



TMC (*Canada*) LIMITED

TELECOMMUNICATIONS ENGINEERS

MAILING ADDRESS: R.R. No. 5, Ottawa, Ontario

A Subsidiary of The Technical Materiel Corporation, Mamaroneck, N.Y.

Warranty

The Technical Materiel Corporation, hereinafter referred to as TMC, warrants the equipment (except electron tubes, fuses, lamps, batteries and articles made of glass or other fragile or other expendable materials) purchased hereunder to be free from defect in materials and workmanship 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 F.O.B. 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, F.O.B. factory, which may fail within the stated warranty period, PROVIDED:

1. That 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.
2. That the defect is not the result of damage incurred in shipment from or to the factory.
3. That 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.
4. That 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.

Electron tubes* furnished by TMC, but manufactured by others, bear only the warranty given by such other manufacturers. Electron tube warranty claims should be made directly to the manufacturer of such tubes.

TMC's obligation under this warranty is limited to the repair or replacement of defective parts with the exceptions noted above.

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. No parts or equipment shall be returned to TMC, unless a return authorization is issued by TMC.

No warranties, express 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 Buyers 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 TMC Products, or any inability to use them either separately or in combination with other equipment or materials or from any other cause.

* Electron tubes also include semi-conductor devices.

PROCEDURE FOR RETURN OF MATERIAL OR EQUIPMENT

Should it be necessary to return equipment or material for repair or replacement, whether within warranty or otherwise, a return authorization must be obtained from TMC prior to shipment. The request for return authorization should include the following information:

1. Model Number of Equipment.
2. Serial Number of Equipment.
3. TMC Part Number.
4. Nature of defect or cause of failure.
5. The contract or purchase order under which equipment was delivered.

PROCEDURE FOR ORDERING REPLACEMENT PARTS

When ordering replacement parts, the following information must be included in the order as applicable:

1. Quantity Required.
2. TMC Part Number.
3. Equipment in which used by TMC or Military Model Number.
4. Brief Description of the Item.
5. The *Crystal Frequency* if the order includes crystals.

PROCEDURE IN THE EVENT OF DAMAGE INCURRED IN SHIPMENT

TMC's Warranty specifically excludes damage incurred in shipment to or from the factory. In the event equipment is received in damaged condition, the carrier should be notified immediately. Claims for such damage should be filed with the carrier involved and not with TMC.

All correspondence pertaining to Warranty Claims, return, repair, or replacement and all material or equipment returned for repair or replacement, within Warranty or otherwise, should be addressed as follows:

T M C (*Canada*) LIMITED
Engineering Services Department
R.R. No. 5, Ottawa, Ontario
Telegraphic Address: TEPEI, Ottawa.

TABLE OF CONTENTS

Paragraph	Page	Paragraph	Page
SECTION 1 -- GENERAL DESCRIPTION		SECTION 4 -- PRINCIPLES OF OPERATION	
1-1	Functional Description	1-1	4-1
1-2	Physical Description	1-1	4-1
1-3	Technical Specifications	1-2	4-1
		4-4	4-1
		4-5	4-1
SECTION 2 -- INSTALLATION		SECTION 5 -- MAINTENANCE	
2-1	Unpacking	2-1	5-1
2-2	Power Requirements	2-1	5-1
2-3	Equipment Location	2-1	5-1
2-4	Electrical Installation	2-1	5-1
2-5	Performance Check	2-1	5-2
SECTION 3 -- OPERATION		SECTION 6 -- PARTS LIST	
3-1	Operator's Controls	3-1	6-1
3-2	Operating Procedures	3-1	6-1
		SECTION 7 -- SCHEMATIC DIAGRAMS	

LIST OF ILLUSTRATIONS

Figure	Page	Figure	Page
1-1	Antenna Multicoupler, Model AMC-21A	iii	iii
SECTION 2 -- INSTALLATION		SECTION 7 -- SCHEMATIC DIAGRAMS	
2-1	Rear Panel, AMC-21A	2-2	2-2
SECTION 4 -- PRINCIPLES OF OPERATION		7-1	7-1
4-1	Block Diagram, AMC-21A	4-3	7-3
SECTION 5 -- MAINTENANCE		7-2	7-3
5-1	Top View with Cover Removed, AMC-21A	7-3	7-5
5-2	75 ohm Preamplifier Assembly A10735-5	7-4	7-7
5-3	50 ohm Preamplifier Assembly A10735-6	7-5	7-9
		7-6	7-11
		7-7	7-11

LIST OF TABLES

Table	Page	Table	Page
SECTION 1 -- GENERAL DESCRIPTION		SECTION 3 -- OPERATION	
1-1	Semiconductor and Integrated Circuit Complement, AMC-21A	1-3	1-3
1-2	Loose Items Supplied, AMC-21A	1-3	1-3
		3-1	3-1

SECTION 1 GENERAL DESCRIPTION

1-1 FUNCTIONAL DESCRIPTION

(1) The Antenna Multicoupler, Model AMC-21A, (figure 1-1) is a broadband antenna-to-receiver coupling device which permits the use of a common antenna by a number of communications receivers. It consists of a broadband transistorized preamplifier, optional filters, and a variable number of output modules. This equipment differs from the AMC-21 in that different preamplifier and output module circuits are used; and that the input and output impedances of these circuits are available in either 50 or 75 ohm versions.

(2) The AMC-21A may be provided with any or all of the optional filters, or without any filters. The filters available are the broadcast band stop filter which cuts off all frequencies in the broadcast band, the high pass filter which cuts off frequencies below 2 MHz, and the low pass filter which cuts off frequencies above 2 MHz.

(3) The basic AMC-21A provides 16 output stages for coupling a single antenna to 16 receivers. Inherent in the design of the AMC-21A is the capability of increasing or reducing the number of stages by adding or removing plug-in output modules in increments of two modules (four stages), so that units with 4, 8 and 16 outputs are readily available. These models are designated AMC-21A-4, AMC-21A-8 and AMC-21A-16. Unless otherwise noted, this manual will describe the AMC-21A-16; however, all models may be considered identical with respect to

installation, operation, theory and maintenance.

(4) Spurious signals generated in the AMC-21A are kept to a minimum. The design of the equipment is such that a considerable reduction is achieved in the amplitude of signals re-radiated from one receiver to another or from any receiver to the common antenna system. The AMC-21A has built-in protection features against overloading by strong RF signals.

(5) If operation of more than 24 receivers from a common antenna is desired, several AMC-21A's may be cascaded by connecting the individual outputs of one AMC-21A to the input connectors of additional AMC-21A's. In this way it becomes possible to operate 24x24 or 576 receivers from a single antenna through 25 AMC-21A units. This cascading of units does not cause noticeable deterioration in their performance.

1-2 PHYSICAL DESCRIPTION

(1) The AMC-21A is designed for mounting in a standard 19 inch wide rack, supported by its own front panel. All operator controls are located on the front panel, while the output modules plug into a receptacle in the rear panel. Most of the components are located on printed circuit board assemblies which in turn are mounted to the chassis. The remaining components are mounted directly to the chassis. The semiconductor and integrated circuit complement of the AMC-21A is given in table 1-1. The loose items supplied with the equipment are listed in table 1-2.

1-3 TECHNICAL SPECIFICATIONS

Frequency Range:	100 kHz to 32 MHz, (useable from 10 kHz to 40 MHz).
Gain:	1 dB nominal
Frequency Response:	± 1.0 dB, from 100 kHz to 32 MHz.
Noise Figure:	Noise figure is such that the minimum discernible signal (MDS) will not be degraded.
VSWR:	Better than 1.5 to 1.
Input and Output Impedance:	50 or 75 ohms unbalanced (nominal).
Number of Outputs:	4, 8, or 16.
Intermodulation Distortion:	In no case are the second and third order products less than 70 dB below two 0.5v RMS signals applied at the input.
Back-to-Front Isolation:	Better than 60 dB down.
Output-to-Output Isolation:	50 dB average.
Output Phase Between Jacks:	$\pm 1^\circ$.
Filter Options:	Any or all of: a) Broadcast band stop filter. b) High pass filter (rejects frequencies below 2 MHz). c) Low pass filter (rejects frequencies above 2 MHz).
Desensitization:	2.0v RMS, 10% removed in frequency, will reduce a 100 microvolt signal by no more than 3 dB.
Overload:	Protective device prevents component failure due to high RF voltage at input. (20v for a 50% duty cycle).
MTBF:	20,000 hours as per RADC reliability handbook.
Input Power:	115 or 230 vac, 50 to 400 Hz single phase.
Power Consumption:	25 watts (16 outputs).
Dimensions:	3 1/2 inches high, 19 inches wide, 14 inches deep.
Weight:	25 pounds, approximately.

REFERENCE SYMBOL	TYPE	FUNCTION
RF Protection Board CR1 to CR3	1N252	RF Input Protection
Preamplifier 50 OR 75 ohm CR1 Q1 Q2 Q3	1N456A 2N5160 2N5160 2N3866	Bias Regulator Buffer Current Amplifier Current Amplifier
Output Module 50 OR 75 ohm Q3 Q4	2N3866 2N3866	Emitter Follower Emitter Follower
Power Supply CR1 to CR4 Q1 Q2 U1	1N4002 MPF104 2N2219A NW - WM110R	Rectifier Bridge Current Regulator Short Circuit Protection Voltage Regulator

Table 1-1 Semiconductor And Integrated Circuit Complement, AMC-21A

NAME	DESIGNATION	FUNCTION	QUANTITY
Power Cable Assembly	CA10505	For connection to power connector J2	1
Connector Plug	UG88/U	For connection to antenna jack J1	1
Connector Plugs	UG88/U	For connection to output modules	2 per module
Technical Manual	1N8024A	Instructions for operation and maintenance of AMC-21A	1

Table 1-2 Loose Items Supplied, AMC-21A

SECTION 2 INSTALLATION

2-1 UNPACKING

(1) Each AMC-21A has been thoroughly tested and calibrated at the factory before being shipped. Upon receipt of the unit, inspect the packing case and its contents for possible damage. Unpack the equipment carefully, checking the packing material for parts shipped as loose items. The latter are listed in table 1-2. With respect to damage of the equipment for which the carrier is liable, TMC (Canada) Limited will assist in describing methods of repair and furnishing of replacement parts.

2-2 POWER REQUIREMENTS

(1) The AMC-21A can operate from either 115 or 230 vac, single phase, 50 to 400 Hz power source. It is normally factory wired for operation from 115 vac. If 230 vac operation is required, the jumper connections for transformer T1 must be changed as shown in figure 7-1. For 115 vac operation, 0.75 amp fuses should be used in model AMC-21A-16; and 0.5 amp fuses should be used in models AMC-21A-4 and AMC-21A-8. For 230 vac operation, 0.4 amp fuses should be used in model AMC-21A-16; and 0.25 fuses should be used in models AMC-21A-4 and AMC-21A-8.

2-3 EQUIPMENT LOCATION

(1) The AMC-21A should be located in such a way that there is sufficient clearance at the rear of the unit for insertion and removal of the output modules.

Front panel controls should be easily accessible to the operator. Because of its solid state construction, heat problems have been virtually eliminated; thus several AMC-21A's may be installed one above the other in a rack.

2-4 ELECTRICAL INSTALLATION

(1) Make the following connections from external equipment to the AMC-21A. Refer to figure 2-1 for guidance.

(a) Antenna: Attach the coaxial plug furnished with the AMC-21A to the antenna cable and connect it to ANTENNA INPUT jack J1 on the rear panel.

(b) Power: Connect primary power to pins A and C of POWER INPUT connector J2 on the rear panel using the power cord assembly provided. Ensure that the power transformer T1 is correctly wired and that fuses F1 and F2 are the proper values as outlined in paragraph 2-2.

(c) Outputs: Connect the outputs from the output modules to the associated receivers as required.

2-5 PERFORMANCE CHECK

(1) Immediately after the AMC-21A has been installed it should be checked for proper operation by moving the power switch to the ON position. If POWER lamp DS1 lights up, correct installation has been made.

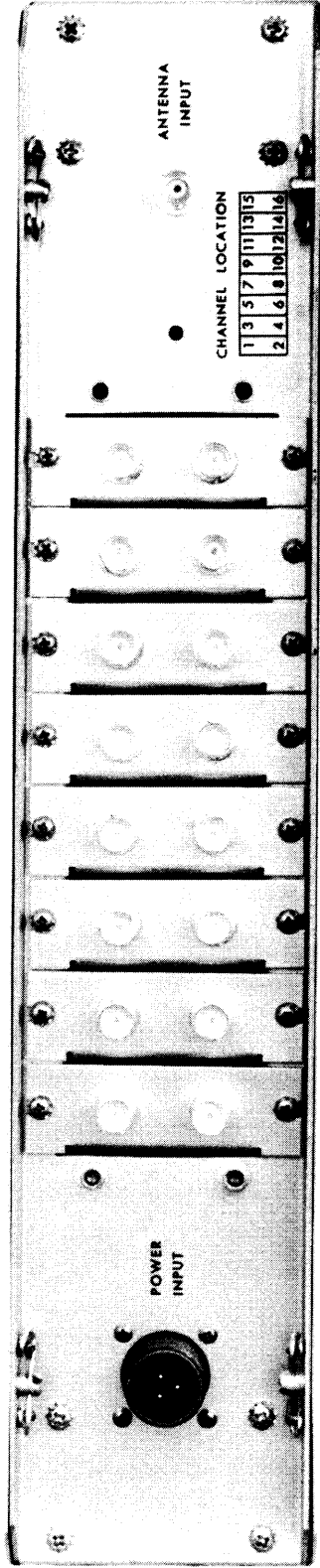


FIGURE 2-1 REAR PANEL, AMC-21A

SECTION 3
OPERATION

3-1 OPERATOR'S CONTROLS

(1) Table 3-1 lists the operating controls, indicators and fuse holders on the front panel of the AMC-21A equipment.

3-2 OPERATING PROCEDURES

(1) Operating procedures for the AMC-21A consist of turning on the power switch and selecting a filter if one is required.

CONTROL/INDICATOR	DESCRIPTION
FILTER Switch S1	Position 1 - broadcast band stop filter Potition 2 - high pass filter Potition 3 - low pass filter Position OUT - no filter
Power ON/OFF Switch S2	Controls primary power to the AMC-21A
POWER lamp DS1	Lights when primary power is connected to the AMC-21A and switch S2 is on.
Fuse holders for F1 and F2	Failure of a fuse is indicated by illumination of the fuse holder.

Table 3-1 Controls And Indicators

SECTION 4 PRINCIPLES OF OPERATION

4-1 GENERAL

(1) The AMC-21A is a broadband distribution system interposed between a single antenna and the antenna terminals of a group of communications receivers. Impedances in and out of the AMC-21A are flat over the specified operating frequency range to ensure high performance when used in a communications receiving system. The circuitry is comprised of four major sections which are described in the following paragraphs. Refer to figure 4-1, block diagram.

4-2 INPUT CIRCUITS

(1) The two input impedances most commonly used in the AMC-21A are 50 and 75 ohms, although other input impedances will be furnished on special request. The antenna input is connected to the preamplifier board assembly through an RF overload protection circuit, rotary switch S1 and a filter (if selected).

(2) The RF overload protection circuit prevents damage to components of the AMC-21A by RF transients of 20v RMS or greater.

(3) FILTER switch S1 may be positioned to insert one of three optional filters into the input circuit. When position 1 of the FILTER switch is selected, the input signal passes through the broadcast band stop filter which rejects all broadcast band frequencies, before being applied to the preamplifier. In position 2, the signal passes through the high pass filter which rejects all frequencies below 2 MHz, and in position 3, the signal passes through the low pass filter which rejects all frequencies above 2 MHz. When the OUT position of the FILTER switch is selected, the signal is channelled directly to the preamplifier without passing through any filters.

4-3 PREAMPLIFIER

(1) The preamplifier is a low noise, wideband fully transistorized amplifier having a voltage gain of 8 dB. Two versions (50 and 75 ohm impedances) are shown schematically in section 7. The circuitry for the two versions is mounted on printed circuit assemblies A10735-6 and A10735-5 respectively.

(2) The input to the preamplifier circuit is applied to step-up transformer T1. The voltage level across the output of T1 is fed through buffer Q1 to a complimentary push-pull amplifier circuit consisting of transistors Q2 and Q3. The latter circuit acts as a balancing device minimizing intermodulation products at the preamplifier output. The output signal appears at the output terminal after passing through dc blocking capacitor C7.

4-4 OUTPUT MODULE

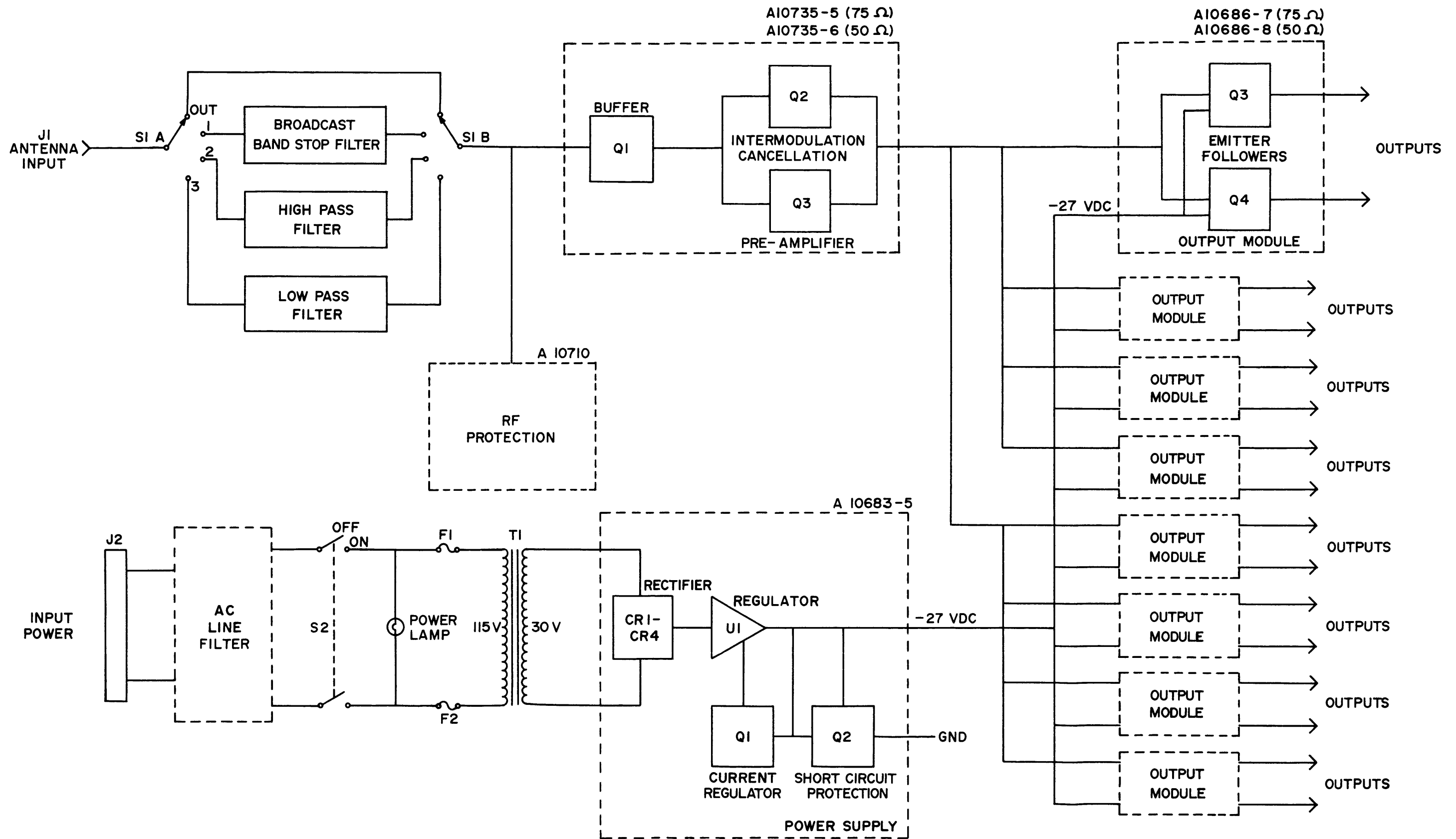
(1) The output module is available in two output impedance versions, 50 and 75 ohms. They are designated models AX10055 and AX10056 and are mounted on printed circuit assemblies A10686-8 and A10686-7 respectively. Each module contains two output channels which have identical low impedance outputs. The modules are fully interchangeable so that any module may be plugged into any position. The number of modules used does not affect the operational performance of the AMC-21A.

(2) The output module circuit includes two emitter followers, Q3 and Q4. The output impedance is normally either 50 or 75 ohms (nominal) unbalanced, but other output impedance circuits will be provided to customers on special request.

4-5 POWER SUPPLY

(1) The primary power input to the AMC-21A is provided through an ac line filter, FX10024, which removes any RF leakage from the line, to power ON/OFF switch S2. When this switch is in the ON position, the input power is provided through fuses F1 and F2 to the power transformer T1 as indicated by POWER lamp DS1 which is connected across the line. T1 reduces the line voltage to 30 vac as required by the power supply printed circuit board assembly A10683-5. Jumper connections required across the primary winding of T1 for 115 or 230 vac inputs are shown in figure 7-1.

(2) On the power supply printed circuit assembly, the 30 vac potential is rectified by CR1, CR2, CR3 and CR4 and regulated by U1 to provide -27 vdc which can be adjusted by potentiometer R5. The power supply circuitry also provides overload protection in the form of Q1 and short circuit protection in the form of Q2 for the AMC-21A unit.



SECTION 5 MAINTENANCE

5-1 GENERAL

(1) This section describes preventive maintenance, troubleshooting and repair procedures for the AMC-21A. The following test equipment is required to perform maintenance procedures.

(a) RF Signal Generator, Hewlett Packard Model 606A or equivalent.

(b) Oscilloscope, Tektronix Model 545, or equivalent.

(2) For aid in locating components, refer to figures 5-1 to 5-5 inclusive.

5-2 PREVENTIVE MAINTENANCE

(1) Preventive maintenance for the AMC-21A consists of routine visual inspection and cleaning. Cleaning may be necessary as dust may accumulate on components and not only reduce the efficiency of the AMC-21A, but also cause component malfunction. Either a vacuum cleaner or compressed air hose should be used to clean the unit.

(2) Visually checking the unit when it is opened for cleaning, can reduce downtime due to component failure. Often a deteriorating component will look bad before it actually affects the operation of the unit. Some indications of trouble are; discolouration, dirty or pitted switch or relay contacts, warped printed circuit boards, and damaged wiring. Any deteriorating part should be replaced. In addition all hardware should be checked for tightness.

5-3 ADJUSTMENTS

(1) There are two areas in the AMC-21A circuitry that may require periodic adjustment. They are as follows:

(a) Power Supply: There is a screwdriver adjustable potentiometer R5 on printed circuit assembly A10683-5. This is set to produce -27 vdc output. An arrow on the schematic, figure 7-6, denotes clockwise adjustment which raises the output voltage at pin 5.

(b) Preamplifier: A screwdriver adjustable potentiometer R6 on printed circuit assembly A10735(), is used to adjust both the 50 and 75 ohm versions of the preamplifier. Both wires must be

removed from pin 3 of the preamplifier assembly in order to insert a meter in series. The meter is connected between the two wires and pin 3 and is adjusted to a value of 90 ma. An arrow on each schematic denotes clockwise adjustment which lowers the standing current of the complimentary circuit. Refer to figures 7-2 and 7-3.

5-4 TROUBLESHOOTING

(1) The general purpose of this procedure is to narrow the area of trouble to one or more sections of the AMC-21A in order to minimize the labour of locating the source of trouble. An orderly evaluation of symptoms will usually result in malfunction location in a very short time. During operation of the AMC-21A the following symptoms may be noted:

- (a) Failure of one or more outputs.
- (b) Weak or noisy signals at all receivers.
- (c) Weak or noisy signals at one receiver.
- (d) Complete loss of signals at all receivers.

(2) The following information is based on specific troubles that may be encountered during operation of the AMC-21A.

(a) Failure of one or more outputs: If low output is observed at one output when connected to a specific receiver, failure of a particular output stage is indicated. Semiconductors and other discrete components in the faulty output stage should be checked.

(b) Weak or noisy signals at all receivers: If this occurs make a rough check of the antenna system by connecting the antenna lead directly to the antenna terminals of a receiver. If the trouble disappears, check the semiconductors and discrete components in the preamplifier section of the AMC-21A.

(c) Weak or noisy signals at one receiver: When only one receiver shows faulty operation, check:

1. The receiver itself.
2. The connections between the AMC-21A and the receiver.
3. The particular output section as outlined in paragraph (a).

(d) Complete loss of signals in all receivers: If the entire system appears to fail, the method discussed in paragraph (b) may be used to

determine if the trouble is actually in the AMC-21A equipment. If this appears to be the case, check each stage of the AMC-21A. This should be done by applying a test signal to the ANTENNA input jack J1 using an RF signal generator and tracing the signal back from the output jacks by using an oscilloscope.

5-5 REPAIR

(1) In the majority of cases, repair of the AMC-21A will consist of the replacement of an electrical component. However the following precautions should be observed.

(a) Always replace a defective component

with its exact duplicate.

(b) Always place a new component in the same position as the one that it replaces, and in general never change the routing of any wiring.

(c) Never use a soldering iron with a power rating of more than 100 watts. Protect components while soldering by using a pair of long-nose pliers as a heat sink.

(d) Be extremely careful when replacing components on printed circuit assemblies as excessive heat applied to a board may cause the printed wiring to lift off.

(e) Always double check any solder joints made. Cold or loose solder connections can cause trouble at a later time.

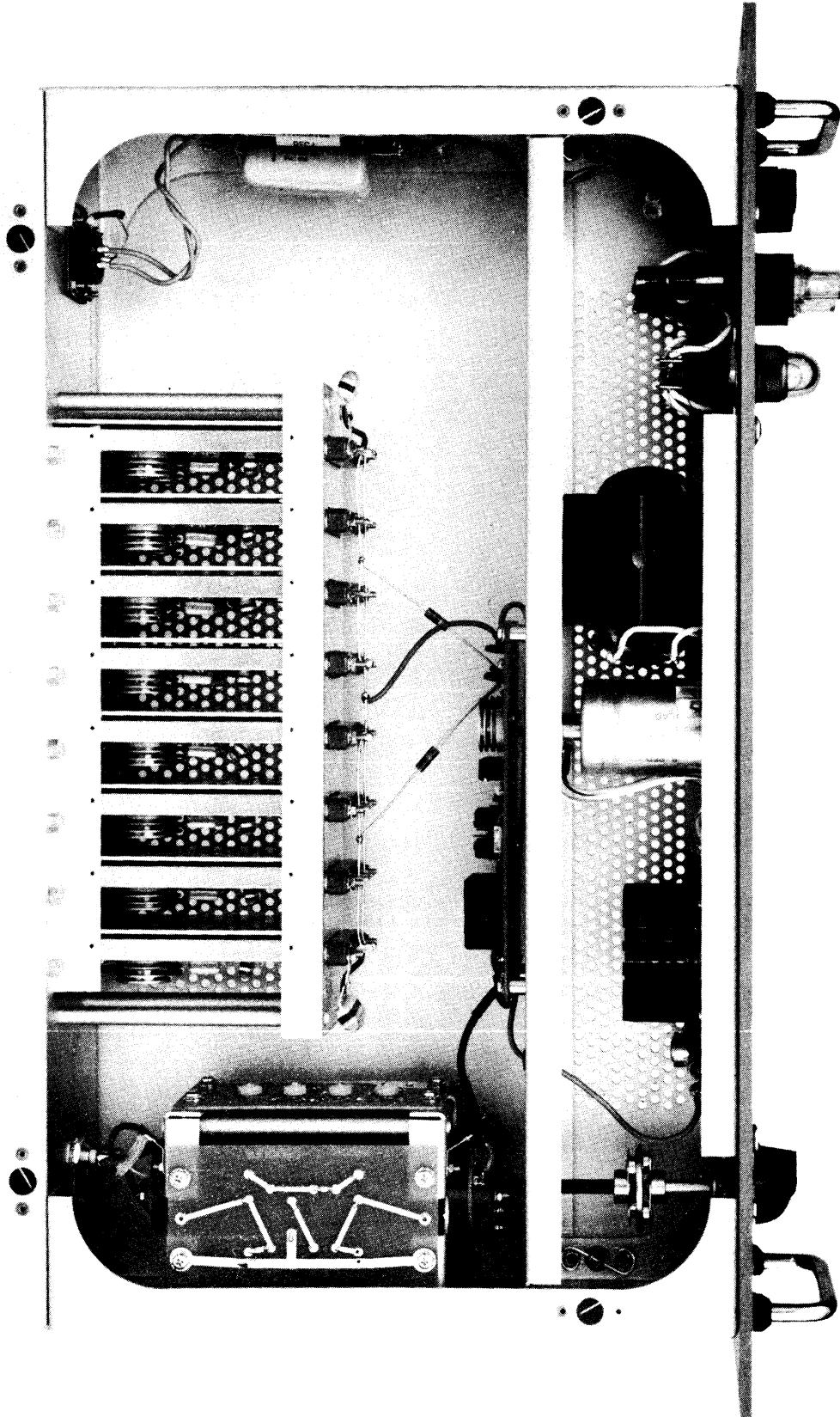


FIGURE 5-1 TOP VIEW WITH COVER REMOVED, AMC-21A

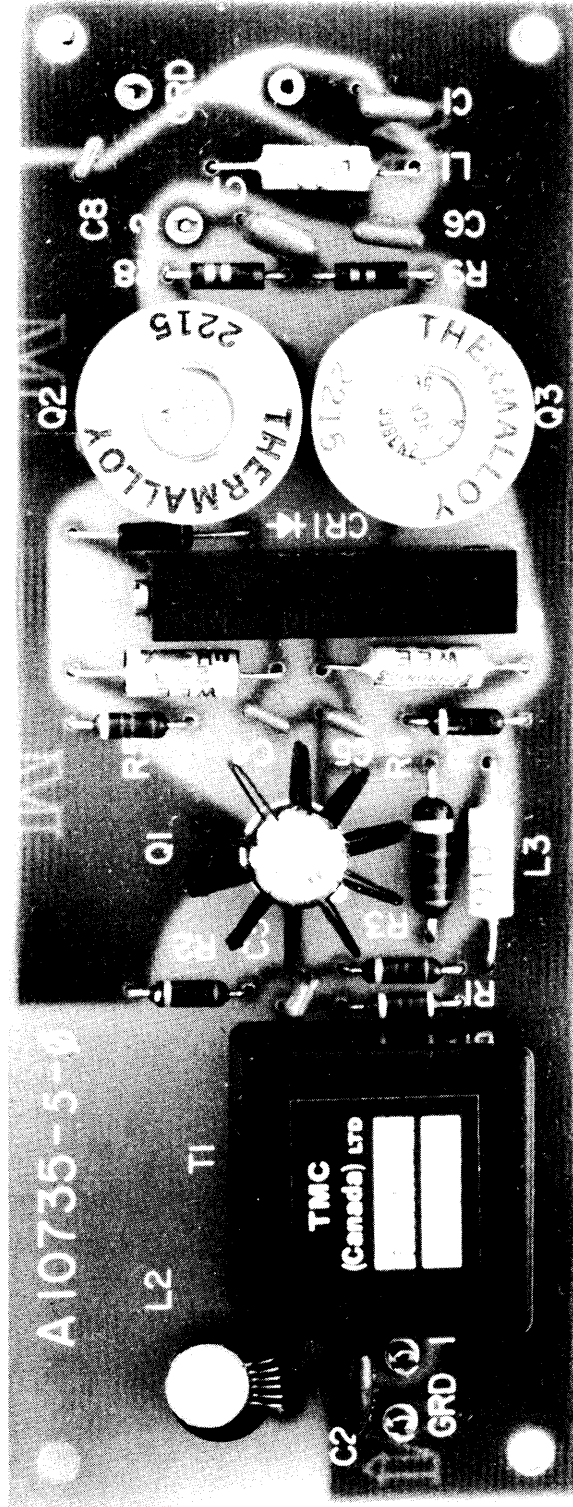


FIGURE 5-2 75 OHM PREAMPLIFIER ASSEMBLY A10735-5

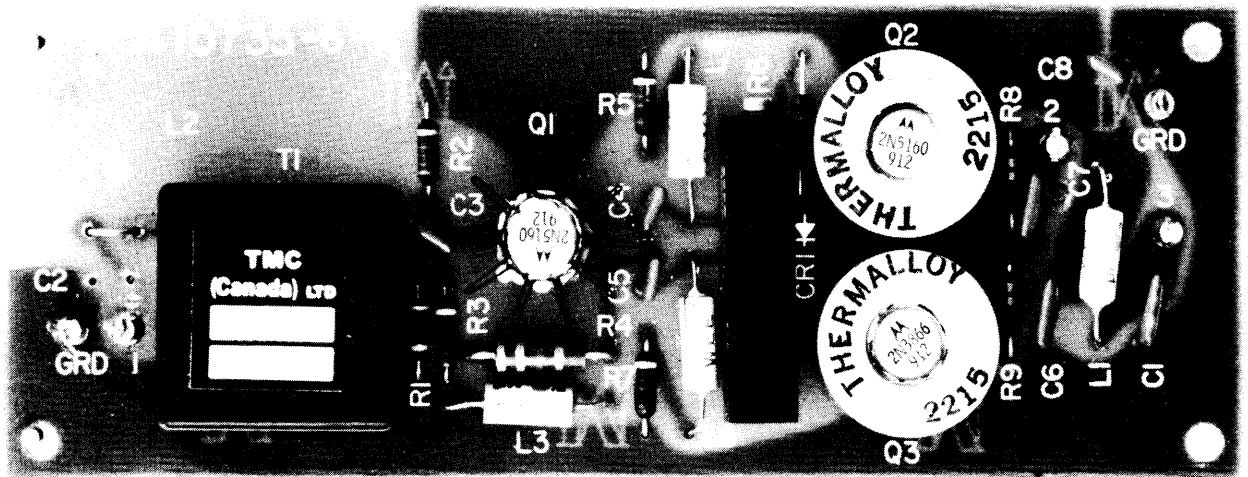


FIGURE 5-3 50 OHM PREAMPLIFIER ASSEMBLY A10735-6

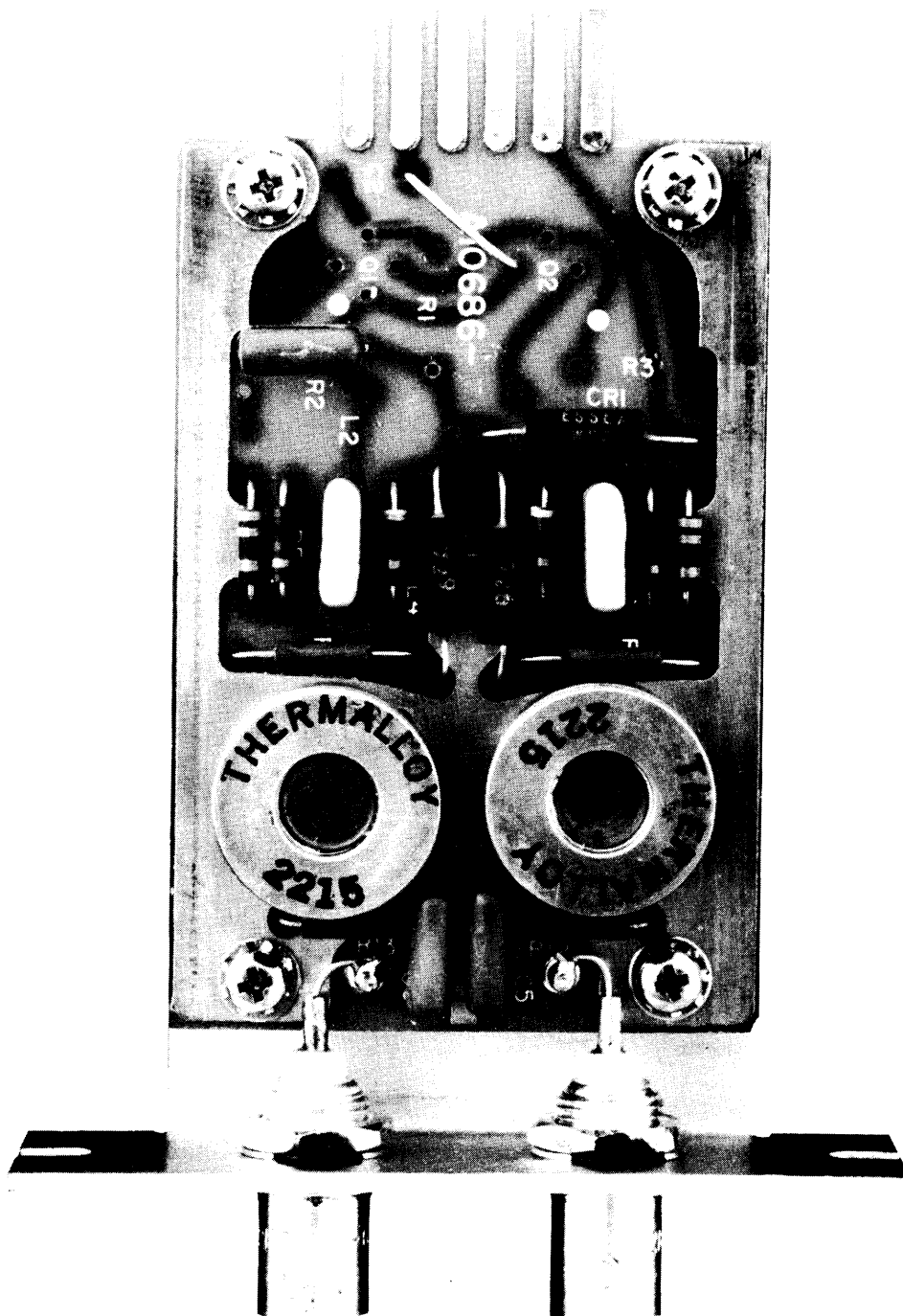


FIGURE 5-4 OUTPUT MODULE AX10055 & AX10056



FIGURE 5-5 POWER SUPPLY ASSEMBLY A10683-5

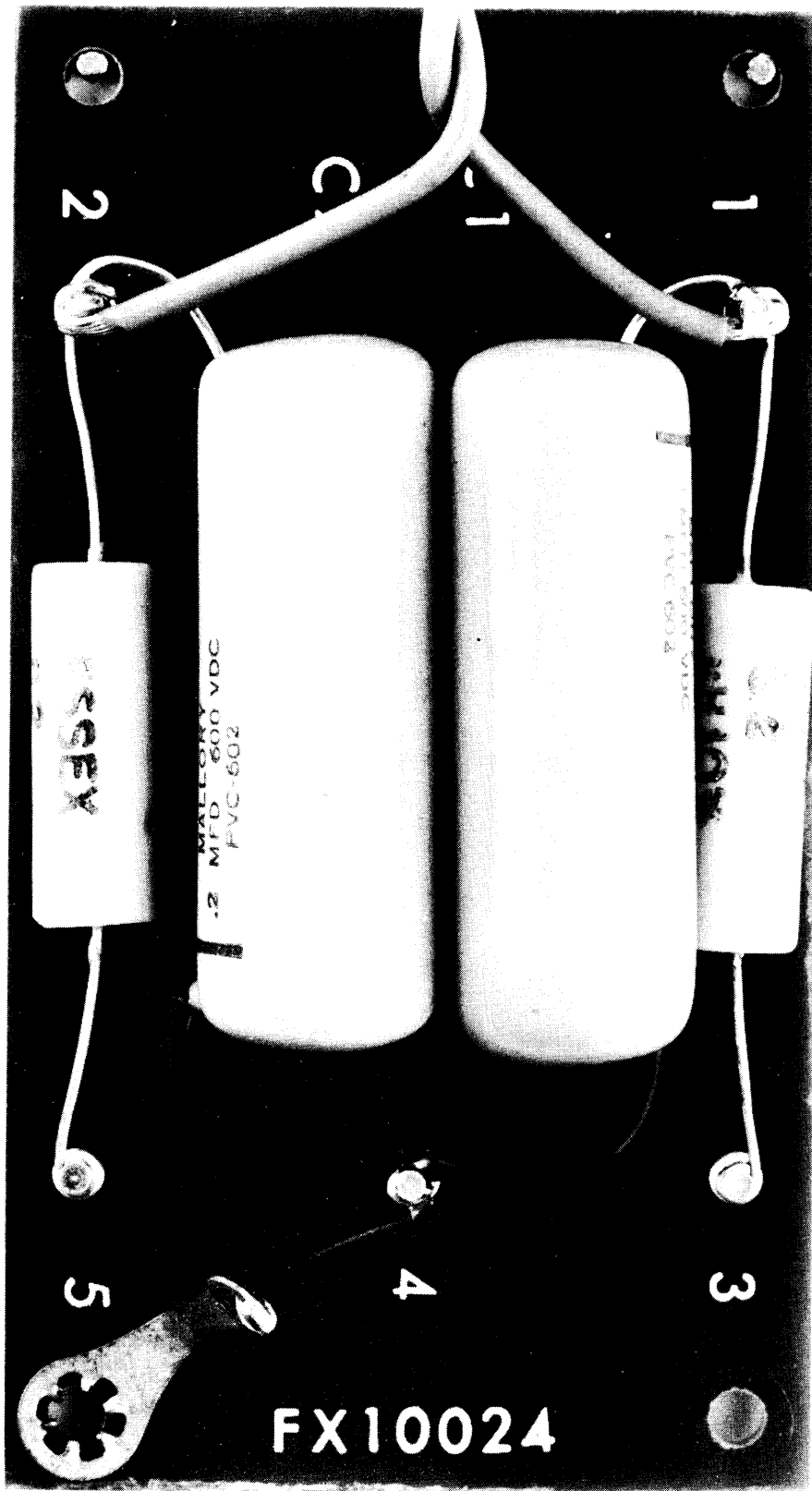


FIGURE 5-6 AC LINE FILTER, FX10024

SECTION 6 PARTS LIST

6-1 INTRODUCTION

(1) Reference designations have been assigned to identify all electrical parts of the equipment. These designations are used for marking the equipment (adjacent to the parts they identify) and are included on drawings, diagrams and the parts list. The letters of a reference designation indicate the kind of part (generic group), such as resistor, capacitor, transistor, etc. The number differentiates between parts of the same generic group. Sockets associated with a

particular plug-in device, such as a transistor or fuse, are identified by a reference designation which includes the reference designation of the particular plug-in device.

(a) Example: The socket for lamp DS1 is designated XDS1.

(2) In order to expedite delivery when ordering replacement parts, specify the TMC (Canada) part number and the model number of the equipment.

MAIN CHASSIS

REF DESIGNATION	DESCRIPTION	TMC PART NUMBER
C1A	CAPACITOR, FIXED, MICA: 22 pF \pm 10%; 500 WVdc	CM111C220K5S
* C1B	Same as C1A	
C2	CAPACITOR, FLAT, FOIL: 0.1 uF \pm 20%; 250 WVdc	CC10011-8
C3	NOT USED	
C4	CAPACITOR, FLAT, FOIL: 0.22 uF \pm 20%; 250 WVdc	CC10011-10
C5	CAPACITOR, ELECTROLYTIC: 2200 uF; 35 WVdc	CE10008-1
C6	Same as C4	
DS1	INDICATOR, NEON	BI100-51
F1	FUSE, CARTRIDGE: slow-blow; for 230 VAC operation, Models AMC-21-4 and AMC-21-8	FU102-.250
F1	FUSE, CARTRIDGE: slow-blow; for 230 VAC operation, Model AMC-21-16	FU102-.400
F1	FUSE, CARTRIDGE: slow-blow; for 115 VAC operation, Models AMC-21-4 and AMC-21-8	FU102-.500
F1	FUSE, CARTRIDGE: slow-blow; for 115 VAC operation, Model AMC-21 -16	FU102-.750
F2	Same as F1	
J1	CONNECTOR, RF	UG625-B/U
J2	CONNECTOR, BOX, RECEPTACLE	MS3102R-14S-7P
J3	CONNECTOR, RECEPTACLE, FEMALE	JJ285-6
J4 to J10	Same as J3	
R1	RESISTOR, FIXED, COMPOSITION: 100 ohms \pm 5%, 1/2 watt	RC20GF120J
R2	Same as R1	
S1A	WAFER, SWITCH	SW10045-W
S1B	Same as S1A	
S2	SWITCH, TOGGLE, DPST	ST22K
T1	TRANSFORMER, POWER	TF10043
XDS1	LAMPHOLDER	TS10008

MAIN CHASSIS

REF DESIGNATION	DESCRIPTION	TMC PART NUMBER
XF1	FUSEHOLDER INDICATOR:	
XF2	Same as XF1	
	OPTIONAL FILTERS:	
	BROADCAST BAND STOP FILTER	FX10020
	HIGH PASS FILTER	FX10021
	LOW PASS FILTER	FX10022

RF PROTECTION BOARD
A10710

REF DESIGNATION	DESCRIPTION	TMC PART NUMBER
CR1	DIODE	1N252
CR2	Same as CR1	
CR3	Same as CR1	

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
C1	CAPACITOR, FIXED, CERAMIC: 0.1 uF	CC10015-X5V104M
C2	NOT USED	
C3	CAPACITOR, FIXED, CERAMIC: .01 uF	CC10017-X5V103M
C4	Same as C3	
C5	Same as C3	
C6	Same as C1	
C7	Same as C1	
C8	Same as C3	
CR1	DIODE	1N456A
R1	RESISTOR, FIXED, FILM: 510 ohms, 1/4 w 2%	RC07S511G
R2	RESISTOR, FIXED, FILM: 8.2 K, 1/4 w 2%	RL07S822G
R3	RESISTOR, FIXED, FILM: 3 K, 1/4 w 2%	RL07S302G
R4	RESISTOR, FIXED, COMP: 330 ohms, 1/2 w 5%	RC20GF331J
R5	RESISTOR, FIXED, FILM: 2 K, 1/4 w 2%	RL07S202G
R6	RESISTOR, VARIABLE: 500 ohms	RV10009-501AP
R7	Same as R5	
R8	RESISTOR, FIXED, COMP: 7.5 ohms, 1/4 w 5%	RC07GF7R5J
R9	Same as R8	
L1	INDUCTOR, RF COIL: 33 uh	CL275-330
L2	NOT USED	
L3	INDUCTOR, RF COIL: 220 uh	CL275-221
L4	Same as L3	
L5	Same as L3	
T1	TRANSFORMER	TR10005
Q1	TRANSISTOR, PNP	2N5160
Q2	Same as Q1	
Q3	TRANSISTOR, NPN	2N3866

75 OHM PREAMPLIFIER
A10735-5

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
C1	CAPACITOR, FIXED, CERAMIC: 0.1 uF	CC10015-X5V104M
C2	CAPACITOR, FIXED, MICA: 47 pF	CM04ED470G03
C3	CAPACITOR, FIXED, CERAMIC: .01 uF	CC10017-X5V103M
C4	Same as C3	
C5	Same as C3	
C6	Same as C1	
C7	Same as C1	
C8	Same as C3	
CR1	DIODE	1N456A
R1	RESISTOR, FIXED, FILM: 910 ohms, 1/4 w 2%	RL07S911G
R2	RESISTOR, FIXED, FILM: 8.2 K, 1/4 w 2%	RL07S822G
R3	RESISTOR, FIXED, FILM: 3 K, 1/4 w 2%	RL07S302G
R4	RESISTOR, FIXED, COMP: 330 ohms, 1/2 w 5%	RC20GF331J
R5	RESISTOR, FIXED, FILM: 2 K, 1/4 w 2%	RL07S202G
R6	RESISTOR, VARIABLE: 500 ohms	RV10009-501AP
R7	Same as R5	
R8	RESISTOR, FIXED, COMP: 7.5 ohms, 1/4 w 5%	RC07GF7R5J
R9	Same as R8	
L1	INDUCTOR, RF COIL: 33 uh	CL275-330
L2	INDUCTOR, RF COIL: 0.33 uh	CL10044
L3	INDUCTOR, RF COIL: 220 uh	CL275-221
L4	Same as L3	
L5	Same as L3	
T1	TRANSFORMER, RF	TR10005
Q1	TRANSISTOR, PNP	2N5160
Q2	Same as Q1	
Q3	TRANSISTOR, NPN	2N3866

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
C1	CAPACITOR, FLAT, FOIL: 0.1 uF, 250 vdc	CC10011-8
C2	NOT USED	
C3	CAPACITOR, FLAT, FOIL: .047 uF, 250 vdc	CC10011-5
C4	Same as C3	
C5	Same as C1	
C6	Same as C1	
CR1	NOT USED	
J1	CONNECTOR, RF	UG625-B/U
J2	Same as J1	
L1	INDUCTOR, RF COIL: 220 uh, 500 vdc	CL275-221
L2	NOT USED	
L3	Same as L1	
L4	Same as L1	
Q1	NOT USED	
Q2	NOT USED	
Q3	TRANSISTOR, NPN, SILICON	2N3866
Q4	Same as Q3	
R1	NOT USED	
R2	NOT USED	
R3	NOT USED	
R4	RESISTOR, FIXED, COMPOSITION: 100 ohms, 5%, 1/4 w	RC07GF101J
R5	Same as R4	
R6	RESISTOR, FIXED, COMPOSITION: 4.7 K, 5%, 1/4 w	RC07GF472J
R7	RESISTOR, FIXED, COMPOSITION: 3.3 K, 5%, 1/4 w	RC07GF332J
R8	Same as R6	
R9	Same as R7	
R10	RESISTOR, FIXED, BERLM. OXIDE: 220 ohms, 5%, 1 w	RR10004-221-3RO

50Ω OUTPUT MODULE
AX10055

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
R11	Same as R10	
R12	RESISTOR, FIXED, COMPOSITION: 47 ohms, 5%, 1/4 w	RC07GF470J
R13	Same as R12	

REF DESIGNATION	DESCRIPTION	TMC PART NUMBER
C1	CAPACITOR, FLAT, FOIL: 0.1 μ F \pm 20%, 250 WVdc	CC10011-8
C2	NOT USED	
C3	CAPACITOR, FLAT, FOIL: 0.047 μ F \pm 20%, 250 WVdc	CC10011-5
C4	Same as C3	
C5	Same as C1	
C6	Same as C1	
CR1	NOT USED	
J1	CONNECTOR, RF	UG625-B/U
J2	Same as J1	
L1	COIL, RF, FIXED: 220 μ H \pm 10%, 500 WVdc	CL275-221
L2	NOT USED	
L3	Same as L1	
L4	Same as L1	
Q1	NOT USED	
Q2	NOT USED	
Q3	TRANSISTOR, SILICON, NPN, HIGH POWER	2N3866
Q4	Same as Q3	
R1	NOT USED	
R2	NOT USED	
R3	NOT USED	
R4	RESISTOR, FIXED, COMPOSITION: 100 ohms \pm 5%, 1/4 w	RC07GF101J
R5	Same as R4	
R6	RESISTOR, FIXED, COMPOSITION: 4.7 K ohms \pm 5%, 1/4 w	RC07GF472J
R7	RESISTOR, FIXED, COMPOSITION: 3.3 K ohms \pm 5%, 1/4 w	RC07GF332J
R8	Same as R6	
R9	Same as R7	
R10	RESISTOR, FIXED, BERLM. OXIDE: 220 ohms \pm 5%, 1 w	RR10004-221-3RO

REF DESIGNATION	DESCRIPTION	TMC PART NUMBER
R11	Same as R10	
R12	RESISTOR, FIXED, COMPOSITION: 68 ohms ±5%, 1/4 w	RC07GF680J
R13	Same as R12	

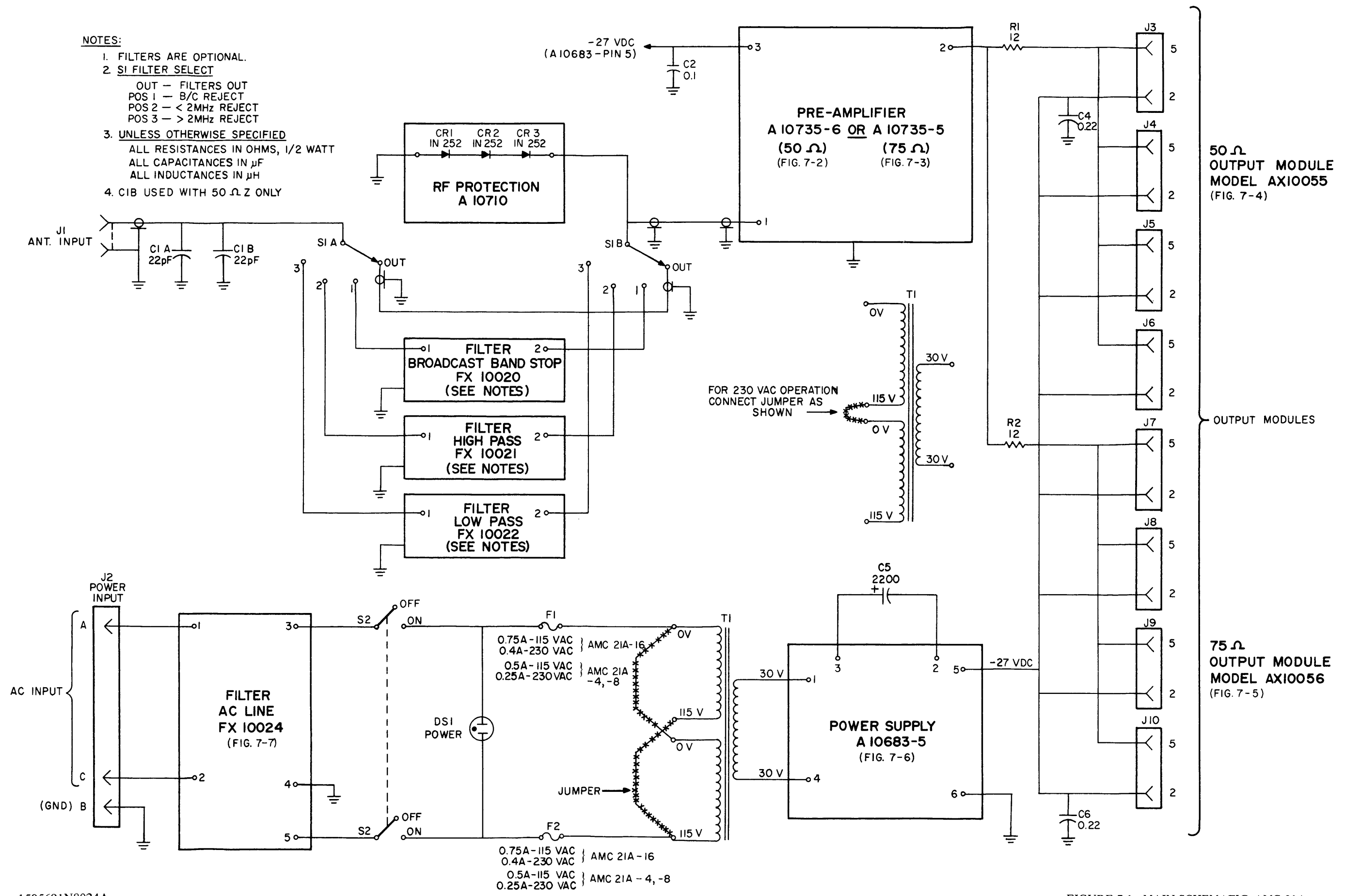
REF DESIGNATION	DESCRIPTION	TMC PART NUMBER
C1	NOT USED	
C2	CAPACITOR, FLAT, FOIL: 0.1 uF \pm 20%, 250 WVdc	CC10011-8
C3	CAPACITOR, FIXED, ELECTROLYTIC: 20 uF + 150% - 10%, 25 WVdc	CE105-20-25
C4	CAPACITOR, FLAT, FOIL: 0.047 uF \pm 20%, 250 WVdc	CC10011-5
CR1	RECTIFIER, SILICON	1N4002
CR2	Same as CR1	
CR3	Same as CR1	
CR4	Same as CR1	
Q1	TRANSISTOR, SILICON, FIELD EFFECT (N CHANNEL)	MPF104
Q2	TRANSISTOR, SILICON, NPN, LOW POWER	2N2219A
R1	RESISTOR, FIXED, WIREWOUND: 6 ohms \pm 3%, 5 w	RW10005
R2	RESISTOR, FIXED, COMPOSITION: 820 ohms \pm 5%, 1/2 w	RC20GF821J
R3	RESISTOR, FIXED, COMPOSITION: 3.3 K ohms \pm 5%, 1/2 w	RC20GF332J
R4	RESISTOR, FIXED, COMPOSITION: 270 ohms \pm 5%, 1/2 w	RC20GF271J
R5	RESISTOR, VARIABLE, COMPOSITION: 500 ohms \pm 10%, 1/4 w	RV111U501A
R6	RESISTOR, FIXED, COMPOSITION: 1.2 K ohms \pm 5%, 1 w	RC32GF122J
U1	REGULATOR, VOLTAGE, INTEGRATED CIRCUIT	NW-WM110R

AC LINE FILTER
FX10024

REF DESIGNATION	DESCRIPTION	TMC PART NUMBER
C1	CAPACITOR, FIXED, MYLAR: 0.2 uF; 600 WVdc	CN10007
C2	Same as C1	
L1	COIL, RF, ENCAPSULATED: 8.2 uH	CL10028
L2	Same as L1	

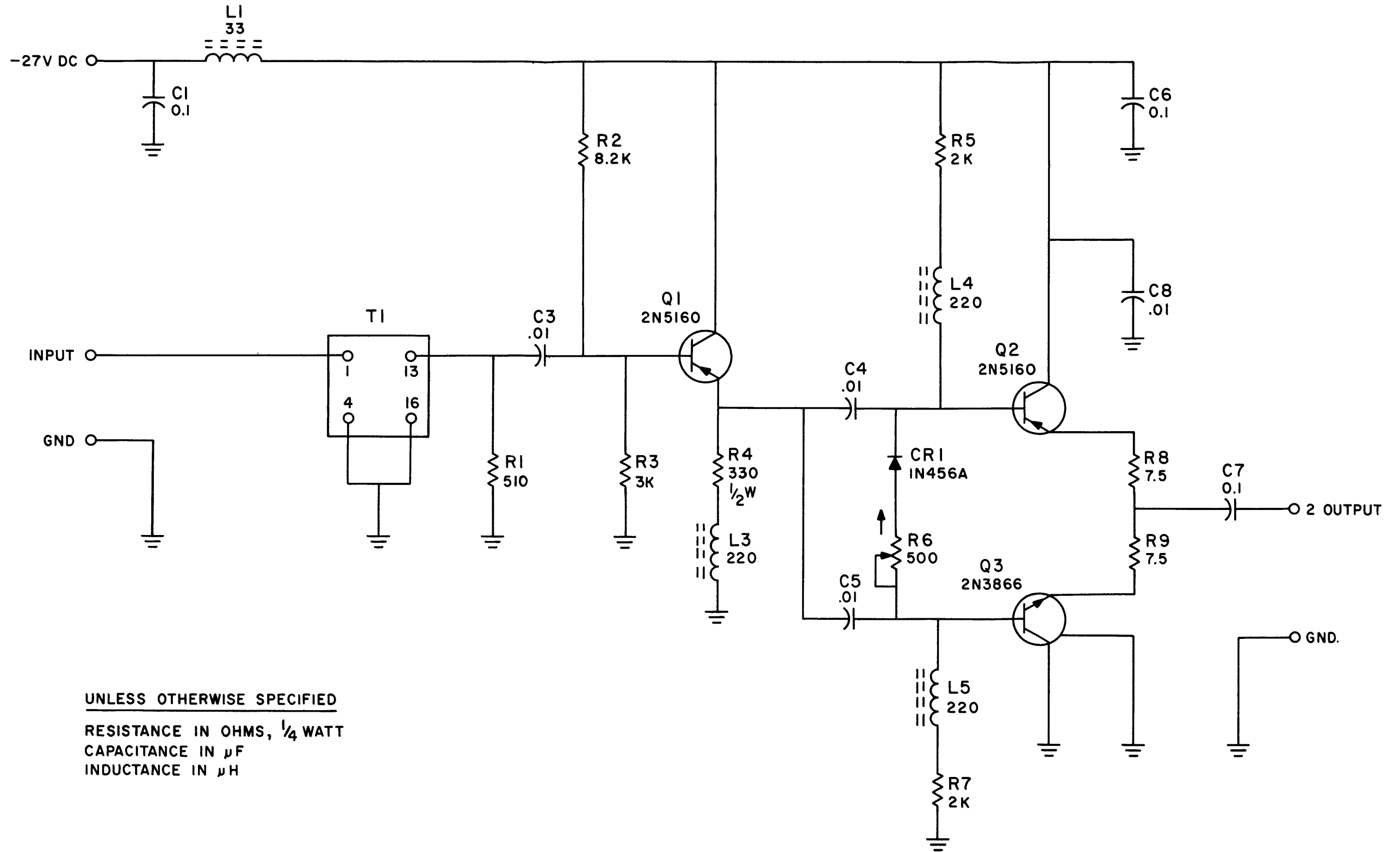
SECTION 7

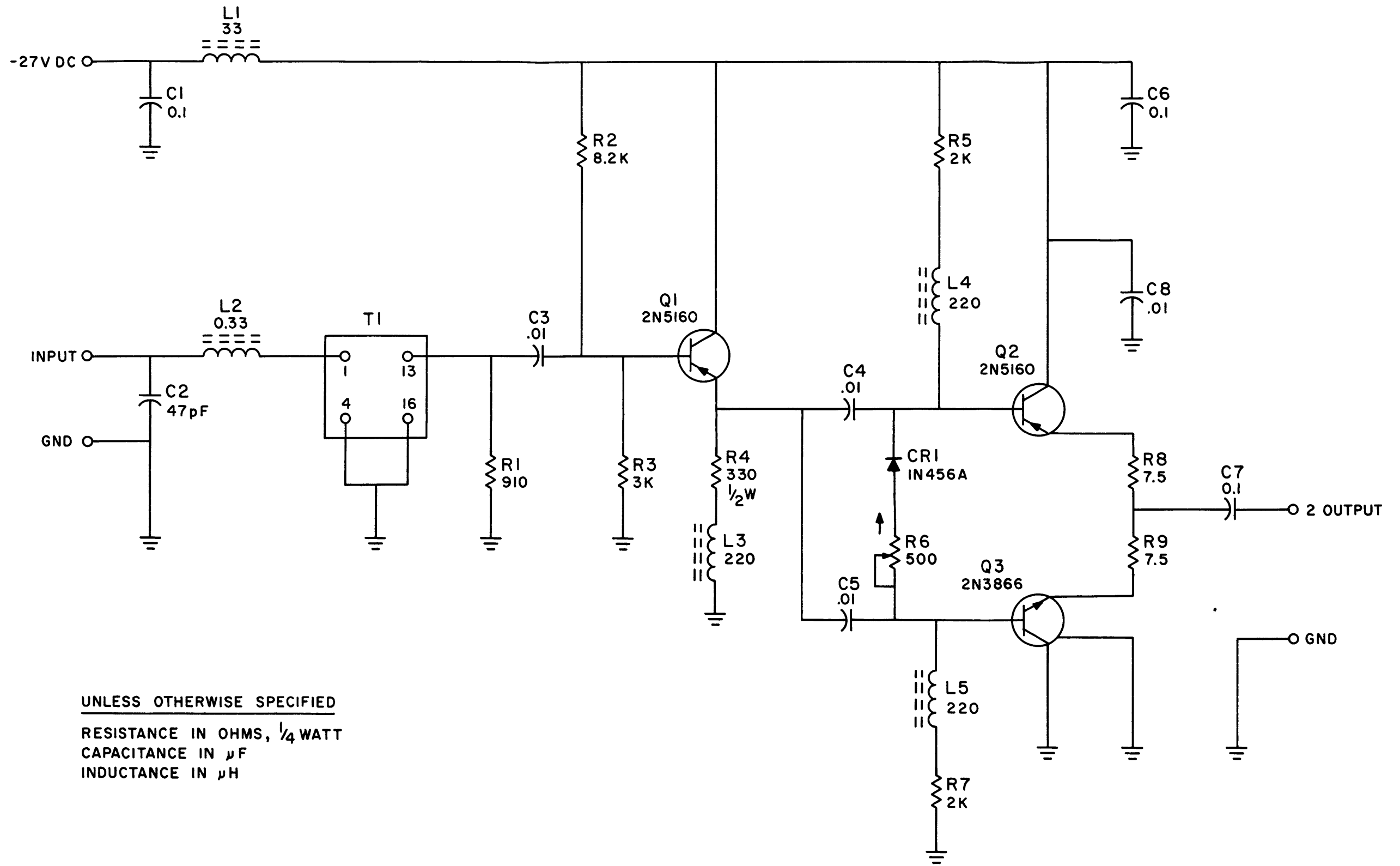
SCHEMATIC DIAGRAMS



1505691N8024A

FIGURE 7-1 MAIN SCHEMATIC, AMC-21A





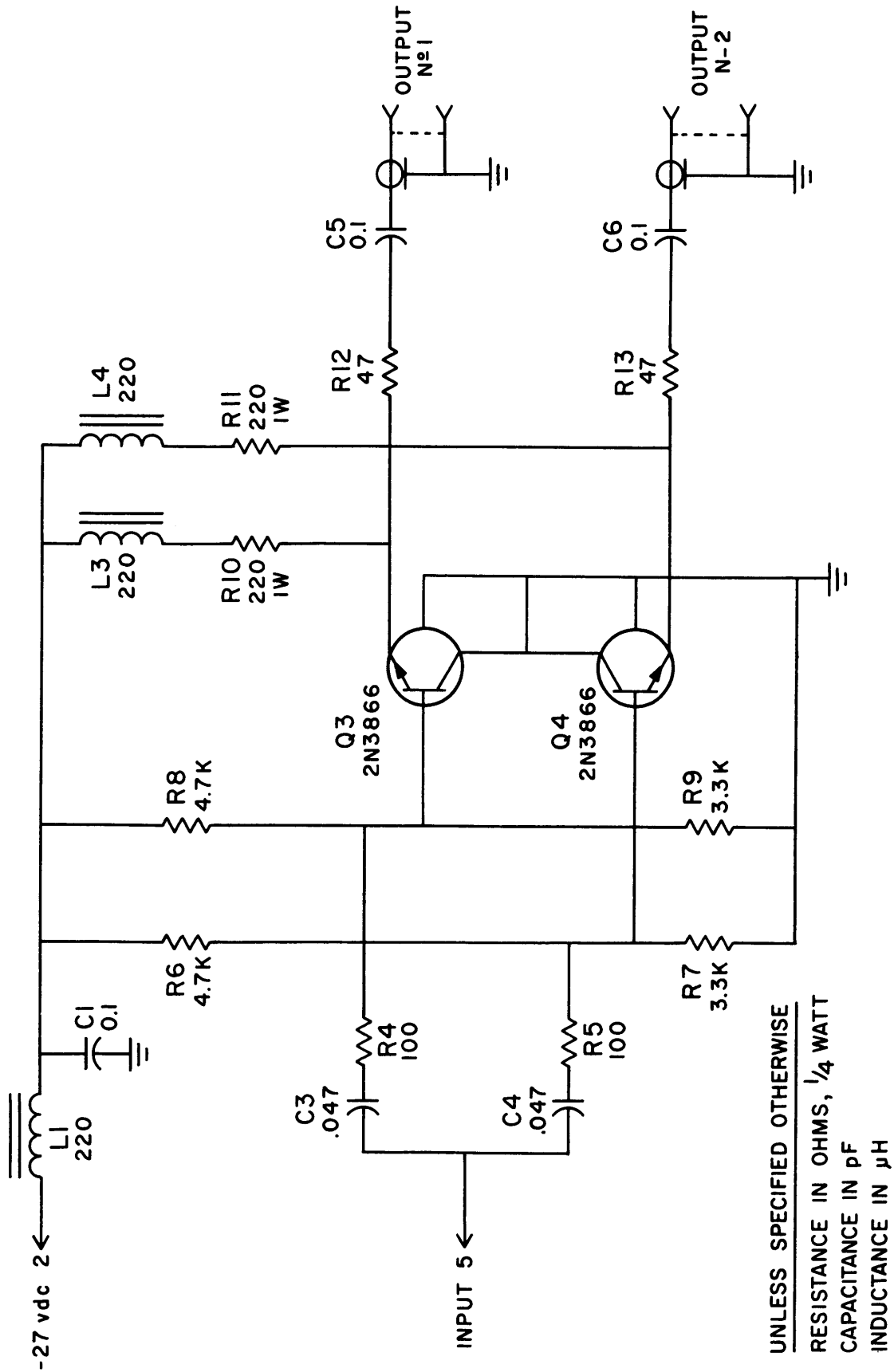


FIGURE 7-4 50 OHM OUTPUT MODULE SCHEMATIC, AX10055

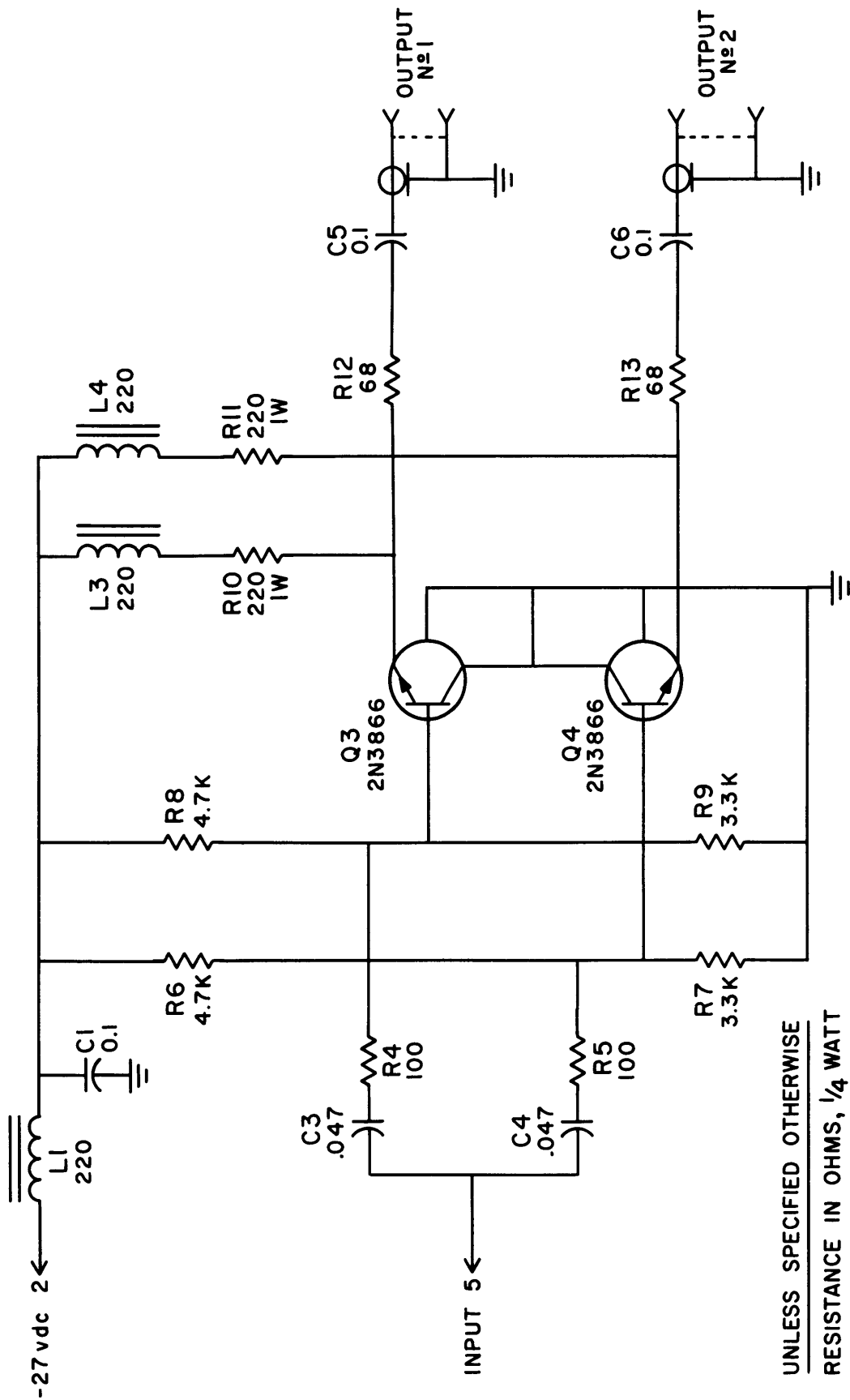


FIGURE 7-5 75 OHM OUTPUT MODULE SCHEMATIC, AX10056

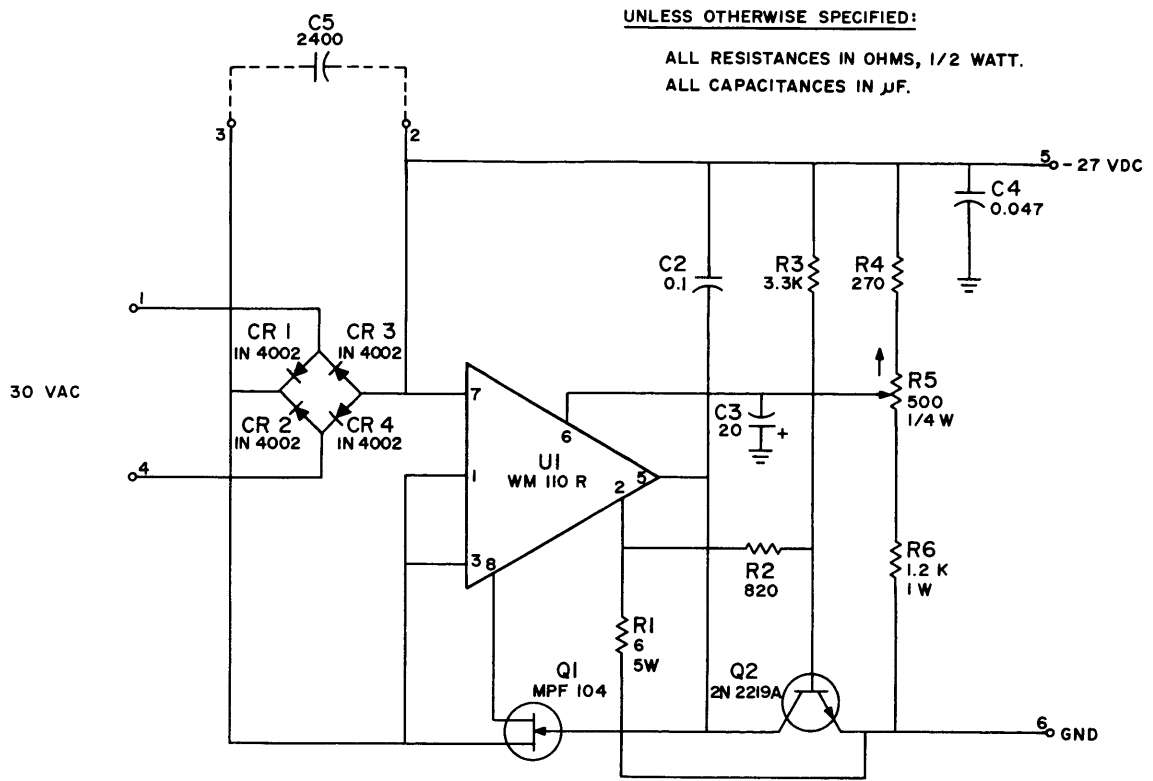
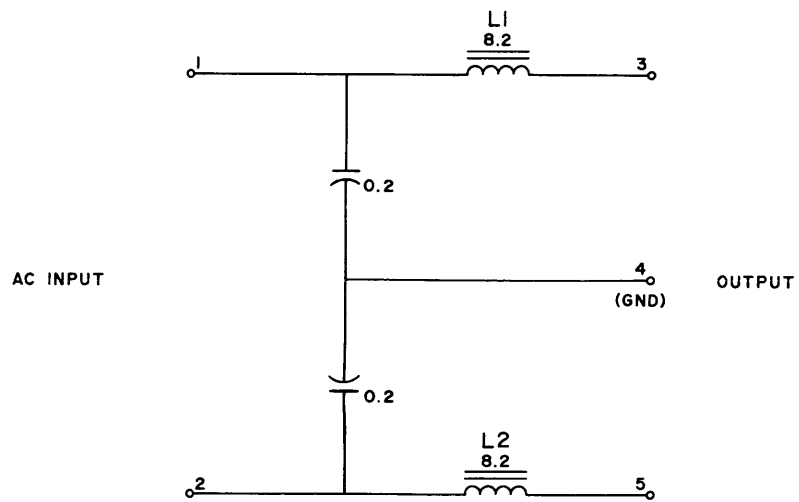


FIGURE 7-6 REGULATOR SCHEMATIC, (A10683-5)



UNLESS OTHERWISE SPECIFIED:
ALL CAPACITANCES IN μ F.
ALL INDUCTANCES IN μ H.

FIGURE 7-7 AC LINE FILTER SCHEMATIC, FX10024