

## Mirage B-320-G

The Mirage B-320-G is a VHF power amplifier designed for 2 meters covering 144-148 MHz. The "Hi" and "Lo" input selector switch makes this amp useable for both handheld and mobile transceivers. Features include all mode compatibility (FM/SSB/CW), wrap-around heat sink, high gain GaAsFET preamplifier, and user selectable input:

--"Lo" for Handheld radios-- 250 mW to 10 Watts

--"Hi" for Mobile radios-- 10 Watts to 50 Watts

### FEATURES

1. High output power of 200 watts  
200 watts is achieved with 250 mW to 10 Watts input on "Lo" or 10 Watts to 50 Watts input on "Hi".
2. All mode compatibility (FM/SSB/CW)  
In the SSB mode the time constant of the Voice Operated Transmit (VOX) relay is set to approximately one second to prevent annoying relay chatter during conversation, and achieving smooth SSB transmission.
3. Wrap-around heat sink  
The heat sink and combined case, by original design is used for excellent heat dissipation as well as a new smart appearance.
4. "Lo" Input power from 250 mW to 10 Watts  
With an input power of 10 Watts maximum on "Lo" , the Mirage B-320-G is compatible with most modern handheld and mobile transceivers.
5. "Hi" Input power from 10 Watts to 50 Watts

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With an input power of 50 Watts maximum on "Hi" , the Mirage B-320-G is compatible with most modern mobile transceivers.

6. GaAsFET receive pre-amplifier

A built-in low noise GaAsFET receive pre-amp enables you to enjoy a more comfortable VHF QSO with weak stations.

**SPECIFICATIONS**

FREQUENCY	: 144 TO 148 MHz
"Low" RF INPUT	: 250 mW - 10 Watts
"Hi" RF INPUT	: 10 Watts - 50 Watts
RF OUTPUT	: 200 WATTS TYPICAL
DUTY CYCLE	: INTERMITTENT (ICAS)
MODES	: FM/SSB/CW
RECEIVE PRE-AMP	: 15db TYPICAL
KEYING	: AUTOMATIC SENSING
SUPPLY VOLTAGE	: 12 - 15 VOLTS DC
RF CONNECTORS	: TWO (2) SO-239 UHF
SUPPLY CURRENT	: 15 AMPS or better
FUSE	: 30 AMP
INPUT/OUTPUT IMPEDANCE	: 50 OHMS

## EXPLANATION OF FEATURES

### FRONT PANEL

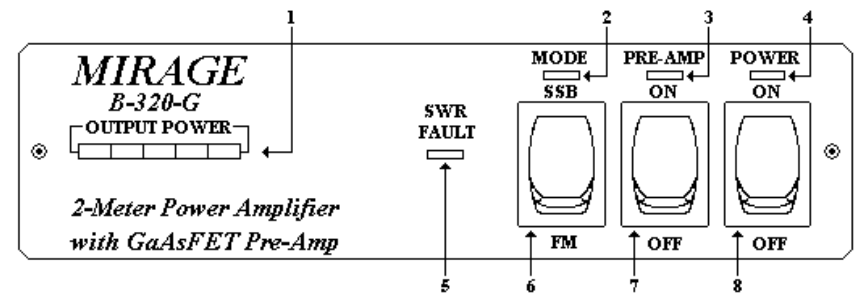
1. OUTPUT POWER LED
2. MODE LED
3. PRE-AMP LED  
The PRE-AMP LED will illuminate when the pre-amp is engaged. The pre-amp can be used independently even if the amplifier's power is off.
4. PWR LED  
If the LED is in the off position the amplifier will pass the RF in a straight through mode. This means that both the receive and transmit signal will bypass the internal circuitry of the amplifier. If the LED is illuminated then the amplifier is in the standby mode and will amplify any signal that is supplied to its input of more than 250 mW.
5. SWR Fault LED
6. MODE (SSB/FM) SWITCH  
When in the SSB mode the amplifier will delay the change over time of the carrier operated transmit relay to 1 second before disengaging. This will prevent relay chatter as a result of working SSB or CW. In the FM mode the relay will operate normally and disengage once the transmit signal is dropped.

7. PRE-AMP (ON/OFF) SWITCH

When engaged the amplifier's pre-amp will be switched into the circuit for receive. A sensing circuit will disengage the pre-amp when a transmitted signal is applied to the amplifier's input. The pre-amp may also work independently if the amplifier's main power switch is off.

8. POWER (ON/OFF) SWITCH

When engaged, the amplifier is ready to amplify any signal applied to its input of the proper frequency.



**BACK PANEL**

## 9. INPUT POWER SWITCH

## 10. RADIO

The coax from your radio or exciter is connected to this connector.

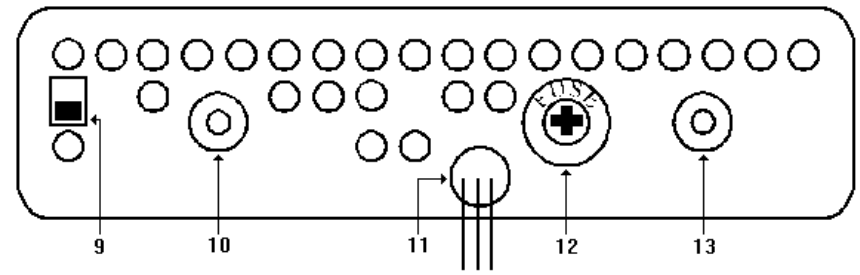
## 11. +13.8V DC

This connection has two wires. The RED wire is for positive. The BLACK wire is for negative.

## 12. FUSE

## 13. ANTENNA

The coax from your antenna is connected to this port.



## **INSTALLATION**

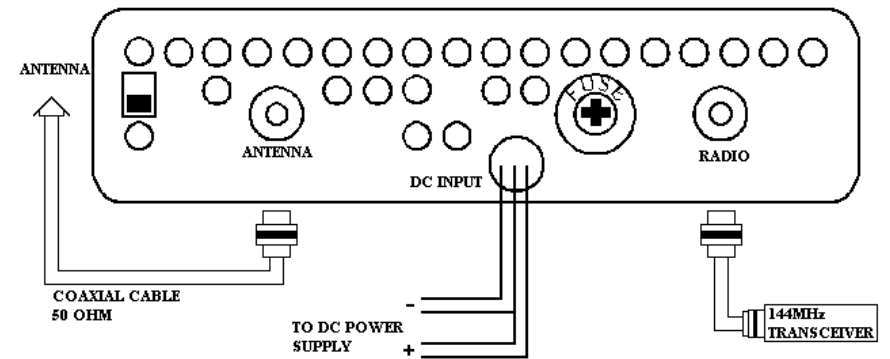
The Mirage B-320-G may be mounted using the bracket supplied or simply placed in a convenient operating position. In either case, there must be adequate ventilation for the finned heat-sink. This generally means at least 1 inch clearance from the heat-sink to any surrounding enclosure and an unobstructed flow from the front to back of the heat-sink. Do not operate the amplifier in places where it will be exposed to the direct rays of sun or a nearby heat source such as heaters, radiators, etc.

**CAUTION:** With extended use the heat-sink may become very hot.

## **Wiring and Operation**

If it is necessary to extend the DC power leads use wire of the same gauge in order to avoid a voltage drop on your power leads. Be careful that the DC power supplied is no higher than 15 volts or damage may result. A source voltage of 13.8 volts is recommended and should be used whenever available. Some automobiles will generate a high current surge when started. It is recommended that the amplifier be placed in the off position when starting your vehicle.

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 the best performance. If used in a mobile installation, choose a good mobile antenna which will withstand the power of this amplifier. Be sure to check the SWR for any degrading once the antenna has been heated by a few minutes of operation. An antenna with a rating of 200 watts is recommended.



## TROUBLESHOOTING

The Mirage B-320-G is designed for long, trouble-free performance and should not require extensive troubleshooting in the field. If difficulty is encountered, check the following before assuming the amplifier has a malfunction:

1. Loose antenna or power supply connections
2. SWR of the antenna system
3. Coaxial cables from radio to amplifier, and amplifier to antenna
4. Output voltage of power supply
5. Power output of radio
6. Improper fuse rating

**TECHNICAL ASSISTANCE**

If you have any problem with this unit, first check the appropriate section of this manual. If the manual does not reference your problem or your problem is not solved by reading the manual you may call MIRAGE at 601-323-8287. You will be best helped if you have your unit, manual and all information on your station handy so you can answer any questions the technicians may ask.

You can also send questions by FAX to 601-323-6551. Send a complete description of your problem, an explanation of exactly how you are using your unit, and a complete description of your station.



# MIRAGE

## COMMUNICATION EQUIPMENT

300 Industrial Park Road  
Starkville, MS 39759 USA  
Tel: (601) 323-8287  
FAX: (601) 323-6551

### ONE YEAR LIMITED WARRANTY

Any Mirage Communications product found to be defective in materials or workmanship will be repaired or replaced (at Mirage's option) for a period of one year from the date of original purchase.

During the warranty period Mirage Communications will provide, free of charge, both parts and labor necessary to correct defects in material or workmanship.

To obtain such warranty service, the original purchaser must:

- (1) Provide "proof of purchase"
- (2) Ship the product in its original container or equivalent, fully insured and shipping charges prepaid, to Mirage, as addressed below.

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

Improper maintenance or repair may also void this one year warranty. We recommend that units requiring repair during the warranty period be returned to the factory.

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

Mirage assumes no responsibility for any item connected to or used in conjunction with this product.

The foregoing constitutes Mirage's entire obligation with respect to this product and the original purchaser and any user or owner shall have no remedy and no claim for incidental or consequential damages.

All Mirage products to be serviced, in-warranty or out-of-warranty, should be shipped, freight paid to: **Mirage, 921 Louisville Road, Starkville, MS 39759, USA.** Product must be accompanied by a letter describing the problem in detail. Be sure to include **YOUR NAME, ADDRESS, AND TELEPHONE NUMBER!**

This warranty gives specific legal rights and you may also have other rights which vary from state to state.

**WARNING:** This unit should not be operated with the cover removed. The cover confines RF radiation. The harmonic filters contained in the circuit will not suppress direct radiation that may result if the cover is removed.

