

EMPS

(Engine Module Programming System)

Operating Instructions

EMPS III

Engine Module Programming System

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Off-highway Powertrain Service
Tokyo, Japan

Trouble Diagnostic Tools for Industrial Engine

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Trouble Diagnostic Tools (EMPS) for Industrial Engine

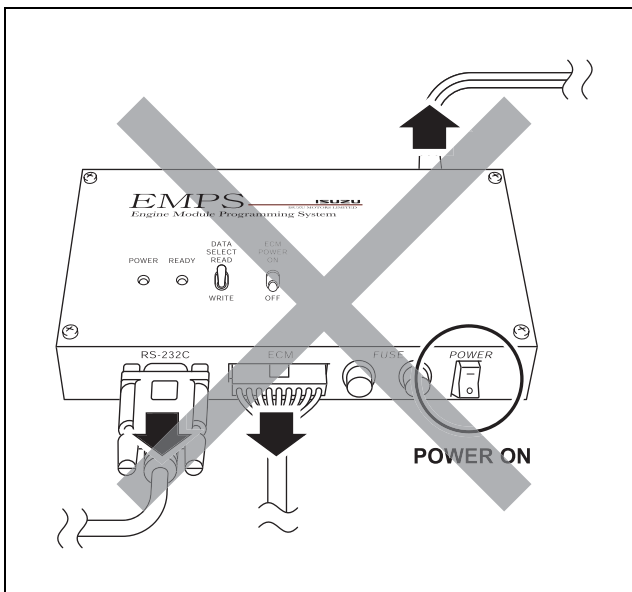
Introduction

Only the person with approval of the machine manufacturer or engine manufacturer can reflash ECM using EMPS.

Cautions

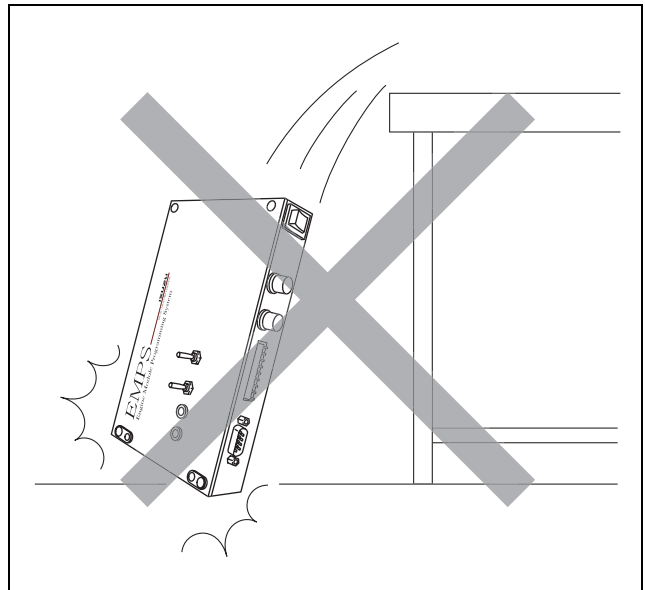
For your safety, read the following cautions.

1. Always turn the POWER switch of EMPS selector to OFF before connecting/disconnecting the cables. Before turning on the POWER switch of EMPS selector, make sure that the cables are connected securely.

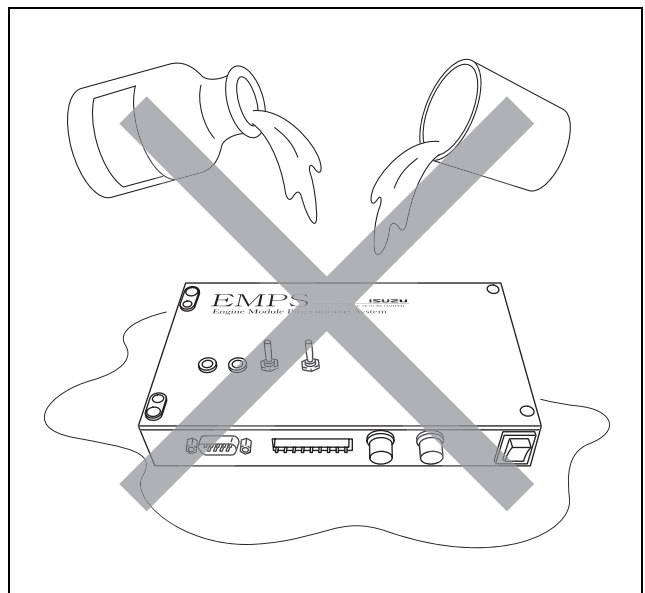


2. Do not disassemble the EMPS selector.
3. ECM can be reflashed up to around 100 times. (The number of times varies depending on the conditions of use.)
4. If the POWER lamp does not come on when turning the POWER switch ON with the power source connected, check the fuse.

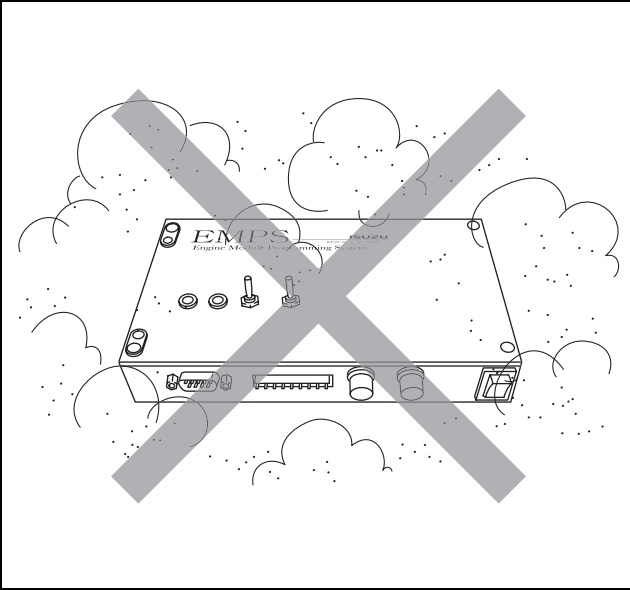
5. Do not have an impact on it by dropping. It causes internal faults even no damage on appearance.



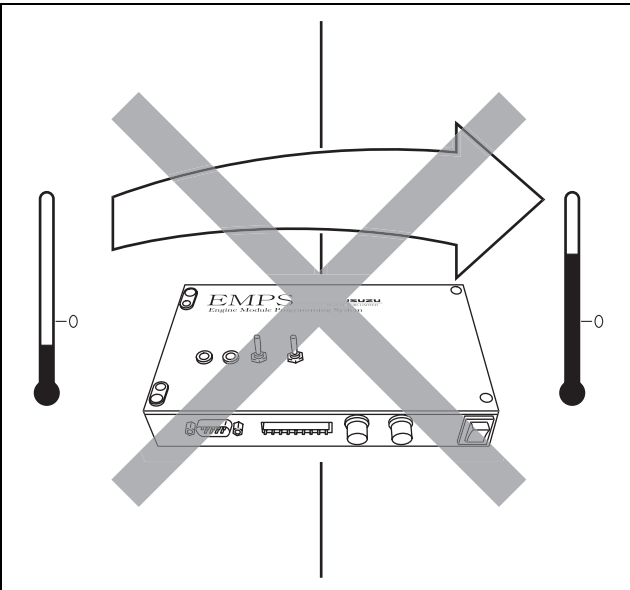
6. Avoid using and storing it in a place that it may contact water or chemicals. When cleaning, use cloth with mild detergent, not highly-volatile solvent such as thinner, and wipe out using dry cloth.



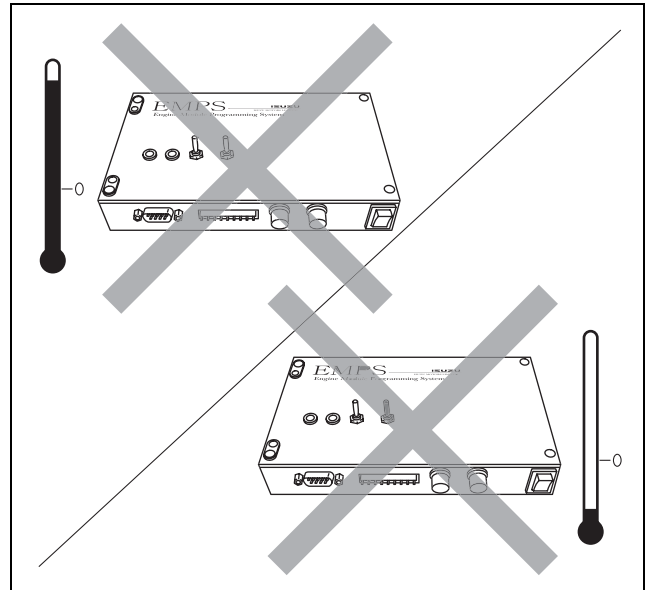
7. Avoid using and storing it in dusty area. Store it to avoid dust on the connector etc. when you don't use.



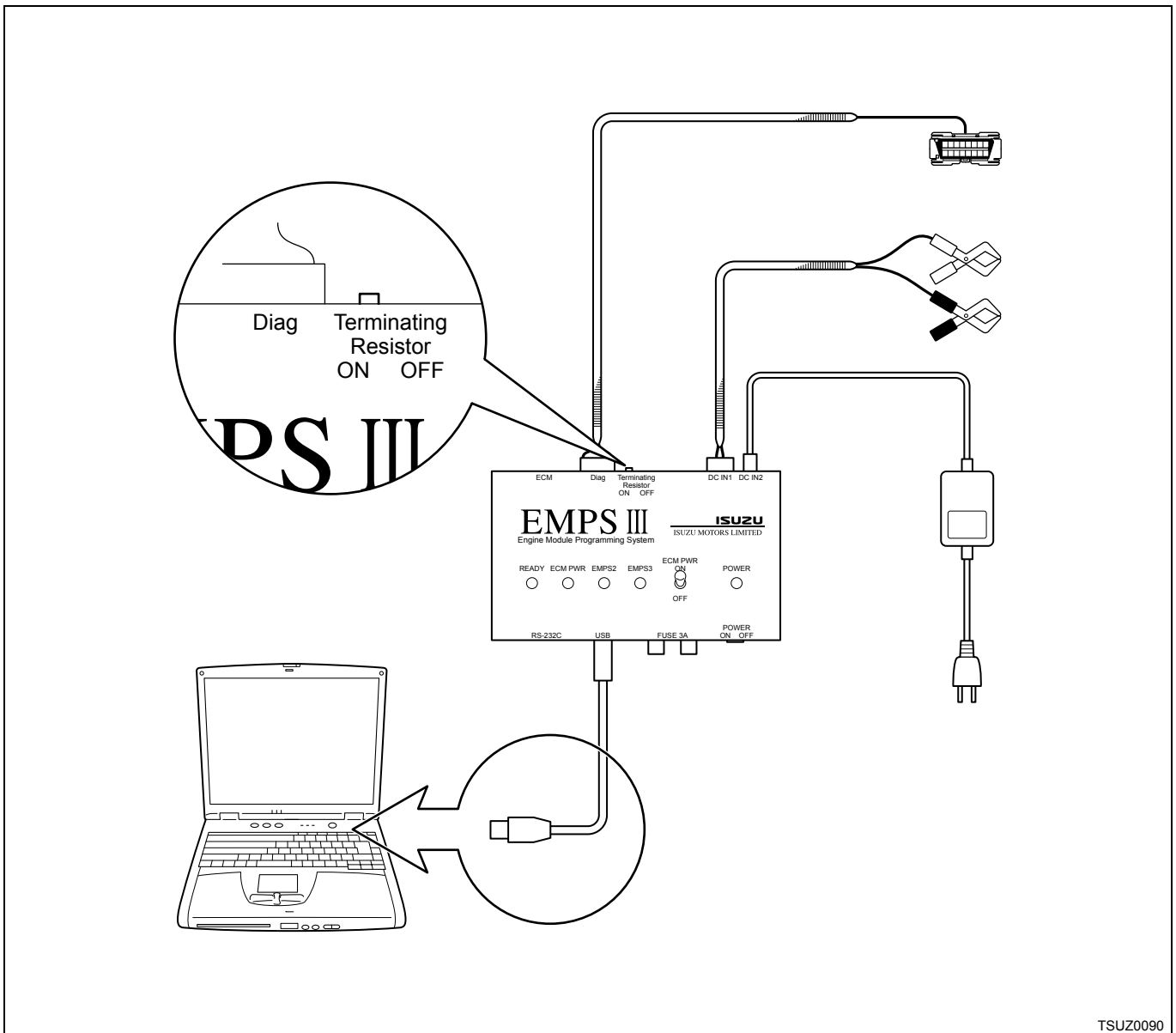
8. Avoid using and storing it in a place with rapid changes of temperature. If bringing it from cold outside into warm indoor suddenly, dew condensation may occur resulting in malfunction or trouble.



9. Avoid using and storing it in a place with extreme high or low temperature. Especially in summer, do not leave it in the machine exposed to direct sunlight.



EMPS Component Parts



TSUZ0090

Note:

If your PC has no RS-232C port, you can use a USB to RS-232C converter (optional) to connect. However, error may occur during reflashing with some converters. The converter shown below was verified for operation.

Maker	Product name	Model	JAN code	57.6 k	38.4 k	19.4 k
Buffalo	USB Serial Converter Cable	BHC-US01/GP	4981254134788	×	○	×
Dynex	USB PDA/Serial Adapter Cable	DX-UBDB9	—	×	○	*○
Elecom	USB to Serial Cable	UC-SGT	4953103133716	×	○	○
Loas	USB RS232C Converter Cable	ZUR-101	4967101189217	×	○	○
Sanwa supply	USB RS232C Converter	USB-CVRS9	4969887652039	×	○	*○

*Error may occur depending on the model of personal computer.

ECM (hardware) compatibility

- ECM (hardware) that can be reflashed has no compatibility.
Use the ECM that corresponds to the engine type and voltage specification.

	Voltage Specifications		Remarks
	12 V specifications	24 V specifications	
Eng Model	4HK1	4HK1	
	6HK1	6HK1	
	—	6WG1 6UZ1	ECM (hardware) for 6WG1 and 6UZ1 is the same.
	4JJ1	4JJ1	

- Using EMPS can reflash the ECM of industrial common rail engine only.
- Using EMPS cannot reflash the ECM of industrial engine (RED – 4 type injection system) that meets Phase 2 Emission Standards.

ECM Variation

	ECM for Shipping	Service ECM	Blank ECM
Calibration data	×	N/A	N/A
QR code	×	N/A	N/A
Q trim	×	N/A	N/A

System Requirements for EMPS Software (Recommended)

System Component	Specifications
PC	PC/AT compatible machine
CPU	Pentium III 800 MHz or more
OS	Windows 2000 SP4, Windows XP SP1, SP2 in Japanese or English version
Memory	256MB or more
HDD	20GB or more
Video card	1024 × 768 dots or more, 256-color or more
Serial interface	One or more RS232C ports (USB conversion connector etc. is also available)
External drive	CD-ROM drive

EMPS (software) Setup Procedure

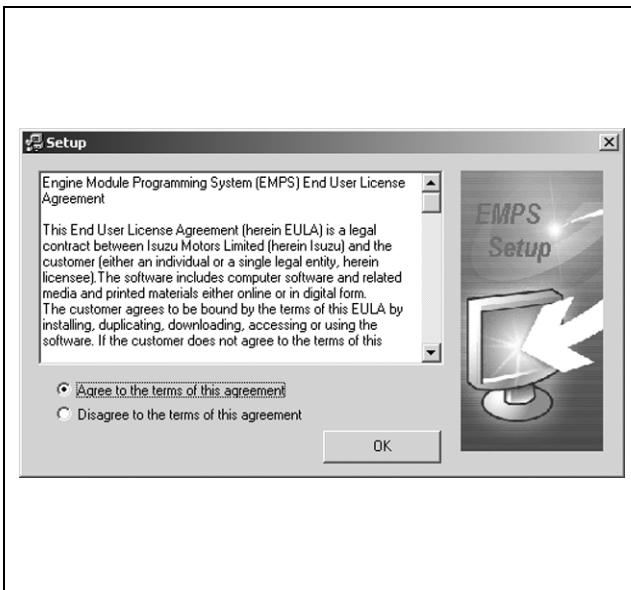
1. Insert the "EMPS setup CD" into the CD-ROM drive.

This automatically starts up the setup program, and the following message appears.



Quit other application if it is running. Click the [OK] button.

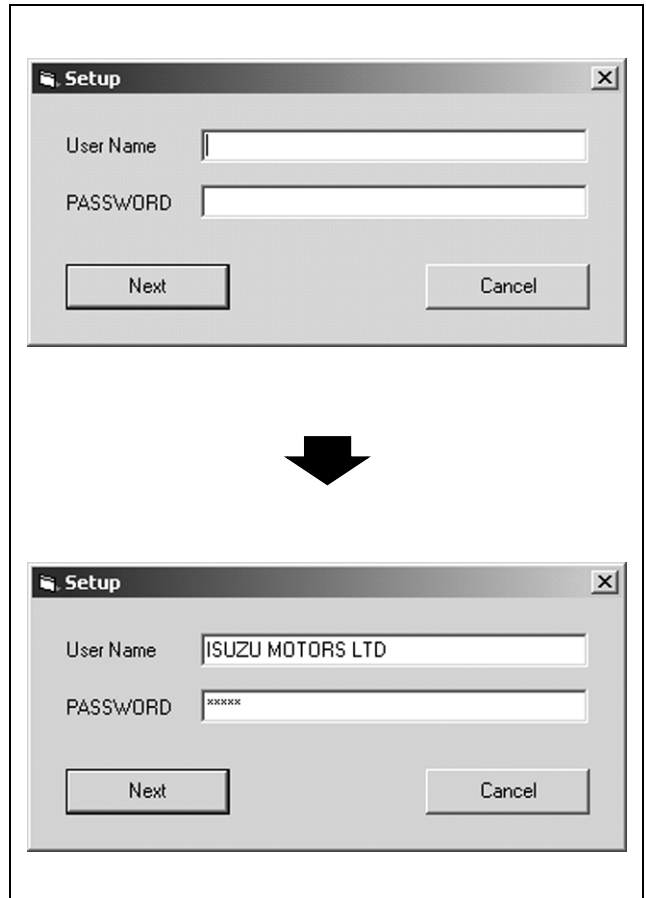
To cancel installation, click the [Cancel] button.



Read the license agreement. If you agree to the terms, click [Agree to the terms of this agreement] and click the [OK] button.

If you do not agree, click [Disagree to the terms of this agreement] and click the [OK] button to end the setup.

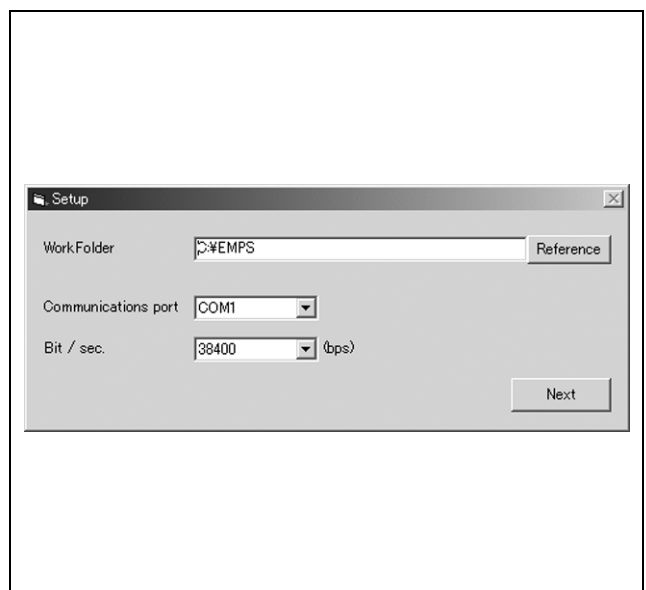
2. Enter the user name and password, and then click the [Next] button.



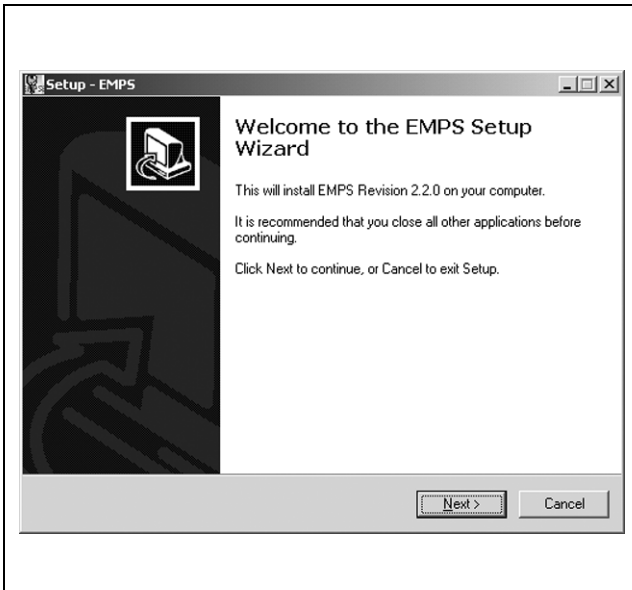
3. Configure operating environment.

Configure the work folder that system uses, the initial value of the COM port, and the initial value of the data transmission rate, and click the [Complete] button.

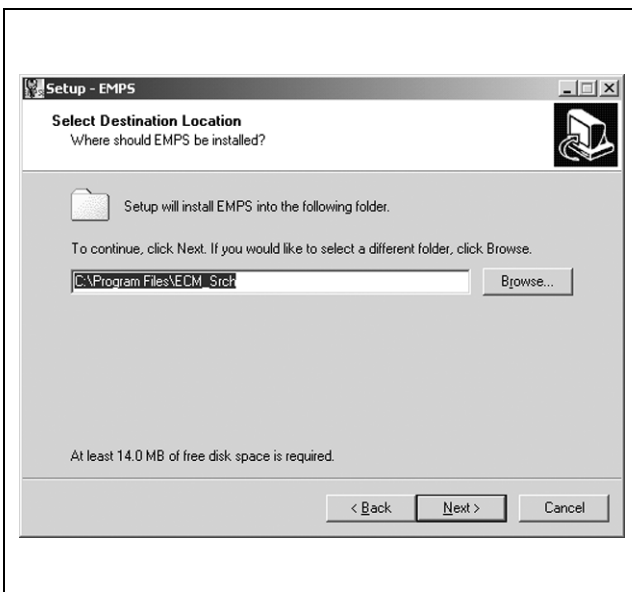
COM port and data transmission rate can be changed later. If you are not sure about this setting, do not change the value and click the [Complete] button.



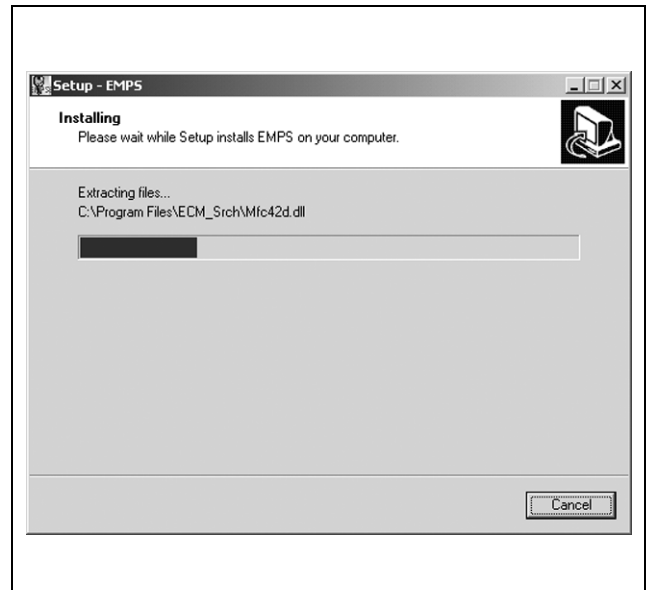
4. After the user name and password are verified, the following display appears. Click the [Next] button.



5. In the following display, confirm the installation destination and click the [Next] button. To change the installation destination, click the [Browse] button and select the folder you want to install.



6. This starts the setup, and the following display appears. To cancel the setup halfway, click the [Cancel] button.



7. Setup completion
The setup is completed, and the following display appears. Select [Yes, I want to restart my computer now.], and then click the [Finish] button.

Note:

You can also select [No. I want to restart my computer later.], but unexpected error may occur if you reflash with the EMPS before restart. Be sure to restart the computer before starting the EMPS.

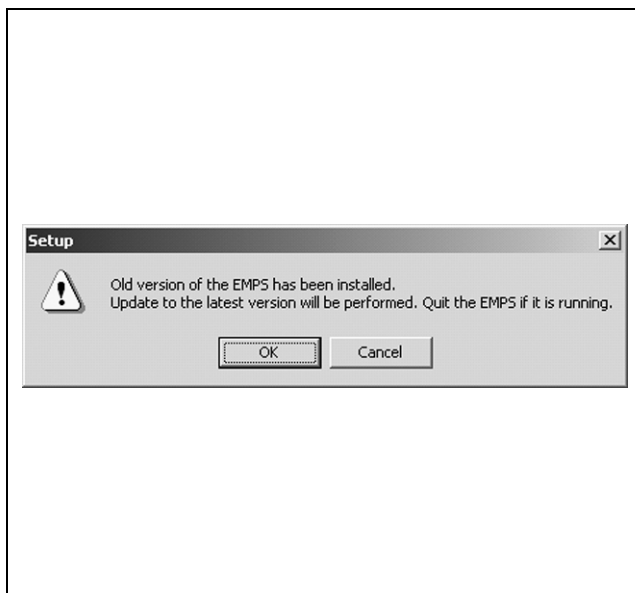


System version upgrade

If the system has been upgraded, the update program will start automatically after the CD is inserted.

The following message will appear. Quit the EMPS if it is running, and click the [OK] button.

Clicking the [Cancel] button cancels the update process. Update must be performed before reflash with EMPS.



Reflash Mode Operation Procedure

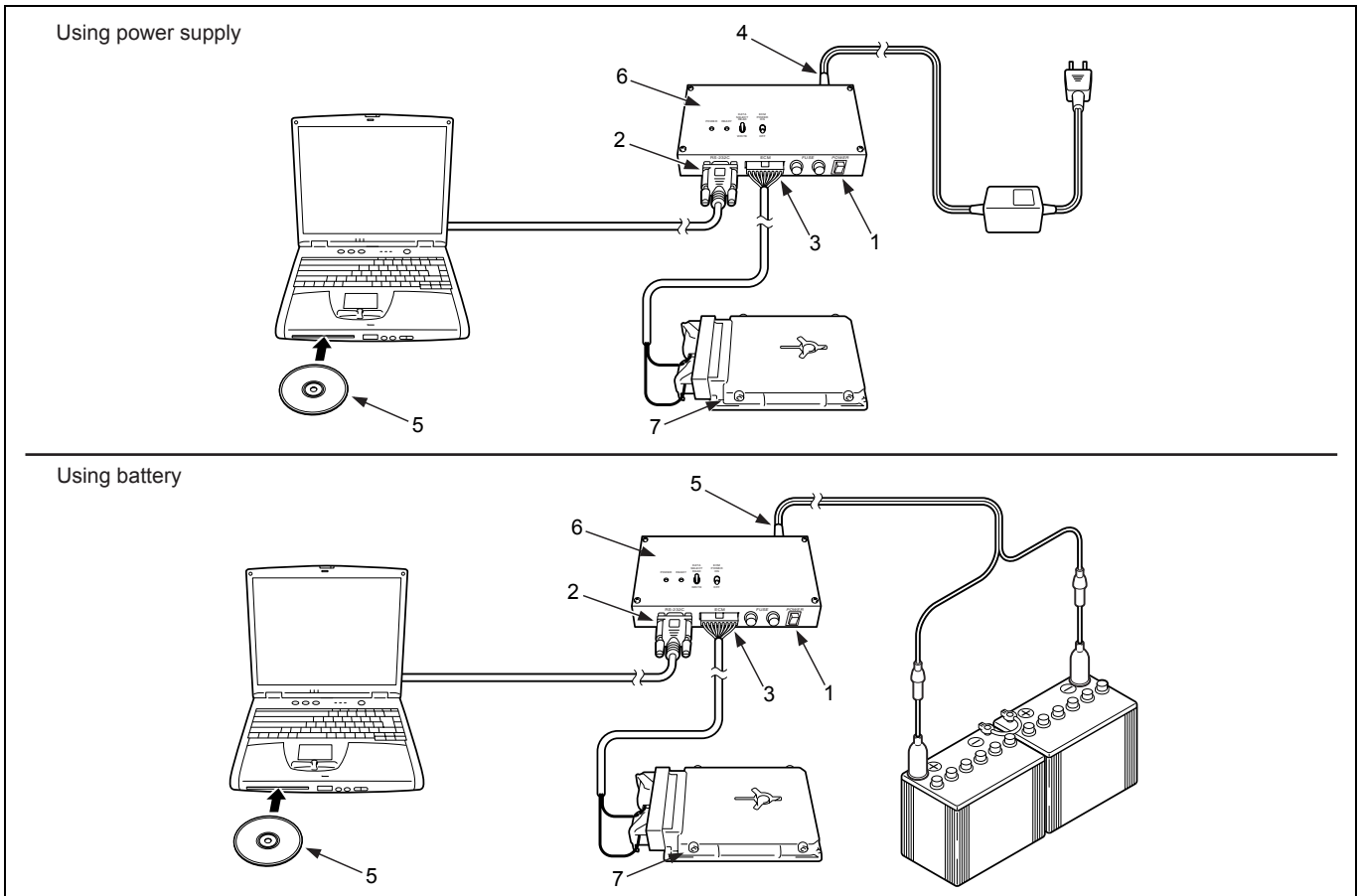
1. Preparation

This section describes preparation for starting the EMPS program.

1.1 Preparation

1. Printed label with update parts number is necessary to proceed reflashing in all countries except the US. Proceed next steps to get updated parts number. Contact pt_service@notes.isuzu.co.jp in order to obtain the updated parts number label. If engine is certified in the US, it is not necessary to replace the label. Proceed all steps.
2. After reflashing, you need to write down the new Parts Number on a label and attach it on the ECM.
3. Check the serial number of the selector, and have your user ID and password ready.
4. Check the engine serial number.
5. To perform compulsory reflash, obtain the specific password from the machine manufacturer or the engine manufacturer.

1.2 EMPS Selector Connection



Name

- | | |
|------------------------------|------------------|
| 1. Power SW | 5. Battery cable |
| 2. RS-232C cable | 6. Selector |
| 3. ECM harness | 7. ECM |
| 4. AC adapter cable (option) | |

Connection Procedure

1. Turn the POWER SW to OFF.
2. Connect the RS-232C cable.
3. Connect the ECM harness.

Note:

Do not roll up the harness cord.

4. Connect the AC adapter or battery cable.
5. Insert the Data CD into the PC.

Removal Procedure

1. Turn the POWER SW to OFF.
2. Remove the AC adapter or battery cable.
3. Remove the ECM harness.
4. Remove the RS-232C cable.
5. Eject the Data CD from the PC.

Caution:

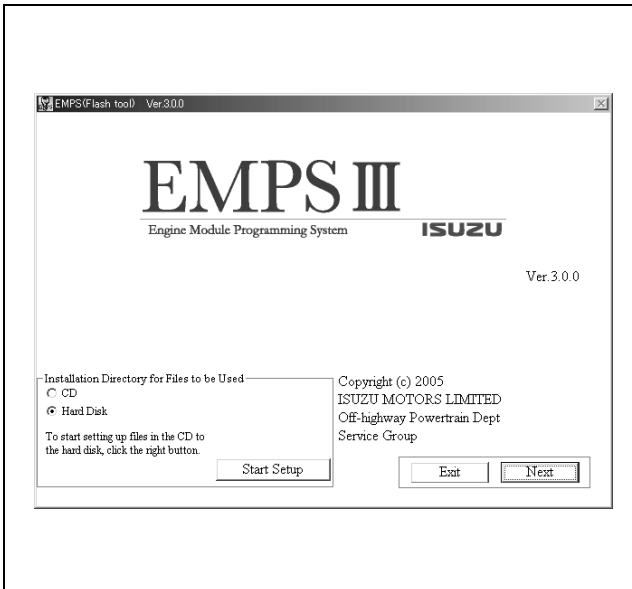
- Do not use an AC adapter at the same time when drawing power from a battery.
- Use the optionally available AC adapter when drawing power with an AC adapter.
- Prepare the AC adapter that matches the rating (12V/24V) of the ECM when drawing power with an AC adapter.
- Do not use a battery at the same time when drawing power from an AC adapter.
- Do not roll up the ECM harness. Data communication error will result.
- Make sure that the POWER switch of EMPS selector is turned to OFF before connecting/disconnecting the ECM harness. Damage to EMPS or ECM selector will result.

2. ECM Reflash

This section describes the process procedure for normal reflash.

2.1 Startup

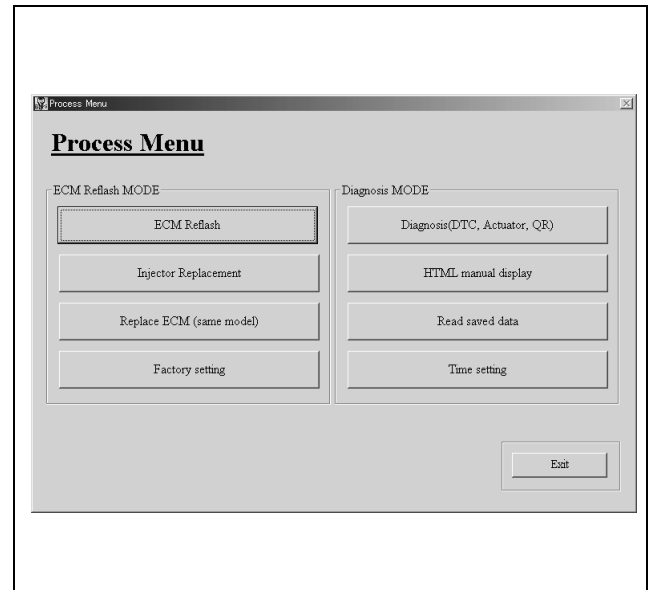
Double-click the “EMPS” icon on your Windows desktop to display the initial startup screen.



Clicking the [Next] button displays the message shown below.

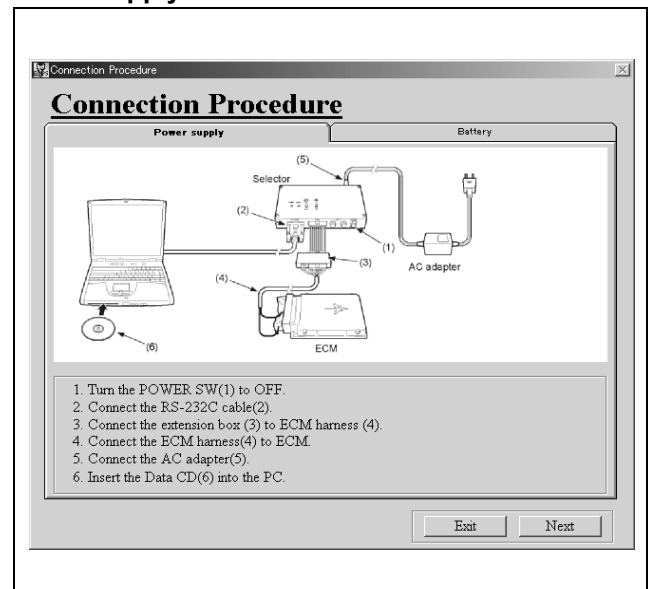


Clicking the [OK] button displays the Process Menu screen.

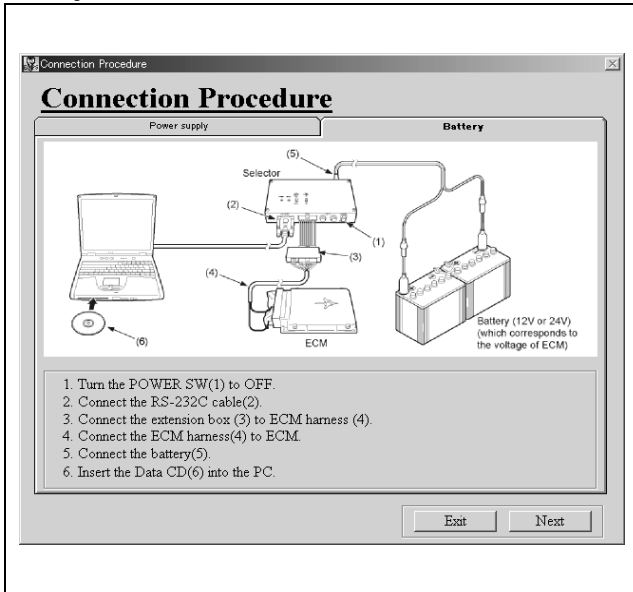


Click the [ECM Reflash] button to advance to Connection Procedure.

Power Supply Connection

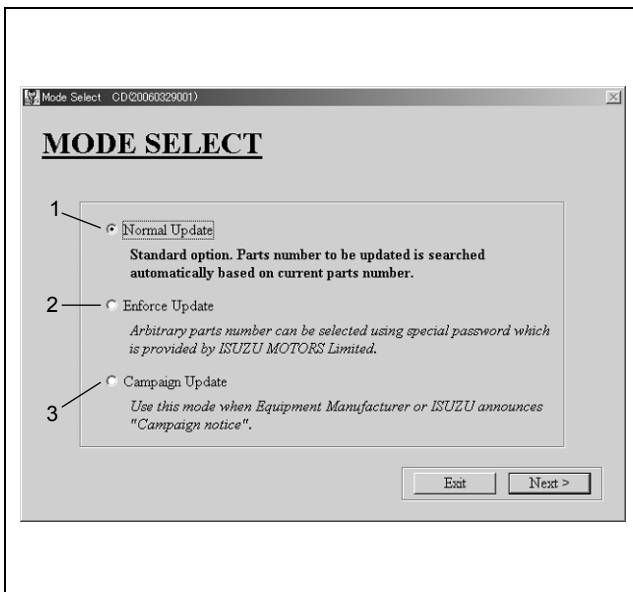


Battery Connection



Connect the PC, selector, and ECM according to the procedure.

After connection, click the [Next] button to proceed to the mode selection screen.



Name

- 1. Normal Update
- 2. Enforce Update
- 3. Campaign Update

[Normal Update] (normal reflash)

Compatible parts number with reflashed parts number is searched automatically and updated.

[Enforce Update] (compulsory reflash)

An arbitrary parts number is designated and updated. Select this when reflashing was failed, or when reflashing the parts number with no compatibility. Specific password is necessary.

Campaign Update (Campaign)

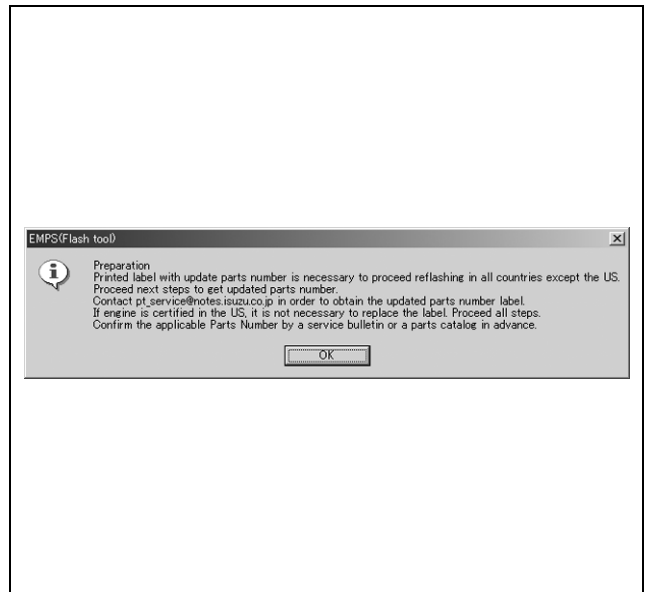
This is performed at the campaign designated by manufacturer. After reflashing, send the campaign log file created to the administrator.

Select [Normal Update], [Enforce Update] (compulsory reflash), or [Campaign Update], and then click the [Next] button.

One of the following operations is performed when the [Next] button is clicked.

Selected Option	Settings/Operation Performed
Normal Update	Advances to "2.2.1 User Authentication Screen" – "For [Normal] or [Campaign]."
Enforce Update	Advances to "2.2.1 User Authentication Screen" – "For [Compulsory Reflash]."
Campaign Update	Advances to "2.2.1 User Authentication Screen" – "For [Normal] or [Campaign]."

Clicking the [Next] button displays the message shown below.



Check the content, and click the [OK] button to advance to next.

2.2 User Authentication Screen

This screen is used for EMPS user authentication.

2.2.1 User Authentication Screen

For [Normal] or [Campaign]

After entering information in the [ID] and [PASSWORD] fields, click the [Next] button to advance to “2.2.2 OEM Manufacturer Selection Screen.”

To cancel user authentication at any point, click the [Cancel] button.

The screenshot shows a window titled "User Authentication" with the following content:

User authentication for EMPS(Flash tool) is needed.

Enter ID and password.

ID
ISUZU MOTORS LTD

PASSWORD

Buttons: Cancel, Next >

For [Compulsory Reflash]

After entering information in the ID, PASSWORD, and Enforce Update PASSWORD (Password for compulsory reflash) boxes, click [Next] to advanced to “2.2.2 OEM Manufacturer Selection Screen.”

To cancel user authentication at any point, click the [Cancel] button.

The screenshot shows a window titled "User Authentication" with the following content:

User authentication for EMPS(Flash tool) is needed.

Enter ID and password.

ID
ISUZU MOTORS LTD

PASSWORD

Enforce Update PASSWORD

Buttons: Cancel, Next >

2.2.2 OEM Manufacturer Selection Screen

After selecting the OEM manufacturer, click the [OK] to advance to “2.3 Connection Confirmation Screen.”

The screenshot shows a window titled "EMPS(Flash tool)" with the following content:

Select the machine's manufacturer and click "OK".

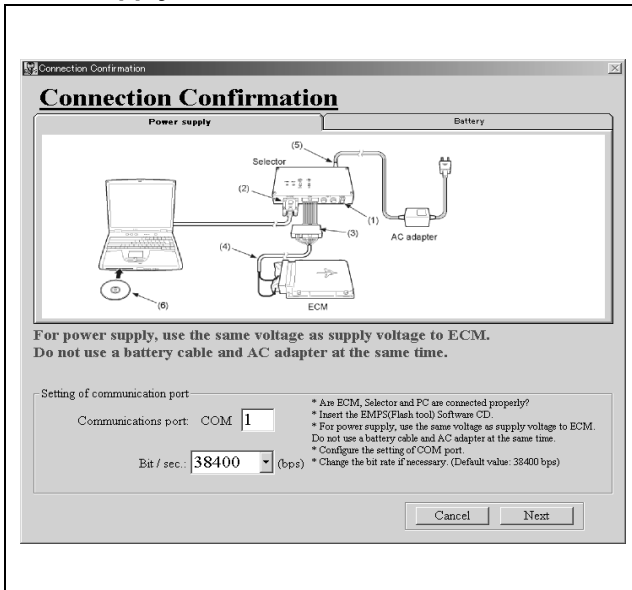
ISUZU

Button: OK

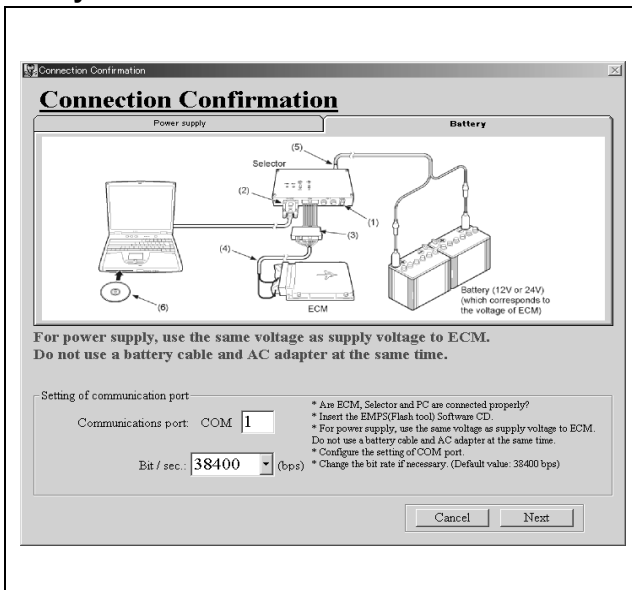
2.3 Connection Confirmation Screen

This screen shows the connection status of the computer, selector, ECM, and power supply/battery.

Power Supply Connection



Battery Connection



After selecting the COM port (Communication port) and transmission bit rate (Bit/sec), click [Next] to advance to "2.4 Switch Confirmation Screen."

Selection Item Descriptions

Items	Description
COM port	Select the RS232C port to which the selector is connected.
Transmission bit rate	Select the data transmission bit rate.
Cancel button	Displays a confirmation message for exiting the tool.
Next button	Performs a check and then displays "2.4 Switch Confirmation Screen."

One of the error messages will appear if an error is discovered by the check that is performed when the [Next] button is clicked. Refer to "7. Error Messages."

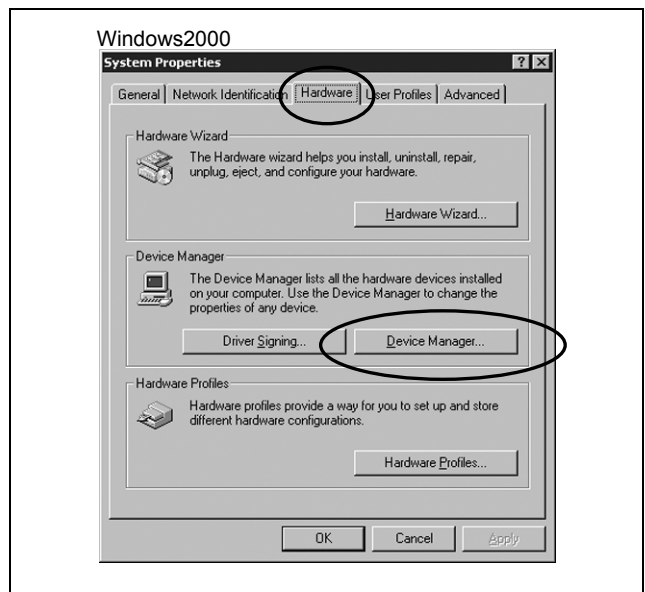
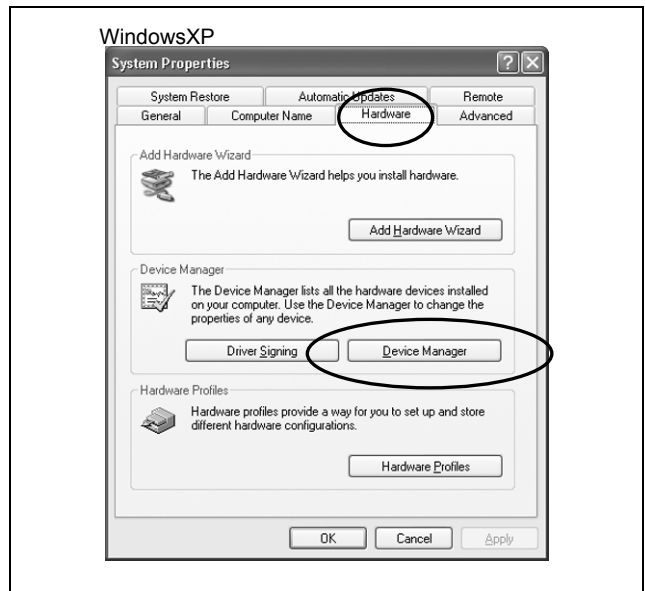
2.3.1 PC Setting

Normally select COM1 if RS232-C is used for connection.

In the case of a PC that is not equipped with an RS232-C port, connect using a commercially available USB conversion cable. For details about port settings, refer to the user documentation that comes with the USB conversion cable.

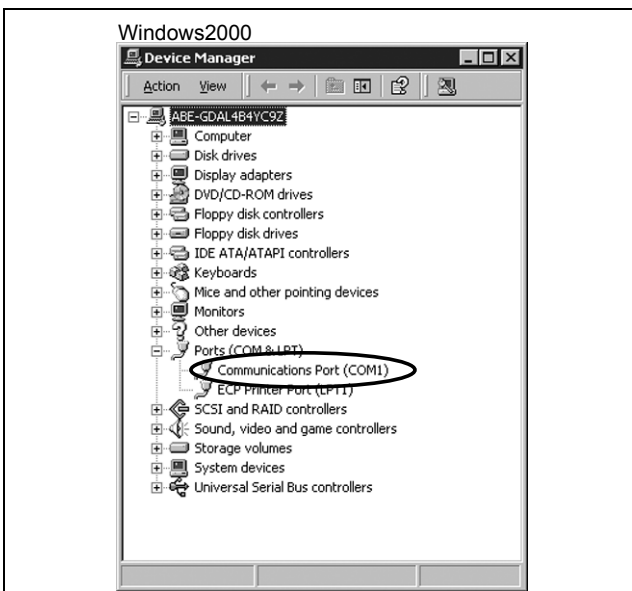
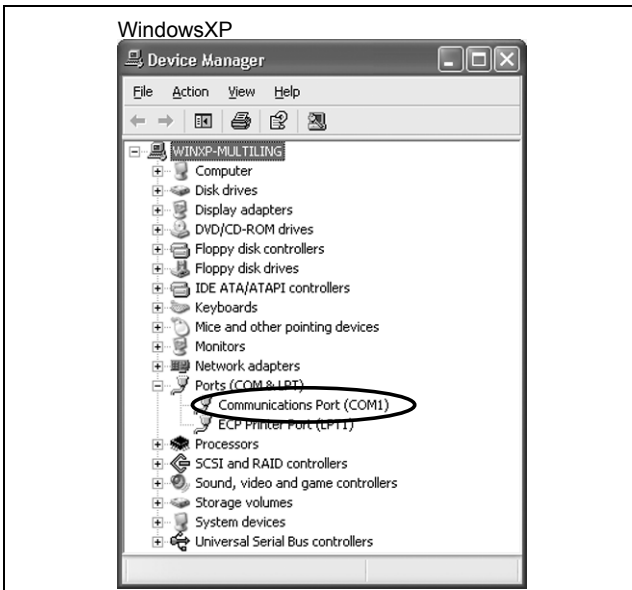
To check standard COM port settings

1. On the Windows [Start] menu, select [Control Panel].
2. On [Control Panel], open [System].
3. When system properties appear, select [Hardware].



4. Select [Device Manager] to open it.

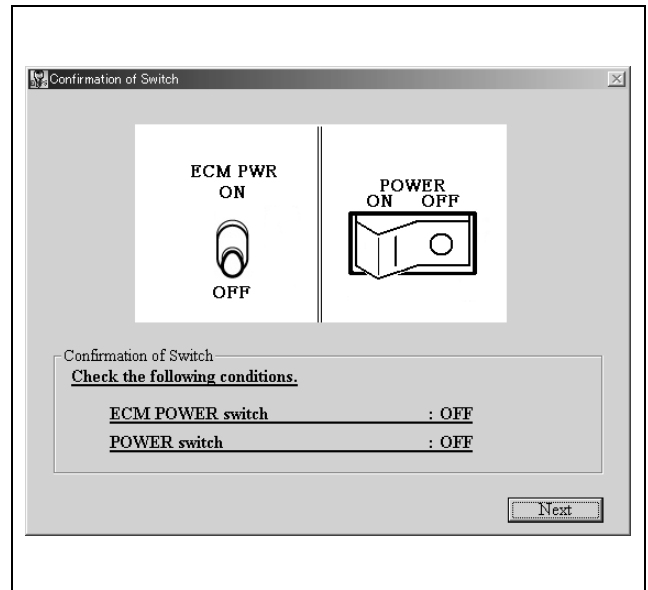
5. On [Device Manager], select [Ports (COM & LPT)].



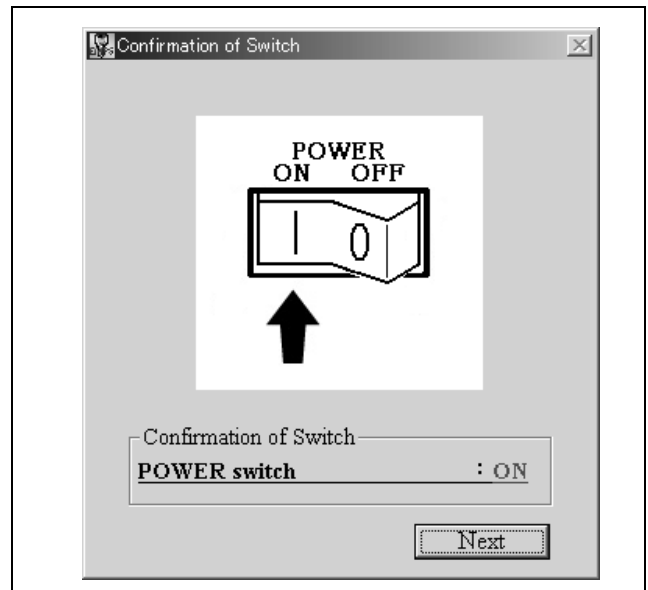
6. In the displayed items for communication ports, confirm the COM port to which the EMPS is connected.

2.4 Switch Confirmation Screen

After checking to make sure that the initial settings of the switches are as shown on the screen, click the [Next] button.



Turn on the power switch, and then click the [Next] button.



This starts selector confirmation, and displays the message shown below.



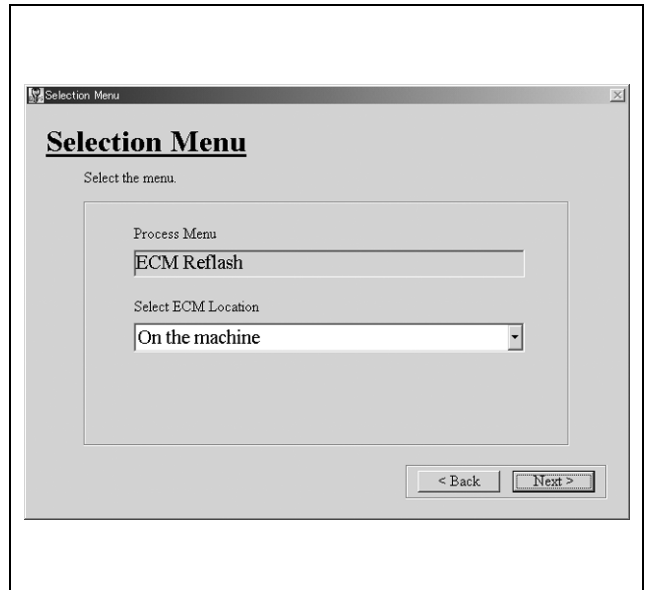
If response from the selector is normal, advance to “2.5 Selection Menu.”
 One of the following messages will appear if any abnormality is discovered. Click the [Return to User Authentication screen] button, and check the user ID. To continue the process as is, click the [Continue process] button.



If a communication error occurs, advance to the “6. Recover Point” screen.

2.5 Selection Menu

After selecting the [Select ECM Location], click the [Next] button.



Selection Item Descriptions

Items	Settings/Operation Performed
Process Menu	The process selected in “2.1 Startup” will appear.
Select ECM Location	on the machine off the machine
Back button	Returns to “2.3 Connection Confirmation Screen.”
Next button	When [off the machine] is selected, advances to “2.5.1 External Power Confirmation Screen.” When [on the machine] is selected, advances to “2.5.2 Voltage Confirmation Screen.”

2.5.1 External Power Confirmation Screen

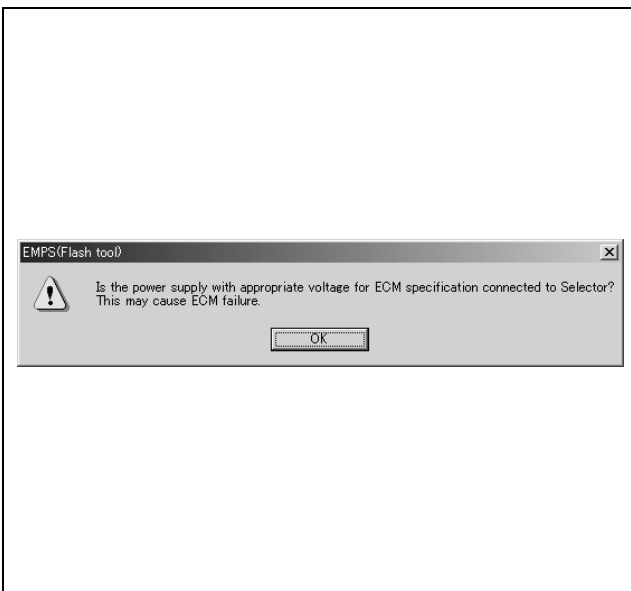
This screen prompts for confirmation of an external power supply.



Clicking the [Yes] button after checking the connection of external power supply advances to “2.6 Selection Items Confirmation Screen.”

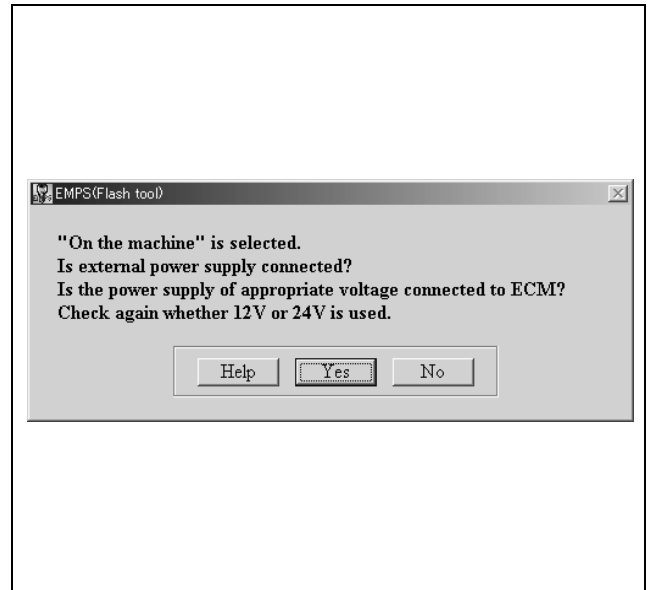
If an external power supply cannot be connected, click the [No] button to return to “2.5 Selection Menu.”

Clicking the [Help] button will display the message shown below.



2.5.2 Voltage Confirmation Screen

This screen prompts for confirmation of proper voltage.



Clicking the [Yes] button after checking the voltage of power supply advances to “2.6 Selection Items Confirmation Screen.”

If power supply cannot be confirmed, click the [No] button to return to “2.5 Selection Menu.”

Clicking the [Help] button will display the message shown below.

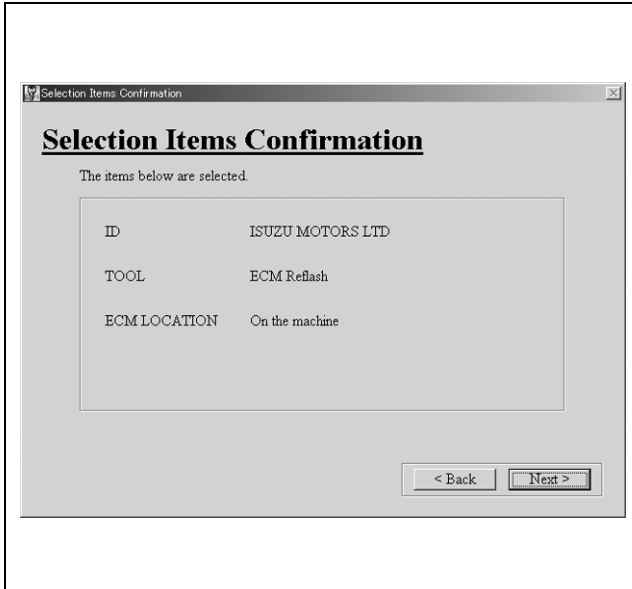


2.6 Selection Items Confirmation Screen

This screen shows the details of the settings configured up to this point.

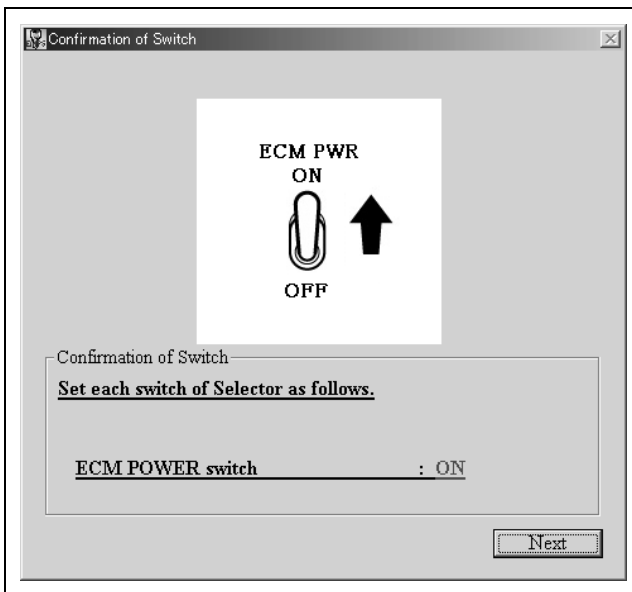
If there is no problem with the displayed settings, click the [Next] button to advance to “2.7 Switch Confirmation Screen.”

To change the settings, click the [Back] to return to “2.5 Selection Menu.”



2.7 Switch Confirmation Screen

The switch confirmation screen is shown below.

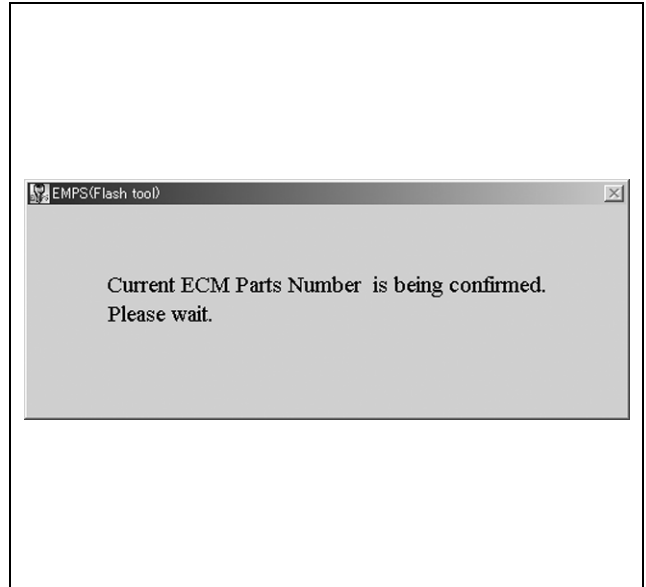


Configure the switch settings as shown below.

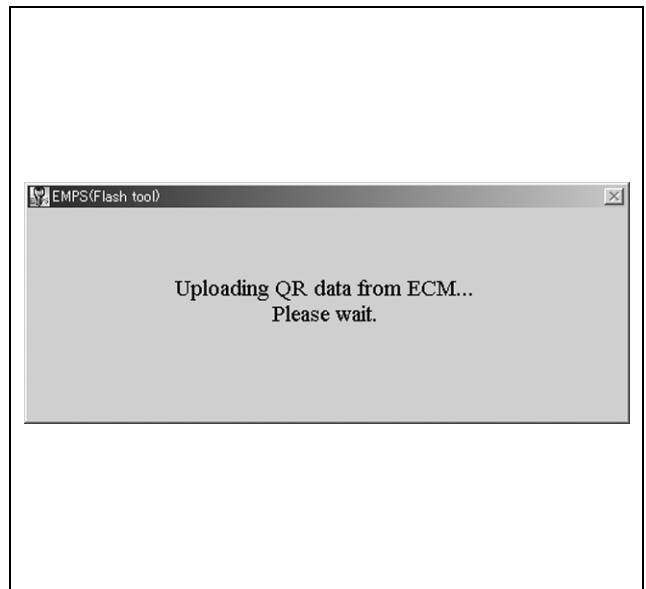
ECM POWER switch: ON

After configuring the switch settings, click the [Next] button.

This starts uploading Parts Number and displays the message shown below.



Then, injector QR code is uploaded. (The following screen will be displayed briefly.)



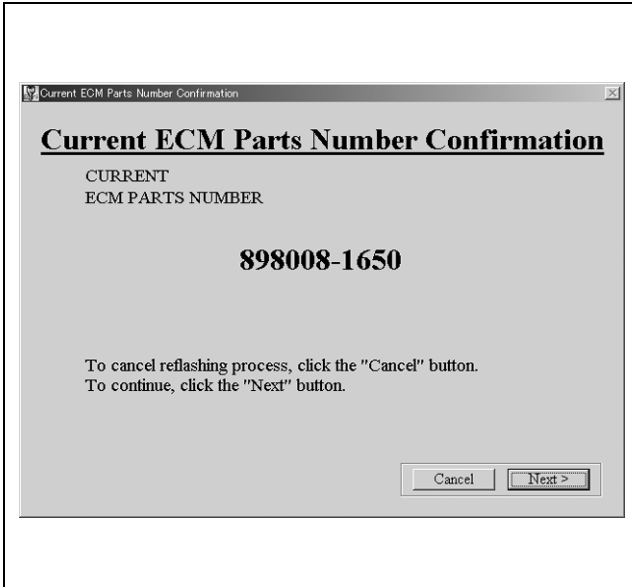
If response from the selector is normal, advance to “2.8 Current ECM Parts Number Confirmation Screen.”

One of the messages will appear if any abnormality is discovered. Refer to “7. Error Messages.”

2.8 Current ECM Parts Number Confirmation Screen

This screen displays the current ECM parts number. Clicking the [Next] button advances to “2.9 New ECM Parts Number Search Screen.”

To cancel former ECM parts number confirmation, click the [Cancel] button.



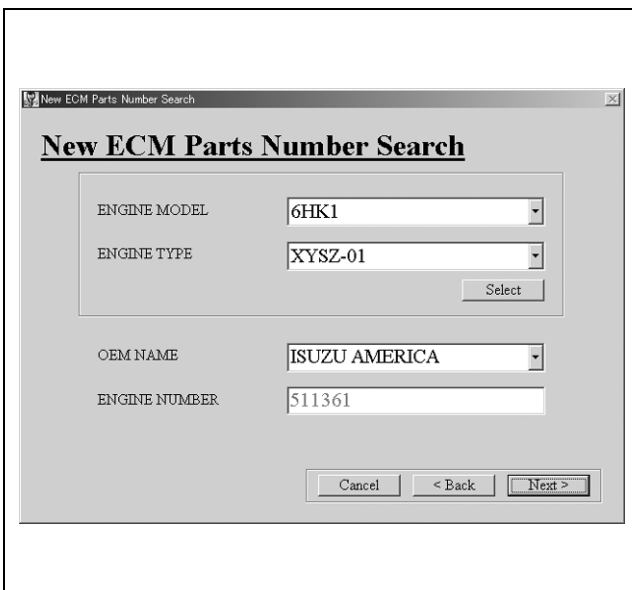
2.9 New ECM Parts Number Search Screen

This screen is used to select the search conditions for Parts Number.

Choose the option from [ENGINE MODEL] and [ENGINE TYPE], and then click the [Select] button.

Next, choose option from the [OEM NAME], and click the [Next] button.

To return to “2.8 Current ECM Parts Number Confirmation Screen,” click the [Back] button.



Selection Item Descriptions

Items	Settings/Operation Performed
ENGINE MODEL	Select the engine model that corresponds to the current ECM parts number. In the case of enforced update, you can select all engine models.
ENGINE TYPE	Select the engine type that corresponds to the current ECM parts number. In the case of enforced update, you can select all engine types.
Select button	Extracts the applicable OEM names for the applicable ENGINE MODEL and ENGINE TYPE, and provides them for selection in the OEM NAME box.
OEM NAME	Select the OEM NAME from among those that correspond to the selected ENGINE MODEL and ENGINE TYPE.
ENGINE NUMBER	Engine Serial Number uploaded at startup is displayed. You cannot enter in this field except the process that includes Engine S/N change.
Back button	Returns to “2.8 Current ECM Parts Number Confirmation Screen.”
Next button	Performs a check and then advances to “2.10 New ECM Parts Number Search Result Confirmation Screen.”

A message will appear if an error is discovered by the check that is performed when the [Next] button is clicked.

2.10 New ECM Parts Number Search Result Confirmation Screen

This screen displays the search results.

After checking the contents, click the [Next] button to advance to “2.11 Reflashing ECM Parts Number Confirmation Screen.”

If the search results do not show the parts number you want, select the NEW ECM PARTS NUMBER INPUT check box, and then input the correct parts number. (Be sure you input a compatible parts number.)

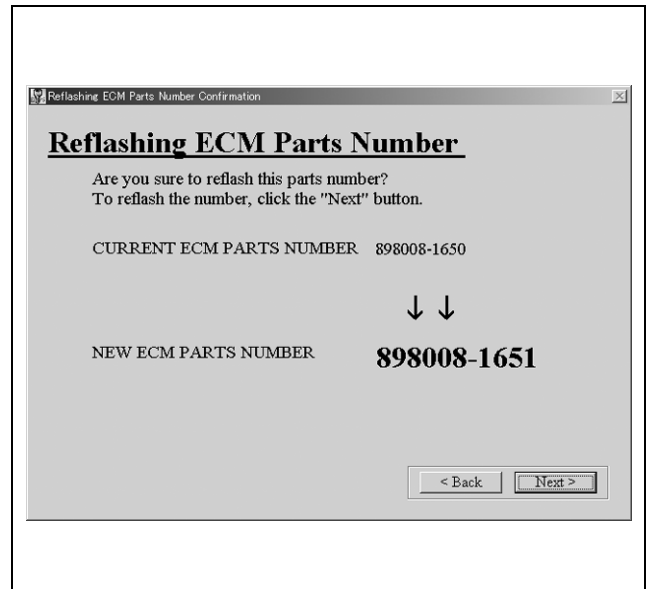
To return to “2.9 New ECM Parts Number Search Screen,” click the [Back] button.



2.11 Reflashing ECM Parts Number Confirmation Screen

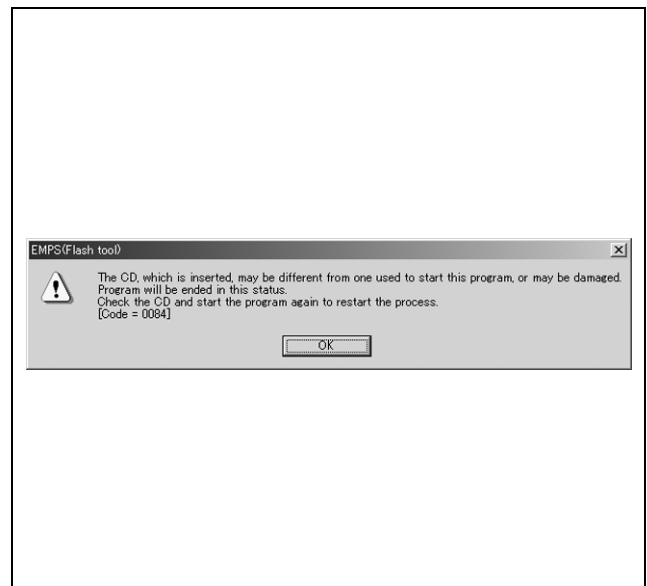
This screen displays the reflashing ECM parts number. After checking the contents, click the [Next] button to perform a CD check and advance to “2.12 Reflashing Execution Confirmation Screen.”

To return to “2.9 New ECM Parts Number Search Screen,” click the [Back] button.



The following message will appear during the CD check if a CD is not inserted or if the version does not match.

Click the [OK] button to exit the program.



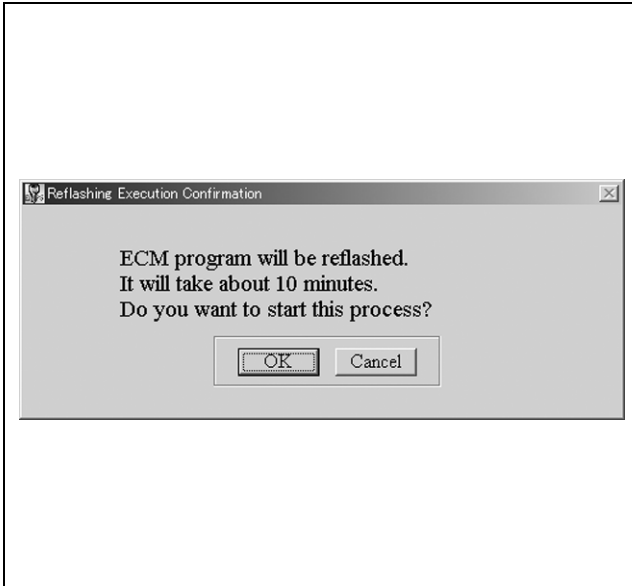
If program file name acquisition fails, advance to “6. Recover Point.”

2.12 Reflashing Execution Confirmation Screen

This screen displays a confirmation message for reflashing.

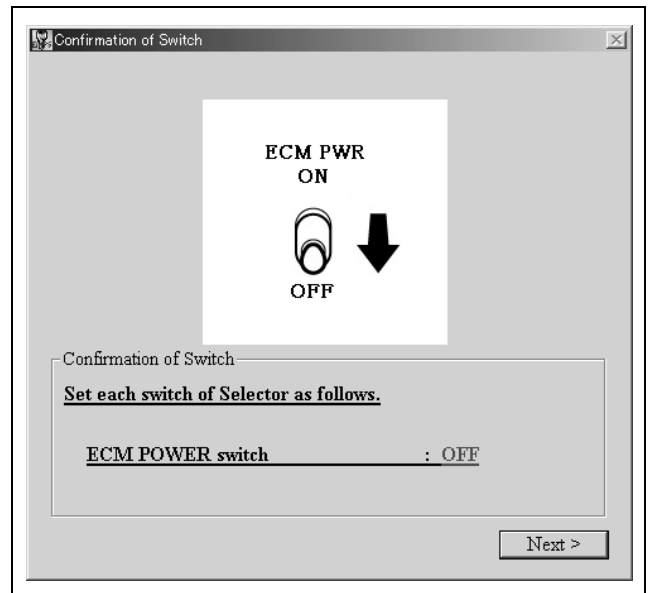
Click the [OK] button to continue.

If you need to make changes, click the [Cancel] button to return to “2.8 Current ECM Parts Number Confirmation Screen.”



2.13 Switch Confirmation Screen

The switch confirmation screen is shown below.



Configure the switch settings as shown below.

ECM POWER switch: OFF

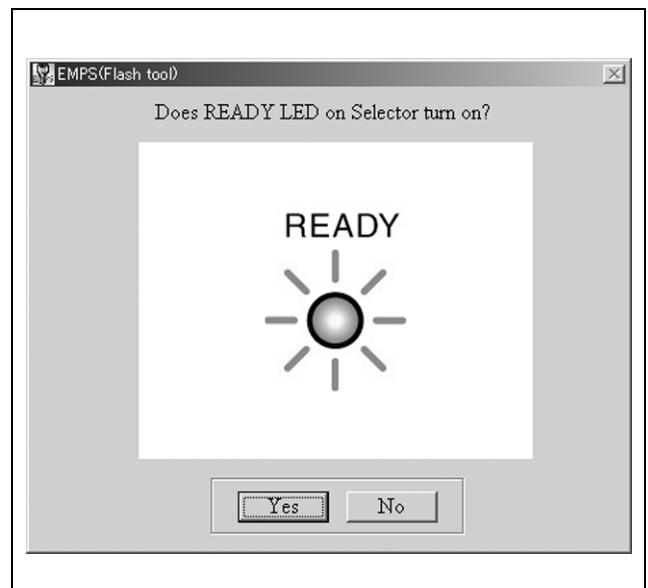
After configuring the switch settings, click the [Next] button.

This will advance to “2.14 READY LED Confirmation Screen.”

2.14 READY LED Confirmation Screen

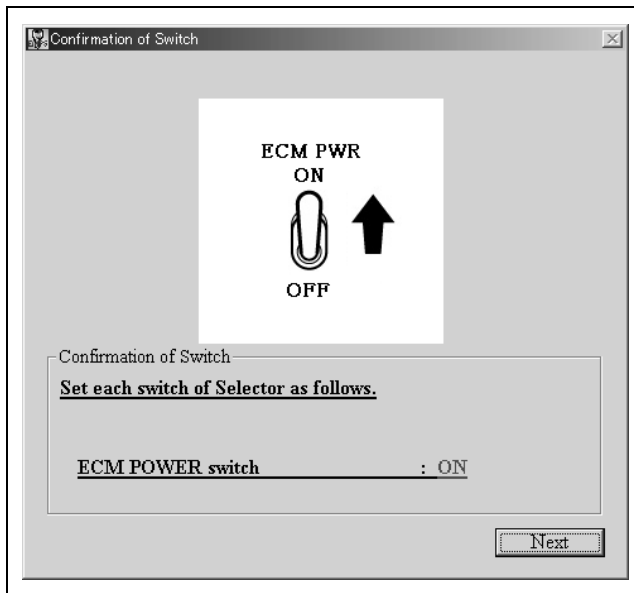
The selector LED confirmation screen is shown below. After confirming that the LED is lit, click the [Yes] button to advance to “2.15 Switch Confirmation Screen.”

If confirmation is not possible, click the [No] button to return to “2.11 Reflashing ECM Parts Number Confirmation Screen.”



2.15 Switch Confirmation Screen

The switch confirmation screen is shown below.



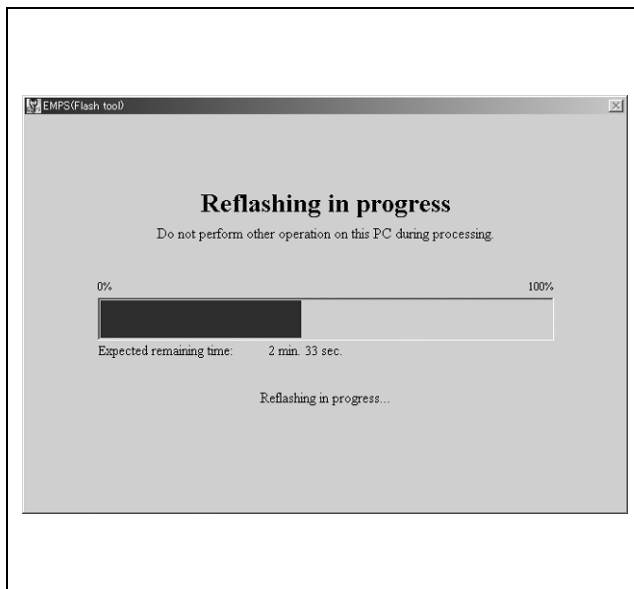
Configure the switch settings as shown below.

ECM POWER switch: ON

After configuring the switch settings, click the [Next] button.

This starts reflashing and displays the message shown below.

After reflashing is complete, advance to “2.16 Reflashing Result Confirmation Screen.”



Note:

One of the messages shown below will appear if an error occurs during reflashing.
(Refer to “8. Error Code List.”)

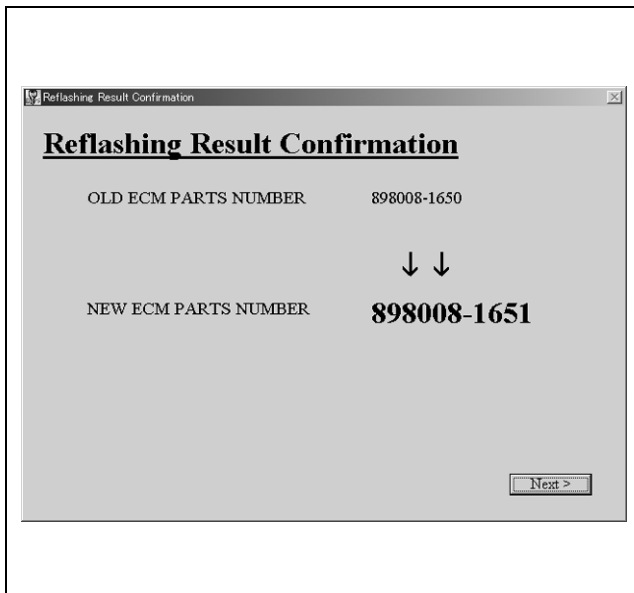


Click the [Yes] button to return to “2.12 Reflashing Execution Confirmation Screen.”

Click the [No] button to advance to “6. Recover Point.”

2.16 Reflashing Result Confirmation Screen

This screen displays the parts number reflash result.



Clicking the [Next] button displays the message shown below.



Check the content and click the [OK] button.

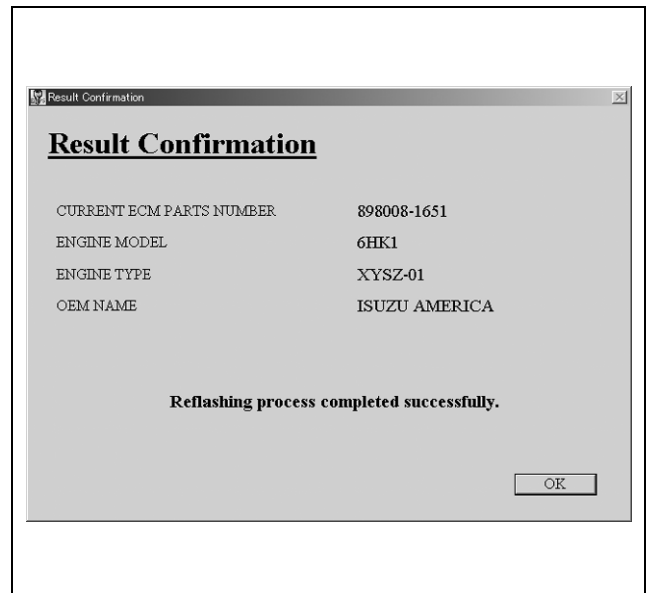
Note:

For [Normal] or [Campaign], this advances to "2.17 Final Result Confirmation Screen."

For [Compulsory Reflash], this advances to "2.20 Engine Serial Number Confirm (in Compulsory Reflash)."

2.17 Final Result Confirmation Screen

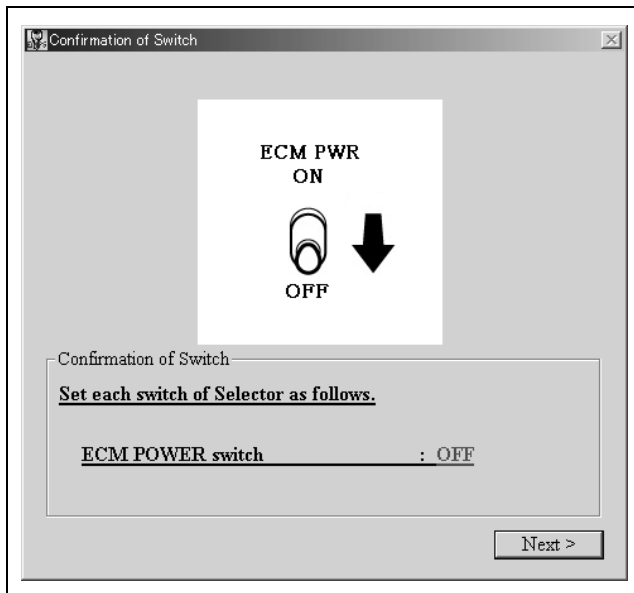
This screen displays the result of reflashing.



Clicking the [OK] button advances to "2.18 Switch Confirmation Screen."

2.18 Switch Confirmation Screen

The switch confirmation screen is shown below.

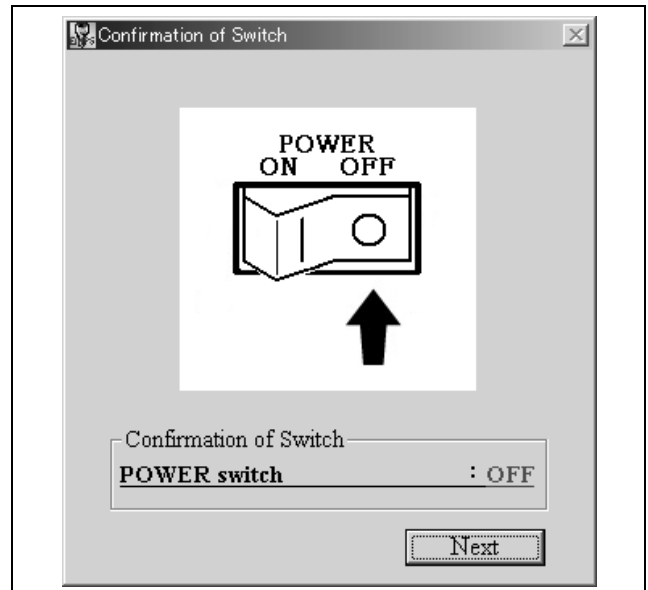


Configure the switch settings as shown below.

ECM POWER switch: OFF

After configuring the switch settings, click the [Next] button.

This will start data confirmation, display the message shown below.

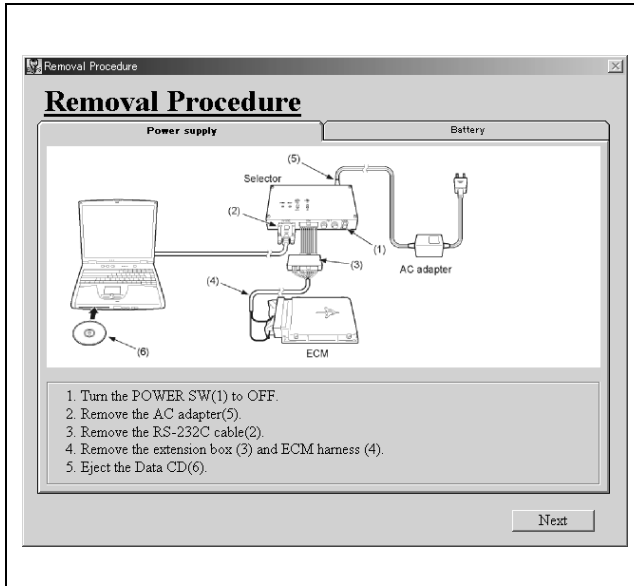


After configuring the power switch setting, click the [Next] button to advance to "2.19 Cable Removal Confirmation Screen."

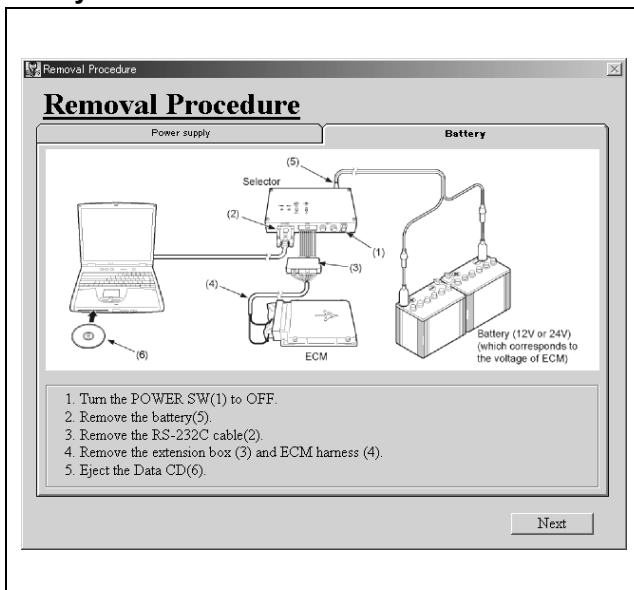
2.19 Cable Removal Confirmation Screen

Disconnect the cable which connects the selector to ECM, and then click the [Next] button. This will advance to “2.21 Memory Clear.”

Power Supply Connection

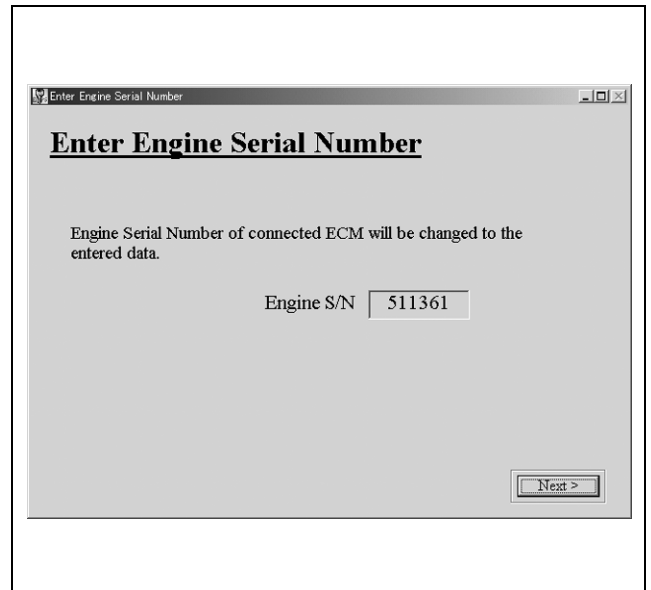


Battery Connection

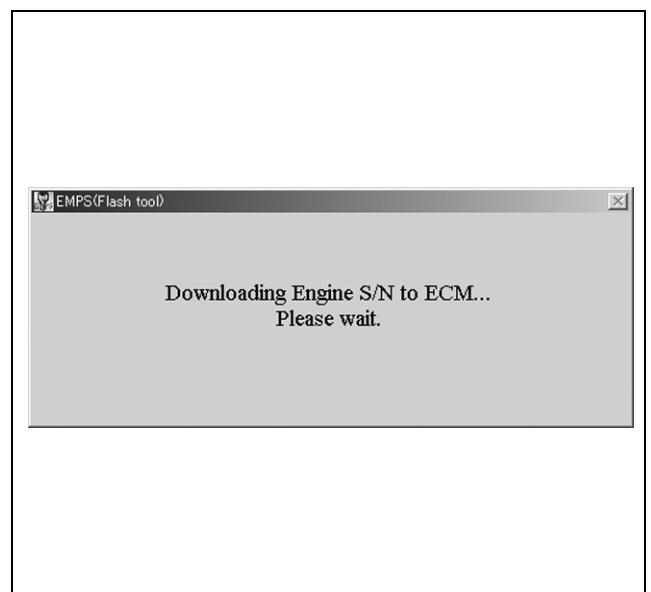


2.20 Engine Serial Number Confirm (in Compulsory Reflash)

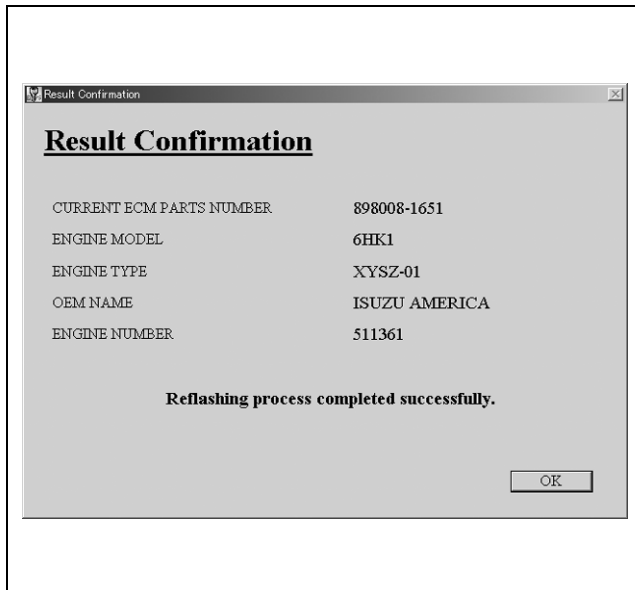
Engine Serial Number entered in “2.9 New ECM Parts Number Search Screen” is displayed.



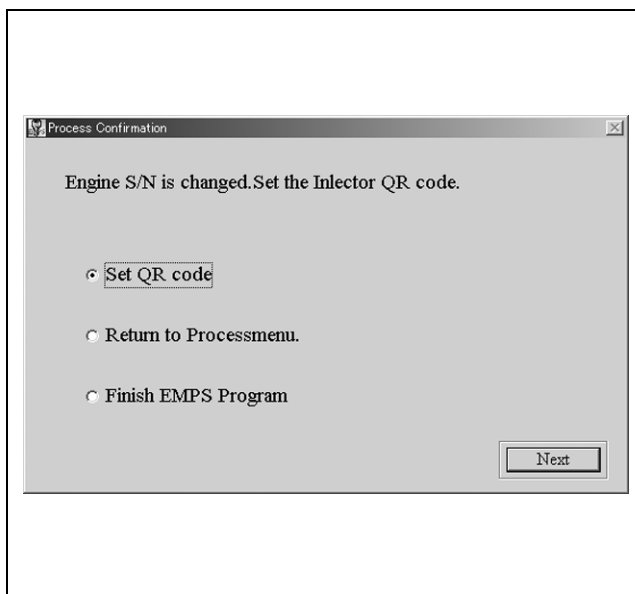
After confirming the displayed content, click the [Next] button to start downloading Engine Serial Number, and the following display appears.



After download, the “Result Confirmation Screen” appears.



Confirm the displayed content and click the [OK] button.
The following Process Confirmation Screen appears.



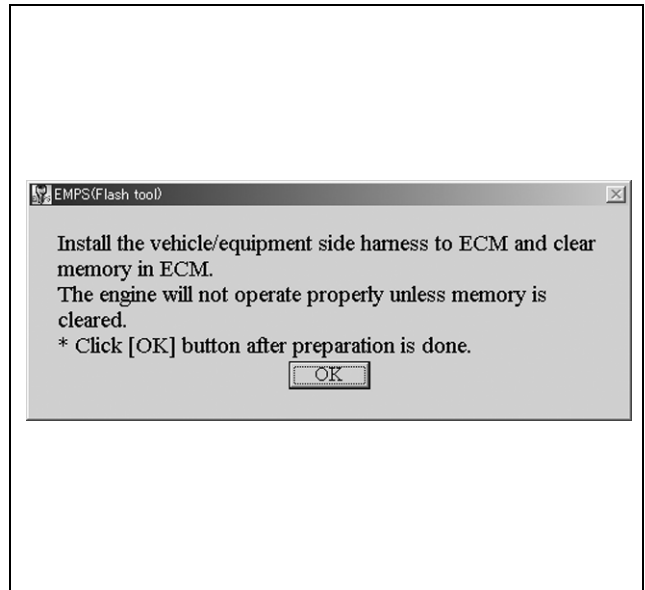
Select the process, and click the [Next] button.

One of the following operations is performed when the [Next] button is clicked.

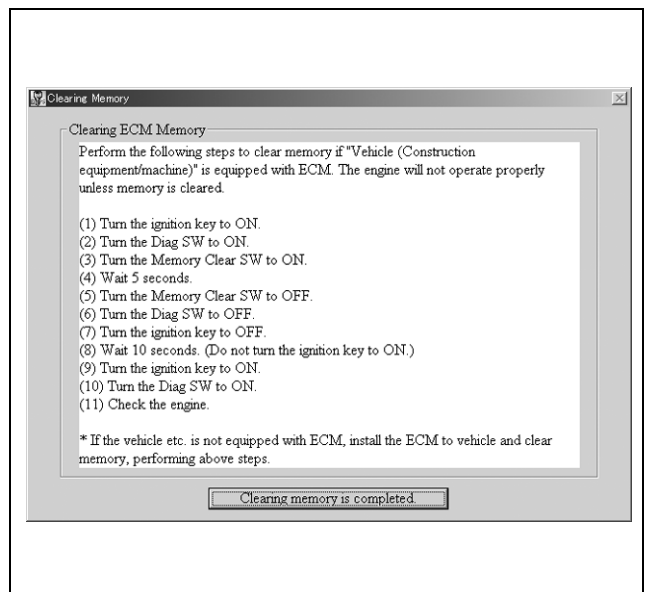
Items	Settings/Operation Performed
Set QR code.	Advances to "3.8 Change Injector QR Code" and displays "Change injector QR code" screen.
Return to Process menu	Returns to "2.1 Startup" and displays "Process Menu" screen.
Finish EMPS program.	Returns to "2.18 Switch Confirmation Screen." Perform termination according to instructions on screens.

2.21 Memory Clear

Perform memory clear in accordance with the instructions that are displayed.



Clicking the [OK] button displays the following procedure.



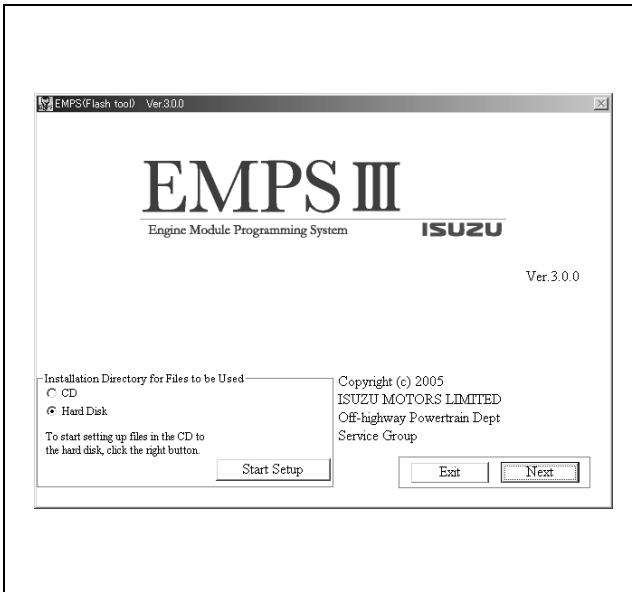
After memory clear is complete, click the [Clearing memory is completed.] button to exit the program.

3. Injector Replacement

This section describes the procedure to change the QR code during injector replacement.

3.1 Startup

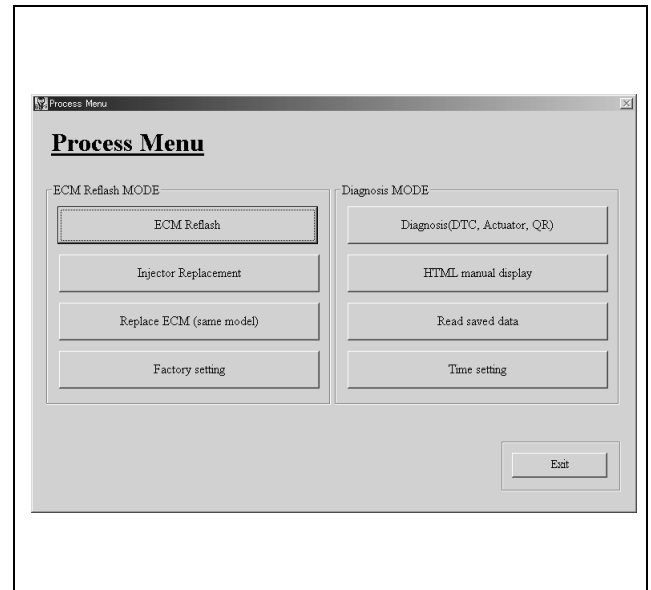
Double-click the “EMPS” icon on your Windows desktop to display the initial startup screen.



Clicking the [Next] button displays the message shown below.

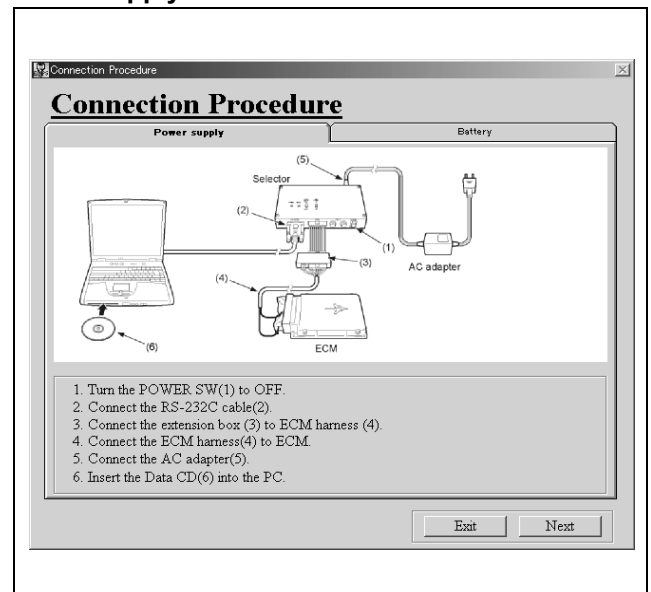


Clicking the [OK] button displays the “Process Menu” screen shown below.

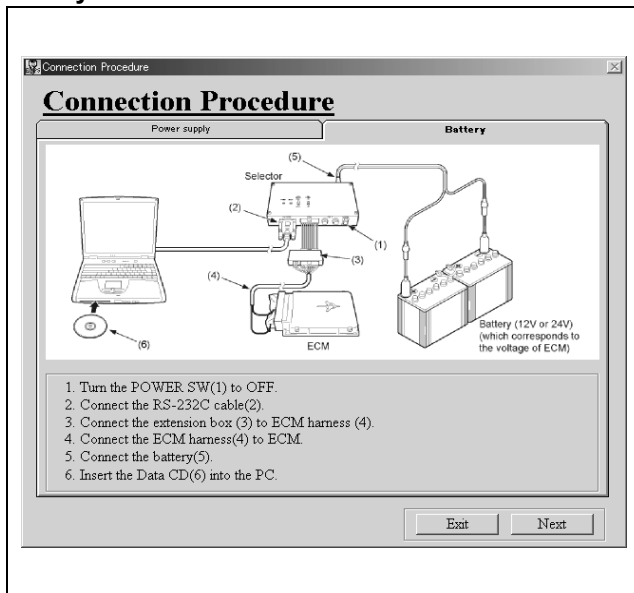


Click the [Injector Replacement] button to advance to the “Connection Procedure” screen.

Power Supply Connection



Battery Connection



Connect the PC, selector, and ECM according to the procedure.

After connection, clicking the [Next] button advances to the next "3.2 User Authentication Screen."

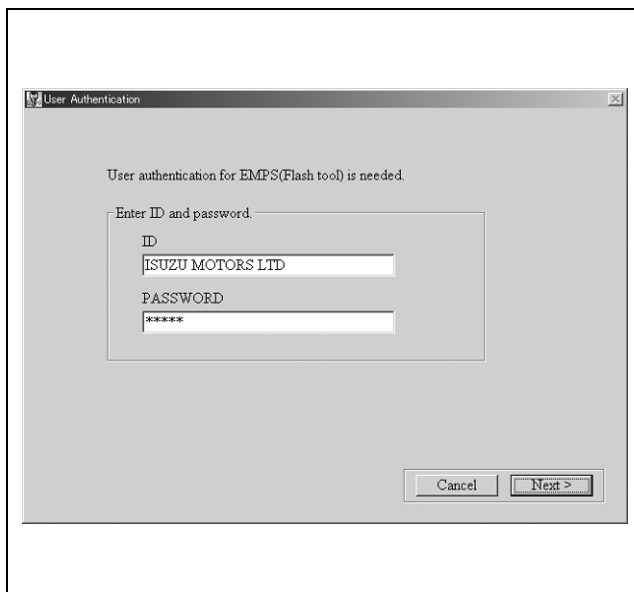
3.2 User Authentication Screen

This screen is used for EMPS user authentication.

3.2.1 User Authentication Screen (Normal)

After entering information in the [ID] and [PASSWORD] fields, click the [Next] button to advance to "3.2.2 OEM Manufacturer Selection Screen."

To cancel user authentication at any point, click the [Cancel] button.



3.2.2 OEM Manufacturer Selection Screen

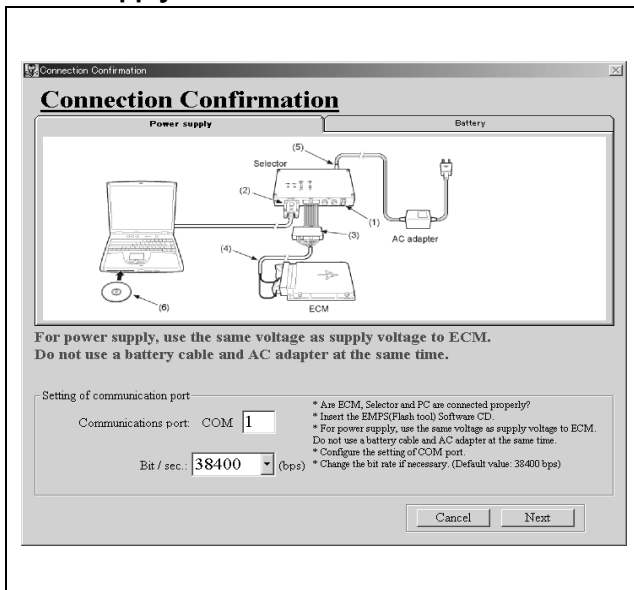
After selecting the OEM manufacturer, click the [OK] to advance to "3.3 Connection Confirmation Screen."



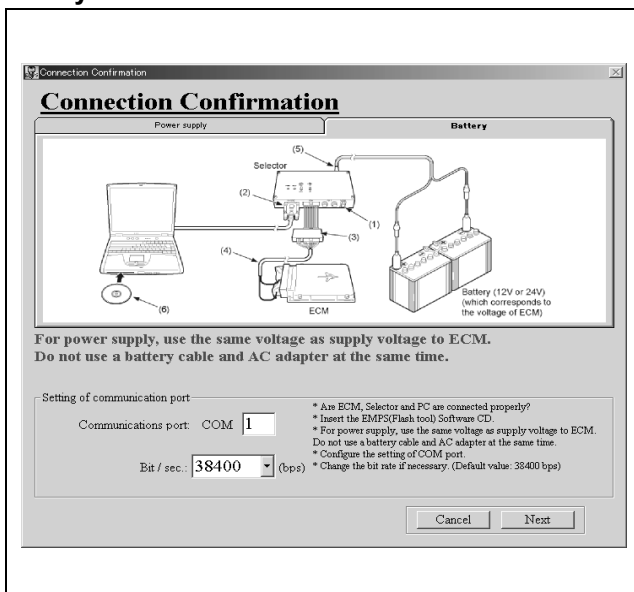
3.3 Connection Confirmation Screen

This screen shows the connection status of the computer, selector, ECM, and power supply/battery.

Power Supply Connection



Battery Connection



After selecting the COM port (Communication port) and transmission bit rate (Bit/sec), click [Next] to advance to "3.4 Switch Confirmation Screen."

Selection Item Descriptions

Items	Description
COM port	Select the RS232C port to which the selector is connected.
Transmission bit rate	Select the data transmission bit rate.
Cancel button	Displays a confirmation message for exiting the tool.
Next button	Performs a check and then displays "3.4 Switch Confirmation Screen."

One of the error messages will appear if an error is discovered by the check that is performed when the [Next] button is clicked. Refer to "7. Error Messages."

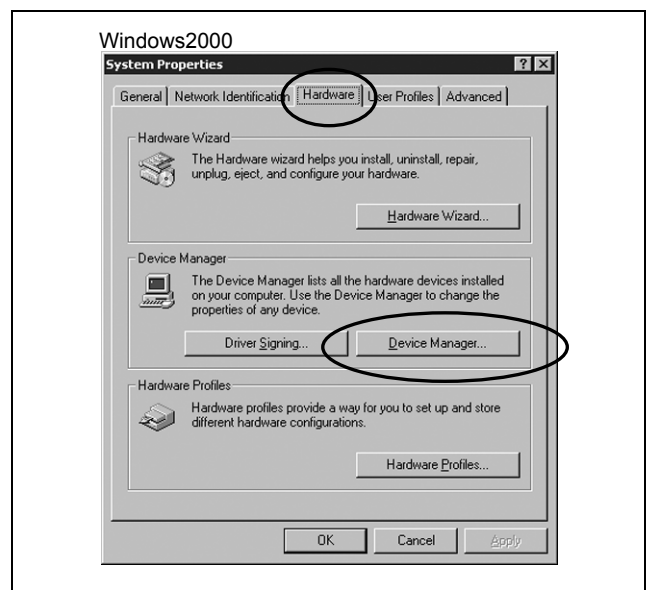
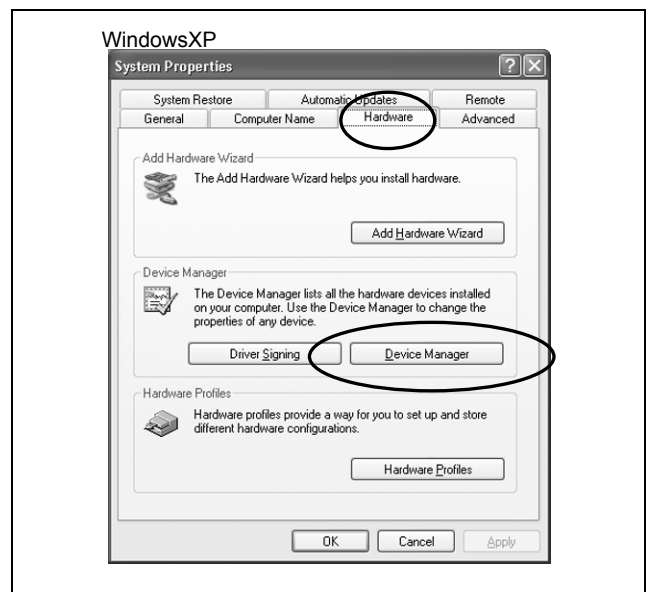
3.3.1 PC Setting

Normally select COM1 if RS232-C is used for connection.

In the case of a PC that is not equipped with an RS232-C port, connect using a commercially available USB conversion cable. For details about port settings, refer to the user documentation that comes with the USB conversion cable.

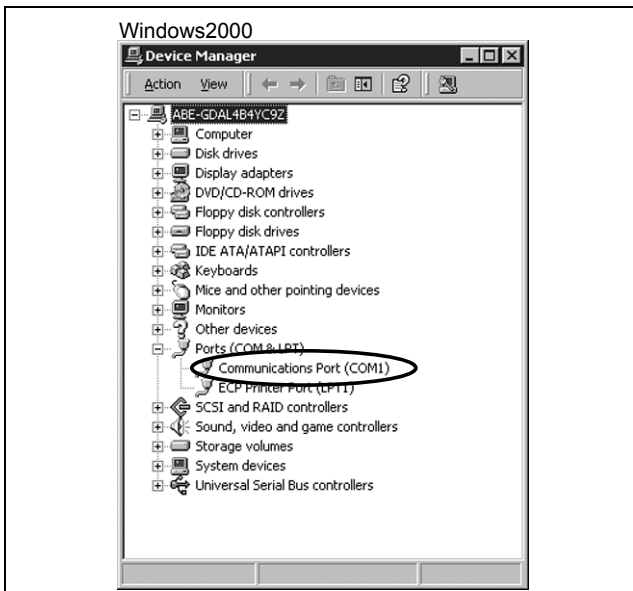
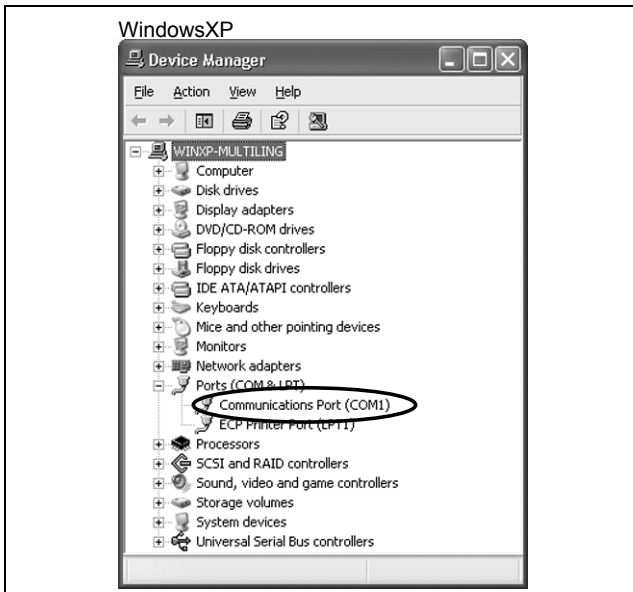
To check standard COM port settings

1. On the Windows [Start] menu, select [Control Panel].
2. On [Control Panel], open [System].
3. When system properties appear, select [Hardware].



4. Select [Device Manager] to open it.

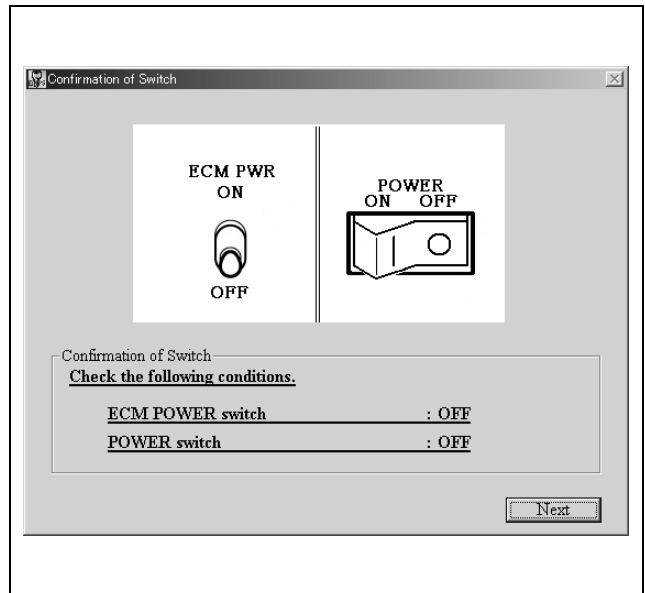
5. On [Device Manager], select [Ports (COM & LPT)].



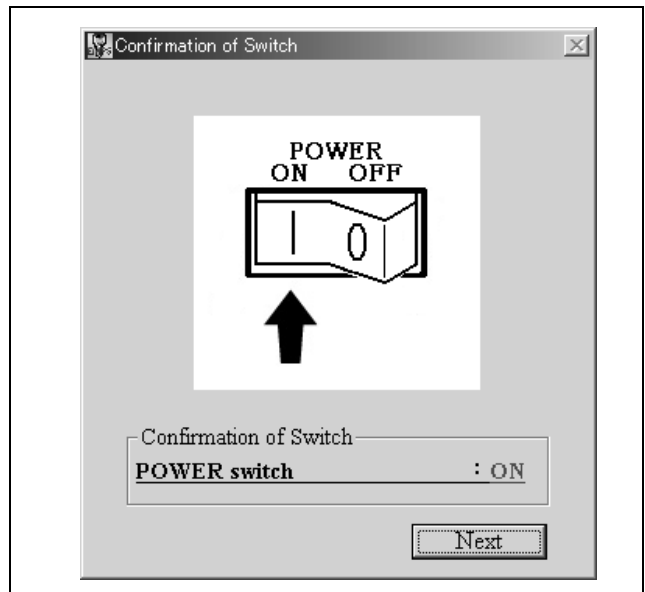
6. In the displayed items for communication ports, confirm the COM port to which the EMPS is connected.

3.4 Switch Confirmation Screen

After checking to make sure that the initial settings of the switches are as shown on the screen, click the [Next] button.



Turn on the power switch, and then click the [Next] button.

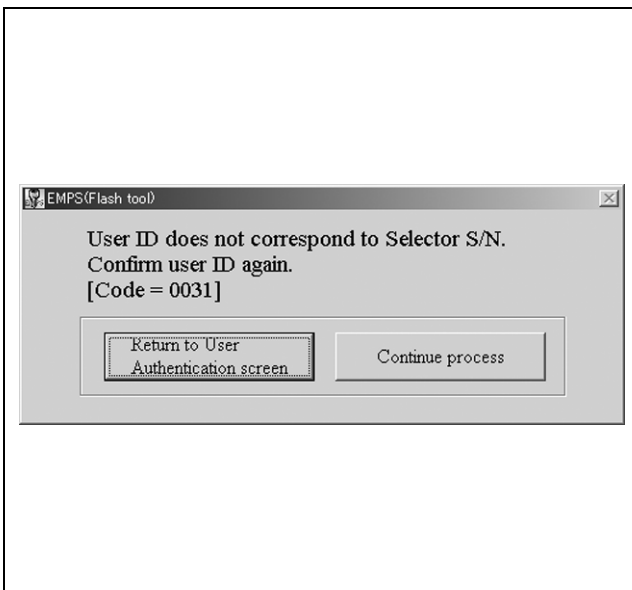


This starts selector confirmation, and displays the message shown below.



If response from the selector is normal, advance to “3.5 Selection Menu.”

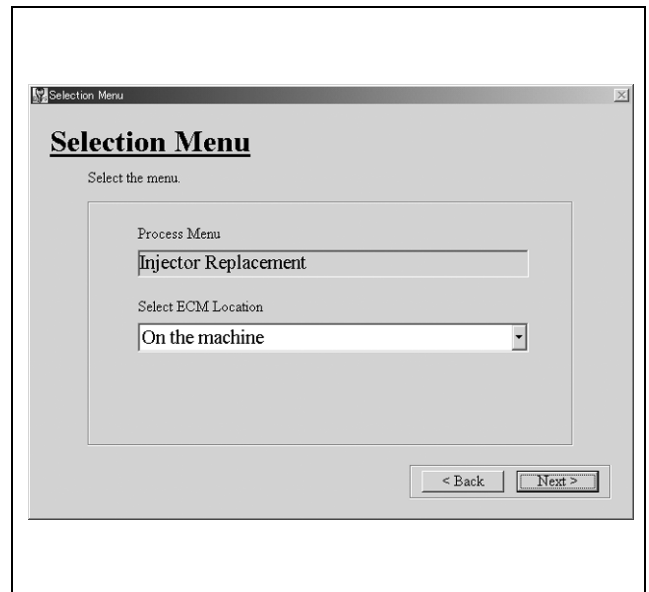
One of the following messages will appear if any abnormality is discovered. Click the [Return to User Authentication screen] button, and check the user ID. To continue the process as is, click the [Continue process] button.



If a communication error occurs, advance to the “6. Recover Point” screen.

3.5 Selection Menu

After selecting the [Select ECM Location], click the [Next] button.



Selection Item Descriptions

Items	Settings/Operation Performed
Process Menu	The process selected in “3.1 Startup” will appear.
Select ECM Location	on the machine off the machine
Back button	Returns to “3.3 Connection Confirmation Screen.”
Next button	When [off the machine] is selected, advances to “3.5.1 External Power Confirmation Screen.” When [on the machine] is selected, advances to “3.5.2 Voltage Confirmation Screen.”

3.5.1 External Power Confirmation Screen

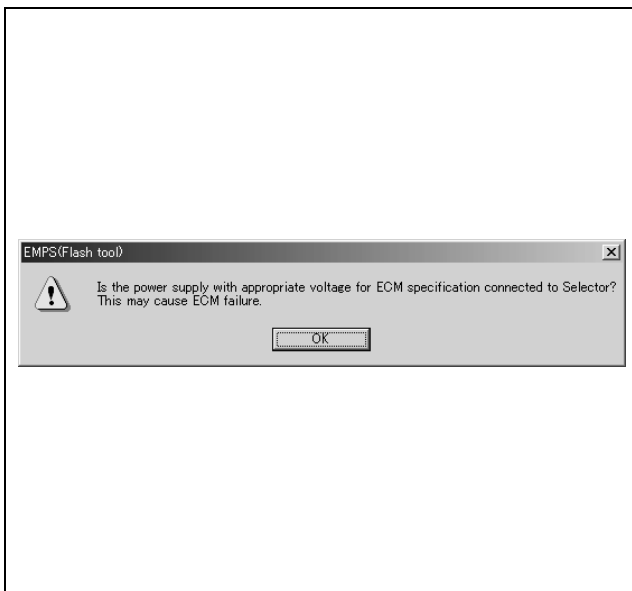
This screen prompts for confirmation of an external power supply.



Clicking the [Yes] button after checking the connection of external power supply advances to "3.6 Selection Items Confirmation Screen."

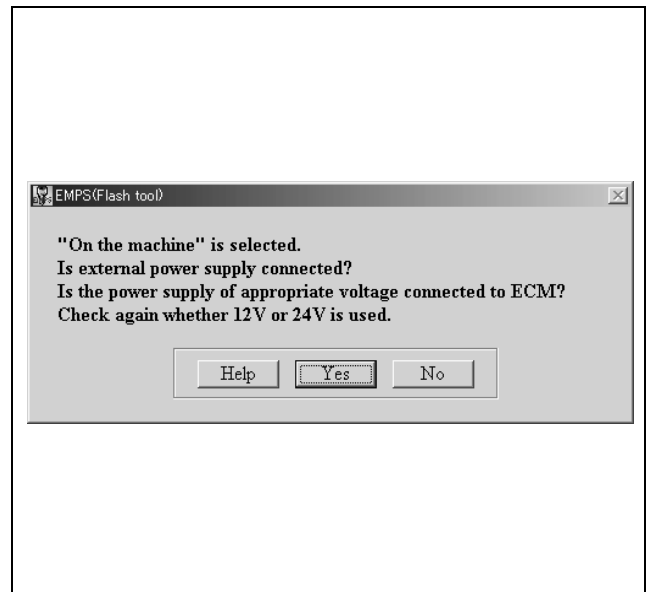
If an external power supply cannot be connected, click the [No] button to return to "3.5 Selection Menu."

Clicking the [Help] button will display the message shown below.



3.5.2 Voltage Confirmation Screen

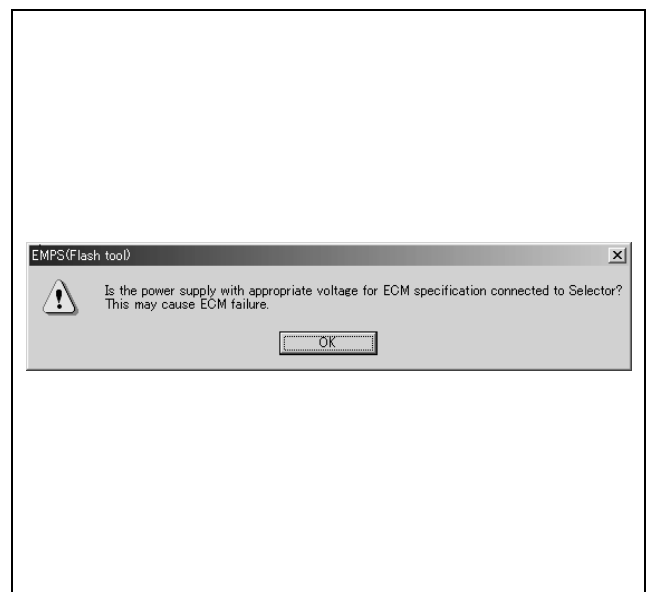
This screen prompts for confirmation of proper voltage.



Clicking the [Yes] button after checking the voltage of power supply advances to "3.6 Selection Items Confirmation Screen."

If power supply cannot be confirmed, click the [No] button to return to "3.5 Selection Menu."

Clicking the [Help] button will display the message shown below.

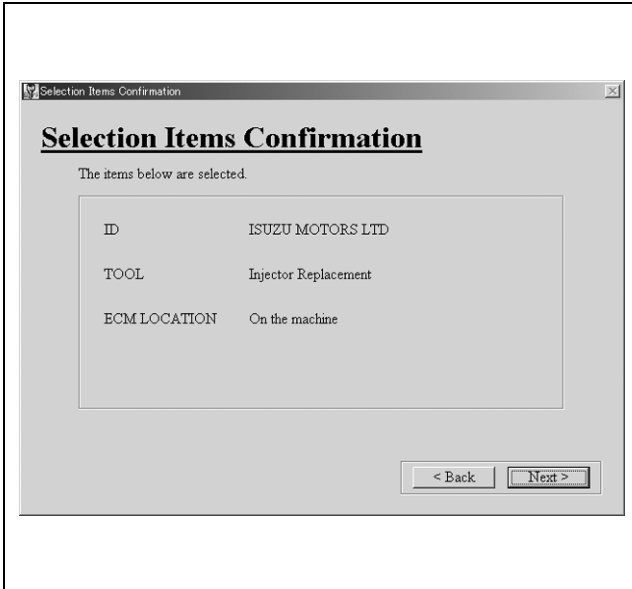


3.6 Selection Items Confirmation Screen

This screen shows the details of the settings configured up to this point.

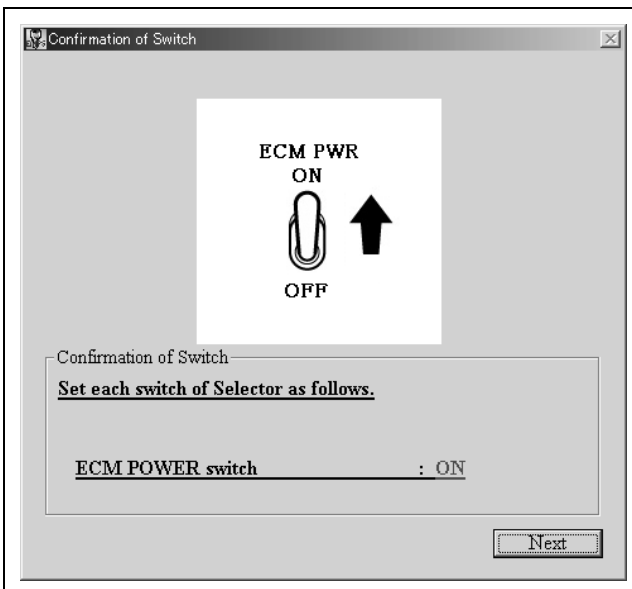
If there is no problem with the displayed settings, click the [Next] button to advance to “3.7 Switch Confirmation Screen.”

To change the settings, click the [Back] to return to “3.5 Selection Menu.”



3.7 Switch Confirmation Screen

The switch confirmation screen is shown below.

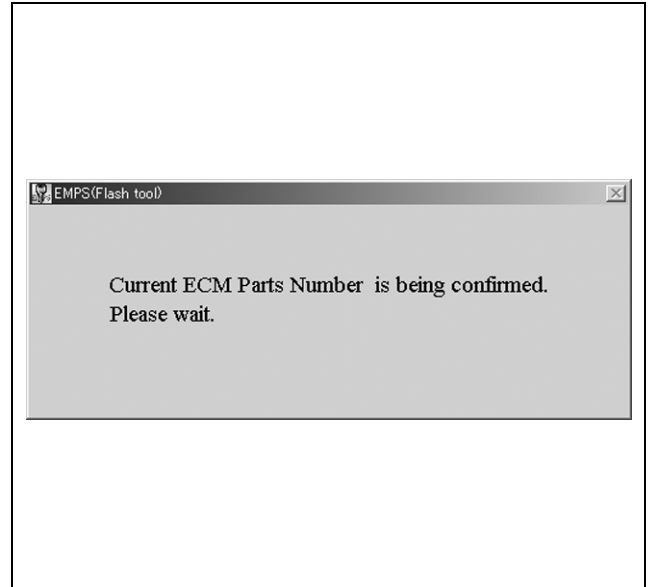


Configure the switch settings as shown below.

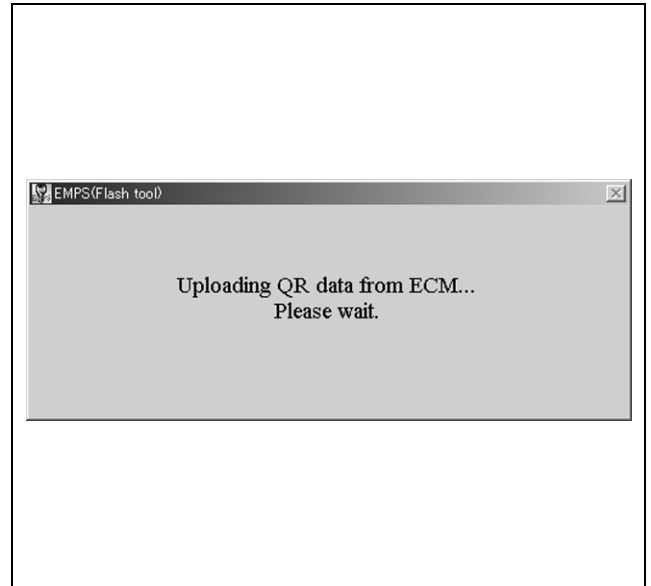
ECM POWER switch: ON

After configuring the switch settings, click the [Next] button.

This starts selector confirmation, and displays the message shown below.



Then, QR data is uploaded from ECM.



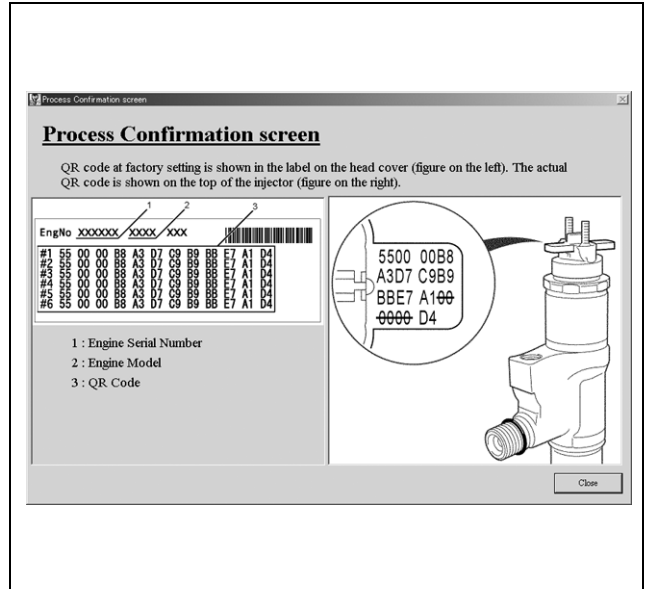
If the upload is successful, advance to “3.8 Change Injector QR Code.”

One of the messages will appear if any abnormality is discovered. Refer to “7. Error Messages.”

3.8 Change Injector QR Code

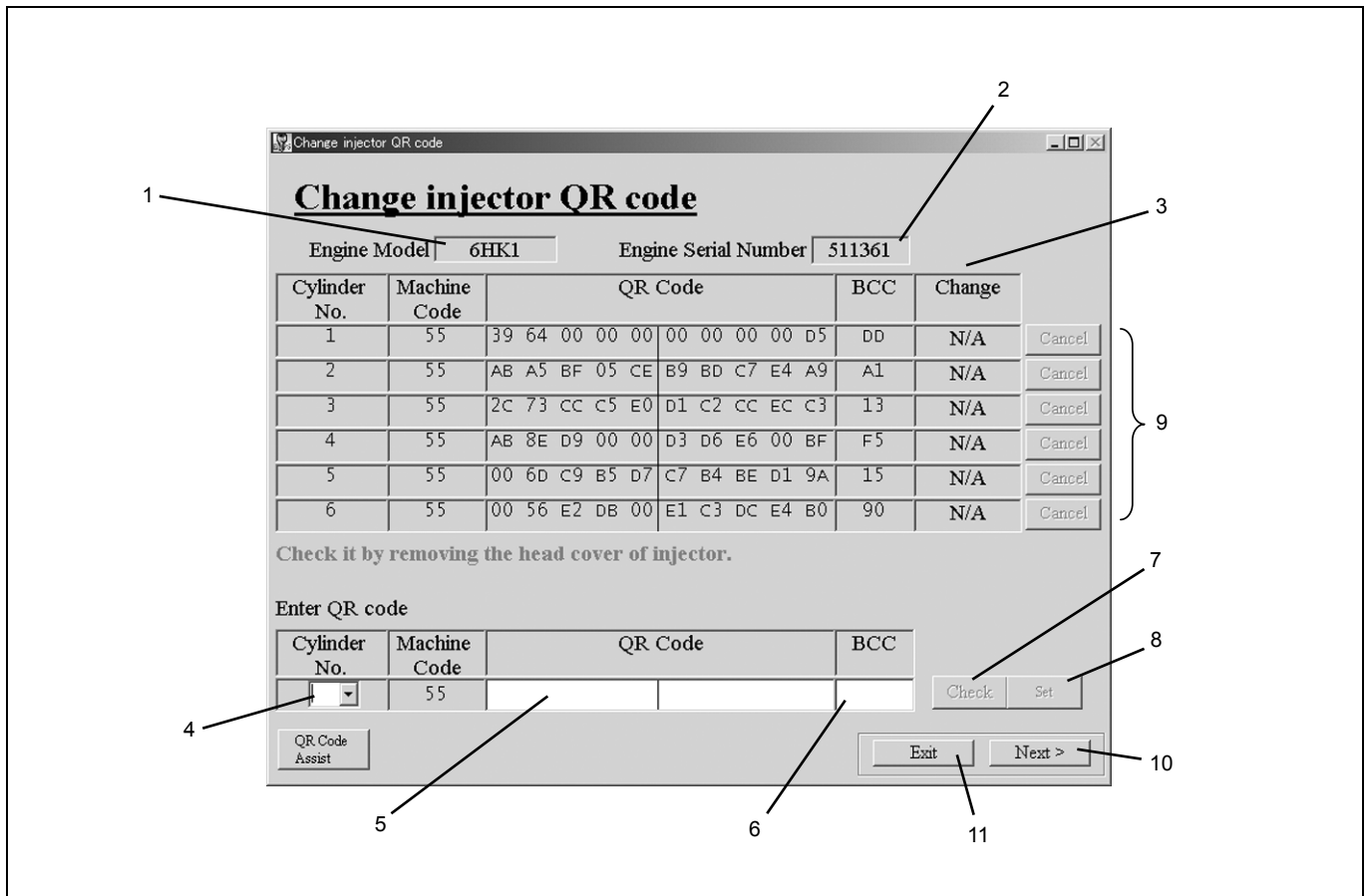
3.8.1 Process Confirmation Screen

After the upload, the location where you can find the QR code to be entered appears, and then “Change injector QR code” screen appears.



Clicking the [Close] button displays the next “Change injector QR code” screen.

3.8.2 Change Injector QR Code Screen



Name

- 1. Engine Model field
- 2. Engine Serial Number field
- 3. QR data field
- 4. Cylinder No. selection field
- 5. QR Code entry field
- 6. BCC entry field
- 7. Check button
- 8. Set button
- 9. Cancel button
- 10. Next button
- 11. Exit button

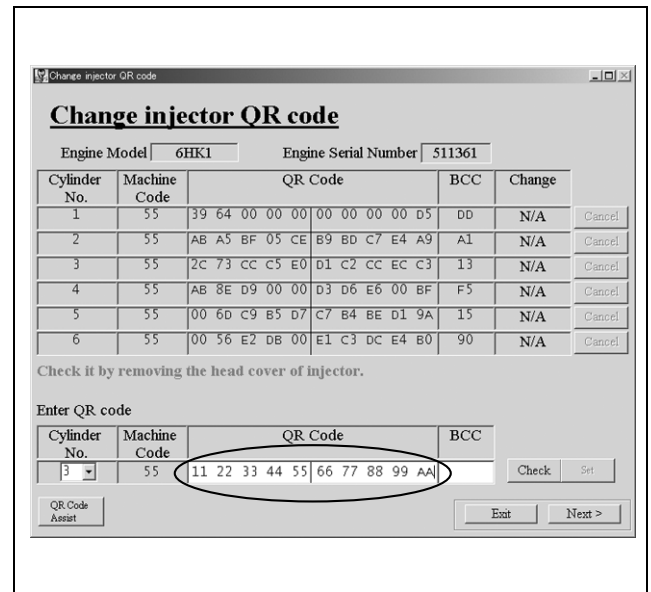
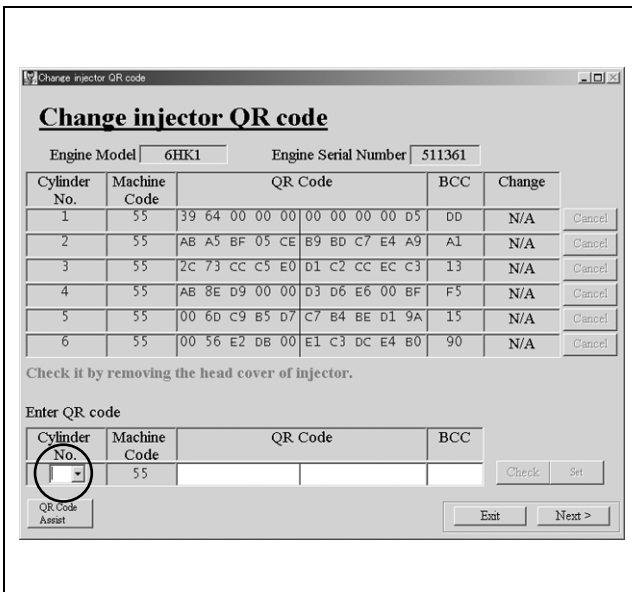
Selection Item Descriptions

Items	Settings/Operation Performed
Engine Model field	Displays Engine Model uploaded from ECM.
Engine Serial Number field	Displays Engine Serial Number uploaded from ECM.
QR data field	Displays QR data uploaded from ECM.
Cylinder No. selection field	Select or enter the number of cylinder that its QR code is changed.
QR Code entry field	Enter the QR code.
BCC entry field	Enter the BCC.
Check button	Performs error check for entered data. If error occurs, entered QR code and BCC will turn red. If no error occurs, the [Set] button will be active.
Set button	Sets the entered data to reflect it on the QR data fields on the top of the screen. (‘Complete’ will be displayed in blue in the Check columns of QR data fields for the corresponding cylinder No.)
Cancel button	Discards the set QR codes in the QR data fields to return to the initial state.
Next button	Advances to the next process (registration of entered data).
Exit button	Quits EMPS program.

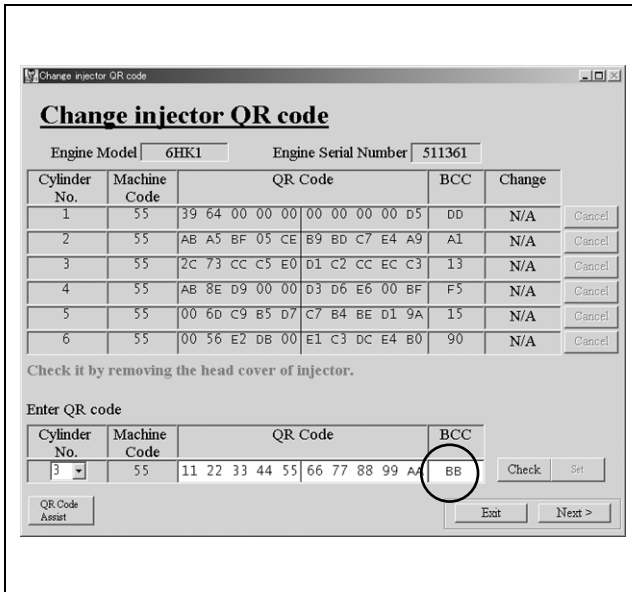
3.8.3 Procedure to Enter QR Code

1. Select or enter Cylinder No.

2. Enter the injector QR code.



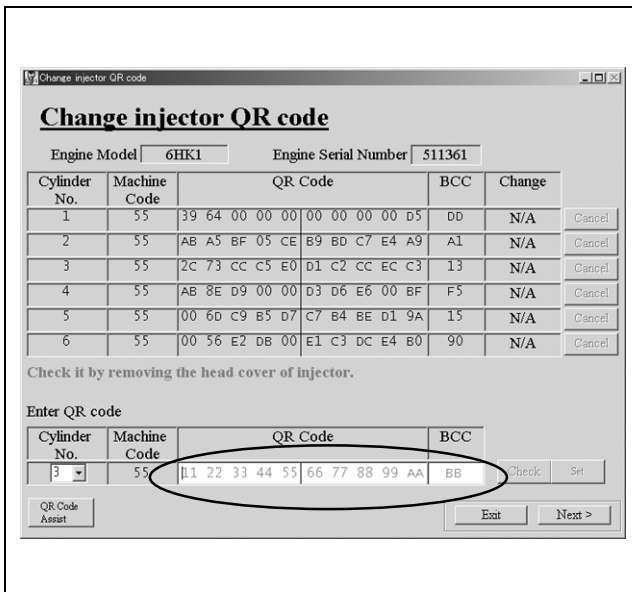
3. Enter the BCC.
After entering, [Check] button will become active.



4. Click the [Check] button.
Error check for entered data will be performed.

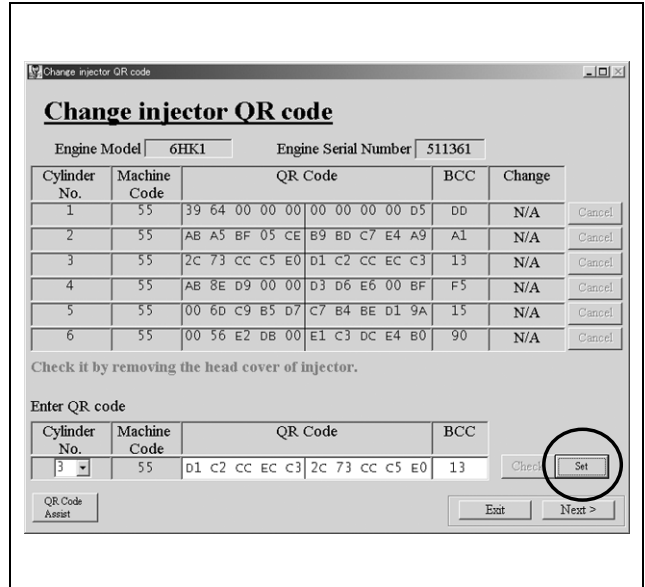
Note:

If error for entered data occurred.
The letters in QR code and BCC fields will turn red.
Enter them again.

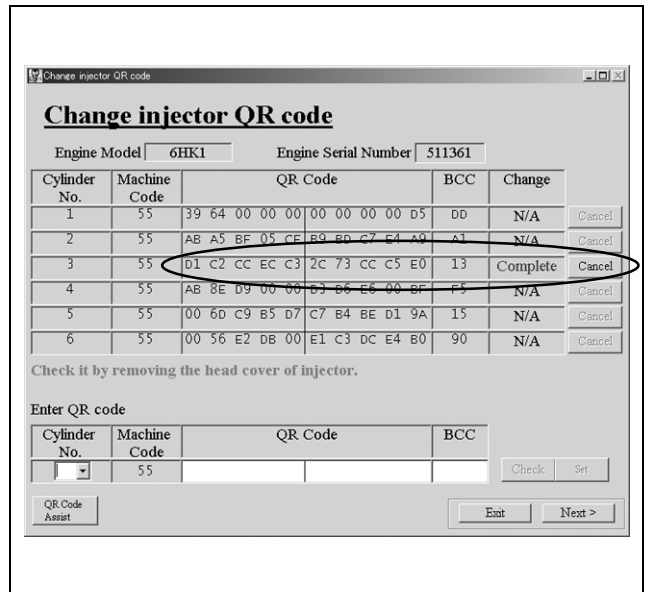


Note:

If no error for entered data occurred.
[Set] button will become active.



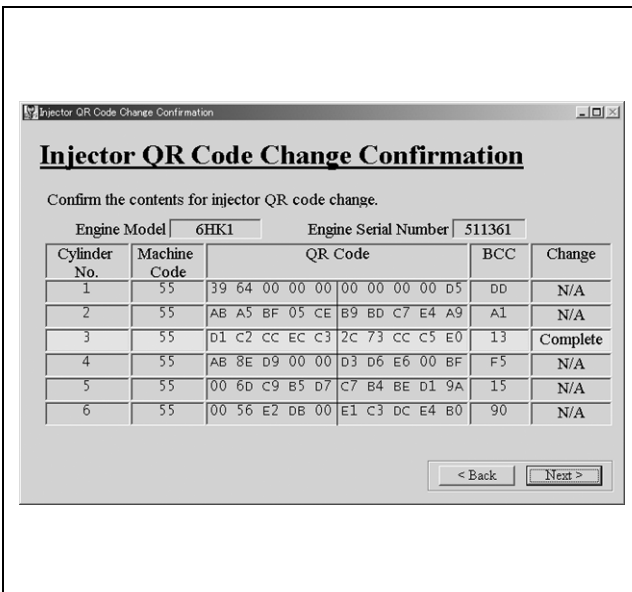
5. Click the [Set] button.
Entered data is reflected in the field on the top of the screen, then the "Change" field shows "Complete."
[Cancel] button will also become active.
To return the status prior to change, click the [Cancel] button.



To continue to enter other data, repeat the procedure from step 1.
To complete, click the [Next] button.

6. Confirm download.

Clicking the [Next] button displays “Injector QR Code Change Confirmation” screen.
The background color of changed cylinder has turned light blue.



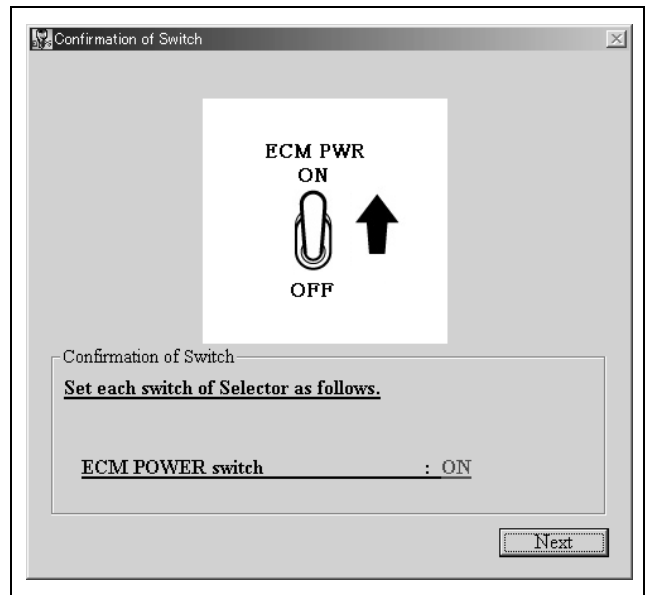
To correct the setting, click the [Back] button to return to “Change Injector QR Code Screen.”
If the setting is OK, click the [Next] button to register it into the ECM.
The following confirmation message will appear.



Clicking the [OK] button displays the “3.9 Injector QR Code Download” screen.

3.9 Injector QR Code Download

The switch confirmation screen is shown below.



Check the switch status.

ECM POWER switch: ON

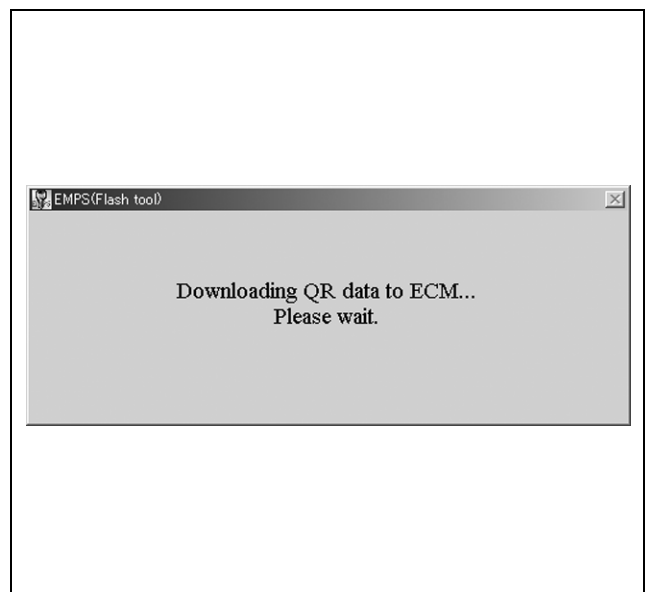
After configuring the switch settings, click the [Next] button.

Selection Item Descriptions

Items	Settings/Operation Performed
Next button	Starts to download the entered QR code.

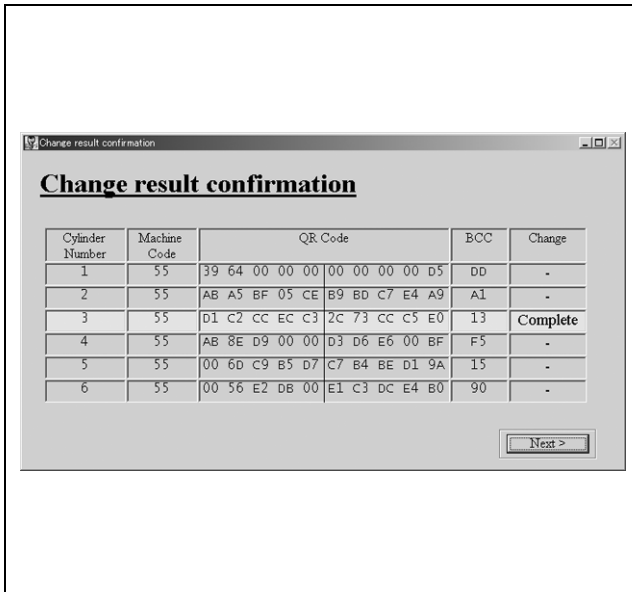
3.9.1 Injector QR Code Download

The screen shown below will appear during download.



3.10 Change Result Confirmation Screen

This screen displays downloaded QR code for confirmation.

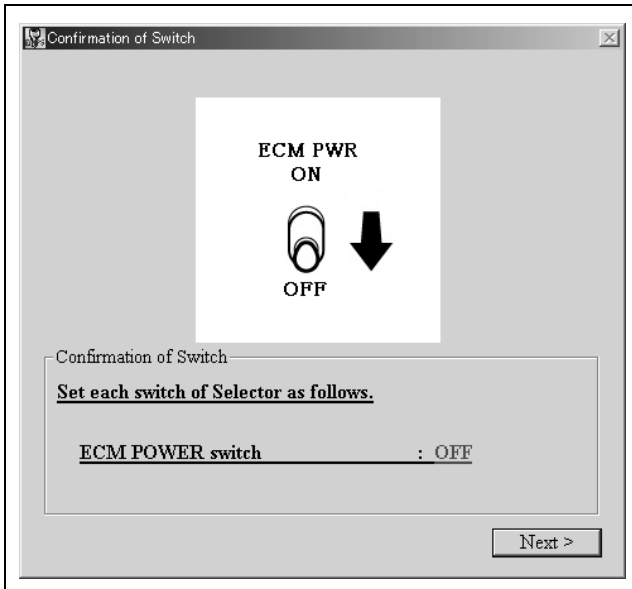


Selection Item Descriptions

Items	Settings/Operation Performed
Next button	Advances to "3.11 Switch Confirmation Screen" to perform termination.

3.11 Switch Confirmation Screen

The switch confirmation screen is shown below.

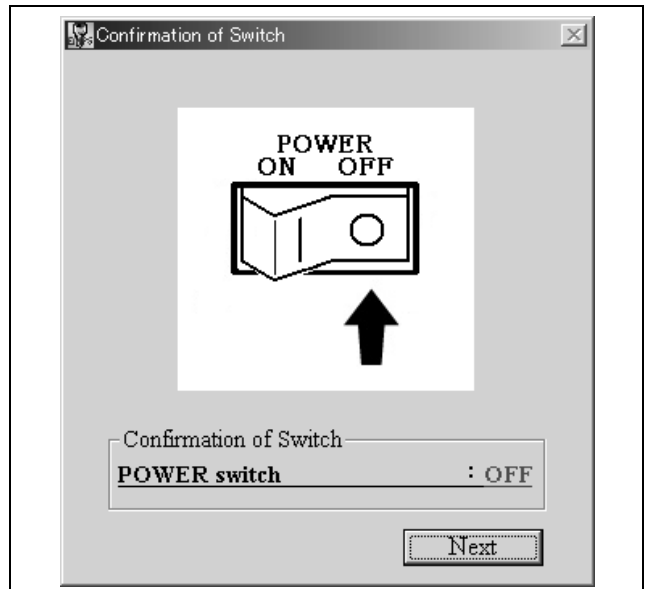
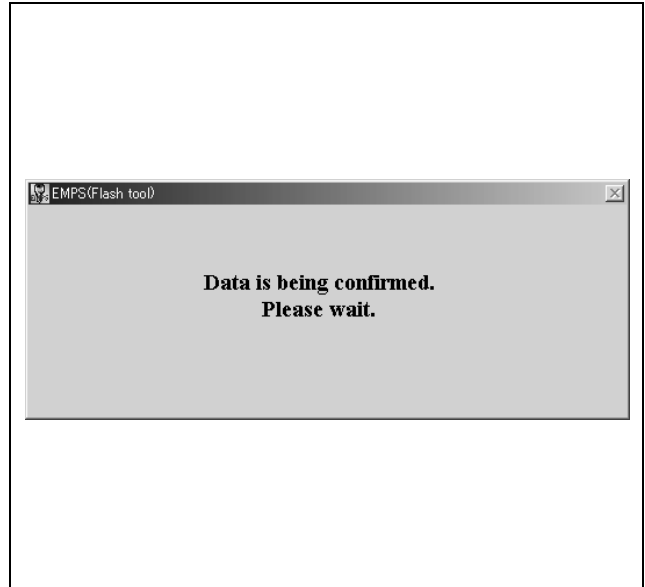


Configure the switch settings as shown below.

ECM POWER switch: OFF

After configuring the switch settings, click the [Next] button.

This will start data confirmation, display the message shown below.

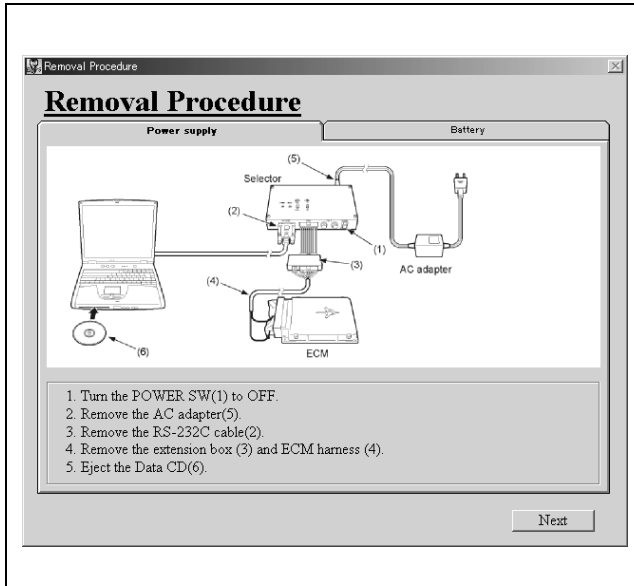


After configuring the power switch setting, click the [Next] button to advance to "3.12 Cable Removal Confirmation Screen."

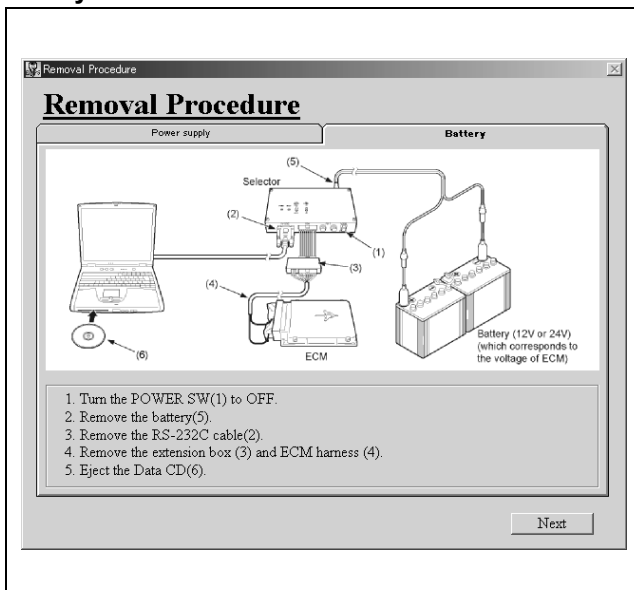
3.12 Cable Removal Confirmation Screen

Disconnect the cable which connects the selector to ECM, and then click the [Next] button. This advances to "3.13 Memory Clear."

Power Supply Connection

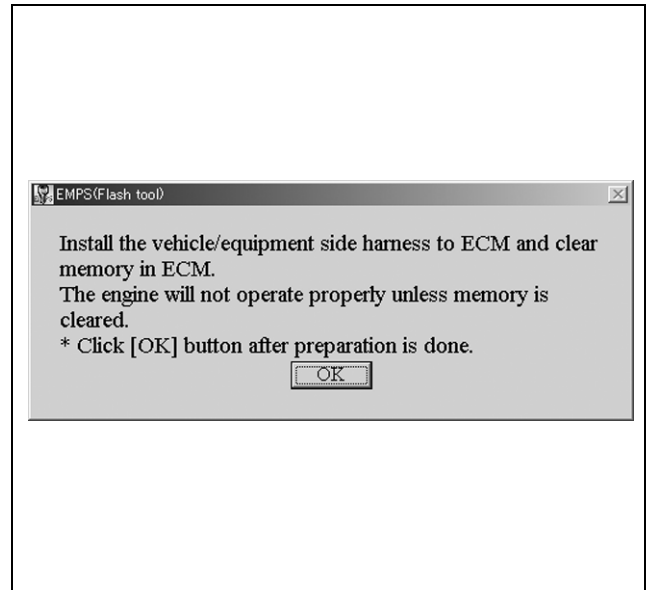


Battery Connection

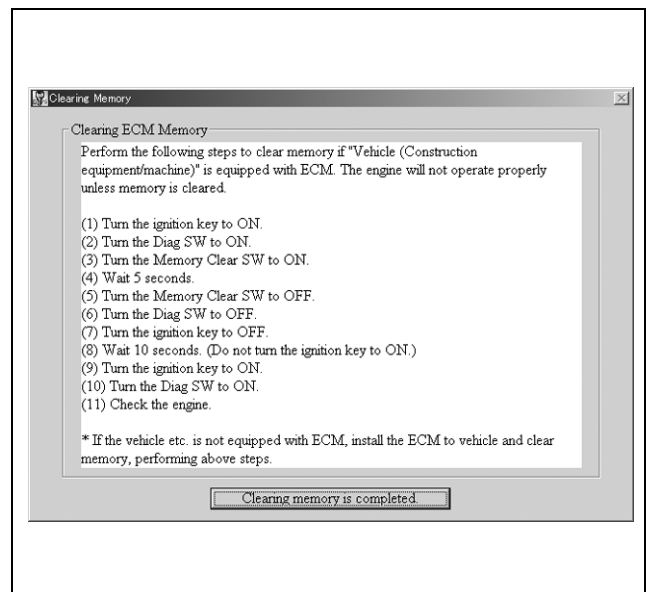


3.13 Memory Clear

Perform memory clear in accordance with the instructions that are displayed.



Clicking the [OK] button displays the following procedure.



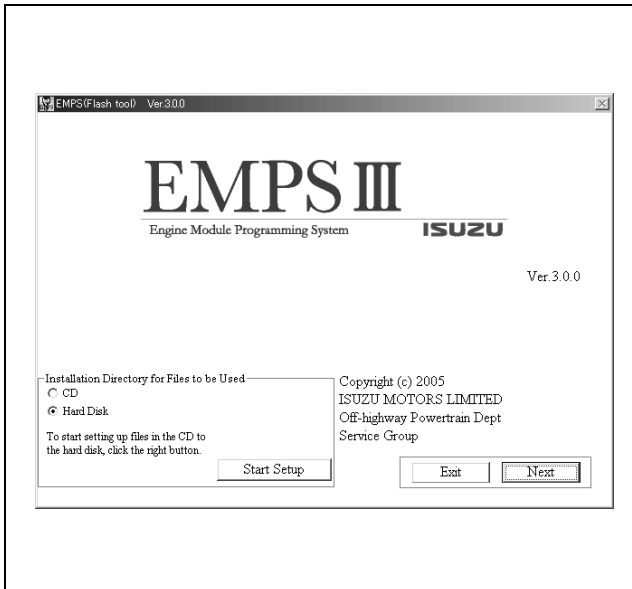
After memory clear is complete, click the [Clearing memory is completed.] button to exit the program.

4. Replace ECM (Same Model)

This section describes the procedure to replace the ECM (or to make a copy) on the same model.

4.1 Startup

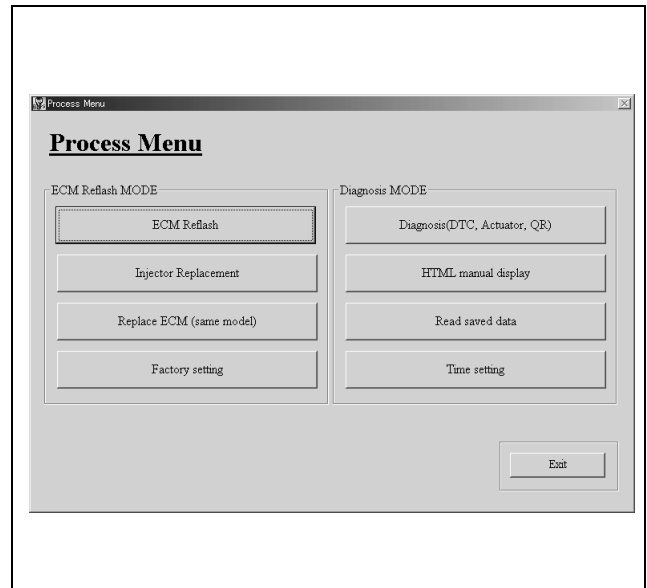
Double-click the “EMPS” icon on your Windows desktop to display the initial startup screen.



Clicking the [Next] button displays the message shown below.

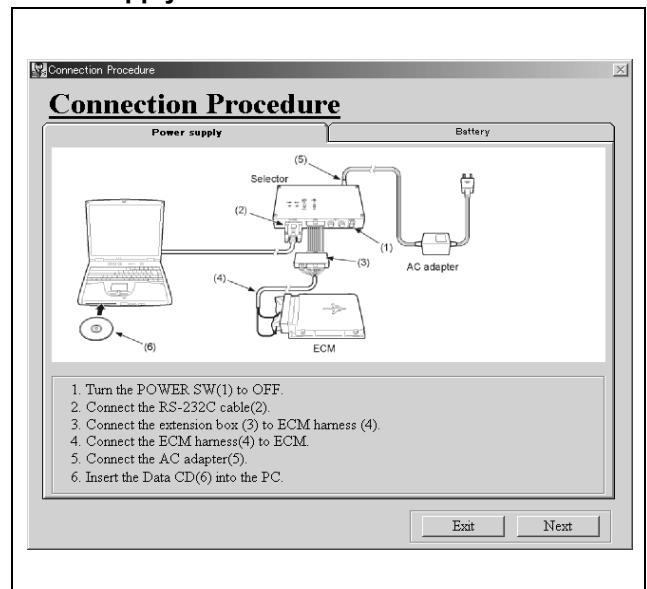


Clicking the [OK] button displays the “Process Menu” screen shown below.

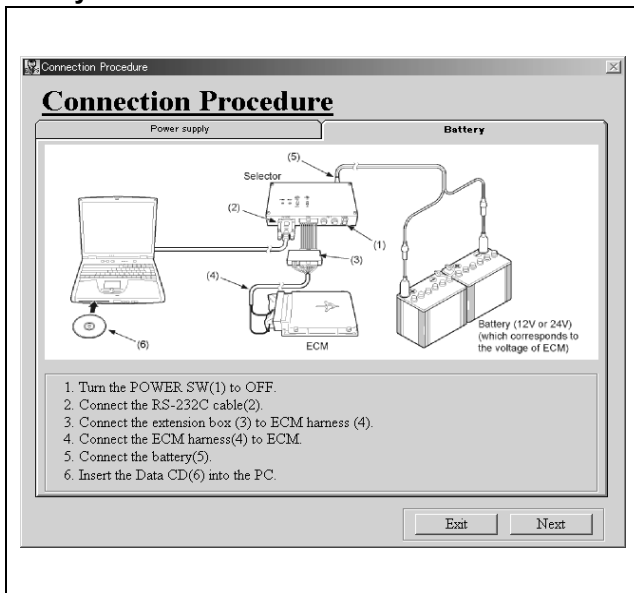


Click the [Replace ECM (Same Model)] button to advance to the next [Connection Procedure] screen.

Power Supply Connection



Battery Connection



Connect the PC, selector, and ECM according to the procedure.

Click the [Next] button to advance to “4.2 User Authentication Screen.”

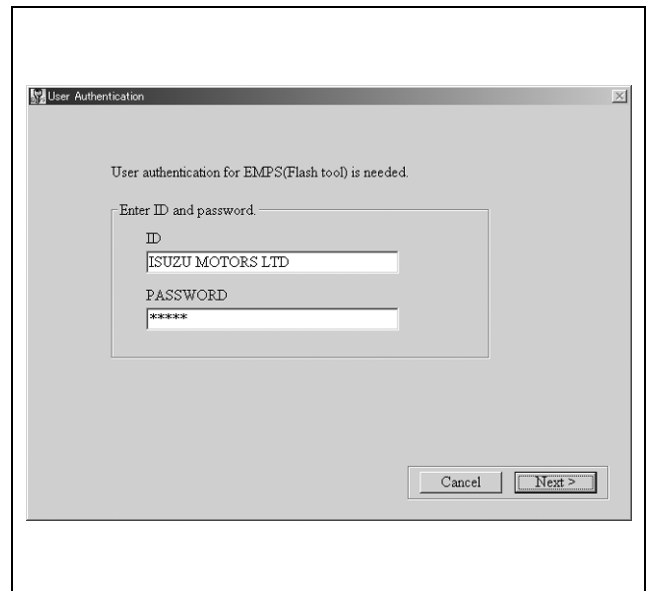
4.2 User Authentication Screen

This screen is used for EMPS user authentication.

4.2.1 User Authentication Screen

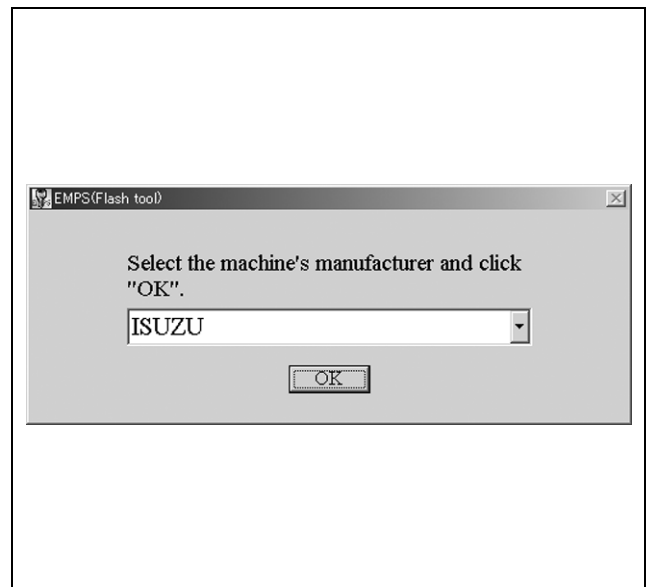
After entering information in the [ID] and [PASSWORD] fields, click the [Next] button to advance to “4.2.2 OEM Manufacturer Selection Screen.”

To cancel user authentication at any point, click the [Cancel] button.



4.2.2 OEM Manufacturer Selection Screen

After selecting the OEM manufacturer, click the [OK] to advance to “4.3 Connection Confirmation Screen.”

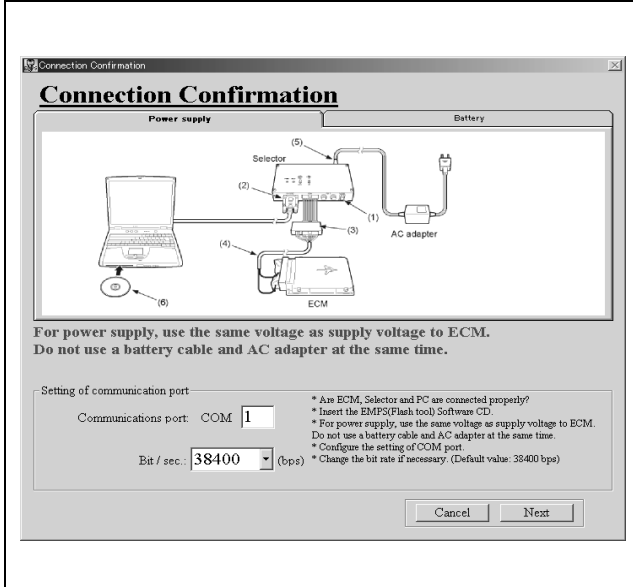


4.3 Connection Confirmation Screen

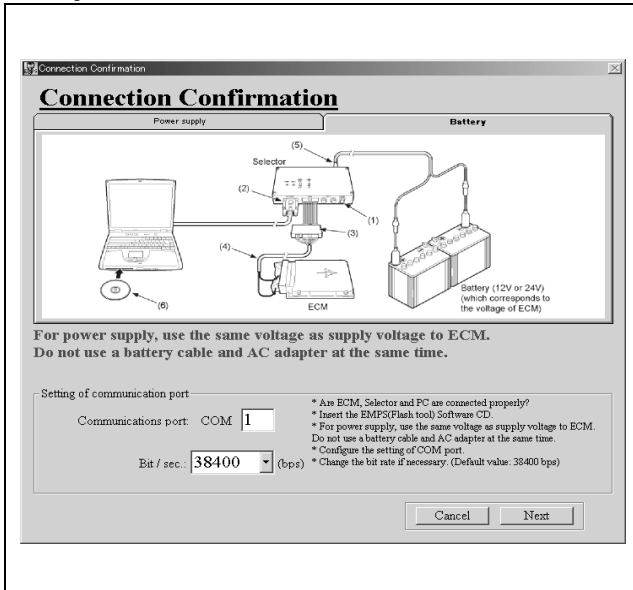
4.3.1 At the First Connection

This screen shows the connection status of the computer, selector, ECM, and power supply/battery.

Power Supply Connection



Battery Connection



After selecting the COM port (Communication port) and transmission bit rate (Bit/sec), click [Next] to advance to "4.4 Switch Confirmation Screen."

Selection Item Descriptions

Items	Description
COM port	Select the RS232C port to which the selector is connected.
Transmission bit rate	Select the data transmission bit rate.
Cancel button	Displays a confirmation message for exiting the tool.

Items	Description
Next button	Performs a check and then displays "4.4 Switch Confirmation Screen."

One of the error messages will appear if an error is discovered by the check that is performed when the [Next] button is clicked. Refer to "7. Error Messages."

4.3.2 At the Reconnection After ECM Replacement

If you repeat upload or download (when reconnecting after ECM replacement), you will start with this screen. But you cannot change COM port and bit rate (bps).

4.3.3 PC Setting

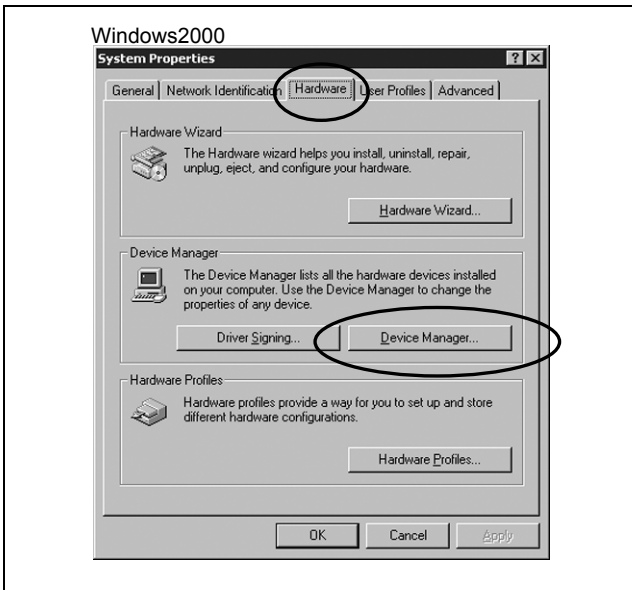
Normally select COM1 if RS232-C is used for connection.

In the case of a PC that is not equipped with an RS232-C port, connect using a commercially available USB conversion cable. For details about port settings, refer to the user documentation that comes with the USB conversion cable.

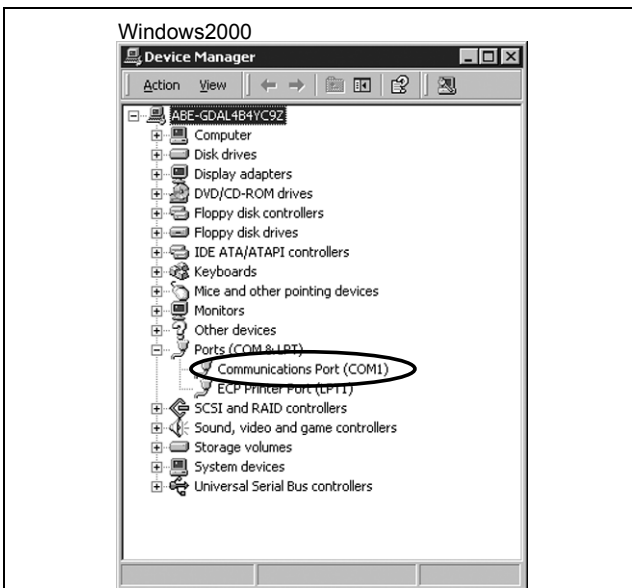
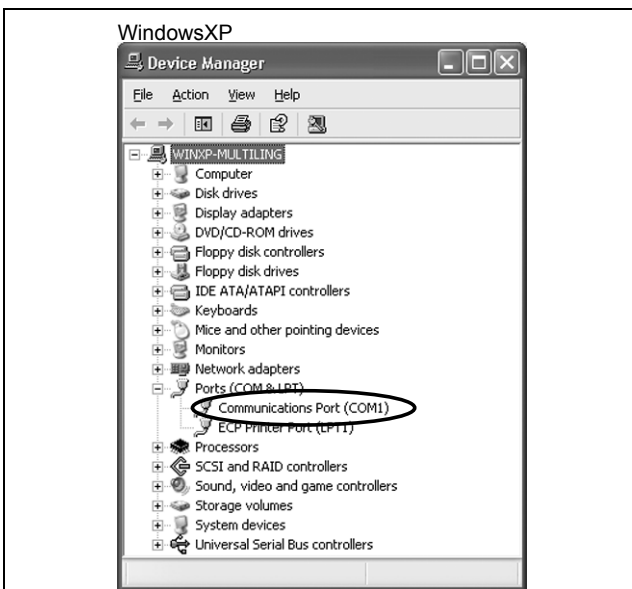
To check standard COM port settings

1. On the Windows [Start] menu, select [Control Panel].
2. On [Control Panel], open [System].
3. When system properties appear, select [Hardware].





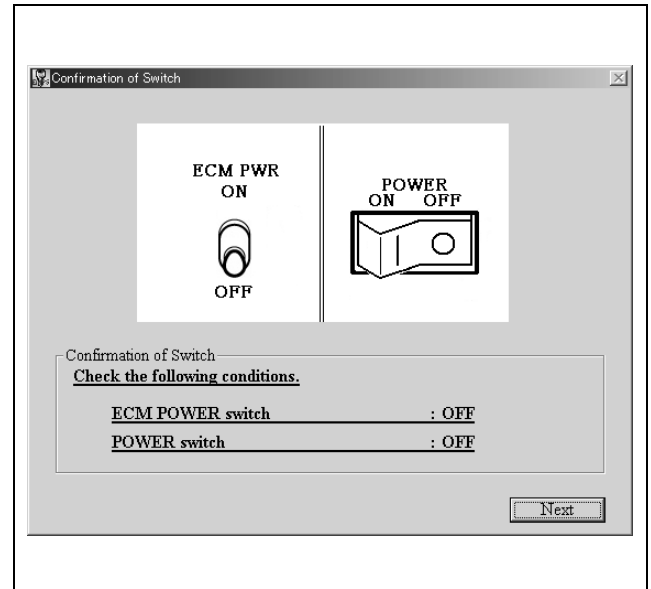
4. Select [Device Manager] to open it.
5. On [Device Manager], select [Ports (COM & LPT)].



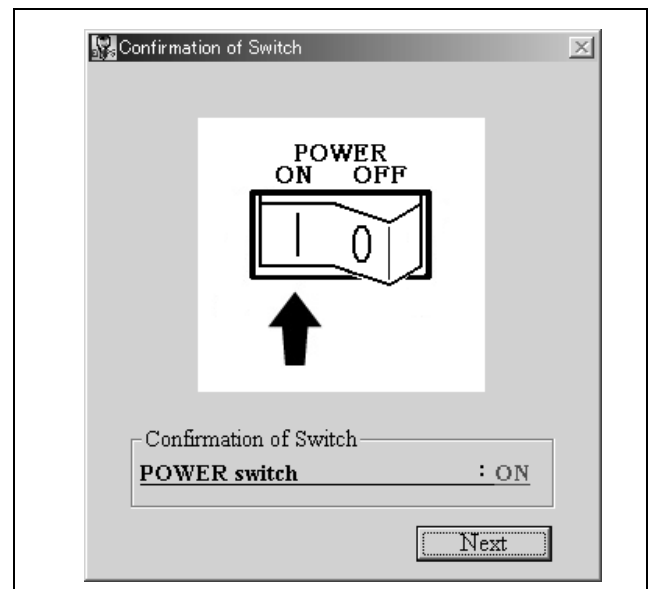
6. In the displayed items for communication ports, confirm the COM port to which the EMPS is connected.

4.4 Switch Confirmation Screen

After checking to make sure that the initial settings of the switches are as shown on the screen, click the [Next] button.



Turn on the power switch, and then click the [Next] button.



This starts selector confirmation, and displays the message shown below.



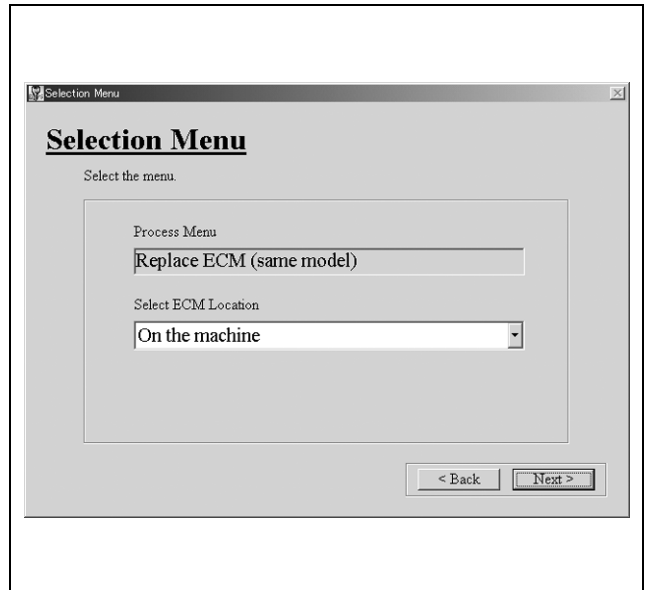
If response from the selector is normal, advance to “4.5 Selection Menu.”
 One of the following messages will appear if any abnormality is discovered. Click the [Return to User Authentication screen] button, and check the user ID. To continue the process as is, click the [Continue process] button.



If a communication error occurs, advance to the “6. Recover Point” screen.

4.5 Selection Menu

After selecting the [Select ECM Location], click the [Next] button.

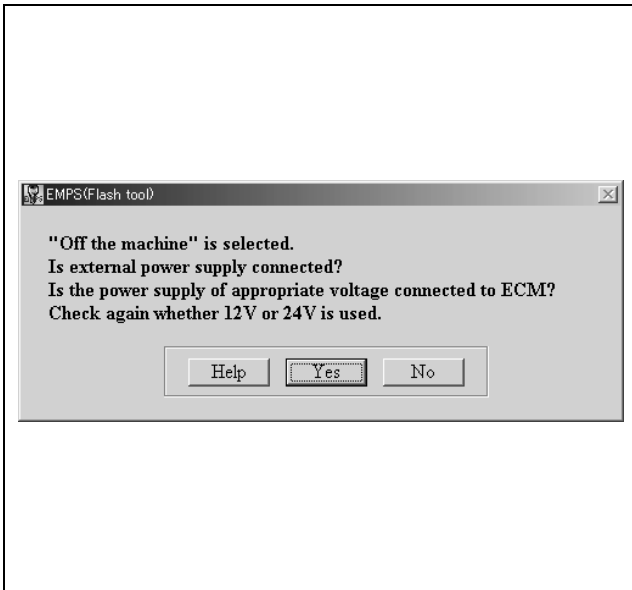


Selection Item Descriptions

Items	Settings/Operation Performed
Process Menu	The process selected in “4.1 Startup” will appear.
Select ECM Location	on the machine off the machine
Back button	Returns to “4.3 Connection Confirmation Screen.”
Next button	When [off the machine] is selected, advances to “4.5.1 External Power Confirmation Screen.” When [on the machine] is selected, advances to “4.5.2 Voltage Confirmation Screen.”

4.5.1 External Power Confirmation Screen

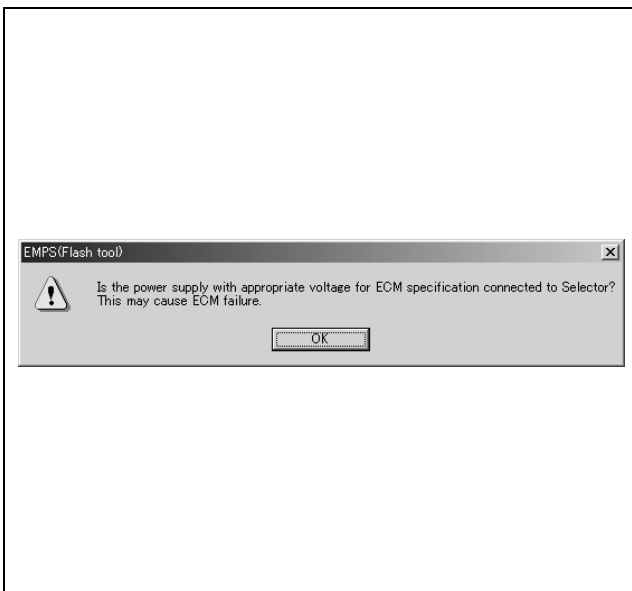
This screen prompts for confirmation of an external power supply.



Clicking the [Yes] button after checking the connection of external power supply advances to "4.6 Selection Items Confirmation Screen."

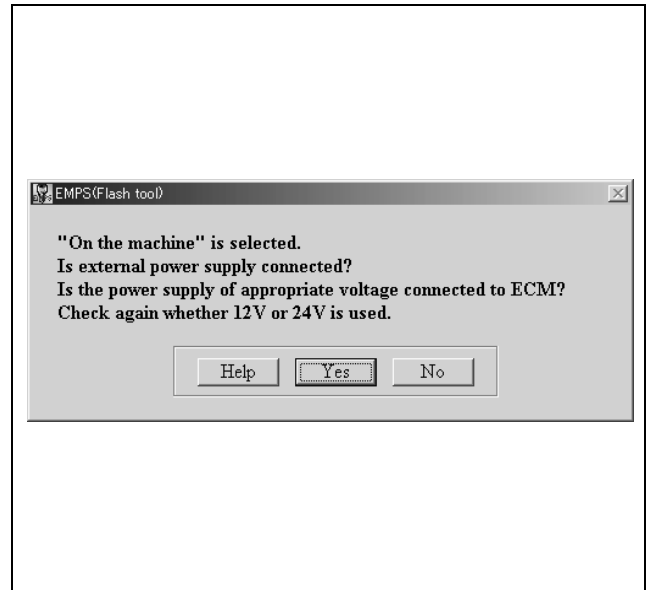
If an external power supply cannot be connected, click the [No] button to return to "4.5 Selection Menu."

Clicking the [Help] button will display the message shown below.



4.5.2 Voltage Confirmation Screen

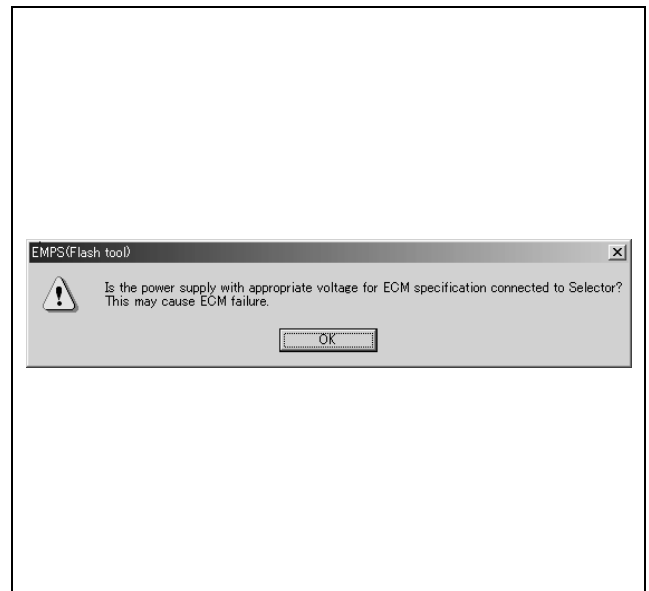
This screen prompts for confirmation of proper voltage.



Clicking the [Yes] button after checking the voltage of power supply advances to "4.6 Selection Items Confirmation Screen."

If power supply cannot be confirmed, click the [No] button to return to "4.5 Selection Menu."

Clicking the [Help] button will display the message shown below.

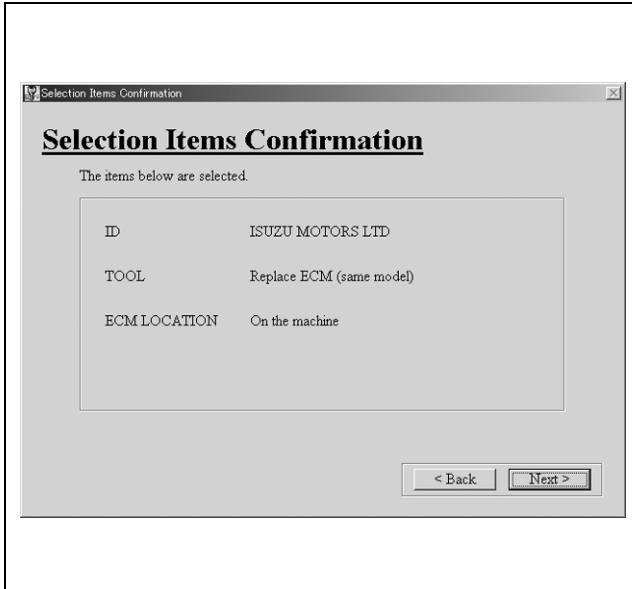


4.6 Selection Items Confirmation Screen

This screen shows the details of the settings configured up to this point.

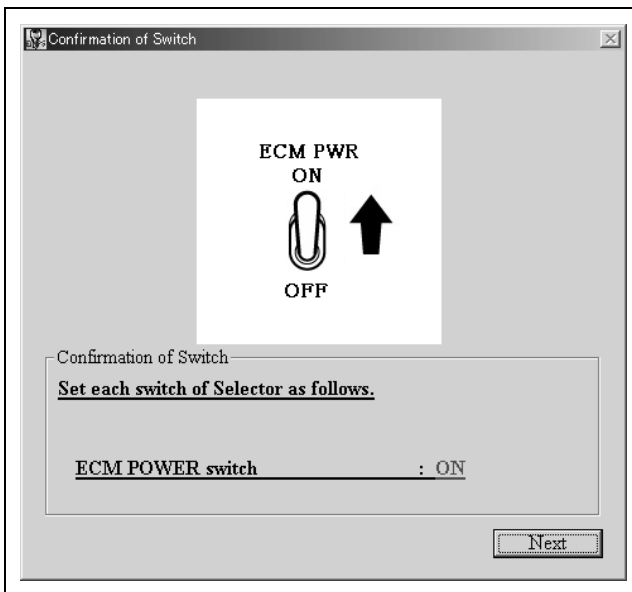
If there is no problem with the displayed settings, click the [Next] button to advance to “4.7 Switch Confirmation Screen.”

To change the settings, click the [Back] to return to “4.5 Selection Menu.”



4.7 Switch Confirmation Screen

The switch confirmation screen is shown below.

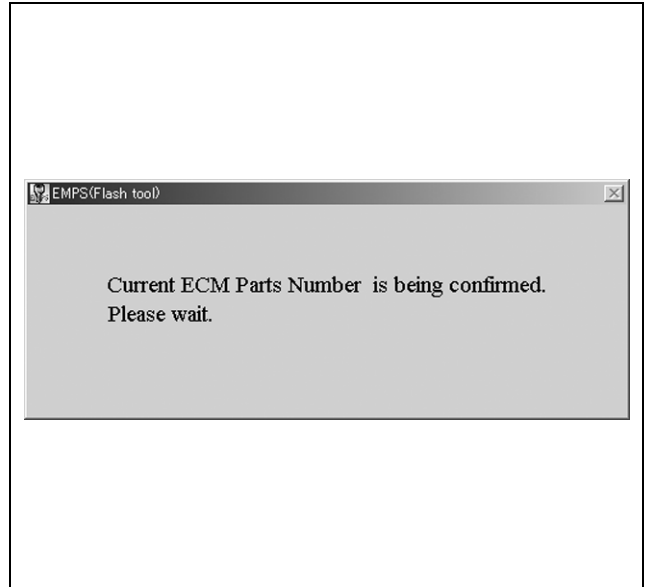


Configure the switch settings as shown below.

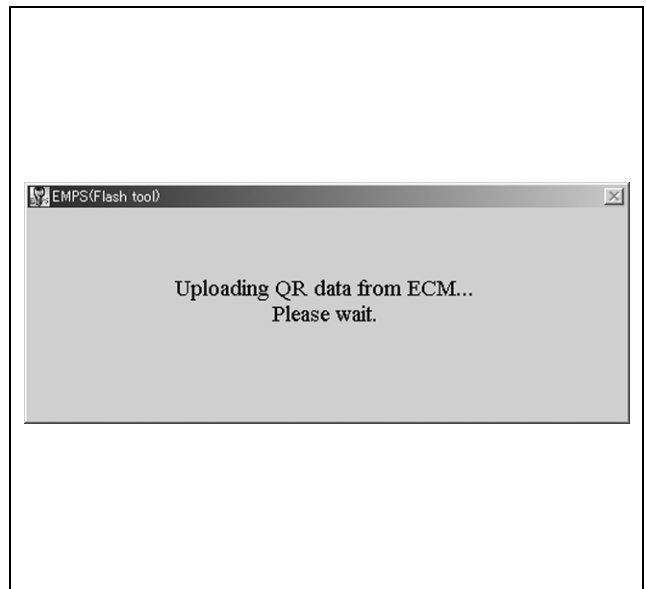
ECM POWER switch: ON

After configuring the switch settings, click the [Next] button.

This starts selector confirmation, and displays the message shown below.



If response from the selector is normal, perform uploading QR data.



If the upload is successful, advance to “4.8 Current ECM Parts Number Confirmation Screen.”

One of the messages will appear if any abnormality is discovered. Refer to “7. Error Messages.”

4.8 Current ECM Parts Number Confirmation Screen

This screen displays the current ECM parts number. Clicking the [Next] button advances to “4.9 New ECM Parts Number Search Screen.”

To cancel former ECM parts number confirmation, click the [Cancel] button.

4.9 New ECM Parts Number Search Screen

This screen is used to select the search conditions for Parts Number.

Choose the option from [ENGINE MODEL] and [ENGINE TYPE], and then click the [Select] button.

Next, choose option from the [OEM NAME], and click the [Next] button.

To return to “4.8 Current ECM Parts Number Confirmation Screen,” click the [Back] button.

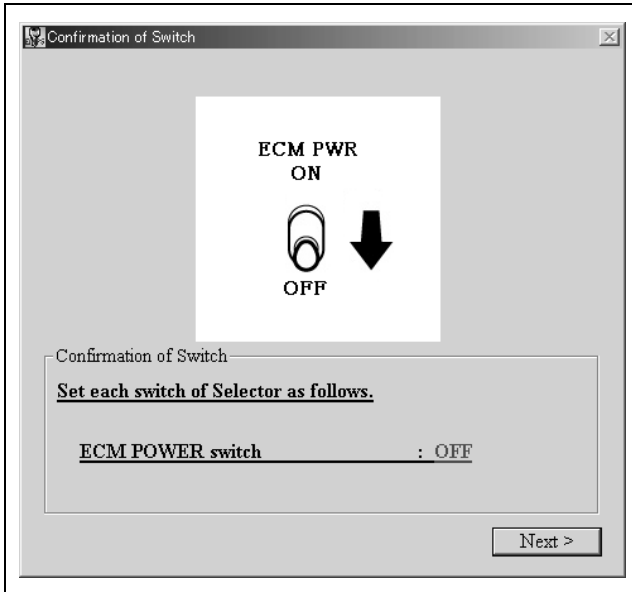
Selection Item Descriptions

Items	Settings/Operation Performed
ENGINE MODEL	Select the engine model that corresponds to the current ECM parts number. In the case of enforced update, you can select all engine models.
ENGINE TYPE	Select the engine type that corresponds to the current ECM parts number. In the case of enforced update, you can select all engine types.
Select button	Extracts the applicable OEM names for the applicable ENGINE MODEL and ENGINE TYPE, and provides them for selection in the OEM NAME box.
OEM NAME	Select the OEM NAME from among those that correspond to the selected ENGINE MODEL and ENGINE TYPE.
ENGINE NUMBER	Engine Serial Number uploaded at startup is displayed. You cannot enter in this field except the process that includes Engine S/N change.
Back button	Returns to “4.8 Current ECM Parts Number Confirmation Screen.”
Next button	Performs a check and then advances to “4.10 Switch Confirmation Screen.”

A message will appear if an error is discovered by the check that is performed when the [Next] button is clicked.

4.10 Switch Confirmation Screen

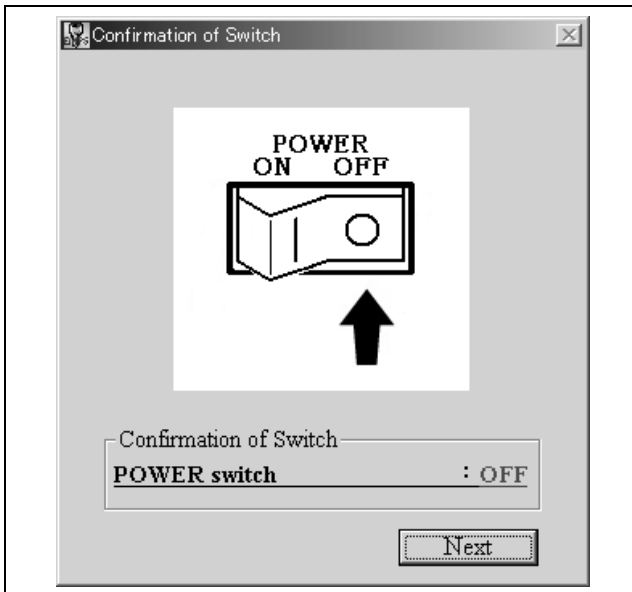
The switch confirmation screen is shown below.



Configure the switch settings as shown below.

ECM POWER switch: OFF

After configuring the switch settings, click the [Next] button.



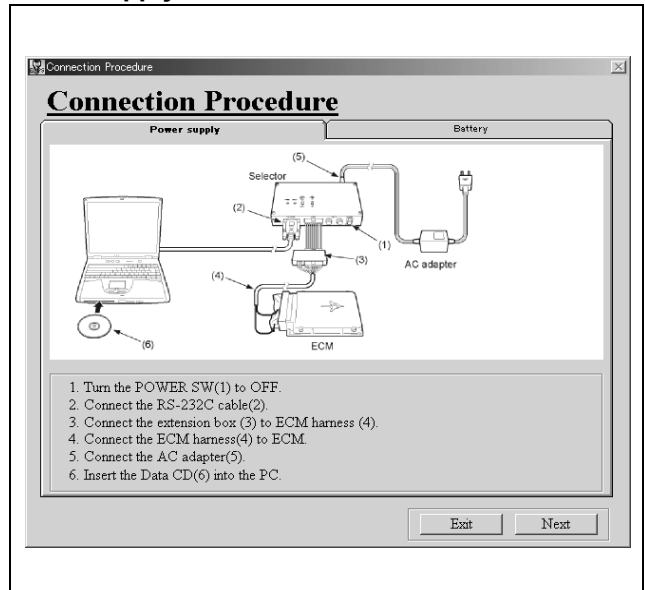
After configuring the power switch setting, clicking the [Next] button displays the message shown below.



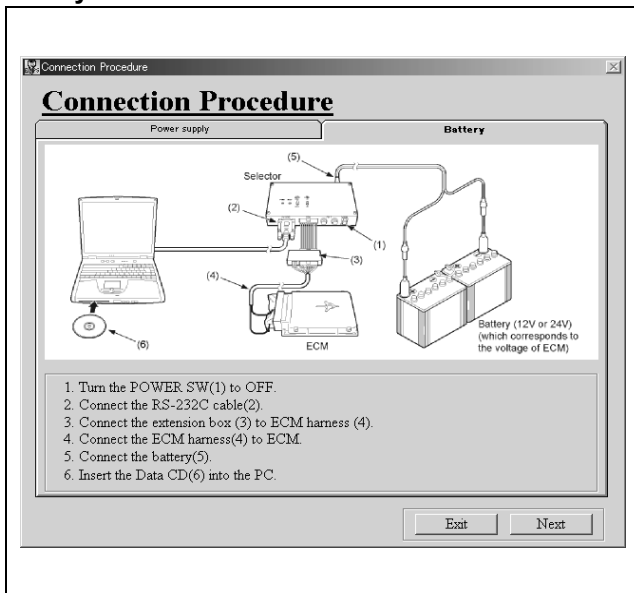
After connecting other ECM, click the [OK] button. "4.11 Connection Confirmation (After Connecting ECM) and Reflash Mode Selection" will appear.

4.11 Connection Confirmation (After Connecting ECM) and Reflash Mode Selection

Power Supply Connection

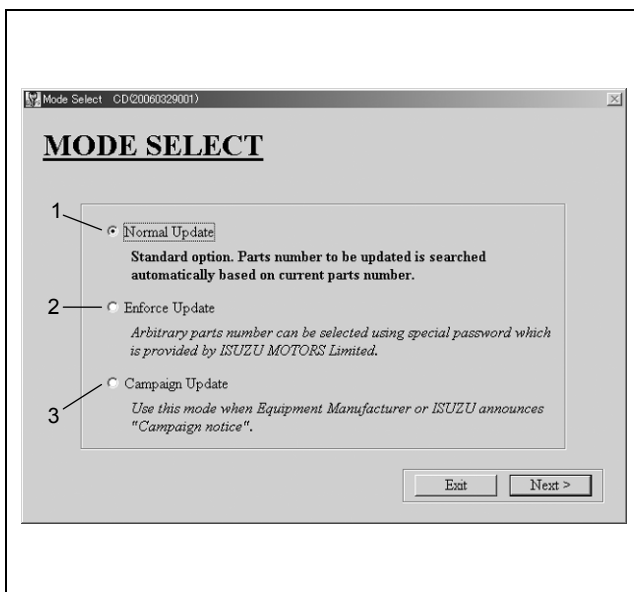


Battery Connection



Connect the PC, selector, and ECM according to the procedure.

After connection, click the [Next] button to proceed to the mode selection screen.



Name

1. Normal Update
2. Enforce Update
3. Campaign Update

[Normal Update] (normal reflash)

Compatible parts number with reflashed parts number is searched automatically and updated.

[Enforce Update] (compulsory reflash)

An arbitrary parts number is designated and updated. Select this when reflashing was failed, or when reflashing the parts number with no compatibility. Specific password is necessary.

Campaign Update (Campaign)

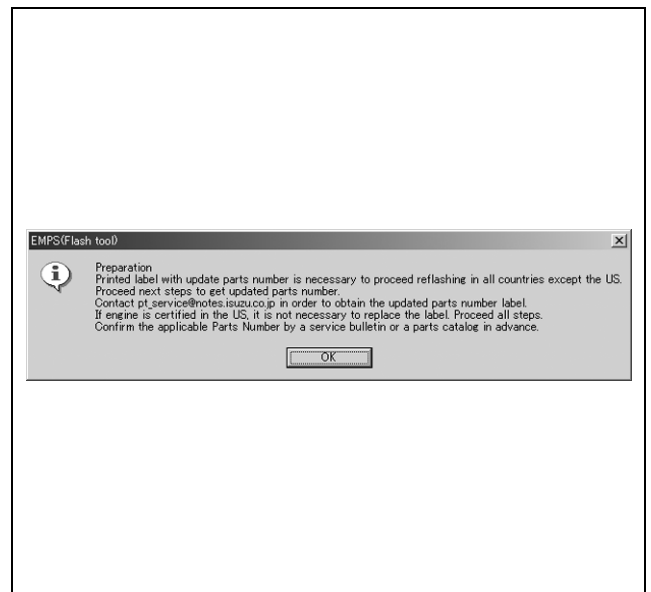
This is performed at the campaign designated by manufacturer. After reflashing, send the campaign log file created to the administrator.

Select [Normal Update], [Enforce Update] (compulsory reflash), or [Campaign Update], and then click the [Next] button.

One of the following operations is performed when the [Next] button is clicked.

Selected Option	Settings/Operation Performed
Normal Update	Advances to "4.12.1 User Authentication Screen" – "For [Normal] or [Campaign]."
Enforce Update	Advances to "4.12.1 User Authentication Screen" – "For [Compulsory Reflash]."
Campaign Update	Advances to "4.12.1 User Authentication Screen" – "For [Normal] or [Campaign]."

Clicking the [Next] button displays the message shown below.



Check the content, and click the [OK] button to advance to next.

4.12 User Authentication Screen

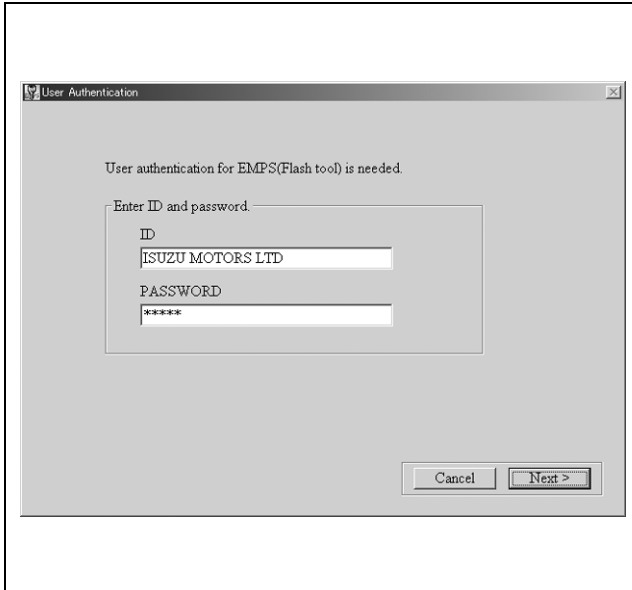
This screen is used for EMPS user authentication.

4.12.1 User Authentication Screen

For [Normal] or [Campaign]

After entering information in the [ID] and [PASSWORD] fields, click the [Next] button to advance to “4.12.2 OEM Manufacturer Selection Screen.”

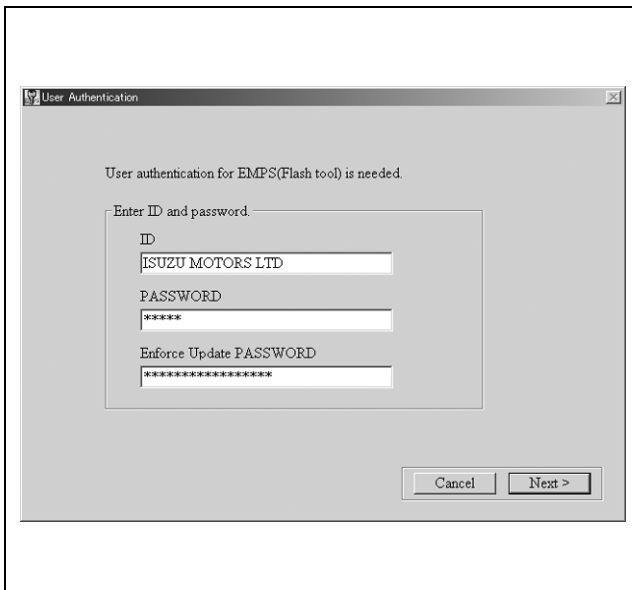
To cancel user authentication at any point, click the [Cancel] button.



For [Compulsory Reflash]

After entering information in the ID, PASSWORD, and Enforce Update PASSWORD (Password for compulsory reflash) boxes, click [Next] to advanced to “4.12.2 OEM Manufacturer Selection Screen.”

To cancel user authentication at any point, click the [Cancel] button.



4.12.2 OEM Manufacturer Selection Screen

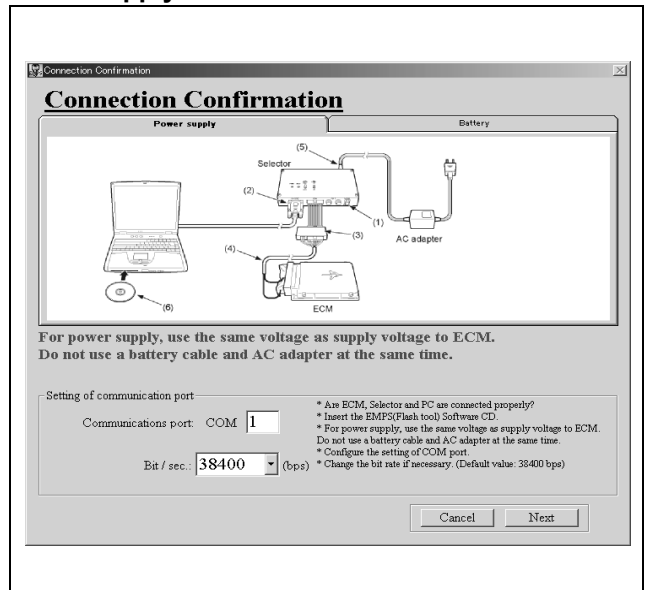
After selecting the OEM manufacturer, click the [OK] to advance to “4.13 Connection Confirmation Screen.”



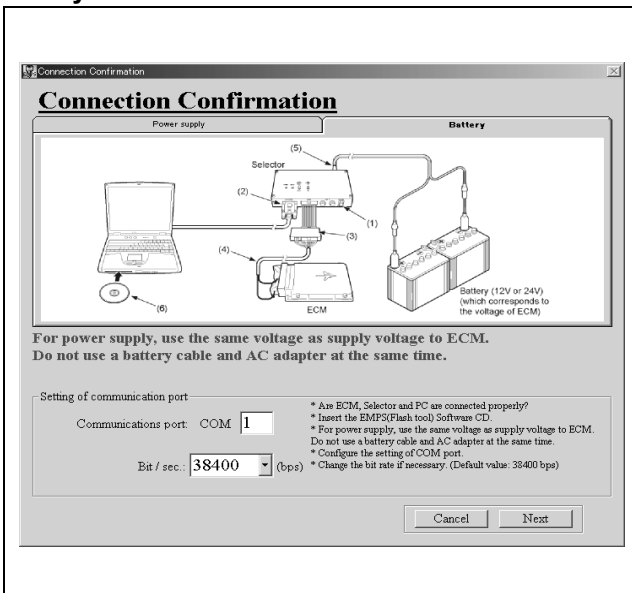
4.13 Connection Confirmation Screen

This screen shows the connection status of the computer, selector, ECM, and power supply/battery.

Power Supply Connection



Battery Connection



After selecting the COM port (Communication port) and transmission bit rate (Bit/sec), click the [Next] button to advance to “4.14 Switch Confirmation Screen.”

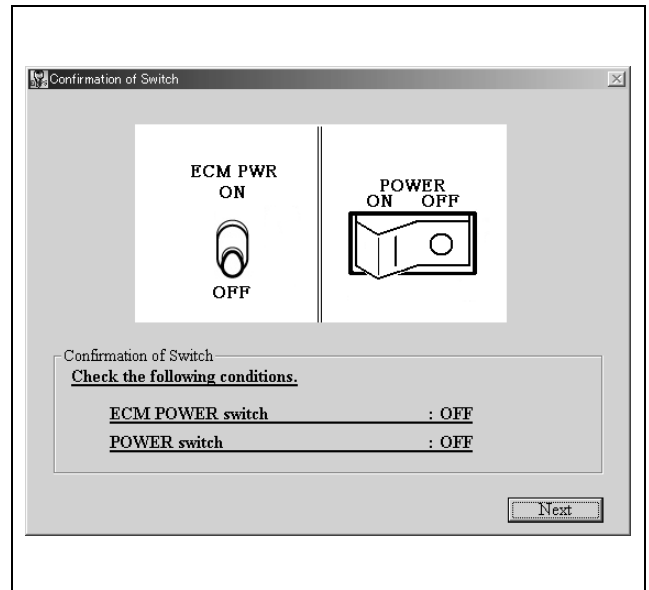
Selection Item Descriptions

Items	Description
COM port	Select the RS232C port to which the selector is connected.
Transmission bit rate	Select the data transmission bit rate.
Cancel button	Displays a confirmation message for exiting the tool.
Next button	Performs a check and then displays “4.14 Switch Confirmation Screen.”

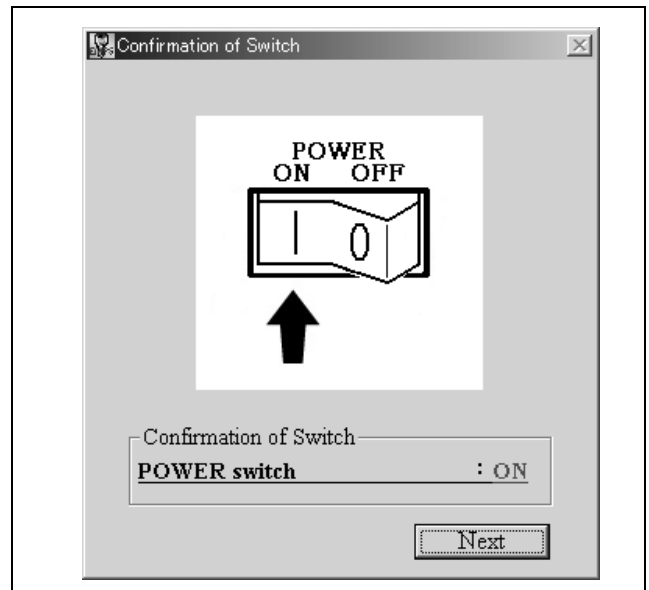
One of the error messages will appear if an error is discovered by the check that is performed when the [Next] button is clicked. Refer to “7. Error Messages.”

4.14 Switch Confirmation Screen

After checking to make sure that the initial settings of the switches are as shown on the screen, click the [Next] button.



Turn on the power switch, and then click the [Next] button.

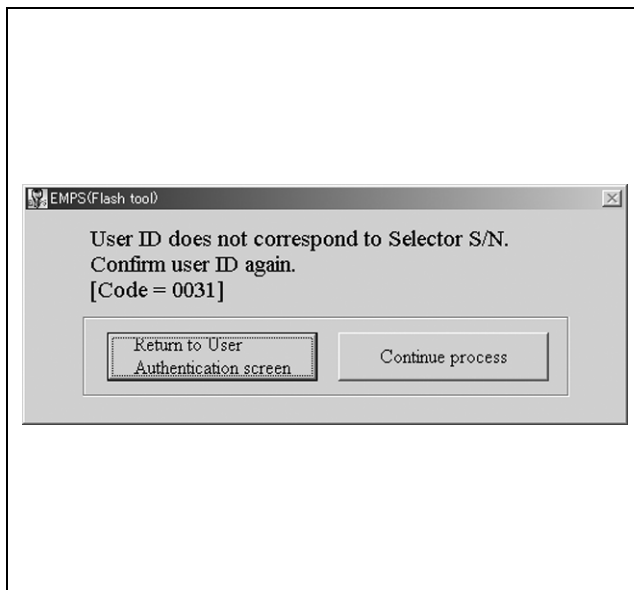


This starts selector confirmation, and displays the message shown below.



If response from the selector is normal, advance to "4.15 Selection Menu."

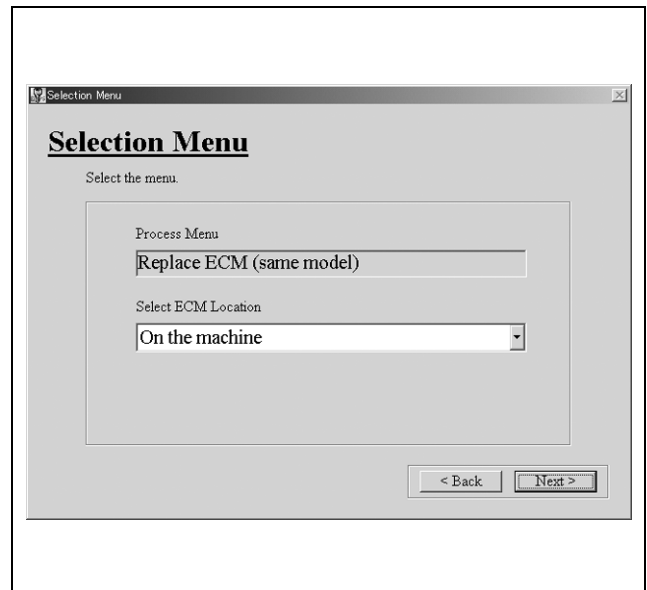
One of the following messages will appear if any abnormality is discovered. Click the [Return to User Authentication screen] button, and check the user ID. To continue the process as is, click the [Continue process] button.



If a communication error occurs, advance to the "6. Recover Point" screen.

4.15 Selection Menu

After selecting the [Select ECM Location], click the [Next] button.

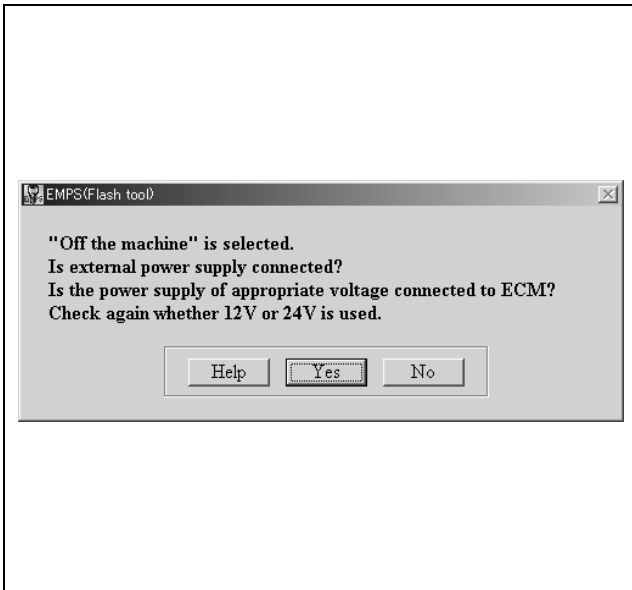


Selection Item Descriptions

Items	Settings/Operation Performed
Process Menu	The process selected in "4.1 Startup" will appear.
Select ECM Location	on the machine off the machine
Back button	Returns to "4.13 Connection Confirmation Screen."
Next button	When [off the machine] is selected, advances to "4.15.1 External Power Confirmation Screen." When [on the machine] is selected, advances to "4.15.2 Voltage Confirmation Screen."

4.15.1 External Power Confirmation Screen

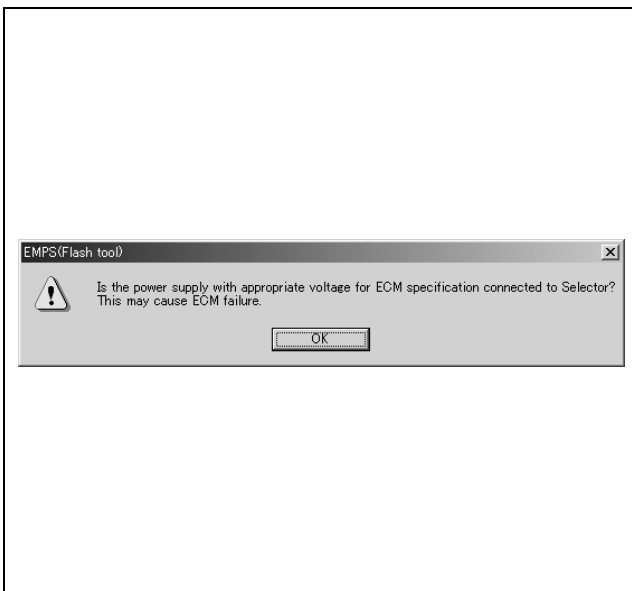
This screen prompts for confirmation of an external power supply.



Clicking the [Yes] button after checking the connection of external power supply advances to “4.16 Selection Items Confirmation Screen.”

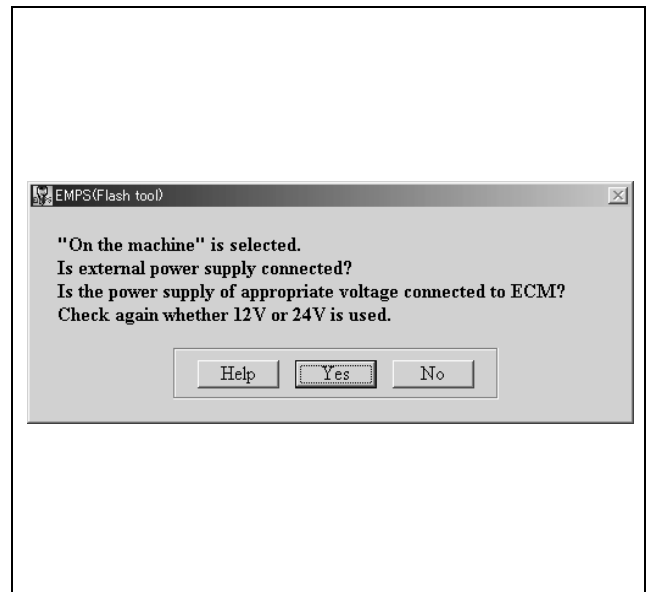
If an external power supply cannot be connected, click the [No] button to return to “4.15 Selection Menu.”

Clicking the [Help] button will display the message shown below.



4.15.2 Voltage Confirmation Screen

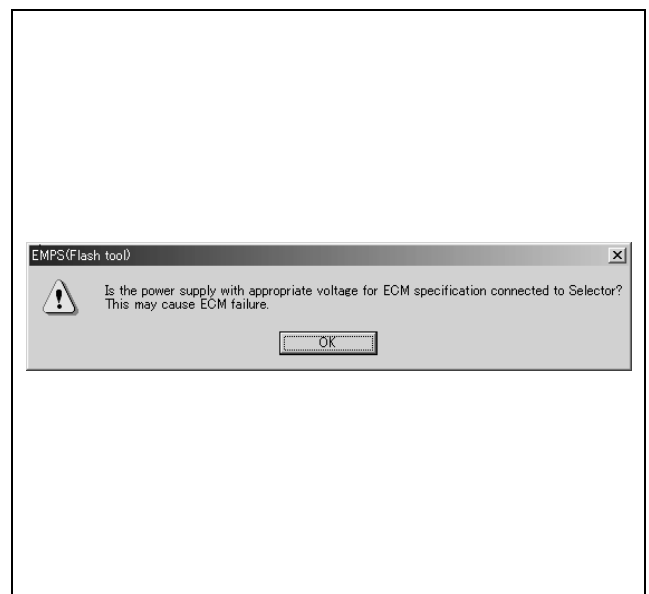
This screen prompts for confirmation of proper voltage.



Clicking the [Yes] button after checking the voltage of power supply advances to “4.16 Selection Items Confirmation Screen.”

If power supply cannot be confirmed, click the [No] button to return to “4.15 Selection Menu.”

Clicking the [Help] button will display the message shown below.

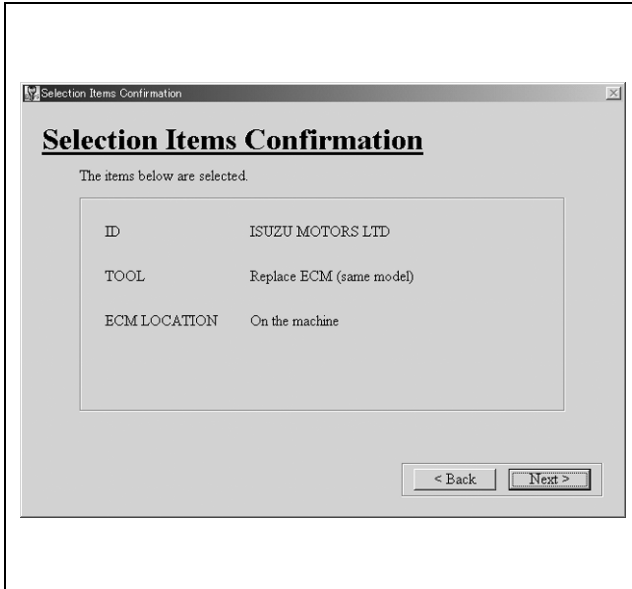


4.16 Selection Items Confirmation Screen

This screen shows the details of the settings configured up to this point.

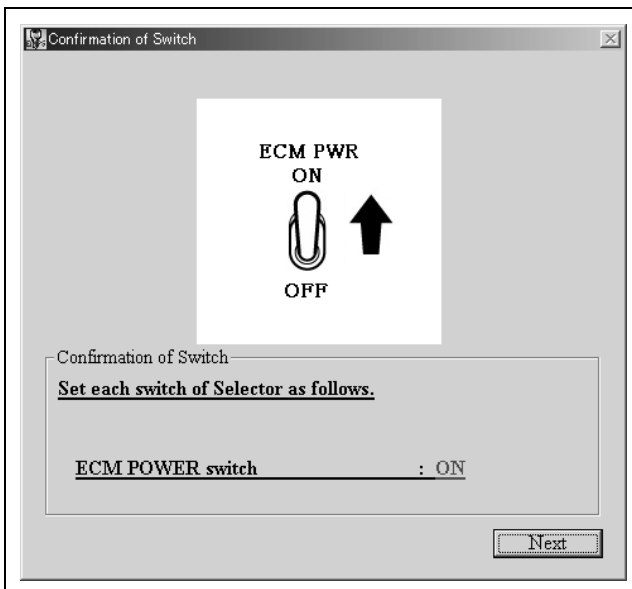
If there is no problem with the displayed settings, click the [Next] button to advance to “4.17 Switch Confirmation Screen.”

To change the settings, click the [Back] to return to “4.15 Selection Menu.”



4.17 Switch Confirmation Screen

The switch confirmation screen is shown below.

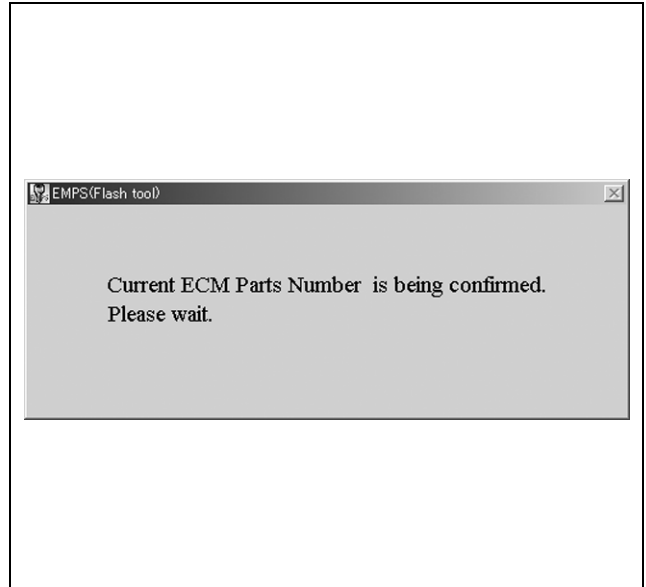


Configure the switch settings as shown below.

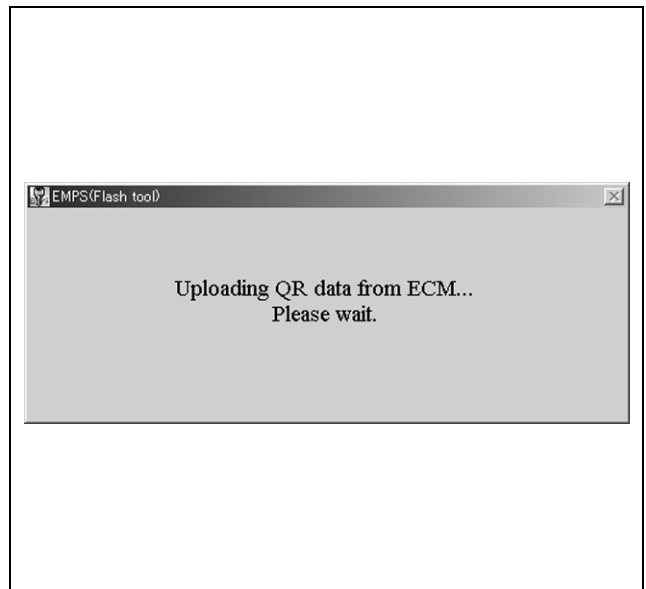
ECM POWER switch: ON

After configuring the switch settings, click the [Next] button.

This starts uploading Parts Number and displays the message shown below.



Then, injector QR code is uploaded. (The following screen will be displayed briefly.)



If response from the selector is normal, advance to “4.18 Current ECM Parts Number Confirmation Screen.”

One of the messages will appear if any abnormality is discovered. Refer to “7. Error Messages.”

4.18 Current ECM Parts Number Confirmation Screen

This screen displays the current ECM parts number. Clicking the [Next] button advances to “4.19 New ECM Parts Number Search Screen.”

To cancel former ECM parts number confirmation, click the [Cancel] button.

4.19 New ECM Parts Number Search Screen

This screen is used to select the search conditions for Parts Number.

Choose the option from [ENGINE MODEL] and [ENGINE TYPE], and then click the [Select] button.

Next, choose option from the [OEM NAME], and click the [Next] button.

To return to “4.18 Current ECM Parts Number Confirmation Screen,” click the [Back] button.

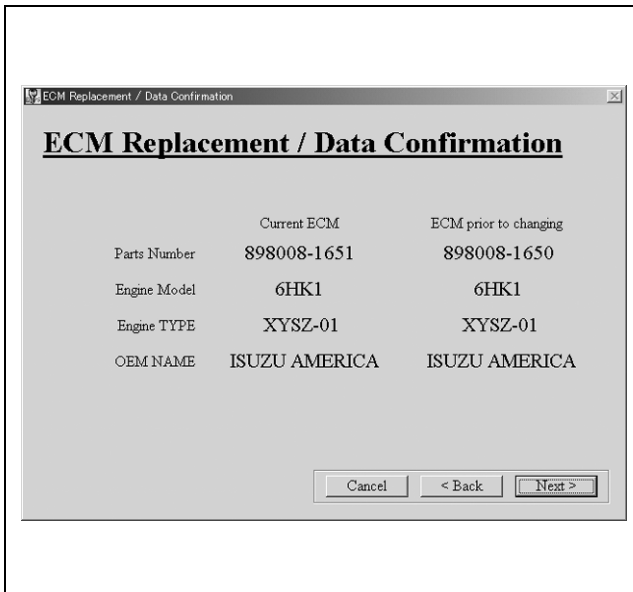
Selection Item Descriptions

Items	Settings/Operation Performed
ENGINE MODEL	Select the engine model that corresponds to the current ECM parts number. In the case of enforced update, you can select all engine models.
ENGINE TYPE	Select the engine type that corresponds to the current ECM parts number. In the case of enforced update, you can select all engine types.
Select button	Extracts the applicable OEM names for the applicable ENGINE MODEL and ENGINE TYPE, and provides them for selection in the OEM NAME box.
OEM NAME	Select the OEM NAME from among those that correspond to the selected ENGINE MODEL and ENGINE TYPE.
ENGINE NUMBER	Engine Serial Number uploaded at startup is displayed. You cannot enter in this field except the process that includes Engine S/N change.
Back button	Returns to “4.18 Current ECM Parts Number Confirmation Screen.”
Next button	Performs a check and then advances to “4.20 ECM Replacement / Data Confirmation.”

A message will appear if an error is discovered by the check that is performed when the [Next] button is clicked.

4.20 ECM Replacement / Data Confirmation

Data obtained from ECM prior to changing connection and from ECM currently connected are compared. If data other than Parts Number is different, click the [Back] button to return to “4.19 New ECM Parts Number Search Screen” and change the selection, or click the [Cancel] button to quit the EMPS program and start from the beginning again. If the displayed contents are OK, click the [Next] button.

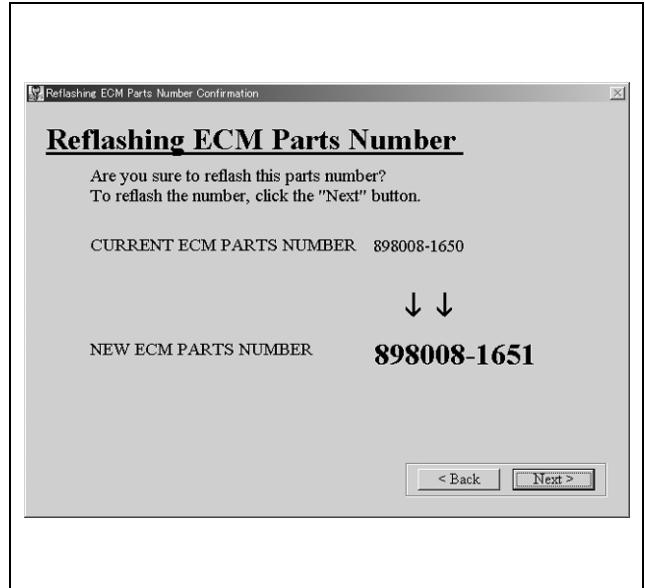


Selection Item Descriptions

Items	Settings/Operation Performed
Cancel	Performs termination, and quits EMPS program.
Back	Returns to “4.19 New ECM Parts Number Search Screen.”
Next	Advances to “4.22 Reflashing Execution Confirmation Screen.”

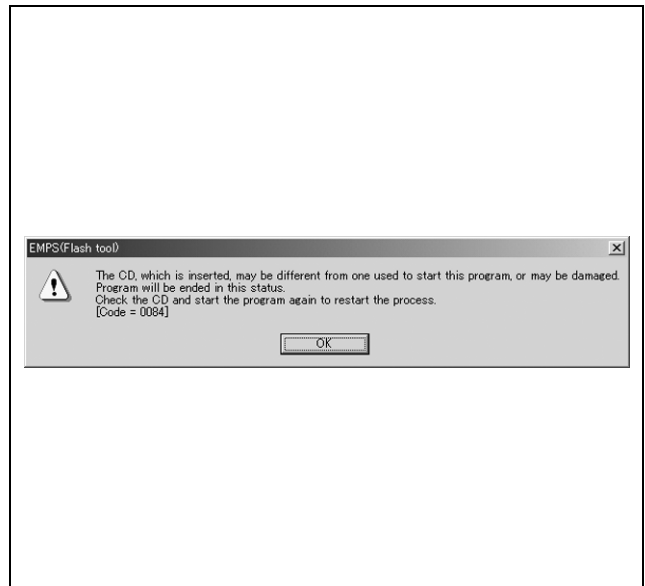
4.21 Reflashing ECM Parts Number Confirmation Screen

This screen displays the reflashing ECM parts number. After checking the contents, click the [Next] button to perform a CD check and advance to “2.12 Reflashing Execution Confirmation Screen.” To return to “4.19 New ECM Parts Number Search Screen,” click the [Back] button.



The following message will appear during the CD check if a CD is not inserted or if the version does not match.

Click the [OK] button to exit the program.



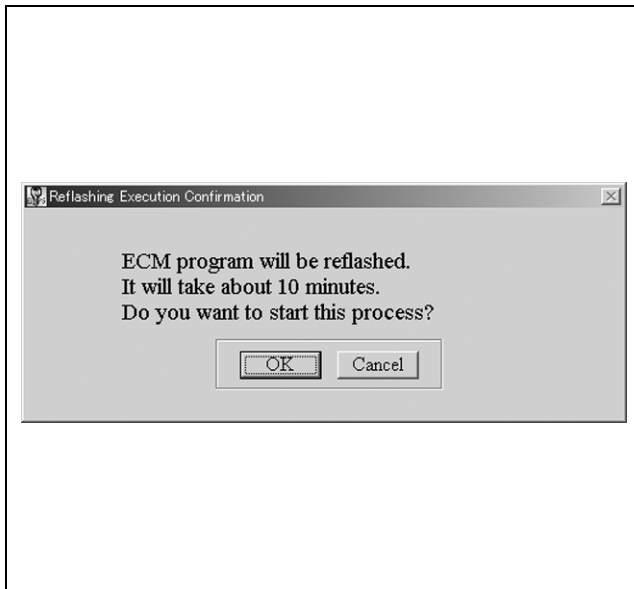
If program file name acquisition fails, advance to “6. Recover Point.”

4.22 Reflashing Execution Confirmation Screen

This screen displays a confirmation message for reflashing.

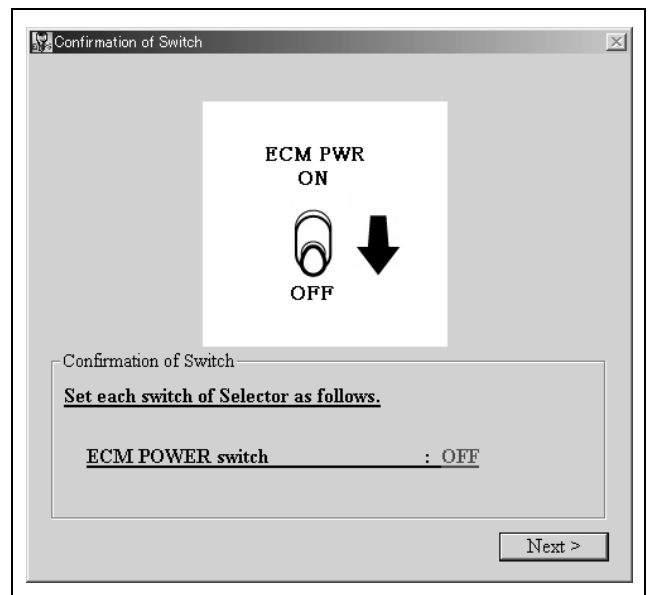
Click the [OK] button to continue.

If you need to make changes, click the [Cancel] button to return to "4.18 Current ECM Parts Number Confirmation Screen."



4.23 Switch Confirmation Screen

The switch confirmation screen is shown below.



Configure the switch settings as shown below.

ECM POWER switch: OFF

After configuring the switch settings, click the [Next] button. This will advance to "4.24 READY LED Confirmation Screen."

4.24 READY LED Confirmation Screen

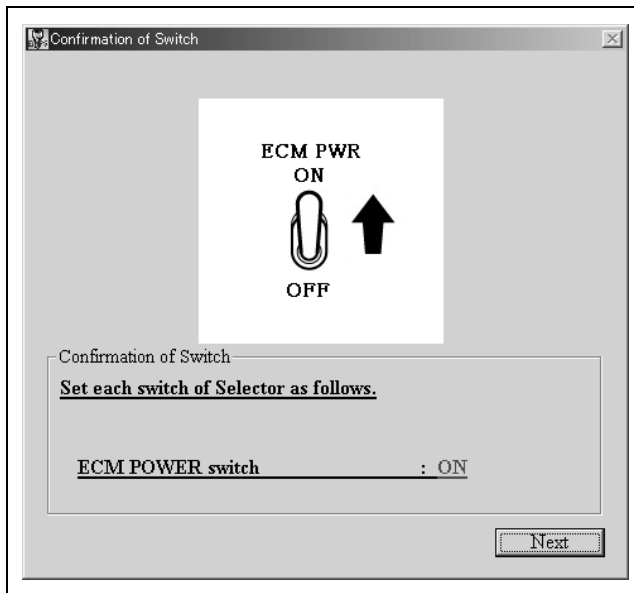
The selector LED confirmation screen is shown below. After confirming that the LED is lit, click the [Yes] button to advance to "4.25 Switch Confirmation Screen."

If confirmation is not possible, click the [No] button to return to "4.20 ECM Replacement / Data Confirmation."



4.25 Switch Confirmation Screen

The switch confirmation screen is shown below.



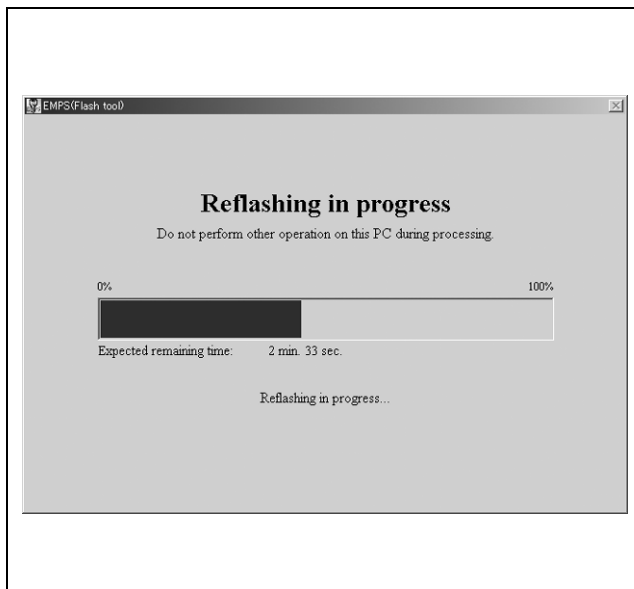
Configure the switch settings as shown below.

ECM POWER switch: ON

After configuring the switch settings, click the [Next] button.

This starts reflashing and displays the message shown below.

After reflashing is complete, advance to “4.26 Reflashing Result Confirmation Screen.”



Note:

One of the messages shown below will appear if an error occurs during reflashing. (Refer to “8. Error Code List.”)

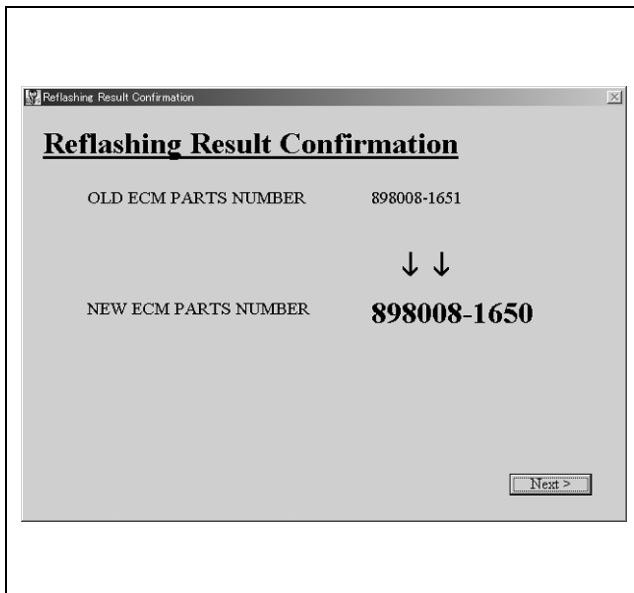


Click the [Yes] button to return to “4.26 Reflashing Result Confirmation Screen.”

Click the [No] button to advance to “6. Recover Point.”

4.26 Reflashing Result Confirmation Screen

This screen displays the parts number reflash result.



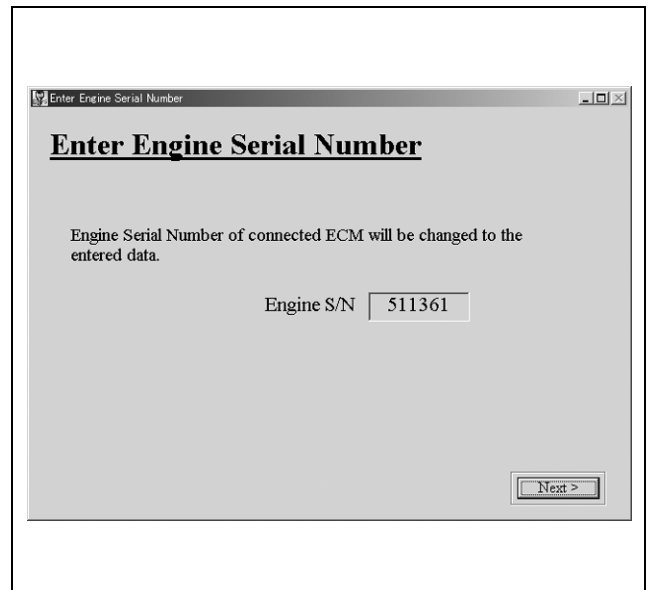
Clicking the [Next] button displays the message shown below.



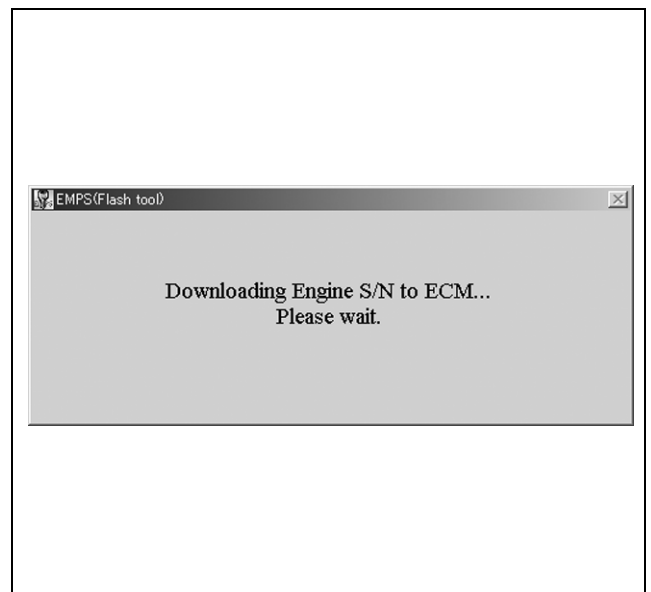
Check the content and click the [OK] button. This advances to “4.27 Engine Serial Number Confirm” screen.

4.27 Engine Serial Number Confirm

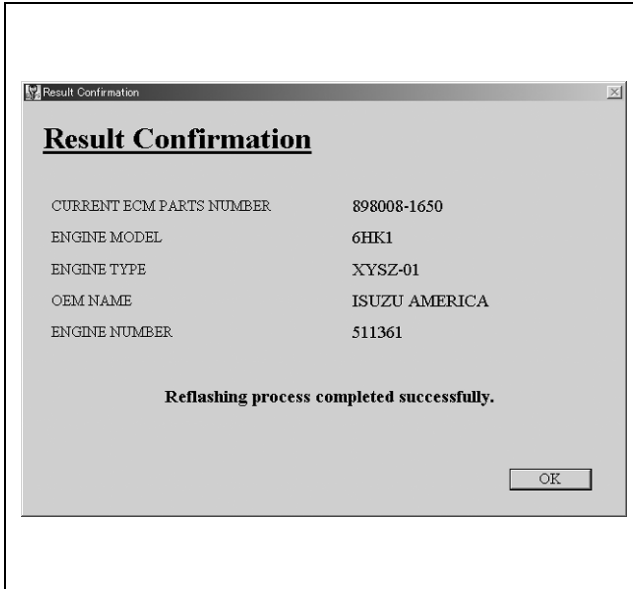
Engine Serial Number of ECM prior to changing connection will be displayed.



After confirming the displayed content, click the [Next] button to start downloading Engine Serial Number, and the following display appears.



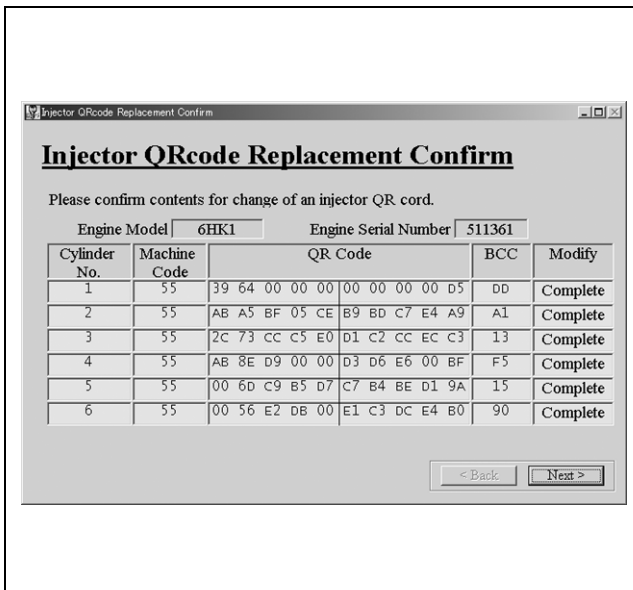
After download, the “Result Confirmation Screen” appears.



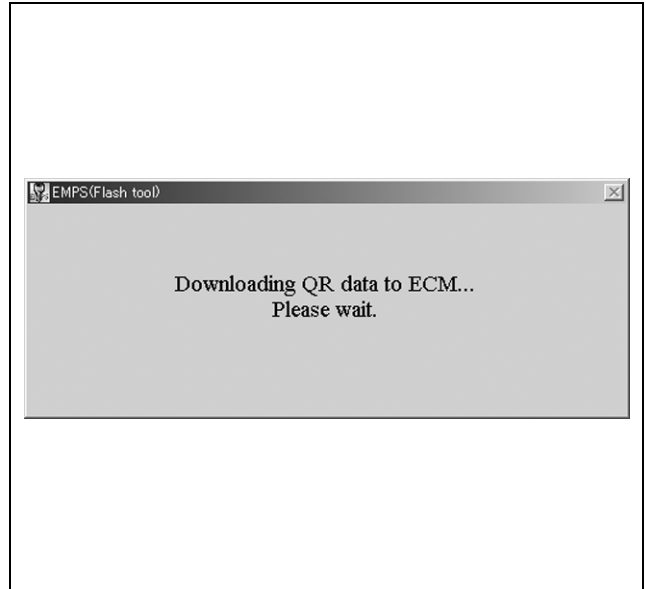
Confirm the displayed content and click the [OK] button to advance to “4.28 Injector QR Code Change Confirmation Screen” screen.

4.28 Injector QR Code Change Confirmation Screen

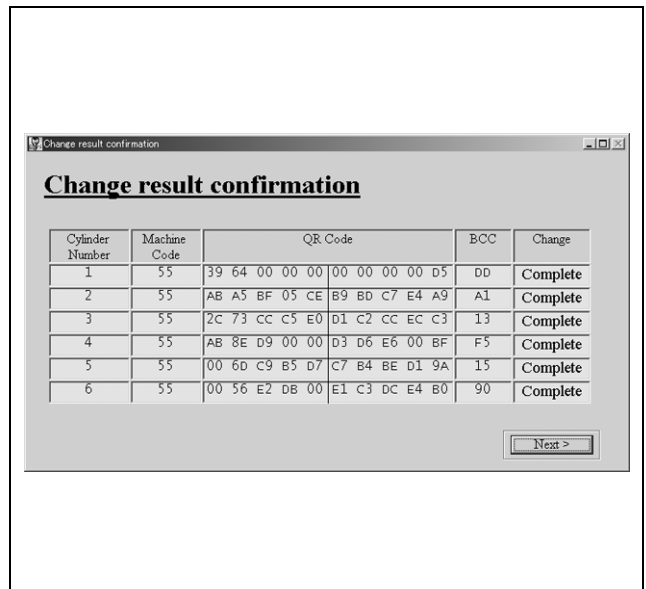
QR code uploaded from ECM prior to changing connection will be displayed.



Clicking the [Next] button starts to download the injector QR code.



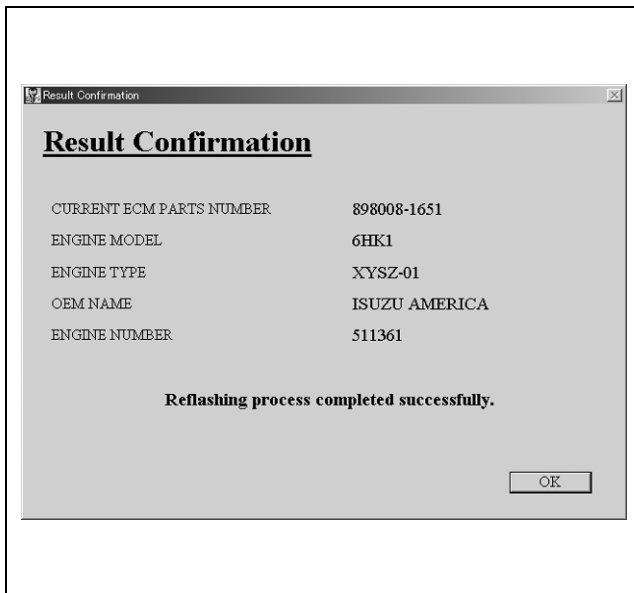
After download, the confirmation screen appears.



Click the [Next] button to advance to “4.29 Result Confirmation Screen.”

4.29 Result Confirmation Screen

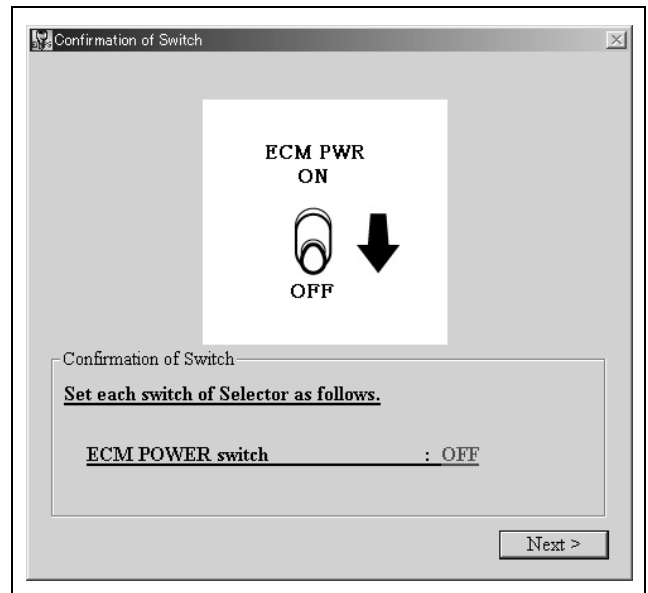
This screen displays the result of reflashing.



Clicking the [OK] button advances to “4.30 Switch Confirmation Screen.”

4.30 Switch Confirmation Screen

The switch confirmation screen is shown below.



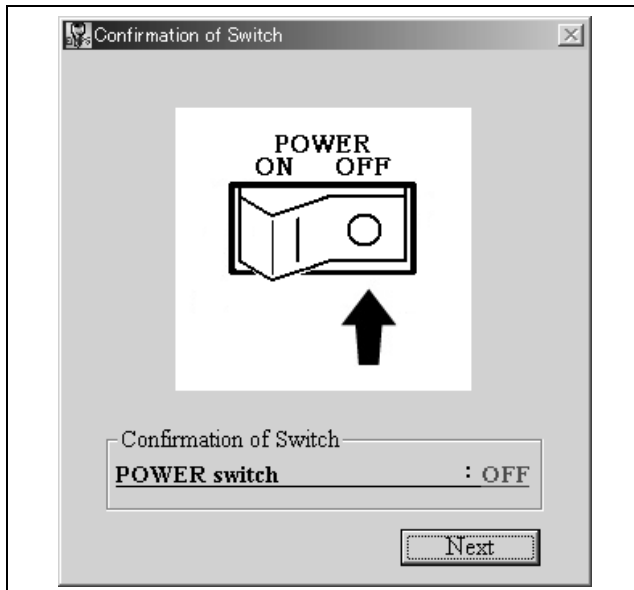
Configure the switch settings as shown below.

ECM POWER switch: OFF

After configuring the switch settings, click the [Next] button.

This will start data confirmation, display the message shown below.



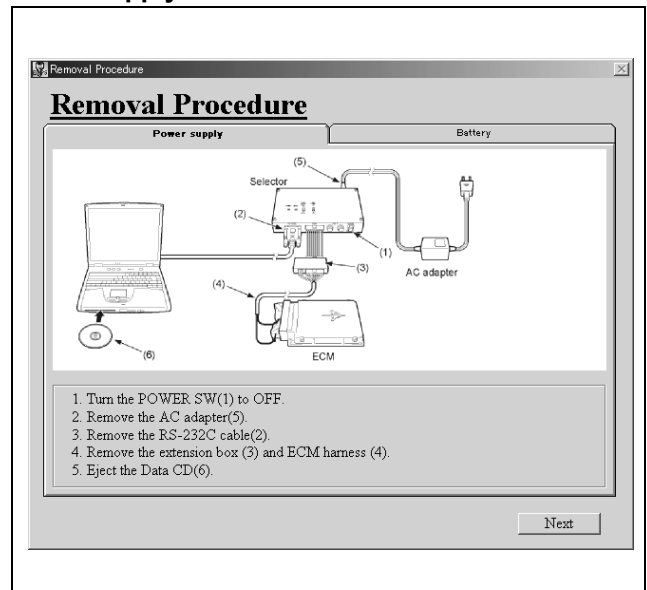


After configuring the power switch setting, click the [Next] button to advance to “4.31 Cable Removal Confirmation Screen.”

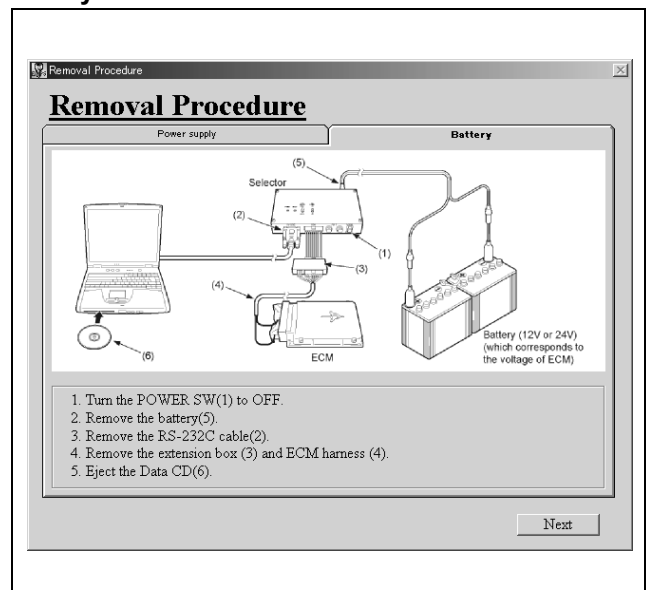
4.31 Cable Removal Confirmation Screen

Disconnect the cable which connects the selector to ECM, and then click the [Next] button.

Power Supply Connection

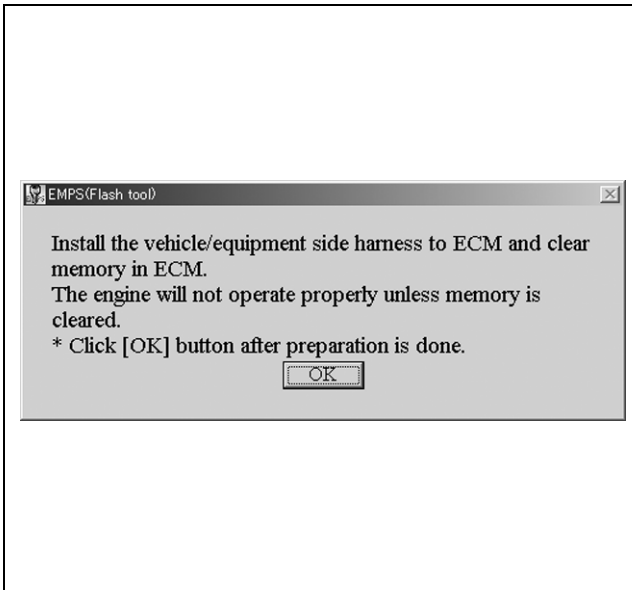


Battery Connection

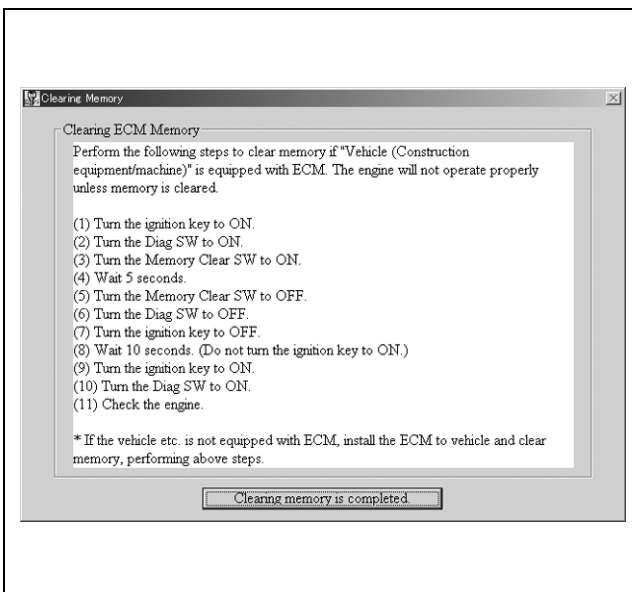


4.32 Memory Clear

Perform memory clear in accordance with the instructions that are displayed.



Clicking the [OK] button displays the following procedure.



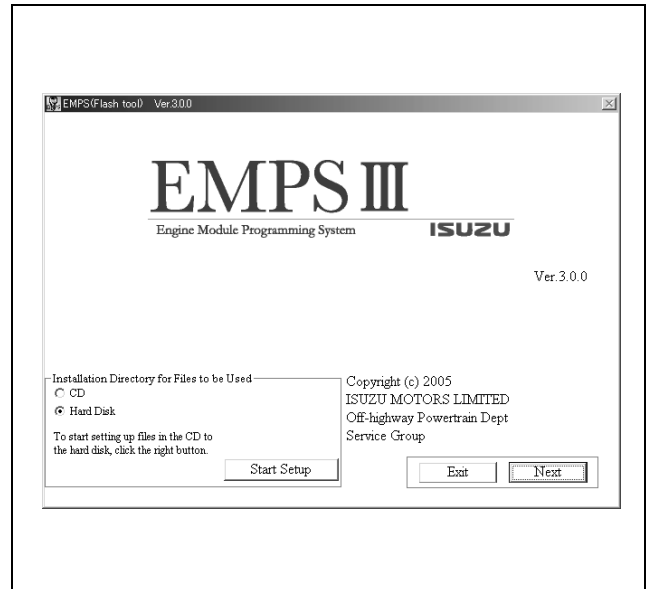
After memory clear is complete, click the [Clearing memory is completed.] button to exit the program.

5. Factory Setting

This section describes the procedure to set the injector QR code of connected ECM back to the factory setting data.

5.1 Startup

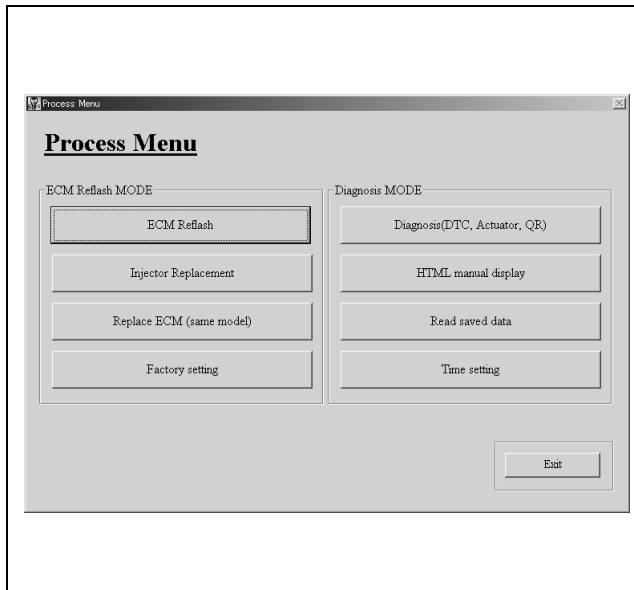
Double-click the "EMPS" icon on your Windows desktop to display the initial startup screen.



Clicking the [Next] button displays the message shown below.

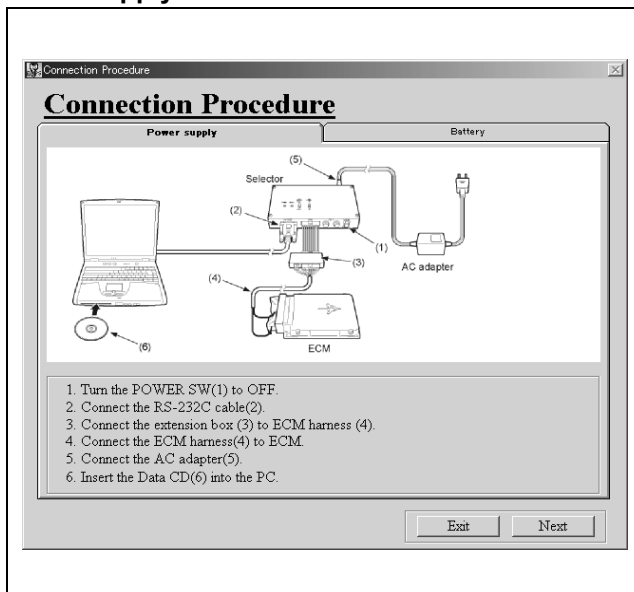


Clicking the [OK] button displays the "Process Menu" screen shown below.

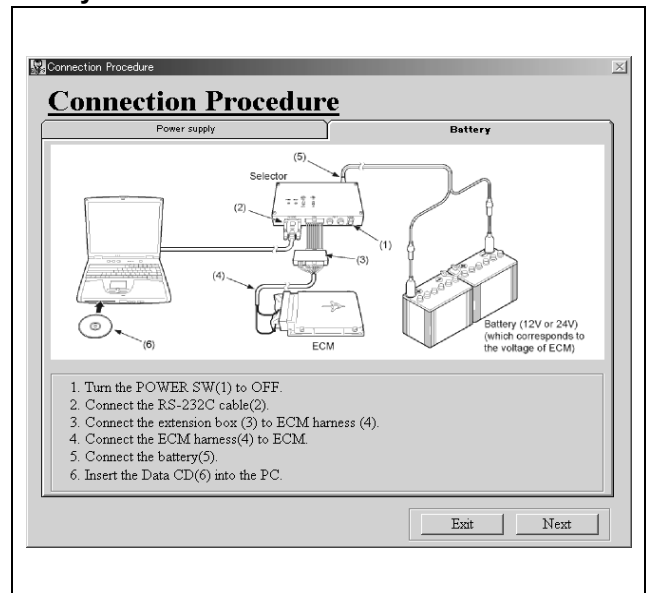


Click the [Factory setting] button to advance to the next Connection Procedure screen.

Power Supply Connection



Battery Connection



Connect the PC, selector, and ECM according to the procedure.

After connection, clicking the [Next] button advances to "5.2 User Authentication Screen."

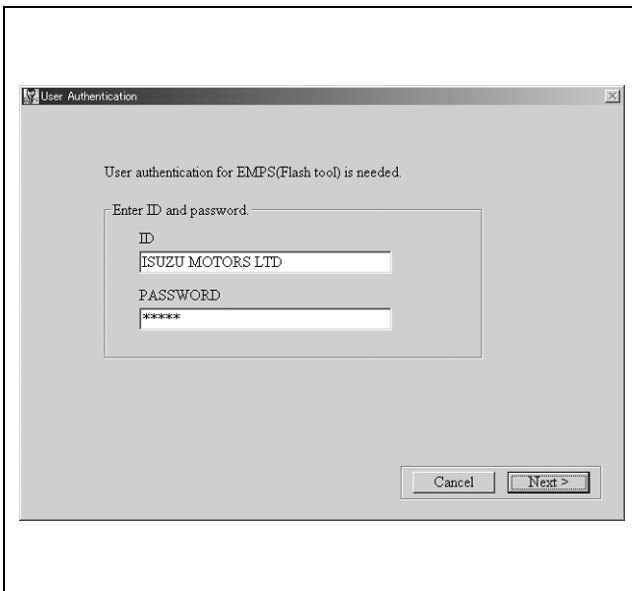
5.2 User Authentication Screen

This screen is used for EMPS user authentication.

5.2.1 User Authentication Screen

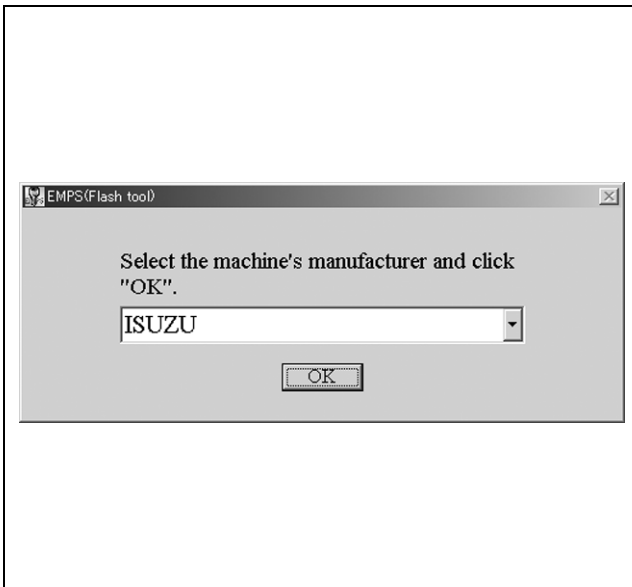
After entering information in the [ID] and [PASSWORD] fields, click the [Next] button to advance to "5.2.2 OEM Manufacturer Selection Screen."

To cancel user authentication at any point, click the [Cancel] button.



5.2.2 OEM Manufacturer Selection Screen

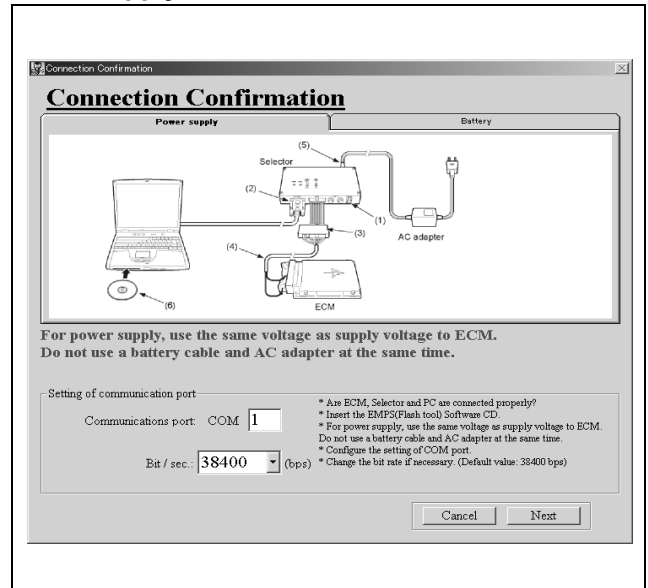
After selecting the OEM manufacturer, click the [OK] to advance to "5.3 Connection Confirmation Screen."



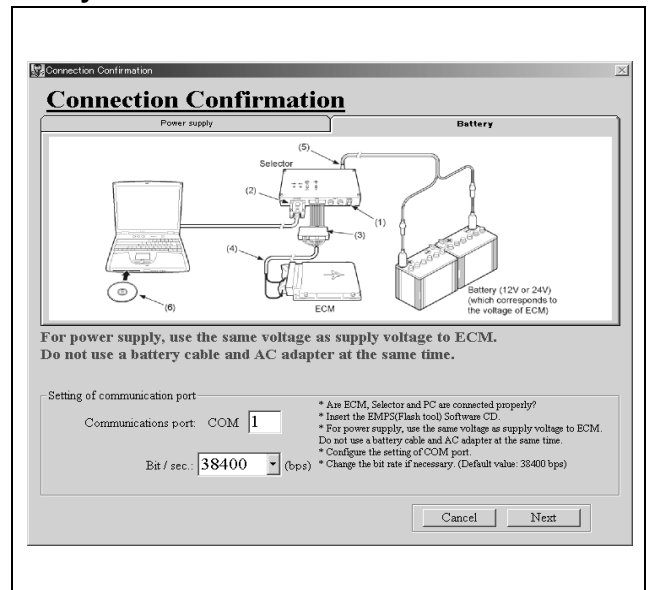
5.3 Connection Confirmation Screen

This screen shows the connection status of the computer, selector, ECM, and power supply/battery.

Power Supply Connection



Battery Connection



After selecting the COM port (Communication port) and transmission bit rate (Bit/sec), click [Next] to advance to "5.4 Switch Confirmation Screen."

Selection Item Descriptions

Items	Description
COM port	Select the RS232C port to which the selector is connected.
Transmission bit rate	Select the data transmission bit rate.
Cancel button	Displays a confirmation message for exiting the tool.
Next button	Performs a check and then displays "5.4 Switch Confirmation Screen."

One of the error messages will appear if an error is discovered by the check that is performed when the [Next] button is clicked. Refer to “7. Error Messages.”

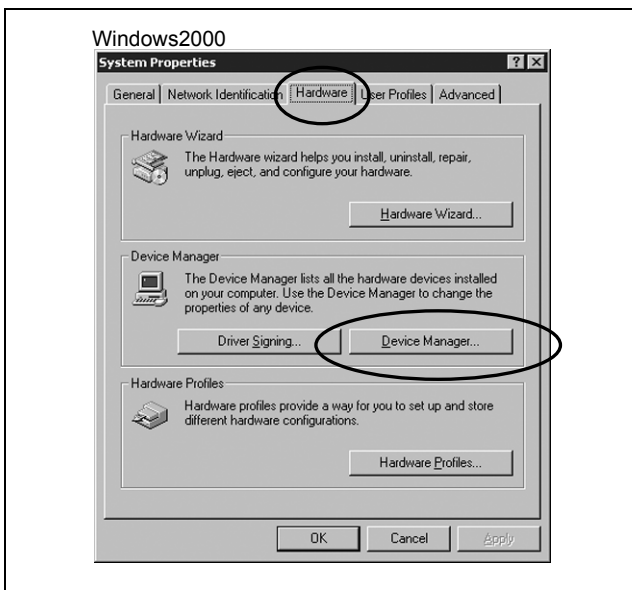
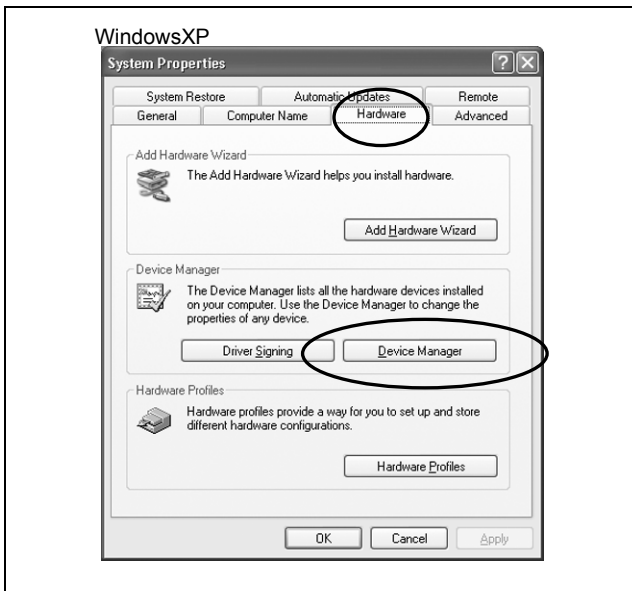
5.3.1 PC Setting

Normally select COM1 if RS232-C is used for connection.

In the case of a PC that is not equipped with an RS232-C port, connect using a commercially available USB conversion cable. For details about port settings, refer to the user documentation that comes with the USB conversion cable.

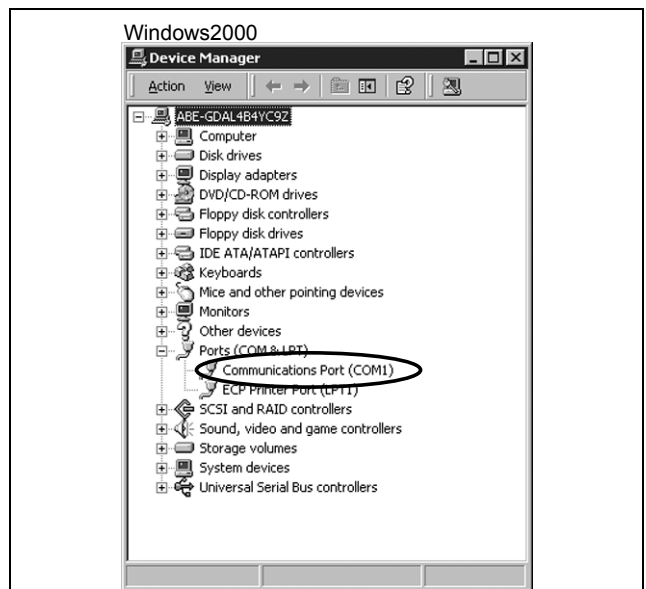
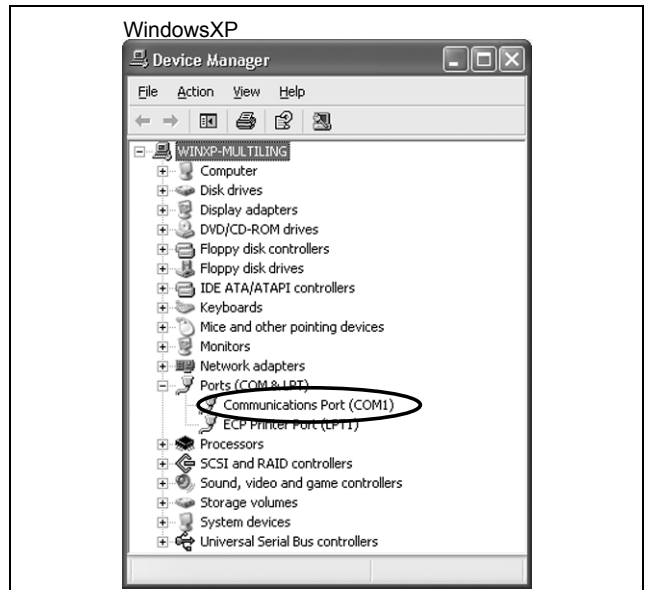
To check standard COM port settings

1. On the Windows [Start] menu, select [Control Panel].
2. On [Control Panel], open [System].
3. When system properties appear, select [Hardware].



4. Select [Device Manager] to open it.

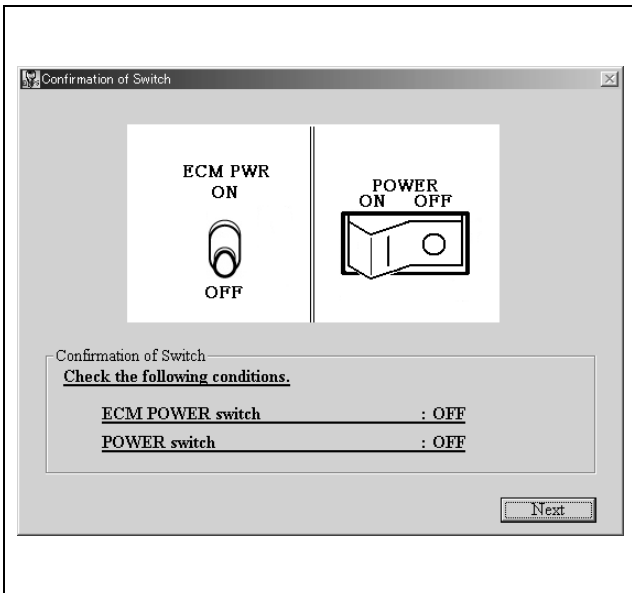
5. On [Device Manager], select [Ports (COM & LPT)].



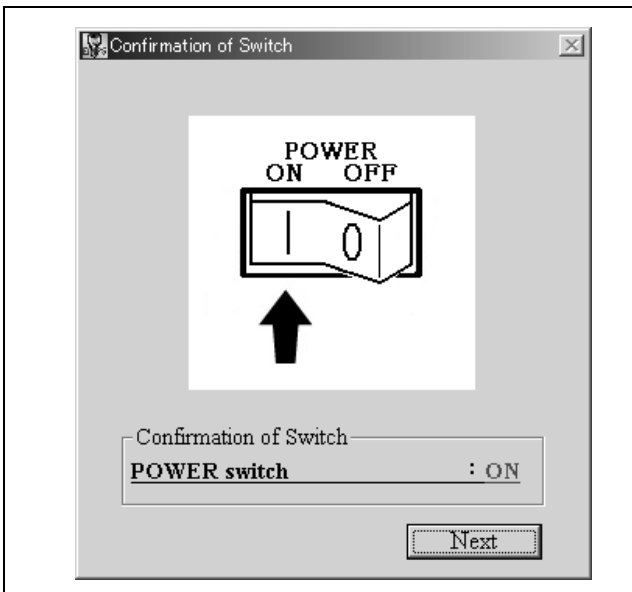
6. In the displayed items for communication ports, confirm the COM port to which the EMPS is connected.

5.4 Switch Confirmation Screen

After checking to make sure that the initial settings of the switches are as shown on the screen, click the [Next] button.



Turn on the power switch, and then click the [Next] button.



This starts selector confirmation, and displays the message shown below.



If response from the selector is normal, advance to “5.5 Selection Menu.”

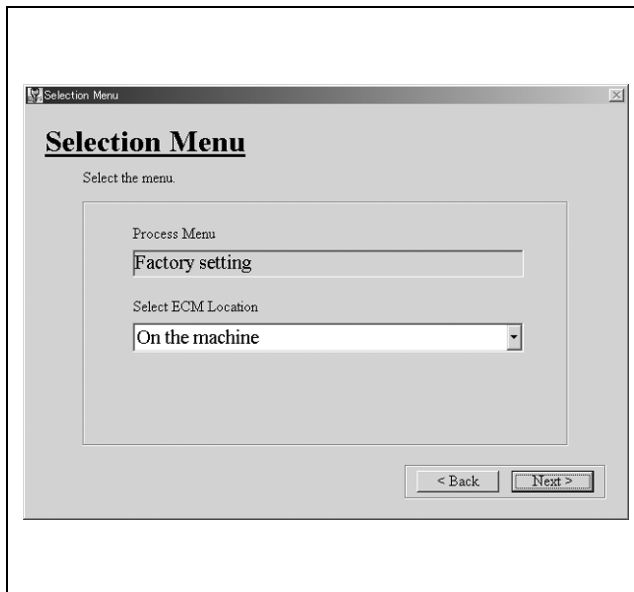
One of the following messages will appear if any abnormality is discovered. Click the [Return to User Authentication screen] button, and check the user ID. To continue the process as is, click the [Continue process] button.



If a communication error occurs, advance to the “6. Recover Point” screen.

5.5 Selection Menu

After selecting the [Select ECM Location], click the [Next] button.

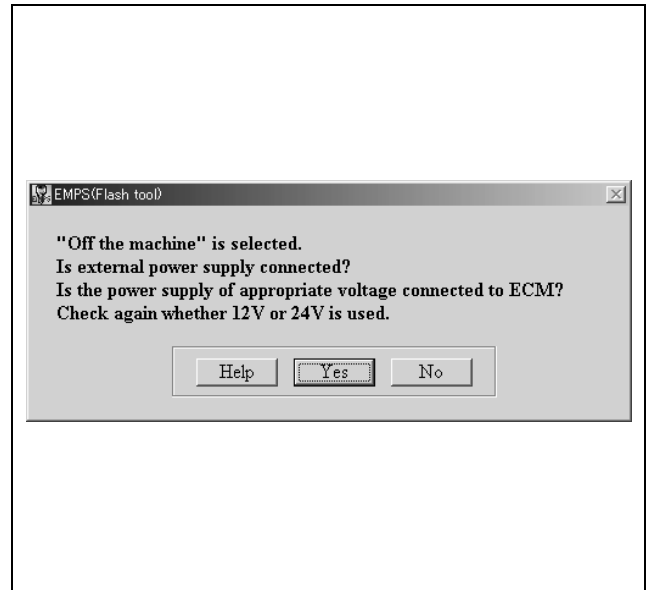


Selection Item Descriptions

Items	Settings/Operation Performed
Process Menu	The process selected in "5.1 Startup" will appear.
Select ECM Location	on the machine off the machine
Back button	Returns to "5.3 Connection Confirmation Screen."
Next button	When [off the machine] is selected, advances to "5.5.1 External Power Confirmation Screen." When [on the machine] is selected, advances to "5.5.2 Voltage Confirmation Screen."

5.5.1 External Power Confirmation Screen

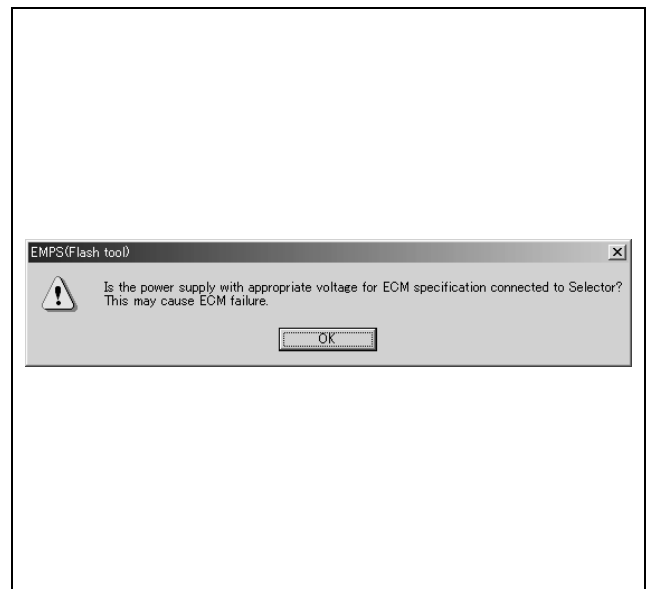
This screen prompts for confirmation of an external power supply.



Clicking the [Yes] button after checking the connection of external power supply advances to "5.6 Selection Items Confirmation Screen."

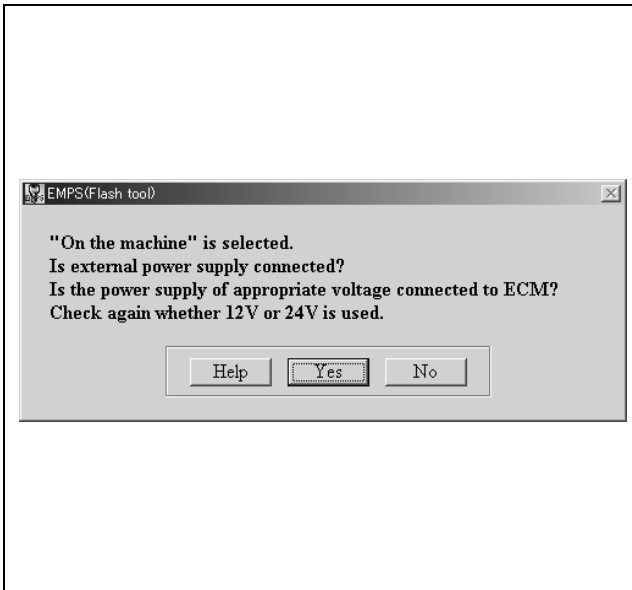
If an external power supply cannot be connected, click the [No] button to return to "5.5 Selection Menu."

Clicking the [Help] button will display the message shown below.



5.5.2 Voltage Confirmation Screen

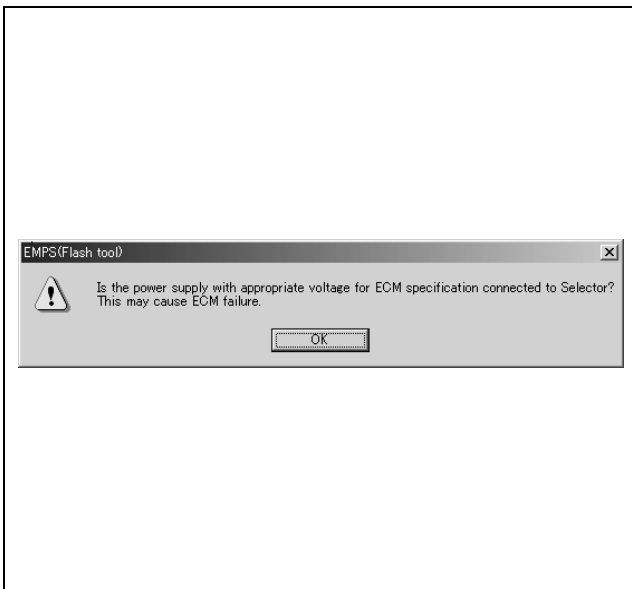
This screen prompts for confirmation of proper voltage.



Clicking the [Yes] button after checking the voltage of power supply advances to “5.6 Selection Items Confirmation Screen.”

If power supply cannot be confirmed, click the [No] button to return to “5.5 Selection Menu.”

Clicking the [Help] button will display the message shown below.



5.6 Selection Items Confirmation Screen

This screen shows the details of the settings configured up to this point.

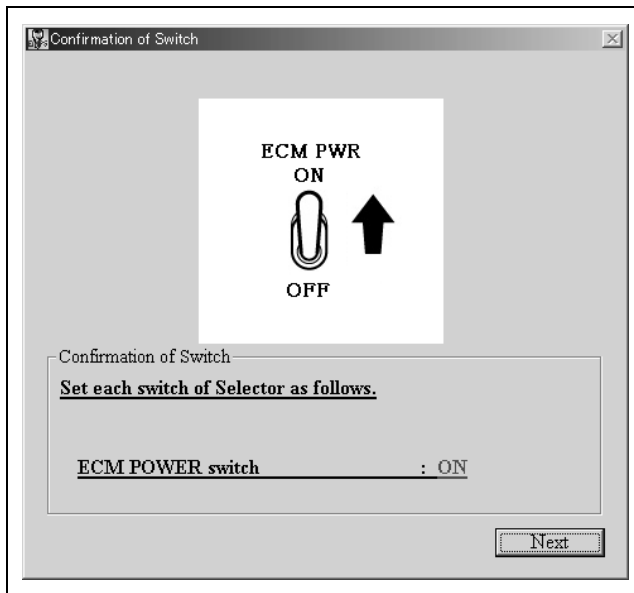
If there is no problem with the displayed settings, click the [Next] button to advance to “5.7 Switch Confirmation Screen.”

To change the settings, click the [Back] to return to “5.5 Selection Menu.”



5.7 Switch Confirmation Screen

The switch confirmation screen is shown below.

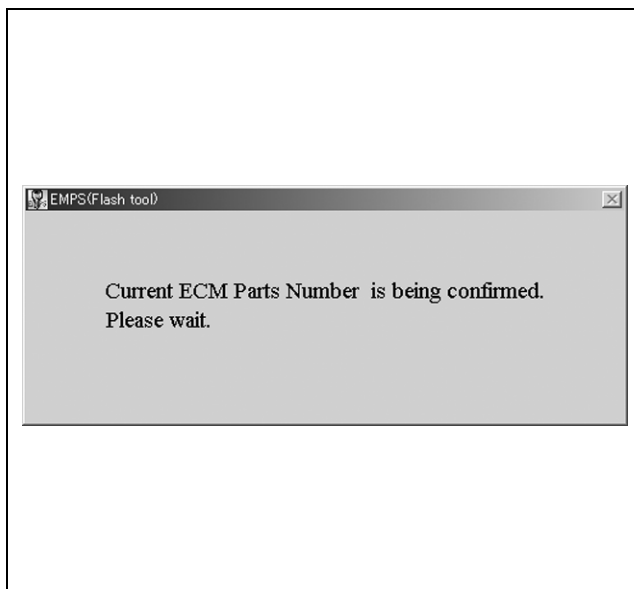


Configure the switch settings as shown below.

ECM POWER switch: ON

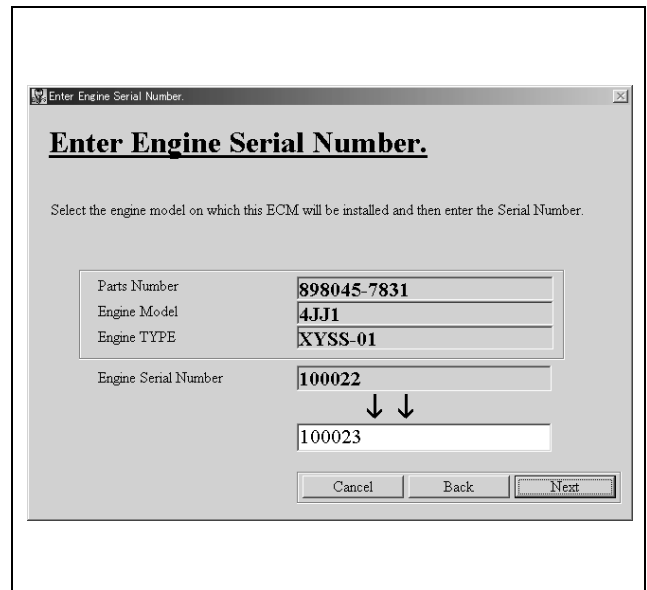
After configuring the switch settings, click the [Next] button.

This obtains Parts No. and factory setting data, and advances to “5.8 Enter Engine Serial Number.”



5.8 Enter Engine Serial Number

Enter the serial number of the engine on which connected ECM is installed.



5.9 Factory Setting Data Screen

QR code uploaded from ECM and factory setting data are compared.

Factory setting data

If the QR code uploaded from ECM is different from QR code at factory setting, the current QR code will be changed when download is performed. Be careful with that.

Upload data

Cylinder No.	Machine Code	QR Code	BCC
1	5F	F9 0F 03 1C 01 0A 03 00 2D 27	B4
2	5F	DE 05 F0 F7 EC 00 FC D2 13 00	52
3	5F	00 0A EC 15 F3 00 FB EB 1E 14	45
4	5F	DE 05 DD 00 F3 00 02 DD 1F 0D	67

Factory setting data

Engine Model: 4JJ1 Engine Serial Number: 100023

Cylinder No.	Machine Code	QR Code	BCC	Change
1	5F	00 0F EE 0B 04 11 05 E9 2B 13	74	N/A Cancel
2	5F	FD 0F DF 00 F3 10 0A DE 28 10	7D	N/A Cancel
3	5F	ED 0A D9 00 EF 09 FF C5 19 FD	59	N/A Cancel
4	5F	CF F6 D1 F7 E5 00 F8 D0 15 FB	63	N/A Cancel

Enter QR code

Cylinder No.	Machine Code	QR Code	BCC
1	5F		

Check Set

Back Next

Clicking the [Next] button displays the following confirmation message.

EMPS(Flash tool)

Do you want to start downloading injector QR code?
[Code = 0192]

Yes No

Clicking the [OK] button displays "5.10 Injector QR Code Download."

5.10 Injector QR Code Download

The switch confirmation screen is shown below.

Confirmation of Switch

ECM PWR
ON
OFF

Confirmation of Switch

Set each switch of Selector as follows.

ECM POWER switch : ON

Next

Configure the switch settings as shown below.

ECM POWER switch: ON

After configuring the switch settings, click the [Next] button.

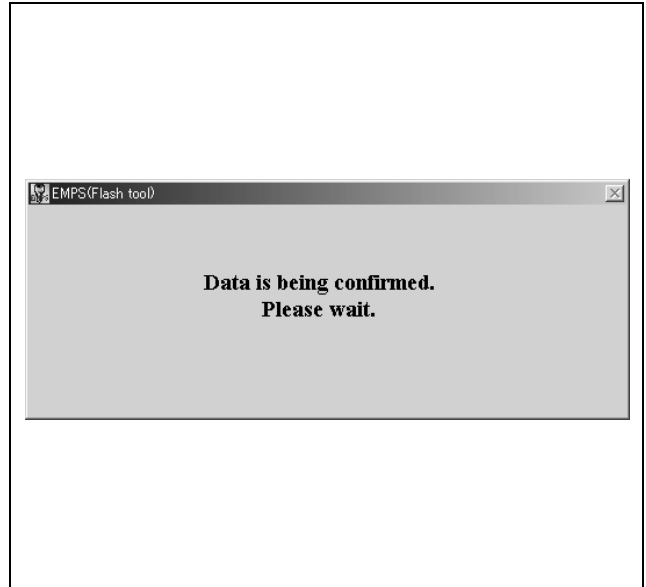
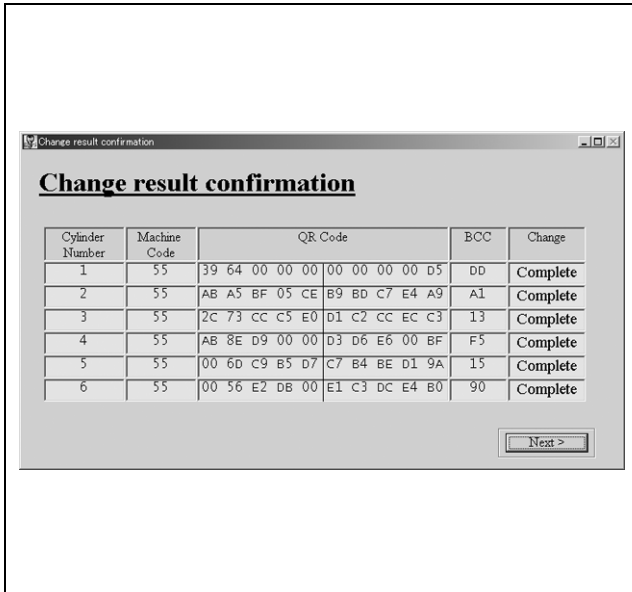
Clicking the [Next] button displays the message shown below, and starts to download the factory setting data of injector QR code to ECM.

EMPS(Flash tool)

Downloading QR data to ECM...
Please wait.

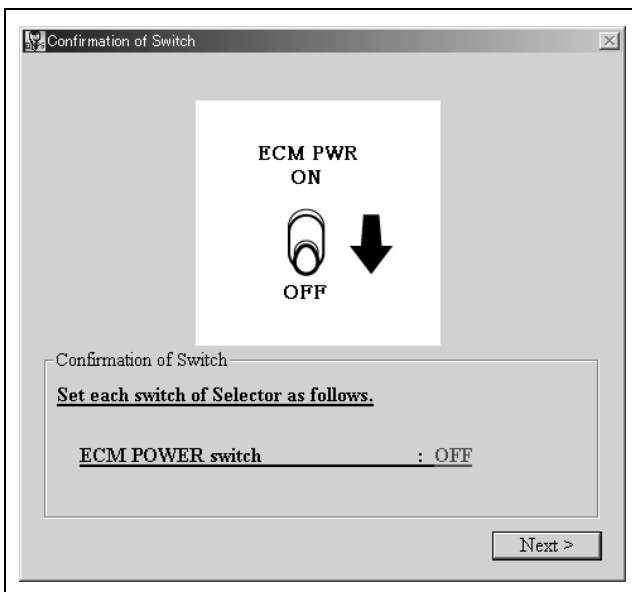
5.11 Download Result Confirmation

This screen displays the result of download.



5.12 Switch Confirmation Screen

The switch confirmation screen is shown below.

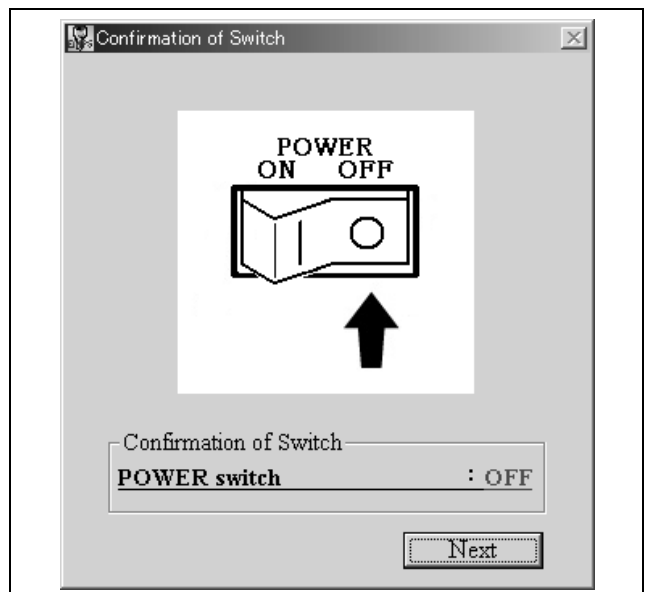


Configure the switch settings as shown below.

ECM POWER switch: OFF

After configuring the switch settings, click the [Next] button.

This will start data confirmation, display the message shown below.

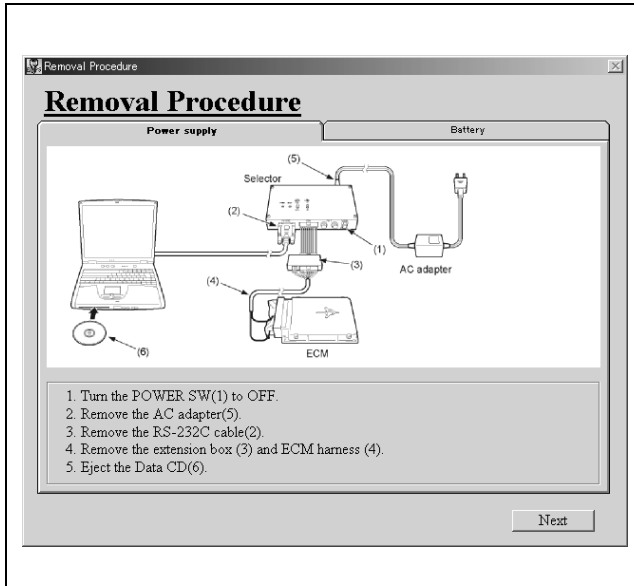


After configuring the power switch setting, click the [Next] button to advance to “5.13 Cable Removal Confirmation Screen.”

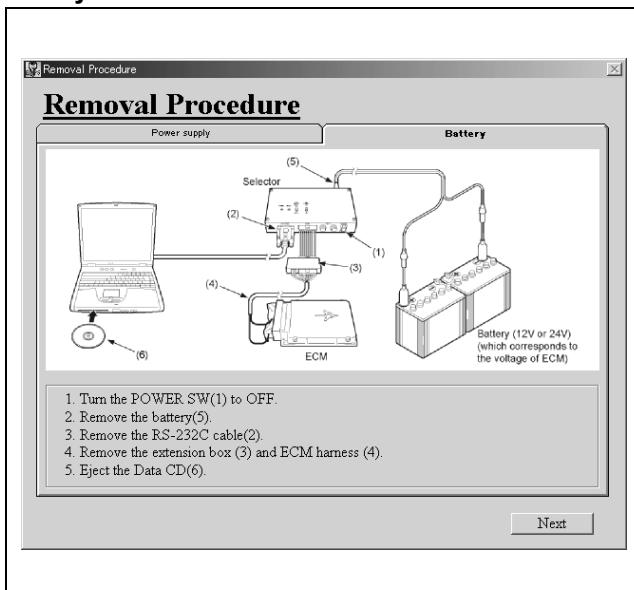
5.13 Cable Removal Confirmation Screen

Disconnect the cable which connects the selector to ECM, and then click the [Next] button. This advances to "5.14 Memory Clear."

Power Supply Connection

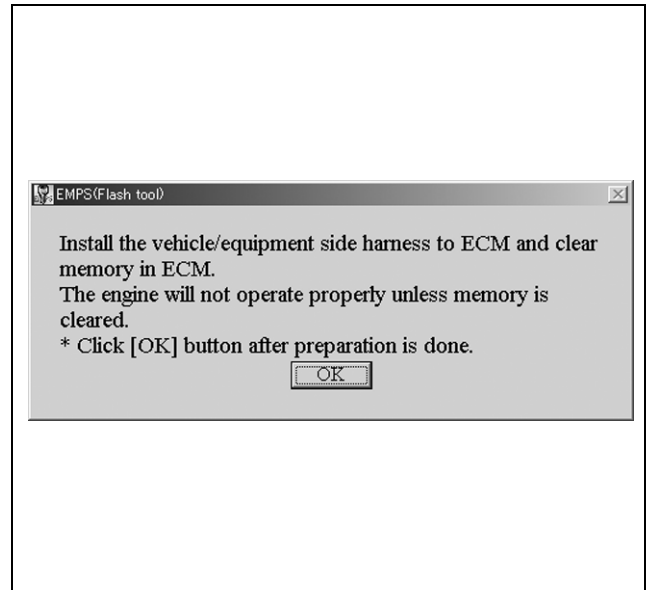


Battery Connection

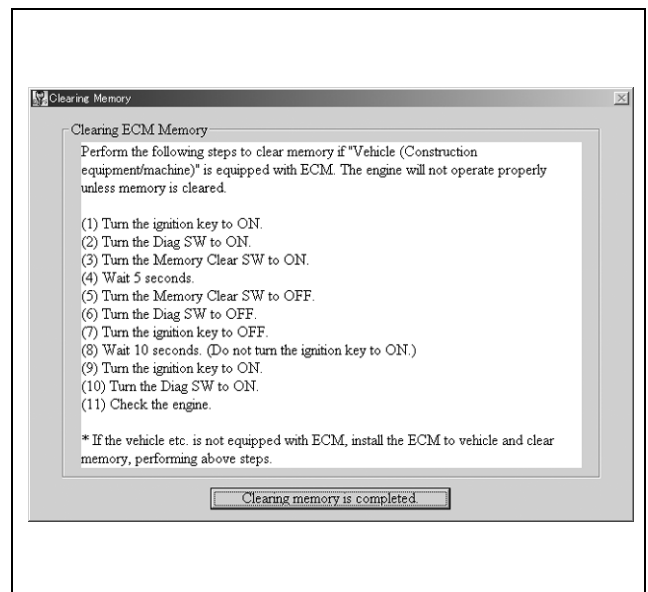


5.14 Memory Clear

Perform memory clear in accordance with the instructions that are displayed.



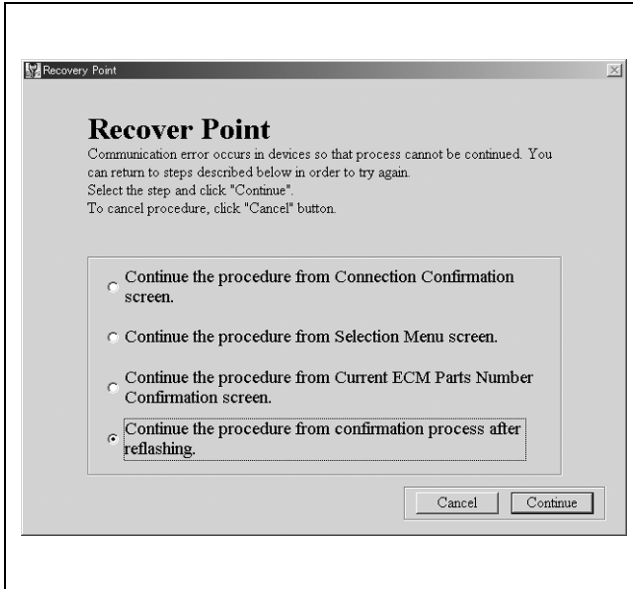
Clicking the [OK] button displays the following procedure.



After memory clear is complete, click the [Clearing memory is completed.] button to exit the program.

6. Recover Point

When data exchange with the selector is not performed correctly, you can select the point from which to continue the procedure.



The procedure that can be continued depends on where the communication error was generated.

Selection Item Descriptions

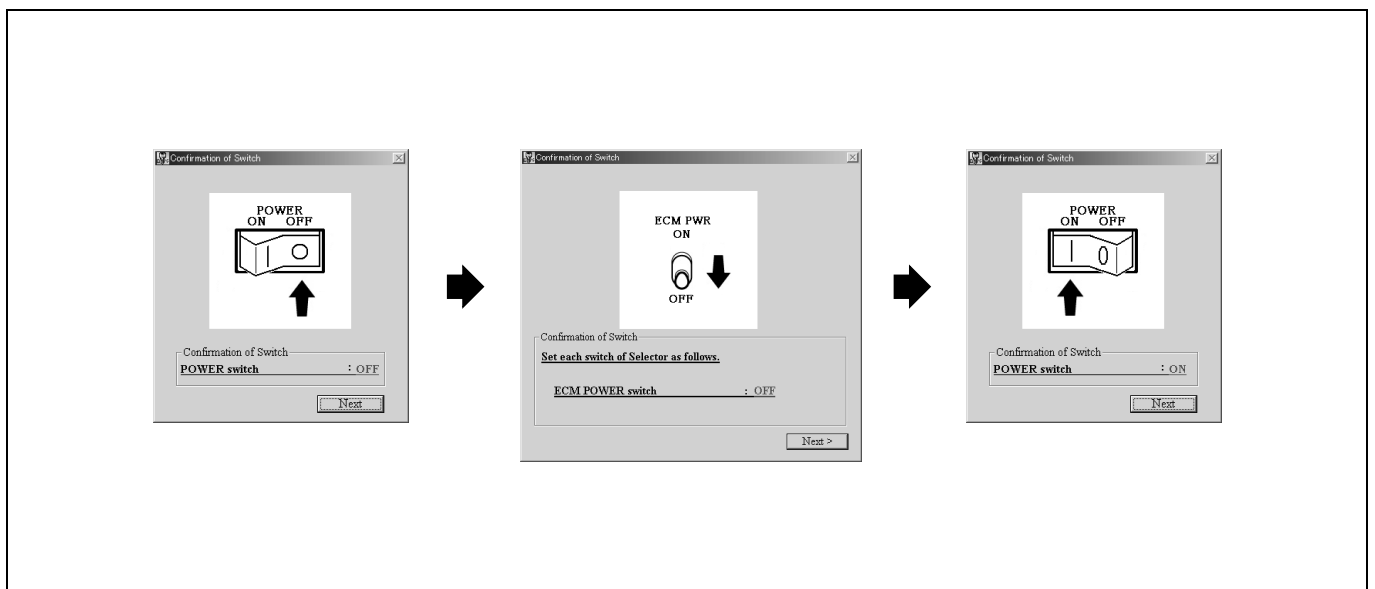
Items	Description
Continue the procedure from Connection Confirmation screen.	Returns to "Connection Confirmation Screen" in each section.
Continue the procedure from Selection Menu screen.	After the Switch Confirmation Screen is displayed, returns to "Selection Menu" in each section.
Continue the procedure from Current ECM Parts Number Confirmation screen.	After the Switch Confirmation Screen is displayed, returns to "Current ECM Parts Number Confirmation Screen" in each section.
Continue the procedure from confirmation process after reflashing.	After the Switch Confirmation Screen is displayed, returns to "Switch Confirmation Screen" in each section.

To continue, select a process and then click the [Continue] button.

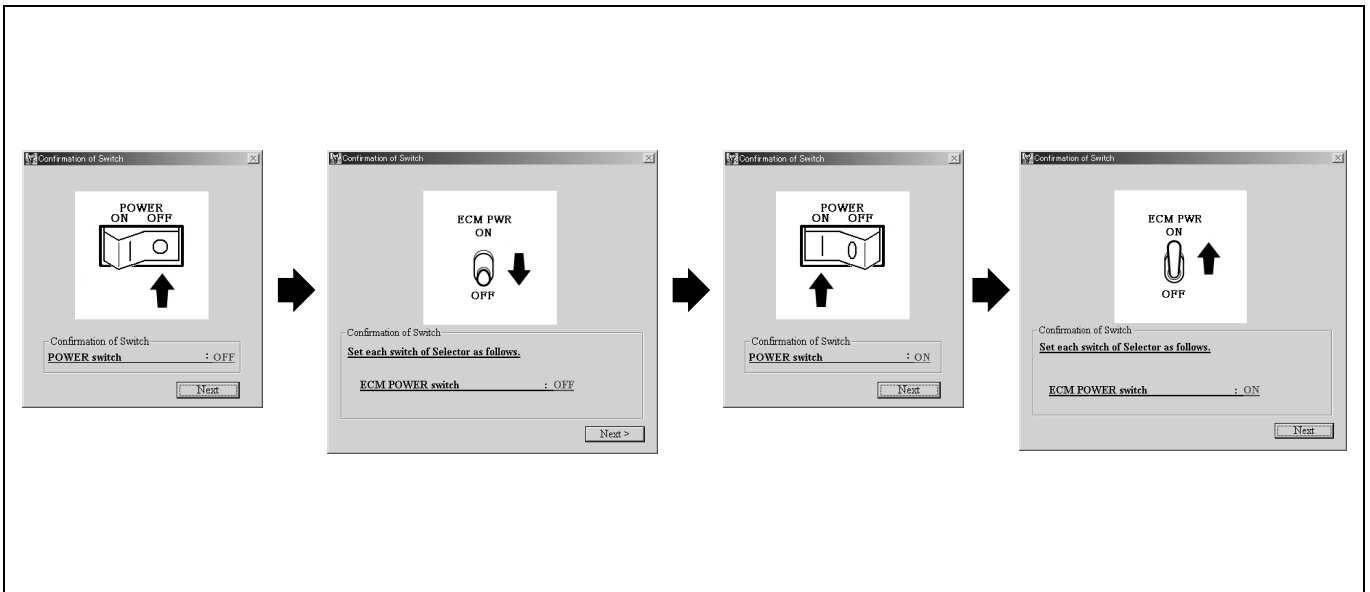
For some processes, a switch confirmation screen will appear.

Put switch settings back according to the following screens, and then click the [Next] button.

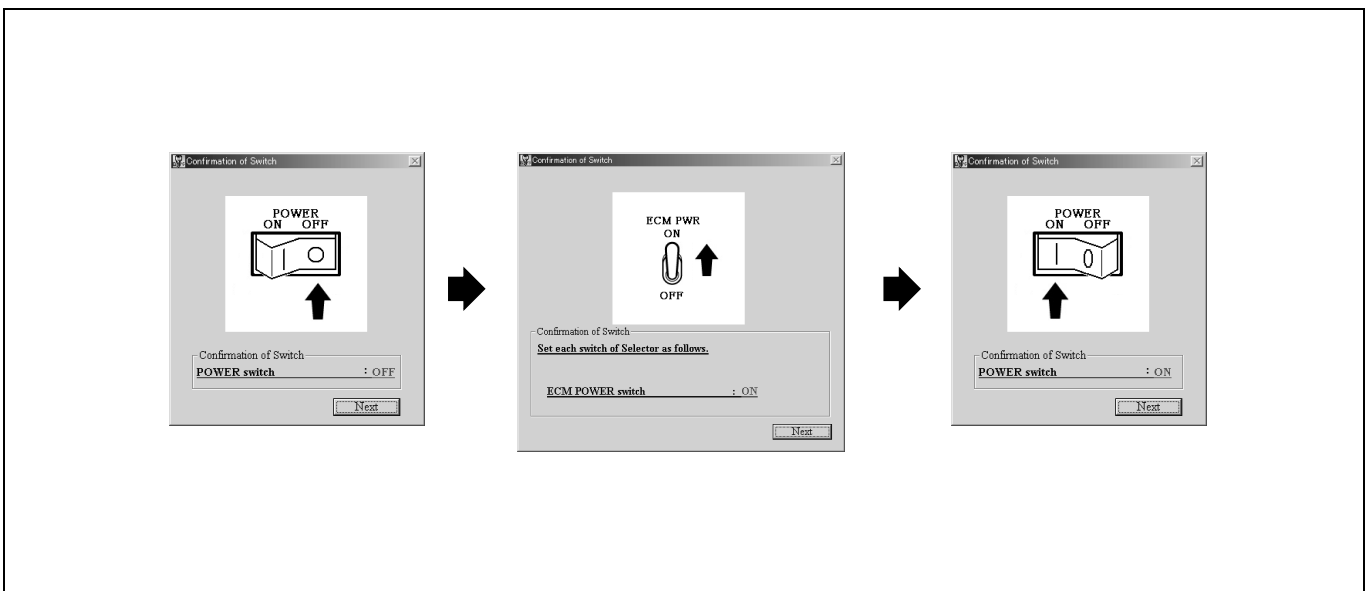
Switch Confirmation screen for "Continue the procedure from Selection Menu screen."



Switch Confirmation screen for "Continue the procedure from Former ECM Parts Number Confirmation screen."



Switch Confirmation screen for "Continue the procedure from confirmation process after reflashing."



To exit the program without continuing, click the [Cancel] button.


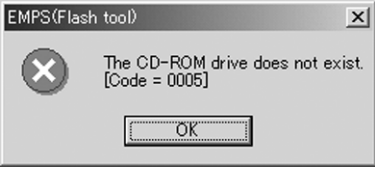
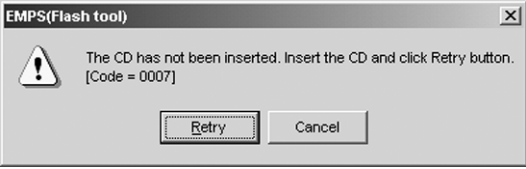


After the message shown below appears, click the [OK] button to exit the program.



7. Error Messages







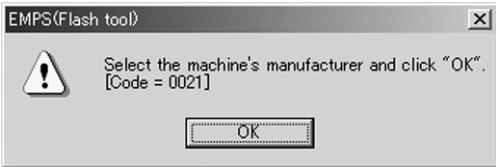
7.1 Startup Errors (for Sections 2.1, 3.1, 4.1, 5.1)


Depending on the setup and operating environment, any one of the following error messages may appear during startup.

Error Type	Error Messages	Description	Response
Operating environment setting error		The system is not ready because operating environment setting is not correct.	Reinstall the system.
CD-ROM error		CD-ROM drive cannot be found.	Check the CD-ROM drive.
		No CD is inserted in the CD-ROM drive.	Insert the Data CD into the CD-ROM drive.
CD-ROM read error		CD-ROM read error	Check the CD-ROM drive and Data CD. Contact your administrator if there is no fault.
Data read error		CD-ROM data read error	Check the CD-ROM drive and Data CD. Contact your administrator if there is no fault.


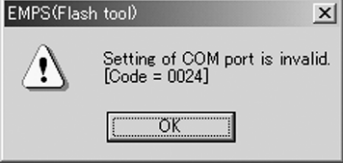
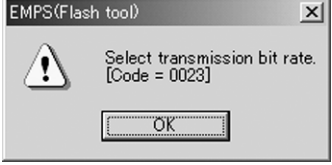

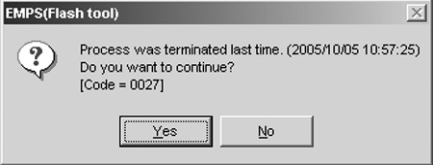
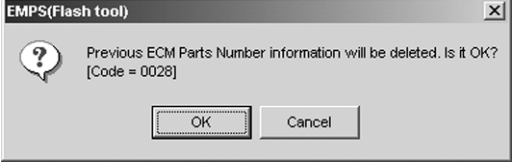
7.2 User Authentication Errors (for Sections 2.2, 3.2, 4.2, 5.2)

One of the following error messages appear if the ID and/or password is not input, or if the input is incorrect.

Error Type	Error Messages	Description	Response
No input		ID not input.	Enter your ID.
		Password not input.	Enter your password.
Incorrect password		Password is wrong.	Enter your correct password.
No input		Password for compulsory reflashing not input	Enter the password for compulsory reflashing.
Incorrect password for compulsory reflashing		Password for compulsory reflashing is wrong.	Enter the correct password for compulsory reflashing.
		Password for compulsory reflashing has expired.	Obtain the correct password for compulsory reflashing from your administrator .
OEM not selected		OEM not selected	Select OEM name.

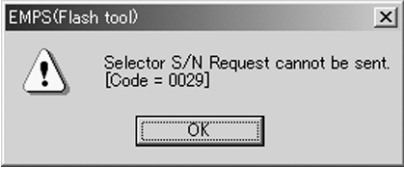
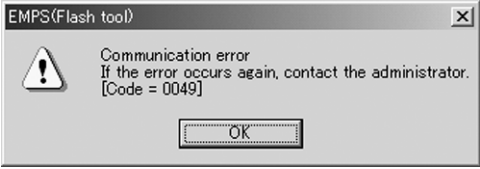

Error Type	Error Messages	Description	Response
Database read error		Service address is not found in the database.	Check the Data CD. Contact your administrator if there is no fault.

7.3 Connection Confirmation Errors (for Sections 2.3, 3.3, 4.3, 5.3)

Error Type	Error Messages	Description	Response
COM port		COM port is not input.	Enter the COM port.
		COM port input value is not correct.	Enter the correct COM port.
		COM port communication error	Check if COM port operates properly.
			
Last process check		Last process continuation confirmation. Click the [Yes] button to advance to "2.8 Current ECM Parts Number Confirmation Screen."	—
		This message appears to confirm deletion when the [No] button of the above message box is clicked.	—

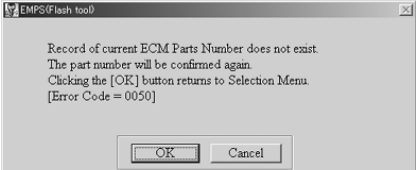
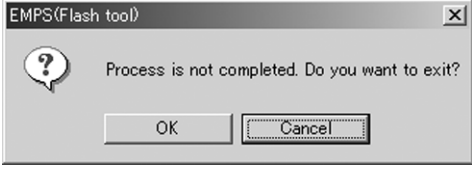

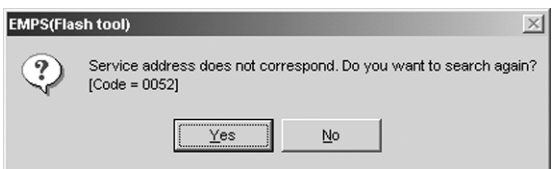
7.4 Switch Confirmation 1 Errors (for Switch Confirmation 4 in Sections 2.6, 3.6, 4.6, 5.6, 4.14)

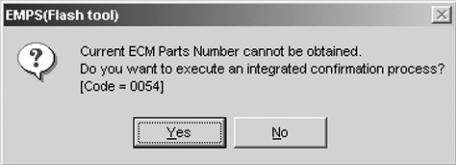
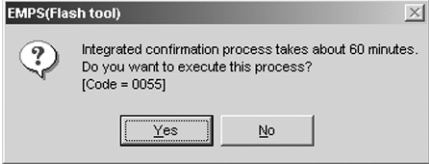

One of the following messages will appear if any abnormality is discovered.

Error Type	Error Messages	Description	Response
Communication with the selector		Serial number transmission failure	Click the [OK] button to exit the process, and then check the selector.
		Communication error	Click the [OK] button to exit the process, and then check the selector. If the error occurs again, contact the administrator.
Response from selector		Response from the selector is incorrect.	Click the [OK] button to exit the process, and then check the selector.

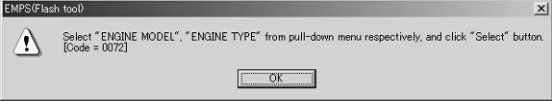


7.5 Switch Confirmation 2 Errors (for Switch Confirmation 5 in Sections 2.7, 3.7, 4.7, 5.7, 4.17)





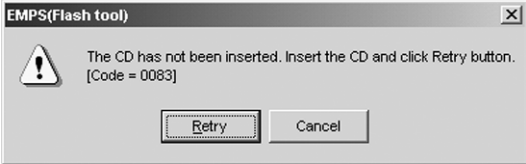
One of the following messages will appear if any abnormality is discovered.

Error Type	Error Messages	Description	Response
Wrong current parts number		Check of current parts number	Click the [OK] button to return to "Selection Menu" in each section. Clicking the [Cancel] button displays a message to confirm exiting of the program.
Exit confirmation		Confirmation of system termination	Click the [OK] button on the message to exit the program. Click the [Cancel] button to return to "Selection Menu" in each section.
Communication with the selector		Parts Number transmission failure	Click the [OK] button to exit the process, and then check the selector.
Service address		Service address does not correspond.	Click the [Yes] button to search again. Check the Data CD. If the error occurs again, contact the administrator.

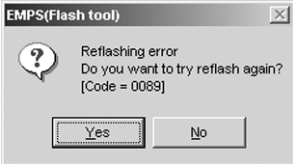

Error Type	Error Messages	Description	Response
Parts Number acquisition		Parts Number cannot be obtained.	Click the [Yes] button for integrated confirmation process. To cancel the process, click the [No] button.
		Execution confirmation of integrated confirmation process if clicking the [Yes] in the message above.	—
		Parts Number cannot be obtained even after the integrated confirmation process.	Perform the compulsory reflash. If this message appears in the compulsory reflash process, ECM may be damaged.

7.6 New ECM Parts Number Search Screen (2.9, 4.19) Errors

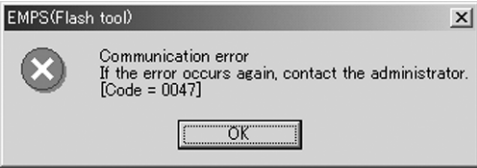

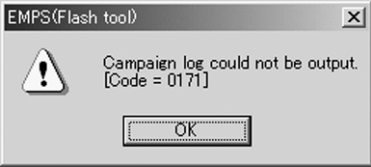
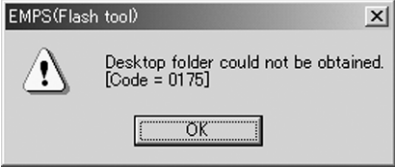
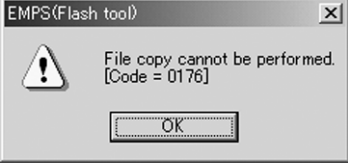
Error Type	Error Messages	Description	Response
Input check		ENGINE MODEL and/or ENGINE TYPE is not selected.	Select ENGINE MODEL and/or ENGINE TYPE.
		OEM NAME is not selected.	Select the OEM NAME.
		ENGINE NUMBER is not input.	Enter the ENGINE NUMBER.

Error Type	Error Messages	Description	Response
Search error		Parts number search failed.	Click the OK button and follow the next screen.
		Parts Number entered for compulsory reflash is not found.	Confirm the Parts No. and enter it again.
		Parts number entered is not compatible with current Parts Number.	Confirm the Parts No. and enter it again.
CD-ROM		CD-ROM read error	Check the CD-ROM.
		CD-ROM cannot be found.	Check the CD-ROM.

7.7 Reflashing Execution Confirmation Screen (4.16, 4.25) Errors

Error Type	Error Messages	Description	Response
Incorrect parts number		Command error during reflashing	Click the [Yes] button to advance to "6. Recover Point." To cancel, click the [No] button.
		This message appears when the [No] button is clicked on the above message.	Click the [OK] button to return to "User Authentication Screen."

7.8 Other Common Error

Error Type	Error Messages	Description	Response
Communication error		Communication error at data transmission	Click the [OK] button, switch the selector to continue or exit the process.
Confirmation of Switch		Switch status is incorrect.	Check the switch status of selector.
Campaign		Campaign log file output error	Check the HDD has enough free space, and perform the process again.
		Campaign log file output error	Check the HDD has enough free space, and perform the process again.
		Campaign log file output error	Check the HDD has enough free space, and perform the process again.

8. Error Code List

Start-up

Type	Code	Message	Description
	0001	Operating environment setting error Reinstall the EMPS. If the error occurs again, contact the administrator.	Work folder acquisition
	0002	Operating environment setting error Reinstall the EMPS. If the error occurs again, contact the administrator.	Working folder does not exist.
	0003	Operating environment setting error Reinstall the EMPS. If the error occurs again, contact the administrator.	INI file does not exist.
	0004	Operating environment setting error Reinstall the EMPS. If the error occurs again, contact the administrator.	INI file invalid

Connection Command Screen

Type	Code	Message	Description
	0005	The CD-ROM drive does not exist.	No CD drive
	0006	The CD cannot be read.	CD read failure
	0007	The CD has not been inserted. Insert the CD and click Retry button.	CD insertion retry
	0008	Data read error Check the CD and CD drive. If the error occurs again, contact the administrator.	MDB file copy failure
	0009	Data read error Check the CD and CD drive. If the error occurs again, contact the administrator.	CD version file copy failure
	0010	Data read error Check the CD and CD drive. If the error occurs again, contact the administrator.	CD version file read failure
	0011	Data read error Check the CD and CD drive. If the error occurs again, contact the administrator.	MDB Open failure

Mode Select Screen

Type	Code	Message	Description
	0012	Service address of OEM master cannot be obtained.	OEM master service address read failure

User Authentication Screen

Type	Code	Message	Description
	0013	Enter your ID.	ID input
	0014	Enter your PASSWORD.	Password input
	0015	Enter the PASSWORD for compulsory reflash.	Password for compulsory reflash input
	0016	ID and PASSWORD are invalid.	ID + Password
	0017	The PASSWORD for compulsory reflash is invalid.	Password for compulsory reflash analysis
	0018	The PASSWORD for compulsory reflash is invalid.	Password for compulsory reflash and ID
	0019	The PASSWORD for compulsory reflash has expired.	Password for compulsory reflash expiration date
	0020	Service address of OEM master cannot be obtained.	OEM master service address read failure

OEM Manufacturer Selection Screen

Type	Code	Message	Description
	0021	Select the machine's manufacturer and click "OK."	Select OEM

Connection Confirmation Screen

Type	Code	Message	Description
	0022	Enter the COM port.	Port input
	0023	Select transmission bit rate.	Transmission bit rate selection
	0024	Setting of COM port is invalid.	Input port invalid digit number
	0025	Setting of COM port is invalid.	Input port invalid number
	0026	Communication setting is invalid.	Invalid communication setting
	0027	Process was terminated last time (P_DATE). Do you want to continue?	Previous file exits.
	0028	Previous ECM Parts Number information will be deleted. Is it OK?	Previous file deletion confirmation
	0177	Setting of COM port is invalid.	Invalid port (communication setting)

Selector S/N Reading (1st time)

Type	Code	Message	Description
	0029	Selector S/N Request cannot be sent.	Selector S/N request failure
	0030	This is unconfirmed selector. Check the selector.	Unconfirmed
	0031	User ID does not correspond to selector S/N. Confirm user ID again.	User ID verification
	0032	Communication error If the error occurs again, contact the administrator.	Incorrect number of digits in S/N
	0033	Communication error If the error occurs again, contact the administrator.	Command error (receiver)
	0034	Communication error If the error occurs again, contact the administrator.	BCC error (receiver)
	0035	Communication error If the error occurs again, contact the administrator.	Command error reception
	0036	Communication error If the error occurs again, contact the administrator.	BCC error reception
	0037	Communication error If the error occurs again, contact the administrator.	Time-out error reception
	0038	Communication error If the error occurs again, contact the administrator.	Other error reception
	0039	Communication error If the error occurs again, contact the administrator.	Communication error (interrupt signal)
	0040	Communication error If the error occurs again, contact the administrator.	Communication error (frame)
	0041	Communication error If the error occurs again, contact the administrator.	Communication error (port overrun)
	0042	Communication error If the error occurs again, contact the administrator.	Communication error (receive buffer overflow)
	0043	Communication error If the error occurs again, contact the administrator.	Communication error (parity)

Type	Code	Message	Description
	0044	Communication error If the error occurs again, contact the administrator.	Communication error (the send buffer is full)
	0045	Communication error If the error occurs again, contact the administrator.	Communication (DCB)
	0046	Communication error If the error occurs again, contact the administrator.	Communication other error
	0047	Communication error If the error occurs again, contact the administrator.	No response from selector

Former Parts No. Reading (1st time)

Type	Code	Message	Description
	0048	ECM Parts Number Request cannot be sent.	Parts number request failure
	0049	Communication error If the error occurs again, contact the administrator.	Invalid number of digits for Parts No.
	0050	Record of current Parts No. does not exist. The part number will be confirmed again. Clicking the [OK] button returns to Selection Menu.	Either former or current code does not exist.
	0051	Record of current Parts No. does not exist. The part number will be confirmed again. Clicking the [OK] button returns to Selection Menu.	Record acquisition error
	0052	Service address does not correspond. Do you want to search again?	Service address retry
	0053	ECM Parts Number Request cannot be sent.	Parts number request failure of service address retry
	0054	Current ECM Parts Number cannot be obtained. Do you want to execute an integrated confirmation process?	Execute an integrated process?
	0055	Integrated confirmation process takes about 60 minutes. Do you want to execute this process?	60-minute process execution confirmation
	0056	Current ECM Parts Number could not be obtained. This ECM needs compulsory reflash. If the ECM Parts Number cannot be obtained even after compulsory reflash, the ECM may be damaged. Program will be ended.	60-minute process result error
	0057	Communication error If the error occurs again, contact the administrator.	Command error (receiver)
	0058	Communication error If the error occurs again, contact the administrator.	BCC error (receiver)
	0059	Communication error If the error occurs again, contact the administrator.	Command error reception
	0060	Communication error If the error occurs again, contact the administrator.	BCC error reception
	0061	Communication error If the error occurs again, contact the administrator.	Time-out error reception
	0062	Communication error If the error occurs again, contact the administrator.	Other error reception
	0063	Communication error If the error occurs again, contact the administrator.	Communication error (interrupt signal)
	0064	Communication error If the error occurs again, contact the administrator.	Communication error (frame)
	0065	Communication error If the error occurs again, contact the administrator.	Communication error (port overrun)

Type	Code	Message	Description
	0066	Communication error If the error occurs again, contact the administrator.	Communication (receive buffer overflow)
	0067	Communication error If the error occurs again, contact the administrator.	Communication error (parity)
	0068	Communication error If the error occurs again, contact the administrator.	Communication (the send buffer is full)
	0069	Communication error If the error occurs again, contact the administrator.	Communication error (DCB error)
	0070	Communication error If the error occurs again, contact the administrator.	Communication other error
	0071	Communication error If the error occurs again, contact the administrator.	No response from selector

New ECM Parts Number Search Screen

Type	Code	Message	Description
	0072	Select "ENGINE MODEL", "ENGINE TYPE" from pull-down menu respectively, and click "Select" button.	Engine model selection
	0073	Select "ENGINE MODEL", "ENGINE TYPE" from pull-down menu respectively, and click "Select" button.	Engine type selection
	0074	Select "OEM NAME" from pull-down menu.	Select OEM
	0075	Enter the six-digit number into the "ENGINE NUMBER" field.	Engine number input
	0076	ECM Parts Number cannot be found.	Appropriate new Parts No. does not exist.

New ECM Parts Number Search Confirmation Screen

Type	Code	Message	Description
	0077	Enter new ECM Parts Number.	New Parts No. input
	0078	Record of former ECM Parts No. to be reflashed compulsorily does not exist.	No new record for compulsory reflash
	0079	ECM Parts Number is not compatible	No compatible code exist.
	0080	Enter search condition for ECM Parts Number.	OEM refined selection
	0081	New ECM Parts Number cannot be identified.	Refinement is not possible.

Rewriting Result Confirmation Screen

Type	Code	Message	Description
	0082	The CD cannot be read.	CD cannot be read.
	0083	The CD has not been inserted. Insert the CD and click Retry button.	CD insertion retry
	0084	The CD, which is inserted, may be different from one used to start this program, or may be damaged. Program will be ended in this status. Check the CD and start the program again to restart the process.	CD version cannot be obtained.
	0085	Setting of the program file does not exist. Reflash cannot be processed. Select again.	Program file cannot be obtained for this record.
	0086	The CD, which is inserted, may be different from one used to start this program, or may be damaged. Program will be ended in this status. Check the CD and start the program again to restart the process.	Program file cannot be decompressed.

READY LED (ON)

Type	Code	Message	Description
	0087	Check the switch status.	LED does not come on.

Rewriting Initialization Process

Type	Code	Message	Description
During execution			
	0088	Reflash error Do you want to try reflash again?	Being processed (all)
	0089	Reflash error Do you want to try reflash again?	Invalid startup parameter (all)
	0090	Reflash error Do you want to try reflash again?	Thread startup failure (all)
	0091	Reflash error Do you want to try reflash again?	Unknown
At CALL BACK			
	0092	Reflash error Do you want to try reflash again?	No response from rewriting module
	0093	Reflash error Do you want to try reflash again?	Port open error (all)
	0094	Reflash error Do you want to try reflash again?	Communication (all)
	0095	Reflash error Do you want to try reflash again?	Time out (all)
	0096	Reflash error Do you want to try reflash again?	Flash memory cannot be erased with boot mode (at initializing only)
	0097	Reflash error Do you want to try reflash again?	Unknown

Rewriting Reflashing Process

Type	Code	Message	Description
During execution			
	0098	Reflash error Do you want to try reflash again?	Being processed (all)
	0099	Reflash error Do you want to try reflash again?	Inconsistent execution state (at writing and verifying)
	0100	Reflash error Do you want to try reflash again?	Invalid startup parameter (all)
	0101	Reflash error Do you want to try reflash again?	Thread startup failure (all)
	0102	Reflash error Do you want to try reflash again?	Unknown
At CALL BACK			
	0103	Reflash error Do you want to try reflash again?	No response from rewriting module
	0104	Reflash error Do you want to try reflash again?	User program file cannot be found (at writing and verifying)
	0105	Reflash error Do you want to try reflash again?	Invalid user program file (at writing and verifying)

Type	Code	Message	Description
	0106	Reflash error Do you want to try reflash again?	No data to be written to flash memory (at writing and verifying)
	0107	Reflash error Do you want to try reflash again?	Close (at writing and verifying)
	0108	Reflash error Do you want to try reflash again?	Port open error (all)
	0109	Reflash error Do you want to try reflash again?	Communication (all)
	0110	Reflash error Do you want to try reflash again?	Time out (all)
	0111	Reflash error Do you want to try reflash again?	Writing (at writing only)
	0112	Reflash error Do you want to try reflash again?	Unknown

Rewriting Verification Process

Type	Code	Message	Description
During execution			
	0113	Reflash error Do you want to try reflash again?	Being processed (all)
	0114	Reflash error Do you want to try reflash again?	Inconsistent execution state (at writing and verifying)
	0115	Reflash error Do you want to try reflash again?	Invalid startup parameter (all)
	0116	Reflash error Do you want to try reflash again?	Thread startup failure (all)
	0117	Reflash error Do you want to try reflash again?	Unknown
At CALL BACK			
	0118	Reflash error Do you want to try reflash again?	No response from rewriting module
	0119	Reflash error Do you want to try reflash again?	User program file cannot be found (at writing and verifying)
	0120	Reflash error Do you want to try reflash again?	Invalid user program file (at writing and verifying)
	0121	Reflash error Do you want to try reflash again?	No data to be written to flash memory (at writing and verifying)
	0122	Reflash error Do you want to try reflash again?	Close (at writing and verifying)
	0123	Reflash error Do you want to try reflash again?	Port open error (all)
	0124	Reflash error Do you want to try reflash again?	Communication (all)
	0125	Reflash error Do you want to try reflash again?	Time out (all)
	0126	Reflash error Do you want to try reflash again?	Verification (at verification only)
	0127	Reflash error Do you want to try reflash again?	Unknown

READY LED (OFF)

Type	Code	Message	Description
	0128	Check the switch status.	LED not off

Selector S/N Reading (2nd time)

Type	Code	Message	Description
	0129	Selector S/N Request cannot be sent.	Selector S/N request failure
	0130	Communication error If the error occurs again, contact the administrator.	Incorrect number of digits in S/N
	0131	The device, which is different from one used to read the ECM Part Number, is connected. This ECM cannot operate properly. Do you want to try the process again?	Differ from the first time.
	0132	Process will be terminated. Connect the selector correctly and try again.	Abort
	0133	Communication error If the error occurs again, contact the administrator.	Command error (receiver)
	0134	Communication error If the error occurs again, contact the administrator.	BCC error (receiver)
	0135	Communication error If the error occurs again, contact the administrator.	Command error reception
	0136	Communication error If the error occurs again, contact the administrator.	BCC error reception
	0137	Communication error If the error occurs again, contact the administrator.	Time-out error reception
	0138	Communication error If the error occurs again, contact the administrator.	Other error reception
	0139	Communication error If the error occurs again, contact the administrator.	Communication error (interrupt signal)
	0140	Communication error If the error occurs again, contact the administrator.	Communication error (frame error)
	0141	Communication error If the error occurs again, contact the administrator.	Communication error (port overrun)
	0142	Communication error If the error occurs again, contact the administrator.	Communication error (receive buffer overflow)
	0143	Communication error If the error occurs again, contact the administrator.	Communication error (parity error)
	0144	Communication error If the error occurs again, contact the administrator.	Communication error (the send buffer is full)
	0145	Communication error If the error occurs again, contact the administrator.	Communication error (DCB)
	0146	Communication error If the error occurs again, contact the administrator.	Communication other error
	0147	Communication error If the error occurs again, contact the administrator.	No response from selector

New Parts No. Reading (2nd time)

Type	Code	Message	Description
	0148	ECM Parts Number Request cannot be sent.	Parts number request failure
	0149	Communication error If the error occurs again, contact the administrator.	Invalid number of digits for Parts No.
	0150	Reflashed Parts Number does not correspond to the entered/ selected Parts Number.	Differ from the entry value
	0151	Service address does not correspond. Do you want to search again?	Service address retry
	0152	ECM Parts Number Request cannot be sent.	Parts number request failure of service address retry
	0153	Current ECM Parts Number cannot be obtained. Do you want to execute an integrated confirmation process?	Integrated confirmation process
	0154	Integrated confirmation process takes about 60 minutes. Do you want to execute this process?	60-minute process execution confirmation?
	0155	Current ECM Parts Number could not be obtained. This ECM needs compulsory reflash. If the ECM Parts Number cannot be obtained even after compul- sory reflash, the ECM may be damaged. Program will be ended.	60-minute process result
	0156	Communication error If the error occurs again, contact the administrator.	Command error (receiver)
	0157	Communication error If the error occurs again, contact the administrator.	BCC error (receiver)
	0158	Communication error If the error occurs again, contact the administrator.	Command error reception
	0159	Communication error If the error occurs again, contact the administrator.	BCC error reception
	0160	Communication error If the error occurs again, contact the administrator.	Time-out error reception
	0161	Communication error If the error occurs again, contact the administrator.	Other error reception
	0162	Communication error If the error occurs again, contact the administrator.	Communication error (interrupt signal)
	0163	Communication error If the error occurs again, contact the administrator.	Communication error (frame error)
	0164	Communication error If the error occurs again, contact the administrator.	Communication error (port overrun)
	0165	Communication error If the error occurs again, contact the administrator.	Communication error (receive buffer over- flow)
	0166	Communication error If the error occurs again, contact the administrator.	Communication error (parity error)
	0167	Communication error If the error occurs again, contact the administrator.	Communication error (the send buffer is full)
	0168	Communication error If the error occurs again, contact the administrator.	Communication error (DCB)
	0169	Communication error If the error occurs again, contact the administrator.	Communication other error
	0170	Communication error If the error occurs again, contact the administrator.	No response from selector

Campaign

Type	Code	Message	Description
	0171	Campaign log could not be output.	Campaign decoding error
	0172	Campaign log could not be output.	Campaign file coupling error
	0173	Campaign log could not be output.	No file being coupled for campaign
	0175	Campaign log could not be output.	Encryption error
	0176	Desktop folder could not be obtained.	Desktop cannot be obtained.
	0177	Setting of COM port is invalid.	Desktop cannot be copied.

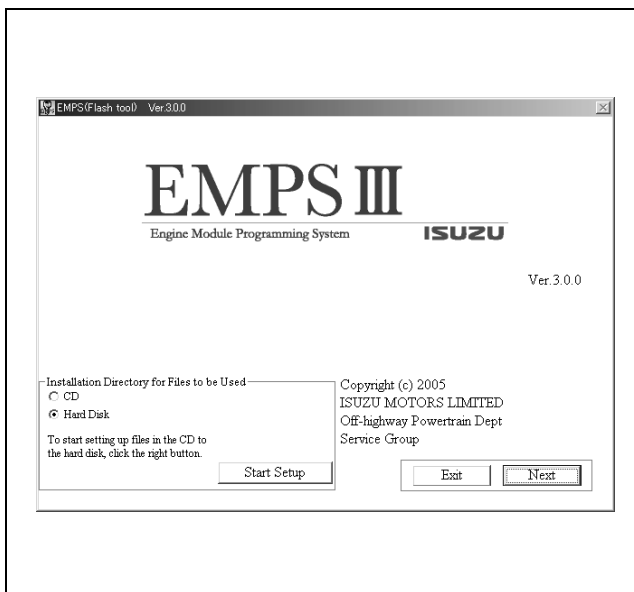
Others

Type	Code	Message	Description
	0178	Do you want to read the Parts No. and QR data from a file? (If you select "No," data will be read from ECM.)	Read confirmation
	0179	Download has not been completed successfully. Perform termination, and restart the process from the beginning.	Download failure
	0180	Engine Serial Number has not been entered.	No Engine Serial Number is entered.
	0181	Entered Engine S/N does not correspond to connected ECM.	No appropriate data exists in DB.
	0183	Failed to upload. Do you want to continue the later process?	Process continuation confirmation
	0184	Failed to upload. Perform termination, and restart the process from the beginning.	Process exit confirmation
	0185	QR data has not been set. (The item "Check OK" does not exist.)	No QR data is entered.
	0186	Error is found in setting data.	QR data is incorrect.
	0187	Do you want to start the registration of injector QRMSG to be changed?	Registration confirmation
	0188	Do you want to continue the change process for injector? (If you select "No," the process will be ended.)	Process continuation confirmation
	0189	Replace the ECM, and then click the OK button.	Direction to replace ECM
	0190	Engine Serial Number has not been changed. Do you want to continue this process? (If you continue, data read from ECM will be used.)	S/N check
	0191	Uploaded QR data does not exist.	QR data does not exist.
	0192	Do you want to start downloading injector QR code?	Confirmation of starting process
	0193	Do you want to cancel the process, then return to Process Menu?	Cancel of QR setting screen
	0194	Setting process for injector will be continued.	Confirmation after reflashing
	0195	Changed QR code does not exist.	QR code does not exist.
	0196	Connected ECM is blank ECM. Quit the EMPS program and connect other ECM. Or perform the reflashing process.	In case that all of uploaded QR data are "0."
	0197	Connected ECM is blank ECM. Do you want to continue the replacement process for injector?	In case that all of uploaded QR data are "0."
	0198	Connected ECM does not correspond to EMPS. Perform reflash.	In case of blank ECM
	0199	Current ECM Parts Number could not be obtained. This ECM needs compulsory reflash. Return to Process Menu.	Failed to obtain ECM Parts Number.
	0200	Connected ECM corresponds to the engine.	In case that error occurred in model check while setting back to the factory setting.

Type	Code	Message	Description
	0201	Data corresponding to Engine S/N of connected ECM does not exist.	In case that error occurred in model check while setting back to the factory setting.
	0202	The ECM prior to changing connection does not correspond to the current ECM. Return to the previous screen to change selection items. Or restart the process from the beginning.	ECM compatibility error
	0203	There is injector on which no QR code is set. (QR code setting value remains "0.")	In case that injector QR code has not been set yet.

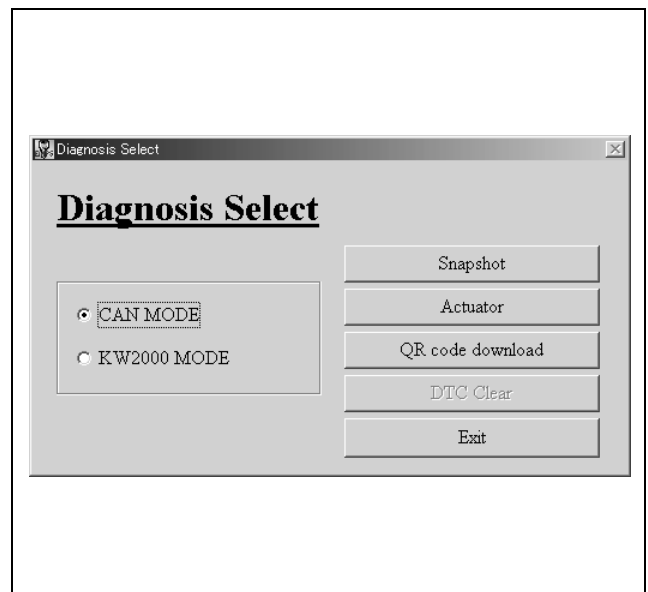
Diagnosis Mode Operation Procedure

1. Startup



Process Menu will be displayed by clicking the Next button.

2. Process Menu



Diagnosis

Acquires Snapshot data and performs Actuator test using CAN or KW communication.

HTML manual display

Displays HTML manual.

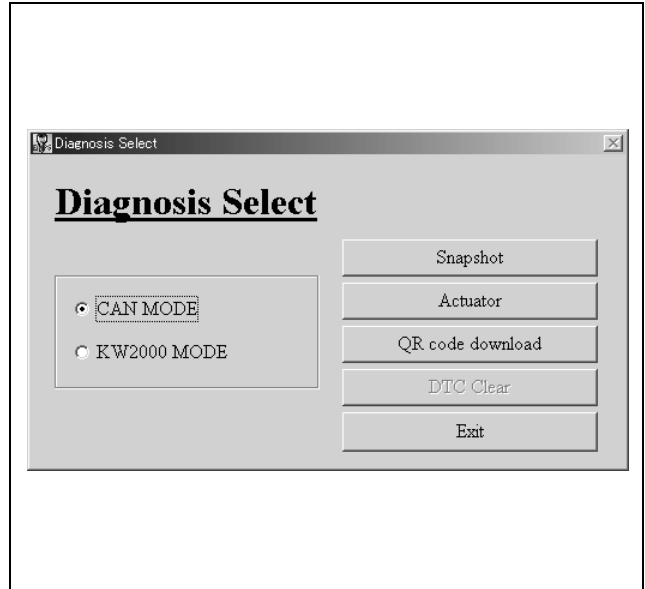
Read saved data

Reads and re-displays the saved Snapshot data.

3. Trouble Diagnosis

3.1 Diagnosis(DTC,Actuator,QR)

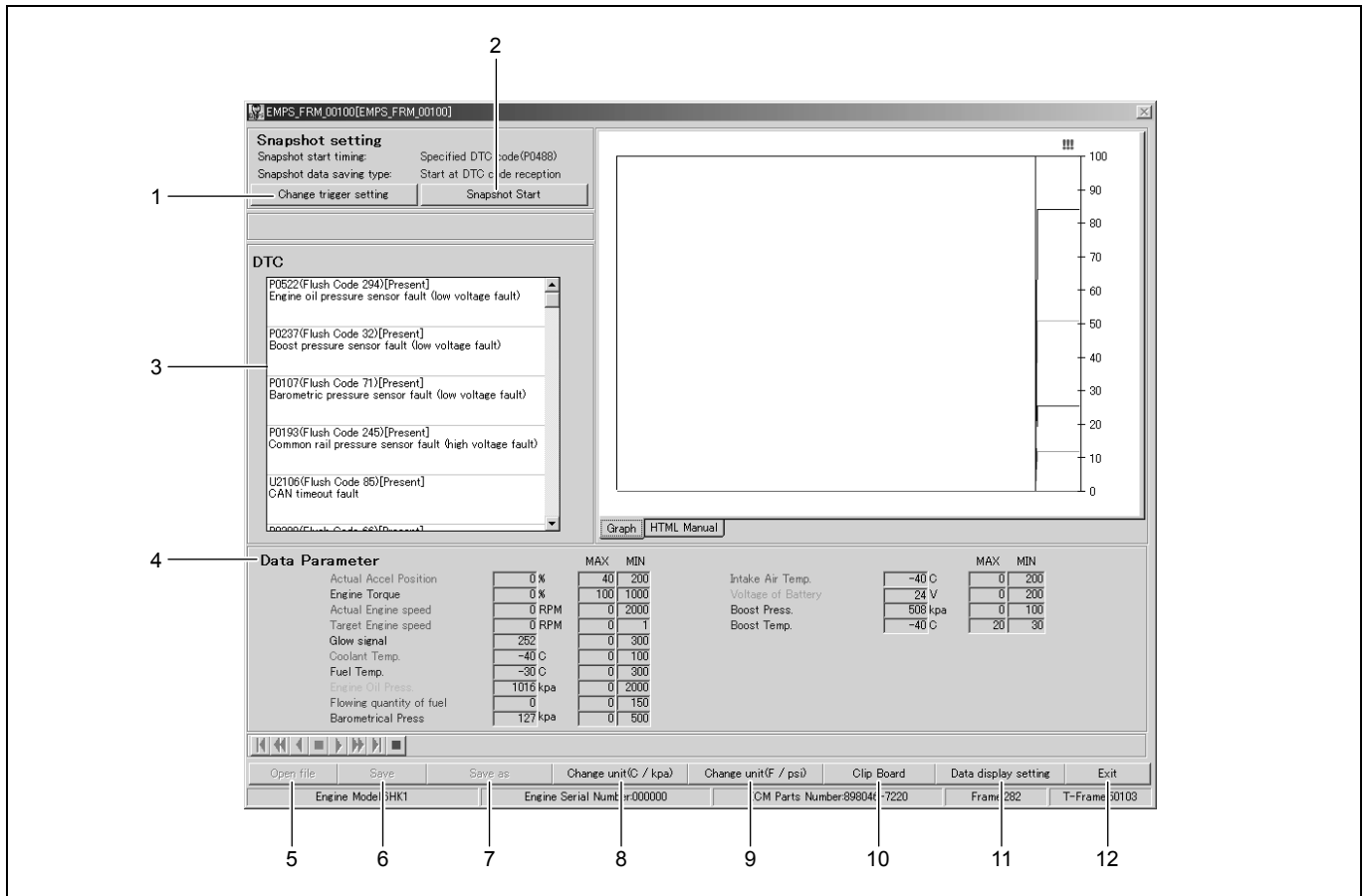
Select [Diagnosis(DTC, Actuator, QR)] from the Process Menu. Confirm connections, log in and operate the switch by following the screen, then [Diagnosis Select] screen will be displayed.



Select a communication method with the selector from [CAN MODE] or [KW2000 MODE] and click functions (buttons) for diagnosis.

3.1.1 Snapshot

Displays the data acquired with the communication mode (CAN/KW2000) that is selected on the [Diagnosis Select] screen.



Name

- | | |
|---------------------------|-----------------------|
| 1. Change trigger setting | 5. Open file |
| 2. Snapshot Start | 6. Save |
| 3. DTC | 7. Save as |
| 4. Data Parameter | 8. Change unit(C/kpa) |

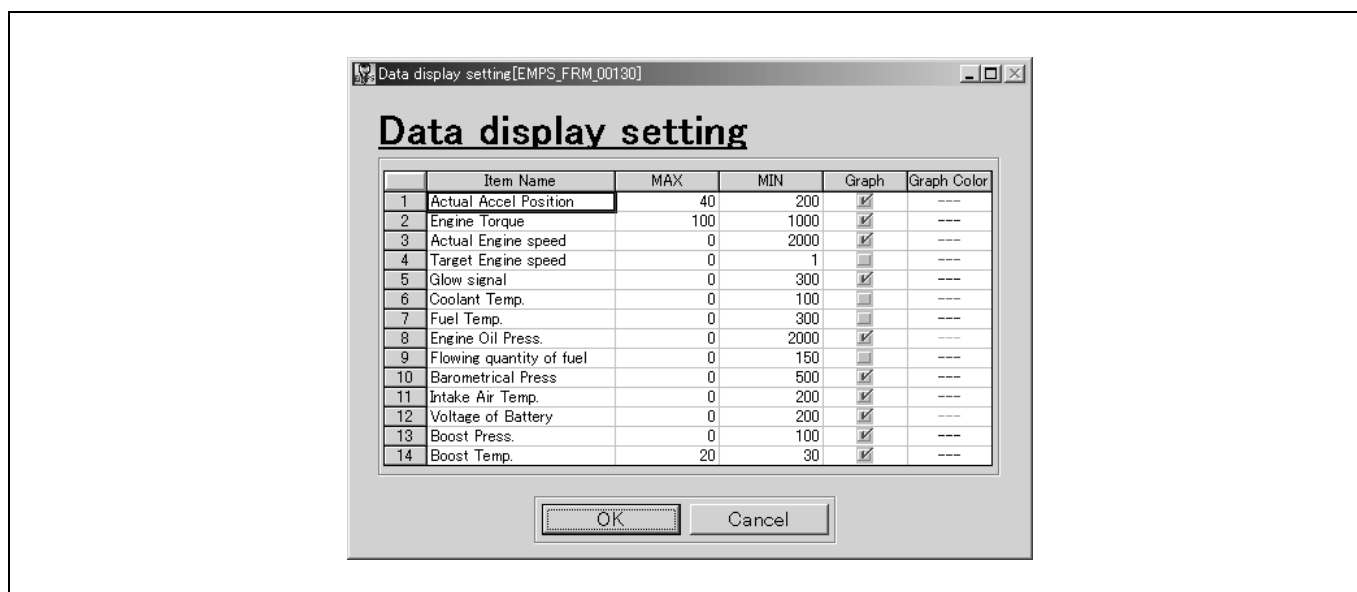
9. Change unit(F/psi)
10. Clip Board

11. Data display setting
12. Exit

Selection Item Descriptions

Items	Settings/Operation Performed
Change trigger setting	Sets the Snapshot start timing.
Snapshot Start	Starts Snapshot.
DTC	Displays the list of occurred DTC. Double-click on this window, to the change the graphed area to a manual display, which shows a table of steps corresponding to DTC.
Data Parameter	Displays the acquired Data Parameter.
Open file	Opens the previously saved Snapshot data.
Save	Saves the currently displayed Snapshot data to a file.
Save as	Saves currently displayed Snapshot data as a different file name.
Change unit(C/kpa)	Changes parameter unit (F/psi) displayed on the Data Parameter area into (C/kpa).
Change unit(F/ psi)	Changes parameter unit (C/ kpi) displayed on Data Parameter area into (F/ psi).
Clip Board	Saves currently displayed graphed image to clip board. Saved images can be pasted onto other applications.
Data display setting	Sets graphed display for each Data Parameter.
Exit	Closes Snapshot screen.

Data display setting CAN mode



Selection Item Descriptions

Items	Settings/Operation Performed
Item Name	Data names that are required from ECU.
MIN	Enter the minimum value in graph display.
MAX	Enter the maximum value in graph display.
Graph display	Sets if display in graph or not.(If a tick mark is entered, it refers that graph display is ON)
Graph color	Sets the border color on the graph.Clicking inside the cell displays the color setting screen.)

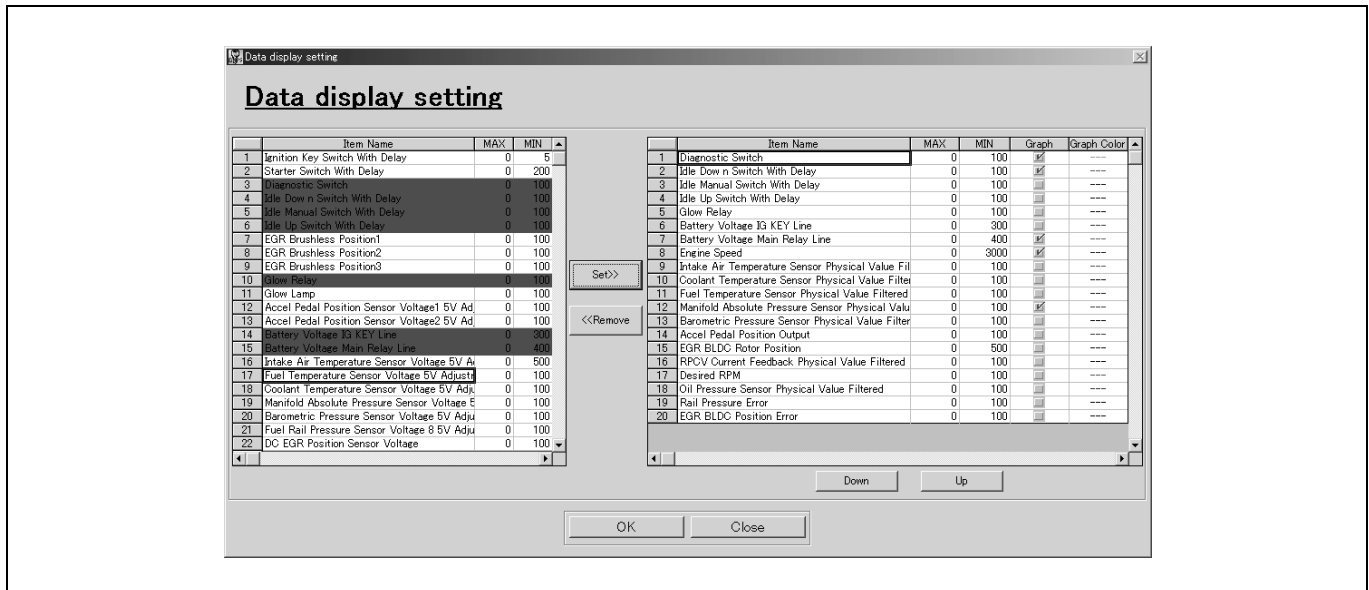
KW2000 mode

Max. 30 items can be displayed on the screen in KW 2000 mode.(20 items are always displayed + max. 10 desired items can be selected)

Desired items can be set on the screen shown below.

All the items that are acquired in KW 2000 mode are listed on the left side of the screen and the items that are displayed in the Data display screen are listed on the right side.

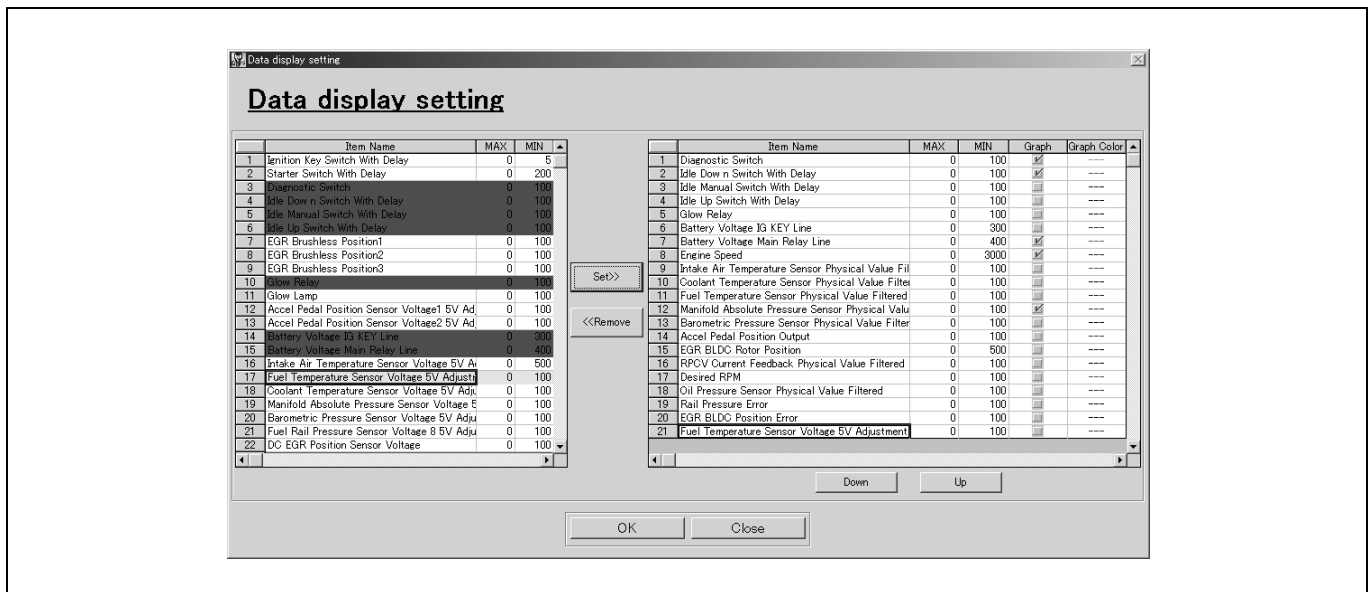
Items in the red background that are listed on the left side of the screen are the ones that are always displayed.



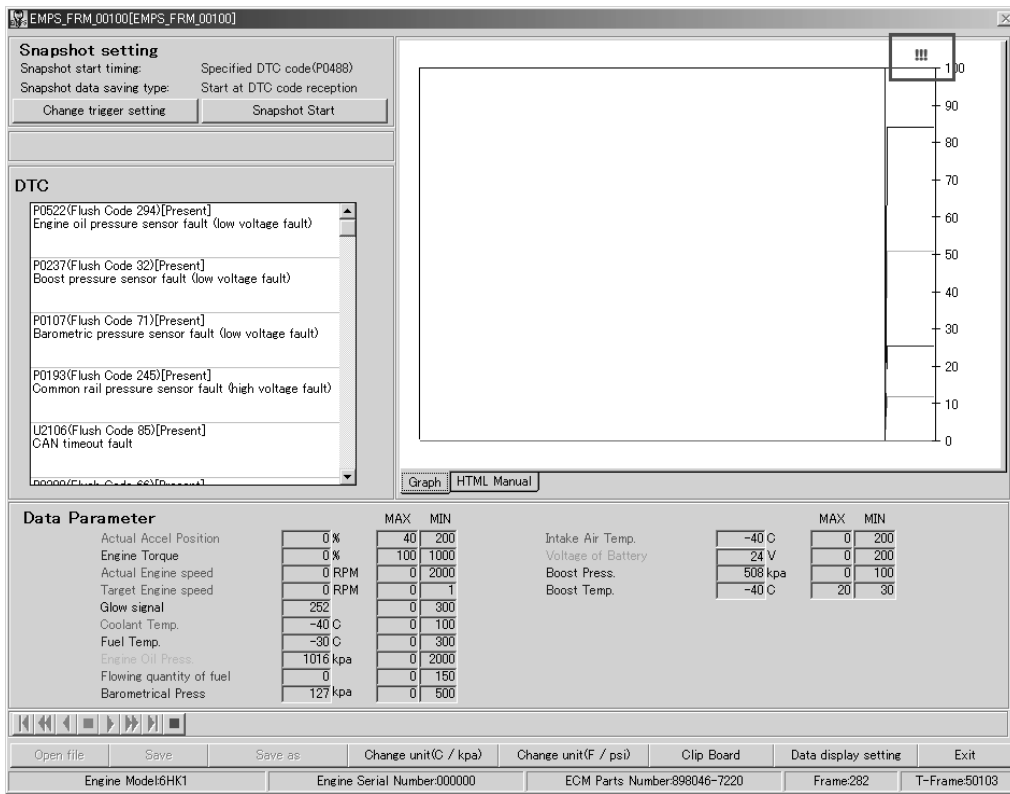
Selection Item Descriptions

Items	Settings/Operation Performed
Item Name	Item Name: Data names that are required from ECU.
MIN	Enter the minimum value in graph display.
MAX	Enter the maximum value in graph display.
Graph display	Sets if display in graph or not. (If a tick mark is entered, it refers that graph display is ON)
Graph color	Sets the border color on the graph. Clicking inside the cell displays the color setting screen.)

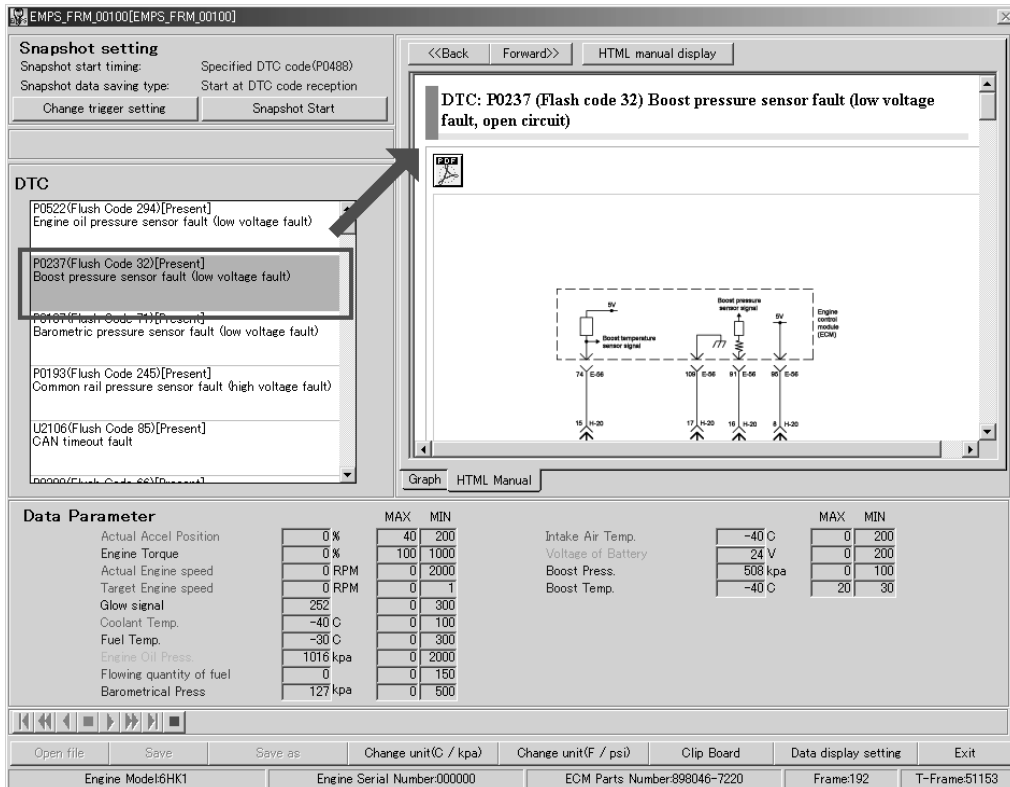
Select the items in the white background using a mouse, and then click the [Set>>] button to change the background to yellow and move to the list on the right side of the screen.



Select the items to cancel the selection from the list on the right side of the screen and click the [<<Remove] button. Select the items to change the sort order from the list on the right side of the screen and click the [Down] or [Up] button to change. A sign will be displayed on the screen at DTC occurrence.



Double-click on the DTC error list to display a corresponding HTML manual.



3.1.2 Actuator

When CAN MODE is selected

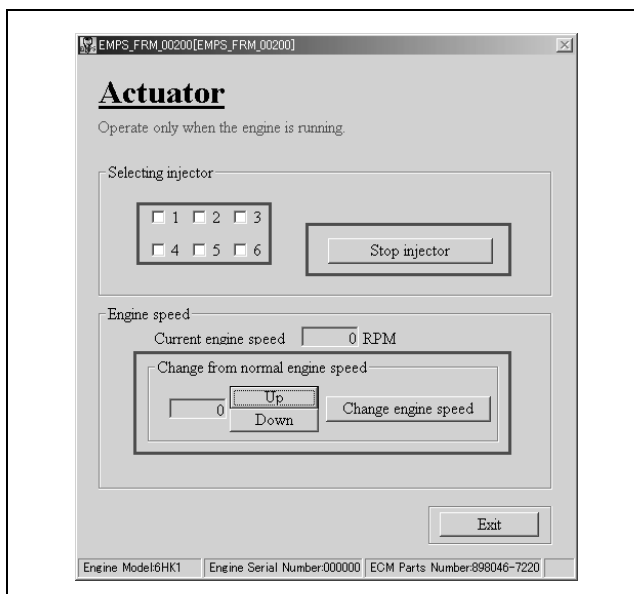
Displays the Injector Balancing Test screen.

Usage: Checks if injection is normal. Stops each injector of every corresponding cylinder when the engine is running and evaluates with the changes of vibration and abnormal engine sound.

Operation: Put a mark in the check box of an injection number to be stopped and click the [Stop injector] button.

Set the desired value for engine speed using the [Up] and [Down] buttons and click the [Change engine speed] button to change the engine speed.

The maximum number of injectors that can be selected is half of the number of cylinders of engines that are connected.



When KW2000 MODE is selected

Displays the Actuator Test menu screen.

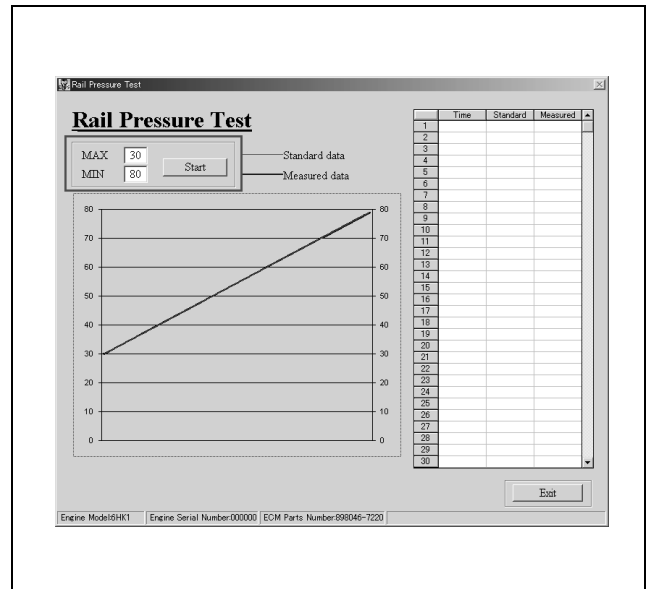


1. Rail Pressure Test

Usage: Checks for the occurrence of large amount of delay against the request value for rail pressure when the engine is running.

Operation: Enter the MAX and MIN rail pressure value and click the [Start] button.

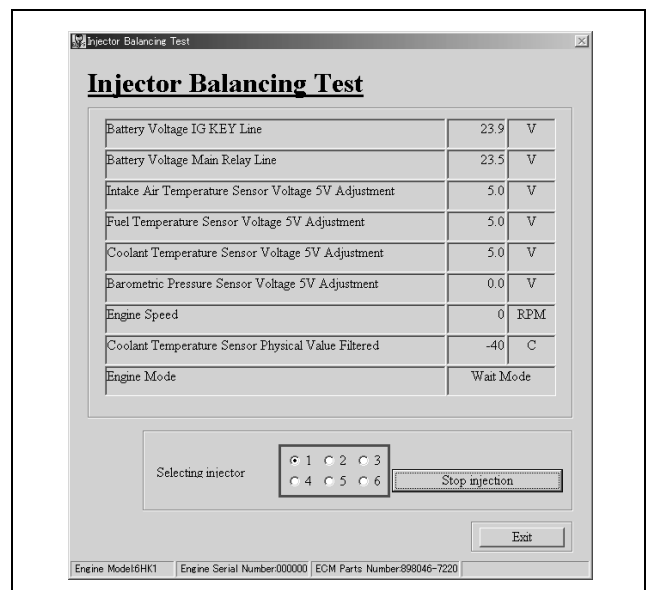
Data time, standard data (30 to 80) and corresponding data when standard data is sent will be listed on the right side of the screen.



2. Injector Balancing Test

Usage: Checks if injection is normal. Stops each injector of every corresponding cylinder when the engine is running and evaluates with the changes of vibration and abnormal engine sound.

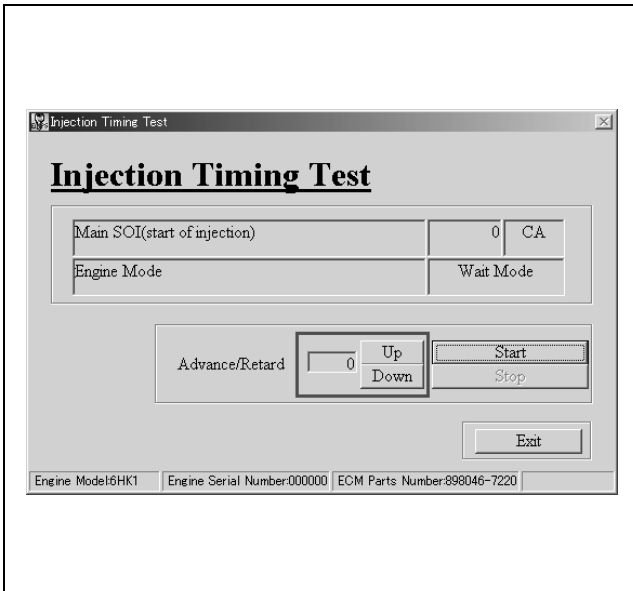
Operation: Select the injection number to be stopped and click the [Stop injection] button.



3. Injection Timing Test

Usage: Changes the expected injection timing that is effected by the injection timing and checks the changes when white smoke or rough-idling has found.

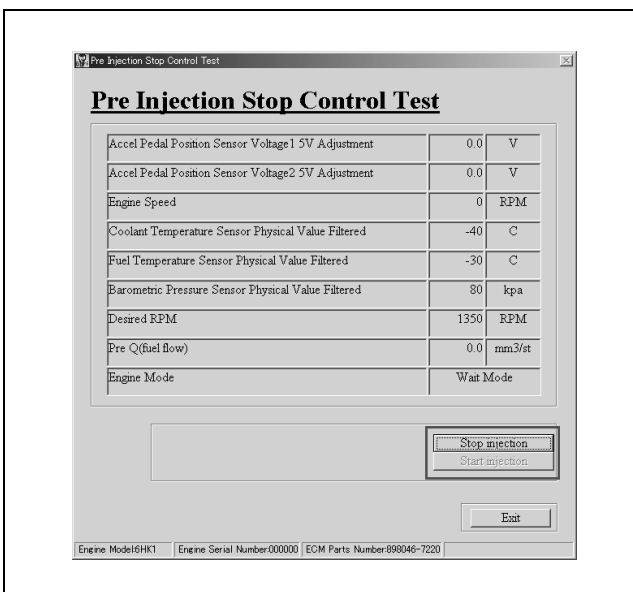
Operation: Click the [Up] or [Down] button to change Advance or Retard value, and then click the [Start] button.



4. Pre Injection Stop Control Test

Usage: Stops Pre Injection when vibration or abnormal sound has found on the machine and checks the changes of the vibration and abnormal sound. Pre injection functions is working normally if the vibration and abnormal sound stop.)

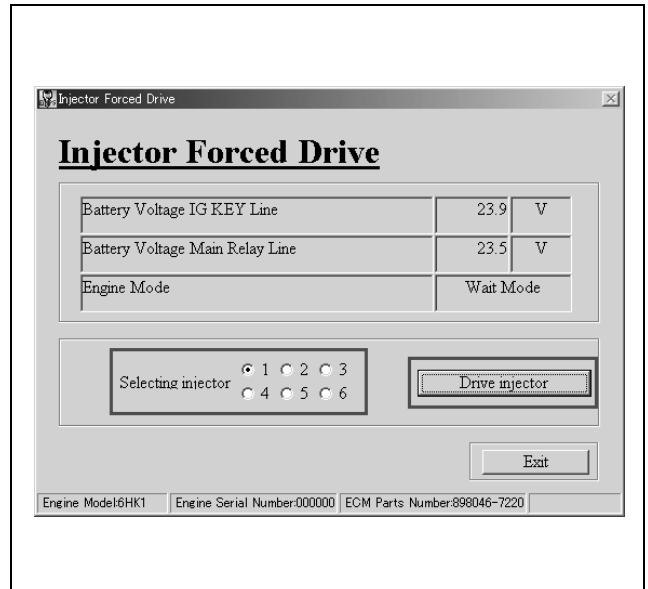
Operation: [Pre Injection Stop Control] button stops injections (for 10 seconds or until clicking the [Start injection] button).



5. Injector Forced Drive Test

Usage: Simply inspects the injector electrical system Operate the injector solenoid when the engine stops and check the operating sound is not abnormal.

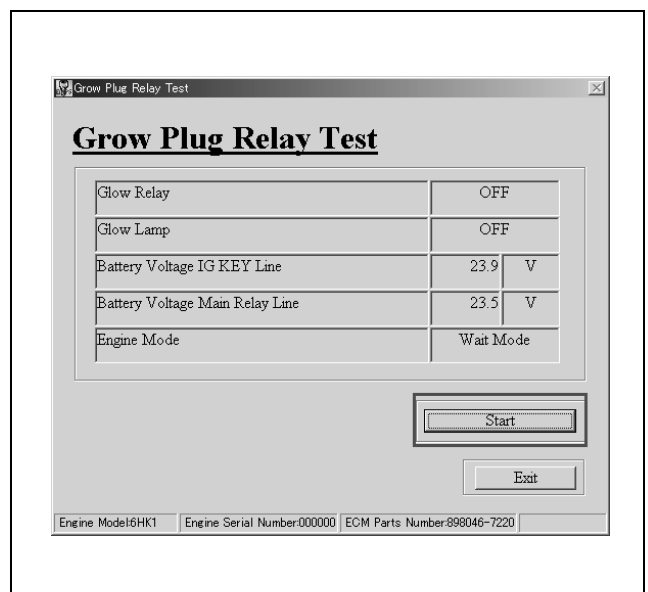
Operation: Select the injector number and click the [Drive injector] button.



6. Glow Plug Relay Test

Usage: Simply inspects the glow plug relay electrical system Operate the glow relay when the engine stops and check the operating sound is not abnormal.

Operation: Click the [Start] button to perform Plug Relay Test.



7. EGR control test

Usage: Checks if the EGR control is operating as the request command when the engine stops.

Operation: Click the [Start] button to start EGR control test. A desired value for EGR Rotor Position can be set between 0 and 100 while operating.

