Technical Service Bulletin

SUBJECT:	No:	TSB-20-35-001
ABS & ASC WHEEL SPEED SENSOR DIAGNOSIS - SERVICE MANUAL REVISION	DATE:	February 2020
	MODEL:	2014-17 Mirage, 2017 Mirage G4

CIRCULATE TO:	[ ] GENERAL MANAGER	[X] PARTS MANAGER	[X] TECHNICIAN
[X] SERVICE ADVISOR	[X] SERVICE MANAGER	[ ] WARRANTY PROCESSOR	[ ] SALES MANAGER

PURPOSE

This TSB updates the Service Brakes section of the affected Service Manuals to correct errors in Active Stability Control System Diagnosis of wheel speed sensor codes.

AFFECTED VEHICLES

- 2014, 2015, and 2017 Mirage
- 2017 Mirage G4

AFFECTED SERVICE MANUALS

2014, 2015, and 2017 Mirage Service Manual, Group 35-Service Brakes -> 35C-Active Stability Control System (ASC) -> Diagnosis.

2017 Mirage G4 Service Manual, Group 35-Service Brakes -> 35C-Active Stability Control System (ASC) -> Diagnosis.

Continued

Please make the indicated changes to the 2014 - 2015 Mirage Service Manual, Group 35-Service Brakes -> 35C-Active Stability Control System (ASC) -> Diagnosis -> Diagnostic Trouble Code Procedures -> Codes C1200 (FR Wheel Speed Sensor Circuit), C1205 (FL Wheel Speed Sensor Circuit), C1210 (RR Wheel Speed Sensor Circuit), C1215 (RL Wheel Speed Sensor Circuit).

ACTIVE STABILITY CONTROL SYSTEM (ASC)
DIAGNOSIS

<Added>
(1) Drive the vehicle at 20 km/h (12 mph) or more and stop the vehicle.
(2) Turn the ignition switch from the "ON" position to the "LOCK" (OFF) position.
(3) Connect the scan tool and turn the ignition switch to the "ON" position.

STEP 2. Diagnostic trouble code recheck after resetting CAN bus lines

Q: Is diagnostic trouble code No. C1200, C1205, C1210 or C1215 set?

YES : Go to Step 3.
NO : This diagnosis is complete.

STEP 3. Using scan tool MB991958, check data list

Check the following service data (Refer to P.35C-121).

- (When code No. C1200 is set) Item 01: FR wheel speed sensor <Incorrect> 02 <Correct>
- (When code No. C1205 is set) Item 02: FL wheel speed sensor <Incorrect> 01 <Correct>
- (When code No. C1210 is set) Item 03: RR wheel speed sensor <Incorrect> 04 <Correct>
- (When code No. C1215 is set) Item 04: RL wheel speed sensor <Incorrect> 03 <Correct>

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-6).
NO : Go to Step 4.

<Added>
(Short circuit to power supply)

STEP 4. Measure the voltage at the ASC-ECU connector.

(1) Connector check: ASC-ECU connector and wheel speed sensor connectors
(2) Disconnect the connector and measure at the wiring harness side.
(3) Ignition switch: "ON"
(4) Measure the voltage between the power supply terminal as well as signal terminal of each wheel speed sensor and body ground.

Diagnostic trouble code No.	Checking terminal	
	Power supply terminal	Signal terminal
C1200	FR+	FR–
C1205	FL+	FL–
C1210	RR+	RR–
C1215	RL+	RL–

OK: 1 V or less

Q: Is the check result normal?

YES : Go to Step 5.
NO (Code No. C1200 NG) : Go to Step 6.
NO (Code No. C1205 NG) : Go to Step 7.
NO (Code No. C1210 NG) : Go to Step 8.
NO (Code No. C1215 NG) : Go to Step 9.

ACTIVE STABILITY CONTROL SYSTEM (ASC)
DIAGNOSIS

STEP 5. Measure the resistance at the ASC-ECU connector. <Added> **(Short circuit to ground)**

<Correct>
Disconnect the connector and measure at the wiring harness side.

(1) ~~Disconnect the connector.~~ <Incorrect>

(2) Measure the resistance between the power supply terminal as well as signal terminal of each wheel speed sensor and body ground.

Diagnostic trouble code No.	Checking terminal	
	Power supply terminal	Signal terminal
C1200	FR+	FR–
C1205	FL+	FL–
C1210	RR+	RR–
C1215	RL+	RL–

OK: No continuity

Q: Is the check result normal?

YES : Go to Step 10.
NO (Code No. C1200 NG) : Go to Step 6.
NO (Code No. C1205 NG) : Go to Step 7.
NO (Code No. C1210 NG) : Go to Step 8.
NO (Code No. C1215 NG) : Go to Step 9.

STEP 6. Check the wiring harness wires between the ASC-ECU connector FR (+) or FR (–) terminal and the front wheel speed sensor (RH) connector terminal.

Check the front wheel speed sensor (RH) circuit for short.

Q: Is the check result normal?

YES : Replace the front wheel speed sensor (RH) (Refer to P.35C-139).
NO : Repair the connector(s) and wiring harness.

STEP 7. Check the wiring harness wires between the ASC-ECU connector FL (+) or FL (–) terminal and the front wheel speed sensor (LH) connector terminal.

Check the front wheel speed sensor (LH) circuit for short.

Q: Is the check result normal?

YES : Replace the front wheel speed sensor (LH) (Refer to P.35C-139).
NO : Repair the connector(s) and wiring harness.

<Added>
to power supply or ground.

ACTIVE STABILITY CONTROL SYSTEM (ASC)
DIAGNOSIS

STEP 8. Check the wiring harness wires between the ASC-ECU connector RR (+) or RR (–) terminal and the rear wheel speed sensor (RH) connector terminal.
Check the rear wheel speed sensor (RH) circuit for short.

Q: Is the check result normal?

YES : Replace the rear wheel speed sensor (RH) (Refer to P.35C-139).

<Added> to power supply or ground.

NO : Repair the connector(s) and wiring harness.

<Deleted>

STEP 9. Check the wiring harness wires between ASC-ECU connector ~~A-65~~ RL (+) or RL (–) terminal and the rear wheel speed sensor (LH) connector terminal.
Check the rear wheel speed sensor (LH) circuit for short.

Q: Is the check result normal?

YES : Replace the rear wheel speed sensor (LH) (Refer to P.35C-139).

NO : Repair the connector(s) and wiring harness.

<Incorrect>

STEP 10. Measure the voltage at the ASC-ECU connector.
(1) Measure with the connector(s) connected.
(2) Ignition switch: "ON"
(3) Measure the voltage between the power supply terminal as well as signal terminal of each wheel speed sensor and body ground.

Diagnostic trouble code No.	Checking terminal	
	Power supply terminal	Signal terminal
C1200	FR+	FR–
C1205	FL+	FL–
C1210	RR+	RR–
C1215	RL+	RL–

OK:
Power supply terminal: Approx. system voltage
Signal terminal: approximately 0.4 to 1.3 V

Q: Is the check result normal?

YES : Go to Step 15.
NO (No. C1200 NG) : Go to Step 11.
NO (No. C1205 NG) : Go to Step 12.
NO (No. C1210 NG) : Go to Step 13.
NO (No. C1215 NG) : Go to Step 14.

<Correct>

STEP 10. Voltage and current measurement at each wheel speed sensor connector

(1)Disconnect the wheel speed sensor connector, and measure at the wiring harness side.
(2)Turn the ignition switch to the "ON" position.
(3)Measure the voltage between the power supply terminal of each wheel speed sensors and body ground.
(4)Measure the output current at the special tool test harness (MB991709) to connect between the wheel speed sensor-side connector and the wiring harness connector.

OK:
<Voltage> System voltage
<Current > 5 - 9 mA or 11 - 17 mA

Q: Is the check result normal?
YES: Go to Step 15.
NO [Front wheel sensor (RH)] :Go to Step 11.
NO [Front wheel sensor (LH)] :Go to Step 12.
NO [Rear wheel sensor (RH)] :Go to Step 13.
NO [Rear wheel sensor (LH)] :Go to Step 14.

(Refer to ON-VEHICLE SERVICE/ WHEEL SPEED SENSOR OUTPUT CURRENT MEASUREMENT). <Added>

Please make the indicated changes to the 2017 Mirage and Mirage G4 Service Manual, Group 35-Service Brakes -> 35C-Active Stability Control System (ASC) -> Diagnosis -> Diagnostic Trouble Code Procedures -> Codes C1200 (FR Wheel Speed Sensor Circuit), C1205 (FL Wheel Speed Sensor Circuit), C1210 (RR Wheel Speed Sensor Circuit), C1215 (RL Wheel Speed Sensor Circuit).

ACTIVE STABILITY CONTROL SYSTEM (ASC)
DIAGNOSIS

<Added>
(1) Drive the vehicle at 20 km/h (12 mph) or more and stop the vehicle.
(2) Turn the ignition switch from the "ON" position to the "LOCK" (OFF) position.
(3) Connect the scan tool and turn the ignition switch to the "ON" position.

STEP 2. Diagnostic trouble code recheck after resetting CAN bus lines

Q: Is diagnostic trouble code No. C1200, C1205, C1210 or C1215 set?

YES : Go to Step 3.
NO : This diagnosis is complete.

STEP 3. Using scan tool MB991958, check data list

Check the following service data (Refer to P.35C-121).

- (When code No. C1200 is set) Item 02: FR wheel speed sensor
- (When code No. C1205 is set) Item 01: FL wheel speed sensor
- (When code No. C1210 is set) Item 04: RR wheel speed sensor
- (When code No. C1215 is set) Item 03: RL wheel speed sensor

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-6).
NO : Go to Step 4.

<Added>
(Short circuit to power supply)

STEP 4. Measure the voltage at the ASC-ECU connector.

(1) Connector check: ASC-ECU connector and wheel speed sensor connectors
(2) Disconnect the connector and measure at the wiring harness side.
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	Power supply terminal	Signal terminal
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OK: 1 V or less

Q: Is the check result normal?

YES : Go to Step 5.
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ACTIVE STABILITY CONTROL SYSTEM (ASC)
DIAGNOSIS

<Correct>
Disconnect the connector and measure at the wiring harness side.

STEP 5. Measure the resistance at the ASC-ECU connector. <Added> **(Short circuit to ground)**

(1) ~~Disconnect the connector.~~ <Incorrect>

(2) Measure the resistance between the power supply terminal as well as signal terminal of each wheel speed sensor and body ground.

Diagnostic trouble code No.	Checking terminal	
	Power supply terminal	Signal terminal
C1200	FR+	FR–
C1205	FL+	FL–
C1210	RR+	RR–
C1215	RL+	RL–

OK: No continuity

Q: Is the check result normal?

YES : Go to Step 10.
NO (Code No. C1200 NG) : Go to Step 6.
NO (Code No. C1205 NG) : Go to Step 7.
NO (Code No. C1210 NG) : Go to Step 8.
NO (Code No. C1215 NG) : Go to Step 9.

STEP 6. Check the wiring harness wires between the ASC-ECU connector FR (+) or FR (–) terminal and the front wheel speed sensor (RH) connector terminal.

Check the front wheel speed sensor (RH) circuit for short.

Q: Is the check result normal?

YES : Replace the front wheel speed sensor (RH) (Refer to P.35C-139).
NO : Repair the connector(s) and wiring harness.

STEP 7. Check the wiring harness wires between the ASC-ECU connector FL (+) or FL (–) terminal and the front wheel speed sensor (LH) connector terminal.

Check the front wheel speed sensor (LH) circuit for short.

Q: Is the check result normal?

YES : Replace the front wheel speed sensor (LH) (Refer to P.35C-139).
NO : Repair the connector(s) and wiring harness.

<Added>
to power supply or ground.

ACTIVE STABILITY CONTROL SYSTEM (ASC)
DIAGNOSIS

STEP 8. Check the wiring harness wires between the ASC-ECU connector RR (+) or RR (–) terminal and the rear wheel speed sensor (RH) connector terminal.
Check the rear wheel speed sensor (RH) circuit for short.

Q: Is the check result normal?

YES : Replace the rear wheel speed sensor (RH) (Refer to P.35C-139).

<Added> to power supply or ground.

NO : Repair the connector(s) and wiring harness.

<Deleted>

STEP 9. Check the wiring harness wires between ASC-ECU connector A-65 RL (+) or RL (–) terminal and the rear wheel speed sensor (LH) connector terminal.
Check the rear wheel speed sensor (LH) circuit for short.

Q: Is the check result normal?

YES : Replace the rear wheel speed sensor (LH) (Refer to P.35C-139).

NO : Repair the connector(s) and wiring harness.

<Incorrect>

STEP 10. Measure the voltage at the ASC-ECU connector.
(1) Measure with the connector(s) connected.
(2) Ignition switch: "ON"
(3) Measure the voltage between the power supply terminal as well as signal terminal of each wheel speed sensor and body ground.

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STEP 10. Voltage and current measurement at each wheel speed sensor connector

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OK:
<Voltage> System voltage
<Current > 5 - 9 mA or 11 - 17 mA

Q: Is the check result normal?

YES: Go to Step 15.
NO [Front wheel sensor (RH)] :Go to Step 11.
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NO [Rear wheel sensor (LH)] :Go to Step 14.

(Refer to ON-VEHICLE SERVICE/ WHEEL SPEED SENSOR OUTPUT CURRENT MEASUREMENT). <Added>