



Installation Instructions

Light Kits for Three-Position Pressure Relief Valve 660412

This manual provides installation instructions for Light Bar, Light Tower or Cab Light Kits used with 3-Position Pressure Relief Valve 660412. The switch box installation allows for 3 relief selections. The light assemblies use 12V bulbs. A voltage converter and filter are used for 24-48V applications.

The switch box contains a cam that activates the microswitch based on lever position. When a microswitch is switched ON, a colored light illuminates to show which relief cartridge is selected.

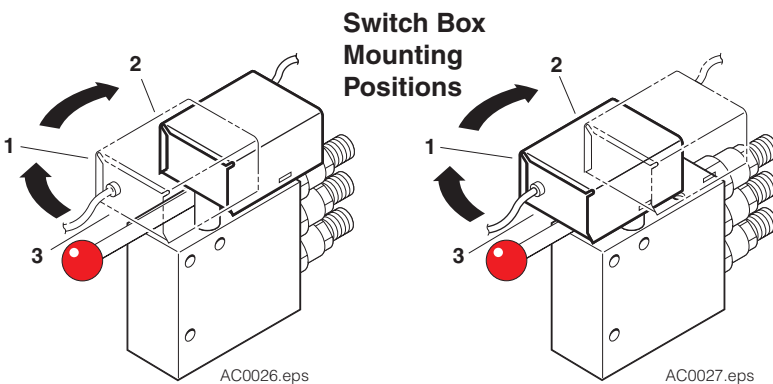
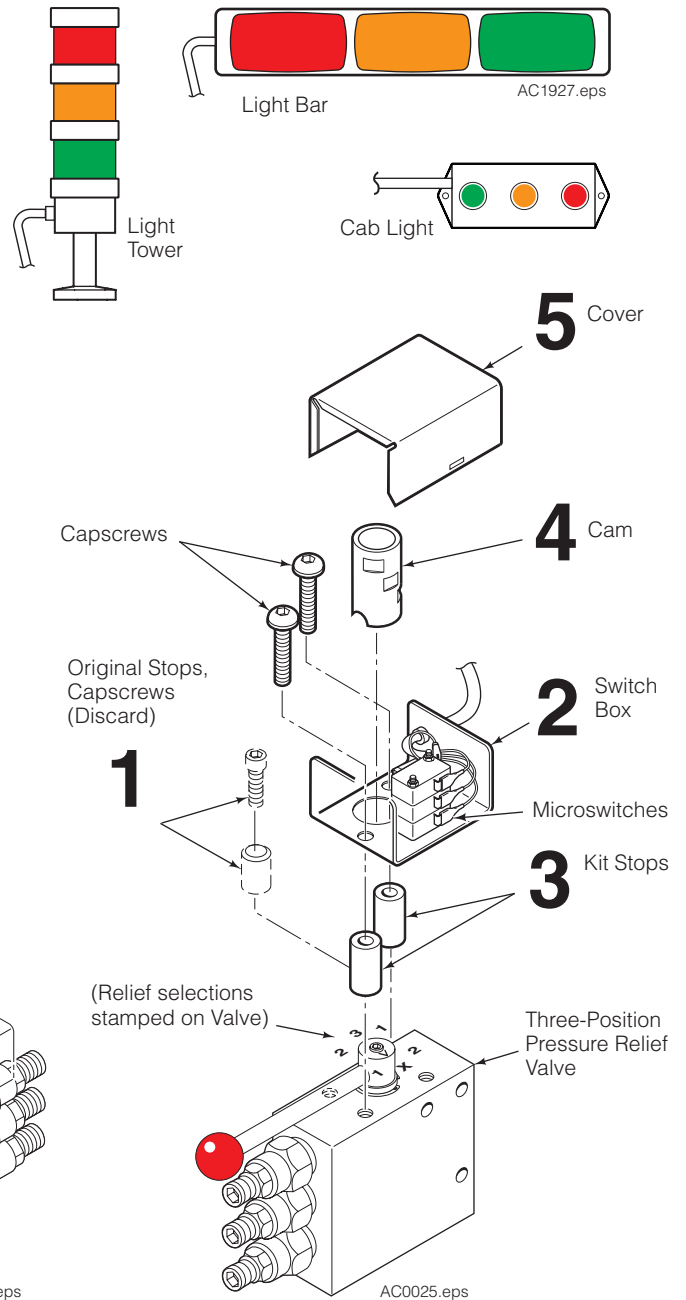
Voltage	Light Tower Kit	Light Bar Kit	Cab Light Kit
12V	6053313	214276	6803253
24-48V	6053312★	217931★	6803254★

★ Includes Voltage Converter & Filter Kit 217932

- 1 Remove the original stops on the valve and discard.
- 2 The switch box may be installed in either 180° position as required for clearance or cable routing, as shown below. The switch box mounting holes must line up with the two tapped holes near marks 1 and 1.
- 3 Install the kit stops and capscrews to securely fasten the switch box to the valve.
- 4 Drive the cam onto the shaft with a rubber mallet. The cam may be installed in either 180° position depending on switch box mounting and valve mounting positions.

NOTE: Cam slots and microswitch arms face each other when activated. The cam can be pried off and rotated 180°, if needed.

- 5 Install the cover by sliding on and tapping into place.



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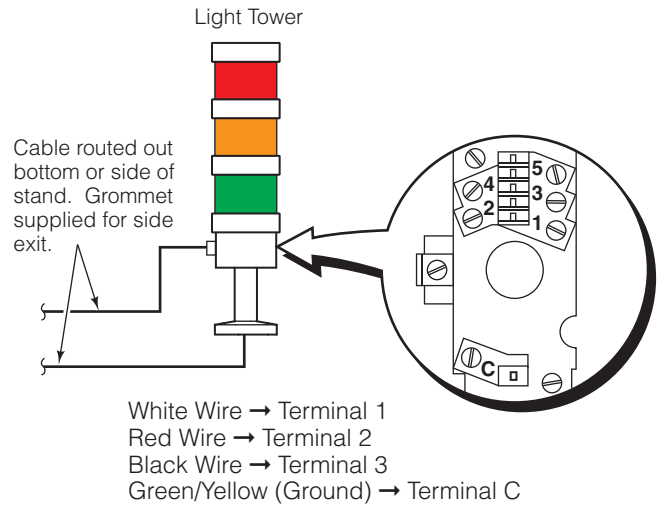
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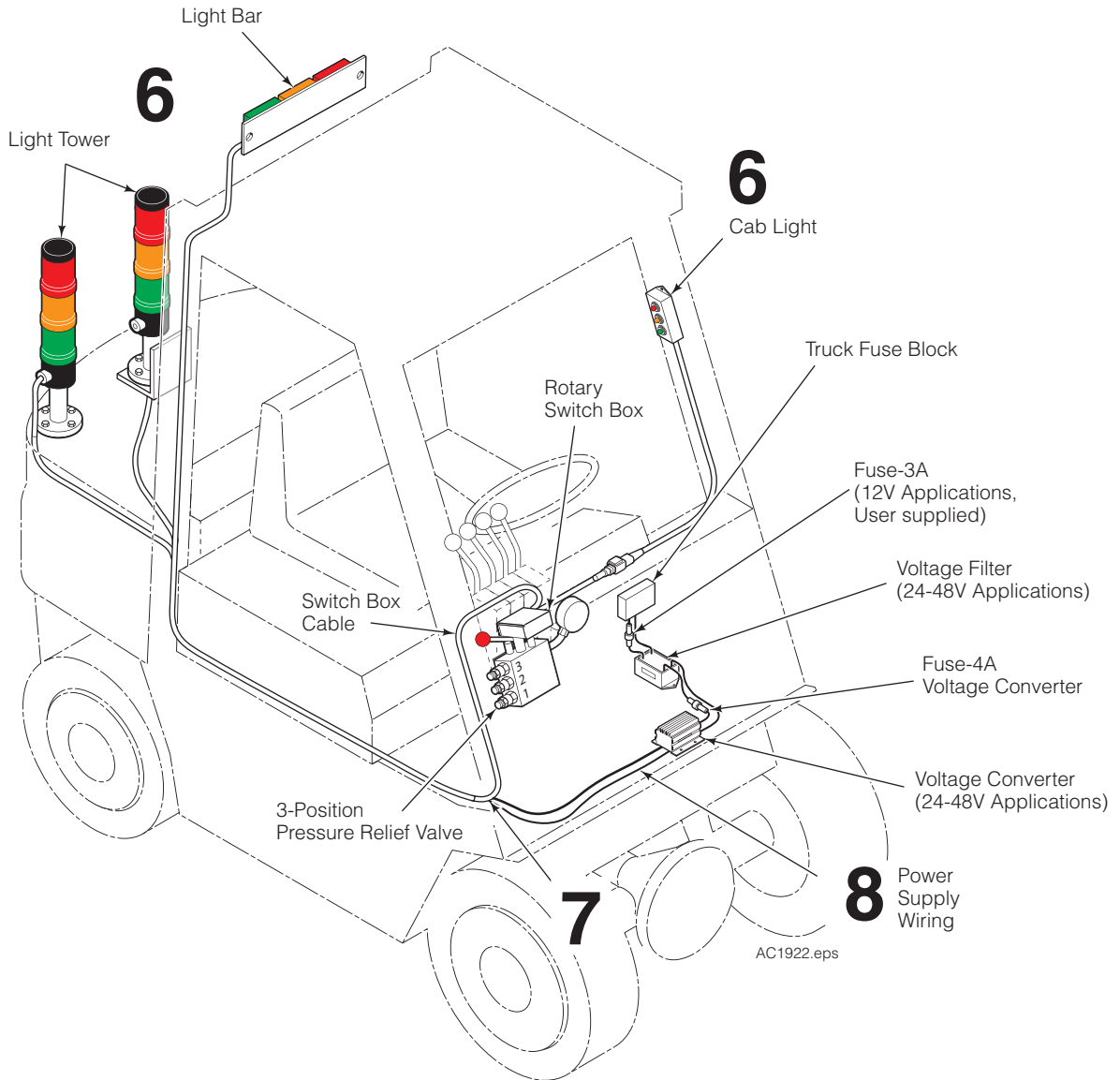
6 Light Tower – Locate and mount the light tower at the rear of the truck. A simple bracket can be fabricated to mount the light tower on the back of the overhead guard. The light tower cable can be routed out the bottom of the stand or out the side of the light assembly using the grommet supplied. See the wire and terminal connections shown.

Light Bar – Locate and mount the light bar on the back of the overhead guard. Connect the cable extension and route the cable from the light bar to join the switch box cable.

Cab Light – Locate and mount the cab light. Position for best peripheral viewing. Connect the cable extension and route the cable from the cab light to join the switch box cable.



Connection Diagram



CAUTION: Consult the Lift Truck OEM for proper + power source connection.

- 7 Connect the cables together using the diagrams and schematics, shown below. The green wires are connected to the power supply wiring.
- 8 Connect the power supply wiring (user supplied) to the truck fuse block. Eighteen gauge (18 AWG) power supply wiring is recommended.

12V Trucks – Install a 3 Amp inline fuse in the + power supply wire. Connect the fused positive wire to a switched power terminal on the truck fuse block.

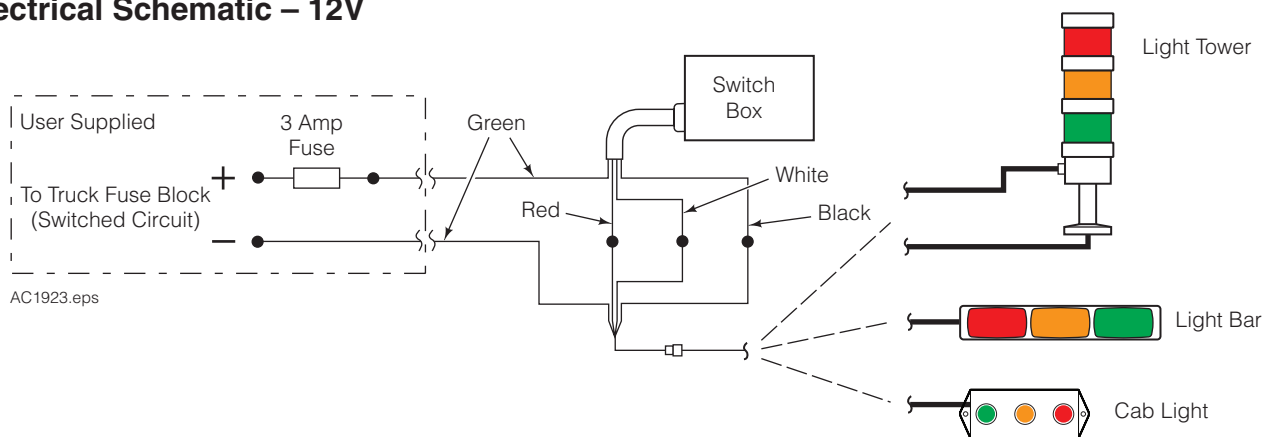
24V-48V Trucks – Connect the voltage filter to the voltage converter. Connect the positive wire to a switched power terminal on the truck fuse block.

IMPORTANT: For 24-48V application, Voltage Converter 6064659 must be wired into the circuit. The voltage converter has its own 4 Amp input fuse.

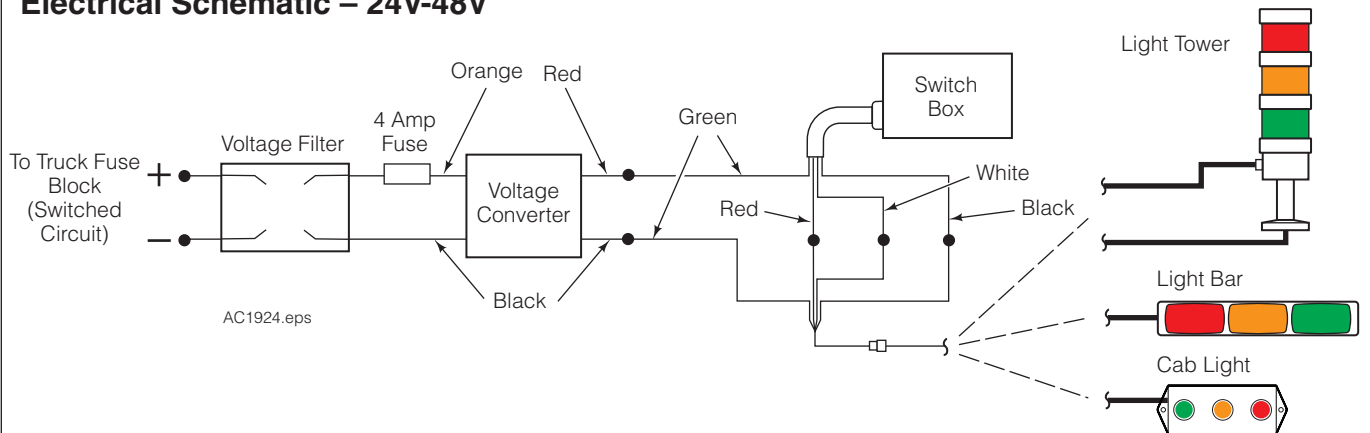
Check the cable routing for pinch points and clearance. Use wire ties as needed.

NOTE: When installing on electric trucks with regenerative braking, voltage filter 6061953 must be installed. Failure to install the voltage filter can cause damage to electrical components.

Electrical Schematic – 12V



Electrical Schematic – 24V-48V



Relief Adjustment

To set the valve relief cartridges, install a 5000 psi (345 bar) pressure gauge (Cascade Part No. 664158) and fitting to the valve **G** port. A clamp force indicator can also be used to adjust the relief cartridge settings. Refer to Clamp Force Indicator Operator Guide 6053280 for Carton Clamps or 214750 for Paper Roll Clamps.

3-Position Sample Settings

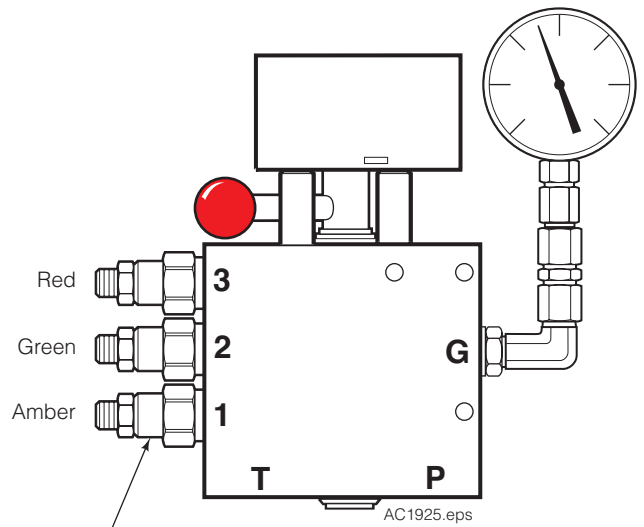
- Position X - Not Available
- Position 1 - 1400 psi
- Position 2 - 1600 psi
- Position 3 - 1800 psi

IMPORTANT: Cartridges are preset to 1000 psi. Relief pressure for each cartridge must be adjusted for your application. Four stop positions are not available when a switch box is mounted on the valve.

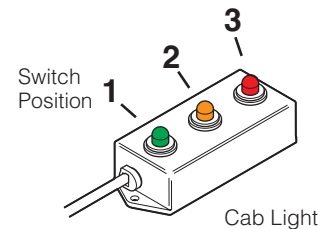
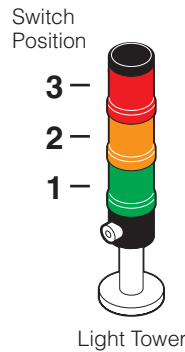
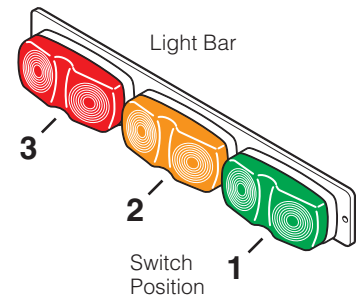
- 1** Shift the valve lever index pointer to position 1 stamped on the valve body. See the light display chart below.
- 2** Loosen the jam nut on the No. 1 relief cartridge. Adjust the relief cartridge (3/16-in. Allen hex wrench) inward (CW) to raise pressure or outward (CCW) to lower the pressure.
- 3** Clamp a load and check the pressure. Readjust as required. Tighten the jam nut.
- 4** Shift the selector switch to position **2**. Repeat steps 2 and 3 for the No. 2 relief position.
- 5** Shift the selector switch to position **3**. Repeat steps 2 and 3 for the No. 3 relief position.

Switch Position	Relief Cartridge	Light Color
1	2	Green
2	1	Amber
3	3	Red

CAUTION: Do not remove the rotating spool from the valve body. Permanent damage will occur due to the spring loaded detents and will void the warranty. Replace valve as a complete assembly.

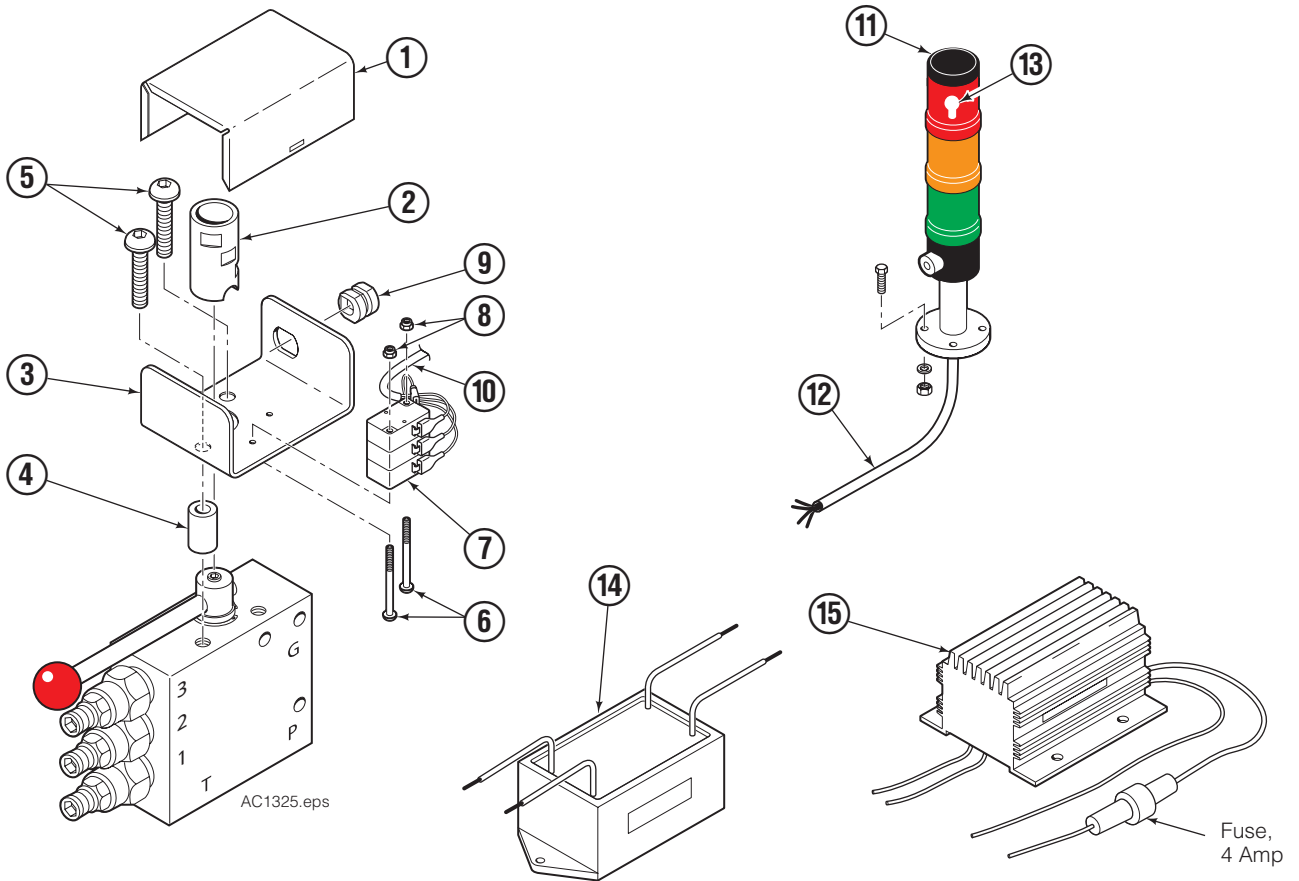


1,2 Adjust Relief Cartridges



3-Position Light Kits Parts List

Light Tower



REF	QTY	12 Volt	24-48 Volt	DESCRIPTION
		PART NO.	PART NO.	
		6053313	6053312	3-Position Light Kit - Light Tower
		217953	217953	Switch Assembly ●
		6066635	6066635	Light Tower Assembly ▲
		-	217932	Voltage Converter & Filter Kit ◆
1	1	217956	217956	Cover
2	1	217955	217955	Cam
3	1	217954	217954	Switch Box
4	2	217957	217957	Stop
5	2	4867	4867	Capscrew .25 x 1.00 in.
6	1	6066683	6066683	Capscrew, No.4-40 x 1.5 in.
7	3	6064470	6064470	Switch
8	2	6118034	6118034	Nut, No.4-40
9	1	6064471	6064471	Grommet
10	1	6064622	6064622	Cable Assembly
11	1	6066637	6066637	Light Tower
12	1	6066636	6066636	Cable
13	3	6057068	6047068	Bulb, Square D type DL1BLJ
14	1	-	6061953	Voltage Filter
15	1	-	6064659	Voltage Converter, 24-48V→12V

● Includes items 1 through 10.

▲ Includes items 11 through 13.

◆ Includes items 14 and 15.

3-Position Light Kits Parts List Light Bar

REF	QTY	12 Volt	24-48 Volt	DESCRIPTION
		PART NO.	PART NO.	
		214276	217931	3-Position Light Kit - Light Bar
		217953	217953	Switch Assembly ●
		217944	217944	Light Bar Assembly ▲
		-	217932	Voltage Converter & Filter Kit ◆
1	1	217956	217956	Cover
2	1	217955	217955	Cam
3	1	217954	217954	Switch Box
4	2	217957	217957	Stop
5	2	4867	4867	Capscrew, .25 x 1.00 in.
6	2	6066683	6066683	Capscrew, No.4-40 x 1.5 in.
7	3	6064470	6064470	Switch
8	2	6118034	6118034	Nut, No.4-40
9	1	6064471	6064471	Grommet
10	1	6064622	6064622	Cable Assembly
11	1	217946	217946	Aluminum Bar
12	1	6091953	6091953	Cable Assembly
13	1	6091954	6091954	Cable Assembly
14	1	6076821	6076821	Red Lamp Assembly
15	1	217948	217948	Red Lens
16	1	6076820	6076820	Amber Lamp Assembly
17	1	217950	217950	Amber Lens
18	1	6076819	6076819	Green Lamp Assembly
19	1	217952	217952	Green Lens
20	3	6064645	6064645	Rubber Spacer
21	6	6405847	6405847	Capscrew, M4 x 20 mm
22	6	686453	686453	Nut, M4
23	3	6064646	6064646	O-Ring
24	2	206323	206323	Lockwasher, M6
25	2	763169	763169	Capscrew, M6 x 20 mm
26	5	6053937	6053937	Connector, Female
27	5	6053936	6053936	Connector, Male
28	1	-	6061953	Voltage Filter
29	1	-	6064659	Voltage Filter, 45-48V→12V

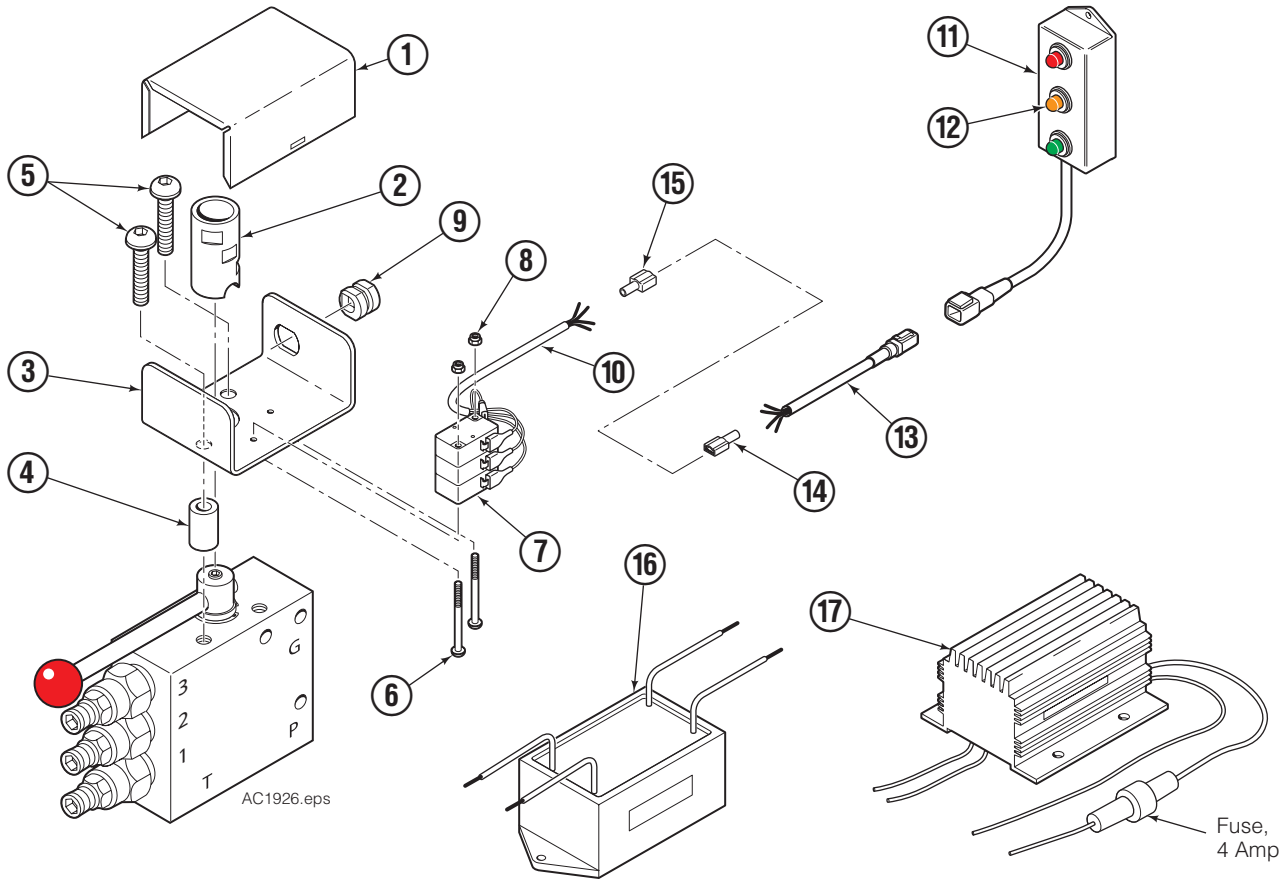
● Includes items 1 through 10.

▲ Includes items 11 through 27.

◆ Includes items 28 and 29.

3-Position Light Kits Parts List

Cab Light



REF	QTY	12 Volt	24-48 Volt	DESCRIPTION
		PART NO.	PART NO.	
		6803253	6803254	3-Position Light Kit - Cab Light
		217953	217953	Switch Assembly ●
		-	217932	Voltage Converter & Filter Kit ◆
1	1	217956	217956	Cover
2	1	217955	217955	Cam
3	1	217954	217954	Switch Box
4	2	217957	217957	Stop
5	2	4867	4867	Capscrew .25 x 1.00 in.
6	1	6066683	6066683	Capscrew, #4-40 x 1.5 in.
7	3	6064470	6064470	Switch
8	2	6118034	6118034	Nut, #4-40
9	1	6064471	6064471	Grommet
10	1	6064622	6064622	Cable Assembly
11	1	6803255	6803255	Cab Light
12	1	6011823	6011823	Bulb, Red
	1	6004133	6004133	Bulb, Amber
	1	6004132	6004132	Bulb, Green
13	1	6091954	6091954	Cable
14	5	6053937	6053937	Connector, Female
15	5	6053936	6053936	Connector, Male
16	1	-	6061953	Voltage Filter
17	1	-	6064659	Voltage Converter, 24-48V→12V

● Includes items 1 through 10.

◆ Includes items 16 and 17.

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