

777PLUS HF LINEAR AMPLIFIER

SPECIFICATIONS AND OPERATING INSTRUCTIONS

CIRCUIT DESCRIPTION

The 777PLUS HF linear amplifier features the latest in RF amplifier design. The circuit employs strip-line technology. This advanced tuning method eliminates both the requirement for hand selecting components and point-to-point wiring. This technology coupled with the 777PLUS' exclusive modular construction provides unsurpassed reliability and RF performance. A built-in cooling fan protects the RF transistors from thermal decay. The amplifier has a six stage electronic RF input attenuator that provides the radio operator with a wide selection of RF output settings, while maintaining a minimum VSWR. The 777PLUS features a high gain preamplifier that provides a minimum of +15dB gain on received signals and improves the signal-to-noise ratio of the transceiver.

SPECIFICATIONS AND FEATURES

Frequency Range	: 25 - 30MHz
Input VSWR	: 1.5 to 1 or less
Amplifier Gain	: 14dB minimum
Cooling Fan Air Flow	: 0.78m ³ per minute (27.6 C.F.M.)
Independent Preamplifier Gain	: 15dB minimum
Electronic RF Input Attenuator	: 6 Stages
Modes	: AM/FM/SSB/CW
RF Input	: 4 - 10 Watts Average (50 Watts PEP)
RF Output	: 200 Watts (AM/SSB)
DC Power Requirement	: 13.8 Volt DC @ 20 Amps Negative Ground Only
Dimensions	: 175mm(L) x 195mm(W) x 84mm(H)
Weight	: 1.90 kg
RF Transistors	: ERF7530 (x2) 100W RF MOSFET Transistors

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INSTALLATION

WARNING: THE 777PLUS IS FOR USE ON NEGATIVE GROUND ONLY POWER SOURCES. BEFORE INSTALLATION, MAKE SURE THE VEHICLE OR OTHER POWER SOURCE IS NEGATIVE GROUND ONLY!

1) LOCATION

Make sure to install the 777PLUS in a location where an adequate flow of air will cool the aluminum heat sink. Do not install in an enclosed space such as a console or glove box.

2) POWER CABLE

Additional power cable will be required for most installations. It is important to use an adequate gauge or wire size for the length of additional power cable that is used. For runs of cable that are 180cm or less use 12 gauge, or larger, wire. For runs of cable 360cm or less use 10 gauge, or larger, wire. Attach both the positive (red) and negative (black) leads directly to vehicle battery or other DC power source. Direct connection to the power source will maximum power output of the amplifier and this aid in eliminating certain types of receiver interference.

3) ANTENNA

Ensure that the antenna is rated for a minimum of 500 watts PEP.

4) COAXIAL FEED LINE

Use only a high grade coaxial cable, RG213, RG58A/U or Mini RG-8 is recommended. If you can not get the VSWR lower than 1.6 to 1 using your present cables it is possible that the coaxial cable has become a reactive component of your antenna system. To lower the VSWR to an acceptable level (1.4 to 1, or less) use the following formula to create new cables. All cables should be cut using this formula. NOTE: It is important that the shield be soldered at several points on each PL-259. WARNING: Do not transmit using the 777PLUS amplifier if the antenna VSWR exceeds 1.6 to 1.

$$\frac{142}{\text{Operating Frequency in MHz}} \times \text{Velocity Factor}^*$$

*The velocity factor of a coaxial cable with a polyethylene dielectric (center material) is 0.66. The velocity factor of a coaxial cable with a foam dielectric is 0.78. Use the respective number when factoring cable lengths.

For example, if the operating frequency is 28.500MHz and a foam dielectric coaxial cable is used the equation would be as follows:

$$\frac{142}{28.5} \times 0.78 = 3.9 \text{ Meters}$$

5) CONNECTIONS

Connect the cable from the transceiver to the input connector marked TRANS on the rear panel of the amplifier. Connect the cable from the antenna to the output connector marked ANTENNA.

OPERATION

- 1) Turn the power switch (PWR) to the ON position, the status LED above the switch will light and the cooling fan will automatically activate.
- 2) Select one of the six power settings using the rotary switch marked RF OUTPUT.
- 3) Select the mode of operation using the MODE switch. When operating on AM, FM or CW use the AM position. The SSB position incorporates a time delay circuit to ensure continuous transmission during SSB operation.
- 4) Turn on the transmitter and the LED marked ON AIR will light indicating the amplifier is in operation.
- 5) To bypass the amplifiers output stage simply turn the power switch (PWR) to the OFF position. The transceiver will now produce its full rated output power.

PREAMPLIFIER

The 777PLUS comes equipped with an exclusive independent receive preamplifier that may be used with or without the main amplifier. The receive preamplifier is used to increase the signal-to-noise ratio of the receiver and amplify weak incoming signals.

To use the preamplifier, turn the PRE switch to the ON position. The LED above the PRE switch will light indicating that the receive preamplifier is on and functioning. The preamplifier may be used at any time, whether the PWR switch is ON or OFF.

NOTE: The 777PLUS preamplifier circuit develops a very high level of gain. This extreme level will bring low, unintelligible signals above the noise level to the point where they can be understood. Under some conditions, when signal levels all exceed "S9", it is recommended that the preamplifier not be used. In these situations, the extra-high gain developed by the preamplifier may cause the receivers in some radios to break into oscillation.

DUTY CYCLE

The 777PLUS incorporates a cooling fan to ensure a maximum life from the RF transistors. It is recommended that the amplifier be used at no more than a 50% duty cycle with a maximum transmission time of 5 minutes followed by 5 minutes with no transmissions. Proper care and use of the 777PLUS will increase the life of the product.

FUSE REPLACEMENT

Disconnect the amplifier from the voltage source. Remove the 4 screws on the rear panel/bottom cover. Do not remove the screws attached to the RF connectors (SO-239). When removing the rear panel/bottom cover ensure that the 2 wires connecting the cooling fan are not damaged. The fuse is a standard 20 amp automotive type, make sure that the replacement fuse is rated for 20 amps, it will have a yellow colored cap. The clips holding the fuse are very tight, it is recommended to use extreme care and pull straight up, do not pull the fuse from side to side. Install the new fuse in the same manner, pushing straight down, applying even pressure until the fuse is seated properly in the clips.