

E T C A R C H I T E C T U R A L

AR 50 Interior Wash

Irideon™ Automated Luminaires

Service Manual



IRIDEON™
Building With Light

Electronic Theatre Controls, Inc.

Irideon®
AR50™ Interior Wash
Luminaire

Service Manual

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3030 Laura Lane

Middleton, WI 53562

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AR50™ Interior Wash Luminaire

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Korea Patent No. 76,310; 42,639

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Mexico Patent No. 180,148;

Singapore Patents No. 663/90; 134/87;

Spain Patents No. 2.031.748; 2.020.960; 548.328;

Spain Design Reg. No. 137.502; 137.501; 133.573;

UK Design Reg. No. 2056387; 2056386; 2038212

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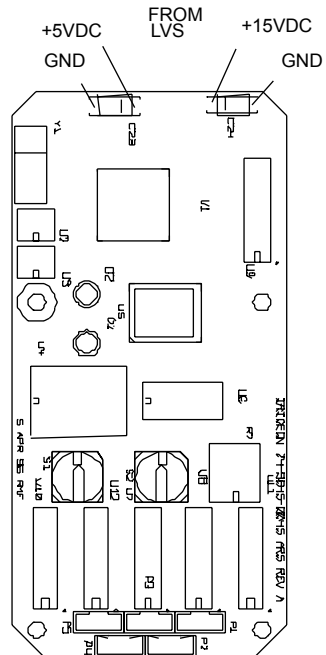
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Chapter 1 - Repair Procedures

1.1 Circuit Board Voltage Test Points

The following test points are provided as an aid in troubleshooting. Voltage values are typical and unless otherwise indicated could vary $\pm 10\%$ without indicating an actual voltage problem.

1.1.1 Controller PCB



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1.2 Disconnecting the Luminaire

WARNING: Remove power to luminaire at main breaker prior to performing maintenance.

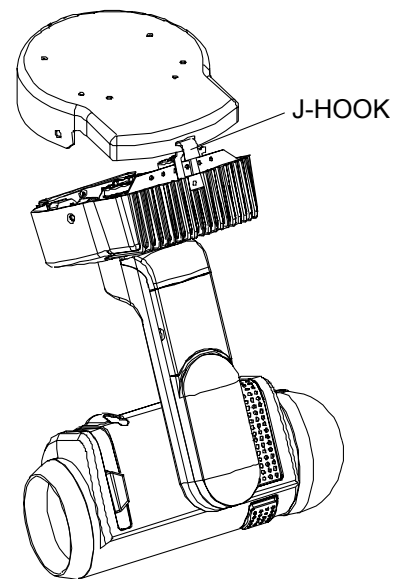
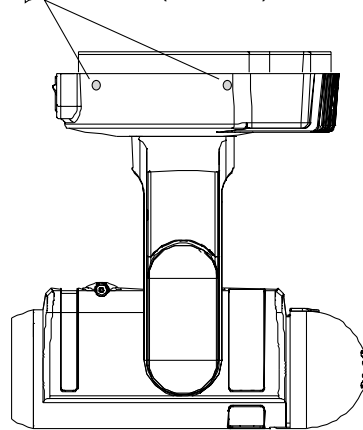
Tools: Screwdriver, phillips, #2
Screwdriver, small slot

To remove the *AR50* luminaire from its installed position:

1.2.1 For J-Box Ceiling Mount Version

- Using #2 phillips screwdriver, remove four 8-32 x 1/2" PFZ screws from upper enclosure and allow luminaire to rest on J-hook at finned section of upper enclosure.

REMOVE 8-32 x 1/2" PFZ SCREWS
(4 EACH)



- With luminaire resting on J-hook, use small screwdriver to disconnect AC wiring from terminal block.
- Disconnect Data wiring by unplugging two piece data terminal strip.
- Leaving mounting plate in place, lift luminaire off J-hook.

1.2.2 For Portable Mount Version

- Disconnect AC power cable.
- Disconnect Data In and Data Thru cables.

Note: If remaining luminaires are required to operate while this unit is being serviced, Data In and Data Thru cables must be connected together to provide continued data flow.

- If luminaire is secured by C-clamps, loosen thumbscrews and remove luminaire for repair.

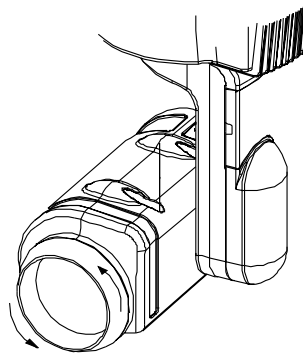
1.3 AR50 Head Replacement Procedures

1.3.1 Opening the AR50 Head

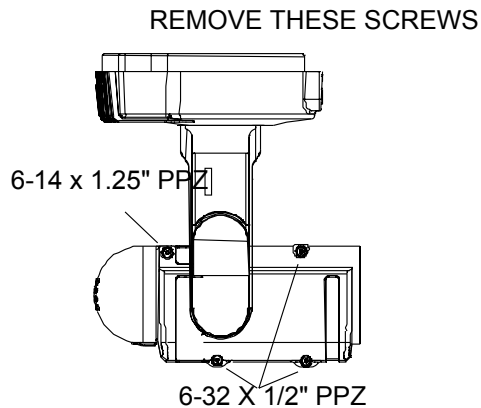
Tools: Screwdriver, #2 phillips

To gain access to subassemblies housed in the head of the AR50 luminaire:

1. Remove Luminaire from installed position and place on flat work surface.
2. Unscrew front ring and lens. Remove and set aside.

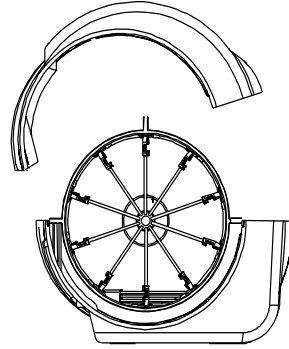
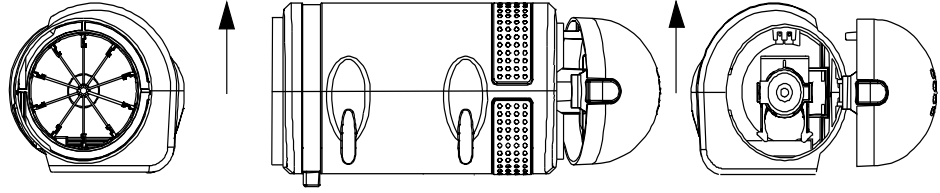


3. Lay luminaire on side with upper enclosure on side and head retaining screws upward. Remove four head retaining screws.



4. Open and remove door to rear enclosure.
5. While holding the Head together, flip luminaire over so yoke arm rests along work surface.

6. Gently lift Body Cover from Axle Side Body.



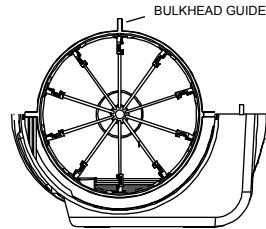
7. Remove upper portion of head housing and set aside.

1.3.2 Closing the AR50 Head

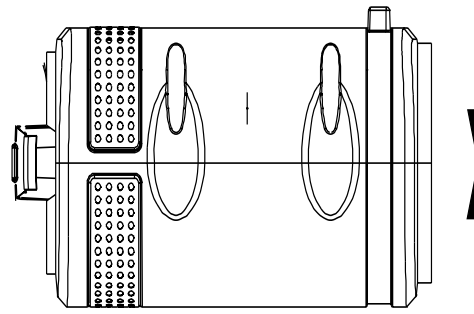
Tools: Screwdriver, #2 phillips

To rejoin the two halves of the luminaires head cover:

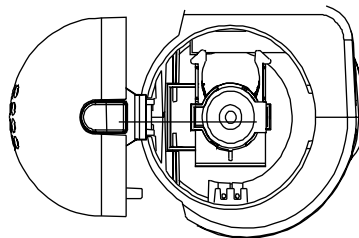
1. Ensure reflector and all bulkheads are properly installed and aligned. Verify linear actuators are securely installed in bulkheads (refer to maintenance paragraph titled **Replacing a Filter Bulkhead**).



2. Place Body Cover over Axle Side Body and turn luminaire head over exposing screw holes.

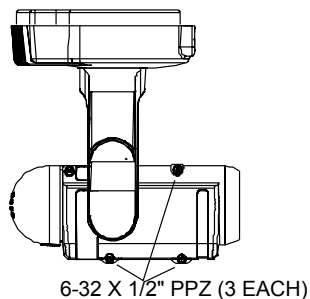


3. Place rear enclosure door in position and insert 6-14 x 1.125" screw as door hinge pin. Secure with #2 Phillips.



Note: Do not overtighten screw or door will not operate properly.

4. Replace three remaining head screws (6-32 x 1/2" PPZ) to secure cover halves together.

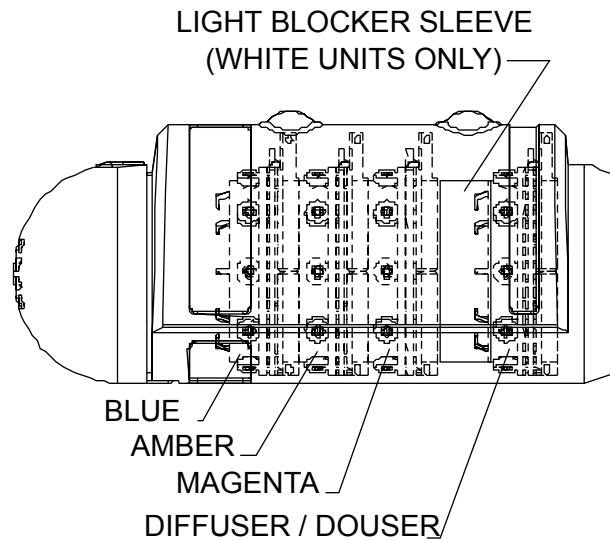


1.3.3 Replacing Filter Bulkhead (or Color Changing Mechanism)

To remove a filter bulkhead or color changing mechanism, the AR5 head must first be opened to expose the bulkheads. Refer to maintenance paragraph titled “Opening the AR50 Head” for this procedure.

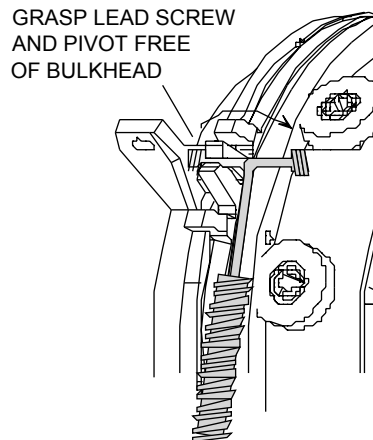
Color filter bulkheads are arranged in a specific sequence. The blue filters are always closest to the lamp, followed by the amber filters and the magenta filters are next. The diffuser/douser bulkhead, if included, is furthest from the lamp and closest to the lens. On white luminaires, any bulkhead location not filled by selected options will contain an empty bulkhead to block light. Additionally, white luminaires contain a light blocker between the diffuser/douser location and the color bulkheads.

Note: It is recommended that you always start at the lens end and, working toward the lamp, remove all bulkheads until you get to the one to be replaced.



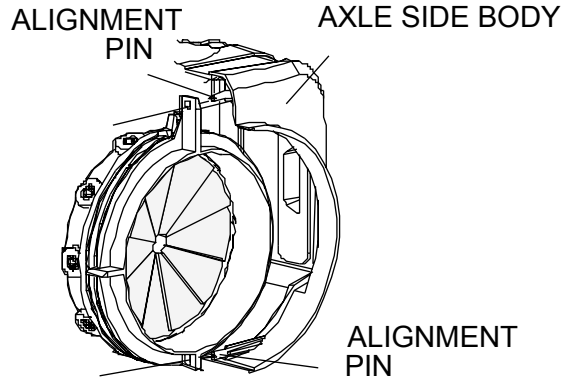
Tools: Needle nose pliers

1. Using needle nose pliers, grasp lead screw portion of linear actuator around point where it mates with bulkhead. Pivot lead screw away from and free of bulkhead.

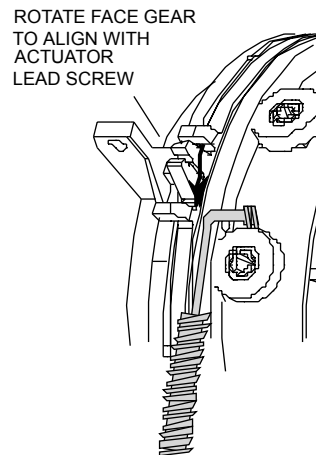


2. With linear actuator disengaged, rotate bulkhead face gear to close filters. This will protect filters and allow removal.

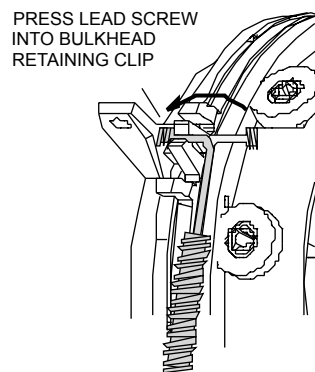
- Lift bulkhead off of alignment pins on axle side body.



- Replace appropriate filter bulkhead.
- Rotate bulkhead face gear to allow alignment of linear actuator lead screw with bulkhead retaining clip.



- Press linear actuator lead screw into the bulkhead retaining clip.
- Repeat for all remaining bulkheads.



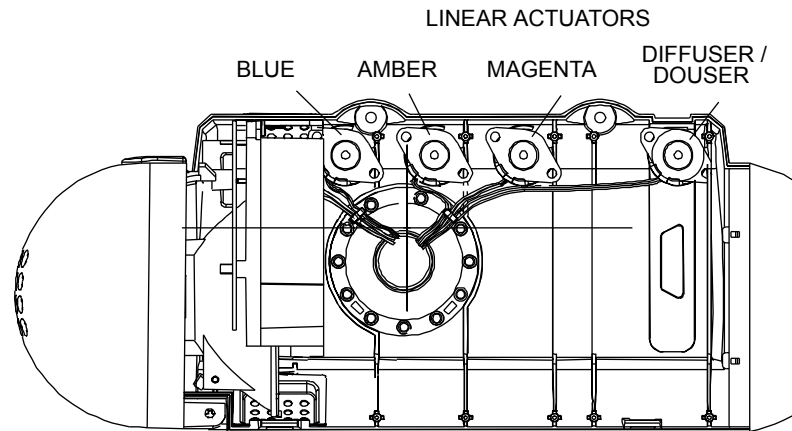
To reassemble head, refer to maintenance paragraph titled **Closing the AR50 Head**.

1.3.4 Replacing Head Assembly Linear Actuator Motor

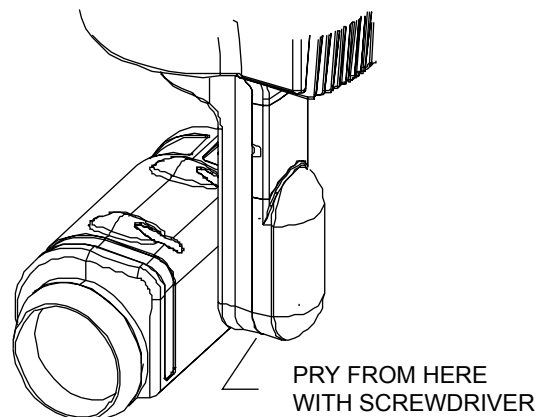
- Disconnect luminaire from mounted position, if mounted.
Refer to maintenance paragraph titled “**Disconnecting the luminaire**”.
- Open the luminaire head if not already open.
Refer to maintenance paragraph titled “**Opening the AR50 Head**”.
- Remove filter bulkheads if not already removed.
Refer to maintenance paragraph titled “**Replacing a Filter Bulkhead (or Color Changing Mechanism)**”.

To remove and replace a linear actuator motor from the head assembly after filter bulkheads have been removed:

1. Identify which linear actuator requires replacement. Color filter bulkheads, which are controlled by actuators, are arranged in a specific sequence. The blue filter is always closest to lamp, followed by amber filter and magenta filter is next. Diffuser/douser bulkhead, if included, is furthest from lamp and closest to lens.



2. Remove wires from cable clips that may bundle linear actuator motor wires together and prevent actuator from being removed.
3. Open yoke cover door.
4. Using a phillips screwdriver, remove exposed 6-32 X 1/4” ph PH MS Zinc screw located next to yellow and green LEDs.
5. Using a small slotted screwdriver, if necessary, remove yoke cover by prying loose from yoke itself.



6. Observe five connectors at one end of CPU PCB. Each cable corresponds to a specific filter actuator or motor. It is extremely important that each cable be reconnected to its proper receptacle after board replacement to ensure correct operation. It is possible that one or more connectors may be unused based on chosen capabilities of luminaire. Before disconnecting cables ensure each is numbered and/or color coded in a way that corresponds to its proper connector receptacle. Color coded heat shrink tubing marks filter actuators cable showing which bulkhead is controlled by each. Heat shrink colors are blue (blue filter), yellow (amber filter), red (magenta filter), black (diffuser/douser).

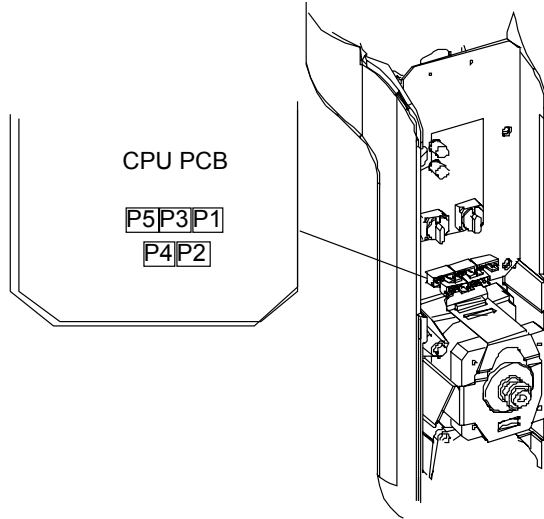


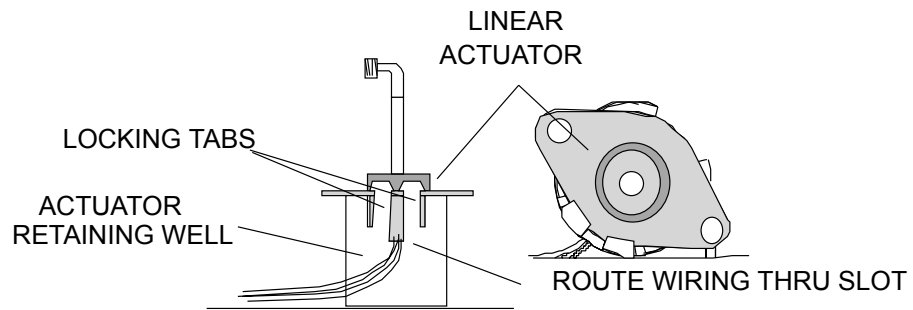
Table 1-1: Connector / Function Table

Conn. / Heat shrink	With color filters only	Color with Douser or Diffuser	Douser and Diffuser only
P1 / Blue	Blue Filter	Blue Filter	
P2 / Yellow	Amber Filter	Amber Filter	
P3 / Red	Magenta Filter	Magenta Filter	Diffuser
P4 / Black		Douser or Diffuser	Douser
P5 / none	Tilt Motor	Tilt Motor	Tilt Motor

7. Cut two cable ties holding actuator wires together.
8. Unplug connector for linear actuator to be replaced.
9. Using fingers of one hand, apply pressure to locking tabs on actuator retaining well. With other hand, grasp actuator shaft and pull actuator straight out of retaining well. Wires should now easily pull through yoke arm into head and free actuator.

Note: All linear actuators are not the same. Wire lengths are different and in some cases the lead screw may have an offset bend to allow proper alignment with the filter bulkhead. Each bulkhead actuator has its own part number and is provided with a small length of color coded heat shrink tubing to uniquely identify one from the other. When installing a new linear actuator, always use a direct replacement.

10. Insert new actuator into retaining well taking care to route wires between two actuator locking tabs molded into well.



11. Route new actuator cable assembly along path of other actuator cables and through tilt tube into yoke arm.
12. Plug replacement actuator into appropriate connector on CPU board per illustration and table above.
13. Secure motor wires to cable clips on tilt tube.
14. Resecure actuator wires with cable ties.
15. Reinstall filter bulkheads and light blockers, if any.
16. Close head. Refer to maintenance paragraph titled “Closing the AR50 Head”.
17. Reattach yoke cover by snapping into place.
18. Thread 6-32 X 1/4” ph PH MS Zinc screw through yoke cover and PCB and into yoke arm.

Note: In addition to securing the yoke cover in place, the screw is required to ensure proper grounding of the circuitry in the CPU PCB.

19. After luminaire has been reinstalled and power applied, observe initial calibration or perform luminaire self test to ensure linear actuators and filter bulkheads operate properly.

1.3.5 Lamp Replacement

WARNING: Safety Interlock switch in the luminaire head is designed to remove high voltage, by disabling the ballast, from the lamp when the head's door is opened. Other voltages will remain present, however. Power to the luminaire should be turned off prior to maintenance being performed.

The base of the arc lamp is of a bayonet type. It is inserted by aligning raised knobs or pins on the lamp base with notches on the lamp socket. The lamp is held in place by sliding a large metal clip across the reflector mount opening, engaging the lamp. Removal is the reverse of this procedure.

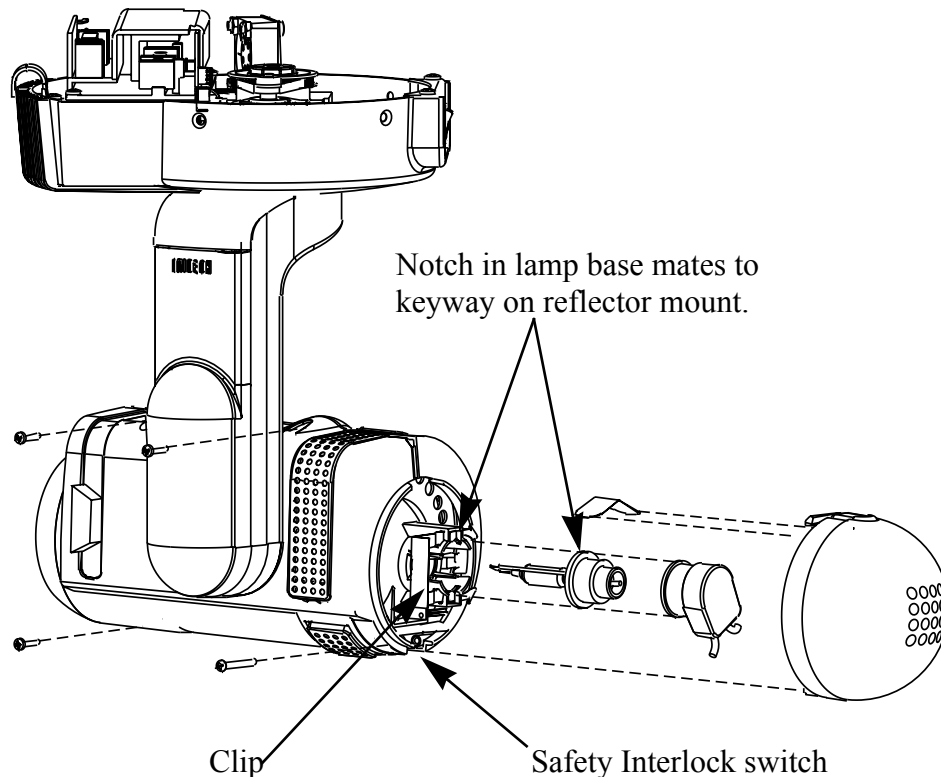
To remove the lamp:

1. Open door at rear of luminaire head.
 2. Twist lamp socket counter clockwise and remove from lamp.
 3. Grasp large metal clip and pull to side, releasing lamp from reflector mount.
-

Note: The clip is not intended to pull completely free from the reflector mount.

4. Remove lamp.
 5. Insert new lamp by aligning notch on lamp base with keyway in reflector mount. Reverse above procedure to secure lamp and socket in luminaire reflector mount.
-

CAUTION: Do not touch the glass portion of the lamp with bare hands. This will leave skin oils, which will damage the lamp when it reaches full operating temperature.



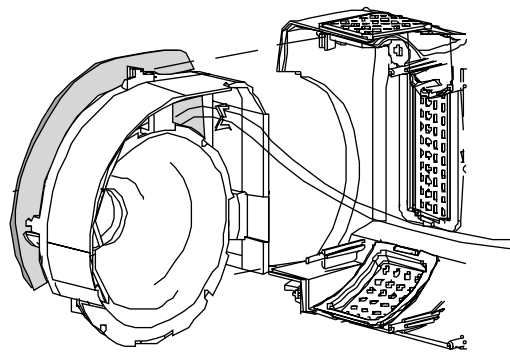
1.3.6 Replacing AR50 Reflector Assembly and/or Head Safety Switch

- Disconnect luminaire from mounted position, if mounted.
Refer to maintenance paragraph titled “**Disconnecting the luminaire**”.
- Open the luminaire head if not already open.
Refer to maintenance paragraph titled “**Opening the AR50 Head**”.
- Remove filter bulkheads if not already removed.
Refer to maintenance paragraph titled “**Replacing a Filter Bulkhead (or Color Changing Mechanism)**”.
- Remove the lamp if not already removed.
Refer to maintenance paragraph titled “**Lamp Replacement**”.

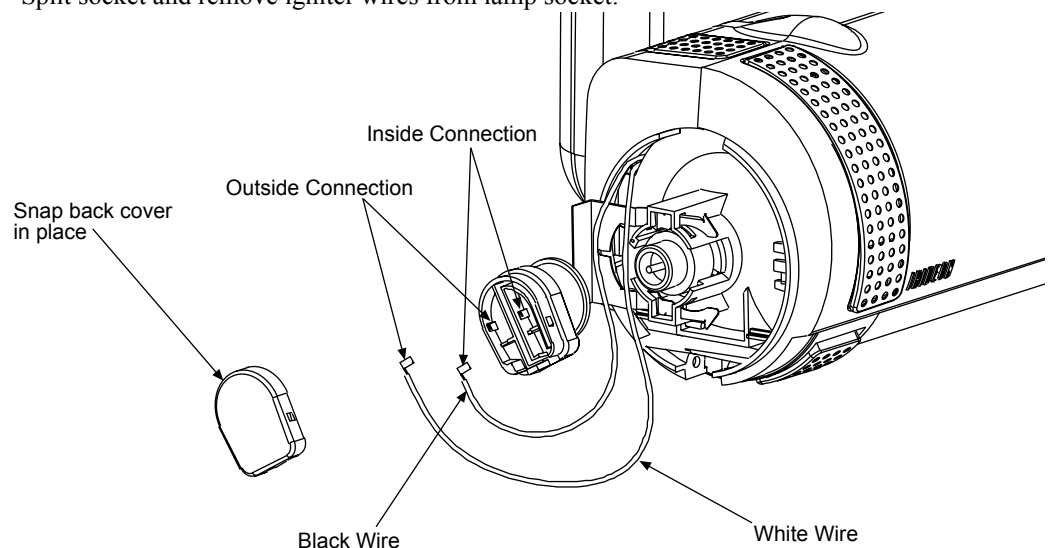
To remove and replace the reflector assembly and/or Head Safety Switch board from the head after filter bulkheads have been removed:

Tools: Diagonal cutters
Phillips screw driver

1. Disconnect safety switch connector from board, and lamp igniter wire from clips of the Reflector assembly.
2. Slide reflector assembly and Head Safety board out of retaining slot and mounting pin, freeing both from axle side body.



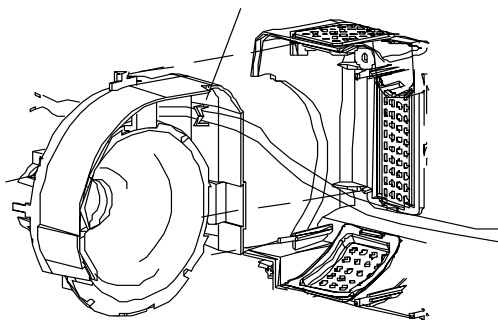
3. Unplug the two-pin connector attached to the Head Safety switch PCB.
4. Split socket and remove igniter wires from lamp socket.



5. Separate reflector assembly from Head Safety board and replace whichever is required.

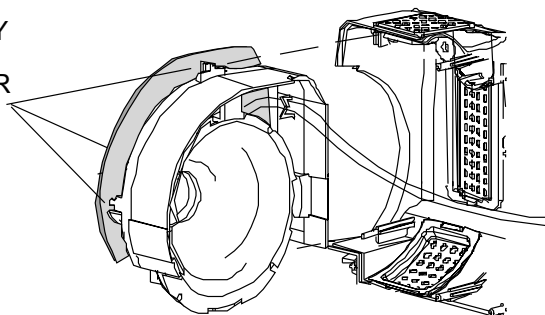
6. Feed ignitor wires through retaining clip in squared corner of reflector and reconnect to Head Safety board.

FEED IGNITOR WIRES THRU
RETAINING CLIP ON
REFLECTOR ASSEMBLY



7. Mount Head Safety board on reflector assembly by placing three small holes in PCB over posts on reflector.

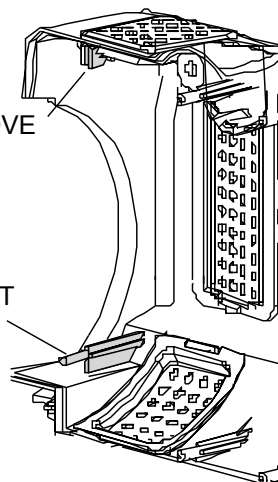
MOUNT HEAD SAFETY
PCB OVER THREE
POSTS ON REFLECTOR
ASSY.



8. Feed Safety Switch wires through opening in squared corner of Reflector, and reconnect to Head Safety board.
9. Slide reflector assembly and Head Safety PCB onto reflector mounting post and into grooves on axle side body next to air vent.

REFLECTOR
MOUNTING GROOVE

REFLECTOR
MOUNTING POST



10. Reinstall filter bulkheads (color changing mechanisms).
11. Close head. Refer to maintenance paragraph titled “Closing the AR50 Head”.
12. Reinstall lamp and reconnect igniter wires to the back of the socket. Reassemble the socket and connect to the lamp.
13. Reinstall luminaire.

1.4 Upper Enclosure Replacement Procedures

WARNING: Remove power to luminaire at main breaker prior to performing maintenance.

Note: Please call ETC if you need to replace or have problems with the Igniter.

1.4.1 Removal and Replacement of Ballast and Low Voltage Power Supply

Tools: Screwdriver- phillips

Parts: New Ballast
New Low Voltage Power Supply

1. On the Ballast, locate and unplug the Neutral (white), Hot (black) and Ground connectors as shown in the drawing on the facing page.
 2. Unplug the 2-pin Igniter connector, the 2-pin Fan connector, and if applicable, the 4-pin Remote Turn-on connector.
 3. Remove 4 screws and set aside Ballast.
 4. Remove 3 screws on Mounting plate and set aside.
-

Note: The connector on the third screw is the Ground wire.

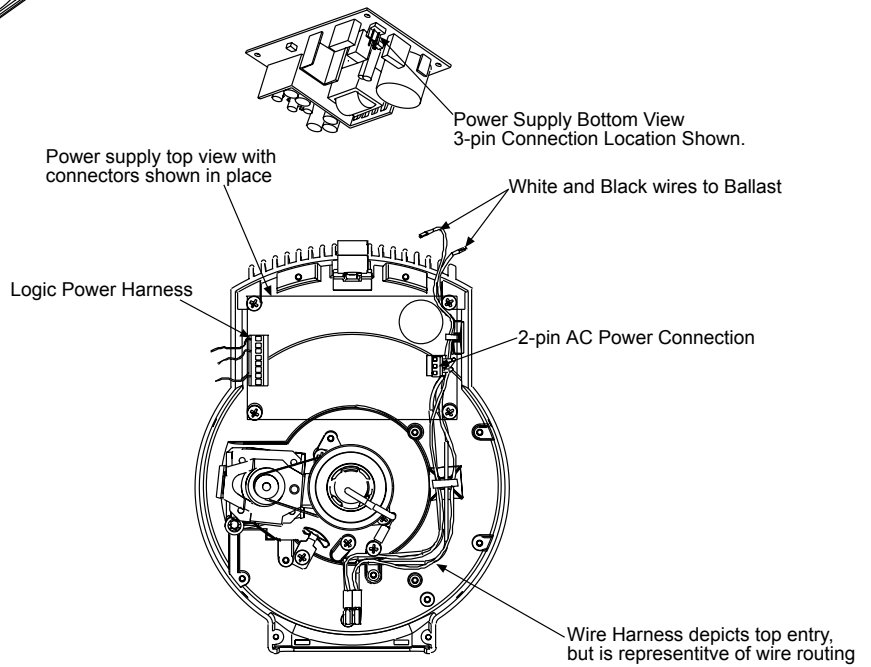
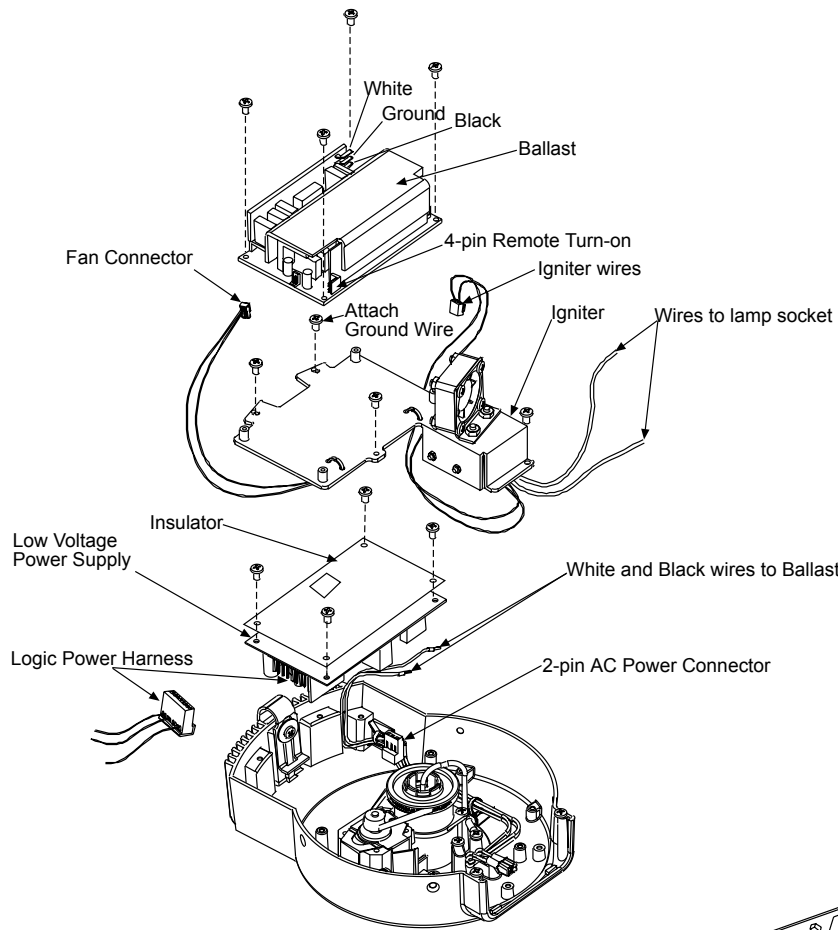
5. Remove 4 screws from the Low Voltage Power Supply and Insulator.
 6. Unplug the 2-pin AC Power Connector.
 7. Unplug the 8-pin Logic Power Harness.
 8. Replace defective part.
 9. Reconnect the 8-pin Logic Power Harness and the 2-pin AC Power Connector to the Low Voltage Power Supply.
 10. Replace 4 mounting screws to secure the Power Supply and Insulator.
 11. Replace 3 screws to secure the Mounting plate.
-

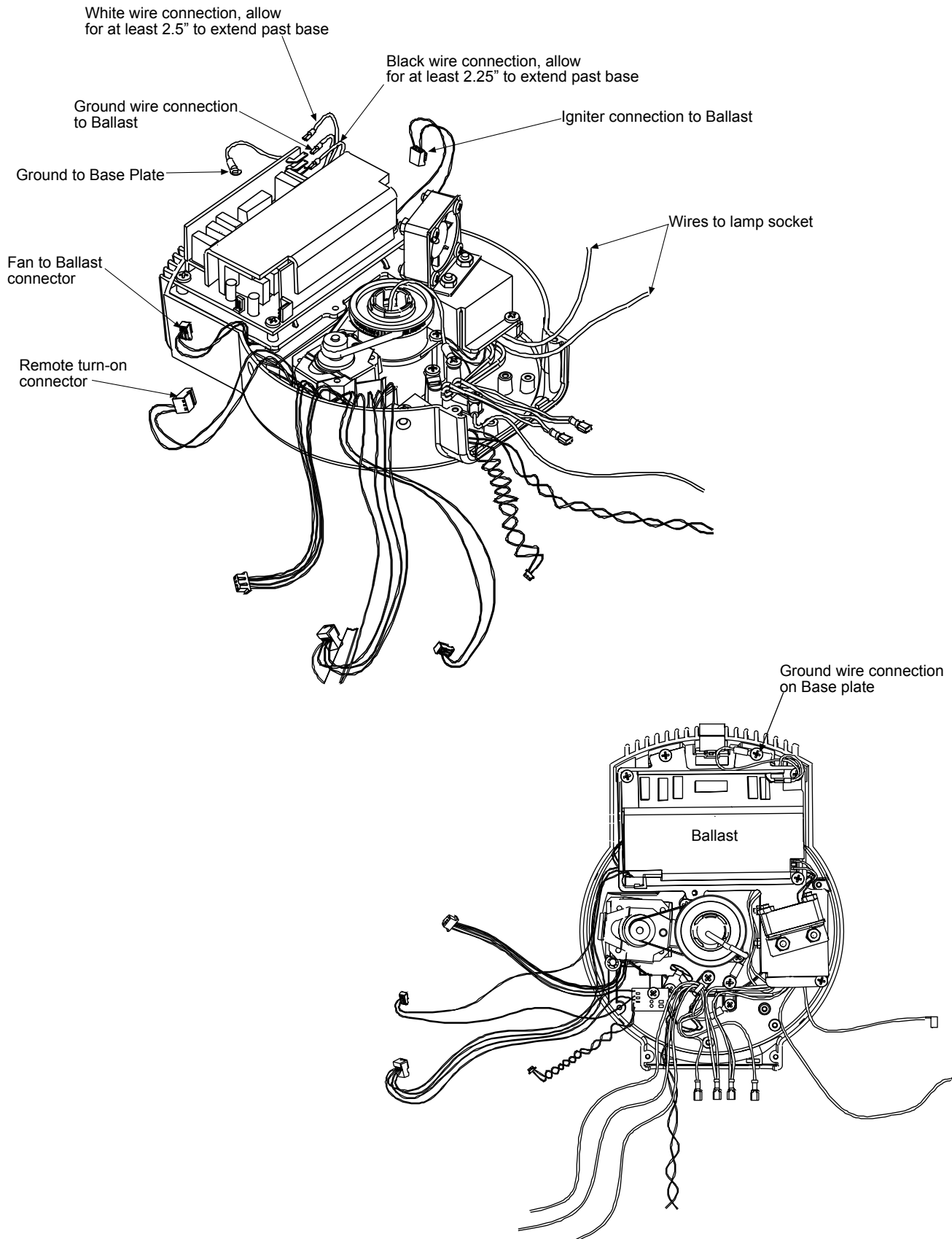
Note: Be sure to replace Ground connector on the third screw.

12. Mount Ballast using 4 screws.
-

Note: Orient Ballast with label facing to the inside of the base.

13. Reconnect the Neutral (white), Hot (black) and Ground connectors onto the AC input power connector pins.
14. Reconnect the 2-pin Igniter connector, the 2-pin Fan connector, and the 4-pin Remote Turn-on connector.





1.4.2 Removal and Replacement of Pan Motor

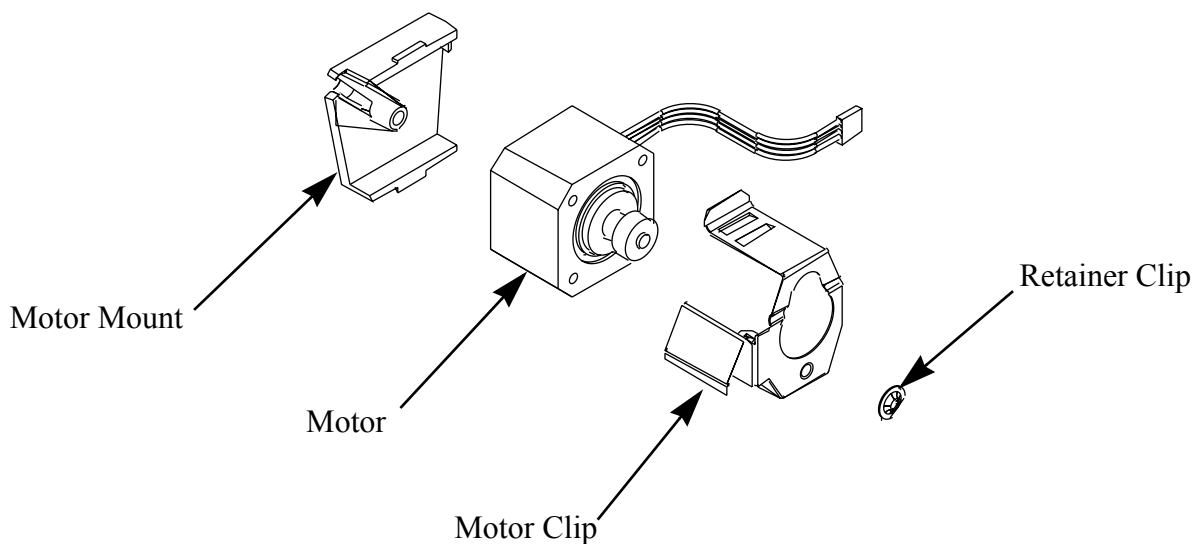
- Disconnect luminaire from mounted position, if mounted. Refer to maintenance paragraph titled “Disconnecting the luminaire”.

To remove and replace the pan motor in the upper enclosure of the AR50 luminaire:

Tools: Screwdriver, slot
5/16” nutdriver

Parts: New Pan motor assembly
New Retainer

1. Slip drive belt off pan motor driven pulley.
2. Pry retainer off post in upper enclosure.



3. Grasp motor assembly and pull from mounting post.
4. Install new motor assembly by placing over mounting post.
5. Press new retainer onto mounting post over motor mount securing motor assembly in place. Press into place with 5/16 nutdriver or socket.

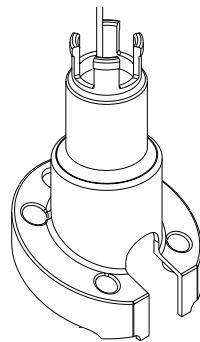
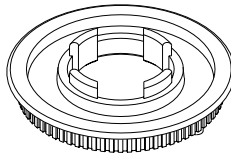
1.4.3 Pan Tube Assembly Replacement

- Disconnect luminaire from mounted position, if mounted.
Refer to maintenance paragraph titled “**Disconnecting the luminaire**”.
- Remove the Yoke Cover.
Refer to maintenance paragraph titled “**Removing the Yoke Cover**”.
- Remove CPU PCB.
Refer to maintenance paragraph titled “**Replacement of CPU PCB**”.

To remove and replace all or part of the pan tube assembly in the AR50 upper enclosure:

Tools: Screwdriver, slot
Screwdriver, phillips
AMP pin extraction tool (P/N 305183)
Slip-joint pliers

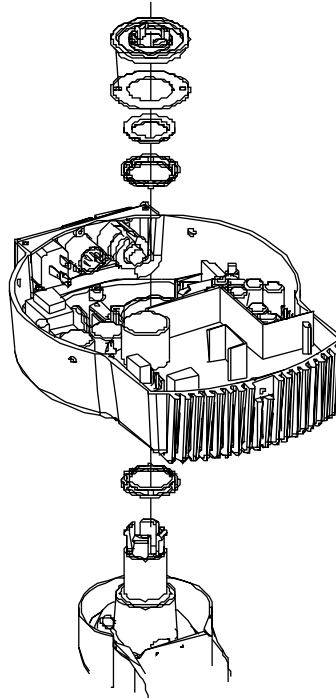
1. Remove drive belt from pan motor pulley.
2. Using phillips screwdriver remove ground wire exiting pan tube and connecting to threaded boss in upper enclosure.
3. Pan tube is mated to driven pulley by four “fingers” that extent through driven pulley and expand to overlap inner rim of pulley center. Locate four fingers belonging to pan tube (The pan tube fingers are wider than the raised sections of the driven pulley itself).



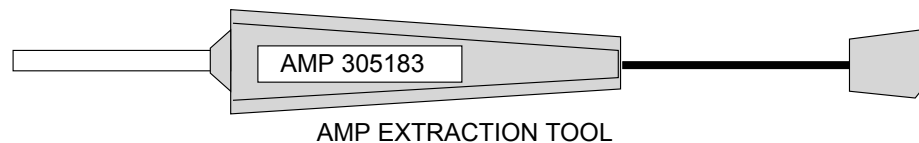
4. Using slip-joint pliers, compress two opposing fingers while sliding a screwdriver under driven pulley flange to lift pulley and create pressure against pan tube.

Note: Take care not to compress the pan tube fingers too tightly or create excessive pressure as fingers will break off requiring pan tube replacement.

5. With screwdriver creating pressure against pulley and pan tube, use slip-joint pliers to compress remaining two pan tube fingers. This action should result in driven pulley being released from grasp of pan tube fingers, allowing separation of driven pulley, driven pulley flange, bearing sleeve, and bearing assemblies.



6. Disassemble only those portions necessary to replace desired pieces. If pan tube itself requires replacement, use AMP pin extraction tool to remove pins from APS 2 position MNLOK plug housing allowing ignitor wires to pass through pan tube. Refer to wiring diagram to verify proper pin reinsertion (APS PCB to Ignitor PCB).



7. Reassemble pan tube assembly by reversing above steps. Driven pulley flange forms a side wall to pulley and has a small lip along outer edge. The turn of the lip is outward and away from pulley.

Note: Illustrations above show proper assembly sequence. Do not forget to route required cables through pan tube and pulley assembly pieces including belt prior to reassembly. (Ignitor wires and ground from yoke arm to upper enclosure. Pan motor, data input, and DC input from upper enclosure to CPU PCB in yoke arm. A paper clip may be helpful to hook cables in pan tube and lead into yoke arm.)

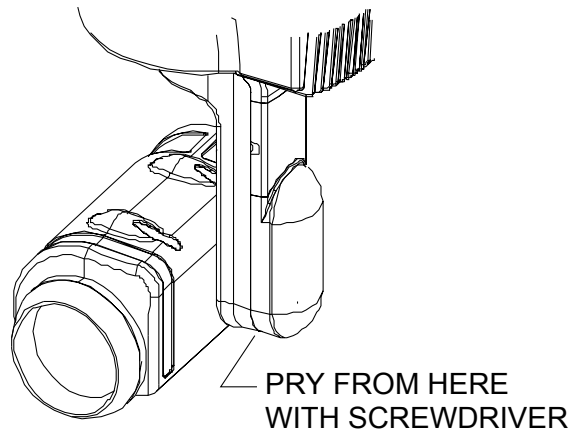
8. Reinstall PCBs and reconnect cabling per PCB replacement paragraphs. Reconnect ground wire to threaded boss in upper enclosure.

1.5 AR50 Yoke Arm Cover Replacement Procedures

1.5.1 Removing the Yoke Cover

Tools: Screwdriver, phillips
Screwdriver, small slot

1. Open the yoke cover door.
2. Using a phillips screwdriver, remove exposed 6-32 X 1/4" ph PH MS Zinc screw located next to yellow and green LEDs.
3. Using a small slotted screwdriver, remove yoke cover by prying loose from yoke itself.



1.5.2 Replacing the Yoke Cover

Tools: Screwdriver, phillips

1. Reattach yoke cover by snapping into place.
2. Thread the screw through yoke cover and PCB and into yoke arm.

Note: In addition to securing the yoke cover in place, the screw is required to ensure proper grounding of the circuitry in the CPU PCB.

1.5.3 Replacement of CPU PCB

- Disconnect luminaire from mounted position, if mounted.
Refer to maintenance paragraph titled “**Disconnecting the luminaire**”.
- Remove the Yoke Cover.
Refer to maintenance paragraph titled “**Removing the Yoke Cover**”.

The Central Processing Unit (CPU) Printed Circuit Board housed in the yoke arm contains the luminaires microprocessor which converts communication control data into actual motor instruction.

Step 1. To remove and replace the CPU PCB:

Tools: Screwdriver, phillips

1. Observe five connectors at one end of CPU PCB. Each cable corresponds to a specific filter actuator or motor. It is extremely important that each cable be reconnected to its proper receptacle after board replacement to ensure correct operation. It is possible that one or more connectors may be unused based on chosen capabilities of your luminaire. Before disconnecting cables ensure that each is numbered and/or color coded in a way that corresponds to its proper connector receptacle.

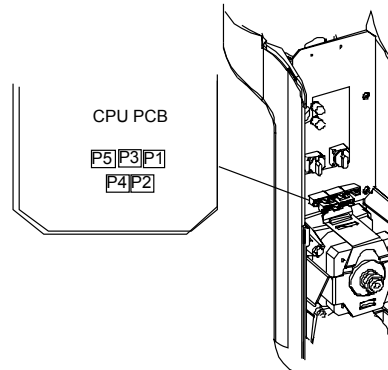
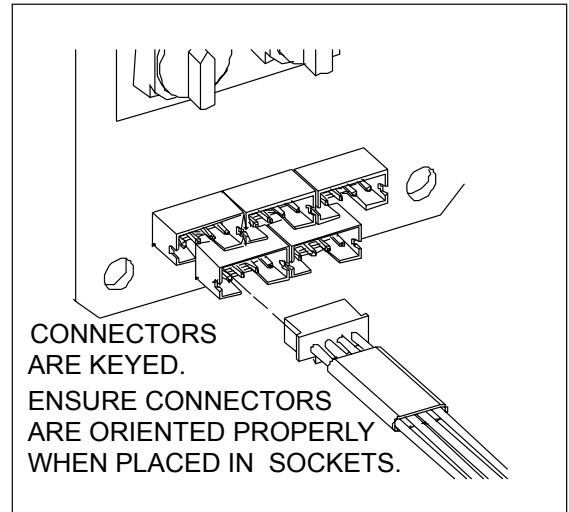
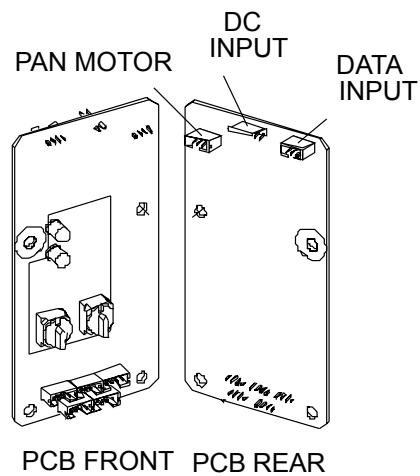


Table 1-2: Connector / Function Table

Conn. / Heat shrink	With color filters only	Color with Douser or Diffuser	Douser and Diffuser only
P1 / Blue	Blue Filter	Blue Filter	
P2 / Yellow	Amber Filter	Amber Filter	
P3 / Red	Magenta Filter	Magenta Filter	Diffuser
P4 / Black		Douser or Diffuser	Douser
P5 / none	Tilt Motor	Tilt Motor	Tilt Motor

2. Unplug cables from CPU PCB.
3. Using a Phillips screwdriver remove three 5/16” #6 Type F screws from PCB.
4. Lift CPU PCB from yoke arm.

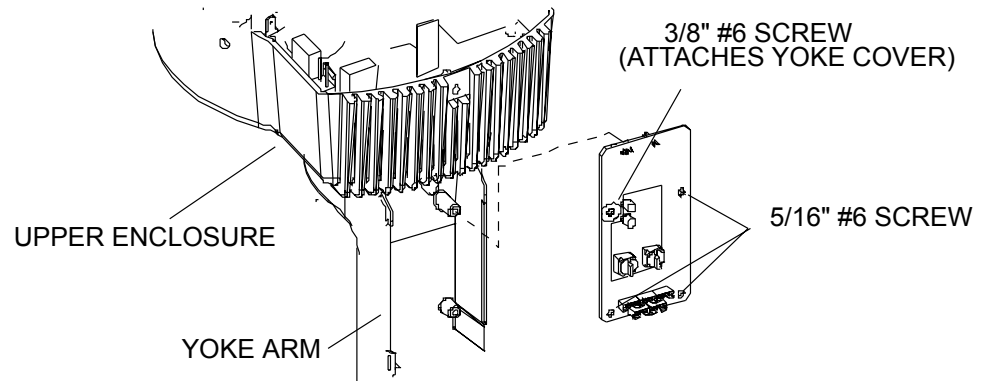
- Remove three additional cables located on back side of PCB. They are: Pan motor (P6), DC power input (P8), Data input (P7).



- Remove CPU PCB.
- Replace with new CPU PCB and connect cables to P6, P7, and P8 on backside of PCB.

Note: Make sure Insulator is located between the PCB and the Yoke Arm.

- Thread three 5/16" #6 Type F screws through PCB and into Yoke Arm.



- Reconnect cables on front side of PCB taking care to ensure each is replaced in its original location.
- Replace Yoke Cover.
Refer to maintenance paragraph titled **"Replacing the Yoke Cover"**.

1.5.4 Removal and Replacement of Tilt Motor

- Disconnect luminaire from mounted position, if mounted.
Refer to maintenance paragraph titled “**Disconnecting the luminaire**”.
- Remove the Yoke Cover.
Refer to maintenance paragraph titled “**Removing the Yoke Cover**”.

To remove and replace the tilt motor in the yoke of the AR50 luminaire:

Tools: Screwdriver, slot
5/16” nutdriver

Parts: New Tilt motor assembly
New Retainer

1. Slip drive belt off tilt motor driven pulley.
2. Observe five connectors at one end of CPU PCB. Each cable corresponds to a specific filter actuator or motor. It is possible that one or more connectors may be unused based on chosen capabilities of your luminaire. Tilt motor connects to P5 on CPU PCB as shown below. Disconnect P5 and note connector is keyed by offset notches on sides.

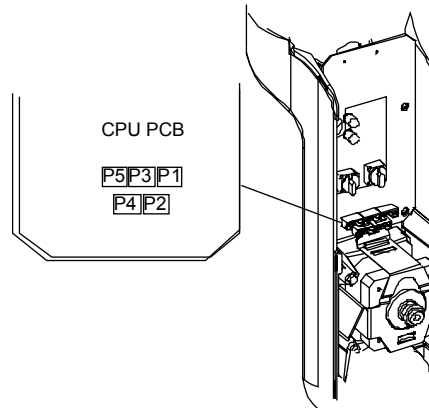
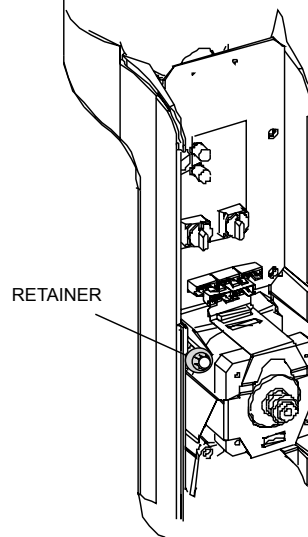


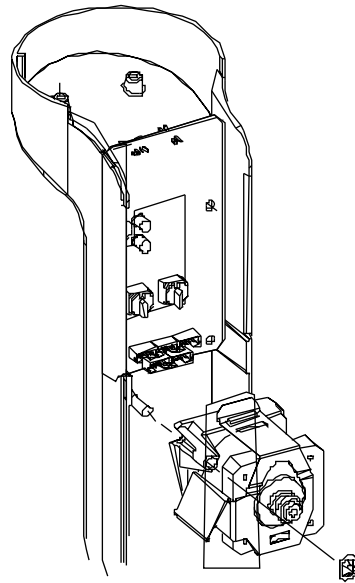
Table 1-3: Connector / Function Table

Conn. / Heat shrink	With color filters only	Color with Douser or Diffuser	Douser and Diffuser only
P1 / Blue	Blue Filter	Blue Filter	
P2 / Yellow	Amber Filter	Amber Filter	
P3 / Red	Magenta Filter	Magenta Filter	Diffuser
P4 / Black		Douser or Diffuser	Douser
P5 / none	Tilt Motor	Tilt Motor	Tilt Motor

3. Pry retainer off post in yoke arm.

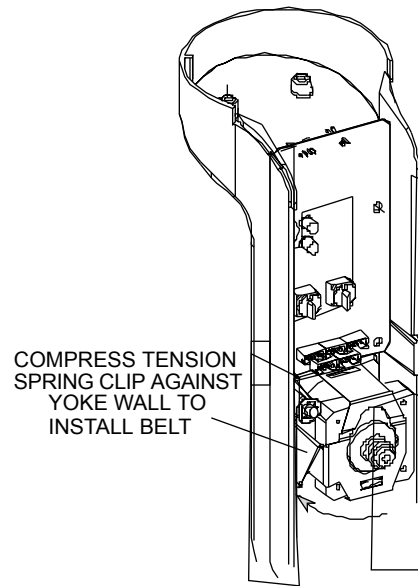


4. Remove cable ties that secures wires to spring clip.
5. Grasp motor assembly and lift off mounting post.



6. Install new motor assembly by pushing onto mounting post.
7. Press new retainer onto mounting post over motor mount to keep motor assembly in place. Press into place with 5/16 nutdriver or socket.
8. Reconnect tilt motor to connector P5 of CPU PCB.

9. Slip drive belt over drive pulley on tilt motor. Pressing side of motor to compress spring clip against yoke arm will shift drive shaft and gear toward driven pulley and allow drive belt to be installed more easily.

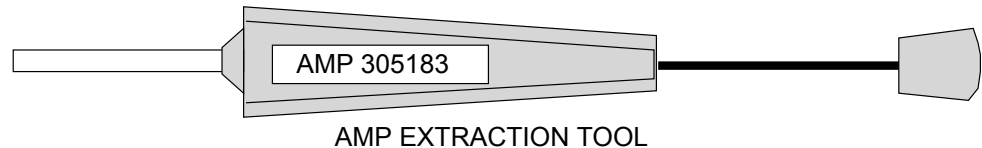


- 1.5.5 Tilt Tube Assembly Replacement
- Disconnect luminaire from mounted position, if mounted.
Refer to maintenance paragraph titled **“Disconnecting the luminaire”**.
- Remove the Yoke Cover.
Refer to maintenance paragraph titled **“Removing the Yoke Cover”**.
- Remove CPU PCB.
Refer to maintenance paragraph titled **“Replacement of CPU PCB”**.

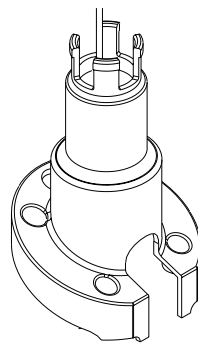
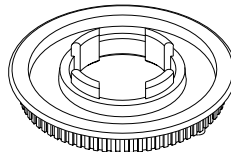
1.5.5 To remove and replace all or part of the tilt tube assembly in the AR50 yoke:

Tools: Screwdriver, slot
Screwdriver, phillips
AMP pin extraction tool (P/N 305183)
Slip-joint pliers

1. Using phillips screwdriver, loosen APS PCB in upper enclosure enough to unplug MNLOK 2 position plug housing from J2. Once unplugged, remove pins from connector using AMP extraction tool and pull wires through upper enclosure and into Yoke Arm.



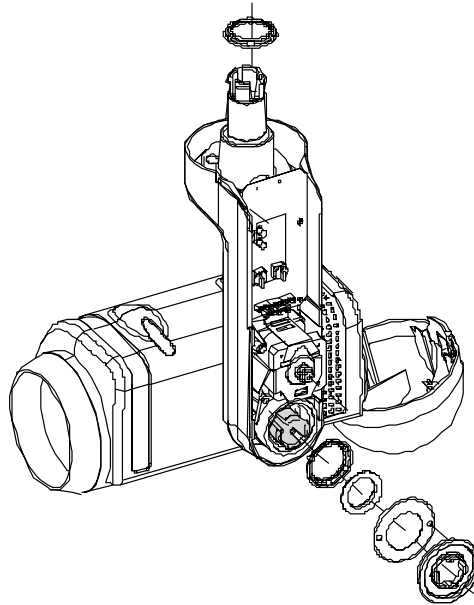
2. Remove drive belt from tilt motor pulley.
3. Tilt tube is mated to driven pulley by four “fingers” that extend through driven pulley and expand to overlap inner rim of pulley center. Locate four fingers belonging to tilt tube (The tilt tube fingers are wider than the raised sections of the driven pulley itself).



4. Using slip-joint pliers, compress two opposing fingers while sliding a screwdriver under driven pulley flange to lift pulley and create pressure against tilt tube.

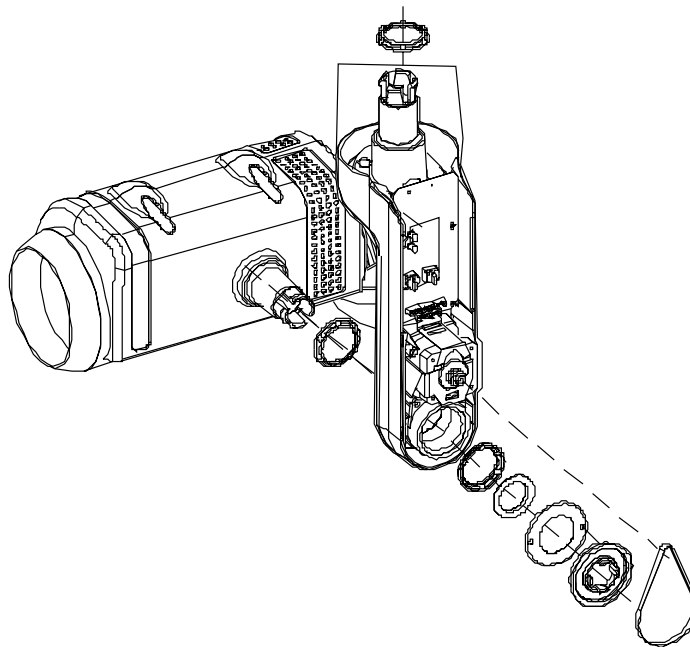
Note: Take care not to compress the tilt tube fingers too tightly or create excessive pressure as fingers will break off requiring axle side-body replacement.

5. With screwdriver creating pressure against pulley and tilt tube, use slip-joint pliers to compress remaining two tilt tube fingers. This action should result in driven pulley being released from grasp of tilt tube fingers, allowing separation of driven pulley, driven pulley flange, bearing sleeve, and bearing assemblies.



6. Disassemble only those portions necessary to replace desired pieces.
7. Reassemble tilt tube assembly by reversing above steps. Driven pulley flange forms a side wall to pulley and has a small lip along outer edge. The turn of the lip is outward and away from pulley.

Illustration below shows proper assembly sequence. Do not forget to route required wiring through tilt tube and pulley assembly pieces.



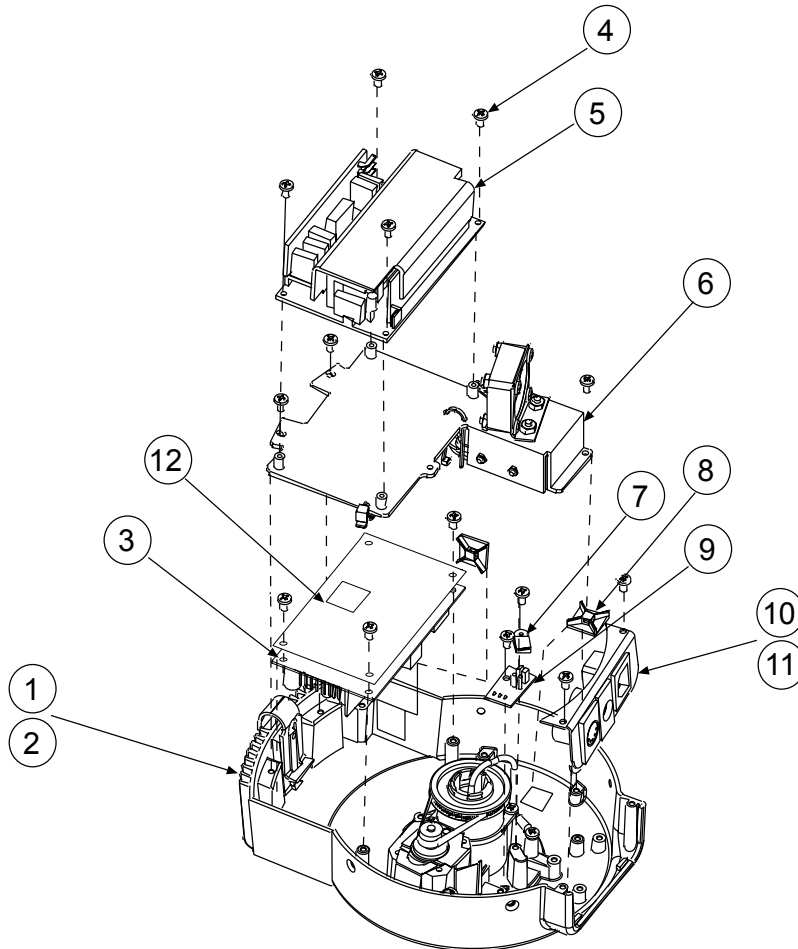
8. Route Ignitor wires back through Pan tube assembly and into upper enclosure.
9. Reinstall pins into MNLOK 2 position plug housing and connect to J2 of APS PCB. Refer to wiring diagram to verify proper pin reinsertion (APS PCB to Ignitor PCB).
10. Secure APS PCB in upper enclosure.

11. Install CPU PCB in yoke arm.
Refer to maintenance paragraph titled **“Replacement of CPU PCB”**.
12. Replace yoke arm cover.
Refer to maintenance paragraph titled **“Replacing the Yoke Cover”**.

Chapter 2 - Illustrated Parts Breakdown

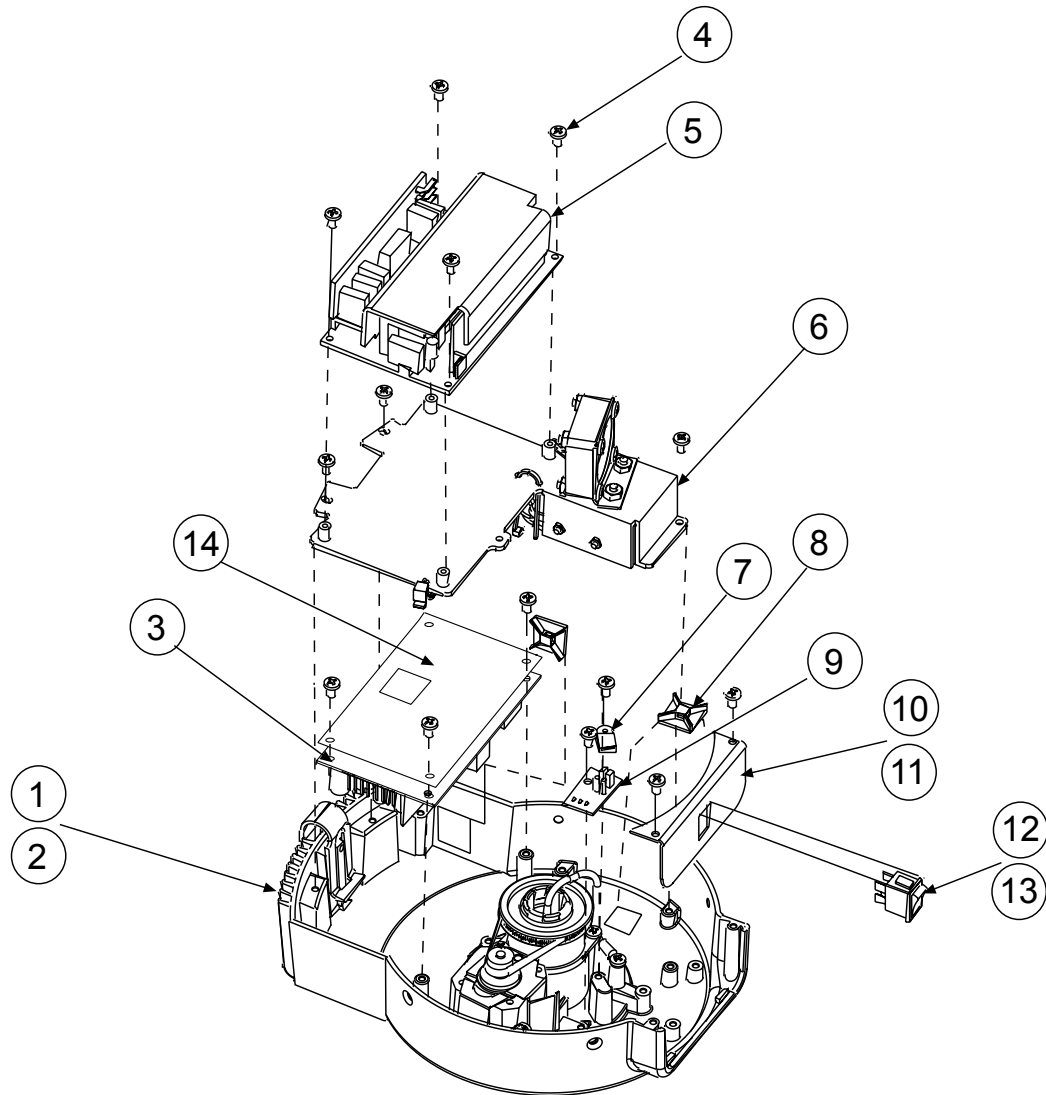
2.1 Upper Enclosure

2.1.1 AR50 Upper Enclosure Assembly, 7092A1324-1 through 7092A1324-4 Connector Version



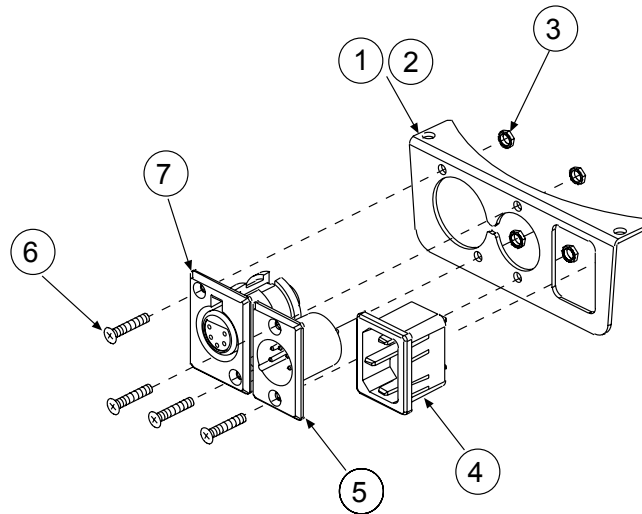
Item	Qty	Part Number	Description
1	1	7092A2103-1	Base sub-assembly white
2	1	7092A2103-2	Base sub-assembly black
3	1	PS159	Power supply 45 Watts
4	16	HW2193	SCR 6-32 x 1/4 ph PH MS Zinc
5	1	PS163	Ballast HID 45 Watts
6	1	7092A1099	Base plate sub-assembly
7	1	HW7105	Cable anchor MNT #8 SCW MNT
8	2	HW7109	SADL CBL 75X75 4 Way
9	1	7092B5009	AR50 Comm protection Assembly
10	1	7092B2011-1	AR50 Con Input PNL white harness
11	1	7092B2011-2	AR50 Con Input PNL black harness
12	1	7092A4062	Nomex Insulator Power Supply

2.1.2 AR50 Upper Enclosure Assembly, 7092A1324-5 through 7092A1324-8 Terminal Strip Version



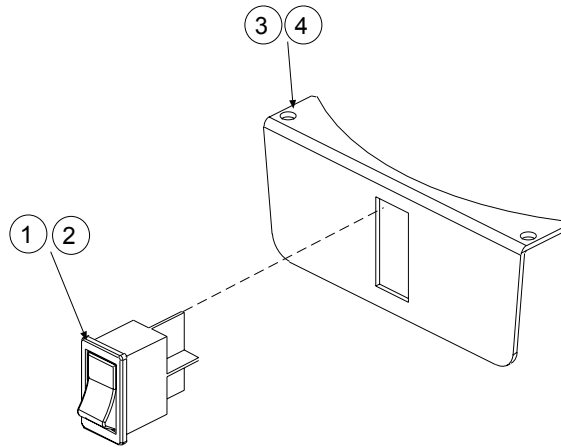
Item	Qty	Part Number	Description
1	1	7092A2103-1	Base sub-assembly white
2	1	7092A2103-2	Base sub-assembly black
3	1	PS159	Power supply 45 Watts
4	16	HW2193	SCR 6-32 x 1/4 ph PH MS Zinc
5	1	PS163	Ballast HID 45 Watts
6	1	7092A1099	Base plate sub-assembly
7	1	HW7105	Cable anchor MNT #8 SCW MNT
8	2	HW7109	SADL CBL 75X75 4 Way
9	1	7092B5009	AR50 Comm protection Assembly
10	1	7092B2011-1	White switch plate
11	1	7092B2011-2	Black switch plate
12	1	S318	White switch
13	1	S319	Black switch
14	1	7092A4062	Nomex Insulator Power Supply

2.1.3 Assembly, Input Panel, AR50 7092B7020 (connector version)



Item	Qty	Part Number	Description
1	1	7092A3028-1	BRKT I/O IEC & XLR WHT
2	1	7092A3028-2	BRKT I/O IEC & XLR BLK
3	4	HW196	Nut 4-40 Keps
4	1	J294	Recept IEC 320 PWRINLT
5	1	J687	CON SM XLR Panel D5MB Black
6	4	HW1149	SCR 4-40 x 5/16" PFSS
7	1	J686	CON 5F XLR Pan D5FB BLK (NEU)

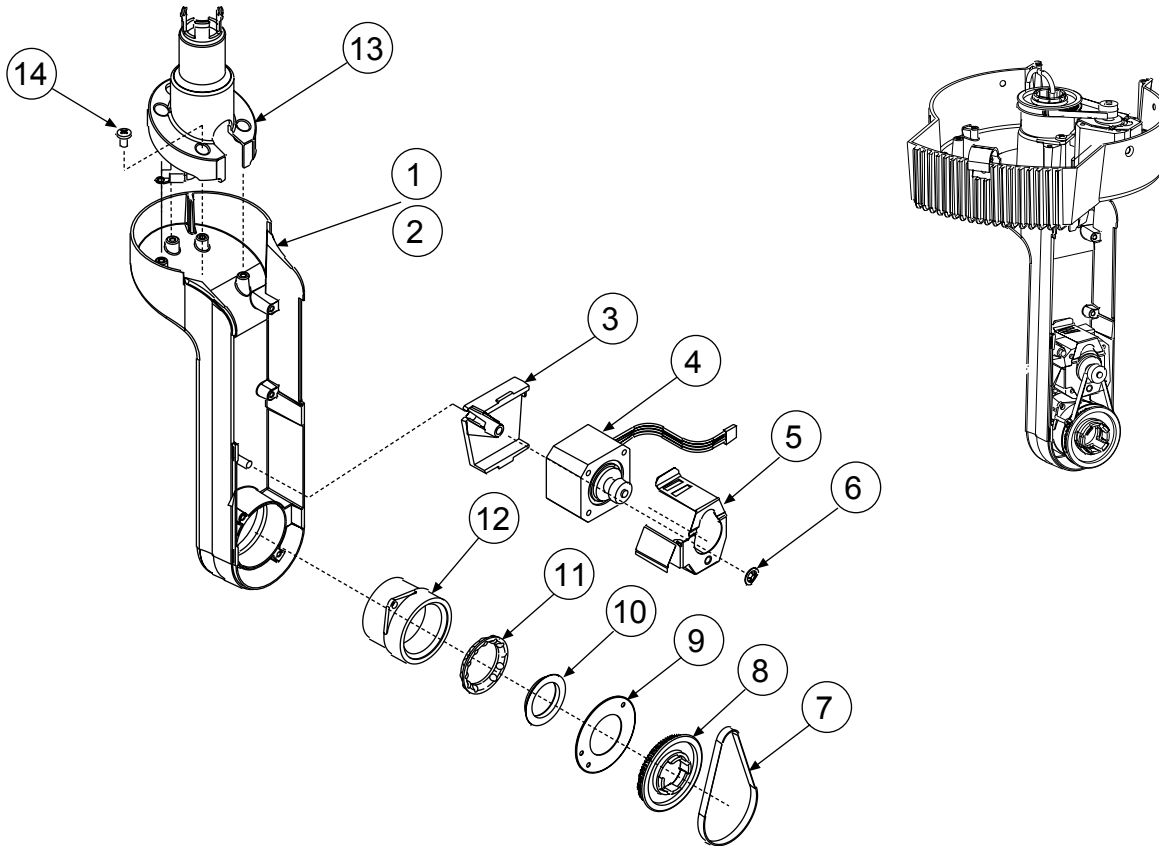
2.1.4 Assembly, Top Entry, AR50 7092A3067



Item	Qty	Part Number	Description
1	1	S318	Switch, DPST, 277 VAC. White
2	1	S319-2	Switch, DPST, 277 VAC. Black
3	4	7092A3067-1	Bracket, I/O, Power Switch, White
4	1	7092A3067-2	Bracket, I/O, Power Switch, Black

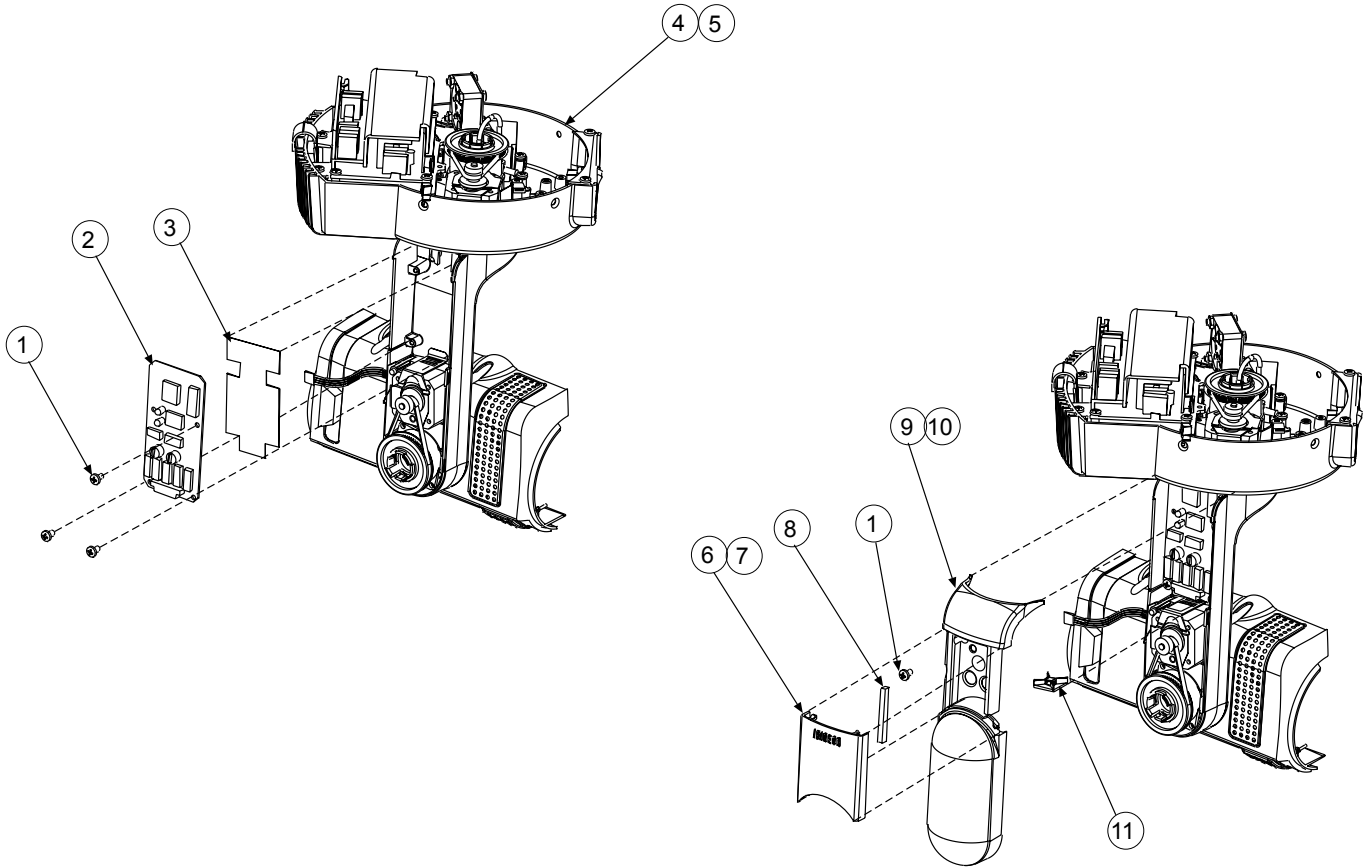
2.2 Yoke

2.2.1 Pan and Tilt Yoke Assembly 7092A2103



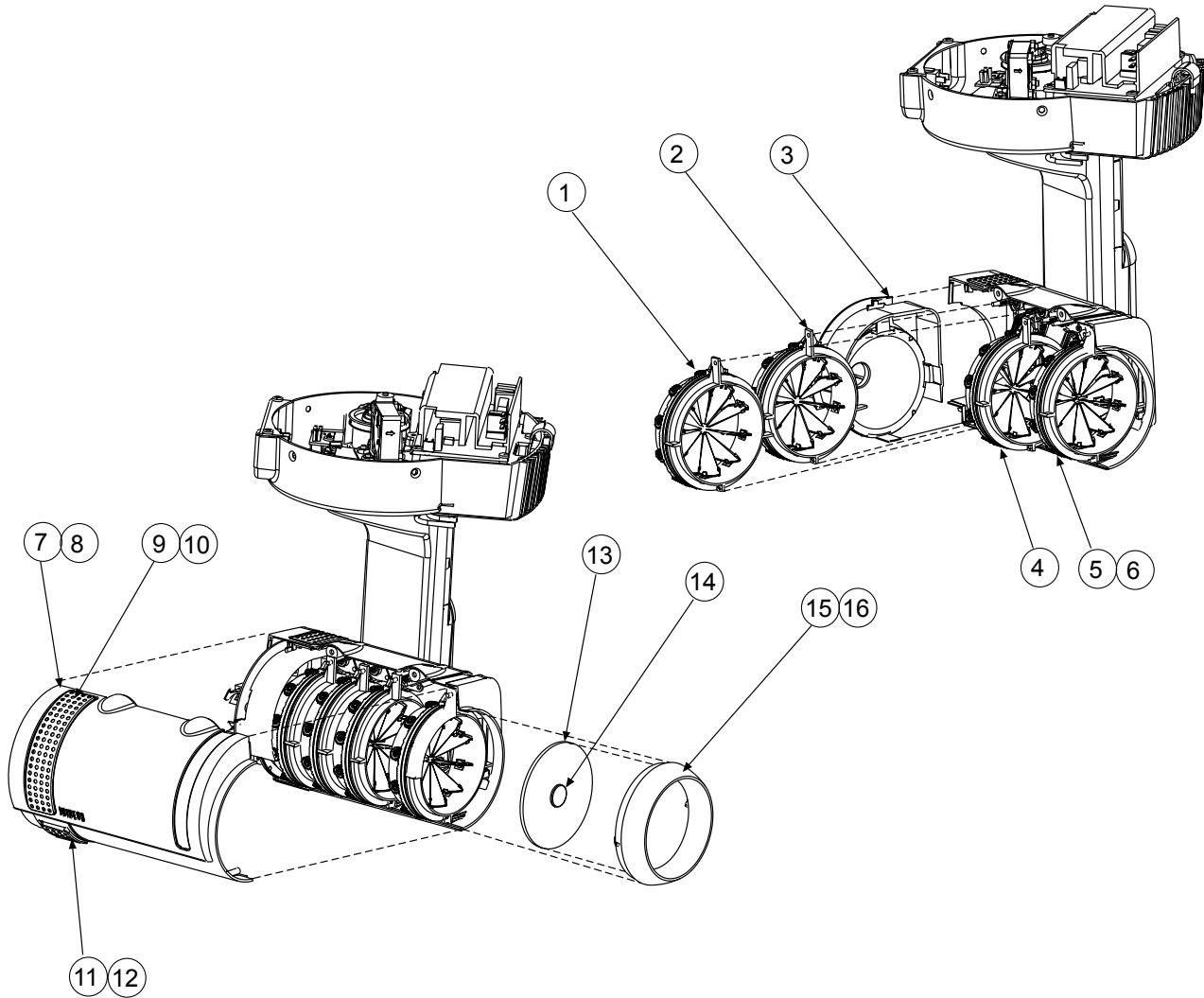
Item	Qty	Part Number	Description
1	1	7092A3057-1	Yoke Arm White
2	1	7092A3057-2	Yoke Arm Black
3	1	7092A3019	MNT Motor
4	1	B205	Motor Stepper 18 Deg. AR50 Tilt
5	1	7092A3027	Clip Motor Pan End Tilt
6	1	7092A3032	Clip Retainer
7	1	HW9228	Timing Belt
8	1	7092A3058	Pulley Driven
9	1	7092A3059	Flg Driven Pulley AR50
10	1	7092A3016	Bearing Sleeve
11	1	7092A2055	Assembly Bearing AR50 Pan/Tilt
12	1	7092A3017	Race Outer Pan and Tilt
13	1	7092A3007	Tube Pan
14	4	HW2193	Scr 6-32 X 1/4 PHPHMS

2.2.2 Yoke Arm Assembly 7092A1324-4



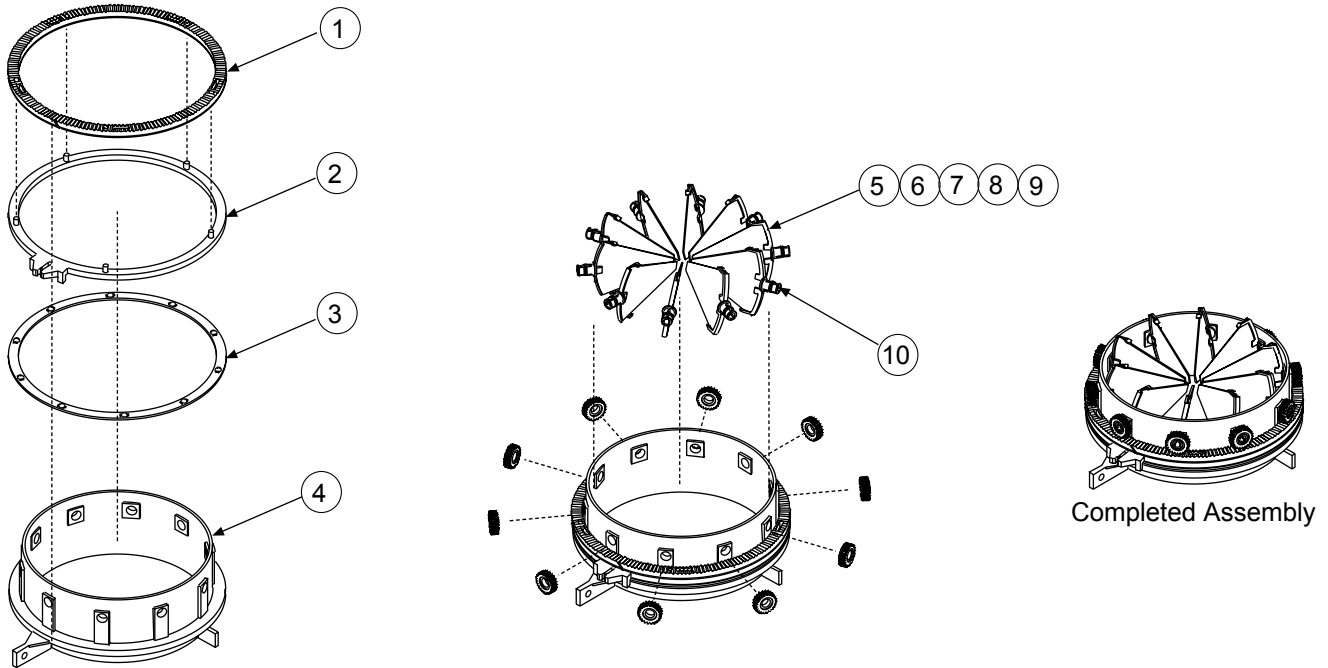
Item	Qty	Part Number	Description
1	3	HW2193	Scr 6-32 X 1/4 ph PH MS Zinc
2	1	7092B5008	Controller Assembly
3	1	7092A3080	Insulator Fish Paper
4	1	7092A2103-1	Base Sub-Assembly White
5	1	7092A2103-2	Base Sub-Assembly Black
6	1	7092A3061-1	Door Yoke Cover White
7	1	7092A3061-2	Door Yoke Cover Black
8	1	7092A3020-1	Yoke Cover White
9	1	7092A3020-2	Yoke Cover BlackHW7109
10	1	HW7109	SADL Cable 75X75 4-Way

2.3 Head Assembly, AR50



Item	Qty	Part Number	Description
1	1	7092A2077-2	Assembly Filter Mech. Amber V2
2	1	7092A2077-1	Assembly Filter Mech. Blue V2
3	1	7092A2075	Reflector Sub-Assembly
4	1	7092A2077-2	Assembly Filter Mech. Magenta V2
5	1	7092A2077-4	Assembly Filter Mech. Dimmer V2
6	1	7092A2077-5	Assembly Filter Mech. Diffuser V2
7	1	7092A3052-1	Body Cover White
8	1	7092A3052-2	Body Cover Black
9	1	7092A3022-1	Large Vent Cover White
10	1	7092A3022-2	Large Vent Cover Black
11	1	7092A3054-1	Small Vent White
12	1	7092A3054-2	Small Vent Black
13	1	7092A4057-2	15 Degree Lens Front Circular Beam
14	1	7092A3049	Light Blocker
15	1	7092A3005-1	Front Ring White
6	1	7092A3005-2	Front Ring Black\

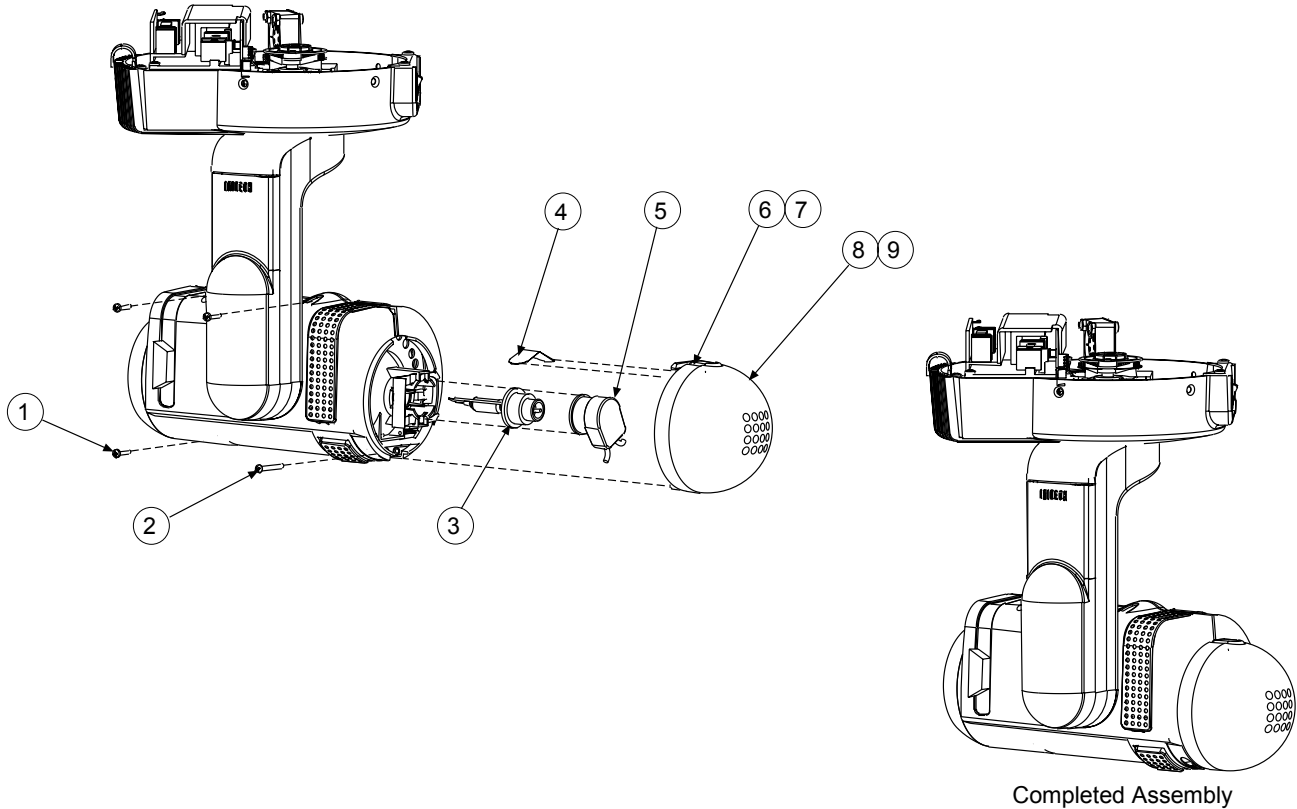
2.3.1 Filter Sub-Assembly 7092A2077



Item	Qty	Part Number	Description
1	1	7092A3012	Ring Rack
2	1	7092A3071	Race Ring
3	1	7092A2056	Assembly Bearings
4	1	7092A3060	Color Bulkhead
5	1	OP1016	Blue Filter
6	1	OP1017	Amber Filter
7	1	OP1018	Magenta Filter
8	1	7092A3033	Dimmer
9	1	7092A4055	Diffuser
10	1	7092A3002	Carrier

2.4 Rear Enclosure

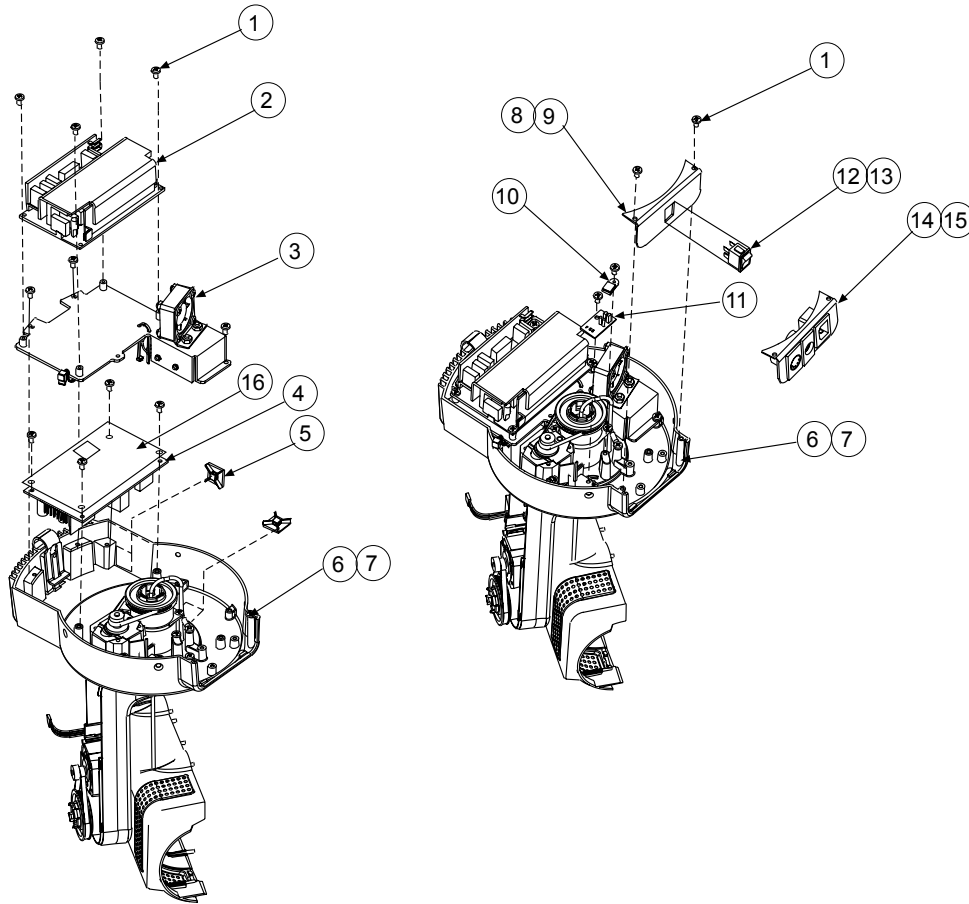
2.4.1 Rear Enclosure Assembly 7092A1324-6



Item	Qty	Part Number	Description
1	3	HW2210	Screw 6-32 Plast
2	1	HW2213	Screw 614 X 1125 PPC
3	1	RT168	Lamp 50W
4	1	7092A3037	Rear Enclosure Spring
5	1	RT146	Lamp Socket DL-35
6	1	7092A3014-1	Rear Enclosure Button White
7	1	7092A3014-2	Rear Enclosure Button Black
8	1	7092A3064-1	Rear Enclosure White
9	1	7092A3064-2	Rear Enclosure Black

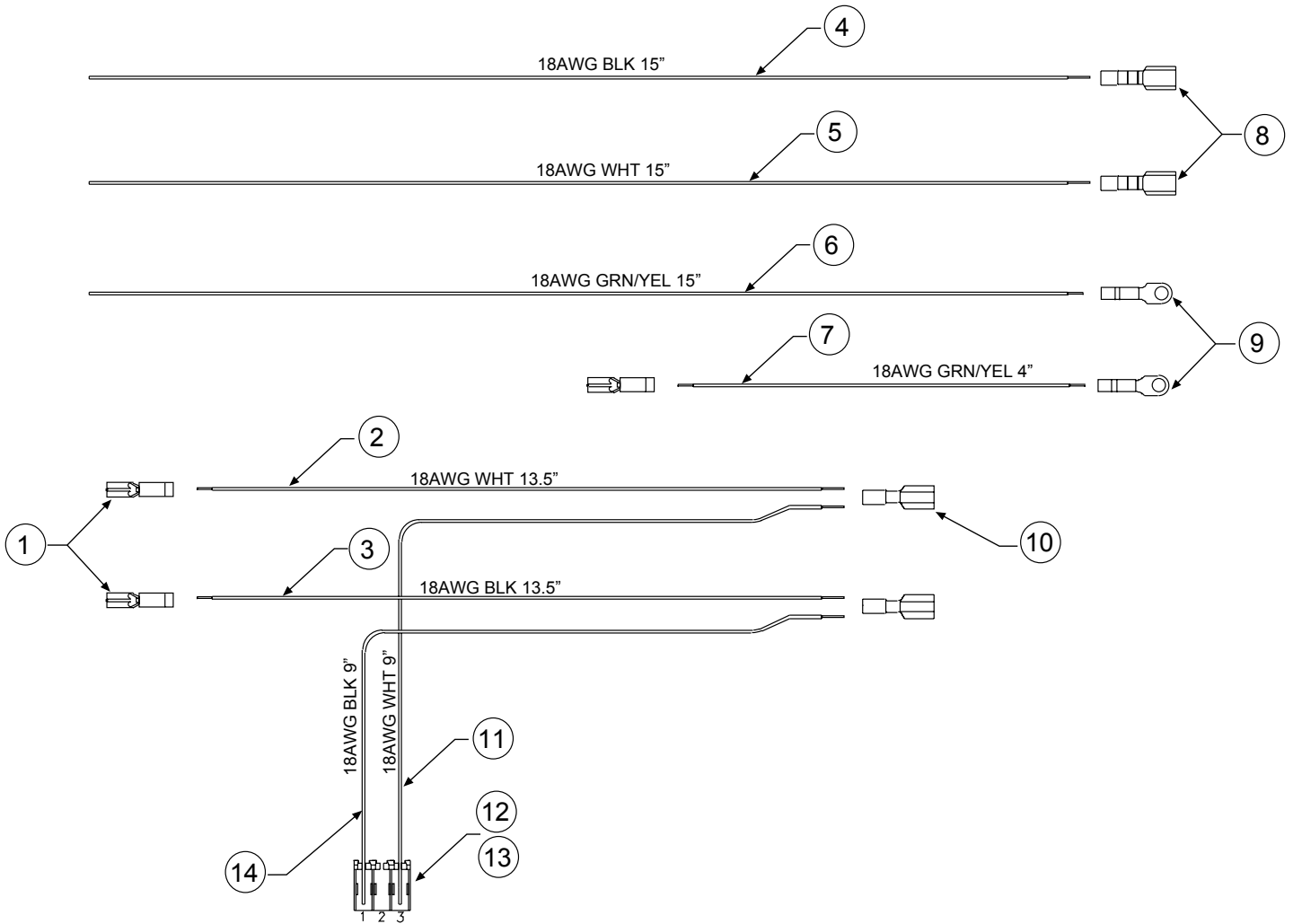
2.5 Base Assembly

2.5.1 Base Assembly 7092A1324-3



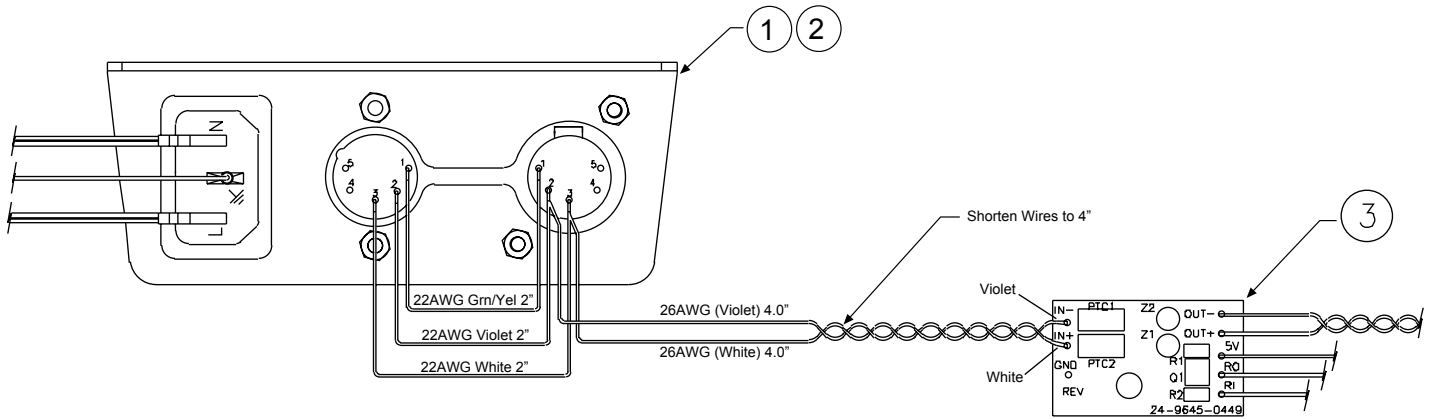
Item	Qty	Part Number	Description
1	15	HW2193	Screw 6-32 X1/4 ph PH MS Zinc
2	1	PS163	Ballast HID 45 Watts
3	1	7092A2099	Base Plate Sub-Assembly
4	1	PS159	Power Supply 45 Watts
5	2	HW7109	SADL CBL 75X75 4-Way
6	1	7092A52103-1	Base Sub-Assembly White
7	1	7092A52103-2	Base Sub-Assembly Black
8	1	7092A3067-1	White Switch Plate
9	1	7092A3067-2	Black Switch Plate
10	1	HW7105	CABL Anchor MNT #8 Screw Mount
11	1	7092B5009	AR50 Comm Protection Assembly
12	1	S318	White Switch
13	1	S319	Black Switch
14	1	7092B2011-1	AR50 Con Input Panel White Harness
15	1	7092B2011-2	AR50 Con Input Panel Black Harness
16	1	7092A4062	Nomex Insulator Power Supply

2.6.2 Cable Assembly, Input, Top Entry 7092B7019



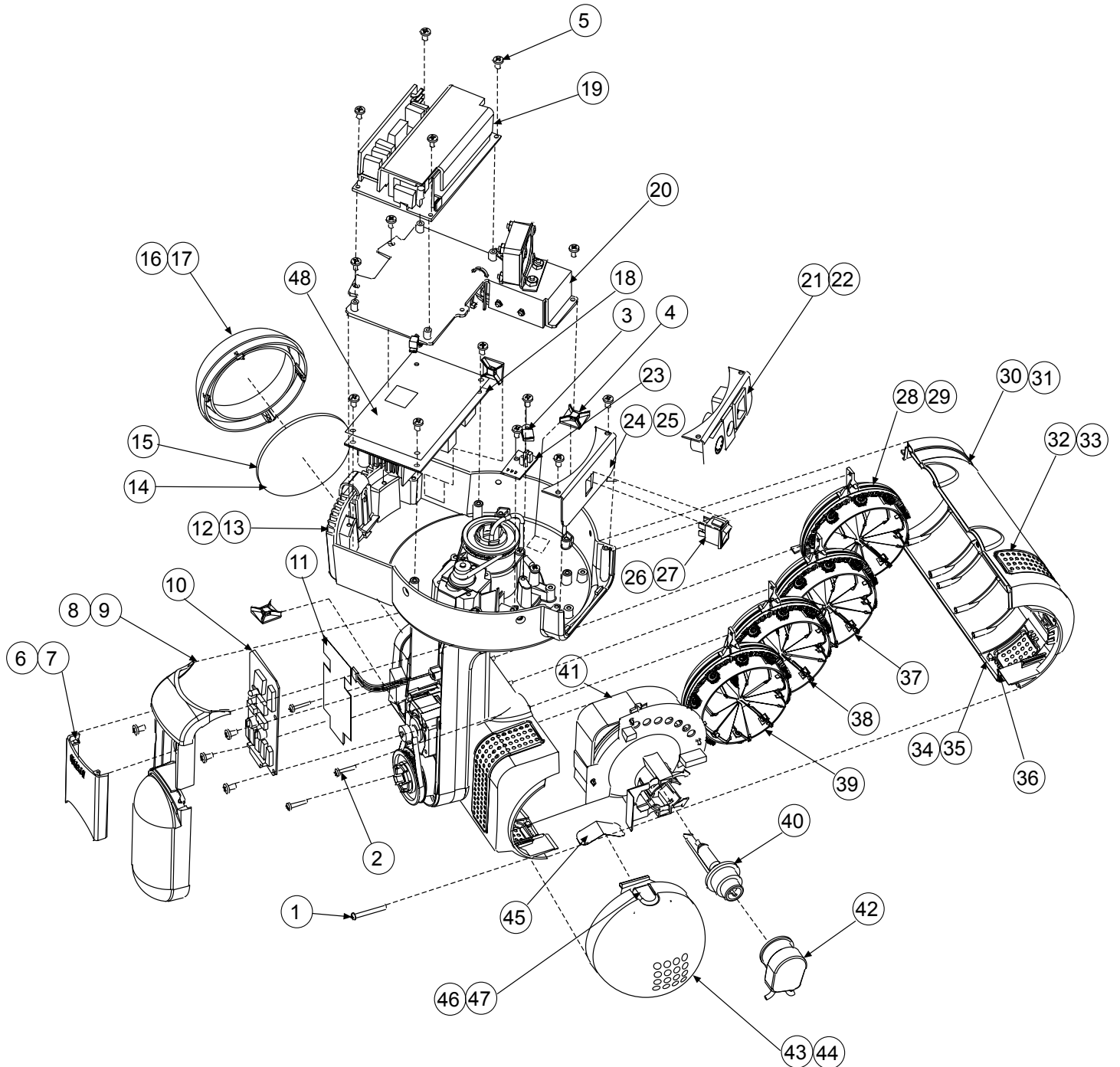
Item	Qty	Part Number	Description
1	3	J418	DIS 22-18 .110 X .032 Red
2	1	W320	Wire 18GA 300V 105C White 1007
3	1	W314	Wire 18GA 300V 105C Black 9918
4	1	W314	Wire 18GA 300V 105C Black 9918
5	1	W320	Wire 18GA 300V 105C White 1007
6	1	W329	Wire 18GA 300V 105C Grn/Yel
7	1	W329	Wire 18GA 300V 105C Grn/Yel
8	2	J416T	Term DIS .187 22-18 AWG FI Red
9	2	J427T	Term Ring #6 22-18 GA Red T&B
10	2	J4132	Term DIS .187 F 14-16 FI Blue
11	1	W320	Wire 18GA 300V 105C White 1007
12	1	J6538	CVR MTA156 3 Pos Strain Relief
13	1	J6541	Conn MTA156 3 Pos 18 AWG Blk
14	1	W314	Wire 18GA 300V 105C Black 9918

2.6.3 Cable Assembly, Connector Input Harness 7092B2011



Item	Qty	Part Number	Description
1	1	7092B7020-1	AR50 Con Input Panel White Harness
2	1	7092B7020-2	AR50 Con Input Panel Black Harness
3	1	7092B5009	AR50 Comm Protection Assembly

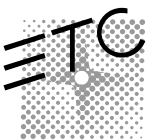
2.7 Final Assembly, AR50



Item	Qty	Part Number	Description
1	1	HW2213	Screw 6-14 X 1125 PPC
2	3	HW2210	Screw 6-32 PLAST
3	1	HW7105	Cable Anchor MNT #8 SCW MNT
4	3	HW7109	SADL CABL 75X75 4 Way

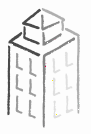
Item	Qty	Part Number	Description
5	20	HW2193	Screw 6-32 X 1/4 ph PH MS Zinc
6	1	7092A3061-1	Door Yoke Cover White
7	1	7092A3061-2	Door Yoke Cover Black
8	1	7092A3020-1	Yoke Cover White
9	1	7092A3020-2	Yoke Cover Black
10	1	7092B5008	Controller Assembly
11	1	7092A3080	Insulator Fish Paper
12	1	7092A2103-1	Base Sub-Assembly White
13	1	7092A2103-2	Base Sub-Assembly Black
14	1	7092A3049	Light Blocker
15	1	7092A4057-2	15 Degree Lens Front Circular Beam
16	1	7092A3005-1	Front Ring White
17	1	7092A3005-2	Front Ring Black
18	1	PS159	Power Supply 45 Watts
19	1	PS163	Ballast HID 45 Watts
20	1	7092A2099	Base Plate Sub-Assembly
21	1	7092B2011-1	AR50 Con Input Panel White Harness
22	1	7092B2011-2	AR50 Con Input Panel Black Harness
23	1	7092B5009	AR50 Comm Protection Assembly
24	1	7092A3067-1	White Switch Plate
25	1	7092A3067-2	Black Switch Plate
26	1	S318	White Switch
27	1	S319	Black Switch
28	1	7092A2077-4	Assembly Filt Mech Dimmer V2
29	1	7092A2077-5	Assembly Filt Mech Diff V2
30	1	7092A2073-1	Body Cover Assembly White
31	1	7092A2073-2	Body Cover Assembly Black
32	1	7092A3022-1	Large Vent Cover White
33	1	7092A3022-2	Large Vent Cover Black
34	1	7092A3054-1	Small Vent White
35	1	7092A3054-2	Small Vent Black
36	1	7092A3055	Small Vent Baffle
37	1	7092A2077-3	Assembly Filt Mech Magenta V2
38	1	7092A2077-2	Assembly Filt Mech Amber V2
39	1	7092A2077-1	Assembly Filt Mech Blue V2
40	1	RT168	Lamp 50 Watt
41	1	7092A2075	Reflector Sub-Assembly
42	1	RT146	Lamp Socket DL-35
43	1	7092A2078-1	Assembly Rear Enclosure White
44	1	7092A2078-2	Assembly Rear Enclosure Black
45	1	7092A3037	Rear Enclosure Spring
46	1	7092A3014-1	Rear Enclosure Button White
47	1	7092A3014-1	Rear Enclosure Button Black
48	1	7092A4062	Nomex Insulator Power Supply

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Americas • 3030 Laura Lane Middleton, WI 53562 • Tel: (+1) 608.831.4116 • Fax: (+1) 608.836.1736 • Toll free: 800.688.4116 • Toll free fax: 800.555.8912
Europe • 5 Victoria Industrial Estate, Victoria Road, London W3 6UU • Tel: +44 (0)20 8896 1000 • Fax: +44 (0)20 8896 2000
Asia • Room 605-606, Tower III Enterprise Square • 9 Sheung Yuet Road, Kowloon Bay • Kowloon, Hong Kong • Tel: (+852) 2799 1220 • Fax: (+852) 2799 9325
International • 3030 Laura Lane Middleton, WI 53562 • Tel: (+1) 608.831.4116 • Fax: (+1) 608.836.1736 • Toll free: 800.688.4116 • Toll free fax: 800.555.8912
Web: www.etconnect.com • **Email:** mail@etconnect.com

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