

MIRAGE
COMMUNICATIONS EQUIPMENT

M I R A G E
C O M M U N I C A T I O N S

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R . F . A M P L I F I E R

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B-1016-G

The Mirage B-1016-G is the next generation of Power Amplifiers for 144-148 MHz. New features make it the most useful and versatile amplifier available. Features include automatic power shut-down circuitry for protection against high antenna VSWR, high temperature and excessive R.F. power input. A newly designed GaAsFET receive pre-amp provides high gain and low-noise amplification for weak signal applications. The pre-amp includes an attenuator to reduce signal output level. This is useful in preventing Receiver Overload and subsequent Intermodulation Distortion caused by strong signals. Provision is made for automatic or remote (external) keying, and for remote control of all front panel functions using the Mirage/KLM RC-1 Remote Control Unit. The Mirage B-1016-G is capable of FM, SSB, and CW operational modes.

SPECIFICATIONS:

Frequency Range.....	144 to 148 MHz
R. F. input power (Drive).....	0.5 to 15 Watts
R. F. output power.....	160 Watts with 10 Watts drive.
Duty Cycle.....	Intermittent (ICAS)
Modes.....	FM, SSB, CW
Receive Pre-amp.....	GaAsFet, Gain 21/15 dB-Nominal. Noise figure less than 0.6 dB. 1 dB compression point greater than -13 dBm input (Nominal)
VSWR Power Shut-down point.....	3:1 Approximately
R.F. input Power Shut-down point.....	15 Watts Nominal
Temperature Power Shut-down point.....	175 Degrees F.
Keying.....	Automatic (R.F. sensing) or remote (external).
Input/Output Impedance.....	50 ohms
R.F. connectors.....	SO-239 (UHF)
Remote keying connector.....	RCA phono
Remote control connector.....	6 pin Molex
Supply voltage.....	13.8 VDC (for full R.F. power output)
Supply current.....	25 amps (nominal)
Fuse.....	Low voltage, fast blow. 35 amps.
Physical Dimensions.....	12 x 3 x 5 1/2 inches.
Weight.....	5 pounds

INSTALLATION:

The Mirage B-1016-G may be mounted using the brackets supplied or simply placed in a convenient operating position. In either case, there must be adequate ventilation for the finned heat-sink. This generally means at least 1 inch clearance from the sink to any surrounding enclosure and an unobstructed flow from the front to the back of the sink. CAUTION: with extended use the heat sink becomes very hot. If it is necessary to extend the D. C. power leads use a minimum #8 gauge wire. Use a minimum length of good quality 50 ohm cable between the radio and the amplifier. The antenna system should have a VSWR of 1.5:1 or better for best performance. The receiving pre-amp gain is set to the high value at the factory. To switch to minimum gain move the DIP switch located under the left side cover near the power supply leads to the "up" position. The switch may be accessed through the fourth slot from the rear using an appropriate small tool. If desired, the transmit relay hold-in (hang-time) may be adjusted by adjusting the potentiometer located behind the seventh slot from the rear on the right side of the amplifier. If external amplifier keying is desired, a switched ground connection must be provided to the center pin of the RCA phono jack.

FRONT PANEL SWITCHES/LED'S:

POWER ON/OFF SWITCH.....	Turns the D.C. power on or off.
SSB/FM SWITCH.....	Selects relay time delay for the mode of operation. The relay drop time is lengthened for the SSB mode of operation.
PRE-AMP ON/OFF SWITCH.....	Turns Pre-Amp power on or off.
POWER LED.....	Indicates that D. C. power is applied.
PRE-AMP LED.....	Indicates that the pre-amp is turned on.
TX LED.....	Indicates that the amplifier is keyed on.
SWR/OVERLOAD LED.....	Indicates amplifier shut-down due to excessive VSWR, temperature, or R. F. drive power.

REAR PANEL CONNECTORS:

RADIO (SO-239).....	R. F. input from radio.
ANT (SO-239).....	R. F. output to antenna.
RCA phono (Unmarked).....	Remote keying.
Molex (Unmarked).....	Remote control.

INTERNAL ADJUSTMENTS:

- SSB DELAY..... This allows you to change the holding time on the XMT relay. This adjustment is accessible through the 11th or 12th slot from the back on the right side.
- PRE-AMP ATTENUATOR SWITCH..... Sets the Pre-amp gain to full or reduced value. It is accessible through the 4th or 5th slot from the back on the left side.
- INPUT VSWR AND OUTPUT POWER..... These adjustments are made at the factory and should not require field adjustment.
- PRE-AMP TUNING..... These adjustments are also made at the factory for best gain and noise figure performance. They should not require field adjustment.

TROUBLESHOOTING:

The Mirage B-1016-G is designed for long, trouble-free performance and should not require extensive troubleshooting in the field. Many causes of common malfunctions are eliminated by the built-in protective circuitry. NOTE: In the event of automatic power shut-down, the amplifier must be turned off and the cause of shut-down determined and removed. In case of difficulty check the following before assuming amplifier malfunction:

- a. Loose antenna or power supply connections.
- b. VSWR of antenna system.
- c. Coaxial cables from radio to amplifier, and amplifier to antenna.
- d. Output voltage of power supply.
- e. Power output of radio.
- f. Improper fuse rating.

FIVE YEAR LIMITED WARRANTY

Any MIRAGE COMMUNICATIONS product found defective in materials or workmanship (except R. F. Power Transistors) will be repaired or replaced at no charge within Five years from date of purchase. The product must be returned to the factory, freight prepaid. R. F. Power transistors are warranted One year from date of purchase.

All internal adjustments are factory set for best performance consistent with reliable operation. Changing internal adjustments may void the Five year warranty.

Unauthorized repairs or modifications may also void the Five year warranty. We recommend that units requiring repair be returned to the factory.

R. F. power transistor replacement after the initial One year warranty period, but within the Five year warranty period must be accomplished at the factory in order to maintain the original Five year product warranty.

This unit was not designed for repeater operation, and its use in such service is at your own risk. Consult the factory for recommendations regarding repeater service.

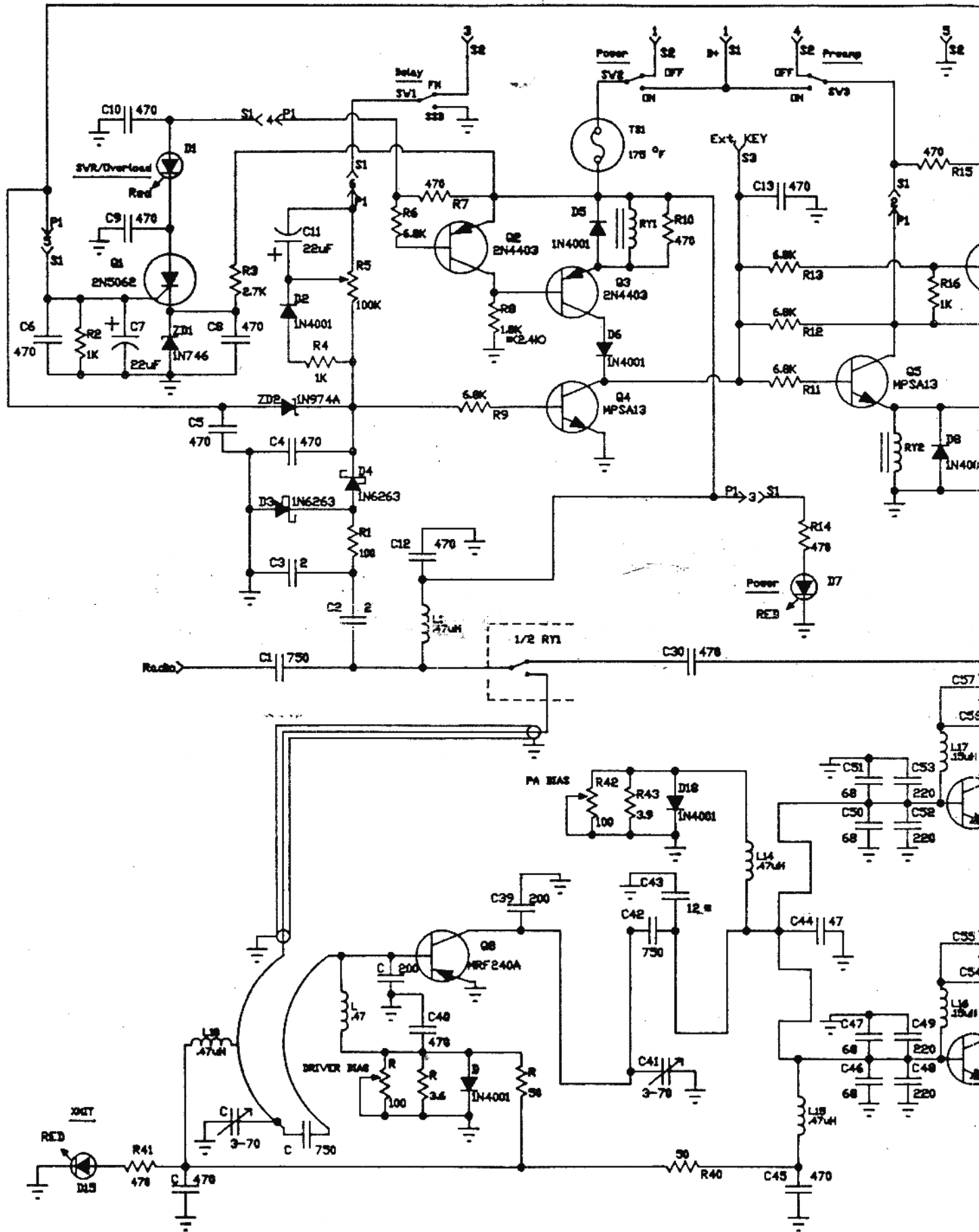
The WARRANTY REGISTRATION CARD must be submitted within ten days to obtain warranty service.

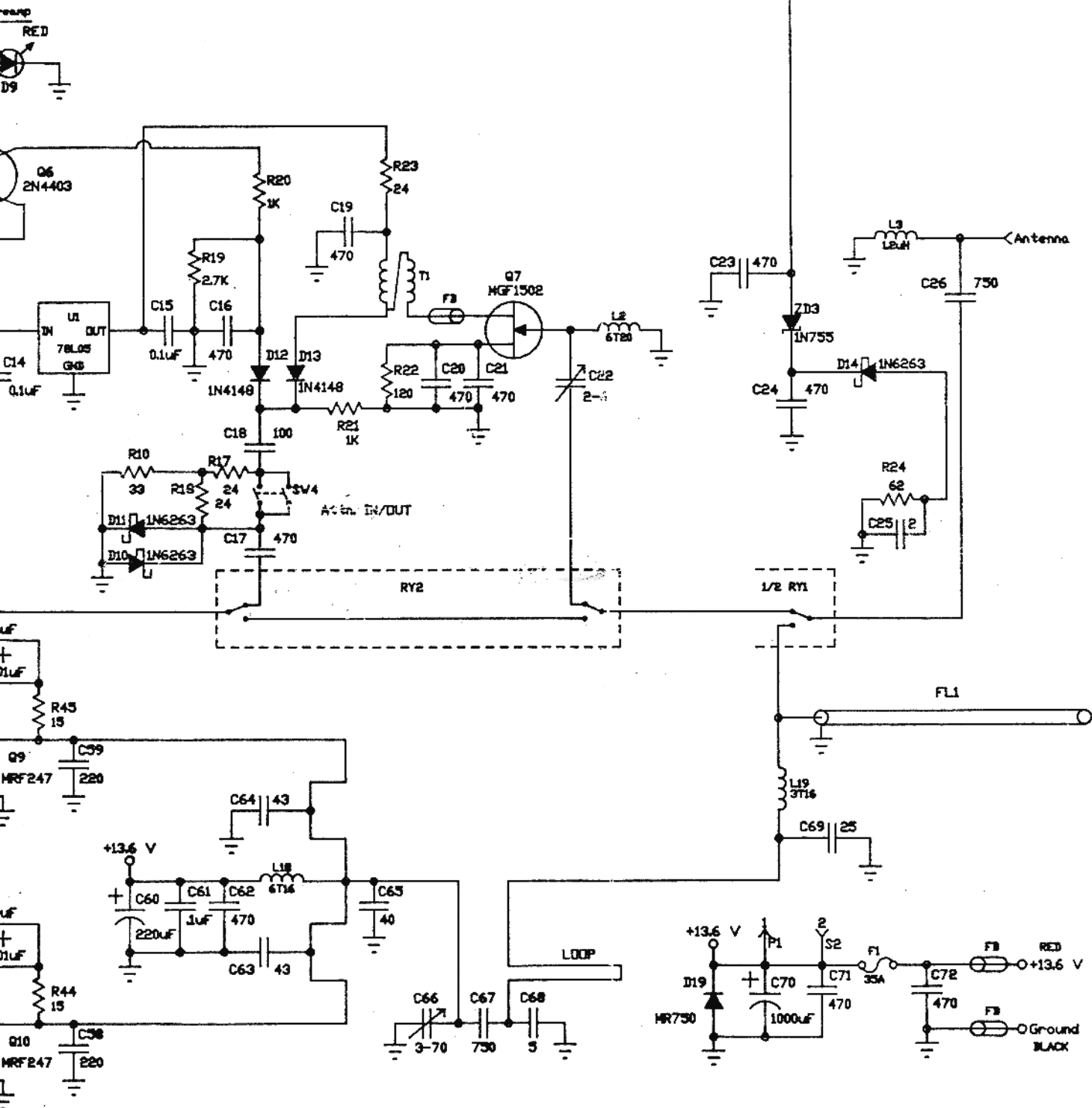
MIRAGE COMMUNICATIONS assumes no responsibility for any antenna or other accessories connected to this product.

This warranty does not apply to units that have been misused, accidentally damaged, subjected to unusual environmental conditions, or have had unauthorized modifications of repair.

WARNING

This unit should not be operated with the cover removed. The cover confines R.F. radiation, including harmonics, to the inside of the case. Operation of the unit without the cover could result in direct harmonic radiation. The harmonic filters contained in the circuit will not suppress direct radiation.





NOTE: ■ Factory Select

1) P1 and S1 are internal circuit connectors

2) S2 is the 6 pin REMOTE connector

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