

**Chapter 9**

**BATTERY, TYPE K, 24-VOLT, 7 AMP. HR.  
(SAFT VOLTABLOC 19-VO-7)**

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**LEADING PARTICULARS**

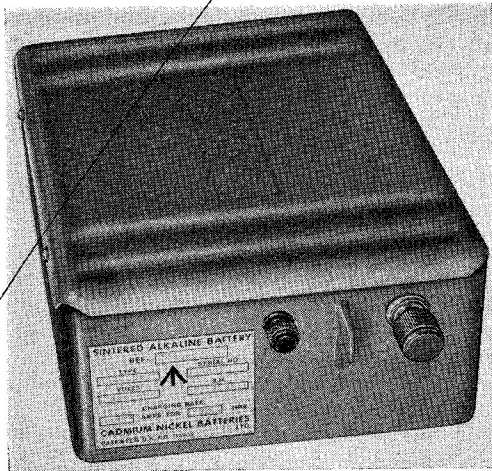
<b>Battery, Type K, 24-volt, 7 amp. hr.</b> .....	Ref. No. 5J/3458
◀ <i>Capacity at 1-hour rate</i> .....	7 amp. hr. ▶
<i>Overall dimensions of case</i> .....	10.25 in. × 7.625 in. × 4.25 in.
<i>Weight</i> .....	16.75 lb.

**Introduction**

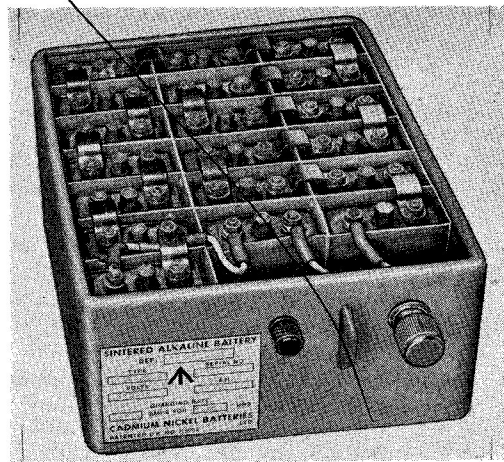
1. The 24-volt, 7 amp. hr. battery, Type K (SAFT Voltabloc 19-VO-7), is of sintered plate, nickel-cadmium alkaline construction as described in A.P.4343, Vol. 1, Sect. 3, Chap. 7, and has been designed as an emergency stand-by battery for use in connection with U.H.F. sets.

**DESCRIPTION**

2. A general view of the battery is shown in fig. 1, and a view with cover removed in fig. 2. It is a semi-sealed type, and consists of 19 individual cells, each having a nominal voltage of 1.2 volts and having a capacity of 7 amp. hr. at the one hour rate. Each cell is



**Fig. 1. Battery Type K, 24-volt, 7amp. hr.**



**Fig. 2. Battery with cover removed**

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housed in a nylon jacket, and the complete battery is enclosed in a plastic container.

3. The negative terminal is identified by a black insulated base moulding, and the terminal fitting is suitable for 4 B.A. lugs; the positive terminal has a corresponding red identification, and is suitable for 2 B.A. lugs.

### SERVICING

4. The battery should be thoroughly cleaned, and the terminals and connections lightly greased with protective PX-7.

### Charging

5. The battery is normally supplied in a state of electrical discharge and must be charged prior to installation in the following manner. Charge at a constant current of 4 amp. for 1 hour, then continue the charge at 2 amp. for 2 hours, followed by a charge of 1 amp. for 2 hours.

### Note . . .

*Charging must be carried out only on a fully discharged battery; a partly discharged battery should first be discharged at 5.5 amp. to 19 volts on load. The battery may be fitted to an aircraft immediately following charge.*

### ◀Adjustment of electrolyte level

6. With the battery out of the aircraft and the lid removed, remove the safety valves and nylon seating washer using a suitable box spanner; this should have the exterior insulated to minimize the risk of a cell short-circuit.

7. The battery should be step-charged from the fully discharged condition (19 volts on load) at 4 amp. for 1 hour, followed by 2 amp. for 2 hours, followed by 1 amp. for 2 hours; at the end of this period, with the battery still on charge, top up with distilled water to a level which is to be adjusted to not higher than 16 mm. below the rubber washer on which the nylon washer and safety valve seat.

### Note . . .

*In the discharged and semi-charged conditions, the electrolyte level is lower than in the fully-charged condition.*

8. Finally adjust the electrolyte level by withdrawing any excess electrolyte; this may conveniently be done as follows:—

(1) With a hydrometer adapted by using a glass tube of a diameter such that it enters the cell, connected to the hydrometer rubber tubing of a diameter such that it butts against the rubber washer at the cell top, the length of the glass tube being maintained at 16 mm.  $\pm \frac{2}{0}$  mm.; excess electrolyte can be drawn off by releasing the previously depressed hydrometer bulb, ensuring at the same time that the tube inserted into the cell is in the correct position relative to the top of the cell.

or

(2) Using a material not affected by potassium hydroxide, manufacture a tube which has at one end an effective diameter such that it enters the cell, of 16 mm. length, having a rim which butts against the rubber washer at the cell top, and an extension of a size and shape that will accommodate a bulb for transferring or withdrawing water.

9. Remove the charging source and after thoroughly cleaning the cell tops, the safety valves and nylon washers, refit the washers and safety valves.▶

### Capacity test

10. The battery should be removed from the aircraft once a month for capacity check when operating under temperate conditions, and once every 14 days when operating under tropical conditions.

(1) Discharge the battery at 5.5 amp. until the on-load voltage drops to 21 volts. If the battery has not been used since the last charge, it is satisfactory if the duration of discharge is not less than 35 minutes.

(2) Continue the discharge at the same rate until the on-load voltage drops to 19 volts. The battery is then considered to be fully discharged, and must on no account be discharged below this figure.

11. A battery for which the duration of discharge to 21 volts is less than 35 minutes should be discharged to 19 volts, then be thoroughly cleaned and re-charged, and have its electrolyte level adjusted according to the instructions contained in para. 7 and 8. If, after standing for a month (14 days in tropical conditions) the duration of discharge is still less than 35 minutes, the battery should be considered defective.

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12. Selective assembly of cells from the batteries which fail the charge retention/capacity test may be made by replacing the cells when they fall to 1 volt on a 5.5 amp. load within the 35 minutes specified. Replacement cells may be obtained from other batteries which have failed the charge retention/capacity

test, the cells having proved satisfactory on load test. Cells may be tested singly or assembled as a battery of cells, but when selective assembly is being carried out the cells must be discharged to the same voltage end point before the battery is re-charged. Such batteries must be fully re-tested prior to use on aircraft.▶

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