Technical Service Bulletin

SUBJECT: CRUISE CONTROL DTC DIAGNOSIS – SERVICE MANUAL REVISION			No: **TSB–16–17–001** DATE: **June, 2016** MODEL: **2014–15 Mirage**
CIRCULATE TO:	[ ] GENERAL MANAGER	[ ] PARTS MANAGER	[X] TECHNICIAN
[X] SERVICE ADVISOR	[X] SERVICE MANAGER	[ ] WARRANTY PROCESSOR	[ ] SALES MANAGER

PURPOSE

This TSB provides corrected diagnosis steps for cruise control diagnostic trouble codes.

AFFECTED VEHICLES

2014 – 2015 Mirage

AFFECTED SERVICE MANUALS

2014 and 2015 Mirage Service Manual, Group 17 – Engine and Emission Control —> Cruise Control

Continued

Please make the changes indicated below to the 2014 Mirage Service Manual – Group 17: Engine & Emission Control —> Cruise Control —> General Information

CRUISE CONTROL

GENERAL INFORMATION

M1172000101831

The cruise control system, which provides the constant speed driving without depressing the accelerator pedal at a vehicle speed determined by the driver ~~(within the range from approx. 40 to 200 km/h (25 to 124.3 mph)).~~

<Incorrect>

For this cruise control system, in conjunction with the electronic throttle valve control system, the engine control module electronically controls the throttle valve.

[approximately 40 km/h (25 mph) or more].

<Correct>

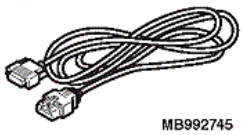
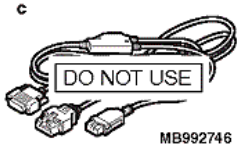
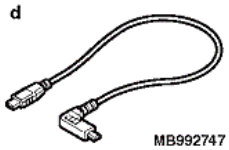
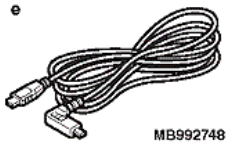
Please make the changes indicated below to the 2014 Mirage Service Manual – Group 17: Engine & Emission Control —> Cruise Control —> Components and Functions

No.	Component		Function
2.	Accelerator pedal position sensor		Informs the engine control module of the accelerator pedal depression.
3.	Cruise control indicator light		When the cruise control ON/OFF switch is pressed, a light will illuminate to inform the driver that the cruise control system is active.
4.	Cruise control switches	Cruise control ON/OFF switch	Power switch for cruise control system.
		RES + switch SET – switch	• Vehicle speed is set with the RES + switch and SET – switch. • Set vehicle speed of speed limiter is set with the RES + switch and SET – switch.
		CANCEL switch	• Cancels the constant speed driving. • Cancel speed limiter in the activated mode.
5.	CVT-ECU		• Controls the CVT based on the CVT control signal from the engine control module. • The selector lever "N" position signal from the transmission range switch is sent to the engine control module. • Outputs the signal from the secondary pulley speed sensor to the engine control module.
6.	Data link connector <Deleted>		If the scan tool MB991958 is connected, the ~~diagnostic trouble code and~~ data list from the engine control module can be read.
7.	Engine control module		• Based on the input signal from each sensors and switches, the throttle opening angle indication signal is sent. • Based on the input signal from each sensors and switches, the CVT control signal is sent to the CVT-ECU. • Based on the secondary pulley speed sensor signal from the CVT-ECU, it calculates the vehicle speed. • Based on the selector lever "N" position signal from the CVT-ECU, it cancels constant speed driving. • To the cruise control indicator light, the cruise control system ON/OFF signal is sent. <Deleted> • The ~~diagnostic trouble codes and~~ data list of the cruise control system is sent to the data link connector.
8.	Transmission range switch <CVT>		The constant speed driving is cancelled by the selector lever operation, the "N" position is detected.
9.	Clutch switch <M/T>		Because the constant speed driving is cancelled by the clutch operation, the clutch pedal status is detected.
10.	Stop light switch		• The constant speed driving is cancelled by the brake operation, the brake pedal operation is detected. • As for the stop light switch, two built-in switches, the stop light switch which is also used for the stop light illumination and the brake switch which is used exclusively for the cruise control, are integrated, and thus the reliability is enhanced.
11.	Throttle valve control servo		The throttle valve opens and closes in response to the throttle angle control signal from the engine control module.

Please make the changes indicated below to the 2014 Mirage Service Manual – Group 17: Engine & Emission Control —> Cruise Control —> Special Tools

SPECIAL TOOLS

M1172000601977

Tool	Tool number and name	Supersession	Application
a  MB992744 b  MB992745 c  MB992746 d  MB992747 e  MB992748 ACB05421AB	a. MB992744 b. MB992745 c. MB992746 d. MB992747 e. MB992748 a. Vehicle communication interface-Lite (V.C.I.-Lite) b. V.C.I.-Lite main harness A (for vehicles with CAN communication) c. V.C.I.-Lite main harness B (for vehicles without CAN communication) d. V.C.I.-Lite USB cable short e. V.C.I.-Lite USB cable long	–	~~DTC, service data and actuator test check~~ <Incorrect> Checking data list. <Correct>

Please make the changes indicated below to the 2014 Mirage Service Manual – Group 17: Engine & Emission Control —> Cruise Control —> Cruise Control System Diagnosis—> Introduction to Cruise Control System Diagnosis

Tool	Tool number and name	Supersession	Application
 MB992006	MB992006 Extra fine probe	General service tool	Making voltage and resistance measurement during troubleshooting

CRUISE CONTROL SYSTEM DIAGNOSIS

INTRODUCTION TO CRUISE CONTROL SYSTEM DIAGNOSIS

M1172003300392

The cruise control system allows driving without stepping on the accelerator pedal by setting a random speed ~~between 40 km/h (25 mph) and 160 km/h (100 mph)~~. Malfunctions in this system can be investigated by the following methods.

<Incorrect>

[40 km/h (25 mph) or more] <Correct>

Cruise control system diagnostic trouble codes

The cruise control system consists of the engine control module (ECM), control switches and sensors. The switches and sensors monitor the state of the vehicle. The ECM controls the throttle valve opening angle in the throttle body in accordance with the input signals from the switches and sensors. If the ECM detects a malfunction on any of those components, the ECM estimates where the problem may be occurring, and will set a diagnostic trouble code. Diagnostic trouble codes cover the cruise control switch, stoplight switch and ECM.

DIAGNOSIS TROUBLESHOOTING FLOW

M1172002001261

Use these steps to plan your diagnostic strategy. If you follow them carefully, you will check most of the possible causes of an cruise control system malfunction.

1. Gather information from the customer.
2. Verify that the condition described by the customer exists.
3. Check the vehicle for any cruise control system DTC. (Refer to P.17-12, Diagnostic Function – How to Read Diagnostic Trouble Codes).
4. If you can verify the condition but no cruise control system DTCs are set, the malfunction may be intermittent. (Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunctions).
5. If you can verify the condition but there are no cruise control system DTCs, find the fault. (Refer to P.17-25, Symptom Chart).
6. If there is an cruise control system DTC, record the number of the code, then erase the code. (Refer to P.17-12, Diagnostic Function – How to Erase Diagnostic Trouble Codes).
7. Re-create the cruise control system DTC set conditions to see if the same cruise control system DTC will set again. (Refer to P.17-12, Diagnostic Function – How to Read Diagnostic Trouble Codes).
   - If the same cruise control system DTC sets again, perform the diagnostic procedures for the set code. (Refer to P.17-14, Diagnostic Trouble Code Chart).

Insert Added information on next page

DIAGNOSTIC FUNCTION

M1172004900494

HOW TO ERASE DIAGNOSTIC TROUBLE CODES

Disconnect the negative (–) battery cable.

HOW TO CONNECT THE SCAN TOOL (M.U.T.-III).

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)

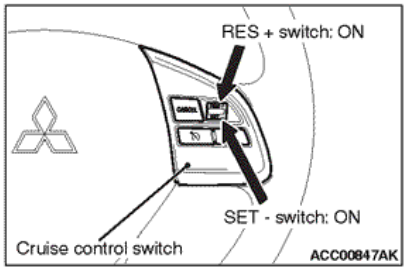
Please insert the following “Added” information below to the 2014 Mirage Service Manual – Group 17: Engine & Emission Control —> Cruise Control —> Diagnostic Function (before “How to Erase Diagnostic Trouble Codes” as indicated on previous page)

<Added>

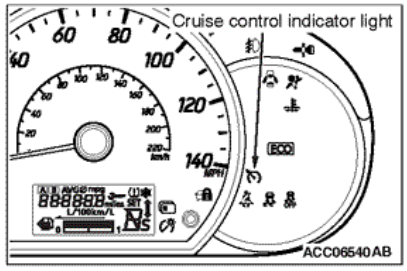
DIAGNOSTIC FUNCTION

M1172004900535

HOW TO READ DIAGNOSTIC TROUBLE CODES

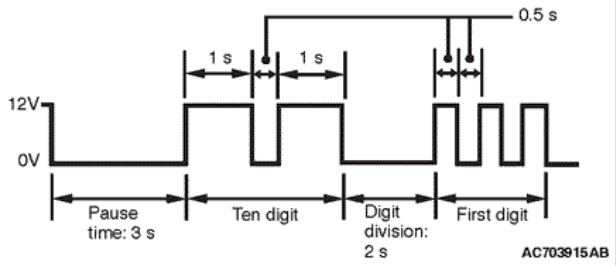
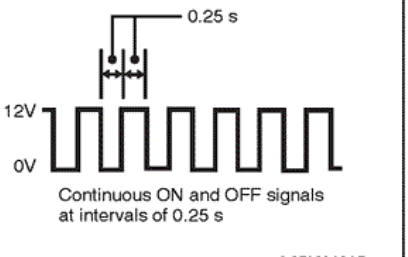


1. Turn the ignition switch to the "ON" position while pushing the "SET–" switch. Then, within one second, release the "SET–" switch and push the "RES+" switch.



2. Read a DTC by observing the flash display pattern of the "CRUISE" indicator light in the combination meter.

Diagnostic result display method when using the "CRUISE" indicator light

When DTC 23 is set	When no DTC is set
	

NOTE: Other on-board diagnostic items are also output as voltage waveforms corresponding to DTC numbers.

Please replace the following “Incorrect” information with the “Correct” information that follows in the 2014 Mirage Service Manual – Group 17: Engine & Emission Control —> Cruise Control —> Cruise Control System Diagnosis —>

- Check Chart for Diagnostic Trouble Codes
- Diagnostic Trouble Code Procedures

Replace the Incorrect information with the Correct information that follows

<Incorrect>

- MB991824: V.C.I.
- MB991827: M.U.T.-III USB Cable
- MB991910: M.U.T.-III Main Harness A

1. Connect scan tool MB991958 to the data link connector.
2. Turn the ignition switch to the "ON" position.
3. Select the "CAN Bus Diagnosis" from the start-up screen.
4. When the vehicle information is displayed, confirm that it matches the vehicle whose CAN bus lines will be diagnosed.
   - If they match, go to step 8.
   - If not, go to step 5.
5. Select the "view vehicle information" button.
6. Enter the vehicle information and select the "OK" button.
7. When the vehicle information is displayed, confirm again that it matches the vehicle which whose CAN bus lines will be diagnosed.
   - If they match, go to step 8.
   - If not, go to step 5.
8. Press the "OK" button.
9. When the optional equipment screen is displayed, choose the one which the vehicle is fitted with, and then select the "OK" button.

CHECK CHART FOR DIAGNOSTIC TROUBLE CODES

M1172002201867

Code No.	Diagnosis item	Reference page
P0504	Malfunction of the stoplight switch system	P.17-14
P0578	Abnormal voltage at cruise control switches	P.17-18
P1574	Engine control module related abnormal	P.17-23

DIAGNOSTIC TROUBLE CODE PROCEDURES

Code No.P0504: Malfunction of the Stop Light Switch System.

OPERATION

- For the stop light switch, two switches, a stop light switch for the stop light illumination and a brake switch exclusively for the cruise control system, are incorporated to improve the reliability.
- As for the stop light switch, when the brake pedal is depressed/released, the stop light switch ON/OFF signal is transmitted from the ETACS-ECU to the engine control module via CAN bus line.
- As for the brake switch, the engine control module connector terminal BRK monitor the state of the brake switch. The brake switch turn ON/OFF when the brake pedal is depressed/released, and the input signal to the engine control module connector terminal BRK changes. According to this change, the engine control module judges the state of the brake switch.

DIAGNOSTIC TROUBLE CODE SET CONDITIONS

Check Condition

- The cruise control indicator light illuminates.

Judgment Criteria

- Open/short in stop light switch circuit.

<Incorrect>

- Open circuit in the brake switch circuit (between engine control module connector terminal BRK and ground).
- Malfunction of CAN bus line.

PROBABLE CAUSES

- Malfunction of CAN bus system.
- Damaged harness or connector.
- Malfunction of the fuse No.14.
- Malfunction of the stop light switch.
- Malfunction of the ETACS-ECU.
- Malfunction of the engine control module.

DIAGNOSIS

⚠ CAUTION

- **If there is any problem in the CAN bus lines, an incorrect diagnostic trouble code may be set. Prior to this diagnosis, diagnose the CAN bus lines.**
- **Before replacing the ECU, ensure that the CAN bus line is normal.**

STEP 1. Check the CAN bus system diagnosis.

Using scan tool MB991958, perform CAN bus diagnosis (Refer to GROUP 54C – Explanation About The scan tool MB991958 Can Bus Diagnostics).

Q: Is the check result satisfactory?

YES : Go to Step 2.
NO : Repair the CAN bus lines (Refer to GROUP 54C – Troubleshooting, Can Bus Diagnostic Table). Then go to Step 12.

STEP 2. Check the data list.

Using scan tool MB991958, check the data list (Refer to data list reference table P.17-40).

- Item 74: Stop light switch

Q: Is the check result normal?

YES : Go to Step 6.
NO : Go to Step 3.

STEP 3. Check the stop light operation.

Check the stop light operation.

OK:
Brake pedal depressed: Stop light will illuminate
Brake pedal not depressed: Stop light does not illuminate

Q: Is the check result normal?

YES : Go to Step 4.
NO : Check the stop light system (Refer to GROUP 54A – Rear Combination Light, Symptom Procedures, Inspection Procedure 2: The stop lights do not illuminate or go out normally). Then go to Step 11.

<Incorrect>

STEP 4. Check the ETACS system data list.
Using scan tool MB991958, check the ETACS system data list (Refer to GROUP 54A – ETACS, Troubleshooting, data list reference table).
- Item 290: Stop light switch

Q: Is the check result normal?
YES : Go to Step 5.
NO : Replace the ETACS-ECU (Refer to GROUP 54A – ETACS, ETACS-ECU). Then go to Step 11.

STEP 5. Check the data list.
Using scan tool MB991958, check the data list (Refer to data list reference table P.17-40).
- Item 74: Stop light switch

Q: Is the check result normal?
YES : Go to Step 6.
NO : Replace the engine control module (Refer to GROUP 13A – Engine Control Module). Then go to Step 11.

STEP 6. Check the data list.
Using scan tool MB991958, check the data list (Refer to data list reference table P.17-40).
- Item 89: Brake switch

Q: Is the check result normal?
YES : Go to Step 10.
NO : Go to Step 7.

STEP 7. Check the harness wire between engine control module connector terminal BRK and stop light switch connector, and between stop light switch connector and ground.
- Check connector or harness wire for open/short circuit and damage.

Q: Is the check result normal?
YES : Go to Step 8.
NO : Repair connector or damaged harness wire. Then go to Step 11.

STEP 8. Check the stop light switch.
Refer to GROUP 35A – Brake Pedal, Inspection, Stop Light Switch Check .

Q: Is the check result normal?
YES : Go to Step 9.
NO : Replace the stop light switch (Refer to GROUP 35A – Brake Pedal). Then go to Step 11.

<Incorrect>

STEP 9. Check the data list.
Using scan tool MB991958, check the data list (Refer to data list reference table P.17-40).
- Item 89: Brake switch

Q: Is the check result normal?
YES : Go to Step 10.
NO : Replace the engine control module (Refer to GROUP 13A Engine Control Module). Then go to Step 11.

STEP 10. Read the diagnostic trouble code.
(1) Use the scan tool MB991958, erase the diagnostic trouble code of the cruise control system.
(2) Turn the ignition switch to the "ON" position, and press the cruise control ON/OFF switch to turn the cruise control system to ON (the cruise control indicator light is turned on).
(3) With the cruise control switches not operated, depress the brake pedal for several seconds, and then read the diagnostic trouble code of the cruise control system (Refer to P.17-14).

Q: Is diagnostic trouble code No. P0504 set?
YES : Replace the engine control module (Refer to GROUP 13A – Engine Control Module). Then go to Step 11.
NO : It can be assumed that this malfunction is intermittent (Refer to GROUP 00 – How to Use Troubleshooting/ Inspection Service Points, How to Cope with Intermittent Malfunction).

STEP 11. Check the data list.
Using scan tool MB991958, check the data list (Refer to data list reference table P.17-40).
- Item 74: Stop light switch
- Item 89: Brake switch

Q: Is the check result normal?
YES : Go to Step 12.
NO : Return to Step 2.

STEP 12. Read the diagnostic trouble code.
(1) Use the scan tool MB991958, erase the diagnostic trouble code of the cruise control system.
(2) Turn the ignition switch to the "ON" position, and press the cruise control ON/OFF switch to turn the cruise control system to ON (the cruise control indicator light is turned on).
(3) With the cruise control switches not operated, depress the brake pedal for several seconds, and then read the diagnostic trouble code of the cruise control system (Refer to P.17-14).

Q: Is diagnostic trouble code No. P0504 set?
YES : Return to Step 1.
NO : The procedure is complete.

<Incorrect>

Code No.P0578: Abnormal Voltage at Cruise Control Switches.

OPERATION
This circuit judges the signals of each switches (speed limiter ON/OFF, cruise control ON/OFF, CANCEL, SET – and RES +) of the cruise control switches. The engine control module detects the state of the cruise control switch by sensing the voltages shown below.
- When all switches are released: 4.7 5.0 volts
- When the speed limiter ON/OFF switch is pressed: 0 0.5 volts
- When the cruise control ON/OFF switch is pressed: 0.9 – 1.7 volts
- When the CANCEL switch is pressed: 1.9 2.7 volts
- When the SET switch is pressed: 2.9 3.6 volts
- When the RES + switch is pressed: 3.8 – 4.5 volts

DIAGNOSTIC TROUBLE CODE SET CONDITIONS
- If the cruise control switches are operated, this diagnostic trouble code will be set when the engine control module terminal voltage is different from the standard value.
- Or, this code is set when the SET – switch or RES + switch is stuck to ON.

PROBABLE CAUSES
- Damaged harness or connector.
- Malfunction of the cruise control switch.
- Malfunction of the clock spring.
- Malfunction of the engine control module.

DIAGNOSIS

STEP 1. Check the data list.
Using scan tool MB991958, check the data list (Refer to data list reference table P.17-40).
- Item 75: CANCEL switch
- Item 86: Cruise control ON/OFF switch
- Item 91: RES – switch
- Item 92: SET + switch
- Item 174: Speed limiter main switch

Q: Is the check result normal?
YES : Go to Step 19.
NO : Go to Step 2.

STEP 2. Measure the terminal voltage at cruise control switch connector.
(1) Remove the cruise control switch from the steering wheel with the cruise control switch connector connected (Refer to P.17-45).
(2) Connect the negative battery terminal that was disconnected when the driver's air bag module was removed.
(3) Turn the ignition switch to the "ON" position.
(4) Do not operate the cruise control switch.
(5) Measure the terminal voltage between cruise control switch connector terminal engine control module CNTS line and ground with cruise control switch connector connected.
OK: 4.7 – 5.0 V

Q: Is the check result normal?
YES : Go to Step 11.
NO : Go to Step 3.

<Incorrect>

STEP 3. Measure the terminal voltage at engine control module connector.
(1) Turn the ignition switch to the "ON" position.
(2) Do not operate the cruise control switch.
(3) Measure the terminal voltage between engine control module terminal No.94 (engine control module connector terminal CNTS) and ground.
OK: 4.7 – 5.0 V

Q: Is the check result normal?
YES : Go to Step 8.
NO : Go to Step 4.

STEP 4. Check the harness wire for short circuit to ground between engine control module connector terminal CNTS and cruise control switch connector.
(1) Check the engine control module connector.
(2) Disconnect engine control module connector and measure at the harness connector side.
(3) Turn the ignition switch to the "LOCK" (OFF) position.
(4) Measure the continuity between engine control module connector terminal CNTS and ground.
OK: open circuit

Q: Is the check result normal?
YES : Go to Step 18.
NO : Go to Step 5.

STEP 5. Check the harness wire between engine control module connector terminal CNTS and clock spring connector, and between clock spring connector terminal and cruise control switch connector.
- Check connector or harness wire for short circuit and damage.

Q: Is the check result normal?
YES : Go to Step 6.
NO : Repair connector or damaged harness wire. Then go to Step 20.

STEP 6. Check the clock spring.
Refer to GROUP 52B – Driver's Air Bag Module and Clock Spring Inspection .

Q: Is the check result normal?
YES : Go to Step 7.
NO : Replace the clock spring, and install the driver's air bag module [Refer to GROUP 52B – Driver's Air Bag Module and Clock Spring]. Then go to Step 20.

<Incorrect>

STEP 7. Check the cruise control switches.
Refer to P.17-44.

Q: Is the check result normal?
YES : Go to Step 10.
NO : Replace the cruise control switches (Refer to P.17-45). Then go to Step 20.

STEP 8. Check the harness wire between engine control module connector terminal CNTS and clock spring connector, and between clock spring connector and cruise control switch connector.
- Check connector or harness wire for open circuit and damage.

Q: Is the check result normal?
YES : Go to Step 9.
NO : Repair connector or damaged harness wire. Then go to Step 20.

STEP 9. Check the clock spring.
Refer to GROUP 52B Driver's Air Bag Module and Clock Spring Inspection .

Q: Is the check result normal?
YES : Go to Step 10.
NO : Replace the clock spring, and install the driver's air bag module [Refer to GROUP 52B – Driver's Air Bag Module and Clock Spring]. Then go to Step 20.

STEP 10. Check the data list.
Using scan tool MB991958, check the data list (Refer to data list reference table P.17-40).
- Item 75: CANCEL switch
- Item 86: Cruise control ON/OFF switch
- Item 91: RES – switch
- Item 92: SET + switch

Q: Is the check result normal?
YES : Go to Step 19.
NO : Go to Step 11.

<Incorrect>

STEP 11. Measure the terminal voltage at cruise control switch connector.

(1) Remove the cruise control switch from the steering wheel with the cruise control switch connector connected (Refer to P.17-45).
(2) Turn the ignition switch to the "ON" position.
(3) Press the cruise control ON/OFF switch with cruise control switch connector connected, and measure the terminal voltage between cruise control switch connector terminal engine control module SW– line and ground.

OK: 0.9 – 1.7 V

Q: Is the check result normal?

YES : Go to Step 15.
NO : Go to Step 12.

STEP 12. Measure the terminal voltage at engine control module connector.

(1) Turn the ignition switch to the "ON" position.
(2) Press the cruise control ON/OFF switch, and measure the terminal voltage between engine control module terminal No.94 (engine control module connector terminal SW–) and ground.

OK: 0.9 – 1.7 V

Q: Is the check result normal?

YES : Go to Step 13.
NO : Go to Step 18.

STEP 13. Check the harness wire between engine control module connector terminal SW– and clock spring connector, and between clock spring connector and cruise control switch connector.

- Check connector or harness wire for open circuit and damage.

Q: Is the check result normal?

YES : Go to Step 14.
NO : Repair connector or damaged harness wire. Then go to Step 20.

STEP 14. Check the clock spring.

Refer to GROUP 52B – Driver's Air Bag Module and Clock Spring Inspection .

Q: Is the check result normal?

YES : Go to Step 18.
NO : Replace the clock spring, and install the driver's air bag module [Refer to GROUP 52B – Driver's Air Bag Module and Clock Spring]. Then go to Step 20.

<Incorrect>

STEP 15. Check the harness wire between engine control module connector terminal SW– and clock spring connector, and between clock spring connector and cruise control switch connector.

- Check connector or harness wire for short circuit and damage.

Q: Is the check result normal?

YES : Go to Step 16.
NO : Repair connector or damaged harness wire. Then go to Step 20.

STEP 16. Check the clock spring.

Refer to GROUP 52B – Driver's Air Bag Module and Clock Spring Inspection .

Q: Is the check result normal?

YES : Go to Step 17.
NO : Replace the clock spring, and install the driver's air bag module [Refer to GROUP 52B Driver's Air Bag Module and Clock Spring]. Then go to Step 20.

STEP 17. Check the cruise control switches.

Refer to P.17-44.

Q: Is the check result normal?

YES : Go to Step 18.
NO : Replace the cruise control switches (Refer to P.17-45). Then go to Step 20.

STEP 18. Check the data list.

Using scan tool MB991958, check the data list (Refer to data list reference table P.17-40).

- Item 75: CANCEL switch
- Item 86: Cruise control ON/OFF switch
- Item 91: RES – switch
- Item 92: SET + switch

Q: Is the check result normal?

YES : Go to Step 19.
NO : Replace the engine control module (Refer to GROUP 13A – Engine Control Module). Then go to Step 20.

<Incorrect>

STEP 19. Read the diagnostic trouble code.
(1) Use the scan tool MB991958, erase the diagnostic trouble code of the cruise control system.
(2) Turn the ignition switch to the "ON" position, and press the cruise control ON/OFF switch to turn the cruise control system to ON (the cruise control indicator light <standard meter> or the cruise control display screen <high contrast meter> is turned on).
(3) After turning the cruise control system to ON, when 2 minutes or more has elapsed without operating the cruise control switches, read the diagnostic trouble code of the cruise control system (Refer to P.17-14).

Q: Is diagnostic trouble code No. P0578 set?
YES : Replace the engine control module (Refer to GROUP 13A Engine Control Module). Then go to Step 20.
NO : It can be assumed that this malfunction is intermittent (Refer to GROUP 00 How to Use Troubleshooting/ Inspection Service Points, How to Cope with Intermittent Malfunction).

STEP 20. Check the data list.
Using scan tool MB991958, check the data list (Refer to data list reference table P.17-40scan tool MB991958).
- Item 75: CANCEL switch
- Item 86: Cruise control ON/OFF switch
- Item 91: RES switch
- Item 92: SET + switch
- Item 174: Speed limiter main switch

Q: Is the check result normal?
YES : Go to Step 21.
NO : Return to Step 2.

STEP 21. Read the diagnostic trouble code.
(1) Use the scan tool MB991958, erase the diagnostic trouble code of the cruise control system.
(2) Turn the ignition switch to the "ON" position, and press the cruise control ON/OFF switch to turn the cruise control system to ON (turn ON the cruise control indicator t).
(3) After turning the cruise control system to ON, when 2 minutes or more has elapsed without operating the cruise control switches, read the diagnostic trouble code of the cruise control system (Refer to P.17-14).

Q: Is diagnostic trouble code No. P0578 set?
YES : Return to Step 1.
NO : The procedure is complete.

CODE NO. P1574: Engine Control Module and its Related Components

<Incorrect>

DIAGNOSTIC TROUBLE CODE SET CONDITIONS
This diagnostic trouble code is stored when there is an failure in the engine control module and its related components.

PROBABLE CAUSES
- Malfunction of the MFI system.
- Malfunction of the engine control module.

DIAGNOSIS

STEP 1. Check the MFI system diagnostic trouble code.
Using scan tool MB991958, perform MFI system diagnostic trouble code (Refer to GROUP 13A – Troubleshooting, Diagnosis Function).

Q: Is any diagnostic trouble code stored?

YES : Repair the MFI system (Refer to GROUP 13A – Troubleshooting, Inspection Chart for Diagnostic Trouble Code). Then go to Step 3 .

NO : Go to Step 2.

STEP 2. Read the diagnostic trouble code.
(1) Use the scan tool MB991958, erase the diagnostic trouble code of the cruise control system.
(2) Turn the ignition switch to the "ON" position, and press the cruise control ON/OFF switch to turn the cruise control system to ON (the cruise control indicator lamp <standard meter> or the cruise control display screen <high contrast meter> is turned on).
(3) After turning the cruise control system to ON, when 2 minutes or more has elapsed without operating the cruise control switches, read the diagnostic trouble code of the cruise control system (Refer to P.17-14).

Q: Is diagnostic trouble code No. P1574 stored?

YES : Replace the engine control module (Refer to GROUP 13A Engine Control Module). Then go to Step 3.

NO : It can be assumed that this malfunction is intermittent (Refer to GROUP 00 – How to Use Troubleshooting/ Inspection Service Points, How to Cope with Intermittent Malfunction).

STEP 3. Read the diagnostic trouble code.
(1) Use the scan tool MB991958, erase the diagnostic trouble code of the cruise control system.
(2) Turn the ignition switch to the "ON" position, and press the cruise control ON/OFF switch to turn the cruise control system to ON (the cruise control indicator lamp <standard meter> or the cruise control display screen <high contrast meter> is turned on).
(3) After turning the cruise control system to ON, when 2 minutes or more has elapsed without operating the cruise control switches, read the diagnostic trouble code of the cruise control system (Refer to P.17-14).

Q: Is diagnostic trouble code No. P1574 stored?

YES : Return to Step 1.

NO : This procedure is complete.

<Correct>

DIAGNOSTIC TROUBLE CODE CHART

M1172002201953

Check according to the inspection chart that is appropriate for the diagnostic trouble code.

Diagnostic trouble code number	Inspection item	Reference page
15	Cruise control switch system	P.17-15
22	Stoplight switch system	P.17-20
23	Engine control module (ECM) and its related components	P.17-24

DIAGNOSTIC TROUBLE CODE PROCEDURES

DTC 15: Cruise Control Switch System.

OPERATION

This circuit judges the signals of each switches (cruise control ON/OFF, CANCEL, SET – and RES +) of the cruise control switches. The engine control module detects the state of the cruise control switch by sensing the voltages shown below.

- When all switches are released: 4.7 – 5.0 volts
- When the cruise control ON/OFF switch is pressed: 0.9 – 1.7 volts
- When the CANCEL switch is pressed: 1.9 – 2.7 volts
- When the SET – switch is pressed: 2.9 – 3.6 volts
- When the RES + switch is pressed: 3.8 – 4.5 volts

DIAGNOSTIC TROUBLE CODE SET CONDITIONS

- If the cruise control switches are operated, this diagnostic trouble code will be set when the engine control module terminal voltage is different from the standard value.
- Or, this code is set when the SET – switch or RES + switch is stuck to ON.

PROBABLE CAUSES

- Damaged harness or connector.
- Malfunction of the cruise control switch.
- Malfunction of the clock spring.
- Malfunction of the engine control module.

DIAGNOSIS

STEP 1. Check the data list.

Using scan tool MB991958, check the data list (Refer to data list reference table P.17-39).

- Item 75: CANCEL switch
- Item 86: Cruise control ON/OFF switch
- Item 91: RES – switch
- Item 92: SET + switch

Q: Is the check result normal?

YES : Go to Step 19.
NO : Go to Step 2.

<Correct>

STEP 2. Measure the terminal voltage at cruise control switch connector.

(1) Remove the cruise control switch from the steering wheel with the cruise control switch connector connected (Refer to P.17-44).
(2) Connect the negative battery terminal that was disconnected when the driver's air bag module was removed.
(3) Turn the ignition switch to the "ON" position.
(4) Do not operate the cruise control switch.
(5) Measure the terminal voltage between cruise control switch connector terminal engine control module CNTS (No.94) line and ground with cruise control switch connector connected.

OK: 4.7 – 5.0 V

Q: Is the check result normal?

YES : Go to Step 11.
NO : Go to Step 3.

STEP 3. Measure the terminal voltage at engine control module connector.

(1) Turn the ignition switch to the "ON" position.
(2) Do not operate the cruise control switch.
(3) Measure the terminal voltage between engine control module terminal CNTS (No.94) and ground.

OK: 4.7 – 5.0 V

Q: Is the check result normal?

YES : Go to Step 8.
NO : Go to Step 4.

STEP 4. Check the harness wire for short circuit to ground between engine control module connector terminal CNTS (No.94) and cruise control switch connector.

(1) Check the engine control module connector.
(2) Disconnect engine control module connector and measure at the harness connector side.
(3) Turn the ignition switch to the "LOCK" (OFF) position.
(4) Measure the continuity between engine control module connector terminal CNTS (No.94) and ground.

OK: open circuit

Q: Is the check result normal?

YES : Go to Step 18.
NO : Go to Step 5.

<Correct>

STEP 5. Check the harness wire between engine control module connector terminal CNTS (No.94) and clock spring connector, and between clock spring connector terminal and cruise control switch connector.

- Check connector or harness wire for short circuit and damage.

Q: Is the check result normal?

YES : Go to Step 6.
NO : Repair connector or damaged harness wire. Then go to Step 20.

STEP 6. Check the clock spring.

Refer to GROUP 52B – Driver's Air Bag Module and Clock Spring Inspection .

Q: Is the check result normal?

YES : Go to Step 7.
NO : Replace the clock spring, and install the driver's air bag module [Refer to GROUP 52B – Driver's Air Bag Module and Clock Spring]. Then go to Step 20.

STEP 7. Check the cruise control switches.

Refer to P.17-43.

Q: Is the check result normal?

YES : Go to Step 10.
NO : Replace the cruise control switches (Refer to P.17-44). Then go to Step 20.

STEP 8. Check the harness wire between engine control module connector terminal CNTS (No.94) and clock spring connector, and between clock spring connector and cruise control switch connector.

- Check connector or harness wire for open circuit and damage.

Q: Is the check result normal?

YES : Go to Step 9.
NO : Repair connector or damaged harness wire. Then go to Step 20.

STEP 9. Check the clock spring.

Refer to GROUP 52B – Driver's Air Bag Module and Clock Spring Inspection .

Q: Is the check result normal?

YES : Go to Step 10.
NO : Replace the clock spring, and install the driver's air bag module [Refer to GROUP 52B – Driver's Air Bag Module and Clock Spring]. Then go to Step 20.

<Correct>

STEP 10. Check the data list.
Using scan tool MB991958, check the data list (Refer to data list reference table P.17-39).
- Item 75: CANCEL switch
- Item 86: Cruise control ON/OFF switch
- Item 91: RES – switch
- Item 92: SET + switch

Q: Is the check result normal?
YES : Go to Step 19.
NO : Go to Step 11.

STEP 11. Measure the terminal voltage at cruise control switch connector.
(1) Remove the cruise control switch from the steering wheel with the cruise control switch connector connected (Refer to P.17-44).
(2) Turn the ignition switch to the "ON" position.
(3) Press the cruise control ON/OFF switch with cruise control switch connector connected, and measure the terminal voltage between cruise control switch connector terminal engine control module SW– line (No.93) and ground.
OK: 0.5 volt or less

Q: Is the check result normal?
YES : Go to Step 15.
NO : Go to Step 12.

STEP 12. Measure the terminal voltage at engine control module connector.
(1) Turn the ignition switch to the "ON" position.
(2) Press the cruise control ON/OFF switch, and engine control module connector terminal SW– (No.93) and ground.
OK: 0.5 volt or less

Q: Is the check result normal?
YES : Go to Step 13.
NO : Go to Step 18.

STEP 13. Check the harness wire between engine control module connector terminal SW– (No.93) and clock spring connector, and between clock spring connector and cruise control switch connector.
- Check connector or harness wire for open circuit and damage.

Q: Is the check result normal?
YES : Go to Step 14.
NO : Repair connector or damaged harness wire. Then go to Step 20.

<Correct>

STEP 14. Check the clock spring.
Refer to GROUP 52B – Driver's Air Bag Module and Clock Spring Inspection .

Q: Is the check result normal?

YES : Go to Step 18.
NO : Replace the clock spring, and install the driver's air bag module [Refer to GROUP 52B – Driver's Air Bag Module and Clock Spring]. Then go to Step 20.

STEP 15. Check the harness wire between engine control module connector terminal SW– (No.93) and clock spring connector, and between clock spring connector and cruise control switch connector.

- Check connector or harness wire for short circuit and damage.

Q: Is the check result normal?

YES : Go to Step 16.
NO : Repair connector or damaged harness wire. Then go to Step 20.

STEP 16. Check the clock spring.
Refer to GROUP 52B – Driver's Air Bag Module and Clock Spring Inspection .

Q: Is the check result normal?

YES : Go to Step 17.
NO : Replace the clock spring, and install the driver's air bag module [Refer to GROUP 52B – Driver's Air Bag Module and Clock Spring]. Then go to Step 20.

STEP 17. Check the cruise control switches.
Refer to P.17-43.

Q: Is the check result normal?

YES : Go to Step 18.
NO : Replace the cruise control switches (Refer to P.17-44). Then go to Step 20.

STEP 18. Check the data list.
Using scan tool MB991958, check the data list (Refer to data list reference table P.17-39).

- Item 75: CANCEL switch
- Item 86: Cruise control ON/OFF switch
- Item 91: RES – switch
- Item 92: SET + switch

Q: Is the check result normal?

YES : Go to Step 19.
NO : Replace the engine control module (Refer to GROUP 13A – Engine Control Module). Then go to Step 20.

<Correct>

STEP 19. Read the diagnostic trouble code.

(1) Disconnect the negative (–) battery terminal, to erase the DTC of the cruise control system.

(2) Connect the negative (-) battery terminal.

~~(2)~~ (3) Turn the ignition switch to the "ON" position, and press the cruise control ON/OFF switch to turn the cruise control system to ON (the cruise control indicator light is turned on).

(4) ~~(3)~~ After turning the cruise control system to ON, when 2 minutes or more has elapsed without operating the cruise control switches, read the diagnostic trouble code of the cruise control system (Refer to P.17-15).

Q: Is diagnostic trouble code No. 15 set?

YES : Replace the engine control module (Refer to GROUP 13A – Engine Control Module). Then go to Step 20.

NO : It can be assumed that this malfunction is intermittent (Refer to GROUP 00 – How to Use Troubleshooting/ Inspection Service Points, How to Cope with Intermittent Malfunction).

STEP 20. Check the data list.

Using scan tool MB991958, check the data list (Refer to data list reference table P.17-39).

- Item 75: CANCEL switch
- Item 86: Cruise control ON/OFF switch
- Item 91: RES – switch
- Item 92: SET + switch

Q: Is the check result normal?

YES : Go to Step 21.

NO : Return to Step 2.

STEP 21. Read the diagnostic trouble code.

(1) Disconnect the negative (–) battery terminal, to erase the DTC of the cruise control system.

(2) Connect the negative (-) battery terminal.

(3) ~~(2)~~ Turn the ignition switch to the "ON" position, and press the cruise control ON/OFF switch to turn the cruise control system to ON (turn ON the cruise control indicator t).

(4) ~~(3)~~ After turning the cruise control system to ON, when 2 minutes or more has elapsed without operating the cruise control switches, read the diagnostic trouble code of the cruise control system (Refer to P.17-15).

Q: Is diagnostic trouble code No. 15 set?

YES : Return to Step 1.

NO : The procedure is complete.

DTC 22: Stoplight Switch System.

OPERATION

- For the stoplight switch, two switches, a stoplight switch for the stoplight illumination and a brake switch exclusively for the cruise control system, are incorporated to improve the reliability.

<Correct>

- As for the stoplight switch, when the brake pedal is depressed/released, the stoplight switch ON/OFF signal is transmitted from the ETACS-ECU to the engine control module via CAN bus line.
- As for the brake switch, the engine control module connector terminal BRK monitor the state of the brake switch. The brake switch turn ON/OFF when the brake pedal is depressed/released, and the input signal to the engine control module connector terminal BRK changes. According to this change, the engine control module judges the state of the brake switch.

DIAGNOSTIC TROUBLE CODE SET CONDITIONS

Check Condition

- The cruise control indicator light illuminates.

Judgment Criteria

- Open/short in stoplight switch circuit.
- Open circuit in the brake switch circuit (between engine control module connector terminal BRK and ground).
- Malfunction of CAN bus line.

PROBABLE CAUSES

- Malfunction of CAN bus system.
- Damaged harness or connector.
- Malfunction of the fuse No.12.
- Malfunction of the stoplight switch.
- Malfunction of the ETACS-ECU.
- Malfunction of the engine control module.

DIAGNOSIS

⚠ CAUTION

- **If there is any problem in the CAN bus lines, an incorrect diagnostic trouble code may be set. Prior to this diagnosis, diagnose the CAN bus lines.**
- **Before replacing the ECU, ensure that the CAN bus line is normal.**

STEP 1. Check the CAN bus system diagnosis.

Using scan tool MB991958, perform CAN bus diagnosis (Refer to GROUP 54C – Explanation About The scan tool MB991958 Can Bus Diagnostics).

Q: Is the check result satisfactory?

YES : Go to Step 2.
NO : Repair the CAN bus lines (Refer to GROUP 54C – Troubleshooting, Can Bus Diagnostic Table). Then go to Step 12.

STEP 2. Check the data list.

Using scan tool MB991958, check the data list (Refer to data list reference table P.17-39).

- Item 74: stoplight switch

Q: Is the check result normal?

YES : Go to Step 6.
NO : Go to Step 3.

<Correct>

STEP 3. Check the stoplight operation.
Check the stoplight operation.

OK:
Brake pedal depressed: stoplight will illuminate
Brake pedal not depressed: stoplight does not illuminate

Q: Is the check result normal?

YES : Go to Step 4.
NO : Check the stoplight system (Refer to GROUP 54A – Rear Combination Light, Symptom Procedures, Inspection Procedure 2: The stoplights do not illuminate or go out normally). Then go to Step 11.

STEP 4. Check the ETACS system data list.
Using scan tool MB991958, check the ETACS system data list (Refer to GROUP 54A – ETACS, Troubleshooting, data list reference table).

- Item 290: stoplight switch

Q: Is the check result normal?

YES : Go to Step 5.
NO : Replace the ETACS-ECU (Refer to GROUP 54A – ETACS, ETACS-ECU). Then go to Step 11.

STEP 5. Check the data list.
Using scan tool MB991958, check the data list (Refer to data list reference table P.17-39).

- Item 74: stoplight switch

Q: Is the check result normal?

YES : Go to Step 6.
NO : Replace the engine control module (Refer to GROUP 13A – Engine Control Module). Then go to Step 11.

STEP 6. Check the data list.
Using scan tool MB991958, check the data list (Refer to data list reference table P.17-39).

- Item 89: Brake switch

Q: Is the check result normal?

YES : Go to Step 10.
NO : Go to Step 7.

STEP 7. Check the harness wire between engine control module connector terminal BRK and stoplight switch connector, and between stoplight switch connector and ground.

- Check connector or harness wire for open/short circuit and damage.

Q: Is the check result normal?

YES : Go to Step 8.
NO : Repair connector or damaged harness wire. Then go to Step 11.

<Correct>

STEP 8. Check the stoplight switch.
Refer to GROUP 35A – Brake Pedal, Inspection, stoplight Switch Check .

Q: Is the check result normal?

YES : Go to Step 9.
NO : Replace the stoplight switch (Refer to GROUP 35A – Brake Pedal). Then go to Step 11.

STEP 9. Check the data list.
Using scan tool MB991958, check the data list (Refer to data list reference table P.17-39).

- Item 89: Brake switch

Q: Is the check result normal?

YES : Go to Step 10.
NO : Replace the engine control module (Refer to GROUP 13A – Engine Control Module). Then go to Step 11.

STEP 10. Read the diagnostic trouble code.
(1) Disconnect the negative (–) battery terminal, to erase the DTC of the cruise control system.
(3) ~~(2)~~ Turn the ignition switch to the "ON" position, and press the cruise control ON/OFF switch to turn the cruise control system to ON (the cruise control indicator light is turned on).
(4) ~~(3)~~ With the cruise control switches not operated, depress the brake pedal for several seconds, and then read the diagnostic trouble code of the cruise control system (Refer to P.17-15).

(2) Connect the negative (-) battery terminal.

Q: Is diagnostic trouble code No. 22 set?

YES : Replace the engine control module (Refer to GROUP 13A – Engine Control Module). Then go to Step 11.
NO : It can be assumed that this malfunction is intermittent (Refer to GROUP 00 – How to Use Troubleshooting/ Inspection Service Points, How to Cope with Intermittent Malfunction).

STEP 11. Check the data list.
Using scan tool MB991958, check the data list (Refer to data list reference table P.17-39).

- Item 74: stoplight switch
- Item 89: Brake switch

Q: Is the check result normal?

YES : Go to Step 12.
NO : Return to Step 2.

<Correct>

(2) Connect the negative (-) battery terminal.

STEP 12. Read the diagnostic trouble code.

(1) Disconnect the negative (–) battery terminal, to erase the DTC of the cruise control system.

(3) ~~(2)~~ Turn the ignition switch to the "ON" position, and press the cruise control ON/OFF switch to turn the cruise control system to ON (the cruise control indicator light is turned on).

(4) ~~(3)~~ With the cruise control switches not operated, depress the brake pedal for several seconds, and then read the diagnostic trouble code of the cruise control system (Refer to P.17-15).

Q: Is diagnostic trouble code No. 22 set?

YES : Return to Step 1.
NO : The procedure is complete.

DTC 23: ECM and Its Related Component.

DIAGNOSTIC TROUBLE CODE SET CONDITIONS
This diagnostic trouble code is set when there is an failure in the engine control module and its related components.

PROBABLE CAUSES
- Malfunction of the MFI system.
- Malfunction of the engine control module.

DIAGNOSIS

STEP 1. Check the MFI system diagnostic trouble code.
Using scan tool MB991958, perform MFI system diagnostic trouble code (Refer to GROUP 13A – Troubleshooting, Diagnosis Function).

Q: Is any diagnostic trouble code set?

YES : Repair the MFI system (Refer to GROUP 13A – Troubleshooting, Inspection Chart for Diagnostic Trouble Code). Then go to Step 3.
NO : Go to Step 2.

<Correct>

(2) Connect the negative (-) battery terminal.

STEP 2. Read the diagnostic trouble code.

(1) Disconnect the negative (–) battery terminal, to erase the DTC of the cruise control system.

(3) ~~(2)~~ Turn the ignition switch to the "ON" position, and press the cruise control ON/OFF switch to turn the cruise control system to ON (the cruise control indicator lamp is turned on).

(4) ~~(3)~~ After turning the cruise control system to ON, when 2 minutes or more has elapsed without operating the cruise control switches, read the diagnostic trouble code of the cruise control system (Refer to P.17-15).

Q: Is diagnostic trouble code No. 23 set?

YES : Replace the engine control module (Refer to GROUP 13A – Engine Control Module). Then go to Step 3.

NO : It can be assumed that this malfunction is intermittent (Refer to GROUP 00 – How to Use Troubleshooting/ Inspection Service Points, How to Cope with Intermittent Malfunction).

(2) Connect the negative (-) battery terminal.

STEP 3. Read the diagnostic trouble code.

(1) Disconnect the negative (–) battery terminal, to erase the DTC of the cruise control system.

(3) ~~(2)~~ Turn the ignition switch to the "ON" position, and press the cruise control ON/OFF switch to turn the cruise control system to ON (the cruise control indicator lamp is turned on).

(4) ~~(3)~~ After turning the cruise control system to ON, when 2 minutes or more has elapsed without operating the cruise control switches, read the diagnostic trouble code of the cruise control system (Refer to P.17-15).

Q: Is diagnostic trouble code No. 23 set?

YES : Return to Step 1.

NO : This procedure is complete.

Please make the following changes to the 2014 Mirage Service Manual – Group 17: Engine & Emission Control —> Cruise Control —> Symptom Procedures —> “Inspection Procedure 1: When the Brake Pedal is Depressed, Cruise Control is not Cancelled.”

DIAGNOSIS

⚠ CAUTION

- **If there is any problem in the CAN bus lines, an incorrect diagnostic trouble code may be set. Prior to this diagnosis, diagnose the CAN bus lines.**
- **Before replacing the ECU, ensure that the CAN bus lines is normal.**

STEP 1. Check the CAN bus system diagnosis.
Using scan tool MB991958, perform CAN bus diagnosis (Refer to GROUP 54C - Explanation About The Scan Tool (M.U.T.-III) Can Bus Diagnostics).

Q: Is the check result satisfactory?

YES : Go to Step 2.
NO : Repair the CAN bus lines (Refer to GROUP 54C – Troubleshooting, Can Bus Diagnostic Table). Then go to Step 4.

STEP 2. Check the data list.
Using scan tool MB991958, check the data list (Refer to data list reference table P.17-40).

- Item 74: Stop light switch
- Item 89: Brake switch

Q: Is the check result normal?

<Correct>
Repair the stoplight switch system (Refer to Diagnostic Trouble Code Procedures - DTC 22: Stoplight Switch System).

YES : Go to Step 3.
<Incorrect>
NO : ~~Check the stop light switch system (Refer to P.17-14 – Diagnostic Trouble Code Procedures, Code No. P0504: Malfunction of the stoplight switch system).~~ Then go to Step 4.

STEP 3. Check the symptom.

Q: When the brake pedal is depressed, is the cruise control cancelled?

YES : It can be assumed that this malfunction is intermittent (Refer to GROUP 00 – How to Use Troubleshooting/ Inspection Service Points, How to Cope with Intermittent Malfunction).
NO : Replace the engine control module (Refer to GROUP 13A – engine control module). Then go to Step 4.

STEP 4. Check the symptom.

Q: When the brake pedal is depressed, is the cruise control cancelled?

YES : The procedure is complete.
NO : Return to Step 1.

Inspection Procedure 2: When the Clutch Pedal is Depressed, Cruise Control is not Cancelled. <M/T>

Please make the following changes to the 2014 Mirage Service Manual – Group 17: Engine & Emission Control —> Cruise Control —> Symptom Procedures —> “Inspection Procedure 4: When the CANCEL Switch is Pressed, Cruise Control is not Cancelled.”

DIAGNOSIS

STEP 1. Check the data list.
Using scan tool MB991958, check the data list (Refer to data list reference table P.17-40).
- Item 75: CANCEL switch

Q: Is the check result normal?
YES : Go to Step 2.
NO : Check the cruise control switch system (Refer to P.17-18 – Diagnostic Trouble Code Procedures, Code No. P0578: Abnormal voltage at cruise control switch). Then go to Step 3.

<Correct>
Repair the cruise control switch system (Refer to Diagnostic Trouble Code Procedures - DTC 15: Cruise Control Switch System). Then go to Step 3.

<Incorrect>

STEP 2. Check the symptom.

Q: When the CANCEL switch is pressed, is the cruise control cancelled?
YES : It can be assumed that this malfunction is intermittent (Refer to GROUP 00 – How to Use Troubleshooting/ Inspection Service Points, How to Cope with Intermittent Malfunction).
NO : Replace the engine control module (Refer to GROUP 13A – Engine Control Module). Then go to Step 3.

STEP 3. Check the symptom.

Q: When the CANCEL switch is pressed, is the cruise control cancelled?
YES : The procedure is complete.
NO : Return to Step 1.

Inspection Procedure 5: Cruise Control cannot be Set (No Response SET – Switch and RES + Switch is Pressed).

COMMENTS ON TROUBLE SYMPTOM
The fail-safe function is probably cancelling cruise control system. In this case, checking the cruise control system, MFI system, CAN bus system and CVT system diagnostic trouble codes. The scan tool MB991958 can also be used to check if the circuits of each input switches are normal or not by checking the data list.

NOTE: Press the cruise control switches one by one securely. Otherwise, the cruise control system may not be started.

PROBABLE CAUSES
- Malfunction of CAN bus system.
- Malfunction of the MFI system.
- Malfunction of the CVT system.
- Malfunction of the cruise control switches.
- Malfunction of the stop light switch.
- Malfunction of the clutch switch <M/T>.
- Malfunction of the transmission range switch <CVT>.
- Malfunction of the engine control module.

Please make the following changes to the 2014 Mirage Service Manual – Group 17: Engine & Emission Control —> Cruise Control —> Symptom Procedures —> “Inspection Procedure 5: Cruise Control cannot be Set (No Response SET — Switch and RES + Switch is Pressed).”

STEP 4. Read the diagnostic trouble code.
(1) Use the scan tool MB991958, erase the diagnostic trouble code of the cruise control system.
(2) Turn the ignition switch to the "ON" position, and press the cruise control ON/OFF switch to turn the cruise control system to ON (turn ON the cruise control indicator lamp).
(3) After turning the cruise control system to ON, when 2 minutes or more has elapsed without operating the cruise control switches.
(4) With the cruise control switches not operated, depress the brake pedal for several seconds, and then read the diagnostic trouble code of the cruise control system (Refer to P.17-14.)

Q: Is any diagnostic trouble code stored?
YES : Repair the cruise control system (Refer to P.17-14 – Diagnostic Trouble Code Chart). Then go to Step 10.
NO : Go to Step 5.

STEP 5. Check the data list.
Using scan tool MB991958, check the data list (Refer to data list reference table P.17-40).
- Item 75: CANCEL switch
- Item 86: Cruise control ON/OFF switch
- Item 91: RES + switch
- Item 92: SET – switch

Q: Is the check result normal?
YES : Go to Step 6.
NO : Check the cruise control switch system (Refer to P.17-18 – Diagnostic Trouble Code Procedures, Code No. P0578: Abnormal voltage at cruise control switch). Then go to Step 10.

<Correct>
Repair the cruise control switch system (Refer to Diagnostic Trouble Code Procedures - DTC 15: Cruise Control Switch System). Then go to Step 10.

<Incorrect>

STEP 6. Check the data list.
Using scan tool MB991958, check the data list (Refer to data list reference table P.17-40).
- Item 74: Stop light switch
- Item 89: Brake switch

Q: Is the check result normal?
YES : Go to Step 7 <CVT>
YES : Go to Step 8 <M/T>
NO : Check the stop light switch system (Refer to P.17-14 – Diagnostic Trouble Code Procedures, Code No. P0504: Malfunction of the stoplight switch system). Then go to Step 10.

<Correct>
Repair the stoplight switch system (Refer to Diagnostic Trouble Code Procedures - DTC 22: Stoplight Switch System). Then go to Step 10.

<Incorrect>

Please replace the following “Incorrect” information with the “Correct” information that follows in the 2014 Mirage Service Manual – Group 17: Engine & Emission Control —> Cruise Control —> Symptom Procedures —> “Inspection Procedure 8: When the Cruise Control ON/OFF Switch is Turned ON, the Cruise Control Indicator Lamp does not Illuminate <standard meter> or the Cruise Control Display Screen is not Displayed <high contrast meter> (However, the Cruise Control System is Normal).”

STEP 5. Check the symptom.

Q: Does a hunting occur?

YES : Replace the engine control module (Refer to GROUP 13A – engine control module). Then go to Step 6.

NO : It can be assumed that this malfunction is intermittent (Refer to GROUP 00 – How to Use Troubleshooting/ Inspection Service Points, How to Cope with Intermittent Malfunction).

STEP 6. Check the symptom.

Q: Does a hunting occur?

YES : Return to Step 1.

NO : The procedure is complete.

<Incorrect>

Inspection Procedure 8: When the Cruise Control ON/OFF Switch is Turned ON, the Cruise Control Indicator Lamp does not Illuminate <standard meter> or the Cruise Control Display Screen is not Displayed <high contrast meter> (However, the Cruise Control System is Normal).

OPERATION

- The engine control module detects cruise control ON/OFF switch ON signal to illuminate the cruise control indicator lamp within the combination meter <standard meter> or display the cruise control display screen on the multi information display in the combination meter <high contrast meter>.
- The cruise control indicator lamp ON signal <standard meter> or the cruise control display screen ON signal <high contrast meter> is transmitted from the engine control module to the combination meter via CAN bus line.

COMMENTS ON TROUBLE SYMPTOM

- The CAN bus line between the engine control module and the ETACS-ECU and between the ETACS-ECU and the combination meter may be defective.
- The combination meter, ETACS-ECU or engine control module may also be defective.

PROBABLE CAUSES

- Malfunction of CAN bus system.
- Damaged harness or connector.
- Malfunction of the combination meter.
- Malfunction of the ETACS-ECU.
- Malfunction of the engine control module.

Replace the Incorrect information with the Correct information that follows

<Incorrect>

DIAGNOSIS

⚠ CAUTION

- **If there is any problem in the CAN bus lines, an incorrect diagnostic trouble code may be set. Prior to this diagnosis, diagnose the CAN bus lines.**
- **Before replacing the ECU, ensure that the CAN bus line is normal.**

STEP 1. Check the CAN bus system diagnosis.
Using scan tool MB991958, perform CAN bus diagnosis (Refer to GROUP 54C - Explanation About The Scan Tool (M.U.T.-III) Can Bus Diagnostics).

Q: Is the check result satisfactory?

YES : Go to Step 2.
NO : Repair the CAN bus lines (Refer to GROUP 54C – Troubleshooting, Can Bus Diagnostic Table). Then go to Step 6.

STEP 2. Check the MFI system diagnostic trouble code.
Using scan tool MB991958, perform MFI system diagnostic trouble code (Refer to GROUP 13A – Troubleshooting, Diagnosis Function).

Q: Is diagnostic trouble code No.U0141 set?

YES : Repair the MFI system (Refer to GROUP 13A – Troubleshooting, Diagnostic Trouble Code Procedures, Code No.U0141: ETACS-ECU Time–out). Then go to Step 6.
NO : Go to Step 3.

STEP 3. Check the ETACS system diagnostic trouble code.
Using scan tool MB991958, perform ETACS system diagnostic trouble code (Refer to GROUP 54A – ETACS, Troubleshooting, Diagnosis Function)

Q: Is diagnostic trouble code No.U0155 set?

YES : Repair the ETACS system (Refer to GROUP 54A – Troubleshooting, Diagnostic Trouble Code Procedures, Code No.U1108: Meter CAN Timeout/ Not equipped). Then go to Step 6.
NO : Go to Step 4.

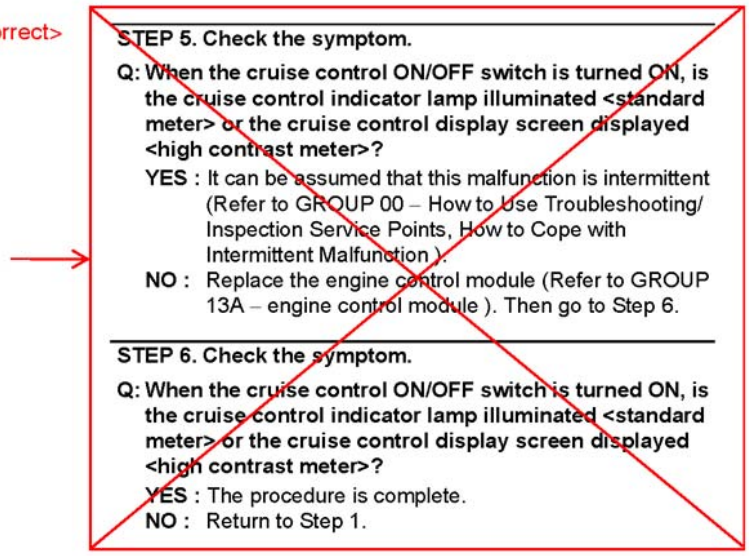
STEP 4. Check the combination meter system special function.
Using scan tool MB991958, check the combination meter system special function (Refer to GROUP 54A – Combination Meter, Special Function Table).

- Item 6: Indicator (AUTO)

Q: Is the check result normal?

YES : Go to Step 5.
NO : Repair the combination meter system (Refer to GROUP 54A – Combination Meter, Trouble Symptom Chart). Then go to Step 6.

<Incorrect>



STEP 5. Check the symptom.

Q: When the cruise control ON/OFF switch is turned ON, is the cruise control indicator lamp illuminated <standard meter> or the cruise control display screen displayed <high contrast meter>?

YES : It can be assumed that this malfunction is intermittent (Refer to GROUP 00 – How to Use Troubleshooting/ Inspection Service Points, How to Cope with Intermittent Malfunction).

NO : Replace the engine control module (Refer to GROUP 13A – engine control module). Then go to Step 6.

STEP 6. Check the symptom.

Q: When the cruise control ON/OFF switch is turned ON, is the cruise control indicator lamp illuminated <standard meter> or the cruise control display screen displayed <high contrast meter>?

YES : The procedure is complete.

NO : Return to Step 1.

<Correct>

Inspection Procedure 8: When the Cruise Control ON/OFF Switch is Turned ON, the Cruise Control Indicator Lamp does not Illuminate (However, the Cruise Control System is Normal).

OPERATION

- The engine control module detects cruise control ON/OFF switch ON signal to illuminate the cruise control indicator lamp within the combination meter.
- The cruise control indicator lamp ON signal is transmitted from the engine control module to the combination meter via CAN bus line.

COMMENTS ON TROUBLE SYMPTOM

- The CAN bus line between the engine control module and the combination meter may be defective.
- The combination meter or engine control module may also be defective.

PROBABLE CAUSES

- Malfunction of CAN bus system.
- Damaged harness or connector.
- Malfunction of the combination meter.
- Malfunction of the engine control module.

DIAGNOSIS

⚠ CAUTION

- **If there is any problem in the CAN bus lines, an incorrect diagnostic trouble code may be set. Prior to this diagnosis, diagnose the CAN bus lines.**
- **Before replacing the ECU, ensure that the CAN bus line is normal.**

STEP 1. Check the CAN bus system diagnosis.
Using scan tool MB991958, perform CAN bus diagnosis (Refer to GROUP 54C - Explanation About The Scan Tool (M.U.T.-III) Can Bus Diagnostics).

Q: Is the check result satisfactory?

YES : Go to Step 2.
NO : Repair the CAN bus lines (Refer to GROUP 54C – Troubleshooting, Can Bus Diagnostic Table). Then go to Step 5.

STEP 2. Check the MFI system diagnostic trouble code.
Using scan tool MB991958, perform MFI system diagnostic trouble code (Refer to GROUP 13A – Troubleshooting, Diagnosis Function).

Q: Is diagnostic trouble code No.U0155 set?

YES : Repair the MFI system (Refer to GROUP 13A – Troubleshooting, Diagnostic Trouble Code Procedures, Code No.U0155: Combination Time–out). Then go to Step 5.
NO : Go to Step 3.

<Correct>

STEP 3. Check the combination meter system special function.

Using scan tool MB991958, check the combination meter system special function (Refer to GROUP 54A – Combination Meter, Special Function Table).

- Item 6: Indicator (AUTO)

Q: Is the check result normal?

YES : Go to Step 4.

NO : Repair the combination meter system (Refer to GROUP 54A – Combination Meter, Trouble Symptom Chart). Then go to Step 5.

STEP 4. Check the symptom.

Q: When the cruise control ON/OFF switch is turned ON, is the cruise control indicator lamp illuminated?

YES : It can be assumed that this malfunction is intermittent (Refer to GROUP 00 – How to Use Troubleshooting/ Inspection Service Points, How to Cope with Intermittent Malfunction).

NO : Replace the engine control module (Refer to GROUP 13A – engine control module). Then go to Step 5.

STEP 5. Check the symptom.

Q: When the cruise control ON/OFF switch is turned ON, is the cruise control indicator lamp illuminated?

YES : The procedure is complete.

NO : Return to Step 1.

Please make the following changes to the 2014 Mirage Service Manual – Group 17: Engine & Emission Control —> Cruise Control —> Symptom Procedures —> “Inspection Procedure 9: When the Cruise Control Switch is Operated, the System is not Turned ON.”

Inspection Procedure 9: When The Cruise Control Switch is Operated, The System is not Turned ON.

OPERATION

This circuit judges the signals of each switches (speed limiter ON/OFF, cruise control ON/OFF, CANCEL, SET – and RES +) of the cruise control switches. The engine control module detects the state of the cruise control switches by sensing the voltages shown below.

- When all switches are released: 4.7 – 5.0 volts
- ~~When the speed limiter ON/OFF switch is pressed: 0 – 0.5 volts~~ <Deleted>
- When the cruise control ON/OFF switch is pressed: 0.9 – 1.7 volt
- When the CANCEL switch is pressed: 1.9 – 2.7 volts
- When the SET – switch is pressed: 2.9 – 3.6 volts
- When the RES + switch is pressed: 3.8 – 4.5 volts

COMMENTS ON TROUBLE SYMPTOM

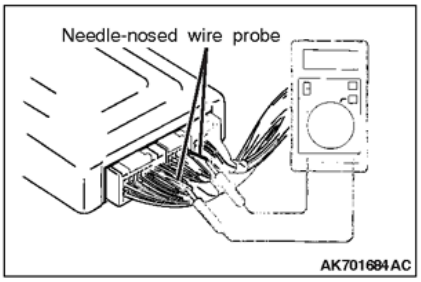
The scan tool MB991958 can also be used to check if the circuits of each input switches are normal or not by checking the data list.

NOTE: Press the cruise control switches one by one securely. Otherwise, the cruise control system may not be started.

PROBABLE CAUSES

- Malfunction of CAN bus system.
- Damaged harness or connector.
- Malfunction of the cruise control switches.
- Malfunction of the clock spring.
- Malfunction of the engine control module.

Please make the following changes to the 2014 Mirage Service Manual – Group 17: Engine & Emission Control —> Cruise Control —> Check at the Engine Control Module Terminal



CHECK AT THE ENGINE CONTROL MODULE TERMINAL

M1172002702069

1. Connect a needle-nosed wire probe to a voltmeter probe.
2. Insert the needle-nosed wire probe into each of the engine control module connector terminals from the wire side, and measure the voltage while referring to the check chart.

   NOTE:
   1. *Make the voltage measurement with the engine control module connector connected.*
   2. *You may find it convenient to pull out the engine control module to make it easier to reach the connector terminals.*
   3. *The checks can be carried out off the order given in the chart.*

⚠ CAUTION
Short-circuiting the positive (+) probe between a connector terminal and ground could damage the vehicle wiring, the sensor, engine control module or all of them. Be careful to prevent this!

3. If voltmeter shows any division from standard value, check the corresponding sensor, actuator and related electrical wiring, then repair or replace.
4. After repair or replacement, recheck with the voltmeter to confirm that the repair has corrected the problem.

Engine control module Connector

ACC06539AB

Terminal No.	Check item	Check condition		Normal condition
94	Cruise control switches power supply	Ignition switch: "ON"	All switches: Released. <Deleted>	4.7 – 5.0 V
			~~Speed limiter ON/OFF switch: Pressed.~~	~~0 – 0.5 V~~
			Cruise control ON/OFF switch: Pressed.	0.9 – 1.7 V
			CANCEL switch: Pressed.	1.9 – 2.7 V
			SET – switch: Pressed.	2.9 – 3.6 V
			RES + switch: Pressed.	3.8 – 4.5 V
121	Stop lamp switch (brake switch)	Ignition switch: "ON"	Depress the brake pedal.	System voltage
			Release the brake pedal.	1V or less

Please replace the following “Incorrect” information with the “Correct” information that follows in the 2014 Mirage Service Manual – Group 17: Engine & Emission Control —> Cruise Control —> On–Vehicle Service —> Cruise Control Switch Check —> Cruise Control ON/OFF Switch Check

Terminal No.	Check item	Check condition		Normal condition
128	Clutch switch <M/T>	Ignition switch: "ON"	Release the clutch pedal.	10 V or more
			Depress the clutch pedal.	1 V or less

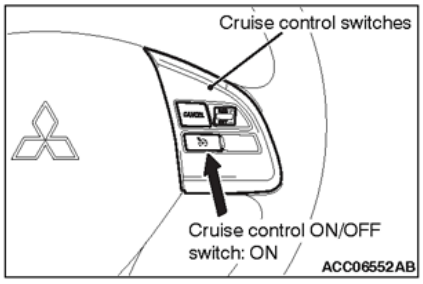
ON-VEHICLE SERVICE

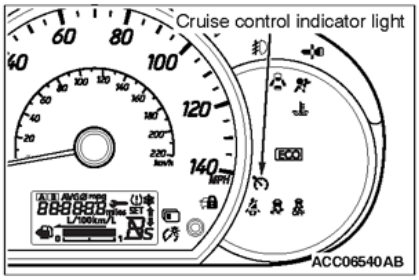
CRUISE CONTROL SWITCH CHECK

M1172001201563

CRUISE CONTROL ON/OFF SWITCH CHECK

1. Turn the ignition switch to the "ON" position.
2. Push the cruise control ON/OFF switch of the cruise control switches, and check that the cruise control indicator light within the combination meter illuminates.
3. Push the cruise control ON/OFF switch again, and check that the cruise control indicator light within the combination meter.



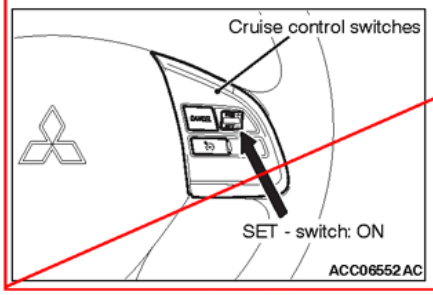


Replace with Correct information that follows

<Incorrect>

CRUISE CONTROL SETTING

1. Turn the ignition switch to the "ON" position.
2. Push the cruise control ON/OFF switch (cruise control system: ON, cruise control indicator light: illuminated).
3. Drive at the desired speed within the range of approximately 40 to 200 km/h (25 to 124.3 mph).
4. Push the SET – switch.
5. Check to be sure that when the SET – switch is released the speed is the desired constant speed. The speed limiter will store a set vehicle speed, and then regulate the vehicle speed within that stored speed.



<Incorrect>

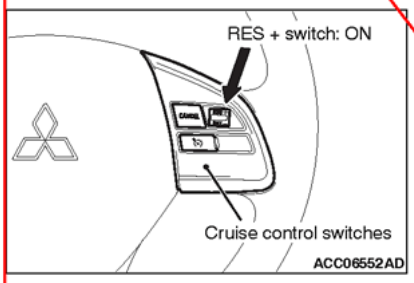
NOTE: If the vehicle speed decreases to approximately 15 km/h (9.3 mph) below the set speed because of climbing a hill for example, it is normal for the cruise control to be cancelled. When the vehicle speed is decelerated to the low speed limit (approximately 40 km/h) or less, the constant speed driving will be cancelled even if the vehicle speed is not decelerated 15 km/h (9.3 mph) or more from the set speed.

NOTE: On the high contrast meter, when SET – switch is pressed, "SET" will be displayed on the multi information display in the combination meter.

SPEED-INCREASE SETTING

1. Turn the ignition switch to the "ON" position.
2. Push the cruise control ON/OFF switch (cruise control system: ON, cruise control indicator light: illuminated.
3. Set to the desired speed within the range of approximately 40 to 200 km/h (25 to 124.3 mph).
4. Push the RES + switch.
5. Check to be sure that acceleration continues while the RES + switch is pushed, and that the speed at the time it was released becomes the constant driving speed. Every time the RES + switch is pressed briefly, the speed limiter will store a vehicle speed. The speed limiter will regulate the vehicle speed within that last stored speed.

   NOTE: Acceleration can be continued even if the vehicle speed has passed the high speed limit (approximately 200 km/h (124.3 mph)). But the constant driving speed when the RES + switch is released will be recorded as the high speed limit (approximately 160 km/h).



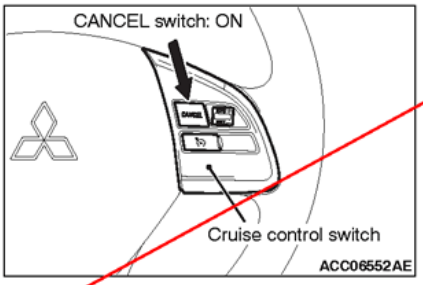
SPEED-REDUCTION SETTING

1. Turn the ignition switch to the "ON" position.
2. Push the cruise control ON/OFF switch (cruise control system: ON, cruise control indicator light: illuminated.
3. Set to the desired speed within the range of approximately 40 – 200 km/h (25 to 124.3 mph).
4. Push the SET – switch.
5. Check to be sure that deceleration continues while the SET – switch is pushed, and that the speed at the time it was released becomes the constant driving speed. Every time the SET – switch is pressed briefly, the speed limiter will store a vehicle speed. The speed limiter will regulate the vehicle speed within that last stored speed.

RETURN TO THE SET SPEED BEFORE CANCELLATION AND CRUISE CONTROL CANCELLATION

1. Turn the ignition switch to the "ON" position.

<Incorrect>



2. Push the cruise control ON/OFF switch (cruise control system: ON, cruise control indicator light: illuminated).
3. Set to the desired speed within the range of approximately 40 – 200 km/h (25 to 124.3 mph).
4. When any of the following operations are performed while at constant speed during cruise control, check if normal driving is resumed and deceleration occurs. Check that the speed limiter is deactivated by pressing the CANCEL switch.

   NOTE: The accelerator pedal must NOT be depressed.

   (1) The CANCEL switch is pushed.

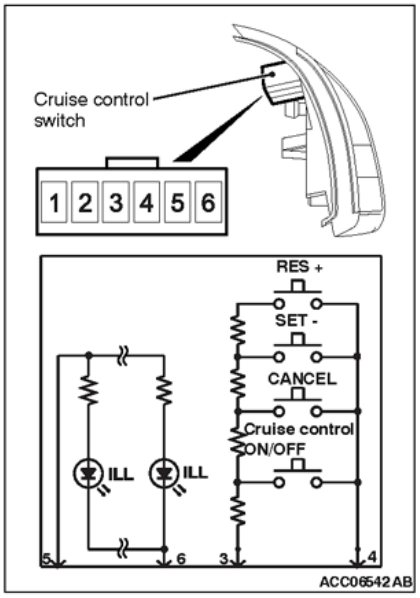
   (2) The brake pedal is depressed.
5. At a vehicle speed of the low speed limit (approximately 40 km/h) or higher, check if when the RES + switch is pushed, the vehicle speed returns to the speed before cruise control driving was cancelled, and constant speed driving occurs.
6. When the cruise control ON/OFF switch is pushed again (cruise control system: OFF) while driving at constant speed, check if normal driving is resumed and deceleration occurs.

   NOTE: The accelerator pedal must NOT be depressed.

CRUISE CONTROL SYSTEM COMPONENT CHECK

M1172001702011

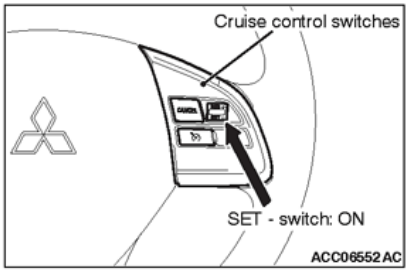
CRUISE CONTROL SWITCH CHECK



1. Remove the cruise control switch (Refer to P.17-45).
2. Measure the resistance between terminal No.3 and terminal No.4 when each of the cruise control ON/OFF, CANCEL, SET – and RES + switches is pressed. If the values measured at the time each switch is pressed correspond to those in the table below, the resistance values are correct.

Terminal connector of tester	Switch position	Specified condition
3 – 4	All switches are released.	Open circuit
	Cruise control ON/OFF switch is pressed	176 - 180 Ω
	CANCEL switch is pressed	460 - 470 Ω
	SET – switch is pressed	1030 - 1051 Ω
	RES + switch is pressed	2725 - 2837 Ω

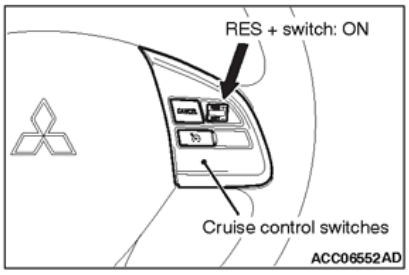
<Correct>



CRUISE CONTROL SETTING

1. Turn the ignition switch to the "ON" position.
2. Push the cruise control ON/OFF switch (cruise control system: ON, cruise control indicator light: illuminated).
3. Drive at the desired speed within the range of approximately 40 km/h (25 mph) or more.
4. Push the SET – switch.
5. Check to be sure that when the SET – switch is released the speed is the desired constant speed.

   NOTE: If the vehicle speed decreases to approximately 15 km/h (10 mph) below the set speed because of climbing a hill for example, it is normal for the cruise control to be cancelled. When the vehicle speed is decelerated to the low speed limit (approximately 40 km/h) or less, the constant speed driving will be cancelled even if the vehicle speed is not decelerated 15 km/h (10 mph) or more from the set speed.



SPEED-INCREASE SETTING

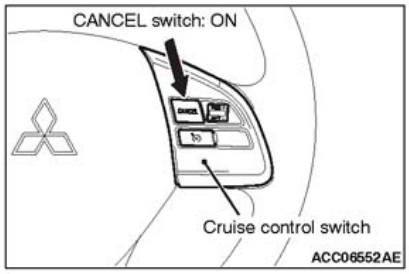
1. Turn the ignition switch to the "ON" position.
2. Push the cruise control ON/OFF switch (cruise control system: ON, cruise control indicator light: illuminated.
3. Set to the desired speed within the range of approximately 40 km/h (25 mph) or more.
4. Push the RES + switch.
5. Check to be sure that acceleration continues while the RES + switch is pushed, and that the speed at the time it was released becomes the constant driving speed.

   NOTE: Acceleration can be continued even if the vehicle speed has passed the high speed limit. But the constant driving speed when the RES + switch is released will be recorded as the high speed limit.

SPEED-REDUCTION SETTING

1. Turn the ignition switch to the "ON" position.
2. Push the cruise control ON/OFF switch (cruise control system: ON, cruise control indicator light: illuminated.
3. Set to the desired speed within the range of approximately 40 km/h (25 mph) or more.
4. Push the SET – switch.
5. Check to be sure that deceleration continues while the SET – switch is pushed, and that the speed at the time it was released becomes the constant driving speed.

<Correct>



RETURN TO THE SET SPEED BEFORE CANCELLATION AND CRUISE CONTROL CANCELLATION

1. Turn the ignition switch to the "ON" position.
2. Push the cruise control ON/OFF switch (cruise control system: ON, cruise control indicator light: illuminated).
3. Set to the desired speed within the range of approximately 40 km/h (25 mph) or more.
4. When any of the following operations are performed while at constant speed during cruise control, check if normal driving is resumed and deceleration occurs.

   NOTE: The accelerator pedal must NOT be depressed.

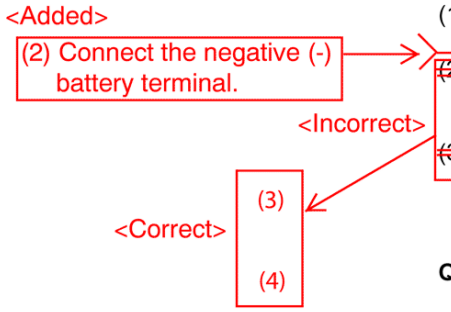
   (1) The CANCEL switch is pushed.

   (2) The brake pedal is depressed.
5. At a vehicle speed of the low speed limit (approximately 40 km/h) or higher, check if when the RES + switch is pushed, the vehicle speed returns to the speed before cruise control driving was cancelled, and constant speed driving occurs.
6. When the cruise control ON/OFF switch is pushed again (cruise control system: OFF) while driving at constant speed, check if normal driving is resumed and deceleration occurs.

   NOTE: The accelerator pedal must NOT be depressed.

Please make the changes indicated on the following pages to the **2015** Mirage Service Manual – Group 17: Engine & Emission Control —> Cruise Control —> Diagnostic Trouble Code Procedures —>

- DTC 15: Cruise Control Switch System
- DTC 22: Stoplight Switch System
- DTC 23: ECM and Its Related Component

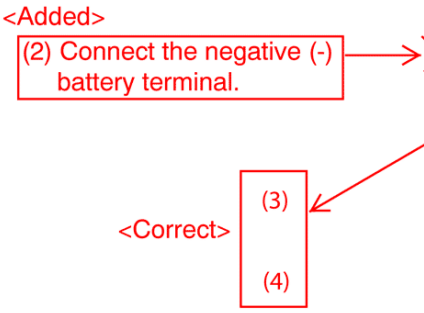


STEP 19. Read the diagnostic trouble code.
(1) Disconnect the negative (–) battery terminal, to erase the DTC of the cruise control system.
~~(2)~~ Turn the ignition switch to the "ON" position, and press the cruise control ON/OFF switch to turn the cruise control system to ON (the cruise control indicator light is turned on).
~~(3)~~ After turning the cruise control system to ON, when 2 minutes or more has elapsed without operating the cruise control switches, read the diagnostic trouble code of the cruise control system (Refer to P.17-15).

Q: Is diagnostic trouble code No. 15 set?
YES : Replace the engine control module (Refer to GROUP 13A – Engine Control Module). Then go to Step 20.
NO : It can be assumed that this malfunction is intermittent (Refer to GROUP 00 – How to Use Troubleshooting/ Inspection Service Points, How to Cope with Intermittent Malfunction).

STEP 20. Check the data list.
Using scan tool MB991958, check the data list (Refer to data list reference table P.17-39).
- Item 75: CANCEL switch
- Item 86: Cruise control ON/OFF switch
- Item 91: RES – switch
- Item 92: SET + switch

Q: Is the check result normal?
YES : Go to Step 21.
NO : Return to Step 2.



STEP 21. Read the diagnostic trouble code.
(1) Disconnect the negative (–) battery terminal, to erase the DTC of the cruise control system.
~~(2)~~ Turn the ignition switch to the "ON" position, and press the cruise control ON/OFF switch to turn the cruise control system to ON (turn ON the cruise control indicator t).
~~(3)~~ After turning the cruise control system to ON, when 2 minutes or more has elapsed without operating the cruise control switches, read the diagnostic trouble code of the cruise control system (Refer to P.17-15).

Q: Is diagnostic trouble code No. 15 set?
YES : Return to Step 1.
NO : The procedure is complete.

DTC 22: Stoplight Switch System.

OPERATION
- For the stoplight switch, two switches, a stoplight switch for the stoplight illumination and a brake switch exclusively for the cruise control system, are incorporated to improve the reliability.

STEP 8. Check the stoplight switch.
Refer to GROUP 35A – Brake Pedal, Inspection, stoplight Switch Check .

Q: Is the check result normal?

YES : Go to Step 9.
NO : Replace the stoplight switch (Refer to GROUP 35A – Brake Pedal). Then go to Step 11.

STEP 9. Check the data list.
Using scan tool MB991958, check the data list (Refer to data list reference table P.17-39).

- Item 89: Brake switch

Q: Is the check result normal?

YES : Go to Step 10.
NO : Replace the engine control module (Refer to GROUP 13A – Engine Control Module). Then go to Step 11.

STEP 10. Read the diagnostic trouble code.
(1) Disconnect the negative (–) battery terminal, to erase the DTC of the cruise control system.
(2) Turn the ignition switch to the "ON" position, and press the cruise control ON/OFF switch to turn the cruise control system to ON (the cruise control indicator light is turned on).
(3) With the cruise control switches not operated, depress the brake pedal for several seconds, and then read the diagnostic trouble code of the cruise control system (Refer to P.17-15).

<Added>
(2) Connect the negative (-) battery terminal.
<Incorrect>
<Correct>
(3)
(4)

Q: Is diagnostic trouble code No. 22 set?

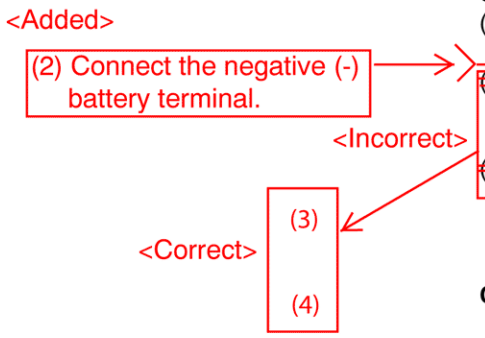
YES : Replace the engine control module (Refer to GROUP 13A – Engine Control Module). Then go to Step 11.
NO : It can be assumed that this malfunction is intermittent (Refer to GROUP 00 – How to Use Troubleshooting/ Inspection Service Points, How to Cope with Intermittent Malfunction).

STEP 11. Check the data list.
Using scan tool MB991958, check the data list (Refer to data list reference table P.17-39).

- Item 74: stoplight switch
- Item 89: Brake switch

Q: Is the check result normal?

YES : Go to Step 12.
NO : Return to Step 2.



STEP 12. Read the diagnostic trouble code.
(1) Disconnect the negative (–) battery terminal, to erase the DTC of the cruise control system.
~~(2)~~ Turn the ignition switch to the "ON" position, and press the cruise control ON/OFF switch to turn the cruise control system to ON (the cruise control indicator light is turned on).
~~(3)~~ With the cruise control switches not operated, depress the brake pedal for several seconds, and then read the diagnostic trouble code of the cruise control system (Refer to P.17-15).

Q: Is diagnostic trouble code No. 22 set?
YES : Return to Step 1.
NO : The procedure is complete.

DTC 23: ECM and Its Related Component.

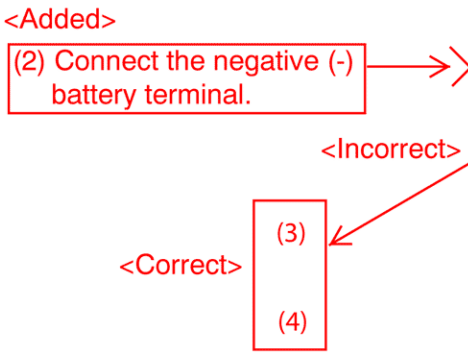
DIAGNOSTIC TROUBLE CODE SET CONDITIONS
This diagnostic trouble code is set when there is an failure in the engine control module and its related components.

PROBABLE CAUSES
- Malfunction of the MFI system.
- Malfunction of the engine control module.

DIAGNOSIS

STEP 1. Check the MFI system diagnostic trouble code.
Using scan tool MB991958, perform MFI system diagnostic trouble code (Refer to GROUP 13A – Troubleshooting, Diagnosis Function).

Q: Is any diagnostic trouble code set?
YES : Repair the MFI system (Refer to GROUP 13A – Troubleshooting, Inspection Chart for Diagnostic Trouble Code). Then go to Step 3.
NO : Go to Step 2.



STEP 2. Read the diagnostic trouble code.

(1) Disconnect the negative (–) battery terminal, to erase the DTC of the cruise control system.

~~(2)~~ Turn the ignition switch to the "ON" position, and press the cruise control ON/OFF switch to turn the cruise control system to ON (the cruise control indicator lamp is turned on).

~~(3)~~ After turning the cruise control system to ON, when 2 minutes or more has elapsed without operating the cruise control switches, read the diagnostic trouble code of the cruise control system (Refer to P.17-15).

Q: Is diagnostic trouble code No. 23 set?

YES : Replace the engine control module (Refer to GROUP 13A – Engine Control Module). Then go to Step 3.

NO : It can be assumed that this malfunction is intermittent (Refer to GROUP 00 – How to Use Troubleshooting/ Inspection Service Points, How to Cope with Intermittent Malfunction).

STEP 3. Read the diagnostic trouble code.

(1) Disconnect the negative (–) battery terminal, to erase the DTC of the cruise control system.

(2) Turn the ignition switch to the "ON" position, and press the cruise control ON/OFF switch to turn the cruise control system to ON (the cruise control indicator lamp is turned on).

(3) After turning the cruise control system to ON, when 2 minutes or more has elapsed without operating the cruise control switches, read the diagnostic trouble code of the cruise control system (Refer to P.17-15).

Q: Is diagnostic trouble code No. 23 set?

YES : Return to Step 1.

NO : This procedure is complete.