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Technical Manual

for

MF/HF Receiving Antenna Multicoupler

Model AMC-8

THE TECHNICAL MATERIEL CORPORATION

COMMUNICATIONS ENGINEERS

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All inquiries should be directed to the following:

THE TECHNICAL MATERIEL CORPORATION

700 Fenimore Road

Mamaroneck, New York 10543 U.S.A.

Telephone 914-698-4800 * Facsimile (FAX) 914-698-4805

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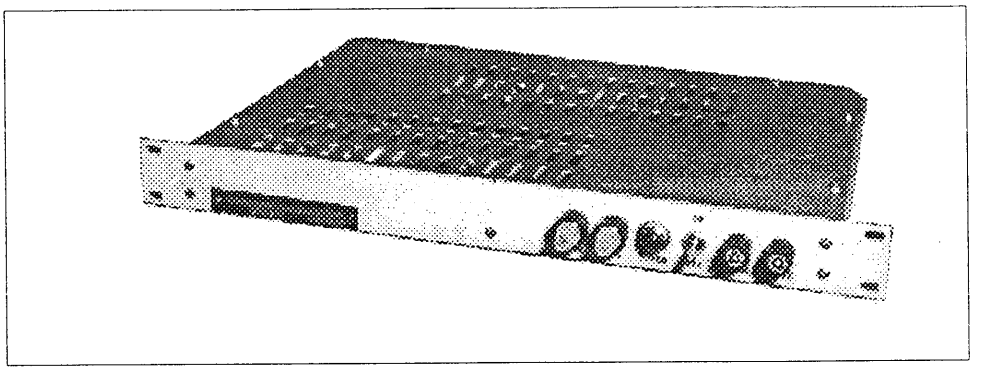
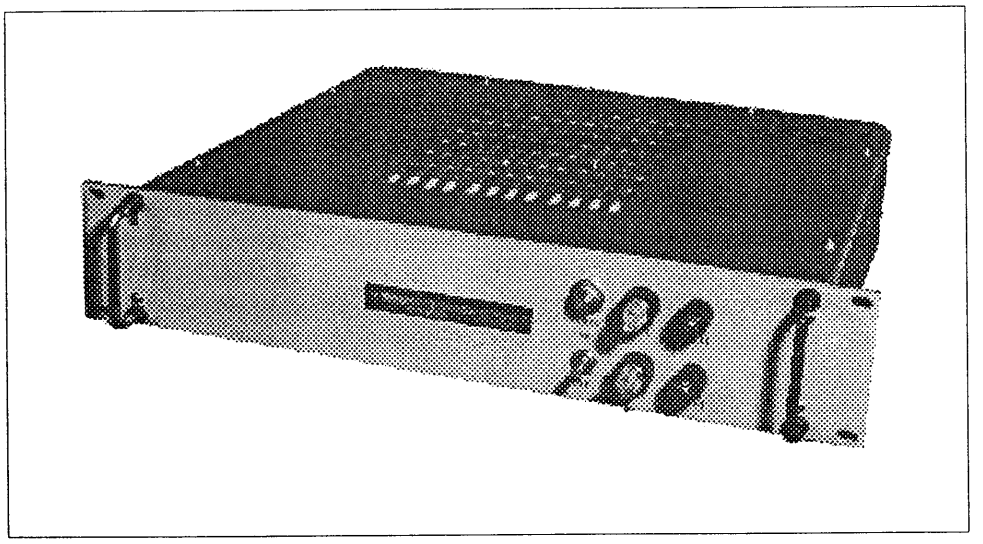


Model AMC-8 Eight-Output Receiving Antenna Multicoupler



Model AMC-16 Receiving Antenna Multicoupler (16-Output)

Model AMC-32 Receiving Antenna Multicoupler (32-Output)

Section 1 - General Description

1.1 Functional Description

1.1.1 Overview

The AMC-8 MF/HF Antenna Multicoupler is a broadband coupling unit, used for coupling up to eight 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-8 is fixed. Eight 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-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 AMC-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 AMC-8 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 Eight 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 operating range.

Frequency Response +/-1.0dB, 100kHz-32MHz

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

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 (AMC-8).

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 25 watts maximum.

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

Line Filters Greater than 40dB attenuation, 14kHz-150MHz.

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-Input HF Receiving Antenna Multicoupler, 2X4 Outputs**
AMC-2X8	**Dual-Input HF Receiving Antenna Multicoupler, 2X8 Outputs**
AMC-2X16	**Dual-Input HF Receiving Antenna Multicoupler, 2X16 Outputs**
AMC-4	**HF Receiving Antenna Multicoupler, Four Outputs**
AMC-8	**HF Receiving Antenna Multicoupler, Eight Outputs**
AMC-16	**HF Receiving Antenna Multicoupler, 16 Outputs**
AMC-32	**HF Receiving Antenna Multicoupler, 32 Outputs**
AMC-21-4	**HF/MF Receiving Antenna Multicoupler, Four Outputs**
AMC-21-8	**HF/MF Receiving Antenna Multicoupler, Eight Outputs**
AMC-21-12	**HF/MF Receiving Antenna Multicoupler, 12 Outputs**
AMC-21-16	**HF/MF Receiving Antenna Multicoupler, 16 Outputs**

500-Series Options:

- 5F0 50-ohm operation, no input filter
- 5F2 50-ohm operation, low-pass input filter (f_c=2.0MHz)
- 5F3 50-ohm operation, high pass input filter (f_c=2.0MHz)
- 5F4 50-ohm operation, broadcast stopband filter (0.6-1.9MHz)
- 5F5** 50-ohm operation, bandpass filter (2-32MHz)
- 5F23* 50-ohm operation - Includes Options 5F2 & 5F3 (switched)
- 5F24* 50-ohm operation - Includes Options 5F2 & 5F4 (switched)
- 5F34* 50-ohm operation - Includes Options 5F3 & 5F4 (switched)
- 5F234* 50-ohm operation - Includes Options 5F2, 5F3 & 5F4 (switched)

700-Series Options:

- 7F0 70-ohm operation, no input filter
- 7F2 70-ohm operation, low-pass input filter (f_c=2.0MHz)
- 7F3 70-ohm operation, high-pass filter (f_c=2.0MHz)
- 7F4 70-ohm operation, broadcast stopband filter (0.6-1.9MHz)
- 7F5** 70-ohm operation, bandpass filter (2-32MHz)
- 7F23* 70-ohm operation - Includes Options 7F2 & 7F3 (switched)
- 7F24* 70-ohm operation - Includes Options 7F2 & 7F4 (switched)
- 7F34* 70-ohm operation - Includes Options 7F3 & 7F4 (switched)
- 7F234* 70-ohm operation - Includes Options 7F2, 7F3 & 7F4 (switched)

* Available in Model AMC-21 series only.
** Not available in Model AMC-21 series.

When ordering, specify both model and option. Example: AMC-8/5F4. Input filters may be combined in AMC-2X and AMC-21 series only.

2.1 Initial Inspection

2.1.1 General

Every AMC-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 AMC-8 operates from a 115VAC, 48 to 400Hz power source. Optionally, the AMC-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 AMC-8 after it has been installed in an equipment rack:

Antenna

The antenna cable must be fitted with a connector that mates with the AMC-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 J9 on the rear panel of the AMC-8.

Power

Connect primary power to the unit by plugging the supplied power cable assembly into POWER INPUT connector J10 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-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 AMC-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 AMC-8 reduces heat problems, allowing "stacking" of up to five AMC-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 AMC-8, turn the POWER switch S1 to the ON position. The POWER lamp DS1/LP1 will light, indicating that the AMC-8 is ready for use. No further checks are required.

Table 2.1 - Loose Items Supplied

CA10505	Power Cable Assembly	1 each
210303-8	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-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 AMC-8 is now fully operational without further adjustment.

Table 3.1 Controls and Indicators

Power ON/OFF switch S1	Controls primary power application
POWER lamps DS1/LP1	Lights when primary power is applied and switch S1 is turned ON.
FUSE holder/indicator F1,F2	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-8 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 eight communication receivers.

4.1.2 Input/Output

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

4.1.3 Salient Performance Features

The AMC-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 AMC-8 multicoupler consists of three major sections as shown in the Block Diagram Scematic (Figure 4.1) and as described in the following paragraphs. These sections consist of the preamplifier assembly (A2/A3); the output emiter-follower buffer assembly (A4); and the regulated power supply (A1).

4.2 Preamplifier

4.2.1 Location and Features

The preamplifier is mounted on a printed circuit board designated A3. 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 7.1 can be used to locate components and troubleshoot with the schematic diagram.

4.2.2 Power Distribution

Power for the preamplifier is obtained from the -28VDC regulated supply A1. This DC voltage is heavily decoupled to prevent distortion from the rectified power supply.

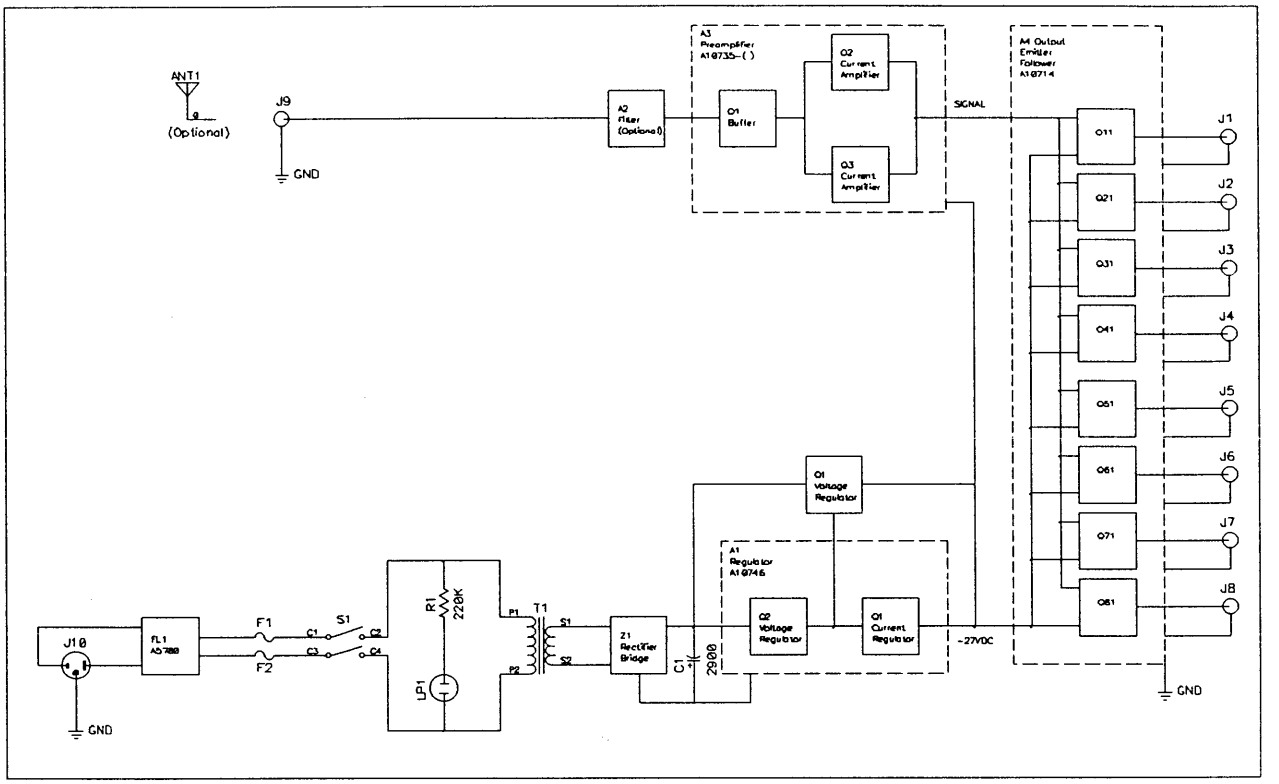


Figure 4.1 Block Diagram Schematic (overall)

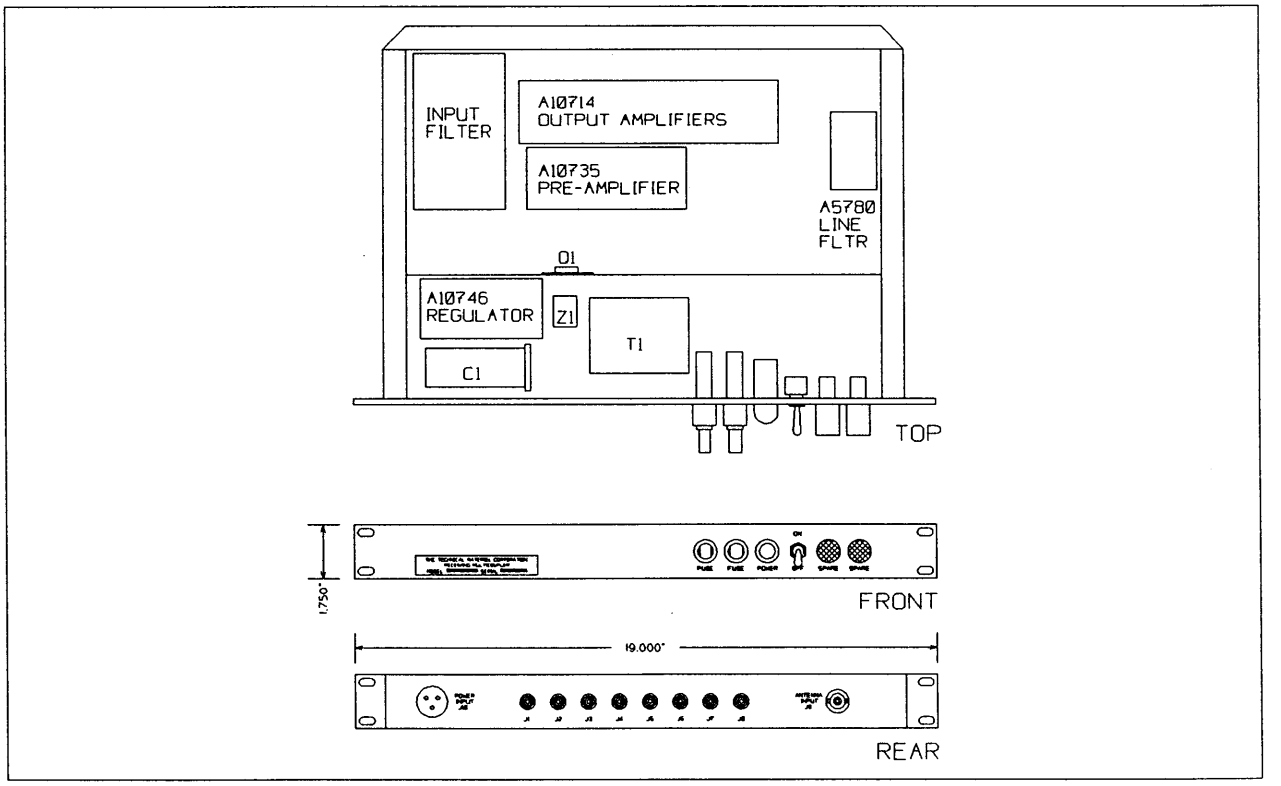


Figure 4.2 Outline Drawing w/Assembly Location

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 4.1 and 7.2. 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 R11/C11 to the base of emitter-follower Q11. Bias is obtained with R12/R13. The output from the emitter-follower is applied to the output terminal through a matched 50-ohm load circuit consisting of R15/C13.

4.3.3 Power Distribution

The -28VDC power is obtained from the regulated power supply A1 and is filtered through C1, C2 and L11 to the decoupling capacitor C12 and load compensator L12 to the 2N3866 transistor via R14.

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 A1. The latter is described in the following paragraphs (See Figures 4.1 and 7.3).

4.4.2 Circuit Analysis

Primary power is supplied through AC line filter FL1 to the ON/OFF switch S1. When S1 is in the ON position, power is supplied through the two fuses F1/F2 to the power transformer T1 and the front panel indicator lamp DS1. The secondary of transformer T1 produces 29VAC, which is rectified by bridge rectifier Z1, and filtered by 2900 umfd capacitor C1.

4.4.3 Current and Voltage Regulation

The regulator board and transistor Q1 provide the voltage and current regulation required for the -29V supply. All components in this section, with the exception of transistor Q1, are mounted on printed circuit assembly A1. Potentiometer R7 is used to set up the initial -28V required by the AMC. Transistor Q1 and diodes CR1 and CR2 form a voltage reference circuit (sensitive to temperature and load changes) which in turn control Darlington-connected transistors Q2/Q1. 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 L1 and C1 of the preamplifier board A2 and then fed to the buffer amplifier board.

5.1 General

5.1.1 Test Equipment Requirements

This section describes preventive maintenance, trouble-shooting and repair procedures for the AMC-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 and 7.1 thru 7.8.

5.2 Preventive Maintenance

5.2.1 General Cleaning Methods

Preventive maintenance for the AMC-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 AMC-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 DS1 is not illuminated, check for power input failure or defective input filter FL1. If POWER ON lamp is on, check indicating type fuses F1/F2 and replace with spare if necessary. If both fuses are intact, proceed to check the transformer T1, bridge rectifier Z1 and voltage regualtor A1. -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 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 A2 or A3 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 A2 or A3 will be necessary.

Table 5 - 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 (A4/A5). 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-8 multicoupler. Power supply regulator A1 contains a screwdriver-adjustable potentiometer (R7) that was pre-set, 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 (A1)**
A10735-5,6	**Preamplifier Assembly (A3)**
A10714-5,6	**Output Amplifier Assembly (A4)**
FX10034	**Band Pass Filter Assembly**

AMC-8

MAIN CHASSIS, FRONT & REAR PANELS

	REF DESIGNATION	DESCRIPTION	TMC PART NUMBER
	A1	VOLTAGE REGULATOR	A10746-5
	A2	PREAMPLIFIER, 75 ohms	A10735-5
	A2	PREAMPLIFIER, 50 ohms	A10735-6
	A3	OUTPUT MODULE: 8 outputs, 75 ohms	A10714-5
	A3	OUTPUT MODULE: 8 outputs, 50 ohms	A10714-6
	A4	FILTER: BANDPASS, 75 ohms	FX10018
	A4	FILTER: BANDPASS, 50 ohms	FX10034
	W1	CABLE: RF, coaxial with connectors	CA10530 or CA10662
*	C1	CAPACITOR: Electrolytic, 2800 uF	CE112-15
	DS1	LAMP: Neon	B1100-51
	F1, F2	FUSE: slo-blo, 0.5 amp (115 Vac operation only)	FU102-.5
	F1, F2	FUSE: slo-blo, 0.25 amp (230 Vac operation only)	FU102-.25
	FL1	FILTER: RF, line	A5780
	J1 to J9	CONNECTOR: BNC, receptable	UG625B/U
	J10	CONNECTOR: Receptable, male	MS3102A-14S-7P
	R1	RESISTOR, FXD	RW111-3
	S1	SWITCH: Toggle	ST22K
*	T1, T2	TRANSFORMER: Power	TF10060
	TB1	TERMINAL BOARD	TM102-2
	Q1	TRANSISTOR	2N3055
	Z1	DIODE BRIDGE NETWORK	NW10005

* Some units may use TF10060 (T1) in place of Assembly A5782 (T1,T2) some units may use CE44C222G in place of CE112-5.

A1, REGULATOR ASSEMBLY
A10746-5

REF. DESIGNATION	DESCRIPTION	TMC PART NUMBER
C1, C6	CAPACITOR: Fixed, ceramic, 0.1 uF	CC10015-X5V104M
C2	CAPACITOR: Fixed, tantalum, 6.8 uF	CSR13G685ML
C3, C5	CAPACITOR: Fixed, tantalum, 0.47 uF	CSR13G474ML
C4	CAPACITOR: Fixed, ceramic, 0.01 uF	CC10017-X5V103M
CR1	DIODE: Zener	IN758
CR2	DIODE	IN914B
R1	RESISTOR: Fixed, composition, 47K, ½W, 5%	RC20GF473J
R2	RESISTOR: Fixed, composition, 68K, ½W, 5%	RC20GF683J
R3	RESISTOR: Fixed, composition, 15 ohms, ½W, 5%	RC20GF150J
R4	RESISTOR: Fixed, composition, 560 ohms, ½W, 5%	RC20GF561J
R5	RESISTOR: Fixed, composition, 1.2K, ½W, 5%	RC20GF122J
R6	RESISTOR: Fixed, composition, 2.9K, ½W, 5%	RC20GF392J
R7	RESISTOR: Variable, composition, 1K, linear curve, ½W	RV111U102A
R8	RESISTOR: Fixed, composition, ½W, 6.8K, 5%	RC20GF682J
Q1	TRANSISTOR: NPN, silicon	TX10001
Q2	TRANSISTOR: PNP, silicon	2N5086

PREAMPLIFIER ASSEMBLY
A10735-5, A10735-6

REF. DESIGNATION	DESCRIPTION	TMC PART NUMBER
C1, C6, C7	CAPACITOR: Fixed, ceramic 0.1 uF	CC10015-X5V104M
C2	CAPACITOR: Fixed, mica 47 pF, 2% (used only in A10735-5)	CM104ED470G03
C3, C4, C5, C8, C9	CAPACITOR: Fixed, ceramic .01 uF	CC10017-X5V103M
CR1	DIODE	1N914B
* R1	RESISTOR: Fixed, film 910 ohms, ½W, 2% (A10735-5)	RL07S911G
R1	RESISTOR: Fixed, film, 510 ohms ½W, 2% (A10735-6)	RL07S511G
R2	RESISTOR: Fixed, film 8.2 K, ½W, 2%	RL07S822G
R3	RESISTOR: Fixed, film 3K, ½W, 2%	RL07S302G
R4	RESISTOR: Fixed, comp, 330 ohms, ½W, 5%	RC20GF331J
R5, R7	RESISTOR: Fixed, film 2K, ½W, 2%	RL07S202G
R6	RESISTOR: Variable, 500 ohms	RV10009-501AP
R8, R9	RESISTOR: Fixed, comp, 7.5 ohms, ½W, 5%	RC07GF7R5J
L1	INDUCTOR: RF coil, 33 uH	CL275-330
L2	INDUCTOR: RF coil, 0.33 uH (used only in A10735-5)	CL10044
L3, L4, L5	INDUCTOR: RF coil, 220 uH	CL275-221
T1	TRANSFORMER: RF	TR10005
Q1, Q2	TRANSISTOR	2N5160
Q3	TRANSISTOR	2N3866

8 OUTPUT ASSEMBLY
A10714 - 5 and -6

REF. DESIGNATION	DESCRIPTION	TMC PART NUMBER
C1, C2, C12, C13, C22, C23, C32, C33, C42, C43, C52, C53, C62, C63, C72, C73, C82, C83	CAPACITOR: Fixed, mica 0.1 uF	CC10015-X5V104M
C11, C21, C31, C41, C51, C61, C71, C81	CAPACITOR: Fixed, mica, 0.01 uF	CC10017-X5V103M
L11, L21, L31, L41, L51, L61, L71, L81	INDUCTOR: RF coil, 33 uH	CL275-330
L12, L22, L32,L42, L52, L62, L72, L82	INDUCTOR: RF coil, 220 uH	CL275-221
R11, R21, R31, R41, R51, R61, R71, R81	RESISTOR: Fixed, composition 100 ohms, ½W, 5%	RC07GF101J
R12, R22, R32, R42, R52, R62, R72, R82	RESISTOR: Fixed, composition 4.3 K, ½W, 5%	RC07GF432J
R13, R23, R33, R43, R53, R63, R73, R83	RESISTOR: Fixed, composition 3.3 K, ½W, 5%	RC07GF332J
R14, R24, R34, R44, R54, R64, R74, R84	RESISTOR: Fixed, composition 220 ohms, 1W, 5%	RC32GF221J
*R15, R25, R35, R45, R55, R65, R75, R85	RESISTOR: Fixed, film 71.5 ohms, ½W, 1%	RNG0D71R5F
Q11, Q21, Q31, Q41, Q51, Q61, Q71, Q81	TRANSISTOR	2N3866

*The value of R15 and R85 for -6 is 51.3 ohms

BANDPASS FILTER FX10034* ASSEMBLY 1A2

REF DESIGNATION	DESCRIPTION	TMC PART NUMBER
1A2C1	CAPACITOR	CV112-6
1A2C2	CAPACITOR	CM04ED820G03
1A2C3	SAME AS 1A2C1	
1A2C4	CAPACITOR	CM04CD050D03
1A2C5	CAPACITOR	CM06FD132F03
1A2C6	SAME AS 1A2C2	
1A2C7	CAPACITOR	CM04FD101J03
1A2C8	SAME AS 1A2C4	
1A2C9	SAME AS 1A2C1	
1A2C10	SAME AS 1A2C1	
1A2C11	CAPACITOR	CM04ED270G03
1A2C12	CAPACITOR	CM06FD132F03
1A2C13	SAME AS 1A2C1	
1A2C14	CAPACITOR	CM04ED680G03
1A2DS1	LAMP	BI10005
1A2J1	CONNECTOR	UG290A/U
1A2J2	SAME AS 1A2J1	
1A2L1	INDUCTOR	CL10050-2
1A2L2	INDUCTOR	CL10051-1
1A2L3	INDUCTOR	CL10050-5
1A2L4	INDUCTOR	CL10050-1
1A2L5	INDUCTOR	CL10051-2
1A2L6	INDUCTOR	CL10050-4
1A2L7	INDUCTOR	CL10050-3

* See figure 7-3 for FX10018-1 (75Ω)

Section 7 - Schematic Diagrams

Figure 7.1 Schematic Diagram, Preamplifier Assembly (A3/A10735)
Figure 7.2 Schematic Diagram, Output Amplifier Assembly (A4/A10714)
Figure 7.3 Schematic Diagram, Regulator Assembly (A1/A10746)
Figure 7.4 Schematic Diagram, Line Filter Assembly (A5780)
Figure 7.5 Schematic Diagram, Bandpass Input Filter (FX10034)
Figure 7.6 Schematic Diagram, Broadcast Stopband Filter (FX10020)
Figure 7.7 Schematic Diagram, High pass Input Filter (FX10021)
Figure 7.8 Schematic Diagram, Low pass Input Filter (FX10022)

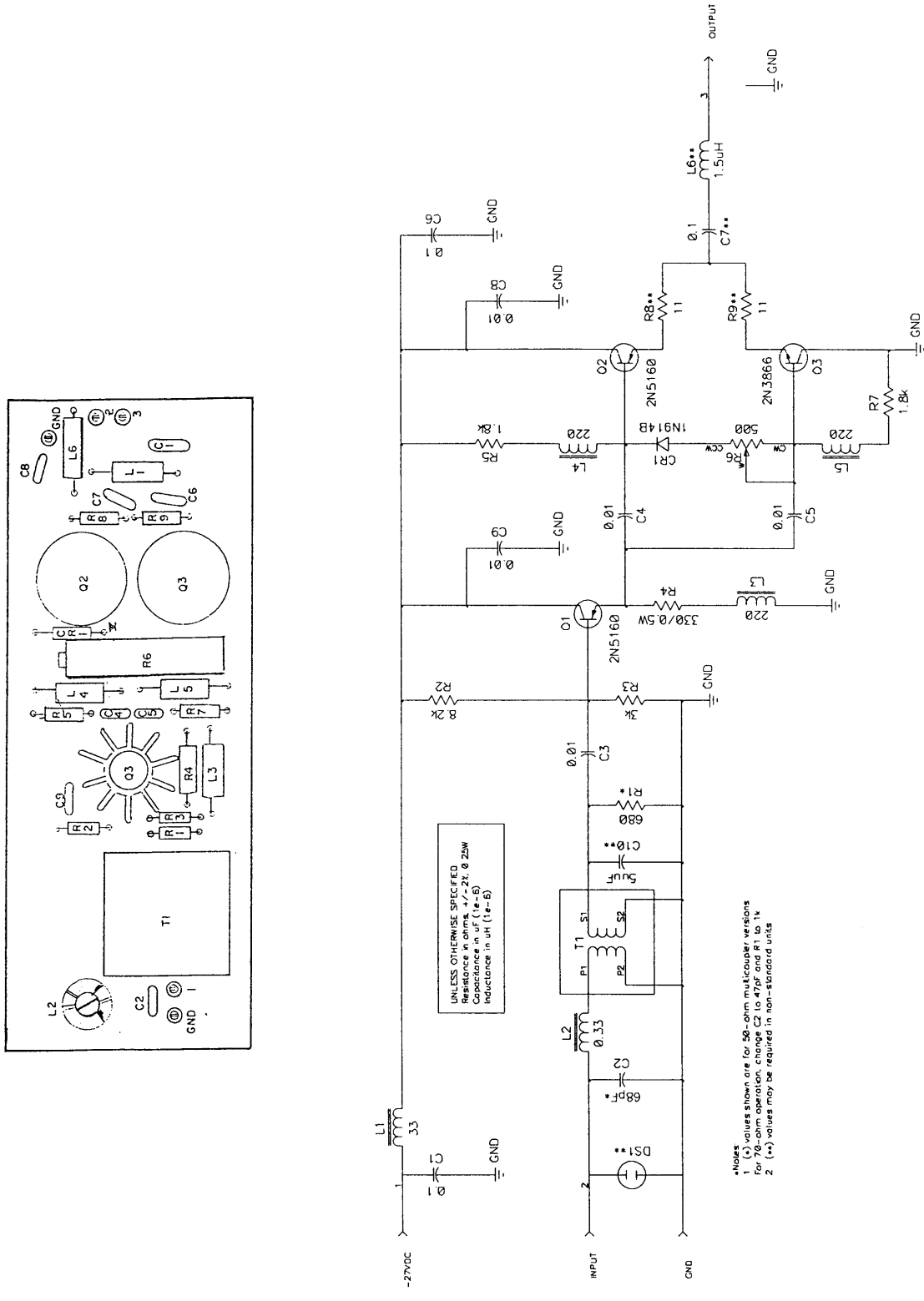


Figure 7.1 Schematic Diagram, Preamplifier Assembly (A3/A10735)

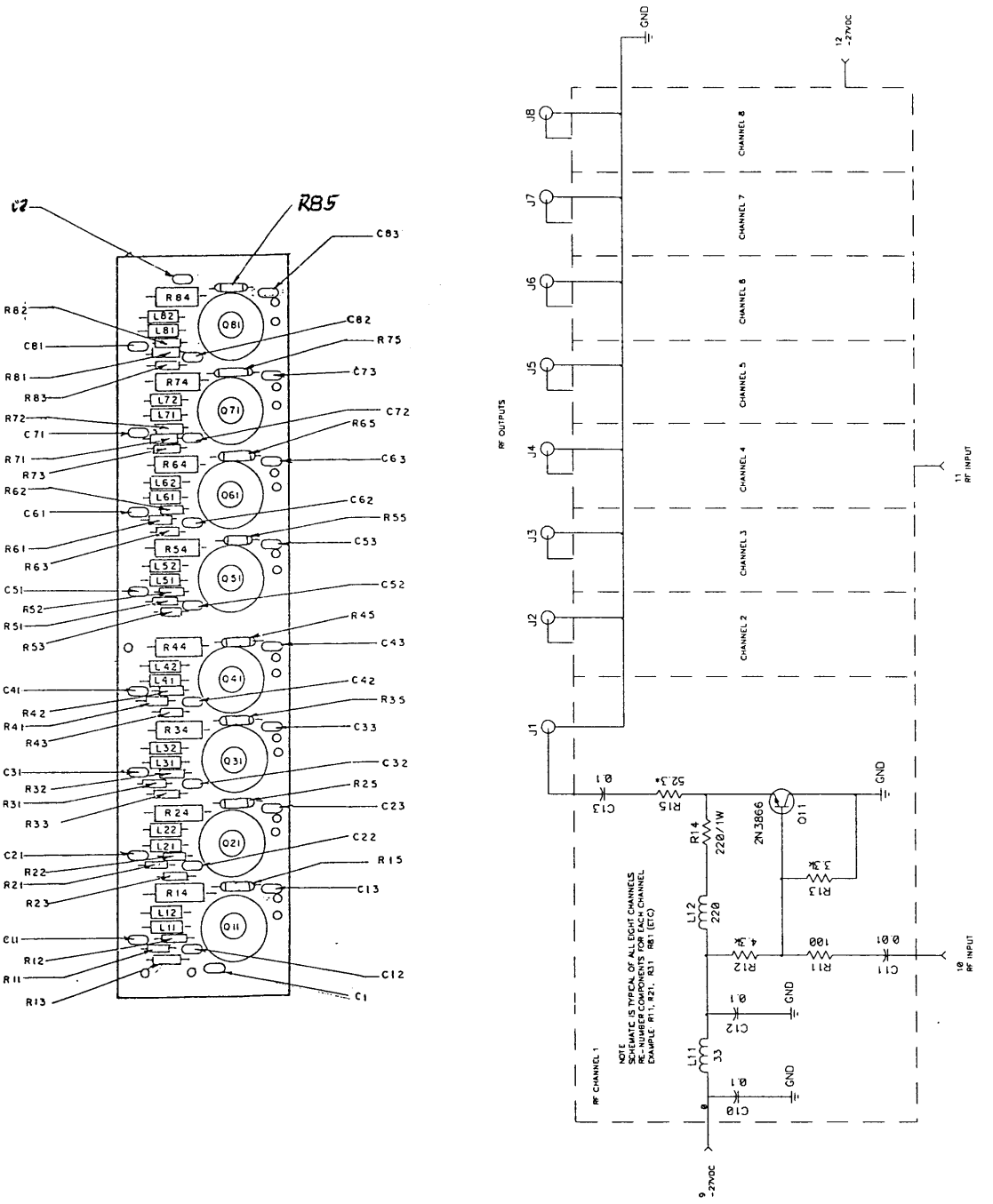
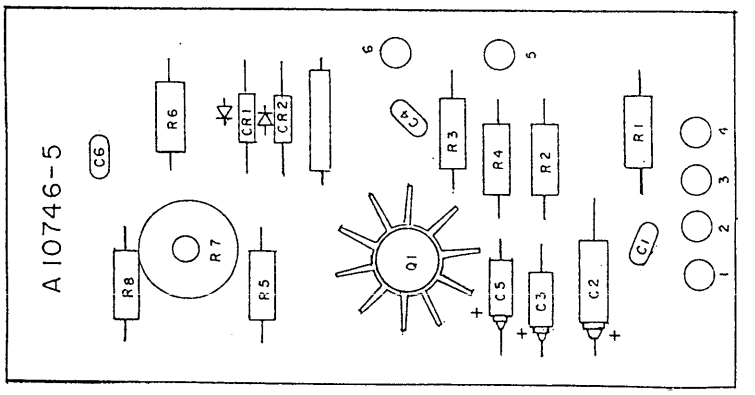


Figure 7.2 Schematic Diagram, Output Amplifier Assembly (A4/A10714)



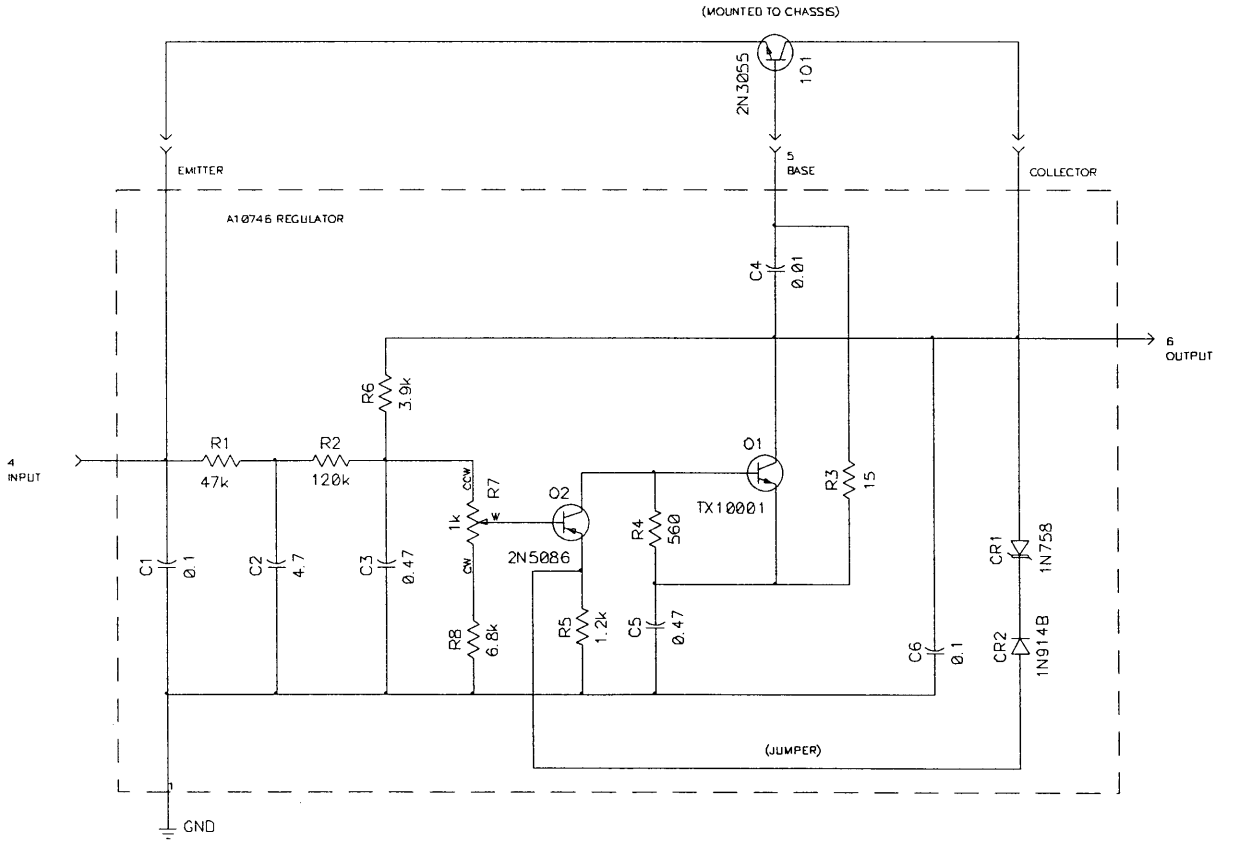
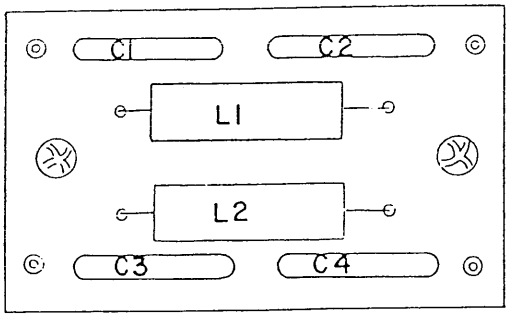


Figure 7.3 Schematic Diagram, Regulator Assembly (A1/A10746)



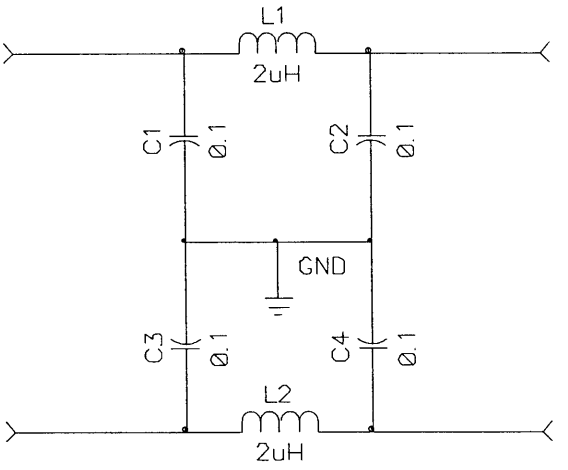
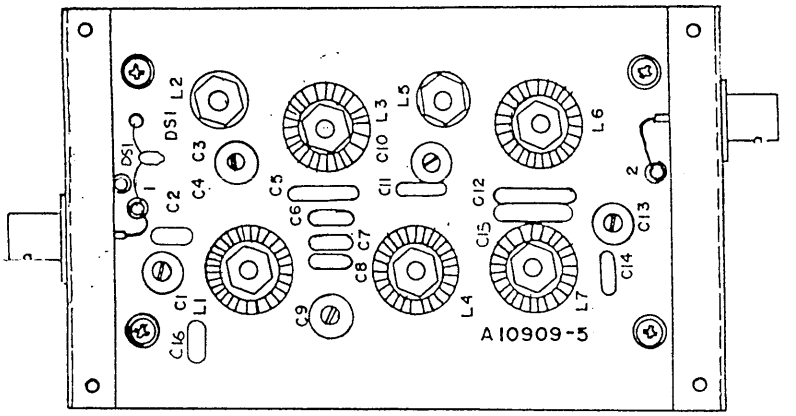


Figure 7.4 Schematic Diagram, Regulator Assembly (A5780)



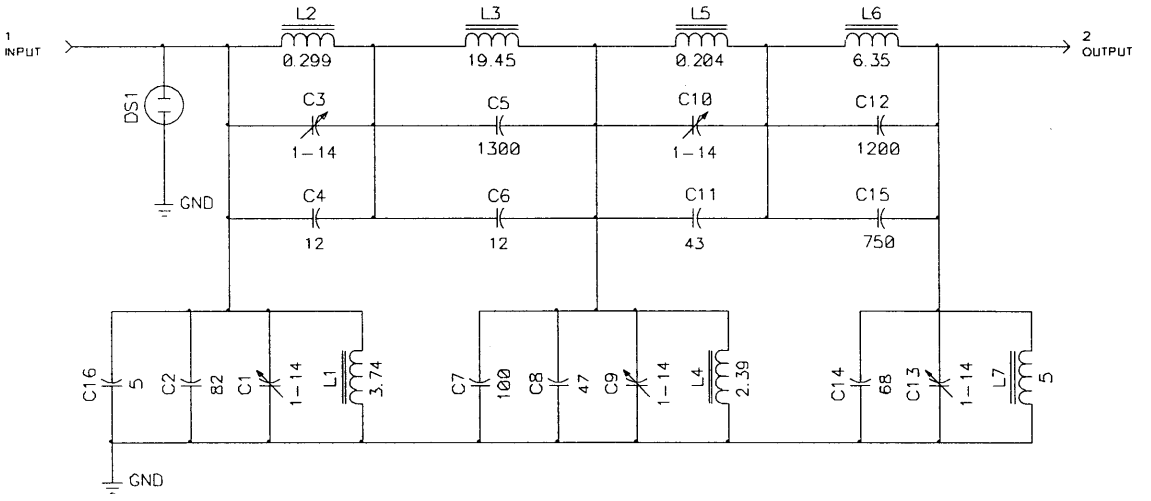
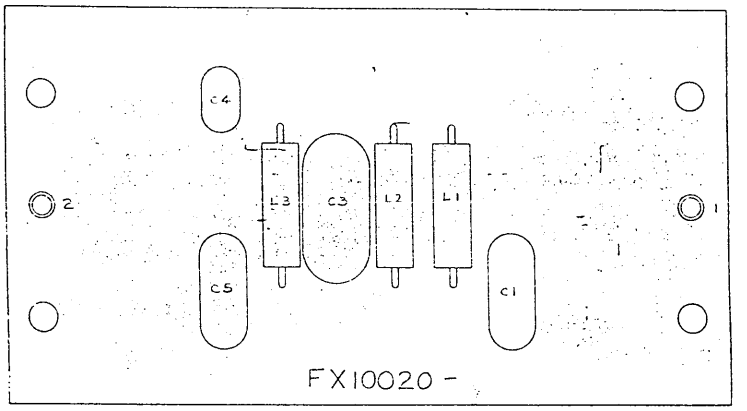


Figure 7.5 Schematic Diagram, Bandpass Input Filter (FX10034)



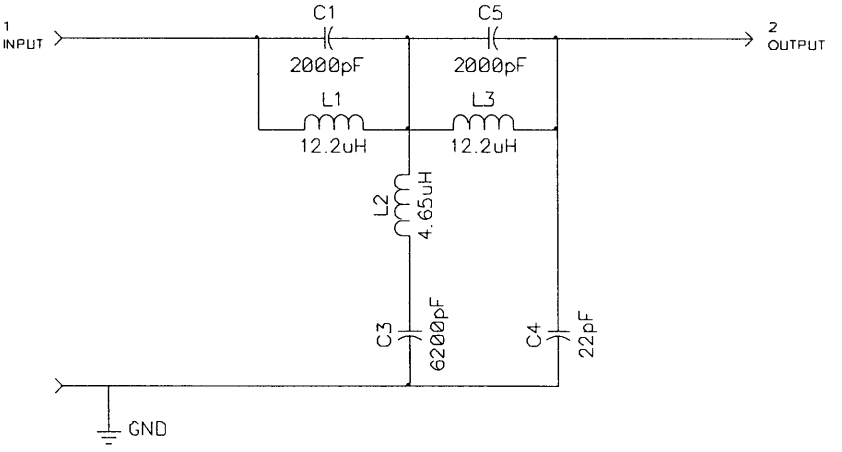
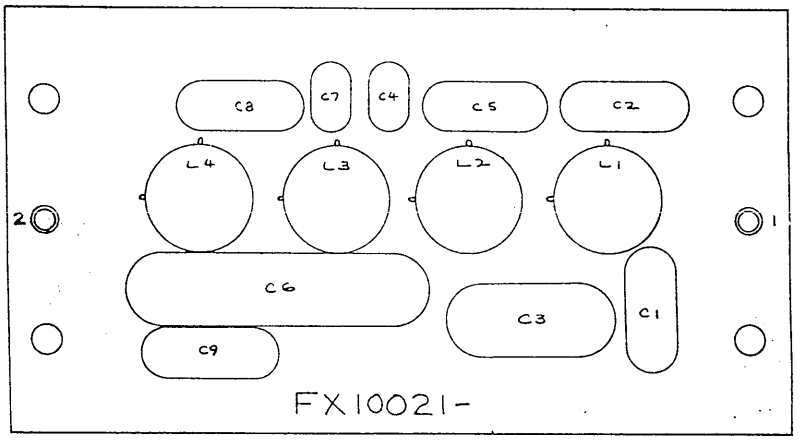


Figure 7.6 Schematic Diagram, Broadcast Stopband Input Filter (FX10020)



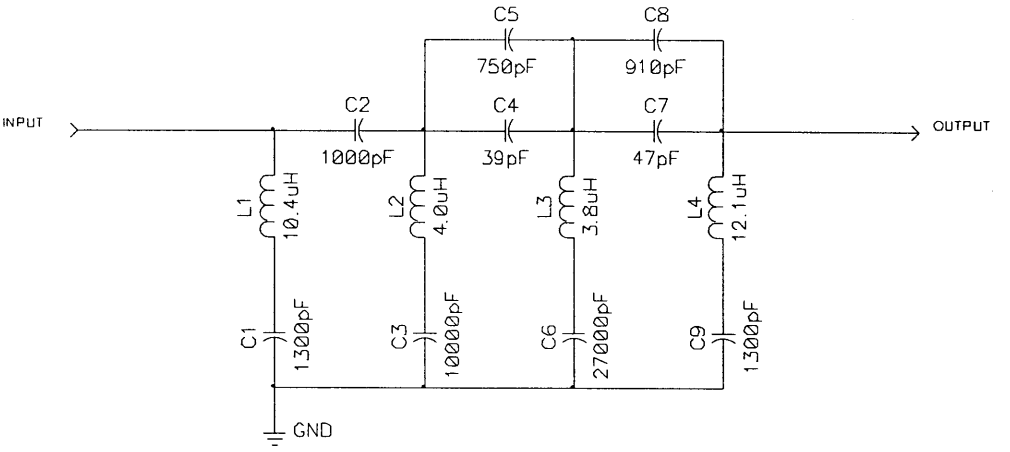
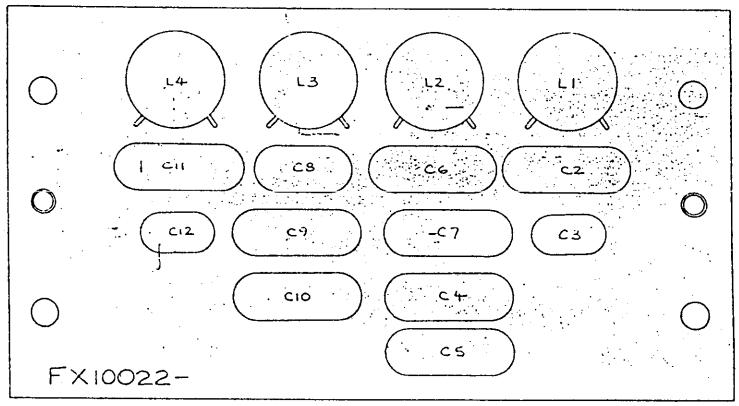


Figure 7.7 Schematic Diagram, High Pass Input Filter (FX10021)



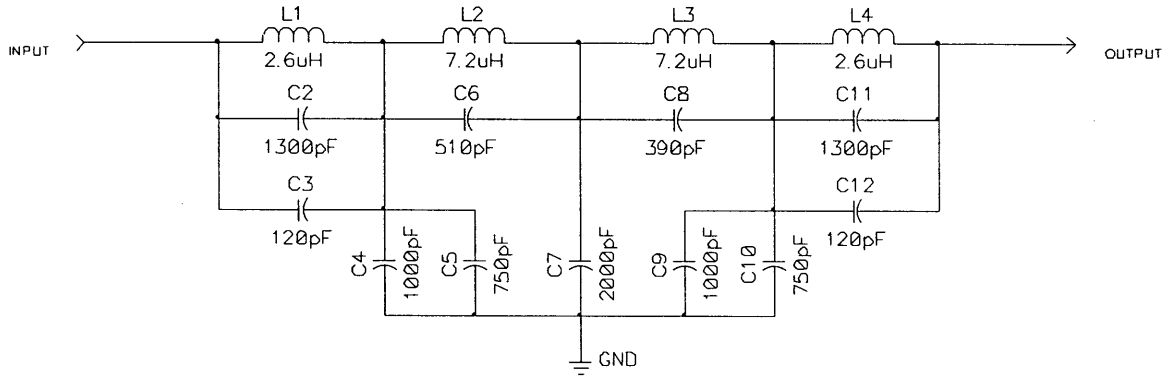


Figure 7.8 Schematic Diagram, Low Pass Input Filter (FX10022)