
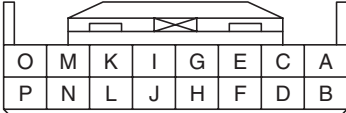
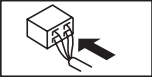
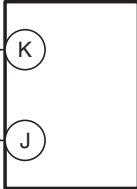
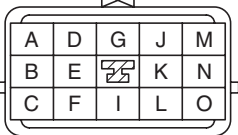


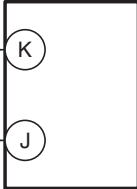
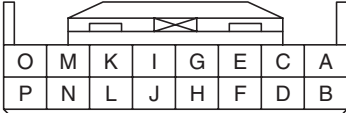
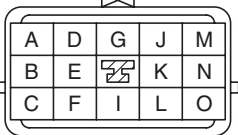
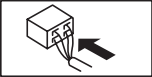



DTC B10A4:87 [ADAPTIVE FRONT LIGHTING SYSTEM (AFS)]

id09021n934700

System malfunction location	Communication error with swivel actuator (RH)
Detection condition	<ul style="list-style-type: none"> The AFS control module detected communication error with the swivel actuator (RH) for 5 s or more with the ignition switched ON (engine off or on).
Fail-safe	<ul style="list-style-type: none"> The swivel actuator (RH) is stopped at the position when the malfunction is determined. The swivel actuator (LH) is moved to the center, or the swivel actuators (LH) and (RH) are 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	<ul style="list-style-type: none"> Front combination light (RH) connector or terminal malfunction AFS control module connector or terminal malfunction Short to ground in wiring harness between the following terminals: <ul style="list-style-type: none"> AFS control module terminal D and front combination light (RH) terminal K AFS control module terminal F and front combination light (RH) terminal J Short to power supply in wiring harness between the following terminals: <ul style="list-style-type: none"> AFS control module terminal D and front combination light (RH) terminal K AFS control module terminal F and front combination light (RH) terminal J Open circuit in wiring harness between the following terminals: <ul style="list-style-type: none"> AFS control module terminal D and front combination light (RH) terminal K AFS control module terminal F and front combination light (RH) terminal J Swivel actuator (RH) malfunction AFS control module malfunction
<div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;"> <p>AFS CONTROL MODULE</p>  <p>AFS CONTROL MODULE WIRING HARNESS-SIDE CONNECTOR</p>   </div> <div style="text-align: center;"> <p>SWIVEL ACTUATOR (RH) (FRONT COMBINATION LIGHT (RH))</p>  <p>FRONT COMBINATION LIGHT (RH) WIRING HARNESS-SIDE CONNECTOR</p>   </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 20px;"> <div style="text-align: center;"> <p>AFS CONTROL MODULE</p>  </div> <div style="text-align: center;"> <p>SWIVEL ACTUATOR (RH) (FRONT COMBINATION LIGHT (RH))</p>  </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 20px;"> <div style="text-align: center;"> <p>AFS CONTROL MODULE WIRING HARNESS-SIDE CONNECTOR</p>  </div> <div style="text-align: center;"> <p>FRONT COMBINATION LIGHT (RH) WIRING HARNESS-SIDE CONNECTOR</p>  </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 20px;"> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> </div>	

Diagnostic Procedure

Step	Inspection	Action	
1	INSPECT FRONT COMBINATION LIGHT (RH) CONNECTOR CONDITION <ul style="list-style-type: none"> • Switch the ignition to off. • Disconnect the negative battery cable. (See NEGATIVE BATTERY CABLE DISCONNECTION/CONNECTION [SKYACTIV-G 2.0, SKYACTIV-G 2.5].) (See NEGATIVE BATTERY CABLE DISCONNECTION/CONNECTION [SKYACTIV-G 2.0, SKYACTIV-G 2.5 (WITHOUT i-stop)].) (See NEGATIVE BATTERY CABLE DISCONNECTION/CONNECTION [SKYACTIV-D 2.2].) • Disconnect the front combination light (RH) connector. • Inspect the connector engagement and connection condition and inspect the terminals for damage, deformation, corrosion, or disconnection. • Is the connector normal? 	Yes	Go to the next step.
		No	Repair or replace the connector, then go to Step 7.
2	INSPECT AFS CONTROL MODULE CONNECTOR CONDITION <ul style="list-style-type: none"> • Disconnect the AFS control module connector. • Inspect the connector engagement and connection condition and inspect the terminals for damage, deformation, corrosion, or disconnection. • Is the connector normal? 	Yes	Go to the next step.
		No	Repair or replace the connector, then go to Step 7.
3	INSPECT SWIVEL ACTUATOR (RH) CIRCUIT FOR SHORT TO GROUND <ul style="list-style-type: none"> • Verify that the front combination light (RH) and AFS control module connectors are disconnected. • Inspect for continuity between the following terminals (vehicle wiring harness side) and body ground. <ul style="list-style-type: none"> — Front combination light (RH) terminal K — Front combination light (RH) terminal J • Is there continuity? 	Yes	Repair or replace the wiring harness which is shorted to ground, then go to Step 7.
		No	Go to the next step.
4	INSPECT SWIVEL ACTUATOR (RH) CIRCUIT FOR SHORT TO POWER SUPPLY <ul style="list-style-type: none"> • Verify that the front combination light (RH) and AFS control module connectors are disconnected. • Connect the negative battery cable. (See NEGATIVE BATTERY CABLE DISCONNECTION/CONNECTION [SKYACTIV-G 2.0, SKYACTIV-G 2.5].) (See NEGATIVE BATTERY CABLE DISCONNECTION/CONNECTION [SKYACTIV-G 2.0, SKYACTIV-G 2.5 (WITHOUT i-stop)].) (See NEGATIVE BATTERY CABLE DISCONNECTION/CONNECTION [SKYACTIV-D 2.2].) • Switch the ignition ON (engine off or on). • Measure the voltage at the following terminals (vehicle wiring harness side). <ul style="list-style-type: none"> — Front combination light (RH) terminal K — Front combination light (RH) terminal J • Is the voltage 0 V? 	Yes	Go to the next step.
		No	Repair or replace the wiring harness which is shorted to power supply, then go to Step 7.

Step	Inspection	Action	
5	INSPECT SWIVEL ACTUATOR (RH) CIRCUIT FOR OPEN CIRCUIT <ul style="list-style-type: none"> • Verify that the front combination light (RH) and AFS control module connectors are disconnected. • Switch the ignition to off. • Disconnect the negative battery cable. (See NEGATIVE BATTERY CABLE DISCONNECTION/CONNECTION [SKYACTIV-G 2.0, SKYACTIV-G 2.5].) (See NEGATIVE BATTERY CABLE DISCONNECTION/CONNECTION [SKYACTIV-G 2.0, SKYACTIV-G 2.5 (WITHOUT i-stop)].) (See NEGATIVE BATTERY CABLE DISCONNECTION/CONNECTION [SKYACTIV-D 2.2].) • Inspect the wiring harness between the following terminals (vehicle wiring harness side) for continuity. <ul style="list-style-type: none"> — AFS control module terminal D and front combination light (RH) terminal K — AFS control module terminal F and front combination light (RH) terminal J • Is there continuity? 	Yes	Go to the next step.
		No	Repair or replace the wiring harness which has an open circuit, then go to Step 7.
6	PERFORM DTC INSPECTION AND VERIFY IF MALFUNCTIONING PART IS SWIVEL ACTUATOR (RH) <ul style="list-style-type: none"> • Reconnect all the disconnected connectors. • Reconnect the disconnected negative battery cable. (See NEGATIVE BATTERY CABLE DISCONNECTION/CONNECTION [SKYACTIV-G 2.0, SKYACTIV-G 2.5].) (See NEGATIVE BATTERY CABLE DISCONNECTION/CONNECTION [SKYACTIV-G 2.0, SKYACTIV-G 2.5 (WITHOUT i-stop)].) (See NEGATIVE BATTERY CABLE DISCONNECTION/CONNECTION [SKYACTIV-D 2.2].) • Clear the AFS control module DTCs using the M-MDS. (See CLEARING DTC [ADAPTIVE FRONT LIGHTING SYSTEM (AFS)].) • Switch the ignition ON (engine off or on) and wait for 5 s or more. • Perform the DTC inspection for the AFS control module using the M-MDS. (See DTC INSPECTION [ADAPTIVE FRONT LIGHTING SYSTEM (AFS)].) • Is DTC B10A4:87 displayed? 	Yes	Replace the front combination light (RH), then go to the next step. (See FRONT COMBINATION LIGHT REMOVAL/INSTALLATION.)
		No	Go to Step 8.

Step	Inspection	Action
7	VERIFY THAT REPAIRS HAVE BEEN COMPLETED <ul style="list-style-type: none"> • Reconnect all the disconnected connectors. • Reconnect the disconnected negative battery cable. (See NEGATIVE BATTERY CABLE DISCONNECTION/CONNECTION [SKYACTIV-G 2.0, SKYACTIV-G 2.5].) (See NEGATIVE BATTERY CABLE DISCONNECTION/CONNECTION [SKYACTIV-G 2.0, SKYACTIV-G 2.5 (WITHOUT i-stop)].) (See NEGATIVE BATTERY CABLE DISCONNECTION/CONNECTION [SKYACTIV-D 2.2].) • Clear the AFS control module DTCs using the M-MDS. (See CLEARING DTC [ADAPTIVE FRONT LIGHTING SYSTEM (AFS)].) • Switch the ignition ON (engine off or on) and wait for 5 s or more. • Perform the DTC inspection for the AFS control module using the M-MDS. (See DTC INSPECTION [ADAPTIVE FRONT LIGHTING SYSTEM (AFS)].) • Is DTC B10A4:87 displayed? 	Yes Repeat the inspection from Step 1. • If the malfunction recurs, replace the AFS control module, then go to the next step. (See ADAPTIVE FRONT LIGHTING SYSTEM (AFS) CONTROL MODULE REMOVAL/INSTALLATION.)
		No Go to the next step.
8	VERIFY IF OTHER DTCs DISPLAYED <ul style="list-style-type: none"> • Are any other DTCs displayed? 	Yes Repair the malfunctioning part according to the applicable DTC troubleshooting. (See DTC TABLE [ADAPTIVE FRONT LIGHTING SYSTEM (AFS)].)
		No DTC troubleshooting completed.