

I. INSTALLATION INSTRUCTIONS FOR THE PRODUCT DETECTOR

1. Remove the receiver name plate which is above the main dial. It is held on by two studs through the receiver front panel and dial light bracket. At some future date you may want to put the receiver back in the original condition so save the name plate by fastening it with tape somewhere inside of the receiver cabinet.
 2. Hold the Product Detector dial scale in position over the two mounting holes in the front panel and carefully mark the panel at the center of the 1/4" diameter hole of the dial scale.
 3. Fasten the dial light bracket in position temporarily with the two screws furnished and drill a 1/4" diameter hole through the front panel and dial light bracket at the spot marked so that it will coincide with the 1/4" hole in the dial scale. Larger drills have a tendency to wander in the soft aluminum panel so we recommend that you first drill a small pilot hole about 1/16" then follow with the 1/4" drill.
- Important!** Place a piece of cloth or tissue paper inside receiver on top of the receiver dial mechanism under the spot where you are to drill the hole. This will catch any chips of metal which might fall into the gears. After the hole is drilled remove it carefully so as not to drop any chips inside the receiver.
4. Attach the Product Detector dial scale in position on the front panel of receiver with the two screws through panel and dial light bracket.
 5. Insert the Product Detector into the FM adaptor socket in the receiver, secure it in place with two screws and washers (furnished) through the slits in the back cover of receiver.
 6. Fasten the knob on one end of the long extension shaft and insert the shaft through the center hole of the dial scale and into the shaft coupler of the Product Detector so that the knob is close to the dial scale but not rubbing on it. Turn the knob until the pointer is lined up with the set screws of the shaft coupler and tighten the set screw in the coupler. Do not loosen the other set screw in the coupler as it has been placed on the condenser shaft at the factory so that the set screws are up when the condenser is at 50% capacity and increasing capacity with clockwise rotation of knob.

II. AVC TIME CONSTANT

The AVC Time Constant of the receiver is too fast for good reception of SSB signals. To increase the time constant, a 2 mfd capacitor can be connected to ground from two contacts on the CW-AM-FM switch. Looking at the switch wafer from the top of chassis these contacts are the two which are connected together near the top of the wafer. If the capacitor is connected with alligator clips it can be

easily disconnected for AM.

OSCILLATOR ADJUSTMENT

1. Set the receiver on AM and tune in a steady carrier.
2. Switch crystal filter to sharpest position with crystal phasing control centered and tune in signal to peak the "S" meter.
3. Switch receiver to FM position and set the pointer of the Product Detector knob to the center of the scale.
4. The signal should be at zero beat; if it is not, insert an alignment screwdriver into the top of the coil can on the Product Detector and adjust the slug for zero beat.

This alignment procedure assumes that the receiver is aligned so that the crystal filter is at the center of the pass band. If in doubt, proper adjustment of the Product Detector oscillator can be checked as follows:

1. Set Product Detector knob pointer to center of scale.
2. Zero beat a steady carrier by rotating receiver main tuning knob. Note frequency shown on receiver dial.
3. Switch receiver to AM. Note "S" meter reading.
4. Rotate main tuning knob toward a higher frequency until "S" meter drops two "S" units. Note frequency.
5. Rotate main tuning knob toward a lower frequency until "S" meter drops two "S" units. Note frequency.
6. Frequencies found in steps 4 and 5 should be equally spaced above and below the zero beat frequency of step 2.
7. If step 6 is not true, rotate tuning knob to the frequency which is midway between frequencies of steps 4 and 5.
8. Switch receiver to FM. With Product Detector pointer in center of scale, adjust slug in coil can for zero beat.

V. INTERMODULATION DISTORTION

The installation of the Product Detector, following the procedure given, does not require the receiver to be removed from its cabinet nor is there any permanent change in the receiver itself other than the hole in front panel (which as stated can be covered up with the original name plate). However, the Detector under these conditions has a small but tolerable amount of intermodulation distortion due to the fact that the 6AL5 AVC rectifier is connected across the RF input to the Product Detector. This condition can be remedied by making the following modification in the receiver:

Remove the receiver from the cabinet. Connect the center conductor of the piece of coax furnished from pin 5 to the 6BA6 (V-7) to pin 6 of the NBFM adaptor socket. Ground the braid of the coax at the NBFM adaptor socket. Remove the cover from the Product Detector and cut the lead which is connected to pin 4 of the octal plug. Reassemble the Product Detector and the receiver. The operation will be exactly the same as before except that the intermodulation distortion will be greatly reduced.

OPERATING INSTRUCTIONS

To operate the Product Detector, switch to FM position. For ease in operation it is necessary to understand what is represented on the Product Detector dial scale:

The width of the plastic pointer represents the band of sideband frequencies while the center line of the scale corresponds to the reinserted carrier. If it is desired to receiver the lower sideband, the pointer is turned toward LOWER on the scale until the edge of the pointer is on the center line of the scale.

2. If the upper sideband is desired, the pointer is turned toward UPPER on the scale until the edge of the pointer is on the center line of the scale.

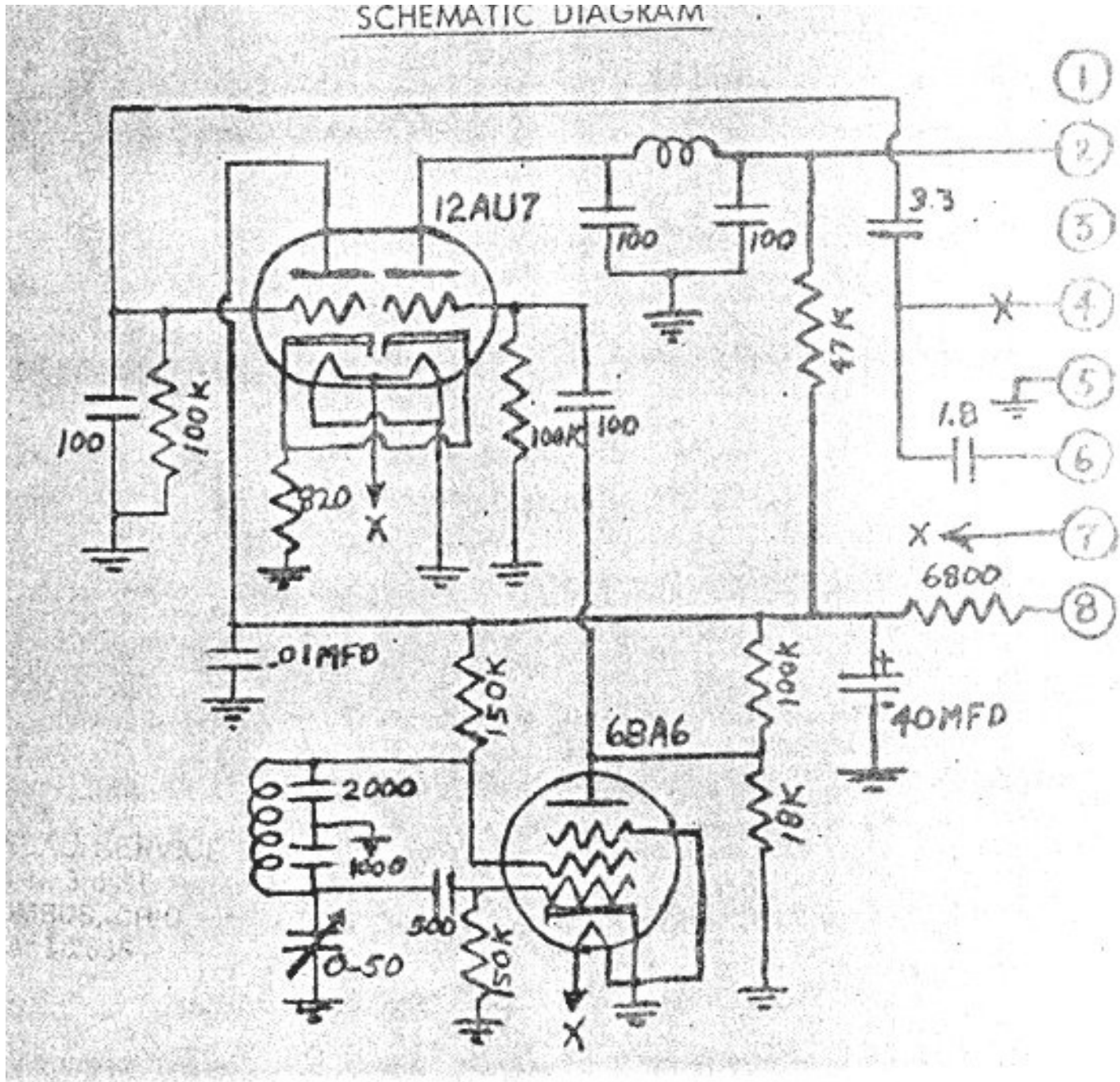
3. When receiving one sideband and it is desired to switch to the other sideband, proceed as follows:

A. Shift the pointer to a corresponding position on the other side of the scale center line.

B. Move the receiver tuning knob in the same direction as you shifted the pointer and move it the same number of divisions or until the modulation is tuned in properly.

Note: It has been assumed that a 3kc band width is used in the receiver; therefore, the Product Detector pointer has been made 3kc wide. For other band widths, the proper pointer settings would be right or left of center scale a number of divisions equal to half the receiver band width; i.e., 6kc band width - 3 divisions; 800 cycle band width - 4/10 of a division.

SCHEMATIC DIAGRAM



Universal Services