



2018 Wrangler Accessories and General Park Assist Sensor Tips



REFERENCE BOOK AND TECH NEWS
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Introduction



Figure 1: 2018 New Model Jeep Wrangler

This month's Master Tech covers the installation of a remote start and trailer harness kit for the 2018 new model Jeep Wrangler (Figure 1).

Keep in mind that "new model" refers to the new JL Wrangler, not the previous model JK Wrangler.

Some common concerns related to park-assist sensor diagnosis and service are also discussed.

Remember that this book and the presentation may contain unique information.

So, reviewing both may be required to complete the post test successfully.

Remote Start Installation



Figure 2: Remote Start Kit

Installation of Mopar's remote start kit (Figure 2) for the new model 2018 Jeep Wrangler is straightforward.

Remote start kits are only available for Wranglers already equipped with remote keyless entry (RKE) and have an automatic transmission.

Each kit is VIN specific and comes with everything needed to perform the installation, including:

- A new RF Hub
- A remote start antenna
- Two new FOBs with pre-cut keys
- Two push-pin retainers
- A customer information card

Below are a few key details to remember when installing the remote start kit.

Verify that the remote start sales code (XBM) has been added to the vehicle options list.



Figure 3: Old FOBs

Do not throw away the old FOBs (Figure 3). The old FOBs will still work but will not be able to perform the remote start function.

Always return the original FOBs to the customer to keep as spares.



Figure 4: Information Card

Do not throw away the information card (Figure 4) either. Instead, leave it in the vehicle for the customer.

The customer information card explains how to synchronize original FOBs that were not present at the time of installation.



Figure 5: Disconnecting the Battery

Installation of the remote start kit begins by disconnecting the battery (Figure 5).

Some Wranglers are equipped with an auxiliary battery for engine stop start (ESS) and require a unique power-down procedure.

Always review service information to be sure the correct procedure is followed.



Figure 6: New RF Hub

The new RF Hub (Figure 6) replaces the original RF Hub located behind the left quarter trim panel.



Figure 7: Left Rear-Quarter Trim Panel

Pulling back on the top of the quarter trim panel (Figure 7), instead of completely removing it, can save some time.



Figure 8: Remote Start Antenna

The remote start antenna (Figure 8) is secured just behind the left rear seat-belt retractor using the push-pin retainers from the kit.

Follow the instruction sheet when routing and connecting the antenna cable.

Programming the new remote start feature requires a unique PIN that must be requested through DealerCONNECT.

The FOBs and new RF Hub require the PIN to complete the programming process.

PINs are only valid for 12 hours, so a new PIN will need to be requested after 12 hours.

The programming process requires the use of a scan tool to run the “RF-Hub Replace,” “Program Ignition FOBs,” and “Restore Vehicle Configuration” functions.

Any DTCs set during installation must be cleared after programming the new RF Hub and FOBs.

Performing a quick check to ensure the remote start function is enabled using the “Temporary Remote Start Disable and Enable Functions” from the BCM’s “Misc Functions” tab can prevent an unexplained inoperative remote start symptom after installation.



Figure 9: Confirming the Remote Start Function

Confirm that the remote start functions (Figure 9) using each of the new FOBs.

DTC B223B will most likely set in the occupant restraint controller (ORC) after the remote start is installed.

Run the “Unlock ORC” routine in the “Misc Functions” tab of the ORC and clear all DTCs.

Trailer Hitch Wiring Tips



Figure 10: Trailer Hitch Wiring Kit

Mopar designed a trailer hitch wiring kit (Figure 10) specifically for the new model 2018 Jeep Wrangler.

The trailer hitch wiring kit includes:

- A module
- Several harnesses
- Tie-straps
- Trailer connector



Figure 11: Routing Harness Through Bulkhead

Installation requires routing the harness through the bulkhead (Figure 11) and body to reach the rear bumper.

Removing some interior trim is required. Be careful when removing the kick-panel because there are two different kick-panel designs. Refer to Service Information for more details.



Figure 12: Red Wire Taped to Harness

Before routing the harness, take a moment to find the red wire taped to the harness (Figure 12).

The red wire is purposely taped to the harness to make passing the harness through the bulkhead grommet easier.



Figure 13: Main Harness Module Connector

After routing the harness, the red wire is un-taped and the attached terminal is installed into the main harness module connector (Figure 13).



Figure 14: Rear Frame Cross-member

A section of the trailer hitch harness is installed on the top of the rear frame cross-member (Figure 14).



Figure 15: Tie-strap Fasteners

Tie-straps (Figure 15) with integrated "Christmas tree" style fasteners are provided to secure the harness into the pre-drilled holes in the rear-frame cross-member.

The holes in the cross-member can be difficult to access, and hard to see.

Feeling for the holes is the easiest way to complete this step.

Park Assist Sensor Tips



Figure 16: Park Assist Sensors

Park assist sensors (Figure 16) are used on many FCA vehicles and, from time to time, they may need to be serviced or replaced.

Park assist sensors are fragile by design and can be damaged if not handled with care. If a park assist sensor is dropped, it must be replaced. Never reused.



Figure 17: Needless Sensor Damage

Many sensors have been needlessly damaged (Figure 17) resulting in warranty chargebacks.



Figure 18: Sensor Components

Park assist sensors (Figure 18) consist of three main components:

- A sensor retainer
- A silicone ring
- A sensor assembly

Sensor retainers clip into holes in the bumpers. Two plastic tabs on each sensor secure the sensors into the retainers.

The silicone rings (sometimes called decoupling rings) act as isolators between the sensor membranes and retainers.

Sensor membranes must be isolated for the sensors to work correctly. Dirty park assist sensors can have a negative effect on system performance and, in some cases, cause DTCs to be set.

Check for damaged or dirty sensors first when diagnosing a park-assist system concern.

Dirt can get in-between the sensor and the retainer, creating a mechanical bridge between the two and cause a “signal waveform failure” DTC to set. A “clean park assist sensor” message may be displayed to the driver as well.



Figure 19: Rinsing Sensors From Outside

Before replacing a suspect sensor, a thorough cleaning is required first. A common misconception is that simply rinsing off the sensor from the outside (Figure 19) is good enough.

A three-step cleaning process is required to thoroughly clean the sensors.

1. Rinse off the outside of the bumper.
2. Rinse off the inside of the bumper.
3. Remove the sensor to clean between the sensor and retainer.



Figure 20: Cover Sensor Connector with Finger

When rinsing sensors, prevent water from entering the connector by covering it with your finger (Figure 20).

To prevent breaking the retainer tabs, avoid using excessive pressure when removing the sensor. Do not release just one retainer tab and attempt to twist the sensor to remove it from its retainer. Doing so could result in a broken sensor, a broken retainer, or both.



Figure 21: Broken Sensor Retainer

Retainers with broken tabs (Figure 21) will not allow the sensor to seat properly, and broken retainers are not covered under warranty.



Figure 22: Preferred Sensor Removal

The preferred method for removing a park assist sensor (Figure 22) is inserting two pocket screwdrivers or similar flat-bladed tools between the sensor and the retainer.

There should never be a need to rotate the screwdrivers. With the tension released from the retainer tabs, pull the sensor straight out from the inside of the bumper.

Do not push from the membrane side. Pressing on the membrane will ruin the sensor.

With the sensor removed from the retainer, you can easily inspect for any dirt between the sensor and silicone ring. Do not forget to check for any dirt stuck on the inside of the retainer.

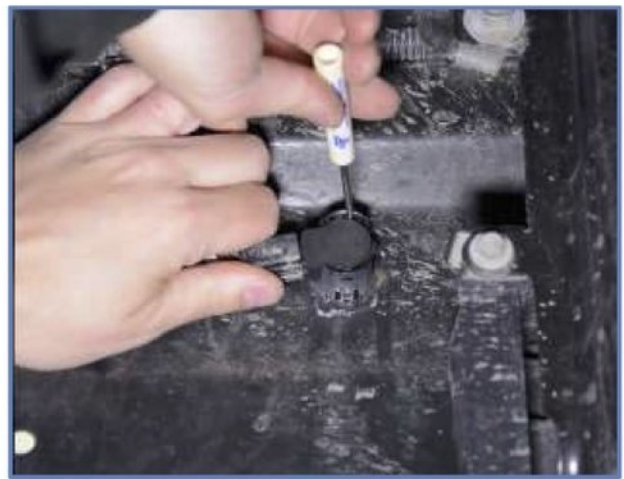


Figure 23: Twisting Sensors

Twisting a park assist sensor (Figure 23) during removal or installation can damage the delicate wiring inside the sensor.

Many sensors have lines printed on their sides. These lines should always line up. If they do not, that is an indication that the membrane may have been twisted in the past. Attempting to realign the sensor will not fix it.

The presence of certain codes like a "Short to Battery" DTC is another indication of a damaged sensor. Sensors damaged from twisting are not covered under warranty and will generate a chargeback.



Figure 24: Aftermarket Bumpers

Twisted sensors are most commonly found when installed in aftermarket replacement bumpers (Figure 24). This is because aftermarket bumpers often skip the use of a retainer, relying on a “press fit” between the bumper and sensor body.

The smaller-sized holes make it difficult to insert the sensors into the bumpers without twisting them.

Sensor orientation is critical.

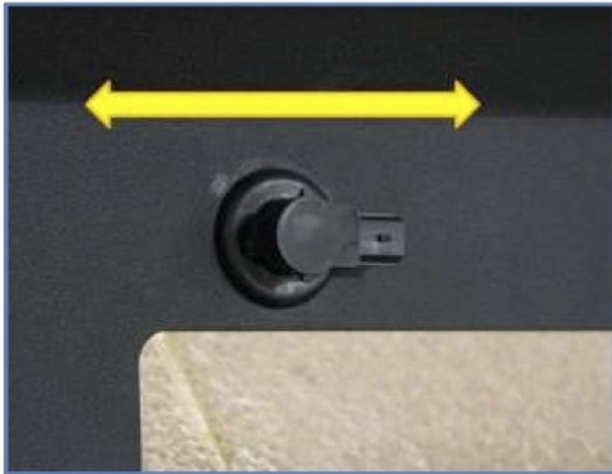


Figure 25: Horizontal Connectors

The connectors should always be horizontal (Figure 25). Twisting during installation can, and often does, result in a short or open circuit inside the sensor.



Figure 26: Incorrectly Installed Sensors

A sensor that is not fully seated and centered may indicate that a sensor has been installed incorrectly (Figure 26) in its retainer. Always make sure that the silicone ring is installed correctly and not rolled over. A “rolled over” silicone ring can cause incorrect sensor installation concerns and might even set a DTC.



Figure 27: Wrong Sensor Position

An issue that can be easy to miss is a sensor located in the wrong position (Figure 27). Some vehicles use different types of sensors in different locations.

An “incorrect performance” DTC can indicate that the wrong sensor is installed in the wrong location.



Figure 28: Body Shop

While the body shop (Figure 28) usually takes care of the painting, here are some key things to look out for.

Ensure that the silicone ring has not been painted.

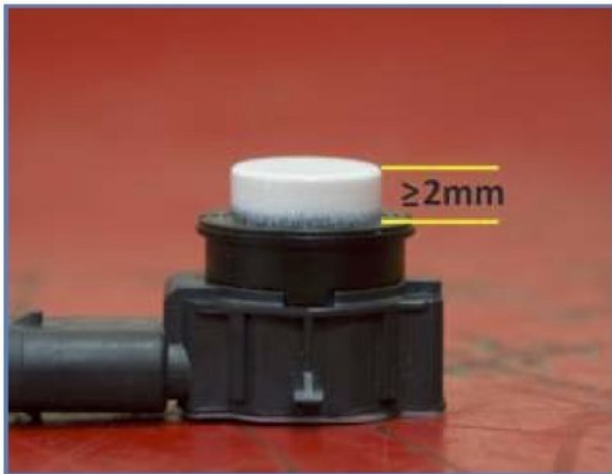


Figure 29: Paint on Sensor Membrane

Confirm that paint extends at least 2 mm down the walls of the membrane (Figure 29).



Figure 30: Overspray on Sensor

Verify that the sensor does not have any overspray (Figure 30).

Keep in mind that once a sensor has been painted, it cannot be painted again.

Sensors with paint that is too thick may not perform as expected. This includes attempting to use touch-up paint.

Incorrectly painted sensors will not be covered under warranty, so make sure to check the paint job before installing the sensor on the vehicle.

Close

Learn more

Check out the Learning Center site to find classes covering subjects related to this month's topics.

Next month

Next month we'll examine how to properly save and upload images, look at a crankshaft flange issue on a Hemi, and demonstrate how to use audio files for sound system diagnostics.

Questions or comments

If you have any questions or comments about a Master Tech presentation, or would like to suggest topics for future Master Techs, please contact us at mastertech@chrysler.com.

Be sure to include your contact information so we can get back to you!

Master Tech Post Test

Complete the Level I and Level II quizzes by July 31 for certification credit.

June 2018 Master Tech Level II Questions
Supplemental Restraints

11. A 2018 Fiat 500L with a 1.4L Multiair turbo engine comes in with a complaint of the airbag light illuminated. The technician discovers DTC B0122-00 is set. There are no signs of a collision. Which component is most likely faulty?
 - a. The passenger-side impact sensor
 - b. The Body Control Module (BCM)
 - c. The Occupant Restraint Controller (ORC)
 - d. The driver-side impact sensor
12. A 2018 Jeep Grand Cherokee with a 3.0L diesel engine is brought in following a frontal collision with airbag deployment. The technician is installing new airbags and SRS components. Upon inspection, the technician notices that the Active Head Restraints (AHR) have deployed. What should be done with the AHR?
 - a. Inspect the AHR for visible damage. If okay, reset and reuse.
 - b. Always reset and reuse the AHR.
 - c. Always replace the AHR.
 - d. Verify the electrical integrity of the AHR only, visible damage is acceptable.
13. A 2017 Ram 2500 pickup with a 5.7L Hemi engine was brought in with the airbag light illuminated. The technician found that DTC B2765-49 is set. What must be done by the technician prior to disconnecting the Right Side Impact Sensor 2 harness connector?
 - a. Turn the ignition on, then reconnect the 12-volt battery and wait two minutes before proceeding.
 - b. Turn the ignition off, disconnect the 12-volt battery and wait two minutes before proceeding.
 - c. Nothing needs to be done; the sensor can be disconnected.
 - d. Disconnect the 12-volt battery wait two minutes before proceeding, remove the ORC fuses, connect the 12-volt battery, wait two minutes before proceeding.
14. A customer brings in their 2015 Chrysler 300 6.4L with an illuminated airbag light and fasten seat belt light while the seat belt is buckled. During testing, the technician discovers that DTC B0050-13 is active. On which circuits need to be verified?
 - a. Circuit R57 / R59
 - b. Circuit R305 / R306
 - c. Circuit R503 / R504
 - d. Circuit R672 / R673

15. Following a collision with airbag deployment, a 2018 Jeep Wrangler (JK) with a 3.6L engine was brought in for repair. While replacing the frontal impact sensors, the technician notices some damage to a section of sensor wiring on the body harness side. Which is the first step required for splicing supplemental restraint wires?
- Remove 6 millimeters of insulation.
 - Remove 13 millimeters of insulation.
 - Remove 20 millimeters of insulation.
 - Repairs are not recommended or approved on these wires.
16. A 2015 Dodge Caravan with a 3.6L V6 engine was brought in for service. The customer had a concern of the system not recognizing a front passenger. Diagnosis reveals that the occupant detection sensor is inoperative. During replacement, the technician misaligns the sensor with the center line. What must the technician do to resolve the installation error?
- Nothing. Leave the sensor in place and return the vehicle.
 - Remove the sensor and reinstall it in the correct location.
 - Remove the sensor, add additional adhesive and reinstall the sensor in the correct location.
 - Remove the sensor, scrap it, and replace it with a new unit.
17. While replacing SRS components on a 2017 Ram Promaster with a 3.6L engine, the technician was installing new seat belt retractors. What is the correct torque specification for the seat belt lower anchor to bench seat riser frame bracket screw?
- 5 Nm (44 in/lb)
 - 8 Nm (71 in/lb)
 - 20 Nm (15 ft/lb)
 - 40 Nm (30 ft.lb)
18. When replacing the impact sensors on a 2017 Jeep Wrangler with a 3.6L engine, what is the last thing the technician should do before reconnecting the battery?
- Verify the sensor with an ohm meter.
 - Scan for DTCs.
 - Set the ignition to the ON position.
 - Connect the sensor harness.
19. A 2018 Dodge Charger 6.2L comes in with DTC U0151-00 set. If the ORC has good power and ground, which communication circuit should be checked?
- LIN
 - CAN IHS
 - CAN C
 - CAN B
20. A 2017 Dodge Journey with a 2.4L engine came in with DTC B222A set. The technician replaced the ORC. Which two steps need to be completed after replacing the ORC?
- The BCM must be reprogrammed.
 - The ORC Reset Function must be performed.
 - The ECM must be programmed.
 - The Restraint System Verification Test must be completed.

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Supplemental Restraints