



Single-Channel PAPI, Precision Approach Path Indicator
Type L-880 & L-881, Style A (Voltage-Powered) & Style B
(Current-Powered)

Spare Parts

SP_2082, Rev. D, 2022/10/21


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Note

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Note

See your sales order contract for a complete warranty description.

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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.

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- 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 Single Channel PAPI Overview

This manual provides instructions for installation, operation and maintenance of the ADB SAFEGATE Single Channel Precision Approach Path Indicator (PAPI) system.

Single Channel PAPI systems provide visual approach path guidance to pilots of landing aircraft.



1.1 Precision Approach Path Indicator

Compliance with Standards

FAA:	L-880 / L-881 AC 150/5345-28 (Current Edition). ETL Certified.
ICAO:	Annex 14, Vol. 1, para. 5.3.5.23 to 5.3.5.45

Uses

The PAPI system uses a one light channel unit to provide the pilot precise visual information, enabling the approach procedure to be performed with the utmost accuracy and safety.

The Type L-880 PAPI system consists of four light units located at the side of the runway adjacent to the origin of the glide path. The nominal glide slope angle is midway between the angular settings of the central pair of the four units. If an aircraft is on the correct approach path, the pilot will see two red and two white light indicators. If the aircraft approach is too high, an increased number of white light indicators will be seen. If the approach is too low, the pilot will note an increased number of red light indicators.

The Type L-881 PAPI system is identical to the L-880, except only two light units (instead of four) are used. The nominal glide slope is midway between the angular settings of the two units, and when the pilot is on or close to the correct approach path, the unit nearest the runway will be seen as red and the other unit as white.

The Style A system is for use with an AC voltage input. The Style B system is for use on 6.6 A or 20 A series circuits. An electronic in-clinometer assembly, which is a mercury-free product, is provided on each PAPI unit to de-energize all light units if the optical pattern of any light unit is raised between 0.5° and 1.0° or lowered between 0.25° and 0.5° with respect to the setting angle of the light unit.

Shipping Information

Style A	
L-881 (2 Box)	48 × 40 × 28 in (122 × 102 × 71 cm) 188 lbs (85 kgs)
L-880 (4 Box)	48 × 40 × 40 in (122 × 102 × 102 cm) 278 lbs (126 kgs)

Style B

L-881 (2 Box)	48 × 40 × 18 in (122 × 102 × 46 cm) 140 lbs (64 kgs)
L-880 (4 Box)	48 × 40 × 30 in (122 × 102 × 76 cm) 230 lbs (104 kgs)

Electrical Supply

Each Type A PAPI system is powered from a Control box. Each Type B PAPI light unit is powered with 6.6 A maximum via a 6.6A/6.6 A or 20 A/6.6 A 300 W isolation transformer. A field splice kit is supplied with each light unit to provide for external electrical connections between PAPI system components.

Style A¹

Input Voltage: 240 VAC, ±10%, 50/60 Hz L-880 (4-box) 3-lamps/light unit	1,700 VA max. ²
Input Voltage: 208/220/240 VAC, ±10%, 50/60 Hz L-881 (2-box) 3-lamps/light unit	1,612 VA max. ³

Style B⁴

Three Lamps – 6.6 A through one 300 W isolation transformer (each light unit)

L-880 (4-Box) – Total CCR Load:	1,448 VA max.
L-881 (2-Box) – Total CCR Load:	724 VA max.

Notes

- ¹ As seen at input of Primary PAPI.
- ² Limit on distance from Primary to first light unit is 30 ft (9.1 m).
- ³ Limit on distance from Primary to first light unit is 150 ft (45.7 m).
- ⁴ VA calculation includes PAPI light units and isolation transformers.

2.0 Single Channel PAPI Parts

To order parts, call ADB SAFEGATE Customer Service or your local representative.

This section provides parts drawings, along with part numbers. Refer to the “Schematics” for connections and wiring information.

Single Channel PAPI Ordering Code P A P □ / □ □ □ 0

Style

- A = PAPI A (Voltage powered)^{1,2}
- B = PAPI B (Current powered)

Type

- 2 = L-881 (2 Box)
- 4 = L-880 (4 Box)

Housing

- 0 = Aluminum Light Units (Standard)
- 1 = 316 Stainless Steel³

Interlock

- 0 = Without Interlock (PAPI A or B)
- 1 = With Interlock (PAPI A Only)⁴

0

Notes

- 1 L-881 input voltage is 208/220/240 VAC. L-880 input voltage is 240 VAC only.
- 2 Not ETL certified configuration.
- 3 For both the Style A and Style B PAPI, the light unit housing is stainless steel. For the Style A PAPI, the control box housing is also stainless steel.
- 4 Available only with the PAPI A. Interlock Relay Option provides ON/OFF control through current sensing of the runway series circuit during nighttime operations. During daytime, the PAPI is activated at the 100% step.

Single Channel PAPI EMT Kit

9 4 A 0 6 1 6 / □

Type

- 2 = L-881 (2 Box)
- 4 = L-880 (4 Box)

Figure 5: Installation Parts - 117A0039

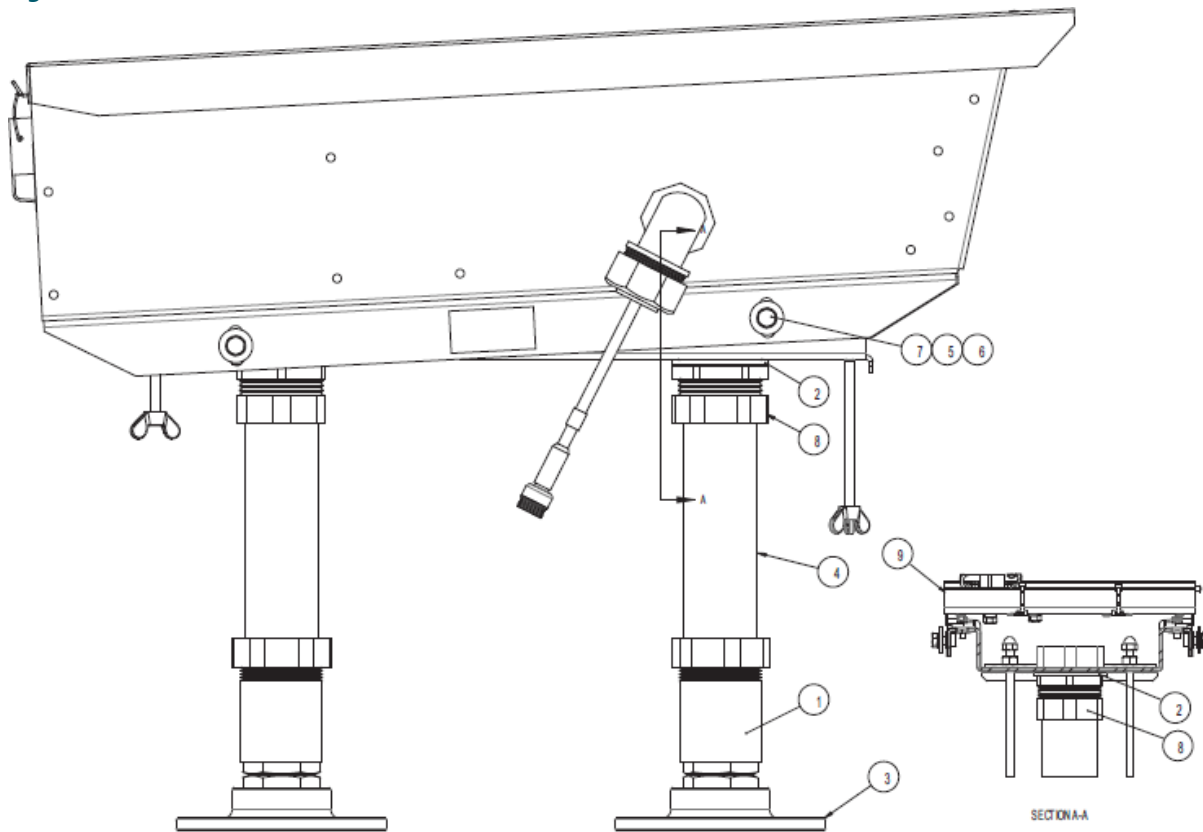


Table 1: Single Channel PAPI Light Unit Parts

Item No.	Part Number	Description	Qty.	Note
1	44B0180	Coupling, Frangible 2" EMT MS-17814-1	2	Provided with Enclosure
2	60A3346	Single-Channel PAPI Mounting Spacer	2	Provided with Enclosure
3	62B0107-2	Mounting Flange Plain Finish	2	Provided with Enclosure
4	N/A	2-inch EMT 2 3/16 OD ¹	2	Provided by Contractor
5	N/A	M8 Flat Washer	4	Provided with Enclosure
6	N/A	M8 Split Lockwasher	4	Provided with Enclosure
7	N/A	M8 X 16 Hex Bolt	4	Provided with Enclosure
8	77A0009	Compression Coupling 2" EMT	2	Provided with Enclosure
9	94A0496	Optional Single-Channel PAPI Extended Elevation Kit ²	1	Optional Kit

Notes

- ¹ 2-inch diameter EMT tubing (2-3/16 OD) to be provided and installed by contractor. Length to be determined at installation to adjust for uneven terrain and to mount optical box at correct elevation above the runway. 2-inch EMT tube to extend 3-1/4" into frangible coupling and full insertion into compression coupling to ensure stable installation. Tube must be painted international orange per FED-STD-595, Color 12197 to provide corrosion protection.
- ² 94A0496 extended elevation kit is optional for elevations in excess of 5 degrees.

Figure 6: Single Channel PAPI Light Unit - 44A6853

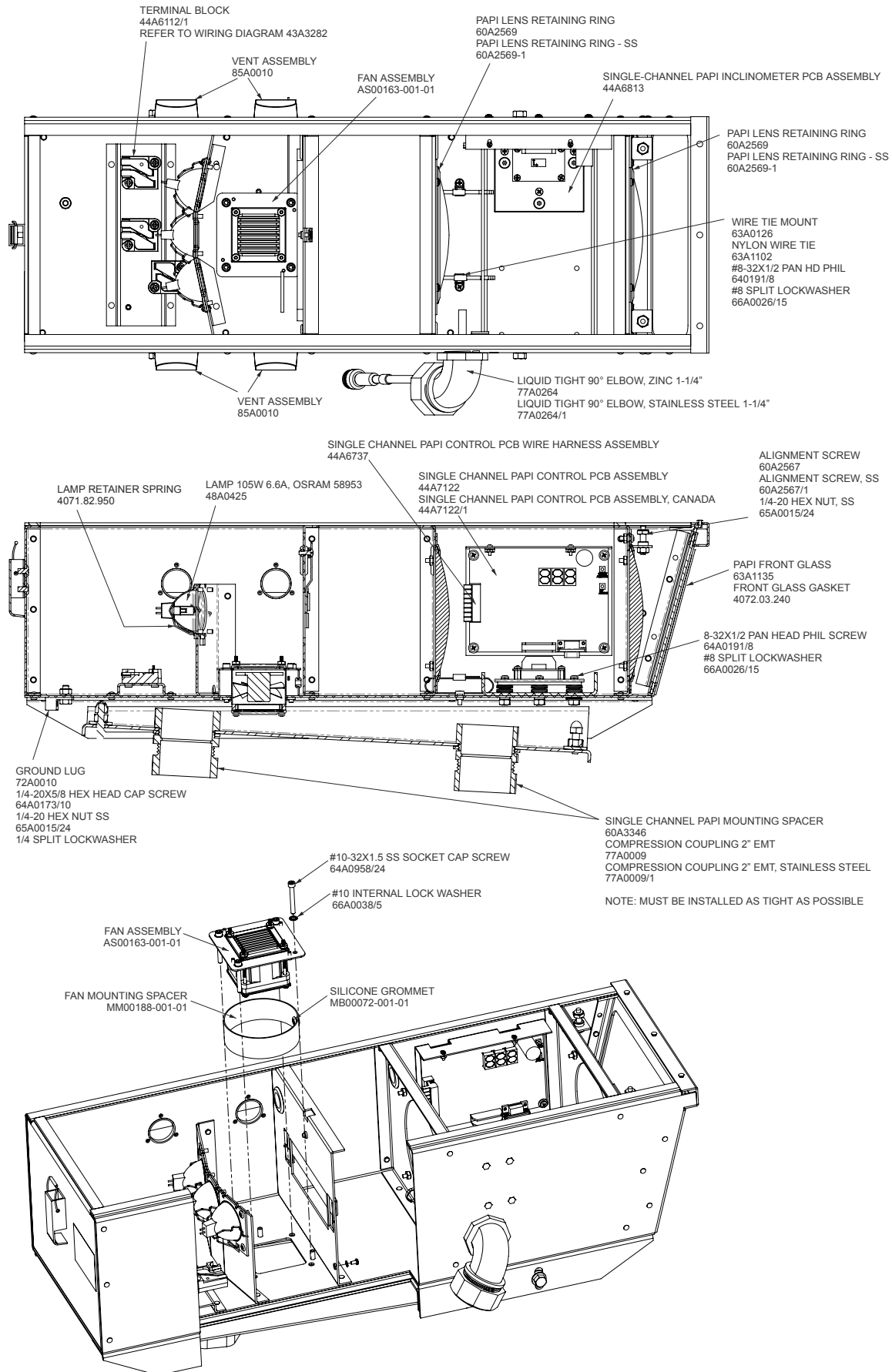


Figure 7: Single Channel PAPI Light Unit - 44A6853 (Continued)

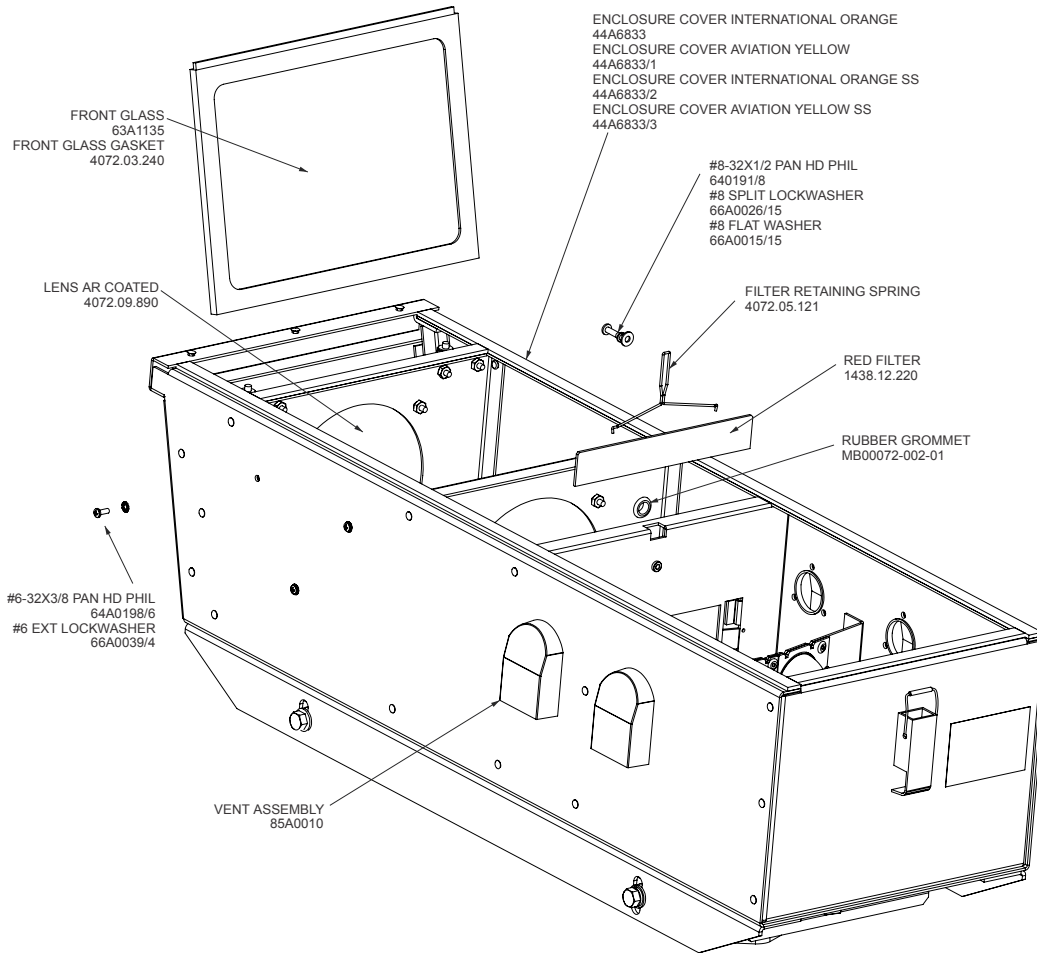


Table 2: Single Channel PAPI Light Unit Parts

Part Number	Description	Qty.	Qty.	Note
		44A6853	44A6853-C	
44A7122	Single-Channel PAPI Control PCB Assembly (Standard Version)	1	-	Tilt Switch Enabled
44A7122/1	Single-Channel PAPI Control PCB Assembly (Canada Version)	-	1	Tilt Switch Disabled
44A6737	Single-Channel PAPI Wire Harness Assembly	1	1	
44A6813	Single-Channel PAPI Inclinator PCB Assembly	1	1	
63A0126	Wire Tie Mount	2	2	
63A1102	Nylon Wire Tie	2	2	
64A0191/8	#8-32 X 1/2 Pan Head Phillips	14	14	
66A0026/15	#8 Split Lockwasher	20	20	
65A0015/15	#8-32 Hex Nut	8	8	
72A0010	Ground Lug	1	1	
64A0173/10	1/4-20 X 5/8 Hex Head	1	1	
65A0015/24	1/4-20 Hex Nut, SS	1	1	
66A0026/24	1/4 Split Lockwasher	1	1	

Table 2: Single Channel PAPI Light Unit Parts (Continued)

Part Number	Description	Qty. 44A6853	Qty. 44A6853-C	Note
64A0198/6	#6-32 X 3/8 Pan Head Phillips	3	3	
66A0039/4	#6 Ext Lockwasher	3	3	
77A0264	Liquid Tight 90° Elbow, Zinc 1-1/4"	1	0	
77A0264/1	Liquid Tight 90° Elbow, Stainless 1-1/4"	0	1	
89A0267/02	14-Pin Ribbon Cable, 2" Long	1	1	
85A0010	Vent Assembly	4	4	
AS00163-001-01	Fan Assembly	1	0	
64A0958/24	#10-32 X 1.5 Socket Cap Screw SS	4	4	
66A0038/5	#10 Internal Lockwasher	4	4	
1438.12.220	Red Filter	1	1	
4072.05.121	Filter Retaining Spring	1	1	
63A1135	Front Glass	1	1	
4072.03.240	Front Glass Gasket	1	1	
4072.09.890	Lens AR Coated	2	2	

Figure 8: Control Board Assembly 44A7122 (Canada: 44A7122/1)

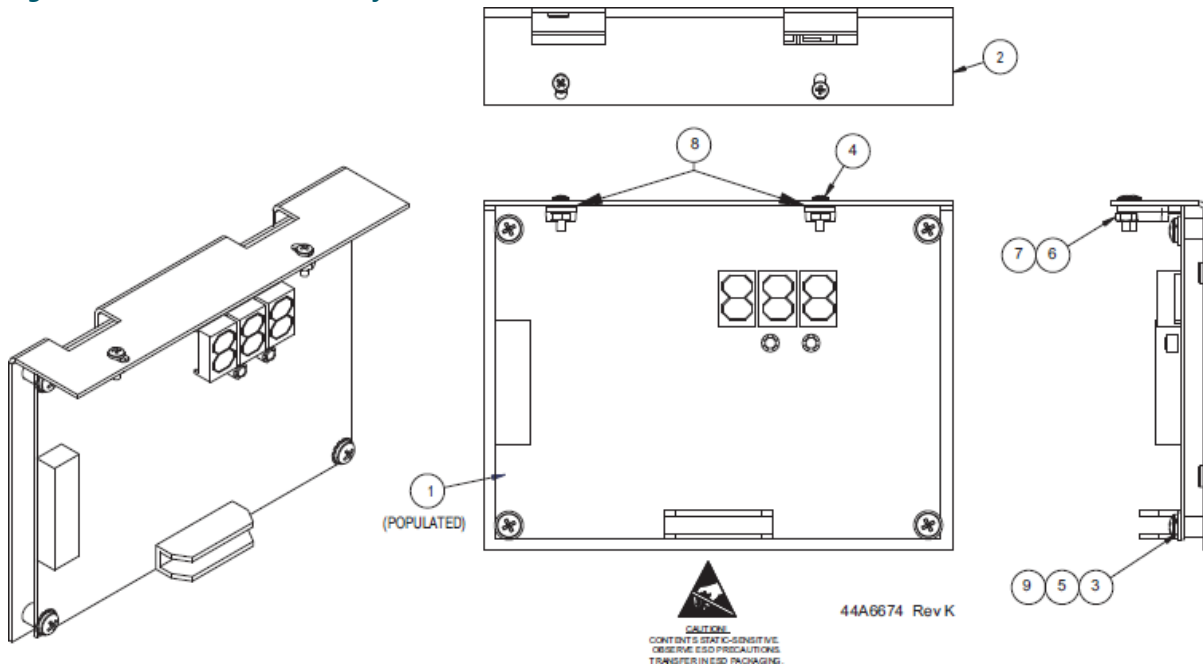


Table 3: Control Board Parts

Item No.	Part Number	Description	Units	Qty.
1	44A7122 or 44A7122-C	Control Board Assembly		
2	60A3270	Single-Channel PAPI Control PCB Bracket		
3	64A0191/4	Screw, 8-32 X 1/4, Pan Head, Phil, SS	Ea.	4
4	64A0169/6	Screw, 4-40 X 3/8, Pan Head, Phil, SS	Ea.	2
5	66A0039/5	#8 Ext. Lockwasher, SS	Ea.	4

Table 3: Control Board Parts (Continued)

Item No.	Part Number	Description	Units	Qty.
6	65A0015/7	Hex Nut, 4-40, SS	Ea.	2
7	66A0039/2	#4 Ext. Lockwasher, SS	Ea.	2
8	63A0857	TO-220 Silicone Pad	Ea.	2
9	66A0015/15	#8 FLAT WASHER	Ea.	4

Figure 9: Power Control Unit (PCU) Assembly, Style A, 44A6752/XXX

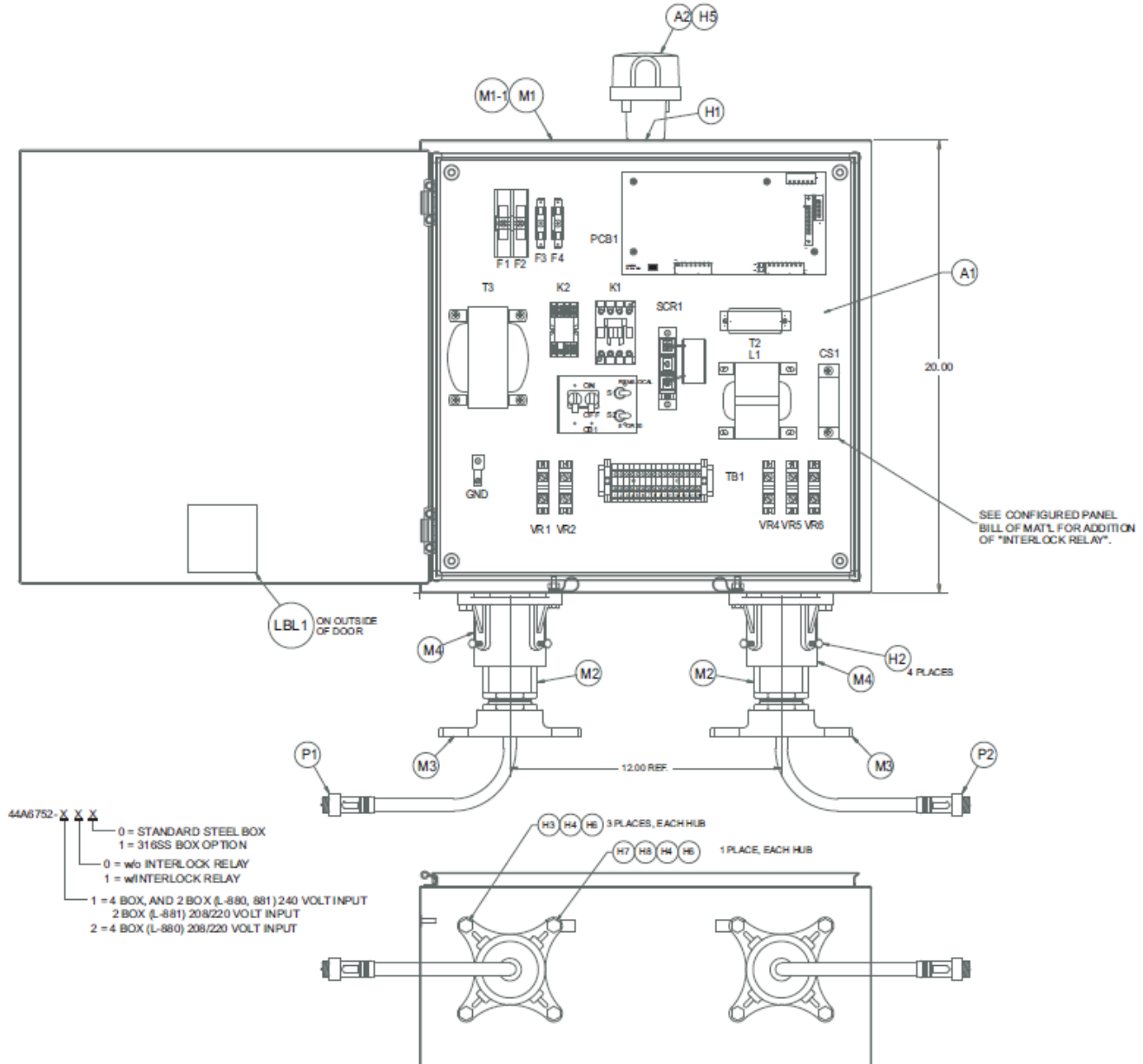


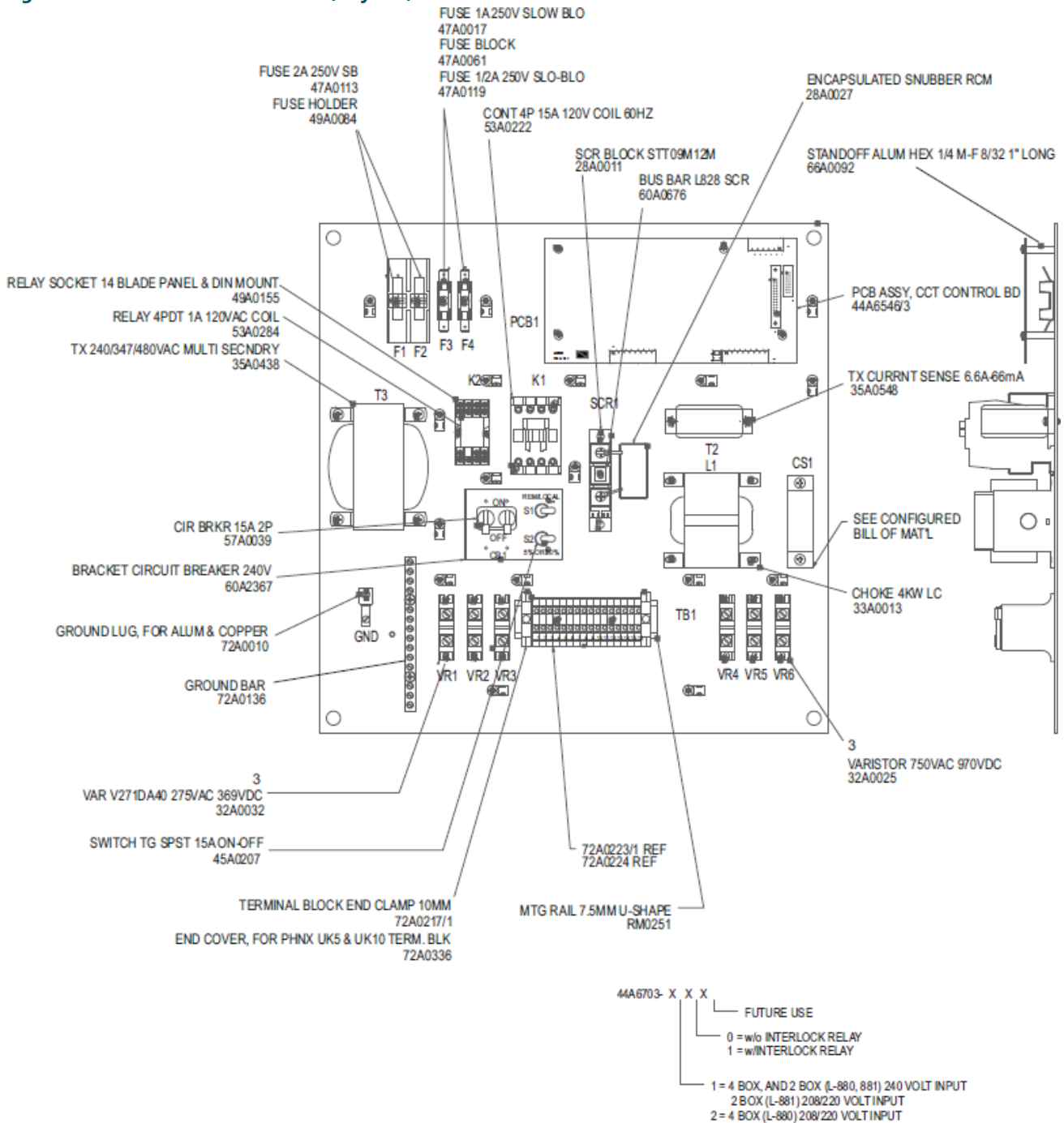
Table 4: Power Control Unit Parts

Item No.	Part Number	Qty.	Description	Note
LBL1	42A0307	1	Label PAPI	
A1	44A6703/XXXX	1	PAPI A Panel Assembly	See Figure 23
A2	48A0089	1	Photocell 120VAC	

Table 4: Power Control Unit Parts (Continued)

Item No.	Part Number	Qty.	Description	Note
H1	49A0095	1	Photocell Socket	
M1	60A3324	1	PAPI Power Control Unit (PCU) Enclosure, SC PAPI	
M1-1	60A3324/1	1	PAPI Power Control Unit (PCU) Enclosure, SC PAPI, 316SS	
M2	62B0064	2	Coupling 2" Frangible, Black, Threaded 1 End	
M3	62B0107/2	2	Mounting Flange	
M4	62C0068	2	Hub Mounting	
H2	64A0173/12	4	Bolt, 1/4-20 X ¾ Hex Head	
H3	64A0173/16	6	Bolt, 1/4-20 X 1 Hex Head	
H4	64A0015/24	8	1/4-20 Hex Nut	
H5	65A0117	1	1/2-14 Sealing Nut	
H6	66A0026/24	8	1/4 Split Lockwasher	
P1, P2	73A0180	2	Male Plug w/8' Cord, 6 Conductor/16AWG	
H7	62A0138/1	2	Cable Clamp	
H8	64A0173/20	2	Bolt, 1/4-20 X 1-1/4" Hex Head	

Figure 10: Power Control Unit Panel, Style A, 44A6703



2.1 Spare Parts

It is recommended to create a sufficiently large stock of spare parts to maintain the Single Channel PAPI in the field. Consider acquiring approximately 10% spare final assemblies (with a minimum quantity of 1) for the total amount of equipment in the field. This allows for repairs to be made in the shop. Components that are less likely to need replacement, such as lenses, filters, gaskets and PCB sub-assemblies should be stocked in smaller quantities.

For the Single Channel PAPI unit, it is highly recommended to have a least one entire Single Channel PAPI unit as a spare for larger installations.

For the Single Channel PAPI see the table below for spares.

- Consider acquiring 10% spares for critical components noted as (A) in the table below. If only a small number of PAPI units are installed, consider acquiring at least 1 of each of the components noted as (A) below.
- Also consider acquiring 1% spares for parts noted as (B) in the table below. If it is important to have a robust level of spare parts on hand, and only a small number of PAPI units are installed, consider acquiring 1 of each of the components noted as (B) below.

Table 5: Light Unit Spare Parts

Part Number	Description	Location	Note	Spares
44A6853/S	SC PAPI Spare Light Unit			
44B0180	Frangible Coupling, 2-inch EMT	Figure 5		A
44A6813	Inclinometer PCB Assembly	Figure 6		B
48A0425	Lamp, 105W, 6.6A	Figure 6		A
1438.12.220	Red Filter	Figure 7		B
44A7122	Single Channel PAPI Control Board	Figure 6		B
AS00163-001-01	Fan Assembly	Figure 6		
94A0570/XXX	Baffle Kit	Figure 19		



Note

Inclinometer 44A6813 (RevE or earlier) or 44A6813/INSL is replaced by 44A6813 (RevF or later).



Note

Upon initial replacement of either of the older PAPI Control Boards 44A6674 or 44A6674-1 or the inclinometer PCB assembly 44A6813 (RevE or earlier), you must replace both items with new PAPI control boards 44A7122 or 44A7122-1 and 44A6813 (RevF or later).

Table 6: Power Control Unit Spare Parts

Part Number	Description	Location	Note	Spares
44A6546-3	CCT Control Board	Figure 9		B
62B0064	Frangible Coupling, Control Box	Figure 9		B
47A0017	Fuse, 1A, SB (F4)	Figure 10		A
47A0049	Fuse, 2A, SB (F1, F2)	Figure 10		A
47A0119	Fuse, 0.5A, SB (F3)	Figure 10		A
48A0089	Photocell	Figure 9		A
44A6853	SC PAPI Optical Box	Figure 6		B
44A6853-1	SC PAPI Optical Box, Stainless Steel	Figure 6		B

Table 6: Power Control Unit Spare Parts (Continued)

Part Number	Description	Location	Note	Spares
44A6853-C	SC PAPI Optical Box, Tilt Switch Disabled	Figure 6		B
28A0011	SCR	Figure 10		B
28A0027	Snubber, SCR	Figure 10		A
32A0028	Varistor, 575V AC, Input	Figure 10		A
32A0025	Varistor, 750V AC, Output	Figure 10		A

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**

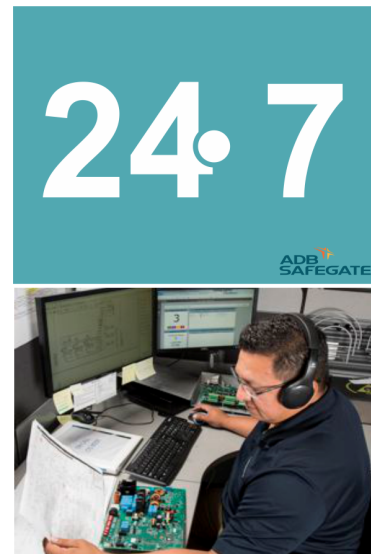
ADB SAFEGATE Americas Technical Service & Support (International): +1-614-861-1304

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

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Americas: +1 614 861 1304. Press 3 for technical service or press 4 for sales support.

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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.

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