

The PH uses a 6CB6 tube which draws 300 ma. at 6.3 volts. To use it on 12.6 volts, add a 22 ohm, 2 watt resistor between the brown wire and the 12.6 volt source. For use in an automobile, a 27 ohm(2 watt) resistor is preferable.

AGC (AVC):

It is sometimes desirable to apply automatic gain control to the PH Preamplifier. AGC is not recommended for the PV.

PH - To add AGC to the PH, cut the bare wire between terminals A and B. See Figures 3 and 4. Add an additional length of wire to the cable and connect it from terminal B to a point on the AGC buss in the receiver. On strong signals, the voltage at terminal B must not exceed -6 volts with 100 to 150 volts B+ or -10 volts with 250 volts B+. If the voltage is too high, add a voltage divider consisting of a 2.2 megohm resistor from the AGC buss to terminal B and another resistor from terminal B to terminal A. This resistor will fall between 4.7 megohms and 470K and should be selected to obtain voltages within the limits listed above.

PV - Because the PV adds considerable gain to a system, which often has more than sufficient gain already, overloading of subsequent stages can be a problem. The simplest method of correction is to add a gain control at the first stage of the converter. A variable resistor (25,000 ohms is usually a satisfactory value), placed in series with the cathode of the first RF or first and second RF stages will work well. AGC can be added to the converter, if desired, instead of the gain control. The precautions about high AGC voltage are the same for most converters as for the PH (see above). DO NOT add AGC or a manual gain control to the PV as it will cause a deterioration of the noise figure.

12 VOLT MOBILE OPERATION OF THE PH:

The PH is designed to be used with a B+ of 100 or more volts. When there is only 12.6 volts available, a 12EK6 tube can be used instead of the 6CB6 with good results. To use the 12EK6 tube, do the following:

1. Remove R4 and replace it with a 47 to 100 ohm, 1/2 watt resistor.
2. Cut out the yellow wire.
3. Connect terminals C and D together.
4. Add a small RF choke (6.8 microhenry, Ameco Part No. W215-11) from terminal D to terminal E.
5. Remove the three conductor cable.
6. Replace it with an automobile type in-line fuseholder with a 1.0 ampere fuse. Connect this from terminal E to any convenient 12 volt point in the auto.
7. Put in the 12EK6 tube.
8. After about two minutes of warmup, align both trimmers on the frequency or in the center of the band of frequencies desired. Tuning can be staggered to cover a wider band.

ALIGNMENT

The PH and PV Preamplifiers are aligned and tested with instruments and on the air at the factory, prior to shipping. In the event that alignment is necessary, the following procedure should be followed:

Model PH: Tune the receiver to the middle of the frequencies of interest and adjust C1 and C7 (antenna and output trimmers, respectively) for maximum output on a weak signal or noise. If the band desired is wide enough to produce considerable loss of gain at the band edges, the trimmers can be stagger tuned by tuning one a bit higher than the center frequency and the other a bit lower. When the notch in the edge of the ceramic disc is towards the mounting screws, the trimmer is at maximum capacity.

Model PV:

1. If weak as well as strong signals can be heard, align the PV the same as the PH above. Then continue with step 2 below. If only the strong signals can be heard and not the weak ones, skip this first step and start with step 2.

2. Since the 6CW4 is a triode, it requires neutralization to prevent oscillation. L1 is the neutralizing coil which resonates with the tube grid to plate capacity. If the PV is oscillating, adjust L1 (with a .100" hexagonal plastic alignment wrench, NOT a screwdriver, as a screwdriver will destroy the core and coil) to stop the oscillation.

3. Align C1 and C7 as in the alignment of the PH above.

4. Turn off the plate voltage and feed in enough signal to get a good reading on the receiver S-meter. Adjust L1 core for minimum reading.

5. Turn on the plate voltage and reduce the signal. Adjust C1 and C7 again for maximum.

6. Repeat steps 4 and 5 at least twice as these adjustments interact.

7. If a noise generator is available (See ARRL 1980 Handbook Page 522, Radio Handbook, 15th Edition Page 740 or VHF Handbook by Orr & Johnson Page 204), adjust the antenna trimmer (C1) for the best noise figure as described in these references. If a noise generator is not available, turn C1 three turns clockwise. This is the approximate position of the trimmer for the best noise figure.

OPERATION:

After installation and alignment, no tuning or other handling of the Preamplifier is necessary during operation.