AMERITRON AL-80A

HIGH POWER LINEAR AMPLIFIER

INSTRUCTION MANUAL

The Ameritron AL-80A Linear Amplifier is designed for over 1000 Watts output SSB PEP (850 Watts output on CW) with high efficiency and total reliability. The AL-80A covers the amateur radio bands 160 through 15 meters. It also features wide frequency coverage for MARS and other services authorized to operate at high power.

The AL-80A uses an Eimac 3-500Z high-mu triode in a class AB_2 grounded grid circuit.

A built-in ALC circuit prevents the amplifier output from flat-topping if the exciter gain is inadvertantly set too high.

The AL-80A is factory wired for 117V, 50/60 Hz primary line voltage.

AMERITRON
DIVISION OF
PRIME INSTRUMENTS, INC.
9805 Walford Avenue • Cleveland, Ohio 44102

Printed in U.S.A.

F-1035

VENTILATION

The AL-80A ventilation system has been designed and tested to maintain tube seal temperatures safely below the tube manufacturer's rating when operated within our guidelines.

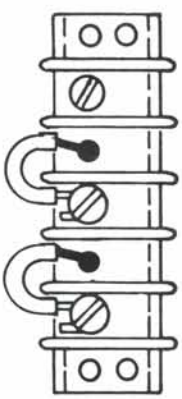
To insure proper ventilation in your installation, observe the following:

1. Do not block or restrict the ventilation holes in the cover.
2. The exhaust air flow is over 50 CFM. Do not "assist" the air flow unless the fan used exceeds the AL-80A blower CFM by a factor of 2:1.
3. Do not mount additional fans on the AL-80A cabinet.
4. The exhaust air will become quite warm at high power levels. Do not place any heat sensitive objects in the exhaust air stream.

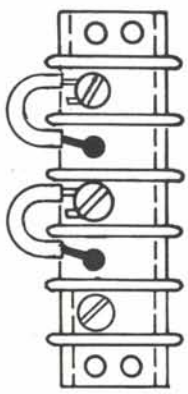
POWER CONNECTIONS

The AL-80A is supplied with a NEMA 5-15P plug for 117 VAC operation. The AL-80A can be modified for 234 VAC operation. If you desire to make this modification, two jumper wires must be moved to new locations on the terminal block. (see illustration below) The terminal block is located on the left side of the rear panel.

The wiring between the fuse box and the amplifier A.C. outlet must be No. 12 gauge or larger in order to supply the current required (15 amperes) without a significant drop in line voltage. The 117V outlet should be fused for 20 amperes.



117 VOLT OPERATION



234 VOLT OPERATION

ALC

Use a shielded audio-type cable to connect the 0-20 v negative ALC voltage to the transmitter ALC input. Cons the transmitter manual for proper connection details. T amplifier must be properly tuned on CW before adjusting t ALC.

Proper adjustment is achieved as follows:

1. Set the MULTIMETER switch to the PO position.
2. Set the transmitter audio control about 20% high than normal.
3. Speak into the microphone in a normal tone of voice and observe the reading on the 0-2000 R.F. Watts scale.
4. Adjust the ALC ADJ control on the rear panel until t amplifier is not clipping on an RF scope.
5. If an RF scope is not available, adjust the ALC control the audio peaks do not exceed the single tone output 1000 watts.

METERING FUNCTIONS

The AL-80A has two illuminated panel meters. The Grid C rent meter provides a continous reading of grid current. Th is an exclusive feature of Ameritron amplifiers. Grid curre will indicate proper operation of the amplifier better than a other parameter. Do not exceed 200 mA on this meter du ing operation of the amplifier. The other meter reads Pla Voltage (HV), Plate Current (Ip), Peak R.F. Watts (PO) a ALC. The functions are explained as follows:

PLATE VOLTAGE (HV): Read D.C. Plate Voltage on th 0-3500 Volt scale. This scale is 100 volts per division. No mal voltages are 3100 volts no load, 2700 volts full l

PLATE CURRENT (Ip): Read Plate Current on the 0-700 m scale. This scale is 20 mA per division. The averag operating current rating of the 3-500z is 400 mA maximu

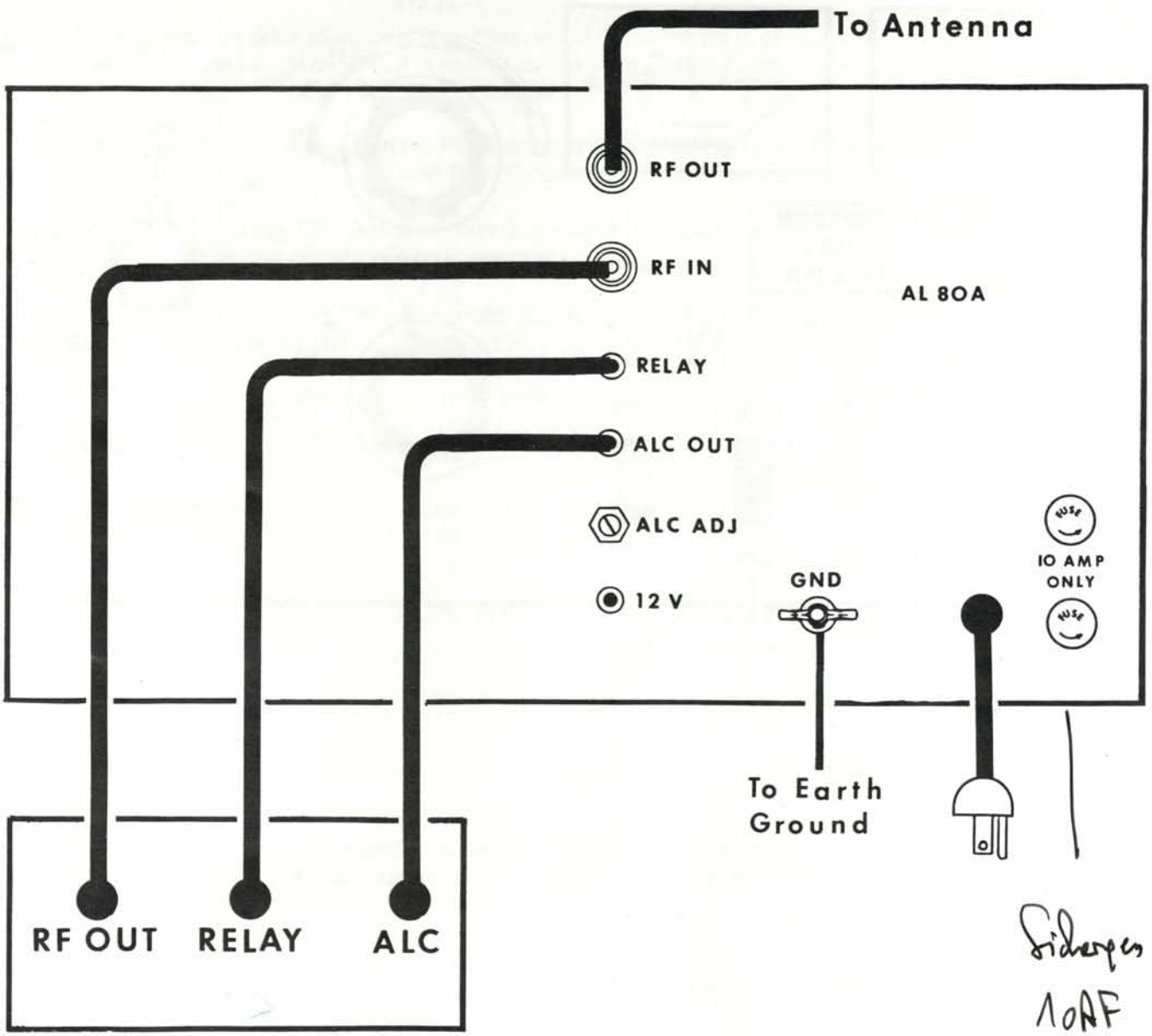
PEAK R.F. WATTS (PO): Read Peak R.F. Watts on th 0-2000 scale. The scale has 50 watt divisions below 10 watts and 100 watt divisions above 1000 watts.

ALC: In this position the meter indicates the ALC detect voltage. It provides a relative drive level indication of 2 watts full scale. The approximate drive level (average, r PEP) can be estimated by dividing the Peak R.F. Watts sca by 10.

IMPORTANT

Do not make any modifications to the AL-80A circuit before checking with our engineering staff. Improper changes may damage the AL-80A and void the warranty.

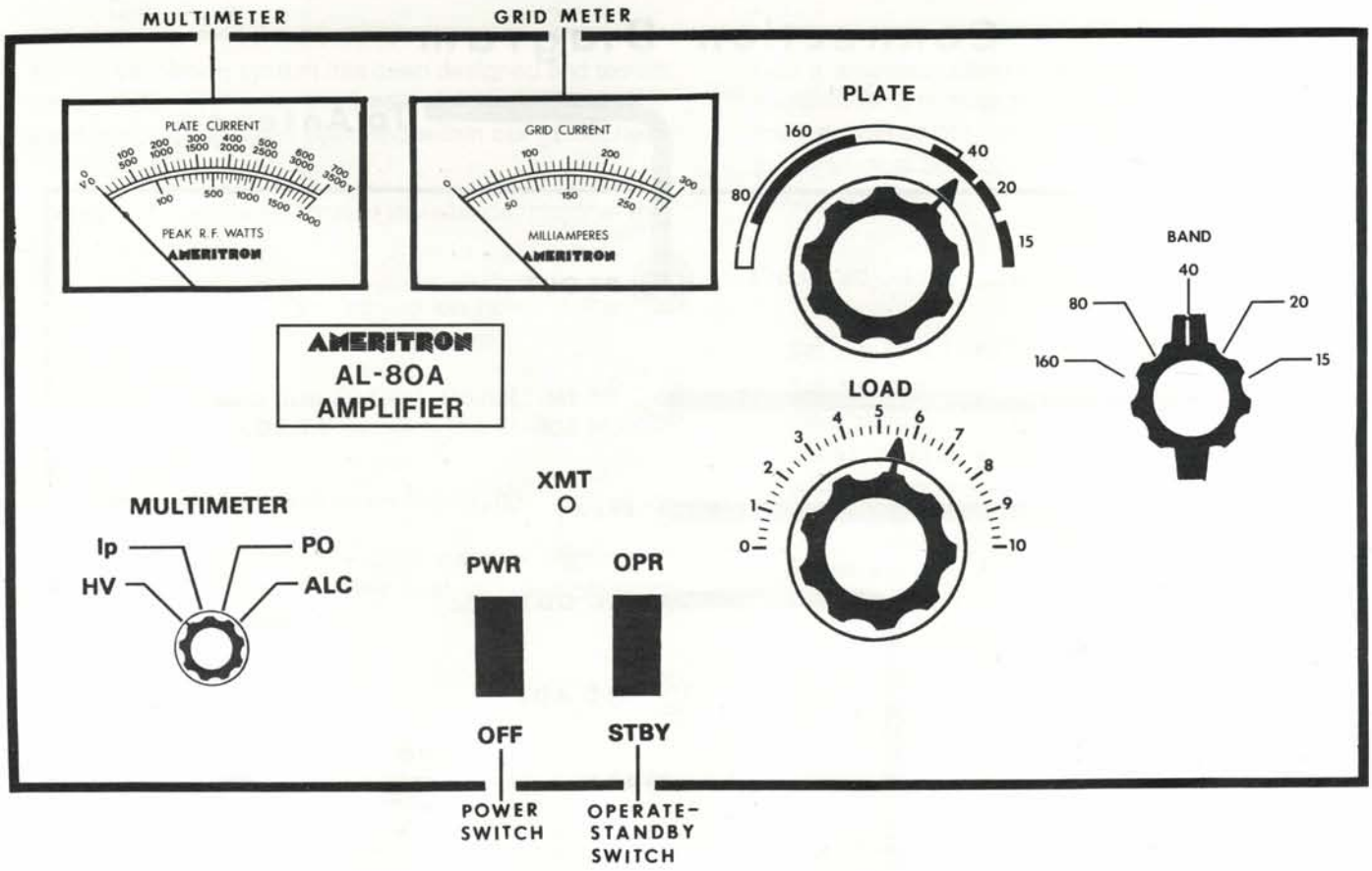
Connection Diagram



INSTALLATION

Connect the RF output of the transmitter to the RF IN connector on the rear of the AL-80A with 50 ohm coax. Connect the existing station antenna system to the RF OUT connector on the AL-80A with RG-8 type coax. Connect the RELAY phono jack on the rear of the AL-80A to the normally open terminals of the RELAY jack on the transmitter. The RELAY jack on the AL-80A has positive 12 VDC open circuit and provides 100 MA of current when pulled to ground. Connect as short a ground lead as possible from a good earth ground to the GND terminal.

The 12V connection on the rear panel provides 12 VDC at 100 MA maximum to operate external dial lamps or accessories.



TUNING INSTRUCTIONS

Follow the instructions in numerical order. If the various meter readings are different than indicated in the instructions, check the connections from the exciter to the amplifier and make sure they are correct. Consult the manual for the exciter if necessary.

1. Set the AL-80A front panel switches as follows:
   PWR - OFF to OFF
   OPR - STBY to STBY
   MULTIMETER to HV

2. Plug the A.C. line cord into the proper voltage outlet. The AL-80A is factory wired for 117VAC 50/60 Hz operation.

3. Set the PWR-OFF switch to PWR. The meter lamps should light and the blower should start. Read the 0-3500V scale on the multimeter. It should indicate 3100 volts nominal.

4. With the amplifier still on standby, tune the exciter into the normal 50 ohm load according to the manufacturer's instructions. Turn the exciter drive fully down after tuning.

5. Place the bandswitch on the same band as the exciter, the PLATE tuning control in the dial range for the band selected and the LOAD control at the recommended point for the band in use.

6. With the exciter drive still at zero, place the MULTIMETER switch in the Ip position. Observe the 0-700 mA scale. It should read zero. Place the STBY-OPR switch in the OPR position.

7. Key the exciter (no drive) and observe the plate current on the 0-700 mA scale. Plate current should now read between 50 mA and 100 mA.

8. Apply only enough drive to indicate a grid current of 50 mA or an Ip of no more than 200 mA. Tune the PLATE control for maximum grid current. It is normal for the plate current to dip at this point. If the grid current goes over 100 mA reduce the drive at once. Unkey the exciter.

9. Place the MULTIMETER switch in the PO position and observe the 0-2000 peak R.F. watts scale. Apply the same drive again and adjust the LOAD and PLATE controls for maximum output on the 0-2000 scale.

10. Increase the drive until 125mA of grid current is indicated. Adjust the LOAD and PLATE controls again for maximum output. The grid current will be lower now.

11. Advance the drive to 200 mA of grid current. Adjust the LOAD and PLATE controls for maximum output power. (Repeat this step twice.) The output should be around 1000 watts now with 100 watts of exciter power.

12. Apply enough drive to indicate either 1000 watts of output power or 200 mA of grid current. Re-peak the LOAD and PLATE controls. The grid current must not be over 200 mA, the plate current over 550mA or the output over 1200 watts.

13. In CW operation the drive power should be reduced until the plate current is 400 mA or less. For SSB operation the modulation crest should not exceed 400 mA plate current, 100 mA grid current or 1200 watts PEP output.

TUNING CHART (Typical)

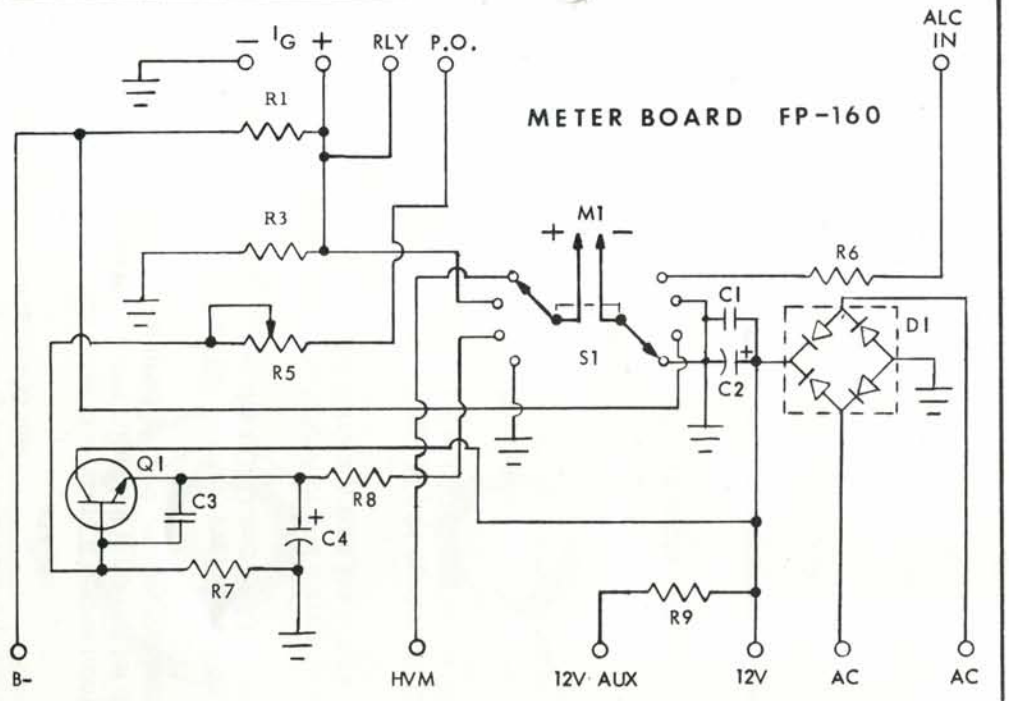
FREQUENCY	BANDSWITCH	PLATE CONTROL	LOAD CONTROL
1.85	160	160	4
3.5	80	80	1½
3.8	80	80	3½
7.2	40	40	5
14.2	20	20	5½
21.2	15	15	7½
*24.5	10	20	7
*28.7	10	15	8

* AL-80AX (export model)

The AL-80A will operate with full output on all WARC bands except 24.5 MHz. The AL-80AX (export model) will operate with full output on all WARC bands.

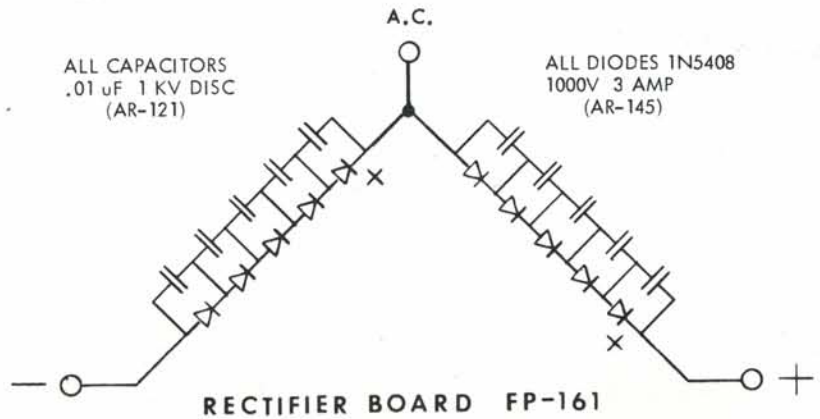
STANDARD FREQUENCY COVERAGE

AL-80A		AL-80AX	
160 meters	1.8-2.0 MHz	160 meters	1.8-2.0 MHz
80 meters	3.3-4.4 MHz	80 meters	3.3-4.4 MHz
40 meters	6.3-8.3 MHz	40 meters	6.3-8.3 MHz
20 meters	9.5-15.5 MHz	20 meters	9.5-15.5 MHz
15 meters	15.5-21.5 MHz	15 meters	15.5-21.5 MHz
		10 meters	24-29 MHz

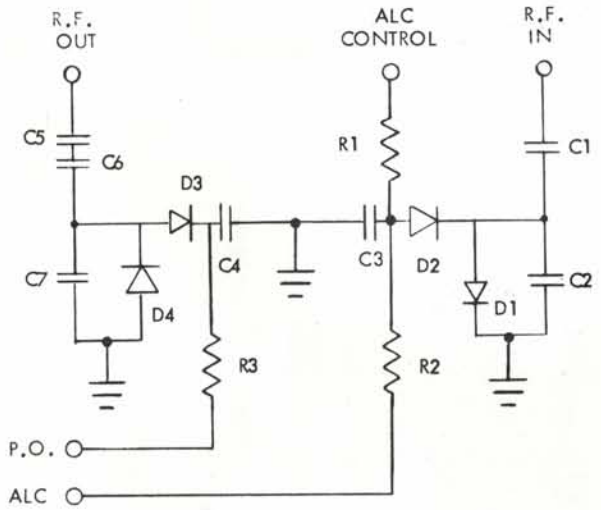


METER BOARD FP-160

D1	1.5 AMP 50V bridge	(AR-646)	R1,	.6 ohm 3W 1%	(AR-399)
C1, C3	.01 uf 50V disc	(AR-416)	R3,	1.5 ohm 3W 1%	(AR-400)
C2	1000 uf 25V	(AR-149)	R5	100 K ohm trimpot	(AR-534)
C4	10 uf 25V	(AR-642)	R6	33 K ohm 1/2 W 5%	(AR-644)
Q1	2N3904	(AR-645)	R7	15K ohm 1/2 W 5%	(AR-273)
S1	2-6 pos. rotary switch	(AR-563)	R8	10K ohm 1/2 W 5%	(AR-643)
			R9	10 ohm 1/2 W film type	(AR-595)

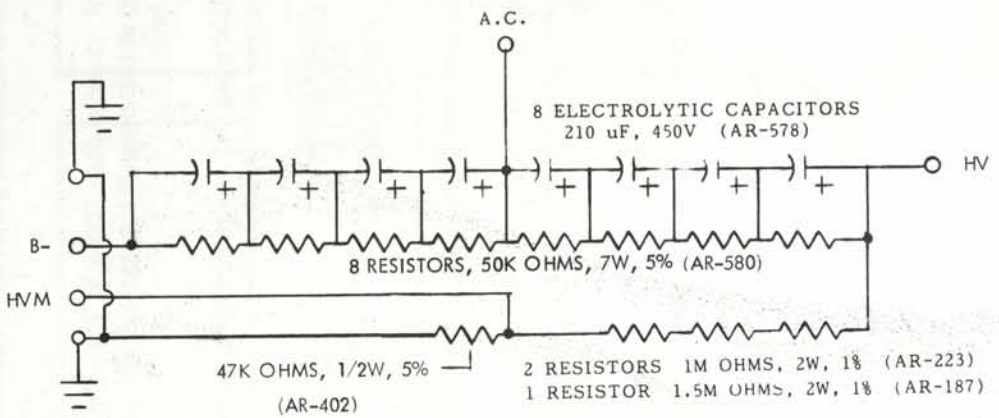


RECTIFIER BOARD FP-161

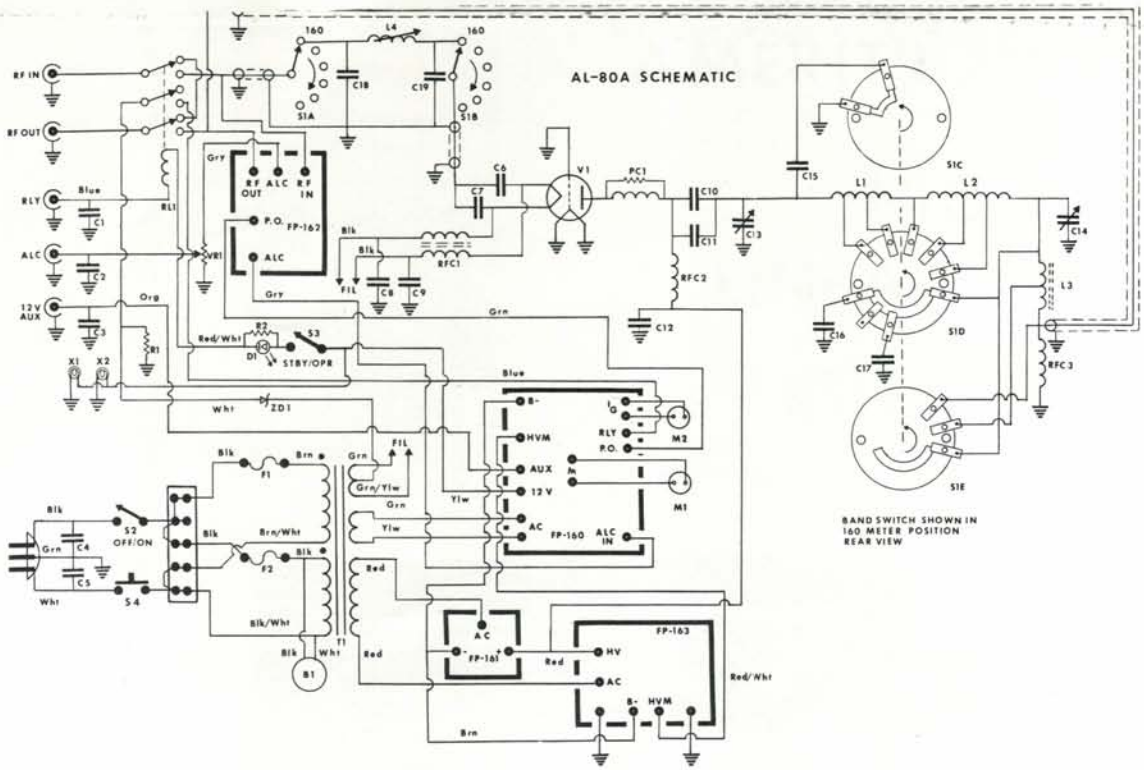


(AR-404)	C1	27 pf Silver Mica	(AR-346)	D1-D4	IN 34 or IN 118 Diode
(AR-396)	C2, C7	150 pf Silver Mica	(AR-402)	R1	47K ohm, 1/2 W, 5%
(AR-416)	C3, C4	.01 uf Disc Ceramic	(AR-384)	R2, R3	180 ohm, 1/2 W, 5%
(AR-531)	C5, C6	10 pf Silver Mica			

ALC/POWER BOARD FP-162



FILTER CAPACITOR BOARD FP-163



AL-80A Tuned Input Chart

Band	Input C18pf		L4		Output C19pf	
160	3300	(AR-690)	28t.	(FP-149)	2700	(AR-689)
80	1000	(AR-176)	21t.	(FP-150)	820	(AR-381)
40	500	(AR-691)	14½t.	(FP-151)	360	(AR-688)
20	220	(AR-175)	9½t.	(FP-152)	120	(AR-606)
15	150	(AR-396)	5½t.	(FP-153)	68	(AR-395)
10*	100	(AR-174)	3½t.	(FP-154)	27	(AR-404)

*Export models only

PARTS LIST

B 1	TA-450s Fan #A30390-10 (AR-138)
C 1,2,3	.01 uf 50V disc (AR-416)
C 4,5	.01 uf 1.4 KV disc (AR-122
C 6,7,8,9	.01 uf 1 KV disc (AR-121)
C 10,11,12	.001 uf 7.5 KV disc (AR-224)
C 13	Plate tuning 250 pf .075" spacing variable (AR-112)
C 14	Loading 800 pf 1.2 KV variable (AR-573)
C 15,17	170 pf N750,850 series doorknob (AR-559)
C 16	500 pf, 850 series doorknob (AR-412)
C 18,19	See input chart
D 1	Green L.E.D. (AR-523)
F 1,2	10 amp fuse 3AG (AR-150)
FP-160	Meter board assembly
FP-161	H.V. rectifier board assembly
FP-162	P.O./ALC detector board assembly
FP-163	H.V. filter capacitor board assembly
L 1	H.F. coil 8 ga. tin plated (FP-164)
L 2	L.F. coil 2" I.D. #12 airdux (AR-669)
L 3	"L" coil T 200-2 toroidal core (FP-165)
L 4	See input chart
M 1	Multimeter, 0-1 mA 420 ohm (AR-692)
M 2	Grid meter, 0-1 mA 450 ohm (AR-693)
PC 1	Parasitic choke and plate cap assembly (FP-
R 1	47K ohm, ½ watt carbon (AR-402)
R 2	33 ohm, ½ watt carbon (AR-403)
RFC 1	Filament choke (FP-115)
RFC 2	Plate Choke (FP-139)
RFC 3	Safety choke (AR-162)
RL 1	3 PDT 10A relay, 12 VDC (AR-139)
S 1	Bandswitch (AR-136-2)
S 2,3	Rocker switch (AR-147)
S 4	Interlock switch (AR-247)
T 1	Power transformer (AR-109-2)
V 1	3-500Z tube (AR-167)
VR 1	100K ohm, ½ watt ALC control (AR-274)
X 1,2	12V wire lead meter lamps (AR-164)
ZD 1	7.5V 10 watt anode to case (AR-604)

AMERITRON
DIVISION OF
PRIME INSTRUMENTS, INC.
9805 Walford Ave. • Cleveland, Ohio 44102 • 216/651-1740

Limited Warranty

Ameritron warrants to the original purchaser that this product shall be free from defects in material (except tubes and RF output transistors) or workmanship for one (1) year from the date of original purchase. (Two years for AL-80A)

During the warranty period Ameritron or an authorized Ameritron service facility will provide free of charge both parts (except tubes and RF output transistors) and labor necessary to correct defects in material or workmanship.

To obtain such warranty service, the original purchaser must:

(1) Complete and send in the Warranty Registration Card.
(2) Notify Ameritron or its nearest authorized service facility, as soon as possible after discovery of a possible defect, of:
   (a) The model number and serial number, if any;
   (b) The identity of the seller and the approximate date of purchase;
   (c) A detailed description of the problem, including details on the equipment.
(3) Deliver the product to the Ameritron or the nearest authorized service facility, or ship the same in its original container or equivalent, fully insured and shipping charges prepaid.

Correct maintenance, repair and use are important to obtain proper performance from this product. Therefore, carefully read the Instruction Manual. This warranty does not apply to any defect that Ameritron determines is due to:

(1) Improper maintenance or repair, including the installation of parts or accessories that do not conform to the quality and specifications of the original parts.
(2) Misuse, abuse, neglect or improper installation.
(3) Accidental or intentional damage.

All implied warranties, if any, terminate one (1) year from the date of the original purchase. (Two years for AL-80A).

The foregoing constitutes Ameritron's entire obligation with respect to this product, and the original purchaser and any user or owner shall have no other remedy and no claim for incidental or consequential damages. Some states do not allow limitations on how long an implied warranty lasts or do not allow the exclusion or limitation of incidental or consequential damage, so the above limitation and exclusion may not apply to you.

This warranty gives specific legal rights and you may also have other rights which vary from state to state.

PLEASE RECORD THIS INFORMATION:

MODEL _____ SERIAL NO. _____

DATE OF PURCHASE _____

PURCHASED FROM _____

WARRANTY CARD MAILED ON _____

PRINTED IN U

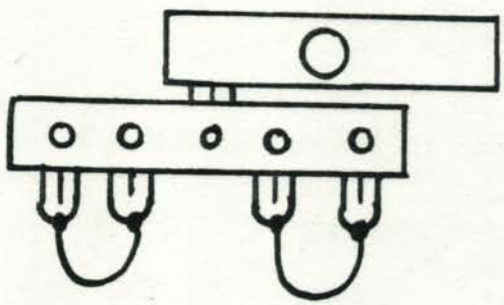
AMERITRON

9805 Walford Ave. • Cleveland, Ohio 44102 • 216/651-1740

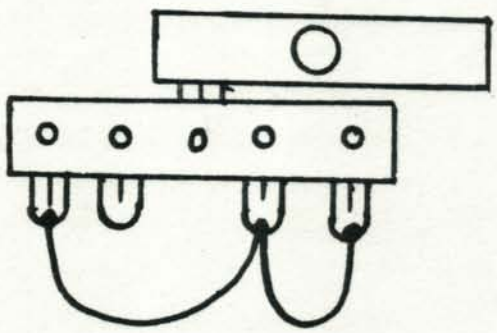
THIS AMPLIFIER HAS AN OPTIONAL MULTI-VOLTAGE TRANSFORMER.

FOR OPERATION ON VOLTAGES OTHER THAN THE DESIGN CENTER THE BUCK-BOOST WINDING CAN BE USED TO IMPROVE PERFORMANCE.

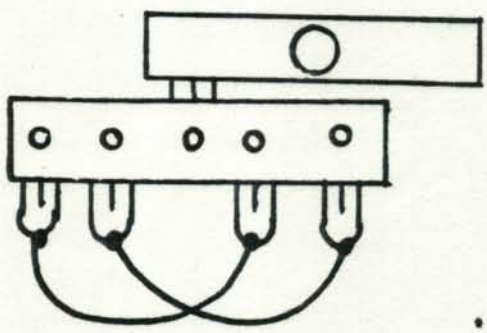
DO NOT EXCEED 3200 VOLTS HIGH VOLTAGE!



A. VOLTAGE 120/240



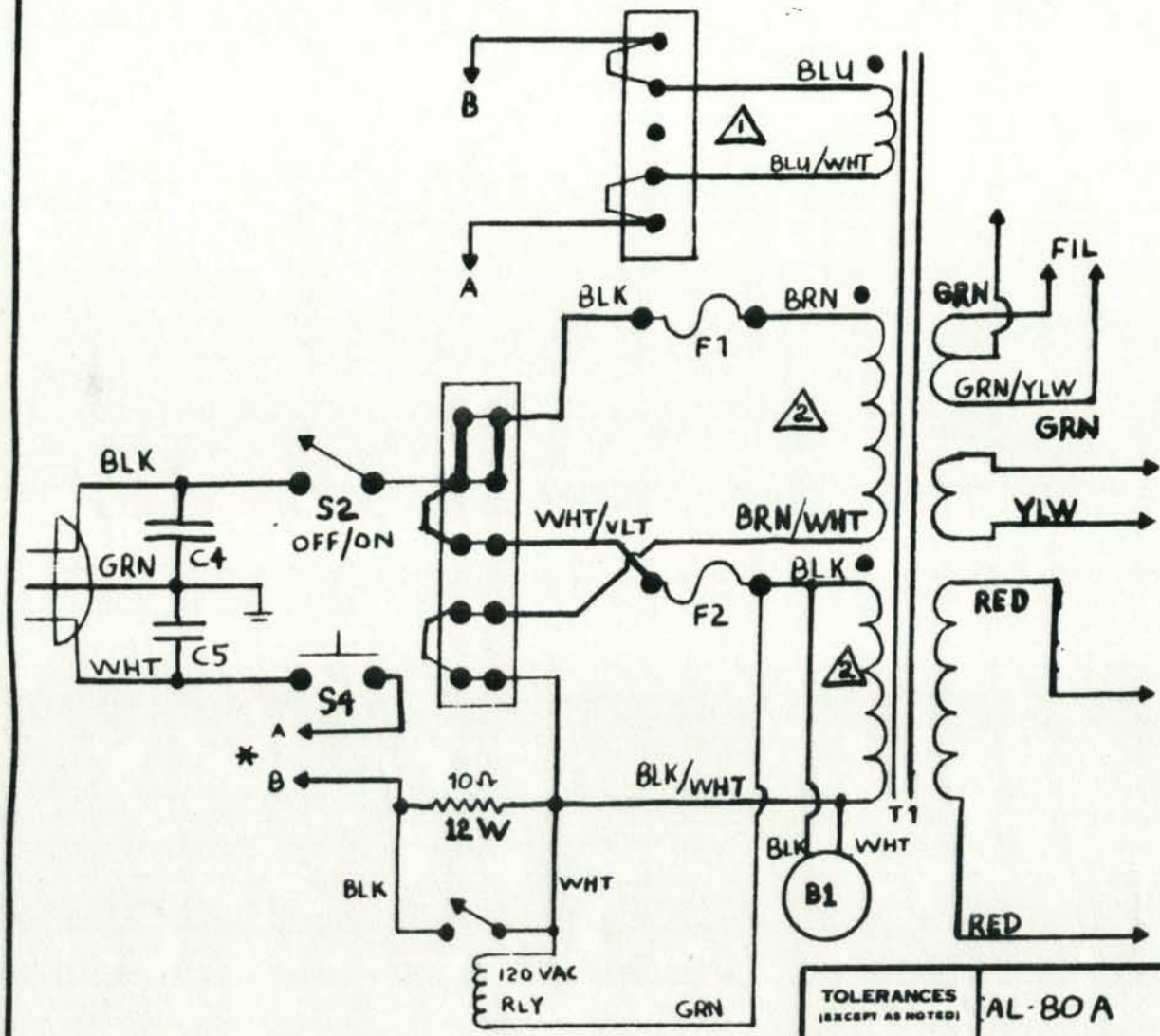
B. VOLTAGE 115/235



C. VOLTAGE 110/230

FREQUENCY 60 Hz / 50 Hz
all / "B" and "C"

DATE	SYM	REVISION RECORD	AUTH.	DR	CK.



Transformer

	109-2B	109-2J
①	6 VAC	4.5 VAC
②	117 VAC	100 VAC

* CONNECT "A" TO "B" FOR NON-"BUCK-BOOST" TRANSFORMER TYPES.

TOLERANCES (EXCEPT AS NOTED)	AL-80A STEP START REVISION WITH BUCK-BOOST		
DECIMAL ±		SCALE	DRAWN BY M. MAXX
			APPROVED BY CTR
FRACTIONAL ±	TITLE		
ANGULAR ±	DATE 3/17/87	DRAWING NUMBER	

MADE IN U.S.A.

AMERITRON

AL-80A

UNPACKING INSTRUCTIONS

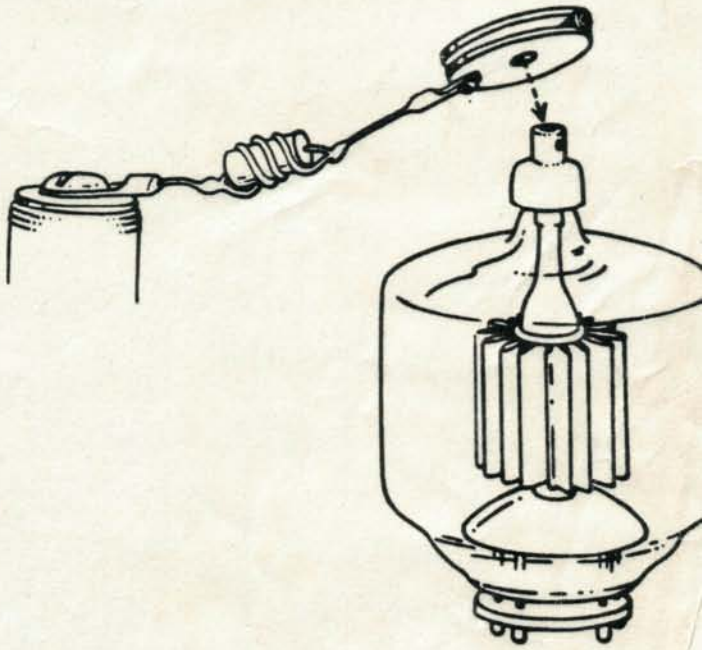
Carefully lift the amplifier out of the packing material. Examine it for visible damage. If the amplifier has been damaged in shipment, notify the transportation company.

Remove the Phillips screws holdi the cover on. Slide the cover ba and remove it from the amplifier.

Remove the packing material from t plate cap assembly.

TUBE INSTALLATION

Insert the 3-500Z tube into the socket on the amplifier chassis. Install the plate cap connector on the tube cap and secure it in place with the screw provided. BE SURE the solder lug is on the underside of the connector - see illustration. DO NOT overtighten the screw. Replace the amplifier cover and the 13 screws that secure it. The additional screws are attached to these instructions.

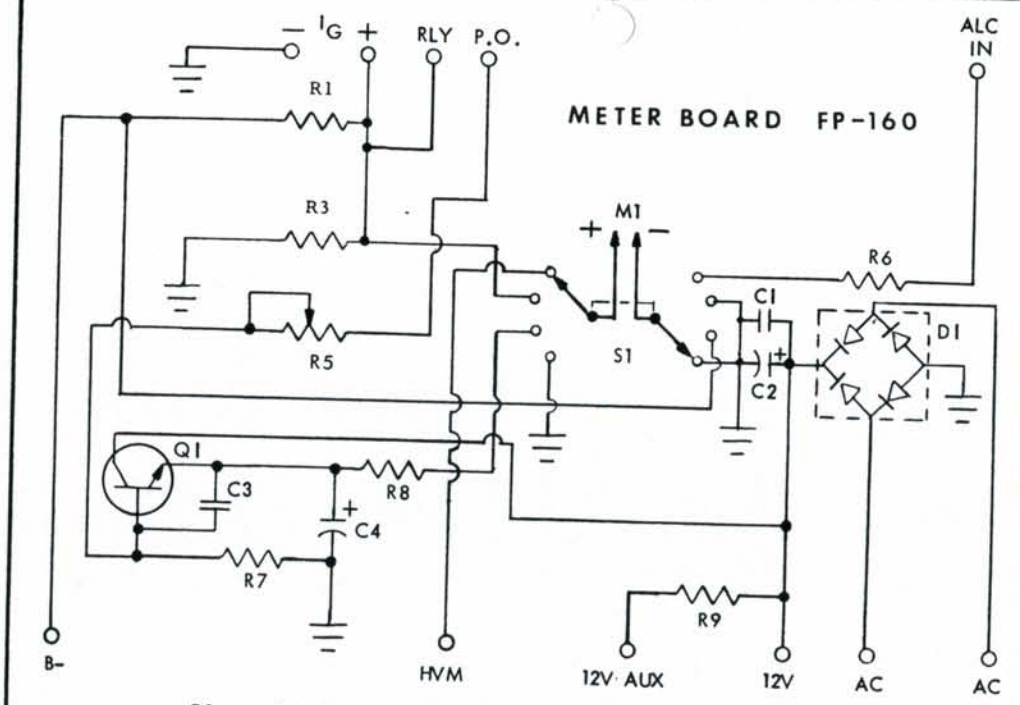


IMPORTANT

Save all the hardware and packing materials in case you ever need to return your AL-80A for factory service. Any units returned without proper packing may be damaged and shipping claims cannot be made.

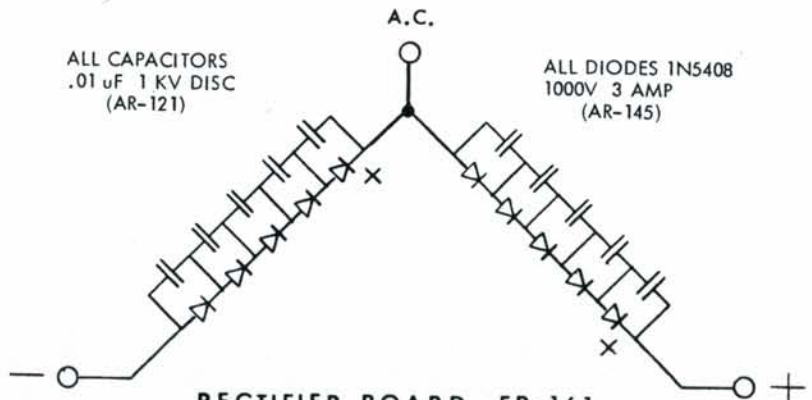
Never ship the amplifier with the tube installed.

METER BOARD FP-160

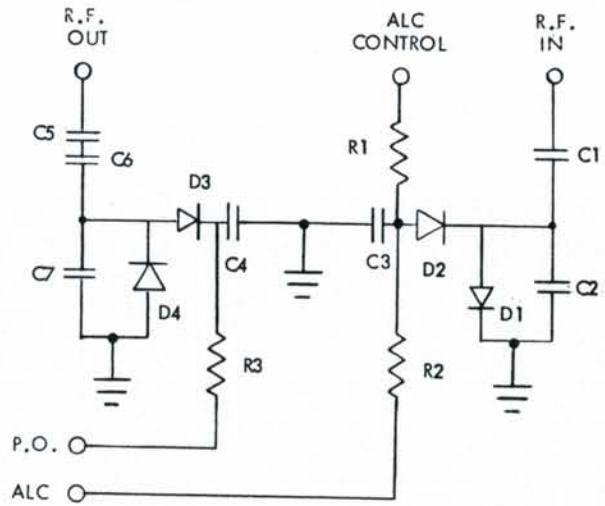


D1	1.5 AMP 50V bridge	(AR-646)	R1,	.6 ohm 3W 1%	(AR-399)
C1, C3	.01 uf 50V disc	(AR-416)	R3,	1.5 ohm 3W 1%	(AR-400)
C2	1000 uf 25V	(AR-149)	R5	100 K ohm trimpot	(AR-534)
C4	10 uf 25V	(AR-642)	R6	33 K ohm 1/2 W 5%	(AR-644)
Q1	2N3904	(AR-645)	R7	15K ohm 1/2 W 5%	(AR-273)
S1	2-6 pos. rotary switch	(AR-563)	R8	10K ohm 1/2 W 5%	(AR-643)
			R9	10 ohm 1/2 W film type	(AR-595)

RECTIFIER BOARD FP-161

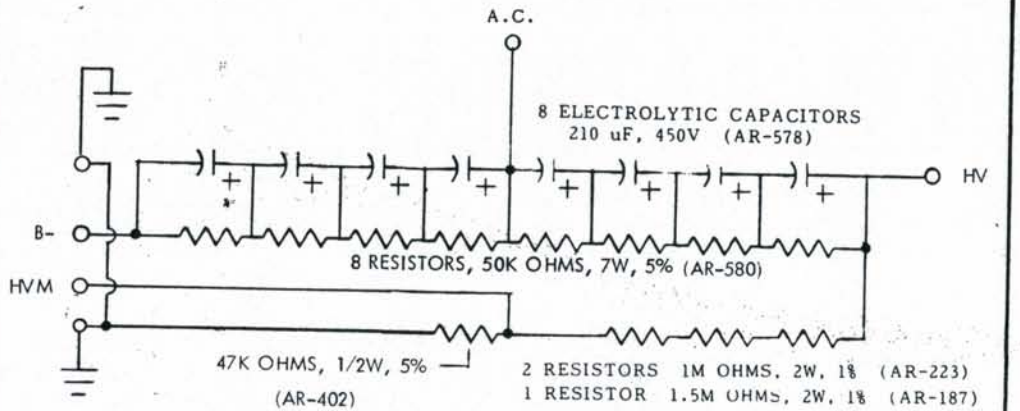


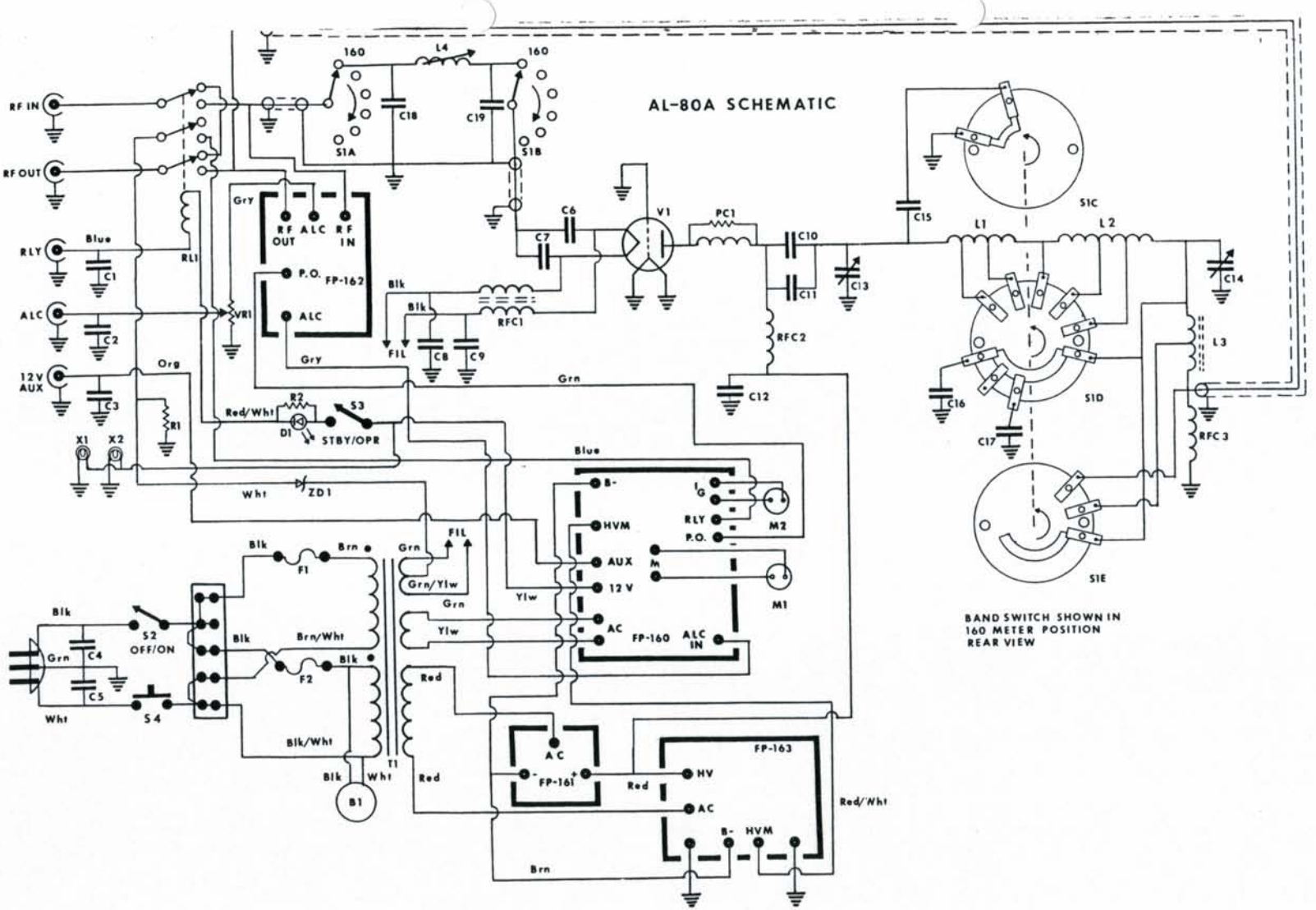
ALC/POWER BOARD FP-162



(AR-404)	C1	27 pf Silver Mica	(AR-346)	D1-D4	IN 34 or IN 118 Diode
(AR-396)	C2, C7	150 pf Silver Mica	(AR-402)	R1	47K ohm, 1/2 W, 5%
(AR-416)	C3, C4	.01 uf Disc Ceramic	(AR-384)	R2, R3	180 ohm, 1/2 W, 5%
(AR-531)	C5, C6	10 pf Silver Mica			

FILTER CAPACITOR BOARD FP-163





AL-80A Tuned Input Chart

Band	Input C18pf	L4	Output C19pf
160	3300 (AR-690)	28t. (FP-149)	2700 (AR-689)

AMERITRON

Linear Amplifiers Antenna Tuners Station Accessories

AMERITRON AL-80A LINEAR AMPLIFIER

The **Ameritron AL-80A** sets a new standard of efficiency in moderately priced kilowatt amplifiers. It combines the time proven economical Eimac 3-500Z with a redesigned heavy duty tank circuit to achieve up to 70% plate efficiency from 160 to 15 meters.

It has wide frequency coverage for MARS and other authorized services. Typical drive is 85 watts to give over 1000 watts PEP SSB and 850 watts CW RF output. A new Pi-L output circuit for 80 and 160 gives full band coverage and exceptionally smooth tuning.

A built-in adjustable ALC circuit controls the exciter gain to allow the highest average power without peak clipping.

The power transformer weights 22 lbs. and has a core of hypersil steel EI laminations.

Complete shielding and bypassing helps prevent TVI and RFI problems.

The **AL-80A** has two illuminated meters. One meter provides a continuous reading of the 3-500Z grid current. This is an exclusive feature of Ameritron amplifiers. Grid current indicates proper operation of the amplifier better than any other parameter. The other meter displays plate voltage, plate current, peak RF output power and drive power/ALC detector voltage.

The **AL-80A** is built on a rugged steel chassis. The layout is neat and uncluttered. A blower inside the cabinet cools the power supply and P.A. stage with an efficient whisper quiet air flow system.

Every component in the **AL-80A** has been selected to insure long life and the lowest maintenance of any amplifier on the market today.

AL-80 SPECIFICATIONS

Frequency coverage: 1.8, 3.5, 7, 14 and 21 MHz. Export (and user modified) models cover 28 MHz and all WARC bands.

Input circuit: adjustable pi-network, VSWR under 1.2:1 at resonance.

Input bandwidth: 20% for 2:1 VSWR or better.

Drive requirements: 85 watts for 850 watt (gain ≈ 10 dB) CW output.

Shipping weight: amplifier, 53 lbs.; tube, 2 lbs.

Operating weight: 48 lbs.

Dimensions: 8¾"H x 14¾"W x 15"D

Power requirements: 120 VAC at 15 amperes, 240 VAC at 7½ amperes.

AMERITRON
DIVISION OF
PRIME INSTRUMENTS, INC.
9805 Walford Avenue • Cleveland, Ohio 44102
(216) 651-1740

AMERITRON AL-1200 LINEAR AMPLIFIERS

With The New Eimac 3CX1200A7 Ceramic Tube

1500 Watts Output - All Modes 160 Through 15 Meters

The **Ameritron AL-1200** Linear Amplifier is designed for 1500 watts output (over 2500 watts input) on all modes with high efficiency and total reliability. The **AL-1200** covers the amateur radio bands 160 through 15 meters. It also features wide frequency coverage for MARS and other services authorized to operate at high power.

The **AL-1200** uses the rugged, inexpensive Eimac 3CX1200A7 high-mu ceramic/metal triode in a Class AB_2 grounded grid circuit.

The built-in ALC circuit prevents the amplifier output from exceeding 1500 watts if the exciter gain is inadvertantly set too high.

The power supply has a commercial service rated 32 lb. hypersil transformer and heavy duty rectifiers in a full wave bridge circuit with computer grade capacitors. No load voltage is 3600 V, full load voltage is 3300 V.

Two bias settings allow either high efficiency RTTY and CW operation at 1500 watts of continuous output at nearly 70% plate efficiency or low distortion 1500 watt PEP, SSB, SSTV, or AM output.

Silver-plated tank components provide high efficiency operation above 20 meters. The Pi-L tank circuit permits full impedance matching capability over the entire 160 meter band. The tuning capacitors and band-switch have a 35% safety factor to virtually eliminate tank circuit component failures even under adverse operating conditions.

The cooling system keeps the components and tube safely below the manufacturer's ratings even while operating continuously at 1500 watts output with a steady carrier. The filament supply has inrush current limiting to insure maximum tube life.

Complete shielding and by-passing helps prevent TVI and RFI at the high power levels developed in the **AL-1200.**

The **AL-1200** has two illuminated meters. One meter provides a continuous reading of the 3CX1200A7 grid current. This is an exclusive feature of the **AL-1200**. Grid current will indicate proper operation of the amplifier better than any other parameter. The other meter displays plate voltage, plate current, peak R.F. output power and drive power/ALC detector voltage.

AL-1200 SPECIFICATIONS:

Frequency Coverage: 1.8, 3.5, 7, 14, 21 MHz and WARC bands. Export model also includes 28 MHz.

Input Circuit: adjustable pi-network, VSWR 1.2:1 or less at resonance.

Input Bandwidth: 20% for 2:1 VSWR or better.

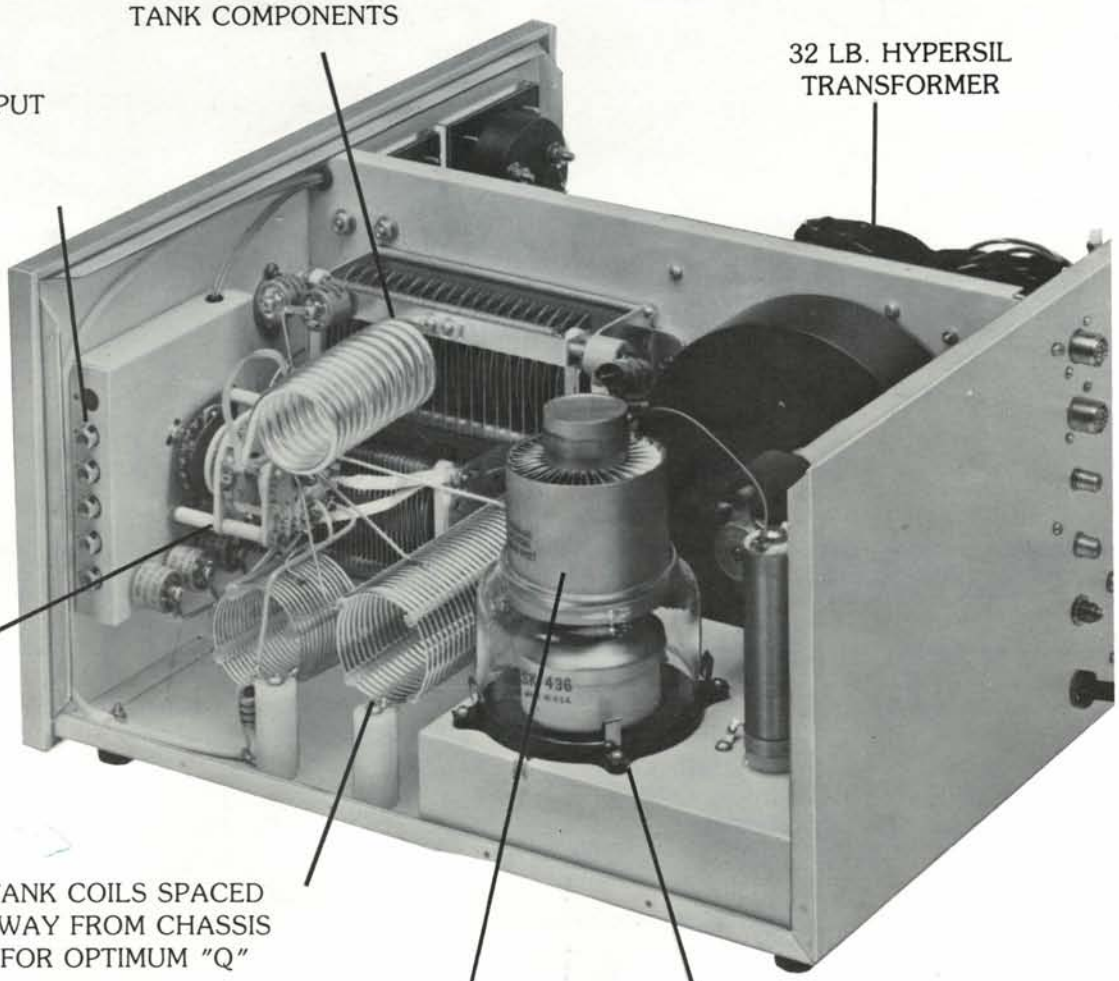
Drive Requirements: 100 watts typical for 1500 watts output.

Shipping Weight: 83½ lbs. total in 3 cartons of 45, 35 and 3½ lbs. each.

Operating Weight: 77 lbs.

Dimensions: 18½"D.x17"W.x10"H.

Power Requirement: 240 VAC 50/60Hz 15 Amperes.



NEW

AMERITRON AL-1500 LINEAR AMPLIFIER WITH THE EIMAC 8877 CERAMIC TUBE

The new **Ameritron AL-1500** will deliver 1500W CW output with only 65W drive. It covers all amateur bands from 160 through 15 meters. It also covers MARS and other services authorized to operate at high power.

The **AL-1500** is similar to the AL-1200 in size and construction with the exception of an 8877 PA to provide up to 50% more output power capability.

The **AL-1500** also features time delay starting to protect the tube and components and has over-current shut off to remove the drive if mistuned. A commercial grade diecast ball bearing blower provides quiet operation and full rated airflow to maximize tube life.

AMERITRON AL-84 LINEAR AMPLIFIER

AL-84 SPECIFICATIONS:

Frequency Coverage: 1.8-21.5 MHz amateur bands. Export model includes 1.8 through 30 MHz continuous coverage.

Power Output: 400W CW, 600W PEP SSB.

Drive Requirements: 100W maximum, 70W typical.

Input Impedance: 50 ohm, resistor swamped. SWR under 1.5 to 1 over entire range.

Power Requirements: 240V @ 4 amps, 120V @ 8 amps, 50/60 Hz.

Dimensions: 5 H. x 11 W. x 10 D.

The **Ameritron AL-84** is an economical amplifier using 4 6MJ6 tubes to develop 400 watts output on CW and 600 watts PEP on SSB from 160 through 15 meters.

The passive input network presents an extremely low SWR input for solid state exciters. A tank circuit using a special tuning capacitor provides the proper network "Q" for efficient power transfer and harmonic suppression.

The **AL-84** is an excellent back-up, portable or beginner's amplifier.

AMERITRON RCS-4 REMOTE COAX SWITCH

NO CONTROL CABLE REQUIRED

The Ameritron RCS-4 is a remote controlled coaxial switch that selects one of four outputs by supplying all control voltages through the coax. The elimination of control cables results in a fast, neat and inexpensive installation that uses only one coaxial line for four antennas.

It consists of two units—the switching box that can be tower, mast or wall mounted and the control console that is located at your operating station.

The attractive indoor control console has bright LED antenna selector indicators. A steel enclosure provides 100% shield coverage to prevent RFI and TVI. Switching time is 50 ms. Connections are made through SO-239 connectors.

The weatherproof switching box uses three heavy duty 10 ampere contact relays on a rugged G-10 fiberglass cicuit board. Quality components are used throughout the entire unit to ensure maximum life for the sometimes difficult-to-reach switching box.

The RCS-4 operates from 120 VAC (optional 220/240 VAC export model available) power sources. Frequencies from 1.8 through 30 MHz and full legal powers are covered by this excellent station accessory.

SPECIFICATIONS:

Number of antenna positions: 4

Loss at 30 MHz: less than .05 dB.

VSWR: under 1.1 to 1 from 1.8 to 30 MHz.

Impedance: 50 ohms.

Power Capability: 1500 watts average, 2500 watts PEP maximum.

Antenna select time: 50 ms.

Power requirements: 120 VAC 50/60 Hz at five watts.

Connectors: SO-239.

AMERITRON RCS-8V REMOTE COAX SWITCH

HIGH PERFORMANCE FROM DC THROUGH UHF

The Ameritron RCS-8V is a remote controlled coaxial switch that performs RF switching functions from DC through the lower UHF spectrum. The **RCS-8V** can independently or simultaneously select up to five coaxial ports at the same time. Internal wiring options allow the user to ground or "float" unused ports independently.

The **RCS-8V** consists of two units—the switching box that can be tower, mast or wall mounted and the control console that is located at your operating station.

The attractive indoor control console has bright LED antenna selector indicators. A steel enclosure provides 100% shield coverage to prevent RFI and TVI. Switching time is 50 ms.

The weatherproof switching box uses five heavy duty 10 ampere contact relays on a rugged G-10 fiberglass circuit board. Quality components are used throughout the entire unit to ensure maximum life for the sometimes difficult-to-reach switching box.

Applications include stacking of antennas, cross-switching of coaxial lines or independent selection of five separate lines to a common port.

The **RCS-8V** operates from 120 VAC power sources. Optional 220/240 VAC export model available. Operation with 12V supply systems is also available.

SPECIFICATIONS:

Number of antenna positions: 5

Loss at 150 MHz: less than .1 dB

VSWR: under 1.2 to 1 from DC to 250 MHz

Impedance: 50 ohms

Power Capability: 5KW below 30 MHz, 1KW at 150 MHz

Connectors: SO-239

Control Cable: Up to 50 ohm loop resistance, 5 conductors plus ground

NEW

PIN-5 QSK SWITCH

The **PIN-5** is one of the most rugged and rapid QSK switches on the market today. Switching in microsecond time regions is available at power levels in excess of 1500 watt into 2:1 VSWR loads. This rugged switch uses two 5 Kw rated PIN diodes in the high power section, one 5 Kw PIN diode in the low power section and diodes capable of standing off over a thousand volts in the open position.

No vacuum relay or TR system on the amateur market today can match the **PIN-5** combined performance in receive attenuation, transmit IMD, power handling, interface flexibility and switching speed.

The **PIN-5** is the ultimate switch for AMTOR, QSK or other modes requiring rapid T/R switching times.

The **PIN-5** is furnished with complete instructions for mounting in the Ameritron AL-80A, AL-1200 and AL-1500 linear amplifiers. Factory installation is available.

AMERITRON ATR-15

1500 WATT

ANTENNA TUNER

1.8 to 30 MHz RANGE

The **Ameritron ATR-15** is a 1500 watt "T" network tuner that covers 1.8 through 30 MHz in 10 dedicated bands.

The **ATR-15** will handle a full 1500 watts of RF envelope power over its entire frequency range. (Most other tuners are rated by plate input power.) The **ATR-15** will match any resistance between 20 and 800 ohms to a 50 ohm source.

Exceptionally efficient performance on all frequencies is achieved by the proper internal placement of variable capacitors and inductors.

Five outputs are selected from a heavy duty antenna switch allowing the rapid choice of three coaxial lines, one single terminal feed or a balanced output. An internal balun provides 1:1 or 4:1 ratios (user selectable) on the balanced output terminals.

A peak reading wattmeter and SWR bridge is standard in the **ATR-15.** It accurately reads envelope powers up to 2KW.

The bandswitch is a heavy duty silver-plated switch engineered to eliminate any chance of switch failure.

SPECIFICATIONS:

Frequency Range: 1.75 to 30 MHz continuous with dedicated amateur band positions.

Input Impedance: 50 ohms.

Input Power: 1500 watts maximum RF envelope all modes. Handles full legal power on all amateur bands.

Outputs: 20 to 800 ohms at full power. Internal balun provides 1:1 or 4:1 ratios (user selectable). Three coaxial, one single wire and balanced outputs from panel selected.

Shielding: Fully shielded.

Metering: Peak reading 0-200 and 0-2000 watt scales. SWR to 3:1. Functions in bypass mode. Requires no power supply or batteries. Illuminated by external 12V supply.

Dimensions: 5-1/4 H. x 13-1/4 W. x 13-1/2 D.

Weight: 14 lbs.

Printed in U.S.A.

F-1038