

# Running Board installation on a 2016 F-150 Lariat – Super Crew

This will likely apply to all models without power running boards (PRB) factory installed, regardless of trim level. **Thanks to FIRERUNNER and FLYFORFOOD who helped blaze this trail.**

Expect installation time for removal of the old boards and installing the new ones to be approx. 2 hours. Another six (6) hours to complete the wiring, interior in/out, and FORSCAN programming.

The wiring needed is not in the truck, as it's a part of the 14A005 body harness. There are multiple versions of this harness and it's likely due to various features offered in your truck. Having a 502A tech package I have had connectors for other projects I have accomplished (Adaptive Cruise and Auto park assist) to simply plug things into. Not the case for PRB's. You will have to build a wiring harness and do some soldering.

**IMPORTANT: Before you do any wiring, disconnect the negative terminal on the battery. Do not attempt any wiring or loosen the ground stud on the back-cab wall with the battery connected.**

## Parts List

The following are everything I needed to complete the project:

1. Set of power running boards\*
2. Power running board module\*\* (with plugs) Ford part number [f13z-14C177-a](#)
3. 150 feet of 22 gauge wire [Amazon link](#)
4. 150 feet of 16 gauge wire [Amazon Link](#)
5. One inline 30A 16 AWG waterproof fuse link\*\*\* [Amazon link](#)
6. Heat shrink tubing (to cover solder joints on the splicing we will be doing – 16 and 22AWG wires) [Amazon link](#)
7. Braided cable sleeve – ¼" by 100' roll [Amazon link](#)
8. Wire protector – 3/8" Outside diameter x 14' roll [Amazon link](#) You need 2 feet of this max, so if you can find smaller length, get it.
9. One O-ring crimp-on connector for the ground wire.

You also need a solder gun and solder. You may need trim removal tools to loosen trim and run your wires.

Also need FORSCAN and your laptop to make one software change. IPC 720-07-01 xxx9 xxxx xxxx is the only update that is needed. This will display POWER RUNNING BOARDS on the *instrument panel* under ADVANCED VEHICLE SETTINGS.

\*You can buy these new, but they are pricey. Check [fleabay](#) and [car-part \(dot\) com](#) . Or call your local junk yard (OEM Auto Recyclers as they like to be called). See if you can buy the boards with the wiring plugs on the motors already. Most will simply cut the harness and give them to you. If you can't get the plugs, you will need plugs 3U2Z-14S411-FEAB along with pigtails to go onto the plug. One for each side is needed.

\*\*There are a couple versions of the power running board module (PRBM). One module has plugs that are both 14 pin, but they are different plugs. They look the same but they are not. C3313A and C3313B are the plugs. The difference is one has 3 pins in the center section, the other has 4. The C3313A plug is

## **Running Board installation on a 2016 F-150 Lariat – Super Crew**

no longer stocked. If you get the A version of the PRBM, make sure you get both plus that come with it. Most junkyards if you ask they will cut the body harness and send the plugs with the PRBM. If you don't ask, guarantee you will not get them. Also, when you buy the PRBM, also get the mounting plate that mounts the unit to the back wall of the truck. Again, most will give them you if you ask as it should be attached. The B version of the PRBM I don't have the details on so that is a buy at your own risk.

\*\*\* Thanks to FIRERUNNER, if your truck does NOT have a sunroof, you can use a dark blue wire with a red stripe on it located in the rear compartment, passenger side. If you have the sunroof, you will want to run a wire up to the battery and install a fuse link. I had no such sunroof, so I used the power wire that was already run to power it. This is already fused. More on where this wire is located later in this document.

### **Removal of the old boards**

Pretty simple process. You will simply take a socket wrench up there are loosen the bolts. There are two brackets per board on my 6" boards that are stock on the Lariat; three nuts on each bracket. I strongly recommend you loosen them all first before removing. Once all are loose you can back them out with your fingers. Nothing like trying to break torque on the rears when the front bolts are already out. 13Mm socket with a 4" extension will let you get them off without busting knuckles.

## Running Board installation on a 2016 F-150 Lariat – Super Crew



Go sell these on Craigslist or list on fleabay. Folks who have 5" boards are many times looking to get the larger ones, so go re-coop some of your costs.

# Running Board installation on a 2016 F-150 Lariat – Super Crew

## Mounting the Power Board Running Module

Use caution handling the unit and don't drop it. Note the sticker says to junk if dropped. Handle with care.

Pull the rear seats down. On the passenger side there is a pull string on the side of the seat. Your jack and funnel is there so the string makes it easy to get to.

On the larger bench, behind the driver's seat there is a little pin Ford left us to lower the seat. No pull string as that would make our life easy. You must stick your hand back there and find the pin. Kind of a pain to get to. Lift it and the seat folds.

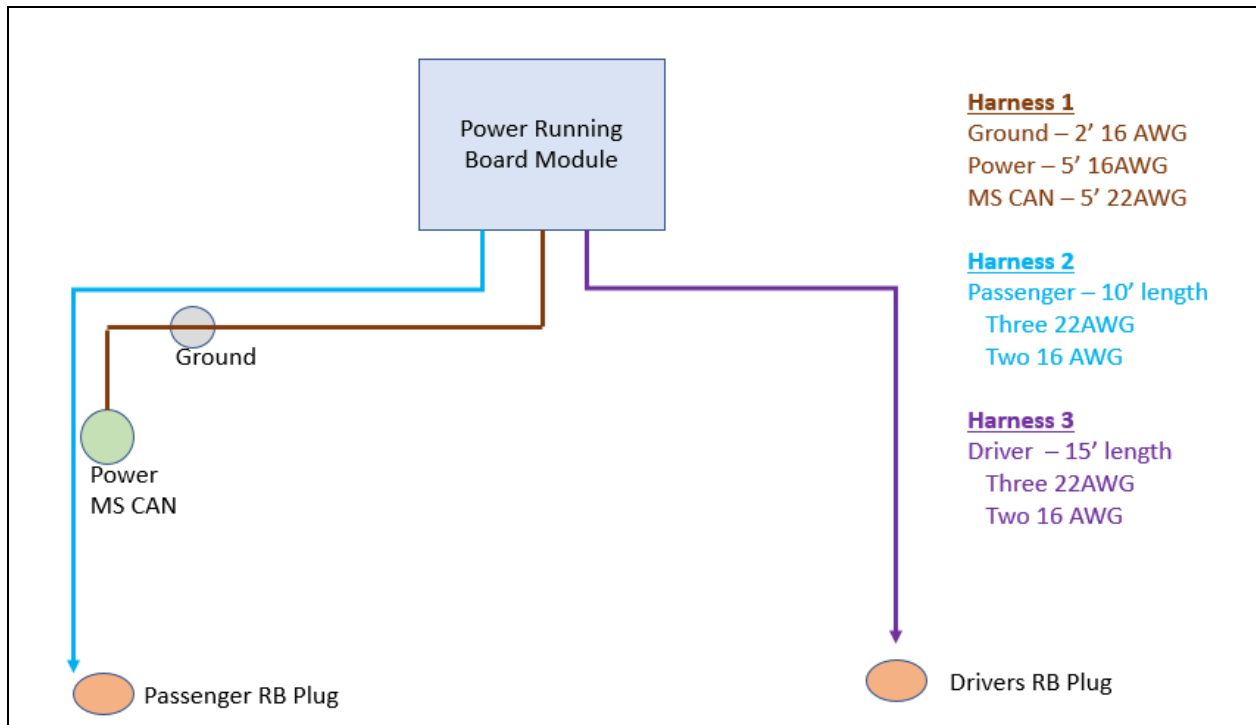
By the power window motor, or in the center of the back wall if you have no such motor, you will see two square holes. Push the grommets in there and then push in the PRBM, with the plugs facing downward. You now have the module mounted. Back carpet panel has a place for the module.

# Running Board installation on a 2016 F-150 Lariat – Super Crew

## Building new wiring harnesses

Earlier in this thread, page 1 specifically, FlyForFood has a bunch pictures of how he did the wiring from a connector standpoint. I printed out the wiring drawings and then wrote my color wire next to each pin so I could keep the wiring straight while I solder. The wire kit I used has multiple colored wires so this will help as we build the harness.

I built three harnesses. There are two plugs into the running board module and wires from both the drivers and passenger harness span both plugs. Power and MS CAN wires are within one plug.



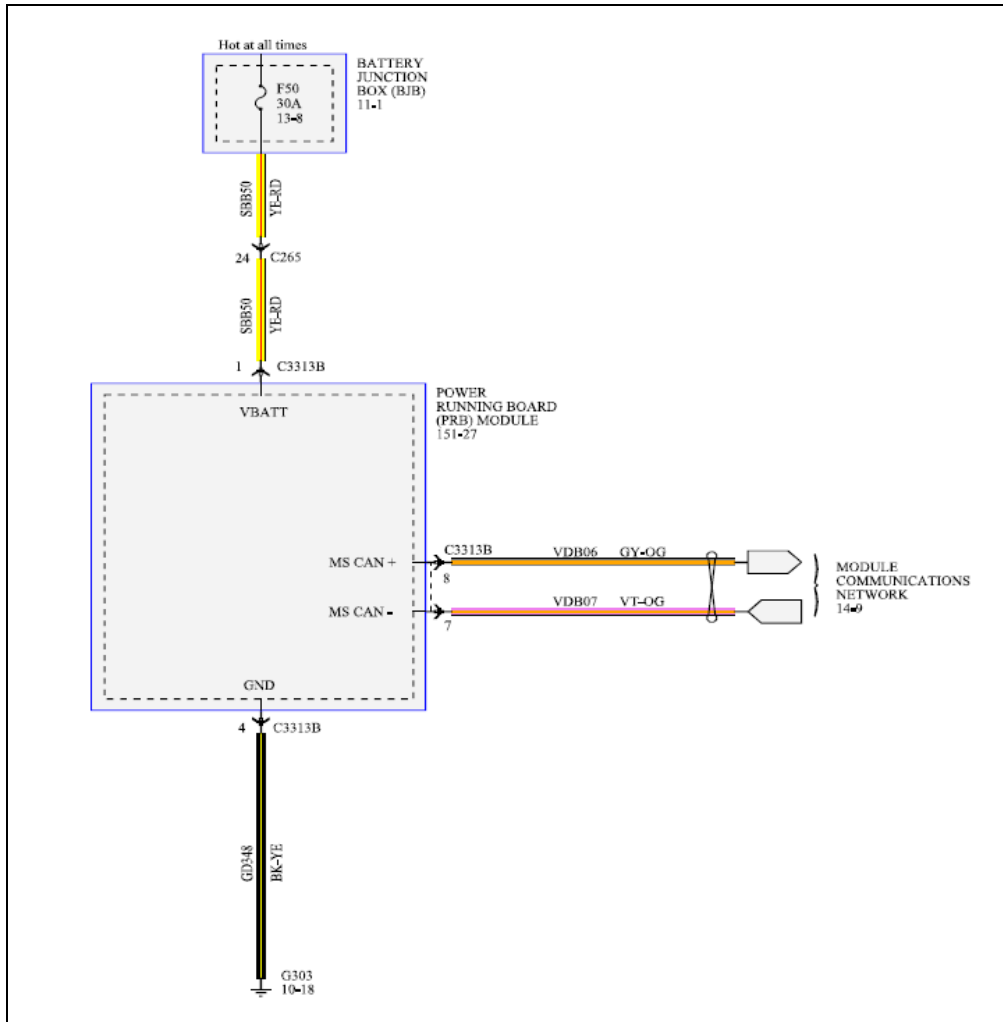
*Before you start soldering, you will want to feed your wires through the braided protecting sleeve. Additionally, before you solder on plugs for the running board motors (I call them pigtails) you'll want to do the same feeding through the sleeve AND the protective casing. As this is under the truck you need these wires protected from the elements. Cut to length as needed. I added the plastic sleeve after the harness was hidden, and just before I soldered the plug for the boards. The plug size will not go through the protective plastic tubing. You will also want to put the grommet on the wire leading to both running boards as the wires must go through the cab. Pictures later.*

After we build the harness we'll work on hiding it under the body trim pieces.

# Running Board installation on a 2016 F-150 Lariat – Super Crew

**Harness 1 - Power source** – Two options here. I had no sunroof so I took the non-sunroof option.

## Sunroof Trucks -

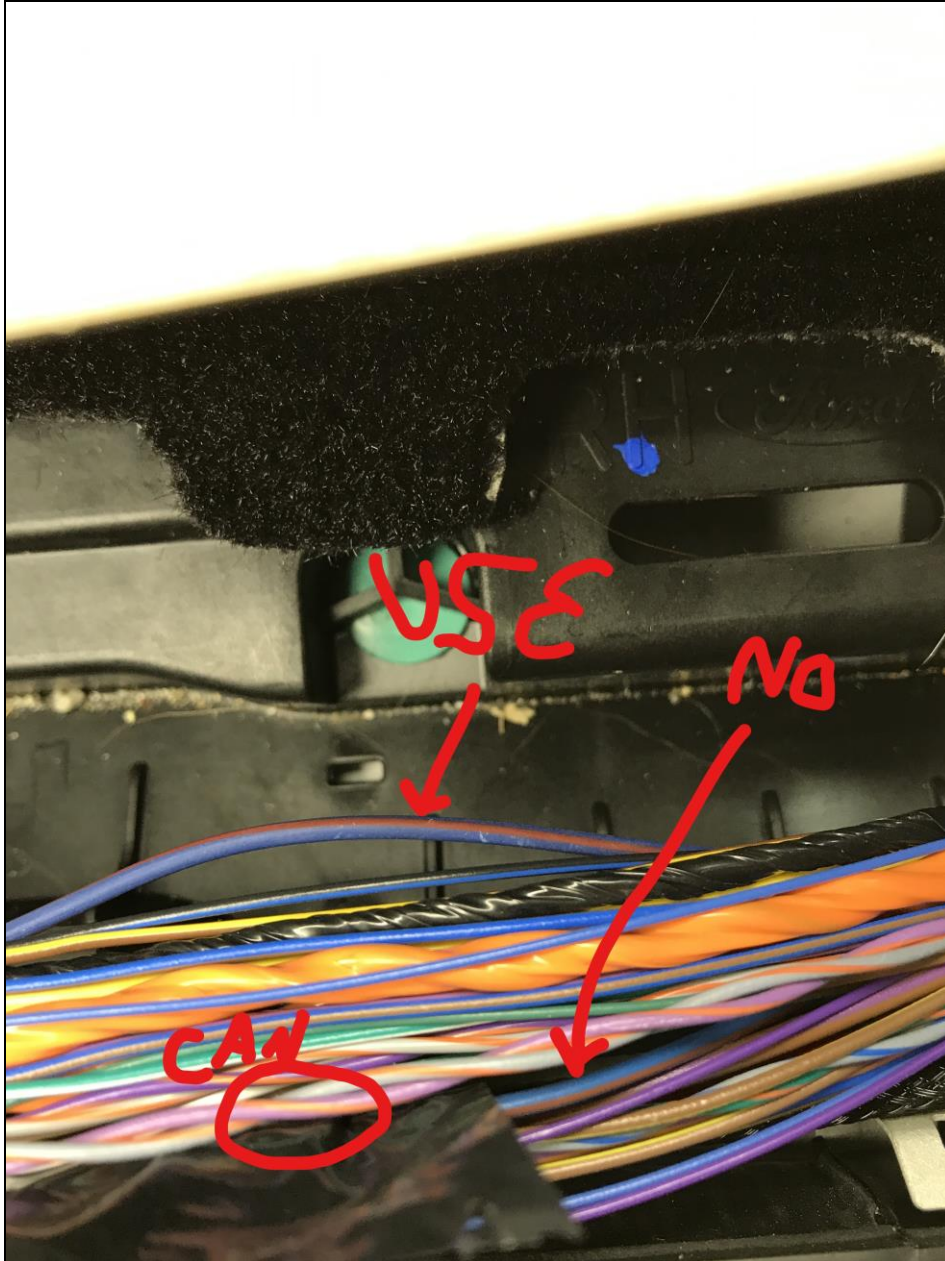


Using a 16 AWG yellow wire, we're going to run from the PRBM to the battery junction box. This is hot all the time. We'll use the fuse link to place this inline. We'll pull the wire back to the module and connect it into the existing plug splice. Solder. Fun to get through the firewall.

## Non-Sunroof Trucks-

In the race track in the rear passenger door (like the door sill trim piece), there is a power wire in here you can tap. This would supply the power sunroof. You must untape the bundle. Here you will find the dark blue wire with a red stripe. This is hot all the time. You will also see the MS CAN wires you will need for the modules to talk. Do not use the light blue wire with a red stripe on it. Not sure where it goes, but we know the dark blue is OK. It's already fused.

## Running Board installation on a 2016 F-150 Lariat – Super Crew



*(Ignore the dog hair – the truck is Golden Retriever approved)*

**Harness 1 - Ground** – A single 16AWG wire to the ground stud on the back wall where existing ground is already. By the seat latch mechanism. Wire length is 2 feet. Install the wire loop connector and mount to the bolt just to the left of the PRBM on the back wall. This is in harness 1 along with two MS CAN and one power wire.



## Running Board installation on a 2016 F-150 Lariat – Super Crew

**Harness 1 - PRBM to CAN BUS** – Two 22AWG wires. Need to identify and splice this into the existing body harness. Two options to get into these.

Option 1 are wires going up the back-side C pillar you will see Violet-Orange and Gray-Orange. You will need to splice into and run wires to the PRMB. Wire length is 3 feet.

Option 2 is to tap into these wires where you tap into the power wire in the race track in the rear passenger door wire bundle. There is so much more room to work here – I'd recommend you tap in here.



This is the C pillar, with the wire bundle running up from the floor.



## Running Board installation on a 2016 F-150 Lariat – Super Crew



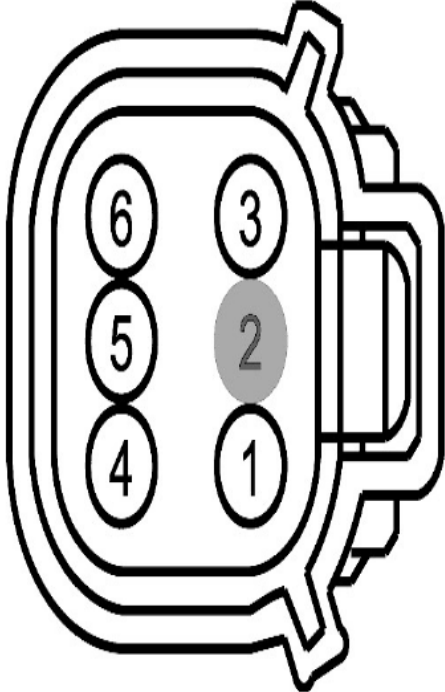
**Harness 2 - PRBM to the Passenger Board** – This is the same wiring for the driver's board with two exceptions. One, the wires are longer for the driver's side; and (2) we will splice two sensor wires together in the back of the cab. Wire length is 10 feet for the passenger side.

You will need two wires for power, 16AWG each. Three 22 AWG wires for sensor positions. Refer to the plug diagrams in the first page of this thread to see how the wiring should be done. With the wire at the PRBM, you will splice into existing pigtailed noting which pin you need to solder each wire. Place the heat shrink tube over the wire before you solder, and melt it after soldering to protect the connection.

## Running Board installation on a 2016 F-150 Lariat – Super Crew

<b>Connector:</b> C3186	<b>Description</b> RUNNING BOARD MOTOR, RIGHT	<b>Color</b> BK	<b>Harness</b> 14A005	<b>Base Part #</b> part# N/A	<b>Service Pigtail</b> See Below
----------------------------	---	--------------------	--------------------------	---------------------------------	-------------------------------------



Terminal Part Number	Service Part Number	Size
BU5T-14474-UA	DU2Z-14474-DA	1.50

Pin	Circuit	Gauge	Circuit Function	Qualifier	Terminal Part Number
1	CPR45 (VT-GY)	20	CTRL MOD. - POWER RUNNING BOARDS # PASSENGER STOW		BU5T-14474-UA
2	*	*	Not Used		N/A
3	CPR44 (BN-WH)	20	CTRL MOD. - POWER RUNNING BOARDS # PASSENGER DEPLOY		BU5T-14474-UA
4	CPR47 (GY-BN)	22	CTRL MOD. - POWER RUNNING BOARDS # SENSOR +		BU5T-14474-UA
5	VPR46 (GY-OG)	22	SENSOR. - POWER RUNNING BOARDS # PASSENGER POSITION		BU5T-14474-UA
6	RPR47 (BU-GN)	22	CTRL MOD. - POWER RUNNING BOARDS # SENSOR -		BU5T-14474-UA

<b>Available Pigtail Kits</b>	
	<b>Service Part Number: 3U2Z-14S411-FEAB</b>

**Harness 3 - PRBM to the Driver Board** – Run wires just like you did for the passenger unit. Wire length is 15 feet. In the back wall you will then mount the two sensor wires from both right and left into single wires to feed plug C3313A, pins 14 and 5. Both boards share the same wires for these two pins only.

# Running Board installation on a 2016 F-150 Lariat – Super Crew

Connector:	Description	Color	Harness	Base Part #	Service Pigtail
C3185	RUNNING BOARD MOTOR, LEFT	BK	14A005	part# N/A	See Below

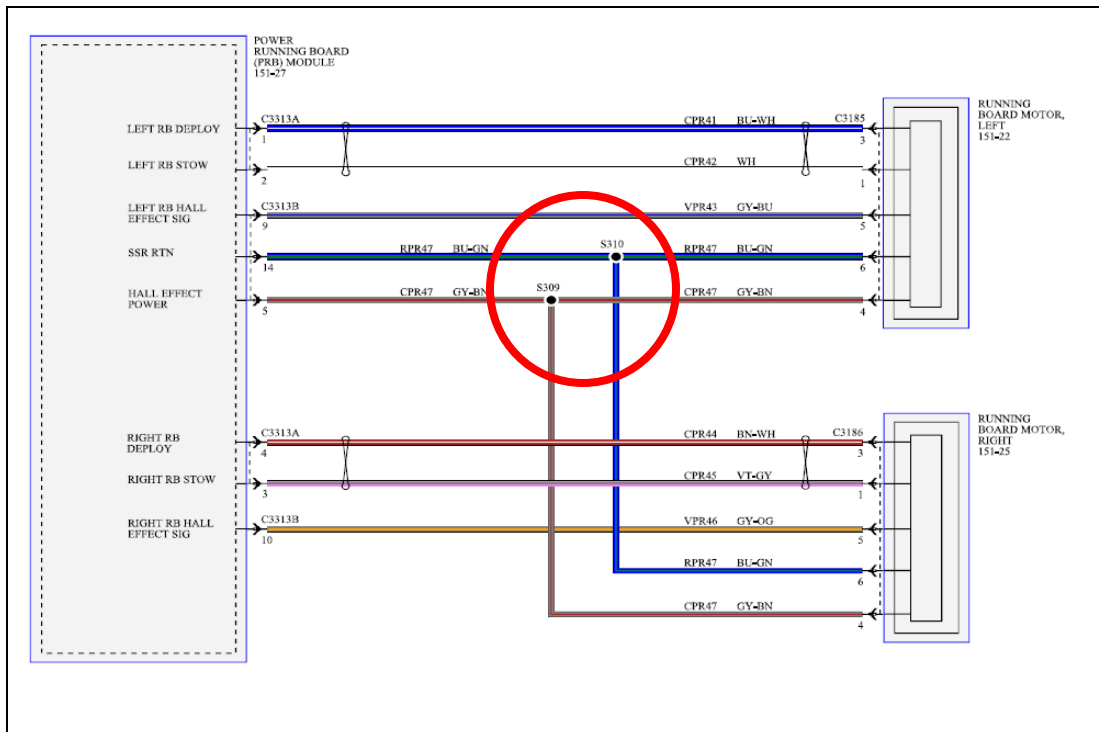
Terminal Part Number	Service Part Number	Size
7C3T-14474-DA	DU2Z-14474-DA	1.50
BU5T-14474-UA	DU2Z-14474-DA	1.50

Pin	Circuit	Gauge	Circuit Function	Qualifier	Terminal Part Number
1	CPR42 (WH)	18	CTRL MOD. - POWER RUNNING BOARDS # DRIVER STOW		7C3T-14474-DA
2	*	*	Not Used		N/A
3	CPR41 (BU-WH)	18	CTRL MOD. - POWER RUNNING BOARDS # DRIVER DEPLOY		7C3T-14474-DA
4	CPR47 (GY-BN)	22	CTRL MOD. - POWER RUNNING BOARDS # SENSOR +		BU5T-14474-UA
5	VPR43 (GY-BU)	22	SENSOR. - POWER RUNNING BOARDS # DRIVER POSITION		BU5T-14474-UA
6	RPR47 (BU-GN)	22	CTRL MOD. - POWER RUNNING BOARDS # SENSOR -		BU5T-14474-UA

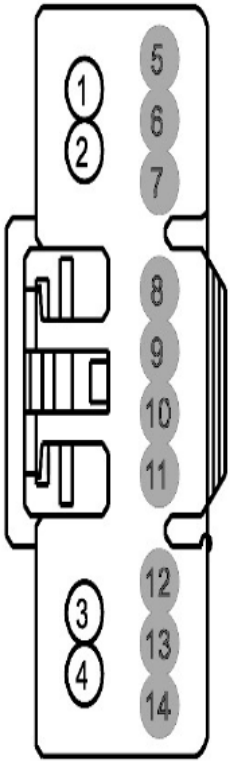
Available Pigtail Kits
Service Part Number: 3U2Z-14S411-FEAB



# Running Board installation on a 2016 F-150 Lariat – Super Crew

When it's all done your two PRBM modules should be wired like the following. While you'll see different AWG of wire, I standardized on 16 for power source, power to the boards, and ground, and 22AWG for everything else. When you make a million trucks \$.02 on wire adds up so Ford only went as big as they need. I was less worried and just used two types of wire.

Connector:	Description	Color	Harness	Base Part #	Service Pigtail
<b>C3313A</b>	POWER RUNNING BOARD (PRB) MODULE	GY	14A005	part# N/A	Not Available

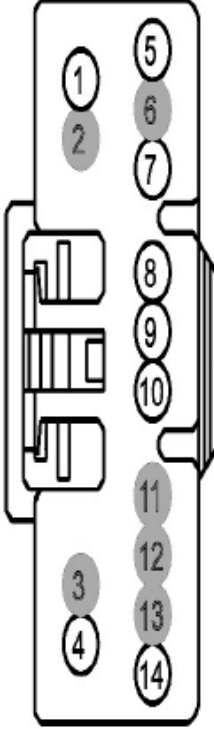
Terminal Part Number	Service Part Number	Size
3M5T-14474-HBA	DU2Z-14474-EA	2.80
3M5T-14474-HAA	DU2Z-14474-EA	2.80

Pin	Circuit	Gauge	Circuit Function	Qualifier	Terminal Part Number
1	CPR41 (BU-WH)	18	CTRL MOD. - POWER RUNNING BOARDS # DRIVER DEPLOY		3M5T-14474-HBA
2	CPR42 (WH)	18	CTRL MOD. - POWER RUNNING BOARDS # DRIVER STOW		3M5T-14474-HBA
3	CPR45 (VT-GY)	20	CTRL MOD. - POWER RUNNING BOARDS # PASSENGER STOW		3M5T-14474-HAA
4	CPR44 (BN-WH)	20	CTRL MOD. - POWER RUNNING BOARDS # PASSENGER DEPLOY		3M5T-14474-HAA
5	*	*	Not Used		N/A
6	*	*	Not Used		N/A
7	*	*	Not Used		N/A
8	*	*	Not Used		N/A
9	*	*	Not Used		N/A
10	*	*	Not Used		N/A
11	*	*	Not Used		N/A
12	*	*	Not Used		N/A
13	*	*	Not Used		N/A
14	*	*	Not Used		N/A

# Running Board installation on a 2016 F-150 Lariat – Super Crew

Connector:	Description	Harness	Base Part #	Service Pigtail
<b>C3313B</b>	POWER RUNNING BOARD (PRB) MODULE	14A005	part# N/A	See Below


Terminal Part Number	Service Part Number	Size
3M5T-14474-HBA	DU2Z-14474-EA	2.80
5F9T-14474-BA	Not Available	
5F9T-14474-CA	Not Available	

Pin	Circuit	Gauge	Circuit Function	Qualifier	Terminal Part Number
1	SBB50 (YE-RD)	16	FUSE - 50 OR CIRCUIT BREAKER		3M5T-14474-HBA
2	*	*	Not Used		N/A
3	*	*	Not Used		N/A
4	GD348 (BK-YE)	16	GROUND - PILLAR C OR QUARTER PANEL RIGHT		3M5T-14474-HBA
5	CPR47 (GY-BN)	22	CTRL MOD. - POWER RUNNING BOARDS # SENSOR +		5F9T-14474-BA
6	*	*	Not Used		N/A
7	VDB07 (VT-OG)	22	CONNECTOR - DIAGNOSTIC # CAN BUS MEDIUM SPEED LOW		5F9T-14474-CA
8	VDB06 (GY-OG)	22	CONNECTOR - DIAGNOSTIC # CAN BUS MEDIUM SPEED HIGH		5F9T-14474-CA
9	VPR43 (GY-BU)	22	SENSOR - POWER RUNNING BOARDS # DRIVER POSITION		5F9T-14474-BA
10	VPR46 (GY-OG)	22	SENSOR - POWER RUNNING BOARDS # PASSENGER POSITION		5F9T-14474-BA
11	*	*	Not Used		N/A
12	*	*	Not Used		N/A
13	*	*	Not Used		N/A
14	RPR47 (BU-GN)	22	CTRL MOD. - POWER RUNNING BOARDS # SENSOR -		5F9T-14474-BA



## Running Board installation on a 2016 F-150 Lariat – Super Crew

<p>Pigtail Kit Part Number <b>WPT-1169</b></p> 	<p>Service Part Number: <b>BU2Z-14S411-PA</b> Gauge: <b>12 18</b> Pin material: <b>Tin (greased)</b> Cavities: <b>14</b></p> <p>Vehicle Uses</p> <ul style="list-style-type: none"><li>• <b>Module - Running Board</b></li></ul>
--	--

## Running Board installation on a 2016 F-150 Lariat – Super Crew

This is the protective sleeve I ran all my wires in. It was much easier to pull this through the trim raceway and it also protected the wires. Pull the wires through here first, then solder afterwards. I cut everything to length before running any wire. After you cut – melt the ends like you would rope.

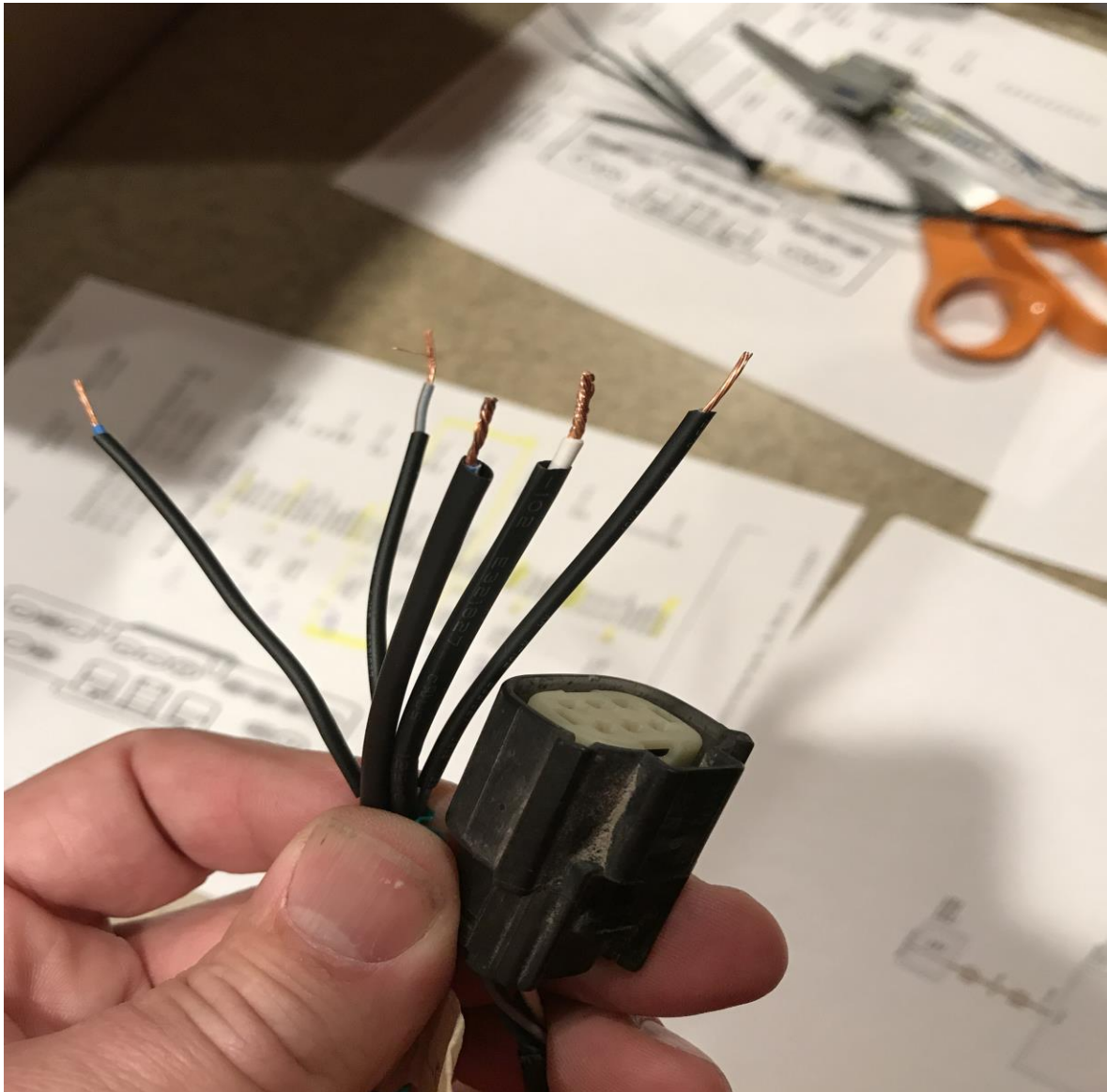


## Running Board installation on a 2016 F-150 Lariat – Super Crew



## Running Board installation on a 2016 F-150 Lariat – Super Crew

I am prepping the final couple feet (I call them pigtails) – the plug for the motors for each board, the grommet through the floor, as well as protective sleeve material. Put the sleeve on, the hard-plastic covering, heat shrink tubing, then tin the wires in prep for final solder.



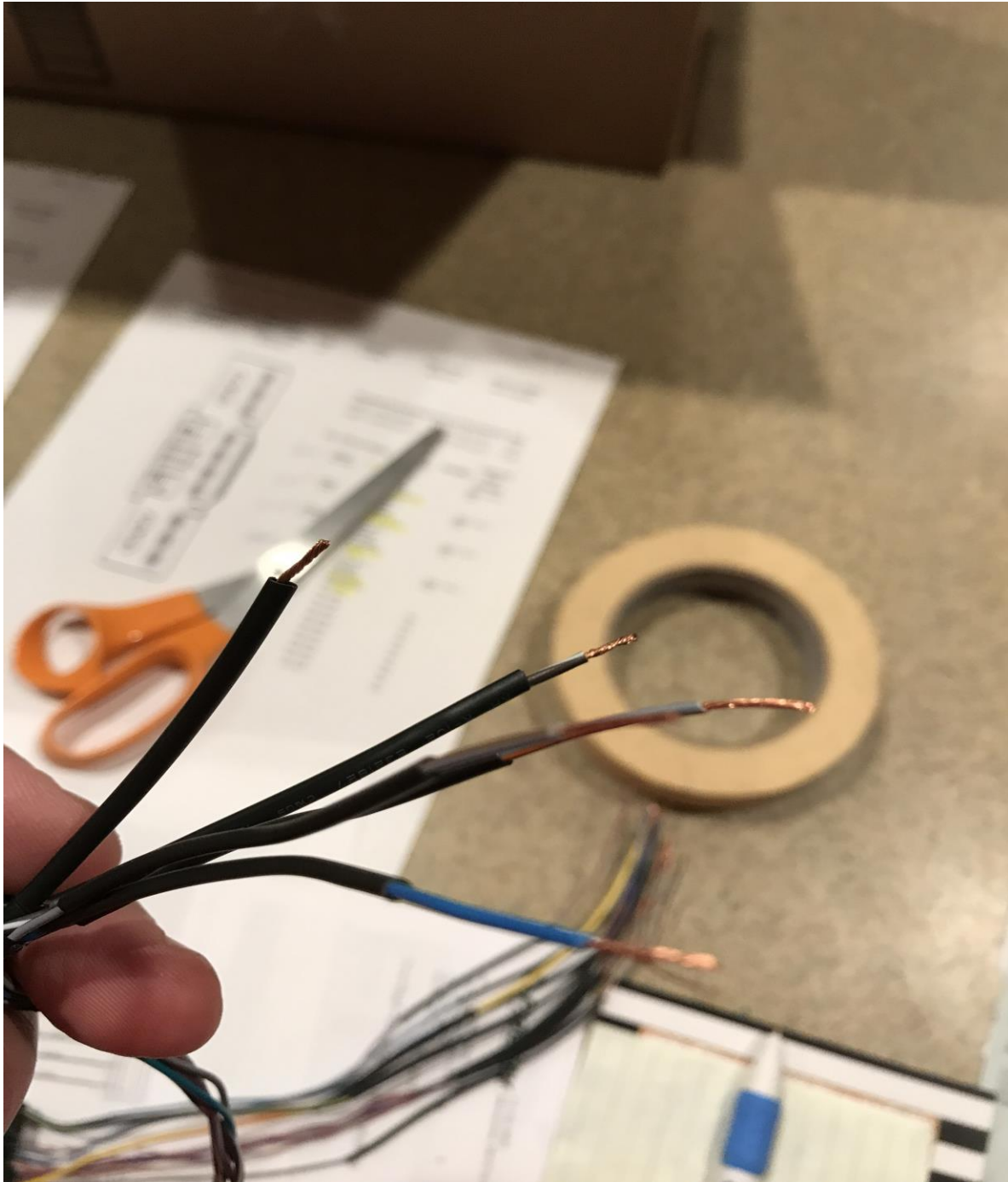
## Running Board installation on a 2016 F-150 Lariat – Super Crew



Power and ground to each running board motor.

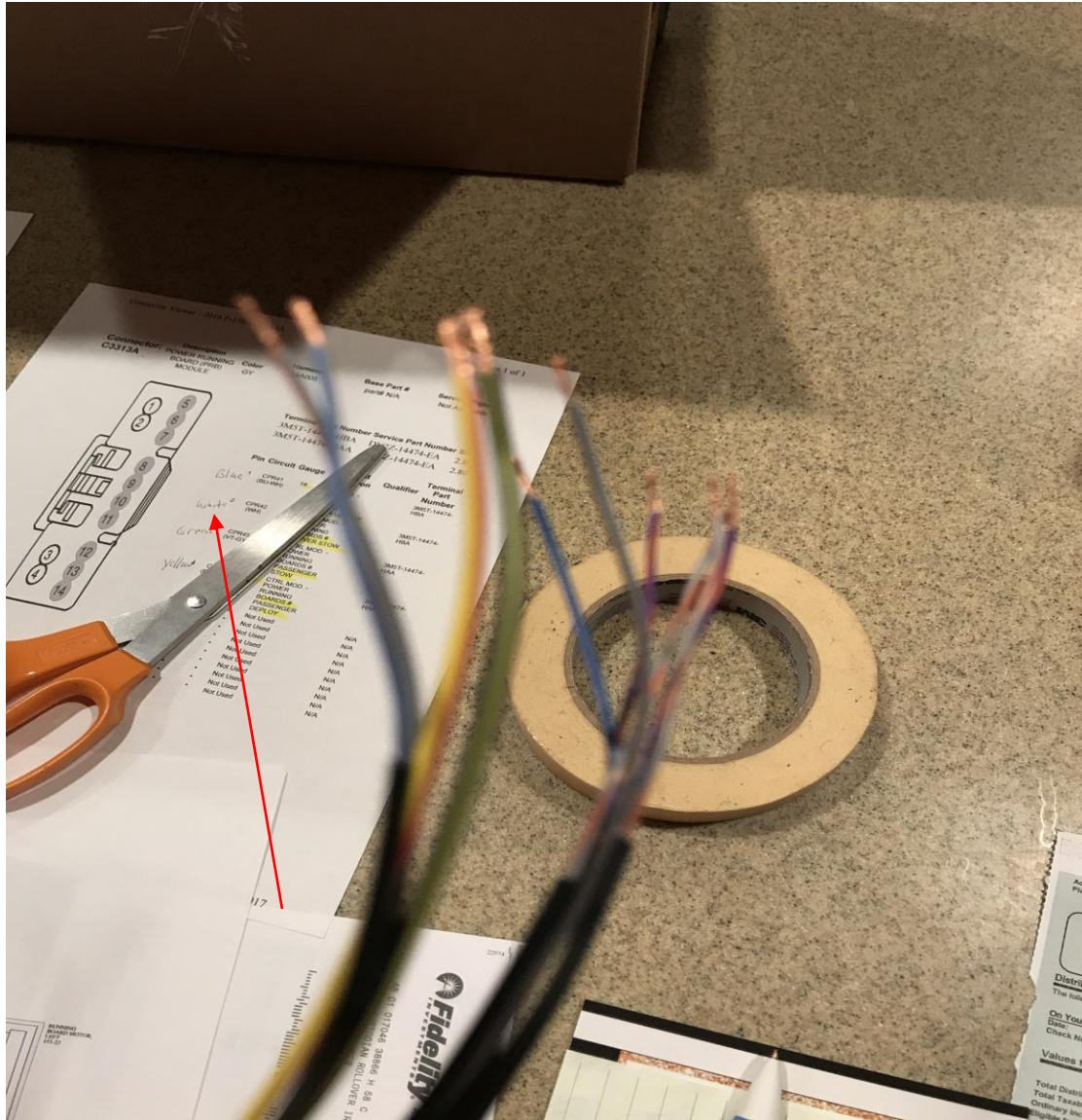


## Running Board installation on a 2016 F-150 Lariat – Super Crew



Power, Ground, and 2 MS CAN wires in Harness 1. For some reason there are two wires on a single ping for MS CAN + and -. Don't know why. I just soldered them together.

# Running Board installation on a 2016 F-150 Lariat – Super Crew



Notice I write my hardness color on the paper next to the factory colors for quick reference.

## Running Board installation on a 2016 F-150 Lariat – Super Crew

This is what the final (pigtail) product should look like. Ready to solder on to the harness once it's been run through the raceway and is up front.





## Running Board installation on a 2016 F-150 Lariat – Super Crew



Notice something missing on this pigtail? No grommet to go through the floor. Don't forget to add it before you solder this onto the harness.

## Running Board installation on a 2016 F-150 Lariat – Super Crew



I cut a small hole in the existing grommet to sneak the wire through. I tried to get the factory grommet but could not. Silicone and wire tie the wires to this once installed to add additional protection.

This is located under the carpet in the floor section of the driver and passenger footwell. *More on the exact location later in this document.*

### **Installing the Harnesses:**

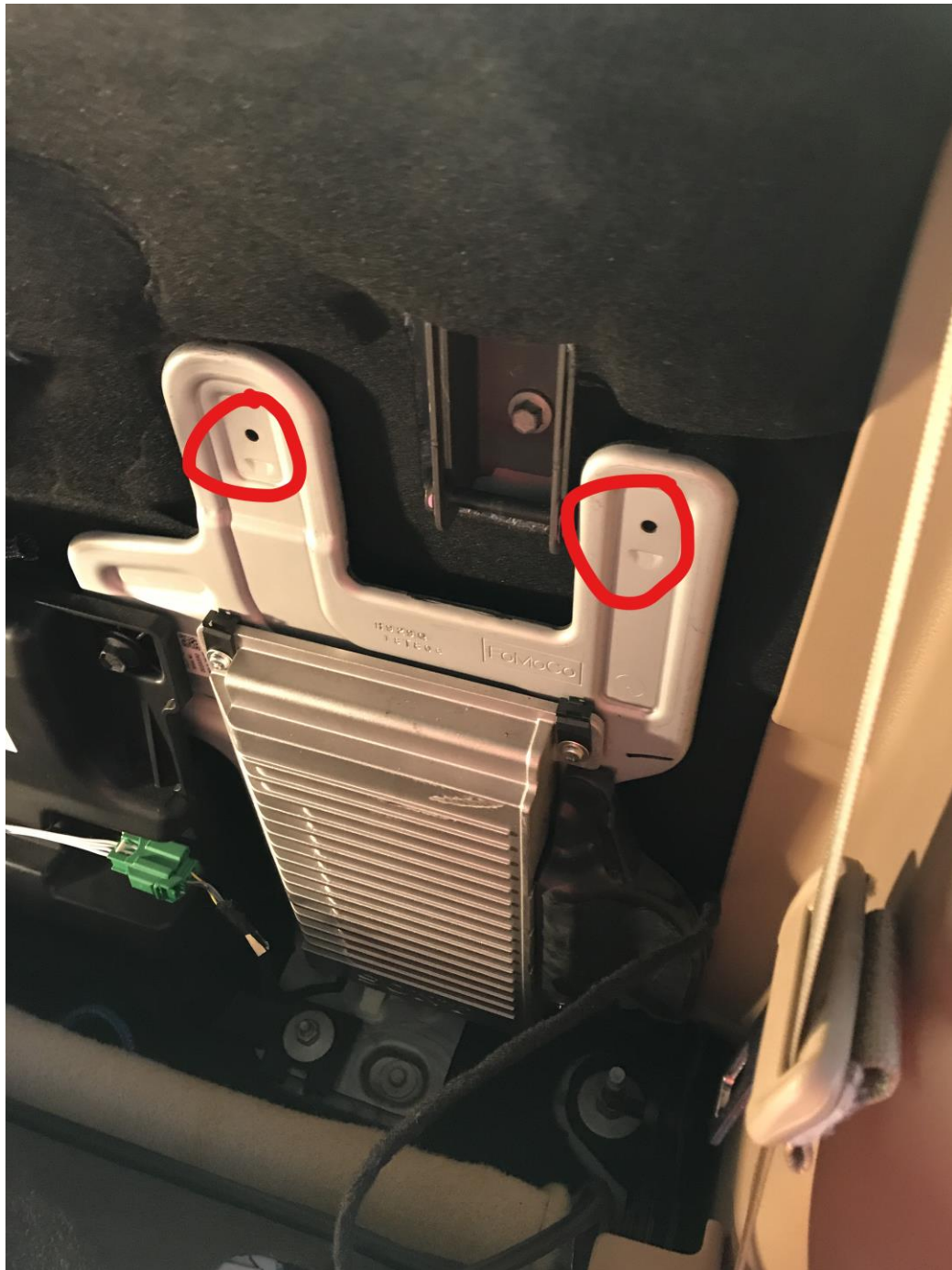
Proceed to hide the harness under the body trim as needed. On all four doors, remove the door sill trim piece. You must loosen the C pillar trim to get behind it on each side. I started from the PRB module and worked forward. I needed a pull wire to get the wire from back behind the seat and through the B pillar from back to front.

Red wire is what I used for a pull string.

If you have the factory SONY amp, you'll need to remove the mounting screws to loosen this from the rear wall to get the carpet lose to get the wire back there.



## Running Board installation on a 2016 F-150 Lariat – Super Crew



## Running Board installation on a 2016 F-150 Lariat – Super Crew



Red pull wire. Came up from in front of rear seat on each side to pull it towards front of the cab.

## Running Board installation on a 2016 F-150 Lariat – Super Crew



Coming through rear C pillar trim. You'll have to pull trim piece, but snaps back in.

## Running Board installation on a 2016 F-150 Lariat – Super Crew



From rear, through the B pillar and about ready to go under the truck. Pull the wire as far forward as possible through the raceway, THEN solder on the pigtail to go to the running board motor. Each side is handled the same way.



## Running Board installation on a 2016 F-150 Lariat – Super Crew





## Running Board installation on a 2016 F-150 Lariat – Super Crew



Your wire should follow the red line. Drop in from the top, and plug in the grommet. Again, solder the pigtail on now.

Do not insert the plugs into the PRBM yet. At this point you should have all the wiring completed and the wires hidden. CAN BUS wires soldered, power connected, ground wire attached, and plugs for the boards. Now it's time to mount the boards.

### **New Board Installation**

*I recommend building the wiring harness before you mount the boards. This way you can plug in the connector to the power module while you're lifting to mount and you already have the wiring hanging from the cab.*

## Running Board installation on a 2016 F-150 Lariat – Super Crew

Make sure you mount the correct board on the correct side of your truck. There should be a sticker on the board indicating L or R. Worst case, motor goes up front. Torque the bolts as the German's do (good-n-tight). I don't have a manual to set the proper torque spec. Maybe someone can tell me and I'll update this thread.

Bolt up the boards, working motor end first as it's heavier. Once the board is fully installed, boards in the retracted position, plug in the board motor connector.

Do the same on the passenger side.

13MM socket and 4" extension and you're good to go.

### Connecting it all up

1. Replace any trim that you have not already put back.
2. Ground wire should already be securely mounted. Confirm.
3. Insert the 30A fuse in the fuse holder under the hood and close the water tight cap, if installed.
4. Running Boards should already have their connectors plugged in.
5. Connect both plugs to the PRBM.
6. Reinstall carpet trim covering the PRBM.
7. Set-up both rear seats.

Now all wiring is completed and connected. Boards should still be in the retracted position.

Connect the negative battery terminal. If you have a door open when you do this, you will experience a board extend to the full open position. Remember, the board opens only on the side where the door is open. If you don't have a door open, tighten up the battery terminal and go open a door and the board should deploy.

If you have all your doors closed and you connect and the battery and a board deploys, you have two wires soldered backward. Look at pins 1,2,3,4 on C3313A first.

### Forscan Changes

You have a new module installed so when you fire-up Forscan, you're going to want to create a new profile as you want the program to scan for all modules. This should now list the RBM and use the software to update the IPC and configure your boards IPC 720-07-01 xxx9 xxxx is the only update that is needed.

With the ignition off, open your driver's door and the board should auto-deploy. Now go do the same on the passenger side. Close the doors and confirm everything is working like it's supposed to.

Go have fun with your new power running boards. Congratulations on adding an enhancement for much less than what FORD was going to charge you for them. And you have factory OEM boards.