

Publication: 210303B-16

Issue Date: May 1996

Technical Manual
for
Receiving Antenna Coupler
Model AMC-16

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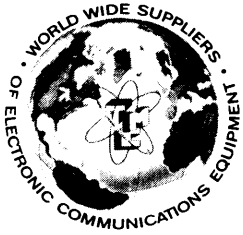
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for
Receiving Antenna Coupler
Model AMC-16

PLEASE READ THIS FIRST

Dear **TMC** Product User:

Thank you for purchasing the TMC Model AMC-16 Receiving Antenna Multicoupler. This model is one of a series of five different types that provide RF distribution from one receiving antenna to up to thirty-two communications receivers, simultaneously. The AMC-16 provides the capability of coupling sixteen receivers to a single antenna, each with a nominal gain from antenna to receiver of 2dB. The AMC-16 operates from 100kHz to 40MHz depending on the input filters installed. Three such filters are available: 1) a bandpass type which restricts the frequency range to 2-32MHz; 2) a low pass type with the high-end cut-off at 2MHz; and 3) a high pass type with low-end cut-off at 2MHz. A broadcast stopband filter is also available to suppress unwanted signals in the commercial broadcast frequency range.

The antenna multicoupler is described in detail in the enclosed technical manual. Product bulletins and application notes, as appropriate to the AMC-16, are also included. These publications provide important information about using TMC equipment. Please read them.

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 AMC-16 antenna multicoupler.

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.

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All inquiries should be directed to the following:

THE CONTENTS AND INFORMATION CONTAINED IN THIS INSTRUCTION MANUAL IS PROPRIETARY TO THE TECHNICAL MATERIEL CORPORATION TO BE USED AS A GUIDE TO THE OPERATION AND MAINTENANCE OF THE EQUIPMENT FOR WHICH THE MANUAL IS ISSUED AND MAY NOT BE DUPLICATED EITHER IN WHOLE OR IN PART BY ANY MEANS WHATSOEVER WITHOUT THE WRITTEN CONSENT OF THE CORPORATION.

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Model AMC-16 Receiving Multicoupler



Principal Characteristic:

One RF Input

16 RF Outputs

Section 1 - General Description

1.1 Functional Description

1.1.1 Overview

The AMC-16 MF/HF Antenna Multicoupler is a broadband coupling unit, used for coupling up to sixteen medium/high 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 100KHz to 40MHz. 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 AMC-16 is fixed. Sixteen MF/HF 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 AMC-16 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 AMC-16 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
Preampifier and Output Circuits	
Bias Regulator	1N914B
Buffer	2N3866
Current Amplifier	2N5160

1.3 Technical Specifications

Frequency Range 100KHz-40MHz no filter; 2-32MHz with bandpass filter; 2-40MHz with high pass filter; other filters including broadcast stopband filter are available.

Number of Outputs Sixteen MF/HF 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 2-30MHz range.

Frequency Response -1.0/+2.0dB, 100KHz-32MHz (no filter)

Offband Rejection Greater than -60dB, 10-100KHz, depending on filter. Greater than -30dB, 46-1000MHz with filter.

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.

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 better than 1.5-to-1. (No filter, 2-30MHz)

Mean-Time-Between-Failure Nominally 22,000 hours.

Operating Features

Cooling Convection, no fans or moving parts

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

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

Power Consumption 65 watts maximum.

Size and Weight 3.5H x 19W x 15.5D inches, 14lbs

Line Filters Greater than 40dB attenuation.

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 AMC Product Group

AMC-2X4 Dual MF/HF Receiving Antenna Multicoupler, 2X4 Outputs
AMC-2X8 Dual MF/HF Receiving Antenna Multicoupler, 2X8 Outputs
AMC-2X16 Dual MF/HF Receiving Antenna Multicoupler, 2X16 Outputs

AMC-8 MF/HF Receiving Antenna Multicoupler, Eight Outputs
AMC-16 MF/HF Receiving Antenna Multicoupler, 16 Outputs
AMC-32 MF/HF Receiving Antenna Multicoupler, 32 Outputs

AMC-21-4 MF/HF Receiving Antenna Multicoupler, Four Outputs
AMC-21-8 MF/HF Receiving Antenna Multicoupler, Eight Outputs
AMC-21-12 MF/HF Receiving Antenna Multicoupler, 12 Outputs
AMC-21-16 MF/HF Receiving Antenna Multicoupler, 16 Outputs

Input RF Filter Options: [z=5 for 50-ohm and z=7 for 70-ohm operation]

/zF0 No input filter
/zF2 Low-pass input filter ($f_c=2.0\text{MHz}$)
/zF3 High pass input filter ($f_c=2.0\text{MHz}$)
/zF4 Broadcast stopband filter (0.6-1.9MHz)
/zF5** Bandpass filter (2-32MHz)
/zF3* Includes Options /zF2 & /zF3 (switched)
/zF24* Includes Options /zF2 & /zF4 (switched)
/zF34* Includes Options /zF3 & /zF4 (switched)
/zF234* Includes Options /zF2, /zF3 & /zF4 (switched)
Other filters are available to suit specific applications.

* Available in Model AMC-21 series only.

** Not available in Model AMC-21 series.

Note: Input filters may be combined in AMC-2X and AMC-21 series only.

When ordering, specify both model and option. Example: AMC-32/5F4

2.1 Initial Inspection

2.1.1 General

Every AMC-16 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 AMC-16 operates from a 115VAC, 48 to 400Hz power source. Optionally, the AMC-16 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 AMC-16 after it has been installed:

Antenna

The antenna cable must be fitted with a connector that mates with the AMC-16 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 AMC-16.

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 AMC-16 to the associated 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 AMC-16 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 AMC-16 reduces heat problems, allowing "stacking" of up to five 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 AMC-16, turn the POWER switch 1S1 to the ON position. The POWER lamp 1DS1 will light, indicating that the AMC-16 is ready for use. No further checks are required.

Table 2.1 - Loose Items Supplied

CA10505	Power Cable Assembly	1 each
210303-16	Technical Manual	1 each
UGxx	Mating Connectors	Optional extra

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 AMC-16.

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 AMC-16 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 AMC-16 Medium/High Frequency Antenna Multicoupler is a broadband antenna distribution system, designed to couple one MF/HF antenna to the antenna inputs of up to 16 communication receivers.

4.1.2 Input/Output

Both the input and output impedance of the AMC-16 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 100KHz to 40MHz.

4.1.3 Salient Performance Features

The AMC-16 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 AMC-16 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 7.1 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.

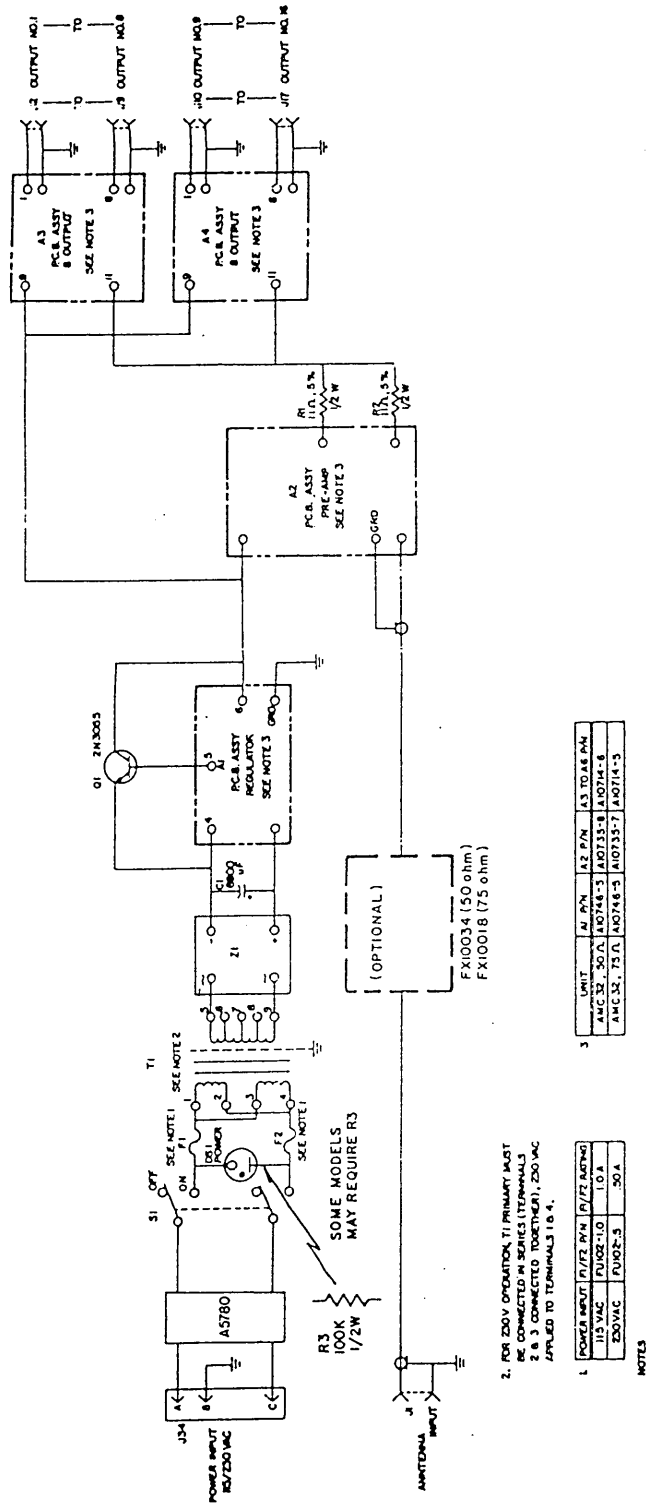


Figure 4.1 System Block Diagram

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 7.1 (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 -24VDC 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 7.1, 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 -24VAC 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 AMC-16. The following equipment is suggested in order to perform these procedures properly:

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

5.1.2 Component Location

For aid in the location of components, refer to Figures 7.1, 7.2, 7.4 and 7.6.

5.2 Preventive Maintenance

5.2.1 General Cleaning Methods

Preventive maintenance for the AMC-16 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 AMC-16, 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 regulator 1A1. -24VDC 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.

Table 5 - Troubleshooting (Continued)

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.
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 AMC-16 multicoupler. Power supply regulator 1A1 contains a screwdriver-adjustable potentiometer (R7) that was pre-set, prior to shipment, to provide a -24VDC. If the output voltage is found to require adjustment, use an accurate voltmeter and re-set the voltage to -24VDC 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. Components are of fixed values.

Section 6 - Parts Lists

AMC-16	Front Panel, Rear Panel and Main Chassis Assembly
A10746-5	Regulator Assembly (A1)
A10735-8	Preamplifier Assembly (A2)
A10714-6	Output Amplifier Assembly (A3-A6)

Item Material Listing

Item/Part Number	Rev	Description	Qty	Notes
AMC-16/5F0		Receiving Antenna Multicoupler		
2N3055		Transistor, Silicon, NPN	1EA	
A10714-6		Printed Circuit Board Assembly	2EA	
A10735-8		Printed Circuit Board Assembly	1EA	
A10746-5		Printed Circuit Board Assembly	1EA	
A5780		Printed Circuit Board Assembly	1EA	
AX5250		Assembly, Electro-Mechanical	1EA	
CA10531-3		Cable Assembly	1EA	
CA10534-1		Cable Assembly	1EA	
CA10537		Cable Assembly	1EA	
CA1906		Cable, Line Cord	1EA	
CE112-19		Capacitor, Electrolytic	1EA	
CU102-1		Clamp	2EA	
CU102-1N		Clamp	1EA	
CU102-3		Clamp	1EA	
CU102-4		Clamp	1EA	
CU102-5		Clamp	1EA	
CU129-9		Clamp	1EA	
EY102-13		Grommet, Rubber	1EA	
JJ370		Connector, Receptacle, Elect	1EA	
MS10945		Machined Assembly, Metal	2EA	
MS7236/LD3176		Shield, Center	1EA	
MS7263		Plate, Side	2EA	
NP10003		Name Plate	1EA	
NW10007		Network, Integrated Circuit	1EA	

Item Material Listing

Item/Part Number	Rev	Description	Qty	Notes
AMC-16/5F0		Receiving Antenna Multicoupler		
RC07GF110J		Resistor, Fixed, Composition	2EA	
RC20GF104J		Resistor, Fixed, Composition	1EA	
RC20GF110J		Resistor, Fixed, Composition	2EA	
TE0440BN68R		Spacer, Threaded	1EA	
TE0632AP1.25R4		Spacer, Threaded	5EA	
TE111-2		Terminal Lug, Solder	16EA	
TE169-1		To Be Determined	2EA	
TF445		Transformer	1EA	
TS166-1		Socket, Semiconductor Device	1EA	
UG625B/U		Connector, Receptacle, RF	16EA	

Item Material Listing

Item/Part Number	Rev	Description	Qty	Notes
A10746-5		Printed Circuit Board Assembly		
1N758		Diode, Zener	1EA	
1N914B		Diode, Silicon	1EA	
2N5086		Transistor, Silicon, PNP	1EA	
A10746-4		Printed Circuit Board	1EA	
CC131-32		Capacitor, Fixed, Ceramic	1EA	
CC131-39		Capacitor, Fixed, Ceramic	2EA	
CSR13G474ML		Capacitor, Fixed, Ceramic	2EA	
CSR13G685ML		Capacitor, Fixed, Ceramic	1EA	
HD10002-7		Heat Sink	1EA	
PX829-1		Insulator, Transistor Pad	1EA	
RC20GF122J		Resistor, Fixed, Composition	1EA	
RC20GF150J		Resistor, Fixed, Composition	1EA	
RC20GF392J		Resistor, Fixed, Composition	1EA	
RC20GF473J		Resistor, Fixed, Composition	1EA	
RC20GF561J		Resistor, Fixed, Composition	1EA	
RC20GF682J		Resistor, Fixed, Composition	1EA	
RC20GF683J		Resistor, Fixed, Composition	1EA	
RV111U102A		Resistor, Variable, Non-W/W	1EA	
TX10001		Transistor, Germanium, NPN	1EA	

Item Material Listing

Item/Part Number	Rev	Description	Qty	Notes
A10735-5		Printed Circuit Board Assembly		
1N914B		Diode, Silicon	1EA	
2N3866		Transistor, Silicon, NPN	1EA	
2N5160		Transistor, Silicon, PNP	2EA	
A10735-4		Printed Circuit Board	1EA	
CC131-39		Capacitor, Fixed, Ceramic	3EA	
CC131-32		Capacitor, Fixed, Ceramic	5EA	
CL10044		Coil, RF	1EA	
CL275-330		Coil Assembly, RF, Tuned	1EA	
CL275-221		Coil, Fixed RF	3EA	
FW02MRN		Washer, Flat	4EA	
HD10004		Heat Sink	2EA	
HD10002-7		Heat Sink	1EA	
LWE02MRN		Lockwasher, External Tooth	4EA	
PX829-1		Insulator, Transistor Pad	1EA	
RC07GF7R5J		Resistor, Fixed, Composition	2EA	
RC20GF331J		Resistor, Fixed, Composition	1EA	
RL07S202G		Resistor, Fixed, Composition	2EA	
RL07S302G		Resistor, Fixed, Composition	1EA	
RL07S911G		Resistor, Fixed, Composition	1EA	
RL07S822G		Resistor, Fixed, Composition	1EA	
RV10009-501AP		Resistor, Variable, Non-W/W	1EA	
SCBP0256BN4		Screw, Machine	4EA	
TE10023-3		Terminal Lug, Solder	5EA	
TR10005		Transformer, RF	1EA	

Item Material Listing

Item/Part Number	Rev	Description	Qty	Notes
A10714-5		Printed Cky Board Assy, 75 Ohm		
2N3866		Transistor, Silicon, NPN	8EA	
A10714-4		Printed Circuit Board	1EA	
CC131-32		Capacitor, Fixed, Ceramic	8EA	
CC131-39		Capacitor, Fixed, Ceramic	18EA	
CL275-221		Coil, Fixed RF	8EA	
CL275-330		Coil Assembly, RF, Tuned	8EA	
FW02HSS		Washer, Flat	16EA	
HD10004		Heat Sink	8EA	
LWS02MSS		Washer, Spring Tension	16EA	
RC07GF101J		Resistor, Fixed, Composition	8EA	
RC07GF332J		Resistor, Fixed, Composition	8EA	
RC07GF432J		Resistor, Fixed, Composition	8EA	
RC42GF221J		Resistor, Fixed, Composition	8EA	
RN60D71R5F		Resistor, Fixed, Film	8EA	
SCBP0256BN4		Screw, Machine	16EA	

Item Material Listing

Item/Part Number	Rev	Description	Qty	Notes
A5780		Printed Circuit Board Assembly		
CC100-32		Capacitor, Fixed, Ceramic	4EA	
CL105-1		Coil Assembly, RF, Tuned	2EA	
PC818		Printed Circuit Board	1EA	

Section 7 - Schematic Diagrams

Figure 7.1	Main Component Location
Figure 7.2	Schematic Diagram, Regulator Assembly (A1)
Figure 7.3	Component Location, Regulator Assembly
Figure 7.4	Schematic Diagram, Preamplifier Assembly (A2)
Figure 7.5	Component Location, Preamplifier Assembly
Figure 7.6	Schematic Diagram, Output Amplifier Assembly (A3-A6)
Figure 7.7	Component Location, Output Amplifier Assembly
Figure 7.8	Schematic Diagram, Line Filter Assembly
Figure 7.9	Schematic Diagram, Bandpass Filter Assembly (FX10034)
Figure 7.10	Component Location, Bandpass Filter Assembly
Figure 7.11	Schematic Diagram, Broadcast Stopband Filter Assembly (FX10020)
Figure 7.12	Component Location, Broadcast Stopband Filter Assembly
Figure 7.13	Schematic Diagram, High pass Filter Assembly (FX10021)
Figure 7.14	Component Location, High pass Filter Assembly
Figure 7.15	Schematic Diagram, Low pass Filter Assembly (FX10022)
Figure 7.16	Component Location, Low pass Filter Assembly

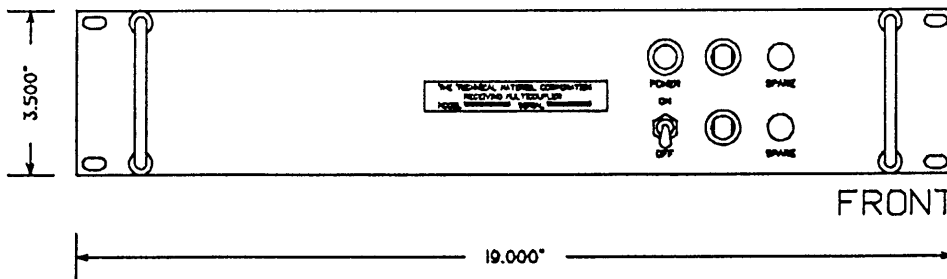
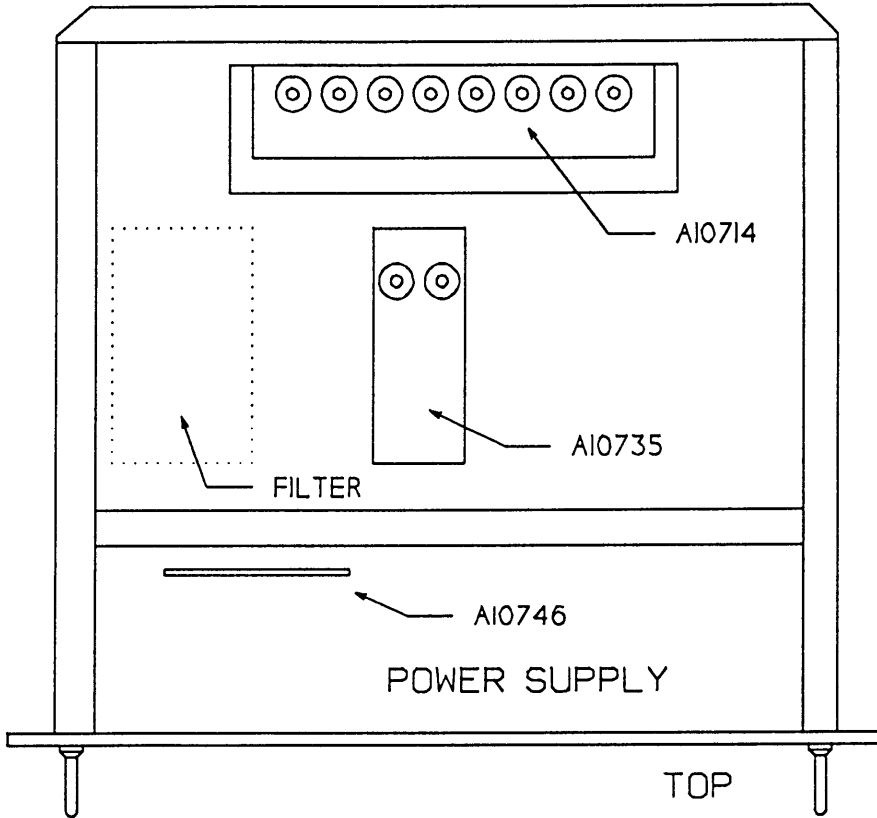
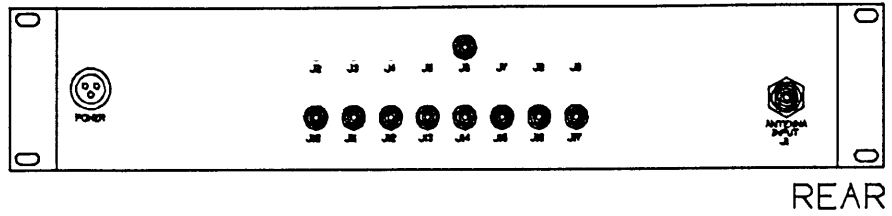
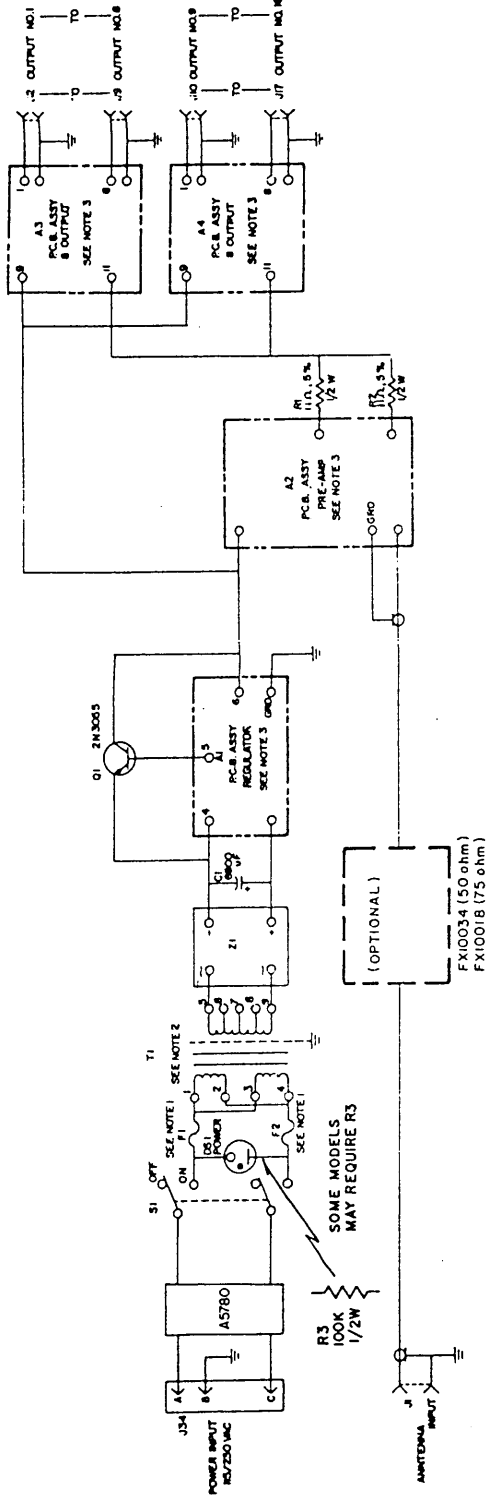


Figure 7.1 Front Panel, Rear Panel, Component Location



2. FOR 230V OPERATION, T1 PRIMARY MUST BE CONNECTED IN SERIES (TERMINALS 2 & 3 CONNECTED TOGETHER), 230V AC APPLIED TO TERMINALS 1 & 4.

1. POWER INPUT F1/F2 1/4" F1/F2 METING 115 VAC FUSE-110 1.0 A 230VAC FUSE-3 50A

NOTES

UNIT	A1 P/N	A2 P/N	A3 TO A6 P/N
AMC 32, 50A	A0744E-3	A0735-8	A10714-6
AMC 32, 75A	A0744E-3	A0735-7	A0714-5

Figure 4.1 System Block Diagram

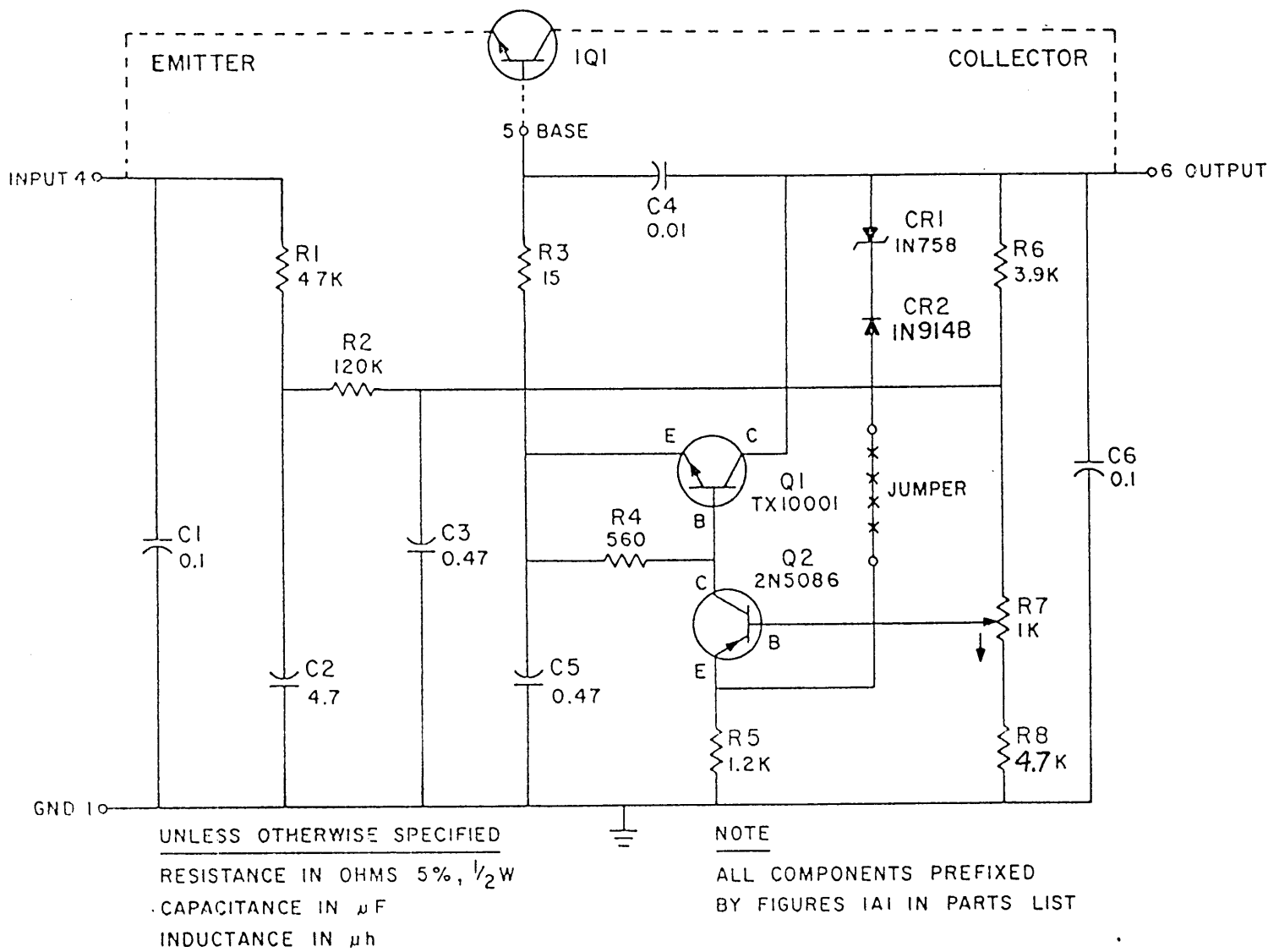


Figure 7.2 Schematic Diagram, Regulator (A1)

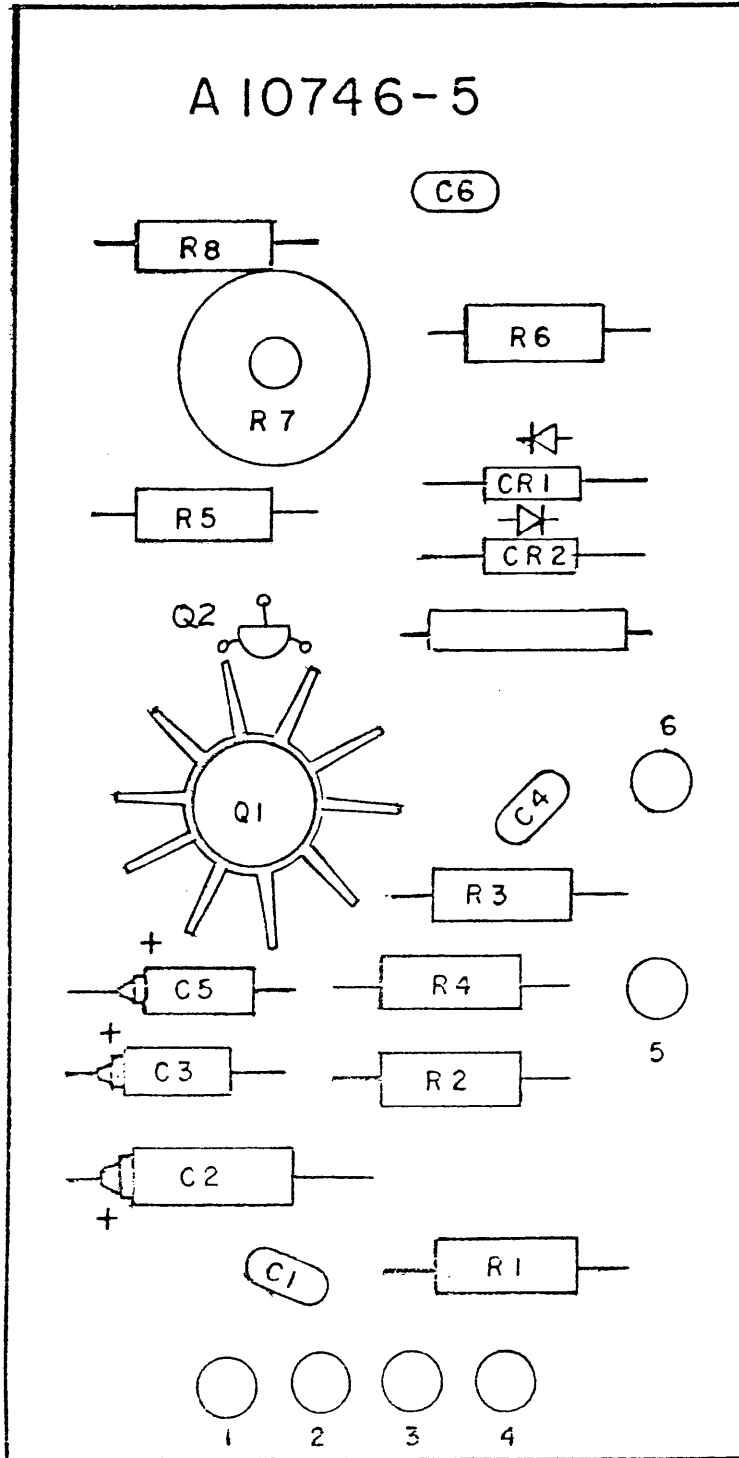
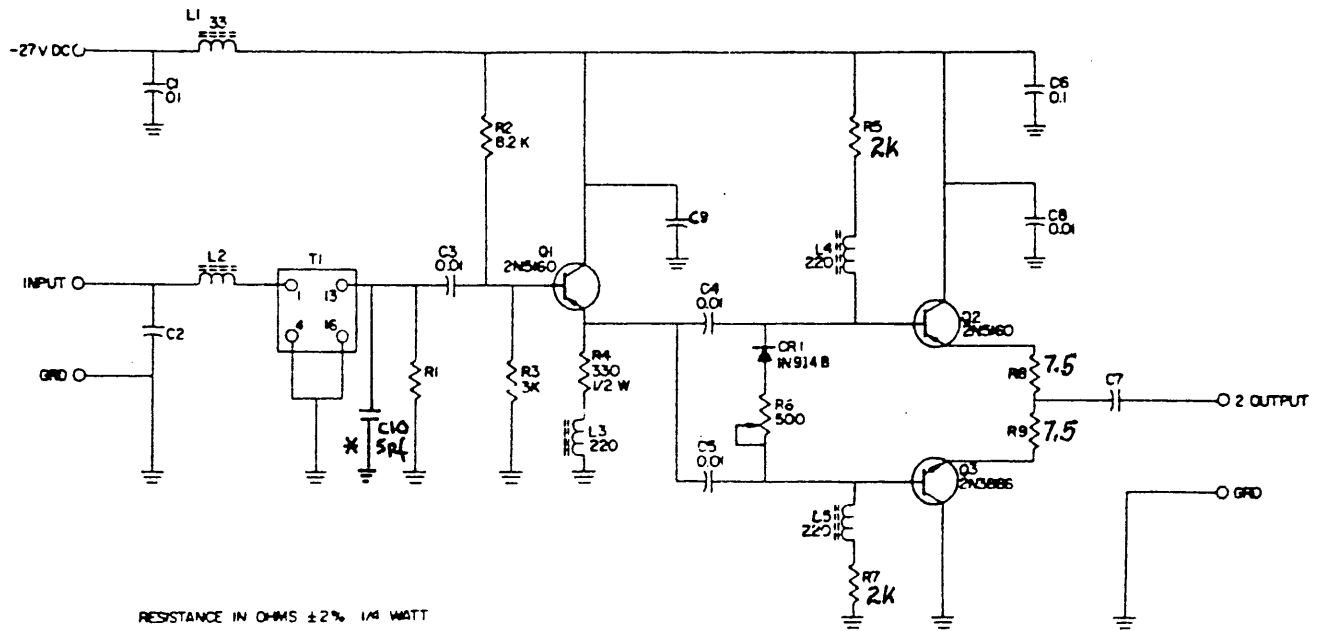


Figure 7.3 Component Location, Regulator



RESISTANCE IN OHMS $\pm 2\%$ 1/4 WATT
 CAPACITANCE IN μF
 INDUCTANCE IN μH
 UNLESS OTHERWISE STATED
 NOTES

* C10 MAY NOT BE REQUIRED, WHEN REQUIRED VALUE MAY VARY

MODEL	C2	C7	C9	L2	R1	R5	R7	R8	R9	ASSEMBLY
AMC 32	50 Ω	68 pF	0.01 μF	.33 μH	680 Ω	20K	20K	7.5 Ω OPTIONAL	7.5 Ω OPTIONAL	A10735-8
AMC 32	75 Ω	47 pF	0.01 μF	0.33 μH	1K	20K	20K	11 Ω OPTIONAL	11 Ω OPTIONAL	A10735-7

Figure 7.4 Schematic Diagram, Preamplifier (A2)

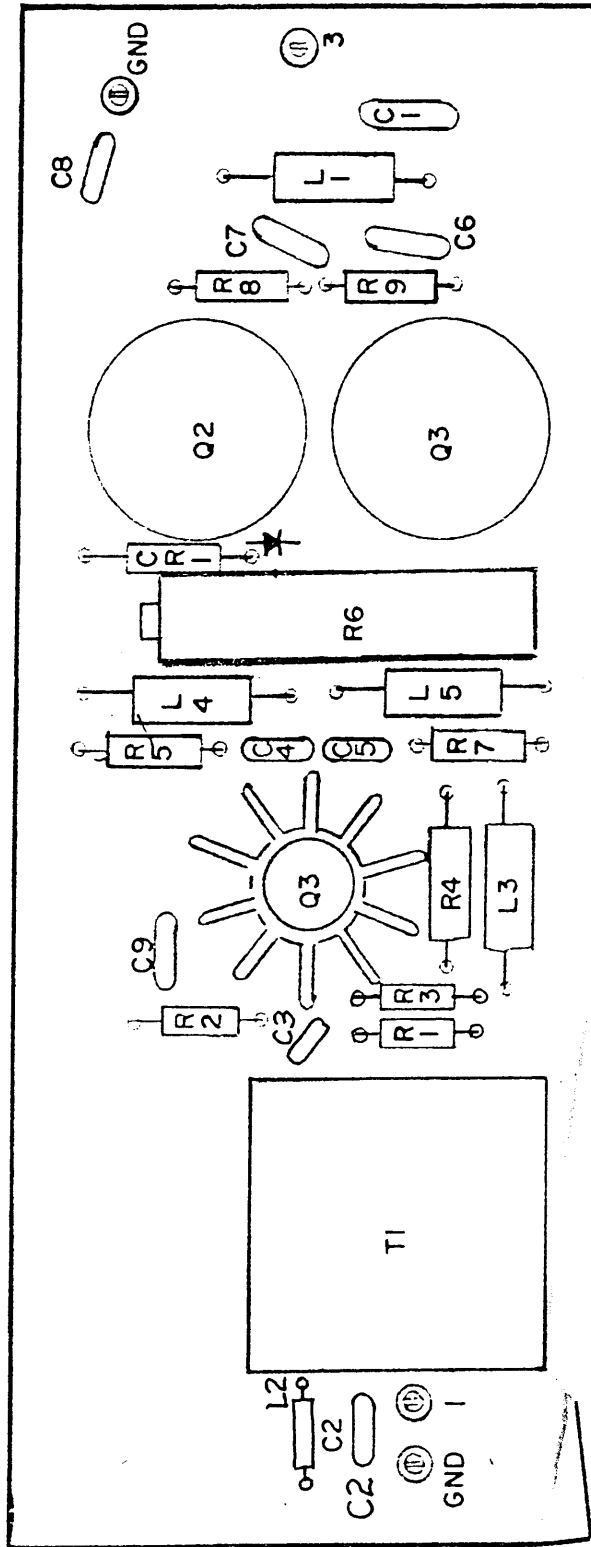
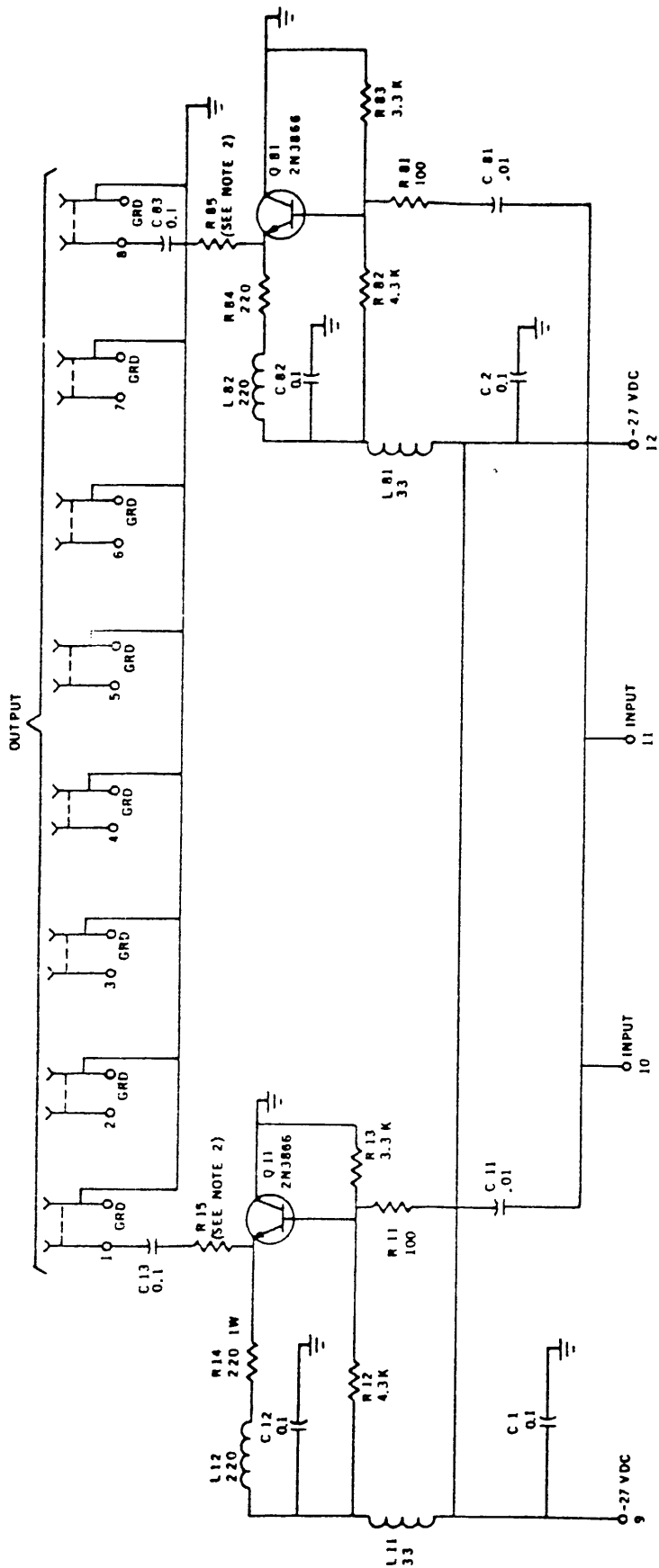


Figure 7.5 Component Location, Preamplifier



NOTES

- 1 INDUCTANCE IN MICRONERIES
CAPACITANCE IN MICROFARADS
RESISTANCE IN OHMS
UNLESS OTHERWISE STATED:

MODEL	R 15		R 85		ASSEMBLY NO
	50 Ω	75 Ω	50 Ω	75 Ω	
AMC 5 Z	52.1	71.5	52.1	71.5	A-10714.6
					A-10714.5

2

Figure 7.6 Schematic Diagram, Output Amplifier (A3-A6)

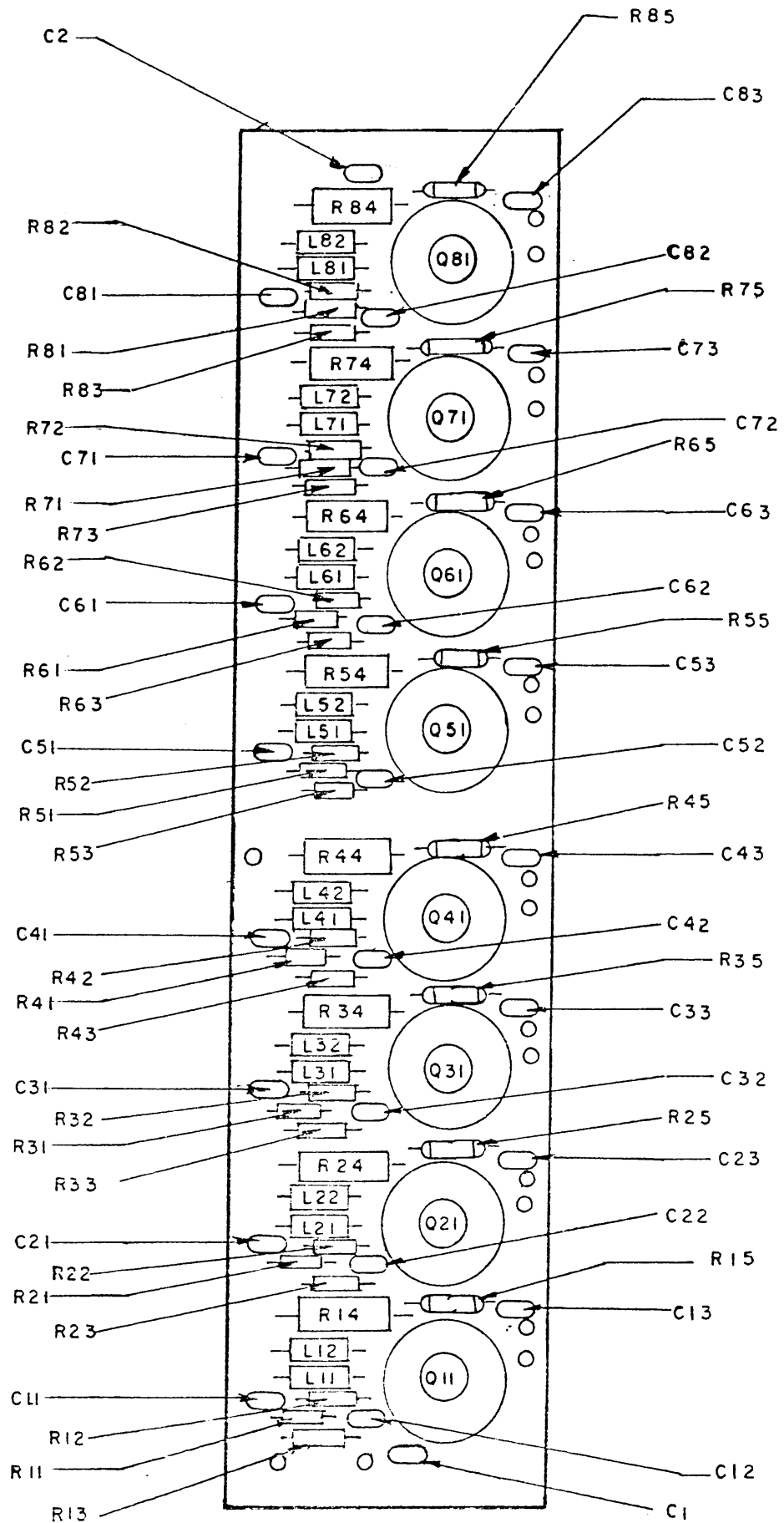
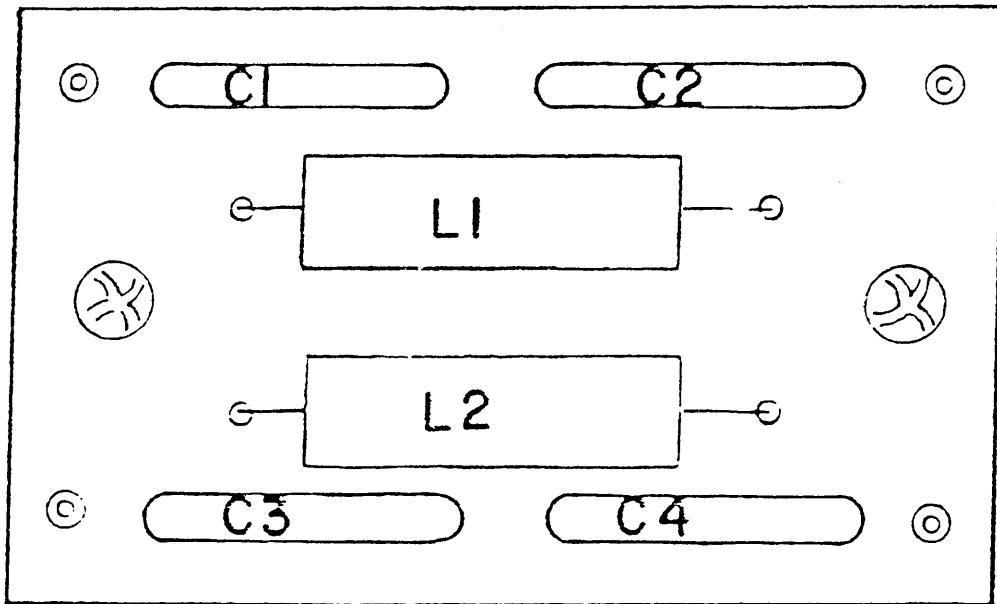
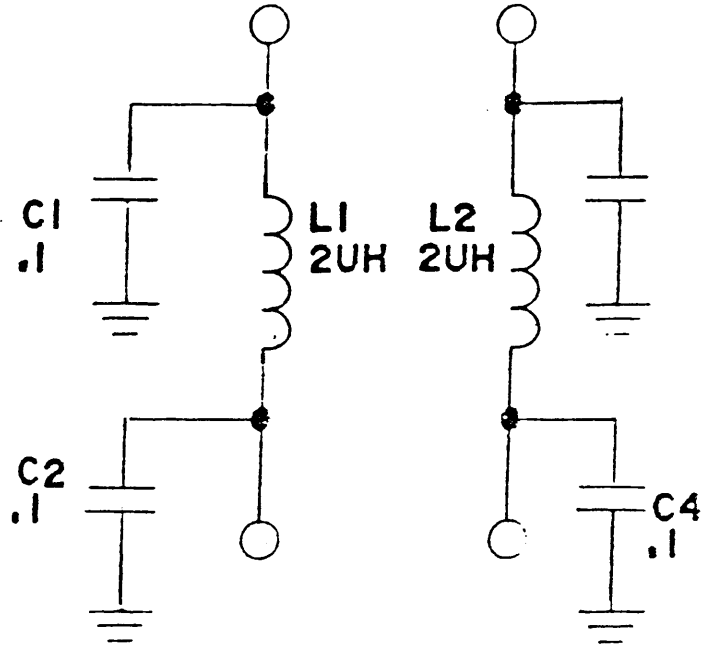
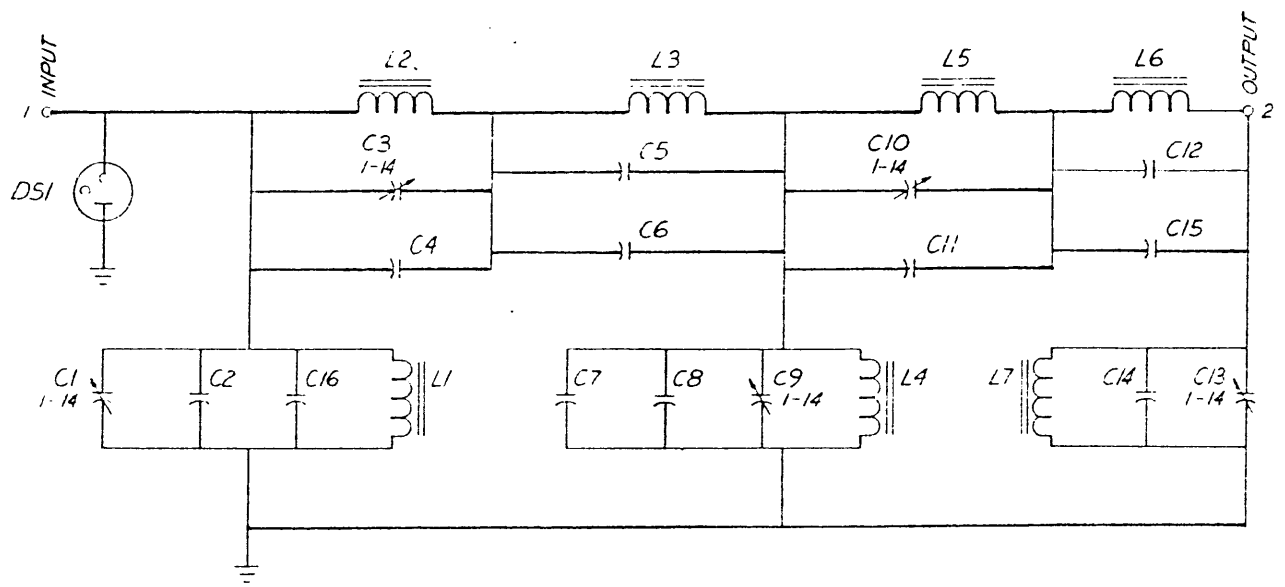


Figure 7.7 Component Location, Output Amplifier



A5780

Figure 7.8 Schematic Diagram, Line Filter



C16	DS1	L7	
LAST COMP USED		MISSING COMP	

FX10015-1	75 Ω	5.61	.448	29.2	3.53	.306	9.52	7.5	56	5	820	56	91	5	27	1300	43		
FX10034	50 Ω	3.74	.299	19.45	2.39	.204	6.35	5	82	12	1300	12	100	47	43	1300	68	750	5
TYPE	IMPEDANCE	L1	L2	L3	L4	L5	L6	L7	C2	C4	C5	C6	C7	C8	C11	C12	C14	C15	C16

Figure 7.9 Schematic Diagram, Bandpass Filter (FX10034)

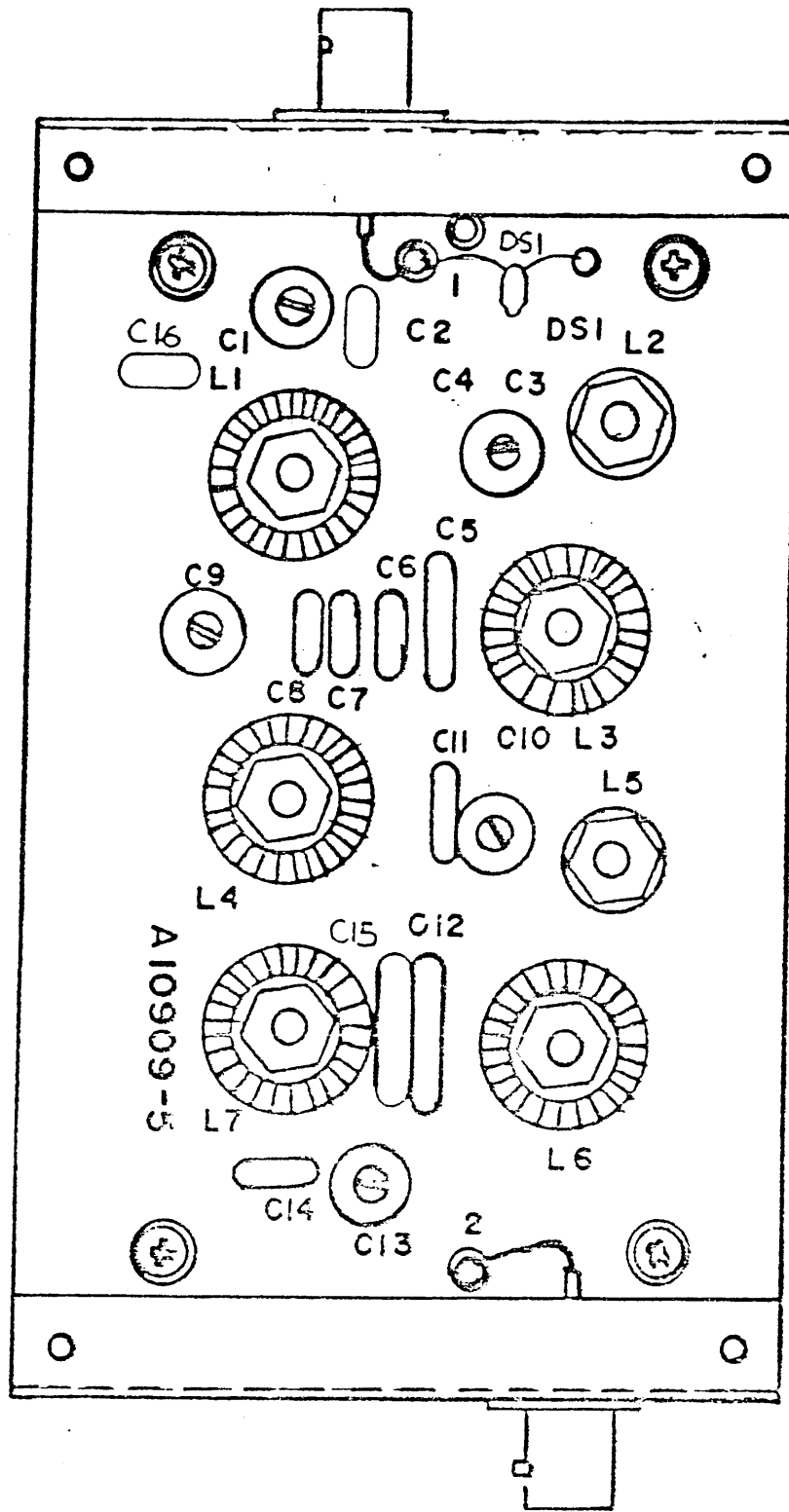


Figure 7.10 Component Location, Bandpass Filter

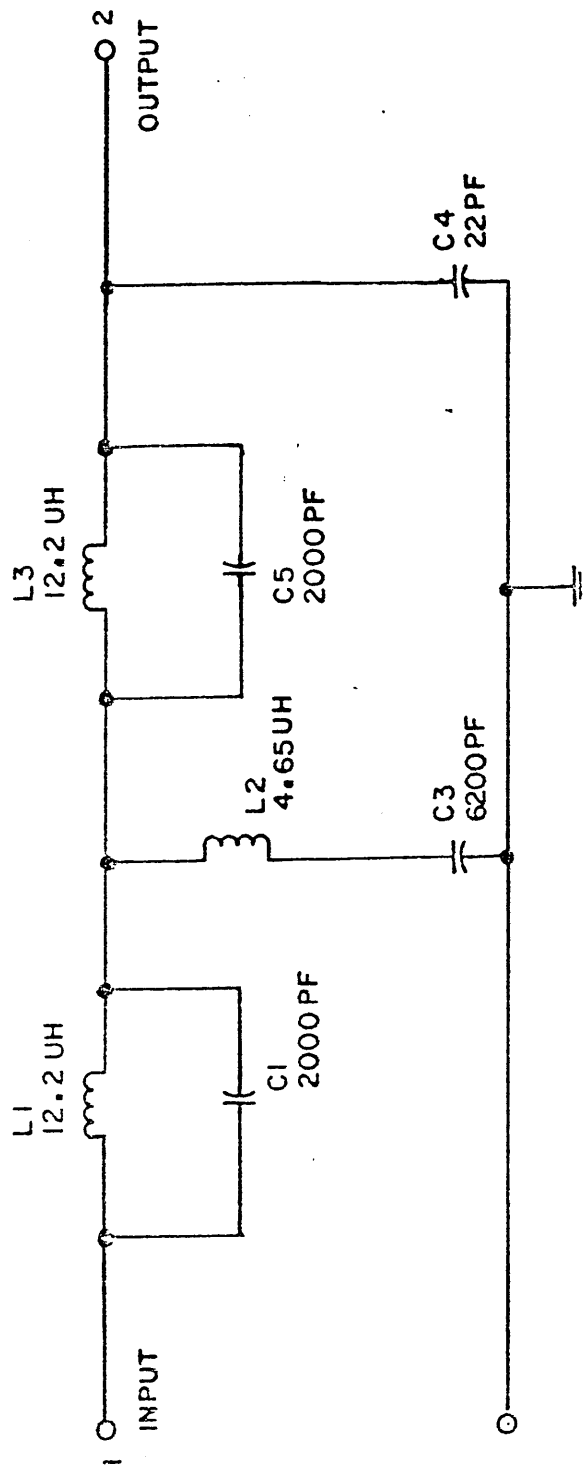


Figure 7.11 Schematic Diagram, Broadcast Filter (FX10020)

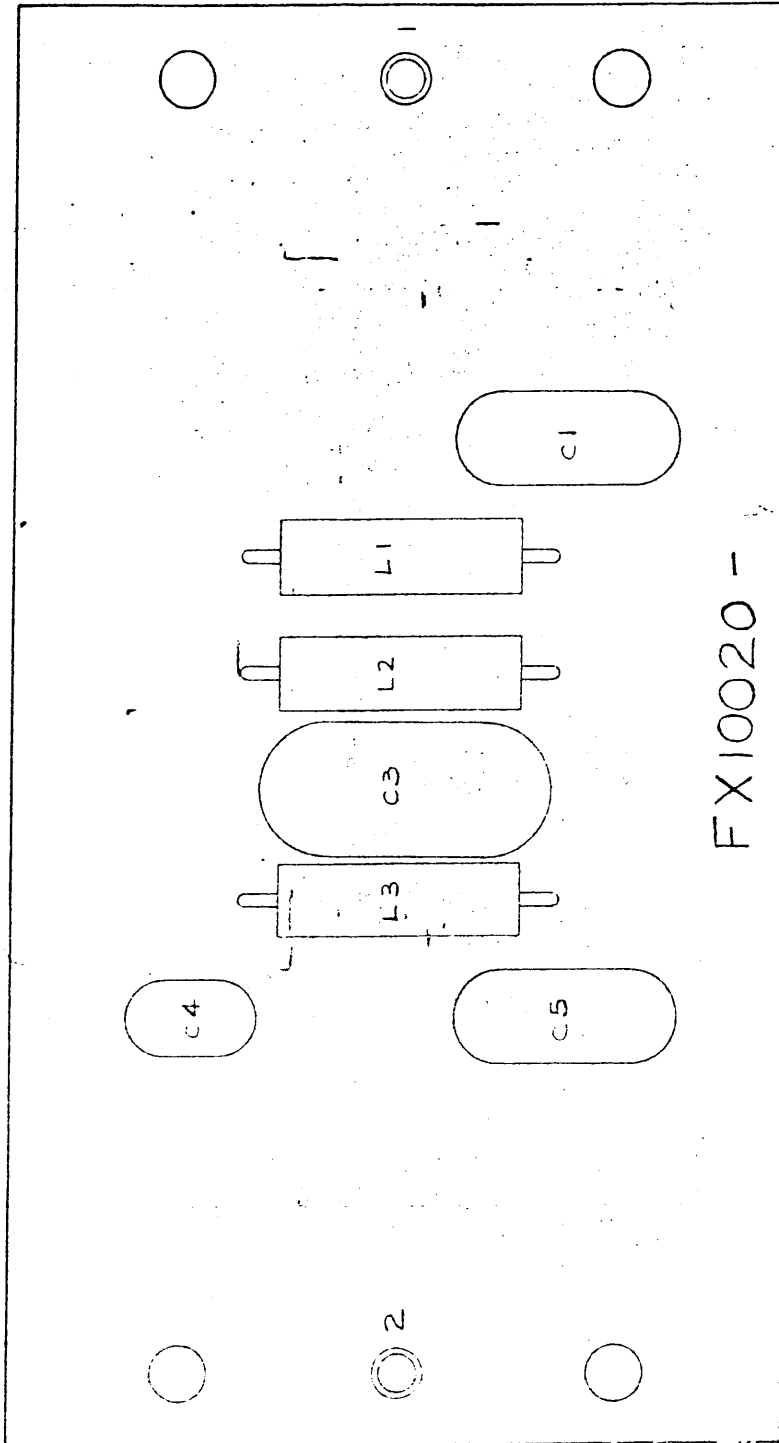


Figure 7.12 Component Location, Broadcast Filter

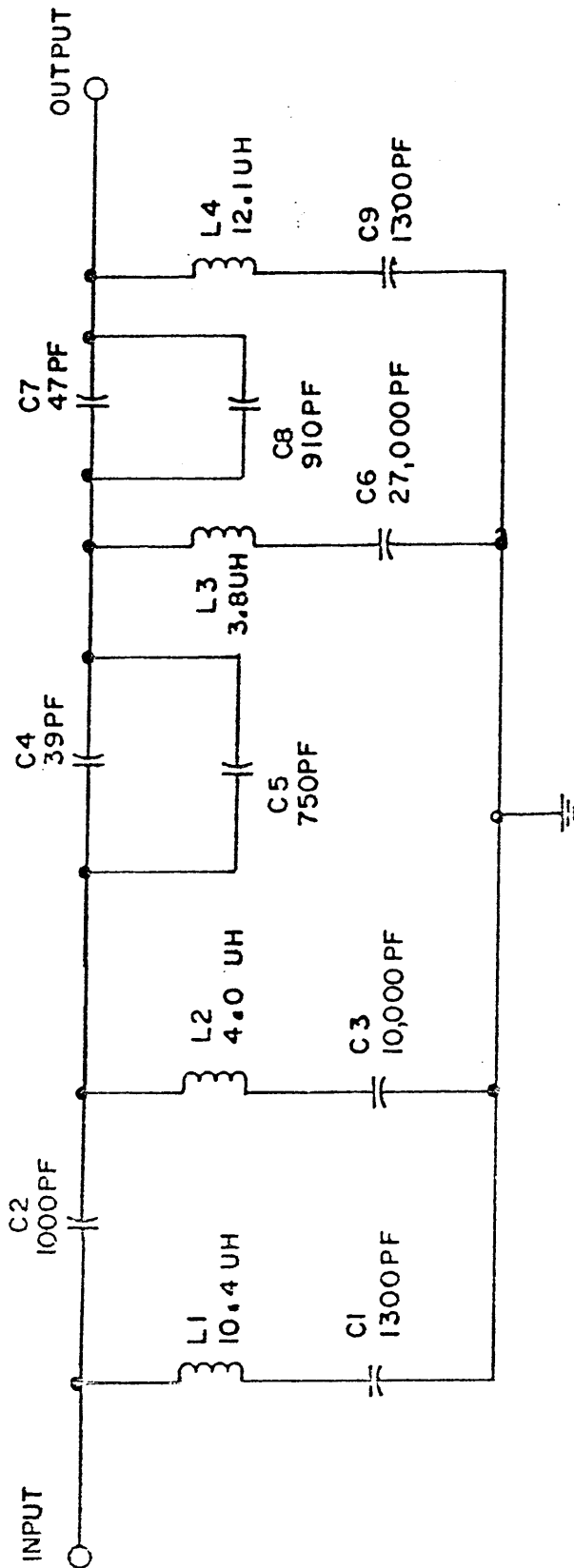


Figure 7.13 Schematic Diagram, Highpass Filter (FX10021)

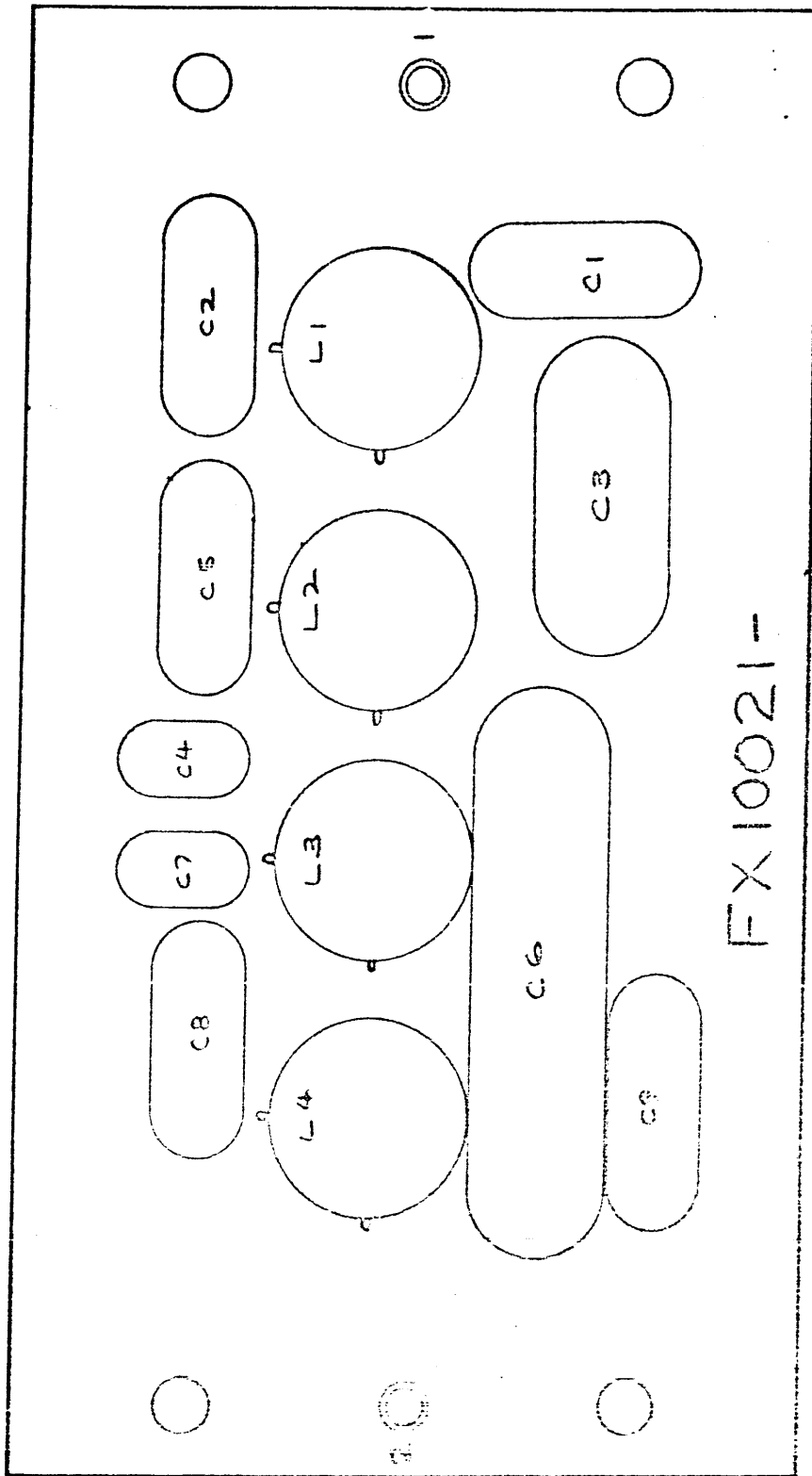


Figure 7.14 Component Location, Highpass Filter

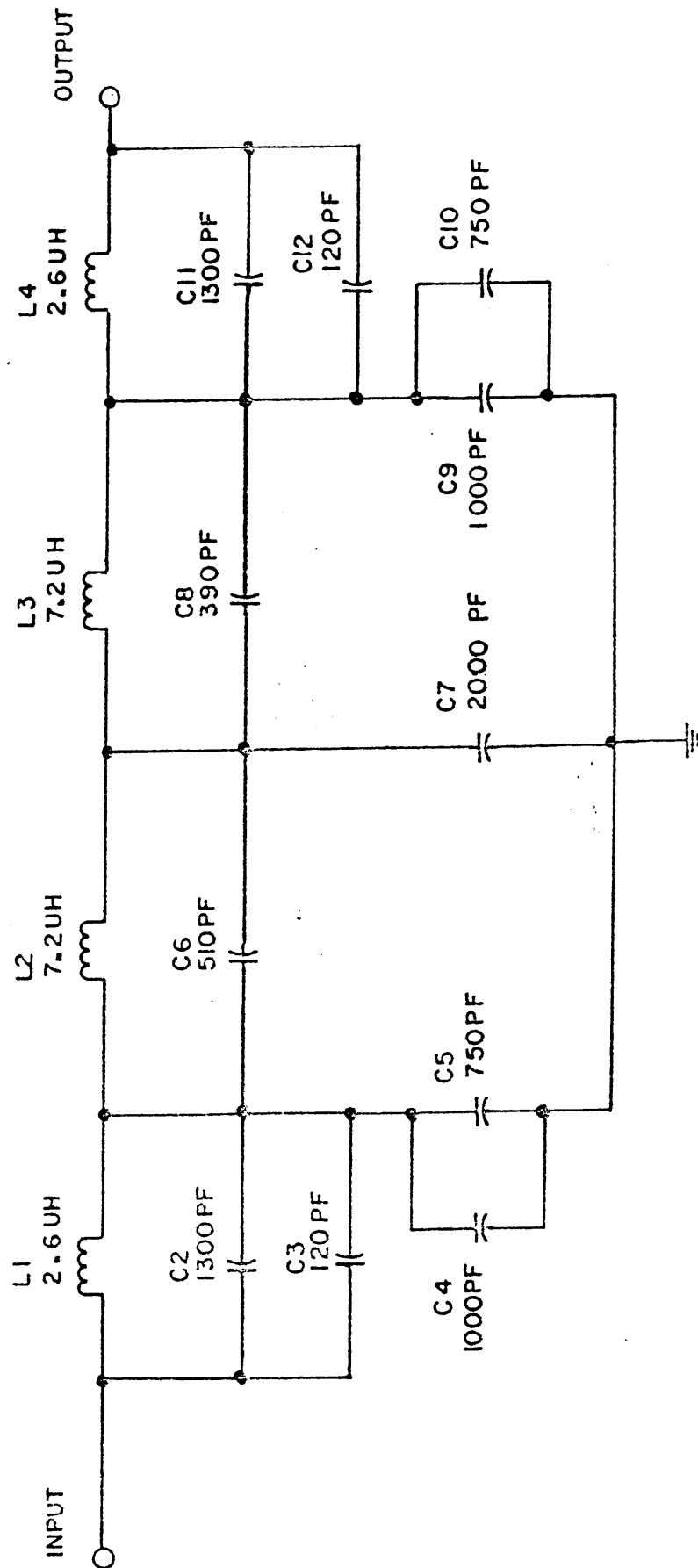


Figure 7.15 Schematic Diagram, Lowpass Filter (FX10022)

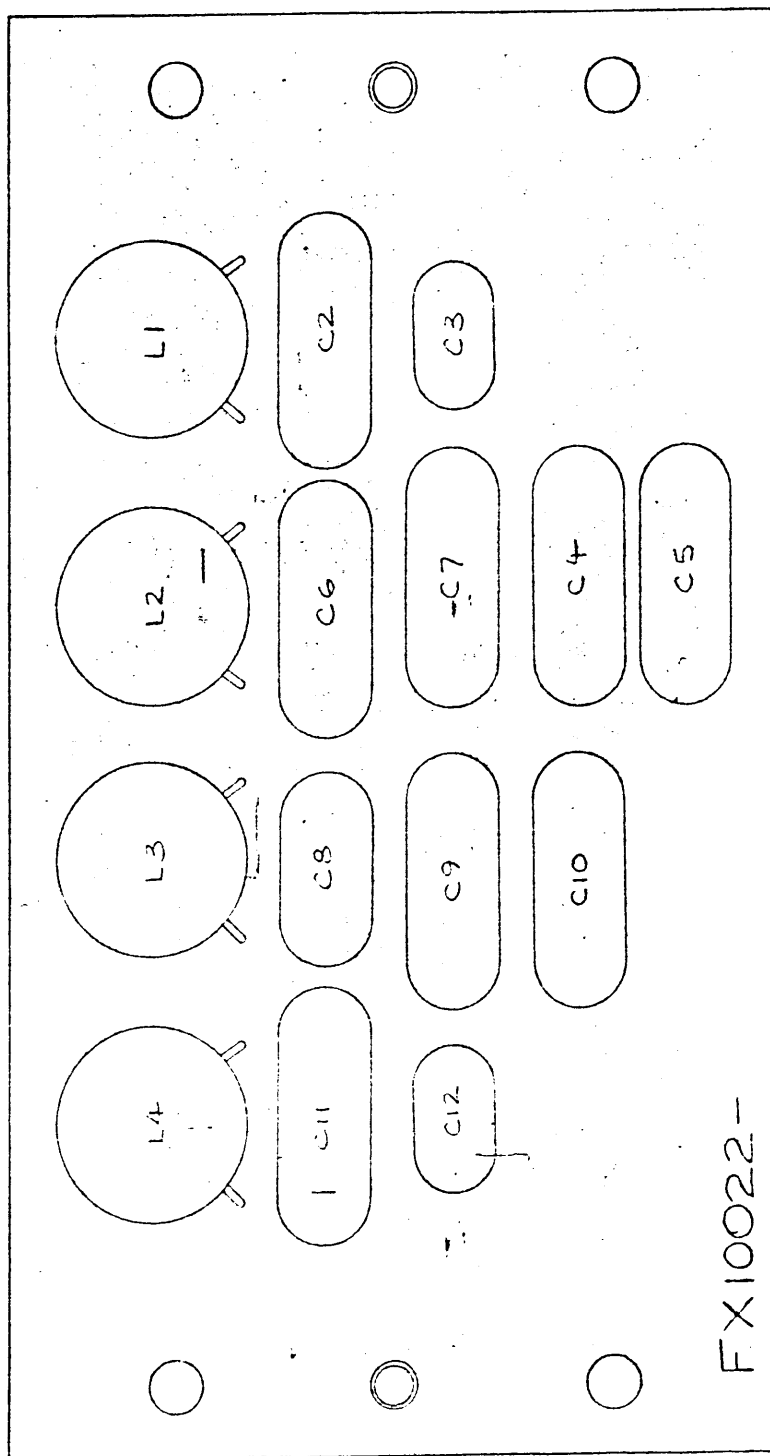


Figure 7.16 Component Location, Lowpass Filter

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	STE	SME		Multi-mode Multi-Channel Exciters
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	VDA	VOA		Directional/Omnidirectional VHF Antennas
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