TECHNICAL MANUAL

for

ANTENNA MULTICOUPLER

MODEL AMC-32

THE TECHNICAL MATERIEL CORPORATION

MAMARONECK, N.Y. OTTAWA, CANADA

THE TECHNICAL MATERIEL CORPORATION
COMMUNICATIONS ENGINEERS
700 FENIMORE ROAD 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:

THE TECHNICAL MATERIEL CORPORATION
Engineering Services Department
700 Fenimore Road
Mamaroneck, New York

TECHNICAL MANUAL
FOR
ANTENNA MULTICOUPLER
MODEL AMC—32

THE TECHNICAL MATERIEL CORPORATION
MAMARONECK, N.Y. OTTAWA, CANADA

IN8031

1st JULY 1969

CHANGE NO. 1

INSTRUCTION BOOK CHANGE NOTICE

Date December 11, 1970

Manual affected: Antenna Multicoupler Model AMC-32 IN 8031

Make the following pen and ink corrections to pages indicated below:

1. On page 1-2, change Input and Output Impedance from 75 ohms to 50 ohms.

2. On page 6-5, change Preamplifier Assembly 1A2 as follows:

Ref Symbol	Description	TMC Part Number
1A2C2	Capacitor, fixed, mica, 22 Pf, 2%	CM04ED220G03
1A2R2	Resistor, fixed, film, 510 ohms, ¼ watt, 2%	RL07S511G
1A2L2	Delete	

3. On page 6-7, change 8 Output Aseembly 1A3 as follows:

1A3R15	Resistor, fixed, film, 52.3 ohms, ¼ watt, 1%	RN60D52R3F

4. On page 7-5, figure 7-3

change C2 from 47 Pf to 22 Pf
change R2 from 1K to 510 ohms
delete L2 and draw a connecting line between T1 pin 1 and input 2

5. Page 7-7, figure 7-4

change value of R15 from 71.5 to 52.3 ohms
change value of R85 from 71.5 to 52.3 ohms

RECORD OF CORRECTIONS MADE

Change No.	Date of Change	Date Entered	Entered By

TABLE OF CONTENTS

LIST OF ILLUSTRATIONS

LIST OF TABLES

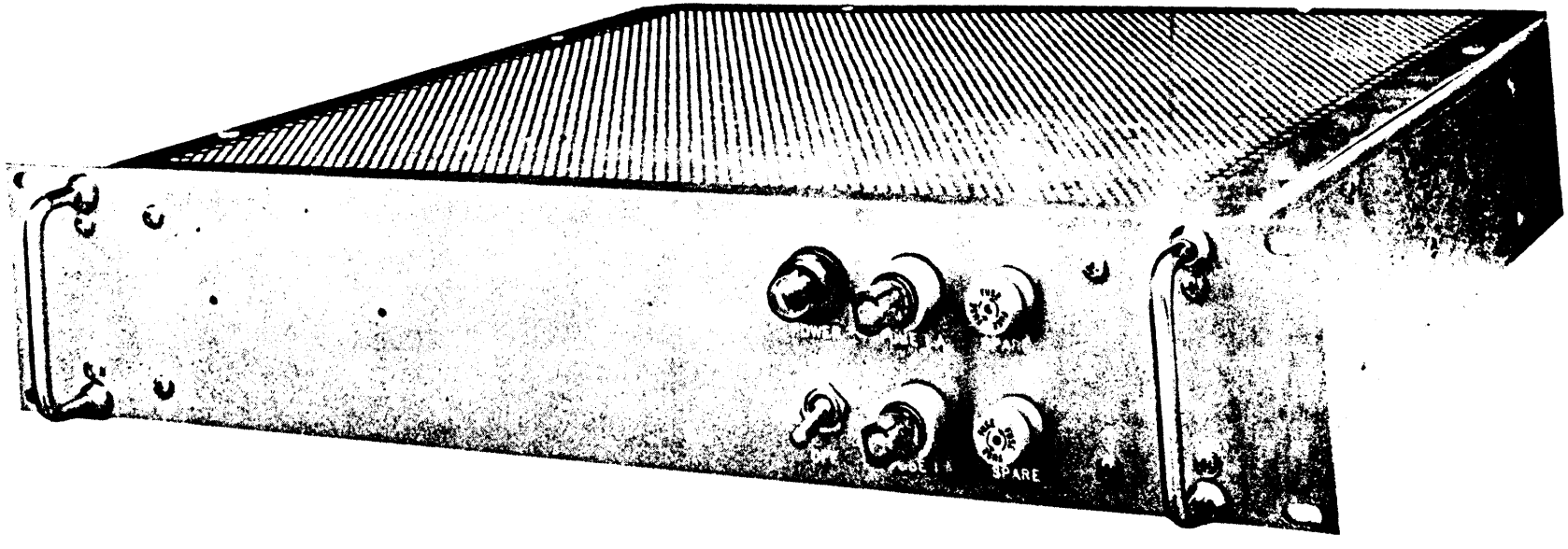

FIGURE 1-1 THIRTY-TWO OUTPUT ANTENNA MULTICOUPLER, MODEL AMC-32

SECTION 1
GENERAL DESCRIPTION

1-1 FUNCTIONAL DESCRIPTION

(1) The Thirty-Two Output Antenna Multicoupler, Model AMC-32 (photograph Figure 1-1) is a broadband antenna-to-receiver coupling device which makes possible the use of a common antenna system by thirty-two HF communications receivers. Its circuitry contains a broadband transistorized preamplifier, thirty-two individual buffer amplifiers and a regulated power supply. The unit has been designed to produce a sizable reduction in amplitude of signals re-radiated from one receiver to another or from receivers to the common antenna system.

(2) The low-noise preamplifier and output stages have an overall insertion voltage gain of +2dB, with second and third order intermodulation products kept to a minimum. They maintain a large signal handling capability as well as a substantially constant input and output impedance of 75 ohms over the 2 to 32 MHz range. High isolation is maintained between outputs and between output to input to suppress re-radiation from one receiver to another or to the common antenna system.

1-2 PHYSICAL DESCRIPTION

(1) The AMC-32 is designed for mounting in a standard 19 inch rack. It is supported by four retaining screws on the front panel. All operating controls are located on the front panel. The input and the thirty-two output receptacles are on the rear panel along with the power connections. The majority of the discrete components and semiconductors in the AMC-32 are mounted on printed circuit assemblies which in turn are bolted to the chassis. Some components are bolted directly to the chassis. All semiconductors used in the AMC-32 are listed in Table 1-1.

(2) The printed circuit assemblies have been numbered 1A1, 1A2 etc. to aid in differentiating between similar components on different assemblies. All parts are prefixed by an assembly number (example 1A1) except those components mounted directly to the chassis which are prefixed by the numeral one. (example 1Q1)

REFERENCE SYMBOL	TYPE	FUNCTION
Power Supply & Regulator		
1Z1	NW10005	Rectifier Bridge
1A1CR1	1N758	Bias Regulator
1A1CR2	1N252	Bias Regulator
1A1Q1	TX10001	Current Regulator
1A1Q2	2N5086	Voltage Regulator
1Q1	2N3055	Voltage Regulator
Preamplifier (75 ohm)		
1A2CR1	1N456A	Bias Regulator
1A2Q1	2N5160	Buffer
1A2Q2	2N5160	Current Amplifier
1A2Q3	2N3866	Current Amplifier
Four 8 Output Circuits		
1A3Q11 to 1A3Q81	All 2N3866	Buffer Amplifiers
1A4Q11 to 1A4Q81	All 2N3866	Buffer Amplifiers
1A5Q11 to 1A5Q81	All 2N3866	Buffer Amplifiers
1A6Q11 to 1A6Q81	All 2N3866	Buffer Amplifiers

Table 1-1 Semiconductor And Integrated Circuit Complement, AMC-32

1-3 TECHNICAL SPECIFICATIONS

Number of Outputs:	32
Frequency Range:	2 to 32 MHz
Input and Output Impedance:	75 ohms with a VSWR better than 1.5:1
Insertion Gain:	2dB ±1dB
Desensitization:	100 uv signal is compressed by 3dB maximum when an 8v peak-to-peak signal between 2 to 6 MHz is applied simultaneously.
Noise Figure:	7dB maximum
Intermodulation:	With any two 0.5v rms input signals applied within operating range of AMC-32: 2nd order products are: (1) -60dB when both input signals and the product signal are between 2 to 20 MHz; (2) -55dB when either or both input signals or the product signal are above 20 MHz. 3rd order products are: (1) -65dB when both input signals and the product signal are between 2 to 25 MHz; (2) -60dB when either or both input signals or the product signal are above 25 MHz.
Isolation:	-40dB, minimum, output-to-output -55dB, minimum, output-to-input
Line Filters:	-40dB minimum attenuation between 14 KHz to 150 MHz.
Power Supply:	115 vac ± 6% 48/62 Hz; power consumption approximately 80 watts.
Dimensions:	Width 19 inches. Height 3 1/2 inches. Depth 16 inches.
Weight:	17 pounds approximately
MTBF:	20,000 hours as per RADC reliability handbook.
Temperature Range:	Class 4 military requirements Operating: 0^{o} to + 50^{o} C Non-operating: -62^{o} to + 75^{o} C
Humidity:	Operational up to 95%

NAME	DESIGNATION	FUNCTION	QUANTITY
Power Cable Assembly	CA10505	Connections to power connector 1J34	1
Technical Manual	1N8031	Instructions for operation and maintenance of AMC-32	1

Table 1-2 Loose Items Supplied, AMC-32

SECTION 2
INSTALLATION

2-1 INITIAL INSPECTION

(1) Every AMC-32 undergoes thorough testing and calibration at the factory before being shipped. Upon receipt of the unit, check the packing case and its contents for possible damage. Unpack the equipment carefully to reduce the risk of damage and to avoid losing any parts shipped as loose items. Refer to Table 1-2 for a list of same.

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

2-2 ELECTRICAL INSTALLATION

(1) The AMC-32 operates from a 115 vac, 48 to 62 Hz power source. The input is protected by two, one ampere fuses, one on each side of the line.

(2) The following external connections must be made to the AMC-32 after it has been installed in a rack.

(a) Antenna: Attach a BNC connector to a 75 Ω coaxial cable and connect it to ANTENNA INPUT jack 1J1 on the rear panel. The other end is connected to the antenna.

(b) Power: Connect primary power to the unit by plugging the supplied power cable assembly (CA10505) into POWER INPUT connector 1J34 on the rear panel ensuring that the keyway on the plug lines up with the key at the top of 1J34.

(c) Outputs: Connect the outputs to the associated receivers as required via the BNC connectors, 1J2 to 1J33 inclusive, on the rear panel.

(3) The AMC-32 equipment should be located in such a way that sufficient clearance is obtained at the rear of the units for making connections to the BNC connectors. The front panel controls should also be within easy reach of an operator. Solid state design reduces heat problems allowing the installation of several (maximum of 5) AMC-32's one above the other in the same rack.

NOTE

For stacking of more than 5 units consult the manufacturer for forced air cooling requirements.

2-3 PERFORMANCE CHECK

(1) When appropriate power connections have been made to the AMC-32, turn POWER switch 1S1 to the ON position. If the POWER lamp 1DS1 lights the electrical installation has been completed properly.

(2) Upon completion of the electrical installation, the Thirty-Two Output Antenna Multicoupler Model AMC-32 is ready for use.

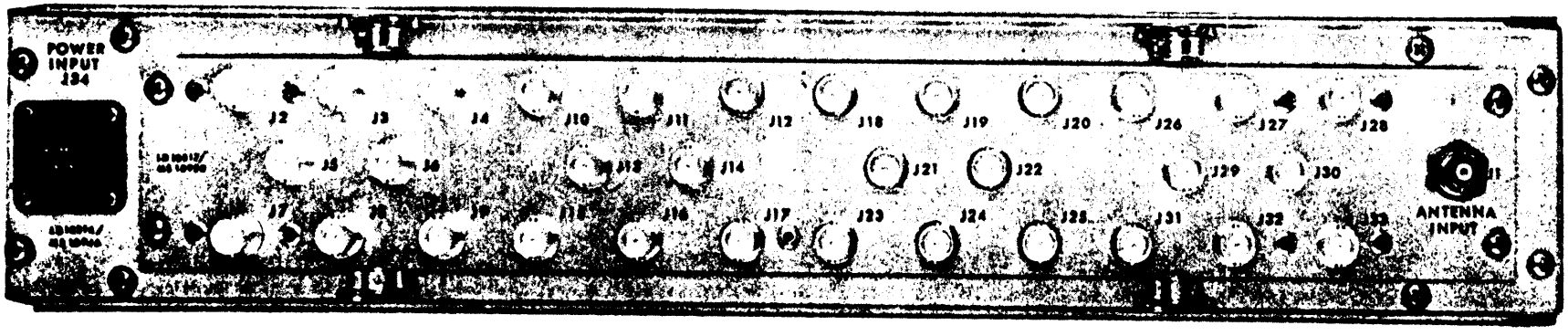

FIGURE 2-1 REAR PANEL CONNECTIONS, AMC-32

SECTION 3
OPERATION

3-1 GENERAL

(1) Controls: Table 3-1 contains a list of the operating controls and indicators that are located on the front panel of the AMC-32.

(2) Procedures: Operating procedures for the AMC-32 are simple and straightforward. Connect any number of receivers (maximum of 32) to the appropriate BNC connectors at the rear of the unit. Any or all of the connectors from 1J2 to 1J33 may be used. When the connections have been completed to the AMC-32 turn the POWER switch on the front panel to the ON position.

ITEM	DESCRIPTION
Power ON/OFF switch 1S1	Controls primary power to AMC-32
POWER Lamp 1DS1	Lights when primary power is connected to the AMC-32 and switch 1S1 is turned on.
FUSE holder/indicators for 1F1 & 1F2	Failure of a fuse is indicated by illumination of its fuse holder.
SPARE fuses	Two spare fuses are contained in storage holders located on the front panel.

Table 3-1 Controls And Indicators, AMC-32

SECTION 4
PRINCIPLES OF OPERATION

4-1 GENERAL

(1) The Thirty-Two Output Antenna Multicoupler is a broadband distribution system designed to couple a single 75 ohm antenna to the antenna inputs of up to thirty-two HF communications receivers. Three major circuits comprise the AMC-32 and their operation is described in succeeding paragraphs in this section. They are outlined in block form in Figure 4-1, Block Diagram, AMC-32; and schematically in Figure 7-1, System Schematic, AMC-32.

4-2 PREAMPLIFIER AND OUTPUTS

(1) The preamplifier circuitry is mounted on its own printed circuit assembly designated 1A2, and is a low noise, wideband amplifier having a 75 ohm input impedance and a voltage gain of 8 dB. The input to the preamplifier is applied to step-up transformer 1A2T1. The output voltage across 1A2T1 is fed through buffer amplifier 1A2Q1 to a complimentary push-pull amplifier configuration formed by 1A2Q2 and 1A2Q3. The latter circuit serves a balancing function to minimize second order intermodulation products at the preamplifier output. The output signal is developed across two resistors 1R1 and 1R2, and is connected to a common feed line. This feed line distributes the signal to four identical 8 output circuits. They are mounted on four printed circuit assembles 1A3, 1A4, 1A5, and 1A6.

NOTE

For simplification, the operation of only one 8 output circuit (1A3) is described, as the operation of the other three output circuits (1A4, 1A5 and 1A6) is identical.

(2) The preamplifier output is connected via a special RF distribution line, which parallel feeds the eight buffer amplifiers on output board 1A3, each having an output impedance of 75 ohms, and an attenuation of 6dB.

Thus, since the preamplifier has a voltage gain of 8dB, the overall insertion gain of the multicoupler is 2dB for each output.

4-3 POWER SUPPLY AND REGULATOR

(1) The components comprising the power supply are all chassis mounted except for the regulator circuit which is mounted on printed circuit assembly 1A1. The latter is described in 4-3 paragraphs (3) and (4).

(2) 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 also to the front panel indicator lamp 1DS1. The secondary of transformer 1T1 produces 27 vac which is rectified by bridge rectifier 1Z1, and filtered by capacitor 1C1.

(3) The regulator board and transistor 1Q1 provide the voltage and current regulation required for the -27v 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 -27v required by the AMC-32 (see 5-5, Adjustments).

(4) Transistor 1A1Q2 and diode pair 1A1CR1 and 1A1CR2 form a voltage reference circuit (sensitive to temperature and load changes) which in turn control Darlington-connected transistors 1A1Q1 and 1Q1, providing the necessary voltage and current regulation for the power supply, including short-circuit protection.

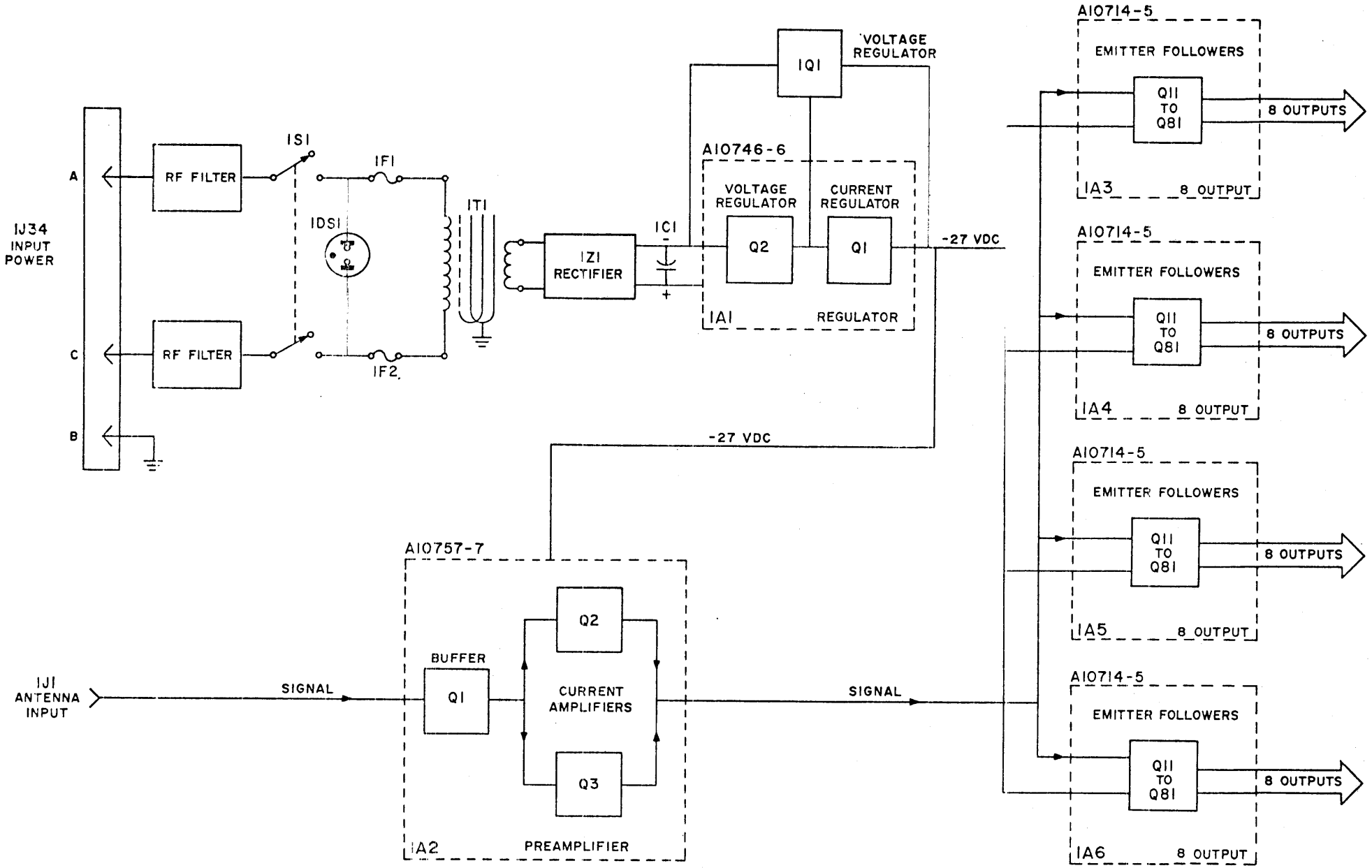

FIGURE 4-1 BLOCK DIAGRAM, AMC-32

SECTION 5
MAINTENANCE

5-1 GENERAL

(1) This section describes preventive maintenance, troubleshooting and repair procedure for the AMC-32 equipment. The following test equipment is suggested in order to perform these procedures properly.

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

(b) Oscilloscope, Tektronix Model 545 or equivalent.

(2) For aid in the location of components, refer to Figures 5-1 to 5-4 inclusive.

5-2 PREVENTIVE MAINTENANCE

(1) In regard to the AMC-32, preventive maintenance consists of routine functions such as visual inspection and cleaning. The latter is strongly recommended as dust may build up on components and not only reduce the efficiency of the coupler unit but also increase component failure. To facilitate cleaning the unit, use a vacuum cleaner or compressed air hose.

(2) A simple visual check of the unit when it is opened up for servicing or cleaning will often expose potential trouble and hence reduce downtime due to component wear or failure. Signs of possible trouble are: discolouration, warped printed circuit assemblies and damaged wiring. Any deteriorating component should be replaced immediately. In addition all hardware should be checked for tightness.

5-3 TROUBLESHOOTING

(1) The primary objective of this procedure is to narrow the problem area to one or two sections of the AMC-32 circuitry. In order to minimize labour costs while locating the source of trouble, systematic troubleshooting will greatly speed up the process, (as outlined in Table 5-1, Troubleshooting Hints.)

5-4 REPAIR

(1) Repair work generally consists of the replacement of an electrical component, however the following precautions should be observed:

(a) Always replace a component with its exact duplicate.

(b) Place any new component in the same position as the one it replaces. It is not good practice to alter the existing layout. This includes the layout of wiring as well as discrete component replacement.

(c) Never attempt to solder with an iron having a power rating of more than 100 watts. Use a pair of long-nose pliers as a heat sink to offer protection while soldering.

(d) Extreme caution is called for whenever the replacement of components is warranted because excessive heat applied to a board may cause the printed circuit wiring to lift off.

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

5-5 ADJUSTMENTS

(1) There are two main areas in the AMC-32 circuitry that should be checked periodically and may require adjustment. They are as follows:

(a) Regulator: There is a screwdriver adjustable potentiometer 1A1R7 on the regulator printed circuit assembly. An arrow on the schematic denotes clockwise adjustment which lowers the regulated output voltage. It is adjusted to produce -27 vdc.

(b) Preamplifier: Screwdriver adjustable potentiometer 1A2R6 should be set to supply 110 ma. dc current to the preamplifier. To accomplish this, both wires must be removed from pin 3 of the preamplifier assembly 1A2 and a dc current meter inserted.

Potentiometer 1A2R6 should then be adjusted until a reading of 110 ma. is observed. An arrow on the schematic denotes clockwise adjustement which lowers the standing current of the complimentary circuit.

	Problem And Symptom	Probable Cause And Remedy
1.	The failure of one or more outputs.	(a) Check all semiconductors and discrete components in the malfunctioning stage(s).
2.	Weak or noisy signals to ALL receivers.	(a) Check the antenna system by connecting an antenna lead-in directly to the antenna input of a receiver. If the problem persists, fault is in the antenna. (b) If after doing 2(a) and the weakness and/or noise disappears; check for faulty preamplifier circuit in the AMC-32.
3.	Weak or noisy signals to ONE receiver.	(a) Check the receiver unit itself. (b) Check the connections between the AMC-32 and the receiver. (c) Or check the particular output circuit as outlined in 1(a).
4.	Complete loss of signals in all receivers.	(a) If entire system fails, the method discussed in 2(a) and 2(b) will determine if the trouble is in the AMC-32 itself. (b) If after doing 4(a) the trouble appears to be in the AMC-32 itself; check each stage in turn. The best method is to apply a test signal to the ANTENNA input jack 1J1 at rear of unit. Use an RF signal generator and trace the signal back through the equipment with an oscilloscope. Start at OUTPUT jacks working backwards towards the INPUT.
5.	POWER lamp 1DS1 does not light; if switch 1S1 is in the ON position.	(a) Check the lamp itself. Replace if necessary. (b) Check the circuitry proceeding 1DS1; for example the INPUT POWER connector, the RF filters and the ON/OFF switch 1S1. (c) Check the input power source supplying the AMC-32 unit.
6.	FUSE holder illumination (either fuse)	(a) If a blown fuse indication is present, check and replace 1F1 and/or 1F2. If fuse blows again, any circuitry in the unit (other than the items mentioned in 5(a), (b) or (c)), must be suspected as a possible overload cause.

Table 5-1 Troubleshooting Hints

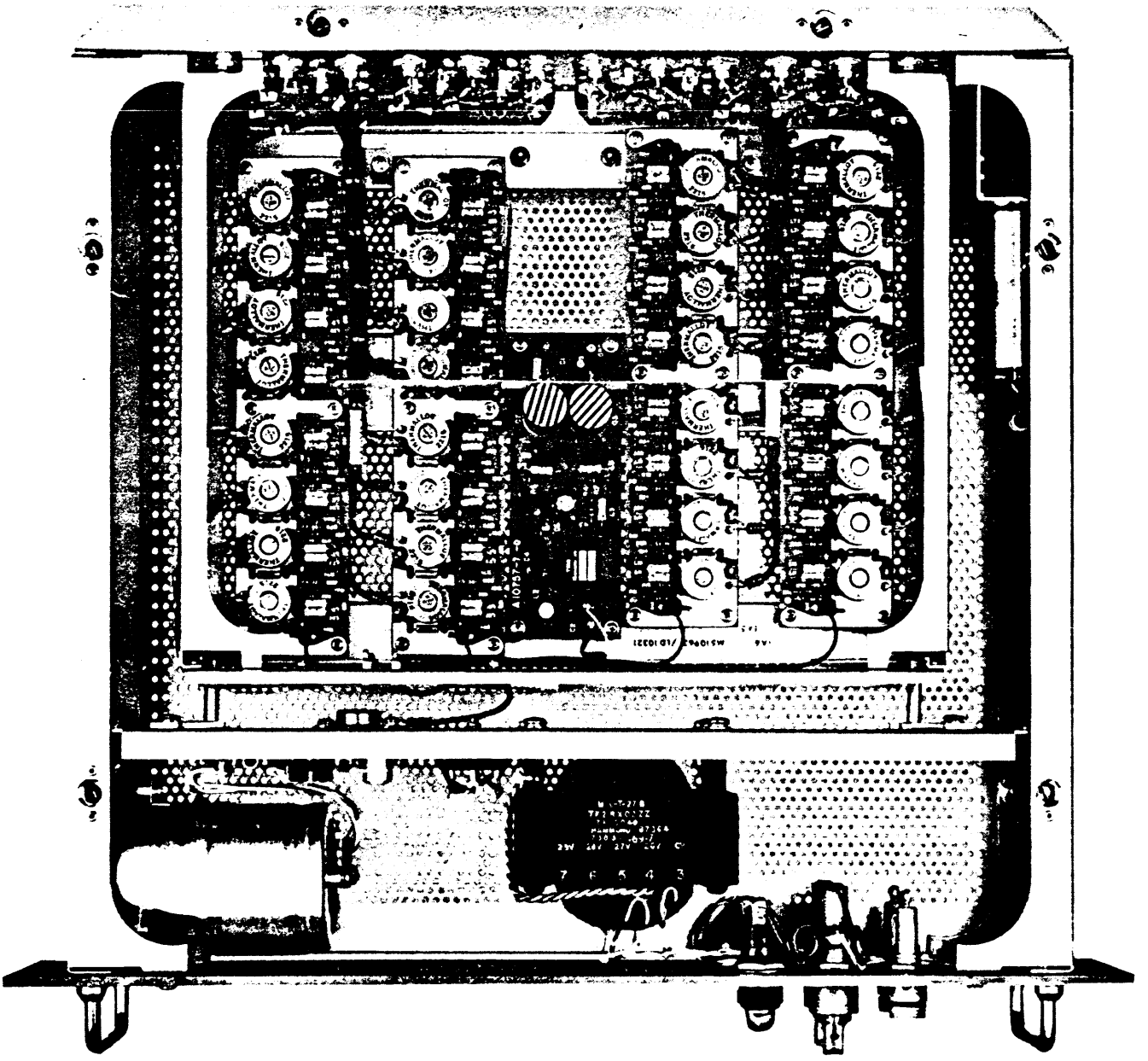

FIGURE 5-1 TOP VIEW, COVER REMOVED, AMC-32

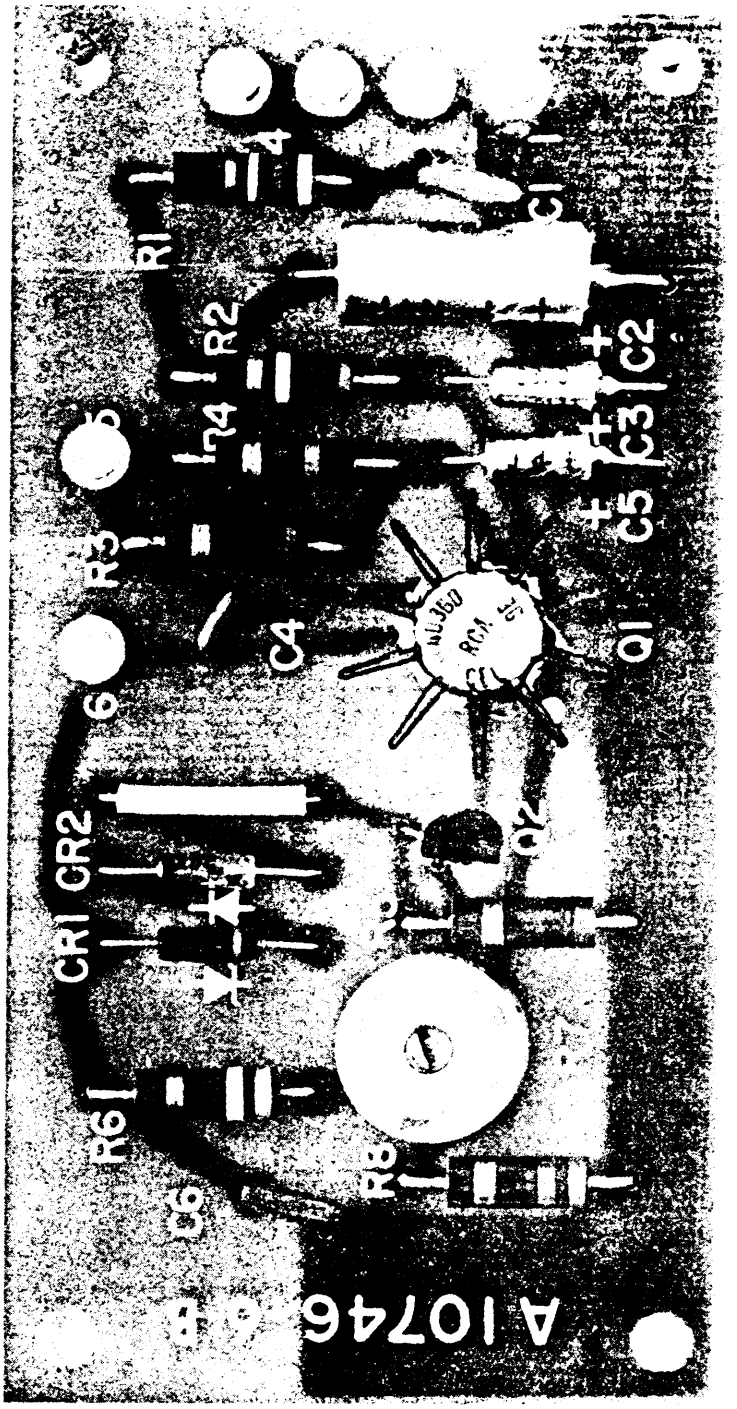

FIGURE 5-2 REGULATOR ASSEMBLY 1A1

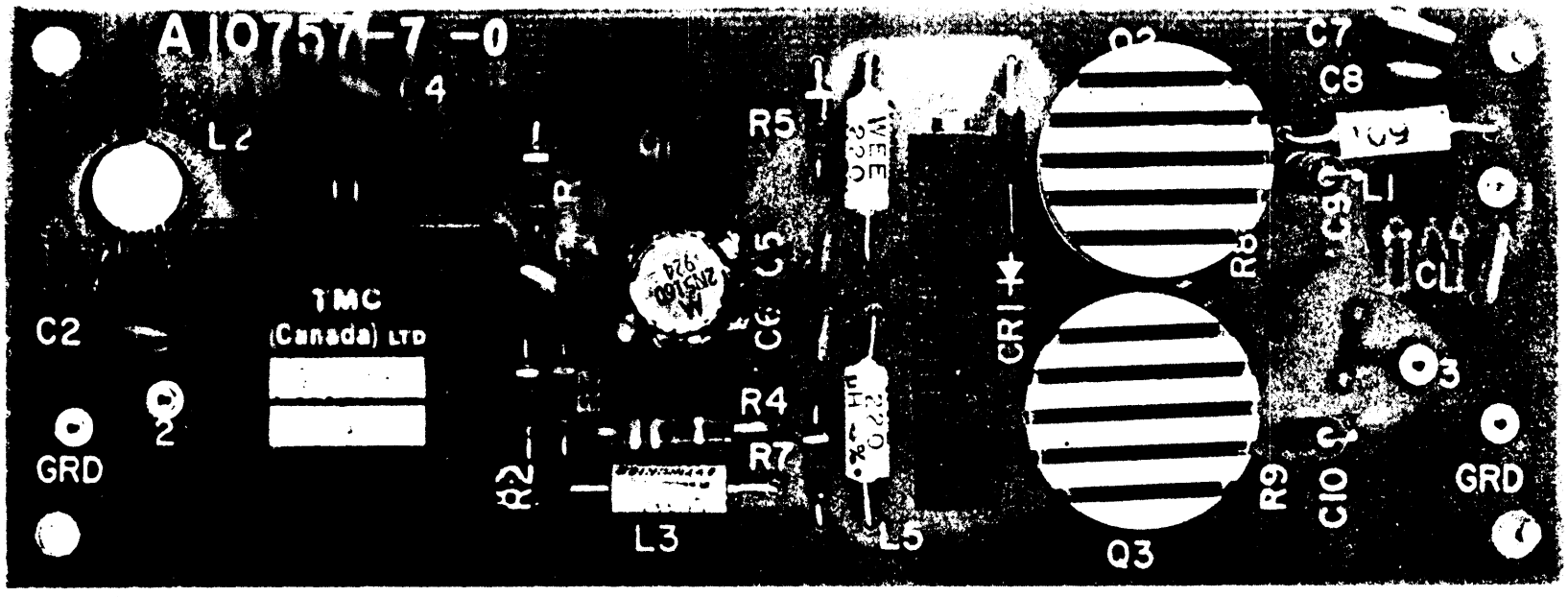

FIGURE 5-3 PREAMPLIFIER ASSEMBLY 1A2

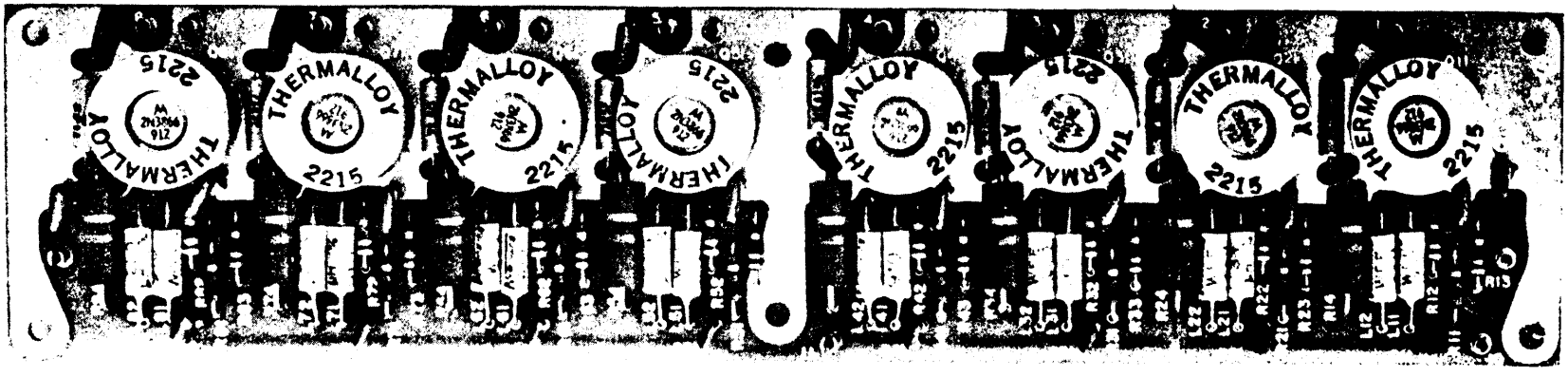

FIGURE 5-4 8 OUTPUT ASSEMBLY 1A3 (1A4, 1A5 or 1A6)

SECTION 6
PARTS LIST

6-1 INTRODUCTION

(1) Reference symbols have been assigned to identify all electrical parts. These symbols are marked on the equipment adjacent to the parts that they identify and are included on all drawings, diagrams and part lists. The letters of a reference symbol indicate the generic group of the part, such as capacitor, resistor transistor etc. The numeral differentiates between parts of the same generic group. Sockets associated with any particular plug-in device, such as a transistor or fuse, are identified by a reference symbol which incorporates the symbol used for that device as well as a prefix symbol.

(2) Prefix symbols have also been assigned to each separate printed circuit board assembly (1A1, 1A2 etc.) to avoid confusion of identifying similar components in a different circuit.

(3) To expedite delivery when ordering replacement parts, specify the TMC part number and the name and model number of the equipment.

NOTE

(1) The parts list for 8 Output Assembly 1A3 has been listed in its entirety. Assemblies 1A4, 1A5 and 1A6 are identical; therefore they have not been listed.

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
1A1	PRINTED CIRCUIT ASSEMBLY: Regulator	A10746-6
1A2	PRINTED CIRCUIT ASSEMBLY: Preamplifier	A10757-7
1A3	PRINTED CIRCUIT ASSEMBLY: 8 Output	A10714-5
1A4	SAME AS 1A3	
1A5	SAME AS 1A3	
1A6	SAME AS 1A3	
1C1	CAPACITOR: Electrolytic, 6800 uf	CE71C682G
1DS1	LAMP: Neon	BI100-51
1F1	FUSE: Slo-blo, 1.0 amp	FU102-1
1F2	SAME AS 1F1	
1FL1	FILTER: RF, line	FI10001
1FL2	SAME AS 1FL1	
1J1	CONNECTOR: RF, female receptacle	JJ172
1J2	CONNECTOR: BNC, female receptacle	UG625 B/U
1J3	SAME AS 1J2	
1J4	SAME AS 1J2	
1J5	SAME AS 1J2	
1J6	SAME AS 1J2	
1J7	SAME AS 1J2	
1J8	SAME AS 1J2	
1J9	SAME AS 1J2	
1J10	SAME AS 1J2	
1J11	SAME AS 1J2	
1J12	SAME AS 1J2	
1J13	SAME AS 1J2	
1J14	SAME AS 1J2	

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
1J15	SAME AS 1J2	
1J16	SAME AS 1J2	
1J17	SAME AS 1J2	
1J18	SAME AS 1J2	
1J19	SAME AS 1J2	
1J20	SAME AS 1J2	
1J21	SAME AS 1J2	
1J22	SAME AS 1J2	
1J23	SAME AS 1J2	
1J24	SAME AS 1J2	
1J25	SAME AS 1J2	
1J26	SAME AS 1J2	
1J27	SAME AS 1J2	
1J28	SAME AS 1J2	
1J29	SAME AS 1J2	
1J30	SAME AS 1J2	
1J31	SAME AS 1J2	
1J32	SAME AS 1J2	
1J33	SAME AS 1J2	
1J34	CONNECTOR: male receptacle	MS3102A-14S-7P
1R1	RESISTOR: Fixed composition, 11 ohms 1/2 w, 5%	RC20GF110J
1R2	SAME AS 1R1	
1S1	SWITCH: Toggle	ST22K
1T1	TRANSFORMER: Power	TF10049
1Q1	TRANSISTOR: NPN	2N3055
1XQ1	SOCKET: transistor	TS166-1
1Z1	DIODE NETWORK: rectifier	NW10007

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
1A1C1	CAPACITOR: Fixed, ceramic, 0.1 uf	CC10015-X5V104M
1A1C2	CAPACITOR: Fixed, tantalum, 6.8 uf	CSR13G685ML
1A1C3	CAPACITOR: Fixed, tantalum, 0.47 uf	CSR13G474ML
1A1C4	CAPACITOR: Fixed, ceramic, 0.01 uf	CC10017-X5V103M
1A1C5	SAME AS 1A1C3	
1A1C6	SAME AS 1A1C1	
1A1CR1	DIODE: Zener	IN758A
1A1CR2	DIODE:	IN252
1A1R1	RESISTOR: Fixed, composition, 47 K, 1/2 w, 5%	RC20GF473J
1A1R2	RESISTOR: Fixed, composition, 120 K, 1/2 w, 5%	RC20GF124J
1A1R3	RESISTOR: Fixed, composition, 15 ohms, 1/2 w, 5%	RC20GF150J
1A1R4	RESISTOR: Fixed, composition, 560 ohms, 1/2 w, 5%	RC20GF561J
1A1R5	RESISTOR: Fixed, composition, 1.2 K, 1/2 w, 5%	RC20GF122J
1A1R6	RESISTOR: Fixed, composition, 3.9 K, 1/2 w, 5%	RC20GF392J
1A1R7	RESISTOR: Variable, composition, 1K, linear curve	RV111U102A
1A1R8	RESISTOR: Fixed, composition, 6.8 K, 1/2 w, 5%	RC20GF682J
1A1Q1	TRANSISTOR: NPN, Silicon	TX10001
1A1Q2	TRANSISTOR: PNP, Silicon	2N5086

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
1A2C1	CAPACITOR: Fixed, ceramic 0.1 uf	CC10015-X5V104M
1A2C2	CAPACITOR: Fixed, mica 47 pf, 2%	CM04ED470G03
1A2C3	CAPACITOR: Fixed, ceramic 0.01 uf	CC10017-X5V103M
1A2C4	SAME AS 1A2C3	
1A2C5	SAME AS 1A2C3	
1A2C6	SAME AS 1A2C3	
1A2C7	SAME AS 1A2C1	
1A2C8	SAME AS 1A2C3	
1A2CR1	DIODE:	IN456A
1A2R1	RESISTOR: Fixed, film 8.2 K, 1/4 w, 2%	RL07S822G
1A2R2	RESISTOR: Fixed, film 1 K, 1/4 w, 2%	RL07S102G
1A2R3	RESISTOR: Fixed, film 3K, 1/4 w, 2%	RL07S302G
1A2R4	RESISTOR: Fixed, comp, 330 ohms, 1/2 w, 5%	RC20GF331J
1A2R5	RESISTOR: Fixed, film 2K, 1/4 w, 2%	RL07S202G
1A2R6	RESISTOR: Variable, 500 ohm	RV10009-501AP
1A2R7	SAME AS 1A2R5	
1A2L1	INDUCTOR: RF coil, 33 uh	CL275-330
1A2L2	INDUCTOR: RF coil, 0.33 uh	CL10044
1A2L3	INDUCTOR: RF coil, 220 uh	CL275-221
1A2L4	SAME AS 1A2L3	
1A2L5	SAME AS 1A2L3	
1A2T1	TRANSFORMER: RF	TR10005
1A2Q1	TRANSISTOR: PNP	2N5160
1A2Q2	SAME AS 1A2Q1	
1A2Q3	TRANSISTOR: NPN	2N3866

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
1A3C1	CAPACITOR: Fixed, mica 0.1 uf	CC10015-X5V104M
1A3C2	SAME AS 1A3C1	
1A3C11	CAPACITOR: Fixed, mica 0.01 uf	CC10017-X5V103M
1A3C12	SAME AS 1A3C1	
1A3C13	SAME AS 1A3C1	
1A3C21	SAME AS 1A3C11	
1A3C22	SAME AS 1A3C1	
1A3C23	SAME AS 1A3C1	
1A3C31	SAME AS 1A3C11	
1A3C32	SAME AS 1A3C1	
1A3C33	SAME AS 1A3C1	
1A3C41	SAME AS 1A3C11	
1A3C42	SAME AS 1A3C1	
1A3C43	SAME AS 1A3C1	
1A3C51	SAME AS 1A3C11	
1A3C52	SAME AS 1A3C1	
1A3C53	SAME AS 1A3C1	
1A3C61	SAME AS 1A3C11	
1A3C62	SAME AS 1A3C1	
1A3C63	SAME AS 1A3C1	
1A3C71	SAME AS 1A3C11	
1A3C72	SAME AS 1A3C1	
1A3C73	SAME AS 1A3C1	
1A3C81	SAME AS 1A3C11	
1A3C82	SAME AS 1A3C1	
1A3C83	SAME AS 1A3C1	
1A3L11	INDUCTOR: RF coil, 33 uh	CL275-330

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
1A3L12	INDUCTOR: RF coil, 220 uh	CL275-221
1A3L21	SAME AS 1A3L11	
1A3L22	SAME AS 1A3L12	
1A3L31	SAME AS 1A3L11	
1A3L32	SAME AS 1A3L12	
1A3L41	SAME AS 1A3L11	
1A3L42	SAME AS 1A3L12	
1A3L51	SAME AS 1A3L11	
1A3L52	SAME AS 1A3L12	
1A3L61	SAME AS 1A3L11	
1A3L62	SAME AS 1A3L12	
1A3L71	SAME AS 1A3L11	
1A3L72	SAME AS 1A3L12	
1A3L81	SAME AS 1A3L11	
1A3L82	SAME AS 1A3L12	
1A3R11	RESISTOR: Fixed, composition, 100 ohms, 1/4 w, 5%	RC07GF101J
1A3R12	RESISTOR: Fixed, composition, 4.3 K, 1/4 w, 5%	RC07GF432J
1A3R13	RESISTOR: Fixed, composition, 3.3 K, 1/4 w, 5%	RC07GF332J
1A3R14	RESISTOR: Fixed, composition, 220 ohms, 1 w, 5%	RC32GF221J
1A3R15	RESISTOR: Fixed, film, 71.5 ohms, 1/4 w, 1%	RC07D71R5F
1A3R21	SAME AS 1A3R11	
1A3R22	SAME AS 1A3R12	
1A3R23	SAME AS 1A3R13	
1A3R24	SAME AS 1A3R14	
1A3R25	SAME AS 1A3R15	
1A3R31	SAME AS 1A3R11	
1A3R32	SAME AS 1A3R12	

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
1A3R33	SAME AS 1A3R13	
1A3R34	SAME AS 1A3R14	
1A3R35	SAME AS 1A3R15	
1A3R41	SAME AS 1A3R11	
1A3R42	SAME AS 1A3R12	
1A3R43	SAME AS 1A3R13	
1A3R44	SAME AS 1A3R14	
1A3R45	SAME AS 1A3R15	
1A3R51	SAME AS 1A3R11	
1A3R52	SAME AS 1A3R12	
1A3R53	SAME AS 1A3R13	
1A3R54	SAME AS 1A3R14	
1A3R55	SAME AS 1A3R15	
1A3R61	SAME AS 1A3R11	
1A3R62	SAME AS 1A3R12	
1A3R63	SAME AS 1A3R13	
1A3R64	SAME AS 1A3R14	
1A3R65	SAME AS 1A3R15	
1A3R71	SAME AS 1A3R11	
1A3R72	SAME AS 1A3R12	
1A3R73	SAME AS 1A3R13	
1A3R74	SAME AS 1A3R14	
1A3R75	SAME AS 1A3R15	
1A3R81	SAME AS 1A3R11	
1A3R82	SAME AS 1A3R12	
1A3R83	SAME AS 1A3R13	
1A3R84	SAME AS 1A3R14	

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
1A3R85	SAME AS 1A3R15	
1A3Q11	TRANSISTOR: NPN, Silicon	2N3866
1A3Q21	SAME AS 1A3Q11	
1A3Q31	SAME AS 1A3Q11	
1A3Q41	SAME AS 1A3Q11	
1A3Q51	SAME AS 1A3Q11	
1A3Q61	SAME AS 1A3Q11	
1A3Q71	SAME AS 1A3Q11	
1A3Q81	SAME AS 1A3Q11	
	NOTE 8 Output Assemblies 1A4, 1A5 and 1A6 are identical to Assembly 1A3.	

SECTION 7

SCHEMATIC DIAGRAMS

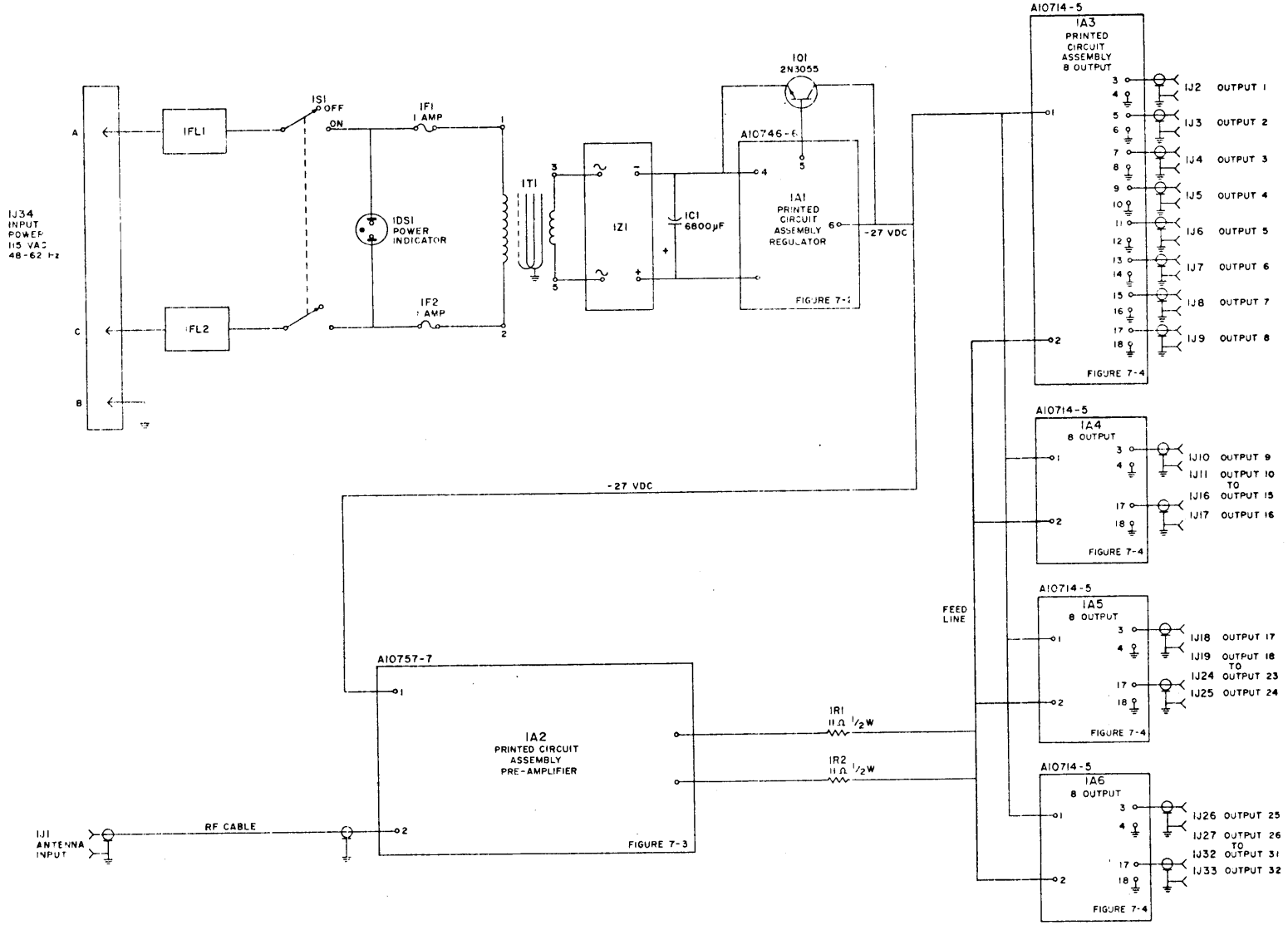

FIGURE 7-1 SYSTEM SCHEMATIC, AMC-32(1)

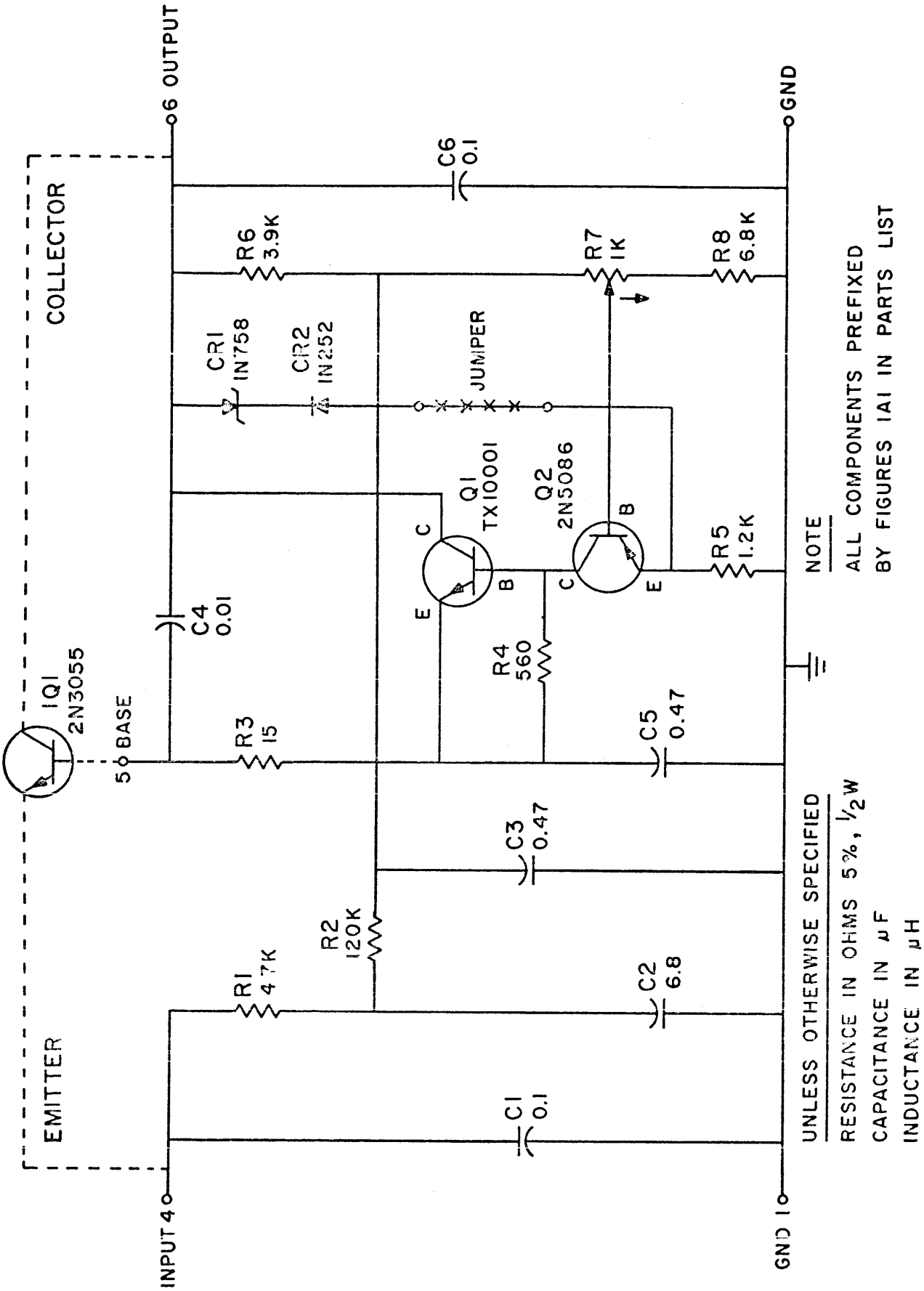

FIGURE 7-2 REGULATOR SCHEMATIC, (1A1)

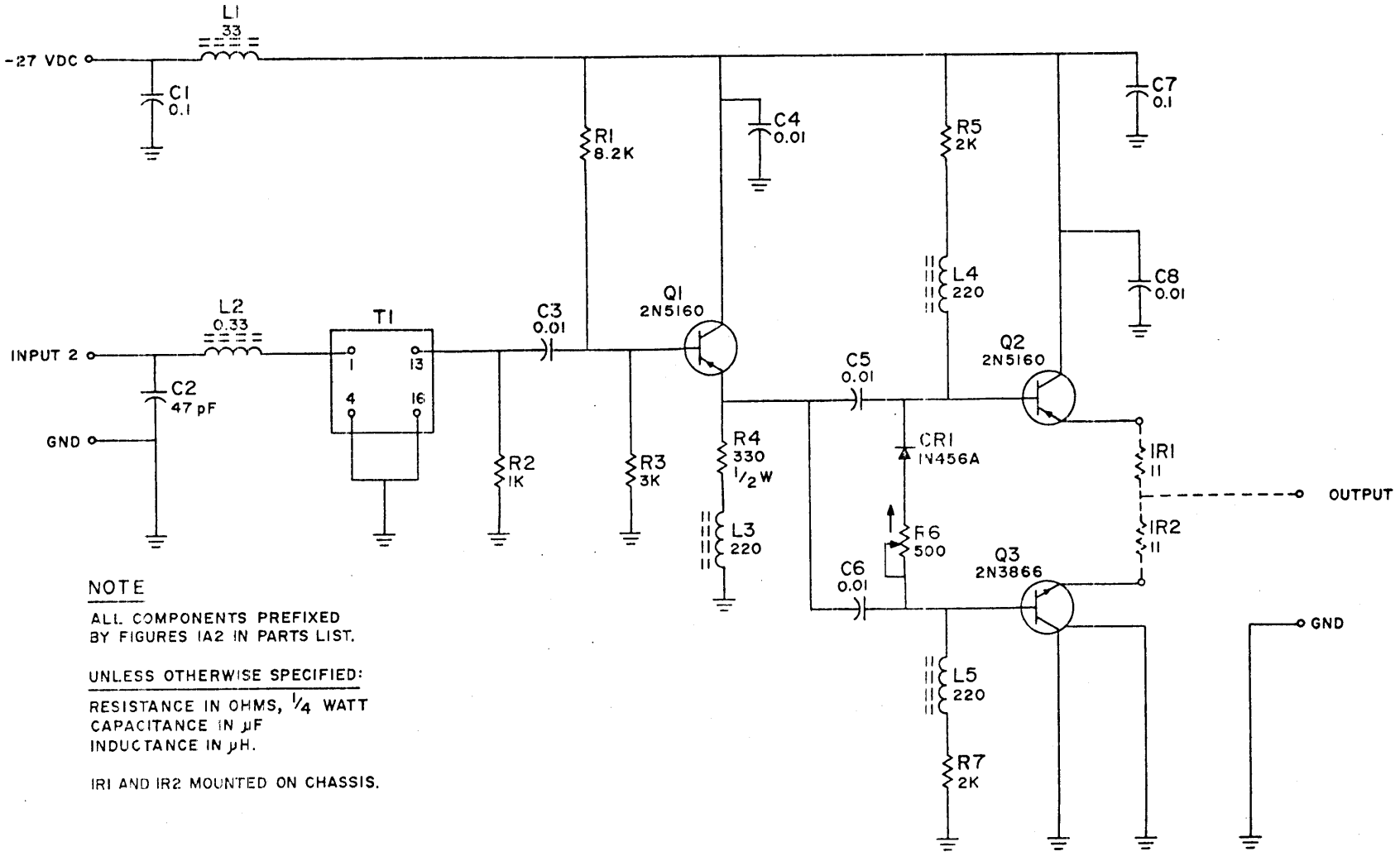

FIGURE 7-3 PREAMPLIFIER SCHEMATIC, (1A2)

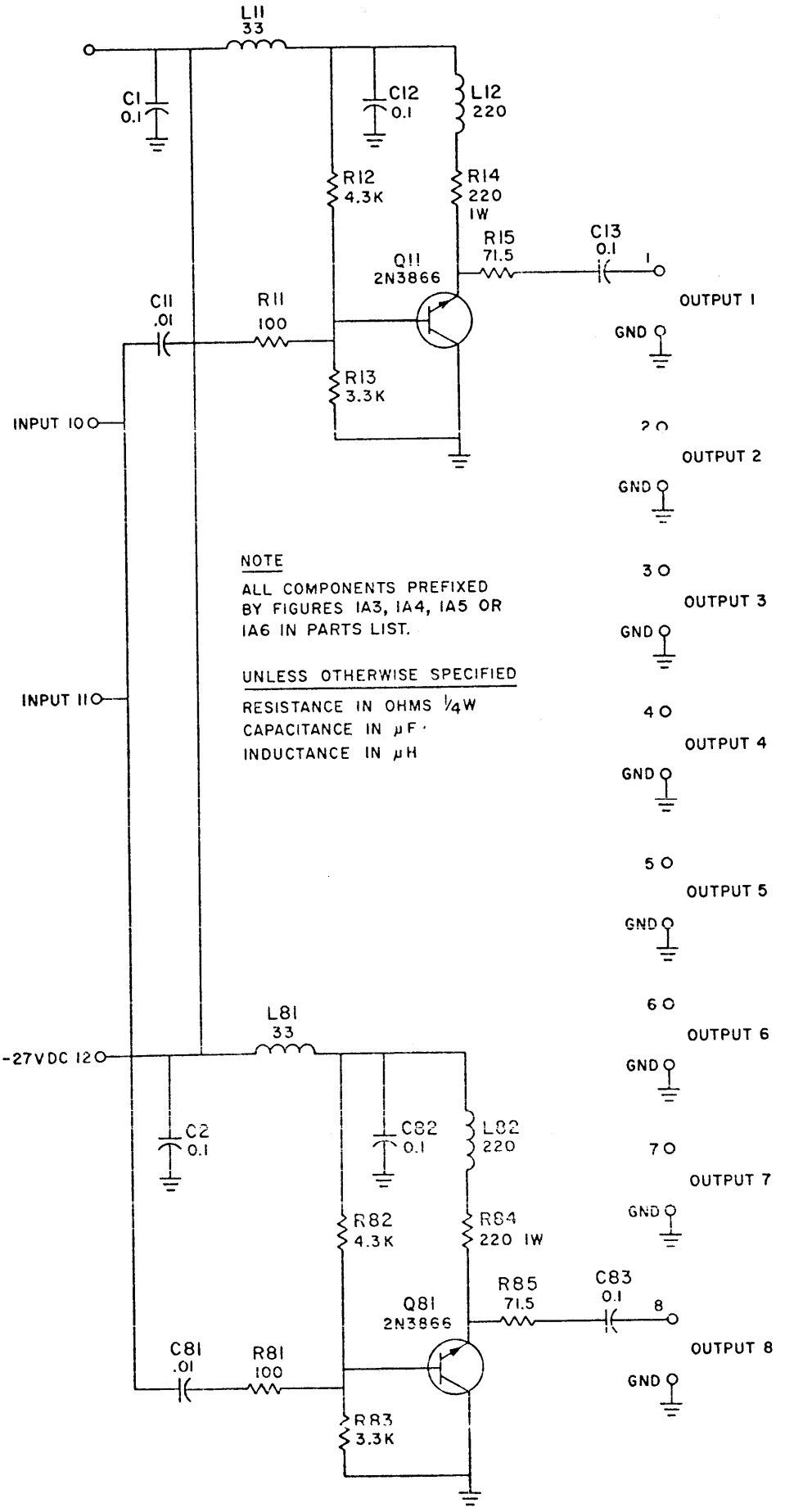

FIGURE 7-4 8 OUTPUT SCHEMATIC (1A3) (1A4) (1A5) (1A6)