

## Chapter 12

### BATTERY, DEAC, TYPE D2

#### LIST OF CONTENTS

	Para.		Para.
Introduction	1	Charging	5
Description	2	Storage	6
Servicing	4		

#### LIST OF ILLUSTRATIONS

	Fig.
Battery, DEAC, Type D2	1

#### LEADING PARTICULARS

Battery, DEAC, Type D2	Ref. No. 5J/3539
Capacity at 10 hour rate	2 amp. hr.
Overall dimensions—	
Length	1.36 in.
Width	1.36 in.
Height (over terminals)	2.40 in.
Weight	6 oz.

#### Introduction

1. The battery, DEAC, Type D2, is used to provide a power supply for certain types of portable equipment. It is a hermetically sealed single cell of the nickel-cadmium type, the principle of operation being in general as described in A.P. 4343, Vol. 1, Sect. 3, Chap. 3.

#### DESCRIPTION

2. A general view of the battery is given in fig. 1. The nickel hydroxide positive plates and cadmium hydroxide negative plates are assembled with porous separators in a rectangular steel container, with electrolyte of potassium hydroxide.

3. Since this is a hermetically-sealed cell, special precautions have been taken in the design to avoid the pressure build-up which would otherwise result from the formation of gases should overcharging take place. When an alkaline battery is overcharged, oxygen gas is given off from the positive plates, and hydrogen gas from the negative plates. The oxygen gas can be absorbed by the negative plates, but hydrogen gas is not readily absorbed by the



Fig. 1. Battery, DEAC, type D2

RESTRICTED

positive plates; therefore provision is made for the negative plates to have a "charging reserve", i.e., an amount of uncharged cadmium hydroxide remaining when the positive plates are fully charged. By this means, provided there is a sufficient "charging reserve", the formation of hydrogen at the negative plates is prevented.

#### SERVICING

4. General servicing instructions for alkaline batteries are given in A.P. 4343, Vol. 1, Sect. 3, Chap. 3. Since this is a hermetically-sealed battery, no initial filling and no topping up are required. Batteries are supplied filled and charged, and normally require no initial charge. It should be noted, however, that if a battery has been stored for some time after dispatch, the available capacity will be less than the nominal value due to the self-discharge of the cell, and the time of discharge on the

first cycle may therefore be less than expected.

#### Charging

5. A completely discharged battery should be charged at a constant current of 200 mA for 14 hours. Should the battery be only partly discharged, and it is not possible to determine from the length of time it has been used the amount of capacity remaining, no ill effects will be produced by giving the standard 14-hour charge irrespective of the state of charge of the battery. The maximum safe period is an additional 28 hours over and above the 14 hours for a discharged battery.

#### Storage

6. If batteries are to be stored for a considerable time, they should be completely discharged and re-charged every six months to preserve the full rated capacity.