



# AiROCK Install Overview

For Wrangler JK 2012- current models.

**Off Road Only**

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Installation of the AiROCK system can seem like a daunting task, especially if you have just unboxed and have all the parts layed out in front of you. Rest assured, its not that difficult of a task.

Before you start, let get an overview of what you are going to be doing and in what order. First things first, lay the parts out so you can see them all. If they are bagged, leave them in the bags for now and let's get familiarized with them.

One of the first things to look for is the main AiROCK harness. This will look like miles of black spaghetti in a drawstring bag. Inside this bag is usually a ziplock bag of height sensors. Locate this bag, remove the height sensor bag and lay this somewhere safe. The sensors, with the levers attached to them end up being the most sensitive part of the system, accidental stepping or setting something on one of them may result in an incorrect reading once installed. Since you have the sensor package in your hand, maybe you want to look this over, see what it consists of. In the bag should be 4 height sensors, usually marked with Yellow, green, red and blue smiley face stickers. These stickers identify which corner they get mounted to. If there are no stickers then you may have a special or custom application with extra instructions.

Throughout the system we need to identify the corners of the Jeep, as each corner has an airline that gets plugged in a specific port, a harness connection to a height sensor and such. The height sensor sticker color and corner of the Jeep reference is as follows

- Left Front, Yellow Sticker, Yellow wire in harness connector, Airline to port 1, values in first column of display inside the Jeep.
- Right Front, Green Sticker, Green wire in harness connector, Airline to port 2, values in second column of display.
- Left Rear, Red Sticker, Red wire in harness connector, Airline to Port 3, values in 3<sup>rd</sup> column of display
- Right Rear, Blue sticker, Blue wire in harness connector, Airline to Port 4, values in 4<sup>th</sup>, last column of display

The mention of the harness connector above, each height sensor has 3 wires in a weather pack connection to it. There is a 5 volt power (White) ground (Black) and the middle wire is the colored signal wire that matches the color of the sticker on the height sensor.



The other things to note about the height sensors;

Left and right sides should always be mirrors of each other. Front to rear the brackets may be different, but should operate in a similar manner.

The sensor and lever attached to it will spin 360 degrees, with no limits. However, the sensor only reads part of the rotation. If your sensors do not have the anodized gray levers already installed, then you must assemble them. Note that on the thin edge of one of the side of the height sensor shaft, there is a small divot. That side with the divot should be rotated to the same clock position as the wires coming out of the sensor body. When rotated in this position, the sensor will read about 80 degrees in either direction. When installed as we designed, the sensor should sit at this approximate rotation when the vehicle is near the middle of the range of travel. If at the middle range of travel the gray lever is not parallel to the mounting screws, then the linkage may need to be adjusted to keep the sensor in its range.

The install overview will be geared to the installation of a Wrangler JK kit, a kit that includes everything needed including the air compressor and management system.

The install of this package should start with the installation of the York compressor components, followed by the complete air supply. Mount the filters, manifold, and air tank and then once mounted, run the airlines to and from as the diagram suggests.

**CAUTION!** When running the nylon air lines, keep away from sharp edges AND any heat source.

Do not run the return line to the compressor along the braided outlet line from the compressor as that may get too warm at times. The airlines that run down from the filters and manifold to the air tank or rear air springs, keep ALL of these lines as tight to the inside edge of the front fender and go down and outside of the first body mount under the door before going back to the frame to go to the rear. Following the brake lines down from the master cylinder or even running the nylon lines directly below the master cylinder itself will possibly result in an airline that develops a rupture due to heat.

We typically don't cut the airlines to size and plug them in until after the harness is installed as well.

Now is when we typically do the airsprings and shocks installation. Follow the instructions to do those, note that we recommend loosening all of the factory rubber bushings before you install and then not tightening them until after things are calibrated and back on its wheels at on road ride height.

Run the ¼" airline from each airspring up to the ABS pump area, leaving about 2 feet of airline for the hookup to the AiROCK Control Unit (ACU)



Next is layout the harness. Start as the manual suggests with the 24 pin gray connector above the ABS pump area, ahead of the master cylinder. Then route the harness as directed. Once it is laying in place, and all the airlines are run, you will have a handful of lines and wires in certain areas, its easiest to tie these all together as one bundle, but before you do, we suggest installing the height sensors so that you can plug the connectors in and zip tie things tight and away from the exhaust.

With all of the harness, air tank lines and airspring lines run in place and plugged in to their places under the Jeep, now it is time to install the height sensors, plug into the harness at each corner and then zip tie to keep the harness and airlines away from the heat areas.

Once these steps are complete, the underside of the Jeep should be done, other than the final re-torque of the control arms (And track bar) bolts.

Before heading back to the engine bay, the rear swaybar should get the spacers we provide if not already installed at this point, the front swaybar should either be left disconnected (if using a stock, non-smart bar) or install our extended linkage for the smartbar, or best option, install the SwayLOC if your build gets one. We recommend only attaching the linkage on one side until after the Jeep is calibrated, and then when set to on road height, adjust the linkage as necessary to ensure the Jeep and swaybar linkage are matched.

Now, locate the bracket (looks like it has 3 legs) that will mount to the engine side mounting bolt of the master cylinder and then has 2 self tapping bolts into the plastic inner fender area near the ABS pump. This is the location to mount the ACU on. Once it is mounted, plug in the 24 pin connector and plumb the airlines for each airspring. Note: leave a lengthy service loop for each line as over time if the nylon line deforms around the sealing o-ring in the fitting, you may need to trim  $\frac{1}{4}$ " of line off to get a new area for the o-ring to seal to. Pay attention to the small black check valve, about  $1\frac{1}{2}$ " in length, that will be installed as the last fitting before the airline that goes into the ACU. Before the check valve can be a Tee to provide air pressure to the SwayLOC solenoid should you be installing a remote control SwayLOC as well.

With all these devices plumbed, and harness connections made, last step is to connect the AiROCK harness to the battery and fuse box per the instructions. At that time, you should be ready to power up the system by turning on the Key, if the AiROCK system boots up, then you are ready to start the engine, ensuring that the compressor is charging the air tank, and once it shuts off with the tank full, then follow the calibration instructions to calibrate the ACU to the Jeep. This should be done on a flat level surface with all the tires aired up equally.



Once the unit is calibrated, to bring the Jeep to the preset ride height to adjust the toe and swaybar linkage to, stand outside of the jeep, lower the Jeep (use the operations document to determine which mode, 1 or 2, you are in and which button push will lower it) and once it is all the way down, press the Check Mark and it should raise to the on road height. IF the display reads "Off Road Height" then hit the X button, pres the X and UP buttons together, display should show "On Road Height Preset" and then again press the button to lower the Jeep and the Check Mark again, this time it should go to the On Road Height. If you were to be inside the Jeep, and allowed the system to compensate for your weight, then as you step out, that driver side would increase in height. By standing outside the door, the system will stop at the same precise height it will adjust to each time you go above 30 MPH and this will be where you want the swaybar linkage adjusted to.

Once this is complete, re-torque all the rubber bushings and you are ready for a test drive. The display should read "Manual Mode" at speeds below 30 Mph. Once you cross 30 mph the display should change to "Active Mode" if it does not, then the system isn't seeing the pulse from the speed sensor, and you may need to close the air gap to get the sensor to pick up the signal. A quick way to test if you are getting signal, at a stop with the display reading "Manual Mode", press the < and > button together, there should be a bunch of data across the top, but the bottom there should be a 9 on the left side, and as you accelerate, this 9 should change to match the speedo above 30 mph. If it does not, then you need to adjust the sensor gap.