Service Instruction

for

LED Pod Replacement on Aurora Lights

TEC-B-0142 REV1

02/02/15

Confidential – For Skytron Employees Only

1 Purpose:

This service instruction provides instructions for replacing LED pods on Aurora lights.

2 Scope:

This service instruction applies to all Aurora light fixtures. Refer to the applicable Parts manuals for part numbers on replacement LED pods.

3 Responsible Areas:

All SKYTRON Authorized Service Representatives

4 Requirements:

- Skytron recommends that the entire light fixture be re-lamped. As a minimum, LED pods must be installed in sets of 5 or 7 for each faulty lighthead by an authorized SKYTRON service representative.
- The circuit boards located inside the lightheads, wall control, and control enclosure housing are static sensitive devices that can be damaged if appropriate ESD precautionary measures are not taken. Ensure that appropriate ESD procedures are followed when accessing the inside of a lighthead or wall control, including the use of an ESD wrist strap.
- Only Skytron trained and certified personnel shall perform this procedure.

5 Safety Requirements:

- This procedure involves accessing the inside of a control cabinet with 120VAC live power supplied to it in order to reset the change indicator circuit board. Use extreme caution stay clear of all wiring when accessing the inside of the control cabinet and take appropriate measures to minimize the risk of electric shock (e.g., PPE, insulated needle nose pliers, etc).
- Keep fingers clear of pinch points in BOMs when positioning the lightheads for LED pod removal. Always use wood blocks (or other alternative) to prevent the BOMs from springing back up when the lighthead cover is removed.

6 Required Tools and Equipment

Tool #	Description	Illustration
N/A	Wood Block (or Alternative) – Cut to Fit Application	
N/A	Small Flathead Screwdriver	
N/A	2.5mm Hex Wrench	
N/A	ESD Wrist Strap	
N/A	Volt Meter (Fluke Multimeter)	

7 Instructions

7.1 Ceiling Mounted Light Fixture

If you are replacing LED pods in a ceiling mounted light fixture, perform the instructions in 7.1.1 through 7.1.5 for each lighthead in the light fixture. After all LED pods have been replaced and the lightheads have been thoroughly tested, perform the instructions in 7.1.6, *Reset the Change Indicator Circuit Board*.

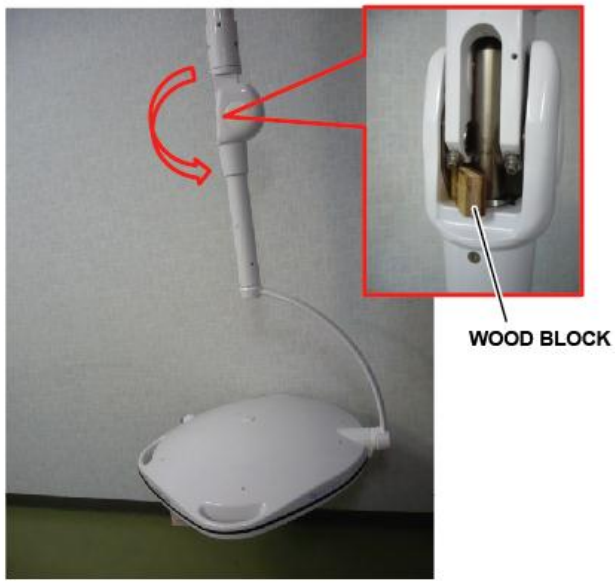
7.1.1 Position Lighthead for Cover Removal

NOTICE

If spacing limitation in a room prevents the lighthead from being pulled down fully, then secure the BOM in the bent position to prevent upward movement.

CAUTION

Keep fingers clear of pinch point at the BOM joint.

Step	Instruction	Illustration / Details
1	Pull down the lighthead requiring the LED pod replacement by the positioning handles until the BOM is pointing straight down.	
2	Insert a wood block (or alternative) into the BOM joint to prevent the upward movement of the lighthead.	
3	Position the lighthead so the diffuser is parallel with the floor and the top cover is facing up.	

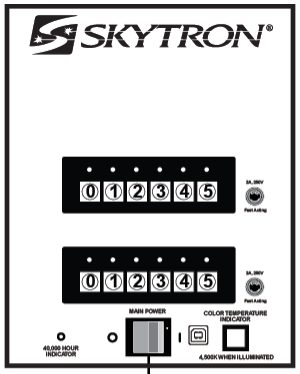
7.1.2 Remove Lighthead Cover

WARNING

Make sure the electrical supply power to the lighthead is turned off before attempting to remove or replace any components on the lighthead.

CAUTION

Use care not to damage the trim seal when removing it from the groove in the lighthead. A damaged trim seal must be replaced before use.

Step	Instruction	Illustration / Details
1	Place **MAIN POWER** switch in the **O** (off) position at the wall control.	
2	Use a small flat head screwdriver to carefully dislodge the trim seal from the groove around the lighthead. Move the trim seal from the groove to the front face side of the lighthead as shown.	

CAUTION

Use care not to damage the rubber retainer caps during removal. Damaged rubber retainer caps must be replaced before use.

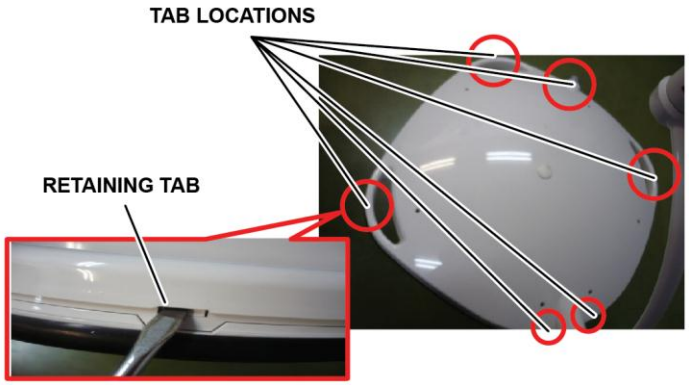
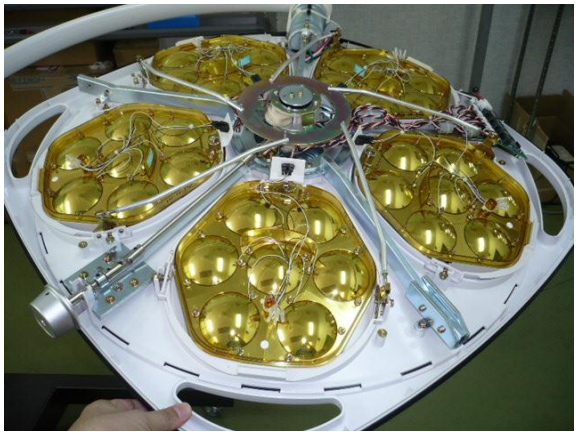
Step	Instruction	Illustration / Details
3	Insert the small flat head screwdriver into the center slot of a rubber retainer cap. Angle the screw driver and pull the cap out. Repeat for the remaining caps.	
4	Use a 2.5mm hex wrench to remove the retainer screws that secure the top cover in place.	

CAUTION

Use care not to push the tabs in too far with the screwdriver. The tabs can break if they are flexed beyond their designed range of use.

CAUTION

Removing the top cover changes the balance of the light, causing it to swing upward without the wood stop in place.

Step	Instruction	Illustration / Details
5	Use the small flat head screwdriver to push one of the the top cover retaining tabs. With the tab depressed, insert a zip tie or similar object in the tab opening to prevent it from closing. Repeat for the remaining tabs.	
6	Lift the top cover off the lighthead and set aside. Remove the zip ties (or similar objects) from the tab openings.	
7	Use clean-dry medical air or anti-static electronic spray to remove any dust or particulates from inside the lighthead that could contaminate the diffuser lens area when the LED pods are removed.	

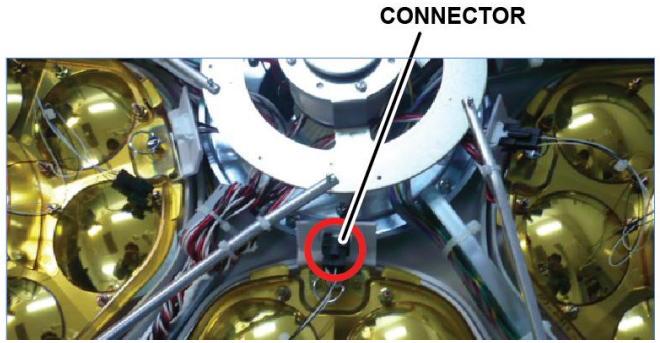
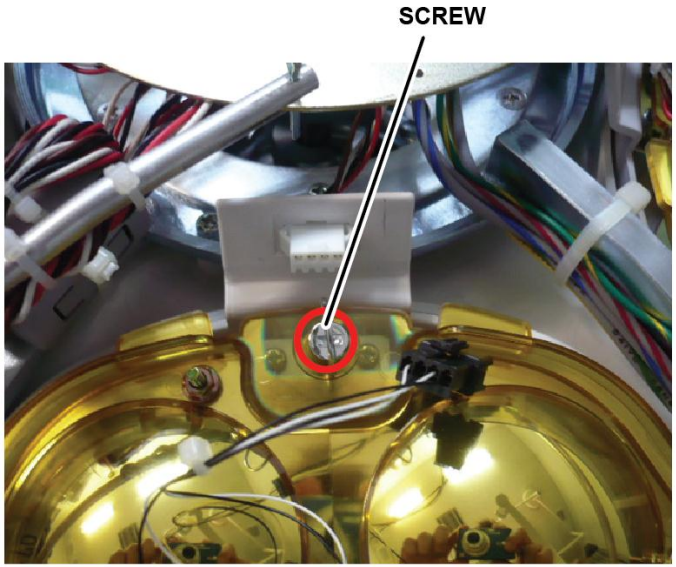
7.1.3 Replace LED Pods

CAUTION

ESD wrist strap must be worn at all times when handling internal lighthead components. Failure to do so could result in a static discharge, that could damage the printed circuit boards located inside the lighthead.

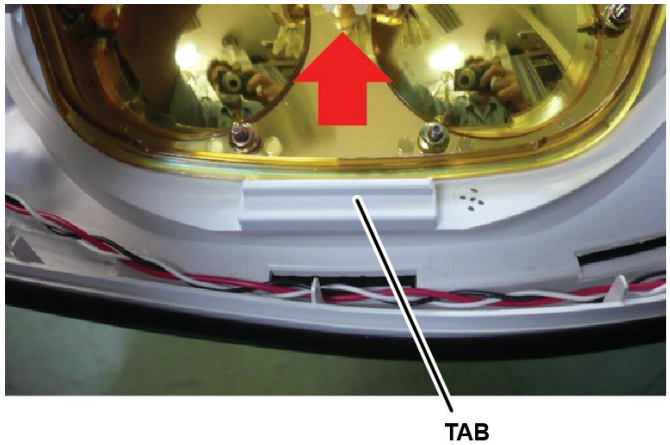
NOTE

The Aurora LED series use a ¼ turn screw to secure the LED pod to the reflector mount. All other Aurora lights use a standard screw.

Step	Instruction	Illustration / Details
1	Disconnect the LED pod connector from its mating connector.	
2	Loosen or remove the screw that secures the LED pod to the reflector mount.	

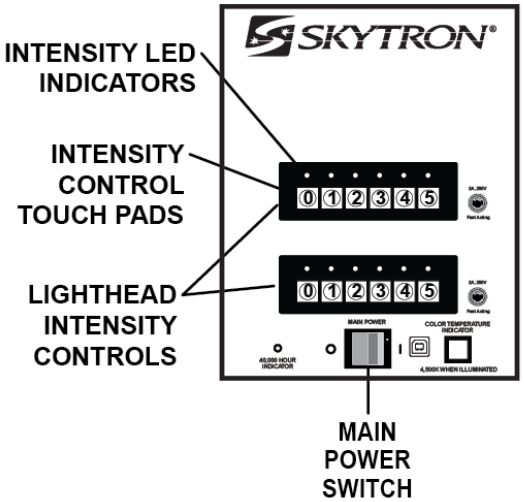
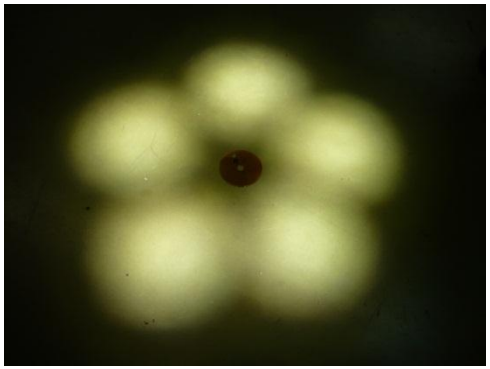
NOTICE

Make sure the LED pod connectors are connected firmly to assure that the LED pod turns on properly.

Step	Instruction	Illustration / Details
3	Lift up on the screw end of the LED pod, then slide the LED pod towards the center of the lighthead until the tab in the LED pod clears the slot in the reflector mount. Remove the LED pod.	
4	Install the new LED pod by reversing the above Steps **1** through **3**.	
5	Repeat Steps **1** through **4** for the remaining LED pods on the lighthead.	
6	Inspect the inside of the lighthead to ensure that it is free of all contaminants and/or debris, all LED pod connectors are fully seated, and all wiring is contained within the lighthead.	

NOTICE

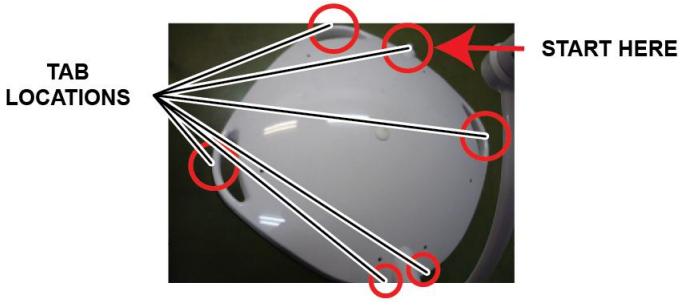
If the corresponding lighthead intensity controls on the wall control is set to “0”, the lighthead will not illuminate. Pressing any of the other intensity control touchpads (1 through 5) will turn on the lighthead.

Step	Instruction	Illustration / Details
7	Place the **MAIN POWER** switch in the **I** (on) position at the wall control. Confirm that all of the LED pods turn on at the lighthead.	
8	Confirm the integrity of the focus pattern resembles the photograph on the right and that the individual light spots cross over when the focus pattern is adjusted from the focus knob and the center focus handle mechanisms.	
9	Place the **MAIN POWER** switch in the **O** (off) position.	

7.1.4 Re-install Cover

CAUTION

Ensure the tabs are properly aligned with the cover before attempting to install the cover. DO NOT force the cover into place when installing. It should snap into place with minimum resistance.

Step	Instruction	Illustration / Details
1	Install the top cover on the lighthead starting at the focus knob end of the lighthead. Confirm that all tabs snap into place as the cover is installed and that there are no pinched wires.	
2	Inspect the trim seal. Replace the trim seal if there are any nicks, cuts, or other signs of damage or degradation that could impact the trim seal's ability to prevent fluid ingress into the lighthead.	
3	Carefully install the trim seal back into the groove in the lighthead.	

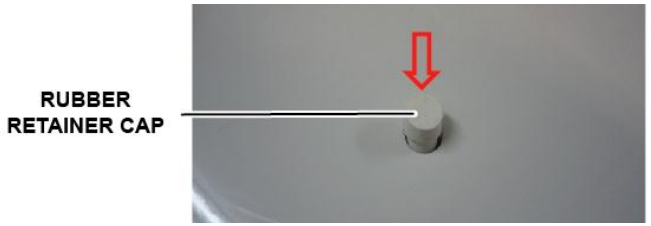
CAUTION

Failure to use the proper method of installing and torqueing the top cover retainer screws can result in damage to the molded lighthead components and may compromise focus alignment and mechanism function.

Over-torqueing the top cover retainer screws will result in pull out damage of the molded in threaded inserts.

NOTICE

Make sure that the rubber retainer screw caps are seated properly to provide the necessary fluid ingress protection.

Step	Instruction	Illustration / Details
4	Use the 2.5mm hex wrench to install the retainer screws that secure the top cover in place. When installing the retainer screws: • Use an alternating star pattern on each of the retainer screw locations to gradually and evenly draw (tighten) the top cover in place. • Avoid applying excessive force to the top cover retainer screws greater than 13 inch-pounds. • Observe the perimeter of the top cover to ensure that the trim seal finds the correct placement into the groove in the lighthead.	
5	Inspect the rubber retainer caps. Replace the rubber retainer caps if there are any nicks, cuts, or other signs of damage or degradation that could impact the retainer cap's ability to prevent fluid ingress into the lighthead.	
6	Install the rubber retainer caps, making sure the curve in each cap aligns with the curve in the top cover.	

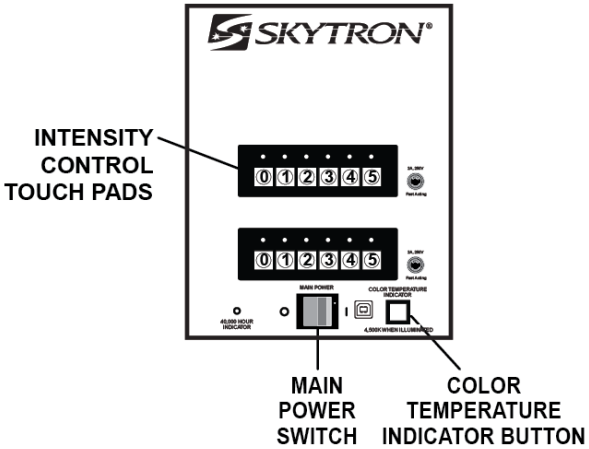
7.1.5 Test Lighthead Operation

CAUTION

Keep fingers clear of pinch point at the BOM joint.

NOTICE

Pressing the “0” intensity control touchpad turns off the lighthead.

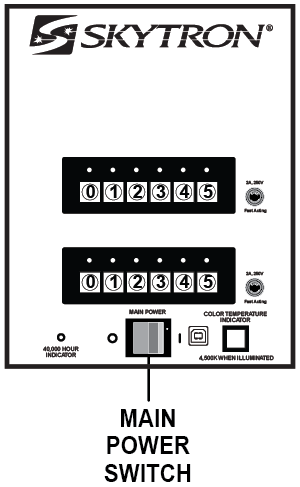
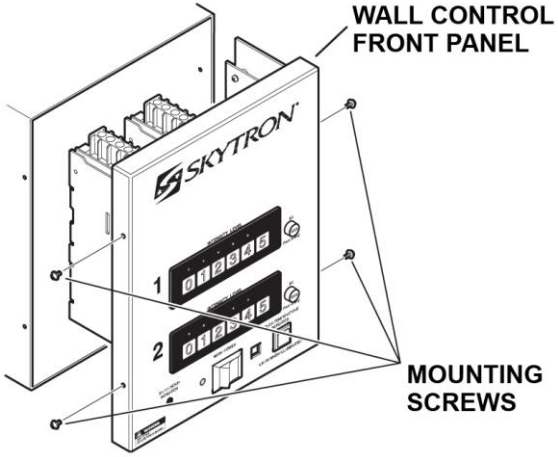
Step	Instruction	Illustration / Details
1	Remove wood block (or alternative) securing the lighthead in the down position.	
2	Use the positioning handles to position the lighthead in the desired position to test the operation of the lighthead.	
3	Place the **MAIN POWER** switch in the **I** (on) position.	
4	At the corresponding light intensity controls, touch each of the intensity control touchpads (0 through 5) and verify that the lighthead intensity changes accordingly.	
5	Toggle the **COLOR TEMPERATURE INDICATOR** button and verify that the lighthead switches from the soft white (4100K) to the bright white (4500K) color temperature settings.	
6	Remove the protective cover on the VST to gain access to the lighthead wiring (crimp connectors).	
7	Use a voltmeter to check the output voltage (red and white wires). Record the lighthead output voltage on a service report form.	
8	Place the **MAIN POWER** switch in the **O** (off) position.	
9	Inspect and clean the lighthead as instructed in the Owner’s manual.	

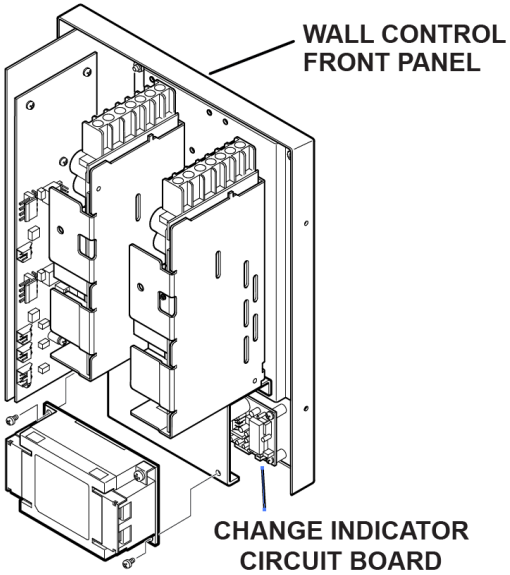
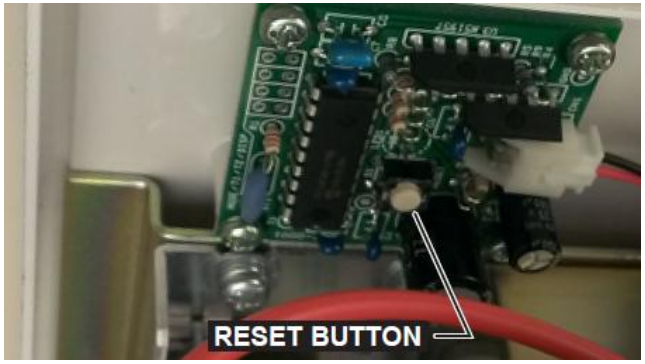
7.1.6 Reset the Change Indicator Circuit Board

Use the following procedure to reset the change indicator circuit board for the light fixture. Because there is only one timer PCB for the light fixture, all the lightheads in the light fixture will have to have the LED pods replaced before resetting it.

WARNING

AC line power is still present inside the wall control. Use care not to contact live wires when accessing the inside of the wall control cabinet.

Step	Instruction	Illustration / Details
1	Place the **MAIN POWER** switch in the **O** (off) position at the wall control.	
2	Remove the mounting screws that secure the wall control front panel to the housing, then tilt the front panel upward from the bottom.	

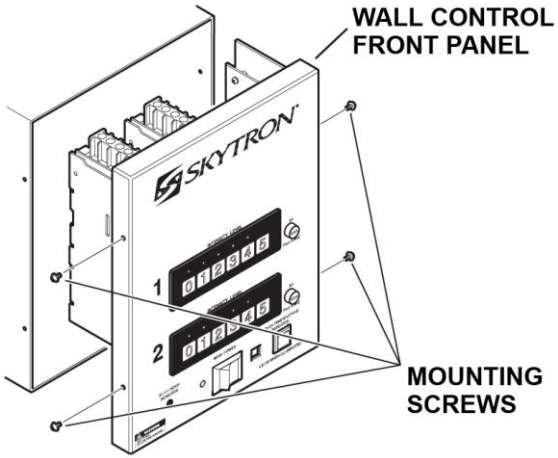
Step	Instruction	Illustration / Details
3	Locate the change indicator circuit board on the inside of the wall control front panel	
4	Locate the reset button on the change indicator circuit board. Press button and hold for 2 seconds to reset.	

CAUTION

ESD wrist strap must be worn when accessing the change indicator circuit board. Failure to do so could result in a static discharge, that could damage the circuit board.

WARNING

AC line power is still present inside the wall control. Use care not to contact live wires when accessing the inside of the wall control cabinet.

Step	Instruction	Illustration / Details
5	Use a voltmeter to check the incoming supply voltage (brown and blue wires) at the wall control. Record the incoming supply voltage on the service report form.	
6	Re-install the wall control front panel using the mounting screws removed in Step **2**.	
7	Complete the service report.	

7.2 Portable Stand Mounted Light Fixture

7.2.1 Position Lighthead for Cover Removal

CAUTION

Keep fingers clear of pinch point at the BOM joint.

Step	Instruction	Illustration / Details
1	Pull down the lighthead by the positioning handles until the BOM is fully down.	
2	Insert a wood block (or alternative) into the BOM joint to prevent the upward movement of the lighthead.	
3	Position the lighthead so the diffuser is parallel with the floor and the top cover is facing up.	

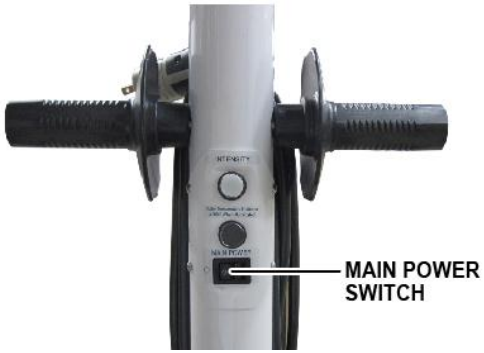
7.2.2 Remove Lighthead Cover

WARNING

Make sure the electrical supply power to the lighthead is turned off before attempting to remove or replace any components on the lighthead.

CAUTION

Use care not to damage the trim seal when removing it from the groove in the lighthead. A damaged trim seal must be replaced before use.

Step	Instruction	Illustration / Details
1	Ensure that the power cord for the portable stand light fixture is unplugged and that the **MAIN POWER** switch is in the **O** (off) position.	
2	Use a small flat head screwdriver to carefully dislodge the trim seal from the groove around the lighthead. Move the trim seal from the groove to the front face side of the lighthead as shown.	

CAUTION

Use care not to damage the rubber retainer caps during removal. Damaged rubber retainer caps must be replaced before use.

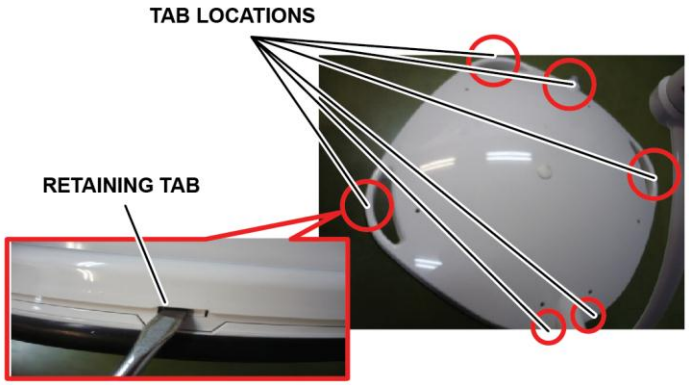
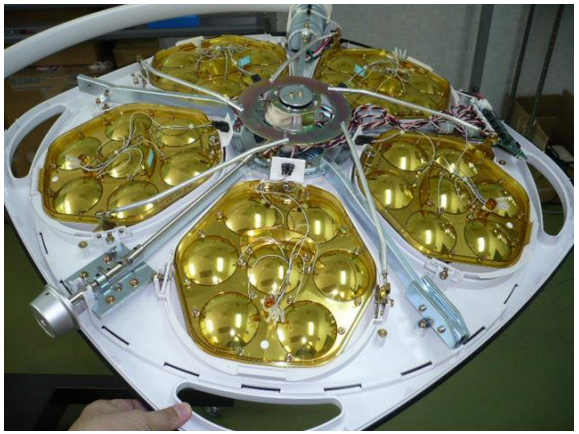
Step	Instruction	Illustration / Details
3	Insert the small flat head screwdriver into the center slot of a rubber retainer cap. Angle the screw driver and pull the cap out. Repeat for the remaining retainer caps.	
4	Use a 2.5mm hex wrench to remove the retainer screws that secure the top cover in place.	

CAUTION

Use care not to push the tabs in too far with the screwdriver. The tabs can break if they are flexed beyond their designed range of use.

CAUTION

Removing the top cover changes the balance of the light, causing it to swing upward without the wood stop in place.

Step	Instruction	Illustration / Details
5	Use the small flat head screwdriver to push in a top cover retaining tab. With the tab depressed, insert a zip tie or similar object in the tab opening to prevent it from closing. Repeat for the remaining tabs.	
6	Lift the top cover off the lighthead and set aside. Remove the zip ties (or similar objects) from the tab openings.	
7	Use clean-dry medical air or anti-static electronic spray to remove any dust or particulates from inside the lighthead that could contaminate the diffuser lens area when the LED pods are removed.	

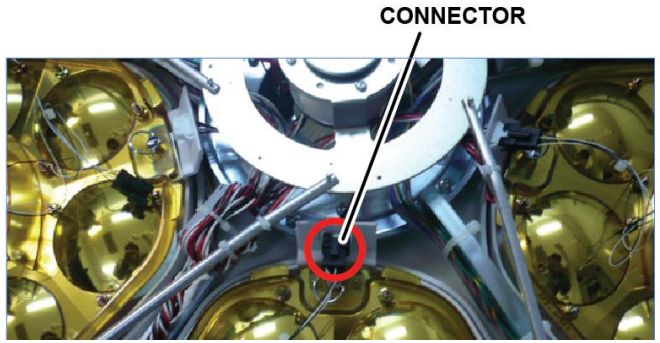
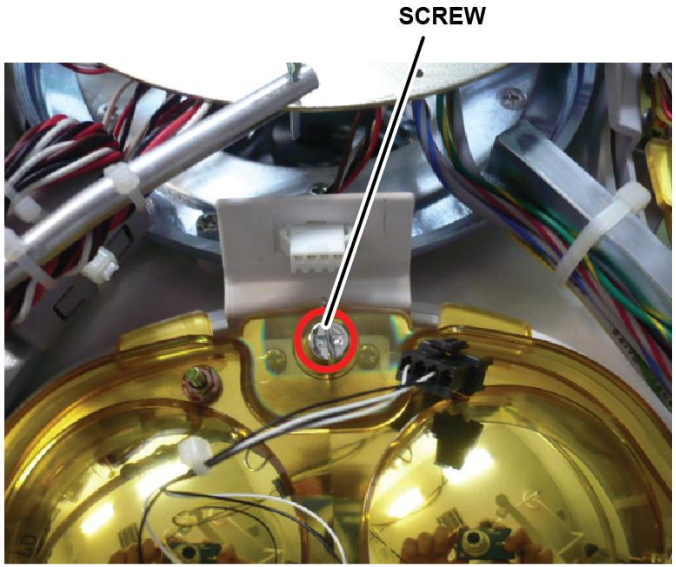
7.2.3 Replace LED Pods

CAUTION

ESD wrist strap must be worn at all times when handling internal lighthead components. Failure to do so could result in a static discharge, that could damage the printed circuit boards located inside the lighthead.

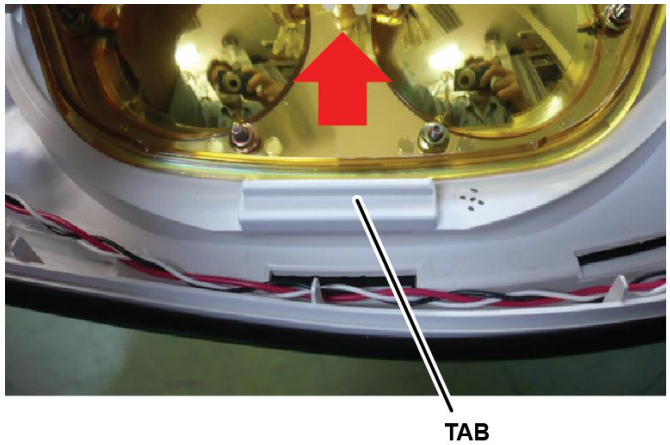
NOTE

The Aurora LED series use a ¼ turn screw to secure the LED pod to the reflector mount. All other Aurora lights use a standard screw.

Step	Instruction	Illustration / Details
1	Disconnect the LED pod connecter from its mating connector.	
2	Loosen or remove the screw that secures the LED pod to the reflector mount.	

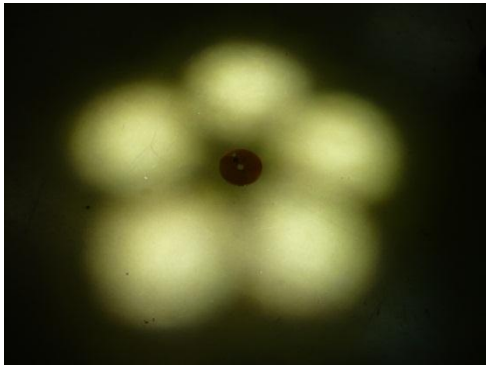
NOTICE

Make sure the LED pod connectors are connected firmly to assure that the LED pod turns on properly.

Step	Instruction	Illustration / Details
3	Lift up on the screw end of the LED pod, then slide the LED pod towards the center of the lighthead until the tab in the LED pod clears the slot in the reflector mount. Remove the LED pod.	
4	Install the new LED pod by reversing the above Steps **1** through **3**.	
5	Repeat Steps **1** through **4** for the remaining LED pods on the lighthead.	
6	Inspect the inside of the lighthead to ensure that it is free of all contaminants and/or debris, all LED pod connectors are fully seated, and all wiring is contained within the lighthead.	

NOTICE

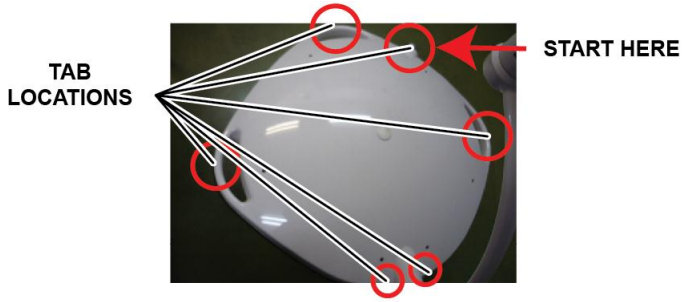
If the corresponding lighthead intensity controls on the wall control is set to “0”, the lighthead will not illuminate. Pressing any of the other intensity control touchpads (1 through 5) will turn on the lighthead.

Step	Instruction	Illustration / Details
7	Plug the power cord into a power source (wall outlet) and place the **MAIN POWER** switch in the **I** (on) position. Confirm that all of the LED pods turn on at the lighthead.	
8	Confirm the integrity of the focus pattern resembles the photograph on the right and that the individual light spots cross over when the focus pattern is adjusted from the focus knob and the center focus handle mechanisms.	
9	Place the **MAIN POWER** switch in the **O** (off) position and unplug the power cord.	

7.2.4 Re-install Cover

CAUTION

Ensure the tabs are properly aligned with the cover before attempting to install the cover. DO NOT force the cover into place when installing. It should snap into place with minimum resistance.

Step	Instruction	Illustration / Details
1	Install the top cover on the lighthead starting at the focus knob end of the lighthead. Confirm that all tabs snap into place as the cover is installed and that there are no pinched wires.	
2	Inspect the trim seal. Replace the trim seal if there are any nicks, cuts, or other signs of damage or degradation that could impact the trim seal's ability to prevent fluid ingress.	
3	Install the trim seal back into the groove in the lighthead.	

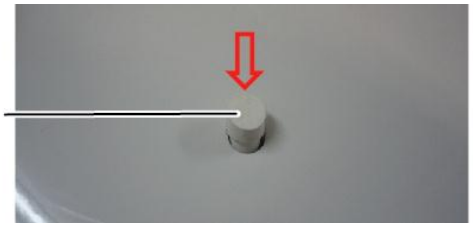
CAUTION

Failure to use the proper method of installing and torqueing the top cover retainer screws can result in damage to the molded lighthead components and may compromise focus alignment and mechanism function.

Over-torqueing the top cover retainer screws will result in pull out damage of the molded in threaded inserts.

NOTICE

Make sure that the rubber retainer screw caps are seated properly to provide the necessary fluid ingress protection.

Step	Instruction	Illustration / Details
4	Use the 2.5mm hex wrench to install the retainer screws that secure the top cover in place. When installing the retainer screws: • Use an alternating star pattern on each of the retainer screw locations to gradually and evenly draw (tighten) the top cover in place. • Avoid applying excessive force to the top cover retainer screws greater than 13 inch-pounds. Observe the perimeter of the top cover to ensure that the trim seal finds the correct placement into the groove in the lighthead.	
5	Inspect the rubber retainer caps. Replace the rubber retainer caps if there are any nicks, cuts, or other signs of damage or degradation that could impact the retainer cap's ability to prevent fluid ingress into the lighthead.	
6	Install rubber retainer caps, making sure the curve in each cap aligns with the curve in the top cover.	

7.2.5 Test Lighthead Operation

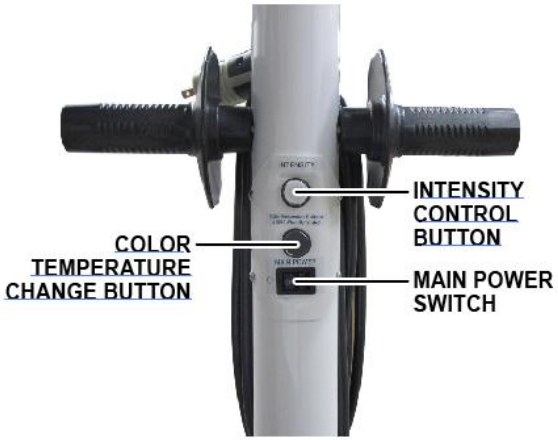
CAUTION

Keep fingers clear of pinch point at the BOM joint.

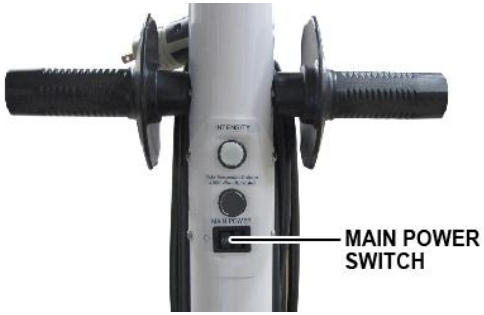
Step	Instruction	Illustration / Details
1	Remove wood block (or alternative) securing the lighthead in the down position.	
2	Use the positioning handles to position the lighthead in the desired position to test the operation of the lighthead.	

NOTICE

Pressing the “0” intensity control touchpad turns off the lighthead.

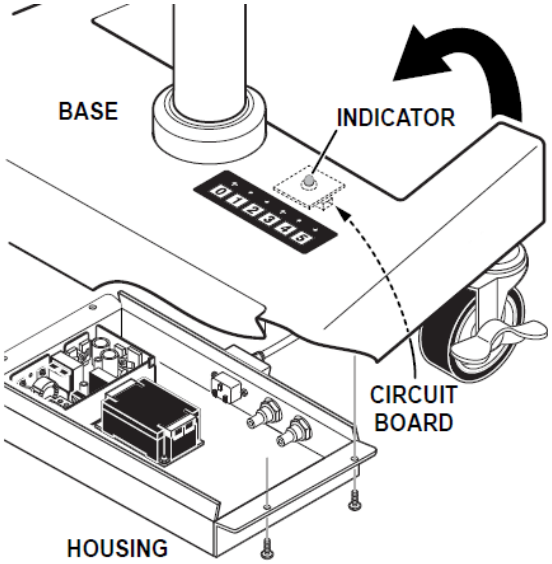
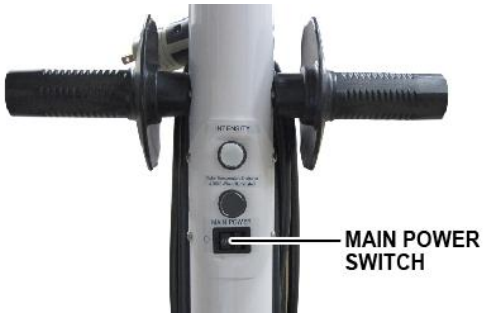
Step	Instruction	Illustration / Details
3	Plug the power cord into a power source (wall outlet) and place the **MAIN POWER** switch in the **I** (on) position.	
4	At the corresponding light intensity controls, touch each of the intensity control touchpads (0 through 5) and verify that the lighthead intensity changes accordingly	
5	Toggle the **COLOR TEMPERATURE INDICATOR** button and verify that the lighthead switches from the soft white (4100K) to the bright white (4500K) color temperature settings.	
6	Unplug the power cord and place the **MAIN POWER** switch in the **O** (off) position.	
7	Inspect and clean the lighthead as instructed in the Owner’s manual	

7.2.6 Reset the Change Indicator Circuit Board

Step	Instruction	Illustration / Details
1	Ensure that the power cord is unplugged and the **MAIN POWER** switch is in the **O** (off) position.	

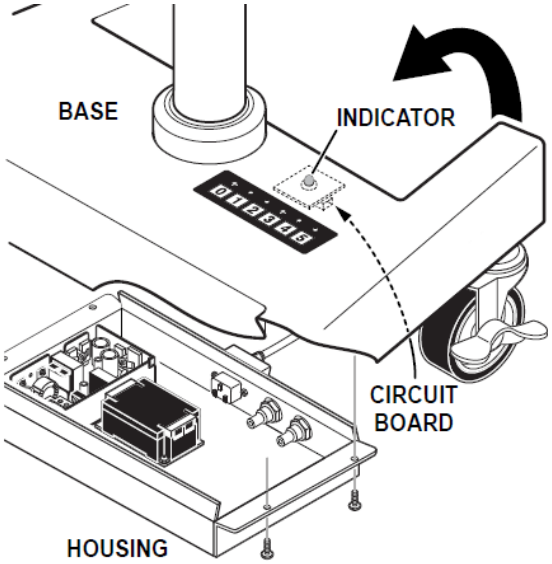
WARNING

AC line power is still present within the house. Use care not to contact live wires when accessing the inside of the enclosure housing.

Step	Instruction	Illustration / Details
2	Carefully turn the portable stand light over on it's back to access the bottom of the base.	
3	Remove the four (4) screws that secure the housing to the base. Lower the housing away from the base.	
4	Plug the power cord into a power source (wall outlet) and place the **MAIN POWER** switch in the **I** (on) position.	
5	Use a volt meter to check the incoming supply voltage (red and white wires) at the input connector (in support post)at the and the output voltage (red and blue wires) at the output connector (in support post).	Record voltage readings on a service report form.
6	Place the **MAIN POWER** switch in the **O** (off) position.	

NOTICE

ESD wrist strap must be worn when accessing the change indicator circuit board. Failure to do so could result in a static discharge, that could damage the circuit board.

Step	Instruction	Illustration / Details
7	Locate the reset button on the change indicator circuit board. Press button and hold for 2 seconds to reset.	
8	Unplug the power cord.	
9	Re-assemble the portable stand light by reversing Steps **2** and **3**.	
10	Complete the service report.	

8 Acronyms

Term/Acronym	Definition
AC	Alternating Current
BOM	Balance Mechanism
Caution	With the safety alert symbol, indicates a hazardous situation that, if not avoided, could result in minor or moderate injury. Without the safety alert symbol, addresses practices not related to personal injury but with a possibility of damage to the equipment.
ESD	Electrostatic Discharge (ESD) is the sudden flow of electricity between two electrically charged objects caused by contact, an electrical short, or dielectric breakdown.
LED	A light-emitting diode (LED) is a two-lead semiconductor light source. It is a basic pn-junction diode, which emits light when activated.
mm	Millimeters
Warning	With the safety alert symbol, indicates a hazardous situation that, if not avoided, could result in death or serious injury.

9 Revision History

Revision	Date	Description of Changes
0	01/21/15	Initial release
1	02/02/2015	As a correction, removed LED pod specifics and made this service instruction generic to all Aurora light fixtures.