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
tube to the shield and trim off the excess shielding.
The tinned wires from each cable are then soldered
to a pin on an octal tube base for a plug-in ground
connection. Similar pins are also soldered to the ca-
capacitor leads, and the excess lead trimmed off. The ex-
posed cable shield is then wrapped with plastic tape.

Capacitors C1 and C2 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 tem-
porarily removed, and replaced when wiring is com-
pleted. Heater, screen and plate power wires are next
installed, keeping all such leads close to the box wher-
ever 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 3/4 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 C1 and C2 are assembled and wired.

The adapter is connected to a communications re-
ceiver 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 re-
ceiver has an "S" meter, the AVC may be left "ON"
while tuning the slugs in coils L1 and L2 for maximum

carrier strength on the meter. On a receiver that has no
"S" meter, L1 and L2 are best adjusted by turning the
RF gain down, the audio gain up, and tuning both
coils for maximum audio output from a modulated sig-
nal. 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 C1 and C2 are only 10 mmf.

TUNING TIPS

A somewhat different technique should be used for
tuning AM and SSB signals on a receiver following in-
stallation of "PACKAGED SELECTIVITY." If any
of your local hams have a receiver with built-in me-
chanical 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 passband.

When receiving single-sideband, suppressed carrier
signals—or for single-signal CW reception—the re-
quiver'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 con-
trol 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
returning 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, 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 re-
ception of SSB and exalted-carrier reception of AM
signals. The 0.5-kilocycle bandwidth model pro-
vides 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, C1 and C2,
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.

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