SERVICE BULLETIN

MITSUBISHI MOTORS

GLOBAL AFTER SALES OFFICE, MITSUBISHI MOTORS CORPORATION

PURPOSE : CORRECTION	ISSUE NO. : MSB-13EXL35-501B	DATE : 2013-09-13
SUBJECT : ASC TROUBLESHOOTING		<Destination/Model> (EUR/MMAL/NZ/MMNA/ USTP MIRAGE/SPACE STAR(A03A) <M/Y> 13-14
GROUP : ASC(Gr.35C)		

1. Description :

See the attached document for the correction of the error existing in the applicable service manual.

2. Applicable service manual :

For EUR/MMAL/NZ/

Applicable manual	Pub. No.	Applicable title (INFO ID)	Contents
2013MY/2014MY MIRAGE/SPACE STAR Workshop Manual	EUR: CA0E13E1-CD(Eng) CA0S13E1-CD(Spa) CA0F13E1-CD(Fra) CA0G13E1-CD(Ger) CA0I13E1-CD(Ita) NZ:DRAFT MMAL(14MY): AU900305	ASC INDICATOR LAMP, ABS WARNINGLAMP AND BRAKE WARNING LAMP CHECK M352-01-201-33800-01	Attached sheet 2
		INSPECTION PROCEDURE 15: THE INITIAL CHECK SOUND OF HYDRAULIC UNIT IS LOUD M355-02-740-30500-01	Attached sheet 3
		DATA LIST REFERENCE TABLE M355-00-151-01500-01	Attached sheet 4

FOR MMNA/USTP

Applicable manual	Pub. No.	Applicable title (INFO ID)	Content
2014 MIRAGE Service Manual	MSCD-016B-2014	INSPECTION PROCEDURE 15: THE INITIAL CHECK SOUND OF HYDRAULIC UNIT IS LOUD M355-02-740-30500-01	Attached sheet 5

3. About the details :

See the attached document (Attached sheet 2-5)

4. Effective time : From the vehicle produced initially

※ **・Original MSB(MSB-13EXL35-501) was issued on May 31**

・Revised A(MSB-13EXL35-501A) was issued on Sep 12.

1) MMNA is added as the target destination.

2) There is a change in the attached sheet 3.

・ Revised B(MSB-13EXL35-501B) was issued on Sep 13

1) The model year of MIRAGE is changed to 2014MY

2) The INFO ID of 2014MY MIRAGE is amended.

Attached sheet 2

TROUBLESHOOTING

DIAGNOSIS TROUBLESHOOTING FLOW

M1355000900277

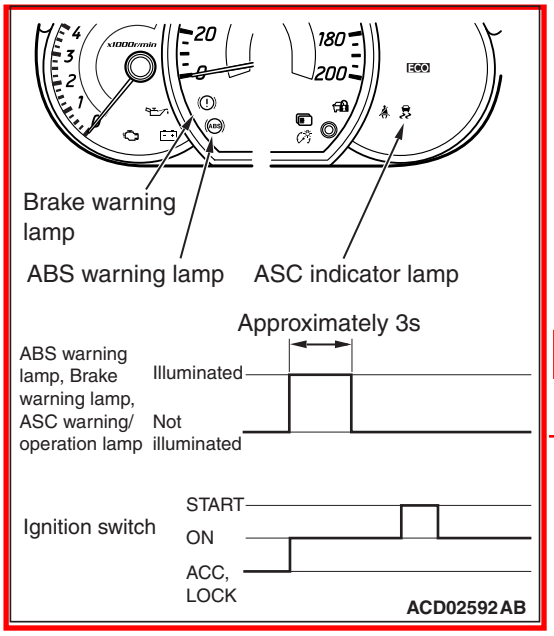
Refer to GROUP 00 – How to Use Troubleshooting/ Inspection Service Points .

PRECAUTIONS FOR DIAGNOSIS

M1355009500209

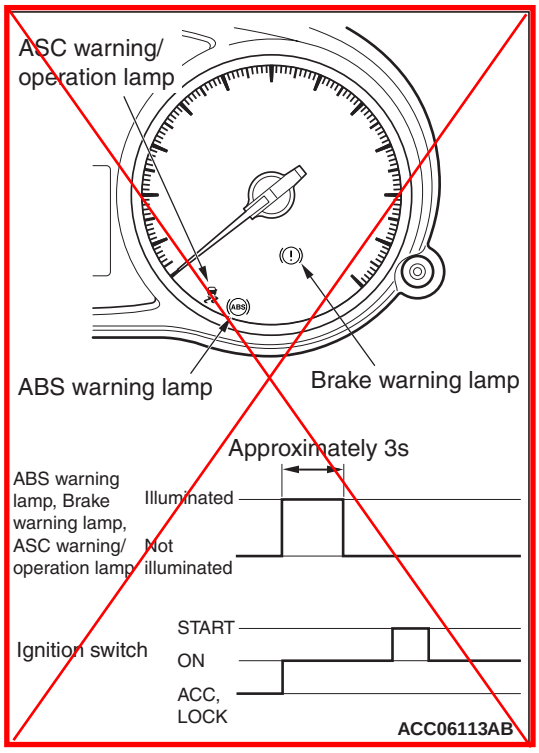
1. ASC controls brake pressure by the assistance of ECU. The symptoms described in the chart below may occur during the normal ASC operation, and they do not indicate any sign of malfunction.

Symptoms	Description of symptoms
• When the ASC operates, the operating noise is generated from the motor. (Squeak noise) • Noise is generated from the brake pedal together with the vibration. (Gride noise) • When ABS operates, the system repeats the activation and deactivation. At this time, the noise is generated from the chassis components. (Clonk: Suspension, Squeaky: Tyres)	These noises are generated when the system and brake pedal operate normally, and they do not indicate any sign of malfunction.
ıke pedal	This noise is generated when the system operation check (startup check performed at the vehicle speed which is a few km/h higher than the predetermined vehicle speed) is performed, and it does not indicate malfunction.



Correct

Incorrect



ASC INDICATOR LAMP, ABS WARNING LAMP AND BRAKE WARNING LAMP CHECK

M1352012001338

Check that ABS and brake warning lamps, ASC indicator lamp illuminate as follows.

NOTE: The brake warning lamp is used as a warning lamp for parking brake, brake fluid level, and EBD control.

1. When the ignition switch is turned to the ON position, ABS and brake warning lamps, ASC indicator lamp illuminate.
2. The ABS and brake warning lamps, ASC indicator lamp illuminate for three seconds[*1] and then turn OFF[*2].
3. Otherwise, check the diagnosis code.

Attached sheet 3

Inspection Procedure 14: HSA (Hill Start Assist) works on a flat road.

⚠ CAUTION
- **If there is any problem in the CAN bus lines, an incorrect diagnosis code may be stored. Prior to this diagnosis, diagnose the CAN bus lines (Refer to GROUP 54C – CAN Bus Diagnostics Table).**
- **Whenever ECU is replaced, ensure that the CAN bus lines are normal.**
- **When the hydraulic unit (integrated with ASC-ECU) is replaced, always carry out the calibration of the steering wheel sensor and the G and yaw rate sensor (Refer to and).**

COMMENTS ON TROUBLE SYMPTOM
- A failure may have occurred in the calibration of the G & yaw rate sensor.
- Some drivers mistake a brake dragging for HSA operation.
- If the suspension is modified, the vehicle posture changes, and the ASC-ECU judges that the vehicle is on a steep slope and may activate HSA.

PROBABLE CAUSES
- The G and yaw rate sensor improperly calibrated
- Brake drag

DIAGNOSIS PROCEDURE

STEP 1. HSA function check
Check if the HSA works with one occupant (driver) only in the vehicle.

Q: Does the HSA work on a flat road?
YES : Go to Step 2.
NO : This diagnosis is complete.

STEP 2. M.U.T.-III data list
Evaluate the data list below with one person on the driver's seat and the vehicle otherwise unloaded (unladen weight) on a smooth flat surface (Refer to).
- Item No. 09: Longitudinal G-sensor

Q: Is the check result normal?
YES : Go to Step 4.
NO : Go to Step 3.

STEP 3. Check the brake system for brake drag.
Check the brake system for brake drag.

Q: Is the check result normal?
YES : Go to Step 4.
NO : Repair the brake drag. Then go to Step 4.

STEP 4. Retest the system
Check if the HSA works with one person on the driver's seat.

Q: Does the HSA work on a flat road?
YES : Return to Step 2.
NO : This diagnosis is complete.

A

Correct

Drive the vehicle until the vehicle speed reaches 40 km/h,
~~When vehicle speed reaches 40 km/h,~~

Inspection Procedure 15: The initial check sound of hydraulic unit is loud.

⚠ CAUTION
When installing brake tube, match the axial centre of flare nut and brake tube with the centre of hole at the hydraulic unit side, and check that the fluid does not leak.

COMMENT ON TROUBLE SYMPTOM
The operation sound may be decreased by reducing the load at the rubber mount portion of the brake tube and hydraulic unit.

PROBABLE CAUSES
- Improper installation of the hydraulic unit
- Improper installation of the brake tube

DIAGNOSIS PROCEDURE

DRIVING CHECK
(1) Turn the ignition switch from the "LOCK" (OFF) position to the "ON" position.
(2) ~~When vehicle speed reaches 10 km/h,~~ check the operating sound volume and compare it with that of the same model.

OK: The operating sound is the same volume or less by comparing with that of the same model.

Incorrect

Q: Is the check result normal?

Attached sheet 4

YES : This diagnosis is complete.
NO : Carry out adjustment for hydraulic unit installation. (Refer to).

DATA LIST REFERENCE TABLE

M1355001501015

The following items of ASC-ECU input data can be read using M.U.T.-III.

Correct

-0.04 to 0.04 G

The system is normal.

Item No.	Check item	Check condition	Normal condition
01	FL wheel speed sensor	Perform a test run of the vehicle.	The speedometer display and the M.U.T.-III display almost agree with each other. (During stop: approximately 0.7km/h)
02	FR wheel speed sensor		
03	RL wheel speed sensor		
04	RR wheel speed sensor		
08	Lateral G sensor (+: left turn, -: right turn)	Vehicle stopped (level)	-0.11 to 0.11 G
		Running	-1 to 1 G
09	G sensor (+: deceleration, -: acceleration)	Vehicle stopped (level)	~~0.04 G~~ Incorrect
		Running	-1 to 1 G
10	Master cylinder pressure (+: pressure increase, -: pressure decrease)	The brake pedal is depressed.	Increases by the amount of the brake pedal depression.
		The brake pedal is released.	-3 to 3 bar
11	Steering angle (+: left turn, -: right turn)	Vehicle stopped (the steering wheel is in the neutral position)	-6 to 6 deg
		Running	Nearly the same as the steering wheel operation angle <-720 to 720 deg (ASC-ECU normal detection value)>
			Nearly the same as the steering wheel operation angle <-850 to 850 deg (Sensor normal value as a single unit)>
12	Yaw rate sensor (+: left turn, -: right turn)	Vehicle stopped (level)	-3.6 to 3.6 deg/s
		Running	-100 to 100 deg/s
15	Emission test mode	Emission test mode: ON	ON
		Emission test mode: OFF	OFF
65	Engine Speed	When the accelerator pedal is depressed (engine started)	The tachometer display and the M.U.T.-III display almost agree with each other.
66	Engine torque		Displays the engine torque.
67	APS		Displays the accelerator pedal opening angle.
68	Allow ESP torque request		Allow
70	Target gear	When the selector lever is operated	Displays the selector lever position.
71	Actual gear		

Inspection Procedure 15: The initial check sound of hydraulic unit is loud.

⚠ CAUTION
When installing brake tube, match the axial center of flare nut and brake tube with the center of hole at the hydraulic unit side, and check that the fluid does not leak.

COMMENT ON TROUBLE SYMPTOM
The operation sound may be decreased by reducing the load at the rubber mount portion of the brake tube and hydraulic unit.

PROBABLE CAUSES
- Improper installation of the hydraulic unit
- Improper installation of the brake tube

DIAGNOSIS

DRIVING CHECK
(1) Turn the ignition switch from the "LOCK" (OFF) position to the "ON" position.
(2) When vehicle speed reaches 40 km/h (24.9 mph), check the operating sound volume and compare it with that of the same model.

Incorrect

Correct

Drive the vehicle until the vehicle speed reaches 40 km/h (24.9mph),

OK: The operating sound is the same volume or less by comparing with that of the same model.

Q: Is the check result normal?
YES : This diagnosis is complete.
NO : Carry out adjustment for hydraulic unit installation.

DATA LIST REFERENCE TABLE

M1355001501015

The following items of ASC-ECU input data can be read using scan tool MB991958.

The system is normal.

Item No.	Check item	Check condition	Normal condition
01	FL wheel speed sensor	Perform a test run of the vehicle.	The speedometer display and the M.U.T.-III display almost agree with each other. (During stop: approximately 0.7km/h)
02	FR wheel speed sensor		
03	RL wheel speed sensor		
04	RR wheel speed sensor		
08	Lateral G sensor (+: left turn, -: right turn)	Vehicle stopped (level)	-0.11 to 0.11 G
		Running	-1 to 1 G
09	G sensor (+: deceleration, -: acceleration)	Vehicle stopped (level)	-0.04 to 0.04 G
		Running	-1 to 1 G
10	Master cylinder pressure (+: pressure increase, -: pressure decrease)	The brake pedal is depressed.	Increases by the amount of the brake pedal depression.
		The brake pedal is released.	-3 to 3 bar