



JK York Air Supply

Pentastar 3.6L V6 Installation Document

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The ORO JK York Air Supply kit is a fantastic solution for your on board air needs. The kit arrives as pre-assembled as possible, with as many fittings installed as possible. Most of these fittings are factory coated with liquid Teflon, however, ORO technicians are applying Teflon tape to all fittings. In the event that a fitting is found to leak please remove the fitting to add Teflon tape and reinstall.

The complete air supply package contains all of the parts as seen in the picture below.

Please INSPECT PACKAGES before starting installation. You may order additional parts to include air fittings and an in cab air gauge as well as an additional regulator for ARB or SwayLOC control.



JK York Air Supply kit components

- | | |
|---|-------------------------------|
| A. York Air Compressor with bracket
And Direct Drive Coupler | H. Air Supply Loose Parts Bag |
| B. Rubber Hose with T | I. Air Tank |
| C. Braided Hose | J. 35' 3/8 airline |
| D. Oil Filter | K. 6' 1/4 airline |
| E. Filter Mounting Bracket | L. Tubing Cutter |
| F. Manifold | M. Harness |
| G. Oil Return Fittings | N. Documents (Not Shown) |

Tools necessary:

- 9/16" Combo wrench
- 7/16" Combo wrench
- 3/8" Ratchet
- 4" Extension



The York compressor for this application will sit between the engine cooling fan and the front of the engine, with the compressor clutch driven directly by the harmonic balancer, a simple slip fit to assemble. There is no need to remove the belt to install this kit. However, to replace the serpentine belt, the compressor will need to be removed from its mount.

The York compressor will have a paper tag attached to it. This tag verifies that an ORO technician removed the OEM installed Esther oil, and replaced with 12 ounces of Mobil 1 5w30 synthetic motor oil. There is no reason to change the oil, but due to conditions that may arise during shipping, it is wise to verify the oil level before installation. On the supplied York Document, you should find that we strive to have 1-1/8" depth of oil when installed vertically.

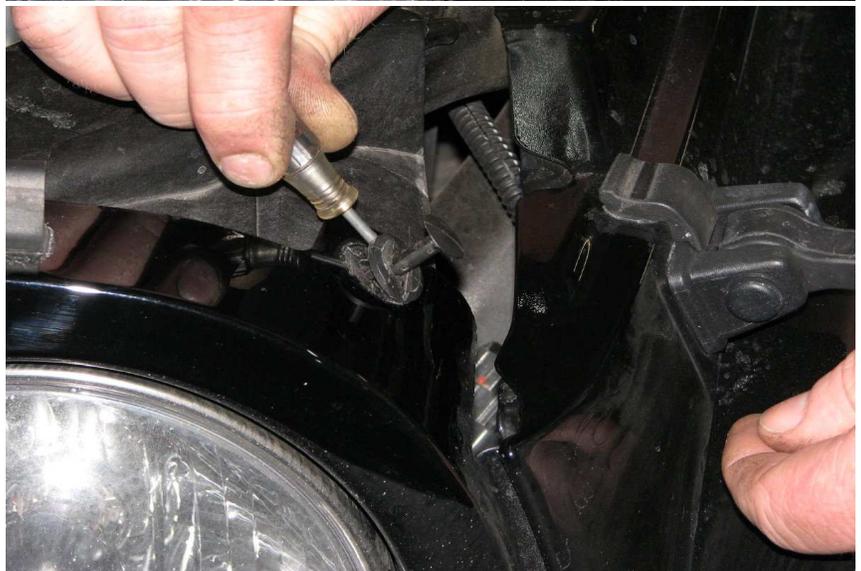
Installation Preparation:

The installation of this component will be done with the installer standing in front of the grille and reaching over the radiator. Although it is possible to do the installation without removing the grille shell, the removal of the shell is quite easy and may prevent cosmetic damage if it is removed as part of the installation. We also recommend placing a cushion on the top of the windshield frame, and open the hood and prop it against the windshield. Then unlock the hood prop rod from its relaxed position retainer, and rotate it to lay it along the driver's edge of the hood opening. This will get it out of the way. The installation will require the removal of the overflow bottle and plumbing, the air box, the air intake tube as well as the engine-cooling fan. These components remove quickly and easily, and instructions are included to facilitate this.

To remove the grille shell, locate the 6 plastic retainers across the top of the shell, under the lip of the hood. With a small regular screwdriver, gently pry the smaller, inner button outward approx 1/2" These may also pull out if you pull just a bit farther. This does not leave them unusable simply reassemble.



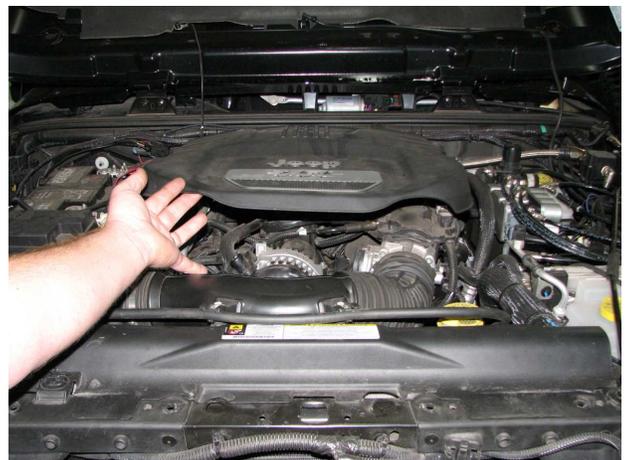
Next, using the same screwdriver, gently pry the larger plastic base up from the grill shell, they should come out with very little resistance.



Once the buttons are removed, then the grille is held on now by only by 6 push clips, 4 across the bottom and one behind each turn signal indicator. Remove the turn signals first, reach behind the grill and locate the turn signal housings and wire harness. Note that the harness exits towards the outsides of the vehicle, this will remind you how to place them into the housing and which way to rotate to reinstall them. Rotate the housings/harness downward and you'll notice that they become free. Simply remove the socket housing from the lamp assembly, leaving the harness in place. The socket housing may dangle while the process is done. In the following photo, the white dots reflect the approximate position of the clips, with a firm grip on the grille shell in these areas, a quick, firm tug should release the clips. One position at a time, unplug the grille clips. The grille shell will literally pop off in your hands once the last clip pops. Be prepared for the release, try to not drop it or cause any cosmetic damage.



Although it may not be necessary, we recommend removing the engine cover. This will gain some access room for the air tube to throttle body connection as well as room for routing some lines. Removal is simple. The cover is held in place with 2 rubber retainers towards the front, and a pair of hinge pivots on the firewall side. Grab the forward edge and firmly lift up on the cover, it will pivot upward and allow you to lift it off the hinges once it is free from the forward retainers. Remove and place off to the side.



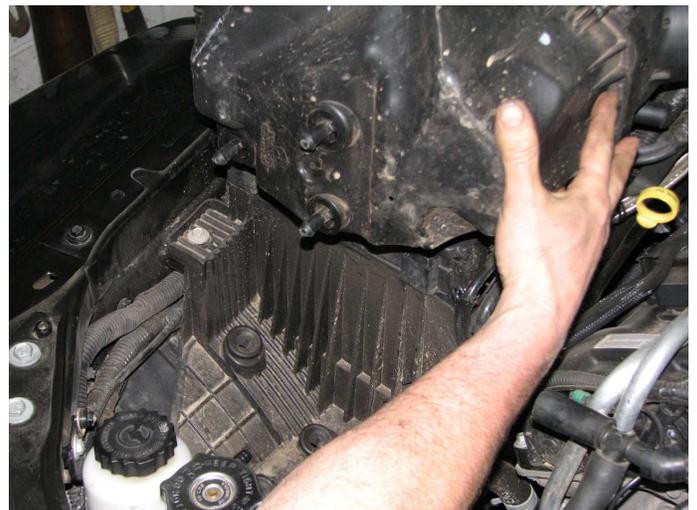


Next, we're going to remove the overflow bottle, air intake tube and air cleaner. The overflow bottle will come out without any tools. Gently twist the overflow hose connection to the radiator while pulling it towards the rear of the Jeep, Location "B" in the photo, the line should slide off the barbed fitting. Once it comes free, gently pull the hose from the 2 retainers are the areas marked with the "C" inside the white pentagons. Then, grab the overflow bottle and lift. The bottle is keyed to engage the cooling fan shroud, and lifting the bottle will free it, and it will move towards the rear of the jeep just a touch to remove it from the latch system. Lift bottle out and set off to the side, make sure the coolant line is not left lower than the bottle, or the fluid will run out. Now, with a 8MM nut driver (flat blade screw driver works for these as well) loosen the 2 hose clamps at the "A" positions, both sides of the air intake tube. Then, with a 10MM nut driver or wrench, remove the 2 bolts at the "C" positions. Now the intake tube is ready to be removed.

NOTE: There is an air intake temp sensor under the intake tube. Be careful when removing the rubber tube that you don't pull hard enough to damage the sensor or the harness when it comes free. Once the tube is worked loose, you can turn it over and depress the locking tab and remove the harness connection from the temp sensor. Now set the tube off to the side.



The air cleaner is held in place by 3 plastic pins that are secured into rubber cups on inner fender. Grab hold of air box and give a sharp upward tug to remove air box. Set the air box off to the side.

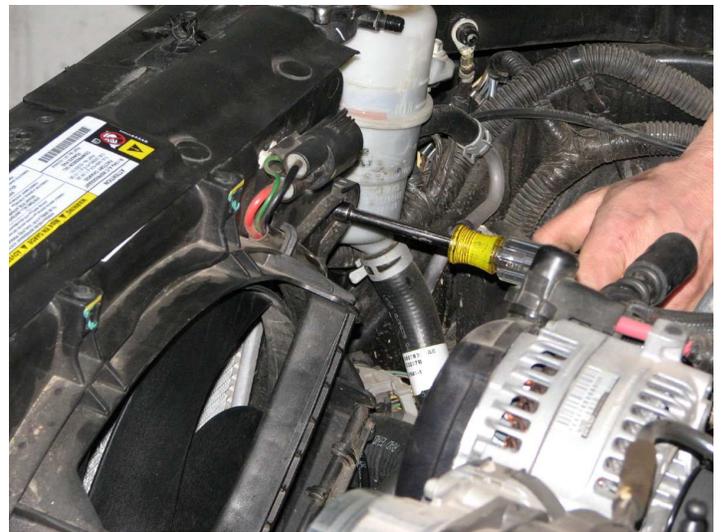


Next, disconnect the cooling fan electrical connection near the radiator cap. There is a locking tab to release the connection. Pull the harness toward the passenger side of the Jeep. This connector will hang in an area where it is in the way in a little bit, we recommend finding a spot near the power steering reservoir where you can stick it to get it out of the way.



Now we'll remove the cooling fan. There are 2 small screws, one on each side, that hold the fan to the radiator. The nut driver is shown removing the passenger side screw. There is another one on the driver side, in the exact same mirrored position.

There is also a couple of slots on the bottom to hold it in place. These are only important when you go to install it, make sure the slots are engaged during installation.



Once these 2 screws are removed, simply remove the cooling fan and shroud assembly. We've found that working the driver side up first and removing it at an angle as shown in this image to be the easiest way. You'll need to wiggle the fan shroud to get the retaining bolt area to clear the upper radiator hose and then should be able to lift it out.



Now, with these parts out of the way, we can prepare the engine for the yolk mounting bracket. Directly below the center of the alternator, there is a large bolt with a washer head. This bolt has a 15MM head, remove this bolt and set aside, this bolt will not be re-used. Locate the 7 ¾" long stud in the supplied hardware, this stud will be installed where the washer head bolt was removed. It should spin in easily, insert it until it bottoms or so that there is 2.5" of stud exposed. From this bolt, as you work your way up from both sides of the alternator, there is 2 smaller washer head bolts with 13MM heads, one on each side of the alternator. Remove both of these bolts. These will be re-installed during assembly.



Now, we need to add the piece of heater hose to the aluminum cooling tube that crosses the front of the engine. The yolk bracket may rub this tube and therefore we will add the hose as a cushion to prevent any damage. Locate the 1 ½' length of hose in the kit. There should be a slit in that hose, slip it over the cooling tube and rotate so that the slit is towards the engine, not towards the radiator. The lower edge of this rubber hose should be right at the bend in the tube, or appx 4" up from the rubber hose as shown in the image to the right. Once it is in place, locate 2 zip ties and wrap a zip tie around each end to secure it.



Next, Locate the longer single aluminum spacer. There is only 1 that will fit over the 10mm stud that you installed 2 steps ago. Slip the spacer over the stud and slide it up to the engine mount.





We are ready to install the yolk. At this point, we're going to assume you are installing a compressor with the clutch and ORO Clutch Drive Coupler already installed along with the outlet fittings. If you are supplying a York and only purchased the bracket kit, you will need to install the clutch and ORO Clutch Drive Coupler. There is additional information about this at the end of this document.

If your Jeep is equipped with an automatic transmission, you will see the transmission cooler lines that will interfere with the yolk installation, as seen in the image to the right. These lines are attached to the engine, to mount the yolk, you will simply twist the lines, front edge needs to be formed toward the passenger side. These lines are aluminum and are soft and easy to form, do not kink them.

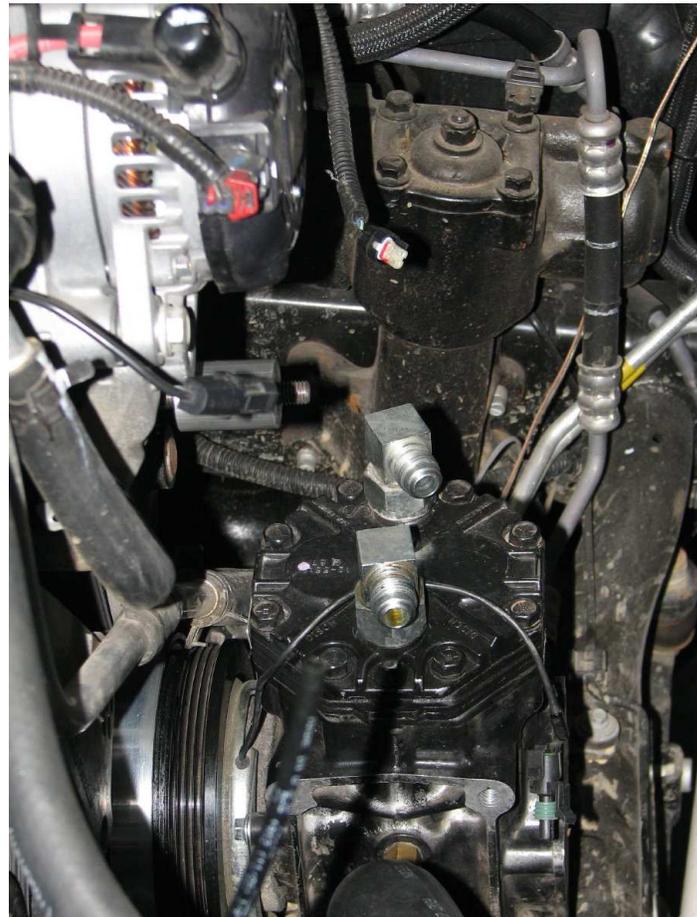


Now, grab the yolk. Position it so that the ORO Clutch Drive Couple is away from you, and carefully lower the yolk assembly down towards the harmonic balancer. You may find it easiest to position the yolk just forward of the passenger side valve cover, and lower it down from there. You can set it on the cross member, along the power steering return line, if you need to release and adjust your grip

Once you are ready, with both hands on the compress, have one hand so you can reach and spin the Clutch Drive Coupler to that it will engage with the harmonic balancer. Once it is rotated properly, you should be able to slide it towards the engine, with the aluminum outer ring of the Clutch Drive Coupler within approximately 1/8" of the harmonic balancer face. Now you can release the compressor, it should stay in place with the Clutch Drive Coupler engaged enough to allow you to install the upper bracket.

Locate the upper bracket, the one that is made up of several pieces welded together. Also locate the following hardware;

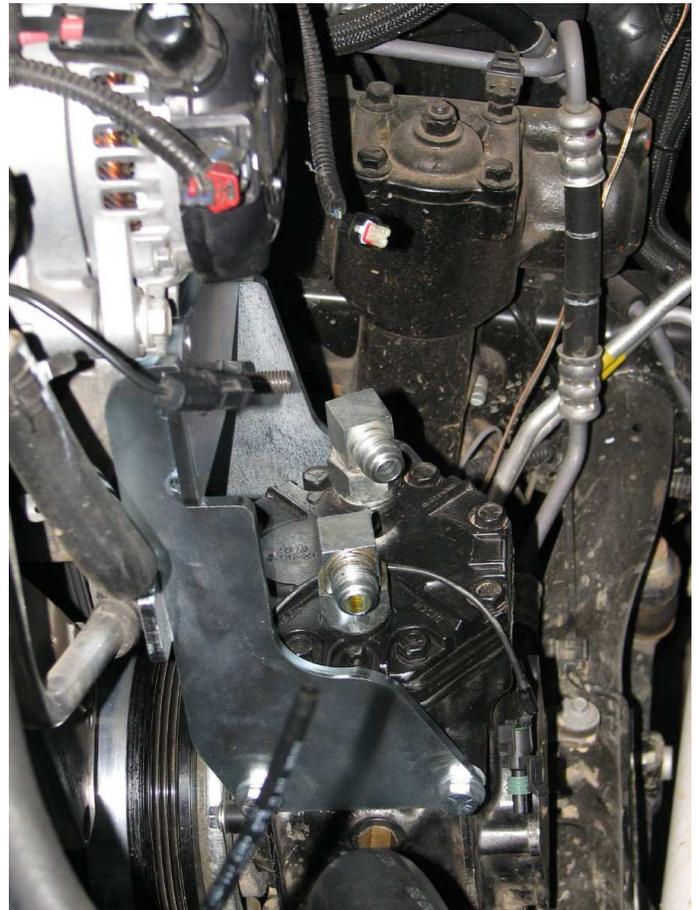
- 4x 3/8"x3/4" Cap screws
- 5x flat washers
- 10mm hex nut





Now, place the upper weldment in place. The bracket straddles the yolk in the direction as shown in the picture to the right.

The 10 mm stud will protrude thru the middle hole in the upper face and will hold the bracket in place. With a washer over each bolt, install each of the 4 3/8" bolts, 2 per side, to attach the lower bracket to the yolk. Install these finger tight at this point. Now place a washer and 10MM nut on the stud at the top. The bracket may not yet be fitting flush with the mounting surface at the top, but this should pull into place when you tighten the 10MM nut with a 17MM wrench. Once tight, go back and tighten the 4 3/8" bolts with a 9/16" wrench. Now, grab the 13MM headed washer head bolts that you removed earlier from either side of the alternator and reinstall them. The passenger side one makes a great place to mount the clutch wire attachment clamp.



Now it is time for the lower bracket. This one installs to the bottom surface of the oil pan and mounts to the 2 rearward lower mounting holes on the yolk itself.

In the image to the right, you can see the 6 lower engine cover bolts that need to be removed to install the bracket. There is 1 bolt in the lower left corner of the picture that is hidden by the differential, this bolt does NOT need to be removed, just the 6 holes you see in the photo.



Locate the 2 aluminum spacers, approximately 1" in length, and the 2 3/8" bolts and 2 flat washers. These will make up the lower attachment to the yolk.

With the bracket in place, reuse the 6 bolts just removed to hold it in place. Then place the aluminum spacers between the lower mount and the yolk, pass a washer over a bolt, and place these bolts in the forward holes, threading them into the yolk itself. Once all of the bolts have been started, tighten them as needed.

We have found in some instances, due to the tight fit we want to the harmonic balancer, the lower yolk bolts may not line up perfectly at this point. If that is the case, the solution is to hit the key, start the engine, let it run for a couple of seconds, and shut it off. This will work the coupler into the balancer. Instal lower mounting bolts and then tighten all the fasteners in the yolk bracket installation.



Route the braided compressor hose from the Compressor outlet fitting (passenger side Connection on the compressors we supply) up the inner fender well, towards the battery, along the firewall and over towards the top of the master cylinder area. The Oil removal filter will be mounted to the inner fender at this area next. Zip tie the braided line to the inner fender area,



Once the compressor is mounted, you need to inspect the coolant return line that you attached the rubber hose to earlier. This line will be held rearward by the bracket against that rubber hose you ziptied over it earlier. This rearward pressure, on some models, results in the rubber hose at the lower end where it attaches to the engine to possibly kink in 2 locations. These locations are highlighted by arrows in the image to the right.

To correct this, you simply grab the lower end of the aluminum line, and put some forward (Towards the radiator) and Upwards pressure on it and you can form it enough to remove the kinks in the rubber line.

You can see in the next image the results after a moment of massaging the line.

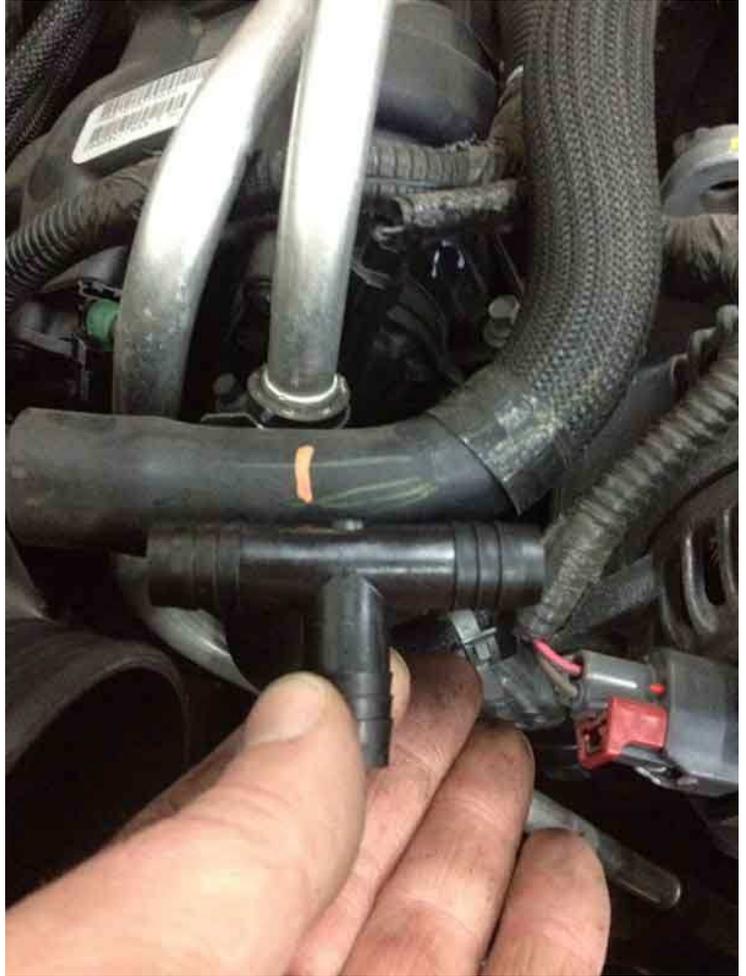


The rubber hose with the brass fitting on one end and the plastic tee on the other is the air inlet. The brass fitting goes to the compressor fitting that attaches to the compressor port marked "suction", on the driver's side when using our yolk.

The Tee end will splice into the rubber hose that goes between the air filter box and the engine. Approx 2" from the box end, where the orange mark is on the hose in the image to the right, simply splice the hose and insert the Tee. Clamp it in place with the 2 hose clamps. You may need to trim the supplied rubber hose to fit nicely between the yolk and the Tee fitting.

This would also be a good time to route a 1/4" nylon air line from the oil removal filter drain to the side of the compressor.

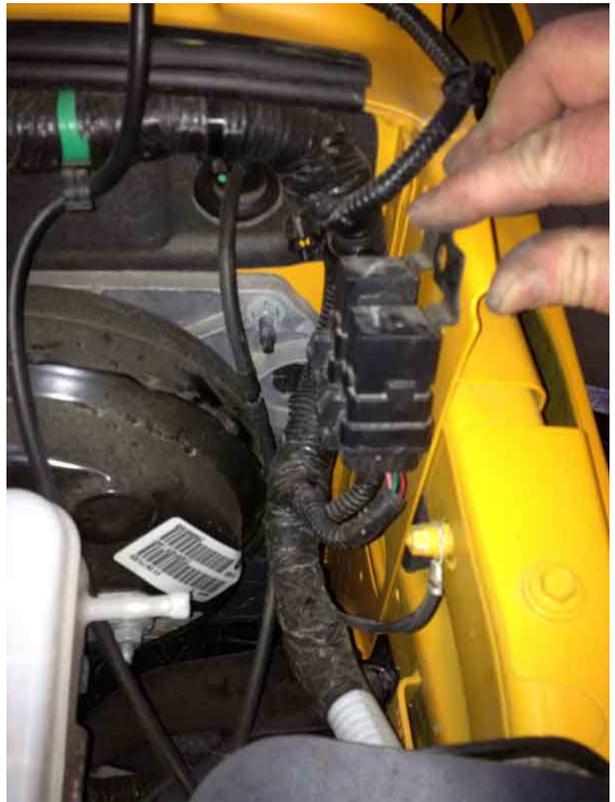
There is an elbow fitting and a brass fitting with an O-ring in the kit. This screws into the passenger side of the yolk compressor for the oil return. Remove the 1/2" head bolt and insert the elbow fitting/brass fitting combo. Insert the nylon airline into the fitting and route the nylon air line back to the oil removal filter, but don't route it next to the braided line as it could get a bit too warm for the line. It's recommended to route it to the passenger fenderwell and run it across the firewall with the wire harness to the driver's side.



Now we'll mount the mounting bracket for the oil removal filter. The image at the top of this document shows the oil removal filter mounted on the air supply bracket, however, we're going to recommend to mount it as shown in these next couple of steps.

First of all, we need to remove the dual relay pack that is conveniently mounted right where we want the filter to mount. Like the buttons that hold the grill in place, lift the pin in the center and remove the bottom to disconnect the bracket from the fender as shown in the image to the right.

The relays will be lowered down to the bulk of the wire harness below to start with. Once you fit the filter and the rest of the lines that go in this area, you can zip tie them to anything once the rest of the lines are in place.



With the relays removed, you will drill 2 holes, 3/16" diameter, in the inner fender to mount the bracket. The first hole, positioned as shown in the image to the right, will be drilled 3/4" rear of the forward edge of the raised inner fender structure. The hole should be approximately 1/4" down from the doubling panel as shown. This hole will align with the hole drilled in the bracket. You will need to drill a second hole to line up with the lower slot of the bracket.

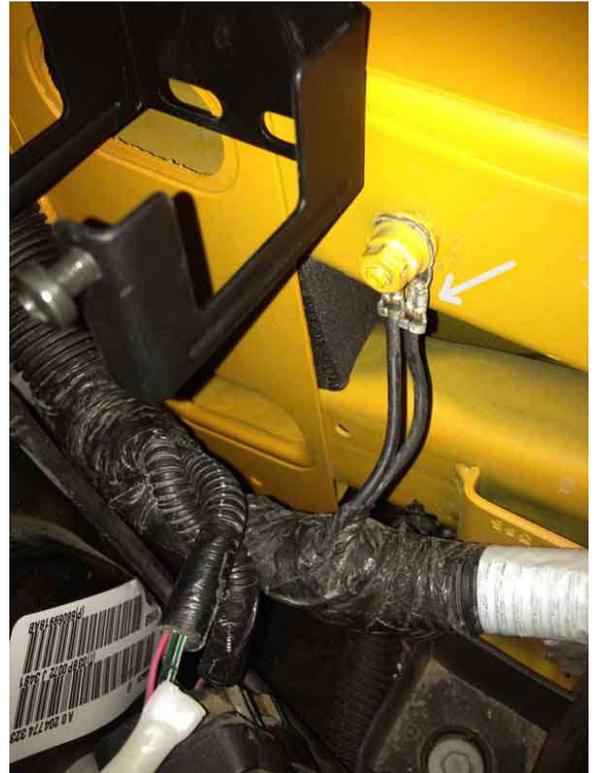
Mount the bracket using the 10-24 x 1/2" socket head screws and nylock nuts.



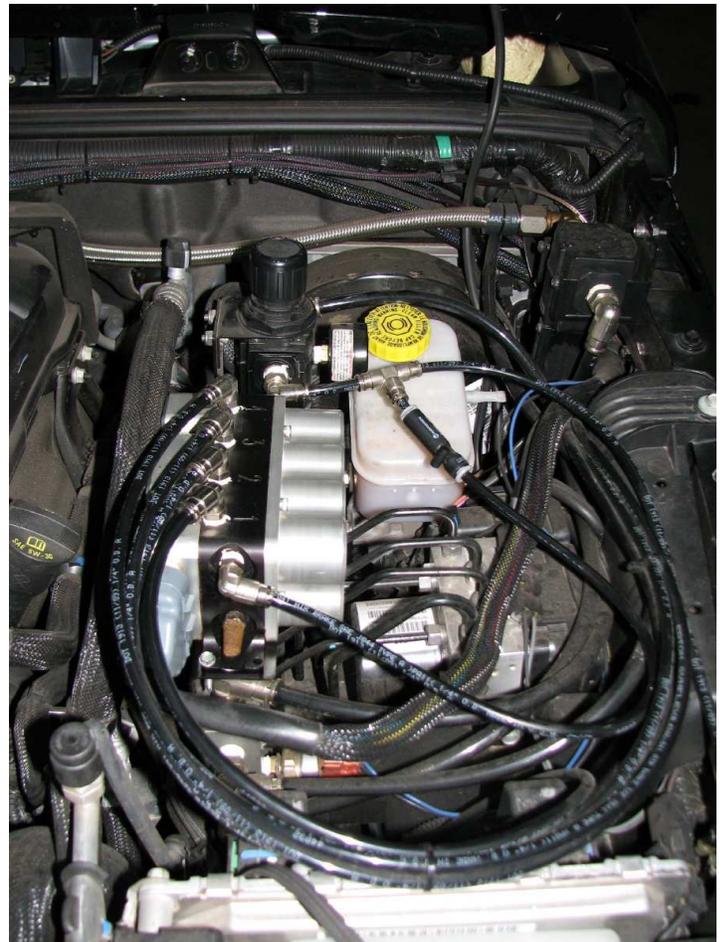


To gain a bit more room for the filter to mount in this area, you may wish to loosen and rotate the ground connection downward as shown in the image to the right.

Test fit the oil removal filter, you may need to move the harness around a bit for it all to fit.

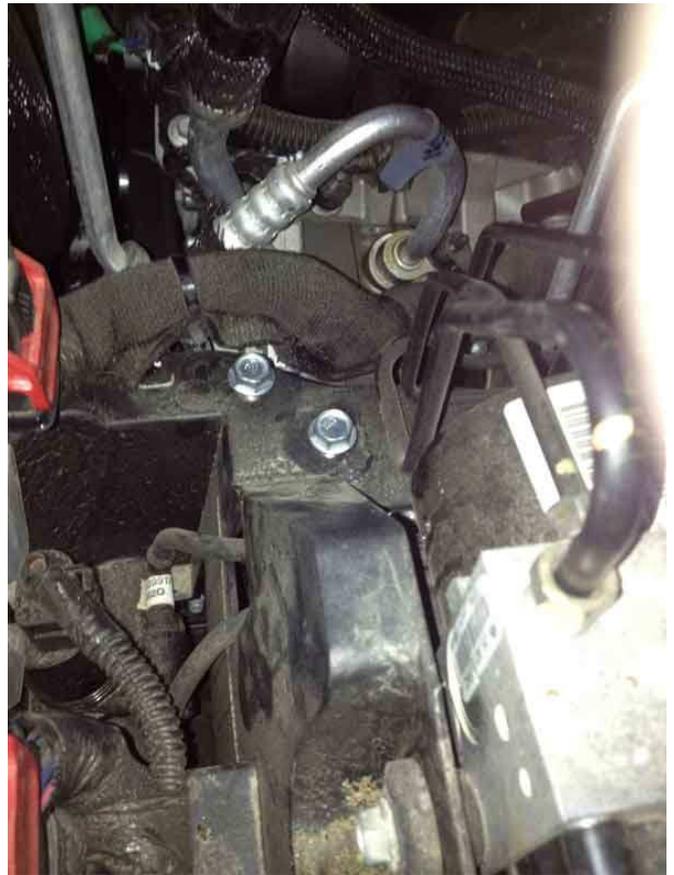


Now its time to mount the air supply bracket, the bracket that holds the manifold and the AiROCK Control Unit (ACU) This bracket mounts to the inner mounting bolt of the master cylinder and will mount to the inner fender with 2 self tapping screws in holes that you will drill. On the right is the bracket, in position. .





The air supply bracket may have 4 holes drilled in the lower mounting point to attach to the fender. Only 2 are necessary. You can see the 2 screws inserted into the drilled holes in the image to the right. It works best to use these 2 holes.



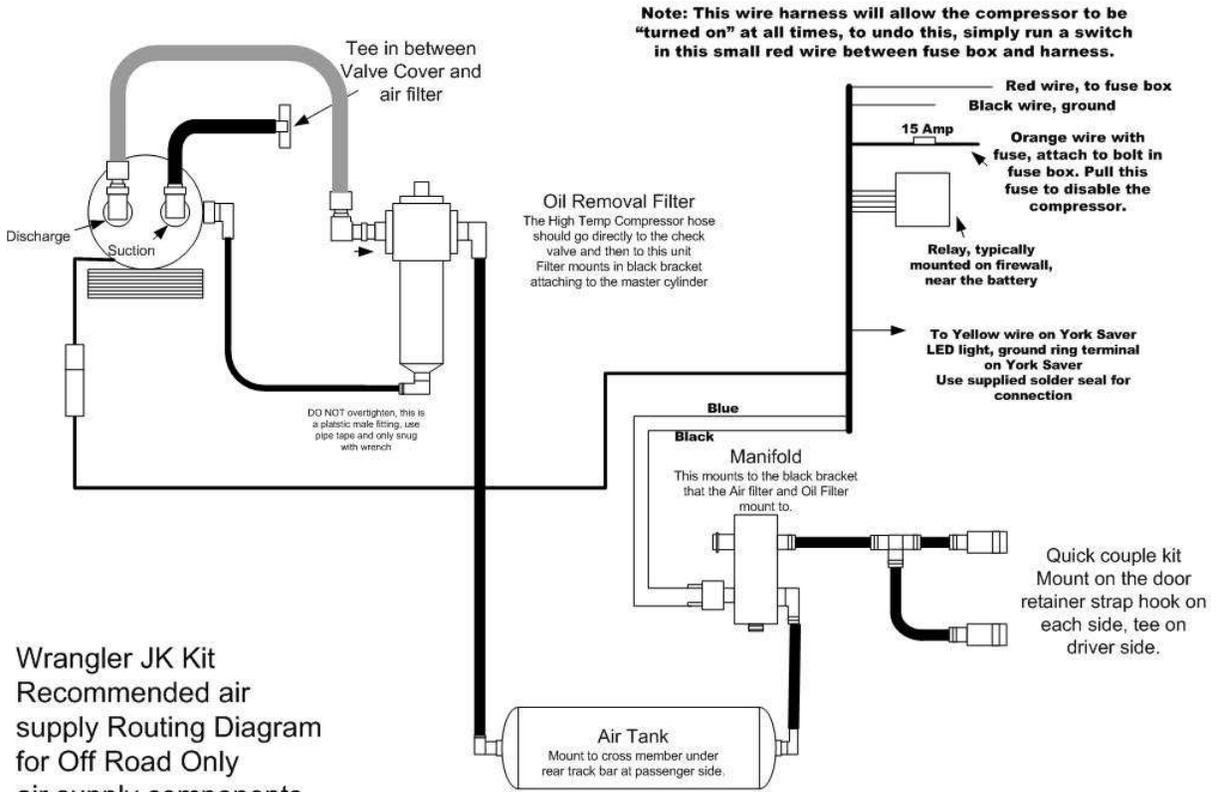
With the mounting bracket in place, mount the manifold to the bracket. There is 2 threaded holes in the back of the manifold that mount it to drilled holes in the bracket. Use the 10-24 x 1/2 screws to mount it.

Next we'll mount the oil removal filter.

Note: The 1 spot on the firewall to get airlines and the control cable for the AiROCK (If you are doing an AiROCK install) is the grommet at the top of the firewall, just behind where you are mounting the oil removal filter. The braided line and the nylon air lines and the harness may intersect in this area, we recommend a rubber sleeve over the braided line to protect the others as shown in the image to the right.

Also in this image, you can see the outlet line from the oil removal filter running straight down the inner fender area. The nylon airlines that run to the rear should all go down in this area and pass outside of the first body mount and along the rocker panel edge to keep away from the catalytic convertor heat.





Note: This wire harness will allow the compressor to be "turned on" at all times, to undo this, simply run a switch in this small red wire between fuse box and harness.

Wrangler JK Kit
Recommended air
supply Routing Diagram
for Off Road Only
air supply components
Non-AiROCK equipped

NOTE: Route all air lines from engine compartment down the firewall at the inner fender well on the driverside and outside the first body mount to keep away from the heat of the catalytic convertors!

The 3/8" airline goes out of the coalescing filter to the air tank, routed down the fender, outside the front body mount, along the framerail, tucked under the rockrail tabs and tucked along the top of the framerail to the fuel filler line, and to the tank.



Mount the air tank to the crossmember that runs above the rear track bar, as seen in the image to the right. Run 3/8" airline from the tank back to the manifold. The Manifold is designed to be bolted vertically to the driver's side of the filter bracket, with one port on top and 2 ports will face to the driver's side of the vehicle. The top port goes to the

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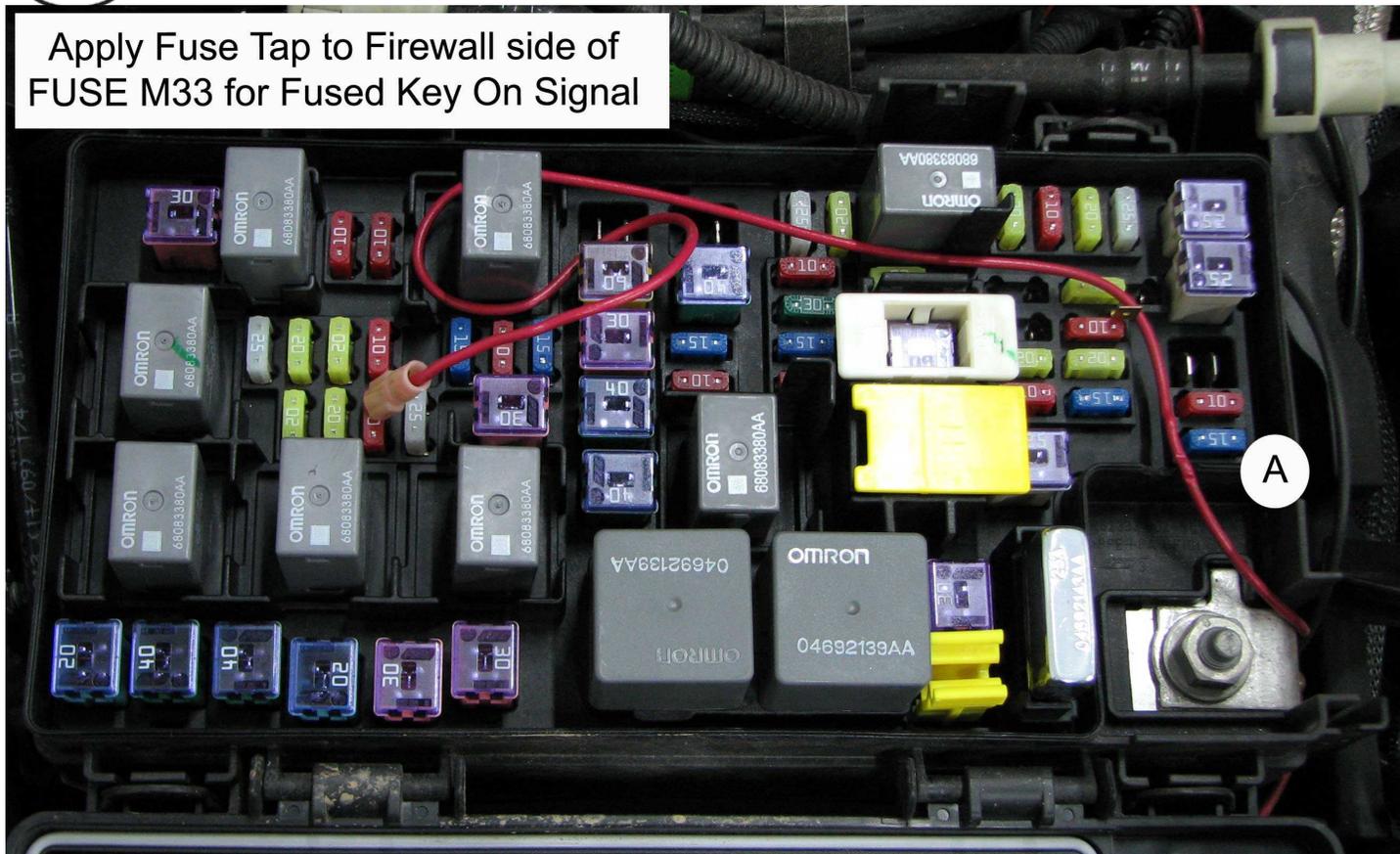
filter regulator. The next port down will go to the quick couplers under the dash of the vehicle. The lower port will take the 3/8" airline coming from the air tank.

The Quick Couplers are mounted in the cab of the vehicle. Remove the screws from the door retainer strap hook. The Quick Coupler with the straight inlet goes on the driver side. The coupler with the elbow inlet goes on the passenger side. With the screws and the door retainer strap hook removed, place the coupler under the pin and reinstall the strap retainer to the vehicle. Run the 3/8" airline through the grommet on the firewall near the brake booster. Continue to the driver's side coupler. Trim off a piece of airline about an inch to an inch and a half. One end will go into the driver's side coupler and the other will go into the T fitting. Run airline to the passenger side coupler. Attach one end to the T and the other to the coupler. The airline from the firewall will now attach to the remaining inlet on the T.



On the wiring harness, route the wires safely so as to not get caught in the engine. There is a wire with a weatherpack connector on it coming off the relay. This attaches to the York Compressor.

Apply Fuse Tap to Firewall side of
FUSE M33 for Fused Key On Signal



The RED wire is the one tied to the Fuse shown in the image above. This is the link that powers everything up. This is installed on the FUSED side of the fuse, the firewall side as noted in the picture. Be sure to clearance a bit of the fuse box to allow the RED wire not to be pinched when the fuse box is put back together, this is at the locations identified by the A in the image above.

The BLACK wire is tied to a ground. The ORANGE wires with the fuses attach to the bolt in the fuse box, or the positive battery terminal itself. Attach the Relay to the firewall somewhere near the battery. The YELLOW wire from the harness will attach to the YELLOW wire from the York Saver. You can use the included solder seal to attach the two wires together. If you have not installed the York Saver yet, do not attach the York Saver wire to the harness at this time. Make the connection when you are finished with the York Saver install. There are two wires with crimp on connectors. The BLACK and BLUE wires get plugged into the pressure switch.

The air intake tube will need to be modified if you are reusing the stock tube. The larger bulb that hangs down from the tube results in contact with the compressor. The fix is simply trim the 2 outlets to appx 2 $\frac{3}{4}$ as shown in the image to the right. Then simply insert the blue silicone plugs in the appropriate sized holes, and then the supplied sheet metal screws are to be screwed into the side of the plastic tube, the point will pierce into the silicone and prevent tit from sliding. Even though they haven't slid in our testing.

You may wish to drill a small hole in the plastic before starting the screw.

