

**BATTERY TESTING INSTRUCTIONS**  
FOR PRECISION SERIES 912-914-915-920-922-954

This instrument incorporates a highly efficient, DIRECT READING battery testing circuit, engineered and designed by PRECISION in conjunction with the engineering advisory staffs of leading battery manufacturers.

Stressing extreme simplicity in both operation and readability, the PRECISION battery test circuit nevertheless, DIRECTLY accommodates ALL POPULAR portable-radio "A", "B" and "C" batteries, from 1.5 through 135 volts, in eleven calibrated steps.

Through the use of a specially designed switching circuit, each battery is TESTED UNDER LOAD, simulating the actual operating conditions, which the battery may be required to serve in a receiver. The load conditions ARE NOT ARBITRARILY CHOSEN, but are those recommended by the battery manufacturer. The same thought applies to the calibration of each range, so that batteries will definitely be rejected when their LOADED terminal voltage no longer comes up to the stability requirements of good radio reception or similar usage.

To merely test a battery by the simple voltmeter method is entirely inadequate and misleading for two very obvious reasons:-

(1) - The terminal voltage of used batteries differs tremendously between the LOAD conditions of actual service and the negligible current drain of the usual 1000 ohms per volt or even more sensitive voltmeter. Accordingly, a 3 volt battery may very well read full 3 volts on a VOLTMETER and nevertheless drop to less than 1 volt when subjected to receiver OPERATING LOAD (current drain).

(2) - Aside from the above, without a calibrated battery tester, the serviceman would have to know at what point a battery is to be considered definitely no longer fit for service.

THESE TWO CONDITIONS OF LOAD AND REJECT POINT ARE AUTOMATICALLY ATTENDED TO WHEN EMPLOYING THE SIMPLE PRECISION BATTERY TESTER.

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HOW TO TEST BATTERIES

ALL SELECTORS MUST ALWAYS BE SET TO THE APPROPRIATE POSITIONS BEFORE MAKING ANY BATTERY TESTS.

1. Instrument MUST be "OFF" or else disconnected from the power line.
2. Set Selector Switch "A" to position #1  
" " " "B" " " #18  
" " " "F" " " #11
3. Selector "E", in addition to its functions in the tube testing circuit, serves as the combination voltage and load selector for battery testing, and is set to the required position as follows:

#1 - 1½ volt batteries	#7 - 22½ volt batteries
#2 - 3 " "	#8 - 45 " "
#3 - 4½ " "	#9 - 67½ " "
#4 - 6 " "	#10 - 90 " "
#5 - 7½ " "	#11 - 135 " "
#6 - 9 " "	#12 - Not used

Once controls "A", "B" and "F" are set to their appropriate battery testing positions, Selector "E" is the ONLY switch whose setting changes for batteries of different voltages.

4. Insert test leads into (-) and (+) "BATTERY TEST" pin jacks and apply test prods (in proper polarity) directly across appropriate terminals of battery under test (\*). -- Meter will immediately indicate the condition of the battery on the "REPLACE-WEAK-GOOD" scale.

(\* ) CAUTION:- IN THE EVENT THAT BATTERY TERMINALS ARE NOT IDENTIFIED AS TO POLARITY OR VOLTAGE, ALWAYS FIRST REFER TO RECEIVER OR BATTERY MANUFACTURER'S DATA SHEETS FOR THE NECESSARY INFORMATION BEFORE TESTING, TO AVOID THE POSSIBILITY OF OVERLOADING AND DAMAGING METER.

Batteries reading in the RED "REPLACE" sector should immediately and unquestionably be replaced.

Batteries reading in the YELLOW "WEAK" sector, although normally still capable of use for a short period of time, should also be replaced. "WEAK" batteries are known causes of slow "fade-outs", drift and other receiver instabilities.

NOTE 1. When testing batteries used in test equipment ohmmeter circuits, the battery may test "GOOD" and nevertheless, not give full scale meter deflection in the ohmmeter circuit. This is simply explained by reason that the rejection point of ohmmeter batteries is considerably above that for receivers, test oscillators and similar devices. Accordingly, as far as ohmmeters are concerned, a battery is considered unuseable when full scale ohmmeter adjustment can no longer be obtained in the particular tester in which it is employed, as described by the test equipment manufacturer.

This same battery, if it reads "GOOD", may yet nevertheless furnish some additional service in one's own portable radio, though of course, its remaining useful life is considerably below that of a brand new battery, as its position on the battery test "GOOD" scale will indicate.

NOTE 2. All new batteries, regardless of voltage type, will, when new, and with the proper "E" setting, read at approximately the 66-72 indication on the 0-100 scale (Series 912-914-915) or else 78-84 on the 0-120 scale (Series 920-922-954). SOME LITTLE VARIATION IS TO BE EXPECTED BETWEEN BATTERY BRANDS. Because one brand of new battery may read a little higher than another, it is not an indication of its being better. This is attributable to certain initial chemical conditions within the battery, and in service, will all average around the same operating point.

Schematic showing "BATTERY TEST" circuit connections to PRECISION Series 912-14-15-20-22-54

