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2017 MAZDA 6 / Atenza Wagon OEM Service and Repair Workshop Manual

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Step	Inspection	Action	
3	VERIFY THAT REPAIRS HAVE BEEN COMPLETED • Clear the DTC for the adaptive front lighting system (AFS) control module / auto leveling control module using the M-MDS. (See CLEARING DTC [AFS/ALM].) • Switch the ignition ON (engine off or on) and wait for 30 s or more. • Retrieve the adaptive front lighting system (AFS) control module / auto leveling control module DTCs using the M-MDS. (See DTC INSPECTION [AFS/ALM].) • Is the same DTC displayed?	Yes	Replace the adaptive front lighting system (AFS) control module / auto leveling control module, then go to the next step. (See ADAPTIVE FRONT LIGHTING SYSTEM (AFS) CONTROL MODULE/AUTO LEVELING CONTROL MODULE/TURN LIGHT UNIT REMOVAL/INSTALLATION.)
		No	Go to the next step.
4	VERIFY IF OTHER DTCs DISPLAYED • Are any other DTCs displayed?	Yes	Repair or replace the malfunctioning part according to the applicable DTC troubleshooting. (See DTC TABLE [AFS/ALM].)
		No	DTC troubleshooting completed.

DTC C0061:54 [AFS/ALM]

SM3066030

id0902ze05230

Description	Acceleration sensor initial position learning not completed
Detection condition	• The adaptive front lighting system (AFS) control module / auto leveling control module detects that the acceleration sensor initial position learning is not completed.
Fail-safe	• The swivel actuator is moved to the center. • The headlight leveling actuator is stopped at the position when the malfunction is determined.
Possible cause	• Acceleration sensor initial position learning is not completed. • Adaptive front lighting system (AFS) control module / auto leveling control module internal malfunction
System wiring diagram	Not applicable

Diagnostic Procedure

Step	Inspection	Action
1	PERFORM ACCELERATION SENSOR INITIAL POSITION LEARNING • Perform the headlight auto leveling system initial setting using the M-MDS. (See HEADLIGHT AUTO LEVELING SYSTEM INITIALIZATION.) • Retrieve the adaptive front lighting system (AFS) control module / auto leveling control module DTCs using the M-MDS. (See DTC INSPECTION [AFS/ALM].) • Is the same DTC displayed?	Yes
		Perform the headlight auto leveling system initial setting again using the M-MDS, then go to the next step. (See HEADLIGHT AUTO LEVELING SYSTEM INITIALIZATION.)
2	VERIFY THAT REPAIRS HAVE BEEN COMPLETED • Clear the adaptive front lighting system (AFS) control module / auto leveling control module DTCs using the M-MDS. (See CLEARING DTC [AFS/ALM].) • Retrieve the adaptive front lighting system (AFS) control module / auto leveling control module DTCs using the M-MDS. (See DTC INSPECTION [AFS/ALM].) • Is the same DTC displayed?	No
		Go to Step 3.
3	VERIFY IF OTHER DTCs DISPLAYED • Are any other DTCs displayed?	Yes
		Replace the adaptive front lighting system (AFS) control module / auto leveling control module, then go to the next step. (See ADAPTIVE FRONT LIGHTING SYSTEM (AFS) CONTROL MODULE/AUTO LEVELING CONTROL MODULE/TURN LIGHT UNIT REMOVAL/INSTALLATION.)
		No
		Go to the next step.
		Repair or replace the malfunctioning part according to the applicable DTC troubleshooting. (See DTC TABLE [AFS/ALM].)
		No
		DTC troubleshooting completed.

Sample

DTC B10A3:86 [AFS/ALM]

SM3066033

id0902ze93440

Description	Communication error with swivel actuator (LH)
Detection condition	Adaptive front lighting system (AFS) control module could not receive the signal from the swivel actuator (LH) with the ignition switched ON (engine off or on).
Fail-safe	- The swivel actuator (LH) is stopped at the position when the malfunction is determined. - The swivel actuator (RH) is moved to the center. - Control of the headlight auto leveling system is continued with the headlight leveling actuator positioned -0.6° from where the malfunction is determined.
Possible cause	- Swivel actuator (LH) malfunction - Adaptive front lighting system (AFS) control module malfunction
System wiring diagram	Not applicable

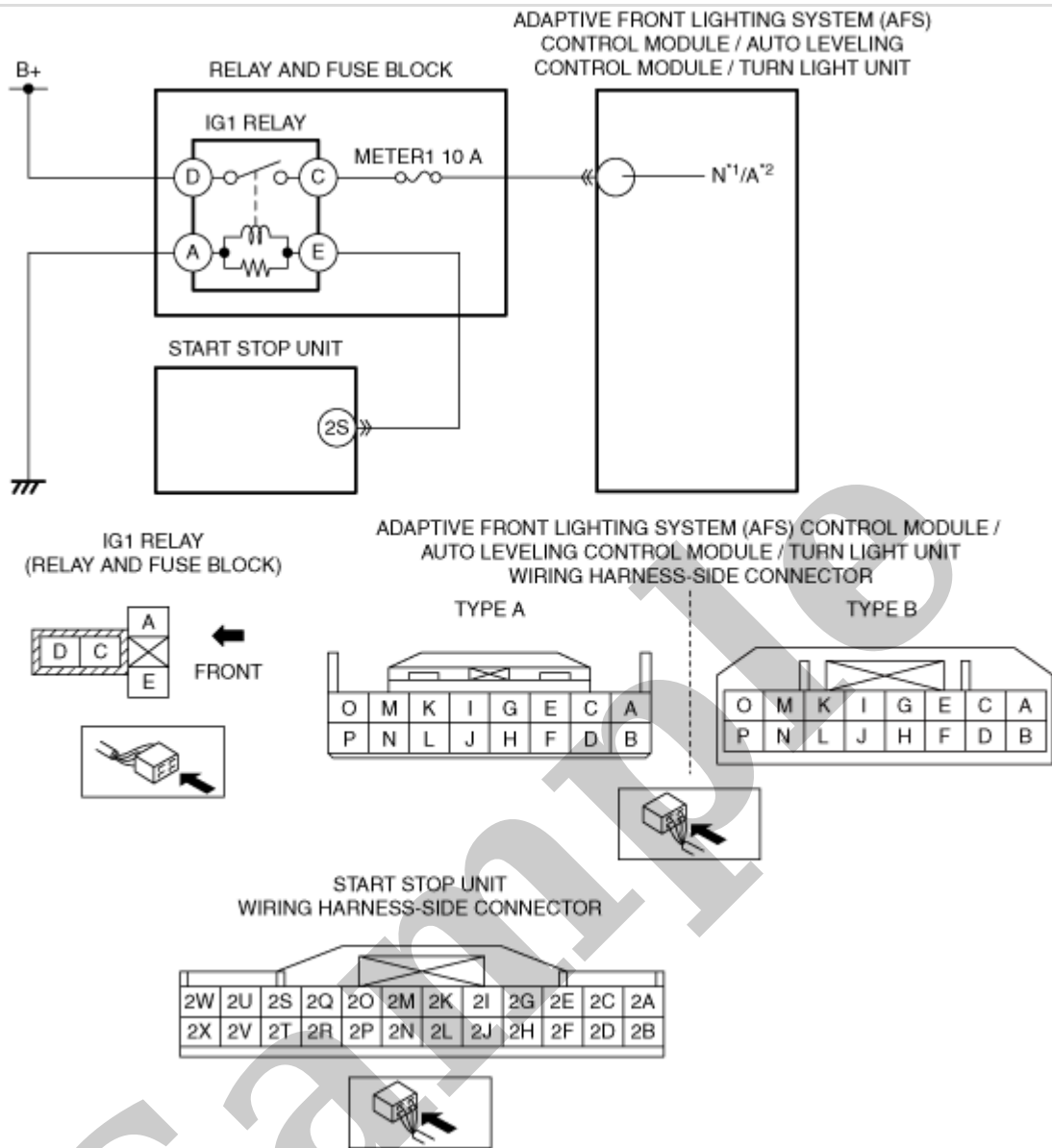
Diagnostic Procedure

Step	Inspection	Action
1	VERIFY IF MALFUNCTIONING LOCATION IS SWIVEL ACTUATOR (LH) DEPENDING ON REPEATABILITY - Clear the adaptive front lighting system (AFS) control module DTCs using the M-MDS. (See CLEARING DTC [AFS/ALM].) - Retrieve the adaptive front lighting system (AFS) control module DTCs using the M-MDS. (See DTC INSPECTION [AFS/ALM].) - Is the same DTC displayed?	Yes Replace the front combination light (LH), then go to the next step. (See FRONT COMBINATION LIGHT REMOVAL/INSTALLATION.)
		No Go to Step 3.
2	VERIFY THAT REPAIRS HAVE BEEN COMPLETED - Clear the adaptive front lighting system (AFS) control module DTCs using the M-MDS. (See CLEARING DTC [AFS/ALM].) - Retrieve the adaptive front lighting system (AFS) control module DTCs using the M-MDS. (See DTC INSPECTION [AFS/ALM].) - Is the same DTC displayed?	Yes Replace the adaptive front lighting system (AFS) control module, then go to the next step. (See ADAPTIVE FRONT LIGHTING SYSTEM (AFS) CONTROL MODULE/AUTO LEVELING CONTROL MODULE/TURN LIGHT UNIT REMOVAL/INSTALLATION.)
		No Go to the next step.
3	VERIFY IF OTHER DTCs DISPLAYED Are any other DTCs displayed?	Yes Repair the malfunctioning part according to the applicable DTC troubleshooting. (See DTC TABLE [AFS/ALM].)
		No DTC troubleshooting completed.

Step	Inspection	Action
6	VERIFY IF MALFUNCTIONING LOCATION IS SWIVEL ACTUATOR (LH) DEPENDING ON REPEATABILITY • Always reconnect all disconnected connectors. • Connect the negative battery terminal. (See NEGATIVE BATTERY TERMINAL DISCONNECTION/CONNECTION.) • Clear the adaptive front lighting system (AFS) control module DTCs using the M-MDS. (See CLEARING DTC [AFS/ALM].) • Switch the ignition ON (engine off or on) and wait for 5 s or more. • Retrieve the adaptive front lighting system (AFS) control module DTCs using the M-MDS. (See DTC INSPECTION [AFS/ALM].) • Is the same DTC displayed?	Yes Replace the front combination light (LH), then go to the next step. (See FRONT COMBINATION LIGHT REMOVAL/INSTALLATION.)
		No Go to Step 8.
7	VERIFY THAT REPAIRS HAVE BEEN COMPLETED • Always reconnect all disconnected connectors. • Connect the negative battery terminal. (See NEGATIVE BATTERY TERMINAL DISCONNECTION/CONNECTION.) • Clear the adaptive front lighting system (AFS) control module DTCs using the M-MDS. (See CLEARING DTC [AFS/ALM].) • Switch the ignition ON (engine off or on) and wait for 5 s or more. • Retrieve the adaptive front lighting system (AFS) control module DTCs using the M-MDS. (See DTC INSPECTION [AFS/ALM].) • Is the same DTC displayed?	Yes Repeat the inspection from Step 1. • If the malfunction recurs, replace the adaptive front lighting system (AFS) control module, then go to the next step. (See ADAPTIVE FRONT LIGHTING SYSTEM (AFS) CONTROL MODULE/AUTO LEVELING CONTROL MODULE/TURN LIGHT UNIT REMOVAL/INSTALLATION.)
		No Go to the next step.
8	VERIFY IF OTHER DTCs DISPLAYED • Are any other DTCs displayed?	Yes Repair the malfunctioning part according to the applicable DTC troubleshooting. (See DTC TABLE [AFS/ALM].)
		No DTC troubleshooting completed.

Step	Inspection	Action
4	INSPECT SWIVEL ACTUATOR (RH) CIRCUIT FOR SHORT TO POWER SUPPLY • Verify that the front combination light (RH) and adaptive front lighting system (AFS) control module connectors are disconnected. • Connect the negative battery terminal. (See NEGATIVE BATTERY TERMINAL DISCONNECTION/CONNECTION.) • Switch the ignition ON (engine off or on). • Measure the voltage at the following terminals (wiring harness-side): — Front combination light (RH) terminal K (Adaptive front lighting system (AFS) control module connector type A) — Front combination light (RH) terminal J • Is the voltage 0 V?	Yes
		Go to the next step.
5	INSPECT SWIVEL ACTUATOR (RH) CIRCUIT FOR OPEN CIRCUIT • Switch the ignition to off. • Disconnect the negative battery terminal. (See NEGATIVE BATTERY TERMINAL DISCONNECTION/CONNECTION.) • Verify that the front combination light (RH) and adaptive front lighting system (AFS) control module connectors are disconnected. • Inspect for continuity between the following terminals (wiring harness-side): — Adaptive front lighting system (AFS) control module terminal D–Front combination light (RH) terminal K (Adaptive front lighting system (AFS) control module connector type A) — Adaptive front lighting system (AFS) control module terminal F–Front combination light (RH) terminal J • Is there continuity?	No
		Refer to the wiring diagram and verify whether or not there is a common connector between the following terminals: • Adaptive front lighting system (AFS) control module terminal D–Front combination light (RH) terminal K (Adaptive front lighting system (AFS) control module connector type A) • Adaptive front lighting system (AFS) control module terminal F–Front combination light (RH) terminal J If there is a common connector: • Determine the malfunctioning part by inspecting the common connector and the terminal for corrosion, damage, or pin disconnection, and the common wiring harness for a short to power supply. • Repair or replace the malfunctioning part. If there is no common connector: • Repair or replace the wiring harness which has a short to power supply. Go to Step 7.

Description	Adaptive front lighting system (AFS) control module / auto leveling control module / turn light unit low power supply voltage input
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- *1:Adaptive front lighting system (AFS) control module / auto leveling control module / turn light unit connector type A
- *2:Adaptive front lighting system (AFS) control module / auto leveling control module / turn light unit connector type B

Diagnostic Procedure

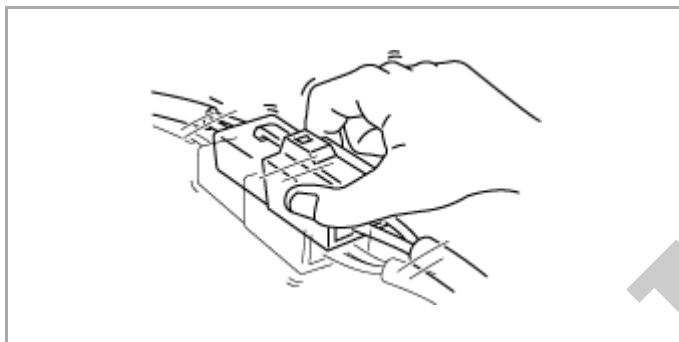
Step	Inspection	Action
1	VERIFY PCM DTCs - Retrieve the PCM DTCs using the M-MDS. (See ON-BOARD DIAGNOSTIC TEST [PCM (SKYACTIV-D 2.2)].) (See ON-BOARD DIAGNOSTIC TEST [PCM (SKYACTIV-G 2.5T)].) (See ON-BOARD DIAGNOSTIC TEST [PCM (SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION))].) (See ON-BOARD DIAGNOSTIC TEST [PCM (SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION))].) - Is the DTC displayed?	Yes Repair the malfunctioning part according to the applicable DTC troubleshooting. (See DTC TABLE [PCM (SKYACTIV-D 2.2)].) (See DTC TABLE [PCM (SKYACTIV-G 2.5T)].) (See DTC TABLE [PCM (SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION))].) (See DTC TABLE [PCM (SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION))].)
	No	Go to the next step.

Step	Inspection		Action
			• Repair or replace the wiring harness which has an open circuit. Go to the next step.
6	VERIFY THAT REPAIRS HAVE BEEN COMPLETED • Always reconnect all disconnected connectors. • Connect the negative battery terminal. (See NEGATIVE BATTERY DISCONNECTION/CONNECTION.) • Clear the adaptive front lighting system (AFS) control module / auto leveling control module / turn light unit DTCs using the M-MDS. (See CLEARING DTC [AFS/ALM].) • Switch the ignition ON (engine off or on) and wait for 5 s or more. • Retrieve the adaptive front lighting system (AFS) control module / auto leveling control module / turn light unit DTCs using the M-MDS. (See DTC INSPECTION [AFS/ALM].) • Is the same DTC displayed?	Yes	Repeat the inspection from Step 1. • If the malfunction recurs, replace the adaptive front lighting system (AFS) control module / auto leveling control module / turn light unit, then go to the next step. (See ADAPTIVE FRONT LIGHTING SYSTEM (AFS) CONTROL MODULE/AUTO LEVELING CONTROL MODULE/TURN LIGHT UNIT REMOVAL/INSTALLATION.)
		No	Go to the next step.
7	VERIFY IF OTHER DTCs DISPLAYED • Are any other DTCs displayed?	Yes	Repair the malfunctioning part according to the applicable DTC troubleshooting. (See DTC TABLE [AFS/ALM].)
		No	DTC troubleshooting completed.

*1:(See **CONTROLLER AREA NETWORK (CAN) MALFUNCTION DIAGNOSIS FLOW [TYPE-A (SKYACTIV-G 2.5)]**.) (See **CONTROLLER AREA NETWORK (CAN) MALFUNCTION DIAGNOSIS FLOW [TYPE-A (SKYACTIV-G 2.5T, SKYACTIV-D 2.2)]**.)

Action For Non-repeatable Malfunction

- If the malfunction does not recur, verify the malfunction cause by performing the following actions:
 - Verify that a DTC has been recorded in the memory. (See **DTC INSPECTION [AFS/ALM]**.)
 - Based on the repair order form, attempt to drive the vehicle or perform tests to replicate the malfunction, record the data at that time, and detect the malfunction cause.
 - Shake the wiring harness or connector of the electrical component which is suspected to be the cause of the malfunction, and inspect for occurrence of any malfunction or DTCs.



- Inspect the female terminals on the connector of the electric component which is suspected to be the cause of the malfunction for poor connection. (See **ELECTRICAL SYSTEM**.)

Note

- Tool used (Reference): terminal test kit (49US-15-KIT)

