

MIDLAND 2 METER BASE OR PORTABLE



The Midland 13-500 144 MHz transceiver is an excellent low priced rig. The transmitter features 1W and 15W power selections as well as automatic SWR shutdown to protect the final. Transmit crystals for 16, 34 and 94 are supplied. On the air audio reports are excellent. Deviation is adjustable and was factory preset to 5 kHz on the unit tested. The front panel incorporates a small transmit indicator lamp, illuminated channel indicator (there are 12 available) and lighted S/rf output meter which is large enough to be read easily. A rear mounted accessory jack is provided for connection to a discriminator meter, tone input, keyed +12V for linear control and ground. A rear mounted external speaker jack is provided which when used disables

the internal speaker. Power connections are via a pigtail which incorporates an in-line

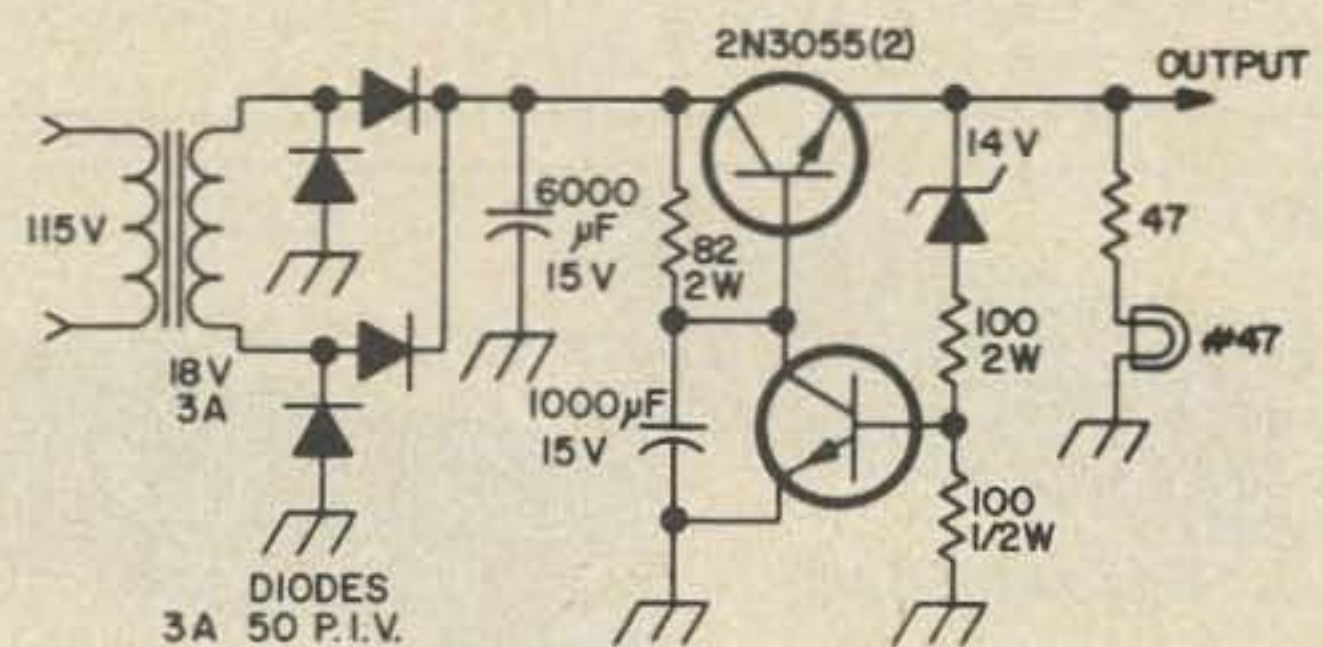


Fig. 1. Base station supply for the Midland 13-500.

fuse holder. Also supplied is a mobile mounting bracket and hardware, plus mic hanger clip, speaker plug, accessory plug and two extra fuses. The owner's manual sup-

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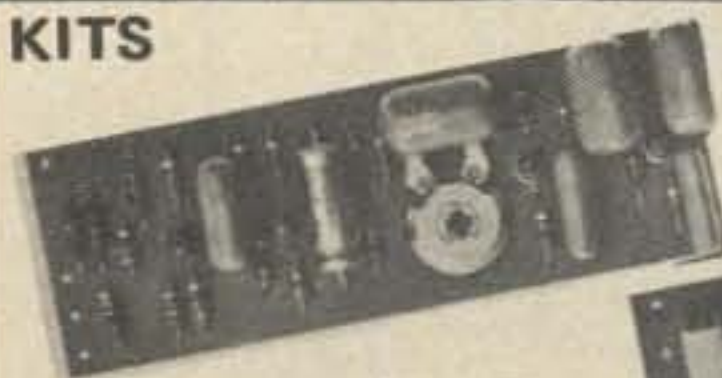
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plied contains a complete schematic and voltage check chart as well as a complete section by section circuit description.

The most exciting part of this little rig is the receiver which boasts a two stage FET rf amplifier, a five section helical resonator filter and a FET mixer. Trimmers are provided on all crystals (transmit and receive) and all oscillators are zener regulated for stability. Receive crystals are provided for 76 and 94.

As unpacked the sensitivity of the receiver was found to be .2 μ V usable and .3 μ V for complete quieting. Although the unit is small, the dual back to back circuit board

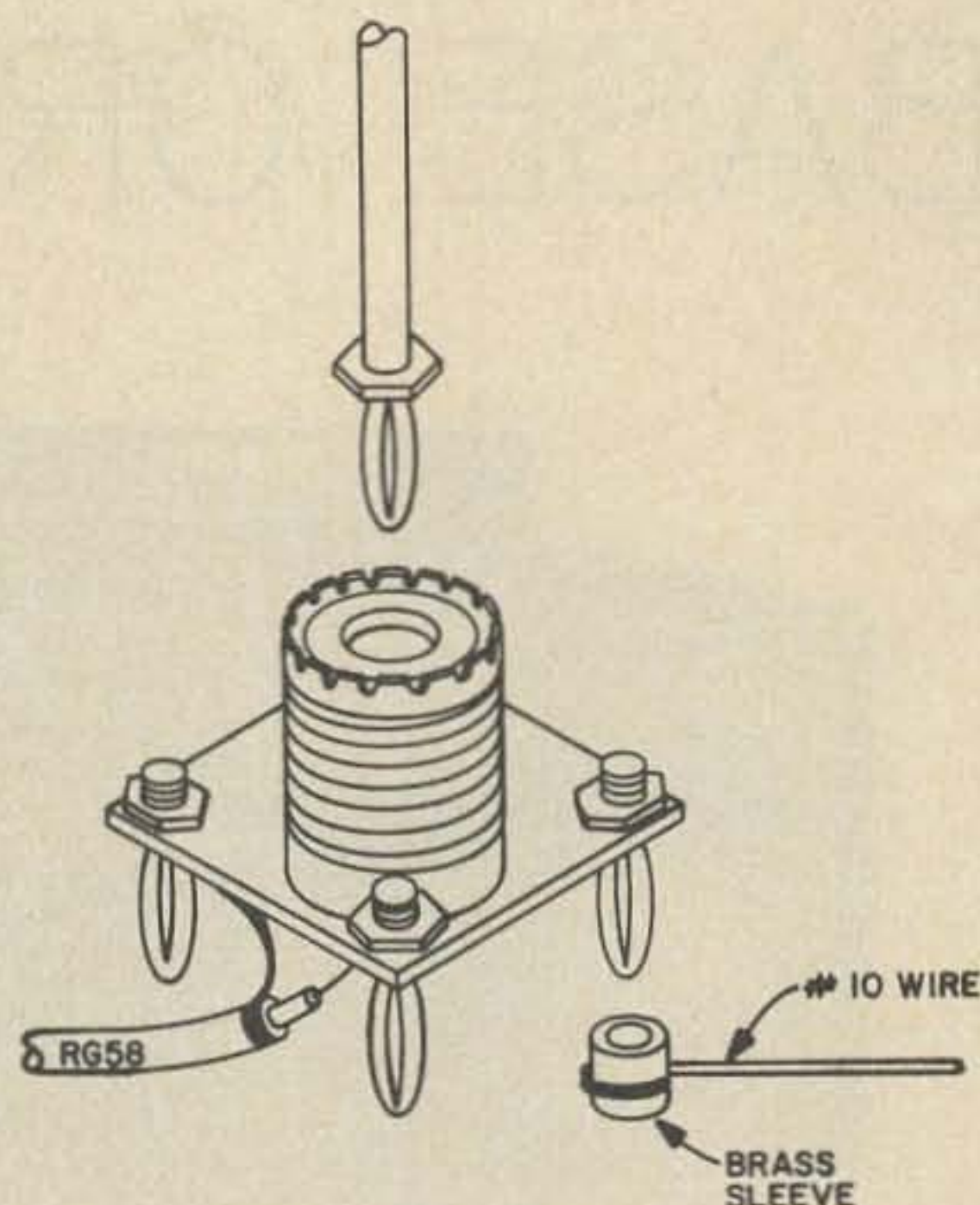


Fig. 2. Antenna for the Midland 13-500.

layout is uncluttered and mechanically sound. The small side mounted speaker has acceptable audio quality and is not hidden when the unit is dash mounted or flat on a table.

An inexpensive base station supply is shown in Fig. 1.

A transformer delivering 18V at 3 amperes is not a common item. Therefore a 12V 3 ampere unit was modified as follows. Select a transformer that has small spaces at the corners of the frame window around the original winding. Add approximately 26 turns of No.20 teflon coated wire by threading it through these spaces. My transformer accepted 13 turns on the top and bottom with no difficulty and when this additional

winding was properly phased the output voltage was 18V ac. My power supply was housed in a small cabinet which also contained a 4 inch speaker and a 50-0-50 μ A

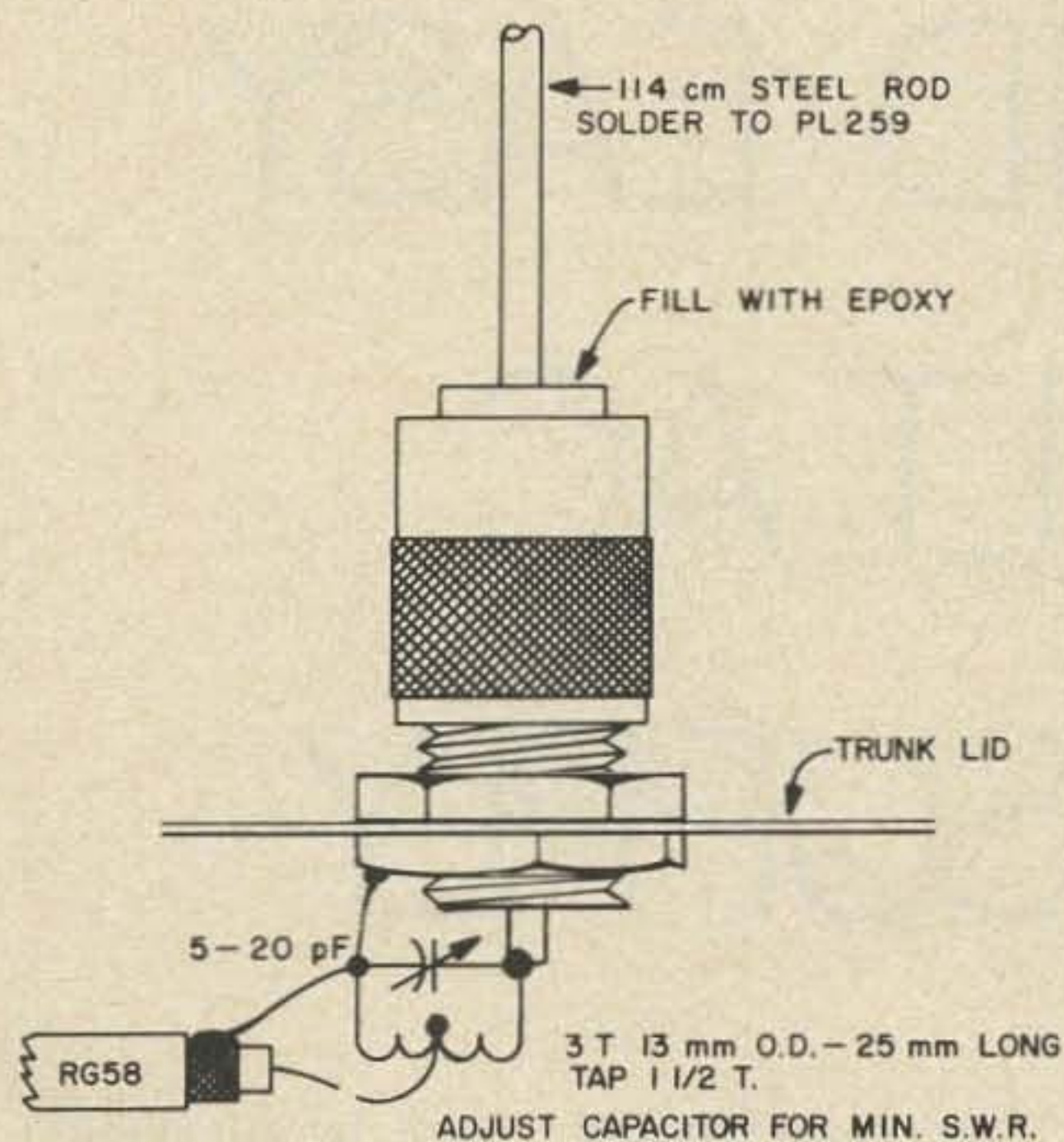


Fig. 3. A $5/8 \lambda$ mobile antenna.

discriminator meter. The dial light shown not only illuminates the meter but provides some low load regulation for the supply. Power supply output on receive is 13.2V and 13.0V on low power transmit. High power transmit voltage was 12.7 (measurements made at 117V ac input).

Fold Up Suitcase Groundplane Antenna

Portable operation from motels, etc., may be a little more convenient with the antenna shown in Fig. 2. The elements are No. 10 solid copper wire. These are looped around a $3/8$ long piece of $3/16$ in. brass tubing. The tubing may be found at most hobby stores. Solder the radials to the tubing. An S0239 connector is fitted to a 2 in. square plate and fitted with four banana plugs as shown. The radials are merely pushed on to the plugs to assemble. The driven element is a piece of No. 10 wire soldered to a banana plug which is then inserted in the center of the connector. A loop in the top of the driven element and a piece of nylon cord will serve to hang the antenna from any convenient location.

Fig. 3, shows details of a $5/8 \lambda$ mobile antenna constructed from common materials.

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