

GENERAL DESCRIPTION

The Model LA-400B Linear Amplifier is a grounded grid amplifier employing pentodes connected as high mu triodes. This circuit design makes possible a compact, medium power amplifier.

When used with a suitable exciter this amplifier will deliver a high quality signal whether used for single sideband, amplitude modulation, frequency modulation or C. W.

A variety of output impedances may be matched by the pi network output circuit; however, a low impedance load is recommended. The low impedance input circuit is untuned. This feature simplifies multiband operation. A well-filtered power supply incorporating full wave mercury vapor rectifiers is employed. The cabinet housing this amplifier matches many popular exciters. High quality components are used throughout.

SPECIFICATIONS

Power Rating - 400 watts P.E.P. Input

Drive Requirement - 20 watts for maximum output.

Driver Impedance - 52 - 72 ohms. (The driver should employ link coupling or other means for D.C. return.)

Frequency Range - 75 Thru 10 Meters

Output Impedance - 50 - 75 ohms on all bands.

Metering Circuit - Indicates R. F. Voltage Input-

Plate Current and R. F. Amperes Output

Tubes - 2-Type 816 Rectifiers

4-Type 1625 Modified.

OPERATING INSTRUCTIONS

Preliminary

1. Connect the driver to the coax fitting at the rear of the unit marked R. F. Input using a short length of coax.

WARNING: Do not apply plate power without a suitable driver connection.

2. Connect a 52-72 Ohm antenna or load to the coax connector marked R. F. Output located near the center of the rear deck.
3. Provision for blocking bias from exciter on Rear Deck IF Desired See Fig. 1.
4. Plug the line cord into any 105-125 volt 50/60 cycle A. C. source.
5. Apply filament voltage and wait at least 60 seconds before any attempt is made to apply plate voltage.

TUNING

Meter Switch in position No. 1 indicates R. F. Voltage input. 0-50 Volts. No. 2 indicates plate current, 0-500 Ma. No. 3 indicates R. F. Current Output, 0-5 Amperes.

Maximum inductance is obtained with the rotor indicator in the extreme left position.

Maximum tuning capacitance is obtained with the indicator on the skirt of the tuning knob at the extreme left.

Maximum loading capacitance is obtained with the indicator on the skirt of the loading knob at the extreme left.

Maximum coupling capacitance is in position No. 1. Use maximum inductance for 75 meters, half the inductance for 40 meters, one-fourth the inductance for 20 meters, one-eighth the inductance for 15 meters. For 10 meter operation adjust roller for maximum output on the last turn of the inductor.

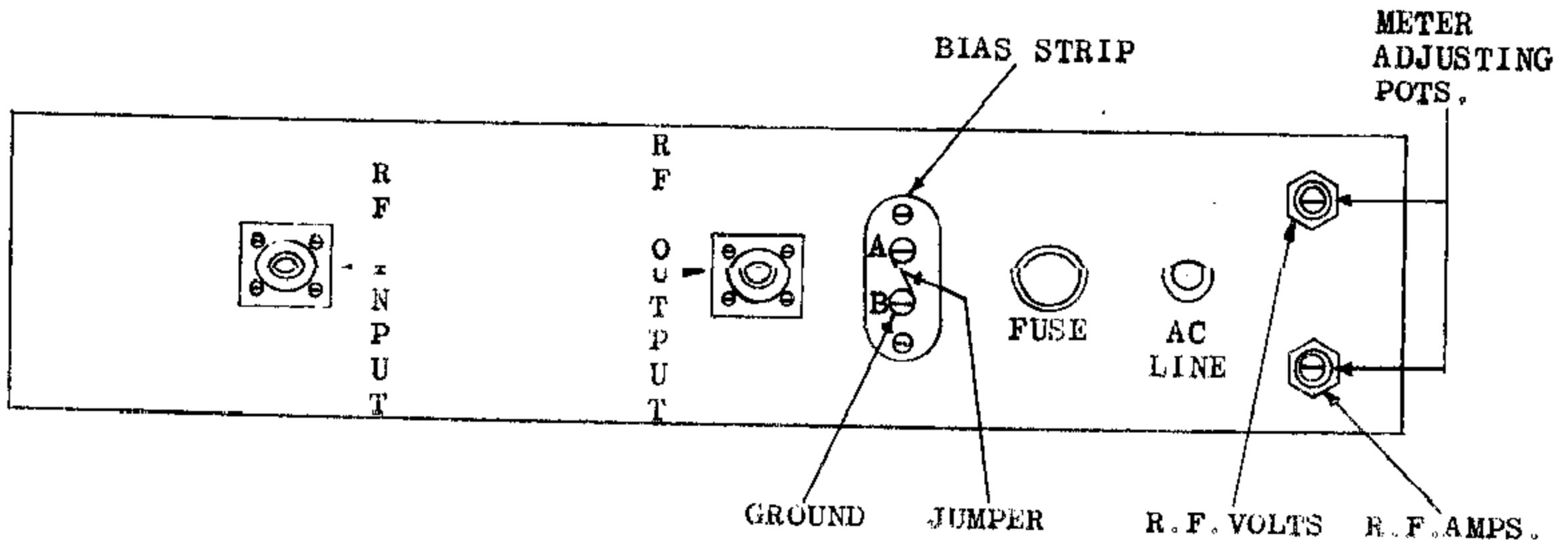
1. Set tuning inductor for desired band.

2. Set tuning and loading capacitor to maximum capacity position. Set coupling switch to #1.
3. Apply plate voltage.
4. Insert approximately ten watts of driving power for tuning.
5. Resonate the tuning capacitor and reduce the loading capacity until a reading is obtained with the meter switch in No. 3 position. It may be that no reading will be obtained on the higher frequencies. In this case change the coupling switch to position No. 2. or 3.
6. Adjust tuning, loading, and coupling controls for maximum R. F. Output. The inductance may be varied at this time for additional output. Remove either the drive or plate voltage before changing the inductor setting.
7. The amplifier is now ready for operation.
8. If a two-tone test signal and an oscilloscope are available, the output of the amplifier may be observed to determine if the tuning is correct. Over-coupling or a high standing wave ratio may introduce distortion.

The point at which decreasing the inductance or decreasing the loading or coupling capacitance gives no apparent increase in output is the point where best linearity is obtained.

If this amplifier is used for C.W., A.M., F.M. or P.M. the tuning procedure is the same as for S.S.B.

FIGURE 1
CHASSIS -- REAR VIEW



BLOCKING BIAS

If external bias (such as from the Central Electronics 20A exciter) is used, the -100v should be connected to terminal A on the bias strip and the jumper between terminals A and B removed. When external bias is not desired the jumper should remain between terminals A and B.

METER ADJUSTMENTS

The meter calibrating controls are preset at the factory and under normal use do not need to be touched. However if the R. F. voltage and current readings appear to be in error they may be checked and recalibrated in the following manner.

1. R. F. VOLTAGE INPUT.

With the meter switch set at position #1 connect a coaxial T connector to the R. F. input of the LA-400B. One side of the T is connected to the exciter and the other side is connected to an R. F. voltmeter 0-50 volts.

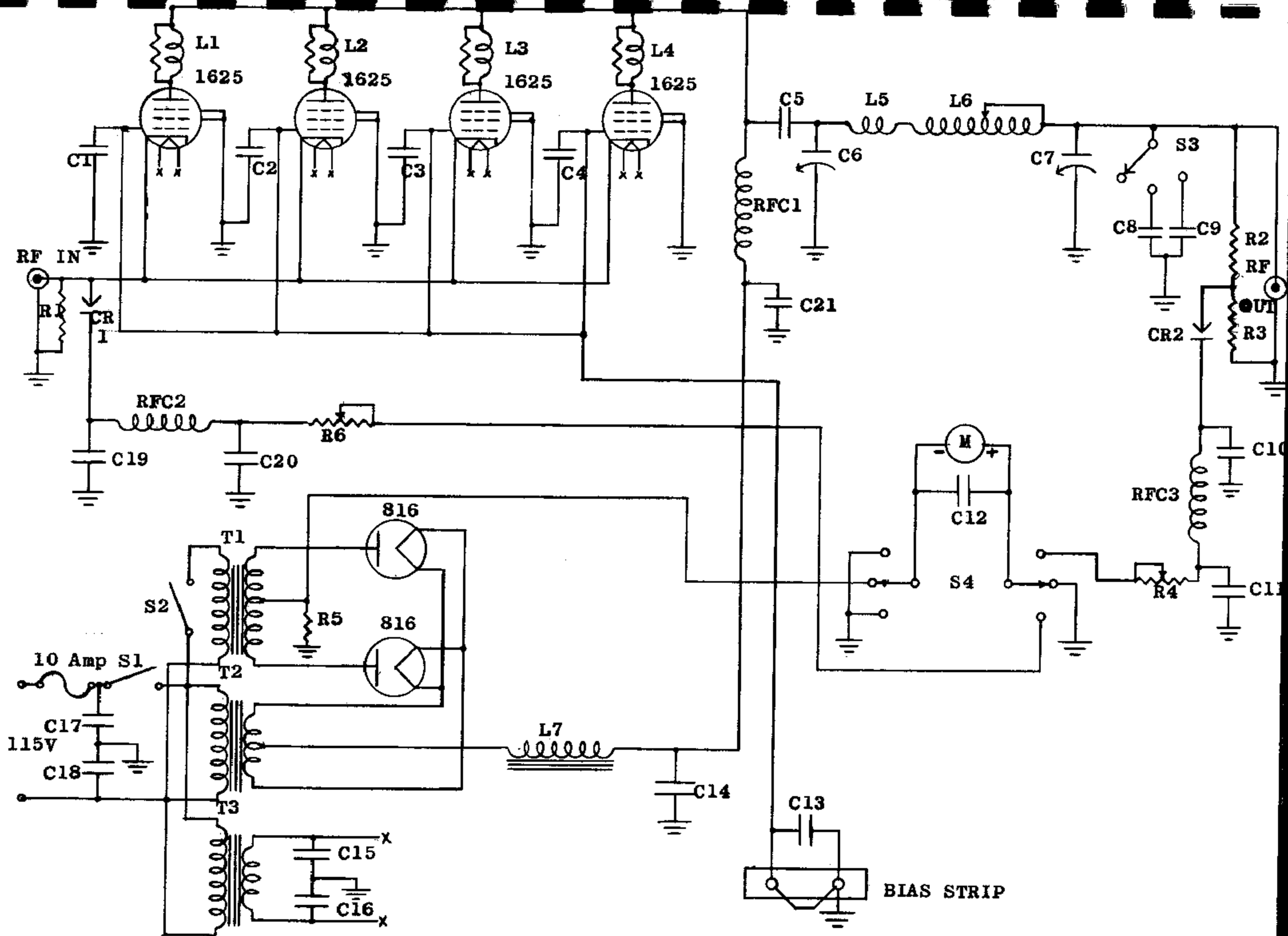
With carrier inserted at the exciter the meter on the LA-400B should read the same as on the R. F. voltmeter. If it does not adjust the potentiometer marked "R.F. VOLTS" so that the two meters read the same.

2. R. F. AMPERES OUTPUT.

With the meter switch set at position #3 connect an R. F. ammeter in series with the R. F. output and a 52-72 ohm dummy load. Insert carrier at the exciter and note whether the R. F. ammeter and the meter on the LA-400B read the same. If they do not, adjust the potentiometer marked "R.F. AMPS." so that the two meters read the same.

MODEL LA-400B PARTS LIST

C1,C2,C3,C4,C10,C11,C13,C15,C16,C17,C18,C19,C20 - .005mfd. 500V.
C5 - .004mfd. 5000V.
C6 - 150 mmf. Variable
C7 - 400 mmf. Variable
C8 - 680 mmf. Silvered Mica
C9 - 330 mmf. Silvered Mica
C12, C21 - .005mfd. 5000V.
C14 - mmfd. 1000V.
R1 - 1000 Ohm 2 Watt
R2 - 12K Ohm 2 Watt
R3 - 1.2K Ohm 2 Watt
R4, R6 - 25K Ohm Potentiometer
R5 - .12 Ohm Meter Shunt
RFC1 - National R-175A
RFC2, RFC3 - 2.5mh.
CR1, CR2 - IN34A
L1, L2, L3, L4 - Parasitic Suppressors
L5 - 28 Mc. Coil
L6 - Roller Type Variable Inductor
L7 - 8H. 300 Ma. Filter Choke
T1 - Plate Transformer 1200-1200V. 300Ma.
T2 - Filament Transformer 2.5V 5 Amp.
T3 - Filament Transformer 12.6V. 2 Amp.
S1, S2 - S.P.S.T. Toggle Switches
S3 - 1 Pole 3 Position Switch
S4 - 2 Pole 3 Position Switch
M - 0-5Ma.



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