
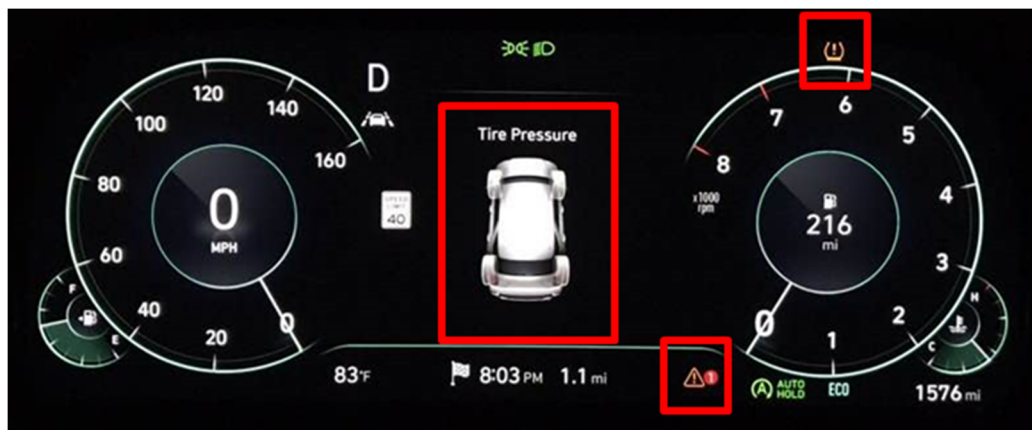


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|---|--|--|
|  HYUNDAI Technical Service Bulletin | GROUP BODY ELECTRICAL | NUMBER 23-BE-001H |
| | DATE JANUARY, 2023 | MODEL(S) SANTA FE (TMA) SANTA FE HYBRID (TM HEV) SANTA FE PLUG-IN HYBRID (TM PHEV) PALISADE (LX2) |
| SUBJECT: TPMS DTC(S) WITH SURROUND VIEW MONITOR | | |

THIS TSB SUPERSEDES 21-BE-001H TO UPDATE THE APPLICABLE MODELS AND MODEL YEARS.

Description: This bulletin describes the procedure to diagnose and repair tire pressure monitoring system (TPMS) DTC(s) on some 19MY and newer Santa Fe (TMA), 2021MY and newer Santa Fe Hybrid (TM HEV), 2022MY and newer Santa Fe Plug-In Hybrid (TM PHEV), and 2019MY and newer Palisade (LX2) vehicles equipped with surround view monitoring (SVM) system.



- Applicable Vehicles:**
- 19MY and forward Santa Fe (TMA) (VIN starts with 5NM)
 - 2021MY-22MY Santa Fe Hybrid (TM HEV) (VIN starts with KM8)
 - 2023MY and forward Santa Fe Hybrid (TM HEV) (VIN starts with 5NM)
 - 2022MY and forward Santa Fe Plug-In Hybrid (TM PHEV) (VIN starts with KM8)
 - 2019MY and forward Palisade (LX2) (VIN starts with KM8)

Warranty Information:

Normal warranty applies.

NOTE: If a wire harness was repaired, file the warranty claim using the part number of the repaired wire harness.

Service Procedures:

NOTICE

The following service procedures are applicable to 19MY and newer Santa Fe (TMA), 2021MY and newer Santa Fe Hybrid (TM HEV), 2022MY and newer Santa Fe Plug-In Hybrid (TM PHEV), 2019MY and newer Palisade (LX2) vehicles equipped with surround view monitoring (SVM) system. The procedures address DTCs from the TPMS system C1312-C1315, and C1662.

C1312: Left front TPMS sensor RF channel failure

C1313: Right front TPMS sensor RF channel failure

C1314: Left rear TPMS sensor RF channel failure

C1315: Right rear TPMS sensor RF channel failure

C1662: Auto-learning failure

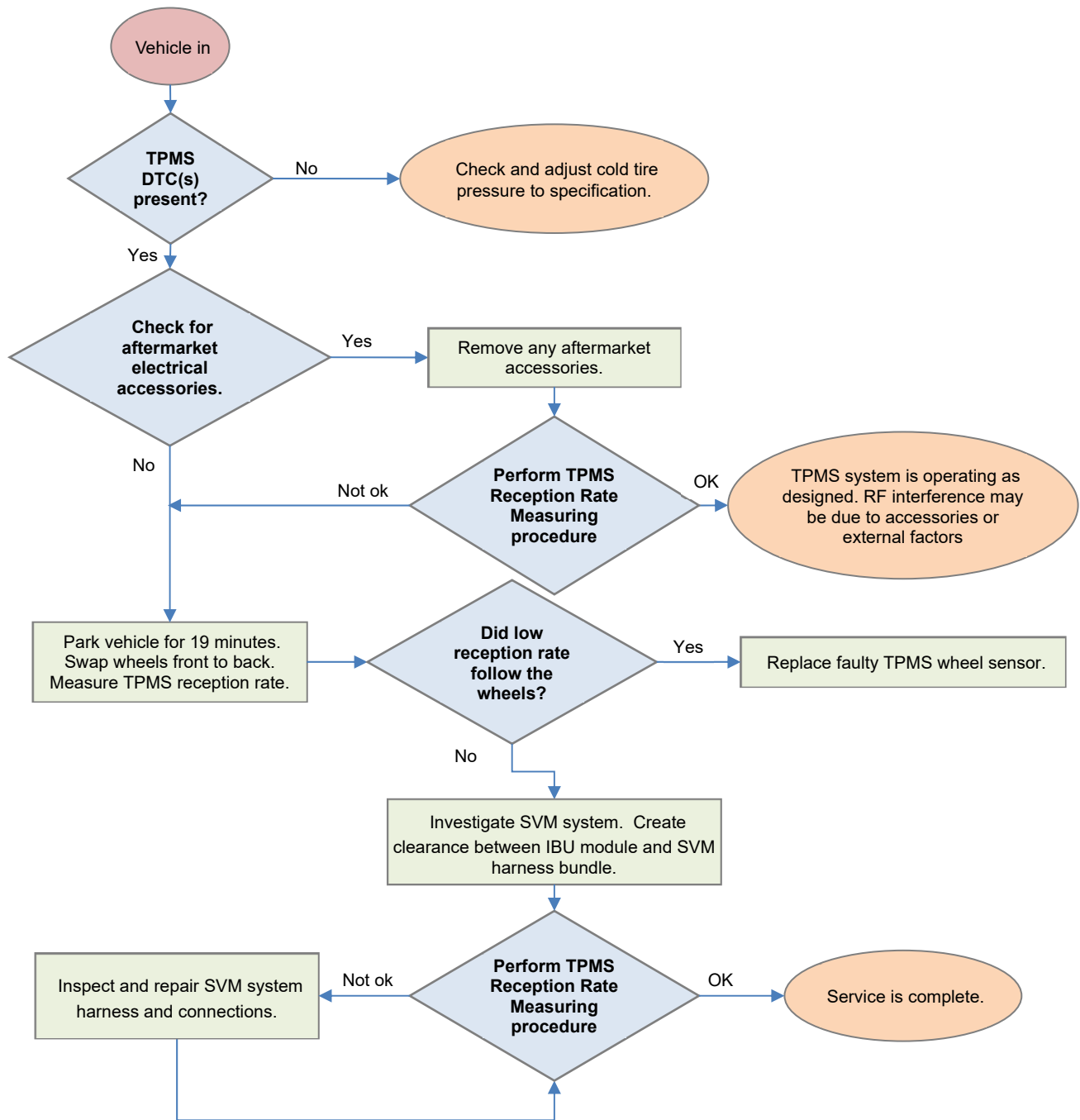
The TPMS system can be inspected by performing the TPMS Reception Rate procedure described in this TSB. A reception rate of 75% or higher is acceptable. A reception rate below 75% requires further investigation.

Radio frequency (RF) channel failure can be caused by a number of sources, including aftermarket accessories from inside the vehicle cabin. RF signal noise can also occur when driving or parked around areas with high levels of electrical signals such as airports, hospitals, etc. **Thoroughly inspect the vehicle and the driving environment for these potential sources when diagnosing a TPMS DTC.**

Another potential source triggering these codes may be due to poor coaxial connections from the SVM system. Follow the service procedures below for detailed information.

In the presence of any combination of the mentioned DTCs, follow the service diagnostic flowchart and the service procedures described below.

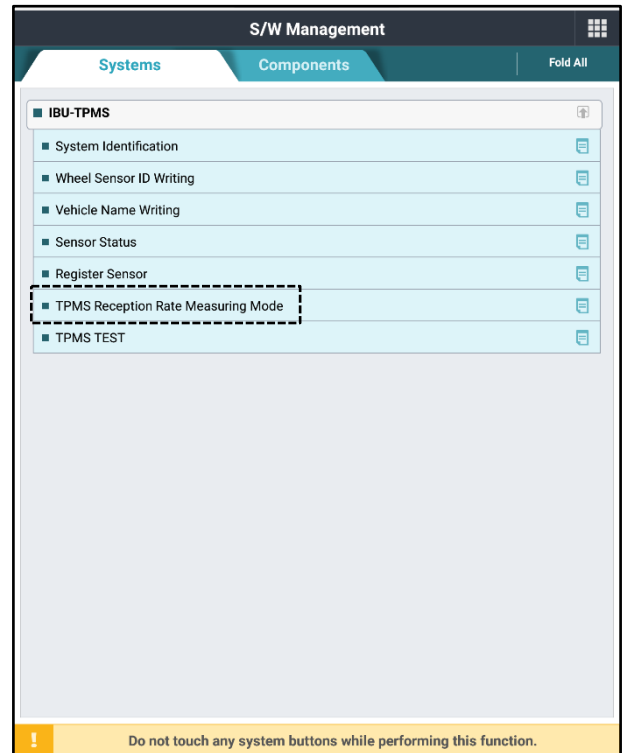
Service Diagnostic Flowchart:



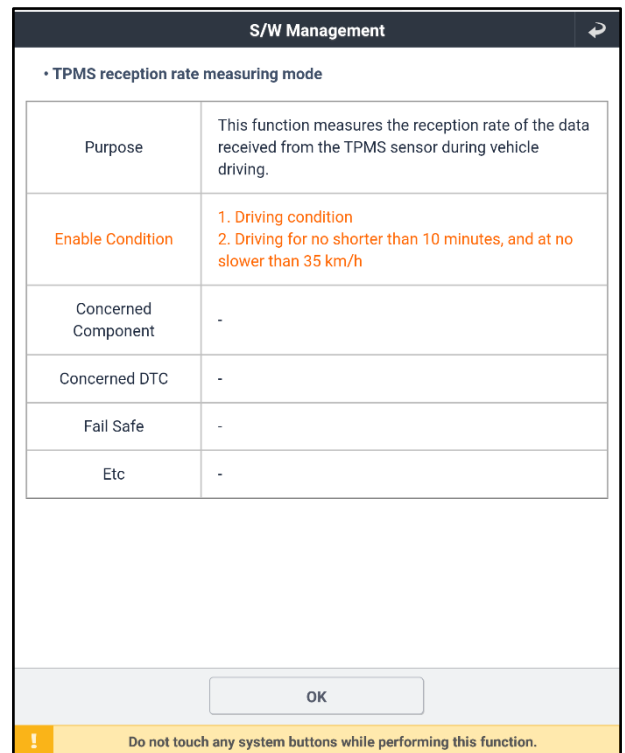
Service Procedure: TPMS Reception Rate Measuring

1. Connect GDS to vehicle and navigate to:

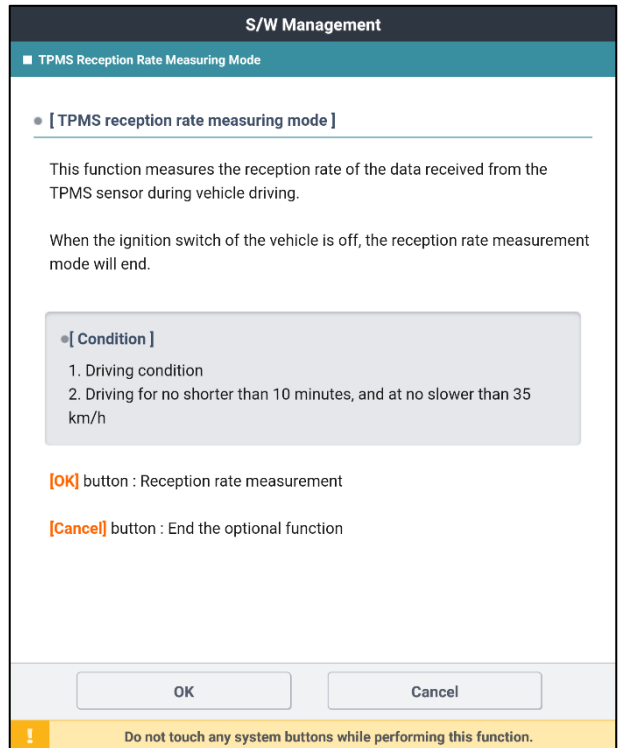
S/W Management > IBU-TPMS > TPMS Reception Rate Measuring



2. Check the vehicle's Enable Condition and then click "OK" button.



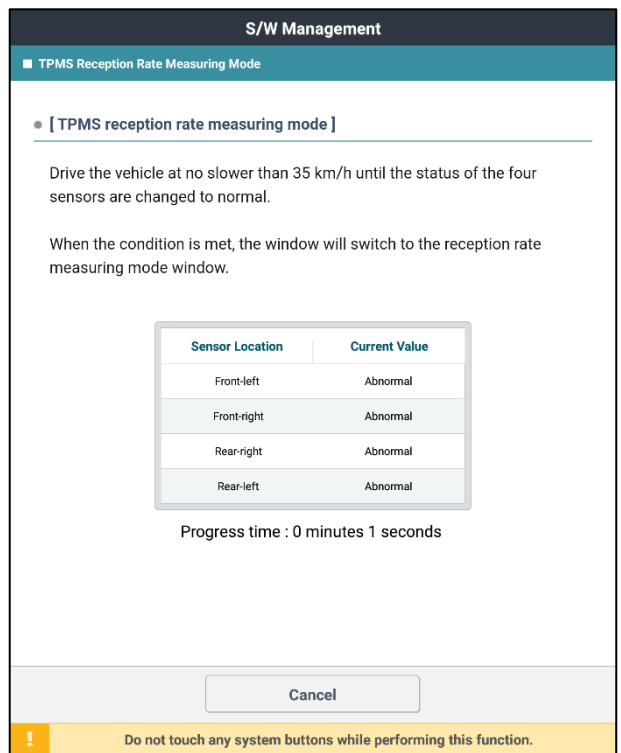
3. Click “OK” to begin reception rate measurement.



4. TPMS reception will be measured during the drive. Vehicle speed must be maintained over 35 kph for 10 minutes cumulative time.

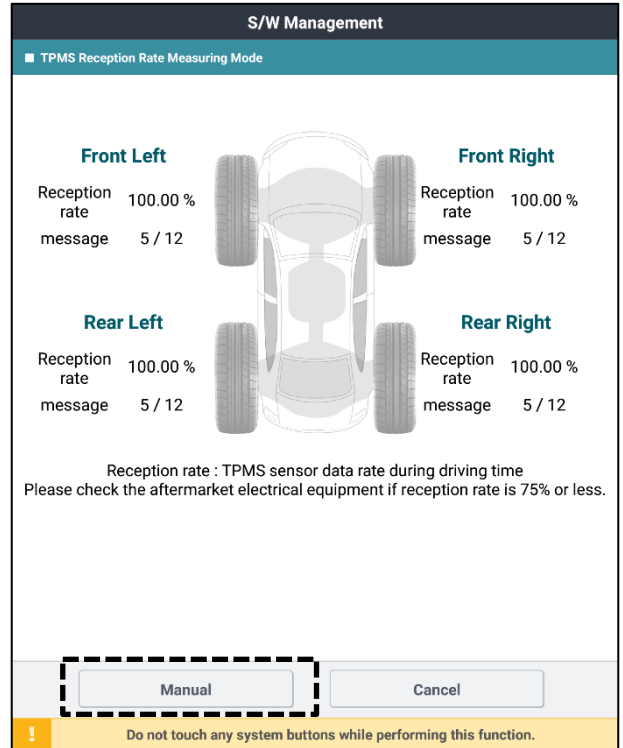
If the RF signals from the TPMS wheel sensors are confirmed during this process, the Current Value will change from “Abnormal” to “Normal.”

If the status does not change to “Normal” after the drive, there is likely RF interference.



- 5. After driving for a minimum of 10 minutes, check the TPMS reception rate. For further information click the “Manual” button.

A reception rate of 75% or higher is considered acceptable TPMS performance.



Service Procedure: Investigating SVM System

1. Locate the IBU (integrated body control unit) and the coaxial cable wiring.

Create as much distance as possible between the IBU and the coaxial wiring bundle by taking up any available slack.



2. Wrap the coaxial wiring bundle using faraday tape. Then, use cable ties to hold the bundle away from the IBU.

Clear the TPMS DTC(s), then check the TPMS reception rate:

- **If the DTC(s) does not return and the TPMS reception rate is good, the service procedure is complete.**
- **If the DTC(s) returns, and/or the TPMS reception rate is not good, continue to the next step.**



3. If the TPMS DTC(s) return, inspect the SVM co-axial cable connections. Do this by inspecting the connectors in the order listed below for each model. If no issues are found at the first connector, move to the next until a deformed/disconnected pin is found.

To access each connector, please refer to the applicable shop manual and/or electrical technical manual (ETM) for details.

NOTICE

Inspect the female connectors by measuring, as instructed below.

Visual inspection may not be adequate in identifying potential connection issues.

For Palisade (LX2):

- 1) FD21 / FD11
- 2) MF21 / MF11
- 3) R28
- 4) FR21
- 5) M20-A
- 6) M20-B

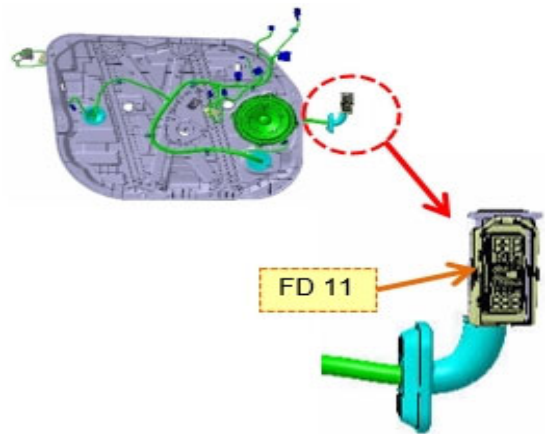
For Santa Fe (TMa):

- 1) FD21/FD11
- 2) MF21/MF11
- 3) R28
- 4) FR21
- 5) M25-A
- 6) M25-B
- 7) E43
- 8) D06
- 9) D26



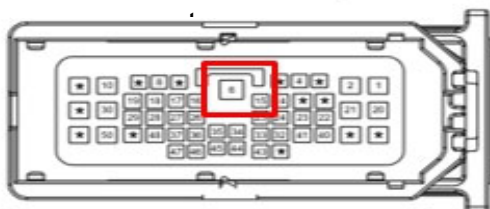
Provided below are images and descriptions of some of the SVM connection locations. Please use these as a reference point when inspecting the vehicle. Always refer to the applicable shop manual and/or electrical technical manual (ETM) for details.

Driver door harness

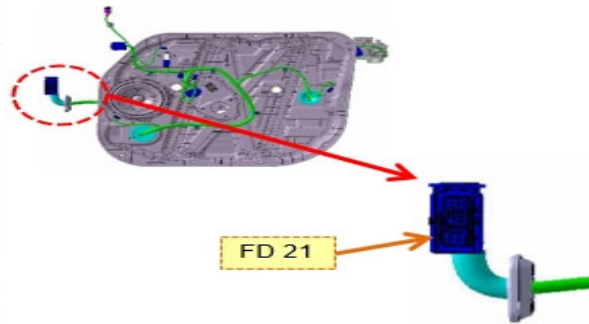


Driver door

| | |
|---------------|-------------------|
| WRK P/No. | - |
| Vender P/No. | 2309513-2 |
| Vender P/Name | AMP_025060110_51F |

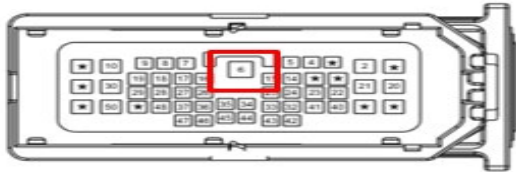


Front passenger door

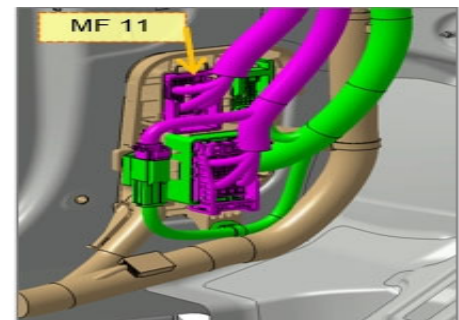
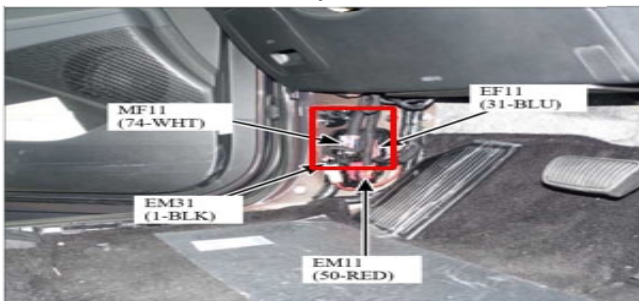


Passenger door connector

| | |
|---------------|-------------------|
| WRK P/No. | - |
| Vender P/No. | 2309513-2 |
| Vender P/Name | AMP 025060110 51F |

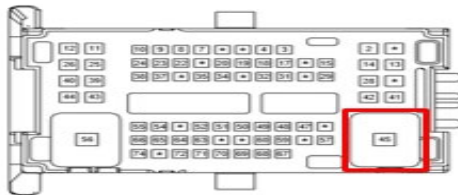


Driver side lower kick panel



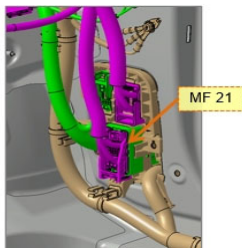
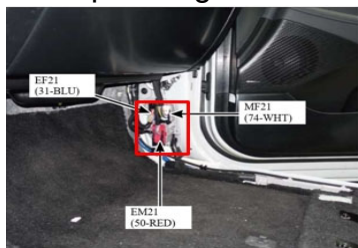
Main harness

| | |
|---------------|---------------------|
| WRK P/No. | - |
| Vender P/No. | 5011-0437 |
| Vender P/Name | KSC 025060FAKRA 74F |



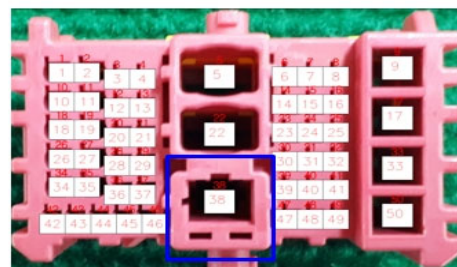
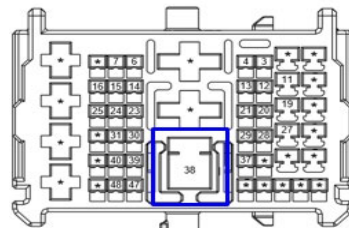
SUBJECT: TPMS DTC(S) WITH SURROUND VIEW MONITOR

Front passenger side lower kick

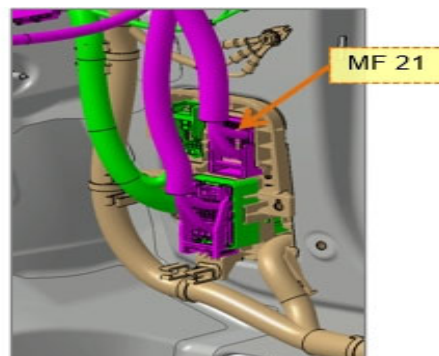
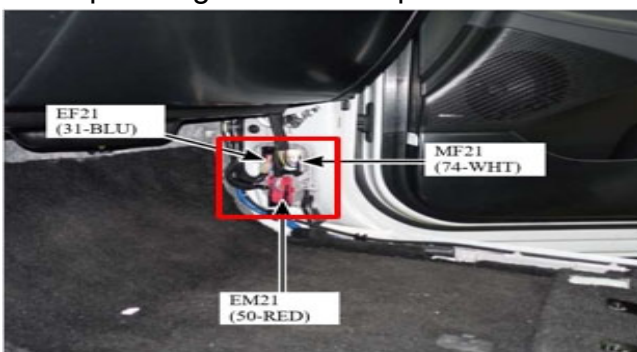


Main harness

| | |
|---------------|--------------------------|
| WRK P.No. | - |
| Vender P/No. | MG657013-1 |
| Vender P/Name | KET_02080110250FAKRA_00F |

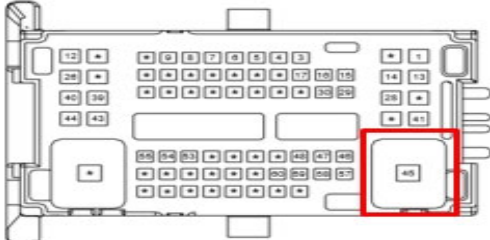


Front passenger lower kick panel

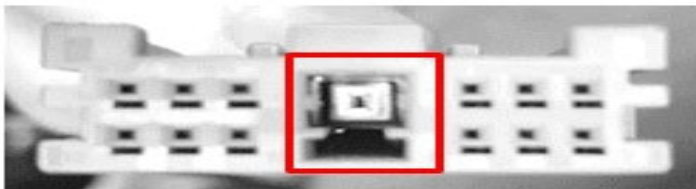
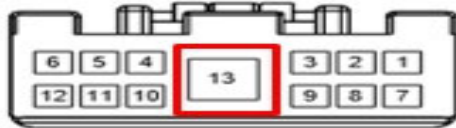
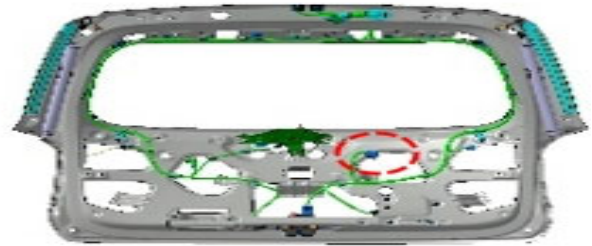
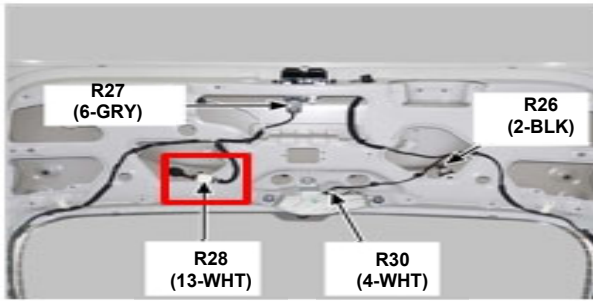


-Main harness connector

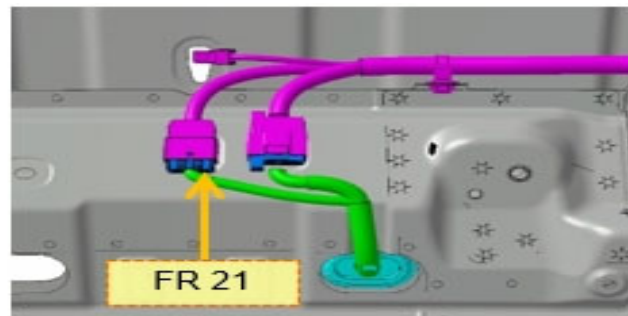
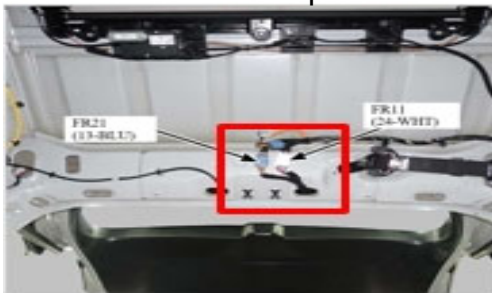
| | |
|---------------|---------------------|
| WRK P.No. | - |
| Vender P/No. | 5011-0437 |
| Vender P/Name | KSC_025060FAKRA_74F |



Tail gate harness



Rear side of the roof panel



-Tail gate connector

| | |
|---------------|--------------------|
| WRK P/No. | - |
| Vender P/No. | 2308328-8 |
| Vender P/Name | AMP_025_FAKARA_13F |

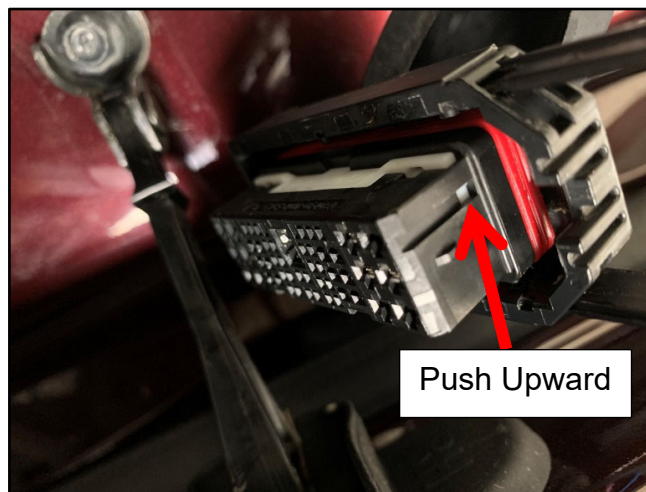


4. At each connector, remove the pins for inspection as described below.

Use any small flathead screwdriver to unlock the connector's locking mechanism.

This is an example of the passenger door harness.

Insert the small flathead screwdriver to the left and right side of the harness and push the white locking mechanism upward.

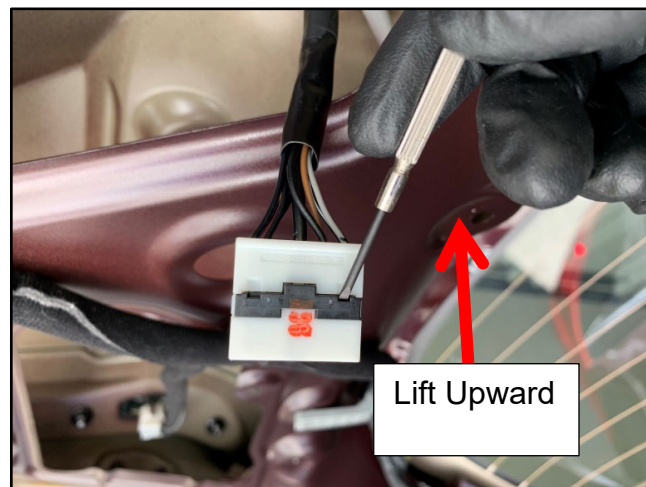


This picture shows the connector's locking mechanism fully unlocked.

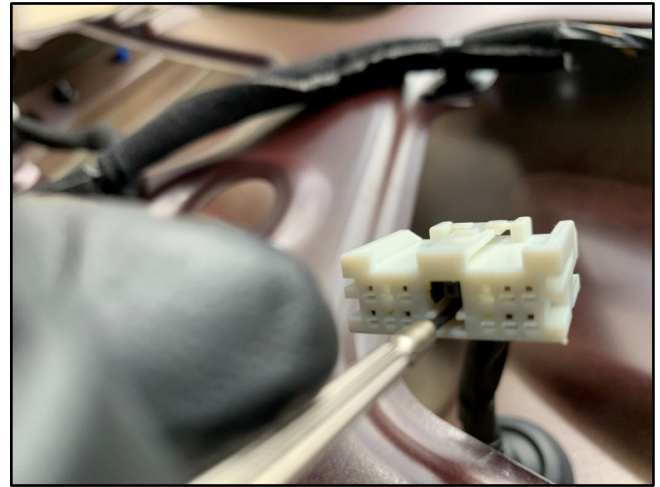


This is an example of the connector in the tailgate area.

Use the small flathead screwdriver to gently lift the black locking mechanism upward.



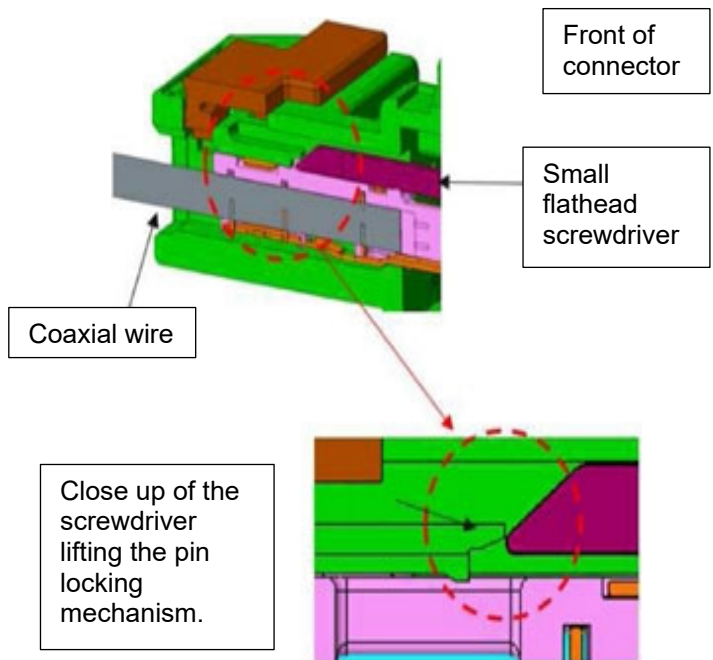
Insert the small flathead screwdriver through the front of the connector as shown in the picture to the right.



While gently pulling on the coaxial wire, lift the locking mechanism upward using the small flathead screw driver.

***i* Information**

- Insert the flathead screwdriver in a slightly downward angle to access the locking pin.
- It can be difficult to release the coaxial pin, so be patient and keep trying.



Inspect the female pins for deformation. Measure the distance between vertical sides to ensure they are within specification.

Spec: 3.55~3.67mm

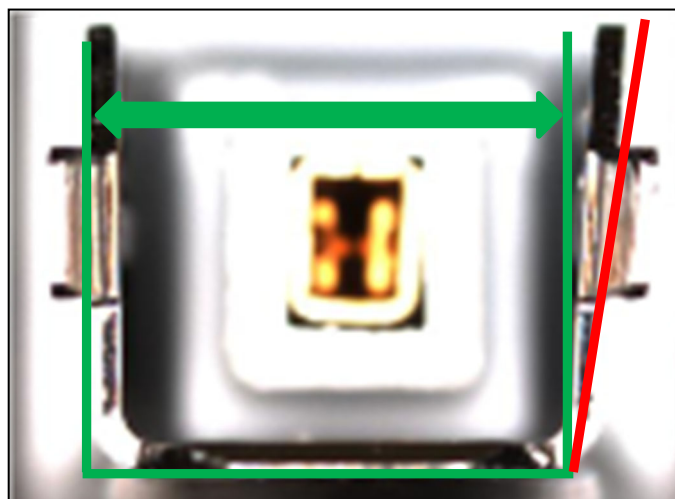
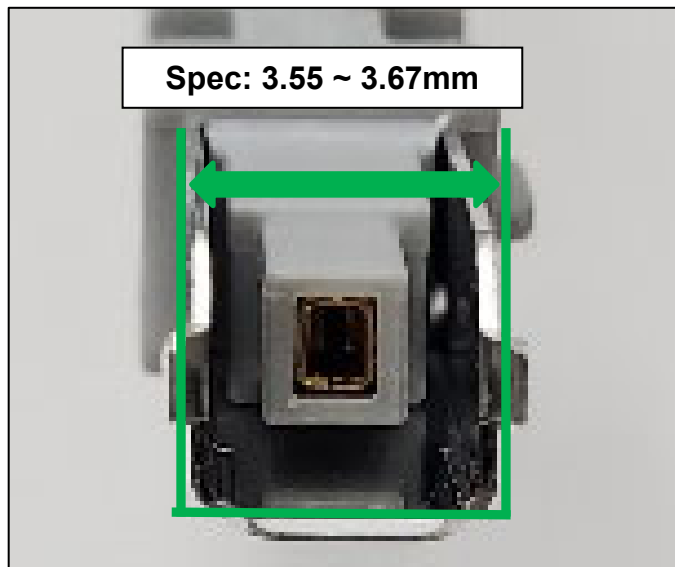
The pins are U-shaped and should form 90 degree angles (square corners).

NOTICE

This inspection requires measuring with calipers. Visual inspection may not be adequate in identifying potential connection issues.

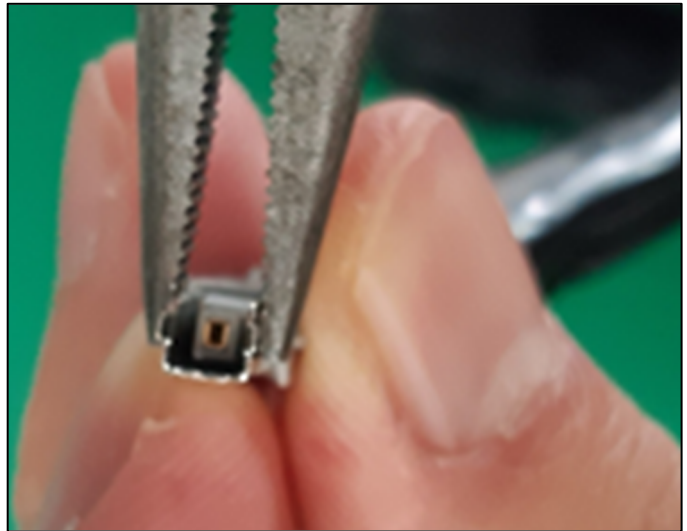
This is an example of the U-shape pin misshapen, and is splaying outwards (not square).

It is also out of specification when measured using a digital caliper.



- If necessary, reshape the pin to specification using a pair of long-nose pliers.

Spec: 3.55 ~ 3.67mm



- After reshaping the pin U-shape, recheck to ensure it is within specification as shown in the picture to the right.



- Re-connect any disconnected connectors, and reinstall any removed parts in reverse order of removal.

Clear the TPMS DTC(s), then check the TPMS reception rate:

- If the DTC(s) do not return and the TPMS reception rate is good, the service procedure is complete.
- If the DTC(s) return, and/or the TPMS reception rate is not good, contact Techline for further assistance.

The Service Procedure is now complete.