MITSUBISHI MOTORS

SERVICE BULLETIN

PUBLICATION GROUP, AFTER SALES SERVICE DEP.
MITSUBISHI MOTOR SALES EUROPE BV

SERVICE BULLETIN	No.: ESB-97E17-001	
	Date: 1997-09-26	<Model>: (EC,EXP) CARISMA; <M/Y>: 96-10
Subject: CHANGE IN ERASURE OF CRUISE CONTROL SYSTEM DIAGNOSTIC TROUBLE CODES		
Group: ENGINE AND EMISSION CONTROL		
CORRECTION	O. Kai - E.V.P. & G.M. After Sales Service Dept.	

1. Description:

Due to change of the cruise control ECU, the battery back-up circuit inside the ECU has been eliminated and the EEP ROM adopted. This resulted in change of the erasing method for diagnostic trouble codes.

2. Applicable Manuals:

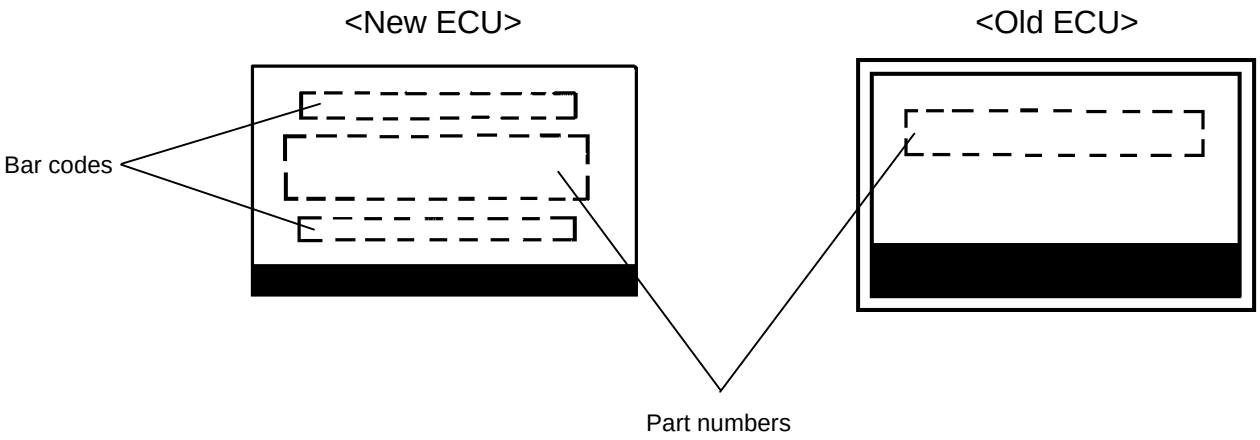
Manual	Pub. No.	Language	Page(s)
'96 CARISMA Technical Information Manual	PYGE95E1	(English)	1-36, 1-39
'96 CARISMA Workshop Manual chassis	PWDE9502	(English)	17-6, 17-11, 17-16, 17-17, 17-21
	PWDS9503	(Spanish)	
	PWDF9504	(French)	
	PWDG9505	(German)	
	PWDD9506	(Dutch)	
	PWDW9507	(Swedish)	
	PWDI96E1	(Italian)	
'96, '97 CARISMA Workshop Manual electrical wiring	PHDE9501-A	(English)	4-180
	PHDS9502-A	(Spanish)	4-178
	PHDF9503-A	(French)	
	PHDG9504-A	(German)	
	PHDD9505-A	(Dutch)	
	PHDW9506-A	(Swedish)	
'96 CARISMA Workshop Manual electrical wiring	PHDI96E1	(Italian)	4-180

3. Interchangeability:

	New ECU	Old ECU
New car	○	▲
Old car	○	○

○: Can be installed.
▲: Can be installed if car has a battery back-up wire added on the chassis side harness.

- Differentiation between old and new ECU's
  The part numbers of the cruise control ECU's are the same for the old and new ECU's. Differentiation between the old and new ECU's should be made by reading the label affixed to an ECU.



4. Effective Date:

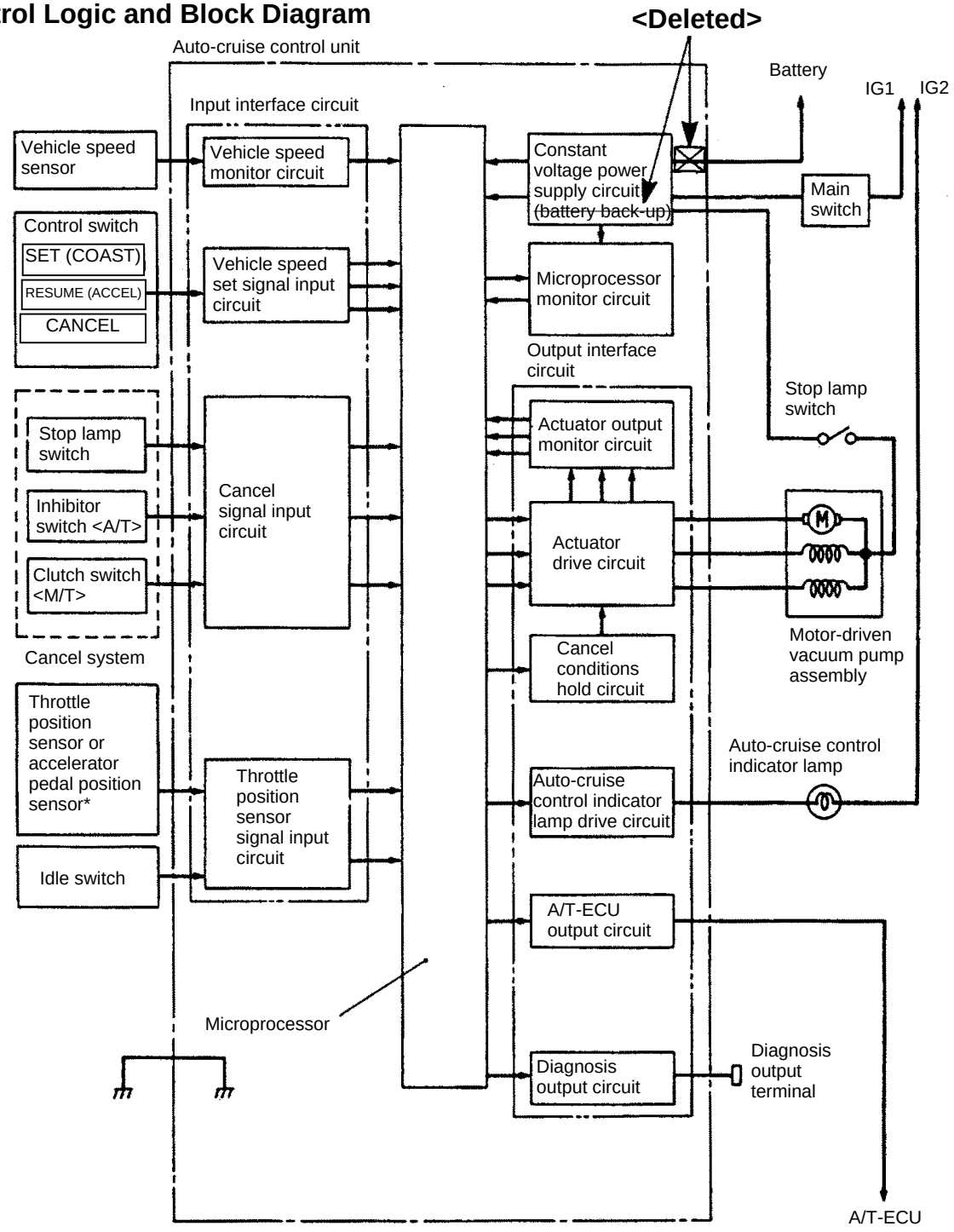
From the middle of March, 1997

AUTO-CRUISE CONTROL UNIT

The control unit consists of the input interface circuit, microprocessor, constant voltage power supply circuit, microprocessor monitor circuit and output interface circuit. Signals from the vehicle speed sensor, TPS (APS*) and each switch are input into the control unit.

It processes them according to the program in the microprocessor memory and outputs control signals to the actuator. It also outputs system self-diagnosis results and conditions of input signals to the diagnosis output terminal.

Control Logic and Block Diagram



03U0001

NOTE
*: Vehicles with TCL

How to erase displayed diagnosis code

~~The diagnosis code is held until the battery power is shut off. However, it can also be erased with simple operation of the control switch, even without disconnecting the battery.~~

<Changed>

The diagnostic trouble codes can be erased by a simple operation of the auto cruise control switch. The diagnostic trouble codes are stored in a nonvolatile memory (EEPROM*). Storage of the codes will not be lost even if the battery negative (-) cable is disconnected.
NOTE
*: Electrical Erasable Programmable ROM

Input Check Function

The input check function checks if the input signal is normal when a cruise control failure occurs, including the situation where the cruise control cannot be set.

Output code	Action	Checking contents
21	Turn on the SET switch	SET switch circuit
22	Turn on the RESUME switch	RESUME switch circuit
23	Turn on the stop lamp switch	Stop lamp switch circuit
24	Drive at 40 km/h or more	Vehicle speed sensor circuit is normal if code No.24 is present
25	Drive at under 40 km/h	Vehicle speed sensor circuit is normal if code No.25 is present
26	Turn on the inhibitor switch <A/T> or clutch switch <M/T>	inhibitor switch circuit
27	Turn on the CANCEL switch	CANCEL switch circuit
28	Operate TPS (APS*)	TPS (APS*) circuit
29	Turn off the idle position switch	idle position circuit

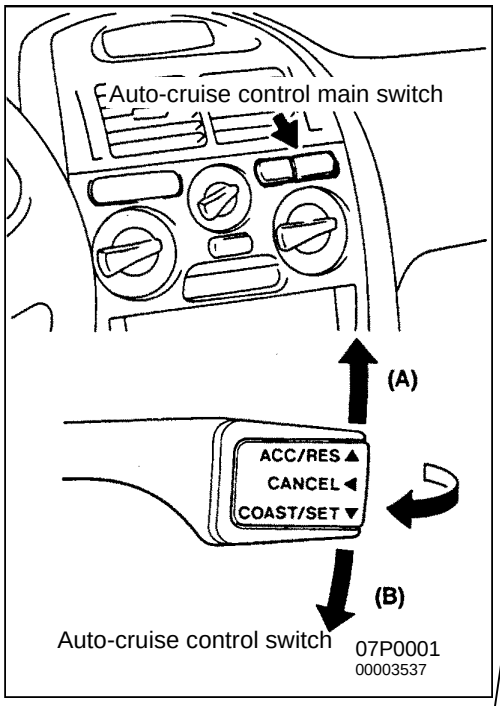
NOTE
- If two more actions are taken at the same time, codes are output in ascending order of code number.
- *: Vehicles with TCL

TROUBLESHOOTING

17200070042

STANDARD FLOW OF DIAGNOSIS TROUBLESHOOTING

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



DIAGNOSIS FUNCTION

METHOD OF READING THE DIAGNOSIS CODES

1. Connect the MUT-II to the diagnosis connector (16-pin) under the instrument under cover. (Refer to GROUP 00 - How to Use Troubleshooting/Inspection Service Points.)
2. With the ignition switch in the ON position, turn the auto-cruise control main switch to ON and take a reading of the diagnosis codes.

METHOD OF ERASING THE DIAGNOSIS CODES

~~The diagnosis codes can erased by disconnecting the (-) cable from the battery for 10 seconds or more and then reconnecting it, or by the following procedure.~~

1. Turn the ignition switch to ON.
2. After pushing the auto-cruise control switch in the direction of arrow (B) in the illustration, press the cruise control main switch to the ON position, and with in 1 second after doing this, push the cruise control switch back in the direction of arrow (A).
3. After pushing the auto-cruise control switch once more in the direction of arrow (A) in the illustration and keeping it in this position, press the stop lamp switch to the ON position for 5 seconds or more.

INPUT SWITCH CODE CHECK METHOD

1. Connect the MUT-II to the diagnosis connector (16-pin) under the instrument under cover.
2. Turn the ignition switch to ON.
3. After pushing the auto-cruise control switch in the direction of arrow (B) in the illustration, press the cruise control main switch to the ON position, and within 1 second after doing this, push the cruise control switch back in the direction of arrow (A).
4. Operate each switch listed in the input check table and take a reading of the input switch codes with the MUT-II.

<Changed>

Erase the diagnostic trouble codes by using the following procedure.
NOTE
The diagnostic trouble codes will not be erased even if the battery negative (-) cable is disconnected.

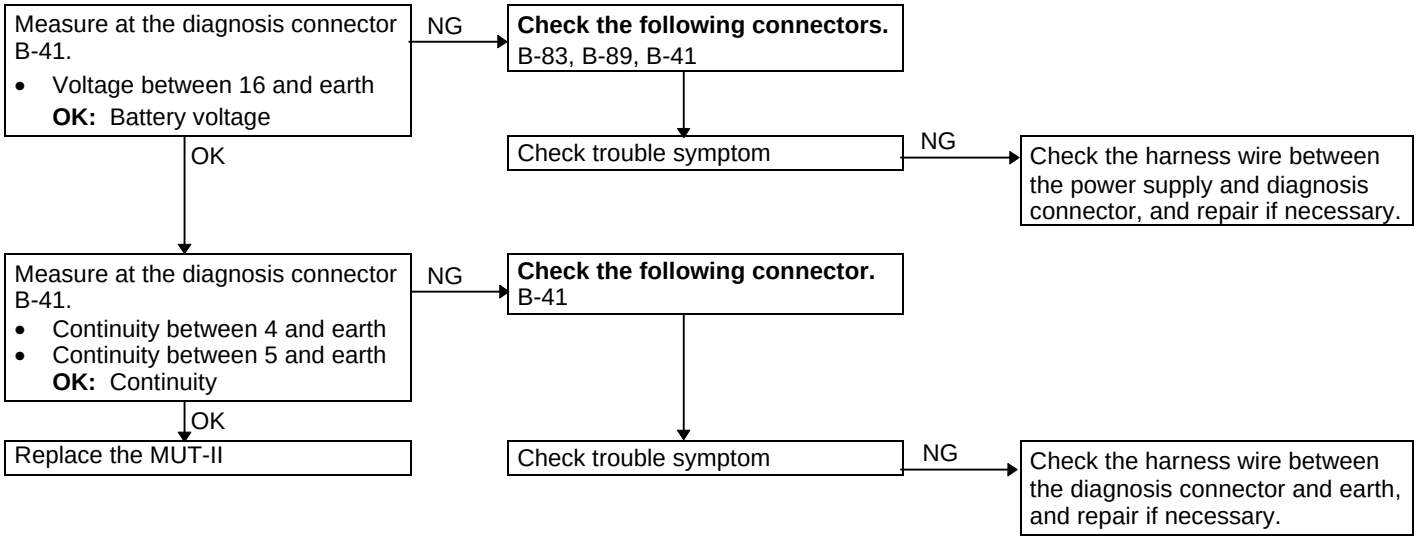
Trouble symptom		Inspection procedure No.	Reference page
Auto-cruise control is not cancelled	Even if brake pedal is depressed	4	17-14
	Even if clutch pedal is depressed	5	17-15
	Even if select lever is set to N range <A/T>	6	17-15
	Even if CANCEL switch is set to ON	7	17-16
~~The diagnosis result displayed on the MUT-II is normal even though auto-cruise control cannot be set.~~		8	17-16
Auto-cruise control cannot be set		9	17-17
Hunting (repeated acceleration and deceleration) occurs at the set vehicle speed.		10	17-18
Even though auto-cruise control main switch is ON, switch indicator lamp does not illuminate. (However, auto-cruise control is normal.)		11	17-18
Auto-cruise control main switch illumination lamp does not illuminate.		12	17-19
Auto-cruise control indicator lamp inside combination meter does not illuminate. (However, auto-cruise control is normal.)		13	17-19

<Deleted>

INSPECTION PROCEDURE FOR TROUBLE SYMPTOMS

Inspection Procedure 1

Communication with MUT-I is not possible. (Communication with all system is not possible.)	**Probable cause**
The reason is probably a defect in the power supply system (including earth) for the diagnosis line.	• Malfunction of the connector • Malfunction of the harness



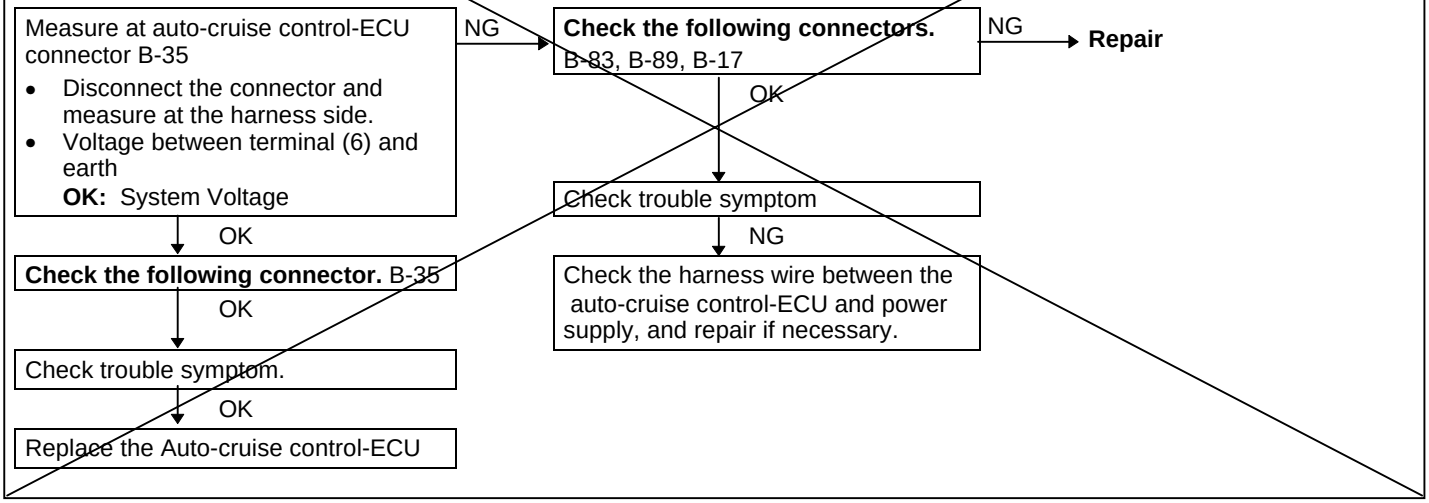
Inspection Procedure 7

Even if auto-cruise control CANCEL switch is set to ON, auto-cruise control is not cancelled.	Probable cause
The cause is probably an open-circuit in the circuit inside the CANCEL switch.	• Malfunction of the auto-cruise control-ECU

Replace the auto-cruise control switch

Inspection Procedure 8

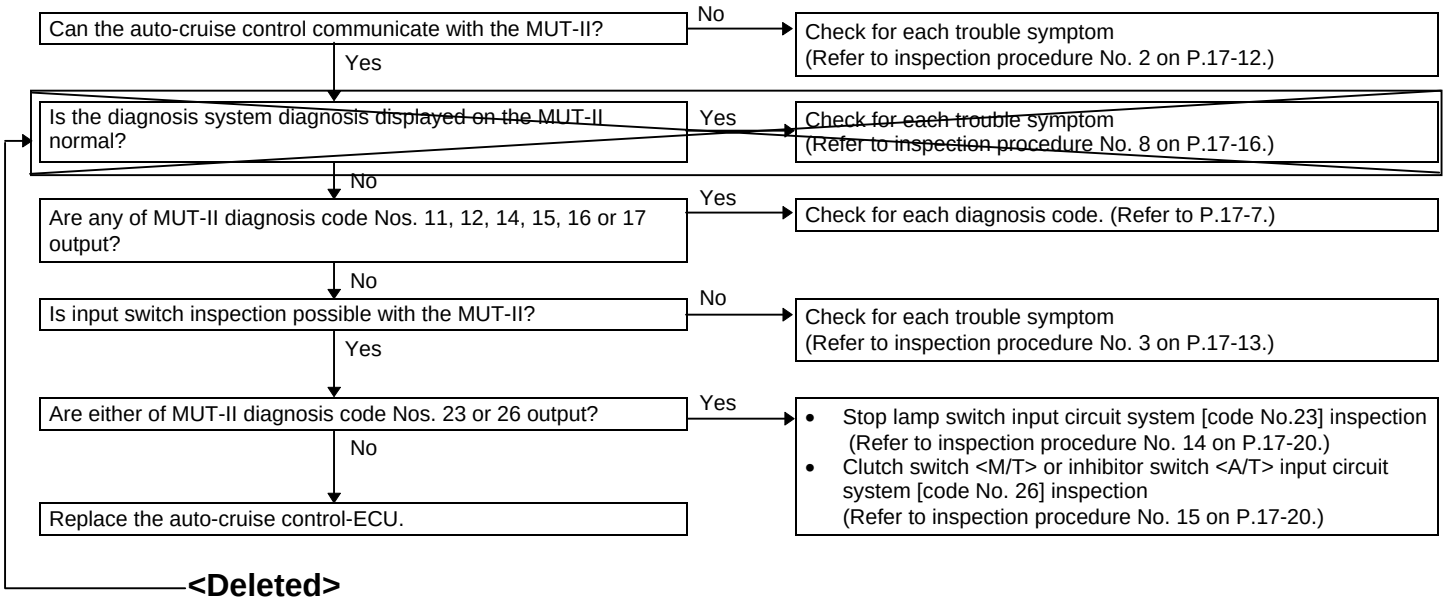
The diagnosis result displayed on the MUT-II is normal even though auto-cruise control cannot be set	Probable cause
Because of an open-circuit in the battery backup circuit system, the fail-safe function prevents diagnosis codes from being memorised and displayed even though auto-cruise control is cancelled	• Malfunction of the connector • Malfunction of the harness • Malfunction of the auto-cruise control-ECU



<Deleted>

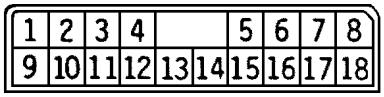
Inspection Procedure 9

Auto-cruise control cannot be set	Probable cause
The cause is probably that the fail-safe function is cancelling auto-cruise control. In this case, the MUT-II can be used to check the trouble symptoms in each system by inspecting the diagnosis codes. The MUT-II can also be used to check if the circuits of each input switch are normal or not by inspecting the input switch codes	• Malfunction of the auto-cruise control main switch • Malfunction of the auto-cruise control switch • Malfunction of the slip ring <Vehicles without SRS> • Malfunction of clock spring <Vehicles with SRS> • Malfunction of harnesses or connectors • Malfunction of the clutch switch <M/T> • Malfunction of the auto-cruise control-ECU



<Deleted>

CHECK AT THE ECU TERMINALS

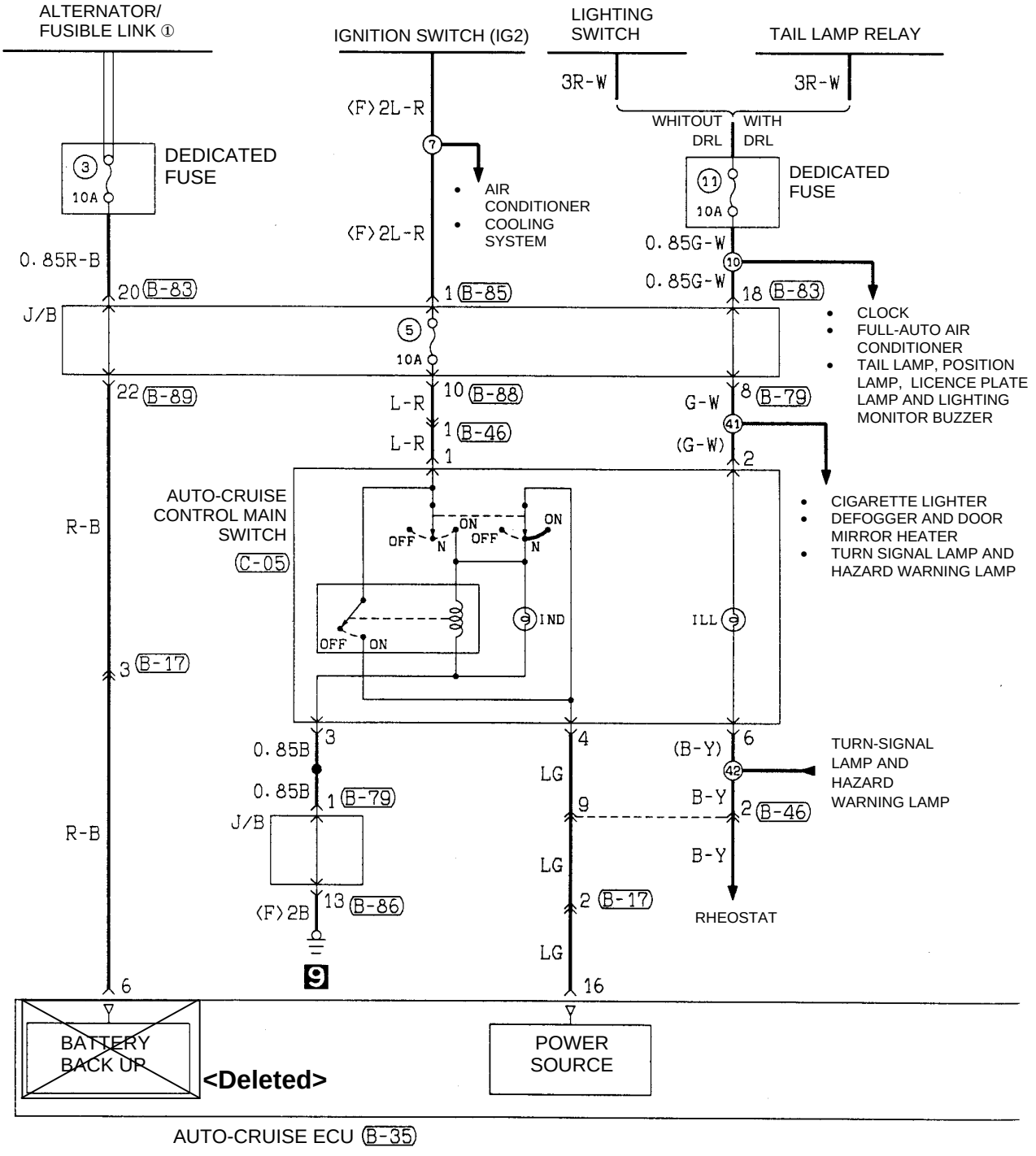


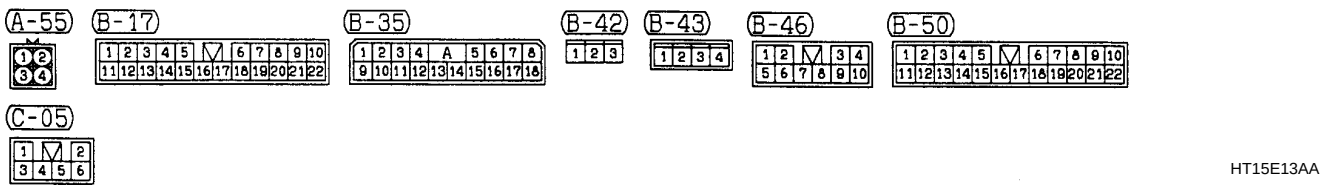
03U0031

Terminal No.	Check item	Check conditions		Normal condition
1	Throttle position sensor input	When accelerator pedal is fully depressed		4.5-5.5V
		when accelerator pedal is released		0.3-1.0V
2	Idle switch output	When accelerator pedal is depressed	When idle switch is OFF	4.5-5.5V
		When accelerator pedal is not depressed	When idle switch is ON	0V
3	Acc power supply	When ignition switch is in ACC position		System voltage
4	Stop lamp switch input	When brake pedal is depressed	When stop lamp switch is ON	System voltage
		When brake pedal is not depressed	When stop lamp switch is OFF	0V
5	diagnosis control input	When ignition switch is ON		4V or more
6	ECU backup power supply	At any time		System voltage
7	Motor-driven vacuum pump release valve and control valve input	When decelerating with the SET switch while driving at constant speed	Release valve closed	0V
8			Control valve open	System voltage
7		When cancelling constant speed driving with the CANCEL switch	Release valve open	System voltage
8			Control valve open	System voltage
9	Earth	At any time		Continuity
10	A/T control output	No OD-OFF request		System voltage
		OD-OFF request		0V

<Deleted>

AUTO-CRUISE CONTROL SYSTEM





HT15E13AA