MUT-III

(Multi-Use Tester-III*)

Quick Reference Guide

*Cart not included

May, 2003

INTENDED USAGE OF MUT-III

MUT-III is an essential special service tool required of all MMNA dealers for servicing the 2004 Endeavor, and newer platform vehicles.

MUT-II role after MUT-III Launch

Multi-Use Tester III (MUT-III) is a successor to MUT-II. MUT-II will still be useful indefinitely for vehicles up to the 2003 model year.

New models, starting with the 2004 Endeavor, will no longer be supported by MUT-II. MUT-II hardware repair and / or replacement through SPX / OTC will continue through the end of 2003.

MUT-II technical support and component replacement will continue to be provided by SPX-OTC. As before, call toll-free 888 / 727-6672, option 2 for all MUT-II orders and loan pool usage.

MUT-III Technical Support

800 / 846-7575

All MUT-III hardware and software Technical Support calls should be made to the **MEDIC Hotline**.

Software Modifications

Users modify software at their own risk. The MUT-III is provided as an Essential Special Tool for diagnosing Mitsubishi vehicles. No other application is currently authorized by MMNA.

Unauthorized software users will be instructed to reload the current MUT-III release version before any MUT-III performance issue can be addressed. The release version software reload will eliminate any additional software, customization, or drivers loaded by the user.

Hardware Modifications

Users modify or add hardware at their own risk. Unauthorized hardware modifications may void the MUT-III warranty. In most cases, USB-compatible devices may be used, as long as no additional drivers are installed.

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MUT-III DESCRIPTION

MUT-III is a Laptop Computer-based Scan Tool with an intermediary VCI (**V**ehicle **C**ommunication **I**nterface). The VCI can be used without the laptop for vehicle data recording (now) and reprogramming (release version 6 & later).

2-STAGE ROLL-OUT

The MUT-III will be rolled out in two basic stages.

STAGE ONE: Version 4.2, 5.2

Stage one introduces the MUT-III Scan Tool Viewer. The STV includes:

IBM T23 Laptop

• Pentium III (1.13 MHz) Processor, 128MB RAM, 30GB Hard Drive, 14.1" TFT (**T**hin **F**ilm **T**ransistor) Screen, DVD Drive

• AC & DC (accessory socket) power adapters

• Version 4.2 MUT-III software preloaded

• Version 5.2 software on DVD-ROM -- **load Version 5.2 to diagnose the 2004 Endeavor**.

Vehicle Connection Interface (VCI) # MB991824
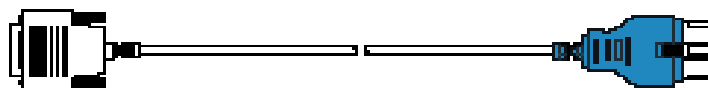
Cables & Adapters
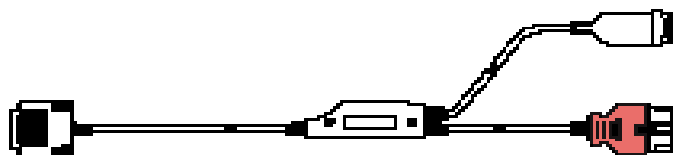
MB991827

USB Cable

MB991910, Main Harness A - BLUE connector
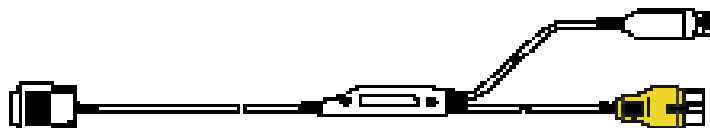
(44 to 16 pin) 2004 Endeavor & newer

MB99191, Main Harness B - RED connector
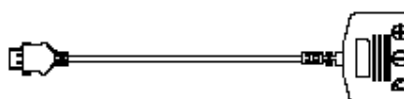(44 to 16 & 12 pin) 1983-2003 vehicles

MB991914, Main Harness C - YELLOW connector
(44 to 16 & 12 pin) Chrysler powertrain vehicles

MB991825, Meter Adapter Harness

STAGE TWO: Version 6 Software

Stage two rolls out the rest of the MUT-III features.

Version 6 software will add these features:

- **MMC ECU Reprogramming**

- **Other enhancements**

SCAN TOOL VIEWER
Laptop

The laptop will come with the MUT-III STV software already installed. The software will only support the Scan Tool Viewer components of the MUT-III, which include:

- *Reprogram* ECUs (not until Version 6 software)
- *Special Functions* - Voltmeter, Ohmmeter, and Oscilloscope
- *System Functions* - Self-diagnostics and DTCs, Data Lists, Actuator Tests, and a few other system-specific functions
- *Drive Recorder* - Manual trigger or triggered by DTC(s) for any system, including SWS (Drive Recorder can be run from the laptop or from the VCI alone, by uploading recorded data to the laptop after a test drive.)
- *CAN-bus Diagnosis* - Diagnosis of CAN-bus lines and ECUs. Refer to Technical Training Module 00.54 for an explanation of CAN-bus systems.

VCI Components

No.	Part No.	Part Name
1	MB991824	Vehicle Communication Interface (VCI)
2	MB991910	MUT-3 Main Harness A Cable (44pin / 16pin) Blue
3	MB991911	MUT-3 Main Harness B Cable (44pin / 16pin & 12pin) Red
4	MB991914	MUT-3 Main Harness C Cable (44pin / 16pin & 12pin) Yellow
5	MB991827	MUT-3 USB Cable
6	MB991825	MUT-3 Multi-meter Adapter Harness
7	MB991942	MUT-3 CASE ASS'Y B

Chrysler & SWS Monitor Cartridges

MUT-III can use the existing Chrysler Interface Cartridge, MB991544, and SWS Monitor Interface Cartridge and Cables, already included in current current MUT-II kits.

VCI

The VCI (Vehicle Communication Interface) connects the vehicle to the laptop computer.
The VCI acts as an interpreter for the various vehicle ECUs and the laptop.

The VCI has enough *internal* memory for limited ECU reprogramming and Drive Recorder Data Recording.

EEPROM Card

The VCI accepts a Compact Flash (CF) Memory Card so that you can:

• Download Information from the Laptop to *Reprogram ECUs.*

• The Compact Flash Memory Card and Adapter will be provided free of charge with Version 6 software, or when a reprogramming event is required for the Endeavor.

• Record Vehicle Information (Drive Recorder)

Mitsubishi Motors will supply one 128 MB Memory Card and Adapter with version 6 software.

Multi-meter Function
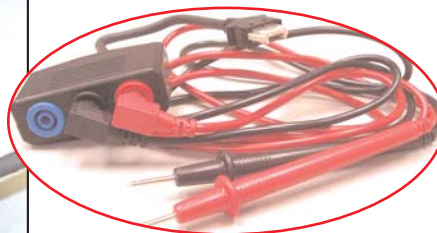
You can use the VCI with or without the laptop as a volt-meter or an ohmmeter by connecting the multi-meter leads.

CONNECTING THE STV

To connect the **S**can **T**ool **Vi**ewer to a vehicle, take the laptop, VCI, and the various adapter cables over to the vehicle. If you are going to use the A/C power adapter, make sure that you have a heavy-duty extension cord long enough to reach from the wall outlet to the vehicle. (The standard laptop battery lasts about 2 hours, but you can continue to use the Laptop while it is recharging.)

Attach Laptop Power Supply

Plug the Laptop power adapter into a power strip and into the yellow outlet at the back of the Laptop.

Mitsubishi recommends that you use an electrical surge suppression power strip to protect the laptop computer.

Turn ON the Laptop

Open the Laptop and turn **ON** the Power.

Connect the USB Cable

To Laptop

Laptop

To VCI

VCI
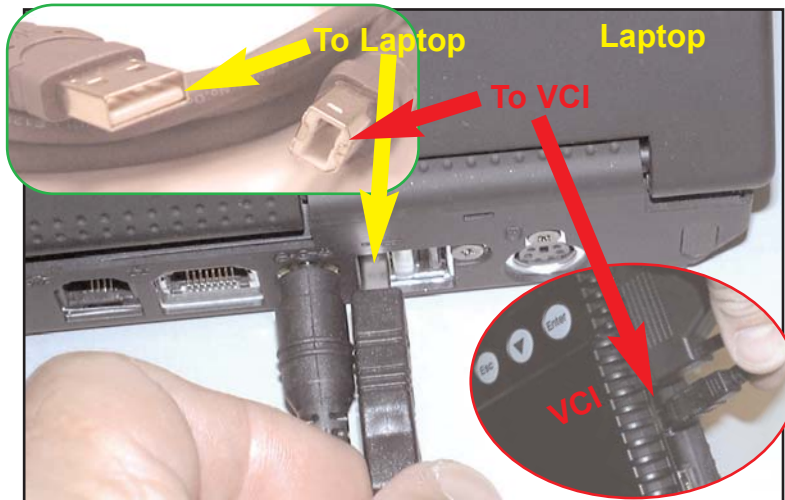
Plug the larger end of the USB cable into one of the USB ports at the back of the computer. Plug the smaller end of the USB cable into the USB port on the right side of the VCI. (Make sure the VCI switch is turned **OFF**.)

PC Communication

Power Indicator

Vehicle Communication Interface

PC Communication [P-V]

MITSUBISHI MOTORS CORPORATION
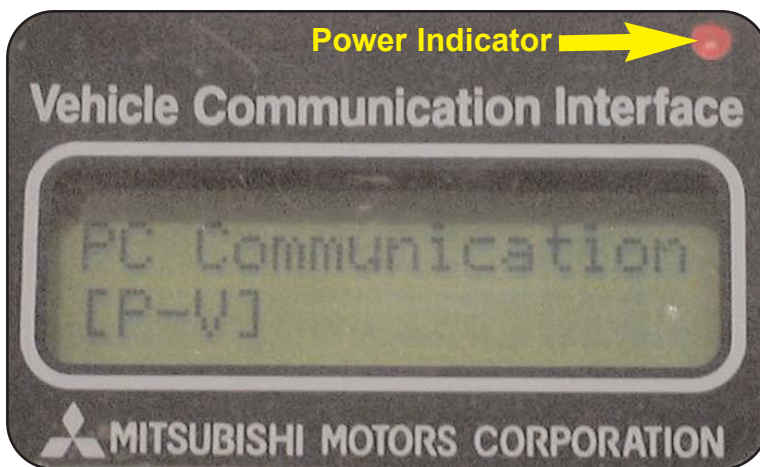
Once the Laptop has power, it will begin communicating with the VCI.

Note

The VCI power indicator light will change color to show which power source it is

**Select a
Main Harness**

Select the appropriate Main Harness :

- Main Harness A is for use on vehicles that use CAN (Controller Area Network) technology, starting with 2004 Endeavor..

    (44 to 16 pin)
    # MB991910 BLUE
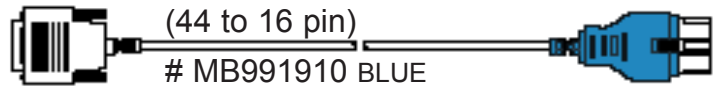
- Main Harness B is for all non-CAN Mitsubishi vehicles or accessing SWS on 2002▲ Montero and 2003▲ Outlander (with 12 to 13-pin adapter)

    (44 to 16 & 12 pin)
    # MB991911 **RED**
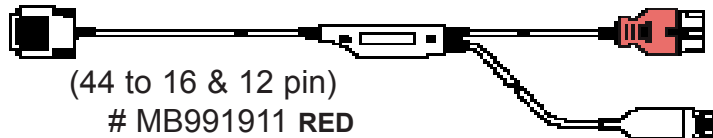
- Main Harness C is for 95-99 Eclipse with the Chrysler 420A Powertrain

    (44 to 16 & 12 pin)
    # MB991914 **YELLOW**
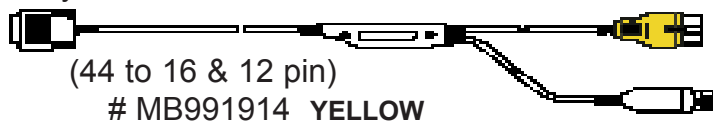
Attach the Main Harness cable to the VCI.

Install Interface Cartridge

(Optional - available ONLY from SPX-OTC 1-888-727-6672)

If you need the SWS Monitor Cartridge or Chrysler Powertrain Cartridge, attach it to the back of the VCI.

**Plug-in the
Main Harness**
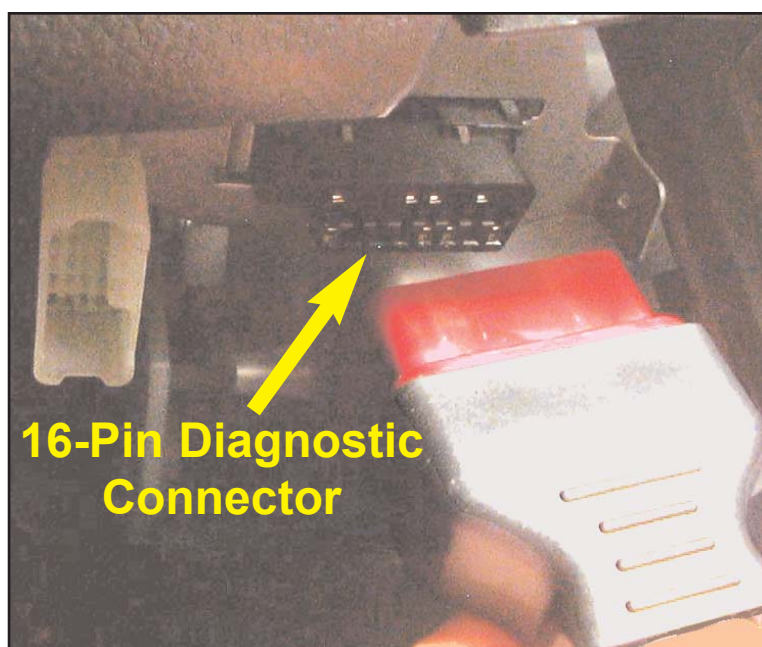
**16-Pin Diagnostic
Connector**

Plug the Main Harness 16-pin Connector into the 16-pin Diagnostic Connector under the dash.
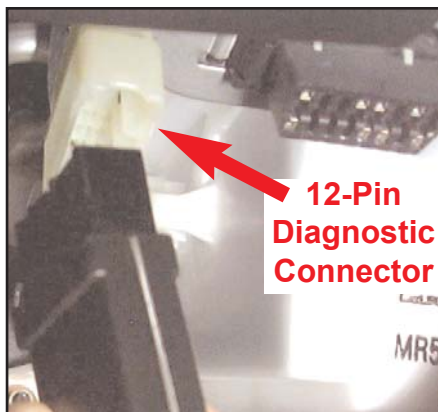
**12-Pin
Diagnostic
Connector**

On non-CAN vehicles, if you are planning to re-flash an ECU, you will also need to connect the 12-pin Diagnostic Connector (2002 Montero and 2003 Outlander will require the 12 to 13 pin adapter).

Turn ON the VCI

The VCI powers-up in two ways: through the switch (the 16-pin Diagnostic Connector has a 12-volt power feed) or through the Laptop (via the USB cable).

Note | *To prevent power surges to the Laptop, connect the VCI to the vehicle, turn the ignition key **ON**, and then turn **ON** the VCI.*

VCI Main Menu

Disconnect the USB cable from the VCI and the stand-alone VCI Main Menu will appear. (The Stand-alone VCI Main Menu is only available when the Laptop is not attached or when the laptop is turned OFF.)
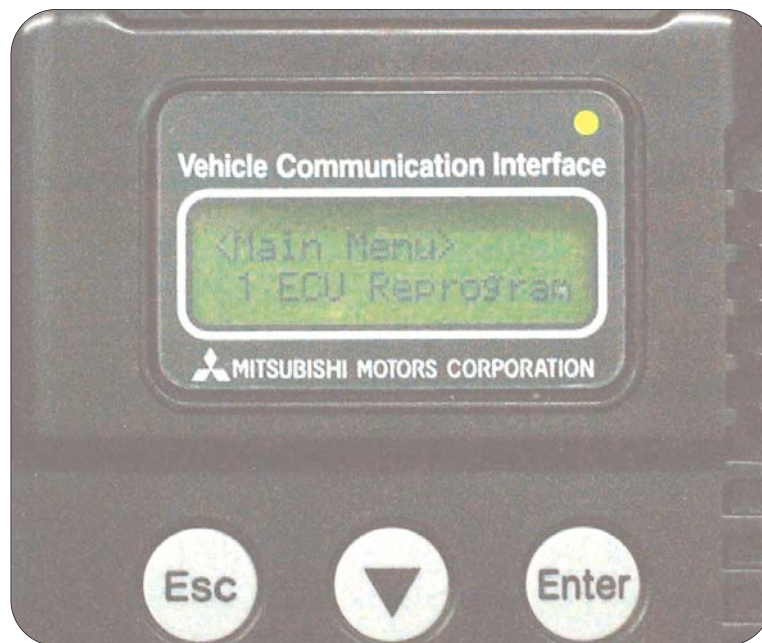

There are 3 items on the VCI Main Menu. Use the ▼ to scroll down through the items listed below. Press **Enter** to select your choice. **(Do not select anything at this time.)**

1 ECU Reprogram - Allows you to reprogram ECUs with or without the Laptop (reprogramming files stored on Compact Flash Memory Card)

2 Voltmeter - Allows you to use the VCI as a voltmeter (with multi-meter adapter and leads)

3 Ohmmeter - Allows Allows you to use the VCI as an ohmmeter (with multi-meter adapter and leads)
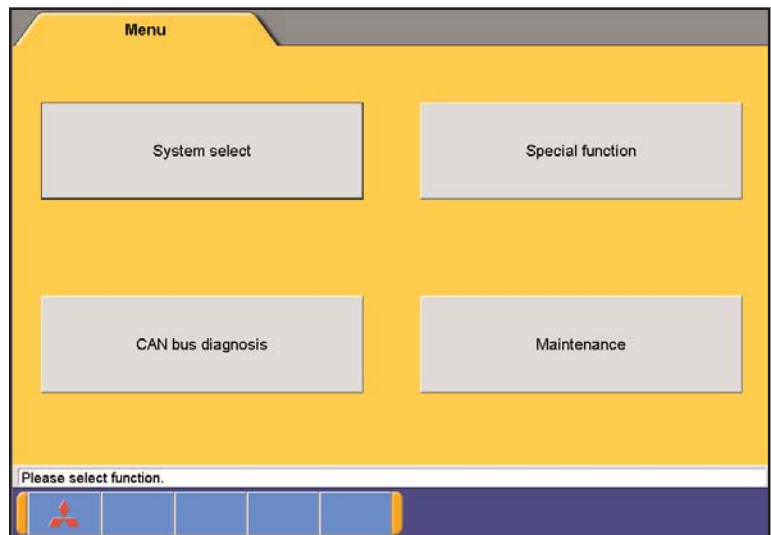
Re-connect the USB cable to the VCI.

Mouse Controls

When working on a cart or bench, you can use the built-in mouse or hook-up an external mouse.
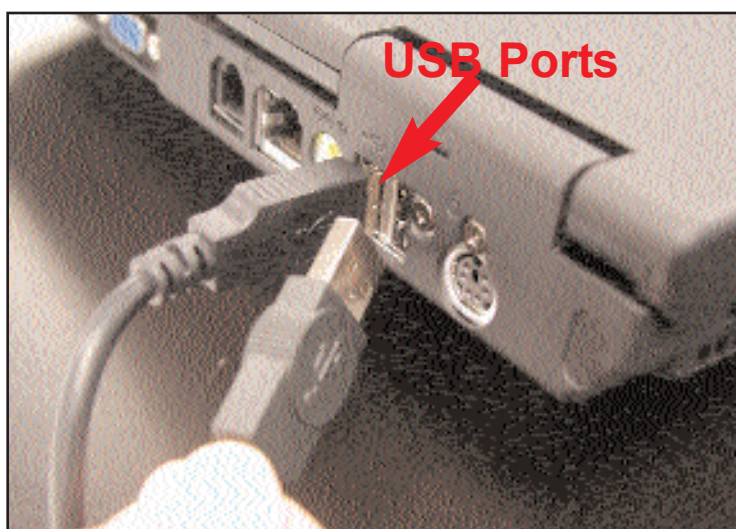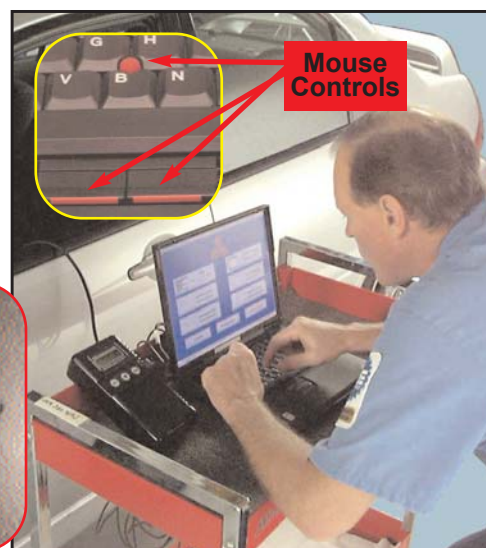
To use an external mouse, simply plug the mouse into one of the USB ports on the back of the laptop.
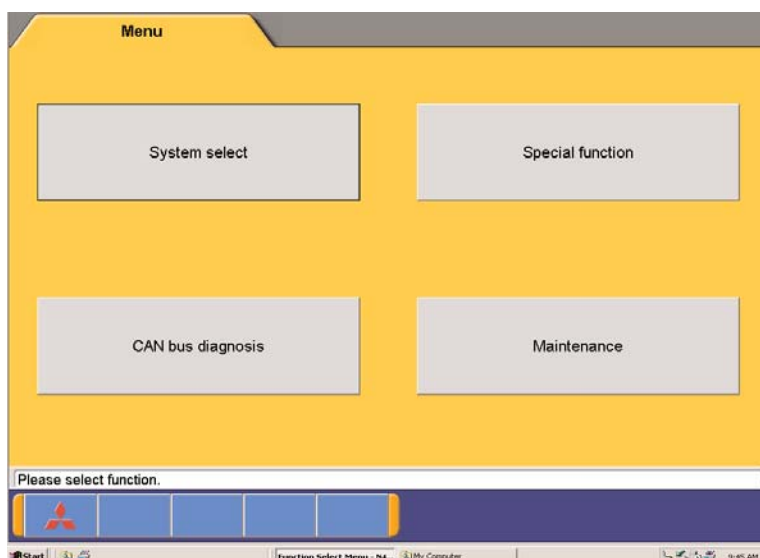
**Main Menu**

The Main Menu provides you with four options:

- **System Select -** Provides access to the various vehicle systems under three main headings: Powertrain, Under Car, and Body

- **Special Function -** Provides access to System Functions (Drive Recorder, SWS Drive Recorder, and ECU Reprogramming) and Measurement Functions (Multimeter and Oscilloscope)

- **CAN-bus Diagnosis -** Checks the continuity and operating voltages of the CAN-bus lines and verifies the ability of the various ECUs to communicate on the CAN-bus

- **Maintenance -** Provides access to saved vehicle personal history reports

Functions & Systems

The Main Menu provides you with four options:

- **System Select -** Provides access to the various vehicle systems under three main headings: Powertrain, Under Car, and Body

- **Special Function -** Provides access to System Functions (Drive Recorder, SWS Drive Recorder, and ECU Reprogramming) and Measurement Functions (Multimeter and Oscilloscope)

- **CAN-bus Diagnosis -** Checks the continuity and operating voltages of the CAN-bus lines and verifies the ability of the various ECUs to communicate on the CAN-bus

- **Maintenance -** Provides access to the various saved vehicle personal history reports

System Select
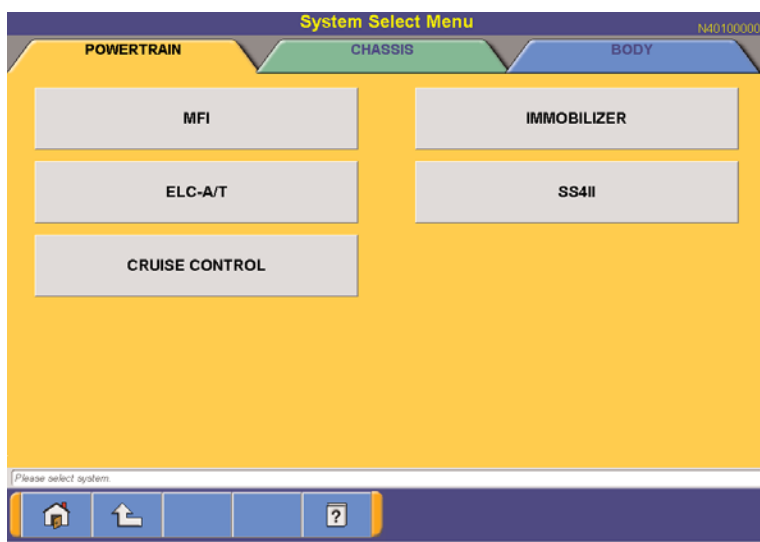
System Select provides you with 3 option tabs:

POWERTRAIN, CHASSIS, and BODY

• **Powertrain**   Provides access to the powertain systems available on the vehicle being tested:
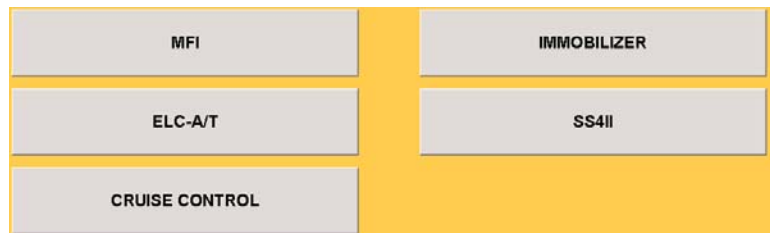
- • **MFI** (Multi-port Fuel Injection Systems) - Provides access to all the fuel-related systems and components, including OBD-II and Monitor Readiness Tests [*Data Lists, DTCs, Drive Recorder, Check Mode, and Actuator Tests*]

- • **IMMOBILIZER** - Provides access to the Immobilizer system and components [*Data Lists, DTCs, Key Registration, and Simulated Speed Output*]

- • **ELC-A/T** (Electronically Controlled Automatic Transmission) - Provides access to the ELC-A/T system and components [*Data Lists, DTCs, Drive Recorder, and Actuator Tests*]

- • **SS4II** (Super-Select 4-Speed Transaxle, version 2) - Provides access to the SS4II system and components [*Data Lists, DTCs, Drive Recorder, and Actuator Tests*]

- • **Cruise Control** - Provides access to the Cruise Control system and components [*Data Lists, DTCs, and Actuator Tests*]

• **Chassis**   Provides access to the various Chassis-related systems available on the vehicle being tested:
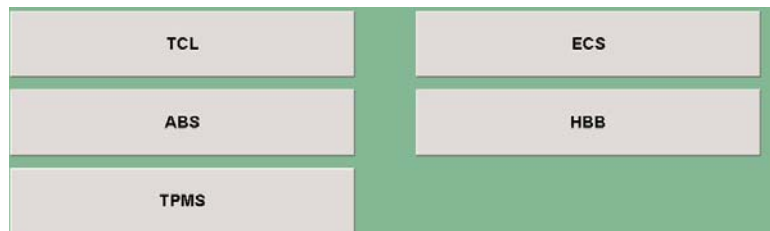
- • **TCL** (Traction Control) - Provides access to the TCL system and components, including the Mitsubishi Stability and Traction Control System [*Data Lists, DTCs, Drive Recorder and Actuator Tests*]

- • **ECS** - (Electronically Controlled Steering) [*Currently not available on US-spec vehicles*]

- **ABS** (Anti-lock Braking System) - Provides access to the ABS system and components [*Data Lists, DTCs, Drive Recorder, and Actuator Tests*]

- **HBB** (Hydraulic Brake Booster) - Provides access to the HBB system and components [*Data Lists, DTCs, and Actuator Tests*]

- **TPMS** - (Tire Pressure Monitoring System) - Provides access to the TPMS system and components [*Data Lists, DTCs, Actuator Tests, and Tire Sensor ID Registration*]

• **Body**   Provides access to the various Body-related systems available on the vehicle being tested:

SRS-AIR BAG	AUTO A/C
SWS	ETACS
Meter	Display
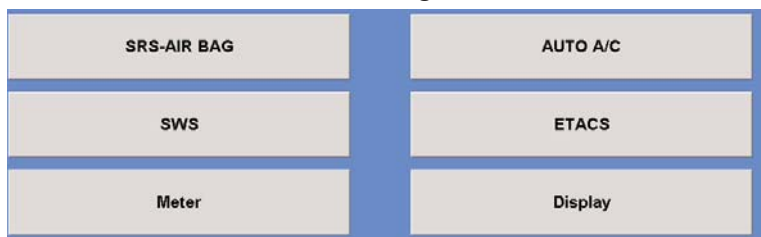
- **SRS-AIR BAG** (Supplemental Restraint System - Air Bag) - Provides access to the SRS systems and components, including Air Bags and Automatic Seat Belt Pre-Tensioners [*Data Lists, DTCs, and Drive Recorder*]

- **AUTO A/C** - (Automatic Air Conditioning) Provides access to the AAC system and components [*Data Lists, DTCs, and Actuator Tests*]

- **SWS** (Simplified Wiring System) - Provides access to the SWS system and components [ECU Acknowledgements, *Data Lists, Actuator Tests, and Drive Recorder - Requires installation of the SWS Monitor Cartridge*]

- **ETACS** (Electronic Time and Alarm Control System) - Provides access to the ETACS ECU and some SWS system information [*Data Lists, DTCs, Actuator Tests, and Drive Recorder*]

- **METER** - Provides access to the Combination Meter systems and components [*Data Lists, DTCs, and Actuator Tests*]

- **DISPLAY** - Provides access to the Air Conditioning, Radio, and Compass Data Display [*Data Lists, DTCs, Actuator Tests, and Calibration*]
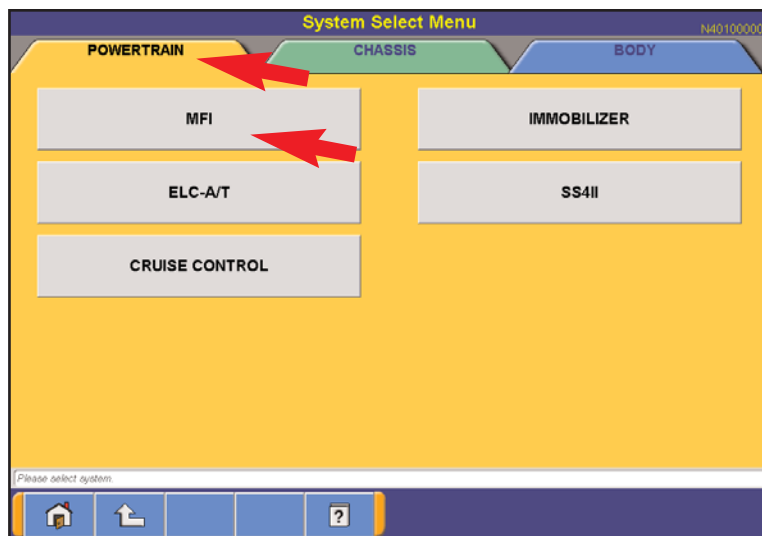
RETRIEVING DTCs

Select *System Select*

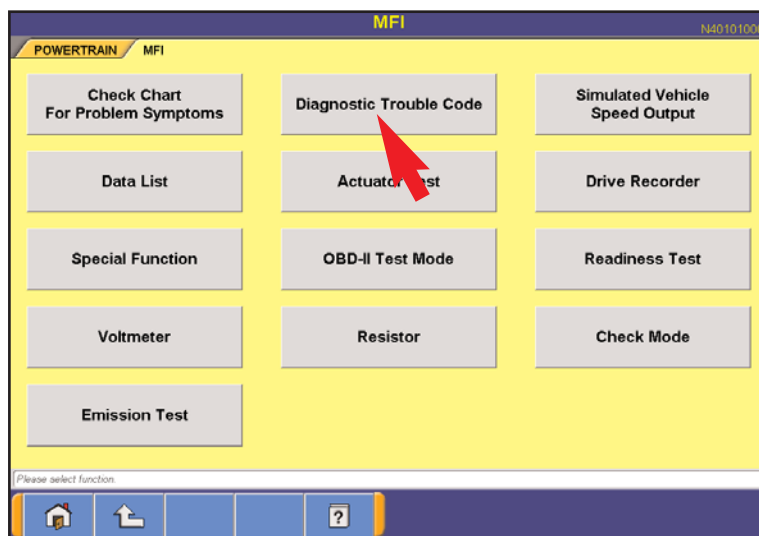*Note: This example is for MFI. Other systems are similar.*
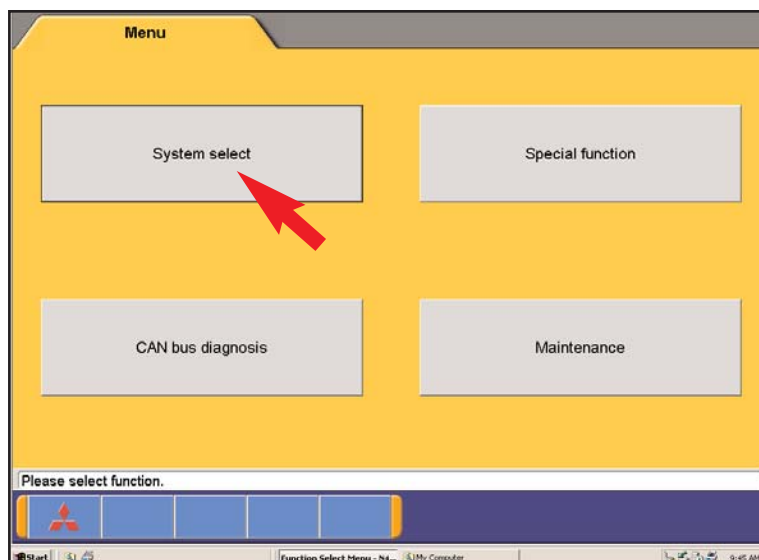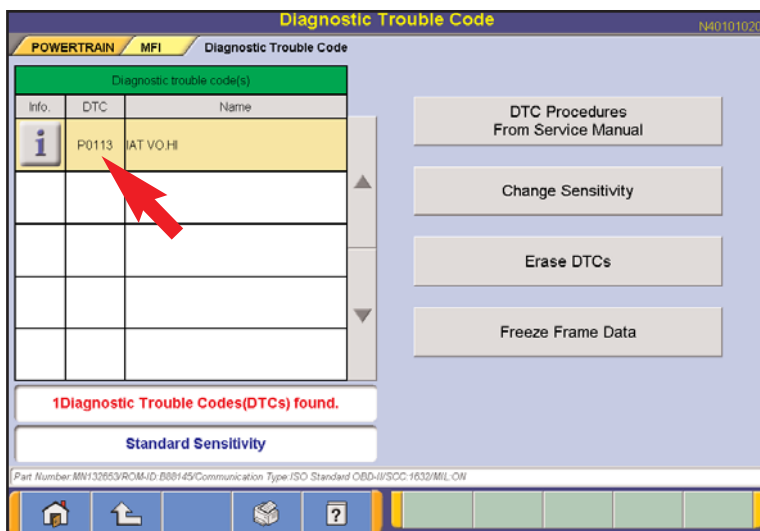

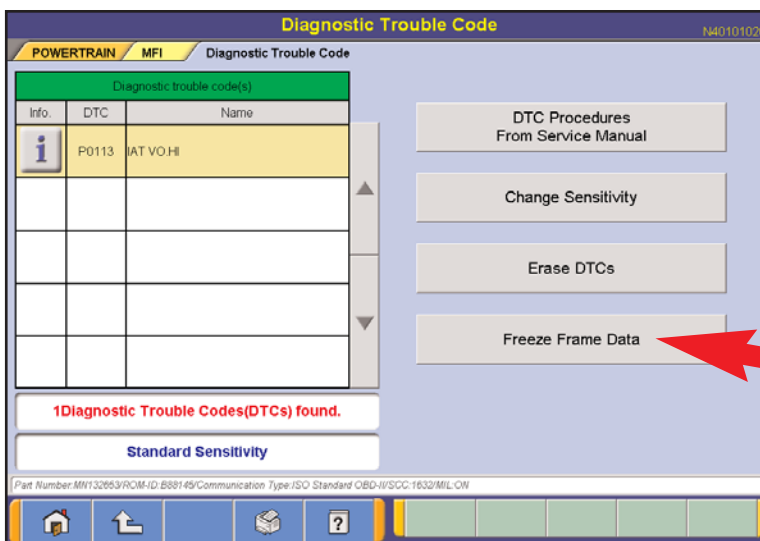**Select the *Powertrain* Tab**

Select *MFI*
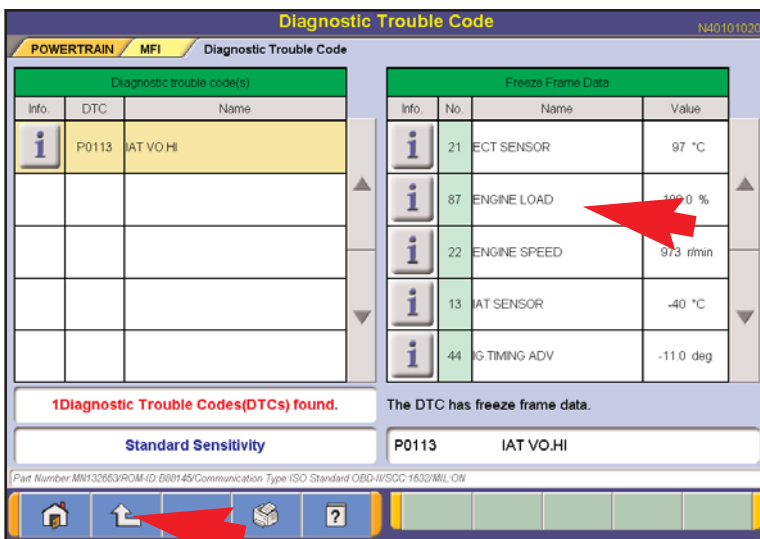

Select *Diagnostic Trouble Code*

Record the Diagnostic Trouble Codes Found:
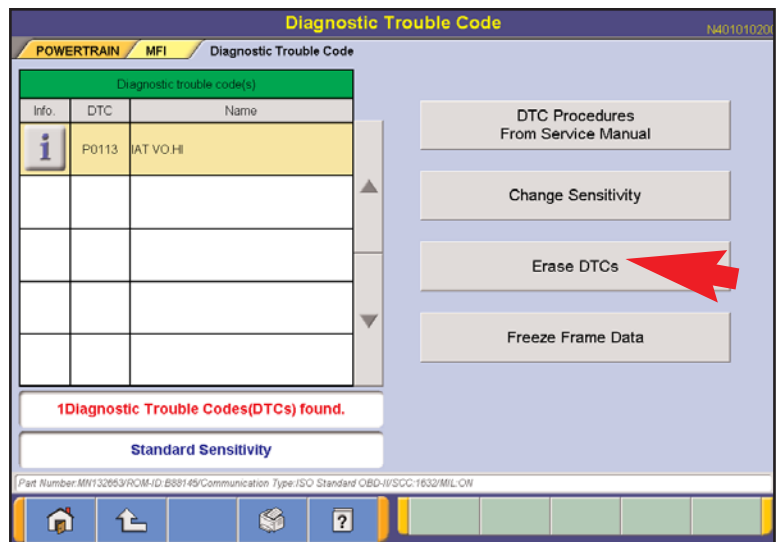

Select *Freeze Frame Data*

Scroll Down through the Freeze Frame Data and Record Information You Feel is Important
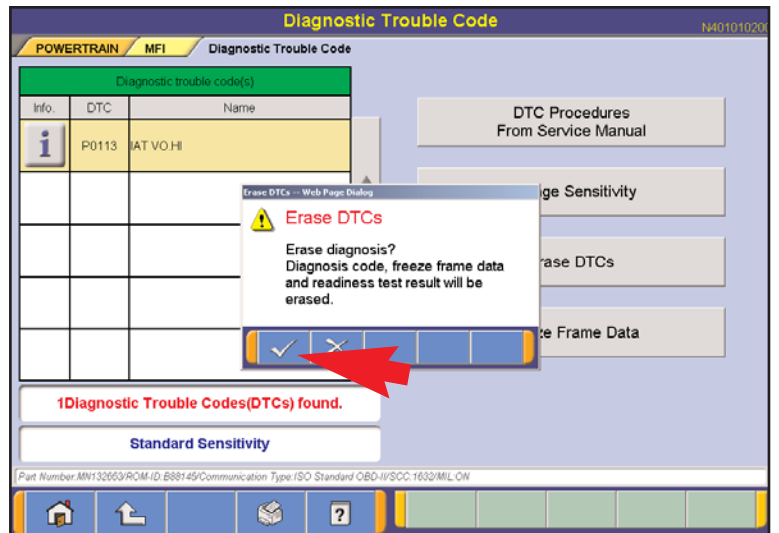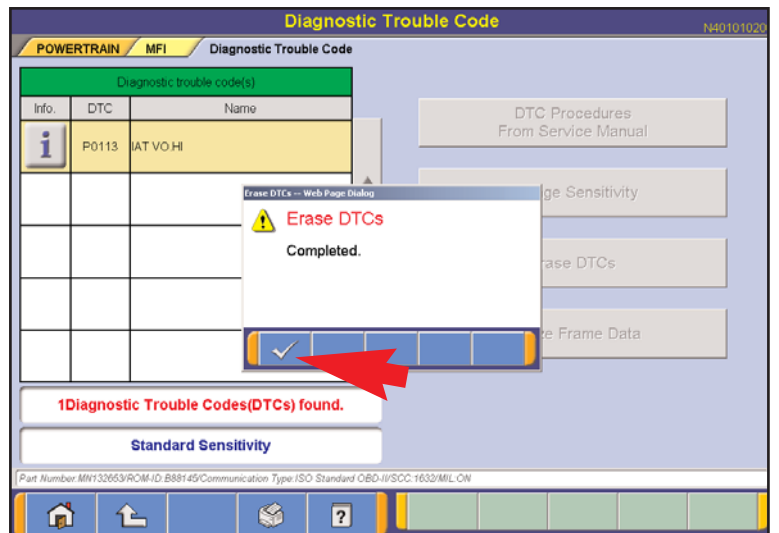

Click on the *BACK* button
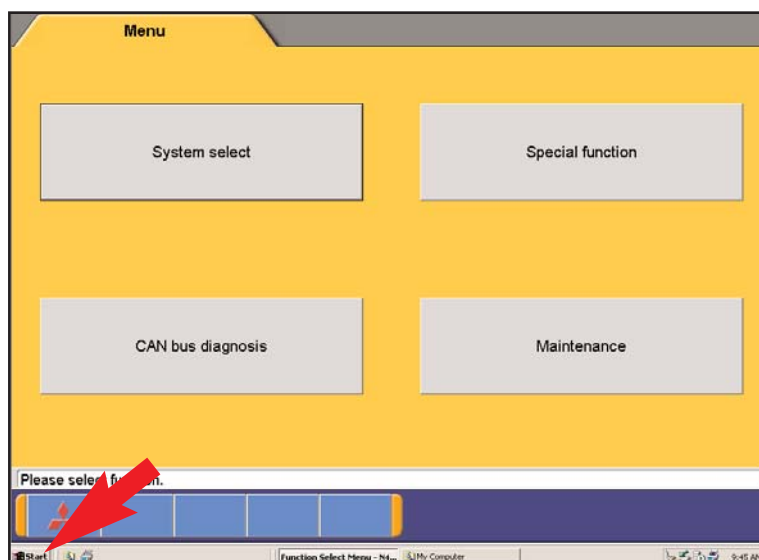
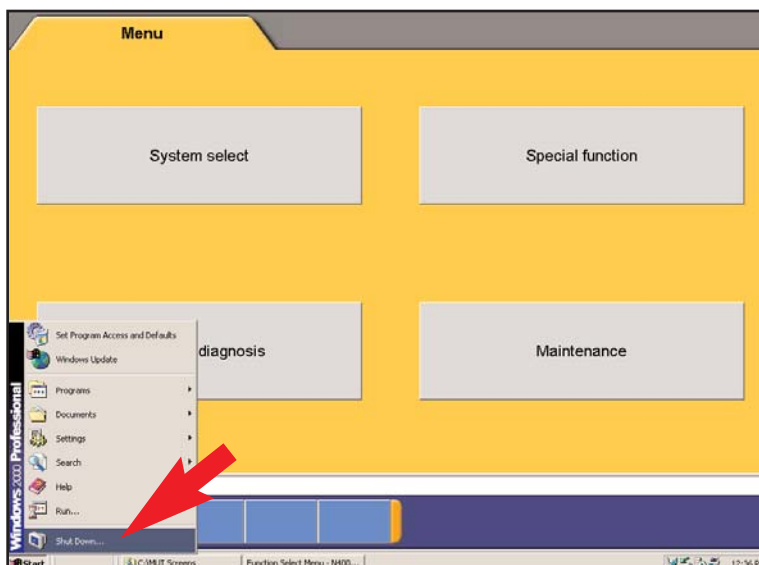**Select *Erase DTCs***
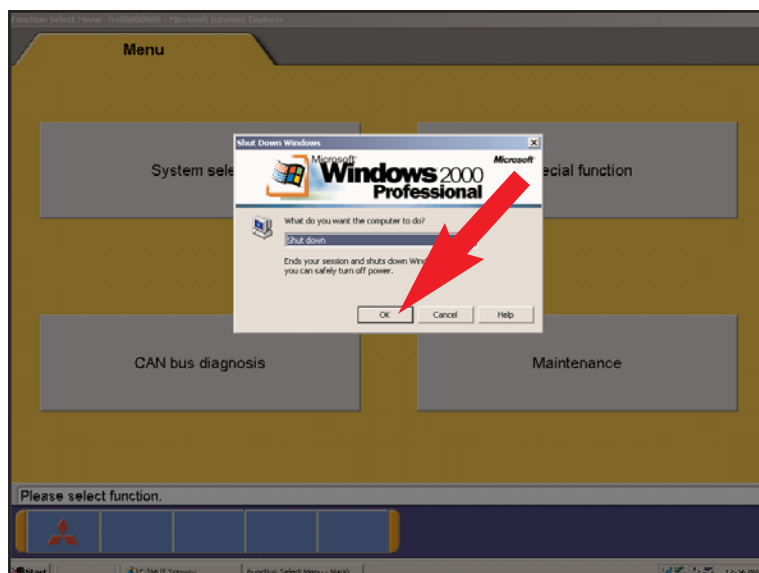

Select *OK*

Select *OK*

SHUT DOWN

Click **START** at the bottom of the screen

Click **Shut Down**

Click **OK**

END OF QUICK REFERENCE MANUAL

For more information about the MUT-III and how to diagnose vehicle systems, refer to:

* The MUT-III User's Manual, which will be added to your laptop in the very near future.

* The MUT-III (STV) technical training class.

*The 2004 New Model Technology technical training class.

*MEDIC Hotline 1-800-846-7575

RETURN TO USING STV TUTORIAL

CREDIT   *Thanks to the Mitsubishi Academy for the use of Modules 00.51 and 00.52!*