

MODEL 3-4A

PHILLIPS PETROLEUM CO.

Slide chassis partially out of cabinet by removing staples at each side of wood shelf and pulling entire shelf back about 2 inches. Do not disturb connections to loop antenna.

Connect an output meter across the voice coil of the speaker or between the plate of the 3Q5GT output tube and chassis, through a .1 mfd. condenser.

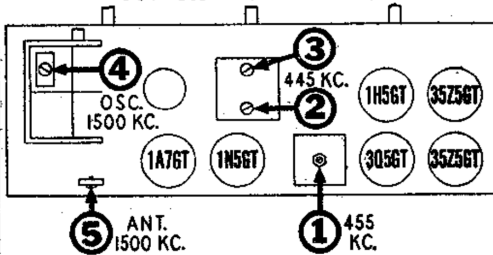
Connect the ground lead of the signal generator to chassis through a .25 mfd. condenser.

Set the volume control in the maximum position and use a weak signal from the generator.

Set "AC-DC-BAT.-CHARGE" Switch in "AC-DC" position.

DUMMY ANT. IN SERIES WITH SIGNAL GENERATOR	CONNECT HIGH SIDE OF SIG. GENERATOR TO	SIGNAL GENERATOR FREQUENCY	RECEIVER DIAL SETTING	TRIMMER NUMBER	TRIMMER DESCRIPTION	TYPE OF ADJUSTMENT
300 MMFD. Condenser	Grid Cap of 1A7GT Tube	455 KC.	Any Point Where It Does Not Affect Signal	1	2nd I.F.	Loosen lock nut. Adjust screw for maximum output.
				2-3	1st I.F.	Adjust for maximum output. Re-check 1, 2 and 3 for maximum output and tighten lock nut on 1.
300 MMFD. Condenser	Center Terminal on Antenna Terminal Strip at bottom of cabinet.	1500 KC.	1500 KC. (Slide set into cabinet and replace pointer to set dial.)	4	Broadcast Oscillator (Shunt)	Adjust trimmer for maximum output.
300 MMFD. Condenser	Center Terminal on Antenna Terminal Strip at bottom of cabinet.	1500 KC.	Tune to 1500 KC. Generator Signal	5	Broadcast Antenna	Adjust for maximum output. Slide chassis all the way into cabinet when making this adjustment.

TOP VIEW OF CHASSIS



INDICATOR LAMP

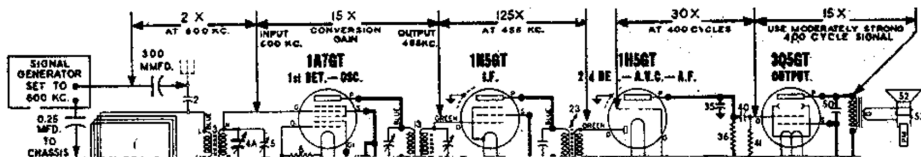
The flashing neon lamp on the dial face indicates condition of batteries. This lamp is included in an oscillating (R-C) circuit which is designed to oscillate at approximately 3 pulses per second when batteries are in a fully charged condition. As the battery voltage decreases with use, number of pulses per second decreases.

This lamp will only show the true condition of the batteries when the Selector Switch is in the "Battery" position. Lamp flashes more rapidly during charging or "AC-DC" operation.

Be sure R.F. and I.F. stages are accurately aligned before measuring gain. R.F. gains can be measured with a "channel" type instrument containing a tuned and calibrated R.F. amplifier. A vacuum tube voltmeter may be used for audio gain measurements.

- For all gain measurements connect signal generator as shown. Use 600 KC. signal with 400 cycle modulation (use nearby frequency if local station interferes).
- For R.F. and I.F. measurements connect negative terminal of a 1 1/2-volt battery to A.V.C. lead and positive terminal to chassis. This provides a definite operating point.
- Be sure radio is carefully tuned to generator signal (use "weak" signal for sharp tuning).
- When using a "channel" type instrument carefully tune it for maximum output at desired frequency before making measurements.

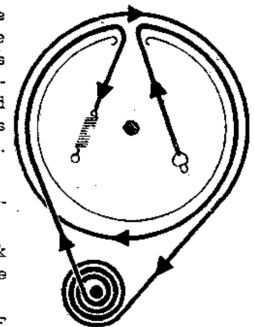
The R.F. and I.F. stage gains shown below are less than under normal operating conditions due to the use of 1 1/2 volts fixed bias in order to establish a definite operating point. Therefore, these values are not intended to indicate the full capability of a stage.



Differences in tube characteristics, tolerance of parts, adjustment of tuned circuits, and variations of line voltage will influence stage gain. Accuracy of measurements is dependent upon careful tuning of receiver to generator signal and experience in using your test equipment. These factors may create considerable variation in gain measurements.

When battery voltage is low (approximately 72 volts) the lamp flashes more slowly (about once per second). The set should not be operated from battery power after this point is reached and batteries should be recharged immediately. Charge for at least twice the time they were used and as soon as possible after they are run down. As batteries age it is necessary to charge for a longer period. For longest battery life, charge immediately after using.

- IMPORTANT:**
- Completely dead batteries cannot be recharged.
 - When set is connected to a DC line, check for correct polarity by operating it before attempting to charge the batteries.
 - Batteries will be discharged if ON-OFF switch is left ON when power cord is not connected to wall outlet.



DIAL DRIVE CORD ARRANGEMENT

To string dial cord, set gang condenser to fully meshed position and use following parts:

- 114955 Clip on end of cord
- 117057 Cord (28 inches)
- 119087 Ring for dial cord
- 161384 Tension Spring

CHARGING CIRCUIT

The battery charging circuit consists of a 35Z5GT rectifier and a suitable resistor voltage dividing network. This circuit provides a very low charging current when the receiver is operated on AC-DC and is just enough to maintain the batteries but will not charge them. A separate charging position is provided for the regular charging operation. A charging rate of approximately 1/3 the discharge rate is used to give best results.