

# STARKEY

## PRODUCTS

### 2021-2023 Ford F-150 Underbody/ Puddle Lights Kit

<u>Parts List:</u>	<u>Quantity:</u>	<u>Tool List:</u>
LED Lamp Assemblies	2	• Power Drill
Aluminum Mounting Rails	4	• 8mm Hex Head Driver
Wiring Harness	1	• Pliers
Parts Bag PB-4570	1	• Safety Glasses

Thank you for purchasing one of our products. Please familiarize yourself with the parts included as well as the instructions before attempting installation. Please seek the help of a certified technician if you feel unable to complete the installation safely and properly. Failure to read and follow the instructions below may result in personal injury or damage to property. Starkey Products, Inc. and our retailers assume no liability for failures to comply with guidelines and warnings outlined in this instruction manual.

#### Mounting Aluminum Rail System:

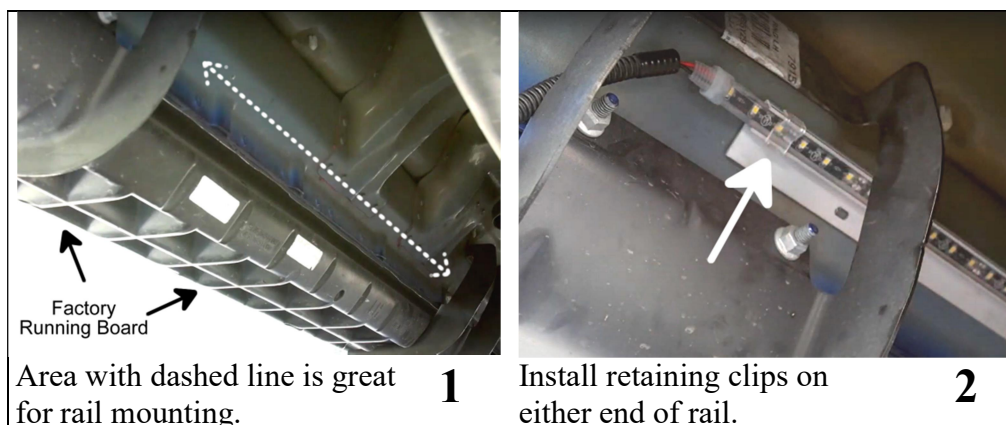
Driving the vehicle onto ramps or raising the truck with jack stands will greatly ease installation. Before beginning the steps below, turn off the truck, remove key, and engage the emergency brake.

Familiarize yourself with the parts included with the kit. There are a total of 4 aluminum rails – 2 for each side. You'll notice that they are angled to allow for more versatility.

Generally, the best place to mount them is the angled surface above the pinch weld shown in picture 1. Depending on the bottom surface of your running boards (boards vary in length and shape), the running boards may be another possible mounting location. A few things to keep in mind:

- A. Center the rails between the 2 tires. Be sure to match both sides!
- B. The rails should be placed end-to-end (the ends should touch or be within 1/4" inch of each other).
- C. The rails can be bent slightly or shaped to meet the contour of the surface.
- D. There are approximately 4 mounting holes pre-drilled on each rail, but only the 2 outermost holes need to be used for each rail in most cases.

Using the self-tapping stainless steel screws, securely mount the aluminum rail system. Be sure to use safety glasses! Optionally, you can drill a 1/16" pilot hole.



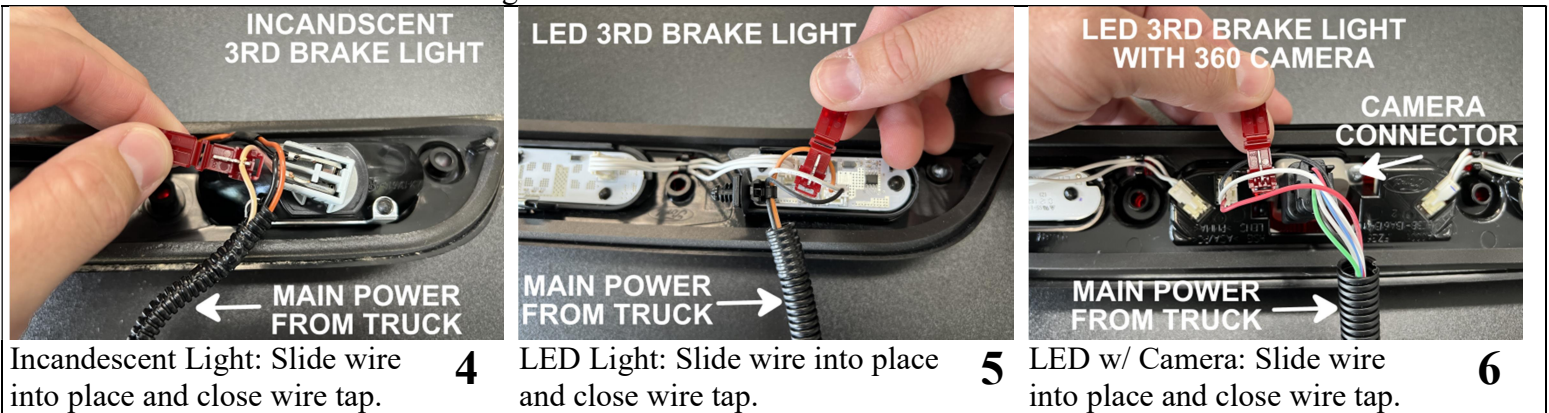
Installing LED lamps and connecting to power:

The LED lamps have wiring coming out of one end. This wiring should be run toward the rear of the truck. The LED lamps install into the mounting rail by pressing the lamps into the channel that is molded into the rails. It does not matter which side you install each lamp on. You'll notice the cap on the end does not fit inside the channel. Therefore the LED lamps should extend beyond the channel on each side by about 1/2 inch.

1. Starting on one side, insert the LED lamp into the beginning of the rail toward the front of the truck. It is good to leave about 1/2 inch of the LED lamp cap extending beyond the rail.
2. Pushing a few inches in at a time, work your way down toward the rear of the truck. Make sure the LED lamps are completely depressed into the mounting rail. They should be flush with the edges of the aluminum channel.
3. Install the plastic retaining clips on each end of the mounting rail (2 per side). See Picture 2.
4. Route the remainder of the wiring to the rear of the vehicle. Caution should be exercised when mounting the wiring throughout this installation. You'll need to stay away from any significant sources of heat (like exhaust pipes) and any moving parts (like suspension). It follows that staying as high up as possible will avoid these things. Where possible, it is best to follow existing bundles of wiring that run along the frame of the vehicle. Use the supplied zip ties to secure all wiring.
5. Work your way to the rear bumper. This will be where the lights connect once installation is finished.
6. Repeat steps 1 through 5 with the other LED lamp.

Installing Wiring Harness:

7. Disconnect negative (black) battery cable from the battery. This is done by loosening the bolt located on the side of the battery cable terminal with a wrench. You may let the cable sit off to the side. Do NOT allow it to make contact with the +12v Red battery cable!
8. Remove the 3<sup>rd</sup> brake light from the top rear of the cab. This is held on by 4 – T20 Torx Screws – you do not need to unplug and remove it completely, but it is helpful to lay a rag on the roof to sit the 3<sup>rd</sup> brake light on until you are ready to re-assemble it.
9. Begin to feed the side of the wiring harness with the (2) Deutsch Plugs through the opening into the cab of the truck.
10. Move to the inside rear of the cab and pull down the backside of the headliner a few inches. You will hear 2 clips disengage. Now reach up and grab the (2) Deutsch plugs you fed through the opening on step 3.
11. Gently pull the wiring harness through until you see the other end of the wiring harness reach the 3<sup>rd</sup> brake light opening.
12. Return to the 3<sup>rd</sup> brake light on the outside of the cab.



Incandescent Light: Slide wire into place and close wire tap. **4**

LED Light: Slide wire into place and close wire tap. **5**

LED w/ Camera: Slide wire into place and close wire tap. **6**

Follow the wire colors below depending on the type of third brake light you have. All lights have the Brake Light in the center, and the Over-Cab lights on either outside edge. We will need to connect to the Over-Cab lights' circuit.

The wiring looks different depending on which Light you have, but they all have a main power cord that runs from the inside of the truck to the 3<sup>rd</sup> Brake Light. On the incandescent AND LED versions, this will have 3 wires total. On the LED with 360 camera version, this will have 7 or 8 wires.

**Incandescent 3<sup>rd</sup> Brake Light:** Using the supplied red wire tap, slide the **Light Purple** wire onto the wire tap. The wire should sit in the middle of the two teeth. Squeeze down on the wire tap making sure it snaps closed. Do not cut Wire! See picture 4. Note: Some reports say this wire fades to a **Tan** color.

**LED 3<sup>rd</sup> Brake Light:** Using the supplied red wire tap, slide the **White** wire coming from the main wire bundle shown in picture 5. The wire should sit in the middle of the two teeth. Squeeze down on the wire tap making sure it snaps closed. Do not cut Wire! See picture 5. This wire is bundled with an Orange and Black wire.

**LED 3<sup>rd</sup> Brake Light with 360 Camera:** Two versions of this Light exist. The original version has a small (3) wire connector along side a larger (5) wire connector that connects directly to the camera. Using the supplied red wire tap, slide the **White** wire from the (3) wire connector shown in picture 6 onto the wire tap. **DO NOT** tap any of the wires that run to the camera connector. The newer version of the connector has a single (8) wire connector. The Pin# 7 wire is the one that needs to be tapped into, but the wire color varies. If you are unsure of how to determine the proper wire and you have this configuration, contact us for assistance.

13. Plug the **red** wire from the wiring harness into the back of the wire tap. See picture 7.
14. Re-attach the 3<sup>rd</sup> brake light using the Torx screws removed earlier. Be sure to **NOT** overtighten the screws – they only need to be snug, but we do not want to crack the lens.



Plug red power extension wire into the wire tap.

**7**



Attach black ground wire to the 8mm stud circled above.

**8**

15. Return to the inside of the cab.
16. Locate the rectangular vent behind the passenger side rear wall of the cab. If you have rear seats, use the pull handle to lower the seat back. Pull back the insulation to gain access to the vent.
17. Route wiring harness that is coming down from rear window along bottom edge of headliner to the passenger side pillar. Press up on headliner to re-engage clips that hold the rear part of the headliner in place.
18. Use an 8mm socket or wrench to attach the **black** ground wire to the stud circled in picture 8. Re-attach the bolt and tighten.
19. Insert the Deutsch connectors (one at a time) through any one of the square openings on the vent. The vent in that section will open.

20. Feed enough wire through so that you can route the power extension wire to the rear bumper. Be sure to zip tie the wiring harness securely.
21. Re-connect the negative battery cable to the truck battery. Remember to re-tighten the bolt.
22. Connect the Deutsch Plugs from extension wiring to the Plugs from Underbody Lights.

Final Installation:

1. Double check everything to make sure it was connected properly.
2. Now open one of your doors – the lights should illuminate. If the lights do not power on, visit the trouble shooting section below. Otherwise proceed to the next step.
3. Using the supplied zip ties, secure the wiring under the rear of the bumper if not already done. Be sure to securely zip tie any components that may hang or move.
4. Enjoy your new Underbody/ Puddle Lights! The lights will activate when you open any door or unlock the doors with your Key FOB. Lights will dim automatically when you start the truck or lock the doors.

Trouble shooting guide:

LED Lamps won't turn ON –

- Confirm you installed the wiring harness properly. If the proper wire is not tapped into, the lights will not illuminate or may only illuminate with the brake lights.
- Close all doors. Disconnect negative battery cable for 5 minutes, then reconnect and re-test.

If you are still having trouble with your product, please contact us for technical assistance. Tech support is available via phone Monday through Friday 9am-5pm. Email tech support is available during regular business hours as well as weekends, holidays, and evenings.

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**Limited Warranty:**

*This warranty covers defects in materials or workmanship in any component sold by Starkey Products, Inc. or its authorized dealers. Warranty is effective for five years from the date of purchase. Coverage terminates if you sell or transfer ownership of the product. Starkey Products will repair or replace the defective or malfunctioning product or any defective or malfunctioning part thereof at no charge. This warranty covers parts and labor only. This warranty does not cover any problem that is caused by abuse, misuse, acts of God, or improper installation. Any modification or alteration to any component will void the product warranty. Warranty does not cover wear that any components receive through the normal course of operation and use (including but not limited to bulbs). All warranty claims require proof of purchase.*