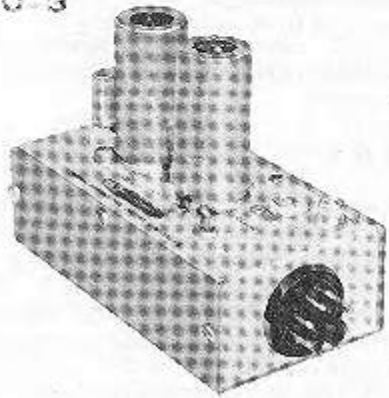
Assembly and Operation of the

HEATHKIT

6-METER CONVERTER

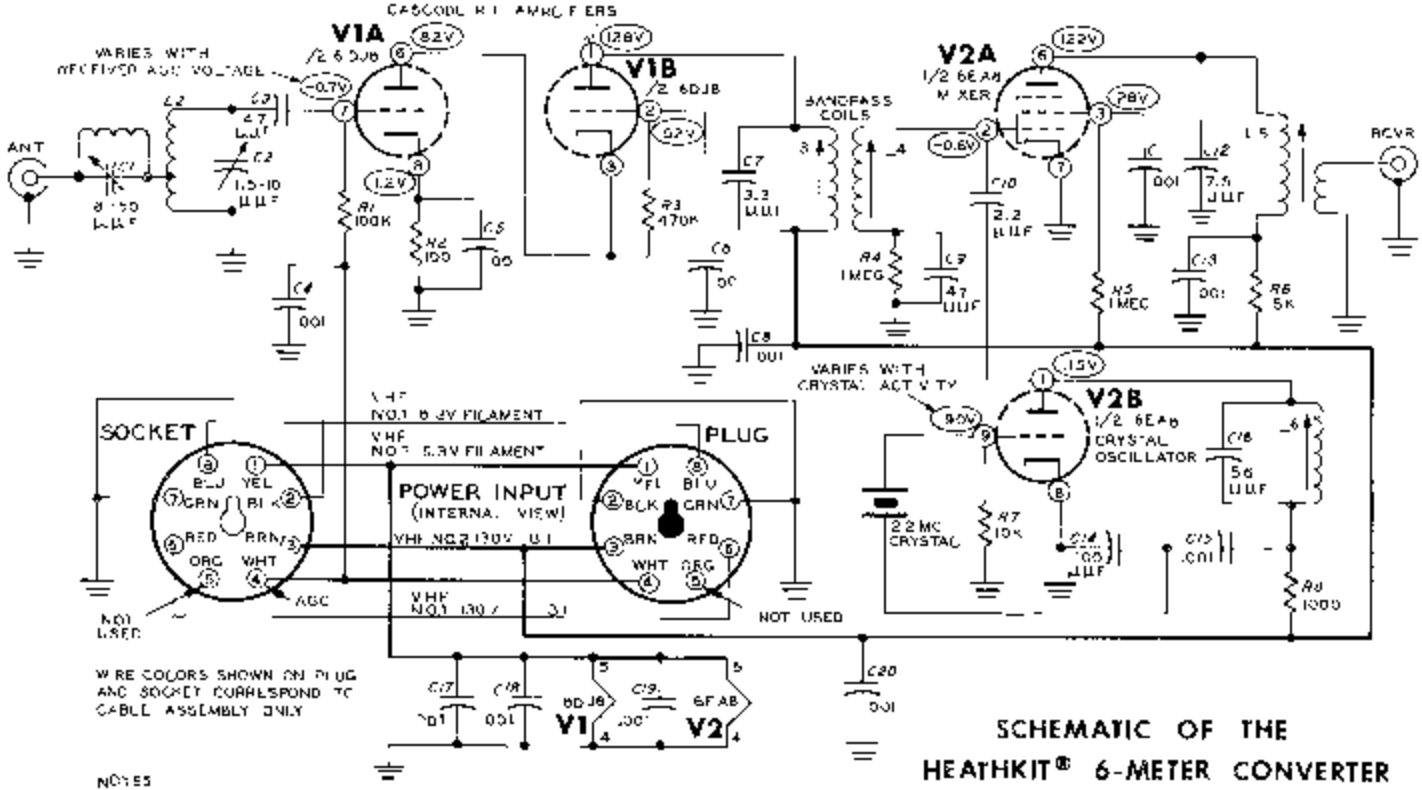
MODEL SBA-300-3



SPECIFICATIONS

Sensitivity (Signal plus noise-to-noise in db)	AM: Less than 0.1 microvolt for 6 db at 3750 cps bandwidth. SSB Less than 0.1 microvolt for 10 db at 2100 cps bandwidth. CW: Less than 0.1 microvolt for 15 db at 400 cps bandwidth. (Using Heathkit SB-300 Receiver.)
Noise Figure	3 db or less at 3750 cps bandwidth.
Frequency	Input 48 to 54 megacycles (50 to 52 megacycles with crystal supplied). Output 28 to 30 megacycles.
Bandpass	Essentially flat over any 2 megacycle segment from 48 to 54 megacycles.
Image Rejection	50 db or better at 6 megacycles.
IF Rejection	40 db or better at 28 megacycles.
Crystal	22 megacycles ±.005% 3rd overtone.
Tube Complement	6DJ8 cascode RF amplifier. 6EA8 oscillator-mixer.
Power Requirements	130 volts DC at 12.5 milliamperes. 6.3 volts AC at 815 milliamperes.
Dimensions	Overall 2-5/8" wide x 6-3/4" long x 3-3/4" high.

Net Weight.	10-1/2 oz.
Test Equipment Used In Preparing Specifications, Measurements, And Alignment Instructions.	Measurements Corporation Model 80 Standard Signal Generator (with 50 Ω pad). Heathkit Model IM-13 Vacuum Tube Voltmeter.



SCHEMATIC OF THE HEATHKIT® 6-METER CONVERTER MODEL SBA-300-3

NOTES

ALL RESISTORS ARE 1/2 WATT UNLESS MARKED OTHERWISE.
ALL RESISTOR VALUES ARE IN OHMS "K" = 1000, MEG = 1,000,000.
ALL CAPACITOR VALUES ARE IN µfd UNLESS MARKED OTHERWISE
<⟶> INDICATES VOLTAGE READING.
ALL VOLTAGES ARE DC POSITIVE UNLESS MARKED OTHERWISE.
ALL VOLTAGES ARE MEASURED FROM POINT INDICATED TO CHASSIS GROUND AND MAY VARY 10%
VOLTAGE READINGS TAKEN WITH AN 11 MEGOHM INPUT VTVM. WITH NO SIGNAL INPUT
POWER INPUT LINES LABLED VHF NO. 2 RECEIVE POWER WHEN SB-300 RECEIVER
CONVERTER SWITCH IS IN VHF NO. 2 POSITION.
POWER INPUT LINES LABLED VHF NO. 1 RECEIVE POWER WHEN SB-300 RECEIVER

The Converter is now ready to put into operation. Instrument alignment should not be required, as the preset adjustments of the coils and capacitors should provide converter operation equal to or better than the Specifications. Information on using other crystal frequencies to cover different band segments is provided in the following section of the manual.

CRYSTAL INFORMATION

The 22 megacycle crystal supplied with the Converter provides reception from 50 to 52 megacycles. Other crystal frequencies can be used to cover different 2-megacycle segments between 48 and 54 megacycles. The following chart lists some of the crystal frequencies that can be used. In each case, the output frequency of the Converter is between 28 and 30 mc, which corresponds to 10 meter reception with the SB-300 Receiver.

CRYSTAL CHART
(Frequencies in megacycles)

CONVERTER CRYSTAL	COVERAGE
20	48 to 50
21	49 to 51
22	50 to 52
23	51 to 53
24	52 to 54

When purchasing a crystal for use with this Converter, you should specify the frequency and the following crystal characteristics. Crystals that do not have these characteristics will not provide optimum performance.

Holder HC-6/U	Pin diameter .050" Pin spacing .486".
Load capacitance (C1)	12.8 $\mu\mu$f.
Internal capacity (Co)	6 $\mu\mu$f, maximum
Series resistance (Rs).	30 Ω, maximum
Drive level	8 milliwatts.

Also, if you install a crystal other than the 22 megacycle crystal supplied, it will be necessary to readjust oscillator coil L6 as directed in the Test And Adjustment section of the manual.