2012 - Mazda6 - Transmission/ Transaxle

DTC P0735:00 [FS5A-EL]

DTC P0735:00	Gear 5 incorrect ratio
DETECTION CONDITION	• The TCM detects that revolution ratio of the intermediate revolution to output revolution is 1.11 or less for 5 s when the following conditions are met. ▪ 3GR or 4GR ▪ Accelerator pedal position: 4.67% or more • The TCM detects that revolution ratio of the intermediate revolution to output revolution is 1.11 or more for 5 s when the following conditions are met. ▪ 5GR ▪ Accelerator pedal position: 4.67% or more **Diagnostic support note** • The MIL does not illuminate. • The AT warning light illuminates. • PENDING CODE is not available. • FREEZE FRAME DATA is not available. • The DTC is stored in the TCM memory.
POSSIBLE CAUSE	• Deteriorated ATF • ATF level low • Solenoid valve malfunction ▪ Pressure control solenoid B ▪ Shift solenoid F • Line pressure malfunction • Stall speed malfunction • Direct clutch slipping • Reduction brake slipping

	• Secondary control valve body malfunction • TCM malfunction

Diagnostic procedure

STEP	INSPECTION		ACTION
1	**VERIFY RELATED REPAIR INFORMATION AVAILABILITY** • Verify related Service Bulletins and/or on-line repair information availability. • Is any related repair information available?	Yes	Perform repair or diagnosis according to the available repair information. • If the vehicle is not repaired, go to the next step.
		No	Go to the next step.
2	**INSPECT ATF CONDITION** • Inspect the ATF condition. (See **AUTOMATIC TRANSAXLE FLUID (ATF) INSPECTION [FS5A-EL]**.) • Is it normal?	Yes	Go to the next step.
		No	Replace the ATF, then go to Step 10. (See **AUTOMATIC TRANSAXLE FLUID (ATF) REPLACEMENT [FS5A-EL]**.)
3	**INSPECT ATF LEVEL** • Inspect the ATF level. (See **AUTOMATIC TRANSAXLE FLUID (ATF) INSPECTION [FS5A-EL]**.) • Is it normal?	Yes	Go to the next step.
		No	Add ATF to the specified level, then go to Step 10. (See **AUTOMATIC TRANSAXLE FLUID (ATF) REPLACEMENT [FS5A-EL]**.)
4	**INSPECT SOLENOID VALVE** • Inspect the following solenoid valves: (See **SOLENOID VALVE INSPECTION [FS5A-EL]**.) ▪ Pressure control solenoid B ▪ Shift solenoid F • Is there any malfunction?	Yes	Replace the solenoid valve, then go to Step 10. (See **SOLENOID VALVE REMOVAL/INSTALLATION [FS5A-EL]**.)
		No	Go to the next step.
5	**INSPECT LINE PRESSURE** • Perform the “Line Pressures Test”. (See **MECHANICAL SYSTEM TEST [FS5A-EL]**.) • Is there any malfunction?	Yes	Repair or replace malfunctioning part according to test result, then go to Step 10.
		No	Go to the next step.
6	**INSPECT STALL SPEED**	Yes	Repair or replace malfunctioning part

	• Perform the “Stall Test”. (See **MECHANICAL SYSTEM TEST [FS5A-EL]**.) • Is there any malfunction?		according to test result, then go to Step 10. No Go to the next step.
7	**INSPECT INTERMEDIATE SPEED WHILE DRIVING VEHICLE** • Connect the M-MDS. • Start the engine. • Measure the PID “ISS” while driving vehicle under the following conditions: ▪ Selector lever position: D position ▪ Gear position: 4GR ▪ Vehicle speed: 80 km/h {50 mph} • Is the PID “ISS“ approx.3,500 RPM?	Yes No	Go to Step 10. Go to the next step.
8	**INSPECT INTERMEDIATE SPEED WHILE DRIVING VEHICLE** • Connect the M-MDS. • Start the engine. • Measure the PID “ISS” while driving vehicle under the following conditions: ▪ Selector lever position: D position ▪ Gear position: 5GR ▪ Vehicle speed: 90 km/h {56 mph} • Is the PID “ISS“ approx.3,000 RPM?	Yes No	Go to Step 10. Go to the next step.
9	**INSPECT SECONDARY CONTROL VALVE BODY** • Remove the secondary control valve body. (See **CONTROL VALVE BODY REMOVAL/ INSTALLATION [FS5A-EL]**.) • Disassemble the secondary control valve body. • Inspect the following parts: ▪ Shift valve ▪ Return spring ▪ Hydraulic passage	Yes No	Repair or replace malfunctioning part according to inspection result, then go to next step. Replace the transaxle, then go to the next step. (See **AUTOMATIC TRANSAXLE REMOVAL/ INSTALLATION [FS5A-EL]**.)

	• Is there any malfunction?		
10	**VERIFY TROUBLESHOOTING OF DTC P0735:00 COMPLETED** • Make sure to reconnect all the disconnected connectors. • Clear the DTC using the M-MDS. • Perform the following procedure to ensure that the DTC has been resolved: ◦ Drive the vehicle under the following conditions for 5 s or more. ▪ 3GR or 4GR ▪ Accelerator pedal position: 4.67% or more ◦ Drive the vehicle under the following conditions for 5 s or more. ▪ 5GR ▪ Accelerator pedal position: 4.67% or more • Is the same DTC present?	Yes	Replace the TCM, then go to the next step. (See **TCM REMOVAL/ INSTALLATION [FS5A-EL]**.)
		No	Go to the next step.
11	**VERIFY NO DTCs ARE PRESENT** • Perform the "Reading DTCs Procedure". (See **ON-BOARD DIAGNOSTIC SYSTEM DTC INSPECTION [FS5A-EL]**.) • Are any DTCs present?	Yes	Go to the applicable DTC inspection. (See **ON-BOARD DIAGNOSTIC SYSTEM DTC TABLE [FS5A-EL]**.)
		No	DTC troubleshooting completed.

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DTC P0735:00	Gear 5 incorrect ratio
DETECTION CONDITION	• The TCM detects that revolution ratio of the intermediate revolution to output revolution is 1.11 or less for 5 s when the following conditions are met. ▪ 3GR or 4GR ▪ Accelerator pedal position: 4.67% or more • The TCM detects that revolution ratio of the intermediate revolution to output revolution is 1.11 or more for 5 s when the following conditions are met. ▪ 5GR ▪ Accelerator pedal position: 4.67% or more **Diagnostic support note** • The MIL does not illuminate. • The AT warning light illuminates. • PENDING CODE is not available. • FREEZE FRAME DATA is not available. • The DTC is stored in the TCM memory.
POSSIBLE CAUSE	• Deteriorated ATF • ATF level low • Solenoid valve malfunction ▪ Pressure control solenoid B ▪ Shift solenoid F • Line pressure malfunction • Stall speed malfunction • Direct clutch slipping • Reduction brake slipping

	• Secondary control valve body malfunction • TCM malfunction

Diagnostic procedure

STEP	INSPECTION		ACTION
1	**VERIFY RELATED REPAIR INFORMATION AVAILABILITY** • Verify related Service Bulletins and/or on-line repair information availability. • Is any related repair information available?	Yes	Perform repair or diagnosis according to the available repair information. • If the vehicle is not repaired, go to the next step.
		No	Go to the next step.
2	**INSPECT ATF CONDITION** • Inspect the ATF condition. (See **AUTOMATIC TRANSAXLE FLUID (ATF) INSPECTION [FS5A-EL]**.) • Is it normal?	Yes	Go to the next step.
		No	Replace the ATF, then go to Step 10. (See **AUTOMATIC TRANSAXLE FLUID (ATF) REPLACEMENT [FS5A-EL]**.)
3	**INSPECT ATF LEVEL** • Inspect the ATF level. (See **AUTOMATIC TRANSAXLE FLUID (ATF) INSPECTION [FS5A-EL]**.) • Is it normal?	Yes	Go to the next step.
		No	Add ATF to the specified level, then go to Step 10. (See **AUTOMATIC TRANSAXLE FLUID (ATF) REPLACEMENT [FS5A-EL]**.)
4	**INSPECT SOLENOID VALVE** • Inspect the following solenoid valves: (See **SOLENOID VALVE INSPECTION [FS5A-EL]**.) ▪ Pressure control solenoid B ▪ Shift solenoid F • Is there any malfunction?	Yes	Replace the solenoid valve, then go to Step 10. (See **SOLENOID VALVE REMOVAL/INSTALLATION [FS5A-EL]**.)
		No	Go to the next step.
5	**INSPECT LINE PRESSURE** • Perform the “Line Pressures Test”. (See **MECHANICAL SYSTEM TEST [FS5A-EL]**.) • Is there any malfunction?	Yes	Repair or replace malfunctioning part according to test result, then go to Step 10.
		No	Go to the next step.
6	**INSPECT STALL SPEED**	Yes	Repair or replace malfunctioning part

	• Perform the “Stall Test”. (See **MECHANICAL SYSTEM TEST [FS5A-EL]**.) • Is there any malfunction?		according to test result, then go to Step 10. No Go to the next step.
7	**INSPECT INTERMEDIATE SPEED WHILE DRIVING VEHICLE** • Connect the M-MDS. • Start the engine. • Measure the PID “ISS” while driving vehicle under the following conditions: ▪ Selector lever position: D position ▪ Gear position: 4GR ▪ Vehicle speed: 80 km/h {50 mph} • Is the PID “ISS“ approx.3,500 RPM?	Yes No	Go to Step 10. Go to the next step.
8	**INSPECT INTERMEDIATE SPEED WHILE DRIVING VEHICLE** • Connect the M-MDS. • Start the engine. • Measure the PID “ISS” while driving vehicle under the following conditions: ▪ Selector lever position: D position ▪ Gear position: 5GR ▪ Vehicle speed: 90 km/h {56 mph} • Is the PID “ISS“ approx.3,000 RPM?	Yes No	Go to Step 10. Go to the next step.
9	**INSPECT SECONDARY CONTROL VALVE BODY** • Remove the secondary control valve body. (See **CONTROL VALVE BODY REMOVAL/ INSTALLATION [FS5A-EL]**.) • Disassemble the secondary control valve body. • Inspect the following parts: ▪ Shift valve ▪ Return spring ▪ Hydraulic passage	Yes No	Repair or replace malfunctioning part according to inspection result, then go to next step. Replace the transaxle, then go to the next step. (See **AUTOMATIC TRANSAXLE REMOVAL/ INSTALLATION [FS5A-EL]**.)

	• Is there any malfunction?		
10	**VERIFY TROUBLESHOOTING OF DTC P0735:00 COMPLETED** • Make sure to reconnect all the disconnected connectors. • Clear the DTC using the M-MDS. • Perform the following procedure to ensure that the DTC has been resolved: ◦ Drive the vehicle under the following conditions for 5 s or more. ▪ 3GR or 4GR ▪ Accelerator pedal position: 4.67% or more ◦ Drive the vehicle under the following conditions for 5 s or more. ▪ 5GR ▪ Accelerator pedal position: 4.67% or more • Is the same DTC present?	Yes	Replace the TCM, then go to the next step. (See **TCM REMOVAL/ INSTALLATION [FS5A-EL]**.)
		No	Go to the next step.
11	**VERIFY NO DTCs ARE PRESENT** • Perform the "Reading DTCs Procedure". (See **ON-BOARD DIAGNOSTIC SYSTEM DTC INSPECTION [FS5A-EL]**.) • Are any DTCs present?	Yes	Go to the applicable DTC inspection. (See **ON-BOARD DIAGNOSTIC SYSTEM DTC TABLE [FS5A-EL]**.)
		No	DTC troubleshooting completed.

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