OPERATING INSTRUCTIONS FOR AMECO CONVERTERS, MODELS CN-50, CN-144 and CN-220

The Ameco Converter, Model CN, is a crystal-controlled broadband converter with a very low noise figure, very high gain and excellent image and spurious rejection. When used in conjunction with a receiver, it will provide reception of the desired VHF amateur band. The CN-50 covers 50-54 Mc., the CN-144 covers 144 to 148 Mc. and the CN-220 covers 220 to 225 Mc. The converter uses a type 6CW4 or 6DS4 Nuvistor tube as the first RF amplifier, a 6CW4 or 6DS4 Nuvistor as the second RF amplifier and a 6CW4 or 6DS4 as the mixer. A 6J6 serves as the crystal controlled oscillator and multiplier.

The circuitry used, together with considerable internal shielding and bypassing, provide high sensitivity to the desired signals and maximum rejection of spurious, undesired signals. A novel feature of this unit is the fact that the output frequency may be changed quite simply. This feature prevents the converter from becoming obsolete when the receiver is changed to a different type. The MARS and CAP frequencies near the 2-meter band are also covered with the CN-144 converter.

POWER REQUIREMENTS

The converter uses 6.3V. at 0.855 Amps for the filaments and 100 to 125 V. DC at 25 Ma. for the plates. This power may be obtained most conveniently from the companion Ameco Power Supply, Model PS-1, which plugs together with the converter directly. No cable is needed. Many receivers have accessory sockets and sufficient power to operate the converter. Do not attempt to take power from an AC-DC receiver. In the event that power for the converter is taken from the receiver or some other source, wire the socket that will mate with the converter plug so that the receiver chassis is connected to pin 2, the hot side of the 6.3 volt filament to pin 7, and B+ (100 to 125V.) to pin 8. (See the schematic).

If the power supply delivers over 125 volts, add a resistor in series with the B+ lead (Pin 8) and a voltage regulator tube type OB2 or OC3/VR105 across B+ (pin 8) to chassis. The voltage regulator is needed to maintain the operating voltages constant when the manual gain control on the CN converter is adjusted. See Fig. 1. NOTE: If the voltage is over 125 volts at the converter pin 8, the crystal and one or more tubes can be destroyed.

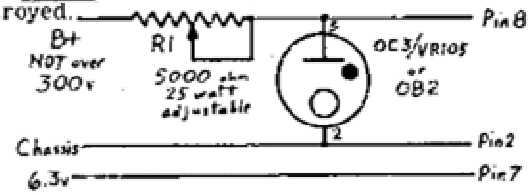


Fig. 1. Adjust R1 for 45 ma. through it, at normal line voltage.

12 VOLT OPERATION

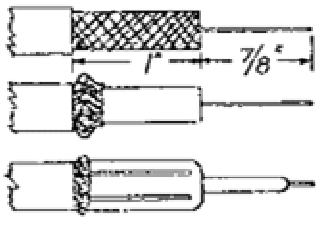
If it is desired to use 12 volts instead of 6 volts for the filaments of the converter, the filaments can be rewired as follows: (See schematic)

1. Remove the brown wire that connects pin 7 of the power plug to the feedthru condensers.
2. Cut the wire that connects pin 3 of the 6J6 to ground.
3. Cut a small notch in the rear part of the shield closest to the power plug, near the feedthru condensers, above X4, to pass one wire.
4. Using short lead lengths, connect a .001 disc ceramic condenser from pin 3 of the 6J6 socket to the chassis.
5. Connect a new wire from pin 3 of the 6J6 socket to pin 7 of the power plug. Tape this wire at the point where it passes through the notch in the shield so as to prevent it from being cut by the shield.
6. Connect two 270 ohm, 1/2 watt resistors in parallel. Connect one end of this pair of resistors to the feedthru condenser from where the brown wire was removed in step 1 above. Ground the other end of this resistor to the shield.

CABLES and CONNECTORS

The connections to the input and output of the converter should be made with 50 ohm coaxial cable (RG8/U or RG58/U) terminated with auto radio antenna plugs (Ameco #AP-1 or Cinch #1320). The cable is connected to the plug in the manner shown in Fig. 2.

Fig. 2



Remove outer vinyl covering for 1-7/8".
Strip braid and inner insulation off center conductor for 7/8".
Push braid back to form a bead all around.
Insert center conduct or through plug pin until braid is against end of plug.
Bend center conductor to hold plug in place.
Roll braid between fingers to roll it over the end of the plug for about 1/16".
Solder the braid to the four tabs of the plug.
Solder the center conductor to the pin and cut off excess wire.

The coaxial cable from the output of the converter to the receiver can be up to a maximum of about three feet. If some undesired IF signals are getting through, the chances are that it is due to the long ground wire (at the antenna terminal strip) inside most receivers. A short jumper wire (not over 2 inches) between the converter chassis and the receiver chassis will usually correct this.

A number of amateurs have requested that we supply converters with SO-239 or BNC connectors instead of the auto radio plugs. The auto radio plugs we use are in the "absolutely reliable" class; no contact trouble occurs unless there is considerable physical damage to the plug or jack contact surfaces. The cable fastenings