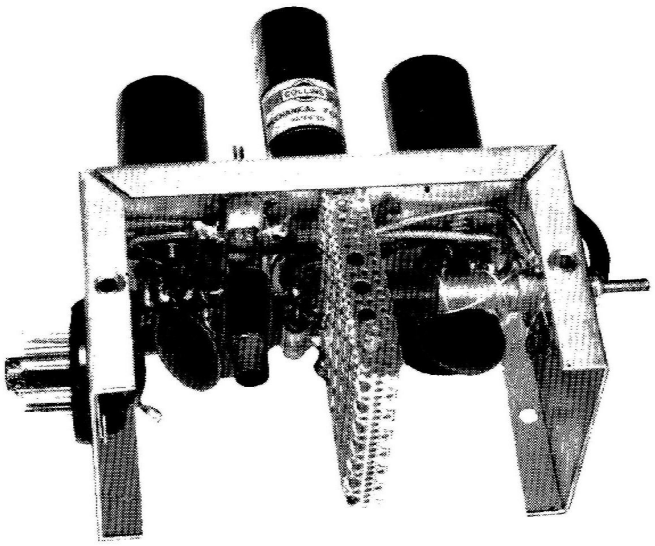

Fig. 7. Oblique view of the adapter.

tight and wrap a short length of tinned copper wire twice around the middle of the capacitor. Solder the wire to the shield and trim off the excess shielding. The tinned wires from each cable are then soldered to a pin from an octal tube base for a plug-in ground connection. Similar pins are also soldered to the capacitor leads, and the excess lead trimmed off. The exposed cable shield is then wrapped with plastic tape.

Capacitors C_3 and C_6 also may be soldered directly to a male octal plug, if desired, instead of making individual pin connections. If the receiver has a 7-pin miniature tube in the first IF amplifier, short lengths of No. 18 tinned wire may be used for the plug-in pins on the cables, or the capacitors and ground lead may be soldered to a special 7-pin miniature male adapter plug (Vector No. P-7).

For easy parts assembly, the shield may be temporarily removed, and replaced when wiring is completed. Heater, screen and plate power wires are next installed, keeping all such leads close to the box wherever possible to minimize stray signal pickup. Small parts, resistors and capacitors, are now soldered in place, after which the coaxial cable input and output leads are connected. About $\frac{5}{8}$ of an inch of the outer vinyl jacket is skinned from these cables and the shield braid is twisted into a single conductor. These cable ends are then brought into the box through rubber grommeted holes. The cable shield is soldered to the closest ground lug and the center conductors are soldered to the correct tube socket pins. Finally, the vari-loopstick coils and capacitors C_1 and C_4 are assembled and wired.

OPERATION

The adapter is connected to a communications receiver as previously described, following a wiring and power check to insure that the correct voltages are applied to the various tube elements. The receiver should then be tuned to the center of a strong, steady local amateur or broadcast station signal. If the recevier has an "S" meter, the AVC may be left "ON" while tuning the slugs in coils L_1 and L_2 for maximum

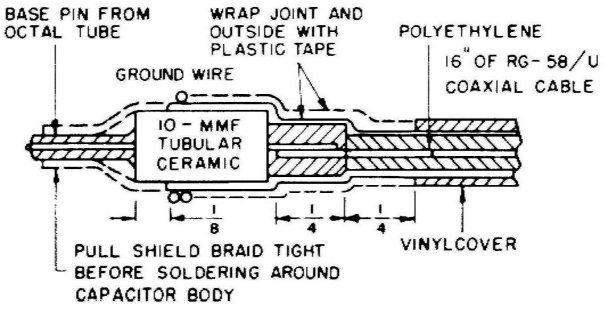

Fig. 8. Cross-section assembly view of signal cables.

carrier strength on the meter. On a receiver that has no "S" meter, L_1 and L_2 are best adjusted by turning the RF gain down, the audio gain up, and tuning both coils for maximum audio output from a modulated signal. Tuning adjustments on the first and second IF transformers in the receiver also may be touched up for highest output, although no improvement in gain may be noted if C_3 and C_6 are only 10 mmf.

TUNING TIPS

A somewhat different technique should be used for tuning AM and SSB signals on a receiver following installation of "PACKAGED SELECTIVITY." If any of your local hams have a receiver with built-in mechanical filters, you may wish to have him brief you on this subject. And it's also a good opportunity to compare the selectivity improvement you can expect from this adapter.

Modulated signals with carrier should be tuned in so that the carrier is placed on one edge, rather than the center of the IF passband shown in Fig. 1C. If you tune a bit too far, the carrier will drop off the edge and will be suppressed, and the modulation will sound like an SSB signal—practically unintelligible. Since only one sideband of a double-sideband signal will be heard at a time, the receiver tuning may be shifted so that the sideband on which a heterodyne is present may be "pushed off" the edge of the IF bandpass.

When receiving single-sideband, suppressed carrier signals—or for single-signal CW reception—the receiver's beat frequency oscillator is turned on and the "PITCH CONTROL" is adjusted so that the BFO carrier is near one edge of the IF passband. The proper pitch control setting may be determined by tuning the receiver across a carrier while adjusting the pitch control so that a beat note on only one side of zero beat is heard. After noting or marking this setting of the pitch control, again turn it so that the test signal on only the other side of zero beat is heard. Note this setting, then try tuning in an amateur SSB signal. If intelligible speech cannot be heard, shift the BFO pitch control to the first-noted setting and again carefully tune the receiver. Intelligible speech should now be heard.

As with the reception of 'phone signals with carrier, some interference can be removed from an SSB signal by shifting the BFO pitch control a small amount, then retuning the receiver so that the correct voice pitch is again heard.

This adapter will serve as a good signal slicer for SSB reception, especially if your receiver has strong BFO injection to the second detector circuit. When the usual diode second detector is replaced by a product detector, which can also be constructed as a plug-in adapter, a wide range of SSB signal strengths can be handled by the receiver without continually turning the RF gain control up and down. (See "CQ" magazine, November, 1956, page 19; and the ARRL's "Single Sideband for the Radio Amateur," page 86, for additional details on product detectors.)

In addition to the 3.1-kilocycle bandwidth filter previously mentioned, 455-kilocycle plug-in filters may be obtained in the following bandwidths: 0.5, 1.5, 2.1, 4.0, 6.0 and 12.0 kilocycles at the −6 db points.

The 2.1-kilocycle bandwidth model is ideal for reception of SSB and exalted-carrier reception of AM signals. The 0.5-kilocycle bandwidth model provides just about the maximum selectivity that is practical for CW reception. Devoted brass pounders may prefer this bandwidth, especially during DX and other contests. Samples of the 0.5- and 2.1-kilocycle filters were tested simply by plugging them into this adapter. The same shunting capacitors, C_2 and C_3, may be used with both filters.

If you still have a soft spot in your heart for that old receiver, enjoy 1957 selectivity from it by installing "PACKAGED SELECTIVITY" that meets your bandwidth needs.