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RF-215D
AMPLIFIER
MANUAL

RF TECHNOLOGY, INC.

RF-2185D AMPLIFIER

DESCRIPTION

The RF-215D amplifier consists of a regulator board and RF amplifier boards mounted in a machined aluminum weatherproof housing. The RF-215D amplifier is not field repairable due to the expertise and test equipment required to effectively make repairs. A general description of the RF amplifier section and the operation of the regulator circuit are presented for information purposes.

REGULATOR:

The regulator regulates the input voltage (+10.6 to +18VDC) to +10.0V and generates a –5V voltage.

A +5V regulator (U2) provides the reference voltage for the regulator consisting of U3A and Q1. The regulated voltage of +10V is set by R6.

The +5v output of U2 is also fed to a dc-dc converter IC (U1) through a filter consisting of L1, C19 and C20. The –5V output of U1 is used to control the current in the microwave FET transistors. A circuit (U3B) is used to turn off the regulator transistor Q1 until the –5V is present or in the event of the loss of this negative voltage. This circuit is required because a microwave FET transistor can be damaged if the +10V were to be applied before the current regulating –5V is available.

The regulator circuit board also contains a detector amplifier consisting of U4A and U4B that amplifies the RF detector output to level used for indicating the presents of an RF output signal.

A mute input provision is provided on the regulator board for muting the RF output when a transmitter is placed in the standby mode.

RF AMPLIFIER:

The RF amplifier is a three stage amplifier with input and output isolators. The input and output isolators provide an input and output impedance match and reduce the possibility of instability that could be caused by an external impedance mismatch.

The circuit boards are a microwave substrate onto which is etched a computer aided designed microstrip circuit. Incorporated in the microstrip circuit design is a coupler for the RF output detector and a lowpass filter.

The amplifier is operated in the saturated mode and requires an input level of 10 to 40mW (+10 to +16dBm) to achieve the rated output level of 12W (+39dBm).

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RF-215D AMPLIFIER INSTALLATION

When installing an RF-215D amplifier caution has to be taken so that the heat generated within the amplifier is removed via a good thermal connection between the amplifier and the surface it is being mounted to. The surface the amplifier is to be mounted to has to be smooth and free of surface irregularities and large enough to provide a heat sink for the amplifier. Ideally this surface should be free of coatings (paint, etc.). Thermal compound has to be used between the amplifiers mounting surface and the surface it is being mounted to. An optional heat sink is available for certain applications when a mounting surface is not available that will provide an adequate heat sink for the amplifier.

When installing an RF-215D outdoors the amplifier has to be mounted so that the connectors are facing down. In ENG truck applications the connectors are to be facing down during operation and to the rear of the truck then the mast is in the stowed position.

Four 10-32 threaded holes are provided for mounting the amplifier refer to the RF-215D outline drawing number ASXXXX for the hole pattern.

NOTE: The RF-215D amplifier can be damaged if it is operated without an adequate heat sink and/or air flow.

Please consult the factory if you have any questions or concerns on installing the RF-215D amplifier.

RF-215D AMPLIFIER SPECIFICATIONS

Frequency Range:	1990 to 2500GHz.
RF Power Output:	12Watts (+41dBm)
RF Power Input Range:	10 to 40mW (+10 to +16dBm)
DC Input voltage Range:	+10.6 to +18VDC
DC Current:	4Amps at +12VDC
Operating Temperature Range:	-30 to +50 Deg. C (-22 to +122 Deg. F)