L-852S LED STOP BAR LIGHT

Installation and Maintenance Manual

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ETL Certified to FAA Specifications
AC 150/5345-46E
and FAA LED Performance Specifications per Engineering Brief 67D
ICAO Annex 14, Vol 1, para. 5.3.23

Astronics DME
6830 N.W. 16th Terrace
Ft. Lauderdale, Fl 33309
www.astronics.com

Tel: (954) 975-2100
Fax: (954) 975-3313

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## Record Of Changes

<table>
<thead>
<tr>
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<td>S. BASTIANI</td>
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# Table Of Contents

**RECORD OF CHANGES** .................................................................................................................. III

**TABLE OF CONTENTS** ......................................................................................................................... V

**LIST OF FIGURES** .............................................................................................................................. VII

**LIST OF TABLES** ................................................................................................................................. IX

**WARRANTY** .......................................................................................................................................... XI

**DISCLAIMER** ....................................................................................................................................... XIII

**PROPRIETARY INFORMATION** .......................................................................................................... XV

1. **SAFETY** ........................................................................................................................................... 1-1
   1.1. **INTRODUCTION** ....................................................................................................................... 1-1
   1.2. **SAFETY SYMBOLS** .................................................................................................................. 1-1
   1.3. **QUALIFIED PERSONNEL** ....................................................................................................... 1-2
   1.4. **INTENDED USE** ...................................................................................................................... 1-2
   1.5. **INSTALLATION** ....................................................................................................................... 1-2
   1.6. **OPERATION** ............................................................................................................................ 1-3
   1.7. **EQUIPMENT MALFUNCTIONS** ............................................................................................... 1-3
   1.8. **MAINTENANCE AND REPAIR** ............................................................................................... 1-3

2. **DESCRIPTION** ................................................................................................................................ 2-1
   2.1. **INTRODUCTION** ....................................................................................................................... 2-1
   2.2. **EQUIPMENT DESCRIPTION** .................................................................................................... 2-1
   2.3. **EQUIPMENT OVERVIEW** ......................................................................................................... 2-2
   2.4. **EQUIPMENT SPECIFICATION DATA** ....................................................................................... 2-3
      2.4.1. Functional Characteristics ....................................................................................................... 2-3
      2.4.2. Photometric Data .................................................................................................................... 2-4
      2.4.3. External Power Requirements ................................................................................................. 2-4
      2.4.4. Environmental Characteristics .............................................................................................. 2-4
      2.4.5. Mechanical Characteristics .................................................................................................. 2-5
      2.4.6. Equipment and Accessories Supplied .................................................................................. 2-5
      2.4.7. Equipment Required - Not Supplied ..................................................................................... 2-6

3. **INSTALLATION** ................................................................................................................................ 3-1
   3.1. **INTRODUCTION** ....................................................................................................................... 3-1
   3.2. **UNPACKING** ............................................................................................................................ 3-1
   3.3. **PLACEMENT** ............................................................................................................................ 3-1
   3.4. **INSTALLATION** .......................................................................................................................... 3-1

4. **OPERATION** ................................................................................................................................... 4-1
   4.1. **INTRODUCTION** ....................................................................................................................... 4-1
   4.2. **MODES OF OPERATION** .......................................................................................................... 4-1
   4.3. **BRIGHTNESS SETTINGS** ......................................................................................................... 4-1
   4.4. **TURN ON AND CHECKOUT PROCEDURE** ............................................................................. 4-1
   4.5. **OPERATING MODES** ............................................................................................................... 4-1
   4.6. **CHECKOUT** ............................................................................................................................. 4-1
   4.7. **EQUIPMENT SHUTDOWN** ....................................................................................................... 4-1

5. **MAINTENANCE** .............................................................................................................................. 5-1
5.1. INTRODUCTION ................................................................. 5-1
5.2. MAINTENANCE CHECKS .................................................. 5-1

6. TROUBLESHOOTING ............................................................................................................ 6-1
6.1. INTRODUCTION .................................................................................................................. 6-1
6.2. EQUIPMENT REQUIRED ............................................................................................... 6-1
6.3. TROUBLESHOOTING PROCEDURES .............................................................. 6-1

7. REPAIR ............................................................................................................................... 7-1
7.1. INTRODUCTION .................................................................................................................. 7-1
7.2. REPAIR PROCEDURES ............................................................................................... 7-1
7.2.8. Visual Operational Check ...................................................................................... 7-1
7.3. MAINTENANCE ............................................................................................................... 7-1
7.3.9. Line-of-Sight Inspection ......................................................................................... 7-1
7.3.10. Lens and Cover Cleaning and Inspection ......................................................... 7-1
7.3.11. L-852S Light Fixture Removal From Base Can ............................................ 7-2
7.3.12. Access To Internal Components ........................................................................ 7-3
7.3.13. Cover O-Ring Removal ....................................................................................... 7-5
7.3.14. Light Engine Assy Removal ............................................................................... 7-5
7.3.15. Prism (Lens), Prism Seal and Heater (If Installed) Removal ......................... 7-7
7.3.16. Driver PWA Removal .......................................................................................... 7-8
7.3.17. L-852S Heater PWA Removal (If installed) .................................................. 7-9
7.3.18. 2 Hole Tuff Seal Removal (with L-823 Power Cable) ........................................ 7-10
7.3.19. Schrader Valve Removal .................................................................................... 7-10
7.3.20. Installation And Closing Access To Internal Components .............................. 7-10
7.3.21. Schrader Valve Installation ............................................................................... 7-11
7.3.22. 2 Hole Tuff Seal Installation (with L-823 Power Cable) ................................. 7-11
7.3.23. L-852S Heater PWA Installation (If installed) ............................................... 7-11
7.3.24. Driver PWA Installation ..................................................................................... 7-12
7.3.25. Prism (Lens), Prism Seal & Heater (If Installed) Installation ......................... 7-12
7.3.26. Light Engine Assy Installation .......................................................................... 7-13
7.3.27. Cover O-Ring Installation .................................................................................. 7-14
7.3.28. Cover onto Base Casting Installation ............................................................... 7-15
7.3.29. L-852S Light Fixture Leak Check ................................................................. 7-19
7.3.30. L-852S Light Fixture Into Base Can Installation ........................................... 7-19

8. PARTS ................................................................................................................................. 8-1
8.1. INTRODUCTION ............................................................................................................... 8-1
8.2. NAME OF PART AND DESCRIPTION ............................................................... 8-1
8.3. PART NUMBER ............................................................................................................. 8-1
8.4. ORDERING INFORMATION ...................................................................................... 8-1
8.4.31. L-852S LED Stop Bar Light .............................................................................. 8-1
List Of Figures

FIGURE 2-1 L-852S LED STOP BAR LIGHT .................................................................................................................... 2-2
FIGURE 3-1 L-852S INSTALLATION (TYPICAL) ................................................................................................................ 3-2
FIGURE 7-1 REMOVAL/INSTALLATION OF L-852S FIXTURE FROM BASE CAN ................................................................. 7-2
FIGURE 7-2 REMOVAL TOOL ...................................................................................................................................... 7-3
FIGURE 7-3 ACCESS TO INTERNAL COMPONENTS ........................................................................................................ 7-4
FIGURE 7-4 COVER - COMPONENTS ............................................................................................................................ 7-5
FIGURE 7-5 LIGHT ENGINE ASSY REMOVAL ................................................................................................................ 7-6
FIGURE 7-6 LIGHT ENGINE ASSY .................................................................................................................................. 7-6
FIGURE 7-7 PRISM (LENS) AND PRISM SEAL .................................................................................................................. 7-7
FIGURE 7-8 BACK PLATE, SPACER OR HEATER, PRISM AND PRISM SEAL ................................................................. 7-8
FIGURE 7-9 BASE CASTING COMPONENTS ..................................................................................................................... 7-9
FIGURE 7-10 SCHRADER VALVE, GROUND LUG, AND TUFF SEAL ................................................................................... 7-10
FIGURE 7-11 LIGHT ENGINE INSTALLATION ................................................................................................................ 7-13
FIGURE 7-12 L-852S PART NUMBERING SCHEME ........................................................................................................ 7-16
FIGURE 7-13 L-852S-L-Y-X-X-0 WIRING DIAGRAM ........................................................................................................ 7-17
FIGURE 7-14 L-852S-L-Y-X-X-1 WIRING DIAGRAM ........................................................................................................ 7-18
FIGURE 8-1 L-852S LED STOP BAR LIGHT .................................................................................................................... 8-2
List Of Tables

TABLE 2-1 L-852S LED STOP BAR LIGHT USE ................................................................. 2-1
TABLE 2-2 FUNCTIONAL CHARACTERISTICS (VA/PF) – NO ARCTIC KIT .................................................. 2-3
TABLE 2-3 FUNCTIONAL CHARACTERISTICS (VA/PF) – ARCTIC KIT .......................................................... 2-3
TABLE 2-4 FUNCTIONAL CHARACTERISTICS ...................................................................................... 2-3
TABLE 2-5 PHOTOMETRIC DATA L-852S ...................................................................................... 2-4
TABLE 2-6 3 OR 5 STEP CCR ................................................................................................. 2-4
TABLE 2-7 EXTERNAL POWER REQUIREMENTS ............................................................................. 2-4
TABLE 2-8 ENVIRONMENTAL CHARACTERISTICS ................................................................................ 2-5
TABLE 2-9 MECHANICAL CHARACTERISTICS .................................................................................. 2-5
TABLE 2-10 EQUIP AND ACCESSORIES - SUPPLIED ................................................................. 2-5
TABLE 2-11 EQUIP AND ACCESSORIES REQ'D - NOT SUPPLIED .................................................... 2-6
TABLE 2-12 ISOLATION TRANSFORMERS W/O ARCTIC KIT - NOT SUPPLIED ....................... 2-6
TABLE 2-13 ISOLATION TRANSFORMERS W/ ARCTIC KIT - NOT SUPPLIED ............................................ 2-6
TABLE 5-1 MAINTENANCE CHECKS ............................................................................................. 5-1
TABLE 6-1 TROUBLESHOOTING PROCEDURES .............................................................................. 6-2
TABLE 8-1 L-852S PARTS LIST ................................................................................................. 8-3
TABLE 8-2 L-852S RENEWAL PARTS ........................................................................................... 8-4
Warranty

Astronics DME warrants products against mechanical, electrical, physical, and workmanship defects for a period of two years from the date of manufacture or one year from the date of installation, whichever occurs first.

This warranty, excludes consumable items such as batteries, filters, or lamps.

Astronics DME will repair or replace, at its option, equipment or parts, which fail because of mechanical, electrical, physical, or workmanship defects, provided the equipment or parts were installed operated or maintained in accordance with approved practice, and used for the intended purpose. Any product which has been repaired or altered in such a way, in Astronics DME’s judgment, as to affect the product adversely will not be covered under warranty.

Astronics DME reserves the right to examine the part(s) to determine if the equipment/part(s) is (are) covered under this warranty or to authorize scrap on site and provide replacement parts without examination by Astronics DME Customer Product Support.

Astronics DME shall have the right to substitute replacement parts having the same form, fit, function, and specification.

All repaired or overhauled parts will be warranted to be free from defect in material and workmanship, in accordance with the above stipulations, for a period of ninety (90) days from the date of shipment.

For products not manufactured by, but sold by Astronics DME, warranty is limited to that extended by the original manufacturer.

Customers must notify Astronics DME Customer Product Support (CPS) in writing within ten (10) working days of the failure/defect discovery with a detailed description of the problem and, if known, the cause of the problem.

In accordance with FAA requirements, Astronics DME warrants LED airfield lighting products against electrical defects for a period of four years from the date of installation.

Customers must obtain a Return Material Authorization (RMA) Number (and identify equipment with this number before returning material) from:

Astronics DME Customer Product Support
6830 NW 16th Terrace, Fort Lauderdale, FL 33309
DMEsupport@astronics.com
(954) 975-2206

* Astronics DME’s Customer assumes responsibility for incoming freight and custom charges unless these have been previously authorized in writing by Astronics DME.*
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1. SAFETY

1.1. Introduction

This section contains general safety instructions. Some safety instructions may not apply to the equipment in this manual. Specific warnings are included in the manual where appropriate. Follow all warnings, cautions and notes in the instructions carefully, as failure to do so may result in personal injury, death, or damage to equipment.

To use this equipment safely:

- Refer to the FAA Advisory Circular AC 150/5340-26, Maintenance of Airport Visual Aid Facilities, for instructions on safety precautions.
- Observe all safety regulations. Always remove power prior to making any wire connections and touching any parts.
- Read and become familiar with the general safety instructions provided in this section of the manual before installing, operating, maintaining, or repairing this equipment.
- Read and carefully follow the instructions given throughout this manual for performing specific tasks and working with specific equipment.
- Keep this manual within easy access of personnel installing, operating, maintaining, or repairing this equipment.
- Follow all applicable safety procedures required by your company, industry standards, and government or other regulatory agencies.
- Obtain and read Material Safety Data Sheets (MSDS) for all materials used.

1.2. Safety Symbols

Become familiar with the safety symbols presented in this section. These symbols will alert you to safety hazards and conditions that may result in personal injury, death, or damage to equipment.

- **WARNING**: May result in personnel injury or death.
- **CAUTION**: May result in damage to equipment.
- **NOTE**: Informational guidance.
1.3. Qualified Personnel

Qualified personnel are defined as personnel who thoroughly understand the equipment and its safe operation, maintenance, and repair. Qualified personnel are physically capable of performing the required tasks, are familiar with all relevant safety rules and regulations and have been trained to safely install, operate, maintain, and repair the equipment.

1.4. Intended Use

Astronics DME is not responsible for injuries or damages resulting from nonstandard, unintended applications of its equipment. This equipment is designed and intended only for the purpose described in this manual. Uses not described in this manual are considered unintended uses and may result in serious personal injury, death, or equipment damage.

Unintended uses may result from taking the following actions:

• Making changes to equipment that have not been recommended or described in this manual or using parts that are not genuine Astronics DME replacement parts.
• Failing to make sure that auxiliary equipment complies with approval agency requirements, local codes, and all applicable safety standards.
• Allowing unqualified personnel to perform any task.

1.5. Installation

Read and understand the installation section of all system component manuals before installing the equipment.

• Failure to follow safety procedures may result in injury or death.
• Allow only qualified personnel to install the equipment.
• Use only approved equipment. Using unapproved equipment may create a safety hazard.
• Make sure all equipment is rated and approved for the environment in which you are using it.
• Follow all instructions for installing components and accessories.
• Install all electrical connections to local code.
• Use only electrical wire of sufficient gauge and insulation to handle the rated current demand. All wiring must meet local codes.
• Route electrical wiring along a protected path. Make sure they will not be damaged by moving equipment.
1.6. Operation

Only qualified personnel should operate this equipment. Read all system component manuals before operating this equipment. A thorough understanding of system components and their operation will help you operate the system safely and efficiently.

- Before using this equipment, check all safety interlocks, fire-detection systems, and protective devices such as panels and covers. Make sure all devices are fully functional. Do not operate the system if these devices are not working properly. Do not deactivate or bypass automatic safety interlocks or locked-out electrical disconnects or pneumatic valves.
- Never operate equipment with a known malfunction.
- Do not attempt to operate or service electrical equipment if standing water is present.
- Use this equipment only in the environments for which it is rated. Do not operate this equipment in humid, flammable, or explosive environments unless it has been rated for safe operation in these environments.
- DO NOT touch exposed electrical connections on equipment while the power is ON.

1.7. Equipment Malfunctions

Do not operate a system that contains malfunctioning components. If a component malfunctions, turn the system OFF immediately.

- Disconnect and lock out electrical power.
- Allow only qualified personnel to make repairs. Repair or replace the malfunctioning component according to instructions provided in this manual.

1.8. Maintenance and Repair

Allow only qualified personnel to perform maintenance, troubleshooting, and repair tasks. Only properly trained personnel are permitted to service this equipment.

- Always use safety devices when working on this equipment.
- Follow the recommended maintenance procedures in your equipment manuals.
- Do not service or adjust any equipment unless another person trained in first aid and CPR is present.
- Connect all disconnected equipment ground cables and wires after servicing equipment. Ground all conductive equipment.
- Use only approved Astronics DME replacement parts. Using unapproved parts or making unapproved modifications to equipment may create safety hazards.
• Check interlock systems periodically to ensure their effectiveness.
• Do not attempt to service electrical equipment if standing water is present. Use caution when servicing electrical equipment in a high-humidity environment.
• Use tools with insulated handles when working with electrical equipment.
2. DESCRIPTION

2.1. Introduction

This section describes the Astronics DME Light Emitting Diode (LED) L-852S LED Stop Bar Light.

2.2. Equipment Description

The intended use of the L-852S LED Stop Bar Light is shown in Table 2-1.

Table 2-1 L-852S LED Stop Bar Light Use

<table>
<thead>
<tr>
<th>L-852S</th>
<th>Stop Bar Light</th>
<th>Unidirectional: red</th>
</tr>
</thead>
</table>

These lights are:

- Class 2 (Base-mounted fixtures)
- Mode 1 (Constant Current fixture, supplied 6.6 amperes (A))
- Style 3 (The style designation applies only to in-pavement fixtures and describes the total height above finished grade (X) where X ≤ 1/4 inch.)
- Certified by Intertek Testing Services according to FAA specification AC 150/5345-46E, FAA LED specifications EB67D
- Meets the requirements of Low Visibility Taxiway Lighting Systems as specified by FAA AC 150/5340-30.
- Compliant with ICAO Annex 14, Vol 1, para. 5.3.17 aerodromes.

The Astronics DME L-852S LED Stop Bar Light is shown in Figure 2-1.
2.3. Equipment Overview

The major components of the L-852S LED Stop Bar Light are shown in Figure 2-1 and Figure 8-1.

Figure 2-1 L-852S LED Stop Bar Light
2.4. Equipment Specification Data

Table 2-2 through Table 2-9 illustrates pertinent reference data on the L-852S LED Stop Bar Light. Included are tables containing functional characteristics, external power requirements, environmental characteristics, equipment and accessories supplied, and equipment required for operation and maintenance, but not supplied by Astronics DME.

2.4.1. Functional Characteristics

Table 2-2 thru Table 2-4 lists the functional characteristics of the L-852S LED Stop Bar Light.

<table>
<thead>
<tr>
<th>Fixture Type</th>
<th>VA</th>
<th>PF</th>
</tr>
</thead>
<tbody>
<tr>
<td>852S UNI Red</td>
<td>34</td>
<td>0.86</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fixture Type</th>
<th>VA</th>
<th>PF</th>
</tr>
</thead>
<tbody>
<tr>
<td>852S UNI Red</td>
<td>62.5</td>
<td>0.98</td>
</tr>
</tbody>
</table>

Table 2-4 Functional Characteristics

<table>
<thead>
<tr>
<th>Condition</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optics</td>
<td>8 high power Red LEDs with optically matched polycarbonate lens</td>
</tr>
<tr>
<td>852S</td>
<td>~ 10.2 lbs.</td>
</tr>
<tr>
<td>Dimensions</td>
<td>1</td>
</tr>
<tr>
<td>Height (Depth)</td>
<td>3.93 inches</td>
</tr>
<tr>
<td>Outer Diameter</td>
<td>11.94 inches</td>
</tr>
<tr>
<td>Bolt-Circle Diameter</td>
<td>11.25</td>
</tr>
<tr>
<td>Total Harmonic Distortion (THD)</td>
<td>&lt; 1.1%</td>
</tr>
<tr>
<td>Arctic Kit</td>
<td>Optional - Turns on at ~0°C and turns off at ~25°C</td>
</tr>
</tbody>
</table>
2.4.2. Photometric Data

Table 2-5, lists the photometric data requirements for the L-852S LED Stop Bar Light.

Table 2-5 Photometric Data L-852S

<table>
<thead>
<tr>
<th>Color</th>
<th>Light Source</th>
<th>Measured Peak Intensity (candelas)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red</td>
<td>LED</td>
<td>Degrees               Candelas</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Main Beam</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>300</td>
</tr>
</tbody>
</table>

Table 2-6 3 or 5 Step CCR

<table>
<thead>
<tr>
<th>CCR Current (amps)</th>
<th>Average Brightness Level (candelas)</th>
<th>% of Max. Brightness</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.6</td>
<td>300.0</td>
<td>100%</td>
</tr>
<tr>
<td>5.5</td>
<td>116.7</td>
<td>38.9% (FAA Requirement 30 - 51)</td>
</tr>
<tr>
<td>5.2</td>
<td>72.6</td>
<td>24.2% (FAA Requirement 16.8-39.75)</td>
</tr>
<tr>
<td>4.8</td>
<td>43.0</td>
<td>14.3% (FAA Requirement 10 - 19)</td>
</tr>
<tr>
<td>4.1</td>
<td>19.1</td>
<td>6.4% (FAA Requirement 5 -10)</td>
</tr>
<tr>
<td>3.4</td>
<td>5.1</td>
<td>1.7% (FAA Requirement 1.2 - 3)</td>
</tr>
<tr>
<td>2.8</td>
<td>2.6</td>
<td>0.9% (FAA Requirement 0.15 - 1.65)</td>
</tr>
</tbody>
</table>

2.4.3. External Power Requirements

Table 2-7 lists the external power requirements of the L-852S LED Stop Bar Light.

Table 2-7 External Power Requirements

<table>
<thead>
<tr>
<th>Input</th>
<th>Power</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant Current Regulator (CCR)</td>
<td>3 Step 4.8A, 5.5A or 6.6A</td>
</tr>
<tr>
<td></td>
<td>5 Step 2.8A, 3.4A, 4.1A, 5.2A and 6.6A</td>
</tr>
</tbody>
</table>

2.4.4. Environmental Characteristics

Table 2-8 lists the environmental characteristics of the L-852S LED Stop Bar Light.
Table 2-8 Environmental Characteristics

<table>
<thead>
<tr>
<th>Condition</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature:</td>
<td></td>
</tr>
<tr>
<td>Operating</td>
<td>-40° C to +55° C (-40° F to +131° F)</td>
</tr>
<tr>
<td>Storage/Shipping</td>
<td>-55° C to +55° C (-67° F to 131° F)</td>
</tr>
<tr>
<td>Temperature Shock</td>
<td>Withstands exposure of the hot light fixture to cold water spray</td>
</tr>
<tr>
<td>Salt fog</td>
<td>Withstands exposure to a corrosive salt atmosphere</td>
</tr>
<tr>
<td>Wind</td>
<td>N/A</td>
</tr>
<tr>
<td>Altitude</td>
<td>Sea level to 10,000 feet (3000 m)</td>
</tr>
<tr>
<td>Precipitation</td>
<td>Withstands exposure to rain, snow, ice, and standing water</td>
</tr>
<tr>
<td>Solar radiation</td>
<td>Withstands exposure to solar radiation</td>
</tr>
</tbody>
</table>

2.4.5. Mechanical Characteristics

Table 2-9 lists the mechanical characteristics of the L-852S LED Stop Bar Light.

Table 2-9 Mechanical Characteristics

<table>
<thead>
<tr>
<th>Condition</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>In-Pavement Lights - Top Surface Slope</td>
<td>The slope of the top surface of the light fixture, which protrudes above finish grade, is less than 8 degrees (recesses excepted).</td>
</tr>
<tr>
<td>Insulation Resistance</td>
<td>Resistance of 50 MΩ lead-to-case</td>
</tr>
</tbody>
</table>

2.4.6. Equipment and Accessories Supplied

Table 2-10 lists the equipment and accessories supplied for the L-852S LED Stop Bar Light.

Table 2-10 Equip and Accessories - Supplied

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>L-852S LED Stop Bar Light</td>
<td>As Required</td>
</tr>
<tr>
<td>Installation and Maintenance Manual - Y3-01-0186</td>
<td>Manual can be downloaded at <a href="http://www.astronics.com">www.astronics.com</a></td>
</tr>
</tbody>
</table>
2.4.7. Equipment Required - Not Supplied

Table 2-11 through Table 2-13 list the equipment and accessories required but not supplied for the L-852S LED Stop Bar Light.

Table 2-11 Equip and Accessories Req’d - Not Supplied

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base Can - L-868-2 (Load Bearing Type)</td>
<td>1</td>
</tr>
<tr>
<td>Isolation transformer for series circuit - L-830 or L-831</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 2-12 Isolation Transformers w/o Arctic Kit - Not Supplied

<table>
<thead>
<tr>
<th>Series Circuit</th>
<th>Isolation Transformer</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.6A</td>
<td>30/45W L-830-3 60 Hz/L-831-3 50 Hz</td>
</tr>
</tbody>
</table>

Table 2-13 Isolation Transformers w/Arctic Kit - Not Supplied

<table>
<thead>
<tr>
<th>Series Circuit</th>
<th>Isolation Transformer</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.6A</td>
<td>100W L-830-4 60 Hz/L-831-4 50 Hz</td>
</tr>
</tbody>
</table>
3. INSTALLATION

3.1. Introduction
This section of the manual contains general instructions for installation of L-852S LED Stop Bar Light at a typical site. Refer to the airport project plans and specifications for the specific installation instructions.

3.2. Unpacking
The equipment is shipped ready for installation. Handle equipment very carefully to prevent component damage. Unpack the carton upon receipt and check the contents and their condition. Note any exterior damage to the carton that may lead to detection of equipment damage.

3.3. Placement
Follow the FAA specifications and site plans when placing the light fixture.

3.4. Installation
This subsection provides installation instruction for the L-852S LED Stop Bar Light. See Figure 3-1.
Figure 3-1 L-852S Installation (Typical)
4. OPERATION

4.1. Introduction
This section of the manual describes the operational aspects of the L-852S LED Stop Bar Light. The following paragraphs outline the details on controls, indicators, and system operation. Turn-on and turn-off operations are described, along with notes regarding safety hazards, where necessary.

4.2. Modes of Operation
The L-852S LED Stop Bar Lights are configured for and automatically detect and adapt to either 3 or 5 Step 6.6A Constant Current Regulators (CCR).

4.3. Brightness Settings
Set the CCR to the desired brightness level.

4.4. Turn On and Checkout Procedure
Turn on the lights using the CCR.

4.5. Operating Modes
The L-852S LED Stop Bar Light will automatically switch between intensities depending upon the current from the CCR. There is no user interface to control light intensities.

4.6. Checkout
To checkout L-852S LED Stop Bar Light, turn on the CCR, step through the brightness levels, and observe intensity change of lights.

4.7. Equipment Shutdown
Turn off the lights by turning off the CCR.
5. MAINTENANCE

NOTE

Anti-seize compound should be used on 18-8, 410, or 416 stainless steel hardware.

5.1. Introduction

This section of the manual lists the maintenance tasks required for the L-852S LED Stop Bar Light. This includes performance checks, on-site maintenance, and off-site maintenance. The performance checks and maintenance tasks in this section are required to ensure optimum equipment performance.

5.2. Maintenance Checks

Table 5-1 lists the maintenance checks. To keep the L-852S LED Stop Bar Light operating efficiently, follow a preventive maintenance schedule. Refer to FAA AC 150/5340-26 for more detailed information.

<table>
<thead>
<tr>
<th>Interval</th>
<th>Task</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>As Req’d</td>
<td>Check Lens for obstructions</td>
<td>Clean Lens</td>
</tr>
<tr>
<td>Weekly</td>
<td>Check for Rubber and other contaminant deposits on the lens</td>
<td>Clean lens</td>
</tr>
<tr>
<td>Bi-Monthly</td>
<td>Check Bolt Torque</td>
<td>The torque of the bolts attaching the light to its base should be checked - 185 in/lbs Dry. 160 in/lbs with Anti-seize compound (Loctite 51609 HD).</td>
</tr>
<tr>
<td>Semi-Annually</td>
<td>Check the shallow base installations for the presence of water</td>
<td>Any water should be removed and the base should be sealed to prevent its reentry.</td>
</tr>
<tr>
<td>Unscheduled</td>
<td>Prepare for heavy snowfall, if necessary</td>
<td>Use red flags or sticks to mark location of fixtures to facilitate snow removal and lessen chance of damage to fixtures</td>
</tr>
</tbody>
</table>
This page intentionally left blank.
6. TROUBLE SHOOTING

6.1. Introduction

This section of the manual provides onsite corrective procedures in order to diagnose, isolate, and repair malfunctions and faults that may be found in the L-852S LED Stop Bar Light in its operational environment. Field repair is limited to the replacement of easily replaceable components.

6.2. Equipment Required

The following equipment is required to perform the onsite corrective maintenance procedures:

- Standard tool kit
- Cover Puller and Eyebolts
- Multi-meter

6.3. Troubleshooting Procedures

The L-852S LED Stop Bar Light must be operated as described in Section 4. When a fault or malfunction occurs, corrective maintenance is required by an onsite technician to isolate and correct the problem. The following items should be checked/verified before other troubleshooting/maintenance procedures are performed:

- Check all cables are connected
- Check all power connections are intact

If the above do not correct the malfunction, refer to Table 6-1.

When removing and replacing the electronics module, handle with care to avoid damage to discrete components that can be caused by electrostatic discharge. To avoid voltage overload, make sure the power is turned off when the replacement of a module is required.
<table>
<thead>
<tr>
<th>Problem</th>
<th>Possible Cause</th>
<th>Corrective Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>LED(s) not lighting</td>
<td>Defective LED</td>
<td>Replace Light Engine</td>
</tr>
<tr>
<td></td>
<td>Defective Driver PWA</td>
<td>Check voltage across E1 &amp; E2 on the Driver PWA using a multimeter. When powered &amp; the Light Engine connected, a waveform should be present with rms value reading from 1.5 to 2.5Vrms &amp; peak to peak value reading from 20-40V.</td>
</tr>
<tr>
<td></td>
<td>Loose wire connection</td>
<td>Tighten wire connections.</td>
</tr>
<tr>
<td></td>
<td>Deteriorated wire insulation</td>
<td>Replace wires.</td>
</tr>
<tr>
<td></td>
<td>Internal components wired incorrectly</td>
<td>Ensure components are connected per 7.3.28.</td>
</tr>
<tr>
<td>LED too dim</td>
<td>Dirty lens</td>
<td>Clean lens</td>
</tr>
<tr>
<td>LED(s) appear brighter/dimmer than other fixtures around it</td>
<td>Service life of LED exceeded</td>
<td>Replace Light Engine</td>
</tr>
<tr>
<td>Ice forming on lens (Optional Arctic Kit Installed)</td>
<td>Defective arctic kit (Heater PWA)</td>
<td>Verify jumper(s) present on J3/J4. Disconnect J1 &amp; J2 from Heater PWA; leave other ends connected to Driver PWAs. Power the unit, if the light does not come on, see “LED(s) not lighting section” above. If the lights are on, measure the voltage across Pins 1 and 2 on the loose end of the cable. If 5VDC present replace Heater PWA, if no voltage present, replace Driver PWA.</td>
</tr>
<tr>
<td></td>
<td>Defective Heater</td>
<td>Check Heater with Ohmmeter. With Heater disconnected from Heater PWA, Heater should measure 0.5-1 ohm. If Heater measures higher, or open, replace heater.</td>
</tr>
<tr>
<td>Water/Excessive Moisture in 852 Light Fixture</td>
<td>Defective O-Ring</td>
<td>Replace O-Ring</td>
</tr>
<tr>
<td></td>
<td>Schrader Valve/Tuff seal not properly installed/teflon tape around threads not properly applied</td>
<td>Re-apply teflon tape around threads on Schrader valve/tuff seal.</td>
</tr>
</tbody>
</table>
7. REPAIR

7.1. Introduction

This section of the manual provides maintenance personnel with step-by-step instructions for performing the repair procedures. It also lists the maintenance tasks required for the L-852S LED Stop Bar Light.

These repair procedures will only show one configuration and are typical for the other configurations.

7.2. Repair Procedures

These instructions consist of the procedures required for testing, measuring, aligning, and repairing the L-852S LED Stop Bar Light. The tools and test equipment necessary for the performance of these procedures are also listed as required.

7.2.8. Visual Operational Check

1. With the system operating, visually inspect each L-852S LED Stop Bar Light to verify LEDs are on.
2. Visually inspect each L-852S LED Stop Bar Light for obvious damage.

7.3. Maintenance

The following maintenance procedures are those required to perform the maintenance tasks listed in Section 5.

7.3.9. Line-of-Sight Inspection

1. Visually inspect the lights for obstructions.
2. Refer to FAA specification AC 150/5340-24 for visibility requirements.

7.3.10. Lens and Cover Cleaning and Inspection

1. Inspect the lens, cover, and other visible parts for rubber build-up, moisture, dirt, etc.
2. Clean the outer lens.
3. Replace any damaged parts.
7.3.11. L-852S Light Fixture
Removal From Base Can

1. Turn off CCR.
2. Remove six (6) bolts, washers, and lockwashers from cover. See Figure 7-1.
3. If required to pull L-852S light fixture out of the base can, install two (2) eyebolt screws into the two (2) threaded holes on the cover, insert a bar through the eyebolts, and lift the light fixture out of the base can with the lifting bar. See Figure 7-2.

**WARNING**

High Voltage may be present from the Isolation Transformer and arcing may occur if the plug is disconnected without turning off power first. Ensure power from CCR to Isolation Transformer is OFF.

4. Disconnect the L-852S light fixture plug from the isolation transformer in the base can. If installed, disconnect the grounding wire, see Figure 7-10.

![Figure 7-1 Removal/Installation of L-852S Fixture from Base Can](image-url)
7.3.12. Access To Internal Components

1. Remove L-852S light fixture from base can per 7.3.11.

See Figure 7-3.

CAUTION

ESD practices must be followed when any maintenance is performed on the internal components of the L-852S light fixture.

CAUTION

Use caution when placing the light fixture upside down as not to damage the lens on the top of the casting.
2. Place L-852S light fixture upside down on a clean dry surface that will not damage the lens on top of the casting.
3. Remove six (6) bolts, washers, and lockwashers connecting base casting to cover.

**NOTE**

The connectors must be disconnected from the LED PWA to the Driver PWA and Heater (if installed) when separating the Cover from the Base Casting. There is enough service loop wire to place the Cover and Base Casting alongside each other.

4. Separate Cover from Base Casting.
5. Disconnect Light Engine Assy and Heater (if installed) connector(s) from Driver PWA and Heater PWA.

Figure 7-3 Access To Internal Components
7.3.13. **Cover O-Ring Removal**

1. Gain access to internal components per 7.3.12.
2. Remove O-Ring from channel in Cover. See Figure 7-4.

![Figure 7-4 Cover - Components]

7.3.14. **Light Engine Assy Removal**

**NOTE**

These repair instructions and figures only describe and illustrate the removal and installation of one light engine.

1. Gain access to internal components per 7.3.12.
2. Remove two (2) screws and lockwashers and remove Light Engine Assy from Cover. See Figure 7-5 and Figure 7-6.
Figure 7-5 Light Engine Assy Removal

Figure 7-6 Light Engine Assy

Light Engine Assy
(2 Screws – Typ)

Light Engine Assy/
(Wire Assy goes to
Driver PWA)

Mounting
Holes

Lens

LED
PWA

LED
Holder
7.3.15. Prism (Lens), Prism Seal and Heater (If Installed) Removal

These repair instructions and figures only describe and illustrate the removal and installation of one prism and heater.

1. Remove Light Engine Assy per 7.3.14.
2. Remove two (2) screws and lockwashers from back plate and remove along with prism spacer or heater from Cover.
3. Remove Prism and Prism Seal from the Cover. See Figure 7-7 and Figure 7-8.

Figure 7-7 Prism (Lens) and Prism Seal
Figure 7-8 Back Plate, Spacer or Heater, Prism and Prism Seal

7.3.16. Driver PWA Removal

These repair instructions and figures only describe and illustrate the removal and installation of one Driver PWA.

1. Gain access to internal components per 7.3.12.
2. If no Arctic Kit installed, go to step 3, if installed go to step 4.
3. If no Arctic kit, disconnect two (2) wires coming from Isolation Transformer plug to the Driver PWA(s). Go to step 8.
4. If Arctic Kit installed, disconnect one (1) wire coming from Isolation Transformer plug to the Driver PWA and the other from the Heater PWA. See Figure 7-9.
5. If Arctic Kit installed, remove Heater PWA; see 7.3.9.
6. Disconnect connectors from Driver PWA to Heater PWA.
7. Remove two (2) mounting screws, washers and lockwashers from Driver PWA to base casting and remove from base casting.

8. If no Arctic Kit installed, remove four (4) mounting screws, washers and lockwashers from Driver PWA to base casting and remove from base casting.

7.3.17. L-852S Heater PWA Removal (If installed)

1. Gain access to internal components per 7.3.12.
2. Disconnect wire coming from Isolation Transformer, heaters and connector(s) from the Driver PWA. See Figure 7-9.
3. Remove four (4) mounting screws, washers, lockwashers and spacers from Heater PWA and remove Heater PWA.
7.3.18. 2 Hole Tuff Seal
Removal (with L-823 Power Cable)

NOTE

These repair instructions and figures only describe and illustrate the removal and installation of one 2 Hole Tuff Seal.

1. Gain access to internal components per 7.3.12.
2. Disconnect two (2) wires coming from Isolation Transformer plug to the Driver PWA and/or Heater PWA. See Figure 7-9 and Figure 7-10.
3. Unscrew Plug from Base Casting and remove.

Figure 7-10 Schrader Valve, Ground Lug, and Tuff Seal

7.3.19. Schrader Valve
Removal

1. Do steps 1 and 2 of 7.3.12.
2. Unscrew Schrader Valve from Base Casting and remove. See Figure 7-10.

7.3.20. Installation And
Closing Access To
Internal Components

The below paragraphs describe the installation of the internal components and the installation of the light fixture into the base can.
7.3.21. Schrader Valve Installation

See Figure 7-10.

1. Apply Teflon tape around threaded end of the Schrader Valve.
2. Install Schrader Valve Plug into Base Casting and torque to 20 inch pounds.
3. If other component(s) were removed, install component(s) per appropriate procedure.
4. Install Cover onto Base Casting per 7.3.28.
5. If no other component(s) were removed, and Cover and Base Casting were not separated, do 7.3.29.

7.3.22. 2 Hole Tuff Seal Installation (with L-823 Power Cable)

See Figure 7-9 and Figure 7-10.

NOTE

These repair instructions and figures only describe and illustrate the removal and installation of one 2 Hole Tuff Seal.

1. Apply Teflon tape around threaded end of 2 Hole Tuff Seal.
2. Feed wire into Base Casting.
3. Install Plug into Base Casting. Tighten hand tight, then ¼ turn.
4. If other component(s) were removed, install component(s) per appropriate procedure.
5. Connect two (2) wires to Driver PWA and/or Heater PWA.
6. Install Cover onto Base Casting per 7.3.28.
7. If no other component(s) were removed, install Cover onto Base Casting per 7.3.28.

7.3.23. L-852S Heater PWA Installation (If installed)

See Figure 7-9.

1. Position Heater PWA in Base Casting and install four (4) spacers, mounting screws, washers, and lockwashers.
2. Torque screws to 5 inch pounds.
3. Connect wires coming from Driver PWA, heaters, and Isolation Transformer.
4. If other component(s) were removed, install component(s) per appropriate procedure.
5. If no other component(s) were removed, install Cover onto Base Casting per 7.3.28.
7.3.24. Driver PWA Installation

See Figure 7-9.

NOTE

These repair instructions and figures only describe and illustrate the removal and installation of one Driver PWA.

1. Position Driver PWA, in Base Casting. Install four (4) spacers, mounting screws, washers, and lockwashers (two (2) if Arctic Kit installed) on Driver PWA through the mounting holes and torque screws to 15 inch pounds.
2. Install Heater PWA (if installed) per 7.3.15.
3. Connect wire(s) coming from Isolation Transformer and Heater PWA (if installed).
4. If other component(s) were removed, install component(s) per appropriate procedure.
5. If no other component(s) were removed, install Cover onto Base Casting per 7.3.28.

7.3.25. Prism (Lens), Prism Seal & Heater (If Installed) Installation

See Figure 7-7 and Figure 7-8.

NOTE

These repair instructions and figures only describe and illustrate the removal and installation of one prism and heater.

1. Coat inside of Prism Seal with light coat of soapy water and insert Prism Seal into Cover.
2. Insert Prism into Prism Seal. Ensure Prism Seal is even around the edge of the Cover.
3. Clean Prism lens.
4. Position prism spacer or heater and back plate (ensure top edge of back plate is in chamber in Cover) on Cover over Prism. Install two (2) screws and lockwashers and tighten to 18 inch pounds.
5. If heater is installed apply a generous bead of RTV around the wire neck of the heater.
7.3.26. Light Engine Assy Installation

See Figure 7-5 and Figure 7-6.

NOTE

These repair instructions and figures only describe and illustrate the removal and installation of one light engine.

1. Position Light Engine Assy on Cover.
2. Install two (2) screws and lockwashers through Light Engine Assy to Cover. See Figure 7-11 for positioning the Light Engine LED. Also see Figure 7-5 and Figure 7-6.
3. Plug Light Engine wire onto Driver PWA.
4. Tighten screws to 9 inch pounds.
5. If no other component(s) were removed, install Cover onto Base Casting per 7.3.28.

Figure 7-11 Light Engine Installation
7.3.27. Cover O-Ring Installation

See Figure 7-4.

1. Position O-Ring into channel in Cover (a light coating of silicone grease may be used on the seal to hold the O-Ring in place and for conditioning).
2. If other component(s) were removed, install component(s) per appropriate procedure.
3. If no other component(s) were removed, install Cover onto Base Casting per 7.3.28.
7.3.28. Cover onto Base Casting Installation

See Figure 7-3.

**CAUTION**

ESD practices must be followed when any maintenance is performed on the internal components of the L-852S Light Fixture.

**CAUTION**

Use caution when placing the light fixture upside down as not to damage the lens on the top of the casting.

**CAUTION**

Ensure the service loop wire from the Light Engine Assembly to the Driver PWA and Heater (if installed) is not pinched between the Cover and Base Casting.

1. Place the L-852S Cover upside down on a clean dry surface that will not damage the lens on top of the casting.
Connections of all components are detailed below although all components and wiring may not have been disconnected to perform maintenance. Use only steps needed below to connect components and verify other components are connected properly.

2. Using the Part Numbering scheme in Figure 7-12, determine which light is being assembled and go to the appropriate steps to connect the wiring.
3. See Figure 7-13. Connect Isolation Transformer cable (PC) connectors to E1 and E2 on the Driver PWA.
4. Connect the connectors from the Light Engine Assys (LED PWAs) to J2 & J3 on the Driver PWA.
5. Position the Cover on the Base Casting.
6. Install six (6) bolts, washers, and lockwashers securing base casting to cover.
7. Torque bolts to 20 inch pounds using a ‘star’ pattern.
8. Do leak check per 7.3.29.
9. Install L-852S light fixture in base can per 7.3.30.
10. See Figure 7-14. Connect one of the Isolation Transformer cable (PC) connectors to E1 on the Driver PWA and the other Isolation Transformer cable (PC) connector to E1 on the Heater PWA.
11. Connect Power Jumper (PJ) wire assembly from E2 on the Driver PWA to E2 on the Heater PWA.
12. Connect Heater Control (HC) wire assembly from J1 on the Heater PWA to J1 on the Driver PWA.
13. Connect the connectors from the Light Engine Assys (LED PWAs) to J2 & J3 on the Driver PWA.
14. Connect one of the connectors from the Heater 1 (H1) wire to E4 on the Heater PWA and the other connector to the male connector of Heater 2 (H2) wire.
15. Connect the Heater 2 (H2) wire female connector to E3 on the Heater PWA.
16. Go to step 5.
7.3.29. L-852S Light Fixture
Leak Check

After any maintenance on the fixture and prior to installation of the fixture into the base can, perform the leak check using the below steps.

1. Remove Schrader Valve cap.
2. Connect air source (nitrogen preferred or clean dry air) to the Schrader Valve and pressurize to 20 ±0.5 PSI. Disconnect air source.
3. Install Schrader Valve cap, torque finger tight.
4. Immerse fixture completely in a container filled with water and check for leaks.

7.3.30. L-852S Light Fixture
Into Base Can
Installation

1. Ensure CCR is OFF.

**WARNING**

High Voltage may be present from the Isolation Transformer and arcing may occur if the plug is connected without shutting off power first. Ensure power from CCR to Isolation Transformer is OFF.

2. Connect the L-852S light fixture plug to the isolation transformer in the base can. See Figure 7-1. If installed, connect the grounding wire, see Figure 7-10.
3. Ensure the light is positioned correctly in relationship to the runway.
4. Install six (6) bolts, washers, and lockwashers on cover to the base can.
5. Turn on CCR and perform check per 4.4.
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8. PARTS

8.1. Introduction

This section of the manual contains the source data of all electrical and selected mechanical replacement parts of the L-852S LED Stop Bar Light, shown in Table 8-1. Kit parts are shown in Table 8-2.

8.2. Name of Part and Description

A brief electrical or mechanical description of each component is given in this column.

8.3. Part Number

This column gives the designation assigned to a component.

8.4. Ordering Information

Use the part numbering scheme in 8.4.31 to order the fixtures and the information in Table 8-2 to order renewal parts.

8.4.31. L-852S LED Stop Bar Light

![Diagram of L-852S LED Stop Bar Light parts numbering system]

L-852S-L-X-X-X

- FIXTURE TYPE
- LED
- R=RED
- 1=60Hz
- 2=50Hz
- 0=NO ARCTIC KIT
- 1=ARCTIC KIT
Table 8-1 L-852S Parts List
Note: The following components and their part numbers are shown for reference only. Table 8-2 lists the only parts available for purchase.

<table>
<thead>
<tr>
<th>Item</th>
<th>Part Name/Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Figure 8-1</td>
<td>L-852S LED STOP BAR LIGHT</td>
<td>See para 8.4.31</td>
</tr>
<tr>
<td>1</td>
<td>BASE, L85X (1-hole)</td>
<td>A1-17-1064-002</td>
</tr>
<tr>
<td>2</td>
<td>COVER, 2 WINDOW, L-852S</td>
<td>A1-17-1132-001</td>
</tr>
<tr>
<td>3</td>
<td>SEAL, RUBBER, PRISM, L85X UNI-BI</td>
<td>A1-25-0091-001</td>
</tr>
<tr>
<td>4</td>
<td>PRISM, L852 X</td>
<td>A1-32-0026-001</td>
</tr>
<tr>
<td>5</td>
<td>BACK PLATE, PRISM, 85X UNI-BI</td>
<td>A1-17-1065-001</td>
</tr>
<tr>
<td>6</td>
<td>SPACER, PRISM, UNI-BI (used without heater)</td>
<td>A1-18-2169-001</td>
</tr>
<tr>
<td>7</td>
<td>O-RING, EPDM, 8.73 ID X 9.0 OD, 1/8&quot; THK</td>
<td>AS568A-269</td>
</tr>
<tr>
<td>8</td>
<td>TUFF SEAL, RSR SERIES, 2 HOLE</td>
<td>A1-05-0552-001</td>
</tr>
<tr>
<td>9</td>
<td>VALVE, AIR, SCHRADER, 1/8&quot;</td>
<td>A1-05-0553-001</td>
</tr>
<tr>
<td>10</td>
<td>CAP, VALVE, AL, GREEN ANODIZED</td>
<td>A1-05-0561-001</td>
</tr>
<tr>
<td>11</td>
<td>POWER CABLE, L-823</td>
<td>10518-101-001</td>
</tr>
<tr>
<td>12</td>
<td>PWA, DRIVER, L-852S</td>
<td>A3-07-1159-001</td>
</tr>
<tr>
<td>13</td>
<td>LIGHT ENGINE ASSY</td>
<td>A3-06-3161-004</td>
</tr>
<tr>
<td></td>
<td>LIGHT ENGINE ASSY, L-852S (LEFT)</td>
<td>A3-06-3161-001</td>
</tr>
<tr>
<td>14</td>
<td>PWA, HEATER, DUAL BD, L-85X, UNI</td>
<td>A3-07-1107-001</td>
</tr>
<tr>
<td>15</td>
<td>CON, FAST RECEPT, INSUL</td>
<td>A1-03-0260-001</td>
</tr>
<tr>
<td>16</td>
<td>HEATER</td>
<td>A1-01-0162-001</td>
</tr>
<tr>
<td>17</td>
<td>HEATER, SILICONE, L85X, F/F</td>
<td>A1-01-0162-002</td>
</tr>
<tr>
<td></td>
<td>HEATER, SILICONE, L85X, M/F</td>
<td>A1-06-3105-003</td>
</tr>
<tr>
<td></td>
<td>POWER JUMPER WIRE, PJ (not shown)</td>
<td>A3-06-3105-004</td>
</tr>
<tr>
<td></td>
<td>HEATER CONTROL WIRE, HC (not shown)</td>
<td>A3-06-3105-004</td>
</tr>
</tbody>
</table>
Table 8-2 L-852S Renewal Parts

<table>
<thead>
<tr>
<th>Used On</th>
<th>Part Name/Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Figure 8-1</td>
<td>L-852S LED Stop Bar Light</td>
<td>See paragraph 8.4.31</td>
</tr>
<tr>
<td>852S</td>
<td>Replacement Kit, L-85X, L-823 Cable – Includes:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Power Cable, L823 - 10518-101-001</td>
<td>K1-02-0003-001</td>
</tr>
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<td>Back Plate, Prism– A1-17-1065-001</td>
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