



**EMERGENCY EGRESS LIGHTING  
POWER SUPPLY BATTERY**

**PART NO.  
5776-1**

**COMPONENT MAINTENANCE MANUAL  
WITH  
ILLUSTRATED PARTS LIST**

**V32890**

Initial Issue: Nov. 1, 1994

**Proprietary Statement**

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COMPONENT MAINTENANCE MANUAL  
5776-1

TO: HOLDERS OF BATTERY PACK (LUMINESCENT SYSTEMS, INC. PART NUMBER 5776-1) COMPONENT MAINTENANCE MANUAL WITH ILLUSTRATED PARTS LIST.

REVISION K DATED 16 JUNE 2016  
HIGHLIGHTS

Pages that have been revised are outlined below together with the highlight of the revision. Please delete the affected pages and enter Revision K dated 16 June, 2016.

<u>PAGE:</u>	<u>DESCRIPTION OF CHANGE:</u>
Page RR-1	Added New Revision
Page LEP-1	Update Dates
Page 1	Update "Dimensions:" as (Maximum)
	Update battery specifications.
Page 3	Update charge/discharge rates in flow chart.
Page 4	Update charge/discharge rates in flow chart.
Page 7	Added paragraphs H, J, K.

## RECORD OF REVISIONS

REV. NO.	ISSUE DATE	INSERTED		REV. NO.	ISSUE DATE	INSERTED	
		DATE	BY			DATE	BY
A	12-14-94						
B	06-16-95						
C	09-25-95						
D	02-15-96						
E	07-17-98						
F	09-21-99						
G	10-01-03						
H	03-16-05						
J	07-27-05						
K	09-19-16						



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**RECORD OF TEMPORARY REVISIONS**

REV. NO.	ISSUE DATE	INSERTED		REV. NO.	ISSUE DATE	INSERTED	
		DATE	BY			DATE	BY

**SERVICE BULLETIN LIST**

SB/AEB	R E V	INCLUDED IN REVISION	STATEMENT OF APPLICABILITY	TITLE

**LIST OF EFFECTIVE PAGES**

<u>SUBJECT</u>	<u>PAGE</u>	<u>DATE</u>
TITLE PAGE	T-1	JUL 27, 2005
PROPRIETARY STATEMENT	T-2	Oct 01, 2003
RECORD OF REVISIONS	RR-1	Jun 16, 2016
RECORD OF TEMPORARY REVISIONS	RTR-1	Jul 27, 2005
SERVICE BULLETIN LIST	SBL-1	Jul 27, 2005
LIST OF EFFECTIVE PAGES	LEP-1	Jun 16, 2016
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## INTRODUCTION

### 1. General

The instructions in this manual provide the information necessary to perform maintenance functions ranging from simple checks and replacement to complete shop service of the power supply battery.

The manual is divided into separate sections.

- |                            |                               |
|----------------------------|-------------------------------|
| 1. Title Page              | 4. Table of Contents          |
| 2. Record of Revision      | 5. Introduction               |
| 3. List of Effective Pages | 6. Procedures and IPL section |

Refer to the Table of Contents for the page location of applicable sections. An asterisked flagnote (\*) in place of the page number indicates that no special instructions are provided since the function can be performed using standard industry practices.

The beginning of the repair section includes a list of the separate repairs (if appropriate).

An explanation of the use of the Illustrated Parts List is provided in the introduction to that section.

All weights and measurements in the manual are in English units with metric equivalents in parenthesis, unless otherwise stated.

The manual will be revised as necessary to reflect current information.

This manual has been compiled in accordance with the requirements set out in specification ATA 100. It is intended to provide such data as is necessary for an approved repairer to evaluate and test a power supply battery. The manual also addresses storage and charging issues related to the battery.

### 2. Manufacture and Product Support

The power supply is manufactured and supported by:

Luminescent Systems Inc.  
4 Lucent Drive  
Lebanon, NH 03766  
USA

Telephone: (603) 643-7766  
Telefax: (603) 643-5947

**DESCRIPTION AND OPERATION**

1. General

This battery is a component in a power supply with battery for the aircraft emergency egress lighting system. It provides the emergency power to operate the emergency egress lighting system power supply in the event of an emergency. The battery pack consists of 8 rechargeable nickel-cadmium cells connected in series, and assembled in a convenient pack.

2. Technical Data

CHARACTERISTICS	SPECIFICATION	
Dimensions: (Maximum)	Length:	4.00 in (101.6 mm)
	Height:	1.56 in (36.9 mm)
	Width:	1.16 in (29.5 mm)
Weight:	Max.:	6.8 oz (193 g)
Electrical:	Voltage	9.6 VDC Nominal
	Capacity (C-rate)	600 mA-H, Nominal <sup>11</sup>
	Charge Rate, standard	60 mA, 16-20 hours
	Charge Rate, Quick:	180 mA, 4-5 hours <sup>2</sup>
Environmental:	Humidity	90% @ +40°C (+104°F)
	Operating Temp.	-20°C - +70°C (-4°F - 158°F)
Connector:	Snap clip for ANSI 1604/IEC 6LR61-style 9 volt battery.	

Notes:

<sup>1</sup> Batteries delivered before 1992 have lower capacities. Battery capacity is noted on the label. Batteries with lower than the capacity stated above are older than 5 years, and should be replaced.

<sup>2</sup> Quick charge requires charge control to terminate quick charge, or switch to an acceptable overcharge rate when the battery reaches full charge. Acceptable overcharge rate is 10 to 50 mA.

**TESTING AND FAULT ISOLATION**

1. General

- A. The battery is a packaged unit of eight (8) nickel cadmium batteries. It is serviced as a single unit.
- B. The charge retention of a battery either installed or un-installed in a power supply is the ability of the battery to retain energy once it has been charged. This characteristic is both time and temperature dependent. Therefore, the electrical storage capacity of a battery at any time is a function of elapsed time since the last charge and the temperature variations which the battery has experienced.
- C. Battery pack life is determined by the number of charge/discharge cycles, depth of discharge, and temperature. The battery pack "end of life" condition is reached when the battery pack fails to achieve 75% of the initial rated capacity. Several reconditioning cycles may be required to determine battery life capacity since the history of the battery pack may not be known.
- D. When installed on an aircraft, the battery pack is under constant charge when the aircraft 28 Volt DC power is active.
- E. There is no serviceable part within the battery pack..

2. List of Test Equipment

- A. Volt meter
- B. Current meter
- C. Constant Current Power supply capable of 10 V, 150 mA output.
- D. Test load, approx. 16 ohms 10W.

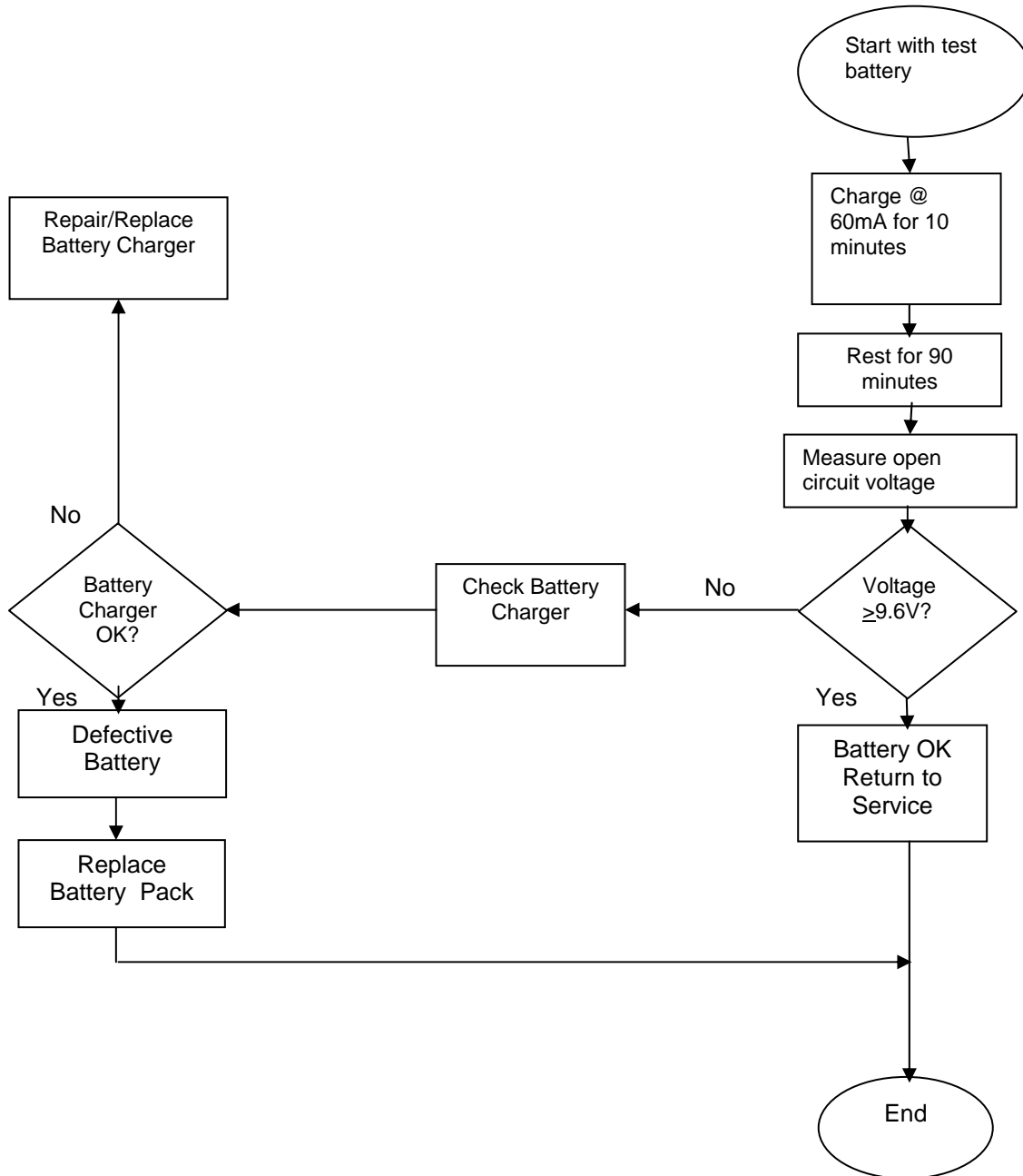
3. Testing

- A. Preparation:  
Batteries should be allowed to stabilize at room temperature (20°C to 25°C).

- B. Test Procedure  
WARNING: DO NOT SHORT CIRCUIT. MAY CAUSE BURNS.

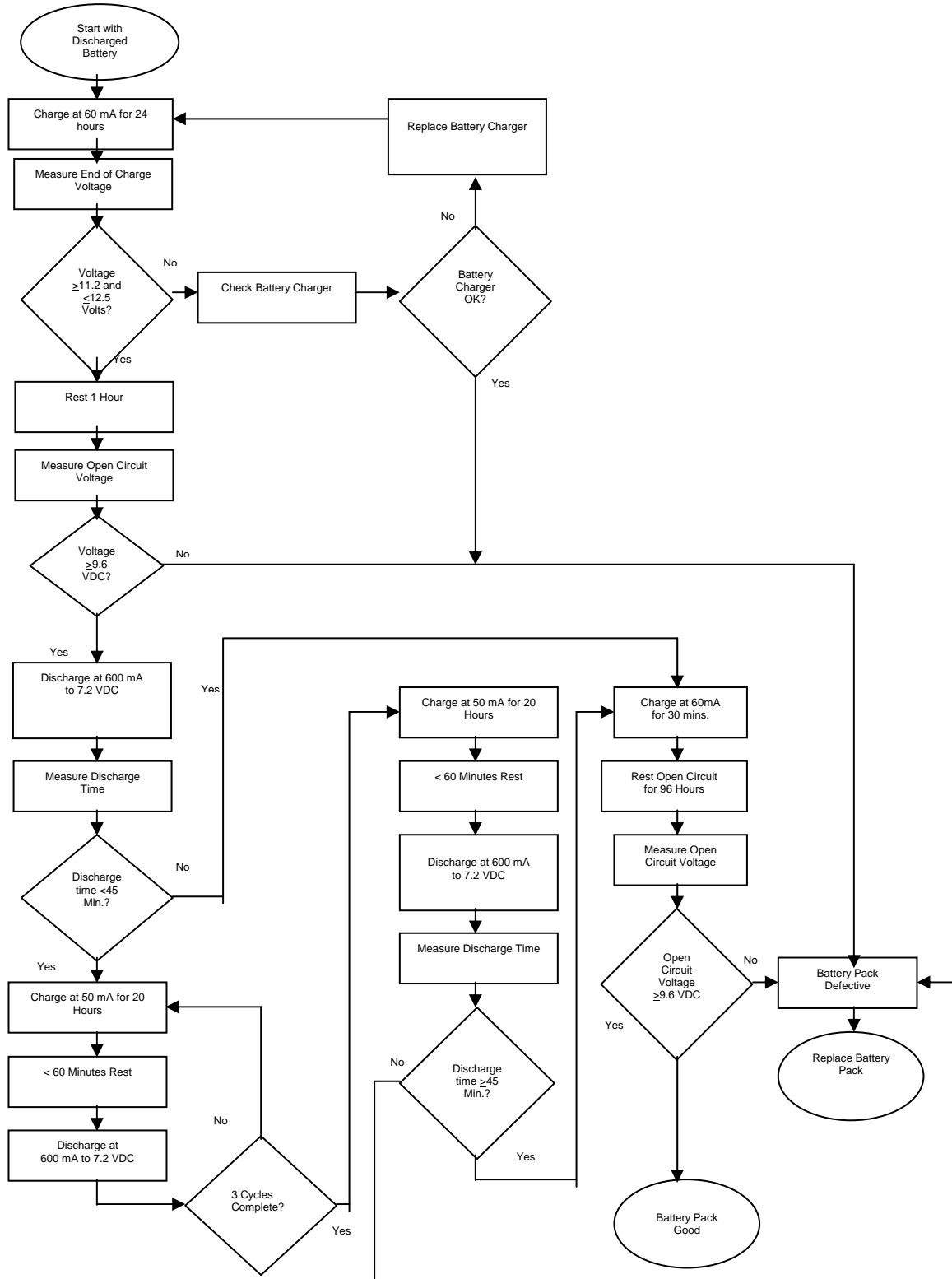
**CAUTION: DO NOT ALLOW DISCHARGE OF BATTERY PACK BELOW 7.2 VOLTS. CELL REVERSAL MAY OCCUR RESULTING IN IRREPARABLE BATTERY DAMAGE.**

- 1. batteries with questionable performance recently removed from aircraft service should be tested using the sequence shown in Figure 1.
- 2. Batteries taken from long term storage (greater than 18 months), should be treated using the sequence shown in Figure 2.



**Figure 1:** Flow chart, basic battery test. Use with any battery with questionable performance

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**Figure 2:** Flow chart showing battery maintenance and test procedures for battery taken from long term storage, or questionable performance.

C. Battery Reconditioning after long term storage.

WARNING: DO NOT SHORT CIRCUIT. MAY CAUSE BURNS.

**CAUTION: DO NOT ALLOW DISCHARGE OF BATTERY PACK BELOW 7.2 VOLTS. CELL REVERSAL MAY OCCUR RESULTING IN IRREPARABLE BATTERY DAMAGE.**

Batteries in storage for a period greater than 18 months are considered to be in long term storage. Follow flow chart shown in Figure 2 when using batteries taken from long term storage.

D. Problem Resolution

TEST RESULT	PROBABLE CAUSE	CORRECTION
After battery recondition procedure, battery voltage is not at rated specification.	Defective battery	Replace battery
Battery capacity test reaches 7.2 volts in less than 45 minutes.	Battery at end of life	Replace battery

Table 1: Trouble shooting chart

**DISASSEMBLY**

1. General

The battery pack cannot be disassembled

**CLEANING**

1. Battery Housing

A. Clean as required using isopropyl alcohol.

**CAUTION: DO NOT USE OTHER CHEMICALS IN ORDER TO AVOID ANY DAMAGE TO OTHER COMPONENTS.**

2. Electrical Contacts

A. Electrical contacts should not require cleaning for the life of this unit. However, if it becomes necessary to clean electrical contacts, clean with small non-metallic brush and isopropyl alcohol.

**CHECK**

1. General

This section presents instructions necessary to verify the condition of the disassembled power supply.

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2. Procedure

- A. Examine casing and electrical components for physical damage and deterioration..
- B. Replace battery if damaged.

Possible Defect	ITEMS	
	Electrical Connector	Battery
Deformation	X	X
Corrosion	X	X
Leakage	X	X
Broken leads	X	X

**Table 2: Inspection Guide**

**REPAIR**

1 General

WARNING: DO NOT INCINERATE OR MUTILATE. MAY BURST OR RELEASE TOXIC MATERIALS.

- A. There is no component which is repairable.

## **STORAGE**

### 1. Battery Storage

- A. Battery packs are fully charged when shipped. Each battery pack may be stored separately or in a power supply.
- B. Battery packs stored separately may be stored in either the charged or uncharged state.
- C. Battery packs stored in a charged state will experience chemical self discharge with the rate of self discharge increasing with temperature.
- D. Battery packs stored in power supply at 25°C ambient must be recharged with 60 mA constant current for 20 hours at 23°C ambient at 56 day intervals.
- E. Battery packs stored in power supply at 0°C ambient must be recharged with 60 mA constant current for 20 hours at 23°C ambient at 149 day intervals.
- F. Battery packs stored for long time periods (in excess of one year) should be replaced. However, it may be possible to recondition the battery to acceptable service conditions. See Section 3.B. in the Testing and Fault Isolation section.
- G. Storage temperature range is 0°C to +30°C.
- H. Battery packs stored individually or in a power supply are subject to an (18) month reconditioning procedure stated in paragraph 3(C).
- I. If a battery pack is installed in a power supply which in turn is installed on an aircraft and the aircraft does not operate or see ground power applied for the (56) and (149) day intervals listed above, then the instructions found in "battery Storage" should be followed.
- J. Batteries in power supplies installed on aircraft should be reconditioned every (18) months regardless of the charging cycles during that period.

## **FITS AND CLEARANCES**

### 1. General

Battery dimensions are shown in "Illustrated Parts List" section.

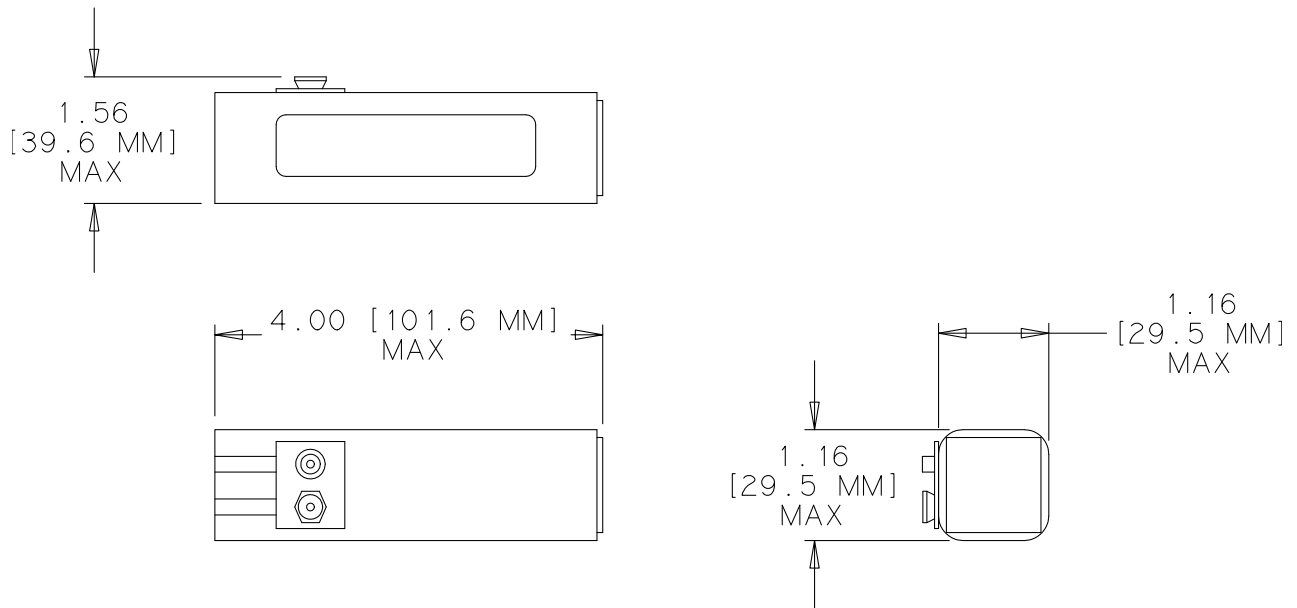
## **SPECIAL TOOLS, FIXTURES & EQUIPMENT**

### 1. General

No special tools or equipment required.



**ILLUSTRATED PARTS LIST**



**Figure IPL 1: Battery**

FIG-ITEM	PART NUMBER	AIRLINE STOCK NO.	NOMENCLATURE	EFF. CODE	QTY.
1-1	5776-1		Battery		Ref