ADB
Airfield Solutions

Installation Manual

L-858 Taxiway & Runway Signs

Halogen and Fluorescent

96A0286, Rev. AN,

A.0 Disclaimer / Standard Warranty

A.1 CE certification

The equipment listed as CE certified means that the product complies with the essential requirements concerning safety and hygiene. The directives that have been taken into consideration in the design are available on written request to ADB.

A.2 ETL certification

The equipment listed as ETL certified means that the product complies with the essential requirements concerning safety and FAA Airfield regulations. The directives that have been taken into consideration in the design are available on written request to ADB.

A.3 LED Product Guarantee

Where applicable, per FAA EB67(applicable edition), ADB L858(L) Airfield Guidance Signs are warranted against electrical defects in design or manufacture of the LED or LED specific circuitry for a period of 4 years. ADB LED light fixtures (with the exception of obstruction lighting) are warranted against mechanical and physical defects in design or manufacture for a period of 12 months from date of installation; and are warranted against electrical defects in design or manufacture of the LED or LED specific circuitry for a period of 4 years per FAA EB67 (applicable edition).

NOTE: See your sales order contract for a complete warranty description. In some specific cases, deviations are (to be) accepted in the contract, which will supersede the standard warranty.

A.4 Standard Product Guarantee

Products of ADB manufacture are guaranteed against mechanical, electrical, and physical defects (excluding lamps) which may occur during proper and normal use for a period of one year from the date of installation or 2 years from date of shipment and are guaranteed to be merchantable and fit for the ordinary purposes for which such products are made. ADB L858 Airfield Guidance Signs are warranted against mechanical and physical defects in design or manufacture for a period of 2 years from date of installation per FAA AC 150/5345-44 (applicable edition).

NOTE: See your sales order contract for a complete warranty description.

A.5 All Products

LED Products of ADB, manufactured and sold by ADB or its licensed representatives, meets the corresponding requirements of FAA, ICAO and IEC.

ADB will correct by repair or replacement per the applicable guarantee above, at its option, equipment or parts which fail because of mechanical, electrical or physical defects, provided that the goods have been properly handled and stored prior to installation, properly installed and properly operated after installation, and provided further that Buyer gives ADB Airfield Solutions written notice of such defects after delivery of the goods to Buyer. Refer to the Safety section for more information on Material Handling Precautions and Storage precautions that must be followed.

ADB reserves the right to examine goods upon which a claim is made. Said goods must be presented in the same condition as when the defect therein was discovered. ADB Airfield Solutions furthers reserves the right to require the return of such goods to establish any claim.

ADB's obligation under this guarantee is limited to making repair or replacement within a reasonable time after receipt of such written notice and does not include any other costs such as the cost of removal of defective part, installation of repaired product, labor or consequential damages of any kind, the exclusive remedy being to require such new parts to be furnished.

ADB's liability under no circumstances will exceed the contract price of goods claimed to be defective. Any returns under this guarantee are to be on a transportation charges prepaid basis. For products not manufactured by, but sold by ADB Airfield Solutions, warranty is limited to that extended by the original manufacturer.

This is ADB's sole guarantee and warranty with respect to the goods; there are no express warranties or warranties of fitness for any particular purpose or any implied warranties of fitness for any particular purpose or any implied warranties other than those made expressly herein. All such warranties being expressly disclaimed.

A.6 Liability

WARNING

Use of the equipment in ways other than described in the catalogue leaflet and the manual may result in personal injury, death, or property and equipment damage. Use this equipment only as described in the manual.

ADB cannot be held responsible for injuries or damages resulting from non-standard, unintended uses of its equipment. The equipment is designed and intended only for the purpose described in the manual. Uses not described in the manual are considered unintended uses and may result in serious personal injury, death or property damage.

Unintended uses includes the following actions:

- Making changes to equipment that have not been recommended or described in this manual or using parts that are not genuine ADB replacement parts or accessories.
- Failing to make sure that auxiliary equipment complies with approval agency requirements, local codes, and all applicable safety standards if not in contradiction with the general rules.
- Using materials or auxiliary equipment that are inappropriate or incompatible with your ADB equipment.
- Allowing unskilled personnel to perform any task on or with the equipment.

A.7 © ADB BVBA

This manual could contain technical inaccuracies or typographical errors. ADB BVBA reserves the right to revise this manual from time to time in the contents thereof without obligation of ADB BVBA to notify any person of such revision or change. Details and values given in this manual are average values and have been compiled with care. They are not binding, however, and ADB BVBA disclaims any liability for damages or detriments suffered as a result of reliance on the information given herein or the use of products, processes or equipment to which this manual refers. No warranty is made that the use of the information or of the products, processes or equipment to which this manual refers will not infringe any third party's patents or rights. The information given does not release the buyer from making their own experiments and tests.

TABLE OF CONTENTS

1.0 Safety

This section contains general safety instructions for installing and using ADB Airfield Solutions equipment. Some safety instructions may not apply to the equipment in this manual. Task- and equipment-specific warnings are included in other sections of this manual where appropriate.

1.1 HAZARD Icons used in the manual

For all HAZARD symbols in use, see the Safety section. All symbols must comply with ISO and ANSI standards.

Carefully read and observe all safety instructions in this manual, which alert you to safety hazards and conditions that may result in personal injury, death or property and equipment damage and are accompanied by the symbol shown below.

	**WARNING** • Failure to observe a warning may result in personal injury, death or equipment damage.
	**DANGER - RISK OF ELECTRICAL SHOCK OR ARC FLASH** • Disconnect equipment from line voltage. Failure to observe this warning may result in personal injury, death, or equipment damage. ARC Flash may cause blindness, severe burns or death.
	**WARNING - WEAR PERSONAL PROTECTIVE EQUIPMENT** • Failure to observe may result in serious injury.
	**WARNING - DO NOT TOUCH** • Failure to observe this warning may result in personal injury, death, or equipment damage.
	**CAUTION** • Failure to observe a caution may result in equipment damage.

1.1.1 Qualified Personnel

IMPORTANT INFORMATION

The term **qualified personnel** is defined here as individuals who thoroughly understand the equipment and its safe operation, maintenance and repair. Qualified personnel are physically capable of performing the required tasks, familiar with all relevant safety rules and regulations and have been trained to safely install, operate, maintain and repair the equipment. It is the responsibility of the company operating this equipment to ensure that its personnel meet these requirements.

Always use required personal protective equipment (PPE) and follow safe electrical work practices.

1.2 To use this equipment safely:

WARNING

Read installation instructions in their entirety before starting installation.

- Become familiar with the general safety instructions in this section of the manual before installing, operating, maintaining or repairing this equipment.
- Read and carefully follow the instructions throughout this manual for performing specific tasks and working with specific equipment.
- Make this manual available to 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.
- 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.
- Protect components from damage, wear, and harsh environment conditions.
- Allow ample room for maintenance, panel accessibility, and cover removal.
- Protect equipment with safety devices as specified by applicable safety regulations.
- If safety devices must be removed for installation, install them immediately after the work is completed and check them for proper functioning prior to returning power to the circuit.

Failure to follow these warnings may result in serious injury or equipment damage.

1.2.1 Additional Reference Materials:

IMPORTANT INFORMATION

- IEC - International Standards and Conformity Assessment for all electrical, electronic and related technologies
- IEC 60364 - Electrical Installations in Buildings
- FAA Advisory: AC 150_5340_26 (current edition) Maintenance of Airport Visual Aid Facilities
- ANSI/NFPA 79, Electrical Standards for Metalworking Machine Tools.
- National and local electrical codes and standards.

1.2.2 Intended Use

WARNING

IMPROPER USE

Using this equipment in ways other than described in this manual may result in personal injury, death or property and equipment damage. Use this equipment only as described in this manual.

THESE WARNINGS MAY RESULT IN SERIOUS INJURY OR EQUIPMENT DAMAGE.

1.2.3 Fasteners

WARNING

FOREIGN OBJECT DAMAGE - FOD

- Only use fasteners of the same type as the one originally supplied with the equipment.
- Always tighten the fasteners to the recommended torque. Use a calibrated torque wrench and apply the recommended adhesive type.
- Obey the instructions of the adhesives necessary for the fasteners.

Failure to follow these warnings may cause the fasteners to loosen, damage the equipment, potentially to loosen the equipment. This can lead to a highly dangerous situation of FOD, with potential lethal consequences.

1.2.4 Operation

CAUTION

IMPROPER OPERATION

- Only qualified personnel, physically capable of operating the equipment and with no impairments in their judgment or reaction times, 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 starting 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.
- Protect equipment with safety devices as specified by applicable safety regulations.
- If safety devices must be removed for installation, install them immediately after the work is completed and check them for proper functioning.
- Route electrical wiring along a protected path. Make sure they will not be damaged by moving equipment.
- 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.
- Never touch exposed electrical connections on equipment while the power is ON.

Failure to follow this instruction can result in equipment damage.

1.2.5 Storage

CAUTION

IMPROPER STORAGE

If equipment is to be stored prior to installation, it must be protected from the weather and kept free of condensation and dust.

Failure to follow this instruction can result in equipment damage.

1.2.6 Material Handling Precautions

CAUTION

ELECTROSTATIC SENSITIVE DEVICES

This equipment may contain electrostatic sensitive devices.

- Protect from electrostatic discharge.
- Electronic modules and components should be touched only when this is unavoidable e.g. soldering, replacement.
- Before touching any component of the cabinet you should bring your body to the same potential as the cabinet by touching a conductive earthed part of the cabinet.
- Electronic modules or components must not be brought in contact with highly insulating materials such as plastic sheets, synthetic fiber clothing. They must be laid down on conductive surfaces.
- The tip of the soldering iron must be grounded.
- Electronic modules and components must be stored and transported in conductive packing.

Failure to follow this instruction can result in equipment damage.

WARNING

UNSTABLE LOAD

- Use extreme care when moving heavy equipment.
- Verify that the moving equipment is rated to handle the weight.
- When removing equipment from a shipping pallet, carefully balance and secure it using a safety strap.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

1.2.7 Action in the Event of a System or Component Malfunction

DANGER

ARC FLASH AND ELECTRIC SHOCK HAZARD

- Do not operate a system that contains malfunctioning components. If a component malfunctions, turn the system OFF immediately.
- An open airfield current circuit is capable of generating >5000 Vac and may appear OFF to a meter.
- Never unplug a device from a constant current circuit while it is operating. Arc flash may result.
- Disconnect and lock out electrical power.
- Allow only qualified personnel to make repairs. Repair or replace the malfunctioning component according to instructions provided in its manual.

Failure to follow these warnings will result in death or equipment damage.

1.2.8 Maintenance

WARNING

ELECTRIC SHOCK HAZARD

- 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 its manual.

Failure to follow these warnings will result in death or equipment damage.

1.2.9 Maintenance and Repair

DANGER

ARC FLASH AND ELECTRIC SHOCK HAZARD

Allow only qualified personnel to perform maintenance, troubleshooting, and repair tasks.

- Only persons who are properly trained and familiar with ADB Airfield Solutions equipment are permitted to service this equipment.
- An open airfield current circuit is capable of generating >5000 Vac and may appear OFF to a meter.
- Never unplug a device from a constant current circuit while it is operating. Arc flash may result.
- Disconnect and lock out electrical power.
- Always use safety devices when working on this equipment.
- Follow the recommended maintenance procedures in the product 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 ADB Airfield Solutions replacement parts. Using unapproved parts or making unapproved modifications to equipment may void agency approvals and create safety hazards.
- Check the 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 airfield electrical equipment.

Failure to follow these warnings will result in death or equipment damage.

2.0 Fluorescent and Halogen Signs

L-858 Taxiway & Runway Signs installation and maintenance manual.

2.1 About this manual

The manual shows the information necessary to:

- Install and maintain the L-858 Taxiway & Runway Signs.

2.1.1 How to work with the manual

1. Become familiar with the structure and content.
2. Carry out the actions completely and in the given sequence.

2.1.2 Record of changes

Page	Rev	Description	Checked	Approved	Date
7-3, 7-4, 7-5, 7-9	AD	Updated spares (Section 7)	JC	JC	3/18/08
8-5	AE	Updated bridge circuit connections	BE	ER	8/27/08
Section 7	AF	Updated Order Codes and parts	BE	ER	01/08/09
Sections 6-7	AG	Updated Repair and Maintenance sections for new power supply and ballasts.	BE	ER	06/07/09
Section 7 and 8	AH	Updated part lists and drawing fig 8-8	BE	RS	08/17/09
All	AI	Updated entire manual, new schematics and parts sections	DM	ER	12/22/12
ii	AJ	Warranty update and format update	JK	ER	5/2/13
36, 42, 45, 46	AK	Updated drawings and parts for the Halogen signs.	JH	ER	6/26/13
34, 35, 42	AL	Added note about old sign power supply	RW	ER	8/1/14
	AM	Updated Flou Ballast part number	RW	ER	12/16/14
	AN	Updated format and parts	RW	ER	03/19/15

2.2 Introduction

See Figure 1. This section describes the L-858 standard VA, low VA, and fluorescent taxiway and runway signs referred to in Table 1.

Figure 1: L-858 Taxiway and Runway Sign (1-Module)

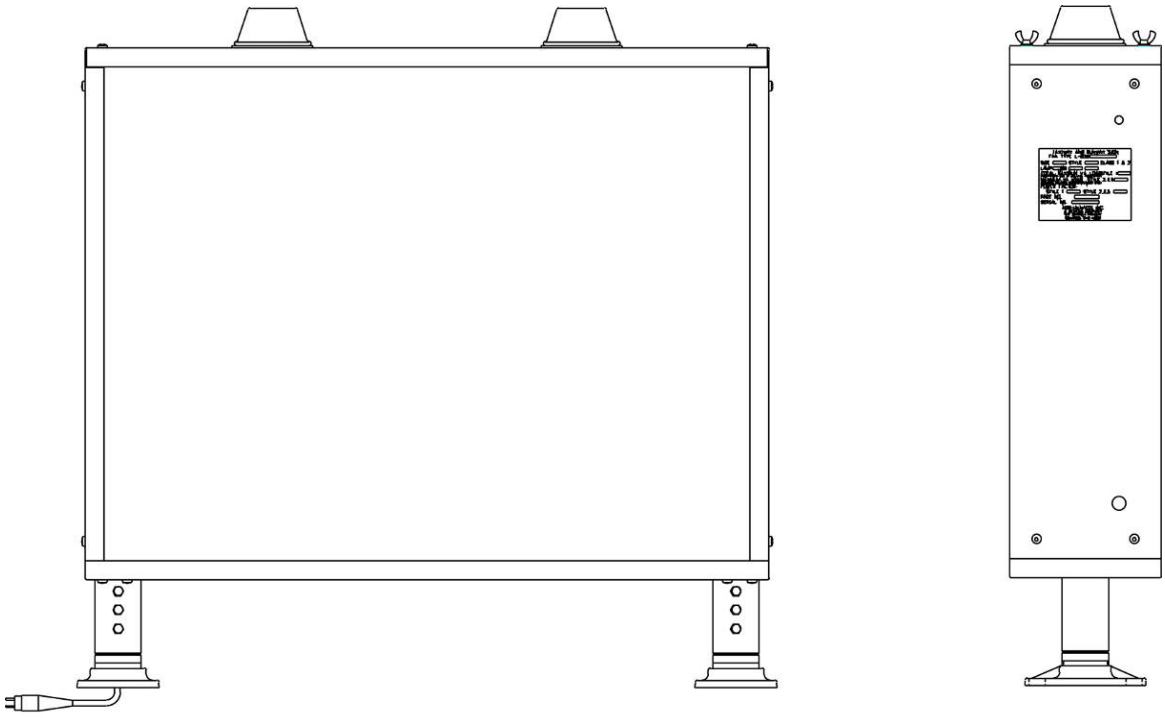


Table 1: L-858 Taxiway and Runway Signs

Sign Type	Purpose	Legend Color	Background Color
L-858Y	Taxiway, Direction, Destination, & Boundary	Black	Yellow
L-858R	Mandatory Sign	White	Red
L-858B	Runway Distance Remaining	White	Black
L-858L	Runway or Taxiway Location	Yellow	Black

The ADB Airfield Solutions L-858 taxiway and runway signs are used on airports:

- To guide pilots of aircraft to destinations in accordance with FAA AC 150/5340-18.
- To identify holding positions, intersecting runways and taxiways.
- To prohibit entry into a particular area.
- To provide runway distance remaining information to pilots during takeoff and landing operations.

The basic sign module accommodates two characters and can be single- or double-faced. The signs are available in all FAA classifications of various lengths depending on the number of modules combined. Each sign is furnished complete with lamp(s), connecting leads, legend panels, brightness control transformer(s), and mounting assemblies designed for installation on concrete pads.

NOTE: MR16 quartz halogen lamps are standard for L-858 taxiway and runway signs. Optional fluorescent lamps are also available.

2.2.1 Optional Equipment

This subsection discusses optional equipment. Optional equipment includes the Lamps-Out Indicator and the On/Off switch.

2.2.1.1 Optional Lamps-Out Indicator (Halogen Signs Only)

The Lamps-Out Indicator (LOI) is an optional component used in conjunction with the Signature Series sign electronics to give a visual indication that a lamp has failed. This allows airport personnel to quickly find a sign with a failed lamp. The LOI flashes a small blue LED with a narrow field of view designed for direct viewing only from one side of the sign at eye level or from the seat of a truck so that pilots are not distracted.

During operation, the Signature Series sign electronics constantly monitors whether a lamp has failed. When a lamp fails, the sign electronics sends a signal to the LOI indicating that a lamp has failed. After the power is turned on, the LOI immediately starts charging its capacitors through the sign electronics. When the LOI has reached sufficient charge, the LED mounted on one side of the sign starts to flash at a rate of once every two seconds, with or without the sign being powered. At full charge (approximately 6 hours), the LOI flashes, without the sign being powered, for approximately 24 hours. The LOI continues to flash until the failed lamp has been replaced and the sign power is cycled from off to on.

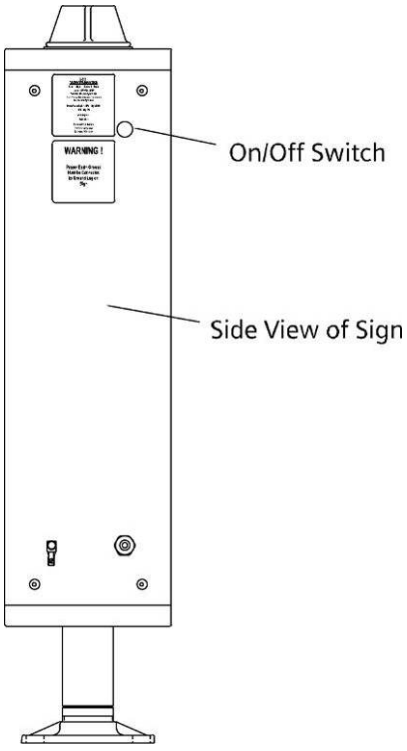
The LOI LED can be set to one of three intensity levels: Low, Medium, and High. The different levels are intended to cover a wide range of viewing conditions such as weather, night or day viewing, and distance.

For more information on installing and operating the Lamps-Out Indicator, refer to *Optional Lamps-Out Indicator Mounting* in the *Installation* section.

2.2.1.2 Optional On/Off Switch

See Figure 2. The optional push button On/Off switch can be used to turn off the sign directly at the sign to service the sign on an active airfield circuit. In the Off position, the switch shorts the secondary of the isolation transformer. Refer to the *Parts* section for the part number.

Figure 2: Optional On/Off Switch



2.2.2 L-858 Signs: Required Equipment

Refer to Table 2 for required equipment that is supplied. Refer to Table 3 for required equipment that is not supplied.

Table 2: Required Equipment Supplied

Description	Quantity
L-858 sign	As required
Instruction manual	2 per order
L-858 tether assembly	As required

Table 3: Required Equipment Not Supplied

Description	Quantity
L-867 Base	1
L-830 Isolation Transformer	1
L-823 Primary Connectors	As required
Anchor bolts (two 1/2-13 bolts per foot)	As required
Anti-seize compound/petroleum jelly	As required
Level (spirit or digital)	1

2.2.3 Specifications

This subsection provides specifications for L-858 taxiway and runway signs.

2.2.3.1 Rated Lamp Life

Rated lamp life for 48 W halogen lamps is 1500 hours at full power. Since the 48 W lamps are run at a reduced power of 6.0-6.2 A, actual lamp life may be up to 6,000 hours. 18W fluorescent lamps are rated at 12,000 hours.

2.2.3.2 Construction

Structure is fabricated from aluminum extrusions. Mounting hardware is stainless steel.

2.2.3.3 Visibility

Sign type is discernible at nighttime up to a distance of 800 feet (243.84 m). Average luminance of 10 to 30 ft-lamberts (34.26-102.78 candelas per square meter) on all types and styles.

2.2.3.4 Style

Refer to Table 4 for sign style.

Table 4: Sign Style

Style	Size	Power Source
2	1, 2, 3, 4 and 5	Powered from 4.8 to 6.6 A CCR
3	1, 2, 3, 4 and 5	Powered from 2.8 to 6.6 A CCR
5	1, 2, 3, 4, and 5	Powered from a 3 step CCR set to B30.

2.2.3.5 Class

Refer to Table 5 for sign class.

NOTE: All ADB Airfield Solutions halogen lamp signs meet Class 2 requirements. The fluorescent lamp signs are designed to comply with Class 1.

Table 5: Sign Class

Class	Operating Temperature Range (Celsius)	Operating Temperature Range (Fahrenheit)
1	-20 to +55 °C	-4 to +131 °F
2	-55 to +55 °C	-67 to +131 °F

2.2.3.6 Conditions for Continuous Outdoor Use

The L-858 taxiway and runway sign is designed for continuous outdoor use under the conditions presented below for operating temperature range, wind, and rain.

Operating Temperature Range

-55 to +55 °C (-67 to +131 °F) (Halogen)

-20 to +55 °C (-4 to +131 °F) (Fluorescent)

Wind

Withstands [225 MPH (362.1 KPH)] [0.9 PSI (6205 N/m^2)] wind. Frangible couplings fail before reaching 1.3 PSI (8963 N/m^2) [270 MPH (434.5 KPH)]. Special high wind signs are also available.

Rain

The L-858 taxiway and runway sign is designed for exposure to driving rains.

2.2.3.7 Sign Classification

Refer to Table 6 for sign classification. Refer to AC 150/5345-44.

Table 6: Sign Classification

Sign Type	Sign Size	Sign Face Height in. (mm)	Legend Height in. (mm)	Style Numbers	Class Numbers	Overall Mounting Height in. (mm)
L-858Y/R/L	1	18 (460)	12 (300)	2, 3, 5	1, 2	24-30 (610-760)
L-858Y/R/L	2	24 (610)	15 (380)	2, 3, 5	1, 2	30-36 (760-910)
L-858Y/R/L	3	30 (760)	18 (460)	2, 3, 5	1, 2	36-42 (910-1070)
L-858B	4	48 (1220)	40 (1020)	2, 3, 5	1, 2	54-60 (1370-1520)
L-858B	5	30 (760)	25 (640)	2, 3, 5	1, 2	36-42 (910-1070)

2.2.3.8 Number of Lamps Per Module

This subsection provides for the number of lamps per module.

Refer to Table 7.

Table 7: Number of Lamps Per Module (Style 2 and 3)

Sign Size	MR-16/48 W and 18W Fluorescent Lamps Required
1	1 per module
2	2 per module
3 & 5	2 per module
4	4 per module

2.2.3.9 Modular Combination Lengths

Refer to Table 8 for modular combination lengths.

Table 8: Modular Combination Lengths

Sign Size	1 Module in. (mm)	2 Modules in. (mm)	3 Modules in. (mm)	4 Modules in. (mm)	Maximum Length Allowed in. (mm)
1	29.34 (745.23)	58.62 (1489.00)	87.90 (2232.7)	117.17 (2976.1)	120 (3048)
2	35.84 (910.3)	71.62 (1819.2)	107.40 (2728.0)	143.17 (3636.5)	145 (3683)
3	42.34 (1075.4)	84.62 (2149.4)	126.90 (3223.3)	169.17 (4296.9)	170 (4318)
4	47.84 (1215.1)	Not applicable	Not applicable	Not applicable	Not applicable
5	42.34 (1075.4)	Not applicable	Not applicable	Not applicable	Not applicable

2.2.3.10 Frangibility

All signs sustain a static load of 0.9 PSI (6205 N/m^2) uniformly [225 MPH (362.1 KPH) wind] over the entire surface of the sign and break over before reaching 1.3 PSI (8963 N/m^2) [270 MPH (434.5 KPH) wind].

2.2.3.11 Dimensions

This subsection describes the dimensions for the L-858 signs. L-858 signs come in Sizes 1, 2, and 3 with one to four modules, and Sizes 4 and 5 with one module.

Sizes 1, 2, 3, and 5

See Figure 3 through Figure 6 for Sizes 1, 2, 3, and 5. Refer to Table 9 through Table 12 for the dimensions for all sizes and modules.

NOTE: See Figure 3 for dimension A, the overall mounting height, for all sizes and modules.

Figure 3: L-858 Sign Dimensions (Sizes 1, 2, 3, and 5/One-Module)

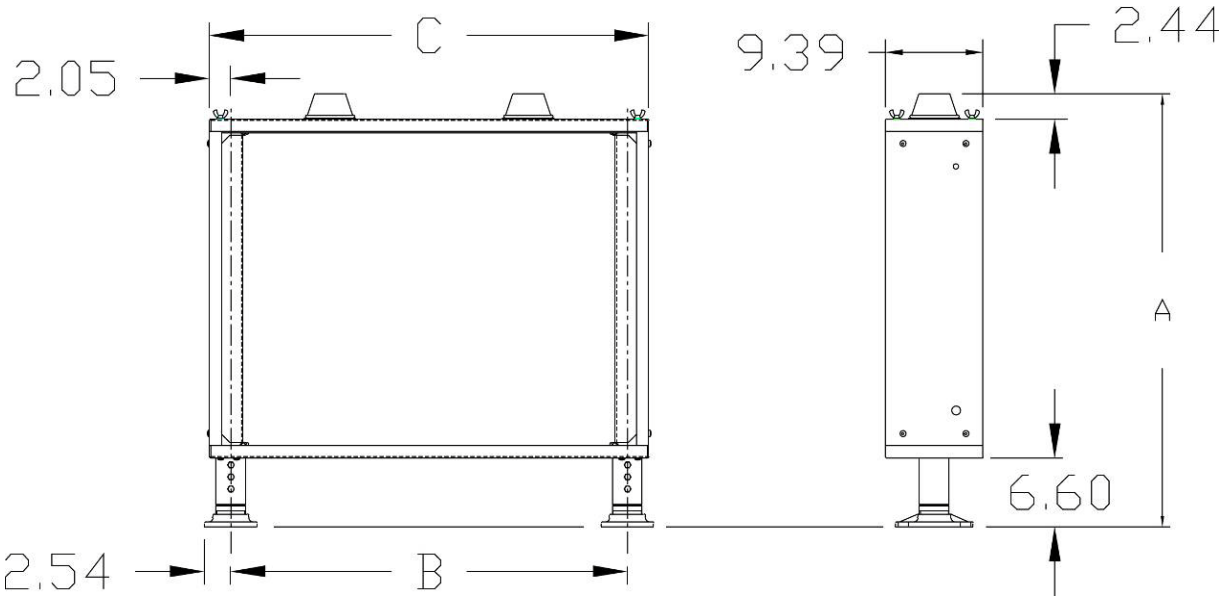


Figure 4: L-858 Sign Dimensions (Sizes 1, 2, 3/Two-Module)

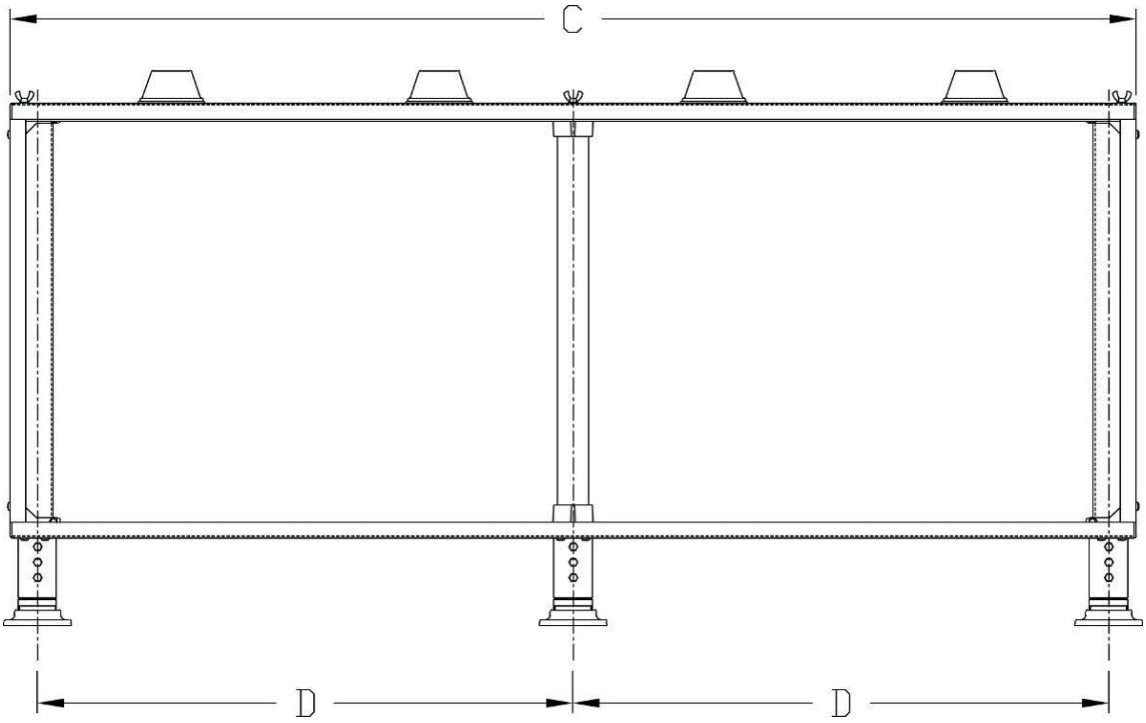


Figure 5: L-858 Sign Dimensions (Sizes 1, 2, 3/Three-Module) L-858 Sign Dimensions (Sizes 1, 2, 3/Three-Module)

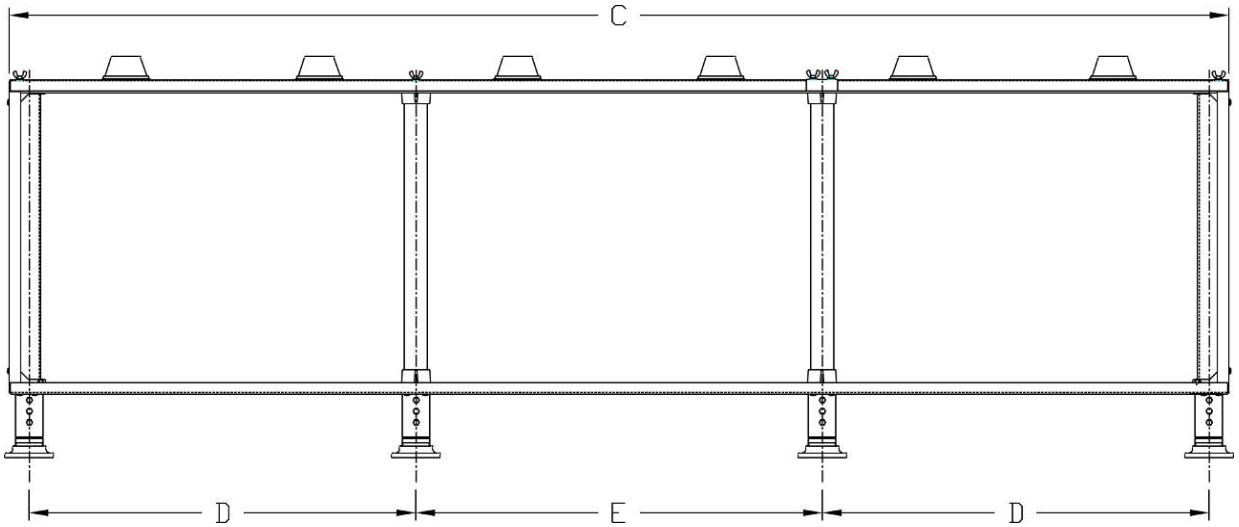


Figure 6: L-858 Sign Dimensions (Sizes 1, 2, 3/Four-Module)

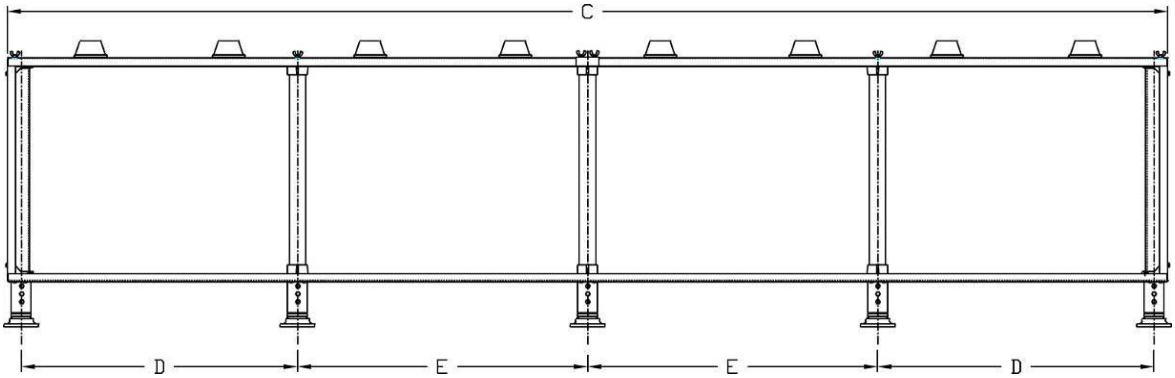


Table 9: L-858 Size 1 Sign Dimensions

Sign Size	A in. (mm)	B in. (mm)	C in. (mm)	D in. (mm)	E in. (mm)	Number of Lamps/Modules
Size 1, 1-Module	29.68 (753.9)	25.23 (640.8)	29.34 (745.23)	Not applicable	Not applicable	1
Size 1, 2 Module	29.68 (753.9)	Not applicable	58.62 (1489.00)	27.26 (692.4)	Not applicable	1
Size 1, 3-Module	29.68 (753.9)	Not applicable	87.90 (2232.7)	27.26 (692.4)	29.28 (743.7)	1
Size 1, 4-Module	29.68 (753.9)	Not applicable	117.17 (2976.1)	27.26 (692.4)	29.28 (743.7)	1

Table 10: L-858 Size 2 Sign Dimensions

Sign Size	A in. (mm)	B in. (mm)	C in. (mm)	D in. (mm)	E in. (mm)	Number of Lamps/Modules
Size 2, 1-Module	35.68 (906.3)	31.73 (805.9)	35.84 (910.3)	Not applicable	Not applicable	2
Size 2, 2 Module	35.68 (906.3)	Not applicable	71.62 (1819.2)	33.76 (857.5)	Not applicable	2
Size 2, 3-Module	35.68 (906.3)	Not applicable	107.40 (2728.0)	33.76 (857.5)	35.79 (909.1)	2
Size 2, 4-Module	35.68 (906.3)	Not applicable	143.17 (3636.5)	33.76 (857.5)	35.79 (909.1)	2

Table 11: L-858 Size 3 Sign Dimensions

Sign Size	A in. (mm)	B in. (mm)	C in. (mm)	D in. (mm)	E in. (mm)	Number of Lamps/Modules
Size 3, 1-Module	41.68 (1058.7)	38.23 (971.0)	42.34 (1075.4)	Not applicable	Not applicable	2
Size 3, 2 Module	41.68 (1058.7)	Not applicable	84.62 (2149.4)	40.26 (1022.6)	Not applicable	2
Size 3, 3-Module	41.68 (1058.7)	Not applicable	126.90 (3223.3)	40.26 (1022.6)	42.28 (1073.9)	2
Size 3, 4-Module	41.68 (1058.7)	Not applicable	169.17 (4296.9)	40.26 (1022.6)	42.28 (1073.9)	2

Table 12: L-858 Size 5 Sign Dimensions

Sign Size	A in. (mm)	B in. (mm)	C in. (mm)	D in. (mm)	E in. (mm)	Number of Lamps/Modules
Size 5, 1-Module	41.68 (1058.7)	38.24 (971.3)	42.34 (1075.4)	Not applicable	Not applicable	2

2.2.4 Size 4

See Figure 7 for Size 4 sign. Refer to Table 13 for dimensions.

Figure 7: L-858 Sign Dimensions (Size 4/One-Module)

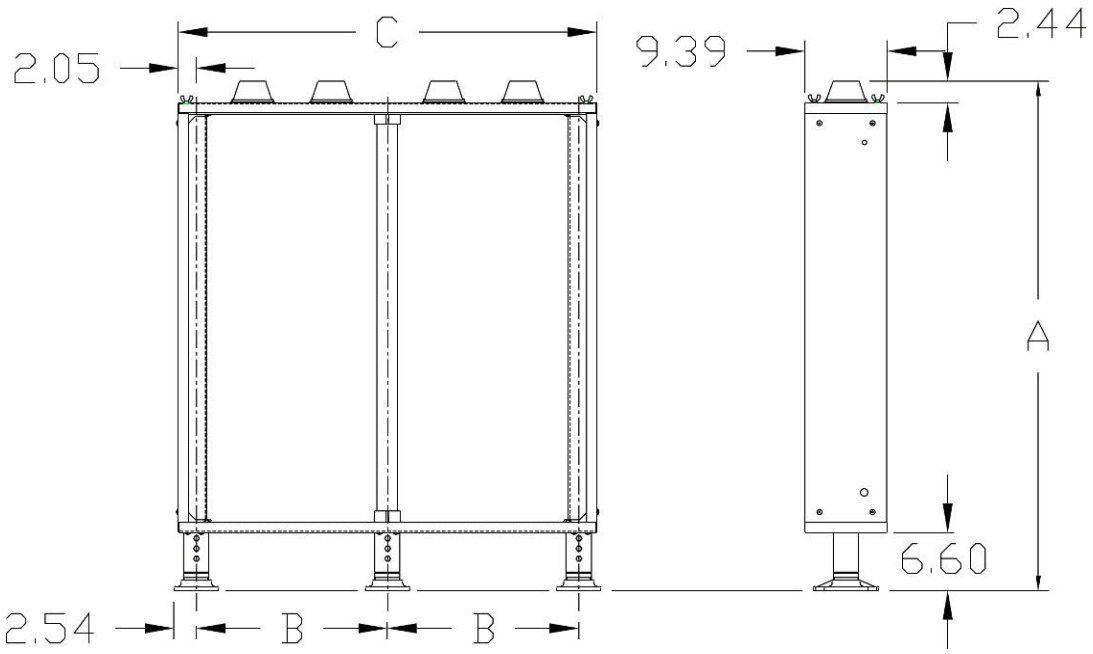


Table 13: L-858 Size 4 Sign Dimensions

Sign Size	A in. (mm)	B in. (mm)	C in. (mm)	Number of Lamps/Modules
Size 4, 1-Module	58.13 (1476.5)	21.87 (555.5)	47.84 (1215.1)	4

2.2.4.1 Sign Power Factor and Total VA Load

Refer to Table 14 through Table 15. The electrical load specification is located on the sign nameplate.

NOTE: The number for the total VA load imposed on CCR represents the actual load imposed on the regulator and accounts for power factor and load imposed by the L-830 transformer. Use this number when calculating CCR wattage to be used. You cannot determine this number by totaling nominal lamp wattage. See also Table 16 and Table 17 for additional CCR size calculation guidance if there is a mix of signs and other airfield lighting devices on the circuit.

Table 14: Low VA Halogen Lamps

Sign Size	No. of Modules	Transformer	No. of Lamps	Sign Power Factor	Volt Amp VA Load
48 Watt Lamps—Style 2, 3-Step Signs (4.8 - 6.6 A)					
1	1	100 W	1	0.98	106
1	2	200 W	2	0.99	155
1	3	300 W	3	0.98	202
1	4	300 W	4	0.99	250
2, 3	1	200 W	2	0.99	155
2, 3	2	300 W	4	0.99	250
2, 3	3	500 W	6	0.98	340
2, 3	4	300 W (2)	8	0.97	450
4	1	300 W	4	0.99	250
5	1	200 W	2	0.99	155
48 Watt Lamps—Style 3, 5-Step Signs (2.8 - 6.6 A)					
1	1	200 W	1	0.97	105
1	2	300 W	2	0.98	145
1	3	500 W	3	0.98	190
1	4	500 W	4	0.98	233
2, 3	1	300 W	2	0.98	145
2, 3	2	500 W	4	0.98	233
2, 3	3	500 & 300 W	6	0.98	350
2, 3	4	500 W (2)	8	0.97	440
4	1	500 W	4	0.98	233
5	1	300 W	2	0.98	145
48 Watt Lamps—Style 5 Signs (5.5 A)					
1	1	45 W	1	0.99	48
1	2	100 W	2	0.99	96
1	3	200 W	3	0.99	144
1	4	200 W	4	0.99	192
2, 3	1	100 W	2	0.99	96
2, 3	2	200 W	4	0.99	192
2, 3	3	300 W	6	1.00	288
2, 3	4	500 W	8	0.98	384
4	1	200 W	4	0.99	192
5	1	100 W	2	0.99	96

Table 15: Fluorescent Lamps

Sign Size	No. of Modules	Transformer	No. of Lamps	Sign Power Factor	Volt Amp VA Load
18 Watt Lamps—Style 2, 3-Step Signs (4.8 - 6.6 A)					
1	1	200 W	1	0.96	68
1	2	200 W	2	0.95	88
1	3	200 W	3	0.93	106
1	4	200 W	4	0.93	127
2, 3	1	200 W	2	0.95	88
2, 3	2	200 W	4	0.93	127
2, 3	3	300 W	6	0.92	172
2, 3	4	300 W	8	0.93	203
4	1	200 W	4	0.93	127
5	1	200 W	2	0.95	88
18 Watt Lamps—Style 3, 5-Step Signs (2.8 - 6.6 A)					
1	1	200 W	1	0.96	68
1	2	200 W	2	0.95	88
1	3	200 W	3	0.93	106
1	4	300 W	4	0.93	127
2, 3	1	200 W	2	0.95	88
2, 3	2	300 W	4	0.93	127
2, 3	3	500 W	6	0.92	172
2, 3	4	500 W	8	0.89	199
4	1	300 W	4	0.93	127
5	1	200 W	2	0.95	88
18 Watt Lamps—Style 5 Signs (5.5 A)					
1	1	100 W	1	0.96	57
1	2	100 W	2	0.95	77
1	3	100 W	3	0.93	96
1	4	200 W	4	0.93	116
2, 3	1	100 W	2	0.95	77
2, 3	2	200 W	4	0.93	116
2, 3	3	200 W	6	0.92	158
2, 3	4	300 W	8	0.93	192
4	1	200 W	4	0.93	116
5	1	100 W	2	0.95	77

NOTE: In Table 16, select KVA greater than or equal to the non-sign load (edge lights, cable losses, etc.) from the left-hand column.

NOTE: Read across Table 16 to KVA greater than or equal to the low VA sign load. Numbers for low VA sign load are show in KVA. Required CCR rating is shown at the top of the column.

Table 16: 3-Step Circuit CCR Selection Table

Non sign Load (KVA)	4 KW	7.5 KW	10 KW	15 KW	20 KW	30 KW	50 KW	70 KW
0.5	2.71	5.25	7.07	10.71	14.34	21.61		
1	2.50	5.05	6.86	10.50	14.14	21.41		
1.5	2.30	4.84	6.66	10.30	13.93	21.21	50 and 70 KW units are 5-step, 20 A only.	
2	2.00	4.64	6.46	10.10	13.73	21.00		
2.5	1.50	4.43	6.25	9.89	13.53	20.80		
3	1.00	4.23	6.05	9.69	13.32	20.59		
3.5	0.50	4.00	5.85	9.48	13.12	20.39		
4	0.00	3.50	5.64	9.28	12.91	20.19		
4.5	-	3.00	5.44	9.08	12.71	19.98		
5	-	2.50	5.00	8.87	12.51	19.78		
5.5	-	2.00	4.50	8.67	12.30	19.58		
6	-	1.50	4.00	8.47	12.10	19.37		
6.5	-	1.00	3.50	8.26	11.90	19.17		
7	-	0.50	3.00	8.00	11.69	18.97		
7.5	-	0.00	2.50	7.50	11.49	18.76		
8	-	-	2.00	7.00	11.29	18.56		
8.5	-	-	1.50	6.50	11.08	18.35		
9	-	-	1.00	6.00	10.88	18.15		
9.5	-	-	0.50	5.50	10.50	17.95		
10	-	-	0.00	5.00	10.00	17.74		
11	-	-	-	4.00	9.00	17.34		
12	-	-	-	3.00	8.00	16.93		
13	-	-	-	2.00	7.00	16.52		
14	-	-	-	1.00	6.00	16.00		
15	-	-	-	0.00	5.00	15.00		
16	-	-	-	-	4.00	14.00		
17	-	-	-	-	3.00	13.00		
18	-	-	-	-	2.00	12.00		
19	-	-	-	-	1.00	11.00		
20	-	-	-	-	0.00	10.00		
22	-	-	-	-	-	8.00		
24	-	-	-	-	-	6.00		
26	-	-	-	-	-	4.00		
28	-	-	-	-	-	2.00		
30	-	-	-	-	-	0.00		
35								
40			50 and 70 KW units are 5-step, 20 A only.					
45								
50								
55								
60								
65								
70								

NOTE: In Table 16, select KVA greater than or equal to the non-sign load (edge lights, cable losses, etc.) in the left-hand column.

NOTE: Read across Table 16 to KVA greater than or equal to the low VA sign load. Numbers for low VA sign load are show in KVA. Required CCR rating is shown at the top of the column.

NOTE: In Table 17, the shaded area is provided for information only. Most 5-step circuits will not fall in this area.

Table 17: 5-Step Circuit CCR Selection Table

Non sign Load (KVA)	4 KW	7.5 KW	10 KW	15 KW	20 KW	30 KW	50 KW	70 KW
0.5	1.65	3.14	4.20	6.32	8.44	12.68	21.17	29.65
1	1.61	3.09	4.15	6.28	8.39	12.64	21.12	29.61
1.5	1.56	3.05	4.11	6.23	8.35	12059	21.08	29.56
2	1.52	3.00	4.06	6.19	8.31	12.55	21.03	29.52
2.5	1.47	2.96	4.02	6.14	8.26	12.50	20.99	29.47
3	1.00	2.91	3.97	6.10	8.22	12.46	20.95	29.43
3.5	0.50	2.87	3.93	6.05	8.17	12.41	20.90	29.38
4	0.00	2.82	3.89	6.01	8.13	12.37	20.86	29.34
4.5	-	2.78	3.84	5.96	8.08	12.33	20.81	29.30
5	-	2.50	3.80	5.92	8.04	12.28	20.77	29.25
5.5	-	2.00	3.75	5.87	7.99	12.24	20.72	29.21
6	-	1.50	3.71	5.83	7.95	12.19	20.68	29.16
6.5	-	1.00	3.50	5.79	7.90	12.15	20.63	29.12
7	-	0.50	3.00	5.74	7.86	12.10	20.59	29.07
7.5	-	0.00	2.50	5.70	7.82	12.06	20.54	29.03
8	-	-	2.00	5.65	7.77	12.01	20.50	28.98
8.5	-	-	1.50	5.61	7.73	11.97	20.46	28.94
9	-	-	1.00	5.56	7.68	11.92	20.41	28.89
9.5	-	-	0.50	5.50	7.64	11.88	20.37	28.85
10	-	-	0.00	5.00	7.59	11.84	20.32	28.81
11	-	-	-	4.00	7.50	11.75	20.23	28.72
12	-	-	-	3.00	7.41	11.66	20.14	28.63
13	-	-	-	2.00	7.00	11.57	20.05	28.54
14	-	-	-	1.00	6.00	11.48	19.97	28.45
15	-	-	-	0.00	5.00	11.39	19.88	28.36
16	-	-	-	-	4.00	11.30	19.79	28.27
17	-	-	-	-	3.00	11.21	19.70	28.18
18	-	-	-	-	2.00	11.12	19.61	28.00
19	-	-	-	-	1.00	11.00	19.52	27.91
20	-	-	-	-	0.00	10.00	19.43	27.74
22	-	-	-	-	-	8.00	19.25	27.56
24	-	-	-	-	-	6.00	19.07	27.38
26	-	-	-	-	-	4.00	18.90	27.20
28	-	-	-	-	-	2.00	18.72	27.02
30	-	-	-	-	-	0.00	18.54	26.58
35	-	-	-	-	-	-	15.00	26.13
40	-	-	-	-	-	-	10.00	25.00
45	-	-	-	-	-	-	5.00	20.00
50	-	-	-	-	-	-	0.00	15.00
55	-	-	-	-	-	-	-	10.00
60	-	-	-	-	-	-	-	5.00
65	-	-	-	-	-	-	-	0.00
70	-	-	-	-	-	-	-	

2.2.4.2 Sign Weight

Table 18: Sign Weight

Size / Module	Weight lb (kg)
Size 1/1-module	46 (20.87)
Size1/2-module	78 (35.38)
Size 1/3-module	115 (52.16)
Size 2/2-module	104 (47.17)
Size 2/3-module	153 (69.40)
Size 3/1-module	81 (36.74)
Size 3/2-module	131 (59.42)
Size 3/3-module	199 (90.27)
Size 3/4-module	252 (114.30)
Size 4/ 1-module	122 (55.34)

2.3 Installation

WARNING

Allow only qualified personnel to perform the following tasks. Observe and follow the safety instructions in this document and all other related documentation.

Sign installation requires a flat mounting surface and the sign to be level to prevent legend panels from becoming distorted.

FAILURE TO INSTALL AND LEVEL SIGN WILL VOID THE WARRANTY

See “Sign Mounting” on page 28 for detailed instructions. Also see FAA AC 150/5340-30, Figure 126, for concrete base design.

2.3.1 Introduction

This section provides instructions for installing L-858 taxiway and runway signs. Refer to the airport project plans and specifications for the specific installation instructions and FAA AC 150/5340-18.

2.3.2 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 might lead to detection of equipment damage.

If you note any damage to any equipment, file a claim with the carrier immediately. The carrier may need to inspect the equipment.

2.3.3 Cord set Installation

This subsection provides information for installing cord sets. It includes sign installation kit reference numbers for three power leg cord set installation locations and mounting configurations.

2.3.3.1 Cord set Installation Reference Numbers

This subsection provides special cord set locations with parts and part numbers. See Figure 8 for the ordering code for the L-858 sign. Special cord set installation reference numbers are located in the ordering code.

2.3.3.2 Cord set Exit Location #1

Figure 8 shows cord set location #1. Refer to Table 19 for cord set location #1 parts and part numbers.

Figure 8: Cord set Location #1 (Non-typical)

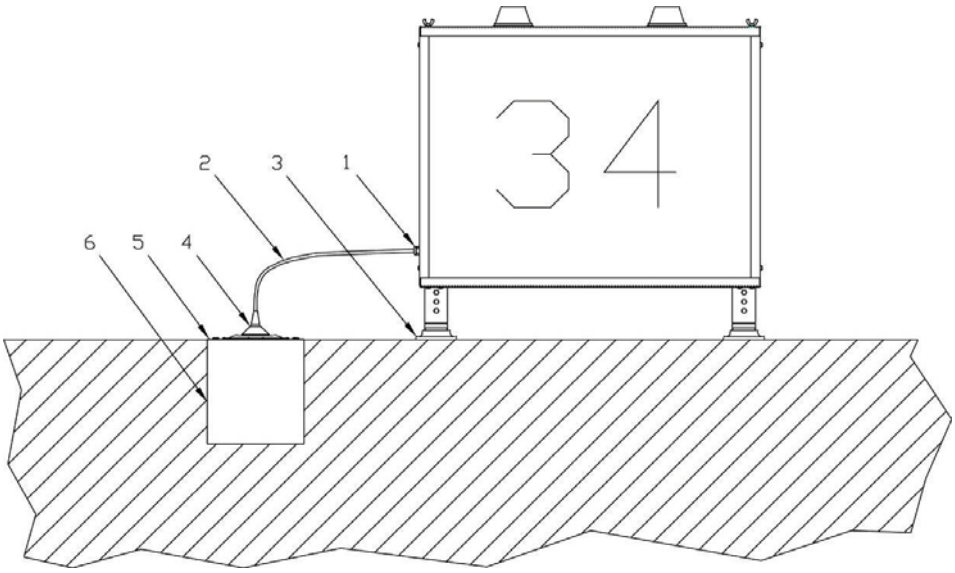


Table 19: Cord set Location #1 Parts

Item	Description	Supplier	Part Number	Note
1	Strain relief	ADB Airfield Solutions	77A0156	A
2	Cord set 16/2 SOW 600 V	ADB Airfield Solutions	Supplied with sign	B
3	Base flange	ADB Airfield Solutions	62A2142 or 62A2146	A
4	Connector plug	ADB Airfield Solutions	63B0550	C
5	2-in. (50.8-mm) L-867 base plate	ADB Airfield Solutions	1932	C
6	12 x 24 in. (304.8 x 609.6 mm) L-867B base	ADB Airfield Solutions	2124	C

1 NOTE A: Shown for reference only. Part supplied with sign.

2 NOTE B: Signs supplied with the following length external to the sign: Size 1 = 47 in. Size 2 = 41 in. Size 3 = 35 in. Size 4 = 18 in. Size 5 = 35 in. Any other external length requires a separate line on the purchase order specifying the external length required.

3 NOTE C: Requires a separate line item on the purchase order.

2.3.3.3 Cord set Exit Location #2

Figure 9 shows cord set location #2. Refer to Table 20 for cord set location #2 parts and part numbers.

Figure 9: Cord set Location #2 (Non-typical)

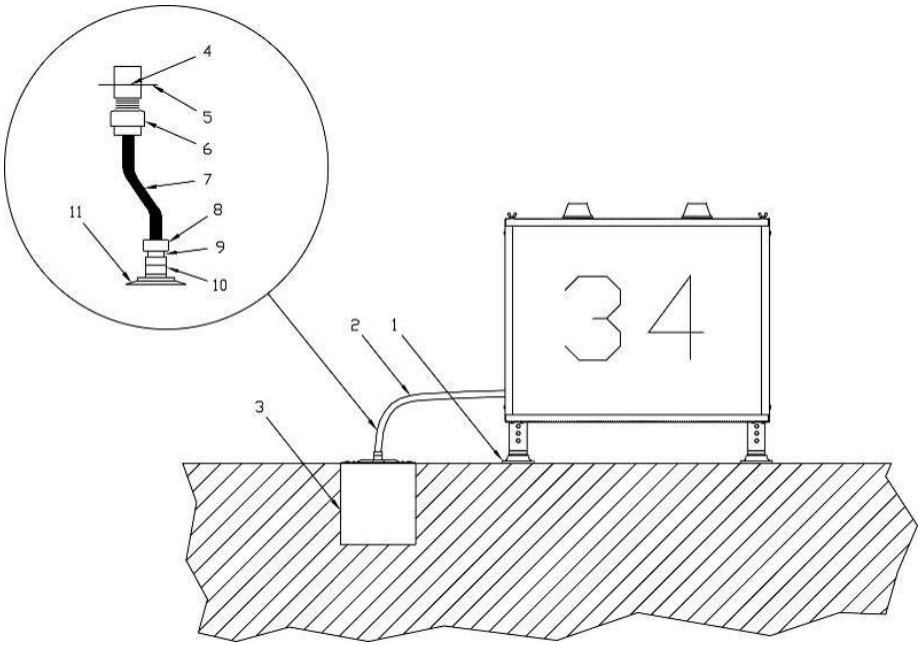


Table 20: Cord set Location #2 Parts

Item	Description	Supplier	Part Number	Note
1	Base flange	ADB Airfield Solutions	62A2142 or 62A2146	D
2	L-823 cord set 16/2 SOW 600 V	ADB Airfield Solutions	Supplied with sign	B
3	12 x 24 in. (304.8 x 609.6 mm) L-867B base	ADB Airfield Solutions	2124	C
7	Flexible conduit	Contractor	Not applicable	A
10	Frangible coupling	ADB Airfield Solutions	62A0711	C
11	2 in. (50.8 mm) L-867 base plate	ADB Airfield Solutions	1932	C

4 NOTE A: Refer to Table 3-3 for flexible conduit connectors.

5 NOTE B: Signs supplied with the following length external to the sign: Size 1 = 47 in. Size 2 = 41 in.

6 Size 3 = 35 in. Size 4 = 18 in. Size 5 = 35 in. Any other external length requires a separate line on the

7 purchase order specifying the external length required.

8 NOTE C: Requires a separate line item on purchase order.

9 NOTE D: Shown for reference only. Part supplied with sign.

Table 21: Flexible Conduit Connectors

Item	Description	Supplier
4	3/4-inch (44.45 mm) diameter hole	ADB Airfield Solutions
6	1-1/4 inch (31.75 mm) flexible conduit male connector	Contractor
7	1-1/4 inch (31.75 mm) flexible conduit	Contractor
8	1-1/4 inch (31.75 mm) flexible conduit male connector	Contractor
9	1-1/2 x 1-1/4-in. (38.1 x 31.75-mm) hex reducer bushing	Contractor

2.3.3.4 Cord set Exit Location #3

Figure 10 shows cord set location #3. Refer to Table 22 for cord set location #3 parts and part numbers.

Figure 10: Cord set Location #3 (Standard)

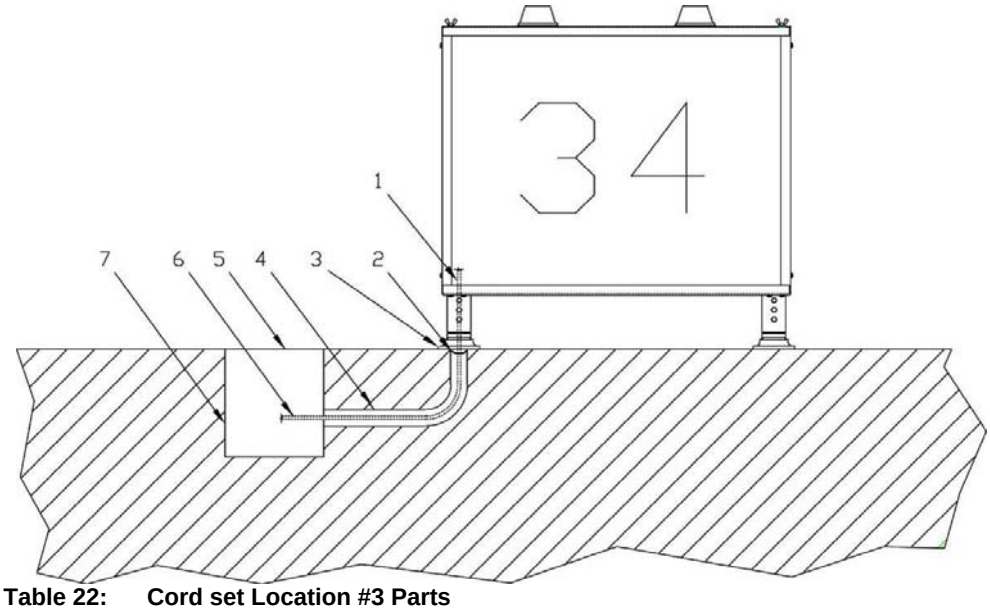


Table 22: Cord set Location #3 Parts

Item	Description	Supplier	Part Number	Note
1	Cord set 16/2 SOW 600 V	ADB Airfield Solutions	Not applicable	A
2	Cable clamp	ADB Airfield Solutions	60A2851	B
3	Base flange	ADB Airfield Solutions	62A2142 or 62A2146	A
4	2-in. (50.8 mm) rigid conduit		Not applicable	E
5	3/8 inch (9.53 mm) thick base plate	ADB Airfield Solutions	1000-6	C
6	8-foot (2.44 m) extension cord	ADB Airfield Solutions	73A0109-8	C
7	12 x 24 in. (304.8 x 609.6 mm) L-867B base	ADB Airfield Solutions	2124	C
NS	Gasket	ADB Airfield Solutions	2052	B, D

[10] NOTE A: Shown for reference only. Part supplied with sign.

[11] NOTE B: Requires a separate line item on purchase order.

[12] NOTE C: Refer to Figure 12for extension cords available if different extension cord length is required.

[13] NOTE D: Gasket is sold separately.

[14] Note E: Supplied by others.

2.3.4 Cord set Exit Location #4

Figure 11 shows cord set location #4. Refer to Table 23 for cord set location #4 parts and part numbers.

Figure 11: Cord set Location #4 (Standard)

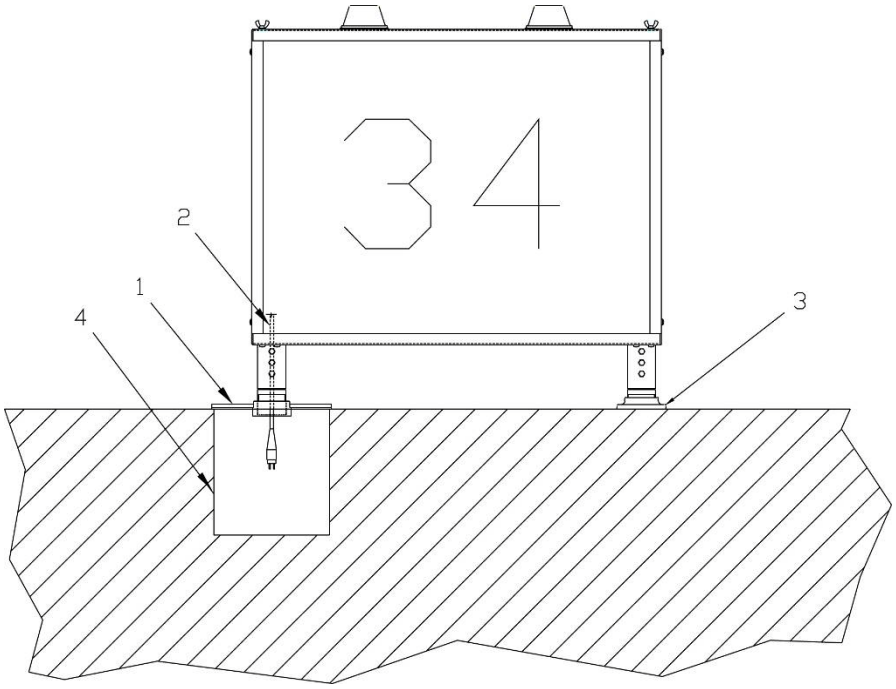


Table 23: Table 3-5 Cord set Location #4 Parts

Item	Description	Supplier	Part Number	Note
1	12-inch heavy base plate, 2-1/2 NPT	ADB Airfield Solutions	1832-BSPLT	B
2	Cord set 16/2 SOW 600 V	ADB Airfield Solutions	73A0107/72	A
3	Base flange	ADB Airfield Solutions	62A2142 or 62A2146	A, C
4	12 x 24 in. (304 x 610 mm) L-867B base	ADB Airfield Solutions	2124	B

NOTE A: Shown for reference only. Part supplied with sign.

NOTE B: Requires a separate line item on the purchase order.

NOTE C: Remove the base flange shipped with the sign when the leg is screwed into the base plate.

2.3.5 Cord set and Extension Cords

See Figure 12. Refer to Table 23 for cord set and extension cord types. Refer to Table 25 for cord set and cord parts.

Figure 12: L-823 Cord set and Extension Cords

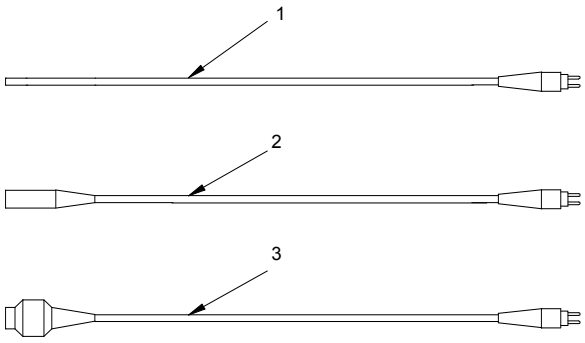


Table 24: Cord set and Extension Cord Length

Type	Part Number	Receptacle Style	Plug Style	Standard Length	Wire
1	73A0107-X	Not applicable	Type II, Class A, Style 1	4 ft (1.22 mm) 6 ft (1.83 mm)	16/2
2	73A0108-X	Type II, Class A, Style 7	Type II, Class A, Style 1	8 ft (2.44 mm)	16/2
3	73A0109-X	Type II, Class A, Style 7	Type II, Class A, Style 1	8 ft (2.44 mm)	16/2

Table 25: Cord set and Extension Cord Parts

Item	Description	Part Number	Note
1	L-823 cord set, 16/2 wire		A, B
	Cord set, standard size 4 ft (1.22 mm)	73A0107-48	
	Cord set, standard size 6 ft (1.83 mm)	73A0107-72	
2	L-823 cord set extension cord, 16/2 wire, standard size 8 ft (2.44 mm)	73A0108-8	A, C
3	L-823 cord set extension cord, 16/2 wire, standard size 8 ft (2.44 mm)	73A0109-8	A, D

NOTE A: Other sizes require special order.

NOTE B: A minimum of thirty inches (762 mm) of cord set length is required for internal sign connections. Usable exterior cord set length is equal to the cord set length minus a minimum of 30 inches (varies with sign size and cord set exit location).

NOTE C: Receptacle may be connected to plug on 73A0107-X, 73A0109-8 cord set, or standard 31-inch (787.4 mm) L-823 cord set.

NOTE D: Receptacle must be connected to plug on, Plug Type II, Class A, and Style 1, supplied with the sign.

2.3.6 Sign Mounting and Installation

WARNING

Signs must be grounded to a true earth ground. Failure to observe this warning may result in personal injury, death, or equipment damage.

2.3.6.1 General Guidelines

When installing signs, follow the guidelines below

- **See FAA AC 150/5340-30, Fig 126 for mounting pad design.** Also see the following subsections for detailed information on sign pad and leveling of the sign.

  FAILURE TO INSTALL AND LEVEL THE SIGN AS DESCRIBED IN THE VARIOUS SUBSECTIONS BELOW WILL VOID THE WARRANTY
- Mount the signs on a concrete slab or concrete pedestals
- Do not allow concrete edges to protrude above grade.
- Provide power to the signs through breakaway cable connectors installed within the frangible coupling portion of the sign's mounting legs.
- Install auxiliary equipment, such as isolation transformers, in a light base embedded in the ground.

2.3.6.2 Overall Mounting Height

Install signs so that the overall height above the surrounding ground of the sign assembly, including mounting supports, does not exceed heights given in Table 6 and the clearances of aircraft wings as specified in AC 150/5340-18. The sign must provide 12 inches (304.8 mm) of clearance between the top of the sign and any part of the most critical aircraft using, or expected to use, the airport when the aircraft's wheels are at the pavement edge. For overall mounting height, refer to AC 150/5345-44.

2.3.6.3 Sign Orientation

When orienting signs follow the guidelines below

- Orient the sign so that the face is perpendicular to the centerline of the taxiway or runway.

  NOTE: Check site plans and specifications for the location of the power leg (the leg where the L-823 cord set is located) in reference to the L-867 light base. Typically, the L-867 light base is immediately under the power leg or is at the same end, but not under the power leg. ADB Airfield Solutions' signs are shipped with the sign product label attached to the sign end where the power leg is located. In addition, verify that the sign legend is orientated correctly to the taxiway or runway per the site plans when the sign is installed on the pad. If the sign legend location is not correct, then the panels must be removed and reinstalled in the sign in the correct location.
- For special situations where visibility would be improved, refer to FAA AC 150/5340-18 for the correct orientation.
- For signs identifying an instrument landing system (ILS) critical area, coordinate the location and orientation with the local FAA airway facilities personnel, and schedule installation with periodic ILS flight checks to ensure that signs do not cause interference with the ILS electronic signal.

2.3.6.4 Sign Distance from Pavement Edge

Refer to Table 26 for the distance of signs from the pavement edge. Refer to AC 150/5340-18 for more information on the location of different types of taxiway signs.

Table 26: Recommended Sign Distance from Pavement Edge

Sign Size	Distance from Pavement ft	Distance from Pavement m
1	10–20	3.1–6.1
2	25–35	7.6–10.7
3	35–60	10.7–18.2
4	50–75	15.2–22.9
5	20–35	6.1–10.7

2.3.7 Sign Installation on Concrete Pad

NOTE: Follow site plans and specifications for concrete dimensions.

2.3.7.1 Concrete Pouring

See FAA AC 150/5340-30, Figure 126, for concrete base design.

To pour a concrete pad, perform the following procedure:

1. Determine the sign size and module.
2. Pour your concrete pad according to the following requirements:
   - a minimum of 30 inches (762 mm) wide, extending a minimum of 6 inches (152.4 mm) beyond the end of the supports. The sign pad needs to be flat and level in the area where the sign mounting flanges are located. See FAA AC 150/5345-30, Figure 126. The mounting floor flange is nominally 5.0 inches wide x 7.50 inches long and the area beyond the flange can be tapered to the outside edge of the concrete pad to provide for pad drainage.
   - a minimum of 4 inches (101.6 mm) depth, extending below the frost line to prevent frost heave.
   - reinforce according to site plans and specifications.
3. Install a minimum of one 12-inch (304.8 mm) L-867B power base (1) according to the following guidelines:
   - Install the base close to the sign in or near the concrete pad to provide easy access to the isolation transformer.
   - When installing the base in the concrete pad, hold the L-867 base firmly in place during construction of the pad so that the upper surface of the base flange is level within ± 2 degrees and not more than 3/8 inch (9.525 mm) above the concrete surface.
   - All other bearing surfaces on the pad for additional flange supports should be kept in the same horizontal plane as the L-867 base flange. The pad area where the sign mounting flanges will be located is to be flat **with no taper** to ensure that the sign will set level to prevent uneven loading on the frangible couplings. See FAA AC 150/5340-30, Figure 126 for pad design.
   - For the Mode 1 and 2 signs

     Before the concrete sets, install two 1/2–13 anchor bolts into the concrete pad. The bolt hole centerline is on a 6-inch diameter bolt circle, 180 degrees apart as shown. Bolt slots are 0.62 inches wide x 1.0 inch long. Overall width of flange is 5.0 inches and overall length is 7.5 inches. Bolts should be located perpendicular to the sign face.

NOTE: A customer-supplied template is recommended to hold the bolts in position while the concrete sets. Anchor bolts (customer-supplied) must be a minimum of 1.25 inches (31.75 mm) above the top surface of the concrete pad to attach the mounting bases. Hilti Quick Bolts (wedge-bolt) or Red Head Trubolt Wedge Anchors are recommended for installing the flanges after the concrete sets (customer-supplied). Check with the manufacturer for their recommendations as applied to your airport site.

Example Hilti Kwik Bolt 3 Standard Thread 304 Stainless Steel

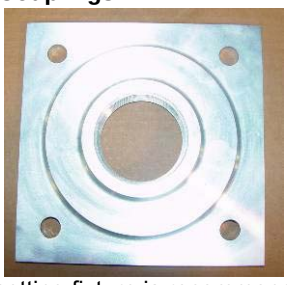
NOTE: With either anchoring system, the allowable load for any specific bolt is dependent upon several factors; type of concrete, depth of embedment, edge distance, anchor spacing, etc. ADB can advise the customer of various manufacturers of anchor bolts, but ADB cannot approve their specific installation.

Figure 13: Mode 1 and 2 Frangible Couplings

— For the Mode 3

Before the concrete sets, install four 1/2–13 anchor bolts into the concrete pad. The bolt holes are on an 8-inch-diameter bolt circle, 90 degrees apart as shown. Holes are 0.62 diameter. Overall size is 7.75 x 7.75 inches. Bolts should be located perpendicular to the sign face.

Figure 14: Mode 3 Frangible Couplings



NOTE: A customer-supplied setting fixture is recommended to hold the bolts in position while the concrete sets.

NOTE: Anchor bolts must be a minimum of 1.25 inches (31.75 mm) above the top surface of the concrete pad to attach the mounting bases. Hilti quick bolts are recommended for installing the flanges after the concrete sets.

2.3.7.2 Sign Mounting

NOTE: Signs up to four modules are totally assembled at the factory and are ready for direct installation. Mounting flanges may be removed to lubricate the threads of the frangible coupling with anti-seize compound before installing sign.

NOTE: If male L-823 connector is routed through a leg, slide frangible coupling over male connector and insert into female connector in base plate, and then screw frangible coupling into base plate.

To mount the sign onto the concrete pad to insure the assembly is flat, perform the following procedure:

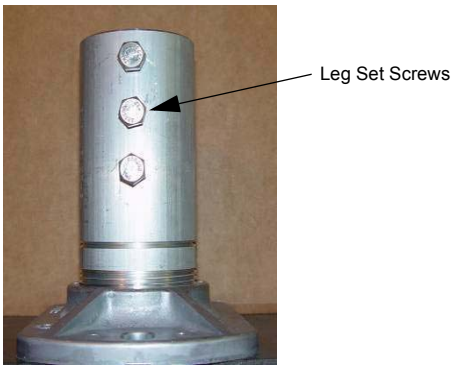
1. When the sign is ready to be bolted to the concrete pad set the sign assembly on the concrete pad and position the sign over the anchor bolts. Hand-tighten the bolts or nuts to fasten the mounting flanges to the concrete pad.
2. **To insure that the sign assembly is mounted flat on the concrete pad,** first loosen all three hex set screws found on each frangible coupling that are installed on the sign. See Figure 18. Once all the hex screws are loosened each of the sign legs will float free inside the frangible coupling that is screwed into the mounting flange Second, use a bubble, digital, or laser level to verify that the assembly is flat and level. Adjustments to make the assembly flat and level can be made by raising or lowering one end of the sign assembly to make the assembly flat and level.

   NOTE: Once the assembly is flat it may be necessary to block-up or hold the assembly in the flat position until all of the hex set screws can be re-tightened on each of the frangible couplings to secure the sign leg to the coupling. Once the sign is flat and level finish tightening the mounting bolts to their correct torque value.

   NOTE: If the sign pad is tapered in the area when the mounting flanges are located shims may need to be placed under the mounting flanges to ensure that the coupling frangibility

characteristics are the same for each coupling. If in doubt, contact the ADB Airfield Solutions Sales Department.

Figure 15: Sign Frangible Coupling



WARNING

Sign frangible couplings are uniquely designed for use on the sign size stamped on the coupling and can only be used for that particular size sign. If couplings must be replaced, make sure the sign size on the couplings matches the size sign on which they are to be installed.

3. Connect an AWG 12 (minimum) ground wire to the earth ground lug on the bottom of the sign. Refer to “Wiring” on page 31. Refer to “Schematics” on page 43 for electrical connections.

WARNING

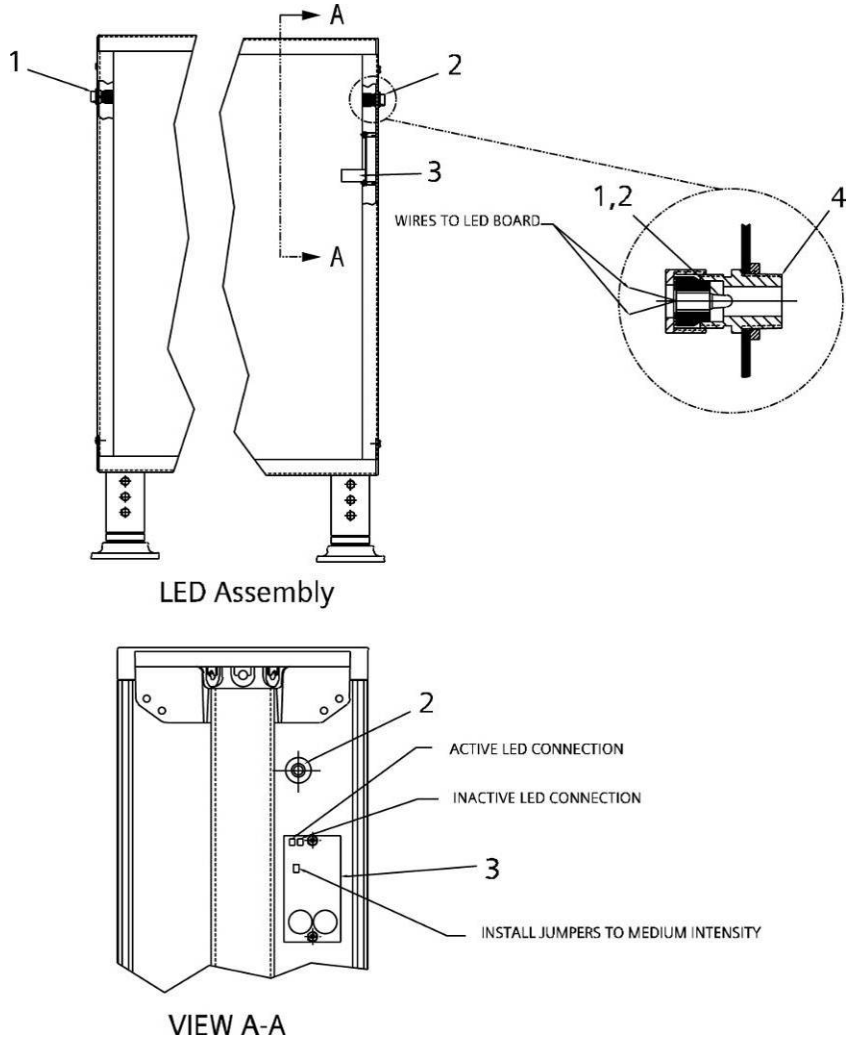
Lock out power before making any electrical connections. Failure to observe this warning may result in personal injury, death, or equipment damage.

1. Install optional tether. Refer to “Optional Tethers” on page 31.
2. Plug the cord set into the sign and the transformer.
3. Reinstall panels (if removed) and top lid (if removed). Refer to “Repair” on page 39 for more information on installing the lid.

2.3.7.3 Optional Lamps-Out Indicator Mounting

See Figure 16. Signs with optional Lamps-Out Indicator (LOI) are factory-installed and shipped with an LED mounted on one side of the sign. The LOI LED comes wired and is set at medium intensity. The LOI can be used only on halogen lamp Style 2 and Style 3 signs.

Figure 16: Lamps-Out Indicator Kit Assembly

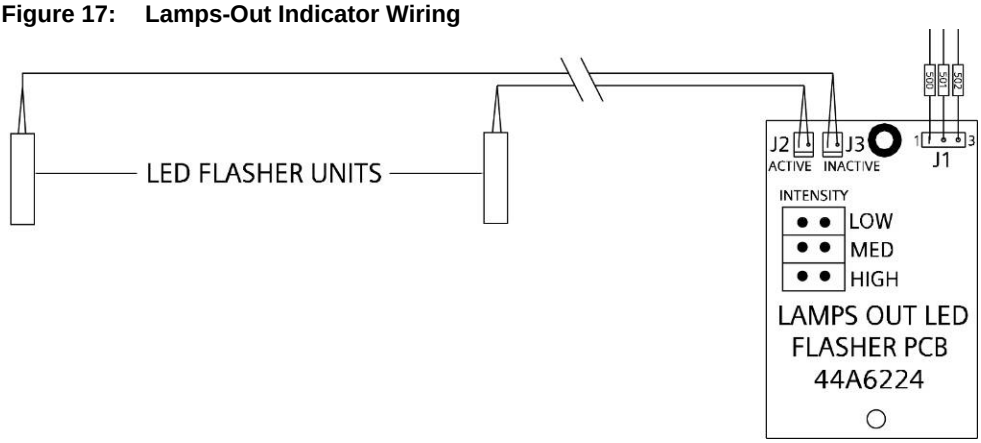


1. Lamps-Out Indicator LED Assembly, (190 Inch-Leads)	3. LED Lamps-Out Indicator PCB
2. Lamps-Out Indicator LED Assembly, (10 Inch-Leads)	4. ½-Inch Watertight Connector

See Figure 16 and Figure 17. Once the sign is installed, it is possible to change the LED intensity and the side of the sign in which the LED is activated. To determine which LED to make active, open the sign and plug the desired LED connector onto the ACTIVE header on the LOI PCB.

The LOI LED intensity level (Low, Medium, and High) can be changed by opening the sign and moving the intensity jumper shunt on the LOI PCB to the desired level.

Figure 17: Lamps-Out Indicator Wiring



2.3.7.4 Wiring

Refer to “Schematics” on page 43 for wiring diagrams.

When installing cable, follow the guidelines below.

- Install all cable for direct earth burial or for placement in duct according to Item 108 or Item 110 of AC 150/5370-10 as appropriate.
- Operate the signs as a part of a series 6.6 A (or 20 A) lighting system power supply. The signs are connected into the series circuit by means of an internal 5.5 A-6.2 A step-up isolation transformer for Style 5, Sizes 1, 3, 4, and 5 signs, or a 5.5 A-6.0 A step-up isolation transformer for Style 5, Size 2 sign. If installation is to be independent of other lighting circuits, use current edition of AC 150/5340-30, *Design and Installation Details for Airport Visual Aids*, for system reference and material needs.

2.3.7.5 Earth Ground Lug

WARNING

Signs must be properly grounded to true earth ground. Failure to observe this warning may result in personal injury, death, or equipment damage.

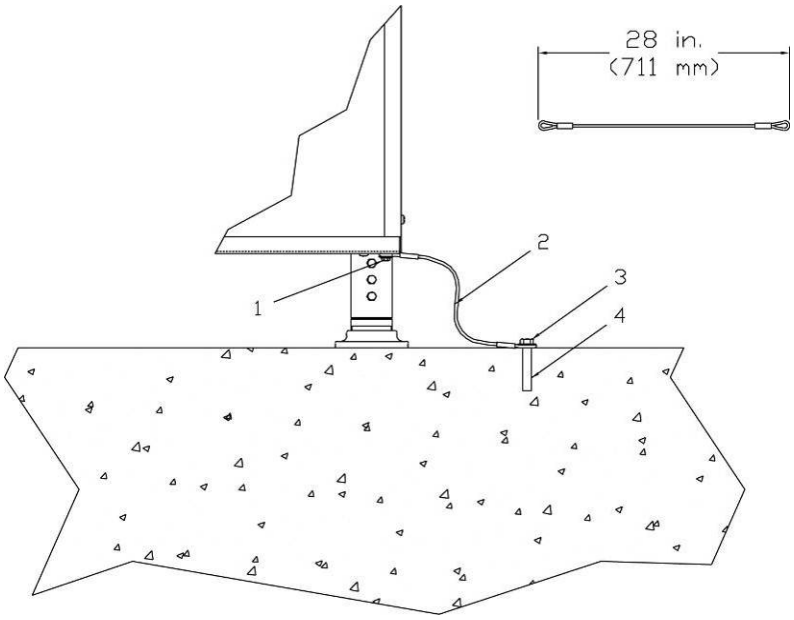
The earth ground lug is located on the outside frame of the sign to permit easy connection of an AWG 12 (minimum) earth ground wire to the sign.
If necessary, you may remove the ground lug from the outside and place it on the inside.

2.3.7.6 Optional Tethers

See Figure 19. Tethers are shipped installed per the sign sales order. Location and quantity of the tether are determined when the sales order is placed.

NOTE: In the tether installation procedure below, the customer supplies the mounting hardware to attach one end of the tether to the concrete pad. The customer also supplies the expansion anchor for the bolt.

Figure 18: Installing Optional Tether



1. Existing 5/16-18 x ¾ in. Bolt
2. Tether
3. Mounting Hardware Attached to Expansion Anchor
4. Expansion Anchor for Bolt

To attach a tether, install the customer-supplied mounting hardware (3) to attach the tether to the expansion anchor (4) on the concrete pad.

2.3.7.7 Optional L-830 Series Wiring

The following discussion applies only to a 4-module sign, Size 2 and Size 3.

When a multiple-module sign installation requires a 500 W isolation transformer, you may use two lower-wattage L-830s instead if they are series-wired and provided the total wattage of the transformers equals the wattage of the transformer they are replacing. For example, you can replace the 500 W transformer with two series-wired 300 W and 200 W L-830 transformers.

If your sign installation results in two cord sets exiting a sign cord set, you can eliminate one cord set by series wiring the L-830s and connecting the primary 3- or 5-Step sign transformer leads in series as required for single cord set installations.

NOTE: On occasion, the windings in the L830 Isolation Transformers may be wired differently. The result will be that the output voltage on the secondary of the isolation transformer will be out of phase when the two transformers are in series. This condition will result in improper operation of the sign. This situation is resolved by replacing the field splice kit on one of the transformer's secondary and reversing the wires.

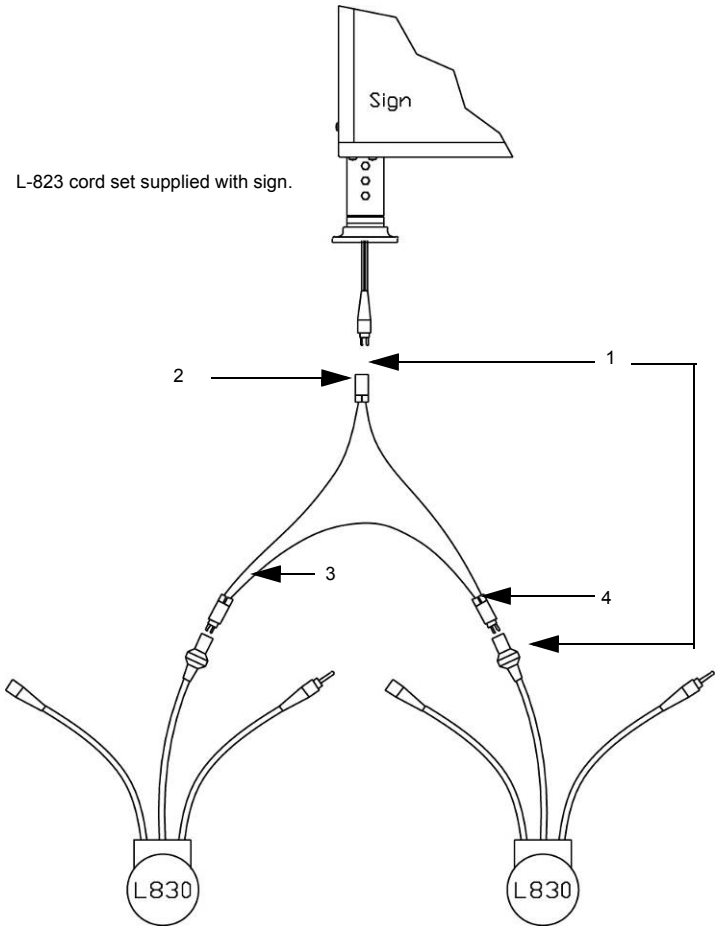
Refer to Table 27 for parts for the L-830 series wiring kit. See Figure 16.

Table 27: L-830 Series Wiring Kit

Item	Description	Part Number	Quantity
1	L-830 series wire kit	94A0173	1
2	Style 11 receptacle kit	70A0046	1
3	Jumper wire	89A0154	6 feet
4	Style 4 plug kit	70A0045	2

NOTE: See above concerning phasing when transformers are in series.

Figure 19: Installing Optional L-830 Series Wiring



2.4 Maintenance

2.4.1 Introduction

This section provides preventive maintenance for L-858 signs.

2.4.2 Maintenance Schedule

To keep the L-858 taxiway and runway signs operating efficiently, follow a preventive maintenance schedule. Refer to Table 28.

Table 28: L-858 Taxiway and Runway Sign Maintenance

Interval	Maintenance Task	Action
Daily	Check for burned-out lamps.	Replace burned-out lamps. Check circuit operation.
Monthly	Check for dirty panels.	Clean with mild soap and water.
	Check for vegetation covering panel.	Remove vegetation.
Semi-Annually	Check for loose wire connections.	Tighten wires.
	Check for cracked or deteriorated wire.	Replace wire.
Annually	Check for paint flaking off.	Repaint.
	Check for panels yellowing.	Clean with Formula 409 or similar cleaning agent.
	Check for deteriorated gaskets.	Replace gaskets.

2.5 Troubleshooting

WARNING

Allow only qualified personnel to perform the following tasks. Observe and follow the safety instructions in this document and all other related documentation.

Always remove input power to a sign before making any wiring connections. Failure to observe this warning may result in personal injury, death, or equipment damage.

2.5.1 Introduction

This section provides troubleshooting information for the L-858 taxiway and runway signs. The information covers only the most common problems. If you cannot solve the problem with the information given here, contact your local ADB Airfield Solutions representative for help.

2.5.2 Troubleshooting Procedures

Problem – Halogen & Fluorescent	Possible Cause	Corrective Action
1. All lamps are out or not functioning correctly.	Loose wires or connections	Tighten or replace wires. Check L830 for out of phase condition – see page 3-17.
	Lamp(s) burned out	Replace lamp(s). Refer to “Repair” on page 39. **NOTE:** If any burned-out lamp is near its maximum life, it is recommended that you replace all lamps.
	CCR circuit-shorted	Check circuit. Refer to AC 150/5340-26.

Problem –Fluorescent Only	Possible Cause	Corrective Action
9. All or some lamps out	Lamp failure	Replace lamp(s)
	Ballast not powered	Check ballast input for 200-250Vdc. If not present, replace DC power supply PCB, verify proper current is input into the DC power supply PCB, or check wiring.
	Ballast failure or ballast in self-protect mode	Turn sign input power off for 3 minutes and then turn input power back on to sign. If lamps still do no light replace ballast.
10. All lamps out	Transformer is undersized	Replace isolation transformer with proper size.
	Power supply failed	Disconnect ballast(s) from the power supply and make sure output is 200-250Vdc. If the voltage is not in this range then replace the power supply.

Problem – Halogen Signs [1]	Possible Cause	Corrective Action
All Lamps are out or not functioning correctly.	Loose wires or connections	Tighten or replace wires.
	CCR circuit-shorted	Check circuit operation.
	Sign ON/OFF switch is closed.	Check the Sign ON/OFF switch for proper operation. Replace if necessary.
	Power supply fault or CCR is not operating correctly	Remove the cover to observe the power supply board with two LEDs located near the notch where the wires enter the supply. LEDs are labeled D13 for Red and D12 for Green. When power is first applied, the green LED will flash (several times) first, followed by the Red LED flashing (several times) lasting about 10 seconds, followed by a regular green flashing “heartbeat” (at about a one blink per second rate). The initial x-times flash is for manufacturing purposes and may vary in number from board to board. When the regular green flashing “heartbeat” flashes, the red LED may flicker a couple of times until the circuit stabilizes but will extinguish quickly under normal operating conditions. If the green “heartbeat” is present and the red LED lights solidly, this indicates that the power supply is good but there is an open on the output of the power supply (likely either the interconnecting wires or one of the halogen lamps are burned out). If no status LEDs light or one or both lights solidly, and power is applied to the input, then the power supply needs to be replaced.
Light Panels are too dim.	Power supply fault or CCR is not operating correctly	Check the CCR’s output current.
	Jumper P6 on Power Supply is set incorrectly or missing	Check the P6 jumper setting and compare to chart on Figure 20 to confirm or correct placement of the jumper. **Note: remove power prior to changing jumper settings.**
Optional Lamps Out Indicator continues to flash after replacing lamps.	There may be another burnt out lamp.	Verify all lamps are tightly seated and not burnt out.
	Power to sign has not been cycled.	Remove power to sign for at least one minute and then power back up.

NOTE: There is no jumper setting for changing between 50/60 hz.

NOTE: There are no jumper settings for backup lamp use.

[1] If you have a Halogen Sign with the 44A6225/X top-mounted power supply, please see the manual 96A0286 Rev AG on our Web site. If you wish to migrate the old power supply to the new (44A7199/200) one used in this manual, please call your ADB representative.

2.5.3 Checking the Halogen Lamp Sign Power Supply[1]

When power is applied…

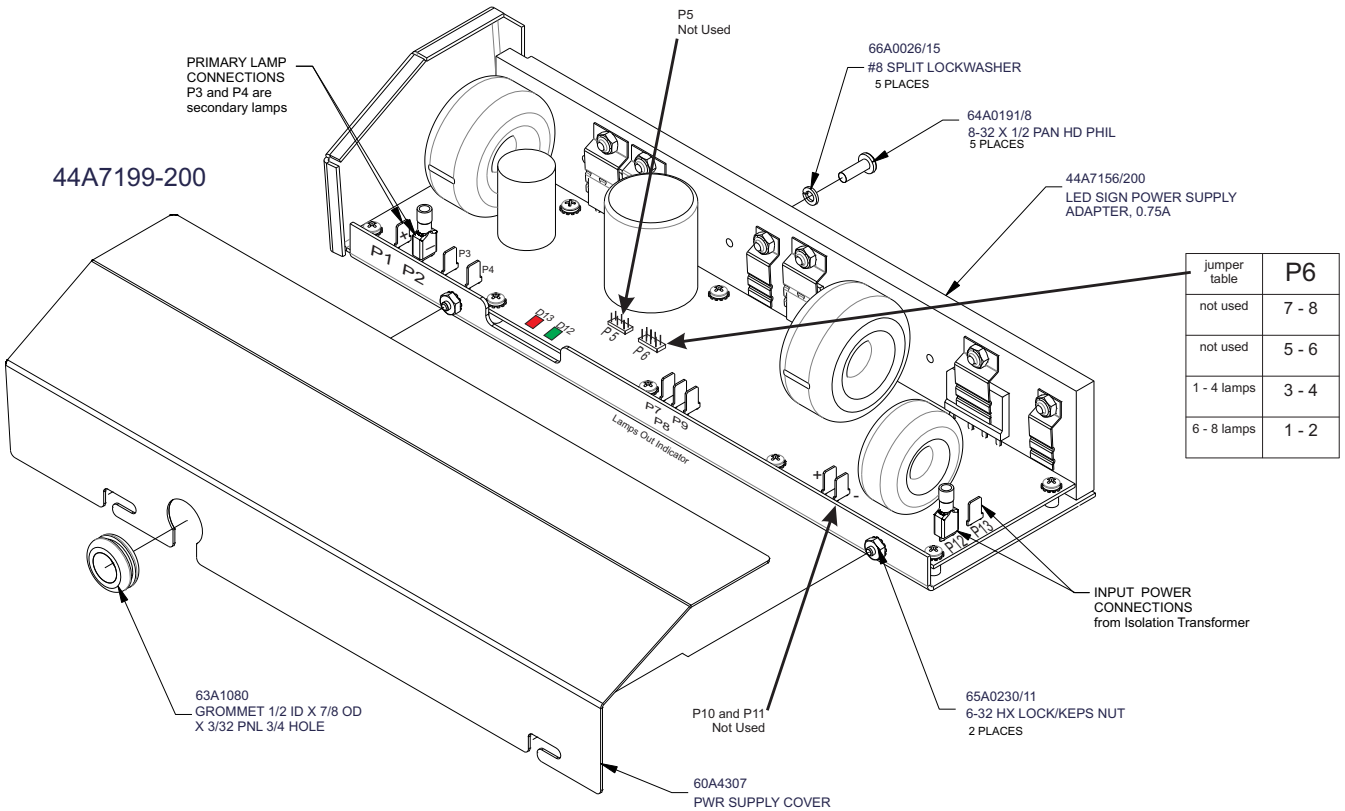
- All of the lamps should illuminate if all components are wired and functioning correctly.

  NOTE: When the power is first applied, the Red and Green LEDs will blink several times for about 10 seconds while the sign performs internal PCB self-checks. The sign may turn off and on also during this testing period. When the testing is done the (D13) red LED should be off and the (D12) green LED should blink about once per second.

- If the lamps do not illuminate and the onboard Red LED (D13) comes on, there is an open in the output current loop to the lamps or a burnt out lamp. Remove the input power and check the output wiring for correct polarity and opens or shorts referring to “Schematics” on page 43.
- If the lamps do not illuminate and the onboard Green LED (D12) does not flash at a 1 second rate (heartbeat), then there is a fault on the power supply board or incoming power. Remove the input power and check the input wiring for opens or shorts.
- Make certain you replace the cover after you are done checking the power supply.

[1] If you have a Halogen Sign with the 44A6225/X top-mounted power supply, please see the manual 96A0286 Rev AG on our Web site. If you wish to migrate the old power supply to the new (44A7199/200) one used in this manual, please call your ADB representative.

Figure 20: Halogen Sign Power Supply 44A7199-200 with Cover Removed



Refer to Table 29 for the power supply LEDs.

Table 29: Halogen Sign Power Supply LEDs

LED	Function
Green (D12)	Flashes at 120 beats per minute when power is applied to the power supply board.
Red (D13)	Indicates the power supply board assembly is not able to maintain a regulated lamp current. This also indicates that at least one lamp is burnt out.

2.5.4 Halogen Lamp Power Supply Connections

If you replace the power supply board, refer to Table 30 for the power supply board connections. See also “Schematics” on page 43. Refer to “Checking the Halogen Lamp Sign Power Supply[1]” on page 37.

Table 30: Halogen Sign Power Supply Connections

This connector…	Connects to this device…
P1, P2	A string of up to eight 48 W primary lamps
P3, P4	A string of up to eight 48 W backup lamps
P12, P13	The output of a 6.6 A isolation transformer providing input power for the halogen sign
P7, P8, P9	Optional lamps-out indicator

2.6 Repair

WARNING

Allow only qualified personnel to perform the following tasks. Observe and follow the safety instructions in this document and all other related documentation.

This section provides procedures for replacing lamps and active ballast assembly.

2.6.1 Halogen Lamp Replacement

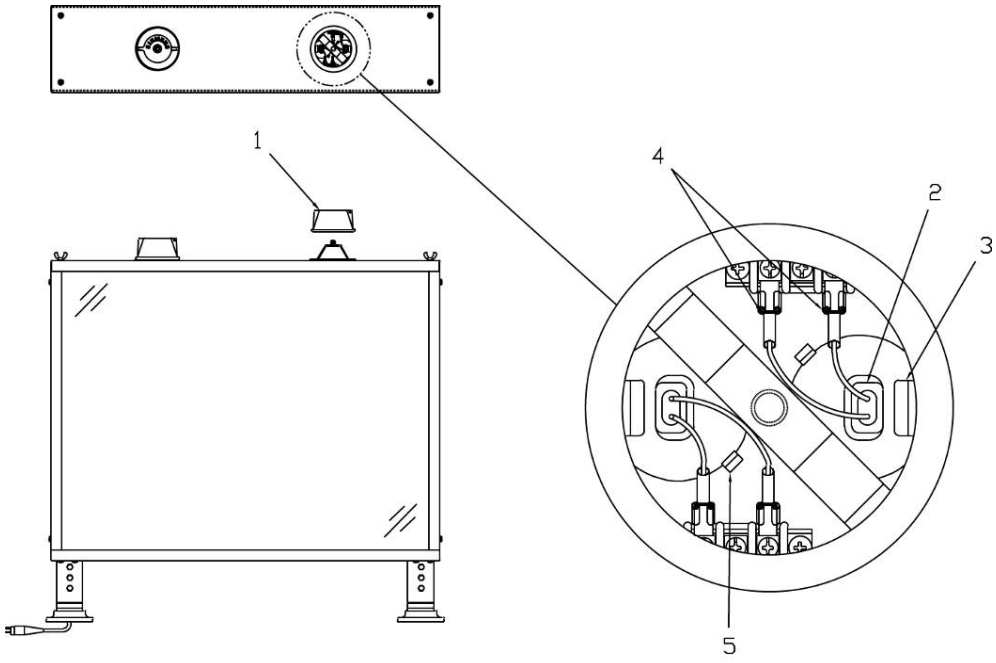
WARNING

Turn off the power to the sign before replacing lamps. Failure to observe this warning may result in personal injury, death, or equipment damage.

To replace lamp(s), perform the following procedure:

1. Turn off the power to the sign.
2. See Figure 21. Remove the lamp cover (1) by rotating the lamp cover (1) counterclockwise.

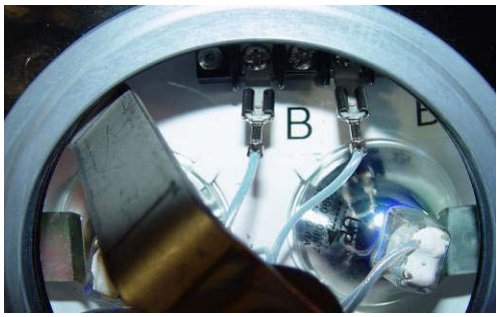
Figure 21: Halogen Lamp Replacement (Shown with Backup Lamp)



1. Lamp Cover	3. Lamp Retention Spring	5. Lamp Retention Tab
2. Lamp	4. Lamp Leads	

3. Disconnect lamp leads (4).

NOTE: The back-up lamp is identified by either a “B” or the words “Back-up Lamp” stamped next to the terminal block for the back-up lamp. See photographs on the next page.



4. Remove lamp(s) by sliding lamp toward lamp retention spring (3) and rotating past lamp retention tabs (5).
5. Install replacement lamps by reversing the removal process.

   NOTE: Disregard lamp orientation arrow and associated note on the lamp. This note DOES NOT apply to halogen signs.

See Figure 21. Replace the lamp cover (1) by rotating the lamp cover (1) clockwise until finger-tight, then turn one-half turn further to insure a watertight seal. Replace the gasket if worn or damaged.

2.6.2 Optional Fluorescent Lamp, Ballast, and Power Supply Replacement

1. To service any of the electronic components or lamps the sign lid must be removed. (Note: If lid has lamp covers on the top of the lid, the fluorescent lamps are not accessible through these covers). Follow the directions below to remove and replace the lamp. Also, if the ballast, DC power supply, or the power transformer needs to be serviced, the legend panel located on the power cord end must be removed.
2. For size 1, 2, 3, and 5 signs, remove and replace the lamp by turning the ¼-turn screw counter clockwise to free the lamp bracket. Lift the lamp bracket and wire harness up through opening in the bracket mounting plate.

   For size 4 signs, slide one of the sign legend panels up and out of the sign to access the lamps.

   NOTE: The lamps my have cable ties used to hold the lamps in place during shipping. Remove these cable ties prior to lamp replacement. These cable ties do not need to be replaced.

- Remove the lamp from its socket by grasping the base of the lamp and lifting the lamp up and rocking it slightly left and right while lifting to free it from the socket. Pull the lamp free from the lamp clip located near the top of the lamp. See Figure 22 thru Figure 24.

Figure 22: Lamp Bracket ¼-turn Screw

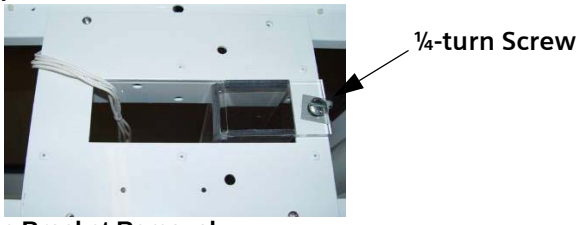
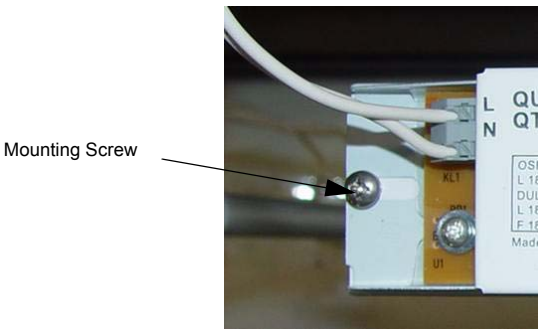


Figure 23: Lamp Bracket Removal

Figure 24: Lamp Socket

3. To replace the lamp ballast, remove the 2 mounting screws, one screw at each end of the ballast that secures the ballast to the mounting plate. Disconnect the power leads located at each end of the ballast. Replace the ballast, reconnect the wiring harness to the appropriate terminals, and remount in reverse order from removal. See Figure 25.

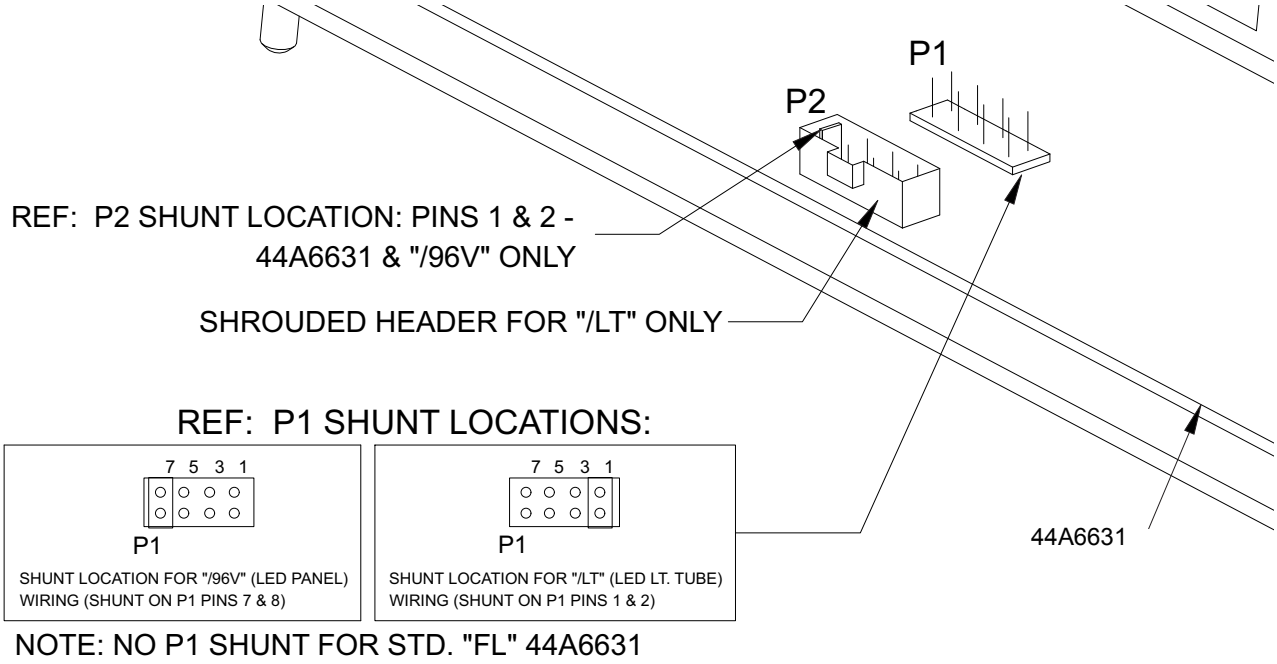
Figure 25: Ballast Mounting



4. To replace the DC Power Supply, disconnect the 4 quick disconnects and then using a screwdriver remove the two mounting screws located on the outside surface of the sign end panel. Replace the power supply in reverse order of removal. See Figure 26.

Figure 26: Figure 6-7 DC Power Supply Assembly 44A6631

Figure 27: Power Supply Pin Locations



NOTE: P1 is empty for the Fluorescent Sign and P2 has a jumper across pins 1 & 2.

2.6.3 Replacing the Fluorescent lamp ballast

When replacing an (obsolete) ballast with a (new) ballast, you must also replace the power supply with a 44A6631 PCB for the first ballast replacement. See Figure 31 through Figure 33.
The obsolete ballasts will work with the new power supply (rev G or newer). The new ballast will not work with the old power supply (rev A through F).

Fluorescent Ballasts

Obsolete Ballast	New Ballast	Description	Qty
35A0543/1C	35A00687/1	Lamp Ballast – Single (OSRAM)	1-2
34A0543C	35A00687/2	Lamp Ballast – Dual (OSRAM)	1-4

Fluorescent Power Supply

44A6631	Fluorescent Lamp Power Supply PCB Assembly	1

There are 3 versions of this power supply, 44A6631, 44A6631/96 and 44A6631/LT.

Make certain you have the 44A6631 power supply. See Figure 33. (Rev A through F) is the old power supply. 44A6631 (Rev G and newer) is the new power supply.

2.7 Schematics

2.7.1 Halogen Sign Wiring

Figure 28: Halogen Wiring Diagram (43A02656 Sheet 1)

43A2656
Sheet 2 and 3 are

Figure 29 and
Figure 30

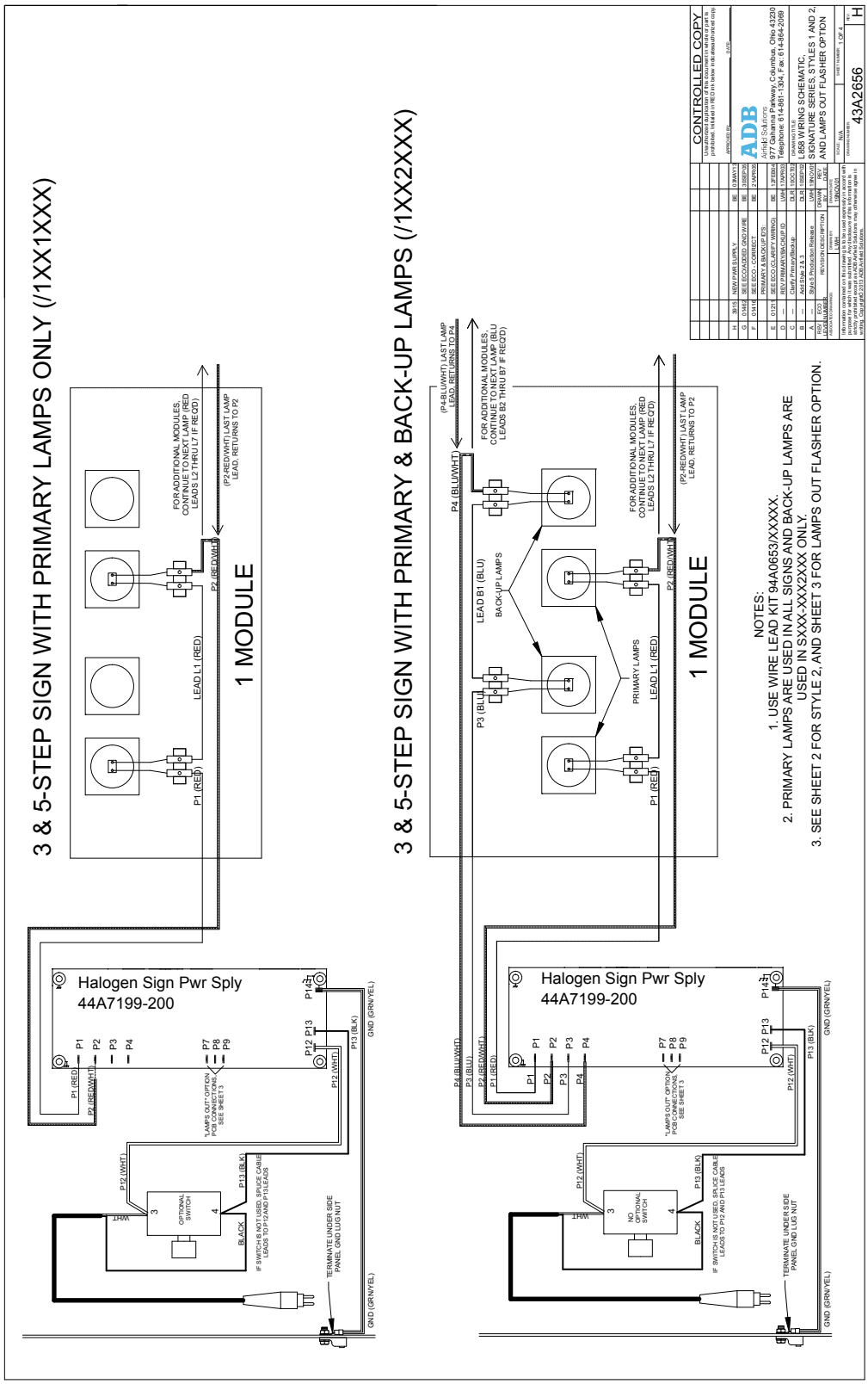


Figure 29: Halogen Wiring Diagram (43A02656 Sheet 2)

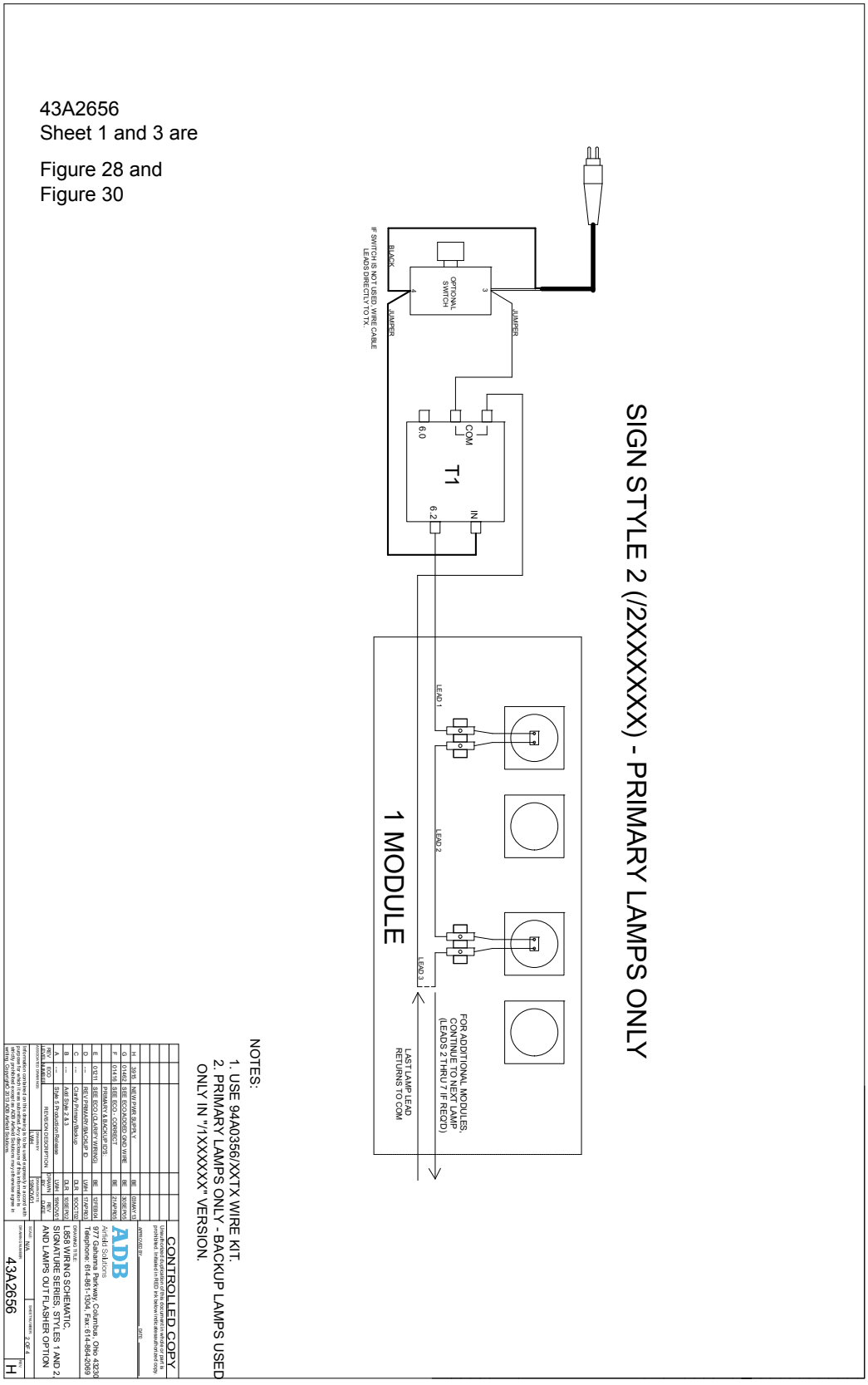
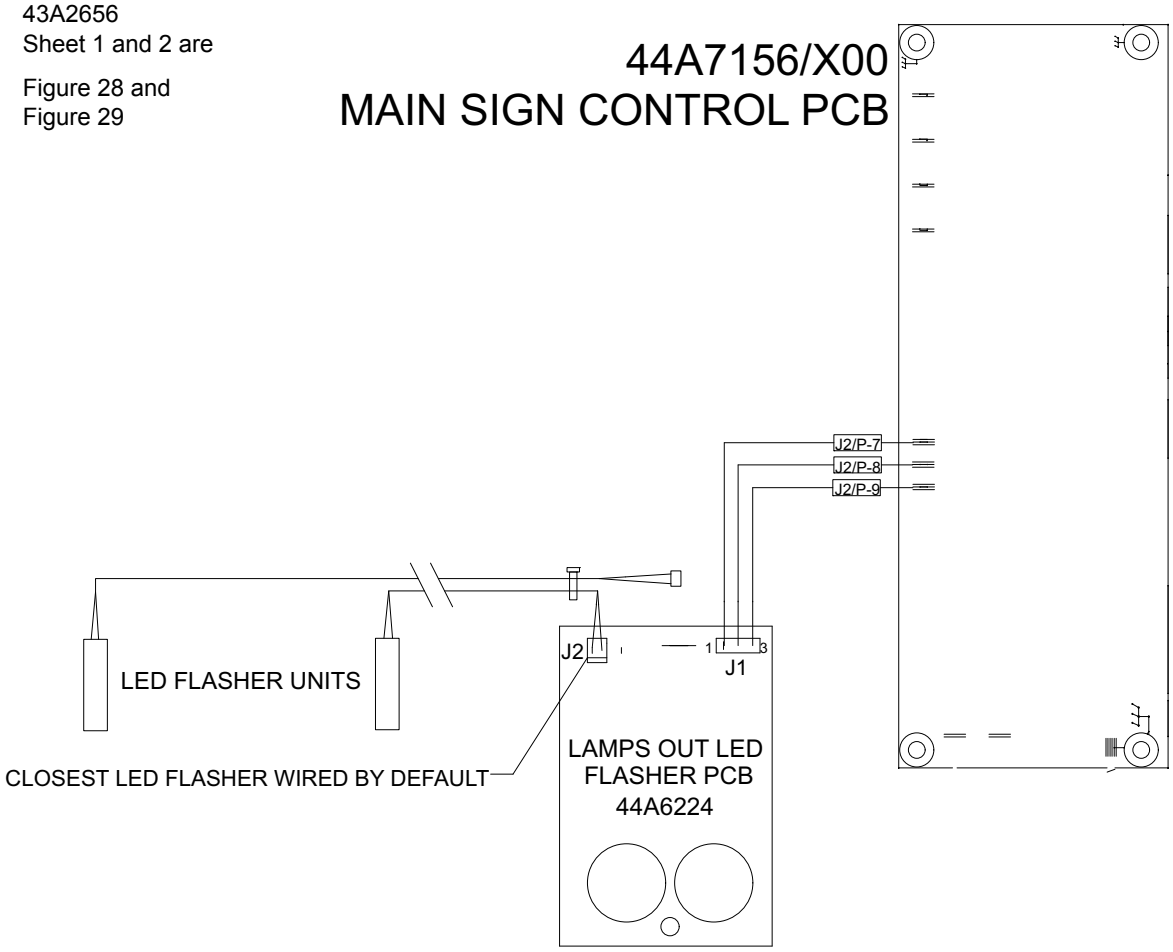


Figure 30: Halogen Lamps Out Monitoring Diagram (43A2656 Sheet 3)

43A2656
Sheet 1 and 2 are

Figure 28 and
Figure 29



2.7.2 Fluorescent Sign Wiring

Figure 31: Fluorescent Power Supply Connections

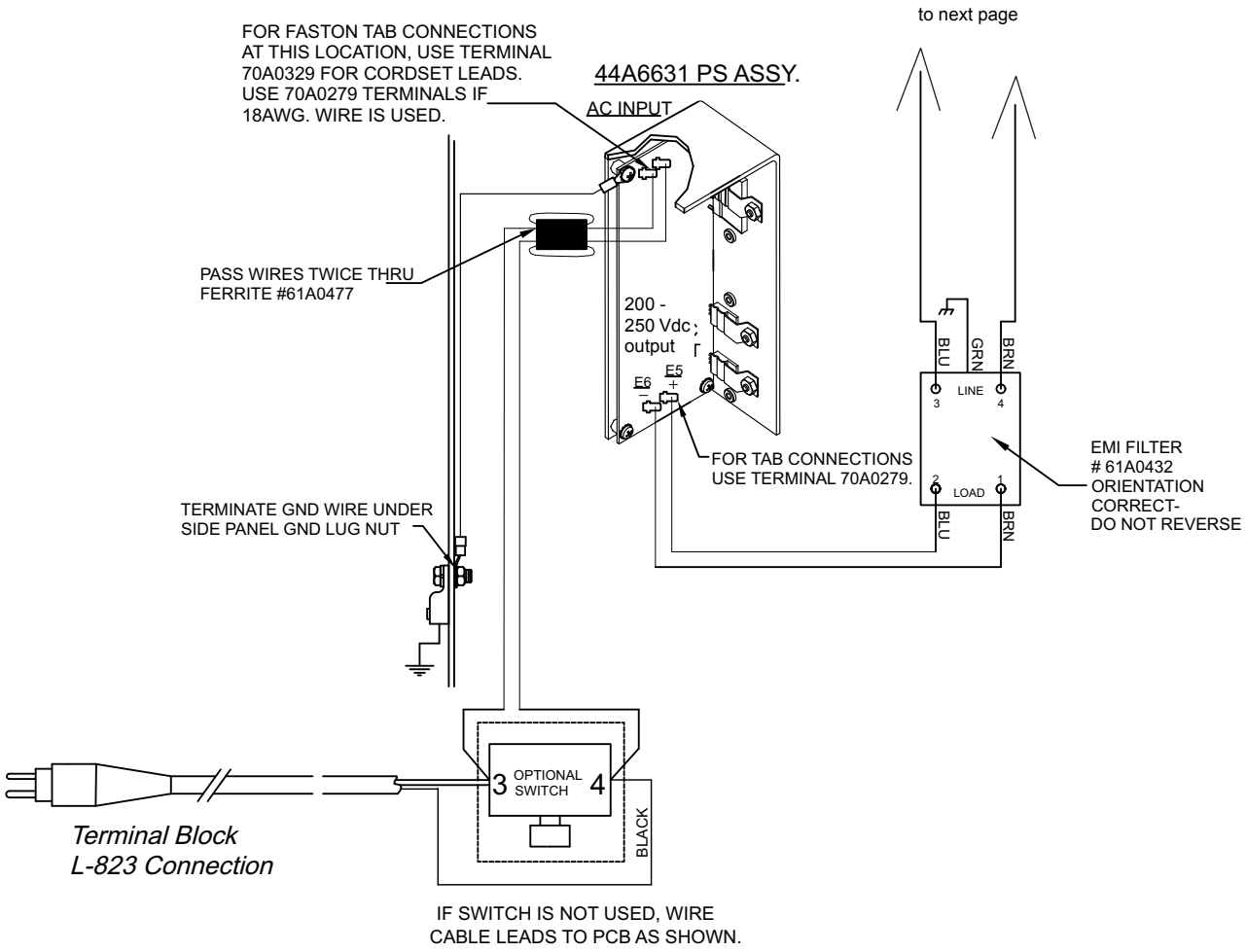


Figure 32: Fluorescent Lamp Wiring

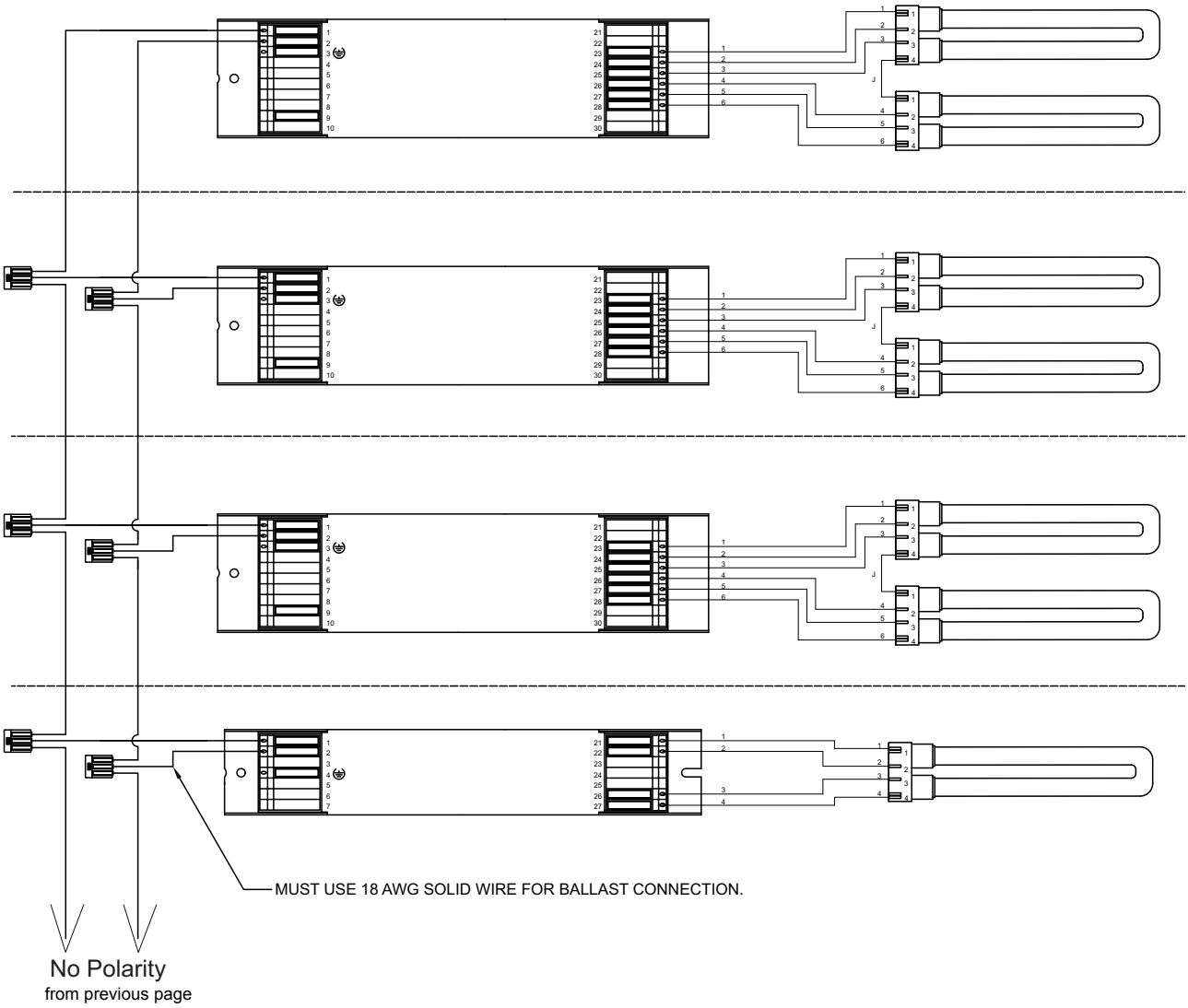
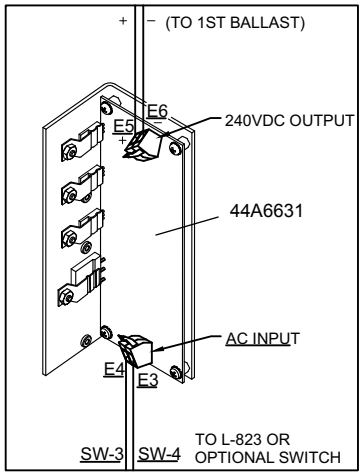
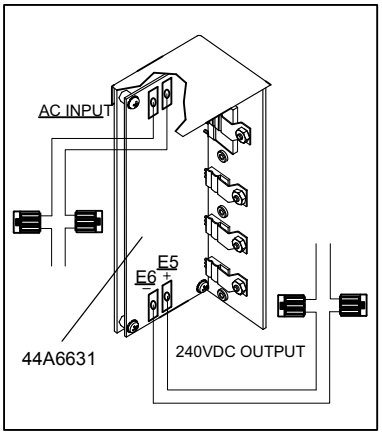


Figure 33: Past 44A6631 Fluorescent Power Supply Wiring



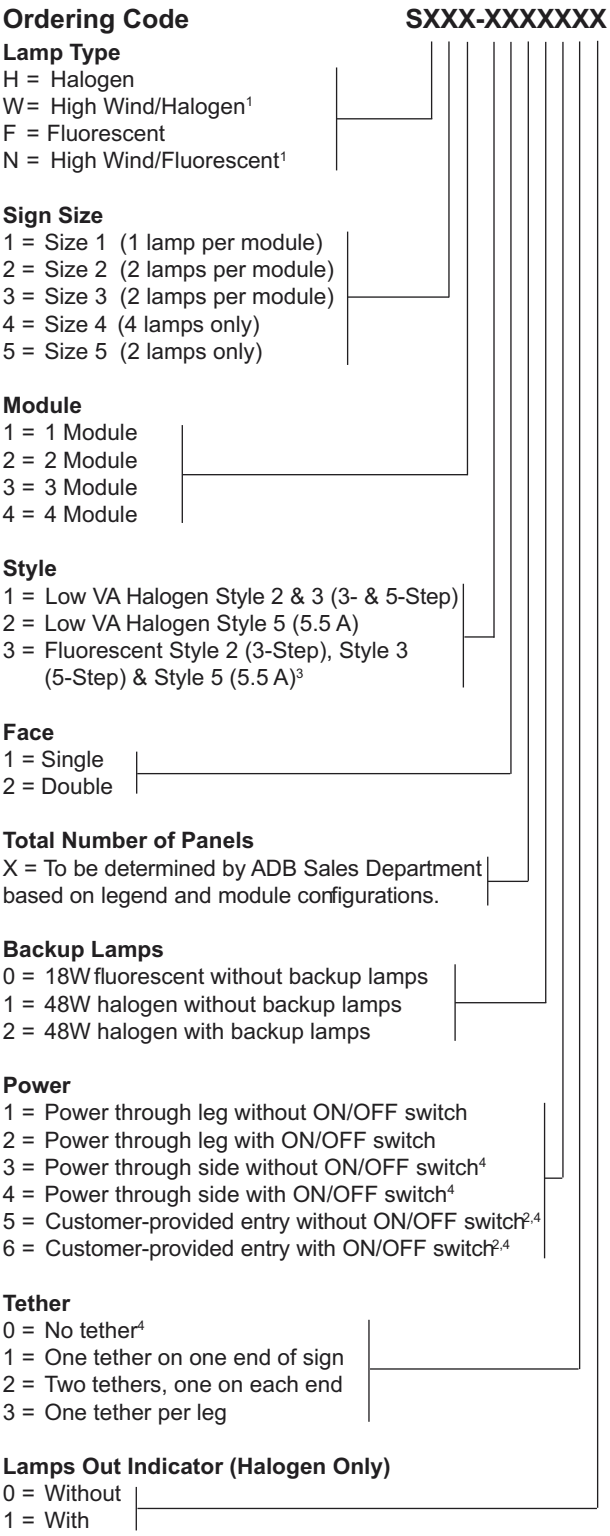
REV. F PCB WIRING



REV. G & H PCB WIRING

3.8 Parts

Figure 34: Fluorescent and Halogen Sign Ordering Code



Ordering Code Notes

- Customer to provide legend information and power connection side. It is important to match power cord exit location with legend side.

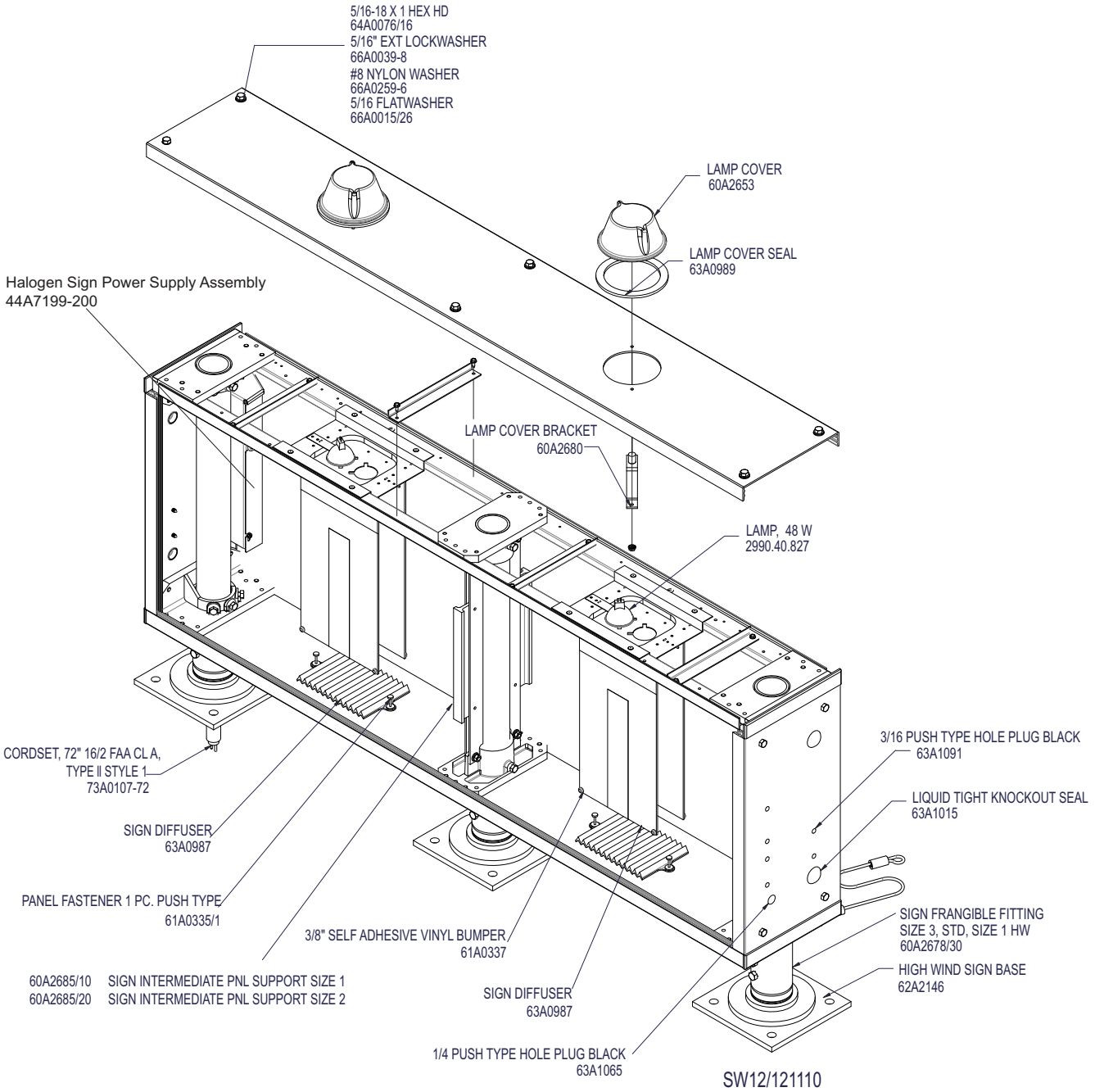
[1] Use high wind signs in those locations where actual wind speed exceeds FAA specifications (Mode 3). High wind signs tested to a minimum wind load of 327 mph as recommended by FAA technical paper DOT/FAA/AR-TN00/32: Evaluation of Wind-Loading on Airport Signs. High wind signs require four anchor bolts per f oor f ange except Size 1, which uses the standard 2-bolt foot.

[2] Cord set coiled up inside side. Customer provides entry hole.

[3] Backup lamps and lamps out features are not available.

[4] Not ETL Certified

Figure 35: Halogen Sign Parts



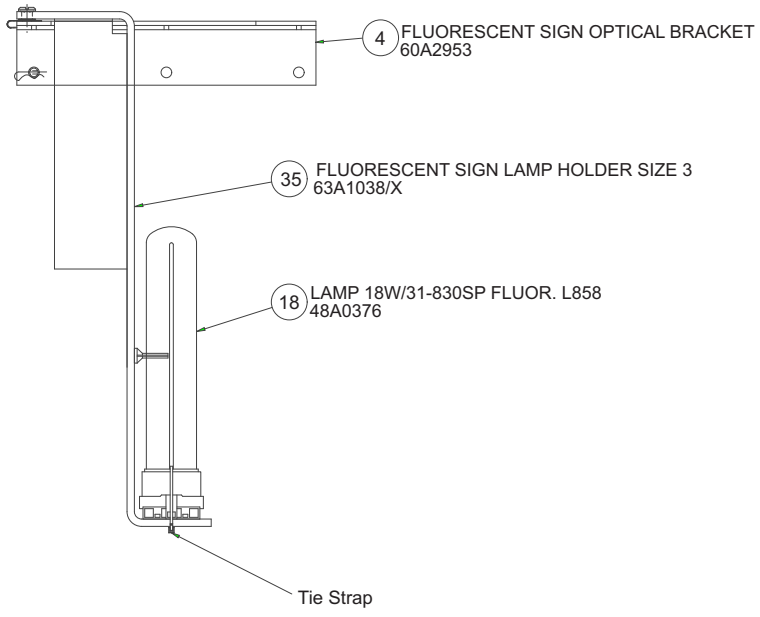
NOTE: If you have a Halogen Sign with the 44A6225/X top-mounted power supply, please see the manual 96A0286 Rev AG on our Web site. If you wish to migrate the old power supply to the new (44A7199/200) one used in this manual, please call your ADB representative.

3.8.1 Fluorescent Sign Parts

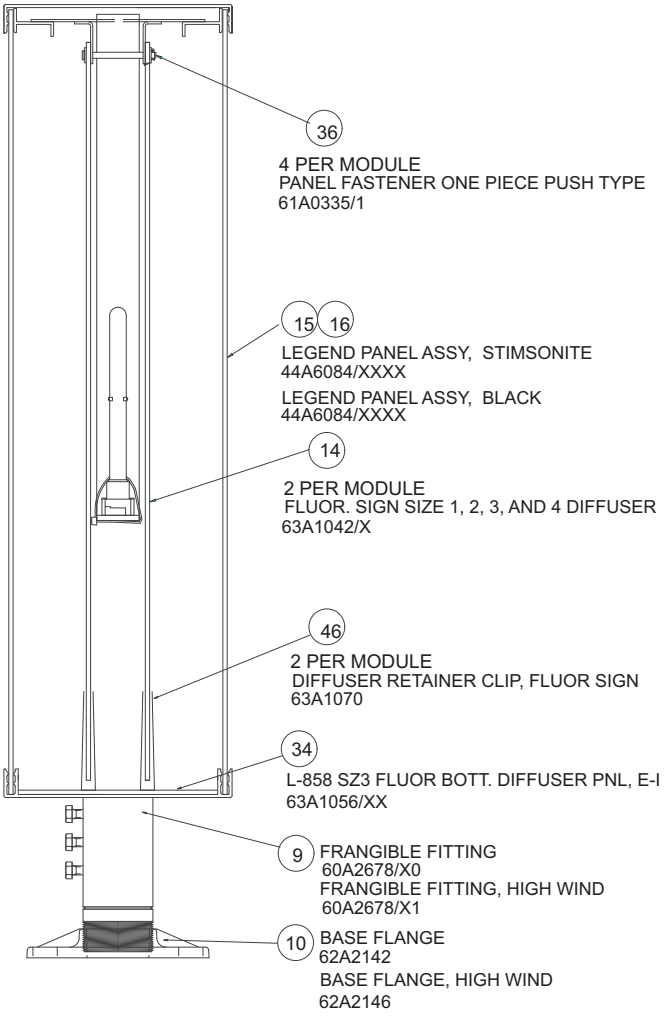
Table 31: Refer to Drawing SFXX-XXXXXXX

Item #	Part Number	Description
4	60A2953	Fluorescent Sign Optical Bracket
7	35A0687/1	Ballast QTP-DL 1X18/220-240, CONF Coated
7	35A0687/2	Ballast QTP-DL 2X18/220-240, CONF Coated
9	60A2678/X1	Frangible Fitting, Size 1, 2, & 3
9	60A2678/X0	Frangible Fitting, High Wind
10	62A2142	Base Flange
10	62A2146	Base Flange, High Wind
12	60A2685/X0	Panel Support, Size 1, 2, & 3
13	60A2698/X0	Panel Divider, Size 1, 2, 3, And 4
14	63A1042/X	Fluorescent Sign Size 1, 2, 3, And 4 Diffuser
18	48A0376	Lamp 18W/31-830SP Fluor. L858
28	44A6631	Fluorescent Sign Pwr Supply “2” Assembly
34	63A1056/XX	L-858 SZ3 Fluorescent Bott. Diffuser PNL, E-I
35	63A1038/X	Fluorescent Sign Lamp Holder Size 3
37	63A1056/33	L-858 SZ3 Fluorescent Bott. Diffuser PNL.
43	73A0107/72	Cordset 72 IN LG 16/2 SOW 600V
46	63A1070	Diffuser Retainer Clip, Fluorescent Sign
57	45A0456	Switch,PB,NC,10A,600VAC, Momentary Flush
61	44A7175/00	EMI Filter Assembly

Figure 36: Lamp Assembly



Sign Side View Assembly



ADB
Airfield Solutions

Company Offices

ADB BVBA
Leuvensesteenweg 585
B-1930 Zaventem
Belgium
Tel: 32/2/722.17.11
Fax: 32/2/722.17.64
Email: info@adb-air.com

ADB Airfield Technologies Ltd. China
Room 901, 9F, Fang Heng Intl. Plaza
Building C, No. 6 Futong East Road,
Chaoyang District
Beijing 100102
P.R. China
Tel: +86 (10) 8476 0106
Fax: +86 (10) 8476 0090

ADB Airfield Solutions LLC
977 Gahanna Parkway
Columbus, OH 43230
USA
Tel: +1 (614) 861 1304
Fax: +1 (614) 864 2069
Web: www.adb-air.com
Email: adb-sales.us@adb-air.com

LUCEBIT GmbH
Airport Technology
Konrad-Zuse-Ring 6
D - 68163 Mannheim
Deutschland
Tel:+49 621 87 55 76-0
Fax: +49 621 87 55 76-55
Email: mail@lucebit.com

ADB Airfield Solutions, Ltd.
2nd Floor, 3 Rivonia Village
Cnr Mutual Road and Rivonia
Boulevard South
Rivonia 2128
South Africa
Tel: +27 (0) 11 525 9340
Fax: +27 (0) 11 525 9348
Email: info-sa@adb-air.com

Erni AGL AG
Zürichstrasse 72
8306 Brüttisellen
Schweiz
Tel: +41 44 835 33 43
Fax: +41 44 835 33 42
Email: info@erni-agl.com

ADB Airfield Solutions
2820 Argentia Rd., Unit #2
Mississauga, Ontario L5N 8G4
Canada
Tel: +1 (905) 331 6887
Fax: +1 (905) 331 9389
Email: canada@adb-air.com

ADB BVBA
Niederlassung Deutschland
Von-der-Tann-Str. 31
90439 Nürnberg
Deutschland
Tel: +49 (0)911 2105 61 60
Fax: +49 (0)911 2105 61 61
Email: info.ADB-GER@adb-air.com

ADB Succursale France
Paris Nord 2
22 Avenue des Nations
BP 55428 Villepinte
F-95944 Roissy Charles de Gaulle
France
Tel : +33 1 49 89 66 30
Fax : +33 1 49 89 17 81

ADB Asia Pacific Regional HQ
Unit A-10-01, Level 10
Empire Tower
Jalan SS16/1
47500 Subang Jaya
Selangor, Malaysia
Tel: +603 5880 5568
Fax: +603 5622 1437

ADB
Dubai Silicon Oasis
Wing D - Office D-309
P.O. Box 341218
United Arab Emirates
Tel: +971 4372 4970
Fax: +971 4372 4975

ADB UK
Suite 4
110 High Street
Maidenhead
Berkshire
SL6 1PT
United Kingdom
Fax: +01628784865
Customer Services: +01628672906
Sales & General: +01628785339

ADB Italia
Via Quasimodo 46
Primo Maggio
40013 Castelmaggiore (BO)
Italia

ADB Equipamentos Para Aeroportos Ltda
Avenida Moaci n° 395
Conjunto 91
Moema CEP 04083-000
Sao Paulo-SP
Brasil
Tel: +55 (11) 5096-2169
Tel: +55 (11) 5049-2304
Email: brasil@adb-air.com

ADB Doha
C/O Watad Group
PO Box 192
Doha, Qatar
Tel: +974 44 35 38 03
Fax:+974 44 35 44 89

ADB bvba Taiwan Branch
6th floor, No. 283, Section 2 FU Hsing
South Road
Taipei 106
Taiwan R.O.C

Lucebit Hellas ΕΠΕ
25th Martiou Street 11
GR-15233 Halandri Athens
Tel: +30 210 6856 558
Fax: +30 210 6856 556
Email: mail@lucebit-hellas.com

ADB
Airfield Solutions

Manufacturing Offices

ADB BVBA
Leuvensesteenweg 585
B-1930 Zaventem
Belgium
Tel: 32/2/722.17.11
Fax: 32/2/722.17.64
Email: info@adb-air.com

ADB Airfield Technologies Ltd. China
Room 901, 9F, Fang Heng Intl. Plaza
Building C, No. 6 Futong East Road,
Chaoyang District
Beijing 100102
P.R. China
Tel: +86 (10) 8476 0106
Fax: +86 (10) 8476 0090

ADB Airfield Solutions LLC
977 Gahanna Parkway
Columbus, OH 43230
USA
Tel: +1 (614) 861 1304
Fax: +1 (614) 864 2069
Web: www.adb-air.com
Email: adb-sales.us@adb-air.com