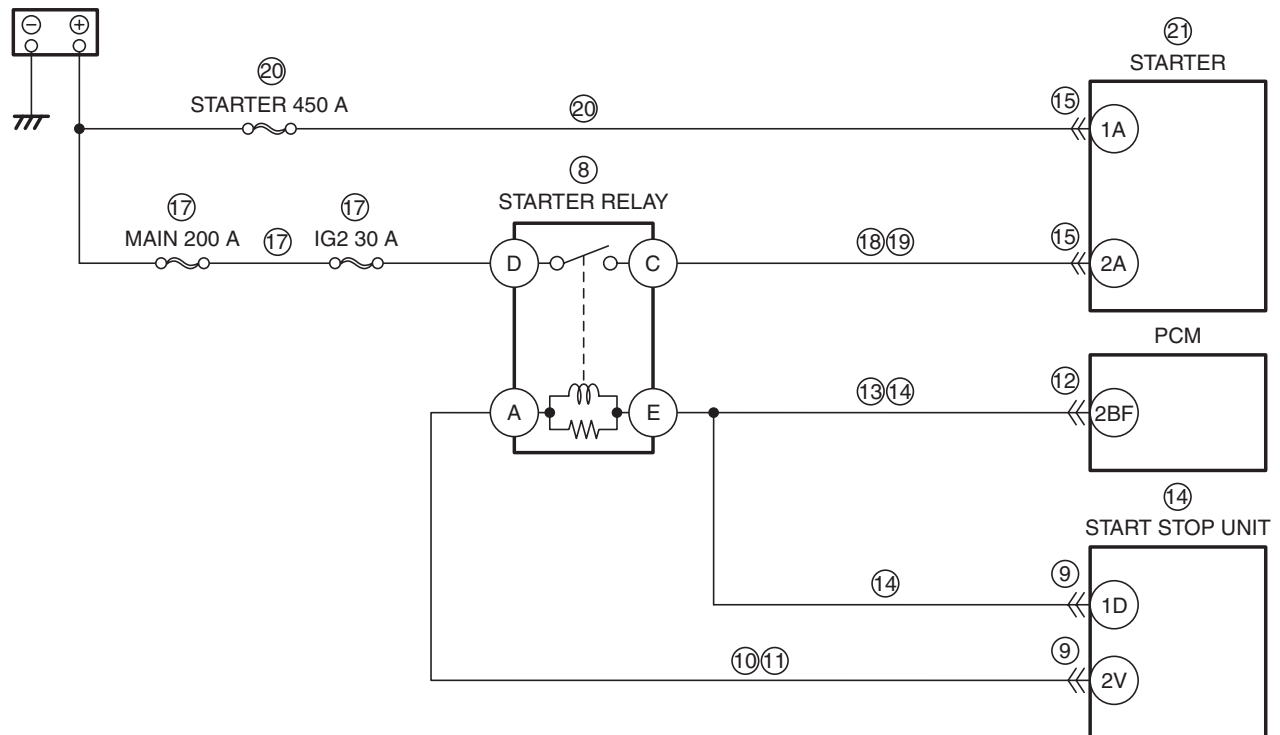
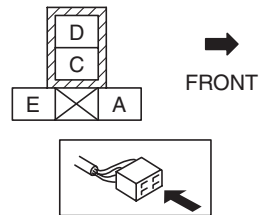
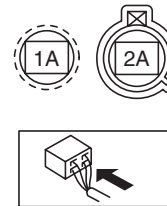


NO.9 WILL NOT CRANK [SKYACTIV-D 2.2]

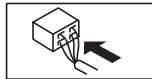
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9	WILL NOT CRANK
DESCRIPTION	<ul style="list-style-type: none"> • Starter does not work.
POSSIBLE CAUSE	<ul style="list-style-type: none"> • Poor connection of push button start connector • Immobilizer system malfunction (short or open circuit, coil antenna malfunction) • Open circuit in wiring harness between the following terminals: <ul style="list-style-type: none"> — Main relay terminal E—PCM terminal 2K — Main relay terminal C—PCM terminal 2S, 2T, 1DH, 1DL — DLC-2—PCM terminal 2AK, 2AL • Main relay malfunction (stuck open) • Battery malfunction • Fuse malfunction • Starter relay malfunction • Starter relay related wiring harness malfunction <ul style="list-style-type: none"> — Between starter relay terminal E and PCM terminal 2BF — Between starter relay terminal E and start stop unit terminal 1D — Between start stop unit terminal 2V and starter relay terminal A • Following circuit malfunction: <ul style="list-style-type: none"> — Between battery positive terminal and starter terminal 1A — Between battery positive terminal and starter relay terminal D — Between starter relay terminal C and starter terminal 2A • Starter malfunction • Following circuit and/or connector malfunction: <ul style="list-style-type: none"> — Between push button start terminal A and start stop unit terminal 1AC — Between push button start terminal B and start stop unit terminal 1AE • Push button start malfunction • Mechanical (engine) malfunction <ul style="list-style-type: none"> — Large mechanical resistance (such as A/C compressor) • PCM malfunction <p>Warning</p> <ul style="list-style-type: none"> • The following troubleshooting flow chart contains the fuel system diagnosis and repair procedures. Read the following warnings before performing the fuel system services: <ul style="list-style-type: none"> — Always keep sparks and flames away from fuel. Fuel can be easily ignited which could cause serious injury or death, and damage to equipment. — Fuel line spills and leakage from the pressurized fuel system are dangerous. Fuel can ignite and cause serious injury or death, and damage to property and facilities. Fuel can also irritate skin and eyes. To prevent this, always complete the "Fuel Line Safety Procedure", while referring to the "BEFORE SERVICE PRECAUTION". (See BEFORE SERVICE PRECAUTION [SKYACTIV-D 2.2].) — Fuel is highly flammable and dangerous. Fuel line spills and leakage can cause serious injury or death, and damage to equipment. When installing the fuel hose, always refer to the "AFTER SERVICE PRECAUTION" and perform the "Fuel Hose Installation Procedure". (See AFTER SERVICE PRECAUTION [SKYACTIV-D 2.2].)

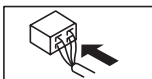
BATTERY

STARTER RELAY
(RELAY AND FUSE BLOCK)STARTER
WIRING HARNESS-SIDE CONNECTORSTART STOP UNIT
WIRING HARNESS-SIDE CONNECTOR

1AE	1AC	1AA	1Y	1W	1U	1S	1Q	1O	1M	1K	1I	1G	1E	1C	1A	2W	2U	2S	2Q	2O	2M	2K	2I	2G	2E	2C	2A
1AF	1AD	1AB	1Z	1X	1V	1T	1R	1P	1N	1L	1J	1H	1F	1D	1B	2X	2V	2T	2R	2P	2N	2L	2J	2H	2F	2D	2B

PCM
WIRING HARNESS-SIDE CONNECTOR

2BE	2AZ	2AU	2AP	2AK	2AE	2AA	2W	2S	2O	2K	2G	2C		
2BF	2BA	2AV	2AQ	2AL	2AF	2AB	2X	2T	2P	2L	2H	2D		
2BG	2BB	2AW	2AR	2AM										
2BH	2BC	2AX	2AS	2AN	2AI	2AG	2AC	2Y	2U	2Q	2M	2I	2E	2A
	2BD	2AY	2AT	2AO	2AJ	2AH	2AD	2Z	2V	2R	2N	2J	2F	2B



Diagnostic Procedure

STEP	INSPECTION	RESULTS	ACTION
1	DETERMINE IF MALFUNCTION CAUSE IS IMMOBILIZER SYSTEM OR OTHER <ul style="list-style-type: none"> Are any of the following conditions present? <ul style="list-style-type: none"> Engine does not start completely. PCM DTC P1260:00 is displayed. 	Yes	Both conditions present: <ul style="list-style-type: none"> Go to Step 3.
		No	Either or other condition present: <ul style="list-style-type: none"> Go to the next step.
2	INSPECT PUSH BUTTON START CONNECTOR CONNECTION <ul style="list-style-type: none"> Inspect the connection of the push button start connector. Is the push button start connector securely connected to the coil antenna? 	Yes	Go to the next step.
		No	Reconnect the push button start securely, then repeat from Step 1.
3	VERIFY IMMOBILIZER SYSTEM DTC <ul style="list-style-type: none"> Retrieve the immobilizer system DTCs using the M-MDS. (See DTC INSPECTION [IMMOBILIZER SYSTEM].) Are any DTCs present? 	Yes	Go to the applicable DTC inspection. (See DTC TABLE [IMMOBILIZER SYSTEM].)
		No	Go to the next step.
4	DETERMINE IF MALFUNCTION CAUSE IS i-stop SYSTEM OR OTHER <ul style="list-style-type: none"> Verify the symptom. Does the engine not restart while the i-stop function is operating? 	Yes	Perform the symptom troubleshooting "NO.6 ENGINE DOES NOT RESTART". (See NO.6 ENGINE DOES NOT RESTART [SKYACTIV-D 2.2].)
		No	Go to the next step.
5	VERIFY THAT COMMUNICATION ERROR MESSAGE IS DISPLAYED <ul style="list-style-type: none"> Retrieve any DTCs using the M-MDS. (See ON-BOARD DIAGNOSTIC TEST [SKYACTIV-D 2.2].) Is the communication error message displayed? 	Yes	Inspect the following: <ul style="list-style-type: none"> Open circuit in wiring harness between main relay terminal E and PCM terminal 2K Open circuit in wiring harness between main relay terminal C and PCM terminal 2S, 2T, 1DH, 1DL Main relay (stuck open) Open or short circuit in wiring harness between DLC-2 and PCM terminal 2AK, 2AL Repair or replace the malfunctioning part according to the inspection results, then go to Step 25.
		No	Go to the next step.
6	INSPECT POWER SUPPLY <ul style="list-style-type: none"> Access the VPWR PID using the M-MDS. (See ON-BOARD DIAGNOSTIC TEST [SKYACTIV-D 2.2].) Is the VPWR PID value B+? 	Yes	Go to the next step.
		No	Inspect the following: <ul style="list-style-type: none"> Battery connection Battery condition (See BATTERY INSPECTION [SKYACTIV-D 2.2].) Fuse (See NO.1 BLOWN FUSES [SKYACTIV-D 2.2].) <ul style="list-style-type: none"> If there is any malfunction: <ul style="list-style-type: none"> Repair or replace the malfunctioning part according to the inspection results, then repeat this step.
7	DETERMINE IF MALFUNCTION CAUSE IS STARTER RELAY CONTROL SIGNAL CIRCUIT OR OTHER <ul style="list-style-type: none"> Crank the engine. Is a clicking sound heard from the starter relay? 	Yes	Go to Step 15.
		No	Go to the next step.
8	INSPECT STARTER RELAY <ul style="list-style-type: none"> Switch the ignition off. Remove the starter relay. Inspect the starter relay. (See RELAY INSPECTION.) Is the starter relay normal? 	Yes	Go to the next step.
		No	Replace the starter relay, then go to Step 25.

STEP	INSPECTION	RESULTS	ACTION
9	INSPECT START STOP UNIT CONNECTOR CONDITION <ul style="list-style-type: none"> • Disconnect the start stop unit connector. • Inspect for poor connection (such as damaged/pulled-out pins, corrosion). • Is the connector normal? 	Yes	Go to the next step.
		No	Repair or replace the connector and/or terminals, then go to Step 25.
10	INSPECT FOR SHORT TO GROUND IN PRIMARY POWER SUPPLY OF START RELAY <ul style="list-style-type: none"> • Verify that the starter relay is removed. • Verify that the start stop unit connector is disconnected. • Inspect for continuity between starter relay terminal A (wiring harness-side) and body ground. • Is there continuity? 	Yes	Repair or replace the wiring harness, then go to Step 25.
		No	Go to the next step.
11	INSPECT FOR OPEN CIRCUIT IN PRIMARY POWER SUPPLY OF START RELAY <ul style="list-style-type: none"> • Verify that the starter relay is removed. • Verify that the start stop unit connector is disconnected. • Inspect for continuity between start stop unit terminal 2V (wiring harness-side) and starter relay terminal A (wiring harness-side). • Is there continuity? 	Yes	Go to the next step.
		No	Repair or replace the wiring harness, then go to Step 25.
12	INSPECT PCM CONNECTOR CONDITION <ul style="list-style-type: none"> • Disconnect the PCM connector. • Inspect for poor connection (such as damaged/pulled-out pins, corrosion). • Is the connector normal? 	Yes	Go to the next step.
		No	Repair or replace the connector and/or terminals, then go to Step 25.
13	INSPECT STARTER RELAY CONTROL CIRCUIT FOR SHORT TO GROUND <ul style="list-style-type: none"> • Verify that the starter relay is removed. • Verify that the start stop unit and PCM connectors are disconnected. • Inspect for continuity between starter relay terminal E (wiring harness-side) and body ground. • Is there continuity? 	Yes	Repair or replace the wiring harness, then go to Step 25.
		No	Go to the next step.
14	INSPECT STARTER RELAY CONTROL CIRCUIT FOR OPEN CIRCUIT <ul style="list-style-type: none"> • Verify that the starter relay is removed. • Verify that the start stop unit and PCM connectors are disconnected. • Inspect for continuity between the following terminals (wiring harness-side): <ul style="list-style-type: none"> — Starter relay terminal E—PCM terminal 2BF — Starter relay terminal E—Start stop unit terminal 1D • Is there continuity? 	Yes	Inspect the start stop unit. (See START STOP UNIT INSPECTION.) <ul style="list-style-type: none"> • If there is any malfunction: <ul style="list-style-type: none"> — Replace the start stop unit, then go to Step 25. (See START STOP UNIT REMOVAL/INSTALLATION.) • If there is no malfunction: <ul style="list-style-type: none"> — Go to the next step.
		No	Repair or replace the wiring harness, then go to Step 25.
15	INSPECT STARTER CONNECTOR CONDITION <ul style="list-style-type: none"> • Switch the ignition off. • Disconnect the starter connector. • Inspect for poor connection (such as damaged/pulled-out pins, corrosion). • Is the connector normal? 	Yes	Go to the next step.
		No	Repair or replace the connector and/or terminals, then go to Step 25.

STEP	INSPECTION	RESULTS	ACTION
16	DETERMINE IF MALFUNCTION CAUSE IS STARTER OR OTHER <ul style="list-style-type: none"> • Verify that the starter connector is disconnected. • Crank the engine. • Measure the voltage at the starter terminal 2A (wiring harness-side) • Is the voltage B+? 	Yes	Go to Step 20.
		No	Go to the next step.
17	INSPECT FOR SHORT TO GROUND AND OPEN CIRCUIT IN SECONDARY (STARTER POWER SUPPLY) OF START RELAY <ul style="list-style-type: none"> • Switch the ignition off. • Remove the starter relay. • Verify that the starter connector is disconnected. • Measure the voltage at the starter relay terminal D (wiring harness-side) • Is the voltage B+? 	Yes	Go to the next step.
		No	Inspect the MAIN 200 A fuse and IG2 30 A fuse. <ul style="list-style-type: none"> • If the fuse is blown: <ul style="list-style-type: none"> — Repair or replace the wiring harness for a possible short to ground. — Replace the malfunctioning fuse. • If the fuse is deteriorated: <ul style="list-style-type: none"> — Replace the malfunctioning fuse. • If all fuses are normal: <ul style="list-style-type: none"> — Repair or replace the wiring harness for a possible open circuit. Go to Step 25.
18	INSPECT STARTER POWER SUPPLY CIRCUIT FOR SHORT TO GROUND <ul style="list-style-type: none"> • Verify that the starter relay is removed. • Verify that the starter connector is disconnected. • Inspect for continuity between starter relay terminal C (wiring harness-side) and body ground. • Is there continuity? 	Yes	Repair or replace the wiring harness, then go to Step 25.
		No	Go to the next step.
19	INSPECT STARTER POWER SUPPLY CIRCUIT FOR OPEN CIRCUIT <ul style="list-style-type: none"> • Verify that the starter relay is removed. • Verify that the starter connector is disconnected. • Inspect for continuity between starter relay terminal C (wiring harness-side) and starter terminal 2A (wiring harness-side). • Is there continuity? 	Yes	Go to the next step.
		No	Repair or replace the wiring harness, then go to Step 25.
20	INSPECT STARTER POWER SUPPLY CIRCUIT FOR SHORT TO GROUND OR OPEN CIRCUIT <ul style="list-style-type: none"> • Verify that the starter connector is disconnected. • Switch the ignition off. • Measure the voltage at the starter terminal 1A (wiring harness-side) • Is the voltage B+? 	Yes	Go to the next step.
		No	Inspect the STARTER 450 A fuse. <ul style="list-style-type: none"> • If the fuse is blown: <ul style="list-style-type: none"> — Repair or replace the wiring harness for a possible short to ground. — Replace the fuse. • If the fuse is deteriorated: <ul style="list-style-type: none"> — Replace the fuse. • If all fuses are normal: <ul style="list-style-type: none"> — Repair or replace the wiring harness for a possible open circuit. Go to Step 25.
21	INSPECT STARTER <ul style="list-style-type: none"> • Inspect the starter. (See STARTER INSPECTION [SKYACTIV-D 2.2].) • Is the starter normal? 	Yes	Go to the next step.
		No	Replace the starter, then go to Step 25. (See STARTER REMOVAL/INSTALLATION [SKYACTIV-D 2.2].)

STEP	INSPECTION	RESULTS	ACTION
22	INSPECT IMMOBILIZER SYSTEM RELATED CIRCUIT <ul style="list-style-type: none"> Inspect the following wiring harness and connectors: <ul style="list-style-type: none"> Between push button start terminal A and start stop unit terminal 1AC Between push button start terminal B and start stop unit terminal 1AE Are the wiring harness and connectors normal? 	Yes	Go to the next step.
		No	Repair or replace the malfunctioning part according to the inspection results, then go to Step 25.
23	DETERMINE IF MALFUNCTION IS DUE TO EXCESSIVE ENGINE SPEED RESISTANCE <ul style="list-style-type: none"> Rotate the crankshaft pulley lock bolt clockwise using a wrench. (See FRONT OIL SEAL REPLACEMENT [SKYACTIV-D 2.2].) Can bolts be rotated? 	Yes	Go to Step 25.
		No	Go to the next step.
24	INSPECT FOR MALFUNCTION DUE TO EXCESSIVE MECHANICAL RESISTANCE OF ENGINE ACCESSORIES <ul style="list-style-type: none"> Remove all drive belts from engine accessories. (See DRIVE BELT REMOVAL/INSTALLATION [SKYACTIV-D 2.2].) <p>Caution</p> <ul style="list-style-type: none"> Do not run the engine for long periods with the drive belts of engine accessories removed. Otherwise the engine could be damaged from overheating. Start the engine. Is cranking possible? (Does the engine start?) 	Yes	Repair or replace the malfunctioning part according to the inspection results, then go to the next step. (Large mechanical resistance in engine accessories such as the A/C compressor.)
		No	Go to the next step.
25	Verify the test results. <ul style="list-style-type: none"> If normal, return to the diagnostic index to service any additional symptoms. (See SYMPTOM DIAGNOSTIC INDEX [SKYACTIV-D 2.2].) If a malfunction remains, inspect the related Service Information and perform the repair or diagnosis. <ul style="list-style-type: none"> If the vehicle is repaired, troubleshooting is completed. If the vehicle is not repaired or additional diagnostic information is not available, replace the PCM. (See PCM REMOVAL/INSTALLATION [SKYACTIV-D 2.2].) 		