



BORNE OFF-ROAD[®]
by  **MISHIMOTO**

INSTALLATION GUIDE

**2019+ FORD RANGER 2.3L ECOBOOST BORNE OFF-ROAD SNORKEL
SKU: MMAI-RGR-19N**



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IMPORTANT SAFETY INFORMATION

- › Mishimoto recommends you use safety glasses and protective gloves during the installation of our products
- › Raise vehicle only on jack stands or on a vehicle lift
- › Allow vehicle to cool completely prior to attempting installation
- › Do not run the engine or drive the vehicle while overheating; serious damage can occur
- › Please dispose of any liquids properly
- › Mishimoto is not responsible for any vehicle damage or personal injury due to installation errors, misuse, or removal of Mishimoto products

INSTALLATION INSTRUCTIONS

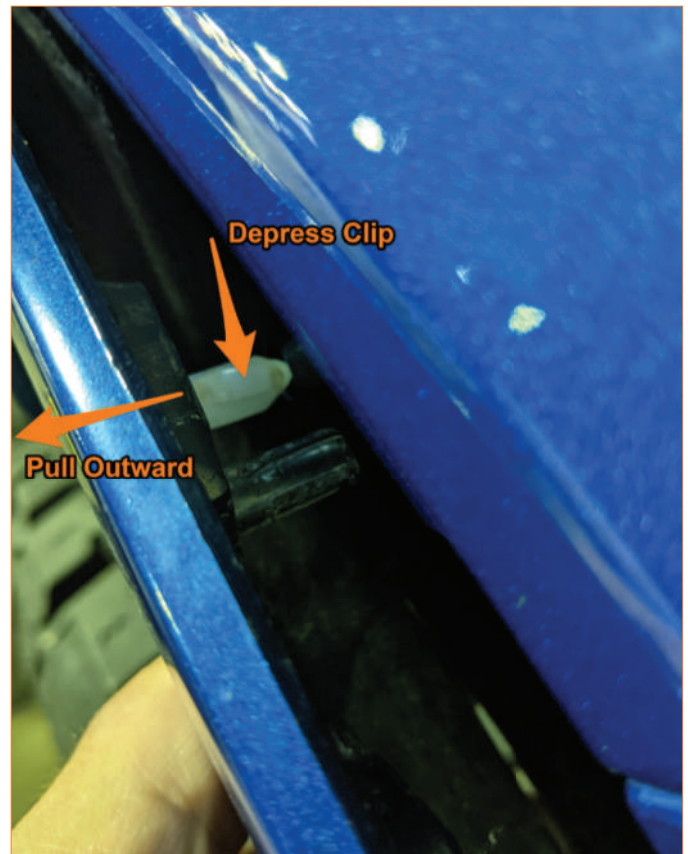
- 01.** Remove fender flair and inner wheel well liner.
- › Remove the corner light by pulling the light up and out. Twist the bub connector to disconnect it from the lens and set lens aside.



- › Remove fender flair pop clips and 2x T25 Torx bolts.



- › Pull firmly outward to release fender flair plastic clips; a tool may be needed to depress the clips.



NOTE: Fender clips can be difficult to remove, be careful not to break the clip brackets during removal.

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- › Remove 12x pop clips from the inner fender cover. Then remove the inner fender cover.

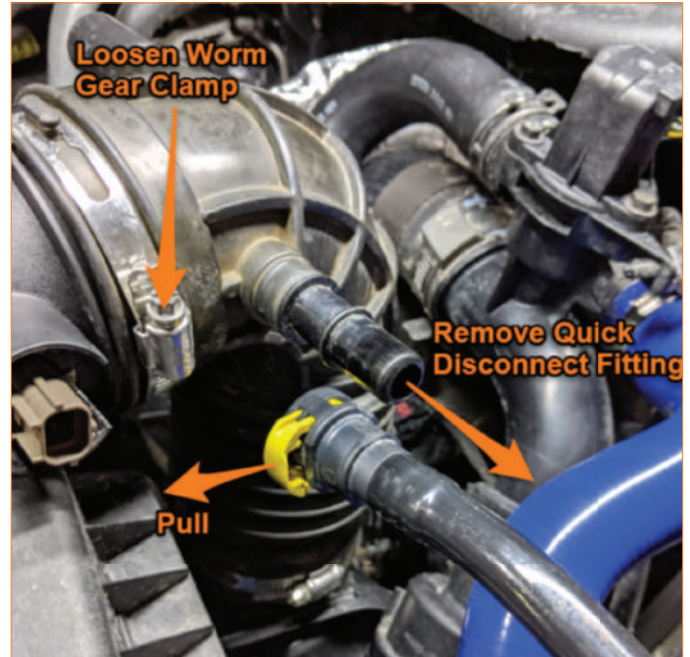


02. Remove the stock airbox.

- › Remove 2x 8mm bolts from air duct, then remove air duct by pulling upward.



- › Loosen intake hose clamp.
- › Remove quick-disconnect by pulling the yellow locking collar sideways, then pull the hose toward the front of the vehicle to disconnect it.



- › Disconnect sensor connector on the upper airbox.
- › Remove upper airbox.
- › Remove 2x 8mm bolts holding the lower air box. Remove air box.



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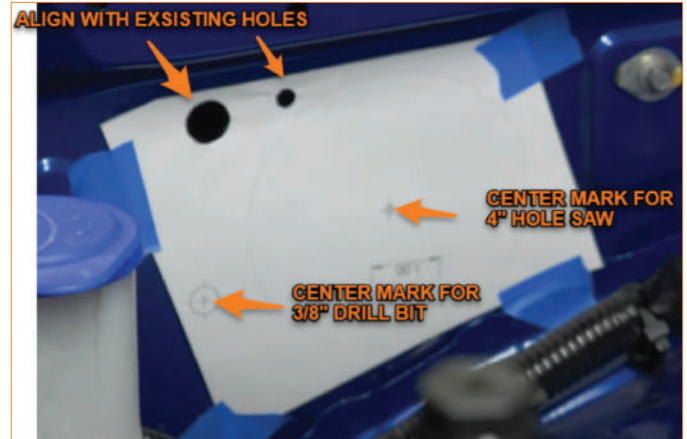


03. Remove fender vent cover by pulling outward.

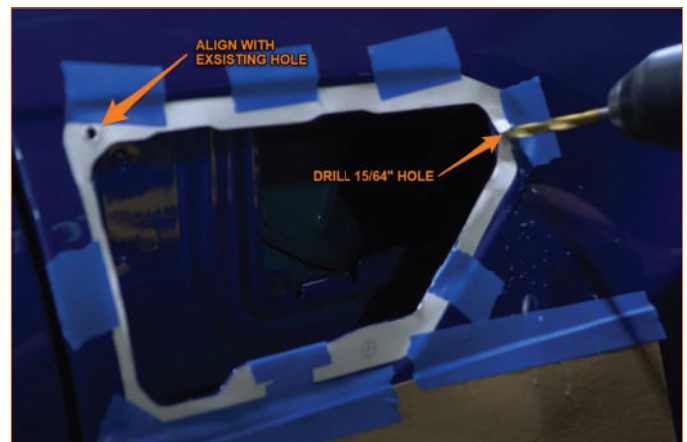


04. Cut inner fender using template.

- › Remove clips for the windshield washer fluid line located inside the inner wheel well. Allow the line to hang out of the way of the drilling area to avoid damage to the line.
- › Align holes for the template as shown.
- › Cut hole with 4" hole saw.
- › Drill 3/8" hole as shown to install J-hook. (see step 12)

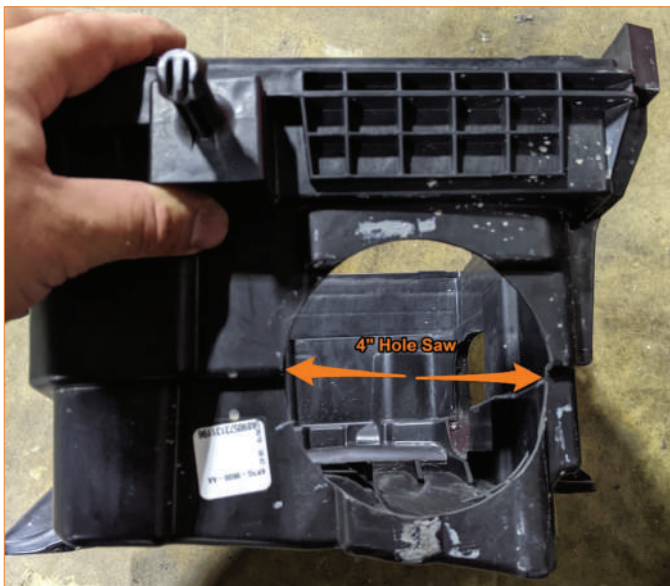


05. Cut inner fender using template.



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06. Mark a hole center on the lower airbox using supplied template, then drill the hole using a 4" hole saw.



07. Install supplied gasket (1674-02) onto fender mounting plate (MM2380-01) before installing it onto the fender.

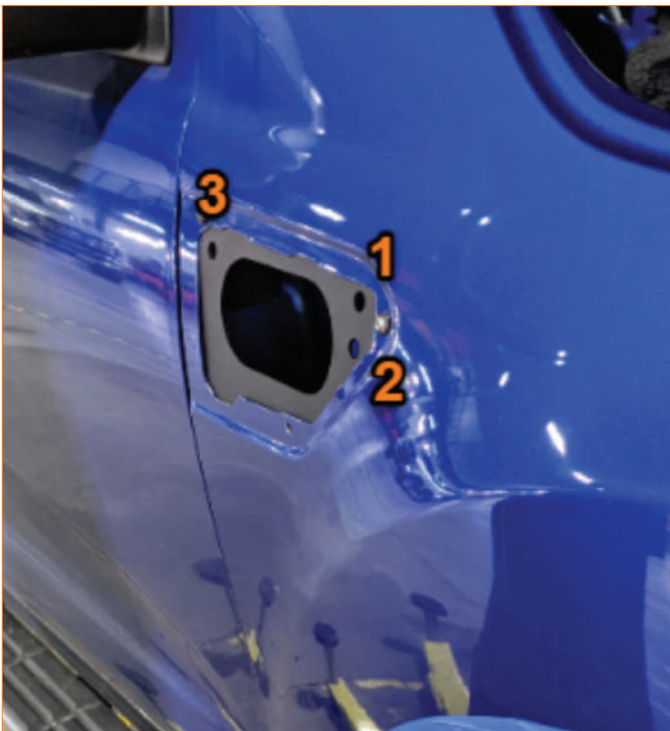
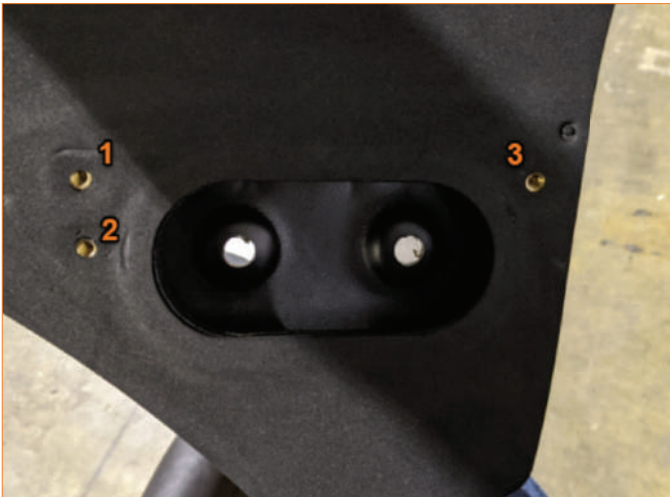


08. Install fender mounting plate (2380-1) to the fender using 2x 1208-04 rivets.

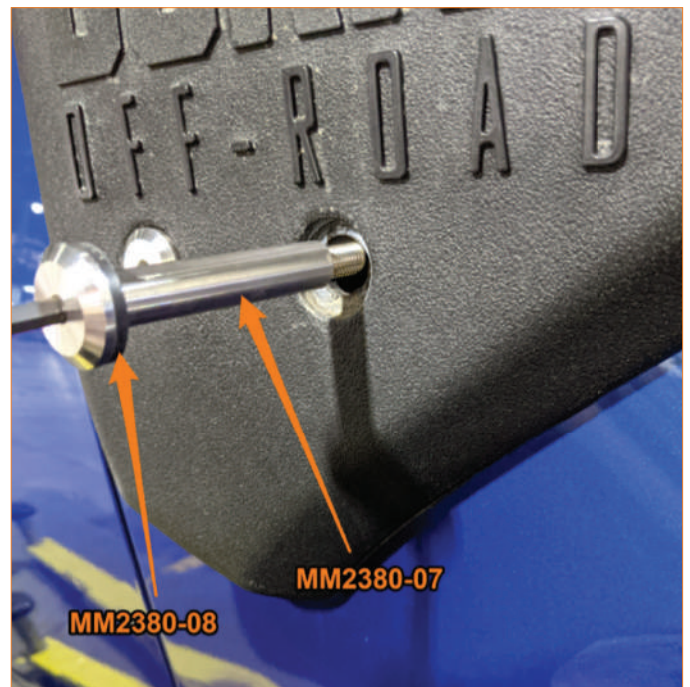
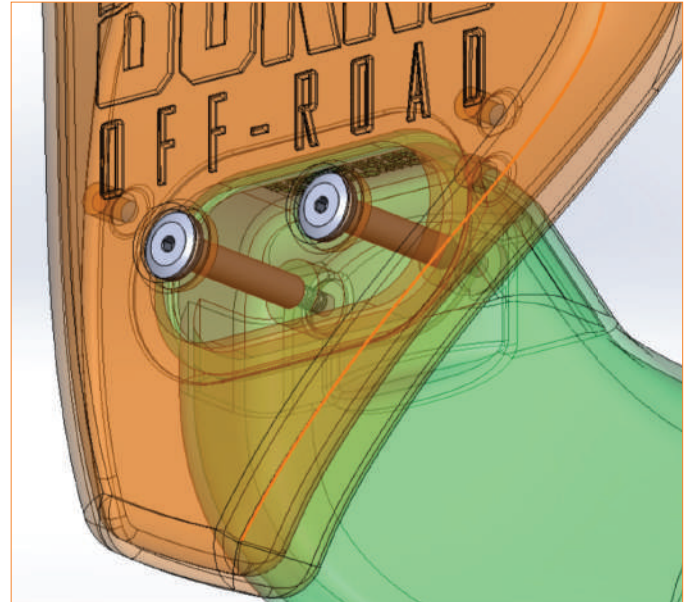


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09. Install outer snorkel tube (2366-02) onto the fender mounting plate (2380-01).
- › Thread MM1702-01 into hole #3, then mount the outer snorkel tube to the fender mounting plate using the corresponding holes shown below. Holes #1 & #2 will use 2x HF6X1.0-16D, and the stud will go through hole #3 and be secured with MM1163-17.

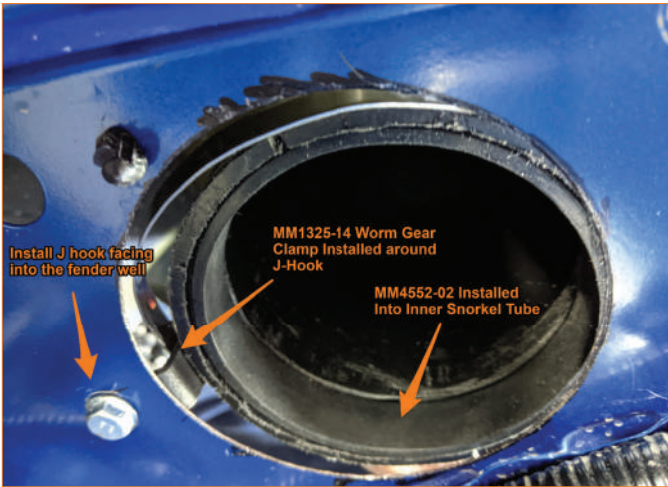


10. Feed inner snorkel tube up into the inner fender well.
11. Install inner snorkel tube (2366-01) to the outer snorkel tube (2366-02) using 2x 2380-07. Be sure to use supplied rubber washers (2x MM2380-08).

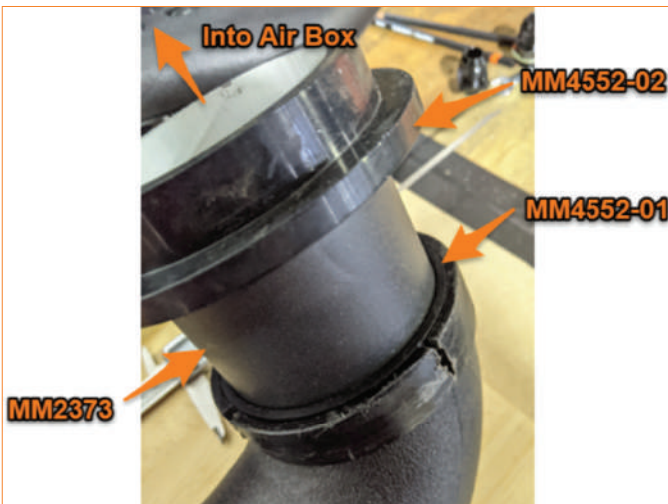


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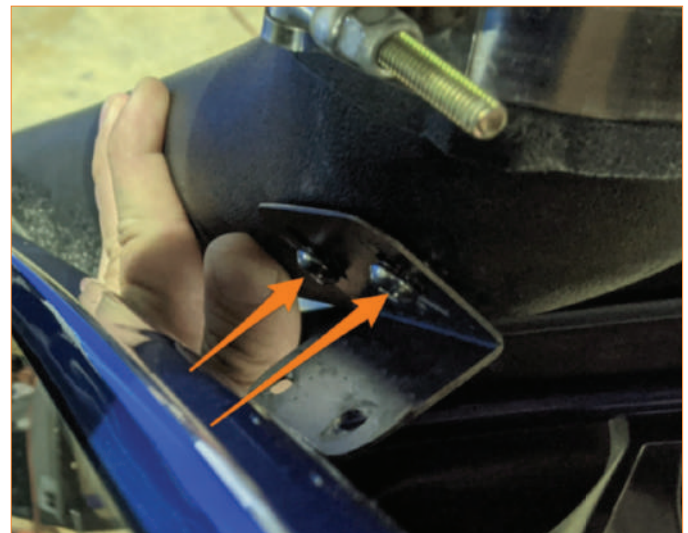
12. Install J-hook (MM2380-05) into hole drilled in fender during step #4. Fasten with 1x HF6x1.0-16D and 1163-17.
13. Install the inner snorkel tube to the J-hook using the supplied worm gear clamp (1325-14), but do not tighten the worm gear clamp yet.



14. Install silicone grommet (MM4552-02) into the inner snorkel tube (MM2380-01), then install MM2373 into silicone grommet.
15. Place silicone grommet for the air box (MM4552-01) into the hole cut into the airbox in step #6 and press onto MM2373.

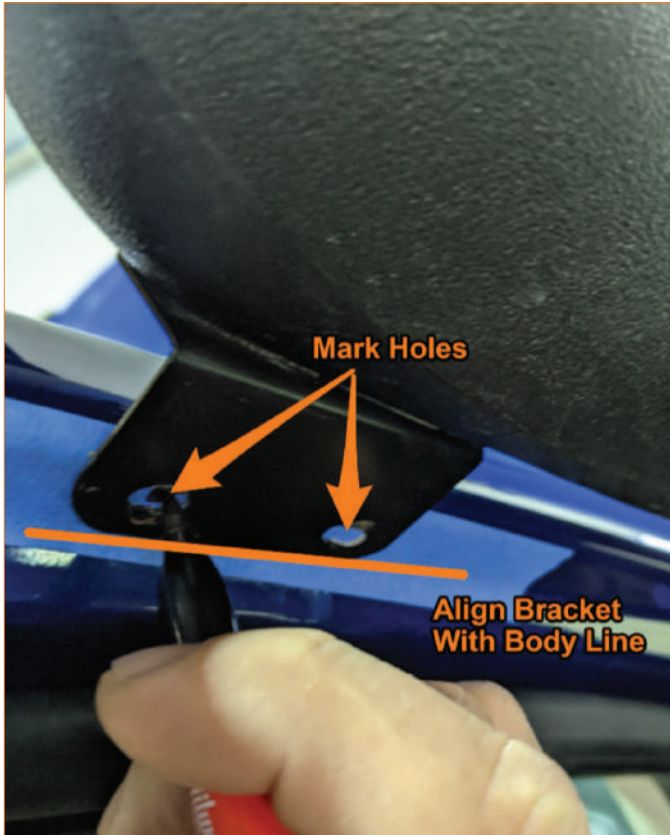


16. Thread on A-pillar bracket bolts into outer snorkel but leave bolts hand tight.



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17. Align the inner bracket face to the inner A-pillar face, then mark holes for drilling.



18. Drill holes using a 15/64" drill bit.

NOTE: The bracket can be installed using just rivets or M4 rivet nuts. M4 rivet nuts will provide more adjustability. If a rivet nut tool is not available, an MM1208-04 rivet can be used. (Both are included)

NOTE: Tighten 2x bolts to snorkel BEFORE installing m4 bolts/rivets into A-pillar.

19. Once the bracket is adjusted, tighten bolts to the outer snorkel tube (MM2366-02) and then rivet bracket to A-pillar **OR** install and tighten M4 bolts depending on install method chosen.



20. Install snorkel head screen (MM2377) to snorkel head (MM2327) using 4x BF4X0.7-8 bolts.

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21. Install snorkel head onto outer snorkel tube (MM2366-02) using T-bolt clamp (MM1298-04).



22. Reinstall inner fender well and fender flare by reversing step #1.
23. Reinstall air box by reversing step #2.

Congratulations! You have completed your installation.