

## NO.21 ENGINE NOISE [SKYACTIV-G 2.0, SKYACTIV-G 2.5]

id0103g3802700

21	ENGINE NOISE
DESCRIPTION	<ul style="list-style-type: none"> <li>Engine noise from under bonnet.</li> </ul>
POSSIBLE CAUSE	<p><b>Clattering sound is heard:</b></p> <ul style="list-style-type: none"> <li>Malfunction in piston or valve system</li> </ul> <p><b>Jingling sound is heard:</b></p> <ul style="list-style-type: none"> <li>Timing chain flopping or poor engagement</li> </ul> <p><b>Gee-gee sound is heard:</b></p> <ul style="list-style-type: none"> <li>Malfunction in electric variable valve timing system</li> </ul> <p><b>Sound of metal rubbing against each other is heard:</b></p> <ul style="list-style-type: none"> <li>Malfunction in valve system or hydraulic lash adjuster (HLA)</li> <li>Malfunction in fuel injector</li> </ul> <p><b>Sound similar to crickets is heard:</b></p> <ul style="list-style-type: none"> <li>Malfunction in high pressure fuel pump</li> </ul> <p><b>Squeaking noise is heard:</b></p> <ul style="list-style-type: none"> <li>Drive belt slipping</li> </ul> <p><b>Squealing noise is heard:</b></p> <ul style="list-style-type: none"> <li>Malfunction in generator</li> <li>Gear noise</li> </ul> <p><b>Rattling sound is heard:</b></p> <ul style="list-style-type: none"> <li>Malfunction in drive belt bearing</li> <li>Malfunction in exhaust system insulator</li> </ul> <p><b>Hissing sound is heard:</b></p> <ul style="list-style-type: none"> <li>Air suction from intake-air system</li> <li>A/C gas flowing sound</li> </ul> <p><b>Knocking or put-put sound is heard:</b></p> <ul style="list-style-type: none"> <li>Purge solenoid valve operation sound</li> </ul> <p><b>Click-clack sound is heard:</b></p> <ul style="list-style-type: none"> <li>A/C compressor magnetic clutch operation sound</li> <li>Cooling fan relay operation sound</li> <li>Solenoid valve poor assembly</li> </ul> <p><b>Warning</b></p> <p>The following troubleshooting flow chart contains the fuel system diagnosis and repair procedures. Read the following warnings before performing the fuel system services:</p> <ul style="list-style-type: none"> <li>Fuel vapor is hazardous. It can easily ignite, causing serious injury and damage. Always keep sparks and flames away from fuel.</li> <li>Fuel line spills and leakage are dangerous. Fuel can ignite and cause serious injury or death and damage. Fuel can also irritate skin and eyes. To prevent this, always complete "BEFORE SERVICE PRECAUTION" and "AFTER SERVICE PRECAUTION" described in this manual. (See BEFORE SERVICE PRECAUTION [SKYACTIV-G 2.0, SKYACTIV-G 2.5].) (See AFTER SERVICE PRECAUTION [SKYACTIV-G 2.0, SKYACTIV-G 2.5].)</li> </ul> <p><b>Caution</b></p> <ul style="list-style-type: none"> <li>Disconnecting/connecting the quick release connector without cleaning it may possibly cause damage to the fuel pipe and quick release connector. Always clean the quick release connector joint area before disconnecting/connecting, and make sure that it is free of foreign matter.</li> </ul> <p><b>Note</b></p> <ul style="list-style-type: none"> <li>Verify abnormal sound using a stethoscope.</li> </ul>

## Diagnostic Procedure

STEP	INSPECTION	RESULTS	ACTION
1	<b>VERIFY IF CLATTERING SOUND IS HEARD</b> • Is clattering sound heard?	Yes	Inspect and perform the following: • Malfunction in powertrain system control • Piston clearance • Oil flushing or oil replacement (See ENGINE OIL REPLACEMENT [SKYACTIV-G 2.0, SKYACTIV-G 2.5].) — If there is any malfunction: • Repair or replace the malfunctioning part according to the inspection results. — If there is no malfunction: • Go to the next step.
		No	Go to the next step.
2	<b>VERIFY IF JINGLING SOUND IS HEARD</b> • Is jingling sound heard?	Yes	Inspect the following: • Inspect engine oil pressure (foreign matter penetration in oil passage, strainer, filter) (See OIL PRESSURE INSPECTION [SKYACTIV-G 2.0, SKYACTIV-G 2.5].) • Inspect chain sprocket, tensioner, and spring — If there is any malfunction: • Repair or replace the malfunctioning part according to the inspection results. — If there is no malfunction: • Go to the next step.
		No	Go to the next step.
3	<b>VERIFY IF GEE-GEE SOUND IS HEARD</b> • Is gee-gee sound heard?	Yes	Inspect the following: • Verify electric variable valve timing system operation — If there is any malfunction: • Repair or replace the malfunctioning part according to the inspection results. — If there is no malfunction: • Go to the next step.
		No	Go to the next step.
4	<b>VERIFY IF METAL TO METAL RUBBING SOUND IS HEARD</b> • Is metal to metal rubbing sound heard?	Yes	Inspect and perform the following: • Inspect engine oil pressure (See OIL PRESSURE INSPECTION [SKYACTIV-G 2.0, SKYACTIV-G 2.5].) • Oil flushing or oil replacement (See ENGINE OIL REPLACEMENT [SKYACTIV-G 2.0, SKYACTIV-G 2.5].) • Verify fuel injector operation current • Verify fuel injector, intake manifold, and plug hole plate — If there is any malfunction: • Repair or replace the malfunctioning part according to the inspection results. — If there is no malfunction: • Go to the next step.
		No	Go to the next step.
5	<b>VERIFY IF SOUND SIMILAR TO CRICKETS IS HEARD</b> • Is a cricket sound heard?	Yes	Inspect the following: • Verify control • Verify pipe installation, twisting — If there is any malfunction: • Repair or replace the malfunctioning part according to the inspection results. — If there is no malfunction: • Go to the next step.
		No	Go to the next step.

STEP	INSPECTION	RESULTS	ACTION
6	<b>VERIFY IF SQUEAKING SOUND IS HEARD</b> • Is squeaking sound heard?	Yes	Inspect the following: • Inspect drive belt tension • Inspect drive belt deterioration • Inspect for sand caught in drive belt • Verify pulley tensioner — If there is any malfunction: • Repair or replace the malfunctioning part according to the inspection results. — If there is no malfunction: • Go to the next step.
		No	Go to the next step.
7	<b>VERIFY IF SQUEALING SOUND IS HEARD</b> • Is squealing sound heard?	Yes	Inspect the following: • Verify if generator output control is normal • Verify if sound occurs in a certain gear or at a certain vehicle speed — If there is any malfunction: • Repair or replace the malfunctioning part according to the inspection results. — If there is no malfunction: • Go to the next step.
		No	Go to the next step.
8	<b>VERIFY IF RATTLING SOUND IS HEARD</b> • Is rattling sound heard?	Yes	Perform the following: • Replace drive belt auto tensioner (See DRIVE BELT AUTO TENSIONER REMOVAL/INSTALLATION [SKYACTIV-G 2.0, SKYACTIV-G 2.5].) — If there is any malfunction: • Replace the drive belt too. (See DRIVE BELT REMOVAL/INSTALLATION [SKYACTIV-G 2.0, SKYACTIV-G 2.5].) — If there is no malfunction: • Go to the next step.
		No	Go to the next step.
9	<b>VERIFY IF HISSING SOUND IS HEARD</b> • Is hissing sound heard?	Yes	Inspect the following: • Inspect intake system pipe for air leakage • Inspect air conditioner refrigerant pressure — If there is any malfunction: • Repair or replace the malfunctioning part according to the inspection results. — If there is no malfunction: • Go to the next step.
		No	Go to the next step.
10	<b>VERIFY THAT A KNOCKING OR PUT-PUT SOUND IS HEARD</b> • Is a knocking or put-put sound heard?	Yes	Inspect the following: • Verify purge solenoid valve control — If there is any malfunction: • Repair or replace the malfunctioning part according to the inspection results. — If there is no malfunction: • Go to the next step.
		No	Go to the next step.
11	<b>VERIFY IS CLICK-CLACK SOUND IS HEARD</b> • Is click-clack sound heard?	Yes	Inspect the following: • If there is excessive abnormal sound, inspect A/C compressor magnetic clutch • Inspect for loosened or twisted A/C compressor magnetic clutch, solenoid valve — If there is any malfunction: • Repair or replace the malfunctioning part according to the inspection results. — If there is no malfunction: • Go to the next step.
		No	Go to the next step.

STEP	INSPECTION	RESULTS	ACTION
12	Verify the test results. <ul style="list-style-type: none"> <li>• If normal, return to the diagnostic index to service any additional symptoms. (See SYMPTOM DIAGNOSTIC INDEX [SKYACTIV-G 2.0, SKYACTIV-G 2.5].)</li> <li>• If a malfunction remains, inspect the related Service Information and perform the repair or diagnosis.               <ul style="list-style-type: none"> <li>— If the vehicle is repaired, troubleshooting is completed.</li> <li>— If the vehicle is not repaired or additional diagnostic information is not available, replace the PCM. (See PCM REMOVAL/INSTALLATION [SKYACTIV-G 2.0, SKYACTIV-G 2.5].)</li> </ul> </li> </ul>		