

AMSCO Maintenance Manual



SURGICAL LIGHTING FIXTURES
22-inch Lighthead

(8/87)

P-790290-001

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Rev. 8/87

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SUMMARY OF SAFETY PRECAUTIONS

The following are personnel (WARNINGS) and equipment (CAUTIONS) safety precautions to be observed when operating or servicing this unit. This is a summary listing of safety precautions appearing in the text. Carefully read them before proceeding to use or service the unit. The precautions are repeated where applicable throughout the manual. Observance of these safety precautions will minimize the risk of personal injury or the possible use of improper maintenance methods which may damage the unit or render it unsafe. It is important to understand that these precautions are not exhaustive. AMSCO could not possibly know, evaluate and advise maintenance departments of all conceivable ways in which maintenance might be done or the possible hazardous consequences of each way.

The operation and maintenance procedures recommended by AMSCO are described in this manual. Only these recommended maintenance procedures should be followed.

WARNINGS:

NEVER OPERATE LIGHT WITHOUT HEAT CYLINDER PROPERLY INSTALLED. USE OF FIXTURE WITHOUT HEAT CYLINDER COULD CAUSE PERSONAL INJURY.

MAKE SURE ELECTRICAL POWER TO LIGHTHEAD IS OFF AND THAT LIGHTHEAD IS COOL BEFORE CLEANING.

BE SURE TO DISCONNECT POWER AT MAIN BREAKER AND ALLOW LIGHTHEAD(S) TO COOL BEFORE STARTING ANY MAINTENANCE PROCEDURES.

THE TWO DRIVE RIVETS SECURING THE VERTICAL SUSPENSION TUBE TO THE CARRIAGE SHAFT AND THE TWO DRIVE RIVETS FOR SECURING THE VERTICAL SUSPENSION TUBE TO THE SUSPENSION FORK MUST BE PROPERLY INSTALLED ... OMISSION OR IMPROPER INSTALLATION COULD ALLOW THE LIGHTHEAD TO FALL.

IMPROPERLY INSTALLED ARM ASSEMBLIES MAY SEPARATE FROM VERTICAL SUPPORT TUBE. ADEQUATE PRECAUTIONS MUST BE TAKEN.

THE REMOVAL AND REINSTALLATION OF A CENTRA 360 LIGHTING FIXTURE WILL REQUIRE A MEANS OF SUPPORTING IT WHILE THE MOUNTING HARDWARE IS BEING REMOVED AND REPLACED. IF DONE PHYSICALLY, AT LEAST TWO MEN WILL BE REQUIRED TO HOLD THE FIXTURE WHILE A THIRD REMOVES OR REPLACES THE HARDWARE.

WHEN INSTALLING A CENTRA 360 LIGHTING FIXTURE, BE SURE THAT LOWER NUTS ARE FULLY ENGAGED ON EXTENSION BOLTS. ALLOW AT LEAST 1/16" FROM BOTTOM OF NUT TO END OF BOLT.

CAUTIONS:

If the wires coming from the circuit breaker are connected to terminals 1 and 5 of variable transformer, and wires going to the light are connected to terminals 2 and 3 of variable transformer, the voltage to the light assembly would be between 105 and 170 volts. This excess voltage to the light assembly will reduce the life of the bulb.

Be careful when removing grooved pins from lighthead suspension tube so as not to damage wiring contained in tube.

Do not attempt to lift the lighthead assembly by the reflector; use yoke and support arm.

The commutators at the inboard and outboard pivots have different diameters. Therefore, the brushes are different because they have different radii.

When installing brushes, make sure the brush stamped 001 goes in the holder installed on the outside pivot, and the brush stamped 002 goes in the holder installed on the inside pivot. The ground brush located in the center position of a holder has not been changed. Therefore, the ground brush for inboard or outboard position is the same.

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SECTION 1

GENERAL INFORMATION

The product literature included in this section contains factual data relating to the principal descriptive and identifying characteristics of AMSCO Surgical Lighting Fixtures with 22" Lighthouse. It describes and illustrates general concepts of the equipment, its purpose, capabilities, limitations, and technical specifications. □ □



APPLICATION

This AMSCO Surgical Lighting Fixture affords cool, shadow-reduced, color-corrected light at the operative site. Ideal for minor surgical procedures, obstetrics, and specialized examinations, suspension-tube mounting simplifies fixture installation ... requires only minimal ceiling space.

TYPE

The fixture includes a 54" (1372 mm) long rotating track with 22" (559 mm) diameter lighthouse, to provide low positioning and maximum lateral adjustment. Required ceiling height is 9'2" (2794 mm) to 12'-0" (3658 mm).

DESIGN AND CONSTRUCTION

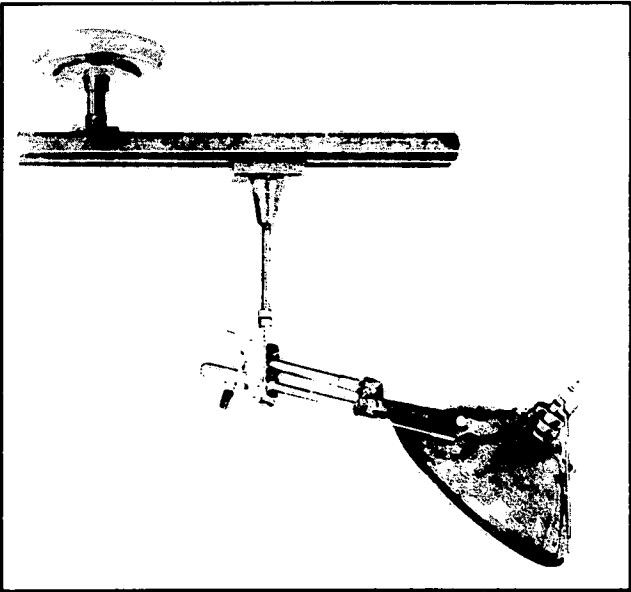
General. We furnish all components necessary to obtain a complete working unit, ready for (but not including) installation and connection to the building electric line. The fixture complies with applicable requirements of NFPA's publications, *National Electrical Code* and *Flammable Anesthetics Code*.

Lighthouse includes:

- an open-dome aluminum reflector, with painted-enamel finish on the outside. The interior is Alzak® (Aluminum Company of America) for 85-90% specular reflection that will never depreciate more than two percent during the useful life of the fixture. The bottom edge has a reinforced, beaded rim protected by a gray vinyl bumper.
- lighthouse mounting. The lighthouse, in a movable yoke, is easily maneuvered from within

ROTOFLEX SERIES
SURGICAL LIGHTING FIXTURE
Suspension Tube/Rotating Track Mounting
• 22" Lighthouse

TECH
DATA



Typical only — some details may vary.

Surgical Lighting Fixture

the sterile field by a removable sterilizable handle, or from outside the sterile field by a remote control on the crossarm. (Three sterilizable handles are furnished with each lighthouse.) A power ON-OFF switch is on the crossarm.

The lighthouse is finely balanced by a tube-enclosed spring mechanism.

THE SELECTION CHECKED BELOW
APPLIES TO THIS EQUIPMENT

Accessory

☐ Variable Intensity Control

*Refer to separate product literature

Item No. _____

Location(s) _____

Service Bulletin Number						
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Because of American Sterilizer Company's continuing program of research and development, all specifications and descriptions are subject to change without notice.

- optical system features a lamp enclosed by a color-correcting, heat-absorbing glass filter, capped to prevent glare.

Two lamps, easily replaceable without tools, are provided with each lighthouse. A selector rod on the outside of the reflector permits choice of small, medium and large light-beam patterns. And, the patterns are changed without interrupting the light beam. The lamp is a 150-watt (clear) spotlight.

Vertical Suspension System: The crossarm is suspended from the track by a seamless, chromium-plated-steel tube (cut to size by others). The upper end of the tube joins a rotary suspension shaft for 360° rotation of the crossarm/lighthouse assembly. There are no exposed tube threads.

A cast-aluminum carriage with painted-enamel finish encloses the rotary suspension shaft. The carriage is supported within the track on bearing-mounted, shock-absorbing bars that allow movement of the lighthouse along the full length of the track.

The track is a rectangular aluminum extrusion with end closures and painted-enamel finish. It is fitted with an insulated duct enclosing two copper bus bars that energize the carriage assembly trolley.

The track is suspended from a bearing-mounted rotary mechanism by a seamless, chromium-plated-steel tube. The mechanism has an adjustable maneuverability control and permits 360° rotation of the track and lighthouse assembly. A painted-steel housing encloses the top and bottom mounting plates. Hardware for securing the rotary mechanism to the ceiling suspension studs (by others) and a painted-enamel aluminum canopy to

conceal the installation at the finished ceiling line are furnished.

Wiring outside of the fixture is contained within polished stainless-steel conduit.

WORKMANSHIP

The entire fixture is expertly finished to eliminate blemishes and other imperfections that might affect its safety, serviceability and appearance. The fixture's design features are fully compatible with the rigid environmental requirements of operating rooms.

Painted Finish. Consists of three sprayed-on coatings: (1) surface primer, followed by air-drying and hand-sanding to a smooth finish; (2) aluminum powder, mixed with clear lacquer and followed by oven-baking; and (3) clear varnish.

PERFORMANCE CAPABILITIES

Maneuverability. The fixture shall move freely, smoothly and quietly throughout its range of maneuverability (see drawing) without drifting when positioned at any point.

Reflector. With the lighthouse in the horizontal plane, it shall be possible to tilt the reflector (by remote control mechanism) 45° forward and backward, 90° laterally left and right.

When in the horizontal plane (with crossarm 82-1/2" [2095 mm] above the finished floor), it shall be possible to raise the reflector 7" (178 mm) without it touching the ceiling. In addition, it shall be possible to lower the reflector 11" (279 mm) without electrical components entering the area above the floor defined as hazardous in National Fire Protection Association's publication *Flammable Anesthetics Code*.

Light Color and Shadows. The color of the light beam (including white) from the light source shall be within the range of the coordinates $x = 0.375$ to 0.400 and $y = 0.375$ to 0.415 (approximately 4000° Kelvin) as measured on a Commission International de l'Eclairage (C.I.E.) chromaticity diagram.

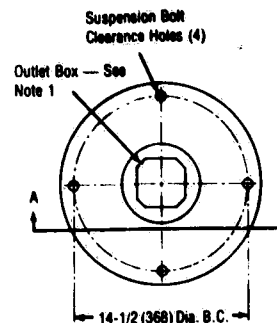
With the light beam on a test field 42" (1067 mm) beneath the reflector rim, an opaque disc (10" [254 mm] diameter) interposed in the beam 22" (559 mm) above the test field shall not cause beam intensity loss greater than 10%.

Beam Intensity. When operating the fixture on 120 volts, the beam intensity on a test field 42" (1067 mm) below the reflector rim shall be as follows when measured by a Weston Meter (Model 756) or other instrument of equivalent accuracy:

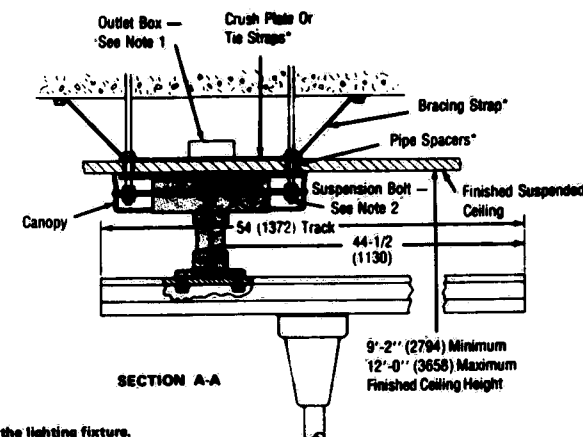
Light-beam Pattern	Minimum Intensity—Footcandles (Lumens/m ²)
Small	4000 (43056)
Medium	2900 (31215)
Large	1800 (19375)

Beam Temperature. The radiant heat energy in the light beam, 20" (508 mm) and 42" (1067 mm) below the reflector rim, shall not exceed 25,000 microwatts per cm² when measured by a thermopile (based upon readings taken with the lighthouse at maximum intensity and after the temperature has stabilized following continuous operation for at least one hour on 120-volt electric power).

Current Leakage. Neither the assembled lighting fixture nor any of its components will demonstrate current leakage of more than 50 microamperes when measured in accordance with Underwriters Laboratories, Inc. Standard 544.



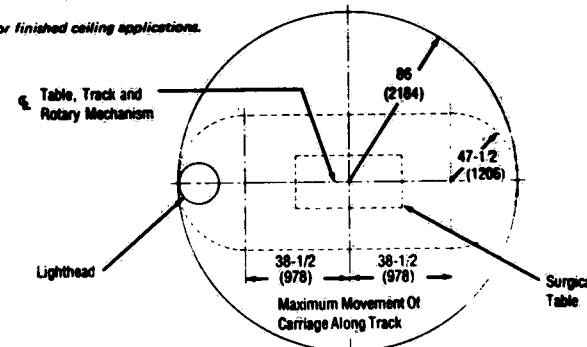
PLAN VIEW



SECTION A-A

Denotes mounting devices furnished with the lighting fixture.

*Not applicable for finished ceiling applications.



RANGE OF MANEUVERABILITY

DIMENSIONS ARE INCHES (MILLIMETRES) EXCEPT WHERE NOTED — DRAWING IS NOT TO SCALE

NOTES:

- Provide 120-volt, 50/60-Hz, 1.5-Amp electrical service. The lighting fixture must be grounded.
- Fixture suspension bolts (not by AMSCO) for installation with a finished ceiling should be fastened securely to ceiling beams or other members and must be capable of supporting 300 pounds (136 kg). Consult installation print for suspension bolt dimensions as well as special precautions required if fixture is to be installed with a finished ceiling.
- AMSCO recommends general illumination in operating room of approximately 200 footcandles (maintained) per square foot (23180 lumens/m²).
- Area coverage shows the range of maneuverability of the lighting fixture. Adequate wall clearances must be allowed. If fixture is to be installed in a room smaller than the overall dimensions shown, an AMSCO representative should be consulted.
- The lighting fixture provides an unrestricted 360-degree rotation of each crossarm and lighthouse.
- Approximate Weight: 175 lbs (79 kg).

This print is for guidance when planning space and utility services. Actual installation prints may be obtained from any AMSCO office or representative.



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APPLICATION

AMSCO Surgical Lighting Fixtures afford cool, shadow-reduced, color-corrected light at the operative site. Ideal for minor surgical procedures, obstetrics, and specialized examinations, suspension-tube mounting simplifies fixture installation ... requires only minimal ceiling space.

TYPE

Fixtures are available with either straight or off-set suspension tube as best suited for your specialized application.

- Straight rotary tube ... features unrestricted 360° rotation of lighthead/crossarm assembly. Minimum ceiling height is 8'-2" (2489 mm); maximum ceiling height, 12'-0" (3658 mm).
- 12" offset rotary tube ... in addition to unrestricted 360° rotation of lighthead/crossarm assembly, it increases radial coverage. Fixture is for ceiling heights between 9'-0" (2743 mm) and 12'-0" (3658 mm).

DESIGN AND CONSTRUCTION

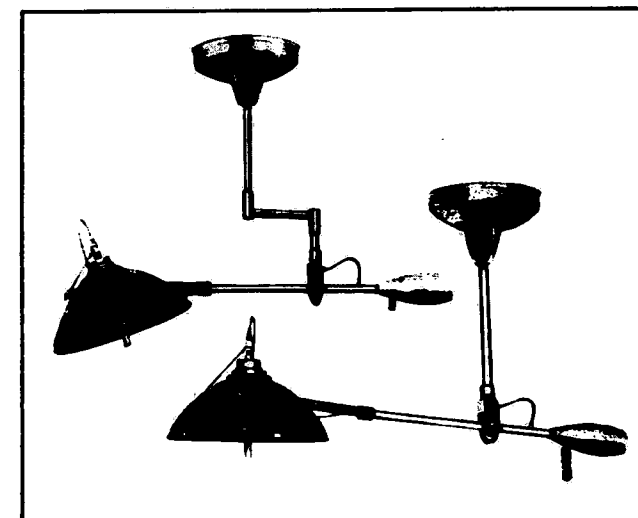
General. We furnish all components necessary to obtain a complete working unit, ready for (but not including) installation and connection to the building electric lines. Details of design, construction and materials comply with applicable requirements of NFPA's publications, *National Electrical Code* and *Flammable Anesthetics Code*.

Lighthead. Each lighthead includes:

- an open-dome aluminum reflector, with painted-enamel finish

ROTOFLEX SERIES Suspension Tube Mounting 22" Lighthead

TECH DATA



Typical only — some details may vary.

on the outside. The interior is Alzak® (Aluminum Company of America) for 85-90% specular reflection that will never depreciate more than two percent during the useful life of the fixture. The bottom edge has a reinforced beaded rim protected by a gray, vinyl bumper.

- lighthead mounting. The lighthead, in a movable yoke, is easily maneuvered from within the sterile field by a removable sterilizable handle, or from outside the sterile field by a remote control on the crossarm. (Three sterilizable handles are furnished with each lighthead.)

THE SELECTIONS CHECKED BELOW APPLY TO THIS EQUIPMENT

Type

- ☐ 22" Lighthead Suspended on a Straight Rotary Tube.
- ☐ 22" Lighthead Suspended on an Offset Rotary Tube.

Optional Accessory*

- ☐ Variable Intensity Control

*Refer to separate product literature.

Item No. _____

Location(s) _____

Because of American Sterilizer Company's continuing program of research and development, all specifications and descriptions are subject to change without notice.

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The lighthouse is balanced by a counterweight at the end of the crossarm.

- optical system features a lamp enclosed by a color-correcting, heat-absorbing glass filter, capped to prevent glare.

Two lamps, easily replaceable without tools, are provided with each lighthouse. A selector rod on the outside of the reflector permits choice of small, medium and large light-beam patterns. And the patterns are changed without interrupting the light beam. The lamp is a 150-watt (clear) spotlight.

Vertical Suspension System. The crossarm is suspended from a ceiling plate by a seamless, chromium-plated-steel tube (cut to size by others). The upper end of the tube joins a rotary suspension shaft for 360° rotation of the crossarm/lighthouse assembly. There are no exposed tube threads.

The cast-brass ceiling support (for mounting by others) encloses the rotary suspension shaft and current-carrying collector ring. We furnish a painted-enamel, aluminum canopy to conceal the ceiling support installation. The entire suspension system so designed that it will not loosen when the lighthouse is positioned. When specified, a matching, tubular off-set member is included as an integral part of the vertical suspension tube.

Wiring outside of the fixture is contained within polished stainless-steel conduit.

WORKMANSHIP

The entire fixture is expertly finished to eliminate blemishes and other im-

perfections that might affect its safety, serviceability and appearance. The fixture's design features are fully compatible with the rigid environmental requirements of operating rooms.

Painted Finish. Consists of three sprayed-on coatings: (1) surface primer, followed by air-drying and hand-sanding to a smooth finish. (2) oxide powder, mixed with clear lacquer and followed by oven-baking; and (3) clear varnish.

PERFORMANCE CAPABILITIES

Maneuverability. The fixture shall move freely, smoothly and quietly throughout its range of maneuverability (see drawing) without drifting when positioned at any point.

Reflector. With the lighthouse in the horizontal plane, it shall be possible to tilt the reflector (by remote control mechanism) 45° forward and backward, 90° laterally left and right.

When in the horizontal plane (with crossarm 82½" [2096 mm] above the finished floor), it shall be possible to raise the reflector 7" (178 mm) without it touching the ceiling. In addition, it shall be possible to lower the reflector 11" (294 mm) without electrical components entering the area above the floor defined as hazardous in National Fire Protection Association's publication *Flammable Anesthetics Code*.

Light Color and Shadows. The color of the light beam (including white) from the light source shall be within the range of the coordinates $x = 0.375$ to 0.400 and $y = 0.375$ to 0.415 (approximately 4000° Kelvin) as measured on a Commission International de l'Eclairage (C.I.E.) chromaticity diagram.

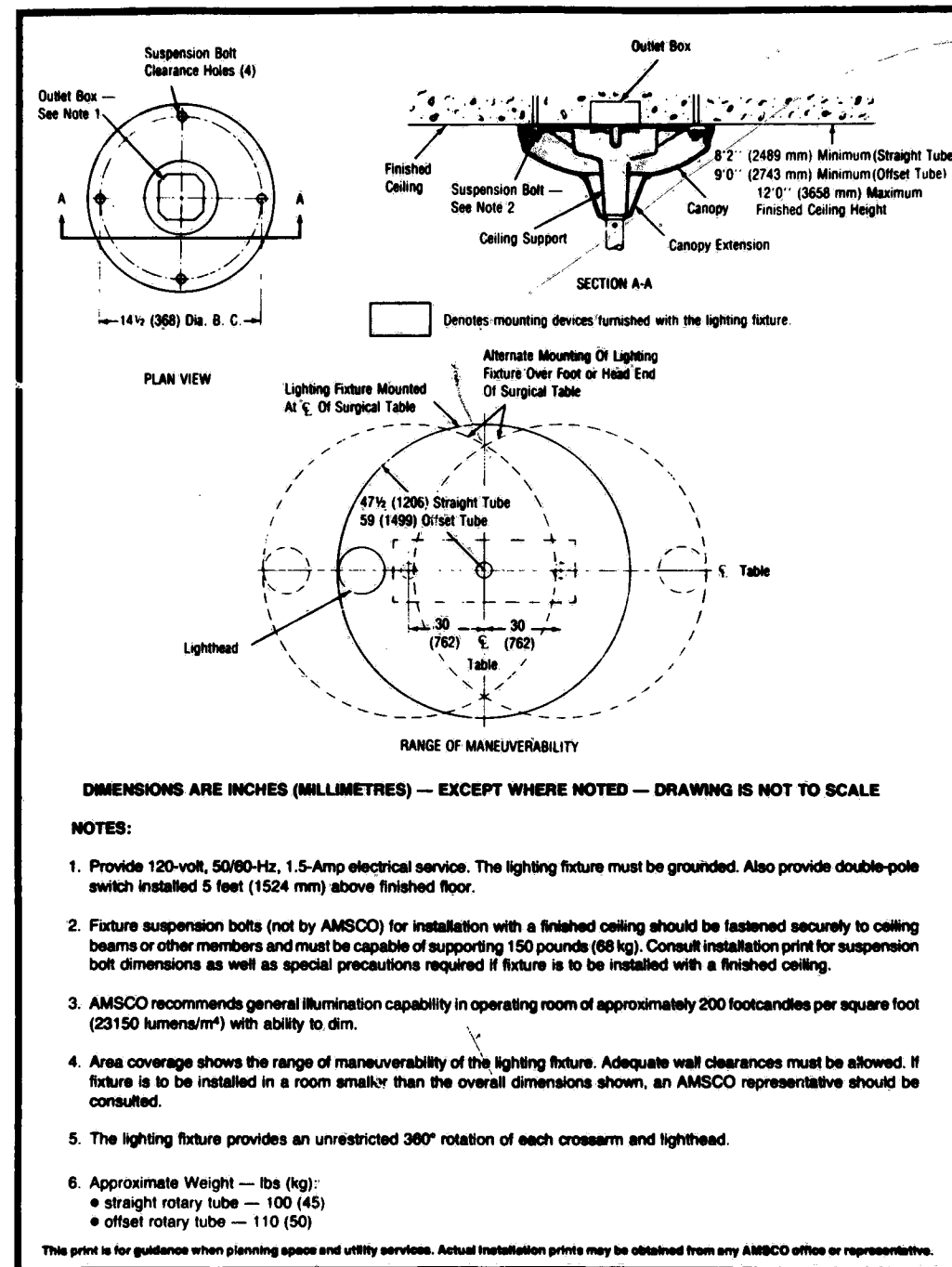
With the light beam on a test field 42" (1067 mm) beneath the reflector rim, an opaque disc (4" [102 mm] diameter) interposed in the beam 22" (559 mm) above the test field shall not cause beam intensity loss greater than 10%.

Beam Intensity. When operating the fixture on 120 volts, the beam intensity on a test field 42" (1067 mm) below the reflector rim shall be as follows when measured by a Weston Meter (Model 756) or other instrument of equivalent accuracy:

Light-beam Pattern	Minimum Intensity Footcandles (Lumens/m ²)
Small	4000 (43,056)
Medium	2900 (31,216)
Large	1800 (19,375)

Beam Temperature. The radiant heat energy in the light beam, 20" (508 mm) and 42" (1067 mm) below the reflector rim, shall not exceed 25,000 microwatts per cm²; when measured by a thermopile (based upon readings taken with the lighthouse at maximum intensity and after the temperature has stabilized following continuous operation for at least one hour on 120-volt electric power).

Current Leakage. Neither the assembled lighting fixture nor any of its components will demonstrate current leakage of more than 50 microamperes when measured in accordance with Underwriters Laboratories Standard 544.





AMSCO

Surgical Lighting Fixtures

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APPLICATION

AMSCO Surgical Lighting Fixtures afford cool, shadow-reduced, color-corrected light at the operative site. Track mountings provide firm support with convenient longitudinal maneuverability for complete coverage of the operative area.

TYPE

A choice of mounting configurations enhances the versatility of these lighting fixtures in meeting the needs of specific surgical procedures. Included are:

- Single 22-inch (559-mm) diameter lighthouse suspended from a 9-foot (2743-mm) long track;
- Single 22-inch (559-mm) diameter lighthouse suspended from a 54-inch long (1372-mm) long track.

Furthermore, the tracks may be either for surface or recess mounting. And they may be installed at finished ceiling heights between 8'-8" (2642 mm) and 12'-0" (3658mm) (surface) and 8'-6" (2591mm) and 12'-0" (3658mm) (recessed). When specified, a special carriage can be supplied to permit installation of any of these fixtures at ceiling heights between 8'-4" (2540mm) and 8'-7" (2616mm) (surface) and 8'-2" (2489 mm) and 8'-5" (2565mm) (recessed).

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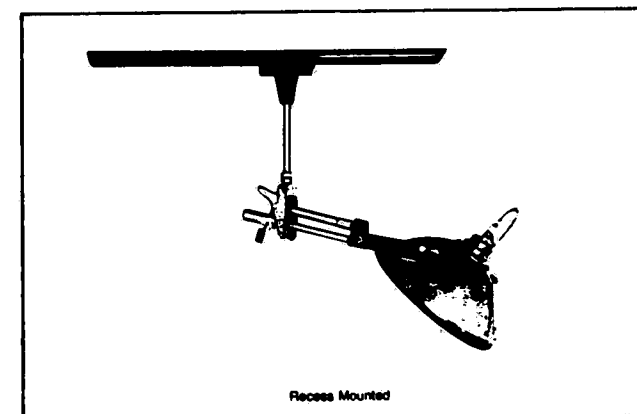
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ROTOFLEX SERIES Stationary Track Mounting 22" Lighthouse

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Typical only — some details may vary.

THE SELECTIONS CHECKED BELOW APPLY TO THIS EQUIPMENT

Type

- ☐ Single 22" (559mm) Lighthouse with 9' (2743mm) Track
- ☐ Single 22" (559mm) Lighthouse with 54" (1372mm) Track

Mounting Arrangement

- ☐ Surface Mounting
- ☐ For Recessing
- ☐ At Finished Ceiling Height Between 8'-4" (2540mm) and 8'-7" (2616mm) Surface Mounting or 8'-2" (2489mm) and 8'-5" (2565mm) For Recessing

Optional Track

- ☐ 12' (3658mm) Track in lieu of 9' (2743 mm) track
- ☐ 15' (4572mm) Track in lieu of 9' (2743 mm) track

Item No. _____

Location(s) _____

DESIGN AND CONSTRUCTION

General. We furnish all components necessary to obtain a complete working unit, ready for (but not including) installation and connection to building electric line. Details of design, construction and materials comply with applicable requirements of NFPA's publications, *National Electrical Code* and *Flammable Anesthetics Code*.

Lighthead. Each lighthead includes:

- **an open-dome, aluminum reflector**, with painted-enamel finish on the outside. The interior is Alzak® (Aluminum Company of America) for 85-90% specular reflection that will never depreciate more than two percent during the useful life of the fixture. The bottom edge has a reinforced, beaded rim protected by a gray, vinyl bumper.
- **Lighthead mounting.** The lighthead, in a movable yoke, is easily maneuvered from within the sterile field by a removable sterilizable handle, or (from outside the sterile field) by a remote control on the crossarm. (Three sterilizable handles are furnished with each lighthead.) The crossarm includes a power ON-OFF switch.

The lighthead is finely balanced by a tube-enclosed spring mechanism.

- **Optical system** features a lamp enclosed by color-correcting, heat-absorbing glass filter, capped to prevent glare. Two lamps, easily replaceable without tools, are provided with each lighthead. A selector rod on the outside of the reflector permits choice of small, medium and large lightbeam patterns. And the patterns are changed without interrupting the light beam. The lamp is a 150-watt (clear) spotlight.

Vertical Suspension System. The crossarm is suspended from the track by a seamless, chromium-plated-steel tube (cut to size by others). The upper end of the tube joins to a rotary suspension shaft for 360° rotation of the crossarm/lighthead assembly. There are no exposed tube threads. The system also includes:

- **Carriage assembly** to enclose the rotary suspension shaft. The carriage is supported within the track on bearing mounted, shock-absorbing bars that allow

movement of the lighthead along the full length of the track. The carriage is finished to match the lighthead.

- **Rectangular extruded-aluminum track** with end closures and painted-enamel finish. When specified, track length may be extended to 12 or 15 feet (3658 or 4572mm).

Each track is fitted with an insulated duct enclosing three copper bus bars, two energize the carriage assembly trolley, and the third provides a grounding path. An easily accessible junction box at one end of the track encloses the bus-bar/supply connections. Hardware is furnished for securing the track to the ceiling suspension support (furnished by others). Surface-mounted tracks include a snug-fitting, vinyl gasket for installation at the juncture of track and ceiling. Extruded-aluminum trim and a steel roughing-in box are provided for recessed tracks.

Wiring outside of the fixture is contained within polished, stainless-steel conduit.

WORKMANSHIP

The entire fixture is expertly finished to eliminate blemishes and other imperfections that might affect its safety, serviceability and appearance. The fixture's design is fully compatible with the rigid environmental requirements of operating rooms.

Painted finish consists of three sprayed-on coatings: (1) surface primer, followed by air-drying and hand-sanding to smooth finish; (2) aluminum oxide powder, mixed with clear lacquer and followed by oven-baking; and (3) clear varnish.

Epoxy finish consists of: (1) electrostatically deposited powder and (2) oven-curing for resistance to abrasion, chemical attack, corrosion, and mechanical damage.

PERFORMANCE CAPABILITIES

Maneuverability. The fixture shall move freely, smoothly and quietly throughout its range of maneuverability (see drawing) without drifting when positioned at any point.

Reflector. With the lighthead in the horizontal plane, it shall be possible to tilt the reflector (by remote control mechanism) 45° forward and backward, 90° laterally left and right.

When in the horizontal plane with crossarm 82½ inches (2096mm) above the finished floor, it shall be possible to raise the reflector 7 inches (178mm) without it touching the ceiling. In addition, it shall be possible to lower the reflector 11 inches (279mm) without electrical components entering the area above the floor defined as hazardous in National Fire Protection Association's publication *Flammable Anesthetics Code*.

Light Color and Shadows. The color of the light beam (including white) from the light source shall be within the range of the coordinates $x = 0.375$ to 0.400 and $y = 0.375$ to 0.415 (approximately 4000° Kelvin) as measured on a Commission International de l'Eclairage (C.I.E.) chromaticity diagram.

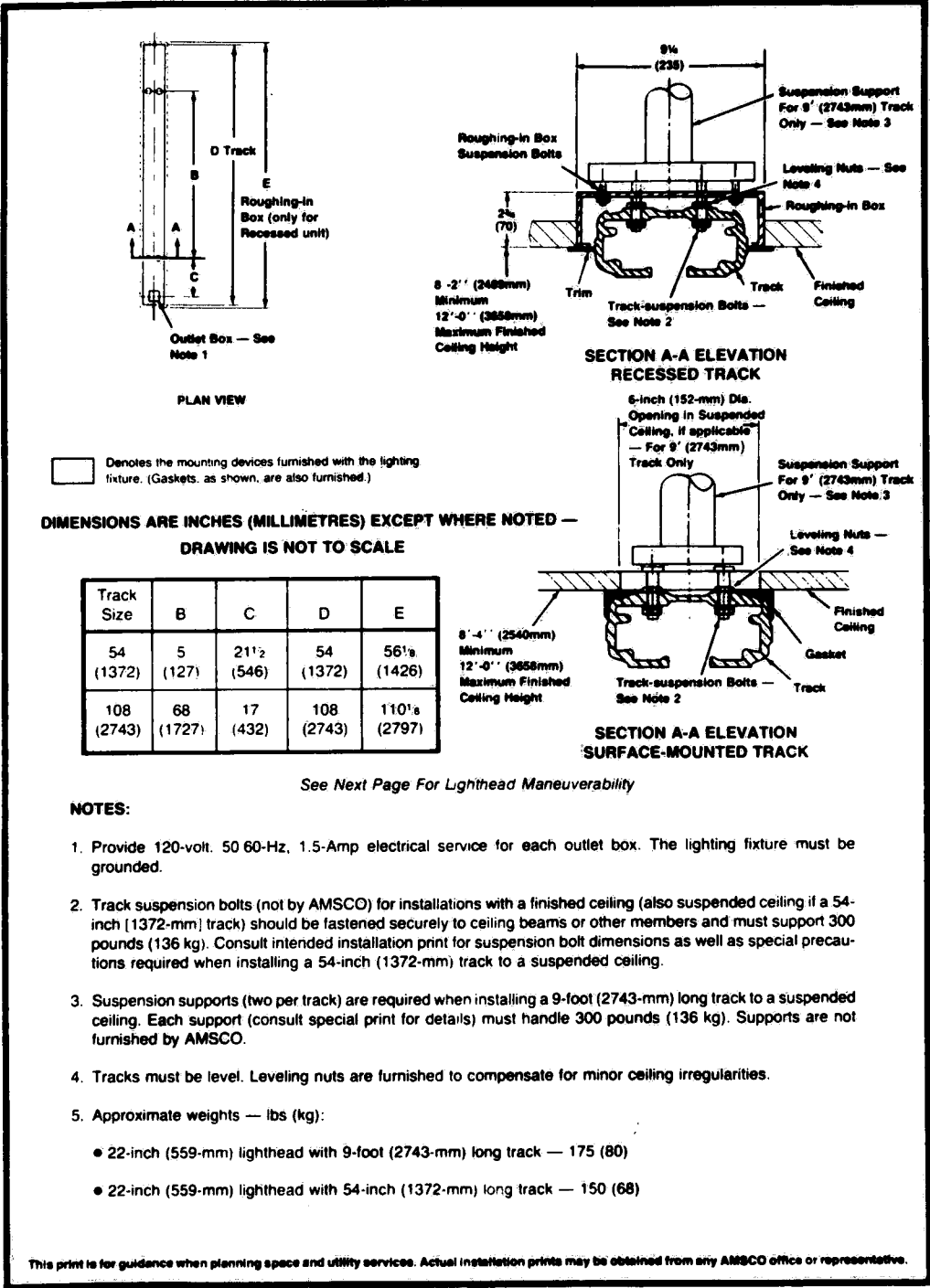
With the light beam on a test field 42 inches (1067mm) beneath the reflector rim, an opaque disc with a 4 inch (102mm) diameter interposed in the beam 22 inches (559mm) above the test field shall not cause beam intensity loss greater than 10%.

Beam Intensity. When operating the fixture on 120 volts, the beam intensity on a test field 42 inches (1067 mm) below the reflector rim shall be as follows when measured by a Weston Meter (model 756) or other instrument of equivalent accuracy:

Light-beam Patterns	Intensity Footcandles (Lumens/m²)			
Small	4000 (43.056)			
Medium	2900 (31.216)			
Large	1800 (19.375)			

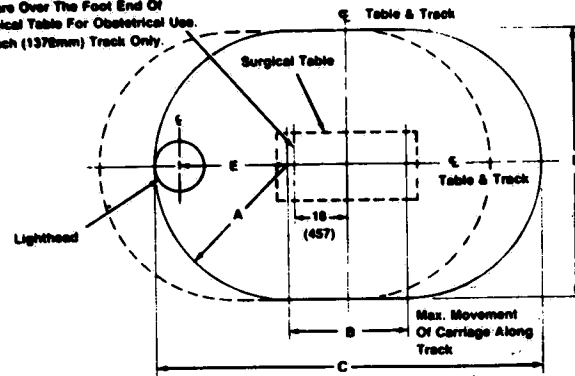
Beam Temperature. The radiant heat energy in the light beam, 20 inches (508mm) and 42 inches (1067 mm) below the reflector rim, shall not exceed 25,000 microwatts per cm², when measured by a thermopile (based upon readings taken with the lighthead at maximum intensity and after the temperature has stabilized following continuous operation for at least one hour on 120-volt electric power).

Current Leakage. Neither the assembled lighting fixture nor any of its components will demonstrate current leakage of more than 50 microamperes per lighthead when measured in accordance with Underwriters Laboratories Incorporated, Standard 544.



RANGE OF MANEUVERABILITY

Alternate Mounting of Lighthead
Fixture Over The Foot End Of
Surgical Table For Obstetrical Use.
54-inch (1378mm) Track Only.



Track Size	A	B	C	D	E
54 (1372)	47 1/2 (1206)	40 (1016)	135 (3429)	95 (2413)	35 (889)
108 (2743)	47 1/2 (1206)	91 (2311)	186 (4724)	95 (2413)	35 (889)

DIMENSIONS ARE INCHES (MILLIMETRES) EXCEPT WHERE NOTED —
DRAWING IS NOT TO SCALE

NOTES

1. AMSCO recommends general illumination capability in operating room of approximately 200 footcandles per square foot (23,150 Lumens/m²) with ability to dim.
2. Adequate wall clearances must be allowed for the range of maneuverability shown above. If fixture is to be installed in a room smaller than the overall dimensions shown, an AMSCO representative should be consulted.
3. The lighting fixture provides an unrestricted 360-degree rotation of each crossarm and lighthead

This print is for guidance when planning space and utility services. Actual installation prints may be obtained from any AMSCO office or representative.



APPLICATION

Centra 360 gives a cool, shadow-reduced, color-corrected light at the operative site for even the most demanding and complex surgical procedures.

MOUNTING CONFIGURATIONS

Centra 360 is available in five mounting configurations ... there's a model for most any requirement. Configurations feature either a single, double or triple 22-inch (559-mm) diameter lighthead/crossarm arrangement, each supported by a centrally mounted horizontal arm. The support arm is 24 inches (610mm) or 36 inches (914mm) long ... see SELECTIONS.

DESIGN AND CONSTRUCTION

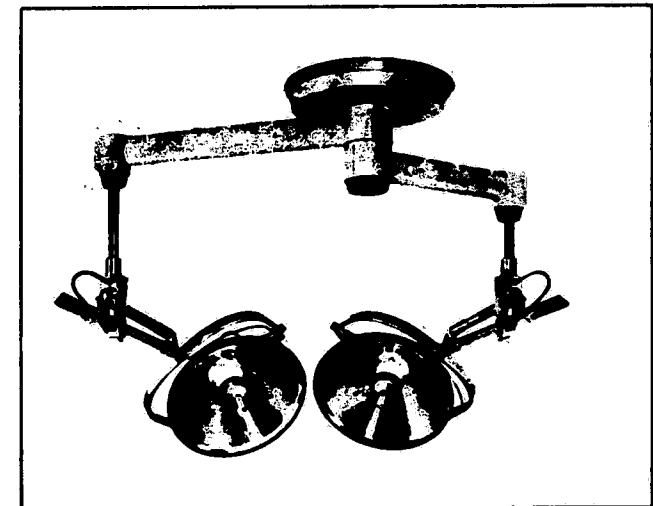
General. We furnish all components necessary to obtain a complete working unit, ready for (but not including) installation and connection to the building electric line. The fixture complies with applicable requirements of NFPA's *National Electric Code* and *Flammable Anesthetics Code* and is listed by Underwriters Laboratories, Incorporated.

Lighthead features:

- an open-dome aluminum reflector, with a painted-enamel finish on the outside. The interior is Alzak® (Aluminum Company of America) for 85-90% specular reflection. And it will not depreciate more than two percent over the useful life of the unit. The bottom edge has a reinforced beaded rim protected by a gray, vinyl bumper.
- crossarm mounting assembly. The lighthead is in a movable yoke, for complete, easy maneuverability (from within the

ROTOFLEX SERIES
For Central Hub Mounting
• Centra 360

TECH
DATA



Typical only — some details may vary.

THE SELECTIONS CHECKED BELOW
APPLY TO THIS EQUIPMENT

Mounting Configuration (includes one lighthead per support arm)

- ☐ One 24" (610mm) Long Support Arm
- ☐ One 36" (914mm) Long Support Arm
- ☐ One 24" (610mm) and One 36" (914mm) Long Support Arm
- ☐ Two 36" (914mm) Long Support Arms
- ☐ One 24" (610mm) and Two 36" (914mm) Long Support Arms

Optional Accessory*

- ☐ Variable Intensity Control

*Refer to separate product literature.

Item No. _____
Location(s) _____

Because of American Sterilizer Company's continuing program of research and development, all specifications and descriptions are subject to change without notice.

sterile field) by a sterilizable handle ... or (from the outside) by a remote control on the crossarm. Three sterilizable handles are furnished with each lighthead. The lighthead is suspended within the yoke by a crosspiece; and is finely balanced by a tube-enclosed spring mechanism. A power ON-OFF switch is on the crossarm.

- optical system with adjustable, spring-loaded focusing. Pushing an easily accessible rod (outside the lighthead) produces small, medium and large light-beam patterns; changing the pattern does not interrupt the light beam. Lightheads employ 150-watt (clear) spotlight lamps, easily replaceable without tools. (Two lamps are furnished with each lighthead.) Lamps are enclosed by color-correcting, heat-absorbing glass filters with aluminum cap covers to prevent direct glare.

Vertical Suspension System Each crossarm is suspended from a vertical, seamless, chromium-plated-steel tube (cut to size by others). The lower end of the tube is joined to the crossarm vertical suspension fork; the upper end, to a rotary suspension shaft. There are no exposed threads at the joints.

The rotary suspension shaft moves on tapered roller bearings housed at one end of the horizontal arm. The arm, affixed to a central roller-bearing housing, is supported by a cast-iron ceiling plate. The bearing housing at each end features a pivot and commutator (1) to supply electrical power to the lamp, (2) to provide non-stop rotation of the lighthead and (3) to provide non-stop rotation of both the lighthead and arm. Both pivots include an adjustable brake which can be easily set to the desired position.

Hardware is furnished for securing the ceiling plate to the studs of the ceiling suspension supports (extension bolts and supports are by other.). An epoxy-coated, spun-aluminum canopy is also furnished to conceal the ceiling plate ... a vinyl gasket seals the gap between the canopy and ceiling.

Wiring outside of the fixture is contained within polished, stainless-steel conduit.

ACCESSORY

Optional Variable Intensity Control is available. (Refer to separate product literature for details.)

WORKMANSHIP

The entire fixture is expertly finished to eliminate blemishes and other imperfections that might affect the safety, serviceability and appearance of the fixture. Its design features are fully compatible with the rigid environmental requirements of operating rooms.

Painted Finish. Consists of three sprayed-on coatings: (1) surface primer, followed by air-drying and hand-sanding to a smooth finish; (2) aluminum oxide powder mixed with clear lacquer, followed by oven-baking; and (3) clear varnish.

Epoxy Finish consists of an electrostatically deposited powder, oven-cured for resistance to abrasion, chemical attack, corrosion, and mechanical damage.

PERFORMANCE CAPABILITIES

Maneuverability. The fixture shall move freely, smoothly and quietly throughout its range of maneuverability without drifting when positioned at any point.

Reflector. With the lighthead in the horizontal plane, it shall be possible to tilt the reflector (by the remote control mechanism) 45° forward and backward; 90° laterally, left and right.

When in the horizontal plane with the crossarm 82½ inches (2096mm) above the finished floor, it shall be possible to raise the reflector 7 inches (178mm) without it touching the ceiling. In addition, it shall be possible to lower the reflector 11 inches (279mm) without electrical components entering the area above the floor defined as hazardous in National Fire Protection Association's publication *Flammable Anesthetics Code*.

Area of Coverage. When in the horizontal plane, the lighthead shall provide unrestricted (continuous) 360° rotation. The radius of this imaginary circle (measured from the centerline of the vertical extremity of support arm suspension system to the vertical axis of the reflector) shall be 35¼ inches (895mm).

Moreover, the horizontal support arm must provide unrestricted (continuous) rotation as follows: an overall

radius of 59¼ inches (1505mm), if a 24-inch (610mm) long support arm and 71¼ inches (1810mm), if a 36-inch (914mm) long arm (centerline of mounting hub to centerline of lighthead); or maximum radius of 70¼ inches (1800mm) and 82½ inches (2105mm), respectively (centerline of mounting hub to outermost edge of reflector rim).

Light Color and Shadows. The color of the light beam (including white) from the light source shall be within the range of the coordinates $x = 0.375$ to 0.400 and $y = 0.375$ to 0.415 (approximately 4000° Kelvin) as measured on a Commission International de l'Eclairage (C.I.E.) chromaticity diagram.

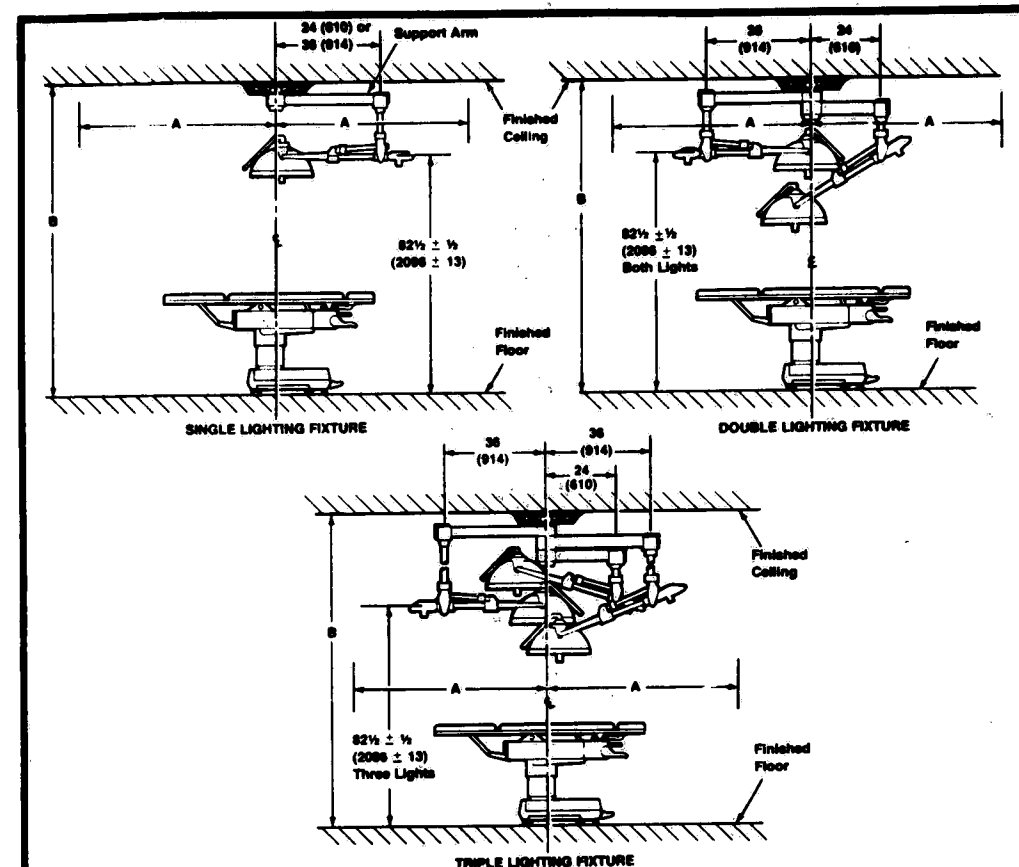
With the light beam on a test field 41 inches (1067mm) beneath and in the center of the reflector rim and an opaque disc with a 4-inch (102mm) diameter interposed in the beam 22 inches (559mm) above the test field, the beam intensity loss shall not exceed 10%.

Beam Intensity. When operating the fixture on 120 volts, the beam intensity in a test field 42 inches (1067mm) below the reflector rim shall be as follows when measured by a Weston Footcandle Meter (Model 756) or other instrument of equivalent accuracy:

PATTERN	INTENSITY — Footcandles (Lumen/m²)
Small	4000 (43,056)
Medium	2900 (31,216)
Large	1800 (19,375)

Beam Temperature. The radiant heat energy in the light beam, 20 inches (508mm) and 42 inches (1067mm) below the reflector rim, shall not exceed 25,000 microwatts per cm², when measured by a thermopile (based upon readings taken with the lighthead at maximum intensity and after the temperature has stabilized following continuous operation for at least one hour on 120-volt electric power).

Current Leakage. Neither the assembled lighting fixture nor any of its components will demonstrate current leakage of more than 25 microamperes per lighthead when measured in accordance with Underwriters Laboratories, Incorporated Standard 544.

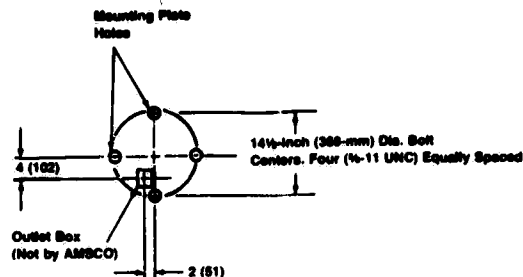


DIMENSIONS ARE INCHES (MILLIMETERS) — DRAWING IS NOT TO SCALE

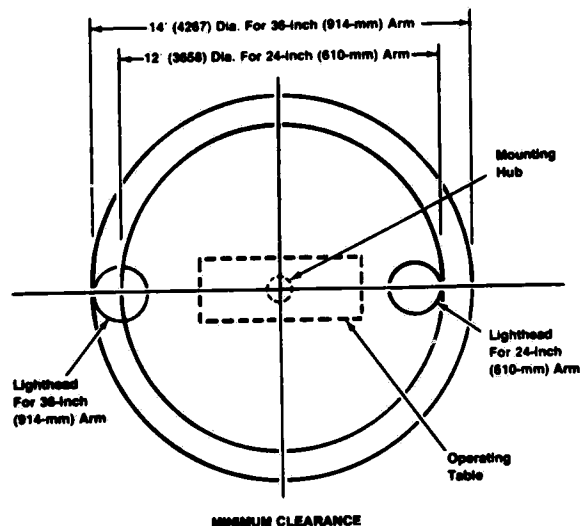
MOUNTING ARRANGEMENT	A MINIMUM CLEARANCE	B CEILING HEIGHT MIN. MAX.	MOUNTED WEIGHT — lbs (kg)	MOMENT FORCE — lb-ft (kg-m)
One 24" (610mm) Arm	8'0" (1829)	8'5½" (2578) 12'0" (3658)	121 (54.9)	300 (41.49)
One 36" (914mm) Arm	7'0" (2134)	8'5½" (2578) 12'0" (3658)	122 (55.4)	350 (48.40)
One 24" (610mm) Arm & One 36" (914mm) Arm	7'0" (2134)	8'10" (2692) 12'0" (3658)	202 (91.7)	650 (89.90)
Two 36" (914mm) Arms	7'0" (2134)	8'10" (2692) 12'0" (3658)	220 (99.9)	700 (96.81)
One 24" (610mm) Arm & Two 36" (914mm) Arms	7'0" (2134)	9'2½" (2807) 12'0" (3658)	283 (128.5)	1000 (138.3)

SEE NEXT PAGE FOR MOUNTING PLATE DETAILS, MINIMUM CLEARANCE DRAWING AND NOTES PERTAINING TO EACH MOUNTING ARRANGEMENT.

This print is for guidance when planning space and utility services. Actual installation prints may be obtained from any AMSCO office or representative.



MOUNTING PLATE HOLE LOCATION
(VIEW FROM FLOOR)



MINIMUM CLEARANCE

DIMENSIONS ARE INCHES (MILLIMETERS) UNLESS OTHERWISE NOTED — DRAWING IS NOT TO SCALE

NOTES

1. Provide 120-volt, 50/60 Hz, (1.5 Amp, single lighthouse; 3 Amp, double lighthouse; 4.5 Amp, triple lighthouse) electric service. The lighting fixture must be grounded. Also provide double-pole switch 5 ft. (1524mm) above finished floor.
2. Mounting plate must be level. Leveling nuts are furnished to compensate for ceiling irregularities.
3. Ceiling structure must adequately support lighting fixture. See weights and moments on previous page.
4. Fixture construction permits complete non-stop rotation (360°) of both the support arm(s) and the lighthouse(s).
5. AMSCO recommends general illumination in operating room of approximately 150 footcandles (1615 lumen/m²), maintained.

This print is for guidance when planning space and utility services. Actual installation prints may be obtained from any AMSCO office or representative.

AMSCO | AMERICAN STERILIZER COMPANY • 2424 WEST 23rd STREET • ERIE • PENNSYLVANIA 16512



AMSCO

VARIABLE INTENSITY CONTROL
• for surface mounting • for recessing

TECH
DATA

SD-105R6
(3/76)

APPLICATION

With Variable Intensity Control, light intensity may be conveniently decreased or increased as desired for the surgeon's visual comfort.

DESIGN AND CONSTRUCTION

Details of design and construction conform to the requirements of the National Fire Protection Association's publications *National Electrical Code*. The unit is listed by Underwriters Laboratories, Incorporated and Canadian Standards Association.

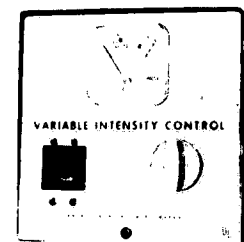
Wide-range control. For use on Alternating Current only ... single voltage-regulator knob provides control of input voltage to the surgical lighting fixture ... from 85 volts for low-intensity lighting ... to 135 volts for maximum light intensity.

Combination ON-OFF switch circuit breaker ... on the front of the unit ... controls electric power to the Variable Intensity Control and to the surgical lighting fixture.

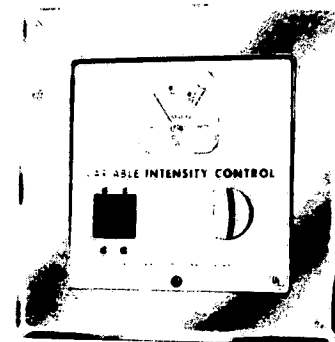
Clearly graduated voltmeter indicates input voltage to the lighting fixture.

Choice of mounting (at least five feet above the finished floor):

- For surface mounting to the finished wall. Mounting holes are in the rear panel of the housing.
- For recessing into the finished wall. Roughing-in box with corrosion-resistant painted finish and stainless-steel finishing panel are provided. This mounting style assures maximum cleanliness and aesthetic appeal.



For Surface Mounting



For Recessing

Typical only — some details may vary

Attractive painted-steel housing consisting of side, top and rear panels and a removable aluminum front panel with anodized natural finish encloses the transformer (rated at 120 volts, 60 Hz, 700 watts). Adequate knock-outs for conduit fittings are in the housing.

Multiple lamp control. More than one surgical lighting fixture may be controlled by one Variable Intensity Control, providing total power consumption of each such grouping does not exceed 700 watts. When power consumption is greater, two or more Variable Intensity Control units must be used. Also, only one unit may be used for a track mounted fixture having two light heads on a single track.

Current Leakage from the assembled Variable Intensity Control will not exceed 20 microamperes, when measured in accordance with Underwriters Laboratories Standard 544.

THE SELECTIONS CHECKED BELOW
APPLY TO THIS EQUIPMENT

Mounting
☐ Surface
☐ Recessed

Item No. _____
Location(s) _____

Because of American Sterilizer Company's continuing program of research and development, all specifications and descriptions are subject to change without notice.
Printed in U.S.A.

SECTION 2

OPERATING INSTRUCTIONS

2.1. GENERAL

The following instructions are intended to guide the serviceman: (1) when instructing operators in techniques designed to ensure optimum equipment performance; and (2) when verifying validity of operator complaints. See Paragraph 3-4, TROUBLESHOOTING, if Fixture is not operating properly. Refer to Section 1, GENERAL INFORMATION, for capabilities of the equipment.

2.2. OPERATING INSTRUCTIONS

WARNING: NEVER OPERATE LIGHT WITHOUT HEAT CYLINDER PROPERLY INSTALLED. USE OF FIXTURE WITHOUT HEAT CYLINDER COULD CAUSE PERSONAL INJURY.

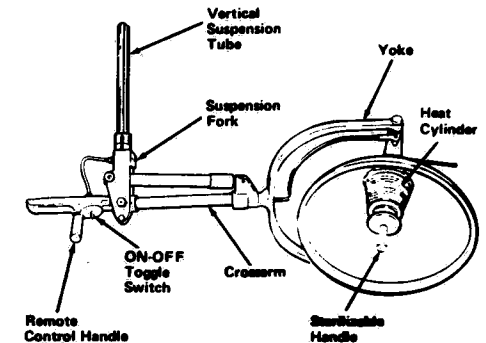


Figure 2-1. OPERATING THE LIGHTHEAD.

central hub. All movements can be made by either the handle on lighthead or the knurled Remote Control Handle.

Light Pattern Adjustment (Fig. 2-2)

Select light pattern size (small, medium or large) by moving Pattern Selector Arm to one of three positions indicated (by letters S, M, L) on reflector.

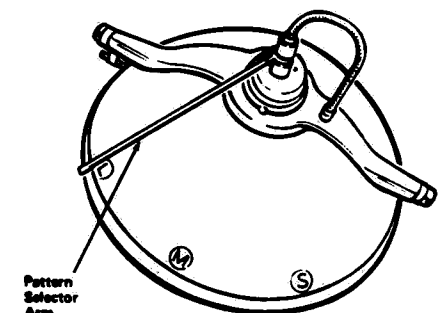


Figure 2-2. SELECTING LIGHT PATTERN.

Lamp Switch (Fig. 2-1)

An ON-OFF Toggle Switch is near the Remote Control Handle on track-mounted and Centra 360 lightheads. A wall-mounted switch is customer-installed for suspension tube mountings. If Fixture has a Variable Intensity Control, use Circuit Breaker Switch on the control panel to turn lighthead on and off. If two or three lightheads are controlled by the Variable Intensity Control, one or two of them may be turned off by the lighthead Toggle Switch.

Lighthead Movement (Fig. 2-1)

The lighthead may be (1) rotated continuously around vertical suspension tube; (2) rotated clockwise or counterclockwise about horizontal crossarm (within the limits of stops); (3) tilted forward or backward in yoke; and (4) raised or lowered by pivoting at suspension fork. Depending upon Fixture, lighthead may also be traversed full length of track or rotated continuously around

NOTES

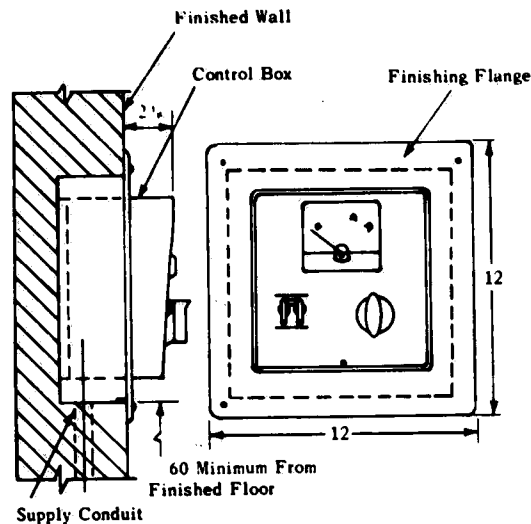
1. Approximate weight of control unit: 17 lbs.
2. Opening in wall to receive rough box must be 10" wide x 10" high x 3" deep.
3. Control box must be at least 5'-0" above finished floor to meet NFPA requirements.
4. Provide 120-volt, 60-Hz electric service. Maximum load - 700 watts. Fixture must be grounded.

... CHECK LOCAL CODES ...

NOTES:

1. Approximate weight of control unit: 11 lbs.
2. Control box must be securely mounted on wall.
3. Control box must be at least 5'-0" above finished floor to meet NFPA requirements.
4. Provide 120-volt, 60-Hz electric service. Maximum load - 700 watts. Fixture must be grounded.

... CHECK LOCAL CODES ...

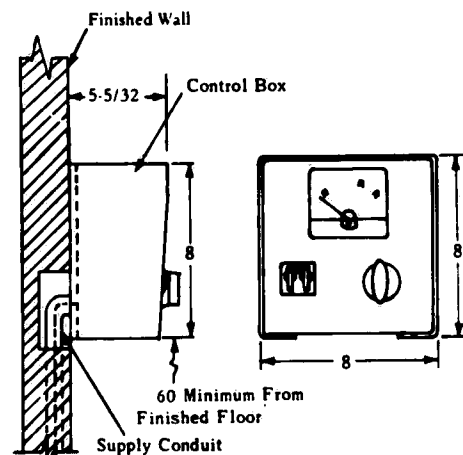


SIDE VIEW FRONT VIEW

FOR RECESSING

DIMENSIONS ARE INCHES - DRAWING IS NOT TO SCALE

(When ordering multiple control units allow space for each unit)



SIDE VIEW FRONT VIEW

FOR SURFACE MOUNTING

This print is for guidance when planning space and utility services. Actual installation prints may be obtained from any AMSCO office or representative.

Optional Variable Intensity Control (Fig. 2-3)

The wall-mounted Variable Intensity Control regulates light intensity. To operate Control, press Circuit Breaker Switch to ON. Turn Control Knob Clockwise to increase light intensity; counterclockwise, to decrease intensity.

An integral voltmeter indicates voltage to lamp(s) at each Intensity Control Knob setting.

By periodically observing voltmeter, one can approximate light intensity and prolong lamp life by reducing voltage whenever high intensity lighting is not required. Also, turning intensity to its lowest setting before turning off Control will increase lamp life.

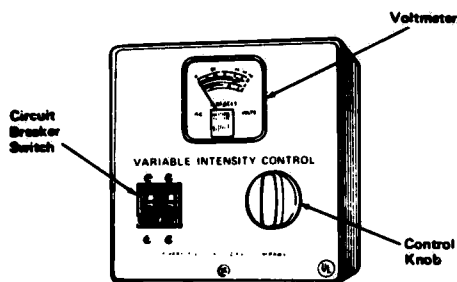


Figure 2-3. LIGHT INTENSITY CONTROL.

2-3. CLEANING INSTRUCTIONS

WARNING: MAKE SURE ELECTRICAL POWER TO LIGHTHEAD IS OFF AND THAT LIGHT-HEAD IS COOL BEFORE CLEANING.

Reflector

Periodically dust reflector with a soft dry cloth. As necessary, clean reflector with AMSCO Surgical Reflector Cleaner (Part P-75683-091) ... follow directions on container. To remove stubborn soil, use a nonabrasive paste-type cleaner ... try a sample spot first. Do not use abrasive cleaning compounds to clean reflector.

NOTE: A mild soap or detergent and water, though less effective, is an acceptable substitute for the AMSCO cleaner. Rinse with clean water and dry thoroughly.

Heat Cylinder

Wipe cylinder clean with a slightly dampened cloth.

Lamp Handle

To clean, remove handle from lighthead by turning counterclockwise. The handle may then be steam sterilized. □ □

3.1. GENERAL

The maintenance described in Paragraphs 3-2 and 3-3 should be performed at intervals best determined by usage of the equipment. Should a problem occur when operating the unit, refer to Paragraph 3-4, TROUBLESHOOTING.

3.2. ROUTINE INSPECTION

1. Inspect entire installation for any signs of damage or misaligned parts.
2. Be sure ceiling fasteners are tight and that Fixture is properly supported.
3. Check lighthead movement (Par. 2-2) using both remote control handle and lamp handle. Be sure each movement is smooth and that there is no binding.
4. Check electrical components for loose wires, improper connections and other obvious defects.
5. Refer to Paragraph 4-2 and remove lamp. Check it for proper wattage and type ... medium base, 150 watt - P25 spotlight, silvered bowl, clear lamp.

NOTE: Proper lamp and voltage are necessary to provide the focus needed to assure correct beam pattern at the operative site. Rated life of lamp at proper voltage is 200 hours. A decrease in voltage will reduce intensity and increase lamp life; an increase in voltage will increase intensity and reduce lamp life. Continuous operation of a 120-volt lamp at 140 volts will reduce its life to 30 hours ... refer to Paragraph 2-2 for proper operation of the Variable Intensity Control.

6. If installation includes optional Variable Intensity Control, operate light to be sure intensity increases when control knob is turned clockwise;

SECTION 3**INSPECTION AND MAINTENANCE**

decreases when knob is turned counterclockwise. Be sure voltage as indicated on voltmeter is between 85 and 140 volts.

3-3. PREVENTIVE MAINTENANCE

1. If a track-mounted light, lubricate carriage wheels with LUBRIPLATE No. 630-AA (AMSCO Part 751454, manufactured by Fiske Brothers Refining Co. - 2-ounce tube) or equivalent non-drip lubricant. Wipe off excess. (Note: Wheels should be lubricated at least once a year.)

2. Thoroughly inspect (Par. 3-2) and clean (Par. 2-3) the Fixture.

3. Setscrews (item 17, Figure 5-9) in yoke and cross-arm may come loose. These are the 1/4 x 20 x 1/4 steel, cup point, Allen-Hollow, headless setscrews.

Check the position of the yoke and the tightness of the setscrews.

Yoke collar should be up against counterbalance spring collar.

Setscrews should be tight enough to deform the metal of the supporting yoke.

After completing physical check, rotate yoke by hand and observe that supporting tube also rotates.

3-4. TROUBLESHOOTING

1. Use operating procedures presented in Section 2 to verify trouble symptoms.
2. After symptom has been verified, refer to Table 3-1. From the table, select example that is most appropriate to your problem. Follow recommended correction.
3. Use Electrical Schematics (Figs. 3-1, 3-2 and 3-3) as aids in understanding operation of the Fixture and in locating problems.
4. Refer to Section 4, COMPONENT REPAIR AND REPLACEMENT. □ □

Service Bulletin
Number

Service Bulletin
Number

TABLE 3-1. TROUBLESHOOTING CHART

PROBLEM	SUGGESTED CORRECTION
1. Lighthead and arm assembly drifts up or down	<p>a. Tighten suspension Fork Swivel Assembly (Fig. 5-7) as follows:</p> <ol style="list-style-type: none"> 1) Loosen Setscrews (17) 2) Tighten Hex Bolts (16) until desired friction is obtained 3) Tighten Setscrews to lock hex bolt setting
2. Lighthead rotates about crossarm out of balance	a. Refer to Figure 5-7 and tighten Hex-head Nuts (18) at bottom of Suspension Fork (13)
3. Carriage drifts (track-mounted lights only)	<p>a. Be sure Track is level. Adjust Nuts above and below Track on ceiling support studs</p> <p>NOTE: If Track cannot be leveled, a brake assembly is available for attachment to the track.</p>
4. Light flickers	<p>a. Examine all connections; tighten or repair, as necessary</p> <p>b. Track-mounted Lights: Remove Carriage Assembly from Track (Par. 4-7) and examine Collector Ring Assembly:</p> <ol style="list-style-type: none"> 1) If Assembly is as shown in Figure 5-5 (utilizing one brush spring), order items 32, 35 and 36 and convert Assembly to arrangement shown in Figure 5-5A for equipment shipped after 3/73 2) If Assembly is as shown in Figure 5-5A (utilizing two brush springs); be sure Brushes (37) are making proper contact with Collector rings (10) throughout suspension tube rotation, and that Brushes and Collector Rings are free of dirt and other foreign substances that will prevent proper contact <p>c. Centra 360: Remove Brush Holder Assembly (Par. 4-8 or 4-9 and Figure 5-12).</p>

TABLE 3-1. (Continued)

PROBLEM	SUGGESTED CORRECTION
4. Continued	<ol style="list-style-type: none"> 1) Examine Collector Rings. Be sure Rings are free of dirt and other foreign substances that will prevent proper contact. 2) Reinstall Insulator Strip and Brush Holder (Fig. 5-12). Be sure that Insulator Strip does not rub against the Brush and that Insulator Strip spans the Brush Block. 3) For units shipped before 6/79, install new style brush holder and brushes. Order one kit, part P-764315-406 for each lightarm.
5. Light intensity or beam pattern is poor	<ol style="list-style-type: none"> a. Clean Reflector and Heat Cylinder (Par. 2-2) b. Replace Heat Cylinder if it is clouded with a white substance c. Be sure Lamp is of the proper wattage, type and voltage (Para. 3-2, step 5); replace, if necessary d. Lamp age reduces efficiency of light output; replace, if necessary
6. Electrical leakage on track-mounted light is excessive	a. Equip Fixture with newly designed low-leakage Trolley Duct. Order items 2 and 4 from Figure 5-4; item 15 from Figure 5-5A. (Use part numbers for equipment shipped after 3/73.) Instructions for making the change will be furnished with your order.
7. Output voltage from Variable Intensity Control is too high or bulbs are burning out prematurely	<p>Check that wiring is as follows (refer to Figure 3-3):</p> <ol style="list-style-type: none"> 1. Wire from circuit breaker terminal 1 is connected to variable transformer terminal 5. 2. Wire from circuit breaker terminal 4 is connected to variable transformer terminal 2. 3. Wires to light assembly are connected to variable transformer terminals 2 and 3. <p>When the Variable Intensity Control is wired as shown in Figure 3-3, the output voltage to the light assembly will be between 85 and 140 volts.</p> <p>CAUTION: If the wires coming from the circuit breaker are connected to terminals 1 and 5 of variable transformer, and wires going to the light are connected to terminals 2 and 3 of variable transformer, the voltage to the light assembly would be between 105 and 170 volts. This excess voltage to the light assembly will reduce the life of the bulb.</p>

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4.1. GENERAL

WARNING: BE SURE TO DISCONNECT POWER AT MAIN BREAKER AND ALLOW LIGHT-HEAD(S) TO COOL BEFORE STARTING ANY OF THE FOLLOWING PROCEDURES.

4.3. LIGHTHEAD AND SUSPENSION TUBE

2. Remove nameplate (Fig. 5-7, 12) from suspension fork (13). Disconnect the two supply wires.

8. Reassemble items in reverse order.

NOTE: All lightheads are now equipped with double-pole, single-throw switches. Unless the switch to be replaced is single pole, single throw (furnished only on earlier models), replacement is by direct substitution. When ordering a replacement for the SPST model, specify conversion

kit. Use the following instructions when making the conversion.

1. Be sure power to fixture is off.
2. Remove existing SPST switch.

3. Cut the supply wire that runs directly from suspension fork to lighthead. Connect both supply line wires to one side of new DPST switch as shown in Figure 4-1.

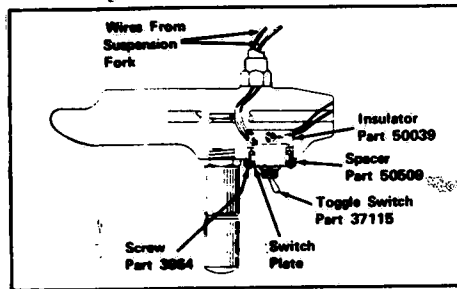


Figure 4-1. REPLACING SPST POWER SWITCH.

4. Connect remaining two wires from lighthead to opposite side of switch.

5. Install insulator, switch and spacer in control housing as shown in Figure 4-2 using existing switch plate and screws provided with conversion kit.

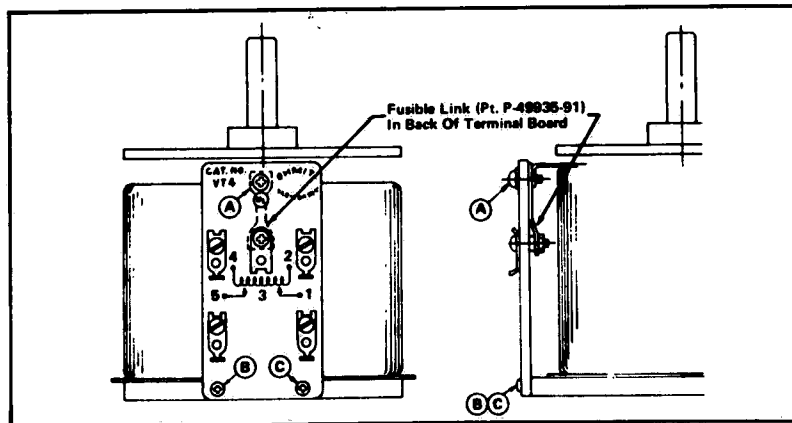


Figure 4-2. REPLACING FUSIBLE LINK ON VARIABLE INTENSITY CONTROL - Units Shipped Before 5/66.

4-5. OPTIONAL VARIABLE INTENSITY CONTROL

Fusible Link

NOTE: Variable Intensity Controls shipped before 5/66 were equipped with a 3.5 amp Ohmite VT-4 transformer. A fusible link is located directly in back of the transformer terminal board. Should such a unit (Fig. 5-13) not function after an overload or short circuit, the fusible link (29) should be checked as follows:

1. Be sure power to unit is off.
2. Remove control knob from transformer shaft.
3. Remove screw at lower front of control panel and slip panel down to remove it from control box.

4. Refer to Figure 4-2; check for continuity between screws (A) and (3) as shown. If continuity does not exist, replace fusible link as follows:

- a. Remove screws A, B and C.
- b. Lift terminal board from transformer and turn over for access to fusible link.

c. Remove and replace fusible link within the short black insulating sleeve between screw (A) and terminal (3).

5. Reassemble the Variable Intensity Control in reverse order.

4-6. SUSPENSION TUBE INSTALLATION - Track-mounted Fixtures

1. Refer to Paragraph 4-3 for lighthead and suspension tube removal.

2. Screw suspension tube onto the carriage shaft while feeding the wires through the tube.

3. Put a screwdriver through the shaft (to prevent it from turning) and tighten the tube until the holes line up. Then remove the screwdriver (Fig. 4-3).

WARNING: THE TWO DRIVE RIVETS SECURING THE VERTICAL SUSPENSION TUBE TO THE CARRIAGE SHAFT AND THE TWO DRIVE RIVETS FOR SECURING THE VERTICAL SUSPENSION TUBE TO THE SUSPENSION FORK MUST BE PROPERLY INSTALLED . . . OMISSION OR IMPROPER INSTALLATION COULD ALLOW THE LIGHthead TO FALL.

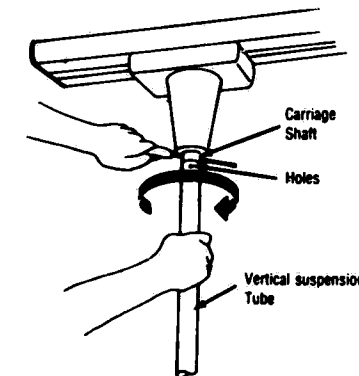


Figure 4-3. ATTACHING TUBE TO CARRIAGE.

Cross Section With Rivets Properly Installed

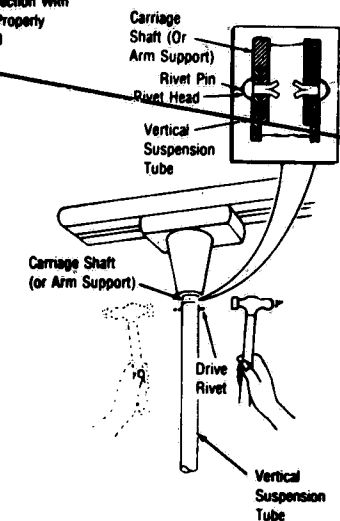


Figure 4-4. DRIVING RIVETS.

4. Insert a round-head drive rivet (29/32 long) into each hole drilled through the carriage shaft and the vertical suspension tube. Using a hammer, tap the protruding rivet pins (Fig. 4-4) until they are flush with the rivet heads as shown in cross-sectional insert on Figure 4-4.

5. Mount lighthead assembly.

CAUTION: Do not attempt to lift the lighthead assembly by the reflector; use yoke and support arm.

a. Slip the collar over the lower end of the vertical suspension tube, tapered end up. Slide the collar up the tube out of the way and secure in place with tape.

b. Raise the lighthead assembly and guide the suspension fork onto the vertical suspension tube (Fig. 4-5) while feeding the supply wires through the access opening in the fork.

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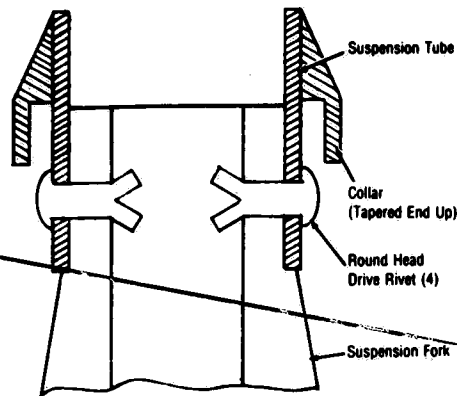


Figure 4-5. PROPER RIVET INSTALLATION.

c. Align the holes in the vertical suspension tube and the suspension fork. Insert the round-head drive rivets, part P-83632-002, into each of the two holes. **DO NOT DRIVE RIVET CENTER PINS AT THIS TIME.**

d. Check that the collar is placed on the vertical suspension tube with the tapered end up.

e. Tap the rivet pins with a hammer until pins are flush with rivet heads.

f. Remove tape from collar and slip collar down suspension tube. Engage rivet heads in slots on collar and slide collar down over rivet heads.

6. Verify proper installation of light arm suspension.

NOTE: Two people are required to inspect light arm suspension: one to support the light and arm and one to hold vertical support tube.

WARNING: IMPROPERLY INSTALLED ARM ASSEMBLIES MAY SEPARATE FROM VERTICAL SUPPORT TUBE. ADEQUATE PRECAUTIONS MUST BE TAKEN.

a. Place a cloth-type strap wrench on vertical support tube above suspension fork.

b. While supporting light arm assembly, hold vertical support tube with strap wrench to prevent rotation of tube. Lift horizontal suspension arm and attempt to rotate light around vertical support.

c. If light arm rotates with suspension tube held in place, lower drive rivets have not been properly installed. Remove lighthead from vertical support.

d. Replace light arm assembly or vertical suspension tube following procedure outlined in this paragraph.

4-7. CARRIAGE ASSEMBLY — TRACK-MOUNTED FIXTURE

NOTE: Adjustment or replacement of carriage-mounted items such as current collector ring and trolley assemblies will require removal of lighthead from carriage and carriage from track. To do so, proceed as follows.

1. Refer to Paragraph 4-3 and remove lighthead from fixture.

2. Surface-mounted Track:

a. Remove end plate (Fig. 5-4, 8) and angle stop (5) from track at end opposite supply box (6).

b. Carefully roll carriage out of track and trolley out of trolley duct (2).

3. Recessed Track:

NOTE: The carriage may be removed from a recessed track in one of two ways. You may either (a) remove wheels and tilt carriage out of track or (b) remove track from ceiling.

a. To remove carriage from track:

- Move carriage to end of track (Fig. 5-4) opposite supply box (6).

- Remove wheel and axle assemblies (Figs. 5-5 thru 5-5E, 16-23) from carriage (27).

- Lower carriage slightly and carefully slide trolley (15) out of trolley duct (Fig. 5-4, 2).

- Remove carriage and trolley assembly from track.

b. To remove track (with carriage installed) from ceiling:

- Remove finishing-trim strips from around track (Fig. 5-4).

- Remove cover (10) from supply box (6) and disconnect supply lines.

- With track well supported, remove mounting hardware (4 places).

- Carefully lower track and carriage from ceiling.

- Remove carriage from track as described in step 2.

4. Troubleshooting

a. If light flickers or dims as it is pushed along the track, replace plastic trolley (15, Figs. 5-5 thru 5-5E) and plastic duct (2, Fig. 5-4, see NOTE 1, page 5-7).

b. If loss of light is evident when carriage is at either end of the track, check for splitting plastic duct ends (2, Fig. 5-4), and replace.

c. If excessive force is required to push light along track or to rotate light about carriage, the plastic rivets used to affix the copper pickup strip to

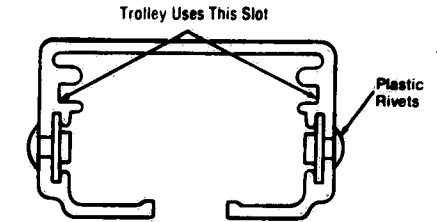


Figure 4-6. PLASTIC TROLLEY DUCT.

the duct may have sheared and become lodged between the trolley brush and the duct. See Figure 4-6. Remove sheared plastic rivet.

d. Additional binding can occur if, when inserting the plastic trolley into the duct, the wiper arms catch and bend over, due to improper adjustment. Remove the plastic trolley (15, Figs. 5-5 thru 5-5E) and straighten wiper arms. Adjust wiper arm contacts so that the distance between the top of the plastic trolley and the top of the wiper arm contact is $1/4 + 1/32, -0$ inch. See Figure 4-7.

e. Binding can occur if trolley is installed in the wrong slot on the duct. After installing the plastic trolley (15, Figs. 5-5, 5-5A), check the installation to ensure the trolley is in the right track. See Figure 4-6 for correct slot.

f. Rubbing of the carriage on the bottom of the track is caused by excessive milling of the axle slot of some carriage assemblies. See Figures 4-8 and 4-9, and replace carriage (27, Figs. 5-5 thru 5-5E).

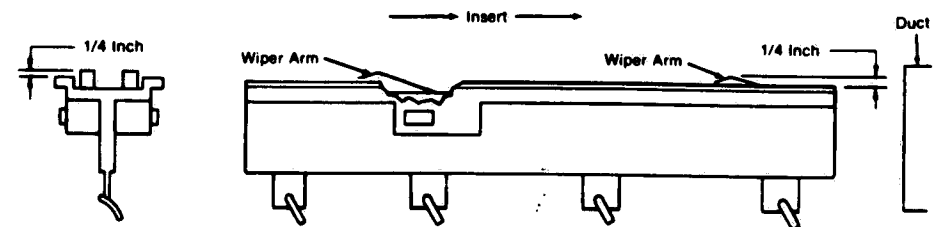


Figure 4-7. PLASTIC TROLLEY.

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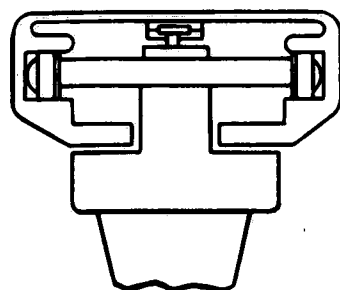


Figure 4-8. TRACK AND CARRIAGE ASSEMBLY.

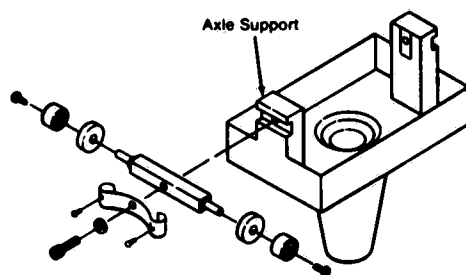


Figure 4-9. CARRIAGE CASTING.

5. Reassemble items in reverse order. Make certain polarity on trolley and trolley duct are the same... see following before placing carriage and trolley assembly in track.

a. For Equipment Shipped Prior to 3/73 (Fig. 5-5): The wire colors on the sliding collector must match the wires that are fastened to the copper strips in the Trol-E-Duct.

b. For Equipment Shipped During and After 3/73 (Figs. 5-5A and B): Wire colors are marked on both the trolley duct and trolley. Be sure the colors are matched when inserting the carriage into the track. Also, use caution when inserting the trolley in the trolley duct so as not to damage the sliding contacts on top of the trolley.

4-8. SUPPORT ARM OUTER PIVOT — CENTRA 360 (Figs. 5-12)

Brake Adjustment

1. Be sure power to fixture is off.
2. Remove cover assembly (Fig. 5-12, 42; Figs. 5-12A and B, 32) from end of arm.
3. Using a 5/16" Allen wrench, tighten or loosen adjustment screw (Fig. 5-12, 42; Figs. 5-12A and B, 12) on brake assembly (Fig. 5-12, 36; Figs. 5-12A and B, 31) until proper friction (when rotating lighthead and suspension tube) is obtained.

NOTE: Proper friction is only that amount required to prevent drift when lighthead is placed in a set position. Excessive friction will increase wear on brake lining and can cause noisy operation.

4. Replace cover assembly.

Brush Replacement

NOTE: For units shipped prior to 6/79, refer to paragraph 4-14 for additional information.

1. Be sure power to fixture is off.
2. Remove cover assembly (Fig. 5-12, 42; Figs. 5-12A and B, 32) from end of arm.
3. Disconnect wires from brush holder assembly (Fig. 5-12, 4; Figs. 5-12A and B, 5). Secure wires (bend sideways) so that they will not slip into hub.
4. Remove the three screws which secure brush holder (Fig. 5-12, 39; Figs. 5-12A and B, 8); remove brush holder from arm.
5. Slide brushes (Fig. 5-12, 3; Fig. 5-12A, 7 and 60 or 61; Fig. 5-12B, 7 and 62 or 63) out of brush holder and replace.
6. Examine collector rings (Fig. 5-12, 30; Figs. 5-12A and B, 39) for burned spots, dirt, etc., and clean as necessary.
7. Reassemble items in reverse order. Be sure black wire is connected to top terminal on brush holder, white wire to bottom terminal, and insulator strip does not rub against brushes. Insulator strip should span the brush blocks.

Spindle and Collector Ring Removal

NOTE: If fixture is installed to a plastered or slab ceiling and clearance between top of support arm and ceiling is not sufficient for removing spindle assembly (approximately 8"), remove fixture from ceiling before proceeding (Par. 4-10).

1. Refer to Paragraph 4-3 and remove lighthead and suspension tube.
 2. Refer to "Brush Replacement," this Paragraph, and remove brush holder assembly (Fig. 5-12, 4; Figs. 5-12A and B, 5).
 3. Remove adjustment screw and spring washers from brake assembly (Fig. 5-12, 36; Figs. 5-12A and B, 31).
 4. Bend back tab on lockwasher (Fig. 5-12, 28; Figs. 5-12A and B, 35) at bottom arm support (Fig. 5-12, 34; Figs. 5-12A and B, 29) and using a spanner wrench, loosen locknut (Fig. 5-12, 27; Figs. 5-12A and B, 36). Remove locknut, lockwasher and lower bearing (Fig. 5-12, 29; Figs. 5-12A and B, 33) from support assembly.
 5. Remove support and brake assemblies through opening in top of support arm.
- NOTE: Follow steps 6, 7 and 8 only to remove collector rings from arm support.
6. Release strain relief at bottom of support by disassembling sealing grip (Fig. 5-12, 26; Figs. 5-12A and B, 44).
 7. Slide lower collector ring (Fig. 5-12, 30; Figs. 5-12A and B, 39) downward while carefully pulling white wire through bushing (Fig. 5-12, 1; Figs. 5-12A and B, 34) in side of support.
 8. Carefully pull black wire out of bushing and then slide remaining collector ring off the support.
 9. Reassemble items in reverse order. When replacing collector rings, be sure ring with black wire is placed on spindle first. Adjust screw on brake assembly for proper friction (see Brake Adjustment, this paragraph).

4-9. SUPPORT ARM CENTRAL PIVOT — CENTRA 360 (Figs. 5-12)

Brake Adjustment

1. Be sure power to fixture is off.
2. Remove cover assembly (Fig. 5-12, 9; Figs. 5-12A and B, 6) from central hub.
3. Using a 5/16" Allen wrench, tighten or loosen adjustment screw (Fig. 5-12, 8; Figs. 5-12A and B, 12) on brake assembly (Fig. 5-12, 16; Figs. 5-12A and B, 11) until proper friction (when rotating support arm) is obtained.

NOTE: Proper friction is only that amount required to prevent drift when support arm is placed in a set position. Excessive friction will increase wear on brake lining and can cause noisy operation.

4. Replace cover assembly.

Brush Replacement

NOTE: For units shipped prior to 6/79, refer to paragraph 4-14 for additional information.

1. Be sure power to fixture is off.
2. Remove cover assembly (Fig. 5-12, 9; Figs. 5-12A and B, 6) from central hub.
3. Disconnect wires from brush holder assembly (Fig. 5-12, 4; Figs. 5-12A and B, 5). Secure wires (bend sideways) so that they will not slip into hub.
4. Remove the three screws which secure brush holder; remove brush holder from arm.
5. Slide brushes (Fig. 5-12, 3; Figs. 5-12A, 7 and 60 or 61; Fig. 5-12B, 7 and 62 or 63) out of brush holder and replace.
6. Examine collector rings (Fig. 5-12, 11; Figs. 5-12A and B, 25) for burned spots, dirt, etc. and clean as necessary.
7. Reassemble items in reverse order. Be sure black wire is connected to top terminal on brush holder, white wire to bottom terminal, and insulator strip does not rub against brushes. Insulator strip should span the brush blocks.

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Arm and Collector Ring Removal

NOTE: It is recommended (but not essential) that for installations with multiple lightheads, the entire fixture be lowered from ceiling before removing any arms... refer to Paragraph 4-10.

1. If fixture has not been lowered from ceiling, do the following:

a. Refer to Paragraph 4-3 and remove all lightheads. (Do this even if it is not intended to remove all arms.)

b. If a multiple arm assembly, equally space arms about hub to distribute load. Refer to "Brake Adjustment," this Paragraph, and tighten adjustment screw(s) to lock arm(s) in position.

c. Remove gasket (Fig. 5-12, 46; Figs. 5-12A and B, 59) and ceiling canopy (Fig. 5-12, 47; Figs. 5-12A and B, 58).

d. Disconnect wires to lighthead.

NOTE: For a multiple lighthead assembly, black and white wires feed first arm (top); red and red/white wires feed second arm (bottom arm on two-light assembly); and blue and blue/white wires feed third arm (bottom arm on three-light assembly).

2. Refer to "Brush Replacement" and remove brush holder assembly from arm(s) to be removed.

3. Remove black rubber cap (Figs. 5-12, 5-12A and B, 24) from bottom of central hub.

4. Bend back tab on lockwasher (Fig. 5-12, 17; Figs. 5-12A and B, 16) at bottom of shaft and using a spanner wrench, loosen locknut (Fig. 5-12, 18; Figs. 5-12A and B, 17).

5. Support arm (if fixture was not removed from ceiling) and remove locknut, lockwasher, brake assembly (Fig. 5-12, 16; Figs. 5-12A and B, 11), spacer ring (Figs. 5-12, 5-12A and B, 15) and lower bearing (Fig. 5-12, 2; Figs. 5-12A and B, 1) from shaft.

NOTE: Lower arm will come off shaft when locknut is removed. Upper arms will drop approximately 1/4", but will not come off.

6. Carefully remove arm from shaft.

NOTE: Proceed to step 7 only if it is desired to remove collector rings or additional arm assemblies from shaft.

7. Remove screws which secure end plate (Fig. 5-12, 22; Figs. 5-12A and B, 21) to shaft. Lower end plate approximately 1" and remove wire restraint (Fig. 5-12, 21; Figs. 5-12A and B, 20).

8. Slide lower collector ring (Fig. 5-12, 11; Figs. 5-12A and B, 25) off the shaft while carefully pulling wire out of bushing (Fig. 5-12, 1; Figs. 5-12A and B, 34).

9. Carefully pull remaining wire out of bushing and slide upper collector ring off the shaft. Remove plastic bushing.

10. To remove an upper arm assembly, proceed as follows:

a. Support the arm if fixture was not removed from ceiling.

b. Remove brake assembly adjustment screw (Fig. 5-12, 8; Figs. 5-12A and B, 12) and slide brake assembly off the shaft.

c. Carefully remove arm from shaft.

11. Repeat steps 8 and 9 to remove collector rings; step 10 to remove uppermost arm, if applicable.

12. Reassemble items in reverse order. When replacing each pair of collector rings, be sure ring with black or solid-colored wire is placed on shaft first. Adjust brake assembly screw on each arm for proper friction (see Brake Adjustment, this paragraph).

4-10. REMOVAL OF FIXTURE FROM CEILING — CENTRA 360 (Figs. 5-12)**Removal**

1. Refer to Paragraph 4-3 and remove lightheads and suspension tubes.

2. Remove gasket (Fig. 5-12, 46; Figs. 5-12A and B, 59) from ceiling canopy (Fig. 5-12, 47; Figs. 5-12A and B, 58) and canopy from ceiling. Disconnect leads at junction box.

3. If a multiple arm assembly, equally space arms about hub to distribute load. Refer to Paragraph 4-9 "Brake Adjustment" and tighten adjustment screw(s) to lock arm(s) in position.

WARNING: THE FOLLOWING STEP WILL REQUIRE A MEANS OF SUPPORTING FIXTURE WHILE ITS MOUNTING HARDWARE IS REMOVED. IF DONE PHYSICALLY, AT LEAST TWO MEN WILL BE REQUIRED TO HOLD THE FIXTURE WHILE A THIRD REMOVES THE HARDWARE.

4. Note and record proper alignment of mounting plate with ceiling extension bolts. With fixture adequately supported, remove its mounting hardware. Carefully lower fixture.

Reinstalling

WARNING: THE FOLLOWING PROCEDURE WILL REQUIRE A MEANS OF SUPPORTING FIXTURE WHILE ITS MOUNTING HARDWARE IS INSTALLED. IF DONE PHYSICALLY, AT LEAST TWO MEN WILL BE REQUIRED TO LIFT AND HOLD THE FIXTURE WHILE A THIRD INSTALLS THE HARDWARE.

1. Raise fixture to approximately 6" from ceiling. Align holes in mounting plate with ceiling extension bolts as noted in step 4 under "Removal," this Paragraph.

2. Be sure wires protruding from shaft in center of mounting plate are fed down through triangular cutout aligned with junction box.

3. Raise assembly over extension bolts. Using the four flat washers, lockwashers and hex nuts, secure plate... only hand-tighten nuts at this time. Pull wiring leads from junction box down through triangular cutout.

4. Using the 5/16" Allen wrench, loosen support arm brake adjustment screw(s), that were previously tightened, until arm(s) swing freely.

5. Place a spirit level on top of support arm. Using an open-end wrench, adjust hex nuts above and below mounting plate to level support arm(s) and eliminate arm drifting.

WARNING: BE SURE THAT LOWER NUTS ARE FULLY ENGAGED ON EXTENSION BOLTS. ALLOW AT LEAST 1/16" FROM BOTTOM OF NUT TO END OF BOLT.

6. After leveling arm(s), rotate to alternate 90° positions and check for drift at each stop... readjust and tighten nuts as required.

7. Connect wires at junction box as follows:

a. Connect green wire from under round-head screw on bottom of mounting plate to grounding wire in junction box.

b. Using wire nuts, connect white wire and striped wires (if applicable) to common side of service in junction box.

c. Using wire nuts connect black wire and solid-colored wires (if applicable) to hot side of service in junction box.

d. Tape wire nuts to wires and neatly place connections in junction box.

8. Reinstall canopy and gasket. (Note: If gasket was removed from fixture, place arms in vertical alignment and loop gasket over them, making sure slotted side will face floor when installed.)

9. Reassemble suspension tubes and lightheads in reverse order of disassembly (Par. 4-3).

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10. Turn light(s) on and slowly rotate each assembly about both pivot points to be sure fixture is working properly and connections are secure. Adjust support arm brake assembly for proper friction (see Brake Adjustment, Paragraph 4-9).

4-11. YOKE WASHER (Fig. 5-9)

"Old" style washers (7) are made of an asbestos type material and may break. When replacing "old" style washer, order "new" nylon washer, 83461-001. When installing the new washer, tighten screw (6) just enough to eliminate end play. Do not force. Back screw out one half turn, and lock it in place with stop nut (9).

4-12. CAPS ON CENTRA 360 (Figs. 5-12)

Caps (Fig. 5-12, 24 and 25; Figs. 5-12A and B, 24 and 37) could be improperly assembled.

Remove then install each cap as follows:

1. Be sure bottom surface of the arm is flat. If there are any paint sags, remove them as they can prevent proper entry of cap lip into groove of the arm.

2. Apply a very thin coating of Dow Corning No. 111 lubricant on the cap lip.

3. Position cap into place with a slight rotary motion. The cap should fit against the arm with little to no clearance and rotate easily with some horizontal play.

4. Be sure cap is installed **CENTRALLY** in mounting hole of arm.

NOTE: If fit is excessively sloppy, remove silicon lubricant and equidistantly place three small amounts of RTV in the cap groove (Figure 4-10).

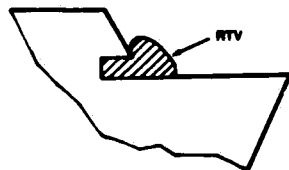


Figure 4-10. PLACING RTV.

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4-13. FOCUS ROD AND FOCUS COLLAR (Fig. 5-10)

The focus rod may work out of focus collar (19 and 22). If this situation occurs, examine the threads on the Focus Rod.

If threads on rod are not deformed, secure rod in Focus Collar using AMSCO screw lock (R-5300-586).

If threads on rod are deformed, it is very likely that threads in the Focus Collar are also deformed. Order and replace Focus Rod P-26851-055 and Focus Collar P-26852-056.

4-14. REDESIGNED BRUSHES AND BRUSH HOLDER ASSEMBLY (Figs. 5-12A and 5-12B)

Brushes and brush holder were redesigned to eliminate flickering light caused by improper tension of brushes against the commutator and brush holder assembly. The brushes are larger (more surface area) and a stiffer spring is used.

These parts are available in a kit, part P-764315-406 (Fig. 5-12A, 62; Fig. 5-12B, 64), which includes all brushes and holders needed to upgrade one light arm.

CAUTION: The commutators at the inboard and outboard pivots have different diameters. Therefore, the brushes are different because they have different radii.

When installing brushes, make sure the brush stamped 001 goes in the holder installed on the outside pivot, and the brush stamped 002 goes in the holder installed on the inside pivot. The ground brush located in the center position of a holder has not been changed. Therefore, the ground brush for inboard or outboard position is the same.

NOTES:

1. In some cases, due to excess burn marks, the commutators have to be cleaned before the brushes are installed. A cleaning tool kit is available for this purpose. If you need this kit, contact your regional office.

2. Due to the increased tension of the new brushes, the voltage to the lighthouse may change. After installing new brushes, recheck the knuckle voltage and adjust the transformer taps to read $32.5 \pm .5$ VAC at the knuckle.

SECTION 5

ILLUSTRATIONS AND PARTS LISTS

The following pages contain an illustrated breakdown of selected assemblies. To order replacement parts, use the part numbers and descriptions provided on the subsequent parts lists. The numbers, descriptions and quantities of the parts listed are those required for a single Fixture. Each indentation in the description represents the assembly or subassembly level. The **UNITS PER ASSEMBLY** is specific for the given top assembly. Include on your order the model, unit and serial numbers of the equipment. Also, where applicable, include component manufacturer and nameplate data.

HOW TO USE SECTION 5

1. Determine the function and application of the part required. Refer to Figure 5-1 and select the most appropriate title. Note the illustration page number.
2. Turn to the page indicated and locate the desired part on the illustration.
3. From the illustration, obtain the index number assigned to the part desired. Refer to the accompanying description for specific information regarding the part. □ □

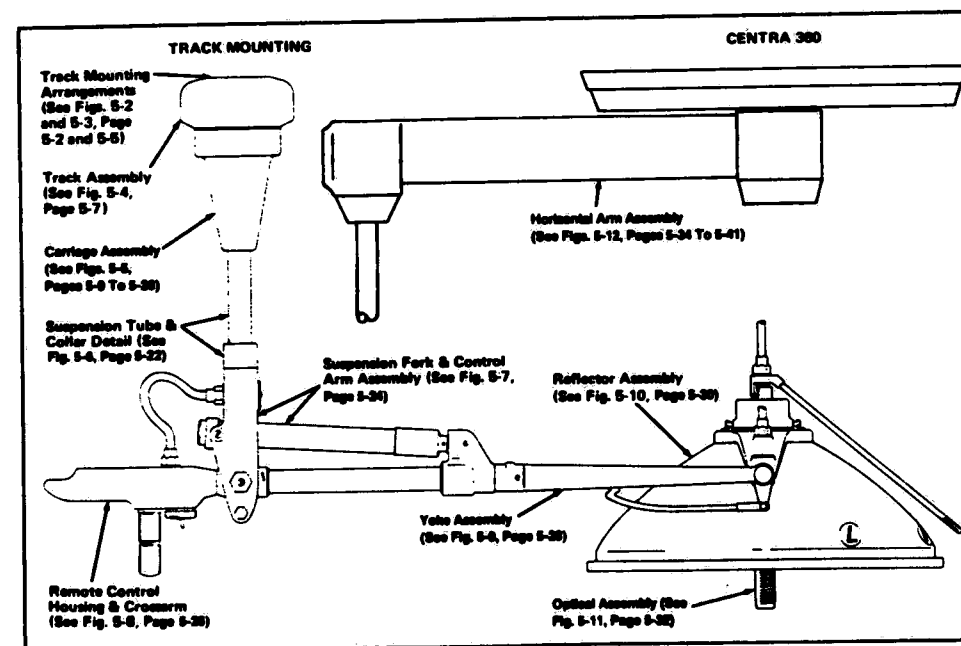
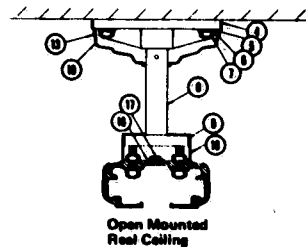
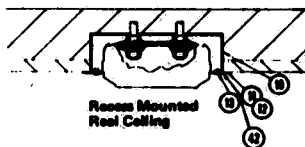


Figure 5-1. GENERAL ASSEMBLY.

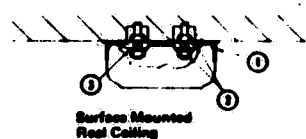
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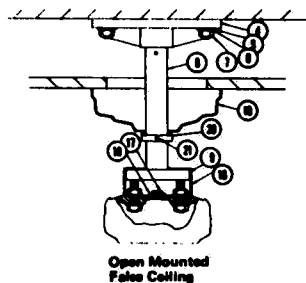
Open Mounted
Real Ceiling



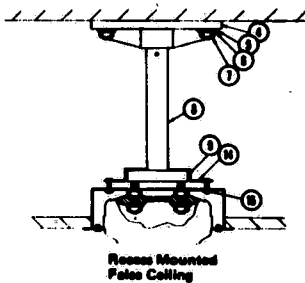
Recess Mounted
Real Ceiling



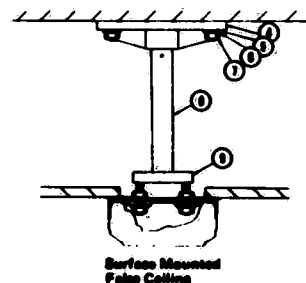
Surface Mounted
Real Ceiling



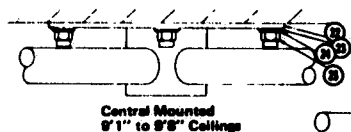
Open Mounted
False Ceiling



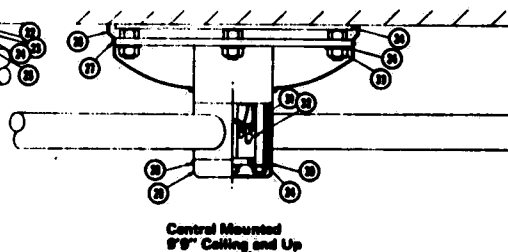
Recess Mounted
False Ceiling



Surface Mounted
False Ceiling



Central Mounted
9'1" to 9'8" Ceiling



Central Mounted
9'9" Ceiling and Up

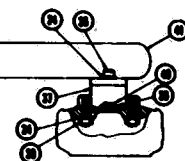


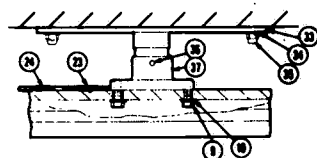
Figure 5-2. TRACK MOUNTING ARRANGEMENTS (Models DV-22-E and C-22-E).

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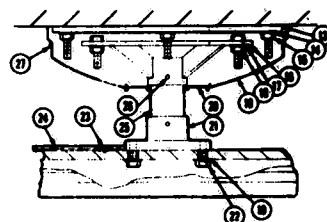
22" Surgical Lights

FIG. & INDEX NO.	PART NUMBER	DESCRIPTION	UNITS PER ASSEMBLY			
5-2-		TRACK MOUNTING ARRANGEMENT (Model DV-22-E)	"			
		TRACK MOUNTING ARRANGEMENT (Model C-22-E)	"			
1	46788-091	GASKET, Finishing	4	2		
2	3101-091	NUT, Hex - 1/2" - 13	16	8		
3	19681-045	LOCKWASHER - 1/2"	8	4		
4	27426-010	PLATE, Ceiling	4	2		
5	5505-041	WASHER, Plain - 1/2"	16			
	5505-041	WASHER, Plain - 1/2"		8		
6	19681-045	LOCKWASHER - 1/2"	16			
	19681-045	LOCKWASHER - 1/2"		8		
7	3101-091	NUT, Hex - 1/2" - 13	16			
	3101-091	NUT, Hex - 1/2" - 13		8		
8		TUBE, Suspension (Length and Part No. determined by ceiling height)	2	1		
9	41238-045	PAD, Mounting (Assembly)	4	2		
10	40809-010	ROUGH BOX	2	1		
11	76925-033	TRIM, Side	4	2		
12	76915-033	TRIM, End	4	2		
13	10859-041	SCREW, Truss Head - #10-32 x 5/16"	28	14		
14	45018-NLA	BRACKET	4	2		
15	3097-041	NUT, Hex - 1/4" - 20 N.C.	8	4		
16	41237-NLA	COVER	4	2		
17	41238-011	SHIELD, Wire	2	1		
18	3983-041	SCREW, Round Head - #6-32 x 3/16"	12	6		
19	27430-010	CANOPY	4	2		
20	27735-051	COLLAR, Canopy	4	2		
21	10585-041	SCREW, Set - #10-32 x 1/4" Cup	8	4		
22	26831-NLA	PLATE, Ceiling	1			
23	5460-045	WASHER, Plain - 5/8"	4			
24	19682-041	LOCKWASHER - 5/8"	24			
25	25833-NLA	NUT, Acorn - 5/8"	4			
26	32764-011	CANOPY	1			
27	16063-042	SCREW, Truss Head - #8-32 x 7/16"	4			
28	34585-041	SCREW, Fillet Head - #5-40 x 1/4"	2			
29	N.L.A.	CAP	1			
30	26661-NLA	PLATE	1			
31	26304-045	CAPSCREW, Hex Head - 5/8" - 18 x 5-1/2"	4			
32	18538-091	CONNECTOR	2			
33	3104-045	NUT, 5/8"	8			
34	21645-010	LEVELING PLATE	1			
35	32581-NLA	HANGER ASSEMBLY	1			
36	32020-041	SCREW, Socket Head - 5/8" - 11 x 1-1/2"	8			
37	41241-NLA	PAD, Mounting	4			
38	4643-045	CAPSCREW, Hex Head - 1/2" - 13 x 1-1/2"	8			
39	3963-041	SCREW, Round Head - 5/8" - 11 x 1-1/2"	12			
40	41238-NLA	SHIELD, Wire	2			
41	26577-NLA	BUTTON, Plug	4			
42	76294-033	CLIP, Finishing	2			

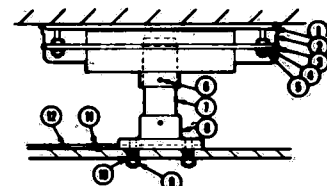
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Open Mounted 8'11" to 9'5" Ceiling
Side View of Track



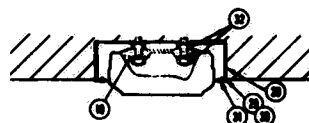
Open Mounted 9'6" Ceiling and Up
Side View of Track



Open Mounted - Rotating Track
Side View of Track



Surface Mounted
End View of Track



Recess Mounted
End View of Track

Figure 5-3. TRACK MOUNTING ARRANGEMENTS (Model C-22-T3).

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FIG. & INDEX NO.	PART NUMBER	DESCRIPTION	UNITS PER ASSEMBLY			
5-3-		MOUNTING ARRANGEMENTS (Model C-22-T5)	*			
1	55804-001	ROTATING MECHANISM	1			
2	20295-011	CANOPY, Split	1			
3	16063-042	SCREW, Truss Head - No. 8-32 x 7/16"	4			
4	19681-045	LOCKWASHER - 1/2"	12			
5	3101-091	NUT, Hex - 1/2"	8			
6	46156-061	PIN, Roll - 5/16" x 3/4"	4			
7		TUBE, Suspension (Length and Part No. determined by ceiling height)	1			
8	42140-011	BRACKET, Track	1			
9	4643-045	SCREW, Hex Head	4			
10	19681-045	LOCKWASHER - 1/2"	4			
11	3983-041	SCREW, Round Head	6			
12	42249-NLA	SHIELD, Wire	1			
13	21645-NLA	LEVELING PLATE	1			
14	19681-045	LOCKWASHER - 1/2"	4			
15	3101-091	NUT, Hex	4			
16	18600-NLA	CEILING, Spider	1			
17	19682-041	LOCKWASHER - 5/8"	4			
18	3104-045	NUT, Hex - 5/8"	8			
19	32764-011	CANOPY, Standard	1			
20	32768-NLA	FILLER, Canopy	1			
21	42140-011	BRACKET, Track	1			
22	4643-045	SCREW, Hex Head	4			
23	3983-041	SCREW, Round Head - No. 6-32 x 3/16"	6			
24	42249-NLA	SHIELD, Wire	1			
25		TUBE, Suspension (Length and Part No. determined by ceiling height)	1			
26	46156-061	PIN, Roll - 5/16" x 3/4"	4			
27	16063-042	SCREW, Truss Head - No. 8-32 x 7/16"	4			
28	42122-010	ROUGH Box	1			
29	76915-033	TRIM, End	2			
30	76924-033	TRIM, Side	2			
31	10659-041	SCREW, Truss Head	10			
32	3101-091	NUT, Hex - 1/2"	8			
33	24472-NLA	CEILING PLATE	1			
34	19681-045	LOCKWASHER	4			
35	5937-048	ACORN NUT	4			
36	46156-061	PIN, Roll - 5/16" x 3/4"	2			
37	42140-011	BRACKET, Track	1			
38	46794-091	GASKET, Finishing	2			

Service Bulletin Number						
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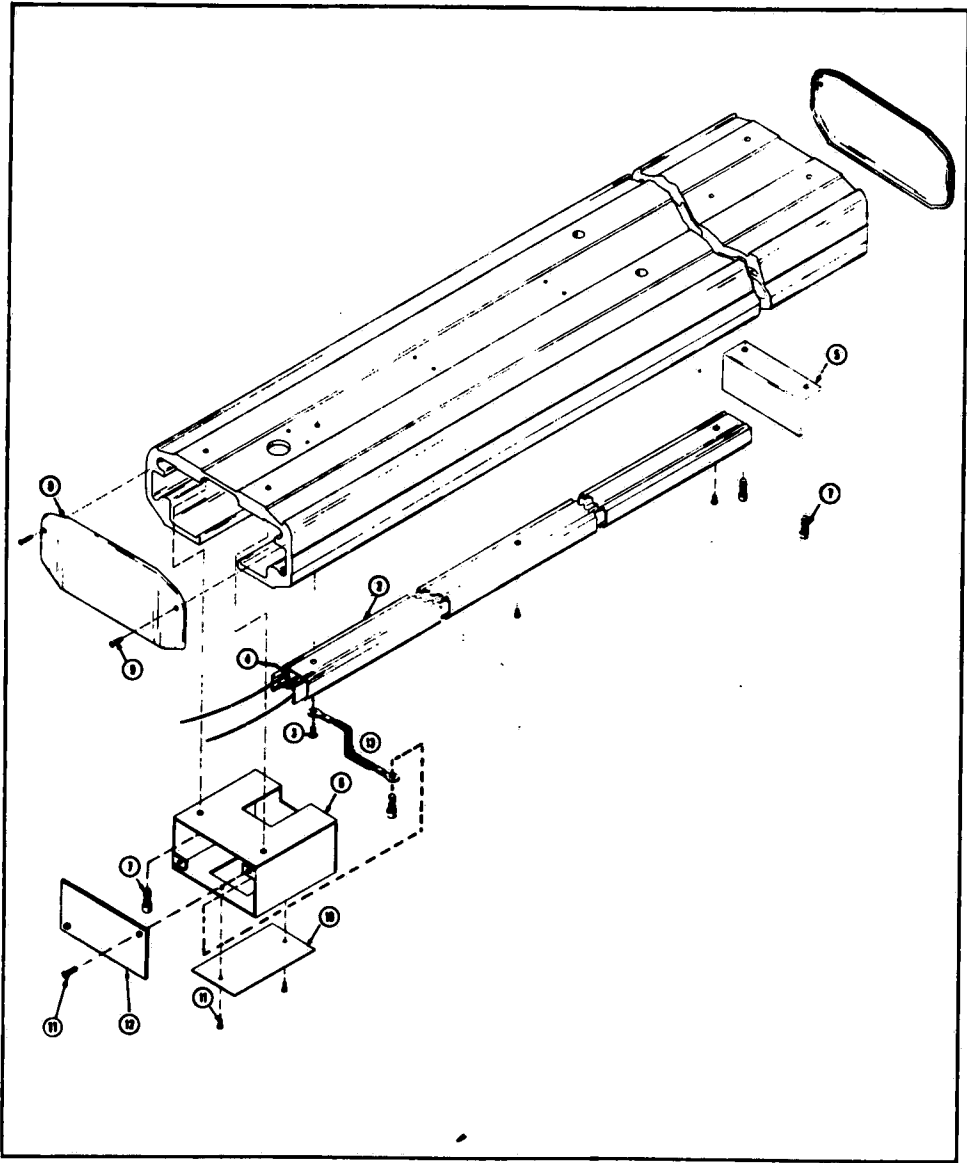


Figure 5-4. TRACK ASSEMBLY.

FIG. & INDEX NO.	PART NUMBER	DESCRIPTION	UNITS PER ASSEMBLY		
5-4.	B-79816-002	TRACK ASSEMBLY, 108" (For Equipment Shipped Before 3/73)	*	*	*
	B-79814-002	TRACK ASSEMBLY, 108" (For Equipment Shipped After 3/73)			
		TRACK ASSEMBLY, 54" (For Equipment Shipped After 3/73)			
1		Not Used			
2	N.L.A.	DUCT, Metal Trolley (108")	1		
	† 92391-001	DUCT, Trolley (108")		1	
	† 55974-001	DUCT, Trolley (54")			1
3	10859-041	SCREW, Truss Head - No. 10-32 x 5/16"	7	13	7
	10863-091	LOCKWASHER (Not Shown)	3		
4	92390-001	STRIP, Ground (108")		1	
	55987-001	STRIP, Ground (54")			1
5	43608-045	STOP	1	1	1
6	53133-045	BOX, Supply	1	1	1
7	3847-042	SCREW, Socket Head	4	4	4
8	40897-001	PLATE, End	2	2	2
9	41923-041	SCREW, Oval Head	4	4	4
10	46173-045	COVER	1	1	1
11	40357-045	SCREW, Self Tapping	2	4	4
12	79468-045	PLATE, Cover		1	1
13	‡ 80541-091	STRAP, Ground			1
	§2323-001	NAMEPLATE (Black) - Not Shown	1	1	
	§2324-001	NAMEPLATE (White) - Not Shown	1	1	
	§2349-001	NAMEPLATE (Warning) - Not Shown	1	1	
*NOTE 1: If the plastic trolley duct (92391-001 or 55974-001, item 2) is removed from the light track for any reason, replace the duct; do not attempt to repair it in the field. Never use a Loctite product to secure the screws fastening the plastic trolley duct and stainless-steel strip to the light track. Apply R.T.V. † (General Electric's general purpose adhesive) to the screw threads.					
‡NOTE 2: Grounding strap (item 13) has been added to the light track assembly to ensure grounding of the plastic trolley duct. It is not necessary to add this strap to units shipped before 9-12-74 because their tracks were checked for proper grounding before being shipped.					

*NOTE 1: If the plastic trolley duct (92391-001 or 55974-001, item 2) is removed from the light track for any reason, replace the duct; do not attempt to repair it in the field. Never use a Loctite product to secure the screws fastening the plastic trolley duct and stainless-steel strip to the light track. Apply R.T.V. † (General Electric's general purpose adhesive) to the screw threads.

‡NOTE 2: Grounding strap (item 13) has been added to the light track assembly to ensure grounding of the plastic trolley duct. It is not necessary to add this strap to units shipped before 9-12-74 because their tracks were checked for proper grounding before being shipped.

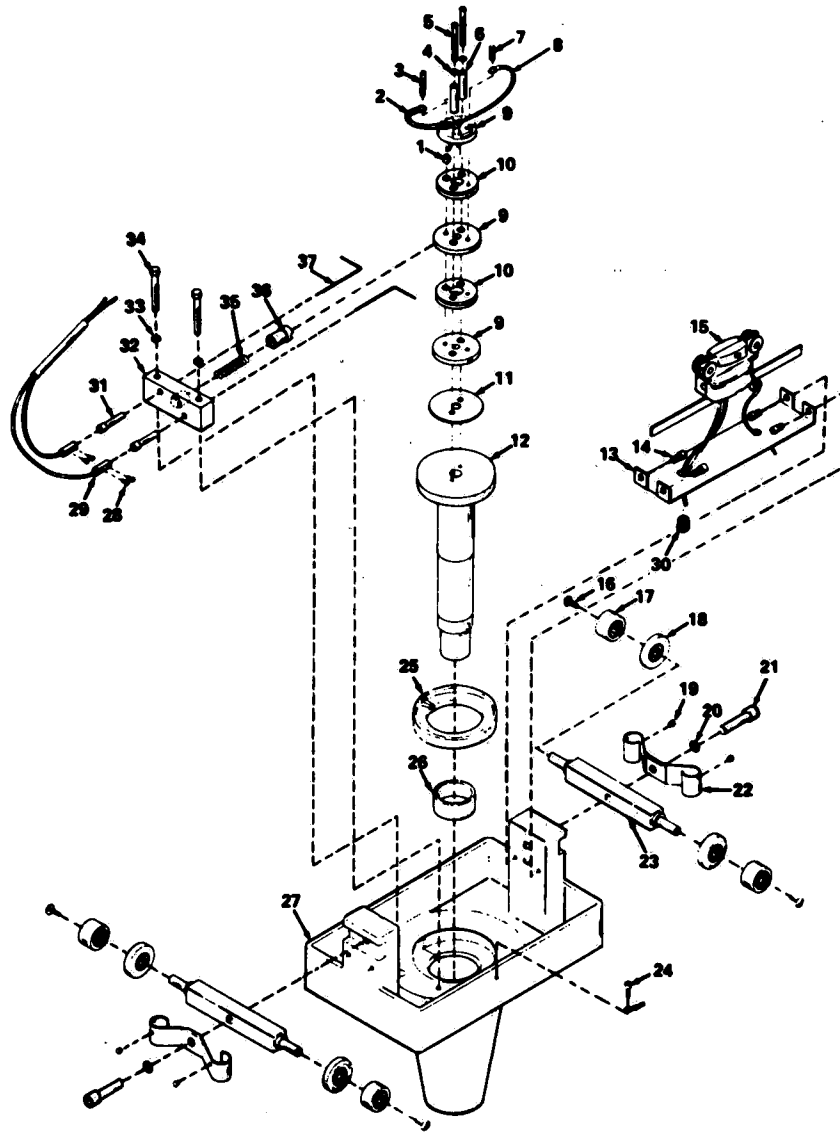


Figure 5-5. CARRIAGE ASSEMBLY, Units Shipped Before 3/73.

FIG. & INDEX NO.	PART NUMBER	SVC	DESCRIPTION	UNITS PER ASSEMBLY
5-5-	P 135840 NLA		OBSOLETE CARRIAGE ASSEMBLY (Units Shipped Before 3/73)	X
1	P 41926 091		INSULATOR	1
2	P 40838 NLA		WIRE, White	1
3	P 38569 041		SCREW, Round Head, #8-32 x 1	1
4	P 5508 041		WASHER, Plain, 3/16	2
5	P 12341 041		SCREW, Round Head, #10-32 x 1-1/2	2
6	P 40382 091		SPOOL, Bakelite	2
7	P 3986 041		SCREW, Round Head, #8-32 x 1/2	1
8	NLA		WIRE, Black	1
9	P 43611 001		WASHER, Bakelite	3
10	P 40381 091		RING, Collector	2
11	P 43606 091		INSULATOR	1
12	P 40387 043		ARM, Suspension	1
13	P 43607 001		COVER	1
14	P 23431 041		SCREW, Socket Head, #10-32 x 3/8	4
15	P 40388 091		TROLLEY (For Metal Duct)	1
16	P 10859 041		SCREW, Truss Head	4
17	P 40376 001		WHEEL	4
18	P 40377 001		GUIDE, Wheel	4
19	P 34506 091		BUMPER, Rubber	4
20	P 19687 061		LOCKWASHER, 3/8	2
21	P 15339 045		SCREW, Socket Head, 3/8-16 x 1-1/4	2
22	P 49081 091		BUMPER, Carriage	2
23	P 40375 045		SHAFT	1
24	P 4777 091		SCREW, Fillister Head, #8-32 x 3/8	1
25	P 40379 091		BUSHING, Oilite	1
26	P 41506 091		BEARING	1
27	P 40373 NLA		CARRIAGE	1
28	P 3982 041		SCREW, Round Head, #4-32 x 3/16	4
29	P 40391 091		CONNECTOR	2
30	P 48648 091		SLEEVE	1
31	P 40383 091		SLEEVE, Wire	2
32	P 43610 NLA		RETAINER, SUB 81660-001	1
33	P 19686 061		LOCKWASHER, 1/4	2
34	P 4729 053		SCREW, Hex Head, 1/4-20 x 1-1/2	2
35	P 40386 091		SPRING	1
36	P 43609 091		CAP	1
37	P 40384 091		BRUSH, Wire	2

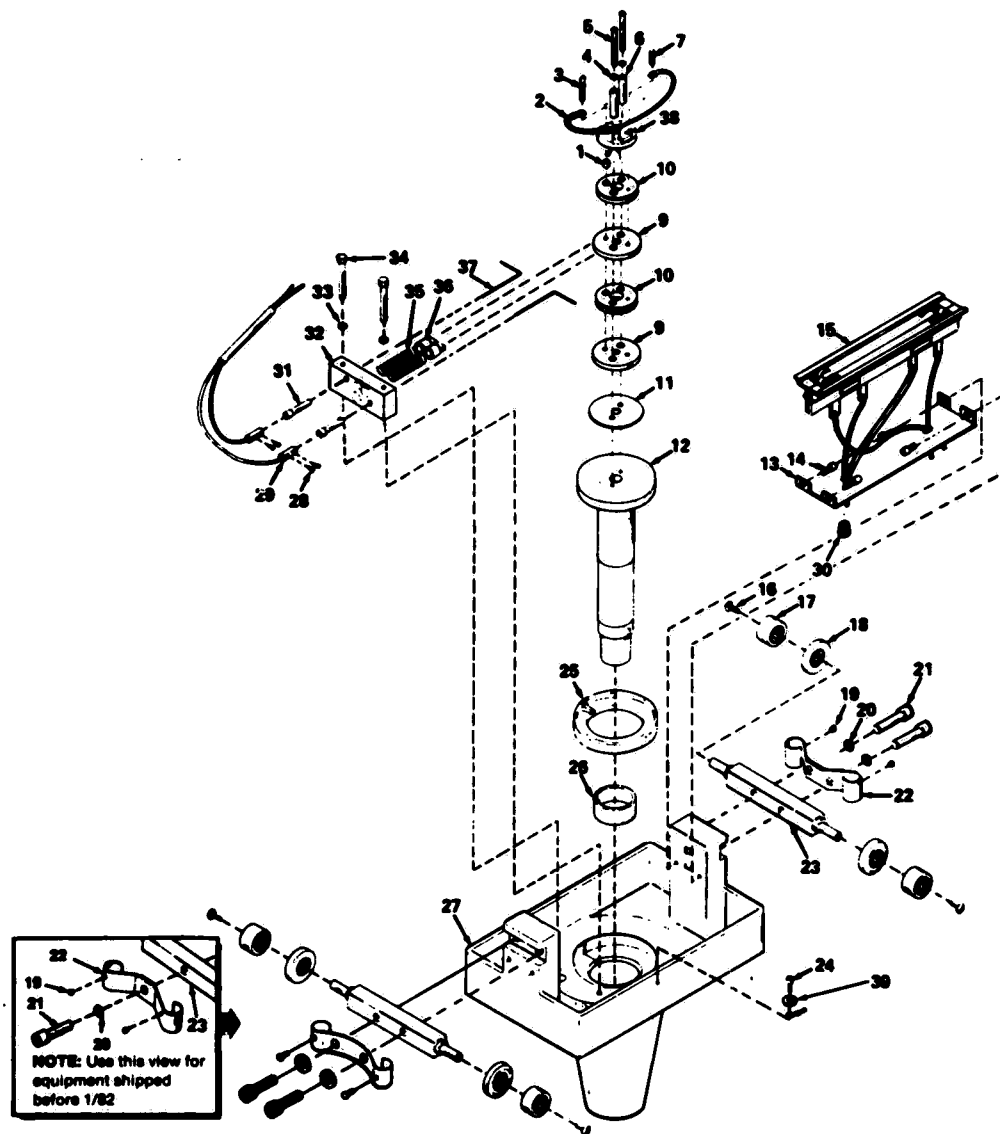


Figure 5-5A. CARRIAGE ASSEMBLY, Units Shipped Between 3/73 and 7/82.

FIG. & INDEX NO.	PART NUMBER	SVC	DESCRIPTION	UNITS PER ASSEMBLY		
5-5A-	P 135840 NLA		CARRIAGE ASSEMBLY (Units Shipped Between 3/73 and 6/76)	X		
	P 135840 NLA		CARRIAGE ASSEMBLY (Units Shipped Between 6/76 and 8/80)		X	
	P 135840 NLA		CARRIAGE ASSEMBLY (Units Shipped Between 8/80 and 7/82)			X
1	P 41926 091		INSULATOR	1	1	1
2	P 79972 002		WIRE ASSEMBLY (Includes Both Wires)	1	1	1
3	P 38569 041		SCREW, Round Head, #8-32 x 1	1	1	1
4	P 5508 041		WASHER, Plain, 3/16	2	2	2
5	P 12341 041		SCREW, Round Head, #10-32 x 1-1/2	2	2	2
6	P 40382 091		SPOOL, Bakelite	2	2	2
7	P 3986 041		SCREW, Round Head, #8-32 x 1/2	1	1	1
8			NOT USED			
9	P 43611 001		WASHER, Bakelite	2	2	2
10	P 40381 091		RING, Collector	2	2	2
11	P 43606 091		INSULATOR	1	1	1
12	P 40387 043		ARM, Suspension	1	1	1
13	P 43607 001		COVER	1	1	1
14	P 23431 041		SCREW, Socket Head, #10-32 x 3/8	4	4	4
15	P 135838 003		TROLLEY	1	1	1
16	P 10859 041		SCREW, Truss Head	4	4	4
17	P 40376 001		WHEEL	4	4	4
18	P 40377 001		GUIDE, Wheel	4	4	4
19	P 34506 091		BUMPER, Rubber	4	4	4
20	P 19687 061		LOCKWASHER, 3/8	2	2	
	P 19691 061		LOCKWASHER, 5/16, Stainless			4
21	P 15339 045		SCREW, Socket Head, 3/8-16 x 1-1/4	2	2	
	P 42599 045		SCREW, Socket Head, 5/16-18 x 1-1/4			4
22	P 49081 091		BUMPER, Carriage	1	1	
	P 150824 104		BUMPER, Carriage			1
23	P 40375 045		SHAFT	1	1	
	P 56938 075		SHAFT			1
24	P 4777 091		SCREW, Fillister Head, #8-32	1	1	1
25	P 40379 091		BUSHING, Oilite	1	1	1
26	P 41506 091		BEARING	1	1	1
27	P 40373 NLA		CARRIAGE	1		
	P 40373 NLA		CARRIAGE		1	
	P 134470 002		CARRIAGE			1
28	P 3982 041		SCREW, Round Head, #4-32 x 3/16	4	4	4
29	P 40391 091		CONNECTOR	2	2	2
30	P 20343 091		SLEEVE	1		
	P 150212 001		BUSHING, Snap		1	1
31	P 40383 091		SLEEVE, Wire	2	2	2
32	P 81680 001		RETAINER	1	1	1
33	P 19686 061		LOCKWASHER, 1/4	2	2	2
34	P 4729 053		SCREW, Hex Head, 1/4-20 x 1-1/2	2	2	2
35	P 12481 042		SPRING	2	2	2
36	P 81683 001		CAP	2	2	2
37	P 40384 091		BRUSH, Wire	2	2	2
38	P 79968 002		WASHER, Top	1	1	1
39	P 81683 002		LOCKWASHER, Star, #8	1	1	1

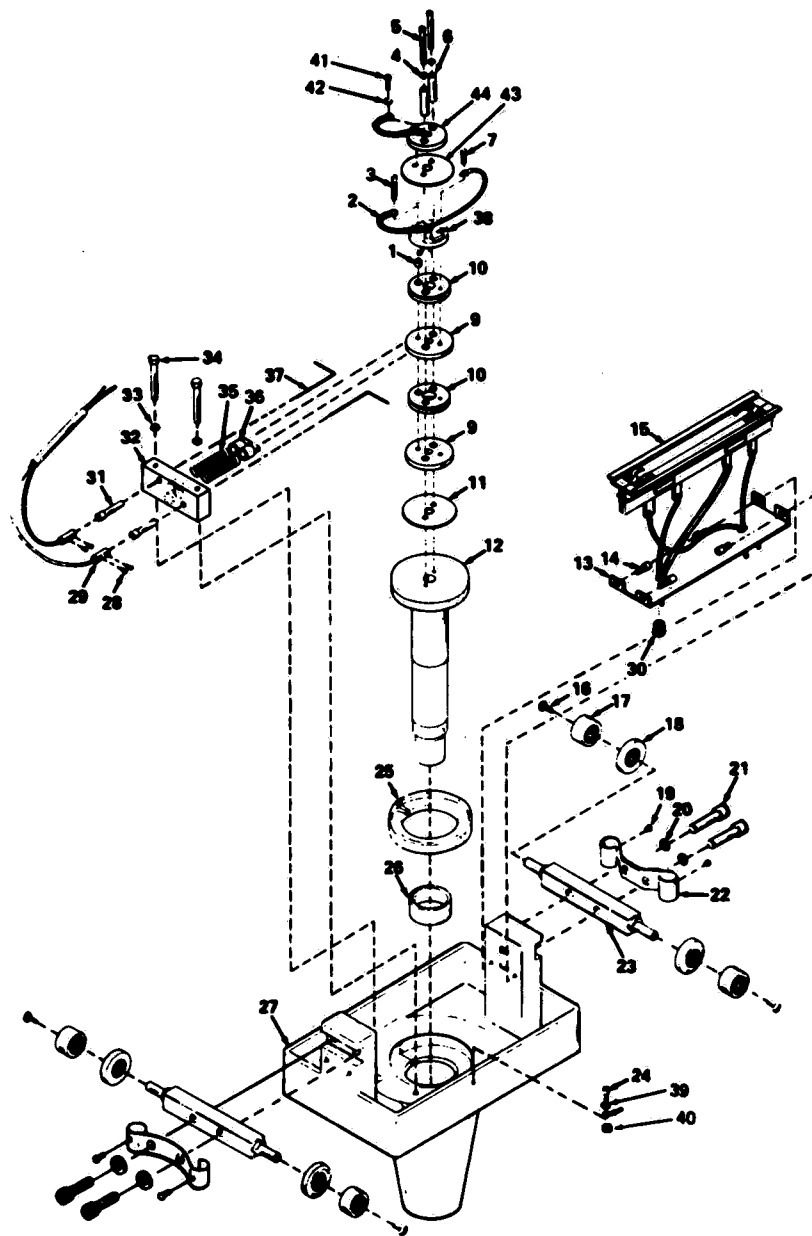


Figure 5-5B. CARRIAGE ASSEMBLY, Units Shipped After 7/82.

FIG. & INDEX NO.	PART NUMBER	SVC	DESCRIPTION	UNITS PER ASSEMBLY	
5-5B-	P 135840	NLA	CARRIAGE ASSEMBLY (Units Shipped Between 7/82 and 6/83)	X	
	P 135840	006	CARRIAGE ASSEMBLY (Units Shipped After 6/83)		X
1	P 41926	091	INSULATOR	1	1
2	P 79972	002	WIRE ASSEMBLY (Includes Both Wires)	1	1
3	P 38569	041	SCREW, Round Head, #8-32 x 1	1	1
4	P 46115	091	LOCKWASHER, #10	2	2
5	P 150824	143	SCREW, Round Head, #10-32 x 1-3/4	2	2
6	P 150824	146	SPOOL	2	2
7	P 3986	041	SCREW, Round Head, #8-32 x 1/2	1	1
8			NOT USED		
9	P 43611	001	WASHER, Bakelite	2	2
10	P 40381	091	RING, Collector	2	2
11	P 43606	091	INSULATOR	1	1
12	P 40387	043	ARM, Suspension	1	1
13	P 56938	095	COVER	1	1
14	P 23431	041	SCREW, Socket Head, #10-32 x 3/8	4	4
15	P 135838	NLA	TROLLEY	1	
	P 135838	003	TROLLEY		1
16	P 10859	041	SCREW, Truss Head	4	4
17	P 40376	001	WHEEL	4	4
18	P 40377	001	GUIDE, Wheel	4	4
19	P 34506	091	BUMPER, Rubber	4	4
20	P 19691	061	LOCKWASHER, 5/16, Stainless	4	4
21	P 42599	045	SCREW, Socket Head, 5/16-18 x 1-1/4	4	4
22	P 150824	104	BUMPER, Carriage	1	1
23	P 56938	075	SHAFT	1	1
24	P 74307	061	SCREW, Round Head, #8-32 x 3/8	1	1
25	P 40379	091	BUSHING, Oilite	1	1
26	P 41506	091	BEARING	1	1
27	P 134470	002	CARRIAGE	1	1
28	P 3982	041	SCREW, Round Head, #4-32 x 3/16	4	4
29	P 40391	091	CONNECTOR	2	2
30	P 150212	001	BUSHING, Snap	1	1
31	P 40383	091	SLEEVE, Wire	2	2
32	P 81660	001	RETAINER	1	1
33	P 19686	061	LOCKWASHER, 1/4	2	2
34	P 4729	053	SCREW, Hex Head, 1/4-20 x 1-1/2	2	2
35	P 12461	042	SPRING	2	2
36	P 81663	001	CAP	2	2
37	P 40384	091	BRUSH, Wire	2	2
38	P 150824	252	WASHER, Top	1	1
39	P 81683	002	LOCKWASHER, Star, #8	1	1
40	P 3038	041	NUT, Hex, #8-32	1	1
41	P 3983	041	SCREW, Round Head, #6-32 x 3/16	1	1
42	P 81683	001	LOCKWASHER, #6	1	1
43	P 150824	145	PLATE, Insulation	1	1
44	P 150824	144	PLATE, Top Carriage	1	1

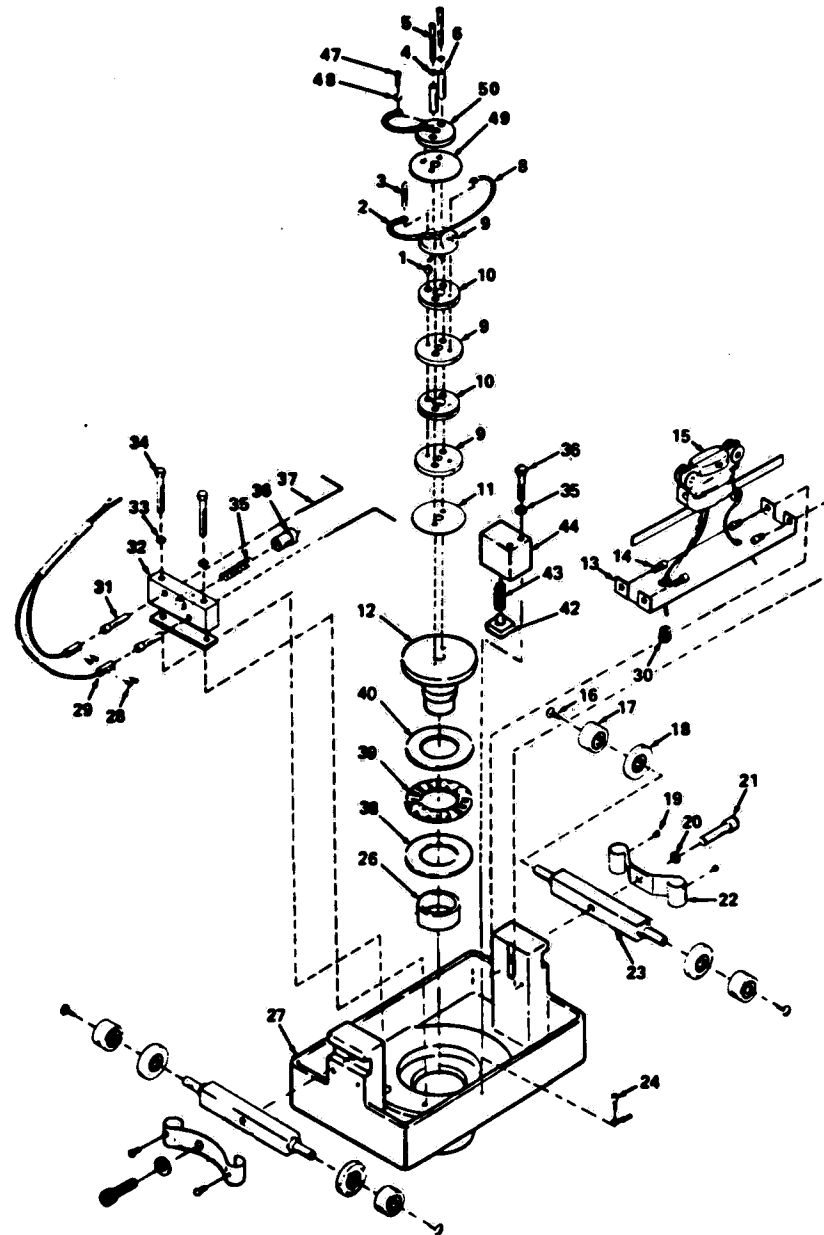


Figure 5-5C. LOW CEILING CARRIAGE ASSEMBLY, Units Shipped Before 3/73.

FIG. & INDEX NO.	PART NUMBER	SVC	DESCRIPTION	UNITS PER ASSEMBLY
5-5C-	P 135842 NLA		OBSOLETE LOW CEILING CARRIAGE ASSEMBLY (Units Shipped Before 3/73)	X
1	P 41926 091		INSULATOR	1
2	P 40838 NLA		WIRE, White	1
3	P 38569 041		SCREW, Round Head, #8-32 x 1	1
4	P 5508 041		WASHER, Plain, 3/16	2
5	P 12341 041		SCREW, Round Head, #10-32 x 1-1/2	2
6	P 40382 091		SPOOL, Bakelite	2
7	P 3986 041		SCREW, Round Head, #8-32 x 1/2	1
8	P 40839 NLA		WIRE, Black	1
9	P 43611 001		WASHER, Bakelite	3
10	P 40381 091		RING, Collector	2
11	P 43606 091		INSULATOR	1
12	P 79265 091		ARM, Suspension	1
13	P 43607 001		COVER	1
14	P 23431 041		SCREW, Socket Head, #10-32 x 3/8	4
15	P 40388 091		TROLLEY (For Metal Duct)	1
16	P 10859 041		SCREW, Truss Head	4
17	P 40376 001		WHEEL	4
18	P 40377 001		GUIDE, Wheel	4
19	P 34506 091		BUMPER, Rubber	4
20	P 19687 061		LOCKWASHER, 3/8	2
21	P 15339 045		SCREW, Socket Head, 3/8-16 x 1-1/4	2
22	P 49081 091		BUMPER, Carriage	2
23	P 40375 045		SHAFT	2
24	P 4777 091		SCREW, Fillister Head, #8-32 x 3/8	1
25	P 78957 091		BUSHING, Oilite	1
26	P 48267 091		BEARING	1
27	P 98582 NLA		CARRIAGE	1
28	P 3982 041		SCREW, Round Head, #4-32 x 3/16	4
29	P 40391 091		CONNECTOR	2
30	P 48648 091		SLEEVE	1
31	P 40383 091		SLEEVE, Wire	2
32	P 81680 001		RETAINER	1
33	P 19686 061		LOCKWASHER, 1/4	2
34	P 4729 053		SCREW, Hex Head, 1/4-20 x 1-1/2	2
35	P 40386 091		SPRING	1
36	P 43609 091		CAP	1
37	P 40384 091		BRUSH, Wire	2
38	P 78955 091		RACE, Thrust	1
39	P 48267 091		BEARING, Needle	1
40	P 78954 091		RACE, Thrust	1
41	P 3515 041		SHIM	1
42	P 79179 091		SHOE, Brake	1
43	P 42610 091		SPRING	1
44	P 79180 045		SUPPORT, Brake	1

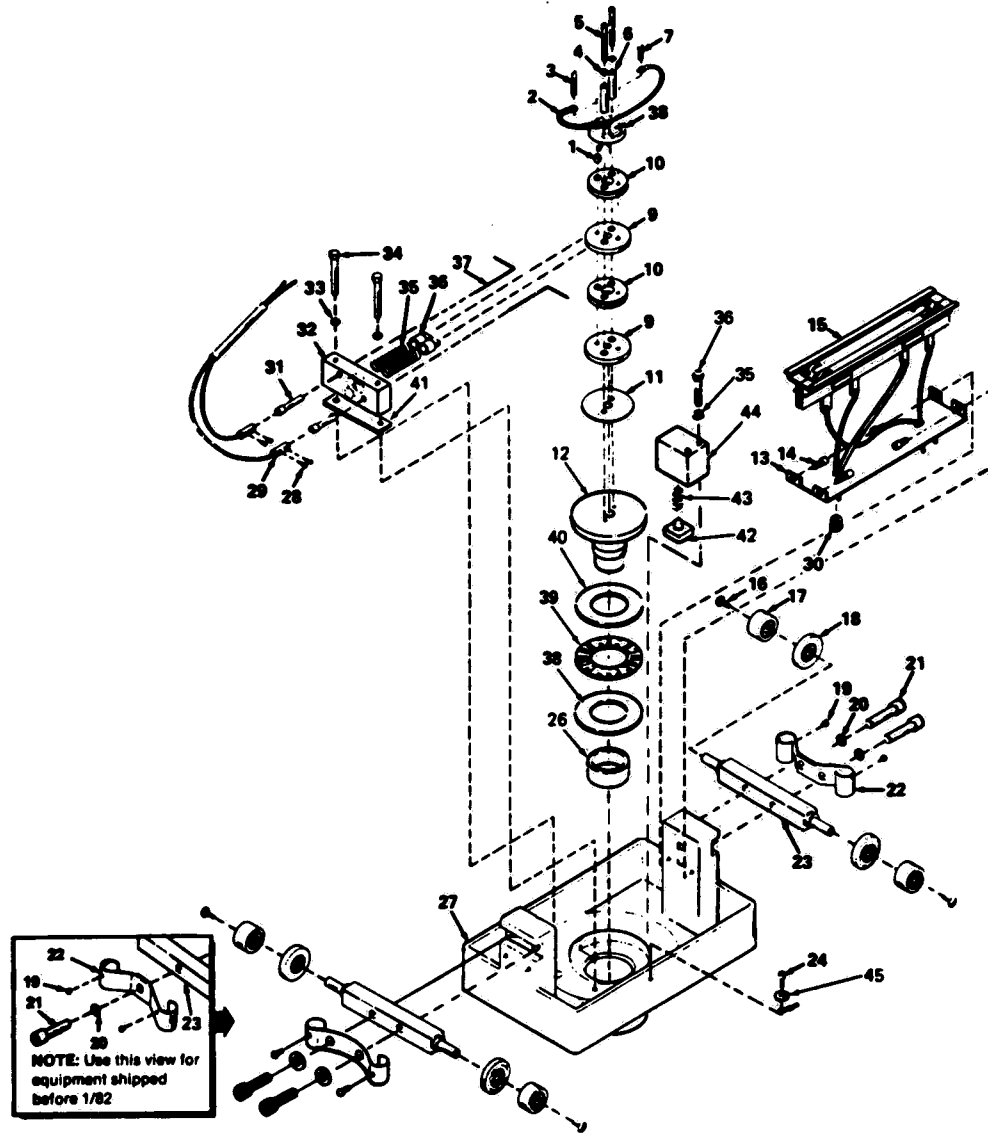


Figure 5-5D. LOW CEILING CARRIAGE ASSEMBLY, Units Shipped Between 3/73 and 7/82.

FIG. & INDEX NO.	PART NUMBER	SVC	DESCRIPTION	UNITS PER ASSEMBLY		
5-5D-	P 135842 NLA		LOW CEILING CARRIAGE ASSEMBLY (Units Shipped Between 3/73 and 6/73)	X		
	F 135842 NLA		LOW CEILING CARRIAGE ASSEMBLY (Units Shipped Between 6/73 and 10/81)		X	
	P 135842 NLA		LOW CEILING CARRIAGE ASSEMBLY (Units Shipped Between 10/81 and 7/82)			X
1	P 41926 091		INSULATOR	1	1	1
2	P 79971 002		WIRE ASSEMBLY (Includes Both Wires)	1	1	1
3	P 38569 041		SCREW, Round Head, #8-32 x 1	1	1	1
4	P 5508 041		WASHER, Plain, 3/16	2	2	2
5	P 12341 041		SCREW, Round Head, #10-32 x 1-1/2	2	2	2
6	P 40382 091		SPOOL, Bakelite	2	2	2
7	F 3986 041		SCREW, Round Head, #8-32 x 1/2	1	1	1
8	P 79968 002		WASHER, Top	1	1	1
9	P 43611 001		WASHER, Bakelite	2	2	2
10	P 40381 091		RING, Collector	2	2	2
11	P 43606 091		INSULATOR	1	1	1
12	P 79265 091		ARM, Suspension	1	1	1
13	P 43607 001		COVER	1	1	1
14	P 23431 041		SCREW, Socket Head, #10-32 x 3-8	4	4	4
15	P 135838 003		TROLLEY	1	1	1
16	P 10859 041		SCREW, Truss Head	4	4	4
17	P 40376 001		WHEEL	4	4	4
18	P 40377 001		GUIDE, Wheel	4	4	4
19	P 34506 091		BUMPER, Rubber	4	4	4
20	P 19687 061		LOCKWASHER, 3/8	2	2	
	P 19691 061		LOCKWASHER, 5/16, Stainless			4
21	P 15339 045		SCREW, Socket Head, 3/8-16 x 1-1/4	2	2	
	P 42599 045		SCREW, Socket Head, 5/16-18 x 1-1/4			4
22	P 49081 091		BUMPER, Carriage	1	1	
	P 150824 104		BUMPER, Carriage			1
23	P 40375 045		SHAFT	1	1	
	P 56938 075		SHAFT			1
24	P 4777 091		SCREW, Fillister Head, #8-32	1	1	
25	P 78957 091		BUSHING, Oilite	1	1	
26	P 48267 091		BEARING	1	1	
27	P 98582 NLA		CARRIAGE	1		
	P 98582 NLA		CARRIAGE		1	
	P 134470 034		CARRIAGE			1
28	P 3982 041		SCREW, Round Head, #4-32 x 3-16	4	4	
29	P 40391 091		CONNECTOR	2	2	
30	P 20343 091		SLEEVE	1	1	
	P 150212 001		BUSHING, Snap			1
31	P 40383 091		SLEEVE, Wire	2	2	
32	P 81660 001		RETAINER	1	1	
33	P 19686 061		LOCKWASHER, 1/4	2	2	
34	P 4729 053		SCREW, Hex Head, 1/4-20 x 1-1/2	2	2	
35	P 12461 042		SPRING	2	2	
36	P 81663 001		CAP	2	2	
37	P 40384 091		BRUSH, Wire	2	2	
38	P 78955 091		RACE, Thrust	1	1	
39	P 48267 091		BEARING, Needle	1	1	
40	P 78954 091		RACE, Thrust	1	1	

FIG. & INDEX NO.	PART NUMBER			S V C	DESCRIPTION	UNITS PER ASSEMBLY		
41	P	3515	041		SHIM.....	1		
	P	79973	001		SHIM.....	1	1	1
42	P	79179	091		SHOE, Brake.....	1	1	1
43	P	42610	091		SPRING.....	1	1	1
44	P	79180	045		SUPPORT, Brake.....	1	1	1
45	P	81983	002		LOCKWASHER, Star, #8.....			1

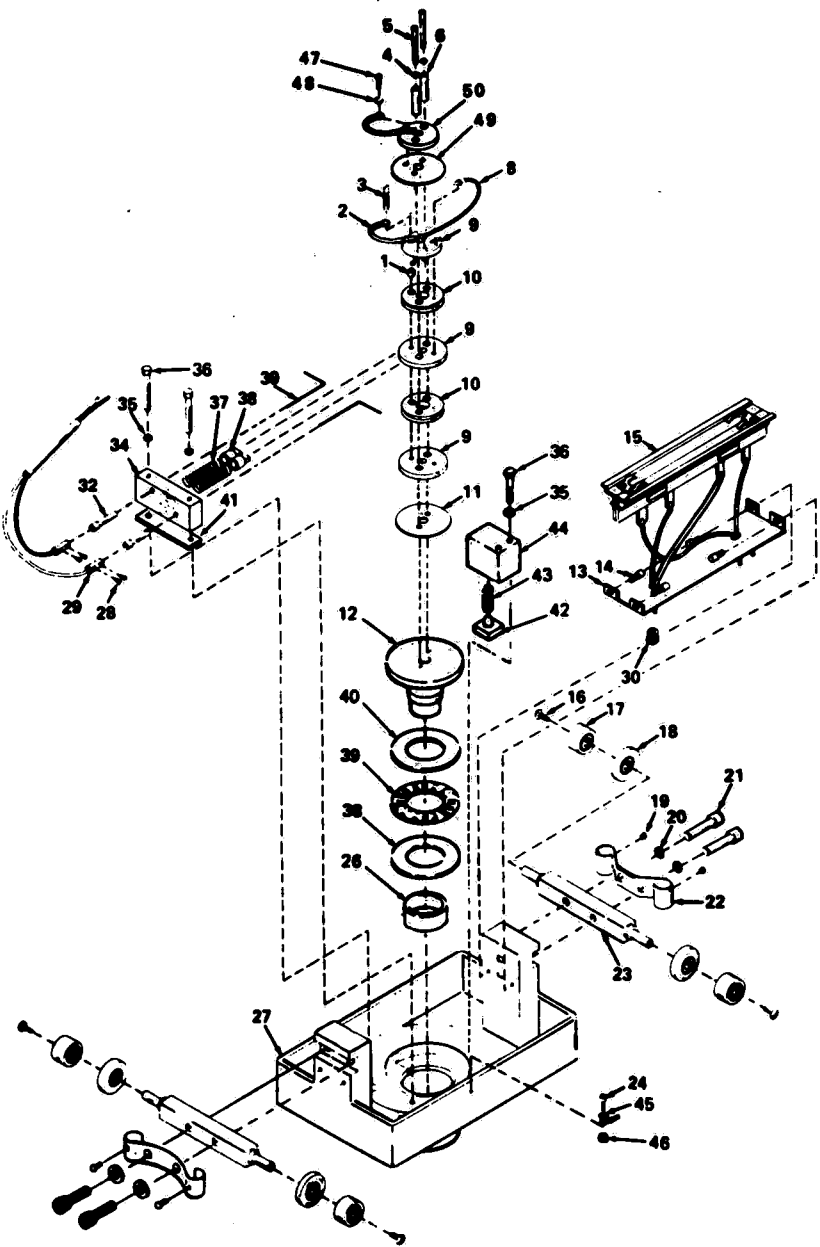


Figure 5-5E. LOW CEILING CARRIAGE ASSEMBLY, Units Shipped After 7/82.

FIG. & INDEX NO.	PART NUMBER	S V C	DESCRIPTION	UNITS PER ASSEMBLY		
5-5E-	P 135842	NLA	LOW CEILING CARRIAGE ASSEMBLY (Units Shipped Between 7/82 and 6/83)	X		
	P 135842	006	LOW CEILING CARRIAGE ASSEMBLY (Units Shipped After 6/83)		X	
1	P 41926	091	INSULATOR	1	1	
2	P 79971	002	WIRE ASSEMBLY (Includes Both Wires)	1	1	
3	P 38569	041	SCREW, Round Head, #8-32 x 1	1	1	
4	P 46115	091	LOCKWASHER, #10	2	2	
5	P 150824	143	SCREW, Round Head, #10-32 x 1-3/4	2	2	
6	P 150824	146	SPOOL	2	2	
7	P 3986	041	SCREW, Round Head, #8-32 x 1/2	1	1	
8	P 150824	252	WASHER, Top	1	1	
9	P 43611	091	WASHER, Bakelite	2	2	
10	P 40381	091	RING, Collector	2	2	
11	P 43606	091	INSULATOR	1	1	
12	P 79265	091	ARM, Suspension	1	1	
13	P 56938	095	COVER	1	1	
14	P 23431	041	SCREW, Socket Head, #10-32 x 3/8	4	4	
15	P 135838	NLA	TROLLEY	1		
	P 135838	003	TROLLEY		1	
16	P 10859	041	SCREW, Truss Head	4	4	
17	P 40376	001	WHEEL	4	4	
18	P 40377	001	GUIDE, Wheel	4	4	
19	P 34506	091	BUMPER, Rubber	4	4	
20	P 19691	061	LOCKWASHER, 5/16, Stainless	4	4	
21	P 42599	045	SCREW, Socket Head, 5/16-18 x 1-1/4	4	4	
22	P 150824	104	BUMPER, Carriage	1	1	
23	P 56938	075	SHAFT	1	1	
24	P 74307	061	SCREW, Round Head, #8-32 x 3/8	1	1	
25	P 78957	091	BUSHING, Oilite	1	1	
26	P 48267	091	BEARING	1	1	
27	P 134470	034	CARRIAGE	1	1	
28	P 3982	041	SCREW, Round Head, #4-32 x 3/16	4	4	
29	P 40391	091	CONNECTOR	2	2	
30	P 150212	001	BUSHING, Snap	1	1	
31	P 40383	091	SLEEVE, Wire	2	2	
32	P 81660	001	RETAINER	1	1	
33	P 19686	061	LOCKWASHER, 1/4	2	2	
34	P 4729	053	SCREW, Hex Head, 1/4-20 x 1-1/2	2	2	
35	P 12461	042	SPRING	2	2	
36	P 81663	001	CAP	2	2	
37	P 40384	091	BRUSH, Wire	2	2	
38	P 78955	091	RACE, Thrust	1	1	
39	P 48267	091	BEARING, Needle	1	1	
40	P 78954	091	RACE, Thrust	1	1	
41	P 79973	001	SHIM	1	1	
42	P 79179	091	SHOE, Brake	1	1	
43	P 42610	091	SPRING	1	1	
44	P 79180	045	SUPPORT, Brake	1	1	
45	P 81683	002	LOCKWASHER, Star, #8	1	1	

FIG. & INDEX NO.	PART NUMBER	S V C	DESCRIPTION	UNITS PER ASSEMBLY		
46	P 3038	041	NUT, Hex, #8-32	1	1	
47	P 3983	041	SCREW, Round Head, #6-32 x 3/16	1	1	
48	P 81683	001	LOCKWASHER, #6	1	1	
49	P 150824	145	PLATE, Insulation	1	1	
50	P 150824	144	PLATE, Top Carriage	1	1	

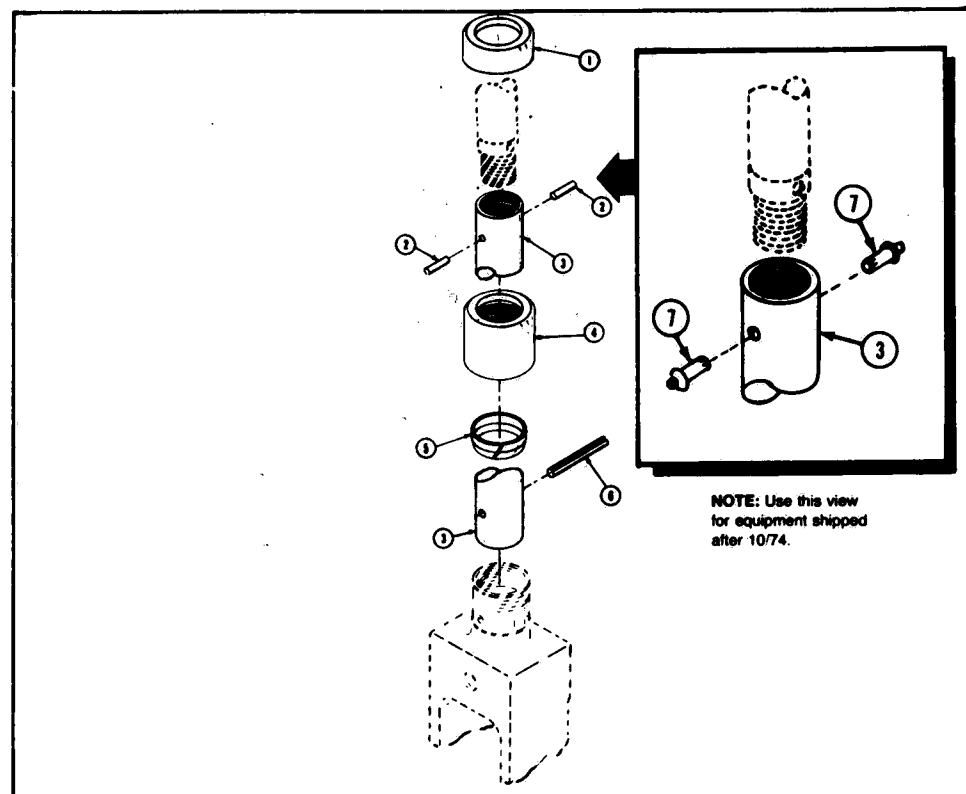


Figure 5-6. SUSPENSION TUBE AND COLLAR DETAIL.

FIG. & INDEX NO.	PART NUMBER	DESCRIPTION	UNITS PER ASSEMBLY				
5-6		SUSPENSION TUBE AND COLLAR DETAIL	*				
1	N.L.A.	COLLAR, Unthreaded (For Equipment Shipped Before 10/74) (82354) ..	1				
2	48414-061	PIN, Groove — 1/4" x 3/4" (For Equipment Shipped Before 10/74)	2				
3	49728-056	TUBE, Suspension (50" long — cut length for ceiling height)	1				
4	49219-056	COLLAR, Threaded	1				
5	49220-045	RING, Clamp	1				
6	43225-061	PIN, Roll — 5/16" x 2"	1				
7	82672-001	RIVET, Drive (For Equipment Shipped After 10/74)	2				

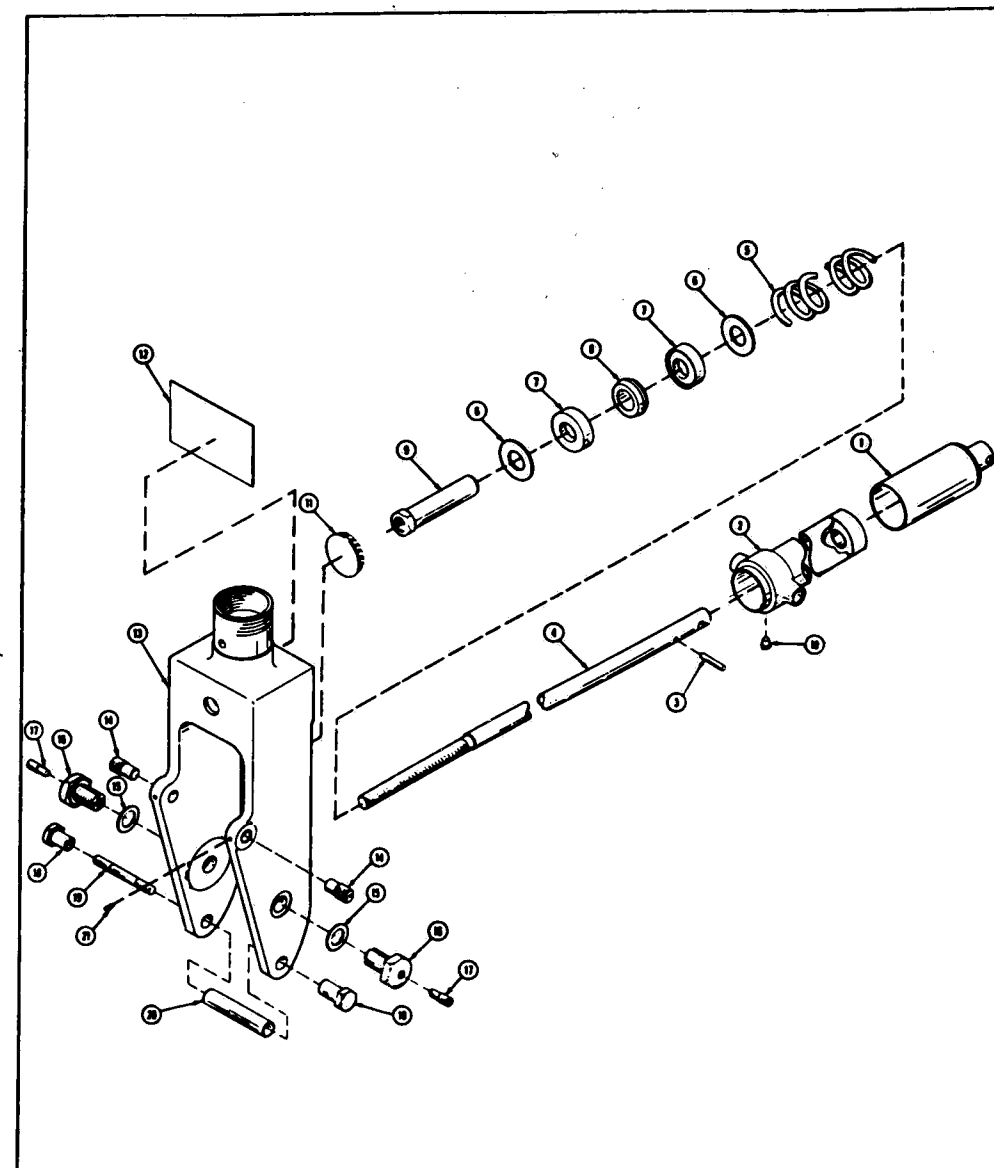
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Figure 5-7. SUSPENSION FORK AND CONTROL ARM ASSEMBLY.

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FIG. & INDEX NO.	PART NUMBER	DESCRIPTION	UNITS PER ASSEMBLY			
5-7-		SUSPENSION FORK AND CONTROL ARM ASSEMBLY	*			
1	41104	SLEEVE (For Equipment Shipped Before 1/74)	1			
2	79053-056	SLEEVE (For Equipment Shipped After 1/74)	1			
2	40422-056	TUBE, Spring	1			
3	36566-061	PIN, Roll	1			
4	79054-045	ROD, Spring	1			
5	26581-091	SPRING	1			
6	40429-045	WASHER	1			
7	40430-091	BUSHING	1			
8	40437-045	SPACER	1			
9	40438-045	NUT, Adjusting	1			
10	41551-091	BUMPER	1			
11	36700-056	PLUG, Button	1			
12	46359-091	NAMEPLATE	1			
13	54098-056	FORK	1			
14	40426-045	SCREW	2			
15	18880-091	WASHER	2			
16	17468-056	BOLT, Hex	2			
17	18881-091	SETSCREW (For Equipment Shipped Before 1/74)	2			
	18882-091	SETSCREW (For Equipment Shipped After 1/74)	2			
18	17629-056	NUT, Special	2			
19	17630-091	STUD	1			
20	19171-056	SLEEVE	1			
21	10583-091	SETSCREW	2			

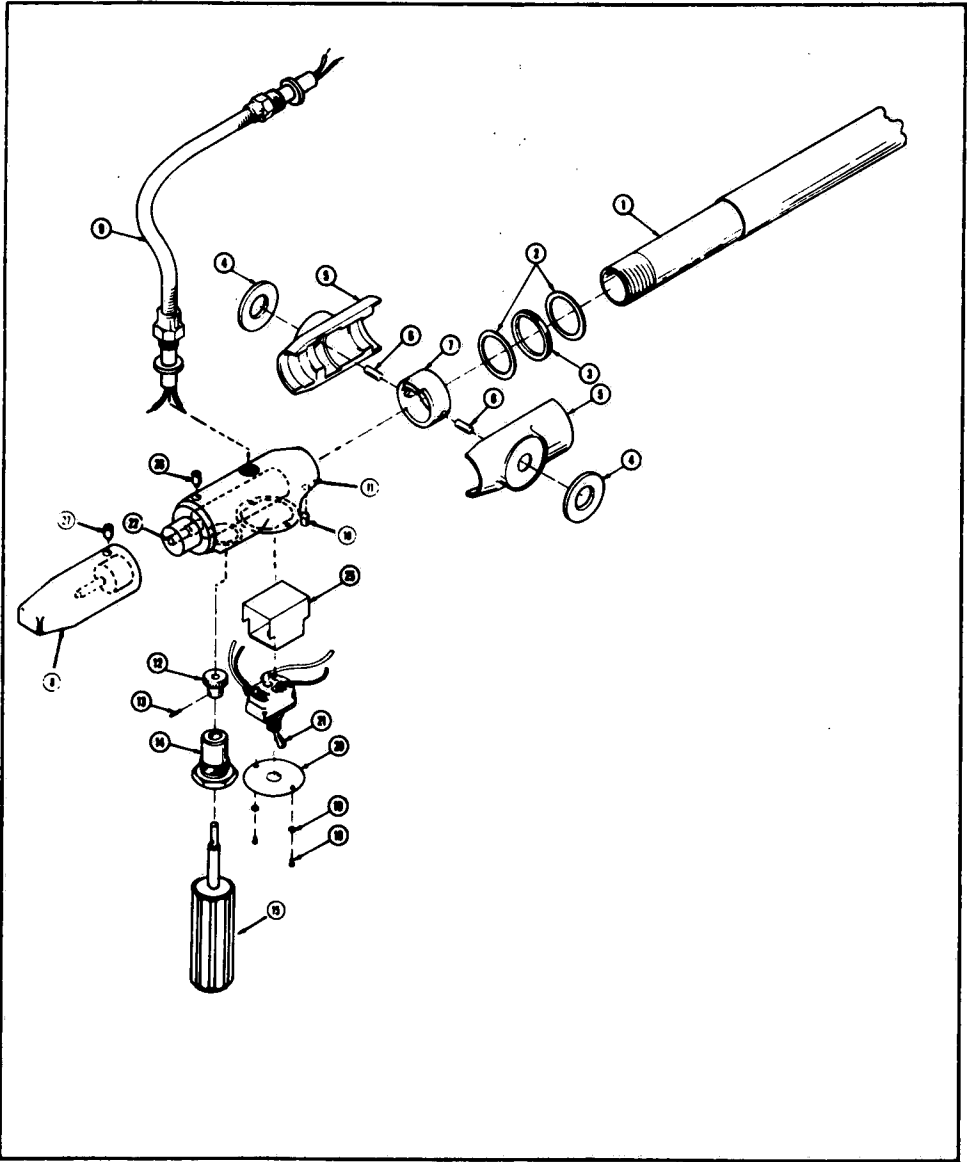


Figure 5-8. REMOTE CONTROL HOUSING AND CROSSARM ASSEMBLY.

FIG. & INDEX NO.	PART NUMBER	DESCRIPTION	UNITS PER ASSEMBLY
5-8		REMOTE CONTROL HOUSING AND CROSSARM ASSEMBLY	*
1	40420-056	CROSSARM	1
2	40440-061	WASHER, Thrust	4
3	40441-091	RETAINER, Bearing	2
4	10497-091	WASHER	1
5	40418-056	SWIVEL (Before 2/10/82)	1
	764317-121	SWIVEL (After 2/10/82)	1
6	26686-061	PIN, Groove	2
7	27504-091	RING	1
8	50692-056	HOUSING, Extension	1
9	92503-001	CONDUIT AND WIRE ASSEMBLY (Do not replace individual wires)	1
10	4772-045	SETSCREW	3
11	54565-056	HOUSING, Switch	1
	78688-091	HANDLE ASSEMBLY (Includes items 12-15)	1
12	11888-091	• PINION	1
13	11913-061	• GROOVE PIN	1
14	26676-056	• BEARING	1
15	75234-091	• HANDLE-TWIST	1
16		Not Used	
17		Not Used	
18	12451-041	SCREW, Round Head — No. 6-32 x 1/4"	2
19	19664-061	LOCKWASHER	2
20	40443-061	PLATE, Switch	1
21	37115-091	SWITCH, Toggle — DPST	1
22	74262-091	SHIELD, Rack	1
23		Not Used	
24		Not Used	
25	50039-091	INSULATOR	1
26	10685-041	SETSCREW	1
27	24222-061	PIN, Roll	1

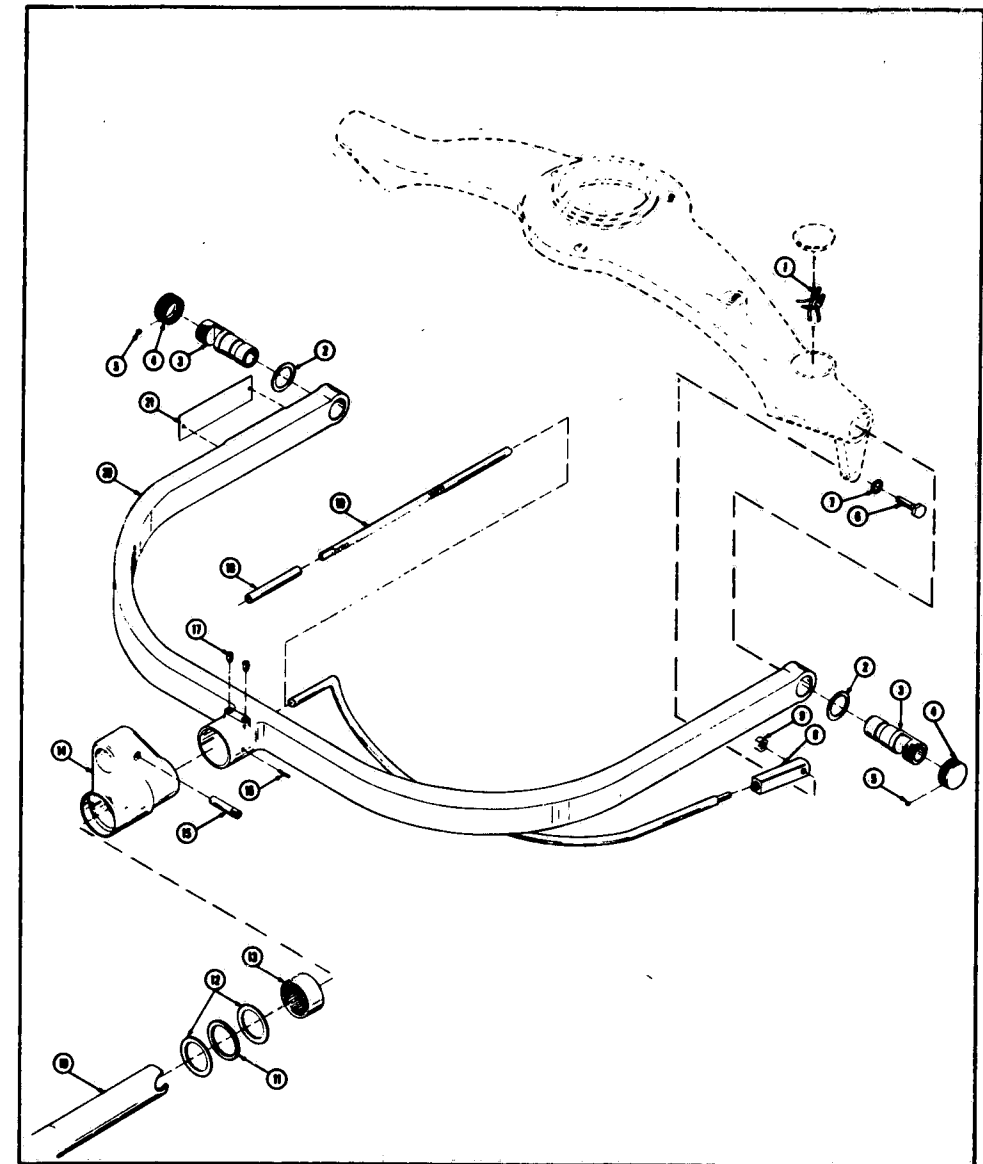


Figure 5-9. YOKE ASSEMBLY.

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FIG. & INDEX NO.	PART NUMBER	DESCRIPTION	UNITS PER ASSEMBLY			
5-9		YOKE ASSEMBLY	*			
1	18538-091	CONNECTOR	6			
2	40413-091	WASHER	4			
3	40414-045	BEARING	2			
4	40817-056	COLLAR	2			
5	27159-091	SETSCREW	2			
6	26306-056	SCREW, Special	1			
7	83461-001	WASHER (See Paragraph 4-11)	1			
8	26874-056	CONNECTOR	1			
9	150350-001	NUT	1			
10	40420-056	CROSSARM	1			
11	40441-091	RETAINER, Bearing	2			
12	40440-061	WASHER, Thrust	4			
13	40442-091	BEARING	2			
14	40439-011	HOUSING	1			
15	40428-045	SCREW	1			
16	34574-061	PIN, Groove	1			
17	4772-045	SETSCREW	3			
18	45305-091	TUBING	1			
19	40416-056	ROD, Control	1			
20	53426-011	YOKE	1			
21	45870-031	PLATE	1			

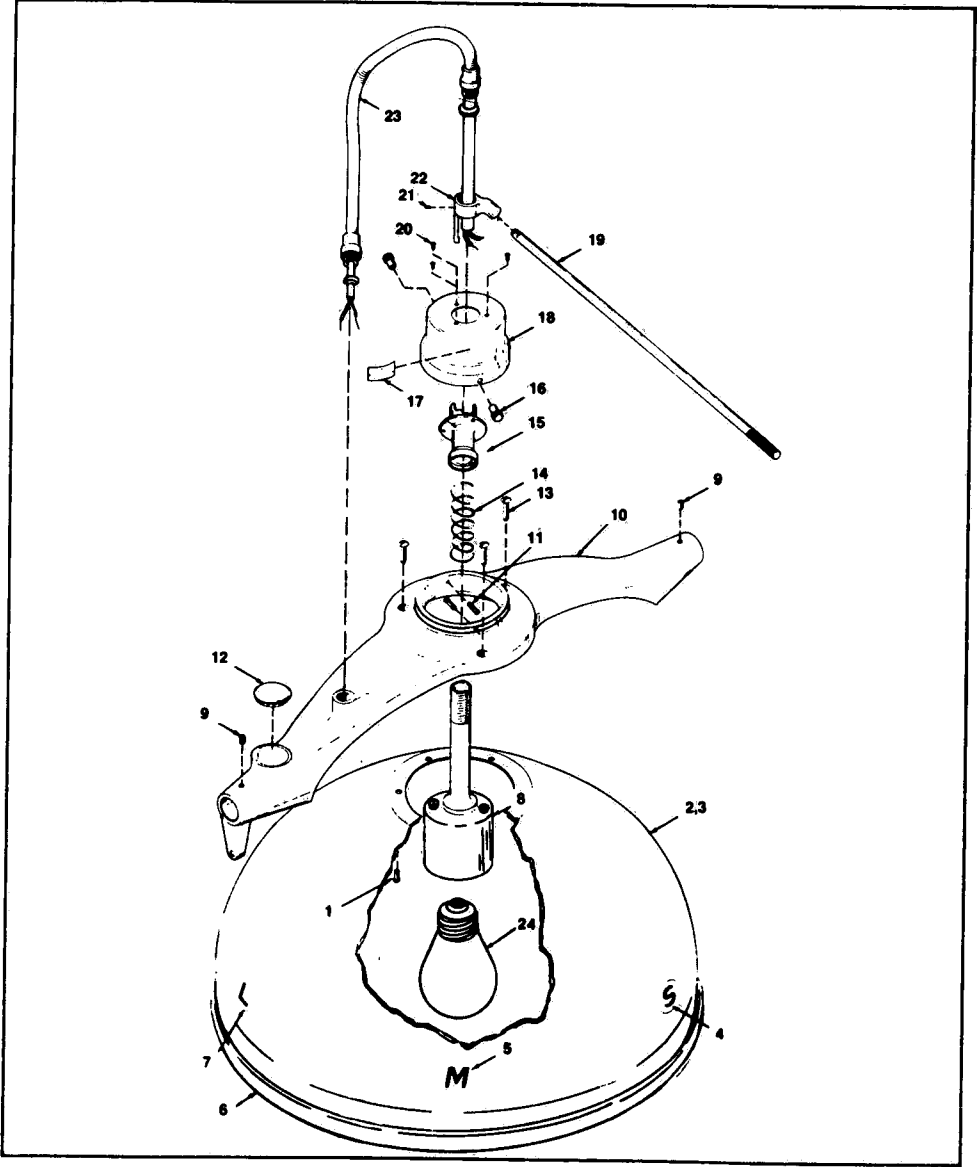


Figure 5-10. REFLECTOR ASSEMBLY.

FIG. & INDEX NO.	PART NUMBER	DESCRIPTION	UNITS PER ASSEMBLY			
5-10-	97629-001	REFLECTOR ASSEMBLY	*			
1	15321-042	SCREW, Round Head - 1/4-20 x 3/8"	3			
2	751082-091	REFLECTOR ASSEMBLY	1			
3	59248-011	• REFLECTOR	1			
4	30561-091	• DECAL, Small	1			
5	30562-091	• DECAL, Medium	1			
6	50094-091	• RING, Guard	1			
7	30563-091	• DECAL, Large	1			
8	48072-091	SOCKET ASSEMBLY	1			
	40411-091	• STEM	1			
	24530-091	• SOCKET	1			
	27290-061	• RING, Split (Insert between screw shell and porcelain base)*	1			
	11241-041	• SCREW, No. 8-32 x 5/8	2			
9	40006-061	SETSCREW - 1/4-20 x 5/16"	2			
10	53335-011	SUPPORT	1			
11	3960-041	SCREW, Round Head - No. 6-32 x 1/2"	2			
12	36700-056	PLUG, Button	1			
13	3949-042	SCREW, Round Head - 1/4-20 x 3/4"	3			
14	25432-091	SPRING	1			
15	136289-001	GUIDE, Focus	1			
16	26684-055	NUT, Knurled Thumb	2			
17	46359-091	LABEL, UL	1			
18	26685-056	CAP, Housing	1			
19	26851-055	ROD, Focus	1			
20	3983-041	SCREW, Round Head	3			
21	10583-091	SETSCREW - No. 10-32 x 3/16"	1			
22	26852-056	COLLAR, Focus	1			
23	92504-001	CONDUIT AND WIRE ASSEMBLY (Do not replace individual wires) ...	1			
24	45704-091	LAMP (120 Volt, 150P25/2SB)	1			
		*Order 27290-061 when only replacing split ring.				

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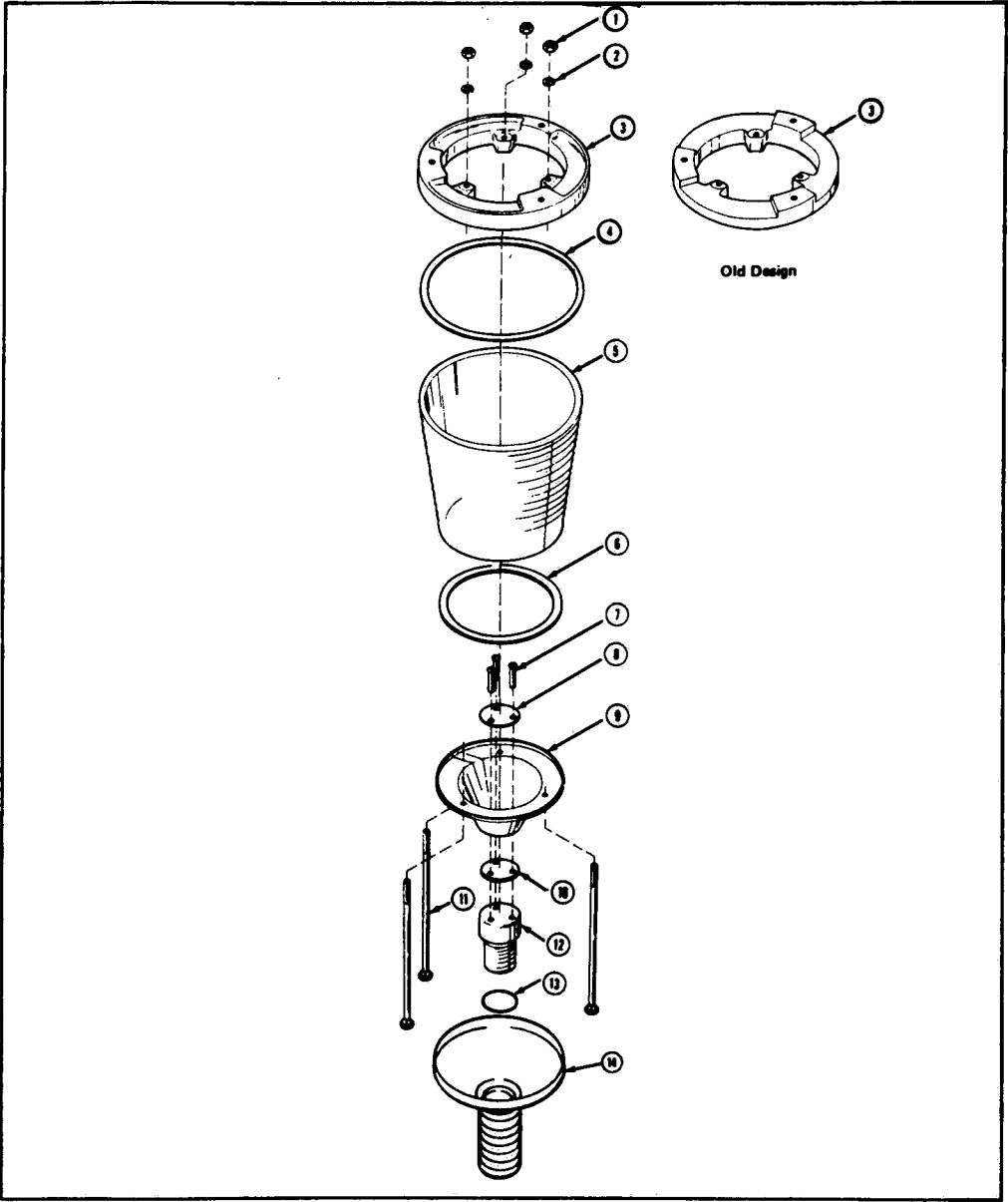


Figure 5-11. OPTICAL ASSEMBLY.

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FIG. & INDEX NO.	PART NUMBER	DESCRIPTION	UNITS PER ASSEMBLY
5-11-		OPTICAL ASSEMBLY	*
	46222-091	GLOBE KIT	1
1	45704-091	• LAMP	1
2	30889-041	• NUT, Hex — No. 10-24	3
3	19685-061	• LOCKWASHER — No. 10	3
4	53332-057	• RING, Inner	1
5	45072-091	• GASKET	1
6	53333-091	• CYLINDER, Heat	1
7	45895-091	• GASKET	1
8	52022-045	• SCREW, Self Tapping — No. 10-24 x 3/4"	3
9	52023-061	• PLATE, Reinforcing	1
10	54318-033	• CAP, Globe	1
11	49006-091	• INSULATOR	1
12	48771-045	• BOLT, Carriage	3
13	49101-091	• RETAINER	1
14	31587-091	• O-RING	1
	27183-033	HANDLE, Sterile Tilt	1

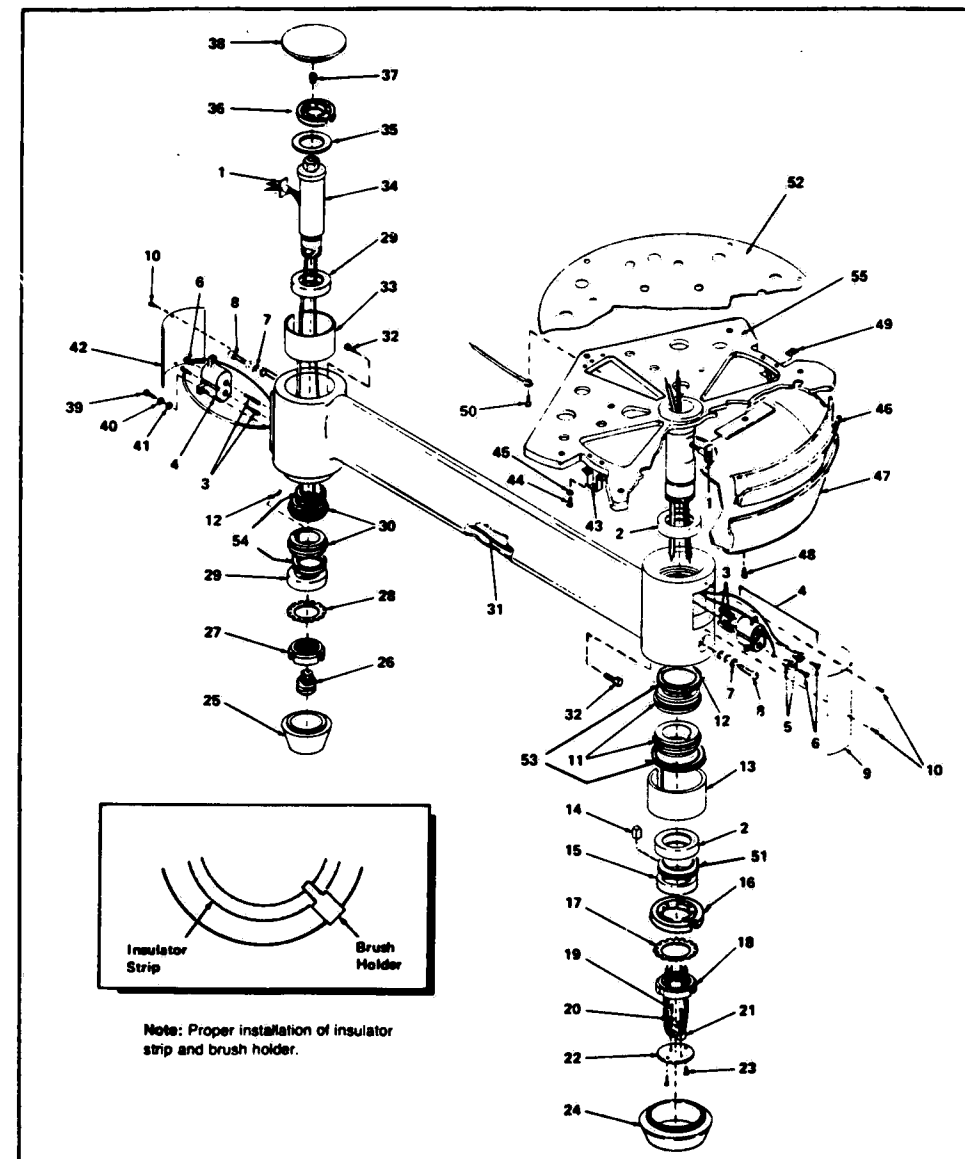


Figure 5-12. HORIZONTAL ARM ASSEMBLY (Two-wire Centra 360).

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FIG. & INDEX NO.	PART NUMBER	DESCRIPTION	UNITS PER ASSEMBLY		
5-12-		HORIZONTAL ARM ASSEMBLY, One Lighthead (Two-Wire Centra 360)	*		
		HORIZONTAL ARM ASSEMBLY, Two Lightheads (Two-Wire Centra 360)	*		
		HORIZONTAL ARM ASSEMBLY, Three Lightheads (Two-Wire Centra 360)	*		
1	150225-001	BUSHING, Insulating	2	4	6
2	82353-001	BEARING (For Equipment Shipped Before 12/74)	2	4	6
	†150089-001	BEARING (For Equipment Shipped After 12/74)	2	4	6
3	82351-001	BRUSH	4	8	12
4	N.L.A.	BRUSH HOLDER ASSEMBLY (2 wire) 92484	2	4	6
5	82363-001	•INSERT, Flange	4	8	12
6	82366-001	•SCREW, Pan Head — No. 8-32 x 1/4"	4	8	12
7	82365-001	WASHER, Spring	6	12	18
8	82367-001	SCREW, Socket Head — 3/8"-24 x 1"	2	4	6
9	92486-003	COVER ASSEMBLY	1	2	3
10	17659-041	SCREW, Round Head — No. 4-40 x 1/4"	4	8	12
11	56102-002	COLLECTOR RING ASSEMBLY	2	4	6
12	82377-001	SETSCREW, Flat Point — No. 4-40 x 3/16"	4	8	12
13	82350-003	INSULATOR	1	2	3
14	82369-001	KEY	1	2	3
15	82368-001	RING, Spacer	1	2	3
16	56105-002	BRAKE ASSEMBLY	1	2	3
17	82362-002	LOCKWASHER	1	1	1
18	82361-002	LOCKNUT	1	1	1
19	3964-041	SCREW, Round Head — No. 6-32 x 5/8"	2	2	2
20	5469-041	WASHER	2	2	2
21	82380-001	RESTRAINT, Wire	1	1	1
22	82358-001	PLATE, Bottom	1	1	1
23	50705-041	SCREW, Flat Head — No. 6-32 x 5/16"	2	2	2
24	N.L.A.	CAP, Center Hub (See P-56938-090)	1	1	1
25	82357-001	CAP, Outer Hub, 1-3/4" Dia.	1	2	3
26	150226-001	GRIP, Sealing	1	2	3
27	82361-001	LOCKNUT	1	2	3
28	82362-001	LOCKWASHER	1	2	3
29	82352-001	BEARING	2	4	6
	†150088-NLA	BEARING	2	4	6
30	56102-001	COLLECTOR RING ASSEMBLY	2	4	6
31	56116-NLA	CORD, 41" Long	A/R	1	2
	56116-NLA	CORD, 53" Long	A/R	1	2
32	82473-001	SCREW — 3/8"-24 x 3/4"	2	4	6
33	82350-001	INSULATOR	1	2	3
34	135362-001	SPINDLE, Arm Support	1	2	3

†Note: Grease these bearings with petroleum jelly.

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FIG. & INDEX NO.	PART NUMBER	DESCRIPTION	UNITS PER ASSEMBLY		
5-12- 35	82462-001	SHIELD, Bearing (Outer Hub)	1	2	3
	82463-001	SHIELD, Bearing (Center Hub — Not Shown)	1	1	2
36	56105-001	BRAKE ASSEMBLY	1	2	3
37	82470-001	PLUG, Pipe — 3/4 NPT	1	2	3
38	82356-001	COVER, Access	1	2	3
39	13334-091	SCREW, Round Head — No. 4-40 x 3/8"	6	12	18
40	90713-061	LOCKWASHER	6	12	18
41	28032-091	WASHER	6	12	18
42	92486-002	COVER ASSEMBLY	1	2	3
43	82371-001	CLIP, Canopy	4	4	4
44	12451-041	SCREW, Round Head — No. 6-32 x 1/4"	8	8	8
45	19675-041	LOCKWASHER	8	8	8
46	92485-001	GASKET, Canopy	1	1	1
47	135364-003	CANOPY, Standard (20 1/2" O.D.)	A/R	A/R	A/R
48	25400-041	SCREW, Truss Head — No. 10-32 x 1/2"	4	4	4
49	48982-045	NUT, Speed	4	4	4
50	9374-041	SCREW, Round Head — No. 10-32 x 3/4"	1	1	1
51	150090-NLA	STRIP, Filler	1	2	3
52	142855-001	CEILING COVER PLATE (20 1/2-inch diameter)	1	2	3
53	759509-001	SPACER, Large	2	4	6
54	759510-001	SPACER, Small	2	4	6
55	163786-001	MOUNTING PLATE	1		
	163786-002	MOUNTING PLATE	1		
	163786-003	MOUNTING PLATE			1

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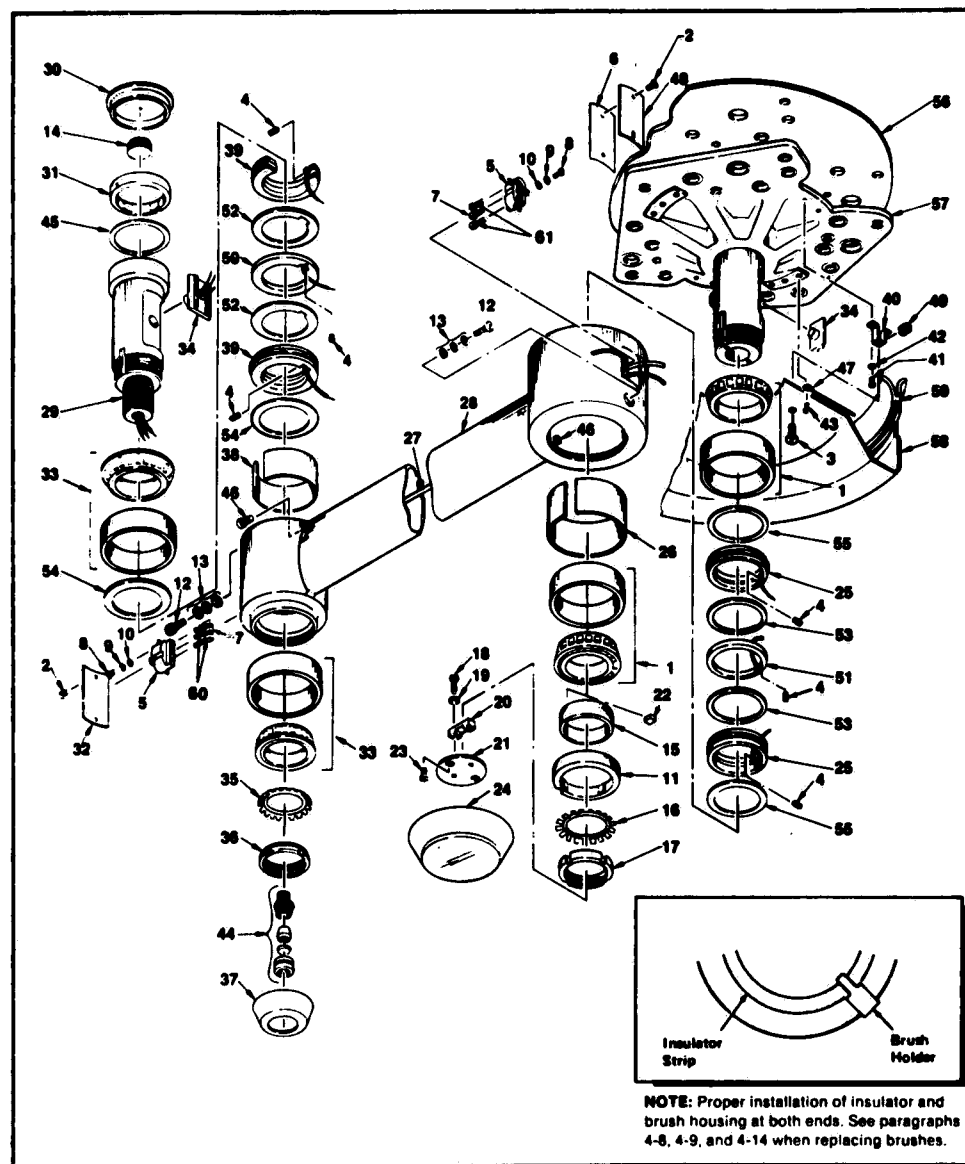


Figure 5-12A. HORIZONTAL ARM ASSEMBLY (Three-wire Centra 360 after 1/78).

FIG. & INDEX NO.	PART NUMBER	SVC	DESCRIPTION	UNITS PER ASSEMBLY	
5-12A-			HORIZONTAL ARM ASSEMBLY — 24 inches	X	
			HORIZONTAL ARM ASSEMBLY — 36 inches		X
1	P 82353	001	BEARING	2	2
2	P 17659	041	SCREW, Round Head 4-40 x 1/4	4	4
3	P 25400	041	SCREW, Truss Head 10-32 x 1/2	4	4
4	P 82983	001	SETSCREW, Flat Point 4-40 x 1/8	6	6
5	P 56159	002	BRUSH HOUSING ASSEMBLY	2	2
6	P 92486		COVER ASSEMBLY (SUB: P-92486-003)	1	1
7	P 82351	001	BRUSH	2	2
8	P 13334	091	SCREW, Round Head 4-40 x 3/8	6	6
9	P 90713	061	LOCKWASHER #4	6	6
10	P 26032	091	WASHER	6	6
11	P 56105	002	BRAKE ASSEMBLY	1	1
12	P 82367	001	SCREW, Socket Head 3/8-24 x 1	2	2
13	P 82365	001	WASHER, Spring (Belleville)	6	6
14	P 82470	001	PLUG, Pipe 3/4 NPT	1	1
15	P 82368	001	RING, Spacer	1	1
16	P 82362	002	LOCKWASHER (TW113)	1	1
17	P 82361	002	LOCKNUT (TN13)	1	1
18	P 3964	041	SCREW, Round Head 6-32 x 5/8	2	2
19	P 5469	041	WASHER	2	2
20	P 82380	001	RESTRAINT, Wire	1	1
21	P 82358	001	PLATE, Bottom	1	1
22	P 82369	001	KEY	1	1
23	P 50705	041	SCREW, Flat Head 6-32 x 5/16	2	2
24	P 92480		CAP, Center Hub (SUB: P-56938-090)	1	1
25	P 56226	002	COMMUTATOR RING ASSEMBLY	2	2
26	P 82350	004	INSULATOR (Large)	1	1
27	P 56160	001	CORD ASSEMBLY (41 inch long Jacket)	1	1
	P 56160	002	CORD ASSEMBLY (53 inch long Jacket)	1	1
28	P 141154	003	ARM, Horizontal — 24 inch (Gray Powder Paint)	1	
	P 141154	004	ARM, Horizontal — 36 inch (Gray Powder Paint)		1
29	P 135362	001	SUPPORT, Arm	1	1
30	P 82356	001	COVER, Access	1	1
31	P 56105	001	BRAKE ASSEMBLY	1	1
32	P 92486	002	COVER ASSEMBLY	1	1
33	P 82352	001	BEARING	2	2
34	P 150225	001	BUSHING, Insulating	2	2
35	P 82362	001	LOCKWASHER (TW110)	1	1
36	P 82361	001	LOCKNUT (TN10)	1	1
37	P 82357	001	CAP, Outer Hub, 1-3/4" Dia.	1	1
38	P 82350	001	Insulator (Small)	1	1
39	P 56226	001	COMMUTATOR RING ASSEMBLY	2	2
40	P 82371	001	CLIP	4	4
41	P 12451	041	SCREW, Round Head 6-32 x 1/4	8	8
42	P 19875	041	LOCKWASHER #6	8	8
43	P 8374	041	SCREW, Round Head 10-32 x 3/8	1	1
44	P 150226	001	GRIP, Sealing	1	1
45	P 82462	001	SHIELD, Bearing	1	1
46	P 82473	001	SCREW 3/8-24 x 3/4	2	2
47	P 14592	091	TERMINAL	1	1
48	P 79987	001	NAMEPLATE (U.L.)	1	1

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FIG. & INDEX NO.	PART NUMBER	SVC	DESCRIPTION	UNITS PER ASSEMBLY
5-12A-				
49	P 48982	045	NUT, Speed	4 4
50	P 56157	001	RING, Commutator	1 1
51	P 56157	002	RING, Commutator	1 1
52	P 56163	001	SPACER, Teflon	2 2
53	P 56163	002	SPACER, Teflon	2 2
54	P 56164	001	WASHER, Teflon	2 2
55	P 56164	002	WASHER, Teflon	2 2
56	P 142865	001	CEILING COVER PLATE (20-1/2 inch diameter)	1 1
57	P 163786	003	MOUNTING PLATE, One Arm Assembly	1 1
	P 163786	002	MOUNTING PLATE, Two Arm Assembly	1 1
	P 163786	001	MOUNTING PLATE, Three Arm Assembly	1 1
58	P 135364	003	CANOPY (20-1/2 diameter)	1 1
59	P 92485	001	GASKET, Canopy — AMSCO Interface	1 1
60	P 150733	001	BRUSH	4 4
61	P 150733	002	BRUSH	4 4
62	P 764315	406	BRUSH REPLACEMENT KIT (Contains items 5, 7, 60, and 61) ..	1 1

†NOTE 1: Grease outer periphery of these bearing cones with ALVANIA EP2 grease.

‡NOTE 2: Use Loctite Grade "H" sealant on these screws.

††NOTE 3: Use adhesive (PLIO BOND CA-468) to cement name-plate to cover assembly (6).

•NOTE 4: These brushes have different face radii and are not interchangeable. Refer to Paragraphs 4-5, 4-6 and 4-14.

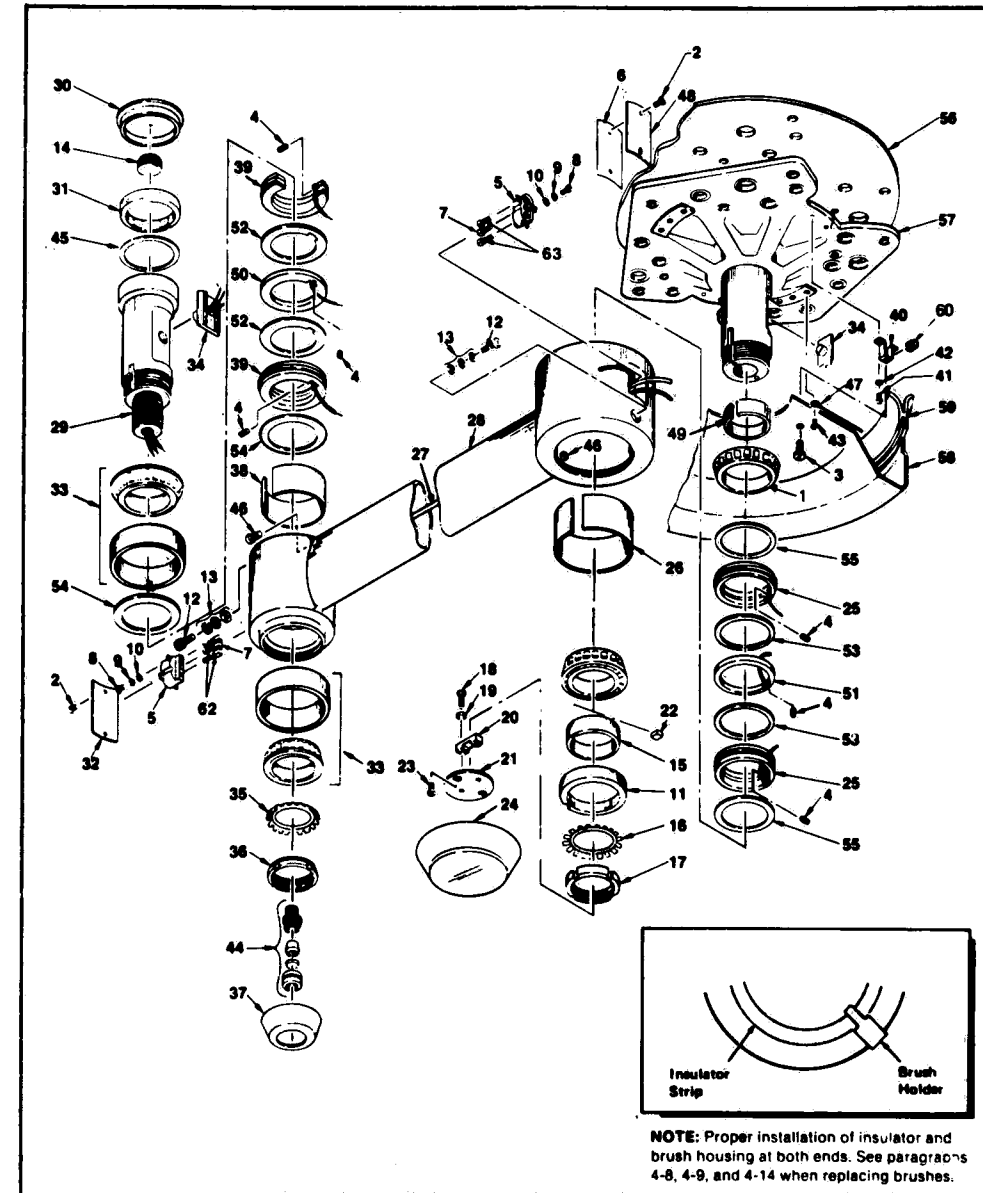


Figure 5-12B: HORIZONTAL ARM ASSEMBLY (Three-wire Centra 360 before 1/78).

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FIG. & INDEX NO.	PART NUMBER	SVC	DESCRIPTION	UNITS PER ASSEMBLY			
5-12B-			HORIZONTAL ARM ASSEMBLY, Three-wire 24-inch (Farbaloy Coating)	X			
			HORIZONTAL ARM ASSEMBLY, Three-wire 36-inch (Farbaloy Coating)		X		
			HORIZONTAL ARM ASSEMBLY, Three-wire 24-inch (Powdered Paint)			X	
			HORIZONTAL ARM ASSEMBLY, Three-wire 36-inch (Powdered Paint)				X
1	P 150089	001 †	BEARING	2	2	2	2
2	P 17659	041	SCREW, Round Head — No. 4-40 x 1/4"	4	4	4	4
3			NOT USED				
4	P 82983	001	SETSCREW, Flat Point — No. 4-40 x 1/8"	6	6	6	6
5	P NLA		BRUSH HOUSING ASSEMBLY (56159-002)	2	2	2	2
6	P 92486		COVER ASSEMBLY (SUB: P-92486-003)	1	1		
	P 92486	003	COVER ASSEMBLY, Center Hub			1	1
7	P 82351	001	BRUSH	2	2	2	2
8	P 13334	091	SCREW, Round Head — No. 4-40 x 3/8"	6	6	6	6
9	P 90713	061	WASHER, Lock — No. 4	6	6	6	6
10	P 26032	091	WASHER	6	6	6	6
11	P 56105	002	BRAKE ASSEMBLY	1	1	1	1
12	P 82367	001	SCREW, Socket Head — 3/8-24 x 1"	2	2	2	2
13	P 82365	001	WASHER, Spring (Belleville)	6	6	6	6
14	P 82470	001	PLUG, Pipe — 3/4 NPT	1	1	1	1
15	P 82368	001	RING, Spacer	1	1	1	1
16	P 82362	002	WASHER, Lock (TW113)	1	1	1	1
17	P 82361	002	NUT, Lock (TN13)	1	1	1	1
18	P 3964	041	SCREW, Round Head — No. 6-32 x 5/8"	2	2	2	2
19	P 5489	041	WASHER	2	2	2	2
20	P 82380	001	RESTRAINT, Wire	1	1	1	1
21	P 82358	001	PLATE, Bottom	1	1	1	1
22	P 82369	001	KEY	1	1	1	1
23	P 50705	041	SCREW, Flat Head — No. 6-32 x 5/16"	2	2	2	2
24	P 92480	001	CAP, Center Hub (SUB: P-56938-090)	1	1	1	1
25	P 56161	SUB	COMMUTATOR RING ASSEMBLY SUB 755715-500	2	2	2	2
26	P 82350	003	INSULATOR	1	1	1	1
27	P 56160	001	CORD ASSEMBLY, 37-1/8 inch Long Jacket	1	1		
	P 56160	002	CORD ASSEMBLY, 49-1/8 inch Long Jacket		1		1
28	P 141154	003	ARM, Horizontal — 24 inches	1			
	P 141154	004	ARM, Horizontal — 36 inches		1		
	P 141155	003	ARM, Horizontal — 24 inches			1	
	P 141155	004	ARM, Horizontal — 36 inches				1
29	P 135362	001	SUPPORT, Arm	1	1	1	1
30	P 82356	001	COVER, Access	1	1	1	1
31	P 56105	001	BRAKE ASSEMBLY	1	1	1	1
32	P 92486	002	COVER ASSEMBLY	1	1	1	1
33	P 150088	NLA †	BEARING	2	2	2	2
34	P 150225	001	BUSHING, Insulating	2	2	2	2
35	P 82362	001	WASHER, Lock (TW110)	1		1	1
36	P 82361	001	NUT, Lock (TN10)	1	1	1	1

FIG. & INDEX NO.	PART NUMBER	SVC	DESCRIPTION	UNITS PER ASSEMBLY			
5-12B-							
37	P 82357	001	CAP, Outer Hub, 1-3/4"	1	1	1	1
38	P 82350	001	INSULATOR	1	1	1	1
39	P 56161	SUB	COMMUTATOR RING ASSEMBLY SUB 755715-490	2	2	2	2
40	P 82371	001	CLIP	4	4	4	4
41	P 12451	041	SCREW, Round Head — No. 6-32 x 1/4"	8	8	8	8
42	P 19675	041	WASHER, Lock — No. 6	8	8	8	8
43	P 9374	041	SCREW, Round Head — No. 10-32 x 3/8"	1	1	1	1
44	P 150226	001	GRIP, Sealing	1	1	1	1
45	P 82462	001	SHIELD, Bearing	1	1	1	1
46	P 82473	001 ‡	SCREW — 3/8-24 x 3/4"	2	2	2	2
47	P 14592	091	TERMINAL	1	1	1	1
48	P 79987	001 ††	NAMEPLATE (U.L.)	1	1	1	1
49	P 150090	NLA	FILLER STRIP	2	2	2	2
50	P 56157	001	RING, Commutator	1	1	1	1
51	P 56157	002	RING, Commutator	1	1	1	1
52	P 56163	001	SPACER, Teflon	2	2	2	2
53	P 56163	002	SPACER, Teflon	2	2	2	2
54	P 56164	001	WASHER, Teflon	2	2	2	2
55	P 56164	002	WASHER, Teflon	2	2	2	2
56	P 142885	001	CEILING COVER PLATE (20-1/2-inch diameter)	1	1	1	1
57	P 163786	001	MOUNTING PLATE, Three Arm Assembly	1	1	1	1
	P 163786	002	MOUNTING PLATE, Two Arm Assembly	1	1	1	1
	P 163786	003	MOUNTING PLATE, One Arm Assembly	1	1	1	1
58	P 135364	003	CANOPY, Standard (20-1/2-inch diameter)	1	1	1	1
59	P 92485	001	GASKET, Canopy, Standard	1	1	1	1
60	P 48982	045	NUT, Speed	4	4	4	4
61	P 25400	041	SCREW, Truss Head — No. 10-32 x 1/2"	4	4	4	4
62	P 150733	001	BRUSH	2	2	2	2
63	P 150733	002	BRUSH	2	2	2	2
64	P 764315	406 •	BRUSH REPLACEMENT KIT (Contains items 5, 7, 62 and 63)	1	1	1	1

†NOTE 1: Grease outer periphery of these bearing cones with ALVANIA EP2 grease.

‡NOTE 2: Use Loctite Grade "H" sealant on these screws.

††NOTE 3: Use adhesive (PL10 BOND CA-468) to cement nameplate to cover assembly (6).

•NOTE 4: These brushes have different face radii and are not interchangeable. Refer to Paragraphs 4-5, 4-6 and 4-14.

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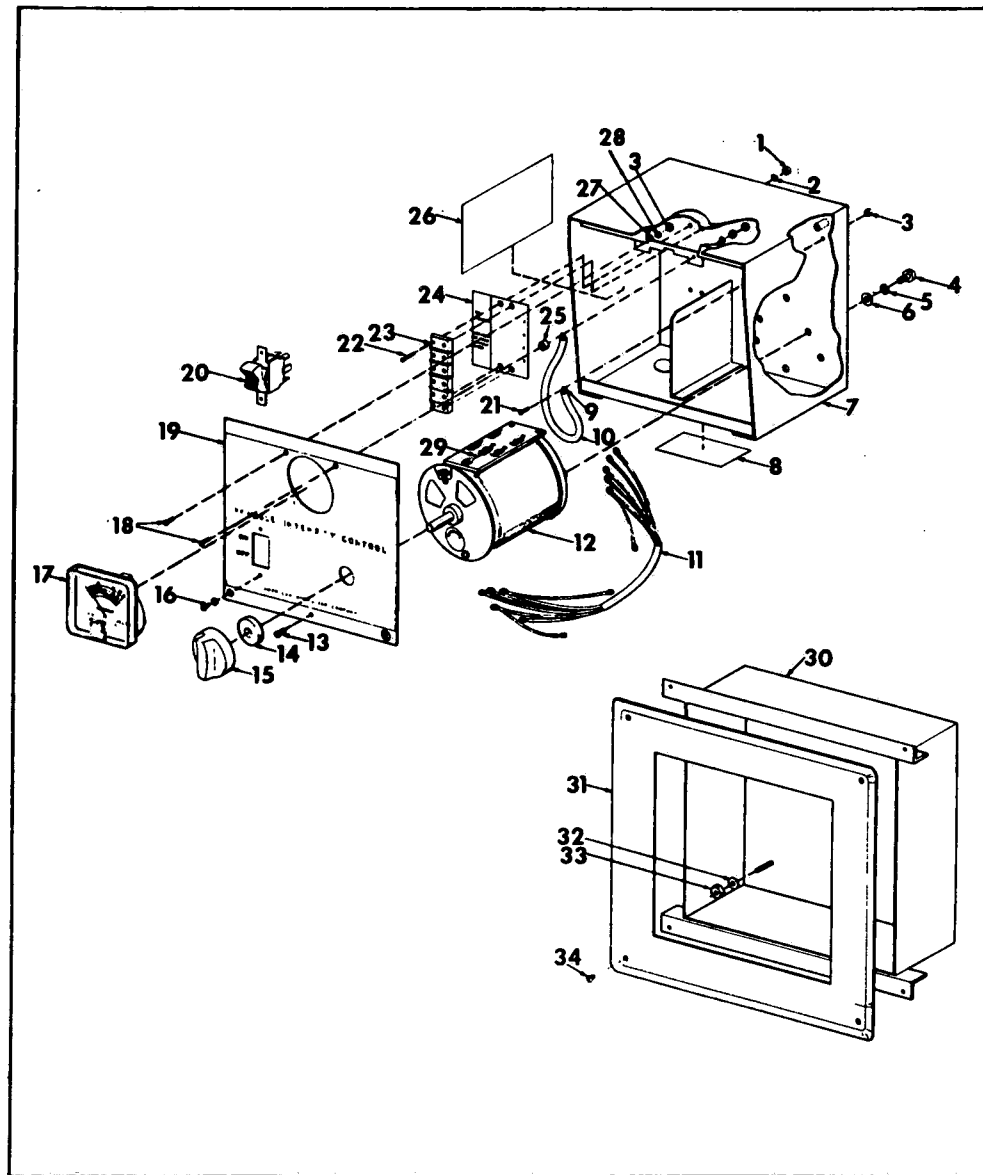


Figure 5-13. OPTIONAL VARIABLE INTENSITY CONTROL (Units Shipped Before 5/66).

FIG. & INDEX NO.	PART NUMBER	DESCRIPTION	UNITS PER ASSEMBLY		
5-13-		VARIABLE INTENSITY CONTROL, Open Mounted (Units Shipped Before 5/66)	*		
		VARIABLE INTENSITY CONTROL, Recessed (Units Shipped Before 5/66)		*	
1	2959-041	NUT, Hex - No. 10-32	4	4	
2	19677-041	LOCKWASHER - No. 10	4	4	
3	3037-041	NUT, Hex - No. 6-32	3	3	
4	3546-041	CAPSCREW - 1/4-20 x 1/2"	3	3	
5	19678-045	LOCKWASHER - 1/4"	3	3	
6	5473-041	WASHER	3	3	
7	53346-011	BOX, Control	1	1	
8	150380-NLA	NAMEPLATE	1	1	
9	45527-091	CHAIN	1	1	
10	45526-091	TUBING	1	1	
11	N.L.A.	HARNES, Wire	1	1	
12	53357-091	TRANSFORMER - Ohmite VT-4 3.5 AMP	1	1	
	759631-001	• BRUSH AND CONTACT ASSEMBLY (Not Shown)	1	1	
13	45307-041	SCREW, Phillips - No. 8-32 x 1/4"	1	1	
14	45322-091	WASHER, Felt	1	1	
15	45189-091	KNOB	1	1	
16	N.L.A.	SCREW, Phillips - No. 4-10 x 3/8" Oval Head	2	2	
	19676-041	LOCKWASHER - No. 8	2	2	
	13794-041	NUT, Hex - No. 4-40	2	2	
17	53281-091	VOLTMETER	1	1	
18	3961-041	SCREW, Flat Head - No. 6-32 x 3/8"	2	2	
19	N.L.A.	PLATE, Cover	1	1	
20	45280-091	SWITCH, Rocker	1	1	
21	3984-041	SCREW, Round Head - No. 6-32 x 3/8"	1	1	
22	9316-041	SCREW, Round Head - No. 10-32 x 5/8"	4	4	
23	39091-091	BLOCK, Terminal	1	1	
24	45957-091	LABEL, Terminal Block	1	1	
25	42460-091	WASHER	2	2	
26	44284-NLA	STICKER, Wiring Diagram	1	1	
27	45838-045	STOP	1	1	
28	19675-041	LOCKWASHER - No. 6	2	2	
29	49935-091	LINK, Fusible	1	1	
30	56346-001	BOX, Rough		1	
31	24519-061	FLANGE		1	
32	19678-045	LOCKWASHER		3	
33	3097-041	NUT, Hex		3	
34	20821-061	SCREW		4	
	47182-091	BUSHING, Snap (Not Shown)	2	2	

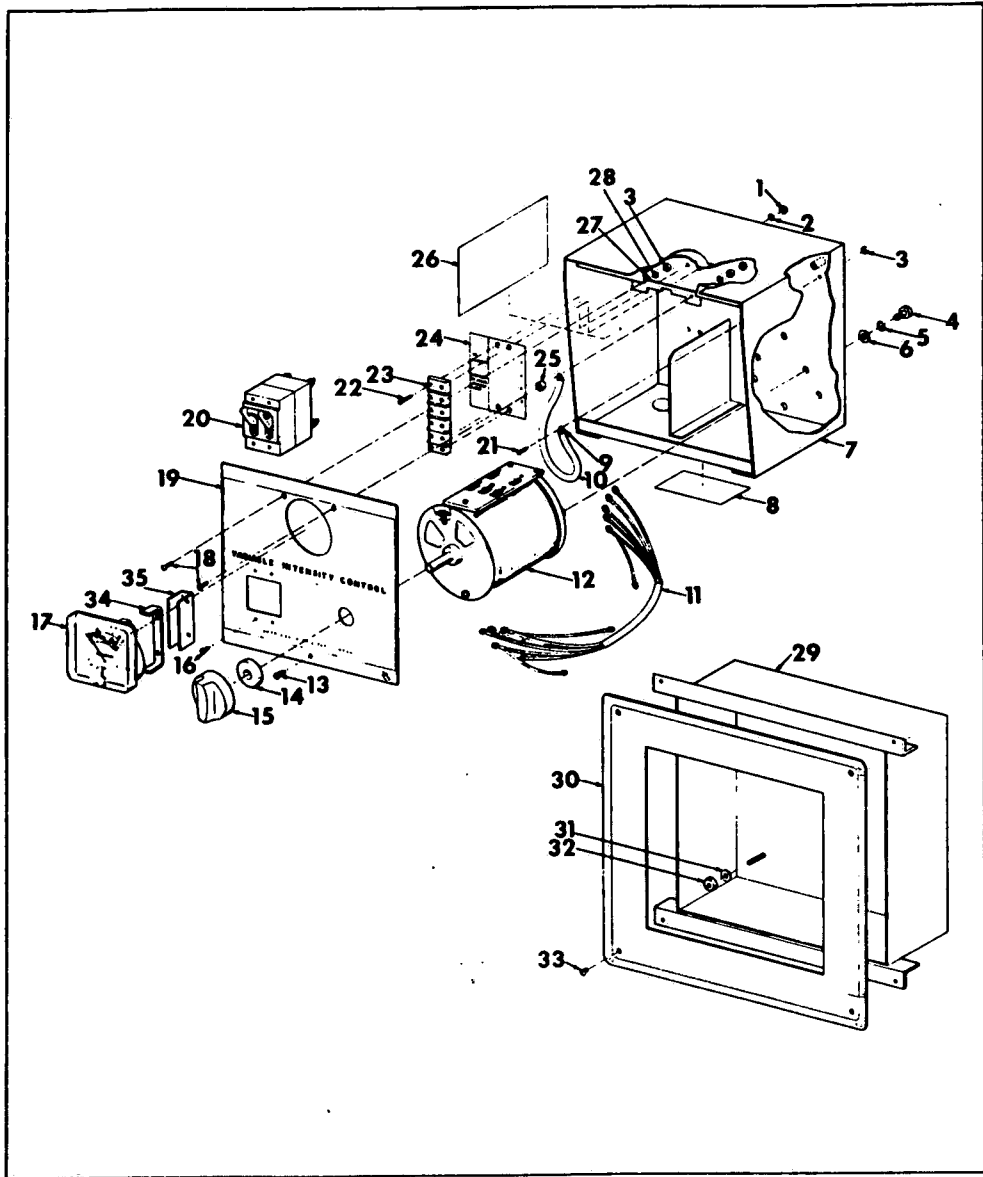


Figure 5-14. OPTIONAL VARIABLE INTENSITY CONTROL (Units Shipped After 5/66).

FIG. & INDEX NO.	PART NUMBER	DESCRIPTION	UNITS PER ASSEMBLY			
5-14-	97710-001	VARIABLE INTENSITY CONTROL, Open Mounted (Units Shipped After 5/66)	*			
	761665-001	VARIABLE INTENSITY CONTROL, Recessed (Units Shipped After 5/66)		*		
1	2959-041	NUT, Hex - No. 10-32	4	4		
2	19677-041	LOCKWASHER - No. 10	4	4		
3	3037-041	NUT, Hex - No. 6-32	3	3		
4	15287-041	CAPSCREW	3	3		
5	19677-041	LOCKWASHER	3	3		
6	5508-041	WASHER	3	3		
7	53346-011	BOX, Control	1	1		
8	150380-NLA	NAMEPLATE	1	1		
9	45527-091	CHAIN	1	1		
10	45526-091	TUBING	1	1		
11	54451-091	HARNESS, Wire	1	1		
12	44325-091	TRANSFORMER - General Radio W-5 - 6 AMP	1	1		
	753515-091	• BRUSH ASSEMBLY	1	1		
	752228-091	• STOP, Adjustable	1	1		
13	45307-041	SCREW, Phillips - No. 8-32 x 1/4"	1	1		
14	45322-091	WASHER, Felt	1	1		
15	45189-091	KNOB	1	1		
16	52265-041	SCREW, Phillips - No. 6-32 x 1/4" Oval Head	4	4		
17	53281-091	VOLTMETER	1	1		
18	3961-041	SCREW, Flat Head - No. 6-32 x 3/8"	2	2		
19	92523-001	PLATE, Cover	1	1		
20	52262-091	CIRCUIT BREAKER	1	1		
21	3984-041	SCREW, Round Head - No. 6-32 x 3/8"	1	1		
22	9316-041	SCREW, Round Head - No. 10-32 x 5/8"	4	4		
23	39091-091	BLOCK, Terminal	1	1		
24	45957-091	LABEL, Terminal Block	1	1		
25	42460-091	WASHER	2	2		
26	50095-091	STICKER, Wiring Diagram	1	1		
27	45838-045	STOP	1	1		
28	19675-041	LOCKWASHER - No. 6	2	2		
29	56346-001	BOX, Rough		1		
30	24519-061	FLANGE		1		
31	19678-045	LOCKWASHER		3		
32	3097-041	NUT, Hex		3		
33	20821-061	SCREW		4		
34	50411-091	INSULATOR	1	1		
35	N.L.A.	BRACE	1	1		

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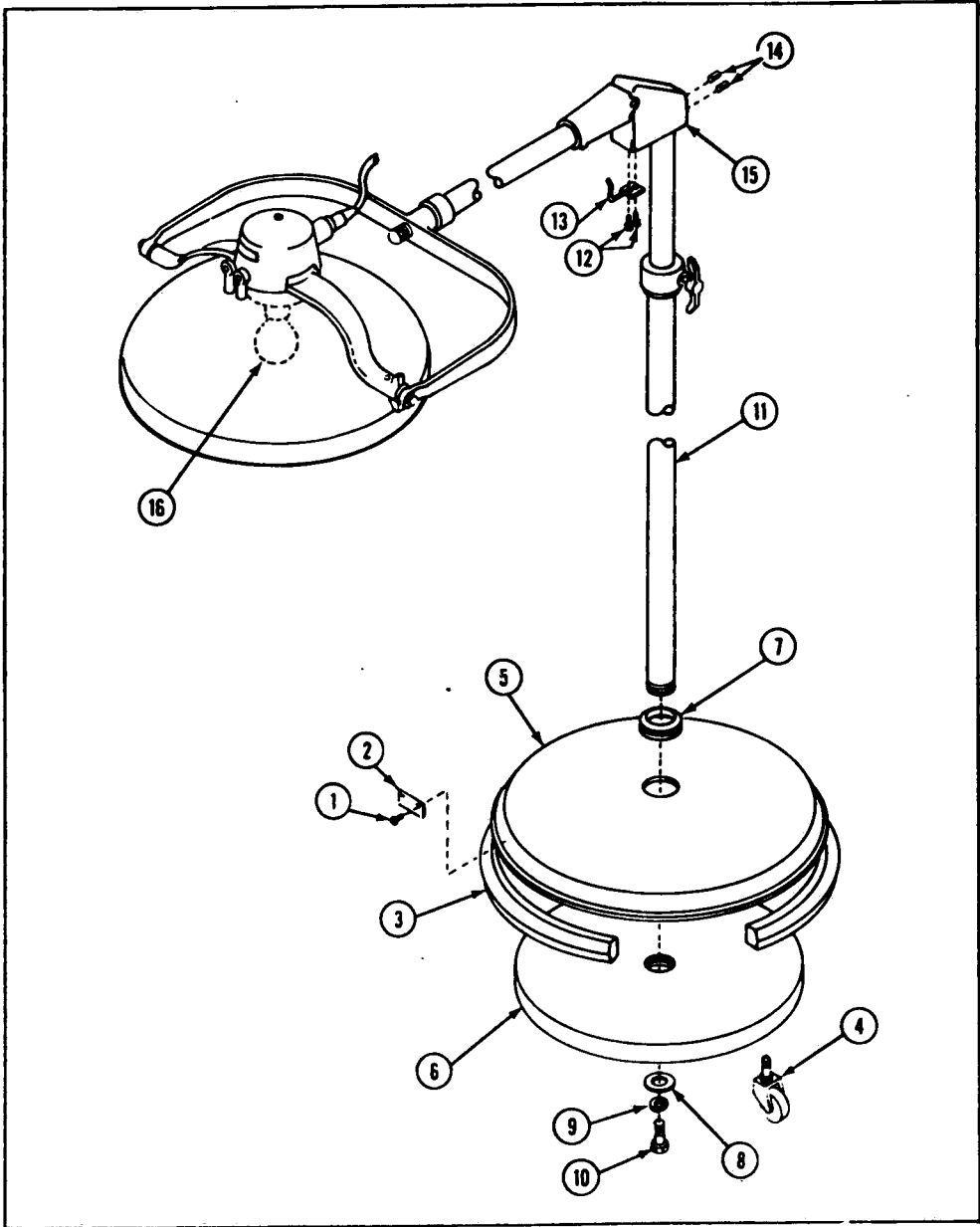


Figure 5-15. PORTABLE EXPLOSIONPROOF LUMINAIRE (Model PX-22).

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FIG. & INDEX NO.	PART NUMBER	DESCRIPTION	UNITS PER ASSEMBLY			
5-15-	B-6744-003	22" PORTABLE EXPLOSION PROOF LUMINAIRE (Model PX-22) ..				
1	40357-045	SCREW, Self-tapping — No. 6-32 x ¼	6			
2	21004-091	PLATE, UL	1			
3	45692-091	BUMPER	1			
4	21342-091	CASTER	8			
5	59249-011	COVER, Base	1			
6	55823-011	PLATE, Base	1			
7	45691-091	GROMMET	1			
8	24959-091	WASHER, ¾" (2" O.D.)	1			
9	45053-091	LOCKWASHER, ¾"	1			
10	3886-091	BOLT, ¾"-10 x 1½	1			
11	53408-001	STAND ASSEMBLY (See Figure 5-16)	1			
12	9282-041	SCREW — No. 10-32 x ¾	2			
13	76624-056	CLIP, Cord	1			
14	4433-041	SETSCREW, ¼"-20 x 5/16	2			
15	59744-001	ARM AND REFLECTOR ASSEMBLY (See Figure 5-17)	1			
16	41517-091	LAMP, Large (G.E. No. 150P25/8SB)	2			

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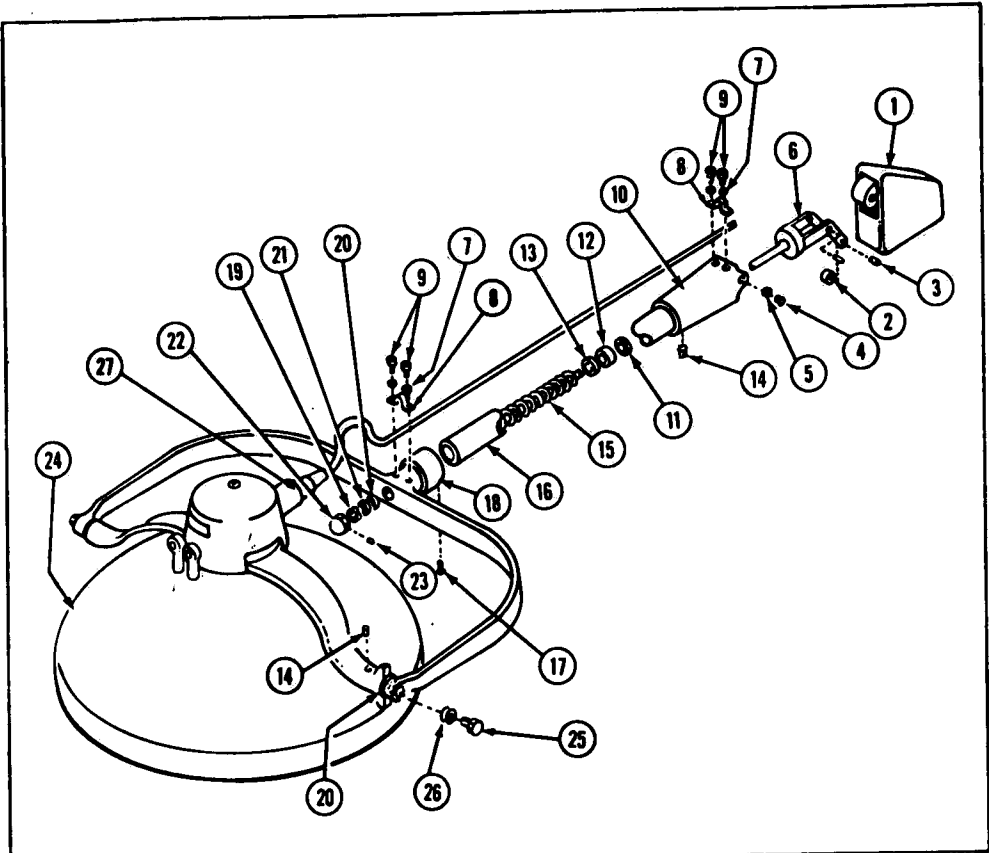


Figure 5-17. ARM AND REFLECTOR ASSEMBLY.

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FIG. & INDEX NO.	PART NUMBER	DESCRIPTION	UNITS PER ASSEMBLY			
5-17-	59744-001	ARM AND REFLECTOR ASSEMBLY	*			
1	74019-011	HEAD ASSEMBLY	1			
2	24960-091	ROLLER	1			
3	18706-091	PIN, Roller, Steel	1			
4	18710-062	SCREW, Shoulder, Stainless Steel	2			
5	10470-061	LOCKWASHER, 5/16"	2			
6	45700-091	FORK AND ROD ASSEMBLY	1			
7	19690-061	LOCKWASHER, No. 8	4			
8	45703-061	RETAINER, Cord	2			
9	3967-041	SCREW, Round Head, No. 8-32 x 1/4	4			
10	45830-011	FORK, Arm Support, Mall. Iron	1			
11	82396-001	WASHER, Steel	1			
12	N.L.A.	BUSHING ASSEMBLY	1			
13	26584-091	PILOT, Brass	1			
14	15736-091	SETSCREW, 1/4"-20 x 3/4	3			
15	26581-091	SPRING	1			
16	45702-056	SUPPORT-TUBE ASSEMBLY	1			
17	31774-091	PIN, Drive Lock	1			
18	59246-011	YOKE, Aluminum Casting	1			
19	19692-061	LOCKWASHER, 5/16"	1			
20	18880-091	WASHER, Fiber	3			
21	17285-045	WASHER, Steel	1			
22	45754-056	NUT, Tilt, Brass 5/16"-18	1			
23	10583-091	SETSCREW, No. 10-32 x 3/16	1			
24	59750-001	REFLECTOR ASSEMBLY (See Figure 5-18)	1			
25	25438-056	SCREW, Yoke, Chrome Steel	2			
26	26565-041	WASHER, Belleville	2			
27	750859-091	CONNECTOR	1			

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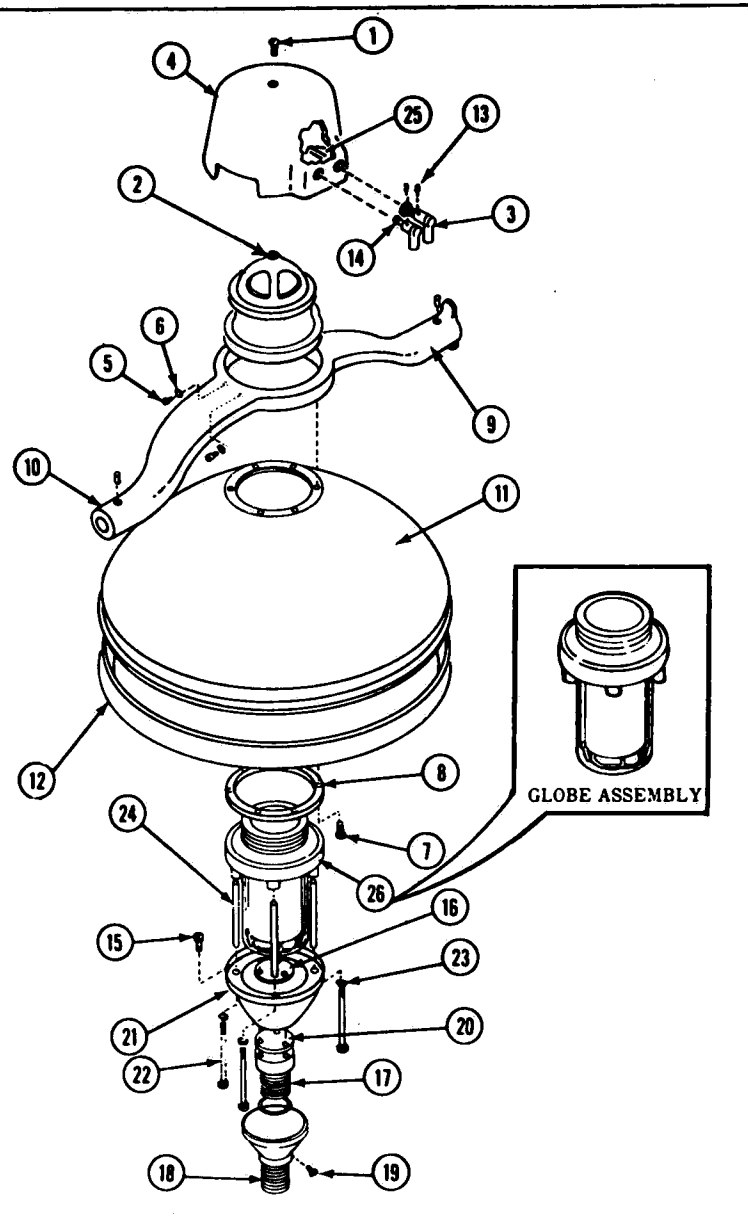


Figure 5-18. REFLECTOR ASSEMBLY (PX-22).

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FIG. & INDEX NO.	PART NUMBER	DESCRIPTION	UNITS PER ASSEMBLY			
5-18-	59750-001	REFLECTOR ASSEMBLY (PX-22)	*			
1	4682-041	SCREW, Round Head, No. 8-32 x 3/8	1			
2	45829-091	CONDULET, Crouse-Hinds EVS-505	1			
3	45734-091	LEVER	2			
4	53390-033	COVER, Aluminum	1			
5	12176-041	SCREW, Socket Head, 1/4"-20 x 3/4	4			
6	19678-045	LOCKWASHER, Steel, 1/4"	4			
7	40825-041	SCREW, Flat Head, Brass, No. 8-32 x 1/2	6			
8	45695-045	RING, Reflector, Chrome Steel	1			
9	52253-011	BRACKET, Head, Cast Aluminum	1			
10	52254-011	BRACKET, Head, Cast Aluminum	1			
11	59248-011	REFLECTOR	1			
12	50094-091	RING, Guard	1			
13	27429-091	SETSCREW, Cup Pt., No. 8-32 x 3/16	2			
14	45727-056	EXTENSION, Switch Shaft	2			
15	52022-045	SCREW, Self Tapping, No. 10-24 x 3/4	3			
16	52023-061	PLATE, Reinforcement	1			
17	49101-091	RETAINER, Nylon	1			
18	27183-033	HANDLE, Sterilizable, Aluminum	2			
19	31587-091	O-RING	1			
20	49056-091	INSULATOR	1			
21	54059-033	SUPPORT	1			
22	3990-042	SCREW, Round Head, Brass, No. 10-24 x 3/4	3			
23	19685-061	LOCKWASHER, Stainless Steel	3			
24	45720-033	ROD, Supporting, Aluminum	3			
25	74478-091	SWITCH (ON/OFF)	1			
26	†755496-001	GLOBE ASSEMBLY	1			
		†NOTE: In order to ensure the explosionproof characteristics of the Portable Explosionproof Surgical Lighting Fixture, individual parts of the globe assembly cannot be ordered separately. If it becomes necessary, order and replace the entire Globe Assembly, P-755496-001.				

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**AMSCO
SERVICE**

**SURGICAL LIGHTING FIXTURES
22-INCH LIGHthead
P-750290-002**

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