M.U.T.- III Owner's Manual Multi Use Tester

< Ver. 27.0 >





Foreword

This manual explains M.U.T.-III functions, operating procedures, and other related information. By reading this manual you will obtain a basic understanding of M.U.T.-III and Vehicle Communication Interface (hereafter abbreviated as V.C.I.) functions and methods of operation. Because there are differences in M.U.T.-III methods of operation due to the vehicle electronic control system, be sure to read this manual and Online Help prior to operation.

This manual was written based on the Sep. 2011 version of the M.U.T.-III system.

Please note that the information herein may not always agree with your version of the M.U.T.-III system due to system specification changes and version upgrades.

Please take good care of this manual along with your M.U.T.-III product.

Table of Contents

| Chapter 1 Product Overview | 1 |
|---|----|
| 1-1. Precautions | 1 |
| 1-2. V.C.I. Outline Drawing and Component Names | 2 |
| 1-3. M.U.TIII Components Explanations | 4 |
| 1-4. Harness Connection Method | 7 |
| 1-5. Combination Chart of Harness and Vehicle | 8 |
| Chapter 2 M.U.TIII Functions | 11 |
| 2-1. Basic Functions | |
| 2-2. V.C.I. Functions | |
| Chapter 3 Operating M.U.TIII | 14 |
| 3-1. Starting and Shutting Down the M.U.TIII System | 14 |
| 3-2. Screen Explanations | 15 |
| 3-3. Basic Flow to Start Diagnosis | 17 |
| 3-4. Option Settings | |
| 3-5. Useful Functions | 21 |
| Chapter 4 Diagnosis Function | 22 |
| 4-1. Diagnostic Trouble Code | |
| 4-2. Data List (Service Data monitor) | |
| 4-3. Actuator Test | 27 |
| 4-4. V.C.I. Stand-alone Diagnosis | |
| 4-5. All DTCs | |
| Chapter 5 Special Function (Calibration & Setting) | |
| 5-1. ECU Information | |
| 5-2. Learned Value Reset | |
| 5-3. Seat Weight Sensor Accuracy Check | |
| 5-4. Steering Angle Sensor Calibration | 41 |
| 5-5. Lateral G Sensor Calibration | 43 |
| 5-6. TPMS ID Registration and Checking | |
| Chapter 6 Drive Recorder | 47 |
| 6-1. How to Record the Data | 47 |
| 6-2. Recorded Data Handling | |
| 6-3. Display and Analysis of the Recorded Data | 64 |
| Chapter 7 SWS Monitor | 70 |
| 7-1. SWS Monitor Operation | |
| Chapter 8 Coding Function | |
| 8-1. VIN Writing Function | |
| Chapter 9 CAN Bus Diagnosis | |
| 9-1. Diagnosing the CAN Bus | 78 |

| Chapter 10 ECU Reprogramming | 79 |
|--|-----|
| 10-1. Process Flow Chart | |
| 10-2. Equipment | |
| 10-3. Data Preparation on PC from Update CD-ROM | 82 |
| 10-4. Reprogramming Operation (V.C.I. alone) | 83 |
| 10-5. Reprogramming Operation (V.C.I PC connected) | |
| 10-6. Reprogramming by CAN Communication | 94 |
| 10-7. Troubleshooting of Reprogramming Chapter 11 Computer Diagnosis | |
| 11-1. Operation method of MiEV Computer Diagnosis | |
| Chapter 12 Measurement Functions | |
| 12-1. Injector-Type Fuel Consumption Measurement | 104 |
| 12-2. Electricity Consumption Measurement | |
| 12-3. Fuel pressure, Voltage, Ohmmeter, Oscilloscope Chapter 13 How to Use (Special Case) | |
| 13-1. Copy Coding | 113 |
| 13-2. VIN Writing and VIN Information | |
| 13-3. Coding Operation | |
| 13-4. Customization Operation | |
| Chapter 14 Troubleshooting Procedures | |
| 14-1. Individual Troubleshooting Procedures | |
| 14-2. Troubleshooting Procedures on V.C.I. Firmware Update | 127 |
| 14-3. Troubleshooting of V.C.I. Stand-alone Diagnosis | 130 |
| 14-4. Troubleshooting of Reprogramming Chapter 15 Reference Material | |
| - 15-1. V.C.I. Electrical Properties | |
| 15-2. V.C.ILite Electrical Properties | |
| Appendix | |
| << Terminology >> | 135 |
| << Screen Button Explanations >> | 137 |

For Your Safety

To ensure proper use of this product and prevent personal injury and property damage, various graphic displays are used in the user's manual. The graphic displays and respective meanings are described below.

| 🔥 Warning | Warning messages alert you to a procedure or practice which, if not followed correctly, could lead to death or serious injury. | | | |
|------------------|--|--|--|--|
| A Caution | Caution messages alert you to a procedure or practice which, if not followed correctly, could lead to serious injury and/or property damage. | | | |

| lcon | The Symbol alerts you to a prohibited action. | | | | |
|----------|---|---|---|--|--|
| Examples | The | 0 | symbol alerts you to an action that must be enforced. | | |

| <u>•</u> • | Varning |
|--|---|
| Drivers should not operate the unit while driving. Operating the unit while driving may result in a traffic accident. | Do not plug in or unplug the power AC adapter with wet hands. • Doing so results in the risk of electric shock. |
| When using the cigarette lighter plug to supply power to the V.C.I. unit, be sure the power voltage supplied is DC32V or less. Applying a voltage greater than DC32V results in the risk of fire. M.U.TIII as provided to dealers includes 12V accessory / cigarette lighter plug adapter to power M.U.TIII during extended test drives. | Maximum voltage the V.C.I. can withstand is 40V. Do not use the V.C.I. on systems greater than the 32-volt system mentioned previously. Violating this requirement results in the risk of a ground fault, damage and/or electric shock. |

For Your Safety

| <u> </u> | | | | | |
|---|--|--|--|--|--|
| ! 🚺 Wa | arning | | | | |
| The V.C.I. screen is liquid crystal display or LCD. In the unlikely event that the display breaks due to impact, do not let your skin come in contact with the LCD fluid. If your skin comes in contact with the LCD fluid, wash your skin thoroughly with water. If skin rash or abnormality occurs seek medical attention from a doctor. | Do not use the unit if the power AC adapter plug or cord is damaged or plugging into the outlet is loose. Use under such conditions may result in electric shock, an electric short and/or fire. | | | | |
| Be sure to hold the harness connector when disconnecting from the vehicle. Do not disconnect the harness by pulling on the cord. Pulling the cord rather than the connector may result in damage to the lead wire inside the cord, thereby causing a short and possibly starting a fire. | Unplug the power AC adapter from the outlet when the unit is not in use. Failure to do so may result in injury, burns, electric shock caused by insulation deterioration, or fire due to a short circuit. | | | | |
| Wa | arning | | | | |
| | | | | | |
| When the harness is connected to the V.C.I., be sure to check the top and bottom of the connector and connect the harness perpendicularly to the connector of the V.C.I. Connecting at an angle may result in bending of the pins of the connector. Check for the secure connection of the harness before tightening of the screw locks. | | | | | |

• The bent pin may contact the connector case, thereby causing an electric short which leads to damage to the V.C.I.



Please Note

Do not expose the PC or V.C.I. to direct sunlight or high temperatures, or leave the unit in sun-heated cars. Such action may result in system failure.

Store the PC and V.C.I. in a dry environment at room temperatures.

Moving the PC and V.C.I. to a location with a very different temperature and humidity than that of the previous location may result in external or internal condensation. Caution is required.

Protect the PC and V.C.I. from exposure to elements such as rain, dirt, dust, food and liquids.

Be careful when handling the PC and V.C.I. Dropping the units may result in damage.

Do not expose either unit to engine oil, gasoline, antifreeze or battery acid. Also, do not clean the PC or V.C.I. case using solutions such as thinner or benzene. Doing so may result in deterioration of the case surface.

Prior to connecting the M.U.T.-III main harness between the V.C.I. and vehicle, turn the IG switch to OFF.

• Connecting the V.C.I. harness with the IG switch ON may damage the V.C.I. programming.

Use only the power AC adapter included with the PC (or approved replacement), power cigarette plug, other probes, main harness and other cables.

 Use of unspecified parts may result in damage or malfunction due to excess voltage or insufficient contact.

The LCD display of this unit turns off when the supplied voltage is less the DC 8V. This is not an error.

The power supplied should be from 8VDC to 32VDC.

Keep all V.C.I. connectors and openings away from dirt and static electricity. Exposure to dirt and static electricity may result in malfunction and damage.

Chapter 1 Product Overview

1

1-1. Precautions

Service Work Precautions

- Be sure to follow all basic service work precautions when using M.U.T.-III during vehicle inspection and service work.
- For detailed information regarding service work precautions, refer to the service instruction manual of each vehicle.



Work Precautions

- When performing vehicle inspection work at the work site with the engine running, either use an exhaust gas discharger or ventilate the area sufficiently.
- When working on a vehicle, be sure to apply the parking brake and set wheel chocks in place to prevent the car from moving.

Driving Precautions

- If you wish to use M.U.T.-III while driving the target vehicle, first verify that all parts are properly assembled.
- While driving, always have an assistant operate M.U.T.-III.
- Be sure that the M.U.T.-III main harness and other cables will not interfere with driving.
- Install and remove the PC and V.C.I. with the vehicle parked, IG switch OFF.

PC Usage Limitations



- The M.U.T.-III PC is a special service tool. Do not install any software other than M.U.T.-III software onto the unit. Installation of other software results in the risk of M.U.T.-III system failure.
- Any unauthorized software will not be supported. Technical support for units with unauthorized software will be charged additional technical support fees to return the unit to its authorized state of operation.
- All unauthorized software will be erased with each new upgrade.

1-2. V.C.I. Outline Drawing and Component Names

1-2-1. V.C.I.

The names of the V.C.I. components are indicated in the figure below.



<<Component Names>>

- 1. I/F cartridge terminal
- 2. LCD screen
- 3. Indicator lamp
- 4. Operation button
- (Used with V.C.I. functions)
- 5. Memory card removal lever
- 6. Memory card insertion port
- 7. Power switch
- 8. Main harness terminal
- 9. USB terminal
- 10. Trigger terminal

1-2-2. V.C.I.-Lite

The names of the V.C.I.-Lite components are indicated in the figure below.



<<Component Names>>

- 1. Main harness terminal
- 2. Indicator lamp
- 3. USB terminal

1-3. M.U.T.-III Components Explanations



(1) Vehicle Communication Interface (V.C.I.) (MB991824) Vehicle Communication Interface-Lite (V.C.I.-Lite)

(MB992744)

A communication interface used to connect the vehicle ECUs and the PC.

- 1. When connected with the PC
 - Vehicle diagnosis
 (Interactive fault diagnosis with MEDIC-II)
 - SWS communication & CAN communication support
 & DCC support
 - Drive recorder
 - ECU reprogramming
 - Volt, Ohm, measurement
 - Fuel pressure measurement (Not available in US)
- 2. When used with the V.C.I. unit (disconnected from PC)
 - V.C.I. Stand-alone diagnosis
 - Drive recorder
 - ECU reprogramming
 - Volt, Ohm measurement
 - Belt Tension measurement

V.C.I.-Lite does not support stand-alone functionalities. Functionalities for V.C.I./V.C.I.-Lite are as follows,

| Function | V.C.I. | V.C.ILite |
|---------------------------|-----------------|-----------------|
| ECU Diagnosis | 0 | O ^{*1} |
| (Interactive Diagnosis) | 0 | 0 |
| Drive Recorder | 0 | O ^{*2} |
| ECU Reprogramming | 0 | O ^{*2} |
| Voltmeter / Ohmmeter | 0 | |
| Stand-alone diagnosis | O ^{*3} | |
| Fuel Pressure Measurement | 0 | |
| Oscilloscope | 0 | |
| Belt Tension Measurement | O ^{*3} | |

- *1 : Does not Support the following functions.
 - -Communication system other than K-line/CAN.
 - •SWS monitor.
 - Simulated vehicle speed
- *2 : Needs to be used with PC
 - * V.C.I.-Lite does not support stand-alone functionalities.
- *3 : This functionality is only available with V.C.I. Stand-alone.

Hardenstein Harden (* 1997) Hersenstein Harden (* 1997) Armanen Harden (* 1997)

V.C.I.-Lite



(2) Memory Card

Stores data for ECU reprogramming, drive recorder, etc. This is a standard, off-the-shelf memory card. The one provided (with reprogramming data) is a Compact Flash memory card (MB991853, MB992228) inserted into the CF card adapter (MB991939).

It is necessary to initialize a Compact Flash memory card by FAT16 and FAT32 format. (NTFS format cannot use)

(3) M.U.T.-III Main Harness A (MB991910)

M.U.T.-III Main Harness A for Lite (MB992745) Used when connecting the V.C.I. with vehicles that have only one 16-pin data-link-connector.

- Supports fault diagnosis and ECU updating on the above-described vehicles
- Supports the CAN communication system
- Note : Use MB991910 for V.C.I. and MB992745 for V.C.I.-Lite.

(4) M.U.T.-III Main Harness B (MB991911)

M.U.T.-III Main Harness B for Lite (MB992746) Used when connecting V.C.I. with vehicles that have a 16-pin + 12-pin or 16-pin + 13-pin data-link-connector. For models equipped with only 12-pin (or 12-pin + 12-pin) data-link-connector, connect the M.U.T.-II adapter harness (MB991498) to the end of this harness in the same as M.U.T.-II, and power is supplied from the cigarette lighter socket.

Note : Use MB991911 for V.C.I. and MB992746 for V.C.I.-Lite.

(5) **M.U.T.-III Main Harness C** (MB991914) (For US only) Used when connecting the V.C.I. with vehicles that have the 420A engine and F4AC1 transaxle.





- **1**





(6) USB Cable (MB991827) USB Cable for Lite (MB992747, MB992748) Used to connect the PC to the V.C.I. There are two kinds of cable for V.C.I.-Lite 0.3m and 3m.

- Note : Use MB991827 for V.C.I. and MB992747 or MB992748 for V.C.I.-Lite
- (7) Trigger Harness (MB991826) (Not available in US) (Not supported by V.C.I.-Lite) A harness with a trigger button used to manually insert a trigger point for data acquisition from the drive recorder function during data recording.

(8) Measurement Adapter (MB991825) (Not supported by V.C.I.-Lite) An adapter used to connect the V.C.I. and measurement probe for voltmeter and ohmmeter readings.

Or used when outputting Simulated Vehicle Speed with a vehicle whose diagnosis-connecter cannot receive vehicle speed signal.

(9) Measurement Test Leads (MB991499)

(Not supported by V.C.I.-Lite)

Test leads used for voltage and / or resistance measurement.

Test leads MB991499 acquire quality replacement test leads from Radio Shack or similar electronics stores.

(10) I/F Cartridge

(Not supported by V.C.I.-Lite)

Used to implement special functions that cannot be implemented with the V.C.I. unit alone. The following I/F cartridges used with M.U.T.-II can be used with M.U.T.-III as well:

- SWS monitor cartridge (MB991806)
- Tension meter cartridge (MB991669)
- Chrysler Corporate I/F cartridge (MB991544) (For US Only)



1-4. Harness Connection Method

Recommended harness connection sequence

- [1] Start the PC.
- [2] While the PC is starting, connect the USB cable to the V.C.I. or V.C.I.-Lite.
- [3] After the PC boots to the M.U.T.-III main screen, connect the USB cable to the PC.
- Note: Disconnect the USB cable from the V.C.I. after the PC has shut down. However, if the USB cable is disconnected during use, a warning message indicating device disconnection such as that shown in Figure 1 appears. Close the message display by pressing the OK button.
- [4] Select the appropriate M.U.T.-III main harness. Connect it to the V.C.I. or V.C.I.-Lite.
- [5] Connect the M.U.T.-III main harness to the vehicle data-link-connector. (See Figure 2) Note: Disconnect the harnesses by performing the above steps in the reverse order.
- [6] Turn the V.C.I. power switch ON and verify that the indicator lamp located in the upper right area of the LCD screen is green. For V.C.I.-Lite please make sure that the indicator lamp is green.
- [7] Turn the vehicle ignition switch ON, and begin the diagnostic process from the M.U.T.-III system screen.

Note: In case the version of V.C.I. and the firmware version of V.C.I., which are mismatch, a dialog box appears on PC screen, and the V.C.I. version upgrade process begins. This upgrade typically only occurs once per M.U.T.-III system upgrade. Normal V.C.I. upgrades take about 1 minute. If a version upgrade error occurs, restart the V.C.I. by turning V.C.I. power OFF then, while pressing the Esc button, turn the V.C.I. power switch ON and begin the diagnostic process again. If versionup error(the indicator lamp blinks) occurs on V.C.I.-Lite, versionup will be restarted with reconnection.



<Fig. 1>



<Fig. 2>





Connect the trigger harness to the V.C.I. trigger terminal. (Not available in US)

<Connecting the Measurement Adapter and Measurement Probe>



Connect the measurement adapter to the V.C.I. trigger terminal. Insert the measurement leads to the adapter. For best results, match the test lead colors with those on the adapter.

1-5. Combination Chart of Harness and Vehicle

Use of the M.U.T.-III main harness A, B or C (US only) is determined by the type of data-link connector installed in the vehicle.

The main harness, indicated with "O", is used in combination with another harness indicated with "●" depending on the vehicle and work to be performed. ECU update used below means ECU reprogramming.

| | | 0 | 1 | 0 | 2 | 03 | 04 | 05 |
|---|----------------------------|-------------------------------------|----------------------------|-------------------------------------|----------------------------|---|-------------------------------|----|
| Ha Vehicle Data-link Connector | M.U.TIII Main Harness A | M.U.TIII Main Harness A for Lite | M.U.TIII Main Harness B | M.U.TIII Main Harness B for Lite | M.U.TIII Main Harness C | Conventional Vehicle Inspection Adapter Harness | ECU Update Adapter Harness | |
| 16Din | Fault diagnosis | 0 | 0 | | | | | |
| 16Pin | ECU update | 0 | 0 | | | | | |
| | Fault diagnosis | | | 0 | 0 | | | |
| 16Pin&12Pin | ECU update | | | 0 | 0 | | | |
| 12Pin | Fault diagnosis | | | 0 | | | • | |
| 12Pin | ECU update | - | - | - | - | - | - | - |
| 16Din 912Din | Fault diagnosis | | | 0 | 0 | | | |
| 16Pin&13Pin | ECU update | | | 0 | 0 | | | • |
| Vehicle with 420A Engine and | Fault diagnosis | | | | | 0 | | |
| F4AC1 Transaxle | ECU update | - | - | - | - | - | | |

| | Harness Name | Illustration |
|----|--|-----------------------------|
| 01 | M.U.TIII Main Harness A MB991910 M.U.TIII Main Harness A for Lite MB992745 | For V.C.I. For V.C.ILite |
| 02 | M.U.TIII Main Harness B MB991911 M.U.TIII Main Harness B for Lite MB992746 | For V.C.I. For V.C.ILite |
| 03 | M.U.TIII Main Harness C MB991914 (For US only) | |
| 04 | Conventional Vehicle Inspection Adapter Harness (M.U.TII adapter harness) MB991498 | |
| 05 | ECU Update Adapter Harness MB991855 | |

Vehicle diagnostic connector - 16pin type





Vehicle diagnostic connector - 16pin type + 12 pin type

Chapter 2 M.U.T.-III Functions

2-1. Basic Functions

Can be used with all vehicle installed electronic control systems (with built-in diagnostic functions) from model year 1984.

| Function | Synopsis |
|-----------------------------------|--|
| DTC readout | Reads various diagnostic codes and displays the codes by name and number. |
| Data List | Reads RAM data inside ECU and displays the data in digital and graphic form. (Available with ECUs that support serial communication only) |
| Actuator tests | Permits forced operation or shutdown of various types of actuators that is required for service. (Available with ECUs that support serial communication only) |
| Simulated vehicle speed | Outputs vehicle speed signal to appropriate ECUs facilitating diagnosis without travel. (Not support on V.C.ILite for it in pulse) |
| Drive Recorder | Permits recording and displaying arbitrary service data that is determined for an arbitrarily specified time. |
| Voltmeter | Permits measurement of DC voltage within the range of 0- $\pm40V$ using the voltage measurement function. (Not support on V.C.ILite) |
| Ohmmeter | Permits measurement of resistance within the range of 0-100K Ω using the resistance measurement function. (Not support on V.C.ILite) |
| SWS Diagnosis | Permits SWS diagnosis using the SWS monitor kit (MB991806). (Not support on V.C.ILite) |
| CAN Bus Diagnosis | Identifies CAN bus failures that occur in vehicle that is subject to the diagnosis and narrows down a cause. |
| ECU Reprogramming | Permits updating programs in ECU for system version upgrade. |
| Electronic service information | Displays with Service manual data. In addition, the system supports interactive fault diagnosis. The Interactive Diagnosis permits user to use both the scan tool viewing functions and service manual troubleshooting procedures. (Not available in US) |
| Tension meter | Permits measurement of belt tension using Belt tension meter set (MB991668). * Belt tension meter set had ended production. (Not support on V.C.ILite) |
| Fuel pressure meter | Permits measurement of fuel pressure using a pressure gauge set (MB991637 / MB991981), and displays it on PC. (Not available in US) (Not support on V.C.ILite) |
| Fuel consumption measurement | Permits more precise measurement of fuel consumption by measuring injection quantity of fuel injector. |

2-2. V.C.I. Functions



<When V.C.I. or V.C.I.-Lite and PC are connected>

2-2-1. Fault Diagnosis

The system diagnoses faults by receiving instructions from the PC and communicating with the vehicle-installed ECU. When the system is connected to the PC, V.C.I. keys are disabled.

[Start Screen] (No LCD screen on V.C.I.-Lite)

*When the USB cable is connected to the system, the screen illustrated on the left appears.

The screen indicates the flow of signals between the PC (P) and V.C.I. (V) using "P \rightarrow V" and "P \leftarrow V".

2-2-2. Fuel Pressure measurement (Not available in US)

(Not support on V.C.I.-Lite)

The system analyzes faults by measuring fuel pressure using the Pressure gauge set (MB991637 or MB991981).

Pressure gauge for LP: MB991655 or MB991979 for HP: MB991708 or MB992007

The V.C.I. reads the fuel pressure, which is converted into voltage value by the pressure gauge. Then the system converts it back to pressure value and displays it as text or graph on PC screen. (refer to 12-3-1.)

<With the V.C.I. only>

2-2-3. Measurement Function - Voltmeter / Ohmmeter



The system reads the voltage/resistance value from the trigger terminal and displays the value on the V.C.I. LCD screen.

- 1. Connect the measurement adapter to the V.C.I., connect the test leads to the adapter.
- 2. Connect the appropriate main harness to the V.C.I., and then to the vehicle diagnostic leak connector and turn the V.C.I. power switch ON.
- 3. Press button to select Voltmeter or Ohmmeter in the Main Menu (see the illustration on the left), and press the (Enter) button to begin measurement.

Note:

- Permits measurement of DC voltage within the range of 0-±40V.
- Permits measurement of resistance within the range of $0-100 K \Omega$.
- Permits displaying the value as text or graph on PC screen by connecting the V.C.I. to PC. (refer to 12-3-2.)







Esc

Enter

2-2-4. V.C.I. Stand-alone Diagnosis

(Not support on V.C.I.-Lite)

You can read out DTCs with V.C.I. stand-alone by using a memory card, which is storing a diagnostic data transferred from PC. There is no need to carry PC or USB cable on the diagnosing vehicle. (For detailed operation, see 4-4)

- Transfer the diagnostic database file into a memory card. (4-4-1)
- 2. Insert the memory card into V.C.I., then connect the V.C.I. and the vehicle with an appropriate main harness.
- 3. Start reading out DTCs from vehicle-installed ECU by V.C.I. stand-alone. (4-4-2)

Note:

Until a new database file will be distributed, you do not have to operate above step1. Please proceed just step2 and 3.

Chapter 3 Operating M.U.T.-III

3-1. Starting and Shutting Down the M.U.T.-III System

3-1-1. Starting the M.U.T.-III System

[Starting the PC]



Turn on the power of M.U.T.-III PC.

For instruction on how to start up the M.U.T.-III Scan Tool Viewer (STV) system, please refer to the operation manual of the MEDC-II system.

[Closing M.U.T.-III System]

| | | Dete Crit. | | 5 | |
|------|-----|--------------------------|----------------|--------------|--|
| fa i | No | Nate | Value | L. | Data List Reference Table |
| i | 12 | AFS. | 0.0 gm/s | 4 | |
| i | 12 | AR TEMP 5 | -40.40 | \vdash | |
| i | 23. | CLT TEMP 5 | -40.55 | * | |
| i | 12 | ENG SPEED | Gitten | | |
| i | 24 | SPEED SHER | 0 km/r | \mathbb{H} | |
| i | 44 | ADV KI | 810 deg | ¥ | |
| - | | Contract Source All Lans | Pat Anton West | - | D MERCERCONNECTION Page ISO Strender ORD INSTITUTION |
| | 4 | | | | a Mill Managara ang Tyang Sa Sanagar (Mala Mill Mara). Ng Tang Sanagara ang |

3-1-2. Shutting Down the M.U.T.-III System

 Press button on each diagnostic screen to return to the STV Top Menu screen (see (2)).

(2) M.U.T.-III system can be closed down by pressing the button on this screen.

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3-2. Screen Explanations



< System Selection Screen >



This screen is for specifying a system that you want to diagnose.

As operation procedure differs according to the vehicle's Model Year, please select "Up to 2005MY" or "From 2006MY" firstly. (refer to 3-3-1)

<Special Function Selection Screen>



The Special Function selection screen allows you to switch between major categories by selecting the tabs located on the upper part of the screen.

<Diagnostic Screen>

| POW | ERTRA | WAY MAY Detailet | | Data | List | no no este | |
|---------------------------------|----------------------|---|--|------|---|------------|---|
| 1 1 1 1 1 1 1 | 87 22 A1 A2 | Descent formers Term Reme ECT SENSOR Excelse Load Excelse Load Excelse Load Excelse Load Proze Servert Excelse Load HOUSE LOAD Excelse Load HOUSE LOAD Excelse Load HOUSE SANKI SI HOUSE BANKI SI HOUSE EANKI SI Excelse Load | Value 77 % 76 5 % 0 thmn 0.020 V 0.000 V 0.020 V | * | Data List Reference Table | | The diagnostic screen displays three titles in layer format, informing you what is being implemented on each system. The screen does not allow you to switch systems by selecting the upper title areas. |
| | 5 or 5 | ented do Khone, Group Al Cale Pr | e Roman Mitta | | AND Conversion Ages (10) Devices (20) and CC (10) | | |

3-3. Basic Flow to Start Diagnosis

3-3-1. Basic Flow of System Select Diagnosis

- And better the former of the
- (1) STV Top Menu Press **System Select** button on the STV Top Menu screen.

(2) System Selection Screen

| m swied | | | | |
|-----------------------------|---|------------|----------------|--|
| System Line | | Model Year | C Up to 2005MY | |
| NEVCODESEL | | | C From2008MY | |
| MACEUZER | 1 | | | |
| D.C.ANOVT | _ | | | |
| 554 | | | | |
| TOU/STABLITY CONTROL | | | | |
| AUTO CRUSE | | | | |
| ECS | | | | |
| MSEbects: Power Stevers 🛧 👝 | | | | |
| ABSIASCIASTC | T | | | |
| 100 | | | | |

 Never land

 Bytem Line

 1

 1

 4

 2

 4

 2

 4

 7

 8

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 1

 1

 1

 1

Select either one of "**Up to 2005MY**" or "**From 2006MY**" for the Model Year of the vehicle you are diagnosing. Then follow the each operation below.

When selecting "Up to 2005 MY"

- Select a system on the System List (*a), and press button.
- If the system has a loading option, the Loading Option Setup list (*b) will be displayed. Then, select an item having a box checked (✓) and press ✓ button.

♦ When selecting "From 2006 MY"

- 1. Confirm the contents of the Vehicle Information list (*c).
 - -When the contents are not describing the vehicle, press to correct the information. (For details, refer to 3-3-2)



 Select a system on the System List (*a), and if the Loading Option Setup list (*b) is displayed, select an item having a box checked (♥). Then press ♥ button.

Note:

-If the engine is OBD, the check code appears.

-When you select "**MFI**", "**ELC-A/T**" or "**CRUISE CONTROL**" system, a selection screen appears asking whether MITSUBISHI or Chrysler. Select a button that the engine belongs to.

| Check Chart or Problem Symptoms | Diagnostic Trouble Code | Simulated Vehicle Speed Output |
|------------------------------------|-------------------------|-----------------------------------|
| Data List | Actuator Test | Drive Recorder |
| Special Function | OBD-8 Test Mode | Readiness Test |
| Voltmeter | Ohmmeter | Check Mode |
| Emission Test | Coding | |

(3) Function Selection Screen

After System selection, the Function selection menu of the selected system appears. Select a button that you want to perform.

In the picture on the left shows the screen appears when the MFI system, which is a representative example, is selected. Details of each buttons are as follows.

Note:

As available functions differ between systems, there might be functions that will not appear when you select other system.

Check Chart For Problem Symptoms -- To view the Symptom Chart of Service Manual.

Diagnostic Trouble Code --To read out or erase Diagnosis Trouble Codes from vehicle ECU. Also, you can read out the Freeze Frame data. (refer to 4-1.)

Simulated Vehicle Speed Output -- To transmit simulated vehicle speed signal into the vehicle.

Data List -- To read the RAM data inside the ECU and displays the data in digital and graphic form.

(refer to 4-2.)

Actuator Test -- To control the ECU output device. (refer to 4-3.)

Drive Recorder -- To record, display or analyze the ECU input / output signals which can be viewed using Data List function. (refer to Chapter 6)

Special Function --To execute special functions specific to the selected system. For detailed operation other than Chapter 5, please utilize each Online Help function.

OBD-II Test Mode -- To read out "Monitoring test results" "Provisional DTC" and "ECU information", which are regarding Emission Related System, from ECU.

Readiness Test -- To read out the result of Readiness Test from ECU.

Voltmeter -- To measure voltage value using M.U.T.-III. (same operation as 12-3-2)

Ohmmeter -- To measure resistance value using M.U.T.-III. (same operation as 12-3-2)

Fuel Pressure Gauge --To measure fuel pressure using a pressure gauge, and display the result on PC screen. (same operation as 12-3-1) (Not Available in US)

Check Mode --To shorten sampling time of communication by changing the communication method between M.U.T.-III and ECU. This function is available in Data List, Drive Recorder, Actuator Test and Special Function.

Emission Test -- To test the Evaporative Emission Control System of the vehicle.

Coding -- To write the vehicle equipment specifications into ECU. (refer to Chapter 8)

SWS monitor (appears only when selecting "**SWS**" system) (refer to Chapter 7)

Pulse Check (appears only when selecting "SWS" system)

--To confirm existence of the signal pulse to operate remote system on SWS communication line.

[MFI's Function Selection menu]

3-3-2. Vehicle Information Setting

Pressing Determination on System Selection Screen or other vehicle-confirmation screen, displays the Vehicle Information Setting Screen. This screen allows you to modify the diagnosing vehicle information.

(1) Vehicle Information Setting Screen

-Currently selected information is displayed in each item's field. (Blank space means the information is not selected.) -**VIN** is a compulsory input.

--OK (Returns to the screen on which 🛵 was pressed)

--Deletes whole information

O --Displays history of settings as open options.

Press an item button to modify. --to (2)



(2) The item's individual selection screen appears. Apply appropriate information, then press v to return to the Vehicle Information Setting screen (1).

3-4. Option Settings











3-4-1. Edit Option Settings

(1) Press **Configuration** button on the STV Top Menu screen.

(2) Select a button corresponding to your purpose.

[Environment]

Change Environmental setting --To set the driver, which the Service manual data should be installed. Show environmental setting --To view the settings. Unit set --To select US unit or metric unit, e.g. lbs : kg Printer set --To set output conditions of the printer. (3-4-2.) Keyboard set --To select row of keys: Alphabetical-order or QWERTY-order.

Select Language for display -- To select a language displayed in whole M.U.T.-III system.

[Data Update]

System Information -- To view versions of installed software on the PC.

Note:

Pressing 📩 returns the screen to the STV Top Menu.

3-4-2. Set up Output conditions of Printer

(1) When pressing the **Printer set** button on 3-4-1(2), the "Printer" window illustrated on the left appears.
Select an appropriate printer icon and right-click it to open a pull-down menu; select "Printing Preferences...".

Note:

Set up conditions on this window will not be reflected.

(2) The "Printing Preferences" window of the selected printer appears. Please set output conditions e.g. page setup, and press OK button.

3-5. Useful Functions

| | - 5 | Augments truthe code(1) | | |
|-----|---------|--------------------------|----------|---------------------------------------|
| 1f= | onc | Name | | DTC Procedures From Service Manual |
| i | Podra | VITOCY | | |
| i | P1003 | BATBACKUP | ^ | Change Sensitivity |
| i | P2115 | OLT TEMP 5 | | Erase DTCs |
| i | P0226 | misiste) | | |
| i | Porto | ARTEMPS | - | Freeze Frame Data |
| 1 | Diagnos | ill: Trouble Codes(DTCs) | found. | |
| | | | | |

3-5-1. Online Help Function

(1) The 💽 button on each screen is the online help button for that screen.



(2) The online help function allows you to view a general overview of each screen and refer to explanations of the various button functions. If you wish to move the screen up or down, select the applicable scroll button located on the right side of the screen.

Chapter 4 Diagnosis Function

4-1. Diagnostic Trouble Code

| System Line | | | Model Year | | |
|-------------|-------------------------|---|------------|-----|----------|
| 1 | WYSCIDESE, | | | C F | om2006MY |
| 1 | MACEUZER | 1 | | | |
| 5 | ELC-ANOVT | _ | | | |
| 6 | 554 I | | | | |
| 1 | TOU/STABLITY CONTROL | | | | |
| | AUTO CRUSE | | • | | |
| 1 | ecs | * | | | |
| 1 | WSENDER: Power lawering | _ | | | |
| ł. | ABSIASCIASTC | | | | |
| 0 | 60 | | | | |

4-1-1. Reading and Erasing Diagnostic Trouble Code (DTC)

- Select a system that you want to diagnose on the System Selection screen. (For instruction on how to select a system, refer to 3-3-1)
 - In the explanation that follows, the method is explained using the MFI system as a representative example.

Note:

If the engine is OBD, a check code appears.

| Check Chart or Problem Symptoms | Diagnostic Trouble Code | Simulated Vehicle Speed Output |
|------------------------------------|-------------------------|-----------------------------------|
| Data List | Actuator Test | Drive Recorder |
| Special Function | OBD-II Test Mode | Readiness Test |
| Voltmeter | Ohmmeter | Check Mode |
| Emission Test | Coding | |

(2) Press **Diagnostic Trouble Code** button.

The system automatically communicates with the vehicle ECU and obtains the diagnostic trouble codes (DTCs).

| fiz (| site | Natio | | DTC Procedures | |
|-------|-------|----------|----------|---------------------|--|
| i | P0118 | ECT VO H | - | From Service Manual | |
| i | P0518 | AT VOHE | A | Change Sensitivity | |
| i | P0515 | MMOE SYS | | Erase DTCs | |
| i | P0122 | TP VOLLO | | - | |
| : 1 | P2122 | APP VOLL | 2 | Freeze Frame Data | |

(3) Diagnostic trouble codes (DTCs) of the selected system, which is currently stored in the vehicle ECU, are listed.

DTC Procedures From Service Manual

```
--Switches the mode to interactive fault diagnosis mode.
(Not Available in US)
```

- **Change Sensitivity** --Allows you to increase the diagnostic code detection capability of the ECU or return the sensitivity level back to normal.
- **Erase DTCs** --Deletes the diagnostic trouble codes.
- **Freeze Frame Data** --Displays the Freeze frame data.

4-2. Data List (Service Data monitor)

| | | Detected | | |
|-------|-----|-----------|---------|---------------------------|
| hda (| No. | Name | Value | Data List Reference Table |
| i | 12 | AFS. | 0.0 gmh | 4 |
| i | 12 | AR TEMP 5 | -40.40 | |
| i | 21 | CLTTEMP 5 | -40.10 | A |
| i | 22 | ENG SPEED | Gottan | • |
| i | 24 | SPEED SMR | 0 km/r | |
| i | 44 | ADVIG | 810 deg | * |

4-2-1. Display of Data List

(1) Displaying Text style
Press Data List
button on the screen 4-1-1(2), and the left screen will be displayed.
-- Select item -- to 4-2-2(1).
-- 4items/4Graphs display -- to (2)
-- 4items/View Graph (overwrite) --to (3)
Data List Reference Table -- Displays "Data List Reference Table"

of Service Manual to view normal value. (Not available in US)



Data List Item Name

(Explanation for the meaning of underline)

- -There are items among data list whose name are underlined. The underlines of these items mean that support for these items depends on configuration of vehicle equipment. When a vehicle has a particular part and related data list item is supported, you can check its value on M.U.T.-III.
- However, when the data list item is underlined, there are also vehicles that do NOT have this part. In this case, even if the data list item is displayed on M.U.T.-III, it is not supported and value will not change.
- So please consider the above when dealing with similar data list items during vehicle inspection and service work.

Note:

- For example, there is a data list item "Driver's seatbelt switch" in a M.U.T.-III screen shot below. This item is underlined and means that some vehicles do not have related switch and value will not change. In this case you need to check if the vehicle is equipped with the switch before proceeding with trouble shooting.

| | _ | | | Debth | |
|------|------|-------------|----------|--|----|
| ant. | Per. | 70474 | Value | Doph - | |
| i | - | AFS. | 0.0 gm/s | | 4 |
| i | 13 | AR TEMP S | -40 °C | | 4 |
| i | - 23 | CLT TOMP 5 | -40°C | | |
| i | -11 | IONO SPIELO | 0 mm | | 44 |
| - | - | 12.7 | | THE REAL REPORTS AND AND A REAL PROPERTY AND A | |
| ۲ | | É | 1 1 1 | | e |
| | | | | | |

(2) Displaying Graphs 1

The graph screen displays the data of 4items/4graphs.

- -- 4items/4Graphs display
- -- 4items/View Graph (overwrite)
- -- View Text
- 1/2 2 -- View1/2
- 👑 -- Change Time Scale
- 📖 -- Change Data Scale
- -- Pause -- to 4-2-2(2)
- -- Start
- 2/2 -- View2/2

Note:

Record Data (button allows you to save the portion of Data List displayed on the graph)-- Refer to 4-2-2(2)

| | | | | DestN | |
|------------|------------|--------------------------|--------------------|--|----|
| 100 | 701 | 70876 | Value | Draph - | |
| i | - | AFS | 0.0 gm/s | | 4 |
| i | 13 | AR TEMP 5 | -40 °C | | |
| i | .11 | CLT TEMP 5 | -40.75 | | |
| i | -11 | IDAG SPIELD | 0 dinas | | ** |
| ber of the | rity parks | ched Wintlinen, Sonap Ad | Cate Pet Auriter M | er Strikerskis behicksommenden fyr DO Menkel obbritist ten | |
| 1 | | <u>.</u> | | 7 | 12 |

(3) Displaying Graphs 2

The data of displayed items are overlaid on a graph. Available function buttons are the same as Graph 1.

| - | | | - |
|------|-----|-----------------------------|---|
| 340. | 761 | two (enailt) Group foate | |
| | 1 | #EDate | |
| | 2 | F vel som til | * |
| | 3. | the control | - |
| | 34 | Simily control | * |
| | | | |

| _ | _ | Available Doma | _ | | _ | | active themas | |
|------|----|-----------------------------|--------|-----|------|-----|---------------|--|
| PR1. | 10 | Name | _ | | 881- | 141 | Name . | |
| i | 12 | VAF-MAF SNSR | 4 | •• | | | | |
| i | .0 | AT SENSOR | | | | | | |
| i | 25 | ECT SENSOR | ^ | | | | | |
| i | 22 | ENGNE SPEED | - | | | | | |
| i | 54 | v55 | | 4 | | | | |
| i | 22 | MAPINEP SVSH | ¥ | 144 | | | | |
| | | inst Differen Genue Al Data | - 0.23 | | 1 | | | |

4-2-2. Details of Data List Screen

- (1) Displaying Item Selection
 - Item Group Select

Select a group of the data to be displayed, and press s button.

Item Select

By default, none of the items are selected.

Select an item that you wish to display, and apply the selection using represented or representations.

- --Inserts all the items from "Available item list" into the selection areas of "Selected item list."
- --Inserts the item selected in "Available item list" into the selection area of "Selected item list".
- --Inserts the item selected in "Selected item list" into the lowermost area of "Available item list".
- -Inserts all the items from "Selected item list" into the lowermost areas of "Available item list."

--Changes the order in which the items are displayed in the "Selected item list" and the "Available item list," in the sequence of default setting.

When complete the selection, press selection.

Note:

-When there is no selected item, all items are displayed.

- -The column of item No appears in green when the service data is OBD basic item.
- * V.C.I.-Lite does not support "Voltage" and "Fuel pressure".
- (2) Record Data
 - (a) Graph data is paused by pressing 🛄 button, and the data can be saved on the PC automatically.
 - -- OK -- to (b)
 - -Cancel (not save the data and return to the pause screen. Pressing button starts data list again.)

(b) The data has been saved.

The file name of the recorded data is set as

"SD + YearMonthDay + Time (military time including seconds)", using the PC time as standard.

🧹 -- OK

Note:

For details on how to view the saved data, refer to 6-2-2(3).



| _ | _ | Casa Lini | | | | | | 4 |
|-----|-----|----------------|---------|----|------|----------------|---------|---|
| 101 | 141 | Nate | Valie | 1 | Data | List Reference | r Table | 1 |
| i | 21 | ECT SENSOR | -417 | - | | | | 1 |
| i | u | AT SENSOR | -419 | | | | | |
| i | 44 | VCA OVIMIT-O | #10.0eg | • | | | | |
| i | A2 | H025 BANK2 51 | 0.020 V | * | | | | |
| i | A4 | H025 BARR 3 53 | 8000 V | | | | | |
| i | п | LONG TRIMITI | 0.0% | 44 | | | | |

(3) Changing Item Display Order

-On the data list display screen, you can change the display order of the items. The change is possible for both text display and graph display.

- -The display order change can be performed with the data list displayed continuously. (The graph display is reset.)
- -Selecting the name display area of an item fixes the item. Then over-scrolling only the items not selected using the vertical scroll keys changes the order.
- -The selection can be released by selecting the item again.

-The function is not activated while a data range display area is selected. (Selection, release, and scroll functions of item are not available.)

(4) Data Range Change

-Select a data range display area on the graph.

- -When the color of the selected area turns into yellow, you can enter values.
- -Entering method: Use PC keyboard or scroll keys.
- -When use PC keyboard, enter a value, and then press the [Enter] key or release the selection of the data range display area to determine the data range change.
- -When the scroll keys, ▲ and ▼, on the screen are used for the data range change, pressing the ▲ key each time changes the data range setting by +5 % of full scale and the . ▼ key changes it by -5 %. The change is determined at each key pressing.

| Print Color | 745 | 1 term | Value | Orach | |
|-------------|-----|-----------------|----------|-------|---|
| 1 | | ECT SENSOR | 40.5 | | ~ |
| i | 2 | H025 BANKI 52 | 0.000 V | | ~ |
| - | 2 | ENGINE SPEED | Lateral. | | * |
| - | AI. | HO2I BAVer2 111 | 8.629 V | | * |

4-3. Actuator Test

Press Actuator Test button on the screen 4-1-1.(2), then go to 4-3-1 or 4-3-2 to proceed, according to the type of the screen, A or B.

| | If the screen illustrated on the left appears |
|--|--|
| Actuator Test Network See | (1) Select a test item and press without to activate actuator. |
| Interview Service Menual Table If 17 BASC TARG. If 0 EXP FURD SUL If 0 EXP FURD SUL If 0 EXP FURD SUL If 02 EXP FURD SUL | Service Manual Table Displays "Actuator test Reference Table" of Service Manual. (Not Available in US) Data List(Text) Data List simultaneous display (Text) Data List(Graph) Data List simultaneous display (Graphs) |
| (na hada Millian A. Maliformiana fan S. Inder (Maliford) / Wi | |
| Actuator Test Harring | (2) Actuator Test Executing |
| POINDETMAN / M1 / Answer Fail Answer Fail No. New Service Minual Table | If you want to interrupt Actuator Test, press 🔀 button. |
| 1 KAR SOLROOD | When completes the test, a dialog box appears. Press 🥪 button. \rightarrow returns to screen (1). |
| Processes a search failed to this thirty of schedules. Advance was associated For table and the control of th | |
| | |
| And its features in used from table in the second s | Data List simultaneous display (Text) Refer to (1)(2). |
| Image: Name Nam Name Name | (For details how to select items, refer to 4-2-2 (1).) |
| | |
| Mile A Market Anna (Annum Market) Description BORNTRAMMIN Advator Treet Market Free Ware Market Free Ware Market Free Ware Market Free Ware Market Free Ware Market Free Ware | Data List simultaneous display (Graphs) Refer to (1)(2). |
| 1 1 0 Constraint 0 1 30 Constraint 0 0 0 0 1 10 Constraint 0 0 0 0 0 1 10 Constraint 0 | Select items for Data list display (For details how to select items, refer to 4-2-2 (1).) Change Time Scale Change Data Scale |
| | |

4-3-1. Actuator Test (Type A)

If the screen illustrated on the left appears

4-3-2. Actuator Test (Type B)

If the screen illustrated on (2) or (3) appears....



(1) Press button located next to item name, and select a test item from the pull-down menu.
 When the selected item has no parameters -- to (2)

-When the selected item has parameters -- to (3)

 Data List
 --Data List simultaneous display (Text)

 Data List(Graph)
 --Data List simultaneous display (Graphs)

 Average View
 Average View

 PORETTION
 W

 Average View
 W

 Average View
 Des Lastingen

In case selected item has no parameter

 Market Mark
 Market Mark

 Market Mark
 Market Mark

 Mark
 Mark

 Mark

In case selected item has parameters

(2) Press button to execute Actuator Test. -- to (4)

- (3) The test item that you have selected need to be set some parameters. After completes the parameter setting, press
 button to execute the Actuator Test. -- to (4)
 - * "--Select the Value--" : Select the value from the pull-down.
 - * "--Input the Value--" : Input the value using hexadecimal keys appeared by clicking the input box.

| POWERTRAN | | tuator Test | | | | |
|-----------------|---------------------|-------------|---|---|------|-------|
| Teat lam | in min | | | | | |
| Nana | Value | | с | D | ε | + |
| | - | | | | | - |
| CD Pattern | ALSeptem On | - | - | | ^ | • |
| fedDatast(set) | R | - | 4 | 5 | - 6 | 7 |
| Tung Mater (MP) | - Tonestina Value - | . * | 0 | 1 | 2 | 3 |
| FT Drive Torm | EA. | ¥ | | | Back | Erter |

- Actuator Test Executing

 Actuator Test Executing

 Execute the actuator test?
- (4) Confirmation dialog box appears.Press button

| 4 | No. 4 spectra | + | Denict Harris 7 a | |
|-----------------|--------------------------|----------------------|-------------------|-------------------|
| | TANA NG MENT - Sour | | Posta Line Taxe | |
| | Actuality Text Text | | tor Test | |
| | | Vite | — | Dele Lini(Terli |
| | | - [· | | Data Listillingty |
| ator test how a | LCD-Faller | | | |
| | Fung Hitler (MI) | 51 5N | * | |
| | et Dros Time | DA I | ¥ | |
| | Relation and new average | | | |
| | Carlos Barrow | andres fysi CANFROLM | 100 | * |

(5) Actuator Test ExecutingIf you want to interrupt the Actuator Test, press button.

When completes the test, a dialog box appears. Press \checkmark button. \rightarrow returns to screen (2) or (3).

| A No-Argectiv | v | Detailor | | | |
|--|------------------|--------------|-----------------------------|-----------|----|
| | | Nin - | Name | Value | |
| | | 1 | Alternator () duty | 10.5 | 4 |
| | | \mathbf{z} | Forer supply vidage | TLEV | |
| | | 1 | Crank angle sensor | orma. | - |
| | | 4 | Target i de speciel | . 150 cmm | * |
| | | 5 | Veloce speed | 0 kmb | |
| reas CHC buildiam in order to execute actuator test. | | | blake ar temperature sensor | 47.4 °C | 44 |
| senter of ten shares PUENten; Sing Al Data. Fat Burder W | NALLY /Limese In | | BLADS King House-DNA | | |

- Data List simultaneous display (Text) Refer to (1)-(5).
 - === --Select items for Data list display

| angeles a s | - 4 mector | v | Oile Lile. | | | |
|-----------------------|---------------------------|---|------------|---------------|------------------------|---|
| | | | 145 | Viene | Value | |
| | | | 1. 100 | anoi Gianty | 100.96 | |
| | | | | | | |
| | | | | 10 40 40 | -10 - 50 - 10 V Mar | |
| | | | | r nach votage | 11.8.9 | |
| | | | - 78 | | | v |
| ves CH butter in orde | to execute actuator text. | | | -100 -40 -40 | 40 20 0 | |

- Data List simultaneous display (Graphs) Refer to (1)-(5).
 - === --Select items for Data list display
 - --Change Time Scale
 - 1 -- Change Data Scale
4-4. V.C.I. Stand-alone Diagnosis

(Not supported by V.C.I.-Lite)

This function allows you to read out DTCs by V.C.I. alone, without carrying PC or USB cable into the vehicle, using a memory card which is storing a diagnostic data transferred from PC. Once 4-4-1 has been performed, you should proceed just 4-4-2 operation until a new database will be distributed.



4-4-1. Data transfer to memory card

Transfers the data in hard drive to a memory card. Please perform this operation after every update of the database for V.C.I. Stand-alone diagnosis.

 Insert the memory card (MB992228) into the card adaptor (MB991939), and then insert them into m-card slot on PC.

Note:

If you use the same memory-card as using for ECU reprogramming, it may take time to display the next step after selecting [1.Diagnosis] on V.C.I. LCD menu. (refer to 4-4-2(2)).

(2) Press **Special Function** button on the STV Top Menu.



Presentation (Department function)

Prive Recorder (Deplay only)

ECU reprogramming

V.C.1 Stand-done Disgnosin
(Data Trensfer to PC-and)

Presentation



(3) Select System Function tab, then press V.C.I. Stand-alone Diagnosis button.

(4) The version of current data for V.C.I. Stand-alone Diagnosis is indicated on the left table.
Please select a destination having a box checked () on the right table, then press to transfer the data.

| Presente for the formation of the second secon | (5) | Drive Selection Select the appropriate drive (removable disk drive) to save the data, then press solution. Data transfer takes about 5 minutes at Windows XP and Windows Vista. |
|---|------|---|
| r/de Save Complete Image: Save Complete Database File was saved. (From PC toE:\Removable disk) | (6) | The data has been saved. Press velocities button. |
| G:10 AM Double click here | (7) | Before you remove the memory card, double-click the icon for removal of adaptor displayed on the bottom-right corner. |
| Chapter or Fject Hardmane C X For the device you want to unplug or eject, and then click Stop. When wonders you that it is safe to do so unplug the device from you compute. Hardware devices HARD STATE FOR TABLE Control on the safe to do so unplug the device from you compute. Product AIDE /ATAPI Control on the taskbar Display device components Show Unplug Eject icon on the taskbar | (8) | Select [PCMCIA IDE/ATAPI Controller] or the other appropriate device, then press Stop button. |
| Stop a Hardware device Stop a Hardware device Continue Windows will alterget to stop the following devices. After the devices are stopped they may be removed safely. Generative volume - [E:] Sur Disk SDCFB-64. Ot | (9) | Verify the contents of the selection, then press OK button. |
| DK Cancel | (10) | After displayed the message "The device can now be safely |

| Safe To Remove Hardware | | | | | | |
|-------------------------|---|--|--|--|--|--|
| ٩ | The 'PCMCIA IDE/ATAPI Controller' device can now be safely removed from the system. | | | | | |
| | OK | | | | | |

(10) After displayed the message "The device can now be safely removed from the system", push the lever on the side of PC m-card slot and remove the memory card.

Caution:

Do not remove the memory card away unless complete above method or turn off the PC.



| <n< th=""><th>1ain Menu></th><th>7</th></n<> | 1ain Menu> | 7 |
|---|---------------|---|
| 1 | Diagnosis | |
| 2 | ECU Reprogram | |
| - | | |

- 3 Voltmeter
- 4 Ohmmeter



From 2006MY



4-4-2. Reading DTCs by V.C.I. stand-alone

 Insert the memory card, which is storing V.C.I. Stand-alone diagnosis data, into the card adaptor, then insert them into V.C.I. main unit.

Connect the V.C.I. main unit and the diagnosing vehicle with an appropriate main harness securely.

(2) Turn the V.C.I. power ON, and the V.C.I. LCD screen displays the Main Menu as illustrated on the left.
 Confirm that "1. Diagnosis" is displayed, then press (Enter) button.

Note:

- -If the memory card stores no data, the above Main Menu will not be displayed.
- -If the V.C.I. is set on Drive Recorder mode, the LCD displays Drive Recorder menu screen (refer to 6-1-1(18)). Please cancel the Drive recorder mode.
- (3) Press button to browse the list until the LCD displays the appropriate category for the vehicle you are diagnosing, then press (Enter) button.

-When selecting "Up to 2005 MY" -- Go to (5) -When selecting "From 2006 MY" -- Go to (4)

Note: <Common operations for (3)-(7)>

- The display scrolls in the direction of the arrow displayed on the first line. To switch the direction, press (Esc) button once.
- If you press 💿 (Esc) button twice in quick succession, the screen goes back to the Main Menu.
- (4) As next 'Vehicle Select' menu is displayed, press button to browse the list until the LCD displays the vehicle name, then press (Enter) button.

After vehicle selection, 'Model Select', 'Series Select', and 'Model Year Select' follow the LCD menu. Perform each selection in the same operation. --> Go to (6)

Note:

-The options are displayed in alphabetical order.

| Display Example: | | |
|--|---|--|
| <system select=""> MPI/GDI/DIESEL</system> | ↑ | |
| IMMOBILIZER ELC-AT/CVT ABS/ASC/ASTC | | |
| TCL : | | |

| Display Example: | |
|-------------------------------------|--------------|
| <option select=""> ABS</option> | \checkmark |
| ASC | |
| | |

| D | isplay Example: |
|---|---|
| | <function menu=""> ↓ Read DTCs</function> |
| | Read DTCs |
| | |
| | Erase DTCs |
| | Erase DTCs Service Data |

| Display Exa | ample: |
|-------------------------------------|--------------|
| <dtcs< td=""><td>s></td></dtcs<> | s> |
| C1234 | RL Weel Sp |
| | |
| | * Pump Motor |
| C xxxx | Brake Peda |
| U xxxx | * Bus off |
| : | |
| : | |
| | |

RL Weel Speed Sen sor Short Circuit (5) System Selection
 Press button to browse the list until the LCD displays the system you want to diagnose, then press (Enter) button.

- (6) Option Selection
 If the system has a loading option, the 'Option Select' menu will be displayed. (If not, go to (7) directly)
 Select an option, then press (Inter) button.
- (7) Function Selection
 Select a function, then press in (Enter) button.
 Read DTCs -- Display of the DTCs (to (8))
 Erase DTCs -- Erase of the DTCs (to 4-4-3)
 Service Data -- Display of the Service Data (to 4-4-4)
- (8) Display of the DTCs
 - The DTCs that have been read from ECU are displayed. -The number shown on the right edge of first line is indicating [Serial # / Total number of detected DTCs].
 - -Press button to display the next DTC.
 (When having only one DTC, the arrow is not displayed on the first line.)
 - -V.C.I. is constantly reading DTCs and updating the display.
 - -If the system supports status recognition, current status of each DTC is expressed by the following symbols, which appears between code and name.
 - Active : [] (blank) Stored : [*]
 - -Pressing (Enter) button shows full name of the DTC. (To return to the previous screen, press) or) on once.)

4-4-3. Erasing DTCs by V.C.I. stand-alone

(1) Press (Enter) button.



(2) Press 🞰 (Enter) button, returns to (1).

NOTE:

The following systems, which need special process to read DTCs, are out of target for the V.C.I. Stand-alone diagnosis.

-Some of ABS for MIRAGE / LANCER(CMO/CLO#) -SWS for GRANDIS(NA4W) / COLT(Z20#)



4-4-4. Display of the Service Data

The Service data read from ECU is indicated. -Press button to browse the list until the LCD displays the next code.

-Always data is read from ECU and a screen is renewed.



-Pressing (Enter) button shows full name of the item. (To return to the previous screen, press) or) once.)

4-4-5. Troubleshooting of V.C.I. Stand-alone Diagnosis

Those contents have moved to 14-3.

All DTCs

4-5. All DTCs

| Merau | |
|---|---|
| System select | Special function |
| CAN bus diagnosis | Configuration |
| Tay Tay | |
| hro, 1985. In de Cardel Antonio anna for "Mhar's Now" and "Capitor" in adhed In die 177 Mai zussen. Naganatis database in spedanat. Die C.2. Stand altere Taganatis database in spedaled. | nderstine V.C.A. Vound abore Dispersite (Forder Erste 💽 🖄 |
| lease select function. | Ver. PRN08121-01 |





4-5-1. Reading and Erasing All DTCs

(1) Press **Special Function** button on the STV Top Menu.

(2) Select **System Function** tab, then press **All DTCs** button.

(3) Select a button corresponding to your purpose.

Read all DTCs

--Displays a list of all DTCs read from vehicle ECU.

Erase and Read DTCs

--Erases DTCs from system to system, and displays a list of all DTCs read from vehicle ECU.

Note:

-DTCs that failed to be erased are displayed on the list. -DTCs that take time to detect after being erased will not be displayed.

| _ | System Los. | | | Model Year | | Up to 2005MY | H |
|-----|----------------------------|-----------|-----|------------|---|--------------|---|
| 100 | Sydem Name | Rende | 100 | | C | From2006MY | |
| - | MINGORDESEL | | 4 | | | | • |
| 1 | MACEL2ER | | | | | | |
| - | BLC-ATICVT | | | | | | |
| - | 554 | | | | | | |
| 7 | CLUSTABLITY CONTROL | | | | | | |
| 7 | NUTO-CRUISE | | T. | | | | |
| 1 | ocs | *a | - | | | | |
| 7 | AVSElectric Power Steering | | Ŷ | | | | |
| - | dvSElactic Power Deering | | Y | | | | |

(4) System Selection

Select either one of "**Up to 2005MY**" or "**From 2006MY**" for the Model Year of the vehicle you are diagnosing. Then follow the each operation below.

♦ When selecting "Up to 2005 MY"

The System List (*a) appears on the screen.

-All the systems are selected by default.

-Select systems to read DTCs having the box checked

 (\checkmark) , then press \checkmark button.

(Clicking the box deletes the \checkmark mark)

| | System List. | | | Model Y | 25) R | te2005MY | |
|-------|------------------------------|-------|----|------------------|-----------------------|----------|---|
| Senet | System Name | Hende | | - | (i Fro | m2006MY | |
| ~ | WHODESE. | | 4 | | VMCA III. | | |
| ~ | NAVOBLIZER | | - | Model No | | *C | _ |
| ~ | ATICVEM MT | | | Model Te | | °C | - |
| ~ | AVGElectric Forent Silvering | | | Laster Date Sets | | | 1 |
| ~ | APRIASCIASTC LARS and | | - | OPC | OPC Option Name | | |
| ~ | DRS-AR-BAD | | T. | 4.01 | ABS only | | 1 |
| 7 | Air Conditioner | a | - | A0 4.5 | ★ | | Н |
| 7 | ETACI | | ¥ | | | | 1 |
| Selec | t checking systems. | | | Select op5 | ion. | | |
| _ | | | _ | (11) | | | |

♦ When selecting "From 2006 MY"

The System List (*a) and the Vehicle Information list (*c) appear on the screen.

- Confirm the contents of the Vehicle Information list (*c).
 When the contents are not describing the vehicle, press
 to correct the information. (refer to 3-3-2)
- Select systems to read DTCs having the box checked (♥), and its option if necessary, then press v button.

System List (*a)

- -All the systems are selected by default.
- -Clicking a box deletes the ✔ mark.
- -System, which has loading options to be chosen, is indicated by underlining the name.
- "system name (Select Option!)": Not chosen
- "system name (option name)" : Has been chosen
- -Systems to read DTCs must have completed the loading-option selection.

Loading Option Setup list (*b)

- -Only displayed when the column of the system, which has loading-options to be chosen, is being selected (appearing in yellow color) on the System List (*a).
- -When this list appears, select an appropriate option having the box checked (\checkmark).

Note:

- Just button -- Sets all systems selected on System list.
- **___** button -- Sets all systems unselected on System list.
- -Deleting ✓ marks on systems, which are not installed in the vehicle, will shorten the processing time.
- -It is no problem if a system, which is not installed in the vehicle, is selected.
- (5) Confirmation dialog box appears.Press button

| All DTCs | Webs | reitendialog | | |
|----------|------|-----------------------|--|--|
| ? | All | DTCs | | |
| | | t the All you sure | | |
| | | | | |
| | / | \times | | |

All DTCs

| Patrick Revel Fair (1) (1) (2000) 10 - Space & Lower Junior Profeen Konstan / Add DCs / Resel all DCCs | (6) DTCs checking |
|--|---|
| Same of the second s | |
| All DTCs Webseltendialog | (7) DTCs checking are complete. Press button. |
| | |
| Types Access/ ACCES / Research to a construction of the constructi | (8) Results |
| Spannel Company Despinel Neurol Despinel Neurol Despinel Neurol System Same Neurol Color Annew Tables Image: System Same Neurol Tables Tables Tables Image: System Same Neurol Neurol Tables Tables Image: System Same Neurol Neurol Tables Tables Image: System Same Neurol Neurol Tables Tables | System List (*a) -Indicates presence or absence of DTCs on the results field |
| Image: With and the second stack of the sec | as below. |
| MIDASCASTICABLISM TC C1011 R. unergeed sersor Athe V SIS-AII BAD - C1020 RI when speed sersor Athe V SIS-AII BAD - C1020 RI when speed sersor Athe V No Codstruer - C1011 R. Unergeed sersor Athe | " OK ": DTCs are not detected |
| ETACS - C1205 PLinteet speed serour Alleve | " TC " : DTCs are detected |
| Check end and DTC(s) was detected. Number of DTC(s):27 | "-" : Unchecked (out of the check system) |
| 1 L C 1 | Not equipped or communication error |
| | Diagnostic trouble code(s) (*d) |

Diagnostic trouble code(s) (*d)

-All detected DTCs are listed.

-Indicates status of the DTCs as below.

- "Active" : The trouble occurs currently
- "Stored" : The trouble had occurred in past
- "-" : Not supporting status recognition
- -When selecting a system with "TC" result on the System List (*a), columns of corresponding DTC on the Diagnostic trouble code(s) (*d) will appear in blue color.

Pressing 1 button returns the screen to (3).

NOTE:

The following systems, which need special process to read DTCs, are out of target for the All DTCs diagnosis.

-Air Conditioner for GRANDIS(NA4W) -SWS for DIAMANTE(F30/40#)

Chapter 5 Special Function (Calibration & Setting)

5-1. ECU Information

It resets learned value. Choose a reset item and press the "OK" button

1 L



(2) Select a reset item, and press 🗸 button.

5-3. Seat Weight Sensor Accuracy Check

| Ryne back Implied Implied <th>5-3-1. (1)</th> <th>Seat Weight Sensor Accuracy Check Function Select Select "SRS-AIR BAG" system on the System Selection screen.(For instruction on how to select a system, refer to 3-3-1)</th> | 5-3-1. (1) | Seat Weight Sensor Accuracy Check Function Select Select "SRS-AIR BAG" system on the System Selection screen.(For instruction on how to select a system, refer to 3-3-1) |
|--|-------------------|---|
| Cite and Resonance And Andrew SKSS-ALR BAO Annotation Filter Are tool Stread-tool And Valuetor Stread-tool And Valuetor Ocheak Ohert Degressitis: Tread-tool Code Stread-tool And Valuetor Date List Actuation Text Paleor Handbar Special Function Valtmenter Othermenter | (2) | Function Select Press the Special Function button. |
| Sect Vessel konstantion Sect Vessel konstantion Sect Weight Sensor Accuracy Check | (3) | Function Select Press the Seat Weight Sensor Accuracy Check button |
| State big / food Prefer / Said Weight Some Accessey Check State big / food Prefer / Said Weight Some Accessey Check State big / food Prefer / Said Weight Some Accessey Check 66.0 lbs Image: Said Said Said Said Said Said Said Said | (4) | Step1: Accuracy Check –66lbs- Slide the passenger seat to forward end. Put 66-88lbs weights on the center of the seat. Input the value of the weight put on the seat. Press button and start the Sensor Accuracy Check. unit: 1lbs unit: 0.1lbs Note: When a result is NG, 5-3-2. is displayed. |
| Step2 Accuracy Check Albert Weigt08ix Weigt08ix O lbs | (5) | Step2: Accuracy Check –0lbs- Unload weight and remove friction. Slide the passenger seat to rear end. Press the subtron and start the Sensor Accuracy Check. Note: |

When a result is NG, 5-3-2. is displayed.



Accuracy Check of 66lbs is NG

Unload weight, remove friction and slide the passenger seat to rear end. Then start the Zero-calibration proced

Accuracy Check of Olbsis NG

Unload weight, remove friction and slide the passenger seat to rear end. Then start the Zero-calibration procedure

A MUTHE

(6) Accuracy Check Results After the Accuracy Check completed normally, the results of each test is displayed.

5-3-2. Zero-Calibration

--OK – to (2)

(1) When the Accuracy Check is NG, the massage illustrated on the left will be displayed. Start the procedure for Zero-calibration in order to retry the Weight Sensor Accuracy check

77 lbs \$5.3-76.7b 1

(In the case 66lbs check is NG)



(In the case 0lbs check is NG)

| ~ | Zero- | calibratio | n | |
|---|--------|---------------|---|--|
| | Do you | want to start | ? | |
| | | | | |
| | | | | |

- (2) Zero-calibration Unload weight and remove friction. Slide the passenger seat to rear end.
- Press solution and start the Zero-calibration.

--Cancel – back to 5-3-1.(4) / (5)

(3) Zero-calibration Start Confirmation --Start

--Cancel --back to (2)

Note:

After the Zero-calibration completed, please retry the Weight Sensor Accuracy check (5-3-1(4)).

5-4. Steering Angle Sensor Calibration

| | System List | | Model | Year | Up to 2 | DOSMY | |
|----|--------------------|------|------------------------------------|------|----------------|--|-----|
| 1 | MPUGDUDiesel | | | | · From 2 | VMBOD | |
| 2 | IMMOBILIZER | * | | | | | |
| s: | ELC-AT/CVT | 1000 | | | Vehicle Inform | which is a second s | |
| | TCL | | Model Name COLT Model Yaar 2006 | | | _ | |
| 5 | ABSIASC | | Model | | | | |
| 8 | EPS | 100 | | | 254AXJU | | 100 |
| 7 | SRS Airbag | * | OPC | | Kon Name | With Option | |
| | LIN | _ | 100000 | ABS | | 2 | 6 |
| , | Keyless Entry | 3 | AK3 | ASC | | | _ |
| | Erectric Tail Gate | Y | | - | | | |

- 5-4-1. Steering Angle Sensor Calibration
 - (1) System Select
 Select "Steering Angle Sensor" on the System Selection screen. (For instruction on how to select a system, refer to 3-3-1)

Select command. Press OK button to execute.

1 1

(2) Function Select Press **Special Function** button.

(3) Special Function menu SelectPress Steering Angle Sensor Calibration button.

(4) Steering Angle Sensor Calibration
 Select a command item and press button to execute.
 Note:

When the display is "Yet" as the result of status, it is to (5). When the display is "Done" as the result of status, it is to (7).

- SAS Calibration Do you want to start? Note Please execute after making a tire and a steering wheel straight.
- (5) Study Confirmation
 - --Start --to (6).
 --Cancel --to (4).

Note:

Please execute after making a tire and a steering wheel straight.



5-5. Lateral G Sensor Calibration

| Bytem Select | (1) | System Se |
|--|-----|--|
| Bystem List Model Year Up to 2005Afy | () | - |
| MPIGDUDesal Prem 200MP MMOBILIZER | | Select "AB |
| 3 ELC-AT/CVT Model Name COLT | | (For instrue |
| 4 TCL Model Year 2006 | | |
| 5 A85/ASC Model Code 234XUHL8 | | |
| 7 SRS Airbag | | |
| 1 LIN A85 🔽 A | | |
| 9 Keyless Entry T AK3 ASC | | |
| Samer Rudel Yare and System | | |
| | | |
| MALANE STE Sharood Reised Lydens (Sector Princ) | | |
| ABS/ASC/ASTC NATION | (2) | Function S |
| Check Chart Diagnostic Trouble Code Simulated Vehicle Speed Output | | Press Sp |
| ever routent apreportes | | |
| Data List Actuator Test Drive Recorder | | |
| Special Function Voltmeter Ohmmeter | | |
| Special Function Voltimeter Onlymmeter | | |
| | | |
| | | |
| | | |
| Phone and function | | |
| 1 L L | | |
| Special Cardina Sectoremus Induced Space | (2) | Special Eu |
| CHASES ADSUBSCIASTC Service Function | (3) | Special Fu |
| Sensor Calibration ECU Information | | Press Se |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| Face and form | | |
| | (4) | Execute So |
| | (4) | |
| Additional and an end in the strengtheres Additional and a strengtheres Bann Lateral Granewa Calibration | (4) | Execute Se Press the |
| ABBASCATC / Second Functions / ABBASCATC / Second Functions / Element Leternit C second Calibration / Beening angle second Calibration / Beening Advance / Beening Ad | (4) | |
| AddadaCatter / Percel Francisco / Editorition AddadaCatter / Percel Francisco / Editorition Benti Lateral Gisensor Calibration | (4) | |
| Comparison and a second an | (4) | |
| Comparison and a second an | (4) | |
| Comparison and a second an | (4) | |
| | (4) | |
| | (4) | |
| | (4) | |
| | (4) | |
| | | Press the |
| Personal and the second memory of sensor Calibration | | Press the |
| Personal de la construcción de l | | Press the |
| Preferance Mercanic Accession of the second | | Press the Execute Control of the con |
| Personal de la construcción de l | | Press the |
| Personal de la construcción de l | | Press the Execute Control of the con |
| Personal de la construcción de l | | Press the Execute Control of the con |
| Personal de la construction de l | | Press the Execute Control of the con |
| Personal de la construction de l | (5) | Press the Execute Co |
| Presson and an 25 strater Calculation Device Induced Sensor Calculation Press OK Sutton to searce. Press OK Su | (5) | Press the Execute Co |
| Pressonal de la | (5) | Press the Execute Co Co Stat Co Car |
| Exercise the second secon | (5) | Press the Execute Co |
| Presson and an 25 strater Calculation Device Induced Sensor Calculation Press OK Sutton to searce. Press OK Su | (5) | Press the Execute Co Co Stat Co Car |
| Exercise the second secon | (5) | Press the Execute Co Co Stat Co Car |
| Exercise the second secon | (5) | Press the Execute Co Co Stat Co Car |
| Exercise the second secon | (5) | Press the Execute Co Co Stat Co Car |
| Exercise the second secon | (5) | Press the Execute Co Co Stat Co Car |

5-5-1. Lateral G Sensor Calibration

- elect BS/ASC/ASTC" on the System Selection screen. action on how to select a system, refer to 3-3-1)
- Select becial Function button.

unction menu Select ensor Calibration button.

Screen button to execute.

- confirmation ırt ncel --to (4).
- sensor Calibration Completed Irns to (4).

5-6. TPMS ID Registration and Checking



5-6-2. Tire Pressure Sensor ID Registration

 Select item from the Tire PRES SNSR ID Registration menu, and press button to execute.



| 🎨 4 SNSR I | D Regist | ration | | | |
|-------------------|---------------|----------|--------------------------------------|--|---|
| Do you wa | nt to start? | | | | |
| Note Finish ID | Do yo Note | SR ID Re | egistratio start? tration with | | 1 |
| | \checkmark | × | | | |

(2) Registration Execution Confirmation

 --Start
 --Cancel -- to (1)
 Note:
 Finish ID Registration within 5 minutes.

| Total Amount Annual A | (3) | Registration Execution If you want to interrupt the ID Registration, press the button to (4) When the registration complete, Registration Result will be displayed. Press button to (5) |
|---|-----|---|
| VIDTRET WAR (1-2) 24 (2020) VIDTRET WAR (1-2) 24 (202 | (4) | Registration Cancel Confirmation OK back to (1) NO back to (3) |
| UDT=== Web (r=2) 5(7)207 | (5) | ID Registration completed. |

| 5-6-3 | Tire Pressure | Sensor | חו | Check |
|-------|----------------------|---------|----|--------|
| 505. | | 0011301 | | Olicer |

The registered Tire Pressure Sensor ID is displayed.



| Secial Function Sec | | Tire Pressure Sensor Check Press the Jutton to execute. |
|--|-----|--|
| Mana - wo r-> 34723 Tire Pressure Sensor Check Do you want to start? | (2) | Tire Pressure Sensor Check execution Confirmation Start Cancel |
| The Pressure Sensor Check Special Function The Pressure Sensor Check The Pressure Sensor Check The Pressure Sensor Check The Pressure Sensor Check The The Pressure Sensor Check will be interrupted if the Check turb in pressed. The Pressure Sensor Check will be interrupted if the Check turb in pressed. The The Pressure Sensor Check will be interrupted if the Check turb in pressed. The The Pressure Sensor Check will be interrupted if the Check turb in pressed. The The Pressure Sensor Check will be interrupted if the Check turb in pressed. The Pressure Sensor Check will be interrupted if the Check turb in pressed. The The Pressure Sensor Check will be interrupted if the Check turb in pressed. The Pressure Sensor Check will be interrupted if the Check turb in pressed. The The Pressure Sensor Check will be interrupted if the Check turb in pressed. The Pressure Sensor Check will be interrupted if the Check turb interrupted if the Check t | (3) | Tire Pressure Sensor Check Executing If you want to interrupt the Sensor Checking, press the button to (4) When the check completed, the result will be displayed. Press the button to (5) |
| | (4) | Tire Pressure Sensor Check Cancel Confirmation OK back to (1) NO back to (3) |
| | (5) | Tire Pressure Sensor Check completed |

Chapter 6 Drive Recorder

6-1. How to Record the Data

There are two ways for recording the data, "Recording by V.C.I. alone (6-1-1)", and "Recording on PC with displaying data (6-1-2)". Please select one of them and follow the procedure.

6-1-1. Recording by V.C.I. alone

(Not supported by V.C.I.-Lite)

This section describes the operation for recording data using only V.C.I. without connecting to PC. However, drive recorder settings such as items to be recorded or trigger method are configured using PC.

Please connect V.C.I. into PC and the vehicle, and start performing the following steps using PC first.

(1) System Select

Select a system for which the drive recorder is to be used on the System Selection screen.

(For instruction on how to select a system, refer to 3-3-1)

- The following explanation describes how to set the drive recorder settings of the MFI system as a representative example.

| Check Chart or Problem Symptoms | Diagnostic Trouble Code | Simulated Vehicle Speed Output |
|------------------------------------|-------------------------|-----------------------------------|
| Data List | Actuator Test | Drive Recorder |
| Special Function | OBD-4 Test Mode | Readiness Test |
| Voltmeter | Ohmmeter | Check Mode |
| Emission Test | Coding | |

| | Data display |
|---------------------------------|----------------|
| Record (Read setting condition) | Data storing |
| | Second and the |
| | |
| | |
| | |
| | |

(2) Function Select Press Drive Recorder button.

<NOTE>

When a Check Mode button is effective, it's possible to sample in a short interval when it's changed to a check mode.

(3) Drive Recorder Function select

Press **Record** button on the Drive Recorder function menu.

Note:

Data display-- To transfer the recorded data on the V.C.I. into the PC (Refer to 6-2), or display the data (Refer to 6-3).

Record (Read Setting Conditions)

--Restore past recording conditions so that you can execute recording under the same conditions as those used with previously recorded data files. (Refer to 6-1-3)

Data Storing -- The data saved in a removable disk can be stored into the PC. (Refer to 6-2-2(7))

| | System Line | 100 | Model Year | | Up to 2005MY |
|----|-------------------------|-----|------------|---|--------------|
| 1 | WYSCICESE, | | | C | From2006MY |
| 1 | MORUZER | 1 | | | |
| 3 | ELC-ANOVT | | | | |
| 4 | 354 | | | | |
| ۶. | TOUSTABLITY CONTROL | | | | |
| ٤ | AUTO CRUSE | | | | |
| 1 | ecs | Y | | | |
| 1 | MSDectr: Power latering | - | | | |
| 8 | ABSIASCIASTC | Ξ | | | |
| 10 | 100 | | | | |
| | in feer and Turkers | | | | |

| _ | | Available dents | | | | | Detected terms | |
|-----|-----|-----------------|----------|-----|-----|------|----------------|--|
| eta | 145 | Ben Name | | | 381 | No. | Bern Karne | |
| i | - | 025 BAR2 52 | 4 | | i | 22 | ENI) SPEED | |
| i | 11 | 01010EN SNGR | | | i | : 24 | SPEED SHOP | |
| i | u | ets. | ^ | | i | 11 | AR TEMP SIXER | |
| i | 14 | 195(SUB) | * | | | | FuelPresture | |
| i | 16 | BATT VOLTAGE | | * | | | | |
| i | 18 | CRANK SIGNAL | * | 144 | | | | |
| | 1 | chen an #765ain | 10000 | | 1 | - | No. | |

- (4) Item Select
 - Select an item you wish to record and apply the selection using > button.
 - --Inserts the item selected in "Available items list" into the selected area of "Selected items list".
 - --Inserts the item selected in "Selected items list" into the lowermost area of "Available items list".
 - --Inserts all the items from "Selected items list" into the lowermost areas of "Available item list".
 - -Changes the order in which the items are displayed in "Selected items list" and "Available items list", in the sequence of default setting.
 - When complete the selection, press <u>v</u> button.

Note:

-A maximum of 16 items can be recorded.



- (5) Trigger method / Recording style Select
 - Select trigger method and put ✓ mark(s). (Multiple selection)
 - Put the 💽 mark on "V.C.I. Drive recorder".
 - When complete the selection, press without button.
 - "**Manual Trigger**" --Allows you to set the trigger manually. --to (8)
 - "Diagnosis Code Trigger" -- Applies the trigger when the specified diagnostic code is generated. -- to (6)
 - "Threshold Trigger"--Applies the trigger when the condition meets the set threshold. – to (7)

| | - 24 | grous Cride Teggie Xein | |
|-----|-------|---------------------------------|---|
| 801 | No | Birt Name | |
| | - 38 | ALL DITC | 4 |
| i | 81000 | nodelterigi sensir performance | |
| i | 81001 | fiside temperature sensor low | ^ |
| i | 89002 | Reads temperature sensor high | v |
| i | 81003 | fode temperature sensor open | |
| i | 81004 | nside temperature SASR inactive | ¥ |

- (6) When "**Diagnosis Code Trigger**" is selected in (5), the left screen appears.
 - Select an item to be the trigger, and press button.
 --to (8). (If Threshold Trigger is selected as well, go to (7))

| | | | contract of Pappy | | | | | | 7 | | 8 | |
|-----|-----|-------------------------------------|-------------------|-----------|-----|--------------|-----------|------|------------|------|-------|-------|
| No. | | Barn Name | Treatest Value | UN | DOM | Lever Eap | AND RH | | - | | | |
| 22 | | Die SPEED | 4000 | 1004 | UP | Level | - | 4 | 4 | | 5 | 6 |
| | | | | | | | | | 1 | | 2 | 3 |
| | - | | + | - | - | | | 7 | 0 | | 9 | |
| | | | | | | | | 44 | Bas Spa | | Clear | • |
| - | _ | | | Card | | | _ | _ | | | _ | |
| 381 | 741 | torn Name | . n | rechild s | 6.4 | | M | UNIC | :ONNI | Leve | (Edge | NDO |
| i | 194 | ENG SPEED FAG SPEED HERRESSER | 3 | 4000 | | - 14 | nen . | UP. | 2 | | | AND . |

- (7) When "**Threshold Trigger**" is selected in (5), the left screen appears.
 - Select an item and edit conditions in Condition Editing table appearing at the bottom of the screen, first.

Condition Editing table

"UP/DOWN": Threshold or higher / Threshold or lower "Level/Edge": Matching data / Data as of the time when it turns to be matching from not matching

- "AND/OR":-Data matching with both of this condition and the other one upper row on Condition of Trigger table / -Data matching with either of this condition or the other one upper row on Condition of Trigger table
- Then, press dutton to set the condition into selected area of Condition of Trigger table.

(Condition of Trigger table can include up to 8 conditions.)

• When completed the setting, press velocities button.

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|----------|-------------------|---|---|---------------------|---------|-------|--|--|
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| 6 | 4 | | Reco | radio Time | 21man68 | SHC . | | |
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| 0 | Dark | | 6-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1 | | | | | |
| n | Date | | Sampling Interv | 41 C | | | | |
| 0 | thes. | | | -3 | | | | |
| 0 | Recorded | | | | | • | | |
| | | | Distribution bef | ore and after trigg | et . | | | |
| 1 | • | | - | - 1 | | | | |
| Recorded | Rem Setting Selec | | 44 | 4 | • | | | |

(8) Select the V.C.I. recording area on the left list. Set the sampling interval and rate distributions (before and after trigger) by moving the cursor or by pressing

--OK --to (10)

Note:

-You can select from eight recording areas.

-It is possible to set consecutive areas as well.

- -The sampling interval time indicates the data-recording interval for one item. A setting of 0 seconds results in the fastest sampling interval.
- -When a sampling interval other than the fastest interval is selected, the amount of time in which recording is possible appears. This time is a calculated estimated time and may differ from the actual amount.

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|-----------------------|-------------------|------------|
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| 1 Back | System Check Cade | 104# |
| i marx | PARTHUMEER | MN150021 |
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| f) Recorded | Fecost Time | DraitBase |
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| Recorded Them Setting | Betect | WW |

| Drive Re | | web Page | Dialog C.I. da | ta | | |
|----------|------|----------|-------------------|-----------|-------|--|
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| | Gata | 01 0.0. | | | | |
| | | | | | | |
| | / | × | | | | |
| | · | × 1 | | | | |

(9) View V.C.I. Regeneration Data

(a) For the data recorded in the selected V.C.I. recording area, the settings of the items are displayed.

Deletes data recorded in the V.C.I.
 Select a data you wish to delete, and press this button -- to (b)

-- Cancel -- to (8)

(b) Delete Confirmation



| 004.1 | | | | | | | | | | |
|-------|---|---|---|---|---|---|---|-------|---------------|------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | | 0 | 0 | |
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| z | × | c | v | | N | м | | 12 | 100 | ĩ |
| | | | | | | | | Space | Back Space | Clea |

(10) Enter the record information (memo)Enter the reference information, such as the vehicle model and diagnosed system name.

--OK -- to (11)

Note:

-As the unit is linked with the PC keyboard, you can enter the information either using the PC keyboard or by using the screen keyboard.

| . here | Setting Conditioner 122 Settings |
|---------------------------------------|---------------------------------------|
| Trigger Type | Diagnoss Code Tiggero/Theshold Trgger |
| Disgroup Code Tryger Ben | ALLDIC |
| Measurement bern | 4 |
| Record Place | VCI. |
| Sampling Harvial | 9 Şani |
| Distribution before and after trigger | 50.50 |
| Pacordable Time | Pimerfölgar |
| Record Hormation | 2004 12 01 |

| (11) The contents chec | k of setting (1/3) |
|------------------------|--------------------|
|------------------------|--------------------|

The list of recording settings appears.

- -To check threshold trigger conditions (if selected)

Press with transmits the settings to the V.C.I.-- To (14)

| | tin. | Ann fairne | | 141 | Bart Torte |
|-----|------|--------------|-----|-----|------------|
| 11) | 22 | ENO SPEED | 121 | 24 | SPEED SYGR |
| m | 12 | ar temp dagr | (4) | | FusiFrance |
| | | 1 | | | |
| | | | | | |
| | | | _ | | - |
| | | | _ | | |
| | | 0 | | | |
| | | | | | |

(12) The contents check of setting (2/3)

The list of recording items appears.

Press without transmits the settings to the V.C.I.-- To (14)

How to Record the Data

| | The Lot of | The Threadward Thrgan | - | | | _ |
|-----|------------|-----------------------|-------|-------|----------------|------------|
| 10. | den Name | Theophylic values | Une | CONFI | Lavel 6 Spe | AND XIR |
| 12 | AFS. | -400 E | gniñ |),p | Level | - 51 |
| 33 | AR TEMP 5 | 80 | 8 | UP. | (,evel | 40 |
| 22 | EHO SPEED | 4000 | stray | UP. | Lavai | 440 |
| | | | | | | |
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Settings Transmission

Transfer the record settings to V.C.I.?

Confirmation



- Gereine -- To check set items

Press without transmits the settings to the V.C.I.-- To (14)

(14) Transmit Confirmation
 By pressing button on screen (11)/(12)/(13), the record settings are transmitted to V.C.I..
 Press button.



(15) Once the settings have been transmitted from the PC to the V.C.I., a message appears indicating that the settings have been transmitted. Please wait a second.

| Drive Re | corder | Web Pag | e Dialog | | | |
|----------|--------|----------------------|----------|------|-------------|-----|
| ٩ | | tings ' nfirma | | miss | ion | |
| | | nplete te m PC te | | | ord setting | js. |
| | / | | | | | |
| | Con | nplete te | o transf | | ord setting | js. |



(16) Press < button.

Note:

If you wish to start recording immediately, disconnect the USB cable while leaving the V.C.I. switch ON.

(Disconnecting the USB cable starts to record the data on V.C.I.) $\ \ --$ to (17)

If you wish to just set the settings and later start recording, turn the V.C.I. switch OFF and then disconnect the USB cable.

(17) Recording

When you record with a manual trigger, connect the trigger harness to the V.C.I. trigger terminal as necessary. Note:

-When the USB cable is connected, the V.C.I. communicates with the PC, thereby prohibiting drive recorder startup. Do not connect the USB cable.



(18) Starting Recording

To start recording, turn off the engine first, and then turn the ignition switch ON or start the engine and turn the V.C.I. power switch ON. Recording begins after communication initialization.

Note:

-The number in parenthesis on the V.C.I. LCD screen indicates the recording area of the V.C.I. drive recorder.



(19) Trigger

With a manual trigger, pressing the V.C.I. Enter key activates the trigger, displaying "T" on the screen. Once the trigger has been activated, the data after the time of the trigger are recorded.

Note:

With a diagnostic trigger, the trigger is automatically activated when the specified diagnostic code is generated.
With a threshold trigger, the trigger is automatically activated when the specified conditions are met.



(20) Ending Recording

If you wish to end recording, regardless of whether or not the trigger has already been generated, press the V.C.I. ESC key.

Once the button has been pressed you can disconnect the vehicle harness and trigger harness.

(21) When you check the data recorded in V.C.I. continue to 6-2-1.

6-1-2. Recording on PC with Displaying Data

This section describes the operation for saving the data at a file with displaying it as the set up record conditions on PC.

| | System Lint | | Model Year | | Up to2005MY |
|----|-------------------------|-------|------------|---|-------------|
| 1 | MPROVDENEL | | | C | From2008MY |
| 2 | MOBUZER | | | | |
| 3 | ELC-ANOVT | | | | |
| 4 | 554 | | | | |
| ۶. | TOU/STABLITY CONTROL | | | | |
| 4 | AUTO CRUSE | | | | |
| 1 | ECS | Y | | | |
| 1 | AVSENds: Power Savering | | | | |
| ŝ, | ABSIASCIASTC | T | | | |
| 10 | 100 | - Y | | | |
| | Ar Ther and Tasters | - And | | | |

(1) System Select

Select a system for which the drive recorder is to be used on the System Selection screen.

(For instruction on how to select a system, refer to 3-3-1)

- The following explanation describes how to set the drive recorder settings of the MFI system as a representative example.

| Check Chart or Problem Symptoms | Diagnostic Trouble Code | Simulated Vehicle Speed Output |
|------------------------------------|-------------------------|-----------------------------------|
| Data List | Actuator Test | Drive Recorder |
| Special Function | OBD-II Test Mode | Readiness Test |
| Voltmeter | Ohmmeter | Check Mode |
| Emission Test | Coding | |

(2) Selection of function. Press **Drive Recorder** button.

<NOTE>

When a Check Mode button is effective, it's possible to sample in a short interval when it's changed to a check mode.

| Record | Data display |
|---------------------------------|--------------|
| Record (Read setting condition) | Data storing |
| | |
| | |
| | |
| | |
| | |

(3) Press **Record** button on the Drive Recorder function menu.

Note:

Data display -- Displays the recorded data. (Refer to 6-3) or edit the data (Refer to 6-2-2)

Record (Read Setting Conditions) -- Allows you to restore past recording conditions so that you can execute recording under the same conditions as those used with previously recorded data files. (Refer to 6-1-3)

Data Storing -- The data saved in a removable disk can be stored into the PC. (Refer to 6-2-2 (7))

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|---|-----|-----------------|-------|-----|-----|-----|---------------|
| * | 145 | Ben Name | | | 201 | No. | Bern Käprne |
| i | ** | C25849/252 | 4 | | i | 22 | ENO SPEED |
| i | 11 | 01010EW SHIER | | • | i | 24 | SPEED SNOR |
| i | 12 | e/S | | | i | 11 | AR TEMP SIXER |
| i | 14 | TPS(SUB) | * | | | | Fuel Presture |
| i | 16 | BATT VOLTAGE | | 4 | | | |
| i | 18 | CRANE SCHAL | * | 144 | | | |
| | 1 | Chen an #7Marin | 10000 | | | | N |

- (4) Item Select
 - Select an item you wish to record and apply the selection using > button.
 - --Inserts the item selected in "Available items list" into the selected area of "Selected items list".
 - --Inserts the item selected in "Selected items list" into the lowermost area of "Available items list".
 - -Inserts all the items from "Selected items list" into the lowermost areas of "Available items list".
 - --Changes the order in which the items are displayed in "Selected items list" and "Available items list", in the sequence of default setting.
 - When complete the selection, press without button. Note:

-A maximum of 16 items can be recorded.

- * V.C.I.-Lite does not support "Voltage" and "Fuel pressure"
- (5) Trigger method / Recording style Select
 - Select trigger method, and put ✓ mark(s). (Multiple selection)
 - Put 💽 mark on "PC Drive recorder".
 - When completed the selection, press 📈 button.
 - **"Manual Trigger**" -- Allows you to set the trigger manually. --to (8)
 - "Diagnosis Code Trigger" -- Applies the trigger when the specified diagnostic code is generated. -- to (6)

"Threshold Trigger" -- Applies the trigger when condition meets the set threshold. -- to (7)

- (6) When "**Diagnosis Code Trigger**" is selected in (5), the left screen appears.
 - Select an item to be the trigger, and press button.
 --to (8). (If Threshold Trigger is selected as well, go to (7))
- (7) When "**Threshold Trigger**" is selected in (5), the left screen appears.
 - Select an item and edit conditions in Condition Editing table appearing at the bottom of the screen. (refer to 6-1-1(7))
 - Then, press subscription to set the condition into selected are of Condition of Trigger table.

(Condition of Trigger table can include up to 8 conditions)

• When completed the setting, press velocities button.

| Same Traget Spin Image: Spin Ministra Traget Image: Spin Spinson Calle Traget Image: Spin Called Traget Ministrate Spin | | Switch Wigger- | |
|---|-------|------------------------|--|
| Image: Color Frage: | Sales | t Troper Tate | |
| Immunity Immunity | | Manual Trigger | |
| James Rowell on James Rowell on Plandfrom VC1 Driv Reactive | | Diagnosis Code Trigger | |
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| Davect Placing From | | | |
| V C1 Drive Resorder | | Searched Record Frank | |
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| i | | ENG SPEED PAS SPEED INTERNOTORIA AR TEMP SPER | 2 | 4000 | | | nan . | UP. | 3 | - 3 | AND |

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| | PC. Takan at some meda baka digang tama at a | | C Test | |

| (8) PC Drive | recorder setup |
|--------------|----------------|
|--------------|----------------|

- Please confirm the contents of record setting, and set up the sampling interval with the cursor or **v v** button.
- Select a display format for recording (either **Graph** or **Text**) having a circle marked " .

-Displaying item select ('Graph' only)--to (9)

--OK -- to (10)

Note:

- -The sampling interval time indicates the data-recording interval for one item. A setting of "0 sec" (fastest) results in the fastest sampling interval.
- -Recordable time computes the number of the maximum record points as 20000 points, and is displayed. This is the prediction time on calculation and differs from actually recordable time.
- -The configuration of the displayed file names is DR+ Year Month Day + Time (military time including seconds), using the PC time. <DR: The file saved by the drive recorder>
- -The setting value of a sampling interval can be chosen from 0sec(fastest)/1sec/10sec/1min.

-The items not selected are not displayed on graph but the

Select the items you wish to display on the graph. -Selected 4items are displayed during the recording.

(9) Graph display item selection

| cicie | HEL / DA | ve Record | e / Rec | rit | | | | | | |
|-------|----------|-----------|---------|-----|---|---|------|-------|---------------|-------|
| IMY | ST248 (| M | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | | | 0 | |
| ٩ | w | E | R | T | ¥ | U | 1 | 0 | P | |
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| z | × | c | v | 8 | N | м | 12.0 | 23 | | i. |
| | | | | | | | | Space | Back Space | Clear |

| | Setting Conditional CD |
|--------------------------|---|
| bm | Settigs |
| Trippe Type | Diagnosis Code Triggero/Threshold Trigger |
| Despress Code Tryger Ben | ALLDIC |
| Measurement Service | 4 |
| Record Place | PC |
| Sampling Marvall | tiec |
| Film frührten | DR041013-210936.cov |
| Recordable Time | Graph |
| Receptivovation | DRMY 111345 SM |

(10) Enter the record information (memo).

Enter the reference information, such as the vehicle model and diagnosed system name.

--OK -- to (11)

data are recorded.

-- OK -- to (8)

Note: Because the unit is linked with the PC keyboard, you can enter the information either directly using the PC keyboard or by using the screen keyboard.

(11) The contents check of setting (1/3)

The list of recording settings appears.

.-To check set items

-To check threshold trigger conditions (if selected)

Pressing starts recording – go to (14)

| | 100. | Anthlane | | 144 | Beth Name |
|-----|------|--------------|----|-----|---------------|
| 11) | 22 | ENG SPEED | ch | 24 | SPEED SNGP |
| m | 12 | AR TEMP SHER | 10 | | Fuel Pressure |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| - | | | _ | _ | |

(12) The contents check of setting (2/3)

The list of set recording items appears.

--To check threshold trigger conditions (if selected)

-To check recording setting

Pressing starts recording – go to (14) Note:

When "Graph" is selected in (8), the background color of the name column of the item, which is to be displayed in graph during the recording, changes into yellow.

| | The Life of | The Threadward Thrgan | - | | _ | _ |
|-----|-------------|-----------------------|-------|------|-----------------|-----------|
| 10. | den Name | Theophyle value | Une | COMP | Lavel (5.5pe | AND XR |
| 12 | AFS. | -400 E | gniñ |).p | Level | |
| 13 | AR TEMP 5 | 80 | ×. | UP. | (,evel) | APD. |
| 22 | ENO SPEED | 4000 | stran | UP. | Lavai | 440 |
| - | | _ | _ | - | | |
| | | | | | | |
| - | | - | - | - | - | _ |

(13) The contents check of setting (3/3) (Only if selected in (7)) The list of threshold trigger conditions appears.

--To check recording setting
 --To check set items

Pressing starts recording – go to (14)

Non-Section Water Section 100 Text Section Section 100 Text Section Section 100 Text Section Section 100 Text Section Section 101 Text Section Section 102 Del Section Section 103 Text Section Section 104 Text Section Section 105 Text Section Section 104 Text Section Section 104 Text Section Section 105 Text Section Text Section 106 Text Section Text Section

(a). Recording screen [Graph]



(b). Recording screen [Text]

(14) Recording Data

[Graph]

It saves at the file, expressing data as the set-up record conditions. The four items chosen on (9) are indicated by graph as the left screen (a).

[Text]

When "Text" was chosen on (8), and a drive recorder is set up, it saves at a file, acquiring and expressing data as the set-up record conditions. (see the left screen (b))

Record End -- to (15)

When Trigger is not generated during data record, let the point at the time of a record start is time 0:00.0.

--Manual Trigger occurs

However, when Diagnosis Code Trigger or Threshold Trigger are chosen as trigger conditions, suppose that it is invalid.

Note:

- -Record is continued until record end button is pushed, even if trigger occurs.
- -The availability of the hard disk of the PC is checked after record screen display and before record start. When the availability is 100MB or less, a message is displayed and record is stopped.
- -When the number of record data reaches to 20000 points, a message is displayed and record is completed.



(15) Save record data

On the screens of (14), pressing *Remarked* button ends the data acquisition and saves it, and then displays a dialog indicating completion of the record data saving.

-- OK --To Drive Recorder function select menu screen (Refer to (3)).

Note:

*In the case that there is no record data, a dialog is displayed confirming whether to stop the recording.

-- OK -- To the drive recorder function select menu

-- Cancel --To (14) to start recording again.

(16) When you check the recorded data, continue to 6-2-2.

6-1-3. Reuse Past Setting Condition

Record (Read Setting Conditions) button allows you to restore past recording conditions so that you can execute recording under the same conditions as those used with previously recorded data files.

(1) Press Record (Read Setting Conditions) button on the Drive Recorder function menu. (refer to 6-1-1(3))



| | - | tyrneid setting condition | | _ |
|---------------------|---------------|---------------------------|------------------|----|
| FileNate . | Facord System | Conditions of Tingger | Record Hormation | |
| DR031211-003405 cav | NFI . | Manual Trigger | | Â |
| DR031211-002903 cov | MR1 | Mercal Tripper | pd+20+1 | |
| DR031211-002730 cse | un. | Minut Tripper | | ^ |
| D#031215-003438-cm | MFI | Макия Торри | | - |
| | | | | ** |

Select the data you wish to restore, and press button.
 The data was recorded using V.C.I.: To 6-1-1(8)
 The data was recorded using PC : To 6-1-2(8)

6-2. Recorded Data Handling

| System select | Special function |
|---|---|
| CAN bus diagnosis | Configuration |
| Tarla New | Tapiro |
| Fore, 1986 | a bakendar Mirez X. L. Vound albene Diegorenis (floredre Buien, 鞭 |
| C.C.S. Stand alson (Dagaroits database in spelated. 2 | a |
| lease select function. | Ver. PRN08121-01 |

6-2-1. Transmit Data on V.C.I. to PC

(Not supported by V.C.I.-Lite)

To view the data recorded on V.C.I., you need to transfer it from V.C.I. to PC first. Connect V.C.I. and PC using a USB cable and operate following procedures.

 You can transfer the data using only V.C.I. and PC, without connecting to the vehicle. Press Special Function button on the STV Top Menu.--to (2)

Or, if the V.C.I. is already connected to the vehicle, you can press **Data display** from the function menu of the recorded system to regenerate the data. (Refer to 6-1-1(3)) --to (4)



(2) Select the **System Functions** tab on the upper part of the screen, and then press **Drive Recorder (Display only)** button.

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| See No File Name Pacent System Constant of Name Pacent System 001 DR012114.00465 cm MFI Manual Troppe 0001 DR012114.00465 cm MFI Manual Troppe | ١. |
|--|-----|
| | ١., |
| 0002 DR010211-002903 cm uFI . Manual Trigger | 1 |
| | - |
| 0003 DH011211-002730 ctv MII Menual Trigger | 4 |
| 0064 DRI031211-000436.csv MRI Manual Triggir | |
| 0005 SD011216.2222111.cm WT | - |
| 0008 DR031304.053514.cm ABSARDCADTC Manual Tegger 100.0 | 14 |

(3) Press Data display button.

(4) File List press press button.

| _ | Parant Analy (21) | | da Normatia Setting |
|------------|---|--|--------------------------------|
| (1) | Elami | Net . | Setting . |
| (I) | Black | | |
| 01 | Earth | System Check Code | 100 |
| 10 | 1000 | PARTNAMEER | MR1105921 |
| (4) | ties | ROMAD | 053900 |
| ni. | Blank. | Measurietwet form | |
| m) - | Earth | Sampling interval | O(w) (available factout speed) |
| n | Blank | Record Time | DesirgTime |
| | Recedent | | 000000 |
| Recorder | a ten Setting Sele | et Record Information | |
| | | and the second second | |
| water tota | aller arguing data him K.C.I. Please with | of "Databa" future when you down state | |

rive Recorder -- Web Page Dialog
Transfer (From V.C.I. to PC)

Transfer data from V.C.I.?

 (5) Display of V.C.I. Data The status of V.C.I. recording area is displayed. Select a data to be transferred into PC, and press states button --to (6)

When you wish to delete a data, select it and press **ES** button.

(6) Transfer Confirmation Press <u>v</u> button.



(7) The data is being transferred from V.C.I. to PC. Please wait for a while.



- (8) After completion of data transfer, a dialog box appears asking whether to delete the data on V.C.I..
 - \checkmark : Deletes the data, then returns to screen (5).
 - Returns to screen (5) without deleting the data.

| Drive Recorder (Display only) | SWS monitor Drive Recorder (Display only) |
|--|--|
| ECU reprogramming | All DTCs |
| V.C.I. Stand-alone Diagnosis (Data Transfer to PC-card) | MiEV Computer Diagnosis |
| (Data Transfer to PC-card) | |
| | |
| | |



6-2-2. Data Edit Functions

Press Special Function on the STV Top Menu.
 Then select System Functions tab on the upper part of the screen, then press Drive Recorder (Display only).

Or, if V.C.I. is already connected to the vehicle, you can press **Data display** on the function menu of the recorded system. (Refer to 6-1-1(3)) --to (3)

(2) Press Data display button.

| 1 | 10 | Finishets | Record System | Conditions of Trigger | Facord Montation | |
|---|------|---------------------|---------------|-----------------------|------------------|----|
| _ | 0001 | DR011211-003405-cav | NEI . | Manual Trigger | Called Homason | 4 |
| Г | 0002 | DR011211-009803-09 | uei . | Manual Tingger | | 1 |
| Г | 0003 | DR011211-002730 ctv | uri . | Manual Tinggar | | 4 |
| Г | 0004 | DR011211-002436 ctm | MI . | Manual Trigger | | |
| | 0005 | 9D011216-232811 cm | MP) | - | | |
| | 0000 | DR091204-052814 cts | ABUASCIASTC | Marual Titgger | 900-0 | 44 |

(3) Recorded data file list

-The file list of the drive recorder (and data list records) saved into the PC is displayed.

-You can view the data details by selecting the data you wish to view from the list and pressing 💼 button.

-In addition, you can view graph data by pressing 📰 🔛 button. (to 6-3-1(3))

- -The background color of the line containing the selected file changes into yellow.
- -- Edit record information refer to (4)
- Fer -- Delete the data file -- refer to (5)

E -- refer to (6)

Note:

- -The configuration of the displayed file names is DR+Year Month Day+Time(military time including seconds), using the PC time.
- -The most recent recorded data appears on top of the list.
- -Those file names, which begin with "SD", contain the data of Data List records. (Refer to 4-2-2.(2))

Caution: About "CSV file"

If you open the CSV file on M.U.T.-III using EXCEL, never overwrite and save it. (However, they are allowed after the file is transferred from M.U.T.-III to another PC or copied in another folder.)

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | | 9 | 0 | |
|---|---|---|---|---|---|---|-----|------------|---------------|------|
| ٩ | w | E | R | т | ۷ | U | 1 | 0 | • | |
| A | 5 | D | | G | н | J | к | L | | |
| z | × | с | v | в | N | м | 323 | *) | • | |
| | | | | | | | | Space | Back Space | Clea |



- (4) Edit Data Information
 - Select a file to edit and press button to display the screen illustrated on the left, where you can edit the record information that was entered in 6-1-1(10) or 6-1-2(10).

Press 🗸 button.

Edit Confirmation
 Press ✓ button. → returns to (3)

| 28 | 10 | File Name | Record Data Collination | Conditions of Trigger | Recetificmator | |
|----|---------|--|-------------------------|----------------------------|----------------|----|
| | 0001 | DP040511.144237.cm | 49 | Manual Trigger | +C) #004 | 4 |
| 7 | 0002 | DR040511-142130 ctv | un | Mahual Tingger | kipitalar | 1 |
| ~ | 0003 | DR040511.141313.cm | with the | Manual Trigger | ergens (beck2 | - |
| | 0004 | DECKISTI-141124 zpv | MF1 | Manual Triggier | angina ithacla | * |
| - | | | | | | 44 |
| | # 0 mil | Without of America Million and America | Summer of | Contracting and the second | \$ | |



| 5 | 100 | File Nathe | Record Date Lothers | Conditions of Topper | Facort Monaton | |
|---|------|--------------------------------------|---------------------|----------------------|----------------|----|
| | 0001 | DR040511.144237.cm | - | Manual Tripper | -ci akine | A |
| 2 | 0012 | DR040511-142130 utv | M1 | Manual Tripper | kiptoja | 1 |
| 2 | 0000 | DR040511.141313.cm | un : | Masul Trigger | anges theold | ^ |
| | 0004 | DROADS11.141124.ctw | MFI | Manual Trigger | ergne (beck | * |
| - | | | | | | 44 |
| | *** | Statuenter of Series Allies and Stre | . See Section 1. | The peaks later | Ś., | |

(5) Delete Data

 To delete a data file loaded on the PC, click the check box next to file No. in the file list (refer to (3)) to place a check mark, and press for button.

(Two or more check marks can be placed.)

Note:

✓ mark will be displayed, if cursor is moved on a check box and it clicks. (Selection)

✓ mark is eliminated by clicking again. (Selection release)

2. File Delete Confirmation

A message appears asking if you wish to delete the data file. Press 🔨 button to delete the file.

- (6) Save Data
 - 1. The data file can be saved to a removable disk (floppy disk or memory card).

-Insert a disk into the PC, first.

-Click the check box next to the file No. in the file list to place a check mark, and press button.

(Two or more file selections are possible.)

Note:

- ✓ mark will be displayed, if cursor is moved on a check box and it clicks. (Selection)
- ✓ mark is eliminated by clicking again. (Selection release)





2. Drive Select

Select a drive for saving the data files, and press

 Data Saved The files are saved. Press ✓ button.

| | Data display | | | Dat | a storing | |
|---|--------------|--|--|-----|-----------|--|
| _ | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |





- (7) Data Storing
 - 1. The data saved in a removable disk before can be stored into the PC.

-Insert the disk into the PC, first.

- -Press **Data Storing** button on the Drive Recorder function menu. (Refer to (2))
- 2. Drive Select
 Select the drive storing the data.
 Image: I

 Data Storage Complete The data has been loaded to PC. Press button.

6-3. Display and Analysis of the Recorded Data



- 6-3-1. Display the Recorded Data
 - Press <u>Special Function</u> on the STV Top Menu. Then select the System Functions tab on the upper part of the screen, and press <u>Drive Recorder (Display only)</u>, then press <u>Data display</u> button.
 Or, if the PC is connected to the vehicle through V.C.I., you can press <u>Data display</u> on the function menu of the recorded system.

| 10 | | | Production of the second | Record Mematon | |
|----------|---------------------|---------------|--------------------------|-------------------|----|
| Der . | FiteName | Facord System | Conditions of Teggor | Piecord Hormation | ٩. |
| 0001 DR | 8031211-003405 cav | MFI | Manual Trigger | | 1 |
| 0002 DR | 1031211-002903 cm | uri - | Manual Tinggar | | P |
| 0003 104 | 1031211-002730 ctv | MI) | Manual Trigger | | 4 |
| 0004 209 | IOH211-002436 cov | MI . | Manual Trigger | | |
| 0005 50 | 001210-232011 ::::: | ME) | - | | 1 |
| 0000 000 | C01204-052514 cm | ABSIASCIASTC | Marual Trigger | 105.0 | 1 |

(2) Recorded data file list Data file list that contains record of Drive recorder and Data list saved in PC will be displayed.

You can view the data details by selecting the data you want to display from the list and pressing
button.

In addition, you can view graph data by pressing so results or so button.

-The background color of the line containing the selected file changes into yellow.

| Judge | Time- | A3 | 13 | 47 | 22 | |
|-------|------------|---------------|------------|------------|--------------|-----|
| Anda | | HO25 BANKI 52 | IAT SENSOR | ENGINELOAD | ENGINE SPEED | 1 |
| 3 | 100 | V | 7 | | itterite | |
| | -0.02 830 | 0.000 | -40 | 0.0 | Q : | |
| | -0.112 304 | 0.000 | -43 | 0.0 | 0 | |
| 1.1 | -0101378 | 0.000 | -40 | 0.0 | 0 | |
| - | -0.01.852 | 0.000 | -43 | 0.0 | 0 | |
| | -2:00.526 | 000.6 | -47 | 0.0 | (P) | |
| 200 | 8.00.000 | 8000 | | 8.0 | n (| |
| | 0.00.560 | 0.000 | -4) | 0.0 | 10 | - |
| | 0.01.052 | 0.000 | -40 | 0.0 | 0 | |
| | 0.01.577 | 0000 | -40 | 0.0 | 0 | |
| | 0.02.104 | 0.000 | -40 | 8.0 | ų. | ÷. |
| | 9.02.629 | 0.000 | -42 | 0.0 | | |
| | | 44 | | > | ** | |
| Mar | | 746 | Min. | a | Ave. | ż |
| 1 | t | | 7 | | | 00 |
| | | | - | | | 101 |

- (3) Displaying Text Data
 - 🚟 --Graph data 1
 - --Graph data 2
 - --Select item (to (4))
 - -Edits extraction conditions (to 6-3-2.(1))
 - Sets search conditions (to 6-3-2.(2))
 - -Jumps to a trigger point.
 - --Saves data (to (6-3-2.(3))
 - --Displays a correlation diagram (to 6-3-3.(1))
 - --Displays a distribution chart (to 6-3-3.(2))
 - 1/3 🔁 --View 1/3
 - 2/3 🔁 --View 2/3
 - 3/3 🔁 --View 3/3

| http:// | 340. | Bert Name | Value | Gright | |
|---------|-------|----------------------|---------|---------------------------|-------|
| i | -11 | ECT SENSOR | 417 | | 1 |
| i | 43 | HO25 BANK2 51 | 0.020 V | | ~ |
| i | u | WT SENSOR | -40.7 | R | - |
| i | 12 | ENGRE SPEED | 0 min | 4154 | |
| | ine i | 0.00 | | • · · · · · · · · · · · · | • |
| Ó | | Continue o Fagor Ann | 6 | | 5 140 |
| | | | | .#2 (B= Qxr - | d 100 |
| | | | | | |

Displaying Graph 1 Iff --Text data --Graph data 2 Iff --Select item (to (4)) Iff --Select item (to (5-3-2.(1))) Iff --Select item (to (5-3-2.(3)) Iff --Select item (to (5-3-3.(2)) Iff --Select item (to (5-3-3.(2)



Displaying Graph 2

Displayed items are overlaid on a graph.

-The function buttons are the same as Graph1.

| _ | | Averative feature : | | | | | selected deter | |
|------|------|---------------------|---------|-----|-----|-----|----------------|---|
| into | 140. | ban hane | - 3 | | 105 | NO. | Bein Name | |
| i | 22 | DARK SPEED | 4 | | i | 21 | ECT SENSOR | 4 |
| i | A) | H025 (KANK2 S1 | | * | | | | |
| i | 18 | #T SENSOR | ~ | | | | | _ |
| | - | | | | | | | - |
| | | | | * | | | | |
| | | | ¥ | 144 | | | | 1 |
| 12 | 000- | Wolas Villare | - Wards | | 100 | | 1. | |

(4) Select item

button allows you to select items to be displayed from recorded data.

When complete the selection, press solution.

The item number of service data OBD basic items appears green.

- --Inserts all the items from "Available items list" into the selected areas of "Selected items list."
- --Inserts the item selected in "Available items list" into the selected area of "Selected items list".
- -Inserts the item selected in "Selected items list" into the lowermost area of "Available items list".
- --Inserts all the items from "Selected items list" into the lowermost areas of "Available items list."
- --Changes the order in which the items are displayed in "Selected items list" and "Available items list," in the sequence of default setting.
6-3-2. Extraction and Search of the Recorded Data

Recorded data can be extracted or retrieved for display on predetermined conditions.

<Extraction: Only matching data will be displayed> <Retrieval: Matching data will be displayed with *(asterisk)> Time range, threshold of item etc. can be set as condition of extraction or retrieval.

(1) Condition setting for data extraction

Extraction condition setting screen shown on the left will be displayed after pressing button on text/graph display screen.

• Select an item and edit its condition in Condition editing table appearing at the bottom of the screen.

Condition editing table

"UP/DOWN": Threshold or higher / Threshold or lower "Level/Edge": Matching data / Data as of the time when it turns

to be matching from not matching

- "AND/OR": -Data matching with both of this condition and the other one upper row on Extraction Setting table/ -Data matching with either of this condition or the other one upper row on Extraction Setting table
- Then, press dutton to add the condition onto Extraction Setting table.

(Extraction Setting table can include up to 8 conditions.)

Press button to display extracted data only in text/graph.

Current -- Set Time extraction condition.

-Delete selected extraction condition data.



Time extraction condition setting

After pressing Dim button, time extraction condition setting screen shown on the left will be displayed. Set time range on this screen and press solution to display extracted data only.

Data Extraction condition setting screen.

| | Deschor Set | nga (Cesta S | | _ | _ | | 7 | 8 | |
|---------------|---------------|--------------|-----------|--------|------|-----|---------------|-------|-----|
| No. Asim Name | Tredicktvalue | UNR | UPIDOWA | e-thip | NORM | | - | - | - |
| | | | | | | | 4 | 5 | 3 |
| | | _ | | - | | * | 1 | 2 | |
| | - | | - | - | - | | 0 | 3 | |
| | | 1 | | | | * | Back Space | Clear | |
| nature | 90 | | Contracts | | law | | com u | | ALL |
| AZHO25-E | to Barn hagna | 3 | o Mo | - | UNR. | 5 | | | ALA |
| 1 Percent | | - | | _ | 1.1 | - 1 | - | | _ |

| | | | | (Cape) | | | | 7 | | |
|--------|----------------|----------------|------|-------------------|-----------|------------------|---|---------------|----------|--------|
| hai.th | an tipte | Treshold value | Unit | PIDOM | Leading . | 1000 | | - | - | - |
| ADHOD | 5.8APH152 | 6.750 | Ý | UP | Level | 1. | | - 4 | 5 | 6 |
| | | | | | | | 4 | 1 | 2 | 3 |
| _ | | | | - | - | - | | 0 | | 353 |
| | | | | | | | * | Back Space | Clear | |
| | | 50 A | 9 | - | (j | -00 ¹ | | | () () () | 1 |
| fundur | 3. 36 | Jan high | | Name (State State | | UNR | U | DOM: LA | wElge. | AND/OF |
| i | A2H025-BA | 861.52 | 3 | 0.750 | - | ٧ | P | P 31.0 | - | ND 3 |

(2) Conditions setting for data search

Condition setting screen shown on the left will be displayed after pressing to the button on text data display screen.

- Select an item and edit its condition in Condition editing table appearing at the bottom of the screen. (See (1) for more details.)
- Then, press dutton to set the condition onto Retrieval condition table.

(Retrieval condition table can include up to 8 conditions.)

• Press button to display text data screen showing * (asterisk) in the Judge column of the data matching with the retrieval condition.

Outrie -- Set Time retrieval condition.

--Delete selected condition.



Time retrieval condition setting

After pressing Direct button, Time retrieval condition setting screen shown on the left will be displayed. Set time range on this screen and press button to display text data screen showing * (asterisk) in the Judge column of the record data matching with the retrieval condition.

Search conditions setting screen.



(3) Data save

When pressing 🖂 button on the screen of displaying data, you can save the extracted or retrieved data into the PC. As the left dialog box appears, press 🔨 button.

Note:

The configuration of the file name is original data file name + alphabet (a,b..z).



6-3-3. Diagram and Chart

(1) Setting the Correlation Diagram

Pressing button on the screen illustrated in 6-3-1(3) displays the correlation diagram settings screen as illustrated on the left.

Setting the target data time range, item names and data display range and pressing state button displays the correlation diagram.

<Correlation Diagram>



| | 69606 | | 7 | 8 | 9 |
|----------------------------------|-----------------------------|------|-------|-------|---|
| Trite | -Dimmi 40 sec - 1 tem 9 sec | - | - | | |
| Data | 0.000 - 1.500 V | | 4 | 5 | 6 |
| | kaligan Saling | | 1 | 2 | 3 |
| forme ranges (Lower Arrit value) | 1 in (4) | 145 | - | | |
| Internange (Lipper Mittle volum) | 1 mm - 0 | 340 | 0 | 10 | • |
| Applicable Bern | FATHO25 BANK2 ST | E | Back | Clear | |
| Date Range | 0.000 0 1500 | - 12 | Space | Cione | |
| 0-art interval | 015 | | | | |
| ees range (0 Optimien Value In | 0 | | | | |



(2) Setting the Distribution Chart

Pressing total button on the screen illustrated in 6-3-1(3) displays the distribution chart settings screen as illustrated on the left.

Setting the target data time range, item names, data range, division width, and frequency range and pressing button displays the distribution chart.

<Distribution Chart>

| autor . | Timer | A2 | 13 | 67 | 22 | |
|---------|-----------|---------------|------------|-----------|--------------|-----|
| | 1004 | HO25 BANKT 52 | INT SENSOR | ENGNELOAD | ENGINE SPEED | |
| | 11.1 | v | 4 | | silmin | |
| | -0.02.830 | 0.000 | -40 | 0.0 | 0. | |
| | -0.02 554 | 0000 | - 4) | 0.0 | 0 | |
| | -0101578 | 0.000 | -40 | 0.0 | 0 | |
| | -001862 | 0.000 | -40 | 0.0 | 0 | |
| | -010526 | 6.000 | -40 | 0.0 | | |
| | 0.00.000 | 1000 | | 0.0 | 0 | 1 |
| | 0.00.560 | 6.000 | -40 | 0.0 | 0 | - |
| | 0.01.012 | 0.000 | -40 | 0.0 | 0 | 1 * |
| | 0.01.577 | 0.000 | | 0.0 | 0 | |
| | 0.02104 | 0.000 | | 0.0 | 0 | T ▼ |
| | 9 02 629 | 6,000 | -#2 | 0.0 | | |
| | | 44 | - | * | | |
| | Max. | 746 | Min. | 4 | Ave. | 2 |

6-3-4. Other Functions

(1) Changing Item Display Order

On the data list display screen, you can change the display order of the items. The change is possible for both text display and graph display.

- -Selecting the name display area of an item fixes the item.
- -Then over-scrolling only the items not selected using scroll keys changes the order.
- -The selection can be released by selecting the item again.
- -The function is not activated while a data range display area is selected in the data range change function. (Selection, release, and scroll functions of item are not available.)
- (2) Data Range Change

Select a data range display area on the graph.

When the color of the selected area turns into yellow, you can enter values.

Entering method: Use PC keyboard or scroll keys.

- -When the PC keyboard is used, enter a value from the keyboard and then press the [Enter] key or release the selection of the data range display area to determine the data range change.
- -When the scroll keys, ▲ and ▼, on the screen are used for the data range change, pressing the ▲ key each time changes the data range setting by +5 % of full scale and the ▼ key changes it by -5 %. The change is determined at each key pressing.

| into 1 | 340. | Bert Name | Value 1 | Draph . | | |
|--------|-------|-------------------------|--------------------|--|-----------------------------|---|
| i | # | ECT SENSOR | -40 T | | | * |
| i | 22 | ENGRE SPEED | 0 stress | | | |
| i | 42 | H025.84442.51 | 0.029 V | | | ¥ |
| i | | AT SENSOR | 40.9 | | | * |
| | les. | 0.001 | iar | 4 | | |
| d time | PHT M | Contrins of Topper Wars | at Togger The runs | Contract of Photo Taxano David Case We | FIGE NAME DRIVEN ADDRESS OF | _ |

Chapter 7 SWS Monitor

(Not supported by V.C.I.-Lite)

7-1. SWS Monitor Operation

Precautionary Notes

Prior to connecting or disconnecting the SWS monitor and vehicle, be sure to turn the ignition switch OFF.

- If the SWS monitor is connected to the column switch connecter, connecting the SWS monitor cartridge and V.C.I. prior to V.C.I. power activation may cause damage to the V.C.I. Refer to connection instructions for more details - connect the monitor cartridge after the V.C.I. is connected to the vehicle and the V.C.I. power switch is ON.
- If you wish to use the SWS monitor continuously for a long period of time, the V.C.I. and SWS cartridge will consume power. Take extra precautions to ensure that the battery does not die during use.
- Use of cellular phones and amateur radios near the SWS monitor during use may cause the SWS monitor to not function properly. Avoid using such apparatuses near the monitor during use.
- 4. During use, the SWS monitor may affect systems employing weak electric currents such as GPS systems.
- 5. The tip of the door communication probe is sharp. Be careful during handling.



| Check Chart or Problem Symptoms | Diagnostic Trouble Code | Simulated Vehicle Speed Output |
|------------------------------------|-------------------------|-----------------------------------|
| Data List | Pulse Checking | Actuator Test |
| Drive Recorder | Special Function | SWS MONITOR |
| Voltmeter | Ohmmeter | |
| | | |
| wind function | | |

| SWS m | onitor |
|-----------------------|----------------|
| ECU Comm Check | Data List |
| Function Diag. | Drive Recorder |
| | |
| | |
| | |
| | |
| nt ne 1000 beinene Md | |
| 1 L 2 | |

7-1-1. SWS Monitor Function

(1) System Select

Select "**SWS**" on the System Selection screen. (For instructions on how to select a system, refer to 3-3-1)

Note:

SWS monitor cartridge is required in M.U.T.-III as well for SWS monitor. For details regarding how to connect the cartridge and harness, see the M.U.T.-II reference manual (Pub. No. MSSP-310B-2002) or the service manual data of each vehicle.

(2) Function Select

Press **SWS MONITOR** button on the SWS function menu.

Note:

If the SWS monitor cartridge is not connected to the vehicle, **SWS MONITOR** button does not appear.

(3) Function Select

The SWS monitor menu screen appears. ECU Comm Check -- to 7-1-2. Data List -- to 7-1-3. Function Diag. -- to 7-1-4. Drive Recorder -- to 7-1-5.

| | | Determine COA | | | | | NENE-ECLIN | |
|-----|-----|---------------|---|----|-----|-----|------------|--|
| 810 | 185 | Natro | - | | 205 | 540 | Name | |
| | - | COLUMVECU | | 44 | | | | |
| | 10 | ETACSEOU | | | | | | |
| | 14 | FRONT BOU | | | | | | |
| | | SUMPOOF ECU | | - | | | | |
| | | | | | | | | |
| | | | | | | | | |

| ID COLUMPLICU OK OK | Refs. | 145 | fabros . | Value | Graph |
|--|-------|-----|------------|-------|--------------------------|
| 10 ETACSECU OK 16 10 40 40 40 40 | | 80 | COLLAMVECU | CH: | |
| | | | ETACS EQU | OK | |
| 54 REONTECU ON No. 100 40 40 40 30 | | 34 | FRONT ECU | ок | N6 100 100 40 40 40 50 0 |
| = SUARCOFECU NO 10 10 40 40 40 30 | | | SUNFOOFECU | NO | |

How To Check ECU's

7-1-2. Checking ECU Communication

(1) Item Select
 The item selection screen appears.
 Select items to check and press button.

Note:

All items are selected as default.

(2) Displaying Graph

"OK" appears if the ECU is communicating properly, and "NG" appears if there is a communication error. "NG" also appears if the system has not been installed or is installed but not communicating. Prior to performing the check, therefore, it is necessary to identify the system for the monitored vehicle.

--Change Time Scale

--View text style--to (3)

(3) Displaying Text style If you press How to Check ECU's button, you can view the Service Manual. (Not Available in US)

1

| | | | Data Lini Pure | nance-Table |
|-----|------|---------------|----------------|------------------------------------|
| Ht. | No | Have | Value | Grief |
| i | -112 | CRAMER SW | OFF. | (H7 -121 -100 -80 -80 -40 -20 0 |
| i | 09 | FRONT WASH SW | 041 | |
| i | 10 | HE, WASHER SW | 017 | 0" 10 40 40 40 40 0 |
| i | | HEADLIGHT SW | ON . | 07 |

7-1-3. Data List

- (1) Item Select
 Select an ECU to monitor from the Data List, and press
 button.
 - --Item Select
- (2) Displaying Graph
 Image: Imag

| | | Date Lot Personanta | - | | 1 |
|-----|------|---------------------|-------|---|--------------------------------|
| ń0. | 741 | - Name | Valje | | Data List Reference Table |
| i | 62 | DAMER SW | OFF | | Simulated Vehicle Speed Output |
| i | 09 | VICE WASHING | CFF | | |
| i | 16 | HLWASHER SW | OFF | | |
| i | 00 | HEADLIGHT SW | OFF | | |
| i | at : | H WEEK DW | OFF | v | |
| i | 15 | INT WIFE YOU'D | EQUP | | |

 (3) Displaying Texts
 Data List Reference Table --Displays the Data List of the Service manual. (Not Available in US)
 Simulated Vehicle Speed Output --Allows you to simultaneously view the Simulated Vehicle speed and Data List. --to (5)

--View graph

| | | Date Lot Personne Ta | cie - | | | | | | |
|-----|-----|----------------------|-------|---|----|----|------------------------|----|-------|
| ń0. | 741 | - Name | Value | | | _ | - | | |
| i | 62 | DAMER SW | OFF | | | | ed confidence event | | |
| i | 09 | FRONT INACHOW | CFF | | 13 | 50 | mph . | | |
| i | 16 | HLWASHER SW | OFF | | 1 | | | | |
| i | 00 | HEADLIGHT SW | OFF | | | • | 2 | ÷. | 10.00 |
| i | at. | H WPER SW | CIFF | v | | 44 | • | • | ** |
| i | 15 | INT WIFE YOU'R | EQUIP | | | | | | |

 (4) Simulated Vehicle Speed Output The Simulated Vehicle speed output function displays the simulated vehicle speed and Data List simultaneously.
 Speed output can be changed in 1 mph or 10 mph increments using the speed adjusting buttons.

- --Unit: 10mph
- --View graph

7-1-4. Function Diagnosis

- Press Function Diag. button on the screen illustrated in 7-1-1(3). Select the function you wish to diagnose and press button.
- (2) Select a detailed function and press without button.
- Note:
 Note:

 Image: Section of the sect

| | _ | | WEEDE | | _ |
|---------|------|------------------------------|-----------------------|--|---|
| en al a | 185 | Hartse | Value | Graph | - |
| i | 67 | HEWPER SW COLUMN EOUS | OFF | CH CFF 120 -100 -80 -80 -40 -20 | |
| i | 09 | NIST WPER SW ICOLUMNEOUI | 041 | 01 077 .1 <u>0 .101 .40 .40 .48 .20</u> | |
| i | 19 | FECNT WASH SHE COLUMN ECU | 049 | 01 | |
| i | -10 | G SWEACC) ETACS ECUI | ON . | (177 (177 ,120 ,100 ,40 ,40 ,40 ,20 | |
| . 9 | 2-2 | \$\$ | | | |
| is tur | 3=24 | ghighted surpler) does not | neet special and real | Anatheritz. | |

(3) Displaying Graph

--View Text --to (4)

--Change Time Scale

1 -- Change Data Scale

Note:

If required operating conditions are not met, the item number appears in pink color.

| 10 | 740 | Natio | Value | | Data List Reference Table | |
|----|-----|------------------------------|-------|---|---------------------------|---|
| | 05 | NTWFERSW ICOLUMNECLI | OFF | | | _ |
| i | ġ8 | LO WPER SW ICOLUMN ECUI | ()FF | | | |
| | 07 | HWPER SW ICOLUMNECUI | OFF | | | |
| i | 00 | MEST WIPER SIV | CIFF | | | |
| | 09 | FRONT WASH SW COLUMN ECUI | OFF | v | | |
| i | 25 | G SWEACCI IETACS BCUS | ON | | | |
| - | 2 | 15 - 15 | | 1 | | |

Data Display

(4) Displaying Text

Data List Reference Table: (Not Available in US)Displays the Data list of the Service manual.Image: --View Graph

Note:

If required operating conditions are not met, the item number appears in pink color.

7-1-5. Drive Recorder Function

(1) Record

--Records data such as Data List in the built-in memory of SWS monitor cartridge. --to (2).

Data Display

--Displays the data recorded with the drive recorder. --to (9).



۲

(2) The left figure is displayed when the last record remains. Erase recorded data in SWS monitor cartridge, before record data. Press subtron.

| SWS m mandar / Crive Recorder / Record | nonitor |
|---|-----------|
| ECU Comm Check | Data List |
| Function Diag. | |
| | |
| | |
| | |
| | |
| | |
| | |

 (3) Recording Data Select an item you wish to record.
 ECU Comm Check --to (4)
 Data List -- to (4) after ECU selection
 Function Diag. -- to (4) after function selection.

| SWS #5 monther / Crive Recorder / Record | monitor |
|---|-------------|
| Manual trigger | Rem trigger |
| | |
| | |
| | |
| | |
| alet inger veltet 👔 | |

(4) Selecting the Trigger Method

Manual trigger --

Allows you to apply the trigger manually.

Item trigger --

Allows you to select one or two items and uses the ON or OFF signal of the item(s) as a trigger to start recording.





| Filmonthing Advances | Der | | | |
|----------------------|--------------|-----|-----|---|
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| | | 2 | | |
| | Distant at 1 | | 1.1 | 1 |

(5) Setting the Recording Time

The recording time can be set from 0day 0h 0min to 5days 0h 0min. If you do not wish to set a recording time, press button without setting the time.

The day and time are set using 44 4 >> .

| -Hour | ► U | nit: 1h, 🛛 🛯 🖣 | Unit: | 5h |
|---------|-----|----------------|-------|-------------|
| -Minute | | Unit: 1min, | | Unit: 10min |

You can also set the time using the slide bars.

(6) Checking the Recording Settings

Check the recording settings and press button to transmit the data to the SWS monitor cartridge. A message appears indicating that the recording settings

will be transmitted to the I/F cartridge. Press <u>v</u> button.

1

(7) Recording Using the Drive Recorder

Once the data have been transmitted to the SWS monitor cartridge, the screen shown at left appears. If the trigger set was a manual trigger, press button to start recording. If the trigger set was an item trigger, recording begins when the set conditions are met.

Note:

To disconnect the SWS monitor cartridge, press button. The following message appears: "Do you wish to disconnect the I/F cartridge? (If so, select YES, then wait for the ready message to appear.)" Once the ready message appears, disconnect the cartridge.

| | Patron | | | |
|--|---------------------|-----------------------|------|---|
| het | | Value | | |
| 3WS Ver Destination | | 10145 | | |
| | 44 - 86.5-5 Stiller | | beck | |
| Record - | Finished | | | |
| Pacordi The record en data, execute | | ded. To replay record | | - |
| | 4 | | | |
| _ | Fi | nished | - | |

SWS monitor
SWS monitor
Constants
SWS monitor
Constants



(8) Ending Recording
 To end recording, press period

- (9) Data Display Select Data Display button on the screen of (1). You can also display recorded data by returning to the STV Top Menu, selecting Special Functions, then selecting the system function SWS Drive Recorder. In this case, you can view the data without connecting V.C.I. to the vehicle by using an AC-DC adapter (MB991878).
- (10) You can set a time in which you wish to regenerate and view the data as described below.
 The day and hour can be set using
 Image: A set using
 Image

After the setting, press velocities button.

All items are selected as default.

(11) Displaying Recorded Data

 Interface
 SWS monitor
 Marrier

 Interface
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| | -12 | ETINCS EQU | 0K | OK NG | 1 |
| | м | FRONTECU | OK . | OK HO | |
| | | SUNPOOF ECU | ND | 08. NG | ľ |
| 14 | | ۹ 📃 — | | -1 > | * |

(12) Displaying Data

Note:

The recorded data are displayed in graph format by default.

Select the items you wish to display and press velocity button.

- --Displays the previous or next data change point.
- --Displays the previous or next record. You can also set the settings by operating the slide bar.

Chapter 8 Coding Function

8-1. VIN Writing Function

- This is the function for VIN writing into ECU, which is required by U.S. regulation. You need to set it for a new installed ECU when replace ECUs.
- In case VIN has not been written into ECU, DTC (Diagnostic Trouble Code) will be stored and the MIL (Malfunction Indicator Lamp) will light up.

| | Dygen Lite | 100 | Model Year | Up to 2005MY |
|-----|------------------------|-----|------------|--------------|
| 1. | WYSENDESEL | | | From2006MY |
| 2 | MACOLUZER | 1 | | |
| 3 | ELC-ANCYT. | | | |
| 4 | 554 | | | |
| ٩., | TOU/STABLITY CONTROL | | | |
| ٠ | AUTO CRUISE | | | |
| γ. | ecs | Y | | |
| 8 | AVSENDS: Power Slowing | | | |
| ÷ | ABSIASCIASTC | T | | |
| 10 | 100 | Y | | |
| | in the end Salary | | | |

8-1-1. VIN Writing Function

 Select "MFI" system on the System Selection screen.
 (For instructions on how to select a system, refer to 3-3-1) Note:

(2) Select **Coding** button on the Function selection screen.

-If the engine is OBD, the check code appears.

-As a selection screen asking whether MITSUBISHI or Chrysler appears, select a button that the engine belongs to.

| Check Chart r Problem Symptoms | Diagnostic Trouble Code | Simulated Vehicle Speed Output |
|-----------------------------------|-------------------------|-----------------------------------|
| Data List | Actuator Test | Drive Recorder |
| Special Function | OBD-8 Test Mode | Readiness Test |
| Voltmeter | Ohmmeter | Check Mode |
| Emission Test | Coding | |

VIX WORKS

| Current VIN New VIN | | 4 | 4A4MN31S34E000001 4A4MN31S34E000010 | | | | | | Caret Viton Caret Vito | |
|------------------------|---------------|------------|--|-----|-------|----|---|----|---------------------------|------|
| | | 4 | | | | | | | | |
| 1. | 2 | 3 | 4 | .a. | 6 | Ð. | | .9 | 0 | |
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| | and a travely | Ti and the | es the OK I | t. | et de | | | | 8987900 | |

(3) The screen illustrated on the left appears. Select **VIN Writing** button.

> Note: VIN Information --to 8-1-2.

(4) Currently registered VIN is displayed on "Current VIN" box.
 Input a new VIN in the "NEW VIN" input box and then press
 button.

VIN Writing Function



| | Results of VIN Writing | |
|----------------|------------------------|---------------|
| item | VIN | Writing Court |
| Before Whiting | 4A4MN31S34E00001 | |
| Current | 4A4MN31S34E00010 | 4 |

(5) A confirmation dialog box appears.
 Press ✓ button to execute VIN writing.

When VIN writing is complete, another dialog box appears. Press <u>v</u> button again.

(6) The Results of VIN Writing are displayed.
 To exit this screen, press 2 or 1 button.

| item VIN Writing Cou |
|-----------------------------|
| |
| Original 4A4MN31S34E00000 - |
| Current 4A4MN31S34E00010 4 |

8-1-2. VIN Information Display

(1) Select **VIN Information** button on 8-1-1(3), and the screen illustrated on the left appears.

To exit this screen, press \frown or \bigcirc button.

Chapter 9 CAN Bus Diagnosis

9-1. Diagnosing the CAN Bus

- < CAUTION >
 - •When you execute CAN Bus diagnosis, use M.U.T.-III main harness A. (<u>MB991910</u> harness for V.C.I., <u>MB992745</u> harness for V.C.I.-Lite should be used.)
 - $\bullet\ensuremath{\mathsf{When}}$ you execute CAN Bus diagnosis, halt the vehicle.
 - •Calibrate ohmmeter to 0 point periodically for proper diagnosis. (refer to 12-3-2.) (V.C.I.-Lite does not support the function of voltage/resistance measurement for CAN Bus Diagnosis.)









9-1-1. CAN Bus Diagnosis

- (1) Start Screen
 - Press **CAN Bus Diagnosis** button on the STV Top Menu (illustrated on 3-2), then the left screen appears.

Confirm the contents of Diagnosis Vehicle information list on the screen.

-If the contents are describing the vehicle, press \checkmark . \rightarrow (2) -If the contents are not describing the vehicle, press \checkmark to correct the information. (refer to 3-3-2)

(2) Equipping System Setup

Put a check mark if the equipment is existence, and press subtron.

Note:

- mark will be displayed, if you move cursor onto a check box and click it. (Selection)
- mark will be eliminated, if you click again.
 (Selection release)

(3) CAN Bus Diagnosis

Pressing button starts the CAN bus diagnosis process.

Note:

The right lower massage box shows the details of ECU names displaying on the configuration screen.

(4) Results

The results of the diagnosis are reflected on the configuration screen (Error locations are indicated in red), and the comment is shown on the center lower massage box.

--This button is able to zoom out the CAN Bus configuration screen. When a button is pressed again, the CAN Bus configuration screen returns to the original size.

-Displays the data of the Service manual pertaining to the error locations. (Not Available in US)

Chapter 10 ECU Reprogramming

Notes:

- This function enables the program installed in ECU to be reprogrammed using M.U.T.-III.
- As VIN or other setting information on ECU is not erased by this reprogramming, you do not need to rewrite VIN.
- You can not do ECU Reprogramming with V.C.I.-Lite stand-alone.

10-1. Process Flow Chart

Reprogramming by <u>K-Line</u> communication system

-There are 7 different ways for ECU reprogramming as shown below. -Procedure (a) is recommendable due to the most simple in operation.

-File extension code is "xxxx.rpg".

Process flow chart

(Chapter No.)

| | Device | | /.C.I. alone ported by V.C | C.ILite) | | PC + V.C.I. | (Optional) | |
|---|---|-------------------------------|--------------------------------------|---|---|---|---|---|
| | Procedure name | (a) Auto data retrieval | (b) Load RPG file | (c) ECU reprogram | (d) Automatic reprogramming (K-line) | (e) Database File Display | (f) Reprogram Data Selection | (g) Search |
| 0 | Data selection method | Automatic | Select from Data library | - | Automatic | Select from data library in PC | Select from data library in any drive | Select by key of vehicle info. |
| 1 | CD-Rom => PC | 10-3-1 | 10-3-1 | - | 10-3-1 | 10-3-1 | 10-3-1 | 10-3-1 |
| 2 | PC => CF memory card | 10-4-1 | 10-4-1 | - | - | - | - | - |
| 3 | CF memory card => V.C.I. | 10-4-2 + 10-4-3(a) | 10-4-2 + 10-4-3(b) | - | - | - | - | - |
| 4 | PC => V.C.I. (<u>Not via</u> memory card) | - | - | - | 10-5-1 + 10-5-2(a) | 10-5-1 + 10-5-2(b) | 10-5-1 + 10-5-2(c) | 10-5-1 + 10-5-2(d) |
| 5 | V.C.I. => ECU | 10-4-4 | 10-4-4 | 10-4-3(c)+ 10-4-4 | 10-5-3 | 10-5-3 | 10-5-3 | 10-5-3 |
| | Note | Recommended | In case of (a) failure | Special use only (When data stored in V.C.I) | memory card is | In case memory card is N/A and (d) failure | In case memory card is N/A and (d) failure | In case memory card is N/A and (d) failure |

Reprogramming by <u>CAN</u> communication system

-This is the only way for reprogramming by CAN communication system.

-This procedure allows you to select an arbitrary system (ECU) to reprogram as required.

-File extension code is "xxxx.cff".

| PC+V.C.I. | Device | |
|----------------------------------|--------------------|---|
| Automatic Reprogramming (CAN) | Process name | |
| Automatic | Data selection | |
| 10-3-1 | CD-Rom => PC | 1 |
| 10-6 | PC => V.C.I. =>ECU | 2 |

10-2. Equipment

Necessary parts for ECU reprogramming are as follows

| Parts Name | Parts Number |
|---|--------------|
| M.U.TIII Personal Computer | - |
| Update CD-ROM of reprogramming data | - |
| CF Memory card (128MB) | MB991853 |
| CF Memory card (1GB) | MB992228 |
| CF Memory Card Adaptor | MB991939 |
| V.C.I. | MB991824 |
| V.C.ILite | MB992744 |
| M.U.TIII Main Harness A(44-16) *1 | MB991910 |
| M.U.TIII Main Harness A for Lite (15-16) *1 | MB992745 |
| M.U.TIII Main Harness B(44-16/12) | MB991911 |
| M.U.TIII Main Harness B for Lite (15-16/12) | MB992746 |
| Reprogramming adapter Harness (12-13) *2 | MB991855 |

Only when reprogramming with V.C.I. alone

Remarks

*1: Vehicle which is only equipped with a 16 pin data-link-connector.

*2: Vehicle which is equipped with 16 pin and 13 pin data-link-connector.



Equipment



10-3. Data Preparation on PC from Update CD-ROM

10-3-1. PC Update Operation (CD-ROM --> PC)

(1) When an Update CD-ROM of ECU reprogramming data is distributed newly, insert the CD-ROM into CD-drive on PC.





- Byster hancebox
 Measurement function

 Drive Recorder (Display only)
 SVS mondar: Drive Recorder (Display only)

 ECU reprogramming
 All DTCs

 V.C.J. Stand-atone Diagnosis (Data Transfer to PC-card)
 MEV Computer Diagnosis
- (3) Select System Function tab, and press **ECU reprogramming** button.



displayed when the new Update CD-ROM is recognized. Press 🥪 button.

(4) The message "Please update to a new database file." is



(5) The message "Please wait!" is displayed during progress.When complete the updating, the message disappears.You can remove the CD-ROM from PC.

10-4. Reprogramming Operation (V.C.I. alone)

(Not supported by V.C.I.-Lite)

10-4-1. Data Transfer (PC --> Memory Card)



- Start up the M.U.T.-III system. Insert the Memory card (MB991853, MB992228) into the Card Adaptor (MB991939), and then insert them into m-card slot on PC.
- (2) Press **Special function** button on STV Top Menu.



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 Pytien Anochen

 Pytien Anochen

 Drive Recorder (Display only)

 ECU reprogramming
 V.C.J. Sand-store Dispresia
 (Data Transfer to PC-card)

 Verse versions
- Automatic Reprogramming (CAN)
 Automatic Reprogramming (CAN)
 Database File Display (CAn)
 Database File Display (CAn)
 Database File Display (CAn)
 The following function is for K-Line communication's Reprogramming
 Search
 Reprogramming Data Exection

| | Develop | |
|-----------------|---------|---|
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| rRenovative Dra | | |
| | | |
| | | |
| | | |
| | | * |
| | | |
| 1942 | | |

(3) Select System Function tab, and press **ECU reprogramming** button.

Caution:

-In case an update CD-ROM is set in the PC with update undone, data update starts. (refer to 10-3-1(4))

 Press Memory card transfer button.
 ALL reprogramming data in the M.U.T.-III PC are transferred to the memory card.

[Caution] -Do not remove the memory card from PC.

(5) Select a memory card drive, and press button to start transferring.

| Check of Operation Web Page Dialog Check of Operation It transfers data to the memory card. Are you ready? | (6) | Press button when the message "It transfers data to the memory card. Are you ready?" appears |
|---|------|--|
| | (7) | Data transfer The progress bar is displayed during the transfer. |
| Transfer is complete Web Page Dialog Image: Transfer is complete. Transfer is complete. | (8) | The data transfer is complete. Press velocities button. |
| Automatic Reprogramming (K-Box) Automatic Reprogramming (CAN) Database File Display (K-Box) Database File Display (CAN) Database File Display (K-Box) Database File Display (CAN) The following function is for K-Line commutation(r)s Reprogramming. Bearing Search Memory card transfer | (9) | Before you remove the memory card, double-click the below icon for removal of the adaptor. |
| Select the device you want to unplug or eject, and then click Stop. When window notifies you that it is safe to do so unplug the device from your constant. Hardware devices: | (10) | Select [PCMCIA IDE/ATAPI Controller] or the other appropriate device, then press Stop button. |

Hardware devices: POMCIA IDE /ATAPI Controller ML DT-ST DVD-ROM GDR8081N - (D-)

PCMCIA IDE/ATAPI Controller at CardBus Slot 0

Display device components
 Show Unplug/Eject icon on the taskbar

Proper

Stop

Close



| Safe To R | emove Hardware |
|-----------|---|
| ٩ | The 'PCMCIA IDE/ATAPI Controller' device can now be safely removed from the system. |
| | OK |

(11) Verify the contents of the selection, then press **OK** button.

(12) After displayed the message "The device can now be safely removed from the system", push the lever on the side of PC card slot and remove the memory card.

Caution:

Do not remove the memory card away unless complete above method or turn off the PC.

10-4-2. Equipment Set-Up

- Insert the Memory card (MB991853, MB992228), which is storing the reprogramming data, into the Card adaptor (MB991939) and insert them into V.C.I. main unit (MB991824)
- (2) Connect M.U.T.-III Main Harness B (MB991911) or A (MB991910) to V.C.I. main unit securely. (Refer to 10-2.) Note:

Select appropriate harness by instruction below.

- Main harness A: For vehicle only equipping 16 pin data-link-connector.
- Main harness B: For other vehicles.
- Adaptor harness (12-13): Outlander, Montero (after '02MY) (To connect Main harness B and 13pin data-link-connector)
- (3) After verifying the ignition switch position at LOCK (OFF), connect the M.U.T.-III Main harness B or A to the data-link-connector.
- (4) Turn Ignition switch on, and turn V.C.I. main switch on. (Do not start engine)

10-4-3. Data Retrieval (Memory card --> V.C.I.)

(a). Automatic Data Retrieval (b). Select and Load Data (c). (Special case)

(a). Automatic Data Retrieval

(1) Select "Automatic RPG" in main menu and press Enter key. Version No. of data base file appears.

By waiting 10sec or pressing Enter key, V.C.I starts communicating with ECU and retrieves reprogramming data file with the ECU's parts No. and ROM-ID.

(2) The appropriate reprogramming data file No. is displayed. Pressing Enter key starts transferring the data file into V.C.I built-in-memory.

Remark:

- •To search another data, press Esc key. If another appropriate reprogramming data exist, it will be displayed.
- •The message bellows are displayed depends on ECU parts No, ROM-ID and condition of ECU. Press Enter Key to move back to Main menu.
- (a) "No update data in PC card"

This message appears if no pertinent reprogramming data exists. No data will be transferred.

- (b) "ECU at current level of VCI" This message appears if the ECU has been already reprogrammed. No data will be transferred.
- (3) Progress is displayed on the monitor.* mark is increased by steps.
- (4) After completing data transfer, ECU reprogramming starts sequentially. For next steps, refer to 10-4-4.



VN02031.rpg Rewrite ECU?



ECU at current level of VCI

| | - |
|----------------|---|
| ECU | |
| Reprogramming | |
| rteprogramming | |

Loading****





(b). Select and Load Data

- Select "Load RPG file" in main menu by ▼ key, and press Enter key.
- (2) Select a reprogramming data file by ▼ key, and press Enter key.

Esc key: Move back to main menu.

Remark:

- -The data files are displayed in numeric order of data No.. (From big to small; new to old)
- (3) Reconfirm the data file No., and press Enter key to start transferring the data into V.C.I. built-in-memory. Esc Key: Cancel
- (4) Progress is displayed on monitor* mark is increased by steps.
- (5) After completing data transfer, ECU reprogramming starts sequentially.
 For next steps, Refer to 10-4-4.

(c). (Special case)

 (1) If V.C.I. has already stored the reprogramming data, select "ECU Reprogram" in main menu, and press Enter key. (Refer to 10-4-2.(2)-(4) for setting up the equipments.)

Reprogramming data file No. and program version No. in the V.C.I. memory are displayed for a few seconds, and then ECU reprogramming starts sequentially.

For next steps, refer to 10-4-4.



RPG data doesn't apply to ECU Auto-change in 4 sec Part# MD351868 ROM-ID 120926 Auto-change in 4 sec CK VCI for correct RPG data Auto-change in 4 sec



10-4-4. Reprogramming ECU (V.C.I.--> Vehicle ECU)

ECU parts No. and ROM-ID No. are displayed.
 Press Enter key to start reprogramming.
 ESC / ▼ key : restart V.C.I.

* : By pressing $\mathbf{\nabla}$ key, immediately move to next.

Note:

- Reprogramming must carry out on the condition of engine stop and IG switch on.
- Do not disconnect harness/ turn off the IG switch during ECU reprogramming.

[Messages before/during reprogramming process]

a) "RPG data doesn't apply to ECU"

Reprogramming stopped owing to the data in V.C.I. memory being not appropriate for the ECU.

- •Note down the displayed ECU parts No. and ROM-ID.
- •Restart V.C.I. by pressing Enter key, and confirm the matching of the data file No, which is displayed by reboot, and the ECU part No./ ROM-ID for reprogramming.
- b) "ECU same as VCI, CK for new data" (CK; check)
 Reprogramming stopped because reprogramming has been already done.







- (2) 5 steps progress is displayed while reprogramming. Caution:
 - •Do not press any key during reprogramming automatically proceeding.
 - •<u>Do not turn off V.C.I. power or IG switch during</u> reprogramming.
 - STEP1: Saving the data to the back up memory.
 - STEP2: Erasing data in ECU.
 - STEP3: Writing reprogramming data
 - STEP4: Verifying the data between ECU and V.C.I.
 - STEP5: Erasing diagnosis code and back up memory

 (3) On completion of the 5steps, new reprogrammed ECU parts No. and ROM-ID are displayed. Turn IG switch LOCK(OFF).

Note:

Diagnosis code might be memorized in ECU if without turning IG switch Lock (off)

(4) ECU reprogramming completed
 <u>Verify the system properly operated</u> by starting engine.
 Enter key: V.C.I. restart

10-5. Reprogramming Operation (V.C.I. - PC connected)

| Particulari Nasa Interneti Nasadi Mandi Injuta | 10-5-1. Search Method Selection |
|---|--|
| Menu | (1) Press Special function button on STV Top Menu. |
| System select Special function | |
| CAN bus diagnosis Configuration | |
| Watch Not Torus Show, Mile, Show, Show, Show | |
| Rease select function. Ver. PRIVDI121-01 | |
| Verse Nuclean | (2) Press ECU Reprogramming button. |
| ECU reprogramming All DTCs | |
| V.C.1. Stand-slove Diagnosis (Data Transfer to PC-card) MEV Computer Diagnosis | |
| | |
| Pera atel fueix | (3) Select an appropriate button. |
| NT Namesaaa Metterini - Annael Sanael Sanael | Automatic Reprogramming (K-line)to 10-5-2(a) |
| Automatic Reprogramming (K-Im) Database File Display (K-Im) Database File Display (K-Im) | Automatic Reprogramming (K-inte) - to 10-3-2(a) Automatically searches appropriate Reprogramming data stored in PC. |
| The following function is for K-Line communication's Reorogramming. | Database File Display (K-line) to 10-5-2(b) |
| Search Memory card transfer | - Shows the list of Reprogramming data stored in PC. |
| Reprogramming Data Selection | Reprogramming Data Selectionto 10-5-2(c) Allows to select Reprogramming data in arbitrary drive and directories. |
| | Search to 10-5-2(d) |
| | - Allows to search the target data by ECU No., ROM-ID, etc. |
| | Automatic Reprogramming (CAN) - to 10-6(a) - Automatically searches appropriate Reprogramming data stored in PC. |
| | Database File Display (CAN) to 10-6(b) - Shows the list of Reprogramming data stored in PC. |
| | Memory card transferto 10-4-1 - Transfer of stored Reprogramming data to Memory card. |
| | ♦ Connect PC and V.C.I., and prepare following steps. 1. Connect M.U.TIII Main Harness B or A to V.C.I. securely. 2. After verifying the ignition switch position at LOCK (OFF), connect the M.U.TIII Main harness B or A to the |

- connect the M.U.T.-III Main harness B or A to the vehicle's data-link-connector.
- 3. Turn Ignition switch on, and turn V.C.I. main switch on. (Do not start engine)

10-5-2. Data Search & Transfer (PC --> V.C.I.)

- (a). Automatic Data Search
- (b). Database File display
- (c). Reprogramming Data Selection
- (d). Search

(a). Automatic Data Search





- Press <u>Automatic Reprogramming (K-line)</u> button on the function menu, then the left dialog box appears. Verify the connection of V.C.I. and harness, and press <u>Applicable</u> reprogramming data is searched from database installed in PC automatically.
- (2) Result of the search appears.

-After completing the data transfer, ECU reprogramming will start sequentially. (Refer to 10-5-3.)

Note:

Press **OK** button when message window of device removal warning comes out at start and end of data transfer.

| 740.1 | Detation | System | New EOJPh | MINI WORK | Carnet ECUPIN | Currere POMIE | 1 | |
|-------|----------|-----------------------|-----------|-----------|----------------------|---|--|----|
| • | -Coatte | ENGLAT | Ritalia | 8/38 | - | (Marca) | | - |
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| 03 | VEDADA | EVONE. | 801002 | 200302 | 1600-057 | 24010 | ID CARD | |
| 91 | 165406 | ENGNE | 185407 | 16726 | 14/675140 | 10002 | | |
| 08 | VESKRU | INCHE | 1962-428 | 36726 | 1444,0963 | HEADS. | to angles In CARD | |
| 0. | 103401 | INCINE | 1967-628 | 3688 | MOR1016 | 2440 | And CARLES | 1 |
| 0 | VEDICAE | ENCINE | 14/30/30 | 2(2)42 | M-30720 | 202547 202547 20259 | 1122 Fa) RE(+0 | |
| 9 | VEGEED | THE R | 10.35782 | 2081 | 14-20054 14-20790 | 20814 20363 20368 20369 20369 | CALL FALL | ** |
| 0 | VEDARC | ENGINE | 10/38542 | 30366 | 44-38642 | 2024 | PETRA | |
| | 44 | | 4 | • | | ** | | |
| | | Car be becatived in Y | | | | | | 1 |

(b). Database File display

Press **Database File Display (K-line)** button on the function menu, then the left screen appears.

-Reprogramming data files in the hard disk are listed.

-Select an appropriate data file with scrolling the list using

--10 lines scrolling

-After completing the data transfer, ECU reprogramming will start sequentially. (Refer to 10-5-3.)

Note:

Press **OK** button when message window of device removal warning comes out at start and end of data transfer

| Fremquetweig Date Lot | | |
|-----------------------|---|--|
| V763341.8P6 | | |
| VHE3042 RPG | | |
| - | | |
| - | - | |
| | _ | |
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| 1.122 | | |

(c). Reprogramming Data Selection

To select the reprogramming data from arbitrary directories.

(1) Press <u>Reprogramming Data Selection</u> button on the function menu, then the left screen appears.

 — --to select arbitrary drive and directory → (2)

On this screen, select an appropriate data file and press to start transferring the data into V.C.I memory.

Note:

-The displayed data as default is in the folder shown below. C:¥Program Files¥MUT3¥RPGDATA

This directory is the default reprogramming data pool of M.U.T.-III, referred from 10-4-1, 10-5-2(a),(b),(d).

-After completing the data transfer, ECU reprogramming will start sequentially. (Refer to 10-5-3.)

| Divelas CalvelDes | | Detectory Line: | |
|----------------------|---|-----------------|---|
| D Kompart Dec | | CAELARCOMICE | |
| Drive | | Directory | |
| selection | | selection | |
| side | * | otta side | v |
| | | DispOp | |

(2) Data selection

Select a drive on the left chart, and the directories in the drive are displayed on the right chart.

-To move to a lower directory, select appropriate row on the right chart and press 🔄 button.

-To move to an upper directory, select row on the right chart and press 🔄 button.

Select appropriate directory name row on the right chart, and press button to return to (1) and list the files contained in the directory.



(d). Search

To search the reprogramming data by inputting ECU Part No., ROM-ID, or Data No.

(1) Press **Search** button on the function menu, then the left screen appears.

Input search key info in the input column, then press S.

Note:

- To input, 2 ways can be taken.
 - -By PC keyboard
 - -By virtual keyboard --press 🕑
- Some info need to be a combination with the other info for data search
 - Current ECU P/N & ROM-ID need to be together.
 - Data No. needs no other info.



(2) Results

Select appropriate data with scrolling the list using 🚖 🔺 🗸 🏅 to start transferring the data into V.C.I memory.

🔾 🛧 --10 lines scrolling

-After completing the data transfer, ECU reprogramming will start sequentially. (Refer to 10-5-3.)

Note:

Press **OK** button when message window of device removal warning comes out at start and end of data transfer.



10-5-3. Reprogramming ECU (V.C.I. --> vehicle ECU)

Operate with 💿 👽 🔤 buttons (in the lower right corner of the screen) according to directions of screen display.

The same operation as 10-4-4. need to be performed on PC screen.

10-6. Reprogramming by CAN Communication

| ning between the second interactions | (1) Press Special Function button on STV Top Menu. |
|--|--|
| System select Special function | |
| CNI bus diagnosis Configuration | |
| NRACT New Taylor Tensor Markowski Strategister Strategi | |
| Please select function. Ver: PR0/08121-01 | |
| | |
| and factor (allowed and allowed factor | (2) Press ECU reprogramming button. |
| Bystem function Measurement function | |
| Drive Recorder (Display only) SWS monitor Drive Recorder (Display only) | |
| ECU reprogramming AII DTCs | |
| V.C.J. Stand-alone Diagnosis (Data Transfer to PC-card) MEV Computer Diagnosis | |
| | (3) Select an appropriate button. Automatic Reprogramming (K-line) to 10-5-2(a) - Automatically searches appropriate Reprogramming data |
| Database Pre Ungany (K-Arrej Database Pre Ungany (K-Arrij Database Pre Ungany (K-Arrij The following function is for K-Line communication's Reprogramming. | stored in PC. |
| Search Memory card transfer | Database File Display (K-line) to 10-5-2(b) - Shows the list of Reprogramming data stored in PC. |
| Transactions | Reprogramming Data Selectionto 10-5-2(c) Allows to select Reprogramming data in arbitrary drive and directories. |
| | Searchto 10-5-2(d) - Allows to search the target data by ECU No., ROM-ID, etc. |
| | Automatic Reprogramming (CAN)to 10-6(a) - Automatically searches appropriate Reprogramming data stored in PC. |
| | Database File Display (CAN) to 10-6(b) |

Database File Display (CAN) -- to 10-6(b)
 Shows the list of Reprogramming data stored in PC.

Memory card transfer -- to 10-4-1

- Transfer of stored Reprogramming data to Memory card.

(a). Automatic Reprogramming





-Press solution, and turn IG switch OFF.

| si l | Calebra . | Sector. | Terre ECU PRO | Trana Stati Part Fact | Connect Still Print | Carnet SALFut he | Contents | |
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| ** | 180,4940 | Dore | 18604679 | 1986467000 | 1000475 | 1860407801 1860407805 19604078 | and other field to value use attemption of OVTLANDOR 20112A.23 and makelin Optimization of the Separatic Address of the and attemption of the second temption of the and states are used of a second temption of the other second and and the second temption. | |
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| | 1 | 1 | | ~ | 37 | • | ** | |

(b). Database File display

Press **Database File Display (CAN)** button on the function menu, then the left screen appears. Reprogramming data files in the hard disk are listed.

NOTE:

Can't possible update at select data from data list.

10-7. Troubleshooting of Reprogramming

Those contents have moved to 13-4.

Chapter 11 Computer Diagnosis

11-1. Operation method of MiEV Computer Diagnosis

11-1-1. Setting and execution of MiEV Computer Diagnosis



You can perform the MiEV computer diagnosis.
 Press Special Function button on the STV Top Menu.

- Drive Recorder (Display only)
 Drive Recorder (Display only)

 ECU reprogramming
 Mit Dires Recorder (Display only)

 V.C.L Stand-slove Displayous
 MEV Computer Displayous

 (Data Transfer to PC-sard)
 MEV Computer Displayous
- (2) Select the **System function** *t*ab on the upper part of the screen, and then press **MiEV Computer Diagnosis** button.

(3) Press **Diagnosis** button on the MiEV Computer Diagnosis Menu. - to (4)

Note:

Save File Management -- The saved file at diagnostic result is having a look displayed. (refer to 11-1-2)

Data Storage -- The data saved in a removable disk can be stored into the PC. (refer to 11-1-3)

< Remark >

There is a possibility that correct diagnostic result is not expected to obtain in the state of less than 50% charge of the high voltage battery, so please ensure that it is fully charged for your operation.



 (4) Input of Vehicle Information
 Confirm the contents of Diagnosis Vehicle information list on the screen.

- If the information is just the vehicle to be perform diagnosis, press

- to (5)

- If the information is <u>not</u> the vehicle you want, press to select appropriate one. (refer to 3-3-2)

| ustor | mer Nar | ne | _ | _ | _ | _ | _ | _ | _ | _ | _ | | _ | - |
|-------|---------|----|---|---|---|---|---|---|---|-------|---|-------|---------------|----|
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| z | x | c | ۷ | 8 | N | M | æ | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | Space | Back Space | CI |

(5) Input of the customer's namePlease input of customer's name.32 characters are allowed to input.

< Remark >

You can input the customer's name either by using the PC keyboard or the screen keyboard.

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 - (6) Input of the vehicle identification numberPlease input VIN of the vehicle to be diagnosed.17 characters are allowed to input.

-- OK -- to (7)

< Remark >

You can input VIN either by using the PC key board or the screen keyboard.

(7) CAN Bus Diagnosis

CAN bus diagnosis is executed by pressing the solution after setting the equipped system.

| B) 244 Mid Dagwes 1 AlC 1 B) DECown. 1 1 1 B) Application (Decom) 1 1 1 1 B) DECown. 1 <t< th=""><th>No</th><th>3en</th><th>No.</th><th>Sytten Name</th><th>Eastered</th><th>1</th></t<> | No | 3en | No. | Sytten Name | Eastered | 1 |
|--|----|----------------------------|-------|-------------|----------|---|
| 01 tip-vidage Babey Deck. 04 B.C. water heater treat | 81 | CAN But Diagnosis | - t.: | ASC | Г | 1 |
| 64 ELC water texts | 10 | DTC Cireca | | | | 1 |
| | 09 | High-village Ballery Check | | | | 1 |
| | 64 | DLC weller head or best | | | | 1 |
| | | | | | | 1 |

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| | - MEV Computer Desperan | | Sydem Lid | | |
|---------|--|-------|--------------------------|--------------|---|
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| -11 | CAN But Diagroup | 7 | MACEL223 | | 1 |
| (63 | DTC Check | 7 | ATICVDA.MUTC-BET | | 1 |
| -11 | High votage Dattery Check | 7 | dWSElectric Foreir Steel | (ig) | |
| -04 | ELC water header text | V | ADDIASCIALTOWERS | Aut Costini) | |
| - | N | 7 | SPIS-API BAGGelevil Opt | iant) | 1 |
| _ | | | Londry Option Set | 40 | |
| | | . A01 | ADS | | 1 |
| fler si | press OK button to start DTC check riect the system and option. | A01 | A SCIWDEVO) | | - |
| | | | | 1 | 1 |

(8) DTC Check The DTC Check is executed by pressing the button after setting of the system and the option select.

(9) High-Voltage Battery Check*I*n the power switch of the vehicle is in the status of "READY", the high voltage battery check is executed automatically.

- Bit Control
 Bit Control
 Diagnosis
- MIEV Computer Diagnosis -- Web Page Dialog MIEV Computer Diagnosis MIEV computer diagnosis was completed.



(10) ELC.water heater test ELC.water heater test is executed automatically.

(11) Diagnosis completed

When all diagnoses are successfully completed, the dialog that MiEV computer diagnosis was completed is displayed.



(12) Print preview

The print preview of the diagnostic result is displayed, you can print it out if needed.

| | | | | | | Dr | ate 03.14 |
|---|--|---|--|--|--------------|---------------------------|------------------------------|
| ustomer Name | | | | Mechanics Na | me: | | |
| litsubishi Taro | | | | | | | |
| VIN code | | : HA3W-00000 | 01 | | | | |
| Mieage | | : 19.9 mie | | | | | |
| State of charge(c | ulav lortno: | e) : 40.0 % | | | | | |
| Battery current co | apacity | : 48.0 Ah | | | | | |
| CPU operation tir | me | : 65534 hour | | | | | |
| comprehensive e | valuation | | | | | | |
| | Th | ere is a part where th | e check, a | djustment or repa | air is neces | isary. | |
| | | | | | | | |
| | | mountantian abox | k result | | | | |
| . On-vehicle com | puter cor | Influencation chec | | | | | |
| CAN bus line is C | | minumication chec | A TOOUL | | | | |
| CAN bus line is C | ostic cod | | | | | | |
| CAN bus line is C DTC (Self diagn DTC(s) and the c | ostic cod | ie) check result tion error were detect | | 1 | Computer | name | Resu |
| CAN bus line is C DTC (Self diagn DTC(s) and the c | ok. Iostic cod | ie) check result tion error were detect | ied. | ABS/ASC/AST | | name | |
| CAN bus line is C DTC (Self diagn DTC(s) and the c | ok. Iostic cod | ie) check result tion error were detect | Result OK NC | ABS/ASC/AST Air Conditioner | | name | 0 |
| CAN bus line is C DTC (Self diagn DTC(s) and the c ECPS/4WS SRS-AIR BAG ETACS | ok. Iostic cod | ie) check result tion error were detect | Result OK | ABS/ASC/AST Air Conditioner Meter | CAWSS | name | OF NC |
| CAN bus line is C DTC (Self diagn DTC(s) and the c ECPS/4WS SRS-AIR BAG ETACS LIN | ok. Iostic cod | ie) check result tion error were detect | Result OK NC OK - | ABS/ASC/AST Air Conditioner Meter Keyless Operat | CAWSS | name | |
| CAN bus line is C DTC (Self diagn DTC(s) and the c ECPS/4WS SRS-AIR BAG ETACS LIN EV-ECU | ok. Iostic cod | ie) check result tion error were detect | Result OK NC OK OK | ABS/ASC/AST Air Conditioner Meter Keyless Operat BMU | CAWSS | name | |
| CAN bus line is C DTC (Self diagn DTC(s) and the c ECPS/4WS SRS-AIR BAG ETACS LIN EV-ECU COMP&HTR | ok. Iostic cod | ie) check result tion error were detect | Result OK NC OK OK OK | ABS/ASC/AST Air Conditioner Meter Keyless Operat | CAWSS | name | Resu OF NC OF OF |
| CAN bus line is C DTC (Self diagn DTC(s) and the c ECPS/4WS SRS-AIR BAG ETACS LIN EV-ECU | ok. Iostic cod | ie) check result tion error were detect | Result OK NC OK OK | ABS/ASC/AST Air Conditioner Meter Keyless Operat BMU | CAWSS | name | |
| CAN bus line is C DTC (Self diagn DTC(s) and the c ECPS/4WS SRS-AIR BAG ETACS LIN EV-ECU COMP&HTR | oostic cod | ie) check result tion error were detect name | Result OK NC OK OK OK | ABS/ASC/AST Air Conditioner Meter Keyless Operat BMU | CAWSS | name | |
| CAN bus line is C DTC (Self diagn DTC(s) and the c ECPS/4WS SRS-AIR BAG ETACS LIN EV-ECU COMP&HTR MCU | oostic cod communical Computer n | ie) check result tion error were detect name | Result OK NC OK OK OK | ABS/ASC/AST Air Conditioner Meter Keyless Operat BMU | CAWSS | name | |
| CAN bus line is C DTC (Self diagn DTC(s) and the c ECPS/4WS SRS-AIR BAG ETACS LIN EV-ECU COMP&HTR MCU | ostic cod communical Computer n | Se) check result tion error were detect name | Result OK NC OK OK OK | ABS/ASC/AST Air Conditioner Meter Keyless Operat BMU OBC | C/WSS Ion | | 01 NC 01 01 |
| CAN bus line is C DTC (Self diagn DTC(s) and the c ECPS/4WS SRS-AIR BAG ETACS LIN EV-ECU COMP&HTR MCU 3. High-voltage ch There is data out | NK. Inostic cod communical Computer n Dock result side the no | Se) check result tion error were detect name | Result OK OK OK OK OK Result | ABS/ASC/AST Air Conditioner Meter Keyless Operat BMU OBC OBC | No. | Item | 0) NC 0) 0) 0) |
| CAN bus line is C DTC (Self diagn DTC(s) and the c ECPS/4WS SRS-AIR BAG ETACS LIN EV-ECU COMP&HTR MCU A High-voltage ch There is data out System EV-ECU | NK. INC. I | Se) check result tion error were detect name | Result OK NC OK OK OK | ABS/ASC/AST Air Conditioner Meter Keyless Operat BMU OBC OBC System EV-ECU | C/WSS Ion | | OP NC OP OP OP |
| CAN bus line is C DTC (Self diagn DTC(s) and the c ECPS/4WS SRS-AIR BAG ETACS LIN EV-ECU COMP&HTR MCU 3. High-voltage ch There is data out | NK. NK. Notice cod communical Computer n Notice No. 201 3 | Se) check result tion error were detect name | Result OK OK OK OK OK Result OK | ABS/ASC/AST Air Conditioner Meter Keyless Operat BMU OBC OBC | No. 202 | Item Condenser voltage | 0) NC 0) 0) 0) |
| CAN bus line is C DTC (Self diagn DTC(s) and the c ECPS/4WS SRS-AIR BAG ETACS LIN EV-ECU COMP&HTR MCU A High-voltage ch There is data out System EV-ECU BMU | NK. NK. Notice cod communical Computer n Notice No. 201 3 | Se) check result tion error were detect name tame It simal range. Item Battery Total voltage httey stimuling range. | Result OK OK OK OK OK OK | ABS/ASC/AST Air Conditioner Meter Keyless Operat BMU OBC OBC System EV-ECU | No. 202 | Item Condenser voltage | OP NC OP OP OP |
| CAN bus line is C DTC (Self diagn DTC(s) and the c ECPS/4WS SRS-AIR BAG ETACS LIN EV-ECU COMP&HTR MCU A High-voltage ch There is data out System EV-ECU BMU | NK. INC. INC. Computer n INC. INC. 201 3 20 1 | Se) check result tion error were detect name | Result OK OK OK OK OK OK | ABS/ASC/AST Air Conditioner Meter Keyless Operat BMU OBC OBC System EV-ECU | No. 202 | Item Condenser voltage | OP NC OP OP OP |

Print preview of MiEV computer diagnosis report
| 100 | 941 | Date | Customer Name | 100 | MITTPEAND | |
|-----|------|---------|----------------|---------------|--------------------|---|
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11-1-2. Save File Management

(1) Diagnosis result data list

Press **Save File Management** button on the MiEV Computer Diagnosis Menu at 11-1-1(3), the data saved with MiEV Computer Diagnosis is displayed.

Four functions that display / print of diagnostic result, correction of information on data, delete of data and saved to removable disk are available. (refer to 6-2-2 (3))

- -- Print of diagnostic result -- to (2)
- -- Edit record information -- to (3)
- -- Delete the data file -- to (4)
- -- Save the data file -- to (5)

< Remark >

It is sequentially displayed from the latest data in the upper part of the table.

The background color of the selected file turns yellow.

Save / Delete button of data cannot be pushed until the check box in the left part in the table is checked.

(2) Print of the diagnosis result

The diagnostic result of the data selected in the diagnosis result data table of (1) is displayed on the print preview screen. Please print after connecting the printer.

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| z | × | c | ۷ | 8 | N | м | | - 53 | | | 1 | | |
| | | | | | | | | | | | | 4 | |
| | | | | | | | | | | | Space | Back | Cle |

(3) Edit Data Information

Information on the saved data selected in the table of (1) can be edited again. (information input by (5) - (6) of 11-1-1.)

-- To (1) after saved edit information.

-- To (1) after deleted edit information.

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|----|------|----------|---------------|---|------------------|-----|
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| | | | | e Delete ecked1files delete? | | 4 F |
| | | _ | | | 7 | 44 |

(4) Delete Data Data that checks(✓) Save / Delete column is deleted in the diagnosis result data table of (1).

| (Dealine) | |
|--------------------|---|
| G Fiernovable drak | |
| | A |
| | |
| | |
| | + |
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| | |

(5) Save Data Data that checks(✓) Save / Delete column in the diagnosis result data table of (1) is kept on a removable disk. Please select the drive that preservation data from the drive table.

-- To (1) after saved data in the selected drive. -- To (1) after it cancels.

11-1-3. Data Storage



Press Data Storage button on the MiEV Computer Diagnosis Menu at 11-1-1(3), the data saved on a removable disk is displayed.

Please select a removable disk where the data of the computer assisted diagnosis was kept from the drive table, and push the OK button.



-- To 11-1-1(3) after completing the data taking -- To 11-1-1(3) after it cancels.

Chapter 12 Measurement Functions

12-1. Injector-Type Fuel Consumption Measurement

When this function would be used with the vehicle where the fuel consumption measurement data is not outputted to diagnostic connector, the message of "Function is not supported" is displayed.

| uel consumption measurement (injection) | Voltmeter |
|--|---------------------------|
| Otymmeter | Fuel Pressure Measurement |
| Oscilloscope | Electricity consumption |
| | |
| | |
| | |

12-1-1. Function Select

Press Special function button on the STV Top Menu (illustrated on 3-2), then select Measurement Functions tab on the upper part of the screen.
 Press Fuel consumption measurement (Injection)

button on this menu screen.



(2) Function Selection
Measurements in Real-time -- to 12-1-2.
Data Display -- to 12-1-3.
Analyze -- to 12-1-4.
Print out -- To print out the view graph.
Data storing -- To load the data, which is stored in a removal disc, onto the PC.



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|-----|----------|---|---|---|---|---|-----|-------|---------------|------|
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| U | v | w | x | ¥ | z | | 200 | | •. | -3 |
| | | | | | | | | Space | Back Space | Clea |

12-1-2. Measurement in Real-time

(1) Preparations Prior to Measurement
 Set the sampling interval, and select the displayed unit of measurement by pressing the
 If you wish to select display items, press button.
 When the setting complete, press
 button.

Note:

The amount of recording time is proportional determined by the length of the sampling interval.

(2) Entering and Recording Record Information
 Enter your user name and the vehicle model type.
 Substitution starts the measurement process.

| | | | Adapt | pare in Frede Term | |
|-------|------|-----------------------------------|-------------|--------------------|--|
| hat I | No. | Tom Name | Value | Graph | |
| | | hatartariekas Fuel Consengtion | 0.00L/100km | 0 0 10 | |
| | | Tatai Fuel Consumption | 0.006/130km | 0 40 20 | |
| | | Tital Measurement Time | 009586 | | |
| | | Patantassous Fuel Cursumption | 0.00.0 | 25.38 0 40 30 | |
| Te | ne . | Omin | Unit | 1/100km | |

(3) View Graph

The data of 4 items/4 graphs are displayed. -Pressing with button stops recording.

-Once recording has been stopped, the data is automatically saved.

--View Text To (4).

Note:

The file name is set as "FU+Year Month Day+Time (military time including seconds)".

(4) View Text

--View Graph To (3)

| No. | PAC. | bern Name- | Vibre | 241 | 16. | ben faster | Value |
|-----|------|----------------------------------|------------|-----|-----|-----------------------------------|-------------|
| | | rubertaneous Fuel Consumption | 0.001/1000 | - | | Tatal Fuel Consumption | 0.00./100.0 |
| | | Total Measurement Time | 01m22s | | | Resarcamencus Fuel Consumption | 0.00L/h |
| | | Total Fuel Consumption | 0.006 | | | Total killing Time | Utes225 |
| | | Vetica Speed | () Olkraft | | Γ | Average Valucie Speed | 0.00km/h |
| | | Engrie Revolution | 00hin | | | Furning Ontlance | 0.0049 |
| Tim | | 1min Unit | L/100km | 1 | | | |

12-1-3. Data Display

- (1) Select a record file containing the data you wish to check.
 Set the necessary speed range with
 , and select unit of measurement with
 Then press
 button.
 - Contraction of the second seco
 - --Select item
 - --Save Data

| | | | | Code display |
|------|-----|-----------------------------------|----------|--------------|
| 981. | 740 | Barn Toame | Value | Segn. |
| | | hdartareous Fuel Consergilion | 0.00km4, | 55.0) |
| | | Tutal Fuel Consumption | 0.00km4. | 21 b) 0 |
| | | Total Meeturement | ope tos | |
| | | Patantarseous Fuel Consumption | 0.00.h | 21.50 |
| Ten | | Om10s Ur | a km | |

1

| head of a | No. | Auto biative | Ville | 144 | 781 | Burn Fristman | Value |
|-----------|-----|------------------------|----------|------|-----|-----------------------------------|----------|
| 101. | - | Potenterecco Fuel | | 394. | 290 | | |
| | | Consumption | 0.00km6 | | | Total Faul Consumption | 0.00km/L |
| | | Total Measurement Time | 00m10s | | | Instantaneous Fuel Consumption | 0.000.0 |
| | | Total Fuel Consumption | 0.006 | | | Total kling Time | 00m10s |
| | | Veloce Speed | \$ 00vin | | | Average Vetects Speed | 000kmh |
| | | Engre Revolution | Orithm | | | Flurreng Cistan(e | 1.00km |
| | | | | | | | |
| Tarra | | Om10s Unit | km/L | | ef | | -1 > |

(2) View Graph

The data of 4 items/4 graphs are displayed. Pressing buttons or moving the slide bar displays the value of the cursor line.

- --View Text To (1)
- --Change displayed Unit

(3) View Text

--View Graph To (2)

--Change displayed Unit



Unit kmL

12-1-4. Performing Simplified Analysis

- (1) Select a record file containing the data you wish to analyze. Set the necessary speed range and displayed unit of measurement, and then press button.
 -Delete Data
 - --Save Data
- (2) Viewing Analysis Results --Change displayed Unit

12-2. Electricity Consumption Measurement

Electricity Consumption Measurement is a dedicated function for electric vehicle and the message of "This function is not supported for this vehicle." Is displayed if you would try it with engine equipped vehicle.



12-2-1. Function Select

(1) Select Special Function at main menu and change tab on top of the screen to [Measurement function].
 Please select Electricity Consumption from menu.

(2) Function Selection Real-Time Measurement -- to 12-2-2. Data Management -- to 12-2-3.

12-2-2. Real-time Measurement

Data of following 14 items can be displayed and recorded in real-time.

- -Momentary Electric Power (kW)
- -Accumulated Electric Power Consumption (kWh)
- -Momentary Electric Power Cost (miles/ kWh)
- -Average Electric Power Cost (miles/kWh)
- -Momentary Vehicle Speed (mph)
- -Average Vehicle Speed (mph)
- -APS (V)
- -Motor speed (rpm)
- -Shift Position
- -Accumulated Heater Output (kWh)
- -Accumulated A/C Output (kWh)
- -Distance Traveled (miles)
- -Total Measurement Time (h:m:s)
- -Idling Time (h:m:s)

<Remark>

-Data update interval and record interval have been fixed in a second. (It can not be changed interval.)

-Distance traveled, Total Measurement Time and Idling Time are not displayed in graph.

(1) Record Information Entry

Enter customer name, vehicle name and record information within 50 characters in each screen. Measurement starts with starts button of Record Information screen. <Remark>

You can also use the keyboard of PC.

(2) View Graph

Stop record

Once recording has been stopped, the data is saved automatically and file name is set as "EL+Year Month Day+Time.

<EL:Record file in real-time measurement for electricity consumption.>

-- View Text – to (3)

-- Return to Record Information Entry screen, then data is being recorded is not saved. -- to (1)

<Remark>

The sort of the record item can not be done while real-time measurement.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | | | 0 | • | 1 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|-------|---------------|------|
| ٩ | w | E | R | T | ۷ | U | 1 | 0 | P | | | | | |
| A | 5 | D | F | G | н | J | к | L | | | | | | |
| z | × | с | v | 8 | N | м | | | | | | ×. | 12 | |
| | | | | | | | | | | | | • | • | |
| | | | | | | | | | | | | Space | Back Space | Clea |

| nki. | San Name | Value | deg# | |
|------|---|-------------------|--|----|
| 1 | Monertary Electric Power | 3 290 KW | 55:000 -25:000 120 100 80 90 40 20 0 | 44 |
| | Alcumulated Dactric Prover Consumption | 0.007.49% | 1.000 0.000 120 100 100 40 40 20 0 | 4 |
| 3 | Monentary Electric Power Cost | 8.55 raies6346 | | |
| 4 | Average Electric Prover Cost | 3.04 milephinh | 3000 | 44 |

| Nac. | Sam Name | Villar | 541. | bm Name | Vate |
|------|-------------------------------|----------------|------|--------------------------------------|------------------|
| 1 | Monuntary Decisi; Power | 6.995.89V | 2 | Altumated Electric Power Consumption | 0.1111/06 |
| 8 | Momentary Electric Power Cost | 0.46 mileskiWr | 4 | Average Electric Power Cost | 5.22 millioskyle |
| 5 | Momentary Vehicle Speed | 2.2 mph | | Average Vehicle Speed | 8.4 mpt |
| 7 | MPS . | 2.558 V | | Motor speed | -452 gm |
| 4 | Stat Postern | | 12 | Assensional Honor Cuque | 0.000 M/M |
| = | Accumulative AIC Output | IL002WW | 12 | Distance Travelled | 8.4 mins |
| 13 | Total Measurement Time | 00121025 | 14 | kiting Time | ooxooxidse |

- (3) View Text
 - -- View Graph -- to (2)
 - -- Return to Record Information Entry screen, then data is being recorded is not saved. -- to (1)

12-2-3. Data Management

| 141 | Fin have | Cuthinsi fatte | Valida Name | Recettionator | |
|------|---------------------|----------------|-------------|---------------|---|
| 0001 | 2.000904-1854181,06 | TareMeaburk | MEY | eterselor. | 1 |
| | | | | | 1 |
| | | | | | 4 |
| | | | | | |
| _ | | - | | - | - |
| | | | | | 1 |

(1) Select a data to be displayed or printed from record file list.

-- Data Display -- to (2)

| Pac. | Sett Name | Value | Date Dayses | |
|------|---|------------------|-------------------------------|--|
| • | Moherbay Excel (Power | 12.355 HW | 10:000 2000 0.011 224 | |
| 2 | Accumulated Electric Power Consumption | 0.542 kMh | 1000 000 001 245 | |
| 8 | Monentary Electric Prever Cost | 2.84 mieskith | MAAAA | |
| + | Average Electric Power Cost | 4.05 mieski/A | 2050 9.50 0.01 7.245 | |
| | Tere | 02m45s | 4 | |

(2) View Graph

Selected record file is displayed in graph. Pressing \blacksquare buttons or moving the slide bar in lower right of the screen, displays the value of the cursor line.

View Text -- to (3)
 -- Return to Data Management screen -- to (1)

| | | | (Des) | Co La con | | |
|-----|--------------------------|---------------|------------|------------------------------|---|------------|
| 141 | Buch Name | 6 | Value | 765 | Bern Name | Yaker |
| 1 | Momentary Electric Power | 6 | 12.855 wv | 2 | Accumulated Electric Prover Consumption | 0.143199 |
| 1 | Monwellary Electric Powe | 210 minuh 195 | 4. | Average Electric Prover Cost | 418.9995897 | |
| 6 | Monuntary Vehicle Speed | | 257 mg# | 4 | Average Vehicle Speed | 14.3 mph |
| ŕ | aPS. | | 1.918.V | 1 | Motor speed | 2122.pm |
| 9 | Shit Poopen | | .0 | 15 | Accumulated Heater Output | 8:000 MMh |
| 11 | Accumulated AIC Output | | 0.00034946 | 12 | Distance Traveled | 87.mm |
| 13 | Total Measurement Time | | 001021-005 | -14 | utry Tina | conconsts. |
| | Time | 024 | nilós | 1 | 4 | -1 1 |

(3) View Text

(2)Pressing button, displays the values in text. Pressing \checkmark buttons or moving the slide bar in lower right of the screen, displays the value of the cursor line.

View Graph -- to (2)
 -- Return to Data Management screen -- to (1)

| Measurement Date | 2009/04/04 |
|------------------|-----------------|
| Customer Name | Tart Mitsubishi |
| Veteck Name | IMEV |
| Record Womabor | PÉ(Phalbai) |
| Time | 03m456 |
| | |

(4) Print Setting

Record Information of selected file is displayed.

Pressing screen and you can print it out.

-- Return to Data Management screen -- to (1)

<Important>

This function figures out the value equivalent to fuel consumption measurement (mpg) for the engine equipped vehicle ,which is based on estimate power consumption calculated by values such as current and voltage to be used for vehicle control. Please handle it to the end as a reference value because the charge efficiency etc. when it charges is not involved in the calculation.

Print preview of electricity consumption measurement



12-3. Fuel pressure, Voltage, Ohmmeter, Oscilloscope





12-3-1. Measuring Fuel Pressure (Not available in US)

(Not supported by V.C.I.-Lite)

The fuel pressure can be measured using pressure gauge (LP: MB991655 or MB991979 / HP: MB991708 or MB992007), and displayed as text or graph style on PC.

- Measuring the Calibration Volt
 To adjust manufacturing difference of solid state in each pressure gauge, you need to input its calibration value.
 Please measure the calibration value as follows.
 - Connect the pressure gauge to cigarette lighter socket, and to V.C.I. (Don't put the pressure gauge on the fuel pipeline yet.)
 - Press Voltmeter on the menu screen of 12-1-1(1).
 - The displayed voltage is the calibration value of the gauge.

| | Petilipe (perior | 100 |
|----|----------------------------------|-----|
| 04 | MEROINES(PVD-SKA) Low pressure | |
| 62 | ME9991738(PVC-130(A)PHghgressane | - |
| | | |
| | | |
| | | |
| | | |
| | | |

- Put the pressure gauge on the fuel pipeline.
 Press Fuel Pressure Measurement on the menu screen of 12-1-1(1).
 The selection screen of pressure gauge appears. Select a pressure gauge and press button.
- (3) Entering the Calibration value
 Enter the calibration volt which you measured in (1), and press button.



1 1

(4) Measuring Fuel Pressure The measured value is displayed on the graph.



12-3-2. Measuring Voltage and Resistance

(Not supported by V.C.I.-Lite)

(1) Press **Voltmeter** or **Ohmmeter** on the menu screen of 12-1-1(1).

The voltage or resistance value comes from the test leads connected to the trigger terminal and displayed on the PC screen.

-For details on how to connect the measurement probe, and details for measuring using V.C.I. alone, refer to 2-2-3.
-Prior to executing the measurement process, calibrate the instrument to 0 using state.

Note:

- -DC voltage can be measured in the range of $0-\pm40$ V.
- -Resistance can be measured in the range of 0-100 K $\!\Omega.$

12-3-3. Oscilloscope Function

(Not supported by V.C.I.-Lite)

(1) Press **Oscilloscope** on the menu screen of 12-1-1(1).

This function allows you to observe the continuous waveform, which is loaded from the voltage measurement terminal, on PC screen using test leads (MB991499, etc).

- --Starts the waveform display
- --Stops the waveform display
- --Switches to Scale mode

: to set the time axis and voltage axis --(2)

Figurer -- Switches to Trigger mode

: to set trigger conditions --(3)

Note:

DC voltage can be measured in the range of 0-±40V, and resolution can be measured at 0.1V.

The shortest sampling interval is 500 µs.

(2) Setting the Time Axis and Voltage Axis button switches to the scale mode, and the < > A V buttons can be used to set time axis and voltage axis.

Changes time axis scale ▲ ▼--Changes voltage axis scale

Note:

Time scale: (10,20,40,100ms/div) Voltage scale: (1,2,5,8V/div)

- (3) Setting Trigger Conditions

button switches to the trigger setting mode, and a trigger point can be changed by the \checkmark \blacktriangleright \checkmark buttons.

🔫 --Up Trigger --Down Trigger





Chapter 13 How to Use (Special Case)

13-1. Copy Coding

The procedure "Copy Coding" is described below.

- 1) Read the coding data from the ECU to be removed. And save it to a file. -> 13-3-1 13-3-2
- 2) Read the customization data from the ECU to be removed. And save it to a file. (ETACS ECU Only)

-> 13-4-1 – 13-4-2

- 3) Exchange the ECU.
- 4) Write the VIN to installed ECU.
 - (This procedure is not need since VIN will be written automatically to the ECU when the ECU, which has never been written the VIN, is installed in the car. (Except engine ECU))
 - -> 13-2-1 (Engine ECU in the car with immobilizer)

-> 13-2-2 (other)

5) Write the saved coding data in procedure 1 to installed ECU.

-> 13-3-3

 Write the saved customization data in procedure 2 to installed ECU. (ETACS ECU Only) -> 13-4-3

13-2. VIN Writing and VIN Information

| Note: I also also also also also also also also | 13-2-1. VIN Writing (Case of engine ECU in the car with immobilizer) (1) Select "F.A.S.T./IMMO/Keyless/TPMS" on the System Selection screen. (For instruction on how to select a system, refer to 3-3-1) |
|--|---|
| | (2) Press Special Function button. |
| | (3) Special function menu is displayed. ENG key code & VIN Reg. – Registration of engine key code and VIN writing. > (4) ENG key code Reg. – Registration of engine key code only. Use only if correct VIN is writing to the ECU. > (4) |
| To consider a second se | (4) The key code is registered to engine ECU. Press |
| Key Code Registration Completed. Press the OK button and move to VIN writing function. | (5) Press <u>button.</u> When ENG key code Reg. was selected, return to (3). |

VIN Writing and VIN Information

| 7.45 | TAMM | Official and | IPMS / | Special | Function | / EH | 5 key code l | & VIN Reg | | | | (6) Press 🗾 button, after input VIN. |
|----------|----------|----------------|---------------|---------|----------------|------------|--------------|-----------|------|---------------|-------|--|
| | | | Current | VIN | | | | | | | | |
| | | | New | VIN | JE4N | 183 | 1X77 | 'U00 | 0059 | | | |
| | | 2 | 3 | 4 | 5 | 4 | · 7 | • | . 9 | 0 | | |
| ٥ | 5 | w | ε | R | т | ×. | U | т. | 0 | Р | | |
| - A | 8 | 5 | D | , | 0 | н | | к | L | | | |
| z | 8 | x | c | v | 8 | N | м | | | | 1 | |
| | | | | | | | | | | Back Space | Clear | |
| | 4 Hart p | Ł | | 6 | 7 | | 1 | | | | | |
| J ··· | | | | | | | | | | | | |
| 1.0 | 11.1.87 | riting | | | | | | | | | | |
| _ | ? | | N W | ritin | a | | | | | | | (7) Confirmation dialog box is appears. |
| | Y | | | | - | | | | | | | Press 🧹 button. |
| | | | a you | | rill star ? | ι. | | | | | | |
| | | | | | | | | | | | | |
| | _ | | | | | | | | | | | |
| | 4 | \checkmark | > | | | | | | | | | |
| | | | | | | | | | | | | |
| | N W | riting | | | | | | | | | | |
| _ | | V | N W | ritin | g | | | | | | | (8) Press 🧹 button. |
| | 4 | | mplet | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | . 1 | | | | 1 | | | | | | |
| | 1 | \checkmark | | | | | | | | | | |
| | | | | | | | | | | | | |
| IBA CARA | - | and the second | 2560 May 144 | a with | - 1475,784 | HC . | | | | | | (9) Written VIN is displayed. Check if VIN is written correctly. |
| / FAS | TIM | OKeyless | TPMS / | Special | Function | / 844 | G key code l | & VIN Reg | | | 2 | |
| | | | | | | | | | | | | Press 🔁 button> returns to screen (3). |
| | | | | | | | | | | | | |
| | | | | | Free | e ar o par | Artig: | | | | | |
| | | | Barts Viti | | | | 1477,00009 | 59 | - Pr | ton Willing | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| 1 | | £ | | ۲ | 2 | | il. | | | | | |
| | | | | | | - | | | | | | |

| | System List | 1.00 | Model Year | |
|----|--------------------------|------|--------------|------------------|
| 1 | MD | | | From2006MY |
| 2 | ELC-ANOVITO-SST | * | | Values Montaline |
| 5 | ORUSE CONTROL | | Model Native | OUTLANDER (CVM) |
| ÷ | ABSIASCIASTOWSIS | | Model Tear | 2007 |
| 1 | LRS-AR EAD | | Model Code | CMM01Hi2L# |
| | Air Conditionel | | | |
| 7 | ETACS | * | | |
| 1 | Matur | | | |
| 8 | Steering Ange Sensor | 2 | | |
| 1Ú | Mit Select 4VID | | | |
| | The second second second | | | |

13-2-2. Procedure of VIN Writing (Other case)

(1) Select a system on the System Selection screen in which you want to write VIN.

(For instruction on how to select a system, refer to 3-3-1)

Note:

As a typical example, procedure for VIN writing in MFI is explained below.

Other system may have different menu structure but procedure is basically the same.

Select "MFI" on the System Selection screen.

| And the second s | | |
|--|----------------|------------------|
| Actuator Test | Orive Recorder | Special Function |
| Readiness Test | Voltmatar | Otometer |
| Coding | | |

1

1 1

(2) Press **Coding** button.

| Coding menu is displayed. | |
|--|-----------|
| VIN Writing – VIN is written. | -> (4) |
| Chassis No/VIN Writing - VIN is written. | -> (4) |
| VIN Information – VIN is displayed. | -> 13-2-3 |

(4) Choose whether immobilizer is equipped in the car.
 And press button.
 *This screen is not displayed by selected vehicle and system.

| Image: state Construction Construction Image: state Construction Construction | (5) Input VIN and press 🔽 button. |
|---|--|
| VIN Writing VIN Writing VIN Writing will start. Are you sure? | (6) Confirmation dialog box appears. Press 📈 button. |
| VIN Writing Completed. | (7) Press 🥪 button. |
| Technolog 2 (top) - Ence Mol Romy - Mondear Mil Colleg Dases Mol/19 19(to) | (8) Written VIN is displayed. Check if VIN is written correctly. Press 1 button> returns to screen (3). |

13-2-3. VIN Information

Current VIN is displayed.

| Batt VH Originit | |
|------------------------------------|-------------------|
| Origina | |
| | JE4M531x77U000059 |
| Current | |

8 2

1 L

13-3. Coding Operation

| | Syderh List | 1.00 | Model Year | C Up to 2005MY |
|----------|-----------------------|------|----------------|-------------------|
| Ľ, | MP1 | | | From2006MY |
| i. | ELC-ATICVTRC-557 | 1 | | Value Menutice |
| | DRUISE CONTROL | | Model fairie . | DUTLANDER (CINIK) |
| | ABSIRSCIASTOWSS | | Model Year | 2007 |
| 5 | SPIS-AR BAG | | Model Code | CWW0LH/2L# |
| 1 | Air Conditioner | | | |
| r. | ETACS | v | | |
| | Matter | | | |
| | Steering Angle Sansor | 2 | | |
| <u>ó</u> | Auto Service 4/4/D | | | |

13-3-1. Confirmation of the Current ECU Coding Data

(1) Select "MFI" on the System Selection screen.(For instruction on how to select a system, refer to 3-3-1)

Note:

As a typical example, procedure for Coding MFI is explained below.

Other system may have different menu structure but procedure is basically the same.

(2) Press **Coding** button.

| Aduator Text Drive Recorder Special Function Readless Text Unitedant Otherwise |
|---|
| Readiness Test Voltmeter Onometer |
| |
| Coding |

| Chassis No/VN Writing | VIN information | On Vehicle Coding |
|---------------------------|-----------------|-------------------|
| | | |
| Coding information & Copy | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

| Bart. | Carnet . | |
|--------------------------------|--------------------|---|
| | | - |
| Current Chanais Number of VNI | _E9M535077.000059 | |
| Original Chassis Number or VHs | JE464531X77U000059 | |
| Vefside Model | LANCER | |
| Model year | 00 | 3 |
| Destination | JAPAN | 2 |
| Detail Destination | NotDefined | |
| Engine type | DEVVT 18L | |
| Final drive | 2MD | |
| Final peer rate: | 0.120 | |
| The initiatilements | 2015mm | |

- (3) Coding menu is displayed.
 On Vehicle Coding -- Writing a coding data
 --> to 13-3-3
 Coding Information & Copy -- Reading the current ECU coding data and saving the data to file
 --> to (4)
- (4) The current ECU coding data is displayed.



13-3-2. Save of the ECU Coding Data

(1) Press **H** button on the screen 13-3-1(4), and the left screen will be displayed.

Press < button.

Note:

If diagnostic trouble codes are currently stored in the ECU, the file cannot save. Retry after the vehicle is repaired.

(2) Confirm the displayed name which the saved file.
 Press button.
 Note:

The file name of the saved file is set as "ECU parts No., VIN No., Date and No."

13-3-3. Procedure of Variant Coding Writing

(1) Save a coding file into

"C:/Program Files/MUT3/CdgData/" by

-To read the coding data out of the ECU

(refer to 13-3-2)

or

-To obtain a variant coding file in advance



(2) Press 🧹 button .

| JE4MS31X7U00059 1 2 3 4 5 6 7 8 9 0 0 W E R T Y U 1 0 P A S D P O H J K L I Z X O V B N M J K L I | | | Curr | and VIN | | | | | | | |
|--|---|-----|------|---------|-----|-----|-----|------|-----|---------------|------|
| W E R T Y U I O P A S D P O H J K L I Z X C IV B N M J I | | | | iew VIN | JE4 | MS3 | X77 | U000 | 059 | | |
| A S D P O H J K L I 2 X C V B N M I | 1 | 2 | з | | 5 | | | | | .0 | |
| 2 X C V B N M - I I Image: I | ٥ | ्रभ | E. | R | T | × | U | 10 | 0 | . P | |
| | ٨ | s | D | a i | G | н | а I | к | ι | | |
| Beck on | z | x | с | v | | N | M | - | | | |
| Space | | | | | | | | | | Back Space | Cies |

| Mode | el Year | 200 | 06 | TY | PERIND | D | BA- | cw | 5W | XTH | ΗZ | | |
|------|---------|------------|--------------|----|--------|---|-----|----|----|-----|----|---------------|-----|
| | OPT | 000 |) | | | | | | | | | | |
| 1 | 2 | 3 | 4 | 1 | | 7 | | | 0 | | | | |
| 0 | w | ε | R | Ŧ | ÷. | U | ï. | 0 | p | | | | |
| A | 8 | D | | 0 | н | 1 | к | ι | | | | | |
| z | x | c | v | 8 | N. | м | | | | | | 10 | |
| | | | | | | | | | | | | | Tal |
| | | | | | | | | | | | | Back Space | Cim |
| - | rhomahi | n and pres | - the 120 pe | e+ | _ | _ | _ | _ | | _ | _ | _ | _ |

(3) Input a VIN to list up applied coding files and pressbutton.

If left screen is displayed, press with button. Note:

-Don't change each value in this screen.

Image: Second Second

| | | Collegious Datas | New (Partie New 1) | |
|-----|-----|--------------------------------------|--|--|
| Def | 700 | File fabre | Record Mometon | |
| | - | 180478, RANDOV MONTANIA (REFORM) SAN | Charao Number/Hit Alextons/Hit20009 MICEL NAME CARANELINGA MICEL INAME WAS CARANEL MICEL INAME AND COPT INTERNATION OF THE INTERNATION OF THE INTERNATION | |
| | - | | | |
| | | | | |
| | | | | |

| | Colleg | |
|-----------------------|---------------------|--------------------|
| bert. | Current | CitatgTile |
| Charges Namber or VIN | _E-645111770,000019 | _E-64535x77U000059 |
| Vehicle Model | LANCER | LANCER |
| Model year | 08 | 0.0 |
| Destination | Jamas | JAPAN |
| Detail Detitration | NorDefined | NEDefined |
| Engine type | Devvria. | D4VVT 18L |
| Final drive | 2HD : | 2WD |
| Final gear ratio | 6.120 | 6.120 |

Note:

If coding file is not found in the folder, left screen may appear. In such case, press button. Save the correct file in the folder and try again.

(4) The applied coding files by the inputted are displayed. Choose a coding file to be written and press button.
-The background color of the line containing the selected file changes into yellow.

-- select a directory

Ferrit -- delete the files --> to 13-3-4

(5) The current ECU coding data and the coding data to be written are displayed. Press button if OK.



On Vehicle Coding Coding has been completed.

()



Press 🧹 button

Note:

- -In case of ETACS, "ETACS customize" and "Option Coding" are initialized after writing variant coding. Rewrite them after finishing coding.
- -It is not need that "Option Coding" is executed because the data of "Option coding" includes in variant coding data, if "Copy Coding" was executed.
- (7) Press 🧹 button

| | Results of Conting | |
|------------------------|----------------------|-----------------------|
| - bett | Carret | Defire coding |
| Chartons Number or VIN | JE-645211×770,000019 | .35-845315x770.000059 |
| Vehicle Model | LANCER | LANCER |
| Model year | - 00 | 00 |
| Destrution | JAPAN | 18P-AN |
| Detai Destrutor | Net Defined | Test Defined |
| Expretate | DAVVTIN | DIVVT18, |
| Final Blue | 240 | 2MD |
| Final gear ratio | 6 120 | 6.130 |
| Tay caturdwares | 20them | 20 threes |

(8) Written the coding data is displayed. Check if the coding data is written correctly.
 Press button. --> returns to screen 13-3-1(3)

13-3-4. Delete of Coding Files

To delete a data file loaded on the PC, click the check box next to file No. in the file list (refer to 12-3-3(4)) to place a check mark, and press for button.

(Two or more check marks can be placed.) Note:

- ✓ mark will be displayed, if cursor is moved on a check box and it clicks. (Selection)
- ✓ mark is eliminated by clicking again. (Selection release)

13-4. Customization Operation

| | 13-4-1. Confirmation of the Current Customization Data |
|--|--|
| Andre aller bei anne Versel bisserigiere (wiley Wile) | Select "ETACS" on the System Selection screen. |
| Model Year C Up to 2005MY | (For instruction on how to select a system, refer to 3-3-1) |
| 1 Mil | (FOI INSTRUCTION OF NOW TO SELECT a System, Teler to 5-5-1) |
| | |
| DRUSE CONTROL Moder Team DUTLANEER (CONR) Moder Team DUTLANEER (CONR) | |
| DESIGNATION Model Cade CVEWO23H2.# | |
| 6 Ar Coddbine | |
| 7 ETACS | |
| 8 Develop Ange Sensor | |
| 10 Mdl Select MD | |
| Les ber Veren | |
| Televisinda Alemini - Bhoti i Hercante Dyten senet / ETACS | (2) Press Special Function button. |
| Cheld Chaf Far Problem Symptoms Degreatile Trouble Code Date List | |
| Actuator Test. Only Receiver Special Punction | |
| Votimular Chemedra Coding | |
| | |
| | |
| Piece skit hoton | |
| 1 L | |
| | |
| Section Strate Planter = Section Statement Molecommon System selectETACSSpecial Function | (3) Special function menu is displayed. |
| ECU Information Customization Customization | Customization Writing a customization data |
| Customization Reset | > to 13-4-3 |
| | Customization Information Deading the current |
| | Customization Information Reading the current |
| | customization data and saving the data to file |
| | - |
| | > to (4) |
| | |
| Preve select Motion | |
| 1 L | |
| | |
| Tremelina a Colore - Constant and Research - And Colore - | (4) The current customization data is displayed. |

| Bett | Curret | _ |
|-------------------------------|------------------|----|
| Tan pover tource | 451 | 1 |
| Contot Neder | Enable | |
| Front water operation | Speed Servitive | |
| Front water water | WasherEWiper | 3 |
| Headight ado out customere | Enable (C-spec.) | 2 |
| Henrice light auto cut tensor | 30mm | 1 |
| ACC power auto 0.4 | Creatie | |
| Confort faither switch bree | Normal | 1 |
| | | - |
| | | 10 |

(4) The current customization data is displayed.





| | CARDINER | | |
|----------------------------------|-------------------|------------------|---|
| lan. | Cunet | Above | |
| Turn power solution | 101 | 101 | |
| Control Number | Enecos | Endie | |
| Front experiation | Speed Sensitive | Speed Service-9 | |
| Point eiger estabei | Washer SWper | WatertWoor | - |
| Heading R and a cut contervision | Enterin (C-spec.) | Entrie (C-spec.) | |
| Renorigit auto out timer | Ximo | Doran | |
| ACC power auto cut | Disable | Disativ | |
| Confort Radier Switch Sine | Normal | pina. | |

Customize Customizing will start. Are you sure? ٩ Customize



| her. | Current | Ballyin Customate |
|-----------------------------|------------------|-------------------|
| Tampower share | ACC or KG1 | 101 |
| Contot Basher | Enuble | Ender |
| Front experipteration | Tipeed Sanshie | Speed Sensitive |
| Front water water | WasherSWiper | Washer@Wiper |
| Headight was substantiated | Enable (C-spec.) | Enable (C-spec) |
| Wellor light also cut time: | 30min | 30min |
| ACC power puts rul. | Drivetine | Disatie |
| Combit faither switch time | Normal | Normal |
| | | |

13-4-2. Save of the Customization Data

(1) Press ____ button on the screen 13-4-1(4), and the left screen will be displayed.

Press 📈 button.

(2) Confirm the displayed name which the saved file. Press 📈 button. Note: The file name of the saved file is set as "ECU parts No., Date and No."

13-4-3. Procedure of Customization

(1) The current customization data and the customization data to be written are displayed.

Load the customization data file or change the value. And press 🗸 button.

- -- load customization data --> to 13-4-4
- Image: -- load customization items list --> to 13-4-6 (Not available in US)
- (2) Confirmation dialog box appears. Press 🧹 button

(3) Press 🧹 button

(4) Written the customization data is displayed. Check if the customization data is written correctly. Press 1 button. --> returns to screen 13-4-1(3)

123

| | De Tas Eleitane BecetMonaton | | | | | |
|----|------------------------------|---|---|----|--|--|
| DH | 741 | Filefatte | La Constantina de la | | | |
| | - | AND AND AND ADDRESS OF ADDRESS AND ADDRESS ADDRESS ADDRESS ADDRESS ADDRESS ADDRESS ADDRESS ADDRESS ADDRESS ADDR | Charao Anala Ang Anton Matter (2014) Micel Anale Continential Micel Interference (2014) Micel Interference (2014) Micel Interference (2014) | A | | |
| | | | | | | |
| | | | | ~ | | |
| | | | | - | | |
| | | | | 10 | | |
| | | | | 1 | | |

13-4-4. Load the Customization Data

The applied customization files by the inputted are displayed. Choose a customization file to be written and press shutton.

-The background color of the line containing the selected file changes into yellow.

-- select a directory

-- delete the files --> to 13-4-5

13-4-5. Delete of Customization Files

To delete a data file loaded on the PC, click the check box next to file No. in the file list (refer to 13-4-4) to place a check mark, and press for button.

(Two or more check marks can be placed.) Note:

- ✓ mark will be displayed, if cursor is moved on a check box and it clicks. (Selection)
- ✓ mark is eliminated by clicking again. (Selection release)

13-4-6. Load Customization items List (Not available in US)

Click button on the screen 13-4-3(1).

Input vehicle information where you want to confirm the customization function.

| TYPE | CI44 |
|--------------|------------------------------------|
| CLASS | STAALCA |
| MODEL YEAR | 2019 |
| MODEL | LANCERILANCER EXISTIN |
| ENGINE | 4811 (2.0.DK, MPL MVEC) |
| TRANSMISSION | Pitel (SAT-24D) |
| DRIVE | FRONT WEED, DRIVE |
| BODY | ACH SEDAN |
| SUSPENSION | FEISTER, REMACTURE |
| BRAKE | ADS. FR-DISC, RR-DISC (DRIMH-DISC) |
| STEERING | POWER STEERING |

| tatary is disclosed | system of M U. | 1-8, the tokeeing fun | store i | as he programmed | The program | read street | rullion is held ever | t what the |
|--|--|--------------------------|---------------------|---|----------------------------|--------------|--|------------|
| Adjustment Rem (M.U.T8) display! | Adjustment | tem | | Adjusting content (M.U.T III display) | Adjusting o | ontent | | |
| ACC power with | Time to ACC. | prever cut-off when the | | Druges | No function | | | |
| CH | syndion switch is in the ACC position | | | 30 mm | | | | |
| | | | | (60 mm | 80 wunden | | | |
| Turn power exurce | Adjudment of condition | turi-signal lamp ope | ration | ACC or KE1 | Operable ed Operable ed | | OFEposition tion (Initial condition | |
| Combut Rasher | Method o | orifloit Rather function | | Drostine | No function | | | |
| | | | | Englis | Web function | (Initial con | vátkonj | |
| Condut Bacher | | ice bow to milledu \$ | | Jurna | | | | |
| pretch time | Confort flaithe | | | Ling | 30.0 second | | | |
| Hazard arower Table | Adjustment of the number of keyless hater memory large answer back fashes | | #1, ock 1, URlock 2 | LOCK Flat conditions | we arce, t | ALOCK Father | being (helper | |
| | | | | Lock 1, Unlock 8: LOCK Flashes once, URLOCH No fash | | | | |
| | | | | Lock 0: UNICK 2: LOCK No Bash, UNLOCK Flash beca | | | | |
| | | | | Lock 2, Unlock 1 | | | | ю |
| | _ | | _ | Lock 7 Linixed | | their 2.B. | A COCK Backweb | |
| 44 | | | 1.0 | | | | - | - |

The relative page for the customization items is displayed.

* A vehicle after 10MY is a target.

Chapter 14 Troubleshooting Procedures

*Since a V.C.I.-Lite does not have a power switch, operation button, LCD screen, electronic sound, and indicator lamp (only displays green) they cannot be used in troubleshooting. When troubleshooting procedures in the table below are applied using V.C.I.-Lite and they require turning the power switch on and off, please substitute the following procedure.

*Disconnect all the harness and cables connected with V.C.I.-Lite once, and then reconnect them.

14-1. Individual Troubleshooting Procedures

This chapter describes troubleshooting guidelines for the causes of main error messages as well as error symptoms.

Note:

- The messages described herein sometimes appear simultaneously with other screens.
- For details regarding circuit inspection, see the electrical wiring diagrams of the applicable vehicle.
- Communications lines are determined by the system and communication method.
- For details regarding the data-link-connector terminal configuration, see the electrical wiring diagrams of the applicable vehicle.

| No. | Message/Symptom | Cause | Remedy |
|-----|---|---|---|
| 1 | The V.C.I. does not power up when connected correctly to the vehicle. Be sure the IG switch is ON. | Vehicle power supply failure due to: • V.C.I. switch turned OFF • Low battery • Vehicle harness not connected or a short exists • Hardware error | Verify that the V.C.I. switch is ON. Verify the vehicle battery is sufficiently charged (12V). Disconnect and reconnect the connector. Check if there is a short in the harness. (Try using a different harness.) If the problem is not resolved by remedies 1-4, there may be a hardware error. Request inspection with the harness. |
| 2 | The V.C.I. does not power up from the PC connection with the USB cable. V.C.I. is not connected to vehicle at this time. | PC power supply failure due to: PC power not activated USB cable not connected or a short exists Hardware error (PC or V.C.I.) | Verify that PC is ON. Verify that appropriate USB cable is firmly connected between the PC and V.C.I. (Do not use a USB hub.) Disconnect and reconnect the connector. Check if there is a short in the cable. (Try using a different harness.) If the problem is not resolved by remedies 1-4, there may be a hardware error. Request inspection with the PC. |
| 3 | The screen "Maintenance Mode" appears as soon as the V.C.I. is powered up. | V.C.I. was powered on with pressing "Esc" key. | Turn the V.C.I. OFF. Disconnect USB cable and connector. Turn the V.C.I. power ON. (Do not touch "Esc" key.) If the "Main Menu" or "PC Communication" display does not appear, the V.C.I.may be at fault. Request inspection. |

| No. | Message/Symptom | Cause | Remedy |
|-----|--|--|---|
| | | | Connect the unit to the PC (for power activation) while pressing the V.C.I. "Esc" key. |
| | | | Verify that the V.C.I. screen display indicates "Maintenance Mode". |
| | | The V.C.I. basic | In order to install the V.C.I. basic application, using the automatic version upgrade feature, start the PC M.U.TIII diagnostic application and attempt diagnosis. (refer to 3-3-1) |
| | | application has not been installed. | As "Setup V.C.I." dialog box appears on PC screen during the diagnosis, press dutton. |
| | | | When "Update" dialog box disappears on PC screen, the install is completed. |
| | | | If, once the application has been downloaded and the V.C.I. power has been reactivated, the "Main Menu" or "PC Communication" display does not appear, request inspection. |
| 5 | The screen "Drive Recorder [1] Record error " appears during recording the Drive recorder with V.C.I. alone. | Communication error | Press the V.C.I. "Enter" key. Verify that the V.C.I. screen display indicates "Drive Recorder Continue? ", press the "Enter" key or wait 10seconds to start recording again. |
| 6 | The following message is displayed. " Failed to communication with V.C.I. Check PC-V.C.I. connection. Refer to M.U.TIII Manual for other solution." | Contact failure of USB cable PC does not recognize that the V.C.I. has been connected. The stand-alone function of V.C.I. is being used. Have been failed to update firmware of V.C.I The "ECU | Refer to 14-2 |
| 7 | The following message is displayed. " Fail to communication with V.C.I. Check the USB cable." | Reprogramming" function has not been finished perfectly. - Breakdown of USB cable. - Breakdown of USB port of PC. - V.C.I. driver is breaking - The power supplied to V.C.I. is lack. (USB hub is used, etc.) | |
| 8 | | Firmware update has failed. | Try firmware update again. |

14-2. Troubleshooting Procedures on V.C.I. Firmware Update

| Check Point | Remedy |
|---|--|
| Even if the same operation is performed many times, is identical message displayed? | Confirm connection of V.C.I. and USB cable and connection of PC and USB cable. |
| 2. Even if V.C.I. is re-connected by USB cable to PC after V.C.I. was dis-connected with USB cable, does the identical symptom occur? | This problem is settled, if the different symptom occurred. |
| 3. Have V.C.I. been connected by USB cable to PC? | Connect V.C.I. by USB cable to PC. |
| 4. Is the indicator lamp of V.C.I. lighting while V.C.I. is connecting by USB cable to PC? | - |
| 4-1. Is not USB hub using? | Stop use of USB hub since M.U.TIII is not supporting USB hub, and connect V.C.I. directly by USB cable to PC. |
| 4-2. Even if same V.C.I. are connected by another USB cable to same PC, does the indicator lamp of V.C.I. keep being not lighting? | Exchange and use to a practicable USB cable. |
| 4-3 Even if another V.C.I. is connected by same USB cable to same PC, does the indicator lamp of V.C.I. keep being not lighting? | Request the repair of V.C.I |
| 4-4. Even if same V.C.I. are connected by same USB cable to another USB port of same PC, does the indicator lamp of V.C.I. keep being not lighting? | Use a practicable USB port of PC. |
| 4-5. Even if same V.C.I. is connected by same USB cable to another PC (M.U.TIII does not need to have been installed in this PC), does the indicator lamp of V.C.I. keep being not lighting? | Request the repair of PC. |
| 5. Dis-connect V.C.I. with USB cable after main switch of V.C.I. is turned off. (The indicator lamp of V.C.I. will be lighting no longer.) And turns main switch of V.C.I. on after V.C.I. was re-connected by USB cable to PC. Even if this operation execute, does the identical symptom occur? | This problem is settled, if the different symptom occurred. |
| 6. When V.C.I. is re-connected by USB cable to PC after V.C.I. was dis-connected with USB cable, does "beep" sound from V.C.I.? | Re-update the firmware of V.C.I(*) |
| 7. When V.C.I. is being connected by USB cable to PC (V.C.I. must not be connected by M.U.TIII main harness to a vehicle), does the screen of V.C.I. display "PC Communication"? | - |
| 7-1. Connect V.C.I. by USB cable to PC. (V.C.I. must not be connected by M.U.TIII main harness to a vehicle.) After "ECU Reprogramming" function is executed automatically, the following message is displayed on the display of V.C.I Is not this symptom occurring? "Application of V CI was erased, update applicati on of VCI." | Re-update the firmware of V.C.I(*) |

| Check Point | Remedy |
|--|---|
| 7-2. Connect V.C.I. by USB cable to PC. (V.C.I. must not be connected by M.U.TIII main harness to a vehicle.) After "ECU Reprogramming" function is executed automatically, the following message is displayed on the display of V.C.I Is not this symptom occurring? " Check SW of VCI, or connection with vehicle,or battery voltage." | Connect V.C.I. by M.U.TIII main harness to the some vehicle, and make the "ECU Reprogramming" function finish perfectly. (It is no problem that the result of ECU Reprogramming is error.) Still if the identical symptom occurs, try re-update of the firmware of V.C.I(*) |
| 7-3. Connect V.C.I. by USB cable to PC. (V.C.I. must not be connected by M.U.TIII main harness to a vehicle.) After "ECU Reprogramming" function is executed automatically, the following message is displayed on the display of V.C.I Is not this symptom occurring? " Vehicle battery voltage is Low. " | Connect V.C.I. by M.U.TIII main harness to the some vehicle, and make the "ECU Reprogramming" function finish perfectly. (It is no problem that the result of ECU Reprogramming is error.) Still if the identical symptom occurs, try re-update of the firmware of V.C.I(*) |
| 7-4. Connect V.C.I. by USB cable to PC. (V.C.I. must not be connected by M.U.TIII main harness to a vehicle.) After "ECU Reprogramming" function is executed automatically, the message is not displayed on the display of V.C.I Is not this symptom occurring? | Re-update the firmware of V.C.I(*) |
| 7-5. When V.C.I. was connected by USB cable to only PC (V.C.I. must not be connected by M.U.TIII main harness to a vehicle), does the indicator lamp of V.C.I. light? | Go to check point 4. |
| 8. When V.C.I. is connected by M.U.TIII main harness to only a vehicle (V.C.I. must not be connected by USB cable to PC), is not "No application" displayed on the screen of V.C.I.? | Re-update the firmware of V.C.I(*) |
| 9. Even if same V.C.I. are connected by same USB cable to another USB port of same PC, does the identical symptom occur? | Use a practicable USB port of PC. |
| 10. Even if PC was rebooted, does the identical symptom occur? | This problem is settled, if the different symptom occurred. |
| 11. Even if same V.C.I. are connected by another USB cable to same PC, does the identical symptom occur? | Exchange and use to a practicable USB cable. |
| 12. Even if another V.C.I. is connected by same USB cable to same PC, does the identical symptom occur? | Request the repair of V.C.I |
| 13. Even if M.U.TIII is re-installed in PC, does the identical symptom occur? | This problem is settled, if the different symptom occurred. |
| 14. Even if same V.C.I. is connected by same USB cable to another PC in which M.U.TIII was installed, does the identical symptom occur? | Request the repair of PC. |

NOTE

* Re-update of the Firmware of V.C.I. / V.C.I.-Lite

(Cannot re-update the firmware of V.C.I., if the firmware of V.C.I. is normal.)

- 1. Boot PC installed M.U.T.-III.
- 2. Start M.U.T.-III.
- Click "STV" button. (Ignore this step in US)
 -> Diagnosis main menu will be displayed.
- Click "System Select" button.
 -> System select menu will be displayed.
- 5. Connect PC with USB cable.
- 6. Dis-connect V.C.I. with all connector.
- 7. While pressing the "ESC" button of V.C.I., connect V.C.I. by USB cable to PC. * In case of V.C.I.-Lite, connect USB cable with V.C.I.-Lite.
- Confirm "Maintenance Mode" is displayed on the screen of V.C.I.. (Re-execute step 7 if "Maintenance Mode" is not displayed in the screen of V.C.I..)
 * Skip this item on V.C.I.-Lite.
- 9. Release "ESC" button of V.C.I..
 - * Skip this item on V.C.I.-Lite.
- 10. Click "OK" button in system select menu of M.U.T.-III.
- 11. Since the dialog of "V.C.I. Setup" will be displayed click "OK" button in this dialog.
- 12. Wait to re-update firmware of V.C.I. since the re-update of firmware of V.C.I. starts. (for about 100 sec)

(The dialog of "device dis-connection" will be displayed when the re-update of firmware of V.C.I. started and when finished. Click "O.K." button on the dialog to close the dialog.)

14-3. Troubleshooting of V.C.I. Stand-alone Diagnosis

(Not supported by V.C.I.-Lite)

| No. | (Not supported by V.C.ILite) Message | Cause/Remedy |
|------|--|--|
| 140. | moodago | <cause></cause> |
| 1 | <no db="" error=""> Check PC Card</no> | Failed to access the memory card. <remedy></remedy> 1. Verify that the memory card is inserted into PC correctly. 2. Press the V.C.I. "Enter" key to go back to the Main menu, and then start the operations over again. |
| 2 | <version error=""> Update Diag.data Current Ver Program: **.** Database: **.**</version> | <cause> The V.C.I. stand-alone diag. database stored in memory card does not work with the V.C.I. built-in program for V.C.I. stand-alone diag. <remedy> 1. Press the V.C.I. "Enter" key to go back to the Main menu. 2. Remove the memory card, then insert it into PC to update the database. (refer to 4-4-1) 3. If the database is the latest one, connect PC and V.C.I. to update the V.C.I. built-in program. 4. Start the operations over again.</remedy></cause> |
| 3 | <init. error-*=""> Check the system</init.> | <cause> Failed to initialize ECU by any cause. <remedy> 1. Confirm that the system option that you selected is installed in the vehicle. 2. Check if the communication wire between V.C.I and ECU is breaking or not. 3. Verify that proper main harness is connected. 4. Press the V.C.I. "Enter" key, then restart the procedures from system selection operation. (4-4-2(5)) * Check the battery voltage of the diagnosing vehicle.</remedy></cause> |
| 4 | <nrc error-*=""> Check the system</nrc> | <cause> Failed to read out DTCs. <remedy> 1. Confirm that the system option that you selected is correct. 2. Press the V.C.I. "Enter" key, then restart the procedures from system selection. (4-4-2(5))</remedy></cause> |
| 5 | <reg. error-*=""> Update Diag. data</reg.> | <cause> The information read from ECU is not registered in the database. <remedy> 1. Remove the memory card, then insert it in PC to update the database. (refer to 4-4-1) 2. Start the operations over again.</remedy></cause> |
| 6 | <comm. error=""> Retry?</comm.> | <cause> Communication between V.C.I. and ECU got disconnected from any cause. <remedy> 1. Verify that the IG switch is turned ON. 2. Check if the communication wire between V.C.I. and ECU is disconnected or not. 3. Pressing the V.C.I. "Enter" key proceeds on the diagnosis. * Check the battery voltage of the diagnosing vehicle.</remedy></cause> |

14-4. Troubleshooting of Reprogramming

14-4-1. Trouble of Reprogramming on K-Line Communication

| No. | Message | Cause/Remedy |
|-----|--|--|
| 1 | During ECU reprogramming Vehicle battery voltage is low. | <cause> Due to low battery supplied to V.C.I (The voltage of battery falls down 9.7V and below for 5 seconds.) The V.C.I. has connected to PC without connection to vehicle during retry of reprogramming. </cause> |
| | | <remedy></remedy> 1. Verify the connection between V.C.I. and vehicle, and check the battery carried in the vehicle. Recharge or replace it as needed. 2. Press the V.C.I. "Enter" key to reboot the V.C.I. |
| | During ECU reprogramming | <cause> Failed to communicate with ECU during ECU- checking. </cause> |
| 2 | Checking ECU Download error. | <remedy> 1. Turn off the IG switch. 2. Press the V.C.I. "Enter" key and reboot the V.C.I. to restart the procedure.</remedy> |
| | During ECU reprogramming. | <cause> Disagreement of the data in ECU and it in memory card. </cause> |
| 3 | ECU-Check error Press Enter key | <remedy> 1. Press the V.C.I. "Enter" key The reprogramming will be continued using data in memory card.</remedy> |
| 4 | Download error No.**** Auto-change in 4 sec Press Enter key to retry | <cause> Disconnect during reprogramming IG OFF during reprogramming Communication error Voltage of battery fall down <remedy> Verify the connection of harness, and condition of battery carried in the vehicle. Press the V.C.I. "Enter" key and reboot the V.C.I. to retry. (Retry the procedure until the reprogramming completed properly on the error occurred vehicle.) [Error code list] 001A/B : Communication error A/B 002A/B : ECU data erasing error A/B 004A/B : Data writing error A/B 004C : Data verifying error 005A : Diagnosis erasing error </remedy></cause> |
| | After select [Automatic RPG] from V.C.I. Main menu. | <cause> • Reprogramming data base file (MUT-3REP.csv) in the memory card is incorrect.</cause> |
| 5 | D/B incorrect Reinstall D/B | <remedy> Press the V.C.I. "Enter" key and back to Main menu. Turn off the V.C.I. and eject the memory card from V.C.I Insert the memory card into M.U.T.III (PC), and transfer the data to the card. Then retry the procedure. </remedy> |

| No. | Message | Cause/Remedy |
|-----|--|---|
| | During Automatic RPG with V.C.I. alone. | <cause> • There is no ECU for requiring reprogramming • IG switch not positioned "ON". • Main Harness not connected.</cause> |
| 6 | No response from vehicle ECU | <remedy> 1. Turn off the V.C.I. power. 2. Verify the connection of harness, and condition of harness itself. 3. Verify if the ECU for required reprogramming is installed. 4. Verify if the ECU can communicate with V.C.I. 5. Then redo the procedures.</remedy> |
| | During Automatic RPG with V.C.I. alone. | <cause> There is no reprogramming data in memory card although ECU is affected for reprogram. </cause> |
| 7 | CK VNxxxxx.rpg In PC card | <remedy> 1. Press the V.C.I. "Enter" key and back to Main menu. 2. Turn off the V.C.I. and eject the memory card from V.C.I 3. Insert the memory card into M.U.TIII (PC), and transfer the data to the card. Then retry the procedure.</remedy> |
| | During automatic RPG or Load RPG with V.C.I. alone. | <cause> • Failure of data transfer from memory card to V.C.I</cause> |
| 0 | | <remedy> 1. Press the V.C.I. "Enter" key and back to Main menu. 2. Retry Automatic RPG or Load RPG again.</remedy> |

14-4-2. Trouble of Reprogramming on CAN Communication

| No. | Message | Cause/Remedy |
|-----|---|---|
| 1 | Vehicle setting error. Vehicle setting is failse or selected vehicle type does not have reprogramming for CAN. | < Cause > •No reprogramming data exists for selected vehicle. < Remedy > •Select vehicle type again. |
| 2 | Please select class. | < Cause > Model specifying information (Model Year, Type, Class) is insufficient. < Remedy > Select vehicle type again. |
| 3 | Communication error. There is no CBF file | < Cause > •No CBF file exists in PC. < Remedy > •Reinstall M.U.TIII. |

| No. | Message | Cause/Remedy |
|-----|---|---|
| 4 | Connection Error Confirm the power switch which is connection with the vehicle or V.C.I | < Cause > • Connection between V.C.I. and vehicle malfunctioned. • The power switch of V.C.I. is OFF. < Remedy > • Confirm connection between V.C.I. and vehicle. • Confirm the power switch of V.C.I. |
| 5 | Reprogramming Error PC has no data. Reinstall reprogramming data. | < Cause > •No reprogramming data (CFF file) exists in PC. < Remedy > •Reinstall reprogramming data (CFF file). |
| 6 | Reprogramming Error Reprogramming Error Error occurred. Start again from beginning. | < Cause > • While reprogramming, an error occurred. < Remedy > • Restart reprogramming process from beginning. |
| 7 | Unable to Erase DTCs Can't execute "Erase DTCs", | < Cause > •Diagnosis code couldn't be erased. < Remedy > •Erase the DTC by diagnosis function of M.U.TIII. |
| 8 | Database Error Database error occurred. ErrorCode:0x800000FF | < Cause > •An error occurred in accessing database to search reprogramming data. < Remedy > • Reinstall M.U.TIII. |
| 9 | The internal process error The internal process error The internal process error occurred. ErrorCode:0x800000FF | < Cause > •The internal process error occurred on database to search the reprogramming data. < Remedy > • Reinstall M.U.TIII. |

Chapter 15 Reference Material

15-1. V.C.I. Electrical Properties

<Power Supply Properties>

| Rated voltage | DC12V, 24V | |
|---|-----------------------------|--|
| Ground polarity | <u>(-)</u> | |
| Power supply (guaranteed operation range) | DC 8.0 - 32.0 V | |
| Power supply reverse current | DC - 40 V (1 minute period) | |
| Unit current consumption (maximum) 1A | | |
| (When voltage is within the guaranteed operation range) | | |

Excludes conditions when the voltage is not within the guaranteed operation range and special conditions such as when a ground short occurs on an updated control terminal, etc.

The amount of current consumption when the unit is used with rated power supply is 420mA or less.

15-2. V.C.I.-Lite Electrical Properties

<Power Supply Properties>

| Rated voltage | DC12V, 24V | |
|---|-----------------------------|--|
| Ground polarity | <u>(-)</u> | |
| Power supply (guaranteed operation range) | DC 8.0 - 32.0 V | |
| Power supply reverse current | DC - 40 V (1 minute period) | |
| Unit current consumption (maximum) | 350mA | |
| (When voltage is within the guaranteed operation range) | | |

Excludes conditions when the voltage is not within the guaranteed operation range and special conditions such as when a ground short occurs on an updated control terminal, etc.

The amount of current consumption when the unit is used with rated power supply is 200mA or less.

Appendix

<< Terminology >>

In alphabetical order

Α

AMT: Abbreviation for Automated Manual Transmission Electronic Controlled Unit.

ASC: Abbreviation for Active Skid Control System.

С

CAN: Abbreviation for Controller Area Network. A system that shares data between ECUs through communication. The processing of each command (signal) is possible using a communication line only.

D

Data transmission: The transmission of data stored from one memory area to another memory area. In the case of M.U.T.-III, this refers to the transmission of data from the V.C.I. memory area to the PC.

Default: Initial setting. A predetermined value that is set when an item that should be defined is not defined.

Diagnosis: Refers to the self-diagnosis function. A system in which the ECU installed in the vehicle monitors input signals from the various sensors and switches and, when an error occurs or erroneous information is identified, records the data in memory.



ECU: Abbreviation for Electronic Control Unit. The control unit of the electronic control system.

EPS: Abbreviation for Electric Power Steering

Ι

I/F cartridge: A cartridge used when the ECU communication method employed is a special method or when M.U.T.-III functions have been expanded and support is not possible by the M.U.T.-III unit alone. The various I/F cartridges, such as the cartridge for the SWS monitor set in M.U.T.-II or the cartridge for DCC communication, can be used as is.

Μ

Memory card: A medium used to store data. Records data such as those used for ECU updates. With M.U.T.-III, flash memory is employed which allows the user to electrically change the data as well as maintain the information even if the power is turned off. Batteries are not required.

0

Online help: Also referred to as the online manual. An operation manual loaded on M.U.T.-III, which gives easy-to-understand explanations on how to use the various functions. It also provides processing methods related to the operation currently performed when the user is unsure how to perform an operation during application use.

R

RAM: Abbreviation for Random Access Memory. A memory device that is capable of both read and write operations. The information stored in this device is lost when the power is turned off.

ROM: Abbreviation for Read Only Memory. A memory device that is capable of read operations only. The information stored in this device is maintained even when the power is turned off.

S

Serial communication: A method in which the bits that make up digital data are transmitted in series one bit at a time on the communication line. The reading of diagnostic code via communication from the ECU using the M.U.T. is referred to as "Pattern Diagnosis."

Slide bar: A method in which a value is entered by moving a bar.

SWS: Abbreviation for Smart Wiring System. A system that centrally controls multiple electrical signals on one harness, thereby minimizing the number of harnesses used. The SWS lead to the development of the multiplex transmission system, making harness weight reduction and the development of multifunctional electrical components possible.

V

V.C.I.: Abbreviation for Vehicle Communication Interface. The communication interface used to connect the ECU mounted in the vehicle with a PC.

<< Screen Button Explanations >>

| Button Image | Button Name | Button Function |
|----------------------|------------------------------------|---|
| * | Main menu | Returns the screen to the M.U.TIII Start screen. |
| | Home | Returns the screen to the top menu screen. |
| î | Return one level | Returns the screen to the upper layer screen. |
| \checkmark | OK or YES | Determines an outcome. |
| \approx | Cancel | Cancels the operation or closes the screen. |
| ? | Help | Displays online help. |
| S | Print screen | Print the screen image. |
| | Katakana character input screen | Opens the katakana character input screen. |
| | View vehicle information | Displays vehicle information. |
| | Erase | Erases diagnosis data |
| Ø | History | Displays history of vehicle information settings. |
| | View graph1 | Displays four items on four graphs. |
| *** | View graph2 | Displays (overwrites) four items on one graph. |
| | View text | Displays text. |
| | Change time scale | Changes the graph display time scale. |
| () 20,00 | Change data scale | Changes the graph display data scale. |
| item; a | Select item | Opens the Item selection screen. |
| Î | Sort | Sorts the list into default order. |
| | Run | Starts the item. |
| | Stop | Stops the item. |
| Π | Pause | Pause |

| The name and function of each button icon are described b | |
|---|--------|
| The name and function of each button con are described b | 510 W. |

| Button | described below. | | |
|----------------------|----------------------------------|--|--|
| Image | Button Name | Button Function | |
| | Add | Adds items. | |
| D isplay Data | View V.C.I. Regeneration data | Displays a list of V.C.I. Regeneration data. | |
| fð | Delete file | Deletes files. | |
| ⇔@ | Previous page | Displays the previous page. | |
| ⊉₽ | Next page | Displays the next page. | |
| Record End | Record end | Ends the recording | |
| Manual Trigger | Manual trigger | Generates a manual trigger. | |
| | Transmit data | Transmits the data of the selected block to the PC. | |
| Save | Save data | Saves the selected data files to a removable disk. | |
| A | Alphanumeric input screen | Opens the alphanumeric input screen. | |
| Trigger | Trigger point data | Jumps to the trigger point. | |
| Data Extract | Data extraction settings | Opens the extraction condition setting screen. | |
| Retrieval Setting | Data search settings | Opens the search condition setting screen. | |
| Correlation Chart | Correlation chart | Opens the correlation chart setting screen. | |
| Histogram | Distribution map | Opens the distribution chart setting screen. | |
| | Time setting | Opens the Time extraction/search condition setting screen. | |
| 1/2 🖸 | 1/2 | Change of function button (1/2 display) | |
| 2/2 🖸 | 2/2 | Change of function button (2/2 display) | |
| 1/3 🔁 | 1/3 | Change of function button (1/3 display) | |
| 2/3 🔁 | 2/3 | Change of function button (2/3 display) | |
| 3/3 🖸 | 3/3 | Change of function button (3/3 display) | |

| Button Image | Button Name | Button Function |
|--------------------|----------------------------------|--|
| | Save to HDD | Save to Hard drive. |
| Ì | Disconnect cartridge | Disconnects the SWS monitor cartridge. |
| | Start diagnosis | Starts diagnosis and displays the result. |
| | Related information | Displays related information |
| | Zero point calibration | Corrects the calibration on measurement function. |
| | Change unit | Changes the displayed unit of measurement. |
| ¢ ₹∭ | Change scale | Changes the scale. |
| Trigger Setting | Trigger setting | Sets the Oscilloscope function trigger. |
| L. | Up trigger | Generates a trigger at the time of a rise. |
| ľ | Down trigger | Generates a trigger at the time of a fall. |
| | Select drive | Opens the drive selection screen. |
| | Select folder | Opens the selected folder. |
| ₽₽ | Read VIN/Chassis No | Read out VIN/Chassis No. from ECU. |
| * | Workshop Manual start | Start multiple Workshop Manuals |
| Ĩ | Indicative data print | The data which is being indicated is printed. |
| | Select system | Opens the system selection screen. |
| \checkmark | All select | The all items are done in the selective state. |
| | All deselect | The all items are done in the deselect state. |
| | Further diagnosis | Proceeds to the further diagnosis. |
| 8 | Diagnosis end | A diagnosis is completed. |
| | Revision points | Display of revision points. |
| | Security information acquisition | Acquires Security information. |

| Button Image | Button Name | Button Function |
|------------------|--------------------------------------|---|
| Esc | Esc | ESC Key function of V.C.I. |
| Enter | Enter | Enter Key function of V.C.I. |
| ◙ | Down arrow | Down arrow Key function of V.C.I. |
| | Bookmark | Displays bookmarks (pages with bookmarks). |
| | View MSB | Displays MSB to check revision points of the Service manual. |
| FQ | Connector index | Returns the screen to the search list screen. |
| | Group top | Returns the screen to the list of the presently displayed groups (or to the list of reference groups) |
| | Previous display | previously displayed screen. |
| Ð | Zoom in | Enlarges the display. |
| Q | Zoom out | Reduces the display. |
| F | Customization setting initialization | The SWS customization function is initialized. |
| + ^Q - | Zoom | Enable CAN Bus configuration screen to zoom in/out. |
| «/ Þ | OK/Measurement starts | Fix and start Measurement. |
| ® | Clockwise | Rotates the rotation direction set value to the right. |
| Ø | Counterclockwise | Rotates the rotation direction set value to the left. |
| K X K X | Illustration size initialization | An illustration is displayed with the original size. |
| M | Previous change point | Moves SWS monitor data (using all item change points as reference). |
| | Next change point | Moves SWS monitor data (using all item change points as reference). |
| | Search list | Returns the screen to the Search list screen. |
| | Search revision points | Displays the search revision points screen. |
| | File select | Displays the file select screen. |
| | Data manual select | Data manual select. |

| Button Image | Button Name | Button Function |
|-----------------|-------------|-----------------|
| £ | Read data | Read data. |
| 00:00 | Timer reset | Timer reset. |

| Button Image | Button Name | Button Function |
|-----------------|---------------|------------------------|
| Ŷ | Read from HDD | Data is read from HDD. |