



INSTRUCTION & MAINTENANCE

MODEL CLS-10D COLOR LIGHT SIGNAL

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The equipment covered in this manual has been tested and found to comply with the limits for Class A digital devices, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his/her own expense.



DOCUMENT HISTORY

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NOTES, CAUTIONS, AND WARNINGS

Throughout this manual, notes, cautions, and warnings are frequently used to direct the reader's attention to specific information. Use of the three terms is defined as follows:



WARNING

INDICATES A POTENTIALLY HAZARDOUS SITUATION THAT, IF NOT AVOIDED, COULD RESULT IN DEATH OR SERIOUS INJURY. WARNINGS ALWAYS TAKE PRECEDENCE OVER NOTES, CAUTIONS, AND ALL OTHER INFORMATION.



CAUTION

REFERS TO PROPER PROCEDURES OR PRACTICES WHICH IF NOT STRICTLY OBSERVED, COULD RESULT IN A POTENTIALLY HAZARDOUS SITUATION AND/OR POSSIBLE DAMAGE TO EQUIPMENT. CAUTIONS TAKE PRECEDENCE OVER NOTES AND ALL OTHER INFORMATION, EXCEPT WARNINGS.

NOTE

NOTE

Generally used to highlight certain information relating to the topic under discussion.

If there are any questions, contact Siemens Industry, Inc. Application Engineering.



ELECTROSTATIC DISCHARGE (ESD) PRECAUTIONS

Static electricity can damage electronic circuitry, particularly low voltage components such as the integrated circuits commonly used throughout the electronics industry. Therefore, procedures have been adopted industry-wide which make it possible to avoid the sometimes invisible damage caused by electrostatic discharge (ESD) during the handling, shipping, and storage of electronic modules and components. Siemens Industry, Inc. has instituted these practices at its manufacturing facility and encourages its customers to adopt them as well to lessen the likelihood of equipment damage in the field due to ESD. Some of the basic protective practices include the following:

- Ground yourself before touching card cages, assemblies, modules, or components.
- Remove power from card cages and assemblies before removing or installing modules.
- Remove circuit boards (modules) from card cages by the ejector lever only. If an ejector lever is not provided, grasp the edge of the circuit board but avoid touching circuit traces or components.
- Handle circuit boards by the edges only.
- Never physically touch circuit board or connector contact fingers or allow these fingers to come in contact with an insulator (e.g., plastic, rubber, etc.).
- When not in use, place circuit boards in approved static-shielding bags, contact fingers first. Remove circuit boards from static-shielding bags by grasping the ejector lever or the edge of the board only. Each bag should include a caution label on the outside indicating static-sensitive contents.
- Cover workbench surfaces used for repair of electronic equipment with static dissipative workbench matting.
- Use integrated circuit extractor/inserters designed to remove and install electrostatic-sensitive integrated circuit devices such as PROM's (OK Industries, Inc., Model EX-2 Extractor and Model MOS-40 Inserter (or equivalent) are highly recommended).
- Utilize only anti-static cushioning material in equipment shipping and storage containers.

For information concerning ESD material applications, please contact the Technical Support Staff at 1-800-793-7233. ESD Awareness Classes and additional ESD product information are also available through the Technical Support Staff.



GLOSSARY

TERM	DESCRIPTION
AREMA	<u>American Railway Engineering and Maintenance-of-way Association</u> - An organization that promotes the development and advancement of both technical and practical knowledge and recommended practices pertaining to the design, construction, and maintenance of railway infrastructure.
LCL	<u>Light Center Length</u> - The distance between the center of the filament, or arc tube, and a reference plane, usually the bottom of the lamp base.



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SECTION 1 INTRODUCTION

1 INTRODUCTION

The Model CLS-10D and CLS-1000 is a rear-access Color Light Signal of modular design, allowing multiple units to be easily stacked together. The model CLS-1000 is an LED version of the CLS-10D. Each unit measures 10 inches in height, 9 inches in width, and 8 inches in depth. With a mounting base, a clearance dimension of 19-1/4, 29, or 38-1/2 inches in height is required when mounting 1, 2, or 3 lamp units respectively.



Figure 1-1 CLS-10D Color Light Signal

The housing, doors, and mounting brackets are of lightweight cast aluminum construction. Neoprene door packing provides a weather-tight, sealed unit. A locking screw secures the hinged door to the lamp housing and utilizes a standard terminal wrench or spanner key to open or close. Additional security may be provided by using a padlock to prevent access to the lock screw.



Each lamp, in the CLS-10D, has a doublet lens combination which produces an aspect of one color. Ventilation is provided to minimize condensation. The CLS-10D is furnished with optical arrangements for tangent track. Antiphantom screens are also available. The outer clear and inner colored doublet lenses measure 6-3/8 and 5-1/2 inches in diameter respectively. The doublet lens combination, with a standard S-11 signal lamp, is prefocused and factory sealed to assure maximum light output. The only adjustment necessary is field alignment accomplished through the use of a built-in sighting device.

A 5 ohm, 1.73 amperes, adjustable lamp resistor is provided for each lamp.

The mounting arrangements available for the CLS-10D are top of mast mounting, side of wall mounting, or base mounting on 8 x 8, or 6-3/4 x 6-3/4 inch bolt spacing. Mounting bracket assemblies are adjustable for both vertical and horizontal alignment.

Visors are furnished in either black, high-density, polyethylene plastic, steel-painted, non-reflective black, or aluminum-painted, non-reflective black.

The Model CLS-10D meets or exceeds all applicable AREMA recommended practices.

1.1 Ordering Information

To order, specify the following:

1. Model CLS-10D Color Light Signal
2. Number of units and color indication (top to bottom)
3. Lens Options, see Table 1-2.
4. Bulb type, see Table 1-4.
5. Visor, see Table 1-3.



1.1.1 Mounting Brackets

Mounting brackets are of lightweight cast aluminum construction. The top of the mast mounting bracket will be furnished for 5-inch pipe mast mounting unless otherwise specified. The mounting base assemblies are to be used for 6-3/4 x 6-3/4 and 8 x 8 inch bolt spacing.

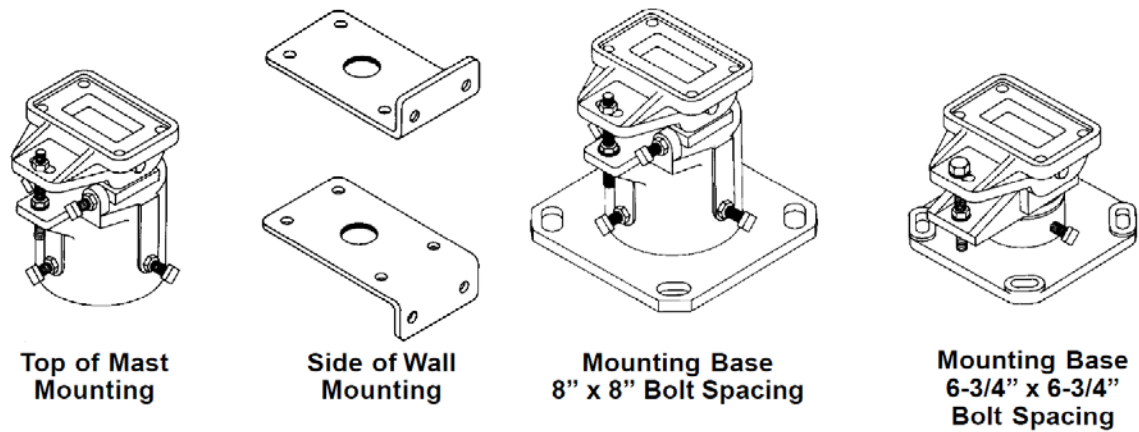


Figure 1-2 Mounting Bracket Options

To order, specify the description and part number:

Table 1-1 Mounting Bracket Part Numbers

Description	Part Number
Top of Mast Mounting Bracket, 5"	042254-2X
Side of Wall Mounting Bracket	042316-X
Mounting Base for 8" x 8" Bolt Spacing	042275-3X
Mounting Base for 6-3/4" x 6-3/4" Bolt Spacing	042275-1X



1.1.2 Lenses

Lenses for the Model CLS-10D Color Light Signal are available in glass or high-impact plastic. Both lens types provide a full face high-intensity indication light. These lenses meet or exceed applicable AREMA recommended practices.

To order, specify diameter, focal length, deflection, color, material, and part number:

Table 1-2 Lens Part Numbers

Diameter	Focal Length	Deflection	Color	Material	Part Number	Application
5-1/2"	1/2"	None	Green	Glass	042257-1G	Inner Doublet
5-1/2"	1/2"	None	Green	Plastic	044050-G	Inner Doublet
5-1/2"	1/2"	None	Lunar	Glass	042257-1L	Inner Doublet
5-1/2"	1/2"	None	Red	Glass	042257-1R	Inner Doublet
5-1/2"	1/2"	None	Red	Plastic	044050-R	Inner Doublet
5-1/2"	1/2"	None	Yellow	Glass	042257-1Y	Inner Doublet
5-1/2"	1/2"	None	Yellow	Plastic	044050-Y	Inner Doublet
6-3/8"	3-3/4"	None	Clear	Plastic	042210	Outer Doublet
6-3/8"	3-3/4"	Universal*	Clear	Plastic	044075	Outer Doublet
6-3/8"	3-3/4"	None	Clear	Glass	042210-2	Outer Doublet
6-3/8"	3-3/4"	40° Deflection Center spot	Clear	Glass	042210-3	Outer Doublet

* 6-3/8" Universal lens optics can be adjusted to provide:

1. Full standard long-range beam indication.
2. Close up deflecting indication to 30 degrees from the beam axis.
3. Additional very close-up deflecting bar indication to 60 degrees from the beam axis.



1.1.3 Visors

Visors for the Model CLS-10D are available in black, high density, polyethylene plastic, aluminum, or steel. Aluminum and steel visors are painted non-reflective black. Visor assemblies listed below include all appropriate mounting hardware.

To order, specify the description and part number:

Table 1-3 Visor Part Numbers

Description	Part Number
Visor, Steel	042005-35X
Visor, Plastic	042005-19X
Visor, Aluminum	042005-107X

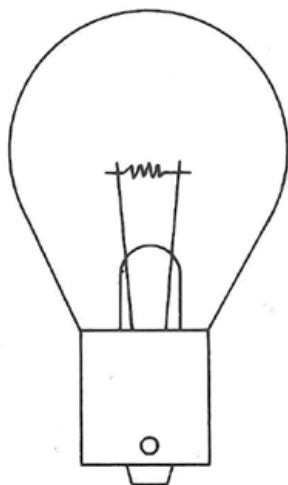


Figure 1-3 Visor Options



1.1.4 Incandescent Signal Bulbs

Replacement bulb information for the CLS-10D color light signal is as follows:



Standard signal bulbs are S-11 S.C. candelabra base with a CC-6 filament arrangement.

The LCL (Light Center Length) is AAR standard 1-1/4 inches. Average life is 10000 hours at specified operating voltage.

Figure 1-4 Standard Signal Incandescent Bulbs

Table 1-4 Standard Signal Incandescent Bulbs

Voltage	Wattage	Part Number
10	18	042365
10	25	024365-3



SECTION 2 MAINTENANCE

2 MAINTENANCE

2.1 Lamp Alignment

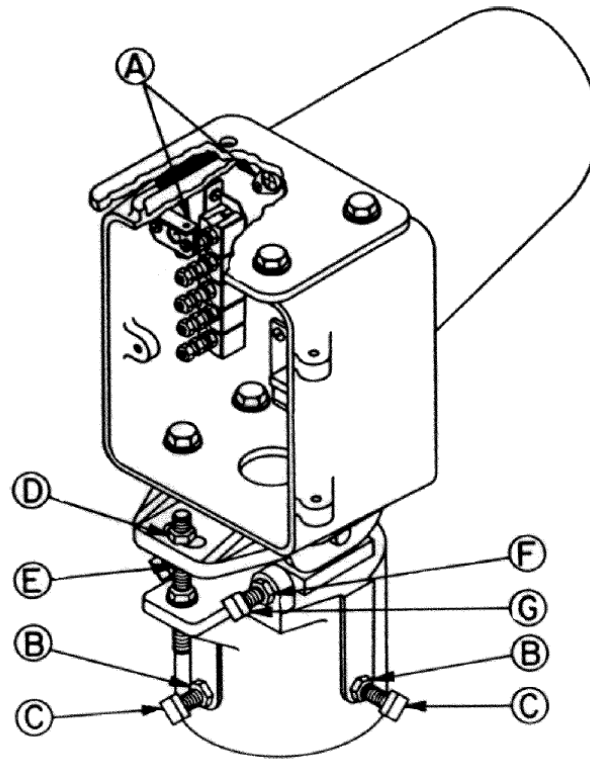


Figure 2-1 Lamp Alignment

Use sighting device A, located in the upper left-hand corner of the lamp until, for proper beam alignment. When more than one lamp unit is used, the sighting device will be located in the bottom unit. Stacks of two or more lamp units are factory aligned.

Both the vertical and horizontal alignments can be made on any of the four different mounting brackets. Once the bracket has been mounted to the mast or foundation, the following adjustments can be made.

Loosen nuts B and bolts C and rotate lamp unit(s) to desired general location. Equally, tighten bolts C and secure by tightening nuts B.



Loosen nut D to allow for final vertical and horizontal alignment. Loosen nut F and turn bolt G to rotate upper bracket left or right for proper horizontal alignment.

Turn nut E to move the rear of the bracket up or down for proper vertical alignment. Once adjustments have been made, tighten nuts D and F securely.

For the side of wall-type mounting brackets to be aligned properly, the brackets must be bolted to the lamp unit(s) before fastening to the wall. While holding the lamp unit(s) against the wall, align lamp units vertically and mark hole locations for drilling. Flat washers may be used to shim the brackets for proper horizontal alignment. Anchor securely to the wall with appropriate mounting hardware.

2.2 Bulb Replacement

The Model CLS-10D lamp units are prefocused with a precision S-11 signal bulb. (See page A-7-4 of Siemens Signal Catalog).

If the light output is inadequate, remove the lamp bulb, rotate 180 degrees, and reinstall. If the light output is still inadequate, the bulb filament is not properly aligned. Replace bulb accordingly.

When using Quartz-Halogen type lamp bulbs, be careful not to touch the surface of the bulb as oil from fingers will be baked to a dark, unremovable deposit due to the high bulb temperature. If touched, clean with a soft cloth and alcohol.



CAUTION

DO NOT TOUCH THE BULB WHEN HOT, A SEVERE BURN WILL RESULT.

2.3 Lens Replacement

When replacing either the inner or outer lens, use only an exact replacement, glass or plastic lens from the same manufacturer. Substitution of lenses other than those for which the unit was originally focused may result in reduced light output. If a substitution other than an exact replacement is necessary, the lamp should be refocused in a signal shop for maximum light output.



SECTION 3 REPLACEMENT PARTS

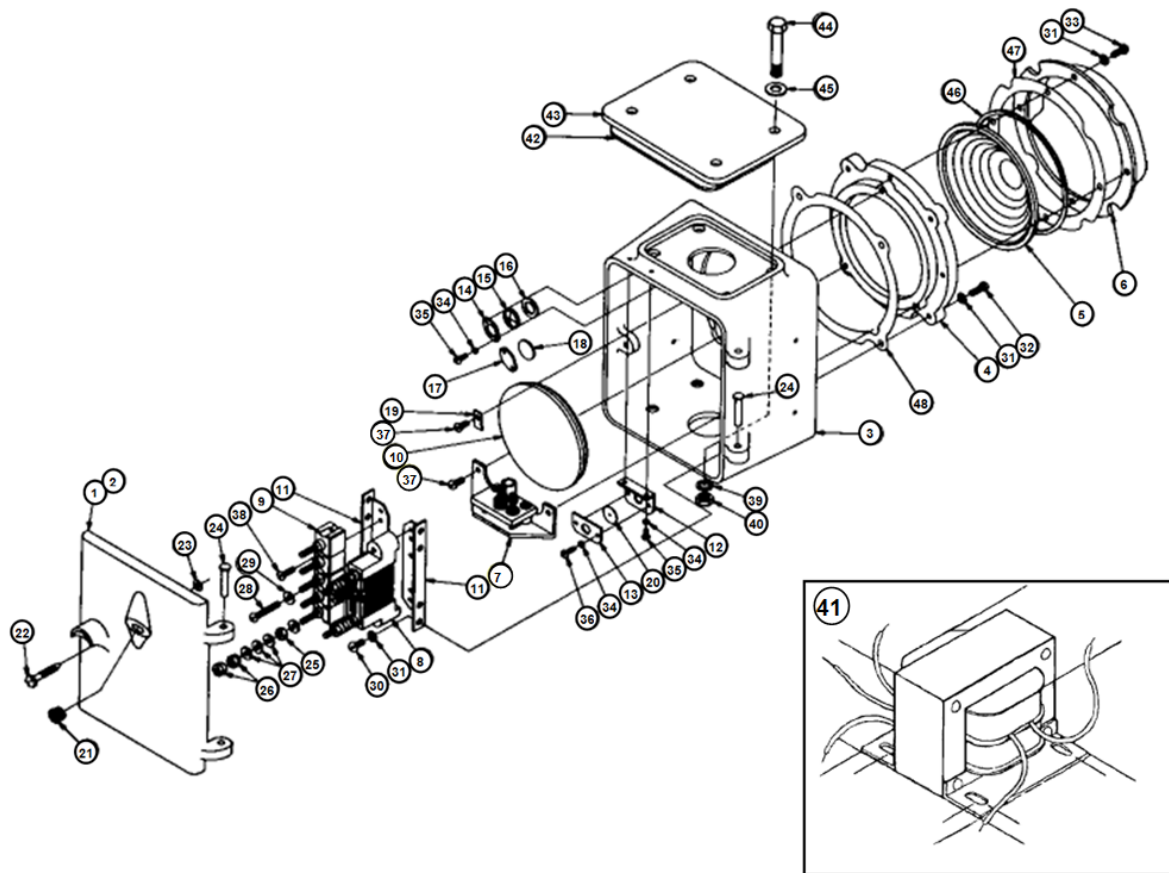
3 REPLACEMENT PARTS

To order specify the description and part number.

Table 3-1 Replacement Parts

Item No.	Description	Qty. Req'd.	Part Number	Item No.	Description	Qty. Req'd.	Part Number
1	Door, CLS-10D	1	042610	29	Washer, Flat, #10	2	1710-SC
2	Gasket, Door	1	104510	30	Machine Screw, Round Head, 1/3" - 20 x .375"	4	2665-RSC
3	Housing, CLS-10D	1	042609				
4	Housing, Lens	1	042611	31	Washer, Spring Lock, M, 1/4"	12	1808-MSC
5	Doublet, Outer (see page C-2-3)	1	Specify	32	Machine Screw, Round Head, 1/4" - 20 x 1"	4	2662-RSC
6	Adapter, Hood	1	042612				
7	Support, Lamp	1	042265-10X	33	Machine Screw, Round Head, 1/4" - 20 x .75"	4	2660-RSC
8	Resistor, Adjustable, 5 Ohm	1	029603-2X				
9	Block, Terminal	5	023390-11X	34	Washer, Spring Lock, M, #10	6	1806-MSC
10	Doublet, Inner	1	Specify	35	Machine Screw, Round Head, #10 - 24 x .5"	4	2590-RSC
11	Bracket	2	042286-8				
12	Bracket, Rear Sight	1	042260-6	36	Machine Screw, Truss Head, #10 - 24 x .312"	2	2589-TSC
13	Plate, Hold Down	1	042260-7				
14	Retainer	1	042261-4	37	Screw, Retaining	3	4266
15	Sight, Front	1	042260-4	38	Machine Screw, Fillister Head, #10 - 24 x .625"	2	2594-LSC
16	Gasket	1	042261-3				
17	Plate, Cover	1	042261-5	39	Washer, Spring Lock, M, 1/2"	4	1812-MSC
18	Gasket	1	042261-6	40	Nut, Hex, 1/2" - 13	4	2108-SC
19	Clamp, Lens	1	042026	41	Transformer	1	019800-11X
20	Disc, Peep Sight	1	042260-3	42	Gasket	2	042268-3
21	Bushing, Vent	1	041913-X	43	Cap Cap Screw, Hex Head,	1	042255-2
22	Screw, Hex Locking	1	042056			4	4173-HSC
23	O-Ring	1	042380	44	1/2" - 13 x 2.75"		
25	Nut, Clamp	5	023832	45	Washer, Lead	4	042268-2
26	Nut, Binding	10	023831	46	Gasket, Lens	1	042611-5
27	Washer, Beveled	20	023834	47	Gasket, Hood Adapter	1	042611-3
28	Machine Screw, Round Head #10 - 24 x 1.5"	2	2600-RSC	48	Gasket, Lens Housing	1	042611-2





NOTE:
If a 110 VAC adjustable lighting transformer
is required, order:
Part Number: 019800-11X

Figure 3-1 Replacement Parts Location



3.1 Lamp Support Bracket Replacement Parts

To order specify the description and part number.

Table 3-2 Lamp Support Bracket Replacement Parts

Item No.	Description	Qty. Req'd.	Part Number
1	Support, Lamp	1	042265-12
2	Plate, Locking	1	042265-13
3	Bracket, Lamp	1	042265-11
4	Washer, Spring Lock, #10	4	1979
5	Machine Screw, Pan Head, #10-32 x .375"	2	2614-PSC
6	Machine Screw, Round Head, #10-32 x.5"	2	2616-RSC
7	Nut, Pal, 7/16" - 20	2	2350-SC
8	Socket, Long Lamp	1	042019-11
9	Nut, Binding	4	023831
10	Washer, Beveled	9	023834
11	Nut, Clamp	2	023832
12	Connector, Offset	1	042265-14
13	Base, Bulb Socket	1	042263-1
14	Post, Terminal	2	023833
15	Wire Assembly	1	042021-1X



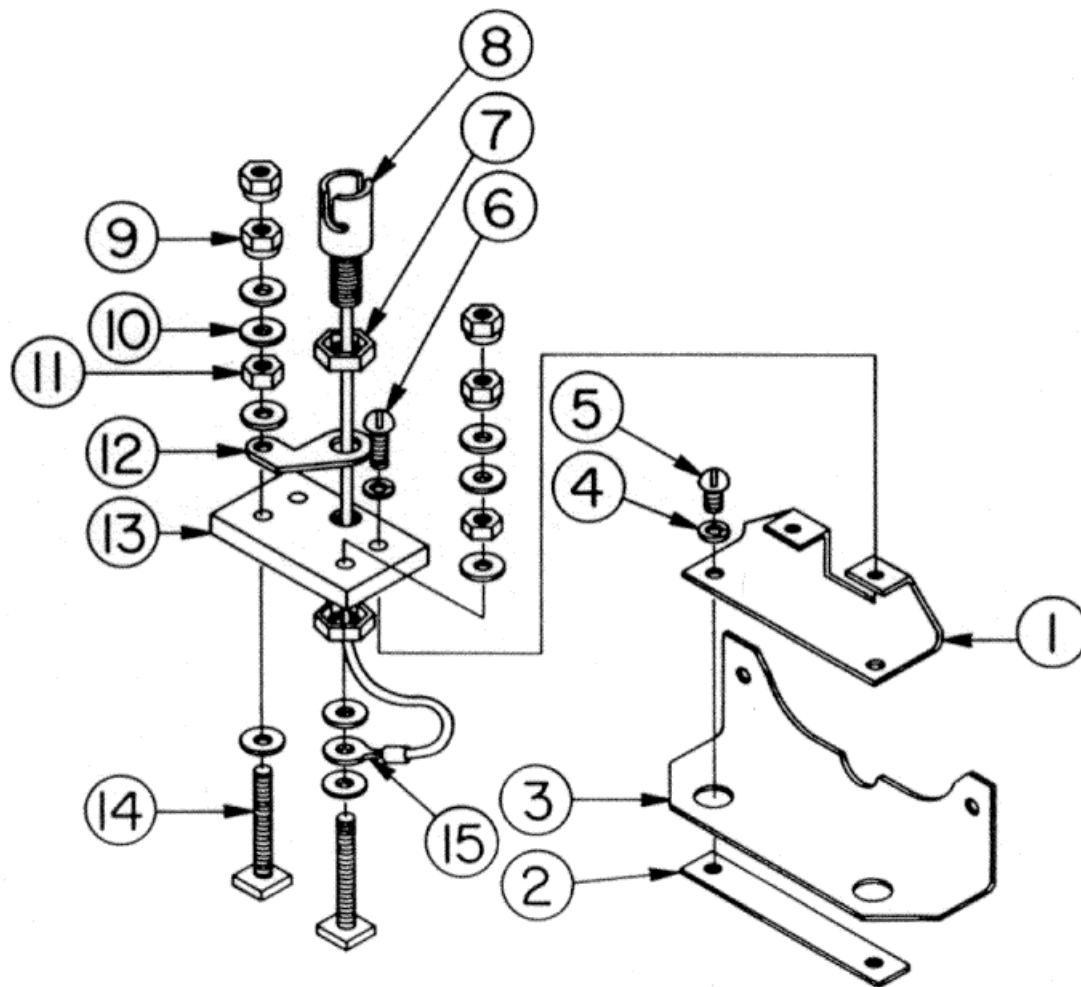


Figure 3-2 Lamp Support Bracket Replacement Parts Location



NOTES



SIEMENS

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