OPERATION OF ▶J87116A L1◀ MANUALLY CONTROLLED DISCHARGER FOR DISCHARGE CAPACITY TEST OF 180 TO 1680 AMPERE-HOUR BATTERIES

1. GENERAL

1.01 This section describes the operation of the ▶J87116A L1◀ manually controlled discharger for the full capacity discharge test at the 5-hour rate for a single lead-acid cell of 180 to 1680 ampere-hour capacity.

1.02 This section is reissued to delete information which did not pertain to the operation of the ▶J87116A L1◀ discharger, and to change the discharge rate used to test the cells from the 8-hour rate to the 5-hour rate. This reissue does not affect the Equipment Test List.

1.03 ▶For details on discharge capacity test including procedures and replacement criteria, refer to Section 157-601-701.◀

1.04 Refer to Section 157-601-502 for single-cell capacity test for storage batteries up to and including 180 ampere-hour capacity.

1.05 ▶Refer to Section 157-601-504 and -505 which cover the automatic discharge capacity test performed by the KS-20142 discharger-recharger. Section 157-601-504 covers the KS-20142 automatic discharger-recharger manufactured by the Lorain Products Corporation and Section 157-601-505 covers the KS-20142 discharger-recharger manufactured by the Fan-Tron Corporation. Both will test the single-cell capacity of lead-acid storage cells of 180 to 1680 ampere-hour capacity.◀

1.06 The ▶J87116A L1◀ single-cell discharger has two carbon-pile rheostats (COARSE ADJ and FINE ADJ) connected in parallel to provide continuous variable resistance from 0.0013 to 0.5 ohm. A 100-millivolt shunt rated at 600 amperes is provided with a switch to connect the proper terminal (depending on cell discharge rate) of the multirange ammeter to the shunt.

2. LIST OF TEST APPARATUS AND MATERIALS

CODE OR SPEC NO.	DESCRIPTION
TEST APPARATUS	
J86264A	Charger
J87116A L1	Single Cell Discharger
KS-5499 L1353	Thermometer
KS-5499 L1305	Hydrometer
KS-8039	Volt-milliammeter, 3 Volts
—	Watch or Clock
MATERIALS	
KS-14666	Cleaning Cloth
—	Table Soda (Bicarbonate)

Note: Equivalents may be substituted.

3. OPERATION

PREPARING TO START

Note: Before starting a discharge test, make sure recharge facilities, such as the ▶J86264A◀ single-cell charger, are on hand and ready for use.

Caution: The ▶J87116A L1◀ discharger is designed primarily for the use on one cell and may be damaged if connected to higher voltage.

3.01 ▶Determine the 5-hour discharge current of the KS-5553 and KS-15544 cells from the following list. Refer to Section 157-601-701 for more detailed values of the 5-hour discharge current of other KS- coded cells by different manufacturers.◀ Record the determined discharge rate.

LIST NO.	5-HOUR DISCHARGE CURRENT (AMPS)
310	31
311	31
402	43
403	52
405	74
407	93
409	120
501	145
503	180
505	230
508	290

3.02 Position the ammeter range selector switch as follows:

DISCHARGE CURRENT	SWITCH POSITION
Less Than 145 Amperes	150
145-295 Amperes	300
296-550 Amperes	600

3.03 Operate ON-OFF switch to the OFF position and rotate both rheostat handwheels fully counterclockwise.

Caution: To avoid arcing at the cell and possible explosion of battery gasses, place the ON-OFF switch on the discharger in the OFF position to connect the discharger to or disconnect the discharger from the cell.

3.04 Connect the red lead to the discharger POS terminal and the black lead to the discharger NEG terminal. Clamp the connecting blocks of the leads to the cell terminals, red to positive and black to negative.

Note: Position leads out of the way. If connecting to cells on top tier of a 3-tier rack, support leads by tying or clamping them to the rack.

3.05 Measure and record the following just prior to beginning the discharge test:

(a) Cell voltage

(b) Electrolyte temperature

(c) Temperature corrected specific gravity.

STARTING

3.06 Record the time and operate the ON-OFF switch to ON.

3.07 Raise discharge current to nearly desired value by rotating the COARSE ADJ handwheel clockwise. Adjust to the recorded value (see 3.01) with the FINE ADJ handwheel.

3.08 Maintain discharge current constant at recorded value by operating the FINE ADJ handwheel at intervals as necessary until the cell voltage drops to 1.75 volts.

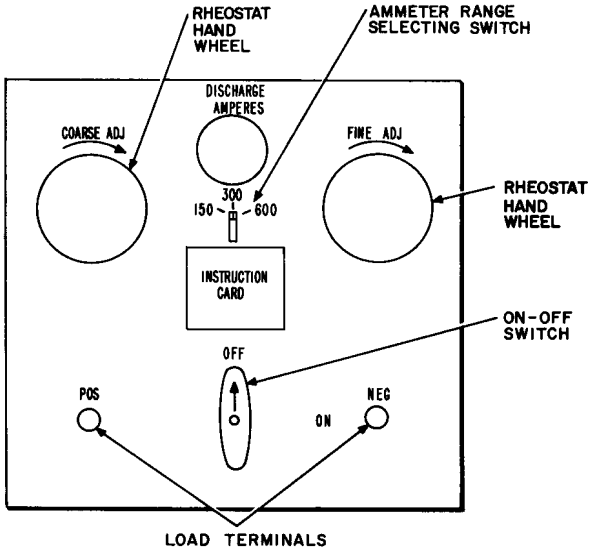

Fig. 1—J87116A L1 Discharger Panel

STOPPING

3.09 When the cell voltage drops to 1.75 volts, end discharge as follows.

(a) Record time cell voltage drops to 1.75 volts.

(b) Rotate both handwheels fully counterclockwise.

(c) Operate ON-OFF switch to OFF.

(d) Rotate ammeter range selector switch to 600.

3.10 Disconnect the lead from the cell. Wipe the connecting blocks of the leads and the clamps with a cloth moistened in a weak soda solution. Disconnect the leads from the discharger.

3.11 Clean the outside of the discharger, including the control panel by wiping with a clean dry cloth. If there has been exposure to acid, moisten the cloth in a weak soda solution.

3.12 Recharge the cell as soon as practical as covered in Section 169-621-301 or give a boost charge to the cell per Section ⧫157-601-701.⧫