Component Procedures: Starting System

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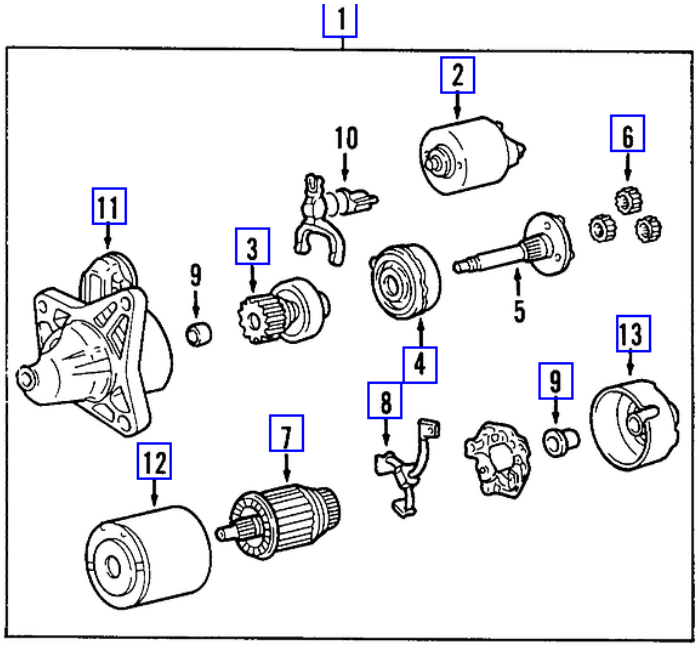
Exploded Parts Diagram (itype_83)

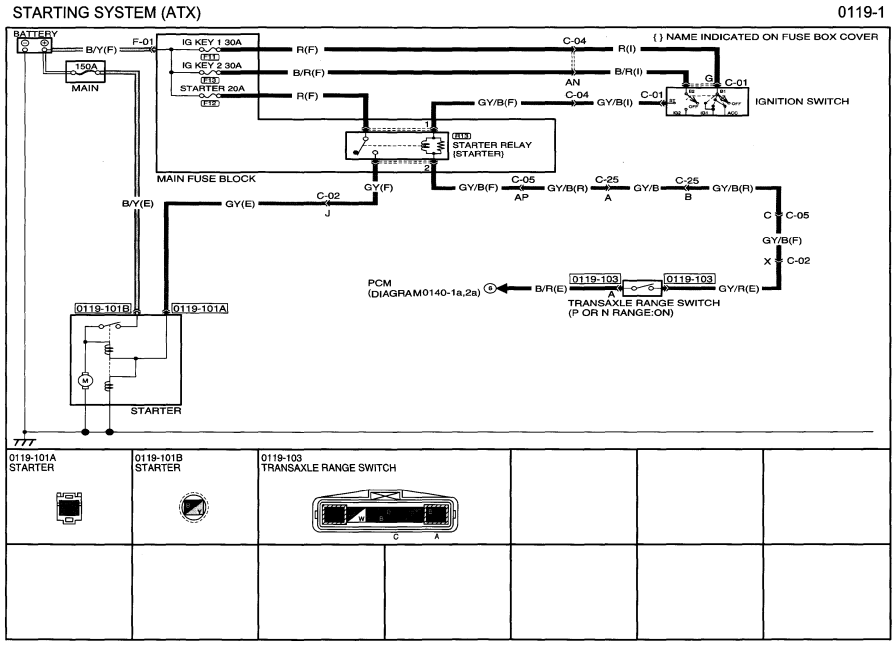


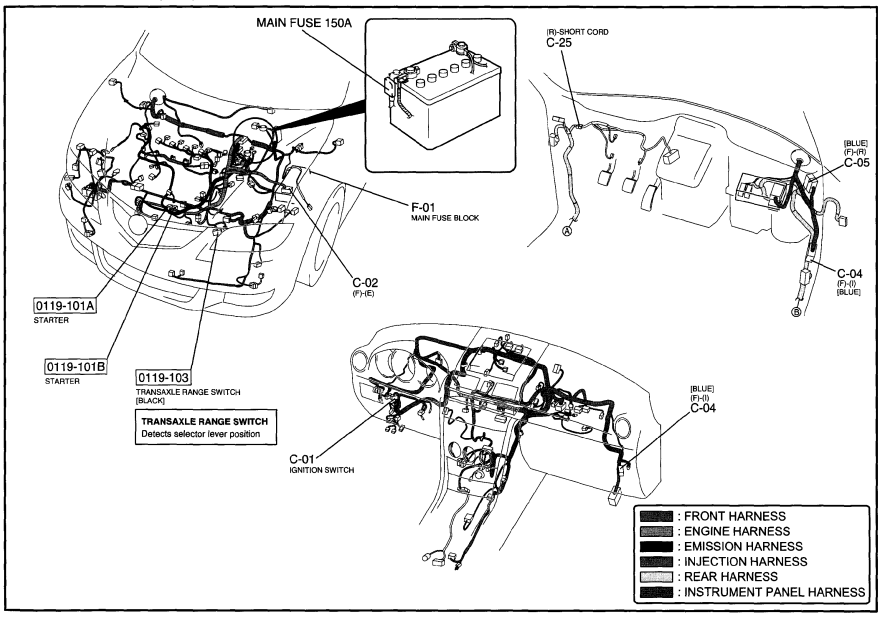
Parts and Labor (itype_189)

Labor

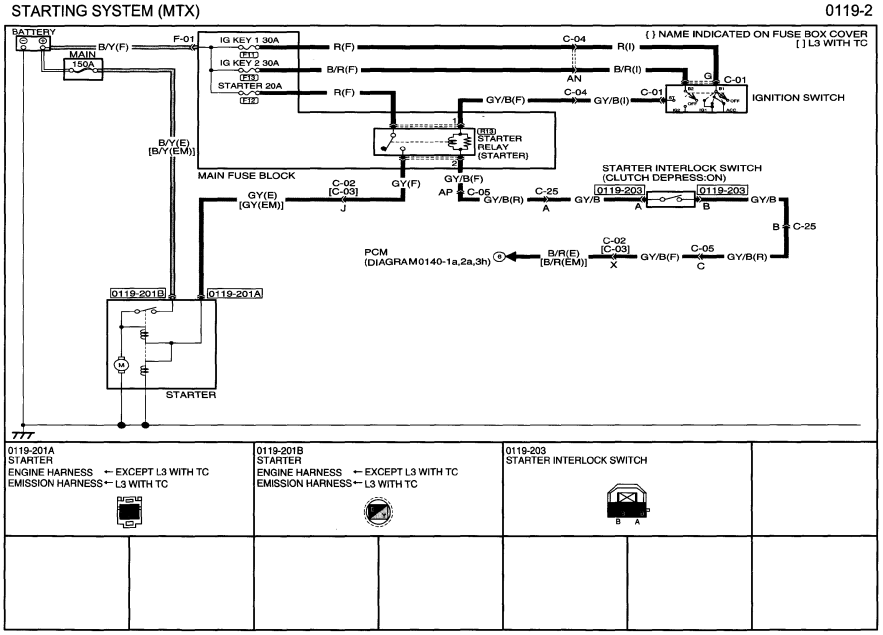
Operation	Qualifier Path	Skill	Std Hrs	Wty Hrs
Diagnose/Test	Circuit, Inspect	B	0.5	0.0
Diagnose/Test	Starter Draw, Test	B	0.3	0.0

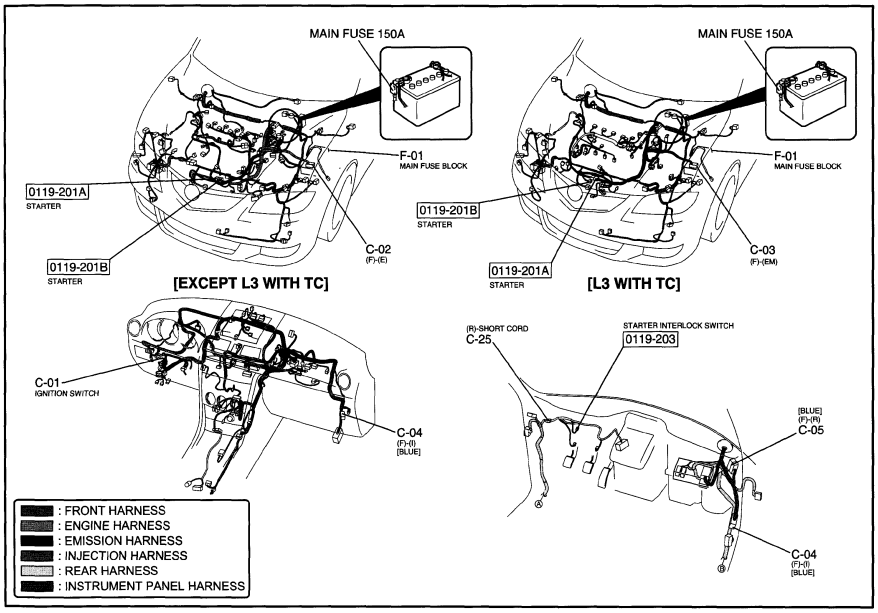
Starting System (ATX) (Article 1469187)





Starting System (MTX) (Article 1469188)





Components (itype_32)

STARTING SYSTEM LOCATION INDEX[LF, L3]

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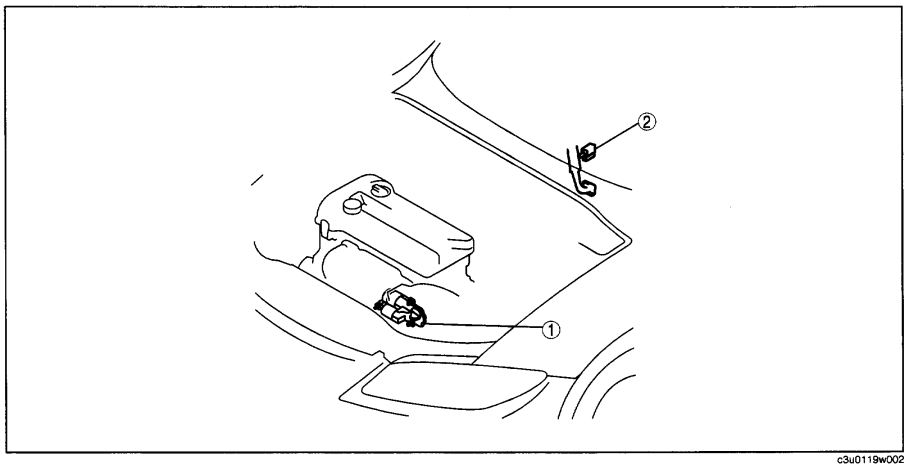

c3u0119w002

1	Starter
2	Starter interlock switch (MTX)

All Technical Service Bulletins (itype_100)

Tsbs

- Starting System - Intermittent No Crank/No Start (0103708, 2008/07/17)

Customer Interest Bulletins (itype_109)

Tsbs

- Starting System - Intermittent No Crank/No Start (0103708, 2008/07/17)

Will Not Crank (Article 1464377)

3	WILL NOT CRANK
DESCRIPTION	The starter does not work.
POSSIBLE CAUSE	• Open starter circuit between ignition switch and starter • TR switch malfunction (ATX) • TR switch misadjustment (ATX) • Low or dead battery • Charging system malfunction. • Starter interlock switch malfunction (MTX) • Starter malfunction • Seized/hydrolocked engine, flywheel (MTX) or drive plate (ATX) • Immobilizer system and/or circuit malfunction (if equipped) • Immobilizer system operating properly. (Ignition key is not registered) (if equipped)

Diagnostic procedure

STEP	INSPECTION	RESULTS	ACTION
1	**Note** • The following test should be performed for vehicles with immobilizer system. Go to Step 8 for vehicles without immobilizer system. Connect the M-MDS to the DLC-2. Do the following conditions appear? • The engine is not completely started. • DTC P1260 is displayed.	Yes	**Both conditions appear:** Go to Step 4.
		No	**Either or other condition appears:** Go to the next step.
2	Is the coil antenna connector securely connected to the coil antenna?	Yes	Go to the next step.
		No	Connect the coil antenna connector securely. Return to Step 1.
3	Does the security light flush?	Yes	Go to the next step.
		No	Inspect instrument cluster and wiring harness.
4	Connect the M-MDS to the DLC-2 and retrieve DTC. **DTC** **B1213, B2139, B2141, B1600, B1601, B1602, B1681, B2103, B2431, U2510**	Yes	Go to appropriate DTC inspection. (See DTC TABLE [LF, L3].)
		No	Go to the next step.
5	Inspect for the following wiring harnesses and connectors: • Between coil antenna terminal A and instrument cluster terminal 2O • Between coil antenna terminal B and instrument cluster terminal 2S Is there any malfunction?	Yes	Repair or replace suspected wiring harness and connector.
		No	Go to the next step.
6	Inspect for the following wiring harnesses and connectors: • Between PCM terminal 1AI and instrument cluster terminal 1I • Between PCM terminal 1AM and instrument cluster terminal 1K Is there any malfunction?	Yes	Repair or replace suspected wiring harness and connector.
		No	Go to the next step.
7	Inspect the following: • Battery connection • Battery condition • Fuses (See NO.1 MELTING OF MAIN OR OTHER FUSES [LF, L3].) • Transmission in Park or Neutral (ATX) Are all items normal?	Yes	Go to the next step.
		No	Service if necessary. Repeat Step 7.
8	Is clicking sound heard from starter relay when the ignition switch is turned to START?	Yes	Go to Step 13.
		No	ATX: Go to the next step. MTX: Go to STEP 10.
9	Connect the M-MDS to the DLC-2. Turn ignition switch to the ON position. (Engine off) Access TR PID. Is TR PID indicated P/N when selecting P or N position	Yes	Go to Step 11.
		No	Inspect TR switch is adjusted properly, inspect for open or short circuit between TR switch and TCM. Repair or replace components as required, Then repeat step 8.
10	INSPECT STARTER INTERLOCK SWITCH Inspect the starter interlock switch Is starter interlock switch normal?	Yes	Go to the next step.
		No	Inspect starter interlock switch and related wiring harnesses. Repair or replace components as required. Then repeat step 8.

STEP	INSPECTION	RESULTS	ACTION
11	Inspect the starter relay and following harnesses. Between starter relay and PCM Between starter relay and ignition switch Are they normal?	Yes	Go to the next step.
		No	Repair or replace components as required. **Then repeat** step 8
12	Inspect IGNITION switch and related harnesses. Are they normal?	Yes	Go to the next step.
		No	Repair or replace components as required, Then repeat step 8
13	Inspect the following harnesses. Between starter relay and Battery Between starter relay and starter Are they normal?	Yes	Go to the next step.
		No	Repair or replace as required. Then go to next step.
14	Inspect the starting system. Is starting system normal?	Yes	Go to the next step.
		No	Repair or replace components as required.
15	Inspect for seized/hydro locked engine or flywheel. Is ENGINE seized or hydro locked?	Yes	Repair or replace components as required.
		No	Go to the next step.
16	Connect the M-MDS to the DLC-2. Retrieve any continuous memory DTCs. Are there any continuous memory DTCs displayed?	Yes	**DTC is displayed:** • Go to the appropriate DTC inspection. (See DTC TABLE [LF, L3].) **Communication error message is displayed:** • Inspect for following: — Open circuit in wiring harness between main relay and PCM terminal 1BE or 1BG*3, 1O*4, 1A*5 (ATX) — Open circuit in wiring harness between main relay terminal E and PCM terminal 1Q*1, 1AT*2 — Main relay is stuck open — Open or short circuit in wiring harness between the DLC-2 and PCM terminals 1AM or 1AI — Open or poor GND circuit (PCM terminal 1BD*1, 1AZ*2, 1BB, 1AZ*1, 1BD*2 or 1BH) — Poor connection of vehicle body GND
		No	**No DTC is displayed:** Go to the next step.
17	Retrieve any KOEO DTCs using M-MDS. Are there DTCs displayed during KOEO inspection?	Yes	**DTC is displayed:** Go to the appropriate DTC inspection. (See DTC TABLE [LF, L3].)
		No	**No DTC is displayed:** Go to the next step.
18	• Verify test results. — If normal, return to diagnostic index to service any additional symptoms. (See SYMPTOM DIAGNOSTIC INDEX [LF, L3].) — If malfunction remains, inspect related Service Bulletins and/or On-line Repair Information and perform repair or diagnosis. • If vehicle is repaired, troubleshooting completed. • If vehicle is not repaired or additional diagnostic information is not available, replace the PCM.		

*1 : California emission regulation applicable model and Except for California emission regulation applicable LF MTX model
*2 : Except for California emission regulation applicable LF ATX, L3 model
*3 : California emission regulation applicable LF ATX model
*4 : California emission regulation applicable L3 ATX model and Except for California emission regulation applicable L3 ATX model
*5 : Except for California emission regulation applicable LF ATX model

Hard to Start/Long Crank/Erratic Start/Erratic Crank (Article 1464378)

NO.4 HARD TO START/LONG CRANK/ERRATIC START/ERRATIC CRANK[LF, L3]

id0103a6801000

4	HARD TO START/LONG CRANK/ERRATIC START/ERRATIC CRANK
DESCRIPTION	• The starter cranks engine at normal speed but engine requires excessive cranking time before starting. • The battery is in normal condition.
POSSIBLE CAUSE	• Erratic signal to ignition coil • Vacuum leakage • Poor fuel quality • Starting system malfunction • Spark plug malfunction • Air leakage from intake-air system • Erratic signal from CKP sensor • Erratic signal from CMP sensor • Improper air/fuel mixture ratio control • Air cleaner restriction • Improper operation of electronic throttle control system • PCV valve malfunction • Inadequate fuel pressure • Purge solenoid valve malfunction • MAF sensor contamination • Incorrect MAF sensor GND voltage • Restriction in exhaust system • EGR valve malfunction • Pressure regulator malfunction (built-in fuel pump unit) **Warning** **The following troubleshooting flow chart contains the fuel system diagnosis and repair procedures. Read the following warnings before servicing the fuel system:** • **Fuel vapor is hazardous. It can easily ignite, causing serious injury and damage. Always keep sparks and flames away from fuel.** • **Fuel line spills and leakage are dangerous. Fuel can ignite and cause serious injuries or death and damage. Fuel can also irritate skin and eyes. To prevent this, always complete "BEFORE SERVICE PRECAUTION" and "AFTER SERVICE PRECAUTION" described.** **(See BEFORE SERVICE PRECAUTION[LF, L3].)** **(See AFTER SERVICE PRECAUTION[LF, L3].)** **Caution** • **Disconnecting/connecting quick release connector without cleaning it may cause damage to fuel pipe and quick release connector. Always clean quick release connector joint area before disconnecting/connecting, and make sure that it is free of foreign material.**

Diagnostic procedure

STEP	INSPECTION	RESULTS	ACTION
1	Inspect for the following: • Vacuum leakage • Proper fuel quality (such as proper octane, contamination, winter/summer blend) • Loose bands on intake-air system • Cracks on intake-air system parts • Intake-air system restriction (such as air cleaner element, fresh air duct.) Are all items normal?	Yes	Go to the next step.
		No	Service if necessary. Repeat Step 1.
2	Connect the M-MDS to the DLC-2. Turn the ignition switch to the ON position (Engine off). Retrieve any DTCs. Are there any DTCs displayed?	Yes	**DTC is displayed:** Go to the appropriate DTC inspection. (See DTC TABLE[LF, L3].)
		No	**No DTC is displayed:** Go to the next step.
3	Is engine overheating?	Yes	Go to symptom troubleshooting "No.17 Cooling system concerns – Overheating". (See NO.17 COOLING SYSTEM CONCERNS-OVERHEATING[LF, L3].)
		No	Go to the next step.
4	Inspect the ignition coil related wiring harness condition (intermittent open or short circuit) for all cylinders. Are wiring harness conditions normal?	Yes	Go to the next step.
		No	Repair the wiring harnesses.

STEP	INSPECTION	RESULTS	ACTION
5	Inspect the spark plug conditions. Is spark plug wet, covered with carbon or grayish white?	Yes	**Spark plug is wet or covered with carbon:** Inspect for fuel leakage from fuel injector. **Spark plug is grayish white:** Inspect the fuel injector for clogging.
		No	Install the spark plugs on original cylinders. Go to the next step.
6	Visually inspect the CKP sensor and teeth of crankshaft pulley. Are the CKP sensor and teeth of crankshaft pulley normal?	Yes	Go to the next step.
		No	Replace the malfunctioning part.
7	Remove and shake the PCV valve. Does the PCV valve rattle?	Yes	Go to the next step.
		No	Replace the PCV valve.
8	Attempt to start engine at part throttle. Does engine run smoothly at part throttle?	Yes	Inspect the electronic throttle control system operation.
		No	Go to the next step.
9	Install the fuel pressure gauge between the fuel pipe and fuel distributor. Short check connector terminal F/P to body GND using a jumper wiring. Turn the ignition switch to the ON position. Is fuel line pressure correct with ignition switch ON? (See FUEL LINE PRESSURE INSPECTION(LF, L3).)	Yes	Go to the next step.
		No	**Zero or low:** Inspect the fuel pump relay and the fuel pump circuit. Inspect the fuel line for clogging. If there is no malfunction, replace the fuel pump unit. **High:** Replace the fuel pump unit.
10	Is the fuel line pressure held after ignition switch is turned off? (See FUEL LINE PRESSURE INSPECTION(LF, L3).)	Yes	Go to the next step.
		No	Inspect the fuel injector. If the fuel injector is normal, replace the fuel pump unit.
11	Disconnect a vacuum hose from purge solenoid valve and plug opening end of vacuum hose. Start engine. Is starting condition improved?	Yes	Inspect if the purge solenoid valve is stuck open.
		No	Go to the next step.
12	Inspect the MAF sensor for following: • Contamination • MAF sensor terminal B voltage (GND circuit) Is there any contamination?	Yes	Repair or replace the malfunctioning part.
		No	Go to the next step.
13	Visually inspect the exhaust system part. Is there any deformed exhaust system part?	Yes	Replace the suspected part.
		No	Go to the next step.
14	Inspect engine condition while tapping EGR valve housing. Does engine condition improve?	Yes	Replace the EGR valve.
		No	Go to the next step.
15	Inspect the starting system. Is starting system normal?	Yes	Inspect for loose connectors or poor terminal contact. If there is no malfunction, remove EGR valve and visually inspect for mechanically stuck EGR valve.
		No	Repair or replace components as required.
16	• Verify test results. — If normal, return to diagnostic index to service any additional symptoms. (See ENGINE SYMPTOM TROUBLESHOOTING(LF, L3).) — If malfunction remains, inspect related service bulletins and/or On-line Repair Information and perform repair or diagnosis. • If vehicle is repaired, troubleshooting completed. • If vehicle is not repaired or additional diagnostic information is not available, Replace the PCM.		

Starting problems (itype_171)

Tsbs

- Starting System - Intermittent No Crank/No Start (0103708, 2008/07/17)