

## FL-2025, FL-6020 & FL-7025 LINEAR AMPLIFIERS AND MMB-31 MOBILE MOUNTING BRACKET FOR THE FT-290RII, FT-690RII & FT-790RII

The FL-2025 (25-watt), FL-6020 (10-watt) and FL-7025 (25-watt) Linear Amplifiers are designed to provide increased power for base and mobile operation with the FT-290RII, FT-690RII and FT-790RII All Mode VHF and UHF Transceivers, respectively. The MMB-31 Mobile Mounting Bracket provides a convenient mobile installation in which the Amplifier may be installed permanently, while the Transceiver may be easily slid in and out of the bracket for quick conversion to portable operation without the amplifier. Alternatively, the Amplifier may be left attached to the Transceiver for quick conversion to base operation.

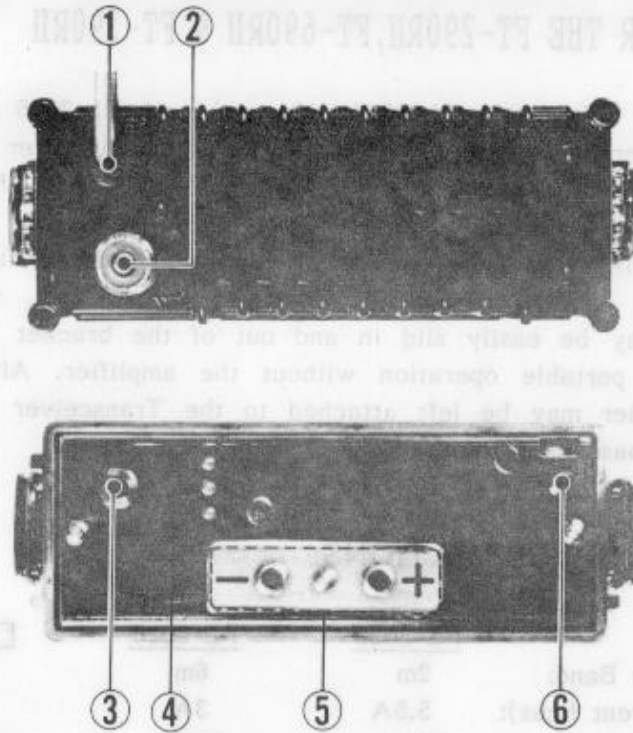
### AMPLIFIER SPECIFICATIONS:

	<u>FL-2025</u>	<u>FL-6020</u>	<u>FL-7025</u>
Amateur Radio Band:	2m	6m	70cm
Operating Current (max):	5.5A	3A	8A
Power output ( $\pm 20\%$ ):	25W	10W	25W
Types of emission:	SSB, CW, FM		
Operating voltage:	12.4 to 15.8 VDC, negative ground		
Spurious emissions:	-60dB		
Output impedance:	50 ohms, unbalanced		
Size (WHD):	148 x 57 x 65mm		
Weight:	approx. 1 kg		



**YAESU MUSEN CO., LTD.**  
**C.P.O. BOX 1500**  
**TOKYO, JAPAN**

## AMPLIFIER CONNECTORS



### (1) 13.8 VDC Cable Pigtails

This cable accepts 12 to 15.8 VDC to power the transceiver and Amplifier. The RED lead must be connected to positive voltage, and the BLACK lead to negative (ground).

### (2) ANT Coaxial Jack

This type-M connector (type-N for FL-7025) must be connected to a proper antenna (one having 50 ohms impedance across the operating band).

### (3) RF Jack

This phono plug accepts RF excitation from, and provides receiver input to the transceiver. When this plug is connected to its mating jack on the transceiver the ANT jack on the front panel of the transceiver is disconnected, and the ANT jack on the Amplifier becomes active instead.

### (4) Control Line Pins

These three spring-loaded pins mate with the Accessory Contacts on the transceiver, carrying external ALC from the Amplifier to the transceiver, and T/R relay control and ALC from the transceiver to the Amplifier. Keep the tips of these pins clean.

### (5) Supply Output Terminals

These terminals provide the power connection to the transceiver (keep them clean). The contact on the left is ground.

### (6) Lamp Actuator Screw

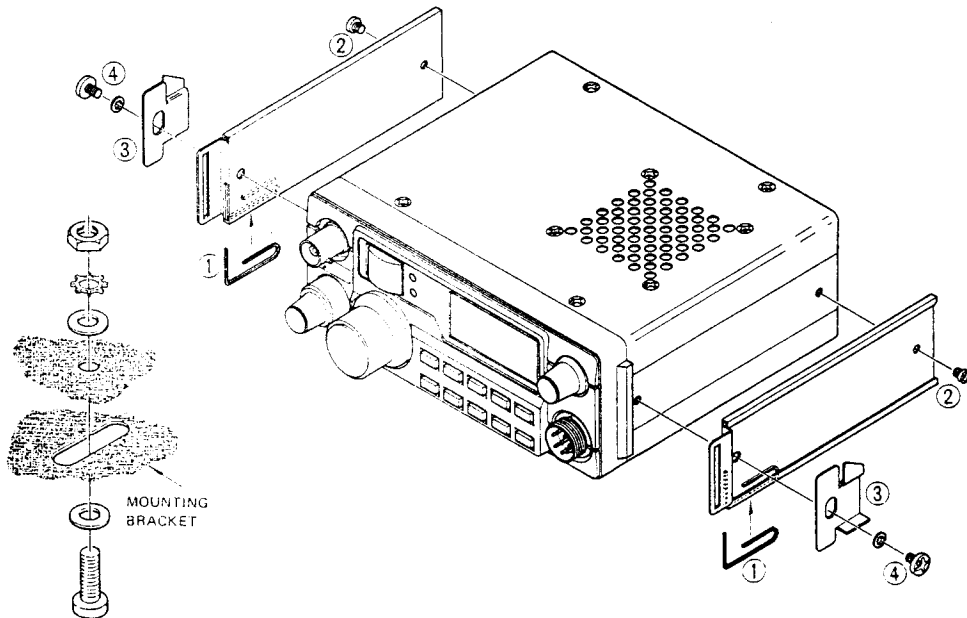
The head of this screw depresses the LAMP switch rod in the transceiver when the Amplifier is installed, causing the pilot lamp to be on all the time when the transceiver is on. To disable the pilot lamp, remove this screw.

## MOBILE INSTALLATION

The FL-2025, FL-6020 and FL-7025 are each supplied with a fused DC Cable for connection to the vehicle battery in mobile installations. If you decide to install the Amplifier in the MMB-31 bracket, use the four bolts supplied with the bracket for this purpose. Before mounting the Amplifier in the bracket, remove the latch clips on either side of the amplifier (two screws each).

Use the bracket as a template to locate the mounting holes in the car body (see diagram). The bracket may be installed in any position, but make sure that it will not interfere with driving, and allow space for the cables (and EXT SP plug on the side, if using an external speaker) and transceiver controls. Do not install the transceiver directly in front of a heating vent.

The latch plates and springs supplied with the MMB-31 must be installed on either side of the transceiver. Remove the two screws in each side panel, and install the spring as shown below, followed by the latch plate and special screw and bushing supplied with the bracket. The frontmost screw originally installed on each side of the transceiver is not used.



## BASE STATION INSTALLATION

The Amplifier may be used to provide higher power base station operation with an appropriate AC Power Supply.

For base operation of the FT-690RII with the FL-6020 attached, use the FP-80A AC Power Supply, or an equivalent capable of providing 13.8 VDC at 5A continuously, connected to the Amplifier via the supplied fused DC Cable. Connect the RED lead to the POSITIVE supply terminal, and the BLACK lead to the NEGATIVE supply terminal. Make certain that the FP-80A is wired for your local AC line voltage before connecting it to the AC mains.

For high power base station operation with the FT-290RII and FL-2025 or the FT-790RII and FL-7025, use the fused (10A) DC cable supplied with the Amplifier. We recommend the FP-700 Power Supply, or an equivalent capable of providing 13.8 VDC at 10A continuously. Connect the RED power lead to the POSITIVE supply terminal, and the BLACK lead to the NEGATIVE terminal.

Do not place the transceiver on top of another heat generating device. Keep the area around the amplifier heatsink clear, to permit the free flow of air for cooling.

Connect your antenna feedline to the coaxial jack on the back of the amplifier. Use the shortest practical length of 50-ohm coax for the feedline, with a type-M plug (PL-259) for the FL-2025/FL-6020 (or type-N for the FL-7025) at the transceiver end. Make sure the antenna is specifically designed for the amateur band in use.

Note: The BNC antenna jack on the front panel of the transceiver is automatically disconnected when the amplifier is connected.

Operation of the transceiver with the amplifier is the same as without it, as described in the transceiver Operating Manual.

Use the fused DC Cable supplied with the Amplifier to make power connections to the automobile battery: RED wire to the POSITIVE terminal, and BLACK wire to the NEGATIVE terminal. Connecting into the existing wiring is not recommended, as this may result in noise pickup while receiving, and voltage drop when transmitting.

If it becomes necessary to replace the fuses in the DC Cable, make certain to install the same type, with the same rating: 5A for the FL-6020, or 10A for the FL-2025 and FL-7025.

### CAUTION!

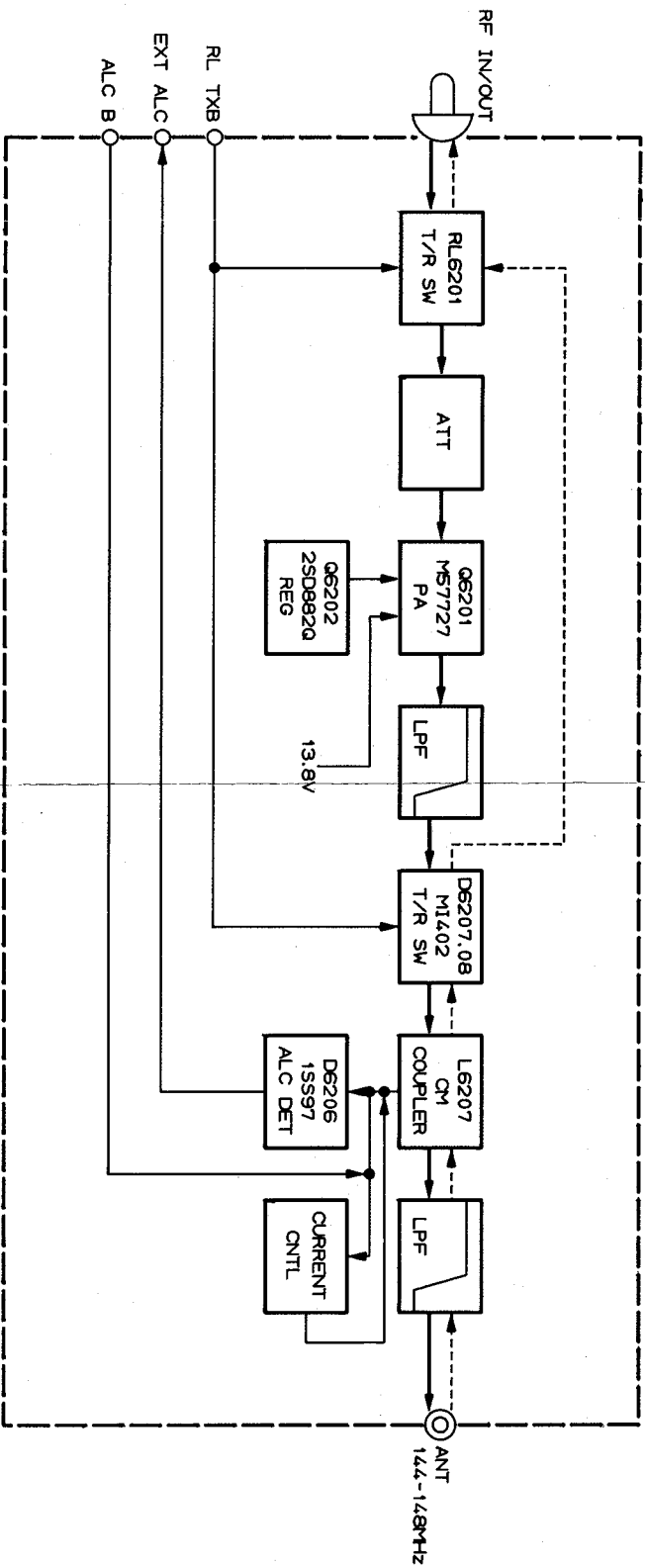
BE VERY CAREFUL WHEN MAKING POWER CONNECTIONS TO THE AMPLIFIER OR TRANSCEIVER, AND WHEN REPLACING FUSES. YOUR WARRANTY MAY NOT COVER DAMAGE DUE TO REVERSED OR IMPROPER SUPPLY VOLTAGE, OR USE OF AN IMPROPER FUSE.

Connect your antenna feedline to the coaxial jack on the back of the Amplifier. Use the shortest practical length of 50-ohm coax for the feedline, with a type-M plug (PL-259) for the FL-2025/FL-6020 (or a type-N plug for the FL-7025) at the transceiver end. The antenna should be one specifically designed for the 2-meter (FL-2025), 6-meter (FL-6020) or 70cm (FL-7025) amateur band. Make sure the antenna mounting bracket is well grounded to the car body at the base of the antenna.

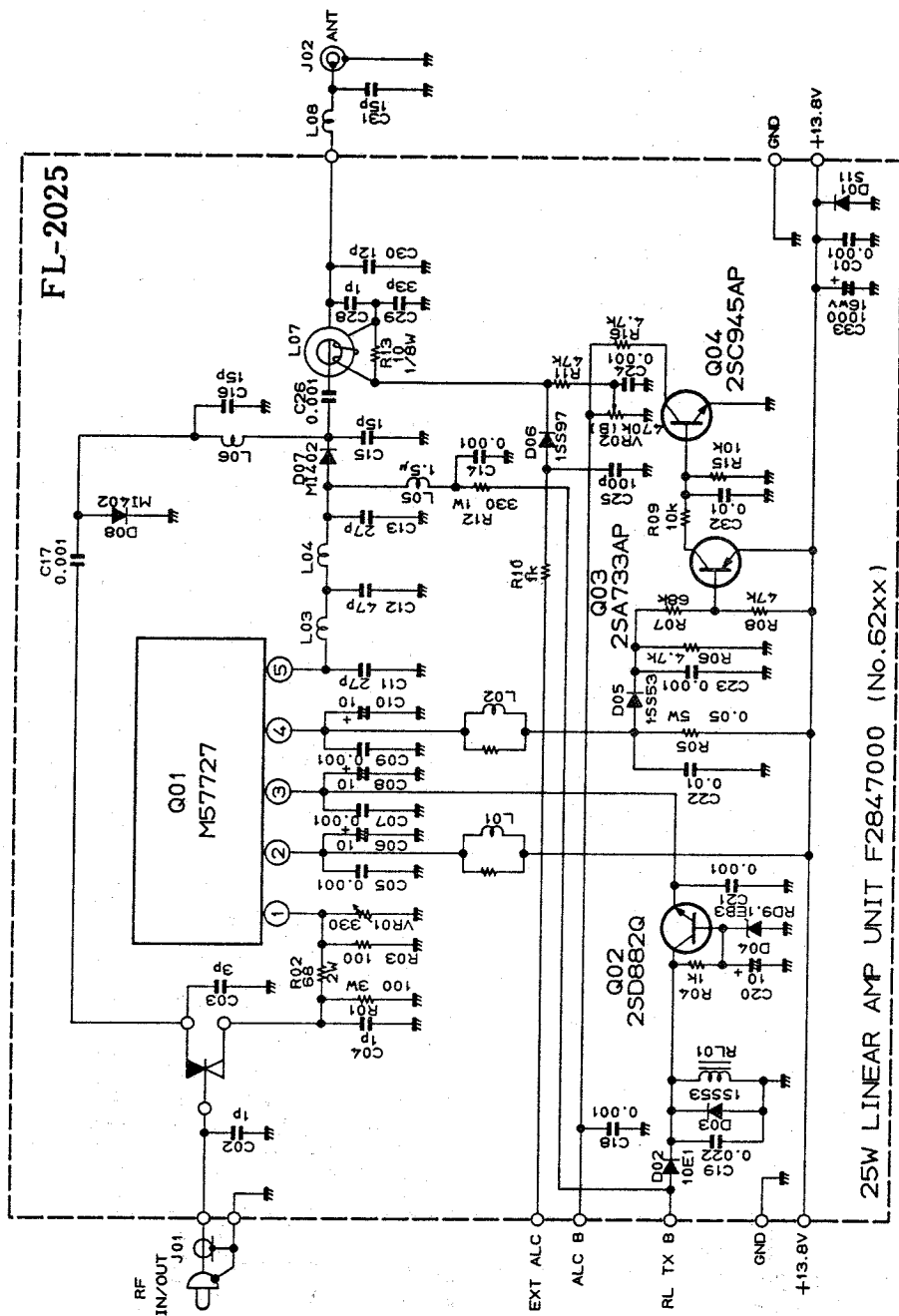
Note: The BNC antenna jack on the front panel of the transceiver is automatically disconnected when the Amplifier is connected.

Slide the transceiver into the mounting bracket carefully until the latches installed on the sides of the transceiver click. Press the latches and pull to remove the transceiver.

Operation of the transceiver with the amplifier is the same as without it, as described in the transceiver Operating Manual.

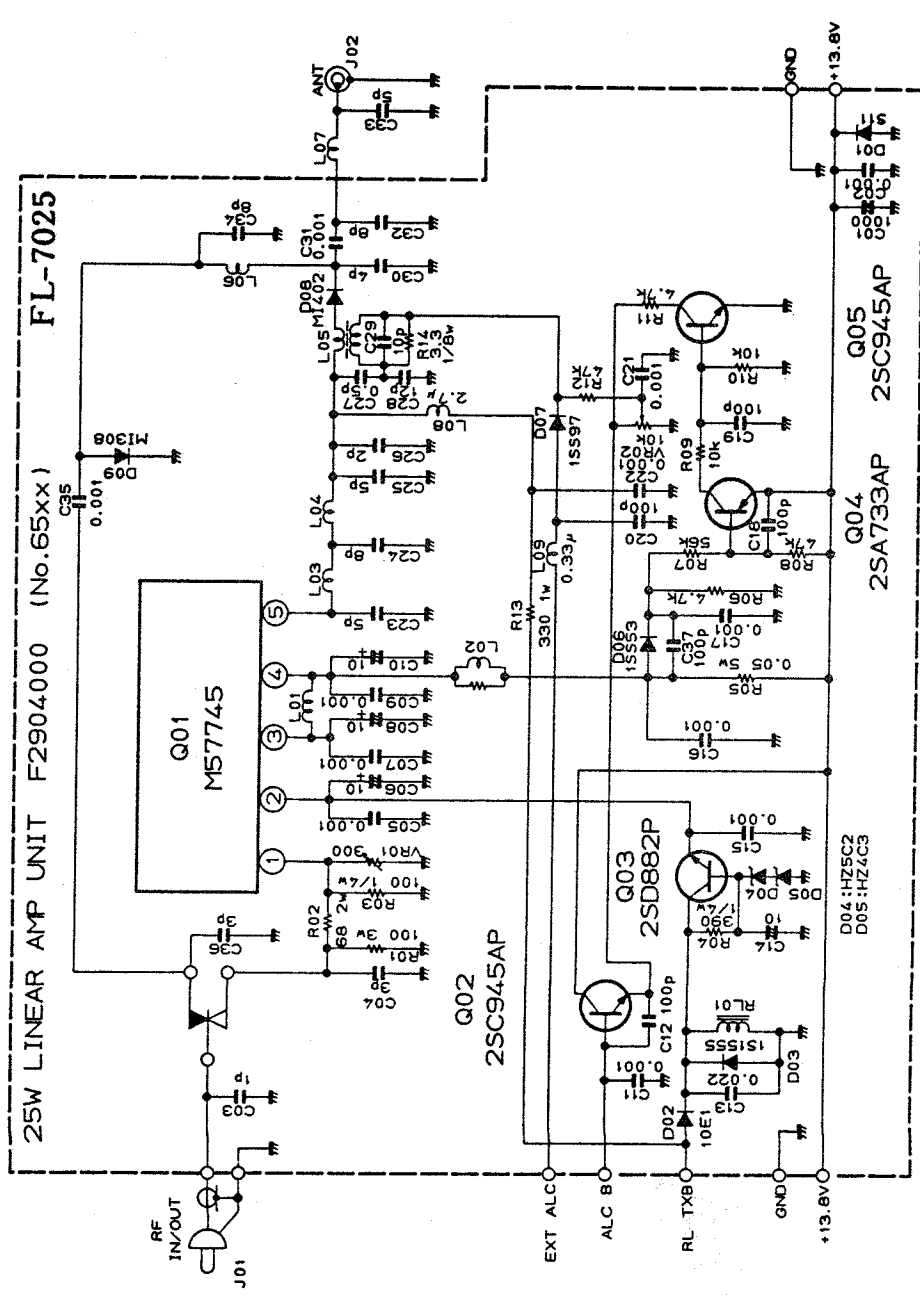


FL-2025  
BLOCK DIAGRAM

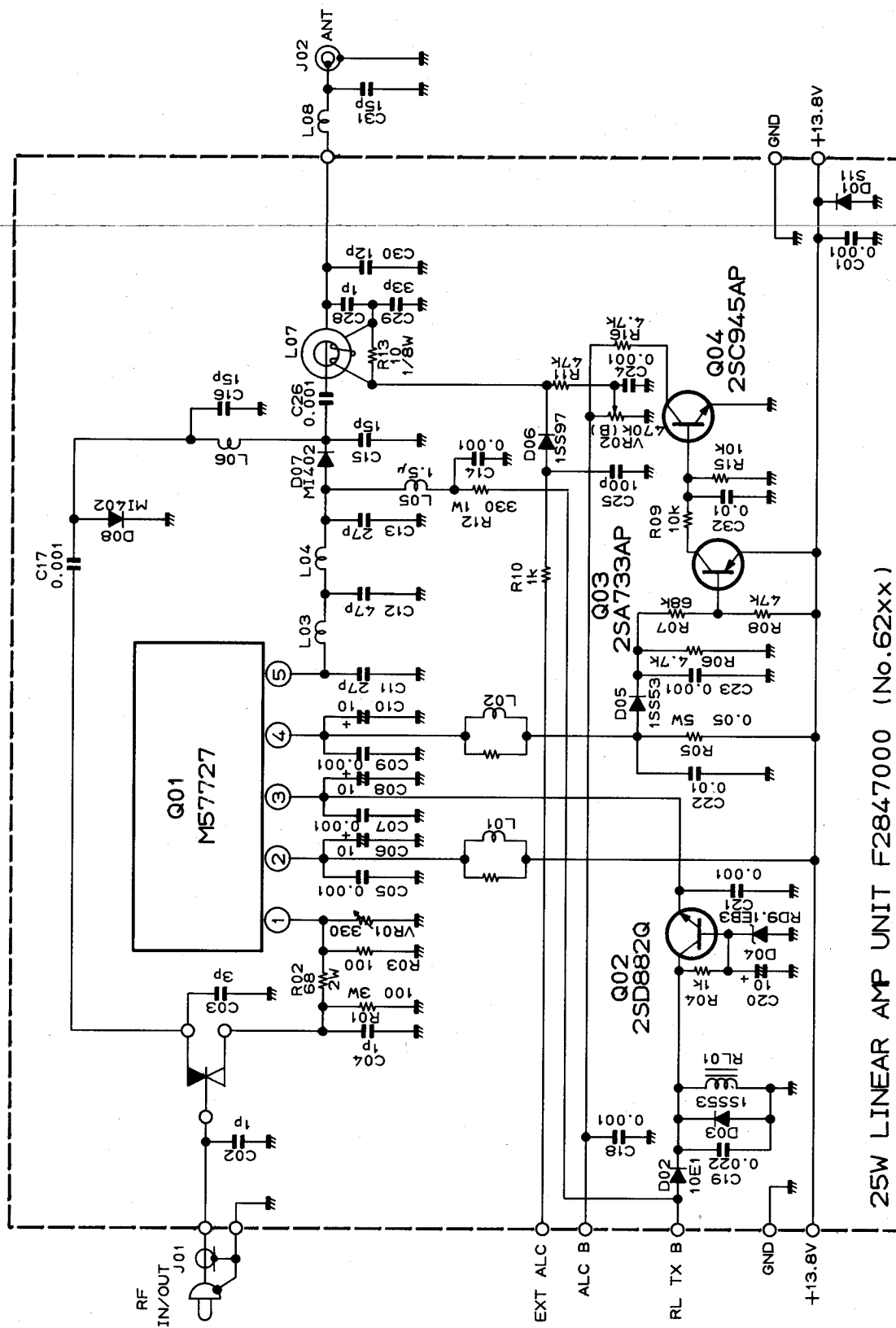








RESISTOR VALUES ARE IN Ω, 1/6W;  
 CAPACITOR VALUES ARE IN μF, 50V;  
 INDUCTOR VALUES ARE IN HENRIES;  
 UNLESS OTHERWISE NOTED.



25W LINEAR AMP UNIT F2847000 (No. 62xx)

RESISTOR VALUES ARE IN  $\Omega$ , 1/4W;  
 CAPACITOR VALUES ARE IN  $\mu$ F, 50WV;  
 INDUCTOR VALUES ARE IN HENRIES;  
 UNLESS OTHERWISE NOTED.