L-858(L) / AGSF-L - LED Airfield Guidance Sign
FAA

User Manual

96A0455, Rev. H, 2020/09/18

ADB SAFEGATE

A.0 Disclaimer / Standard Warranty

CE certification

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

ETL certification

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

All Products Guarantee

ADB SAFEGATE 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 SAFEGATE 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 SAFEGATE 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 SAFEGATE furthers reserves the right to require the return of such goods to establish any claim.

ADB SAFEGATE'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 SAFEGATE'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 SAFEGATE, warranty is limited to that extended by the original manufacturer. This is ADB SAFEGATE'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.

Standard Products Guarantee

Products of ADB SAFEGATE manufacture are guaranteed against mechanical, electrical, and physical defects (excluding lamps) which may occur during proper and normal use for a period of two years from the date of ex-works delivery, and are guaranteed to be merchantable and fit for the ordinary purposes for which such products are made.

Note
See your sales order contract for a complete warranty description.

FAA Certified product installed in the United States and purchased or funded with monies through the Airport Improvement Program (AIP) installations guarantee

ADB SAFEGATE 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).

ADB SAFEGATE 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 from date of installation, per FAA EB67 (applicable edition).

ADB SAFEGATE LED light fixtures (with the exception of obstruction lighting) are warranted against electrical defects in design or manufacture of the LED or LED specific circuitry for a period of 4 years from date of installation, per FAA EB67 (applicable edition). .

Note

See your sales order contract for a complete warranty description.

Liability

WARNING

Use of the equipment in ways other than described in the catalog 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 SAFEGATE 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 SAFEGATE 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 SAFEGATE equipment.
- Allowing unskilled personnel to perform any task on or with the equipment.

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1.0 Safety

Introduction to Safety

This section contains general safety instructions for installing and using ADB SAFEGATE 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 Safety Messages

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.

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 practice.

1.1.1 Introduction to Safety

CAUTION

Unsafe Equipment Use
This equipment may contain electrostatic devices, hazardous voltages and sharp edges on components

- 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 this instruction can result in serious injury or equipment damage

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.
- Maintenance personnel must refer to the maintenance procedure described in the ICAO Airport Services Manual, Part 9.
- ANSI/NFPA 79, Electrical Standards for Metalworking Machine Tools.
- National and local electrical codes and standards.

1.1.2 Intended Use

CAUTION

Use this equipment as intended by the manufacturer
This equipment is designed to perform a specific function, do not use this equipment for other purposes

- 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.

Failure to follow this instruction can result in serious injury or equipment damage

1.1.3 Material Handling Precautions: Storage

CAUTION

Improper Storage
Store this equipment properly

- 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

1.1.4 Material Handling: Heavy Equipment

DANGER

Unstable load
Use caution when moving heavy equipment

- 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 this instruction can result in death, serious injury, or equipment damage

1.1.5 Operation Safety

CAUTION

Improper Operation
Do Not Operate this equipment other than as specified by the manufacturer

- 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 these instructions can result in equipment damage

1.1.6 Maintenance Safety

DANGER

Electric Shock Hazard
This equipment may contain electrostatic devices

- 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 instructions can result in death or equipment damage

1.1.7 Material Handling Precautions, ESD

CAUTION

Electrostatic Sensitive Devices
This equipment may contain electrostatic 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 shall 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

1.1.8 Arc Flash and Electric Shock Hazard

DANGER

Series Circuits have Hazardous Voltages
This equipment produces high voltages to maintain the specified current - Do NOT Disconnect while energized.

- Allow only qualified personnel to perform maintenance, troubleshooting, and repair tasks.
- Only persons who are properly trained and familiar with ADB SAFEGATE 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 SAFEGATE 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 instructions can result in death or equipment damage

2.0 Introduction

The L-858(L) / AGSF-L LED signs, designed for the FAA market, virtually eliminate runway shutdowns due to the longevity of the LED light source. They are direct replacements for existing signs, and they create a highly uniform distribution of light, eliminating hots spots and shadows. They can be powered from either a ferroresonant or thyristor type CCR and operate on 3-step, 5-step and 5.5A series circuits.

2.1 FAA LED Light Bar Airfield Guidance Sign

Compliance with Standards

FAA:	L-858Y(L), L-858R(L), L-858L(L) and L-858B(L) AC 150/5345-44 (Current Edition) and the FAA Engineering Brief No. 67. ETL Certified.

Uses

FAA L-858Y(L)	Direction, Destination, and Boundary (Informational Sign)
FAA L-858R(L)	Mandatory Sign
FAA L-858L(L)	Runway/Taxiway Location Sign: These signs are designed to guide pilots to a particular point on the field, identify holding positions, identify taxiway and runway intersections, and prohibit aircraft entry into designated areas.
FAA L-858B(L)	Runway Distance Remaining Sign: The L-858B is used at 1,000-foot intervals adjacent to the runway edge in order to provide runway distance remaining information to pilots during takeoff and landing operations.

Construction

Corrosion-resistant sign construction requires minimal maintenance.

- Aluminum housing
- Acrylic sign legend panels
- Stainless steel hardware
- Retroreflective sheeting
- Translucent plastic panel dividers used between multi-module legend panels

Operating Conditions

Temperature	-40 °F to +131 °F (-40 °C to +55 °C)
Humidity	0 to 100%
Wind	• ADB Safegate Mode 2 signs withstand wind velocities up to 200 mph • ADB Safegate Mode 3 signs withstand wind velocities up to 300 mph

Sign Legends

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

Electrical Supply

Signs are internally lighted and are connected to a series circuit using the appropriately-sized 50 or 60 Hz L-830/L-831 isolation transformer.

Packaging Data

Signs are shipped with L-823 cord set(s), frangible couplings, and floor flanges –ready for installation.

Description	Gross Weight[1]		Carton Dimensions	
	(lb)	(kg)	(in)	(cm)
Size 1, Module 1	46	21	34 × 34 × 13	87 × 86.4 × 33
Size 1, Module 2	78	35	34 × 63 × 13	87 × 160 × 33
Size 1, Module 3	115	52	34 × 92 × 13	87 × 234 × 33
Size 1, Module 4	169	77	34 × 121 × 13	87 × 307 × 33
Size 2, Module 1	71	32	40 × 40 × 13	102 × 102 × 33
Size 2, Module 2	104	47	40 × 76 × 13	102 × 193 × 33
Size 2, Module 3	153	70	40 × 112 × 13	102 × 285 × 33
Size 2, Module 4	220 [2]	100 [2]	40 × 147 × 13	102 × 374 × 33
Size 3, Module 1	81	37	46 × 46 × 13	117 × 117 × 33
Size 3, Module 2	131	60	46 × 89 × 13	117 × 226 × 33
Size 3, Module 3	199	90	46 × 131 × 13	117 × 333 × 33
Size 3, Module 4	252	114	46 × 173 × 13	117 × 440 × 33
Size 4, Module 1	122	56	62 × 52 × 13	158 × 132 × 33
Size 5, Module 1	81	37	46 × 46 × 13	117 × 117 × 33

Notes

1 Estimated weight

2 Weights listed are for halogen signs. Contact ADB Safegate for high wind speed sign weights.

Sign Load & Transformer Requirements

In the table to the right, the number for the total VA load imposed on the CCR represents the actual load imposed on the regulator and accounts for power factor and load imposed by the transformer.

Sign Size	No. of Modules	Transformer	Power Factor	Volt Amp VA Load
Style 2, 3-Step LED Signs (4.8 - 6.6 A)				
1	1	65 W	0.83	85
1	2	100 W	0.83	95
1	3	100 W	0.88	95
1	4	100 W	0.91	95
2	1	65 W	0.88	90
2	2	100 W	0.88	95
2	3	100 W	0.91	100
2	4	100 W	0.91	100
3	1	100 W	0.83	95
3	2	100 W	0.91	95
3	3	100 W	0.91	100
3	4	150 W	0.88	115
4	1	100 W	0.84	95
5	1	100 W	0.83	95
Style 3, 5-Step LED Signs (2.8 - 6.6 A)				
1	1	100 W	0.88	75
1	2	150 W	0.88	95
1	3	150 W	0.88	95
1	4	150 W	0.90	100
2	1	150 W	0.88	90
2	2	150 W	0.90	95
2	3	150 W	0.83	100
2	4	150 W	0.85	100
3	1	150 W	0.88	95
3	2	150 W	0.90	100
3	3	150 W	0.83	100
3	4	200 W	0.85	115
4	1	150 W	0.88	95
5	1	150 W	0.83	95
Style 5, Single-Step LED Signs (5.5 A)				
1	1	65 W	0.84	75
1	2	65 W	0.84	85
1	3	100 W	0.88	85
1	4	100 W	0.88	95
2	1	65 W	0.92	75
2	2	100 W	0.89	85
2	3	100 W	0.90	100
2	4	100 W	0.90	100
3	1	65 W	0.84	85
3	2	100 W	0.88	95
3	3	100 W	0.92	100
3	4	100 W	0.92	110
4	1	65 W	0.83	85
5	1	65 W	0.92	85

L-858 Sign LED Retrofit Kits for ADB Safegate Signs

Application

A retrofit kit is available to convert any existing ADB Safegate tungsten-halogen or fluorescent sign to an LED light source. The same retrofit kit can be used to convert signs using LED light tubes (Part No. 48A0408 and 48A0409) to the new LED light bar design. The kit is available for all FAA Types: L-858Y, L-858R, L-858L and L-858B; all Sizes: Size 1 through 5; and all module lengths: up to 4 modules. Retrofitting a sign is fast and easy. It typically takes 20 minutes to retrofit a 2-module sign. The retrofit process converts the sign to the same type as an existing ADB Safegate ETL-Certified sign.

Reduced Maintenance costs

An LED sign virtually eliminates runway and taxiway shutdowns due to the long life LED light source. It eliminates re-lamping expenses and reduces on-going maintenance costs. The LED optical design also creates a highly uniform distribution of light, eliminating hot spots and shadows. Also, the sign provides for improved safety because there is only a low, regulated DC voltage inside sign.

Energy savings

An LED sign provides greatly reduced energy consumption compared to existing types of signs. See chart below for more information.

The LED sign operates on ferroresonant or thyristor CCRs that are designed in compliance with FAA requirements. The sign electronics are designed to operate on 3-step, 5-step and 5.5 A dedicated series circuits.

See chart on previous page for sign loading and optimum sign transformer size. Note that the existing larger size transformer, if present, can be reused. Ask for Service Bulletin ALN158 for details on how to retrofit the sign.

Dimensions

Sign Heights

Type	Sign Size No.	Sign Face Height in (cm)	Legend Height in (cm)	Sign Style No.	Sign Class No.	Overall Mounting Height in (cm)
L-858Y/R/L	1	18 (45.7)	12 (30.5)	2,3,5	1,2	29.7 (75.5)
L-858Y/R/L	2	24 (61)	15 (38.1)	2,3,5	1,2	35.7 (90.8)
L-858Y/R/L	3	30 (76.2)	18 (45.7)	2,3,5	1,2	41.7 (106)
L-858B	4	48 (122)	40 (101.6)	2,3,5	1,2	58.2 (147.8)
L-858B	5	30 (76.2)	25 (63.5)	2,3,5	1,2	41.7 (106)

Sign Lengths - Inches (Centimeters)

Size No.	1 Module	2 Module	3 Module	4 Module
1	29.4 (75)	58.6 (149)	87.9 (223)	117.2 (298)
2	35.9 (91)	71.6 (182)	107.4 (273)	143.2 (364)
3	42.4 (108)	84.6 (215)	126.9 (323)	169.2 (430)
4	47.9 (122)	N/A	N/A	N/A
5	42.4 (108)	N/A	N/A	N/A

Note

- Sign depth is 9.39 in (23.85 cm).
- See our website for additional dimension and installation information.

3.0 Installation

WARNING

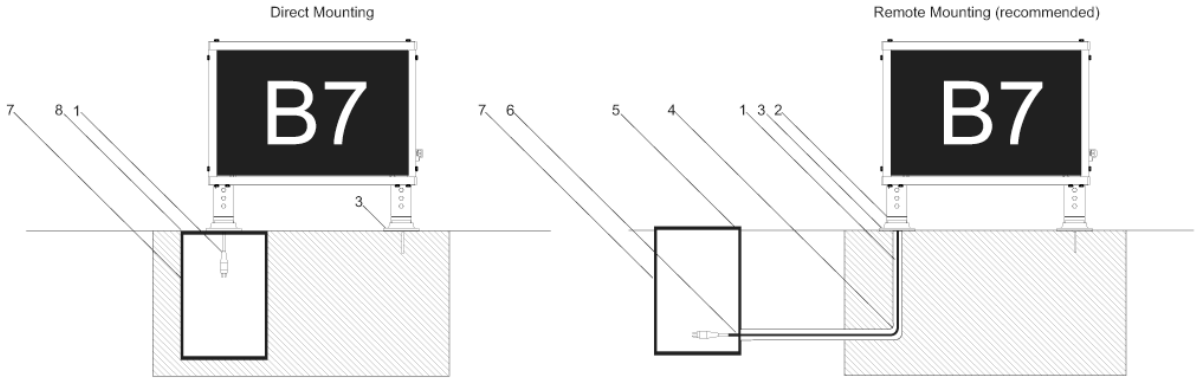
Read installation instructions in their entirety before starting installation.

- Refer to the FAA Advisory Circular AC 150/5340-26, Maintenance of Airport Visual Aids Facilities, for instructions on safety precautions.
- Observe all safety regulations. To avoid injuries, always disconnect power before making any wiring connections or touching any parts. Refer to FAA Advisory Circular AC 150/5340-26.
- 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 per the instruction manual will void the warranty

Each sign is furnished complete with mounting flanges for installation on a concrete pad, which is the recommended method of installation. Contact the ADB Sales Department for more information on sign installation hardware.

1. L-823 Cord Set (supplied with the sign)
2. Cable Clamp (supplied with the sign)
3. Floor Flange (supplied with the sign)
4. 2-inch Conduit Elbow (contractor supplied)
5. L-867 Blank Cover Plate with Gasket (purchased separately)
6. L-823 Extension Cord (purchased separately)
7. L-867 Base (purchased separately)
8. L-867 Base Plate (special - purchased separately)

Figure 1: Direct/Remote Mounting



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 150/5340-30.

3.1 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.

3.2 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.

This subsection provides special cord set locations with parts and part numbers. See Figure 2 for the ordering code for the L-858 sign. Special cords set installation reference numbers are located in the ordering code.

3.2.1 Cord Set Exit Location #1

Figure 2 shows cord set location #1. Refer to Table 1 for cord set location #1 parts and part numbers.

Figure 2: Cord set Location #1 (Non-typical)

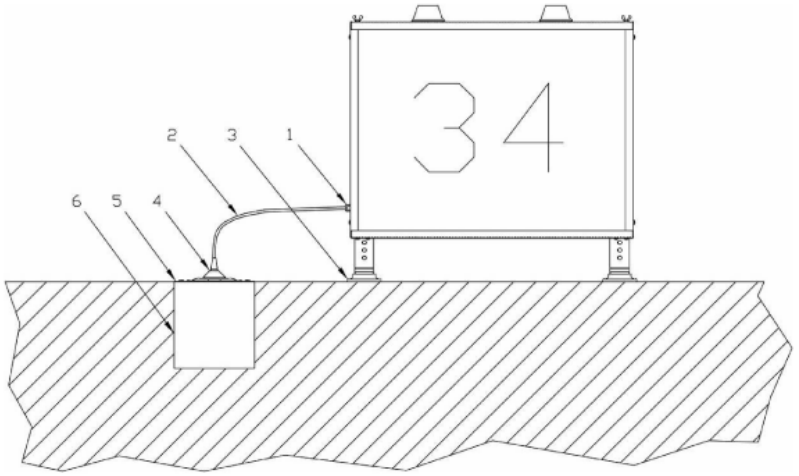


Table 1: Cord set Location #1 Parts

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

Note

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

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.

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

3.2.2 Cord set Exit Location #2

Figure 3 shows cord set location #2. Refer to Table 2 for cord set location #2 parts and part numbers.

Figure 3: Cord set Location #2 (Non-typical)

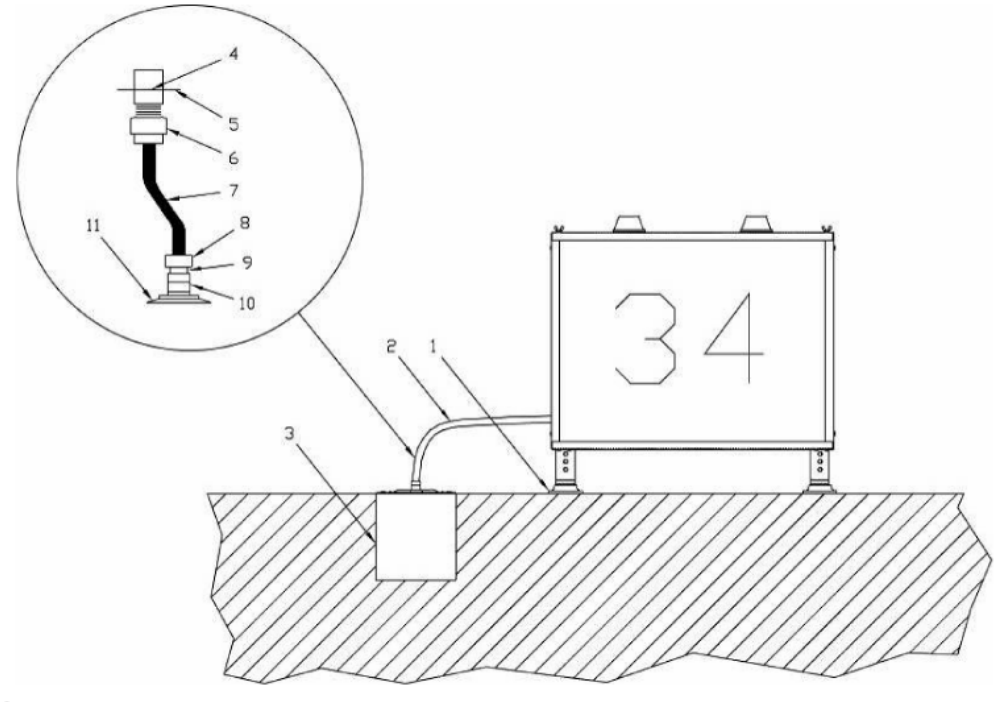


Table 2: Cord set Location #2 Parts

Item	Description	Supplier	Part Number	Note
1	Base flange	ADB Safegate	62A2142 or 62A2146	D
2	L-823 cord set 16/2 SOW 600 V	ADB Safegate	Supplied with sign	B
3	12 x 24 in. (304.8 x 609.6 mm) L-867B base	ADB Safegate	2124	C
7	Flexible conduit	Contractor	Not applicable	A
10	Frangible coupling	ADB Safegate	62B0499	C
11	2 in. (50.8 mm) L-867 base plate	ADB Safegate	1932	C

Note

A: Refer to Table 3 for flexible conduit connectors.

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.

C: Requires a separate line item on purchase order.

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

Table 3: Flexible Conduit Connectors

Item	Description	Supplier
4	3/4-inch (44.45 mm) diameter hole	ADB Safegate
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

3.2.3 Cord set Exit Location #3

Figure 4 shows cord set location #3. Refer to Table 4 for cord set location #3 parts and part numbers.

Figure 4: Cord set Location #3 (Standard)

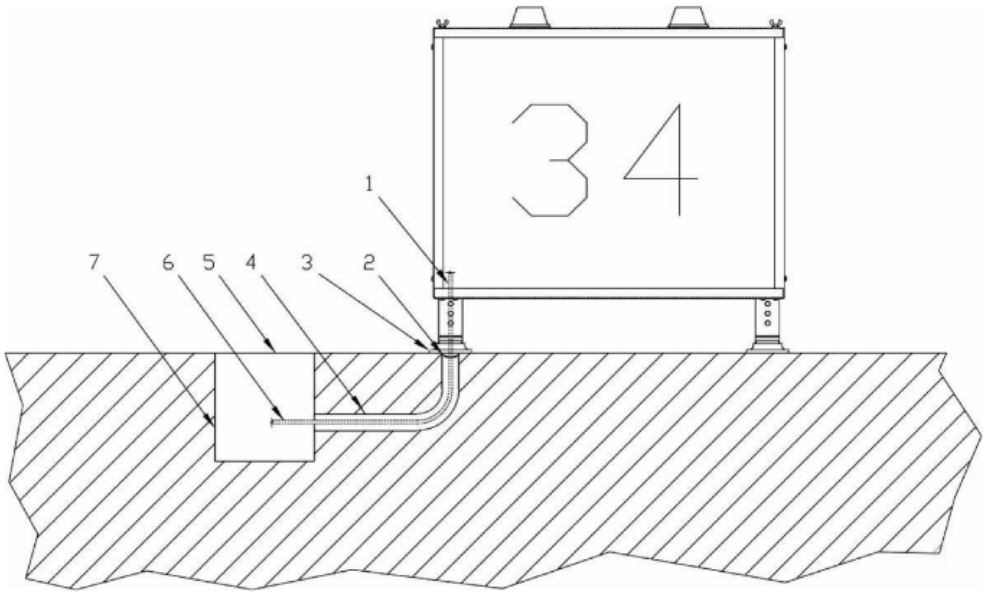


Table 4: Cord set Location #3 Parts

Item	Description	Supplier	Part Number	Note
1	Cord set 16/2 SOW 600 V	ADB Safegate	Not applicable	
2	Cable clamp	ADB Safegate	60A2851	B
3	Base flange	ADB Safegate	62A2142 or 62A2146	A
4	2-in. (50.8 mm) rigid conduit	Contractor Supplied	Not applicable	
5	3/8 inch (9.53 mm) thick base plate	ADB Safegate	1000-6	B

Table 4: Cord set Location #3 Parts (continued)

Item	Description	Supplier	Part Number	Note
6	8-foot (2.44 m) extension cord	ADB Safegate	73A0109-8	B, C
7	12 x 24 in. (304.8 x 609.6 mm) L-867B base	ADB Safegate	2124	B, C
NS	Gasket	ADB Safegate	2052	B, D

Note

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

B: Requires a separate line item on purchase order.

C: Refer to *Cord sets and Extension Cords* in this section for extension cords available if different extension cord length is required. D: Gasket is sold separately.

3.2.4 Cord set Exit Location #4

Figure 5 shows cord set location #4. Refer to Table 5 for cord set location #4 parts and part numbers.

Figure 5: Cord set Location #4 (Standard)

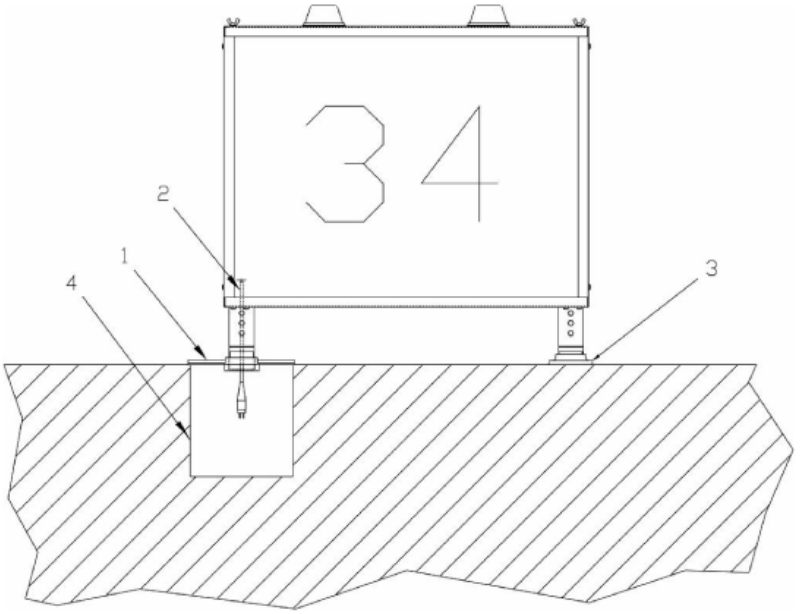


Table 5: Cord set Location #4 Parts

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

Note

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

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

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

3.2.5 Cord set and Extension Cords

See Figure 6. Refer to Table 6 for cord set and extension cord types. Refer to Table 7 for cord set and cord parts.

Figure 6: L-823 Cord set and Extension Cords

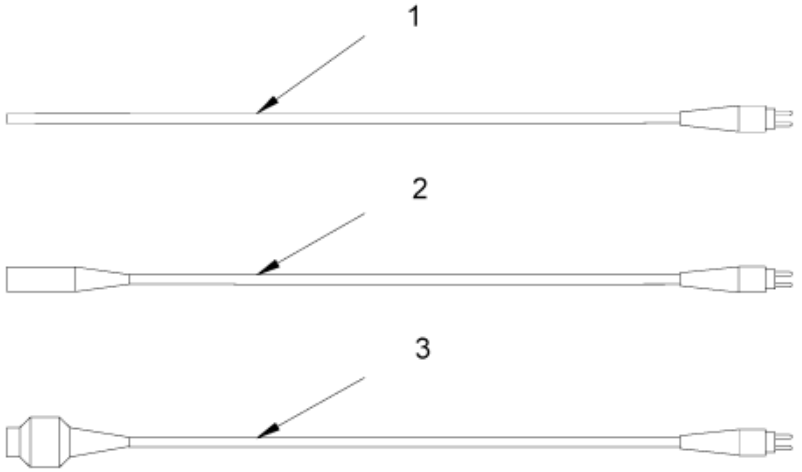


Table 6: Cord set and Extension Cord Length

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 7: 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.

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).

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.

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

3.3 General Guidelines

WARNING

- Signs must be grounded to a true earth ground. Failure to observe this warning may result in personal injury, death, or equipment damage.
- When installing signs, follow the guidelines covered in FAA AC 150/5340-30 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.

3.3.1 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 2 thru 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.

3.3.2 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 (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 Safegate' 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 refer to FAA AC 150/5340-18 for the correct orientation.

3.3.3 Sign Distance from Pavement Edge

Refer to Table 8 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 8: 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

3.3.4 Sign Installation on a Concrete Pad

Note

Follow site plans and specifications for concrete dimensions.

Concrete Pouring

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

To pour a concrete pad, perform the following procedure:

1. Determine the sign size and number of modules.
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. The mounting floor flange is nominally 5.0 wide x 7.50 (127mm x 190.5mm) 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.

     Note

     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 for pad design.

- For the Mode 2 and 3 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 long. Overall width of flange is 5.0 inches and overall length is 7.5 inches (127mm x 190.5mm). 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 anchor-bolt 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 Safegate can advise the customer of various manufacturers of anchor bolts, but ADB cannot approve their specific installation.

Figure 7: Mode 2 and 3 Frangible Coupling for Size 1 Signs, Mode 2 Frangible Coupling for Size 2, 3, 4 and 5 Signs, Part number 62A2142

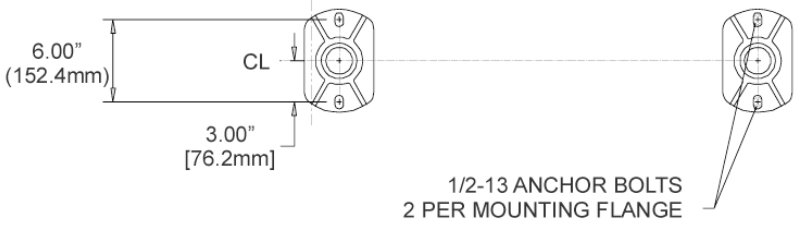
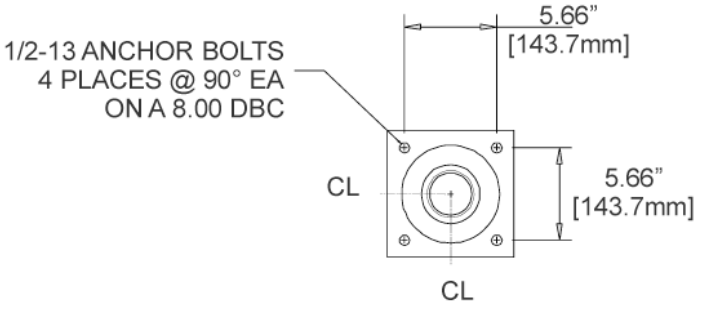


Figure 8: Mode 3 Frangible Coupling for Size 2, 3, 4 and 5, Hi Wind, Part Number 62A2146



3.3.5 Sign Mounting

Note

Signs 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.

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 9 . 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.

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 ADB Safegate Engineering.

Figure 9: Sign Frangible Coupling

CAUTION

- 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 Figure 14 for electrical connections for series circuit installation.

CAUTION

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

4. Install tether.
   Refer to *Tethers* in this section.
5. Plug the cord set into the sign and the transformer.
6. Reinstall panels (if removed) and top lid (if removed).

3.4 Wiring

Refer to Figure 14 for wiring diagram.

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 lighting system. The signs are connected into the series circuit by means of an isolation transformer, see “Electrical Supply” on page 3.

3.5 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.

Attach the earth ground lug if not present. 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 anchored to the frame.

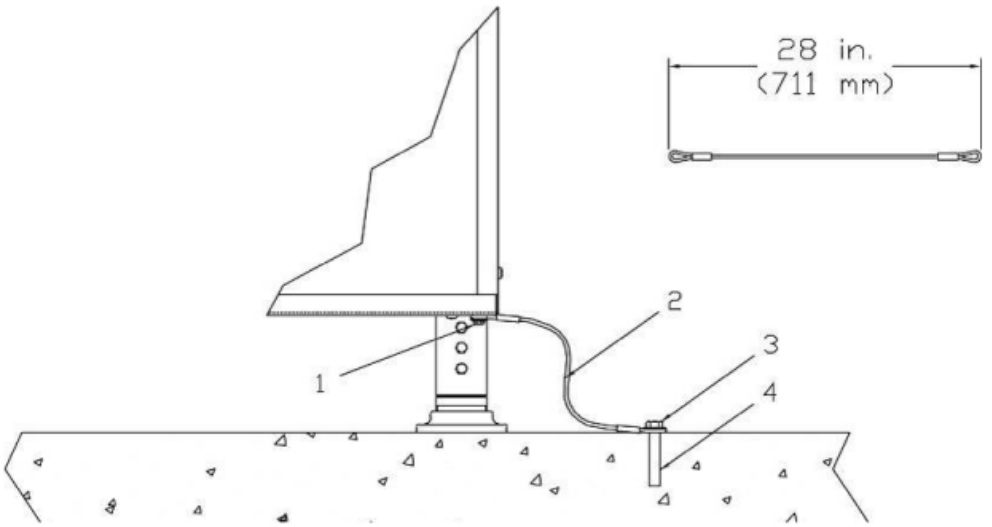
3.6 Tethers

See Figure 10. Tethers are shipped installed on the sign. 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 10: Installing Tether



1. Existing 5/16-18 x ¾ in.Bolt
2. Tether
3. Mounting Hardware Attached to Expansion Anchor
4. Expansion Anchor for Bolt
5. To attach a tether, install the customer-supplied mounting hardware (3) to attach the tether to the expansion anchor (4) on the concrete pad

4.0 Maintenance and Repair

This section provides preventive maintenance for L-858 signs.

To keep the L-858 taxiway and runway signs operating efficiently, follow a preventive maintenance schedule. Refer to Table 9.

Table 9: L-858 Taxiway and Runway Sign Maintenance

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

CAUTION

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 or, synthetic fiber clothing. They must be laid down on conductive surfaces.
- Electronic modules and components must be stored and transported in conductive packing.

Note

TORQUE ALL:
5/16-18 bolts to 115 ± 10 inch-pounds, (13 ± 1 N•m) (except: top cover lid bolts)
Torque 5/16-18 top cover lid bolts to 50 ±5 lb/in (5.7 ±0.6 N·m).
3/8-16 bolts to 200 ± 10 inch-pounds (22.6 ± 1 N•m)

4.1 Replacing the Power Supply

1. Remove the four #8-32 screws with lock washers installed in the PEM nuts of the power supply. Retain for future use. See Figure 11 .
2. Apply thermal compound to insure good heat transfer to the frame.
3. Locate the four threaded PEM nuts installed in the mounting bracket of the Power Supply and align the PEM nuts with the mating holes in the end panel of the sign.
4. Insert the four #8-32 screws with lock washers through the holes in the end panel and screw them into the PEM nuts. When tightening the screws, make sure the Power Supply is seated flat against the side of the sign.

CAUTION

- Be careful that the screws do not bind as you are tightening.

  This may give the impression that the power supply is firmly mounted when it is not!

4.2 Wiring the Power Supply

See the Wiring Diagrams, Figure 14 .

1. Locate the input power wires (from the L-830 secondary). Connect these wires to the Power Supply terminals labeled “AC INPUT”. This is the isolated 6.6A input. Polarity does not matter.
2. Locate the wires that connected the DC Supply to the LED panels. Connect these wires to the Power Supply terminals labeled “OUTPUT”.

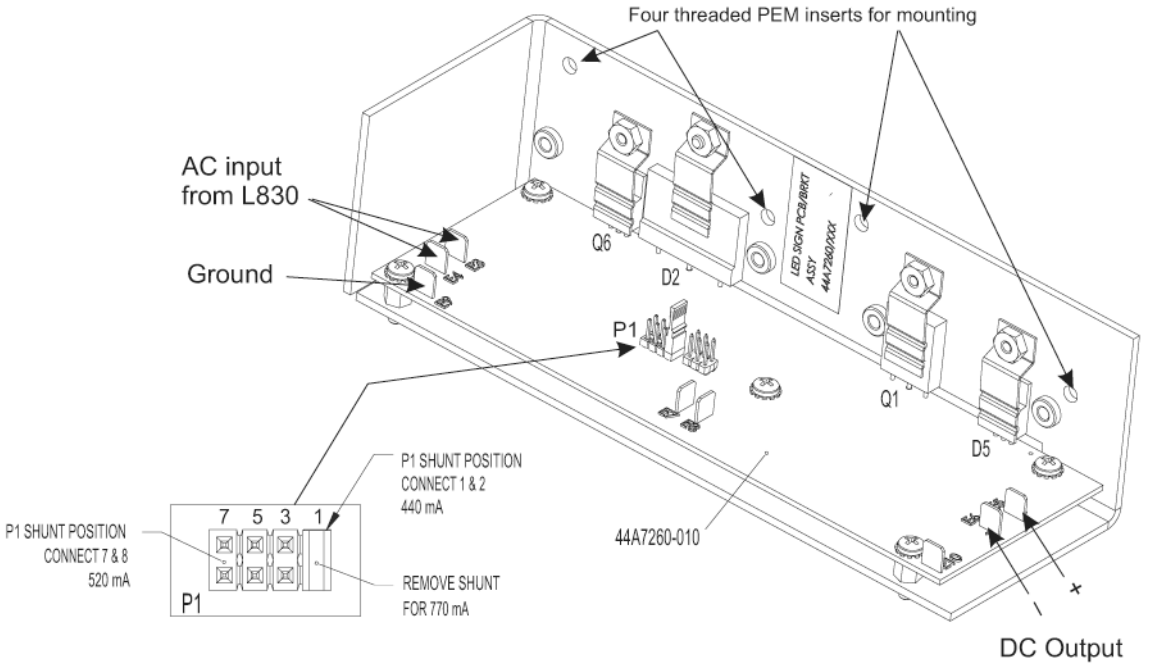
Note
This is a regulated 440mA DC current source, and **polarity does matter**.

3. Verify that the sign wiring matches the Wiring Diagram, Figure 14 .
4. Verify the P1 jumpers match the old power supply and the chart in the figure below.
   For all SRXX/XXXXXXX and SSXX/XXXXXXX (FAA L-858 LED) signs, leave shunt in standard position; 440mA configuration.

Note
Set the jumpers when replacing the power supply before you power up the sign.

5. You are now ready to apply power to the sign.

Figure 11: The LED Power Supply



4.3 Replacing an LED Light Bar

1. Turn off the power to the sign.
2. Remove the top cover.
3. Remove the sign face.
4. Disconnect the power connector from the LED light bar being replaced.
5. Drill out the the pop rivets from light bar being replaced.
6. Note the orientation of light bar to be replaced in reference to the connectors.
7. Install the new light bar and replace the pop rivets

CAUTION

This equipment contains electrostatic sensitive devices.

- Protect the LED light bar kit from electrostatic discharge.
- Failure to secure light bar may result in equipment damage.

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8. Check that all connections are tight and correct.
   See the LED light bar schematic diagram Figure 14 .
9. Replace the panels, top cover and restore the power to the sign.

Figure 12: Three Sizes of Light Bars

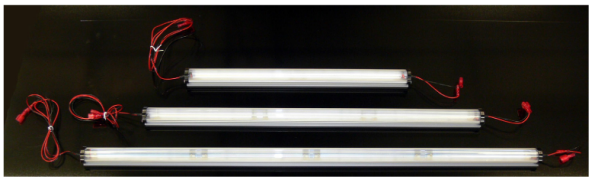
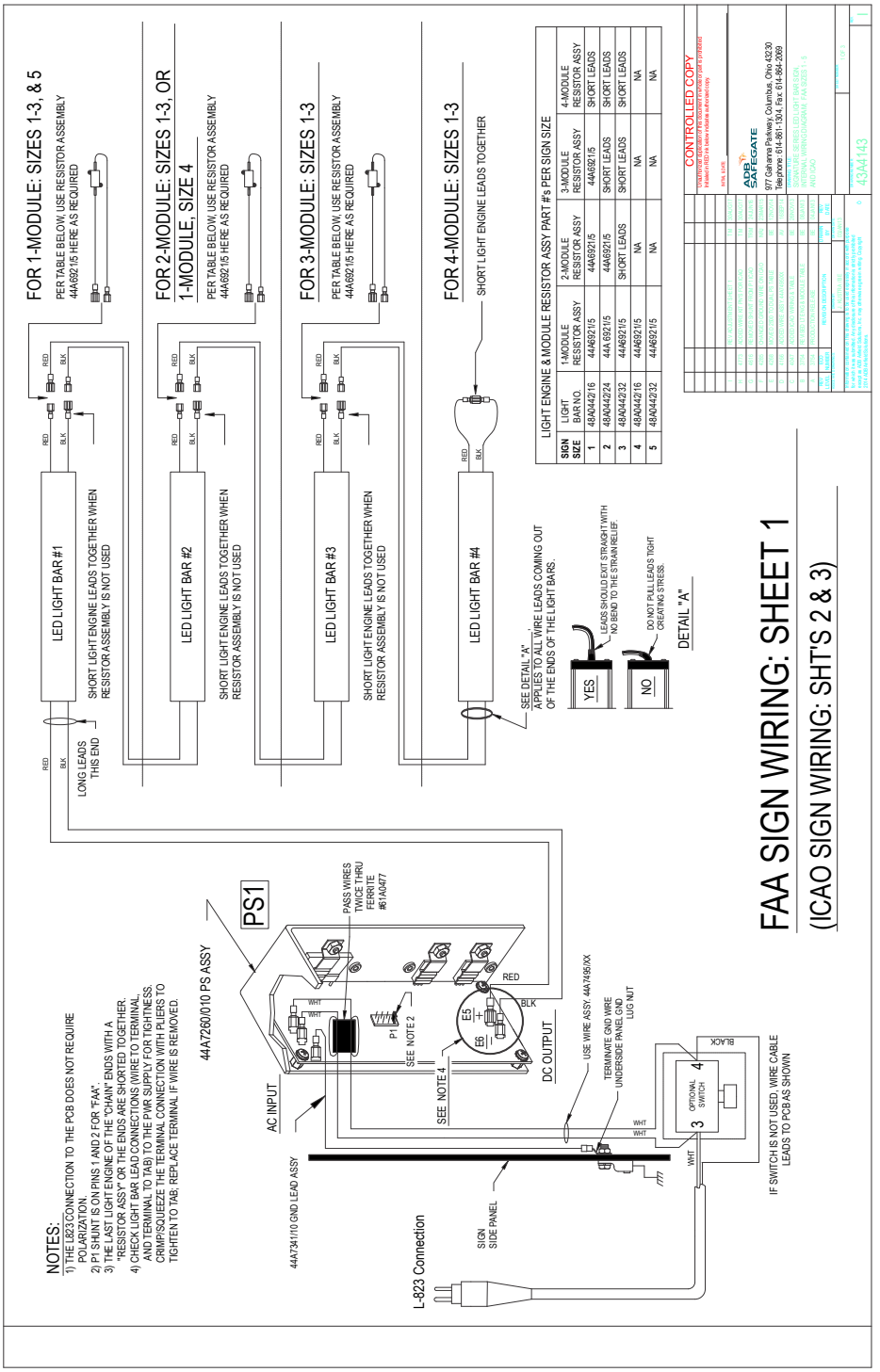


Figure 13: Led Light Bar Circuit Resistor Assembly

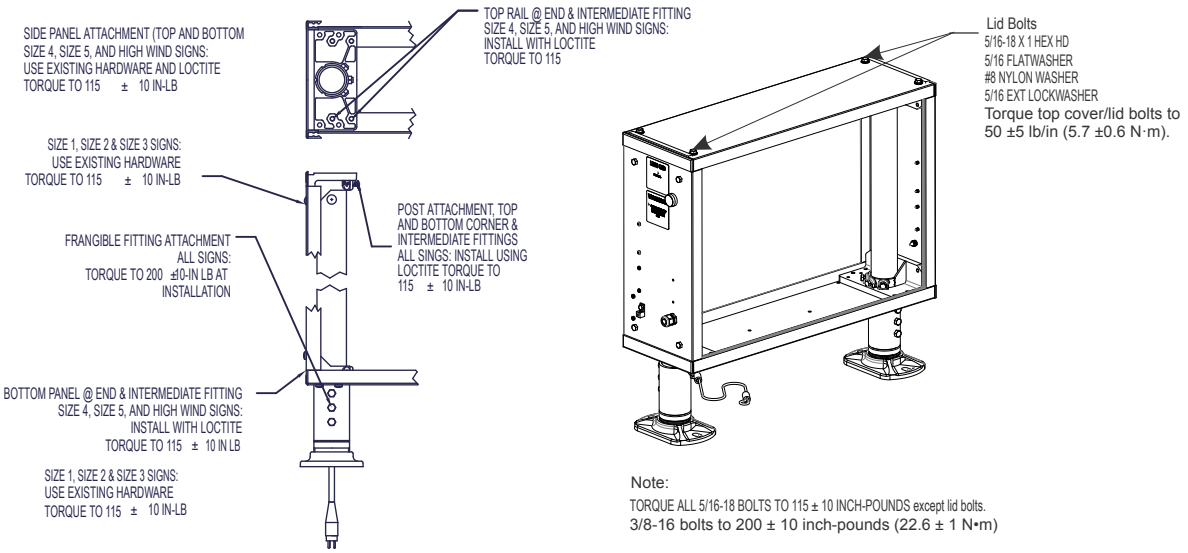
Figure 14: Wiring Diagram for the LED Light Bars



4.4 Sign Bolt Torque Diagram

The sign assembly bolt torque value are depicted in the following diagram.

Figure 15: Bolt Torque Diagram



Note

TORQUE ALL:

5/16-18 bolts to 115 ± 10 inch-pounds, (13 ± 1 N•m) (except: Torque top cover lid bolts)

Torque top cover 5/16-18 lid bolts to 50 ±5 lb/in (5.7 ±0.6 N·m).

3/8-16 bolts to 200 ± 10 inch-pounds (22.6 ± 1 N•m)

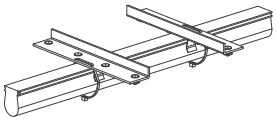
5.0 Troubleshooting

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 Safegate representative for help.

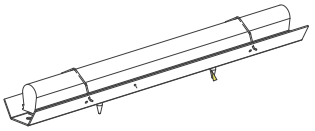
Table 10: Standard LED Signs

Problem – LED Signs	Possible Cause	Corrective Action
All LEDs are out or not functioning correctly	Loose wires or connections	Tighten or replace wires. All LED are connected in series to a power supply. If there are any loose or open wires, all the LEDs connected to that power supply will go out. An open on the output of the power supply will cause the PCB LED D4 to turn off.
	No current or incorrect current coming into the sign	Verify correct current is coming into the sign using a true RMS ammeter. This would be 2.8 A to 6.6 A for a 5-step CCR; 4.8 A to 6.6 A for a 3-step CCR; 5.5 A for a dedicated sign circuit one-step CCR. Check the L-830 transformer wattage rating, if it is too small, a higher wattage transformer is needed.
	Sign ON/OFF switch is closed (if present)	Check the Sign ON/OFF switch for proper operation. Replace if necessary.
	Power Supply fault	**Note** A normal operating power supply will flash the PCB LED D4 at a 2 second rate when power is first applied. If the power supply senses current flowing to the LEDs the PCB LED D4 will continue to flash at a 2 second rate. If the power supply senses an open circuit on its output after about 5 seconds, it will turn off the PCB LED D4. See Figure 14. With field current on, measure the voltage at E7 with respect to E8, see Figure 14. E7 will be 10 VDC to 13 VDC on a properly operating power supply when powered. Check to insure that the jumper on the power supply is set properly. The jumper should be at P1 terminals 1 to 2. See Figure 14. Next, the power supply can be checked for operation by performing the following: Remove input power, disconnect the output LED load at E6 and E5. Connect a DC volt meter from E8 to E5. Look for a rising voltage to approximately 195 VDC within the first few seconds of powering on the board. This voltage will then drop to less than 50 VDC and the onboard LED (D4) will flash within a few seconds. If the voltage was between 50-195 VDC during the first few seconds of applying power, then the power supply is likely good. Note: the voltage at E8-E5 will cycle again about 40 seconds after dropping to less than 50 VDC and repeat five times and will stabilize. The input power must be cycled off for about 1 minute to get the output to cycle on again. Follow the correct polarity when reconnecting the LED light bar assemblies.
All LEDs are out or not functioning correctly	Open in the LED light bar	If the power supply checks out as good then there is an open in the output LED light bar circuit. Swap out a known good LED light bar until the bad LED light bar is found. Follow correct polarity when connecting. **CAUTION** Never connect a single LED light bar directly to the power supply. The power supply is designed to have a minimum load connected to it. See Figure 14. Connecting only one LED light bar to a power supply will result in LED current being too high and will cause the LED light bar to fail.

Figure 16: Light Tube Assembly Diagrams



LED LIGHT ENGINE ASSEMBLY TOP



LED LIGHT ENGINE BOTTOM ASSEMBLY

Table 11: Light Tube LED Signs

Problem – LED Signs	Possible Cause	Corrective Action
All LEDs are out or not functioning correctly	One or more Light Tubes have failed	If the sign utilizes light tubes as shown above, please see ALN166 for replacement of the light tubes while keeping the power supply. You will require kit: 94A0683-XXX LED Sign Upgrade Kit. To order the kit, you will need the sign size and the number of modules. Please review the KIT Service Bulletin ALN166 found in the ADB SAFEGATE Product Center. Please contact your ADB Safegate Product Support Specialist.
All LEDs are out	Power Supply has failed	If the sign utilizes light tubes as shown above, please see ALN158 for replacement of the light tubes and replacing the power supply. You will require kit: 94A0628-XXX LED Sign Upgrade Kit. To order the kit, you will need the sign size and the number of modules. Please review the KIT Service Bulletin ALN158. found in the ADB SAFEGATE Product Center. **Note** To replace the power supply use kit 94A0628-XXX. Please contact your ADB Safegate Product Support Specialist.

6.0 LED Light Bar Sign Parts

Ordering Code

S X X X - X X X 3 X X 0

Lamp Type
R = LED (Mode 2)
S = LED High Wind (Mode 3)[1]

Sign Size
1 = Size 1
2 = Size 2
3 = Size 3
4 = Size 4
5 = Size 5

Module
1 = 1 Module
2 = 2 Module
3 = 3 Module
4 = 4 Module

Style
7 = LED Style 2, Style 3, and Style 5
A = APS

Face
1 = Single
2 = Double

Total Number of Panels
X = To be determined by the ADB Safegate Sales Department based on legend and module configurations.

3

Power
1 = Power through leg without ON/OFF switch
2 = Power through leg with ON/OFF switch
3 = Power through side without ON/OFF switch[3]
4 = Power through side with ON/OFF switch[3]
5 = Customer-provided entry without ON/OFF switch [2,3]
6 = Customer-provided entry with ON/OFF switch [2,3]
9 = Power through bottom without ON/OFF switch[3]
A = Power through bottom with ON/OFF switch[3]

Tether
0 = No tether[3]
1 = One tether on one end of sign
2 = Two tethers, one on each end
3 = One tether per leg

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

[1] High wind signs require four anchor bolts per floor flange except Size 1, which uses the standard 2-bolt foot.
[2] Cord set coiled up inside side. Customer provides entry hole.
[3] Not ETL Certified.

Legend Panel Divider

44A6173 - X X X

Size
1 = Size 1
2 = Size 2
3 = Size 3 and 5

Paint Coverage
A = Solid (black only)[1]
C = Clear (paint top only)

Paint Color
R = Red
Y = Yellow
B = Black[1]

Note:
[1] For option A (solid), customer must select option B (black). Option C (clear) can be paired with either red or yellow.

LED Light Engine Tester

44A7264-1

Battery-powered tester is used during maintenance activities to separately test a single LED light bar. Uses four size D batteries and outputs 350 mA. Output is activated using a momentary switch.

Note: Tester can also be used on all ADB Safegate SB-type LED signs.

LED Sign Retrofit Kit

94A0628 - X X 0

Size
1 = Size 1
2 = Size 2
3 = Size 3
4 = Size 4
5 = Size 5

Number of Modules
1 = 1 module
2 = 2 modules
3 = 3 modules
4 = 4 modules

Table 12: Spare Parts

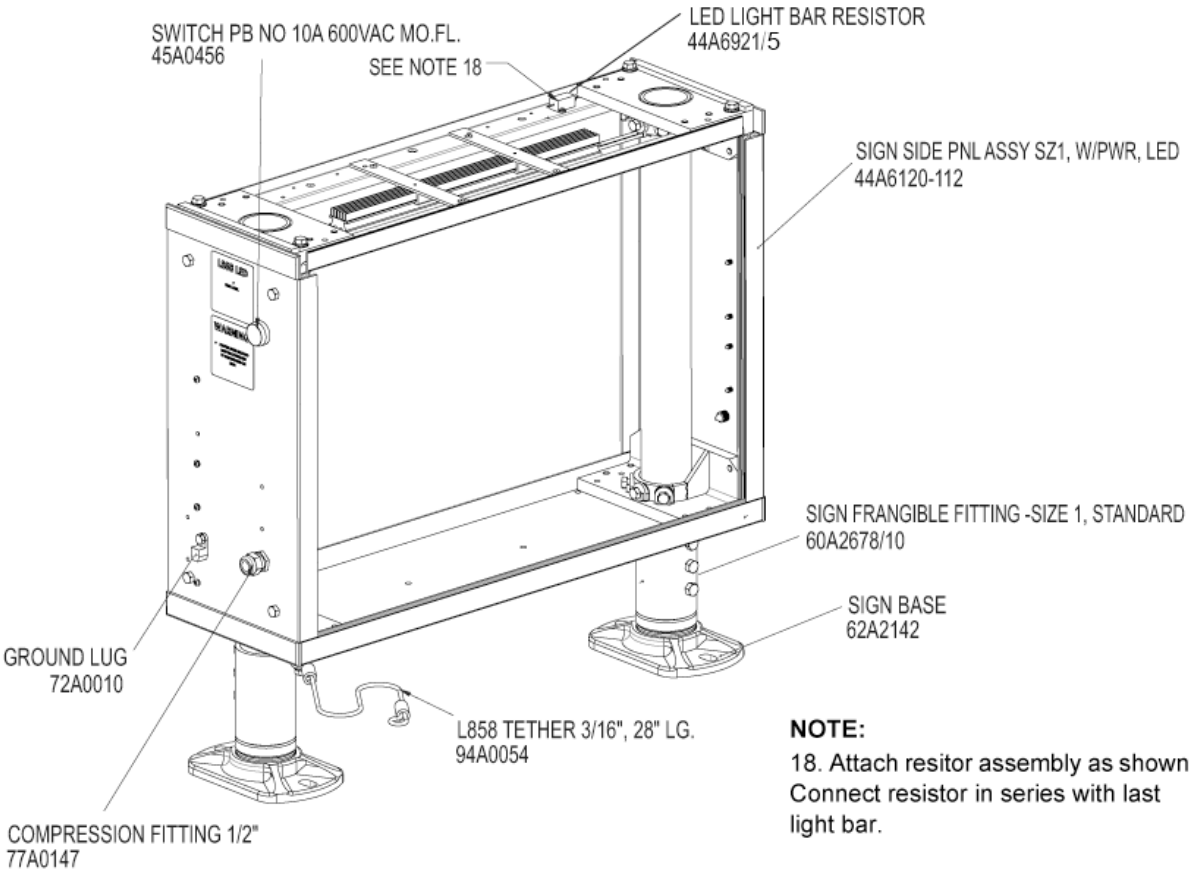
Part Number	Description
62A2142	Floor flange (2-bolt)
62A2146	Floor flange, high wind speed (4-bolt)
60A2678-10	Frangible coupling, size 1
60A2678-20	Frangible coupling, size 2
60A2678-30	Frangible coupling, size 3 or 5

Table 12: Spare Parts (continued)

Part Number	Description
60A2678-40	Frangible coupling, size 4
94A0054	Tether Assembly
73A0107-72	Cord Set 72" 16/2 FAA
48A0442-16	LED light engine (bar), Size 1 and 4[1]
48A0442-24	LED light engine (bar), Size 2
48A0442-32	LED light engine (bar), Size 3 and 5
44A6920	LED sign power supply lead assy
44A6921/5	LED sign lead terminator with resistor (see wiring diag)
44A6922-18	LED sign lead jumper assy 18"
44A7260-010	LED sign power supply assembly (bar)

Notes
1 Size 4 signs require (qty 2) LED light engines (bars) per sign

Figure 17: Size 1, Single Module Sign Parts



Note
TORQUE ALL:
5/16-18 bolts to 115 ± 10 inch-pounds, (13 ± 1 N•m) (except: top cover lid bolts)
Torque 5/16-18 top cover lid bolts to 50 ±5 lb/in (5.7 ±0.6 N·m).
3/8-16 bolts to 200 ± 10 inch-pounds (22.6 ± 1 N•m)

Figure 18: Sign Parts

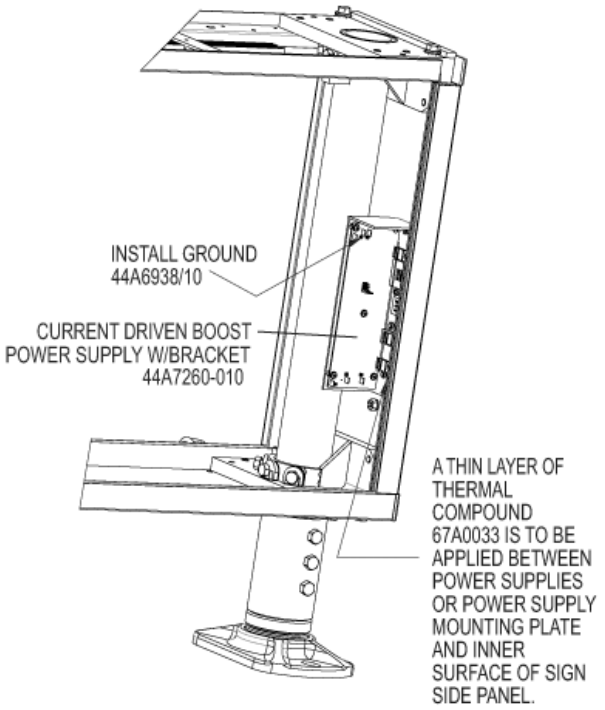
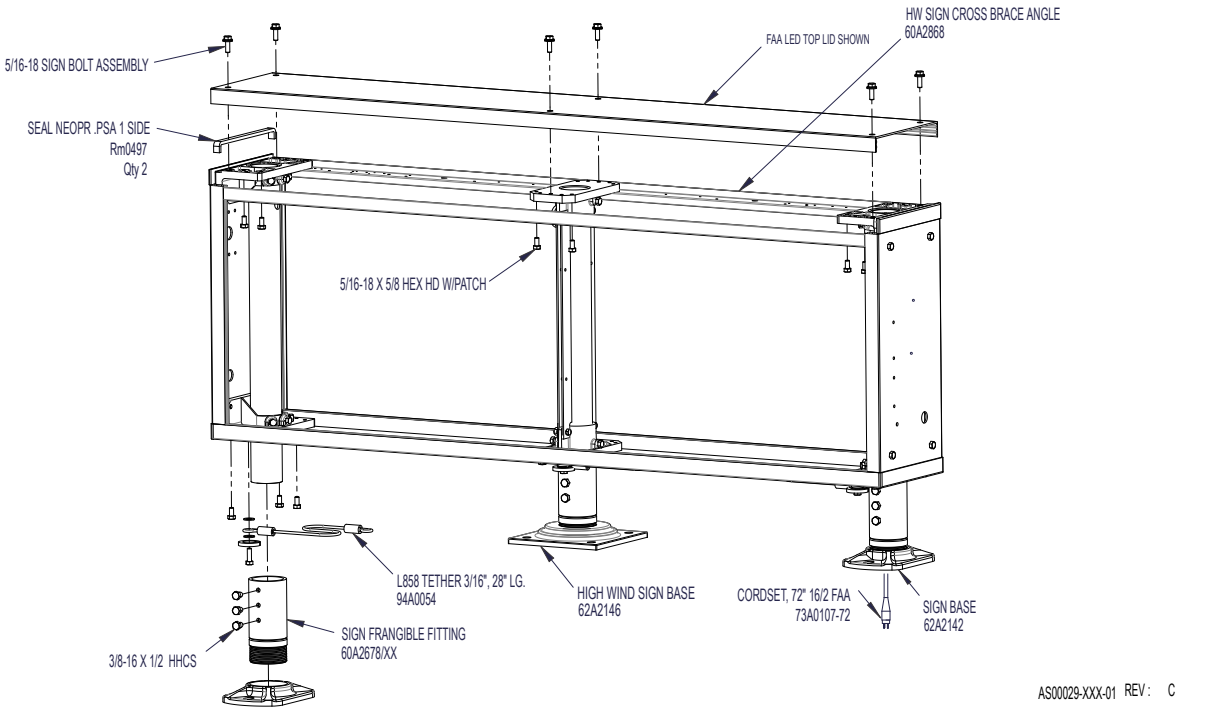


Figure 19: Sign Parts



Note

TORQUE ALL:

5/16-18 bolts to 115 ± 10 inch-pounds, (13 ± 1 N•m) (except: top cover lid bolts)

Torque 5/16-18 top cover lid bolts to 50 ±5 lb/in (5.7 ±0.6 N·m).

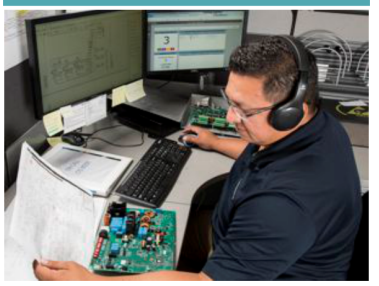
3/8-16 bolts to 200 ± 10 inch-pounds (22.6 ± 1 N•m)

Appendix A: SUPPORT

Our experienced engineers are available for support and service at all times, 24 hour/7 days a week. They are part of a dynamic organization making sure the entire ADB SAFEGATE is committed to minimal disturbance for airport operations.

ADB SAFEGATE Support

Live Technical Support - Americas
If at any time you have a question or concern about your product, just contact ADB SAFEGATE's technical service department. Trained in all areas of system issues, troubleshooting, quality control and technical assistance, our highly experienced Technical support specialists are available 24 hours a day, seven days a week to provide assistance over the phone.
ADB SAFEGATE **Americas Technical Service & Support (US & Canada): +1-800-545-4157**
ADB SAFEGATE Americas Technical Service & Support (International): +1-614-861-1304
During regular business hours, you can also Chat with a Service Technician. We look forward to working with you!
Before You Call
When you have an airfield lighting or system control system problem it is our goal to support airfield maintenance staff as quickly as possible. To support this effort we ask that you have the following information ready before calling.



- The *airport code*
- If not with an airport, then company name (prefer customer id number)
- Contact phone number and email address
- Product with part number preferable or product number
- Have you reviewed the product's manual and troubleshooting guide
- Do you have a *True RMS* meter available (and any other necessary tools)
- Be located with the product ready to troubleshoot

Note
For more information, see www.adbsafegate.com, or contact ADB SAFEGATE Support via email at support@adbsafegate.com or
Brussels: +32 2 722 17 11
Rest of Europe: +46 (0) 40 699 17 40
Americas: +1 614 861 1304. Press 3 for technical service or press 4 for sales support.
China: +86 (10) 8476 0106

A.1 ADB SAFEGATE Website

The ADB SAFEGATE website, www.adbsafegate.com, offers information regarding our airport solutions, products, company, news, links, downloads, references, contacts and more.

A.2 Recycling

A.2.1 Local Authority Recycling

The disposal of ADB SAFEGATE products is to be made at an applicable collection point for the recycling of electrical and electronic equipment. The correct disposal of equipment prevents any potential negative consequences for the environment and human health, which could otherwise be caused by inappropriate waste handling. The recycling of materials helps to conserve natural resources. For more detailed information about recycling of products, contact your local authority city office.

A.2.2 ADB SAFEGATE Recycling

ADB SAFEGATE is fully committed to environmentally-conscious manufacturing with strict monitoring of our own processes as well as supplier components and sub-contractor operations. ADB SAFEGATE offers a recycling program for our products to all customers worldwide, whether or not the products were sold within the EU.

ADB SAFEGATE products and/or specific electrical and electronic component parts which are fully removed/separated from any customer equipment and returned will be accepted for our recycling program.

All items returned must be clearly labeled as follows:

- For *ROHS/WEEE* Recycling
- Sender contact information (Name, Business Address, Phone number).
- Main Unit Serial Number.

ADB SAFEGATE will continue to monitor and update according for any future requirements for *EU directives* as and when *EU member states* implement new *regulations* and or *amendments*. It is our aim to maintain our *compliance plan* and assist our customers.

Company Addresses

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