

Heathkit HN-31

Courtesy

**Redistribution
permitted**

Assembl
and
Operation
of the



"CANTE
DUM
RF LC
MODEL F



HEATH CO
BENTON HARBOR

SPEC

- Impedance.
- Voltage Standing Wave Ratio (VSWR).
- Power Dissipation Capability.
- Size.
- Net Weight.

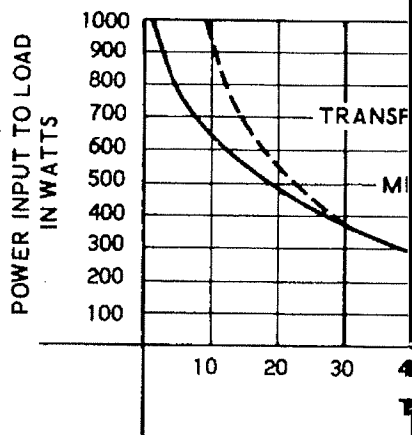
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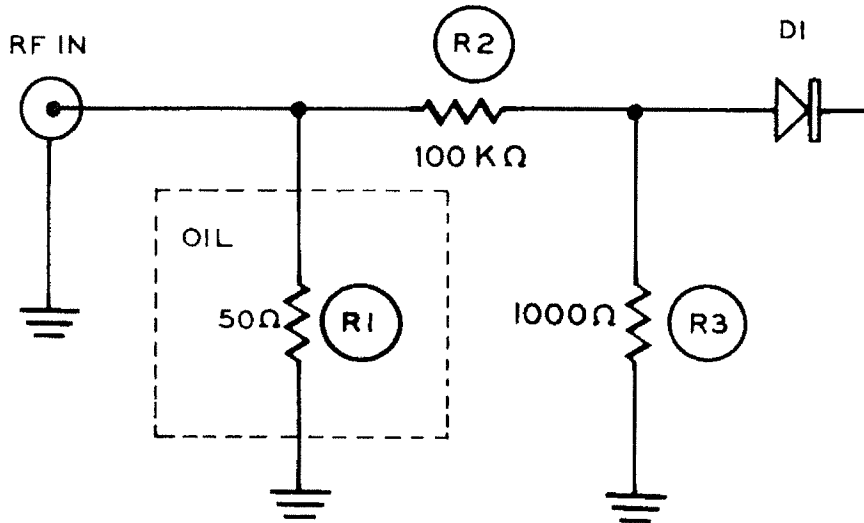
CIRCUIT

The Model HN-31 "Antenna" Dummy RF Load was designed as a small convenient package capable of handling a kilowatt of power. (See Figure 1). The oil-cooled, temperature-stabilized resistive element provides a very low VSWR (voltage standing wave ratio) up to 400 megacycles. A special circuit is incorporated to provide a DC voltage for monitoring relative output power.

Refer to the Schematic Diagram on Page 3 for a better understanding of the following description.

When power is applied to the circuit, R1, the





**SCHEMATIC OF THE
HEATHKIT®
"CANTENNA"
DUMMY RF LOAD
MODEL HN-31**

CONSTRUCTION NOT

The following instructions are presented in a logical step-by-step sequence to enable you to complete your kit with the least possible confusion. Be sure to read each step all the way through before beginning the specified operation. Also read several steps ahead of the actual step being performed. This will familiarize you with the relationship of the subsequent operations. When the step is completed, check it off in the space provided. This is particularly important as it may prevent errors or omissions, especially if your work is interrupted.

In general, the illustrations in this manual correspond to the actual configuration of the kit; however, in some instances the illustrations may be slightly distorted to facilitate clearly showing all of the parts.

The abbreviation "NS" indicates that a connection should not be soldered yet as other wires will be added. When the last wire is installed, the terminal should be soldered and the abbreviation

"S" is used to will appear af number indica supposed to be before it is instruction rea it will be under connected to th ered. (In case terminal or l point, it will c and one leaving

Position the w will help to ki The joint to b the flat side of to melt the so the heated ter tion. Remove a smooth sol move the lea

ROSIN CORE SOLDER HAS BEEN SUPPLIED WITH THIS KIT. MUST BE USED FOR ALL SOLDERING IN THIS KIT. ALL G AND WE WILL NOT REPAIR OR SERVICE EQUIPMENT IN W OR PASTE FLUXES HAVE BEEN USED. IF ADDITIONAL SOL TO PURCHASE ROSIN CORE (60:40 or 50:50 TIN-LEAD CONTE

Unpack the kit care
 against the Parts List
 the part number con
 that part for quick

<u>PART</u> <u>No.</u>	<u>PARTS</u> <u>Per Kit</u>	<u>DI</u>
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RESISTORS

1-9	1	10 (b)
1-26	1	10 (b)
1-2-10	1	50 (d)



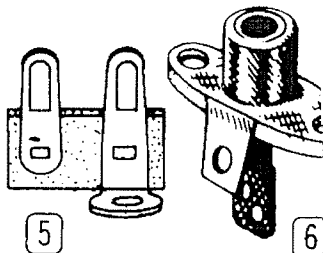
CAPACITOR-DIODE

21-16	1	.01 ca
56-26	1	Cr wh



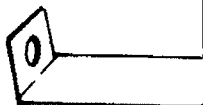
TERMINAL STRIP-C

431-14	1	Te
434-42	1	Ph
438-4	1	Ph
436-5	1	Cc



SHEET METAL PART

204-468	2	Br
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PART PART
No. Per l

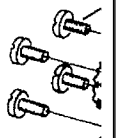
MISCELLANE

24 71-2	1
25 258-30	1
211-25	1
597-308	1
597-260	1
	1

PARTS MOUN

Refer to Pic

() Mount the
base at A
x 1/4" s
nuts as il

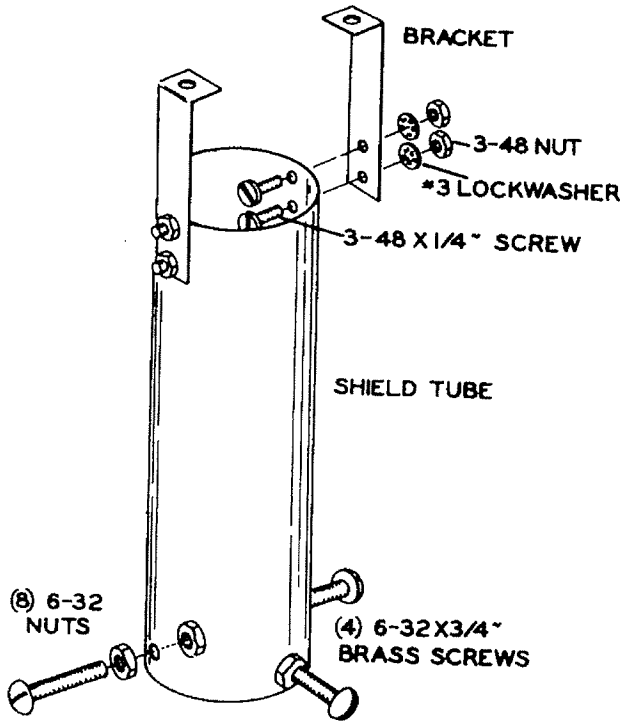


COAXIAL
CONNEC

() Mount the
lid, using
washers,



Detail 1B



Pictorial 2

Refer to Pictorial 2 for the following steps.

- () Mount four 6-32 x 3/4" brass screws and eight 6-32 nuts to the inside and outside of the shield tube as shown. Do not let the brass screws protrude more than 1/8" past the 6-32 nuts inside the shield tube. Do not tighten yet.
- () Mount two brackets to the shield tube, using 3-48 x 1/4" screws, #3 lockwashers, and 3-48 nuts as shown.

Set this shield tube assembly aside.

Refer

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- () Sha
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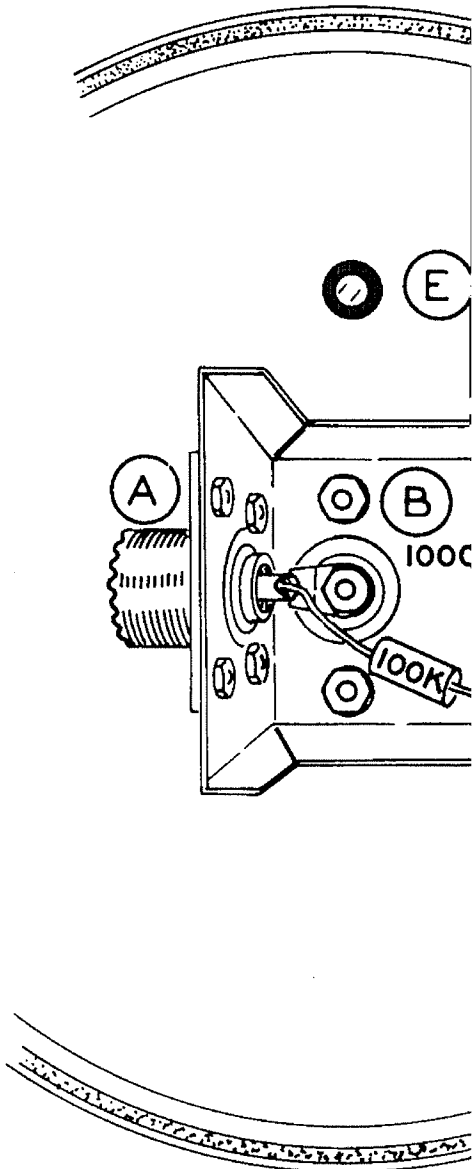
NOTE: D
insulator. I
kit hardwa

- () R1.
pail
cera
with
a sol
shou
solde
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Posit
under
the c



Refer to Pictorial 4 for

- 1) Mount the shield tube lid and shield base, using #6 lockwashers, and It may be necessary to tighten the insulator brass strip connections.



COMPONENT WIRING

Refer to Pictorial 5 for the
In the following steps, cut a
leads of the components as
lid on top of the pail tempor
it while performing the wiring :

- (\) R2. Connect the 100 K Ω (b
low) 1/2 watt resistor fr
terminal strip (NS) to the
conductor of the coaxial
Make sure the solder lug
to the connection at this tir.



This completes the wiring. Make sure components are connected to the proper

INITIAL

If an ohmmeter is handy, the in may be checked. Proceed to the Final if you do not have an ohmmeter to check.

- () Clip the common lead of your to the shield base and touch the to the inner conductor of the c

Refer to Pictorial 6 for the follo

- () Install the handle on the pail.
- () Mount the shield cover to the s using six #6 x 1/4" sheet me
- () Pour transformer oil into the reaches a level about 3/4" fro It is mandatory for proper oil that the oil level be about 1/4" shield tube or resistor elemen pail lid is installed. The rea transformer oil may be obtained any bulk oil plant. If transforme available, mineral oil may be do not use any type of moto vaporizing temperature of moto low and would cause excess vap
- () Install the pail lid to the pail around the edge of the pail lid v mer handle until the lid is comp ed in the pail. Use care not to or chip the paint.

NOTE: The blue and white identific shows the Model Number and Produc Number of your kit. Refer to these any communications with the Heath this assures you that you will receiv complete and up-to-date informatio

- () Install the identification label in ing manner:
 1. Select a location for the lab can easily be seen when n will not show when the unit ation. This location might

Before connecting the Dummy Load power device, become thoroughly familiar with the duty cycle curves shown in Figure 1 of the Specifications. If you are uncertain of the power level being applied to the Dummy Load, safe operation can periodically be checked in the following manner. Touch the Dummy Load pail near the bottom with your fingers. If you are unable to hold your fingers on the pail for more than a few seconds, the RF power should be turned off until the oil has cooled. Any time you notice vapor coming from the pail, the power should be turned off immediately.

INSTRUCTIONS

1. Recheck the wiring. Trace each wire with a colored pencil on the Pictorial Diagram. It is frequently helpful to have a friend check your work. Someone not familiar with the unit may notice something consistently overlooked by the constructor.
2. It is interesting to note that a large number of the kits that are returned for repair do not function properly due to poor workmanship and soldering. Therefore, many of the problems can be eliminated by reheating the connections to make sure that they are properly soldered.

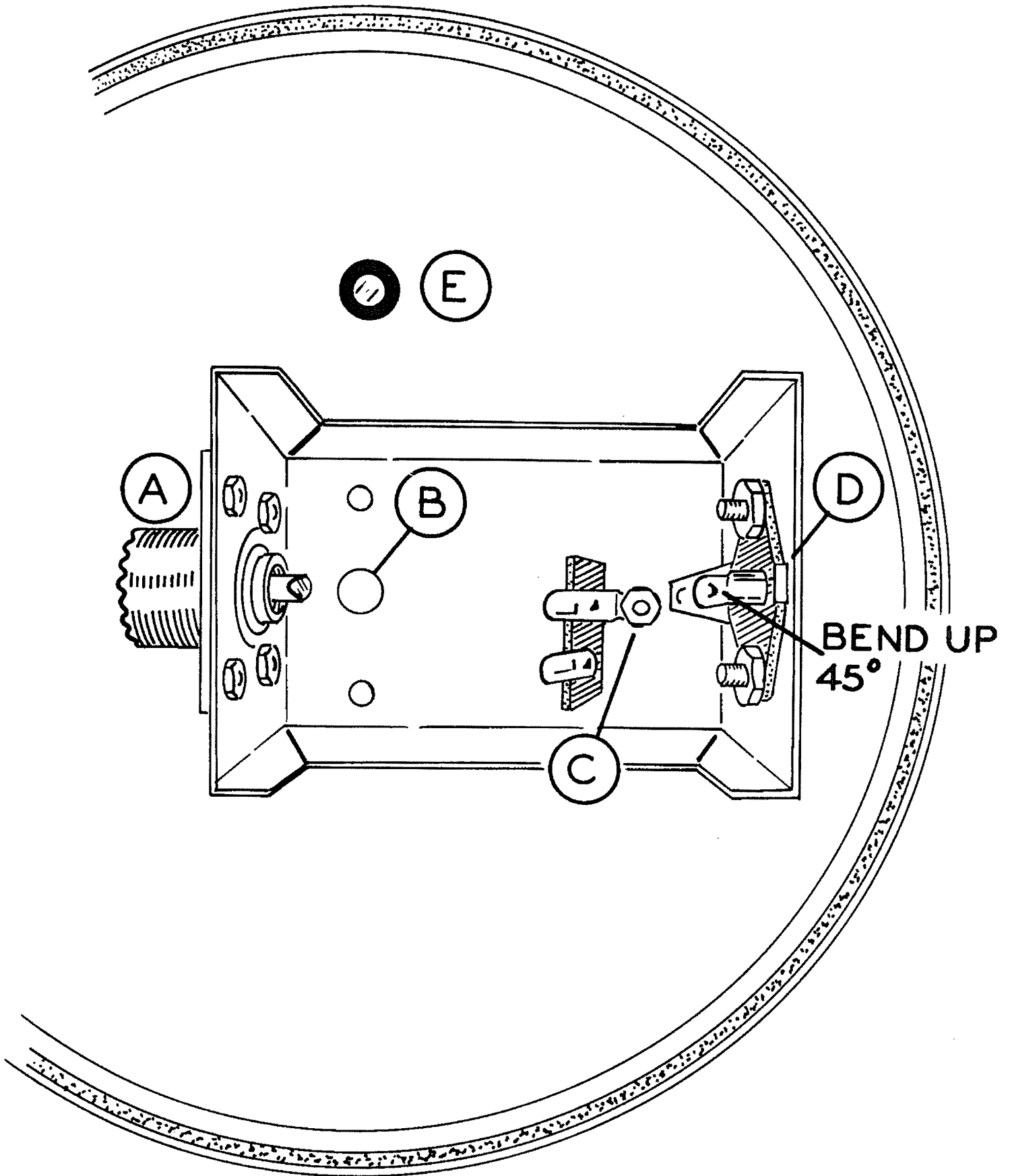
Transformer oil is polychlorinated biphenyl (PCB). To improve the heat resistance of the transformer, the oil is replaced with a synthetic oil.

If you use transformer oil, wear gloves when you handle the pail, and keep the pail closed when not in use.

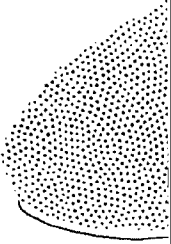
If the Antenna becomes hot, stop transmitting immediately, and allow the antenna to cool from the overheating.

Contact your local health department for advice on disposing of transformer oil.

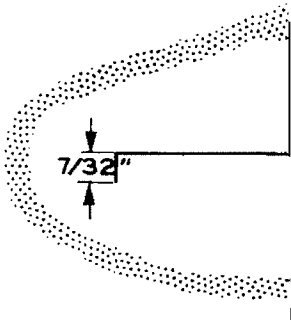
The above does not mean that the unit contains PCB.



Pictorial 1



★ PART
WITH



INSET

Heathkit HN-31 Cantenna Manual

Courtesy of VE9GC

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