

# RIVER RAIDER SNORKEL SYSTEMS

Congratulations on your purchase of your River Raider Off Road FJ Cruiser Expedition Snorkel!  
On the following pages you will find detailed instructions on how to install your FJ Cruiser Snorkel.



## Tools / Supplies Needed:

Vehicle Jack

13/16 Socket

Pliers (w/ covers)

12mm socket

2x 7/16 wrench

Flat Head Screw driver

P2 Phillips head screw driver

3" Hole Saw

Cut off wheel

Black Marker

1/8" Drill Bit

Pop Rivet Gun

Masking Tape

Drop Cloth Or Cardboard

## First we will walk you through removing the factory Antenna.

1. Use an appropriate vehicle Jack to lift your front left tire off the ground. Secure your lifted vehicle with a jack stand.
2. Remove front passenger side wheel.
3. Remove front passenger side fender flare. It's bolted and clipped in place. – Don't have to remove it completely, can just hang in place.
4. Remove the Liner, it's clipped in place. – Don't have to remove it completely, just enough to access the antenna and rest of install.
5. Remove the factory antenna.



## Nice! Now let's get on to the good stuff!

6. Remove the plastic clips on the cosmetic plastic under the hood above the fender.

7. Remove the cosmetic black plastic and the piece of cosmetic plastic near the passenger side hood hinge. This piece will be trimmed and reinstalled later.

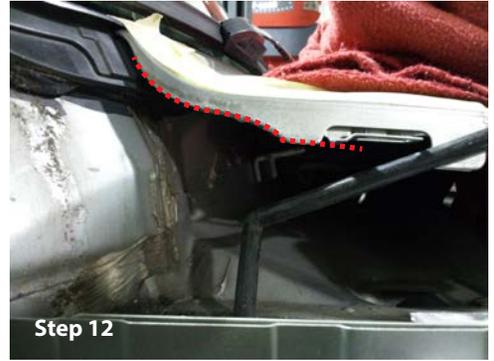


8. Remove the black vent from the cowl. Use a screwdriver or pliers with a rag so as not to damage anything.

9. Be sure to use some cardboard or drop cloth to protect the paint and windshield from any metal debris that may come out as you cut the hood hinge.

10. Unbolt the hood hinge, and cut a chunk out. (see picture below with a dotted line)





11. Remove the cowl piece we'll be putting the snorkel in. This requires that the square plugs at the bottom edge of the cowl be removed. We will replace these fasteners with bolts.

12. After the cowl has been removed, the remaining cowl piece will need to be trimmed, as shown by the dotted line in the picture above. BE CAREFUL CUTTING IT!! There's a weld holding the front clip in place, that needs to stay, so don't cut through it.



13. Use the included template to cut a 3" hole in the cowl piece that was removed. Be sure to tape off the area before cutting so you don't damage the surrounding paint.



14. Crimp the two layers together near the hole so they can be riveted together.

15. Put the cowl piece in the hole and mark where the rivets should go with a sharpie or pen.

16. Take off the cowl piece and drill the rivet holes. Then fasten the cowl bracket in place using the rubber gasket and stainless steel rivets.



17. Place the rubber hose through the cowl and trim the end to match the cowl bracket.

18. In order to put the cowl back in place, make sure the hose clamp and rubber hose are installed before replacing the cowl.



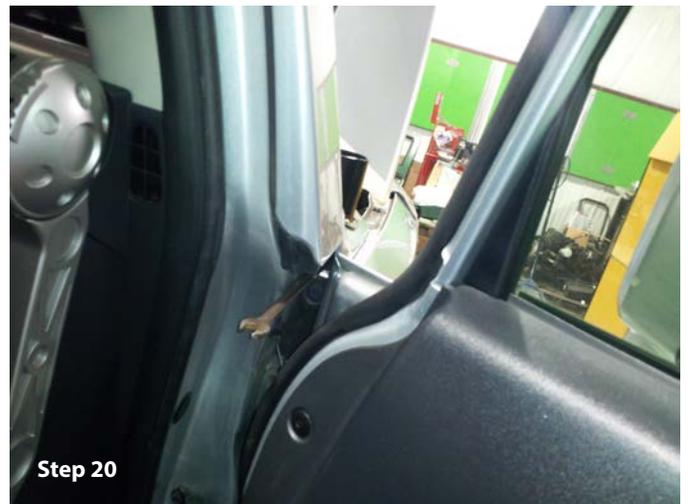
19. There's a tab on the front edge of where the two cowl pieces come together, drill a hole in it and the matching piece on the second part of the cowl so that it can be bolted together. The bolt will go horizontally, fastening the two sections of the cowl together with a washer on either side and a rubber spacer in between (that is included) as pictured below on right. Tighten down until factory panel spacing is achieved. Two bolts will go down through the cowl piece into the fender as shown in the photo below, on left.



20. The two bolt holes in the top of the fender are a pain to get to. You will have to open the passenger door in order to get to the back one. You will also need to reach up through the fender well to tighten them.

21. Reinstall the inner fender liner and any trim pieces that were removed. (From step 7)

If your FJ is a 2009 or older, the factory air box will not need altered. A coupling adapter and stainless steel hose clamp are included to attach the hose to the air box.



If your FJ is a 2010 or newer, the air box intake will need to be plugged with a 3" cap. (See left picture above) And a new inlet hole will be cut into the side of the air box, using the template provided. (Pictured center)

22. The factory jack might need to be removed if it's in the engine bay.

The antenna may be reinstalled in between the passenger's side inner and outer fender hidden from sight, or on the driver's side fender using an antenna cable extension or a hidden antenna kit may be used behind the dash.

Congratulations on successfully installing your new River Raider Expedition snorkel! Remember, the installation of this snorkel does not turn your FJ into a submarine. High water crossings are dangerous and can cause damage to other mechanical and electrical components of your FJ unless necessary precautions have been taken. It is the installer's responsibility to ensure that this intake system is installed correctly and sealed to function properly.