

1200MHz FM POWER AMPLIFIER

INTRODUCTION

The VB-50 is a 1200 MHz, 10W FM power amplifier designed especially for the TR-50 portable transceiver. Solid-state switching is provided to simplify the connections to the transceiver. A newly developed metal-type low-noise microwave GaAs (Gallium Arsenide) FET is used to prevent any loss of receiver performance when the amplifier is connected to the radio.

PRECAUTIONS

- (1) Since no specific radiation hazard level has been established yet for this band we recommend that this amplifier be used in Fixed Station locations only.
- (2) The VB-50 is supplied with the following accessories:
 - DC cable (with 2-pin plug)1
 - Fuse (8 Amp)1
 - Foot4
 - Instruction manual1
 - Warranty card (U.S.A. only)1

CONTROLS AND THEIR FUNCTION

(Front panel)

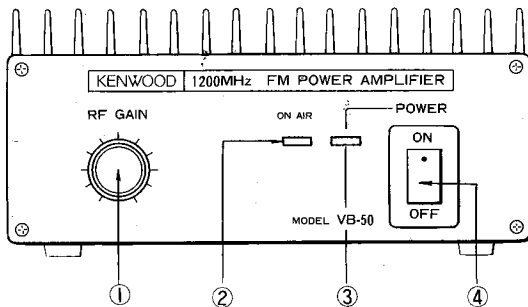


Fig. 1

(Rear panel)

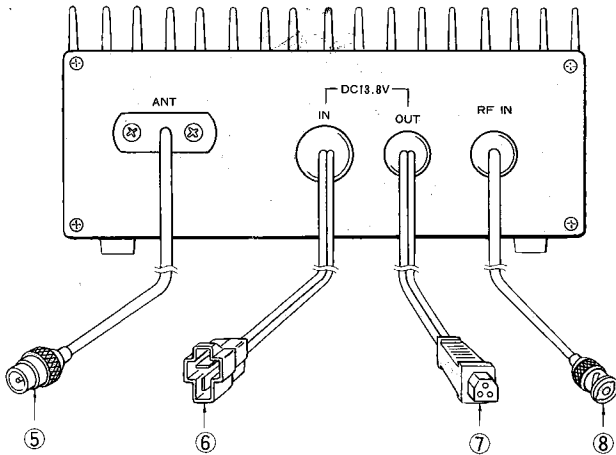


Fig. 2

① RF GAIN control

Rotate this control clockwise to increase the gain of the receiver preamplifier. Use only the minimum amount necessary as excessive levels will also increase the noise floor.

② ON AIR indicator

This indicator will light when the amplifier is keyed by the TR-50.

③ POWER indicator

This indicator will light when the amplifier is turned on with the POWER switch.

④ POWER switch

Place this switch to ON to apply power to the amplifier.

⑤ ANT terminal/cable

Connect to an antenna with an impedance of 50Ω. An N-type connector is supplied on the cable.

⑥ DC 13.8V-IN terminal/cable

This cable is used to connect the amplifier to a 13.8V DC power source, and is provided with a 8 amp fuse.

⑦ DC 13.8V-OUT terminal/cable

This cable is used to supply power to the TR-50.

⑧ RF IN connector/cable

Connect the BNC connector to the external antenna connector of the TR-50.

BEFORE OPERATION

(1) Installation location

Select a location that provides adequate ventilation. Do not place anything on or near the amplifier.

(2) External antenna

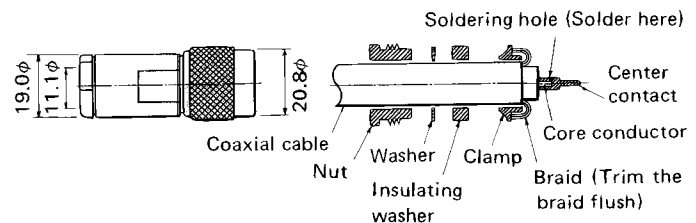
Use as large a 50Ω coaxial cable as possible to prevent any additional line losses. Use as short a lead in as possible!

(3) Connection between the antenna connector and coaxial connector.

(Example)

Attach the end of the coaxial cable as shown in the illustration. Pay particular attention when soldering the center conductor. When soldering has been complet-

ed clean the connections thoroughly to remove any flux residue. Tighten the nut securely when soldering has been completed.



Dimensions for an N-type connector with RG-8.9/U

Fig. 3

(4) Power supply

This amplifier is designed for use with a well regulated DC supply with a current capacity of at least 6A at 13.8V DC. The PS-430 is suggested. The supplied cable is color coded; connect the red lead to the positive (+) terminal and the black lead to the negative (-) terminal. Be sure to observe the correct polarity or damage may result to the amplifier. Use the shortest leads possible.

(5) TR-50 S-meter deflection

When the VB-50 RF GAIN control is set to maximum (full clockwise) the S-Meter of the TR-50 may indicate a signal when no signal actually exists. This is due to the raising of the noise floor due to the increase gain thru the Pre-amplifier. It is not a malfunction.

OPERATING INSTRUCTIONS

Connect the VB-50 and the TR-50 as shown in the illustration. Before connection, make sure that the POWER switches of both units are set to "OFF".

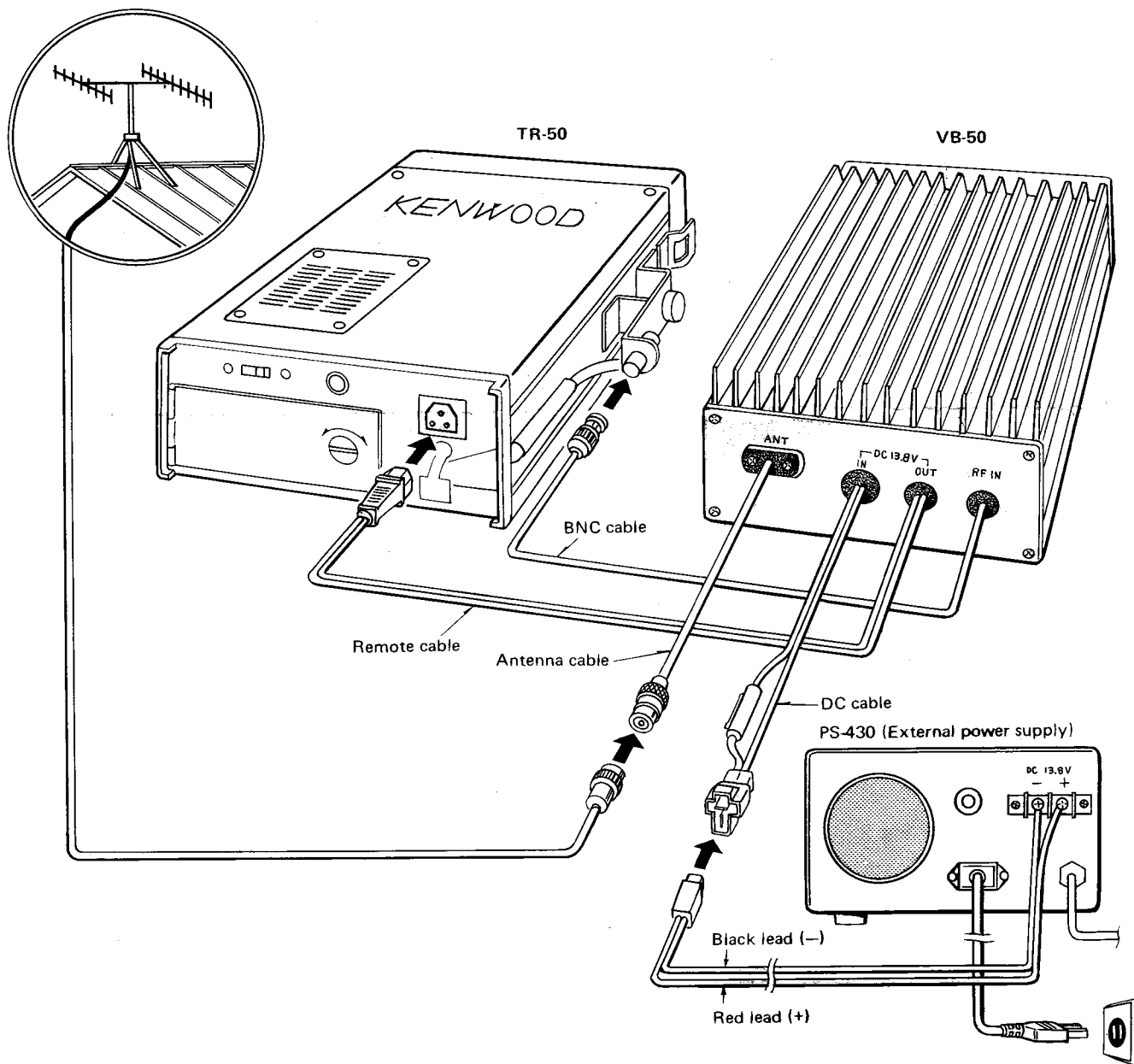


Fig. 4

(1) Mounting the rubber feet

Peel the backing from the feet and attach them to the points shown in the illustration using finger pressure. For best results clean the mounting area before attachment. Application of hot air from a hair dryer will also increase the adhesive hold.

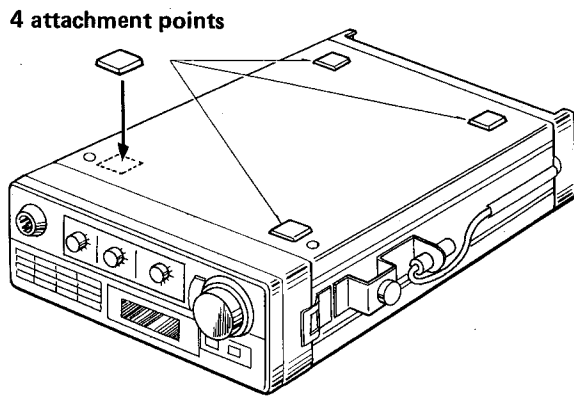


Fig. 5

(2) How to place the unit

The VB-50 has been designed so that it can be positioned either to the left or right of the TR-50; select the setting as desired. After setting, fix the external antenna cable to a position that will not apply unnecessary force to the VB-50.

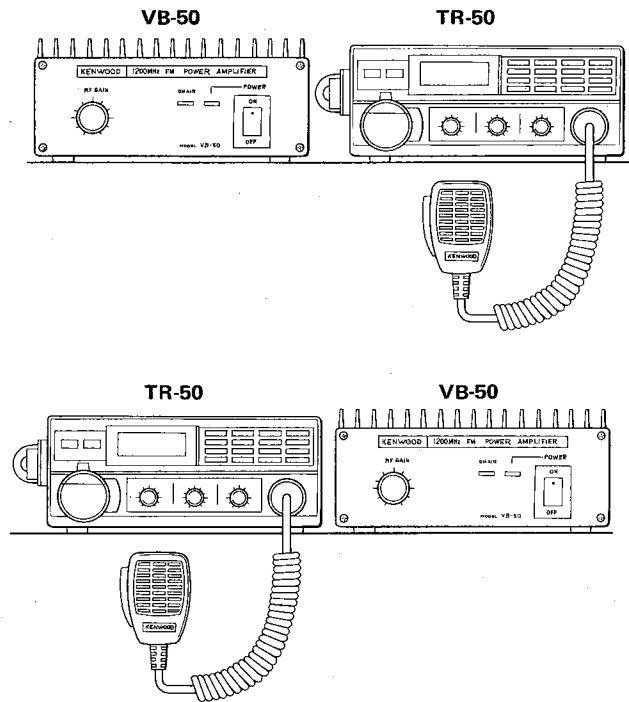


Fig. 6

SPECIFICATIONS

(1) General

Frequency range	: 1260 to 1300 MHz
Mode	: F3 (FM)
Antenna impedance	: 50 ohms
Input impedance	: 50 ohms
Power requirement	: 13.8 V DC \pm 15%
Grounding	: Negative
Current drain	: Less than 450 mA (reception) Less than 5 A (transmission)
Dimensions	: 121 (121) W x 50 (57.2) H x 192 (216) D mm (4-3/4" (4-3/4") W x 2" (2- 1/4") H x 7-5/8" (8-1/2") D) (Dimensions inside () include projections.)
Weight	: Approx. 1.2 kg (2.7 lbs.)
Semiconductors	: 1 IC, 1 FET, 8 transistors, 10 diodes
Operating temperatures	: -10°C to $+50^{\circ}\text{C}$ (14°F to 122°F)

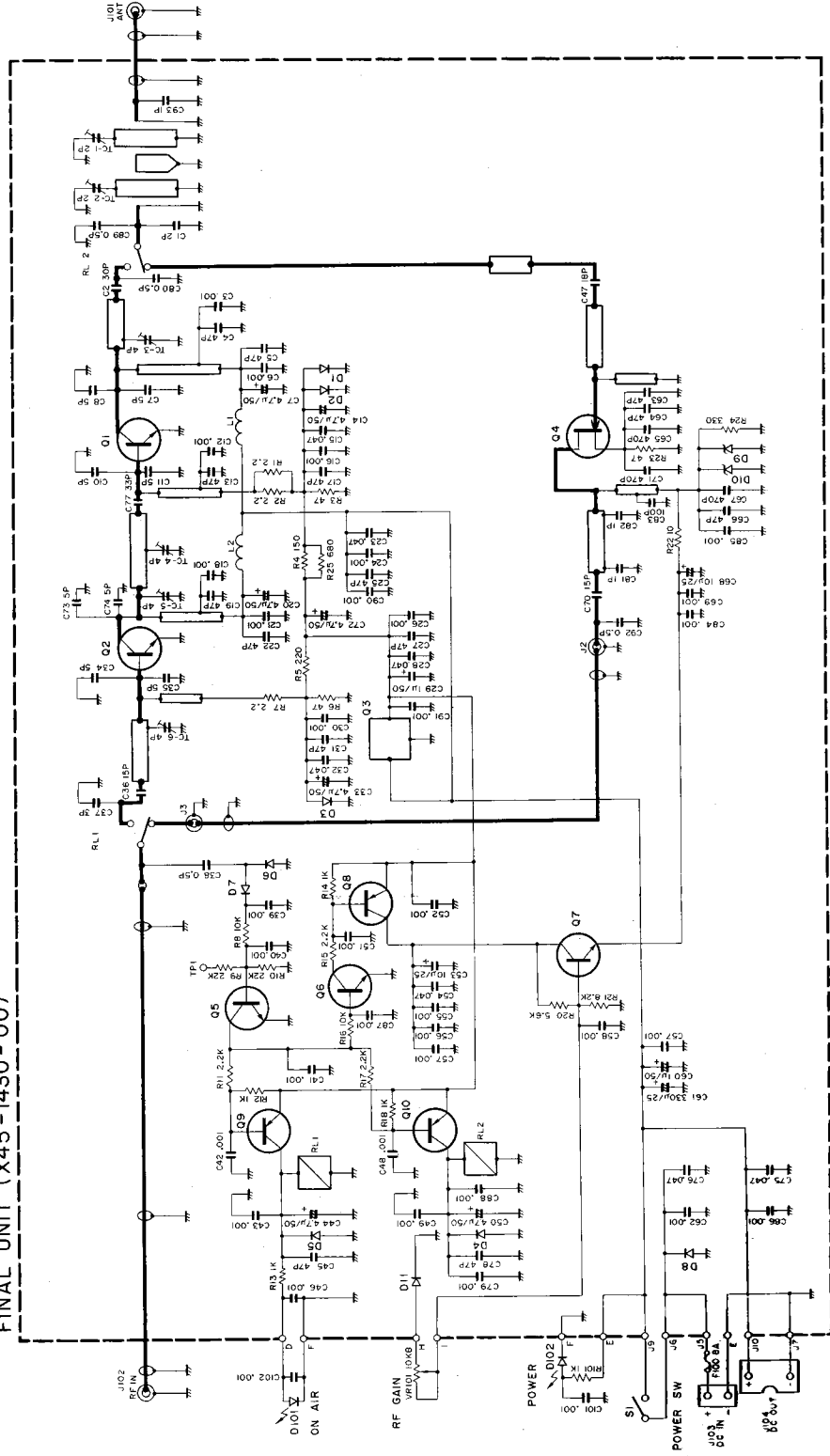
(2) Transmitter

Output power	: 10 W
Drive power	: 0.5 to 2 W
Spurious radiation	: Less than -50 dB

(3) Receiver

Gain control range	: Approx. 20 dB
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FINAL UNIT (X45-1430-00)



- 01 : 25C3542(K)
- 02 : 25C3541(K)
- 03 : JFC7608H
- 04 : 25K571
- 05,6,7 : 25C1815(Y)
- 08,9,10 : 25B698(E)
- 01-5,11 : IS155
- 06,7 : IS101
- 08 : UI5B
- 09,10 : MTZ3-6JA
- 0101 : TLR205
- 0102 : TLG205

TRIO-KENWOOD CORPORATION

Shionogi Shibuya Building, 17-5, 2-chome Shibuya, Shibuya-ku, Tokyo 150, Japan

TRIO-KENWOOD COMMUNICATIONS
1111 West Walnut Street, Compton, California 90220, U.S.A.

TRIO-KENWOOD COMMUNICATIONS
DIVISION OF TRIO-KENWOOD ELECTRONICS GmbH
Rembrücker Str. 15, 6056 Heusenstamm, West Germany

TRIO-KENWOOD ELECTRONICS, N.V.
Leuvensesteenweg 504, B-1930 Zaventem Belgium

TRIO-KENWOOD (AUSTRALIA) PTY. LTD. (INCORPORATED IN N.S.W.)
4E, Woodcock Place, Lane Cove, N.S.W. 2066, Australia