IJKP-27 / Installation Instructions

4-Tire Air System for ARB Twin Compressor (CKMTA12)
Jeep JL Unlimited / JL / JT (2018 - Present) with Air Lockers

Made in USA

Kit Contents:

- 1 Mounting Plate for ARB Compressor
- 2 Seat Brackets (for Quick Connect Bulkheads)
- 2 Female Quick Couplings with Preinstalled Tube Bulkheads
- 2 M6x16mm Button Head Bolts / Nuts
- 1 Branch Tee Fitting
- 1 14 inch section of Black Nylon Tubing (Passenger Side Connection to Compressor)
- 1 54 inch section of Black Nylon Tubing (Union Tee to Compressor)
- 1 14 inch section of Black Nylon Tubing (for Driver Side Connection to Union Tee)
- 1 9 foot section of Black Nylon Tubing (for Air Locker Manifold to Union Tee)
- 2 Double air lines (10ft) with 2 Y-Connectors, 4 Haltec Air Chucks, and Custom Storage Bag
- 1 Union Tee Fitting
- 1 Brass Bushing
- 1 Air Locker Manifold Assembly (pre-assembled with Fitting and Plugs)
- 2 M5x40mm Socket Head Bolts and 1 Nut (for securing Air Locker Manifold to Firewall)
- 2 5/16” Ring Terminals for ARB Harness to Battery

Tools Required:

- Ratchet (3/8” and ¼” Drive)
- Extension
- T-50 or E-12 Torx
- 10mm Socket (¼” Drive)
- 4mm Ball Head Allen (long socket type ideal)
- 10mm Wrench
- Sealant
- Gorilla or Duct Tape
- Crimping Tool
- Heat Source (for shrink wrap on electrical connectors)
- Teflon Tape
- Drill
- 3/16” Drill Bit
- 13/64” Drill Bit
- Metal Plate

Other items that may be required (not Supplied):

- 22-18 Gauge (Red) Female Spade and/or Ring Connectors (for sPod, SwitchPros, or equivalent switch control system)

STEP 1 – Compressor Preparation

1-A) Place the compressor face down with the electrical connectors at top as shown in **Figure 1**. Bolt the two halves of the bracket to the compressor, noting the orientation, using the hardware provided by ARB. Use the holes indicated below. Before tightening, ensure the two halves are parallel.

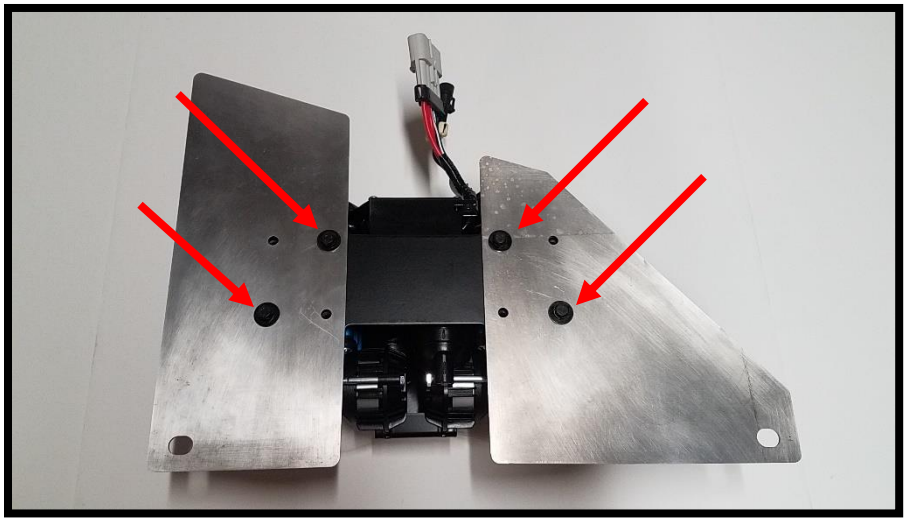

Figure 1

1-B) Insert an open end 10mm wrench into the slot on the top of the compressor and loosen the bolt on the end of the manifold (just enough to allow the end cap to rotate). Install the provided branch tee fitting into the outlet. Tighten the fitting to ensure a good seal. Rotate the fitting as far over as possible (**Figure 2**), then retighten the bolt on the manifold. **This step is important since seat clearance is very tight. Get the fitting over as far as possible!** Install the ARB provided filters on back of compressor and set assembly aside.

Figure 2

STEP 2 – ARB Wiring Harnesses Installation

2-A) Using a T-50 or E-12 Torx remove the 2 rear bolts that secure the passenger seat, then slide the seat all the way back, and tilt back section all the way forward. Then remove the 2 front seat bolts and lean seat backwards (**Figure 3**). There will be one or more harnesses attached to the bottom the seat. They do not need to be removed or disconnected.

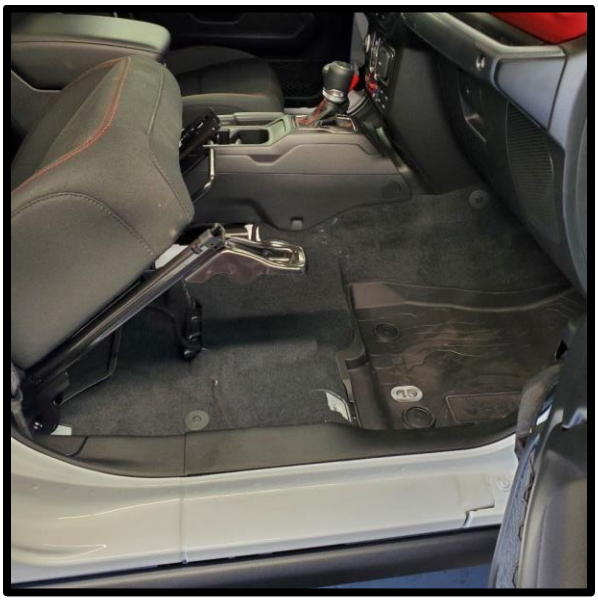

Figure 3

2-B) Lift up the carpet underneath the seat to access the rubber drain plug (**Figure 4**). Remove it, cut a hole in one of the center sections, and then make a slice from edge to center (**Figure 5**). Later you will be passing the main ARB harness through this plug.

Figure 4

Figure 5

2-C) It is best for the Jeep to be cool before starting this step. Especially on diesel engine models since you will be working near the exhaust. Open the hood and obtain the main ARB harness (the larger one with two built in fuses). Pass the plug end of the main ARB harness down between the battery and inner fender (**Figure 6**). For each location, if you look down in the respective areas you will see a gap where you can pass the main plug down and behind the fender liner. Once you get it down through the gap, feed a good portion of the harness down through the gap. Then from underneath the Jeep you will be able to reach up and grab the harness to pull it down. Leave just enough up top for the positive wires (red) to reach the positive battery terminal. You will come back to this later.

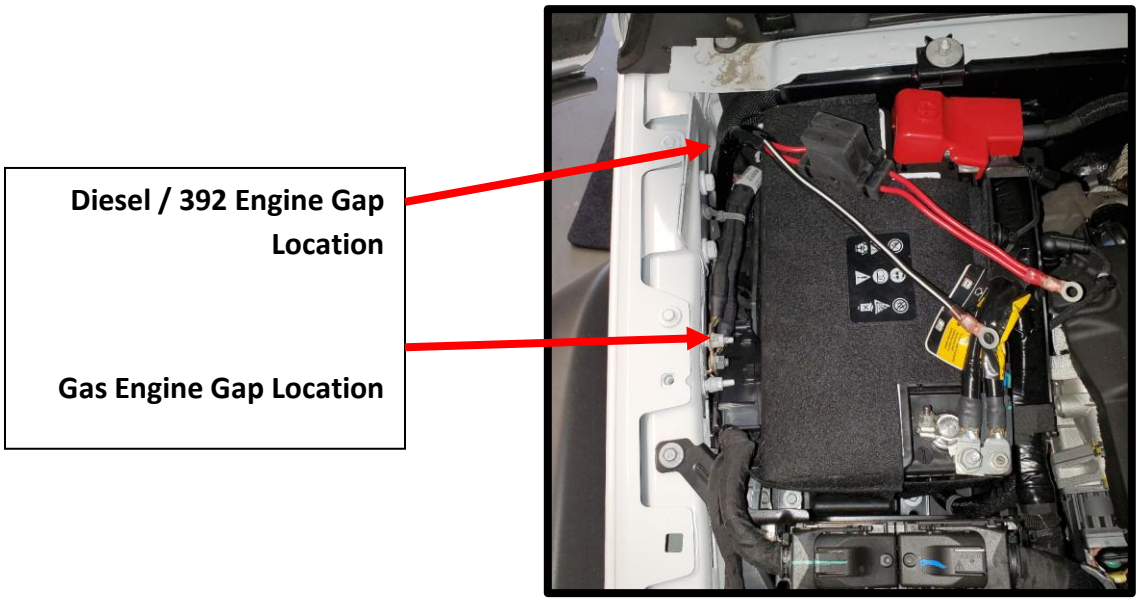

Figure 6 (Diesel Engine Layout Depicted)

Note: sPod, SwitchPros, or equivalent switch control system users that plan to use one of these systems to run the compressor and lockers continue reading. These systems typically have the control part mounted under the hood, so it is recommended run the long ARB switch harness along the same path as the main ARB harness at this time. Leave the end with the 4 spade connectors under the hood and feed the end with the plug as described above with the main ARB harness.

2-D) From underneath, run the main ARB harness down along firewall and along the top of the frame rail. It is recommended to run the main ARB harness just to the inside edge (towards center of Jeep) of the first body mount on top of frame to keep it clear of the exhaust (**Figure 7**). Continue along the top side of the frame rail until you reach the drain plug hole from **Step 2-B.** Gas Engine Models - you will not be able to see the drain plug hole. It is on top of the forward section of the gas tank. You can fish the main ARB harness across the top of the gas tank or use a metal rod inserted from the drain plug hole

and attach it to the main ARB harness to pull it back to the drain plug. Diesel Engine Models – You will be able to see the drain plug hole and fish the plug end of the main ARB harness up through the drain plug hole.

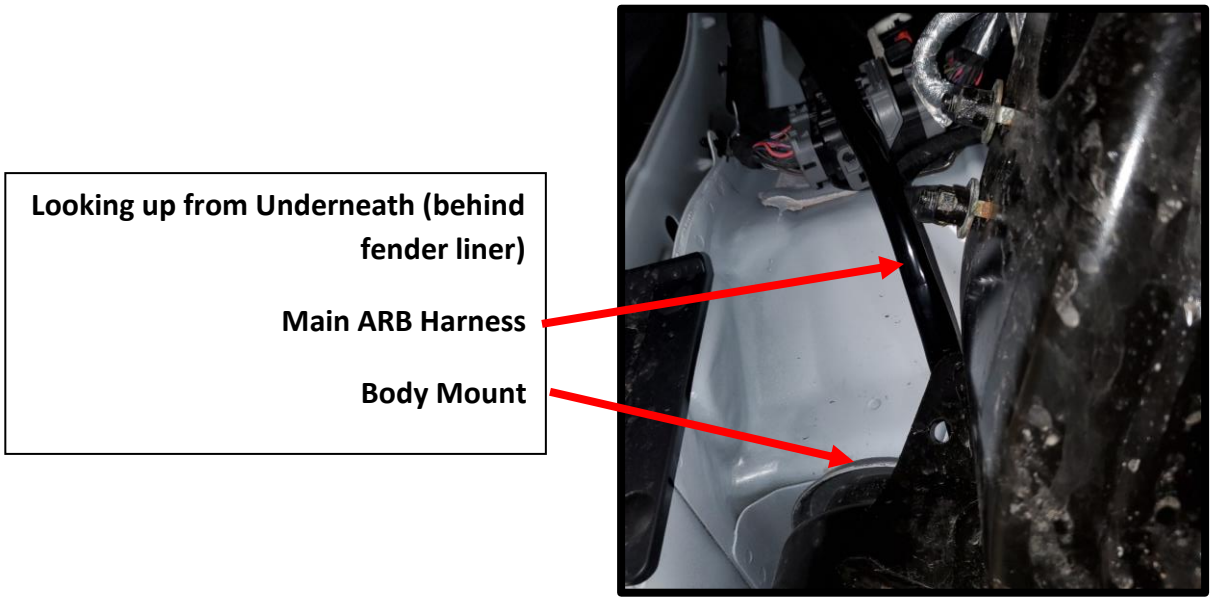

Figure 7

2-E) Pass the main ARB harness through the hole in the rubber drain plug you prepared in **Step 2-B**. Replace the plug in the floor leaving at least nine (9) inches of the main ARB harness showing (and long ARB switch harness, if applicable from the note in **Step 2-C**). It is recommended to seal around the harness in the plug and the edge of the plug with sealant to minimize any risk of water intrusion (**Figure 8**). Also apply gorilla / duct tape across the top and sides as another barrier (**Figure 9**). This will also allow you to reinstall the carpet without having to wait for the sealant to dry.

Figure 8

Figure 9

2-F) Replace the carpet under the passenger seat leaving the harnesses as shown in **Figure 10**.

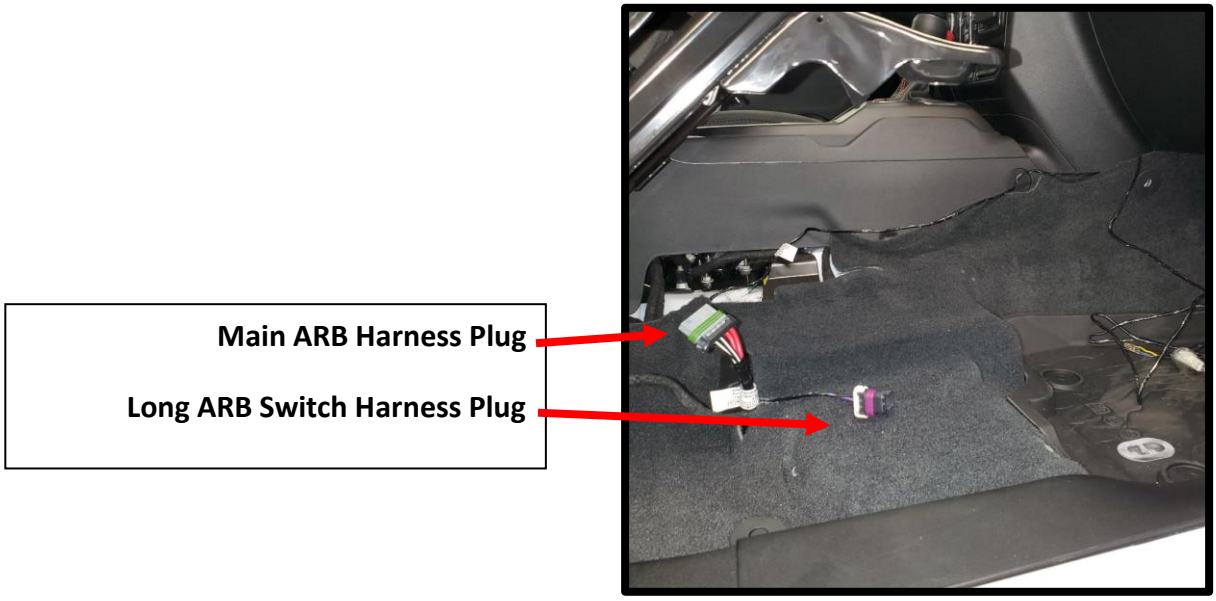

Figure 10

STEP 3 – Seat Brackets and Compressor Installation

3-A) There is a driver and passenger side seat bracket. Install the provided bulkheads in each seat bracket as shown in **Figure 11**.

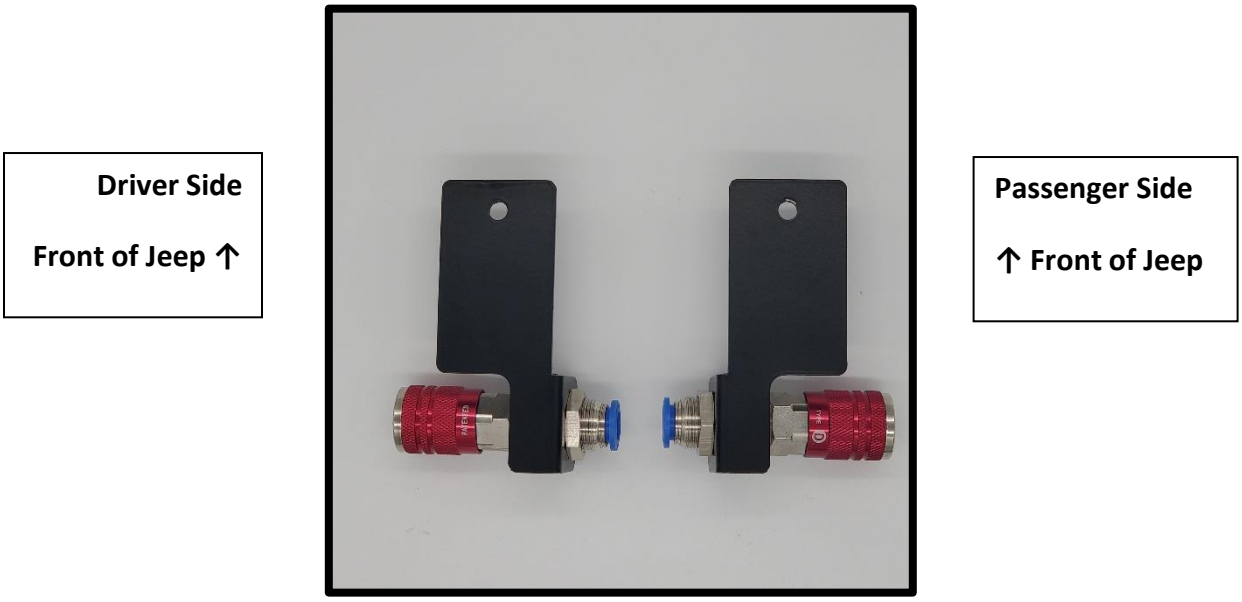

Figure 11

3-B) Attach each seat bracket with the provided bolt and nut using a 4mm allen and a 10mm socket on a ¼" drive ratchet. There is a factory hole in the top of the seat frame rail. **Figure 12** and **Figure 13** show the passenger side. Repeat on the driver's side.

Figure 12

Figure 13

3-C) Before reinstalling the passenger seat, run the provided 54 inch section of black tubing under the center console. If you open the driver door to allow light in and come back to the passenger side, you will be able to see an opening to target. Note: the red tubing shown in **Figure 14** for demonstration purposes only.

Figure 14

3-D) Now tilt the passenger seat back into position, reinstall the front seat bolts only, and tighten to factory specifications. Move to the back of the seat to install the compressor assembly as shown in **Figure 15**. The best way to do this is to set the assembly on the floor, pull the black tubing you installed in **Step 3-C** to the rear out of the way, and use your right shoulder to push on the back of the seat while you slide the assembly into place. Keep constant pressure on the seat to avoid scratching the mounting plates as you slide in on the carpet. Line up mounting holes and bolt seat back in place and tighten seat bolts to factory specifications.

Figure 15

3-E) Connect the driver side tubing (54-inch section) to the rear side of the branch tee fitting and the passenger side tubing (14-inch section) to the front side of the branch tee fitting (**Figure 16**). The 14-inch section should go under the seat adjuster bar, **Figure 17**. Press the tubing in firmly until it bottoms out at all connections. Secure the driver side tubing to the back of the compressor with cable ties.

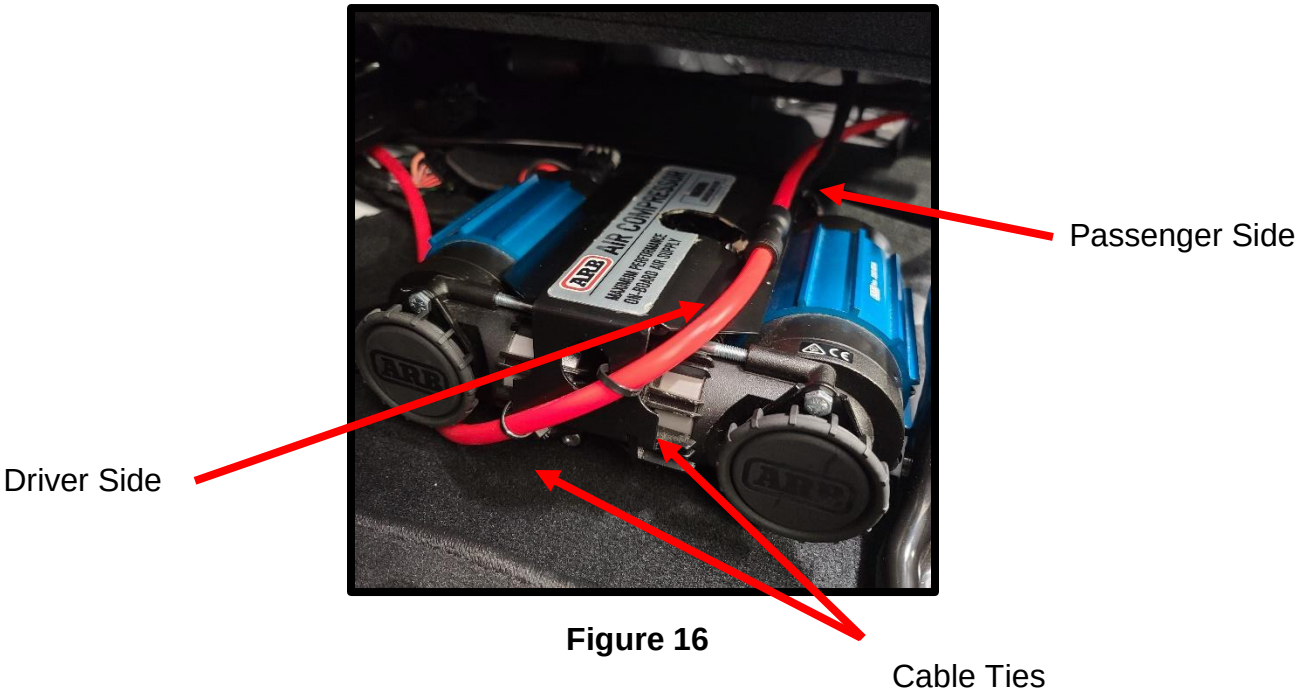

Figure 16

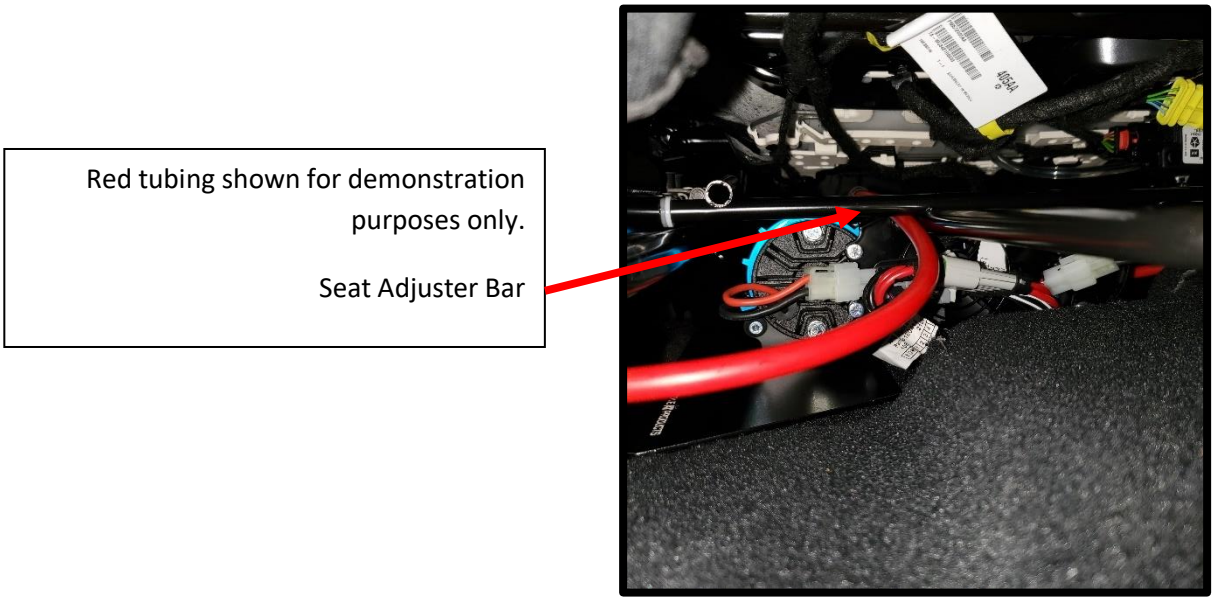

Figure 17

3-F) Slide the seat back and then from the front, reach under and attach the two ARB harnesses to the compressor.

STEP 4 – Air Locker Manifold Preparation and Installation

4-A) Align manifold on top of firewall under hood on passenger side as shown in **Figure 18** (centerline of mounting holes aligned with edge of foam piece and towards front edge of body seam). Mark (use manifold as a guide) and drill the forward hole with a 13/64" drill bit and the rear hole with a 3/16" drill bit as shown in **Figure 19**. **IMPORTANT:** Place a metal plate or equivalent under the body seam you are drilling through to avoid accidently drilling into the wiring harness located directly underneath! Take your time!

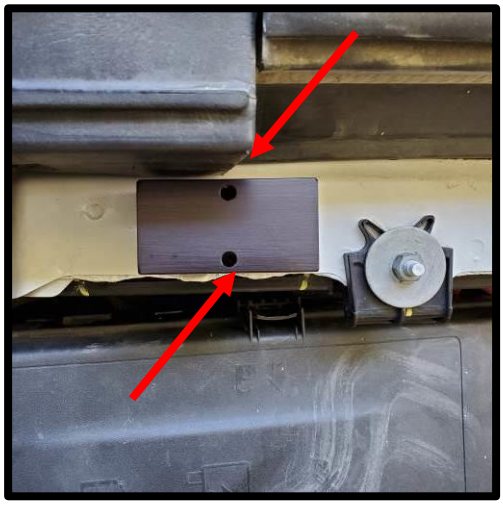

Figure 18

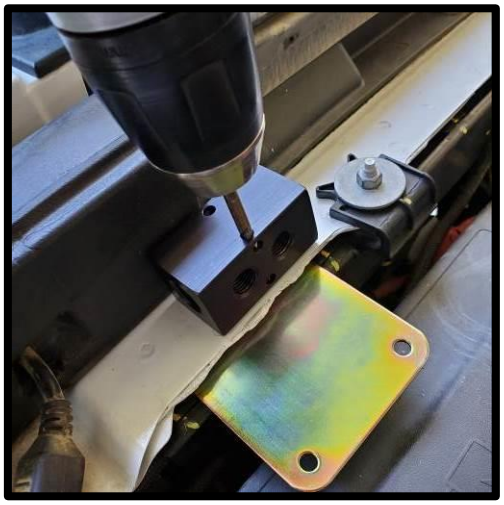

Figure 19

4-B) Install the brass bushing and air locker solenoids onto the air locker manifold as shown in **Figure 20**. Use Teflon tape to seal all the threads (except the ARB supplied fittings with washers or o-rings). DO NOT use pipe paste or equivalent (the heat will cause it to break down and leak). Once tightened, both solenoids must be facing forward with the ARB banjo fittings on top.

Figure 20

4-C) Install manifold assembly onto the firewall as shown in **Figure 21** using one(1) M5x40mm socket head bolt in the rear hole and tighten carefully. No nut will be installed, it will just be threaded into the body seam. Install one(1) M5x40mm socket head bolt and nut in the forward hole and tighten.

Figure 21

4-D) Run your airlines from the locker solenoids to each axle. There are many paths they can be run to each axle. Use your best judgment to avoid kinks, pinch points, and high heat sources that could damage airlines.

STEP 5 – Final System Plumbing

5-A) Remove the plastic trim along the rocker panel on the driver side. To do so, you will need to first remove the access panel to the door wiring harness plug (see **Figure 22**). Once removed, pull the plug assembly off (you do not need to separate the plugs, just disconnect from inner footwell). Use a 10 mm socket to remove the retaining nut (see **Figure 23**). You will then be able to remove the trim piece. Start at front, up in footwell. There are three clips holding in place on backside that will come loose by pulling trim piece in towards center of Jeep. The rear section can be unclipped by pushing the rear part (near seam) towards center of Jeep.

Figure 22

Figure 23

5-B) Attach the 9 foot section of black tubing to the elbow in the air locker manifold. Run it along the firewall as shown in **Figure 24**, through the lower plug hole next to brake booster as shown in **Figure 25** (it can be removed by pushing from the backside inside Jeep so you can drill a hole through it and then push back in place from under the hood), and along the rocker panel inside the Jeep as shown in **Figure 26**. As you run the tubing be careful not to kink it as you route it though the Jeep.

Figure 24

Figure 25

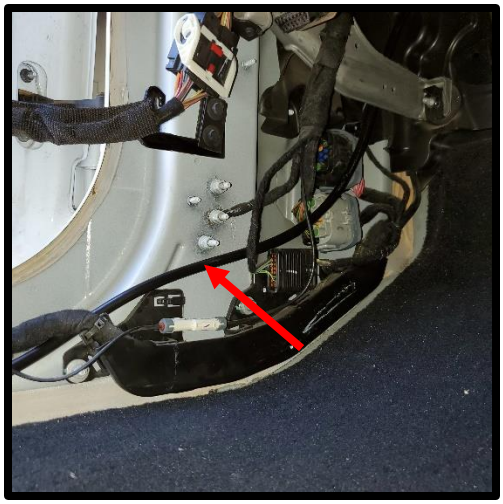

Figure 26

5-C) Starting at the air locker manifold assembly secure the 9-foot section of black tubing along the firewall. Where is passes through the plug in the firewall, it is recommended to seal the opening around the tubing. Leave the excess tubing under the driver seat and then replace the rocker panel plastic trim.

5-D) Attach the 14-inch section of black tubing to the driver side seat connection. Using **Figure 27** as a guide, attach the other end of the 14-inch section of black tubing to the center of the provided union tee fitting. You will then trim the 9-foot section (coming in from air locker manifold) and the black tubing from the passenger side to connect to the union tee fitting such that it is positioned as shown in **Figure 27**. **Note:** Double check everything before making any cuts! Use a sharp knife or tubing cutter to make clean, square cuts of the tubing.

Figure 27

STEP 6 – Final Wiring

6-A) Back to the engine compartment to attach the main ARB harness to the battery. Both positive wires (**red**) should be placed in one of the provided connectors. Strip wires, insert in provided ring terminal, crimp, and use a heat source to shrink/seal. Attach to positive terminal of battery. Tuck the two fuse holders behind the battery between it and the fuse box (**Figure 28**, gas engine models). On diesel engine models the fuses can go in the back corner of the battery near the firewall. Both negative wires (**black**) should be placed in the last provided connector. Strip wires, insert in provided ring terminal, crimp, and use a heat source to shrink/seal. For both gas and diesel engine models, attach to the ground stud on the side of the fender (not the battery, it will not reach).

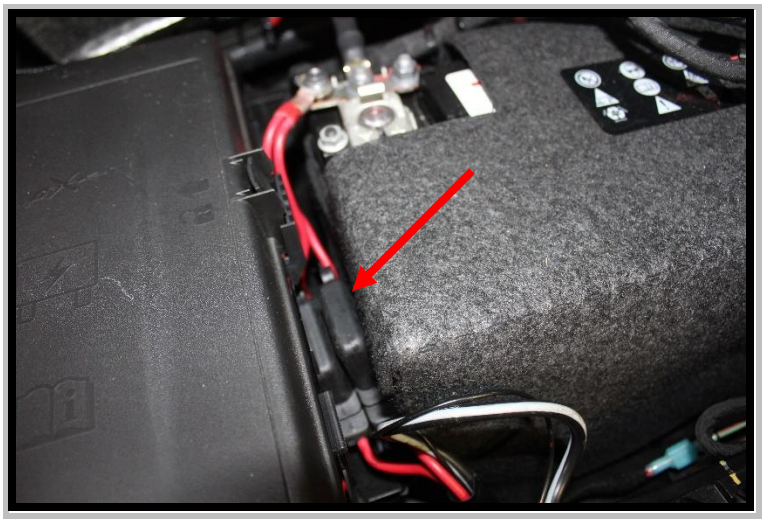

Figure 28 (Gas Engine Layout Depicted)

There are a few methods described here depending on the method you plan to use to activate the compressor and air locker solenoids. Please review each one to determine which one will work best for your application.

<u>Method 1 – sPod, SwitchPros, or equivalent switch control system</u>

Note: The ARB switch harness (the one with all the connectors) is not used for this method.

6-B) Go back under the hood to where you left the long ARB switch harness. Insert the wires from the long ARB switch harness into the ARB provided white plug as per the ARB instructions (if using an adapter harness for your switch control) or replace the ends with the appropriate connectors for your switch control. The connections are as follows:

- ARB **Black** wire to ground
- ARB **Purple** wire to switch control # of choice (this turns on the ARB compressor)
- ARB **Yellow** (not used since REAR locker will be wired directly to your switch control system)
- ARB **Green** (not used since FRONT locker will be wired directly to your switch control system)

6-C) Follow the switch control system instructions to connect each air locker solenoid.

GOTO STEP 6-E

Method 2 – Z-Locker Controller

Note: The ARB switch harness (the one with all the connectors) is not used for this method.

6-D) Follow the manufacturer instructions for connections to your lockers. You will also need to connect the ARB **Black** and ARB **Purple** wires to your switch control system.

GOTO STEP 6-E

6-E) Once the main ARB harness is connected to battery you can begin the process of securing the two ARB harnesses. Start underneath at the drain plug end. Secure the harnesses along the top of the frame rail. There are several locations to secure to a factory harness to keep them up and away from heat sources and potential damage. On diesel engine models this is important since the exhaust runs down this side of the Jeep. Continue up to the firewall and secure the harnesses at a location on the firewall.

STEP 7 – System Check

7-A) Turn on compressor. It should run for a few seconds then shut off (when it reaches the pressure safety switch built into the compressor). The system should be able to sit for a few minutes without the compressor cycling. If after a few seconds or even a minute the compressor cycles you will need to check for leaks. The first thing to check are the air locker solenoids to ensure there are no leaks where they connect to manifold or from the output fittings that go to your air lockers. Also check the fitting installed on top of compressor. Once everything is ok, TURN OFF the compressor. If you do find a leak, make sure you bleed pressure from the system first! This can be done by cycling one of your air locker solenoids a few times with the compressor off.

7-B) Proceed to set-up the Air Down / Air Up Tool (see IJKP-18 Instructions).

Please contact info@innovativeATproducts.com if you have any questions or feedback.

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