

Model: Model S

Vehicle System: 11 - Closures

Region: All

Tech Note: Door Handle Diagnostics

Tech Notes are announcements that help to communicate and track new information about Tesla Service concerns. Such concerns may or may not be VIN specific. These instructions assume knowledge of motor vehicle and high voltage electricity repairs, and should only be executed by trained professionals. Tesla Motors assumes no liability for injury or property damage due to a failure to properly follow these instructions or for repairs attempted by unqualified individuals.

This Tech Note supersedes TN-13-11-001, dated 20-Jul-14. Each content change is marked by a vertical line in the left margin. Discard the previous version and replace it with this one.

Door handle errors are a common complaint, but not all door handle failures are the fault of the actual handle. If a customer complains of a door handle problem, check the generation of the part and troubleshoot the failure using the information below.

Identifying Door Handle Generation

Refer to Table 1 for the external and behavioral differences between Generation 1 (Gen1) and Generation 2 (Gen2) door handles. If the handle is removed from the vehicle, inspect the interior of the handle: Gen1 handles have a pressure strip (Figure 1), while Gen2 vehicles have a pressure switch (Figure 2).

	Generation 1 Door Handle	Generation 2 Door Handle
Operation	<ul style="list-style-type: none"> Handle presents fully (100% - no movement once presented) Grip does not noticeably move when pulled Handle retracts when doors are locked or after a 1 minute timeout Handle uses a force sensor to detect pull Handle uses a pressure sensor to detect push 	<ul style="list-style-type: none"> Handle presents 90% of total travel distance Grip moves remaining 10% of total travel when pulled (approx. 3-4 mm) Handle retracts when doors are locked or after a 1 minute timeout Handle uses a micro switch to detect pull Handle uses a pressure sensor to detect push
Part numbers	<ul style="list-style-type: none"> 1007372-00- A through G ASY, HANDLE FR DOOR, OUTER, RH 1007373-00- A through G ASY, HANDLE FR DOOR, OUTER, LH 1007374-00- A through G ASY, HANDLE RR DOOR, OUTER, RH 1007375-00- A through G ASY, HANDLE RR DOOR, OUTER, LH 	<ul style="list-style-type: none"> 1007372-00- H through K ASY, HANDLE FR DOOR, OUTER, RH 1007373-00- H through K ASY, HANDLE FR DOOR, OUTER, LH 1007374-00- H through K ASY HANDLE RR DOOR, OUTER, RH 1007375-00- H through K ASY HANDLE RR DOOR, OUTER, LH
Handle Firmware Version	0.x.x	1.x.x

Table 1

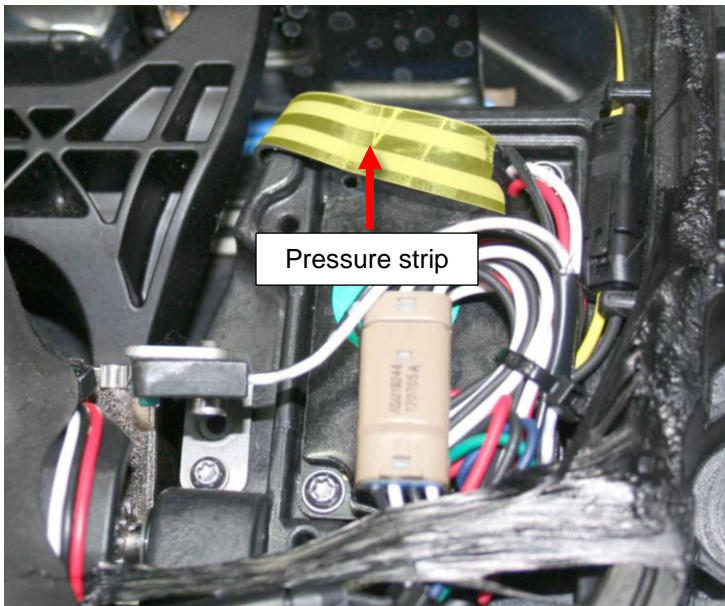


Figure 1 (Gen1. Pressure strip highlighted)

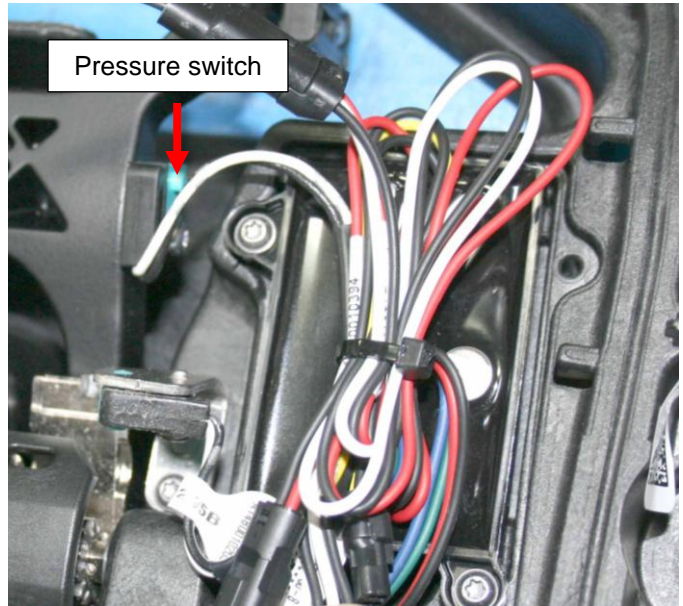


Figure 2 (Gen2)

Replacement Guidelines

Gen1 door handles were installed on vehicles built before April 9, 2013. If a Gen1 handle fails, upgrade all handles on the vehicle to Gen2 handles.

When replacing a door handle, verify its revision by:

- Checking the revision letter on the packaging
- Verifying the pull behavior after installing the new handle

Diagnosing Door Handle Failure Modes

When inspecting a customer vehicle based on a door handle concern, do not replace the door handles until the symptoms are checked against the following diagnostic cases. Customer-described symptoms are sorted in order of frequency of occurrence in the field. For additional diagnostic information, create a Toolbox session. If necessary, escalate the session to Service Engineering.

If none of the actions described below return the door handle to its correct behavior, replace the door handle in question.

Unable to Open the Door if the Handle Is Pulled After a Successful Present

1. If the problem is reported to be intermittent, try to confirm the issue by pulling on the suspect handle several times in a row. If at any point the door handle fails to unlatch the door, and the handle is Gen1, replace the handle. If it is a Gen2 handle, this is a new failure mode; continue the diagnostic steps in this section.
2. Power-cycle the door controller by pulling the respective fuse in the power feed circuit (Table 2).

Door Handle	Fuse
Left Front	F41
Right Front	F32
Left or Right Rear	F40

Table 2



3. If power-cycling does not fix the issue:
 - a. Ensure that the door controller is functional by checking correct operation of the other door handle on the same side of the vehicle. Each door controller is responsible for one side of the vehicle (Figure 3).
 - b. Check for correct operation of all power windows when controlled by the switches in the driver door.

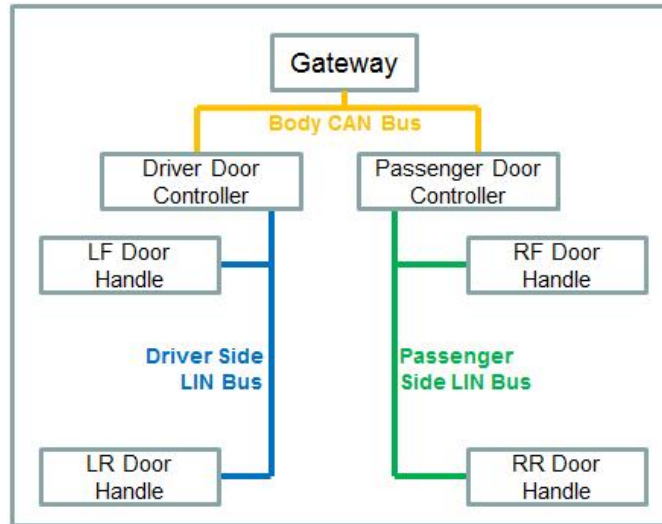


Figure 3

4. Verify that the vehicle has the latest firmware. If not, perform a firmware update.
5. Inspect the door handle harness running from the door controller to the door handle:
 - a. Check for any damage or loose wires.
 - b. Unplug the 10-pin interconnect and inspect it for damaged or pulled-out pins.
 - c. Ensure that the interconnect mates correctly.
6. If none of the above measures bring the handle back to full functionality, replace the Gen2 handle assembly.

All Four Handles Fail to Work As Designed (Will Not Present, Retract, or Unlatch the Door)

1. Ensure that the vehicle has the latest firmware.
2. Use Toolbox to check for any alerts or DTCs from the Body Control (BDY) or Security Control (SEC) ECUs. Refer to the information in the relevant diagnostic trees.
3. If there are no alerts present and the handles still do not function correctly, use Toolbox to reset the security controller. If this is not possible, pull fuse 45 to perform a hard reset. Wait 30 seconds, then reinstall the fuse.
4. If the handles still do not function properly, create a Toolbox session and escalate the issue to Service Engineering.

Handles on Either Side of the Vehicle, and/or One or Both Windows on the Same Side, Are Inoperable

If one or more handles on either side of the vehicle (both driver and passenger) are inoperable, and/or one or both windows on the same side are inoperable, perform the diagnostic steps in the first scenario, “Unable to Open the Door if the Handle Is Pulled After a Successful Present”, starting with step 2.

Problem With Both Rear Handles

Check fuse #40. This fuse controls the combined 12V feed for both rear handles.

Problem with One or More Handles After a Firmware Download

1. If all handles are inoperable, perform the diagnostic steps listed in “All Four Handles Fail to Work As Designed (Will Not Present, Retract, or Unlatch the Door)”.
2. If one handle is inoperable, it might be caused by a failed firmware update of the handle. To correct this, re-download the firmware to the vehicle. Most of the ECUs will be skipped over and only the handle in question will be updated.

Failure of Door to Fully Latch (Might Be Misidentified as Door Unlatching from Primary Latch, but Catches on Secondary Latch)

1. Check whether the door in question requires increased force to close. (If the right front door requires increased force to close, check SB-13-11-004, “RH Front Door Difficult to Close”.)
2. Check the door’s striker alignment. Adjust the striker if necessary.
3. Ask the customer for the specific date and time of the issue and exact behavior, and document the answers in the door handle’s MRB file.
4. Check for intermittent operation using the diagnostic steps from the first scenario, “Unable to Open the Door if the Handle Is Pulled After a Successful Present”.

Door Handle Requires Multiple Pushes or Firm Push to Present

- Verify that the handles present and retract correctly when using the key to lock and unlock the vehicle.
- Push on the suspect handle and verify that it must be pushed multiple times, or needs a very firm push to get the grip to present.

If both criteria are verified, the root cause is a misadjusted alignment bolt on the door handle assembly, which prevents the grip mechanism from touching the push sensor to detect a push on the door handle. Follow these steps for correction:

1. Put the handle in its retracted state.
2. Remove the door trim panel to access the door handle.
3. Access the Torx 40 grip adjustment bolt through the hole in the door handle back cover.
4. Turn the bolt clockwise. Stop turning the bolt when the grip starts to extend beyond the door (no longer flush).
5. Turn the bolt counterclockwise until the handle sits approximately 0.5 mm sub-flush to the door outer skin.
6. Verify the correct functionality of the door handle, then reinstall the door trim panel.

Door Opens When Handle Presents or Grip Is Sensitive/Shows Very Little Travel When Pulled

1. Verify that the grip and the handle backplate are moving freely and that there is no binding/rubbing against the door outer skin.
2. If the grip or backplate is binding/rubbing, loosen the handle assembly mounting fasteners in the door and re-adjust the position of the handle assembly so that the grip and backplate move freely.
3. Verify correct operation. No further action is needed if the handle now operates correctly.
4. If the condition persists and the grip shows a travel of less than 3 mm, replace the handle assembly.

⚠ CAUTION: Service personnel must not adjust the present set screw (Figure 4). This screw is calibrated at the factory. Adjusting the screw can compromise correct operation of the handle and lead to unintended unlatching behavior in the future.

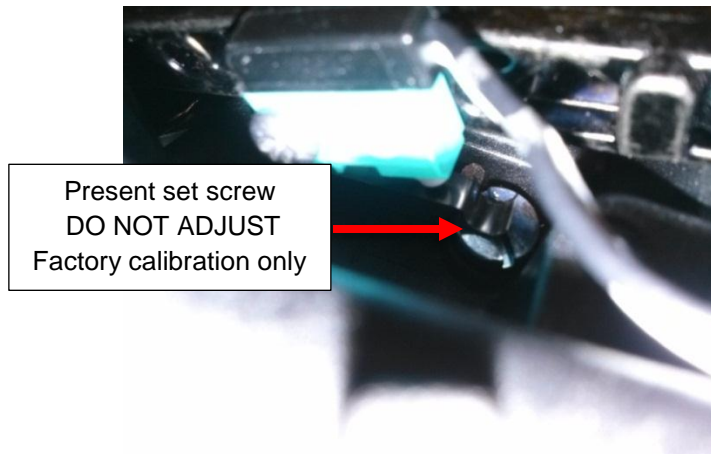


Figure 4

Door Handle Difficult to Unlatch, or Unlatches On Its Own After Presenting When the Vehicle is Parked

NOTE: Although these failure modes have seemingly opposite symptoms, their causes might be the same.

1. Inspect for shims or washers on the bolts that secure the door handle (Figure 5). If any shims or washers are present, remove them. If the problem persists, replace the door handle.

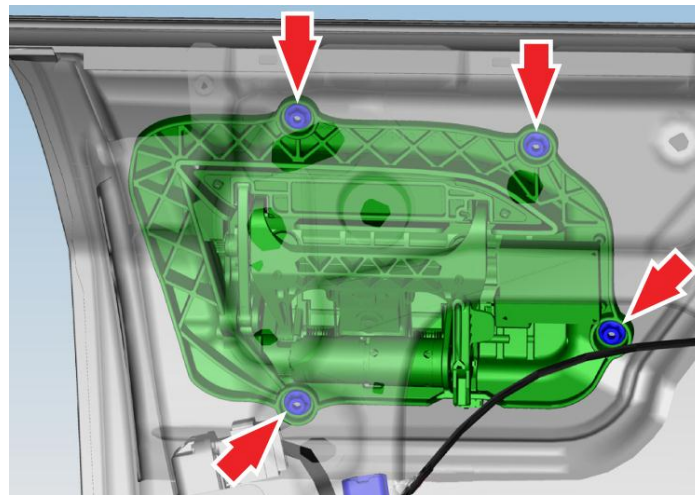


Figure 5

2. If the handles still do not function properly, escalate the issue to Service Engineering.

Door Handle(s) Fail To Present

This has many potential root causes. Create a Toolbox session and add the appropriate symptom: **A single door handle fails to present** or **All door handles fail to present**. Follow the resulting diagnostic trouble trees.

Further Escalation

If you have any specific questions or encounter a new behavior/problem, escalate the Toolbox session to Service Engineering.

For feedback on the accuracy of this document, email ServiceBulletinFeedback@teslamotors.com.