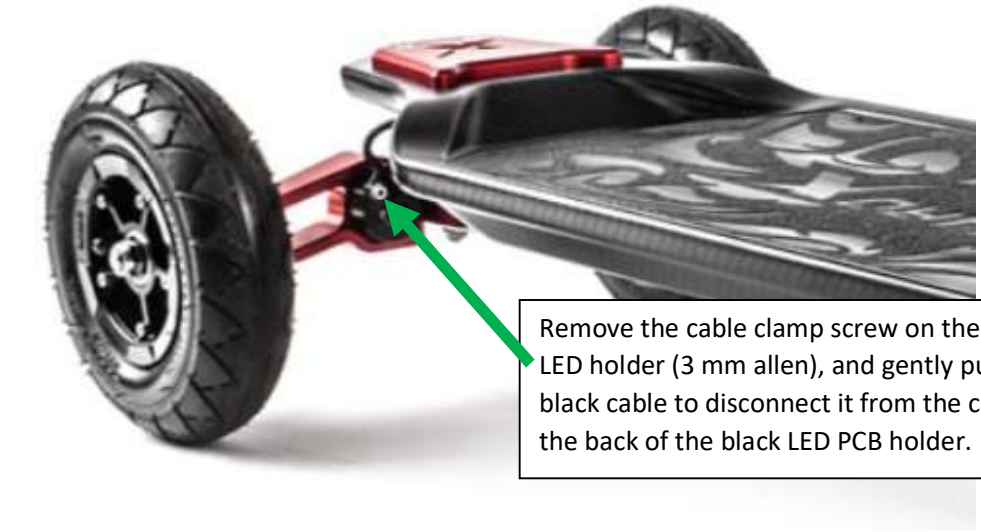
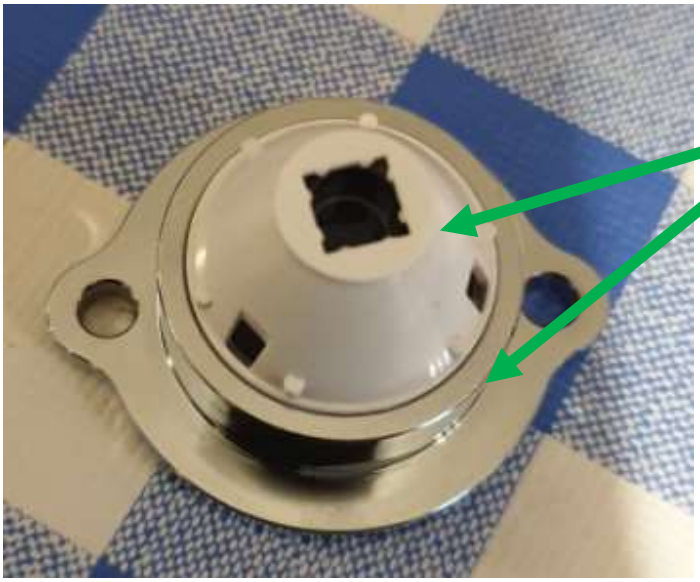
15 WATT LIGHTS INSTALLATION - METROBOARDX 10/07/2020

Remove existing lights by removing the two long screws that go through the lens in the front hanger. Use a 2.5 mm allen. Be careful not to lose the split lock washer attached to these screws



Remove the cable clamp screw on the back of the LED holder (3 mm allen), and gently pull on the black cable to disconnect it from the connector on the back of the black LED PCB holder.

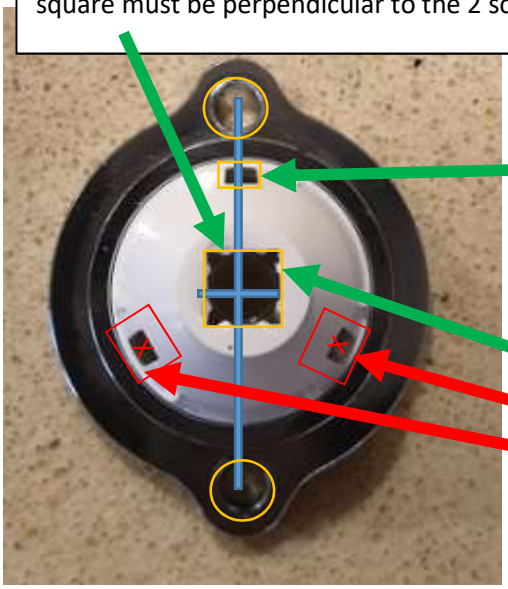


Insert the Lens into the Reflector.

Note it will be a bit of a snug fit. This is normal

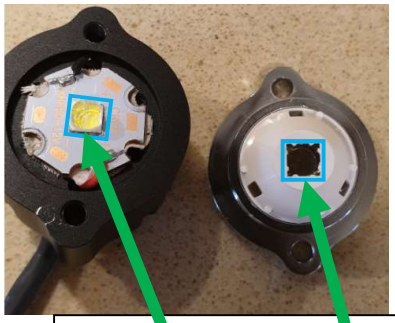
Do this on a soft surface being careful not to scratch the chrome finish of the reflector!

VERY IMPORTANT: The white lens holder must be oriented properly relative to the reflector! Note the square opening in the center of the lens. The edge of the square must be perpendicular to the 2 screw holes in the reflector as shown.



Use this cutout in the white lens holder as a visual guide to align the hole since it's very close to the hole in the reflector. Note this cutout is parallel to the center square hole of the lens. There are two others shown in red which are not parallel, so be careful to use the correct one!

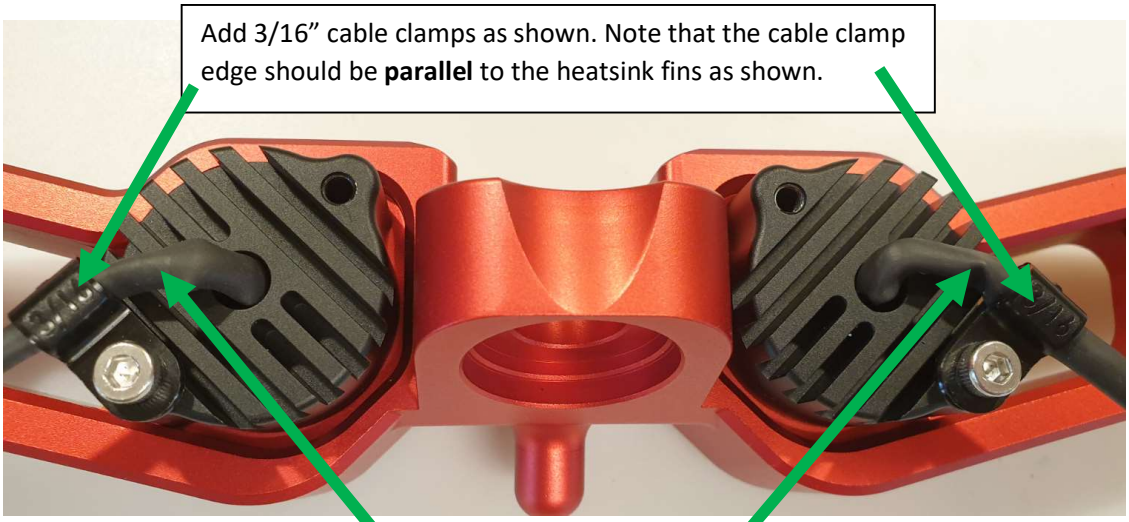
Note that even after the lens is pressed into the reflector, it can still be rotated to ensure proper alignment as described above. There will be some resistance that will help ensure the lens stays in place.



The reason we need to orient the lens correctly is so that in the next step, the square edge of the LED lines up with the square hole in the lens.

**FIRST:** Insert the Reflector/Lens assembly into the front truck opening using the usual mounting screws and split lock washers (be careful not to bump the lens against the truck hole so it doesn't lose its orientation from last step)

**SECOND:** Feed the heatsink to the back of the front truck. First, align the protruding two screws into the mating threaded holes of the heatsink. Then begin to tighten the screws slowly pulling the heatsink flush with the truck (when screws are fully tightened). Note it's important that **both** screws be partially threaded into the heatsink, before pulling the heatsink flush with the truck. Otherwise, there is a chance the square LED may not align properly with the mating square hole in the lens/projector. So do this carefully! Then fully tighten both screws.




Note if you have an older MESC4, just connect the previously disconnected front LED cables to the new 15 lights mating connector and cover with electrical tape or shrink and you are done!

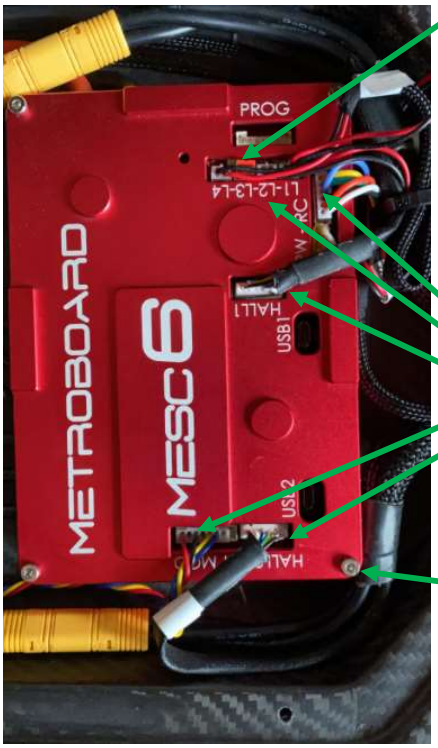
If you have a newer MESC6, follow the steps below. Note if you received your new 15 Watt lights with long cables (about 2 ft long) coming out of the back of the lights, then you have a MESC6.

Remove these 2 truck mounting nuts on front truck (3/8” socket on nut and 1/8” allen on truck bolt on top side). Then slide the cable clamp off the protruding bolt and remove the old cables from inside. Now put the new LED cables into the cable clamps, slide back onto bolt and tighten nut. Note orientation of cable clamps in pic.


Remove the 8 lid screws (2.5 mm allen) and remove the lid from the deck

Carefully peel back the electrical tape covering the MESC (and save for reassembly later)

Remove the old front LED cable plugged into L4 and the RED jumper plugged into L3. Now follow the path of the cable previously plugged into L4 and cut any cable ties that are bundled around it going all the way to the front of the deck (where the cable exits to the front trucks). **BE VERY CAREFUL ONLY TO CUT THE CABLE TIES AND NOT ANY WIRES!** Now the old front cables should be completely disassembled and you can remove from the deck (they will no longer be used). Feed the new front LED cables into the hole at the front of the deck into the battery compartment (now two separate cables vs the previous one "Y" cable). And route towards the back of the battery compartment on the right side of the battery. Later you will connect these to L3 and L4 on the MESC, but not just yet!

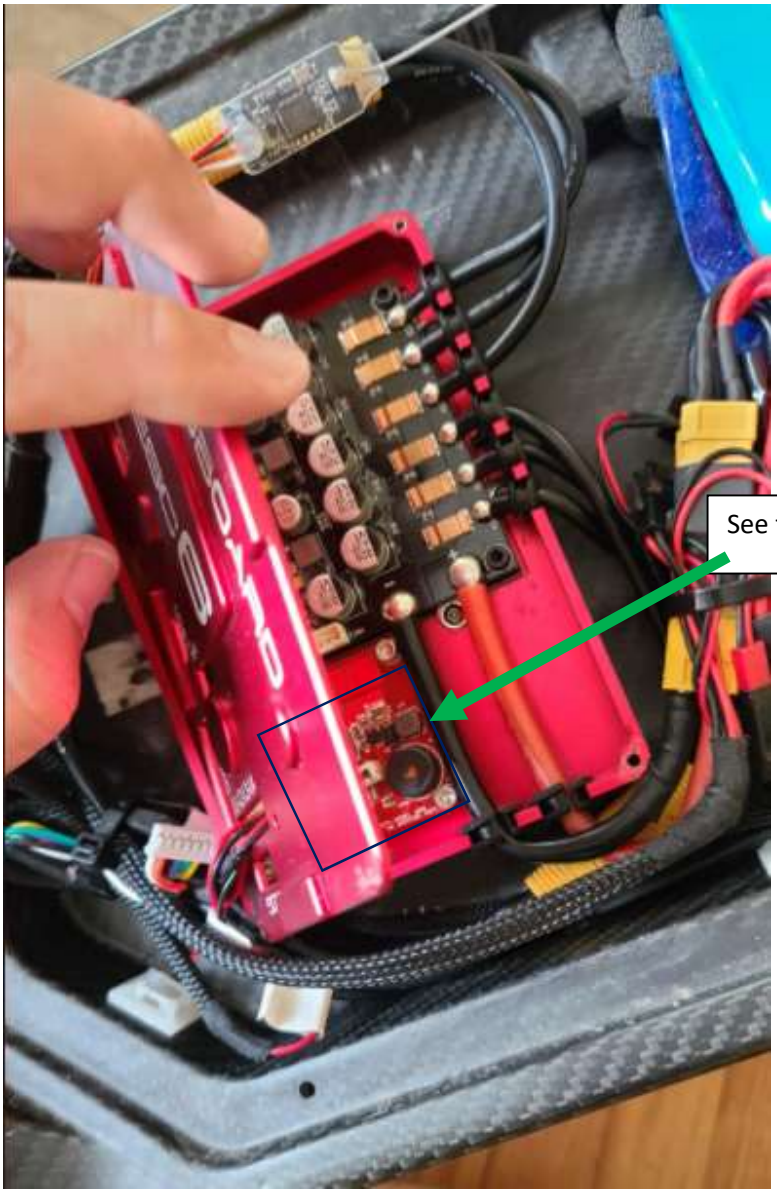



Remove the following cables from the MESC pull up gently)

L1 (rear lights), L2 (rear lights), RC, HALL1, HALL2, BT MOD

Remove the 4 lid screws from the MESC6 using a 2 mm allen key. Note there is threadlocker on these screws so do so carefully so as not to strip the head of these screws.

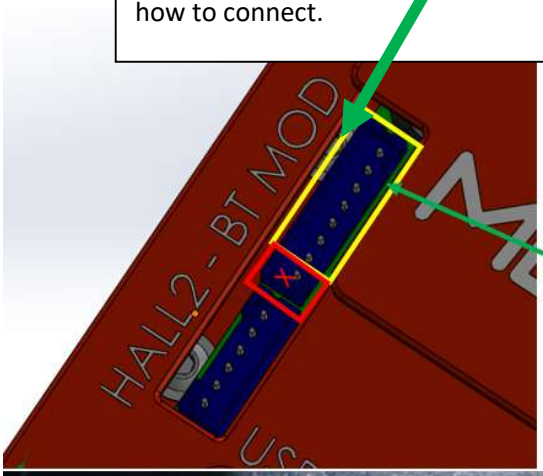
**NOTE IF YOU RECEIVED A MESC6 ALONG WITH YOUR 15 WATT LIGHT UPGRADE KIT, YOU CAN SKIP THIS STEP AS IT HAS ALREADY BEEN SETUP PROPERLY. (SKIP THE NEXT 2 PAGES)**


See this section on next page


MOVE DIP SWITCH POSITION 3 TO **ON** POSITION AS SHOWN. NOTE THERE MAY BE A YELLOW FILM THAT NEEDS TO BE REMOVED FROM THE DIP SWITCH USING AN X-ACTO KNIFE OR SIMILAR BEFORE MOVING THE SWITCH. ALL OTHER POSITIONS (1,2,4) MUST REMAIN IN OFF POSITION. USE A TOOTHPICK OR SMALL SCREWDRIVER TO PUSH THE SWITCH TO ON. **DON'T USE TOO MUCH FORCE OR YOU CAN BREAK THE SWITCH!**

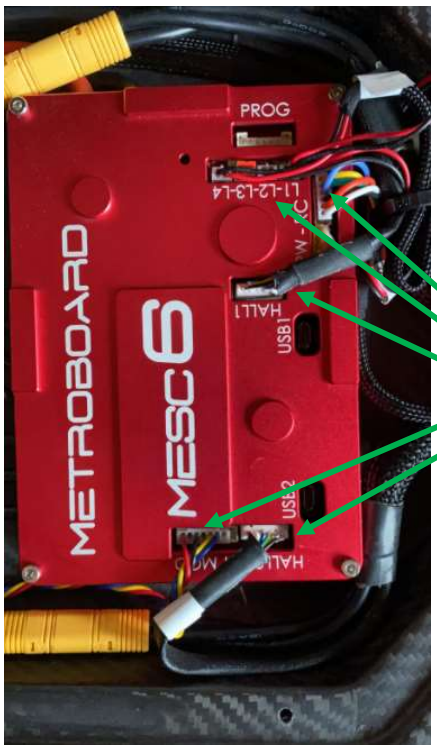
Put MESC6 Lid back on and assemble 4 Lid screws (2 mm allen) with a small amount of blue (medium strength) threadlocker

Note if you received a new NRF51 BT module you should plug it in below. The new BT module has 8-pins. If you are still using the old BT module which only has 7 pins see IMPORTANT note below about how to connect.




Note that BT cable is 7 pin, but mating header here is 8 pin. It can be installed but must be shifted to position marked in Yellow! Note that the left most pin in pic is not connected!

**DOUBLE CHECK THIS BEFORE POWERING UP OR YOU WILL FRY SOMETHING!**

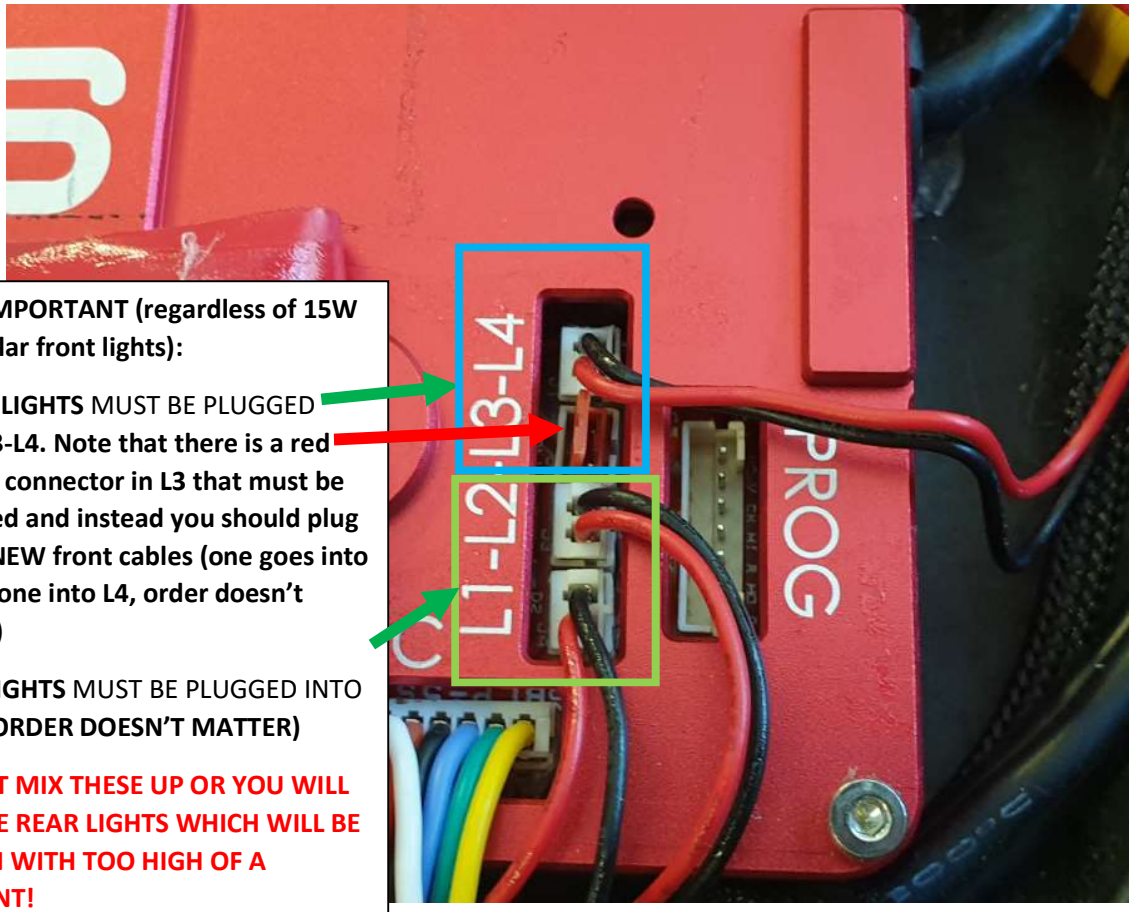

Reinstall the follow cables. Be sure they are pressed firmly into their mating connectors (use a blunt object such as a popsicle stick to carefully push them all the way down). **Be careful not to mix up Hall1 and RC which are both 6-pin connectors!**

L1 (rear lights), L2 (rear lights)

RC

HALL1, HALL2

BT MOD




**VERY IMPORTANT (regardless of 15W or regular front lights):**

**FRONT LIGHTS** MUST BE PLUGGED INTO **L3-L4. Note that there is a red jumper connector in L3 that must be removed and instead you should plug in the NEW front cables (one goes into L3 and one into L4, order doesn't matter)**

**REAR LIGHTS** MUST BE PLUGGED INTO **L1-L2 (ORDER DOESN'T MATTER)**

**DO NOT MIX THESE UP OR YOU WILL FRY THE REAR LIGHTS WHICH WILL BE DRIVEN WITH TOO HIGH OF A CURRENT!**

Note if you received a new NRF51 BT module it can be velcroed to the side of the MESC6 Case as shown with antenna oriented as shown by green line

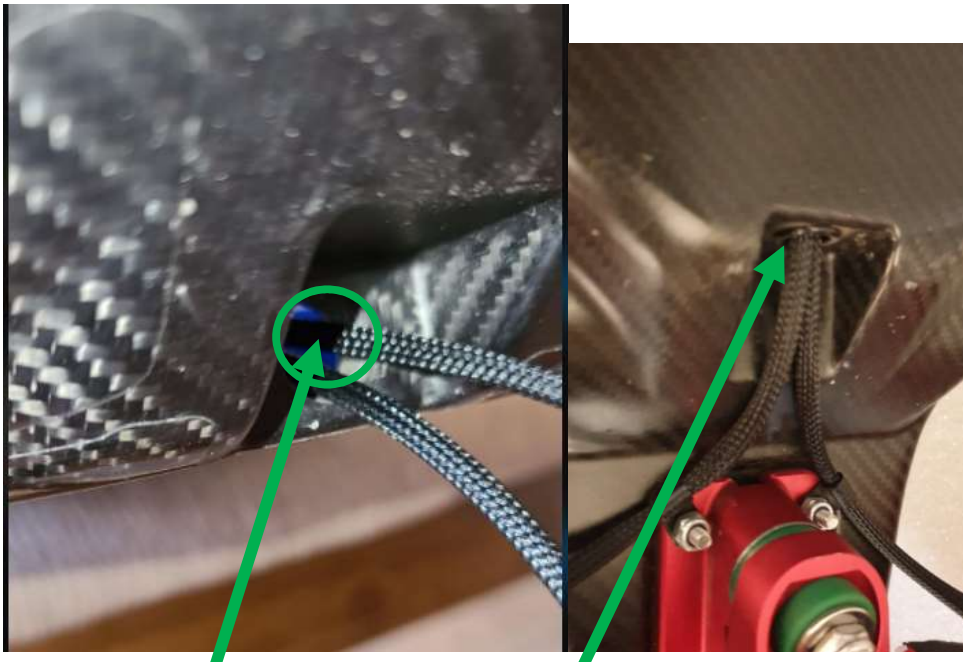
**VERY IMPORTANT:** SEND ILAN (INFO@METRO-BOARD.COM or FB messenger) pictures of all the connections to the MESC **BEFORE POWERING UP**, so he can check that there are no mistakes!

Also it is recommended that you upgrade both the lights firmware and possibly the VESC firmware at this point. Contact Ilan to schedule a time to do this remotely via "Teamviewer".

Reapply electrical tape as shown. Be sure cables have a bit of slack before putting the tape back in place on top of them. The purpose of this tape is to make sure the cable connectors don't vibrate loose during riding. Also make sure the cables are not routed on top of any of the protruding bumps or screws on the MESC LID. They should only be lying on the flat surfaces of the LID.


Reassemble the 8 lid screws (2.5 mm allen) being careful not to cross-thread them! If they are not going in smoothly, immediately stop and back them out and try again! Note that the correct orientation of the screw follows the profile of the lid which is not flat, so try to match that angle as you install the screws to avoid cross-threading!

Adjust LED cables so that they have slack in them as shown so that when the truck turns the cable doesn't get yanked on! Note the way the wires are routed below going outward then back inward so they have room to flex as you turn. SEND PICS TO ILAN SO HE CAN CONFIRM THIS IS DONE CORRECTLY!



After cables are adjusted as described above, wrap soft adhesive backed foam (included in kit or typical "weather stripping" soft foam) around the cables where they enter the deck and stuff inward a bit to create a weather seal. Then reapply the "plastic grommet" that was originally in the hole.