

PAC 30-130-B
150 - 174 MHz
AMPLIFIER

SPECIFICATIONS

POWER OUTPUT:	130 watts nominal with 30 watts of drive
POWER INPUT:	10 to 45 watts
FREQUENCY RANGE:	150 to 174 MHz, any 6 MHz without retuning
INPUT VSWR:	Less than 1.5:1 any 6 MHz Band with Less than 1.5:1 in By-pass Mode
IMPEDANCE:	50 OHM nominal
SUPPLY VOLTAGE:	13.6 VDC nominal (11 - 16 VDC)
SUPPLY CURRENT:	18 amps nominal
CONNECTORS:	RF-SO 239 "UHF" jacks, remote on-off RCA phono jack
PROTECTION CIRCUITRY:	Internal 35 amp fuse, and overtemp. sensor - 170° F
SIZE:	12" by 3" by 5½", 5 pounds
OPERATING CLASS:	Class C, FM and CW only
KEYING:	Automatically keyed via the driving RF when the amplifier is switched on.
TYPE ACCEPTANCE:	Type acceptance under FCC part 90

OPERATION

The PAC-30-130 B is controlled by front panel switch or the optional on-off switch supplied by the installer. When the switch is in the "on" position the amplifier will amplify the output of your transmitter to the 100 watt level. When the PAC 30-130 B is "off" the output of your transmitter passes directly through the amplifier to the antenna.

Should the PAC 30-130 B fail to operate properly it should be serviced by a professional service technician holding an FCC radio telephone license.

INSTALLATION AND TUNE-

Installation of the PAC 30-130 B is quite simple. The output of the transceiver is connected to the "radio" input of the amplifier via a short piece of coax (RG-8 preferred). The output of the amplifier, (marked "ANT") is connected to the vehicles VHF antenna. The DC power cord is connected using at least No. 10 wire to the vehicles battery or high current 13.6 VDC source.

The amplifier can also be controlled from the drivers compartment. Running a wire from the PAC 30-130's RCA connector through a switch to + 13.6 VDC will allow the amplifier to be turned on or off.

No tuneup should be required as circuitry is broad-around the customers frequency as tuned at the factory. Should a frequency change take place requiring retuning, follow the step-by-step procedure outlined under "tune-up procedure".

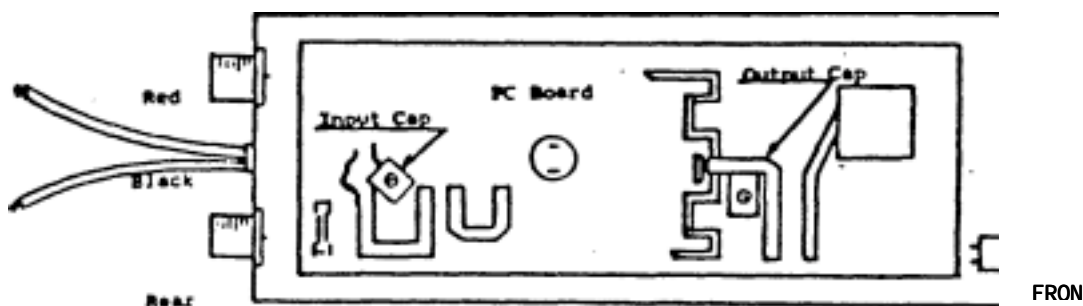
INSTALLATION HINTS

Should you have problems with your PAC 30-130 B installation, check the following:

- 1) Are all cables 50 Ohm, and free from shorts or breaks in shield?
- 2) Is the transceiver particularly sensitive to VSWR? Try varying the length of the coax connecting the amplifier to the transceiver. An electric half wave-length is usually the best length. (half wave-length x velocity-factor). 3) Is the amplifier keying (RF) intermittently or does it buzz? Check for inadequate drive level from the transceiver. Check for high antenna VSWR. Try changing antenna coax length. Check for RF feedback into your transceiver due to open mike shield, close antenna proximity, high antenna VSWR, etc.
- 4) Is the amplifier producing out-put power? Check drive level by placing a wattmeter between the transceiver and the amplifier input. Check for high VSWR at this point. Adjust input tuning if required. A bad transistor may cause this-condition. Check supply voltage at the amplifier. If not at least 13.5 VDC specified, power will be down in direct proportion. Check supply cable connections and wire size to determine the voltage (source).
- 5) Make sure that the watt meter you are using is rated the frequency being measured. Also be sure that the reading is near the top rather than the bottom of the scale. All wattmeters have an accuracy tolerance based on full scale reading. Two percent of 250 watts is a 5 watt error. For example a 5 watt error at the 250 end of the scale is acceptable, but becomes quite intolerable at the 10 watt end of the scale!

TUNE UP PROCEDURE

- 1.0) Remove the ten screws holding the cover and remove the cover.
- 2.0) Note the two compression trimmer capacitors, the trimmer near the relay and the front of the chassis tunes the output. The trimmer near the rear of the chassis is used to set the input match.



- 3.0) Apply drive to the amplifier at the desired operating frequency and tune the input matching capacitor for minimum VSWR (less than 1.5:1).

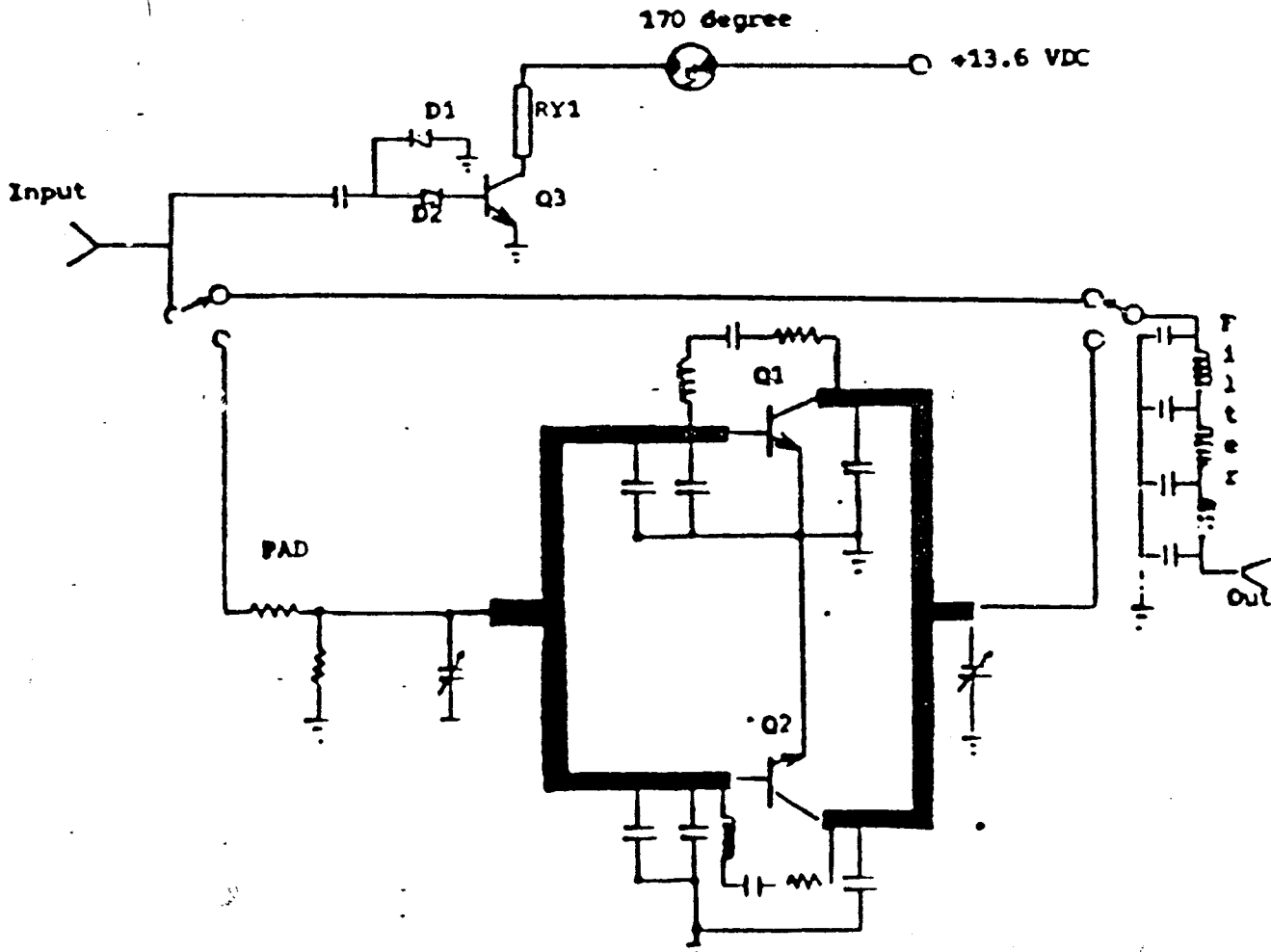
- 4.0 Tune the output capacitor for maximum output. This should then be turned clockwise until the power drops down about 5 watts from the peak. This assures the amplifier is operating at peak efficiency.
- 5.0 Recheck VSWR and output making fine adjustments to meet the input and output specifications. A final spectrum analysis is always a good idea.

All adjustments on this amplifier must be done by person holding at least a second class FCC license.

No tuning should be required if the amplifier is used on the frequency for which it was factory tuned (13.6 MHz).

CIRCUIT DESCRIPTION AND THEORY

The input signal from the transceiver first passes through a 1.5 db pad to reduce the power and prevent overload. The signal is then split and goes to Q1 and Q2 through three respective base matching networks. The amplified outputs of Q1 and Q2 pass through matching networks and are combined. The signal is then fed through the seven section bandpass filter to the output. Q1 and Q2 have a network connected between the base and collector to prevent low frequency oscillations. Diodes D1 and D2 along with Q3 actuate a DPDT relay to switch the amplifier in or out of the circuit.



MIRAGE

COMMUNICATIONS EQUIPMENT

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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
- (2) Ship the product in its original container or equivalent, fully insured and shipping charges prepaid to Mirage, as addressed below.
- (3) Mirage agrees to repair without charge to the original owner any defective product under warranty provided the product is returned with postage prepaid to Mirage with a personal check, cashier's check, or money order for \$10.00 covering postage and handling.

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.

Using Mirage non-repeater amplifiers for repeater operations is not recommended and will void this warranty.

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:

~lira~~c

921 Louisville Road

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.