



GROUP
General

MODEL
2020MY
Telluride (ON),
2020-2021MY
K5 (DL3a) and
2021MY
Sorento (MQ4)

NUMBER
PS654 (Rev 1, 10/20/2020)

DATE
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TECHNICAL OPERATIONS

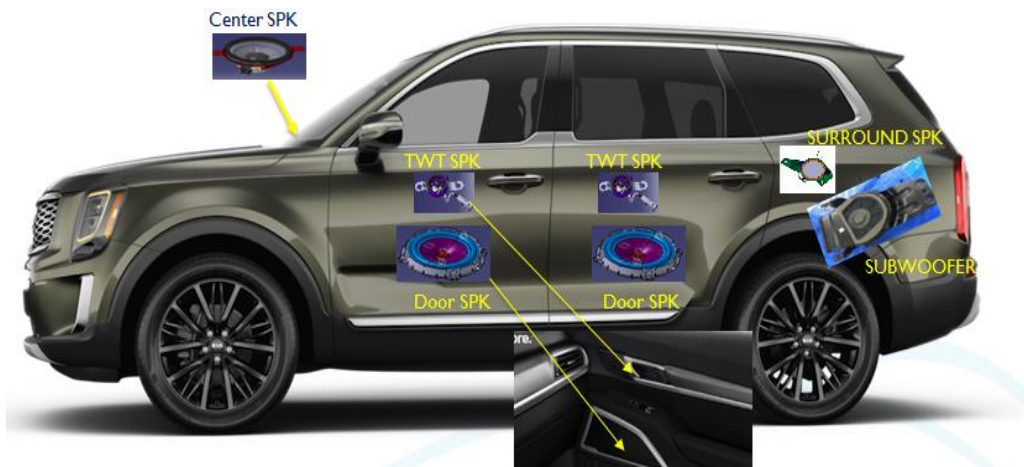
DOOR SPEAKER DIAGNOSTIC GUIDE

* NOTICE

This bulletin has been revised to include additional information. New/revised sections of this bulletin are indicated by a black bar in the margin area.

This Pitstop provides diagnostic information to guide in diagnosis of suspected defective door speakers on some Kia vehicles. Follow the information outlined in this bulletin to troubleshoot speaker related sound concerns such as:

- No sound is coming from speaker(s)
- Poor sound quality (crackling, buzzing, popping, etc.)
- Rattle or trembling sound under high bass setting



* NOTICE

Always verify that the audio equipment (ex. AVN head unit, amplifier and speakers) are all genuine KIA OEM factory installed components and not aftermarket.

Printed Pitstop copy is for reference only; information may be updated at any time. Always refer to KGIS for the latest information.

Audio Defect Location Isolation & Verification

Diagnosis Steps

1. Check all audio sources for performance
 - Navigation Audio
 - AM/FM Audio
 - SXM Audio
 - USB Audio
 - Bluetooth Audio
2. If noise is isolated to a specific audio mode you need to check antenna, head unit, or amplifier.
3. If noise is on all audio modes use the head unit audio controls to adjust to Left Hand /Right Hand /Front and Rear sound settings to isolate location to a specific speaker if possible.
4. If all speakers suffer from the same audio defect, investigate amplifier, head unit, or wire harness.
5. Once isolated to a specific symptom/speaker, follow one of the procedures outlined below.



No Sound is Coming From Speaker:

Symptoms:

1. No sound is heard from a specific speaker or multiple speakers.
2. There is intermittently no sound from the speakers.

Typical Causes:

1. Speaker connector is soft set, has poor contact, or pin damage.
2. Speaker, Amplifier, or head unit is defective.
3. Defect or damage to wire harness.

Diagnosis Steps

1. Remove door panel trim cover following instructions in KGIS (Body Interior and Exterior → Front/Rear Door → Front/Rear Door Module → Repair Procedures).
2. Check speaker connection for proper engagement.
3. Measure the speaker resistance and DC offset of the wire harness.
 - Measure the resistance of the male terminal on the speaker against the specification: 2.1 ± 0.3 ohms.
 - If less than $\pm 20\%$ of the spec listed for speaker, it is normal then other parts should be checked. Continue diagnosis if resistance is more than $\pm 20\%$ of the specification.
 - Check the DC offset (voltage difference) of the wire harness terminal from the AMP output (speaker input) terminal in ACC ON state.
 - If DC is 90mV or less then replace the Speaker.
 - If result is greater than DC 90mV check other parts in audio system.
 - Test Head Unit or Amp with known good. Check wire harness.



Poor Sound Quality & Vibration or Trembling Bass:

Symptoms:

1. Popping, humming, or rattle noises heard from the door speaker.
2. Excessive vibration or buzzing when listening to music with high bass.

Typical Causes:

1. Speaker rattles due to loose objects in cavities in the door panel.
2. Poor music source.
3. Component failure (Amplifier, wiring harness, speaker, head unit)

Diagnosis Steps

1. Check for foreign objects around the door trim that may generate abnormal noise.
2. Remove door panel trim cover following instructions in KGIS (Body Interior and Exterior → Front/Rear Door → Front/Rear Door Module → Repair Procedures).
3. Check speaker connection for proper engagement.
4. Remove speaker from door panel and re-engage connector. Holding the speaker in your hand, test speaker again and try and duplicate concern. If speaker has distorted sound while not in vehicle condition replace the speaker. If no issue is found reinstall in vehicle and continue with next steps.
5. Measure the speaker resistance and DC offset of the wire harness.
 - Measure the resistance on the male terminal of the speaker. It should measure between 1.8 to 2.4 ohms.
 - i. If the resistance is within this range, the speaker should be operating normally.
 - ii. If resistance is outside this range, continue diagnosis on the speaker.
 - Check the DC offset (voltage difference) of the wire harness terminal from the AMP output (speaker input) terminal in ACC ON state.
 - i. If DC offset is 90mV or less, replace the Speaker.
 - ii. If DC offset is greater than 90mV, check other parts in audio system.
 - Compare Head Unit or Amp with known good. Check wire harness.

| Noise Type | Description | Typical Cause |
|------------|-----------------------------------|----------------------------------|
| Audible | Popcorn popping | Speaker defect |
| | Audio ON/OFF pops | Poor audio source |
| | High frequency after audio is OFF | Power current to other component |
| Physical | Rattle | Internal wire rattling |
| | | Door trim loose |
| | | Foreign object in the door trim |
| | Vinyl trembling | Door vinyl trim loose |
| | Pops sound during audio ON/OFF | Intermittent shorting of wires |