

***INSTRUCTION MANUAL***

**MODEL AM-5**

**AM BROADCAST TRANSMITTER**

**MANUAL P/N 2184**

**REV. LEVEL \_\_\_\_\_**

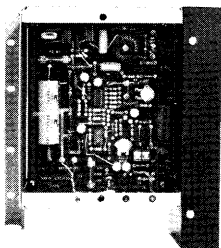
**LPB<sup>®</sup>**

LPB Inc.  
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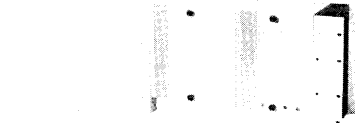
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# LPB<sup>®</sup>

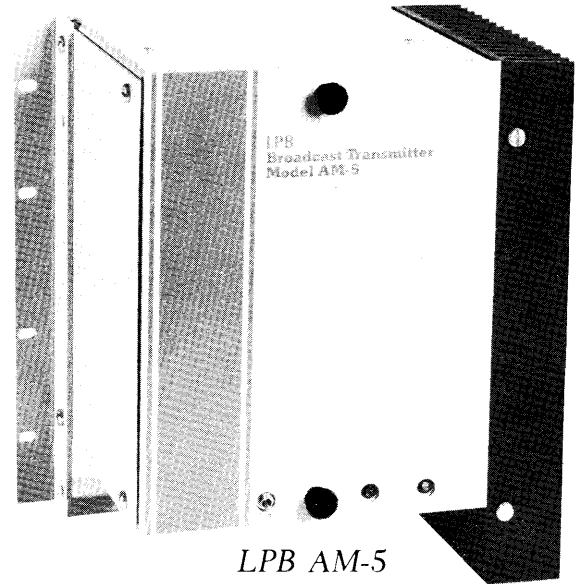
## MODEL AM-5 5 Watt AM Broadcast Transmitter



*AM-5  
with Front  
Cover removed*



*Model AM-5 with TCU-30  
in rack mount configuration*



LPB AM-5

The LPB AM-5 Transmitter is the result of over 20 years of internationally recognized low power AM broadcast experience. With over 800 units of solid-state design and more than 14,000 units of low power AM transmitters in the field, LPB continues to be the leader in low power AM technology.

The AM-5 Transmitter has been designed to be universal in its application. With its 50 ohm unbalanced RF output, it can readily interface with direct radiating systems employing impedance matched radiators. The companion TCU-30 Transmitter Coupling Unit is used with the AM-5 for carrier current installations and other applications utilizing non-standard radiating elements.

The AM-5 Transmitter is completely solid-state, using a balanced emitter output transistor pair which will withstand any output mismatch or short circuit condition. A high-stability crystal oscillator operates at six times the carrier frequency and utilizes digital count-down circuitry. A computer designed elliptic function output filter provides the highest degree of RF harmonic suppression.

Modulation level is indicated by a quick response LED peak flasher, set to illuminate at 100% peak positive modulation. This indicates true peak modulation of the transmitter and provides the means of maintaining maximum undistorted modulation of the signal for maximum possible listener "loudness."

RF power is monitored by a second LED which also serves as a "power on" indicator. RF output power is continuously variable from 1 watt through 5 watts, so that precise output power and coverage area may be chosen by the user. Compliance with Part 15 of the FCC's Rules and Regulations can, therefore, be readily achieved.

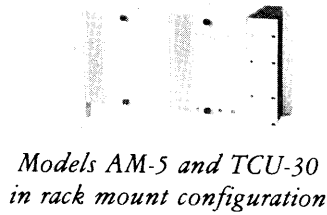
The AM-5 utilizes a modular installation technique in which the basic cabinet is one-half standard rack width. Thus, any two pieces of equipment in this series can be mated and mounted in a rack; or, for additional flexibility, the individual units in a system may be wall mounted in any convenient configuration.

The AM-5 Transmitter is a thoroughly professional unit whose specifications exceed most of those required of commercial AM transmitters, and is capable of providing reception exceeding commercial AM broadcast quality.

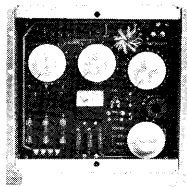
### AM-5 SPECIFICATIONS

R.F. Power Output	Adjustable, 1 to 5 watts (carrier)
R.F. Power Adjustment	Internal adjustment to prevent tampering
R.F. Power Indicator	Green LED, front panel mounted (Also serves as pilot light)
Type of Emission	30A3 (Amplitude Modulation)
Frequency Range	360 kHz to 2 MHz
R.F. Output Impedance	50 ohms unbalanced, SO-239 connector
Carrier Frequency Stability	$\pm .003\%$ , $-20$ to $+50$ °C, 105 to 128 VAC line ( $-8$ °F to $+124$ °F)
R.F. Harmonic Suppression	Greater than 45dB below carrier
Carrier Shift	Less than 3%, 0-100% modulation
Noise Level	Less than 50dB below 100% modulated carrier
Audio Input Impedance	Option 01: 10k balanced bridging, for connection across existing speaker lines Option 02: 600 $\Omega$ resistive; differential input Option 03: 600 $\Omega$ transformer balanced
Audio Input Level	Option 01: Connection to any amplifier capable of 1 to 100 watts output power (8 $\Omega$ rating) will provide adequate level for 100% modulation Option 02 & 03: $-15$ dBm minimum, $+15$ dBm maximum
Audio Frequency Response	20 Hz to 15 kHz $\pm 1.0$ dB
Audio Distortion	Less than 2% @ 100% modulation
Modulation Indicator	Red LED peak flasher mounted on front panel
Modulation Control	Internal adjustment to prevent tampering
A.C. Power Input	117 VAC, 50/60 Hz @ 25 watts
Size	10.5" H, 7" D, 8.75" H.
Mounting	Wall mount or rack mount with TCU-30 transmitter coupling unit

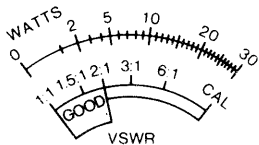
# LPB<sup>®</sup> MODEL TCU-30 *Transmitter Coupling Unit*



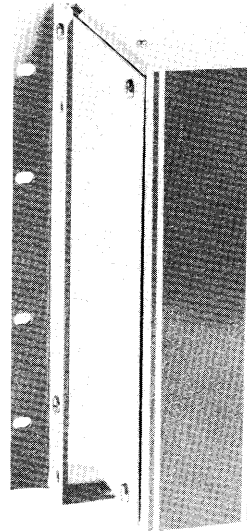
*Models AM-5 and TCU-30  
in rack mount configuration*



*TCU-30,  
Front Cover  
removed*



*TCU-30  
Meter  
Detail*



LPB  
Transmitter Coupling Unit  
Model TCU-30

*LPB TCU-30*

The LPB Model TCU-30 Transmitter Coupling Unit, required when coupling an AM transmitter into a non-impedance matched inductive radiator, such as electrical power wiring systems or other distributed wiring systems is the third generation result of over 20 years experience and product development in carrier current technology.

All functions required for optimum coupling (matching) into single or 3-phase power systems are provided in the TCU-30, and include power line inductance correction, impedance selection, power line isolation, and complete metering.

The TCU-30 has been specifically designed to eliminate internal toroid heating, one of the major causes of coupling unit failure which has plagued all previous designs up to the present. Other innovations include extremely broad impedance matching selection (21 steps), calibrated transmitter power output meter, and direct reading VSWR scale which allow accurate measurements of power and VSWR from only one watt to the rated maximum output of 30 watts.

A modular installation technique is utilized which allows any two units in this equipment series to be rack mounted, or for additional flexibility, the individual units may be wall mounted in any convenient configuration.

## TCU-30 SPECIFICATIONS

Power Input ..... 30 watts RMS, continuous  
Input Impedance ..... 50 ohms, unbalanced

Output Impedance ..... 0.5 ohms to 65 ohms (1:1 VSWR)  
..... 0.2 ohms to 130 ohms (2:1 VSWR)  
Output Impedance Selection ..... 21 steps  
Frequency Range ..... 530 kHz to 1610 kHz  
Inductance Correction ..... 100 pf to 10,900 pf in 109 steps  
Matching Circuit ..... 2 stage toroidal, bifilar  
and penta-filar wound  
Input Connection ..... SO-239 coaxial connector  
Output Connection ..... Screw-terminal barrier strip  
AC Line Connection (output) 850 VAC line to line (1400 VAC optional)  
425 VAC line to ground (700 VAC optional)  
Metering ..... Transmitter power output (0-30 watts)  
Voltage Standing Wave Ratio (1:1 to 6:1)  
Dummy Load ..... 50 ohms, non-inductive  
Controls ..... 21 position impedance selector  
Inductance correction, 2 capacitor decade selectors, capacitance  
decade IN-OUT SWR calibration  
Function switch: Power, Calibrate, Test (Match), Operate  
Minimum Power Input  
for accurate matching ..... 1 watt  
Size ..... 10.5" H, 7" D, 8.75" W.  
Mounting ..... Wall mount or rack mount with AM-5 transmitter

INSTRUCTION MANUAL  
LPB MODEL AM-5  
5 WATT AM BROADCAST TRANSMITTER

## 1.0 INTRODUCTION

The LPB Model AM-5 5 Watt AM Broadcast Transmitter is the result of over 20 years of nationally recognized low power AM broadcast experience. The design of the AM-5 is based on the field-proven LPB Model TX2-20 AM Transmitter. The AM-5 is a thoroughly professional unit whose specifications meet or exceed those required by Part 15 of the FCC Rules and Regulations and is capable of providing reception exceeding commercial AM broadcast quality.

The AM-5 Transmitter is completely solid state and adjustable from 1 to 5 watts output power. This variable power output feature allows flexibility in the system design, as well as providing exact adjustment of output power for your specific application.

## 2.0 GUARANTEE AND SERVICE INFORMATION

### 2.1 GUARANTEE

Upon receipt of this equipment, we guarantee that you will find the appearance, workmanship, and standards of material and construction in keeping with the application and with good standards of commercial practice.

For a period of one year from date of delivery, we guarantee this equipment against any form of failure, provided that, in the opinion of the manufacturer, no improper use of, or modification to, this equipment is at fault. The validity of this guarantee also requires that this transmitter be properly matched to the radiating element(s) of the system. During this period we will furnish materials and labor in our shops to correct any failure. This guarantee is voided if the three wire grounded AC power cord is removed or modified in any manner. Shipping charges will be the responsibility of the customer.

After the expiration of this warranty, service will continue to be available from LPB at a nominal cost.

### 2.2 SERVICE

This unit was designed for optimum results and minimum failures. If any problem or question should arise, please call or write the LPB Service Department immediately. Identification of the unit should include the model number, serial number and operating frequency.

The complex circuitry of this equipment is, in general, NOT USER SERVICEABLE. If any malfunction arises or is suspected, we urge your return of the equipment to the factory for proper and thorough repairs.

If need for service arises, CONTACT THE MANUFACTURER for permission to return and for shipping instructions BEFORE shipping. A Material Return Authorization number must be attached to the equipment before it will be accepted by the LPB Service Department for repair.

The services and experience of LPB engineers are always available to customers for assistance in the proper application of this and related equipment.

NOTE: It cannot be stressed too highly that any modification or adjustments other than those specified in the instructions will only result in degradation of the signal or destruction of the transmitter.

### 3.0 APPLICABLE FCC REGULATIONS

#### WARNING

Radiation from this equipment is regulated by Parts 2 & 15 of the Rules and Regulations of the Federal Communications Commission, and they are enforced. This transmitter has been designed according to Parts 2 & 15 of the FCC Rules & Regulations and meets all FCC Regulations for "low power communication device" applications. No changes are permissible which affect the operational characteristics of this equipment.

### 4.0 CIRCUIT DESCRIPTION

Although we do not recommend repairs of the AM-5 transmitter be attempted by the user, the following circuit description is presented to provide the interested reader with the basic theory of operation of the AM-5 circuitry.

If a problem arises with the transmitter, this section should assist in isolating the problem to a specific stage or stages. Also refer to the troubleshooting guide in Section 7.0 in case of difficulties.

Following the brief summary in Section 4.1, a more detailed discussion is given with references made to specific components. Refer to the schematics in this manual while reading this detailed discussion.

#### 4.1 SUMMARY (Refer to Figure 1)

The AM-5 transmitter uses modern integrated circuit techniques to generate a high-stability signal at six times the desired carrier frequency. Digital countdown circuits produce a carrier frequency which is AM modulated at a low power level. A linear RF power amplifier then increases the output to 5 watts maximum carrier power output. Taking advantage of the characteristics of the linear RF power amplifier, this output is variable downwards from maximum.

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A front panel mounted red LED indicates peak audio levels corresponding to 100% modulation of the carrier. RF power is monitored by a green LED which also serves as a "power-on" indicator.

#### 4.2 POWER SUPPLY (Refer to Figure 2)

The low voltage secondary of the power transformer (T1) feeds a standard full-wave bridge circuit (D1 thru D4). A series pass transistor (Q1) is used for increased regulation and ripple rejection. Both primary and B+ fusing (F1 and F2 respectively) are employed for protection.

#### 4.3 AUDIO (Refer to Figures 3 and 3a)

The audio section of the AM-5 transmitter utilizes one of the three optional input circuits as shown in Figure 3a. In all cases, the audio is fed differentially to the audio amplifier portion of A4. The modulation level is controlled by the audio gain control R29. The output of the amplifier section of A4 feeds the balanced modulator IC (A3) directly and also the second section of A4. This second section of A4 is operated as a comparator, and its output drives the peak audio LED (PL1) through transistor switch Q4. Potentiometer R36 is used to adjust the firing point of PL1 to correspond to 100% modulation of the carrier.

The modulator IC (A3) performs the amplitude modulation function and, since there are no transformers involved, low distortion and flat response are easily obtainable. Both the modulator IC and audio amplifier are fed from a zener regulated, decoupled source consisting of D6, R25, C16 and C17. This enhances the stability characteristics of the audio stage.

#### 4.4 OSCILLATOR (Refer to Figure 3)

The oscillator in the AM-5 employs the latest state-of-the-art design. The crystal (X1) is a high-stability, high-frequency crystal, and the oscillator itself is a single IC (A1). The oscillator runs at six times the carrier frequency. The output of A1 is fed directly to the input of a divide-by-six counter (A2). The output of A2 is a square wave at the carrier frequency and is applied to the modulator IC (A3). Both A1 and A2 are fed from a zener regulated, decoupled source consisting of D5, R2, C5 and C6. This regulation maintains the stability characteristics of crystal operation over wide variations of operating conditions.

#### 4.5 DRIVER AMPLIFIER (Refer to Figure 3)

The output of the modulator IC (A3) is connected to the driver amplifier consisting of an emitter follower stage (Q2) feeding a Class A power stage (Q3). A drive control (R18) is employed in the driver amplifier to adjust the output power of the transmitter.

#### 4.6 POWER AMPLIFIER (Refer to Figure 4)

The power amplifier utilizes a matched pair of balanced emitter transistors (Q5 and Q6). For AM amplification, bias must be supplied for linearity. This operating bias is developed through the use of a series regulated bias supply whose main components are Q7 and Q8. The base-emitter junction of Q7 acts as a temperature compensation diode to maintain nearly constant bias current (and, hence, linearity) over the operating temperature range of Q5 and Q6. Since this stage is push-pull and the transistors are matched, a high degree of second harmonic rejection is achieved. To reject higher order harmonics, an elliptic-function filter (C32 through C36, L4 and L5) is connected between the output of the power amplifier and the RF output connector. The RF output is also sampled at the input of the elliptic filter by R42 and PL2. PL2 (a green LED) is front panel mounted and serves as a power on as well as RF indicator.

### 5.0 AM-5 INSTALLATION

#### 5.1 LOCATION AND MOUNTING

The AM-5 utilizes a modular installation technique in which the basic cabinet is one-half standard rack width. This allows any two units of equipment in this series to be mated and mounted in a rack or, for additional flexibility, the individual units in a system may be wall mounted in any convenient configuration.

Wall mounting of the AM-5 can be accomplished by fastening the angle mounting bracket to the rear of the non-heatsink side of the cabinet. The side with oval-shaped holes should be mounted against the wall. The flat mounting bracket is attached to the rear of the heatsink, again with the oval-shaped holes mounted against the wall.

Wall mounting of the TCU-30 cabinet involves mounting angle brackets at each rear edge of the cabinet. The oval-shaped holes are available to the user for the purpose of mounting the cabinet against a wall.

Two AM-5's may be joined together to form a rack mounting unit by first placing the AM-5's side by side. Then connect the units at the rear with the flat mounting bracket attached between the heatsink of one AM-5, and the rear of the non-heatsink side of the other AM-5. To install the front mounting brackets, install a flat bracket on the front of the heatsink of the right AM-5. An angle bracket is then installed on the front of the non-heatsink side of the left AM-5.

An AM-5 may be joined with a TCU-30 cabinet to form a rack mounting unit. In this case, the AM-5 must be to the right of the TCU-30 (as viewed from the front). Remove both side panels from the TCU-30. Remove the hardware from the side panel of the AM-5 but keep the panel in place. Fasten the TCU-30 cabinet to the AM-5 on the non-heatsink side of the AM-5. The side panel must remain on the AM-5 for shielding purposes.

Install the flat bracket on the front of the AM-5 heatsink. Replace the side panel on the TCU-30 cabinet and install the angle bracket at the front edge of the cabinet. In both cases, the oval holes must be left available for rack mounting hardware.

Reliable transmitter operation is directly dependent upon proper transmitter cooling. For this reason, a location for mounting the AM-5 should be chosen which will allow free air movement around and through the heatsink. The bottom of the heatsink must not be obstructed by any material.

If the AM-5 is mounted in an area where the ambient temperature will exceed 120°F (48°C), it is recommended that some form of forced air cooling be provided for the transmitter. The AM-5 must not be exposed to or operated in the rain, as this will present a shock and fire hazard.

For operation under adverse conditions, we suggest you contact LPB for specific recommendations for your application.

## 5.2 INTERFACING THE TRANSMITTER

(A) AC Power - The AM-5 requires 117 VAC, 50/60 Hz single phase power at approximately 25 watts. A 5 foot, 3 conductor line cord with standard moulded plug is supplied with the transmitter to facilitate connection to the AC mains.

(B) Audio - The audio input impedance and level are dependent upon the option chosen as mentioned on the specification sheet and section 4.3 of this manual. The various options are summarized below:

(i) OPTION 01 - The audio input impedance is 10k ohm balanced bridging and is primarily intended for those applications where the audio feed for the transmitter is taken across existing speaker lines on a public address amplifier. Sufficient levels occur when the existing amplifier is capable of providing 1 to 100 watts output power into an 8 ohm load.

(ii) OPTION 02 - Using this option, the audio input impedance is 600 ohms resistive utilizing a transformerless differential input scheme. The range of levels that can be accommodated with this option is -15 dBm to +15 dBm.

(iii) OPTION 03 - The audio input impedance with this option is 600 ohms transformer balanced. The range of permissible input levels is -15 dBm to +15 dBm.

(C) RF Output - The RF output impedance of the AM-5 transmitter is 50 ohms unbalanced. Depending upon the actual application the AM-5 is being used for, the RF output will be connected either directly to the radiating element(s) of the system (such as when the AM-5 is used with a 50 ohm leaky coaxial cable) or through a matching network (such as the TCU-30) when the AM-5 is used with a non-impedance matched reactive radiator (such as electrical power wiring systems or other distributed wiring systems).



Please see the APPLICATIONS section of this manual for specific discussions of various systems.

## 6.0 OPERATING INSTRUCTIONS

1. Ensure that the AC power, audio input, and RF output connections are made in accordance with and within the limits of Section 5.2 of this manual.
2. The audio gain control (R29) and the RF drive control (R18) should be set to their minimum positions (full CCW).
3. Turn the transmitter on by placing the power switch S1 in the up position.
4. Advance the RF drive control clockwise. The green LED (PL2) should begin to glow indicating the presence of RF. When the drive control is at its maximum clockwise position, the power output will be 5 watts (carrier) and the LED will be at full brilliance.
5. To set modulation, adjust the audio gain control (R29) so that the red LED (PL1 peak audio) flashes occasionally on the loudest portions of program material present on the audio input terminals. This LED (PL1) has been adjusted at the factory to fire when 100% peak modulation of the carrier is reached. Adjustment of the audio gain control according to these instructions will allow the user to obtain the maximum undistorted modulation of the carrier for the maximum possible listener "loudness."
6. Once modulation level is set, the output power should be adjusted to ensure compliance with the applicable sections of the FCC Rules and Regulations.
7. A reception check should be made to verify proper operation of the entire system. Once proper operation has been confirmed, no further adjustments are required.

## 7.0 TROUBLESHOOTING GUIDE

PROBLEM:	POSSIBLE CAUSE:
1. Green LED (PL2) does not light	RF drive control at minimum No power on AC mains AM-5 not plugged in Blown fuse F1 and/or F2
2. No RF output indication when drive control is advanced	Blown fuse F1 and/or F2 Drive control set at minimum Crystal not seated properly Defective oscillator IC, divide-by-six IC and/or modulator IC



PROBLEM:	POSSIBLE CAUSE:
3. Green LED (PL2) appears excessively bright and/or F2 blows after a short period of operation	Open RF output cable Bad mismatch to load
4. No signal is heard on monitor, PL2 is illuminated	Shorted output cable
5. No modulation indication with RF output OK (unmodulated carrier is heard on a monitor)	Audio input cable disconnected Break in audio input cable from source Audio gain control set at minimum Defective audio amp. IC (A4)
6. Audio distortion heard on receiver	Audio gain control misadjusted

## 8.0 MAINTENANCE

While the AM-5 has been designed to provide trouble-free service, we recommend periodic checks of the transmitter and associated system components to maximize the life of the equipment.

Modulation level should be checked at regular intervals. Overmodulation can cause clipping in the RF amplifier stages and will cause splatter and excessive harmonic radiation as well as possible damage to the output transistors. Low modulation levels should also be avoided as the program information could possibly be lost in the noise level of the transmission and listening environments.

A reception check should be made on the system regularly while the system is operating to detect problems and/or failures and to minimize the down-time of the system.

## 9.0 APPLICATIONS

The AM-5 has the flexibility to be universal in its application. Some of the more common uses of the AM-5 are described below to acquaint the user with versatility of this equipment. A complete discussion of limited area broadcasting techniques can be found in our Tech Note #1A.

### 9.1 CARRIER CURRENT BROADCASTING

This is most often associated with colleges whereby the AC wiring is used as the "antenna" system. In this configuration, a TCU-30 is used to match the RF impedance of the power system to the 50 ohm RF output impedance of the AM-5. Normally, the AM-5 will employ option - 03 so that the audio input impedance is 600 ohms transformer balanced.

## 9.2 DRIVE-IN THEATERS

In most cases, the field speaker wiring is used as the "antenna" and the TCU-30 is used to match the RF impedance of the speaker wiring to the AM-5 RF output. If the field wiring is in poor repair or if the theater is just being constructed, a leaky coaxial cable system may be used as the "antenna." In this case, no TCU-30 is necessary as the leaky coax system presents a 50 ohm RF impedance to the AM-5 directly.

A "theater control unit" is recommended for the drive-in theater installation. The audio input impedance of the AM-5 is 600 ohms transformer balanced (option -03).

## 9.3 CHURCHES

An application to assist the hard-of hearing. Usually these systems employ the leaky coax "antenna" placed around the ceiling of the area in which radio coverage is desired. Because of the use of leaky coax, a TCU-30 is not required. The audio input to the AM-5 is taken from the speaker terminals of the existing sound reinforcement system amplifier. The audio input impedance of the AM-5 in this circumstance is 10K ohms balanced bridging (option -01). Model AM-5CL is designed specifically for church use.

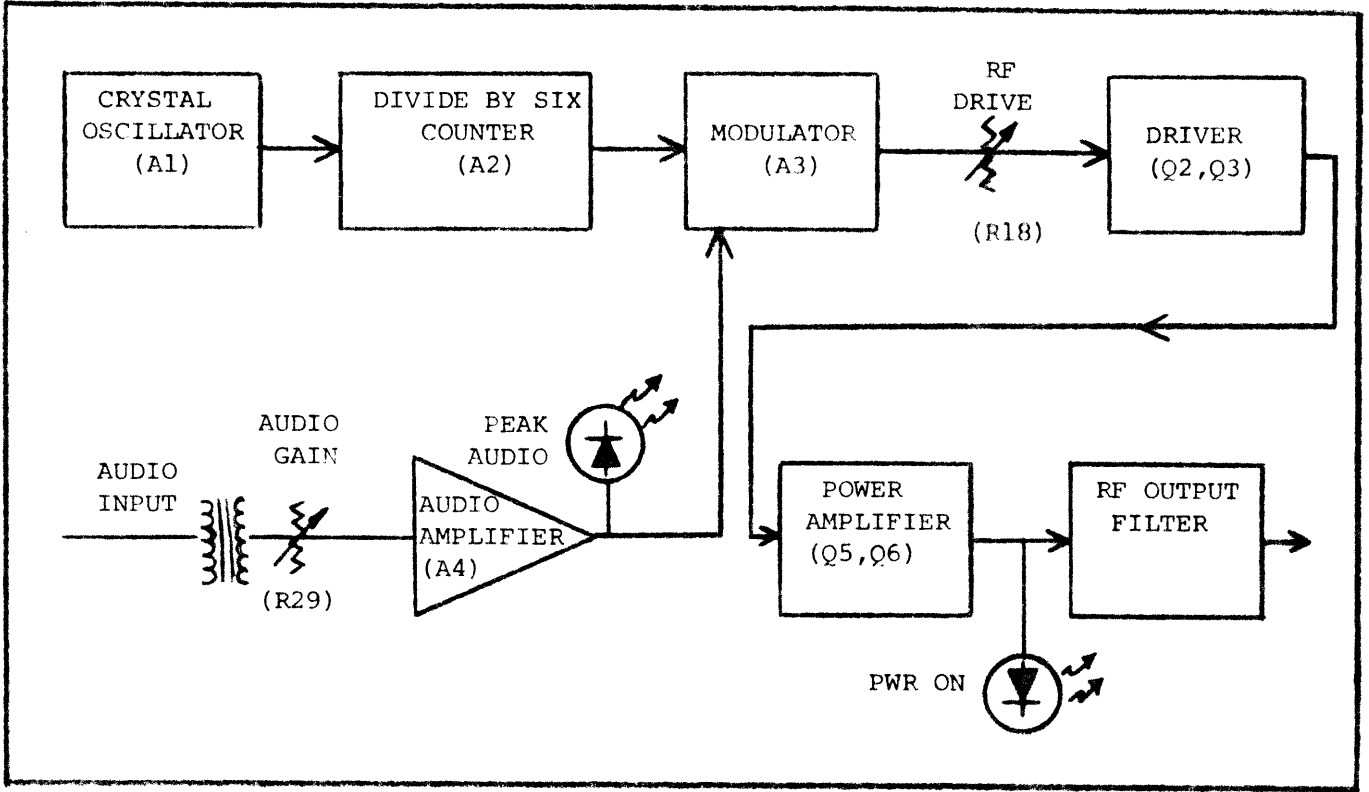
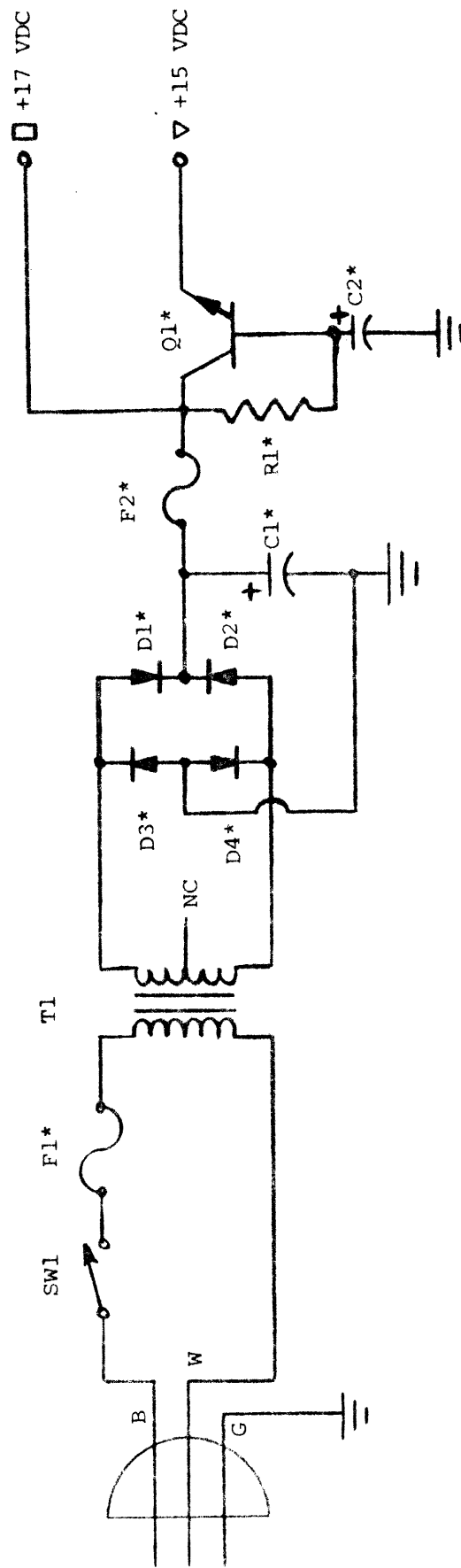


FIGURE 1. BLOCK DIAGRAM, AM-5 TRANSMITTER



NOTE: \* indicates components mounted on exciter board

FIGURE 2. POWER SUPPLY, AM-5 TRANSMITTER

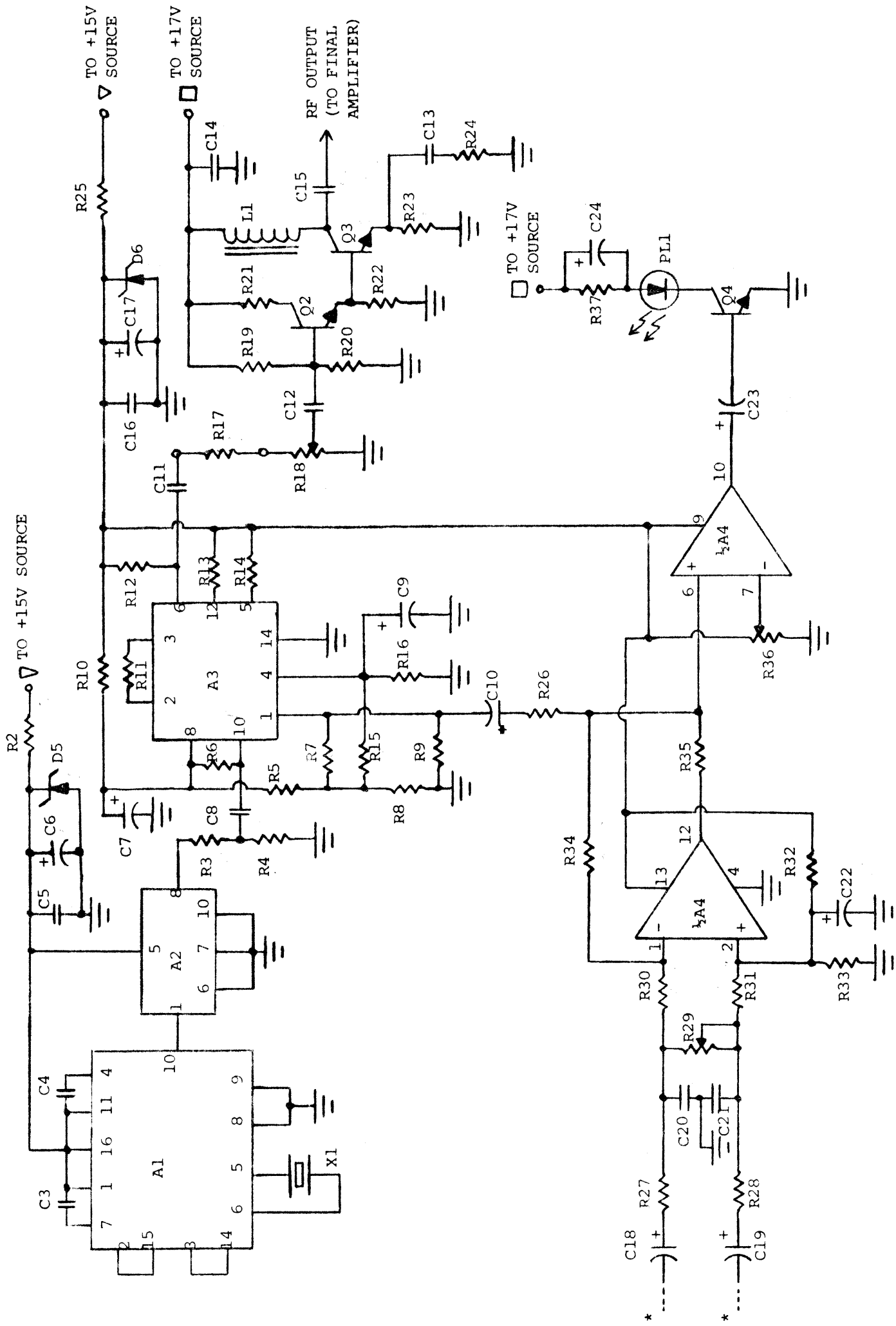
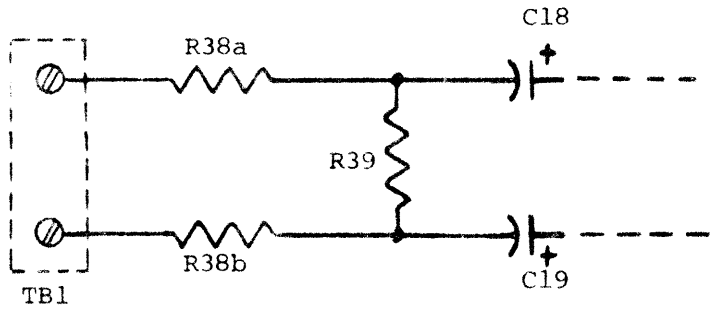
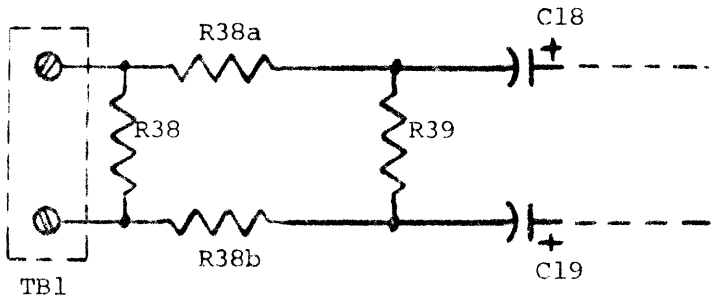


FIGURE 3. EXCITER, AM-5 TRANSMITTER

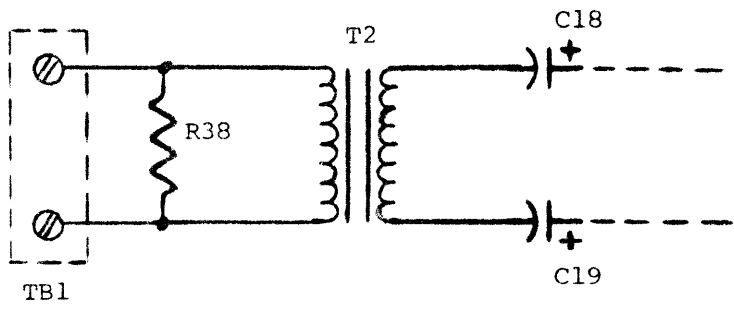
\* NOTE: For various audio input options, see Figure 3a



OPTION 01: 10K ohm Balanced Bridging Input



OPTION 02: 600 ohm Resistive Differential Input



OPTION 03: 600 ohm Transformer Balanced Input

FIGURE 3a. AUDIO INPUT OPTIONS, AM-5 TRANSMITTER

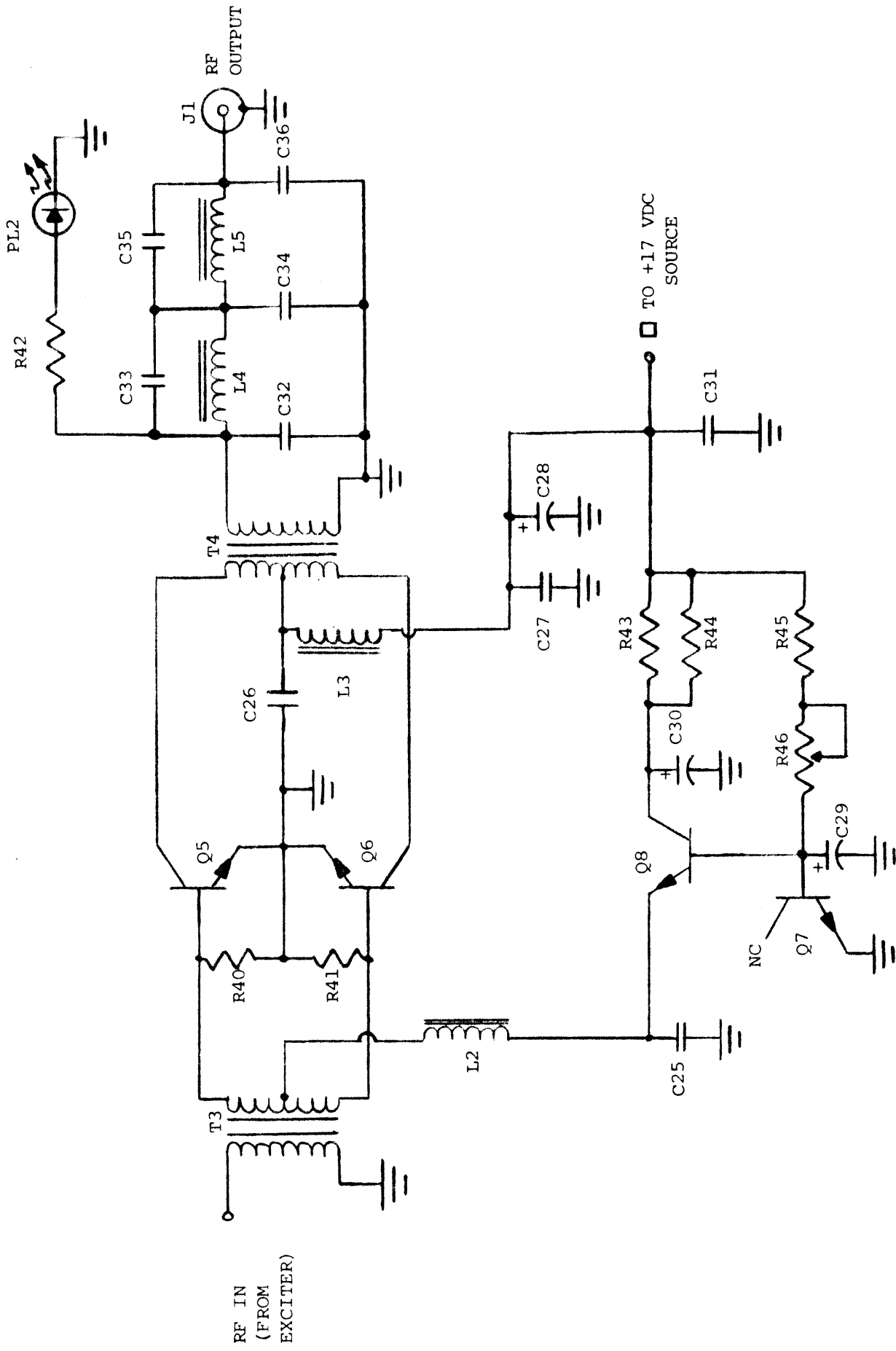


FIGURE 4. FINAL AMPLIFIER, AM-5 TRANSMITTER



AM-5 TRANSMITTER  
PARTS LIST

<u>SYMBOL</u>	<u>DESCRIPTION</u>	<u>MFR &amp; PART NO.</u>
R1	RESISTOR, 220 ohm, 1/2 watt, 5%	
R2	100 ohm, 2 watt	
R3	820 ohm, 1/2 watt	
R4	1K ohm	
R5	820 ohm	
R6	47 ohm	
R7	100 ohm	
R8	1K ohm	
R9	47K ohm	
R10	1.3K ohm	
R11	1K ohm	
R12	3K ohm	
R13	3K ohm	
R14	10K ohm	
R15	100 ohm	
R16	1.8K ohm	
R17	Factory Select	
R18	TRIMPOT, 10K ohm, horizontal mounting	Piher PT15YD10K
R19	RESISTOR, 10K ohm, 1/2 watt, 5%	
R20	4.7K ohm	
R21	470 ohm	
R22	470 ohm	
R23	51 ohm, 2 watt	
R24	3.3 ohm, 1/2 watt	
R25	100 ohm	
R26	620 ohm	
R27	10K ohm	
R28	10K ohm	
R29	TRIMPOT, 10K ohm, horizontal mounting	Piher PT15YD10K
R30	RESISTOR, 3.3K ohm, 1/2 watt, 5%	
R31	3.3K ohm	
R32	680K ohm	
R33	680K ohm	
R34	330K ohm	
R35	100 ohm	
R36	TRIMPOT, 10K ohm, vertical mounting	Piher PT15YB10K
R37	RESISTOR, 1K ohm, 1/2 watt, 5%	
R38	620 ohm	
R39	(Optional)	
R40	22 ohm	
R41	22 ohm	
R42	1K ohm	
R43	220 ohm, 2 watt	
R44	220 ohm, 2 watt	
R45	330 ohm, 1/2 watt	
R46	TRIMPOT, 10K ohm, vertical mounting	Piher PT15YB10K



AM-5 Transmitter  
Parts List - 2

<u>SYMBOL</u>	<u>DESCRIPTION</u>	<u>MFR &amp; PART NO.</u>
C1	CAPACITOR, 10,000 mfd, 25V electrolytic	Ill. Cap. 109TTA025B
C2	100 mfd, 25V electrolytic	Ill. Cap. 107RAR025B
C3	0.1 mfd, 50V disc	
C4	0.1 mfd, 50V disc	
C5	0.1 mfd, 50V disc	
C6	100 mfd, 25V electrolytic	Ill. Cap. 107RAR025B
C7	100 mfd, 25V electrolytic	Ill. Cap. 107RAR025B
C8	0.1 mfd, 50V disc	
C9	100 mfd, 25V electrolytic	Ill. Cap. 107RAR025B
C10	100 mfd, 25V electrolytic	Ill. Cap. 107RAR025B
C11	.001 mfd, 3kV disc	
C12	.001 mfd, 3kV disc	
C13	0.15 mfd, 10%, 100V mylar	Mallory PVC-1015
C14	0.33 mfd, 10% 100V mylar	Mallory PVC-1033
C15	0.1 mfd, 50V disc	
C16	0.1 mfd, 50V disc	
C17	100 mfd, 25V electrolytic	Ill. Cap. 107RAR025B
C18	1 mfd, 50V electrolytic	Ill. Cap. 105RAR050B
C19	1 mfd, 50V electrolytic	Ill. Cap. 105RAR050B
C20	.01 mfd, 100V disc	
C21	.01 mfd, 100V disc	
C22	2.2 mfd, 16V tantalum elect.	
C23	100 mfd, 25V electrolytic	Ill. Cap. 107RAR025B
C24	100 mfd, 25V electrolytic	Ill. Cap. 107RAR025B
C25	0.1 mfd, 50V disc	
C26	0.33 mfd, 10%, 100V mylar	Mallory PVC-1033
C27	0.1 mfd, 50V disc	
C28	2200 mfd, 35V electrolytic	Ill. Cap. 228TTA035A
C29	100 mfd, 25V electrolytic	Ill. Cap. 107RAR025B
C30	47 mfd, 35V electrolytic	Ill. Cap. 476RAR035A
C31	0.1 mfd, 50V disc	
C32- C36	500V, silver mica - frequency dependent	
L1	RF CHOKE, 10 turn toroid on CN-20 core	
L2	10 turn toroid on CN-20 core	
L3	10 turn toroid on CN-20 core	
L4	INDUCTOR, Factory Select on T94-2 core	
L5	Factory Select on T94-2 core	
T1	TRANSFORMER, POWER	Signal 241-7-12
T2	Audio Input	LPB 812
T3	RF Input on CN-20 core	
T4	RF Output on CN-20 core	
X1	CRYSTAL	

LPB

AM-5 Transmitter  
Parts List - 3

<u>SYMBOL</u>	<u>DESCRIPTION</u>	<u>MFR &amp; PART NO.</u>
Q1	TRANSISTOR, Medium Power	Motorola, MPS-U04
Q2	Small Signal	2N3904
Q3	Low Power RF	TI 2N2243A
Q4	Small Signal	2N3904
Q5,Q6	RF Power (matched pair)	SSM SD-1285
Q7	Plastic Power Darlington	2N6037
Q8	Plastic Power	2N5190
A1	INTEGRATED CIRCUIT, Oscillator	Motorola MC12061P
A2	Divide-by-six	7492PC
A3	Modulator	Motorola MC1496P
A4	Dual Audio Amplifier	National LM747CN
D1	DIODE, 3 amp, 400V	1N5404
D2	3 amp, 400V	1N5404
D3	3 amp, 400V	1N5404
D4	3 amp, 400V	1N5404
D5	ZENER, 5.1V, 1 watt	1N4733A
D6	12V, 1 watt	1N4742A
PL1	LED, Red	H-P 5082-4850
PL2	Green	Xciton XC-5059-G
SW1	SWITCH, AC Power	Am. Switch ST1-1
F1	FUSE, AC, 1/2 amp	Buss AGC 1/2
F2	B+, 3 amp	Buss AGC3

LFB