ARB BRUSHLESS 2017+ FORD SUPERDUTY INSTALLATION INSTRUCTIONS

Tools Required For Installation:

*8MM, 10MM, 7/16”, ½” socket
*13MM deep well socket
*14MM, 17MM, ¾”, 27MM or 1-1/16”, wrenches
*Metric Allen wrench set
*Wiring crimpers & wire cutters
*Zip tie cutters
*Drill with 5/16”, 9/16”, ¾” drill bit or, stepper bit
*Drill or impact driver with 3” extension
*#2 Phillips screwdriver
*Lighter

1) Simplify The ARB Wiring Harness:

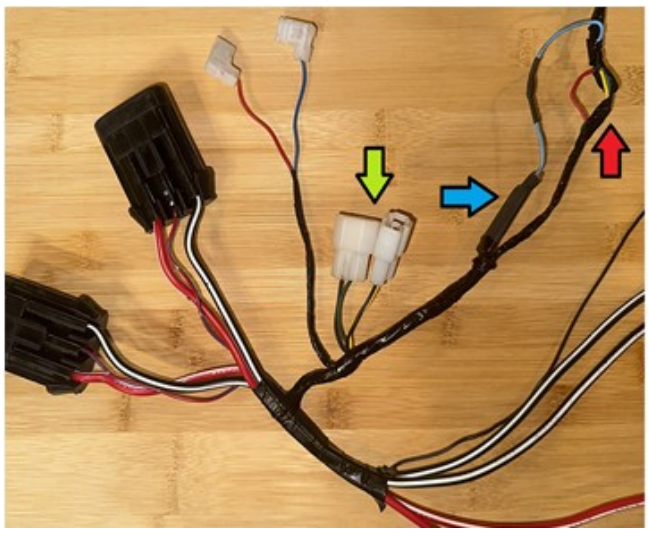
Remove the ARB compressor and wiring harness from their packaging. For our application we will not be using the compressor to operate air lockers, so much of their wiring will be eliminated. **NOTE:** do not cut out the black heat shrinked inline diode next to the (blue arrow), this is mandatory for the compressor operation.

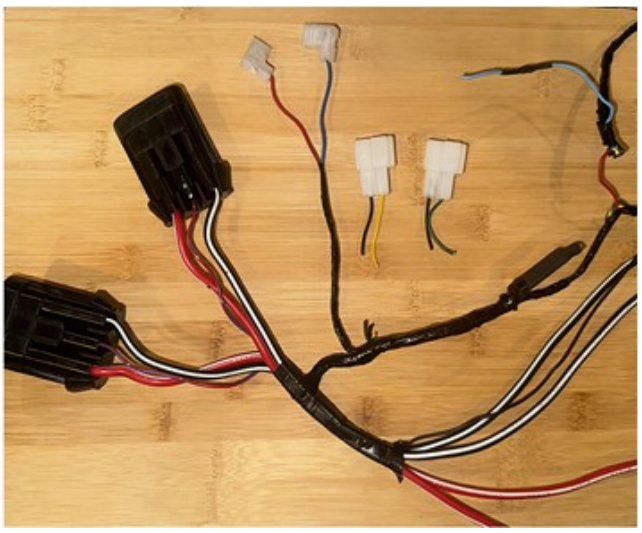
*Cut the blue wire just above the blue arrow.

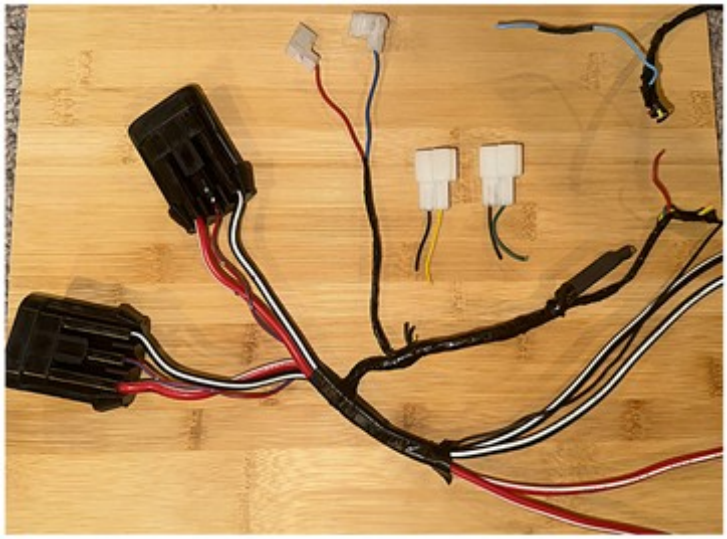
*Cut off the two plastic clips, (green arrow), stagger the cuts so, they are not touching when cut.

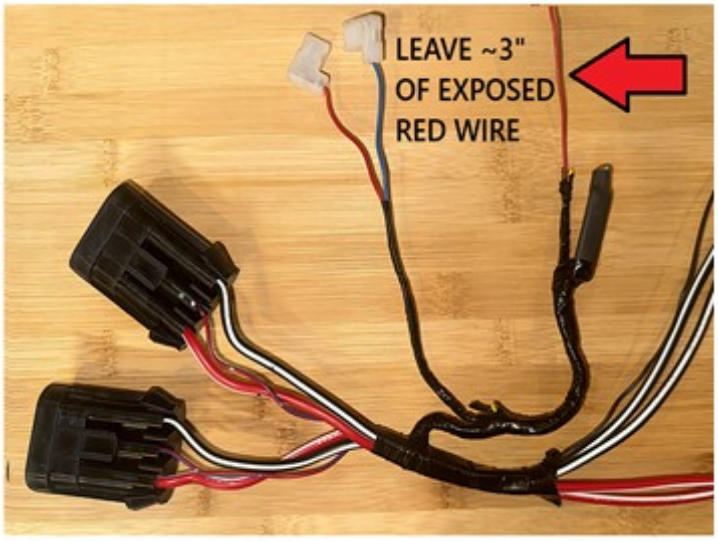
*Separate the wiring harness (red arrow) to expose the red wire. This wire will be the “trigger” wire that turns the compressor on/off. Peel back the remaining **green** and **yellow** wires in this exposed harness so the red wire is sticking out ~3” past the inline diode, stagger the cuts of the **green** and **yellow** wires so they are not touching when cut.

*Cut down the two 8 gauge red power wires as shown below leaving ~2” of exposed wire past the end of the electrical tape. Crimp on the provided smaller inside diameter of the two ring terminals included with this kit and use a heat gun/lighter, as these ring terminals have a heat shrink sleeve.

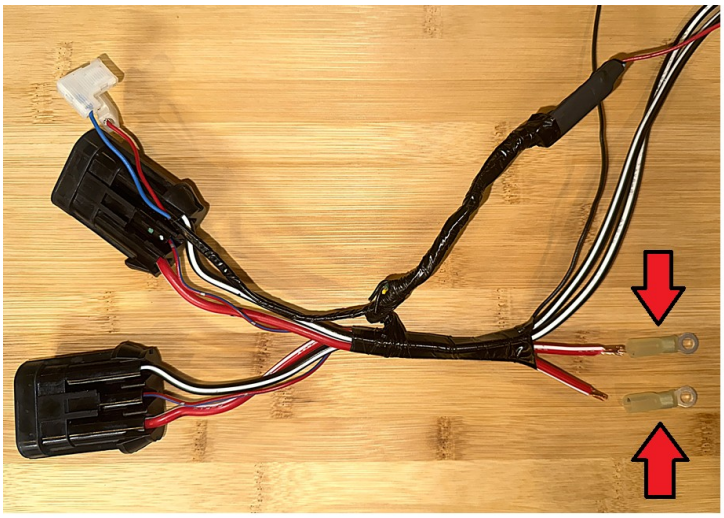


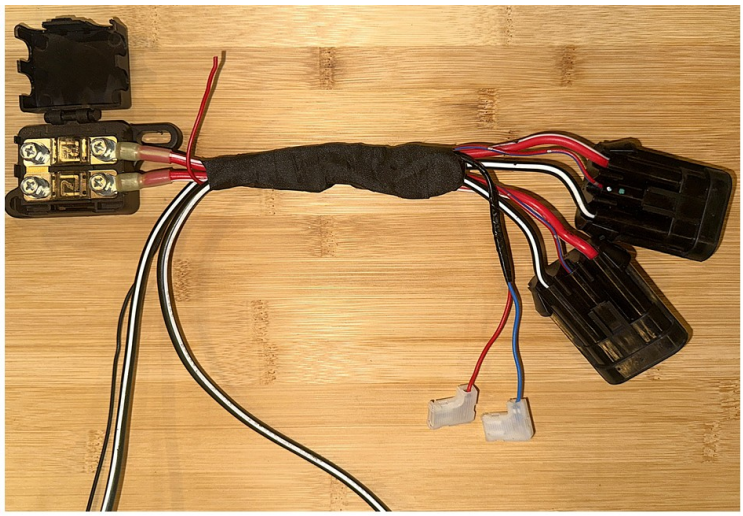






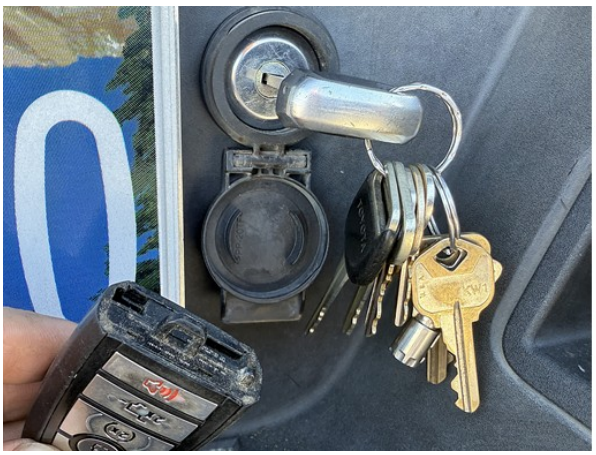
*Use the provided Tessa heat tape to cleanly wrap up the wires as shown below in the 2nd photo. Attach the two red power wires the ARB fuse block in the orientation as shown.



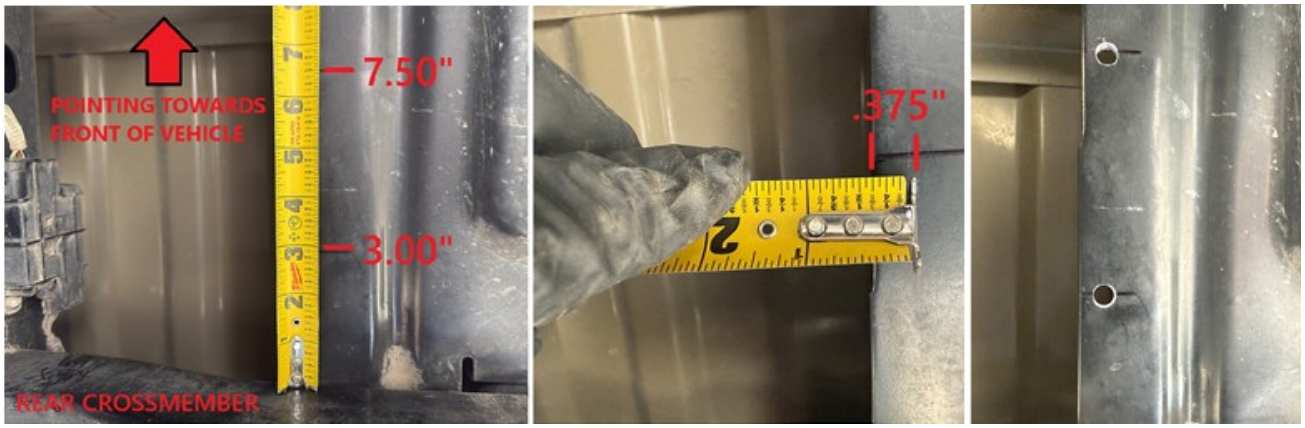


2) Drop Spare Tire.

Remove the plastic cover near the license plate and use your ignition key to remove the theft deterrent plug. Assemble the provided extension bars which can be found under the rear seat and insert them into the access point, then use the lug wrench to turn it counterclockwise to lower the tire.



3) **Compressor Mounting Holes:**
Measuring against the rear crossmember, scribe a line on the spare tire mounting plate at 3.0” and 7.50”, then scribe an additional line at .375” off from the edge. Drill the two marked holes with a 5/16” drill bit.



4) **Compressor Accessories Installation:**
NOTE: The brushless compressor creates a lot of heat! You will more than likely need to retighten all the fittings after a few heat cycles to prevent air leaks. Apply several wraps of the provided Teflon tape to **ALL** threaded fittings.

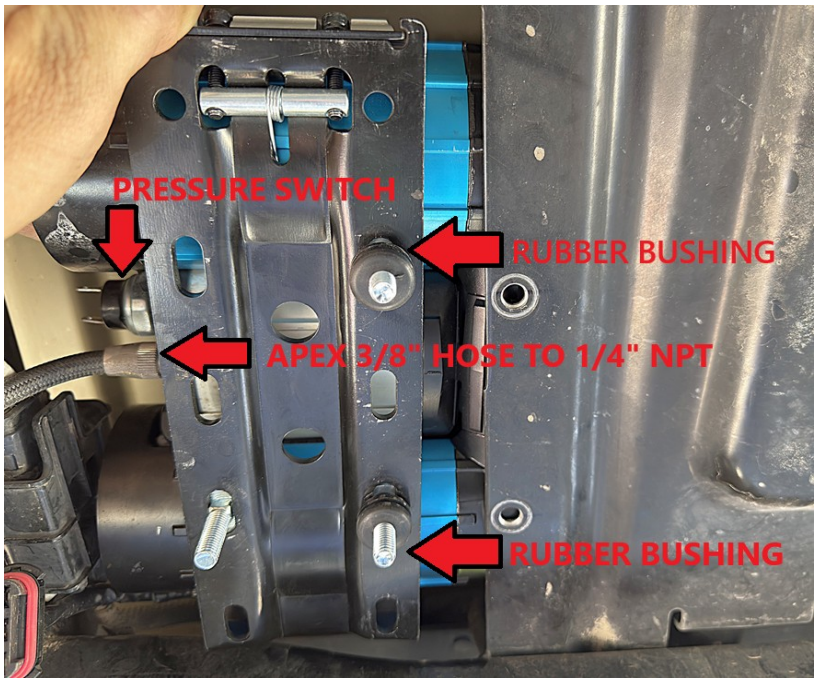
*Wrap the threads of the pressure switch with several wraps of the provided Teflon tape and install using a 27mm or a 1-1/16” deep well socket.

*Using a 14mm wrench Install the provided Apex branded 3/8” hose to ¼” NPT fitting, after several wraps of Teflon tape has been applied. Slide on the compression sleeve over one end of the 3/8” braded hose then hand tighten against the fitting.

*Install the compressor in the compressor mount in the same position and orientation as shown below. Securely tighten both Allen head bolts using a 4mm Allen wrench, after the clamp has been latched.

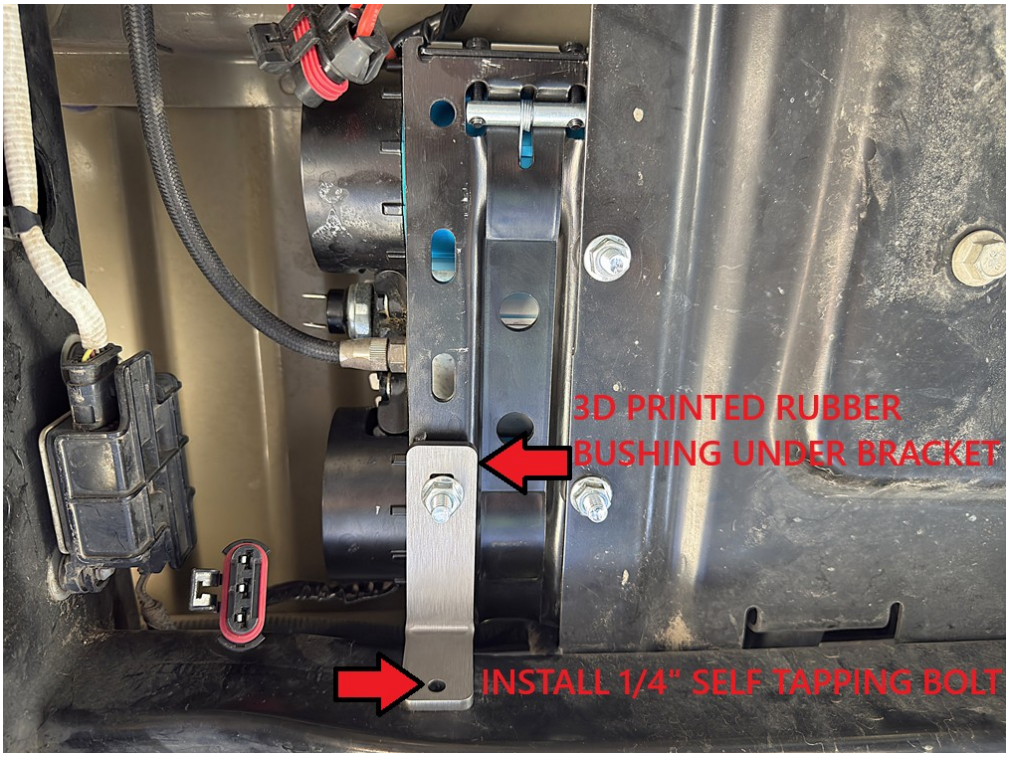
*Install the 3 carriage bolts as shown below.

*Using two of the rubber isolating bushings that came inside the Viair 2.5 gallon air tank box, slide them over the two bolts as shown below.



5) **Mount Compressor:**
Using a 13MM socket, mount the compressor to the spare tire mounting plate as shown below using the supplied nuts.

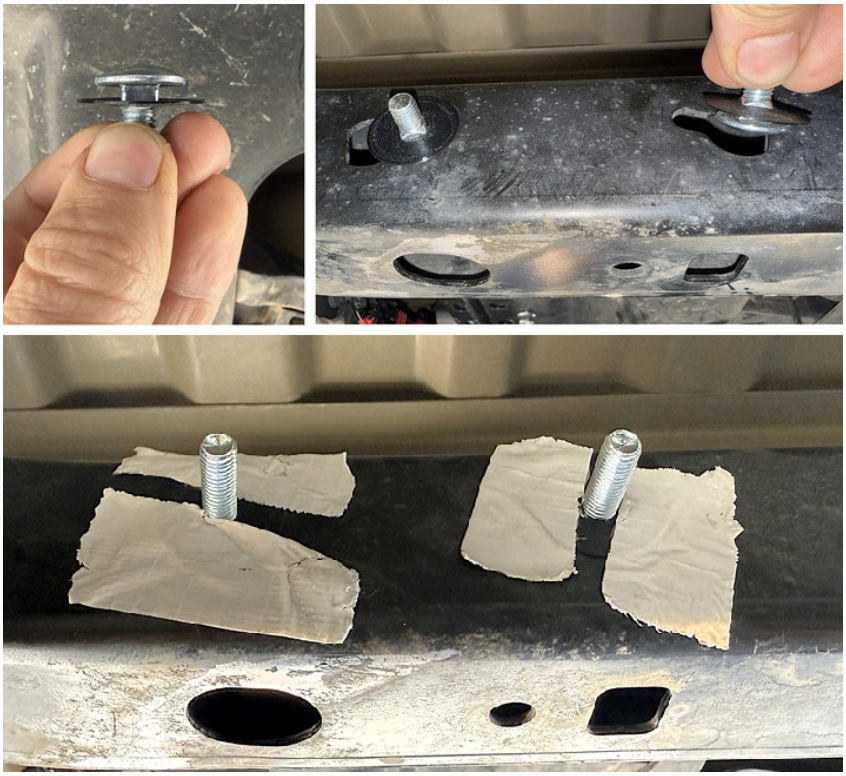
*Install the 3D printed isolating bushing over the last bolt then install the “L” shaped formed steel bracket and tighten the nut using a 13MM socket. Using a drill or impact driver with a 7/16” socket install the ¼” self-tapping bolt.



6) **Air Tank Assembly:**
Install the air tank fittings and rubber isolating pads with inner steel sleeves as shown below, be sure to use Teflon tape.

7) Air Tank Installation:

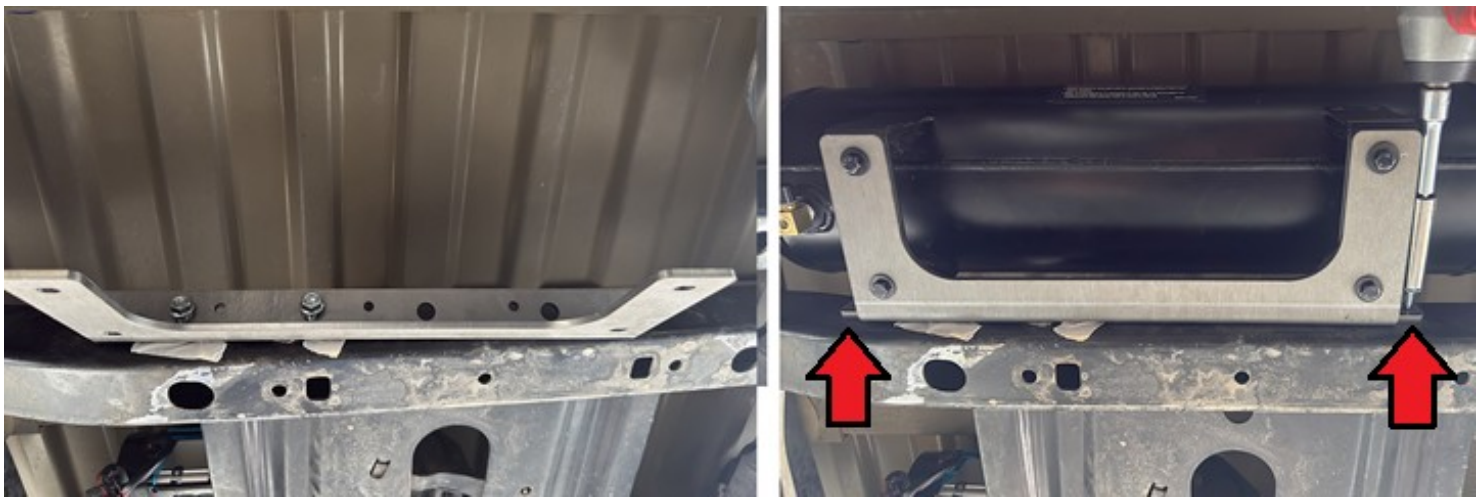
Install the 3D printed washers over the carriage bolts as shown below. Slide the bolts through the (2) key hole shaped cut outs in the cross member. These washers will help keep constant tension on the bolts to prevent them from sliding out when installing the air tank mounting plate. If necessary, apply tape over the washers to help keep them in position.



Install the air tank mounting bracket as shown below and loosely install the two nuts. **NOTE:** You will not be able to install the air tank if the mounting bracket is securely attached.

*Using a ½" wrench install the air tank using the (4) nuts, (4) bolts and (8) washers that came in the air tank box. You will need to position the bolts pointed up towards the bed. Once the air tank is securely attached to the mounting bracket, tighten up the two nuts previously installed using a 13MM deep well socket.

* Using a drill or impact driver with a 7/16" socket and an extension, install the (2) ¼" self-tapping bolts as indicated with the red arrows below.

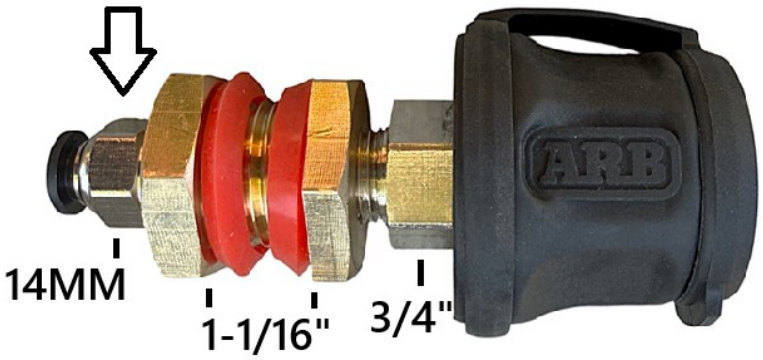


8) Install Air Coupler:

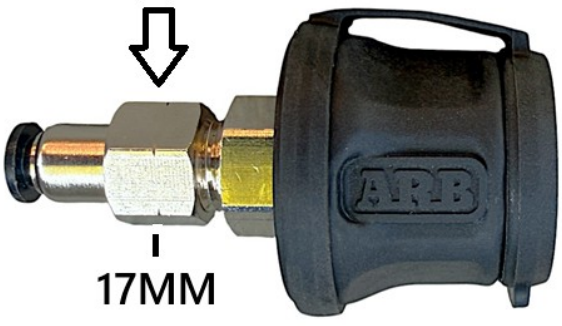
There are a few different places where you can install the ARB air coupler and dust cap depending upon your personal needs. Here are a couple of different examples. In this kit we provide 8 feet of ¼" air line which should be long enough assuming the air hose coupler is mounted near the rear of the vehicle. Once a location is selected, drill a 9/16" hole to install the air coupler. Attach the other end using the provided ¼" push to connect fitting.

*The air coupler can be installed on material that is up to 1/8" thick. If you are installing this on a thicker piece of material such as the side of the receiver hitch, or the rear bumper, you will need to use the supplied brass bulkhead fitting. If you are using the bulkhead fitting, use the male push to connect fitting on the backside. To install the bulkhead fitting you will need to drill a .75" dia hole.

BULK HEAD FITTING WITH MALE PUSH TO CONNECT FITTING



FITTING WITH FEMALE PUSH TO CONNECT FITTING



Once the coupler is installed, cut the ¼" airline down to proper length and connect to the air tank. Apply several wraps of the provided Teflon tape to all threaded fittings.

9) Compressor Wiring Harness Install:

Plug in the ARB compressor wiring harness into both electric motors, as well as the pressure switch. The pressure switch wiring can be plugged into either terminal; it is not specific on wiring orientation.

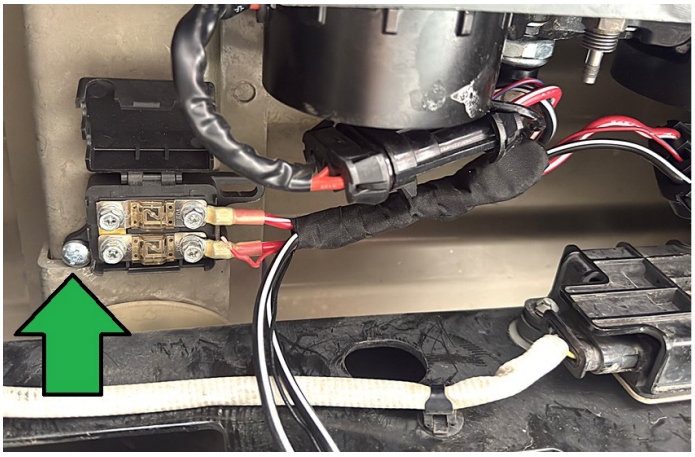
*Install the provided Phillips self-tapping screw into the bottom of the bed cross member as shown in the first picture below as indicated by the green arrow.

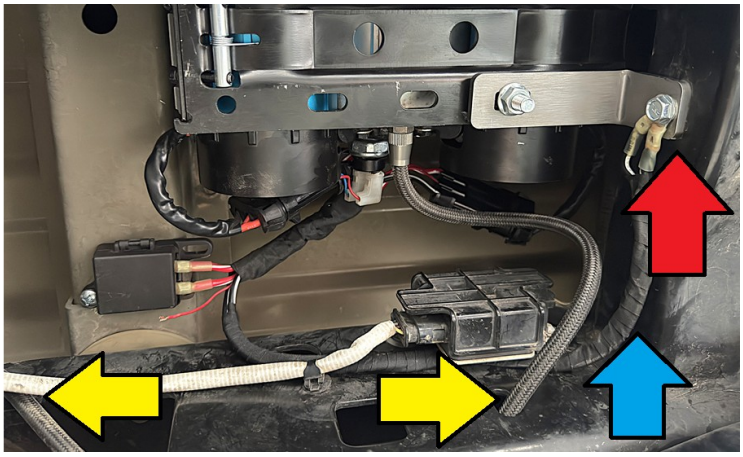
*Cut down all (3) black wires so they are equal in length and long enough to be attached to the metal formed brackets ¼" self-tapping screw as shown in the 2nd picture below as indicated by the red arrow. You will need to install all three wires into (2) of the provided 1/4"" ring terminals, it is a bit tight when doubling up the smaller with the big wire, however it is possible. When crimped use a heat gun/lighter, as these ring terminals have a heat shrink sleeve.

* Use the provided Tessa heat tape to cleanly wrap up the wires as shown below in the 2nd photo as indicated with the blue arrow.

*Using a 7/16" socket remove the ¼" self-tapping bolt, attach both 5/16" ring terminals then reinstall.

*Route the braded airline through the frame to avoid contact with the exhaust as indicated with the yellow arrows. Attach the opposite end to the air tank by sliding the compression sleeve over the 3/8" braded hose, then hand tighten against the fitting.



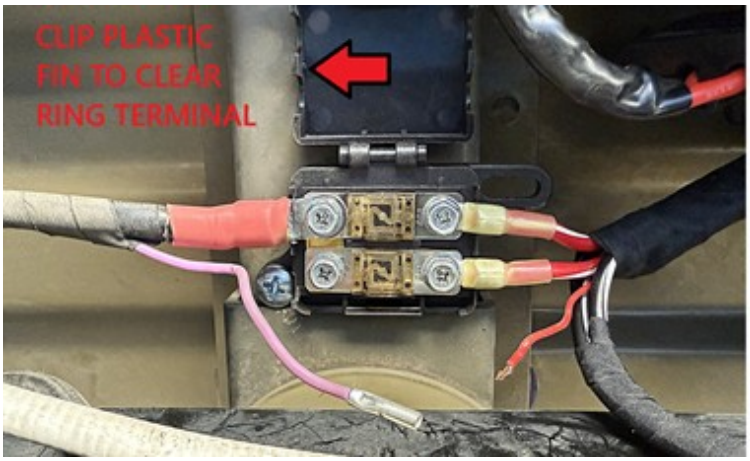


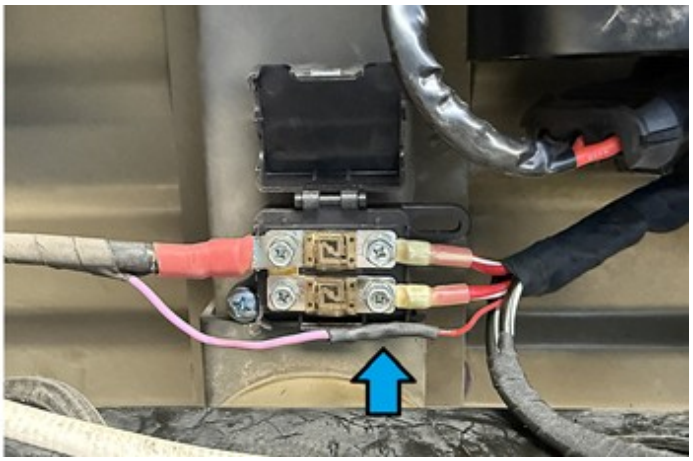
10) Connect The 6 Gauge Wiring:

Install the 6 gauge wiring harness as shown below. It will be necessary to clip the plastic fin on the ARB fuse box so the lid can fully close as indicated by the red arrow in the first picture below.

*Test fit the length of the red signal wire below; it may be necessary to cut it down to proper length. Slide on the ¼" heat shrink then crimp the purple wire to the red wire as shown below.

*Using a lighter, install the provided heat shrink tubing over the wires to prevent it from grounding out.





11) Wiring Routing Up To The Battery:

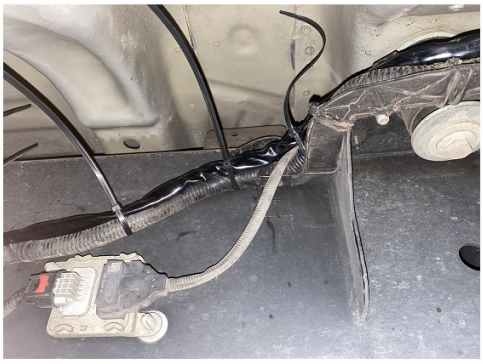
It is hard to show in pictures, however, route the 6 gauge wire up to the battery on the passenger side of the truck. Keep the wiring harness away from sharp edges, hot exhaust/engine components, and potential pinch points.

*Initially route the wire between the beds cross member and the raised ribbing, floor of the bed, then route the wiring along the frame attaching it to existing wiring when possible then behind the body mounts, it will then come up between inner fender well and the fire wall of the truck, up towards the battery on the passenger side of the vehicle.

*Using the provided zip ties to secure the wiring done thus far to the side of the frame rail

NOTE: Due to variations in truck bed length you may have up to 20" of additional wiring not needed for your application. If your vehicle has extra length of wire, you will need to coil it up out of harm's way.





12) Mount The 80 Amp Fuse & Attach Wiring:

Using the supplied 3M adhesive pads, place two of them on the underside of the 80 amp fuse block. Clean all the excess dirt/oil off the side of the mounting location shown below. **NOTE:** There may be a better mounting location depending upon the year and or the configuration of your truck, On top of the battery is always an option if all the other flat spots are taken.

*Attach the wires as shown below using a 10mm and 8 mm socket. The red arrow is the main 6 gauge wiring harness, the blue arrow is a jumper wire from the 80 amp fuse to the positive battery terminal.

13) Connecting To Switch Panel Wires:

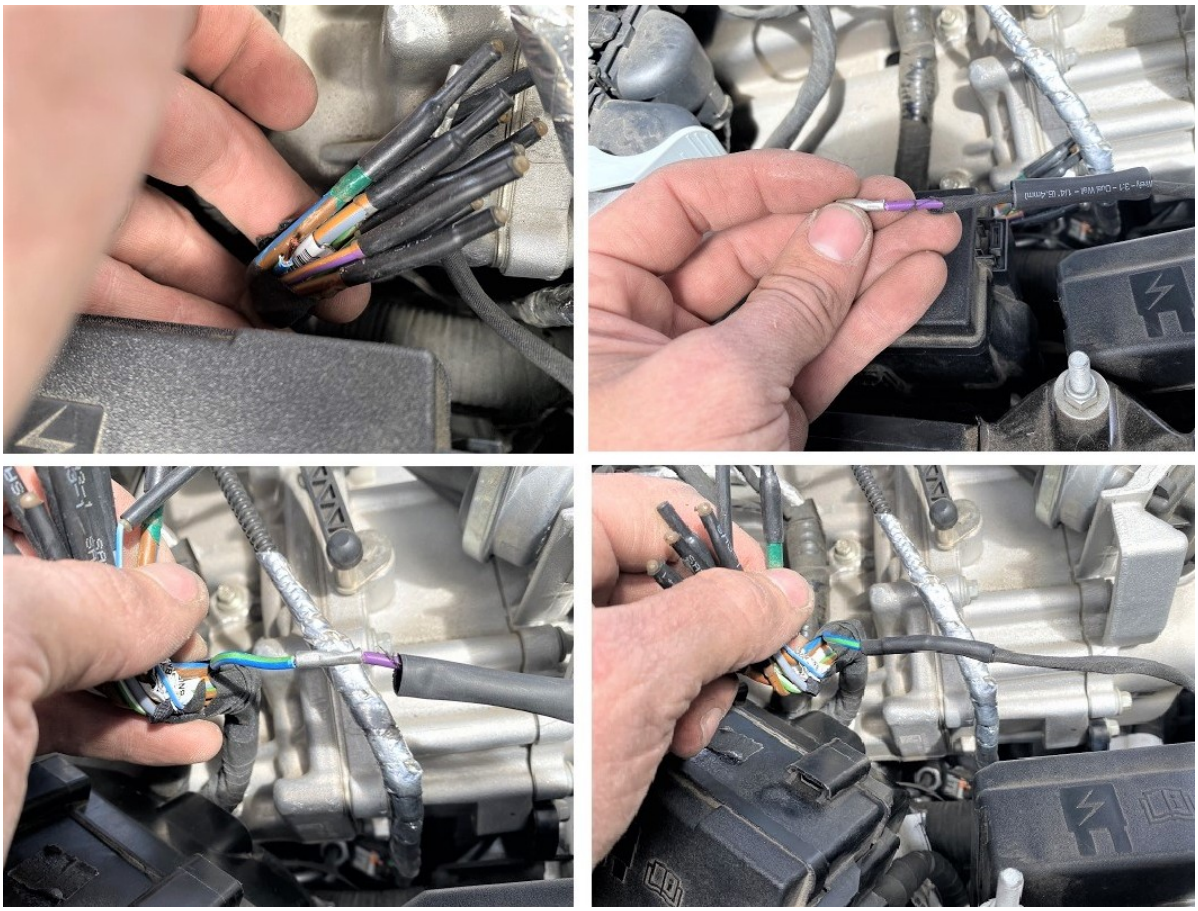
Determine which one of the wires you want to tap into, to power on your compressor. The purple (signal) wire uses 3 Amps to turn the compressor on. We recommend saving switch 5 & 6 for items that will require higher amperage. Unclip the plastic box by pushing in on the two tabs as shown below. This will free up a bit more room to gain access to the switched wires.

14) Attaching Upfitter Switched Wires:

Uncoil the tape to the upfitter wiring. Select the wire you want to tap into for power, cut off the tip of the wire just past factory installed heat shrink tubing. Route the purple signal wire up to the switched wire, strip the end, attach the ¼" heat shrink tubing and crimp both the purple signal wire and the switched wire. Once completed reinstall the plastic fuse block.

2017-2022 SUPERDUTY WIRE COLORS		
SWITCH #	AMP DRAW	2017-2022 SUPERDUTY WIRE COLORS
1	25A	BROWN / GREEN TRACE
2	25A	VIOLET / ORANGE TRACE
3	25A	BLUE / GREEN TRACE
4	25A	GRAY / BROWN TRACE
5	40A	BROWN / BLUE TRACE
6	40A	GRAY / ORANGE TRACE

2023 + SUPERDUTY WIRE COLORS		
SWITCH #	AMP DRAW	2023 + SUPERDUTY WIRE COLORS
1	25A	BROWN / GREEN TRACE
2	25A	VIOLET / ORANGE TRACE
3	25A	BLUE / GREEN TRACE
4	25A	GRAY / BROWN TRACE
5	40A	BROWN / YELLOW TRACE
6	40A	GRAY / ORANGE TRACE



15) Wrapping Up:

Turn the truck ignition on. Turn on the proper upfitter switch for activation. Once the compressor cycles on it should quit pumping and automatically turn off at ~95psi. Run the compressor for a few minutes to create a couple of heat cycles, the extreme temperature will most likely result in some air fittings leaking. If the compressor continues to cycle on and off, there is an air leak in the system. Using soapy water check for air leaks and double check your connections for the brass air chucks, air lines, as well as the push lock air lines.

Once all the air leaks are fixed, go through the entire wiring harness and securely attach the harness using the supplied zip ties. Keep the wiring away from any pinch points or hot engine/exhaust parts.

Reinstall your spare tire.

Dirt Church Industries appreciates your order!

Questions during the assembly of this kit or, have design feedback please reach out to us at sales@dirtchurchindustries.com

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