

GROUP 35C

ACTIVE STABILITY CONTROL SYSTEM (ASC)

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WARNINGS REGARDING SERVICING OF SUPPLEMENTAL RESTRAINT SYSTEM (SRS) EQUIPPED VEHICLES

⚠ WARNING

- *Improper service or maintenance of any component of the SRS, or any SRS-related component, can lead to personal injury or death to service personnel (from inadvertent firing of the air bag) or to the driver and passenger (from rendering the SRS inoperative).*
- *Service or maintenance of any SRS component or SRS-related component must be performed only at an authorized MITSUBISHI dealer.*
- *MITSUBISHI dealer personnel must thoroughly review this manual, and especially its GROUP 52B - Supplemental Restraint System (SRS) before beginning any service or maintenance of any component of the SRS or any SRS-related component.*

NOTE

The SRS includes the following components: SRS air bag control unit, SRS warning light, front impact sensors, air bag module, side-airbag module, curtain air bag module, side impact sensors, seat belt pre-tensioners, clock spring, and interconnecting wiring. Other SRS-related components (that may have to be removed/installed in connection with SRS service or maintenance) are indicated in the table of contents by an asterisk (*).

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SERVICE SPECIFICATIONS

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Item	Standard value
Wheel speed sensor current mA	5 – 9 or 11 – 17
Wheel speed sensor insulation resistance MΩ	1.5 or more

DIAGNOSIS

INTRODUCTION TO ASC DIAGNOSIS

The active stability control system (ASC) operates differently from conventional brake systems. These differences include sounds, sensations, and vehicle performance that owners and service technicians who are not familiar with ASC may not be used to.

Some operational characteristics may seem to be malfunctions, but they are simply signs of normal ASC operation. When diagnosing the ASC system, keep these operational characteristics in mind. Inform the owner of the kind of performance characteristics to expect from an ASC-equipped vehicle.

ASC DIAGNOSTIC TROUBLE CODE
DETECTION CONDITIONS

ASC diagnostic trouble codes (ASC DTCs) are set under different conditions, depending on the malfunction detected. Most ASC DTCs will only be set during vehicle operation. Some ASC DTCs will also be set during the ASC self-check immediately after the engine is started.

When you check if an ASC DTC will be displayed again after the DTC has been erased, you should duplicate the ASC DTC set conditions. Depending on the detection timing and set conditions for the specific ASC DTC, you must either drive the vehicle or turn the engine off and restart it. To set the proper conditions for that DTC again, refer to "ASC DTC SET CONDITIONS" for each ASC DTC that you are trying to reset.

ASC DIAGNOSTIC TROUBLESHOOTING
STRATEGY

Use these steps to plan your diagnostic strategy. If you follow them carefully, you will be sure that you have exhausted most of the possible ways to find an ASC fault.

1. Gather information about the problem from the customer.
2. Verify that the condition described by the customer exists.
3. Check the vehicle for any ASC DTC.
4. If you cannot verify the condition and there are no ASC DTCs, the malfunction is intermittent. Refer to GROUP 00, How to use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunctions [P.00-13](#).
5. If you can verify the condition but there are no ASC DTCs, or the system cannot communicate with the scan tool, check that the basic brake system is operating properly.
 - If the basic brake system is not operating properly, refer to the GROUP 35A, Basic Brake System Diagnostic troubleshooting strategy [P.35A-3](#).
 - If the basic brake system is operating properly, refer to [P.35C-93](#).
6. If there is an ASC DTC, record the number of the DTC, then erase the DTC from the memory using the scan tool.

7. Recreate the ASC DTC set conditions to see if the same ASC DTC will set again.
 - If the same ASC DTC sets again, perform the diagnostic procedures for the DTC. Refer to [P.35C-16](#).
 - If you cannot get the same ASC DTC to set again, the malfunction is intermittent. Refer to GROUP 00, How to use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunctions [P.00-13](#).

PRECAUTIONS FOR DIAGNOSIS

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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: Tires)	These noises are generated when the system and brake pedal operate normally, and they do not indicate any sign of malfunction.
• A slight shock may be felt when depressing the brake pedal lightly during the low speed driving. • Small clicking noise may be heard from the engine compartment.	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.

2. On the snowy or graveled roads, a vehicle with ABS would have longer braking distance compared to the one without ABS. Considering this characteristics, advise the customer to drive the vehicle safely at lower speed and not to put too much confidence in the ABS system when driving on the above-mentioned roads.
3. The diagnostic trouble code detection condition depends on each diagnostic trouble code. When the trouble symptoms are rechecked, conditions described in the description for the diagnostic trouble code procedures should be met.

ASC INDICATOR LIGHT, ASC OFF INDICATOR LIGHT, ABS WARNING LIGHT AND BRAKE WARNING LIGHT CHECK

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Check that ABS and brake warning lights, ASC indicator light, ASC OFF indicator light illuminate as follows.

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

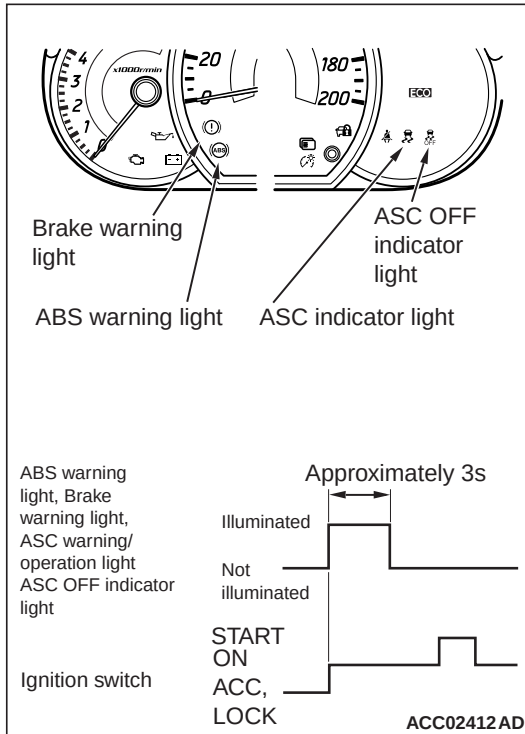
1. When the ignition switch is turned to the "ON" position, ABS and brake warning lights, ASC indicator light, ASC OFF indicator light illuminate.
2. The ABS and brake warning lights, ASC indicator light, ASC OFF indicator light illuminate for three seconds^{*1} and then turn "OFF"^{*2}.
3. Otherwise, check the diagnostic trouble code.

NOTE:

- ^{*1}: The ABS warning light, ASC indicator light may stay "ON" until the vehicle speed reaches 10 km/h. As far as ASC-ECU sets any diagnostic trouble code related to the wheel speed sensor malfunction or the motor malfunction as past trouble, ASC-ECU continues illuminating the ABS warning light until it verifies that the malfunction for that code is resolved (startup check).

If the steering wheel sensor or the G and yaw rate sensor system was detected to be defective during ignition switch being "ON" at the last time, the ASC indicator light will illuminate until the vehicle speed reaches approx. 10 km/h (6.2 mph), then the steering wheel is turned to either right or left and then the ECU determines that the system is normal.

- ^{*2}: The brake warning light does not turn "OFF" when the parking brake is applied or the brake fluid level is lowered.



ON-BOARD DIAGNOSTICS

If the ASC-ECU detects any problem in the CAN communication line or the ECUs, which the ASC-ECU is communicating with, it sets a diagnostic trouble code. The DTCs have 73 items. The DTCs can be confirmed by connecting scan tool MB991958

DIAGNOSTIC FUNCTION

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(M.U.T.-III sub assembly.) The set DTCs are not erased even after the ignition switch has been turned to the "LOCK" (OFF) position, or the battery has been disconnected. The DTCs can be erased by operating scan tool MB991958 (M.U.T.-III sub assembly.)

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

⚠ CAUTION

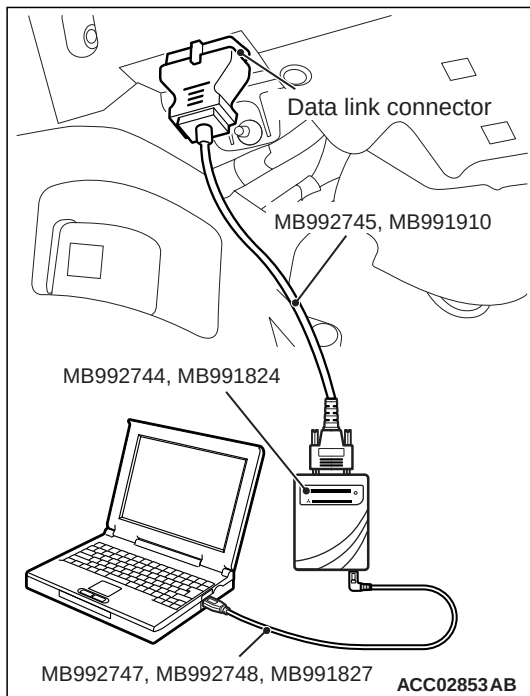
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

1. Ensure that the ignition switch is at the "LOCK" (OFF) position.
2. Start up the personal computer.
3. Connect special tool MB991827 to special tool MB991824 and the personal computer.
4. Connect special tool MB991910 to the special tool MB991824.
5. Connect special tool MB991910 to the data link connector.
6. Turn the power switch special tool MB991824 to the "ON" position.

NOTE: When the special tool MB991824 is energized, the special tool MB991824 indicator light will be illuminated in a green color.

7. Start the M.U.T.-III system on the personal computer.

NOTE: Disconnect the scan tool MB991958 in the reverse order of the connecting sequence, making sure that the ignition switch is at the "LOCK" (OFF) position.



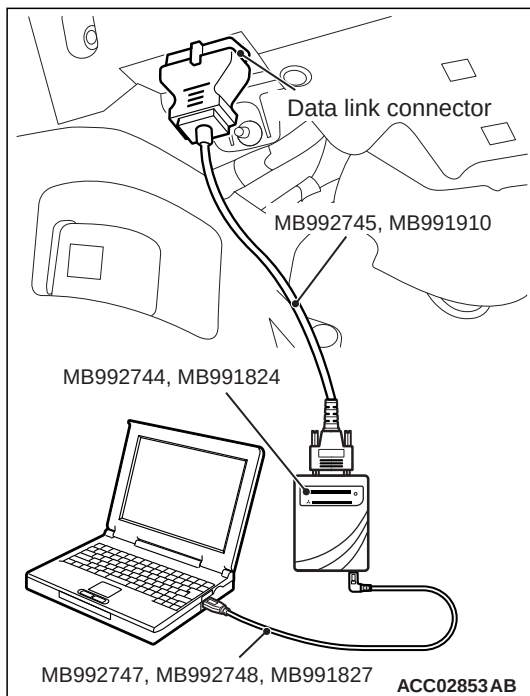
HOW TO READ AND ERASE DIAGNOSTIC TROUBLE CODES

⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

NOTE: If the battery voltage is low, diagnostic trouble codes will not be set. Check the battery if scan tool MB991958 does not display.

1. Connect scan tool MB991958 to the data link connector.
2. Turn the ignition switch to the "ON" position.
3. Select "System Select."
4. Select "ABS/ASC/ASTC/WSS" from the system list, and select the "OK" button.
5. Select "Diagnostic Trouble Code." to read the DTC.
6. If a DTC is set, it is shown.
7. Choose "DTC erase" to erase the DTC.

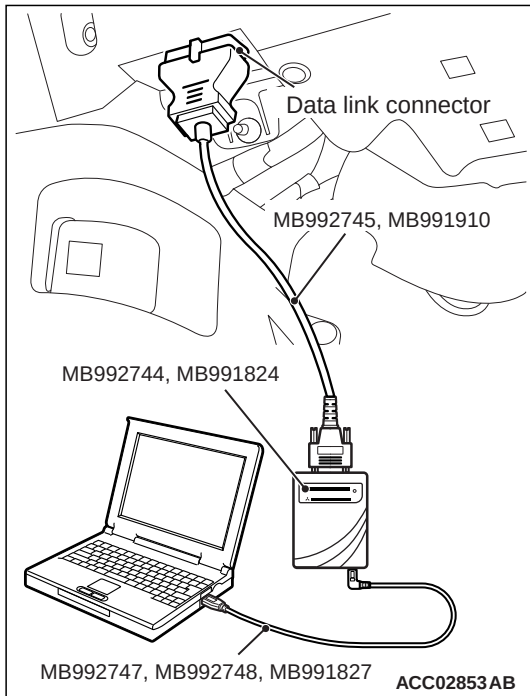


HOW TO READ DATA LIST

⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

1. Connect scan tool MB991958 to the data link connector.
2. Turn the ignition switch to the "ON" position.
3. Select "System Select."
4. Select "ABS/ASC/ASTC/WSS" from the system list, and select the "OK" button.
5. Select "Data List."

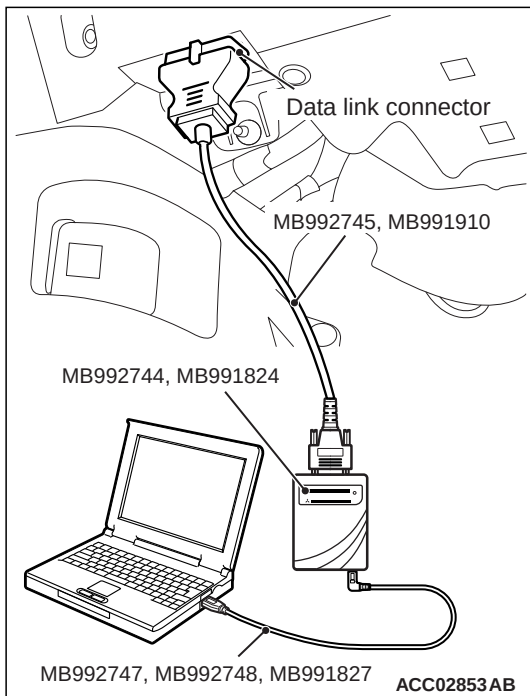


HOW TO PERFORM ACTUATOR TEST

⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

1. Connect scan tool MB991958 to the data link connector.
2. Turn the ignition switch to the "ON" position.
3. Select "System Select."
4. Select "ABS/ASC/ASTC/WSS" from the system list, and select the "OK" button.
5. Choose "Actuator Test" from "A.S.C." screen.
6. Choose an appropriate item and select the "OK" button.

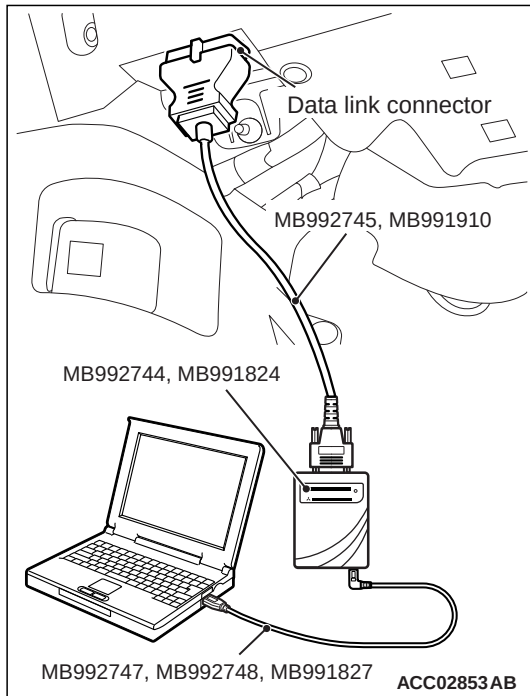


HOW TO DIAGNOSE THE CAN BUS LINE

⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

1. Connect scan tool MB991958 to the data link connector.
2. Turn the ignition switch to the "ON" position.
3. Select "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 "view vehicle information" button.
6. When the vehicle information is displayed, confirm again that it matches the vehicle which is being diagnosed.
 - If they match, go to Step 8.
 - If not, go to Step 5.
7. Press the "OK" button.
8. When the options are displayed, choose the options (mark the check) and then select "OK".



DIAGNOSTIC FUNCTION

ASC-ECU has the following functions for easier system checks.

- Diagnostic trouble code set (Refer to [P.35C-16](#)).
- Service data output (Refer to [P.35C-121](#)).

- Actuator test (Refer to [P.35C-123](#)).
- Freeze frame data output (Refer to [P.35C-9](#)).

All the above items can be diagnosed using scan tool MB991958.

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CHECK OF FREEZE FRAME DATA

The freeze frame data can be checked by using the scan tool MB991958.

When detecting fault and storing the diagnostic trouble code, the ECU connected to CAN bus line obtains the data before the determination of the diagnostic trouble code and the data when the diagnostic trouble code is determined, and then stores the ECU status of that time. By analyzing each data from scan tool MB991958, the troubleshooting can be performed more efficiently. The displayed items are as the table below.

Display item list

Item No.	Item name	Data item	Unit
1	Odometer	Total driving distance after the diagnostic trouble code is generated	km
2	Ignition cycle	Number of times the ignition switch is turned "ON" or "LOCK" (OFF) after the past failure transition	Number of counts is displayed.
3	FL wheel ABS control	FL wheel ABS control when the diagnostic trouble code is generated: OFF/ON	—
4	FR wheel ABS control	FR wheel ABS control when the diagnostic trouble code is generated: OFF/ON	—
5	RL wheel ABS control	RL wheel ABS control when the diagnostic trouble code is generated: OFF/ON	—
6	RR wheel ABS control	RR wheel ABS control when the diagnostic trouble code is generated: OFF/ON	—
7	EBD control	EBD control when the diagnostic trouble code is generated: OFF/ON	—
8	Brake assist control	Brake assist control when the diagnostic trouble code is generated: OFF/ON	—
9	Engine control	Traction control operation status (engine control) when the diagnostic trouble code is generated: OFF/ON	—
10	FL wheel TCL brake control	FL wheel traction control operation status (brake control) when the diagnostic trouble code is generated: OFF/ON	—
11	FR wheel TCL brake control	FR wheel traction control operation status (brake control) when the diagnostic trouble code is generated: OFF/ON	—
12	RL wheel TCL brake control	RL wheel traction control operation status (brake control) when the diagnostic trouble code is generated: OFF/ON	—

Item No.	Item name	Data item	Unit
13	RR wheel TCL brake control	RR wheel traction control operation status (brake control) when the diagnostic trouble code is generated: OFF/ON	–
14	FL wheel A.S.C. brake control	FL wheel ASC control when the diagnostic trouble code is generated: OFF/ON	–
15	FR wheel A.S.C. brake control	FR wheel ASC control when the diagnostic trouble code is generated: OFF/ON	–
16	RL wheel A.S.C. brake control	RL wheel ASC control when the diagnostic trouble code is generated: OFF/ON	–
17	RR wheel A.S.C. brake control	RR wheel ASC control when the diagnostic trouble code is generated: OFF/ON	–
18	Pump motor	Pump motor condition when the diagnostic trouble code is generated: OFF/ON	–
19	Stoplight switch	Stop light switch condition when the diagnostic trouble code is generated: OFF/ON	–
20	Parking brake SW	Parking brake switch condition when the diagnosis trouble code is generated: OFF/ON	–
21	A.S.C. off switch	ASC control condition when the diagnostic trouble code is generated: OFF/ON	–
22	Power supply voltage	Voltage of power supply when the diagnostic trouble code is generated	V
23	Steering angle	Steering angle of steering wheel sensor when the diagnostic trouble code is generated	deg
24	Yaw rate sensor	Yaw rate of G and yaw rate sensor when the diagnostic trouble code is generated	deg/s
25	Longitudinal G sensor	Longitudinal G of G and yaw rate sensor when the diagnostic trouble code is generated	G
26	Lateral G sensor	Lateral G of G and yaw rate sensor when the diagnostic trouble code is generated	G
27	Master cylinder pressure	Master cylinder pressure of Master cylinder pressure sensor when the diagnostic trouble code is generated	bar
28	FL wheel speed sensor	Wheel speed (FL) when the diagnostic trouble code is generated	mph
29	FR wheel speed sensor	Wheel speed (FR) when the diagnostic trouble code is generated	mph
30	RL wheel speed sensor	Wheel speed (RL) when the diagnostic trouble code is generated	mph
31	RR wheel speed sensor	Wheel speed (RR) when the diagnostic trouble code is generated	mph

FAIL-SAFE FUNCTIONS

- When a malfunction is determined by the diagnostic function, ASC-ECU illuminates the brake warning light, brake warning display, ABS warning light, ASC indicator light, and ASC OFF indicator light. At the same time, ASC-ECU prohibits the ABS, EBD, stability control, and TCL.

NOTE: The brake warning light is used as the EBD control warning light.

Illumination condition of warning light and indicator light in case of failure

Diagnostic trouble code No.	Item	Brake warning light	ABS warning light	ASC indicator light	ASC OFF indicator light
C1200	FR wheel speed sensor	OFF	ON	ON	ON
C1201	FR wheel speed sensor signal	OFF	ON	ON	ON
C1205	FL wheel speed sensor	OFF	ON	ON	ON
C1206	FL wheel speed sensor signal	OFF	ON	ON	ON
C1210	RR wheel speed sensor	OFF	ON	ON	ON
C1211	RR wheel speed sensor signal	OFF	ON	ON	ON
C1215	RL wheel speed sensor	OFF	ON	ON	ON
C1216	RL wheel speed sensor signal	OFF	ON	ON	ON
C1225	Deviation between wheel speed	OFF* ¹	ON	ON	ON
C1226	FR inlet valve	ON	ON	ON	ON
C1231	FR outlet valve	ON	ON	ON	ON
C1236	FL inlet valve	ON	ON	ON	ON
C1241	FL outlet valve	ON	ON	ON	ON
C1246	RR inlet valve	ON	ON	ON	ON
C1251	RR outlet valve	ON	ON	ON	ON
C1256	RL inlet valve	ON	ON	ON	ON
C1261	RL outlet valve	ON	ON	ON	ON
C1266	Motor stuck	ON	ON	ON	ON
C1271	Motor drive circuit	ON	ON	ON	ON
C1273	Motor drive circuit stuck off	ON	ON	ON	ON
C1274	Motor drive circuit stuck on	ON	ON	ON	ON
C1276	Valve power supply circuit	ON	ON	ON	ON
C1278	Valve power circuit stuck off	ON	ON	ON	ON
C1279	Valve power circuit stuck on	ON	ON	ON	ON
C1300	FR cut valve	ON	ON	ON	ON
C1305	FR suction valve	ON	ON	ON	ON
C1310	FL cut valve	ON	ON	ON	ON
C1315	FL suction valve	ON	ON	ON	ON
C1340	Stoplight switch	OFF	OFF* ¹	ON	OFF* ¹
C1364	M/C pressure SNSR.malfunction	OFF	ON	ON	ON

Diagnostic trouble code No.	Item	Brake warning light	ABS warning light	ASC indicator light	ASC OFF indicator light
C1366	Lateral G SNSR.stuck/low gain	OFF	OFF	ON	ON
C1371	Yaw rate SNSR.stuck/low gain	OFF	OFF	ON	ON
C1381	Longitudinal G stuck/low gain	OFF	OFF	ON	ON
C1385	Yaw rate sensor	OFF	OFF	ON	ON
C1387	Lateral G sensor/G performance	OFF	OFF	ON	ON
C1388	Yaw rate sensor active check	OFF	OFF	ON	ON
C1390	Lateral G sensor active check	OFF	OFF	ON	ON
C1392	INCOMP.learn (Longitudinal G)	OFF	OFF	ON	ON
C1394	INCOMP.learn neutral(SAS)	OFF	OFF	ON	ON
C1395	INCOMP. Brake fluid filling	ON	ON	ON	ON
C1396	Engine torque input refusal	OFF	OFF	ON	ON
C1505	Steering angle sensor	OFF	OFF	ON	ON
C1555	Steering angle SNS.out of range	OFF	OFF	ON	ON
C1607	ECU failure	ON	ON	ON	ON
C1608	EEPROM fail	ON*2	ON*2	ON	ON
C1707	Implausible coding data	ON	ON	ON	ON
C1860	Power supply high voltage	ON*2	ON	ON	ON
C1861	Power supply low voltage	ON*2	ON	ON	ON
C1864	G/Yawrate SNS.power supply VOLT.	OFF	OFF	ON	ON
C2206	Re-execution of variant coding	ON	ON	ON	ON
U0401	Engine (CAN message)	OFF	OFF	ON	ON
U0402	T/M (CAN message)	OFF	OFF	ON	ON*2
U0428	SAS (CAN message)	OFF	OFF	ON	ON
U1073	Bus-off	OFF	ON	ON	ON
U1100	Engine CAN timeout	OFF	OFF	ON	ON
U1101	T/M CAN timeout/Not equipped	OFF	OFF	ON	ON
U1104	SAS CAN timeout/Not equipped	OFF	OFF	ON	ON
U1108	Meter CAN timeout/Not equipped	OFF	OFF	ON	OFF
U1109	ETACS CAN timeout/Not equipped	OFF	ON	ON	ON
U1195	Coding not completed	ON	ON	ON	ON
U1200	SAS parity error	OFF	OFF	ON	ON
U1204	SAS message counter error	OFF	OFF	ON	ON
U1211	ENG Parity/Toggle bit error	OFF	OFF	ON	ON*2

NOTE:

- *1: illuminates depending on a trouble cause.
- *2: does not illuminate depending on a trouble cause.

Under EBD, ABS, stability control, TCL, brake assist, HSA in case of failure

Diagnostic trouble code No.	Item	EBD	ABS	BRAKE ASSIST	ESS	HSA	TCL	ASC
C1200	FR wheel speed sensor	Enabled	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited
C1201	FR wheel speed sensor signal	Enabled	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited
C1205	FL wheel speed sensor	Enabled	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited
C1206	FL wheel speed sensor signal	Enabled	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited
C1210	RR wheel speed sensor	Enabled	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited
C1211	RR wheel speed sensor signal	Enabled	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited
C1215	RL wheel speed sensor	Enabled	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited
C1216	RL wheel speed sensor signal	Enabled	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited
C1225	Deviation between wheel speed	Enabled*1	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited
C1226	FR inlet valve	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited
C1231	FR outlet valve	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited
C1236	FL inlet valve	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited
C1241	FL outlet valve	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited
C1246	RR inlet valve	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited
C1251	RR outlet valve	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited
C1256	RL inlet valve	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited
C1261	RL outlet valve	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited
C1266	Motor stuck	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited
C1271	Motor drive circuit	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited
C1273	Motor drive circuit stuck off	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited
C1274	Motor drive circuit stuck on	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited
C1276	Valve power supply circuit	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited

Diagno stic trouble code No.	Item	EBD	ABS	BRAKE ASSIST	ESS	HSA	TCL	ASC
C1278	Valve power circuit stuck off	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited
C1279	Valve power circuit stuck on	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited
C1300	FR cut valve	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited
C1305	FR suction valve	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited
C1310	FL cut valve	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited
C1315	FL suction valve	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited
C1340	Stoplight switch	Enabled	Enabled* ¹	Enabled* ¹	Enabled* ¹	Prohibited	Enabled* ¹	Enabled* ¹
C1364	M/C pressure SNSR.malfunction	Enabled	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited
C1366	Lateral G SNSR.stuck/low gain	Enabled	Enabled	Enabled	Enabled	Prohibited	Prohibited	Prohibited
C1371	Yaw rate SNSR.stuck/low gain	Enabled	Enabled	Enabled	Enabled	Prohibited	Prohibited	Prohibited
C1381	Longitudinal G stuck/low gain	Enabled	Enabled	Enabled	Enabled	Prohibited	Prohibited	Prohibited
C1385	Yaw rate sensor	Enabled	Enabled	Enabled	Enabled	Prohibited	Prohibited	Prohibited
C1387	Lateral G sensor/G performance	Enabled	Enabled	Enabled	Enabled	Prohibited	Prohibited	Prohibited
C1388	Yaw rate sensor active check	Enabled	Enabled	Enabled	Enabled	Prohibited	Prohibited	Prohibited
C1390	Lateral G sensor active check	Enabled	Enabled	Enabled	Enabled	Prohibited	Prohibited	Prohibited
C1392	INCOMP.learn (Longitudinal G)	Enabled	Enabled	Enabled	Enabled	Prohibited	Prohibited	Prohibited
C1394	INCOMP.learn neutral(SAS)	Enabled	Enabled	Enabled	Enabled	Enabled	Prohibited	Prohibited
C1395	INCOMP. Brake fluid filling	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited
C1396	Engine torque input refusal	Enabled	Enabled	Enabled	Enabled	Prohibited	Prohibited	Prohibited
C1505	Steering angle sensor	Enabled	Enabled	Enabled	Enabled	Enabled	Prohibited	Prohibited
C1555	Steering angle SNS.out of range	Enabled	Enabled	Enabled	Enabled	Enabled	Prohibited	Prohibited
C1607	ECU failure	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited

Diagno stic trouble code No.	Item	EBD	ABS	BRAKE ASSIST	ESS	HSA	TCL	ASC
C1608	EEPROM fail	Prohibited *2	Prohibited *2	Prohibited *2	Prohibited *2	Prohibited	Prohibited	Prohibited
C1707	Implausible coding data	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited
C1860	Power supply high voltage	Prohibited *2	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited
C1861	Power supply low voltage	Prohibited *2	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited
C1864	G/Yawrate SNS.power supply VOLT.	Enabled	Enabled	Enabled	Enabled	Prohibited	Prohibited	Prohibited
C2206	Re-execution of variant coding	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited
U0401	Engine (CAN message)	Enabled	Enabled	Enabled	Enabled	Prohibited	Prohibited	Prohibited
U0402	T/M (CAN message)	Enabled	Enabled	Enabled	Enabled	Prohibited	Prohibited *2	Prohibited *2
U0428	SAS (CAN message)	Enabled	Enabled	Enabled	Enabled	Enabled	Prohibited	Prohibited
U1073	Bus-off	Enabled	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited
U1100	Engine CAN timeout	Enabled	Enabled	Enabled	Enabled	Prohibited	Prohibited	Prohibited
U1101	T/M CAN timeout/Not equipped	Enabled	Enabled	Enabled	Enabled	Prohibited	Prohibited	Prohibited
U1104	SAS CAN timeout/Not equipped	Enabled	Enabled	Enabled	Enabled	Enabled	Prohibited	Prohibited
U1108	Meter CAN timeout/Not equipped	Enabled	Enabled	Enabled	Enabled	Prohibited	Enabled	Enabled
U1109	ETACS CAN timeout/Not equipped	Enabled	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited
U1195	Coding not completed	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited
U1200	SAS parity error	Enabled	Enabled	Enabled	Enabled	Enabled	Prohibited	Prohibited
U1204	SAS message counter error	Enabled	Enabled	Enabled	Enabled	Enabled	Prohibited	Prohibited
U1211	ENG Parity/Toggle bit error	Enabled	Enabled	Enabled	Enabled	Prohibited	Prohibited *2	Prohibited *2

NOTE:

- *1: prohibited depending on a trouble cause.
- *2: enabled depending on a trouble cause.

DIAGNOSTIC TROUBLE CODE CHART

M1355001101415

⚠ CAUTION

During diagnosis, a diagnostic trouble code associated with other system may be set when the ignition switch is turned on with connector(s) disconnected. On completion, confirm all systems for diagnostic trouble code(s). If diagnostic trouble code(s) are set, erase them all.

Diagnostic trouble code No.	Item	Reference page
C1200	FR wheel speed sensor	P.35C-18
C1205	FL wheel speed sensor	
C1210	RR wheel speed sensor	
C1215	RL wheel speed sensor	
C1201	FR wheel speed sensor signal	P.35C-23
C1206	FL wheel speed sensor signal	
C1211	RR wheel speed sensor signal	
C1216	RL wheel speed sensor signal	
C1225	Deviation between wheel speed	P.35C-30
C1226	FR inlet valve	P.35C-36
C1231	FR outlet valve	
C1236	FL inlet valve	
C1241	FL outlet valve	
C1246	RR inlet valve	
C1251	RR outlet valve	
C1256	RL inlet valve	
C1261	RL outlet valve	
C1300	FR cut valve	
C1305	FR suction valve	
C1310	FL cut valve	
C1315	FL suction valve	
C1266	Motor stuck	P.35C-36
C1271	Motor drive circuit	
C1273	Motor drive circuit stuck off	
C1274	Motor drive circuit stuck on	
C1276	Valve power supply circuit	P.35C-39
C1278	Valve power circuit stuck off	
C1279	Valve power circuit stuck on	
C1340	Stoplight switch	P.35C-42
C1364	M/C pressure SNSR.malfunction	P.35C-44
C1366	Lateral G SNSR.stuck/low gain	P.35C-45

Diagnostic trouble code No.	Item	Reference page
C1371	Yaw rate SNSR.stuck/low gain	P.35C-46
C1381	Longitudinal G stuck/low gain	P.35C-47
C1385	Yaw rate sensor	P.35C-48
C1387	Lateral G sensor/G performance	P.35C-49
C1388	Yaw rate sensor active check	P.35C-51
C1390	Lateral G sensor active check	P.35C-52
C1392	INCOMP.learn (Longitudinal G)	P.35C-53
C1394	INCOMP.learn neutral(SAS)	P.35C-54
C1395	INCOMP. Brake fluid filling	P.35C-55
C1396	Engine torque input refusal	P.35C-56
C1505	Steering angle sensor	P.35C-57
C1555	Steering angle SNS.out of range	P.35C-59
C1607	ECU failure	P.35C-61
C1608	EEPROM fail	P.35C-61
C1707	Implausible coding data	P.35C-64
C1860	Power supply high voltage	P.35C-65
C1861	Power supply low voltage	P.35C-68
C1864	G/Yawrate SNS.power supply VOLT.	P.35C-71
C2206	Re-execution of variant coding	P.35C-73
U0401	Engine (CAN message)	P.35C-75
U0402	T/M (CAN message)	P.35C-76
U0428	SAS (CAN message)	P.35C-77
U1073	Bus-off	P.35C-79
U1100	Engine CAN timeout	P.35C-79
U1101	T/M CAN timeout/Not equipped	P.35C-81
U1104	SAS CAN timeout/Not equipped	P.35C-83
U1108	Meter CAN timeout/Not equipped	P.35C-84
U1109	ETACS CAN timeout/Not equipped	P.35C-86
U1195	Coding not completed	P.35C-88
U1200	SAS parity error	P.35C-89
U1204	SAS message counter error	
U1211	ENG Parity/Toggle bit error	P.35C-91

DIAGNOSTIC TROUBLE CODE PROCEDURES

Code No. C1200 FR wheel speed sensor

Code No. C1205 FL wheel speed sensor

Code No. C1210 RR wheel speed sensor

Code No. C1215 RL wheel speed sensor

⚠ 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 (Refer to GROUP 54C – CAN Bus Diagnostics Table [P.54C-12](#)).
- 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 [P.35C-134](#) and [P.35C-135](#)).

OPERATION

- The wheel speed sensor is a kind of a pulse generator. It consists of encoders (a plate on which north and south pole sides of the magnets are arranged alternately) for detecting the wheel speed which rotates at the same speed of the wheels and wheel speed sensors. This sensor outputs frequency pulse signals in proportion to the wheel speed.
- The pulse signals, which the wheel speed sensor creates, are sent to ASC-ECU. ASC-ECU uses the frequency of the pulse signals to determine the wheel speed.

DIAGNOSTIC TROUBLE CODE SET CONDITIONS

The ASC-ECU monitors the voltage fluctuation in each wheel speed sensor circuit. If ASC-ECU detects the open or short circuit in the circuit, it will store a diagnostic trouble code.

PROBABLE CAUSES**Current trouble**

- Damaged harness wires and connectors
- Malfunction of the wheel speed sensor
- Malfunction of ASC-ECU
- Noise interference

Past trouble

- Carry out diagnosis with particular emphasis on wiring harness and connector failures between ASC-ECU and the wheel speed sensor. For diagnosis procedures, refer to How to treat past trouble (GROUP 00 – How to Use Troubleshooting/Inspection Service Points [P.00-6](#)).

DIAGNOSIS

STEP 1. Using scan tool MB991958, diagnose the CAN bus lines.

Use the scan tool MB991958 to diagnose the CAN bus lines.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting [P.54C-12](#)). On completion, go to Step 2.

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

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

YES : Go to Step 3.

NO : This diagnosis is complete.

STEP 3. Using scan tool MB991958, check data list

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

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

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction [P.00-6](#)).

NO : Go to Step 4.

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

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

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

OK: 1 V or less

Q: Is the check result normal?

YES : Go to Step 5.

NO (No. C1200 NG) : Go to Step 6.

NO (No. C1205 NG) : Go to Step 7.

NO (No. C1210 NG) : Go to Step 8.

NO (No. C1215 NG) : Go to Step 9.

STEP 5. Measure the resistance at the ASC-ECU connector.

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

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

OK: No continuity

Q: Is the check result normal?

YES : Go to Step 10.

NO (No. C1200 NG) : Go to Step 6.

NO (No. C1205 NG) : Go to Step 7.

NO (No. C1210 NG) : Go to Step 8.

NO (No. C1215 NG) : Go to Step 9.

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

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

Q: Is the check result normal?

YES : Replace the front wheel speed sensor (RH) (Refer to [P.35C-139](#)).

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

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

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

Q: Is the check result normal?

YES : Replace the front wheel speed sensor (LH) (Refer to [P.35C-139](#)).

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

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

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

Q: Is the check result normal?

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

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

STEP 9. Check the wiring harness wires between ASC-ECU connector A-05 RL (+) or RL (–) terminal and the rear wheel speed sensor (LH) connector terminal.

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

Q: Is the check result normal?

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

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

STEP 10. Measure the voltage at the ASC-ECU connector.

(1) Measure with the connector(s) connected.

(2) Ignition switch: "ON"

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

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

OK:

Power supply terminal: Approx. system voltage

Signal terminal: approximately 0.4 to 1.3 V

Q: Is the check result normal?

YES : Go to Step 15.

NO (No. C1200 NG) : Go to Step 11.

NO (No. C1205 NG) : Go to Step 12.

NO (No. C1210 NG) : Go to Step 13.

NO (No. C1215 NG) : Go to Step 14.

STEP 11. Check the wiring harness wires between the ASC-ECU connector FR (+) or FR (–) terminal and the front wheel speed sensor (RH) connector terminal.

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

Q: Is the check result normal?

YES : Go to Step 15.

NO : Repair the wiring harness.

STEP 12. Check the wiring harness wires between the ASC-ECU connector FL (+) or FL (–) terminal and the front wheel speed sensor (LH) connector terminal.

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

Q: Is the check result normal?

YES : Go to Step 15.

NO : Repair the wiring harness.

STEP 13. Check the wiring harness wires between the ASC-ECU connector RR (+) or RR (–) terminal and the rear wheel speed sensor (RH) connector terminal.

Check the rear wheel speed sensor (RH) circuit for open.

Q: Is the check result normal?

YES : Go to Step 15.

NO : Repair the wiring harness.

STEP 14. Check the wiring harness wires between ASC-ECU connector RL (+) or RL (–) terminal and the rear wheel speed sensor (LH) connector terminal.

Check the rear wheel speed sensor (LH) circuit for open.

Q: Is the check result normal?

YES : Go to Step 15.

NO : Repair the wiring harness.

STEP 15. Check the wheel speed sensor.

Refer to [P.35C-130](#).

Q: Is the check result normal?

YES : Go to Step 16.

NO : Replace the wheel speed sensor (Refer to [P.35C-139](#)).

STEP 16. Diagnostic trouble code recheck

Check again if the diagnostic trouble code is set.

- (1) Erase the diagnostic trouble code.
- (2) Ignition switch: "LOCK" (OFF) position to "ON"
- (3) Drive the vehicle until the vehicles speed reaches 20 km/h.

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

YES : Replace the hydraulic unit (integrated with ASC-ECU) (Refer to [P.35C-137](#)).

NO : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction [P.00-13](#)).

Code No. C1201 FR wheel speed sensor signal

Code No. C1206 FL wheel speed sensor signal

Code No. C1211 RR wheel speed sensor signal

Code No. C1216 RL wheel speed sensor signal

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 (Refer to GROUP 54C – CAN Bus Diagnostics Table [P.54C-12](#)).
- 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 [P.35C-134](#) and [P.35C-135](#)).

OPERATION

- The wheel speed sensor is a kind of a pulse generator. It consists of encoders (a plate on which north and south pole sides of the magnets are arranged alternately) for detecting the wheel speed which rotates at the same speed of the wheels and wheel speed sensors. This sensor outputs frequency pulse signals in proportion to the wheel speed.
- The pulse signals, which the wheel speed sensor creates, are sent to ASC-ECU. ASC-ECU uses the frequency of the pulse signals to determine the wheel speed.

DIAGNOSTIC TROUBLE CODE SET CONDITIONS

ASC-ECU monitors the signals from each wheel speed sensor while the vehicle is being driven. If any fault below is found in these sensor signals, ASC-ECU will store the relevant diagnostic trouble code.

- Irregular change in the wheel speed sensor signal
- Wheel speed sensor signal continuously indicates high value.

PROBABLE CAUSES

Current trouble

- Improper installation of the wheel speed sensor
- Malfunction of the wheel speed sensor
- Adhesion of foreign materials on the wheel speed sensor
- Wheel bearing malfunction
- Excessive gap between the wheel speed sensor and the wheel speed detection encoder
- Adhesion of foreign materials on the wheel speed detection magnetic encoder
- Deformation of the wheel speed detection magnetic encoder
- Disturbance of magnetization pattern for wheel speed detection encoder
- Terminal quantity error of wheel speed detection encoder
- Damaged harness wires and connectors
- Malfunction of ASC-ECU
- External noise interference

Past trouble

- When diagnostic trouble codes No. C1200, C1205, C1210 or C1215 are also set, carry out diagnosis with particular emphasis on wiring harness and connector failures between ASC-ECU and wheel speed sensor. For diagnosis procedures, refer to How to treat past trouble (GROUP 00 – How to Use Troubleshooting/Inspection Service Points [P.00-6](#)).
- When diagnostic trouble codes No. C1200, C1205, C1210, or C1215 are not set, the following causes may be present:
 - Wheel(s) spinning
 - Unstable vehicle attitude
 - External noise interference
 - Vehicle ran with the parking brake applied.

DIAGNOSIS

STEP 1. Using scan tool MB991958, diagnose the CAN bus lines.

Use the scan tool MB991958 to diagnose the CAN bus lines.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting [P.54C-12](#)). On completion, go to Step 2.

STEP 2. Diagnostic trouble code recheck after resetting CAN bus lines**Q: Is diagnostic trouble code No. C1201, C1206, C1211 or C1216 set?**

YES : Go to Step 3.

NO : This diagnosis is complete.

STEP 3. Using scan tool MB991958, DTC check.

Check that diagnostic trouble codes No. C1200, C1205, C1210, and C1215 are also set.

Q: Are diagnostic trouble codes No. C1200, C1205, C1210 and C1215 also set?

YES : Follow the diagnosis procedure for diagnostic trouble codes No. C1200, C1205, C1210 or C1215 (Refer to [P.35C-18](#)).

NO : Go to Step 4.

STEP 4. Check whether the wheel speed sensors are installed properly.

Check whether the wheel speed sensor relevant to code No. is installed correctly (sensor dislocation, loose mounting bolt, etc.).

Diagnostic trouble code No.	Relevant sensor
C1201	Front right
C1206	Front left
C1211	Rear right
C1216	Rear left

Q: Is the check result normal?

YES : Go to Step 5.

NO : Install the wheel speed sensor properly (Refer to [P.35C-139](#)).

STEP 5. Check the wheel speed sensor.

Refer to [P.35C-130](#).

Q: Is the check result normal?

YES : Go to Step 6.

NO : Replace the wheel speed sensor (Refer to [P.35C-139](#)).

STEP 6. Check for wheel bearing looseness

NOTE: Loose wheel bearing may increase the gap between the wheel speed sensor and the wheel speed detection magnet encoder. Check the wheel bearing indicated by the code No. for looseness.

Diagnostic trouble code No.	Relevant sensor
C1201	Front right
C1206	Front left
C1211	Rear right
C1216	Rear left

- Front: Refer to GROUP 26 – On-vehicle Service [P.26-7](#).
- Rear: Refer to GROUP 27 – On-vehicle Service [P.27-4](#).

Q: Is the check result normal?

YES : Go to Step 7.

NO <when the relevant wheel is front> : Replace the wheel bearing (Refer to GROUP 26 – Front Axle Hub Assembly [P.26-8](#)).

NO <when the relevant wheel is rear> : Replace the wheel bearing (Refer to GROUP 27 – Rear Axle Hub Assembly [P.27-5](#)).

STEP 7. Check of wheel speed detection encoder

Check the wheel speed detection magnetic encoder for adhesion of foreign materials or deformation.

Q: Is the check result normal?

YES : Go to Step 8.

NO <when the relevant wheel is front> : Remove the foreign materials and clean the encoder so as not to disturb the magnetization pattern on it while taking care of the magnet, magnetic substance, and magnetic attraction. If deformation is found, replace the wheel bearing (Refer to GROUP 26 – Front Axle Hub Assembly [P.26-14](#)).

NO <when the relevant wheel is rear> : Remove the foreign materials and clean the encoder so as not to disturb the magnetization pattern on it while taking care of the magnet, magnetic substance, and magnetic attraction. If deformation is found, replace the wheel bearing (Refer to GROUP 27 – Rear Axle Hub Assembly [P.27-7](#)).

STEP 8. Measure the voltage at the ASC-ECU connector.

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

Diagnostic trouble code No.	Checking terminal	
	Power supply terminal	Signal terminal
C1201	FR+	FR–
C1206	FL+	FL–
C1211	RR+	RR–
C1216	RL+	RL–

OK: 1 V or less

Q: Is the check result normal?

YES : Go to Step 9.

NO (No. C1201 NG) : Go to Step 11.

NO (No. C1206 NG) : Go to Step 12.

NO (No. C1211 NG) : Go to Step 13.

NO (No. C1216 NG) : Go to Step 14.

STEP 9. Measure the resistance at the ASC-ECU connector.

- (1) Disconnect the connector, and measure at the wiring harness side.
- (2) Measure the resistance between the power supply terminal as well as signal terminal of each wheel speed sensor circuit and body ground.

Diagnostic trouble code No.	Checking terminal	
	Power supply terminal	Signal terminal
C1201	FR+	FR-
C1206	FL+	FL-
C1211	RR+	RR-
C1216	RL+	RL-

OK: No continuity

Q: Is the check result normal?

YES : Go to Step 10.

NO (No. C1201 NG) : Go to Step 11.

NO (No. C1206 NG) : Go to Step 12.

NO (No. C1211 NG) : Go to Step 13.

NO (No. C1216 NG) : Go to Step 14.

STEP 10. Measure the voltage at the ASC-ECU connector.

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

Diagnostic trouble code No.	Checking terminal	
	Power supply terminal	Signal terminal
C1201	FR+	FR–
C1206	FL+	FL–
C1211	RR+	RR–
C1216	RL+	RL–

OK:

Power supply terminal: Approx. system voltage

Signal terminal: approximately 0.4 to 1.3 V

Q: Is the check result normal?

YES : Go to Step 15.

NO (No. C1201 NG) : Go to Step 11.

NO (No. C1206 NG) : Go to Step 12.

NO (No. C1211 NG) : Go to Step 13.

NO (No. C1216 NG) : Go to Step 14.

STEP 11. Check the wiring harness wires between the ASC-ECU connector FR (+) or FR (–) terminal and the front wheel speed sensor (RH) connector terminal.

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

Q: Is the check result normal?

YES : Go to Step 15.

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

STEP 12. Check the wiring harness wires between the ASC-ECU connector FL (+) or FL (–) terminal and the front wheel speed sensor (LH) connector terminal.

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

Q: Is the check result normal?

YES : Go to Step 15.

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

STEP 13. Check the wiring harness wires between the ASC-ECU connector RR (+) or RR (–) terminal and the rear wheel speed sensor (RH) connector terminal.

Check the rear wheel speed sensor (RH) circuit for short and open.

Q: Is the check result normal?

YES : Go to Step 15.

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

STEP 14. Check the wiring harness wires between ASC-ECU connector RL (+) or RL (–) terminal and the rear wheel speed sensor (LH) connector terminal.

Check the rear wheel speed sensor (LH) circuit for short and open.

Q: Is the check result normal?

YES : Go to Step 15.

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

STEP 15. Diagnostic trouble code recheck

Check again if the diagnostic trouble code is set.

- (1) Erase the diagnostic trouble code.
- (2) Ignition switch: "LOCK" (OFF) position to "ON"
- (3) Drive the vehicle until the vehicles speed reaches 20 km/h.

Q: Is diagnostic trouble code No. C1201, C1206, C1211 or C1216 set?

YES : Replace the wheel speed sensor (Refer to [P.35C-139](#)). Then go to Step 16.

NO : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction [P.00-13](#)).

STEP 16. Diagnostic trouble code recheck

Check again if the diagnostic trouble code is set.

- (1) Erase the diagnostic trouble code.
- (2) Ignition switch: "LOCK" (OFF) position to "ON"
- (3) Drive the vehicle until the vehicles speed reaches 20 km/h.

Q: Is diagnostic trouble code No. C1201, C1206, C1211 or C1216 set?

YES : Replace the hydraulic unit (integrated with ASC-ECU) (Refer to [P.35C-137](#)).

NO : This diagnosis is complete.

Code No. C1225 Deviation between wheel speed

⚠ 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 (Refer to GROUP 54C – CAN Bus Diagnostics Table [P.54C-12](#)).
- 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 [P.35C-134](#) and [P.35C-135](#)).

OPERATION

- The wheel speed sensor is a kind of a pulse generator. It consists of encoders (a plate on which north and south pole sides of the magnets are arranged alternately) for detecting the wheel speed which rotates at the same speed of the wheels and speed sensors. This sensor outputs frequency pulse signals in proportion to the wheel speed.
- The pulse signals, which the wheel speed sensor creates, are sent to ASC-ECU. ASC-ECU uses the frequency of the pulse signals to determine the wheel speed.

DIAGNOSTIC TROUBLE CODE SET CONDITIONS

The ASC-ECU monitors the signals from each wheel speed sensor. If any faults below is found in these sensor signals, the ECU will store the relevant diagnostic trouble code. When the abnormal wheel is identified, diagnostic trouble code No. C1201, C1206, C1211, or C1216 is set.

- Missing sensor signal
- Sensor signal, which will not be created under normal operation
- Unfeasible difference among the wheel speed sensor signals
- When the ABS/ASC control is being activated for one minute or more.

PROBABLE CAUSES**Current trouble**

- Improper installation of the wheel speed sensor
- Malfunction of the wheel speed sensor
- Wheel bearing malfunction
- Excessive gap between the wheel speed sensor and the wheel speed detection encoder
- Adhesion of foreign materials on the wheel speed detection magnetic encoder
- Deformation of the wheel speed detection magnetic encoder
- Damaged harness wires and connectors
- Malfunction of ASC-ECU

Past trouble

- The following conditions may occur.
 - Either of the right or left wheel is turning, or either of the front or rear wheel are turning.
 - Unstable vehicle attitude
 - External noise interference
 - The vehicle is driven on snowy or rough road.

DIAGNOSIS

STEP 1. Using scan tool MB991958, diagnose the CAN bus lines.

Use the scan tool MB991958 to diagnose the CAN bus lines.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Repair the CAN bus line (Refer to GROUP 54C, Troubleshooting [P.54C-12](#)). On completion, go to Step 2.

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

Q: Is the relevant diagnostic trouble code No. C1225 set?

YES : Go to Step 3.

NO : This diagnosis is complete.

STEP 3. Check whether the wheel speed sensors are installed properly.

Check the mounting status of wheel speed sensors (sensor dislocation, mounting bolt loosening, etc) for all wheels.

Q: Is the check result normal?

YES : Go to Step 4.

NO : Install the wheel speed sensor properly (Refer to [P.35C-139](#)).

STEP 4. Check the wheel speed sensor.

Refer to [P.35C-130](#).

Q: Is the check result normal?

YES : Go to Step 5.

NO : Replace the wheel speed sensor.

STEP 5. Check for wheel bearing looseness

NOTE: The wheel bearing looseness is suspected to be the cause of excessive gap between the wheel speed sensor and encoder. Therefore, check the wheel bearing looseness of each wheel.

- Front: Refer to GROUP 26 – On-vehicle Service [P.26-7](#).
- Rear: Refer to GROUP 27 – On-vehicle Service [P.27-4](#).

Q: Is the check result normal?

YES : Go to Step 6.

NO <when the relevant wheel is front> : Replace the wheel bearing (Refer to GROUP 26 – Front Axle Hub Assembly [P.26-14](#)).

NO <when the relevant wheel is rear> : Replace the wheel bearing (Refer to GROUP 27 – Rear Axle Hub Assembly [P.27-7](#)).

STEP 6. Check of wheel speed detection encoder

Check the wheel speed detection magnetic encoder for adhesion of foreign materials or deformation.

Q: Is the check result normal?

YES : Go to Step 7.

NO <when the relevant wheel is front> : Remove the foreign materials and clean the encoder so as not to disturb the magnetization pattern on it while taking care of the magnet, magnetic substance, and magnetic attraction. If deformation is found, replace the wheel bearing (Refer to GROUP 26 – Front Axle Hub Assembly [P.26-14](#)).

NO <when the relevant wheel is rear> : Remove the foreign materials and clean the encoder so as not to disturb the magnetization pattern on it while taking care of the magnet, magnetic substance, and magnetic attraction. If deformation is found, replace the wheel bearing (Refer to GROUP 27 – Rear Axle Hub Assembly [P.27-7](#)).

STEP 7. Measure the voltage at the ASC-ECU connector.

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

Position of wheel speed sensors	Checking terminal	
	Power supply terminal	Signal terminal
Right front wheel	FR+	FR–
Left front wheel	FL+	FL–
Right rear wheel	RR+	RR–
Left rear wheel	RL+	RL–

OK: 1 V or less

Q: Is the check result normal?

YES : Go to Step 8.

NO (FR+ or FR– NG) : Go to Step 10.

NO (FL+ or FL– NG) : Go to Step 11.

NO (RR+ or RR– NG) : Go to Step 12.

NO (RL+ or RL– NG) : Go to Step 13.

STEP 8. Measure the resistance at the ASC-ECU connector.

- (1) Disconnect the connector, and measure at the wiring harness side.
- (2) Measure the resistance between the power supply terminal as well as signal terminal of each wheel speed sensor circuit and body ground.

Position of wheel speed sensors	Checking terminal	
	Power supply terminal	Signal terminal
Right front wheel	FR+	FR–
Left front wheel	FL+	FL–
Right rear wheel	RR+	RR–
Left rear wheel	RL+	RL–

OK: No continuity

Q: Is the check result normal?

YES : Go to Step 9.

NO (FR+ or FR– NG) : Go to Step 10.

NO (FL+ or FL– NG) : Go to Step 11.

NO (RR+ or RR– NG) : Go to Step 12.

NO (RL+ or RL– NG) : Go to Step 13.

STEP 9. Measure the voltage at the ASC-ECU connector.

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

Position of wheel speed sensors	Checking terminal	
	Power supply terminal	Signal terminal
Right front wheel	FR+	FR–
Left front wheel	FL+	FL–
Right rear wheel	RR+	RR–
Left rear wheel	RL+	RL–

OK:

Power supply terminal: Approx. system voltage

Signal terminal: approximately 0.4 to 1.3 V

Q: Is the check result normal?

YES : Go to Step 14.

NO (FR+ or FR– NG) : Go to Step 10.

NO (FL+ or FL– NG) : Go to Step 11.

NO (RR+ or RR– NG) : Go to Step 12.

NO (RL+ or RL– NG) : Go to Step 13.

STEP 10. Check the wiring harness wires between the ASC-ECU connector FR (+) or FR (–) terminal and the front wheel speed sensor (RH) connector terminal.

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

Q: Is the check result normal?

YES : Go to Step 14.

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

STEP 11. Check the wiring harness wires between the ASC-ECU connector FL (+) or FL (–) terminal and the front wheel speed sensor (LH) connector terminal.

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

Q: Is the check result normal?

YES : Go to Step 14.

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

STEP 12. Check the wiring harness wires between the ASC-ECU connector RR (+) or RR (–) terminal and the rear wheel speed sensor (RH) connector terminal.

Check the rear wheel speed sensor (RH) circuit for short and open.

Q: Is the check result normal?

YES : Go to Step 14.

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

STEP 13. Check the wiring harness wires between ASC-ECU connector RL (+) or RL (–) terminal and the rear wheel speed sensor (LH) connector terminal.

Check the rear wheel speed sensor (LH) circuit for short and open.

Q: Is the check result normal?

YES : Go to Step 14.

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

STEP 14. Diagnostic trouble code recheck

Check again if the diagnostic trouble code is set.

- (1) Erase the diagnostic trouble code.
- (2) Ignition switch: "LOCK" (OFF) position to "ON"
- (3) Drive the vehicle until the vehicles speed reaches 20 km/h.

Q: Is diagnostic trouble code No. C1225 set?

YES : Replace the wheel speed sensor (Refer to [P.35C-139](#)). Then go to Step 15.

NO : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction [P.00-13](#)).

STEP 15. Diagnostic trouble code recheck

Check again if the diagnostic trouble code is set.

- (1) Erase the diagnostic trouble code.
- (2) Ignition switch: "LOCK" (OFF) position to "ON"
- (3) Drive the vehicle until the vehicles speed reaches 20 km/h.

Q: Is diagnostic trouble code No. C1225 set?

YES : Replace the hydraulic unit (integrated with ASC-ECU) (Refer to [P.35C-137](#)).

NO : This diagnosis is complete.

Code No. C1226 FR inlet valve
Code No. C1231 FR outlet valve
Code No. C1236 FL inlet valve
Code No. C1241 FL outlet valve
Code No. C1246 RR inlet valve
Code No. C1251 RR outlet valve
Code No. C1256 RL inlet valve
Code No. C1261 RL outlet valve
Code No. C1300 FR cut valve
Code No. C1305 FR suction valve
Code No. C1310 FL cut valve
Code No. C1315 FL suction valve

⚠ CAUTION

- If there is any problem in the CAN bus lines, an incorrect diagnostic trouble code may be stored. Prior to this diagnosis, diagnose the CAN bus lines (Refer to GROUP 54C – CAN Bus Diagnostics Table [P.54C-12](#)).
- 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 [P.35C-134](#) and [P.35C-135](#)).

OPERATION

- The ASC-ECU contains the power supply circuit (+BV terminal) for the solenoid valve. The solenoid valve is energized by the valve relay, which is incorporated in the ASC-ECU.
- The valve relay, which is incorporated in the ASC-ECU, is always ON except for during the initial check at electric motor switch is turned ON as well as for during the system check that is periodically repeated. While the system is active, the power is supplied to the solenoid valve at all times.

- ASC-ECU activates the solenoid valve by turning on its driving transistor.

DIAGNOSTIC TROUBLE CODE SET CONDITIONS

These diagnostic trouble codes will be stored under the cases below.

Code No. C1226, C1231, C1236, C1241, C1246, C1251, C1256 and C1261

- These codes are stored when the ASC-ECU drive signal does not match the feed back signal from the solenoid valve.

Code No. C1300, C1305, C1310 and C1315

- These codes are stored when an abnormality is detected in ASC-ECU.

PROBABLE CAUSES

- Damaged harness wires and connectors
- Malfunction of ASC-ECU

Code No. C1266 Motor stuck
Code No. C1271 Motor drive circuit
Code No. C1273 Motor drive circuit stuck off
Code No. C1274 Motor drive circuit stuck on

⚠ 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 (Refer to GROUP 54C – CAN Bus Diagnostics Table P.54C-12).
- 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 P.35C-134 and P.35C-135).

OPERATION

- The ASC-ECU contains the power supply circuit (+BM terminal) for the pump motor. The pump motor is energized by the motor relay, which is incorporated in the ASC-ECU.
- The motor relay, which is incorporated in the ASC-ECU, is always off unless the motor solenoid valve check is activated when the vehicle is started.
- The ASC-ECU activates the pump motor by turning on the ECU built-in motor relay when the ABS/ASC is working.

DIAGNOSTIC TROUBLE CODE SET CONDITIONS

These diagnostic trouble codes will be set under the cases below.

Code No. C1266 Motor stuck

- The ECU monitors the voltage, which is created by the pump motor coasting, after the motor relay is turned off. If the voltage continues only for too short period, the ECU determines that the pump motor is not running smoothly (i.e. motor seizure), and sets this diagnostic trouble code.

Code No. C1271 Motor drive circuit

- The ECU monitors the power supply voltage to the motor. If the voltage is lower than a predetermined value, the ECU sets this diagnostic trouble code as a failure in the motor power supply circuit.

Code No. C1273 Motor drive circuit stuck off

- If the voltage, which is created by the pump motor, is abnormal after the motor relay is turned on, the ECU determines that the motor relay is stuck off, and sets this diagnostic trouble code.

Code No. C1274 Motor drive circuit stuck on

- If the voltage, which is created by the pump motor, is abnormal after the motor relay is turned off, the ECU determines that the motor relay is stuck on, and sets this diagnostic trouble code.

PROBABLE CAUSES

Current trouble

- Battery failure
- Damaged harness wires and connectors
- Malfunction of ASC-ECU

Past trouble

- Carry out diagnosis with particular emphasis on connector(s) or wiring harness between the power supply circuit (+BM terminal) to the ASC-ECU motor or ground circuit (GND1 and GND2 terminals). For diagnosis procedures, refer to How to treat past trouble (GROUP 00 – How to Use Troubleshooting/Inspection Service Points P.00-6).

DIAGNOSIS

STEP 1. Using scan tool MB991958, diagnose the CAN bus lines.

Use the scan tool MB991958 to diagnose the CAN bus lines.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Repair the CAN bus line (Refer to GROUP 54C – CAN Bus Trouble Symptom Chart [P.54C-12](#)). On completion, go to Step 2.

STEP 2. Diagnostic trouble code recheck after resetting CAN bus lines**Q: Is diagnostic trouble code No. C1266, C1271, C1273 or C1274 set?**

YES : Go to Step 3.

NO : This diagnosis is complete.

STEP 3. Check the battery.

Refer to GROUP 54A – Battery Test [P.54A-5](#).

Q: Is the battery in good condition?

YES : Go to Step 4.

NO : Charge or replace the battery. Then go to Step 7.

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

- (1) Connector check: ASC-ECU connector
- (2) Disconnect the connector and measure at the wiring harness side.
- (3) Measure the resistance between +BM terminal and body ground.

OK: No continuity

Q: Is the check result normal?

YES : Go to Step 5.

NO : The power supply circuit may be short. Repair the wiring harness wires or connectors between the ACS-ECU connector +BM terminal and the fusible links, or replace the fusible links. Then go to Step 7.

STEP 5. Measure the voltage at the ASC-ECU connector.

- (1) Disconnect the connector and measure at the wiring harness side.
- (2) Measure the voltage between +BM terminal and body ground.

OK: Battery voltage

Q: Is the check result normal?

YES : Go to Step 6.

NO : The power supply circuit may be open. Repair the wiring harness wires or connectors between the ACS-ECU connector +BM terminal and the fusible links. Then go to Step 7 .

STEP 6. Measure the resistance at the ASC-ECU connector.

- (1) Disconnect the connector and measure at the wiring harness side.
- (2) Measure the resistance between terminals GND1 or GND2 and body ground.

OK: Continuity exists (2 Ω or less).

Q: Is the check result normal?

YES : Go to Step 7.

NO : An open circuit may be present in the ground circuit. Repair the wiring harness wires between ASC-ECU connector terminal GND1 or GND2 and body ground. Then go to Step 7.

STEP 7. Diagnostic trouble code recheck

Check again if the diagnostic trouble code is set.

- (1) Erase the diagnostic trouble code.
- (2) Ignition switch: "LOCK" (OFF) position to "ON"
- (3) Drive the vehicle until the vehicles speed reaches 20 km/h.

Q: Is diagnostic trouble code No. C1266, C1271, C1273 or C1274 set?

YES : Replace the hydraulic unit (integrated with ASC-ECU) (Refer to [P.35C-137](#)).

NO : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction [P.00-13](#)).

Code No. C1276 Valve power supply circuit
Code No. C1278 Valve power circuit stuck off
Code No. C1279 Valve power circuit stuck on

⚠ 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 (Refer to GROUP 54C – CAN Bus Diagnostics Table [P.54C-12](#)).
- 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 [P.35C-134](#) and [P.35C-135](#)).

OPERATION

- The ASC-ECU contains the power supply circuit (+BV terminal) for the solenoid valve. The solenoid valve is energized by the valve relay, which is incorporated in the ASC-ECU.

- The valve relay, which is incorporated in the ASC-ECU, is always ON except for during the initial check at electric motor switch is turned ON as well as for during the system check that is periodically repeated. While the system is active, the power is supplied to the solenoid valve at all times.

DIAGNOSTIC TROUBLE CODE SET CONDITIONS

These diagnostic trouble codes will be set under the cases below.

Code No. C1276 Valve power supply circuit

- The ECU monitors the power supply voltage to the solenoid valve. If the voltage is lower than the predetermined value, the ECU sets this diagnostic trouble code as a failure in the valve power supply circuit.

Code No. C1278 Valve power circuit stuck off

- When the solenoid valve is not energized even after the solenoid valve relay is turned ON, the ECU determines that the solenoid valve relay stuck OFF and sets this diagnostic trouble code.

Code No. C1279 Valve power circuit stuck on

- When the solenoid valve is energized even after the solenoid valve relay is turned OFF, the ECU determines that the solenoid valve relay stuck ON and sets this diagnostic trouble code.

- Damaged harness wires and connectors
- Malfunction of ASC-ECU

Past trouble

- Carry out diagnosis with particular emphasis on wiring harness and connector failures in the power supply circuit (+ BV terminal) to ASC-ECU solenoid valve or ground circuit (terminals GND1 and GND2). For diagnosis procedures, refer to How to treat past trouble (GROUP 00 – How to Use Troubleshooting/Inspection Service Points [P.00-6](#)).

PROBABLE CAUSES**Current trouble**

- Battery failure

DIAGNOSIS

STEP 1. Using scan tool MB991958, diagnose the CAN bus lines.

Use the scan tool MB991958 to diagnose the CAN bus lines.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Repair the CAN bus lines (Refer to GROUP 54C – CAN Bus Line Trouble Symptom Chart [P.54C-12](#)). On completion, go to Step 2.

STEP 2. Diagnostic trouble code recheck after resetting CAN bus lines**Q: Is diagnostic trouble code No. C1276, C1278 or C1279 set?**

YES : Go to Step 3.

NO : This diagnosis is complete.

STEP 3. Check the battery.

Refer to GROUP 54A – Battery Test [P.54A-5](#).

Q: Is the auxiliary battery normal?

YES : Go to Step 4.

NO : Charge or replace the battery. Then go to Step 7.

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

- (1) Connector check: ASC-ECU connector
- (2) Disconnect the connector and measure at the wiring harness side.
- (3) Measure the resistance between +BV terminal and body ground.

OK: No continuity

Q: Is the check result normal?

YES : Go to Step 5.

NO : The power supply circuit may be short. Repair the wiring harness wires or connectors between the ACS-ECU connector +BV terminal and the fusible links, or replace the fusible links. Then go to Step 7.

STEP 5. Measure the voltage at the ASC-ECU connector.

- (1) Disconnect the connector and measure at the wiring harness side.
- (2) Measure the voltage between +BV terminal and body ground.

OK: Battery voltage

Q: Is the check result normal?

YES : Go to Step 6.

NO : The power supply circuit may be open. Repair the wiring harness wires or connectors between the ACS-ECU connector +BV terminal and the fusible links. Then go to Step 7 .

STEP 6. Measure the resistance at the ASC-ECU connector.

- (1) Disconnect the connector and measure at the wiring harness side.
- (2) Measure the resistance between terminals GND1 or GND2 and body ground.

OK: Continuity exists (2 Ω or less).

Q: Is the check result normal?

YES : Go to Step 7.

NO : An open circuit may be present in the ground circuit. Repair the wiring harness wires between ASC-ECU connector terminal GND1 or GND2 and body ground. Then go to Step 7.

STEP 7. Check whether the diagnostic trouble code is set again.

Check again if the diagnostic trouble code is set.

- (1) Erase the diagnostic trouble code.
- (2) Ignition switch: "LOCK" (OFF) position to "ON"
- (3) Drive the vehicle until the vehicle's speed reaches 20 km/h.

Q: Is diagnostic trouble code No. C1276, C1278 or C1279 set?

YES : Replace the hydraulic unit (integrated with ASC-ECU) (Refer to [P.35C-137](#)).

NO : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction [P.00-13](#)).

Code No. C1340 Stoplight switch**⚠ 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 (Refer to GROUP 54C – CAN Bus Diagnostics Table [P.54C-12](#)).
- 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 [P.35C-134](#) and [P.35C-135](#)).

OPERATION

The ASC-ECU monitors the ON/OFF signals from the stop light switch and the pressure sensor (incorporated in the hydraulic unit).

DIAGNOSTIC TROUBLE CODE SET CONDITIONS

This diagnostic trouble code is set in the following case.

- When the vehicle has been driven for a long time with the stop light switch turned ON.
- The vehicle is being stopped although the stop light switch remains off.

PROBABLE CAUSES

- The CAN bus line is defective.
- Improper adjustment of stop light switch installation position
- Malfunction of stop light switch
- ETACS-ECU malfunction
- Damaged harness wires and connectors
- Malfunction of ASC-ECU

DIAGNOSIS**STEP 1. Using scan tool MB991958, diagnose the CAN bus lines.**

Use the scan tool MB991958 to diagnose the CAN bus lines.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Repair the CAN bus lines (Refer to GROUP 54C – Troubleshooting [P.54C-12](#)). On completion, go to Step 2.

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

Q: Is the check result normal?

YES : Go to Step 3.

NO : This diagnosis is complete.

STEP 3. Check the stop light and the high-mounted stop light for proper function.

Check the stop light and the high-mounted stop light for proper operation when the brake pedal is depressed. Check that the stop light illuminates when the brake pedal is depressed and that it goes out when the brake pedal is released.

OK:

When the brake pedal is released: OFF

When the brake pedal is depressed: ON

Q: Is the check result normal?

YES : Go to Step 6.

NO : Go to Step 4.

STEP 4. Check for stop light switch installation

Refer to GROUP 35A – On-vehicle Service, Brake Pedal Check and Adjustment [P.35A-13](#).

Q: Is the check result normal?

YES : Go to Step 6.

NO : Install the stop light switch correctly (Refer to GROUP 35A – On-vehicle Service, Brake Pedal Check and Adjustment [P.35A-13](#)). Then go to Step 5.

STEP 5. Check the stop light switch continuity.

Refer to GROUP 35A – Brake Pedal and Stop light Switch Check [P.35A-26](#).

Q: Is the check result normal?

YES : Go to Step 6.

NO : Replace the stop light switch (Refer to GROUP 35A – Brake Pedal [P.35A-25](#) <LHD>, [P.35A-25](#) <RHD>). Then go to Step 6.

STEP 6. Voltage measurement at the ETACS-ECU connector

- (1) Connector check: ETACS-ECU connector, stop light switch connector
- (2) Turn the ignition switch to the "ON" position.
- (3) Measure the voltage between the stop light switch terminal and body ground.

OK:

When the brake pedal is released: 1V or less

When the brake pedal is depressed: Approx. system voltage

Q: Is the check result normal?

YES : Go to Step 7.

NO : The power supply circuit may be open or short. Repair the connectors or the wiring harness wires between the ETACS-ECU connector and the stop light switch connector. Then go to Step 7.

STEP 7. Diagnostic trouble code recheck

Check again if the diagnostic trouble code is set.

- (1) Erase the set diagnostic trouble code.
- (2) Ignition switch: "LOCK" (OFF)
- (3) Ignition switch: "ON"

Q: Is diagnostic trouble code No. C1340 set?

YES : Replace the hydraulic unit (integrated with ASC-ECU) (Refer to [P.35C-137](#)).

NO : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction [P.00-13](#)).

Code No. C1364 M/C pressure SNSR.malfunction**⚠ CAUTION**

- If there is any problem in the CAN bus lines, an incorrect diagnostic trouble code may be stored. Prior to this diagnosis, diagnose the CAN bus lines (Refer to GROUP 54C – CAN Bus Diagnostics Table [P.54C-12](#)).
- 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 [P.35C-134](#) and [P.35C-135](#)).

OPERATION

ASC-ECU incorporates the pressure sensor, and monitors the brake fluid pressure.

DIAGNOSTIC TROUBLE CODE SET CONDITIONS

This diagnostic trouble codes will be stored under the cases below:

- Pressure sensor power supply voltage malfunction
- Pressure sensor signal malfunction
- Abnormal result of initial check performed when the power is supplied to ASC-ECU.

PROBABLE CAUSES

- Malfunction of ASC-ECU

Code No. C1366 Lateral G SNSR.stuck/low gain

⚠ 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 (Refer to GROUP 54C – CAN Bus Diagnostics Table [P.54C-12](#)).
- 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 [P.35C-134](#) and [P.35C-135](#)).

OPERATION

The G and yaw rate sensor output signal is sent to the ASC-ECU.

DIAGNOSTIC TROUBLE CODE SET CONDITIONS

ASC-ECU monitors the G and yaw rate sensor output signal, and when an abnormality is present in the signal from the G and yaw rate sensor, the ECU determines that the trouble occurs and sets the diagnostic trouble code.

PROBABLE CAUSES

- Malfunction of ASC-ECU
- Improper installation of the hydraulic unit (integrated with ASC-ECU).

NOTE: When the vehicle is driven under special conditions, such as driving on a rough road, this diagnostic trouble code will be set.

DIAGNOSIS

STEP 1. Using scan tool MB991958, diagnose the CAN bus lines.

Use the scan tool MB991958 to diagnose the CAN bus lines.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Repair the CAN bus line. (Refer to GROUP 54C – Troubleshooting [P.54C-12](#).) On completion, go to Step 2.

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

Q: Is diagnostic trouble code No. C1366 set?

YES : Go to Step 3.

NO : This diagnosis is complete.

STEP 3. Using scan tool MB991958, check data list

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

- Item No. 08: Lateral G-sensor

Q: Is the check result normal?

YES : Go to Step 4.

NO : Go to Step 4.

STEP 4. Check whether the diagnostic trouble code is set again.

- (1) Erase the set diagnostic trouble code.
- (2) Ignition switch: "LOCK" (OFF) to "ON"
- (3) Start the engine.

Q: Is diagnostic trouble code No. C1366 set?

- YES :** Replace the hydraulic unit (integrated with ASC-ECU) (Refer to [P.35C-137](#)).
- NO :** The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction [P.00-13](#)).

Code No. C1371 Yaw rate SNSR. stuck/low gain**⚠ 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 (Refer to GROUP 54C, Trouble code diagnosis [P.54C-12](#)).
- 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 [P.35C-134](#) and [P.35C-135](#)).

OPERATION

The G and yaw rate sensor output signal is sent to the ASC-ECU.

DIAGNOSTIC TROUBLE CODE SET CONDITIONS

ASC-ECU monitors the G and yaw rate sensor output signal, and when an abnormality is present in the signal from the G and yaw rate sensor, the ECU determines that the trouble occurs and sets the diagnostic trouble code.

PROBABLE CAUSES

- Malfunction of ASC-ECU

NOTE: When the vehicle is driven under special conditions, such as driving on a rough road, this diagnostic trouble code will be set.

NOTE: When the vehicle is placed on a high-speed turning table, this diagnostic trouble code will also be set.

DIAGNOSIS**STEP 1. Using scan tool MB991958, diagnose the CAN bus lines.**

Use the scan tool MB991958 to diagnose the CAN bus lines.

Q: Is the check result normal?

- YES :** Go to Step 3.
- NO :** Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting [P.54C-12](#)). On completion, go to Step 2.

STEP 2. Diagnostic trouble code recheck after resetting CAN bus lines**Q: Is diagnostic trouble code No. C1371 set?**

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

STEP 3. Using scan tool MB991958, check data list

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

- Item No. 12: Yaw rate sensor

Q: Is the check result normal?

YES : Go to Step 4.

NO : Go to Step 4.

STEP 4. Check whether the diagnostic trouble code is set again.

- (1) Erase the set diagnostic trouble code.
- (2) Ignition switch: "LOCK" (OFF) to "ON"
- (3) Start the engine.

Q: Is diagnostic trouble code No. C1371 set?

YES : Replace the hydraulic unit (integrated with ASC-ECU) (Refer to [P.35C-137](#)).

NO : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction [P.00-13](#)).

Code No. C1381 Longitudinal G stuck/low gain**⚠ 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 (Refer to GROUP 54C, Trouble code diagnosis [P.54C-12](#)).
- 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 [P.35C-134](#) and [P.35C-135](#)).

OPERATION

The G and yaw rate sensor output signal is sent to the ASC-ECU.

DIAGNOSTIC TROUBLE CODE SET CONDITIONS

ASC-ECU monitors the G and yaw rate sensor output signal, and when an abnormality is present in the signal from the G and yaw rate sensor, the ECU determines that the trouble occurs and sets the diagnostic trouble code.

PROBABLE CAUSES

- Malfunction of ASC-ECU
- Improper installation of the hydraulic unit (integrated with ASC-ECU).

NOTE: When the vehicle is driven under special conditions, such as driving on a rough road, this diagnostic trouble code will be set.

DIAGNOSIS**STEP 1. Using scan tool MB991958, diagnose the CAN bus lines.**

Use the scan tool MB991958 to diagnose the CAN bus lines.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting [P.54C-12](#)). On completion, go to Step 2.

STEP 2. Diagnostic trouble code recheck after resetting CAN bus lines**Q: Is diagnostic trouble code No. C1381 set?****YES :** Go to Step 3.**NO :** This diagnosis is complete.

STEP 3. Using scan tool MB991958, check data listCheck the following service data (Refer to [P.35C-121](#)).

- Item No. 09: Longitudinal G-sensor

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

STEP 4. Check whether the diagnostic trouble code is set again.

- (1) Erase the set diagnostic trouble code.
- (2) Ignition switch: "LOCK" (OFF) to "ON"
- (3) Start the engine.

Q: Is diagnostic trouble code No. C1381 set?**YES :** Replace the hydraulic unit (integrated with ASC-ECU) (Refer to [P.35C-137](#)).**NO :** The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction [P.00-13](#)).

Code No. C1385 Yaw rate sensor

⚠ 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 (Refer to GROUP 54C, Trouble code diagnosis [P.54C-12](#)).
- 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 [P.35C-134](#) and [P.35C-135](#)).

OPERATION

The G and yaw rate sensor output signal is sent to the ASC-ECU.

DIAGNOSTIC TROUBLE CODE SET CONDITIONS

If an abnormality is judged to have occurred in the G and yaw rate sensor, the G and yaw rate sensor sends a diagnostic signal to ASC-ECU. When ASC-ECU receives this diagnostic signal, it determines that the sensor has a trouble and sets the diagnostic trouble code.

PROBABLE CAUSES

- Malfunction of ASC-ECU

NOTE: When the vehicle is driven under special conditions, such as driving on a rough road, this diagnostic trouble code will be set.

DIAGNOSIS

STEP 1. Using scan tool MB991958, diagnose the CAN bus lines.

Use the scan tool MB991958 to diagnose the CAN bus lines.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting [P.54C-12](#)). On completion, go to Step 2.

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

Q: Is diagnostic trouble code No. C1385 set?

YES : Go to Step 3.

NO : This diagnosis is complete.

STEP 3. Using scan tool MB991958, check data list.

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

- Item No. 12: Yaw rate sensor

Q: Is the check result normal?

YES : Go to Step 4.

NO : Go to Step 4.

STEP 4. Check whether the diagnostic trouble code is set again.

(1) Erase the set diagnostic trouble code.

(2) Ignition switch: "LOCK" (OFF) to "ON"

(3) Start the engine.

Q: Is diagnostic trouble code No. C1385 set?

YES : Replace the hydraulic unit (integrated with ASC-ECU) (Refer to [P.35C-137](#)).

NO : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction [P.00-13](#)).

Code No. C1387 Lateral G sensor/G performance

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 (Refer to GROUP 54C, Trouble code diagnosis [P.54C-12](#)).
- 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 [P.35C-134](#)

and [P.35C-135](#)).

OPERATION

The G and yaw rate sensor output signal is sent to the ASC-ECU.

**DIAGNOSTIC TROUBLE CODE SET
CONDITIONS**

If an abnormality is judged to have occurred in the G and yaw rate sensor, the G and yaw rate sensor sends a diagnostic signal to ASC-ECU. When ASC-ECU receives this diagnostic signal, it determines that the sensor has a trouble and sets the diagnostic trouble code.

PROBABLE CAUSES

- Malfunction of ASC-ECU

NOTE: When the vehicle is driven under special conditions, such as driving on a rough road, this diagnostic trouble code will be set.

DIAGNOSIS

STEP 1. Using scan tool MB991958, diagnose the CAN bus lines.

Use the scan tool MB991958 to diagnose the CAN bus lines.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting [P.54C-12](#)). On completion, go to Step 2.

STEP 2. Diagnostic trouble code recheck after resetting CAN bus lines**Q: Is diagnostic trouble code No. C1387 set?**

YES : Go to Step 3.

NO : This diagnosis is complete.

STEP 3. Using scan tool MB991958, check data list

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

- Item No. 08: Lateral G-sensor

Q: Is the check result normal?

YES : Go to Step 4.

NO : Go to Step 4.

STEP 4. Check whether the diagnostic trouble code is set again.

(1) Erase the set diagnostic trouble code.

(2) Ignition switch: "LOCK" (OFF) to "ON"

(3) Start the engine.

Q: Is diagnostic trouble code No. C1387 set?

YES : Replace the hydraulic unit (integrated with ASC-ECU) (Refer to [P.35C-137](#)).

NO : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction [P.00-13](#)).

Code No. C1388 Yaw rate sensor active check

 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 (Refer to GROUP 54C, Trouble code diagnosis [P.54C-12](#)).
- 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 [P.35C-134](#) and [P.35C-135](#)).

OPERATION

The G and yaw rate sensor output signal is sent to the ASC-ECU.

DIAGNOSTIC TROUBLE CODE SET CONDITIONS

The ASC-ECU monitors the G and yaw rate sensor output signal, and when the value sent from the G and yaw rate sensor is out of a predetermined range, the ECU determines that the trouble occurs and sets the diagnostic trouble code.

PROBABLE CAUSES

- Malfunction of ASC-ECU

NOTE: When the vehicle is placed on a high-speed turning table, this diagnostic trouble code will also be set.

DIAGNOSIS

STEP 1. Using scan tool MB991958, diagnose the CAN bus lines.

Use the scan tool MB991958 to diagnose the CAN bus lines.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting [P.54C-12](#)). On completion, go to Step 2.

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

Q: Is diagnostic trouble code No. C1388 set?

YES : Go to Step 3.

NO : This diagnosis is complete.

STEP 3. Using scan tool MB991958, check data list

Check the following service data(Refer to [P.54C-12](#)).

- Item No. 12: Yaw rate sensor

Q: Is the check result normal?

YES : Go to Step 4.

NO : Go to Step 4.

STEP 4. Check whether the diagnostic trouble code is set again.

- (1) Erase the set diagnostic trouble code.
- (2) Ignition switch: "LOCK" (OFF) to "ON"
- (3) Start the engine.

Q: Is diagnostic trouble code No. C1388 set?

- YES :** Replace the hydraulic unit (integrated with ASC-ECU) (Refer to [P.35C-137](#)).
- NO :** The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction [P.00-13](#)).

Code No. C1390 Lateral G sensor active check

⚠ 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 (Refer to GROUP 54C, Trouble code diagnosis [P.54C-12](#)).
- 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 [P.35C-134](#) and [P.35C-135](#)).

OPERATION

The G and yaw rate sensor output signal is sent to the ASC-ECU.

DIAGNOSTIC TROUBLE CODE SET CONDITIONS

The ASC-ECU monitors the G and yaw rate sensor output signal, and when the value sent from the G and yaw rate sensor is out of a predetermined range, the ECU determines that the trouble occurs and sets the diagnostic trouble code.

PROBABLE CAUSES

- Malfunction of ASC-ECU

NOTE: When the vehicle is placed on a high-speed turning table, this diagnostic trouble code will also be set.

DIAGNOSIS

STEP 1. Using scan tool MB991958, diagnose the CAN bus lines.

Use the scan tool MB991958 to diagnose the CAN bus lines.

Q: Is the check result normal?

- YES :** Go to Step 3.
- NO :** Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting [P.54C-12](#)). On completion, go to Step 2.

STEP 2. Diagnostic trouble code recheck after resetting CAN bus lines**Q: Is diagnostic trouble code No. C1390 set?**

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

STEP 3. Using scan tool MB991958, check data list

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

- Item No. 08: Lateral G-sensor

Q: Is the check result normal?

YES : Go to Step 4.

NO : Go to Step 4.

STEP 4. Check whether the diagnostic trouble code is set again.

(1) Erase the set diagnostic trouble code.

(2) Ignition switch: "LOCK" (OFF) to "ON"

(3) Start the engine.

Q: Is diagnostic trouble code No. C1390 set?

YES : Replace the hydraulic unit (integrated with ASC-ECU) (Refer to [P.35C-137](#)).

NO : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction [P.00-13](#)).

Code No. C1392 INCOMP.learn (Longitudinal G)

⚠ 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 (Refer to GROUP 54C, Trouble code diagnosis [P.54C-12](#)).
- 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 [P.35C-134](#) and [P.35C-135](#)).

OPERATION

The G and yaw rate sensor output signal is sent to the ASC-ECU.

DIAGNOSTIC TROUBLE CODE SET CONDITIONS

The ASC-ECU receives the information of the G and yaw rate sensor calibration from the G and yaw rate sensor. When this information indicates that the calibration is not performed, the ECU sets the diagnostic trouble code.

PROBABLE CAUSES

- The G and yaw rate sensor calibration not executed
- Malfunction of ASC-ECU

DIAGNOSIS

STEP 1. Using scan tool MB991958, diagnose the CAN bus lines.

Use the scan tool MB991958 to diagnose the CAN bus lines.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting [P.54C-12](#)). On completion, go to Step 2.

STEP 2. Diagnostic trouble code recheck after resetting CAN bus lines**Q: Is diagnostic trouble code No. C1392 set?****YES :** Go to Step 3.**NO :** This diagnosis is complete.

STEP 3. G and yaw rate sensor calibrationPerform calibration of G and yaw rate sensor (Refer to [P.35C-134](#)).**Q: Is the check result normal?****YES :** Go to Step 4.**NO :** Calibrate the G and yaw rate sensor (Refer to [P.35C-134](#)). Then go to Step 4.

STEP 4. Check whether the diagnostic trouble code is set again.

- (1) Erase the set diagnostic trouble code.
- (2) Ignition switch: "LOCK" (OFF) to "ON"
- (3) Start the engine.

Q: Is diagnostic trouble code No. C1392 set?**YES :** Replace the hydraulic unit (integrated with ASC-ECU) (Refer to [P.35C-137](#)).**NO :** The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction [P.00-13](#)).

Code No. C1394 INCOMP.learn neutral(SAS)

⚠ 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 (Refer to GROUP 54C, Trouble code diagnosis [P.54C-12](#)).
- 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 [P.35C-134](#) and [P.35C-135](#)).
- When the steering wheel sensor is replaced, always carry out calibration to make ASC-ECU learn the neutral point (Refer to [P.35C-135](#)).

OPERATION

The steering wheel sensor output signal is sent to ASC-ECU via the CAN bus lines.

DIAGNOSTIC TROUBLE CODE SET CONDITIONS

ASC-ECU receives the information of the steering wheel sensor calibration from the steering wheel sensor. When this information indicates that the calibration is not performed, the ECU sets the diagnostic trouble code.

PROBABLE CAUSES

- The CAN bus line is defective.
- Steering wheel sensor calibration not implemented
- Malfunction of ASC-ECU

DIAGNOSIS

STEP 1. Using scan tool MB991958, diagnose the CAN bus lines.

Use the scan tool MB991958 to diagnose the CAN bus lines.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Repair the CAN bus line (Refer to GROUP 54C – CAN Bus Trouble Symptom Chart [P.54C-12](#)). On completion, go to Step 2.

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

Q: Is diagnostic trouble code No. C1394 set?

YES : Go to Step 3.

NO : This diagnosis is complete.

STEP 3. Steering wheel sensor calibration

Perform calibration of steering wheel sensor (Refer to [P.35C-135](#)).

Q: Is the check result normal?

YES : Go to Step 4.

NO : After the steering wheel sensor is replaced (Refer to [P.35C-141](#)), calibrate the sensor (Refer to [P.35C-135](#)). Then go to Step 4.

STEP 4. Check whether the diagnostic trouble code is set again.

Check again if the diagnostic trouble code is set.

(1) Erase the set diagnostic trouble code.

(2) Ignition switch: "LOCK" (OFF)

(3) Ignition switch: "ON"

Q: Is diagnostic trouble code No. C1394 set?

YES : Replace the hydraulic unit (integrated with ASC-ECU) (Refer to [P.35C-137](#)).

NO : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction [P.00-13](#)).

Code No. C1395 INCOMP. Brake fluid filling

CAUTION

- If there is any problem in the CAN bus lines, an incorrect diagnostic trouble code may be stored. Prior to this diagnosis, diagnose the CAN bus lines (Refer to GROUP 54C, Trouble code diagnosis [P.54C-12](#)).
- 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 [P.35C-134](#) and [P.35C-135](#)).

**DIAGNOSTIC TROUBLE CODE SET
CONDITIONS**

This diagnostic trouble code is stored when the brake fluid is not filled in the hydraulic unit.

PROBABLE CAUSES

- Different hydraulic unit (For delivery to factory)
- Malfunction of ASC-ECU

Code No. C1396 Engine torque input refusal**⚠ 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 (Refer to GROUP 54C, Trouble Code Diagnosis [P.54C-12](#)).
- 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 [P.35C-134](#) and [P.35C-135](#)).

OPERATION

ASC-ECU receives the engine system-related signal from the engine control module via CAN bus lines.

**DIAGNOSTIC TROUBLE CODE SET
CONDITIONS**

When the torque request rejection signal from the engine control module indicates the rejection state, ASC-ECU determines that the trouble occurs and sets this diagnostic trouble code.

PROBABLE CAUSES

- The CAN bus line is defective.
- Malfunction of engine control module
- Malfunction of ASC-ECU

DIAGNOSIS**STEP 1. Using scan tool MB991958, diagnose the CAN bus lines.**

Use the scan tool MB991958 to diagnose the CAN bus lines.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting [P.54C-12](#)). On completion, go to Step 2.

STEP 2. Diagnostic trouble code recheck after resetting CAN bus lines**Q: Is diagnostic trouble code No. C1396 set?**

YES : Go to Step 3.

NO : This diagnosis is complete.

STEP 3. Use scan tool MB991958 to confirm a diagnostic trouble code of other systems.

Check that the engine control module sets a diagnostic trouble code.

Q: Is the diagnostic trouble code set?

YES : Diagnose the engine control module (Refer to GROUP 13A – Troubleshooting [P.13A-47](#)).

NO : Go to Step 4.

STEP 4. engine control module coding data check

Use the scan tool MB991958 to check whether the engine control module has stored the correct coding data (Refer to GROUP 00 – Coding List [P.00-33](#)).

Q: Is the diagnostic trouble code other than code No. C1396 set?

YES : Go to Step 5.

NO : Replace the engine control module (Refer to GROUP 13A – engine control module [P.13A-656](#)). Then go to Step 6.

STEP 5. Using scan tool MB991958, check data list

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

- Item 68: ASC torque intervention permitted

Q: Is the check result normal?

YES : Go to Step 6.

NO : Replace the engine control module (Refer to GROUP 13A – engine control module [P.13A-656](#)). Then go to Step 6.

STEP 6. Check whether the diagnostic trouble code is set again.

Check again if the diagnostic trouble code is set.

- (1) Erase the set diagnostic trouble code.
- (2) Ignition switch: "LOCK" (OFF)
- (3) Ignition switch: "ON"

Q: Is diagnostic trouble code No. C1396 set?

YES : Replace the hydraulic unit (integrated with ASC-ECU) (Refer to [P.35C-137](#)).

NO : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction [P.00-13](#)).

Code No. C1505 Steering angle sensor

⚠ 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 (Refer to GROUP 54C – CAN Bus Diagnostics Table [P.54C-12](#)).
- Whenever ECU is replaced, ensure that the CAN bus lines are normal.
- When the steering wheel sensor is replaced, always carry out calibration to make ASC-ECU learn the neutral point (Refer to [P.35C-135](#)).
- 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 [P.35C-134](#) and [P.35C-135](#)).

OPERATION

The steering wheel sensor output signal is sent to ASC-ECU via the CAN bus lines.

DIAGNOSTIC TROUBLE CODE SET CONDITIONS

ASC-ECU monitors the signal from the steering wheel sensor, when an abnormal signal is output from the steering wheel sensor, the ECU determines that the trouble occurs and sets the diagnostic trouble code.

PROBABLE CAUSES

- The CAN bus line is defective.
- Steering wheel sensor improper installation
- Steering wheel sensor calibration error
- Malfunction of the steering wheel sensor
- Malfunction of ASC-ECU

DIAGNOSIS

STEP 1. Using scan tool MB991958, diagnose the CAN bus lines.

Use the scan tool MB991958 to diagnose the CAN bus lines.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Repair the CAN bus line (Refer to GROUP 54C – CAN Bus Trouble Symptom Chart [P.54C-12](#)). On completion, go to Step 2.

STEP 2. Diagnostic trouble code recheck after resetting CAN bus lines**Q: Is diagnostic trouble code No. C1505 set?**

YES : Go to Step 3.

NO : This diagnosis is complete.

STEP 3. Steering wheel sensor installation state check

Check that the steering wheel sensor is installed correctly.

Q: Is the check result normal?

YES : Go to Step 4.

NO : Install the steering wheel sensor correctly (Refer to [P.35C-141](#)).

STEP 4. Using scan tool MB991958, check data list

With the front wheel facing in the straight-ahead direction, check the steering wheel sensor signal using the data list. Check that the data list deviates within $\pm 5^\circ$ from the neutral position (Refer to [P.35C-121](#)).

- Item No.11: Steering angle sensor

Q: Is the check result normal?

YES : Go to Step 5.

NO : Calibrate the steering wheel sensor (Refer to [P.35C-135](#)).

STEP 5. Using scan tool MB991958, check data list

Turn the steering wheel fully to the left, and then turn it fully to the right. Then check that the value of the steering wheel sensor changes smoothly using the data list. In addition, check that the steering wheel angle on the data list almost matches the actual steering wheel angle (Refer to [P.35C-121](#)).

- Item No.11: Steering angle sensor

Q: Is the check result normal?

YES : Go to Step 6.

NO : After the steering wheel sensor is replaced (Refer to [P.35C-141](#)), calibrate the steering wheel sensor (Refer to [P.35C-135](#)).

STEP 6. Check whether the diagnostic trouble code is set again.

Check again if the diagnostic trouble code is set.

- (1) Erase the set diagnostic trouble code.
- (2) Ignition switch: "LOCK" (OFF)
- (3) Ignition switch: "ON"

Q: Is diagnostic trouble code No.C1505 set?

YES : Replace the hydraulic unit (integrated with ASC-ECU) (Refer to [P.35C-137](#)).

NO : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction [P.00-13](#)).

Code No. C1555 Steering angle SNS.out of range

⚠ 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 (Refer to GROUP 54C – CAN Bus Diagnostics Table [P.54C-12](#)).
- Whenever ECU is replaced, ensure that the CAN bus lines are normal.
- When the steering wheel sensor is replaced, always carry out calibration to make ASC-ECU learn the neutral point (Refer to [P.35C-135](#)).
- 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 [P.35C-134](#) and [P.35C-135](#)).

OPERATION

The steering wheel sensor output signal is sent to ASC-ECU via the CAN bus lines.

DIAGNOSTIC TROUBLE CODE SET CONDITIONS

When an abnormality (larger than the actual maximum steering angle) is detected in the steering angle, the diagnostic trouble code is set.

PROBABLE CAUSES

- The CAN bus line is defective.
- Steering wheel sensor improper installation
- Steering wheel sensor calibration error
- Malfunction of the steering wheel sensor
- Malfunction of ASC-ECU

DIAGNOSIS

STEP 1. Using scan tool MB991958, diagnose the CAN bus lines.

Use the scan tool MB991958 to diagnose the CAN bus lines.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Repair the CAN bus lines (Refer to GROUP 54C – CAN Bus Line Trouble Symptom Chart [P.54C-12](#)). On completion, go to Step 2.

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

Q: Is diagnostic trouble code No. C1555 set?

YES : Go to Step 3.

NO : This diagnosis is complete.

STEP 3. Steering wheel sensor installation state check

Check that the steering wheel sensor is installed correctly.

Q: Is the check result normal?

YES : Go to Step 4.

NO : Install the steering wheel sensor correctly (Refer to [P.35C-141](#)).

STEP 4. Using scan tool MB991958, check data list

With the front wheel facing in the straight-ahead direction, check the steering wheel sensor signal using the data list. Check that the data list deviates within $\pm 5^\circ$ from the neutral position (Refer to [P.35C-121](#)).

- Item No.11: Steering angle sensor

Q: Is the check result normal?

YES : Go to Step 5.

NO : Calibrate the steering wheel sensor (Refer to [P.35C-135](#)).

STEP 5. Using scan tool MB991958, check data list

Turn the steering wheel fully to the left, and then turn it fully to the right. Then check that the value of the steering wheel sensor changes smoothly using the data list. In addition, check that the steering wheel angle on the data list almost matches the actual steering wheel angle (Refer to [P.35C-121](#)).

- Item No.11: Steering angle sensor

Q: Is the check result normal?

YES : Go to Step 6.

NO : After the steering wheel sensor is replaced (Refer to [P.35C-141](#)), calibrate the steering wheel sensor (Refer to [P.35C-135](#)).

STEP 6. Check whether the diagnostic trouble code is set again.

Check again if the diagnostic trouble code is set.

- (1) Erase the set diagnostic trouble code.
- (2) Ignition switch: "LOCK" (OFF)
- (3) Ignition switch: "ON"

Q: Is diagnostic trouble code No. C1555 set?

YES : Replace the hydraulic unit (integrated with ASC-ECU) (Refer to [P.35C-137](#)).

NO : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction [P.00-13](#)).

Code No. C1607 ECU failure

⚠ CAUTION

- If there is any problem in the CAN bus lines, an incorrect diagnostic trouble code may be stored. Prior to this diagnosis, diagnose the CAN bus lines (Refer to GROUP 54C – CAN Bus Diagnostics Table [P.54C-12](#)).
- 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 [P.35C-134](#) and [P.35C-135](#)).

DIAGNOSTIC TROUBLE CODE SET CONDITIONS

When an abnormality is present in the internal ASC-ECU, this diagnostic trouble code is stored.

PROBABLE CAUSES

Malfunction of ASC-ECU

Code No. C1608 EEPROM fail

⚠ 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 (Refer to GROUP 54C – CAN Bus Diagnostics Table [P.54C-12](#)).
- 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 [P.35C-134](#) and [P.35C-135](#)).

OPERATION

The ASC-ECU stores the longitudinal sensor calibration and vehicle information in its internal EEPROM *.

*NOTE: *: EEPROM (Electrically Erasable and Programmable Read Only Memory)*

DIAGNOSTIC TROUBLE CODE SET CONDITIONS

This code is set under the cases below:

- If the longitudinal sensor calibration and vehicle information, which is stored in the EEPROM, is unfeasible.

PROBABLE CAUSES

- Removal of ASC-ECU connector or battery terminal with the ignition switch ON
- Battery failure
- Battery terminal looseness
- Defective battery charger
- Damaged harness wires and connectors
- Malfunction of ASC-ECU

DIAGNOSIS

STEP 1. Using scan tool MB991958, diagnose the CAN bus lines.

Use the scan tool MB991958 to diagnose the CAN bus lines.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting [P.54C-12](#)). On completion, go to Step 2.

STEP 2. Diagnostic trouble code recheck after resetting CAN bus lines**Q: Is diagnostic trouble code No. C1608 set?****YES :** Go to Step 3.**NO :** This diagnosis is complete.

STEP 3. Check the battery.Refer to GROUP 54A – Battery Test [P.54A-5](#).**Q: Is the battery in good condition?****YES :** Go to Step 4.**NO :** Charge or replace the battery. Then go to Step 5.

STEP 4. Check the charging system.Refer to GROUP 16 – Charging System [P.16-7](#).**Q: Is the charging system in good condition?****YES :** Go to Step 5.**NO :** Repair or replace the charging system component(s).
Then go to Step 5.

STEP 5. Measure the resistance at the ASC-ECU connector.

- (1) Connector check: the ASC-ECU connector, the fuses (relay box) and the fusible links
- (2) Disconnect the ASC-ECU connector.
- (3) Measure the resistance between +BV terminal and body ground.

OK: No continuity**Q: Is the check result normal?****YES :** Go to Step 6.**NO :** The power supply circuit may be short. Repair the wiring harness wires or connectors between the ACS-ECU connector +BV terminal and the fusible links, the fuse (relay box) or the fusible links. Then go to Step 9.

STEP 6. Measure the resistance at the ASC-ECU connector.

- (1) Connector check: the ASC-ECU connector and the fusible links
- (2) Disconnect the ASC-ECU connector and remove the fusible links.
- (3) Measure the resistance between +BM terminal and body ground.

OK: No continuity**Q: Is the check result normal?****YES :** Go to Step 7.**NO :** The power supply circuit may be short. Repair the wiring harness wires or connectors between the ACS-ECU connector +BM terminal and the fusible links, or the fusible links. Then go to Step 9.

STEP 7. Measure the voltage at the ASC-ECU connector.

- (1) Disconnect the ASC-ECU connector.
- (2) Measure the voltage between +BV terminal and body ground.

OK: Battery voltage

Q: Is the check result normal?

YES : Go to Step 8.

NO : The power supply circuit may be open. Repair the wiring harness wires or connectors between the ACS-ECU connector +BV terminal and the fusible links, the fuse (relay box) or the fusible links. Then go to Step 9.

STEP 8. Measure the voltage at the ASC-ECU connector.

- (1) Disconnect the ASC-ECU connector.
- (2) Measure the voltage between +BM terminal and body ground.

OK: Battery voltage

Q: Is the check result normal?

YES : Go to Step 9.

NO : The power supply circuit may be open. Repair the wiring harness wires or connectors between the ACS-ECU connector +BM terminal and the fusible links, or the fusible links. Then go to Step 9.

STEP 9. Check whether the diagnostic trouble code is set again.

Check again if the diagnostic trouble code is set.

- (1) Erase the set diagnostic trouble code.
- (2) Ignition switch: "LOCK" (OFF)
- (3) Ignition switch: "ON"

Q: Is diagnostic trouble code No. C1608 set?

YES : Replace the hydraulic unit (integrated with ASC-ECU) (Refer to [P.35C-137](#)).

NO : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction [P.00-13](#)).

Code No. C1707 Implausible coding data

⚠ 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 (Refer to GROUP 54C – CAN Bus Diagnostics Table [P.54C-12](#)).
- Whenever ECU is replaced, ensure that the CAN bus lines are normal.
- When diagnostic trouble code No.C1707 is set in ASC-ECU, the diagnostic trouble code may also be set in ETACS-ECU. When the diagnostic trouble code is set in ETACS-ECU, carry out the diagnosis of the diagnostic trouble code for ETACS-ECU first.
- 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 [P.35C-134](#) and [P.35C-135](#)).

OPERATION

ASC-ECU receives the vehicle information stored in the ETACS-ECU via CAN bus lines.

DIAGNOSTIC TROUBLE CODE SET CONDITIONS

ASC-ECU communicates with ETACS-ECU via CAN bus lines. This diagnostic trouble code is set when the vehicle information received from the ETACS-ECU is invalid.

PROBABLE CAUSES

- ETACS-ECU malfunction
- ETACS-ECUs have been interchanged between two vehicles.
- The ACS-ECU, which was used on another vehicle, is installed on this vehicle.
- Malfunction of ASC-ECU
- Noise interference

DIAGNOSIS**STEP 1. Using scan tool MB991958, diagnose the CAN bus lines.**

Use the scan tool MB991958 to diagnose the CAN bus lines.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting [P.54C-12](#)). On completion, go to Step 2.

STEP 2. Diagnostic trouble code recheck after resetting CAN bus lines**Q: Is diagnostic trouble code No. C1707 set?**

YES : Go to Step 3.

NO : This diagnosis is complete.

STEP 3. Check whether the DTC is set again.

Check whether a diagnostic trouble code is set in the ETACS-ECU (Refer to GROUP 54A – ETACS, Diagnostic Trouble Code Chart [P.54A-218](#)).

Q: Is the diagnostic trouble code set?

YES : Follow the relevant diagnostic trouble code procedure. Then go to Step 6.

NO : Go to Step 4.

STEP 4. ETACS-ECU coding data check

Using scan tool MB991958, check if any abnormality is present to the coding data which are stored in the ETACS-ECU (Refer to GROUP 00 – Coding Reference Table [P.00-33](#)).

Q: Is the check result normal?

YES : Go to Step 5.

NO : Replace ETACS-ECU (Refer to GROUP 54A – ETACS-ECU [P.54A-260](#)). Then go to Step 6.

STEP 5. Check part number of ASC-ECU

Check the part number of ASC-ECU.

Q: Is the check result normal?

YES : Go to Step 6.

NO : Replace the hydraulic unit (integrated with ASC-ECU) (Refer to [P.35C-137](#)).

STEP 6. Diagnostic trouble code recheck

Check again if the diagnostic trouble code is set.

- (1) Erase the set diagnostic trouble code.
- (2) Ignition switch: "LOCK" (OFF)
- (3) Ignition switch: "ON"

Q: Is diagnostic trouble code No. C1707 set?

YES : Replace the hydraulic unit (integrated with ASC-ECU) (Refer to [P.35C-137](#)).

NO : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction [P.00-13](#)).

Code No. C1860 Power supply high voltage

⚠ 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 (Refer to GROUP 54C – CAN Bus Diagnostics Table [P.54C-12](#)).
- 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 [P.35C-134](#) and [P.35C-135](#)).

OPERATION

The ASC-ECU is energized by the ignition switch through the multi-purpose fuse at the terminal IG1.

DIAGNOSTIC TROUBLE CODE SET CONDITIONS

The ASC-ECU monitors the ASC-ECU power supply voltage sent from the battery. When the voltage exceeds a predetermined value, the ECU determines that the trouble occurs and sets the diagnostic trouble code.

PROBABLE CAUSES

Current trouble

- Overcurrent
- Battery failure
- Charging system failed
- Damaged harness wires and connectors
- Malfunction of ASC-ECU

Past trouble

- Carry out diagnosis with particular emphasis on connector(s) or wiring harness in the power supply circuit (+BV and IG1 terminals) to the ASC-ECU. For diagnosis procedures, refer to How to treat past trouble (GROUP 00 – How to Use Troubleshooting/Inspection Service Points [P.00-6](#)).

DIAGNOSIS

STEP 1. Using scan tool MB991958, diagnose the CAN bus lines.

Use the scan tool MB991958 to diagnose the CAN bus lines.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting [P.54C-12](#)). On completion, go to Step 2.

STEP 2. Diagnostic trouble code recheck after resetting CAN bus lines**Q: Is diagnostic trouble code No. C1860 set?**

YES : Go to Step 3.

NO : This diagnosis is complete.

STEP 3. Check the battery.

Refer to GROUP 54A – Battery Test [P.54A-5](#).

Q: Is the auxiliary battery normal?

YES : Go to Step 4.

NO : Charge or replace the battery. Then go to Step 5.

STEP 4. Check the charging system.

Refer to GROUP 16 – Charging System [P.16-7](#).

Q: Is the charging system in good condition?

YES : Go to Step 5.

NO : Repair or replace the charging system component(s). Then go to Step 5.

STEP 5. Measure the resistance at the ASC-ECU connector.

- (1) Connector check: the ASC-ECU connector, the fuses (relay box) and the fusible links
- (2) Disconnect the ASC-ECU connector.
- (3) Measure the resistance between +BV terminal and body ground.

OK: No continuity

Q: Is the check result normal?

YES : Go to Step 6.

NO : The power supply circuit may be short. Repair the wiring harness wires or connectors between the ASC-ECU connector +BV terminal and the fusible links, the fuse (relay box) or the fusible links. Then go to Step 7.

STEP 6. Measure the resistance at the ASC-ECU connector.

- (1) Check the connectors and the junction block.
- (2) Disconnect the ASC-ECU connector.
- (3) Measure the resistance between the IG1 terminal and body ground.

OK: No continuity

Q: Is the check result normal?

YES : Go to Step 7.

NO : The power supply circuit may be short. Repair the wiring harness wires or connectors between the ASC-ECU connector IG1 terminal and the junction block. Then go to Step 7.

STEP 7. Check whether the diagnostic trouble code is set again.

Check again if the diagnostic trouble code is set.

- (1) Erase the set diagnostic trouble code.
- (2) Ignition switch: "LOCK" (OFF)
- (3) Ignition switch: "ON"

Q: Is diagnostic trouble code No. C1860 set?

YES : Replace the hydraulic unit (integrated with ASC-ECU) (Refer to [P.35C-137](#)).

NO : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction [P.00-13](#)).

Code No. C1861 Power supply low voltage

⚠ 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 (Refer to GROUP 54C – CAN Bus Diagnostics Table [P.54C-12](#)).
- 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 [P.35C-134](#) and [P.35C-135](#)).

OPERATION

The ASC-ECU is energized by the electric motor switch through the multi-purpose fuse at the terminal IG1.

DIAGNOSTIC TROUBLE CODE SET CONDITIONS

The ASC-ECU monitors the ASC-ECU power supply voltage sent from the battery. When the voltage falls below a predetermined value, the ECU determines that the trouble occurs and sets the diagnostic trouble code.

PROBABLE CAUSES**Current trouble**

- Battery failure
- Charging system failed
- Damaged harness wires and connectors
- Malfunction of ASC-ECU

Past trouble

- Carry out diagnosis with particular emphasis on connector(s) or wiring harness in the power supply circuit (+BV and IG1 terminals) to the ASC-ECU. For diagnosis procedures, refer to How to treat past trouble (GROUP 00 – How to Use Troubleshooting/Inspection Service Points [P.00-6](#)).

DIAGNOSIS

STEP 1. Using scan tool MB991958, diagnose the CAN bus lines.

Use the scan tool MB991958 to diagnose the CAN bus lines.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting [P.54C-12](#)). On completion, go to Step 2.

STEP 2. Diagnostic trouble code recheck after resetting CAN bus lines**Q: Is diagnostic trouble code No. C1861 set?**

YES : Go to Step 3.

NO : This diagnosis is complete.

STEP 3. Check the battery.

Refer to GROUP 54A – Battery Test [P.54A-5](#).

Q: Is the auxiliary battery normal?

YES : Go to Step 4.

NO : Charge or replace the battery. Then go to Step 5.

STEP 4. Check the charging system.

Refer to GROUP 16 – Charging System [P.16-7](#).

Q: Is the charging system in good condition?

YES : Go to Step 5.

NO : Repair or replace the charging system component(s).
Then go to Step 5.

STEP 5. Measure the resistance at the ASC-ECU connector.

- (1) Connector check: the ASC-ECU connector, the fuses (relay box) and the fusible links
- (2) Disconnect the ASC-ECU connector.
- (3) Measure the resistance between +BV terminal and body ground.

OK: No continuity

Q: Is the check result normal?

YES : Go to Step 6.

NO : The power supply circuit may be short. Repair the wiring harness wires or connectors between the ACS-ECU connector +BV terminal and the fusible links, the fuse (relay box) or the fusible links. Then go to Step 10.

STEP 6. Measure the resistance at the ASC-ECU connector.

- (1) Connector check: the ASC-ECU connector and the junction block
- (2) Disconnect the ASC-ECU connector.
- (3) Measure the resistance between the IG1 terminal and body ground.

OK: No continuity

Q: Is the check result normal?

YES : Go to Step 7.

NO : The power supply circuit may be short. Repair the wiring harness wires or connectors between the ACS-ECU connector IG1 terminal and the junction block. Then go to Step 10.

STEP 7. Measure the voltage at the ASC-ECU connector.

- (1) Disconnect the ASC-ECU connector.
- (2) Measure the voltage between +BV terminal and body ground.

OK: Battery voltage

Q: Is the check result normal?

YES : Go to Step 8.

NO : The power supply circuit may be open. Repair the wiring harness wires or connectors between the ACS-ECU connector +BV terminal and the fusible links, the fuse (relay box) or the fusible links. Then go to Step 10.

STEP 8. Measure the voltage at the ASC-ECU connector.

- (1) Disconnect the ASC-ECU connector.
- (2) Ignition switch: "ON"
- (3) Measure the voltage between the IG1 terminal and body ground.

OK: Battery voltage

Q: Is the check result normal?

YES : Go to Step 9.

NO : The power supply circuit may be open. Repair the wiring harness wires or connectors between the ACS-ECU connector IG1 terminal and the junction block. Then go to Step 10.

STEP 9. Measure the resistance at the ASC-ECU connector.

- (1) Disconnect the ASC-ECU connector.
- (2) Measure the resistance between the GND1 terminal and body ground as well as between the GND2 terminal and body ground.

OK: Continuity exists (2 Ω or less).

Q: Is the check result normal?

YES : Go to Step 10.

NO : The ground circuit may be open. Repair the wiring harness wires or connectors between the ACS-ECU connector GND1 terminal and the fusible links as well as between the GND2 terminal and the fusible links. Then go to Step 10.

STEP 10. Check whether the diagnostic trouble code is set again.

Check again if the diagnostic trouble code is set.

- (1) Erase the set diagnostic trouble code.
- (2) Ignition switch: "LOCK" (OFF)
- (3) Ignition switch: "ON"

Q: Is diagnostic trouble code No. C1861 set?

YES : Replace the hydraulic unit (integrated with ASC-ECU) (Refer to [P.35C-137](#)).

NO : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction [P.00-13](#)).

Code No. C1864: G/Yawrate SNS.power supply VOLT.

⚠ 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 (Refer to GROUP 54C – CAN Bus Diagnostics Table [P.54C-12](#)).
- 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 [P.35C-134](#) and [P.35C-135](#)).

DIAGNOSTIC TROUBLE CODE SET CONDITIONS

When the ignition switch is turned on, the G and yaw rate sensor monitors the power supply voltage. If abnormal voltage is detected, this diagnostic trouble code will be set.

PROBABLE CAUSES

- Battery failure
- Charging system failed
- Damaged harness wires and connectors
- Malfunction of ASC-ECU

OPERATION

The G and yaw rate sensor output signal is sent to the ASC-ECU.

DIAGNOSIS

STEP 1. Using scan tool MB991958, diagnose the CAN bus lines.

Use the scan tool MB991958 to diagnose the CAN bus lines.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Repair the CAN bus line (Refer to GROUP 54C – CAN Bus Trouble Symptom Chart [P.54C-12](#)). On completion, go to Step 2.

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

Q: Is diagnostic trouble code No. C1864 set?

YES : Go to Step 3.

NO : This diagnosis is complete.

STEP 3. Battery check

Refer to GROUP 54A – Battery Test [P.54A-5](#).

Q: Is the battery in good condition?

YES : Go to Step 4.

NO : Replace the battery. Then go to Step 5.

STEP 4. Check the charging system.

Refer to GROUP 16 – Charging System [P.16-7](#).

Q: Is the charging system in good condition?

YES : Go to Step 5.

NO : Repair or replace the charging system component(s). Then go to Step 5.

STEP 5. Measure the resistance at the ASC-ECU connector.

- (1) Check the connectors and the junction block.
- (2) Disconnect the ASC-ECU connector.
- (3) Measure the resistance between the IG1 terminal and body ground.

OK: No continuity

Q: Is the check result normal?

YES : Go to Step 6.

NO : The power supply circuit may be short. Repair the wiring harness wires or connectors between the ACS-ECU connector IG1 terminal and the junction block. Then go to Step 8.

STEP 6. Measure the voltage at the ASC-ECU connector.

- (1) Disconnect the ASC-ECU connector.
- (2) Turn the ignition switch to the "ON" position.
- (3) Measure the voltage between the IG1 terminal and body ground.

OK: Battery voltage

Q: Is the check result normal?

YES : Go to Step 7.

NO : The power supply circuit may be open. Repair the wiring harness wires or connectors between the ACS-ECU connector IG1 terminal and the junction block. Then go to Step 8.

STEP 7. Measure the resistance at the ASC-ECU connector.

- (1) Disconnect the ASC-ECU connector.
- (2) Measure the resistance between the GND1 terminal and body ground as well as between the GND2 terminal and body ground.

OK: Continuity exists (2 Ω or less).

Q: Is the check result normal?

YES : Go to Step 8.

NO : The ground circuit may be open. Repair the wiring harness wires or connectors between the ACS-ECU connector GND1 terminal and the fusible links as well as between the GND2 terminal and the fusible links. Then go to Step 8.

STEP 8. Check whether the diagnostic trouble code is set again.

Check again if the diagnostic trouble code is set.

- (1) Erase the set diagnostic trouble code.
- (2) Ignition switch: "LOCK" (OFF)
- (3) Ignition switch: "ON"

Q: Is diagnostic trouble code No. C1864 set?

YES : Replace the hydraulic unit (integrated with ASC-ECU) (Refer to [P.35C-137](#)).

NO : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction [P.00-13](#)).

Code No. C2206 Re-execution of variant coding

⚠ 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 (Refer to GROUP 54C – CAN Bus Diagnostics Table [P.54C-12](#)).
- Before replacing the ECU, ensure that the communication circuit is normal.
- When diagnostic trouble code No.C2206 is set in ASC-ECU, the diagnostic trouble code may also be set in ETACS-ECU. When the diagnostic trouble code is set in ETACS-ECU, carry out the diagnosis of the diagnostic trouble code for ETACS-ECU first.
- 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 [P.35C-134](#) and [P.35C-135](#)).

OPERATION

ASC-ECU receives the vehicle information stored in the ETACS-ECU via CAN bus lines.

DIAGNOSTIC TROUBLE CODE SET CONDITIONS

The ASC-ECU compares the last vehicle information and the information before last. If there are any differences between the two, the ECU will store this diagnostic trouble code.

PROBABLE CAUSES

- ETACS-ECU malfunction
- ETACS-ECUs have been interchanged between two vehicles.
- The ACS-ECU, which was used on another vehicle, is installed on this vehicle.
- Malfunction of ASC-ECU
- Noise interference

DIAGNOSIS

STEP 1. Using scan tool MB991958, diagnose the CAN bus lines.

Use the scan tool MB991958 to diagnose the CAN bus lines.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting [P.54C-12](#)). On completion, go to Step 2.

STEP 2. Diagnostic trouble code recheck after resetting CAN bus lines**Q: Is diagnostic trouble code No. C2206 set?****YES :** Go to Step 3.**NO :** This diagnosis is complete.

STEP 3. Check for diagnostic trouble codes of other systems.

Check if diagnostic trouble code No. C1707 is also set simultaneously.

Q: Is the diagnostic trouble code set?**YES :** Troubleshoot for the relevant diagnostic trouble code (Refer to [P.35C-64](#)).**NO :** Go to Step 4.

STEP 4. Use scan tool MB991958 to confirm a diagnostic trouble code of other systems.

Check whether a diagnostic trouble code is set in the ETACS-ECU (Refer to GROUP 54A – ETACS, Diagnostic Trouble Code Chart [P.54A-218](#)).

Q: Is the diagnostic trouble code set?**YES :** Follow the relevant diagnostic trouble code procedure. Then go to Step 6.**NO :** Go to Step 5.

STEP 5. ETACS-ECU coding data check

Using scan tool MB991958, check if any abnormality is present to the coding data which are stored in the ETACS-ECU (Refer to GROUP 00 – Coding Reference Table [P.00-33](#)).

Q: Is the check result normal?**YES :** Go to Step 6.**NO :** Replace ETACS-ECU (Refer to GROUP 54A – ETACS-ECU [P.54A-260](#)). Then go to Step 6.

STEP 6. Diagnostic trouble code recheck

Check again if the diagnostic trouble code is set.

(1) Erase the set diagnostic trouble code.

(2) Ignition switch: "LOCK" (OFF)

(3) Ignition switch: "ON"

Q: Is diagnostic trouble code No. C2206 set?**YES :** Replace the hydraulic unit (integrated with ASC-ECU) (Refer to [P.35C-137](#)).**NO :** The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction [P.00-13](#)).

Code No. U0401 Engine (CAN message)

 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 (Refer to GROUP 54C – CAN Bus Diagnostics Table [P.54C-12](#)).
- Before replacing the ECU, ensure that the communication circuit is 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 [P.35C-134](#) and [P.35C-135](#)).

OPERATION

Engine-related signals are sent or received to and from between ASC-ECU and engine control module via CAN bus lines.

DIAGNOSTIC TROUBLE CODE SET CONDITIONS

This diagnostic trouble code is set when the engine control module malfunction has been detected.

PROBABLE CAUSES

- Malfunction of engine system
- Malfunction of engine control module
- Malfunction of ASC-ECU
- Noise interference

DIAGNOSIS

STEP 1. Using scan tool MB991958, diagnose the CAN bus lines.

Use the scan tool MB991958 to diagnose the CAN bus lines.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting [P.54C-12](#)) On completion, go to Step 2.

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

Q: Is diagnostic trouble code No. U0401 set?

YES : Go to Step 3.

NO : This diagnosis is complete.

STEP 3. Check for diagnostic trouble codes of other systems.

Check if diagnostic trouble code(s) other than U0401 is set.

Q: Is the diagnostic trouble code set?

YES : Follow the relevant diagnostic trouble code procedure, and then go to Step 5.

NO : Go to Step 4.

STEP 4. Use scan tool MB991958 to confirm a diagnostic trouble code of other systems.

Check if the diagnostic trouble code is set in the engine control module (Refer to GROUP 13A – Diagnostic Trouble Code Chart [P.13A-47](#)).

Q: Is the diagnostic trouble code set?

YES : Troubleshoot the engine control module diagnostic trouble code. Then go to Step 5.

NO : Go to Step 5.

STEP 5. Diagnostic trouble code recheck

Check again if the diagnostic trouble code is set.

(1) Erase the set diagnostic trouble code.

(2) Ignition switch: "LOCK" (OFF)

(3) Ignition switch: "ON"

Q: Is diagnostic trouble code No. U0401 set?

YES : Replace the hydraulic unit (integrated with ASC-ECU) (Refer to [P.35C-137](#)).

NO : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction [P.00-13](#)).

Code No. U0402 T/M (CAN message)

⚠ 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 (Refer to GROUP 54C – CAN Bus Diagnostics Table [P.54C-12](#)).
- Before replacing the ECU, ensure that the communication circuit is 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 [P.35C-134](#) and [P.35C-135](#)).

OPERATION

CVT-related signals are sent or received between the ASC-ECU and the CVT-ECU via CAN bus lines.

DIAGNOSTIC TROUBLE CODE SET CONDITIONS

This diagnostic trouble code is set when the CVT-ECU malfunction has been detected.

PROBABLE CAUSES

- CVT-related malfunction
- The CVT-ECU is defective.
- Malfunction of ASC-ECU
- Noise interference

DIAGNOSIS

STEP 1. Using scan tool MB991958, diagnose the CAN bus lines.

Use the scan tool MB991958 to diagnose the CAN bus lines.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting [P.54C-12](#)). On completion, go to Step 2.

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

Q: Is diagnostic trouble code No. U0402 set?

YES : Go to Step 3.

NO : This diagnosis is complete.

STEP 3. Check for diagnostic trouble codes of other systems.

Check if diagnostic trouble code(s) other than U0402 is set.

Q: Is the diagnostic trouble code set?

YES : Follow the relevant diagnostic trouble code procedure, and then go to Step 5.

NO : Go to Step 4.

STEP 4. Use scan tool MB991958 to confirm a diagnostic trouble code of other systems.

Check if the diagnostic trouble code is set in the CVT-ECU (Refer to GROUP 23A – Diagnostic Trouble Code Chart [P.23A-16](#)).

Q: Is the diagnostic trouble code set?

YES : Follow the relevant diagnostic trouble code procedure. Then go to Step 5.

NO : Go to Step 5.

STEP 5. Diagnostic trouble code recheck

Check again if the diagnostic trouble code is set.

(1) Erase the set diagnostic trouble code.

(2) Ignition switch: "LOCK" (OFF)

(3) Ignition switch: "ON"

Q: Is diagnostic trouble code No. U0402 set?

YES : Replace the hydraulic unit (integrated with ASC-ECU) (Refer to [P.35C-137](#)).

NO : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction [P.00-13](#)).

Code No. U0428 SAS (CAN message)

 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 (Refer to GROUP 54C – CAN Bus Diagnostics Table [P.54C-12](#)).
- Before replacing the ECU, ensure that the communication circuit is normal.
- When the steering wheel sensor is replaced, always carry out calibration to make ASC-ECU learn the neutral point (Refer to

[P.35C-135](#)).

- 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 [P.35C-134](#) and [P.35C-135](#)).

OPERATION

The steering wheel sensor outputs the steering wheel status to ASC-ECU via the CAN bus lines.

**DIAGNOSTIC TROUBLE CODE SET
CONDITIONS**

This diagnostic trouble code is set when ASC-ECU has detected the communication error in the steering wheel sensor.

PROBABLE CAUSES

- Malfunction of the steering wheel sensor
- Malfunction of ASC-ECU
- Noise interference

DIAGNOSIS

STEP 1. Using scan tool MB991958, diagnose the CAN bus lines.

Use the scan tool MB991958 to diagnose the CAN bus lines.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting [P.54C-12](#)). On completion, go to Step 2.

STEP 2. Diagnostic trouble code recheck after resetting CAN bus lines**Q: Is diagnostic trouble code No. U0428 set?**

YES : Go to Step 3.

NO : This diagnosis is complete.

STEP 3. Check for diagnostic trouble codes of other systems.

Check if diagnostic trouble code(s) other than U0428 is set.

Q: Is the diagnostic trouble code set?

YES : Follow the relevant diagnostic trouble code procedure, and then go to Step 5.

NO : Go to Step 4.

STEP 4. Diagnostic trouble code recheck

Check again if the diagnostic trouble code is set.

(1) Erase the set diagnostic trouble code.

(2) Ignition switch: "LOCK" (OFF)

(3) Ignition switch: "ON"

Q: Is diagnostic trouble code No. U0428 set?

YES : Replace the steering wheel sensor (Refer to [P.35C-141](#)). Then go to Step 5.

NO : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction [P.00-13](#)).

STEP 5. Diagnostic trouble code recheck

Check again if the diagnostic trouble code is set.

- (1) Erase the set diagnostic trouble code.
- (2) Ignition switch: "LOCK" (OFF)
- (3) Ignition switch: "ON"

Q: Is diagnostic trouble code No. U0428 set?

YES : Replace the hydraulic unit (integrated with ASC-ECU) (Refer to [P.35C-137](#)).

NO : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction [P.00-13](#)).

Code No. U1073 Bus-off

** CAUTION**

- If there is any problem in the CAN bus lines, an incorrect diagnostic trouble code may be stored. Prior to this diagnosis, diagnose the CAN bus lines (Refer to GROUP 54C – CAN Bus Diagnostics Table [P.54C-12](#)).
- If diagnostic trouble code U1073 is stored in ASC-ECU, always diagnose the CAN bus line. If there is any fault in the CAN bus lines, an incorrect diagnostic trouble code may be stored. In this case, the stored diagnostic trouble code is not highly reliable.
- 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 [P.35C-134](#) and [P.35C-135](#)).

DIAGNOSTIC TROUBLE CODE SET CONDITIONS

This diagnostic trouble code is stored when ASC-ECU has ceased the CAN communication (bus off).

PROBABLE CAUSES

- The CAN bus line is defective.
- Malfunction of ASC-ECU
- ECU malfunction of other system

Code No. U1100 Engine CAN timeout

** 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 (Refer to GROUP 54C – CAN Bus Diagnostics Table [P.54C-12](#)).
- If diagnostic trouble code U1100 is set in ASC-ECU, always diagnose the CAN bus line. If there is any fault in the CAN bus lines, an incorrect diagnostic trouble code may be set. In this case, the set diagnostic trouble code is not highly reliable.

- 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 [P.35C-134](#) and [P.35C-135](#)).

OPERATION

The ASC-ECU communicates with the engine control module via the CAN bus lines.

**DIAGNOSTIC TROUBLE CODE SET
CONDITIONS**

The ASC-ECU receives the engine control system-related signals from the engine control module via the CAN bus lines. When these signals cannot be received, the ECU sets this diagnostic trouble code.

PROBABLE CAUSES

- The CAN bus line is defective.
- Malfunction of engine control module
- Malfunction of ASC-ECU

DIAGNOSIS

STEP 1. Using scan tool MB991958, diagnose the CAN bus lines.

Use the scan tool MB991958 to diagnose the CAN bus lines.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting [P.54C-12](#)). On completion, go to Step 2.

STEP 2. Diagnostic trouble code recheck after resetting CAN bus lines**Q: Is diagnostic trouble code No. U1100 set?**

YES : Go to Step 3.

NO : This diagnosis is complete.

STEP 3. Use scan tool MB991958 to confirm a diagnostic trouble code of other systems.

Check if the diagnostic trouble code is set in the engine control module (Refer to GROUP 13A – Diagnostic Trouble Code Chart [P.13A-47](#)).

Q: Is the diagnostic trouble code set?

YES : Troubleshoot the engine control module diagnostic trouble code. Then go to Step 5.

NO : Go to Step 4.

STEP 4. Use scan tool MB991958 to confirm a diagnostic trouble code of other systems.

Check whether an engine "time-out" related diagnostic trouble code is set in other ECUs.

Q: Is the diagnostic trouble code set?

YES : Replace the engine control module (Refer to GROUP 13A – engine control module [P.13A-656](#)). Then go to Step 5.

NO : Go to Step 5.

STEP 5. Check whether the diagnostic trouble code is set again.

Check again if the diagnostic trouble code is set.

- (1) Erase the set diagnostic trouble code.
- (2) Ignition switch: "LOCK" (OFF)
- (3) Ignition switch: "ON"

Q: Is diagnostic trouble code No. U1100 set?

YES : Replace the hydraulic unit (integrated with ASC-ECU) (Refer to [P.35C-137](#)).

NO : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction [P.00-13](#)).

Code No. U1101 T/M CAN timeout/Not equipped

⚠ 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 (Refer to GROUP 54C – CAN Bus Diagnostics Table [P.54C-12](#)).
- If diagnostic trouble code U1101 is set in ASC-ECU, always diagnose the CAN bus line. If there is any fault in the CAN bus lines, an incorrect diagnostic trouble code may be set. In this case, the set diagnostic trouble code is not highly reliable.
- 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 [P.35C-134](#) and [P.35C-135](#)).

OPERATION

The ASC-ECU communicates with the CVT-ECU via the CAN bus lines.

DIAGNOSTIC TROUBLE CODE SET CONDITIONS

The ASC-ECU receives the CVT control-related signals from the CVT-ECU via the CAN bus lines. When these signals cannot be received, the ECU sets this diagnostic trouble code.

PROBABLE CAUSES

- Malfunction of ETACS-ECU
- The ASC-ECU, which was used on another vehicle, is installed on this vehicle.
- The ETACS-ECU, which was used on another vehicle, is installed on this vehicle.
- The CAN bus line is defective.
- The CVT-ECU is defective.
- Malfunction of ASC-ECU

DIAGNOSIS

STEP 1. Using scan tool MB991958, diagnose the CAN bus lines.

Use the scan tool MB991958 to diagnose the CAN bus lines.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting [P.54C-12](#)). On completion, go to Step 2.

STEP 2. Diagnostic trouble code recheck after resetting CAN bus lines**Q: Is diagnostic trouble code No. U1101 set?****YES :** Go to Step 3.**NO :** This diagnosis is complete.

STEP 3. Use scan tool MB991958 to confirm a diagnostic trouble code of other systems.

Check if the diagnostic trouble code is set in the CVT-ECU (Refer to GROUP 23A – Diagnostic Trouble Code Chart [P.23A-16](#)).

Q: Is the diagnostic trouble code set?**YES :** Follow the relevant diagnostic trouble code procedure. Then go to Step 5.**NO :** Go to Step 4.

STEP 4. Use scan tool MB991958 to confirm a diagnostic trouble code of other systems.

Check whether an transmission "time-out" related diagnostic trouble code is set in other ECUs.

Q: Is the diagnostic trouble code set?**YES :** Replace the CVT-ECU (Refer to GROUP 23A – CVT-ECU [P.23A-142](#)). Then go to Step 7.**NO :** Go to Step 5.

STEP 5. ETACS-ECU coding data check

Use scan tool MB991958, check if any abnormality is present to the coding data which are stored in the ETACS-ECU (Refer to GROUP 00 – Coding Reference Table [P.00-33](#)).

Q: Is the check result normal?**YES :** Go to Step 6.**NO :** Replace ETACS-ECU (Refer to GROUP 54A – ETACS-ECU [P.54A-260](#)). Then go to Step 7.

STEP 6. Check part number of ASC-ECU

Check the part number of ASC-ECU.

Q: Is the check result normal?**YES :** Go to Step 7.**NO :** Replace the hydraulic unit (integrated with ASC-ECU).(Refer to [P.35C-137](#)). Then go to Step 7.

STEP 7. Check whether the diagnostic trouble code is set again.

Check again if the diagnostic trouble code is set.

- (1) Erase the set diagnostic trouble code.
- (2) Ignition switch: "LOCK" (OFF)
- (3) Ignition switch: "ON"

Q: Is diagnostic trouble code No. U1101 set?

YES : Replace the hydraulic unit (integrated with ASC-ECU) (Refer to [P.35C-137](#)).

NO : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction [P.00-13](#)).

Code No. U1104 SAS CAN timeout/Not equipped

⚠ 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 (Refer to GROUP 54C – CAN Bus Diagnostics Table [P.54C-12](#)).
- If diagnostic trouble code U1104 is set in ASC-ECU, always diagnose the CAN bus line. If there is any fault in the CAN bus lines, an incorrect diagnostic trouble code may be set. In this case, the set diagnostic trouble code is not highly reliable.
- When the steering wheel sensor is replaced, always carry out calibration to make ASC-ECU learn the neutral point (Refer to [P.35C-135](#)).
- 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 [P.35C-134](#) and [P.35C-135](#)).

OPERATION

The ASC-ECU communicates with the steering wheel sensor via the CAN bus lines.

DIAGNOSTIC TROUBLE CODE SET CONDITIONS

If the ACS-ECU cannot receive any signal from the steering wheel sensor for a predetermined period, this diagnostic trouble code will be set.

PROBABLE CAUSES

- The CAN bus line is defective.
- Malfunction of the steering wheel sensor
- Malfunction of ASC-ECU

DIAGNOSIS

STEP 1. Using scan tool MB991958, diagnose the CAN bus lines.

Use the scan tool MB991958 to diagnose the CAN bus lines.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting [P.54C-12](#)). On completion, go to Step 2.

STEP 2. Diagnostic trouble code recheck after resetting CAN bus lines**Q: Is diagnostic trouble code No. U1104 set?****YES :** Go to Step 3.**NO :** This diagnosis is complete.

STEP 3. Check other diagnostic trouble codes.

Check if diagnostic trouble code(s) other than U1104 is set.

Q: Is the diagnostic trouble code set?**YES :** Perform troubleshooting for the relevant diagnostic trouble code. Then go to Step 5.**NO :** Go to Step 4.

STEP 4. Use scan tool MB991958 to confirm a diagnostic trouble code of other systems.

Check whether a steering wheel sensor "time-out" related diagnostic trouble code is set in other ECUs.

Q: Is the diagnostic trouble code set?**YES :** Replace the steering wheel sensor (Refer to [P.35C-141](#)). Then go to Step 5.**NO :** Go to Step 5.

STEP 5. Check whether the diagnostic trouble code is set again.

Check again if the diagnostic trouble code is set.

(1) Erase the set diagnostic trouble code.

(2) Ignition switch: "LOCK" (OFF)

(3) Ignition switch: "ON"

Q: Is diagnostic trouble code No. U1104 set?**YES :** Replace the hydraulic unit (integrated with ASC-ECU) (Refer to [P.35C-137](#)).**NO :** The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction [P.00-13](#)).

Code No. U1108 Meter CAN timeout/Not equipped

** 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 (Refer to GROUP 54C – CAN Bus Diagnostics Table [P.54C-12](#)).
- If diagnostic trouble code U1108 is set in ASC-ECU, always diagnose the CAN bus line. If there is any fault in the CAN bus lines, an incorrect diagnostic trouble code may be set. In this case, the set diagnostic trouble code is not highly reliable.

- Before replacing the ECU, ensure that the communication circuit is 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 [P.35C-134](#) and [P.35C-135](#)).

OPERATION

The ASC-ECU communicates with the combination meter via the CAN bus lines.

DIAGNOSTIC TROUBLE CODE SET CONDITIONS

If the ACS-ECU cannot receive any signal from the combination meter for a predetermined period, this diagnostic trouble code will be set.

PROBABLE CAUSES

- The CAN bus line is defective.
- Combination meter malfunction
- Malfunction of ASC-ECU

DIAGNOSIS

STEP 1. Using scan tool MB991958, diagnose the CAN bus lines.

Use the scan tool MB991958 to diagnose the CAN bus lines.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting [P.54C-12](#)). On completion, go to Step 2.

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

Q: Is diagnostic trouble code No. U1108 set?

YES : Go to Step 3.

NO : This diagnosis is complete.

STEP 3. Use scan tool MB991958 to confirm a diagnostic trouble code of other systems.

Check whether a diagnostic trouble code is set in the combination meter (Refer to GROUP 54A – Rear Combination light, Troubleshooting, Diagnostic Trouble Code Chart [P.54A-61](#)).

Q: Is the diagnostic trouble code set?

YES : Follow the relevant diagnostic trouble code procedure. Then go to Step 5.

NO : Go to Step 4.

STEP 4. Use scan tool MB991958 to confirm a diagnostic trouble code of other systems.

Check whether a combination meter "time-out" related diagnostic trouble code is set in other ECUs.

Q: Is the diagnostic trouble code set?

YES : Replace the combination meter (Refer to GROUP 54A – Combination Meter [P.54A-61](#)). Then go to Step 5.

NO : Go to Step 5.

STEP 5. Check whether the diagnostic trouble code is set again.

Check again if the diagnostic trouble code is set.

- (1) Erase the set diagnostic trouble code.
- (2) Ignition switch: "LOCK" (OFF)
- (3) Ignition switch: "ON"

Q: Is diagnostic trouble code No. U1108 set?

YES : Replace the hydraulic unit (integrated with ASC-ECU) (Refer to [P.35C-137](#)).

NO : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction [P.00-13](#)).

Code No. U1109 ETACS CAN timeout/Not equipped**⚠ 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 (Refer to GROUP 54C – CAN Bus Diagnostics Table [P.54C-12](#)).
- If diagnostic trouble code U1109 is set in ASC-ECU, always diagnose the CAN bus line. If there is any fault in the CAN bus lines, an incorrect diagnostic trouble code may be set. In this case, the set diagnostic trouble code is not highly reliable.
- Before replacing the ECU, ensure that the communication circuit is 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 [P.35C-134](#) and [P.35C-135](#)).

OPERATION

The ASC-ECU communicates with the ETACS-ECU via the CAN bus lines.

DIAGNOSTIC TROUBLE CODE SET CONDITIONS

If the ACS-ECU cannot receive any signal from the ETACS-ECU for a predetermined period, this diagnostic trouble code will be set.

PROBABLE CAUSES

- The CAN bus line is defective.
- ETACS-ECU malfunction
- Malfunction of ASC-ECU

DIAGNOSIS**STEP 1. Using scan tool MB991958, diagnose the CAN bus lines.**

Use the scan tool MB991958 to diagnose the CAN bus lines.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting [P.54C-12](#)). On completion, go to Step 2.

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

Q: Is diagnostic trouble code No. U1109 set?

YES : Go to Step 3.

NO : This diagnosis is complete.

STEP 3. Use scan tool MB991958 to confirm a diagnostic trouble code of other systems.

Check whether a diagnostic trouble code is set in the ETACS-ECU (Refer to GROUP 54A – ETACS-ECU, Troubleshooting, Diagnostic Trouble Code Chart [P.54A-218](#)).

Q: Is the diagnostic trouble code set?

YES : Follow the relevant diagnostic trouble code procedure. Then go to Step 5.

NO : Go to Step 4.

STEP 4. Use scan tool MB991958 to confirm a diagnostic trouble code of other systems.

Check whether an ETACS-ECU "time-out" related diagnostic trouble code is set in other ECUs.

Q: Is the diagnostic trouble code set?

YES : Replace the ETACS-ECU (Refer to GROUP 54A – ETACS-ECU [P.54A-260](#)). Then go to Step 5.

NO : Go to Step 5.

STEP 5. Check whether the diagnostic trouble code is set again.

Check again if the diagnostic trouble code is set.

(1) Erase the set diagnostic trouble code.

(2) Ignition switch: "LOCK" (OFF)

(3) Ignition switch: "ON"

Q: Is diagnostic trouble code No. U1109 set?

YES : Replace the hydraulic unit (integrated with ASC-ECU) (Refer to [P.35C-137](#)).

NO : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction [P.00-13](#)).

Code No. U1195 Coding not completed

⚠ 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 (Refer to GROUP 54C – CAN Bus Diagnostics Table [P.54C-12](#)).
- Whenever ECU is replaced, ensure that the CAN bus lines are normal.
- When the diagnostic trouble code U1195 is set in ASC-ECU, the diagnostic trouble code may also be set in ETACS-ECU. When the diagnostic trouble code is set in ETACS-ECU, carry out the diagnosis of the diagnostic trouble code for ETACS-ECU first.
- 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 [P.35C-134](#) and [P.35C-135](#)).

OPERATION

This diagnostic trouble code will be set when the variant coding for the ETACS-ECU has not been implemented.

DIAGNOSTIC TROUBLE CODE SET CONDITIONS

This diagnostic trouble code is set when the variant coding for ETACS-ECU has not been implemented.

PROBABLE CAUSES

- The CAN bus line is defective.
- ETACS-ECU malfunction
- ETACS-ECUs have been interchanged between two vehicles.
- The ACS-ECU, which was used on another vehicle, is installed on this vehicle.
- Malfunction of ASC-ECU
- Noise interference

DIAGNOSIS

STEP 1. Using scan tool MB991958, diagnose the CAN bus lines.

Use the scan tool MB991958 to diagnose the CAN bus lines.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting [P.54C-12](#)). On completion, go to Step 2.

STEP 2. Diagnostic trouble code recheck after resetting CAN bus lines**Q: Is diagnostic trouble code No. U1195 set?**

YES : Go to Step 3.

NO : This diagnosis is complete.

STEP 3. Use scan tool MB991958 to confirm a diagnostic trouble code of other systems.

Check whether a diagnostic trouble code is set in the ETACS-ECU (Refer to GROUP 54A – ETACS, Diagnostic Trouble Code Chart [P.54A-218](#)).

Q: Is the diagnostic trouble code set?

YES : Follow the relevant diagnostic trouble code procedure. Then go to Step 6.

NO : Go to Step 4.

STEP 4. ETACS-ECU coding data check

Using scan tool MB991958, check if any abnormality is present to the coding data which are stored in the ETACS-ECU (Refer to GROUP 00 – Coding Reference Table [P.00-33](#)).

Q: Is the check result normal?

YES : Go to Step 5.

NO : Replace ETACS-ECU (Refer to GROUP 54A – ETACS-ECU [P.54A-260](#)). Then go to Step 6.

STEP 5. Check part number of ASC-ECU

Check the part number of ASC-ECU.

Q: Is the check result normal?

YES : Go to Step 6.

NO : Replace the hydraulic unit (integrated with ASC-ECU) (Refer to [P.35C-137](#)).

STEP 6. Diagnostic trouble code recheck

Check again if the diagnostic trouble code is set.

- (1) Erase the set diagnostic trouble code.
- (2) Ignition switch: "LOCK" (OFF)
- (3) Ignition switch: "ON"

Q: Is diagnostic trouble code No. U1195 set?

YES : Replace the hydraulic unit (integrated with ASC-ECU) (Refer to [P.35C-137](#)).

NO : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction [P.00-13](#)).

Code No. U1200 SAS parity error
Code No. U1204 SAS message counter error

 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 (Refer to GROUP 54C – CAN Bus Diagnostics Table [P.54C-12](#)).
- Whenever ECU is replaced, ensure that the CAN bus lines are normal.
- When the steering wheel sensor is replaced, always carry out calibration to make ASC-ECU learn the neutral point (Refer to [P.35C-135](#)).
- 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 [P.35C-134](#) and [P.35C-135](#)).

OPERATION

The steering wheel sensor signal is sent to the ASC-ECU via the CAN bus lines.

DIAGNOSTIC TROUBLE CODE SET CONDITIONS

If a problem is found in the steering wheel sensor, the sensor will send a diagnostic signal to the ASC-ECU. When ASC-ECU receives this diagnostic signal, it determines that the sensor has a trouble and sets the diagnostic trouble code.

PROBABLE CAUSES

- The CAN bus line is defective.
- Malfunction of the steering wheel sensor
- Malfunction of ASC-ECU

DIAGNOSIS

STEP 1. Using scan tool MB991958, diagnose the CAN bus lines.

Use the scan tool MB991958 to diagnose the CAN bus lines.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting [P.54C-12](#)) On completion, go to Step 2.

STEP 2. Diagnostic trouble code recheck after resetting CAN bus lines**Q: Is diagnostic trouble code No. U1200 or U1204 set?**

YES : Go to Step 3.

NO : This diagnosis is complete.

STEP 3. Check whether the diagnostic trouble code is set again.

Check again if the diagnostic trouble code is set.

(1) Erase the set diagnostic trouble code.

(2) Ignition switch: LOCK (OFF)

(3) Ignition switch: ON

Q: Is diagnostic trouble code No. U1200 or U1204 set?

YES : Replace the steering wheel sensor (Refer to [P.00-13](#)). Then go to Step 4.

NO : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction [P.00-13](#)).

STEP 4. Check whether the diagnostic trouble code is set again.

Check again if the diagnostic trouble code is set.

(1) Erase the set diagnostic trouble code.

(2) Ignition switch: "LOCK" (OFF)

(3) Ignition switch: "ON"

Q: Is diagnostic trouble code No. U1200 or U1204 set?

YES : Replace the hydraulic unit (integrated with ASC-ECU) (Refer to [P.00-13](#)).

NO : This diagnosis is complete.

Code No. U1211 ENG Parity/Toggle bit error

⚠ 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 (Refer to GROUP 54C – CAN Bus Diagnostics Table [P.54C-12](#)).
- Before replacing the ECU, ensure that the communication circuit is 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 [P.35C-134](#) and [P.35C-135](#)).

OPERATION

Engine-related signals are sent or received to and from between ASC-ECU and engine control module via CAN bus lines.

DIAGNOSTIC TROUBLE CODE SET CONDITIONS

This diagnostic trouble code is set when the engine control module has detected an abnormal engine-related signal.

PROBABLE CAUSES

- Malfunction of ETACS-ECU
- The ASC-ECU, which was used on another vehicle, is installed on this vehicle.
- The ETACS-ECU, which was used on another vehicle, is installed on this vehicle.
- The CAN bus line is defective.
- Malfunction of engine control module
- Malfunction of ASC-ECU

DIAGNOSIS**STEP 1. Using scan tool MB991958, diagnose the CAN bus lines.**

Use the scan tool MB991958 to diagnose the CAN bus lines.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting [P.54C-12](#)). On completion, go to Step 2.

STEP 2. Diagnostic trouble code recheck after resetting CAN bus lines**Q: Is diagnostic trouble code No. U1211 set?**

YES : Go to Step 3.

NO : This diagnosis is complete.

STEP 3. Use scan tool MB991958 to confirm a diagnostic trouble code of other systems.

Check if the diagnostic trouble code is set in the engine control module (Refer to GROUP 13A – Diagnostic Trouble Code Chart [P.13A-47](#)).

Q: Is the diagnostic trouble code set?

YES : Troubleshoot the engine control module diagnostic trouble code. Then go to Step 5.

NO : Go to Step 4.

STEP 4. ETACS-ECU coding data check.

Using scan tool MB991958, check if any abnormality is present to the coding data which are stored in the ETACS-ECU (Refer to GROUP 00 – Coding Reference Table [P.00-33](#)).

Q: Is the check result normal?

YES : Go to Step 5.

NO : Replace ETACS-ECU (Refer to GROUP 54A – ETACS-ECU [P.54A-260](#)). Then go to Step 7.

STEP 5. Check part number of ASC-ECU.

Check if the part number of ASC-ECU.

Q: Is the check result normal?

YES : Go to Step 6.

NO : Replace the hydraulic unit (integrated ASC-ECU) (Refer to [P.35C-137](#)). Then go to Step 7.

STEP 6. Diagnostic trouble code recheck

Check again if the diagnostic trouble code is set.

- (1) Erase the set diagnostic trouble code.
- (2) Ignition switch: "LOCK" (OFF)
- (3) Ignition switch: "ON"

Q: Is diagnostic trouble code No. U1211 set?

YES : Replace the engine control module (Refer to GROUP 13A – engine control module [P.13A-656](#)). Then go to Step 7.

NO : This diagnosis is complete.

STEP 7. Diagnostic trouble code recheck

Check again if the diagnostic trouble code is set.

- (1) Erase the set diagnostic trouble code.
- (2) Ignition switch: "LOCK" (OFF)
- (3) Ignition switch: "ON"

Q: Is diagnostic trouble code No. U1211 set?

YES : Replace the hydraulic unit (integrated with ASC-ECU) (Refer to [P.35C-137](#)).

NO : This diagnosis is complete.

TROUBLE SYMPTOM CHART

M1355006901029

CAUTION

- ABS may operate in the following conditions without hard braking: Low μ road surface, high-speed turn, and bumpy road surface. When asking the customers, confirm that they have/have not encountered ABS operation in corresponding conditions.
- During ABS operation, the brake pedal is pulled forward gradually, and the noise occurs at the same time. This is because the brake line pressure varies intermittently to prevent the wheel lock, and not a system malfunction.
- During diagnosis, a diagnostic trouble code associated with other system may be set when the ignition switch is turned on with connector(s) disconnected. On completion, confirm all systems for diagnostic trouble code(s). If diagnostic trouble code(s) are set, erase them all.

Trouble symptom	Inspection procedure number	Reference page
Scan tool MB991958 communication with ASC system is impossible.	1	P.35C-94
Brake warning lamp stays "ON" with the parking brake lever released (ABS warning lamp is OFF).	2	P.35C-94
When the ignition switch is turned to the "ON" position (engine stopped), the ABS warning lamp does not illuminate.	3	P.35C-97
Brake warning lamp does not illuminate when the ignition switch is turned to "ON" position (engine stopped).	4	P.35C-99
ABS warning lamp stays ON after the engine is started.	5	P.35C-100
ASC warning lamp stays ON after the engine is started.	6	P.35C-102
ASC-OFF indicator lamp stays ON after the engine is started.	7	P.35C-103
The stability control/TCL system cannot be disabled when ASC OFF switch is pressed for 3 seconds or more to turn the system OFF	8	P.35C-105
Abnormality in brake operation.	9	P.35C-106
Abnormality in active stability control system operation.	10	P.35C-108
ASC-ECU power supply circuit system.	11	P.35C-109
ABS/stability control/TCL operates too frequently.	12	P.35C-112
HSA (Hill Start Assist) does not work.	13	P.35C-115
HSA (Hill Start Assist) works on a flat road.	14	P.35C-119
The initial check sound of hydraulic unit is loud	15	P.35C-120

SYMPTOM PROCEDURES

Inspection Procedure 1: Scan tool MB991958 communication with ASC system is impossible.

⚠ CAUTION

- If there is any problem in the CAN bus lines, an incorrect diagnostic trouble code may be stored. Prior to this diagnosis, diagnose the CAN bus lines (Refer to GROUP 54C – CAN Bus Diagnostics Table [P.54C-12](#)).
- If the power is supplied with the ground circuit of CAN communication device open circuited, an electric potential abnormality may occur to the CAN bus lines.
- 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 [P.35C-134](#) and [P.35C-135](#)).

COMMENTS ON TROUBLE SYMPTOM

When scan tool MB991958 cannot communicate with the ABS/ASC system, the CAN bus lines, ASC-ECU power supply circuit system, ground, or ASC-ECU may be faulty.

PROBABLE CAUSES

- Damaged wiring harness and connectors
- ASC-ECU malfunction
- Wrong routing of scan tool MB991958 harness
- Abnormality in battery or generator
- Abnormality in power supply voltage to ASC-ECU
- ECU malfunction of other system

Using scan tool MB991958, diagnose the CAN bus lines.

Use scan tool MB991958 to diagnose the CAN bus lines.

Q: Is the check result normal?

YES : Check the power supply circuit, and repair if necessary (Refer to [P.35C-109](#)).

NO : Repair the CAN bus lines (Refer to GROUP 54C – CAN Bus Diagnostics Table [P.54C-12](#)).

Inspection Procedure 2: Brake warning light stays "ON" with the parking brake lever released (ABS warning light is OFF).

⚠ 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 (Refer to GROUP 54C – CAN Bus Diagnostics Table [P.54C-12](#)).
- 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 [P.35C-134](#) and [P.35C-135](#)).

OPERATION

- When the parking brake switch is turned "ON", the combination meter (BRK terminal) is grounded, and the brake warning light illuminates.
- When reduction of the brake fluid amount is detected, the brake fluid level switch is turned from "OFF" to "ON". meter-ECU monitors the brake fluid level switch, and instructs the combination meter via the CAN bus line to illuminate the brake warning light.

PROBABLE CAUSES

- The brake pad thickness is at the limit value or less.
- The brake fluid amount is at the "LOWER" level or lower.
- Poor adjustment of the parking brake lever
- Damaged wiring harness and connectors
- Parking brake switch malfunction
- Malfunction of brake fluid level switch
- Combination meter malfunction

DIAGNOSIS

STEP 1. Using scan tool MB991958, diagnose the CAN bus lines.

Use the scan tool MB991958 to diagnose the CAN bus lines.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting [P.54C-12](#)).

STEP 2. Check whether the DTC is set again.

Use scan tool MB991958 to check that the diagnostic trouble code is set in the combination meter and ETACS-ECU.

Q: Is the diagnostic trouble code set?

YES : Carry out the diagnosis for the diagnostic trouble code.

NO : Go to Step 3.

STEP 3. Brake fluid level check

Check that the brake fluid is filled up to the "MIN" level or higher.

Q: Is the check result normal?

YES : Go to Step 5.

NO : Go to Step 4.

STEP 4. Brake pad check

Refer to GROUP 35A – On-vehicle Service, Brake Pad Check [P.35A-19](#).

Q: Is the check result normal?

YES : Fill the brake fluid up to the "MAX" level. Then go to Step 11.

NO : Replace the brake pad (Refer to GROUP 35A – On-vehicle Service, Brake Pad Replacement [P.35A-19](#)). Then go to Step 11.

STEP 5. Brake fluid level switch check

Refer to GROUP 35A – On-vehicle Service, Brake Fluid Level Switch Check [P.35A-18](#).

Q: Is the check result normal?

YES : Go to Step 6.

NO : Replace the reservoir tank assembly (Refer to GROUP 35A – Master Cylinder Assembly and Brake Booster Assembly [P.35A-28](#) <LHD> and [P.35A-28](#) <RHD>). Then go to Step 11.

STEP 6. Measure the voltage at the brake fluid level switch connector.

- (1) Check the connector.
- (2) Disconnect the connector and measure at the wiring harness side.
- (3) Turn the ignition switch to the "ON" position.
- (4) Measure the voltage between the combination meter connector LVL terminal and body ground.

OK: Approx. system voltage

Q: Is the check result normal?

YES : Go to Step 7.

NO : The power supply circuit may be open. Repair the wiring harness wires and connectors. Then go to Step 9.

STEP 7. Parking brake lever stroke check

Refer to GROUP 36 – On-vehicle Service [P.36-5](#).

Q: Is the check result normal?

YES : Go to Step 8.

NO : Adjust the parking brake lever stroke (Refer to GROUP 36 – On-vehicle Service [P.36-5](#)). Then go to Step 11.

STEP 8. Parking brake switch check

Refer to GROUP 36 – On-vehicle Service [P.36-6](#).

Q: Is the check result normal?

YES : Go to Step 9.

NO : Replace the parking brake switch (Refer to GROUP 36 – Parking Brake Lever [P.36-7](#)). Then go to Step 11.

STEP 9. Measure the voltage at the parking brake switch connector.

- (1) Check the connector.
- (2) Disconnect the connector and measure at the wiring harness side.
- (3) Turn the ignition switch to the "ON" position.
- (4) Measure the voltage between the combination meter connector BRK terminal and body ground.

OK: Approx. system voltage

Q: Is the check result normal?

YES : Go to Step 10.

NO : The power supply circuit may be open. Repair the wiring harness wires and connectors. Then go to Step 10.

STEP 10. Retest the system

Q: Does the brake warning light turn ON and OFF normally according to the parking brake lever operation?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction [P.00-13](#)).

NO : Replace the combination meter assembly (Refer to GROUP 54A – Combination Meter [P.54A-61](#)). Then go to Step 11.

STEP 11. Retest the system

Q: Does the brake warning light turn ON and OFF normally according to the parking brake lever operation?

YES : This diagnosis is complete.

NO : Return to Step 1.

Inspection Procedure 3: When the ignition switch is turned to the "ON" position (engine stopped), the ABS warning light does not illuminate.

⚠ 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 (Refer to GROUP 54C – CAN Bus Diagnostics Table [P.54C-12](#)).
- 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 [P.35C-134](#) and [P.35C-135](#)).

OPERATION

- ASC-ECU sends the illumination request signal of the ABS warning light to the combination meter through ETACS-ECU via the CAN communication.

- ASC-ECU illuminates ABS warning light via ETACS-ECU for approximately 3 seconds for valve check with the ignition switch turned to the "ON" position.

COMMENTS ON TROUBLE SYMPTOM

This may be caused by faults in the CAN bus line, ETACS-ECU, combination meter or ASC-ECU.

PROBABLE CAUSES

- The CAN bus line is defective.
- The ETACS-ECU coding data is abnormal.
- Malfunction of ETACS-ECU
- Malfunction of the combination meter
- ASC-ECU malfunction

DIAGNOSIS

STEP 1. Using scan tool MB991958, diagnose the CAN bus lines.

Use the scan tool MB991958 to diagnose the CAN bus lines.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting [P.54C-12](#)). Then go to Step 7.

STEP 2. Using scan tool MB991958, DTC check.

Use scan tool MB991958 to check the diagnostic trouble code for the ASC system.

Q: Is the diagnostic trouble code set?

YES : Carry out the diagnosis for the diagnostic trouble code (Refer to [P.35C-16](#)).

NO : Go to Step 3.

STEP 3. Coding data check

Using scan tool MB991958, check if any abnormality is present to the coding data which are stored in the ETACS-ECU (Refer to GROUP 00 – Coding Reference Table [P.00-33](#)).

Q: Is the check result normal?

YES : Go to Step 4.

NO : Replace ETACS-ECU (Refer to GROUP 54A – ETACS-ECU [P.54A-260](#)). Then go to Step 7.

STEP 4. Using scan tool MB991958, DTC check of other systems

Use scan tool MB991958 to check if the diagnostic trouble code is set in the combination meter system.

Q: Is the diagnostic trouble code set?

YES : Perform troubleshooting for the combination meter (Refer to GROUP 54A – Combination Meter, Troubleshooting [P.54A-18](#)). Then go to Step 7.

NO : Go to Step 5.

STEP 5. Using scan tool MB991958, DTC check of other systems

Using scan tool MB991958, check that the diagnostic trouble code is set in the ETACS system.

Q: Is the diagnostic trouble code set?

YES : Perform troubleshooting for ETACS-ECU (Refer to GROUP 54A – ETACS, Troubleshooting [P.54A-218](#)). Then go to Step 7.

NO : Go to Step 6.

STEP 6. Retest the system**Q: Does the ABS warning light turn ON and OFF normally?**

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction [P.00-13](#)).

NO : Replace the hydraulic unit (integrated with ASC-ECU) (Refer to [P.35C-137](#)). Then go to Step 7.

STEP 7. Retest the system**Q: Does the ABS warning light turn ON and OFF normally?**

YES : This diagnosis is complete.

NO : Return to Step 1.

Inspection Procedure 4: Brake warning light does not illuminate when the ignition switch is turned to "ON" position (engine stopped).

⚠ 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 (Refer to GROUP 54C – CAN Bus Diagnostics Table [P.54C-12](#)).
- 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 [P.35C-134](#) and [P.35C-135](#)).

OPERATION

- ASC-ECU sends the illumination request signal of the brake warning light to the combination meter through ETACS-ECU via the CAN communication.

- ASC-ECU illuminates brake warning light via ETACS-ECU for approximately 3 seconds for valve check with the ignition switch turned to the "ON" position.

COMMENTS ON TROUBLE SYMPTOM

This may be caused by faults in the CAN bus line, ETACS-ECU, combination meter or ASC-ECU.

PROBABLE CAUSES

- Damaged wiring harness and connectors
- Malfunction of ETACS-ECU
- Malfunction of the combination meter
- ASC-ECU malfunction

DIAGNOSIS

STEP 1. Using scan tool MB991958, diagnose the CAN bus lines.

Use the scan tool MB991958 to diagnose the CAN bus lines.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting [P.54C-12](#)). Then go to Step 6.

STEP 2. Using scan tool MB991958, DTC check.

Use scan tool MB991958 to check the diagnostic trouble code for the ASC system.

Q: Is the diagnostic trouble code set?

YES : Carry out the diagnosis for the diagnostic trouble code (Refer to [P.35C-16](#)).

NO : Go to Step 3.

STEP 3. Check whether the DTC is set again.

Use scan tool MB991958 to check if the diagnostic trouble code is set in the combination meter system.

Q: Is the diagnostic trouble code set?

YES : Perform troubleshooting for the combination meter (Refer to GROUP 54A – Combination Meter, Troubleshooting [P.54A-18](#)). Then go to Step 6.

NO : Go to Step 4.

STEP 4. Check whether the DTC is set again.

Using scan tool MB991958, check that the diagnostic trouble code is set in the ETACS system.

Q: Is the diagnostic trouble code set?

YES : Perform troubleshooting for ETACS-ECU (Refer to GROUP 54A – ETACS, Troubleshooting [P.54A-218](#)). Then go to Step 6.

NO : Go to Step 5.

STEP 5. Retest the system**Q: Does the brake warning light turn ON and OFF normally?**

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction [P.00-13](#)).

NO : Replace the hydraulic unit (integrated with ASC-ECU) (Refer to [P.35C-137](#)). Then go to Step 6.

STEP 6. Retest the system**Q: Does the brake warning light turn ON and OFF normally?**

YES : This diagnosis is complete.

NO : Return to Step 1.

Inspection Procedure 5: ABS warning light stays ON after the engine is started.

⚠ 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 (Refer to GROUP 54C – CAN Bus Diagnostics Table [P.54C-12](#)).
- 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 [P.35C-134](#) and [P.35C-135](#)).

OPERATION

- ASC-ECU sends the illumination request signal of the ABS warning light to the combination meter through ETACS-ECU via CAN communication.

- ASC-ECU illuminates the ABS warning light via ETACS-ECU for approximately 3 seconds for valve check with the ignition switch turned to the "ON" position.

COMMENTS ON TROUBLE SYMPTOM

This may be caused by faults in the CAN bus line, ETACS-ECU, combination meter or ASC-ECU.

PROBABLE CAUSES

- Damaged wiring harness and connectors
- Malfunction of ETACS-ECU
- Combination meter malfunction
- ASC-ECU malfunction
- Control stop due to the low voltage

NOTE: Due to the abnormality in the supply voltage, the diagnostic trouble code may not be set even when the ABS warning light is illuminated.

DIAGNOSIS

STEP 1. Using scan tool MB991958, diagnose the CAN bus lines.

Use the scan tool MB991958 to diagnose the CAN bus lines.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting [P.54C-12](#)). Then go to Step 7.

STEP 2. Using scan tool MB991958, DTC check.

Use scan tool MB991958 to check the diagnostic trouble code for the ASC system.

Q: Is the diagnostic trouble code set?

YES : Carry out the diagnosis for the diagnostic trouble code (Refer to [P.35C-16](#)).

NO : Go to Step 3.

STEP 3. Check the ASC-ECU power supply circuit.

Refer to [P.35C-109](#).

Q: Is the check result normal?

YES : Go to Step 4.

NO : Diagnose the power supply circuit of the ASC-ECU (Refer to [P.35C-109](#)).

STEP 4. Check whether the DTC is set again.

Use scan tool MB991958 to check if the diagnostic trouble code is set in the combination meter system.

Q: Is the diagnostic trouble code set?

YES : Perform troubleshooting for the combination meter (Refer to GROUP 54A – Combination Meter, Troubleshooting [P.54A-18](#)). Then go to Step 7.

NO : Go to Step 5.

STEP 5. Check whether the DTC is set again.

Using scan tool MB991958, check that the diagnostic trouble code is set in the ETACS system.

Q: Is the diagnostic trouble code set?

YES : Perform troubleshooting for ETACS-ECU (Refer to GROUP 54A – ETACS, Troubleshooting [P.54A-218](#)). Then go to Step 7.

NO : Go to Step 6.

STEP 6. Retest the system

Q: Does the ABS warning light turn ON and OFF normally?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction [P.00-13](#)).

NO : Replace the hydraulic unit (integrated with ASC-ECU) (Refer to [P.35C-137](#)). Then go to Step 7.

STEP 7. Retest the system**Q: Does the ABS warning light turn ON and OFF normally?****YES :** This diagnosis is complete.**NO :** Return to Step 1.

Inspection Procedure 6: ASC warning light stays ON after the engine is started.

⚠ 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 (Refer to GROUP 54C – CAN Bus Diagnostics Table [P.54C-12](#)).
- 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 [P.35C-134](#) and [P.35C-135](#)).

OPERATION

ASC-ECU sends the illumination request signal of the ASC warning light to the combination meter through ETACS-ECU via the CAN communication.

COMMENTS ON TROUBLE SYMPTOM

This may be caused by faults in the CAN bus line, ETACS-ECU, combination meter or ASC-ECU.

PROBABLE CAUSES

- Control is disabled due to the low voltage
NOTE: Due to the abnormality in the supply voltage, the diagnostic trouble code may not be set even when the ASC light illuminates.
- Damaged wiring harness and connectors
- Malfunction of ETACS-ECU
- Combination meter malfunction
- ASC-ECU malfunction

DIAGNOSIS

STEP 1. Using scan tool MB991958, diagnose the CAN bus lines.

Use the scan tool MB991958 to diagnose the CAN bus lines.

Q: Is the check result normal?**YES :** Go to Step 2.**NO :** Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting [P.54C-12](#)). Then go to Step 7.

STEP 2. Using scan tool MB991958, DTC check.

Use scan tool MB991958 to check the diagnostic trouble code for the ASC system.

Q: Is the diagnostic trouble code set?**YES :** Carry out the diagnosis for the diagnostic trouble code (Refer to [P.35C-16](#)).**NO :** Go to Step 3.

STEP 3. Check the ASC-ECU power supply circuit.

Refer to [P.35C-109](#).

Q: Is the check result normal?

YES : Go to Step 4.

NO : Diagnose the power supply circuit of the ASC-ECU
(Refer to [P.35C-109](#)).

STEP 4. Check whether the DTC is set again.

Use scan tool MB991958 to check if the diagnostic trouble code is set in the combination meter system.

Q: Is the diagnostic trouble code set?

YES : Perform troubleshooting for the combination meter
(Refer to GROUP 54A – Combination Meter,
Troubleshooting [P.54A-18](#)). Then go to Step 7.

NO : Go to Step 5.

STEP 5. Check whether the DTC is set again.

Using scan tool MB991958, check that the diagnostic trouble code is set in the ETACS system.

Q: Is the diagnostic trouble code set?

YES : Perform troubleshooting for ETACS-ECU (Refer to
GROUP 54A – ETACS, Troubleshooting [P.54A-218](#)).
Then go to Step 7.

NO : Go to Step 6.

STEP 6. Retest the system

Q: Does the ASC warning light illuminates and goes out normally?

YES : The trouble can be an intermittent malfunction (Refer to
GROUP 00 – How to Cope with Intermittent
Malfunction [P.00-13](#)).

NO : Replace the hydraulic unit (integrated with ASC-ECU)
(Refer to [P.35C-137](#)). Then go to Step 7.

STEP 7. Retest the system

Q: Does the ASC warning light illuminates and goes out normally?

YES : This diagnosis is complete.

NO : Return to Step 1.

Inspection Procedure 7: ASC OFF light stays ON after the engine is started.

 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 (Refer to GROUP 54C – CAN Bus Diagnostics Table [P.54C-12](#)).
- 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 [P.35C-134](#) and [P.35C-135](#)).

OPERATION

- ASC-ECU sends the illumination request signal of ASC OFF light to the combination meter through ETACS-ECU via CAN communication.
- The ASC OFF indicator lamp illuminates when the ASC function is disabled by the ASC OFF switch operation.
- When the ASC OFF switch is pressed for 3 seconds or more, the ASC system turns OFF.
- When the ASC OFF switch is pressed for 15 seconds or more, the ASC is kept in ON state and the system cannot be turned "OFF" until the ignition switch is turned to the "ON" position next time.

COMMENTS ON TROUBLE SYMPTOM

This may be caused by faults in the CAN bus line, ETACS-ECU, combination meter or ASC-ECU.

PROBABLE CAUSES

- Malfunction of ASC OFF switch
- Damaged wiring harness and connectors
- Malfunction of ETACS-ECU
- Combination meter malfunction
- ASC-ECU malfunction

DIAGNOSIS**STEP 1. Using scan tool MB991958, diagnose the CAN bus lines.**

Use the scan tool MB991958 to diagnose the CAN bus lines.

Q: Is the check result normal?

YES : Go to Step 2

NO : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting [P.54C-12](#)). Then go to Step 7.

STEP 2. Using scan tool MB991958, DTC check.

Use scan tool MB991958 to check the diagnostic trouble code for the ASC system.

Q: Is the diagnostic trouble code set?

YES : Carry out the diagnosis for the diagnostic trouble code (Refer to [P.35C-16](#)).

NO : Go to Step 3

STEP 3. ASC OFF switch check

Refer to [P.35C-136](#).

Q: Is the check result normal?

YES : Go to Step 4

NO : Replace the ASC OFF switch (Refer to [P.35C-136](#)). Then go to Step 7.

STEP 4. Check the wiring harness wires between the ACS-ECU connector SW ON terminal and the ASC OFF switch connector.

- (1) Connector check
- (2) Check the power supply circuit for short circuit.
- (3) Check the ground wires for open circuit.

Q: Is the check result normal?

YES : Go to Step 5

NO : Repair the wiring harness wires and connectors between the ACS-ECU connector SW ON terminal and the ASC OFF switch connector.

STEP 5. Check whether the DTC is set again.

Use scan tool MB991958 to check if the diagnostic trouble code is set in the combination meter system.

Q: Is the diagnostic trouble code set?

YES : Perform troubleshooting for the combination meter (Refer to GROUP 54A – Combination Meter, Troubleshooting [P.54A-18](#)). Then go to Step 7.

NO : Go to Step 6

STEP 6. Retest the system

Q: Does the ASC OFF indicator light turn ON and OFF normally?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction [P.00-13](#)).

NO : Replace the hydraulic unit (integrated with ASC-ECU) (Refer to [P.35C-137](#)). Then go to Step 7.

STEP 7. Retest the system

Q: Does the ASC OFF indicator light turn ON and OFF normally?

YES : This diagnosis is complete.

NO : Return to Step 1.

Inspection Procedure 8: The stability control/TCL system cannot be disabled when ASC OFF switch is pressed for 3 seconds or more to turn the system OFF

⚠ 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 (Refer to GROUP 54C – CAN Bus Diagnostics Table [P.54C-12](#)).
- 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 [P.35C-134](#) and [P.35C-135](#)).

OPERATION

- ASC-ECU connector terminal SW ON is grounded by pressing the ASC OFF switch.
- When the ASC OFF switch is pressed for 3 seconds or more, the ASC system turns OFF.
- When the ASC OFF switch is pressed and held for 15 seconds or more, ASC turns ON.

COMMENTS ON TROUBLE SYMPTOM

This may be caused by the open circuit in ASC OFF switch circuit.

PROBABLE CAUSES

- Malfunction of ASC OFF switch
- Damaged wiring harness and connectors
- ASC-ECU malfunction

DIAGNOSIS

STEP 1. ASC OFF switch check

Refer to [P.35C-136](#).

Q: Is the check result normal?

YES : Go to Step 2.

NO : Replace the ASC OFF switch (Refer to [P.35C-136](#)).
Then go to Step 4.

STEP 2. Check the wiring harness wires between the ACS-ECU connector SW ON terminal and the ASC OFF switch connector.

- (1) Connector check
- (2) Check the power supply circuit for short circuit.
- (3) Check the ground wires for open circuit.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Repair the wiring harness wires and connectors between the ACS-ECU connector SW ON terminal and the ASC OFF switch connector.

STEP 3. Retest the system**Q: Is the ASC system turned ON and OFF normally by using the ASC OFF switch?**

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction [P.00-13](#)).

NO : Replace the hydraulic unit (integrated with ASC-ECU) (Refer to [P.35C-137](#)). Then go to Step 4.

STEP 4. Retest the system**Q: Is the ASC system turned ON and OFF normally by using the ASC OFF switch?**

YES : This diagnosis is complete.

NO : Return to Step 1.

Inspection Procedure 9: Abnormality in brake operation.

⚠ 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 (Refer to GROUP 54C – CAN Bus Diagnostics Table [P.54C-12](#)).
- 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 [P.35C-134](#)

and [P.35C-135](#)).

COMMENTS ON TROUBLE SYMPTOM

Although the cause of the trouble cannot be clearly resolved since it depends on the running status and road surface condition, the malfunction of the hydraulic circuit may occur if any diagnostic trouble code is not detected.

PROBABLE CAUSES

- Malfunction of hydraulic circuit
- Malfunction of brake assembly

- Malfunction of Brake booster
- Malfunction of master cylinder assembly
- Malfunction of hydraulic unit (integrated with ASC-ECU)

DIAGNOSIS

STEP 1. Check the diagnostic trouble code.

Using scan tool MB991958, check the diagnostic trouble code for the ASC system (Refer to [P.35C-16](#)).

Q: Is the check result normal?

YES : Go to Step 2.

NO : Carry out the diagnosis for the diagnostic trouble code (Refer to [P.35C-16](#)).

STEP 2. Hydraulic unit (integrated with ASC-ECU) check

Check that the brake tube is installed to the hydraulic unit (integrated with ASC-ECU) correctly (Refer to [P.35C-131](#)).

Q: Is the check result normal?

YES : Go to Step 3.

NO : Connect the brake tubes correctly, and repair or replace the external brake lines of the hydraulic unit (integrated with ASC-ECU).

STEP 3. Brake operation check

Perform the following checks.

- Brake pedal check (Refer to GROUP 35A – On-vehicle Service, Brake Pedal Check [P.35A-13](#)).
- Brake booster check (Refer to GROUP 35A – On-vehicle Service, Brake Booster Operation Check [P.35A-15](#)).
- Check valve check (Refer to GROUP 35A – On-vehicle Service, Check Valve Operation Check [P.35A-17](#)).

Q: Can any fault be found with the brake operation?

YES : Check the brake-related parts, and repair if necessary. Then, go to Step 4.

NO : Go to Step 4.

STEP 4. Hydraulic unit check

Perform the following actuator tests (Refer to [P.35C-123](#)).

- Item No.01: FL wheel ABS
- Item No.02: FR wheel ABS
- Item No.03: RL wheel ABS
- Item No.04: RR wheel ABS
- Item No.05: FL wheel TCL
- Item No.06: FR wheel TCL
- Item No.07: RL wheel TCL
- Item No.08: RR wheel TCL

Q: Is the check result normal?

YES : This diagnosis is complete.

NO : Replace the hydraulic unit (integrated with ASC-ECU) (Refer to [P.35C-137](#)).

Inspection Procedure 10: Abnormality in active stability control system operation.**⚠ 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 (Refer to GROUP 54C – CAN Bus Diagnostics Table [P.54C-12](#)).
- 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 [P.35C-134](#) and [P.35C-135](#)).

COMMENTS ON TROUBLE SYMPTOM

In case of this trouble symptom, the stability control/TCL system operation may be disabled. Diagnostic trouble code may be set by the stability control/TCL system using scan tool MB991958.

PROBABLE CAUSES

- Low battery voltage
- The CAN bus line is defective.
- Engine coding data problem
- Malfunction of ASC-ECU
- Different ETACS-ECU, abnormal variant coding information

DIAGNOSIS**STEP 1. Check the diagnostic trouble code.**

Using scan tool MB991958, check the diagnostic trouble code for the ASC system (Refer to [P.35C-16](#)).

Q: Is the check result normal?

YES : Go to Step 2.

NO : Carry out the diagnosis for the diagnostic trouble code (Refer to [P.35C-16](#)).

STEP 2. engine control module coding data check

Using scan tool MB991958, check if any abnormality is present to the coding data below which are set in the engine control module (Refer to GROUP 00 – Coding Reference Table [P.00-33](#)).

A.S.C.

OK: Available

Q: Is the check result normal?

YES : Go to Step 3.

NO : Replace the engine control module. (Refer to GROUP 13A – engine control module [P.13A-656](#)). Then go to Step 4.

STEP 3. Hydraulic unit (integrated with ASC-ECU) check

Check that the brake tube is installed to the hydraulic unit (integrated with ASC-ECU) correctly (Refer to [P.35C-131](#)).

Q: Is the check result normal?

YES : Replace the hydraulic unit (integrated with ASC-ECU) (Refer to [P.35C-137](#)). Then go to Step 4.

NO : Connect the brake tubes correctly, and repair or replace the external brake lines of the hydraulic unit (integrated with ASC-ECU).

STEP 4. Operation check

Q: Does stability control/TCL operate normally?

YES : This diagnosis is complete.

NO : Check the brake system related components other than the stability control/TCL system.

Inspection Procedure 11: ASC-ECU power supply circuit system.

⚠ CAUTION

- If the battery terminal is not tightened properly, a dump surge may occur and the power supply voltage may become abnormally high for a short time.
- 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 [P.35C-134](#) and [P.35C-135](#)).

OPERATION

- The ASC-ECU contains the power supply circuit (+BV terminal) for the solenoid valve. The solenoid valve is energized by the valve relay, which is incorporated in the ASC-ECU.
- The ASC-ECU contains the power supply circuit (+BM terminal) for the pump motor. The pump motor is energized by the motor relay, which is incorporated in the ASC-ECU.

- The ASC-ECU contains the power supply circuit (IG1 terminal) for itself. When the ignition switch (IG1) is turned ON, the voltage is applied to the relay incorporated in the ETACS-ECU to turn ON the relay, and the power is supplied from the fusible link through the multi-purpose fuse.
- When malfunction occurs in ASC-ECU power supply, the communication with scan tool MB991958 becomes unavailable.

PROBABLE CAUSES

- The CAN bus line is defective.
- Battery failure
- Improper tightening of battery terminal
- Charging system failed
- Damaged harness wires and connectors
- Fuse and fusible link malfunction
- Improper tightening of ground bolt
- Malfunction of ASC-ECU

DIAGNOSIS

STEP 1. Check the battery.

Refer to GROUP 54A – Battery Test [P.54A-5](#).

Q: Is the battery in good condition?

YES : Go to Step 3.

NO : Charge or replace the battery. Then go to Step 2.

STEP 2. Check the charging system.

Refer to GROUP 16 – Charging System [P.16-7](#).

Q: Is the charging system in good condition?

YES : Go to Step 3.

NO : Repair or replace the charging system component(s).

STEP 3. Measure the resistance at the ASC-ECU connector.

- (1) Connector check: the ASC-ECU connector, the fuses (relay box) and the fusible links
- (2) Disconnect the ASC-ECU connector.
- (3) Measure the resistance between +BV terminal and body ground.

OK: No continuity

Q: Is the check result normal?

YES : Go to Step 4.

NO : The power supply circuit may be short. Repair the wiring harness wires or connectors between the ACS-ECU connector +BV terminal and the fuse (relay box), the fuses (relay box) or the fusible links. Then go to Step 11.

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

- (1) Connector check: the ASC-ECU connector and the fusible links
- (2) Disconnect the ASC-ECU connector and remove the fusible links.
- (3) Measure the resistance between +BM terminal and body ground.

OK: No continuity

Q: Is the check result normal?

YES : Go to Step 5.

NO : The power supply circuit may be short. Repair the wiring harness wires or connectors between the ACS-ECU connector +BM terminal and the fusible links, or the fusible links. Then go to Step 11.

STEP 5. Measure the resistance at the ASC-ECU connector.

- (1) Connector check: the ASC-ECU connector and the junction block
- (2) Disconnect the ASC-ECU connector.
- (3) Measure the resistance between the IG1 terminal and body ground.

OK: No continuity

Q: Is the check result normal?

YES : Go to Step 6.

NO : The power supply circuit may be short. Repair the wiring harness wires or connectors between the ACS-ECU connector IG1 terminal and the junction block. Then go to Step 11.

STEP 6. Measure the voltage at the ASC-ECU connector.

- (1) Disconnect the ASC-ECU connector.
- (2) Measure the voltage between +BV terminal and body ground.

OK: Battery voltage

Q: Is the check result normal?

YES : Go to Step 7.

NO : The power supply circuit may be open. Repair the wiring harness wires or connectors between the ACS-ECU connector +BV terminal and the fuse (relay box) or the fuses (relay box). Then go to Step 11.

STEP 7. Measure the voltage at the ASC-ECU connector.

- (1) Disconnect the ASC-ECU connector.
- (2) Measure the voltage between +BM terminal and body ground.

OK: Battery voltage

Q: Is the check result normal?

YES : Go to Step 8.

NO : The power supply circuit may be open. Repair the wiring harness wires or connectors between the ACS-ECU connector +BM terminal and the fusible links, or the fusible links. Then go to Step 11.

STEP 8. Measure the voltage at the ASC-ECU connector.

- (1) Disconnect the ASC-ECU connector.
- (2) Ignition switch: ON
- (3) Measure the voltage between the IG1 terminal and body ground.

OK: Battery voltage

Q: Is the check result normal?

YES : Go to Step 9.

NO : The power supply circuit may be open. Repair the wiring harness wires or connectors between the ACS-ECU connector IG1 terminal and the junction block. Then go to Step 11.

STEP 9. Measure the resistance at the ASC-ECU connector.

- (1) Disconnect the ASC-ECU connector.
- (2) Measure the resistance between the GND1 terminal and body ground as well as between the GND2 terminal and body ground.

OK: Continuity exists (2 Ω or less).

Q: Is the check result normal?

YES : Go to Step 10.

NO : The ground circuit may be open. Repair the wiring harness wires or connectors between the ACS-ECU connector GND1 terminal and the fusible links as well as between the GND2 terminal and the fusible links. Then go to Step 11.

STEP 10. Retest the system

Make sure that the scan tool MB991958 cable is properly connected and the V.C.I. switch is ON.

Q: Is the communication with scan tool MB991958 possible?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction [P.00-13](#)).

NO : Replace the hydraulic unit (integrated with ASC-ECU) (Refer to [P.35C-137](#)). Then go to Step 11.

STEP 11. Retest the system**Q: Is the communication with scan tool MB991958 possible?**

YES : Return to Step 1.

NO : This diagnosis is complete.

Inspection Procedure 12: ABS/stability control/TCL operates too frequently.

** CAUTION**

- If there is any problem in the CAN bus lines, an incorrect diagnostic trouble code may be set. Prior to this diagnosis, always diagnose the CAN bus lines (Refer to GROUP 54C – CAN Bus Diagnostics Table [P.54C-12](#)).
- 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 [P.35C-134](#) and [P.35C-135](#)).

COMMENTS ON TROUBLE SYMPTOM

- Although the cause of the trouble cannot be clearly resolved since it depends on the running status and road surface condition, the malfunction of the hydraulic circuit may occur if any diagnostic trouble code is not detected.
- If wheels and tires other than the ones with genuine specified size are mounted, the ABS/stability control/TCL may be activated prematurely.
- If a non-genuine braking device or non-genuine impact reduction device is mounted, the ABS/stability control/TCL may be activated prematurely.

PROBABLE CAUSES

- Mounting of wheels and tires other than with genuine specified size
- Tire pressure abnormality
- Tire wear and deterioration
- Mounting of non-genuine braking device or impact reduction device
- Wheel alignment abnormality
- Malfunction of brake related parts
- Malfunction of the wheel speed sensor
- Steering wheel sensor malfunction
- Malfunction of hydraulic unit (integrated with ASC-ECU)
- Malfunction of hydraulic circuit
- External radio wave noise interference

DIAGNOSIS

STEP 1. Check the wheels and the tires.

Carry out the following check.

- Size check of wheels and tires
- Tire wear and deterioration statuses
- Check the tire pressure.

NOTE: For the tire pressure, refer to the tire pressure label attached to the lower section of driver's side door striker.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Correct the wheels and tires in good condition. Then go to Step 9.

STEP 2. Diagnostic trouble code check

Using scan tool MB991958, check the diagnostic trouble code for the ASC system (Refer to [P.35C-16](#)).

Q: Is the check result normal?

YES : Go to Step 3.

NO : Carry out the diagnosis for the diagnostic trouble code (Refer to [P.35C-16](#)). Then go to Step 9.

STEP 3. Check of brake system related components other than hydraulic unit (integrated with ASC-ECU)

At the same time with the following checks, also check that no parts other than the genuine parts are mounted.

- Brake pad check (Refer to GROUP 35A – On-vehicle Service, Brake Pad Check [P.35A-19](#)).
- Brake disc runout check (Refer to GROUP 35A – On-vehicle Service, Brake Disc Check [P.35A-20](#)).
- Brake drag force check (Refer to GROUP 35A – Front Disc Brake Assembly [P.35A-30](#) (front) and GROUP 35A – Rear Drum Brake Assembly [P.35A-36](#) (rear)).

Q: Is the check result normal?

YES : Go to Step 4.

NO : Repair or replace the part(s) having damage or other problems. Then go to Step 9.

STEP 4. Wheel alignment check

At the same time with the following checks, also check that no parts other than the genuine parts are mounted.

- Front wheel alignment check (Refer to GROUP 33 – On-vehicle Service, Front Wheel Alignment Check and Adjustment [P.33-6](#)).
- Rear wheel alignment check (Refer to GROUP 34 – On-vehicle Service, Rear Wheel Alignment Check and Adjustment [P.34-4](#).)

Q: Is the check result normal?

YES : Go to Step 5.

NO : Repair or replace the part(s) having damage or other problems. Then go to Step 9.

STEP 5. Wheel speed sensor check

Check that no non-genuine electronic device or no wiring harness of the device other than genuine electronic device is mounted near the wheel speed sensor (at wheel speed detection section and wiring harness section) (Refer to [P.35C-130](#)).

Q: Is the check result normal?

YES : Go to Step 6.

NO : Remove the non-genuine electronic device or the wiring harness of non-genuine electronic device. Then go to Step 9.

STEP 6. scan tool MB991958 data list

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

- Item 01: FL wheel speed sensor
- Item 02: FR wheel speed sensor
- Item 03: RL wheel speed sensor
- Item 04: RR wheel speed sensor
- Item 08: Lateral G-sensor
- Item 11: Steering angle sensor
- Item 12: Yaw rate sensor

Q: Is the check result normal?

YES : Go to Step 7.

NO (Abnormality with items 01 to 04) : Check the installation status of corresponding wheel speed sensor (Refer to [P.35C-139](#)).

NO (Abnormality with items 08, 12) : Go to Step 7.

NO (Abnormality with item 11) : Check the installation status of steering wheel sensor (Refer to [P.35C-141](#)).

STEP 7. Hydraulic unit check

Carry out the following actuator tests, and check if they work normally. (Refer to [P.35C-123](#).)

- Item No.01: FL wheel ABS
- Item No.02: FR wheel ABS
- Item No.03: RL wheel ABS
- Item No.04: RR wheel ABS
- Item No.05: FL wheel TCL
- Item No.06: FR wheel TCL
- Item No.07: RL wheel TCL
- Item No.08: RR wheel TCL

Q: Is the check result normal?

YES : Go to Step 8.

NO : Replace the hydraulic unit (integrated with ASC-ECU) (Refer to [P.35C-137](#)). Then go to Step 9.

STEP 8. ABS/stability control/TCL operation check**Q: Is the check result normal?**

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction [P.00-13](#)).

NO : Replace the hydraulic unit (integrated with ASC-ECU) (Refer to [P.35C-137](#)). Then go to Step 9.

STEP 9. ABS/stability control/TCL operation check**Q: Is the check result normal?**

YES : This diagnosis is complete.

NO : Return to Step 1.

Inspection Procedure 13: HSA (Hill Start Assist) does not work.**⚠ 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 (Refer to GROUP 54C – CAN Bus Diagnostics Table [P.54C-12](#)).
- 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 [P.35C-134](#) and [P.35C-135](#)).

COMMENTS ON TROUBLE SYMPTOM

- The slope gradient may be low.
- The vehicle is not completely stationary.
- A failure may have occurred in the calibration of the G and yaw rate sensor.

- The parking brake switch may be seized, which causes the HSA to fail to start the operation.
- A problem (noise interference) may have occurred in the CAN bus line, resulting in an improper communication with ASC-ECU or each ECU.

NOTE:

- *The HSA does not work even when the wheel speed sensor output pulse (vehicle moved) while the vehicle is parked.*
- *The HSA is affected by the loading conditions and vehicle posture at the occurrence of phenomenon. When checking the HSA operation in actual driving, carry out the check on the vehicle with one occupant (driver) only.*

PROBABLE CAUSES

- Calibration failure of the G and yaw rate sensor
- Seizure of the parking brake switch

- Malfunction of wheel speed sensor
- Malfunction of CVT-ECU
- Malfunction of hydraulic unit (integrated with ASC-ECU)
- Wiring harness or connector failure of CAN bus line
- Damaged wiring harness and connectors

DIAGNOSIS

STEP 1. HSA function check

Check if the HSA works with one occupant (driver) only in the vehicle.

Q: Is the check result normal?

YES : This diagnosis is complete.

NO : Go to Step 2.

STEP 2. Check the parking brake.

Check whether the parking brake warning light remains on with the parking brake lever not pulled up.

Q: Does the parking brake warning light remain on?

YES : Proceed to the symptom procedure "The parking brake warning light remains on with the parking brake lever not pulled up" (Refer to [P.35C-94](#)). Then go to Step 10.

NO : Go to Step 3.

STEP 3. Using scan tool MB991958, diagnose the CAN bus lines.

Use the scan tool MB991958 to diagnose the CAN bus lines.

Q: Is the check result normal?

YES : Go to Step 4.

NO : Repair the CAN bus line (Refer to GROUP 54C, Troubleshooting [P.54C-12](#)). Then go to Step 10.

STEP 4. Using scan tool MB991958, DTC check.

Use scan tool MB991958 to check the diagnostic trouble code for the ASC system.

Q: Is the diagnostic trouble code set?

YES : Follow the relevant diagnostic trouble code procedure (Refer to [P.35C-16](#)).

NO : Go to Step 5.

STEP 5. Using scan tool MB991958, check data list

Evaluate the data list below.

- Pull the parking brake lever.

Item No.	Item name	Normal conditions
120	Parking brake switch	ON

- Release the parking brake lever.

Item No.	Item name	Normal conditions
120	Parking brake switch	from ON to OFF

- Move the selector lever to "R", "D", "N" and "P".

Item No.	Item name	Normal conditions
70	Target gear ratio	• "R" • Selector lever position: R • "D" • Selector lever position: D • "P" • Selector lever position: P • "N" • Selector lever position: N
71	Current gear position	

Q: Is the check result normal?**YES** : Go to Step 6.**NO <item No. 120>** : Proceed to the symptom procedure "The parking brake warning light remains on with the parking brake lever not pulled up" (Refer to [P.35C-94](#)). Then go to Step 10.**NO <item No. 70, 71>** : Go to Step 8.**STEP 6. Using scan tool MB991958, check 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 [P.35C-121](#)).

- Item No. 09: Longitudinal G-sensor
- Item No. 12: Yaw rate sensor

Q: Is the check result normal?**YES** : Go to Step 7.**NO** : Calibrate the G and yaw rate sensor (Refer to [P.35C-134](#)). Then go to Step 10.

STEP 7. Using scan tool MB991958, check data list

Evaluate the data list (Refer to [P.35C-121](#)).

- Item No. 10: Master cylinder pressure sensor

Q: Is the check result normal?

YES : Go to Step 8.

NO : Go to Step 10.

STEP 8. Using scan tool MB991958, DTC check. of other systems

Use scan tool MB991958 to check if the diagnostic trouble code is set in the CVT-ECU.

Q: Is the diagnostic trouble code set?

YES : Diagnose the CVT system (Refer to GROUP 23A – Troubleshooting [P.23A-3](#)). Then go to Step 10.

NO : Go to Step 9.

STEP 9. Retest the system

Check if the HSA works with one person on the driver's seat.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction [P.00-13](#)).

NO : Replace the hydraulic unit (ASC-ECU) (Refer to [P.35C-137](#)).

STEP 10. Retest the system

Check if the HSA works with one person on the driver's seat.

Q: Is the check result normal?

YES : This diagnosis is complete.

NO : Return to Step 1.

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 diagnostic trouble code may be stored. Prior to this diagnosis, diagnose the CAN bus lines (Refer to GROUP 54C – CAN Bus Diagnostics Table [P.54C-12](#)).
- 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 [P.35C-134](#) and [P.35C-135](#)).

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

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. Using scan tool MB991958, check 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 [P.35C-121](#)).

- 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.

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

Q: Is the check result normal?

YES : This diagnosis is complete.

NO : Carry out adjustment for hydraulic unit installation (Refer to [P.35C-131](#)).

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 scan tool MB991958 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	Longitudinal 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
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 scan tool MB991958 display almost agree with each other.
66	Engine torque		Displays the engine torque.
67	APP sensor		Displays the accelerator pedal opening angle.
68	Allow A.S.C. torque request		Allow
70	Target gear	When the selector lever is operated	Displays the selector lever position.
71	Actual gear		

Item No.	Check item	Check condition	Normal condition
72	Master cylinder pressure offset	The difference between the neutral position that was input to the ASC-ECU before the master cylinder pressure sensor calibration and the neutral position after the calibration.	-10 to 10 bar
73	Lateral G sensor offset	The difference between the neutral position that was input to the ASC-ECU before the G and yaw rate sensor calibration and the neutral position after the calibration.	-0.23 to 0.23 G
96	Longitudinal G sensor offset	The difference between the neutral position that was input to the ASC-ECU before the G and yaw rate sensor calibration and the neutral position after the calibration.	-0.23 to 0.23 G
97	Yaw rate sensor offset	The difference between the neutral position that was input to the ASC-ECU before the G and yaw rate sensor calibration and the neutral position after the calibration.	-6.0 to 6.0 deg/s
98	Steering angle offset	The difference between the neutral position that was sent to the ASC-ECU before the steering wheel sensor calibration and the neutral position after the calibration.	-10 to 10 deg
120	Parking brake switch (Input)	When the parking brake lever is pulled up:	ON
		When the parking brake lever is released:	OFF
128	A.S.C. OFF switch	When the ASC control is activated by operating the ASC OFF switch	ON
		When the ASC control is deactivated by operating the ASC OFF switch	OFF
152	Stoplight switch state	The brake pedal is depressed.	ON
		The brake pedal is released.	OFF
153	Tire circumference	–	–

NOTE: While ASC-ECU is disabled by the diagnostic function, the scan tool MB991958 displayed data is different from the actual measurement.

ACTUATOR TEST TABLE

M1355001600570

Using scan tool MB991958, the following actuators can be forcibly operated:

NOTE:

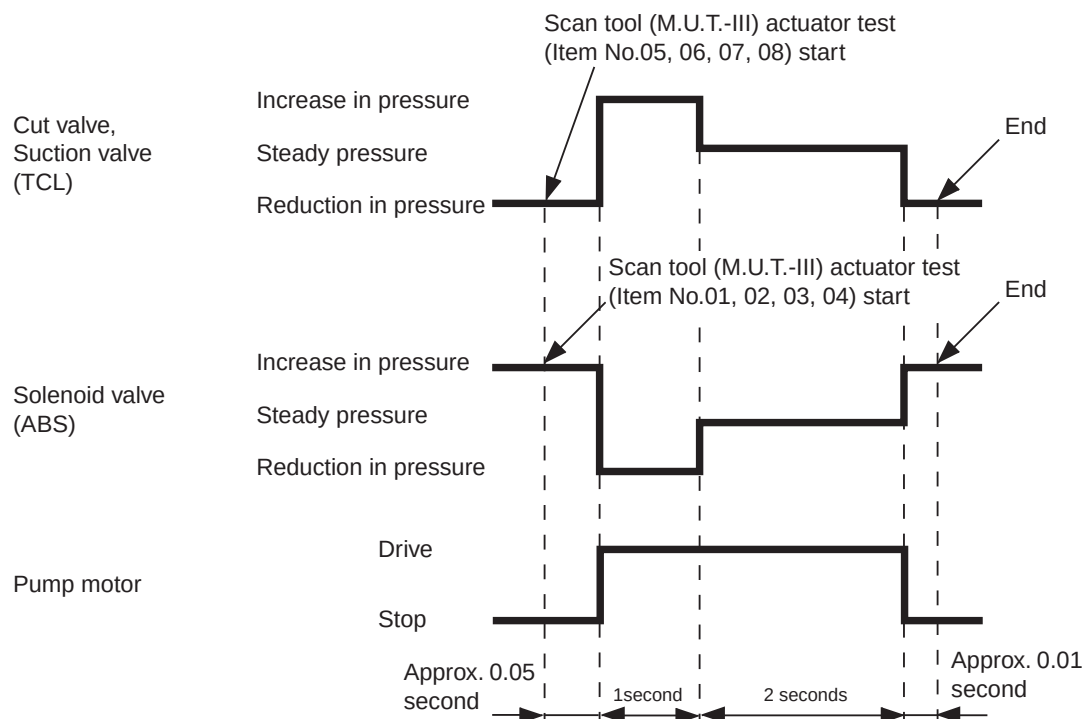
- ABS, TCL and ASC are operated by ASC-ECU.
- When ASC-ECU is disabled due to the fail-safe function, the actuator test cannot be performed.

- The actuator test can be performed only when the vehicle is stationary.
- After the actuator test has been performed, the brake warning light, ABS warning light, ASC operation display, and ASC OFF display illuminate until the ignition switch is turned to ON again or the communication between scan tool MB991958 and ASC-ECU is terminated.

Actuator test specifications

Item No.	Check item	Driven component
01	FL wheel ABS drive	Solenoid valve for the corresponding channel of the hydraulic unit and pump motor (simplified inspection mode)
02	FR wheel ABS drive	
03	RL wheel ABS drive	
04	RR wheel ABS drive	
05	FL wheel TCL drive	
06	FR wheel TCL drive	
07	RL wheel TCL drive	
08	RR wheel TCL drive	
09	Engine TCL drive	Outputs the engine torque control signal (engine torque = 0 N·m) to the engine control module for three seconds.
10	ESS test mode	The ASC-ECU requests the ETACS-ECU to activate the emergency stop signal system and then the ETACS-ECU flashes the hazard warning lights quickly.

Operation pattern of items 01 to 08



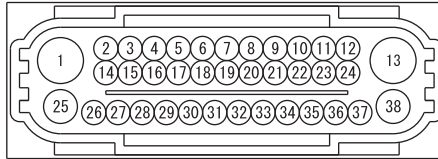
AC400776AJ

CHECK AT ECU TERMINALS

M1355001700760

TERMINAL VOLTAGE CHECK

1. Do not disconnect the ASC-ECU connector, and measure the voltages between ground terminal No.13 or No.38 and each respective terminal.
2. The terminal layout is shown in the illustration.



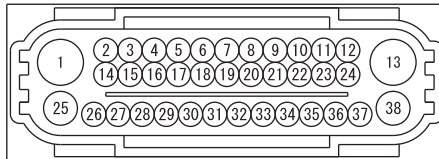
ACC03278

Terminal No.	Terminal code	Check item	Checking requirements	Normal condition
1	+BM	Motor power supply	Always	Battery voltage
2, 3	—	—	—	—
4	FR-	Wheel speed sensor (FR) signal	Ignition switch: "ON"	Approximately system voltage
5-7	—	—	—	—
8	FL-	Wheel speed sensor (FL) signal	Ignition switch: "ON"	Approximately system voltage
9-11	—	—	—	—
12	SW ON	ASC OFF switch power supply	Ignition switch: "ON"	Approximately system voltage
14	CANL	CAN bus line	—	—
15	—	—	—	—
16	FR+	Wheel speed sensor (FR) power supply	Ignition switch: "ON"	Approximately system voltage
17	RR+	Wheel speed sensor (RR) power supply	Ignition switch: "ON"	Approximately system voltage
18	RL-	Wheel speed sensor (RL) signal	Ignition switch: "ON"	Approximately system voltage
19	FL+	Wheel speed sensor (FL) power supply	Ignition switch: "ON"	Approximately system voltage
20-24	—	—	—	—
25	+BV	Solenoid valve power supply	Always	Battery voltage
26	CANH	CAN bus line	—	—
27	—	—	—	—

Terminal No.	Terminal code	Check item	Checking requirements	Normal condition
28	IG1	ASC-ECU power supply(IG1)	Ignition switch: "ON"	Battery voltage
			Ignition switch: "OFF"	1 V or less
29	RR-	Wheel speed sensor (RR) signal	Drive vehicle	Approximately system voltage
30	—	—	—	—
31	RL+	Wheel speed sensor (RL) power supply	Ignition switch: "ON"	Approximately system voltage
32-37	—	—	—	—

CONTINUITY CHECK AT WIRING HARNESS-SIDE CONNECTOR

1. Turn the ignition switch to the LOCK (OFF) position.
2. Disconnect the ASC-ECU connector.
3. Check the resistance and continuity between the terminals indicated in the table below.
4. The terminal layout is shown in the illustration.

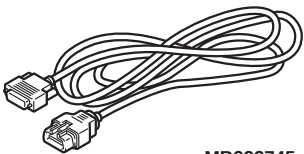
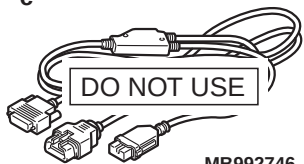
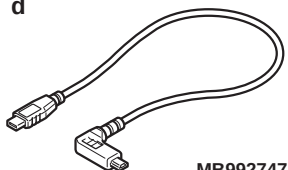
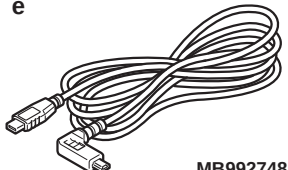


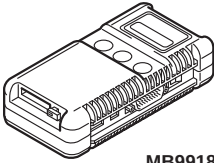
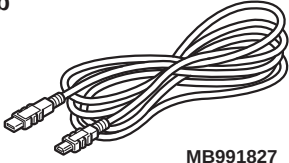
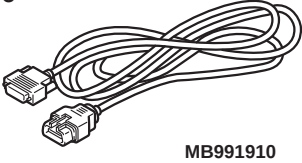
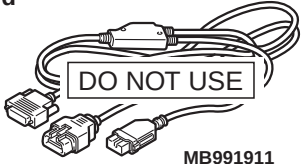
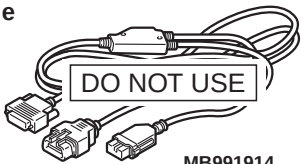
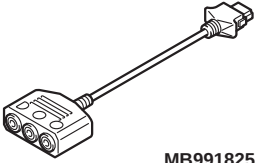
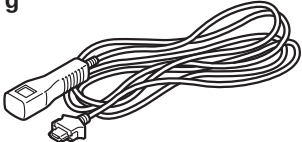
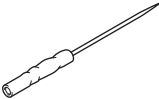
ACC03278

Terminal No.	Signal	Normal condition
13 – body ground	Earth	Continuity exists (2 Ω or less)
38 – body ground	Earth	Continuity exists (2 Ω or less)

SPECIAL TOOL

M1355005800394

Tool	Tool number and name	Supersession	Application
a  MB992744	a. MB992744 b. MB992745 c. MB992746 d. MB992747 e. MB992748	—	ASC check (Diagnostic trouble code display, data list display and calibration by scan tool)
b  MB992745	a. Vehicle communication interface-Lite (V.C.I.-Lite) b. V.C.I.-Lite main harness A (for vehicles with CAN communication)		
c  MB992746	c. V.C.I.-Lite main harness B (for vehicles without CAN communication)		
d  MB992747	d. V.C.I.-Lite USB cable short e. V.C.I.-Lite USB cable long		
e  MB992748 ACB05421AB			

Tool	Tool number and name	Supersession	Application
a  MB991824 b  MB991827 c  MB991910 d  MB991911 e  MB991914 f  MB991825 g  MB991826 MB991958	MB991958 a. MB991824 b. MB991827 c. MB991910 d. MB991911 e. MB991914 f. MB991825 g. MB991826 M.U.T.-III sub assembly a. Vehicle communication interface (V.C.I.) b. M.U.T.-III USB cable c. M.U.T.-III main harness A (Vehicles with CAN communication system) d. M.U.T.-III main harness B (Vehicles without CAN communication system) e. M.U.T.-III main harness C (for Chrysler models only) f. M.U.T.-III measurement adapter g. M.U.T.-III trigger harness	MB991824-KIT NOTE: G: MB991826 M.U.T.-III Trigger Harness is not necessary when pushing V.C.I. ENTER key.	CAUTION M.U.T.-III main harness A (MB991910) should be used. M.U.T.-III main harness B and C should not be used for this vehicle. ASC check (Diagnostic trouble code display, data list display and calibration by scan tool)
 MB992006	MB992006 Extra fine probe	-	Continuity check and voltage measurement at harness wire or connector for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Tool	Tool number and name	Supersession	Application
	MB991709 Wiring harness set	–	Checking the ASC-ECU and output current measure at the wheel speed sensor

ON-VEHICLE SERVICE

WHEEL SPEED SENSOR OUTPUT CURRENT MEASUREMENT

M1352032800139

The relevant wheel, on which the wheel speed sensor is fitted, should be free to run.

1. Remove the wheel speed sensor connector to be checked.

 CAUTION

For precise measurement, do not connect to the wheel speed sensor-side connector and the wiring harness side connector.

2. Use the special tool test harness (MB991709) to connect a multimeter between the wheel speed sensor-side connector and the wiring harness connector terminal No.1.
3. Turn the ignition switch to the "ON" position.

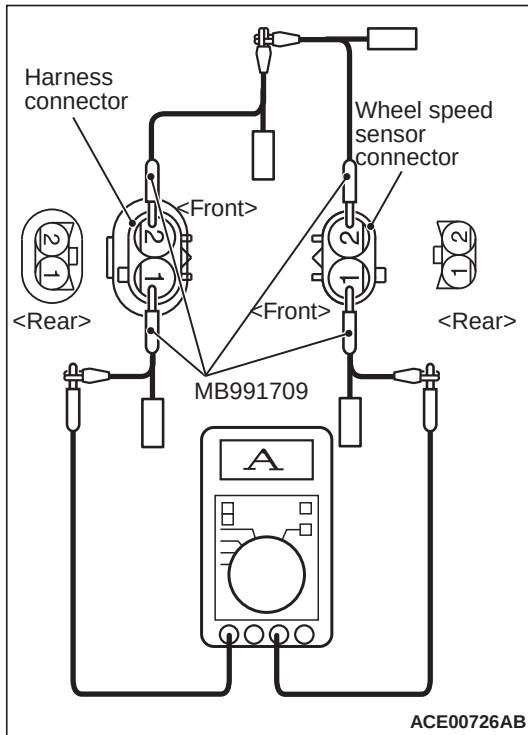
 CAUTION

Do not rotate the wheel too quickly. Output current changes significantly as the wheel speed detection magnetic encoder comes near or goes away from the wheel speed sensor.

4. Rotate the wheel, on which the wheel speed sensor is fitted, quite slowly to measure the output current with the multimeter.

Standard value: 5 to 9 mA or 11 to 17 mA

5. If the measurement is not within the standard value, or the output current does not change in proportion to the wheel rotation, replace the wheel speed sensor (Refer to [P.35C-139](#)).



HYDRAULIC UNIT (HU) CHECK

M1355006100365

1. Raise the vehicle using a jack and support the specified points with a rigid rack.

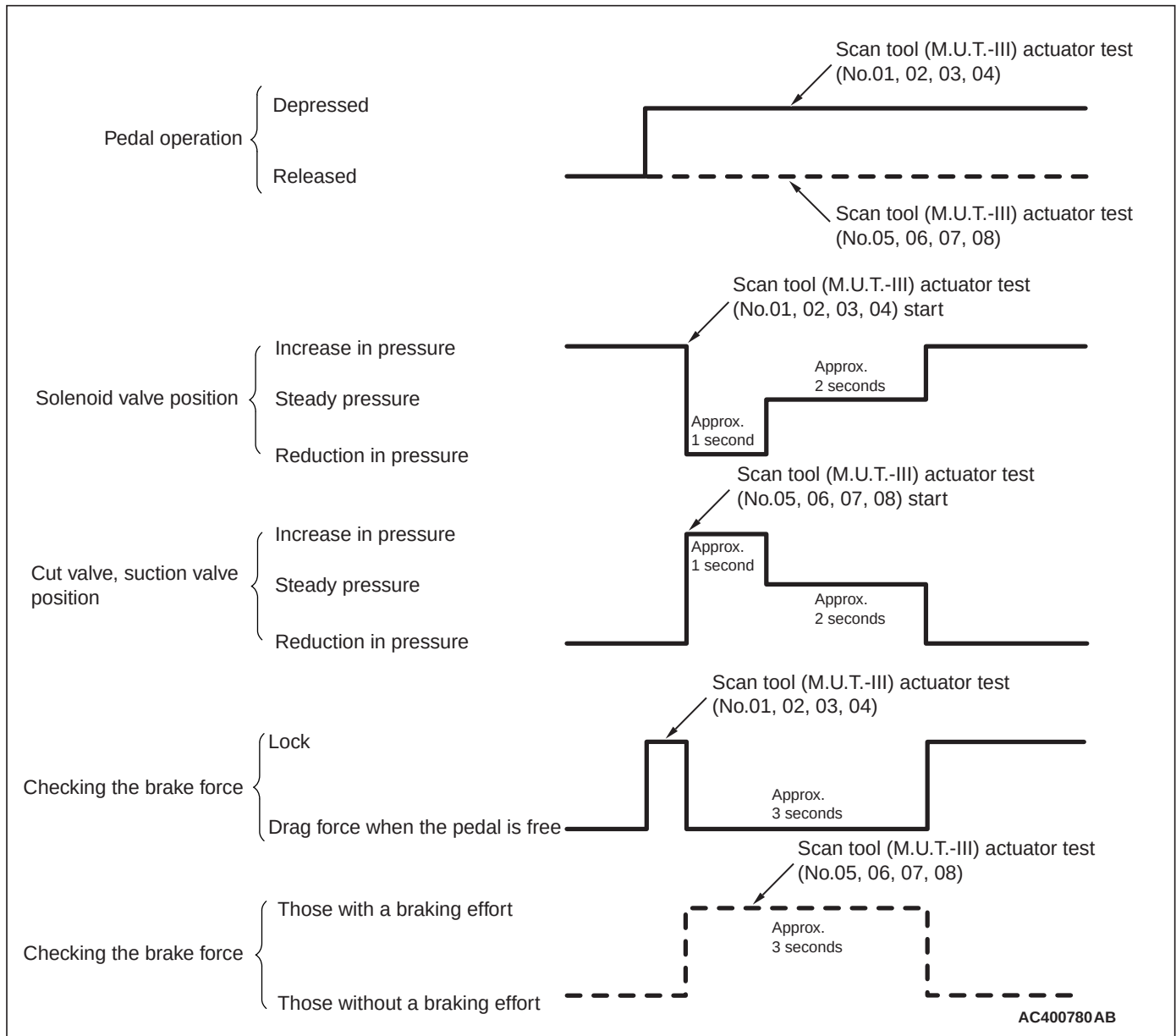
CAUTION

Before connecting or disconnecting scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position.

2. Before setting scan tool MB991958, turn the ignition key to the "LOCK" (OFF) position.
3. Confirm that the selector lever is in the "N" position, and then start the engine.
4. When carrying out the actuator tests No.01 to 04, perform the actuator tests using scan tool MB991958 while depressing the brake pedal. When carrying out the actuator tests No.05 to 08, perform the actuator tests using scan tool MB991958 without depressing the brake pedal. When carrying out the actuator tests, rotate the wheel by hands to confirm that the braking force changes.

NOTE:

- When ASC-ECU is disabled due to the fail-safe function, the scan tool MB991958 actuator test cannot be performed.
- After the actuator test has been performed, the ABS warning light, brake warning light, ASC ON indicator light, and ASC OFF indicator light illuminate until the ignition switch is turned to "ON" again or the communication between scan tool MB991958 and ASC-ECU is terminated.



5. This is indicated as shown in the above.

6. When any malfunction has been found, take a necessary action according to the "Judgment Table."

Judgment Table

Display on scan tool MB991958	Operation	Test result	Judgment	Cause	Measure
01 FL wheel ABS 02 FR wheel ABS 03 RL wheel ABS 04 RR wheel ABS	- Depress the brake pedal to lock the wheel. - Select the vehicle to be inspected using scan tool MB991958, perform the actuator test. - Rotate the selected wheel by hands to confirm the braking force.	Braking force decreases for 3 seconds from the lock status.	Normal	—	—
		The wheel does not lock even if the brake pedal is depressed.	Error	Clogged brake line other than hydraulic unit	Check and clean the brake line.
				Clogged hydraulic circuit in the hydraulic unit	Replace the hydraulic unit assembly.
				Faulty routing of hydraulic unit brake tube	Route the brake tube correctly.
		Braking force does not decrease.		Malfunction of hydraulic unit solenoid valve operation	Replace the hydraulic unit assembly.
05 FL wheel TCL 06 FR wheel TCL 07 RL wheel TCL 08 RR wheel TCL	- Select the vehicle to be inspected using scan tool MB991958, perform the actuator test. - Rotate the selected wheel by hands to confirm the braking force.	Lock condition occurs for 3 seconds from the status without braking force.	Normal	—	—
		The wheel does not lock.	Error	- Faulty routing of hydraulic unit brake tube - Clogged brake line other than hydraulic unit	Check and clean the brake line.
				Clogged hydraulic circuit in the hydraulic unit	Replace the hydraulic unit assembly.

7. After the inspection, turn the ignition switch to the LOCK (OFF) position, and then disconnect scan tool MB991958.

Hydraulic unit installation adjustment

Refer to [P.35C-137](#).

1. Operate the pre-removal steps for the hydraulic unit.
2. Remove all brake tubes.
3. Remove the protector.
4. Loosen the mounting bolt and nut of the hydraulic unit bracket.
5. Install all brake tubes temporarily.

6. Shake hydraulic unit to all directions with both hands to make the hydraulic unit bracket insulator fit with the unit.
7. Install the hydraulic unit bracket with mounting bolt and nut not to load the brake tube.
8. Install the protector.
9. Install all brake tubes securely.
NOTE: Install the flare nut taking care not to let the brake tube turn together.
10. Operate the post-installation steps of the hydraulic unit.

MEASURES FOR DISCHARGED BATTERY

M1355006200243

CAUTION

Because the vehicle posture when applying the brakes becomes unstable, do not leave ABS/ASC disabled (for example, ASC-ECU connector disconnection).

When starting the engine using a booster cable with the battery fully discharged, if you begin driving the vehicle before the battery is fully charged, the engine misfire may occur and you cannot start the vehicle. This is because ABS/ASC consumes more electric current to perform the self-check. In this case, charge the battery fully.

G AND YAW RATE SENSOR CALIBRATION

M1355009300346

CAUTION

Before performing calibration, check that the G and yaw rate sensor-related diagnostic trouble code is not set.

CAUTION

After the next operation has been completed, carry out the calibration to make ASC-ECU learn the neutral position of the G and yaw rate sensor.

- **ASC-ECU replacement**

1. Park the vehicle on a level surface.
2. Turn the ignition switch to the "ON" position.
3. Turn the ignition switch to the "LOCK" (OFF) position.

CAUTION

Before connecting or disconnecting scan tool, always turn the ignition switch to the "LOCK" (OFF) position.

4. Before setting scan tool, turn the ignition key to the "LOCK" (OFF) position.
5. Turn the ignition switch to the "ON" position.
6. Select "ABS/ASC/ASTC/WSS."
7. Select "Special function."
8. Select "Sensor calibration."
9. Select "Yaw rate & G sensor calibration."
10. Before removing scan tool from the vehicle, turn the ignition key to the "LOCK" (OFF) position.

STEERING WHEEL SENSOR CALIBRATION

M1355009200361

CAUTION

After the next operation has been completed, carry out the following two operations:

1. Update the neutral position stored in the steering wheel sensor.
2. Reset the calibrated value of the steering angle stored in ASC-ECU.
 - Alignment adjustment <Front>
 - Steering wheel sensor (column switch assembly) replacement, removal, installation
 - ASC-ECU replacement

CAUTION

- Before performing the calibration, check if the steering wheel sensor-related diagnostic trouble code is set in ASC-ECU.
 - When the diagnostic trouble code other than C1394 is set, carry out inspection according to each trouble-shooting procedure.
1. Park the vehicle on a level surface with tires and steering wheel positioned in a straight ahead direction.
 2. Ignition switch: "ON"
 3. Ignition switch: "LOCK" (OFF)

CAUTION

Before connecting or disconnecting scan tool, always turn the ignition switch to the "LOCK" (OFF) position.

4. Before setting scan tool, turn the ignition key to the "LOCK" (OFF) position.
5. Ignition switch: "ON"
6. Select "Steering angle sensor."
7. Select "Special function."
8. Select "SAS Calibration."
9. Select and run "SAS Initialization." (Reusable parts only)

NOTE:

- Since the neutral position stored in the steering wheel sensor is no longer available, "SAS Initialization" is displayed.
- Since a new steering wheel sensor has no neutral position, "SAS Calibration" is displayed.

10. Select and run "SAS Calibration."
11. Exit "Steering angle sensor" menu, and then select "ABS/ASC/ASTC/WSS."
12. Select "Special function."
13. Select "Sensor calibration."
14. Select and run "SAS calibration."
15. Check whether the ASC-ECU-related diagnostic trouble code is set.
16. Erase the diagnostic trouble code.

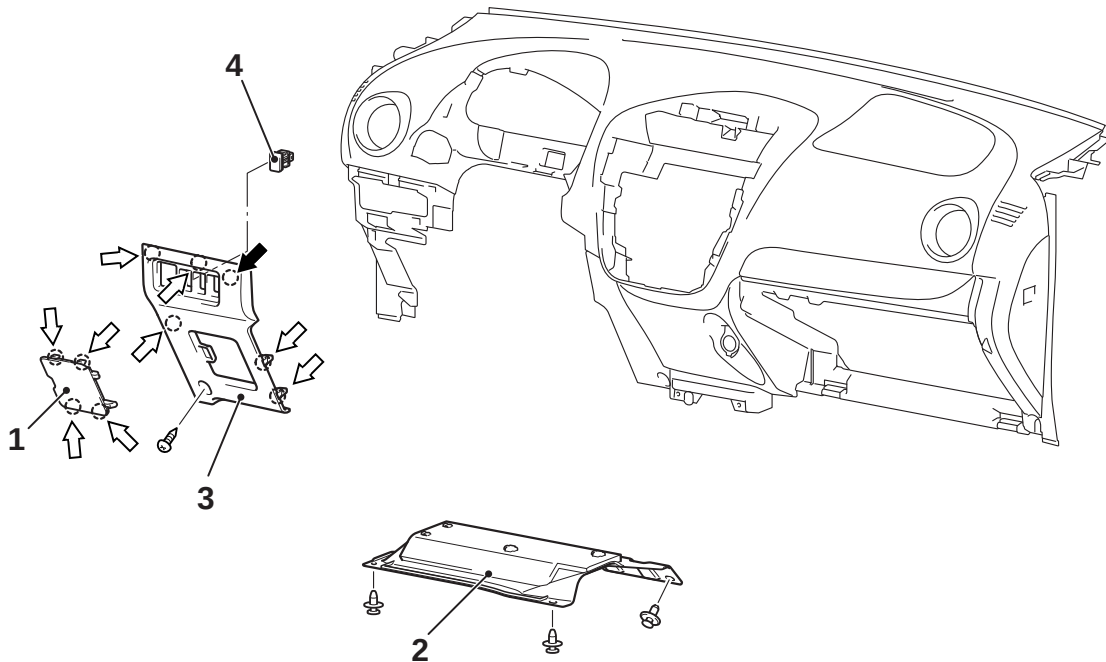
NOTE: Erase the diagnostic trouble code C1394.

17. Before removing scan tool from the vehicle, turn the ignition key to the "LOCK" (OFF) position.

ASC OFF SWITCH

REMOVAL AND INSTALLATION

M1355020100336



Note

➡ : Clip positions
↔ : Claw positions

Removal steps

1. Instrument panel fuse box lid
2. Instrument panel lower cover

Removal steps (Continued)

3. Instrument panel driver side outer outer under cover assembly (outer)
4. ASC OFF switch

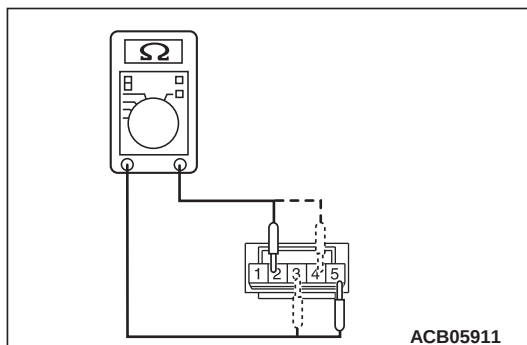
ACC07766 AB

INSPECTION

M1355020200281

ASC OFF SWITCH CONTINUITY CHECK

1. As shown in the figure, connect a multimeter to the ASC OFF switch as a single unit.
2. Check the continuity status when the ASC OFF switch is pressed and when the switch is released.



ACB05911

Tester connection	When the ASC OFF switch is released (Not being operated)	When the ASC OFF switch is pressed
2 – 5	Open circuit	Continuity exists (2 ohms or less)
3 – 4	Continuity exists (2 ohms or less)	Continuity exists (2 ohms or less)

HYDRAULIC UNIT

REMOVAL AND INSTALLATION

M1355005600947

NOTE: ASC-ECU is located in the hydraulic unit.

CAUTION

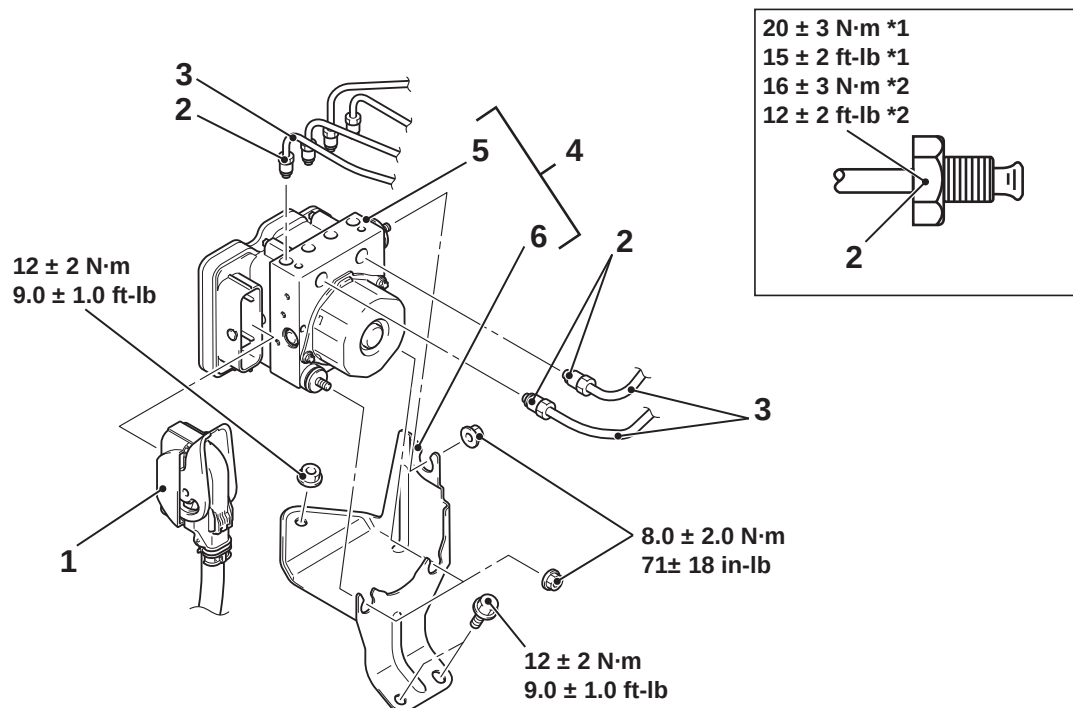
When the hydraulic unit (integrated with ASC-ECU) is replaced, after turning the ignition switch ON or OFF (vehicle information from ETACS-ECU is registered), always carry out the calibration of steering wheel sensor and G and yaw rate sensor (Refer to [P.35C-135](#) and [P.35C-134](#)).

Pre-removal operation

- Brake fluid draining.

Post-installation operation

- Brake fluid refilling and air bleeding (Refer to GROUP 35A – On-vehicle Service, Bleeding [P.35A-17](#)).
- Hydraulic unit check (Refer to [P.35C-131](#)).



NOTE:

*1: Master cylinder (primary, secondary) side <Width across flat: 12 mm>

*2: Front brake (LH/RH) side, rear brake (LH/RH) side <Width across flat: 10 mm>

ACC01040AH

Removal steps

- >>A<<
1. ASC-ECU harness connector
 2. Brake tube connection
 3. Brake tube

<<A>>

Removal steps (Continued)

4. Hydraulic unit (ASC-ECU) and hydraulic unit bracket
5. Hydraulic unit (ASC-ECU)
6. Hydraulic unit bracket assembly

REMOVAL SERVICE POINTS

<<A>> HYDRAULIC UNIT (ASC-ECU) REMOVAL

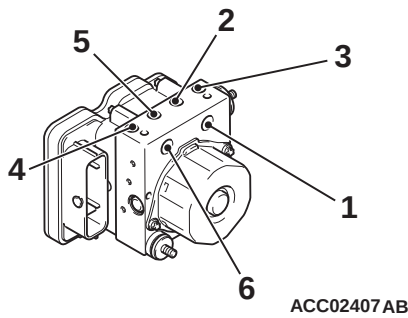
⚠ CAUTION

- Be careful when removing the hydraulic unit because it is heavy.
- Never loosen the nuts and the bolts because the hydraulic unit cannot be disassembled.
- Do not drop or shock the hydraulic unit.
- Do not turn the hydraulic unit upside down or lay down the unit because the inner air becomes difficult to be bled.

INSTALLATION SERVICE POINT

>>A<< BRAKE TUBE CONNECTION

Install the brake pipe to the hydraulic unit as shown in the figure.



ACC02407AB

1. From master cylinder (primary)
2. To front brake (RH)
3. To rear brake (LH)
4. To rear brake (RH)
5. To front brake (LH)
6. From master cylinder (secondary)

WHEEL SPEED SENSOR

REMOVAL AND INSTALLATION

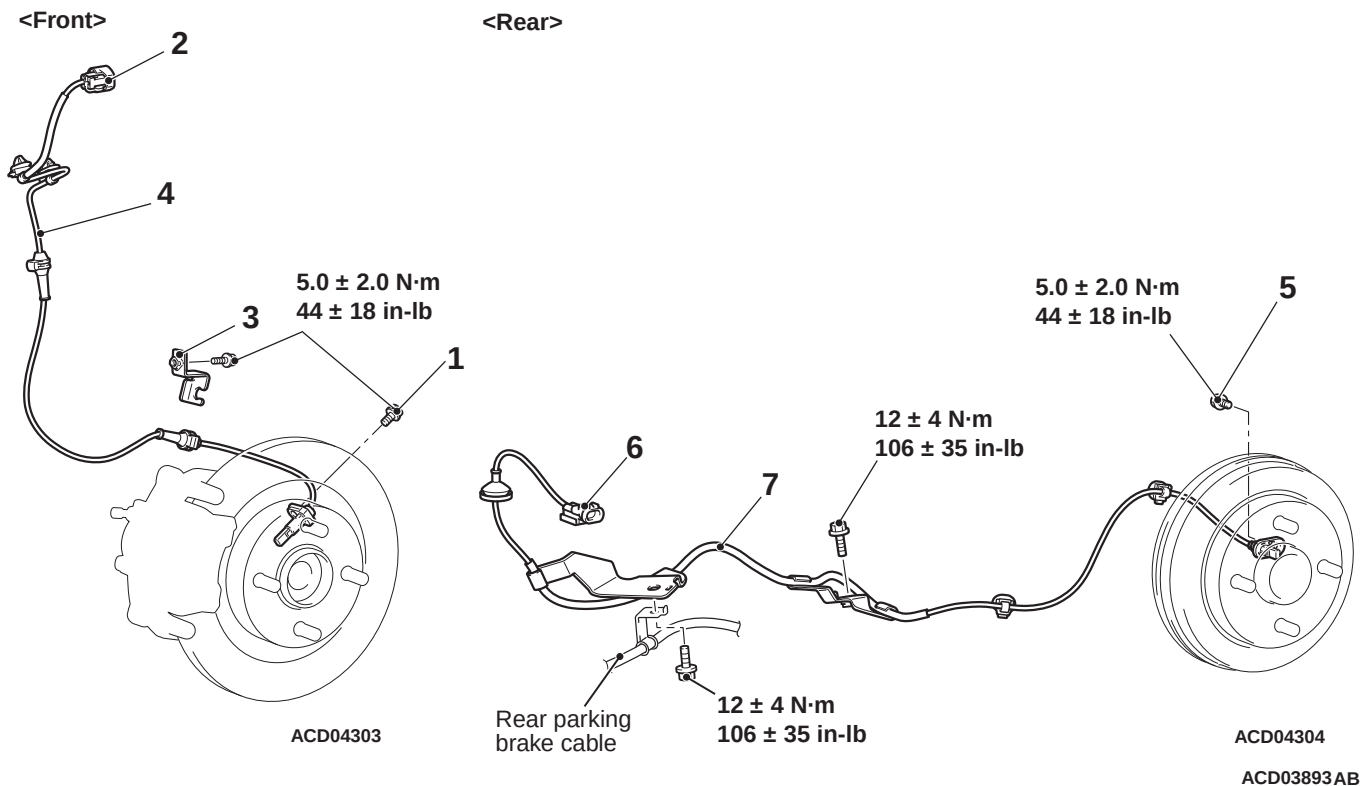
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CAUTION

- The vehicle speed detection encoder collects any metallic particle easily, because it is magnetized. Make sure that the encoder should not collect any metallic particle. Check that there is not any trouble prior to reassembling it.
- The wiring harness for the wheel speed sensor should be routed without twisting.

Pre-removal and post-installation operation

- Rear Scuff Plate Removal (Refer to GROUP 52A – Interior Trim [P.52A-9](#)) <Rear wheel speed sensor>



Front wheel speed sensor removal steps

1. Bolt (front wheel speed sensor and knuckle connection)
2. Front wheel speed sensor connector
3. Sensor bracket
4. Front wheel speed sensor

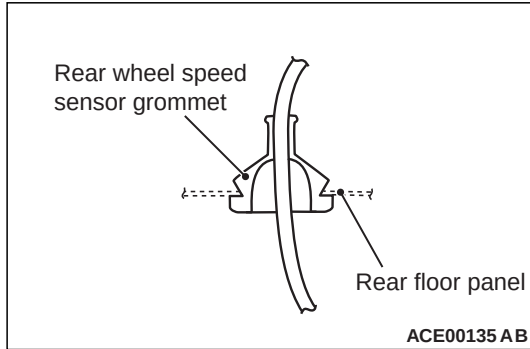
Rear wheel speed sensor removal steps

5. Bolt (rear wheel speed sensor and trailing arm assembly connection)
6. Rear wheel speed sensor connector
7. Rear wheel speed sensor

>>A<<

NOTE: The encoder for detecting front wheel speed is a non-disassemble part integrated with the wheel bearing.

INSTALLATION SERVICE POINT



>>A<< REAR WHEEL SPEED SENSOR INSTALLATION

Install the rear wheel speed sensor grommet to the rear floor panel snugly as shown in the figure.

INSPECTION

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WHEEL SPEED SENSOR CURRENT CHECK

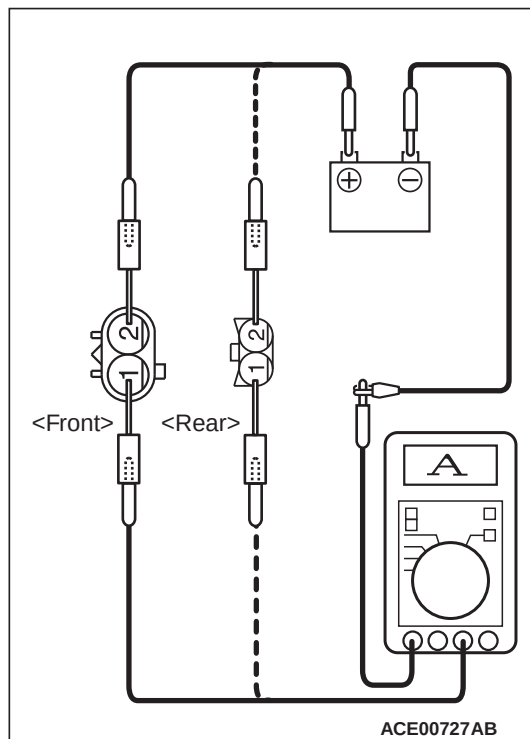
⚠ CAUTION

- Do not connect the battery terminals in reverse as the wheel speed sensor may be damaged.
- When the current value is measured by the wheel speed sensor connector, measure it with the wheel speed sensor installed in the vehicle.

1. Connect the circuit tester to the wheel speed sensor using the special tool extra fine probe (MB992006), and measure the sensor current as a single unit.

Standard value: 5 to 9 mA or 11 to 17 mA

2. If the measurement value is not within the standard value range, replace the wheel speed sensor with a new one.

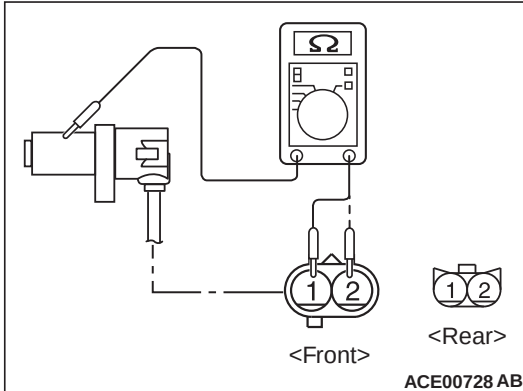


WHEEL SPEED SENSOR INSULATION CHECK

1. Connect the circuit tester to the wheel speed sensor using the special tool extra fine probe (MB992006), and measure the insulation resistance between the terminal No. 1/2 and the wheel speed sensor body as a single unit.

Standard value: 1.5 MΩ or more

2. If the insulation resistance is not within the standard value range, replace the wheel speed sensor with a new one.



STEERING WHEEL SENSOR

REMOVAL AND INSTALLATION

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CAUTION

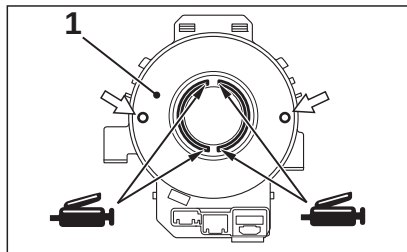
- Be sure to remove the clock spring from the column switch and center the clock spring to prevent the damage of steering wheel sensor.
- If the center of the clock spring is not correctly aligned, the steering wheel may not be turned fully or the cable inside the clock spring may be broken, causing the SRS air bag to be inoperative or operated incorrectly.
- Before removing the steering wheel/air bag module assembly, refer to GROUP 52B – Service Precautions P.52B-5 and Air Bag Module Clock Spring P.52B-232.
- When the steering wheel sensor is replaced or installed, always carry out calibration to make ASC-ECU learn the neutral point (Refer to P.35C-135).
- After adjusting the wheel alignment, always carry out calibration of the steering wheel sensor to make ASC-ECU learn the neutral point (Refer to P.35C-135).

Pre-removal operation

- Position the front wheels in a straight ahead direction.

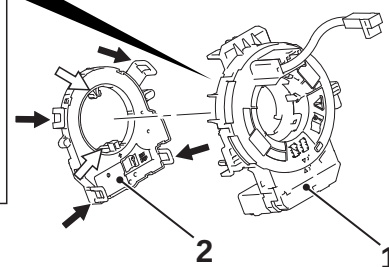
Post-installation operation

- Perform steering wheel sensor calibration (Refer to P.35C-135).



NOTE

- ←: Claw positions
- ↔: Protrusion positions



Removal steps

1. Clock spring (Refer to GROUP 52B – Driver's Air Bag Module and Clock Spring P.52B-232).
2. Steering wheel sensor

>>A<<

ACD00571AC

INSTALLATION SERVICE POINT

>>A<< STEERING WHEEL SENSOR INSTALLATION

 CAUTION

- Secure the steering wheel sensor against rotating. If the rotating part is rotated 360°, a failure occurs in calibration and ASC system.

1. Insert the protrusion of the clock spring into the hole of the steering wheel sensor.
2. Securely fit the protrusion of the steering wheel sensor into the groove of the clock spring to install the steering sensor.

NOTE: A new steering wheel sensor has a locking tape for preventing the rotation of (fixing) the steering wheel sensor. After installing the column switch assembly, remove this locking tape.