

Tools Required

- 3/16" hex key (for non-solar bollard without sleeve)
- 1/4" hex key (for non-solar bollard with sleeve)
- Surface mount bollard: The surface mount bollard has a 3/8" thick mounting plate that can accept 4 anchors up to 1/2" dia. thread size. If stud anchors are used, select an anchor length that allows the stud to extend 1" above the mounting surface. Non-corrosive anchoring hardware recommended.
- rebar for footing, if required
- drain tubing to engineered fill, if required

CAUTION! Fixtures and wiring must be installed in accordance with local codes and ordinances. Do not install lighted bollards within 10 feet of a pool, spa, or fountain.

NOTES:

- Locate bollard where solar light receives a minimum of 4 hours of direct sunlight per day. Avoid locations that would become shaded as the path of the sun changes with the seasons. Solar powered light is not suitable for installation at latitudes greater than 50 degrees.
- Landscape Forms is not responsible for site preparation, footings, or electrical wiring.
- The solar light ships with the battery connected. Exposing the unit to sunlight will activate the unit. Do not expose to sunlight until the bollard is ready to be installed in a location where it will receive required exposure to sunlight.
- Failure to allow for proper drainage may void the standard Landscape Forms warranty.

ASSEMBLE WITH CARE! Pangard II® Polyester Powdercoat is a strong, long-lasting finish. To protect this finish during assembly, place unwrapped powdercoated parts on packaging foam or other non-marring surface. Do not place or slide powdercoated parts on concrete or other hard or textured surface – this will damage the finish causing rust to occur. Use touch-up paint on any gouges in the finish caused by assembly tools.

WARNING!: LED cartridge and driver are not rated for connection or disconnection while energized. Doing so may damage LEDs and will void the warranty. Disconnect incoming power before making or breaking any electrical connections.

1. Remove top retaining screws, top casting, optional plastic sleeve, and cover ring from bollard to be mounted. See Fig. 1 and Fig. 5.

PROCEDURE FOR EMBEDDED INSTALLATION, WITHOUT LIGHT:

2. Embed bollard tube in a concrete footing that meets local frost conditions. Be sure to allow for proper drainage. See Fig. 2 and Fig. 3.
3. Clean concrete from bollard tube before it sets. Allow concrete to cure.

PROCEDURE FOR INSTALLATION WITH LED LIGHT:

1. Complete steps 1-6 for surface mount installation or steps 1-3 for embedded.
2. **WITH POWER OFF**, connect fixture wires to supply wires using approved local electrical code standard connectors.

PROCEDURE FOR SURFACE MOUNT INSTALLATION, WITHOUT LIGHT:

2. Place bollard in the desired position and mark hole locations. See Fig. 6.
3. Move bollard to allow access for drilling holes..
4. Drill holes at marked locations according to anchor manufacturer's specification.
5. Clear holes of debris.
6. Complete the anchor installation according to the anchor manufacturer's instructions.

FINAL INSTALLATION STEP:

1. Assemble remaining components. Align holes in top casting with threaded holes for retaining screws. Retaining screws should pass through holes in top casting.

PROCEDURE FOR SOLAR LIGHT INSTALLATION:

1. See page 3.
2. Removing and maintenance-charging the battery every 6 months will help maintain a healthy battery.
3. **WARNING!** Improperly connecting the battery will irreparably damage the charge controller. Always ensure proper connections.

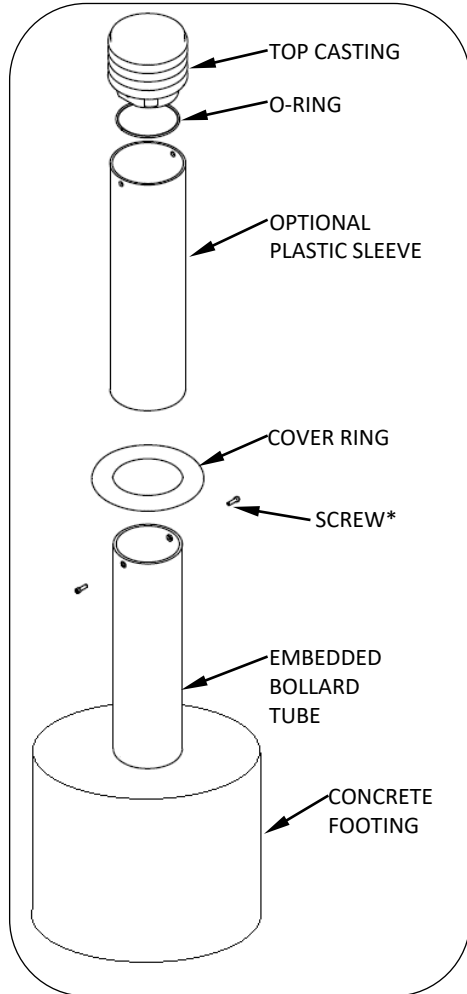


FIG. 1 - EMBEDDED BOLLARD ASSEMBLY

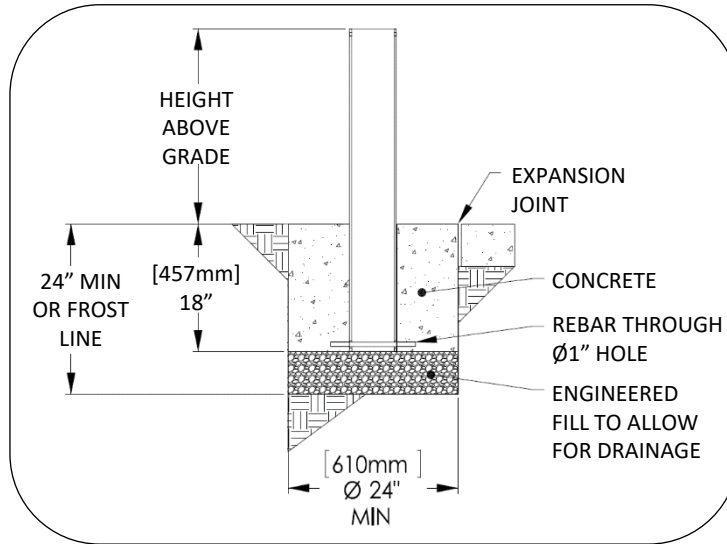


FIG. 2 - FOOTING DETAIL FOR EMBEDDED BOLLARD WITH NO LIGHT OR SOLAR LIGHT

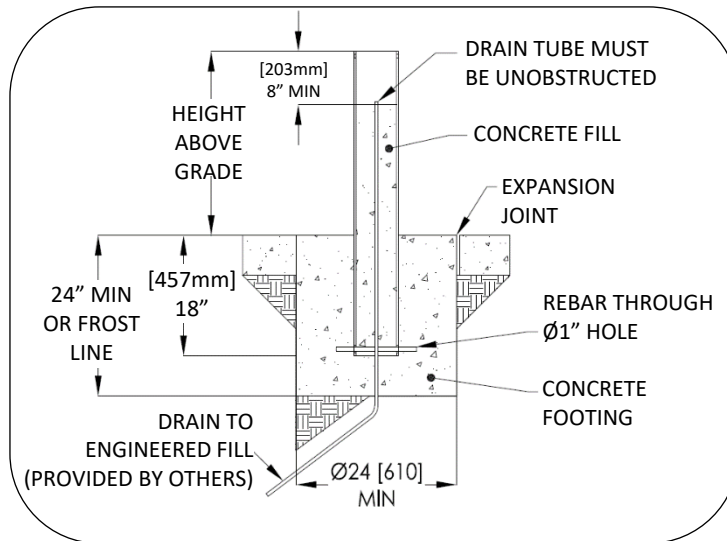


FIG. 3 - ALT FOOTING FOR EMBEDDED BOLLARD WITH INTERNAL CONCRETE FOR MINIMUM SECURITY

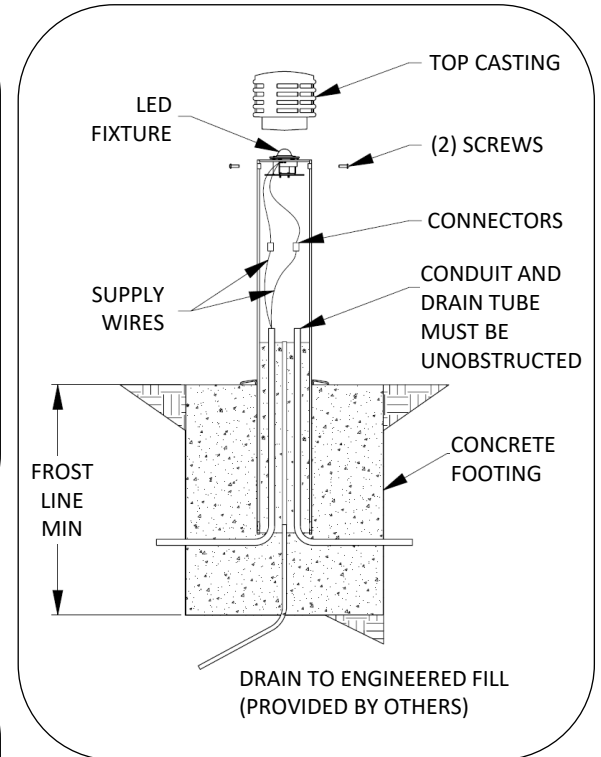


FIG. 4 - ALTERNATE FOOTING DETAIL FOR EMBEDDED BOLLARD WITH LOW VOLTAGE LIGHT

HEIGHT ABOVE GRADE: 27-1/2" FOR 6" BOLLARD, 27" FOR 12" BOLLARD

DEPTH OF FOOTING: MIN 24" OR AS FROST CONDITIONS REQUIRE

PROCEDURE FOR SOLAR LIGHT INSTALLATION:

1. Surface mount and embedded units ship fully assembled with cover ring shipping loose. The top casting needs to be removed to install cover ring. Remove top retaining screws, top casting with solar light, and optional plastic sleeve from bollard to be mounted. Solar light and battery bracket remain attached to top casting with wing nuts. Removable units ship with the cover ring pre-installed.

NOTE: Solar bollards are shipped with a pin-in-hex key for security screws. Solar panel in top casting ships connected to battery.

2. Complete surface mount installation steps 1-6 or embedded installation steps 1-3.
3. Assemble cover ring and optional sleeve.
4. Assemble top casting with solar light and battery to the bollard tube. Align holes in top casting with threaded holes for retaining screws. Retaining screws should pass through holes in top casting.

WARNING! LED cartridge and driver are not rated for connection or disconnection while energized. Doing so may damage LEDs and will void the warranty. Disconnect incoming power before making or breaking any electrical connections.

WARNING! Battery ships from the factory connected to the solar panel. Do not expose the unit to sunlight until ready to install. Improperly connecting the battery will irreparably damage the charge controller.

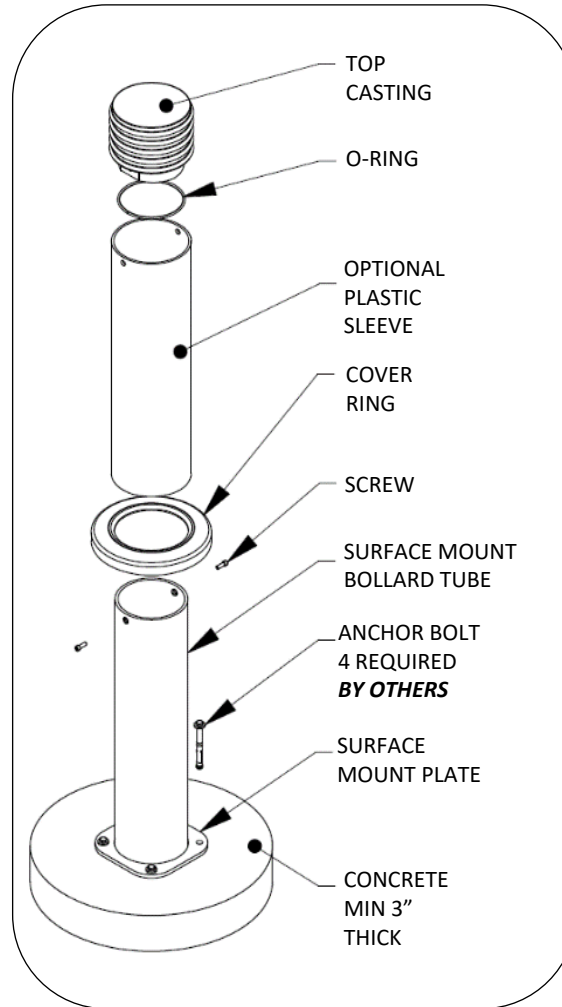


FIG. 5 - SURFACE MOUNT BOLLARD ASSEMBLY

DEPTH OF FOOTING: MIN 24" OR AS
FROST CONDITIONS REQUIRE

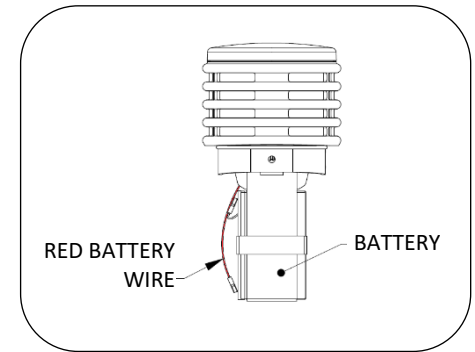


FIG. 7 - BATTERY CONNECTION

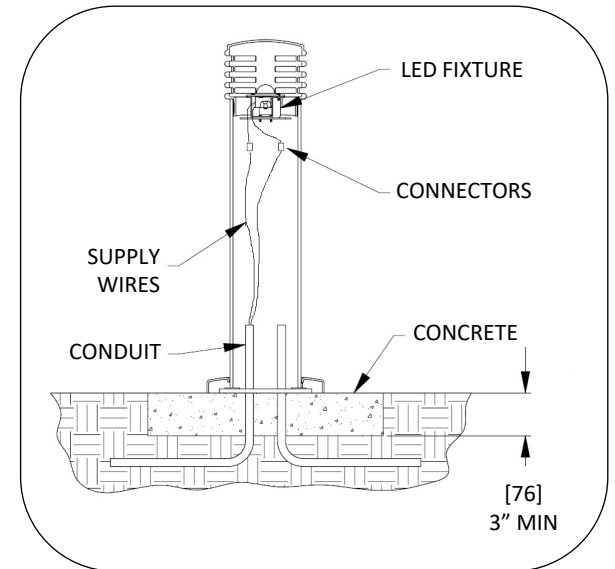


FIG. 6 - SURFACE MOUNT BOLLARD WITH LED LOW VOLTAGE LIGHT DETAIL

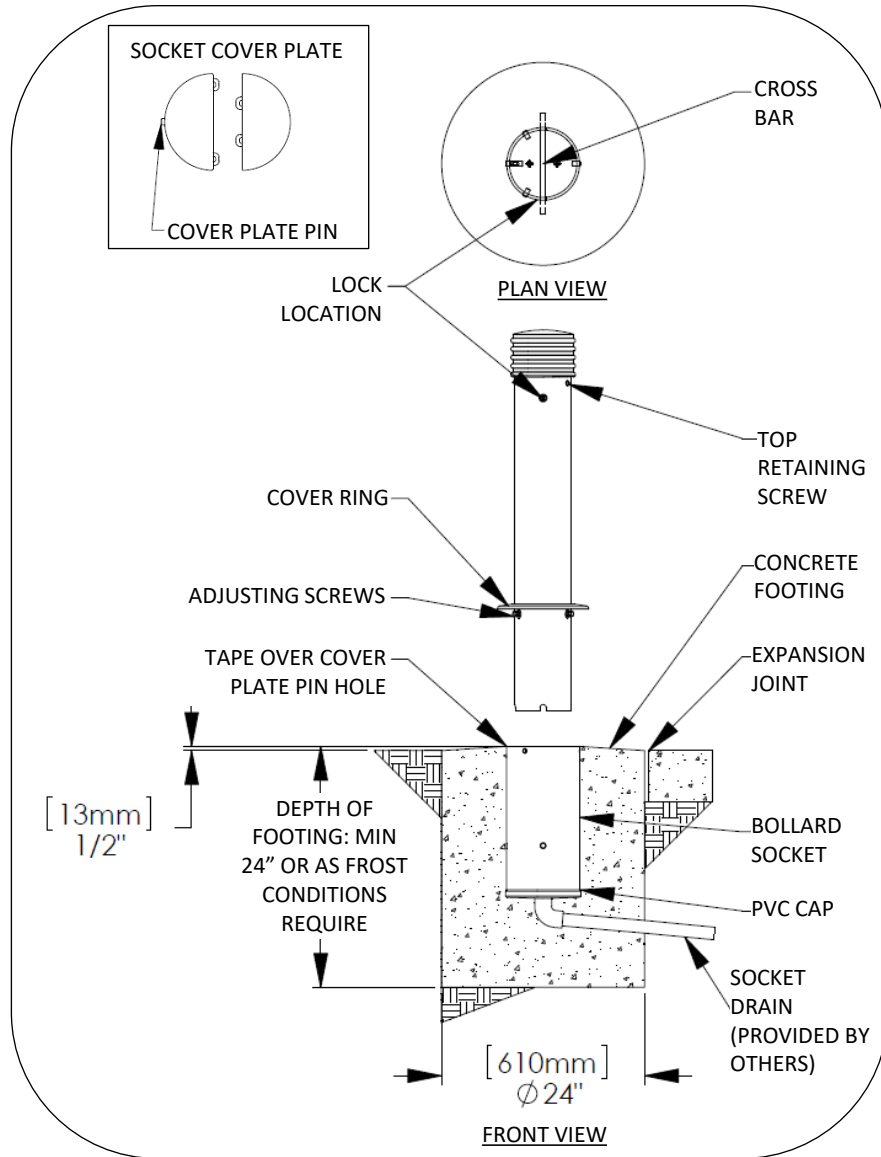


FIG. 8 - REMOVABLE BOLLARD ASSEMBLY

WARNING! TO AVOID INJURY TO PERSONS HANDLING BOLLARD, USE TWO PEOPLE TO TEAM LIFT AND CARRY BOLLARD. Weight of bollard is 75lbs.

PROCEDURE FOR EMBEDDING THE REMOVABLE BOLLARD SOCKET:

1. Excavate for socket footing and install drain, see Fig. 8. Depth of socket is 18 inches. Depth of footing is minimum 24 inches or as frost conditions require.
2. Before pouring concrete, make sure the factory-installed tape covers the outside of the hole near the upper end of the socket. Make sure lower end of socket is sealed to prevent concrete from entering. PVC cap make be cut to fit drain connection.

PROCEDURE FOR INSTALLING REMOVABLE BOLLARD:

1. Remove socket cover plate and separate halves. (*Hint: use a flat blade screwdriver to pry up edge opposite cover plate pin.*)
2. Store socket cover plate below cross bar inside socket.
3. Use key to open bollard latch (key horizontal). Remove key.
4. Position bollard near socket and align three slots in bollard with bars in socket.
5. Ease bollard into socket. Twist until bars fit into slots.

CAUTION! Dropping bollard into socket may damage bollard or socket.

6. Adjusting screws may be used to adjust fit between bollard and socket. Be sure locknuts are tight.
7. Use key to close latch (key will be vertical). Remove key.
8. Pull up on bollard to ensure latch is engaged.

PROCEDURE FOR REMOVING REMOVABLE BOLLARD:

1. Use key to open latch (key will be horizontal). Remove key.
2. Carefully lift bollard out of socket and store on non-marring surface.
3. Retrieve socket cover plate halves from bottom of socket.
4. Place cover plate half with pin into socket, see Fig. 8. Place second half into socket.

Tools Required

- 3/16" hex key (for non-solar bollard without sleeve)
- 1/4" hex key (for non-solar bollard with sleeve)

CAUTION! Fixtures and wiring must be installed in accordance with local codes and ordinances. Do not install lighted bollards within 10 feet of a pool, spa, or fountain.

NOTES:

- Locate bollard where solar light receives an average of 4 hours of direct sunlight per day. Avoid locations that would become shaded as the path of the sun changes with the seasons. Solar powered light is not suitable for installation at latitudes greater than 50 degrees.
- Landscape Forms is not responsible for site preparation, footings, or electrical wiring.
- The solar light should not be activated until the bollard is ready to be installed in a location where it will receive required exposure to sunlight.
- Failure to allow for proper drainage may void the standard Landscape Forms warranty.
- COMPATIBILITY: The solar retrofit top can replace the top casting on any 6" Annapolis bollard, except embedded bollards filled with concrete. Annapolis bollards with low-voltage lighting must be modified to accept the retrofit top, see Fig. 1.

WARNING! LED cartridge and driver are not rated for connection or disconnection while energized. Doing so may damage LEDs and will void the warranty. Disconnect incoming power before making or breaking any electrical connections.

PROCEDURE FOR INSTALLING SOLAR LIGHT RETROFIT TOP:

1. Remove the two top retaining screws.
2. Lift top casting out of bollard tube. This aluminum item should be recycled, if possible.
3. If replacing the battery only, remove old battery by disconnecting wires. Connect red battery wire to red (positive) battery terminal, see Fig. 2. Use provided die-electric grease on battery terminals to help prevent corrosion. For full solar cap replacement, battery ships connected. Exposing solar panel to sunlight will activate the unit.
4. Place retrofit top with solar light and battery on the bollard tube.
5. Align holes in top casting and optional sleeve with threaded holes for retaining screws. Use security screws provided with retrofit top and special pin-in-hex key to fasten top casting to bollard tube. Retaining screws should pass through holes in top casting.

ASSEMBLE WITH CARE! Pangard II® Polyester Powdercoat is a strong, long-lasting finish. To protect this finish during assembly, place unwrapped powdercoated parts on packaging foam or other non-marring surface. Do not place or slide powdercoated parts on concrete or other hard or textured surface – this will damage the finish causing rust to occur. Use touch-up paint on any gouges in the finish caused by assembly tools.

**PROCEDURE FOR MODIFYING BOLLARDS WITH HALOGEN LOW-VOLTAGE LIGHTING:
(SOLD PRIOR TO 5/2009)**

WARNING! TO REDUCE THE RISK OF FIRE OR INJURY TO PERSONS, **TURN OFF POWER** AND ALLOW FIXTURE TO COOL BEFORE PROCEEDING.

WIRING OPTIONS: Bollards selected for conversion to solar lighting can be modified without disconnecting power to other bollards on a low-voltage circuit.

1. Remove the two top retaining screws.
2. Lift top casting out of bollard tube. This aluminum item should be recycled, if possible.
3. Cut the fixture wire and seal the end of the wire on the supply side with a suitable insulating product, see Fig. 1.
4. Remove the light fixture sleeve by cutting two steel straps that support the sleeve. Bend remaining parts of the steel straps downward so they are close to the bollard wall.

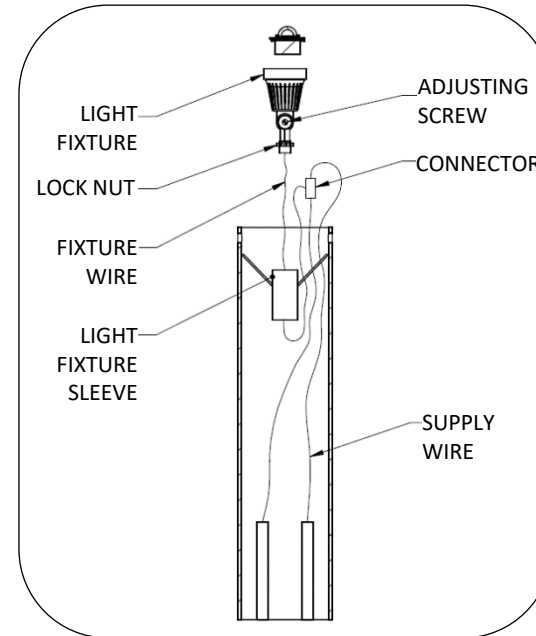


FIG.1 - MODIFYING LOW-VOLTAGE LIGHTING

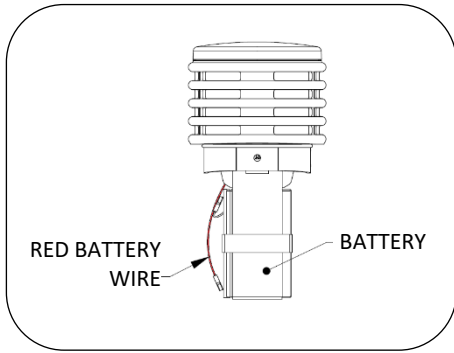


FIG.2 - BATTERY CONNECTION

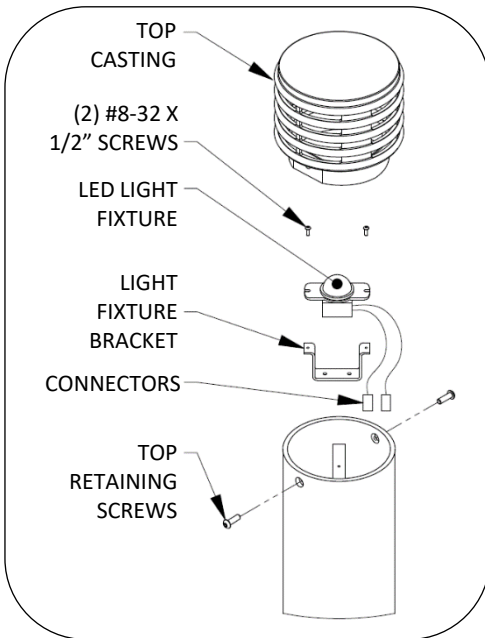


FIG.3 – REPLACING LED LIGHT DETAIL

WARNING! TO REDUCE THE RISK OF FIRE OR INJURY TO PERSONS, **TURN OFF POWER** AND ALLOW FIXTURE TO COOL BEFORE REPLACING LAMP. DO NOT TOUCH HOT LAMP, LENS OR ENCLOSURE.

PROCEDURE FOR REPLACING LED LIGHTS:

1. Remove the two top retaining screws and top casting, see Fig. 3.
2. Unscrew LED light fixture from the light bracket. Grasp LED light and wires, pull out sufficient wire to expose wiring connections. Disconnect wiring connections and set LED light aside.
3. Reconnect new LED light fixture to the wiring leads and tuck excess wires into bollard tube.
4. Reinstall LED light fixture to mounting bracket with two #8-32 x 1/2" button head cap screws.
5. Replace fixture cap and lower fixture into light fixture sleeve. Replace bollard top casting and top retaining screws. Align holes in top casting with threaded holes for retaining screws. Top retaining screws should pass through holes in cast top.

WARNING! LED cartridge and driver are not rated for connection or disconnection while energized. Doing so may damage LEDs and will void the warranty. Disconnect incoming power before making or breaking any electrical connections.