

# LAI-2050 Log Switch Assembly

## Replacement Instructions for the LAI-2000 Plant Canopy Analyzer

The following document describes the procedure for replacing the log switch assembly on the LAI-2000 optical sensor head (p/n 2000-906). Please note that the replacement kit does not include some required adhesives; you can search for local suppliers and/or order adhesives at the web addresses shown below. Note, too, that the optical sensor head is a static-sensitive device, and precautions (e.g. a static wrist strap) should be taken before beginning this procedure.

### Tools Required:

3/32" hex wrench  
1/4" open end wrench  
Needle nose and lock-joint pliers  
Flat blade screwdriver  
Adhesives, including Loctite 242 Threadlocker and Loctite PRISM 401 ([www.loctite.com](http://www.loctite.com)), and Dow Corning 732 Multi-purpose sealant ([www.dowcorning.com](http://www.dowcorning.com))

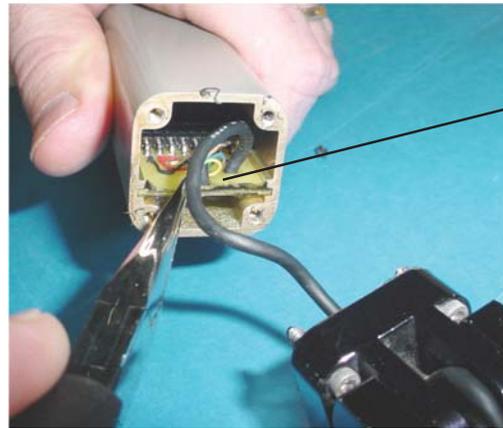
**Time Required:** Approximately 30 minutes

- Follow these steps to replace the log switch assembly:
1. Use the 3/32" hex wrench to loosen the 4 hex head screws at the connection between the handle and the optical sensor (Figure 1). You will need to pivot the sensor head to access the screws.
  2. Use a pair of needle nose pliers to gently pull out the detector connector from the circuit board (Figure 2).
  3. Use the 3/32" hex wrench to remove the 4 hex head screws at the opposite end of the handle, where it attaches to the cable assembly (Figure 3). Slide the circuit board out until you can unplug the cable assembly by pulling the connector straight out from the circuit board. Continue to slide the circuit board out until you can access the 4-pin (white) log button/grounding connector (Figure 4). Unplug the 4-pin connector, and slide the circuit board back into the handle.



1

*Loosen the 4 hex head screws; you will need to pivot the optical sensor head to access all of the screws.*



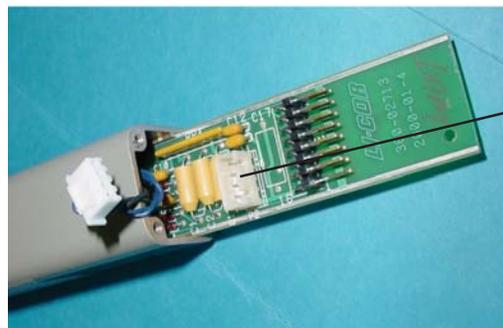
2

*Unplug the detector connector by pulling straight out.*



3

*Remove the 4 hex head screws at the handle/cable assembly.*



4

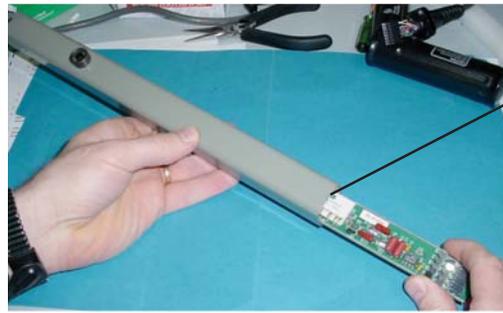
*Slide the circuit board out until you can unplug the white 4-pin connector, and then slide the board back into the handle.*

4. Slide the circuit board out the end of the handle, nearest the optical sensor end (Figure 5). Use the flat blade screwdriver to pry up the log button cap (Figure 6). Use your fingers, or a pair of pliers to unscrew the log switch collar; wrap the collar with tape or a tissue to prevent the collar from getting scratched, if desired.

5. Use the flat blade screwdriver to remove the log switch ground lug (Figure 6). You may need to hold the nut inside the handle to remove the screw. Remove the switch assembly (Figure 7).

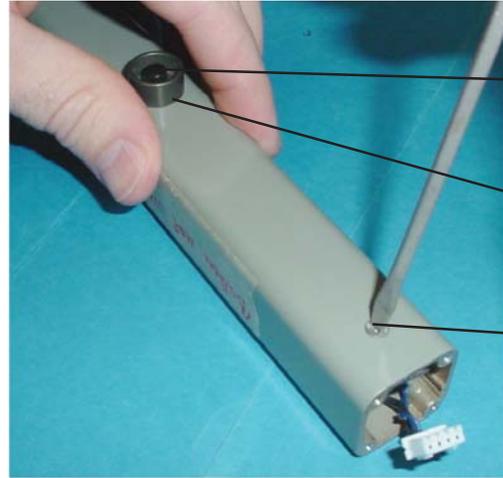
**Note:** The log switch has a small o-ring that may adhere to the inside of the handle; if it does, simply use the screwdriver to pry it loose.

6. Clean any RTV residue from the ends of the handle, and the caps that mate to the handle tube (Figure 8).



5

*Slide the circuit board out of the handle, at the end opposite the log switch.*

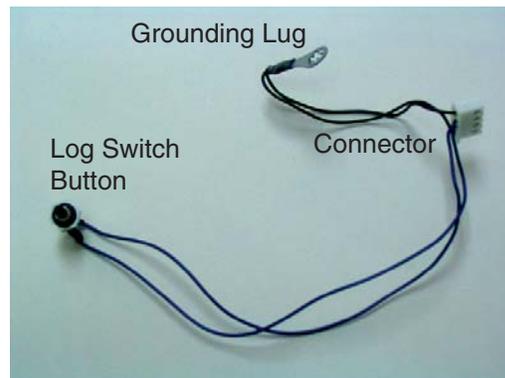


6

*Pry up the log button cap...*

*and then remove the log switch collar.*

*Remove the log switch ground lug.*



7

*Remove the log switch assembly.*

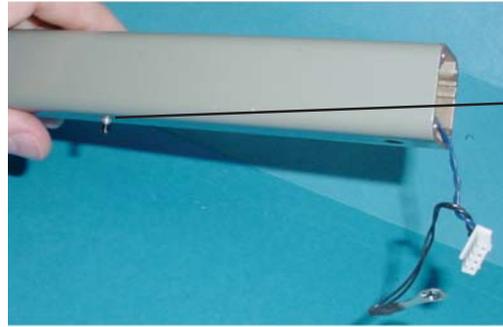


8

*Clean any residue from each end of the handle and the caps that mate to the handle.*

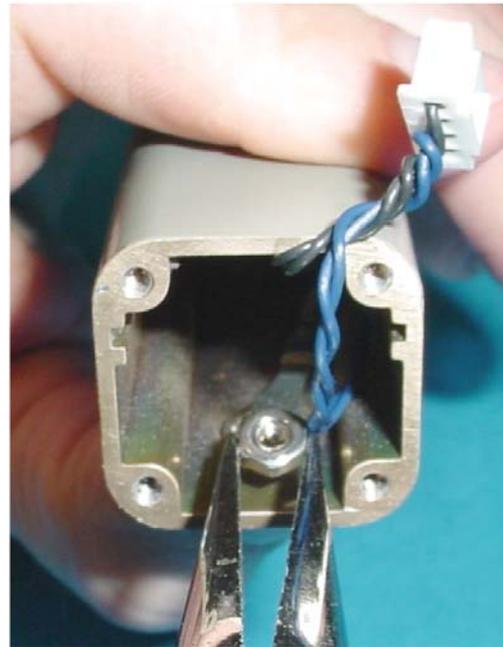
## Reassembly

1. Apply a small bead of Loctite 242 to the threads of the new switch. Make sure the Loctite is only on the threads of the switch; clean any excess from the threads of the switch; clean any excess from the log button if present to prevent it from sticking.
2. Hold the handle so the log switch hole is facing downward. Straighten the wires on the log switch and grasp the wires near the connector. Insert the log switch into the handle so that the switch “falls” through the hole (Figure 1). Use a long handled screwdriver to press on the bottom of the switch to hold it in place while you tighten the collar over the switch. Do not overtighten the collar, as the switch body can be damaged; hand-tighten only enough to compress the o-ring on the switch.
3. Attach the ground lug. You may need to hold the nut inside the handle with the pliers or 1/4” open end wrench as you tighten the screw (Figure 2).
4. Insert the circuit board into the handle from the end opposite the log switch (Figure 3); the leading edge of the board has the 16-pin connector that attaches to the cable assembly, and the board components face the same direction as the log switch. Slide the board through the handle so that it extends through the opposite end, far enough so that you can attach the 4-pin log button/grounding connector.
5. Apply a bead of 732RTV to the end of the handle at which the cable attaches. Attach the cable assembly to the circuit board connector (Figure 4), slide the circuit board into the handle, and attach the 4 hex screws (Figure 5).



**1**

*Hold the handle upside down so the log switch can fall into place. Hand tighten the collar over the log switch button.*



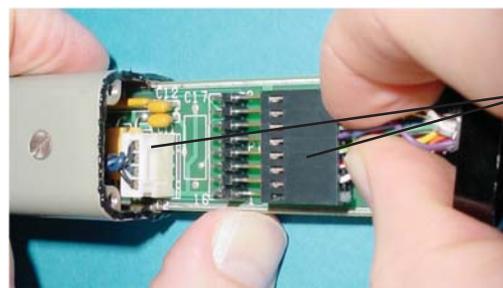
**2**

*Attach the ground lug. Hold the nut inside the handle and tighten the screw.*



**3**

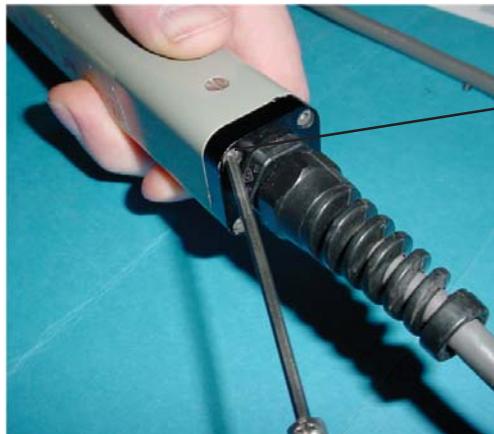
*Slide the circuit board back into the handle.*



**4**

*Reattach the 4-pin grounding connector and the cable assembly connector to the circuit board.*

6. Plug the sensor head detector connector into the circuit board (Figure 6). Make sure all pins are inserted into the connector. Apply a bead of 732RTV to the end of the handle (Figure 7). Attach the optical sensor to the handle using the 4 hex screws; note the orientation of the handle and log switch in relation to the sensor head (Figure 9).
7. Apply a small drop of Loctite 401 to the top of the switch and install the button cap (Figure 8); be careful not to apply too much adhesive, as excess adhesive will lock the switch in place.



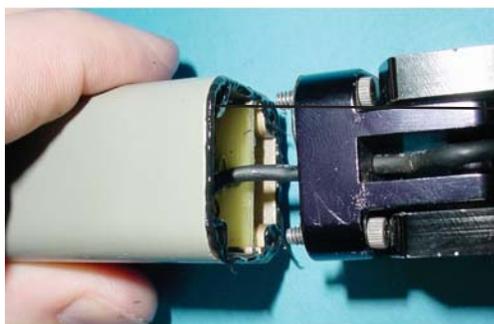
**5**

*Attach the cable assembly to the handle with the 4 hex head screws.*



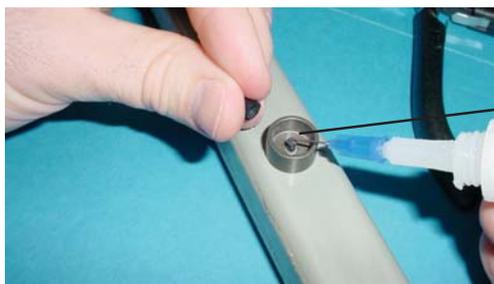
**6**

*Plug the sensor head connector into the circuit board.*



**7**

*Apply a bead of 732RTV to the end of the handle. Attach the sensor head to the handle with the 4 hex head screws.*



**8**

*Apply a small drop of Loctite 401 to the top of the switch and install the log button cap.*



**9**

*Note orientation of sensor head and handle.*