FXD, COMP	1.0 K	5%	1/4W						
					/	/	/	/	/	/	/	/	/	/	R24		RES, FXD, COMP	180	5%	1/4W						
					/	/	/	/	/	/	/	/	/	/	R23		RES, FXD, COMP	1.5K	5%	1/4W						
					/	/	/	/	/	/	/	/	/	/	R22		RES, FXD, COMP	180	5%	1/4W						
					/	/	/	/	/	/	/	/	/	/	R21		RES, FXD, COMP	2.7 K	5%	1/4W						
					/	/	/	/	/	/	/	/	/	/	R20		RES, FXD, COMP	300	5%	1/4W						
					/	/	/	/	/	/	/	/	/	/	R19		RES, FXD, COMP	3.3K	5%	1/4 W						
					/	/	/	/	/	/	/	/	/	/	R18		RES, FXD, COMP	2.7K	5%	1/4 W						
					/	/	/	/	/	/	/	/	/	/	R17		RES, FXD, COMP	2.7K	5%	1/4 W						
					/	/	/	/	/	/	/	/	/	/	R16		RES, FXD, COMP	360	5%	1/4 W						

 AMPLIFIER RESEARCH	APPROVED E.E.		DATE	APPROVED M.E.	DATE	ORIGINATOR	DATE
	TITLE		RF BOARD ASSY			DWG. NO.	21 MAY 81
						PL1000787	
						SHEET	REV
						25	4

[illegible]

AMPLIFIER RESEARCH				APPROVED E.E.		DATE	APPROVED M.E.	DATE	ORIGINATOR DW ROTH	DATE 21 MAY 81
				TITLE RF BOARD ASSY					DWG. NO. PL 1000787	
									SHEET 26 OF	REV A

APPROVED E.E.	DATE	APPROVED M.E.	DATE	ORIGINATOR D. W. ROTH	DATE 21 MAY 81
TITLE RF BOARD ASSY				DWG. NO. PL 1000 787	
				SHEET 27 OF	REV AA

[illegible]

**AMPLIFIER
RESEARCH**

APPROVED E.E.	DATE	APPROVED M.E.	DATE	ORIGINATOR	DATE
TITLE			REGULATOR ASSY		
MULTI-PURPOSE			LOW VOLTAGE		
			DWG. NO. PL1001097		
			SHEET 1 OF 5 REV A		

509	508	507	506	505	504	503	502	501	ITEM OR SYMBOL	PART NO.	DESCRIPTION	VALUE	TOL	RATING	SPECIFICATION OR VENDOR
-	-	-	-	-	-	-	-	-	CR3	IN4448	DIODE				ANY
1	1	1	1	1	1	1	1	1	CR2	IN4720	DIODE				ANY
1	1	1	1	1	1	1	1	1	CR1	IN4720	DIODE				ANY
-	-	-	-	-	-	-	-	-	C6	811-00025U0-103M	CAP, FXD CERAMIC	.01uf		500V	ERIE
1	1	1	1	1	1	1	1	1	C5	TVA-1304	CAP, FXD, ELEC	10uf		50V	SPRAGUE
1	1	1	1	1	1	1	1	1	C4	105RMR050M	CAP, FXD ELEC	1.0uf		50V	ILLINOIS CAP
									C3						
									C3						
-	-	-	-	-	-	-	-	-	C3	4787TTA050A	CAP, FXD ELEC	4700uf		50V	ILLINOIS CAP
-	-	-	-	-	-	-	-	-	C3	43F9825AA9	CAP, FXD, ELEC	500uf		75V	G.E.
-	-	-	-	-	-	-	-	-	C3	TVA 1318.3	CAP, FXD, ELEC	2500uf		50V	SPRAGUE
1	1	1	1	1	1	1	1	1	C2	TC0104Z	CAP, FXD, CERAMIC	0.1uf		50V	ARCO
1	1	1	1	1	1	1	1	1	C1	TC0104Z	CAP, FXD, CERAMIC	0.1uf		50V	ARCO

		APPROVED E.E.	DATE	APPROVED M.E.	DATE	ORIGINATOR	DATE
		TITLE		REGULATOR ASSY		DWG. NO.	PL1001097
		MULTI-PURPOSE LOW VOLTAGE		SHEET	2 OF	REV	M

[illegible]

AMPLIFIER RESEARCH				ORIGINATOR DW Roth		DATE 20 Jun 79	
APPROVED E.E.		DATE		APPROVED M.E.		DATE	
TITLE REGULATOR ASSY				DWG. NO. PL1001097			
MULTI-PURPOSE LOW VOLTAGE				SHEET 4 OF REV A			

[illegible]

AMPLIFIER RESEARCH				APPROVED E.E.	DATE	APPROVED M.E.	DATE	ORIGINATOR D.W. ROTH	DATE 18 SEP 78
				TITLE PROTECTION CIRCUIT ASSY					
				DWG. NO. PL1001134					
				SHEET 1 OF 5 REV L					

QUANTITY REQUIRED										ITEM OR SYMBOL	PART NO.	DESCRIPTION	VALUE	TOL	RATING	SPECIFICATION OR VENDOR
509	508	507	506	505	504	503	502	501								
								1	1	Q2	2N5061	SCR				ANY
										Q1	NOT USED					
								6	-	L1-16	1000634-401	CORE, FERRITE				AR 2
								1	-	J1	450-3286-003	PIN JACK				CAMBION 3
								1	1	CR5	1N4448	DIODE				
								1	1	CR4	1N4448	DIODE				
								1	1	CR3	1N5061	DIODE				ANY
								1	1	CR2	1N4448	DIODE				ANY
										CR1	NOT USED					
								1	-	C8	FR3-50	CAP, FEED-THRU				TEXAS SPECTRUM 1
								1	-	C7	FR3-50	CAP, FEED-THRU				TEXAS SPECTRUM 1
								1	-	C6	FR3-50	CAP, FEED-THRU				TEXAS SPECTRUM 1
								1	-	C5	FB2B	CAP, FEED-THRU				METUCHEN 1
								1	-	C4	FR3-50	CAP, FEED-THRU				TEXAS SPECTRUM 1
								1	-	C3	FR3-50	CAP, FEED-THRU				TEXAS SPECTRUM 1
								1	1	C2	CK60BX101K	CAP, Fxd CER	100PF			ANY
								1	1	C1	GBD-102K	CAP, Fxd CER	.001uf		1KV	MULTI-PROD
																SPECIFICATION OR VENDOR

APPROVED E.E.		DATE	APPROVED M.E.	DATE	ORIGINATOR <i>D.W. Roth</i>	DATE <i>18 SEP 78</i>
TITLE <i>PROTECTION CIRCUIT ASSY</i>		DWG. NO. <i>PL1001134</i>		SHEET <i>2</i> OF <i>REV L</i>		

[illegible]

AMPLIFIER RESEARCH				APPROVED E.E.	DATE	APPROVED M.E.	DATE	ORIGINATOR	DATE
				TITLE		DWG. NO.		REV	
				PS & HOUSING ASSY		PL1001209		M	
				7" CABINET / RACK		SHEET 1 OF 8			

[illegible]

AMPLIFIER RESEARCH				APPROVED E.E.	DATE	APPROVED M.E.	DATE	ORIGINATOR <i>D.W. Roth</i>	DATE <i>11 JULY 79</i>
				TITLE <i>P.S. & HOUSING ASSY</i>					
				<i>7" CABINET / RACK</i>					
				DWG. NO. <i>PL 1001209</i>					
				SHEET <i>2</i> OF <i>REV K</i>					

[illegible]

 AMPLIFIER RESEARCH	APPROVED E.E.		DATE	APPROVED M.E.	DATE	ORIGINATOR	DATE
	TITLE		DWG. NO.				
	7" CABINET / RACK		REV K				
	P.S. & HOUSING ASSY		PL1001209				

[illegible]

AMPLIFIER RESEARCH			
APPROVED E.E.	DATE	APPROVED M.E.	DATE
TITLE <i>P.S. & HOUSING Assy</i>			
DWG. NO. <i>PL1001209</i>		DATE <i>11 July 74</i>	
SHEET <i>5</i> OF <i>5</i>		REV <i>L</i>	

509	508	507	506	505	504	503	502	501	ITEM OR SYMBOL	PART NO.	DESCRIPTION	VALUE	TOL	RATING	SPECIFICATION OR VENDOR
									25	5x520	POP RIVET				L. TON
									24	5082-4707	MT6 KIT, L.E.D.				H-P
									23	4511-137-100-2C	CLIP, CAP MTG				SEASTROM
									22						
									21	1002001-104	GLIDE, CHASSIS				
									20	1001111-104 F6-M2	PANEL, TRIM				
									19	1001111-103 F6-M1	PANEL, TRIM				
									18	1001111-102 F2	CHANNEL, TRIM				
									17	1001111-301 F1	PANEL ASSY				
									16	1002051-101	BRACKET, MTG				
									15	1001071-101	SUPPORT, CONN				
									14	1000299-101	NAME PLATE				
									13	1000033-101	SCREEN, FAN				
									12	1001206-101	ANGLE, SUPPORT				
									11	1000749-102	ANGLE, SUPPORT				
									10	1000749-101	ANGLE, SUPPORT				
									9	1417-4-11-2	STANDOFF TERM.				
									8	1001112-107	COVER, BOTTOM				
									7	1001112-105	COVER, TOP				
									6						
									5	1001112-112	PANEL, SIDE (RIGHT)				
									4	1001112-301	PANEL ASSY, REAR				
									3	1001112-104	PANEL, SIDE, (LEFT)				
									2	1001112-102	PANEL, FRONT				
									1	1001112-101	PLATE, MTG				

		APPROVED E.E.	DATE	APPROVED M.E.	DATE	ORIGINATOR	DWR0TH	DATE
		TITLE PS & HOUSING ASSY			DWG. NO. PL1001209		REV K	
		7" CABINET / RACK			SHEET 7 OF			

 AMPLIFIER RESEARCH	APPROVED E.E.	DATE	APPROVED M.E.	DATE	ORIGINATOR J. VOGENSENBERG	DATE 24 JUNE 82
	TITLE POWER SUPPLY & HOUSING ASSY					
	DWG. NO. PL1001504					
SHEET 1 OF 5 REV D						

QUANTITY REQUIRED										ITEM OR SYMBOL	PART NO.	DESCRIPTION	VALUE	TOL	RATING	SPECIFICATION OR VENDOR
509	508	507	506	505	504	503	502	501								
								14	14	J2	02-09-1118	CONTACT, FEMALE				MOLEX
								1	1	J2	03-09-1151	CONN, RECEPT				MOLEX
								14	14	J1	02-09-1118	CONTACT, FEMALE				MOLEX
								1	1	J1	03-09-1151	CONN, RECEPT				MOLEX
								1	1	FL1	15JX5451A	FILTER, LINE	15A			SPRAGUE
								AR	AR	F1		FUSE	10A	280V		ANY
								AR	AR	F1		FUSE	20A	115V		ANY
								1	1	DS1	BIM-1	LIGHT, INDICATOR (RED)				ALCO
								1	1	B4	WS2107FL	FAN				IMC
								1	1	B3	WS2107FL	FAN				IMC
								1	1	B2	WS2107FL	FAN				IMC
								1	1	B1	WS2107FL	FAN				IMC

 AMPLIFIER RESEARCH	APPROVED E.E.		DATE	APPROVED M.E.	DATE	ORIGINATOR J. VOGGENBERG	DATE 24 JUN 82
	TITLE POWER SUPPLY & HOUSING ASSY						DWG. NO. PL 1001504
							SHEET 2 OF REV C

[illegible]

 AMPLIFIER RESEARCH	APPROVED E.E.	DATE	APPROVED M.E.	DATE	ORIGINATOR J. JOGENSENBERG	DATE 24 JUN 82
	TITLE POWER SUPPLY & HOUSING ASSY					
	DWG. NO. PL1001504					
	SHEET 3 OF REV D					

[illegible]

 AMPLIFIER RESEARCH	APPROVED E.E.		DATE	APPROVED M.E.	DATE	ORIGINATOR W. C. SPINDLER	DATE 17 MAY 82
	TITLE RF BOARD Assy					DWG. NO. PL1001632	
						SHEET 1 OF 8	REV 0

AMPLIFIER RESEARCH				ORIGINATOR <i>W.C. SPINDLER</i>	DATE <i>17 MAY 82</i>
APPROVED E.E.	DATE	APPROVED M.E.	DATE		
TITLE <i>RF BOARD Assy</i>				DWG. NO. <i>PL1001632</i>	
				SHEET <i>3</i> OF <i>REV -</i>	

										ITEM OR SYMBOL	PART NO.	DESCRIPTION	VALUE	TOL	RATING	SPECIFICATION OR VENDOR
509	508	507	506	505	504	503	502	501	QUANTITY REQUIRED							
									20							
									19							
									18	8	8					UNICORP 3
									17							
									16							
									15							
									14	4	4					
									13							2 AR
									12							
									11							
									10		TXBF-032-025B	HEAT SINK				IERC
									9							
									8	1	1000966-103	SHIELD				AR
									7	1	1000966-102	SHIELD				AR
									6	4	1000966-101	SHIELD, END				AR
									5							
									4	1	1000964-301	HEAT SINK				AR
									3							
									2							
									1	1	1001634-101	PRINTED WIRING BD				AR

										APPROVED E.E.	DATE	APPROVED M.E.	DATE	ORIGINATOR W.C. SPINDLER	DATE 17 MAY 82
										TITLE RF BOARD ASSY					
										DWG. NO. PL1001632					
										SHEET 7 OF REV F					



										QUANTITY REQUIRED			ITEM OR SYMBOL	PART NO.	DESCRIPTION	VALUE	TOL	RATING	SPECIFICATION OR VENDOR
509	508	507	506	505	504	503	502	501											
								REF	1001674	BLOCK DIAGRAM							511	A	28 Dec 82
																	656	B	18 APR 84
																	715	C	4 DEC 81
										</									

										QUANTITY REQUIRED										SPECIFICATION OR VENDOR		
509	508	507	506	505	504	503	502	501	ITEM OR SYMBOL	PART NO.	DESCRIPTION	VALUE	TOL	RATING								
											SHEET											
											1	A										
											2	A										
											3		NOT PART OF MANUAL									

[illegible]

 AMPLIFIER RESEARCH	APPROVED E.E.	DATE	APPROVED M.E.	DATE	ORIGINATOR J. VOGENER	DATE 23 JUN 82
	TITLE RF ASSY				DWG. NO. PL1001668	
					SHEET 2 OF REV A	

 AMPLIFIER RESEARCH	APPROVED E.E.		DATE	APPROVED M.E.		DATE	ORIGINATOR J. VOGENSENBERG	DATE 23 JUN 72
	TITLE AMPLIFIER ASSY, FINAL							
	DWG. NO. PL 1001680							
	SHEET 1 OF 3 REV D							

QUANTITY REQUIRED										ITEM OR SYMBOL	PART NO.	DESCRIPTION	VALUE	TOL	RATING	SPECIFICATION OR VENDOR
509	508	507	506	505	504	503	502	501								
								1	W5	18750	CONN, COAX	"N"				AMPHENOL
								10" 10"	W5	RG-142 B/U	CABLE, COAX					ANY
								1	W5	UG-1095A/U	CONN, COAX	"N"				ANY
								1	W4	142-0261-006	CONN, COAX	SMA				E.F. JOHNSON
								11" 11"	W4	RG-142 B/U	CABLE, COAX					ANY
								1	W4	142-0261-006	CONN, COAX	SMA				E.F. JOHNSON
								1	W3	142-0261-006	CONN, COAX	SMA				E.F. JOHNSON
								11" 11"	W3	RG-142 B/U	CABLE, COAX					ANY
								1	W3	142-0261-006	CONN, COAX	SMA				E.F. JOHNSON
								1	W2	142-0261-006	CONN, COAX	SMA				E.F. JOHNSON
								11" 11"	W2	RG-142 B/U	CABLE, COAX					ANY
								1	W2	142-0261-006	CONN, COAX	SMA				E.F. JOHNSON
								1	W1	142-0261-006	CONN, COAX	SMA				E.F. JOHNSON
								11" 11"	W1	RG-142 B/U	CABLE, COAX					ANY
								1	W1	142-0261-006	CONN, COAX	SMA				E.F. JOHNSON

 AMPLIFIER RESEARCH	APPROVED E.E.	DATE	APPROVED M.E.	DATE	ORIGINATOR J. VOGGENBERG	DATE 23 JUN 91
	TITLE AMPLIFIER ASSY, FINAL				DWG. NO. PL1001680	
					SHEET 2 OF	REV C

 AMPLIFIER RESEARCH							APPROVED E.E.	DATE	APPROVED M.E.	DATE	ORIGINATOR J. VOONBERG	DATE 23 JUN 82
TITLE AMPLIFIER ASSY, FINAL							DWG. NO. PL001680					
							SHEET 3 OF			REV B		

ORIGINATOR J. JOGENDRER	DATE 22 JUN 67
DWG. NO. PL 1001681	
SHEET 1 OF 1 REV -	

APPROVED E.E.	DATE	APPROVED M.E.	DATE
TITLE RE UNIT ASSY			
FINAL AMPLIFIER			

										—	—	2	JUN 82
										498	A	29	NOV 82
										SCHEMATIC			
										1001212			
										RET	REF	REF	REF
										MODEL 80W1000M1			
										MODEL 80W1000M1			
										MODEL 40W1000/50W1000			
										MODEL 40W1000/50W1000			
										NOT PART OF MANUAL			
										3	—		
										2	A		
										1	A		
										SHEET			
										REV			
										DESCRIPTION			
										PART NO.			
										ITEM OR SYMBOL			
										VALUE			
										TOL RATING			
										SPECIFICATION OR VENDOR			

APPROVED E.E.		DATE	APPROVED M.E.	DATE	ORIGINATOR J. NOGGENBERG	DATE 23 JUN 82
TITLE RF ASSY		DWG. NO. PL 1001682				
		SHEET 1 OF 3				REV A



QUANTITY REQUIRED										ITEM OR SYMBOL	PART NO.	DESCRIPTION	VALUE	TOL	RATING	SPECIFICATION OR VENDOR
509	508	507	506	505	504	503	502	501								
								1	R4		RES, FxD COMP	39Ω	5%	1/4W	A-B	
								1	R3		RES, FxD COMP	39Ω	5%	1/4W	A-B	
								1	R2		RES, FxD COMP	36Ω	5%	1/4W	A-B	
								1	R1		RES, FxD COMP	36Ω	5%	1/4W	A-B	
								1	L2	012-04-03R0-A03-26-2	INDUCTOR, AIR				A	
								1	L1	HAIRPIN BEND USING ENTIRE LEAD OF R5						
								1	J2	UG-625B/U	CONN, COAX	BNC			ANY	
								1	J1	UG-625B/U	CONN, COAX	BNC			ANY	
								1	C4	2222-801-96135	CAP, VAR	1-6PF			MERCO-ELECTRA	
								1	C3	2222-801-96135	CAP, VAR	1-6PF			MERCO-ELECTRA	
								1	C2	808-01006	CAP, VAR	5-50PF			MERCO-ELECTRA	
								1	C1	808-00016	CAP, VAR	2-18PF			MERCO-ELECTRA	

	APPROVED E.E.	DATE	APPROVED M.E.	DATE	ORIGINATOR W.C. SPINDLER	DATE 23 July 82
	TITLE GAIN EQUALIZER ASSY				DWG. NO. PL1001717	
	SHEET 2 OF				REV A	

[illegible]

 AMPLIFIER RESEARCH	APPROVED E.E.	DATE	APPROVED M.E.	DATE	ORIGINATOR W.C. SPINDLER	DATE 23 JULY 82
	TITLE <i>GAIN EQUALIZER ASSY</i>					
	DWG. NO. <i>PL1001717</i>					
	SHEET <i>3</i> OF <i>REV A</i>					

[illegible]

AMPLIFIER RESEARCH				APPROVED E.E.		DATE	APPROVED M.E.	DATE	ORIGINATOR J. NOGENBERG	DATE 28 DEC 92
				TITLE RF BOARD ASSY				DWG. NO. PL1001780		
								SHEET 4 OF		REV -

[illegible]

AMPLIFIER RESEARCH		APPROVED E.E.	DATE	APPROVED M.E.	DATE	ORIGINATOR J. JOGENSEN	DATE 28 DEC 82
		TITLE		DWG. NO.		REV	
		REF BOARD ASSY		PL 1001780		5 OF B	

[illegible]

AMPLIFIER RESEARCH				APPROVED E.E.	DATE	APPROVED M.E.	DATE	ORIGINATOR J. VOGENBERG	DATE 28 DEC 82
				TITLE R.F BOARD ASSY					
				DWG. NO. 1001780					
				SHEET 6 OF REV B					

QUANTITY REQUIRED										ITEM OR SYMBOL	PART NO.	DESCRIPTION	VALUE	TOL	RATING	SPECIFICATION OR VENDOR
509	508	507	506	505	504	503	502	501								
									20							
									19							
									18							
									17							
								8	16	S-783-MOI-F05A-G	WASHER, .312 O.D. X .141 I.D. X .093 THK					3
								4	15							
									14		WASHER, .312 O.D. X .164 I.D. X .060 THK					2
									13							
									12	TXBF-032-025B	HEATSINK					1ERC
									11							
									10							
									9							
								1	8	1000966-103	SHIELD					AR
								1	7	1000966-102	SHIELD					AR
								4	6	1000966-101	SHIELD, END					AR
									5							
								1	4	1000964-301	HEATSINK					AR
									3							
								1	2	1001781-101	PRINTED WIRING BOARD					AR
								1	1	1001634-101	PRINTED WIRING BOARD					AR

		APPROVED E.E.	DATE	APPROVED M.E.	DATE	ORIGINATOR J. NOGEMBERG	DATE 28 DEC 82
		TITLE RF BOARD ASSY					DWG. NO. PL1001780
							SHEET 7 OF REV A

 AMPLIFIER RESEARCH		APPROVED E.E.	DATE	APPROVED M.E.	DATE	ORIGINATOR J. Vo GENE RG	DATE 15 FEB 83
		TITLE RF AMPLIFIER ASSY MODEL 50W1000					
		DWG. NO. PL 1001809 SHEET 1 OF 3 REV A					

QUANTITY REQUIRED										ITEM OR SYMBOL	PART NO.	DESCRIPTION	VALUE	TOL	RATING	SPECIFICATION OR VENDOR
509	508	507	506	505	504	503	502	501								
								22"	W5	AWG #22(SHIELDED)	WIRE					
								2	W5	FR-188	PLUG, PHONO					AR
								1	W4	142-0261-006	CONN, COAX	SMA				EF. JOHNSON
							12"	W4	W4	RG-142 B/U	CABLE, COAX					ANY
							1	W4	W4	142-0261-006	CONN, COAX	SMA				EF. JOHNSON
								1	W3	142-0261-006	CONN, COAX	SMA				EF. JOHNSON
							12"	W3	W3	RG-142 B/U	CABLE, COAX					ANY
							1	W3	W3	142-0261-006	CONN, COAX	SMA				EF. JOHNSON
								1	W2	142-0261-006	CONN, COAX	SMA				EF. JOHNSON
							12"	W2	W2	RG-142 B/U	CABLE, COAX					ANY
							1	W2	W2	142-0261-006	CONN, COAX	SMA				EF. JOHNSON
								1	W1	142-0261-006	CONN, COAX	SMA				EF. JOHNSON
							12"	W1	W1	RG-142 B/U	CABLE, COAX					ANY
							1	W1	W1	142-0261-006	CONN, COAX	SMA				EF. JOHNSON

	APPROVED E.E.	DATE	APPROVED M.E.	DATE	ORIGINATOR J. JOGENSENBERG	DATE 15 FEB 83
	TITLE RF AMPLIFIER ASSY				DWG. NO. PL1001809	
	MODEL 50W1000				SHEET 2 OF REV -	

QUANTITY REQUIRED										ITEM OR SYMBOL	PART NO.	DESCRIPTION	VALUE	TOL	RATING	SPECIFICATION OR VENDOR
509	508	507	506	505	504	503	502	501								
								1	15	1002016-101	LABEL, WARNING					R
								1	14	1001944-101	LABEL, WARNING					R
								1	13	1001720-101	LABEL, WARNING					R
								1	12	1001714-101	LABEL, WARNING					R
									11							
								1	10	17504	LINE CORD				15A	BELDEN
								1	9	C3120-008-BL	LINE CORD				6A	PACIFIC ELEC
								1	8	1002014-101	ANGLE, SUPPORT					R
								1	7	1002013-101	ANGLE, SUPPORT					R
								4	6	1001670-101	ANGLE, SUPPORT					R
								1	5	1001667-501	AMPL ASSY, DRV R					R
								1	4	1001680-501	AMPL ASSY, FINAL					R
									3							
									2							
								1	1	R-221920	PACK WITH HW-63 CASTERS AND QUICK RELEASE FASTENERS ON TOP & SIDE PANELS PAINT-SEPIA SEMIGLOSS COLOR # 24091 PER MIL STD-595					OPTIMA

 AMPLIFIER RESEARCH	APPROVED E.E.	DATE	APPROVED M.E.	DATE	ORIGINATOR J. VOGENBERG	DATE 15 FEB 83
	TITLE RF AMPLIFIER ASSY				DWG. NO. PL 1001809	
	MODEL 50W1000				SHEET 3 OF REV A	

[illegible]

QUANTITY REQUIRED										ITEM OR SYMBOL	PART NO.	DESCRIPTION	VALUE	TOL	RATING	SPECIFICATION OR VENDOR
509	508	507	506	505	504	503	502	501								
							1	1	A2C15	VP12BY333K	CAP, FXD CER	.033uF				VITRAMON
							1	1	A2C14	VP12BY333K	CAP, FXD CER	.033uF				VITRAMON
							1	1	A2C13	CM17AH100K500NT	CAP, FXD 50V HIP	10PF				DIELECTRIC JANES
							1	1	A2C12	CM17AH100K500NT	CAP, FXD 50V HIP	10PF				DIELECTRIC JANES
							1	1	A2C11	9371	CAP, VAR	1.5-4PF				JOHANSSON
							1	1	A2C10	VP12BY333K	CAP, FXD 50V ER	.033uF				VITRAMON
							1	1	A2C9	VP12BY683K	CAP, FXD 50V ER	.068uF				VITRAMON
							1	1	A2C8	VP12BY333K	CAP, FXD CER	.033uF				VITRAMON
							1	1	A2C7	VP12BY333K	CAP, FXD CER	.033uF				VITRAMON
							-	-	A2C6	VP12BY333K	CAP, FXD CER	.033uF				VITRAMON
							1	1	A2C5	5855-000-Y5U0-503Z	CAP, FXD CER	.05uF		25V		ERIE
							1	1	A2C4	5815-000-Y5U0-104Z	CAP, FXD CER	0.1uF		25V		ERIE
							1	1	A2C3	196X685X9035KA1	CAP, FXD TANT	6.8uF		35V		SPRAGUE
							1	1	A2C2	5815-000-Y5U0-104Z	CAP, FXD CER	0.1uF		25V		ERIE
							1	1	A2C1	FR3-50	CAP, FEED THRU					TEXAS SPECTRUM
							-	1	A1	1000787-513	RF BOARD ASSY					AR

AMPLIFIER RESEARCH				APPROVED E.E.	DATE	APPROVED M.E.	DATE	ORIGINATOR J. NOBLEBERG	DATE 10 AUG 64
				TITLE RF BOARD ASSEMBLY		DWG. NO. PL100204-6			
						SHEET 2 OF		REV B	

[illegible]

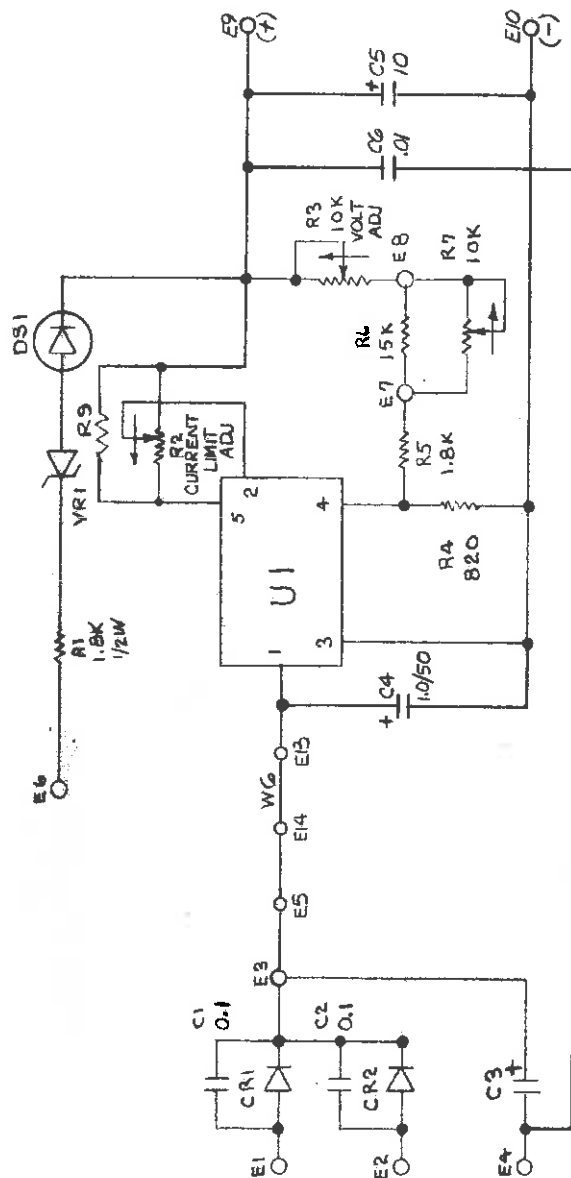
AMPLIFIER RESEARCH				ORIGINATOR	DATE
				B. HOLSTEIN	14 AUG 84
APPROVED E.E.		DATE	APPROVED M.E.		
TITLE		RF BOARD ASSY			
		DWG. NO. PL1002046			
		SHEET 5 OF REV A			

[illegible]

AMPLIFIER RESEARCH				APPROVED E.E.		DATE	APPROVED M.E.	DATE	ORIGINATOR	DATE
				TITLE RF BOARD ASSY					B. HOLSTEIN	14 AUG 84
									DWG. NO. PL1002046	
									SHEET 6 OF	REV A

SECTION VI
SCHEMATICS

DATE	REV
19 JUN 78	—
26 JUN 78	A
5 JUL 78	B
3 SEP 80	C
16 JAN 81	D
24 JUL 81	E
19 DEC 83	F
13 AUG 84	G



NOTES:

1.0 UNLESS OTHERWISE SPECIFIED:
RESISTOR VALUES ARE OHMS

RESISTOR RATINGS ARE 1/4 WATT

CAPACITOR VALUES ARE MICROFARADS

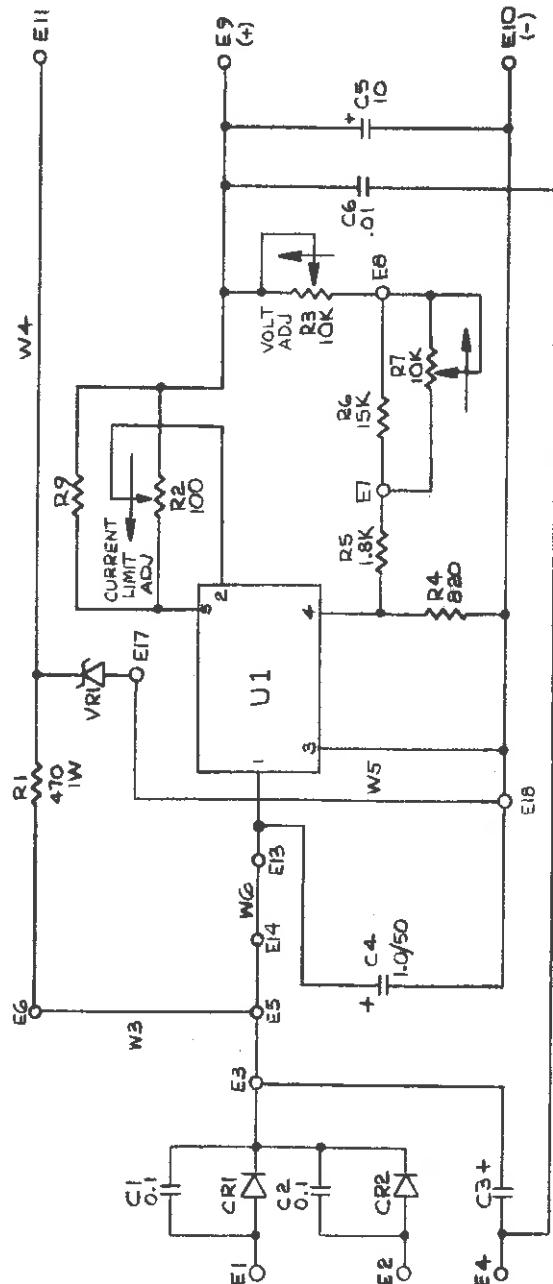
2.0 THIS SCHEMATIC MAY REPRESENT MULTIPLE
ASSEMBLES. SEE APPROPRIATE PARTS LIST
FOR FINAL COMPONENT VALUES.

REFERENCE DESIGNATIONS

LAST USED	NOT USED
C6 R9	R8
CR3 U1	W1-W5
D51 VR1	
E11 W6	

PART NO.		DESCRIPTION		MARK	
PARTS LIST		DATE 19 JUN 78		DRAWN DUBOCH	
QTY. REQD.		DATE 19 JUN 78		DATE 19 JUN 78	
UNLESS OTHERWISE SPECIFIED DO NOT SCALE DRAWING.		DIMENSIONS ARE IN INCHES AND INCLUDE PLATING THICKNESS.		ALL THREADS ARE UNIFIED NATIONAL SERIES, CLASS 2.	
REMOVE ALL BURRS AND SHARP EDGES.		TOLERANCE: ±.010.		DATE 19 JUN 78	
GEN USE		USED ON		DATE 19 JUN 78	
MODEL		SCALE		REV. C	
DWG. NO. 1001098		SHEET 1		OF 1	
SCHEMATIC DIAG REGULATOR MPLV					

DATE	REV
16 Jun 81	—
24 Jul 81	A
10 Oct 81	B
15 Feb 84	C



NOTES:

1.0 UNLESS OTHERWISE SPECIFIED:
 RESISTOR VALUES ARE OHMS
 RESISTOR RATINGS ARE 1/4 WATT
 CAPACITOR VALUES ARE MICROFARADS

2.0 THIS SCHEMATIC MAY REPRESENT MULTIPLE
 ASSEMBLIES. SEE APPROPRIATE PARTS LIST
 FOR FINAL COMPONENT VALUES.

REFERENCE DESIGNATIONS

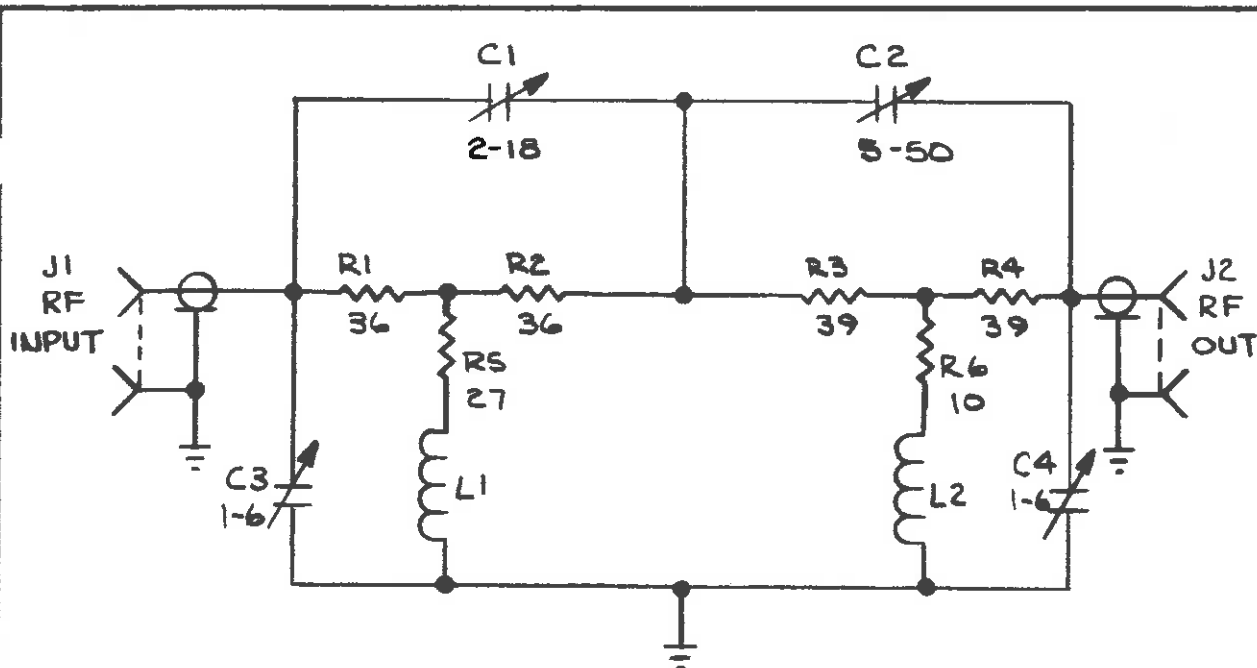
LAST USED	NOT USED
C6 U1	R8
CR2 VR1	W1, W2
E18 W6	R9

QTY. REQD.		PART NO.		DESCRIPTION		M F A T L	
				PARTS LIST			
UNLESS OTHERWISE SPECIFIED DO NOT SCALE DRAWING.		DRAWN J. VALUETRONICS		DATE 16 JUN 81		REV. C	
DIMENSIONS ARE IN INCHES AND INCLUDE PLATING THICKNESS. ALL THREADS ARE UNIFIED NATIONAL SERIES, CLASS 2. REMOVE ALL BURRS AND SHARP EDGES. TOLERANCE: ±.010.		DATE		DATE		DATE	
GEN USE USED ON MODEL		DATE		DATE		DATE	
		SHEET 1		OF 1			



SCHEMATIC DIAG
 REGULATOR MPLV

1001507



DATE	REV
29 Dec 82	A

NOTES:

1.0 UNLESS OTHERWISE SPECIFIED:
 RESISTOR VALUES ARE OHMS
 RESISTOR RATINGS ARE 1/4 WATT
 CAPACITOR VALUES ARE PICO FARADS

2.0 THIS SCHEMATIC MAY REPRESENT MULTIPLE
 ASSEMBLIES. SEE APPROPRIATE PARTS LIST
 FOR FINAL COMPONENT VALUES.

REFERENCE DESIGNATIONS

LAST USED NOT USED

C4 R6

J2

L2

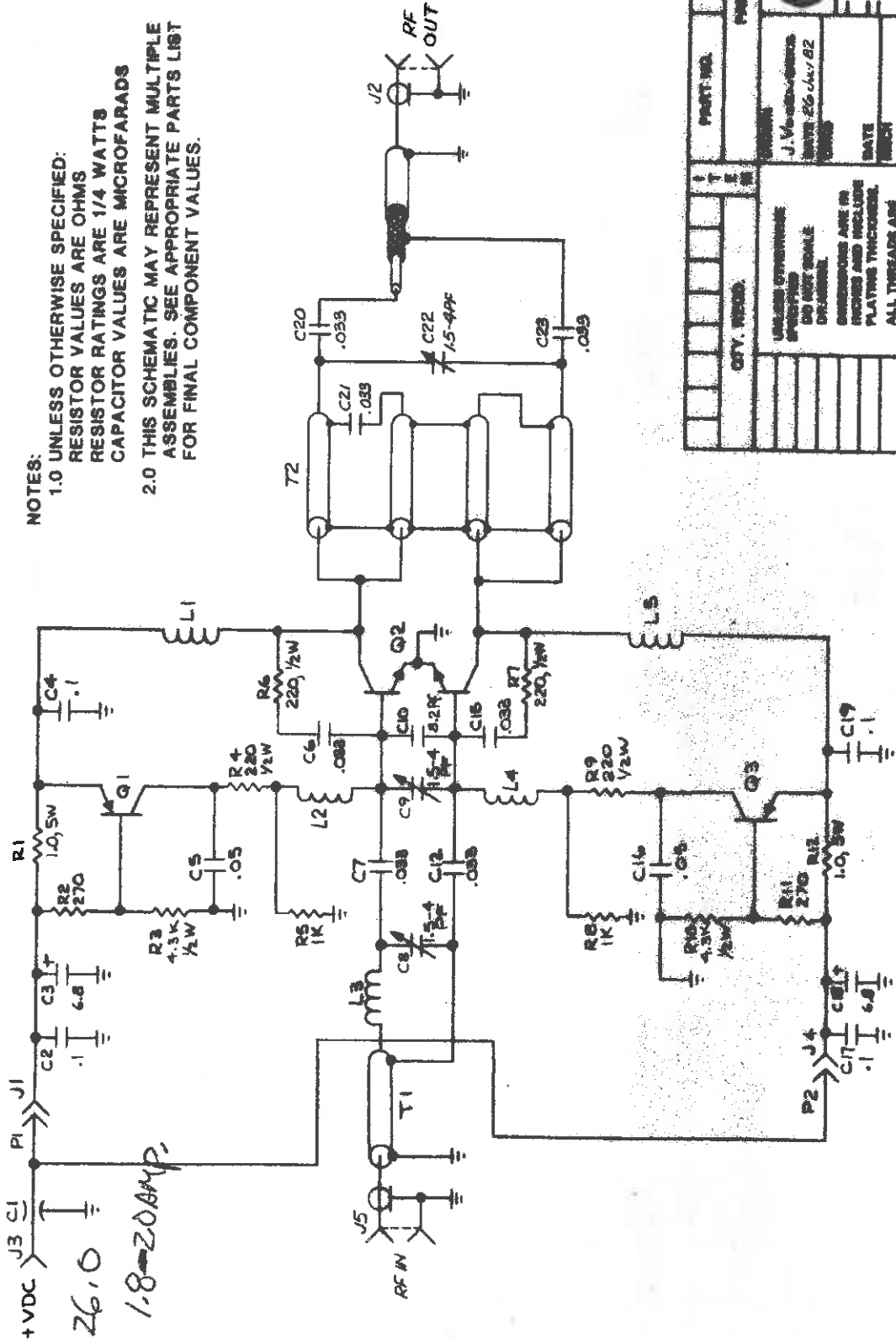
										I T E M	PART NO.		DESCRIPTION		M A R K	F I N	M A T L	
QTY. REQD.											PARTS LIST							
UNLESS OTHERWISE SPECIFIED DO NOT SCALE DRAWING. DIMENSIONS ARE IN INCHES AND INCLUDE PLATING THICKNESS. ALL THREADS ARE UNIFIED NATIONAL SERIES, CLASS 2. REMOVE ALL BURRS AND SHARP EDGES. TOLERANCE: $\pm .010$.										DRAWN								
										J. VOGENSEN								
										DATE 26 JUL 82		SCHEMATIC DIAG GAIN EQUAL'ZR ASSY						
										CHKD								
										DATE								
MECH		DWG. NO. 1001718 REV. A																
DATE																		
ELEC																		
DATE		DWG. SCALE		SHEET / OF /														
40W1000																		
USED ON MODEL																		

DATE	REV
2-11-82	-
27-Dec-82	A
28-Jul-82	B
11-Mar-82	C

NOTES:
 1.0 UNLESS OTHERWISE SPECIFIED:
 RESISTOR VALUES ARE OHMS
 RESISTOR RATINGS ARE 1/4 WATTS
 CAPACITOR VALUES ARE MICROFARADS
 2.0 THIS SCHEMATIC MAY REPRESENT MULTIPLE
 ASSEMBLIES. SEE APPROPRIATE PARTS LIST
 FOR FINAL COMPONENT VALUES.

REFERENCE DESIGNATIONS
 LAST USED NOT USED

C23 Q3
 J4 R2
 L5 T2
 R2



PART NO.		DESCRIPTION		MARK		M A T L	
QTY. REQD.		PARTS LIST					
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE PLATING THICKNESS ALL THREADS ARE UNIFIED NATIONAL SERIES, CLASS 2 REMOVE ALL BURRS AND SHARP EDGES TOLERANCE: ± .010				J. McQuinn DATE: 26 July 82 DESIGNED			
DATE: 26 JUL 82 CHECKED:				DATE: 26 JUL 82 ELEC:			
DATE: 26 JUL 82 USED ON MODEL: 40W/000				DATE: 26 JUL 82 OF 1			
SCHEMATIC DIAG RF BOARD ASSY				DWS. NO. 1001719 REV. C			

[illegible]

NOTES:

1.0 UNLESS OTHERWISE SPECIFIED:

RESISTOR VALUES ARE OHMS

RESISTOR RATINGS ARE 1/4 WATT

CAPACITOR VALUES ARE MICROFARADS

2.0 THIS SCHEMATIC MAY REPRESENT MULTIPLE ASSEMBLIES. SEE APPROPRIATE PARTS LIST FOR FINAL COMPONENT VALUES.

REFERENCE	DESIGNATIONS
LAST USED	NOT USED
1	2
3	4
5	6
7	8
9	10
11	12
13	14
15	16
17	18
19	20
21	22
23	24
25	26
27	28
29	30
31	32
33	34
35	36
37	38
39	40
41	42
43	44
45	46
47	48
49	50
51	52
53	54
55	56
57	58
59	60
61	62
63	64
65	66
67	68
69	70
71	72
73	74
75	76
77	78
79	80
81	82
83	84
85	86
87	88
89	90
91	92
93	94
95	96
97	98
99	100

02503

025 Q3

42

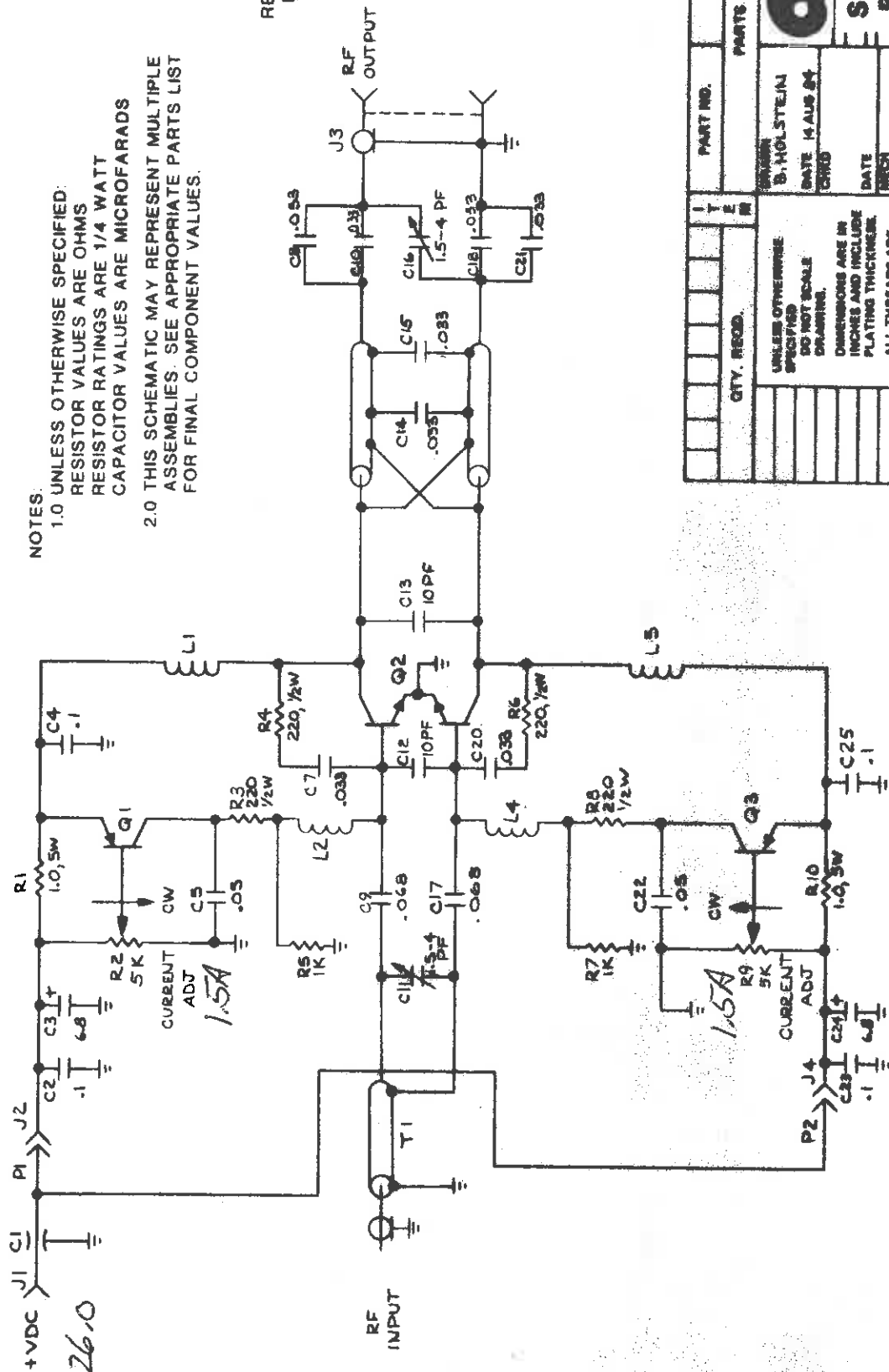
52 T2

22

3

613,092

613,55

[illegible]



WARRANTIES: LIMITATION OF LIABILITY

Seller warrants (i) that seller has title to the goods sold and (ii) that the goods will be free from defects in material and workmanship for a period of one year from date of shipment shown on Amplifier Research invoice. Seller's sole responsibility in fulfilling these warranties shall be to repair or replace any goods which do not conform to the foregoing warranties or, at seller's option, to give buyer credit for defective goods. Warranty service will be provided only for defective goods which are returned within the warranty period, freight costs prepaid, to Amplifier Research or its designated repair facility.

THERE ARE NO OTHER WARRANTIES,
EXPRESS OR IMPLIED, INCLUDING
ANY WARRANTY OF MERCHANTABILITY
OR FITNESS. SELLER SHALL NOT BE
RESPONSIBLE FOR ANY INCIDENTAL
OR CONSEQUENTIAL DAMAGES ARISING
FROM ANY BREACH OF WARRANTY.

No person other than an officer of Amplifier Research Corporation, has any authority to bind seller to any affirmation, representation or warranty except as specifically included in the preceding terms and conditions.

160 SCHOOL HOUSE ROAD
SOUDERTON, PA. 18964
PHONE 215-723-8181
TWX 510-661-6094

REV1081



MODEL NO. 50W1000
 SERIAL NO. 5230
 TESTED BY JKP
 DATE MARCH 27, 1985

TEST DATA SHEET

FREQ (MHZ)	POWER OUTPUT @ 1dB COMPRESSION (WATTS)	POWER OUTPUT SATURATED (WATTS) @ * dBm INPUT *
.1	_____	_____
.2	_____	_____
.5	_____	_____
1	55.3	55.3
5	78.4	78.4 odBm
10	87.7	87.7 odBm
50	107	178 odBm
100	77.7	77.7 odBm
200	170	194 +1dBm
300	78.3	109.8 +1dBm
400	54.5	110.3 +1dBm
500	57.4	73.3 +1dBm
600	40.4	54.2 +1dBm
700	57.3	74.0 +1dBm
800	70.9	90.3 +1dBm
900	52.8	72.1 +1dBm
1000	58.5	72.6 odBm

GAIN (0.1 WATT OUTPUT AND 500 MHz) 52 dB.

FLATNESS $\pm$ 2.0 dB

OPEN TEST ✓ OK

SHORT TEST ✓ OK

STABILITY ✓ OK

DISTORTION better than 24dB @ 50Watts out.
 INPUT VSWR 2.0:1.0
 OUTPUT VSWR _____

160 SCHOOL HOUSE ROAD
 DOUDERTON, PA. 18964
 PHONE 215-723-8181
 TWX 510-661-6094

1000892
 REV0582