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Technical Manual

for

LF/MF Receiving Antenna Multicoupler

Model LMC-8

THE TECHNICAL MATERIEL CORPORATION

COMMUNICATIONS ENGINEERS

PLEASE READ THIS FIRST

Dear TMC Product User:

Thank you for purchasing the TMC Model LMC-8 Receiving Antenna Multicoupler. This model is one of a series of six different types that provide RF distribution from one or two receiving antennas to up to thirty-two communications receivers, simultaneously. The LMC-8 provides the capability of coupling eight receivers to a single antenna, each with a nominal gain from antenna to receiver of 2dB. The LMC-8 operates from 10KHz to 5MHz depending on the input filters installed. Several such filters are available, including a low pass type with the high-end cut-off at 2MHz and a broadcast stopband filter to suppress unwanted signals in the commercial broadcast frequency range. Additional filters allow operation of the multicoupler to 40MHz. Other models feature multiple antenna inputs each to sixteen communication receivers.

The antenna multicoupler is described in detail in the enclosed technical manual. Product bulletins and application notes, as appropriate to the LMC-8, are also included. These publications provide important information about using TMC equipment. Please read them.

Since the LMC-8 requires mating connectors and coaxial cables to operate properly, a catalog on TMC's connector products is included. If you need additional data or some specific technical information, please give our Customer Service a call at (914) 698-4800 or return the business reply card provided in this package. Our FAX (facsimilie) number is (914) 698-4805.

If you are missing any items, please contact TMC directly or through your local sales office.

Thank you for selecting the TMC Model LMC-8 antenna multicoupler.

The Technical Materiel Corporation
Product Marketing

Warranty

The Technical Materiel Corporation, hereinafter referred to as TMC, warrants the equipment - except electron tubes, semi-conductor devices, fuses, lamps, batteries, and articles made of glass or other fragile or expendable materials - purchased hereunder to be free from defect in workmanship and materials under normal use and service, when used for the purposes for which the same is designed, for a period of ONE YEAR from the date of delivery FOB factory. TMC further warrants that the equipment will perform in a manner equal to or better than published technical specifications as amended by any additions or corrections thereto accompanying the formal equipment offer.

TMC will replace or repair any such defective items, FOB factory, which may fail within the stated warranty period, provided:

- Any claim of defect under this warranty is made within sixty (60) days after discovery thereof and that inspection by TMC, if required, indicates the validity of such claim to TMC's satisfaction;
- The defect is not the result of damage incurred in shipment from or to the factory;
- The equipment has not been altered in any way either as to design or use whether by replacement parts not supplied or approved by TMC, or otherwise; and
- Any equipment or accessories furnished but not manufactured by TMC, or not of TMC design shall be subject only to such adjustments as TMC may obtain from the supplier thereof.

At TMC's option, any defective part or equipment which fails within the warranty period shall be returned to TMC's factory for inspection, properly packed with shipping charges prepaid and the TMC RETURN AUTHORIZATION number clearly marked on the package. Electron tube warranty claims should be made directly to the manufacturer of such tubes since tubes furnished by TMC bear only the manufacturer's warranty.

No warranties, expressed or implied, other than those specifically set forth herein shall be applicable to any equipment manufactured or furnished by TMC and the foregoing warranty shall constitute the purchaser's sole right and remedy. In no event does TMC assume any liability for consequential damages, or for loss, damage or expense directly or indirectly arising from the use of such equipment, or any inability to use them either separately or in combination with other equipment or materials or from any other cause.

All inquiries should be directed to the following:

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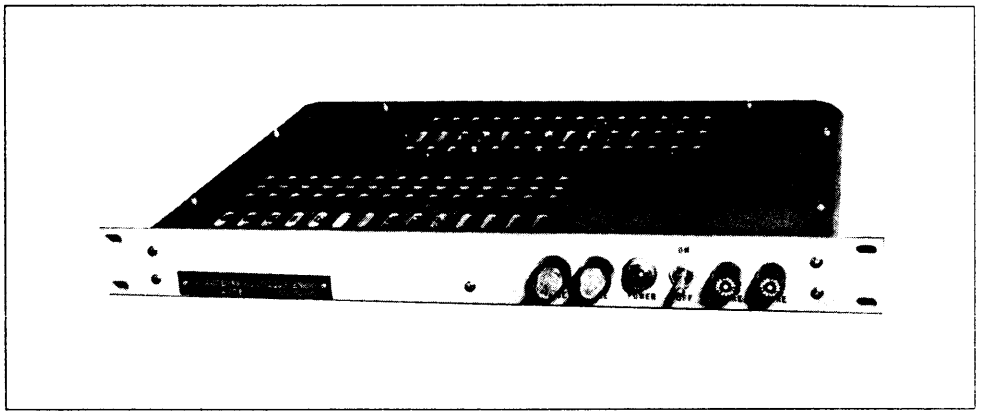
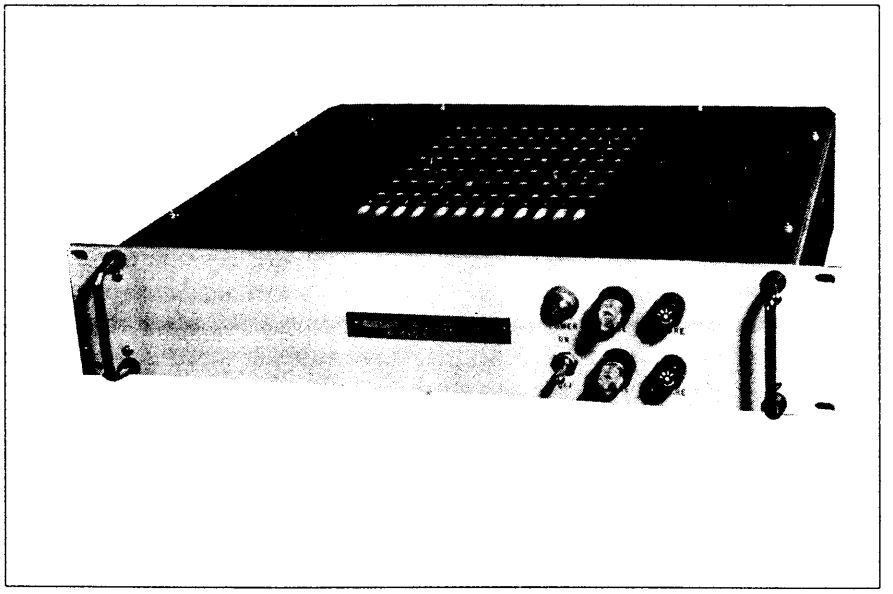


Model LMC-8

One RF Antenna Input
Eight LF/MF RF Outputs



Model LMC-16

One RF Antenna Input
Sixteen LF/MF RF Outputs

Model LMC-32

One RF Antenna Input
Thirty-two LF/MF RF Outputs

THE TECHNICAL MATERIEL CORPORATION

COMMUNICATIONS ENGINEERS

Section 1 - General Description

1.1 Functional Description

1.1.1 Overview

The LMC-8 MF/HF Antenna Multicoupler is a broadband coupling unit, used for coupling up to eight low/medium frequency communication receivers to one common antenna, simultaneously. In addition, the multicoupler may be used as an RF distribution unit when multiple signals from one source are required for test or analysis.The multicoupler provides a nominal 2dB gain from the antenna to any receiver, with a wide dynamic range and low noise characteristic over the frequency range of 10KHz to 5MHz. The equipment is designed to provide excellent isolation from receiver to receiver and from each receiver to the antenna. The multicoupler is fully solid state, including power supply components.

1.1.2 Major Assemblies

The multicoupler consists of one input preamplifier, one output buffer amplifier for each RF output port provided, and a regulated power supply. The input preamplifier is connected to the output amplifiers through an RF distribution line.

1.1.3 Input/Output Characteristics

The input and output characteristic impedance is 50 ohms, with a VSWR better than 1.5-to-1. Optionally, 70 ohms impedance can be provided. Isolation is maintained to a minimum of -40dB between each receiver terminal and -55dB from each receiver terminal to the antenna input.

1.1.4 RF Outputs

The number of output ports available with the LMC-8 is fixed. Eight LF/MF outputs are provided from a common antenna. Input/output connectors, other than the BNC-type normally installed, may be substituted depending on the interconnect required at the receiving site.

1.2 Physical Description

1.2.1 Equipment Mounting

The LMC-8 is designed for mounting in a standard 19-inch rack. The operating controls are located on the front panel. The input connector, output connectors and primary power socket are mounted on the rear panel. The amplifiers and power supply regulator are mounted on printed circuit boards which are in turn bolted to the coupler chassis.

1.2.2 Semiconductor Complement

A list of a semiconductors used in the LMC-8 are listed in Table 1.1.

Table 1.1 - Semiconductor and Integrated Circuit Complement

Power Supply and Regulator	
Rectifier Bridge	NW10005
Bias Regulator	1N758A
Bias Regulator	1N914B
Current Regulator	TX10001
Voltage Regulator	2N5086
Voltage Regulator	2N3055
Preamplifier and Output Circuits	
Bias Regulator	1N914B
Buffer	2N3866
Current Amplifier	2N5160

1.3 Technical Specifications

Frequency Range 10KHz - 5MHz no filter; 10KHz - 2MHz with lowpass filter; other filters including broadcast stopband filter are available.

Number of Outputs Eight LF/MF output ports with frequency range determined by input filters installed.

Input/Output Impedance Nominal 50 ohms, unbalanced. 70 ohms is available. BNC-type connectors. N-type and others are available.

Insertion Gain Nominal +2dB over operating range.

Frequency Response +/-1.0dB, 10KHz-2MHz

Offband Rejection Depends on input filter selected.

Noise Figure Nominal +7dB.

Output/Output Isolation Greater than -40dB

Output/Input Isolation Greater than -55dB

Phase Differential +/-1 degree maximum, output-output

Desensitization For a 4-volt peak input, 10% removed from the operating frequency, a 100 microvolt received signal drops less than 3dB.

1.3 Technical Specifications (Continued)

Intermodulation Distortion For 50-ohm units: Second order is greater than -60dB for a 0.4-volt input; Third order is greater than -65dB.

VSWR Output/Input is better than 1.5-to-1.

Mean-Time-Between-Failure Nominally 20,000 hours

Operating Features

Cooling Convection, no fans or moving parts

Ambient Conditions 0oC to +50oC; Up to 95% R.H. Storage -30°C to +80°C

Primary Power 115VAC standard/230VAC optional, 48-400Hz, single phase.

Power Consumption 25 watts maximum.

Size and Weight 1.75H x 19W x 14D inches, 8lbs (3.6Kg)

Special Features

Monitoring Indicating fuseholders display status of primary power circuits

Safety Fuse and front-end overload protection, preventing circuit failure from high RF voltages at the input. High voltage points are covered and labelled.

Components and Construction Totally solid state circuits mounted to an aluminum alloy chassis. External hardware is stainless steel. Track slides are optional and due to weight distribution, are usually not required.

1.4 LMC Product Group

LMC-2X4	**Dual LF Receiving Antenna Multicoupler, 2X4 Outputs**
LMC-2X8	**Dual LF Receiving Antenna Multicoupler, 2X8 Outputs**
LMC-2X16	**Dual LF Receiving Antenna Multicoupler, 2X16 Outputs**
LMC-4	**LF Receiving Antenna Multicoupler, Four Outputs**
LMC-8	**LF Receiving Antenna Multicoupler, Eight Outputs**
LMC-16	**LF Receiving Antenna Multicoupler, 16 Outputs**
LMC-32	**LF Receiving Antenna Multicoupler, 32 Outputs**

50-ohm Series Options:

- 5F0 50-ohm operation, no input filter
- 5F2 50-ohm operation, broadcast stopband filter (0.6-1.9MHz)
- 5F4 50-ohm operation, low-pass input filter (f_C=2.0MHz)

70-ohm Series Options:

- 7F0 70-ohm operation, no input filter
- 7F2 70-ohm operation, broadcast stopband filter (0.6-1.9MHz)
- 7F4 70-ohm operation, low-pass input filter (f_C=2.0MHz)

Note: Input filters may be combined in LMC-2Xn series only.
Other filters to suit specific applications are available on request.

When ordering, specify both model and option. Example: LMC-8/5F4

Section 2 - Installation

2.1 Initial Inspection

2.1.1 General

Every LMC-8 undergoes a thorough testing and calibration prior to shipment. Upon receipt of the unit, check the packing case and its contents for obvious damage. Unpack the equipment carefully to reduce the risk of damage and to avoid misplacing any parts shipped as loose items. See Table 2.1 for a list of the loose items.

2.1.2 Damage By Carrier

With respect to equipment damage for which the carrier is liable, TMC will assist in describing methods of repair as well as furnishing replacement parts.

2.2 Electrical Installation

2.2.1 Primary Power

The LMC-8 operates from a 115VAC, 48 to 400Hz power source. Optionally, the LMC-8 may be wired for 230VAC, which will be noted by a decal on the rear panel adjacent to the input power connector.

2.2.2 External Connections

The following external connections must be made to the LMC-8 after it has been installed in an equipment rack:

Antenna The antenna cable must be fitted with a connector that mates with the LMC-8 connectors provided. Normally, this is a BNC-type connector, although such connectors as type N are also available. This antenna cable is then connected to ANTENNA INPUT jack 1J1 on the rear panel of the LMC-8.

Power Connect primary power to the unit by plugging the supplied power cable assembly into POWER INPUT connector 1J34 on the rear panel. Ensure that the plug lines up properly with the socket using the keyway as a guide.

Outputs Connect the outputs of the LMC-8 to the assocated receivers via the RF connectors mounted to the rear panel. RF coaxial cables, terminated with the proper mating connectors, are required for this connection.

2.2.3 Clearance Requirements

The LMC-8 equipment should be located in such a way that sufficient clearance is obtained at the rear of the unit for making all RF connections. The front panel controls should also be within easy reach of an operator. The solid state design of the LMC-8 reduces heat problems, allowing "stacking" of up to five LMC-8 units, one above the other, in the same rack. If more than five units are stacked, heat-related problems may occur after prolonged use of the multicouplers. To reduce the possibility of this happening, the equipment cabinet should be fitted for forced air cooling or the couplers should be separated vertically by sufficient space to allow dissipation of the heat into the operating area.

2.3 Performance Check

2.3.1 General

When the appropriate power connections have been made to the LMC-8, turn the POWER switch 1S1 to the ON position. The POWER lamp 1DS1 will light, indicating that the LMC-8 is ready for use. No further checks are required.

Table 2.1 - Loose Items Supplied

CA10505	Power Cable Assembly	1 each
203036	Technical Manual	1 each
UGxx	Mating Connectors	Optional extra

Section 3 - Operation

3.1 General

3.1.1 Controls

Table 3.1 contains a list of the operating controls and indicators that are located on the front panel of the LMC-8.

3.1.2 Procedures

After connecting the antenna, communication receivers and power supply, and turning on the POWER switch, no further operating procedures are required. The LMC-8 is now fully operational without further adjustment.

Table 3.1 Controls and Indicators

Power ON/OFF switch 1S1	Controls primary power application
POWER lamps 1DS1	Lights when primary power is applied and switch 1S1 is turned ON.
FUSE holder/indicator 1F1,1F2	Indicates failure of fuse by illumination of the fuseholder.
SPARE fuse	Two spare fuses are contained in spare fuseholders located on the front panel.

Section 4 - Principles of Operation

4.1 General

4.1.1 Capabilities

The Model LMC-8 Low/Medium Frequency Antenna Multicoupler is a broadband antenna distribution system, designed to couple one LF/MF antenna to the antenna inputs of up to eight communication receivers.

4.1.2 Input/Output

Both the input and output impedance of the LMC-8 multicoupler is nominally 50 ohms, and optionally 70 ohms. The standing wave ratio characteristic is better than 1.5-to-1 over the frequency range of 10KHz to 5MHz.

4.1.3 Salient Performance Features

The LMC-8 multicoupler provides a nominal insertion gain of 2dB from the antenna input to each connected receiver. The coupler is designed to ensure minimum noise generation, and to provide a high degree of intermodulation rejection and isolation between the connected receivers. The rejection and isolation figures for this equipment are stated in the Technical Specifications section of this manual (See Section 1.3).

4.1.4 Equipment Structure

The LMC-8 multicoupler consists of three major sections as shown in System Block Diagram (Figure 4.1) and as is described in the following paragraphs. These sections consist of the preamplifier assembly (1A2/1A3); the output buffer assemblies (1A4/1A5); and the regulated power supply (1A1).

4.2 Preamplifier (1A2 is referred to in text)

4.2.1 Location and Features

The preamplifier is mounted on a printed circuit board designated 1A2. It is a low-noise, wide-band amplifier having a 50-ohm impedance and a nominal voltage gain of 8.5dB. Figure 4.2 depicts its location in the chassis, while Figure 7.2 can be used to locate components and Figure 7.3 is the schematic diagram.

4.2.2 Circuit Analysis

The input to the amplifier is RC-coupled through 1A2R1/1A2C1. This input drives a grounded emitter-buffer amplifier 1A2Q1. The buffer amplifier is followed by a parallel amplifier 1A2Q2/1A2Q3, which provides minimum intermodulation of higher order products. Negative feedback is accomplished through 1A2R8/1A2C11 with a bootstrap connection through 1A2C10. Temperature compensation is obtained with diodes 1A2CR1/1A2CR2 in the bias circuit consisting of 1A2R4, 1A2R5 and 1A2R6. 1A2R7/1A2C12 provide bias for the buffer amplifier 1A2Q1.

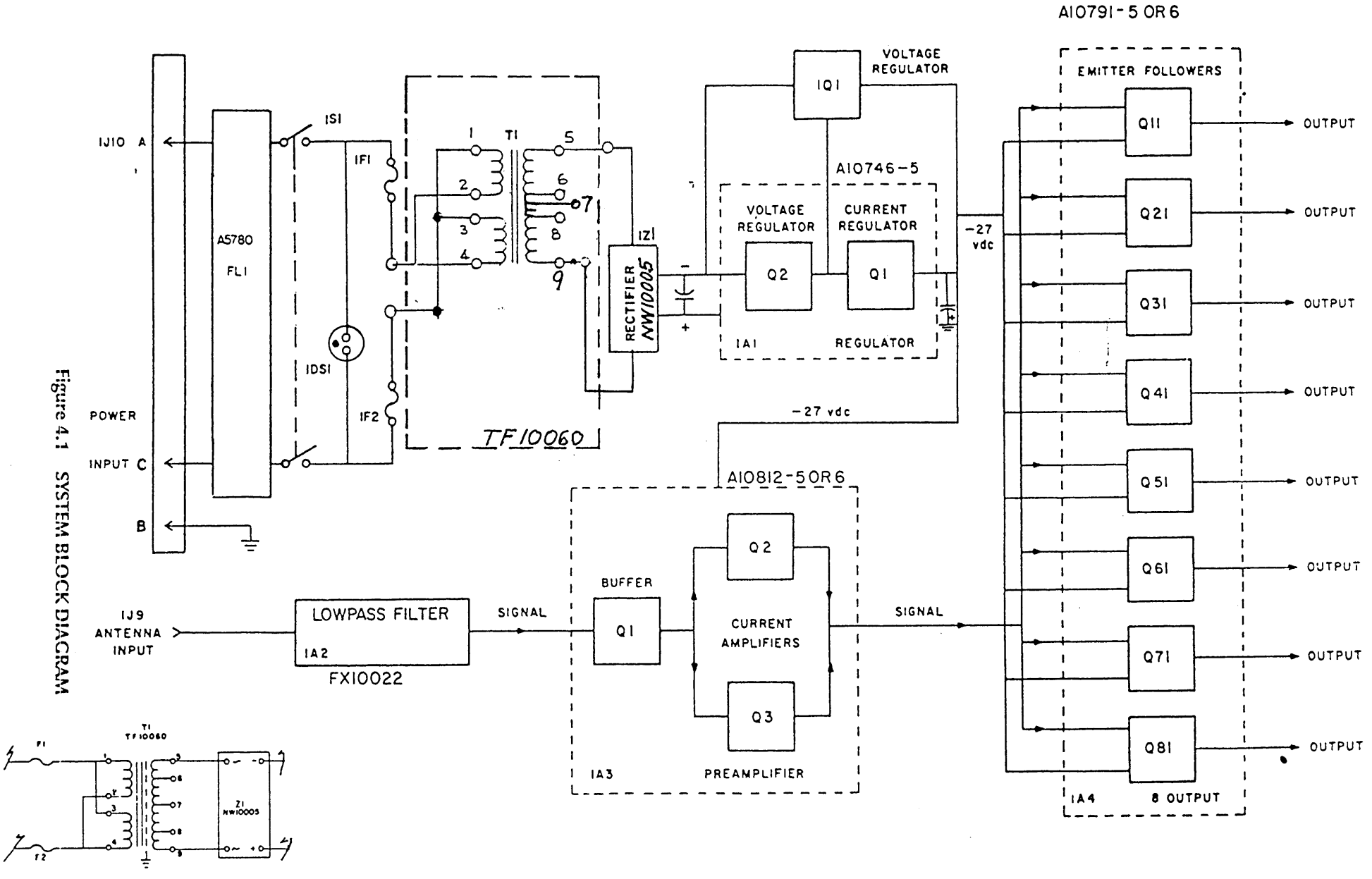


Figure 4.1 SYSTEM BLOCK DIAGRAM

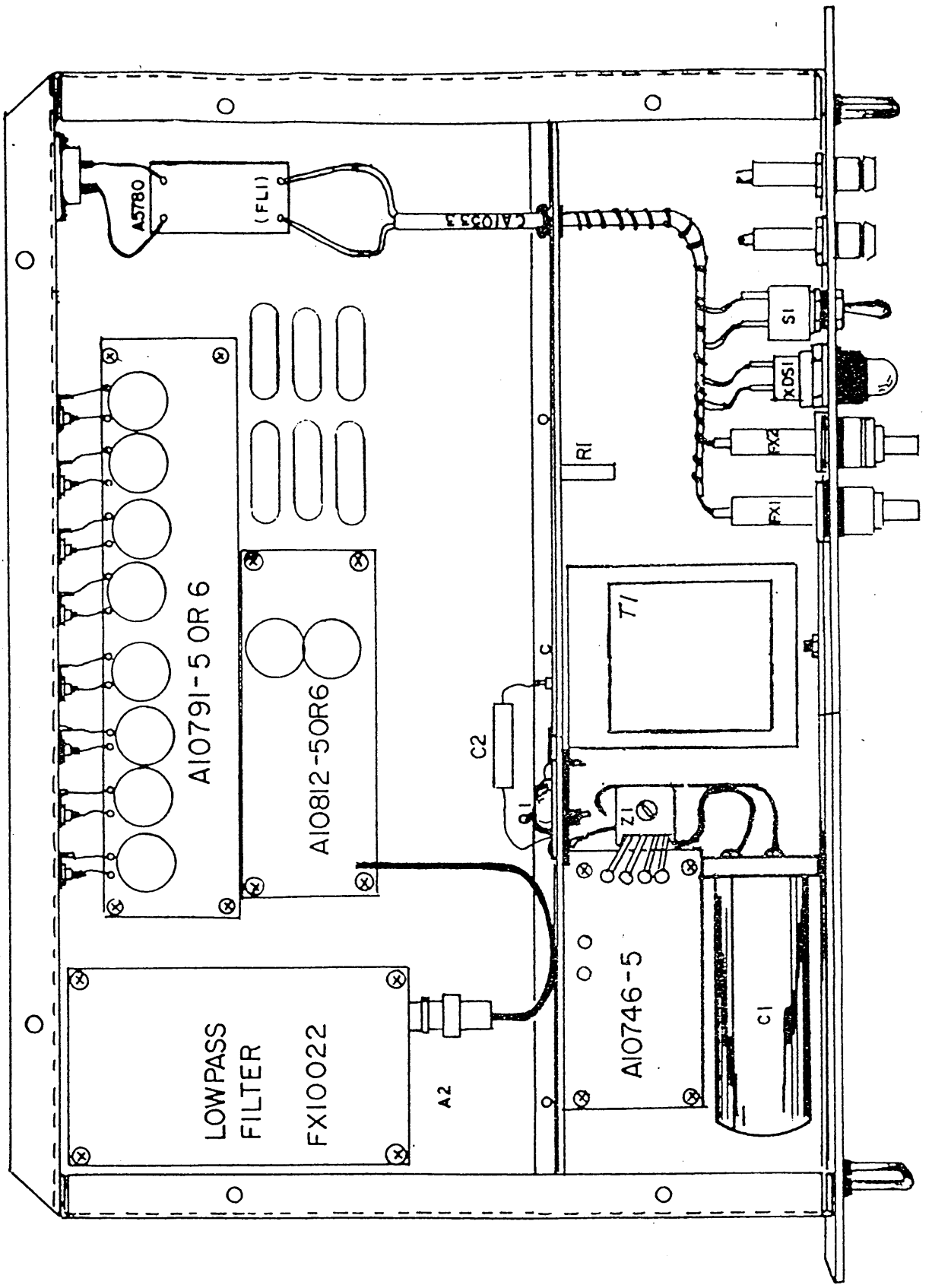


Figure 4.2 ASSEMBLY LINE DRAWING, TOP VIEW

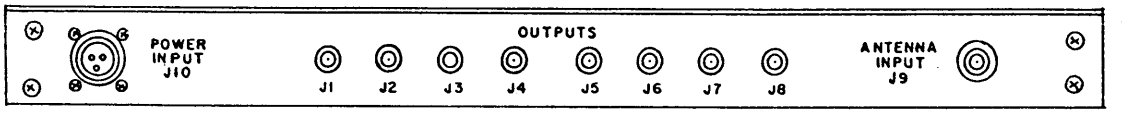


Figure 4.3 ASSEMBLY LINE DRAWING, REAR VIEW

4.2.3 Power Distribution

Power for the preamplifier is obtained from the -28VDC regulated supply 1A1. This DC voltage is heavily decoupled through 1A2C62, 1A2C3, 1A2C5,1A2C6, 1A2C7, 1A2C13, 1A2C14 and 1A2L1 to prevent distortion from the rectified power supply.

4.3 Output Buffer Amplifier

4.3.1 Location and Features

The RF distribution line parallel-feeds identical buffer amplifier assemblies, as shown in Figures 4.2 (assembly), 7.4 (components) and 7.5 (schematic). Each amplifier assembly consists of emitter-follower amplifiers, with an output impedance of 50 ohms and an attenuation of 6.5dB. Therefore, the overall nominal multicoupler insertion gain from the antenna to each output is +2dB.

4.3.2 Circuit Analysis

The input from the RF distribution line is RC-coupled through 1A3R11/1A3C11 to the base of emitter-follower 1A3Q11. Bias is obtained with 1A3R12/1A3R13. The output from the emitter-follower is applied to the output terminal through a matched 50-ohm load circuit consisting of 1A3R15/1A3C13.

4.3.3 Power Distribution

The -28VDC power is obtained from the regulated power supply 1A1 and is filtered through 1A3C1, 1A3C2 and 1A3L11 to the decoupling capacitor 1A3C12 and load compensator 1A3L12 to the 2N3866 transistor via 1A3R14.

4.4 Power Supply and Regulator

4.4.1 Location and Features

The components comprising the power supply are all chassis mounted except for the regulator circuit which is mounted on circuit assembly 1A1. The latter is described in the following paragraphs (See Figures 4.2, 7.6 and 7.7).

4.4.2 Circuit Analysis

Primary power is supplied through two AC line RF filters (1FL1/1FL2) to the ON/OFF switch 1S1. When 1S1 is in the ON position, power is supplied through the two fuses 1F1/1F2 to the power transformer 1T1 and the front panel indicator lamp 1DS1. The secondary of transformer 1T1 produces 29VAC, which is rectified by bridge rectifier 1Z1, and filtered by capacitor 1C1.

4.4.3 Current and Voltage Regulation

The regulator board and transistor 1Q1 provide the voltage and current regulation required for the -29V supply. All components in this section, with the exception of transistor 1Q1, are mounted on printed circuit assembly 1A1. Potentiometer 1A1R7 is used to set up the initial -28V required by the LMC. Transistor 1A1Q1 and diodes 1A1CR1, 1A1CR2 and 1A1CR3 form a voltage reference circuit (sensitive to temperature and load changes) which in turn control Darlington-connected transistors 1A1Q2/1Q1. In addition to providing short-circuit protection, this also provides the necessary voltage and current regulation for the power supply. The -29VAC output from Pin 6 of the regulator board is filtered through 1L1 and 1C1, which are chassis mounted, and then fed to the circuit boards.

Section 5 - Maintenance

5.1 General

5.1.1 Test Equipment Requirements

This section describes preventive maintenance, trouble-shooting and repair procedures for the LMC-8. The following equipment is suggested in order to perform these procedures properly:

- RF Signal Generator, H/P Model 651B or equivalent
- Oscilliscope, Tektronix Model 545 or equivalent
- Standard Volt-Ohmmeter

5.1.2 Component Location

For aid in the location of components, refer to Figures 4.2, 7.2, 7.4 and 7.6.

5.2 Preventive Maintenance

5.2.1 General Cleaning Methods

Preventive maintenance for the LMC-8 consists of routine functions such as visual inspection and cleaning. Periodic cleaning is recommended as dust may build up on components, reducing the efficiency of the coupler unit and possibly causing circuit failure. To facilitate cleaning the unit, use a vacuum cleaner or a low-pressure filtered compressed-air supply.

5.2.2 Visual Check and Adjustment

A simple visual check of the unit when it is opened up for servicing or cleaning will often reveal potential trouble spots and thereby reduce downtime due to component failure. Signs of trouble may be found in discoloration, warped printed circuit boards and damaged wiring or cables. Any deteriorating component should be replaced immediately. All hardware should be checked for tightness during preventive maintenance inspections.

5.3 Troubleshooting

5.3.1 General Failure Symptoms

During operation of the LMC-8, the following failure symptoms may be observed:

- No signal output from one or all receivers.
- Weak or noisy signals in one or all receivers.

5.3.2 Fault Localization

The primary objective of the troubleshooting procedure is to localize the fault to a particular section of the coupler unit. Table 5.1 provides a guide to locating and correcting the possible failures.

Table 5.1 - Troubleshooting Procedures

Symptom:	**No signal output at one or more receivers**
Possible Cause:	Receiver failure (One output affected)
Remedial Action:	Refer to receiver manual
Possible Cause:	Interconnection, coupler to receiver (One output affected)
Remedial Action:	Check the RF cable between the receiver and coupler
Possible Cause:	Power supply failure in the coupler (All outputs affected)
Remedial Action:	If POWER ON lamp 1DS1 is not illuminated, check for power input failure or defective input filters 1FL1/1FL2. If POWER ON lamp is on, check indicating type fuses 1F1/1F2 and replace with spare if necessary. If both fuses are intact, proceed to check the transformer 1T1, bridge rectifier 1Z1 and voltage regualtor 1A1. -28VDC should be available at terminal 6 of the regulator board.
Possible Cause:	Output buffer amplifier failure (One output affected)
Remedial Action:	If DC voltage is present at the output of the regulator and at the output buffer amplifier, possible failure of a component in the output amplifier is indicated. Removal, testing and repair of the module 1A4 or 1A5 will be necessary.
Possible Cause:	Failure of input preamplifier (All outputs affected)
Remedial Action:	If DC voltage is present at the output of the regulator and at the preamplifier, possible failure of a component in the preamplifier or failure in the input antenna circuit is indicated. For repair of the preamplifier, removal and testing of the module 1A2 or 1A3 will be necessary.
Symptom:	**Weak or noisy signals to ALL receivers**
Possible Cause:	Antenna fault
Remedial Action:	Connect the antenna lead-in directly to the antenna input of the receiver. If the symptom persists, check for a fault in the antenna system.
Possible Cause:	Faulty preamplifier
Remedial Action:	If the cause is not attributable to the antenna, possible failure of a component in the preamplifier is indicated. Removal, testing and repair of module 1A2 or 1A3 will be necessary.

Table 5.1 - Troubleshooting (Continued)

Symptom:	**Weak or noisy signals in ONE receiver**
Possible Cause:	Receiver noise
Remedial Action:	Refer to receiver manual
Possible Cause:	Interconnection, coupler to receiver
Remedial Action:	Check the RF cable between the coupler and receiver.
Possible Cause:	Faulty output buffer amplifier
Remedial Action:	Connect the receiver to another output terminal of the same module (1A4/1A5). If the symptom persists, the probable cause will be found in the power supply circuit of the module. If the symptom is no longer present, the fault will be found in the directly-associated buffer amplifier circuit or output connection. Removal, testing and repair of the module will be necessary if the fault is not located in the output connection.

5.4 Repair

5.4.1 General Method

Repair work generally consists of replacing the defective component. The following cautions should be observed:

- Make sure the replacement component is an exact duplicate of the defective one. This is particularly important in the amplifier modules.
- Place any new component in the same location as the component it replaces. The dressing of any wire runs should not be altered.
- Observe standard practice when replacing semiconductor components by using a low-wattage soldering iron and appropriate heat-sink tools.
- Avoid damage to the printed circuit wiring when handling or repairing amplifier and regulator modules.

5.5 Adjustments

5.5.1 Output Voltage Trim

Only one adjustment may be required in the LMC-8 multicoupler. Power supply regulator 1A1 contains a screwdriver-adjustable potentiometer (R7) that was preset, prior to shipment, to provide a -28VDC. If the output voltage is found to require adjustment, use an accurate voltmeter and re-set the voltage to -28VDC by rotating the potentiometer control clockwise to reduce voltage or counter-clockwise to raise voltage.

5.5.2 Amplifier Trim

The amplifiers do not require any adjustment since all components are of fixed values.

Section 6 - Parts Lists

A10739	Front Panel, Rear Panel and Main Chassis Assembly
A10746-5	Regulator Assembly (1A1)
A10791-6	Output Amplifier Assembly (1A4)
A10812-6	Preamplifier Assembly (1A3)

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Item Assembly Listing

Item/Description	Qty	Rev	Notes/Symbols
Assembly: A10739			Panel Assembly
BI100-51 Lamp, Glow	1EA		DS1
FH103 Fuseholder	2EA		
FH104-3 Fuseholder	2EA		
FU102-.250 Fuse, Cartridge	4EA		FOR 230VAC OPERATION ONLY F1 F2
FU102-.500 Fuse, Cartridge	4EA		FOR 115VAC OPERATION ONLY F1 F2
LD10307/MS10932 Panel, Front	1EA		
ST22K Switch, Toggle	1EA		S1
TS106-2 Light, Indicator	1EA		

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Item Assembly Listing

Item/Description	Qty	Rev	Notes/Symbols	
Assembly: A10746-5			**Printed Circuit Board Assembly**	
1N758 Diode, Zener	1EA		CR1	
1N914B Diode, Silicon	1EA		CR2	
2N5086 Transistor, Silicon, PNP	1EA		Q2	
A10746-4 Printed Circuit Board	1EA			
CC131-32 Capacitor, Fixed, Ceramic	1EA		C4	
CC131-39 Capacitor, Fixed, Ceramic	2EA		C1	C6
CSR13G474ML Capacitor, Fixed, Ceramic	2EA		C3	C5
CSR13G685ML Capacitor, Fixed, Ceramic	1EA		C2	
HD10002-7 Heat Sink	1EA			
PX829-1 Insulator, Transistor Pad	1EA			
RC20GF122J Resistor, Fixed, Composition	1EA		R5	
RC20GF150J Resistor, Fixed, Composition	1EA		R3	
RC20GF392J Resistor, Fixed, Composition	1EA		R6	
RC20GF473J Resistor, Fixed, Composition	1EA		R1	
RC20GF561J Resistor, Fixed, Composition	1EA		R4	
RC20GF682J Resistor, Fixed, Composition	1EA		R8	

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Item Assembly Listing

Item/Description	Qty	Rev	Notes/Symbols
Assembly: A10746-5			Resistor, Fixed, Composition
RC20GF683J Resistor, Fixed, Composition	1EA		R2
RV111U102A Resistor, Variable, Non-W/W	1EA		R7
TX10001 Transistor, Germanium, NPN	1EA		Q1

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Item Assembly Listing

Item/Description	Qty	Rev	Notes/Symbols		
Assembly: A10791-6			**Printed Circuit Board Assembly**		
2N3866 Transistor, Silicon, NPN	8EA		Q11 Q41 Q71	Q21 Q51 Q81	Q31 Q61
A10791-4 Printed Circuit Board	1EA				
CC10018 Capacitor, Fixed, Ceramic	18EA		C1 C13 C32 C43 C62 C73	C2 C22 C33 C52 C63 C82	C12 C23 C42 C53 C72 C83
CC131-41 Capacitor, Fixed, Ceramic	8EA		C11 C41 C71	C21 C51 C81	C31 C61
CL275-222 Coil Assembly, RF, Tuned	8EA		L12 L42 L72	L22 L52 L82	L32 L62
CL275-221 Coil	8EA		L11 L41 L71	L21 L51 L81	L31 L61
HD10004 Heat Sink	8EA				
RC07GF432J Resistor, Fixed, Composition	8EA		R12 R42 R72	R22 R52 R82	R32 R62
RC07GF332J Resistor, Fixed, Composition	8EA		R13 R43 R73	R23 R53 R83	R33 R63
RC07GF101J Resistor, Fixed, Composition	8EA		R11 R41 R71	R21 R51 R81	R31 R61
RC32GF181J Resistor, Fixed, Composition	8EA		R14 R44 R74	R24 R54 R84	R34 R64
RN60D52R3F Resistor, Fixed, Film	8EA		R15 R45 R75	R25 R55 R85	R35 R65

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Item Assembly Listing

Item/Description	Qty	Rev	Notes/Symbols		
Assembly: A10812-6			**Printed Circuit Board Assembly**		
1N914B Diode, Silicon	2EA		CR1	CR2	
2N3866 Transistor, Silicon, NPN	2EA		Q1	Q3	
2N5160 Transistor, Silicon, PNP	1EA		Q2		
A10812-4 Printed Circuit Board	1EA				
CC10018 Capacitor, Fixed, Ceramic	7EA		C1 C6 C13	C2 C10	C4 C12
CC131-44 Capacitor, Fixed, Ceramic	1EA		C9		
CC131-39 Capacitor, Fixed, Ceramic	3EA		C3	C7	C8
CE105-50-50 Capacitor, Electrolytic	2EA		C5	C14	
CL275-221 Coil	1EA		L1		
CM04ED050J03 Capacitor, Fixed, Mica	1EA		C11		
FW02HBN Washer, Flat	4EA				
HD10004 Heat Sink	2EA				
HD10002-7 Heat Sink	1EA				
LWS02MRN Washer, Spring Tension	4EA				
PX829-1 Insulator, Transistor Pad	1EA				
RL07S752G Resistor, Fixed, Composition	1EA		R7		

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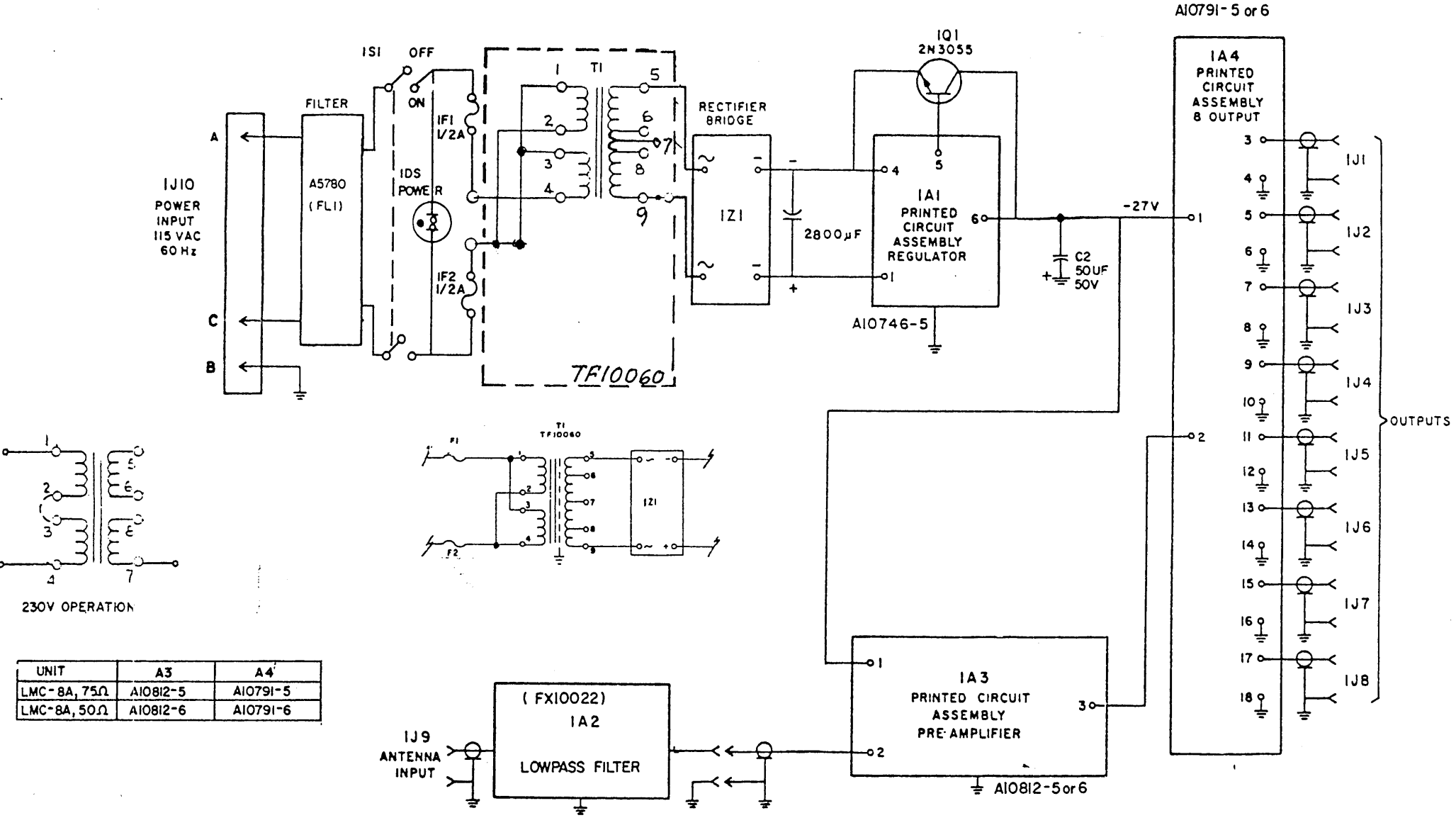
Item Assembly Listing

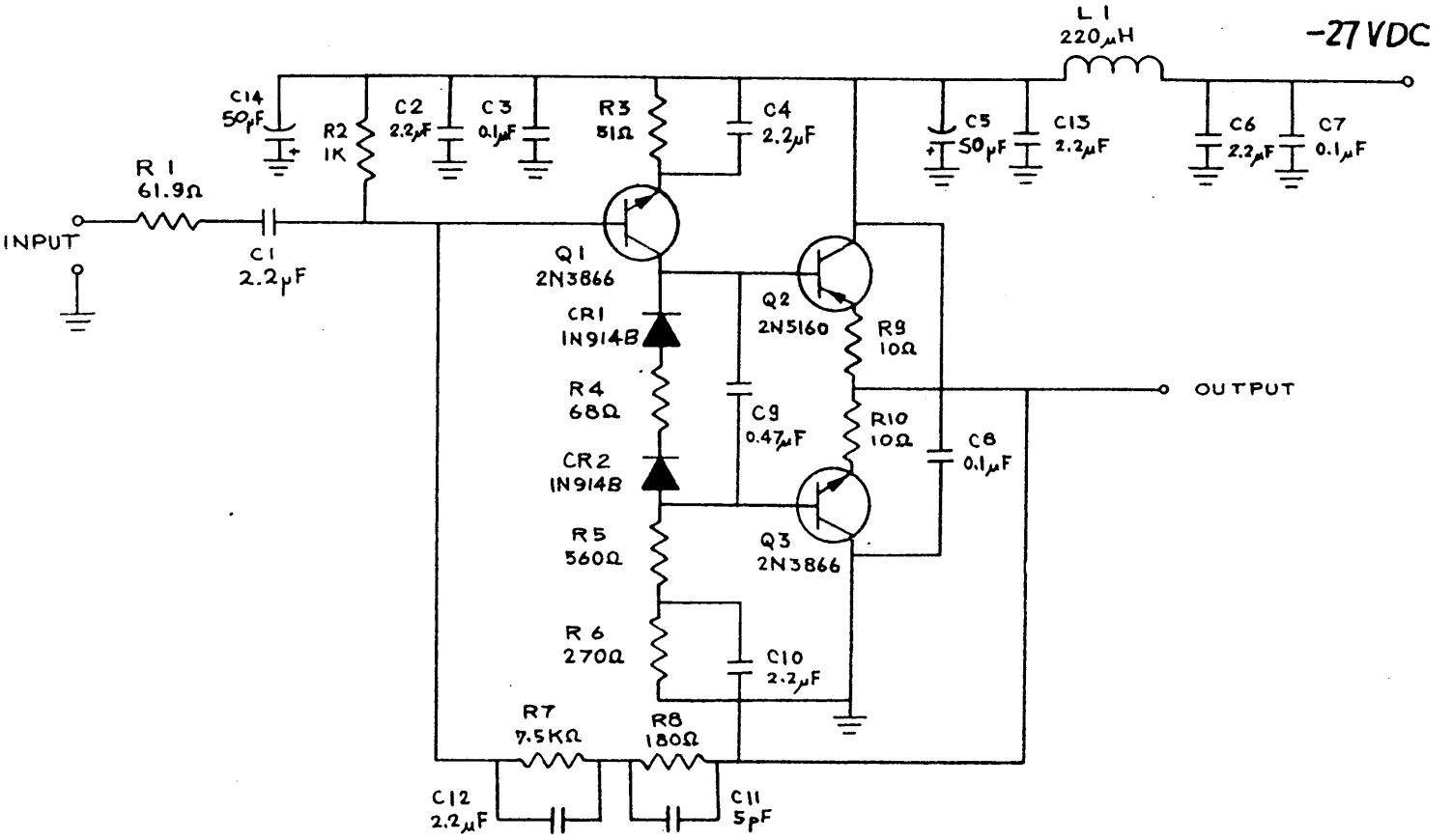
Item/Description	Qty	Rev	Notes/Symbols
Assembly: A10812-6			**Resistor, Fixed, Composition**
RL07S680G Resistor, Fixed, Composition	1EA		R4
RL07S561G Resistor, Fixed, Composition	1EA		R5
RL07S510G Resistor, Fixed, Composition	1EA		R3
RL07S271G Resistor, Fixed, Composition	1EA		R6
RL07S181G Resistor, Fixed, Composition	1EA		R8
RL07S102G Resistor, Fixed, Composition	1EA		R2
RL07S100G Resistor, Fixed, Composition	2EA		R9 R10
RN65D61R9F Resistor, Fixed, Film	1EA		VALUE SELECTED AT FINAL TEST R1
SCBP0256BN4 Screw, Machine	4EA		

Section 7 - Schematic Diagrams



UNIT	A3	A4
LMC-8A, 75Ω	A10812-5	A10791-5
LMC-8A, 50Ω	A10812-6	A10791-6

Figure 7.1 OVERALL SCHEMATIC DIAGRAM



2. A10812-6
   R1 VALUE SELECTED ON TEST FOR 50Ω INPUT IMPEDANCE

1. UNLESS OTHERWISE STATED
   INDUCTANCE IN MICROHENRIES
   CAPACITANCE IN MICROFARADS
   RESISTANCE IN OHMS

NOTES

Figure 7.2 SCHEMATIC DIAGRAM, PREAMPLIFIER ASSEMBLY (1A3)

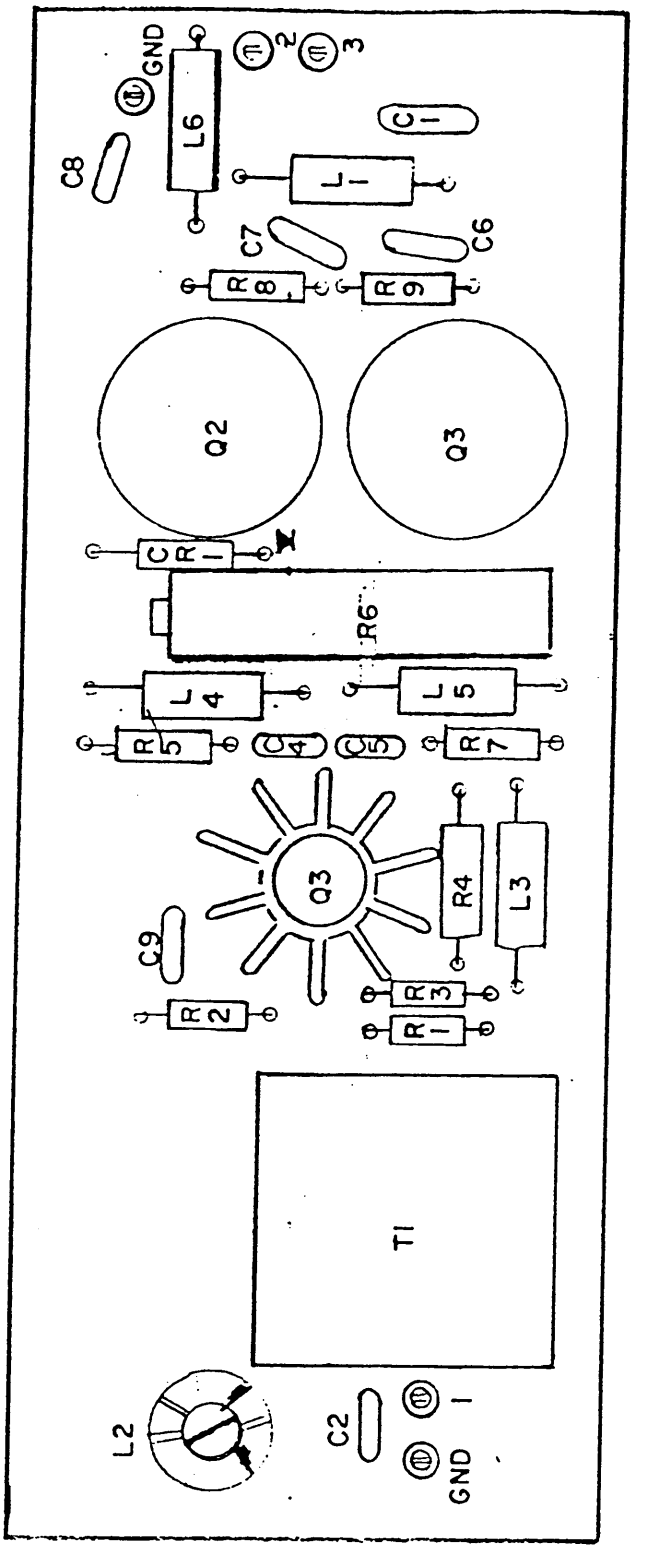


Figure 7.3 COMPONENT LOCATION, PREAMPLIFIER ASSEMBLY

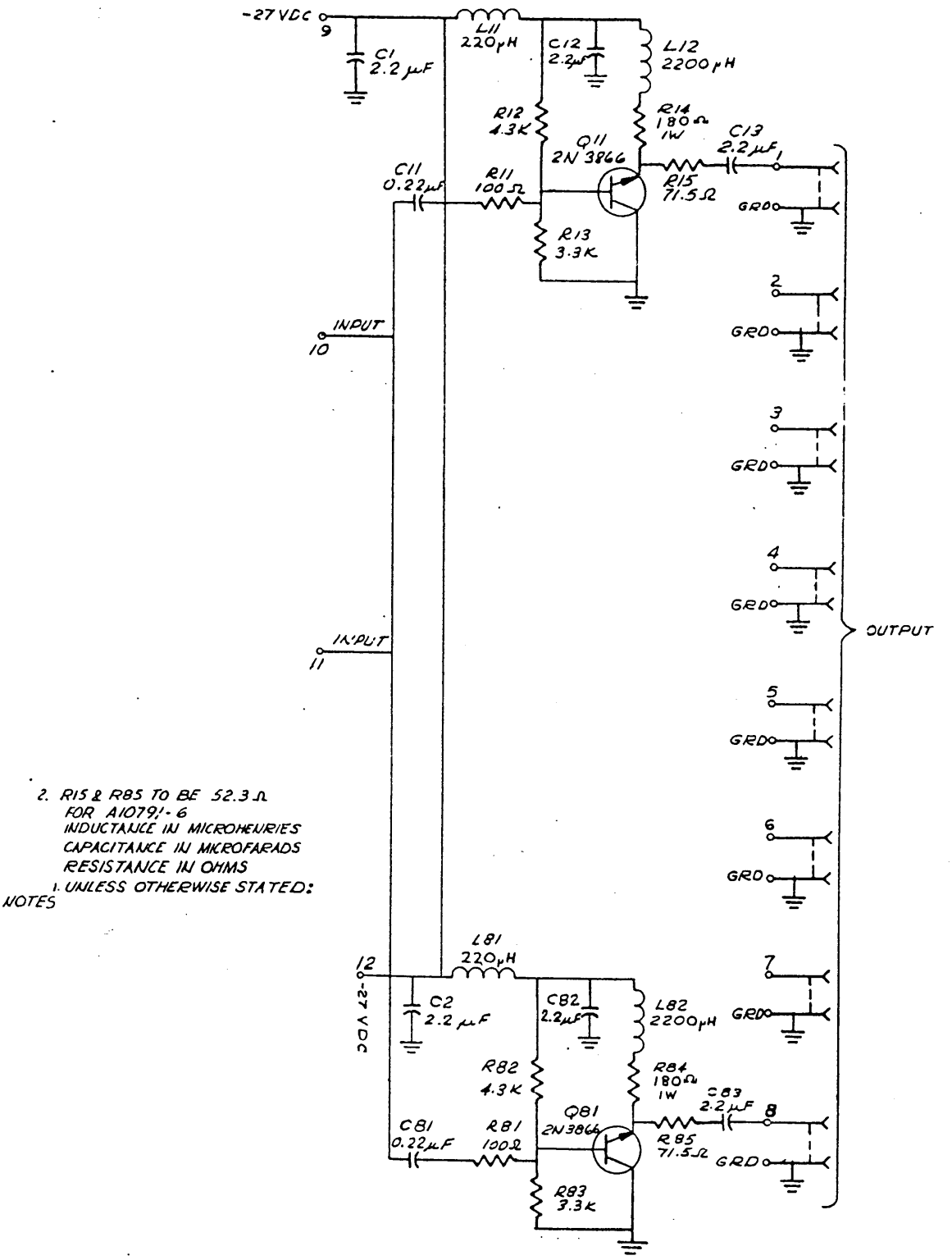


Figure 7.4 SCHEMATIC DIAGRAM, OUTPUT AMPLIFIER ASSEMBLY (1A4)

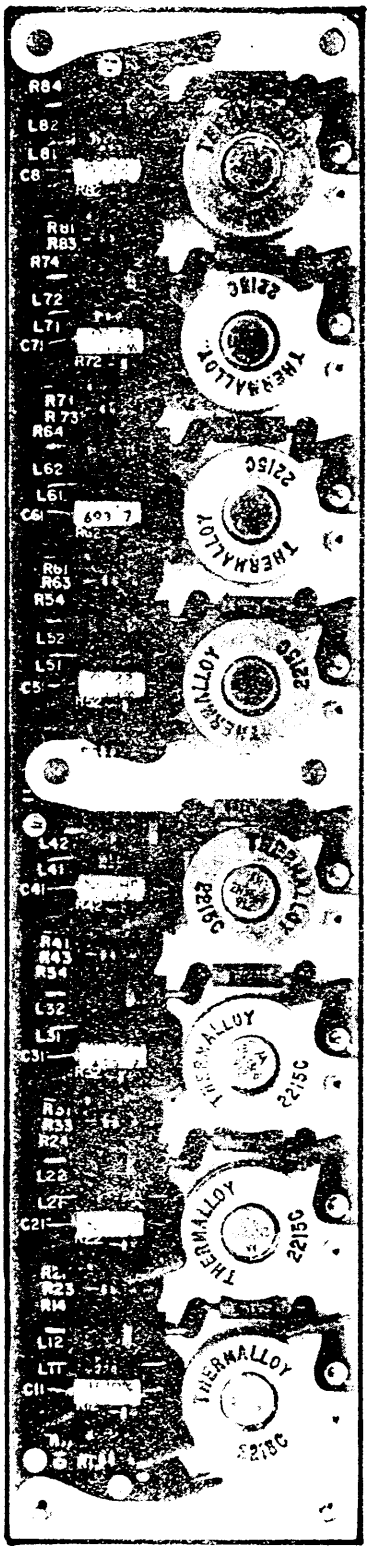


Figure 7.5 COMPONENT LOCATION, OUTPUT AMPLIFIER ASSEMBLY

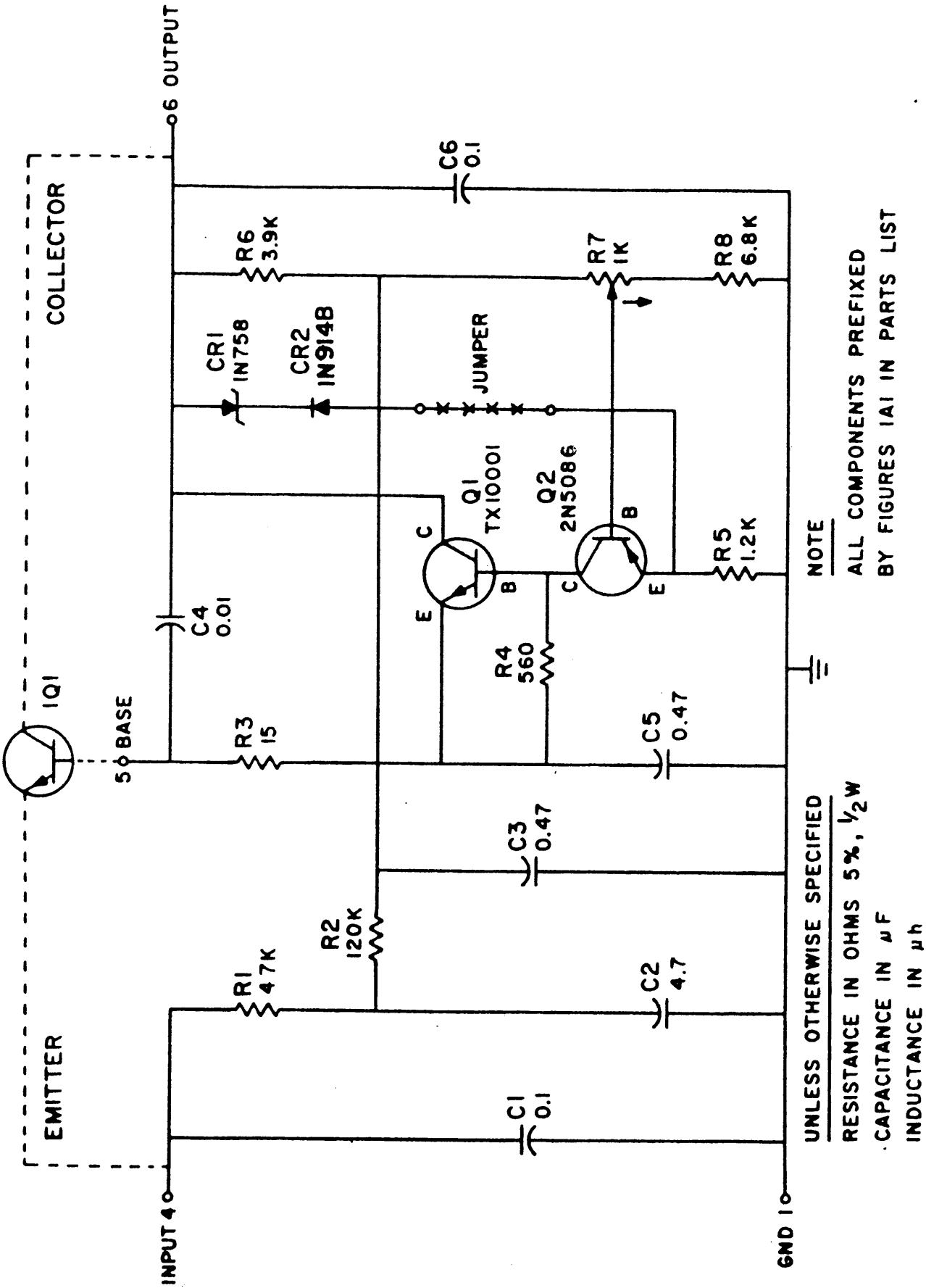


Figure 7.6 SCHEMATIC DIAGRAM, REGULATOR ASSEMBLY (1A1)

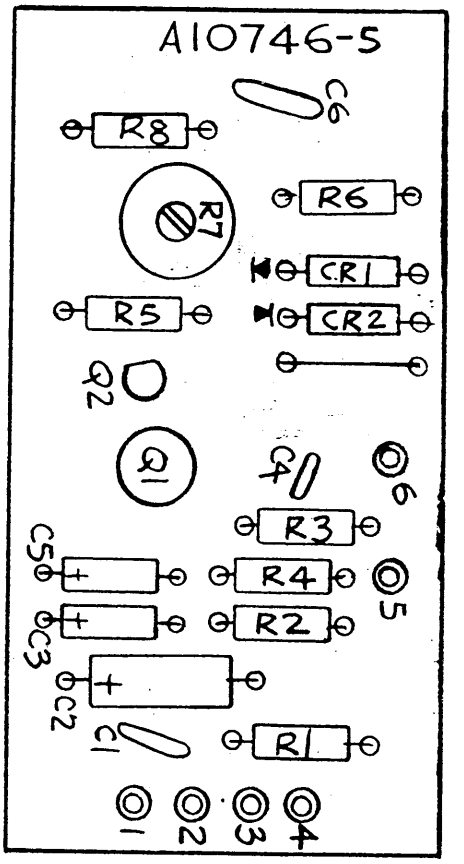
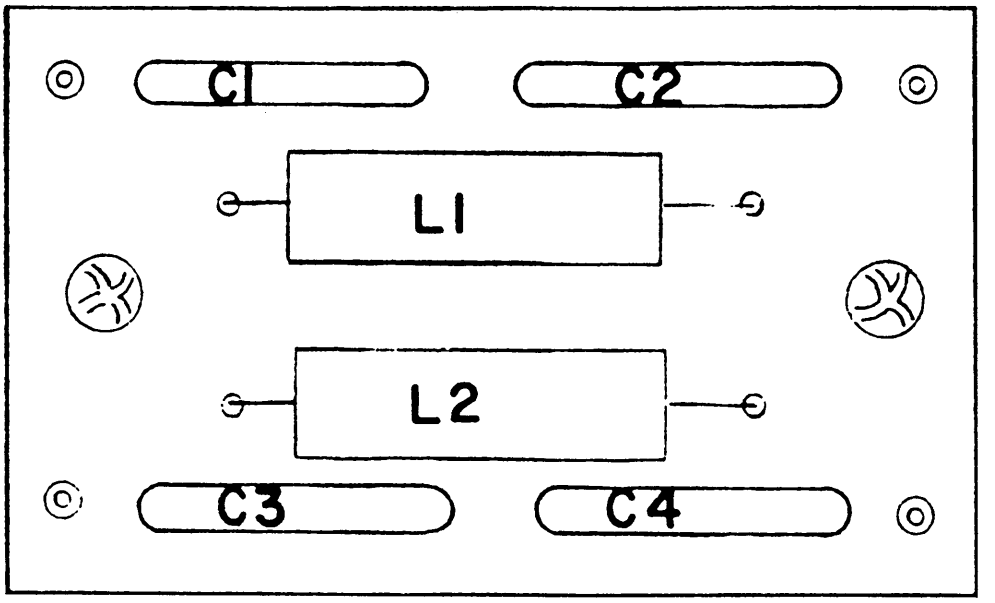


Figure 7.7 COMPONENT LOCATION, REGULATOR ASSEMBLY



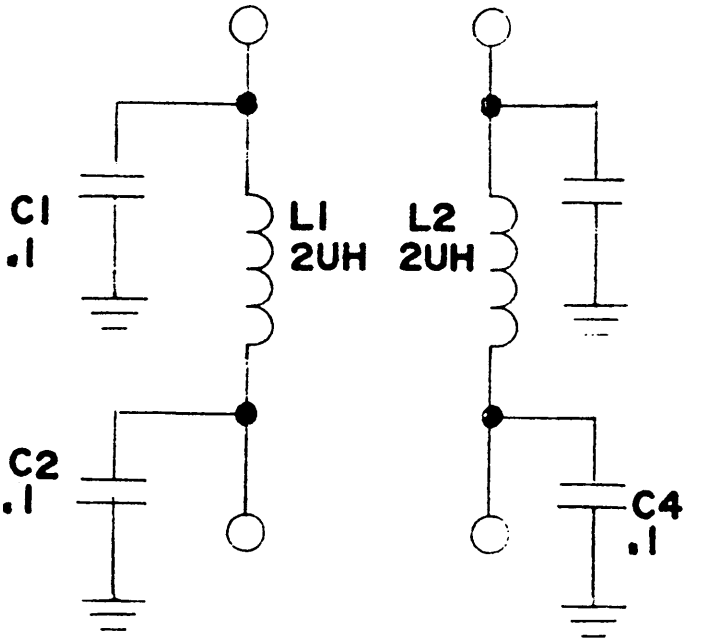


Figure 7.8 SCHEMATIC DIAGRAM, LINE FILTER ASSEMBLY

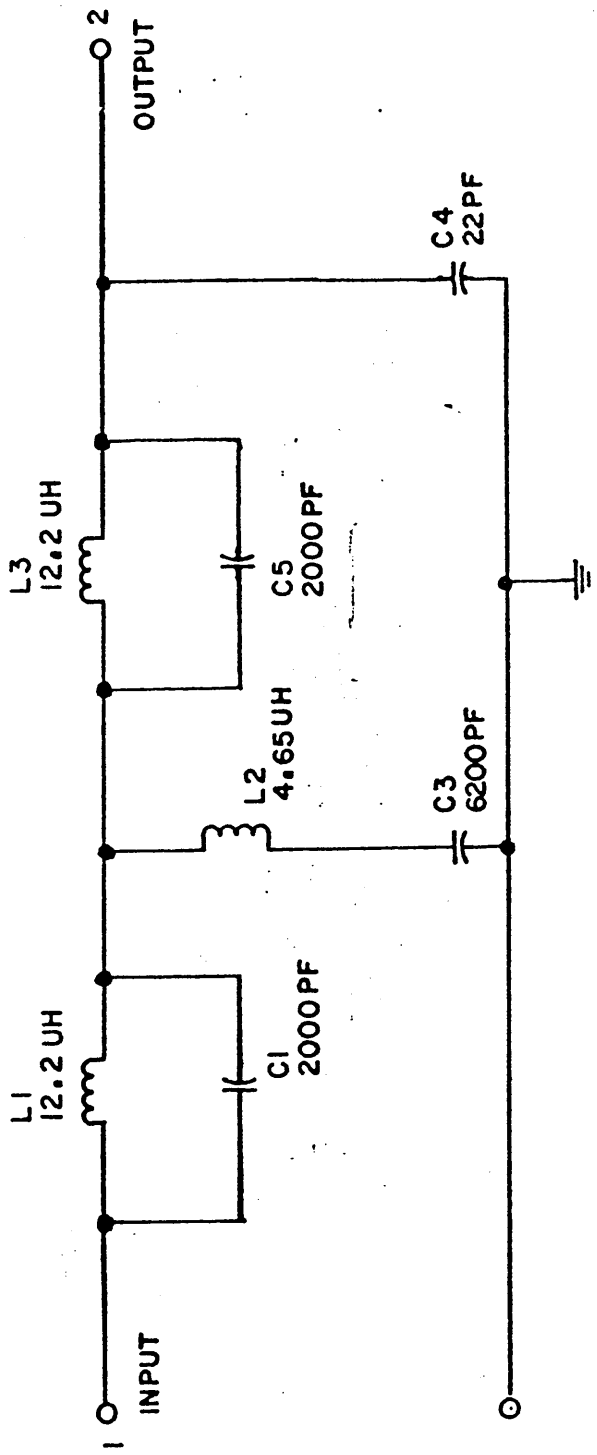


Figure 7.9 SCHEMATIC DIAGRAM, BROADCAST STOPBAND FILTER ASSEMBLY

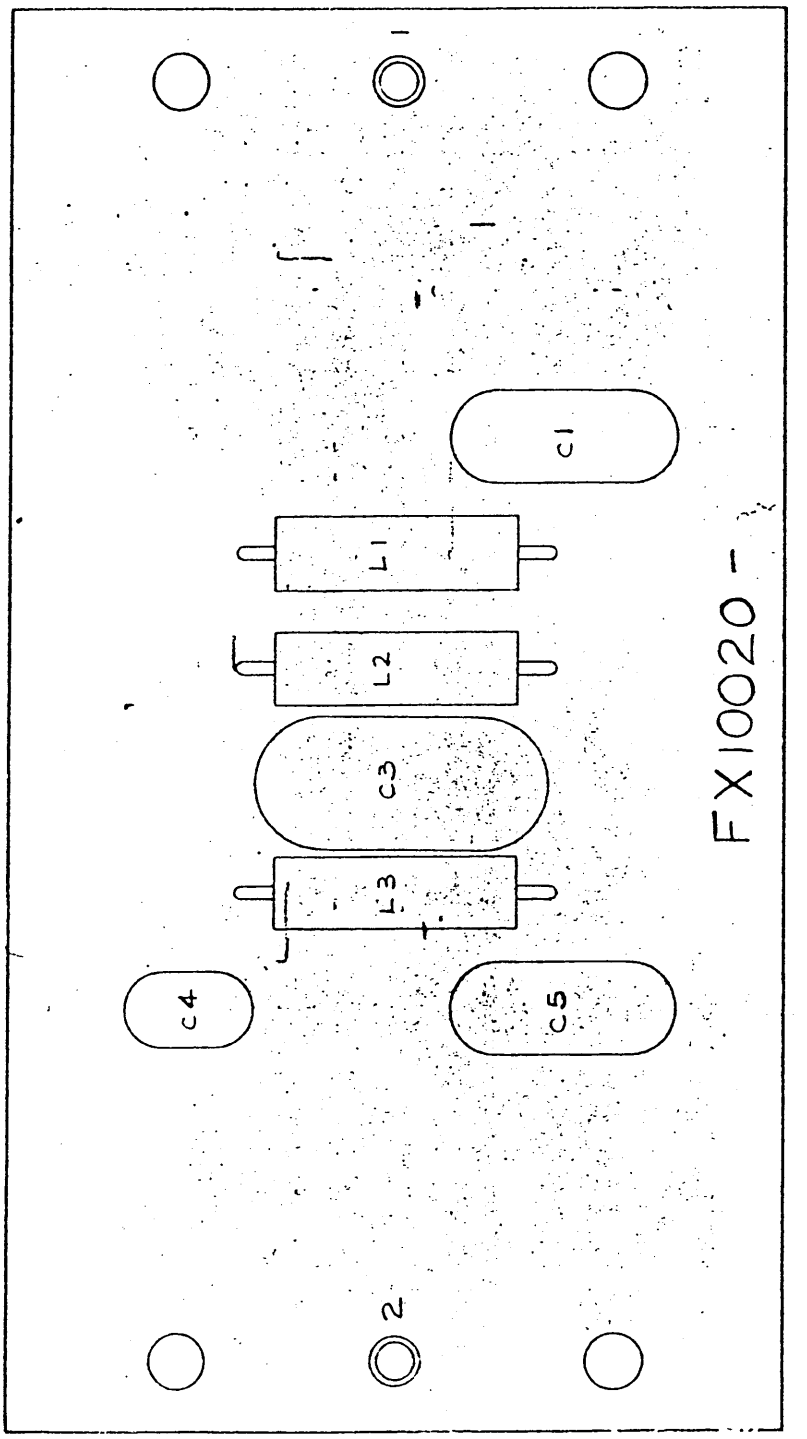
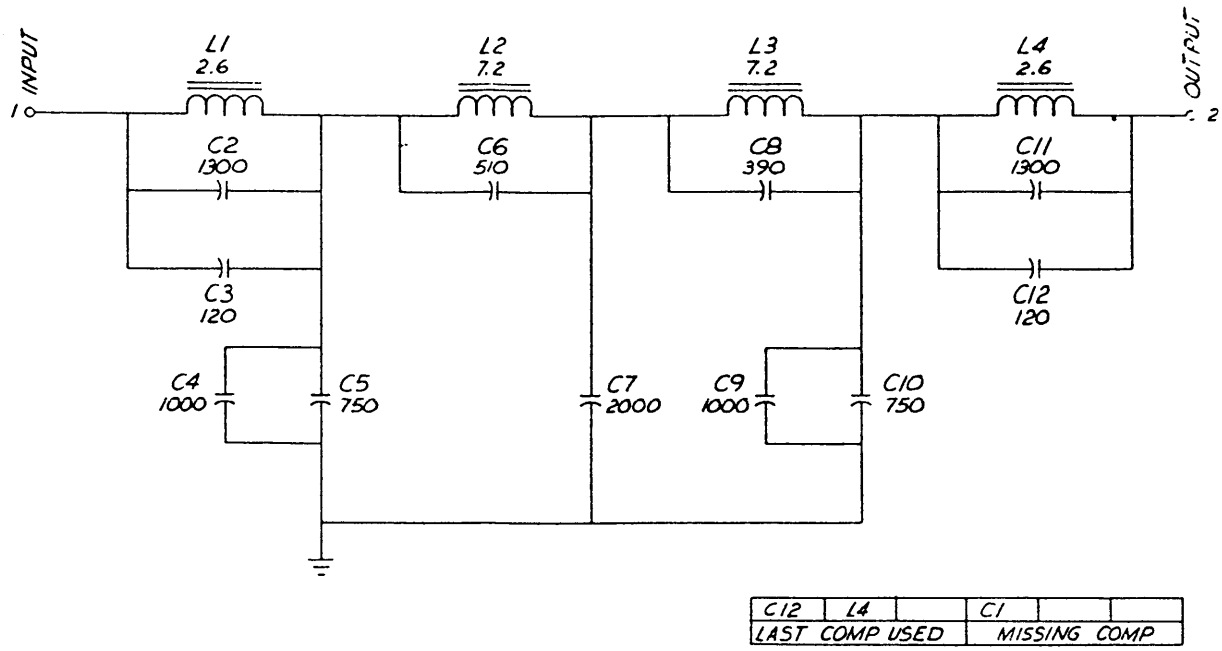


Figure 7.10 COMPONENT LOCATION, BROADCAST STOPBAND FILTER ASSEMBLY



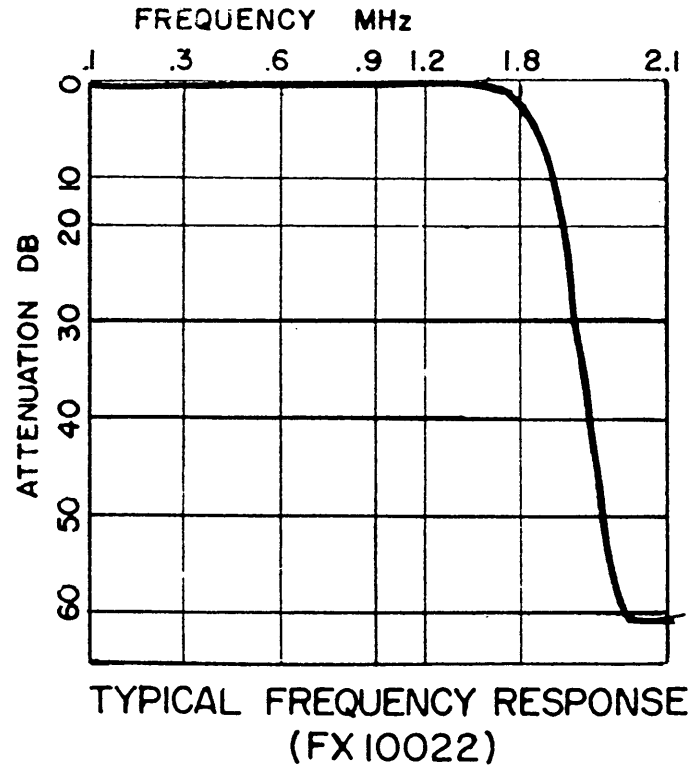


Figure 7.11 SCHEMATIC DIGRAM, LOW PASS FILTER ASSEMBLY (FX100022)

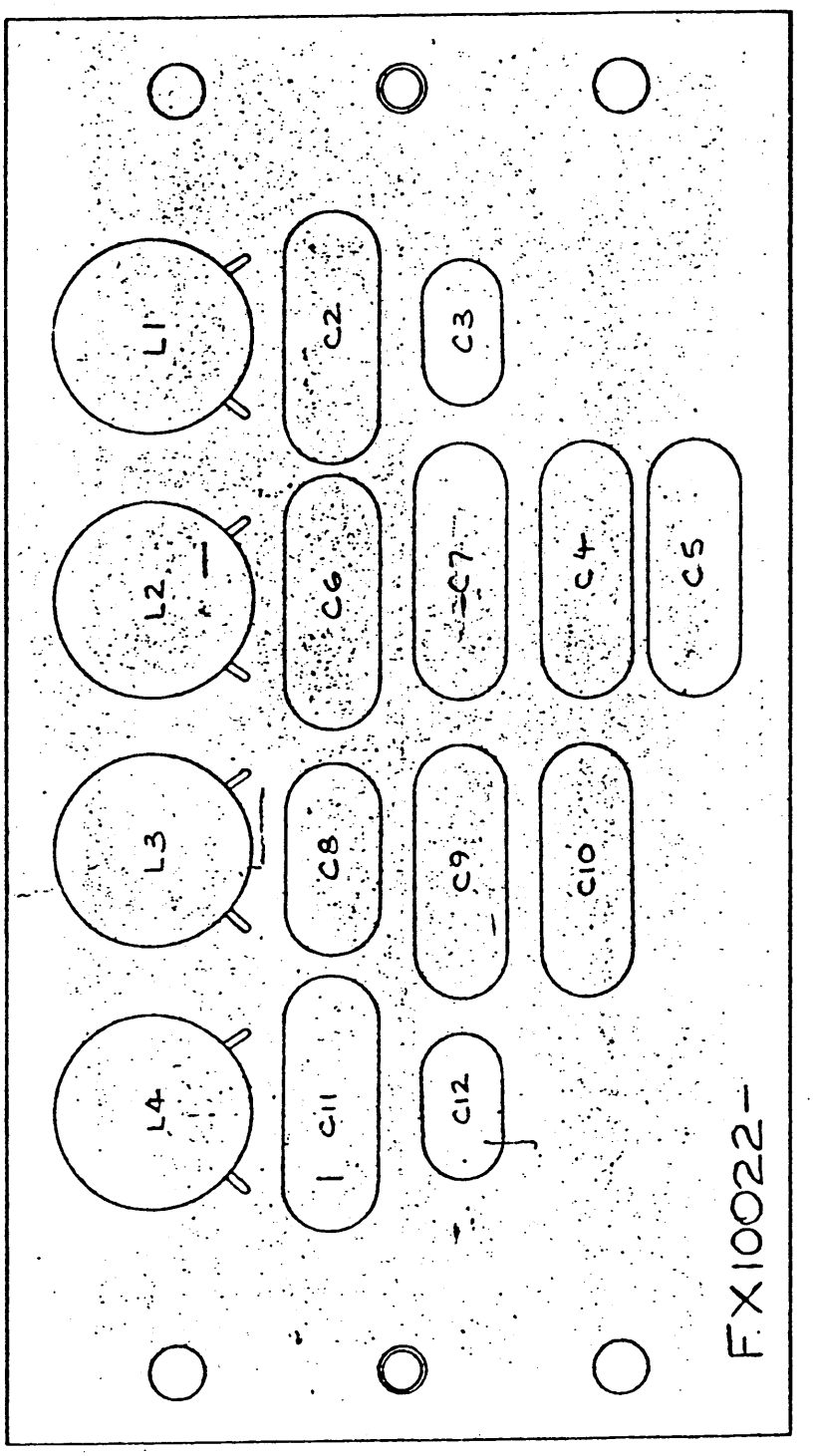


Figure 7.12 COMPONENT LOCATION, LOW PASS FILTER ASSEMBLY