



**VISTOR**  
EXAM AND PROCEDURE LIGHTS



**VISTOR INSTALLATION & SERVICE  
MANUAL**

## Agency Approvals



Medical Electrical Equipment  
With respect to electric shock, fire  
And mechanical hazards only  
In accordance with UL-2601-1/CAN/CSA C22.2 No.601.1

### Classifications:

1. Protection against electrical shock (5.1, 5.2). Class I permanently connected.
2. Protection against harmful ingress of water (5.3). None.
3. Degree of safety in the presence of flammable anesthetics or oxygen (5.5). Not suitable for use in the presence of flammable anesthetics or oxygen.
4. Mode of operation (5.6). Continuous.
5. Luminaire for Diagnosis (IEC60601-2-41).
6. Surgical Luminaire (IEC60601-2-41) Minor.

Electromagnetic compatibility for immunity  
And emissions in accordance with  
EN-60601-1-2 (1993) Group 1 Class A  
Test report E190891-092004

Medical Electrical Equipment  
Particular requirements for the safety of surgical  
Luminaries and lumenaires for diagnosis  
In accordance with IEC-60601-2-41



## Intended use

The VistOR Series are AC powered devices that provide a field of illumination for general examination and surgery.

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# Terminology

## Definition of Terms

**I.E.C.**

International Electrotechnical Commission

**U.L.**

Underwriter's Laboratories

**Medical Electrical Equipment**

Electrical equipment intended to diagnose, treat the patient under medical supervision.  
Electrical equipment that transfers energy to the patient.

**Central Illuminance**

Illuminance of light head measured at 1 meter from the light emitting area with no obstructions. Expressed in Foot-candles or Lux.

**Light Field Center**

Point of maximum illuminance in lighted area. This is the reference point for light field size and light distribution measurements.

**Light Field Diameter**

Diameter of the circle where illuminance reaches 10% of light field center illuminance.

**Depth of Illumination**

The overall distance from 1 meter where the central illuminance is reduced to 20%.

**Shadow Dilution**

Ability of the equipment to minimize the impact of shadows in the working area. Shadows can be due to partial obstruction by the operator or other medical personnel.

**Correlated Color Temperature**

The color temperature of the light fixture when compared to a blackbody radiator expressed in degrees Kelvin.

**Total Irradiance**

The total amount of energy imparted to the patient by the lighting system expressed in Watts/meter squared.

**Color Rendering Index (CRI)**

A method of how well a light source will render other colors when illuminating them based upon eight CIE chromaticity coordinates measured with a spectroradiometer.

**Handle Sterilizable**

Device when properly sterilized maintains a sterile area in order to handle it under aseptic conditions when attached to the equipment.

### Definition of Terms (continued)

**Light Head/Articulating Arm Assembly:**

That part of the device that includes the light source, heat removal system, and light head vertical positioning arm.

**Extension Arm**

Horizontal section of the positioning arm with pivots on both ends that is used to increase the area covered by the light head and articulating arm.

**Light Mounting**

Support apparatus used to connect light head/articulating arm assembly to a fixed surface, consisting of either a single or dual ceiling mount, wall mount, or track mount. Light head/articulating arm assembly may also be used with a mobile floor mount

**Neutral Conductor**

In an AC circuit, the return line for current.

**Protective Earth Ground**

The conductor used to connect the non-current-carrying metal parts of equipment, raceways, and other enclosures to the system grounded conductor, the grounding electrode conductor, or both, of the circuit at the service equipment or at the source of a separately derived system.

**Ft-Lbs.**

Foot-pounds. The unit of measurement of torque that is caused by an off-center load.



### List of Symbols



U.L. Listing Marking



Read accompanying documents



C.E. Marking



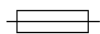
Protective Earth Ground



Caution



Electric Shock Hazard



Fuse Marking



Neutral Conductor

## Specifications

### VistOR PR Specifications

**Mechanical**

Parameter	Value
<b>Weight</b>	
Head	Approximately 9.10 lbs. (4.14 kg).
Arm	Approximately 12.5 lbs. (5.68 kg).
Arm (Floor)	Approximately 11.4 lbs. (5.18 kg).
Wall Bracket Assy.	Approximately 3.00 lbs. (1.36 kg).
Floor Stand Assy.	Approximately 43.0 lbs. (19.50 kg).
Single Ceiling Mount	Approximately 14.5 lbs. (6.58 kg).
Dual Ceiling Mount	Approximately 16.0 lbs. (7.26 kg).
<b>Dimensions</b>	
Head	15.8" (40.13 cm) Dia. X 6.0 (15.24 cm) High
Arm	57.0" (144.8 cm) Long
Arm (Floor)	38.5" (97.79 cm) Long
Floor Stand	74.5" (189.23 cm) High
<b>Rotations</b>	
Articulating Arm Vertical Movement	+/- 40 Degrees travel
Articulating Arm Horizontal Movement	Approximately 345 Degrees
Articulating Arm/Yoke Interface	Approximately 540 Degrees
Yoke/Light Head Interface	Approximately 190 Degrees

**Electrical**

Parameter	Value
<b>Voltages</b>	
Input Voltage	110 - 125 VAC 50/60 Hz 210 - 230 VAC 50/60 Hz
Bulb Voltage	11 – 12 VAC 90 W
Bulb life	2,000 hours (average)

**Optical**

Parameter	Value
Reflector	15.0" (380mm) Dia., Polished, Alzak
<b>Performance</b>	
Central Illuminance	Approximately 4,000 ft-candles (43000 Lux) @ 39.3" (1m) (4,300 ft-candles (46,285 Lux) @ 36" (91.44 cm) )
Color Temperature	Approximately 4,000 °K
Field Size	6.00" (152.4 mm) Diameter @ 39" (914.4 mm).
Irradiance	155.2 W/m <sup>2</sup>
CRI	90

**Environmental**

Parameter	Value
Operating Temperature	41 -104 ° F (5-40 °Celsius)
Storage Temperature Range	42 -113 ° F (5-45 °Celsius)
Humidity	10 - 90% Relative Humidity

## VistOR PRO Specifications

### Mechanical

Parameter	Value
<b>Weight</b>	
Head	Approximately 10.10 lbs. (4.58 kg).
Arm	Approximately 12.5 lbs. (5.68 kg).
Arm (Floor)	Approximately 11.4 lbs. (5.18 kg).
Wall Bracket Assy.	Approximately 3.00 lbs. (1.36 kg).
Floor Stand Assy.	Approximately 43.0 lbs. (19.50 kg).
Single Ceiling Mount	Approximately 14.5 lbs. (6.58 kg).
Dual Ceiling Mount	Approximately 16.0 lbs. (7.26 kg).
<b>Dimensions</b>	
Head	18" (45.72 cm) Dia. X 6.60 High (16.7 cm)
Arm	57.0" (144.8 cm) Long
Arm (Floor)	38.5" (97.79 cm) Long
Floor Stand	74.5" (189.23 cm) High
<b>Rotations</b>	
Articulating Arm Vertical Movement	+/- 40 Degrees travel
Articulating Arm Horizontal Movement	Approximately 345 Degrees
Articulating Arm/Yoke Interface	Approximately 540 Degrees
Yoke/Lamp Head Interface	Approximately 190 Degrees

### Electrical

Parameter	Value
<b>Voltages</b>	
Input Voltage	110 - 125 VAC 50/60 Hz 210 - 230 VAC 50/60 Hz
Bulb Voltage	11 – 12 VAC 90 W
Bulb life	2,000 hours (average)

### Optical

Parameter	Value
Reflector	16.50" (419.1 mm) diameter, aluminum, multi-faceted
<b>Performance</b>	
Color temperature	4,000 °K
Focal length	39" (1 meter)
Central illuminance	6,520 foot-candles (70,180 Lux)
Light field diameter	5.61" (142.5 mm)
Depth of illumination	42.00" (1067 mm)
Light field diameter (d50)	3.76" (95.5 mm)
Illuminance (one mask)	560 foot-candles (6,027 Lux)
Illuminance (two masks)	1,974.19 foot-candles (21,250 Lux)
Illuminance at bottom of standard tube	6,520 foot-candles (70,180 Lux)
Illuminance at bottom of standard tube with one mask.	743 foot-candles (7,998 Lux)
Illuminance at bottom of standard tube with two masks	1,869.67 foot-candles (20,125 Lux)
Irradiance	81.21 W/m <sup>2</sup>
CRI	89

### Environmental

Parameter	Value
Operating Temperature	41 -104 ° F (5-40 °Celsius)
Storage Temperature Range	42 -113 ° F (5-45 °Celsius)
Humidity	10 - 90% Relative Humidity

## Section 2

### VistOR SP and VistOR SPF Specifications

#### Mechanical

Parameter	Value
<b>Weight</b>	
Head (Std.)	Approximately 7.20 lbs. (3.27 kg).
Head (Std. F/O)	Approximately 8.00 lbs. (3.64 kg).
Arm	Approximately 13.3 lbs (6.05 kg).
Arm (Fiber Optic)	Approximately 15.2 lbs. (6.91 kg).
Arm (Floor)	Approximately 12.1 lbs. (5.50 kg).
Arm (Floor-Fiber Optic)	Approximately 14.9 lbs. (6.77 kg).
Wall Bracket Assy.	Approximately 3.00 lbs. (1.36 kg).
Floor Stand Assy. (Std and F/O)	Approximately 43.0 lbs. (19.50 kg).
Single Ceiling Mount (Std and F/O)	Approximately 14.5 lbs. (6.58 kg).
Dual Ceiling Mount (Std and F/O)	Approximately 16.0 lbs. (7.26 kg).
<b>Dimensions</b>	
Head	5.00" (12.7 cm) Dia. x 13.06" (33.17 cm) Long
Arm	57.0" (144.78 cm) Long
Arm (Floor)	38.5" (97.79 cm) Long
Arm (Floor F/O)	41.5" (105.41 cm) Long
Floor Stand	74.5" (189.23 cm) High
<b>Rotations</b>	
Articulating arm vertical movement	+/- 40 Degrees
Articulating arm horizontal movement	Approximately 345 Degrees
Articulating arm/Yoke interface	Approximately 540 Degrees
Yoke/Lamp Head interface	Approximately 190 Degrees

#### Electrical

Parameter	Value
<b>Voltages</b>	
Input Voltage	110 - 125 VAC 50/60 Hz 210 - 230 VAC 50/60 Hz
Operating Voltage	20 VAC 150 W
Front Bulb Life	500 hours (average)
Fiber Optic Bulb Life	40 hours (average)

#### Optical

Parameter	Value
Reflector	2.00" diameter Dichroic Glass
<b>Performance</b>	
Central Illuminance	Approximately 1,700 ft-candles (18,300 Lux) @ 39.3" (1 m) (2,000 ft-candles (21,528 Lux) @ 36")
Color Temperature	Approximately 3,500 °K
Field Size (adjustable)	Adjustable 3.00" (76.2 mm) to 16.0" (406.4 mm)
Irradiance	70.16 W/m <sup>2</sup> (1 m)
CRI	91

#### Environmental

Parameter	Value
Operating Temperature	41 - 104 ° F (5 - 40 °Celsius)
Storage Temperature Range	41 - 113 ° F (5 - 45 °Celsius)
Humidity	10 - 90% Relative Humidity

## VistOR EX & EXL Specifications

### Mechanical

Parameter	Value
<b>Weight</b>	
Head	Approximately 3.50 lbs. (1.59 kg).
Arm	Approximately 12.5 lbs. (5.68 kg).
Arm (Floor)	Approximately 11.4 lbs. (5.18 kg).
Wall Bracket Assy.	Approximately 3.00 lbs. (1.36 kg).
Floor Stand Assy.	Approximately 43.0 lbs. (19.50 kg).
Single Ceiling Mount	Approximately 14.5 lbs. (6.58 kg).
Dual Ceiling Mount	Approximately 16.0 lbs. (7.26 kg).
<b>Dimensions</b>	
Head	6.25" (15.88 cm) Dia. x 6.50" High (16.51 cm)
Arm	57.0" (144.78 cm)
Arm (Floor)	38.5" (97.79 cm) long
Floor Stand	74.5" (189.23 cm)
<b>Rotations</b>	
Articulating arm vertical movement	+/- 40 Degrees
Articulating arm horizontal movement	Approximately 345 Degrees
Articulating arm/Yoke interface	Approximately 540 Degrees
Lamp head rotation	Approximately 190 Degrees

### Electrical

Parameter	Value
<b>Voltages</b>	
Input Voltage	110 - 125 VAC 50/60 Hz 210 - 230 VAC 50/60 Hz
Bulb Voltage	12 VAC 75 W
Bulb life	2,000 hours (average)

### Optical

Parameter	Value
Reflector	5.00 "(127 mm) diameter, Dichroic Glass
<b>Parameter</b>	<b>Value</b>
<b>Performance</b>	
Central Illuminance	Approximately 1,750 ft-candles (18,835 Lux) @ 39.3" (1 m) (4,000 ft-candles (32,292 Lux) @ 24" (60.96 cm))
Color Temperature	Approximately 4,300 °K
Field Size	Approximately 10.0" (25.4 cm) Dia. at 39.3" (1 m) (6.0" (152.4 mm) @ 24" (60.96 cm) )
Irradiance	115.5 W/m <sup>2</sup> (1 m)
CRI	91

### Environmental

Parameter	Value
Operating Temperature	41 - 104 ° F (5 – 40 °Celsius)
Storage Temperature Range	41 - 113 ° F (5 – 45 °Celsius)
Humidity	10 - 90% relative humidity

## Chuttle Track Specifications

### Mechanical

Parameter	Value
<b>Weight</b>	
Single Track Assembly	Approximately 44.00 lbs. (19.95 kg).
Dual Trolley Model	Approximately 48.00 lbs. (21.77 kg).
<b>Dimensions</b>	
Track (standard)	72" (182.88 cm) Long X 10 ½" Wide (26.67 cm) X 5" (12.7 cm) High

### Electrical

Power cable exiting the track can be connected to 115/120 VAC 60 Hz. or 230/240 VAC single phase 50/60 Hz. power. The power supply routed to the track must be a 3 wire grounded type capable of supplying 1400 Watts at 12 Amperes.

**NOTE: Refer to Model/Serial label located on the arm assembly that will be mounted to the track for proper voltage supply.**

## Section 2

# Installation/Assembly

## Ceiling Mount Pre-Installation Guidelines

**SPECIAL NOTE:** Installation and repair of this equipment should be performed by qualified persons only. Nuvo, Inc. does not warranty any damage occurring as a result of improper installation.

It is recommended that this installation manual be completely reviewed prior to installation.

**Before installation, check to insure the following minimum conditions are provided:**

- The structural ceiling mount should be designed to support a vertical load of at least 100 lbs. and an off center moment of 300 ft-lbs. The structural mount should meet all local building codes.



**A structural mount that does not meet these minimum conditions can cause serious injury and/or property damage.**

- It is recommended that the equipment be mounted directly over a 4-0 junction box. If this is not possible the input power supply lines should be wired in accordance with all applicable building codes.
- The supply circuit line must be as follows:  
120 VAC lights: 110 -120 VAC 60 Hz, single phase, three wire, capable of supplying 700 Watts @ 7 Amperes.  
220 VAC lights: 230 -240 VAC, 50/60 Hz, single phase, three wire, capable of supplying 700 Watts @ 3.5 Amperes.
- The power supply circuit line must be routed and wired to the light head in compliance with all applicable building codes.



**Failure to provide a circuit meeting these minimum standards or complying with local building codes can cause a shock hazard.**

- Check the length of the ceiling rod supplied to make sure that it is the proper length to install and operate the light without interference or over reach.  
(See ceiling Rod Calculation pages 21-23)



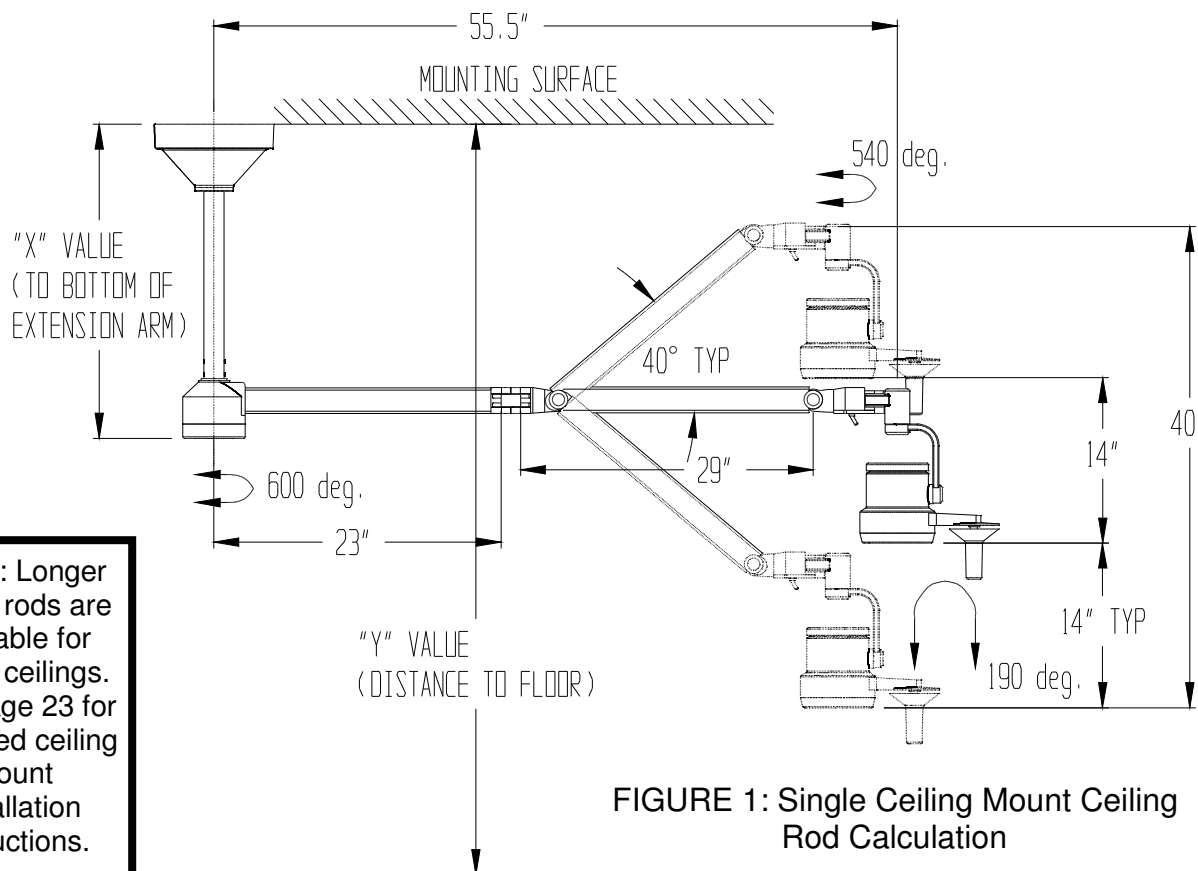
## Ceiling Rod Calculation Single Ceiling Mount



Use the following table to select the correct length ceiling rod for your application.

Ceiling Rod Calculation, Single Ceiling Mount

Ceiling Mounting Height	Ceiling Rod Length	"X" Value	"Y" Value	Head room to bottom of extension arm (y value-x value)
7'6" - 8'6" (2,29- 2,59 m)	16"(406,4 mm)	22"(558,8 mm)	90-102" (2,29-2,59 m)	68-80" (1,72-2,02 m)
8'7" - 9'6" (2,62 -2,89 m)	25"(635,0 mm)	31"(787,4 mm)	103-114" (2,62-2,89 m)	72-84" (1,82-2,13 m)
9'7" - 10'6" (2,92- 3,20 m)	35"(889,0 mm)	41"(1041,4 mm)	115-126" (2,92-3,20 m)	74-86" (1,87-2,18 m)



**NOTE:** Longer ceiling rods are available for higher ceilings. See page 23 for extended ceiling mount installation instructions.

FIGURE 1: Single Ceiling Mount Ceiling Rod Calculation

**Note:** The VistOR EXL Diagnostic / Specialty Light is shown for reference. The dimensions indicated also apply to the VistOR PR Diagnostic, VistOR PRO minor surgery light and the VistOR SP Spot light.

Dimensions are approximate.

\*Ceiling Rod Table applies to single and dual ceiling mounts.

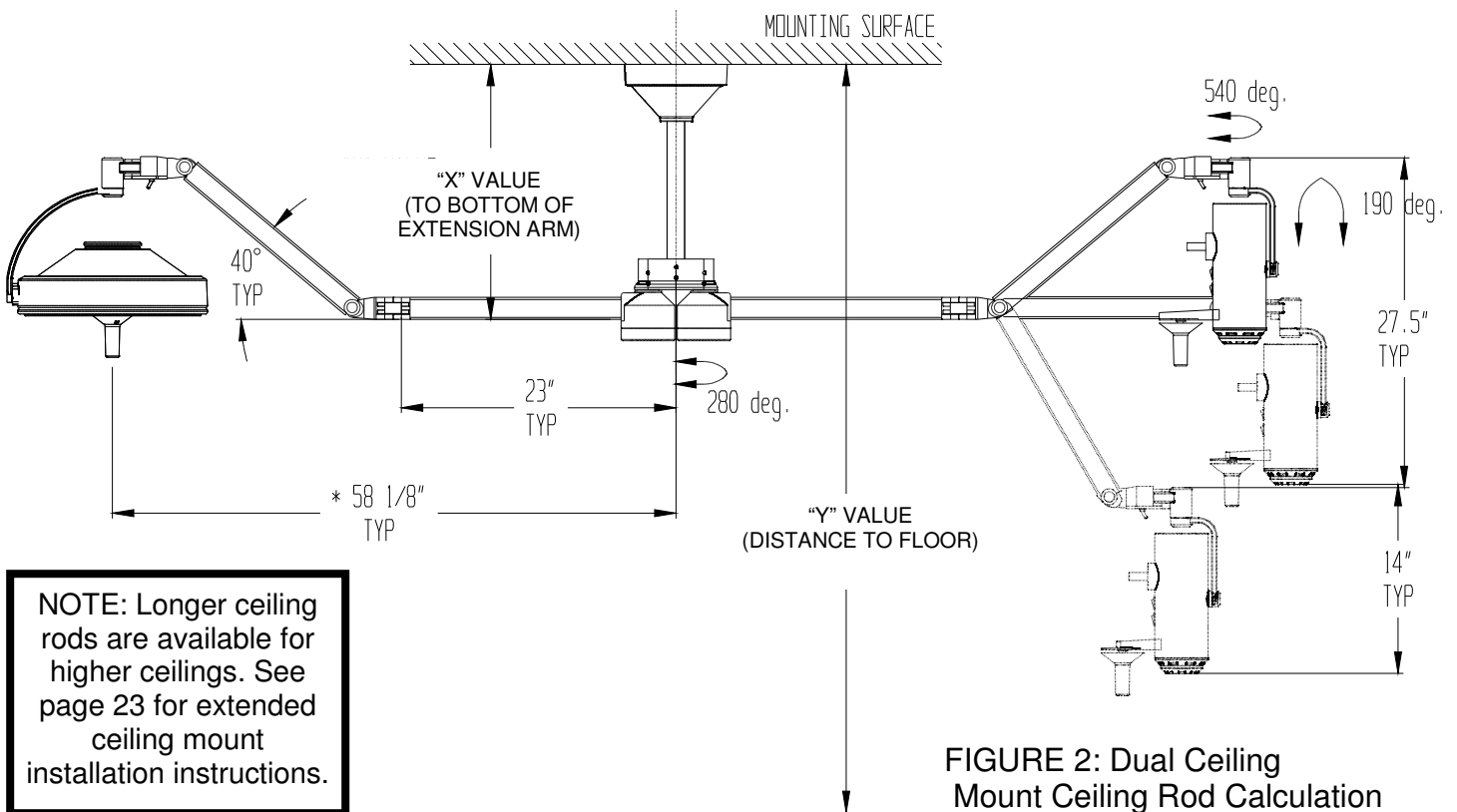
## Ceiling Rod Calculation Dual Ceiling Mount



Use the following table to select the correct length ceiling rod for your application.

Ceiling Rod Calculation, Dual Ceiling Mount

Ceiling Mounting Height	Ceiling Rod Length	"X" Value	"Y" Value	Head room to bottom of extension arm (y value-x value)
7'6" - 8'6" (2,29- 2,59 m)	16"(406,4 mm)	22.5"(571,5 mm)	89.5-102.5" (2,27-2,57 m)	67.5-79.5" (1,70-2,00 m)
8'7" - 9'6" (2,62 -2,89 m)	25"(635,0 mm)	31.5"(800,1 mm)	102.5-114.5" (2,60-2,87 m)	71.5-83.5" (1,80-2,11 m)
9'7" - 10'6" (2,92- 3,20 m)	35"(889,0 mm)	41.5"(1054,1 mm)	114.5-126.5" (2,90-3,18 m)	73.5-85.5" (1,85-2,16 m)



**Note:** The VistOR PR / VistOR SP Combination Light is shown for reference. The dimensions indicated also apply to all other combination of fixtures and dual mounting of the same light.

Dimensions are approximate

\*Length measured when Arm is in horizontal position.

## Extended Ceiling Mount



Use the following table to select the correct length ceiling rod for your application.

Extended Ceiling Mount Kit P/N	Ceiling Rod Extension Length	Mounting Height	Extension P/N
1000976-49	20.0" (508,0 mm)	10' 6"-11' 8" (3,20-3,56 m)	1001263
1000976-63	34.0" (863,6 mm)	11' 9"-12' 10" (3,58-3,91 m)	1001264
1000976-77	48.0" (1219,2 mm)	12' 11"-14' (3,94-4,27 m)	1001265

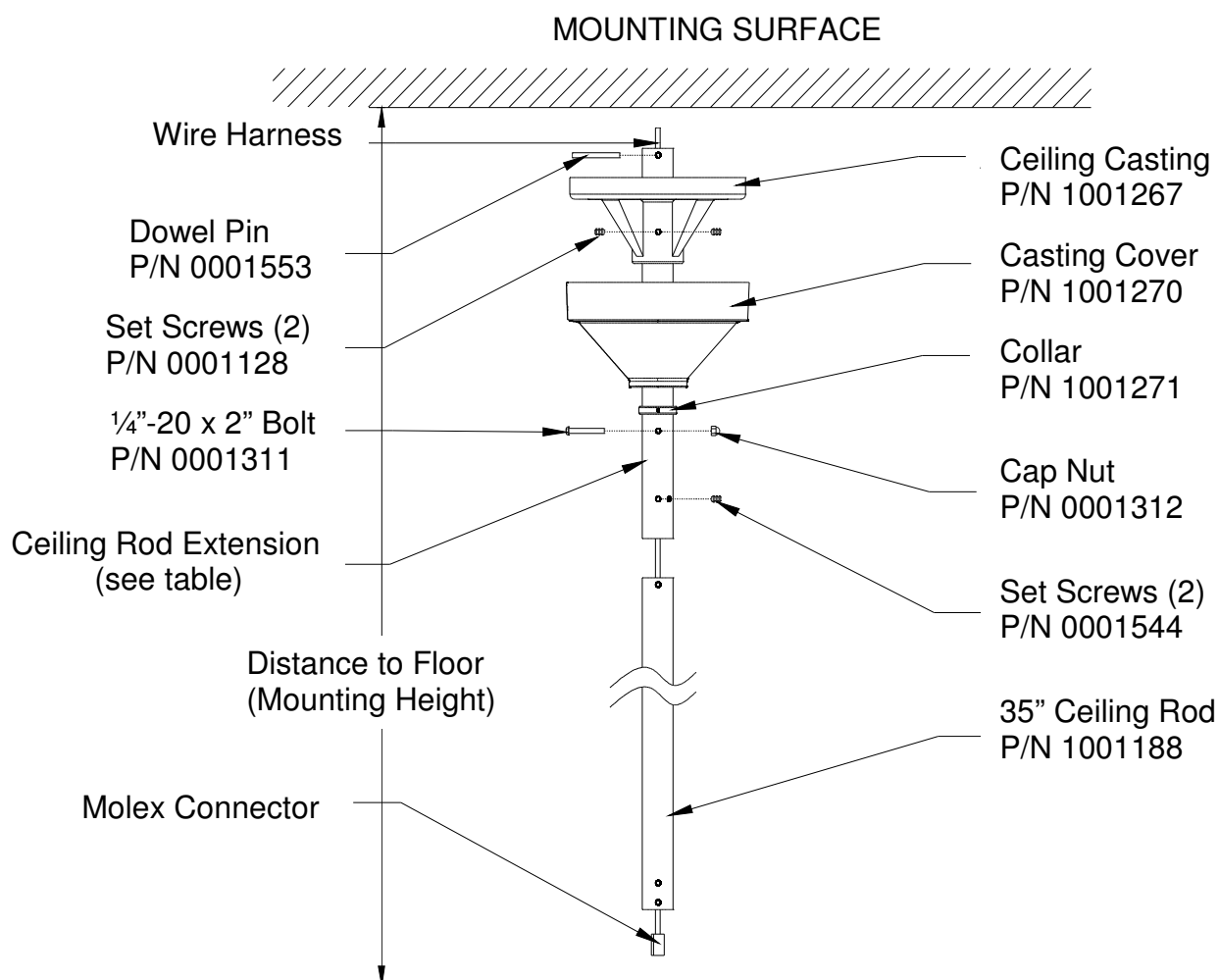


FIGURE 3: Extended Ceiling Mount Installation

# Extended Ceiling Mount Installation For 10'6"–14' (3.2m–4.27m) Ceilings

- Insert the ceiling rod up through the ceiling casting until the hole in the ceiling rod becomes visible. Insert the dowel pin into the hole in the ceiling rod and lower the rod in the ceiling casting, making sure the pin is seated securely in the indentation on the ceiling casting. Securely tighten the two set-screws located in the casting.



**Failure to install the dowel pin can cause the arm/head assembly to fall from the ceiling causing serious injury and/or property damage.**



**Improper fastening of the ceiling casting can cause serious injury and/or property damage. Make certain the installation is capable of supporting a load of at least 100 pounds and an off center moment of 300 ft-lbs.**

- Fasten the ceiling casting to the desired location using four  $\frac{5}{16}$ "-18 x 3" long (minimum length) hex bolts or lag screws with washers (hardware not provided). This can be done by mounting the casting to a suitable material that will function as a ground conductor, or a wire lead that must be attached to the ground screw on the casting then routed to proper ground.

**Note: The ceiling rod must be plumb. Shim the casting if necessary.**

**Note: The ceiling casting itself must be electrically grounded to maintain proper grounding reliability.**



**If ceiling rod is not plumb, unwanted arm drifting may occur.**

- Feed the wire harness through the ceiling rod extension and route to a junction box. Leave sufficient wire to extend slightly beyond the bottom of the ceiling rod. **Important: To achieve proper grounding reliability, the green ground wire from the wire harness MUST be properly fastened to the grounding screw located on the ceiling casting. Make all electrical connections in compliance with all applicable electrical codes.**



**Failure to comply with local electrical codes can cause a shock hazard.**

- Slide the casting cover up the rod extension and over the casting. Similarly, slide the collar to the casting cover, then tighten the set screw to hold the cover in place. Feed the wire harness through the 35" ceiling rod with the rod in the direction shown.
- Slide ceiling rod up through ceiling rod extension until the holes in the ceiling rod align with the upper holes in the ceiling rod extension. Insert a  $\frac{1}{4}$ "-20 x 2" bolt carefully, making certain not to damage the wire harness, and then fasten the cap nut. Secure rods in place with the two set screws provided.
- See Single or Dual Ceiling Mount Instructions to complete installation.

## Single Ceiling Mount Installation

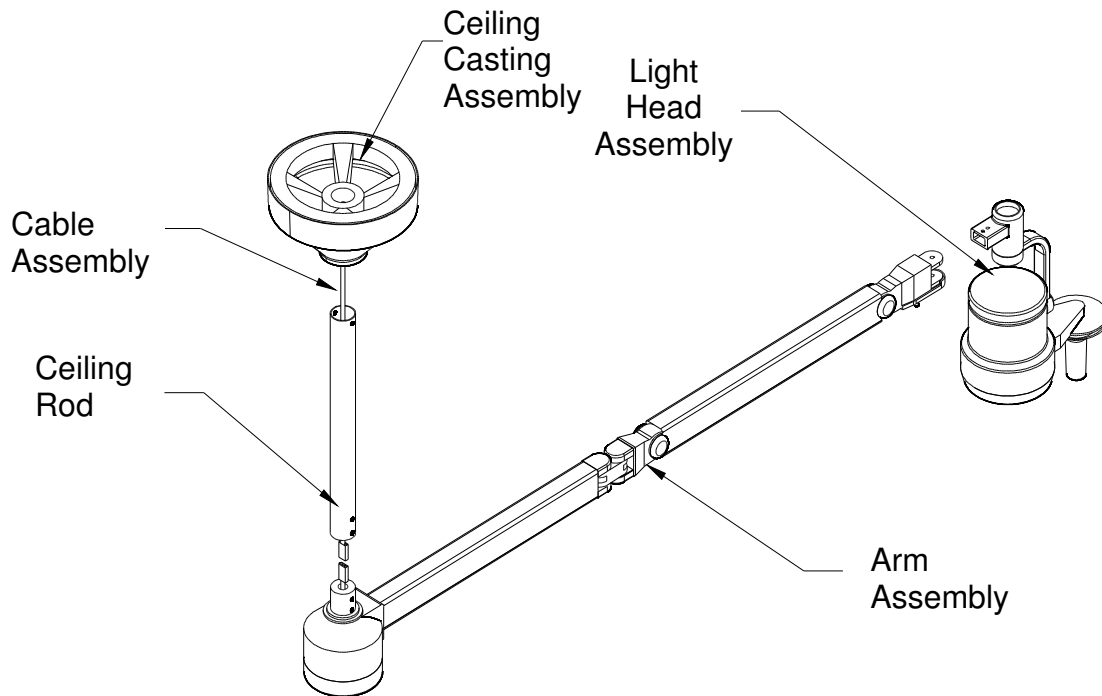


FIGURE 4: Sub-Assemblies for Single Ceiling Mount

### GENERAL INFORMATION

**⚠ Installation and repair of this equipment should be performed by qualified persons only. Nuvo does not warranty any damage occurring as a result of improper installation.**

The shipping cartons contain a light head assembly, an arm assembly, a ceiling casting, casting cover, collar, bolt cover, ceiling rod, hardware kit, wire harness, and an Installation and Service Manual.

**Notes:** There are 3 standard length rods for different ceiling heights. Extended ceiling rod kits are available for ceilings over 10' 6". Verify that your ceiling rod length is correct for your ceiling height (see pages 21-23). If not correct please contact customer service.

Prior to installation insure that all components shown in figure 4 are present.

**⚠ When removing parts from the shipping carton, be careful not to damage the components or break any glassware. Important: thoroughly check each box for parts that may be located in areas that can be overlooked.**

**Note:** The VistOR EX & EXL Light is shown for reference.

### Single Ceiling Mount Installation

- Insert the ceiling rod up through the ceiling casting until the hole in the ceiling rod becomes visible (see figure 6). Insert the dowel pin into the hole in the ceiling rod and lower the rod in the ceiling casting, making sure the pin is seated securely in the indentation on the ceiling casting. Securely tighten the two set-screws located in the casting.



**Failure to install the dowel pin can cause the arm/head assembly to fall from the ceiling causing serious injury and/or property damage.**



**Improper fastening of the ceiling casting can cause serious injury and/or property damage. Make certain the installation is capable of supporting a load of at least 100 pounds and an off center moment of 300 ft-lbs.**

- Fasten the ceiling casting to the desired location using four  $\frac{5}{16}$ "-18 x 3" long (minimum length) hex bolts or lag screws with washers (hardware not provided). This can be done by mounting the casting to a suitable material that will function as a ground conductor, or a wire lead that must be attached to the ground screw on the casting then routed to proper ground (see figure 5).

**Note: The ceiling rod must be plumb. Shim the casting if necessary.**

**Note: The ceiling casting itself must be electrically grounded to maintain proper grounding reliability.**



**If ceiling rod is not plumb, unwanted arm drifting may occur.**

- Feed the wire harness through the ceiling rod extension and route to a junction box. Leave sufficient wire to extend slightly beyond the bottom of the ceiling rod. **Important: To achieve proper grounding reliability, the green ground wire from the wire harness MUST be properly fastened to the grounding screw located on the ceiling casting (see figure 5). Make all electrical connections in compliance with all applicable electrical codes.**



**Failure to comply with local electrical codes can cause a shock hazard.**

- Slide the casting cover up the rod over the casting. Similarly, slide the collar to the casting cover, then tighten the set screw to hold the cover in place. Feed the wire harness through the ceiling rod with the rod in the direction shown.



**Do not install the extension arm with the light head attached. Installation with the light head attached can cause damage to the light. Refer to the procedure for installing the head to the arm after the bracket and arm are installed.**

## Single Ceiling Mount Installation

- Raise the extension arm to the ceiling rod and plug the Molex connectors together. Push the wire into the ceiling rod while inserting the transformer housing into the rod. Secure the housing to the ceiling rod using the four supplied bolts as shown. Two 1/4"-20 x 1/4" screws must be installed on one side of the ceiling rod. Two 1/4"-20 x 3/8" screws and lock washers must be used to mount the stop bracket on the other side of the rod. Be sure the bend on the stop faces down, towards the arm.



**Failure to install the stop clip subassembly can cause damage to the light fixture.**



**Failure to install or tighten the 1/4"-20 socket head cap screw can cause the arm/head assembly to fall causing serious injury and/or property damage.**

- Complete the installation by lowering the bolt cover onto the transformer housing.
- See the instructions for "Installation of Light Head to Arm" on page 40 to complete the assembly.

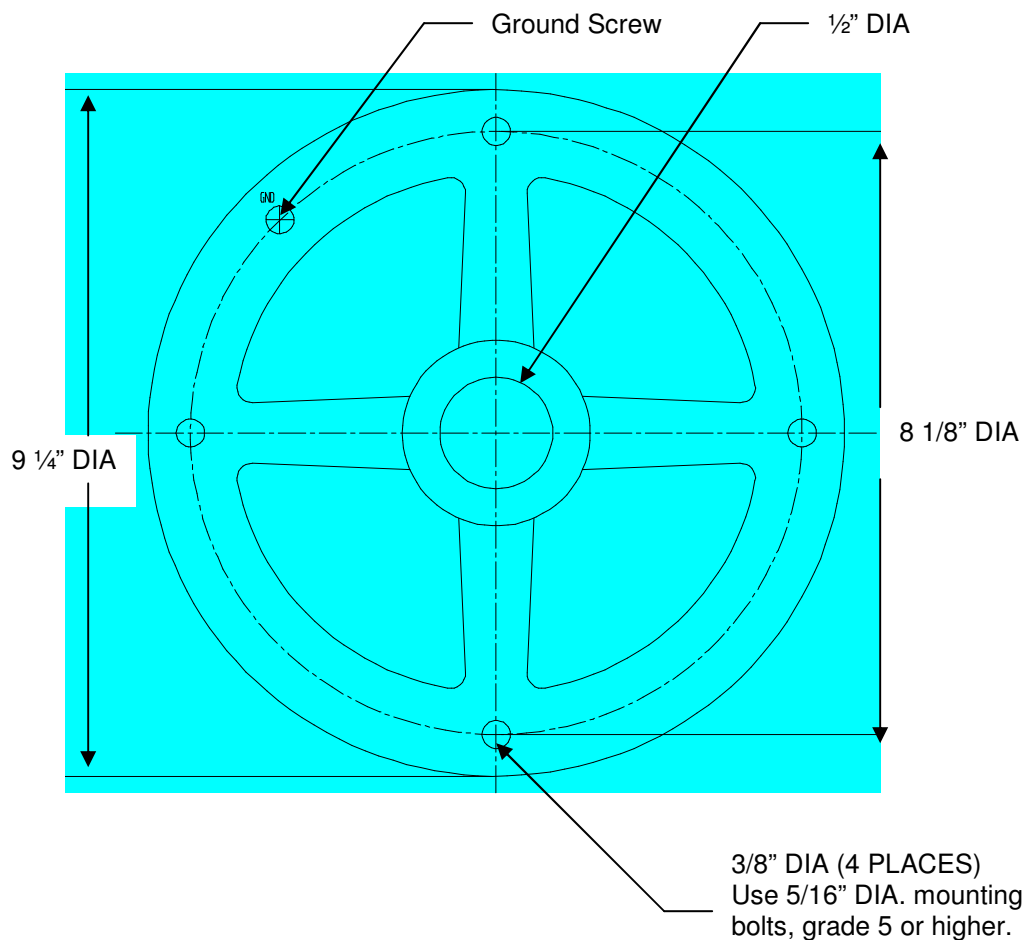


FIGURE 5: Ceiling Casting Mounting Diagram

## Single Ceiling Mount Installation

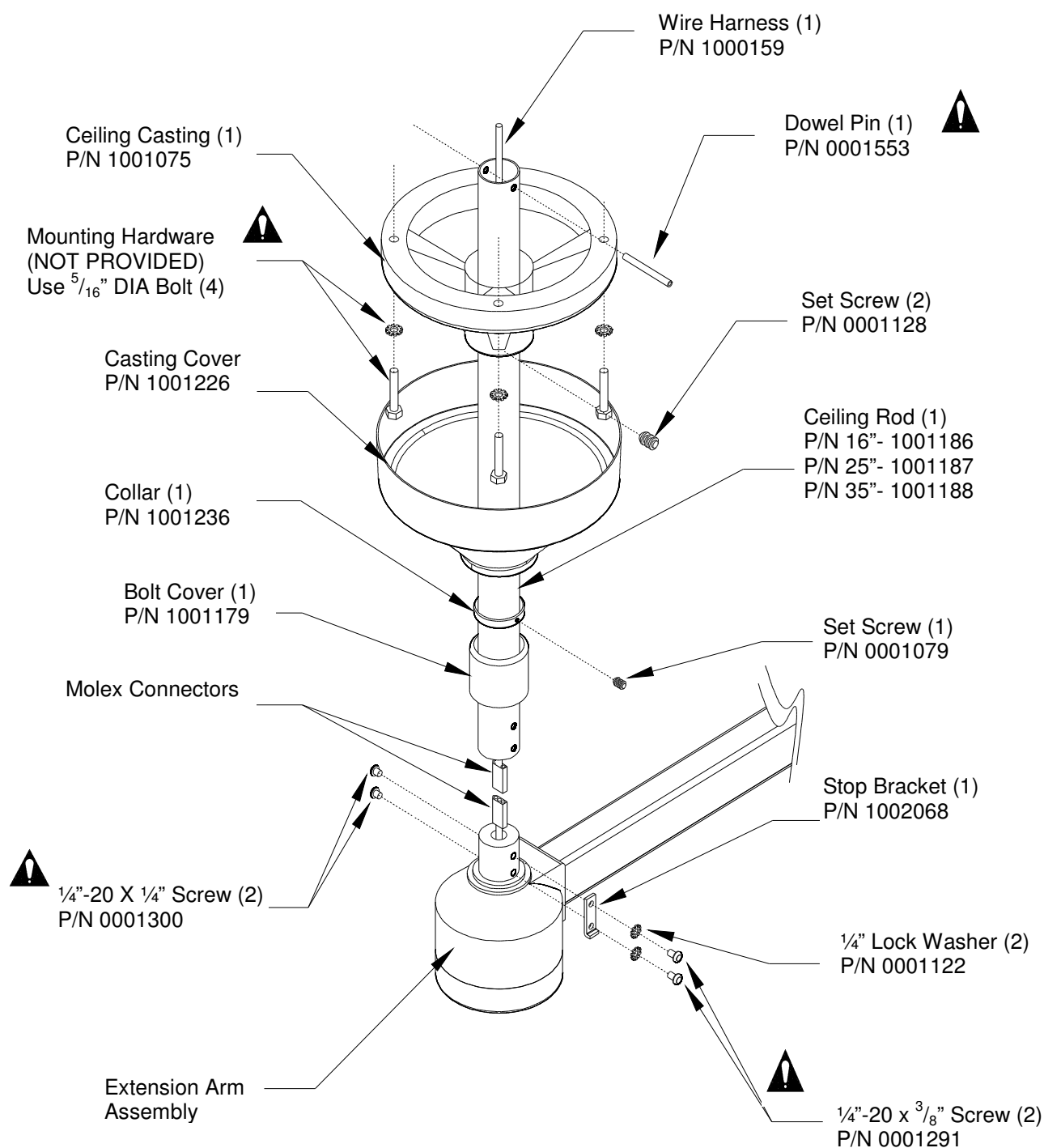


FIGURE 6: Single Ceiling Mount Installation



### Dual Ceiling Mount Installation

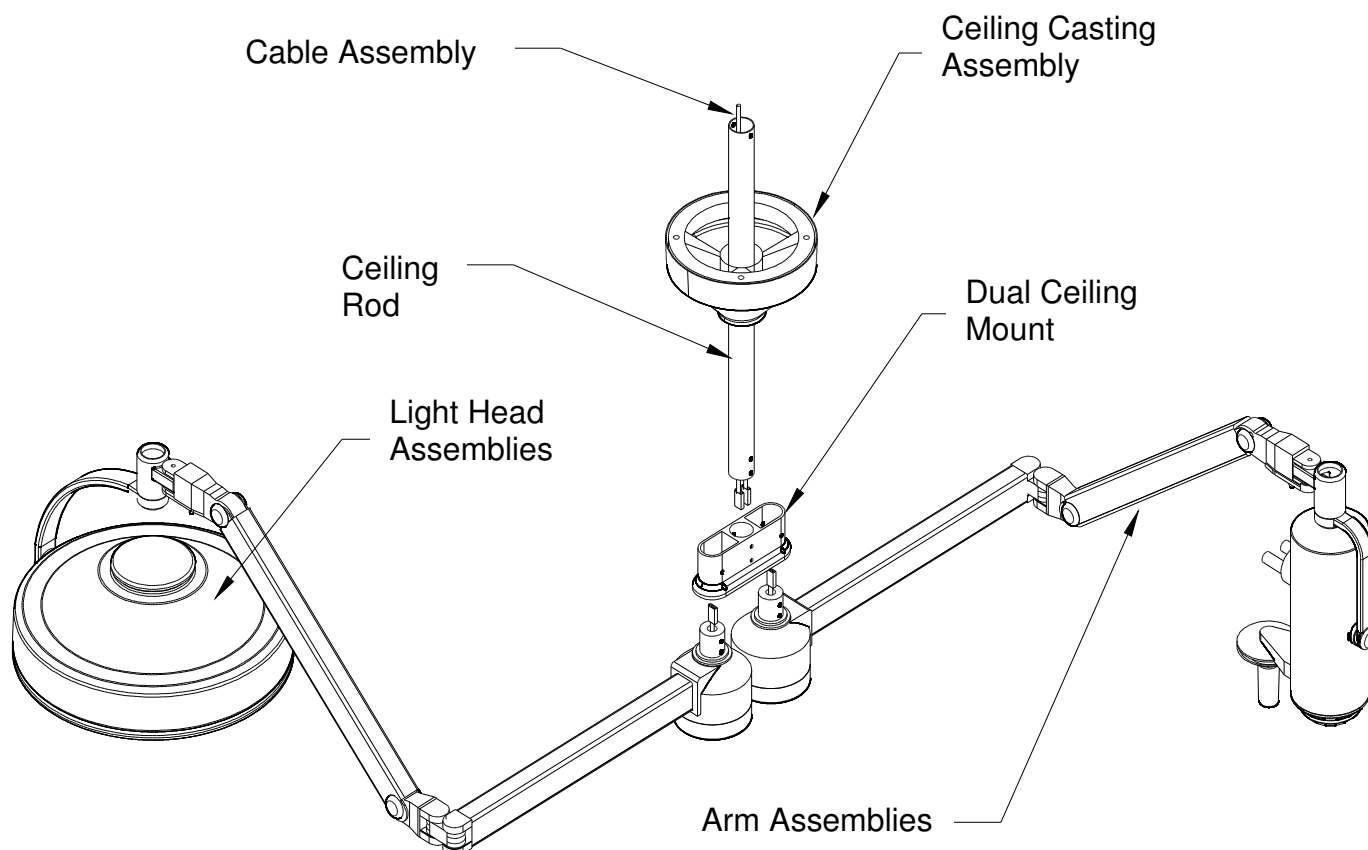


FIGURE 7: Dual Ceiling Mount Components

### GENERAL INFORMATION

The shipping cartons each contain a head assembly and arm assembly. One of the cartons also contains a ceiling casting, casting cover, collar, ceiling rod, dual mount assembly, hardware kit, wire harness, and an Installation and Service Manual.

Prior to installation insure that all components in figure 7 are present.

**⚠** When removing parts from the shipping carton, be careful not to damage the components or break any glassware. Important: thoroughly check each box for parts that may be located in areas that can be overlooked.

**Note:** The VistOR PR / VistOR SP Combination Light is shown for reference.

# Dual Ceiling Mount Installation

- Insert the ceiling rod up through the ceiling casting until the hole in the ceiling rod becomes visible (see figure 10). Insert the dowel pin into the hole in the ceiling rod and lower the rod in the ceiling casting, making sure the pin is seated securely in the indentation on the ceiling casting. Securely tighten the two set-screws located in the casting.



**Failure to install the dowel pin can cause the arm/head assembly to fall from the ceiling causing serious injury and/or property damage.**



**Improper fastening of the ceiling casting can cause serious injury and/or property damage. Make certain the installation is capable of supporting a load of at least 100 pounds and an off center moment of 300 ft-lbs.**

- Fasten the ceiling casting to the desired location using four  $\frac{5}{16}$ "-18 x 3" long (minimum length) hex bolts or lag screws with washers (hardware not provided). This can be done by mounting the casting to a suitable material that will function as a ground conductor, or a wire lead that must be attached to the ground screw on the casting then routed to proper ground (see figure 5).

**Note: The ceiling rod must be plumb. Shim the casting if necessary.**

**Note: The ceiling casting itself must be electrically grounded to maintain proper grounding reliability.**



**If ceiling rod is not plumb, unwanted arm drifting may occur.**

- Feed the wire harness through the ceiling rod extension and route to a junction box. Leave sufficient wire to extend slightly beyond the bottom of the ceiling rod. **Important: To achieve proper grounding reliability, the green ground wire from the wire harness MUST be properly fastened to the grounding screw located on the ceiling casting (see figure 5). Make all electrical connections in compliance with all applicable electrical codes.**



**Failure to comply with local electrical codes can cause a shock hazard.**

- Slide the casting cover up the rod and over the casting. Similarly, slide the collar to the casting cover, then tighten the set screw to hold the cover in place. Feed the wire harness through the ceiling rod with the rod in the direction shown.

**Do not install the extension arm with the light head attached. Installation with the light head attached can cause damage to the light. Refer to the procedure for installing the head to the arm after the bracket and arm are installed.**

## Dual Ceiling Mount Installation

- Bring one section of the dual ceiling mount casting to the ceiling rod and fasten it to the rod with the 2" long bolts (P/N 0001311) and cap nuts (P/N 0001312). Tighten the cap nuts just enough to hold the section in place; they do not need to be fully tightened at this time. Bring an arm assembly to the Dual mount section and fasten the transformer housing into the extension arm mounting cavity with two  $\frac{3}{8}$ " long mounting screws (P/N 0001291). Install the other arm assembly to the section with two more  $\frac{3}{8}$ " long screws. Route the wire and Molex connector from the ceiling rod into the wire channel as shown in figure 9. Plug the connector at the end of each transformer housing to the mating Molex connector from the wire harness. Place each set of wires within the channel area.

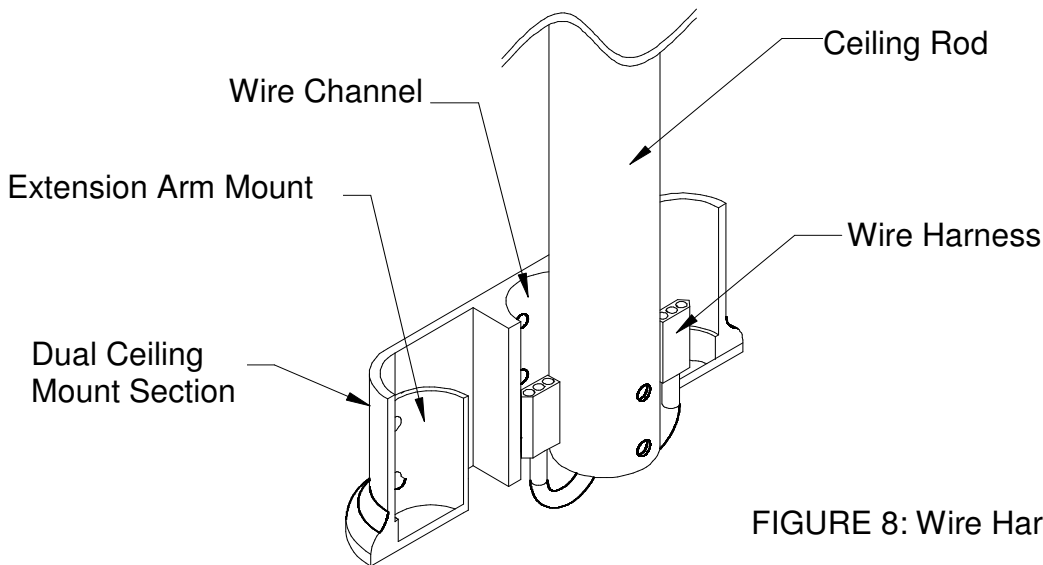


FIGURE 8: Wire Harness Positioning

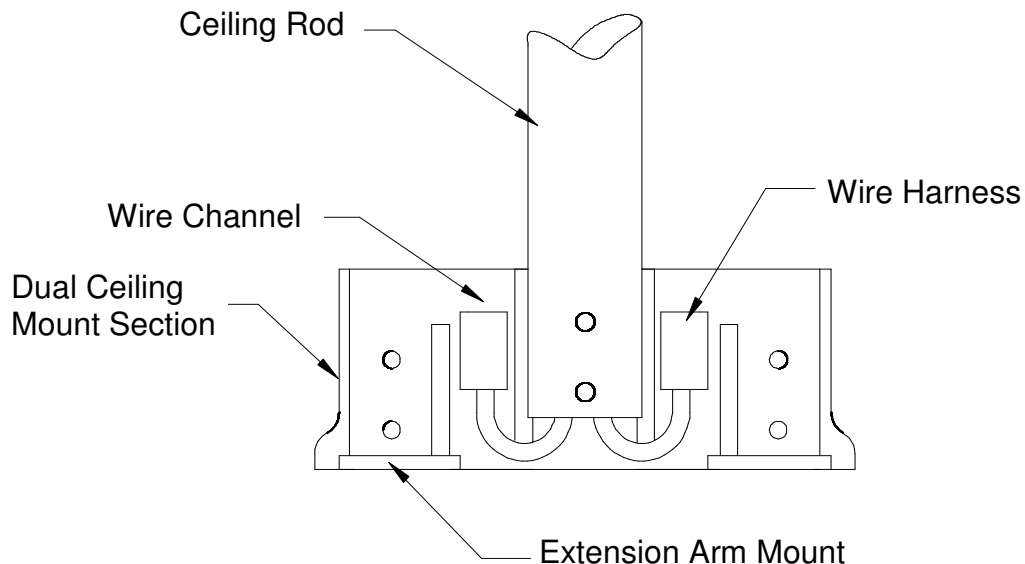


FIGURE 9: Wire Channel

## Dual Ceiling Mount Installation

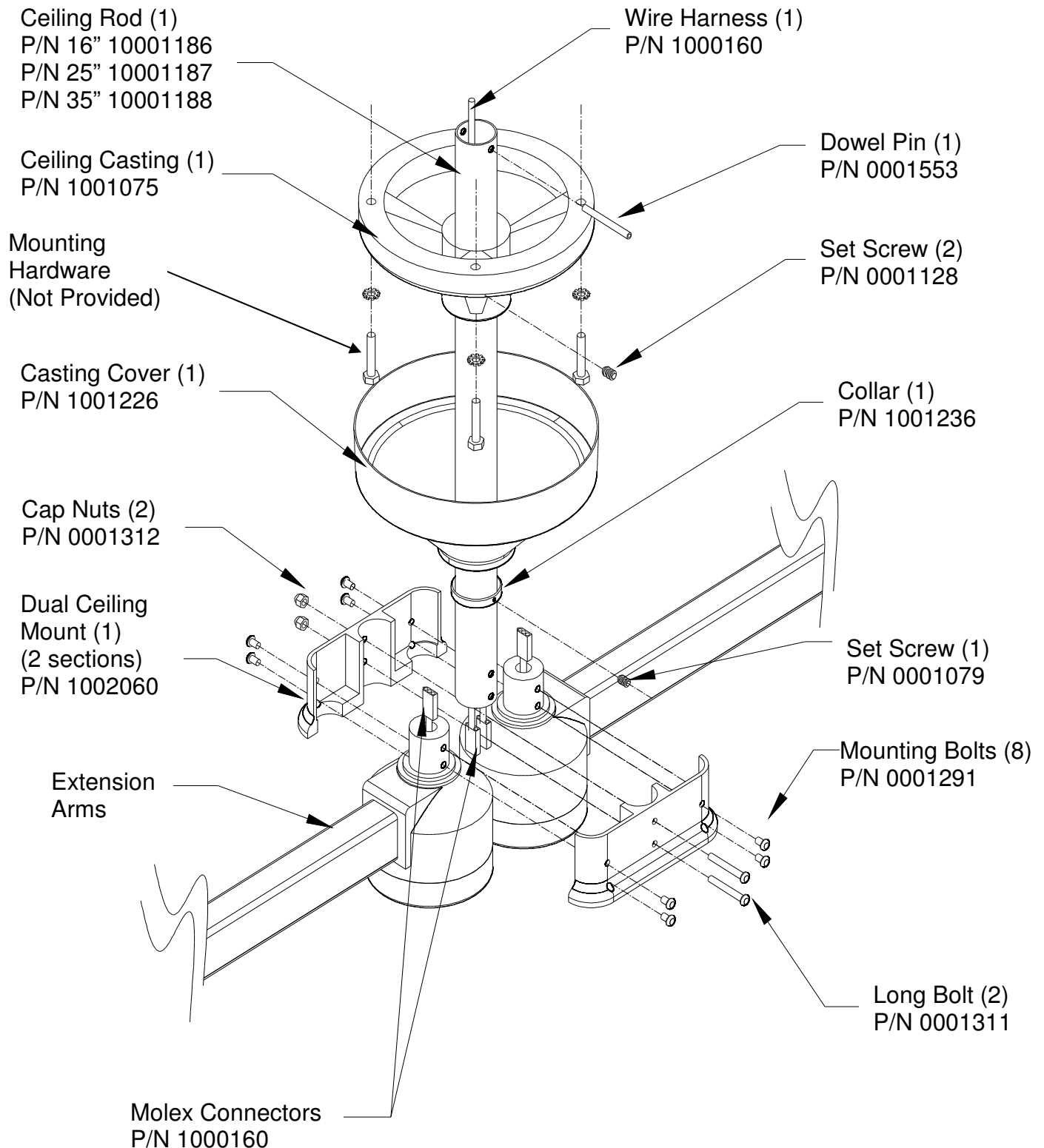


FIGURE 10: Dual Ceiling Mount Installation

### Dual Ceiling Mount Installation

- Position the two extension arms as shown in figure 10 to allow for easier mounting of the remaining Dual mount section. Firmly press the fastened dual ceiling mount section against the ceiling rod. While firmly holding the Dual ceiling mount section in place, remove only the cap nuts from the 2" long bolts. It is strongly recommended that a second person hold the arms in place while the nuts are removed. Place the remaining dual ceiling mount section onto the bolts. Be sure the wires are enclosed within the wire channel to avoid pinching them. Replace the cap nuts and fully tighten. Install the remaining four  $\frac{3}{8}$ " long mounting screws and then fully tighten all eight screws.



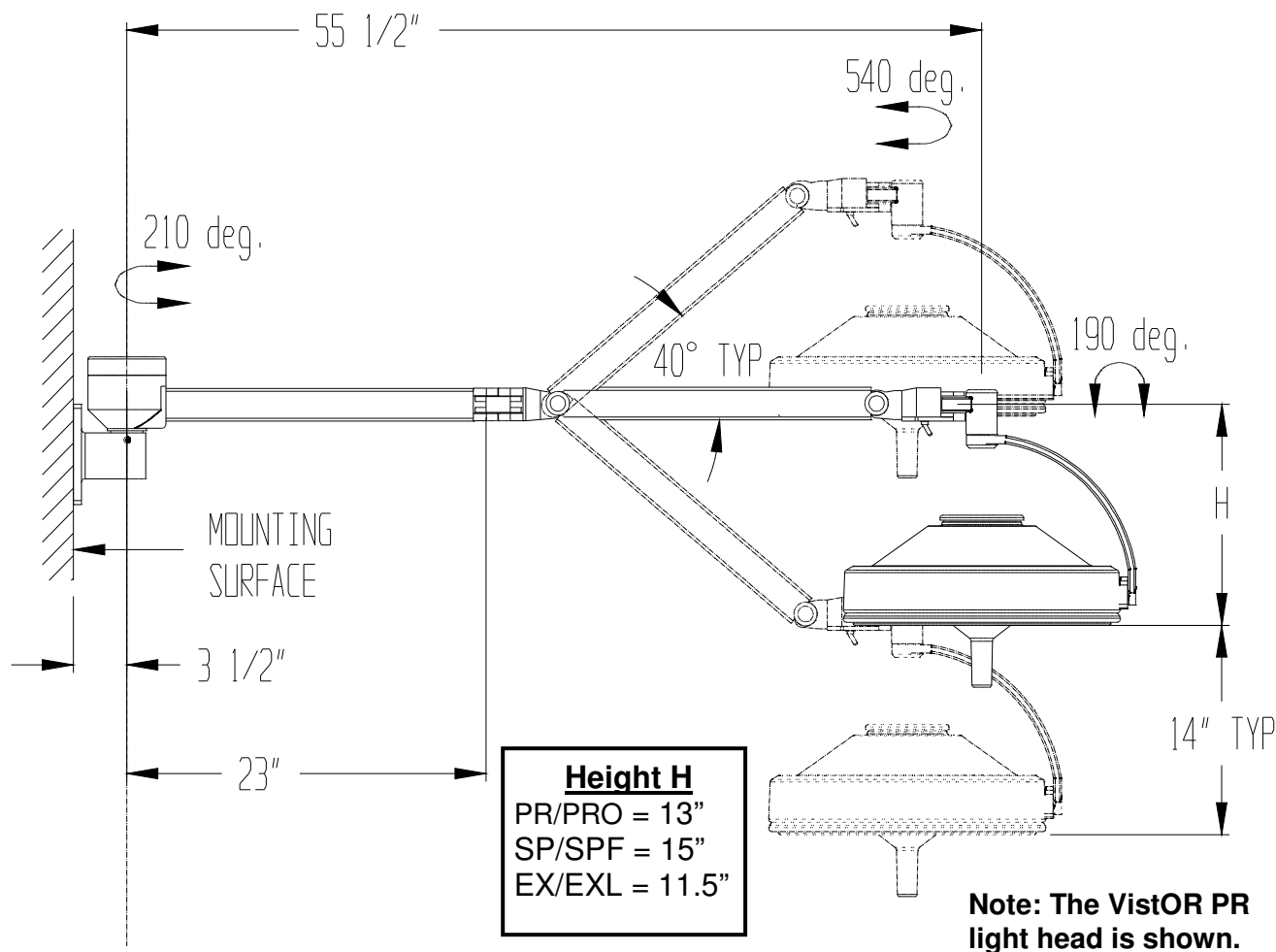
**Failure to tighten the cap nuts for the 2" long bolts can cause the arm/head assembly to fall causing serious injury and/or property damage.**



**Failure to install or tighten all eight of the  $\frac{3}{8}$ " mounting screws can cause the arm/head assembly to fall causing serious injury and/or property damage.**

- Check to make sure that the wire connections are seated far enough into the double casting enclosure. Fasten the cover plates to the casting enclosure using the four  $\frac{3}{8}$ " long pan-head screws (P/N 0001319) and plastic grommets (P/N 0001306) supplied in the hardware kit.
- See the instructions for "Installation of Light Head to Arm" on page 40 to complete the assembly.

## Wall Mounted Light Installation



### FIGURE 11: Wall Mount Dimensions

## GENERAL INFORMATION

The shipping cartons contain a light head assembly, arm assembly, a wall bracket assembly with a hospital grade plug attached, hardware kit, and an Installation and Service Manual. (Mounting hardware for attaching the wall bracket to the wall is not supplied).

Prior to installation insure that all components shown on figure 11 are present.



**⚠ When removing parts from the shipping carton, be careful not to damage the components or break any glassware. Important: thoroughly check each box for parts that may be located in areas that can be overlooked.**

## Wall Mounted Light Installation

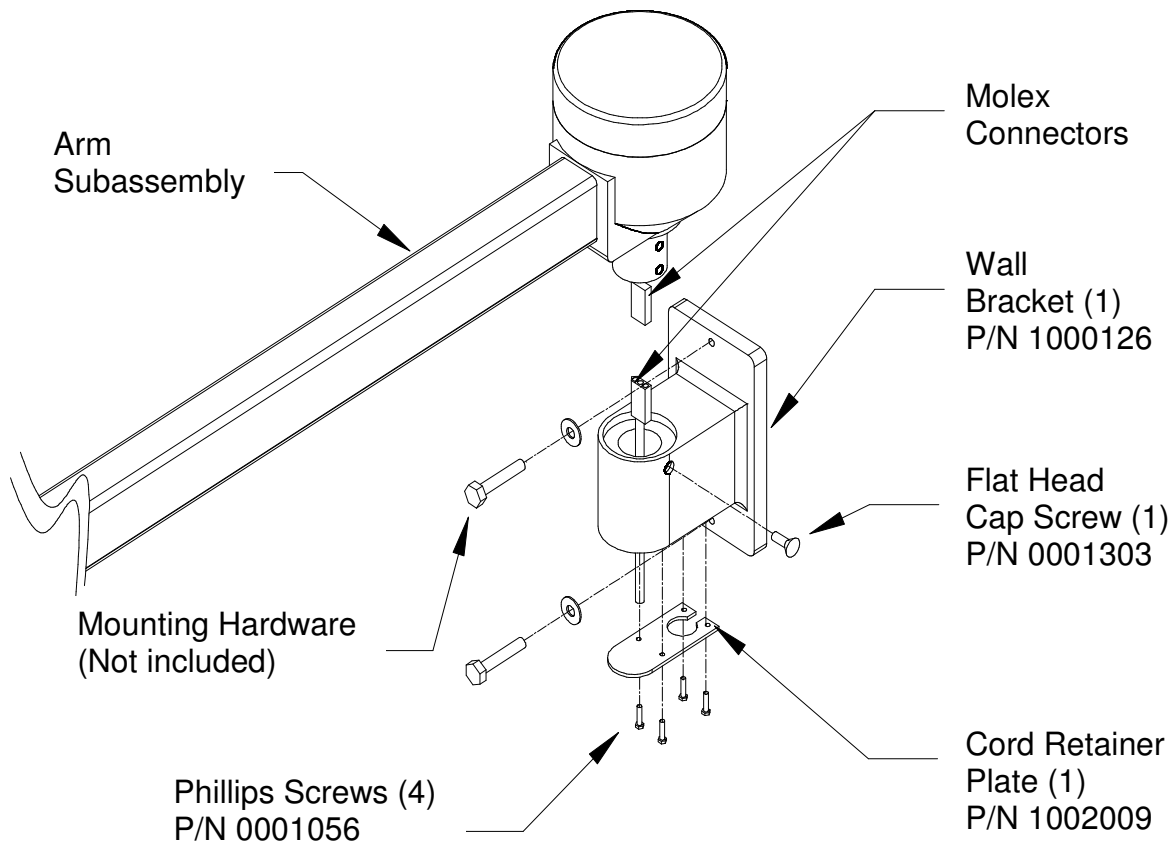


FIGURE 12: Wall Mount Installation

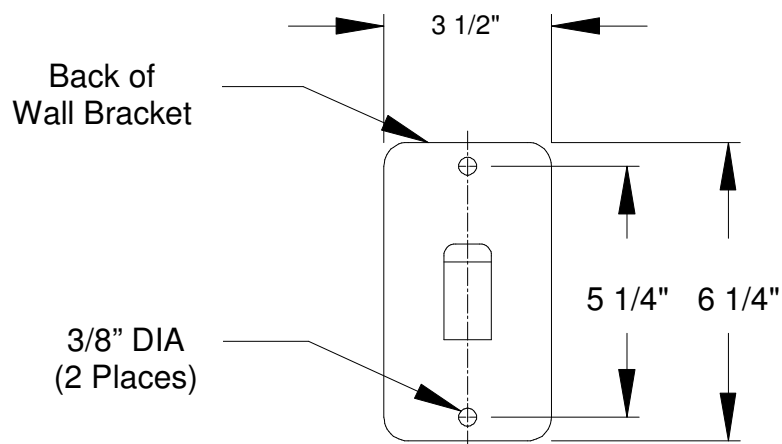


FIGURE 13: Wall Bracket Mounting Diagram

### Wall Mounted Light Installation



Improper fastening of the wall bracket can cause serious injury and/or property damage. Make certain the installation is capable of supporting a load of at least 50 pounds and an off center moment of 150 ft-lbs.



To maintain proper grounding reliability, the ground wire connections with the wall bracket must be kept properly fastened at all times



Do not install the extension arm with the light head attached. Installation with the light head attached can cause damage to the light. Refer to the procedure for installing the head to the arm after the bracket and arm are installed.

- Attach the wall bracket to the desired location using two  $\frac{5}{16}$ " Diameter x 2  $\frac{1}{2}$ " long (minimum length) lag screws or bolts with washers (Hardware not provided). See figure 12.



The bracket must be anchored to a structural backing with sufficient support. Failure to use the correct backing could cause the arm/head to become unstable causing personal injury and/or property damage.

- Remove the four screws holding the cord retainer plate in place. Carefully pull the plate away from the wall bracket to expose the Molex connector. ***DO NOT use excessive force during this procedure or in any way loosen or disconnect the green wires within the bracket.***



Failure to comply with local electrical codes can cause a shock hazard.

- Bring the extension arm over the wall bracket and feed the Molex connector from the transformer housing into the bracket while inserting the housing into the bracket. Secure the housing to the bracket with the flat head cap screw provided.
- Bring the cord retainer plate up to the bottom of the wall bracket and plug the Molex connector at the end of the power cord to the connector from the transformer. Route the connectors and wire to the rear of the bracket (not shown). Refasten the retainer plate to the bracket with the four screws provided.

**NOTE:** The light installation can also be wired to a power source permanently. The wall bracket must first be mounted over an electrical junction box. Remove the hospital plug from the power cord. The cord can then be inserted through the rear opening in the bracket and wired directly to the power source. ***Wiring must be done in compliance with all applicable electrical codes.***

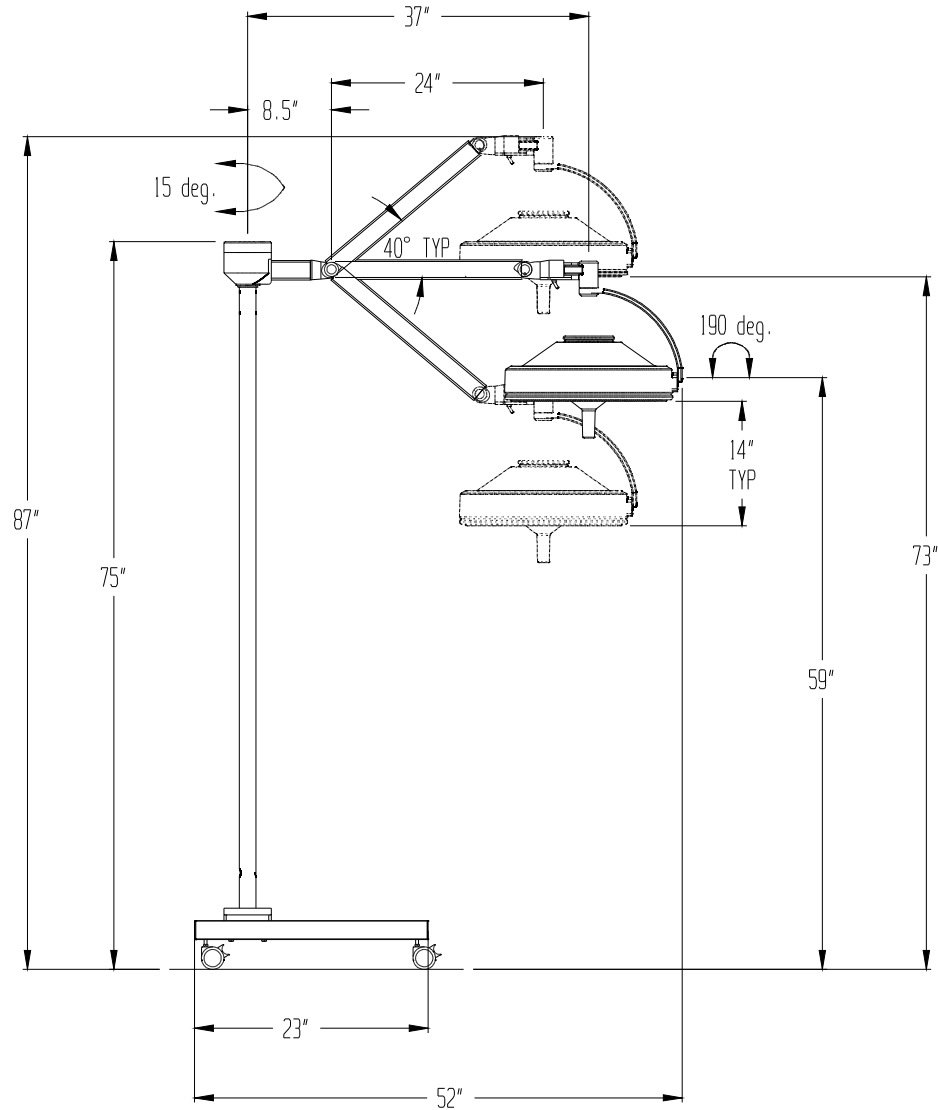


Failure to comply with local electrical codes can cause a shock hazard.

- See the instructions for "Installation of Light Head to Arm" on page 40.



## Floor Stand Light Installation



**Note: The VistOR PR Light is shown.**

FIGURE 14: Floor Mount Dimensions

### GENERAL INFORMATION

The shipping carton contains a light head assembly, arm assembly, floor base casting, two leg assemblies, a hardware kit, and an Installation and Service Manual. A second carton contains the upright pole assembly.

Prior to installation insure that all components are present.



**When removing parts from the shipping carton, be careful not to damage the components or break any glassware. Important: thoroughly check each box for parts that may be located in areas that can be overlooked.**

## Floor Stand Light Installation

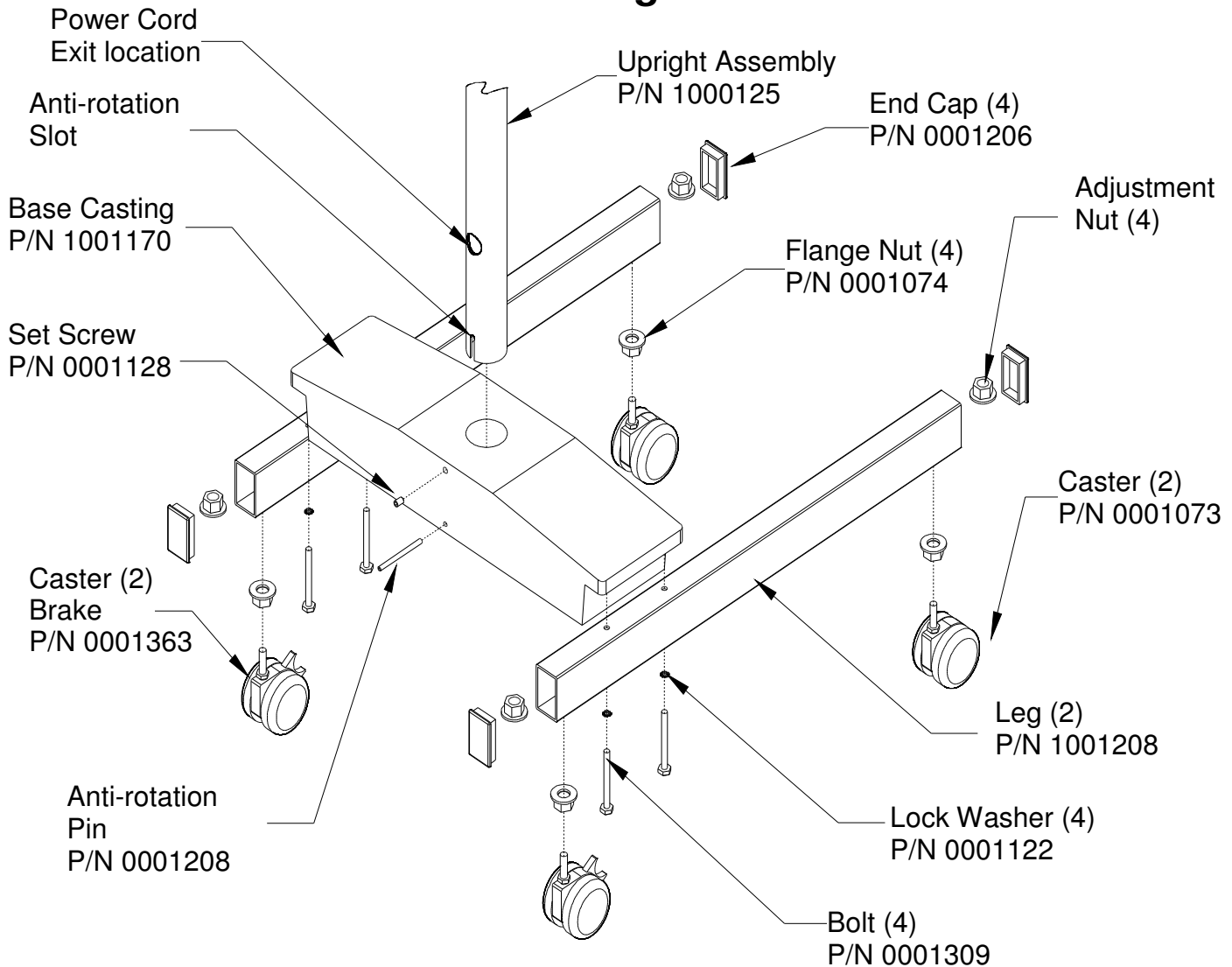


FIGURE 15: Floor Stand Light Installation

- Bolt the assembled legs onto the cast iron base using four  $\frac{1}{4}$ "-20 x  $1 \frac{3}{4}$ " bolts and  $\frac{1}{4}$ " lock washers. Position the floor base casting so that the set-screw in the base is at the rear of the assembly. See figure 15.
- Insert the upright pole fully into the floor base casting so that the anti-rotation slot sits over the pin in the casting. Rotate the pole until the slots slides fully over the pin, lowering the pole. The power cord (not shown on figure) should be in line with the set-screw. Once the pole is properly positioned, securely tighten the set-screw using the  $\frac{1}{8}$ " hex key provided.



**Do not install the extension arm with the light head attached. Installation with the light head attached can cause damage to the light. Refer to the procedure for installing the head to the arm after the floor mount is assembled and the arm is in place.**

## Arm Assembly to Upright Pole Installation

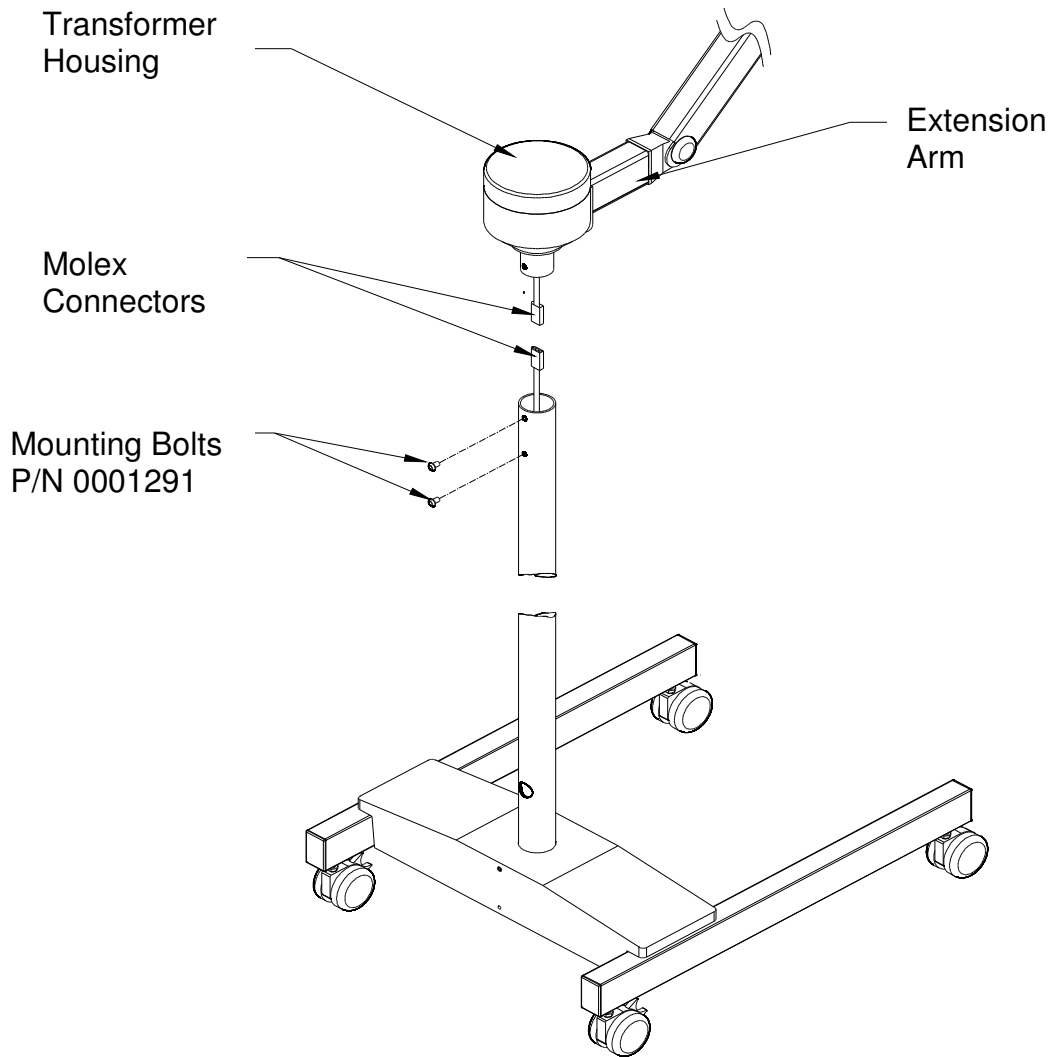


FIGURE 16: Arm Assembly to Upright Pole Installation

- While securely supporting the extension arm above the upright pole, firmly grasp the cable at the end of the pole. DO NOT allow the cable to slip into the pole as it may be difficult to retrieve it. Connect the Molex connector from the transformer housing to the connector at the end of the pole. Remove the cable tie holding the harness in place and discard it. Carefully lower the extension arm and insert the transformer housing while pushing the wiring into the pole. Secure the housing to the pole utilizing the two  $\frac{1}{4}$ "-20 x  $\frac{3}{8}$ " bolts supplied. Tighten the bolts securely.
- The light arm should be between the extended legs as shown in figure 16.
- To level the base, remove the end caps at the end of each leg and adjust the caster bolts and nuts. Once the base has been leveled, tighten the nuts securely and insert the leg cap in the end of each leg. See figure 15.
- See the instructions for "Installation of Light Head to Arm" on page 40.

## Installation of Light Head to Arm

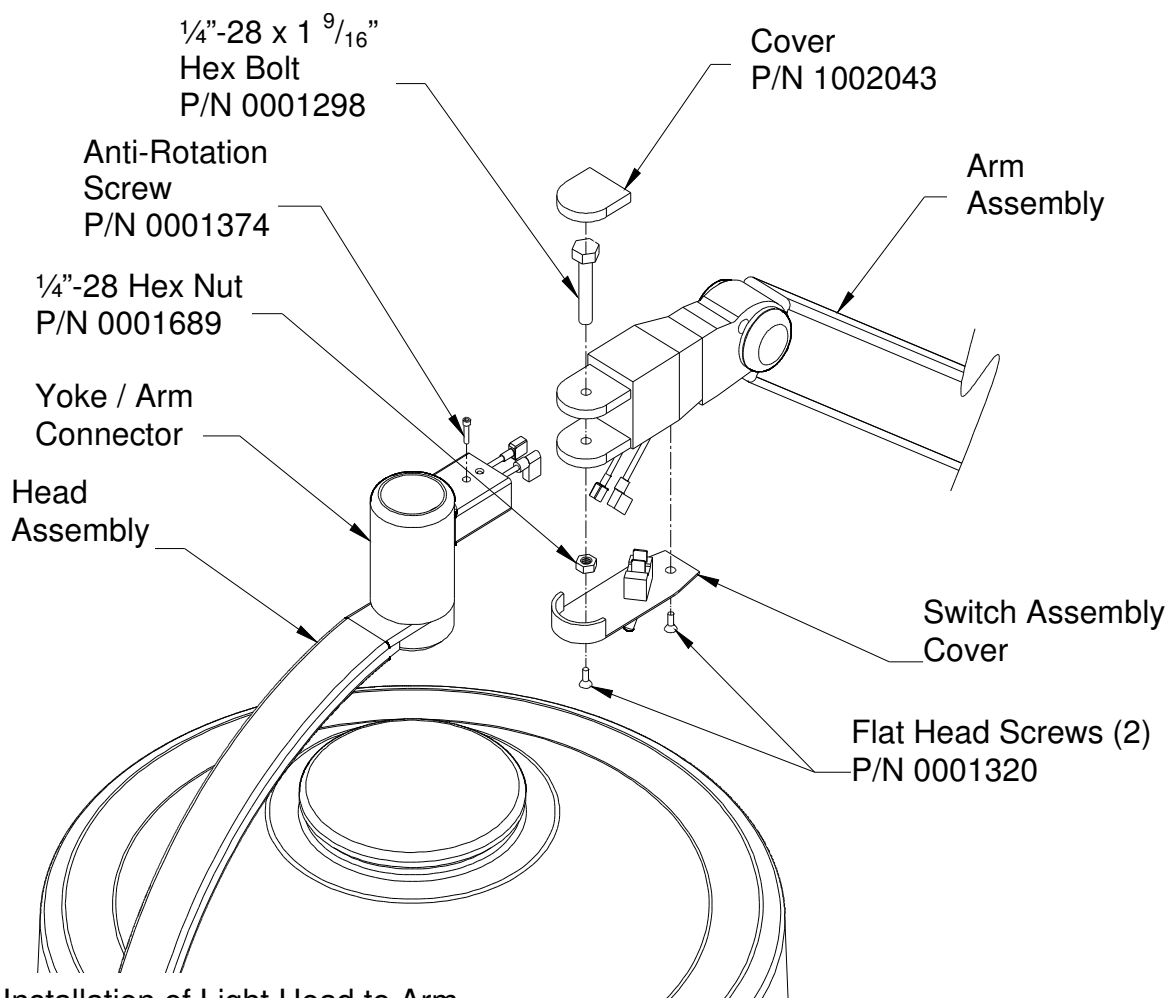


FIGURE 17: Installation of Light Head to Arm

**⚠ Installation and repair of this equipment should be performed by qualified persons only. Nuvo, Inc. does not warranty any damage occurring as a result of improper installation.**

**⚠ Make sure the light head is installed to the correct arm when assembling multiple lights or combination models. Mounting the incorrect light head to the arm can cause improper arm support, inefficient bulb performance, and /or bulb failure.**

- Remove the two screws from the switch assembly cover and pull downward exposing the switch and the wire connector. See figure 17.
- Insert the wire set from the yoke / arm connector through the hole in the arm/wire junction.

**Note: The VistOR PR Light is shown.**

### Installation of Light Head to Arm

- Insert the yoke/arm connector into the arm until the bolt-holes are aligned. Insert the  $\frac{1}{4}$ "-28 x  $\frac{19}{16}$ " bolt as shown being careful not to damage the wires, and secure with the  $\frac{1}{4}$ "-28 hex nut. Tighten the nut securely, but do not over tighten.
- Tighten the anti-rotation screw into the yoke/arm connector using the hex key provided.
- One set of wires exits from the light head assembly, and two other sets exit from the arm/wire junction assembly. Connect the wires with spade connectors, one from the arm and one from the head as shown. Connect the wires with flag connectors on the switch box. Position the connectors in the junction housing to allow room for the switch. Replace the switch assembly cover and securely tighten the two screws. See figure 18.
- Press the snap cover onto the top of the hex bolt as shown on figure 17.

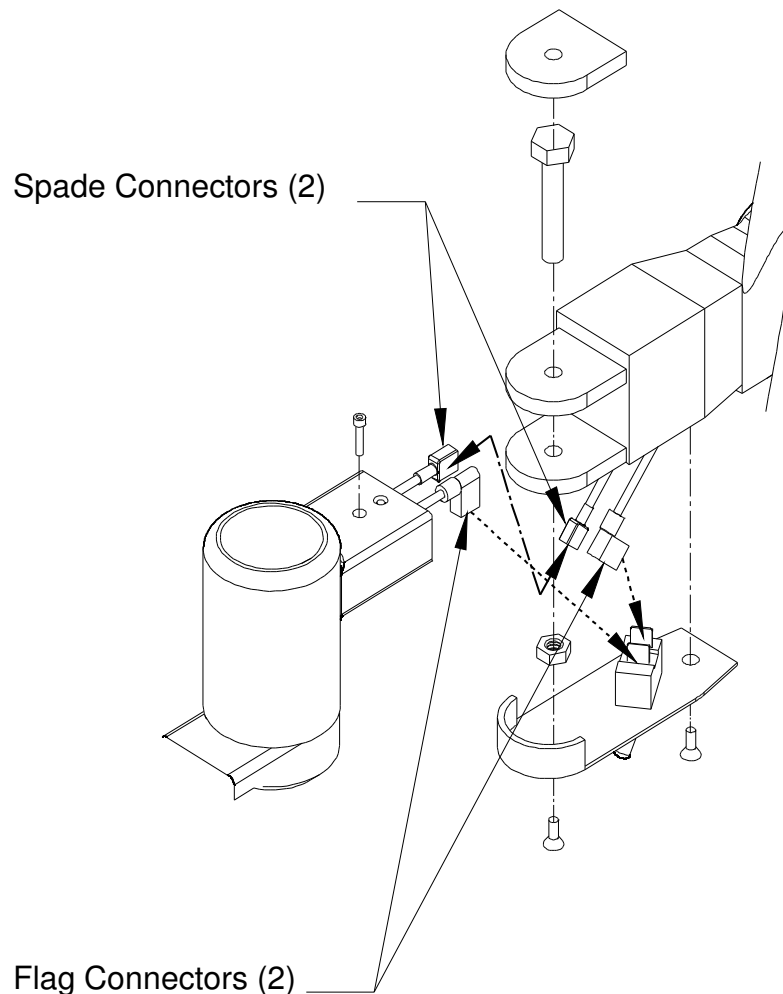


FIGURE 18: Light Head to Arm Electrical Connections

## Chuttle Track Ceiling Track Mount

**!** Installation and repair of this equipment should be performed by qualified personnel only. Nuvo Inc. does not warranty any damage or injuries as a result of improper installation.

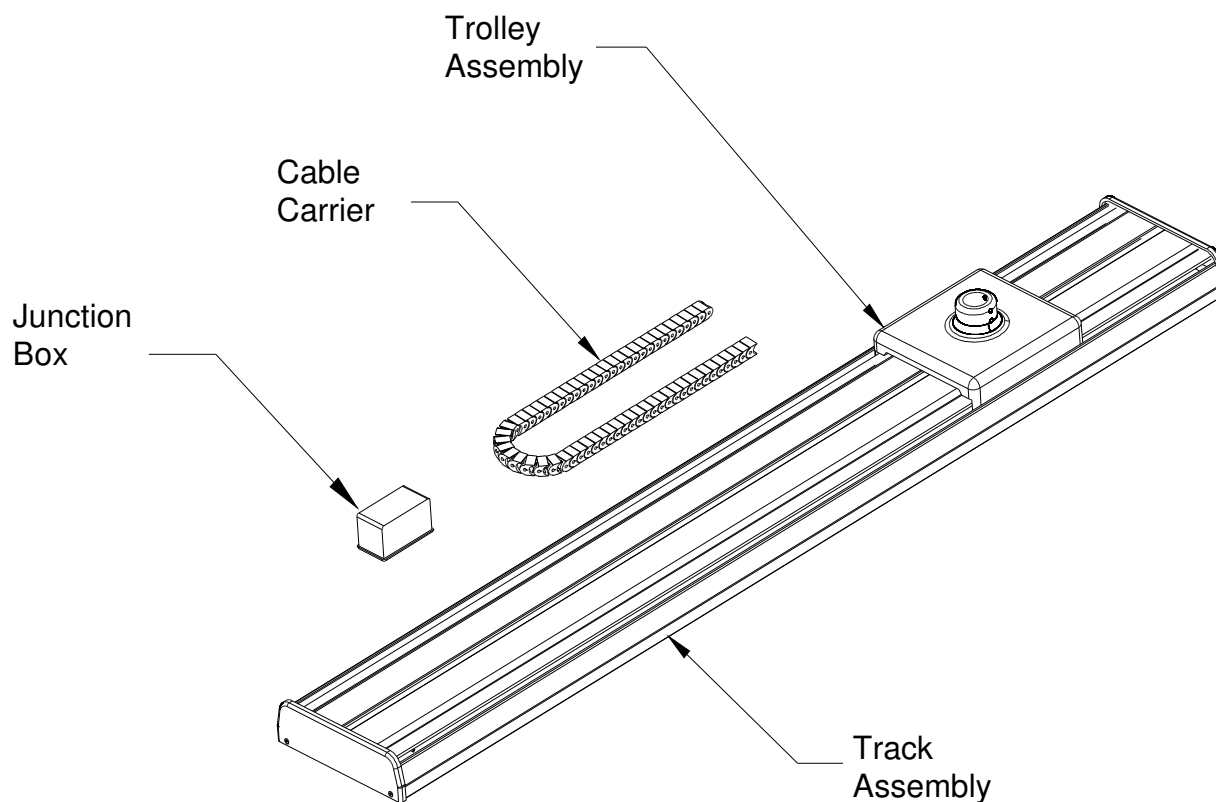


FIGURE 19: Track Assembly and Components

### GENERAL INFORMATION

The shipping carton contains a fully assembled track mount and an installation and service manual. Carefully remove the track from the shipping carton. Check the track for any visible damage or missing components. The major components provided are the track assembly, trolley assembly, and a junction box as shown on figure 19. Dual trolley Model No. 044012 will have two trolley assemblies and two wire harness cables. Prior to installation insure that all components are present. Some disassembly of the unit is required before mounting it to the ceiling.

**!** Be careful not to damage any of the components when removing parts from the shipping carton.

**!** Important: Thoroughly check each box for parts that may be located in areas that can be overlooked.

### Chuttle Track Pre-Installation Requirements



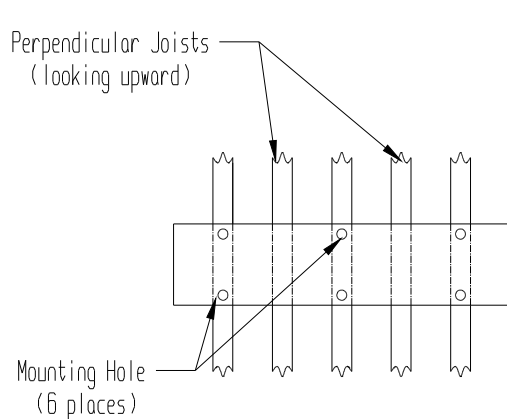
**Installation and repair of this equipment should be performed by qualified persons only. Nuvo, Inc. does not warranty any damage or injuries occurring as a result of improper installation.**

Before installation, check to insure the following conditions are provided and in place.

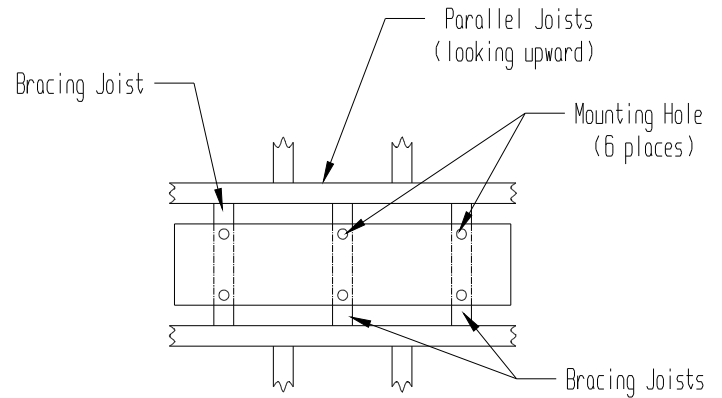
- A structural ceiling mount meeting the specifications of the architectural plans, or suggested structural mounting shown in figures 20 through 23. The installation must be capable of supporting a weight of at least 200 pounds and an off center load of 500 ft-lbs.
- The track mount should not be mounted higher than 9 feet 6 inches (9 ½ feet) above the floor. The track mount must be mounted at the finished ceiling level whether the ceiling surface is solid or “dropped” type. Mounting the unit higher than 9 ½ feet may result in instability of the light system and the arm assembly mounted too high to be accessible,
- Check the length of the ceiling rod supplied (located in the carton with the light head and arm). The rod lengths available for the Shuttle Track are 16” long for a mounting height of 7 feet 6 inches to 8 feet 6 inches. A 25” long rod is available for a mounting height of 8 feet 7 inches to 9 feet 6 inches. If a problem occurs, contact our service department at (814) 899-4220 then press 2.
- The mounting bolts used to fasten the track must be able to support a minimum of 200 pounds each ( $\frac{3}{8}$ ” diameter bolts required).

# Section 3

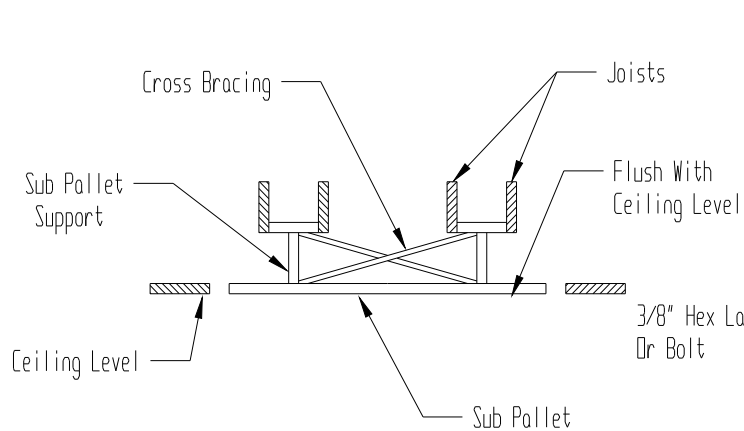
## Chuttle Track Pre-Installation Requirements



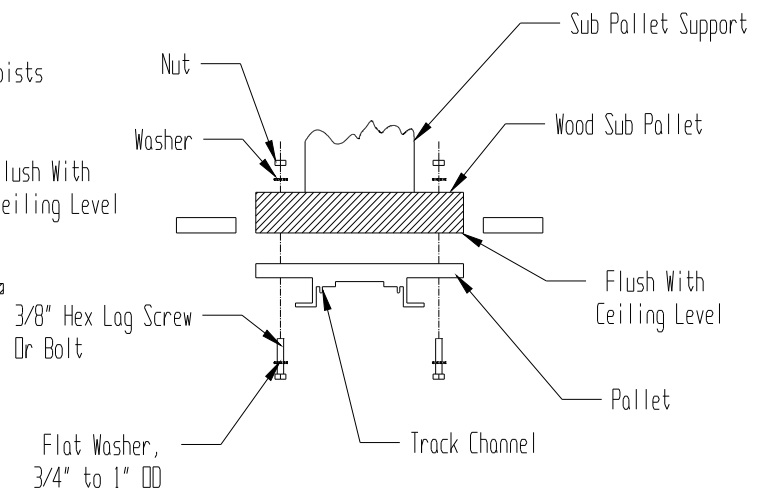
**Figure 20: Mounting Pallet Perpendicular to Wood Joist**



**Figure 21: Mounting Pallet Parallel to Wood Joist**



**Figure 22: Mounting Pallet to a Suspended Ceiling**



**Figure 23: Suspended Ceiling Wood Bracing Detail (End View)**



### Disassembly of the Track Mount before Installation

**⚠ Note:** For installations where there are two existing trolley assemblies on a single track (Dual Trolley Model No. 044012), the left and right trolley must be removed from the track from their respective sides. When disassembling the track, remove both end plates from the unit. Remove the right trolley from the right side and the left trolley from the left side of the track.

**⚠ Do not mix the right and left trolley assemblies.** The cord bracket within each trolley is positioned to make electrical connection for the right and left light fixtures respectively. Nuvo, Inc. recommends temporarily marking each trolley if needed to make sure these are assembled onto the track in the proper location and orientation.

**⚠ When performing this procedure DO NOT disassemble the components of the trolley assembly or remove the track extrusion channel from the plywood pallet.**

- Take the end plate/plates P/N1001511 off the side of the track by unfastening the two (2) #6 wood screws. See figure 24.

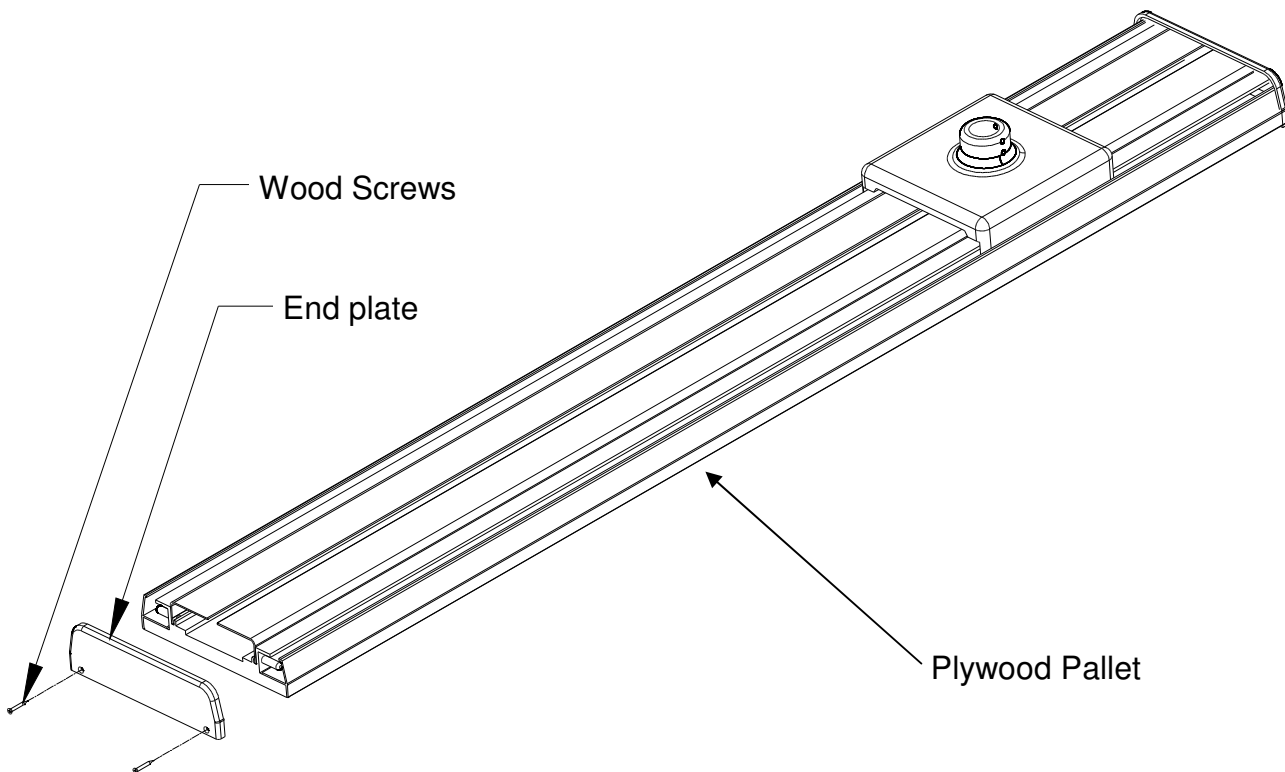


FIGURE 24: End Plate Removal

### Disassembly of the Track Mount before Installation

- Take off the two side panels P/N 1001516 by removing the two (2) #10 wood screws at the end of each panel. See figure 25.

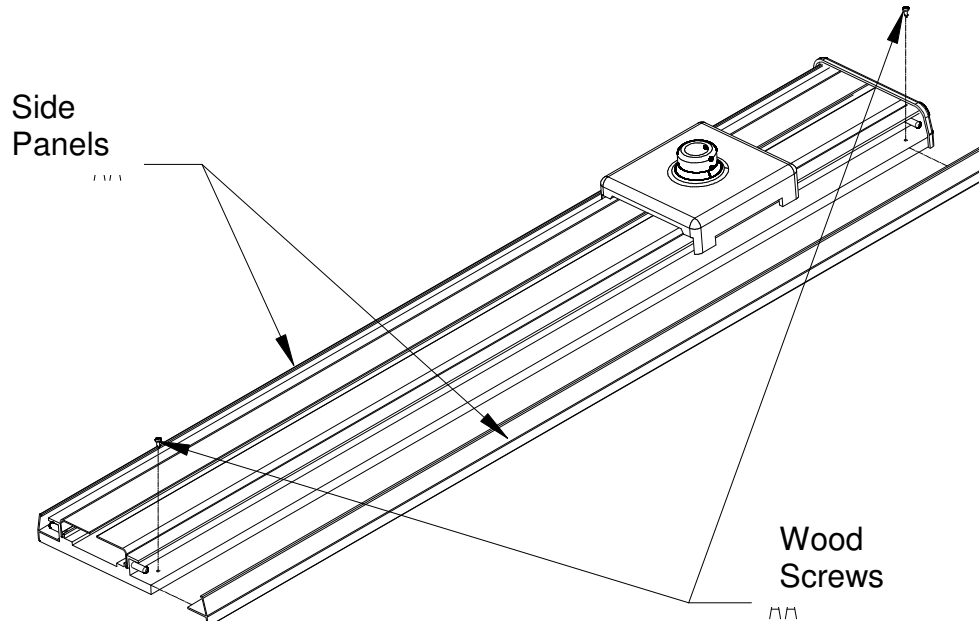


FIGURE 25: Side Panel Removal

- Loosen the three #8 set screws along each side of the track channel extrusion P/N 1001500 with the provided hex Allen wrench. Remove both dress covers P/N 1001515. See figure 26.

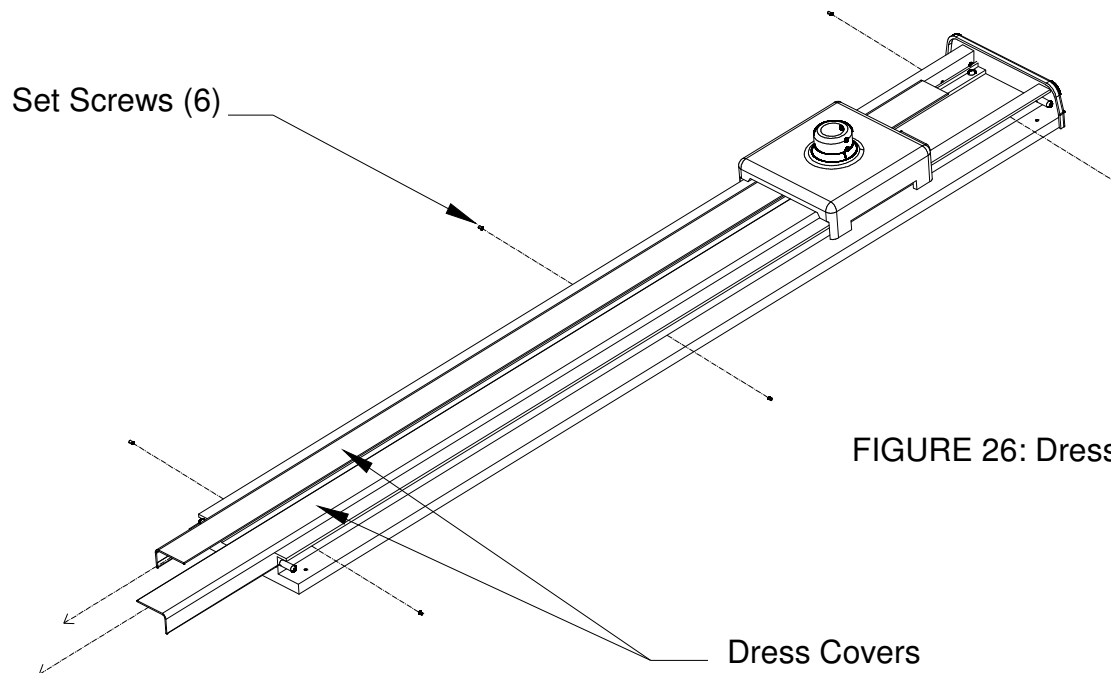
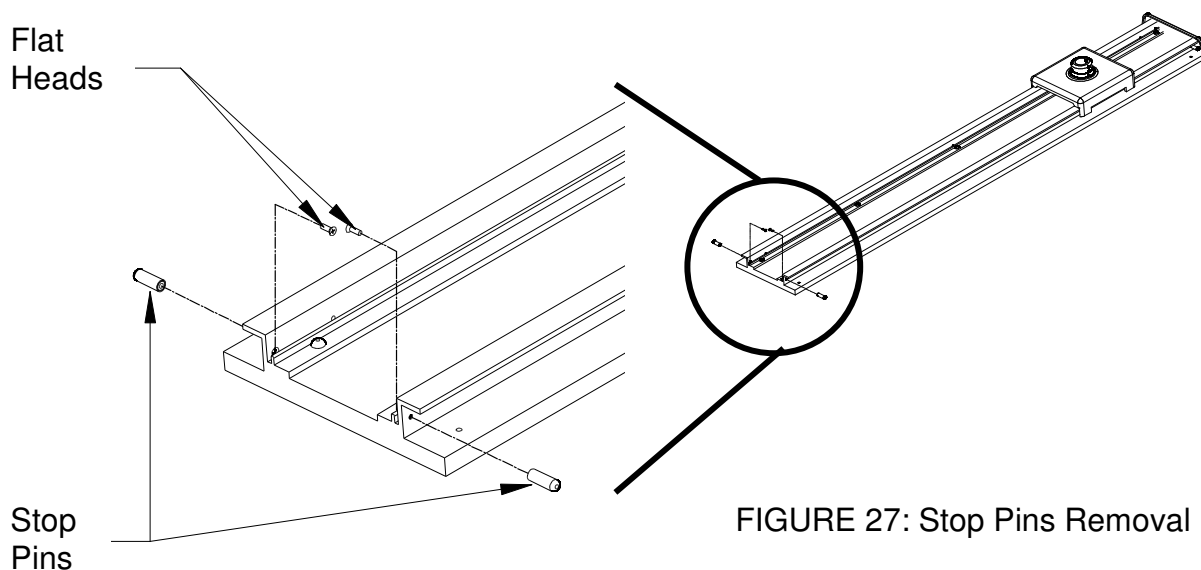


FIGURE 26: Dress Cover Removal

### Disassembly of the Track Mount before Installation

**!** Keep the side panels and dress covers in a safe place to prevent damage until reassembly.

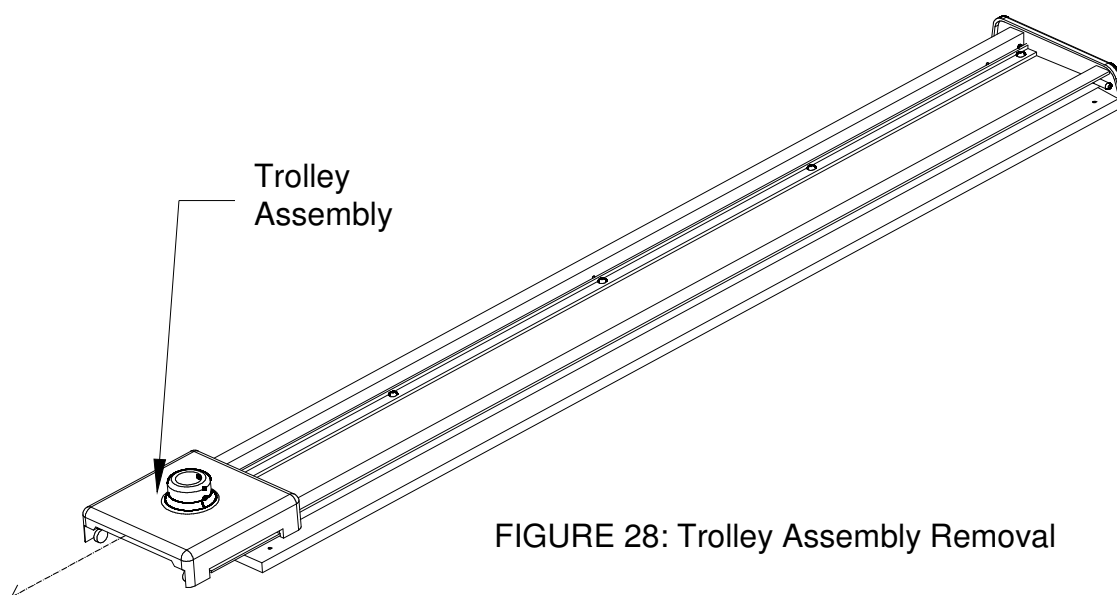
- Remove the two stop pins P/N 1001076 and the #6 flat head screws P/N 0001155 holding the pins in place from the track end with the end plate already removed. See figure 27.



**!** Secure all screws and hardware until it is time for reassembly.

**!** Disconnect the Molex connector attached to the trolley first.

- Slide the trolley assembly P/N 1000187 off the track. See figure 28.



### Track Mount Installation Procedure



**Warning:** Improper fastening of the track mount can cause serious injury and/or property damage. Insure the installation is capable of supporting a weight of at least 200 pounds and an off center load of 500 ft-lbs.

- It is recommended that the head of each mounting bolt be recessed flush or just below the surface of the plywood pallet. This will allow for easier assembly of the side panels once the track is mounted. Drill six (6)  $\frac{7}{16}$ " diameter clearance holes in the plywood pallet for the bolts. Counterbore the holes to 1" diameter by  $\frac{3}{8}$ " deep. The holes should be evenly spaced along the pallet at the outside edge of the track base extrusion.



**Note:** The fasteners can also be placed in the interior of the track extrusion if ceiling conditions do not allow mounting the fixture at the plywood pallet.

- Mark the hole locations on the ceiling structure to match the hole locations on the plywood pallet. Drill the proper sized pilot or clearance holes in the ceiling structure depending on the type of fastener that has been chosen.



**Note:** The next step requires two people to mount the track base. One person is needed to support the fixture at the ceiling while the other person fastens the bolts.



**Failure to use two people could result in equipment damage and/or personal injury.**



**Proper movement of the trolley requires the track to be mounted to a level ceiling structure. Check the ceiling with a leveling device in the length and width directions before mounting the base.**

- Install the base to the desired location with six (6)  $\frac{3}{8}$ " diameter by 4" (minimum length) hex bolts with flat washers or hex lag screws with washers (hardware is not provided). If shimming is required ( $\frac{1}{4}$ " or less), flat washers can be placed between the track pallet and the ceiling surface to achieve a level installation.
- An electrical junction box is provided if one is not available in the ceiling. Fasten the box as close as possible to the power cable exiting the back of the track. Route the cable from the track to the junction box then connect the power source to the cable (figure not shown).



**Note:** A ground wire is provided and must be fastened to an earth ground to insure proper grounding reliability for the lighting fixture(s). Wire routing and connections must be done in accordance to local and national electrical codes.

### Track Mount Installation Procedure

- Remove the 1/4" by 2" roll pin taped down in the trolley assembly. Insert the pin into the ceiling rod end that has one hole in both walls. The pin should extend the same amount on both sides of the ceiling rod. Install the ceiling rod into the trolley and allow the roll pin to rest in the indentation in the trolley. See figure 29.



**Failure to install the roll pin correctly can cause serious injury and/or property damage.**

- Secure the ceiling rod by tightening the four 1/4"-20 set screws in the trolley hub. Insert the wire harness exiting the light head through the ceiling rod. The large Molex connector from the wire harness must be located at the roll pin end. Insert the connector into the cord bracket attached on the trolley's bottom until it locks in place.

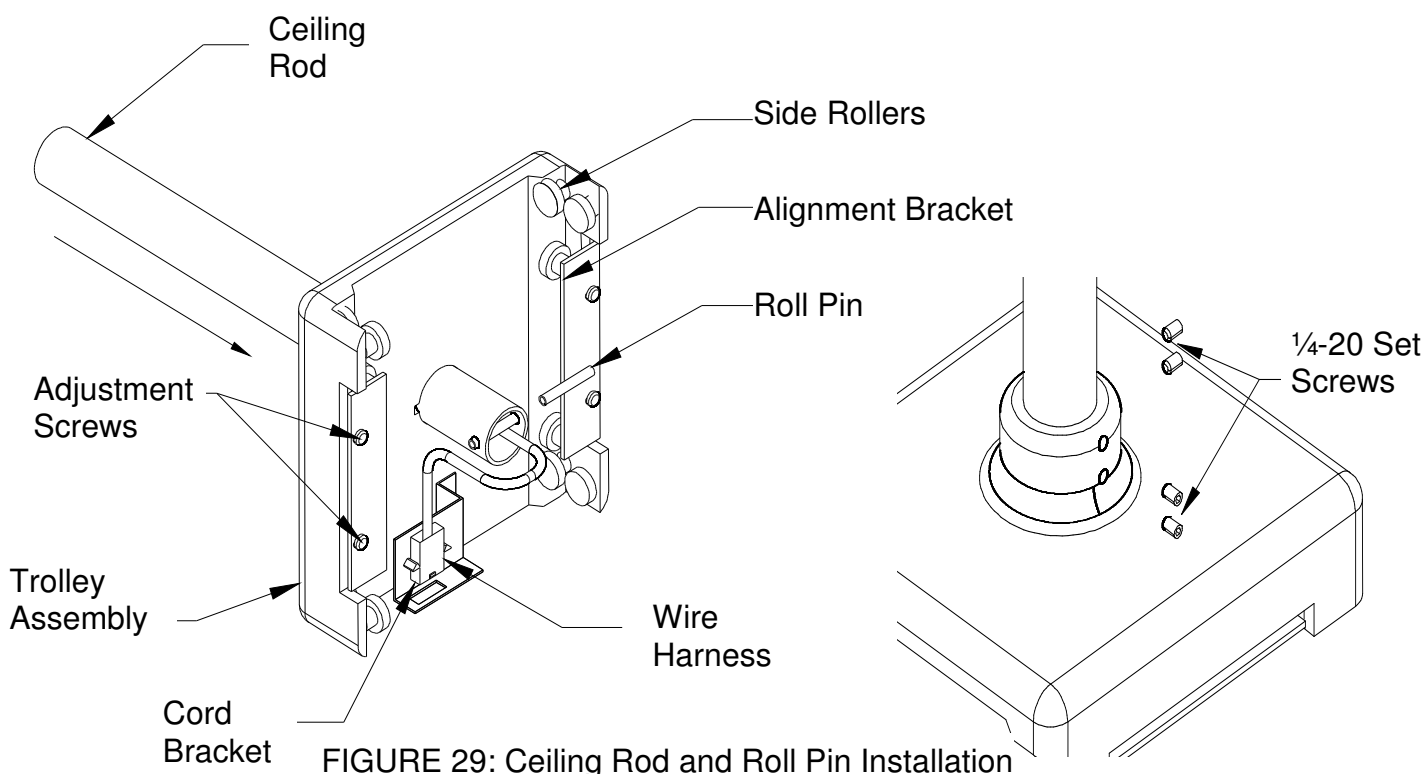


FIGURE 29: Ceiling Rod and Roll Pin Installation

- Slide the trolley with the installed ceiling rod back onto the track. The cord-mounting bracket in the trolley should be positioned so it is next to the mating Molex connector on the power cord. Insure that the trolley rolls freely along the track. If adjustment is necessary loosen the adjustment screws and position the side rollers against the base track extrusion as shown on figure 27. Retighten the screws.



**Ensure the power cord does not get twisted when attaching it to the cord bracket on the next step. Do not proceed with the installation before correcting the problem.**

### Track Mount Installation Procedure

- Ensure the cable carrier chain lays flat within the track. Attach the Molex connector to the mating connector on the trolley assembly. See figures 29 and 30.

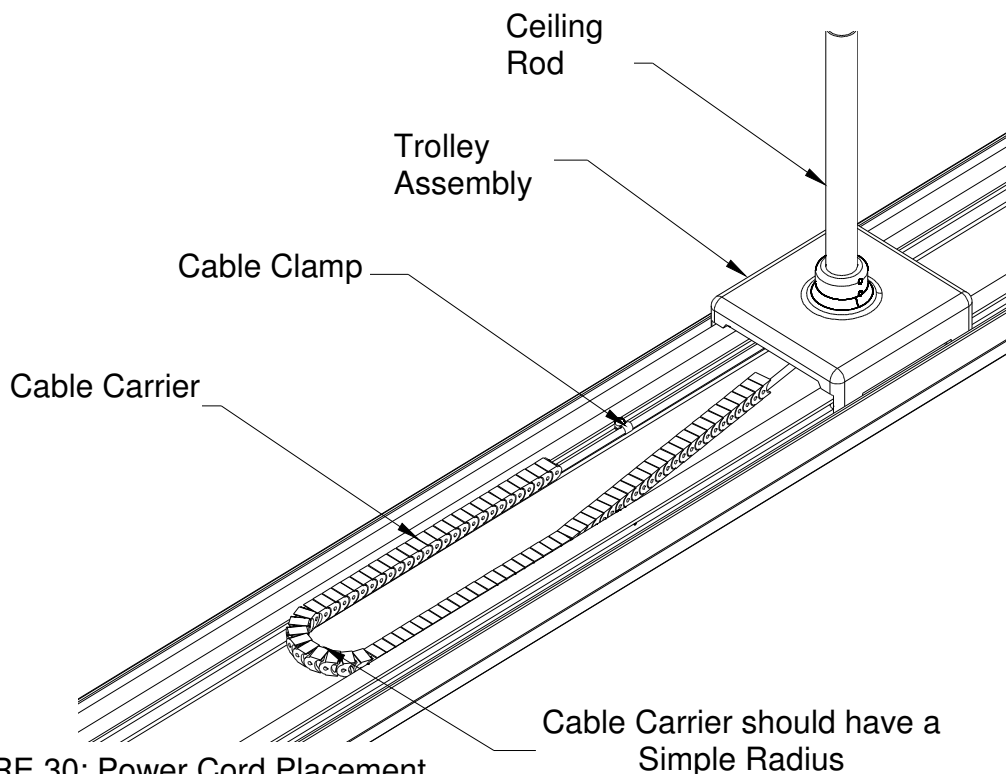


FIGURE 30: Power Cord Placement

- If the cable carrier and trolley move properly along the track, replace the two stop pins and screws at the open track end. Carefully slide the center dress covers through the trolley. Be careful not to damage the trolley components, wire connections, or the covers when installing these back. Tighten the three set screws along both sides of the track to secure the covers in place.
- Reinstall the side panels and secure in place with the wood screws. Ensure the holes in the pallet are aligned with the holes in the side panel before fastening.

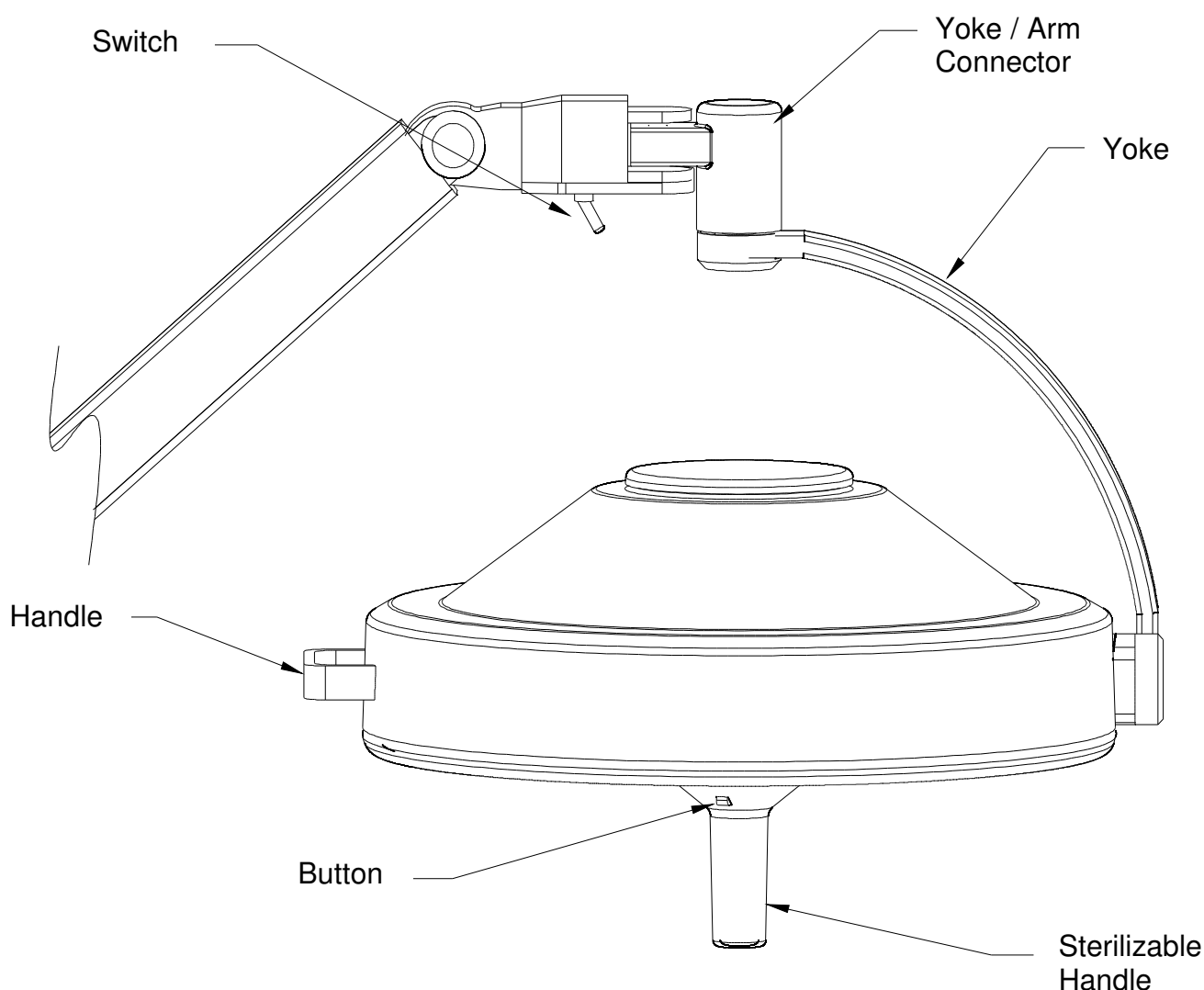


**Note:** If the bolt heads were not previously set flush with the plywood, clearance holes need to be drilled in each panel to allow these to sit against the plywood pallet.

- Refer to Section 3 in this manual to install the light fixture(s) to the end of the ceiling rod. Refer to either Single Ceiling mount or Dual Ceiling mount accordingly.

### Section 4: Operating Instructions **VistOR PR and VistOR PRO Operation**

- On/Off Toggle Switch: Switch energizes or de-energizes lamp.
- To position the light head and arm over the work area, firmly grasp the sterilizable handle or the handle located on the side of the reflector housing and bring the light head or arm to the desired location. Adjust the tilt of the light head by holding the sterilizable handle and rotating forward or backward. The light head can revolve around the Yoke/Arm connector by grasping the side handle or yoke and moving it in a circular motion.



Note: VistOR PRO light head shown

FIGURE 31: VistOR PR and VistOR PRO Operation

### VistOR SP and VistOR SPF Operation



**Do not operate the unit front and /or rear lamps if the fan is not operating. Heat buildup due to insufficient cooling will damage the equipment.**

- **Main Power Switch:** On standard models, the toggle switch turns on power to the front lamp and the fan. On models that have the optional fiber optic side lamp, the toggle switch turns on the main power to the light head only. The fan will be on when the switch is on. The individual lamps are controlled by the rocker switches located on the light housing.
- **Position Adjustment:** To move the light head and arm over the work area, firmly grasp the sterilizable handle or the yoke located opposite the handle and bring the light head to the required height. Adjust the angle of the light head by holding the handle and either pulling forward or pushing backward to change the tilt. Rotating the light head can be done by grasping the yoke or handle and moving it on its axis in a circular motion.

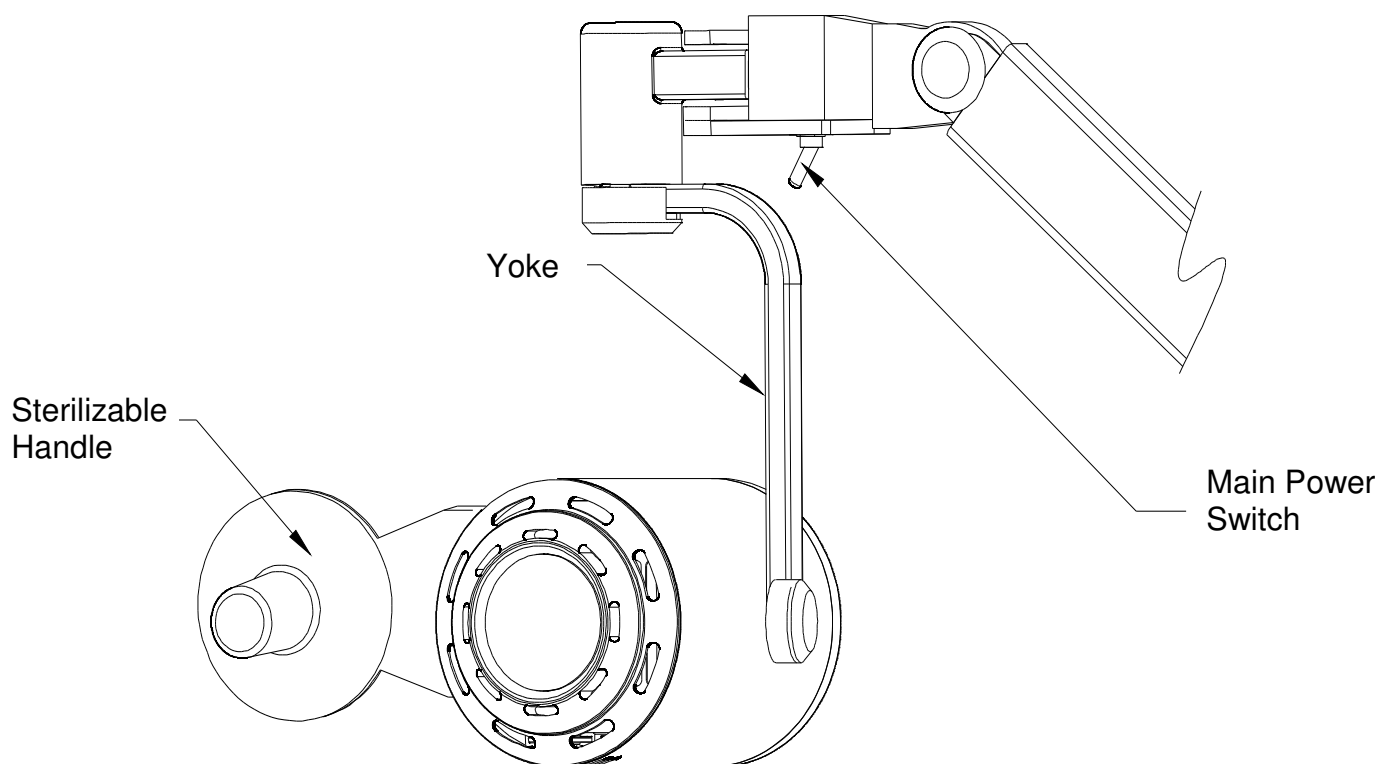


FIGURE 32: VistOR SP Spotlight Standard Operation



### VistOR SP and VistOR SPF Operation

- Iris Diaphragm and Dimmer Control Handles: Controls the spot diameter and light intensity for the front lamp. Move the handles left or right as necessary.
- Sterilizable Handle: A sterilizable handle is provided on the light head. This handle can be used to position the light head as needed. Firmly grasp the handle and pull forward or push backward to adjust the tilt of the light head. Refer to the maintenance section for removal and proper sterilization instructions.

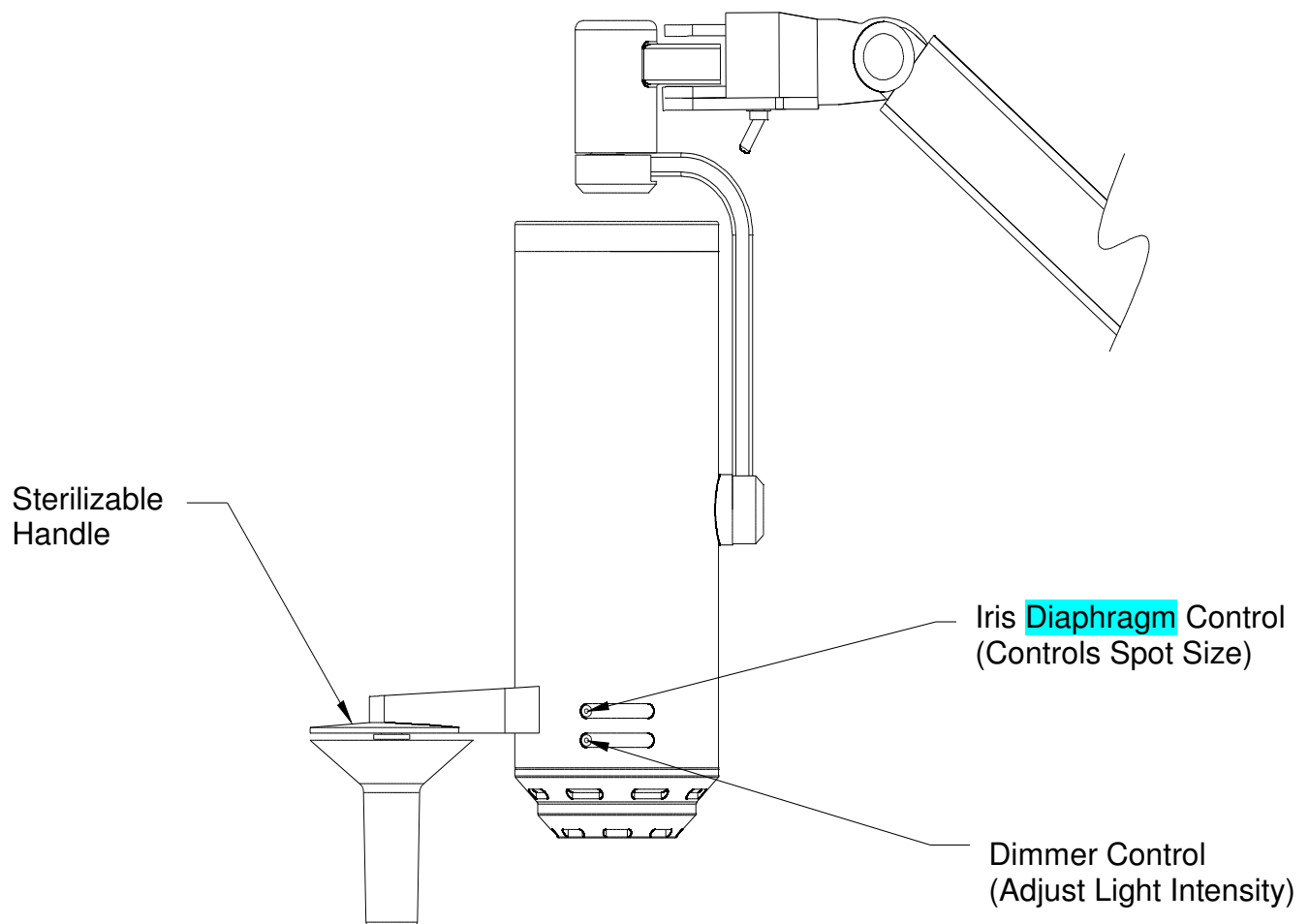


FIGURE 33: VistOR SP Spotlight Controls

## VistOR SP and VistOR SPF Operation

- **Fiber Optic Generator:** If your spotlight includes an optional fiber optic generator, the light output port and on/off switched are located as shown in figure 34. The light head has a turret that allows a selection of output ports for a variety of common cable fittings. This multi-port model will accept fiber optic cables with ACMI, OLYMPUS, STORZ, and WOLF plug fittings. To operate the turret, rotate it in either direction to align it with the port opening.

**NOTE:** Make sure that all cables have been fully removed from the turret before rotating it to a new position. To remove the fiber optic cable, grasp the plug at the end of the cable and gently pull until it releases from the output port.

**Use only the connector types shown. Other connectors may require an adapter.**

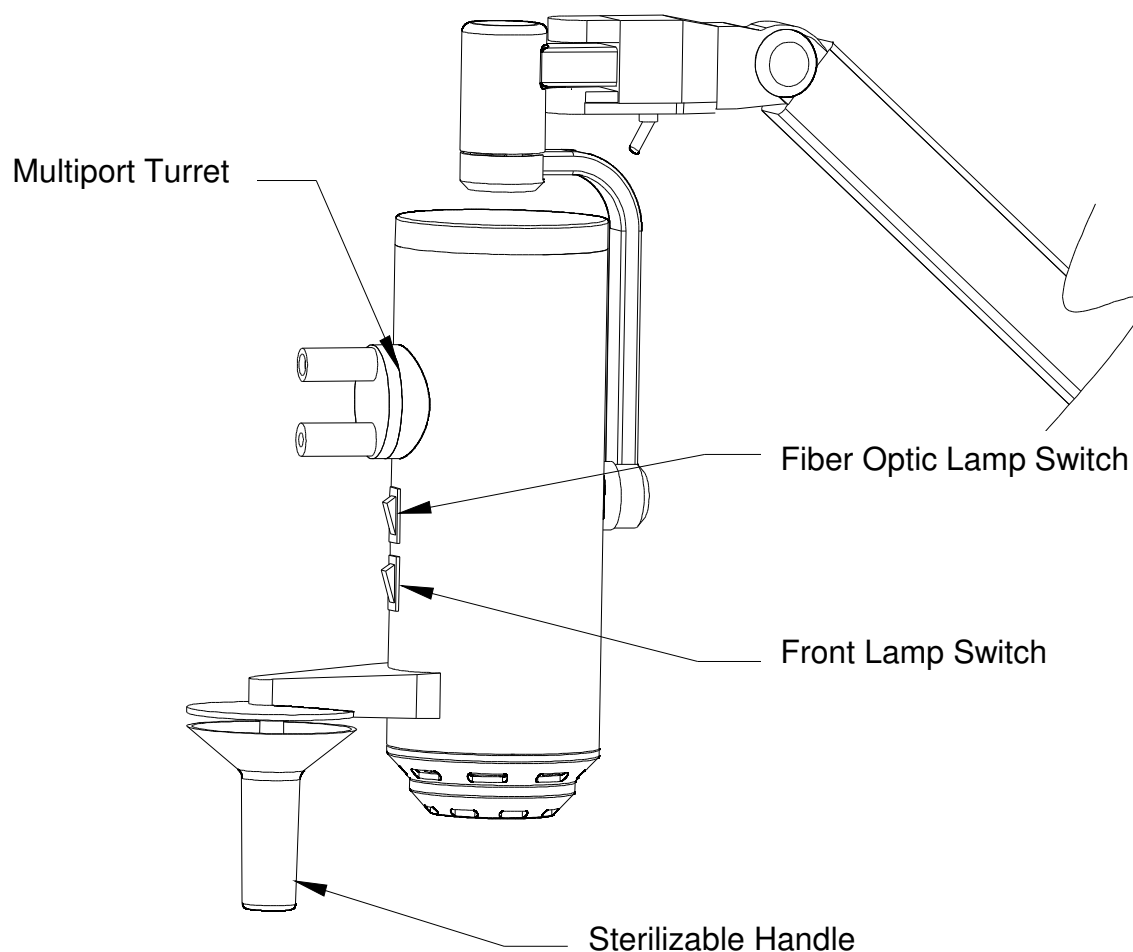


FIGURE 34: VistOR SPF Spotlight Model Operation

### VistOR EX & EXL Operation

- On/Off Switch: Turns on power to light.
- Position Adjustment: To position the light head arm, firmly grasp the sterilizable handle located on the side of the light housing or the yoke and adjust the light as necessary.

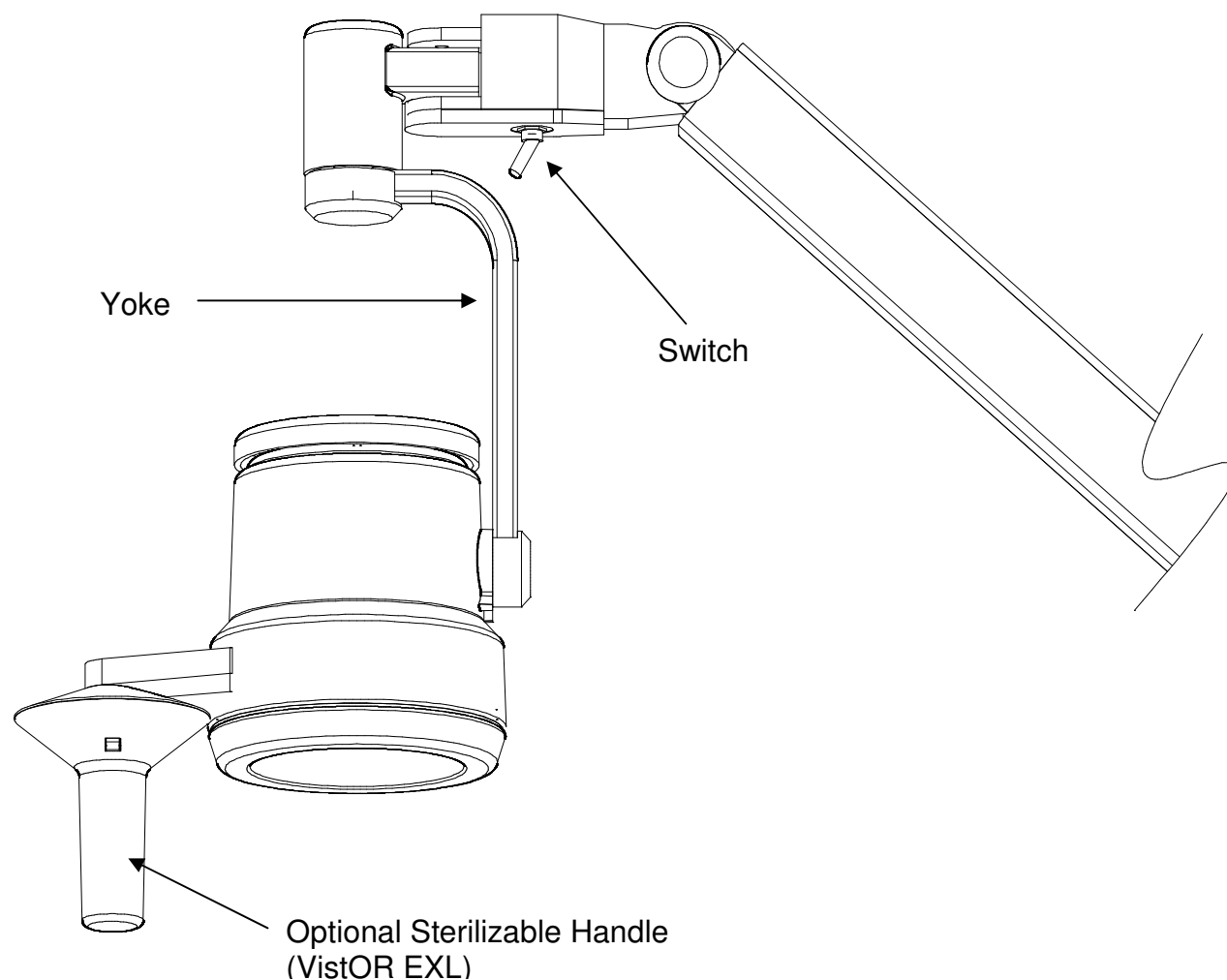


FIGURE 35: VistOR EXL Light Operation

### Section 5: Safety Instructions **Safety Tips**



Only facility authorized maintenance personnel should troubleshoot the unit. Troubleshooting by unauthorized personnel could result in personal injury and/or property damage.



Only facility authorized personnel should repair the unit. Repair by unauthorized personnel could result in personal injury and/or property damage and could void warranty.



After completing a repair of the unit, ensure the unit is in proper working order. Failure to do so could result in personal injury and/or property damage



Use only Nuvo approved replacement lamps (refer to “Lamp Replacement Instructions” on Section 6). Failure to do so will affect the operating specifications. Use of a higher wattage lamp may cause a fire hazard, resulting in personal injury and/or property damage.



Do not touch the lamp or inner glass lens directly. Body oils may significantly lower the life expectancy of these parts and cause equipment damage.



Follow the product manufacturer’s instructions. Failure to do so could result in personal injury and/or property damage.



If the unit fails any part of the preventive maintenance functional checks, repair the unit before use on any patient. Failure to do so could result in personal injury and/or property damage.



Do not use harsh cleaners, solvents, or detergents. Failure to do so could result in equipment damage.



Do not use silicone-based lubricants. Equipment damage could occur.



Turn the power off or unplug the power cord before any repairs are started. Failure to do so could result in personal injury and/or property damage.



Do not pinch any wires during installation or during any repair. Pinched wires can cause an electrical shock hazard, resulting in personal injury and/or property damage.



Do not expose the unit to excessive moisture. Failure to do so could result in personal injury and/or property damage.

### Safety Tips (continued)



**Use only Nuvo fuses if replacement is necessary (refer to “Fuse Replacement Instructions” on Section 6). Failure to do so could result in personal injury and/or property damage.**



**The VistOR PR and VistOR PRO lights come with an internal I.R. filtering system. Never operate the light with this filter system removed. Failure to do so could result in personal or patient injury.**



**The VistOR PR and VistOR PRO lights come with an internal I.R. filtering system. If the filter appears damaged in any way repair or replace immediately before use on any patient. Failure to do so could result in personal or patient injury.**

### Section 6: VistOR Maintenance

#### Lamp Replacement VistOR PR and VistOR PRO



The VistOR lights operate at high temperatures. Allow the unit or units to cool at least 30 minutes before performing any maintenance. Failure to do so could result in personal injury.



Installation and repair of this equipment should be performed by qualified persons only. Nuvo does not warranty any damage or injuries occurring as a result of improper installation.



Unplug the power cord (floor models) before lamps are replaced. Failure to do so could result in personal injury and/or property damage.

- For the VistOR PR and VistOR PRO pull off the rear housing cover from the light head as shown in figure 36.
- Remove the lamp holder assembly from the light head by pulling it by the knob.
- Grasp the bulb by its base and carefully remove it from the lamp holder assembly.
- Replace the bulb with Nuvo, Inc. parts. For the VistOR PR and VistOR PRO use light bulb P/N 0001256.
- Use the bulb's wrapping (plastic bubble sheet) to handle bulb and avoid skin contact.



Do not touch the lamp directly. Body oils may significantly lower the life expectancy of the lamp and cause equipment damage. If contact is made, clean the lamp with alcohol after installing it into the holder.

- Carefully reinstall the lamp holder assembly back into the light head. Care should be taken not to bump the lamp against any internal components.
- Reinstall the rear housing cover.

## Section 6

# Lamp Replacement VistOR PR and VistOR PRO

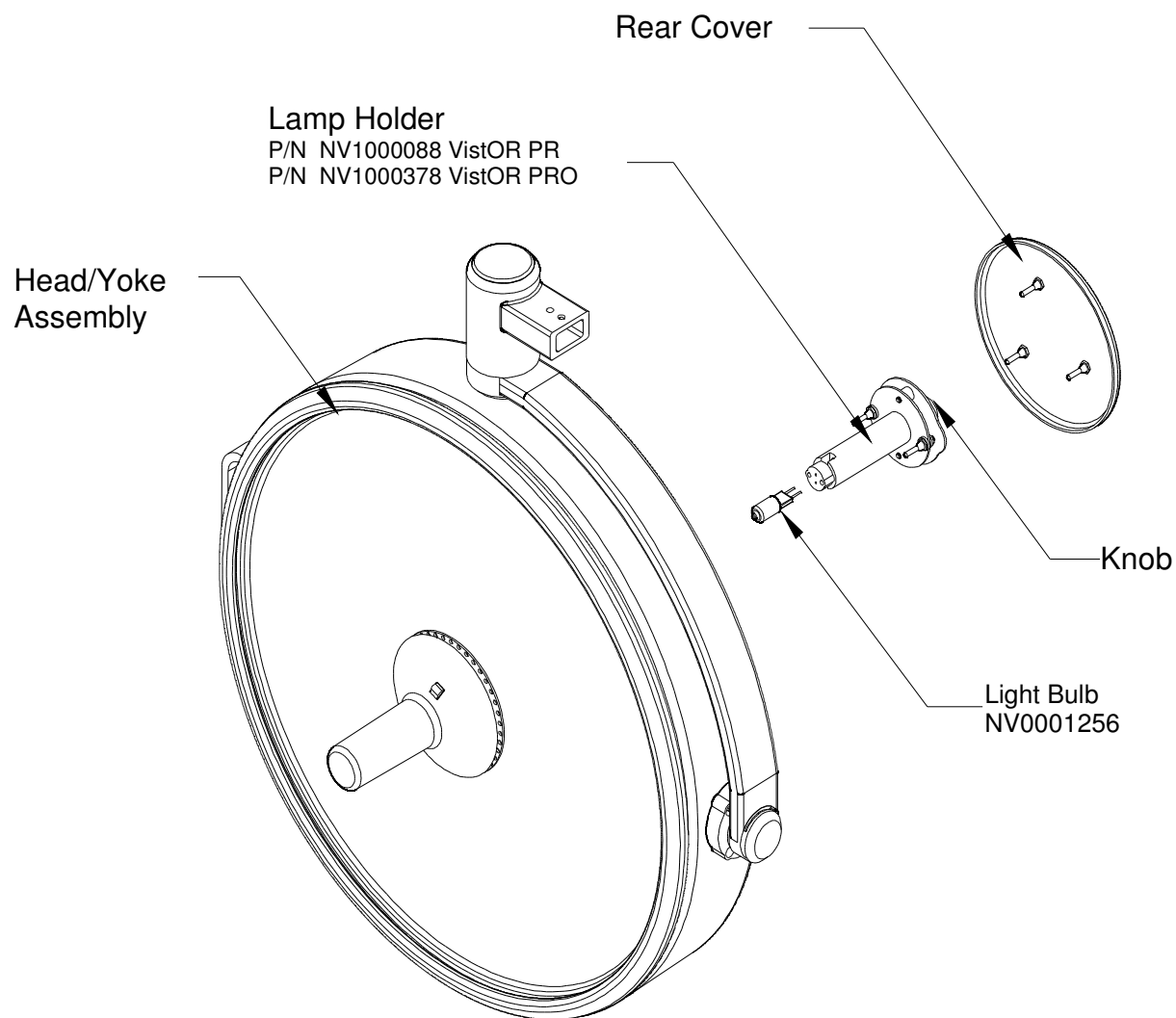


FIGURE 36: VistOR PR/VistOR PRO Lamp Replacement

**Note: The VistOR PRO Light is shown.**

### Initial Lamp Installation/Lamp Replacement VistOR EX & EXL



**The VistOR lights operate at high temperatures. Allow the unit or units to cool at least 30 minutes before performing any maintenance. Failure to do so could result in personal injury.**



**Installation and repair of this equipment should be performed by qualified persons only. Nuvo does not warranty any damage or injuries occurring as a result of improper installation.**



**Unplug the power cord (floor models) before lamps are replaced. Failure to do so could result in personal injury and/or property damage.**

- Twist the rear cover counter clockwise approximately 7 degrees to unlock the rear cover and remove it from the head as shown in figure 37.
- Remove the lamp from its package. Use a tissue or glove when handling the lamp to avoid touching the glass with your fingers. Oil from your hands will shorten the life of the lamp. If contact is made, clean the lamp with alcohol after installing it into the holder.
- Grasp the lamp by its base and carefully insert the metal pins into the ceramic socket at the end of the lamp holder. Make sure the lamp is fully seated in the lamp holder (pins will remain partially exposed).
- Insert the two metal jacks on the lamp holder into the mating plugs located in the light head. Make sure the lamp holder is fully and evenly seated. Replace the rear housing cover.
- When replacing a lamp, use Nuvo P/N NV0001257 for the VistOR EX & EXL Diagnostic/Specialty light, and use light bulb P/N NV0001717 for the VistOR O.B.



**Do not touch the lamp directly. Body oils may significantly lower the life expectancy of the lamp and cause equipment damage. If contact is made, clean the lamp with alcohol after installing it into the holder.**



# Initial Lamp Installation/Lamp Replacement VistOR EX & EXL

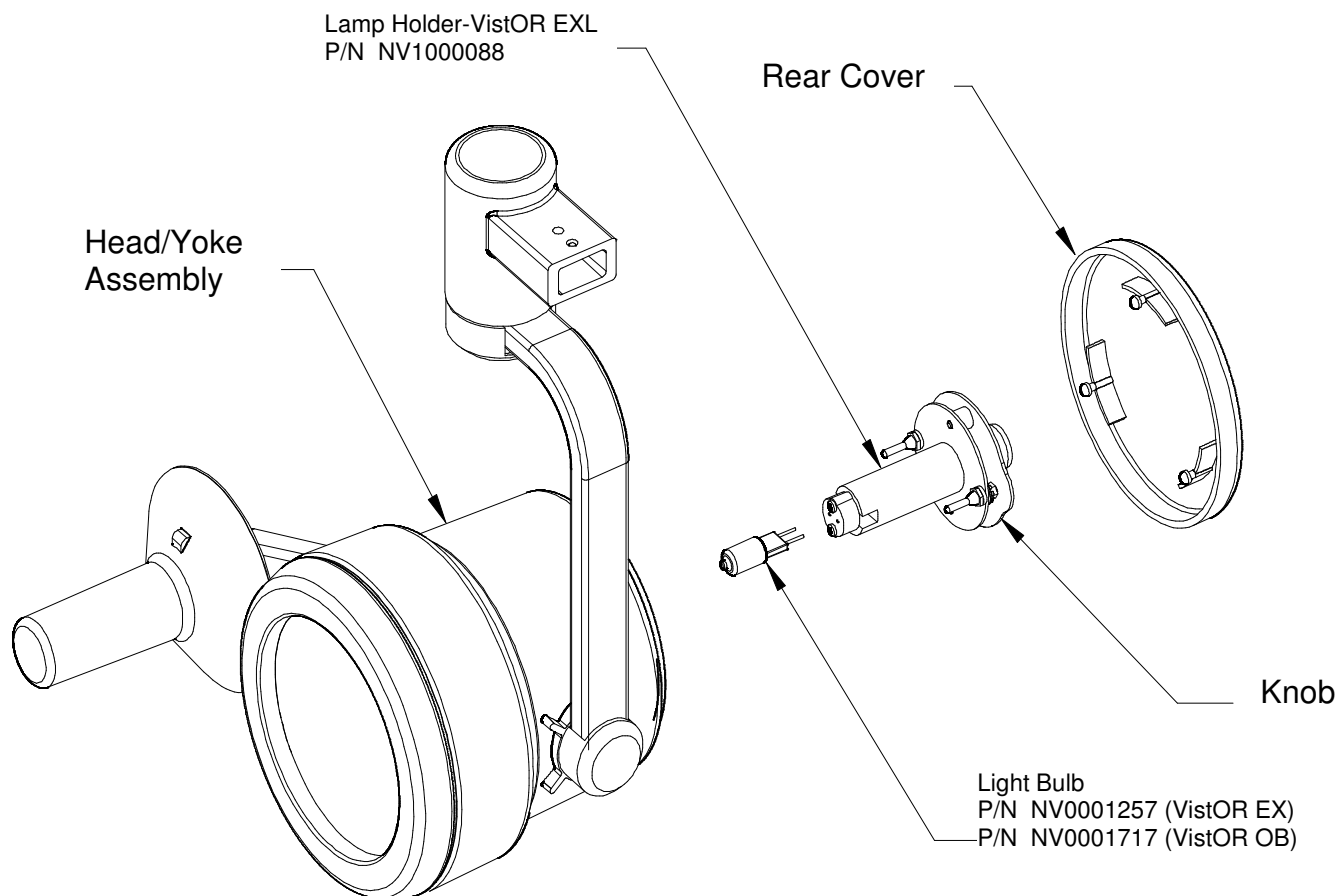


FIGURE 37: VistOR EXL Lamp Replacement

**Note: The VistOR EXL light is shown.**

### Lamp Replacement VistOR SP and VistOR SPF



The VistOR lights operate at high temperatures. Allow the unit or units to cool at least 30 minutes before performing any maintenance. Failure to do so could result in personal injury.



Installation and repair of this equipment should be performed by qualified persons only. Nuvo does not warranty any damage or injuries occurring as a result of improper installation.



**Unplug the power cord (floor models) before lamps are replaced. Failure to do so could result in personal injury and/or property damage.**

- Turn off power and allow the bulbs to cool down approximately 30 minutes.
- (Refer to figure 38 for the VistOR SP Spotlight.) Facing the back of the light, lower the housing and keep it in a horizontal position. Using a small Phillips screwdriver, loosen the screw located on the rear grille as shown. The screw cannot be removed from the grille once it is loosened; however the grill can now be separated from the housing. Separate the rear grille and housing sections by firmly grasping the grille with one hand while bracing the housing with the other hand. Carefully pull the rear grille toward you until the sections begin to separate. Continue to slowly pull the rear grille until the sliding platform slides out exposing the bulb(s). The front bulb will not be completely exposed, but there is sufficient space to remove the bulb.
- Remove the bulb by pressing the lever on the lamp holder backward, towards the socket. As the bulb begins to move upward in the socket, grasp the area behind the reflector and guide the bulb out of the lamp holder. Remove the socket from the bulb by carefully pulling the pins out of the socket.
- Replace the bulb by inserting the new bulb into the socket by pulling the lever fully forward, and carefully installing the bulb into the lamp holder.



**Handle the bulb from the outside surface only. Avoid contact of the inner reflector or glass tube with fingers. This will avoid the premature bulb failure. If contact is made, clean the bulb with alcohol after installing it into the holder.**

- Ensure that the spring clips are positioned behind the glass reflector, and push the bulb fully into the socket.
- Push the grille back into the closed position being careful not to pinch any wiring as the platform slides in. Retighten the screw on the grille and then check for proper lamp operation.



**When replacing the front bulb, use only 20VAC/150Watt quartz halogen (DDL), NuvoP/N NV0001255. When replacing the optional rear bulb, use only 21VAC/ 150Watt quartz halogen (EJA), Nuvo P/N NV0001254.**

## Section 6

# Lamp Replacement VistOR SP and VistOR SPF

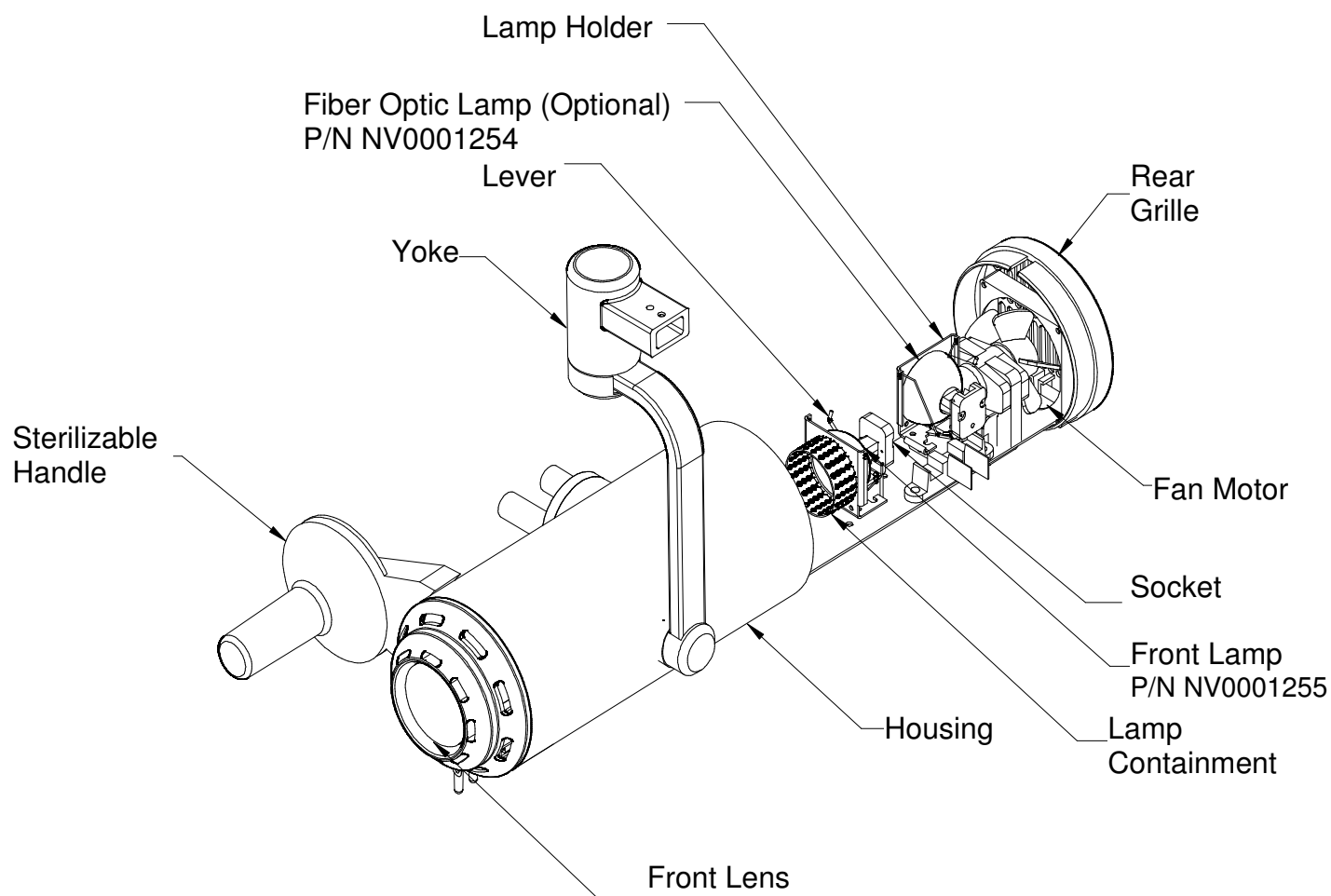


FIGURE 38: VistOR SP/SPF Lamp Replacement

## Fuse Replacement

- See figures 39 and 40 for fuse location.



**Unplug the power cord (floor models) or turn off main power before fuses are replaced. Failure to do so could result in personal injury and/or property damage.**

- Use a flat blade screwdriver, turn the fuse holder counter-clockwise ¼ turn. Remove the spring-loaded holder.
- Replace the blown/broken fuses with Nuvo approved replacement fuses.



**Use only Nuvo fuses if replacement is necessary. Failure to do so could result in personal injury and/or property damage.**



**To reduce the risk of fire, replace the fuse only with the same type and electrical rating as indicated on the attached table or on the fuse replacement label.**



**Note: Do not use light should it continue to blow fuses. Contact the factory immediately.**

	INPUT VOLTAGE	AMPERAGE RATING	P/N
VistOR PR, VistOR PRO (All mounting styles)	115/120 VAC 230/240 VAC 100 VAC	1.50 A, 250V 0.75A, 250 V 1.50 A, 250V	NV0001314 NV0001460 NV0001314
VistOR SP Spotlight Standard	115/120 VAC 230/240 VAC 100 VAC	2.00 A, 250V 1.00 A, 250 V 2.00 A, 250V	NV0001396 NV0001461 NV0001396
VistOR SPF Spot Light (All mounting styles)	115/120 VAC 230/240 VAC	3.50 A, 250V 1.80 A, 250 V	NV0001347 NV0001462
VistOR EX & EXL (All mounting styles)	115/120 VAC 230/240 VAC 100 VAC	1.50 A, 250V 0.75 A, 250 V 1.50 A, 250V	NV0001314 NV0001460 NV0001314

## Fuse Replacement

P/N NV0001314, 100 VAC & 110VAC  
(VistOR PR/PRO & VistOR EX/EXL)  
P/N NV0001460, 220VAC  
(VistOR PR/PRO & VistOR EX/EXL)  
P/N NV0001396, 110VAC  
(VistOR SP)  
P/N NV0001461, 220VAC  
(VistOR SP)  
P/N NV 0001396, 100VAC  
(VistOR SP)

Fuse Replacement  
Warning Label

Transformer  
Housing

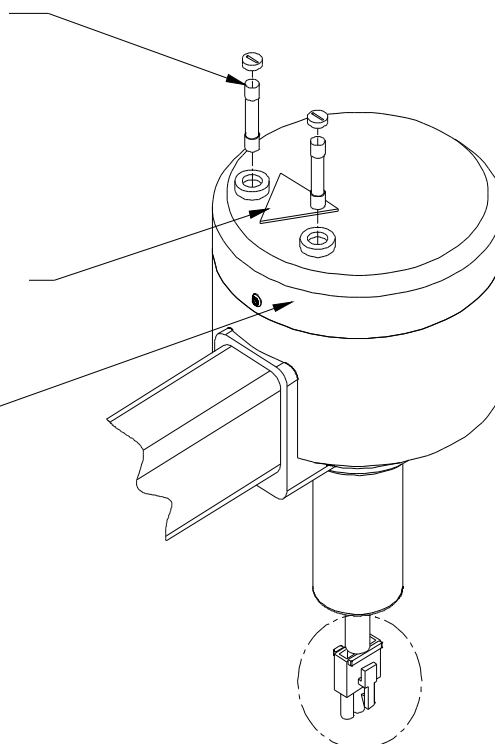


FIGURE 39: Fuse Replacement

Fuse  
P/N NV0001347, 115/120 VAC  
P/N NV0001462, 230/240 VAC

Fuse Replacement  
Warning Label

Transformer  
Housing

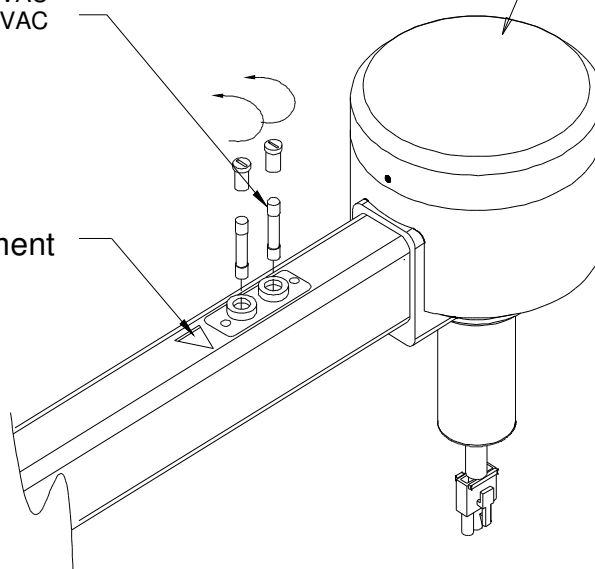


FIGURE 40: VistOR SPF Fuse Replacement

## Arm Adjustment

**! The arm has been pre-adjusted by the factory. Should further adjustment be necessary, utilize the following procedure.**

- Remove the cover over the spring tension adjustment slot as shown on figure 41.
- Move the arm vertically until the adjustment nut is visible in the slot.
- Using the adjustment wrench provided, turn the nut in the direction of the arrow as shown in figure 41 to increase the arm tension, or turn the nut in the opposite direction to decrease the tension until the required adjustment is reached.

**! Do not over tighten the nut. Doing so could result in equipment damage.**

- Replace the spring tension adjustment slot cover.
- After adjusting the spring tension, fine adjustment can be achieved by inserting the supplied hex key into the friction adjustment hole shown. Turn the hex key slightly until the desired friction is obtained.

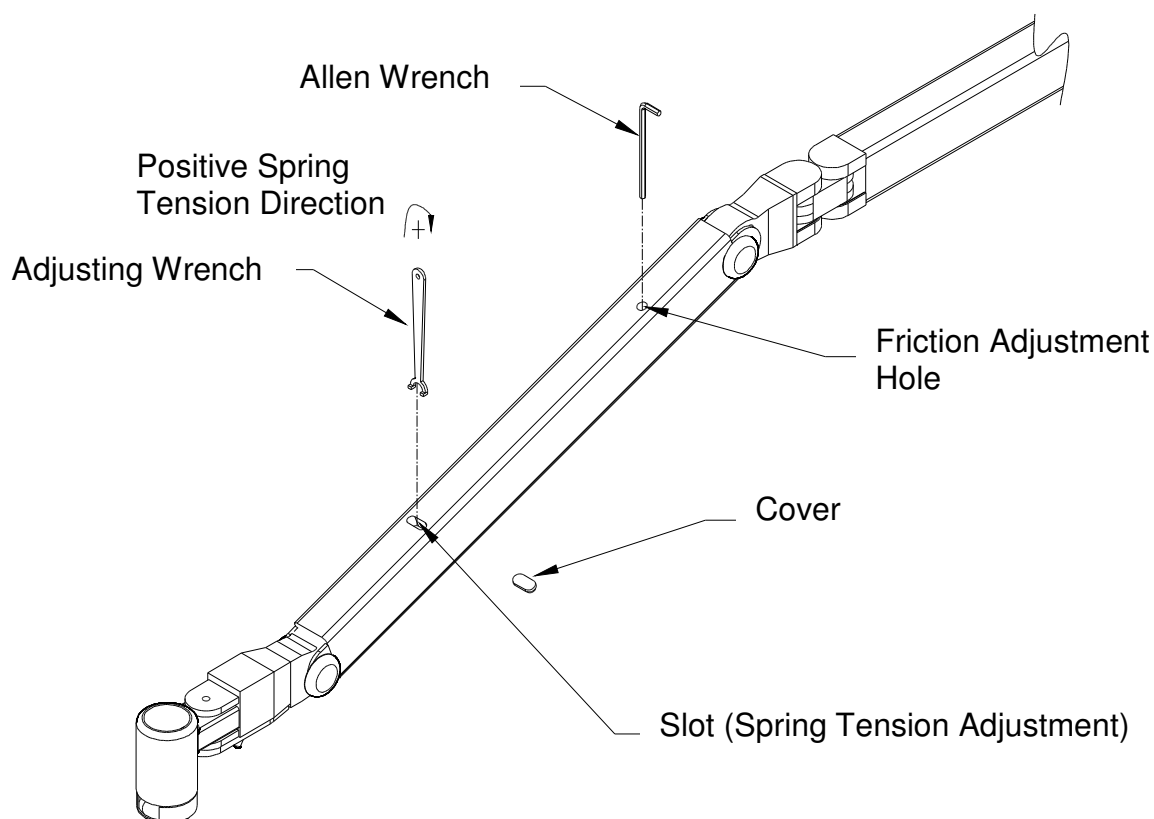


FIGURE 41: Arm Adjustment

## Head/Yoke Adjustment



**The head/yoke has been pre-adjusted by the factory. Should further adjustment be necessary, utilize the following procedure.**

- Find the yoke cap for your specific light as shown in a heavy circle below (see figure 42).
- Cradle the sides of the cap with your thumb and index finger. Squeeze and then pull out the yoke cap to expose the nut, or gently pry off with a flat bladed screwdriver.
- Use a wrench or pliers to tighten the nut as shown. Add thread-locking liquid (e.g. Loctite) around the inside of the nut if the nut continues to loosen during yoke rotation.

**NOTE: Do not over tighten the nut. Doing so could result in equipment damage.**

- Push the yoke cap back into its original position.

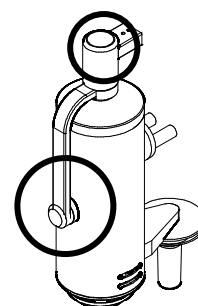
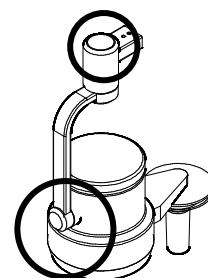
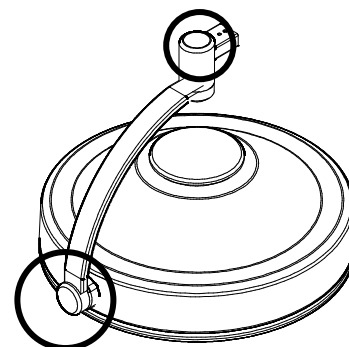
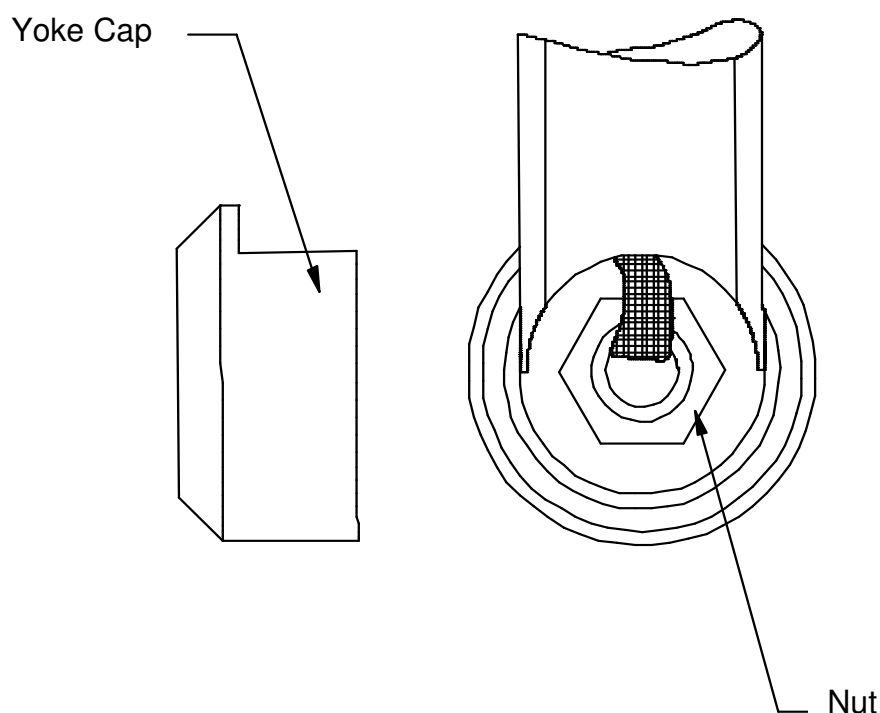


FIGURE 42: Head / Yoke Adjustment

### Handle Sterilization

- Remove sterilizable handle by pressing the button near the base of the handle and pulling the handle off the handle post (see figure 43).
- Sterilize the handle utilizing steam sterilization of minimum 250° Fahrenheit for a minimum of 30 minutes in compliance with AAMI-SSSA-1988: Good Hospital Practices, Steam Sterilization and Sterility Assurance, or equivalent method.

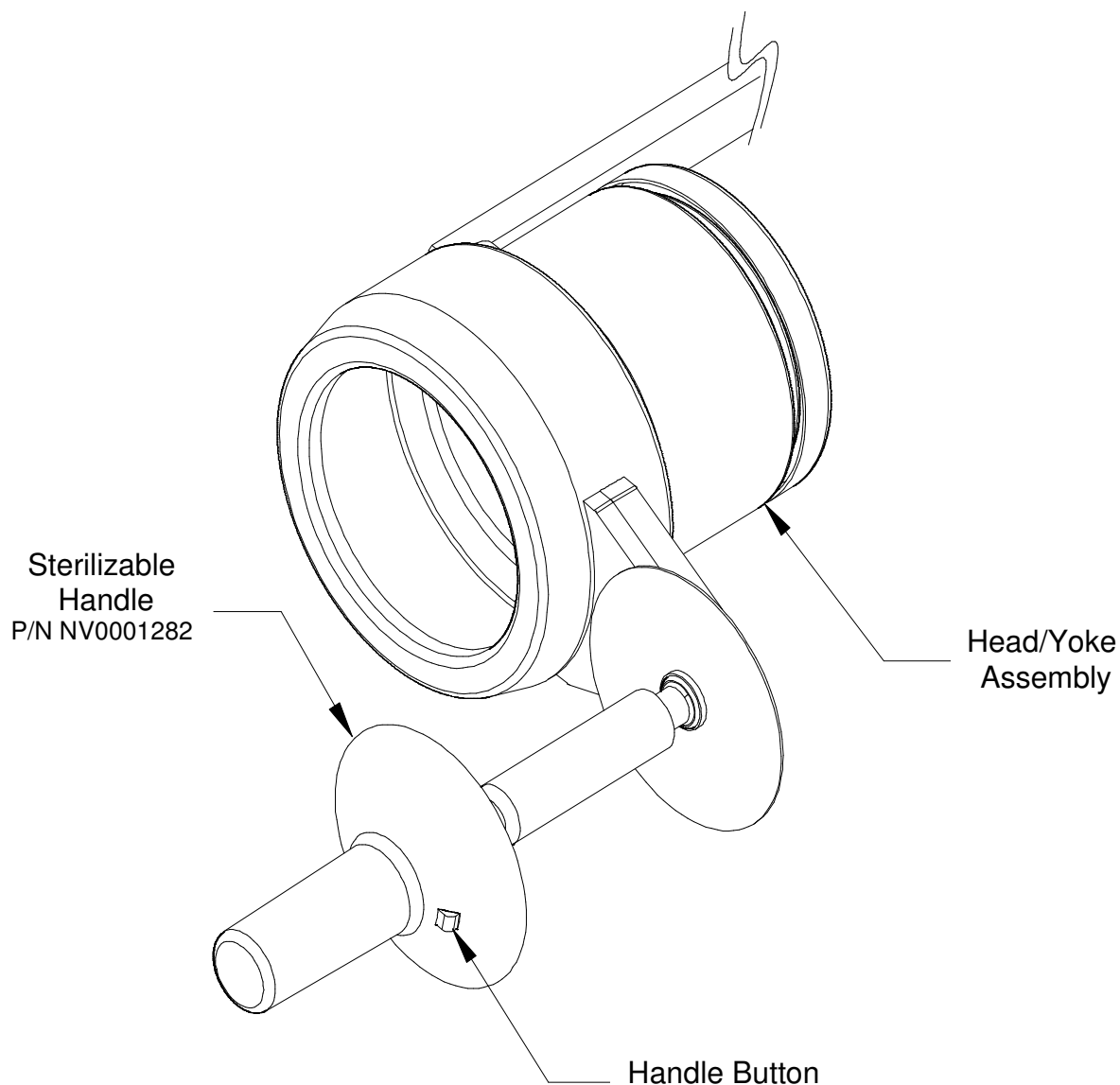


FIGURE 43: Handle Sterilization

**Note: The VistOR EXL Exam/Diagnosis light is shown.**



### Cleaning Instructions



**Units operate at high temperatures. Allow the unit to cool at least 30 minutes before performing any maintenance. Failure to do so could result in personal injury.**

- Clean the lens using glass/plastic cleaner or mild soap and water mix. It is very important to use a clean, soft cloth to avoid any scratching of the front lens. Never spray the cleaning fluid directly onto the lens surface, but instead spray into clean cloth and then wipe the lens.
- Clean the light housing and arm(s) using mild soap and water mixture. Apply this mixture to a clean cloth and wipe down the light-head and arm. Never spray the cleaning fluid directly onto the light head or arm.



**Do not use harsh cleaners, solvents, or detergents. Failure to do so could result in equipment damage.**



**The VistOR PRO front lens is supplied with a protective hard coat to resist scratching. Never use abrasive cleaners on front lens. Failure to do so could result in equipment damage.**



**Do not expose the unit to excessive moisture. Failure to do so could result in personal injury and/or property damage.**

## Maintenance Schedule

Function	Procedure
Light bulb/Lamp Holder	Ensure that light bulb is seated properly in socket. Examine socket and wiring for signs of heat degradation. Inspect wiring for signs of chafing. Replace any damaged parts.
Glass lens/Reflector	Check glass lens and reflector to assure there are no chips, cracks, or other damage. Do not use equipment if glass parts are damaged. Replace damaged parts immediately.
Bolts and nuts	Check to see that all mounting and attachment screws, washers, etc. are in place and securely tightened. Replace any missing screws and re-tighten as required.
Casters	Ensure that casters are seated properly on the base assembly. Examine the base for any damage.
Moving joints/Adjustments	Check to make sure all moving joints function properly along the mounting system and head and arm system. If the articulating arm does not position properly (drifts from original position) refer to arm adjustment on figure 41, page 66. If this does not solve the problem contact customer service as the unit may require factory repair.
Overall appearance	Check the general aesthetics. Units should be kept clean and dust free. Clean and dust as necessary.



**Note:** Maintenance schedules vary for each light depending on usage and operating instructions. An annual inspection of the equipment is recommended at a minimum.



**Note:** Nuvo, Inc. recommends that the maintenance records for this equipment be kept on file at the health care facility.

## Section 7: Troubleshooting

### General Troubleshooting



**Warning:** Disconnect the light from the power supply before attempting any of the electrical checks mentioned below.

Problem	Cause	Remedy
Light will not turn on or stay on	<ol style="list-style-type: none"> <li>1. Power to unit is off (not plugged in).</li> <li>2. Fuse is blown.</li> <li>3. Bulb has failed.</li> <li>4. Bulb is damaged or burned out.</li> <li>5. Bulb is not seated in socket correctly.</li> <li>6. Incorrect bulb installed.</li> <li>7. Exposed wires are cut or damage.</li> <li>8. Wire not connected correctly during installation.</li> <li>9. Wire connections made during installation have disconnected.</li> <li>10. No input power to light unit.</li> <li>11. Disconnected wires at switch or transformer.</li> <li>12. Socket is damaged or faulty.</li> <li>13. No power output from transformer when input power to transformer is measured.</li> </ol>	<ol style="list-style-type: none"> <li>1. Turn on power (plug in unit).</li> <li>2. Replace fuse (check for correct fuse).</li> <li>3. Replace bulb (check for correct bulb).</li> <li>4. Replace bulb (check for correct bulb).</li> <li>5. Insure that bulb is fully seated in socket</li> <li>6. Install correct bulb.</li> <li>7. Replace wire assembly.</li> <li>8. Check all wiring connections.</li> <li>9. Reconnect wires per the instructions.</li> <li>10. Check power input connections and circuit breakers.</li> <li>11. Reconnect wires.</li> <li>12. Replace socket/lamp power.</li> <li>13. Replace transformer.</li> </ol>
	<u>VistOR SP Model Only</u> <ol style="list-style-type: none"> <li>14. Disconnected wires at lamp holder.</li> <li>15. Bulb switch onside of light is in "Off" position (Fiber Optic models).</li> </ol>	<ol style="list-style-type: none"> <li>14. Reconnect wires.</li> <li>15. Turn switch to "On" position.</li> </ol>
Bulb burns out quickly**	<ol style="list-style-type: none"> <li>1. Incorrect bulb installed in light head.</li> <li>2. Supply voltage does not correspond to ratings label.</li> <li>3. Transformer failure.</li> <li>4. The light head is mounted on the wrong arm.</li> </ol>	<ol style="list-style-type: none"> <li>1. Install correct bulb.</li> <li>2. Check supply circuit to which light was installed to verify correct voltage.</li> <li>3. Replace faulty transformer.</li> <li>4. Remount the light head on the correct arm.</li> </ol>
Light does not maintain its position vertically	<ol style="list-style-type: none"> <li>1. Spring tension is incorrect.</li> <li>2. Additional equipment was added to unit.</li> </ol>	<ol style="list-style-type: none"> <li>1. Adjust spring (see arm adjustment page 66).</li> <li>2. Remove additional equipment from arm.</li> </ol>
Light head will not rotate at yoke interface	<ol style="list-style-type: none"> <li>1. Light head is against internal stop.</li> </ol>	<ol style="list-style-type: none"> <li>1. Rotate head in opposite direction.</li> </ol>
Arm cannot be moved any lower	<ol style="list-style-type: none"> <li>1. Arm is against internal stop.</li> </ol>	<ol style="list-style-type: none"> <li>1. Rotate arm in opposite direction.</li> </ol>
Arm cannot be raised any higher	<ol style="list-style-type: none"> <li>1. Arm is against internal stop.</li> </ol>	<ol style="list-style-type: none"> <li>1. Rotate arm in opposite direction.</li> </ol>
Arm stopped moving horizontally	<ol style="list-style-type: none"> <li>1. Arm is against internal stop.</li> </ol>	<ol style="list-style-type: none"> <li>1. Rotate arm in opposite direction.</li> </ol>
Caster/casters cannot be reinstalled	<ol style="list-style-type: none"> <li>1. Floor base has been damaged.</li> </ol>	<ol style="list-style-type: none"> <li>1. Contact Customer Service or Field Representative.</li> </ol>

## General Troubleshooting (continued)

Problem	Cause	Remedy
<u>VistOR SP Models Only</u> Fan will not turn on	1. Fan blades are obstructed by foreign object. 2. Fan motor wires are disconnected. 3. Fan motor has failed. 4. Fan operates but bulb will not turn on.	1. Remove the foreign object/objects. 2. Re-connect the fan motor wires. 3. Replace the fan motor. 4. Thermal fuse has blown. Replace thermal fuse.
Light does not maintain its position horizontally	1. Mounting bracket is not level. 2. Hex nuts on pivot bolts are loose.	1. Adjust or shim as necessary. 2. Remove plastic caps and adjust as necessary.
Upright rotates in floor stand	1. Upright set screw is loose. 2. Upright is not fully seated on anti-rotation pin.	1. Securely tighten set screw. 2. Reinstall upright. Ensure the upright fully seats on the anti-rotation pin seats.
Light output is irregular in shape or intensity	1. Incorrect bulb is installed in light. 2. Bulb is not seated in its socket correctly. 3. Input voltage does not correspond to rating label. 4. The light head is not mounted on the proper arm (Combo models).	1. Install correct bulb. 2. Push bulb fully into the socket. 3. Check circuit to which light was installed. 4. Remount light head on the correct arm.
	<u>VistOR SP Models Only</u> 5. Lamp holder is bent or mounting bolts are loose causing light to focus away from the center of lens. 6. Sliding platform and rear grille are not fully seated in the light head housing. 7. Dimmer and spot size controls are out of adjustment.	5. Straighten lamp holder and securely tighten the mounting bolts. 6. Slide the grille into place and tighten the retaining screw. 7. Adjust controls to desired output.



**\*\*Note:** Rated bulb life is the average published by bulb manufacturers. Actual bulb life varies dependant upon bulb manufacturer and/or operating conditions.

## Section 8

### Section 8: Exploded Views and Parts List VistOR PR/PRO and VistOR EX/EXL Electric Schematic

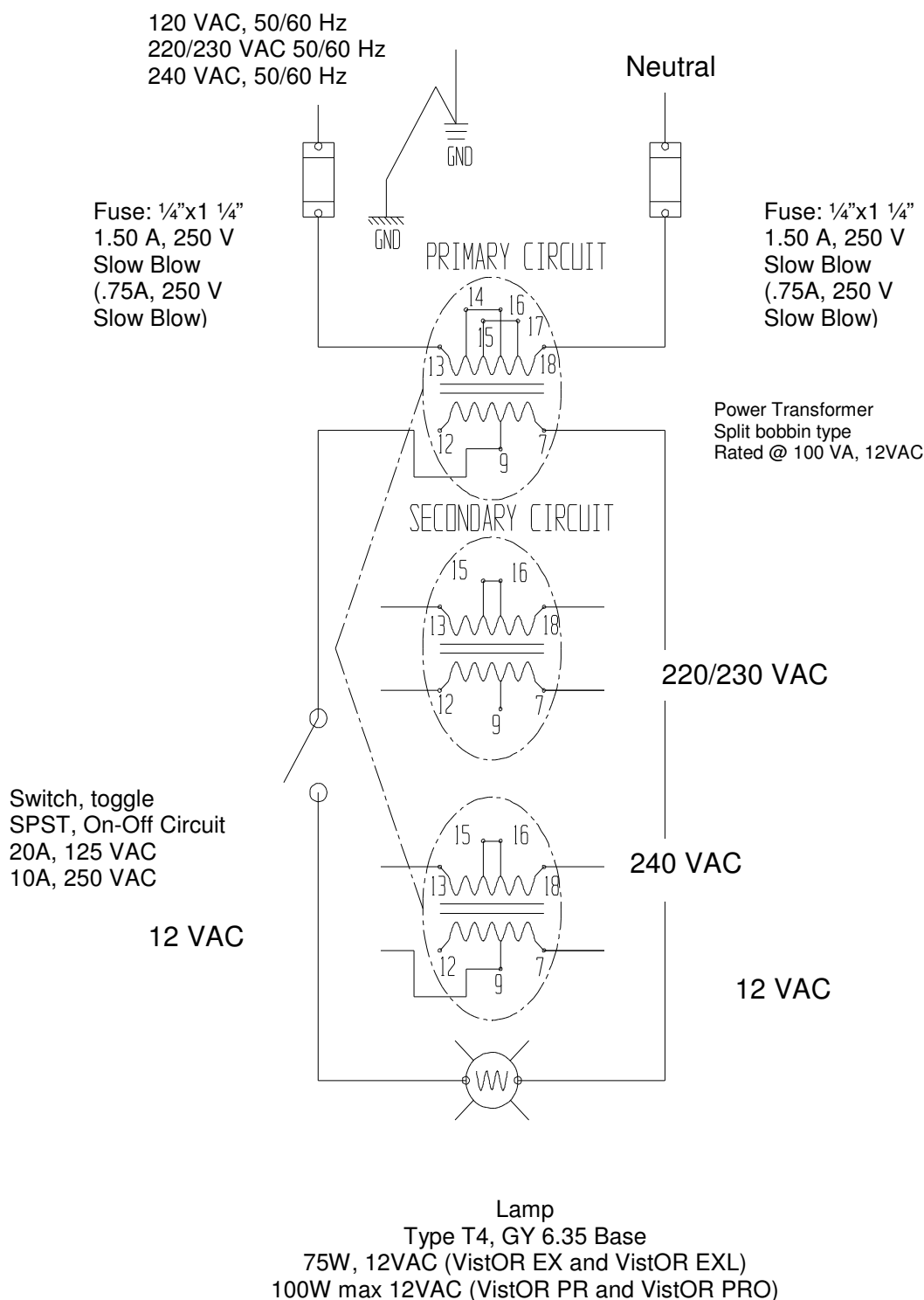


FIGURE 44: Electric Schematic for VistOR PR/PRO and VistOR EX, 120, 220/230, & 240 VAC

## Section 8

# VistOR PR/PRO & VistOR EX/EXL Electric Schematic 100 VAC

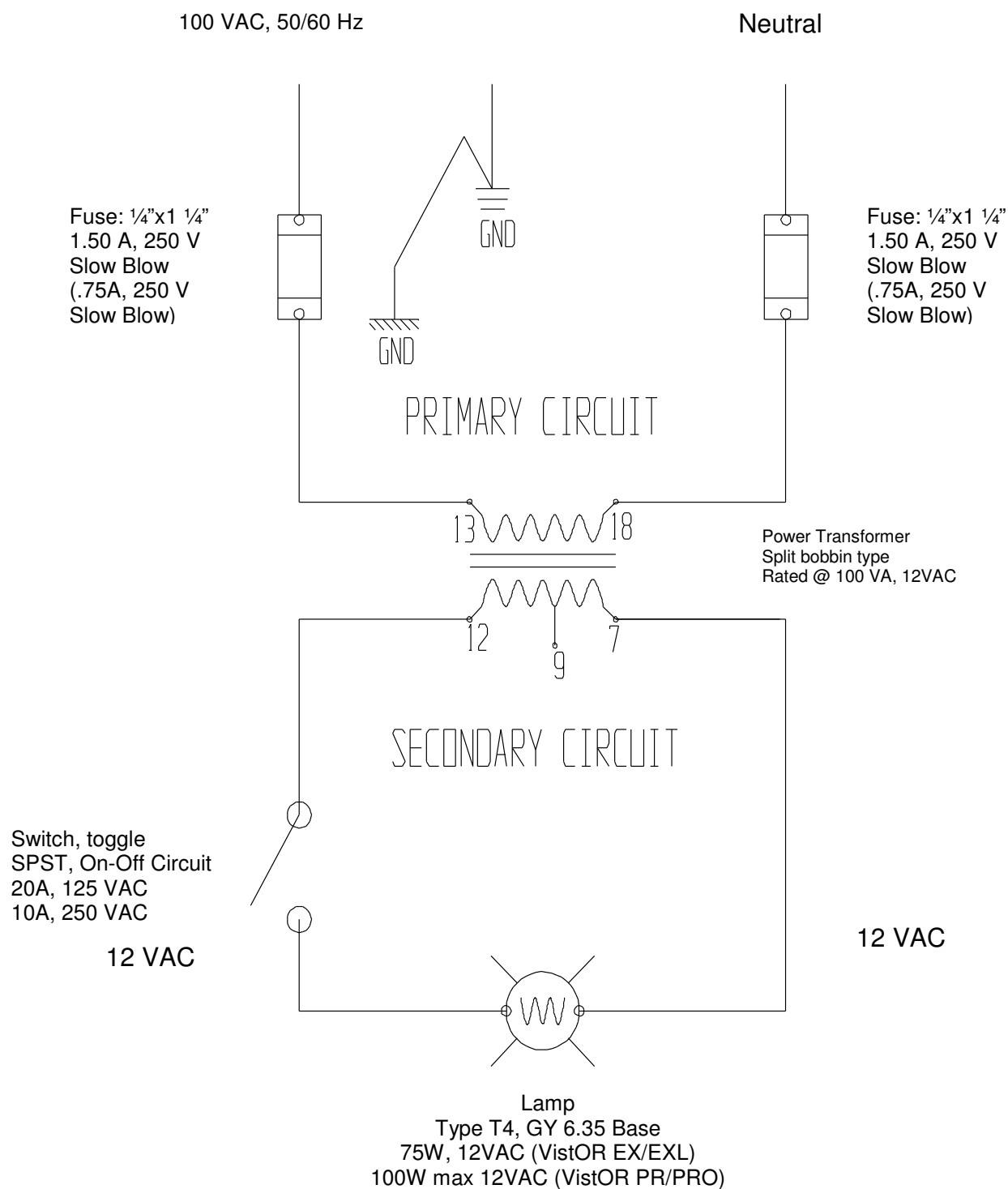


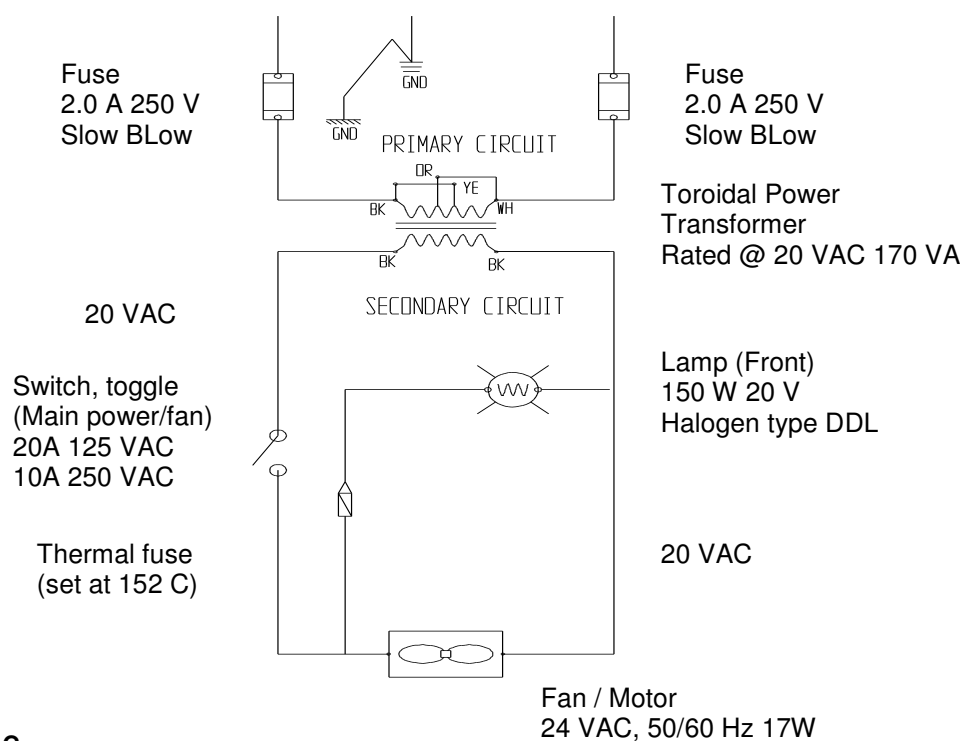
FIGURE 45: Electric Schematic for VistOR PR/PRO & VistOR EX/EXL, 100 VAC

## VistOR SP Electric Schematic

VistOR SP 120 VAC

115/120 VAC 50/60 Hz

Neutral



VistOR SP 230 VAC

230/240 VAC 50/60 Hz

Neutral

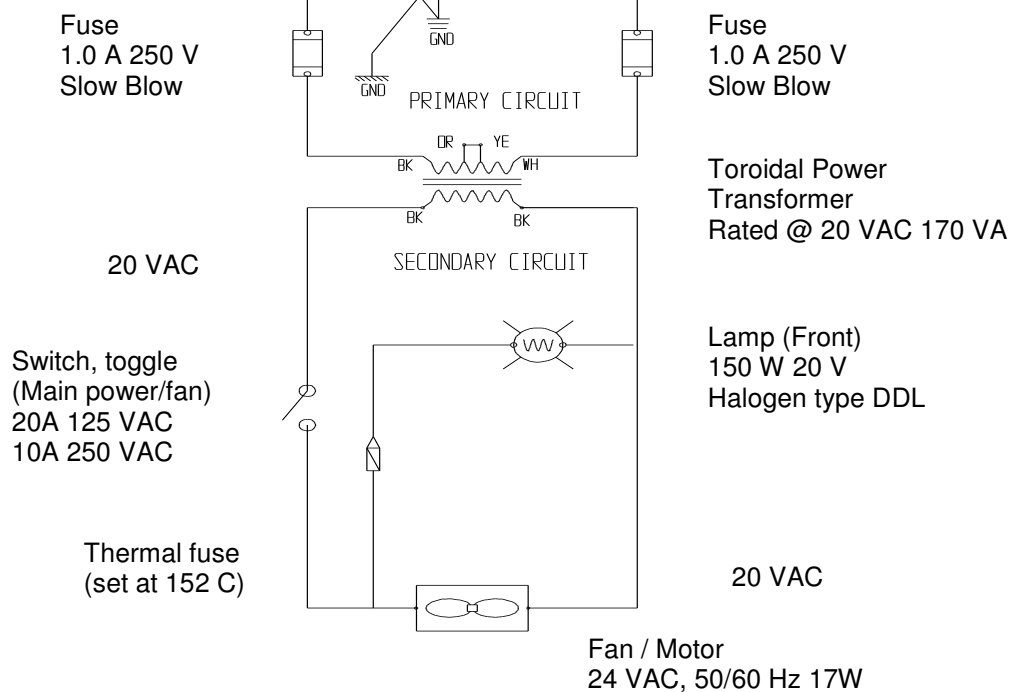


FIGURE 46: Electric Schematic for VistOR SP, 115/120 VAC & 230 VAC

## VistOR SP Electric Schematic 100 VAC

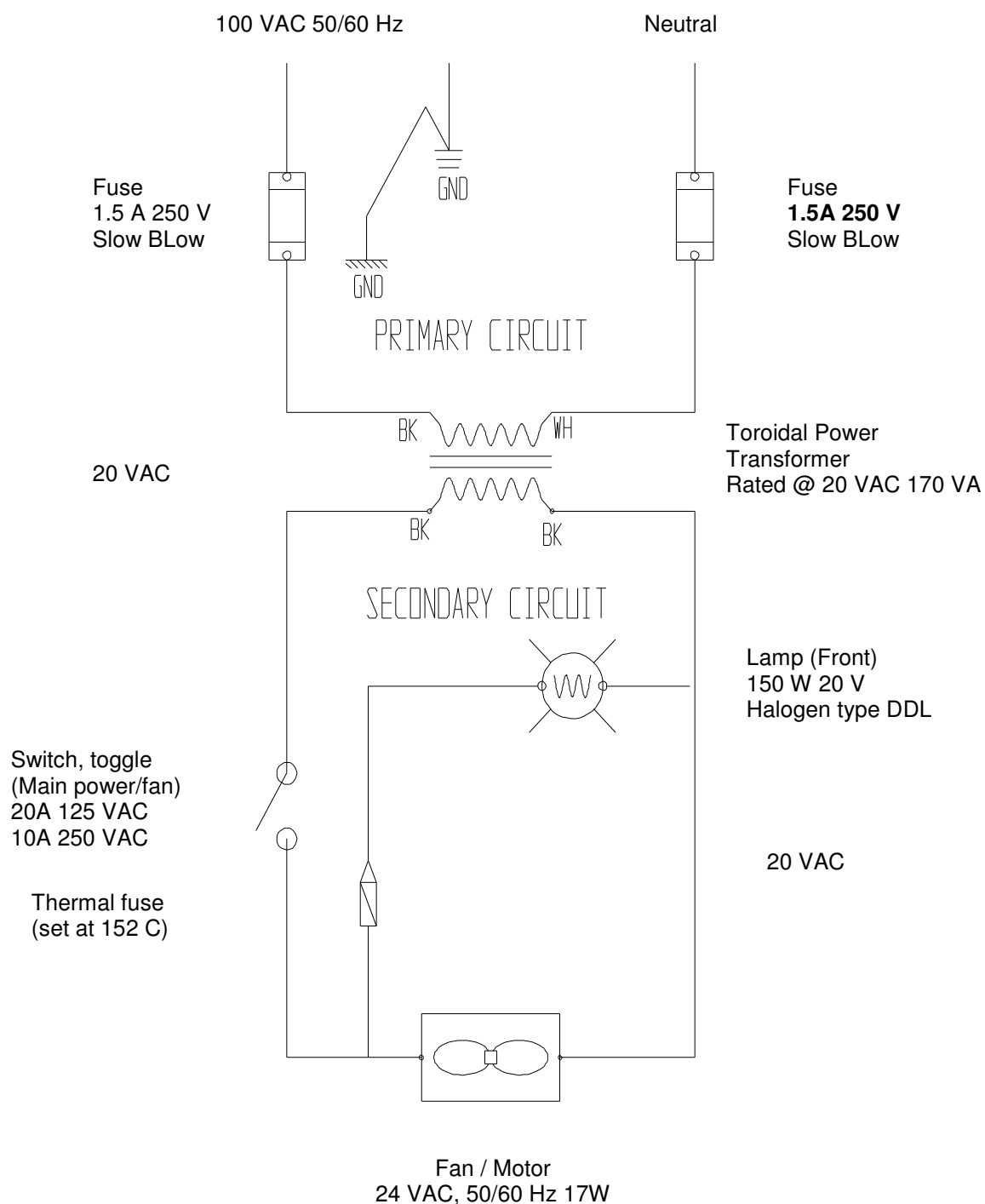


FIGURE 47: Electric Schematic for VistOR SP 100 VAC



## VistOR SPF Electric Schematic 115/120 VAC

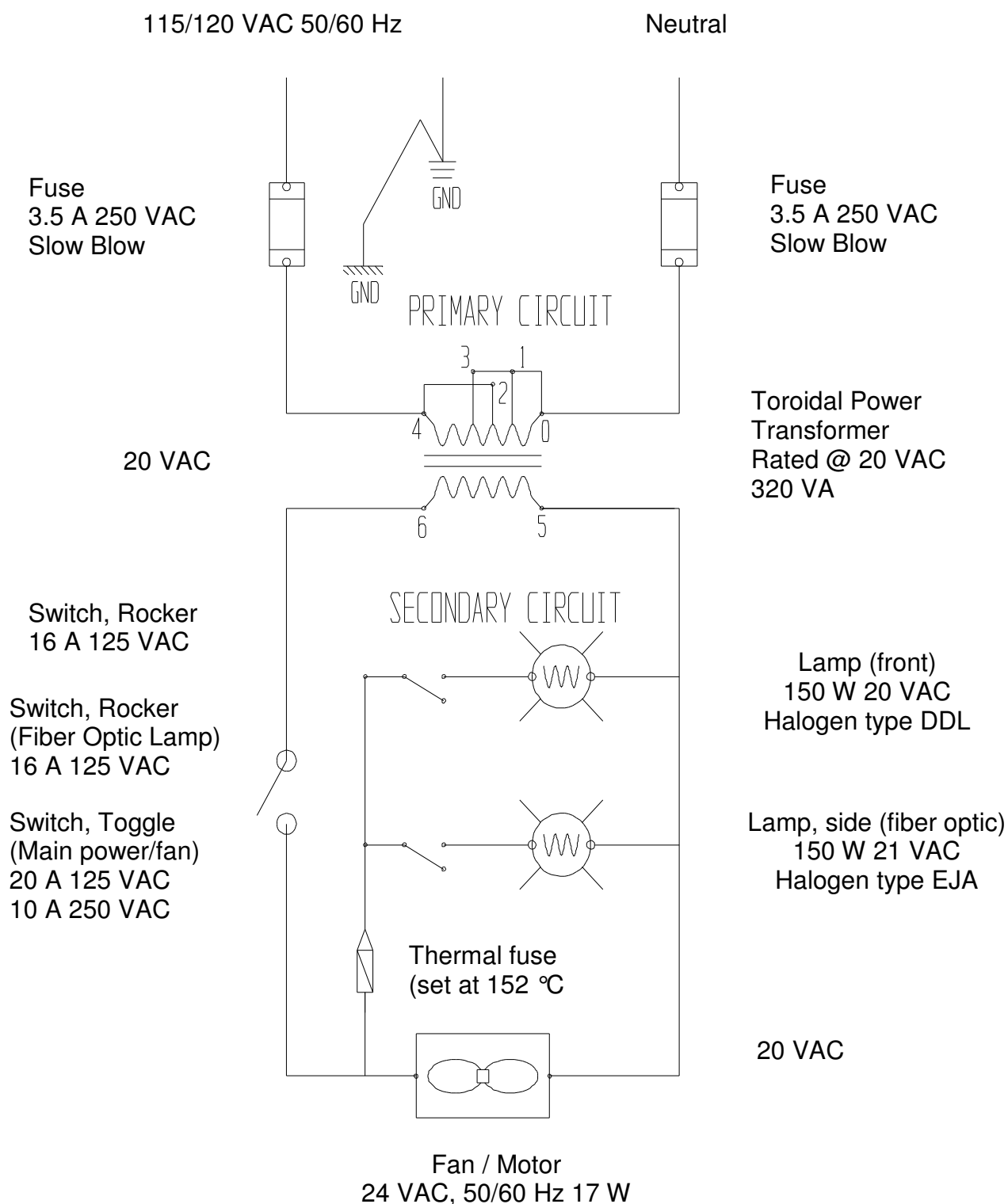


FIGURE 48: Electric Schematic for VistOR SPF 115/120 VAC

## VistOR SPF Electric Schematic 220/240 VAC

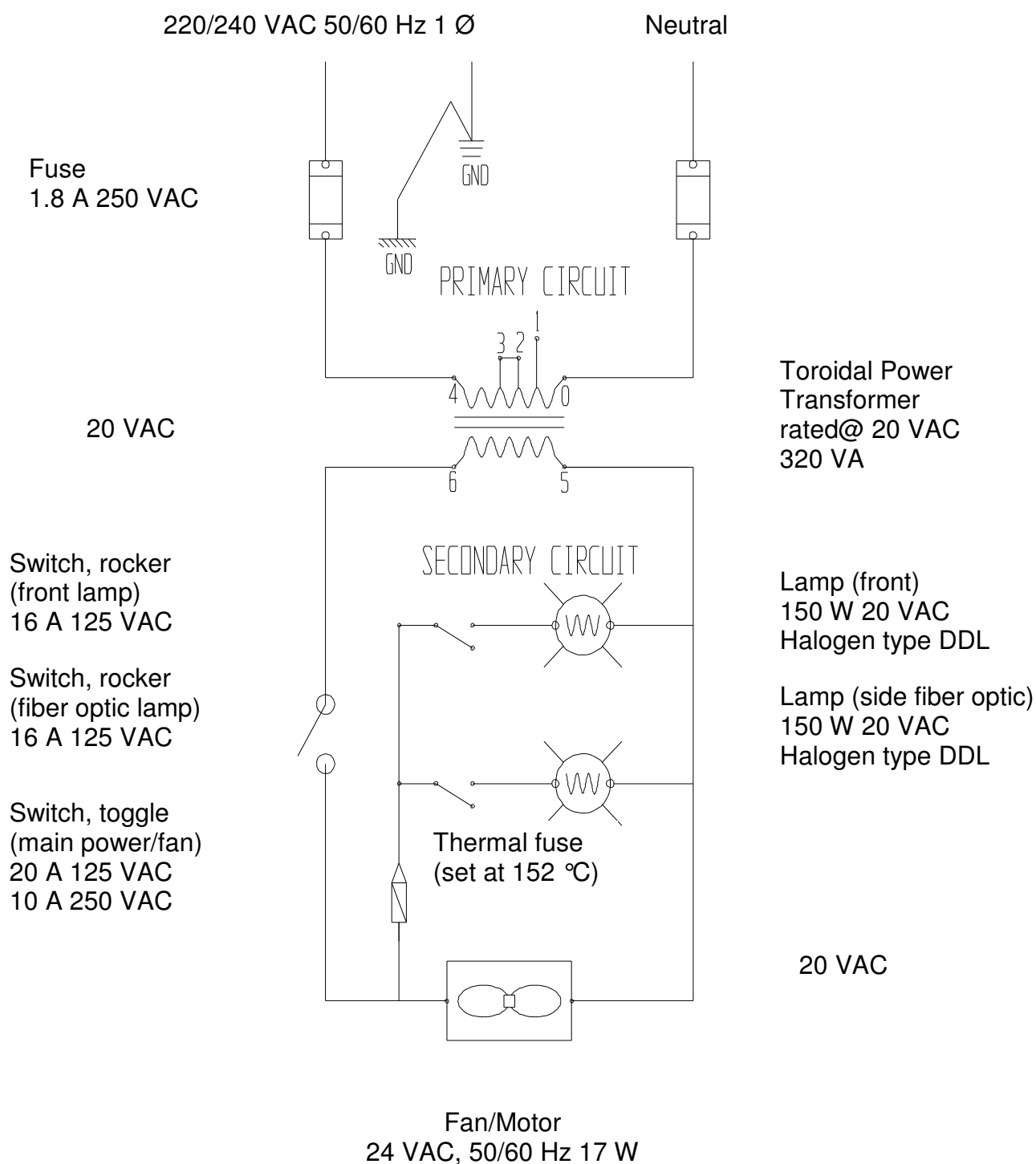


FIGURE 49: Electric Schematic for VistOR SPF 220/240 VAC

# VistOR PR Exploded View Light Head Assembly

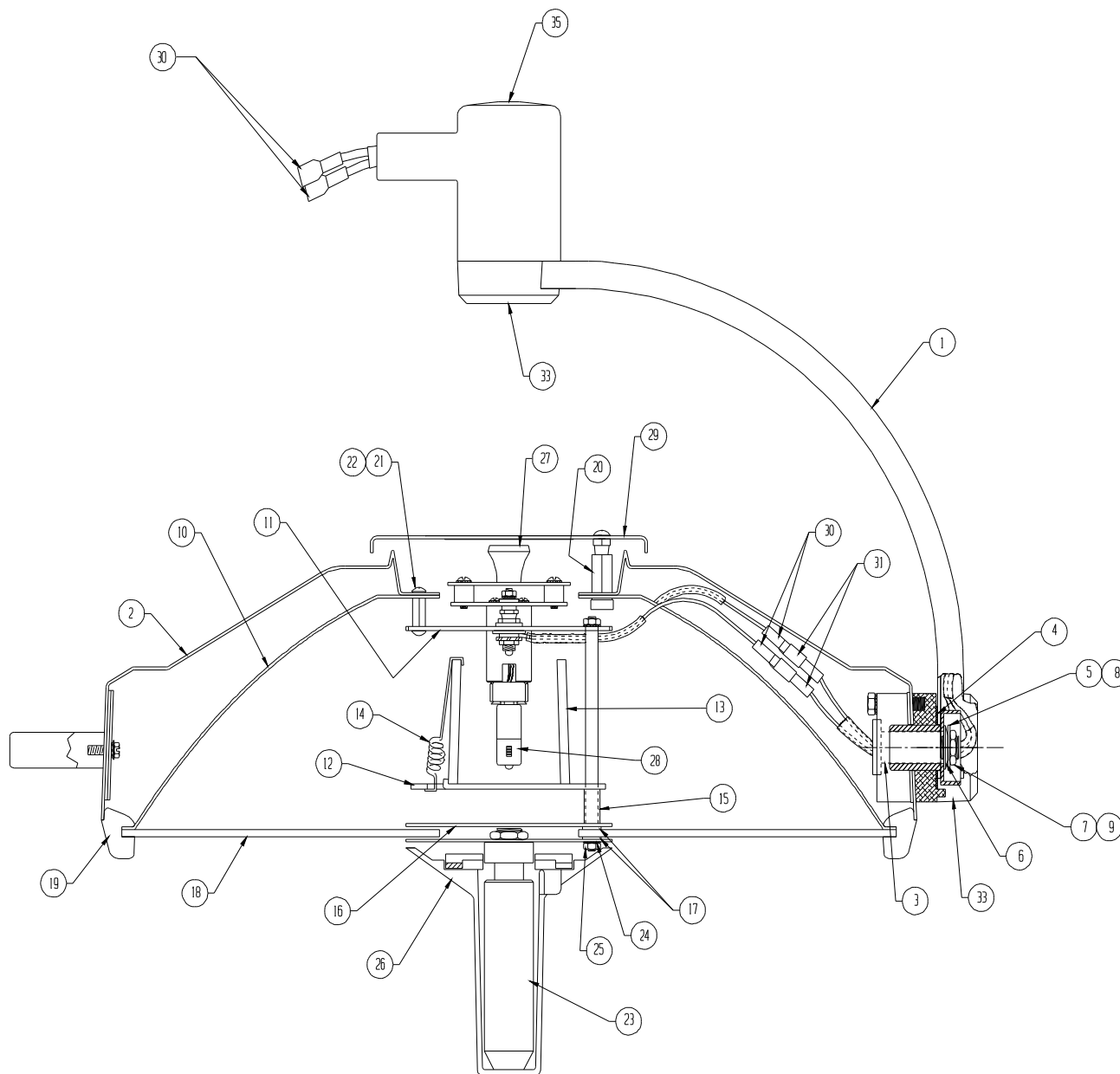


FIGURE 50: VistOR PR Light Head Assembly

## VistOR PR Light Head Assembly Part's List – P/N 1000087

1	0001283	CAP, DOME, WHITE	35
			34
2	1001126	CAP, YOKE, LARGE, WHITE	33
			32
2	0001323	TERMINAL, 1/4" Q.C. 14GA, MALE	31
4	0001322	TERMINAL, 1/4" Q.C. 14GA, FEMALE	30
1	1000090	COVER SUB-ASSY, REAR	29
1	0001256	BULB, QUARTZ HALOGEN, BI-PIN, 90W	28
1	1000088	HOLDER, LAMP SUB-ASSY	27
1	0001282	HANDLE, STERILIZABLE, NO LOGO, WHITE	26
3	0001130	NUT, HEX, #10-32, BLACK OXIDE	25
3	0001325	WASHER, #10 EXTERNAL TOOTH, LOCK	24
1	1000091	HANDLE MOUNT SUB-ASSY	23
3	0001057	WASHER, #6 EXTERNAL TOOTH, LOCK	22
3	0001275	SCREW, 6/32 x 1/4 PHILLIPS, S/S	21
3	1001167	JACK, BANANA, 1.03L, 1/4-28	20
1	1001143	EDGE EXTRUSION	19
1	1001145	DIFFUSER, ACRYLIC	18
6	0001279	WASHER, .375 X .201 X .032, SILICONE	17
1	1001138	PLATE, WINDOW SUPPORT	16
3	0001333	SPACER, #10 x 5/16OD x 3/4L	15
3	1001824	SPRING, GLASS CYLINDER	14
1	1001808	GLASS CYLINDER (I.R. FILTER)	13
1	1001137	PLATE, GLASS SUPPORT	12
1	1000089	MAIN SUPPORT PLATE SUB-ASSY	11
1	1000115	REFLECTOR SUB-ASSY	10
A/R	0001027	ADHESIVE, ANAEROBIC SEALANT	9
A/R	0001226	LUBRICANT	8
1	0001269	NUT, HEX, 7/16-20	7
1	0001264	WASHER, BELLEVILLE SPRING	6
1	0001268	WASHER, .815 OD x .440 x .032	5
1	0001267	WASHER, 1.75 OD x .828 ID x .032	4
1	1001130	PIVOT, LOWER YOKE	3
1	1000099	HOUSING SUB-ASSY	2
1	1000149	YOKE / CONNECTOR SUB-ASSY	1
QTY.	PART NO.	DESCRIPTION	ITEM

BILL OF MATERIALS

FIGURE 51: VistOR PR Light Head Assembly, Bill of Materials

# VistOR PRO Exploded View Light Head Assembly

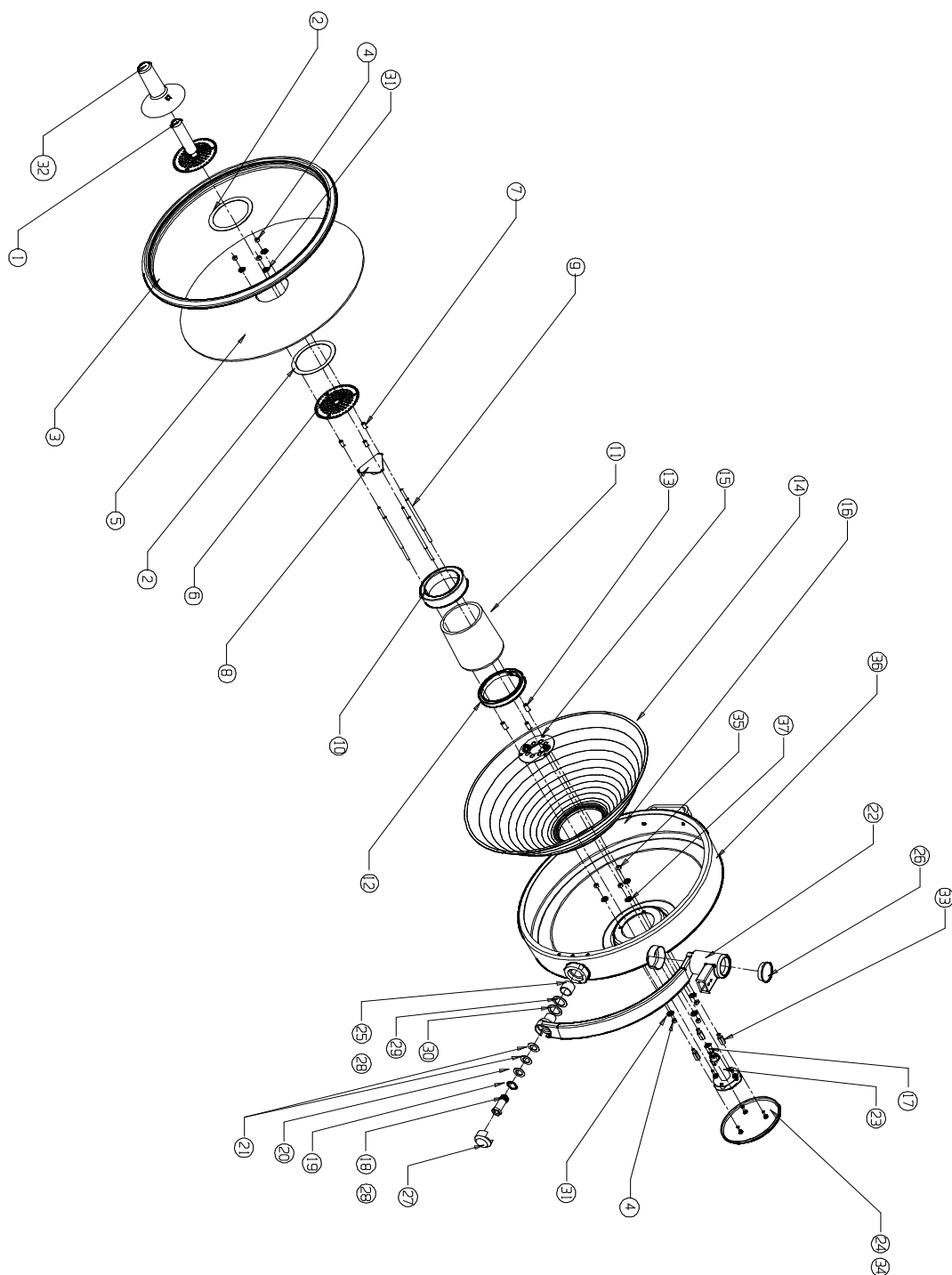


FIGURE 52: VistOR PRO Head Assembly

## VistOR PRO Light Head Assembly Part's List – P/N 1000371

3	0001122	LOCK WASHER, 1/4"	37
1	1003265	LABEL, DECORATIVE	36
3	0001299	NUT, 1/4-28	35
1	1003074	LABEL, LAMP REPLACEMENT	34
3	0001167	BANANA JACK 1/4-28	33
1	0001282	HANDLE, STERILIZABLE, WHITE	32
6	0001325	WASHER, #10 EXT TOOTH	31
1	0003171	FLAT WASHER, TEFLON, 1.25x.875x.031	30
1	0003170	FLAT WASHER, TEFLON, 1.25x.875x.062	29
A/R	0001226	LUBRICANT, TEFLON, GREEN	28
2	1001126	CAP, YOKE, LARGE	27
1	0001283	CAP, DOME, WHITE	26
1	0003024	BEARING, I-GLIDE, 1.000x.875 IDx.75 H	25
1	1000376	REAR COVER SUBASSEMBLY	24
1	1000378	HOLDER, LAMP SUBASSEMBLY	23
1	1000375	YOKE/CONNECTOR SUBASSEMBLY	22
2	0003161	WASHER, NYLON, 1.00"x.625"x.035"	21
1	0003160	WASHER, STEEL, .995"x.625"x.035"	20
1	0003159	WASHER, BELVILLE, 1.00"x.650"x.025"	19
1	1001626	PIVOT, UPPER YOKE	18
1	0001256	LIGHT BULB, HALOGEN, BI-PIN, 90W 12V	17
1	1000379	HOUSING SUBASSEMBLY	16
1	1000380	LAMP POWER SUBASSEMBLY	15
1	1001341	REFLECTOR, 16" DIAMETER	14
3	0001333	SPACER, .5/16" OD, .190" ID, .3/4" HEIGHT	13
1	1001635	GASKET, TOP, SILICONE	12
1	1001630	I/R CYLINDER	11
1	1001634	GASKET, BOTTOM, SILICONE	10
3	1001631	STAND-OFF, STEEL, ZINC PLATED	9
1	1000413	I/R BLOCKING PLATE SUBASSEMBLY	8
3	1001654	SPACER, .250" OD, .190" ID, .500" HEIGHT	7
1	1001632	PLATE, WINDOW SUPPORT	6
1	1001637	LENS, WITH HARD COAT	5
6	0001130	NUT, HEX, 10-32, BLACK OXIDE	4
1	1001636	HULA HOOP	3
2	1001651	GASKET, LENS	2
1	1000377	HANDLE MOUNT SUBASSEMBLY	1
QTY.	PART NO.	DESCRIPTION	ITEM

BILL OF MATERIALS

FIGURE 53: VistOR PRO Head Assembly, Bill of Materials

# VistOR SP Exploded View Light Head Assembly

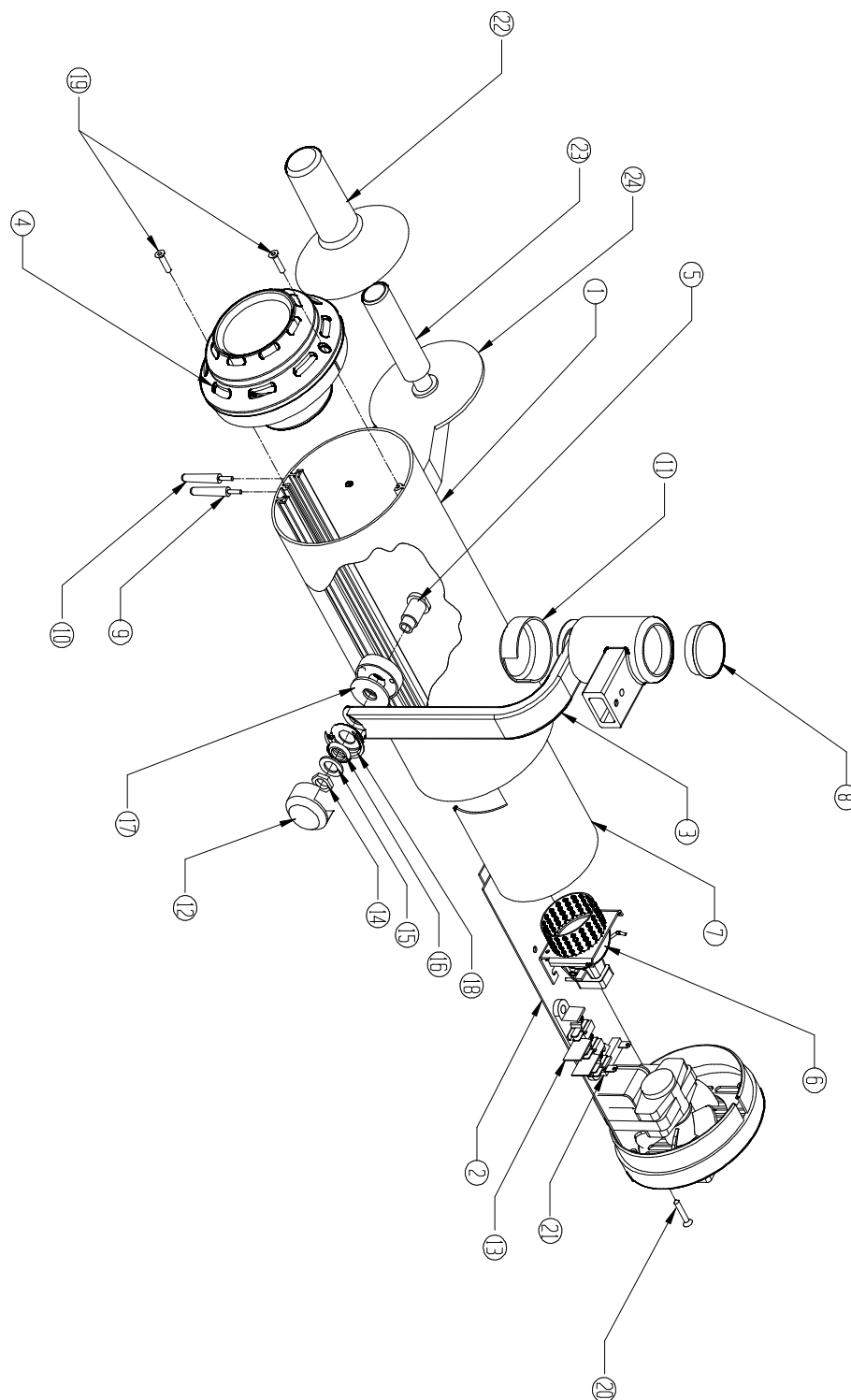


FIGURE 54: VistOR SP Spotlight Head Assembly

## VistOR SP Light Head Assembly Part's List – P/N 1000132

1	1001176	HANDLE MOUNT, STERILIZABLE	24
1	1001144	HANDLE, MOUNT POST	23
1	0001282	HANDLE, STERILIZABLE	22
1	0001401	FUSE, THERMAL CUT-OFF, 152C 15A 120VAC	21
2	0001691	SCREW, FLAT HEAD 6-32 X 7/8"	20
2	0001630	SCREW, FLAT HEAD, 6-32 X 3/8"	19
1	1001171	WASHER, CAP RETENTION, SMALL	18
1	0001270	WASHER, BEARING, 1.34 OD x .578 ID X .032 H	17
1	0001264	WASHER, BELLEVILLE	16
1	0001268	WASHER, BEARING, .815 OD X .444 ID X .032 H	15
1	0001269	NUT, HEX PANEL, 7/16"-20	14
1	0003203	TERMINAL BLOCK	13
1	1001149	CAP, YOKE, SMALL	12
1	1001163	CAP, YOKE, MEDIUM	11
2	1001206	HANDLE, DIAPHRAGM ADJUSTMENT	10
2	0001446	LEVER, DIAPHRAGM HANDLE	9
1	0001283	PLUG, DOME, WHITE	8
1	1001214	HEAT DEFLECTION TUBE	7
1	0001255	LAMP, QUARTZ HALOGEN, 20V 150W, (DDL)	6
1	1001156	LOWER YOKE PIVOT, SMALL	5
1	1000129	BEZEL SUB-ASSY.	4
1	1000161	YOKE/CONNECTOR SUB-ASSY	3
1	1000127	SLIDE SUB-ASSY. CENTURA STANDARD	2
1	1000130	HOUSING SUB-ASSY. CENTURA STANDARD	1
QTY.	PART NO.	DESCRIPTION	ITEM

### BILL OF MATERIALS

FIGURE 55: VistOR SP Spotlight Head Assembly, Bill of Materials



# VistOR SPF Exploded View Light Head Assembly

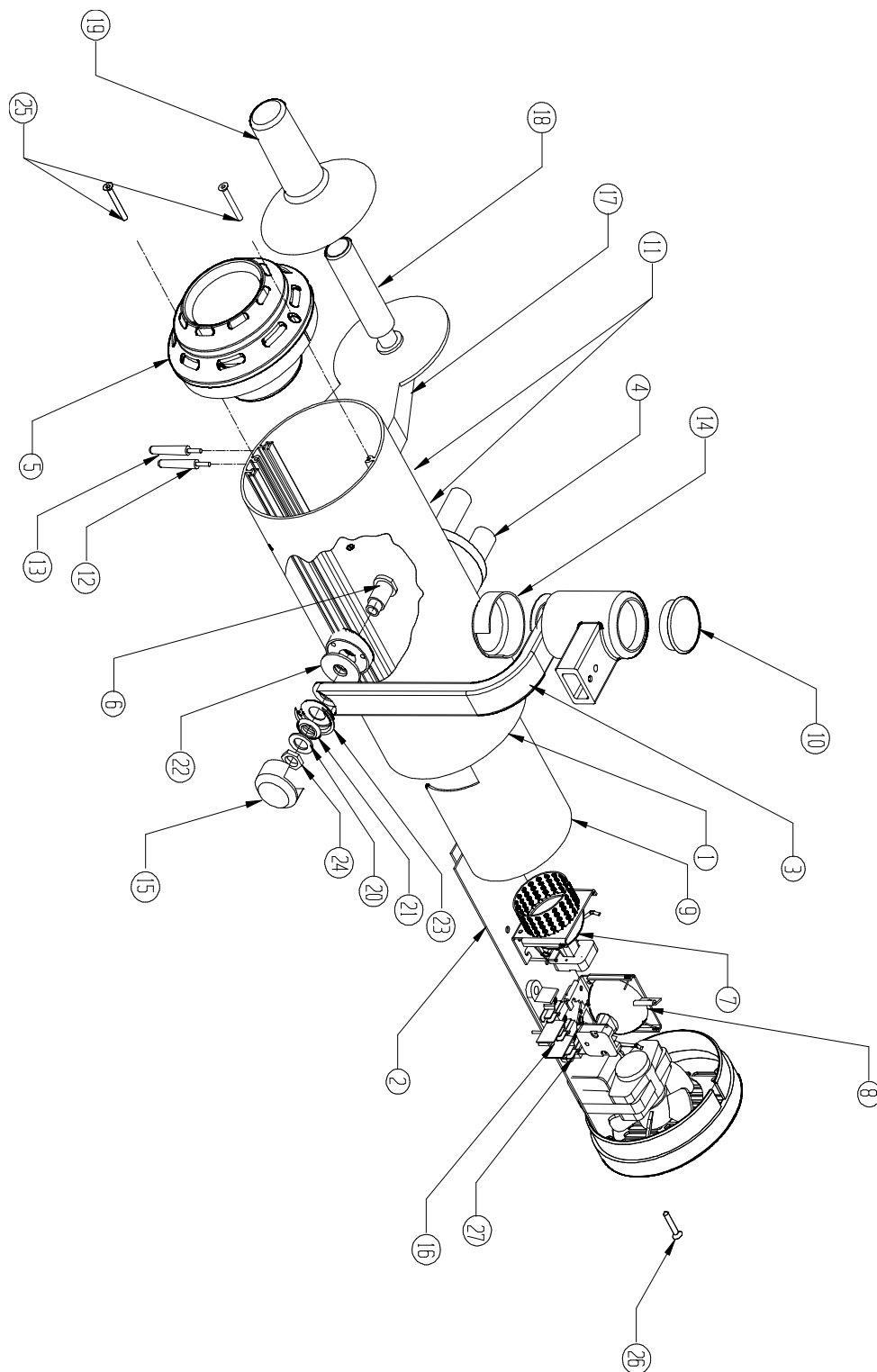


FIGURE 56: VistOR SPF Head Assembly

## VistOR SPF Light Head Assembly Part's List – P/N 1000233

1	0001401	FUSE, THERMAL CUT-OFF, 152C 15A 120VAC	27
2	0001691	SCREW, FLAT HEAD 6-32 X 7/8"	26
2	0001630	SCREW, FLAT HEAD, 6-32 X 3/8"	25
1	0001269	NUT, HEX PANEL, 7/16"-20	24
1	1001171	WASHER, CAP RETENTION, SMALL	23
1	0001270	WASHER, BEARING, 1.34 OD x .578 ID X .032 H	22
1	0001264	WASHER, BELLEVILLE	21
1	0001268	WASHER, BEARING, .815 OD X .444 ID X .032 H	20
1	0001282	HANDLE, STERILIZABLE	19
1	1001144	HANDLE, MOUNT POST	18
1	1001176	HANDLE MOUNT, STERILIZABLE	17
1	0003203	TERMINAL BLOCK	16
1	1001149	CAP, YOKE, SMALL	15
1	1001163	CAP, YOKE, MEDIUM	14
2	1001206	HANDLE, DIAPHRAGM ADJUSTMENT	13
2	0001446	LEVER, DIAPHRAGM HANDLE	12
2	0001248	SWITCH, ROCKER, SPST ON-OFF, 20A 125VAC	11
1	0001283	PLUG, DOME, WHITE	10
1	1001214	HEAT DEFLECTION TUBE	9
1	0001254	LAMP, QUARTZ HALOGEN, 21V 150W, (EJA)	8
1	0001255	LAMP, QUARTZ HALOGEN, 20V 150W, (DDL)	7
1	1001156	LOWER YOKE PIVOT, SMALL	6
1	1000129	LENS SUB-ASSY.	5
1	1000270	TURRET AND BASE SUB-ASSY.	4
1	1000161	YOKE/CONNECTOR SUB-ASSY	3
1	1000235	SLIDE SUB-ASSY. CENTURA FIBER OPTIC	2
1	1000249	HOUSING SUB-ASSY. CENTURA FIBER OPTIC	1
QTY.	PART NO.	DESCRIPTION	ITEM

BILL OF MATERIALS

FIGURE 57: VistOR SPF Head Assembly, Bill of Materials

# VistOR EX & EXL Exploded View Light Head Assembly

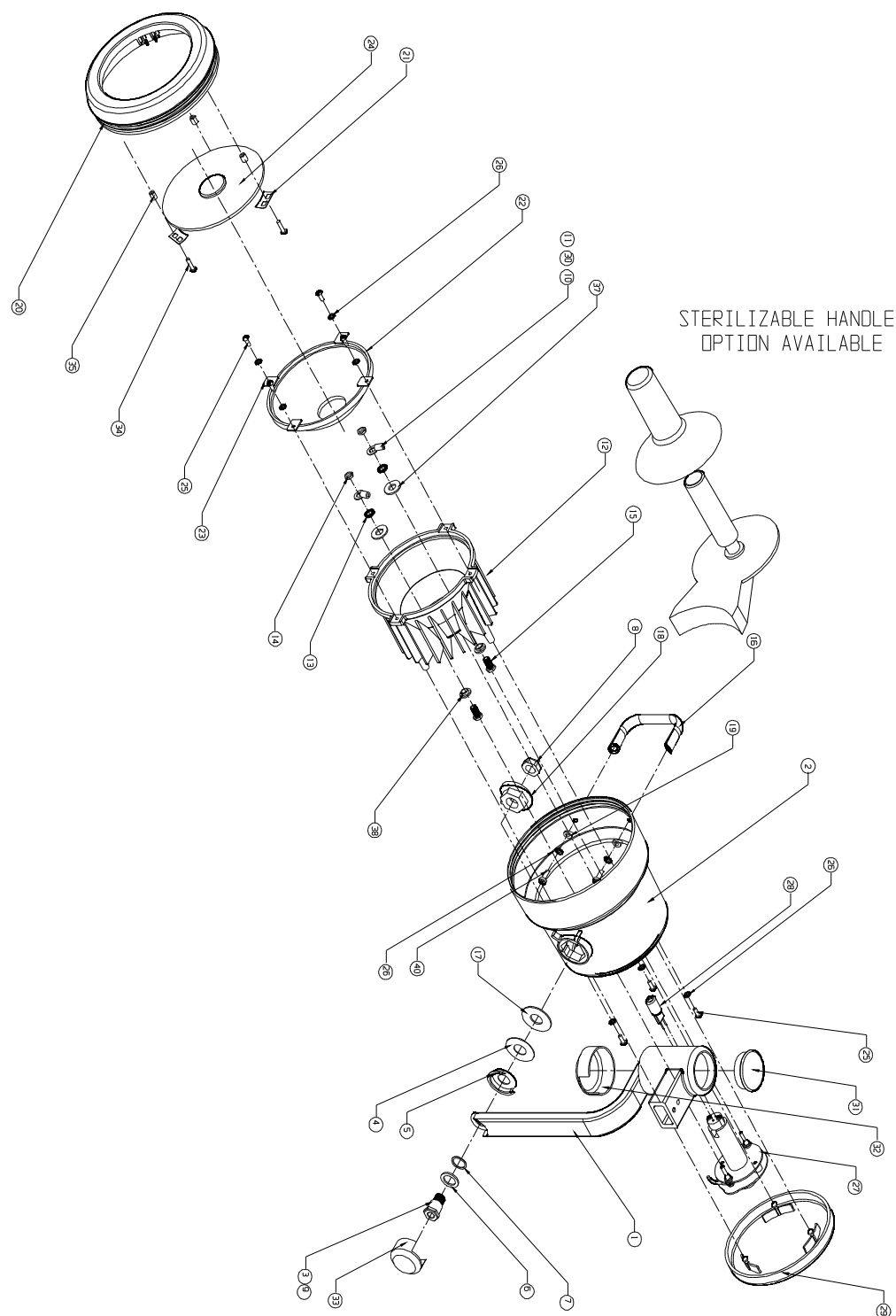


FIGURE 58: EX/EXL Head Assembly

## VistOR EX & EXL Light Head Assembly Part's List - P/N 1000381

2	0001295	WASHER, SHOULDER, .508 ODx.26 IDx.15, TFLN	38
2	0001296	WASHER, FLAT, .688 ODx.340 IDx.062, TEFLON	37
2	0001359	SCREW, PAN HD. PHIL., 6-32 X 7/8	36
3	0001016	SPACER, 1/4 ODx.14 ID x5/16 LONG, GOLD	35
3	0003134	SCREW, K3.5 x 15 mm	34
1	1001149	CAP, YOKE, SMALL	33
1	1001163	CAP, YOKE, MEDIUM	32
1	0001283	CAP, DOME, WHITE	31
1	0001210	HEAT SHRINK TUBING, 1/4 OD, BLACK, 2" LONG	30
1	1001615	REAR COVER, PLASTIC CENTRY	29
1	0001257	BULB, QUARTZ HALOGEN, BI-PIN, 75W, 12V	28
1	1000088	LAMP HOLDER S/A	27
8	0001057	WASHER #6, EXT TOOTH LOCK, ZINC	26
7	0001010	SCREW, 6-32 x 3/8 PHIL HEAD, BLACK OXIDE	25
1	1000216-1	LENS SUB-ASSY.	24
4	1001620	CLAMP, REFLECTOR, CENTRY	23
1	0001120	REFLECTOR, GLAS, DICHROIC	22
3	1001619	RETAINER CLIP, CENTRY	21
1	1001616	FRONT COVER, CENTRY PLASTIC	20
2	1001250	SPACER, CENTRY HANDLE, CLEAR ANODIZE	19
1	1001622	NUT SOCKET INSERT, PLASTIC	18
1	0003130	WASHER, 1.38 ODx.567 IDx.06 THICK, CRES	17
1	1001618	HANDLE, CENTRY, PLASTIC	16
2	0001253	JACK, BANANA, CONCORD	15
2	0001310	NUT, 1/4-32 x 11/32 x 3/32, HEX	14
4	0001122	WASHER, LOCK, 1/4 EXTERNAL TOOTH	13
1	1001617	MOUNT, LAMP & REFLECTOR, CENTRY (CASTING)	12
2	0001181	CONNECTOR, CRIMP, 1/4 CLOSED RING LUG	11
2	0001012	INSULATION, #8, NATURAL COLOR, CUT 5" LONG	10
AR	0001226	LUBRICANT, TEFLON GREASE	9
1	0003133	NUT, LOCKING, 1/2-20 THIN JAM, HEX	8
1	0003129	WASHER, .695 ODx.566 IDx.030 THICK, CRES	7
1	0003128	WASHER, .818 ODx.565 IDx.062 THICK, NYLON	6
1	1001171	WASHER, CAP RETENSION, SMALL	5
1	0001270	WASHER, 1.34" OD x .578 ID x .032 THICK	4
1	1001621	LOWER YOKE PIVOT, SMALL (SHOULDER BOLT)	3
1	1001614	HOUSING, CENTRY, PLASTIC	2
1	1000141-1	YOKE/CONNECTOR SUBASSEMBLY	1
QTY.	PART NO.	DESCRIPTION	ITEM

BILL OF MATERIALS

FIGURE 59: VistOR EX & EXL Head Assembly, Bill of Materials

