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FUSO Diagnostics



Operation Manual

90EXX0002 April, 2016

FUSO

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FOREWORD

This manual describes the functions, operation and other particulars of FUSO Diagnostics.

By understanding the functions and operation of FUSO Diagnostics and FUSO Connect, you can efficiently and correctly troubleshoot on-board electronic control units using the FUSO Diagnostics system.
Since the operation of FUSO Diagnostics varies depending on the type of on-board electronic control unit, be sure to read this manual before you start troubleshooting.
Since the FUSO Diagnostics system is subject to specification changes and improvements, its operation may not be consistent with the instructions given in this manual. In case of any such inconsistency, follow the instructions displayed on FUSO Diagnostics.
Some vehicles are not equipped with the on-board electronic control unit described in this manual.

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Revision history

Revised in	Description	Reference code	Applicable FD version
Jul., 2011	Newly introduced	-	Up to FDS-R10-6.3
Aug., 2011	Descriptions for “Rosa” were added to “Example of Use in Part Replacement and Repair”.	F3-005 to F3-200	Up to FDS-R10-6.3
	“Canter—Changing the Specifications” was added to “Example of Use in Part Replacement and Repair”.	F3-005	
	“Canter—EEC (Engine ECU)” was added to “Example of Use in Part Replacement and Repair”	F3-005	
Sep., 2011	New section “Simulation Function” was established.	F1-510	
	“FK, FM, FN, FQ —ACM (SCR ECU)” was added to “Example of Use in Part Replacement and Repair”.	F3-510	
	“FP, FS, FU, FV, FY —Changing the Specifications” was added to “Example of Use in Part Replacement and Repair”.	F3-805	
	“FP, FS, FU, FV, FY —MCM (Engine ECU)” was added under Example of Use in Part Replacement and Repair	F3-810	
	“FP, FS, FU, FV, FY —ACM (SCR ECU)” was added to “Example of Use in Part Replacement and Repair”.	F3-820	
	“FP, FS, FU, FV, FY —CPC2” was added to “Example of Use in Part Replacement and Repair”.	F3-830	
Dec., 2011	A procedure to check the system and data version is added to “Basic Operation”.	F1-040	Up to FDS-R11-2
	A procedure for omitting a quick test was added to “Basic Operation”.	F1-050	
	Figures were replaced in “High-functional Operations” due to the update of the FD screen display.	F2-020	
	Some notes regarding data file creation were added to “High-functional Operation”.	F2-060	
	Figures were replaced in “Example of Use in Part Replacement and Repair” due to the update of the FD screen display.	F3-010, F3-030, F3-100, F3-110, F3-200	
	Descriptions for “MK” and “MP” were added to “Example of Use in Part Replacement and Repair”.	F3-510	
	Descriptions for “MM” and “MS” were added to “Example of Use in Part Replacement and Repair”.	F3-805 to F3-830	
	“Replacing the ACM (SCR ECU)” was added to “Changing the Specifications” in “Example of Use in Part Replacement and Repair”.	F3-805	
	Unnecessary entries were deleted from the “Coding: Rewriting data (Code input)” column in the table in “Example of Use in Part Replacement and Repair”.	F3-810	
	The description for “Remarks” in the table was changed, “Replacing ACM (SCR ECU)” was added under “ACM (SCR ECU)”, and figures were replaced due to the update of the FD screen display in “Example of Use in Part Replacement and Repair”.	F3-510, F3-820	
	Descriptions for “CPC2” were changed and unnecessary descriptions were deleted in “Example of Use in Part Replacement and Repair”.	F3-830	
	“Super Great—MR2” was added to “Example of Use in Part Replacement and Repair”.	F3-840	

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Revision history

Jan., 2012	“How to cope with error in rewriting ECU” was added to “Troubleshooting”.	F5-030	Up to FDS-R12-1
	“If communication error from ECU is displayed” was added to “Troubleshooting”.	F5-040	
	The position of descriptions for “Simulation Function” was optimized.	F5-510	
	Detailed information was added to the descriptions for “High-functional Operations - Adaptation/Code Entry (Coding)”.	F2-020	
	Detailed information was added to the descriptions for “High-functional Operations - Initial Startup/Control Unit Replacement”.	F2-030	
	Detailed information was added to the descriptions for “High-functional Operations - Initial Startup/New Programming (Software Rewriting)”.	F2-040	
May, 2012	A help screen was added to “Basic Operation”.	F1-055	Up to FDS-R12-1
	Figures were replaced in “High-functional Operations” due to the update of the FD screen display.	F2-020	
	Some notes were added to “High-functional Operations - Initial Startup/Control Unit Replacement”.	F2-030	
	Descriptions for “Example of Use in Part Replacement and Repair” were changed. Figures were replaced due to the update of the FD screen display.	F3-030, F3-040, F3-070, F3-080, F3-110, F3-200, F3-510, F3-805, F3-810, F3-820, F3-830	
	Detailed information was added to the descriptions for “Simulation Function”.	F5-510	
July, 2012	Figures were replaced due to update of “Product Overview”.	F0-030 to F0-050	Up to FDS-R12-1
	Illustrations and descriptions of button icons were added to the descriptions for button icons in “Basic Operation”.	F1-030	
	Pages were reduced due to the change in the help screen configuration in “Basic Operation”.	F1-055	
	Remarks were added to “High-functional Operations - Initial Startup/Control Unit Replacement”.	F2-030	
	Detailed information was added to the descriptions for “High-functional Operations - Initial Startup/New Programming (Software Rewriting)”.	F2-040	
	Descriptions for “Example of Use in Part Replacement and Repair” were changed. Figures were replaced due to the update of the FD screen display.	F3-005, F3-010, F3-030, F3-040, F3-050, F3-080, F3-100, F3-110, F3-200, F3-510, F3-805, F3-810, F3-820, F3-830	
	Descriptions for IMMO (Immobiliser ECU) and EMCM (Motor ECU) were added to “Example of Use in Part Replacement and Repair”.	F3-060, F3-130	

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Revision history

Nov., 2012	Illustrations and descriptions of button icons were added to the descriptions for button icons in “Basic Operation”.	F1-030	Up to FDS-R12-2
	The name of a “help screen” is changed into “other functions” in “Basic Operation”. Descriptions of print function were added to the other function in “Basic Operation”.	F1-055	
	Figures were replaced in “High-functional Operations -.Teach-in processes” due to the update of the FD screen display.	F2-010	
	Figures were replaced in “High-functional Operations - Reset of coding” due to the update of the FD screen display.	F2-050	
	Descriptions for “Example of Use in Part Replacement and Repair” were changed. Figures were replaced due to the update of the FD screen display.	F3-010, F3-100, F3-110, F3-200, F3-805, F3-810	
	Descriptions of the reset method of the reprogramming error of FUSO Diagnostics were added to “How to cope with error in rewriting ECU” in “Troubleshooting”.	F5-030	
	“Configuration change” was added to “FRN (Field Rewrite Network)”.	F6-090	
May, 2013	Pages were reduced due to the change in the coding configuration in “High-functional Operations”.	F2-020	Up to FDS-R13-1
	A data logger functions was added to “High-functional Operations”.	F2-080	
	Descriptions for “Example of Use in Part Replacement and Repair” were changed. Figures were replaced due to the update of the FD screen display.	F3-005, F3-010, F3-200	
July, 2013	Descriptions for “Example of Use in Part Replacement and Repair” were changed. Figures were replaced due to the update of the FD screen display.	F3-010, F3-030, F3-070, F3-200, F3-510, F3-810, F3-820	
Jan., 2014	Figures were replaced due to update of “Product Overview”.	F0-030	Up to FDS-R13-1.2
	Descriptions for “High-functional Operations - Data logger functions” were changed. Figures were replaced due to the update of the FD screen display.	F2-080	
	Descriptions for “Example of Use in Part Replacement and Repair” were changed. Figures were replaced due to the update of the FD screen display.	F3-005, F3-010	
Feb., 2014	Descriptions for “Example of Use in Part Replacement and Repair” were changed. Figures were replaced due to the update of the FD screen display.	F3-010, F3-030	Up to FDS-R13-1.3
Apr., 2014	Descriptions for “Example of Use in Part Replacement and Repair” were changed. Supplementary explanation was added.	F3-030	
May, 2014	Descriptions for “Example of Use in Part Replacement and Repair” were changed. Unnecessary explanation was deleted.	F3-030	

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Revision history

Oct, 2014	Changed icon and icon name.		Up to FDS-R14-1.1
	Updated “Screens Displayed before Starting Troubleshooting”		
	Added “VIN recognition function”		
	Changed location of excel macro in data logger function		
	Changed Example of Use in Part Replacement and Repair [LDT] Canter/Rosa—EEC (Engine ECU) *Resetting/Rewriting data when replacing the injector. *Replacing the engine ECU.		
	Changed Example of Use in Part Replacement and Repair [LDT] Canter/Rosa— SSAM (SSAM) *Figures were replaced due to the update of the FD screen display.		
	Changed Example of Use in Part Replacement and Repair [MDT] FK, FM, FN, FQ, MK, MP—ACM (SCR ECU) *Figures were replaced due to the update of the FD screen display.		
	Changed Example of Use in Part Replacement and Repair [HDT] FP, FS, FU, FV, FY, MM, MS—CPC2 *Added Changing idle speed (when using air-conditioner)		
	Updated “How to cope with error in rewriting ECU”		
	Updated “FUSO Diagnostics Simulation”		
Dec, 2014	Added SLD for New Zealand	F3-830	
Jan, 2015	Added reference information (check list) when writing <MCM, ACM, EEC, TCM>	F6-070	-
	Changed description data logger function < MCM, ACM, EEC, TCM >	F2-080	FDS-R14-1.2
	Improved description of “Replacement of engine ECU”<MR2>	F3-840	-
	Added EEC variant. Updated “Cross-reference table of diagnosis codes for Canter and Rosa”.	F5-510	FDS-R14-1.2

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* Terms given in brackets are those used in Shop Manual.

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* Terms given in brackets are those used in Shop Manual.

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IMPORTANT SAFETY INSTRUCTIONS

Various symbols are used in this manual to ensure that this system is properly used and to prevent physical injury and damage to property. These symbols mean the following.

WARNING	Indicates a situation which, if not observed and handled properly, could result in death or serious injury.
CAUTION	Indicates a situation which, if not observed and handled properly, could result in serious injury or damage to property.

Meaning of symbols		This symbol indicates prohibited actions.
		This symbol indicates mandatory actions.

WARNING	
Do not operate the system while driving the vehicle.	Do not plug/unplug the AC adapter and car battery adapter with wet hands.
• **This could result in a traffic accident.**	• **You could receive an electric shock.**

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IMPORTANT SAFETY INSTRUCTIONS

CAUTION

FUSO Connect uses an LCD screen. If the screen glass breaks due to dropping or shocks and liquid crystal leaks out, be careful not to allow the liquid crystal to come into contact with your skin.

- **If liquid crystal gets on your skin, immediately wash it off with water. Get medical advice if you observe any abnormal symptoms on your skin.**

Do not use this system if the plug or cord of the AC adapter or car battery adapter is damaged or if the AC adapter cannot be firmly plugged into the AC outlet.

- **This could result in an electric shock, short circuit or fire.**

Do not hold the cord when plugging/unplugging the harness. Be sure to hold the connector.

- **Otherwise, the conductor in the cord may break. This could lead to a short circuit and consequent fire hazard.**

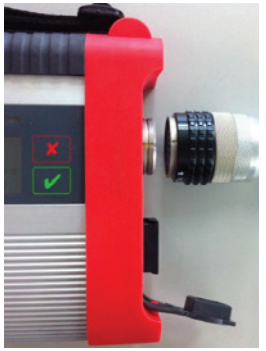
Make sure the AC adapter and car battery adapter are unplugged when the system is not in use.

- **Otherwise, injury or burns may result. An electric shock or fire hazard due to poor insulation could also result.**

CAUTION

When connecting the harness to the FUSO Connect, check the yellow mark on both connectors and be sure to connect the harness directly onto the FUSO Connect connector.

- After making sure that the harness is firmly connected, push the harness connector cover toward the FUSO Connect to lock the connector.
- **A bent connector pin could cause a short circuit to the connector case, causing damage to the FUSO Connect.**



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IMPORTANT SAFETY INSTRUCTIONS

Cautions
Do not use the PC, FUSO Connect and harness in a place where they may be subjected to direct sunlight or high temperatures. Do not leave them in a vehicle in the sun. Doing so may cause these units to fail.
Store the PC, FUSO Connect and harness in a place where they are not exposed to high humidity and they cannot get wet.
Be careful when moving the PC, FUSO Connect and harness to a place with a significantly different temperature and/or humidity as internal or external condensation may occur.
Keep the PC, FUSO Connect and harness free from rain, dirt, dust, food, liquid, etc.
Be careful not to drop the PC, FUSO Connect and harness as damage may result.
Do not allow engine oil, petrol, anti-freeze and battery fluid to get on the PC, FUSO Connect and harness. Do not use solvent such as thinner or benzene to clean the PC, FUSO Connect and harness. Otherwise, the surfaces of the PC and FUSO Connect may be damaged.
Be sure to turn off the vehicle's ignition before connecting the FUSO Diagnostics harness between the FUSO Connect and vehicle. • **If you connect the harness with the ignition turned on, the program in the system may be damaged.**
Use only the specified AC adapter, car battery adapter, cigar lighter, probes, harness and cables. • **If you use unspecified product(s), overvoltage or poor contact may result, causing damage or malfunction.**
Avoid dust and static electricity on the multi-pin connectors of the FUSO Connect. **Otherwise, malfunction or damage may result.**

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Precautions when servicing

- Be sure to follow general precautions for servicing when inspecting or servicing a vehicle using FUSO Diagnostics.
- Refer to the individual vehicle's servicing manual for detailed information on precautions for servicing.

Precautions in the workplace

- Be sure to follow general precautions for servicing when inspecting or servicing a vehicle using FUSO Diagnostics.
- Refer to the individual vehicle's servicing manual for detailed information on precautions for servicing.

Precautions when driving

- If you use FUSO Diagnostics while driving a vehicle, make sure that all parts are correctly installed before driving the vehicle.
- While driving the vehicle, the driver should not operate FUSO Diagnostics or watch the screen.
- Route the FUSO Diagnostics harness and other cables so that they do not interfere with driving.
- Connect/disconnect the PC and FUSO Connect with the vehicle stopped.

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Precautions when using the PC



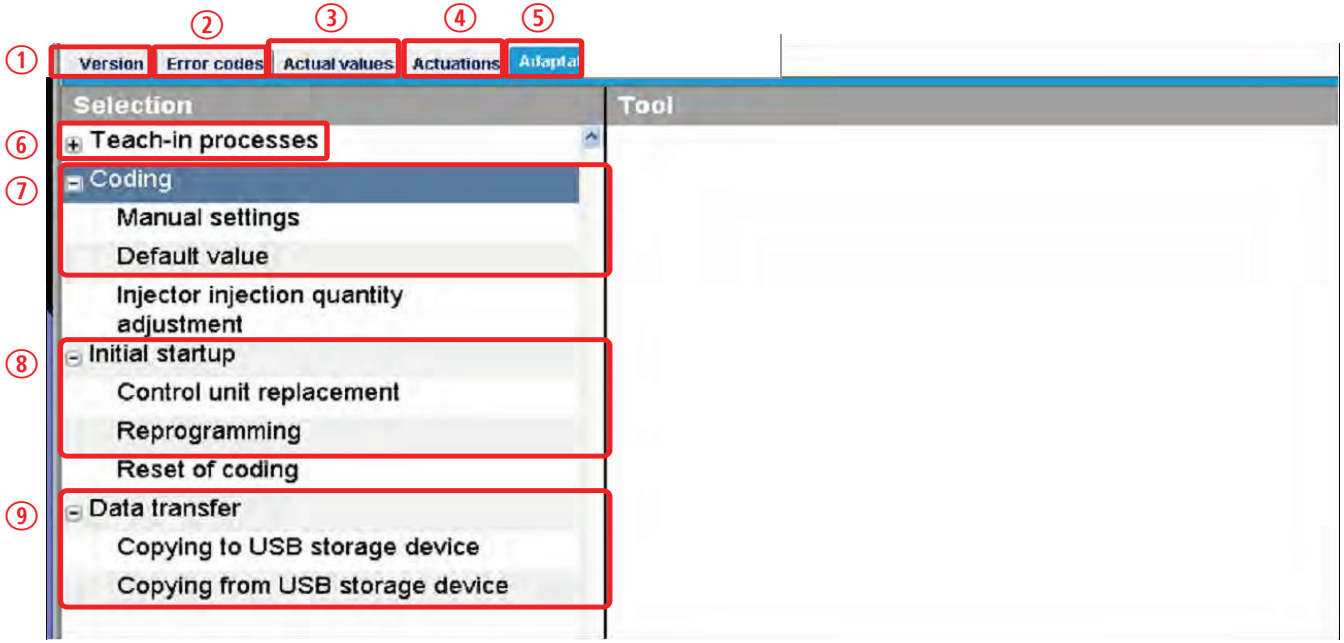
Do not install anything.

- Your PC is set up as a specific FUSO Diagnostics machine. Do not install any software as this could cause the FUSO Diagnostics system to malfunction.



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- By performing diagnostic communication with an on-board electronic control unit (ECU) that incorporates a diagnosis function, the following functions become available:



① Version (ECU version)
Displays the detailed on board ECU information.

② Error codes (diagnosis codes)
Readout of error codes (diagnosis codes): Shows the error codes (diagnosis codes) of various types that are stored in the on-board ECU and displays the code numbers, names, and other information concerned.
Interactive troubleshooting: Interactively shows, the detailed inspection procedure the operator should follow to locate the causal problem of each error code (diagnosis code) stored.

③ Actual values (service data)
Readout of actual values (service data): Shows the data from the different sensors/ switches connected to the on-board ECU and displays them in a tabular or graphic form.

④ Actuations (actuator test)
Allows the operator to manually start or stop any of the actuators connected to the on-board ECU.

⑤ Adaptations (coding/resetting/programming)
Contains the following functions.

⑥ Recognition (resetting): Resets a value recognized (learned) by the on-board ECU.

⑦ Code entries (coding): Allows the operator to recode required parameters stored in the on-board ECU to change the vehicle specifications.

⑧ Initial startup (reprogramming)
- Reprogramming: Allows to re-programme the on-board ECU software.
- Control unit replacement: Used when replacing the on-board ECU.

⑨ Data transfer
• Used to exchange data between the FUSO Diagnostics system and a USB storage device.

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1. PC

Item	Recommended specifications
OS	Windows® XP (SP3), or Windows® 7 (32bit)
Memory	Windows® XP : 512 MB or more recommended Windows® 7 : 2GB (3GB or more recommended)
CPU	Windows® XP : Pentium®/300MHz or faster (Pentium®/500MHz or faster recommended) Windows® 7 : Intel processor 1GHz or faster (Confirmed processer : Core™ 2 Duo, Core™ i5)
HDD (disk space)	Windows® XP : 2GB or more Windows® 7 : 16GB or more
DVD drive	Required
Display	Resolution: XGA (1,024 × 768) Colours: 24-bit colour (approximately 16.7 million colours) Touch screen function (not mandatory)
Other	LAN port, USB port × 1

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2. FUSO Connect
   - This serves as a communication interface for connecting the on-board ECU to the PC.
   - FUSO Connect can be used on both 12-volt and 24-volt vehicles.

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3. FUSO Diagnostics harness
   - This is used to connect FUSO Connect to the vehicle’s diagnosis connector.

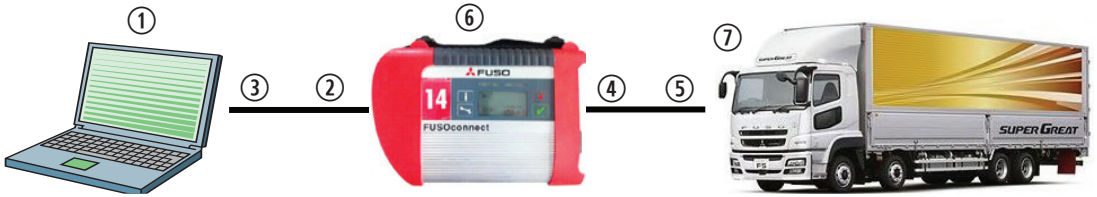


4. LAN cable (crossover cable)
   - Used to connect the FUSO Connect to the PC.
   - Use a commercially available crossover cable (category 5e or higher) for LAN connection.

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Follow the steps below to connect the cable and harness:

① Start up the PC.
② Connect the LAN cable (crossover cable) to the FUSO Connect.
③ Connect the LAN cable (crossover cable) to the PC.
④ Connect the FUSO Diagnostics harness to the FUSO Connect.
⑤ Connect the FUSO Diagnostics harness to the vehicle's diagnosis connector.
Note: Perform the above steps in reverse sequence when disconnecting.
⑥ Switch on the power button (green [✓] button) and check that the green lamp lights.
⑦ Start the FUSO Diagnostics system on the PC, then turn the vehicle's ignition to the ON position to start diagnosis.



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<Connecting the LAN cable to PC>



Connect the LAN cable to the PC LAN port marked (品).

Note
Be sure to use a crossover cable for the LAN connection.

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External view and FUSO Connect part names

The FUSO Connect part names are shown below.





① Harness connector
Harness socket to connect to the vehicle.
② LAN port
LAN socket to connect to the PC.



③ LED lights (red and green)
These lights indicate the power supply and other status.



④ Number clip
FUSO Connect number registered on the PC.



⑤ Information button
Used to show information on the vehicle's battery voltage and software version.



⑥ Adjustment button
This is a control button fused to shut down and restart the FUSO Connect.



⑦ Cancel button
Used to cancel an action after pressing the adjustment button.



⑧ Confirmation button
Use to confirm an action after pressing the adjustment button.

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FUSO Connect functions

The FUSO Connect receives instructions from the PC to communicate with the on-board ECU and perform troubleshooting.



[Startup screen]

- When the FUSO Connect is turned on, the screen shown on the left (“Device not in use”) appears on FUSO Connect unit display.

Note: When the FUSO Connect is turned off, it displays “Sleep mode”.



- When the FUSO Connect is communicating with the on-board ECU after starting the FUSO Diagnostics, the screen shown on the left (“Computer number >> ‘csr’”) is displayed.


Not connected

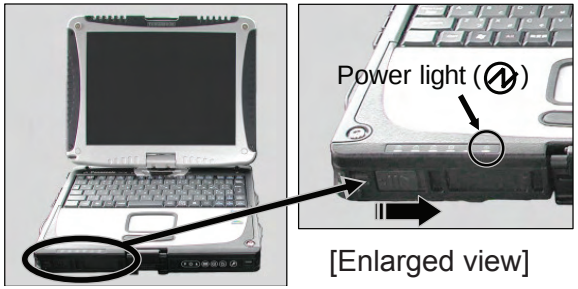

Ready


Communicating with vehicle

- The status of the connection between the PC and FUSO Connect is shown at the lower right corner of the PC screen, as shown on the left.

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[Starting up the PC]



[Enlarged view]

To turn on the PC, slide and hold the switch located at the front left of the PC for about 1 second.
When the power light (green) comes on, release the switch and wait until Windows boots up.

Refer to the PC instruction manual for detailed instructions on how to use the PC.

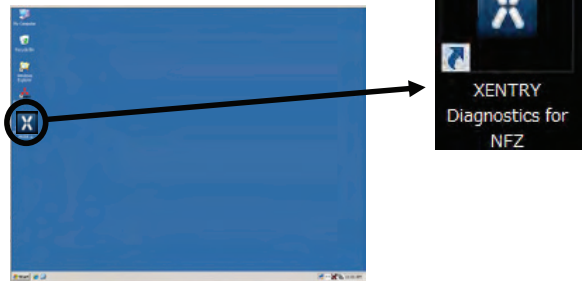
[Entering user name and password]



When Windows boots up, a logon dialog will be displayed.
Type **“mut” in lower case** in both the User name and Password fields, then click the “OK” button.
The password field shows “***” even if you type “mut”.

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[Starting up FUSO Diagnostics]



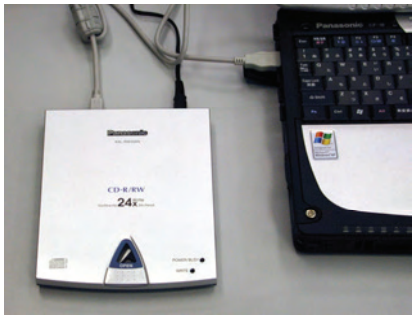
When the desktop is displayed, click the “XENTRY Diagnostics for NFZ” icon on the desktop.
This starts the FUSO Diagnostics program.

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Using the CD-ROM drive



1. Connecting the CD-ROM drive to the PC

When using a CD-ROM to update the FUSO Diagnostics program or service manuals, connect the CD-ROM drive that was delivered with the PC.

① Connect the CD-ROM drive power cord. Connect the CD-ROM drive to the PC with the USB cable. Two USB ports are provided on the PC; you can use either one. You do not have to turn off the PC when connecting the CD-ROM drive to the PC.



[Screen 1]



[Screen 2]

2. Disconnecting the CD-ROM drive from the PC

Follow the steps below to disconnect the CD-ROM drive from the PC:

① Left-click the icon on the task tray at the lower-right corner of the screen.

② When the message shown on Screen 1 is displayed, select “USB Mass Storage Device”.

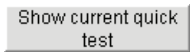
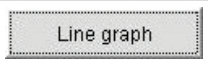
③ When the message shown on Screen 2 is displayed, disconnect the CD-ROM drive USB cable from the PC.

CAUTION

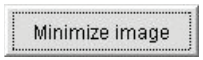
Do not disconnect the CD-ROM drive power or USB cable while data is being updated. This could damage data or devices.

The names and functions of button icons are as follows:

Display	Name	Function
	Vehicle identification	Releases the connection to the vehicle and returns to the vehicle model selection screen.
	Start troubleshooting	Connects to the vehicle and displays the safety rules screen (start of troubleshooting).
	System setup	Displays the system setup screen.
	Exit/log off	Terminates the FUSO Diagnostics system.
	Print	Saves the contents currently displayed in the specified folder in PDF format.
	XSF	Not available.
	Help	Displays the help screen.
	Back	Returns to the previous screen.
	Continue	Continues operation.
	Minimize	Minimizes the screen.
	Maximize	Maximizes the screen.
	Quit	Terminates the FUSO Diagnostics system.
	Start quick test	Starts a quick test.
	Show initial quick test	Shows the results of the initial quick test.

Display	Name	Function
	Show current quick test	Shows the results of the current quick test.
	Clear fault memory	Clears the fault memory.
	Open TIPS result	Not available.
	Start monitoring	Starts troubleshooting monitoring.
	Stop monitoring	Stops troubleshooting monitoring.
	Implement tests prerequisites	Not available.
	Tests	Starts interactive troubleshooting.
	Abort	Aborts the current process.
	Error status of filter (all)	Shows the results of all ECU short tests.
	Error status of filter (F+f)	Shows only the ECU that has present and past DTCs.
	Error status of filter (i)	Shows only the ECU that cannot communicate or is not installed.
	Yes	Confirms the displayed message and continues operation.
	No	Negates the displayed message and continues operation.
	Information	Not available.
	Table	Shows the measured values in a table.
	Bar graph	Shows the measured values in a bar graph.
	Line graph	Shows the measured values in a line graph.

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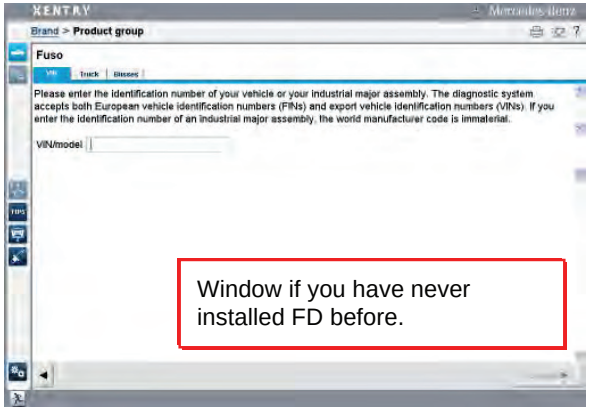
Display	Name	Function
	Show help screen	Displays the help screen.
	Close help screen	Closes the help screen.
	Enable navigation element	Not available.
	Enlarge	Enlarges from the centre of display.
	Reduce	Reduces to the centre of display.
	Enlarge selected image area	Displays the selected area.
	Adjust image width	Resizes the image to fit into the window width.
	Adjust image height	Resizes the image to fit into the window height
	Show/hide component group	Not available.
	Highlight component group	Not available.
	Show value	Not available.
	Show precautions	Not available.
	Show lines in colour	Not available.
	Show/hide description of illustration	Not available.
	Show in full screen mode	Displays an image in full screen mode.
	Minimize image	Returns an image to its original size.

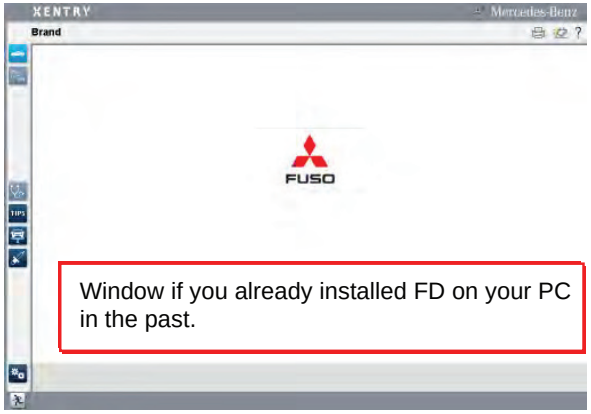
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1. Brand

This is a Brand selection screen.

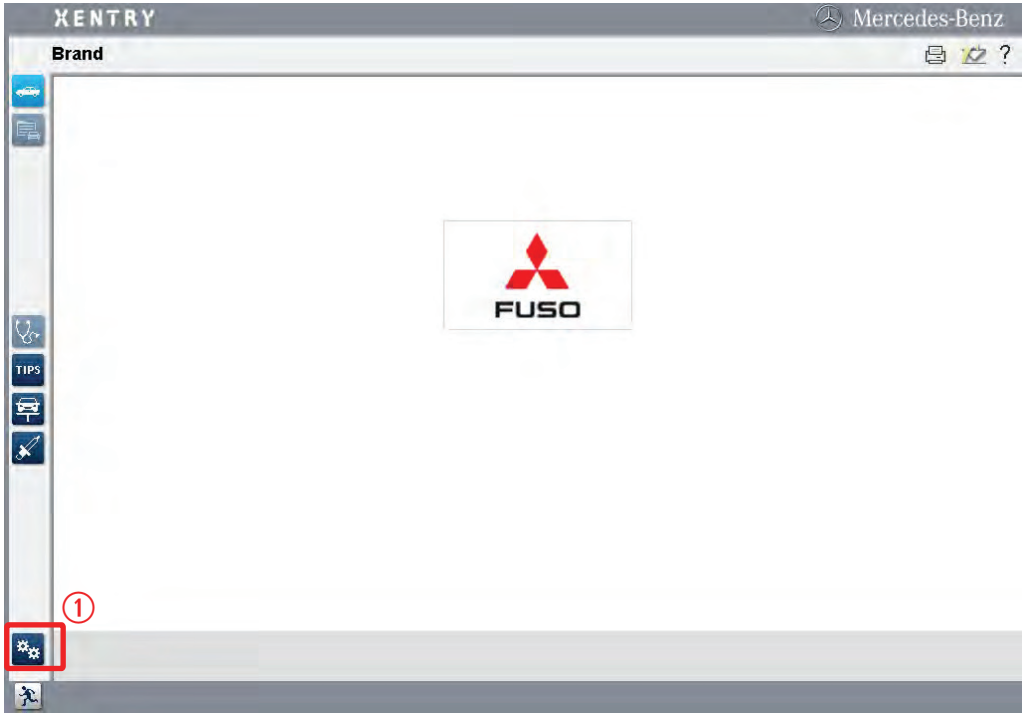
※ You would see the below screen when you install FD first time. It will be shown in English.





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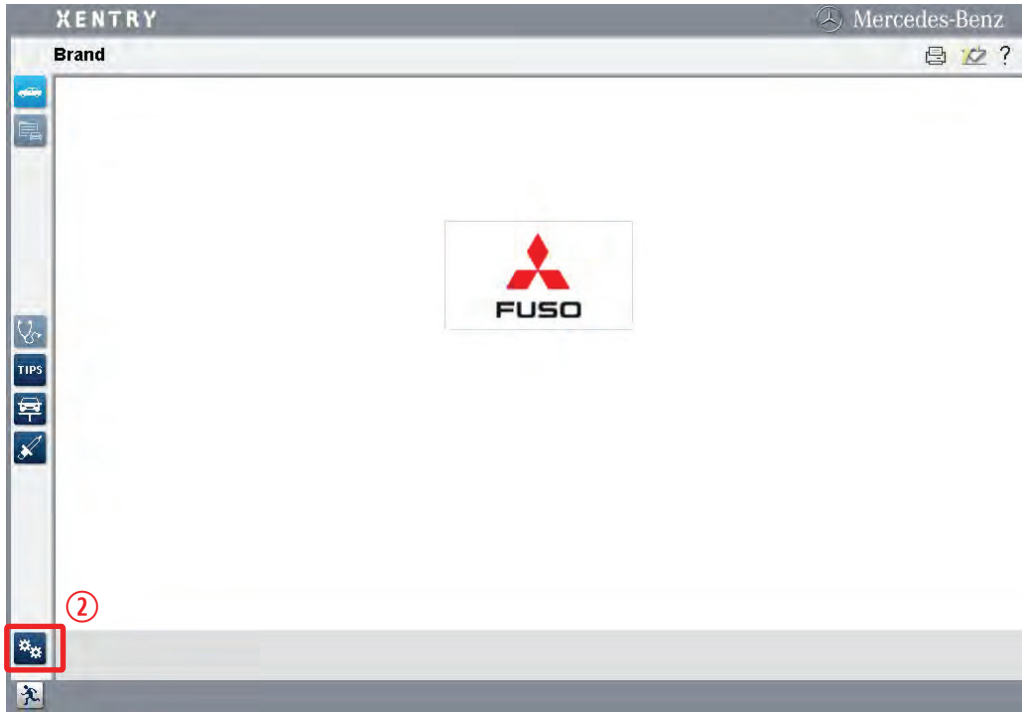
<Initial setting: Language setting>



① Press “System setup” icon on the bottom left side.

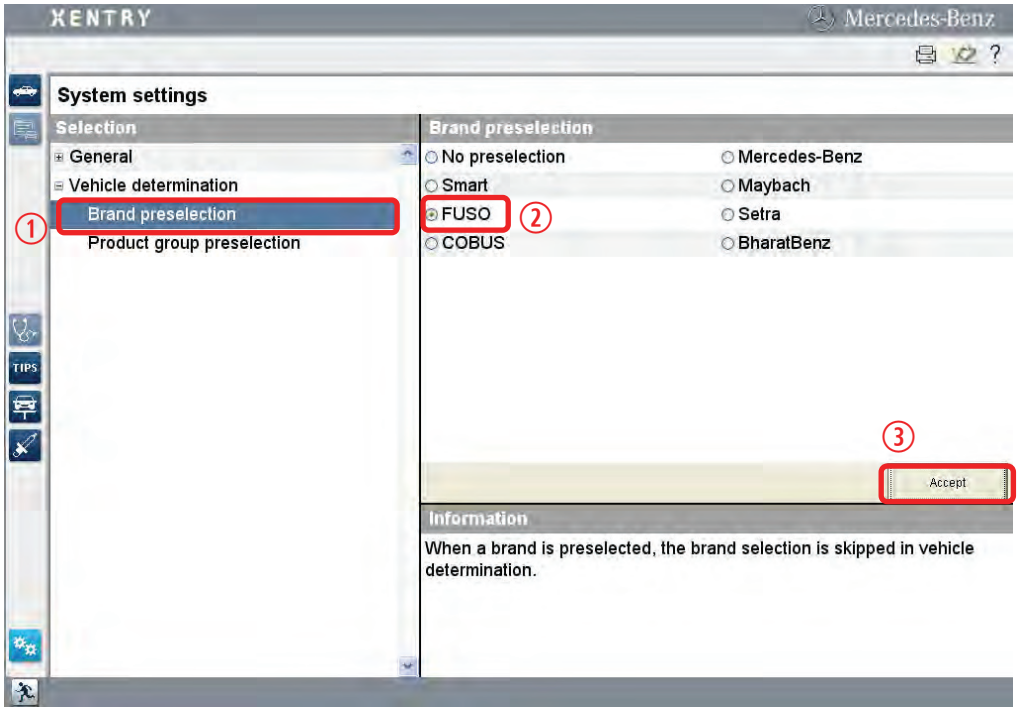
<Initial setting: Launch setting>

If you want to see the Truck selection screen when you launch this application, please follow the process below.

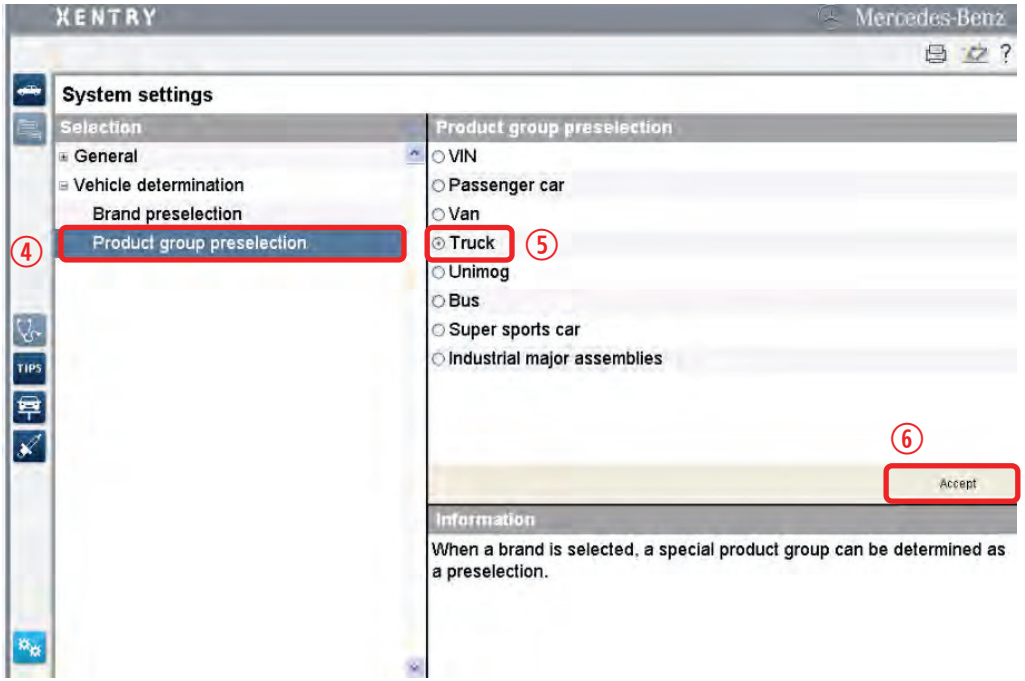


② Press “System setup” icon on the bottom left side.

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① Select “Brand preselection” in Selection/Vehicle determination.
② Check “FUSO”.
③ Click “Accept” button.

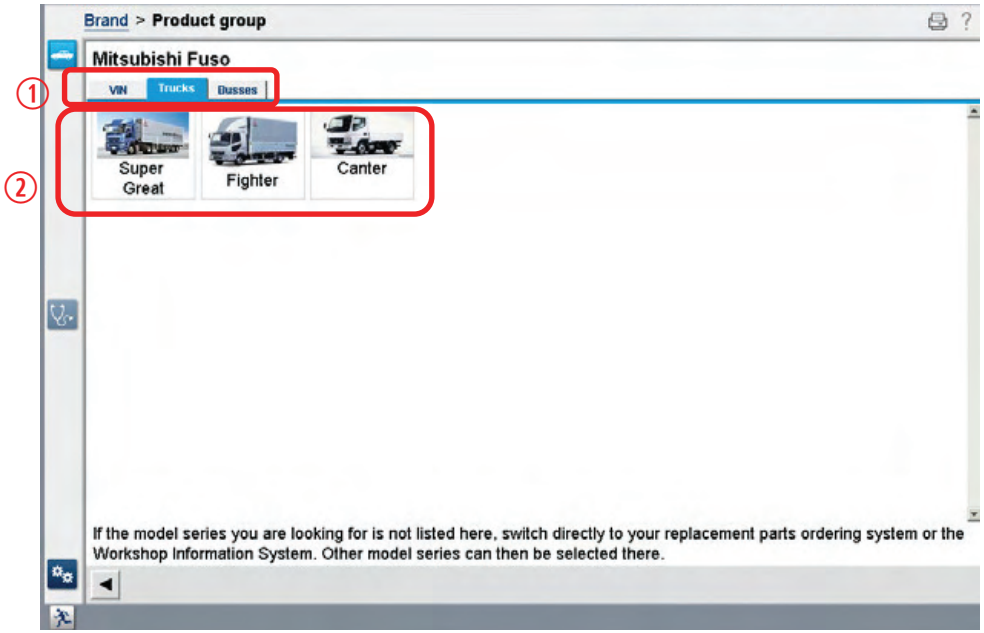


④ Select “Product group preselection” in Selection/Vehicle determination.
⑤ Select “Truck” or “Bus” (please select the one you use the most).
⑥ Click “Accept” button.

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2. Product group

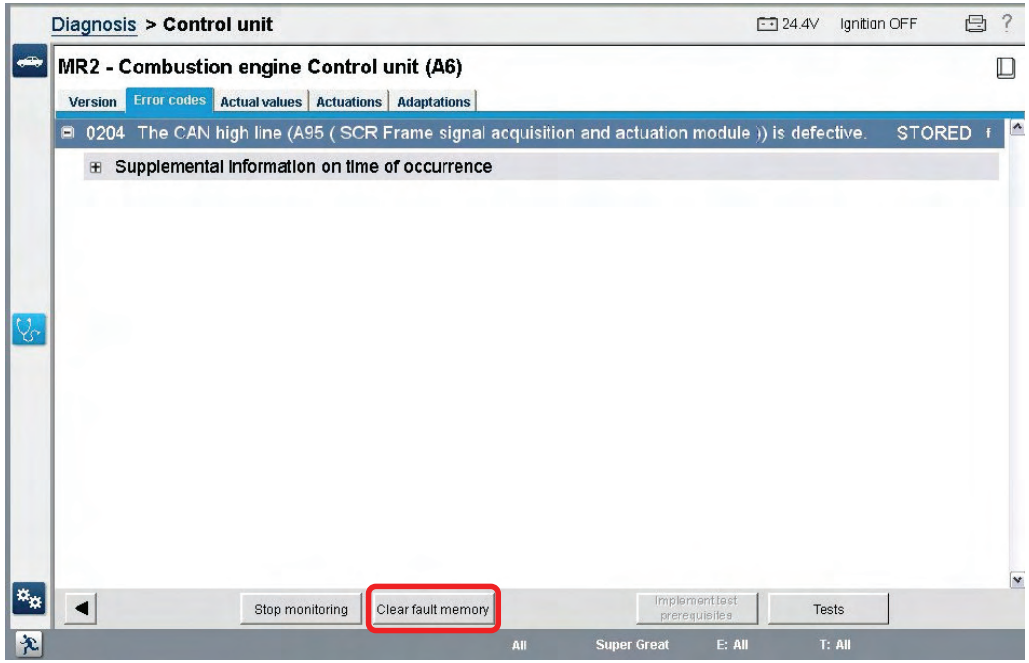
This is a screen to select a vehicle model.

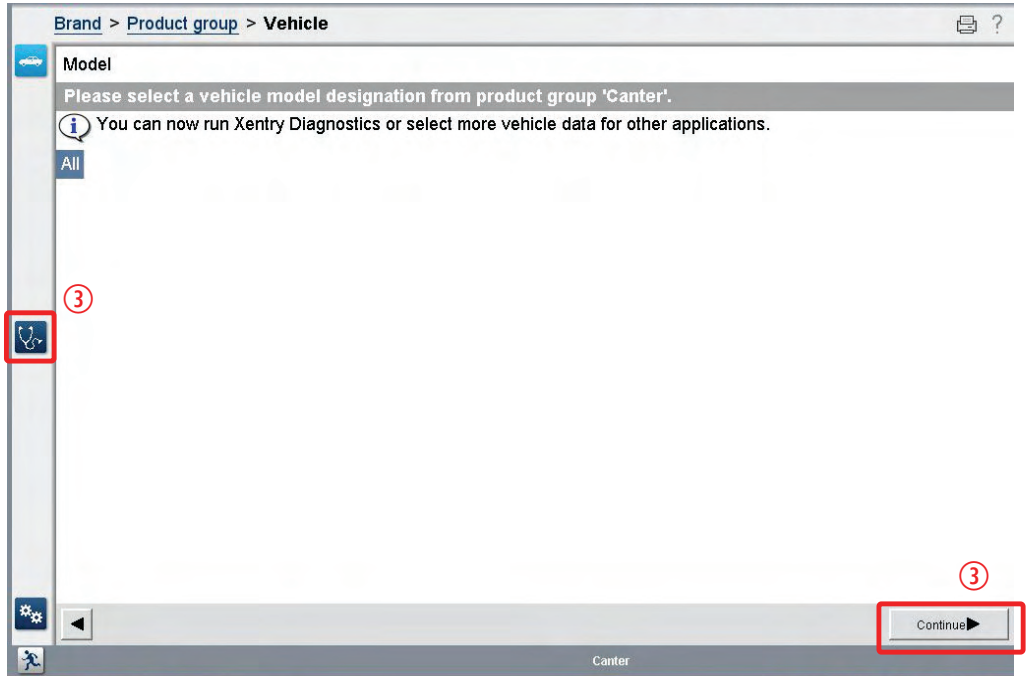


① Use the “Chassis No.”, “Truck”, and “Bus” tabs to select a vehicle type.
Note: The “Truck” tab is displayed at start-up.
② Select a model.

CAUTION

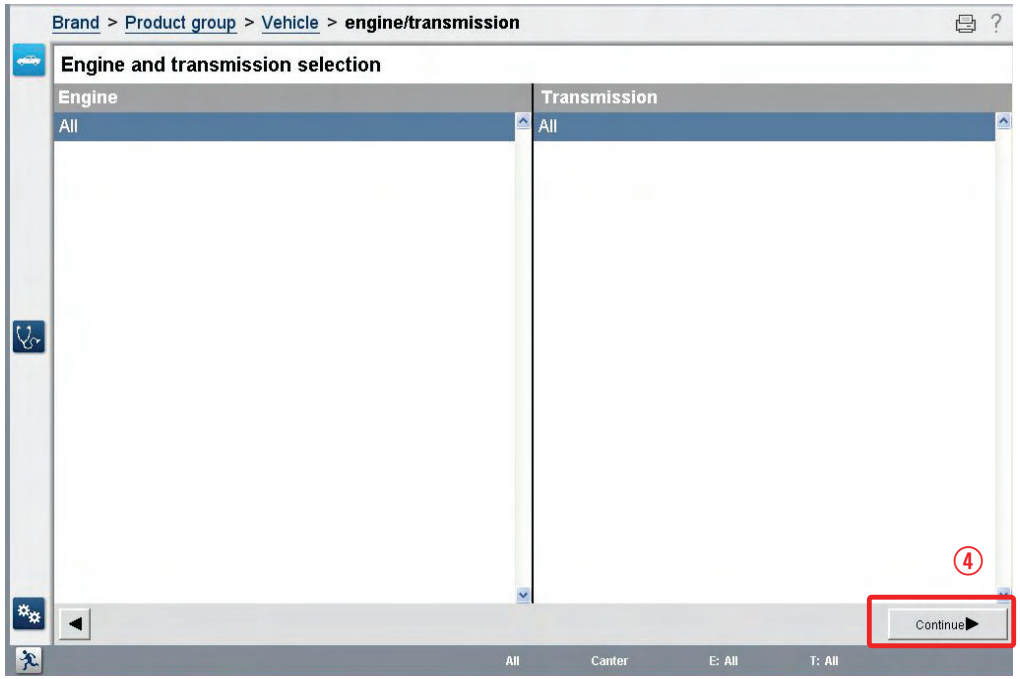
When the “Euro-V” heavy vehicle is chosen and communication with FUSO Diagnostics and each ECU (MR2, CPC) is started, a “CAN communication fault” occurs due to the difference in transmission speed specification. In this case, after pushing the “Clear fault memory” button (refer to the following figure) and eliminating the error code (see F1-060), failure diagnosis will become possible if communication is restarted.


Diagnosis > Control unit
24.4V
Ignition OFF
MR2 - Combustion engine Control unit (A6)
Version
Error codes
Actual values
Actuations
Adaptations
0204 The CAN high line (A95 (SCR Frame signal acquisition and actuation module)) is defective.
STORED
Supplemental information on time of occurrence
Stop monitoring
Clear fault memory
Implement test prerequisites
Tests
All
Super Great
E: All
T: All



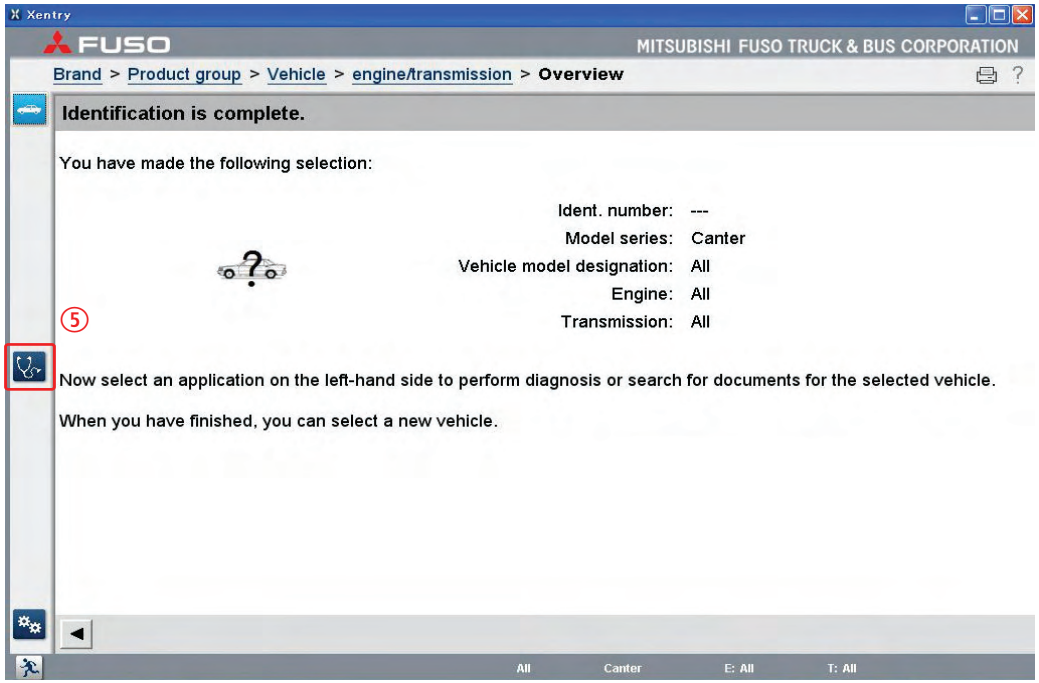
③ Click “Continue”. If a vehicle model designation and vehicle specification do not need to be selected, select  to skip this screen.

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④ Click “Continue”.

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⑤ Click the “Start troubleshooting” button.

Guidance

 >> Starts making connection with the vehicle and displays the safety rules screen.

 >> Displays the system setup screen.

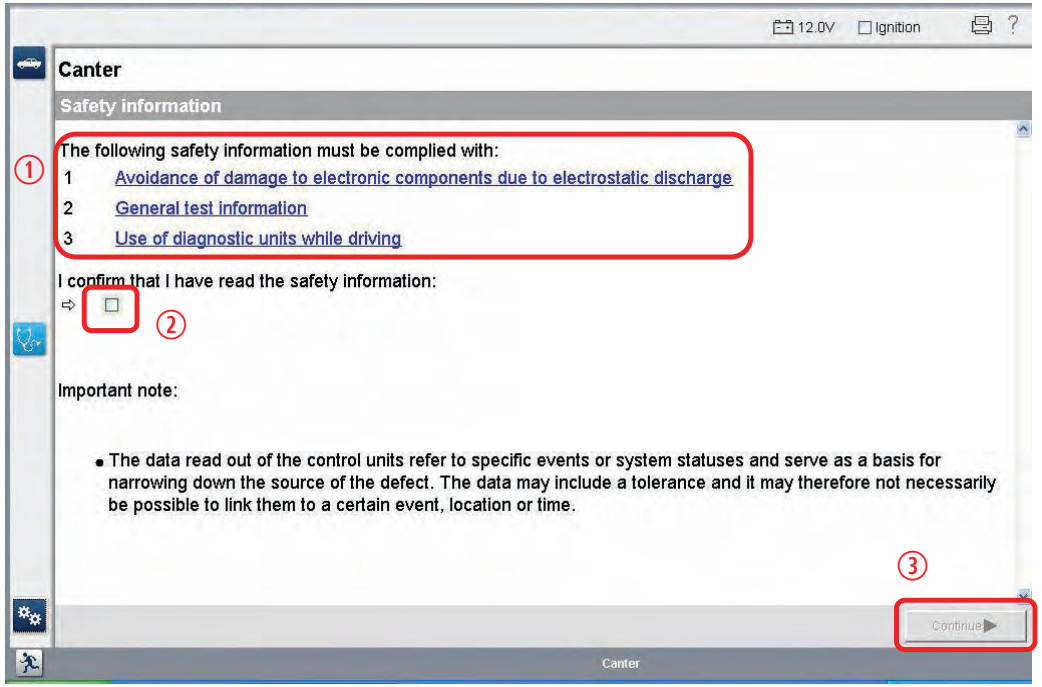
 >> Returns to the previous screen.

 >> Exits the system.

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3. Safety rules

The purpose of this screen is for the user to read and confirm the safety rules.



① Click on each of the three items to read the safety rules.
② Make sure that the checkbox is selected.
③ Click the “Continue ►” button to proceed to the Diagnosis screen (see F1-050: “Troubleshooting”).

Guidance

 >> Closes the connection to the vehicle and returns to the vehicle model selection screen.

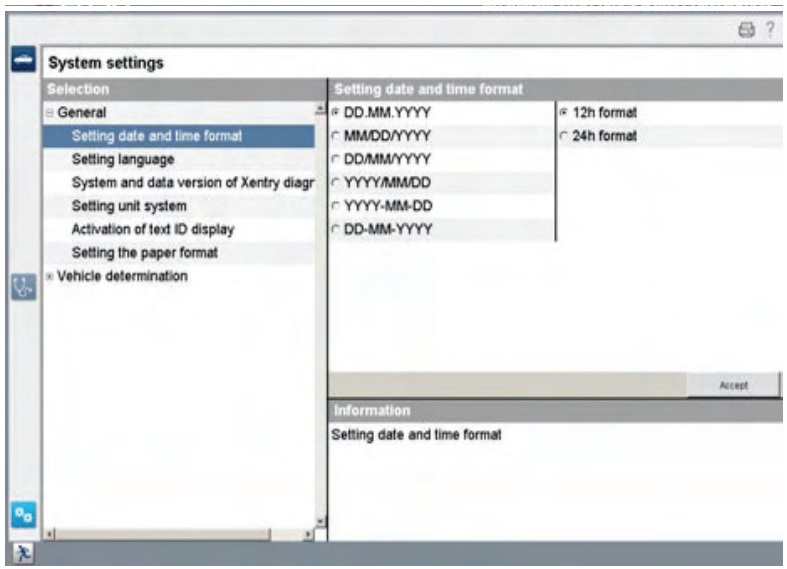
 >> Displays the system setup screen.

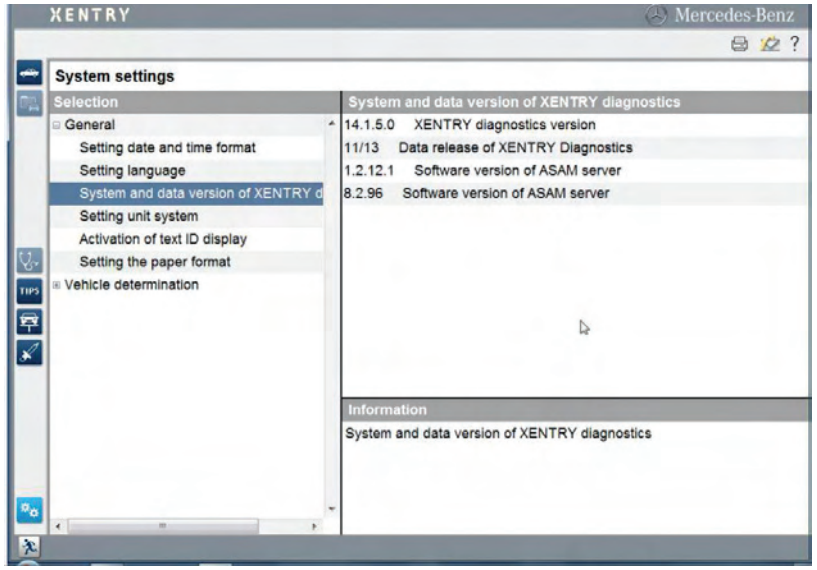
 >> Returns to the previous screen.

 >> Exits the system.

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4. System setup screen

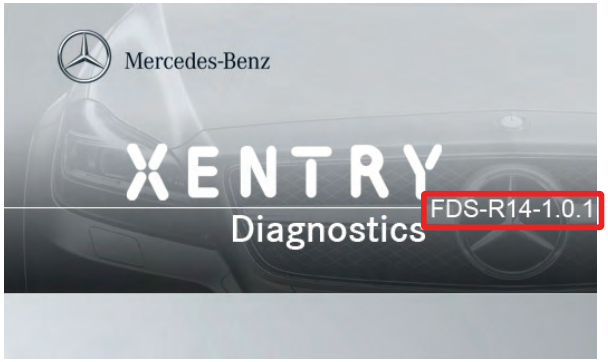




This is the system setup screen. You can set the operating environment of the system such as date, time, and language. The startup screen can also be specified here.

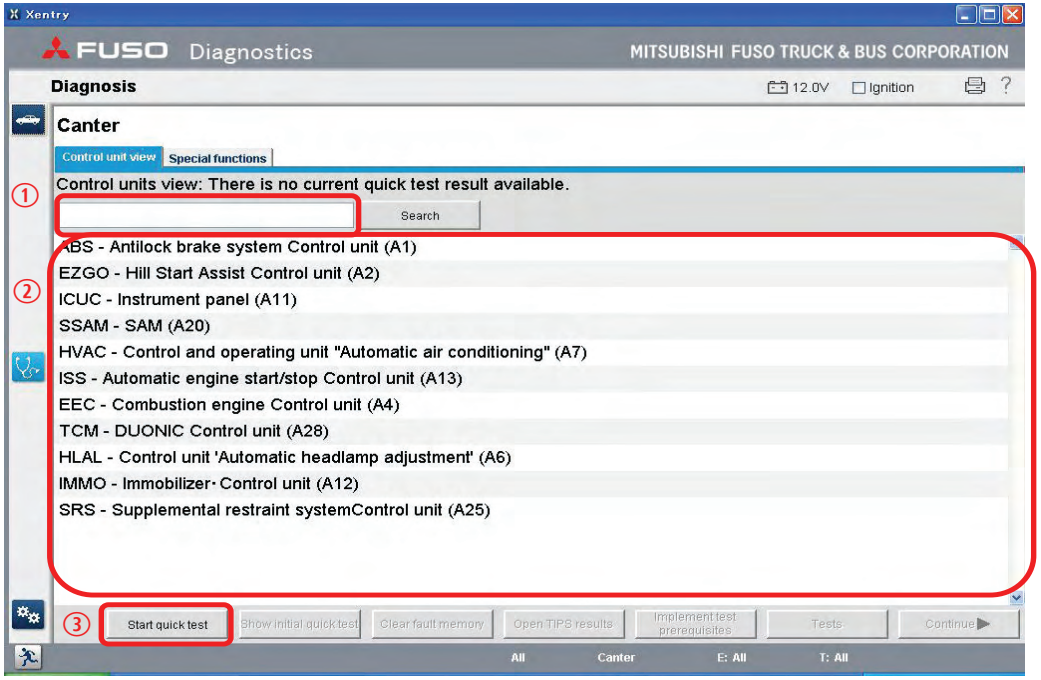
Select “System and data version of Xentry diagnostics” to check the FUSO Diagnostics version.

<Confirming the FD version>



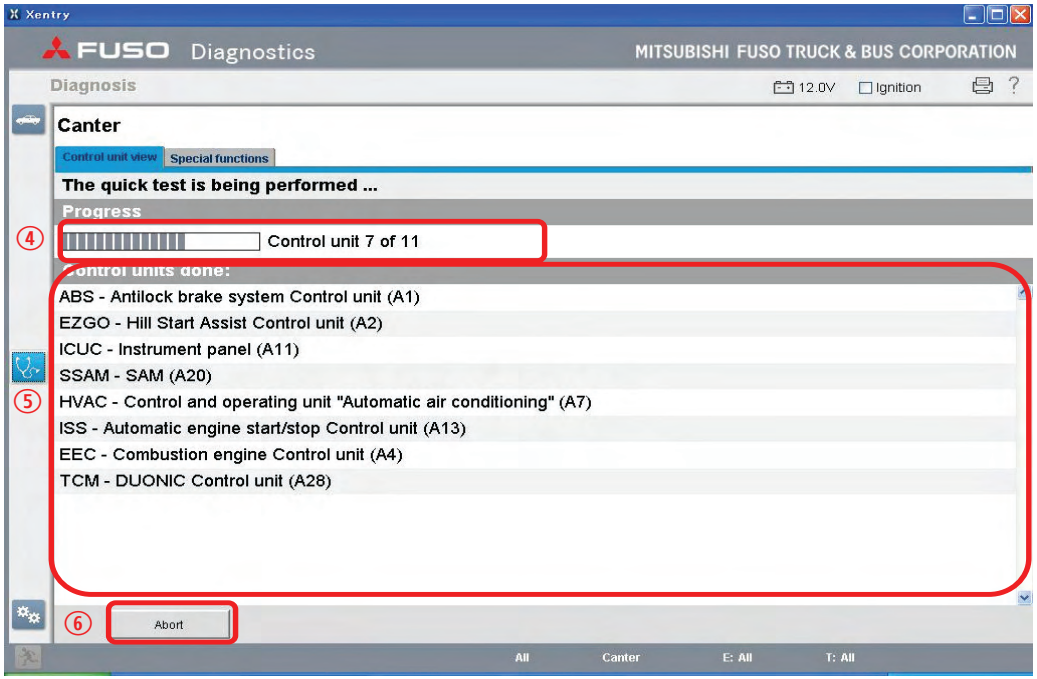
The version can be confirmed on the above screen. It is displayed when FD is launched.

The Diagnosis screen shows a list of the control units on the connected vehicle. To troubleshoot the displayed control units, select “Start quick test”. If troubleshooting is not necessary, select a control unit from the list and click “Continue” (or double-click the control unit) to proceed to the screen for each function (Diagnosis > Control Unit).

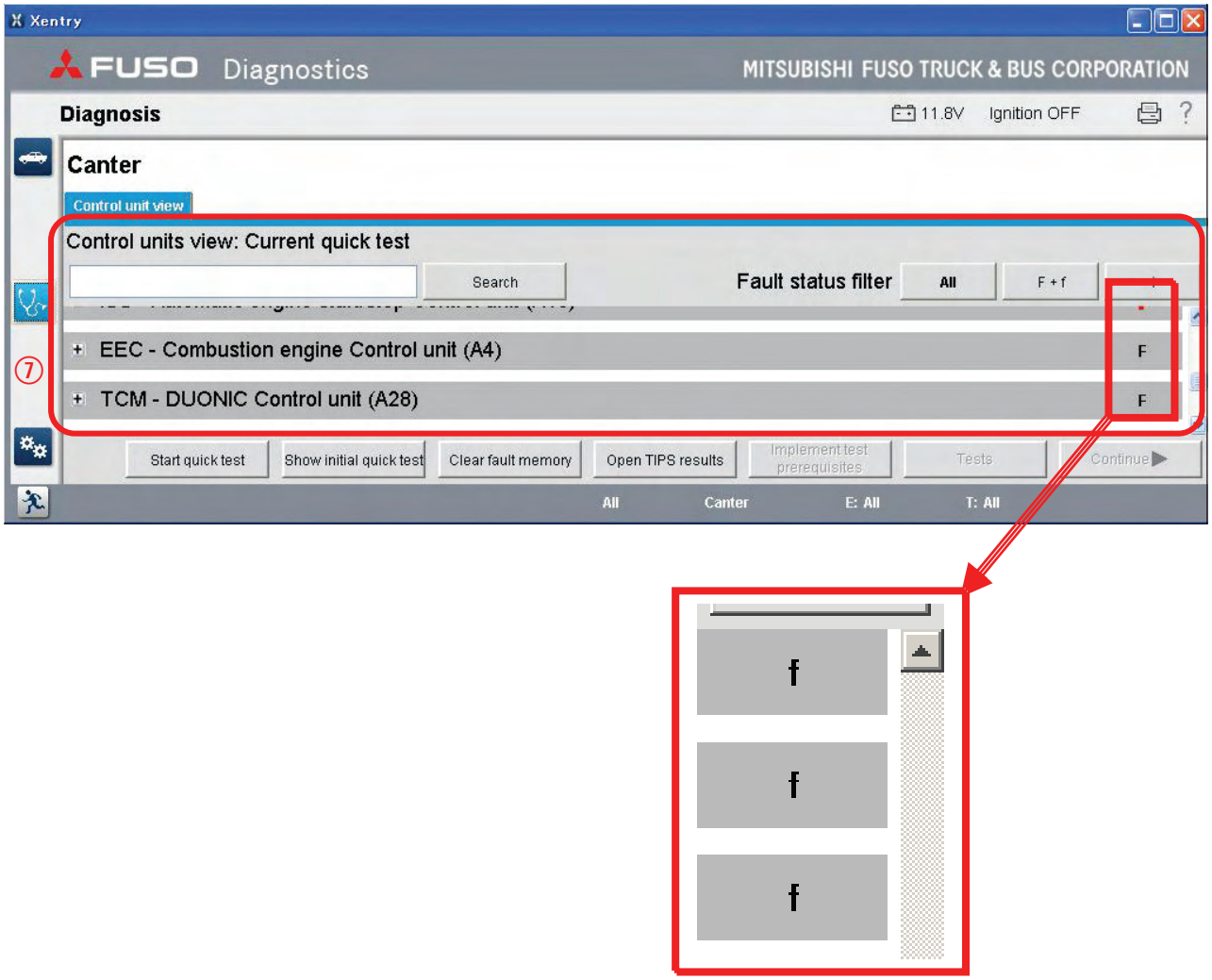


① If you wish to search for a control unit, enter its name in this field.
② A list of the control units on the connected vehicle or the result of the above search is displayed.
③ Starts troubleshooting on the displayed control units.

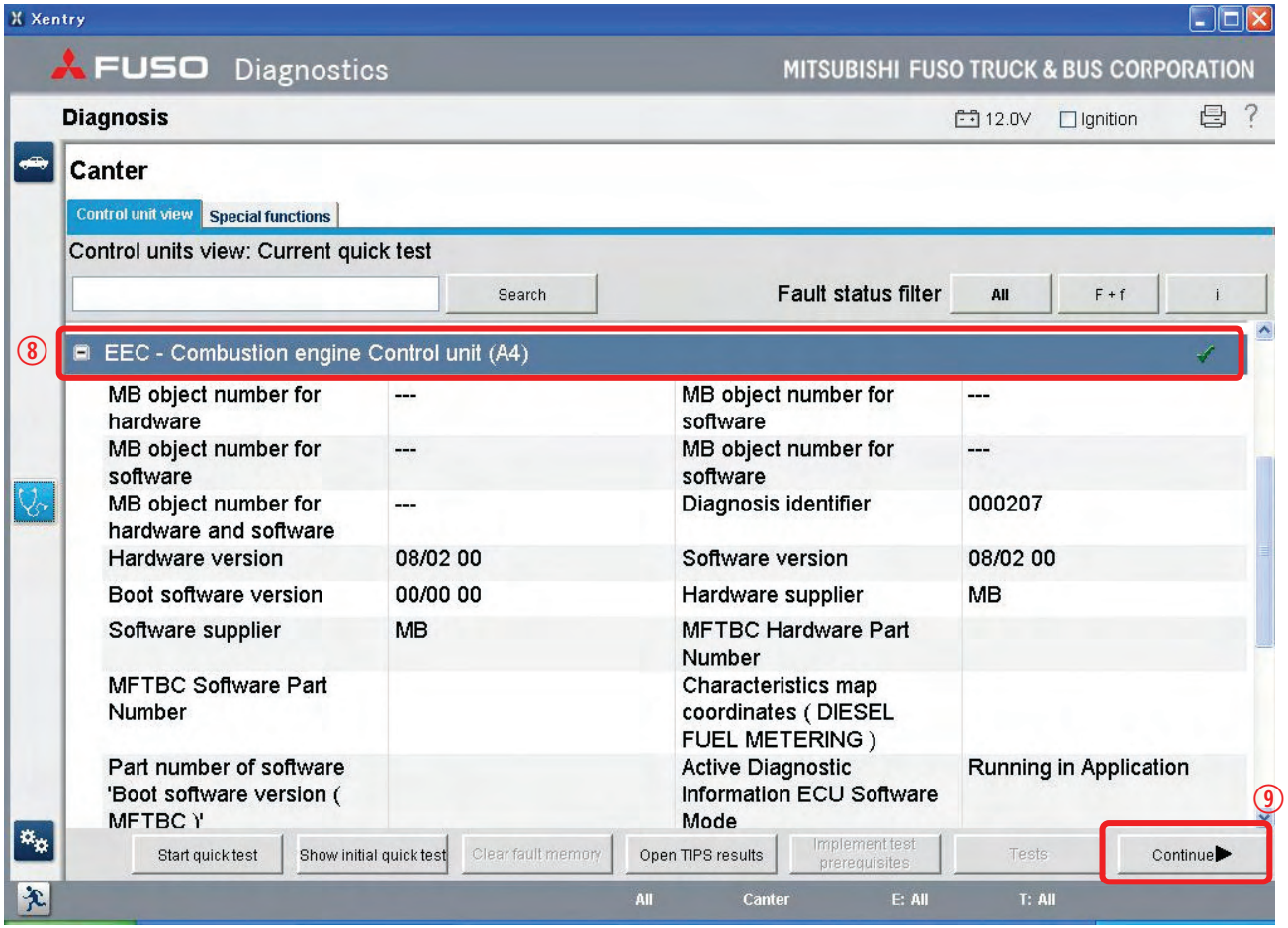
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④ Shows the progress of the quick test on the control unit.
⑤ Shows the control unit(s) that have completed the quick test.
⑥ Aborts testing.



⑦ The display will be similar to the screen shown above when the quick test is completed.
If a failure is detected as a result of troubleshooting, either “f” or “F” is displayed.
“F” indicates that a failure is currently active.
“f” indicates that a failure occurred in the past.
“!” indicates that the corresponding control unit does not exist or is not connected.



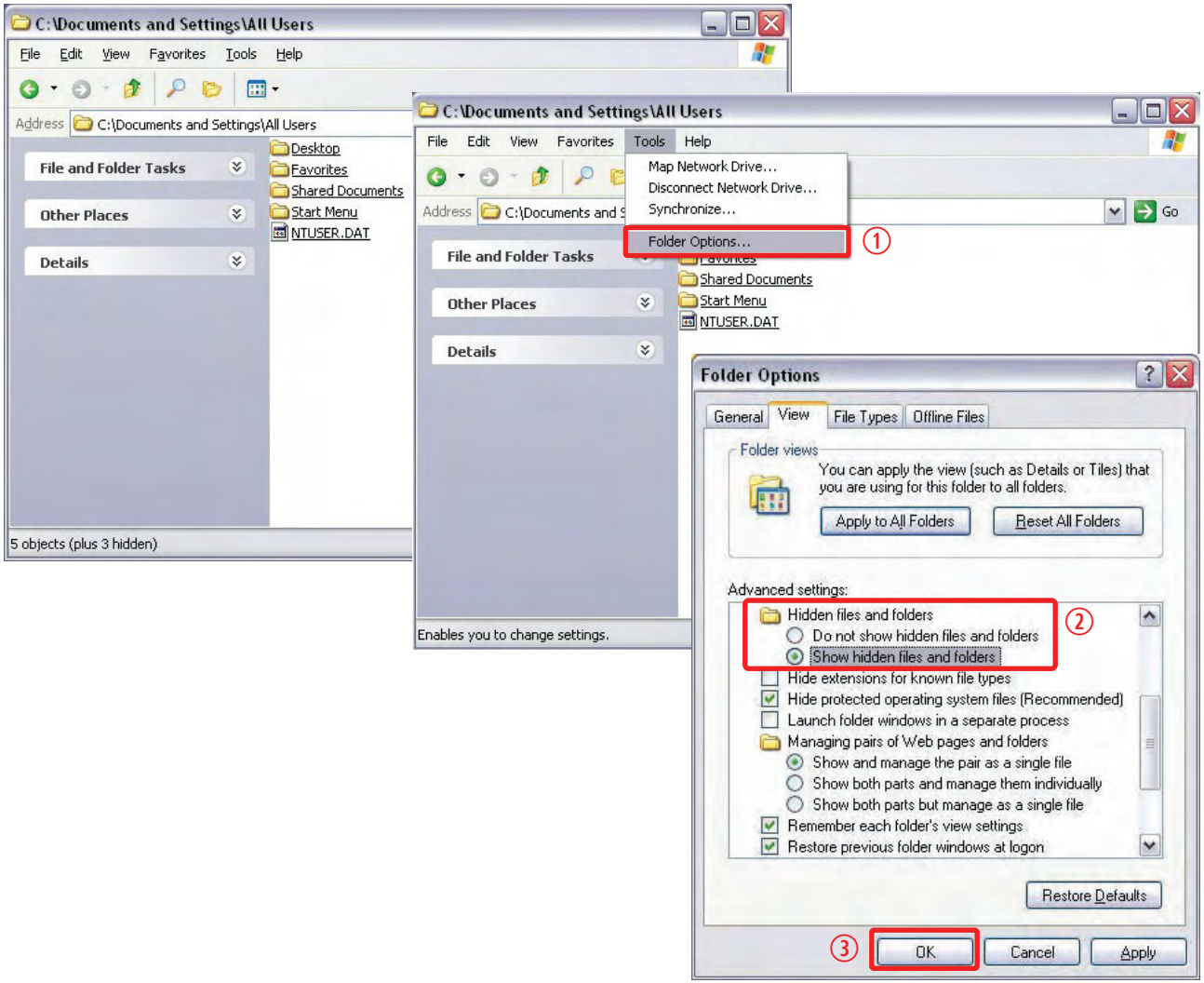
⑧ To display the failure information, select the control unit that you want to troubleshoot.
⑨ Select “Continue” to proceed to the screen for each function (Diagnosis > Control Unit).

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1 Print function

- FUSO Diagnostics prepares to output and save the contents of a display in PDF format in a predefined folder.
- The folder depends on the version of FUSO Diagnostics being used.
  Version FDS-R12-1.x or before.
  (C:\star\FusoDiagnostics\Userdata\docs\Xentry\XDPrint)
  Version FDS-R12-2 and later.
  (C:\Documents and Settings\All Users\Application Data\Mercedes-Benz\docs\Xentry\XDPrint)
  To display the folder for the underlined part above, the setup in the following procedures must be changed.

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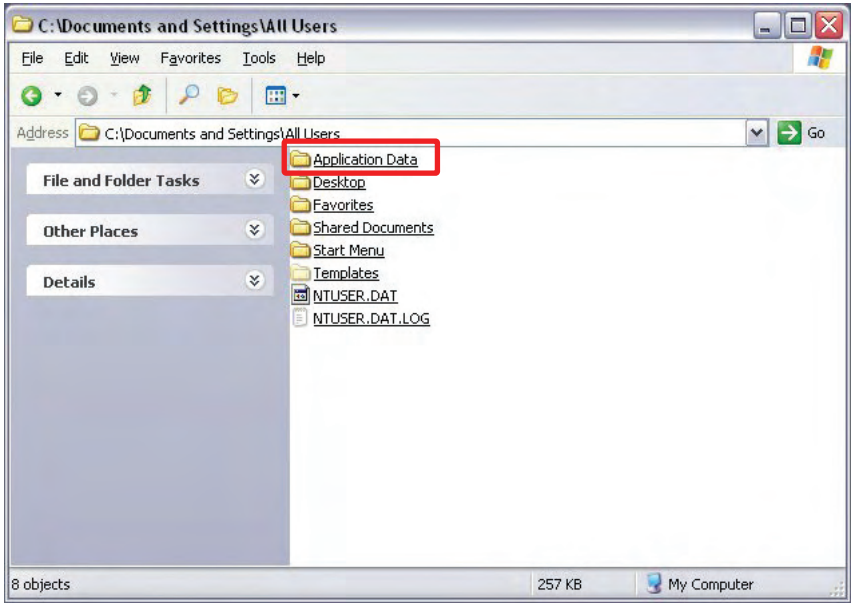
"All Users" folder (reference)

① Select "Tools - Folder Options"

② Select "Show hidden files and folders" in the "View" tab.

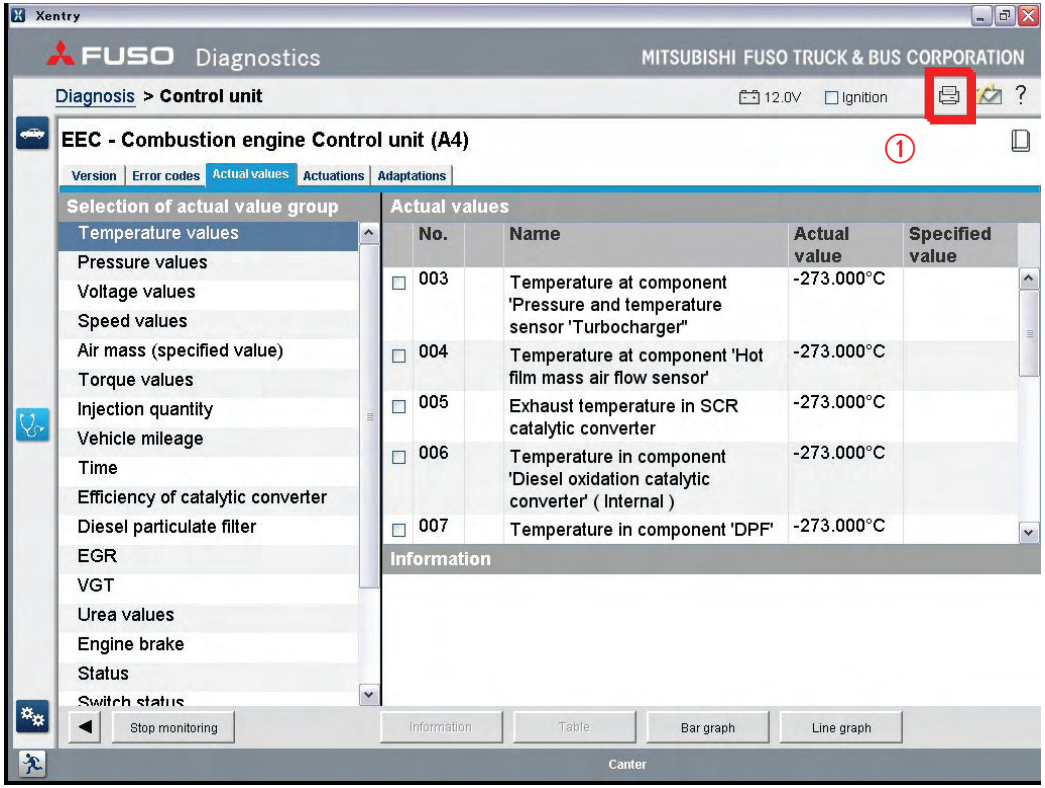
③ Select "OK".

The hidden folders are displayed as shown below. (Application Data etc. is displayed)



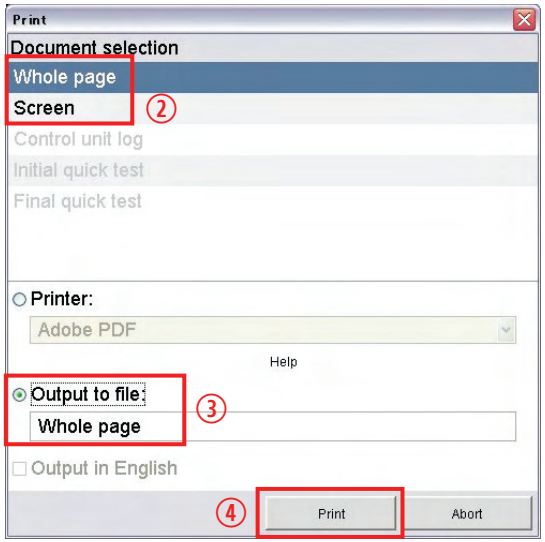
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- How to use a print function



① Press the “print” button at the top right of the screen.

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② Choose a print option.
“Whole page”: Save all the data including the data not displayed on the screen.
“Screen”: Save the screen display.

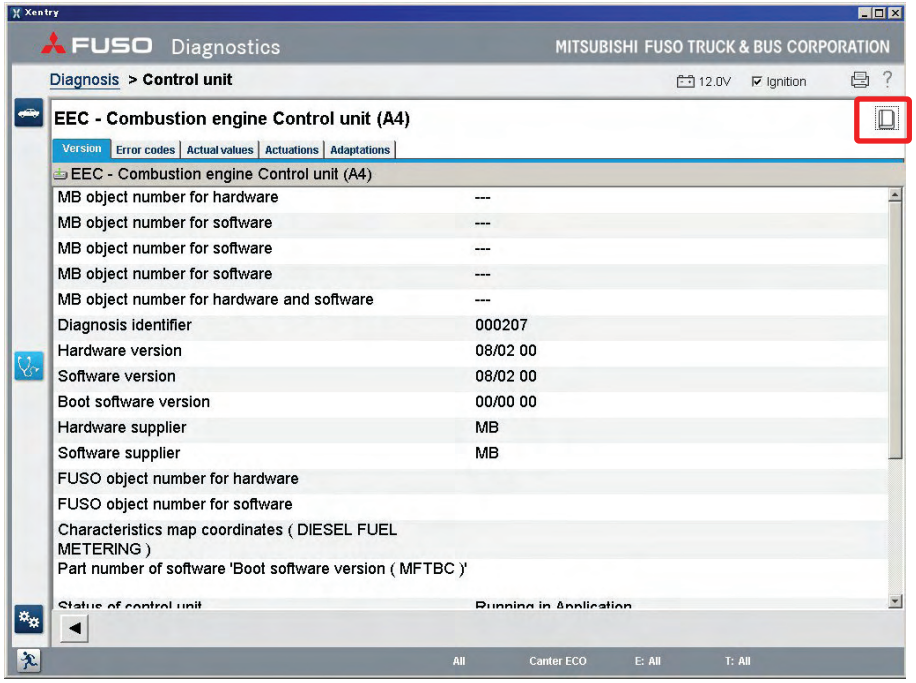
③ Select “Output to file”
Whole page: It is displayed when the “Whole page” option is selected in ②.
Screen: It is displayed when “Screen” is selected in ②.

④ When “Print” is chosen, a PDF file is saved in the configured folder.

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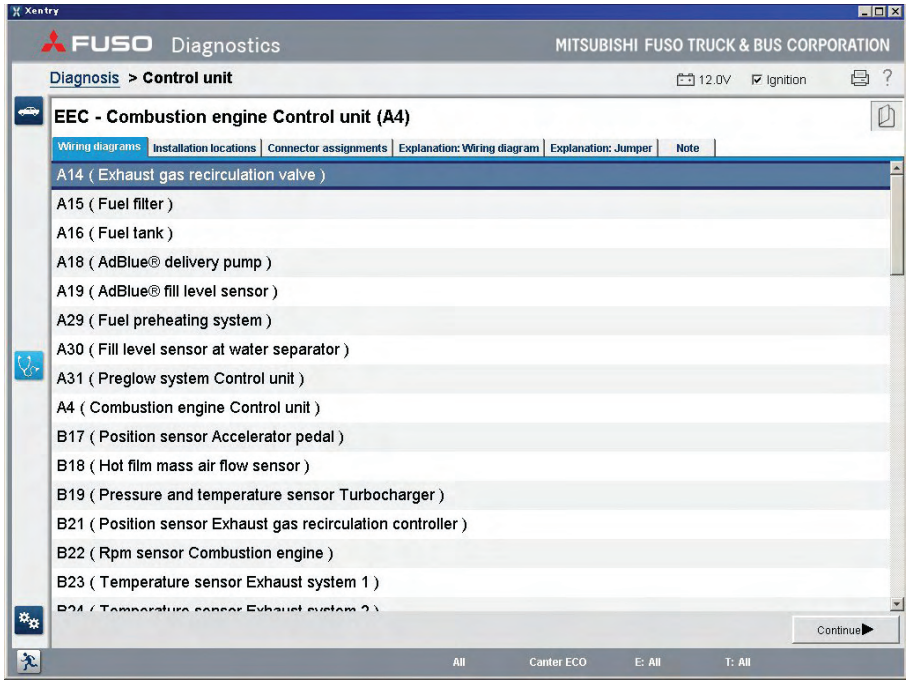
2. Help screen

- FUSO Diagnostics has a help screen for each ECU model.
- Shown on the help screen are the wiring diagram, installation position and connector pin assignment of the selected electrical equipment for the ECU, as well as instructions and precautions related to inspection.



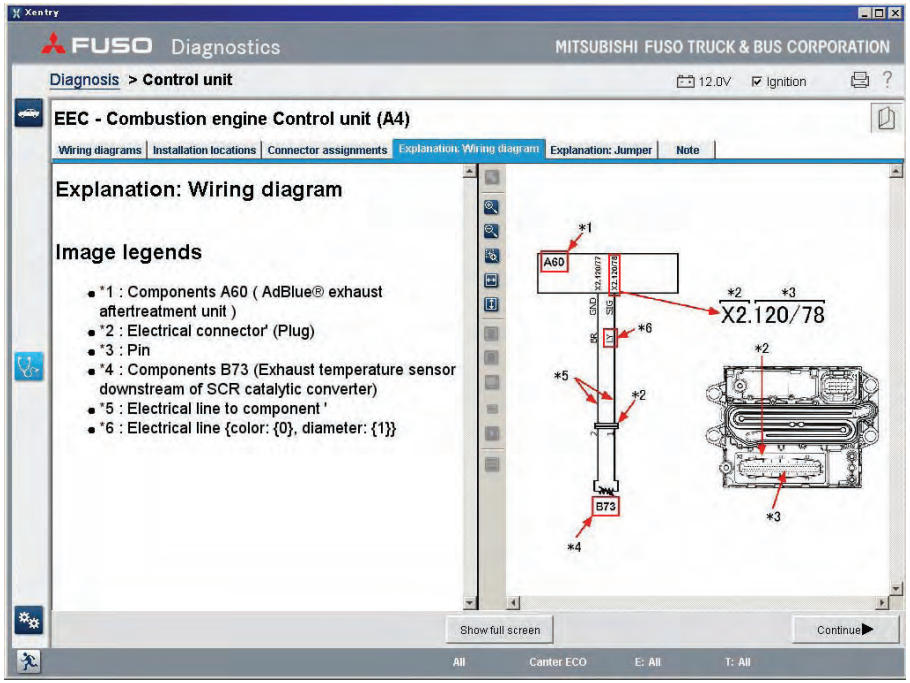
① If you press the [Show help screen] button, the [Wiring diagrams] tab (shown next) will appear.

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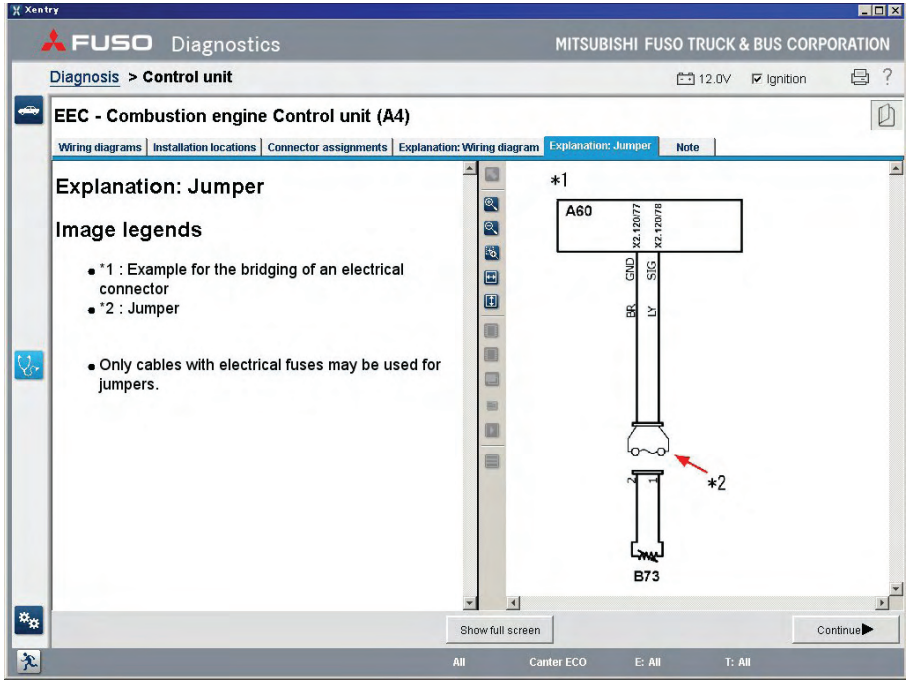
- Select electric equipment and click “Continue”, or double-click the electric equipment, to display the diagram (screen operations are the same for the “Installation locations” and “Connector assignments” tabs).

- Displaying wiring diagram explanations
  If you select the [Explanation: Wiring diagram] tab, descriptions of wiring diagram symbols and other information will be displayed.



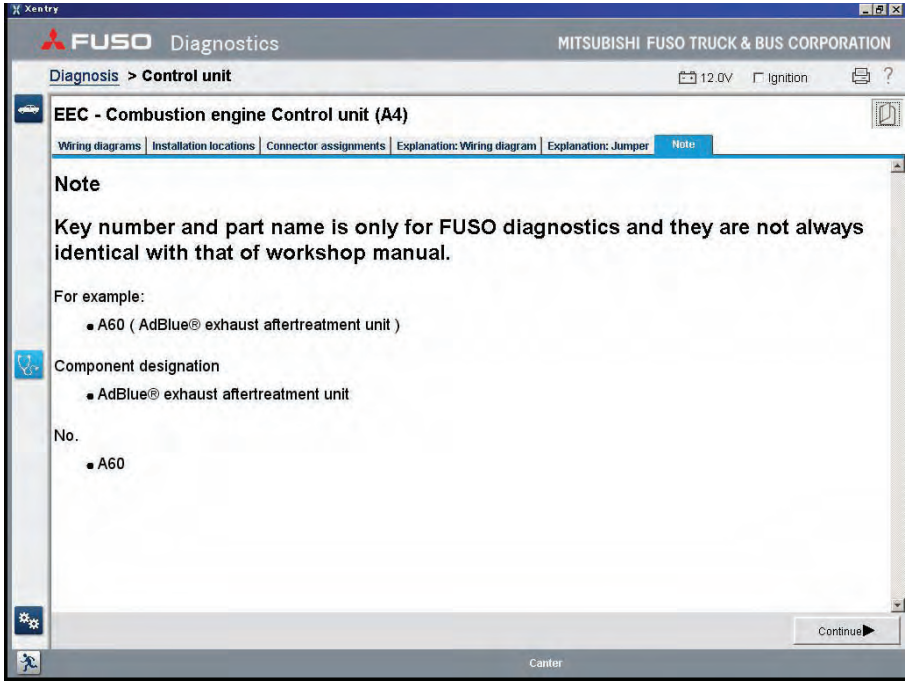
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- Displaying jumper explanations
  If you select the [Explanation: Jumper] tab, descriptions of the jumpers will be displayed.



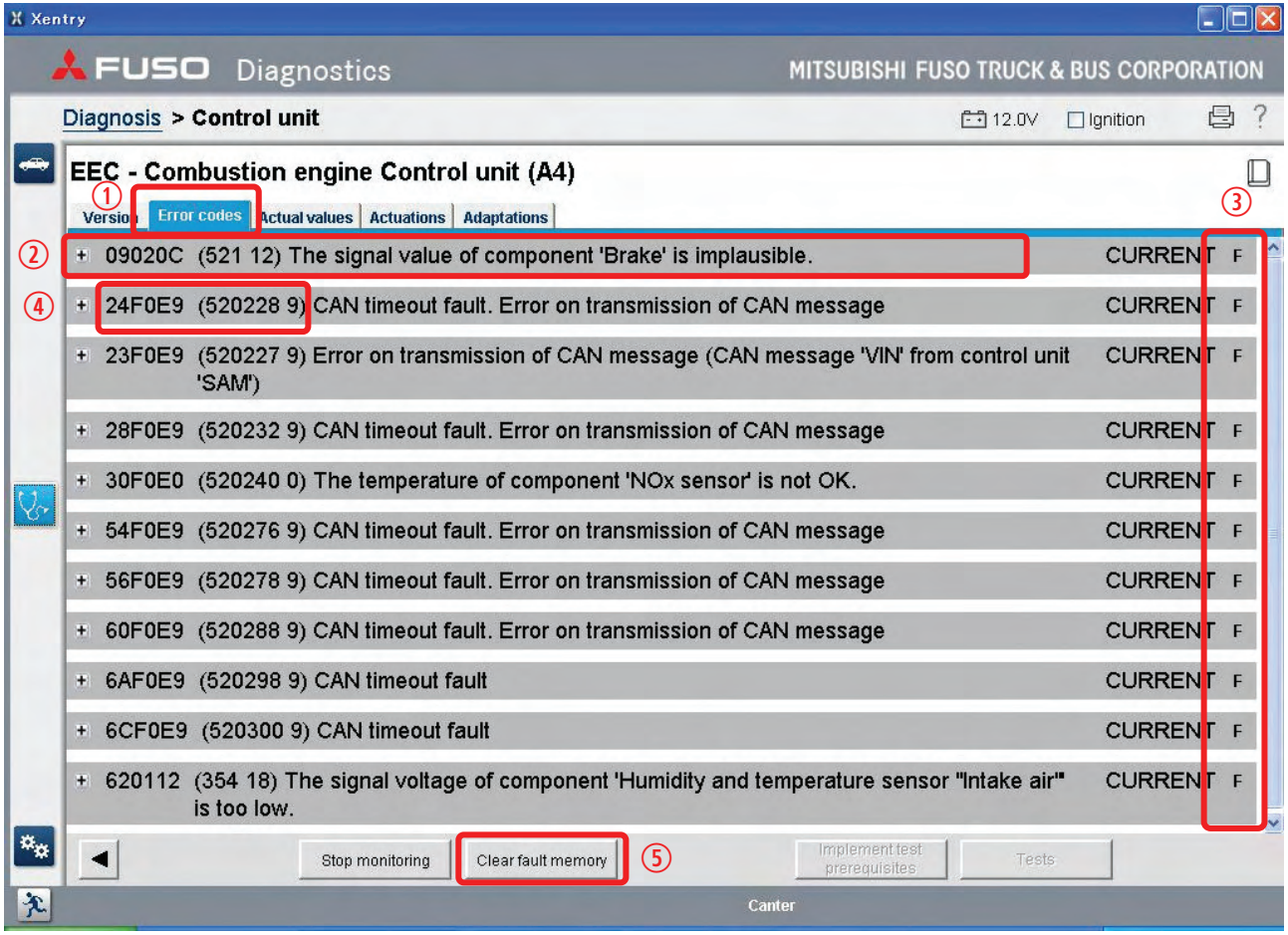
https://truckmanualshub.com/

- Displaying notes
  If you select the [Note] tab, notes on component descriptions will be displayed.



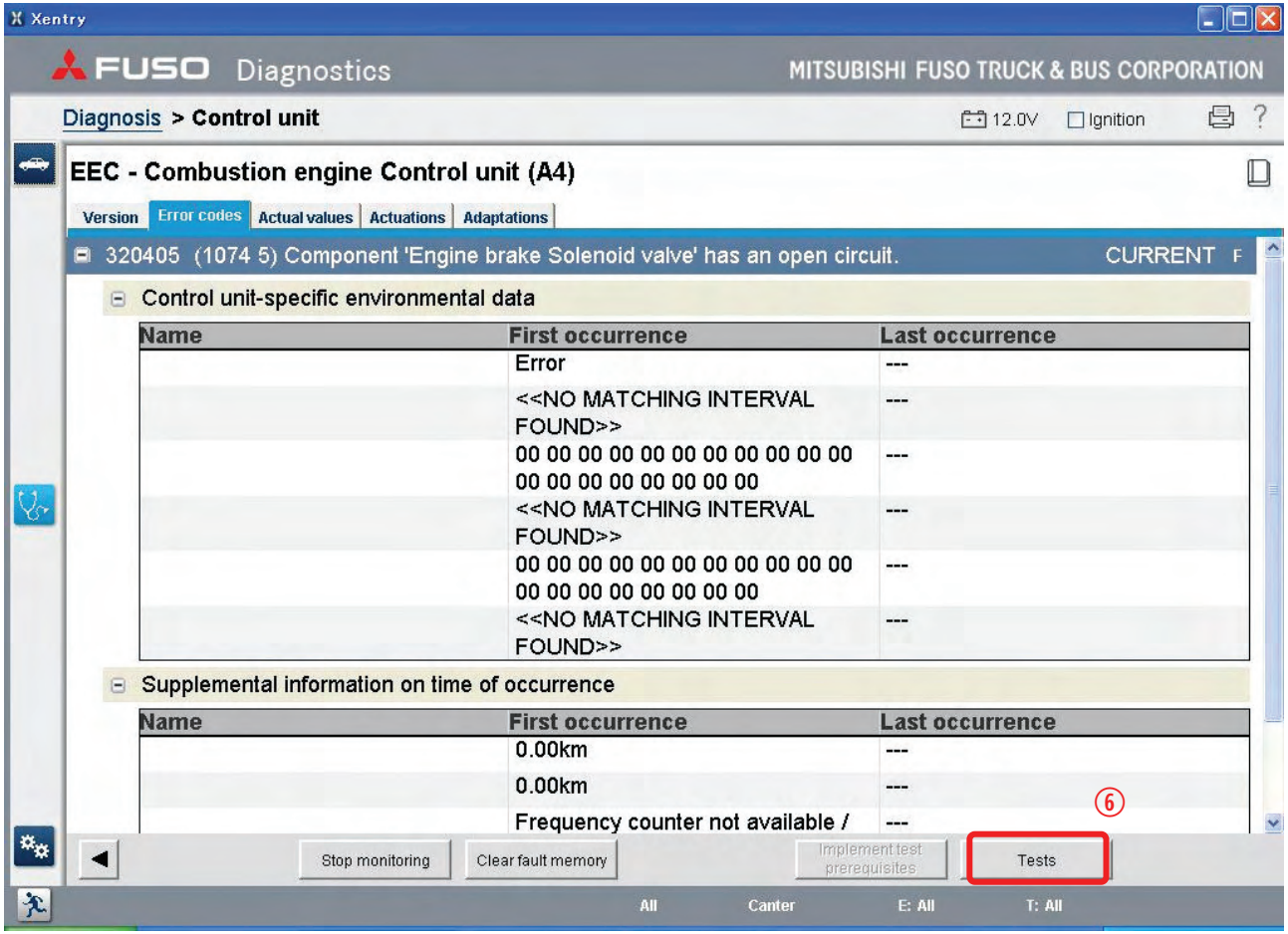
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The detected error codes (diagnosis codes) are displayed.



① Select the “Error code” tab.
② When you select an error code, detailed information will be displayed (see next page).
③ F: Error code that occurred in the past or is currently active.
④ On some systems, the error codes are displayed in a different format, for example 24F0E9 (520228 9). In this example, the error code given on the meter cluster or in the Service Manual is represented as (520228 9).
⑤ The error code can be cleared by selecting “Clear fault memory”.

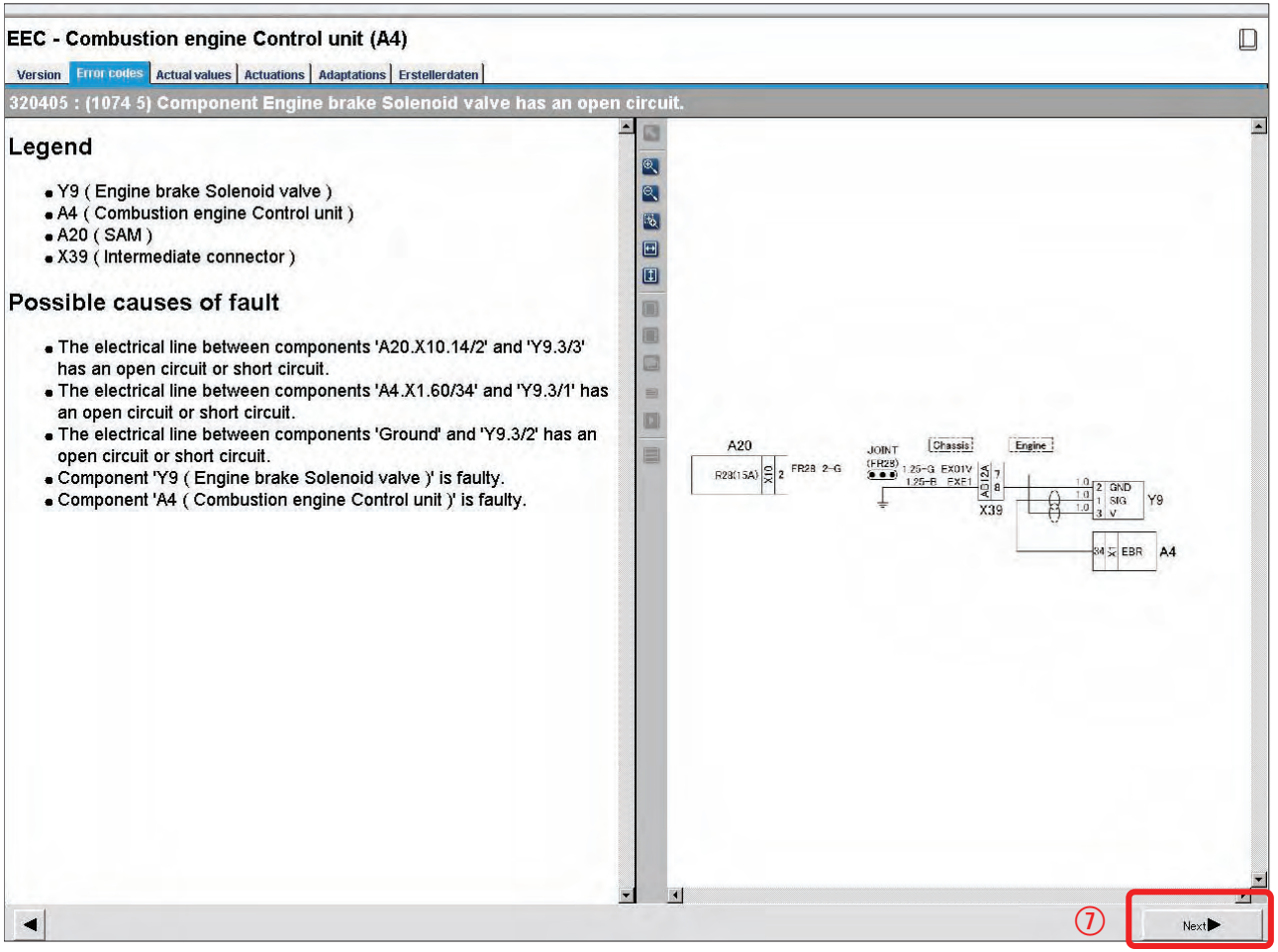
<Example of detailed information on individual error codes>



⑥ If you click the “Tests” button, the interactive troubleshooting screen will be displayed (see next page).

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<Example of an interactive troubleshooting screen>



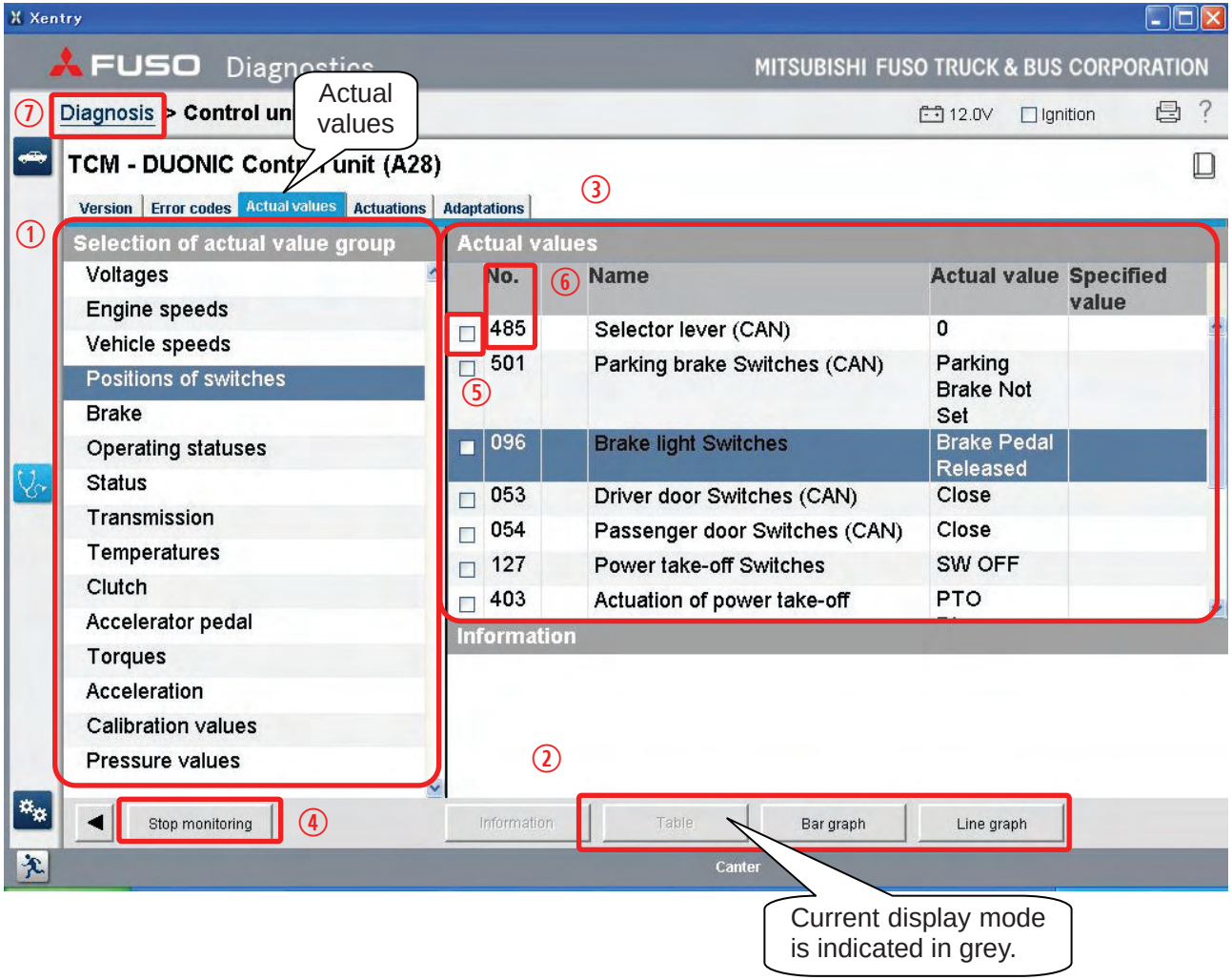
Details and description (short information) of each error code will be displayed first.

⑦ If you click “Next”, the troubleshooting procedure (interactive troubleshooting screen) will be displayed.

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Detected measurements (service data) are displayed.

1. Display in a table



① Select the measurement group you want to check.
② “Show as table” will be selected.
③ The selected measurements are displayed in a table.
④ Stops monitoring.
⑤ You can narrow down and display actual values by selecting the checkbox.
⑥ The number shown under “Actual Values” varies from PC to PC (this is not a fixed number).
⑦ You can return to the control unit selection screen by selecting “Diagnosis”.

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Guidance

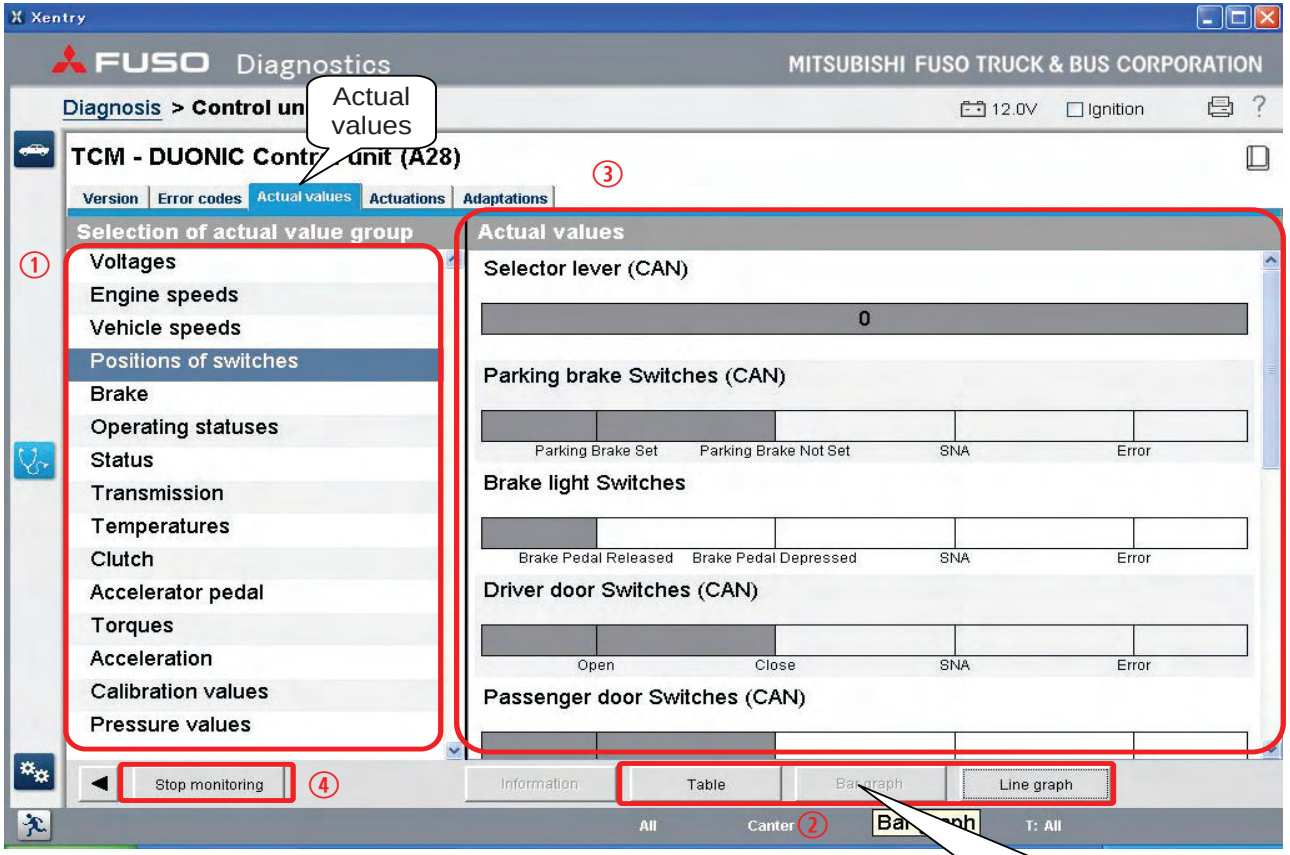
>> Closes the connection to the vehicle and returns to the vehicle model selection screen.

>> Displays the system setup screen.

>> Returns to the previous screen.

>> Exits the system.

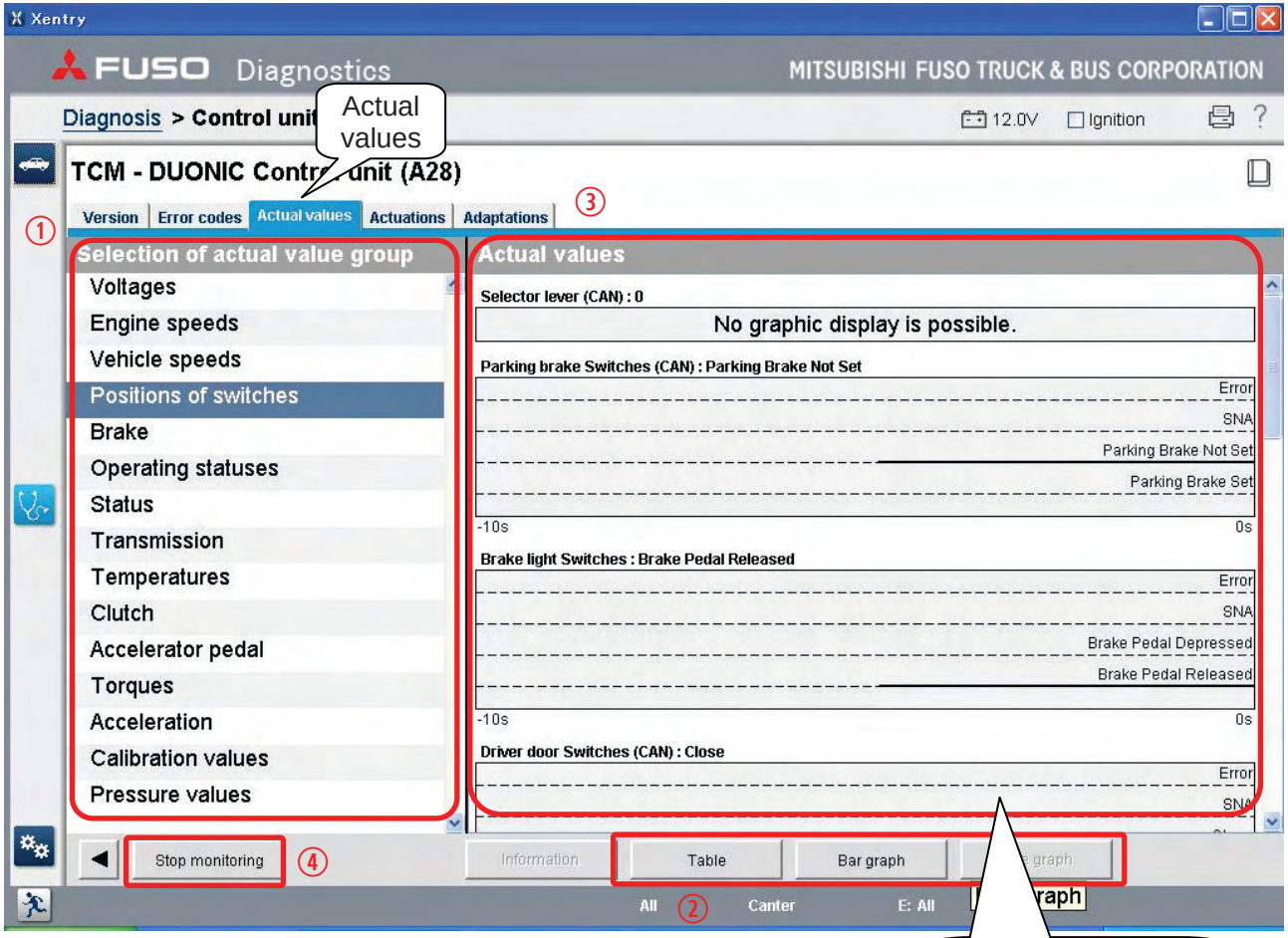
2. Display in a bar graph



① Select the measurement item you want to check.
② Select “Show as bar graph”.
③ The selected measurements are displayed in a bar graph.
④ Stops monitoring.

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3. Display in a curved graph

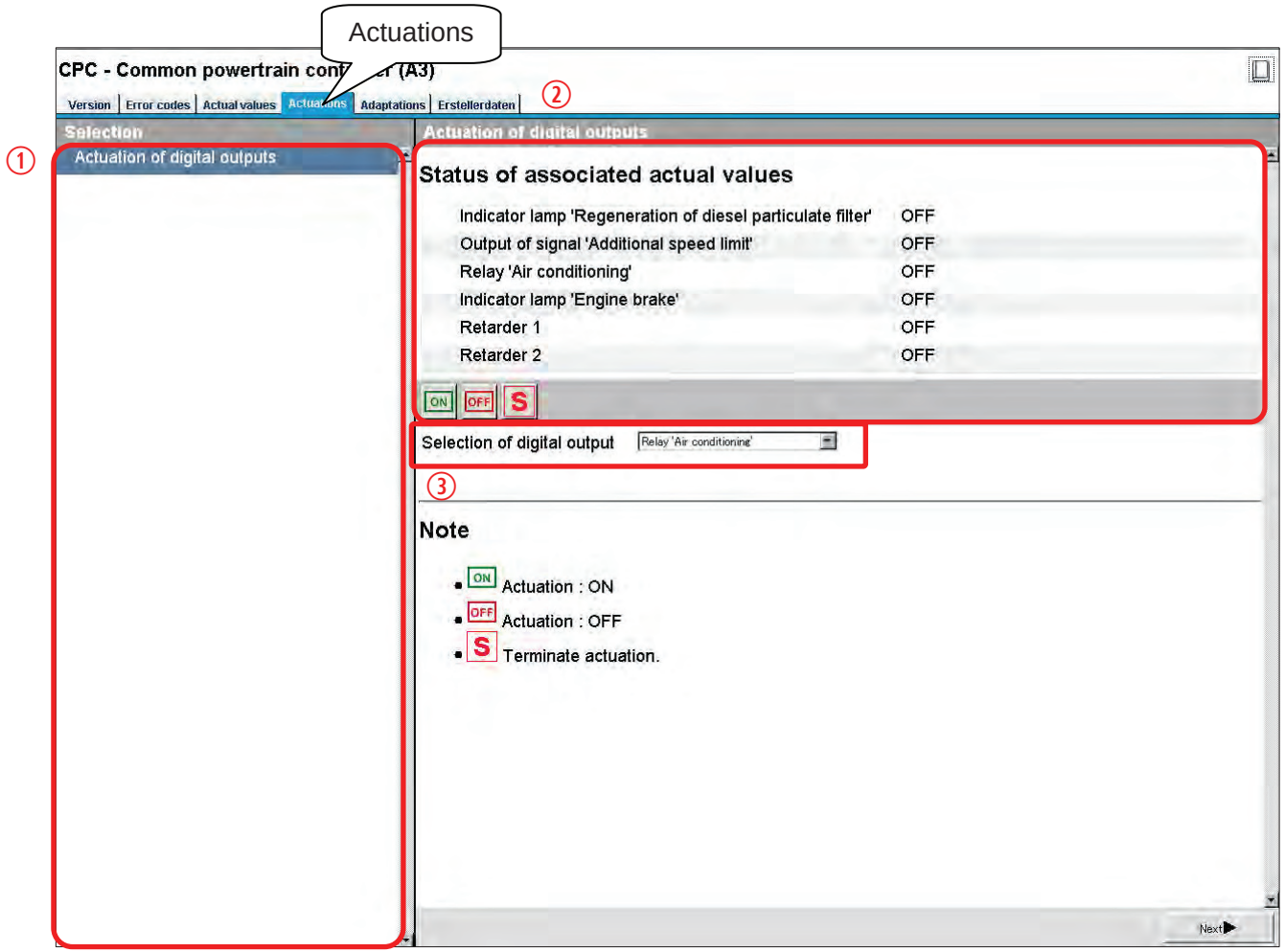


① Select the measurement item you want to check.
② Select “Show as curve graph”.
③ The selected measurements are displayed in a curved graph.
④ Stops monitoring.

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Actuations (actuator test)

This function allows you to carry out actuator testing.



① Select the item you want to check.
② Displays the relevant measurement status.
③ Selects a digital output function.

Guidance

 >> Closes the connection to the vehicle and returns to the vehicle model selection screen.

 >> Displays the system setup screen.

 >> Returns to the previous screen.

 >> Exits the system.



>> Turns check ON. Some functions are not displayed if their conditions (vehicle conditions) are not satisfied.



>> Turns check OFF.



>> Starts the test.



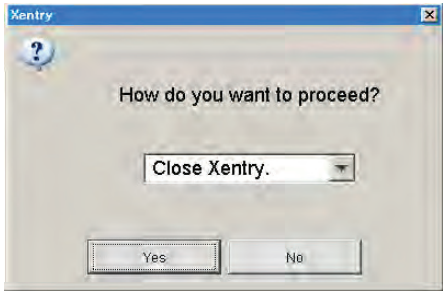
>> Stops the test.

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Exiting the FUSO Diagnostics system and shutting down the PC



① Click  or  to display the exit screen.



②“Close Xentry” is displayed, click “Yes”.
Note: Currently, there are no further options using  .
Do not use this button.

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③ After checking that the FUSO Diagnostics program has closed, click “start” in the lower-left corner of the screen and select “Shut Down”.

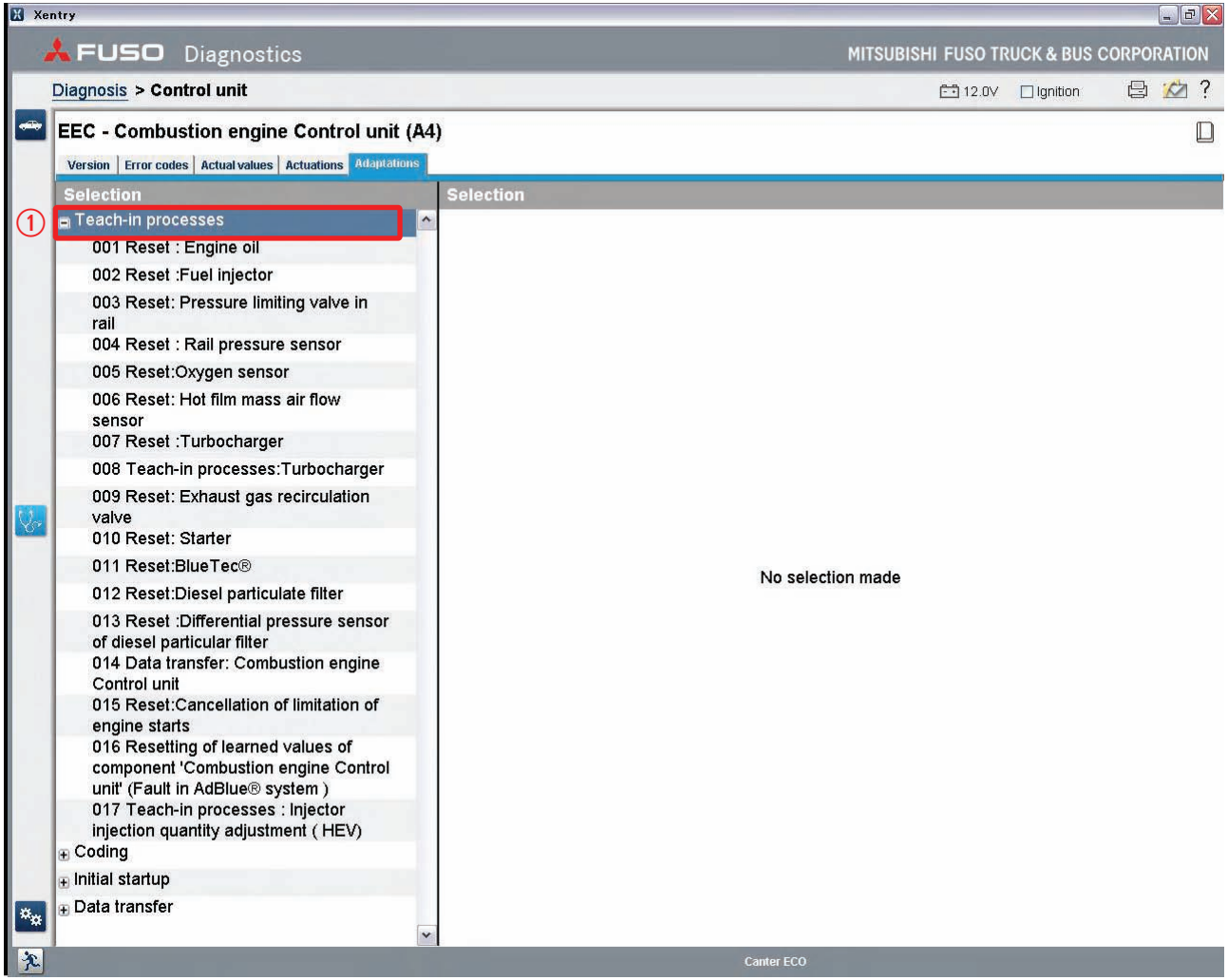


④ Select “Shut down” with the button, then click “OK”.

⑤ When the PC is powered off, the power light (⏻) goes out.

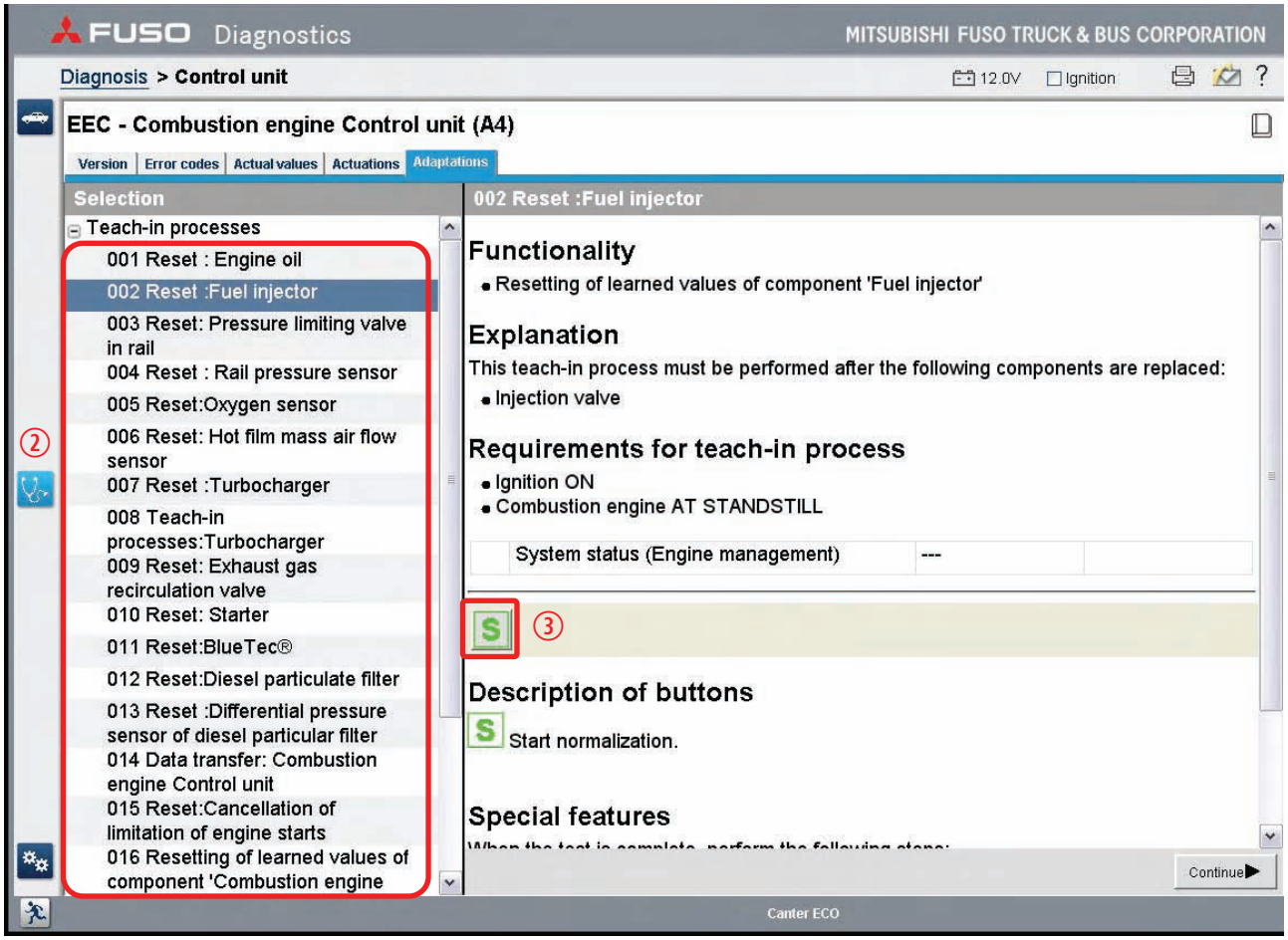
F2-010	High-level operations Adaptation/Teach-in processes (resetting)	F2-010

This function resets the teach-in value (learned value) stored in the ECU.



① Select “Teach-in processes”.

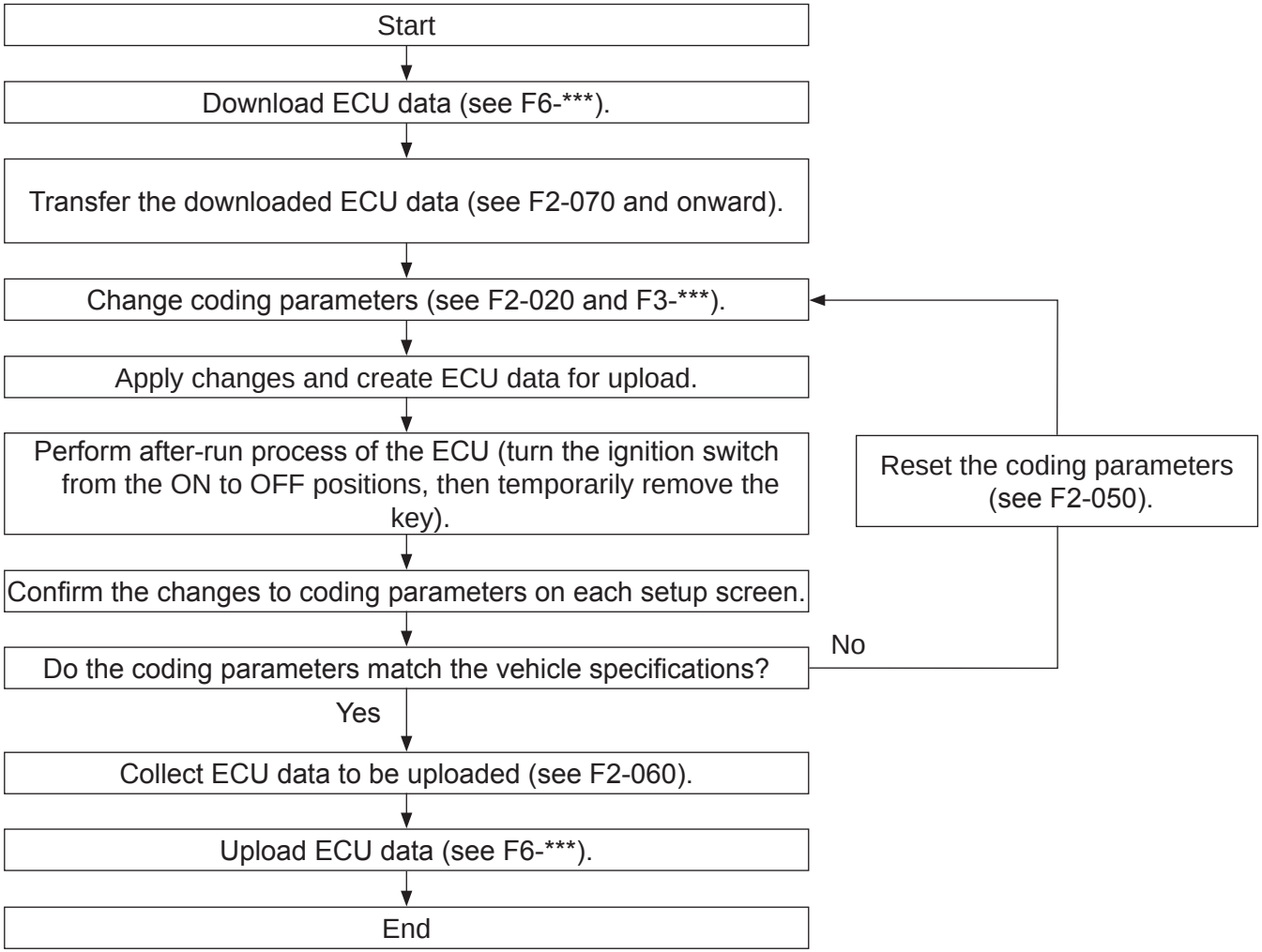
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② The reset item is selected.
③ The ECU teach-in values are reset.

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When adding or changing electronic vehicle control specifications, the coding parameters in the relevant ECUs need to be changed on the Adaptation - Code entry screen. Use the flowchart below to change coding parameters (see F3-*** for detailed information on each vehicle type and its ECUs).

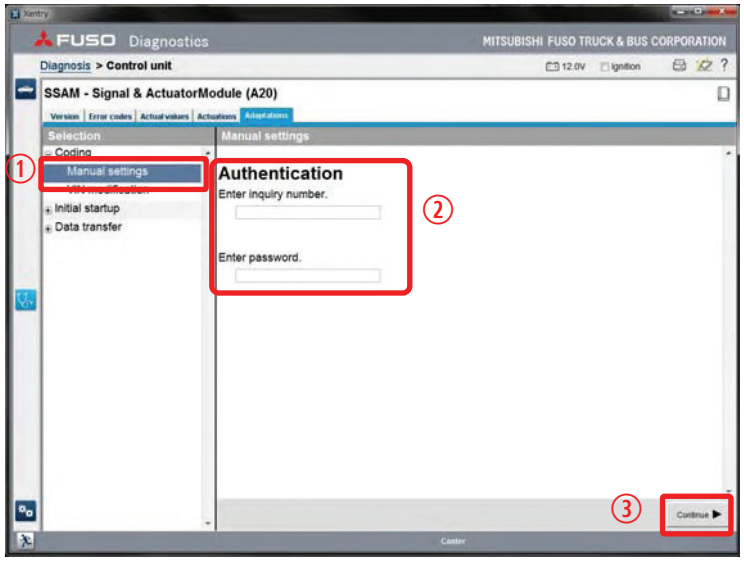


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- ECU data for the vehicle must be downloaded from the FRN before working on the coding (see F6-010 “FRN (field rewrite network)” and onward).
- The downloaded ECU data must be transferred to the PC (“FUSO Diagnostics” was set up on) using a USB stick (see F2-070 “Data Transfer” and onward).
- The downloaded ECU data must be transferred to the PC “Default string” screen, and coding parameter values can be changed on a “Manual settings” screen.
- We recommend that you take a screenshot before changing coding parameters (useful for checking after the after-run process).
- After changing coding parameters, select “Apply changes”, create data for upload, then run the ECU after-run process for the changes to take effect on the ECU.
- After performing after-run process, the state before the change can be restored by resetting the coding parameters if ECU coding parameters are found to have been changed to incorrect values on each setup screen (see F2-050 “Resetting code entry (coding)”).
- When coding parameters have been changed, the new ECU data must be uploaded to the FRN (see F6-*** “FRN (field rewrite network)” and onward).

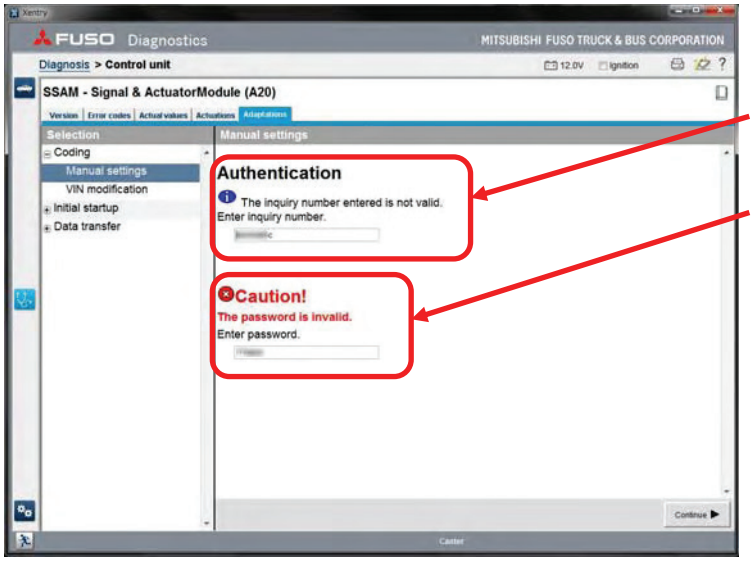
- **Changing coding parameters**

Use this function to manually change ECU coding parameters.



① Select “Manual settings”.
② Enter the inquiry number and password obtained from the FRN (be sure to enter the inquiry number letters in capitals).
③ Click “Continue”. If incorrect data was entered in ②, or the data downloaded from the FRN has not been transferred to the PC, either one of the following screens will be displayed.

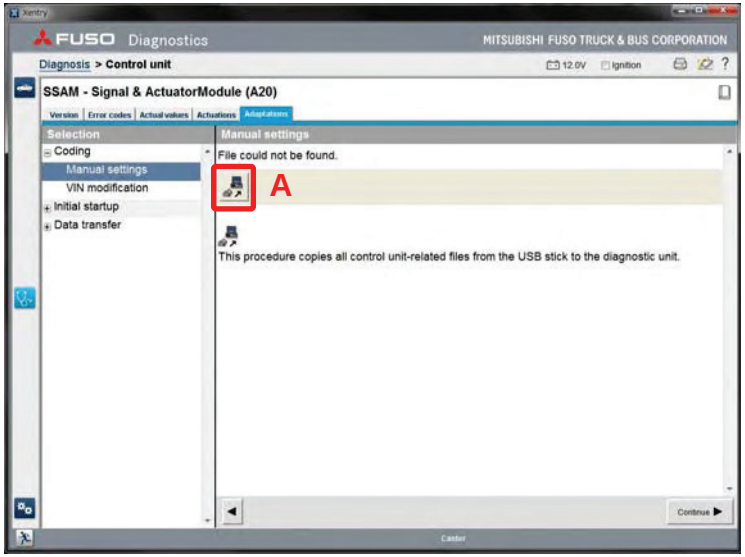
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Error indication after entry

If lower case letters were entered for the inquiry number

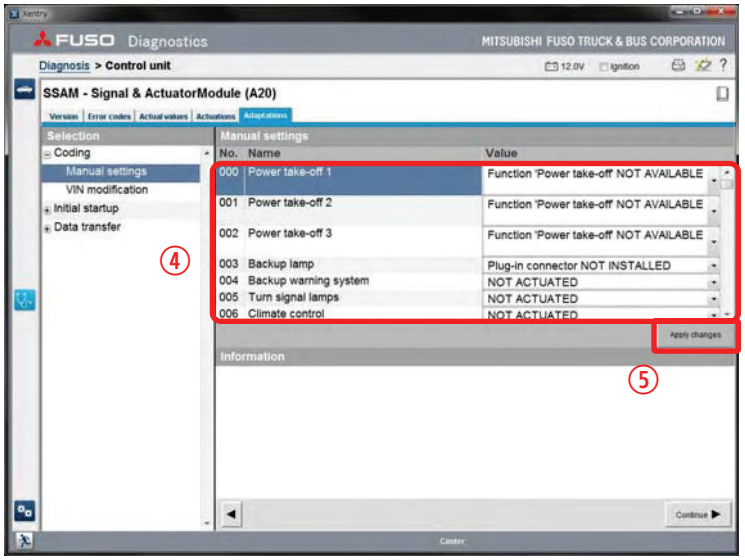
If an incorrect password (including expired password) was entered



If downloaded data has not been transferred to the PC, the screen shown on the left will be displayed.

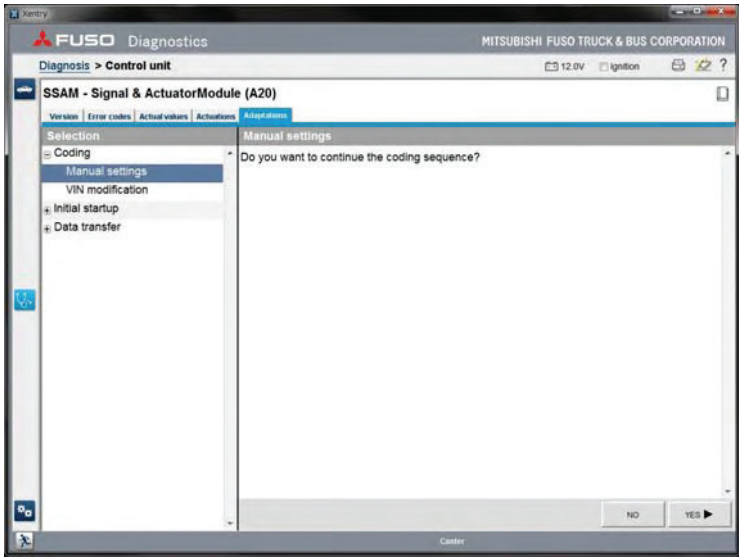
(A) Insert a USB storage device containing data, then click this button to go to the inquiry number entry screen. Data starts being copied when the inquiry number is introduced.

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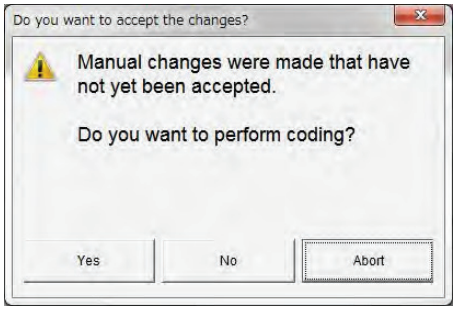
④ Change parameters (the setting items vary depending on the changes to the vehicle specifications. See F3-*** for details).

⑤ If “Apply changes” is selected, the following screen will appear (if a parameter is changed, the letters will change from grey to black and the button will be activated).

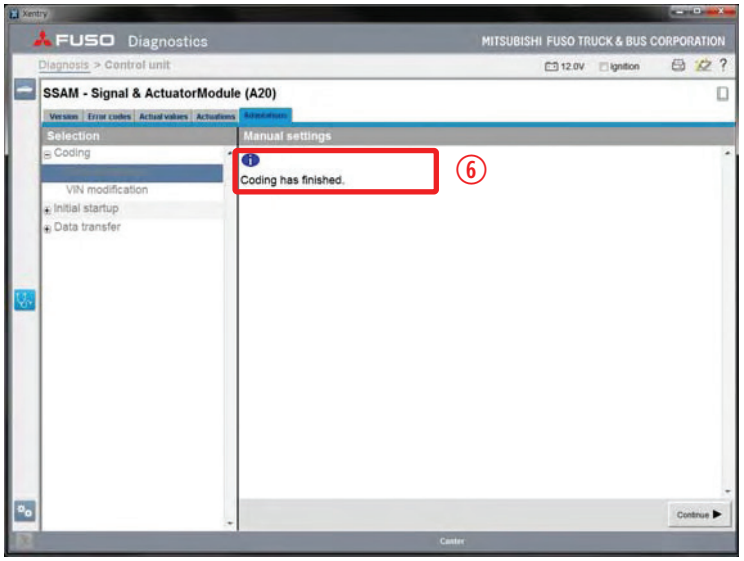


Select “Yes”: The change is applied and the previous screen is displayed.
Select “No”: The previous screen is displayed without the change applied.

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If you try to move on to another screen (including exiting FD) without selecting “Apply changes” in step (5), the message on the left will be displayed.
Select “Yes”: The change is applied and the previous screen is displayed (FD is terminated after applying the change if Quit FD was selected).
Select “No”: Changes are deleted and the screen is updated (FD is terminated if Quit FD was selected).
Select “Abort”: Screen change (including exiting FD) is aborted and the previous screen is displayed.



⑥ When this message is displayed, the coding of a parameter and generation of an upload file are complete.

⑦ Quit FD and run the ECU after-run process (turn the ignition to the OFF position and remove the key. Wait for about 1 minute, and then turn the ignition back to ON again).
⑧ Restart FD and check if coding parameters have not been incorrectly changed on each setting screen (screens on which coding parameters were changed). If coding parameters were changed to incorrect values, reset the coding parameters (see F2-050 “Resetting code entry (coding)”). Then, perform code entry again from step (4).

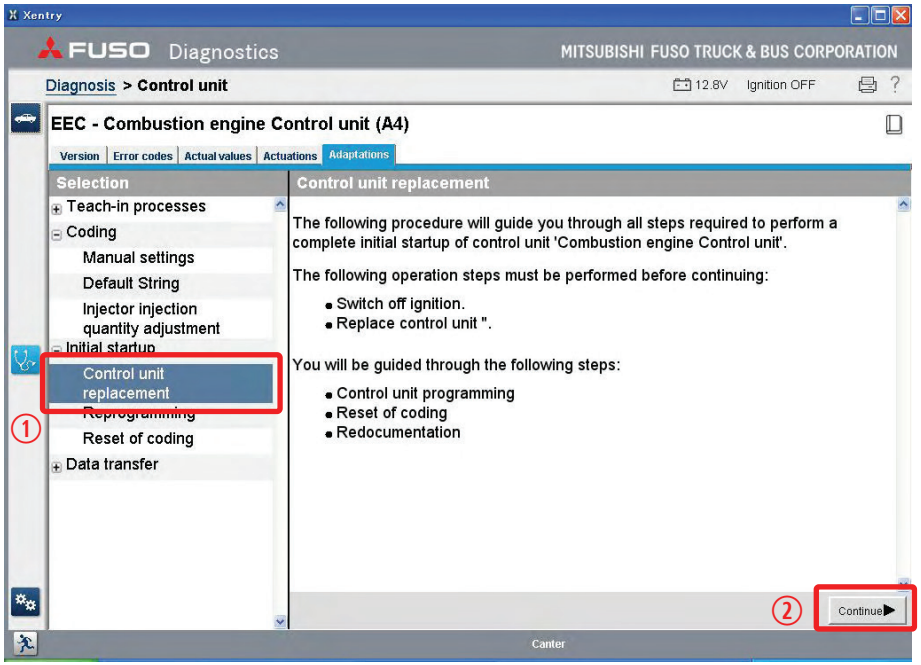
- As a post process, upload the ECU history data to the FRN.

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- This task must be completed before writing the old ECU's software and coding parameters downloaded from the FRN into the new ECU to make the contents of both ECUs identical.
- This task applies to the following ECUs to which software is not written.
  MCM: Engine ECU (heavy-duty)
  ACM: SCR ECU (heavy-duty, medium-duty)
  EEC: Engine ECU (light-duty)
  TCM: DUONIC control unit

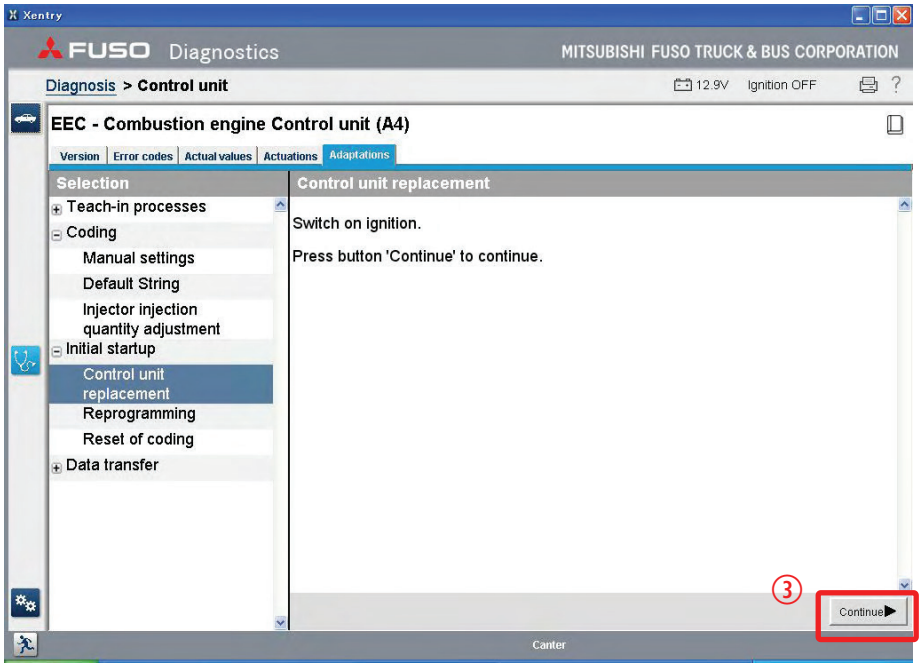
CAUTION

Please perform "Coding", when you replace ECUs other than the above. Although the menu of some ECUs have a "Control unit replacement option", as it is preparing a backup in the event of an unexpected fault, do not use the option without directions.



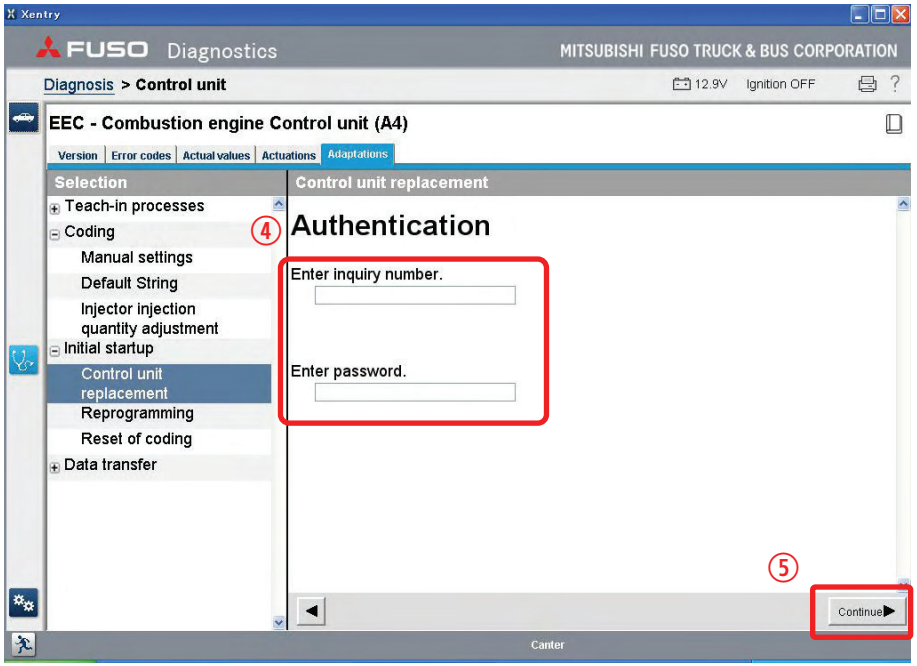
① Select "Control unit replacement".
② Click "Continue".

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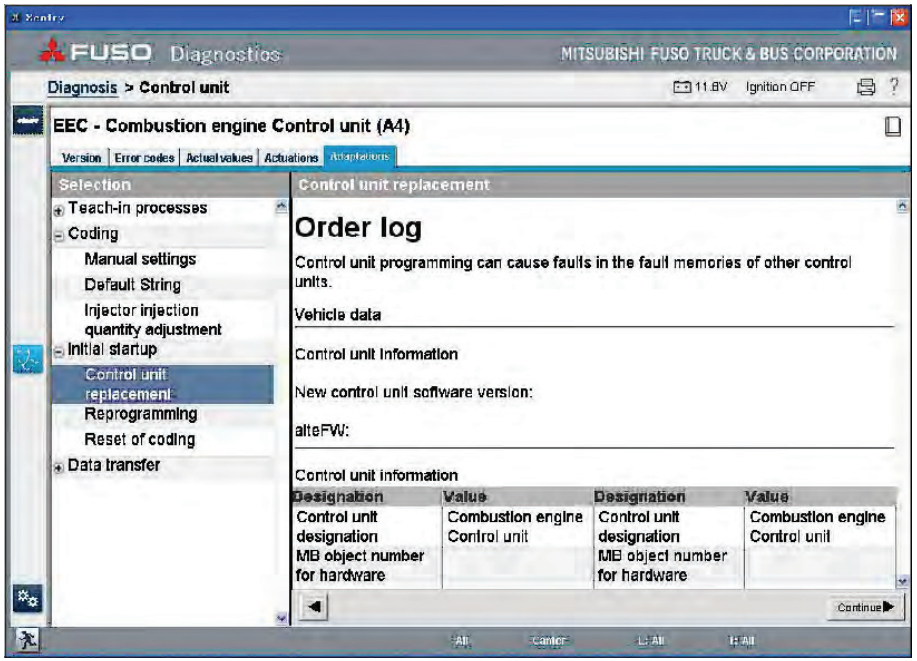
③ Click “Continue”.

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④ Enter the inquiry number and password obtained from the FRN (make sure you enter the letters from the inquiry number in capital letters).
⑤ Click “Continue”.

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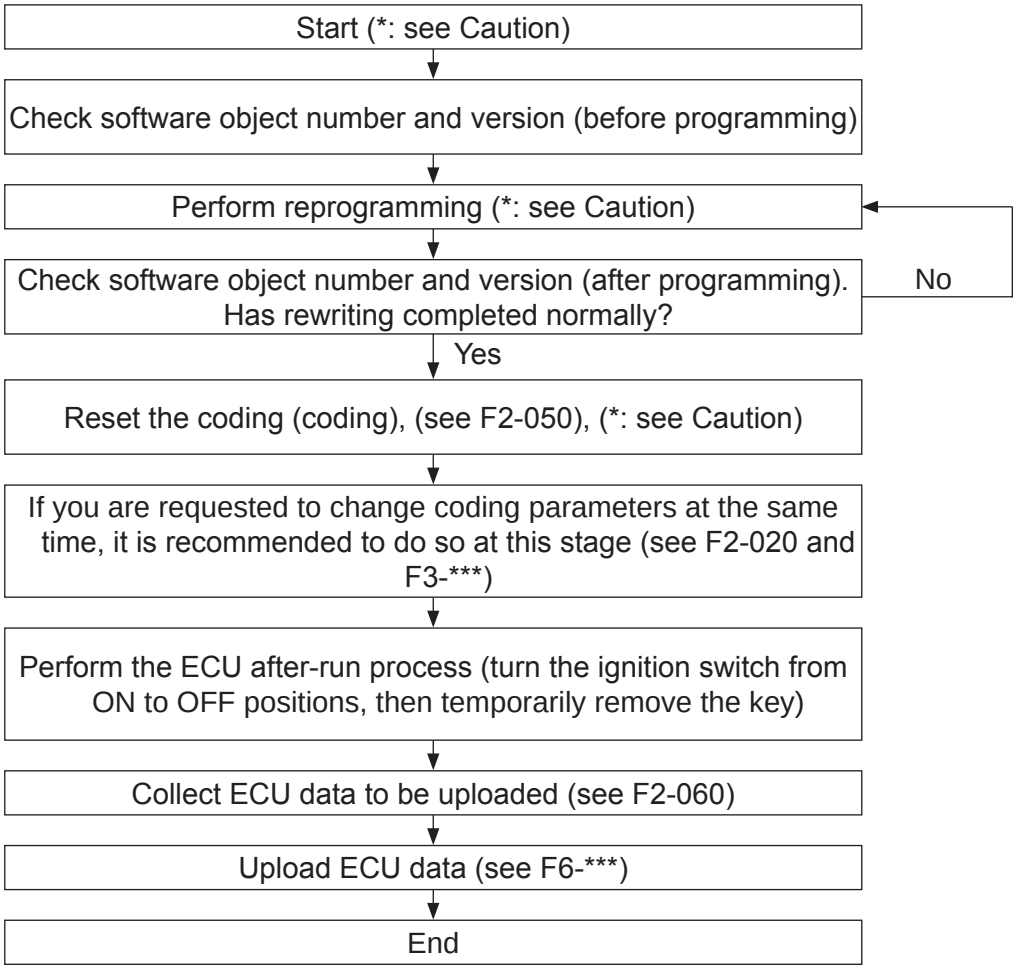
- Check that the ECU software version and object number have been transferred from the ECU before replacement. When normally completed, proceed to tasks such as initial setup as required.
- Be sure to perform initial setup of the DUONIC® by referring to the Shop Manual.

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Rewriting of ECU software due to a service campaign or recall is carried out on the “Initial startup - Reprogramming (software rewriting)” screen. Use the flow chart below to change coding parameters.

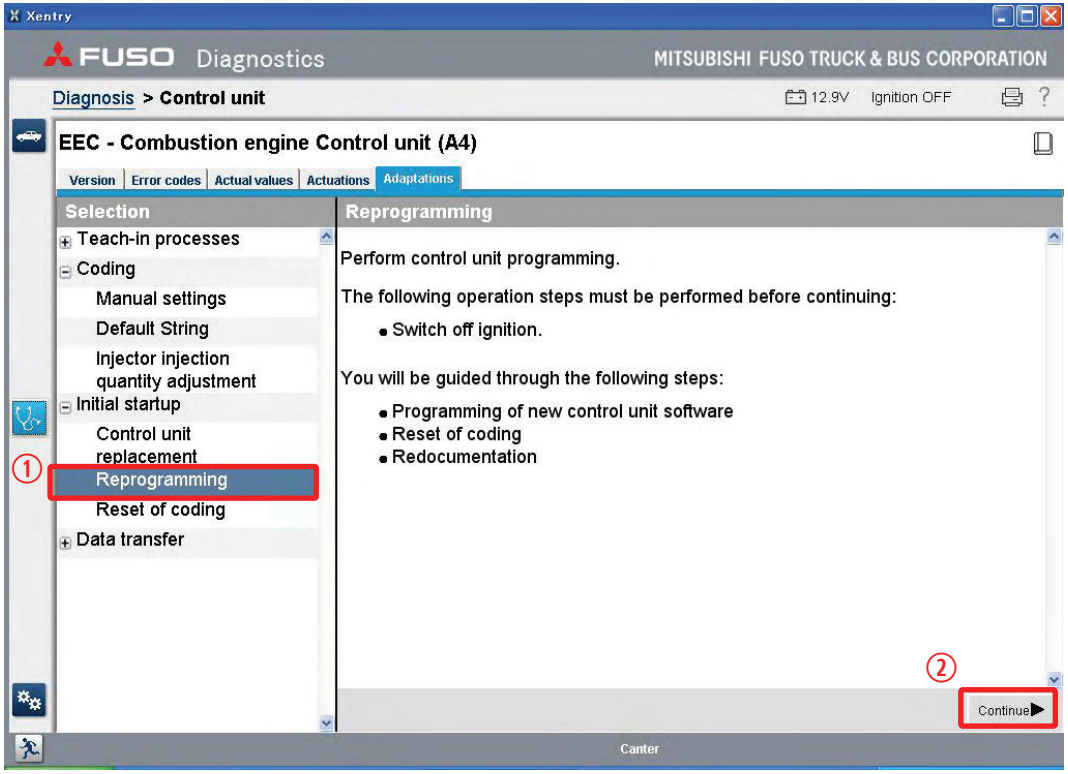
CAUTION

Reprogramming cannot be performed if SAM was manufactured before February 13, 2011 (date indicated on a label). It is necessary to replace the SAM by a new one with a newer manufacturing date. Since there is the possibility of a breakdown of an internal circuit, please do not perform “Reset of coding” after the end of “Reprogramming” by any means to the ACM (SCR ECU) of export vehicles.



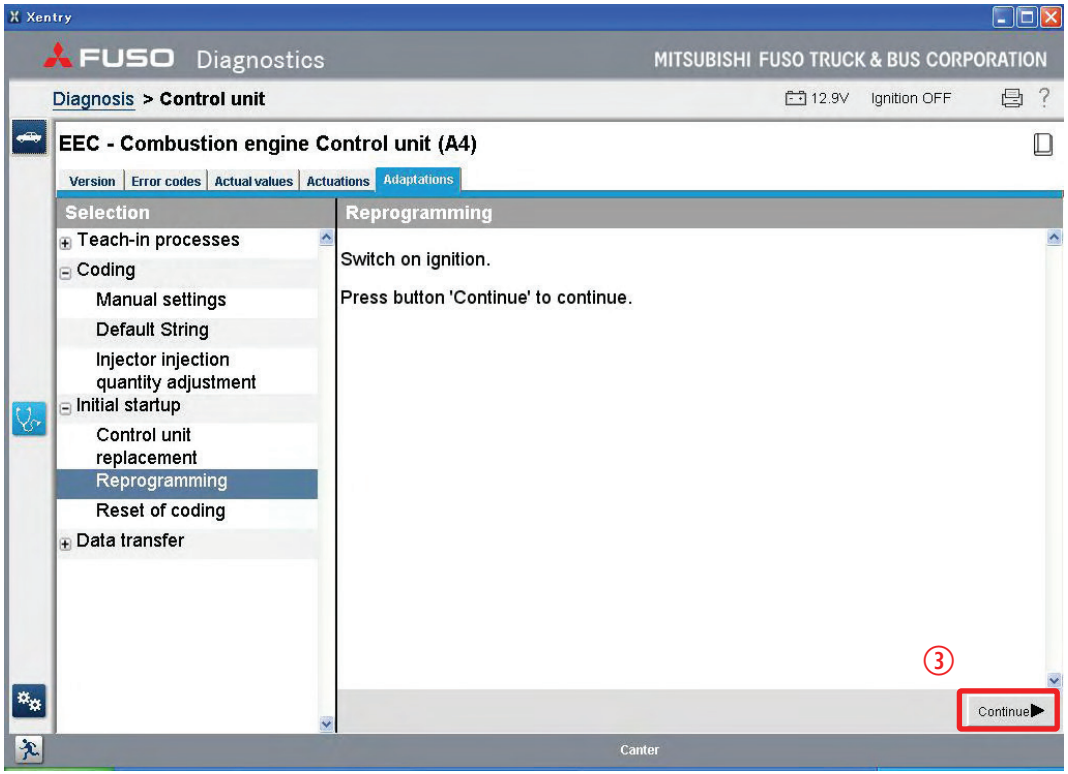
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- The vehicle ECU data must be downloaded from the FRN before starting new programming (see F6-010 “FRN (field rewrite network)” and onward).
- The downloaded ECU data must be transferred to the PC on which FUSO Diagnostics was set up using a USB stick (see F2-070 “Data Transfer” and onward).
- When performing new programming, the process may stop before the value indicating rewriting progress reaches “100%”. If this happens, check the software version via the “Version” tab (the rewriting process may have already completed).
- When you have confirmed that software rewriting has completed normally, reset code entry (if you do not reset code entry, the updated software may not be recorded on the ECU), (see F2-050 “Reset of coding (coding)”).
- After resetting code entry (coding) or changing parameters, apply the change by carrying out the ECU after-run process (turn the ignition switch to the OFF position and remove the key. Wait for about 1 minute, and then turn the ignition switch to the ON position again.).
- When coding parameters have been changed, the new ECU data must be uploaded to the FRN (see F6-*** “FRN (field rewrite network)” and onward).



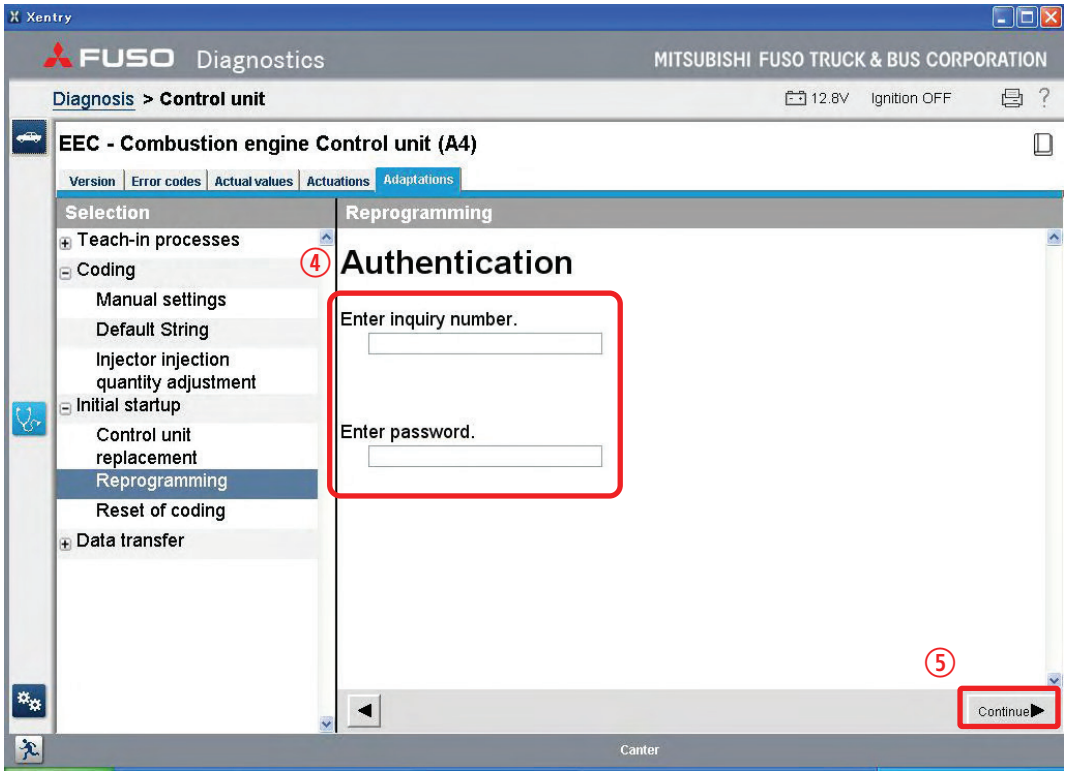
① Select “Reprogramming”.
② Click “Continue”.

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③ Click “Continue”.

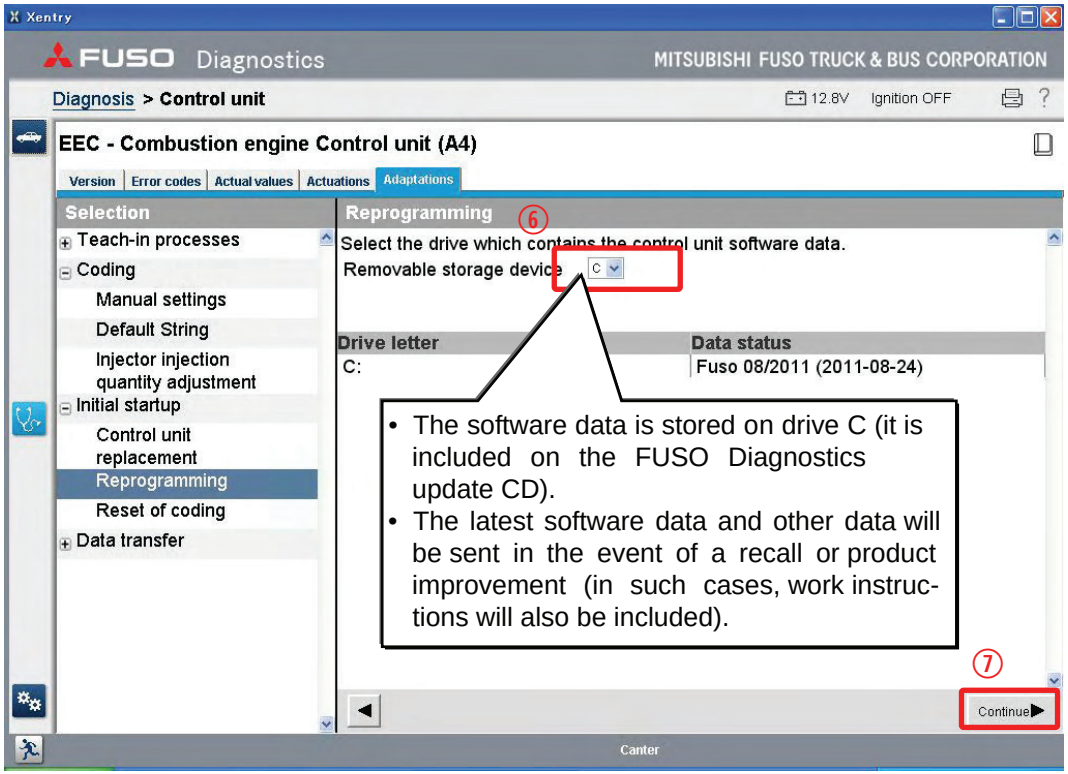
https://truckmanualshub.com/



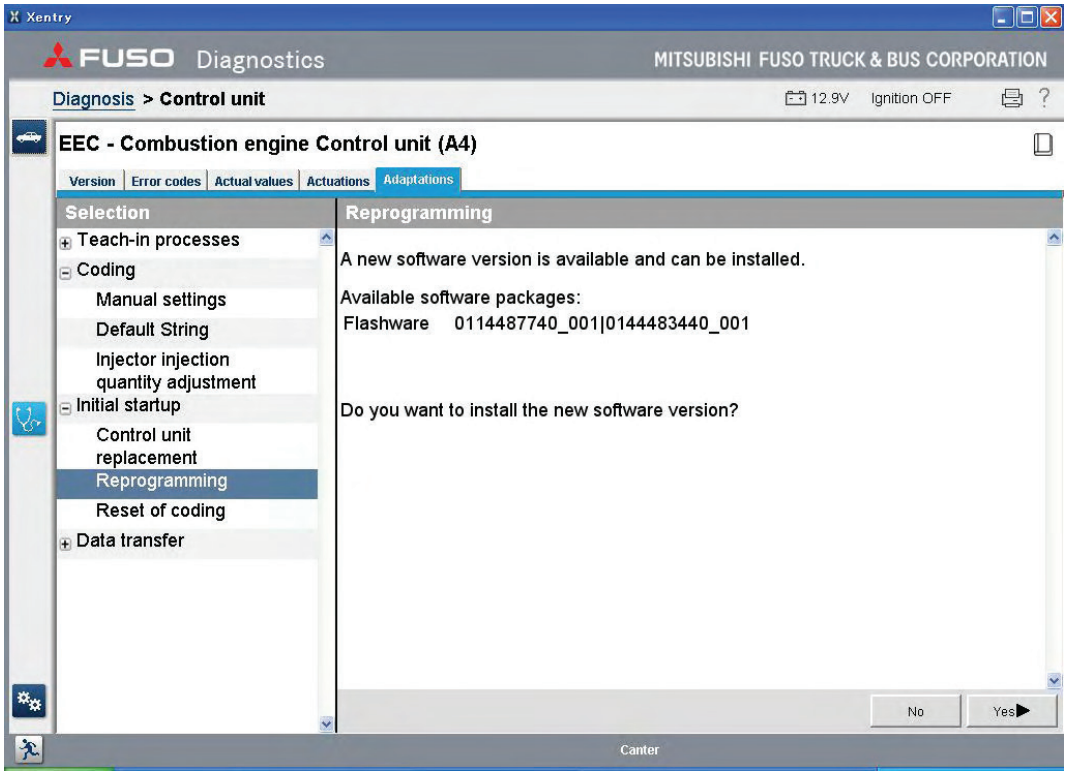
④ Enter the inquiry number and password obtained from the FRN (make sure you enter the letters for the inquiry number in capital letters).

⑤ Click “Continue”.

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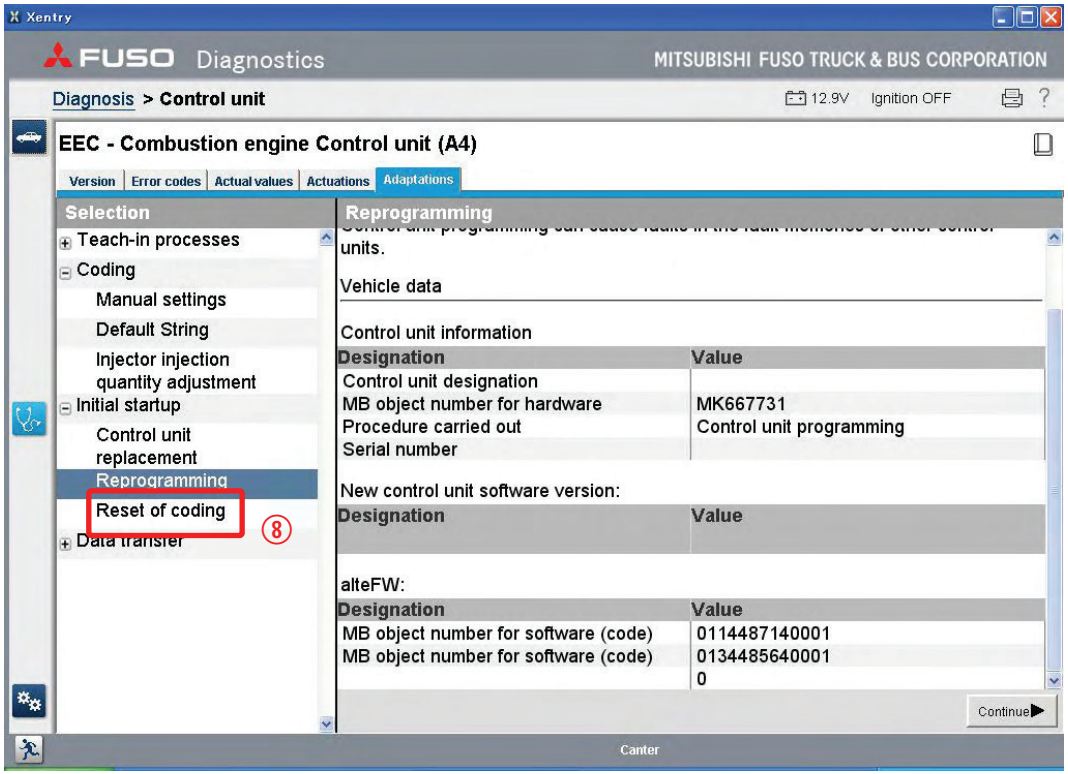


⑥ Select the drive on which the software data is stored.
⑦ Click “Continue”.



- The above screen is displayed if new software is available.

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⑧ When you have confirmed that software part number rewriting has completed normally, reset code entry (coding), (see F2-050).

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High-level operations

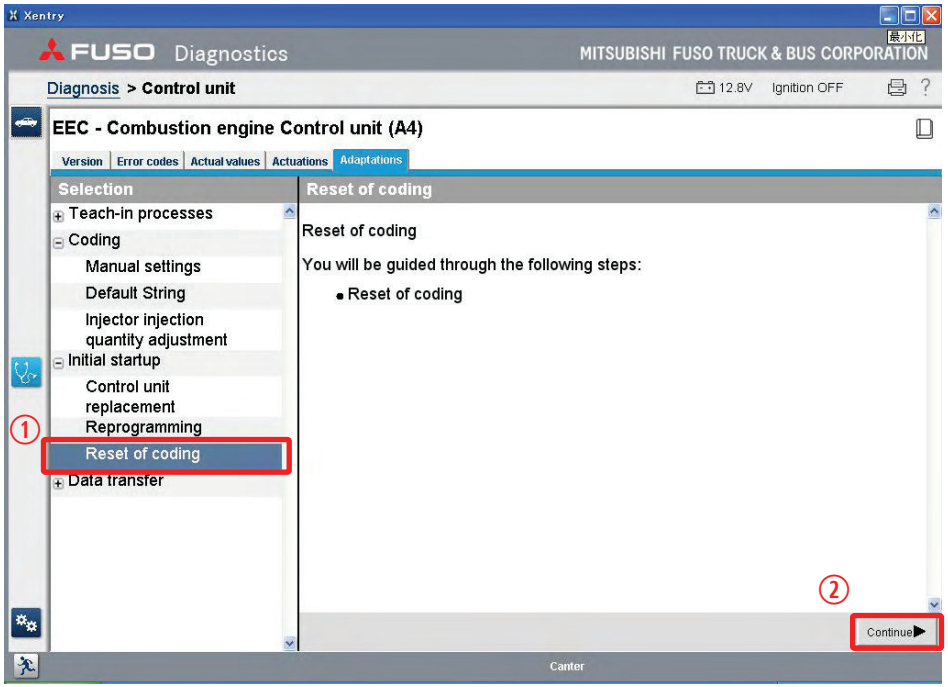
Reset coding (coding)

F2-050

If a vehicle malfunction or another problem occurred as a result of erroneous coding, perform this operation to restore the coding to the factory setting or the latest setting available in the FRN (see F2-020 for entering codes (coding)).

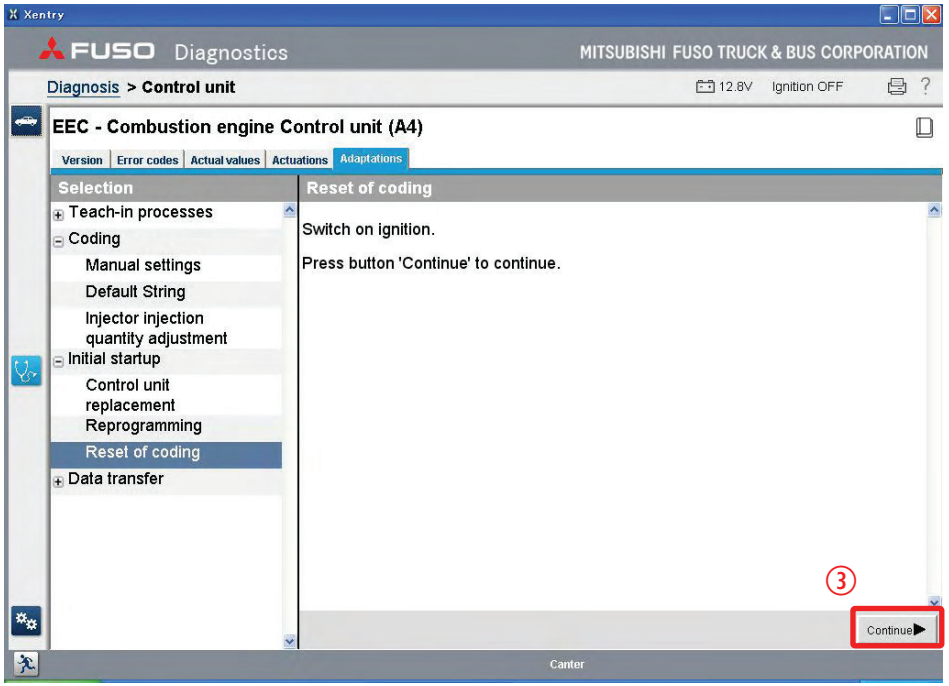
CAUTION

Do not reset coding (coding) on the ACM (SCR ECU) of export vehicles as this may cause damage to the internal ECU circuit.

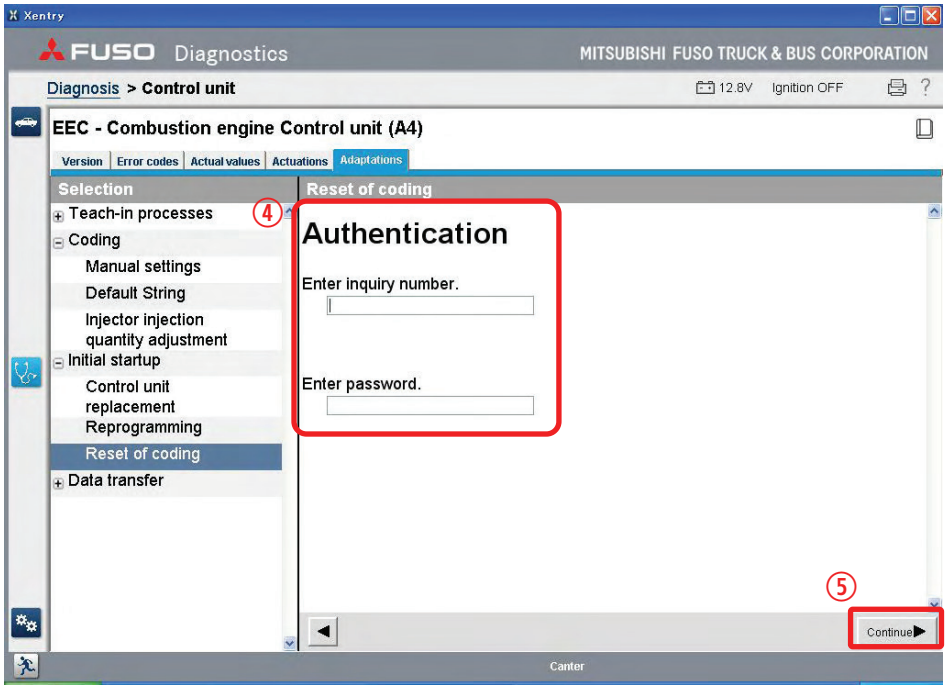


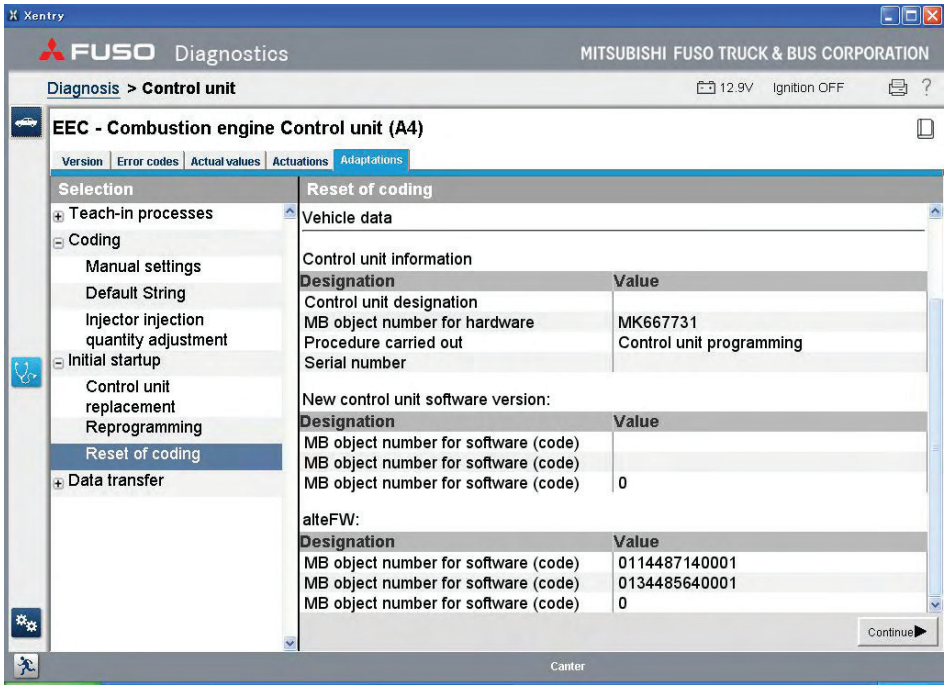
① Select “Reset of coding”.
② Click “Continue”.

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③ Click “Continue”.





④ Enter the inquiry number and password (make sure you enter the letters for the inquiry number in capital letters).
⑤ Click “Continue”.

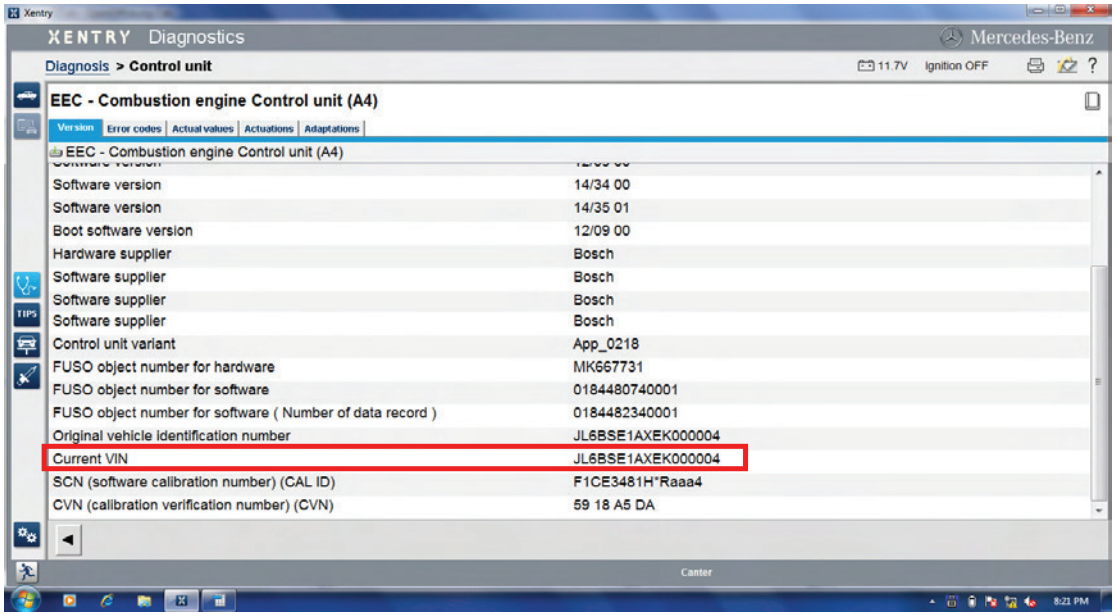
F2-050	High-level operations VIN recognition function	F2-051

VIN (Vehicle Identification Number) recognition function when writing software and parameters.

- A new “Matching and writing of ECU and FRN history file with VIN” was added to the item below.

This new feature will help to avoid the cases of “Reprogramming with another vehicle’s FRN file” or “Reprogramming with wrong operation”

1. Control unit replacement
2. Reprogramming
3. Reset of coding

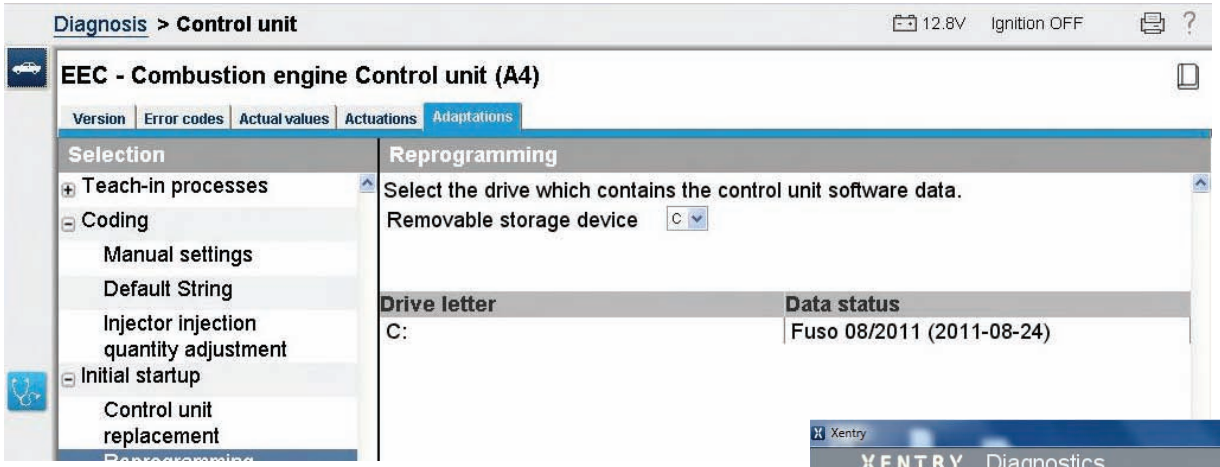


In this version the VIN is displayed in “Current VIN” on the screen.

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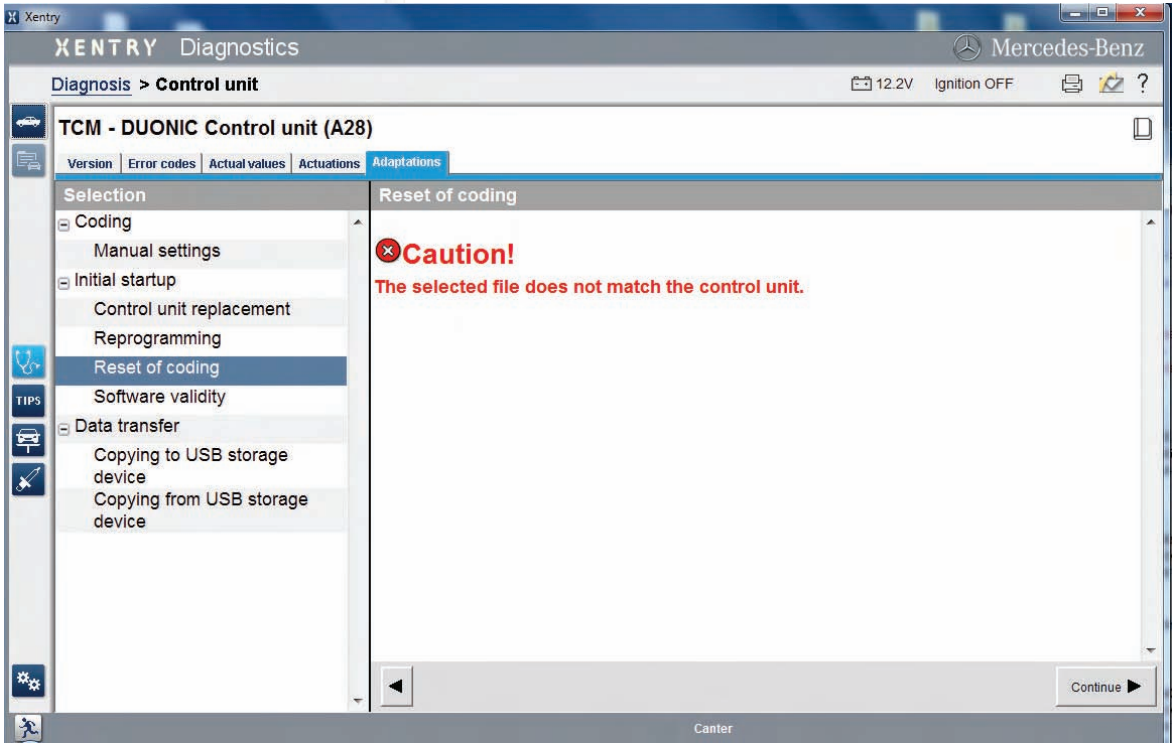
If the ECU and FRN history file VINs match.

- If ECU and FRN history file VINs match, the screen is the same as before and you can reprogramme.



If the ECU and FRN history file VINs do not match.

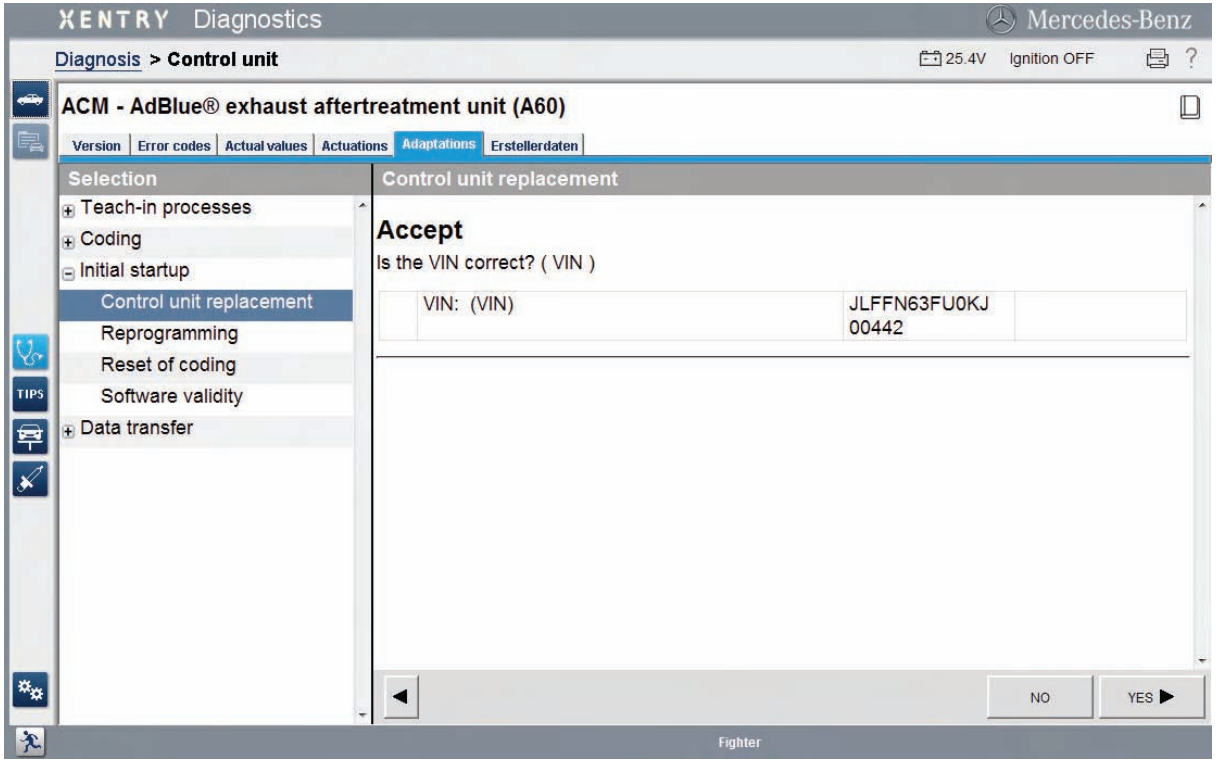
- If the ECU and FRN history file VINs do not match, a message will be displayed indicating that reprograming is not possible.
- In this case a different vehicle FRN history or ECU should be used.



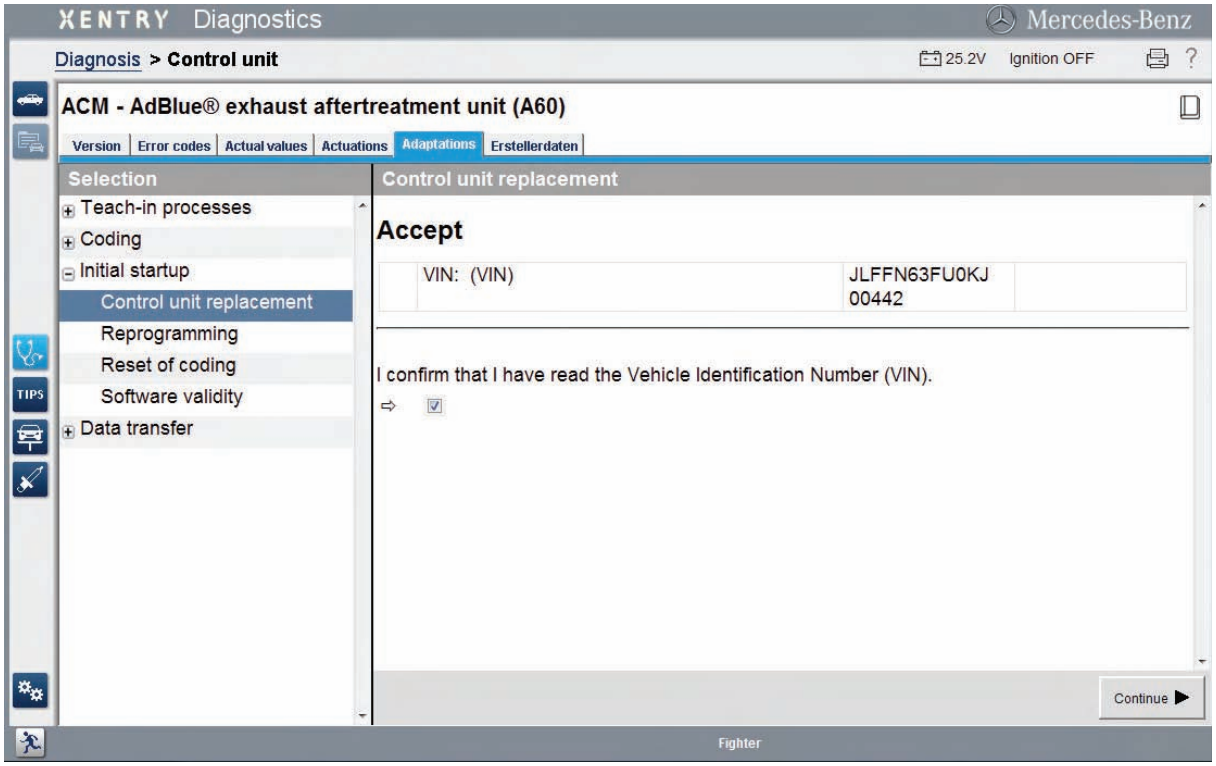
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<ACM>

- When writing the FRN history file VIN to the ECU, a VIN confirmation screen is displayed. Confirm the VIN is correct and continue the procedure after the message screen is displayed.



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<EEC, TCM, ICUC>

- To authenticate, compare with VIN which was recognized by SSAM.
- In case of Rosa, you would see VIN confirmation screen. Please confirm it is the correct one and follow the procedure as shown by the screen messages.

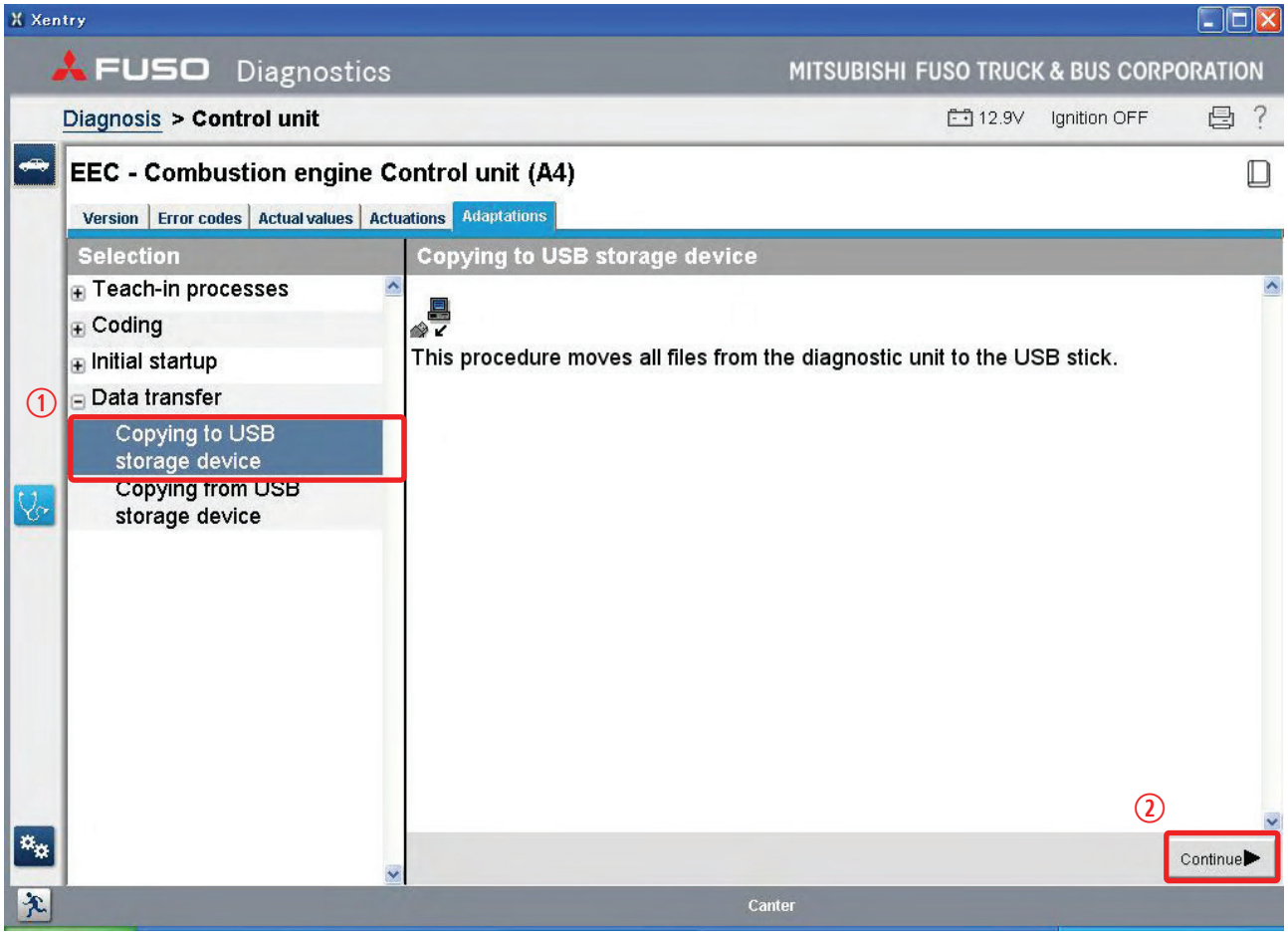
<SAM>

- To authenticate, compare with the VIN which was recognized by EEC.

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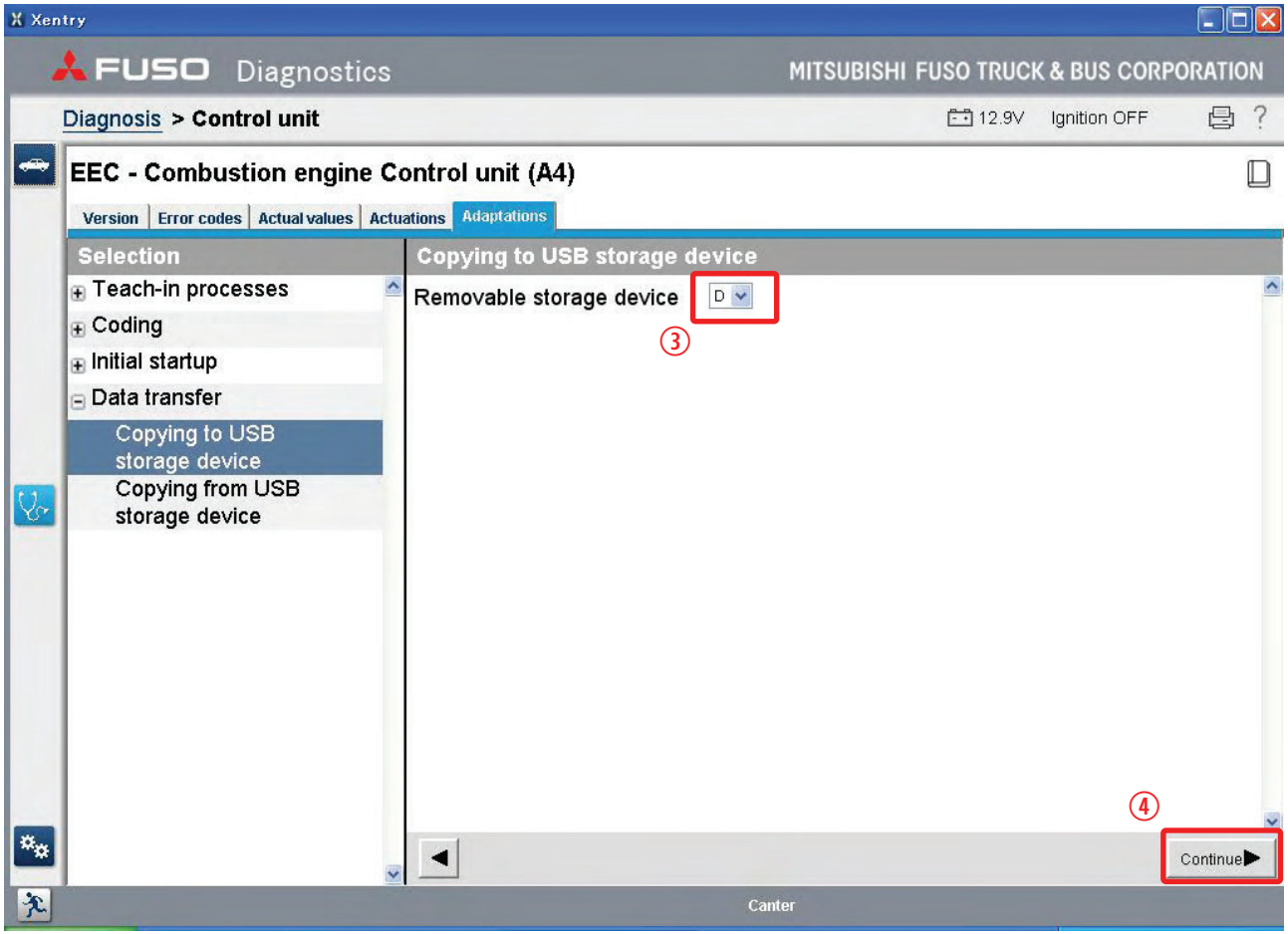
Copy data (coding parameters, history data, etc. that was written to the ECU) from the ECU to a USB storage device so that it can be uploaded to the FRN.

- Files for upload are created in FD (FUSO Diagnostics).
- When copying these files by selecting “Copying to USB storage device”, all the files in FD are copied to the USB storage device. The files created for upload remain in FD even after they have been copied to the storage device.

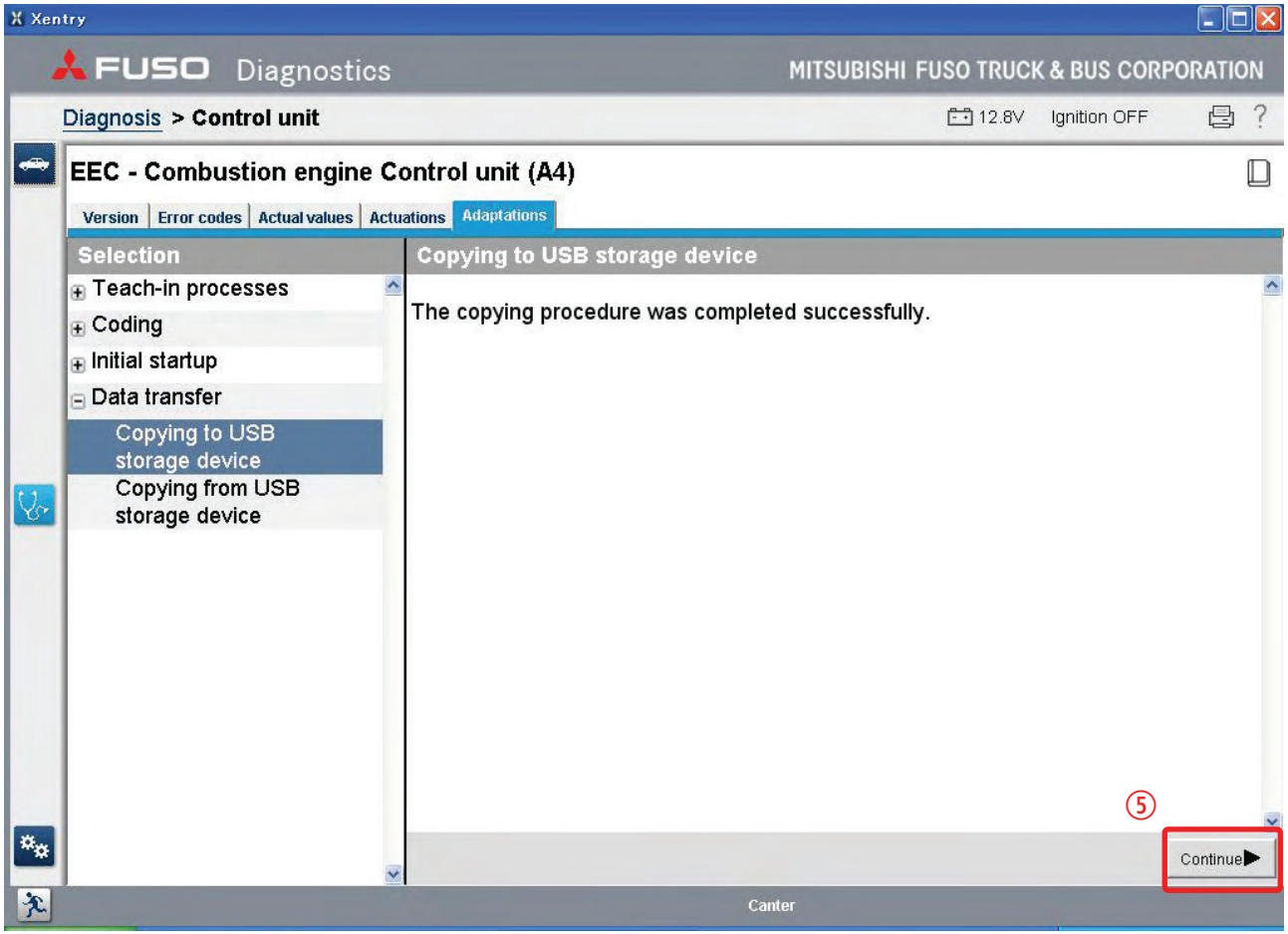


① Select “Copying to USB storage device”.
② Click “Continue”.

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③ Select “Removable storage device”.
④ Click “Continue”.

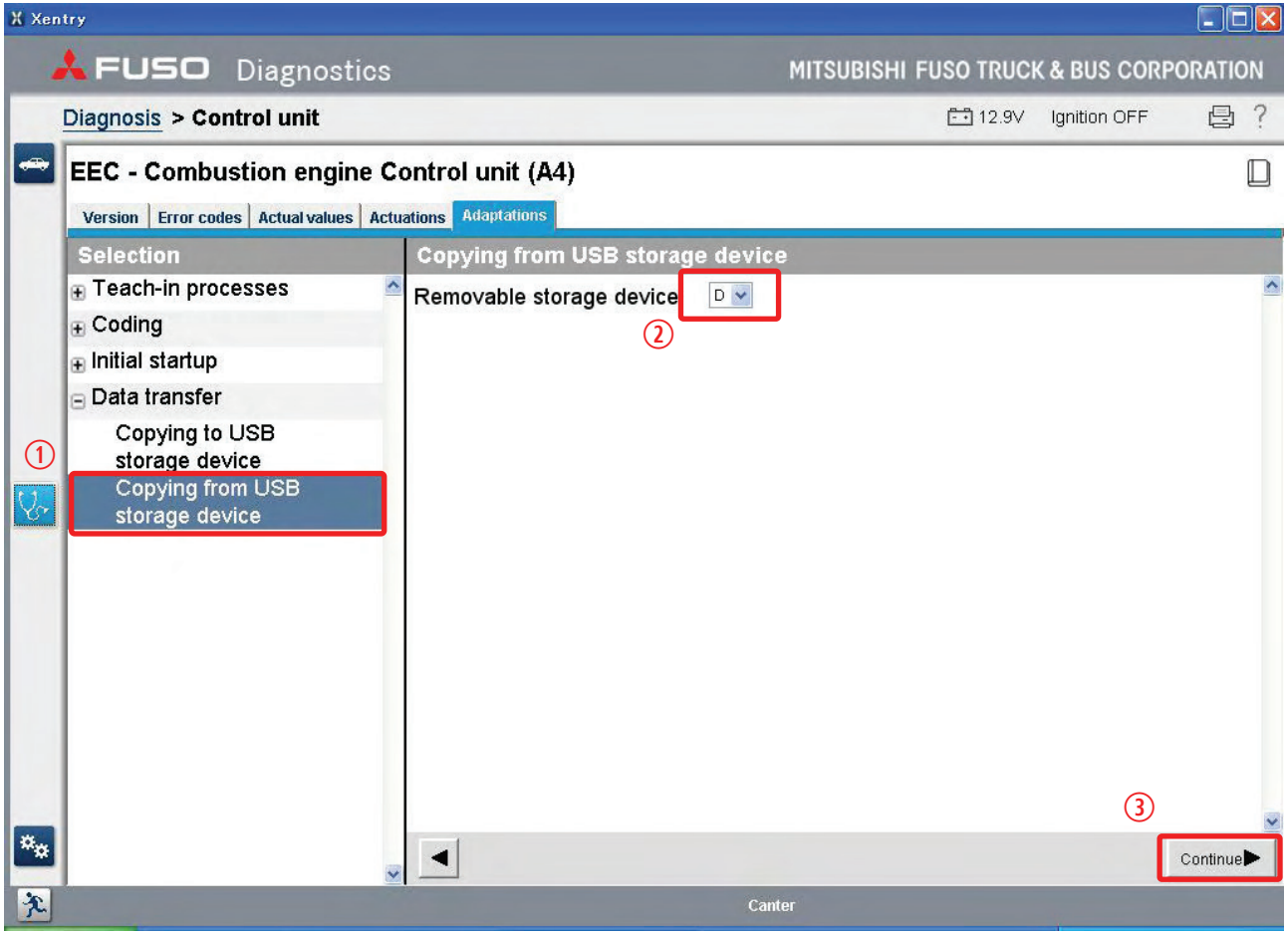


⑤ Click “Continue” to exit.

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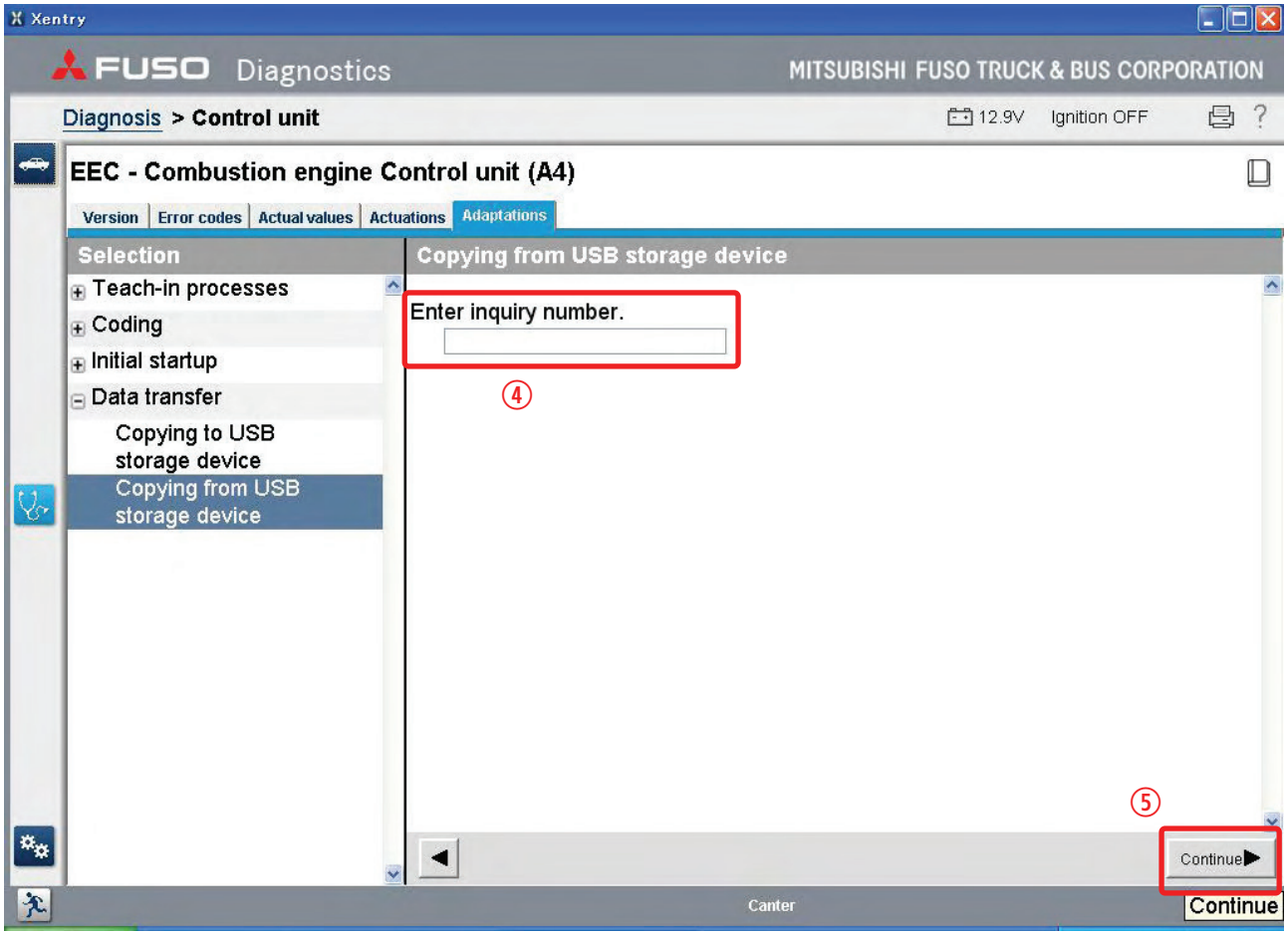
Data transfer/Copy from USB storage device

Copy data (coding parameters, history data, etc. that was downloaded from the FRN) from a USB storage device to the PC.
Insert a USB storage device containing data before starting the operation (a warning will be displayed if the USB storage device is not inserted).



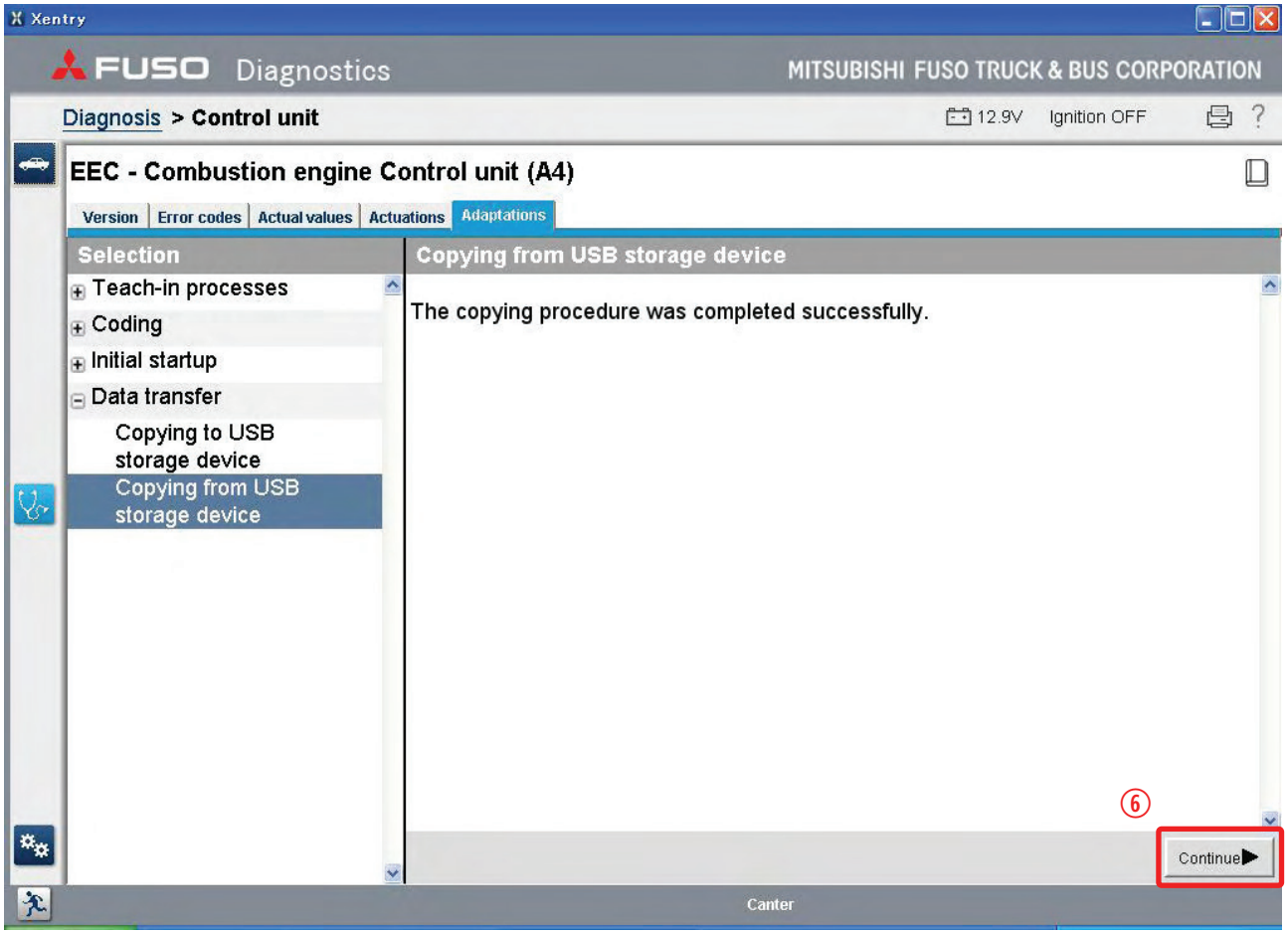
① Select “Copying from USB storage device”.
② Select “Removable storage device”.
③ Click “Continue”.

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④ Enter the inquiry number.
⑤ Click “Continue”.

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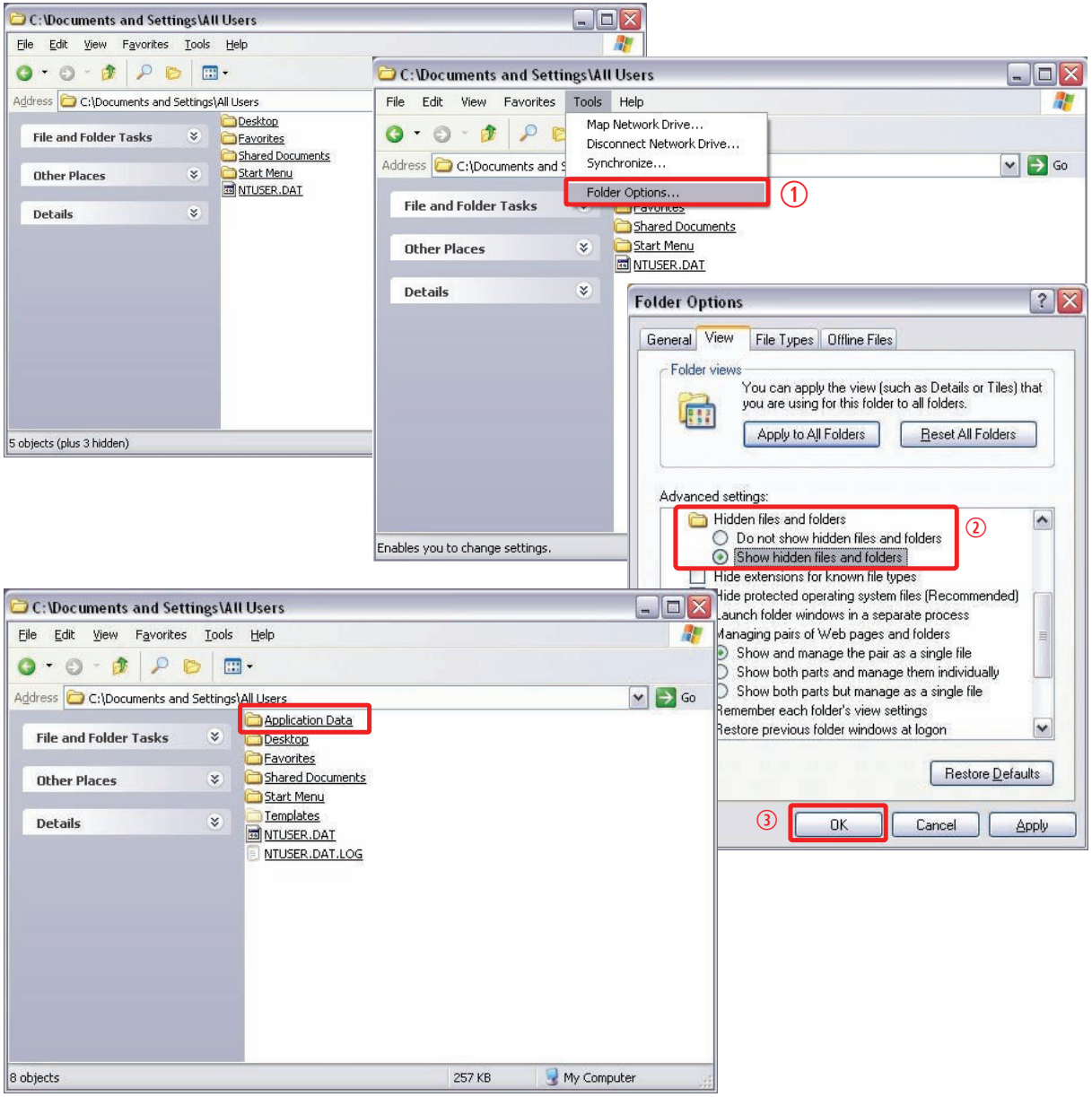
⑥ Click “Continue” to exit.

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1 Data logger function

- FUSO Diagnostics prepares the function to output and save vehicle log data in CSV format to a pre-defined folder.
- The folder the file is saved to depends on the OS version on the PC:
  Windows 7®
  (C:\ ProgramData\Mercedes-Benz\docs\Xentry)
  Windows XP®
  (C:\ Documents and Settings\All Users\Application Data\Mercedes-Benz\docs\Xentry)
  To display the underlined folder, a setup must be changed using the following procedures (the screens are specific to Windows XP®).

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- Change method for Windows XP®:

"All Users" folder (reference)

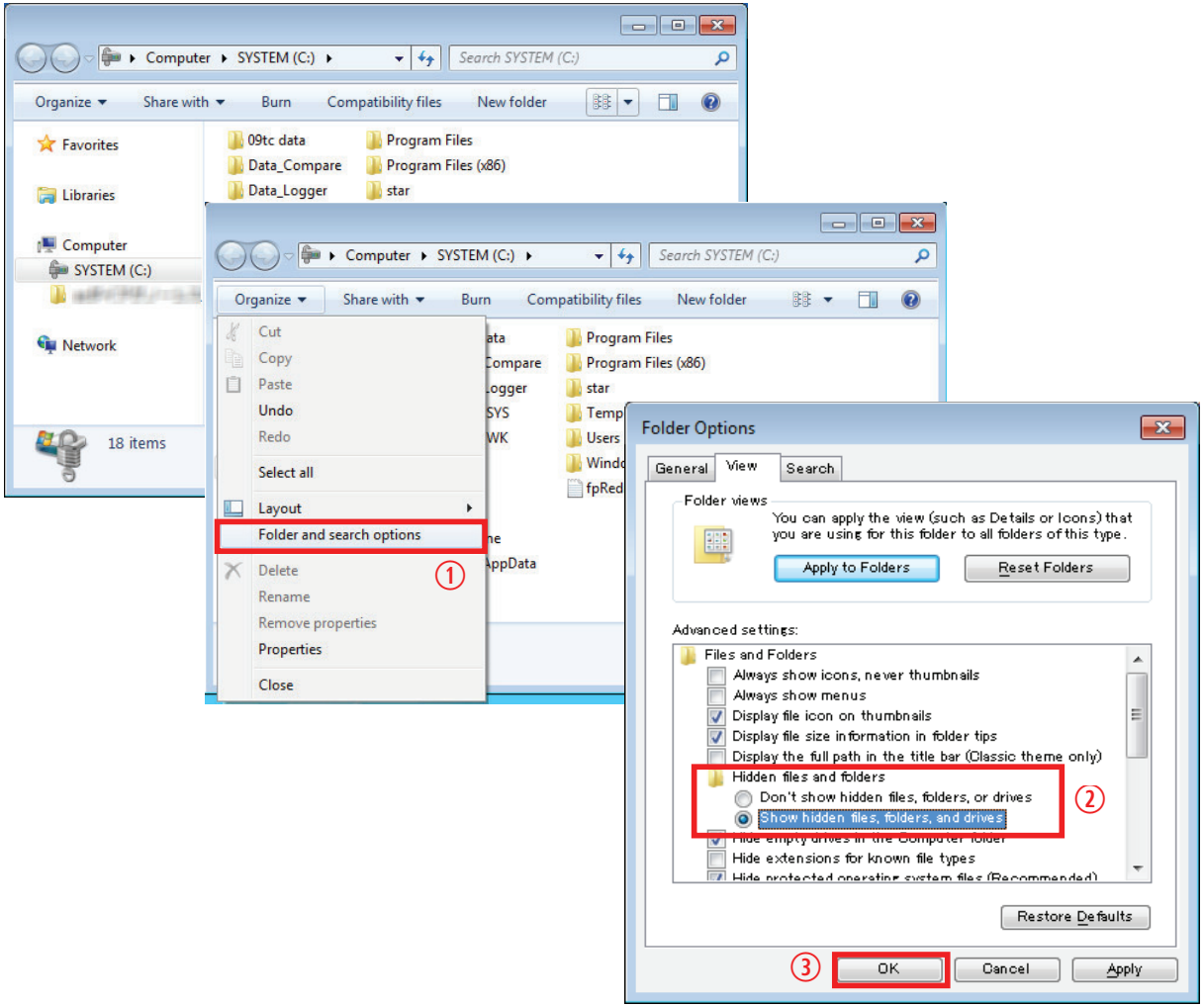
① Select "Tools - Folder Options"

② Select "Show hidden files and folders" on the "View" tab.

③ Select "OK".

The folder hidden as shown in the following figure is displayed (Application Data etc. are displayed).

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- Change method for Windows 7®:

"Drive C" folder

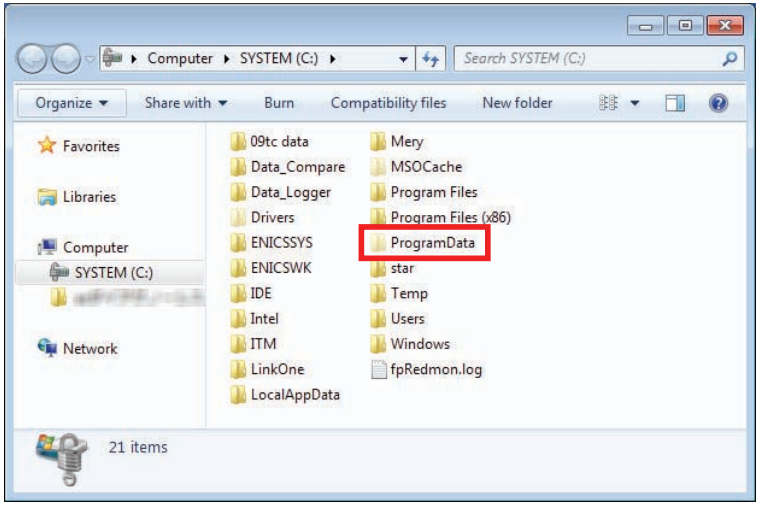
① Select "Organize - Folder and search options"

② Select "Show hidden files, folders, and drives" on the "View" tab.

③ Select "OK".

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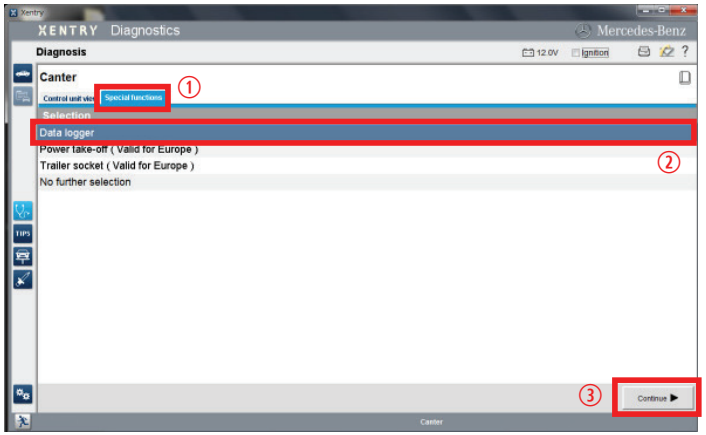
The hidden folder shown in the following figure is displayed (Program Data etc. is displayed).



- How to use a data logger function

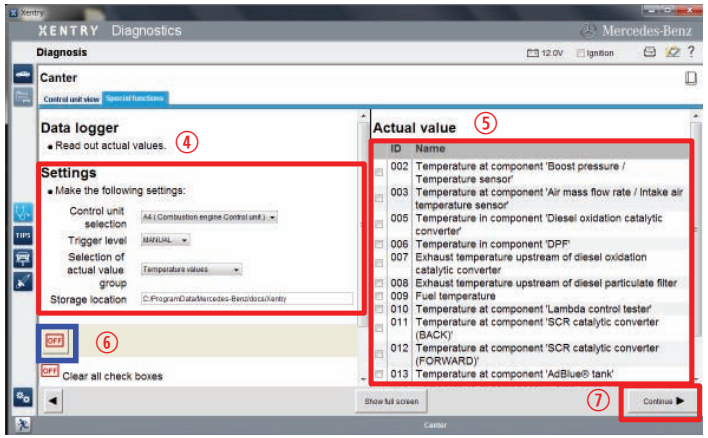
CAUTION

It is necessary to operate the PC for data acquisition while the vehicle is running. In order to ensure safety procedure, please be sure to work with two persons, one who performs PC operation and another as the driver.



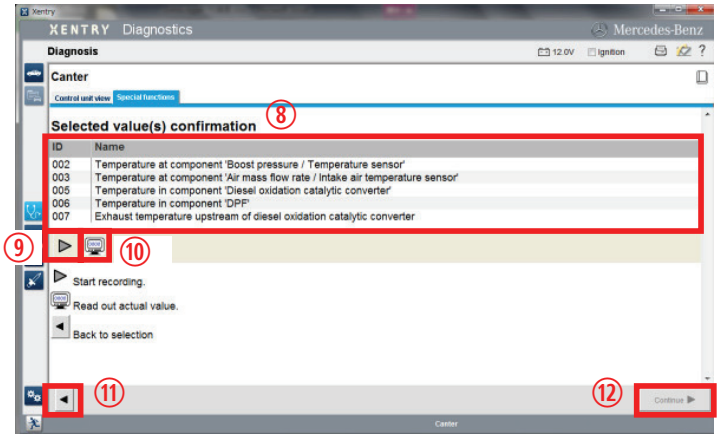
① Select “Special functions” tab.
② Select “Data logger”.
③ Click “Continue”.

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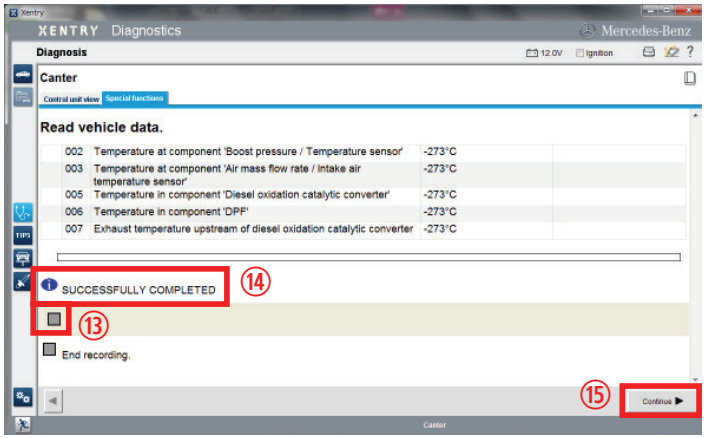
④ Data output setup. Control unit: select ECU (EEC, TCM or ACM). Trigger level: there are two types: “Manual” and “Fault code”. When fault code is selected, the time the fault was generated is recorded and saved in a file that is separate from the current data.
⑤ Select the data to acquire. The display under the top row is changed and the check boxes must be ticked to acquire the corresponding data (multiple selections are available).
⑥ Clicking “OFF” clears all the check boxes.
⑦ Click “Continue” to proceed to the confirmation screen. Depending on the contents selected for “trigger level” (4), refer to the <Manual screen> or the <Fault code screen>.

<Manual screen>



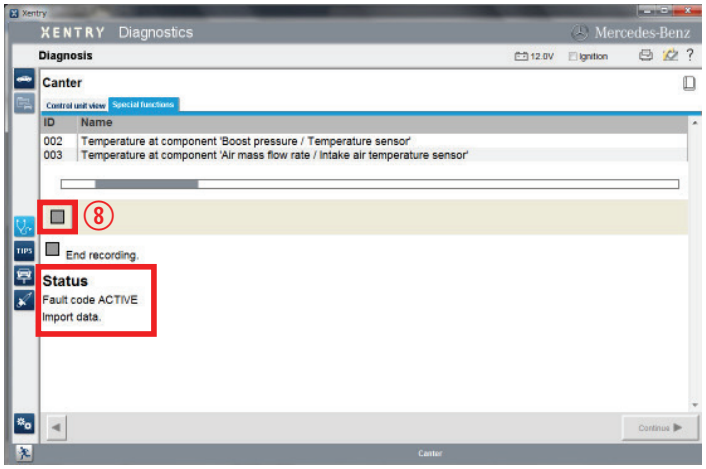
⑧ The selected data will appear on the screen.
⑨ Press the start recording button to begin data logging.
⑩ Actual values display switch button.
If you want to display and record raw data simultaneously, press the start button ⑨ and then press this button ⑩.
⑪ Back to selection button.
If this button is selected, you will return to the previous screen.
⑫ Not-used.
You do not have to press this button. When you press button ⑨ it will move automatically to the next screen.

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⑬ Stop recording button. Press to stop recording.
⑭ If the stop button is pressed and end of recording message is displayed.
⑮ Pressing the continue button returns to the previous screen.

<Fault screen>



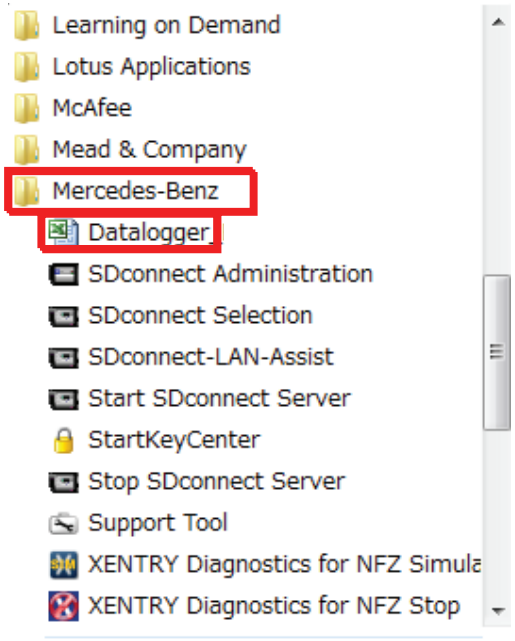
⑧ End recording.
Recording data will continue to acquire the actual value until you press button ⑧.
When choosing “Fault code”, acquiring data using the “Method” in step ④ if a fault code occurs, the characters are displayed as in the red rectangle on the left side.

Trigger fault codes, regardless of the selected data content is recorded when the EEC or TCM diagnosis code is detected.

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- Data logger macro
  Actual measurement names are not displayed because they are meaningless. The CVS file containing the data uses a macro to modify the data (file name: “Datalogger.xls”) (select emission control regulation).

- Starting a macro (Windows XP® screen)



Select as follows.
① Start
↓
② All Programs
↓
③ Mercedes-Benz
↓
④ Clicking “Datalogger” starts the macro

If “Datalogger” is not found in the above-mentioned operation, run “Datalogger.xls” in the following folder.

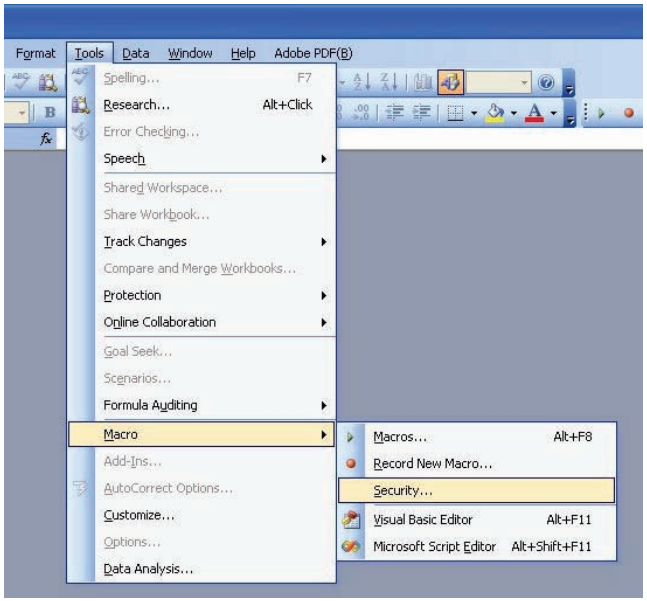
“C:\Program Files\Mercedes-Benz”

Read “Precautions when using macros” and “Macro instructions” in the next pages before running it.

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- About Excel macro security
  In normal Excel configurations, macro security options may prevent macros from running.
  You may need to make the following changes to enable macros.

For Excel 2003 and earlier version

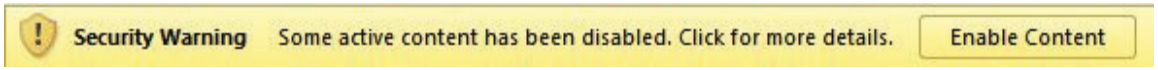




Select “Tools” – “Macro” – “Security…”
Select “Medium” security level.

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For Excel 2007 and later versions.
When the “Security Warning” is displayed, press the “Enable content” button.





If the “Security Warning” message is closed without using the “Enable Content” button, when “File” is pressed, the screen on the left will be displayed.



If the “Enable Content” button was pressed, the macro will be enabled if “Enable All Content” is selected.

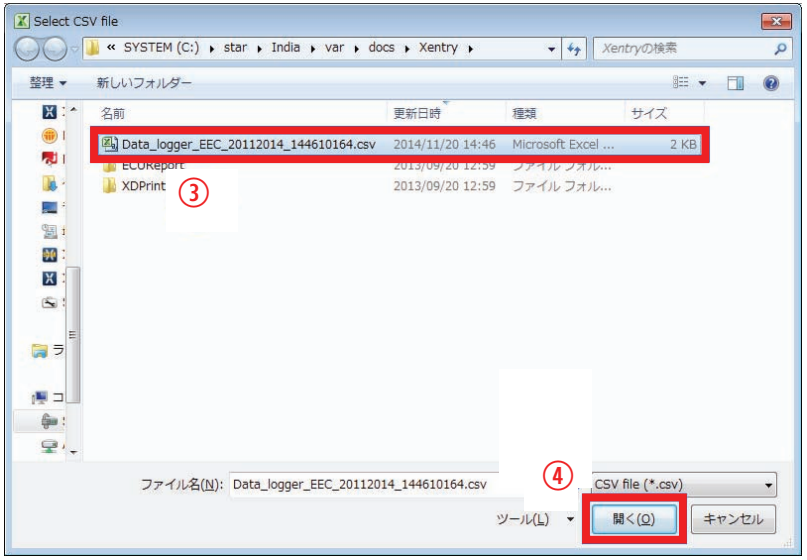
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- Precautions when using macros
  As it is impossible to restore files once the macro has run, always run the macro on a copy of the file.

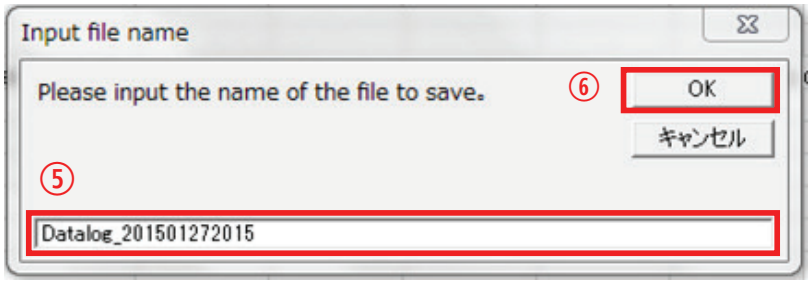
① Launch “Dataloger.xls” Excel file.



② Click on “Import CSV and create graph” button.



③ Select a CSV file that was created using the Data logger function (only CSV files can be selected).
④ Click the “Open” button and open the CSV file.



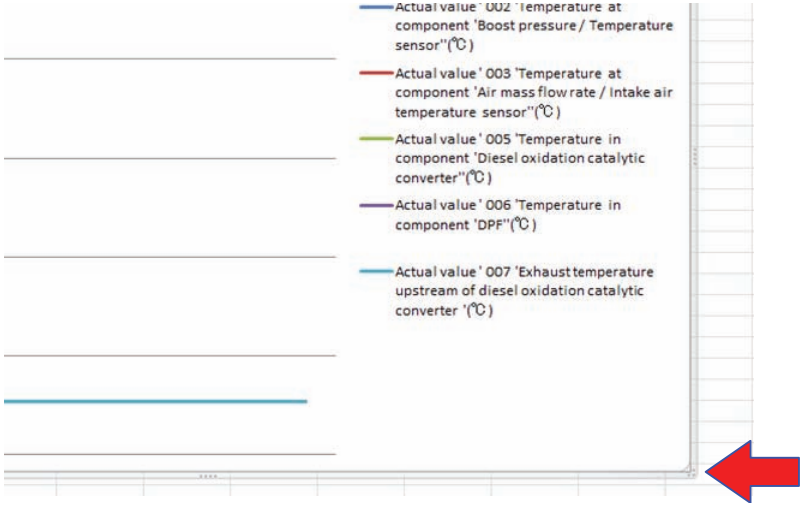
⑤ Enter a file name.
⑥ Click “OK”.

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⑦ CSV_Data: Select this spreadsheet when you need to see text data.
⑧ Graph (All): Select this spreadsheet when you need to see all data on a graph.
⑨ Graph (Separate): Select this spreadsheet when you need to see each graph.

- The place which Excel file is saved.
  Imported Excel file is placed on a same place with “Datalogger.xml”.



※ If you cannot see all lines on “Graph(All)”, then enlarge the graph by dragging the right bottom corner of the graph.

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[LDT] Canter/Rosa - Changing the specifications

- Changes to vehicle specification items or replacement of the electric equipment items listed in the following tables requires coding data rewriting, coding data initialization, or data resetting of the corresponding ECUs. Note that some items in the tables may not apply to your vehicle depending on the vehicle specifications or destination.
- For the detailed procedures, use the browsing codes indicated in the reference column.

<Canter>

ECU (by the name used in Shop Manual) / Affected specifications/electric equipment	EEC (engine ECU)	TCM (DUONIC® ECU)	ABS (hydraulic unit (ECU))	EZGO (lock brake ECU)	IMMO (immobiliser ECU)	ISS (ISS ECU)	HLAL (headlights auto-levelling ECU)	ICUC (meter cluster)	SAM (SAM)	Refer to
Installing ISS	○					○			○	F3-010 F3-070 F3-110
Installing full-automatic air conditioning system	○							○	○	F3-010 F3-100 F3-110
Installing ABS/EBS		○						○		F3-030 F3-100
Changing final gear ratio		○						○		F3-030 F3-100
Changing tyre size		○						○		F3-030 F3-100
Changing transfer gear ratio		○						○		F3-030 F3-100
Installing auxiliary braking system (lock brake) for accessories				○		○				F3-050 F3-070
Replacing engine ECU	○									F3-010
Replacing injectors	○									F3-010
Installing/removing idle adjusting knob	○									F3-010
Installing/removing fuel filter (installed on chassis with fuel heater)	○									F3-010
Activating/deactivating exhaust brake	○									F3-010

○ : Coding data writing/rewriting required
△ : Coding data initialisation
◇ : Reset teach-in values

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ECU (by the name used in Shop Manual) / Affected specifications/electric equipment	EEC (engine ECU)	TCM (DUONIC® ECU)	ABS (hydraulic unit (ECU))	EZGO (lock brake ECU)	IMMO (immobiliser ECU)	ISS (ISS ECU)	HLAL (headlights auto-levelling ECU)	ICUC (meter cluster)	SAM (SAM)	Refer to
Changing target vehicle speed of speed limiting function	○									F3-010
Replacing air flow and intake air temperature sensors	◇									F3-010
Replacing common rail pressure control valve	◇									F3-010
Replacing common rail pressure sensor	◇									F3-010
Replacing turbocharger	◇									F3-010
Replacing EGR valve	◇									F3-010
Replacing lambda sensor	◇									F3-010
Replacing DPF differential pressure sensor	◇									F3-010
Replacing DPF	◇									F3-010
Replacing SCR silencer	◇									F3-010
Replacing urea tank	◇									F3-010
Replacing urea dosing module (dosing valve)	◇									F3-010
Replacing engine oil	◇									F3-010
Temporarily cancelling engine usage restriction control by FUSO Diagnostics	◇									F3-010
When error code (diagnosis code) “520561-0” is set in engine ECU	◇									F3-010
Replacing engine	◇									F3-010
Activating/deactivating EPS (engine protection system) function	○									F3-010
Activating/deactivating ISD (idle shutdown system) function	○									F3-010

○ : Coding data writing/rewriting required
△ : Coding data initialisation
◇ : Reset teach-in values

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Affected specifications/electric equipment \ ECU (by the name used in Shop Manual)	EEC (engine ECU)	TCM (DUONIC® ECU)	ABS (hydraulic unit (ECU))	EZGO (lock brake ECU)	IMMO (immobiliser ECU)	ISS (ISS ECU)	HLAL (headlights auto-levelling ECU)	ICUC (meter cluster)	SAM (SAM)	Refer to
Replacing DUONIC® ECU		○								F3-030
Replacing ABS ECU			○							F3-040
Replacing lock brake ECU				○						F3-050
Replacing immobiliser ECU					○					F3-060
Replacing ISS ECU						○				F3-070
Replacing starter						○				F3-070
When error code (diagnosis code) “521765-13 (ISS operated more than 150,000 times)” is set in ISS ECU						◇				F3-070
Replacing headlights auto-levelling ECU							○			F3-080
Transferring ECU from another vehicle to a vehicle with different suspension types or wheelbases between the front and rear							○			F3-080
Replacing headlights							△			F3-080
Replacing/adjusting/removing and reinstalling height sensors							△			F3-080
When error code (diagnosis code) “631-31 (no initial setting)” is set in headlights auto-levelling ECU							△			F3-080
Aiming headlights							△			F3-080
When an abnormality is detected in headlights auto-levelling system during proactive operation check							△			F3-080
Replacing meter cluster								○		F3-100

○ : Coding data writing/rewriting required
△ : Coding data initialisation
◇ : Reset teach-in values

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Affected specifications/electric equipment \ ECU (by the name used in Shop Manual)	EEC (engine ECU)	TCM (DUONIC® ECU)	ABS (hydraulic unit (ECU))	EZGO (lock brake ECU)	IMMO (immobiliser ECU)	ISS (ISS ECU)	HLAL (headlights auto-levelling ECU)	ICUC (meter cluster)	SAM (SAM)	Refer to
Installing airbags								○		F3-100
Installing battery equalizer								○		F3-100
Switching units of temperature display on meter cluster (North American specifications; for Canada only)								○		F3-100
Switching units of fuel mileage display on meter cluster (North American specifications; for Canada only)								○		F3-100
Replacing SAM									○	F3-110
Installing/removing externally installed reversing buzzer									○	F3-110
Modifying vehicle body (additional installation of indicator lights)									○	F3-110
Modifying vehicle body (to make auxiliary power supply usable)									○	F3-110
Modifying vehicle body (to make reversing warning signal output detectable)									○	F3-110
Modifying vehicle body (to make PTO operation signal usable)									○	F3-110
Modifying vehicle body (to make gearbox neutral signal usable)									○	F3-110
Modifying vehicle body (to make handbrake signal usable)									○	F3-110
Adding mirror heaters									○	F3-110
Adding fog lamps									○	F3-110
Changing to LED combination lamps (rear indicator lights) (For North America only)									○	F3-110
Changing to LED combination lamps (tail lights) (For North America only)									○	F3-110
Changing to LED combination lamps (brake lights) (For North America only)									○	F3-110

○ : Coding data writing/rewriting required
△ : Coding data initialisation
◇ : Reset teach-in values

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Affected specifications/electric equipment \ ECU (by the name used in Shop Manual)	EEC (engine ECU)	TCM (DUONIC® ECU)	ABS (hydraulic unit (ECU))	EZGO (lock brake ECU)	IMMO (immobiliser ECU)	ISS (ISS ECU)	HLAL (headlights auto-levelling ECU)	ICUC (meter cluster)	SAM (SAM)	Refer to
Changing to LED back lamps (reversing lights) (For North America only)									○	F3-110
Installing step light									○	F3-110
Adding keyless entry system									○	F3-110
Installing/removing PTO unit	○	○							○	F3-200
Installing/removing cab-back engine control	○									F3-200

○ : Coding data writing/rewriting required
△ : Coding data initialisation
◇ : Reset teach-in values

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<Rosa>

Affected specifications/electric equipment \ ECU (by the name used in Shop Manual)	EEC (engine ECU)	TCM (DUONIC® ECU)	Refer to
Installing ISS	○		F3-010
Installing full-automatic air conditioning system	○		F3-010
Installing ABS/EBS		○	F3-030
Changing final gear ratio		○	F3-030
Changing tyre size		○	F3-030
Changing transfer gear ratio		○	F3-030
Replacing engine ECU	○		F3-010
Replacing injectors	○		F3-010
Installing/removing idle adjusting knob	○		F3-010
Installing/removing fuel filter (onto/from chassis with fuel heater)	○		F3-010
Activating/deactivating exhaust brake	○		F3-010
Changing target speed of speed limiting function	○		F3-010
Replacing air flow and intake air temperature sensors	◇		F3-010
Replacing common rail pressure control valve	◇		F3-010
Replacing common rail pressure sensor	◇		F3-010
Replacing turbocharger	◇		F3-010
Replacing EGR valve	◇		F3-010

○ : Coding data writing/rewriting required
◇ : Resetting learned values

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Affected specifications/electric equipment \ ECU (by the name used in Shop Manual)	EEC (engine ECU)	TCM (DUONIC® ECU)	Refer to
Replacing Lambda sensor	◇		F3-010
Replacing DPF differential pressure sensor	◇		F3-010
Replacing DPF	◇		F3-010
Replacing SCR silencer	◇		F3-010
Replacing urea tank	◇		F3-010
Replacing urea dosing module (dosing valve)	◇		F3-010
Replacing engine oil	◇		F3-010
Temporarily cancelling engine usage restriction control by FUSO Diagnostics	◇		F3-010
When error code (diagnosis code) “520561-0” is stored in engine ECU	◇		F3-010
Replacing engine	◇		F3-010
Replacing DUONIC® ECU		○	F3-030

○ : Coding data writing/rewriting required
◇ : Resetting learned values

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Changes to vehicle specification items or replacement of the electric equipment items listed in the following tables requires rewriting the engine ECU's coding data. Note that some items in the tables may not apply to your vehicle depending on the vehicle specifications or destination.

Table 1 Coding data to be rewritten (1)

Electric equipment		Applicable exhaust emission standard (market)									Coding item	Reference number
		JP09 (Japan), Rosa	Euro V (Hong Kong, Singapore), Rosa	JP09 (Japan), Canter	EPA10 (North America), Canter 2012 MY	EPA10 (North America), Canter 2013 MY, 2014 MY	EuroV/5		Euro III, Canter	Euro IV, Canter		
							N2 Category for Europe, Canter	Non-N2 Category for Europe (including non-European markets), Canter				
Engine ECU	Replacing engine ECU unit	○	○	○	○	○	○	○	○	○	All coding parameters	11
	Replacing software of engine ECU (ECU unit not replaced)	○	○	○	○	○	○	○	○	○		
Injectors		○	○	○	○	○	○	○	○	○	Adjustment of injector's fuel spray amount <*Exclude HEV>	1

○ : Setting for relevant specifications/electrical equipment required

* : HEV is performed by "Adaptations – Teach-In processes – Injection valve (teach-in value) (HEV)" (see after mentioned).

For detailed procedures, refer to the description given later (page 8/38) corresponding to the relevant reference number in the above table.

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Table 2 Coding data to be rewritten (2)

Electric equipment items Equipment/ function	Specification change		Applicable exhaust emission standard (market)									Titles of coding items for FUSO Diagnostics system	Coding parameter options for FUSO Diagnostics system	Reference number
			JP09 (Japan), Rosa	Euro V (Hong Kong, Singapore), Rosa	JP09 (Japan), Canter	EPA10 (North America), Canter 2012 MY	EPA10 (North America), Canter 2013 MY EPA13 (North America), Canter 2014MY	EuroV/5 N2 Category for Europe, Canter	EuroV/5 Non-N2 Category for Europe (including non-European markets), Canter	Euro III, Canter	Euro IV, Canter			
Air conditioner ECU and control panel	Installation (activation)		○	○	○	○	○	○	○	○	○	Equipment ‘Air conditioning’	VALID	2
	Removal (deactivation)		○	○	○	○	○	○	○	○	○		INVALID	
Idle adjusting knob	Installation (activation)		○	-	○	-	-	-	-	○	-	Equipment: ‘Idle speed control’	VALID	5
	Removal (deactivation)		○	-	○	-	-	-	-	○	-		INVALID	
Fuel filter (on chassis with fuel heater)	Installation (activation)		○	○	○	○	○	○	○	○	○	Equipment ‘Fuel preheating system’	VALID	6
	Removal (deactivation)		○	○	○	○	○	○	○	○	○		INVALID	
Exhaust brake	Activation		○	○	○	○	○	○	○	○	○	Cold start	VALID	7
	Deactivation		○	○	○	○	○	○	○	○	○		INVALID	
Speed limiter function	Target speed setting (selectable from speeds between 30 km/h and 125 km/h increments of 1 km/h)	Minimum selectable speed: 30 km/h	-	-	○	○	○	-	○	○	○	Maximum vehicle speed limit	30 km/h	12
		Maximum selectable speed: 125 km/h	-	-	○	○	○	-	○	○	○		125 km/h	

○ : Setting for relevant specifications/electrical equipment required

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Table 3 Coding data to be rewritten (3) <Except for EPA10 (North America)>

Electric equipment items / Equipment/function			Specification change		Applicable exhaust emission standard (market)							Titles of coding items for FUSO Diagnostics system	Coding parameter options for FUSO Diagnostics system	Reference number
					JP09 (Japan), Rosa	Euro V (Hong Kong, Singapore), Rosa	JP09 (Japan), Canter	EuroV/5		Euro III, Canter	Euro IV, Canter			
								N2 Category for Europe, Canter	Non-N2 Category for Europe (including non-European markets), Canter					
PTO	PTO unit		Installation (activation)		-	-	○	○	○	○	○	Power take-off	VALID	3
					-	-	○	○	○	○	○	Power take-off (CAN signal from control unit 'SAM')	VALID	
			Removal (deactivation)		-	-	○	○	○	○	○	Power take-off	INVALID	
					-	-	○	○	○	○	○	Power take-off (CAN signal from control unit 'SAM')	INVALID	
	Cab-back control		Installation (activation)		-	-	○	○	○	○	○	Cab-back control	VALID	4
			Removal (deactivation)		-	-	○	○	○	○	○		INVALID	
	Selection of PTO control mode	Governor control (governor control is preselected at the time of vehicle shipment)	Change of control number	#1	-	-	○	○	○	○	○	Power take-off type of controller	#1	7
				#2	-	-	○	○	○	○	○		#2	
				#3	-	-	○	○	○	○	○		#3	
				#4	-	-	○	○	○	○	○		#4	
				#5	-	-	○	○	○	○	○		#5	
				#6	-	-	○	○	○	○	○		#6	
				#7	-	-	○	○	○	○	○		#7	
				#8	-	-	○	○	○	○	○		#8	

○ : Setting for relevant specifications/electrical equipment required

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Table 3 Rewriting work of coding data (3) <EPA10 (North America)>

Electric equipment items / Equipment/Function			Specification change		Applicable exhaust emission standard (market): EPA10 (North America), Canter 2012 MY	Applicable exhaust emission standard (market): EPA10 (North America), Canter 2013 MY, 2014 MY	Titles of coding items for FUSO Diagnostics system	Coding parameter options for FUSO Diagnostics system	Reference number
PTO	PTO unit		Installation (activation)		○	○	Power take-off	VALID	3
					○	○	Power take-off (CAN signal from control unit 'SAM')	VALID	
			Removal (deactivation)		○	○	Power take-off	INVALID	
					○	○	Power take-off (CAN signal from control unit 'SAM')	INVALID	
	Cab-back control		Installation (activation)		-	-	Cab-back control	VALID	4
			Removal (deactivation)		-	-		INVALID	
	Selection of PTO control mode <EPA10 (North America), Canter 2012 MY> Speed control	(governor control is preselected at the time of vehicle shipment)	Target speed setting (selectable from speeds between 650 rpm and 2,000 rpm in increments of 10 pm)	Minimum selectable speed: 650 rpm	○	-	Power take-off setting of specified rpm 1	650 rpm	7
				Maximum selectable speed: 2,000 rpm	○	-		2000 rpm	

○ : Setting for relevant specifications/electrical equipment needed

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Electric equipment items Equipment/Function			Specification change		Applicable exhaust emission standard (market) EPA10 (North America), Canter 2012 MY	Applicable exhaust emission standard (market) EPA10 (North America), Canter 2013 MY, 2014 MY	Titles of coding items for FUSO Diagnostics system	Coding parameter options for FUSO Diagnostics system	Reference number
PTO	Selection of PTO control mode <EPA10 / EPA13 (North America), Canter 2013 MY~>	PTO mode 1 (engine speed: 650 - 2,000 rpm) with speed control *1 (PTO mode 2 (control #1) of speed control is preselected at the time of vehicle shipment)	PTO mode 1		-	○	Power take-off type of controller	#2	7
			Target speed setting (selectable from speeds between 650 rpm and 2,000 rpm in increments of 10 rpm)	Minimum selectable speed: 650 rpm	-	○	Power take-off setting of specified rpm 1	650 rpm	
				Maximum selectable speed: 2,000 rpm	-	○		2000 rpm	
		PTO mode 2 (engine speed: 700 – 1,600 rpm) with speed control (PTO mode 2 (control #1) of speed control is preselected at the time of vehicle shipment)	PTO mode 2		-	○	Power take-off type of controller	#1	
			Target speed setting (selectable from speeds between 700 rpm and 1,600 rpm in increments of 100 rpm)	Minimum selectable speed: 700 rpm *2	-	○	Power take-off setting of specified rpm 2	700 rpm	
				Maximum selectable speed: 1,600 rpm	-	○		1600 rpm	
		PTO mode 3 (engine speed: 650 – 2,000 rpm) with speed control (PTO mode 2 (control #1) of speed control is preselected at the time of vehicle shipment)	PTO mode 3			○	Power take-off type of controller	#3	
			Target speed setting (selectable from speeds between 650 rpm and 2,000 rpm in increments of 100 rpm)	Minimum selectable speed: 650 rpm *2		○	Power take-off setting of specified rpm 3	650 rpm	
				Maximum selectable speed: 2,000 rpm		○		2000 rpm	

Note: *1 When using PTO mode 1 for EPA10 / EPA13 (North America), Canter 2013 MY and 2014 MY, the engine speed will be decreased to approximately 650 rpm when pressing the brake pedal even if PTO is activated.

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*2 After updating to software version “V68P17” by “Reprogramming”, “PTO mode 2” should be added, and when the display portion of a value becomes red, please choose “800 rpm” or the engine speed the user requires.

○ : Setting for relevant specifications/electrical equipment required

Resetting of teach-in values (data initialisation) is required in the following cases.

Table 4 Resetting teach-in values (data initialisation)

Equipment to be replaced or changed \ Engine ECU data (FD items)	Learned values of injector (001 injection valve (reset))	Learned values of air flow and intake air temperature sensor (005 air mass flow rate/intake air temperature sensor)	Learned values of common rail pressure control valve (002 pressure limiting valve in rail)	Learned values of common rail pressure sensor (003 rail pressure sensor)	Learned values of turbocharger actuator (006 turbo-charger (reset))	Learned values of EGR valve (008 exhaust gas recircu-lation valve)	Learned values of Lambda sensor (004 Lambda control tester)	Learned values of DPF differential pressure sensor (012:reset differential pressure sensor of diesel particu-lar filter)	Learned values related to DPF (011 diesel particulate filter)	Learned values related to SCR (010 BlueTec®)	Engine oil life (000 engine oil)	Engine usage restriction counter (014 cancellation of limitation of engine starts)	Engine start counter (009 starter)	Input engine serial number <EPA13>	Remarks	Reference number
Replacing injector	○															1
Replacing air flow and intake air temperature sensor		○														8
Replacing common rail pressure control valve			○													
Replacing common rail pressure sensor				○												
Replacing turbocharger					○											10
Replacing EGR valve						○										8
Replacing Lambda sensor							○									

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Engine ECU data (FD items) / Equipment to be replaced or changed	Learned values of injector (001 injection valve (reset))	Learned values of air flow and intake air temperature sensor (005 air mass flow rate/intake air temperature sensor)	Learned values of common rail pressure control valve (002 pressure limiting valve in rail)	Learned values of common rail pressure sensor (003 rail pressure sensor)	Learned values of turbocharger actuator (006 turbo-charger (reset))	Learned values of EGR valve (008 exhaust gas recircu-lation valve)	Learned values of Lambda sensor (004 Lambda control tester)	Learned values of DPF differential pressure sensor (012:reset differential pressure sensor of diesel particu-lar filter)	Learned values related to DPF (011 diesel particulate filter)	Learned values related to SCR (010 BlueTec®)	Engine oil life (000 engine oil)	Engine usage restriction counter (014 cancellation of limitation of engine starts)	Engine start counter (009 starter)	Input engine serial number <EPA13>	Remarks	Reference number
Replacing DPF differential pressure sensor								○								8
Replacing DPF									○							
Replacing urea tank.																
Replacing SCR silencer									○							
Replacing urea dosing module (dosing valve)									○							
Replacing engine oil										○						
Temporarily releasing engine usage restriction by FD											○					
When diagnosis code “520561-0” is generated												○				
Replacing engine	○		○	○	○	○				○		○	○			8
Activating EPS (engine protection system) function																13
Activating ISD (idle shutdown system) function																14

○ : Teach-in values must be reset (initialisation).

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Teach-in is required for the following values.

Table 5 Value teach-in

Engine ECU data (FD items) / Equipment to be replaced or changed	Learned values of turbocharger actuator (007 turbocharger (learned value))	Learned values of injector (016 injection valve (learned value)) <*Only HEV>	Remarks	Reference number
Replacing turbocharger	○			10
Replacing engine				
Replacing injector		○		1

○ : Value teach-in required.
* : Except HEV is performed by “Adaptations – Coding – Injector injection quantity adjustment” (see below).

The transfer of engine-related equipment teach-in values is required when ECU is replaced. Each learned value (teach-in value) recorded in the control unit needs to be transferred.

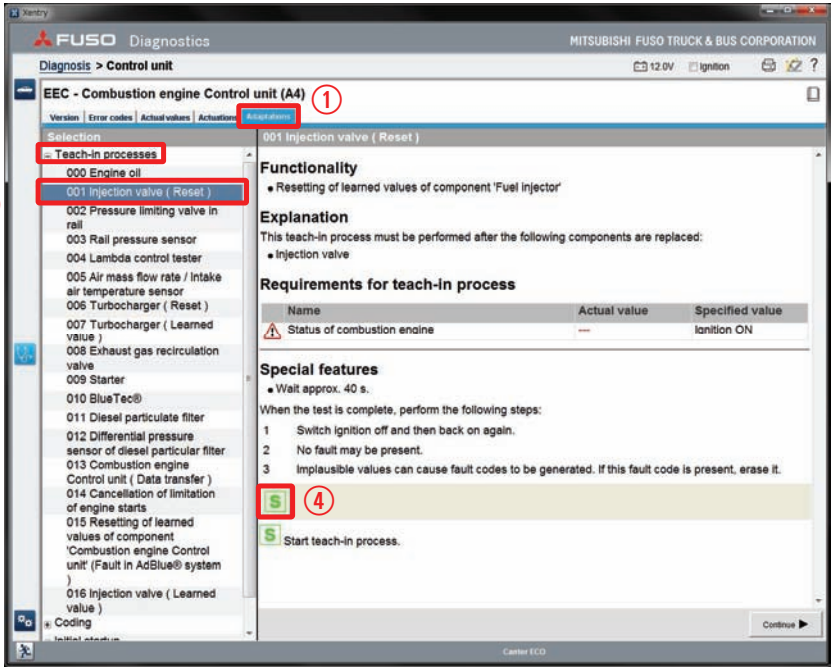
Table 6 Transfer of engine-related equipment teach-in values when replacing the ECU

Engine ECU data (FD items) / Equipment to be replaced or changed	Learned values of engine-related equipment (013 combustion engine control unit (data transfer))	Remarks	Reference number
Replacing engine ECU	○		11

○ : Value teach-in required.

<Reference No. 1: Resetting/rewriting data when replacing the injector>

- As a preparatory step, replace the injector.
- Reset the injector correction data.

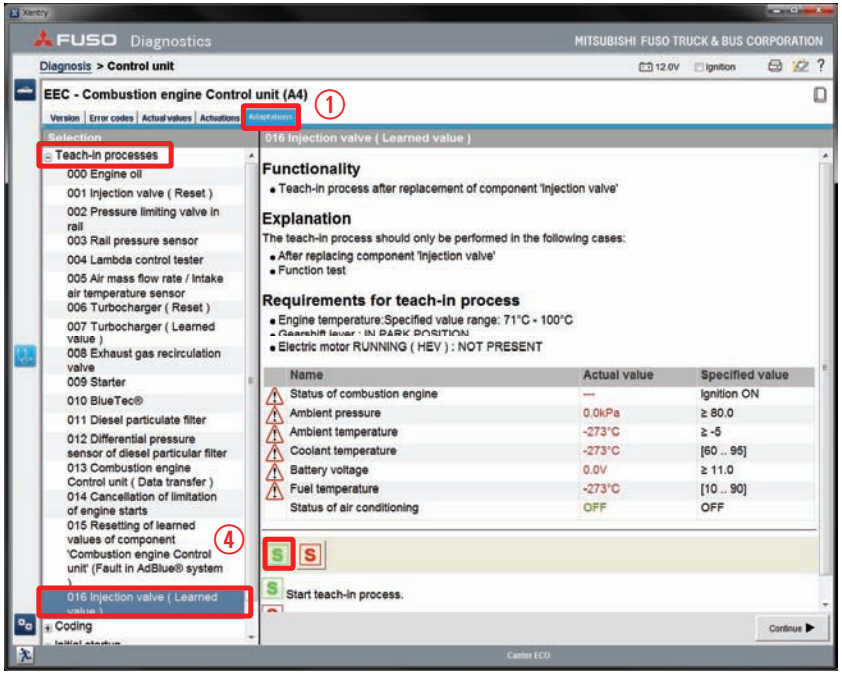


① Select “Adaptations”.
② Select “Teach-in processes”.
③ Select “001 Injection value (reset)”.
④ Select “S”.

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- The “Injector injection quantity adjustment” method is different for vehicles other than HEV and HEV.

<In the case of HEV>

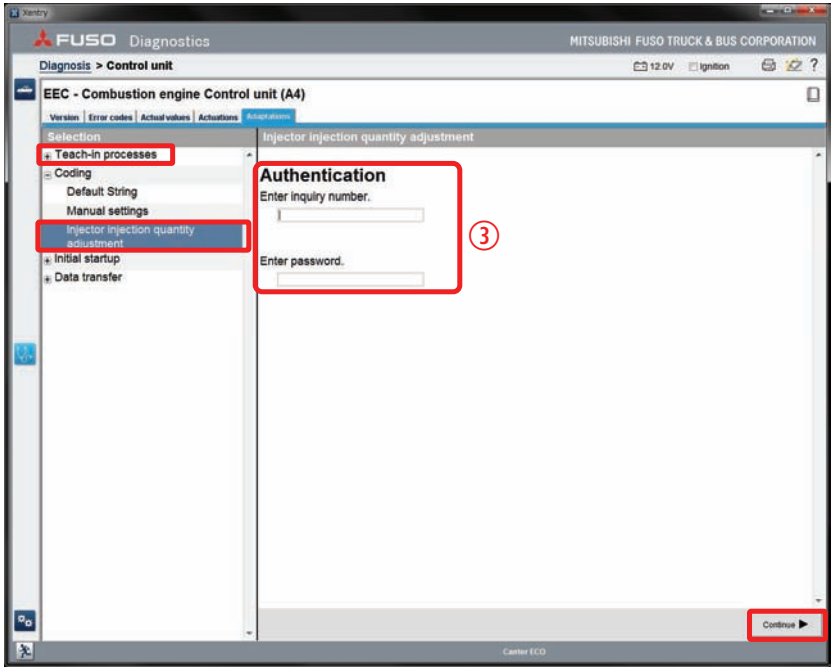


① Select “Adaptations”.
② Select “Teach-in processes”.
③ Select “016 Injection valve (learned value)”.
④ Select “S” (green).

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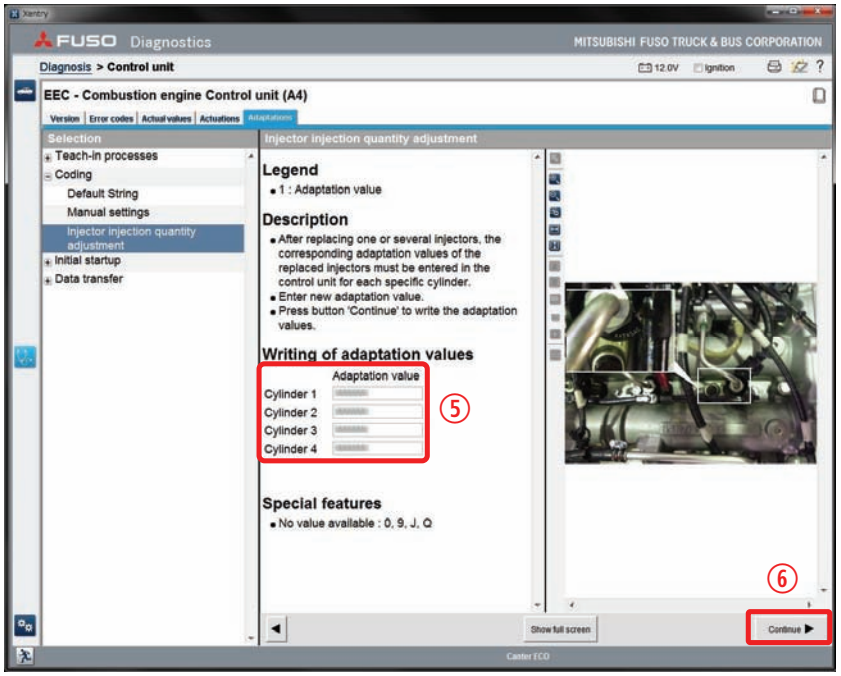
<In cases other than HEV>

- Download the required ECU history data from the FRN and store it in the FUSO Diagnostics system.
- Adjust the injector injection quantity.



① Select “Coding”.
② Select “Injector injection quantity adjustment”.
③ Enter the inquiry number and password.
④ Click “Continue”.

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⑤ Enter the adaptation values (IMA code) indicated on the injectors. When an indicated adaptation value (IMA code) has eight digits, enter the seven digits except the unit digit. The alphanumeric characters “0”, “9”, “J” and “Q” are not used for the injector adaptation value (IMA code).

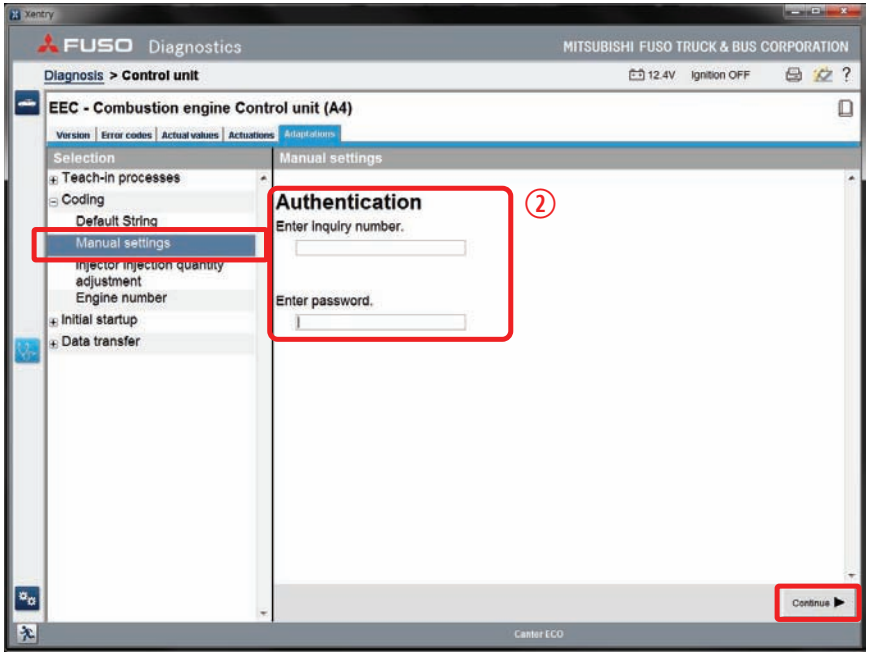
⑥ Click “Continue”.

- Upload the ECU history data to the FRN.

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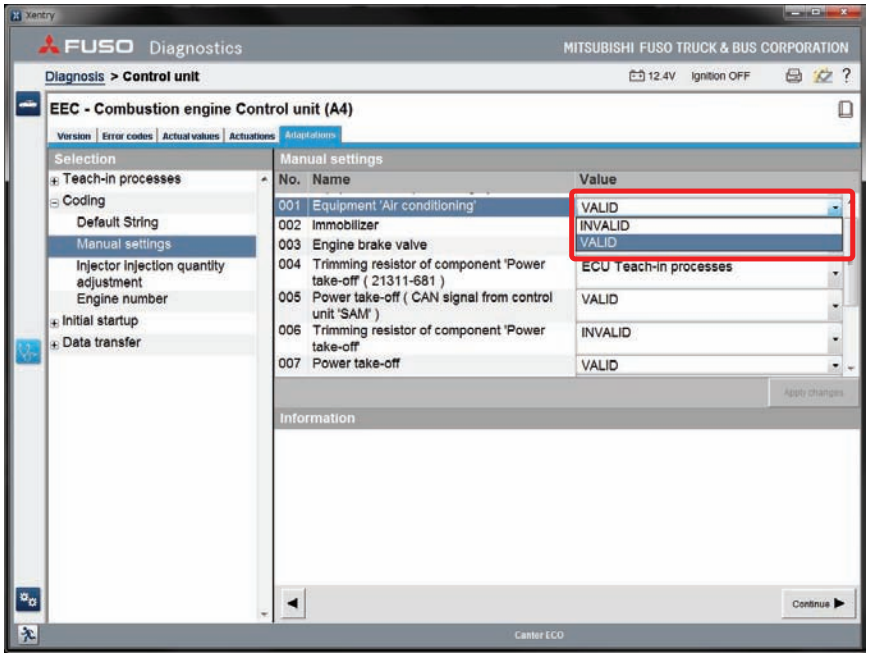
<Reference No. 2: Installation and removal of air conditioner ECU and control panel>

- As a preparatory step, download the required ECU history data from the FRN and store it in the FUSO Diagnostics system.



① Select “Manual settings”.
② Enter the inquiry number and password.
③ Click “Continue”.

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④

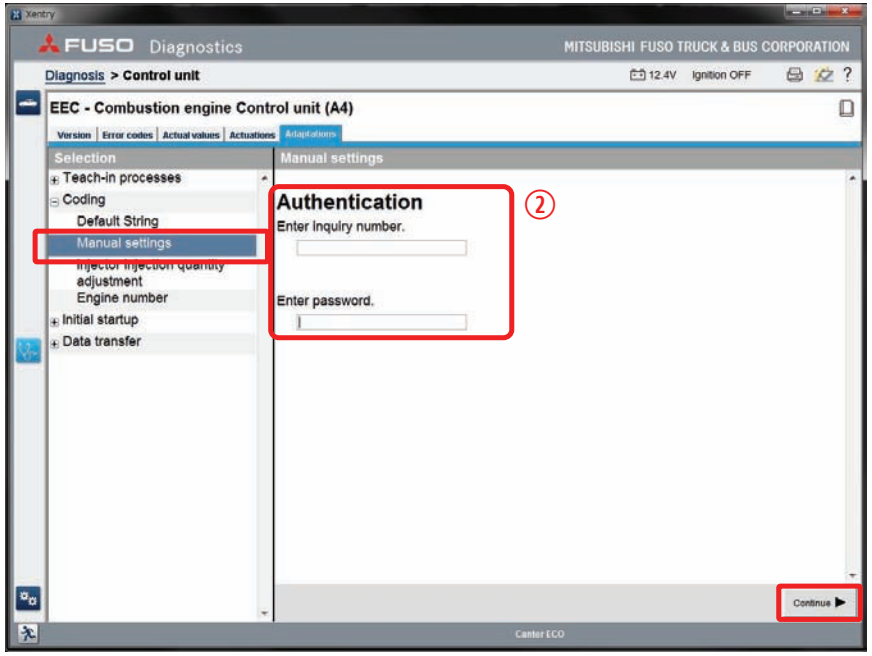
④ Referring to Table 2, on the left, change the parameters for the vehicle.

- As a post process, upload the ECU history data to the FRN.

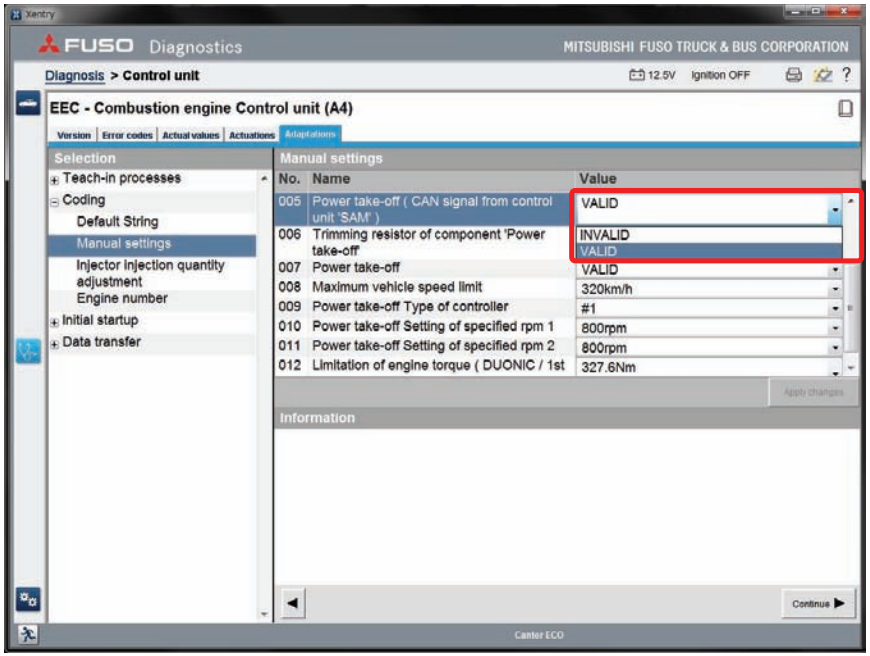
https://truckmanualshub.com/

<Reference No. 3: Installation and removal of PTO unit>

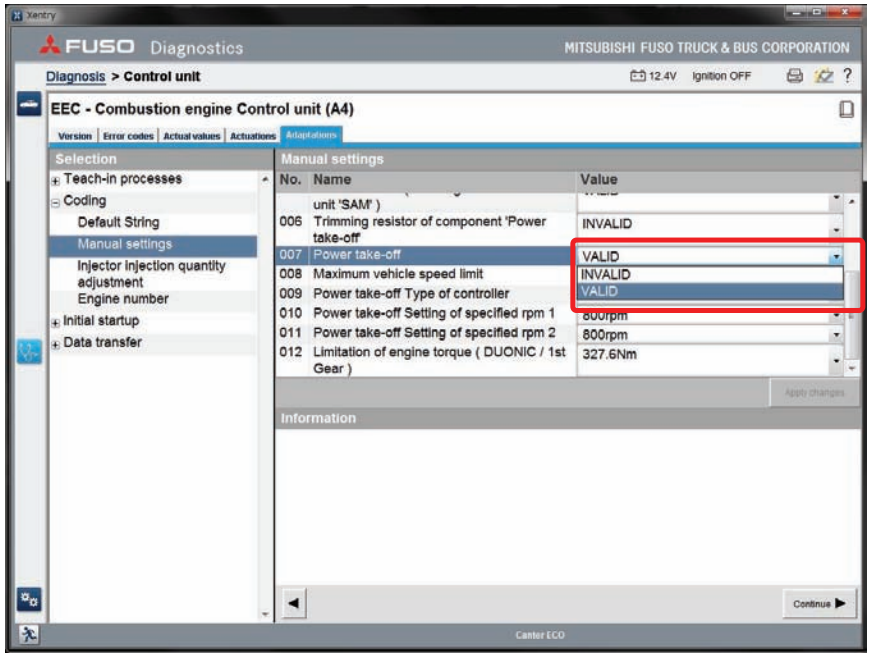
- As a preparatory step, download the required ECU history data from the FRN and store it in the FUSO Diagnostics system.



① Select “Manual settings”.
② Enter the inquiry number and password.
③ Click “Continue”.



④



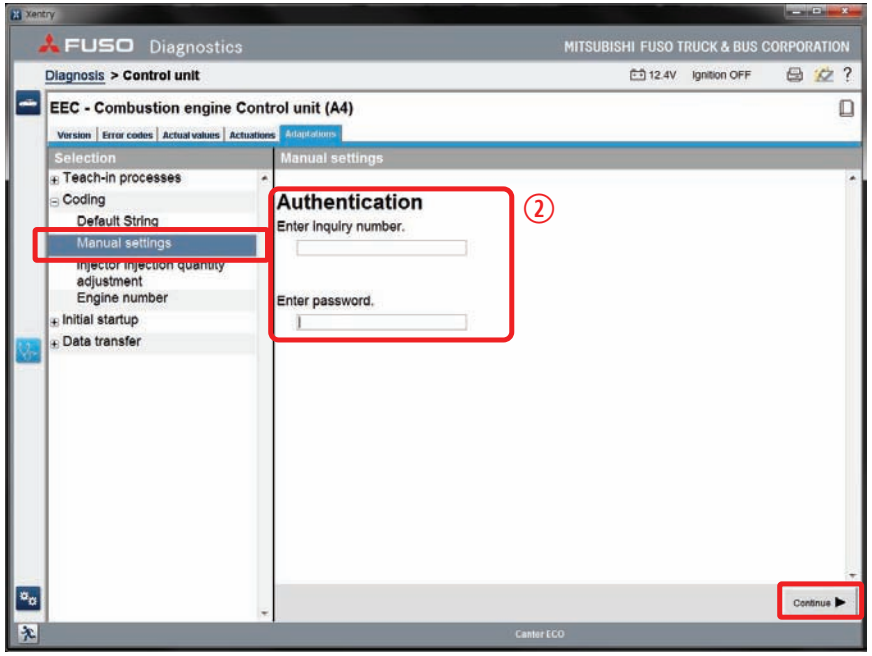
④

④ Referring to Table 3 above right, change the parameters for the vehicle specifications. As a post process, upload the ECU history data to the FRN.

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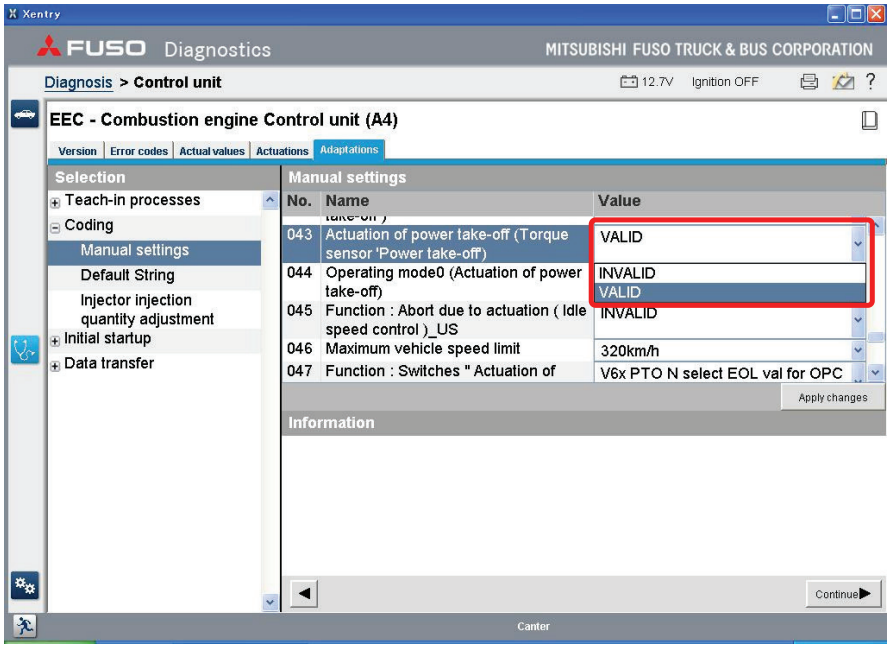
<Reference No. 4: Installation and removal of cab-back engine control unit (sensor type)>

- As a preparatory step, download the required ECU history data from the FRN and store it in the FUSO Diagnostics system.



① Select “Manual settings”.
② Enter the inquiry number and password.
③ Click “Continue”.

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④

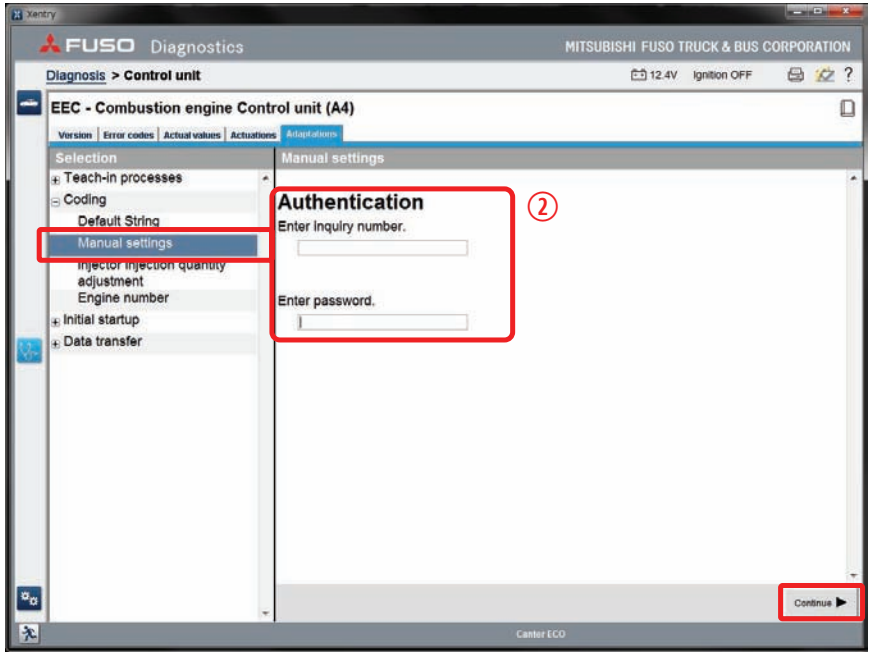
④ Referring to Table 3 on the left, change the parameters for the vehicle specifications.
The upper figure is for “R12-2.x or before.”
The “R13-1 and later” coding item will be provided later.

- As a post process, upload the ECU history data to the FRN.

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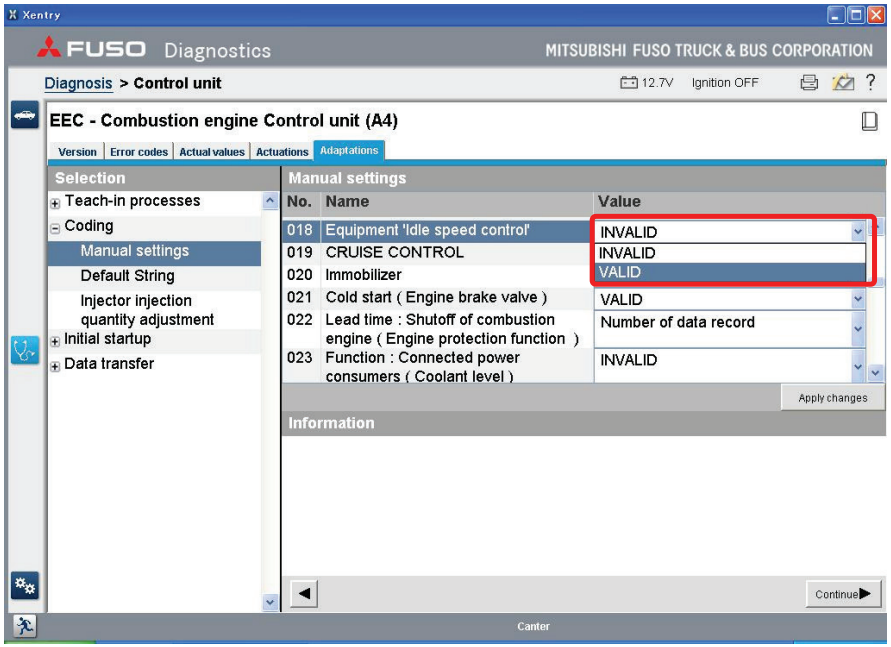
<Reference No. 5: Installation and removal of idling adjustment volume>

- As a preparatory step, download the required ECU history data from the FRN and store it in the FUSO Diagnostics system.



① Select “Manual settings”.
② Enter the inquiry number and password.
③ Click “Continue”.

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④

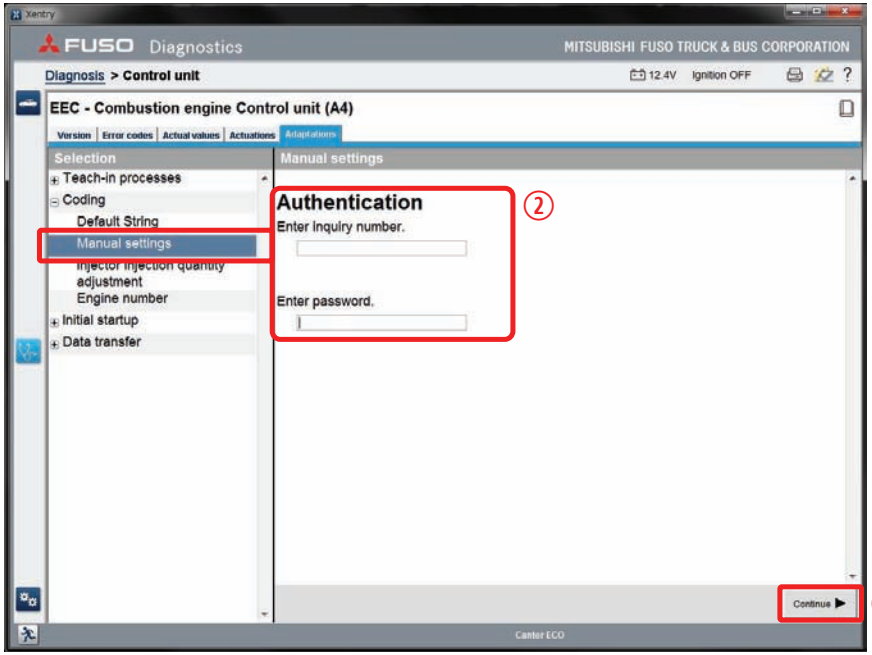
④ Referring to Table 2 on the left, change the parameters for the vehicle specifications.
The upper figure is “R12-2.x or before.”
The “R13-1 and later” coding item will be provided later.

- As a post process, upload the ECU history data to the FRN.

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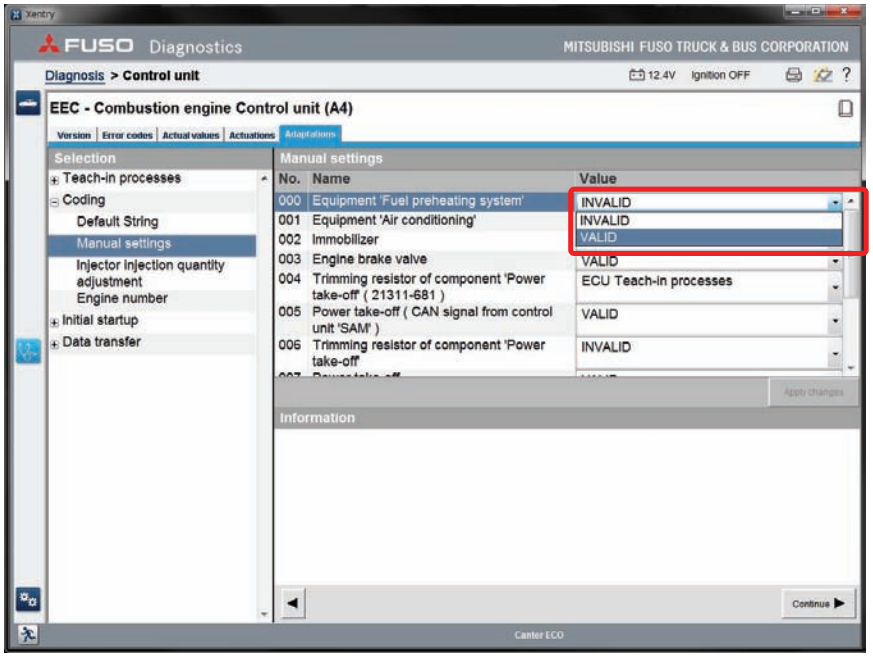
<Reference No. 6: Installation and removal of fuel filter (fuel heater)>

- As a preparatory step, download the required ECU history data from the FRN and store it in the FUSO Diagnostics system.



① Select “Manual settings”.
② Enter the inquiry number and password.
③ Click “Continue”.

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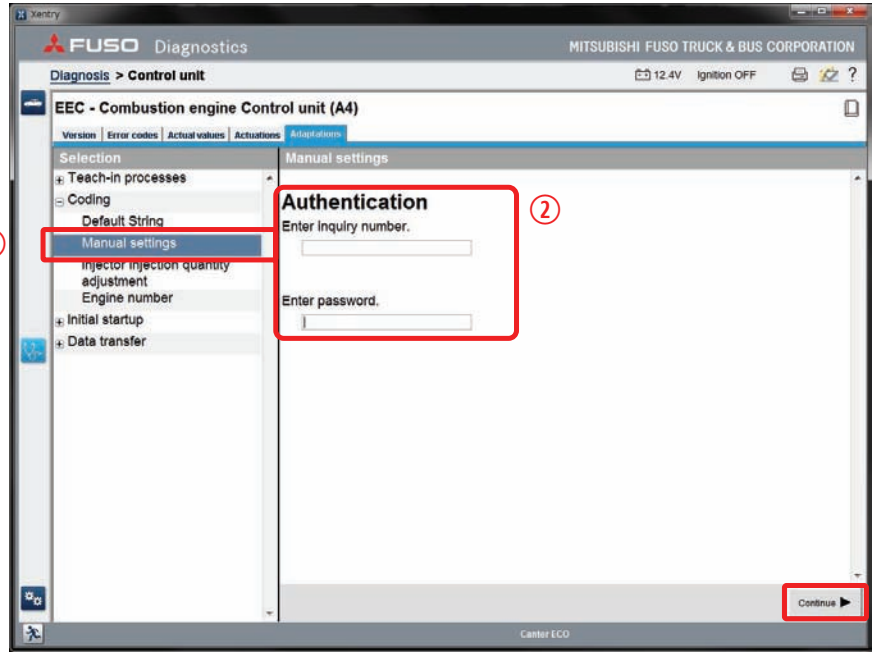
④ Referring to Table 2 on the left, change the parameters for the vehicle specifications.

- As a post process, upload the ECU history data to the FRN.

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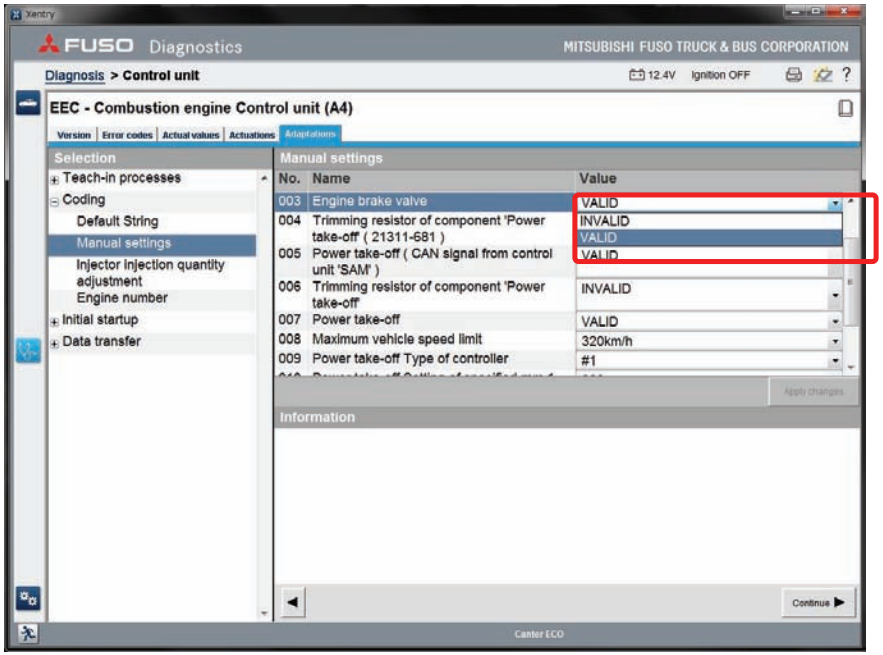
<Reference No. 7: Installation and removal of ISS-related equipment, exhaust brake and other equipment>

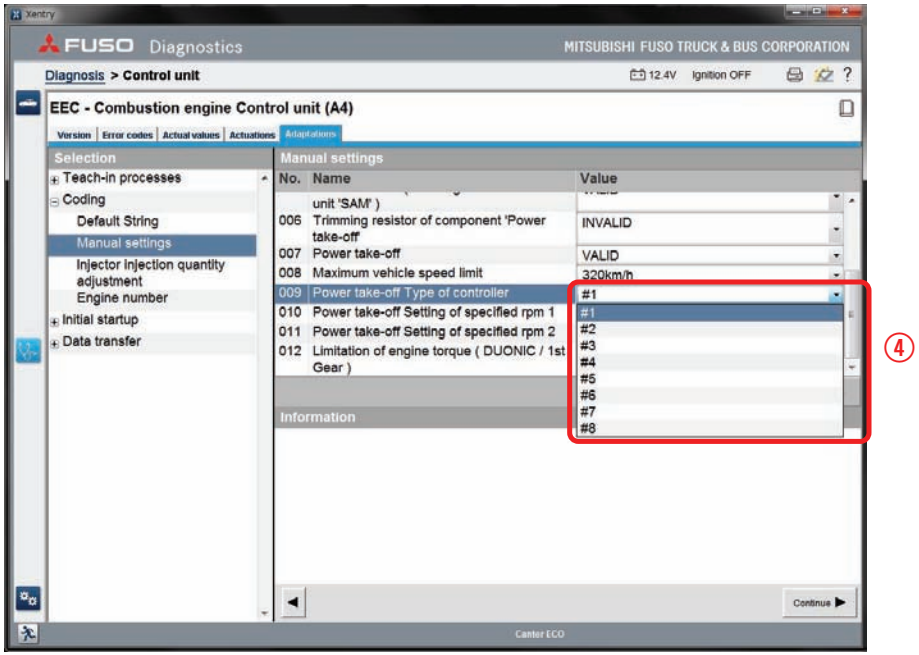
- As a preparatory step, download the required ECU history data from the FRN and store it in the FUSO Diagnostics system.



① Select “Manual settings”.
② Enter the inquiry number and password.
③ Click “Continue”.

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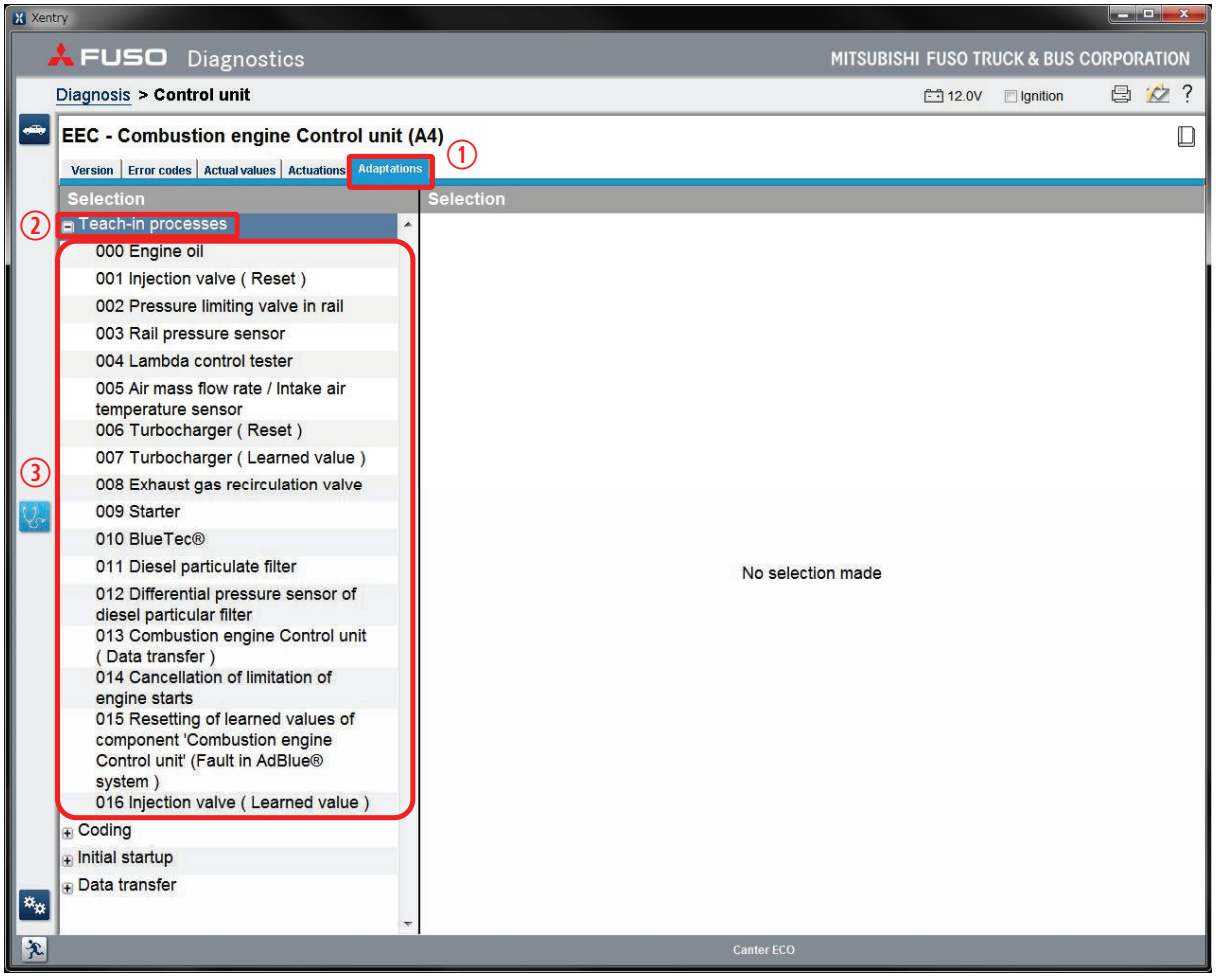


④ Referring to Table 2 and 3 above, change the parameters for the vehicle specifications.

- As a post process, upload the ECU history data to the FRN.

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<Reference No. 8: Resetting learned values>



① Select “Adaptations”.
② Select “Teach-in processes”.
③ Select functions depending on the usage and follow the instructions on the screen. The learned values of the air flow/intake air temperature sensor can be checked by clicking “Control” even after resetting them (for details, refer to the service manual).

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<Reference No. 9: Replacing the engine>

- When replacing the engine, it works according to the following procedures.
  (In both cases the working procedure is the same, “When replacing only engine” and “When engine and the EEC (engine ECU) are replaced together”).

I. Replacing the engine

↓

II. Procedure for changing vehicle’s engine data on the FRN
(”Configuration change” is carried out with FRN)
(see below)

↓

III. Procedure for downloading ECU data from FRN
(”Rewriting work” is carried out with FRN)
(see below)

↓

IV. “Reset of coding” is carried out by the downloaded EEC data (engine ECU).
(The adaptation value of the injector of engine attachment is diverted)
(refer to F2-050)
Registration of the engine number to EEC (engine ECU).<Only EPA13>

↓

V. Resetting the learned values and other data using the FUSO Diagnostics
(“Resetting of learned values of each component” is carried out with FUSO Diagnostics)
(see below)

↓

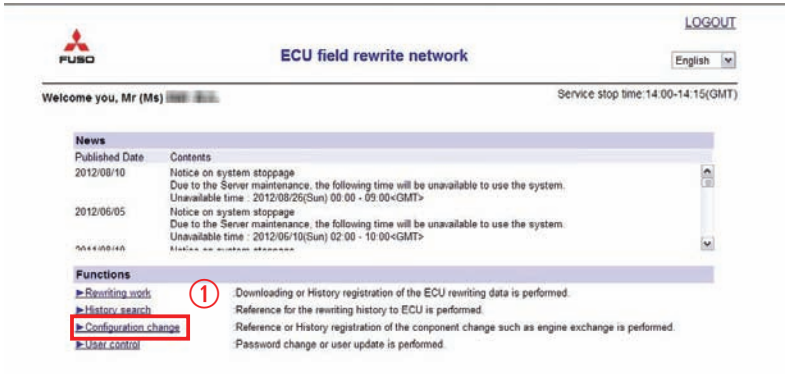
VI. Completion

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- As a preparatory step, register the information on the new replacement engine to the FRN.

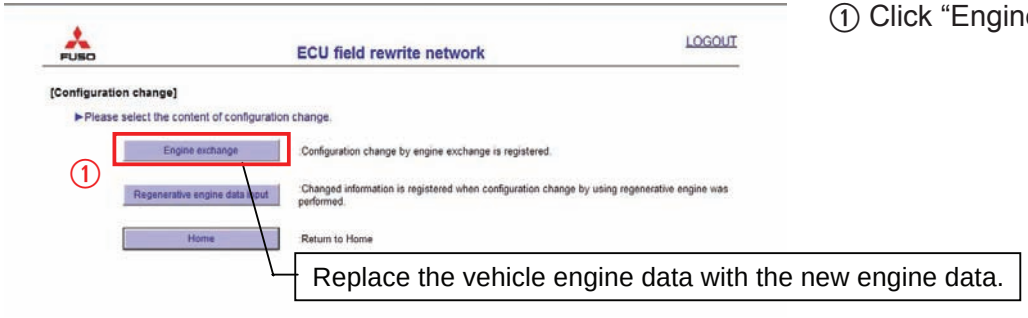
II. Procedure to change vehicle engine data on the FRN

1. Menu



① Click “Configuration change”.

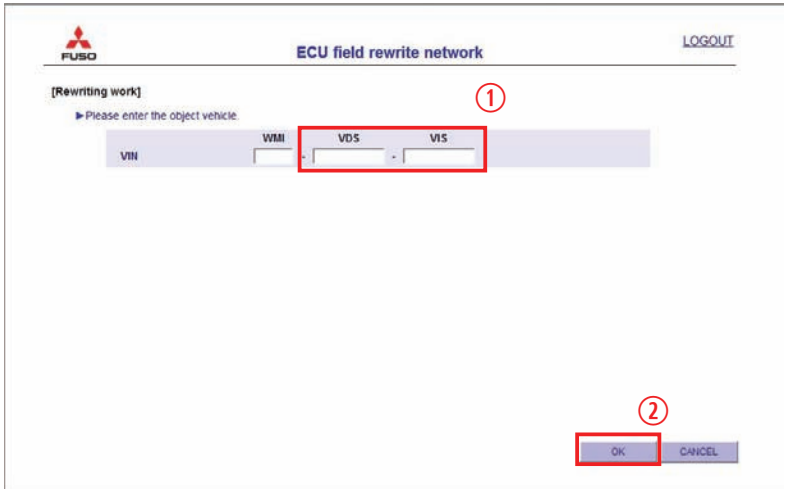
2. Changing configuration



① Click “Engine exchange”.

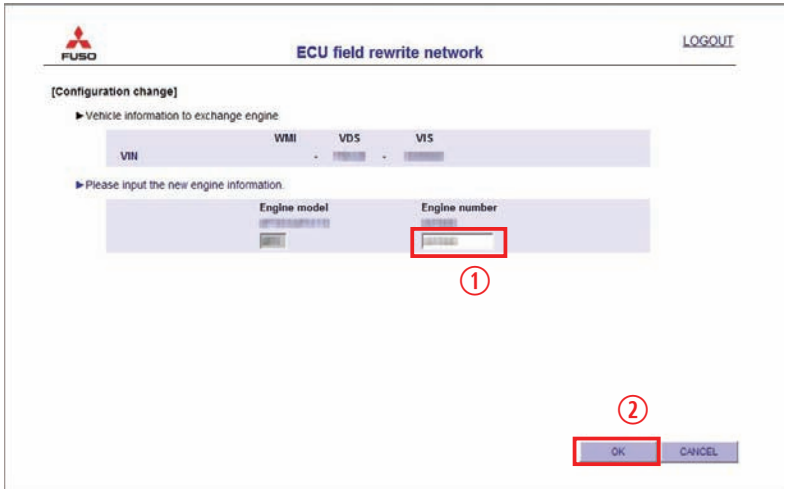
https://truckmanualshub.com/

3. Enter the VIN (vehicle identification number)



① Enter the VIN (VDS and VIS).
② Click “OK”.

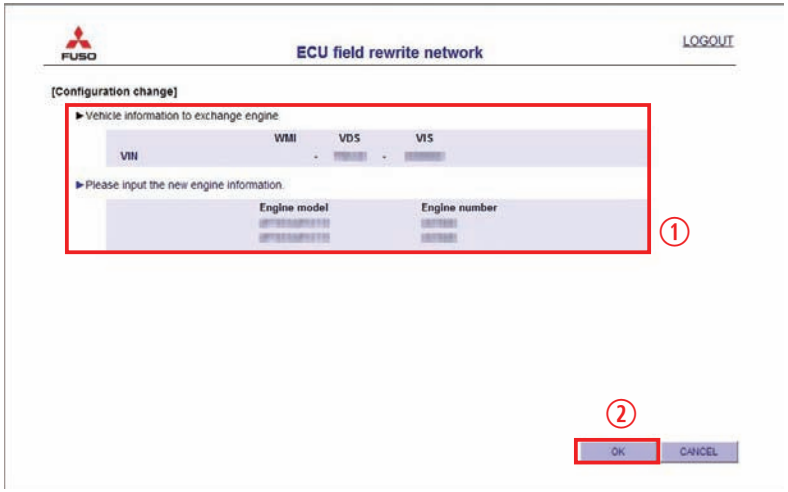
4. Enter the engine number



① Enter the engine number.
② Click “OK”.

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5. Confirm the information for the vehicle of which the engine has been replaced

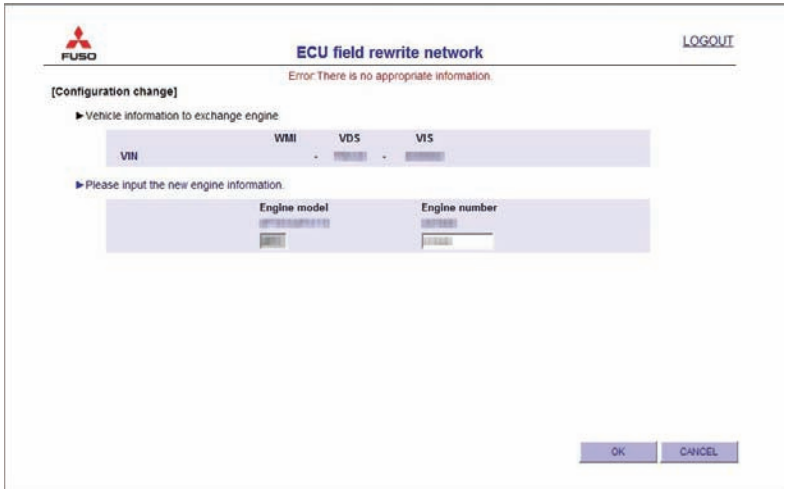


① Confirm the VIN, engine model and engine number.
② If there is no problem, click “OK”.

6. Download engine data

If you click “OK” in step 5, the display changes to the (page 143: 4. Select the ECU) engine data download screen.

7. If there is no information on the replacement engine



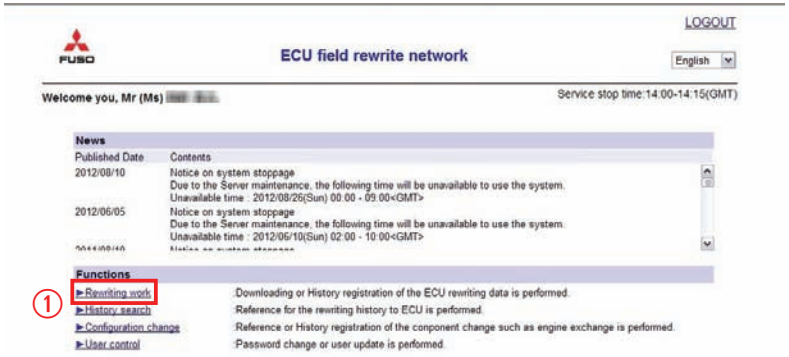
If there is no information on the replacement engine on the FRN, the screen shown on the left will be displayed.
Check the engine number again.

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- As a preparatory step, download vehicle information from the FRN.

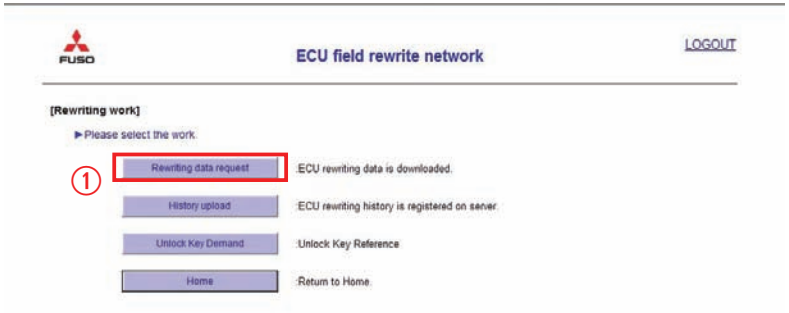
III. Procedure for downloading ECU data from FRN

1. Rewrite ECU data



① Click “Rewriting work”.

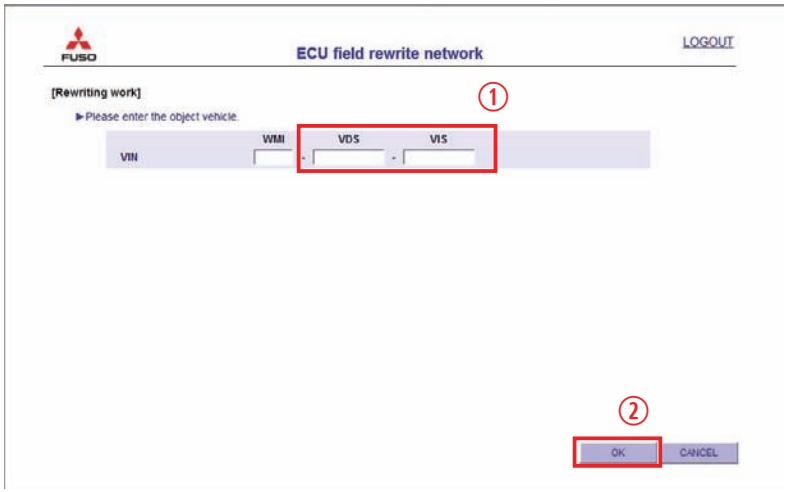
2. Request rewriting data



① Click “Rewriting data request”.

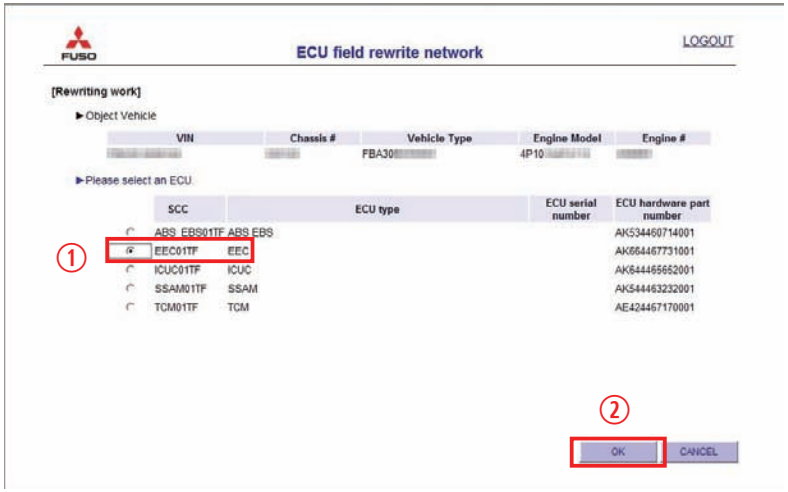
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3. Enter the VIN (vehicle identification number)



① Enter the VIN (VDS and VIS).
② Click “OK”.

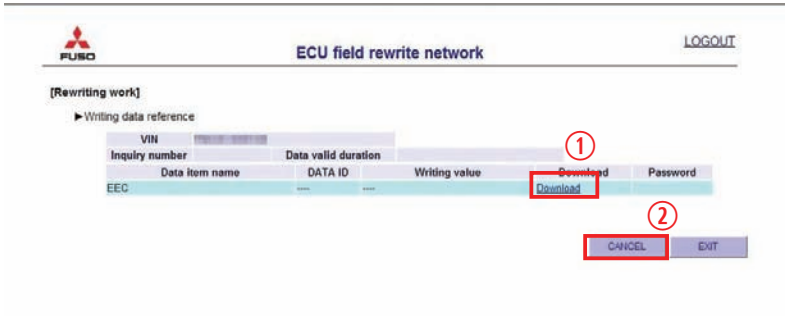
4. Select the ECU



① Select the ECU to rewrite.
② Click “OK”.

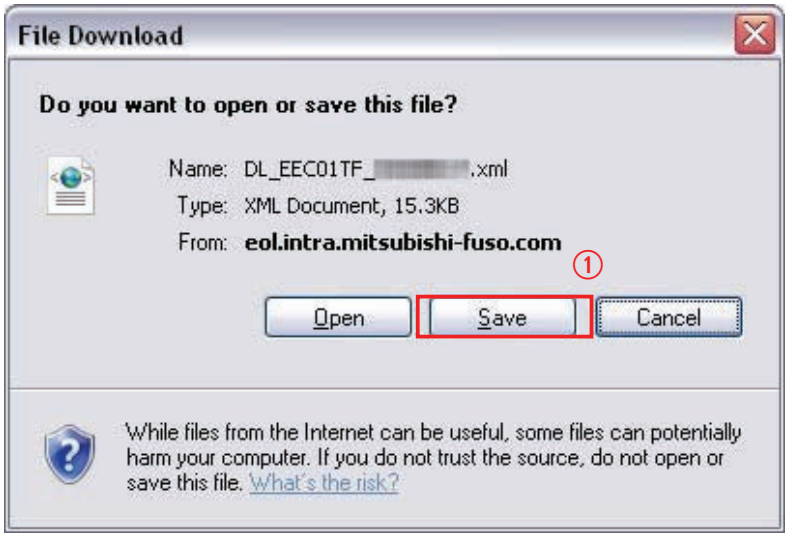
https://truckmanualshub.com/

5. Download data



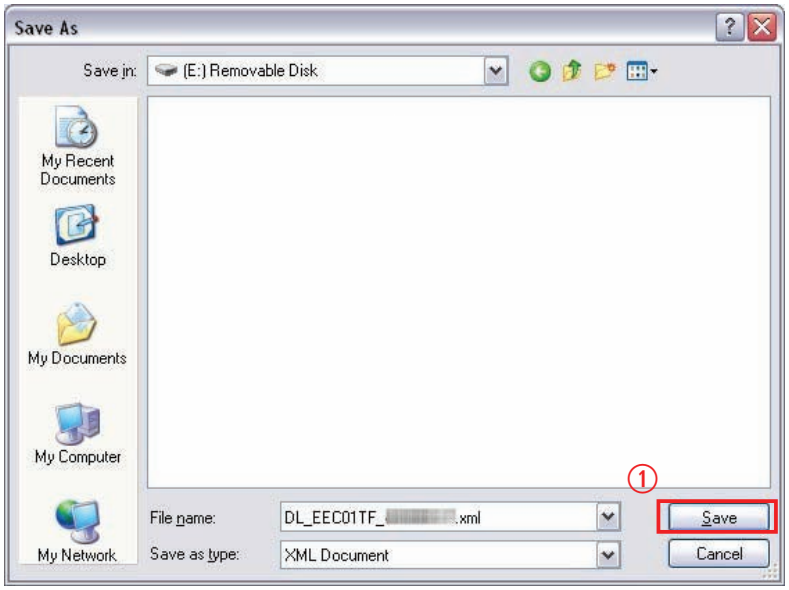
① Click “Download”.
② To cancel, click “CANCEL”.
Note:
You cannot cancel after clicking “Download”.

6. Save the data



① Click “Save”.

7. Indicate where to save

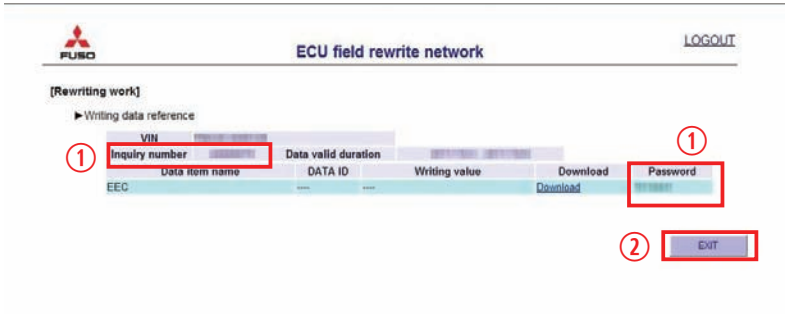


① Indicate where to save to (USB storage device) and click “Save”.

Note:

Do not change the file name. If you change the file name, FUSO Diagnostics will not recognize it.

8. Confirm the inquiry number and password



① Make a note of the inquiry number and password.

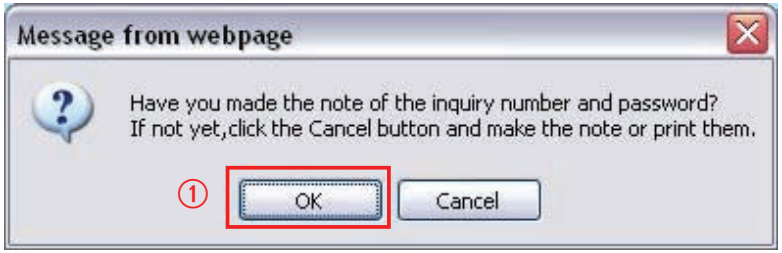
② Click “EXIT”.

Note:

The inquiry number and password are required when writing data using FUSO Diagnostics.

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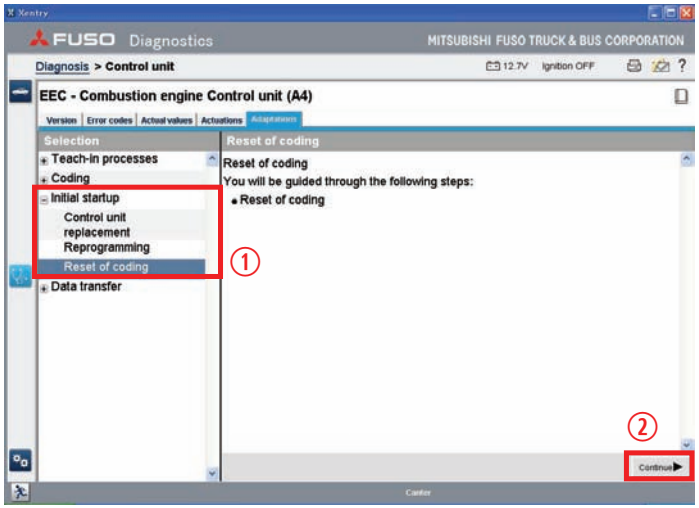
9. Confirm having noted down the inquiry number and password



① Confirm that you have taken a note of the inquiry number and password, then click “OK”.

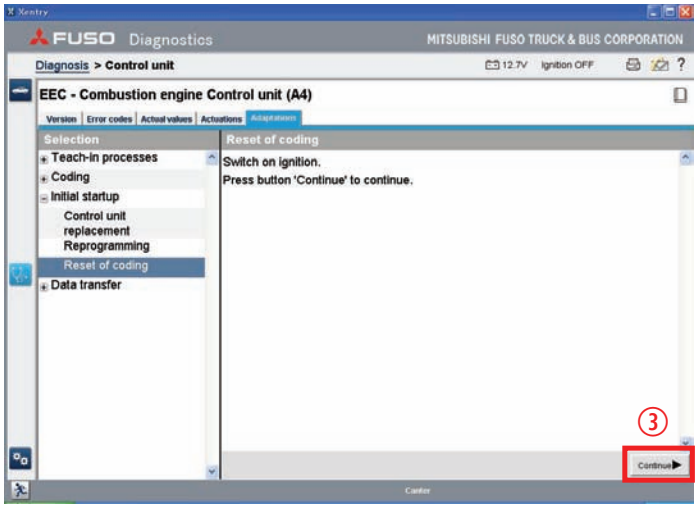
IV.”Reset of coding” is carried out using the EEC downloaded data (engine ECU).

1. Reset of coding

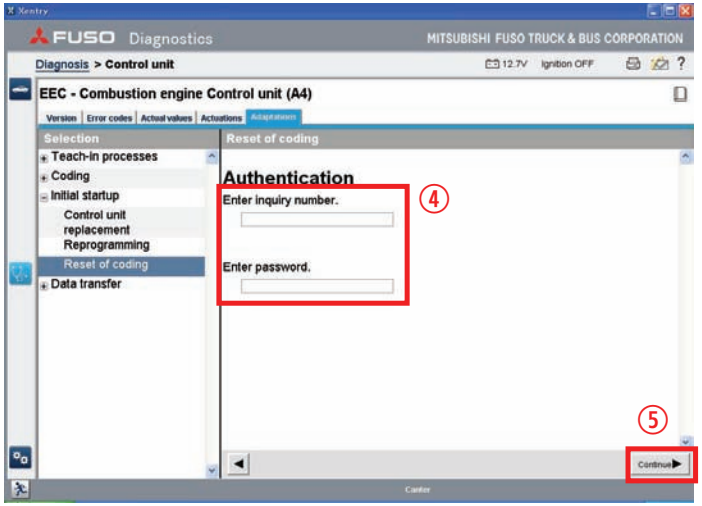


① Click “Initial startup – Reset of coding”.
② Click “Continue”.

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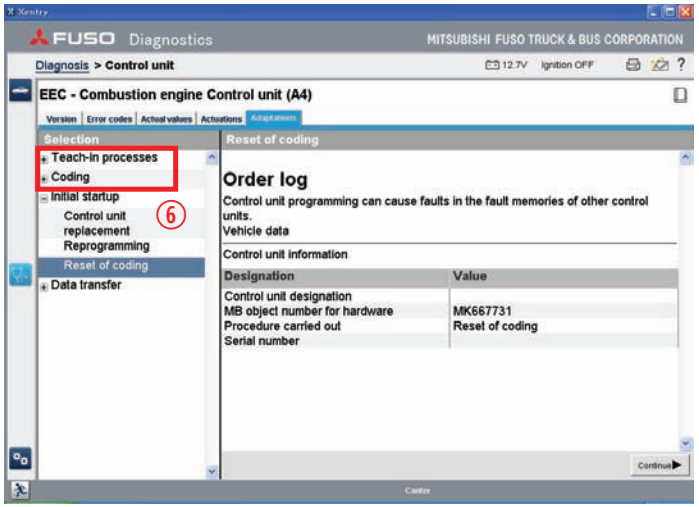


③ Click “Continue”.



④ Enter the inquiry number and password.
⑤ Click “Continue”.

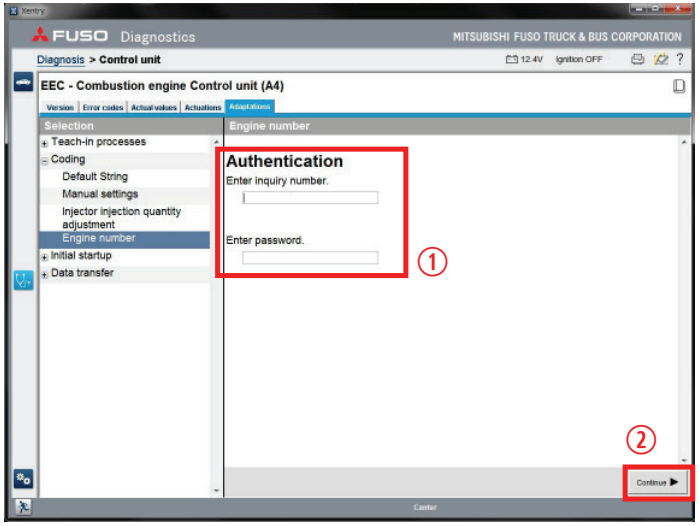
https://truckmanualshub.com/



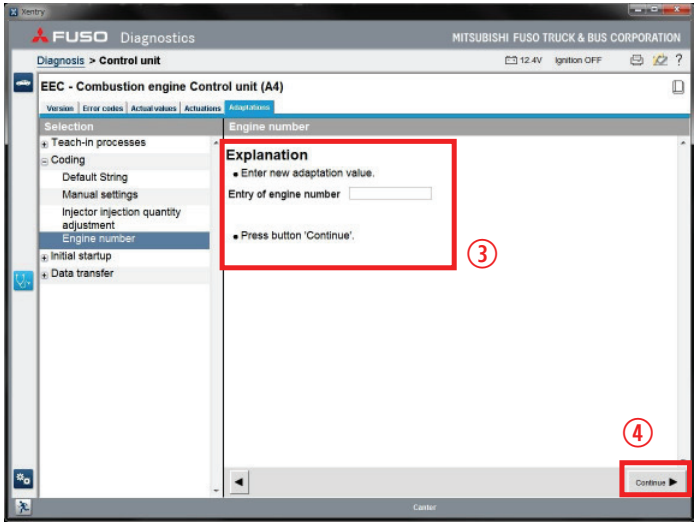
⑥ When this screen is displayed, “Reset of coding” is complete. For “EPA 13” vehicles, click “Coding” and go to “2. Enter engine number”.
For other vehicles, click “Teach-in processes” and go to “V. Reset the learned values...”

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2. Enter engine number

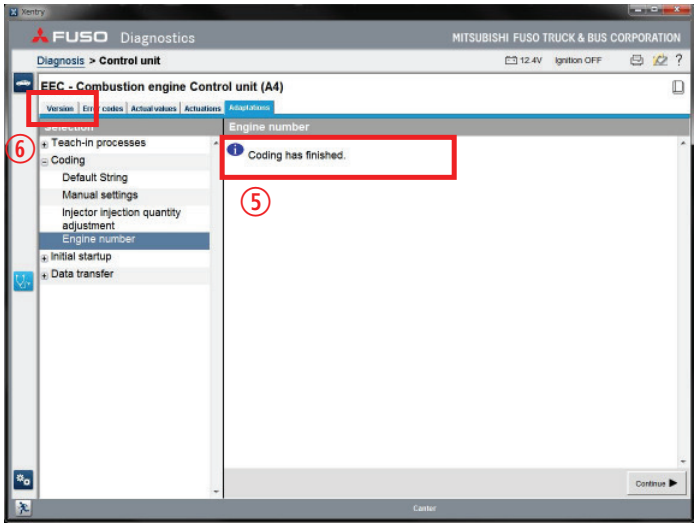


① Enter the inquiry number and password.
② Click “Continue”.

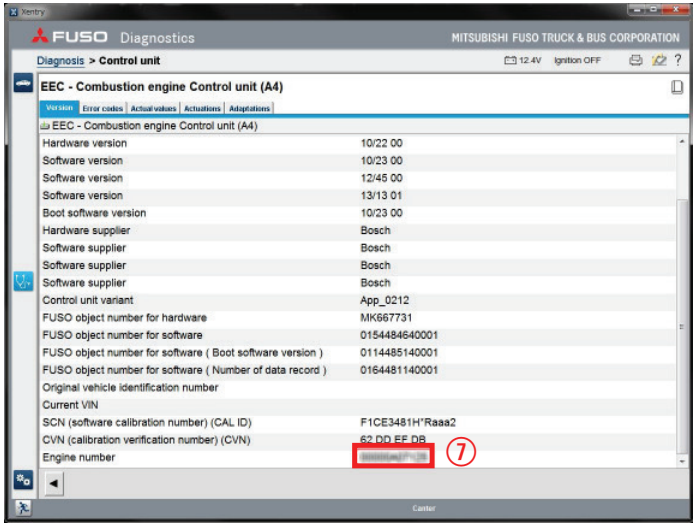


③ Enter the engine number.
④ Click “Continue”.

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⑤ When this message is displayed, the parameter coding and file creation for upload are complete.
⑥ Select the “Version” tab.



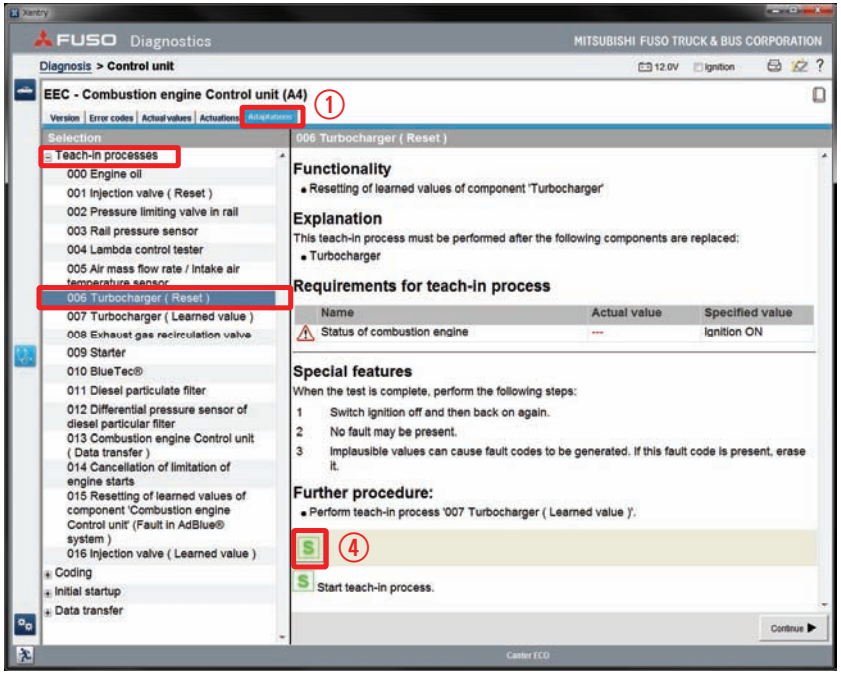
⑦ Check that the engine number is the one that was entered.

V. Reset the learned values and other data using FUSO Diagnostics
The learned values and other data for peripheral equipment that was replaced with the engine replacement must be reset.
For the items to reset, “see Table 4: Resetting learned values (initialising data)”
For the items to teach-in, “see Table 5: Teaching of values”

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<Reference No. 10: Resetting the turbocharger learned values and teaching in (offset learning)>

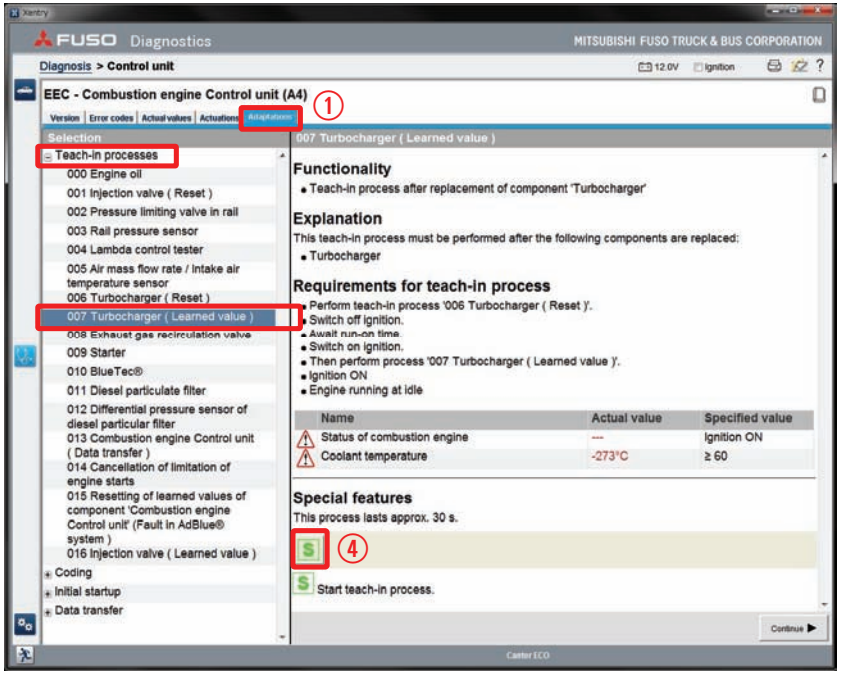
- As a preparatory step, replace the turbocharger.
- Reset the turbocharger learned values.



① Select “Adaptations”.
② Select “Teach-in processes”.
③ Select “006 Turbocharger (reset)”.
④ Follow the instructions on the screen, then select “S”.

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- Teaching in the turbocharger

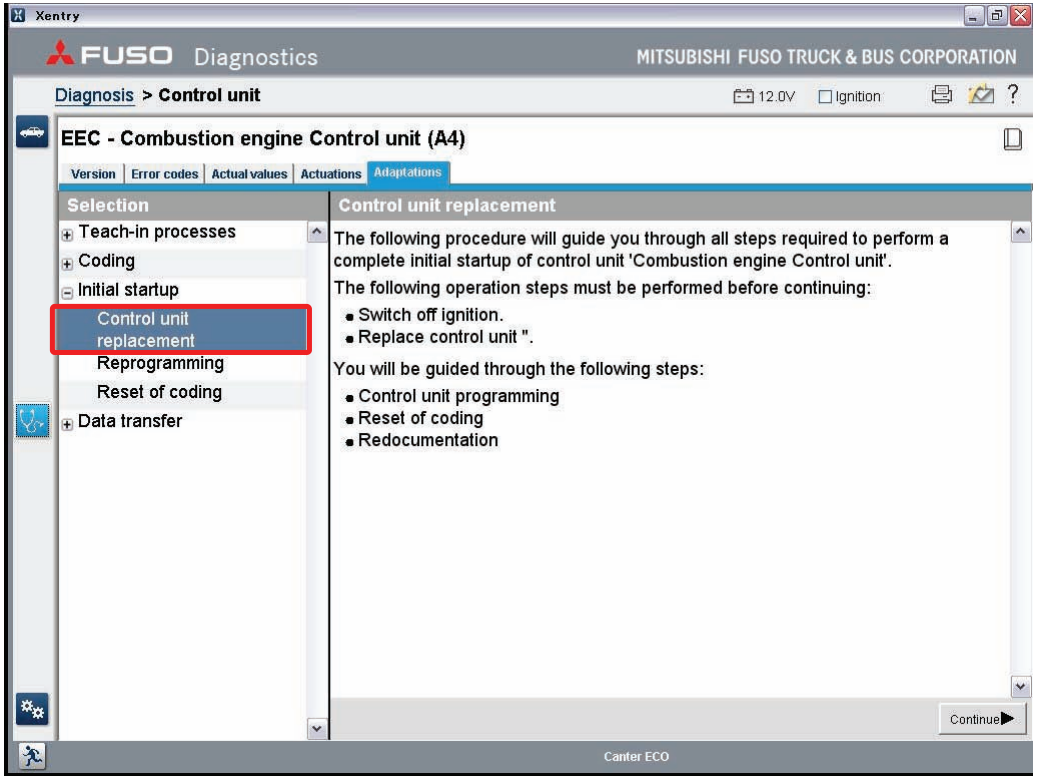


① Select “Adaptations”.
② Select “Teach-in processes”.
③ Select “007 Turbocharger (learned value)”.
④ Follow the instructions on the screen, then select “S”.
If teach-in is not carried out, rerun it when the after-run is complete.

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<Reference No. 11: Replacing the engine ECU>

- When the ECU is replaced with a new or used one, you can use the previous coding parameters by downloading the ECU data from the FRN and then executing “Control unit replacement” (see F2-030).

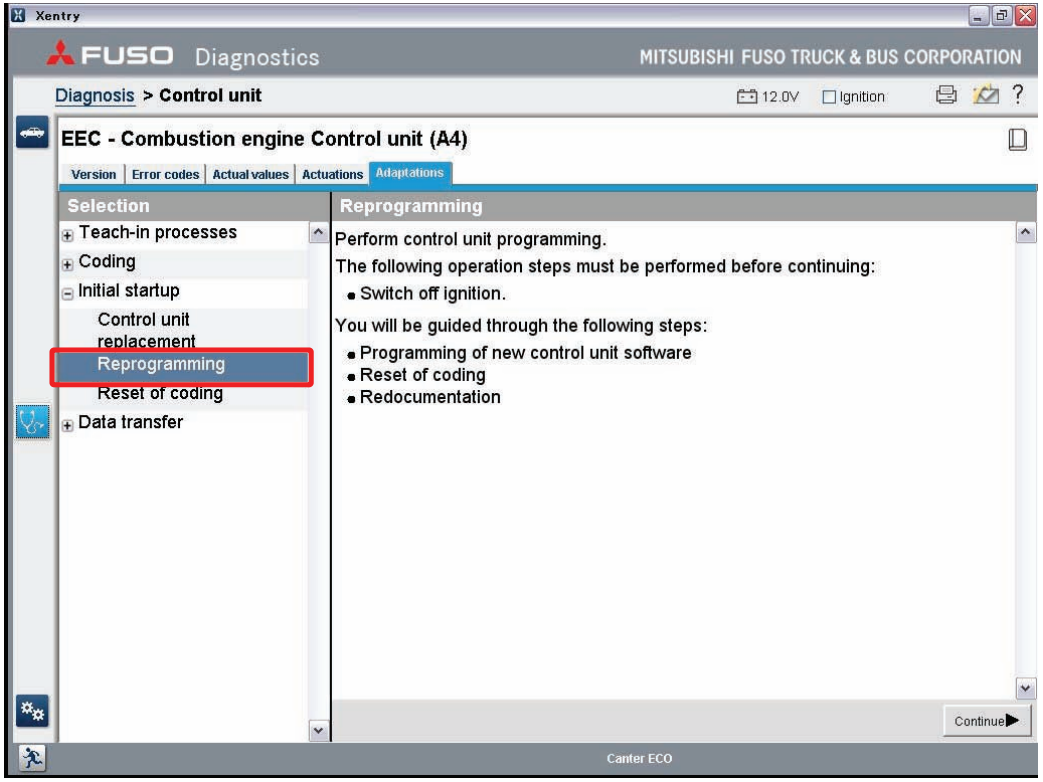


① Replace the ECU with a new one.

- Select “Control unit replacement” (see F2-030 for the subsequent steps).

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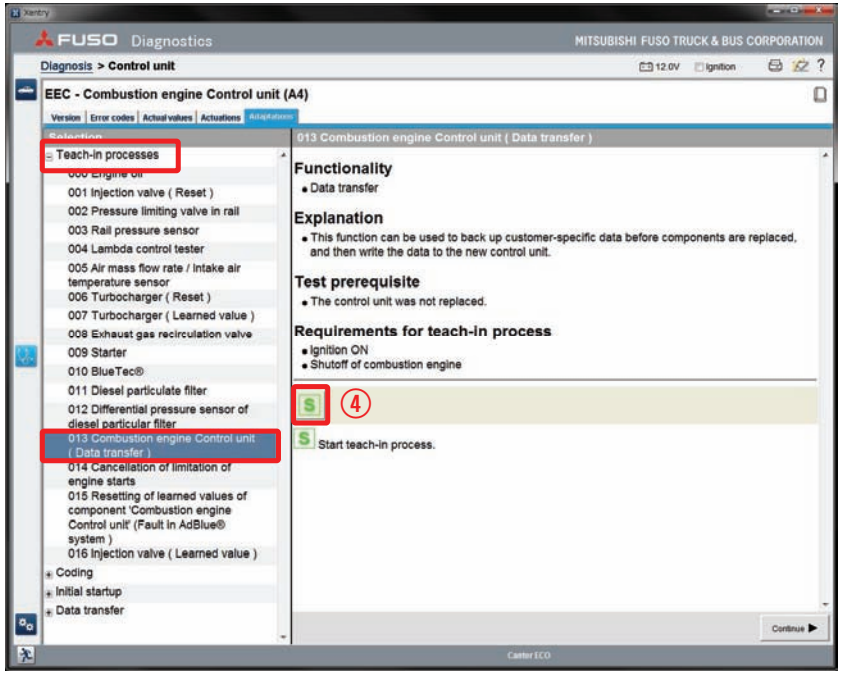
- If only the ECU software needs to be updated, download the ECU data from the FRN and then execute “Reprogramming”. After completing software rewriting, execute Reset of coding (see F2-040).



① Select “Reprogramming” (see F2-040 for the subsequent steps).

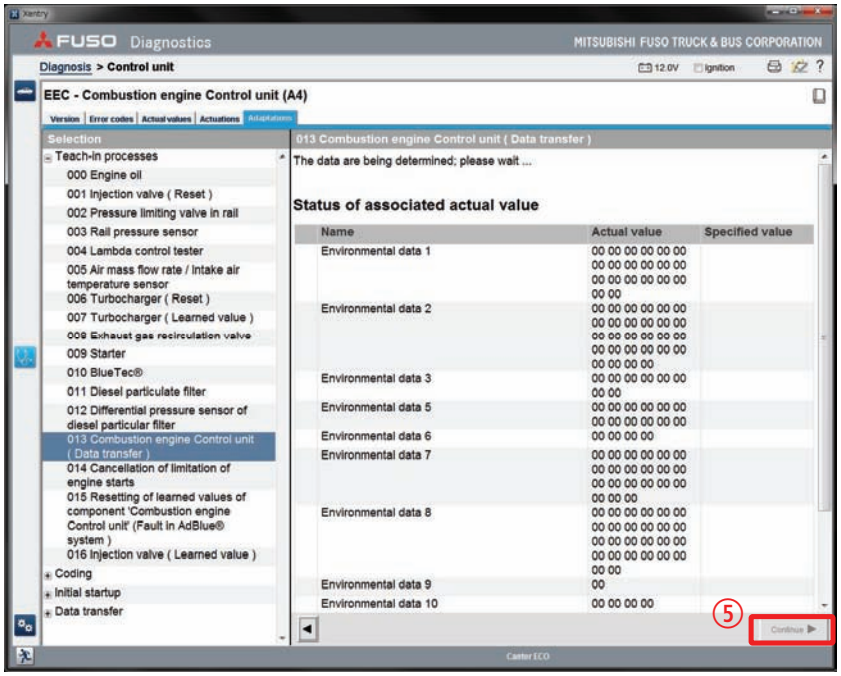
https://truckmanualshub.com/

- When acquiring each vehicle information, before substituting control unit, execute “013 Combustion engine control unit (data transfer)” in “Teach-in processes”.



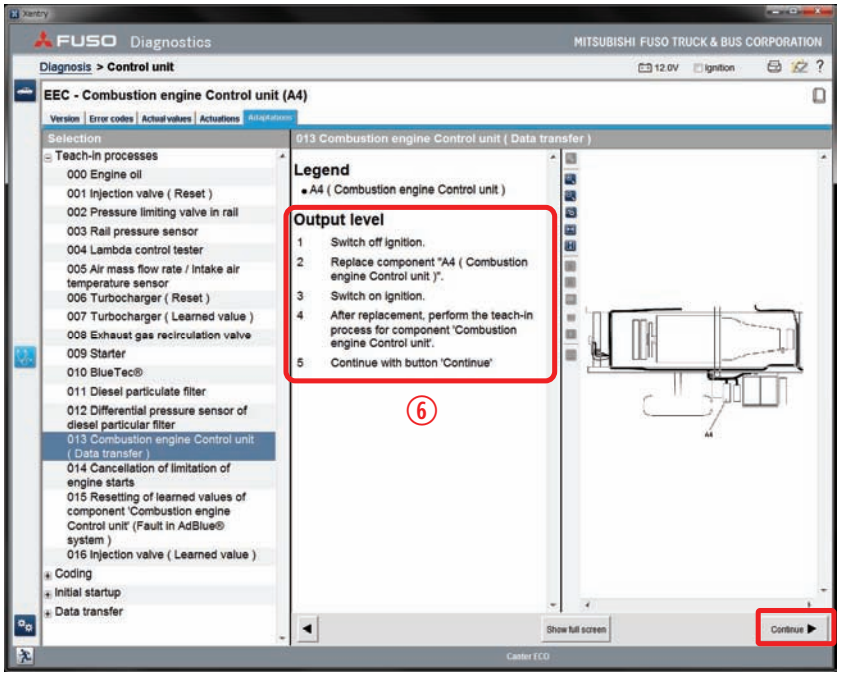
① Read the data from the old control unit before replacing it.
② Select “Teach-in processes”.
③ Select “013 Combustion engine control unit (data transfer)” under “Teach-in processes”.
④ Select “S”.

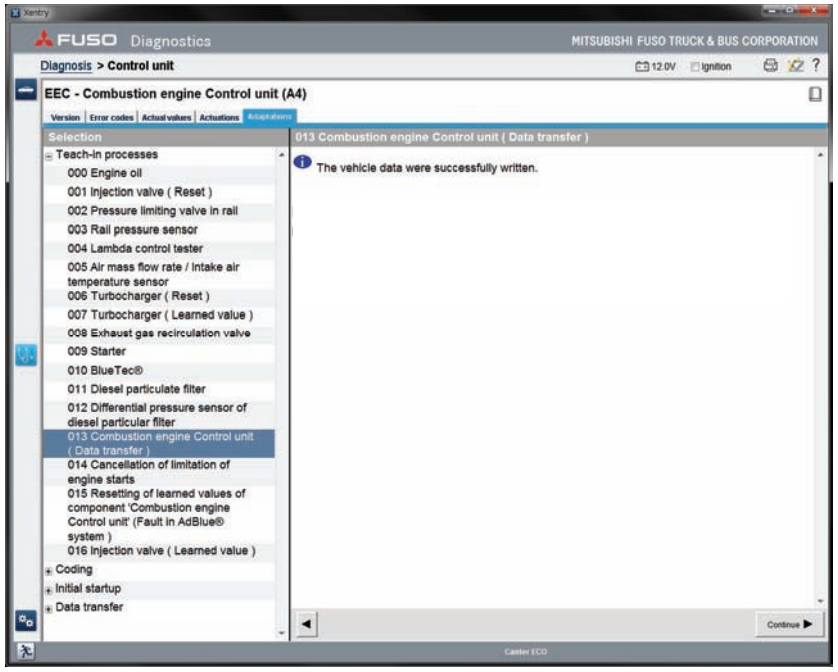
https://truckmanualshub.com/



⑤ Click “Continue”.

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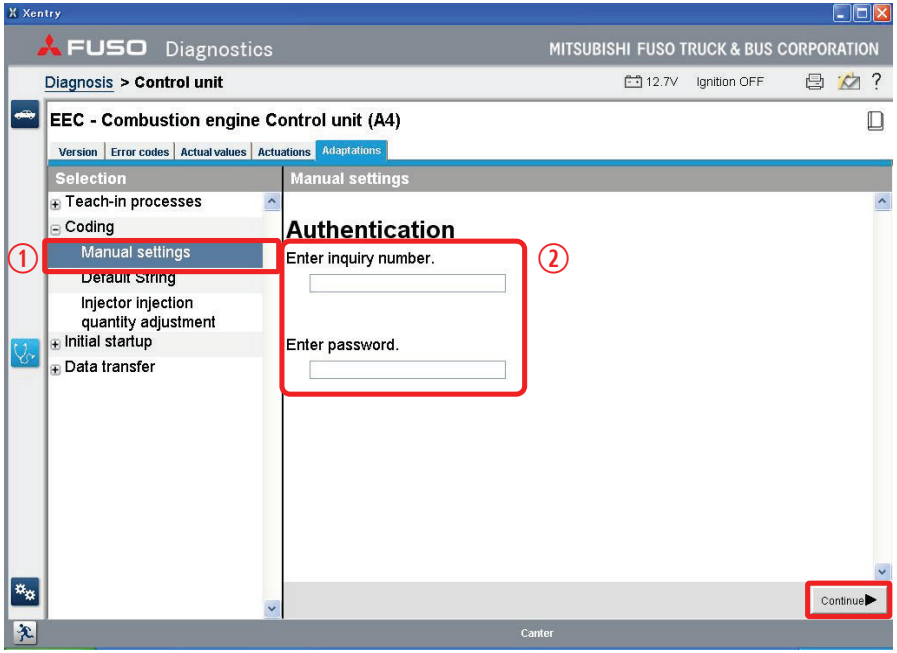
⑥ Follow the instructions on the screen, replace EEC (engine ECU) and click “Continue”.

The following screen is displayed when teach-in is performed normally. Any incidental work is carried out by following the instructions on the screen.

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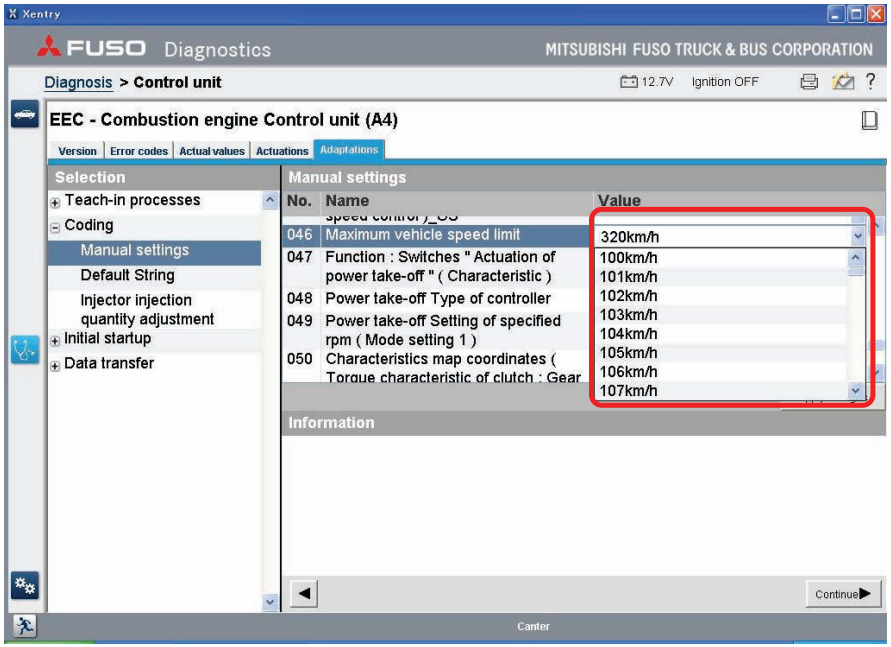
<Reference No. 12: Setting for speed limiter function>

- As a preparatory step, download the required ECU history data from the FRN and store it in the FUSO Diagnostics system.



① Select “Manual settings”.
② Enter the inquiry number and password.
③ Click “Continue”.

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④

④ Referring to the left table, change the parameters according to the vehicle specifications. To set XX km/h as a target vehicle speed, select “XX km/h” (a speed between 30 km/h and 125 km/h is selectable in increments of 1 km/h).

- As a post process, upload the relevant ECU history data to the FRN.

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<Reference No. 13: Activating the EPS (engine protection system) function>

- When activating the EPS, use the procedures below.

I. Start

II. Check software object number and version (before programming)

III. Does the fuel-map correspond to any of the following?

[EPA10]
- 2WD: A0174486040
- 4WD: A0174486140

[EPA 13]
- 2WD/4WD: A0174486240

No → VII. Execute the reprogramming (see F2-040)

Yes

IV. Run reset of coding (coding) (see F2-050)

V. Code the entries for the items below.
- 015 EPS (engine protection function): Choose a “VARID”
- 016 Switchover of function ‘EPS working period’ (EEC internal): Choose a ‘Default setting’

VI. Completion

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<Reference No. 14: Activating the ISD (idle shutdown system) function>

- When activating the ISD, use the procedures below.

I. Start

II. Check software object number and version (before programming)

III. Does the fuel-map correspond to any of the following?

[EPA10]
- 2WD: A0174486040
- 4WD: A0174486140

[EPA 13]
- 2WD/4WD: A0174486240

No

VII. Execute the reprogramming (see F2-040)

Yes

IV. Run reset of coding (coding) (see F2-050)

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V. Enter the coding for the items below

- 017 ISD (idle speed SHUT DOWN function): Choose a “VARID”

<When the handbrake ON is enable>

[State 1]

- 018 Switchover of function ‘ISD1’ (handbrake ON) (EEC internal): Choose a ‘Customer setting’
- 022 ISD1 Warning working period (handbrake ON): Choose a “285 second”

[State 2]

- 019 Switchover of function ‘ISD2 (handbrake ON)’ (EEC internal): Choose a “Customer setting”
- 023 ISD2 Engine off time (handbrake ON): Choose a “600 second”

<When the handbrake OFF is enable>

[State1]

- 020 Switchover of function ‘ISD1 (handbrake OFF)’ (EEC internal): Choose a “Customer setting”
- 024 ISD1 Warning working period (handbrake OFF) : Choose a “285 second”

[State2]

- 021 Switchover of function ‘ISD2 (handbrake OFF)’ (EEC internal): Choose a “Customer setting”
- 025 ISD2 Engine off time (handbrake OFF): Choose a “600 second”

↓

VI. Completion

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Example of use in part replacement and repair

[LDT] Canter/Rosa - TCM (DUONIC® ECU)

F3-030

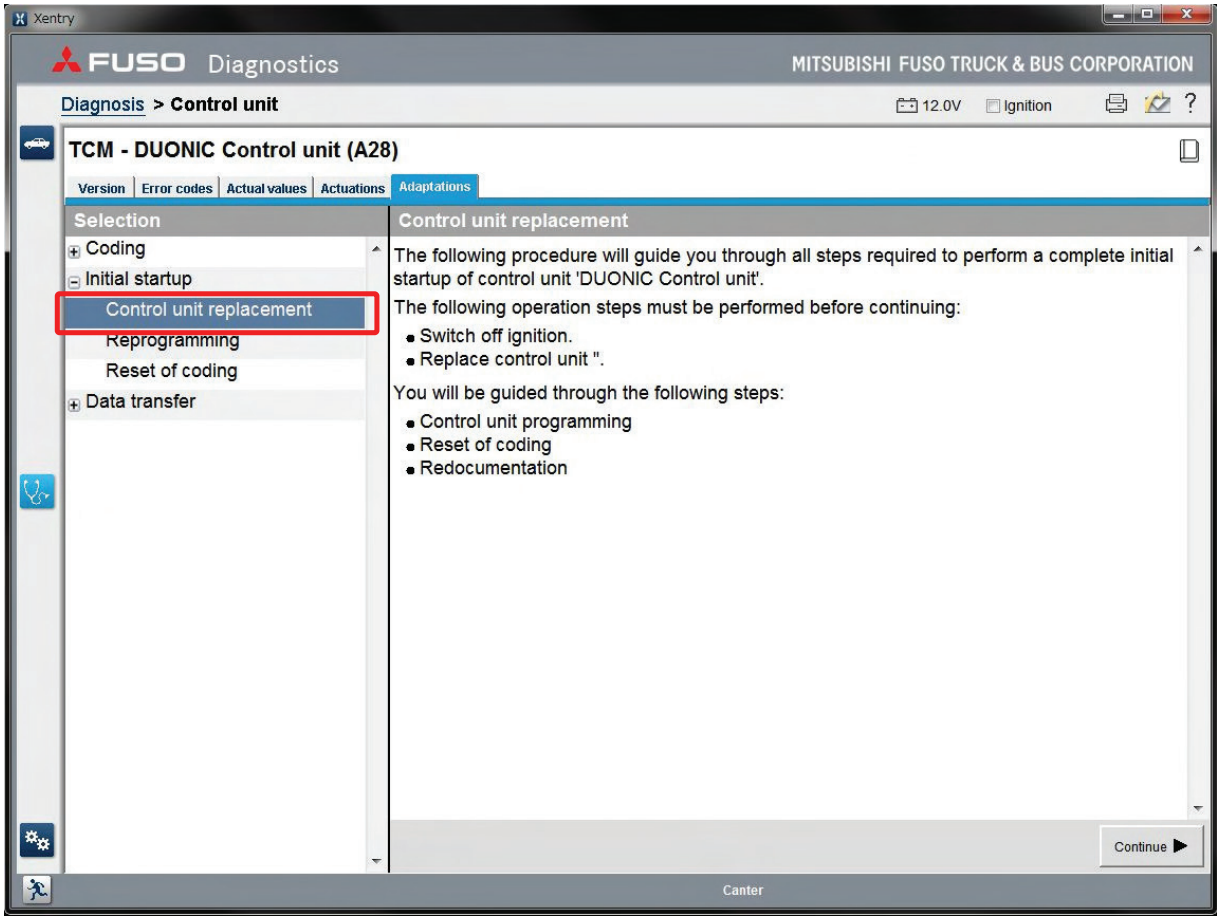
The following coding data needs to be rewritten when the DUONIC® ECU is replaced or specifications are changed. Note that some items in the following table may not apply to your vehicle depending on the vehicle specifications or destination.

Event \ Coding data	Rear axle gear ratio	Tyre size	Pulse width modulated signal Solenoid valve Gearshift during the shift operation	Switching threshold of activated pressure regulator	Vehicle determination (Truck/Bus)	Equipment power take-off	Equipment ABS	PTO warning	PTO gear	PTO actuation of clutch	PTO operating restrictions	PTO connecting when stopping	Model of clutch	Shift map type	Speed limit (HEV)	Wheelbase (HEV)	Type of drive control (HEV)	ESP® (HEV)	Reference No.
DUONIC® ECU is replaced.	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	1
Final gear ratio is changed.	○																		2
Tyre size is changed.		○																	
Type of clutch is changed													○						
Attachment/removal of PTO						○													
PTO is replaced.						○		○	○	○	○	○							
PTO control conditions are changed								○	○	○	○	○							
Shift map and vehicles start stage are change <Only for North America>														○					
Wheelbase length is changed due to modification. (HEV)																○			

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<Reference No. 1>

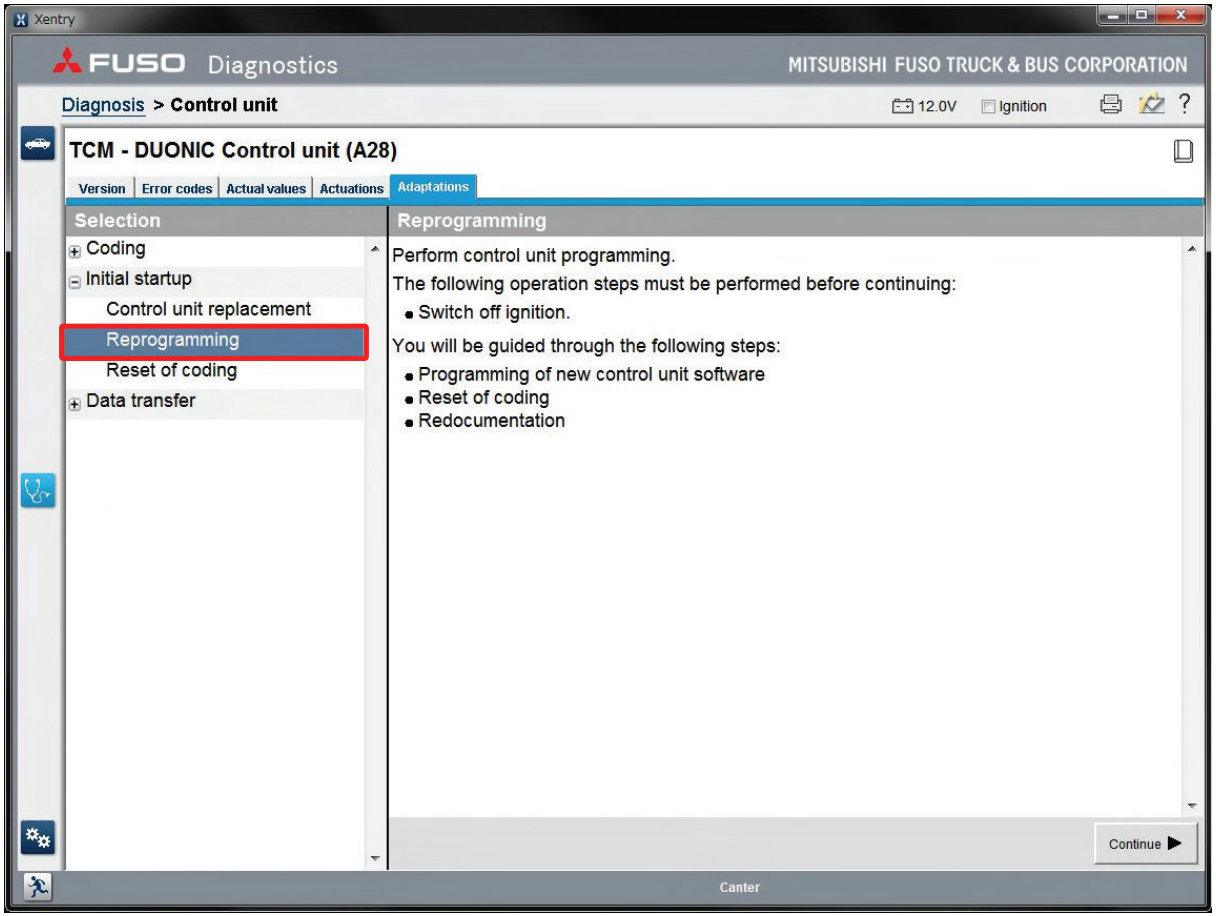
- When the ECU is replaced with a new or used one, you can use the previous coding parameters by downloading the ECU data from the FRN and then executing “Control unit replacement” (see F2-030).



① Select “Control unit replacement” (see F2-030 for the subsequent steps).

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- If only the ECU software needs to be updated, download the ECU data from the FRN and then execute “Reprogramming”. After completing software rewriting, execute Reset of coding (see F2-040).



①

① Select “Reprogramming” (see F2-040 for the subsequent steps).

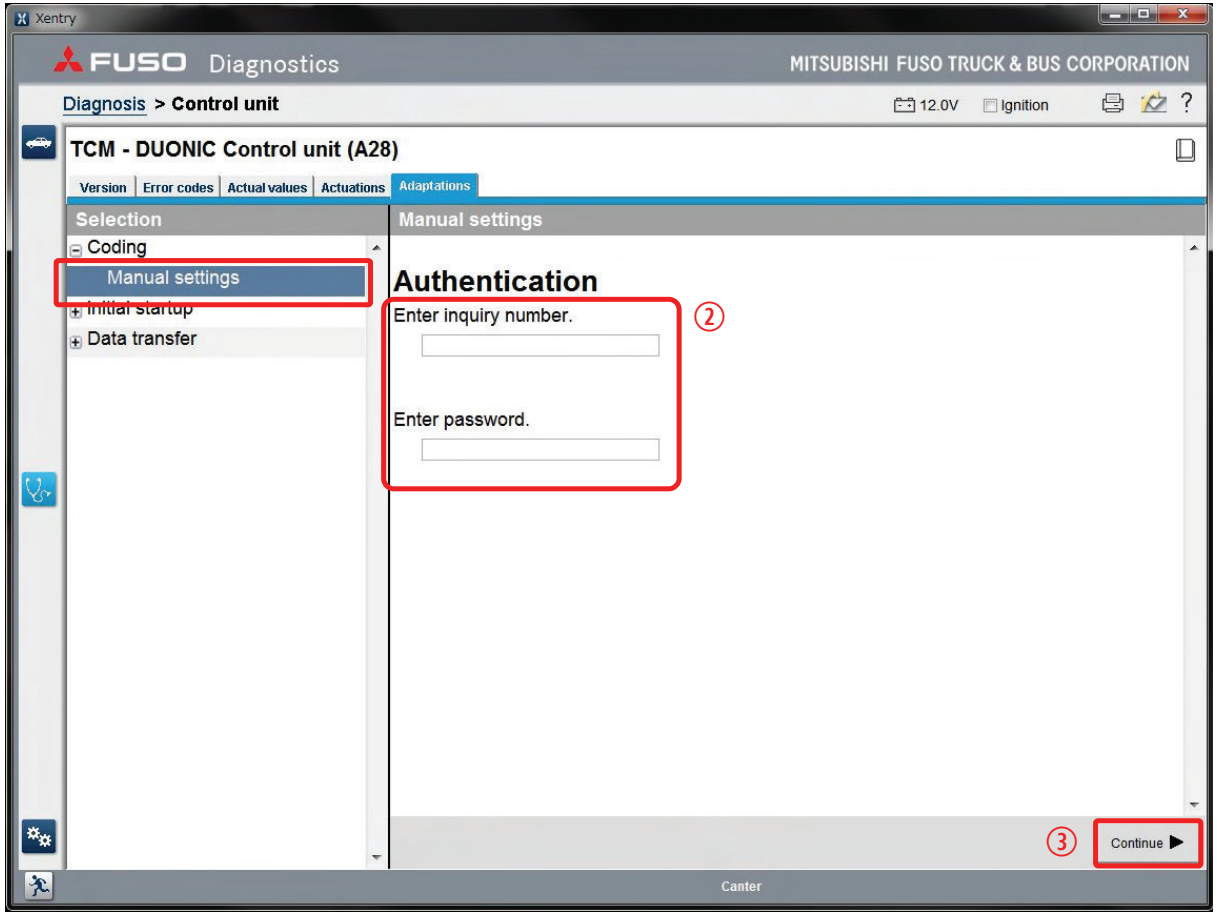
CAUTION

- **Use this function for recalls or service campaigns, etc. It cannot be used for normal servicing.**
- **When “Reprogramming” is performed, the “Manual setting”-“Model of clutch” parameter is usually set to “Internal clutch plate A” (radial (dot) type).**
  Therefore, after replacing by a waffle type clutch, when “Reprogramming” is performed, the “Model of clutch” parameter must be changed to “Internal clutch plate B” (see after the following page).
  If you are not performing the substitution to a waffle type clutch, but rewriting only the software, then coding is unnecessary, but please check a parameter just to make sure (except on HEV, it can be checked [of a parameter] also at “Actual values” - “Calibration values” - “Model of clutch”).

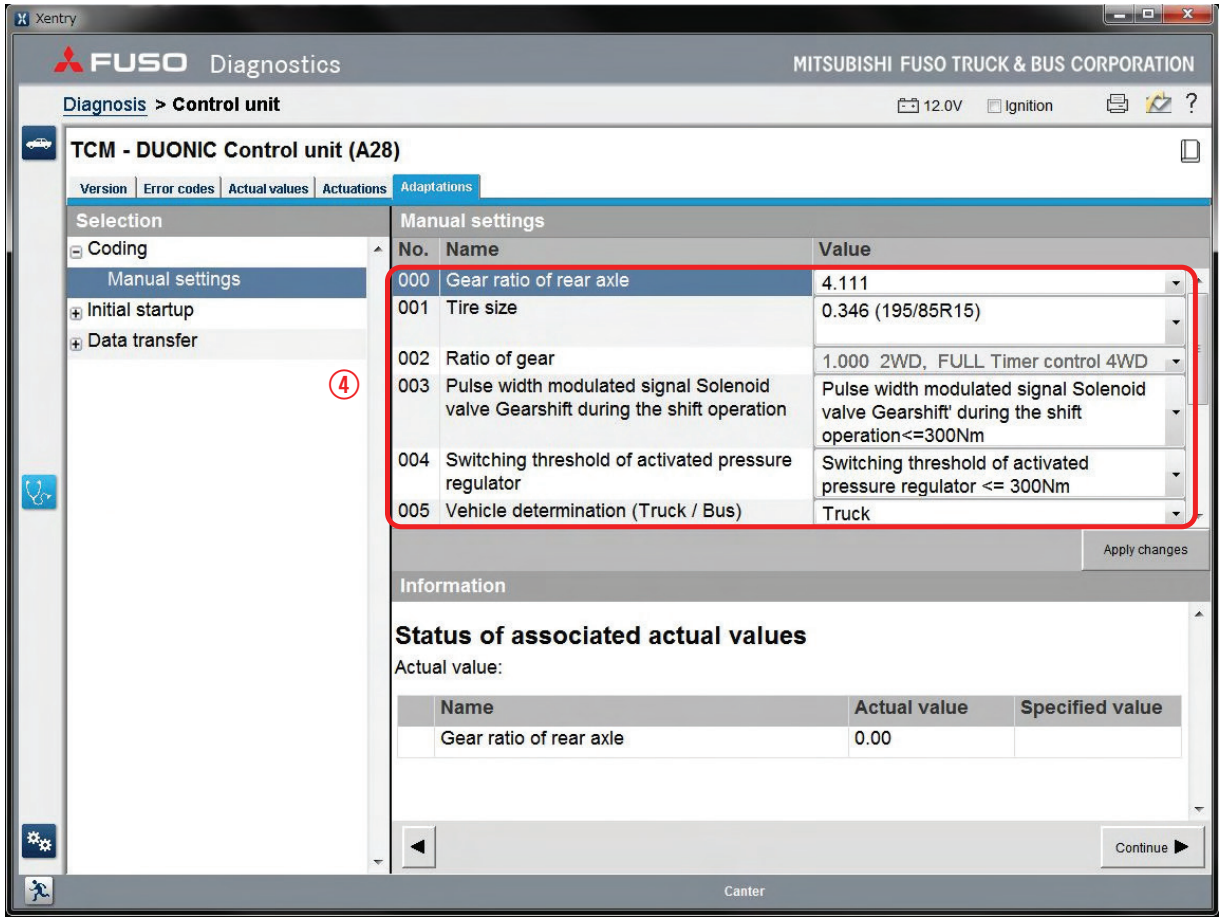
https://truckmanualshub.com/

<Reference No. 2>

- As a preparatory step, download the required ECU history data from the FRN and store it in the FUSO Diagnostics system.



① Select “Default string”.
② Enter the inquiry number and password.
③ Click “Continue”.



④ Enter parameters.

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<Except HEV>

000	Gear ratio of rear axle	4.111
001	Tire size	0.346 (195/85R15)
002	Ratio of gear	1.000 2WD, FULL Timer control 4WD
003	Pulse width modulated signal Solenoid valve Gearshift during the shift operation	Pulse width modulated signal Solenoid valve Gearshift' during the shift operation<=300Nm
004	Switching threshold of activated pressure regulator	Switching threshold of activated pressure regulator <= 300Nm
005	Vehicle determination (Truck / Bus)	Truck
006	Equipment Power take-off	NOT SUPPORTED
007	Equipment ABS	NOT INSTALLED
008	PTO Warning	INVALID
009	PTO Gear	VALID 1
010	PTO Actuation of clutch	QUICK Connecting
011	PTO Operating restrictions	STOP (P/N)
012	PTO Connecting When stopping	STOP
013	Model of clutch	Internal clutch plate A

⑤

⑤ Change parameters in accordance with the vehicle specifications (see the table on the next page when selecting a tyre diameter).

<HEV>

000	Gear ratio of rear axle	4.111
001	Tire size	195/85R16
002	Equipment Power take-off	NOT SUPPORTED
003	Speed threshold	NOT INSTALLED
004	Wheelbase	Wheelbase B (2500mm)
005	Type of drive control	4.111 Japan Europe
006	ESP®	NOT PRESENT
007	PTO Operating restrictions	STOP (P/N)
008	Model of clutch	Internal clutch plate A

⑤

- As a post process, upload the ECU history data to the FRN.

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The direction of parameters

Item	Parameter	Directions	Remark
Gear ratio of rear axle	Chosen	It's chosen by the gear ratio of rear axle.	*1
Tyre size	Chosen	It's chosen in tyre size.	*1
Pulse width modulated signal Solenoid valve Gearshift during the shift operation	Pulse width modulated signal Solenoid valve Gearshift during the shift operation <=300 Nm / Pulse width modulated signal Solenoid valve Gearshift during the shift operation >=370 Nm No.1 / Pulse width modulated signal Solenoid valve Gearshift during the shift operation >=370 Nm No.2	It's chosen according to engine output torque. A parameter is checked when "Reprogramming" is performed. In the case of "<=300 Nm" Additional work is nothing. In the case of ">=370 Nm" It is checked whether there is any notation of "No.2." When there is nothing, please code by choosing the parameter of "No.2."	Except HEV *1
Switching threshold of activated pressure regulator	Switching threshold of activated pressure regulator <=300 Nm / Switching threshold of activated pressure regulator >=370 Nm	It's chosen according to engine output torque.	
Vehicle determination (Truck/ Bus)	Truck / Bus	It's chosen according to vehicles.	Except HEV *2
Equipment power take-off	SUPPORTED / NOT SUPPORTED	Only in the case of the vacuum type PTO, "SUPPORTED" is chosen.	*3
Equipment ABS	INSTALLED / NOT INSTALLED	Truck is chosen by the existence of ABS. Bus chooses "NOT INSTALLED", even if ABS is equipped.	Except HEV *3,*4
Speed threshold	INSTALLED / NOT INSTALLED	It's chosen by the existence of SLD.	HEV
Wheelbase	Wheelbase B (2500 mm) / Not B size	It's chosen according to the wheel base of vehicles.	HEV
Type of drive control	4.111 Japan Europe/ 4.444 Japan Asia/ 4.875 Japan Oceania	It's chosen by the gear ratio of rear axle.	HEV *1
ESP®	PRESENT / NOT PRESENT	It's chosen by the existence of ESP®.	HEV
PTO warning	VALID / INVALID	It is necessary to choose a parameter according to the equipment specification of vehicles, and the operating condition of PTO.	See F3-200.
PTO gear	VALID 1 / VALID 2 / VALID 3 / VALID 4/ INVALID		
PTO actuation of clutch	QUICK Connecting / SLOW Connecting 1 / SLOW Connecting 2		
PTO operating restrictions	STOP (P/N) / STOP (P) / Trip (1st, 2nd, R) / Trip (2nd, 3rd, R)		
PTO connecting when stopping	STOP / LOW vehicle speed 1 / LOW vehicle speed 2		
Model of clutch	Internal clutch plate A / Internal clutch plate B	It's chosen according to the type of an internal clutch plate. A : Radial (dot) type B : Waffle type	*5, *6

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Item	Parameter	Directions	Remark
Shift map type	Normal map/Power map/Power map (start with 1st gear)	It's chosen with the type of a shift map. Refer to the table of the following page about the operation of each parameter.	*7

*1 : A suitable gear becomes impossible if a mistaken setup is performed.
*2 : If a mistaken setup is performed, it becomes impossible for a truck to use PTO and it becomes impossible for a gearshift to move from P range in a bus.
*3 : If a mistaken setup is performed, the erroneous decision in failure diagnosis will occur.
*4 : If a mistaken setup is performed, it becomes impossible to perform cooperative control with ABS ECU.
*5 : If a mistaken setup is performed, the clutch alarm does not operate normally and there is a possibility that the clutch may seize, due to the oil temperature rise in a clutch.
*6 : In other than HEV, it can be checked [of a parameter] also at "Actual values"-"Calibration values"-"Model of clutch".
*7 : This coding item is effective only by North America-oriented vehicles (it is not reflected even if it changes a setup except North America-oriented vehicles).

The direction of parameters (shift map type)

Item	Parameter	Economy mode switch		Remark
		OFF	ON	
Shift map type	Normal map	Normal map	ECO map	Default setting
		1st ↔ 2nd automatic	1st ↔ 2nd automatic	
	Power map	Power map	Normal map	
		1st ↔ 2nd automatic	1st ↔ 2nd automatic	
	Power map (start with 1st gear)	Power map	Normal map	
		1st start fix	1st ↔ 2nd automatic	

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Example of use in part replacement and repair

[LDT] Canter/Rosa - ABS (hydraulic unit ECU)

F3-040

Coding is required if the ECU is replaced or the specifications are changed. Note that some items in the following table may not apply to your vehicle depending on the vehicle specifications or destination.

Event	Coding data	Reference No.
Hydraulic unit (ECU) is replaced.	All data (entire set of the latest history data for the vehicle)	1

For vehicles with ESP, the calibration is required if any of the following events have been implemented. Note that some events may not apply to your vehicles depending on the vehicle specifications or destination.

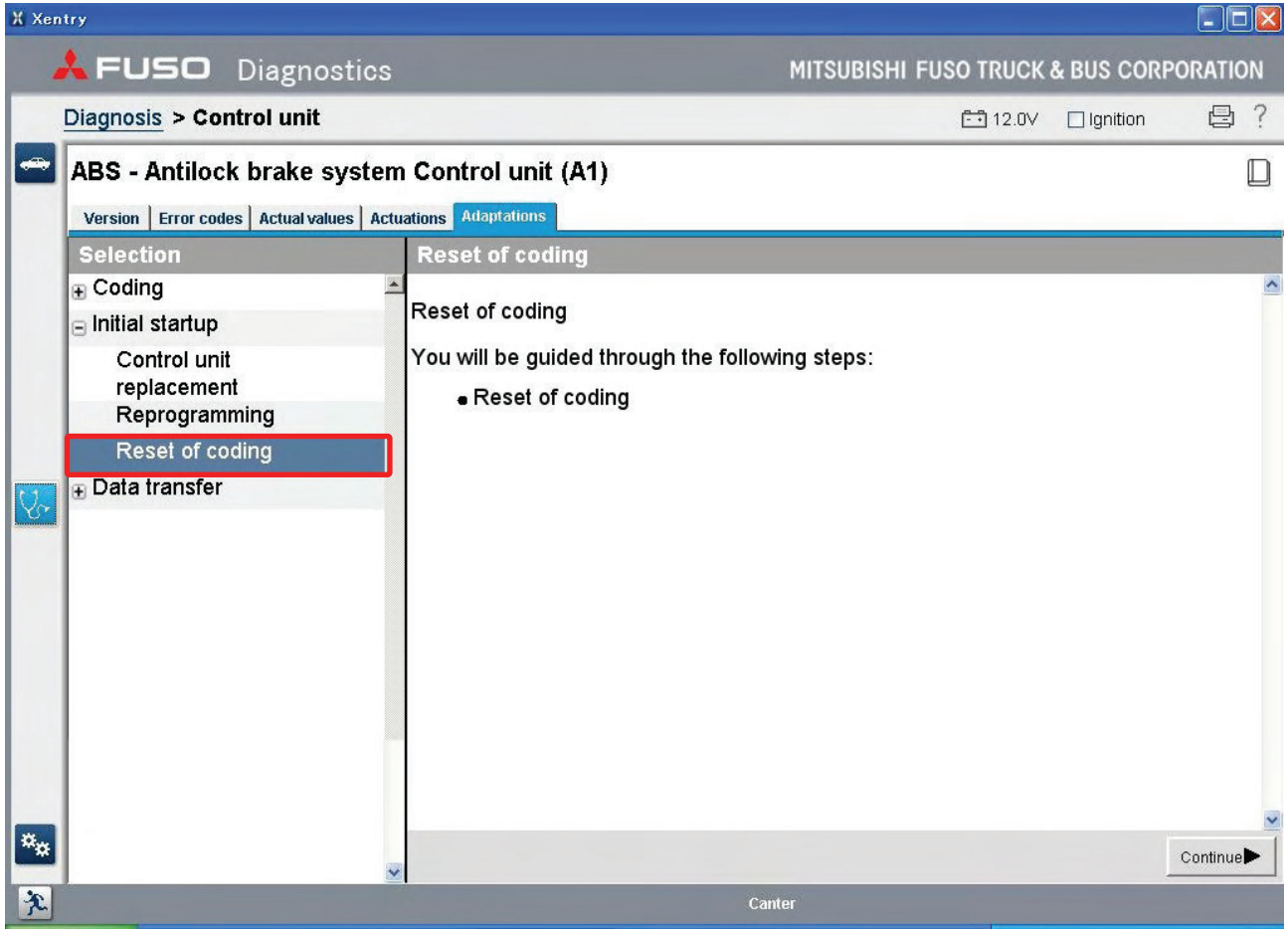
Event	Reference No.
Replacing hydraulic unit (ECU)*1	2
Replacing or removing/reinstalling steering angle sensor	
Replacing or removing/reinstalling ESP sensor	
Servicing or adjusting steering system (gearbox, link mechanism, etc.)	

*1: When replacing the hydraulic unit (ECU) on a vehicle with ESP, the calibration must be performed after the reference number 1 work has been carried out.

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<Reference No. 1>

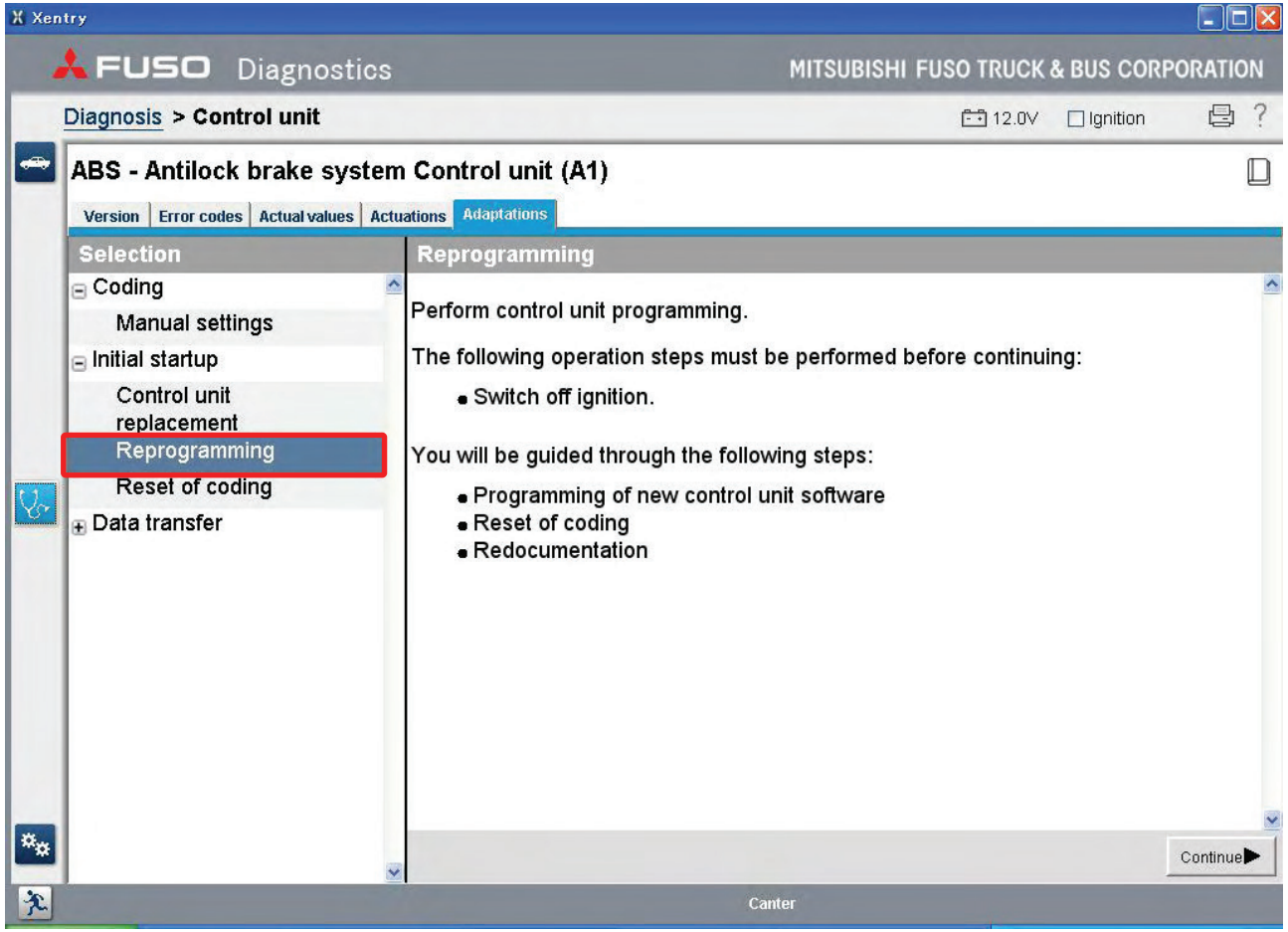
- When the ECU is replaced with a new or used one, you can use the previous coding parameters by downloading the ECU data from the FRN and then executing “Reset of coding” (see F2-050).



① Select “Reset of coding” (see F2-050 for the subsequent steps).

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If only the ECU software needs to be updated, download the ECU data from the FRN and then execute “Reprogramming”. After completing software rewriting, execute Reset of coding (see F2-040).



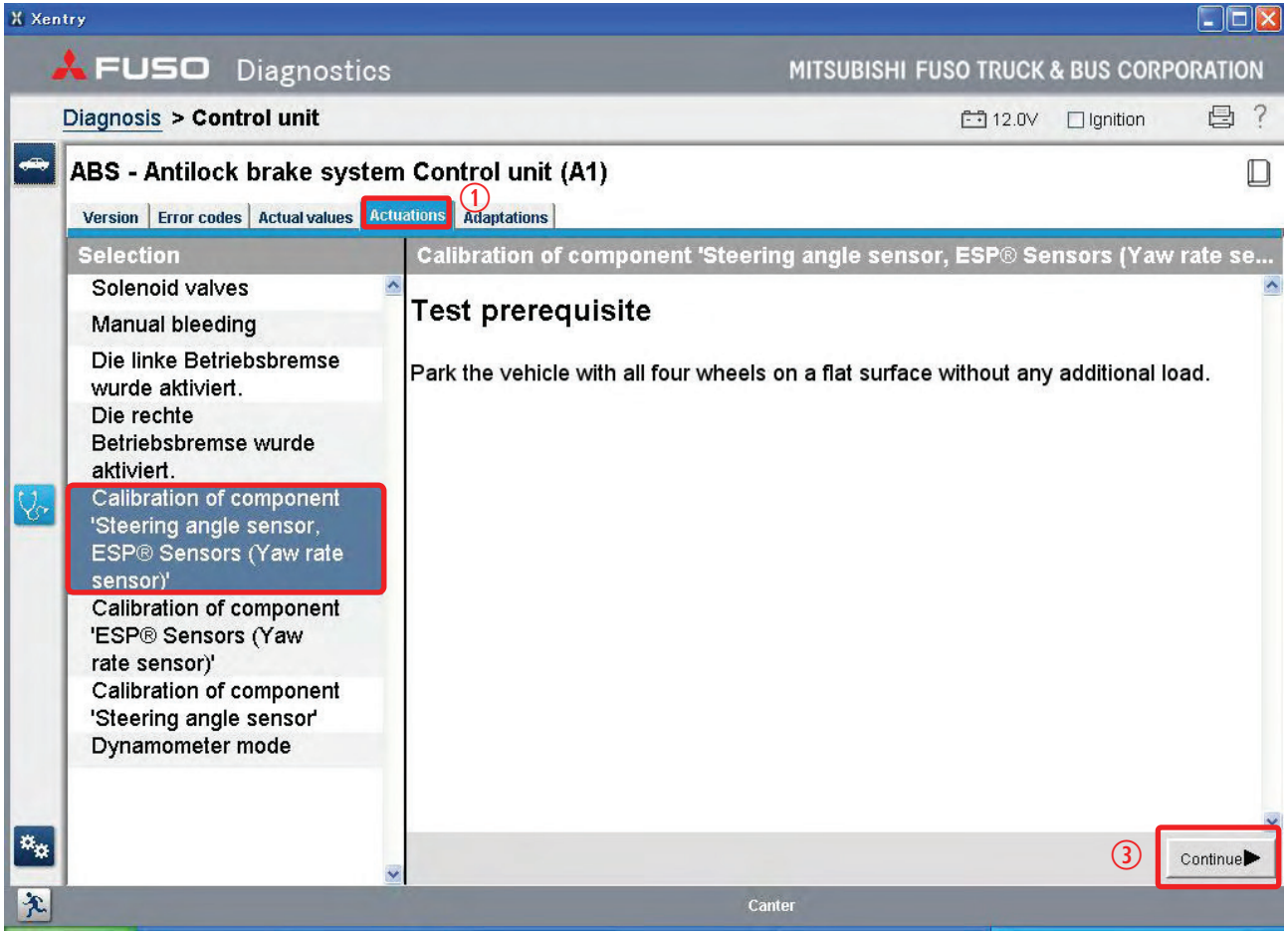
① Select “Reprogramming” (see F2-040 for the subsequent steps).

CAUTION

Use this function for recalls or service campaigns, etc. It cannot be used for normal servicing.

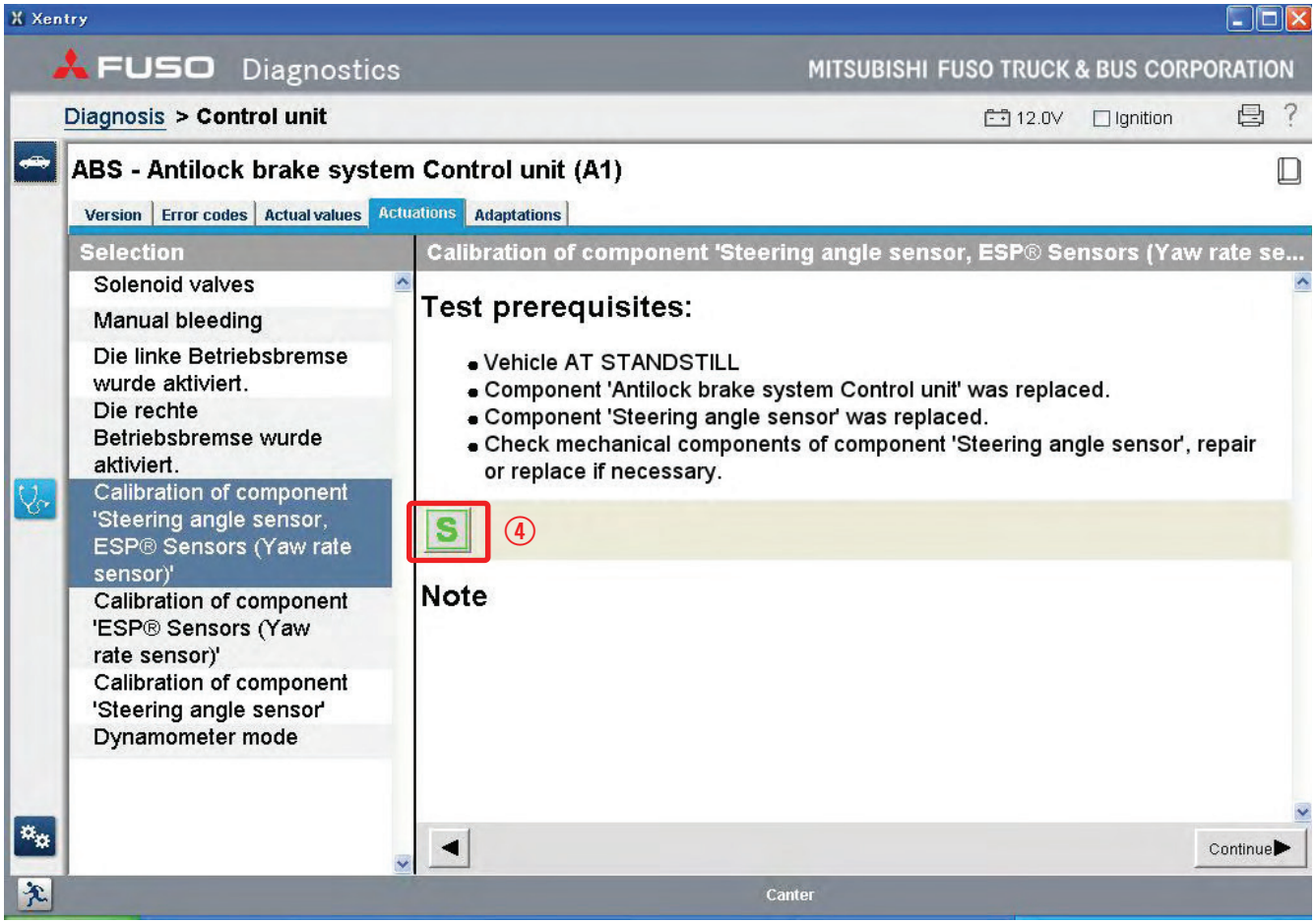
https://truckmanualshub.com/

<Reference No. 2>



① Select “Control”.
② Select the item to be calibrated.
③ Click “Continue”.

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④ With the vehicle stationary, check that the steering wheel and the front wheels are in the straight ahead position, and then select [S] (for detailed conditions at the time of execution, refer to the service manual).

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Example of use in part replacement and repair

[LDT] Canter/Rosa - EZGO (lock brake ECU)

F3-050

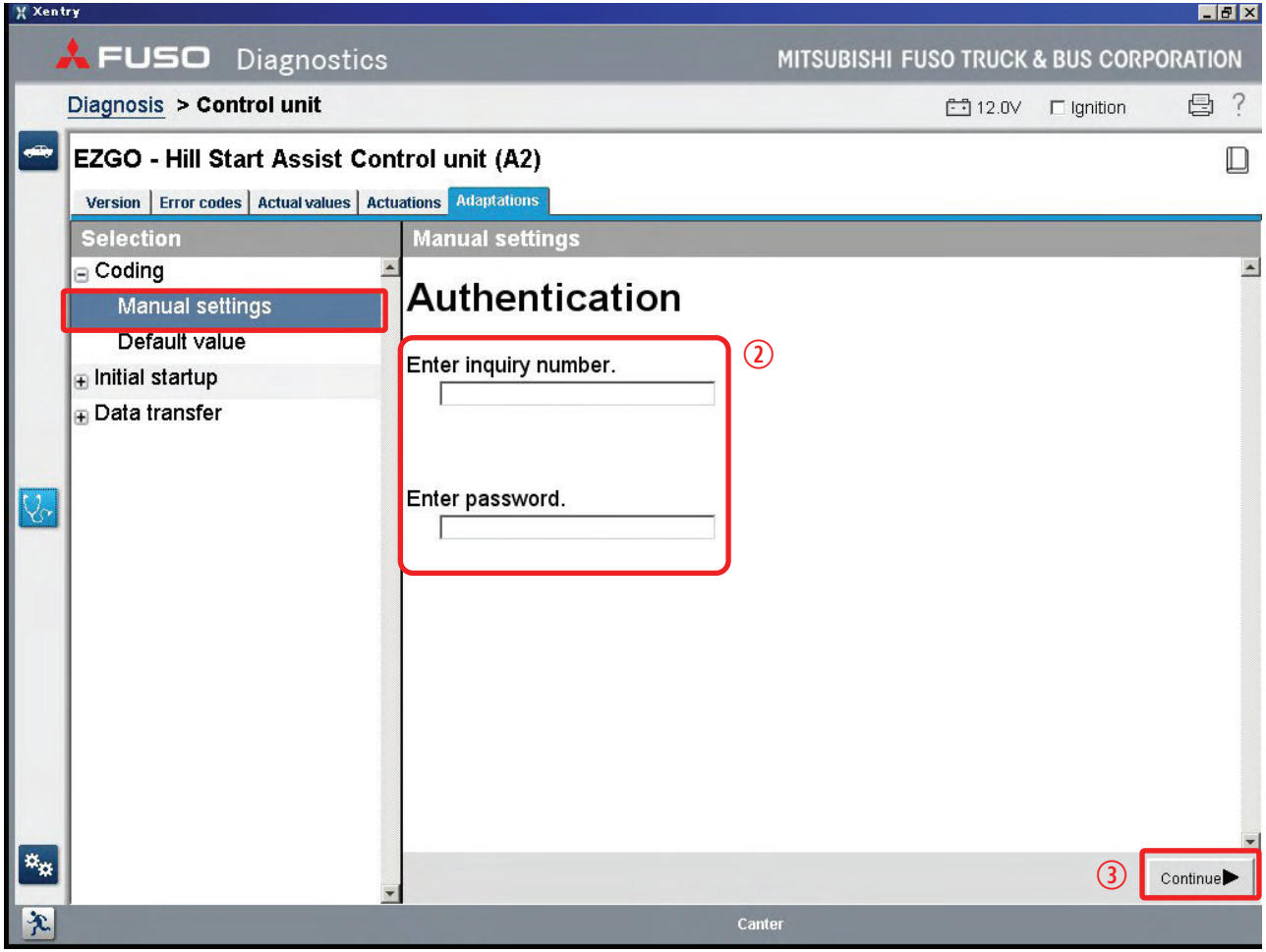
The following coding data needs to be rewritten when the lock brake ECU is replaced or specifications are changed. Note that some items in the following table may not apply to your vehicle depending on the vehicle specifications or destination.

Event	Coding data name	Meaning of parameter value	Reference No.
Lock brake ECU is replaced.	Transmission	Manual gearbox or DUONIC®	1
	Hill start assist	With or without AUS	
	Lock brake	Equipped or not equipped with a lock brake	
	Automatic engine start/stop	Equipped or not equipped with an automatic engine stop/start	

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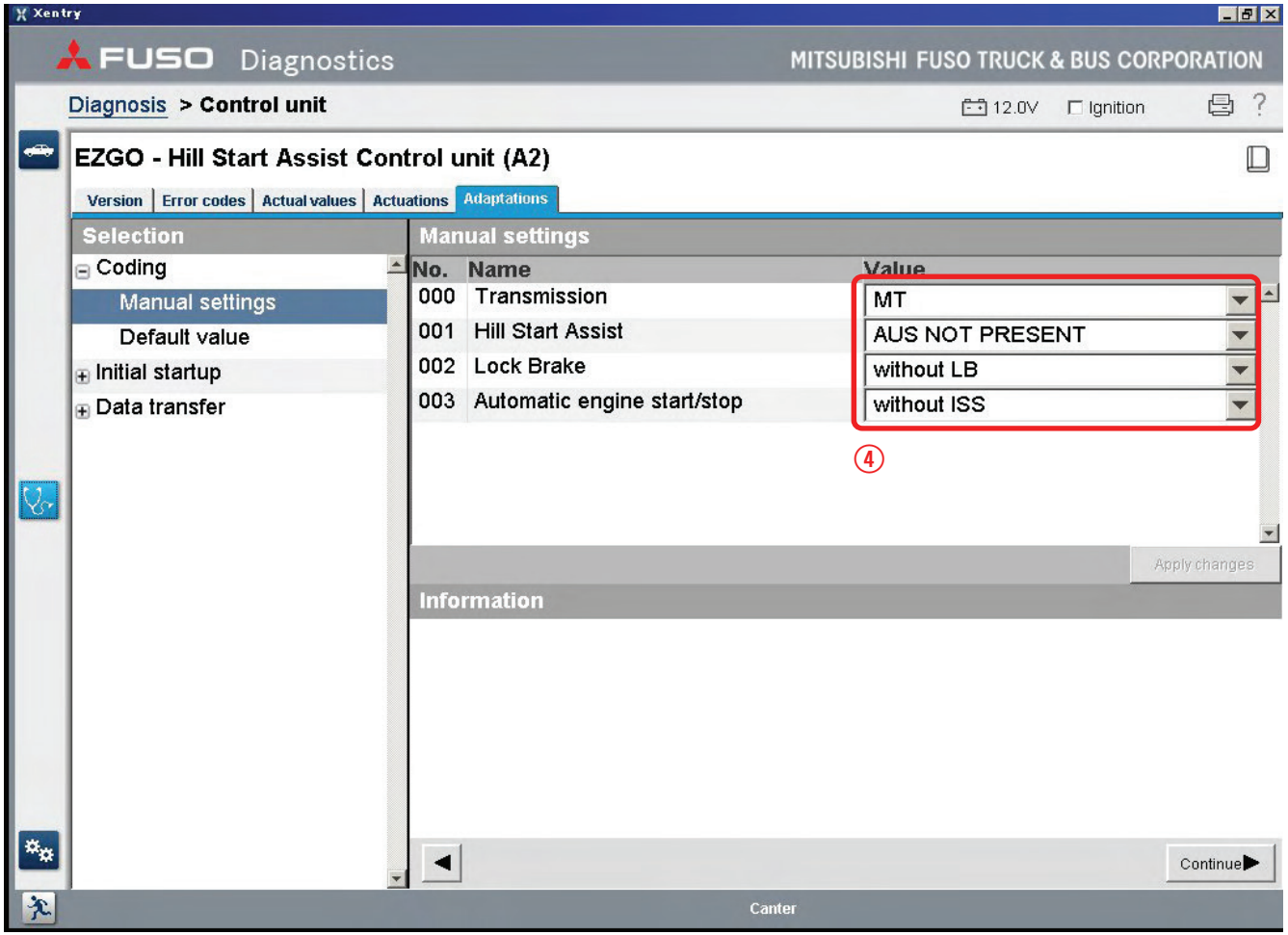
<Reference No. 1>

- As a preparatory step, download the required ECU history data from the FRN and store it in the FUSO Diagnostics system.



① Select “Manual settings”.
② Enter the inquiry number and password.
③ Click “Continue”.

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④ Change parameters in accordance with the vehicle specifications.

- As a post process, upload the ECU history data to the FRN.

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Example of use in part replacement and repair

[LDT] Canter/Rosa - IMMO (immobiliser ECU)

F3-060

The following actions require the registration of key information in the immobiliser ECU or engine ECU.

Action	Key registration in immobiliser ECU	Secret key registration in engine ECU
Replacement of engine ECU	-	○
Replacement of immobiliser ECU	○	○

○ : Requires key information registration.

- For details of this task, refer to “Advanced servicing information - Immobiliser” in the light-duty truck shop manual.

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Example of use in part replacement and repair

[LDT] Canter/Rosa - ISS (ISS ECU)

F3-070

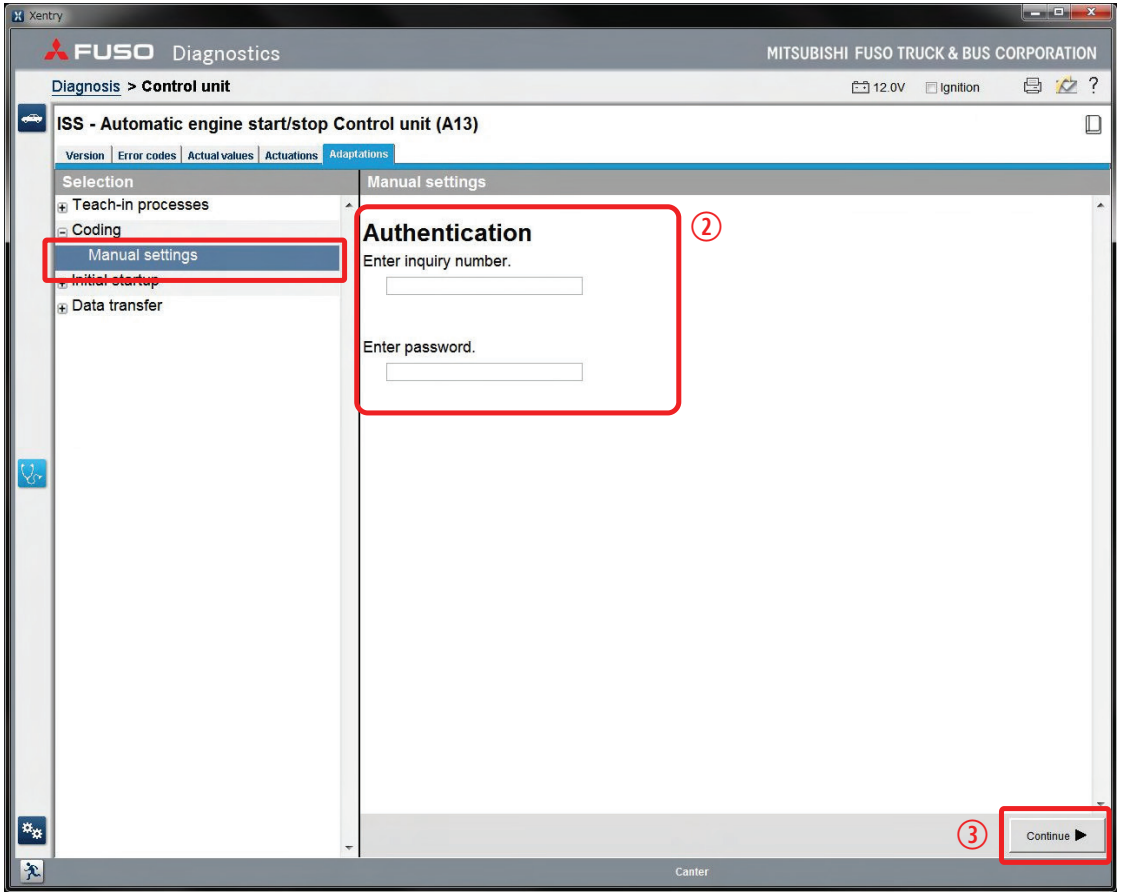
For the following events, coding data needs to be rewritten or the learned values in the ECU need to be reset. Note that some items in the following table may not apply to your vehicle depending on the vehicle specifications or destination.

Event	Rewrite coding data or reset learned values in ECU.	Reference No.
ISS ECU is replaced or vehicle specifications are changed.	Rewrite coding data for vehicle type.	1
Starter is replaced.	Reset ISS activation count.	1
Diagnosis code “521765-13: ISS activation count has exceeded 150,000” occurred.		

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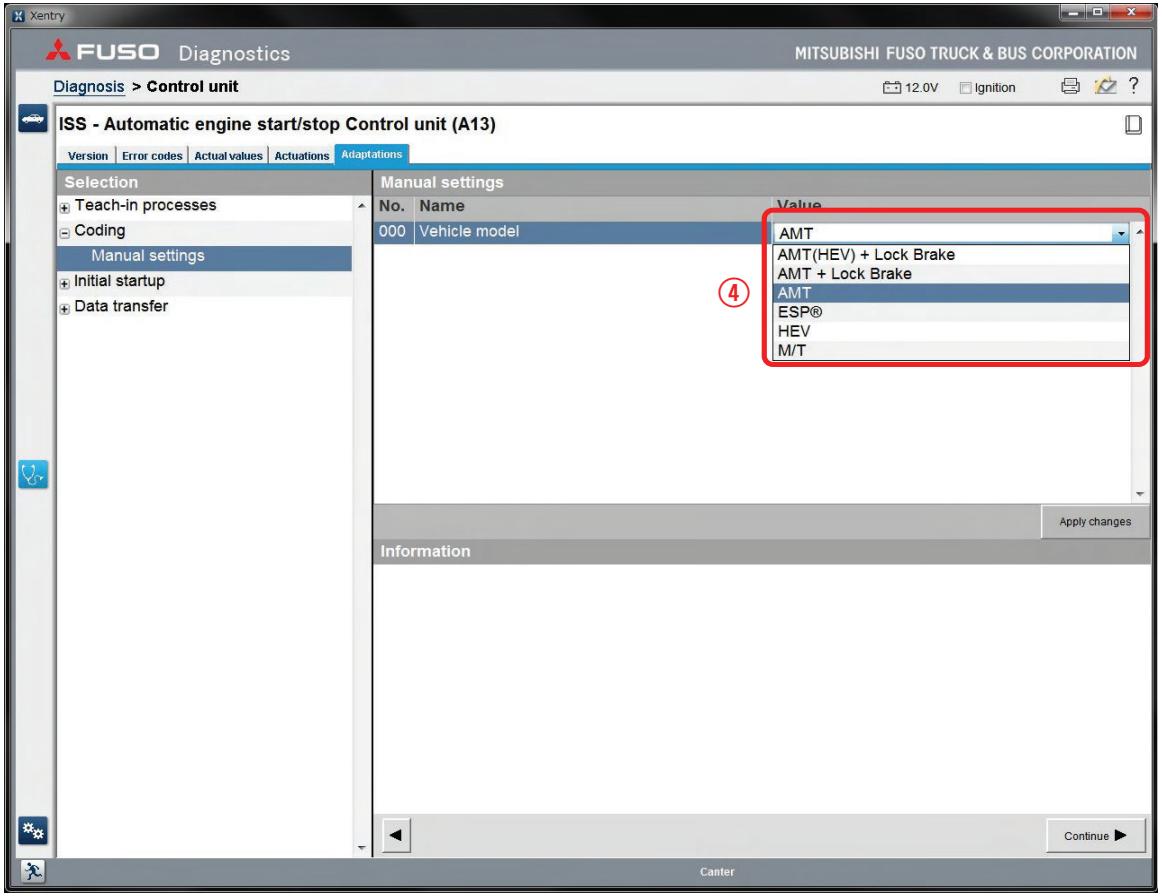
<Reference No. 1>

- As a preparatory step, download the required ECU history data from the FRN and store it in the FUSO Diagnostics system.



① Select “Manual settings”.
② Enter the inquiry number and password.
③ Click “Continue”.

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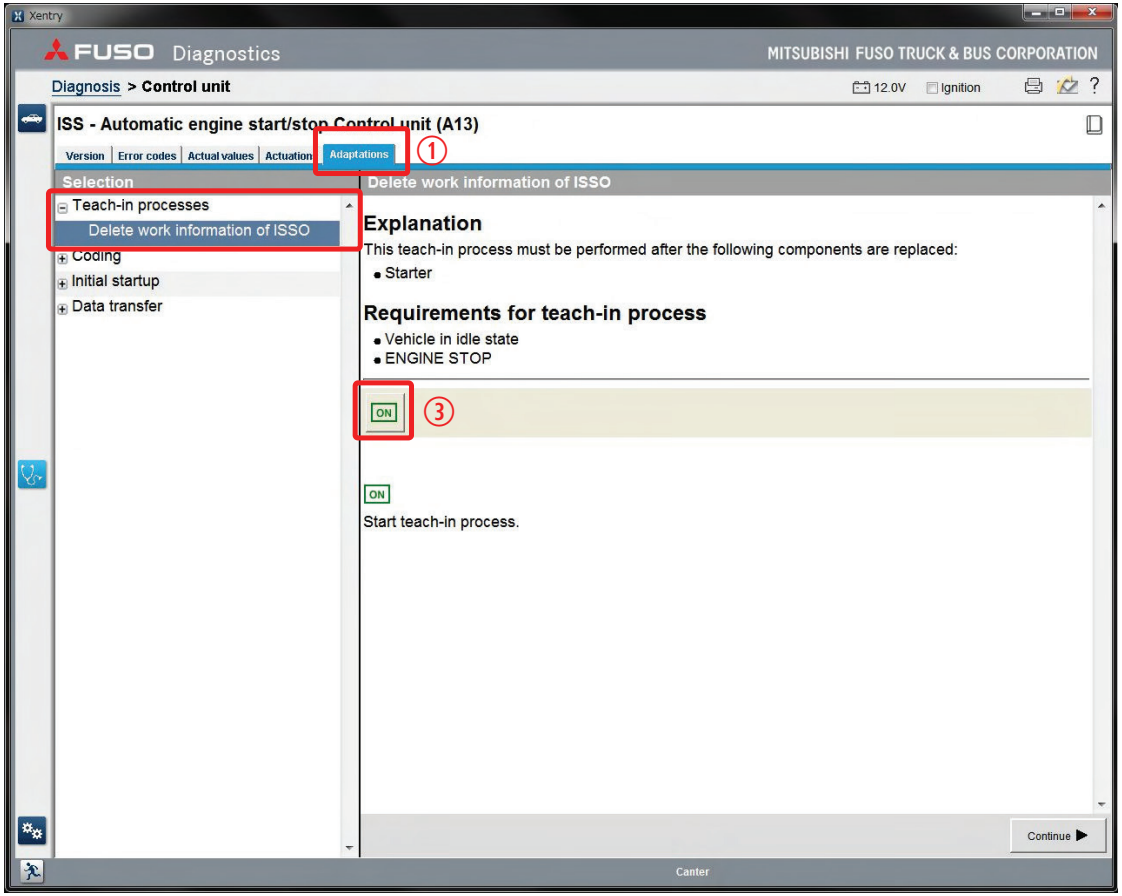


④ Change parameters in accordance with the vehicle specifications.

- As a post process, upload the ECU history data to the FRN.

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<Reference No. 2>



① Select “Adaptations”.
② Select “Teach-in processes” - “Delete work information of ISSO”.
③ Click “ON”.

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Coding is required in the following cases. Note that some items in the following tables may not apply to your vehicle depending on the vehicle specifications or destination.

Rewiring coding data

Event \ Headlights levelling ECU data	All data (entire set of the latest history data for the vehicle)	Reference No.
Headlights auto-levelling ECU is replaced.	○	1
ECU is transferred to a vehicle with different type of front and rear wheel suspension and different wheel base.	○	

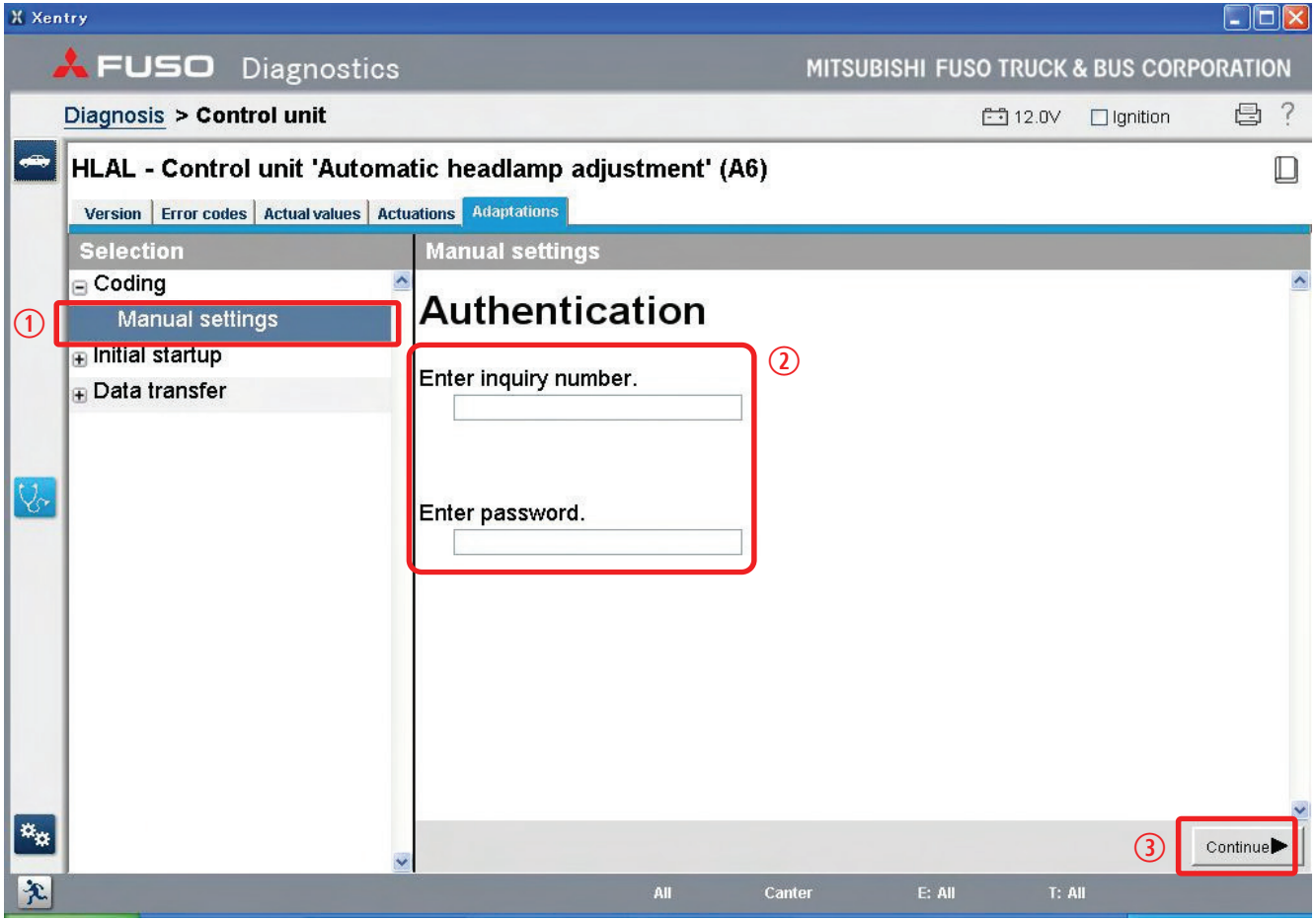
Standard setting (detection of the height sensor initial values)

Event \ Headlights auto levelling ECU data	Standard setting (detection of the height sensor initial values)	Reference No.
Headlights auto-levelling ECU is replaced.	○	2
Headlamp is replaced.	○	
Height sensor is adjusted, replaced or removed/installed.	○	
Diagnosis code (fault code) “631-31: Initial setting not done” occurred.	○	
When headlamp optical axis is adjusted.	○	
When fault is detected in proactive operation check.	○	

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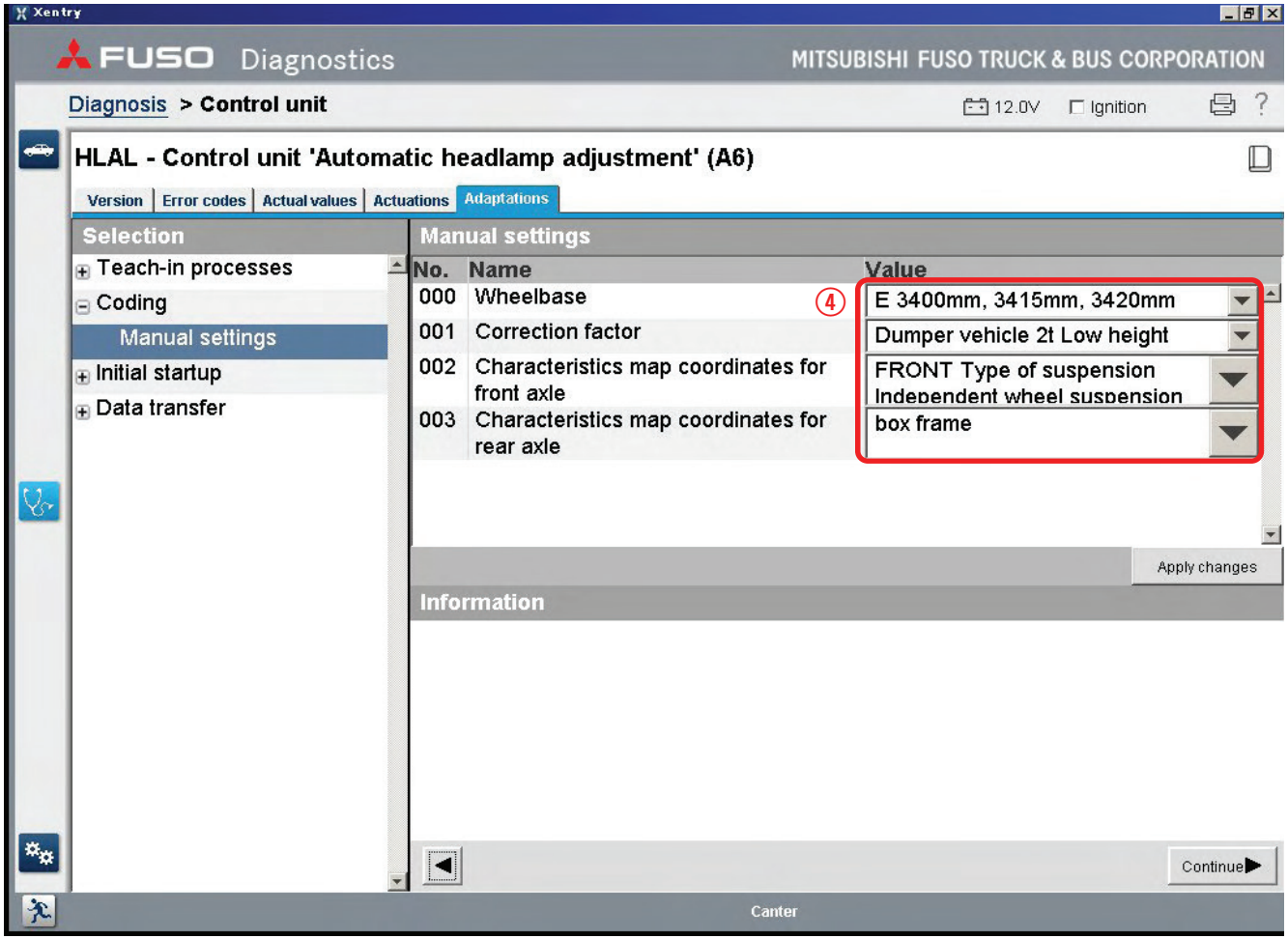
<Reference No. 1>

- As a preparatory step, download the required ECU history data from the FRN and store it in the FUSO Diagnostics system.



① Select “Manual settings”.
② Enter the inquiry number and password.
③ Click “Continue”.

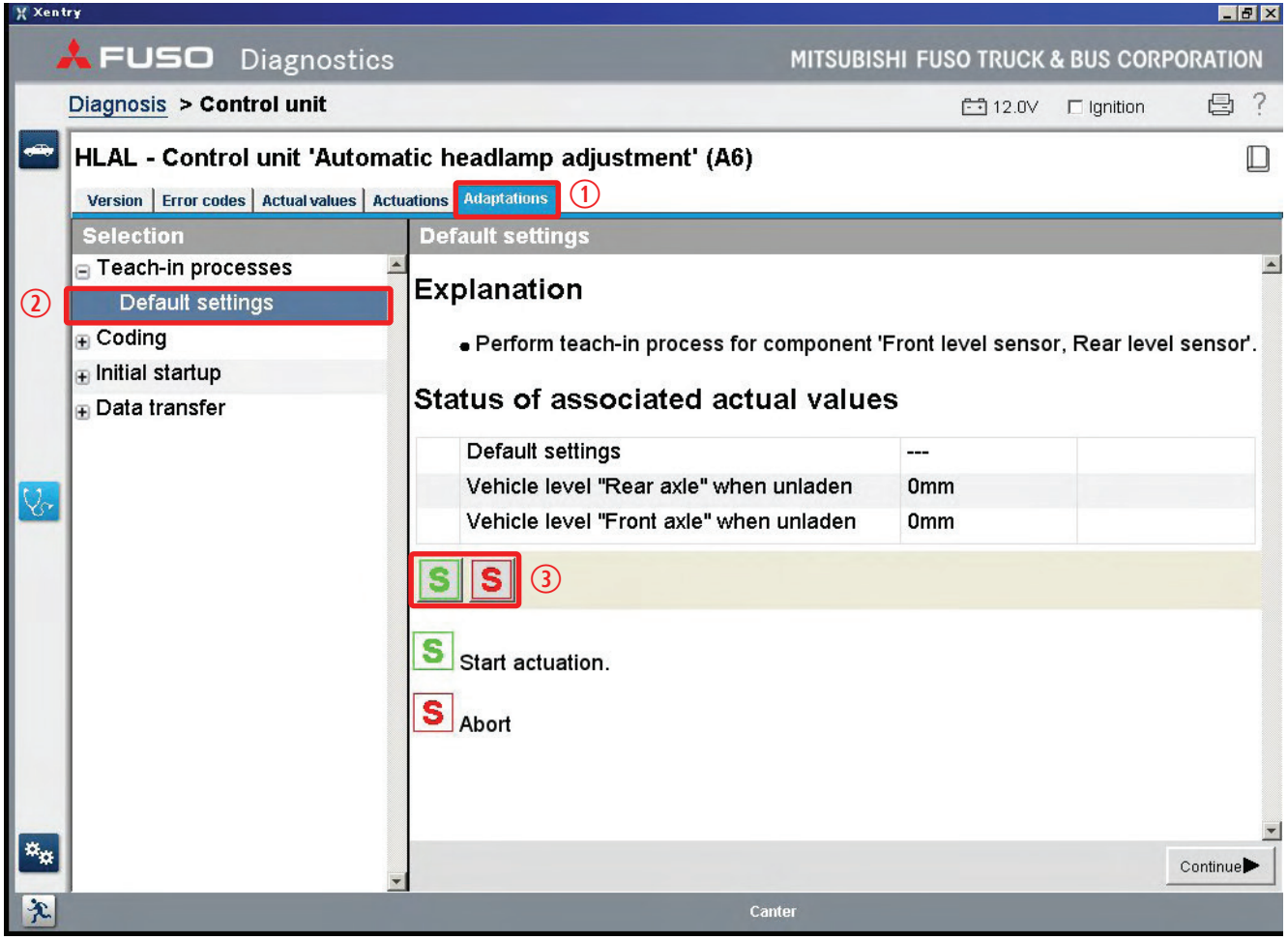
https://truckmanualshub.com/



④ Change parameters in accordance with the vehicle specifications (see table on page 188).

- As a post process, upload the ECU history data to the FRN.

<Reference No. 2>



① Select “Adaptations”.
② Select “Default settings”.
③ Select a button.

- As a post process, upload the ECU history data to the FRN.

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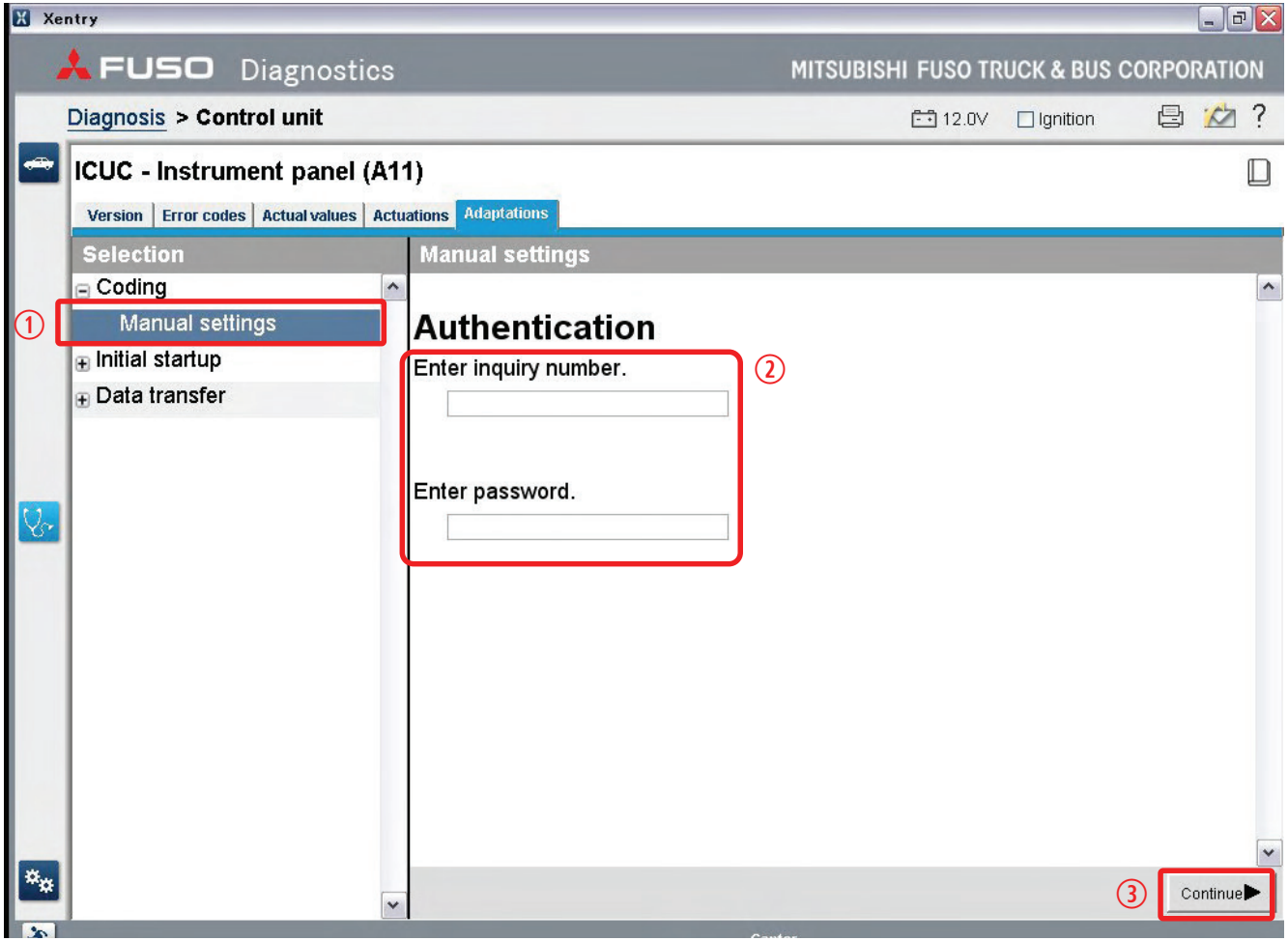
Coding is required in the following cases. Note that some items in the following table may not apply to your vehicle depending on the vehicle specifications or destination.
Rewriting coding data
- Rewrite the following coding data when specifications are changed.

Coding data	Criteria for rewriting data in meter cluster	Reference No.
Final gear	When the final gear is changed, data in the meter cluster needs to be updated.	1
Rear tyre	When the tyre size is changed, data in the meter cluster needs to be updated.	
Airbag	When the airbag specifications are changed, data in the meter cluster needs to be updated.	
Battery equaliser	When the battery equaliser specifications are changed, data in the meter cluster needs to be updated.	
Outside air temperature display	When installing a full-auto air conditioner, internal data of the meter cluster needs to be updated.	
Meter cluster replacement	All data (entire set of the latest history data for the vehicle).	2
Unit of temperature Unit of fuel consumption	When changing the items shown on the left, internal data of the meter cluster needs to be updated (for North American specification models for Canada only).	3

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<Reference No. 1>

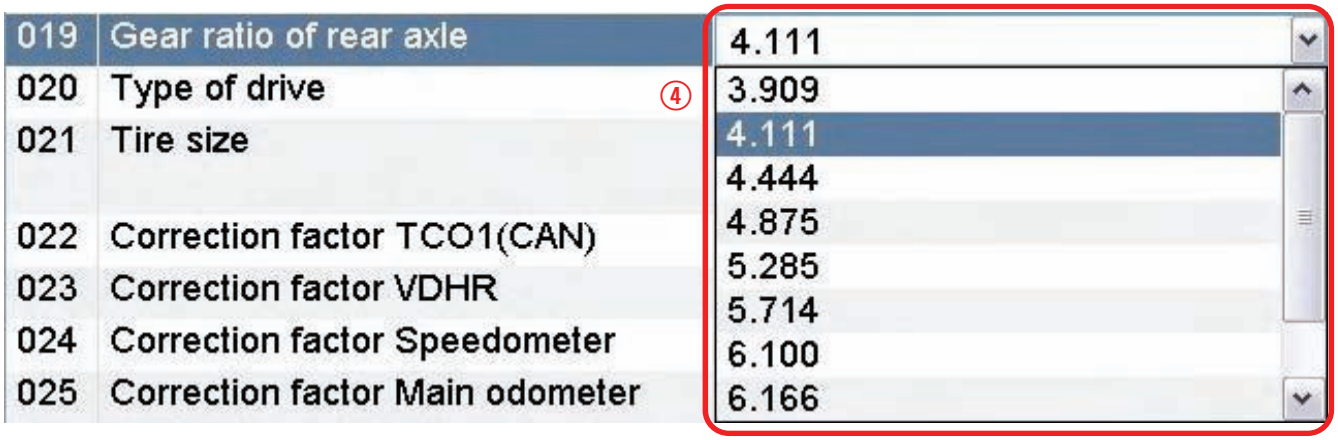
- As a preparatory step, download the required ECU history data from the FRN and store it in the FUSO Diagnostics system.



① Select “Manual settings”.
② Enter the inquiry number and password.
③ Click “Continue”.

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<When final gear is changed>

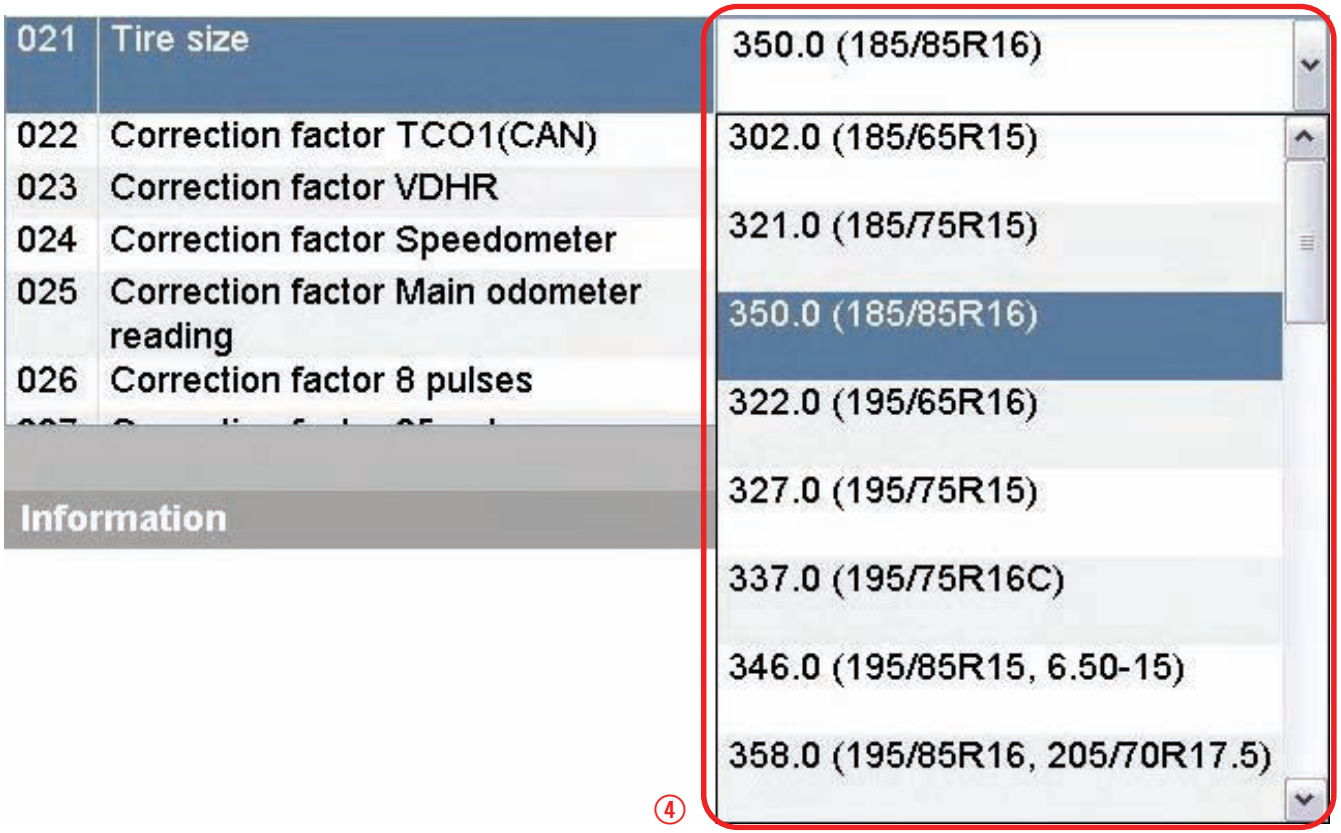


④ Change parameters in accordance with the vehicle specifications.

- As a post process, upload the ECU history data to the FRN.

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<When tyre size is changed>

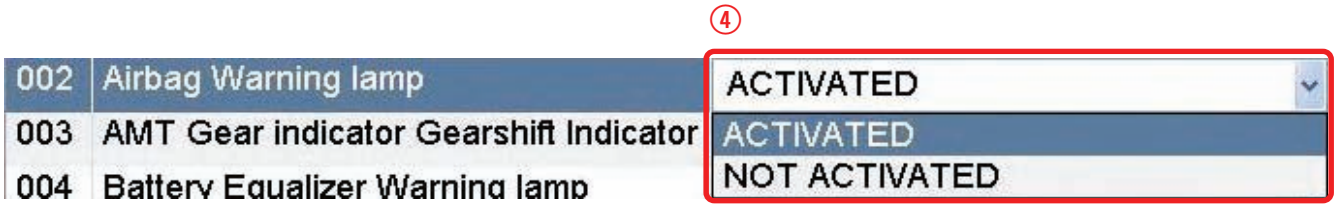


④ Change parameters in accordance with the vehicle specifications. On vehicles with DUONIC®, change the parameter setting of the tyre size to a default-selected one (see F3-030).

- As a post process, upload the ECU history data to the FRN.

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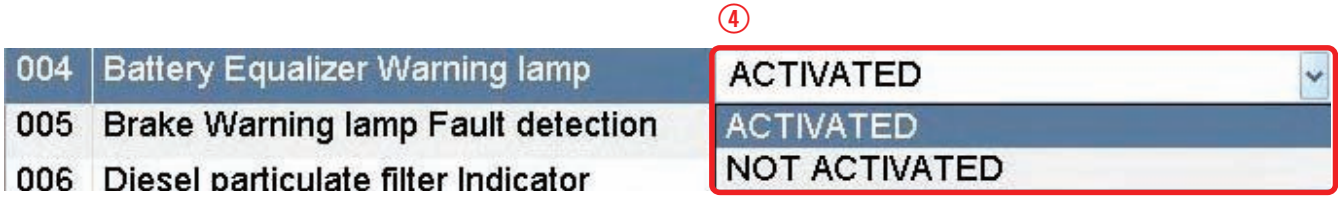
<When airbag is changed>



④ Change parameters in accordance with the vehicle specifications.

- As a post process, upload the ECU history data to the FRN.

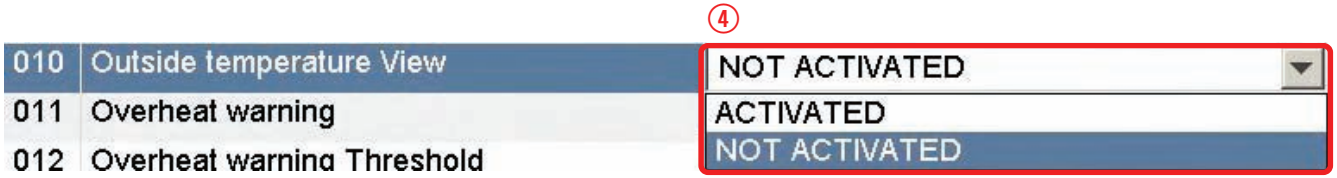
<When battery equaliser is changed>



④ Change parameters in accordance with the vehicle specifications.

- As a post process, upload the ECU history data to the FRN.

<When full-auto air conditioner is installed >



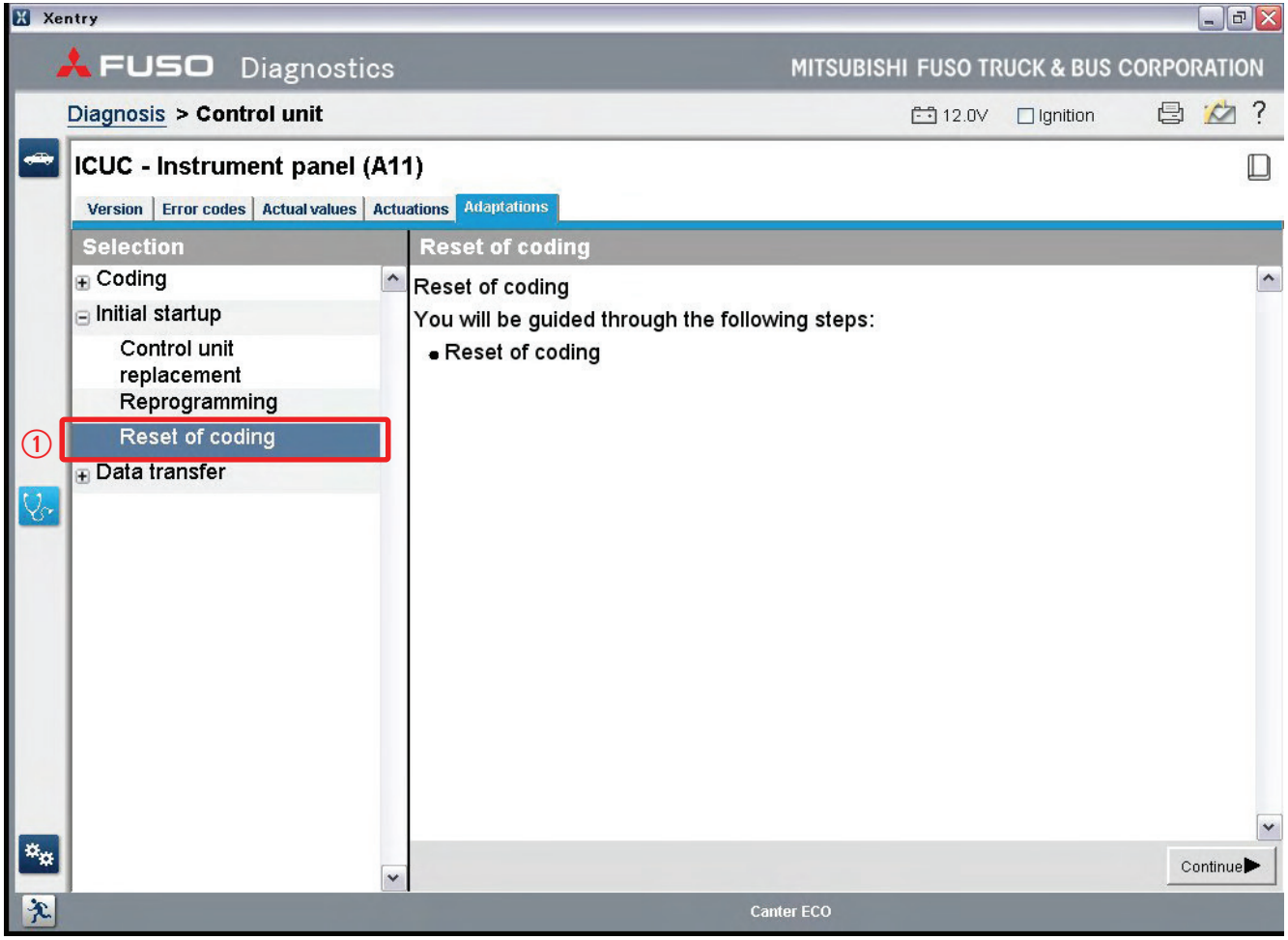
④ Change parameters in accordance with the vehicle specifications (select “ACTIVATED” when installing a full-auto air conditioner).

- As a post process, upload the ECU history data to the FRN.

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<Reference No. 2>

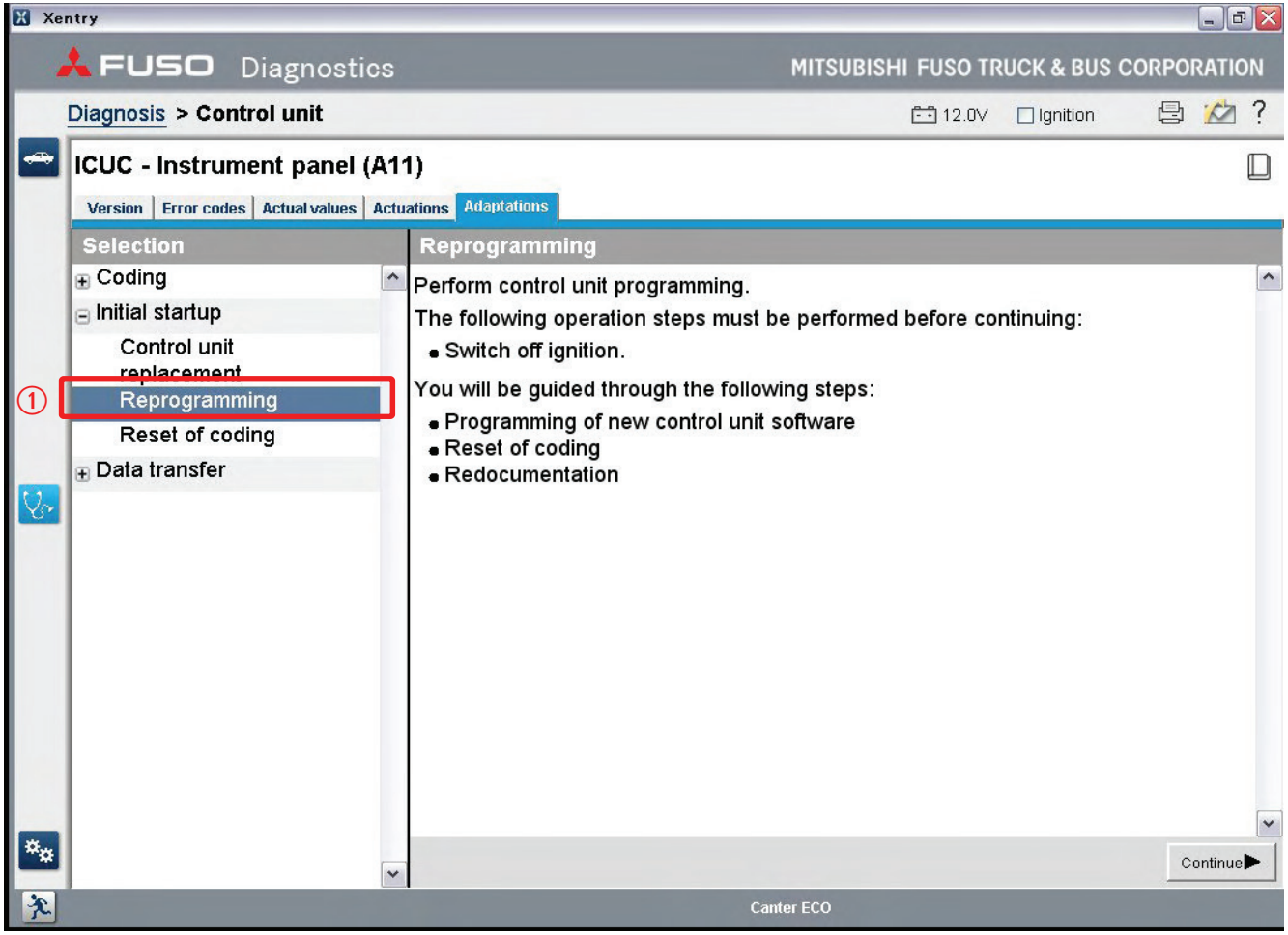
- When the ECU is replaced with a new or used one, you can use the previous coding parameters by downloading the ECU data from the FRN and then executing “Reset of coding” (see F2-050).



① Select “Reset of coding” (see F2-050 for the subsequent steps).

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If only the ECU software needs to be updated, download the ECU data from the FRN and then execute “Reprogramming”. After completing software rewriting, execute Reset of coding (see F2-040).



① Select “Reprogramming” (see F2-040 for the subsequent steps).

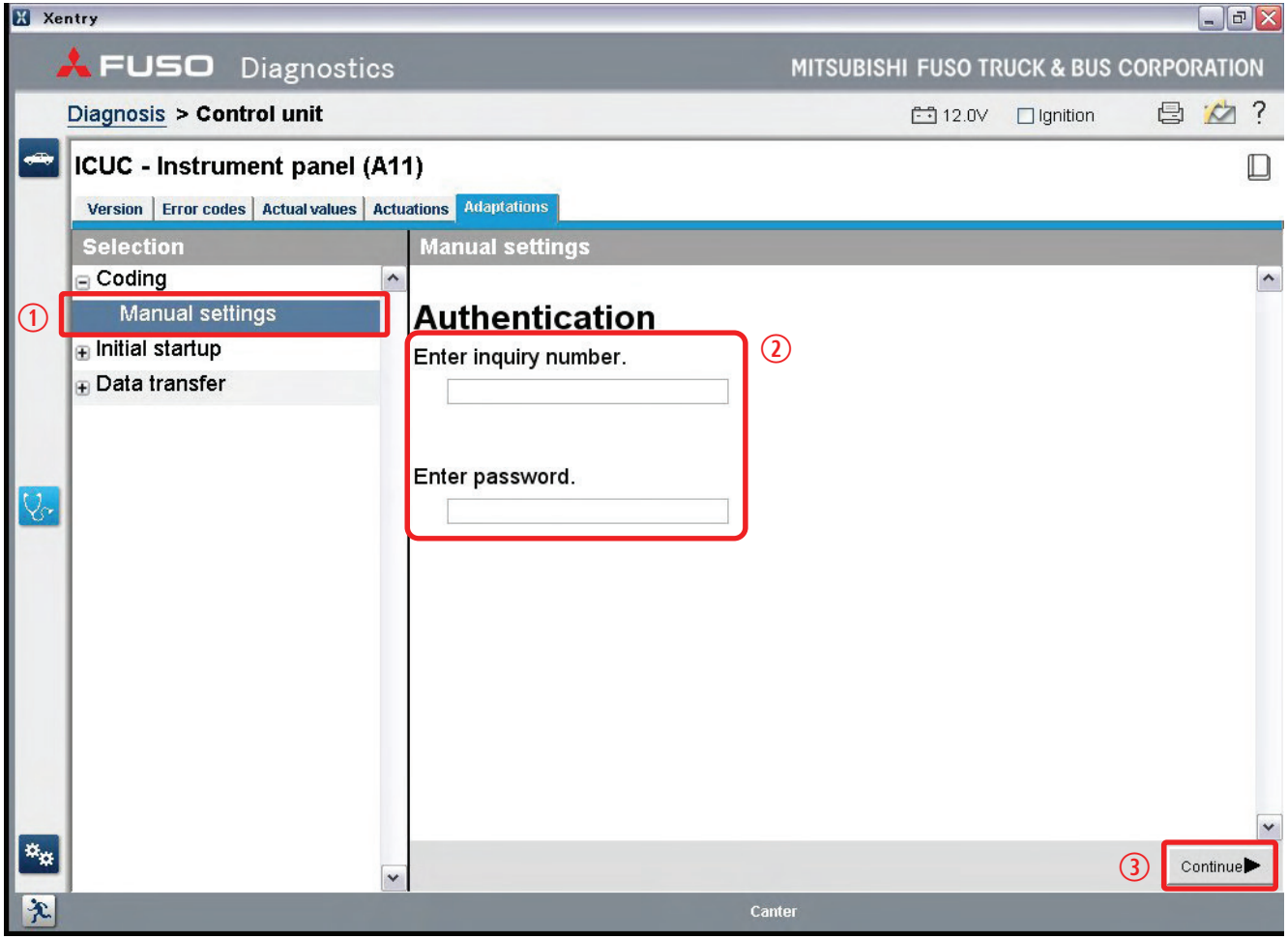
CAUTION ⚠

Use this function for recalls or service campaigns, etc. It cannot be used for normal servicing.

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<Reference No. 3> (For North American specification models for Canada only)

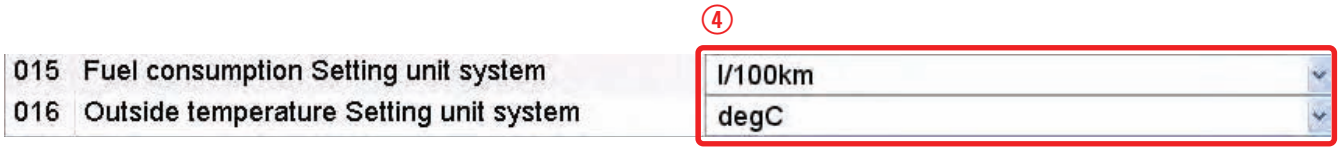
- As a preparatory step, download the required ECU history data from the FRN and store it in the FUSO Diagnostics system.



① Select “Manual settings”.
② Enter the inquiry number and password.
③ Click “Next”.

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<When changing the unit of temperature and/or unit of fuel consumption>



④ Change parameters in accordance with the vehicle specifications.

- As a post process, upload the ECU history data to the FRN.

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Example of use in part replacement and repair

[LDT] Canter/Rosa - SSAM (SSAM)

F3-110

For the following event, the following coding work needs to be performed.

Event	Coding work	Criteria for rewriting internal SAM data	Reference No.
SAM is replaced.	Reset of coding	All data (entire set of the latest history data for the vehicle)	1

Table of SAM coding parameters

- The following table shows the coding parameters other than for SAM replacement and corresponding vehicle specifications and modifiable mounting items.
- If any of the vehicle specifications or mounting items are changed, also change the setting of the applicable coding parameters in accordance with the following tables.
- For operation method of FD, refer to “FD operation picture” with the same number as shown in the right end column of the table on next page.

CAUTION

- **The modification using mounting items not given in this table can result in incorrect vehicle operations such as error code occurrence, equipment operation failure, etc. Should such a modification be performed, always consult MITSUBISHI FUSO TRUCK & BUS CORPORATION in advance.**

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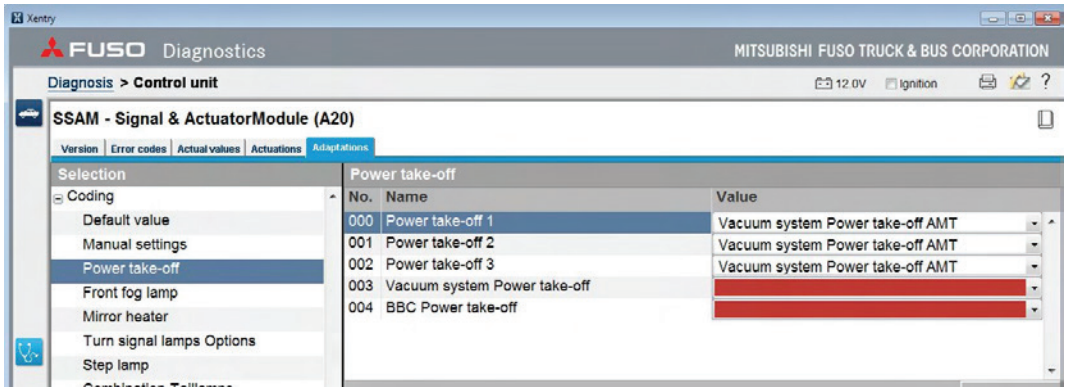
Coding parameter list (exception default value and manual setting)

Coding parameter (selection / No. / name / value and a selection condition)				Reference No.
Power take-off	000	Power take-off 1	It's chosen with the specification of PTO and T/M.	3
	001	Power take-off 2	It's chosen with the specification of PTO and T/M.	
	002	Power take-off 3	It's chosen with the specification of PTO and T/M.	
	003	Vacuum system power take-off	When you choose a "vacuum type" at the above-mentioned three items, please choose "INSTALLED", otherwise choose "NOT INSTALLED".	
	004	BBC power take-off	When you equip vehicles with the option which needs detection of a PTO operation signal, please choose "INSTALLED", otherwise choose "NOT INSTALLED".	
Front fog lights	000	Front fog lights	When you equip, please choose "INSTALLED", otherwise choose "NOT INSTALLED".	4
Mirror heater	000	Mirror heater	When you equip, please choose "INSTALLED", otherwise choose "NOT INSTALLED".	
Indicator lights options	000	Indicator lights options	When you add an indicator light by equipment of vehicle body, please choose "INSTALLED", otherwise choose "NOT INSTALLED".	
Step lights	000	Step lights	When you equip, please choose "INSTALLED", otherwise choose "NOT INSTALLED".	
Combination tail lights	000	Combination tail lights	Please choose "LED", when you replace parts to LED lights by the vehicles for North America. Otherwise do not change it.	
	001	Backup lights		
Rear fog lights	000	Rear fog lights	When you equip, please choose "INSTALLED", otherwise choose "NOT INSTALLED".	
Daytime running lights	000	Daytime running lights	The EU area-oriented vehicles should choose "EU." The North America-oriented vehicles should choose "NAFTA." Otherwise choose "NOT INSTALLED".	
Trailer hitch	000	Trailer hitch	When you equip, please choose "INSTALLED", otherwise choose "NOT INSTALLED".	

- The details of the coding parameter of "Selection" can be checked by a "Default value" (see the table on page 200)

CAUTION

As shown in the next image, the display of a value may be filled in red by the state of the parameter values about the apparatus of each menu currently written in SSAM (example: Power take-off).
Also in this state, since it is possible to change a value, please choose a parameter based on the vehicle's specifications.



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Coding parameter list (default value) 1

Coding parameter (No./Name) / Vehicle specifications and modifiable mounting items		Power take-off installation	Front fog lights	Mirror heater	Modifiable mounting item: Indicator lights options	Modifiable mounting item: Signal output detection: Power take-off operation	Remarks	Reference No.
000	Power take-off 1	○					Change is impossible although the contents of the parameter for “Power take-off” of “Selection” can be checked.	2
001	Power take-off 2	○						
002	Power take-off 3	○						
003	Solenoid valve power take-off	○						
004	Short circuit solenoid valve power take-off	○						
005	Open circuit solenoid valve power take-off	○						
006	Power take-off activation timeout error	○						
007	Power take-off deactivation timeout error	○						
008	Power take-off deactivation no request	○						
009	Power take-off activation no request	○						
010	BBC power take-off					○		
011	BBC power take-off short circuit to earth					○		
012	Fog lights		○				Change is impossible although the contents of the parameter for “Front fog lights” of “Selection” can be checked.	
013	Left fog light		○					
014	Short circuit left front fog light		○					
015	Open circuit left front fog light		○					
016	Right fog light		○					
017	Short circuit right front fog light		○					
018	Open circuit right front fog light		○					

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Coding parameter (No./Name)	Vehicle specifications and modifiable mounting items	Power take-off installation	Front fog lights	Mirror heater	Modifiable mounting item: Indicator lights options	Modifiable mounting item: Signal output detection: Power take-off operation	Remarks	Reference No.
019	Mirror heater			○			Change is impossible although the contents of the parameter for “Mirror heater” of “Selection” can be checked.	2
020	Mirror heater driver side			○				
021	Short circuit mirror heater driver side			○				
022	Mirror heater passenger side			○				
023	Short circuit mirror heater passenger side			○				
024	Switch ‘Mirror heater lighting’			○				
025	Short circuit switch ‘Mirror heater lighting’			○				
026	Indicator lights				○		Change is impossible although the contents of the parameter for “Indicator lights options” of “Selection” can be checked.	
027	BBC left indicator light				○			
028	BBC left indicator light short circuit to earth				○			
029	BBC left indicator light open circuit				○			
030	BBC right indicator light				○			
031	BBC right indicator light short circuit to earth				○			
032	BBC right indicator light open circuit				○			

○ Coding parameter relevant item

- A change of the coding parameter indicated in the upper table is made by “Selection” (“Power take-off”, “Front fog lights”, “Mirror heater”, “Indicator lights options”)

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Coding parameter list (default value) 2

Coding parameter (No./Name) / Vehicle specifications and modifiable mounting items		Step lights	Combination tail lights	Rear fog lights	Daytime running lights	Trailer hitch	Remarks	Reference No.
033	Step lights	○					Change is impossible although the contents of the parameter for “Step lights” of “Selection” can be checked.	2
034	Step light driver side	○						
035	Short circuit step light driver side	○						
036	Open circuit step light driver side	○						
037	Step light passenger side	○						
038	Short circuit step light passenger side	○						
039	Open circuit step light passenger side	○						
040	Combination tail lights		○				Change is impossible although the contents of the parameter for “Combination tail lights” of “Selection” can be checked.	
041	Rear indicator lights		○					
042	Left rear indicator light open circuit		○					
043	Right rear indicator light open circuit		○					
044	Tail lights		○					
045	Left tail light open circuit		○					
046	Right tail light open circuit		○					
047	Brake lights		○					
048	Left rear brake light open circuit		○					
049	Right rear brake light open circuit		○					
050	Reversing lights		○					
051	Short circuit reversing lights		○					

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Coding parameter (No./Name)	Vehicle specifications and modifiable mounting items	Step lights	Combination tail lights	Rear fog lights	Daytime running lights	Trailer hitch	Remarks	Reference No.
052	Rear fog lights			○			Change is impossible although the contents of the parameter for “Rear fog lights” of “Selection” can be checked.	2
053	Daytime running lights				○		Change is impossible although the contents of the parameter for “Daytime running lights” of “Selection” can be checked.	
054	Left daytime running light				○			
055	Short circuit left daytime running light				○			
056	Open circuit left daytime running light				○			
057	Right daytime running light				○			
058	Short circuit right daytime running light				○			
059	Open circuit right daytime running light				○			
060	Trailer brake lights					○	Change is impossible although the contents of the parameter for “Trailer hitch” of “Selection” can be checked.	
061	Trailer brake lights short circuit to earth					○		
062	Trailer brake lights open circuit					○		
063	Trailer left indicator light					○		
064	Trailer left indicator light short circuit to earth					○		
065	Trailer left indicator light open circuit					○		
066	Trailer right indicator light					○		
067	Trailer right indicator light short circuit to earth					○		
068	Trailer right indicator light open circuit					○		

○ Coding parameter relevant item

- A change of the coding parameter indicated in the upper table is made by “Selection”. (“Step lights”, “Combination tail lights”, “Rear fog lights”, “Daytime running lights”, “Trailer hitch”)

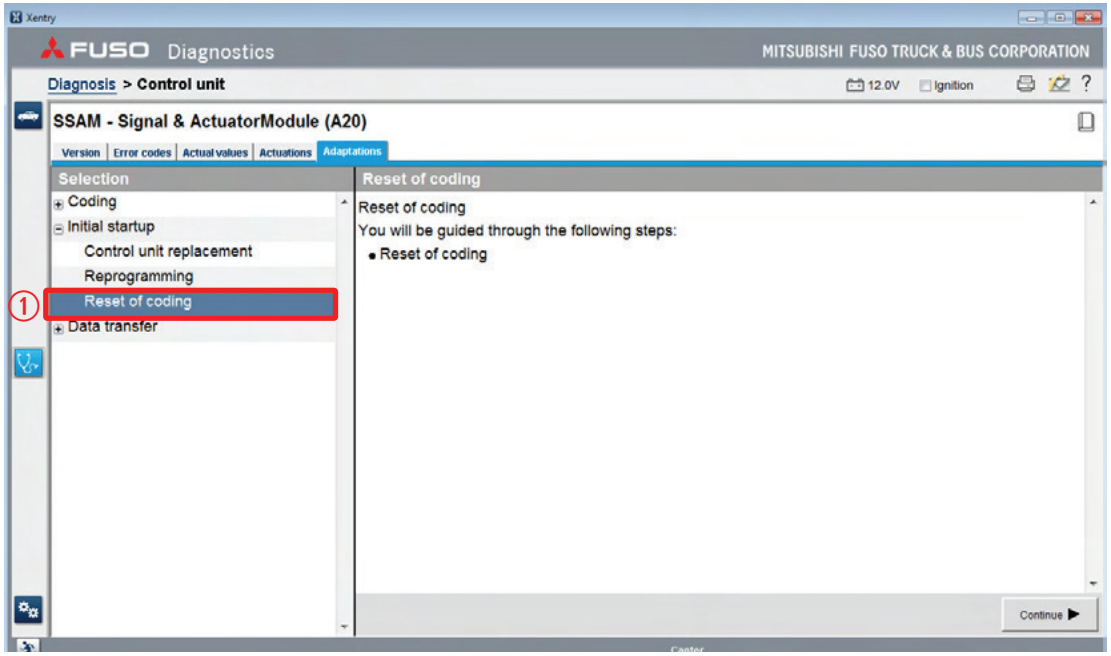
https://truckmanualshub.com/

Coding parameter (No./Name) / Vehicle specifications and modifiable mounting items			Modifiable mounting item											
				Signal output detection										
			Auxiliary power supply	Reversing warning	Gearbox neutral	Handbrake	With external reversing buzzer	Without external reversing buzzer	External reversing buzzer night silence	ISS	With keyless entry	With air conditioner	Without air conditioner	Reference No.
000	BBC switch ‘Reversing warning system’	INSTALLED		○										
001	BBC switch ‘Reversing warning system’ short circuit to earth	INSTALLED		○										
002	BBC switch ‘Neutral position’	INSTALLED			○									
003	BBC switch ‘Neutral position’ short circuit to earth	INSTALLED			○									
004	BBC switch ‘Handbrake’	INSTALLED				○								
005	BBC switch ‘Handbrake’ short circuit to earth	INSTALLED				○								
006	BBC interior illumination	INSTALLED	○											
007	BBC interior illumination short circuit to earth	INSTALLED	○											
008	BBC exterior illumination	INSTALLED	○											
009	BBC exterior illumination short circuit to earth	INSTALLED	○											
010	Reversing warning system	NOT ACTUATED						○						2
010	Reversing warning system	ACTUATED					○							
011	Reversing warning system	NOT ACTUATED						○						
011	Reversing warning system	INSTALLED					○							
012	Reversing warning system short circuit	NOT ACTUATED						○						
012	Reversing warning system short circuit	INSTALLED					○							
013	Reversing warning system night deactivation function	ACTUATED							○					
022	Climate control	NOT ACTUATED											○	
022	Climate control	ACTUATED										○		
024	ISS CAN messages FAULTY	INSTALLED								○				
025	KLE LIN error	INSTALLED									○			

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<Reference No. 1: When SSAM is replaced>

- When the ECU is replaced with a new one, you can use the previous coding parameters by downloading the ECU data from the FRN and then executing “Reset of coding” (see F2-050).

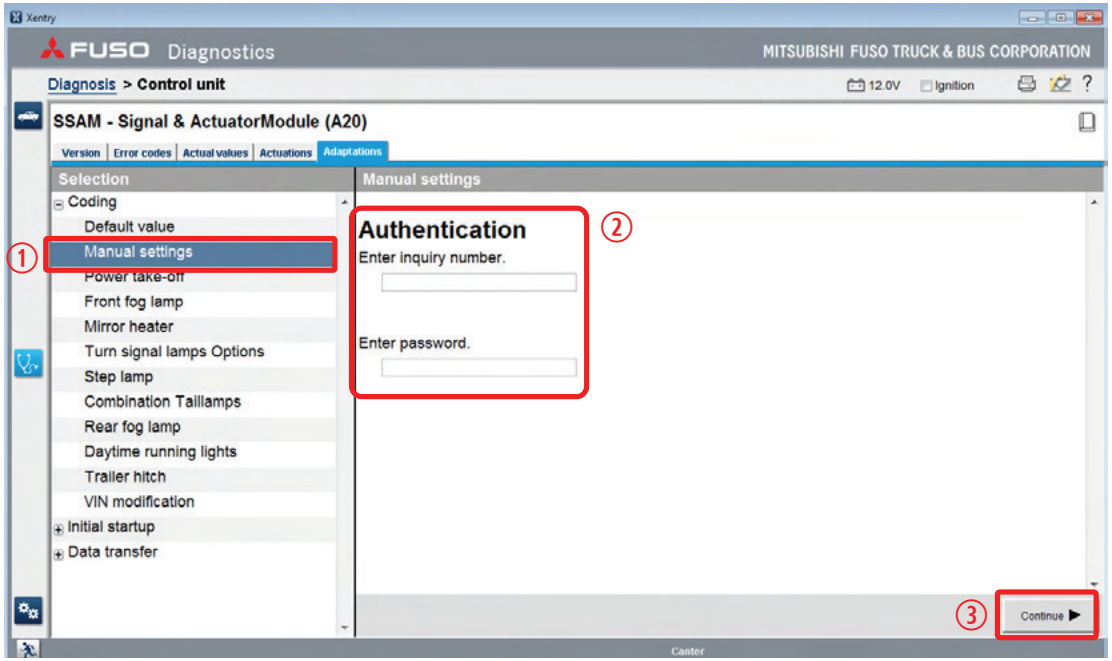


① Select “Reset of coding” (see F2-050 for the subsequent steps).

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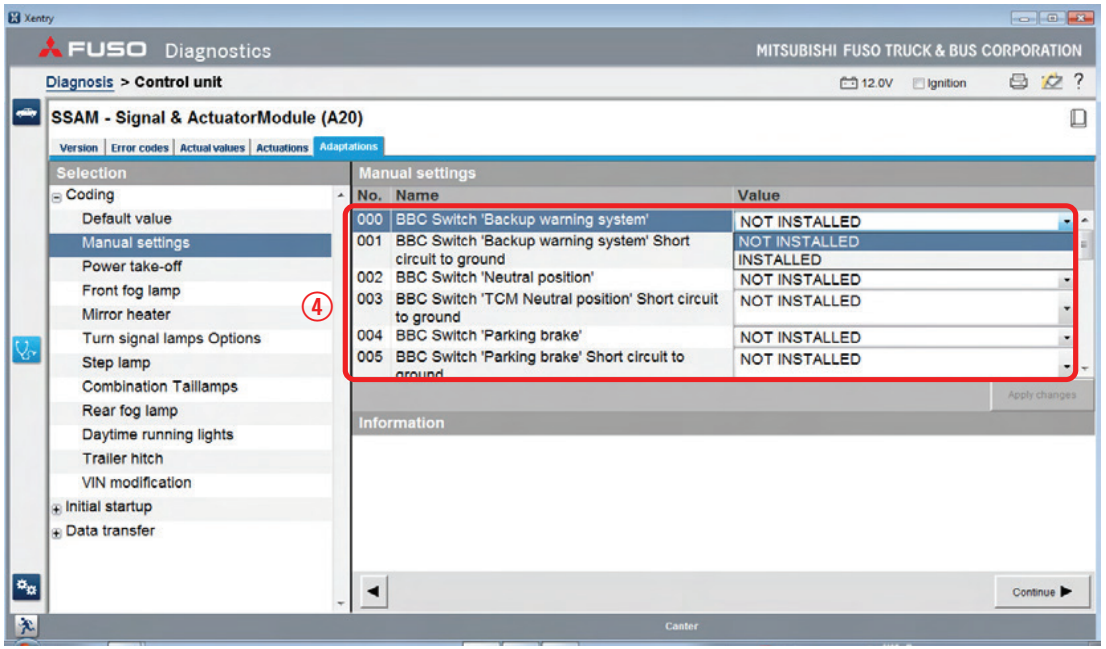
<Reference No. 2: Setting change on “Manual settings”>

- As a preparatory step, download the required ECU history data from the FRN and store it in the FUSO Diagnostics system.



① Select “Manual settings”.
② Enter the inquiry number and password.
③ Click “Continue”.

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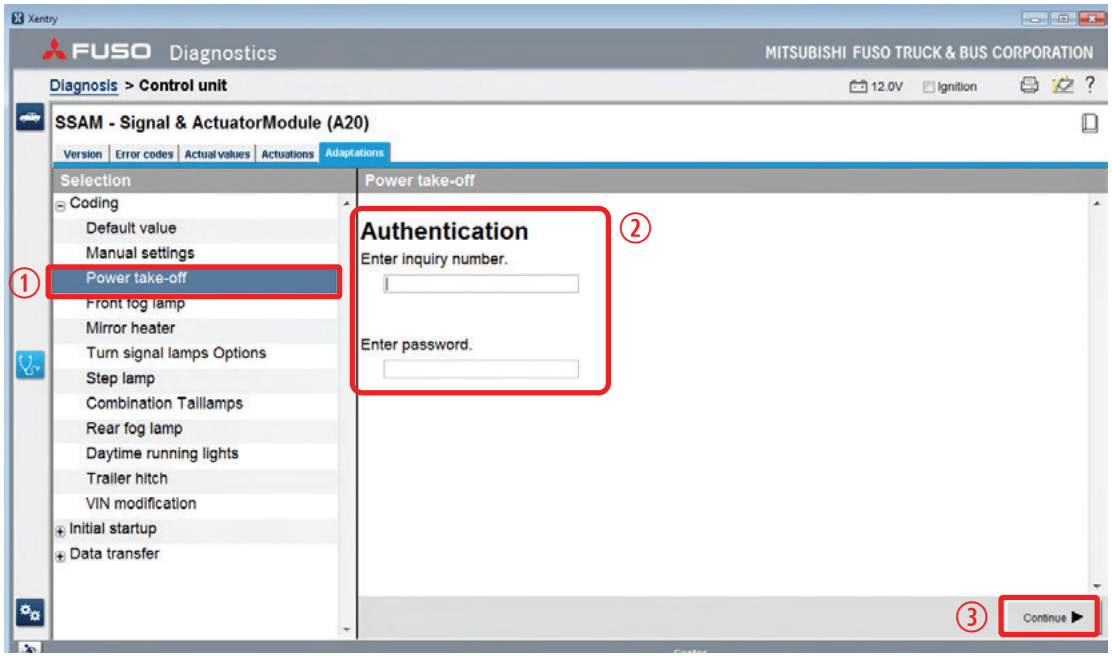
④ Enter values for each parameter.

- As a post process, upload the ECU history data to the FRN.

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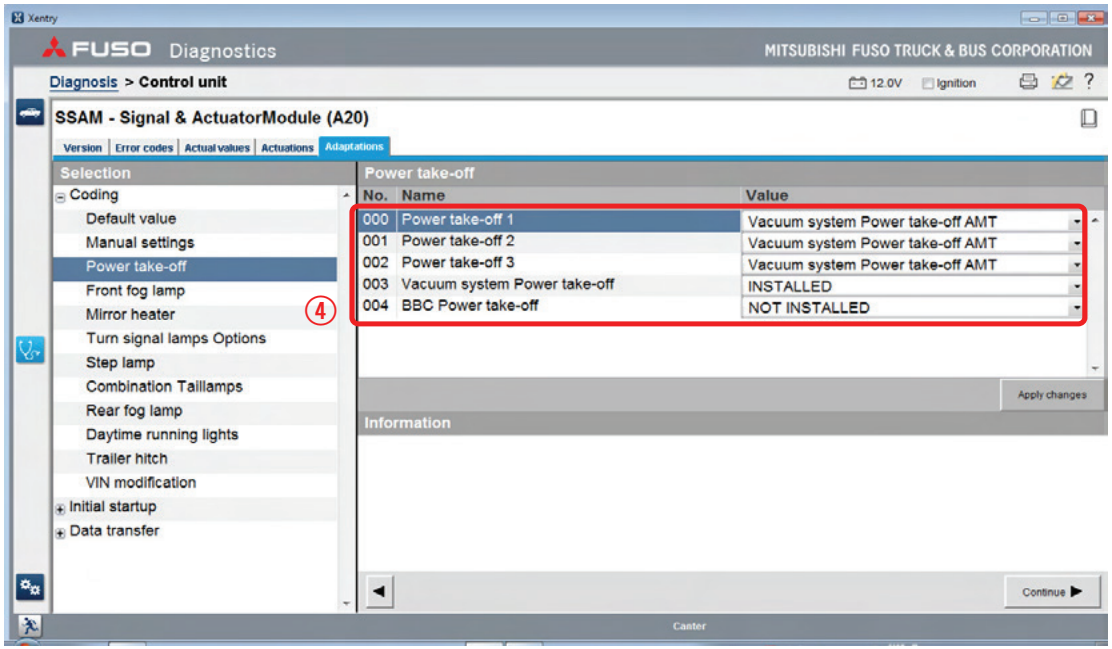
<Reference No. 3: Setting change for vehicles with PTO>

- The descriptions in this section are excerpts from “When PTO related specifications are changed” that are related to the SSAM. Refer to F3-200 if the EEC (engine ECU) and TCM (DUONIC® ECU) are also changed.
- As a preparatory step, download the required ECU history data from the FRN and store it in the FUSO Diagnostics system.



① Select “Power take-off”.
② Enter the inquiry number and password.
③ Click “Continue”.

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④ Change all parameters according to the vehicle specifications (see next page).

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Parameter list

Vehicle specification	Name	Parameter value
Cable type (dump trucks), DUONIC®	000 Power take-off 1 001 Power take-off 2 002 Power take-off 3	Power take-off, dumper vehicle AMT
Cable type (dump trucks), M/T		Power take-off, dumper vehicle M/T
Cable type (except dump trucks), DUONIC®		Type of cable power take-off AMT
Cable type (except dump trucks), M/T		Type of cable power take-off M/T
Vacuum type, DUONIC®		Vacuum system power take-off AMT
Vacuum type, M/T		Vacuum system power take-off M/T
When equipping with a vacuum system power take-off	003 Vacuum system power take-off	INSTALLED
Except the above		NOT INSTALLED
When operation signal detection is needed	004 BBC power take-off	INSTALLED
Except the above		NOT INSTALLED

- The following parameters are for manual gearbox vehicles equipped with a vacuum type PTO. These steps are not necessary for vehicles of which the PTO is operated with a lever and vehicles with a DUONIC® system.

CAUTION

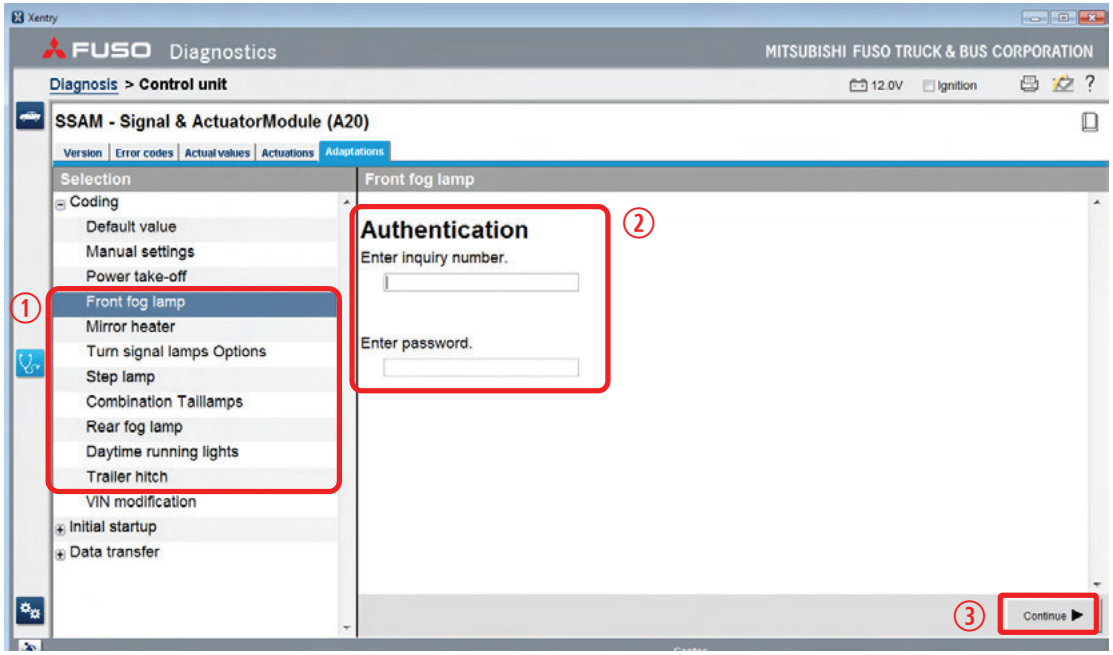
Do not change the above parameters on vehicles such as dump trucks where the PTO is connected/released with a lever because DTCs that are not necessary for dump trucks (such as those indicating the detection of the open solenoid valve circuit) will be generated.

- As a post process, upload the ECU history data to the FRN.

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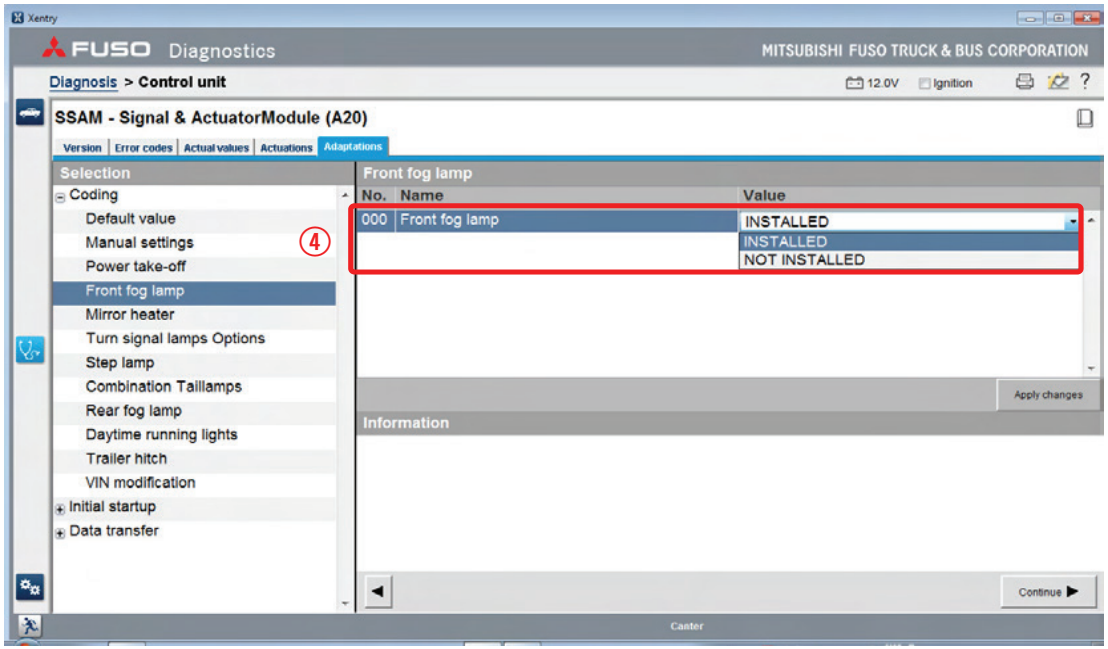
<Reference No. 4: Setting change for others>

- As a preparatory step, download the required ECU history data from the FRN and store it in the FUSO Diagnostics system.



① Select the equipment for which the setting is being changed (example: Front fog lights).
② Enter the inquiry number and password.
③ Click “Continue”.

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④ Change parameter according to the vehicle specifications (see next page).

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Parameter list

Selection	No.	Name	Value	Selection condition
Front fog lights	000	Front fog lights	INSTALLED	When equipping with front fog lights
			NOT INSTALLED	Except the above
Mirror heater	000	Mirror heater	INSTALLED	When equipping with a mirror heater
			NOT INSTALLED	Except the above
Indicator lights options	000	Indicator lights options	INSTALLED	When an indicator light is added to the body
			NOT INSTALLED	Except the above
Step light	000	Step light	INSTALLED	When equipping with a step light
			NOT INSTALLED	Except the above
Combination tail lights	000	Combination tail lights	LEDs	When replacing parts to a LED light (only for North America)
			Bulb electrical connector ’Trailer hitch’ INSTALLED	Trailer hitch connector equipment vehicles (for EU)
			Bulb electrical connector ’Trailer hitch’ NOT INSTALLED	Except the above
	001	Reversing lights	LEDs	When replacing parts to a LED light (only for North America)
			Bulb electrical connector ’Trailer hitch’ INSTALLED	Trailer hitch connector equipment vehicles (for EU)
			Bulb electrical connector ’Trailer hitch’ NOT INSTALLED	Except the above
Rear fog lights	000	Rear fog lights	Left rear fog light	When equipping with a rear fog light (Turkey, Taiwan)
			Rear fog lights electrical connector ’Trailer hitch’ INSTALLED	Trailer hitch connector equipment vehicles (for EU)
			Rear fog lights electrical connector ’Trailer hitch’ NOT INSTALLED	Trailer hitch connector non-equipment vehicles (for EU)
			NOT INSTALLED	Except the above

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Daytime running lights	000	Daytime running lights	EU	For EU area
			NAFTA	For North America
			NOT INSTALLED	Except the above
Trailer hitch	000	Trailer hitch	INSTALLED	Trailer hitch connector equipment vehicles (for EU)
			NOT INSTALLED	Except the above

- As a post process, upload the ECU history data to the FRN.

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Example of use in part replacement and repair

[LDT] Canter/Rosa - EMCM (motor ECU)

F3-130

Changing some kinds of equipment or properties such as shown below requires initialisation of coding data of the EMCM (motor ECU).
However, note that some items shown in the following table may not apply to your vehicle due to the difference in the destination of the vehicle.

Initialisation of coding data

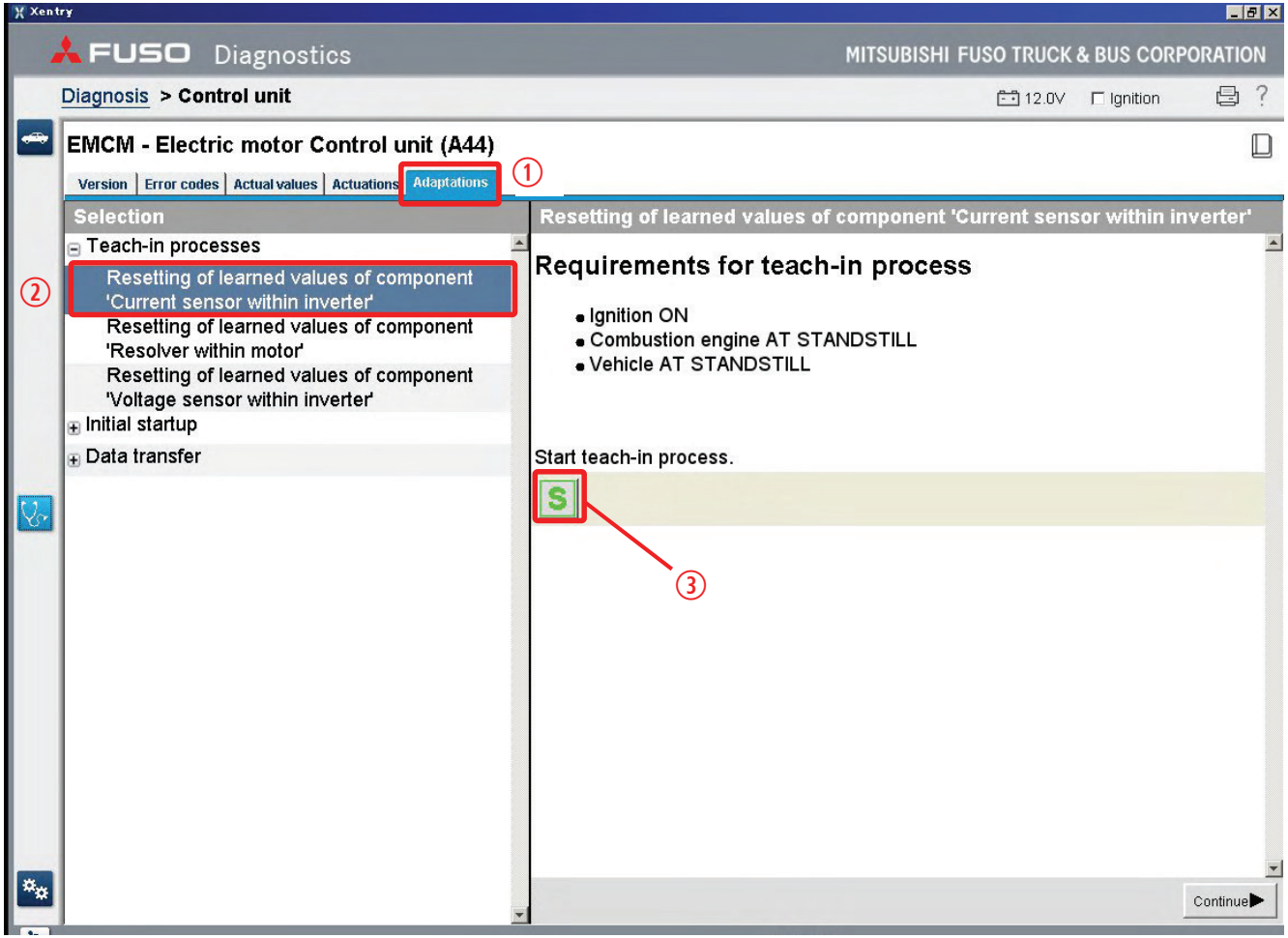
- The items shown in the following table require initialisation of coding data.

Data of EMCM (motor ECU) (FD items) / Event	Resetting (Initialising data)			Remarks	Reference number
	Learned values of current sensor within inverter: (resetting of learned values of component 'Current sensor within inverter')	Learned values of resolver within motor: (resetting of learned values of component 'Resolver within motor')	Learned values of voltage sensor within inverter: (resetting of learned values of component 'Voltage sensor within inverter')		
Replacing EMCM (motor ECU)	○				1-(3)
			○		1-(6)
Replacing motor generator		○			1-(9)

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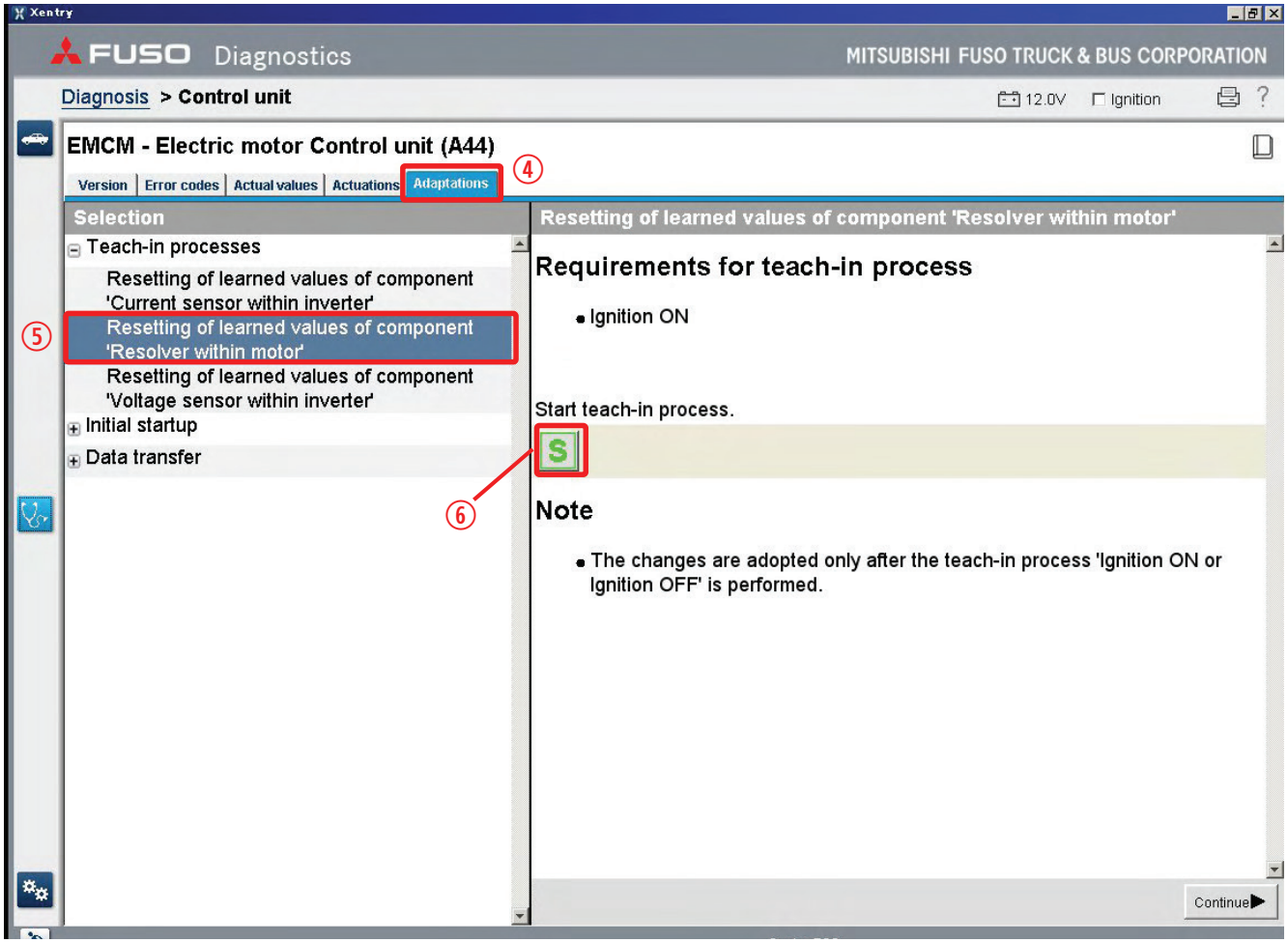
<Reference number 1: Initialisation of coding data>

- For some equipment and devices, coding data must be initialised by clicking “Adaptations” and then “Teach-In processes” buttons on the screen after replacing the equipment and devices.

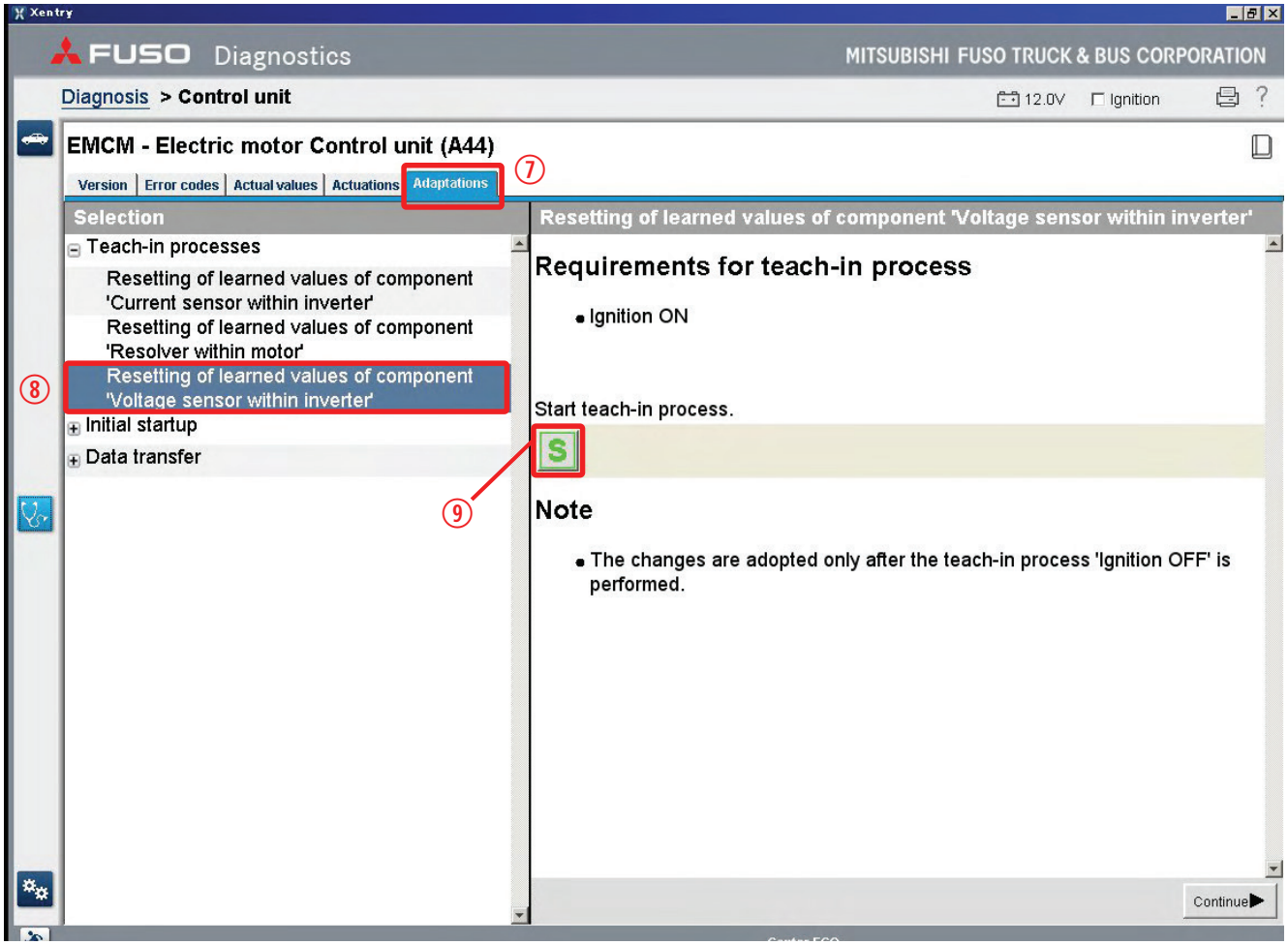


① Select “Adaptations”.
② Select “Teach-In processes – Resetting of learned values of component ‘Current sensor within inverter’“.
③ After replacing the EMCM (motor ECU), press the button to reset the data for the current sensor within inverter.

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④ Select “Adaptations”.
⑤ Select “Teach-In processes – Resetting of learned values of component ‘Resolver within motor’“.
⑥ After replacing the motor generator, press the button to reset the data for the resolver within motor.



⑦ Select “Adaptations”.

⑧ Select “Teach-In processes – Resetting of learned values of component ‘Voltage sensor within inverter’“.

⑨ After replacing the EMCM (motor ECU), press the button to reset the data for the voltage sensor within inverter.

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Example of use in part replacement and repair

[LDT] Canter/Rosa - When PTO related specifications are changed

F3-200

For the following events, coding data needs to be rewritten. Note that some items in the following table may not apply to your vehicle depending on the vehicle specifications or destination.

ECU/Applicable vehicle/Coding item name		Action / T/M specification / PTO specification	PTO installation: DUONIC® Cable type (dump trucks)	DUONIC® Cable type (other than dump trucks)	DUONIC® Vacuum type	M/T Cable type (dump trucks)	M/T Cable type (other than dump trucks)	M/T Vacuum type	Cab-back engine control (sensor type) installation	Change of PTO control (governor characteristics for special equipment)	Change of PTO control (DUONIC® control for special equipment)	Reference No.
EEC (engine ECU)	All vehicles with PTO	Power take-off (CAN signal from control unit 'SAM')	○	○	○	○	○	○				1-1
		Power take-off	○	○	○	○	○	○				
	Vehicles with cab-back engine control	Cab-back control							○			2
	Vehicles that require change of governor characteristics to meet the requirements of the equipment or specifications *1	Power take-off type of controller								○		3
SAM	All vehicles with PTO	Power take-off 1	○	○	○	○	○	○				1-2
		Power take-off 2	○	○	○	○	○	○				
		Power take-off 3	○	○	○	○	○	○				
	Vacuum type PTO (M/T) only	Vacuum system power take-off			○			○				
	Only when PTO engagement output signal is used	BBC power take-off	○	○	○	○	○	○				

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ECU/Applicable vehicle/Coding item name		Action / T/M specification / PTO specification	PTO installation: DUONIC® Cable type (dump trucks)	DUONIC® Cable type (other than dump trucks)	DUONIC® Vacuum type	M/T Cable type (dump trucks)	M/T Cable type (other than dump trucks)	M/T Vacuum type	Cab-back engine control (sensor type) installation	Change of PTO control (governor characteristics for special equipment)	Change of PTO control (DUONIC® control for special equipment)	Reference No.
TCM (DUONIC ECU)	All vehicles with PTO	Equipment power take-off	○	○	○							1-3
	Vehicles that require change of various setup to meet the requirements of the equipment or specifications *2	PTO warning									○	4
		PTO gear									○	
		PTO actuation of clutch									○	
		PTO operating restrictions									○	
		PTO connecting when stopping									○	

○ : Coding data needs to be rewritten or updated.

*1:#3 is pre-selected as a default for the governor characteristics of vehicles equipped with cab-back engine control (with sensor), and #1 is pre-selected as a default for other vehicles. (Both are factory settings.)

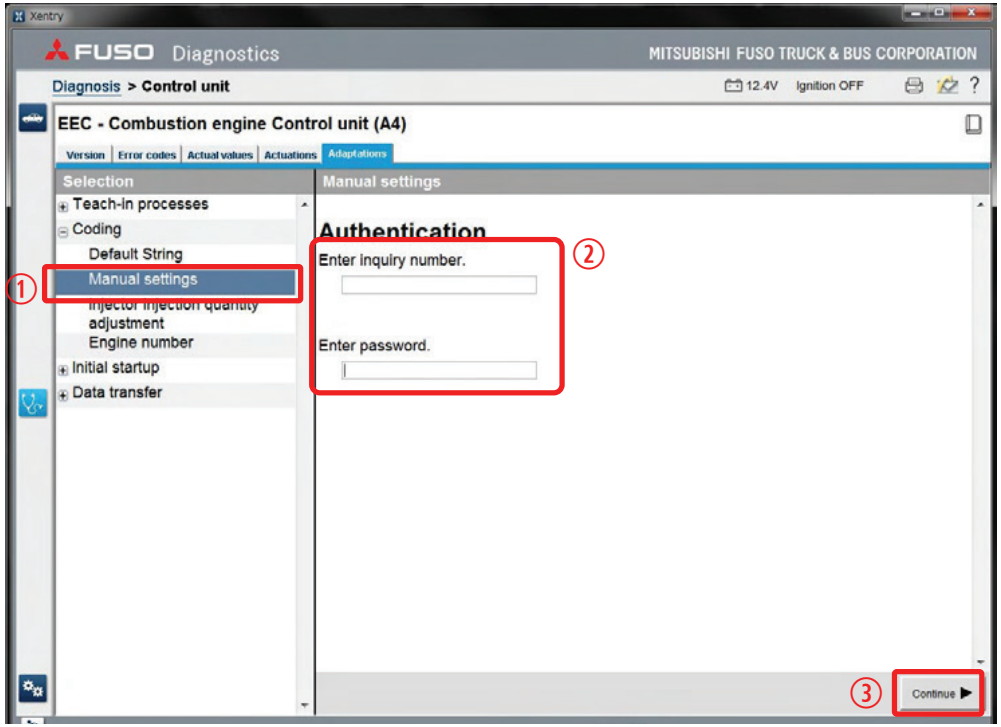
*2: Parameters need to be selected according to the vehicle’s equipment specifications and the PTO use conditions (described later).

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<Reference No. 1: Installing PTO>

1. EEC (engine control unit)

- As a preparatory step, download the required ECU history data from the FRN and store it in the FUSO Diagnostics system.



① Select “Manual settings”.
② Enter the inquiry number and password.
③ Click “Continue”.

④

005	Power take-off (CAN signal from control unit 'SAM')	INVALID
006	Trimming resistor of component 'Power take-off'	INVALID
007	Power take-off	INVALID

④ Change parameters in accordance with the vehicle specifications.

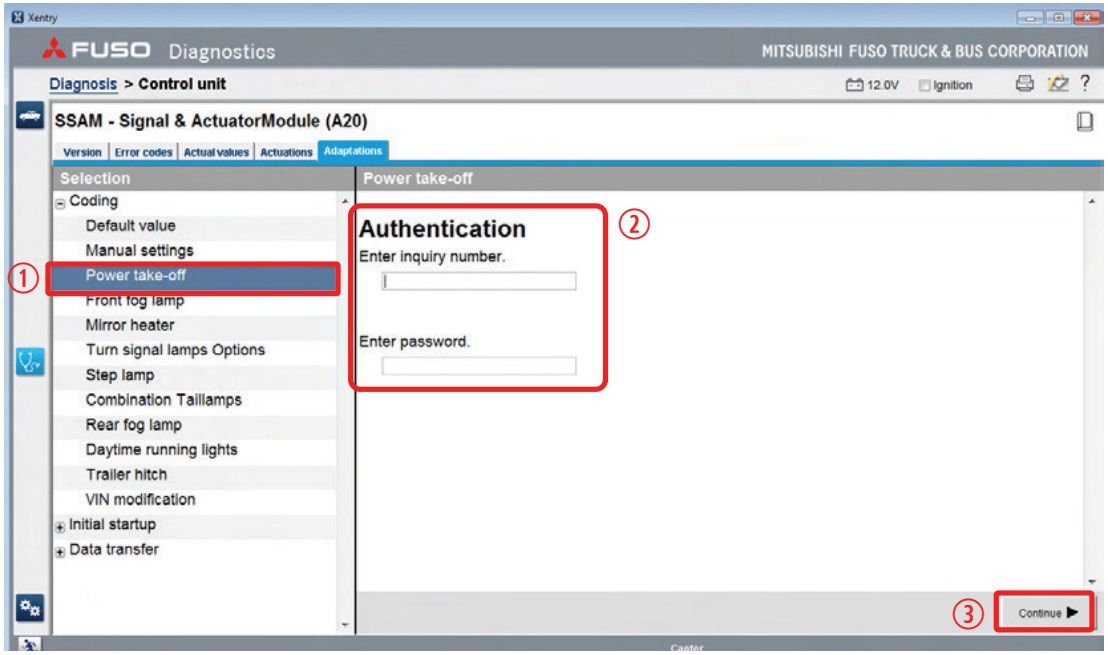
When confirming after the change, “V6x” may not be displayed. This happens depending on the data reading specifications of FUSO Diagnostics.

- As a post process, upload the ECU history data to the FRN.

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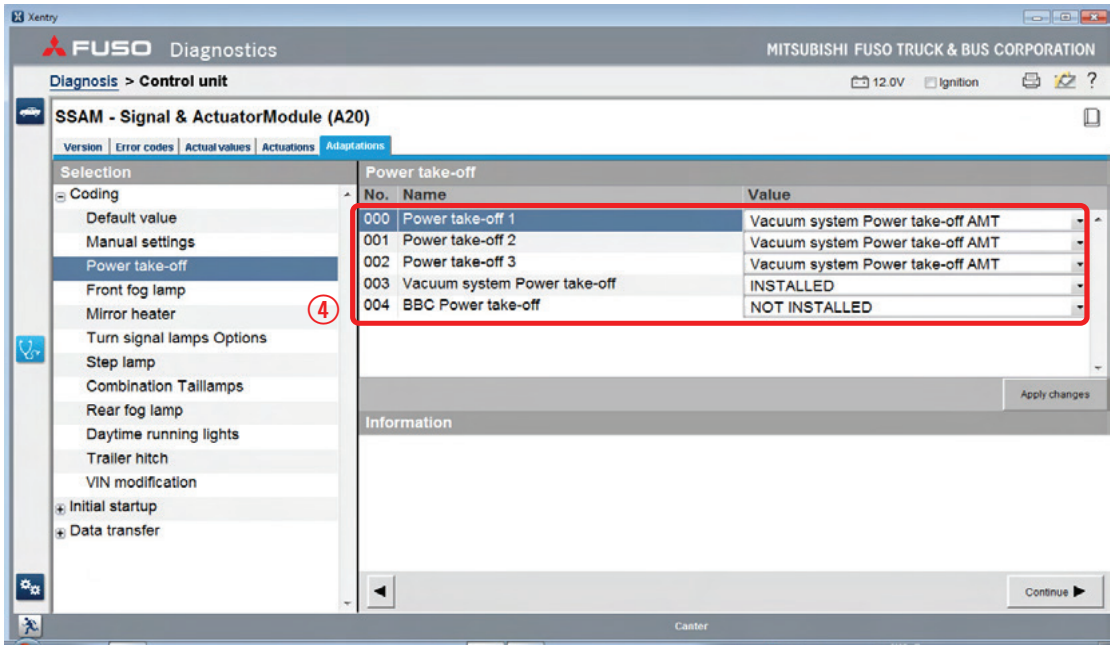
2. SAM

- As a preparatory step, download the required ECU history data from the FRN and store it in the FUSO Diagnostics system.



① Select “Power take-off”.
② Enter the inquiry number and password.
③ Click “Continue”.

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④ Change all parameters according to the vehicle specifications (see next page).

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Parameter list

Vehicle specification	Name	Parameter value
Cable type (dump trucks), DUONIC®	000 Power take-off 1 001 Power take-off 2 002 Power take-off 3	Power take-off, dumper vehicle AMT
Cable type (dump trucks), M/T		Power take-off, dumper vehicle M/T
Cable type (except dump trucks), DUONIC®		Type of cable power take-off AMT
Cable type (except dump trucks), M/T		Type of cable power take-off M/T
Vacuum type, DUONIC®		Vacuum system power take-off AMT
Vacuum type, M/T		Vacuum system power take-off M/T
When equipping with a vacuum system power take-off	003 Vacuum system power take-off	INSTALLED
Except the above		NOT INSTALLED
When operation signal detection is needed	004 BBC power take-off	INSTALLED
Except the above		NOT INSTALLED

- The following parameters are for manual gearbox vehicles equipped with a vacuum type PTO. These steps are not necessary for vehicles of which the PTO is operated with a lever and vehicles with a DUONIC® system.

CAUTION

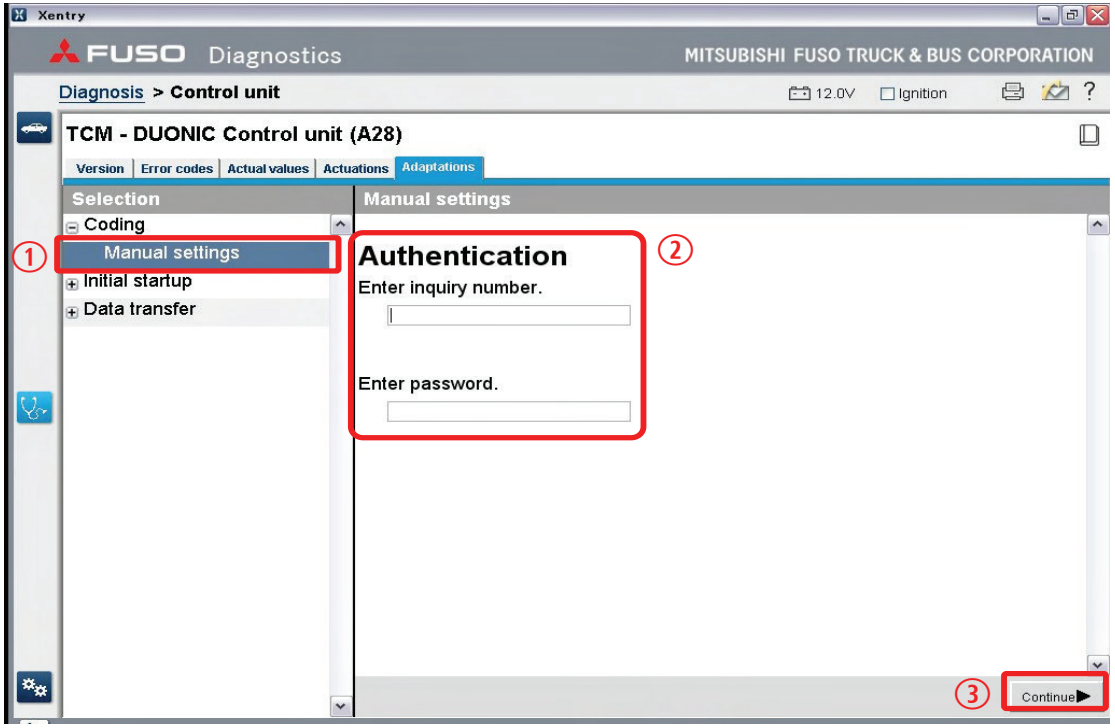
Do not change the above parameters on vehicles such as dump trucks where the PTO is connected/released with a lever because DTCs that are not necessary for dump trucks (such as those indicating the detection of open solenoid valve circuit) will be generated.

- As a post process, upload the ECU history data to the FRN.

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3. Gearbox

- As a preparatory step, download the required ECU history data from the FRN and store it in the FUSO Diagnostics system.



① Select “Default string”.
② Enter the inquiry number and password.
③ Click “Next”.
④ Change parameters in accordance with the vehicle specifications.

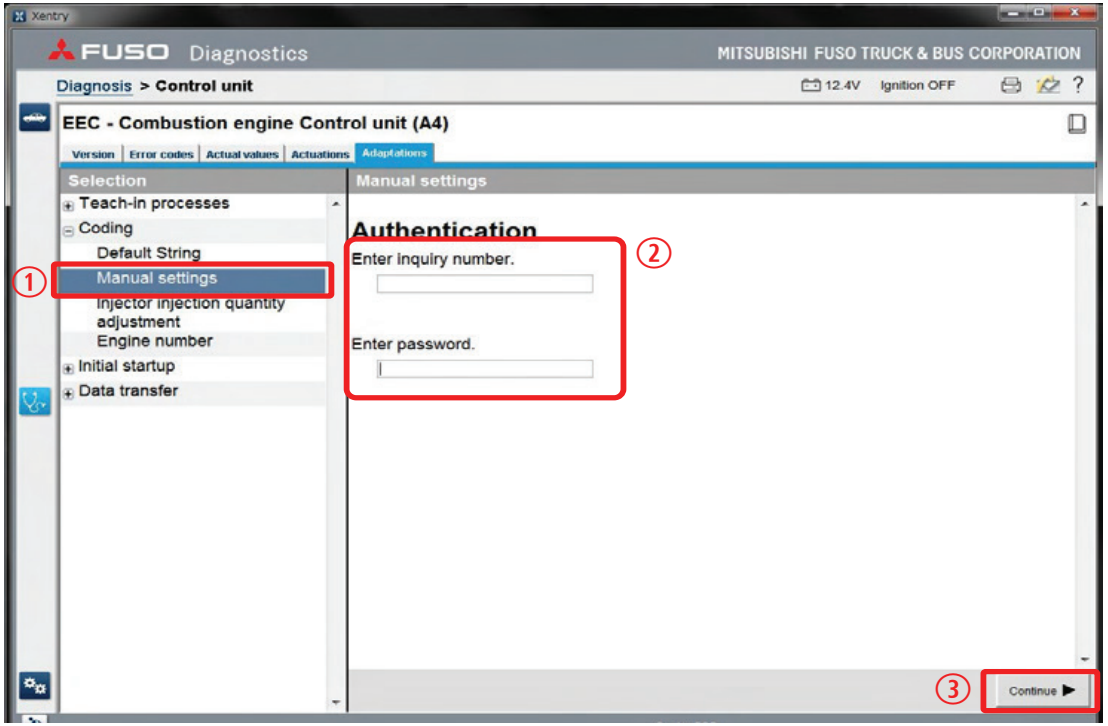


- As a post process, upload the ECU history data to the FRN.

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<Reference No. 2: Installing cab-back engine control unit (sensor type)>

- As a preparatory step, download the required ECU history data from the FRN and store it in the FUSO Diagnostics system.



① Select “Manual settings”.
② Enter the inquiry number and password.
③ Click “Continue”.
④ Change parameters in accordance with the vehicle specifications.

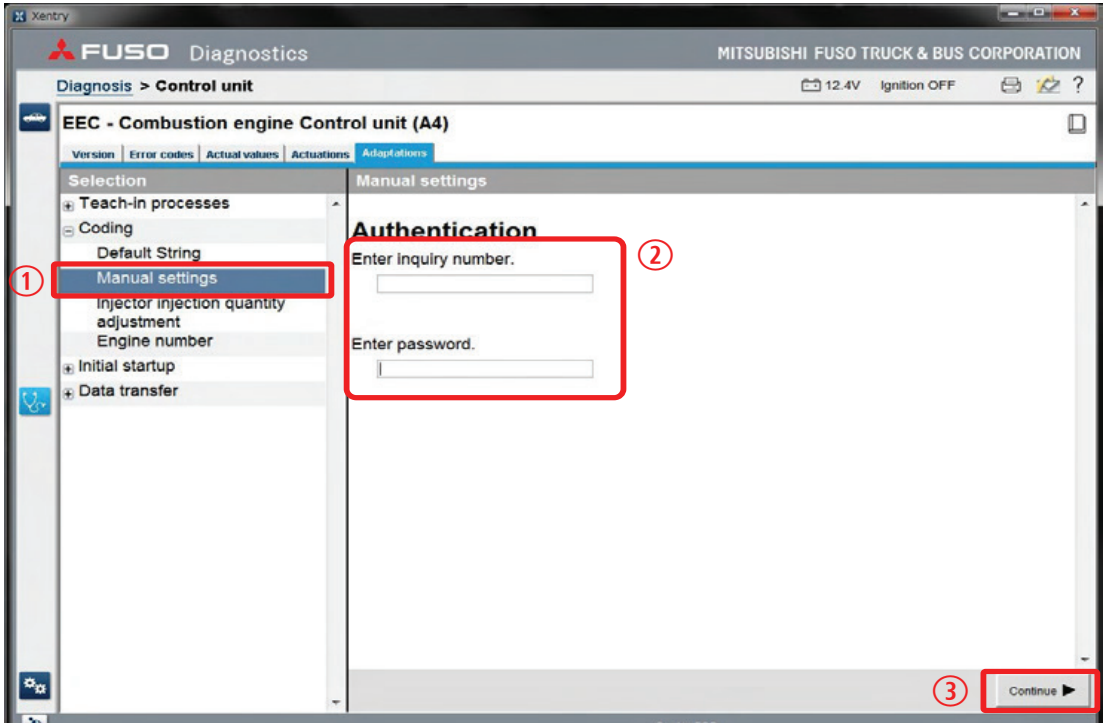


- As a post process, upload the ECU history data to the FRN.

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<Reference No. 3: Changing PTO control (governor characteristics for special equipment)>

- As a preparatory step, download the required ECU history data from the FRN and store it in the FUSO Diagnostics system.





① Select “Manual settings”.
② Enter the inquiry number and password.
③ Click “Continue”.
④ Change parameters in accordance with the vehicle specifications.

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Reference: Governor characteristics control number (factory-set default)

With/without cab-back engine control	Control No.	Remarks
With cab-back engine control	#3	
Without cab-back engine control	#1	

If the governor characteristics are changed due to the requirements of the equipment or specifications, change the characteristics curve number (power take-off control) to the control number that corresponds to the vehicle (see the control number list below). If you are considering the change of governor characteristics, consult an authorised MITSUBISHI FUSO distributor or dealer.

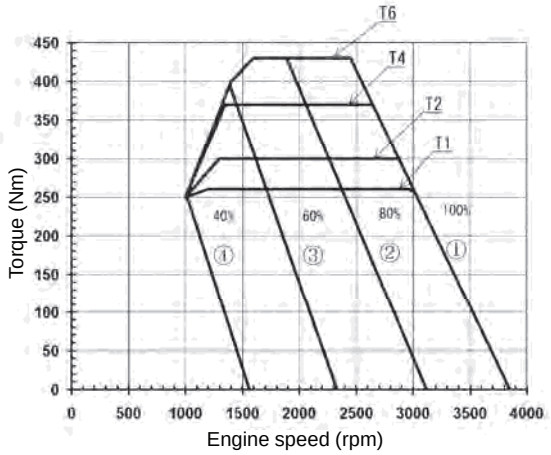
- As a post process, upload the ECU history data to the FRN.

List of control numbers

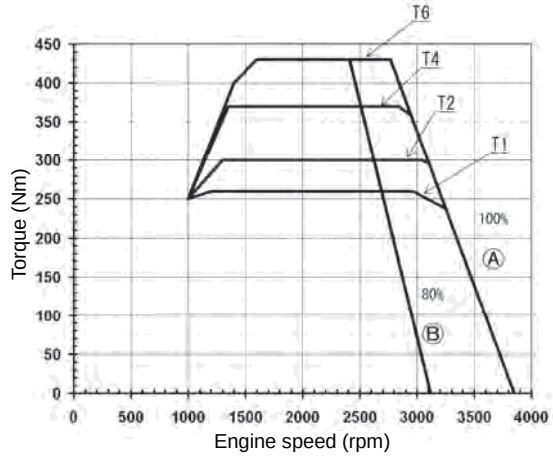
Control number	Governor characteristics for special equipment		Engine control method		
	Governor type	Maximum speed *2	Acceleration pedal	Cab-back control	Idling adjustment volume *1
#1	Soft	①	○	×	○
#2	Hard	Ⓐ	○	○	○
#3	Soft	①	×	○	○
#4	Hard	Ⓐ	×	○	○
#5	Soft	②	○	○	○
#6	Hard	Ⓑ	×	○	○
#7	Soft	③	×	○	○
#8	Soft	④	×	○	○

*1: For vehicles with idling adjustment volume.
*2: See the charts shown in the next page for the maximum speed.

Maximum speed of governor (soft) for special equipment



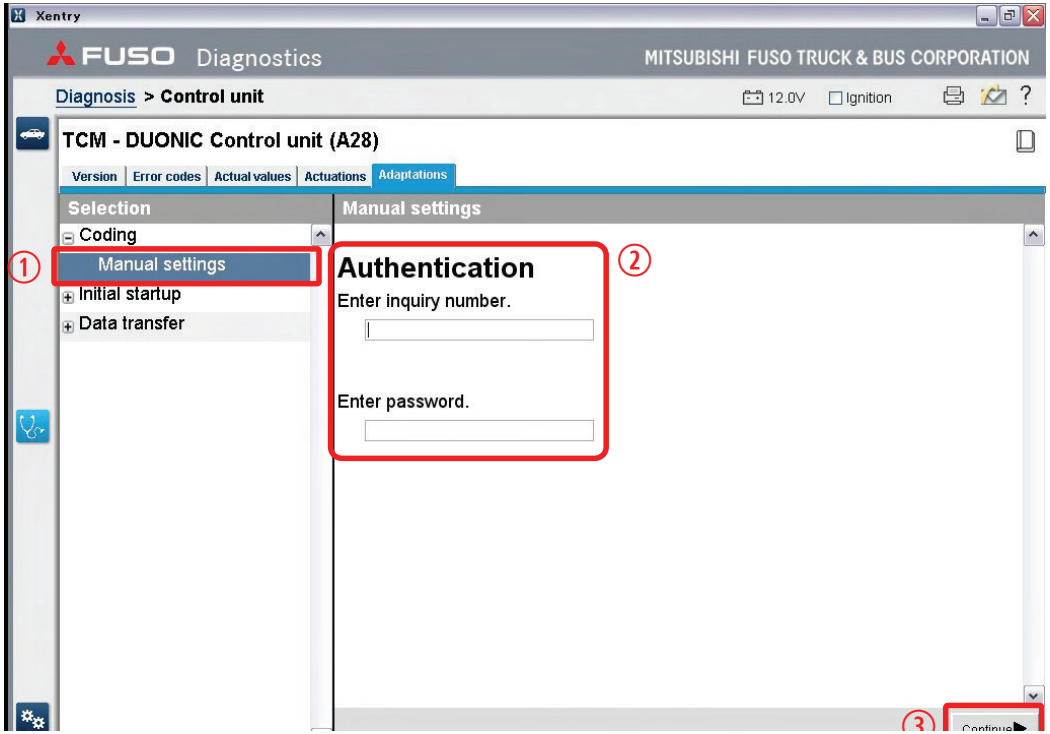
Maximum speed of governor (hard) for special equipment



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<Reference No. 4: Changing PTO control (DUONIC® special equipment control)>

- As a preparatory step, download the required ECU history data from the FRN and store it in the FUSO Diagnostics system.



① Select “Manual settings”.
② Enter the inquiry number and password.
③ Click “Continue”.
④ Change parameters in accordance with the vehicle specifications. Setting examples for different equipment specifications are shown in the next page table and supplemental information on the settings are shown in the table on page 232.

Reference: DUONIC® special equipment control settings (factory-set standard values)

④

008	PTO Warning	VALID
009	PTO Gear	VALID 1
010	PTO Actuation of clutch	QUICK Connecting
011	PTO Operating restrictions	STOP (P/N)
012	PTO Connecting When stopping	STOP

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Setting examples for DUONIC® special equipment control

Name \ Specification		Crane, dump, carrier, etc	Garbage truck	Sprinkler truck	Large capacity PTO
008	PTO warning	VALID	VALID	INVALID	VALID
009	PTO gear	VALID1	VALID1	VALID1	VALID4
010	PTO actuation of clutch	QUICK connecting	QUICK connecting	QUICK connecting	SLOW connecting 2
011	PTO operating restrictions	STOP(P/N)	STOP(P)	Trip (1st, 2nd, R)	STOP(P/N)
012	PTO connecting when stopping	STOP	STOP	STOP	STOP

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DUONIC® special equipment control setting list

Item, setting \ Specification and condition		Equipped with standard PTO (small load on equipment side)	Equipped with large capacity PTO (large load on equipment side)	PTO engaged only when vehicle is stationary (operated with vehicle stopped)	Drive vehicle with PTO engaged	Engage PTO while driving vehicle	Prevent rattling when PTO gear is engaged	Prevent PTO gear engagement failure (*1)	Prevent engine hunting and stall	Remark
PTO warning	VALID			○	×	×				PTO-related buzzers do not sound when set to “INVALID”.
	INVALID			○	○	○				
PTO gear	VALID1	○	×	○	○	×	○	×		
	VALID2	○	×	○	○	×	×	○ *2		
	VALID3	×	○	○	○	×	×	○ *2		If gear engagement failure (*1) occurs frequently with “VALID1” setting.
	VALID4	×	○	○	○	×	×	○ *2		If gear engagement failure (*1) does not occur frequently with “VALID1” setting.
	INVALID			×	○ *4	○ *4				Always set to “LOW vehicle speed 1 or 2” for “PTO connecting when stopping”.

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Item, setting / Specification and condition		Equipped with standard PTO (small load on equipment side)	Equipped with large capacity PTO (large load on equipment side)	PTO engaged only when vehicle is stationary (operated with vehicle stopped)	Drive vehicle with PTO engaged	Engage PTO while driving vehicle	Prevent rattling when PTO gear is engaged	Prevent PTO gear engagement failure (*1)	Prevent engine hunting and stall	Remark
PTO actuation of clutch	QUICK connecting	○	×							
	SLOW connecting 1	○	×						○	If engine hunting or stall occurs with “QUICK connecting” setting.
	SLOW connecting 2	○	○						○	If engine hunting or stall occurs with “SLOW connecting 1” setting.
PTO operating restrictions	STOP (P/N)			○	×	×				PTO disabled in ranges other than P or N.
	STOP (P)			○	×	×				PTO disabled in ranges other than P.
	Trip (1st, 2nd, R)			×	○	○				
	Trip (2nd, 3rd, R)			×	○	○				
PTO connecting when stopping	STOP			○	○	○				
	LOW vehicle speed 1 (10 km/h or less)			×	○ *3	○ *3				Always set to “INVALID” for “PTO gear”.
	LOW Vehicle speed 2 (15 km/h or less)			×	○ *3	○ *3				

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Example of use in part replacement and repair

[MDT] FK, FM, FN, FQ, MK, MP - ACM (SCR ECU)

F3-510

Changing some kinds of equipment or property such as shown below makes it necessary to initialise the coding data of the ACM (SCR ECU).
Note that some items shown in the following table may not apply your vehicle due to the difference in the destination or specifications of the vehicle.

Rewriting or initialisation of coding data

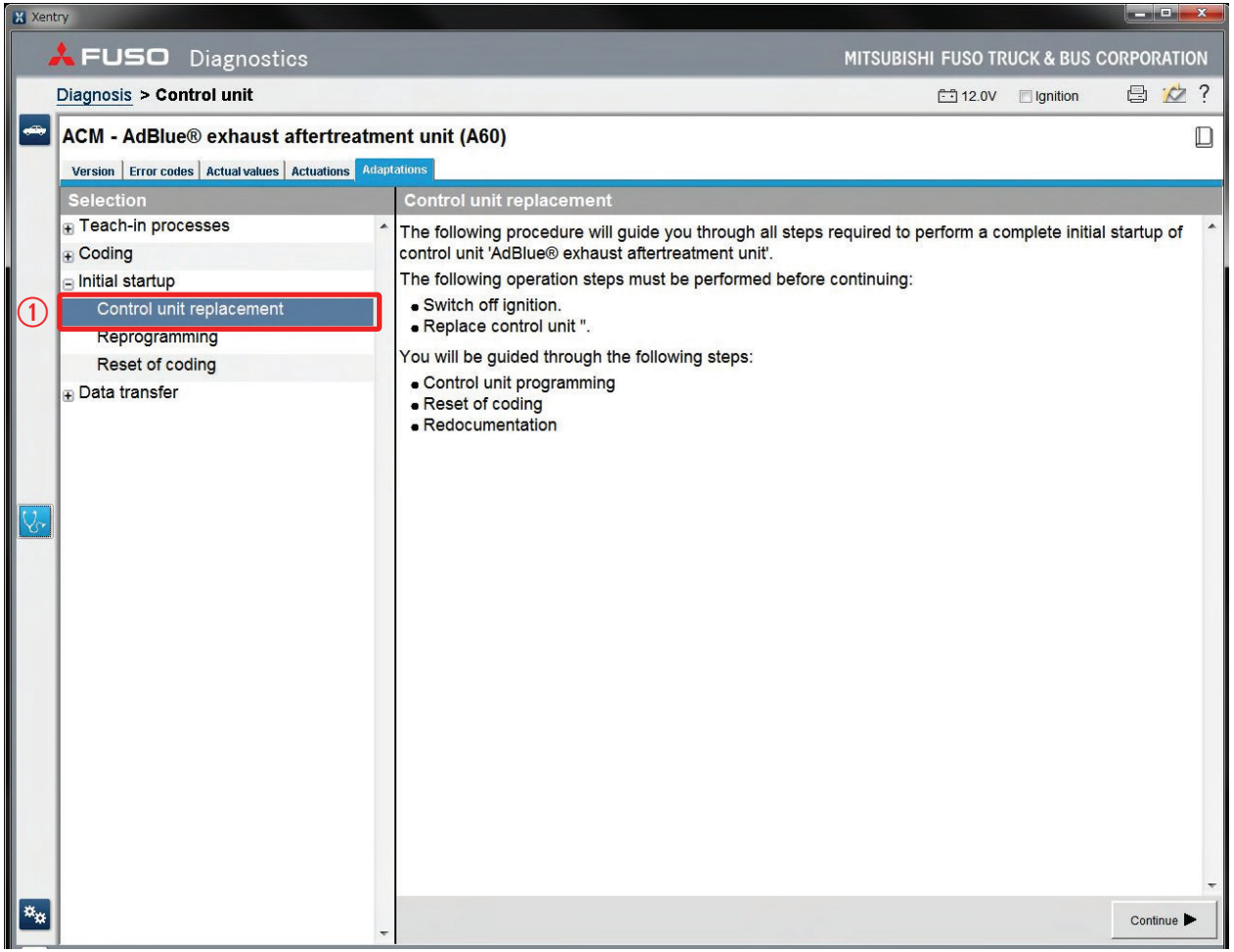
- The items shown in the following table require rewriting, initialisation and relearning of the coding data.

Data of ACM (SCR ECU) (FD items) / Event	Coding (rewriting data)	Resetting (initialising data)				Remarks	Reference number
	Flashing ACM (SCR ECU) (replacing component)	Mileage covered after an error occurred in BlueTec® exhaust gas aftertreatment system (000 AdBlue® system)	Mileage covered after an error occurred in urea (001 AdBlue® quality)	Amount of adsorbed urea (AdBlue®) (002 SCR catalytic converter)	Learned value of urea dosing valve corrosion-prevention control (003 AdBlue® metering)		
Replacing ACM (SCR ECU)	○						1
Eliminating abnormality relating to BlueTec® exhaust gas aftertreatment system		○				Not required for mid-size trucks (Euro-V)	2-(3)
Eliminating abnormality of urea (AdBlue®) quality			○			Not required for mid-size trucks (Euro-V)	2-(4)
Replacing SCR (rear oxidation catalyst) unit				○			2-(5)
Replacing urea dosing unit					○		2-(6)

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<Reference number 1: Replacement of ACM (SCR ECU)>

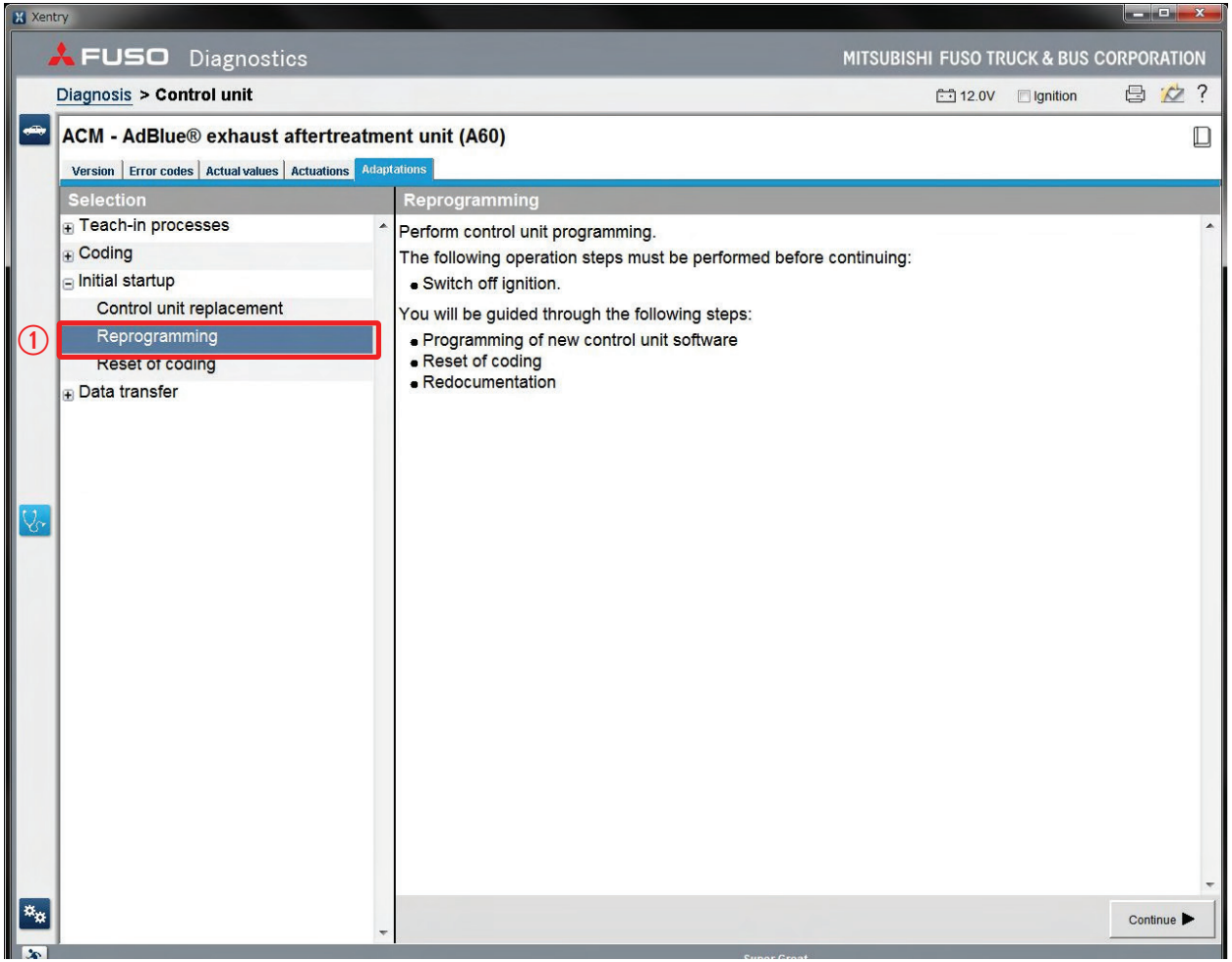
- If the ECU has been replaced, you can use the previous coding parameters by downloading the ECU data from the FRN and then executing “Control unit replacement” (see F2-030).



① Replace the ECU with a new one. Select “Control unit replacement” (for detailed procedures, see F2-030).

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- If only the software of the ECU is to be replaced with a new version, download the ECU data from the FRN and then execute “Reprogramming”. After completing software rewriting, execute Reset of coding (domestic only) (see F2-040).

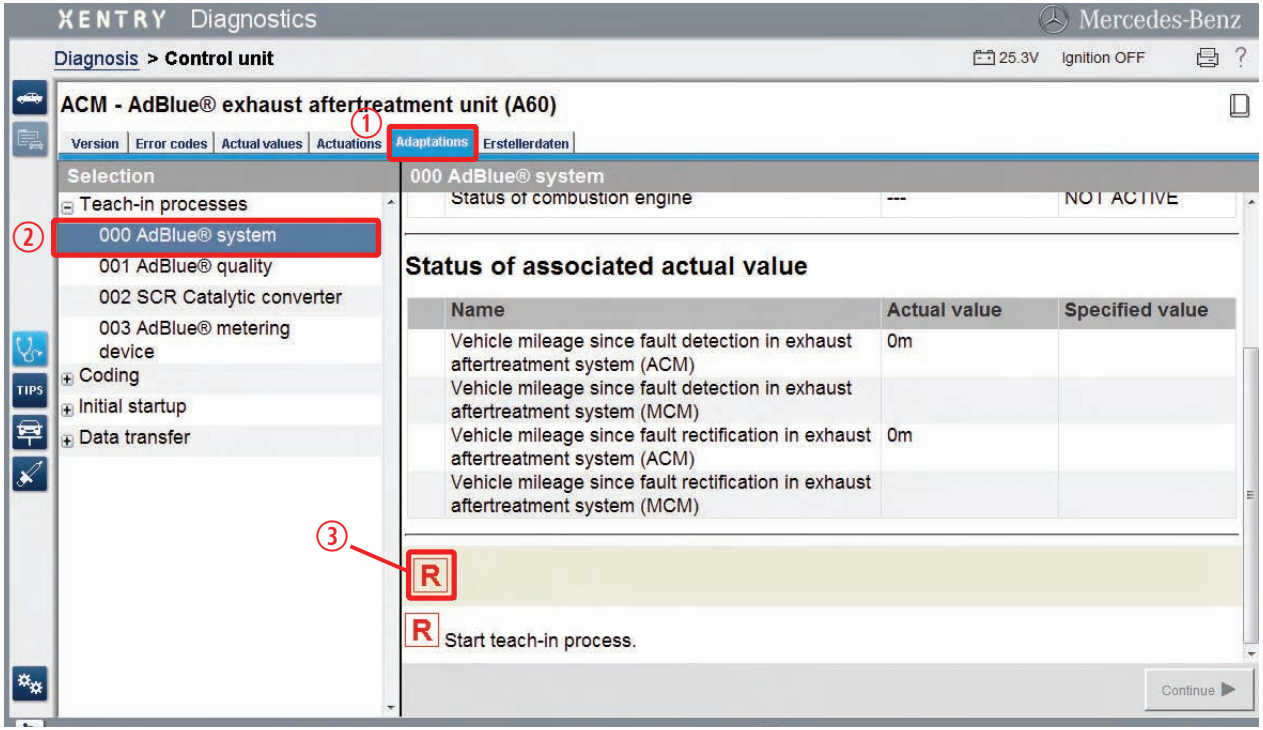


① Select “Reprogramming” (for detailed procedures, see F2-040).

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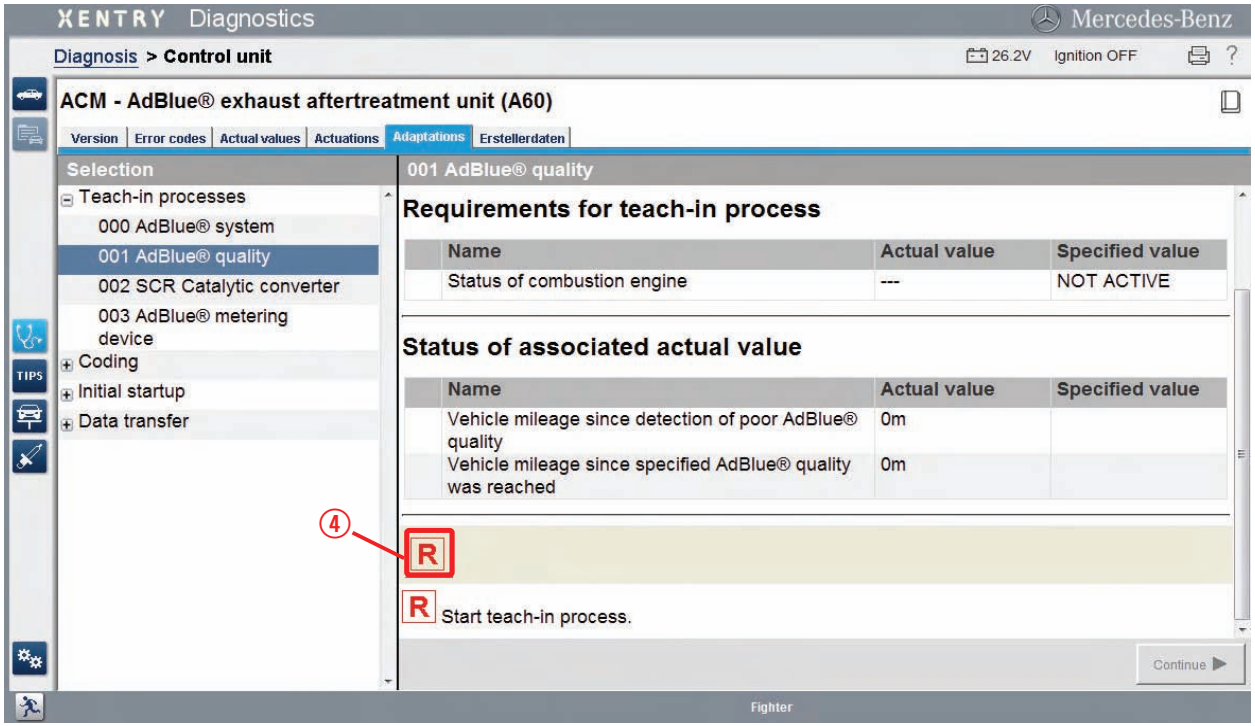
<Reference number 2: Initialisation of coding data>

- For some equipment and devices, coding data must be initialised by clicking “Control” and then “Coding” buttons on the screen after replacing the equipment and devices.



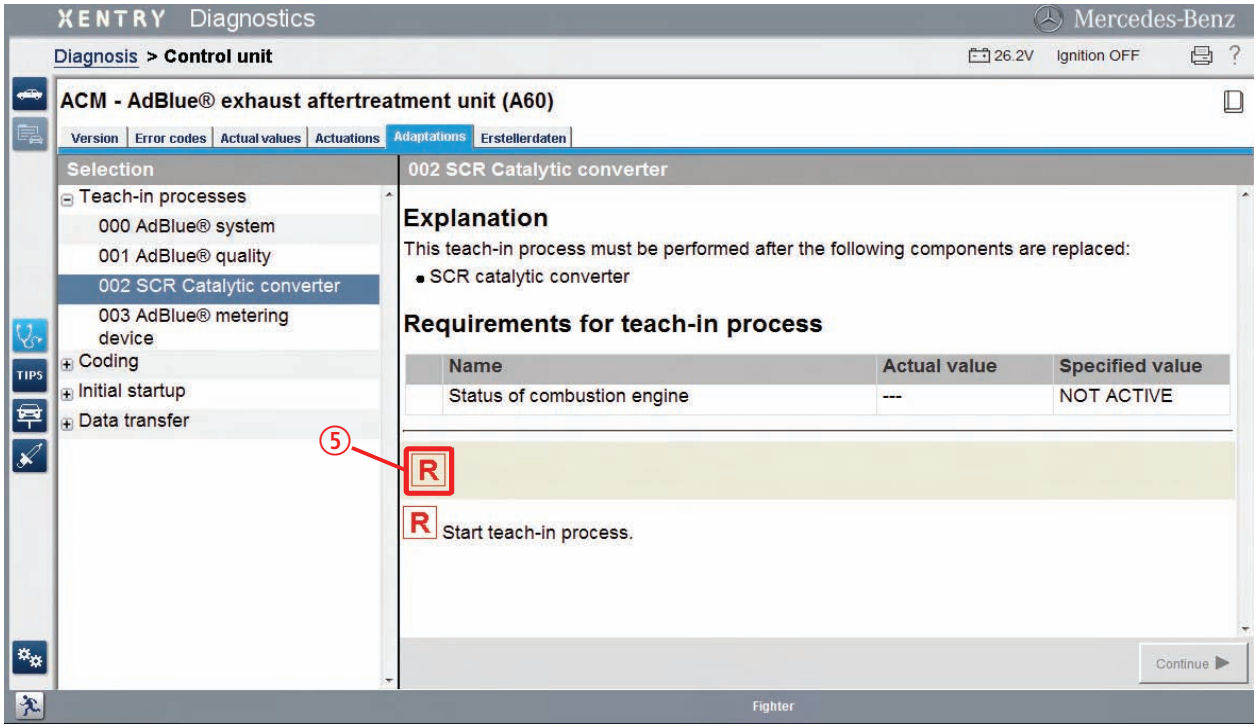
① Select “Adaptations”.
② Select “Teach-in processes”.
③ After replacing a device related to the BlueTec® exhaust gas aftertreatment, press the button to reset the data for the mileage covered after the error occurred.

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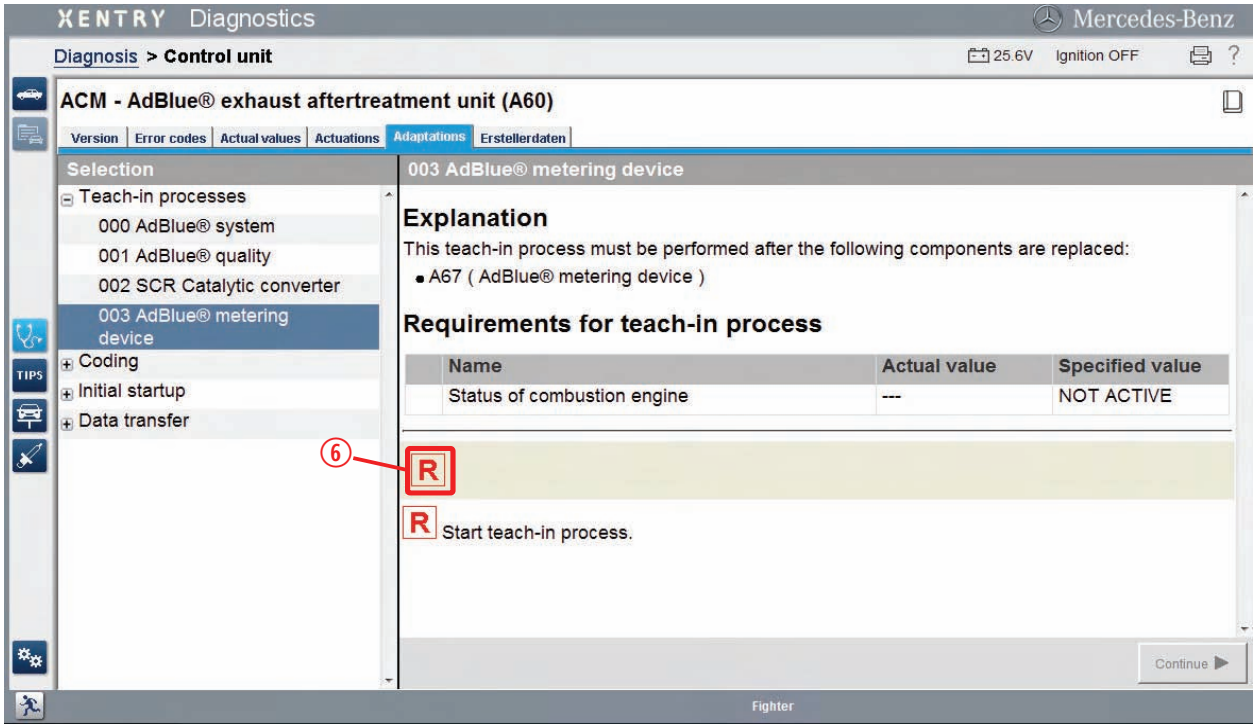
④ After clearing a urea (AdBlue®) error, press the button to reset the data for the mileage covered after the error occurred.

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⑤ After replacing the SCR (rear oxidation catalyst) unit, press the button to reset the data for the amount of absorbed urea (AdBlue®).

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⑥ After replacing the urea dosing unit, press the button to reset the learned value of urea dosing valve corrosion-prevention control.

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- Change to the vehicle specification items or replacement of the electric equipment items listed in the following table requires rewriting, initialisation or resetting of the coding data of the respective ECU's. Note that some items in the table may not apply to your vehicle depending on the vehicle specifications or destination.
- For the detailed procedures, use the browsing codes indicated in the reference column.

ECU (designation of Shop Manual) / Affected specification/electrical equipment	EMCM (engine ECU)	ACM (SCR ECU)	CPC2	Refer to
Replacing engine (with MCM (engine ECU))	○			F3-810
Replacing MCM (engine ECU)	○			F3-810
Replacing injectors	○			F3-810
Replacing FMU (fuel metering unit)	△			F3-810
Replacing common rail	△			F3-810
Replacing high-pressure fuel pump	△			F3-810
Replacing high-pressure piping	△			F3-810
Replacing DPF	△			F3-810
Replacing or cleaning turbocharger	△			F3-810
Replacing ACM (SCR ECU)		△		F3-820
Eliminating abnormality relating to BlueTec® exhaust gas aftertreatment system		△		F3-820
Eliminating abnormality of urea (AdBlue®) quality		△		F3-820
Replacing SCR (rear oxidation catalyst) unit		△		F3-820

○ : Writing/rewriting of coding data is required.
△ : Initialisation of coding data or recorded data.

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Affected specification/electrical equipment \ ECU (designation of Shop Manual)	EMCM (engine ECU)	ACM (SCR ECU)	CPC2	Refer to
Replacing urea dosing unit		△		F3-820
Replacing CPC2			○	F3-830
Removing/installing PTO (electric governor of specially-equipped vehicle) or changing characteristics			○	F3-830
Changing tyre size (outer diameter)			○	F3-830
Changing rear axle reduction gear ratio			○	F3-830

○ : Writing/rewriting of coding data is required.
△ : Initialisation of coding data or recorded data.

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Example of use in part replacement and repair

[HDT] FP, FS, FU, FV, FY, MM, MS - MCM (engine ECU)

F3-810

Change to the vehicle specification items or replacement of the electric equipment items listed in the following table requires rewriting the engine ECU's coding data. Note that some items in the table may not apply to your vehicle depending on the vehicle specifications or destination.

1. Rewriting or initialisation of coding data
- The items shown in the following table require rewriting, initialisation and relearning of the coding data.
- The initialisation and relearning of the coding data can be carried out under FUSO Diagnostics "Adaptation - Teach-in processes" menus

Item: Details (items of FD)	Coding: Rewriting data (coding)		Reset: Initialisation of data (teach-in processes)					Relearning (teach-in processes)	Remarks	Reference number
Data of engine ECU (items of FD) / Event	Correction data for injectors (injector injection quantity adjustment)	Parameters relating to cold start switch (cold start)	Learning value of FMU (fuel metering unit) (000 Adaptation ranges for quantity control valve)	Number of past operation times of pressure limiting valve (001 Frequency counter "Opening of pressure limiting valve")	Threshold of fuel leakage diagnosis (002 Number of implausible pressure drops in high-pressure fuel circuit)	Amount of PM accumulation inside DPF (003 Resetting of learned values of component "Diesel particulate filter")	Data relating to turbocharger (004 Maximum exhaust temperature at turbocharger)	Corrected learning value of nitrogen oxides (NOx) (005 NOx correction factor)		
Replacing MCM (engine ECU)	○					○	○	○	*a	1
Replacing injectors	○									2
Equipped/not equipped with cold start switch		○								3

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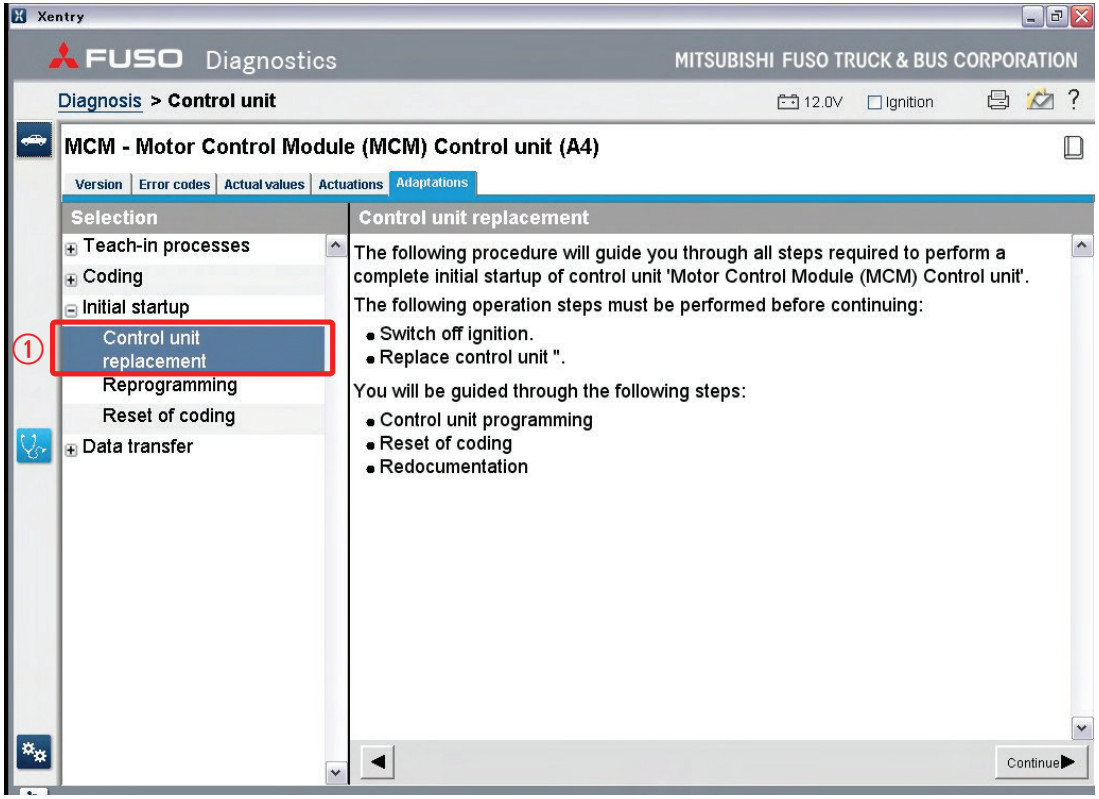
Item: Details (items of FD)	Coding: Rewriting data (coding)		Reset: Initialisation of data (teach-in processes)					Relearning (teach-in processes)	Remarks	Reference number
Data of engine ECU (items of FD) / Event	Correction data for injectors (injector injection quantity adjustment)	Parameters relating to cold start switch (cold start)	Learning value of FMU (fuel metering unit) (000 Adaptation ranges for quantity control valve)	Number of past operation times of pressure limiting valve (001 Frequency counter "Opening of pressure limiting valve")	Threshold of fuel leakage diagnosis (002 Number of implausible pressure drops in high-pressure fuel circuit)	Amount of PM accumulation inside DPF (003 Resetting of learned values of component "Diesel particulate filter")	Data relating to turbocharger (004 Maximum exhaust temperature at turbocharger)	Corrected learning value of nitrogen oxides (NOx) (005 NOx correction factor)		
Replacing FMU (fuel metering unit)			○							4
Replacing common rail				○	○					
Replacing high pressure fuel pump					○					
Replacing high pressure piping					○					
Replacing DPF						○				
Replacing or cleaning turbocharger							○			
Replacing engine (with MCM (engine ECU))	After performing "Configuration change", the parametric information of MCM (engine ECU) of FRN is written in replaced MCM (engine ECU).								*a	5

*a: After replacement of MCM (engine ECU), if rewriting and initialisation of the pertinent data have been performed, make sure to execute the DPF regeneration "After burning of particulate filter" on FUSO Diagnostics (to balance the amount of PM accumulation inside DPF and PM accumulation determined by MCM).

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<Reference number 1: Replacement of engine ECU>

- If the ECU has been replaced with a new or used one, you can use the previous coding parameters by downloading the ECU data from the FRN and then executing “Control unit replacement” (see F2-030).

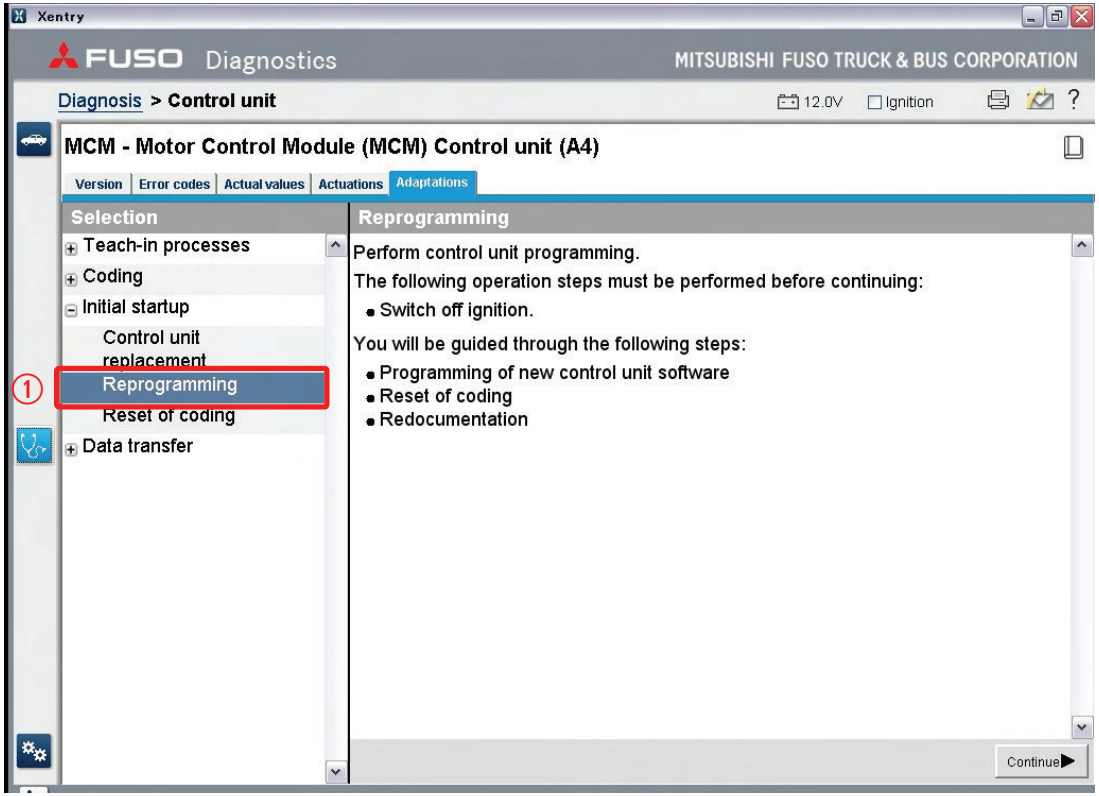


① Replace the ECU with a new one.

- Select “Control unit replacement” (for detailed procedures, see F2-030).

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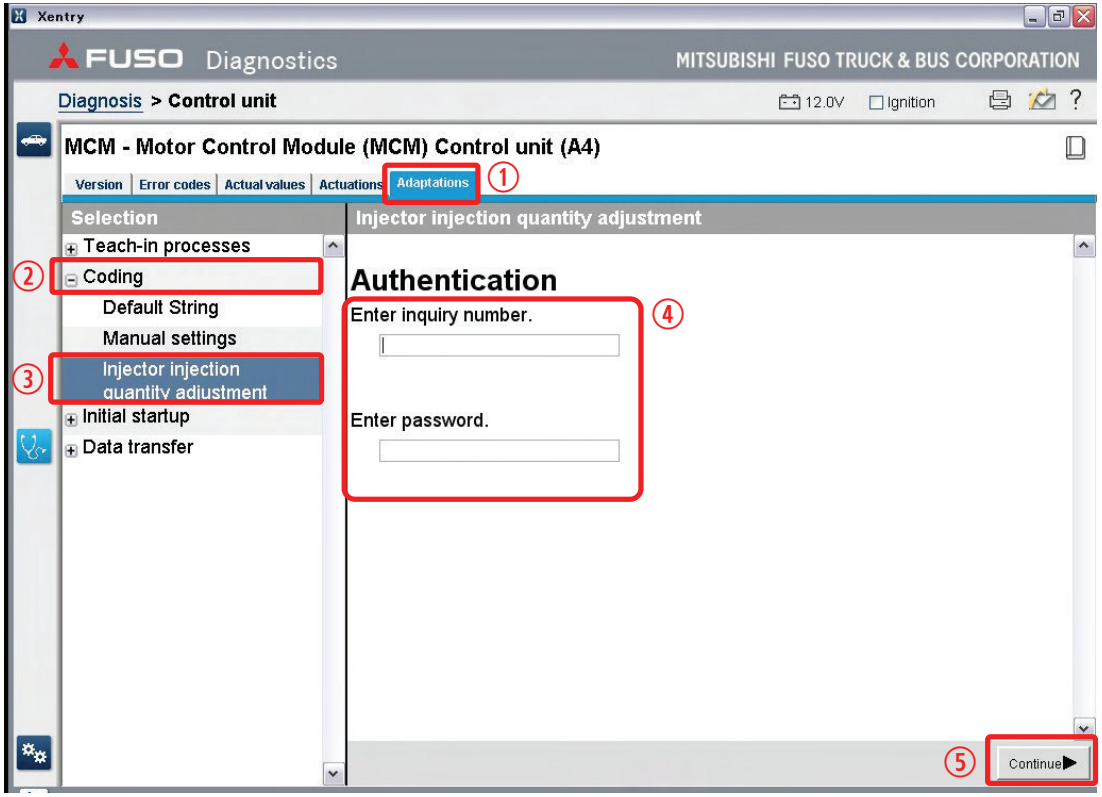
- If only the software of the ECU should be replaced with a new version, download the ECU data from FRN and then execute “Reprogramming” (see F2-040).



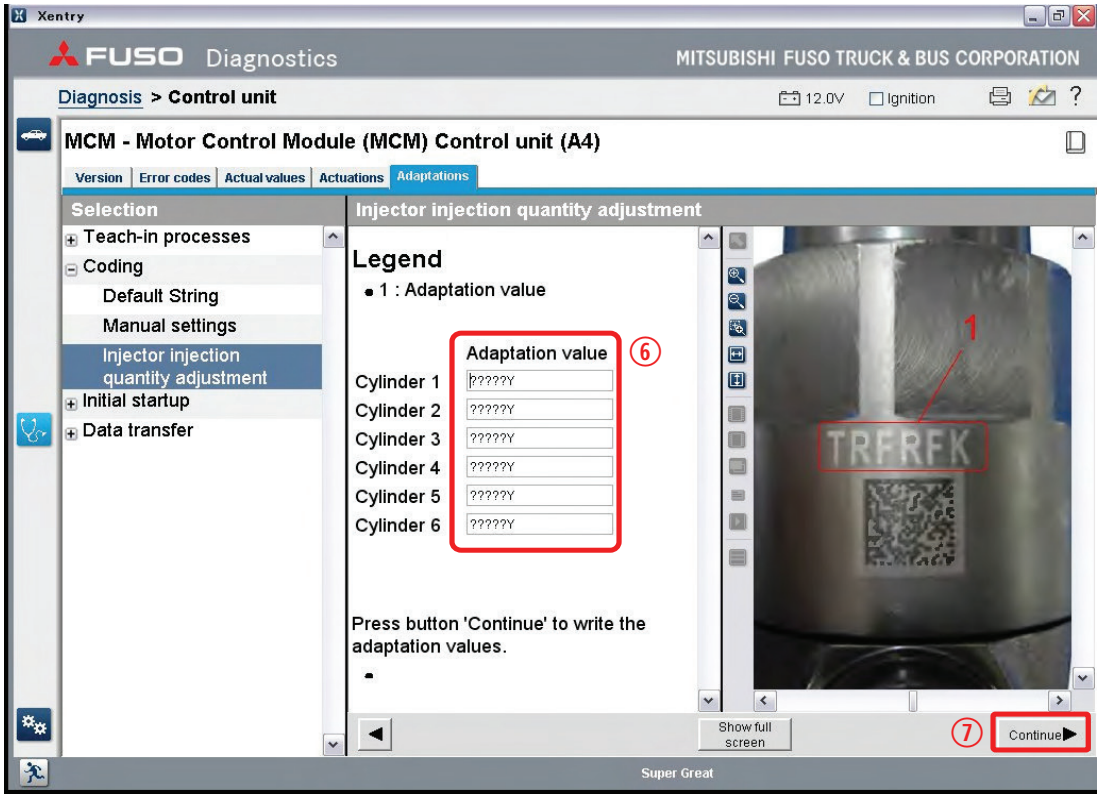
① Select “Reprogramming” (for detailed procedures, see F2-040).

<Reference number 2: Resetting/rewriting during injector replacement>

- As a preparatory step, replace the injectors.
- Download the history data of the relevant ECU from FRN and save it in FD.



① Select “Adaptations”.
② Select “Coding”.
③ Select “Injector injection quantity adjustment”.
④ Enter the inquiry number and password from FRN.
⑤ Click “Continue”.

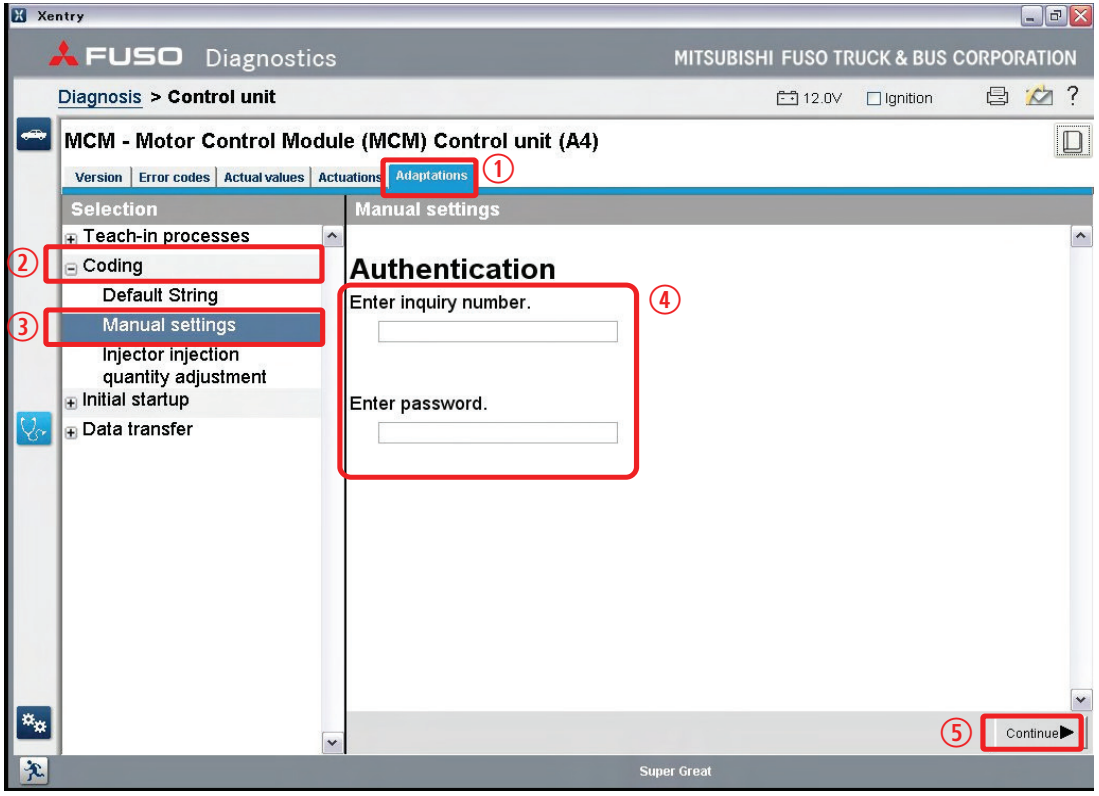


- Upload the history data of the relevant ECU in FRN.

⑥ Enter the adaptation value (IMA code: 6 digits) given on the injector.
⑦ Click “Continue”.

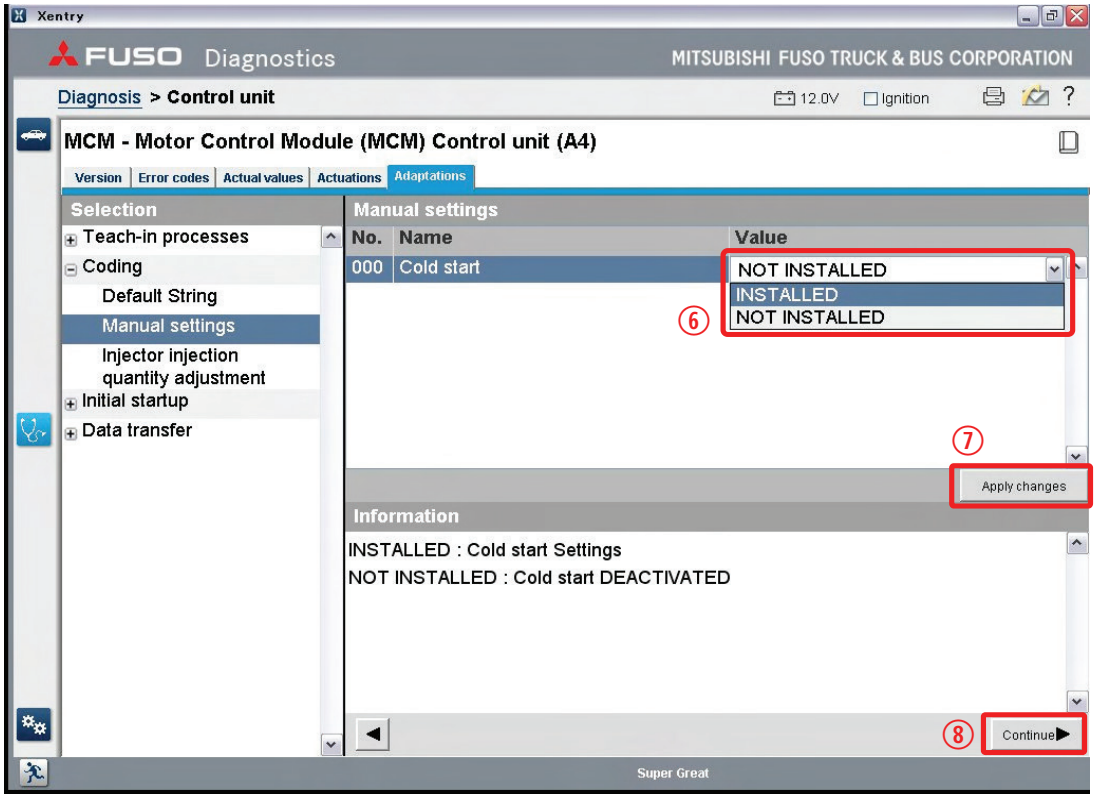
<Reference number 3: Coding for vehicles with or without cold start switch>

- As a preparatory step, install or remove the cold start switch.
- Download the history data of the relevant ECU from FRN and save it in FD.



① Select “Adaptations”.
② Select “Coding”.
③ Select “Manual settings”.
④ Enter the inquiry number and password obtained from FRN.
⑤ Click “Continue”.

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- Upload the history data of the relevant ECU in FRN.

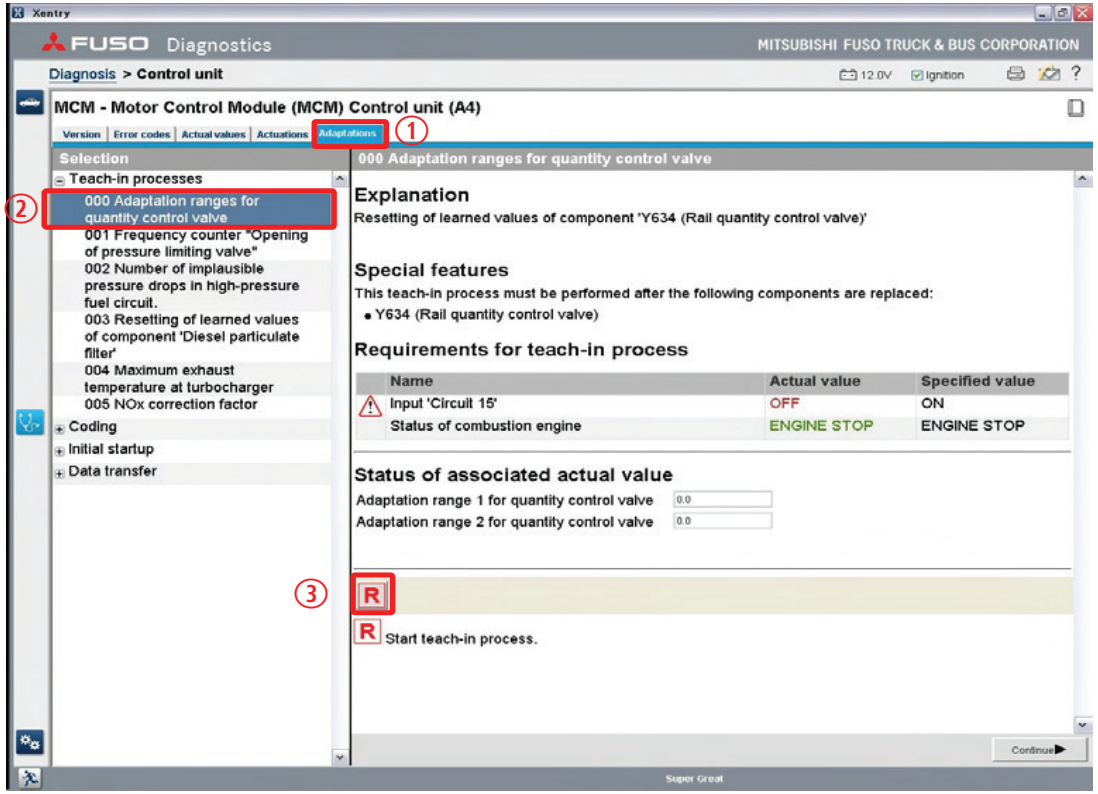
⑥ Change coding parameters in accordance with the cold start switch installation condition.
  - If cold start switch is installed: Select “INSTALLED”.
  - If cold start switch is not installed: Select “NOT INSTALLED”.

⑦ Select “Apply changes”.

⑧ Click “Continue”.

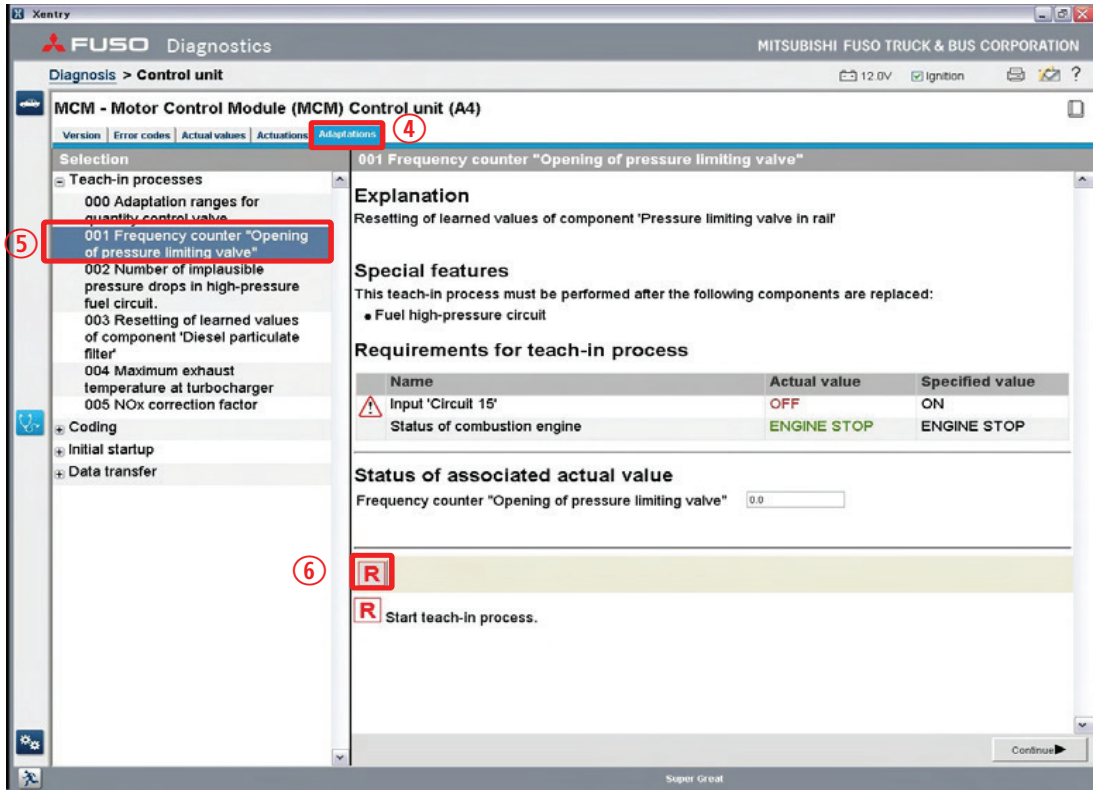
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<Reference number 4: Resetting each coding data/learning value>



① Select “Adaptations”.
② Select “Teach-in processes – 000 Adaptation ranges for quantity control valve”.
③ After replacing the FMU (fuel metering unit), initialise the learning value by clicking this button.

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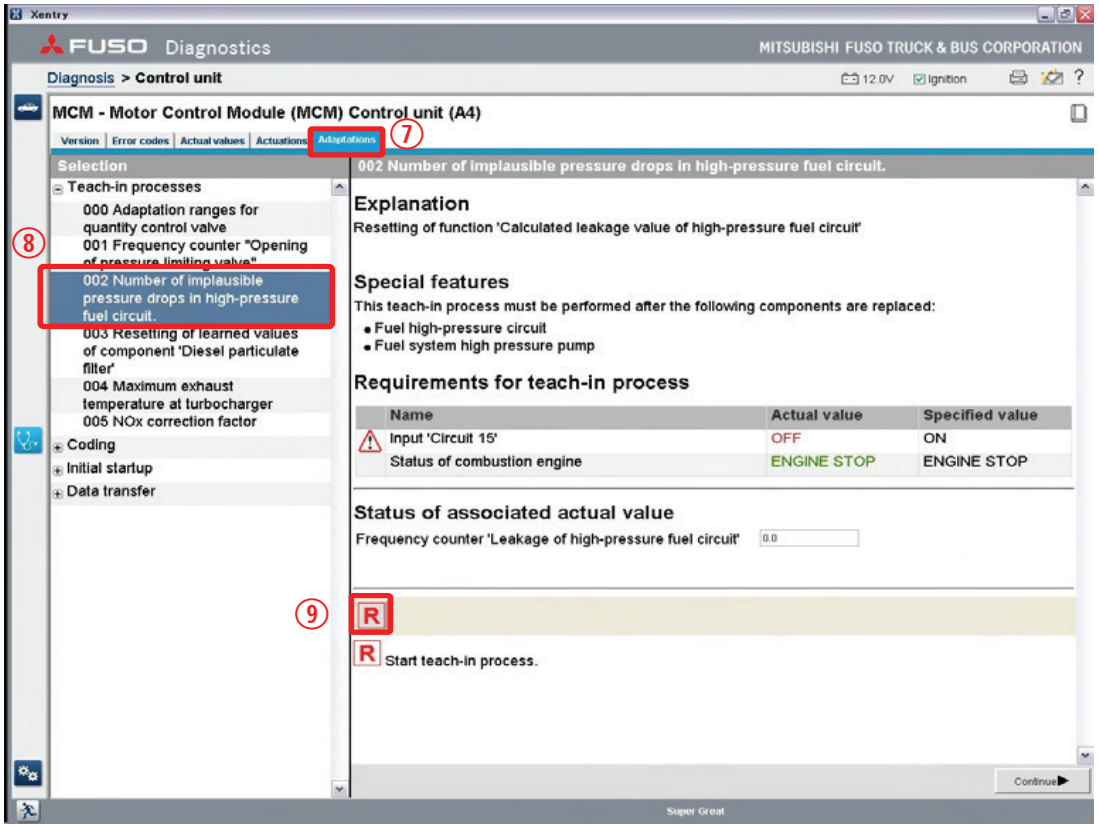


④ Select “Adaptations”.

⑤ Select “Teach-in processes – 001 Frequency counter “Opening of pressure limiting valve””.

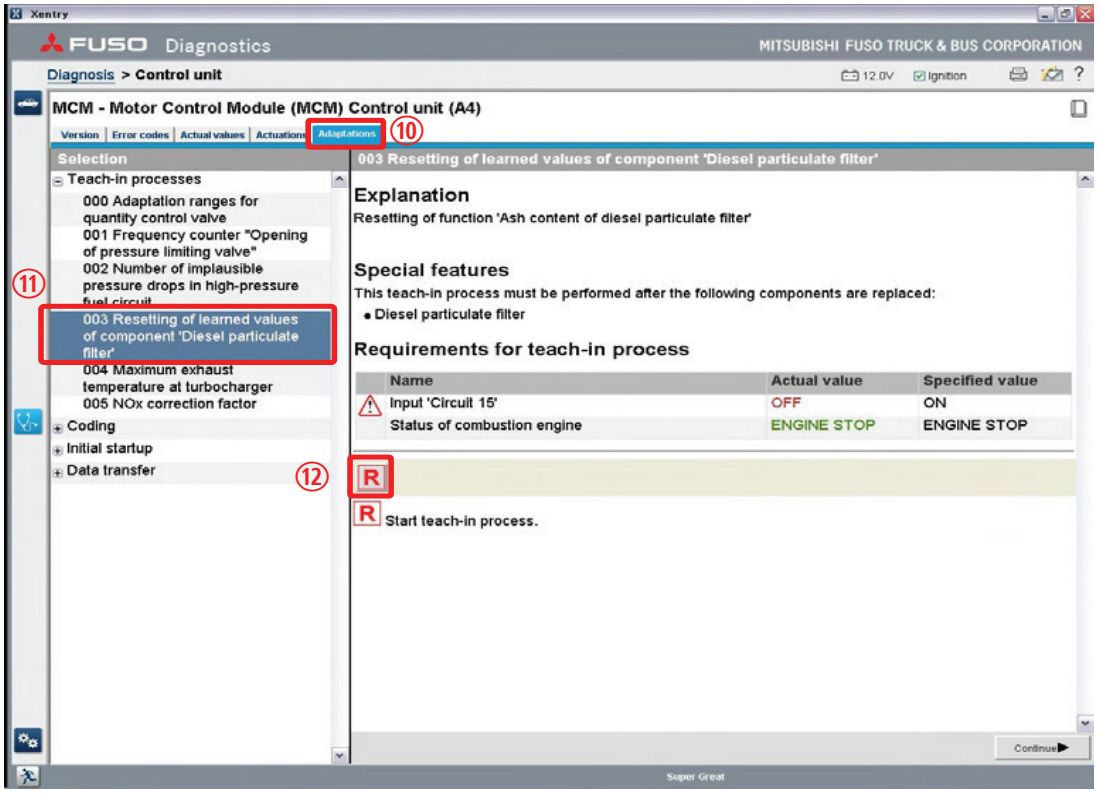
⑥ After replacing the common rail, initialise the frequency of opening of valve by clicking this button.

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⑦ Select “Adaptations”.
⑧ Select “Teach-in processes – 002 Number of implausible pressure drops in high-pressure fuel circuit”.
⑨ After replacing the common rail, initialise the threshold of fuel leakage by clicking this button.

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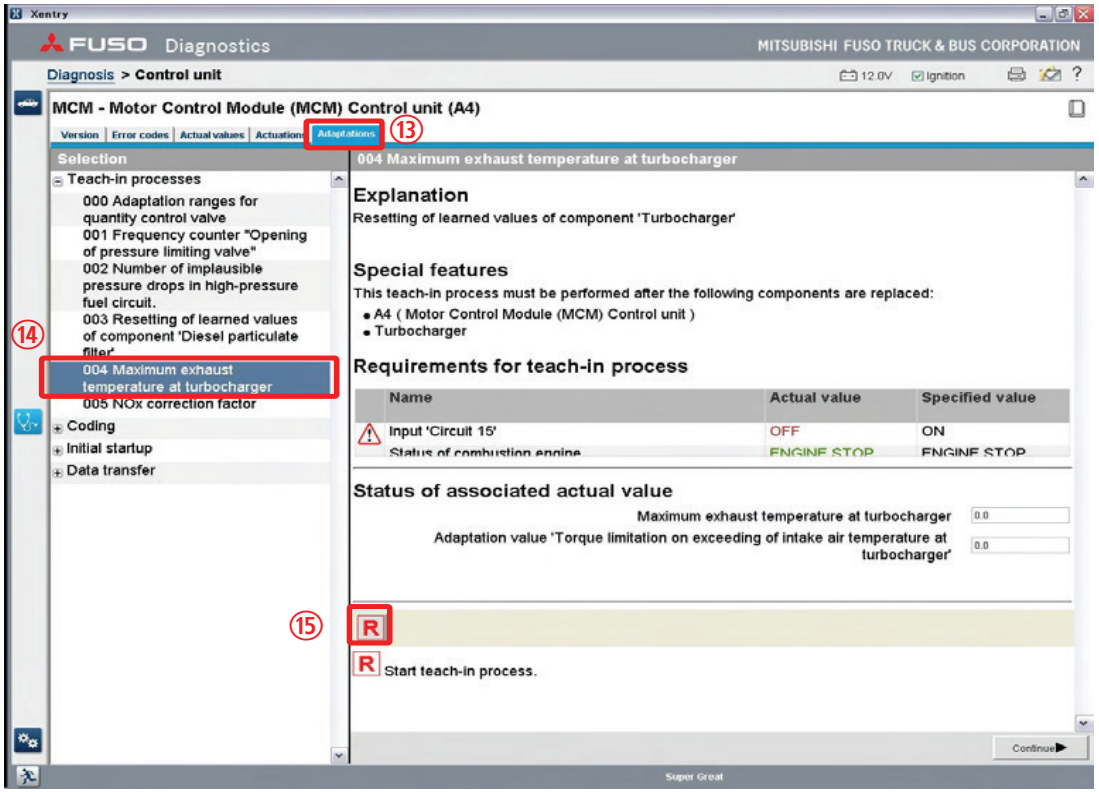


⑩ Select “Adaptations”.

⑪ Select “Teach-in processes – 003 Resetting of learned values of component ‘Diesel particulate filter’”.

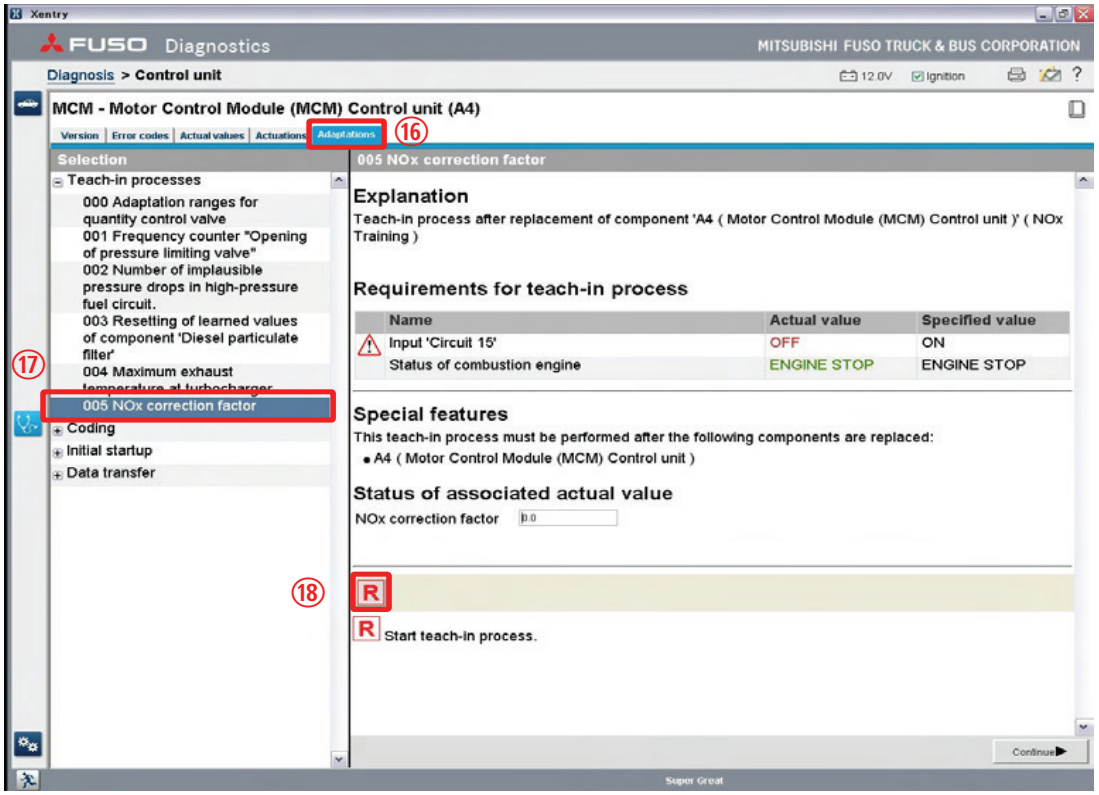
⑫ <When performing DPF regeneration> Select [S] of “Fill level of diesel particulate filter”. Then, press the DPF cleaning switch on the vehicle until the DPF indicator comes on (for details, refer to the Shop Manual) <When initializing the amount of PM accumulation> Select [R] of “Resetting of learned values of component ‘Diesel particulate filter’ ”.

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⑬ Select “Adaptations”.
⑭ Select “Teach-in processes – 004 Maximum exhaust temperature at turbocharger”.
⑮ After replacing or cleaning the turbocharger, initialise the data by clicking this button.

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⑯ Select “Adaptations”.
⑰ Select “Teach-in processes – 005 NOx correction factor”.
⑱ After replacing the MCM (engine ECU), initialise the NOx corrected value by clicking this button.

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<Reference No. 5 Replacing the engine>

- When replacing the engine, use the following procedures.

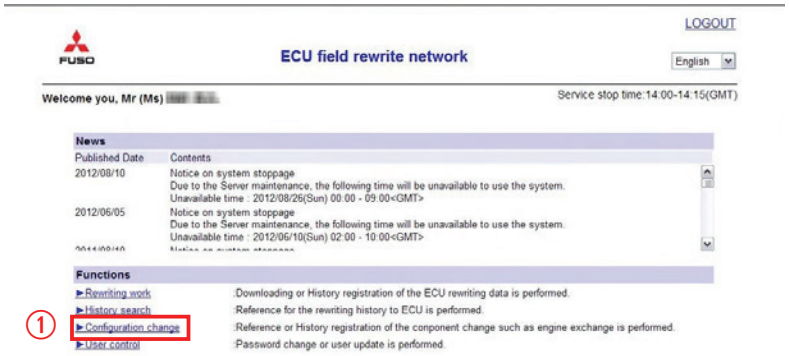
1. Replacing the engine
↓
2. Procedure for changing vehicle's engine data on the FRN ("Configuration change" is carried out with FRM) (see F6-090)
↓
3. Procedure for downloading MCM (engine ECU) data from FRN ("Rewriting work" is carried out with FRN) (see F6-070)
↓
4. The downloaded data of MCM (engine ECU) is copied to PC ("Copying from USB storage device" is carried out with FUSO Diagnostics) (see F2-070)
↓
5. The coding parameter value of MCM (engine ECU) is reset ("Reset coding" is carried out with FUSO Diagnostics) (see F2-050)
↓
6. Performing DPF regeneration (initialising information of the amount of PM accumulation of the inside of DPF) ("Actuations - 008 Regeneration of diesel particulate filter" is carried out with FUSO DIAGNOSTICS)
↓
7. Completion

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- As a preparatory step, register the information on the new replacement engine to the FRN.

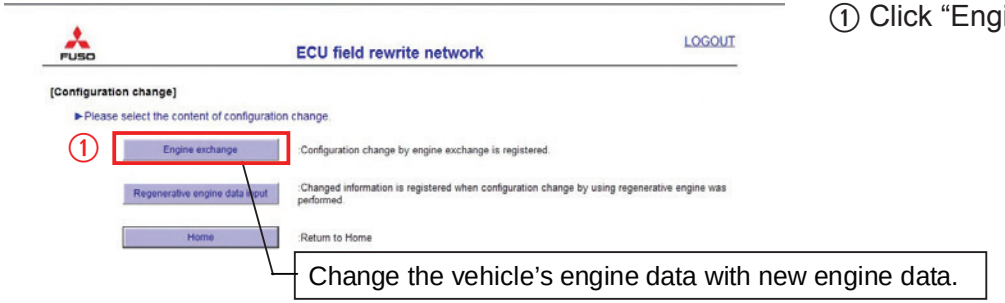
1. Procedure for changing the vehicle's engine data on the FRN

1). Menu



① Click "Configuration change".

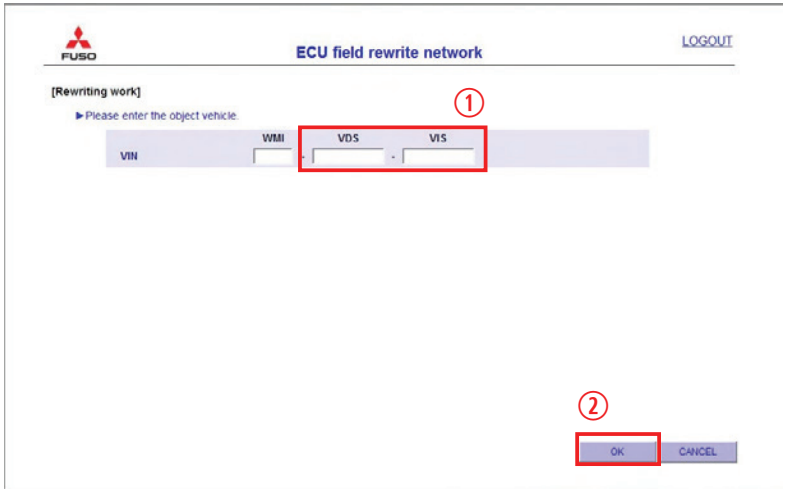
2). Change the configuration



① Click "Engine exchange".

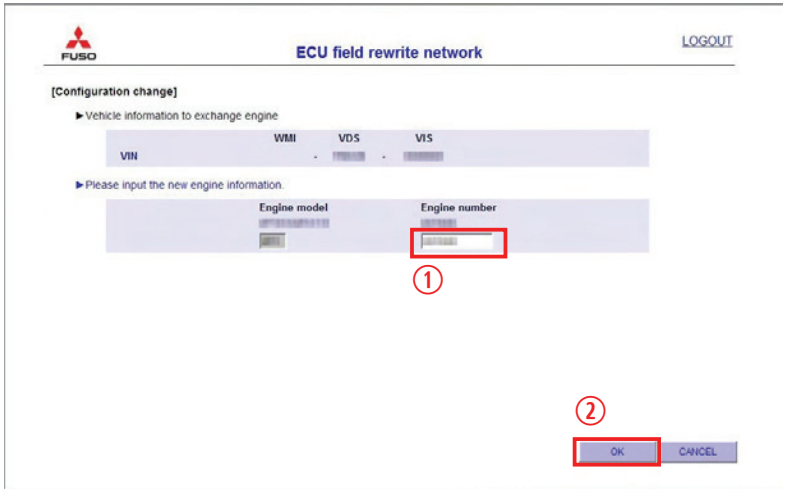
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3). Enter the VIN (vehicle identification number)



① Enter the VIN (VDS and VIS).
② Click “OK”.

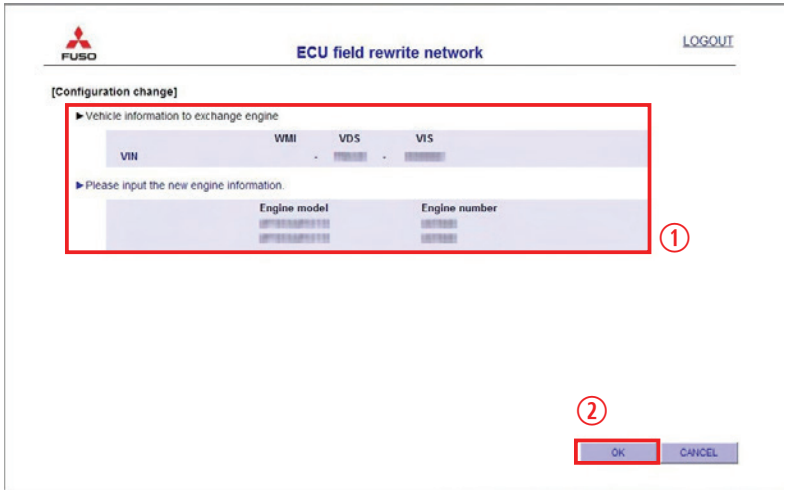
4). Enter the engine number



① Enter the engine number.
② Click “OK”.

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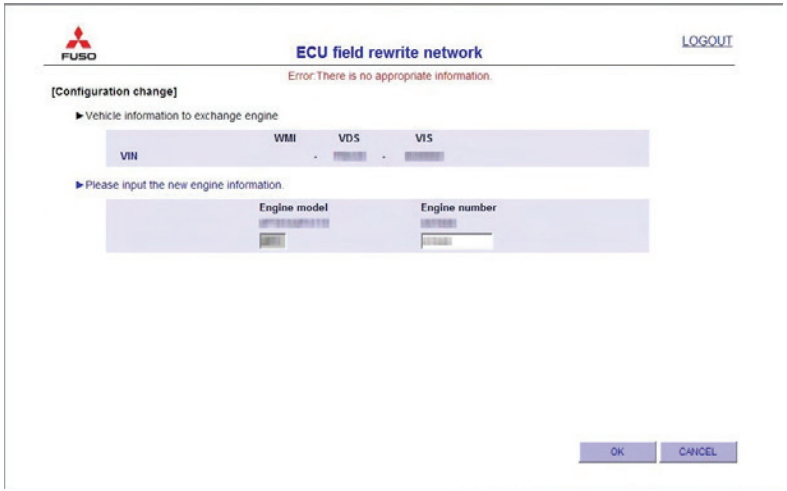
5). Confirm the information for the vehicle on which the engine has been replaced



① Confirm the VIN, engine model and engine number.
② If there is no problem, click “OK”.

6). Download engine data
If you click “OK” in step 5, the display changes to the (page 143: 4. Select the ECU) engine data download screen.

7). If there is no information on the replacement engine



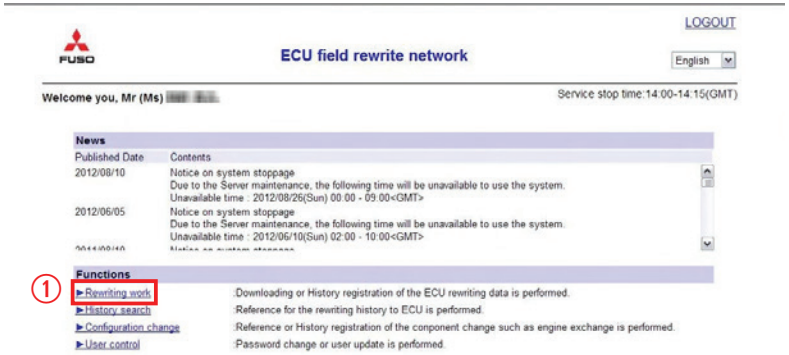
If there is no information on the replacement engine on the FRN, the screen shown on the left will be displayed.
Check the engine number again.

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- As a preparatory step, download vehicle information from the FRN.

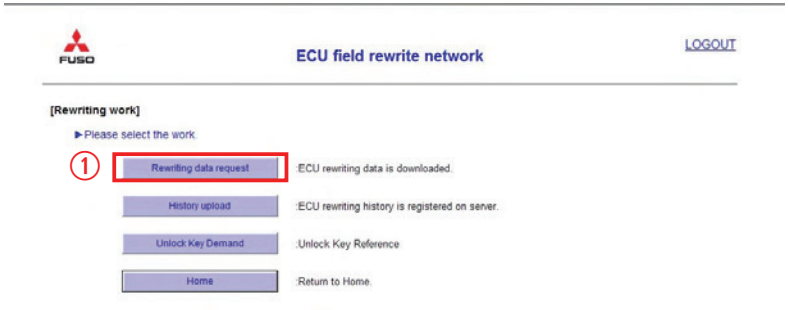
2. Procedure for downloading ECU data from FRN

1). Rewrite ECU data



① Click “Rewriting work”.

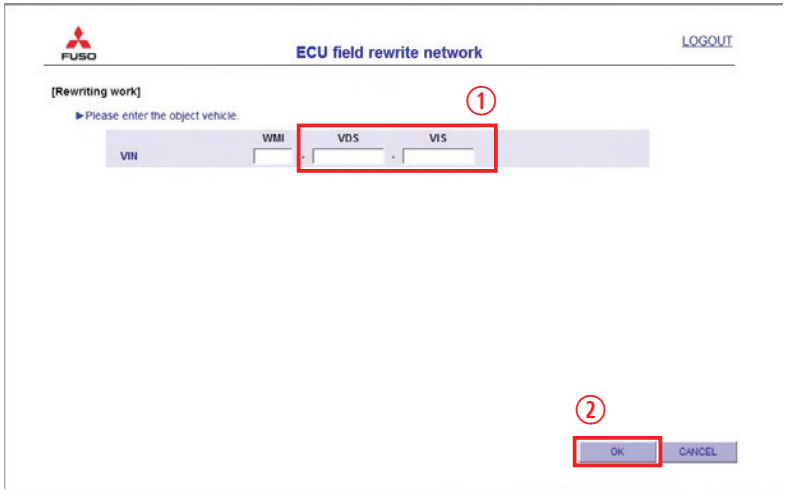
2). Request the rewriting data



① Click “Rewriting data request”.

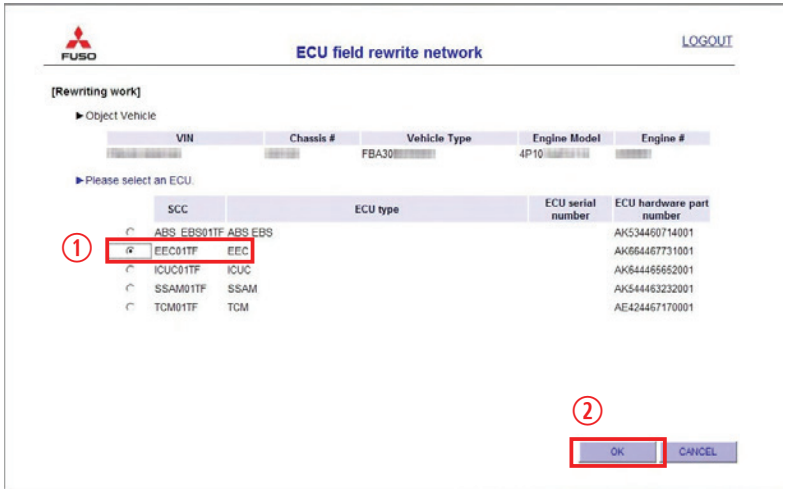
https://truckmanualshub.com/

3). Enter the VIN (vehicle identification number)



① Enter the VIN (VDS and VIS).
② Click “OK”.

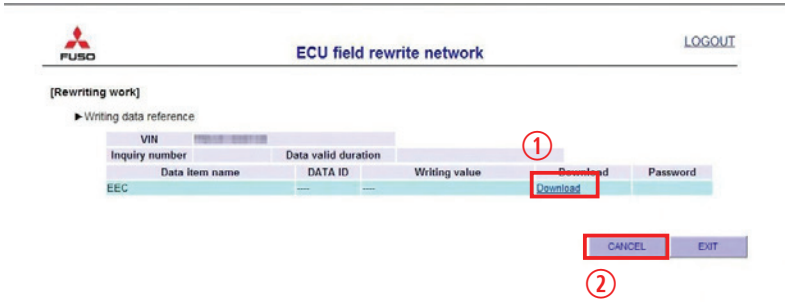
4). Select the ECU



① Select the ECU to rewrite.
② Click “OK”.

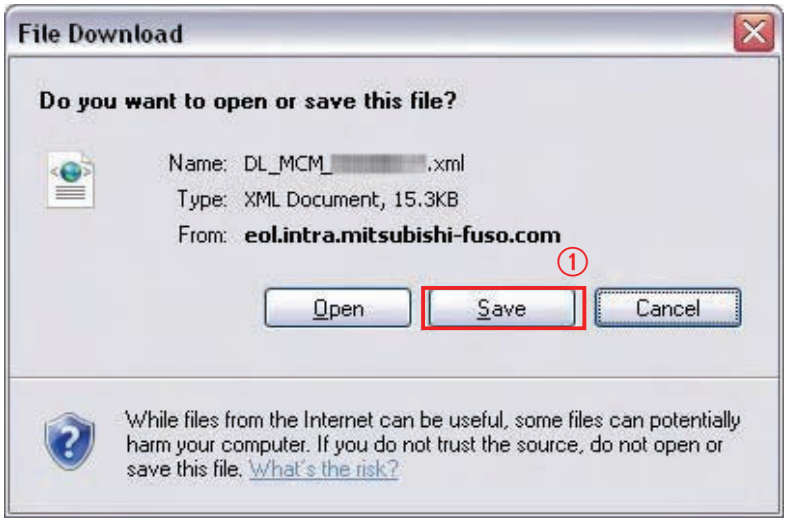
https://truckmanualshub.com/

5). Download data



① Click “Download”.
② When cancelling, click “CANCEL”.
Note:
You cannot cancel after clicking “Download”.

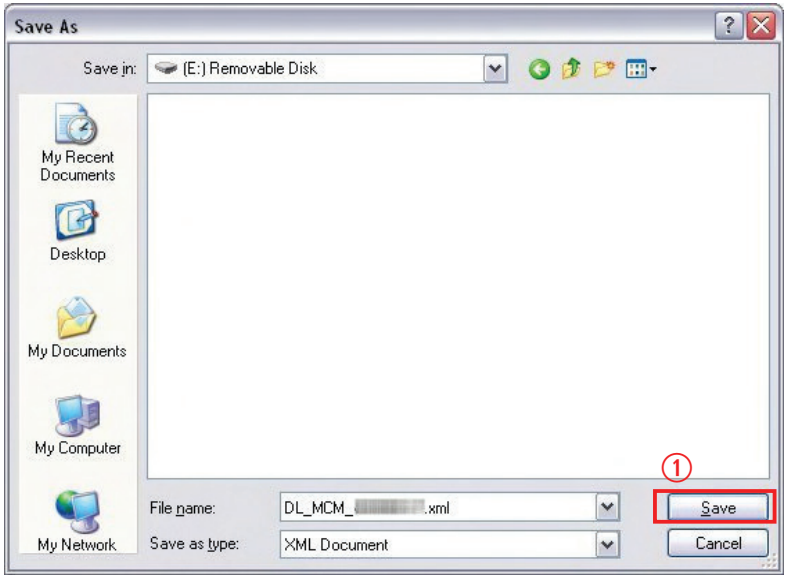
6). Save the data



① Click “Save”.

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7). Indicate where to save

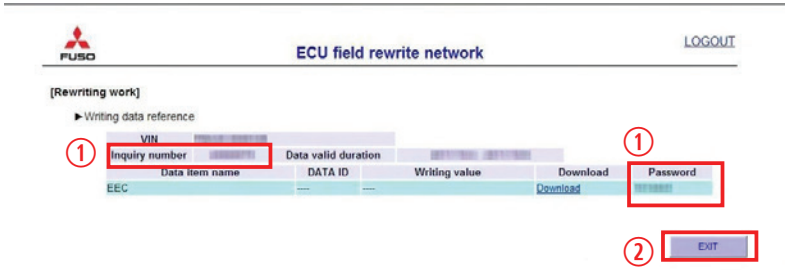


① Specify the saving destination (USB storage device) and click “Save”.

Note:

Do not change the file name. If you change the file name, FUSO Diagnostics will not recognise it.

8). Confirm the inquiry number and password



① Make a note of the inquiry number and password.

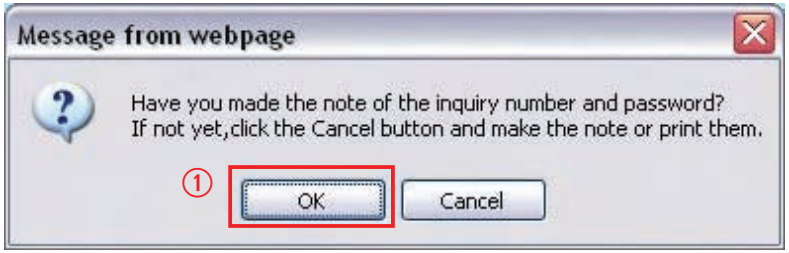
② Click “EXIT”.

Note:

The inquiry number and password are required when writing data using FUSO Diagnostics.

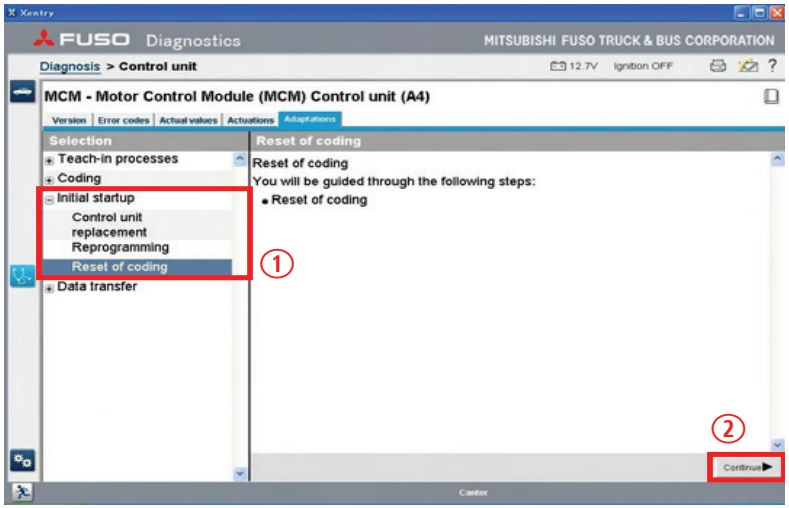
https://truckmanualshub.com/

9). Confirm the inquiry number and password have been noted down



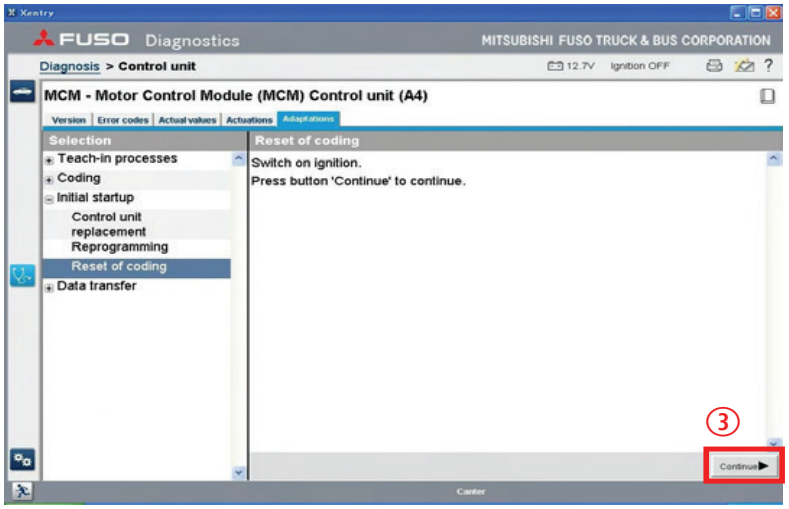
① Confirm that you have noted down the inquiry number and password, then click “OK”.

3. “Reset of coding” is carried out using the downloaded data of MCM (engine ECU).
   1. Reset of coding



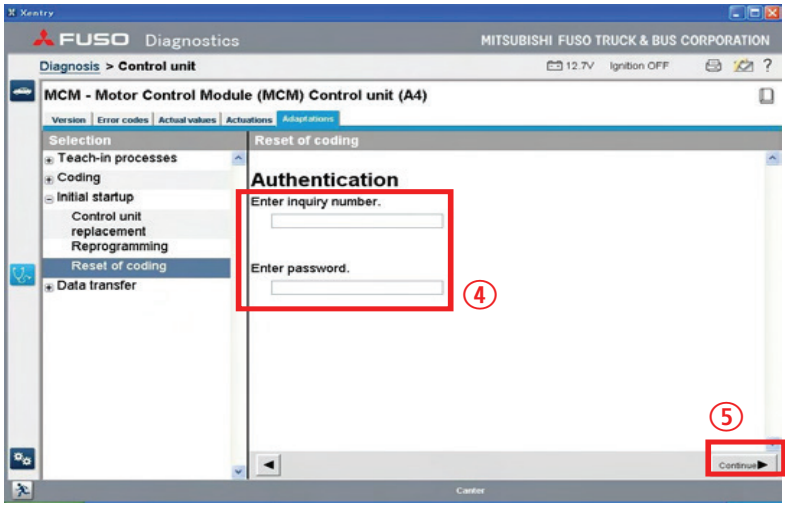
① Click “Initial startup – Reset of coding”.
② Click “Continue”.

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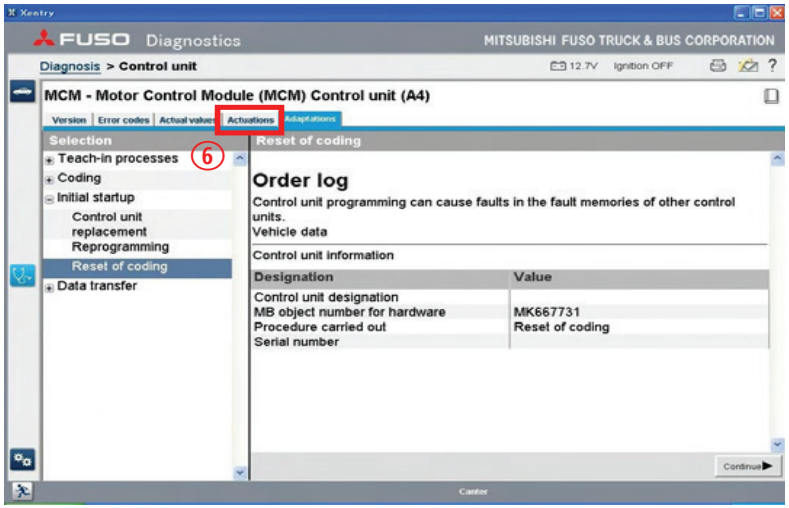


③ Click “Continue”.

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④ Enter the inquiry number and password.
⑤ Click “Continue”.



⑥ When this screen is displayed, “Reset of coding” is complete. For other vehicles click “Actuations” and proceed to “4. Performing DPF regeneration”

4. Performing DPF regeneration

(initialising information of the amount of PM accumulation of the inside of DPF) DPF regeneration must be carried out after the engine (ECU is included) replaced, and to take the compatibility of PM accumulation which actual PM accumulation ECU recognises. “Actuations – 008 Regeneration of diesel particulate filter” is carried out with FUSO Diagnostics.

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Example of use in part replacement and repair

[HDT] FP, FS, FU, FV, FY, MM, MS - ACM (SCR ECU)

F3-820

Changing some kinds of equipment or property such as shown below makes it necessary to initialise the coding data of the ACM (SCR ECU).
Note that some items shown in the following table may not apply your vehicle due to the difference in the destination or specifications of the vehicle.

Rewriting or initialisation of coding data

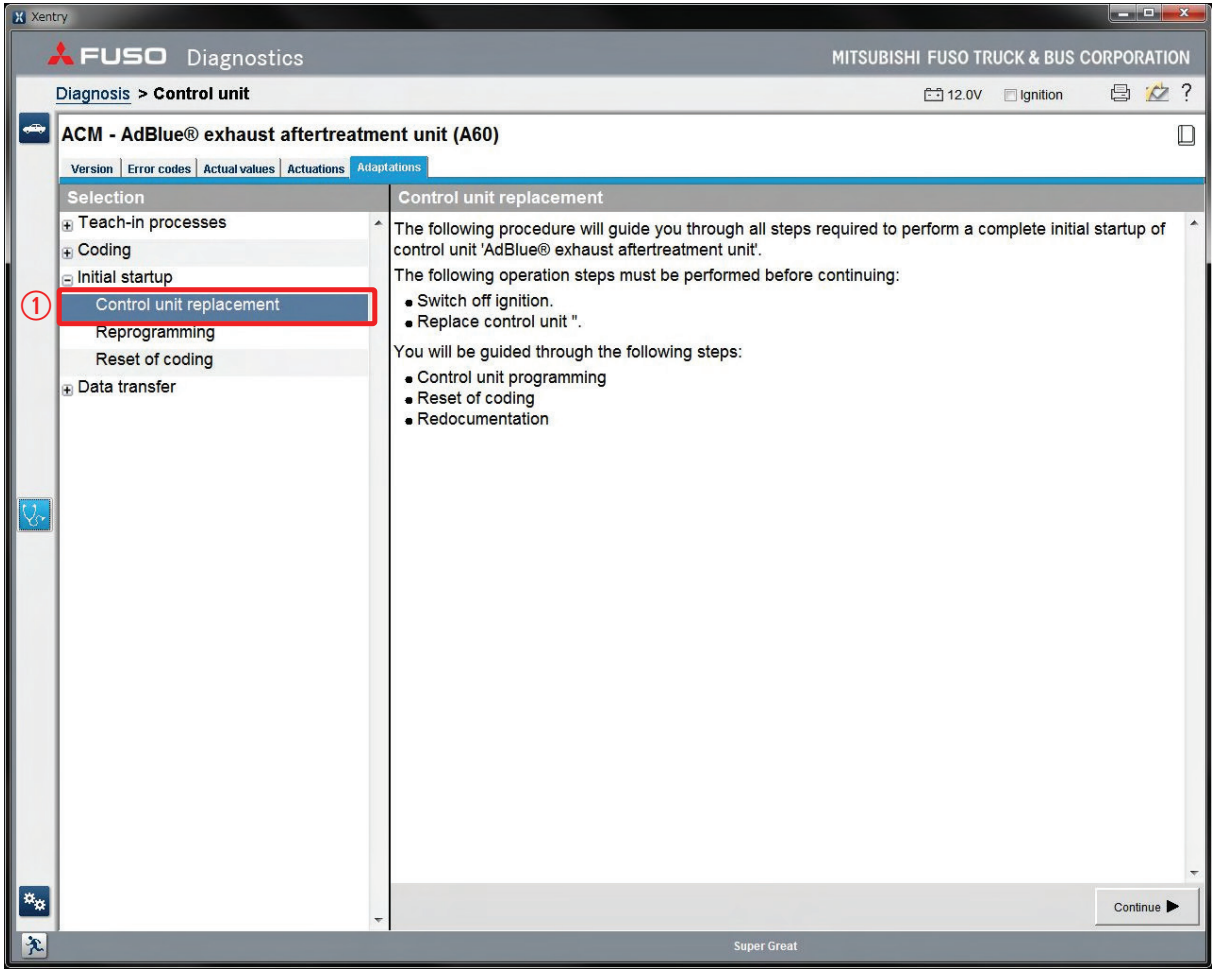
- The items shown in the following table require rewriting, initialisation and relearning of the coding data.

Data of ACM (SCR ECU) (FD items) / Event	Coding (rewriting data)	Resetting (initialising data)				Remarks	Reference number
	Flashing ACM (SCR ECU) (replacing component)	Mileage covered after an error occurred in BlueTec® exhaust gas aftertreatment system	Mileage covered after an error occurred in urea (AdBlue®)	Amount of adsorbed urea (AdBlue®)	Learned value of urea dosing valve corrosion-prevention control		
Replacing ACM (SCR ECU)	○						1
Eliminating abnormality relating to BlueTec® exhaust gas aftertreatment system		○				Not required for mid-size trucks (Euro-V)	2-(3)
Eliminating abnormality of urea (AdBlue®) quality			○			Not required for mid-size trucks (Euro-V)	2-(4)
Replacing SCR (rear oxidation catalyst) unit				○			2-(5)
Replacing urea dosing unit					○		2-(6)

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<Reference number 1: Replacement of ACM (SCR ECU)>

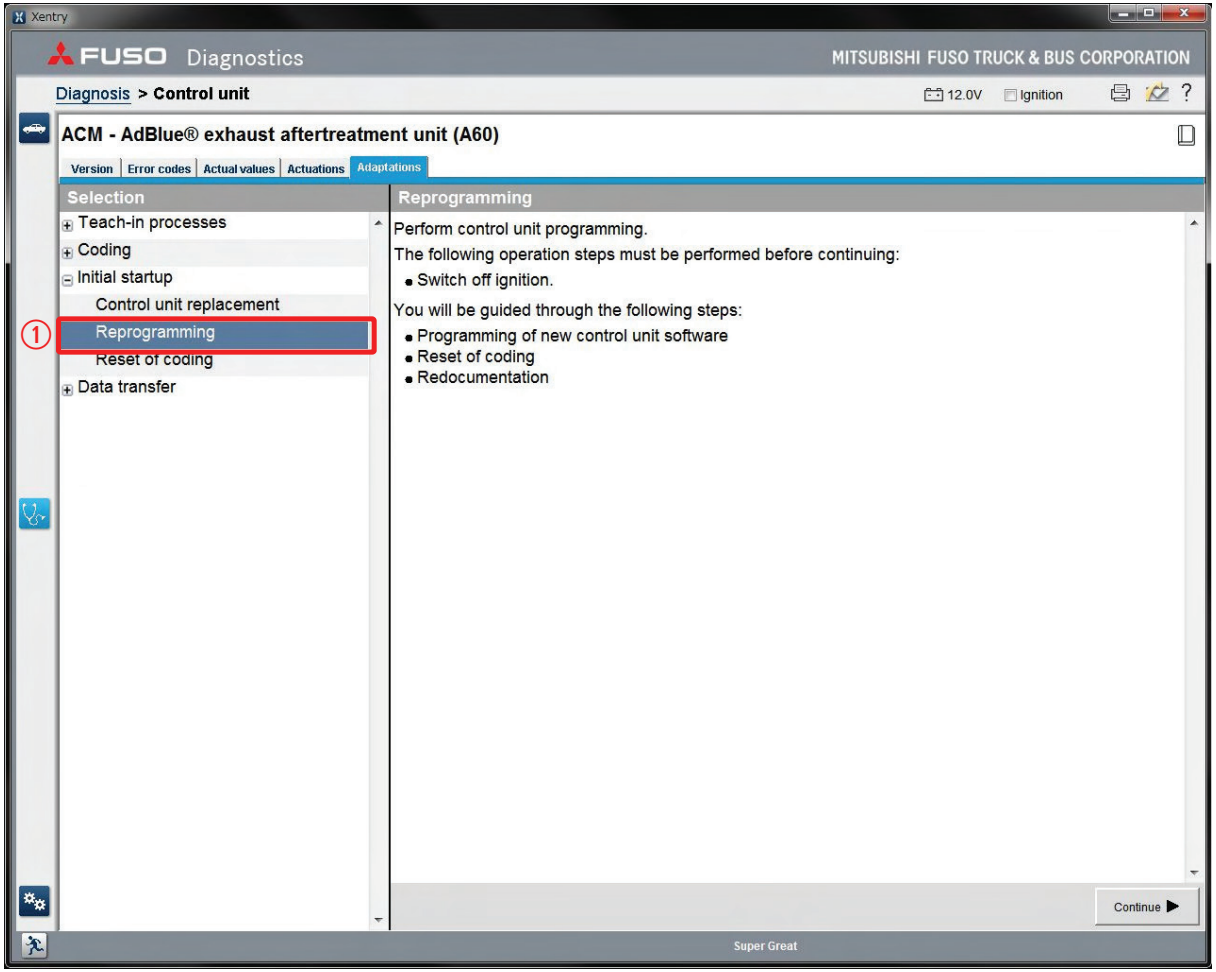
- If the ECU has been replaced, you can use the previous coding parameters by downloading the ECU data from the FRN and then executing “Control unit replacement” (see F2-030).



① Replace the ECU with a new one. Select “Control unit replacement” (for detailed procedures, see F2-030).

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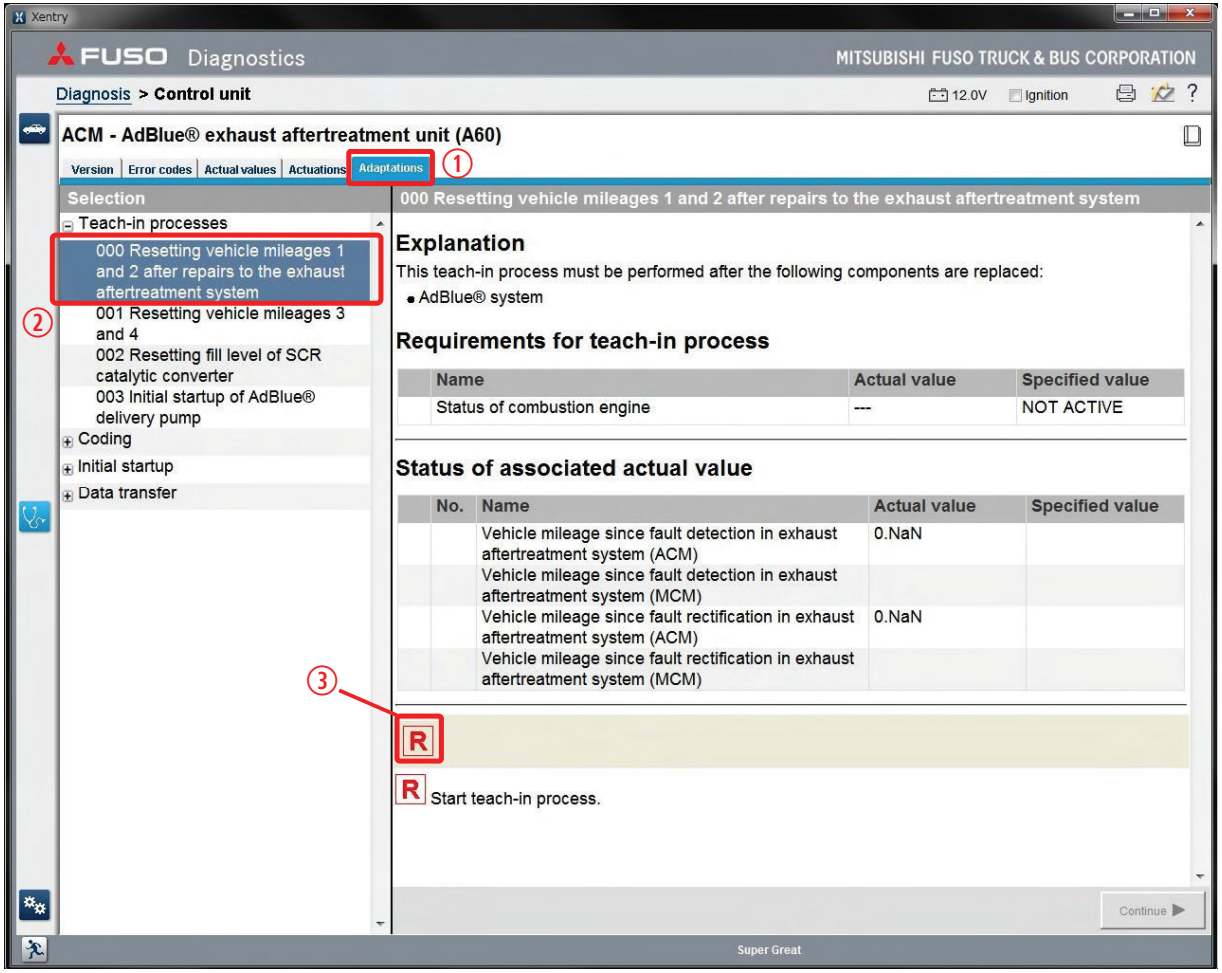
- If only the software of the ECU is to be replaced with a new version, download the ECU data from the FRN and then execute “Reprogramming”. After completing software rewriting, execute Reset of coding (domestic only) (see F2-040).



① Select “Reprogramming” (for detailed procedures, see F2-040).

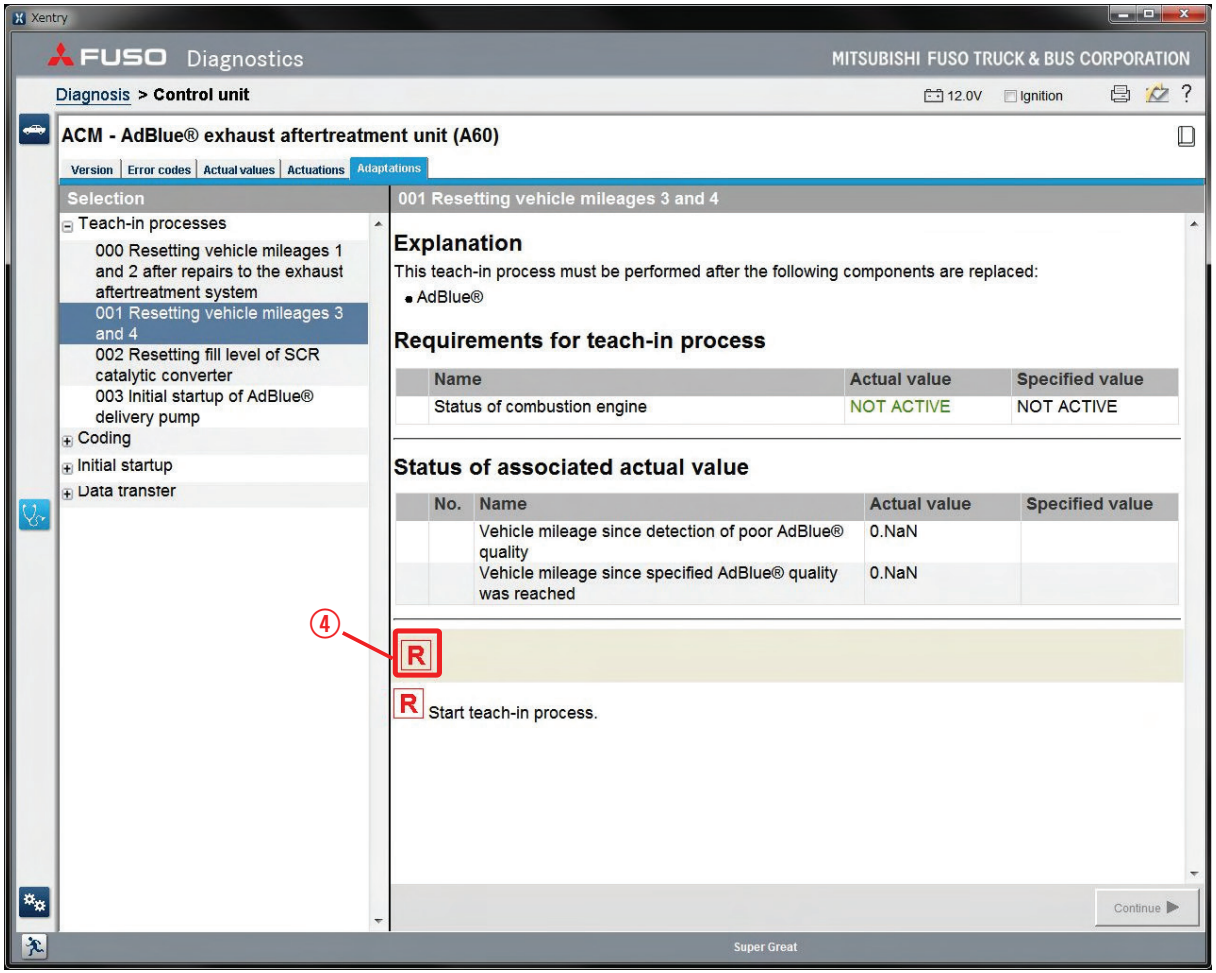
<Reference number 2: Initialisation of coding data>

- For some equipment and devices, coding data must be initialised by clicking “Control” and then “Coding” buttons on the screen after replacing the equipment and devices.



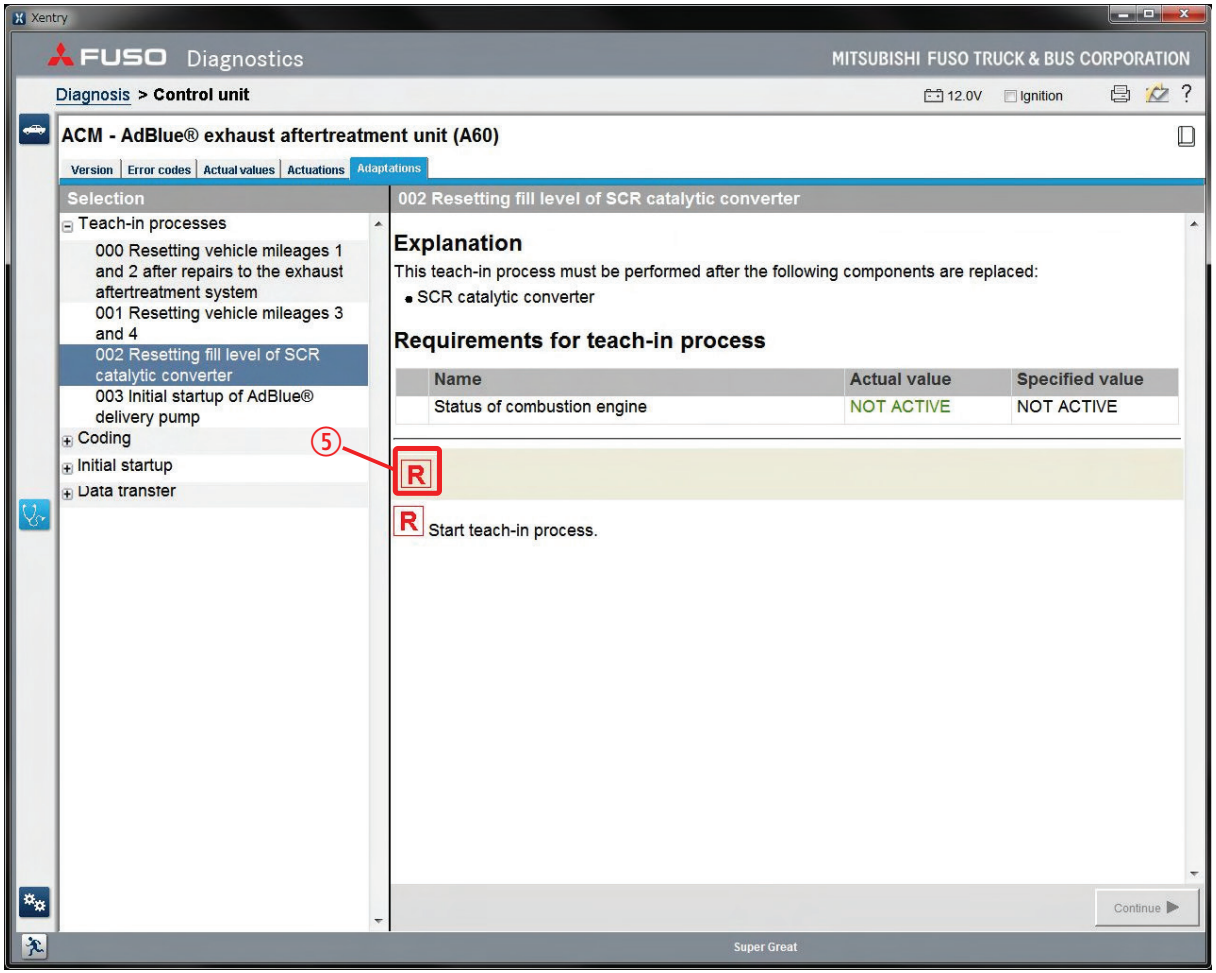
① Select “Adaptations”.
② Select “Teach-in processes”.
③ After replacing a device related to the BlueTec® exhaust gas aftertreatment, press the button to reset the data for the mileage covered after the error occurred.

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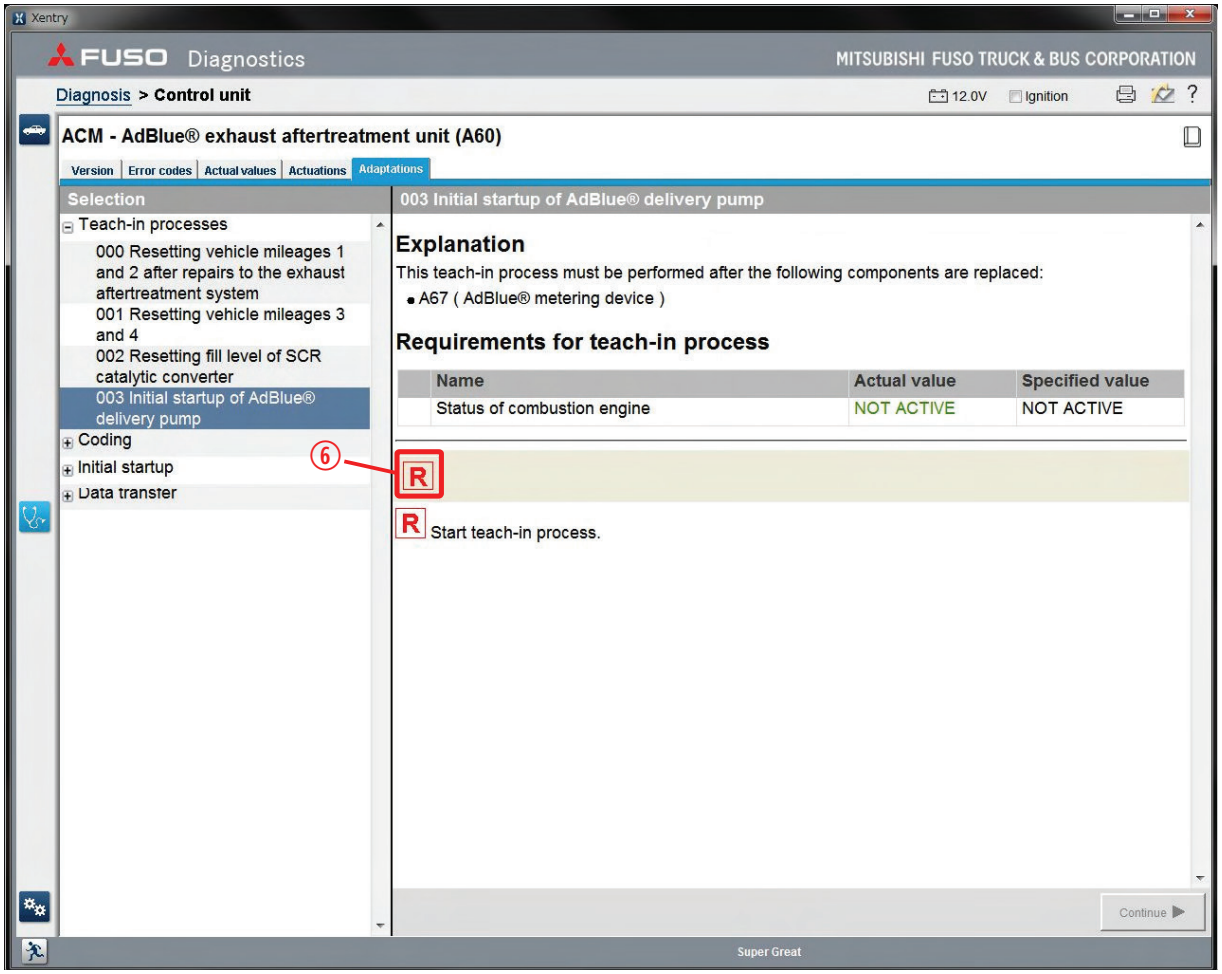
④ After clearing a urea (AdBlue®) error, press the button to reset the data for the mileage covered after the error occurred.

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⑤ After replacing the SCR (rear oxidation catalyst) unit, press the button to reset the data for the amount of absorbed urea (AdBlue®).

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⑥ After replacing the urea dosing unit, press the button to reset the learned value of urea dosing valve corrosion-prevention control.

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Change to the vehicle specification items or replacement of particular equipment items listed in the following table requires rewriting the coding data of the CPC2. Note that some items in the table may not apply to your vehicle depending on the vehicle specifications or destination.

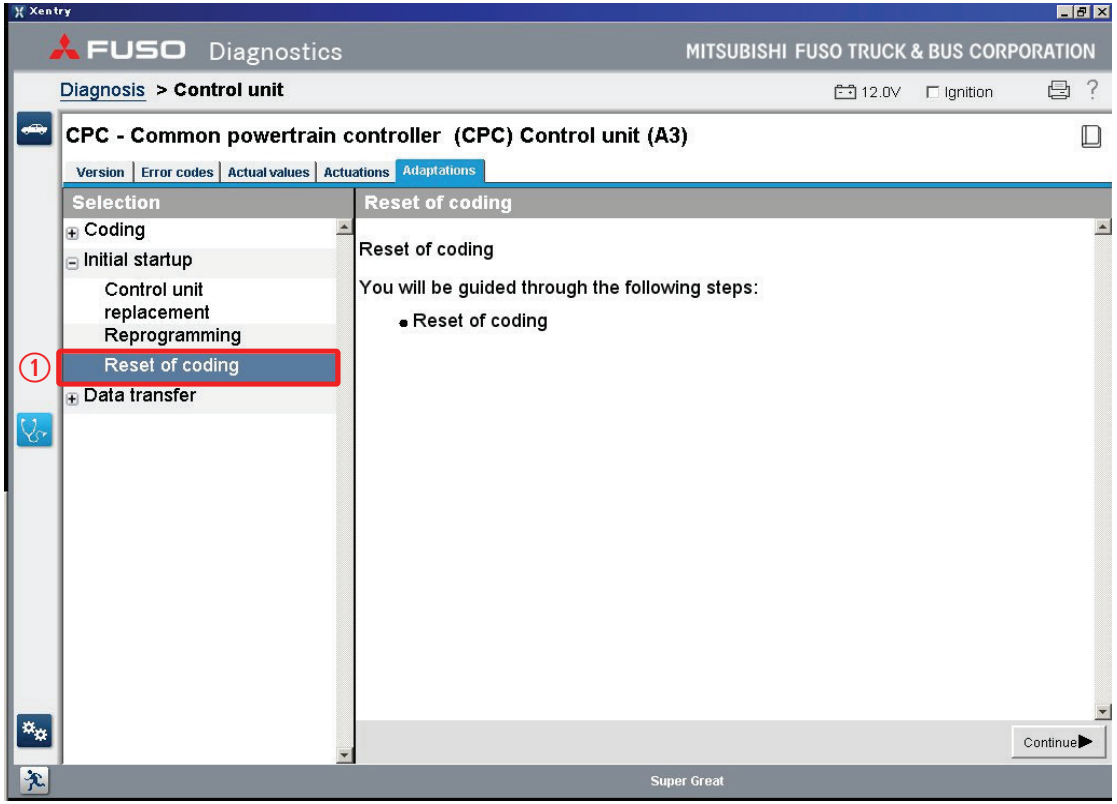
Event \ CPC2 data (items in FD)	All data (latest history data complete of the relevant vehicle)	Data of electric governor for specially equipped vehicle (PTO)	Data of idle speed increase	Data of speed limit	Data of rear axle reduction gear ratio (transmission)	Tyre size data (transmission)	Remarks	Reference number
Replacing CPC2	○							1
Removing/installing PTO (for electric governor for specially equipped vehicle) or changing characteristics		○					• Dealer option available • Used for large-size truck only	2
Changing idle speed (when using air-conditioner)			○					3
Changing speed limit				○			Valid for the market without speed limiter regulation only	4
Changing rear axle reduction gear ratio					○		<*>	5<*>
Changing tyre size (outer diameter)						○		

<*> Since the data for these items is not allowed to be changed by the user, it cannot be changed with FD. However, it is possible to check the current data on the screen. If this data needs to be changed, consult MITSUBISHI FUSO TRUCK & BUS CORPORATION.

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<Reference number 1: Replacement of CPC2>

- If the CPC2 has been replaced with a new one, you can use the previous coding parameters by downloading the ECU data from the FRN and then executing “Reset of coding” (see F2-050).

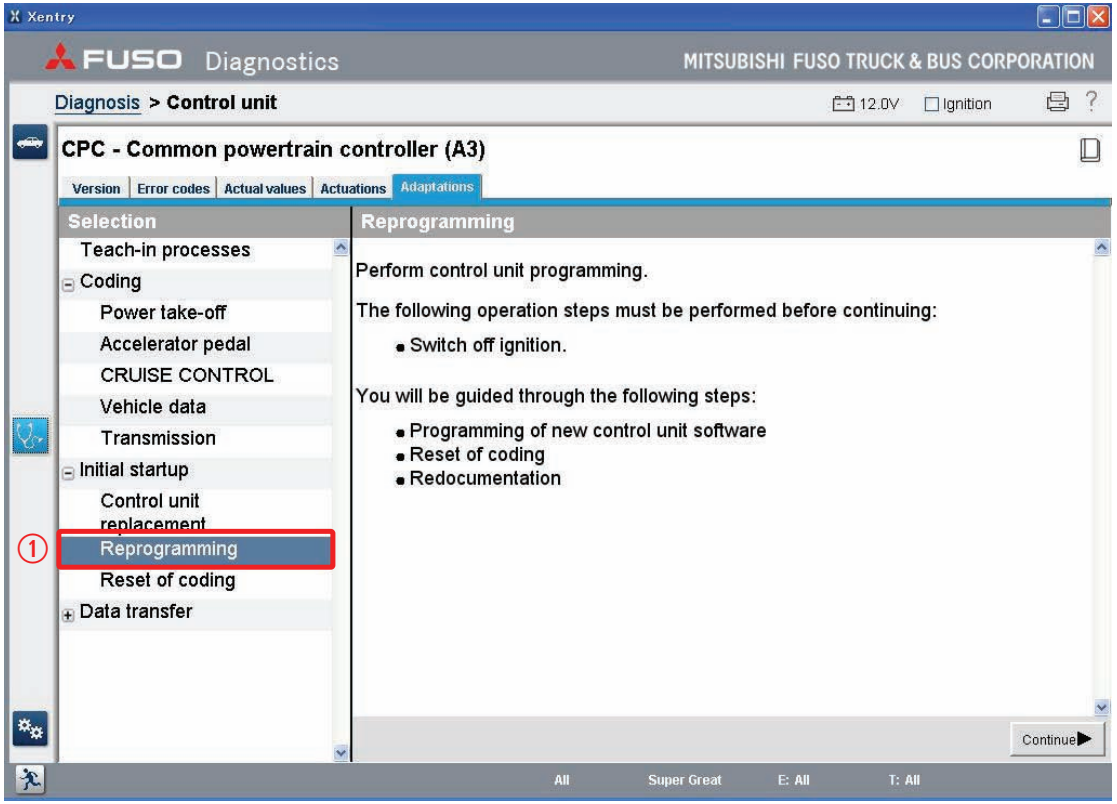


① Replace the ECU with a new one.

- Select “Reset of coding” (see F2-050 for the subsequent steps).

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- If only the software of the ECU needs to be updated, you can use the previous coding parameters by downloading the ECU data from the FRN and then executing “Reprogramming” (see F2-040).

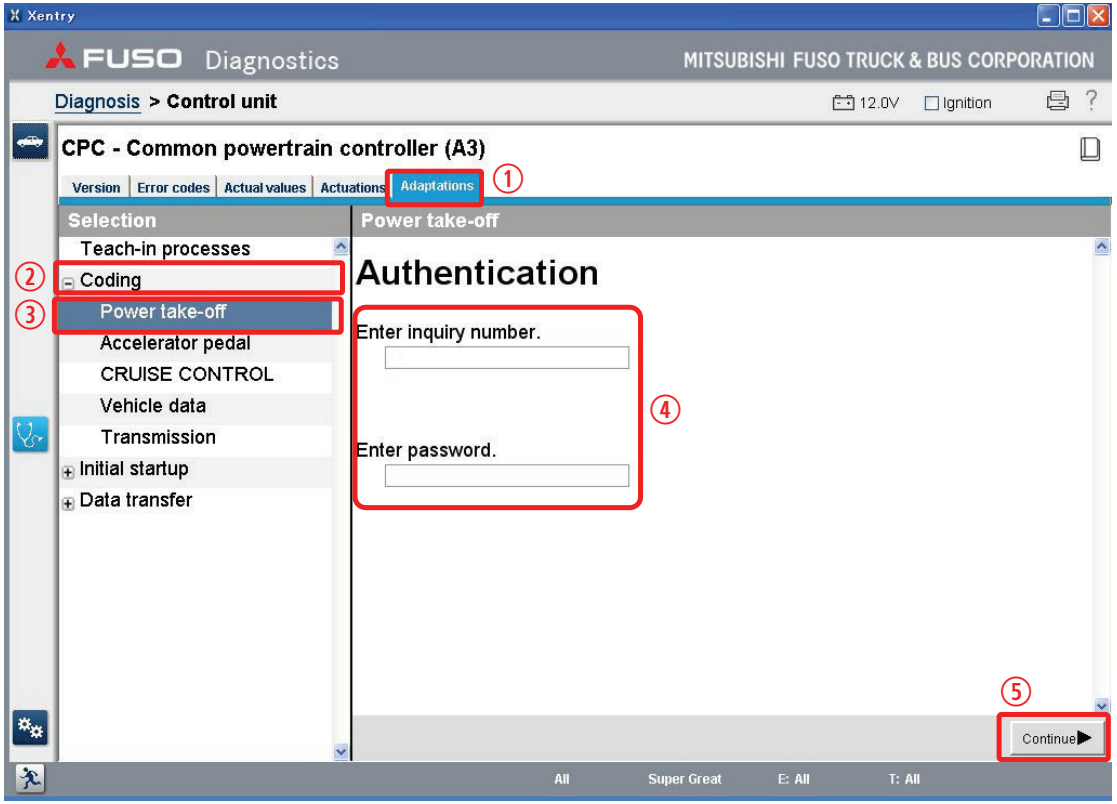


① Select “Reprogramming” (see F2-040 for the subsequent steps).

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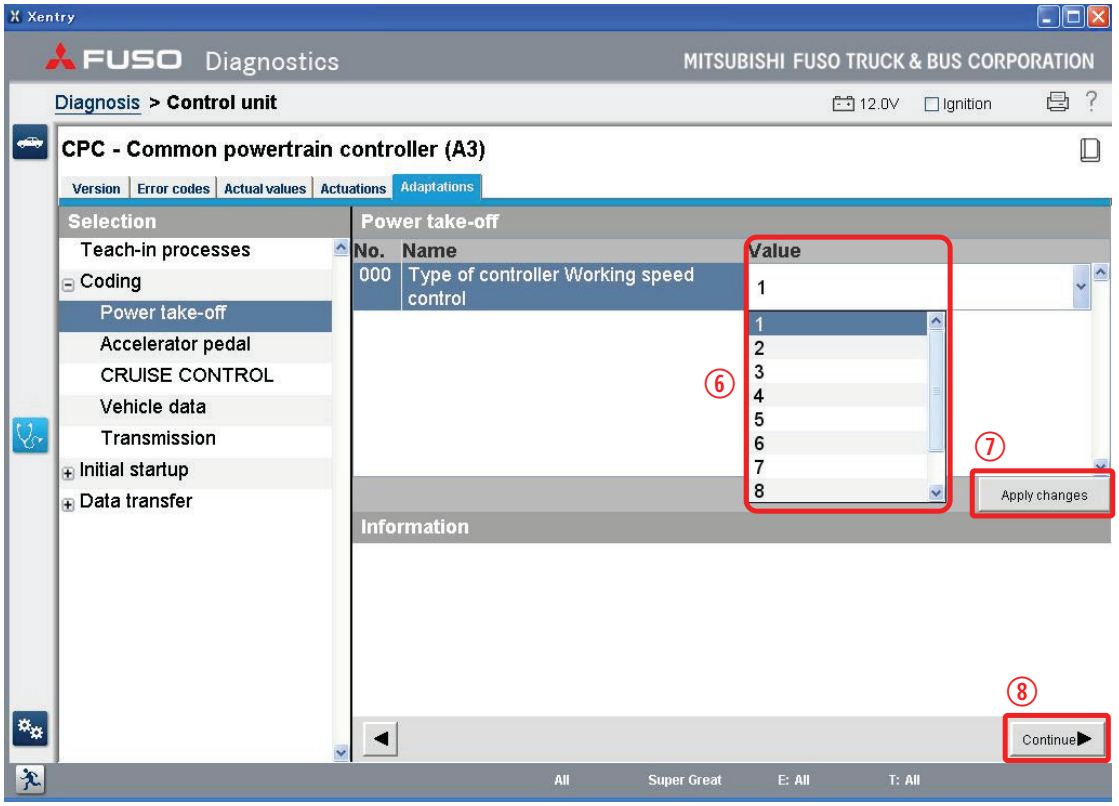
<Reference number 2: Removing/installing PTO (for electric governor for specially equipped vehicle) or changing characteristics>

- Download the history data of the relevant ECU from FRN and save it in FD.



① Select “Adaptations”.
② Select “Coding”.
③ Select “Power take-off”.
④ Enter the inquiry number and password from FRN.
⑤ Click “Continue”.

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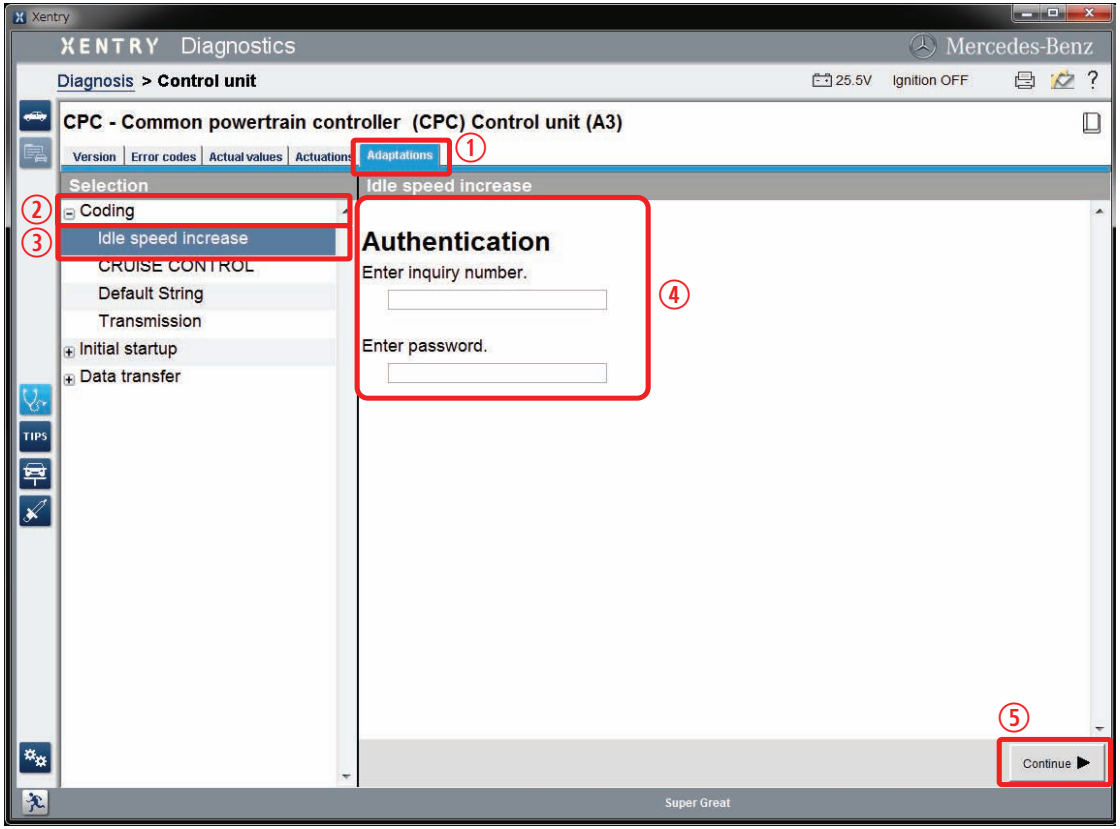
⑥ Select the appropriate parameter (the same value as the governor program for special equipment in the dealer OPT kit).
⑦ Select “Apply changes”.
⑧ Click “Continue”.

- Upload the history data of the relevant ECU in FRN.

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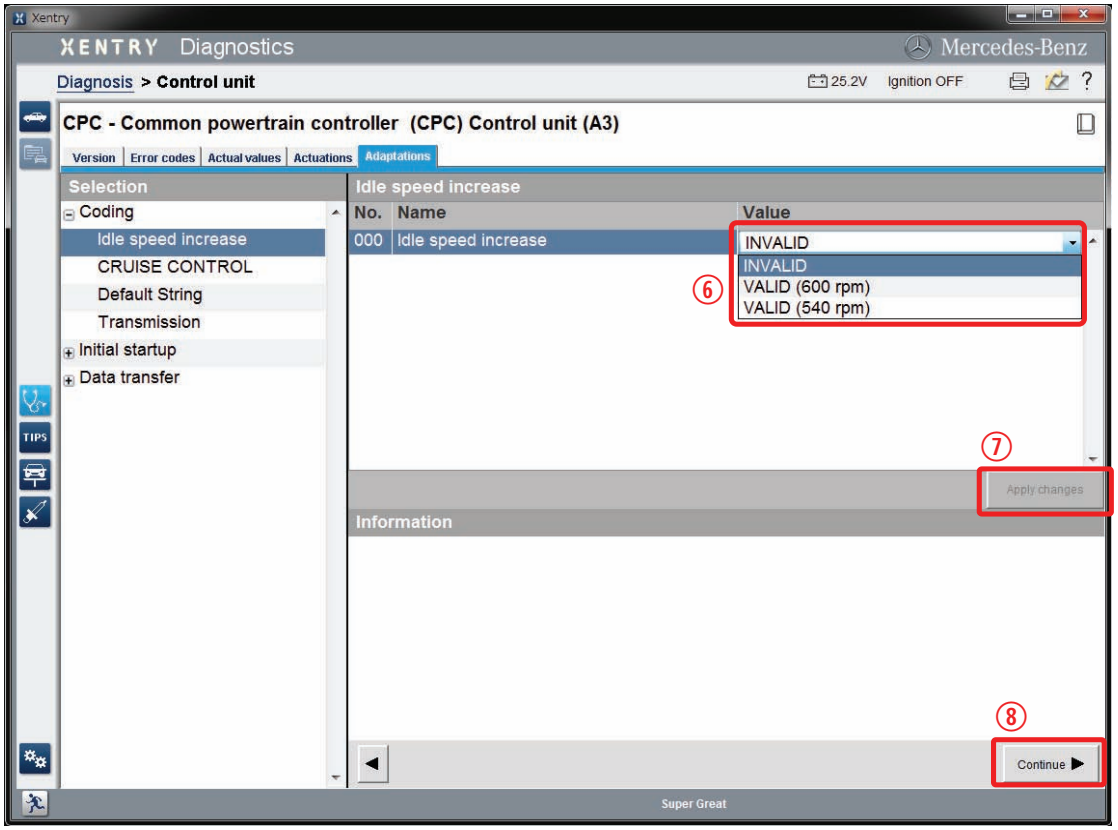
<Reference number 3: Changing idle speed (when using air-conditioner)>

- Download the history data of the relevant ECU from FRN and save it in FD.



① Select “Adaptations”.
② Select “Coding”.
③ Select “Idle speed increase”.
④ Enter the inquiry number and password from FRN.
⑤ Click “Continue”.

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⑥ Select the appropriate parameter

Specifications	Value	Remarks
Without idle up	INVALID	-
Idle up speed 600 rpm	VALID (600 rpm)	For truck
Idle up speed 540 rpm	VALID (540 rpm)	For bus

⑦ Select “Apply changes”.
⑧ Click “Continue”.

- Upload the history data of the relevant ECU in FRN.

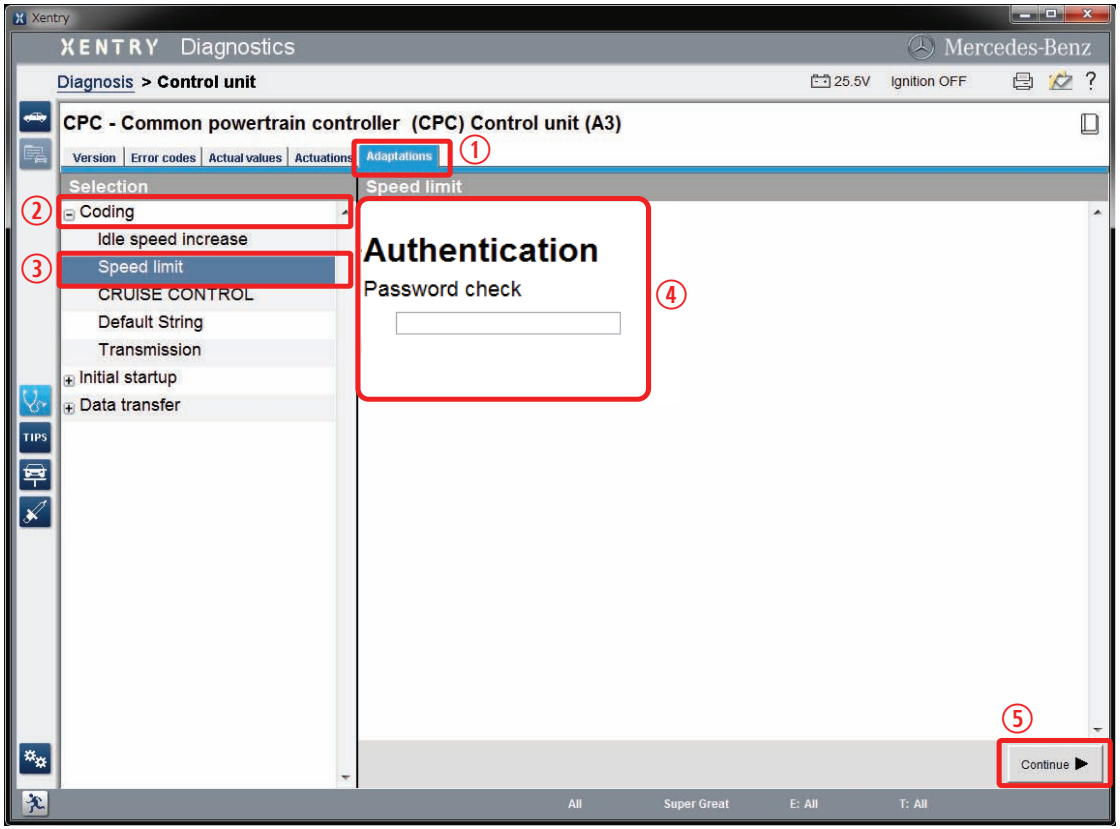
https://truckmanualshub.com/

<Reference number 4: Changing speed limit>

- Input password to use this function.

MEMO

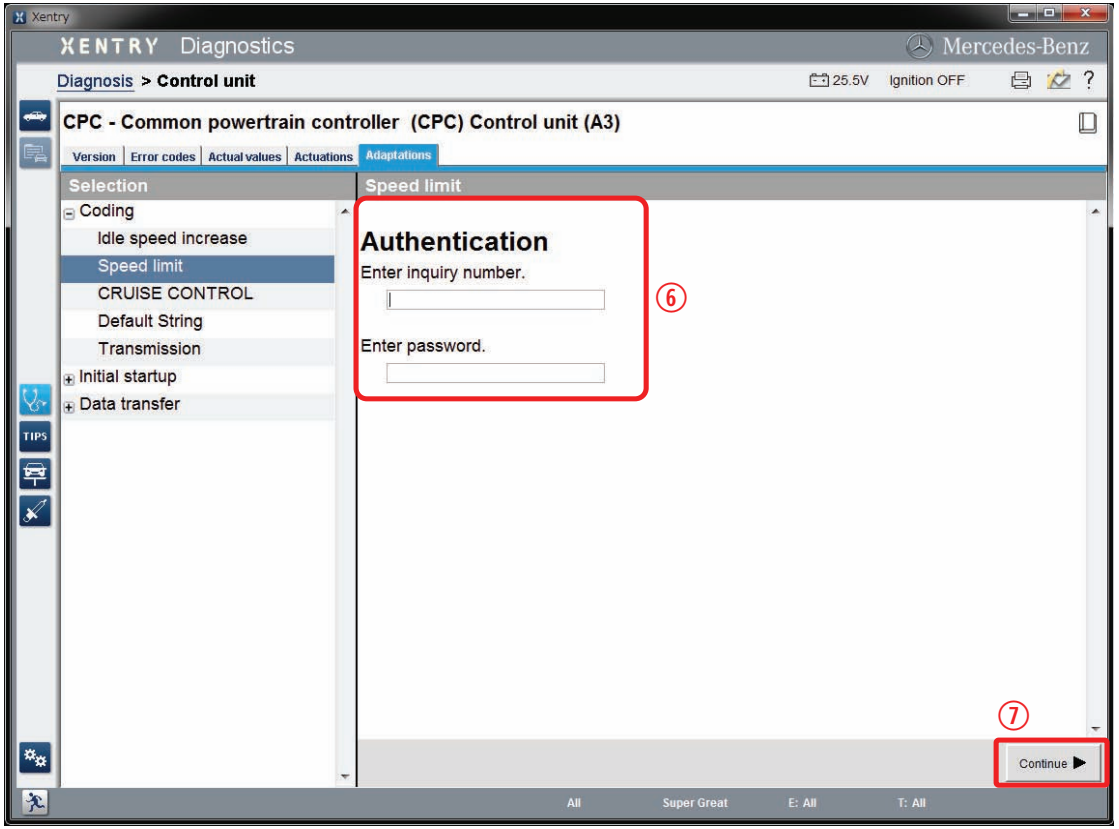
This password is intended for changing the speed limit. This password is different from the password for FRN and it is available for the market without speed limit regulation. This password is changed at regular intervals.



① Select “Adaptations”.
② Select “Coding”.
③ Select “Speed limit”.
④ Enter the password.
⑤ Click “Continue”.

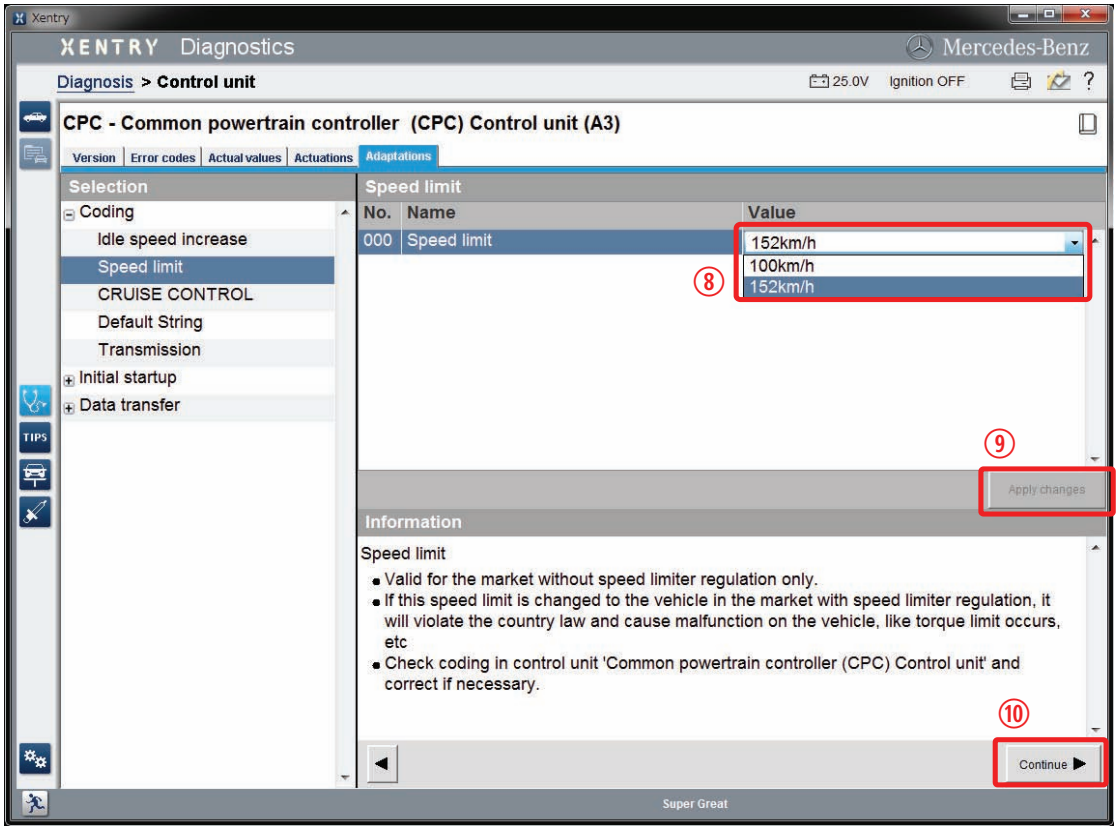
https://truckmanualshub.com/

- Download the history data of the relevant ECU from FRN and save it in FD.



⑥ Enter the inquiry number and password from FRN.
⑦ Click “Continue”.

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⑧ Select the appropriate parameter.

Specifications	Value
Speed limit invalid	100 km/h
Speed limit valid	100 km/h

Please confirm information when changing parameter.

⑨ Select “Apply changes”.

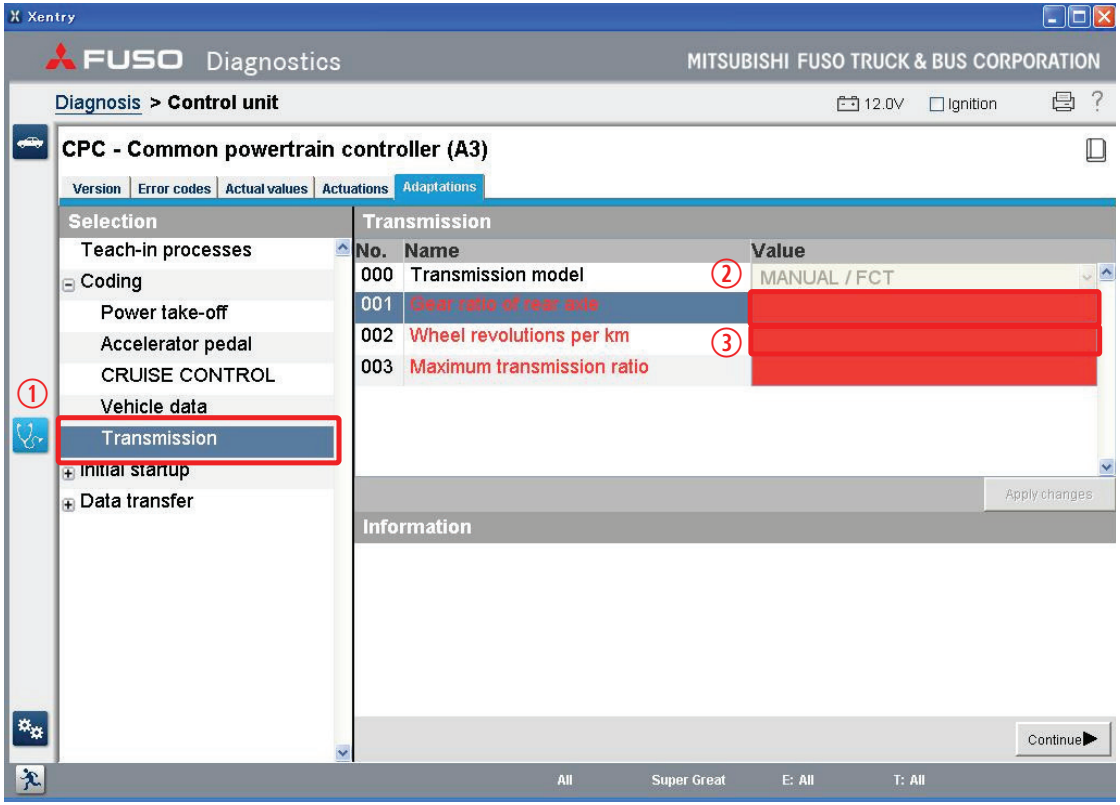
⑩ Click “Continue”.

- Upload the history data of the relevant ECU in FRN.

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<Reference number 5: Checking the final gear ratio and tyre size data>

- Since the data for these items is not allowed to be changed by the user, it cannot be changed with FD. However, it is possible to check the current data on the screen using the following procedure.



① Select “Transmission”.
② The current final gear ratio is displayed.
③ The current tyre size data (the number of tyre revolutions when the vehicle has travelled 1 km) is displayed.

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Rewriting is required if the electrical equipment listed below has been replaced. Note that some items in the table may not apply to your vehicle depending on the vehicle specifications or destination.

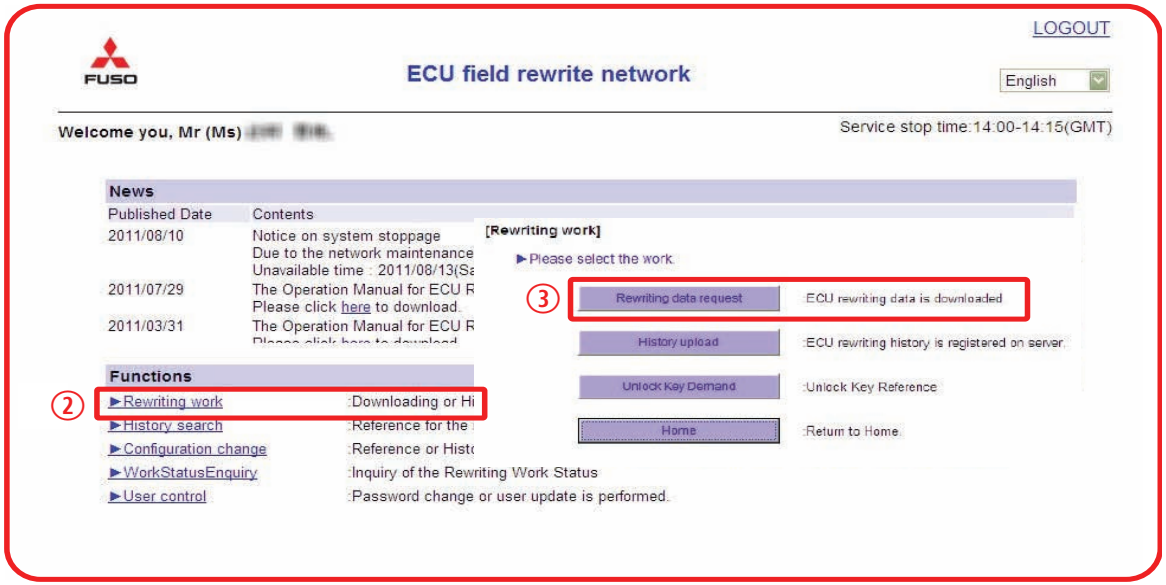
Electrical equipment/function		Reference number
Engine ECU	Replacing engine ECU main unit	1

○ : Setting for relevant specifications/electrical equipment needed

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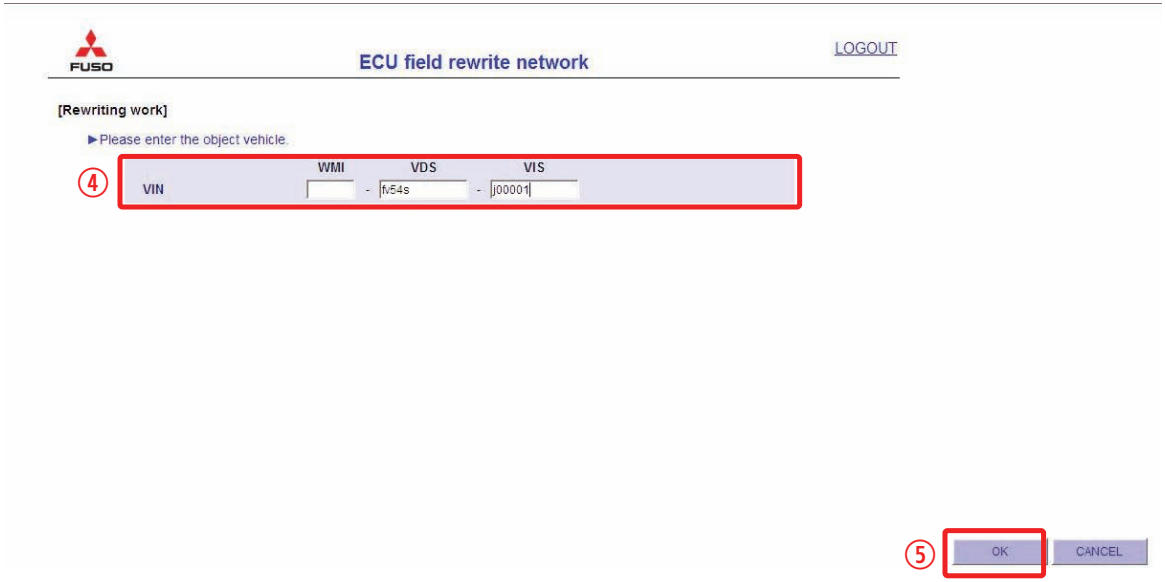
<Reference No. 1: Replacement of engine ECU>

<Download ECU data>

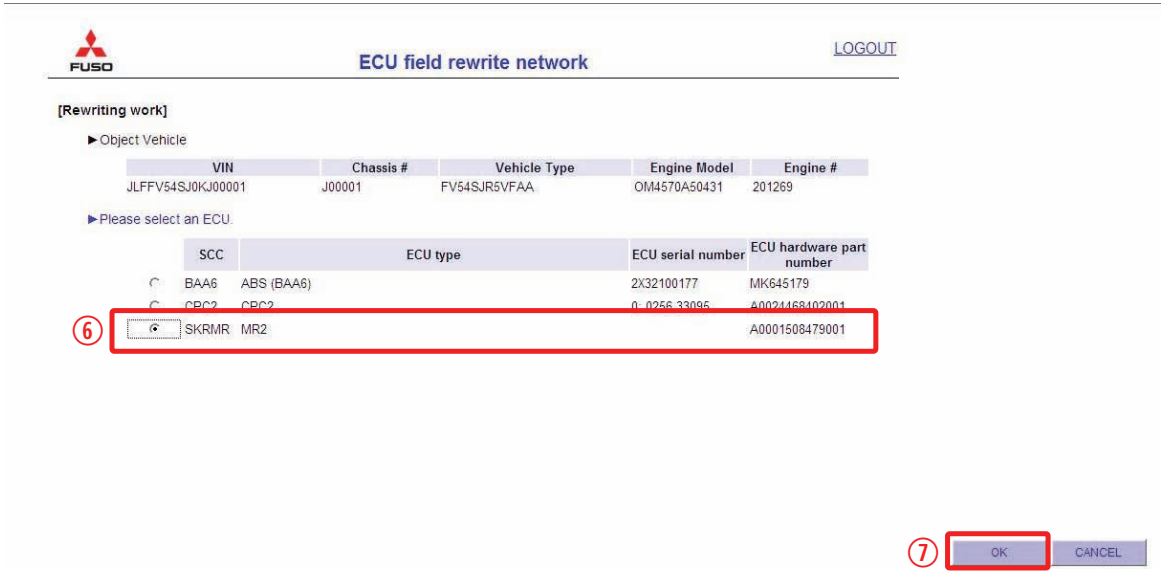


① Download ECU data from the FRN (see F6-*** for details).
② Select “Rewriting work”.
③ Select “Rewriting data request”.

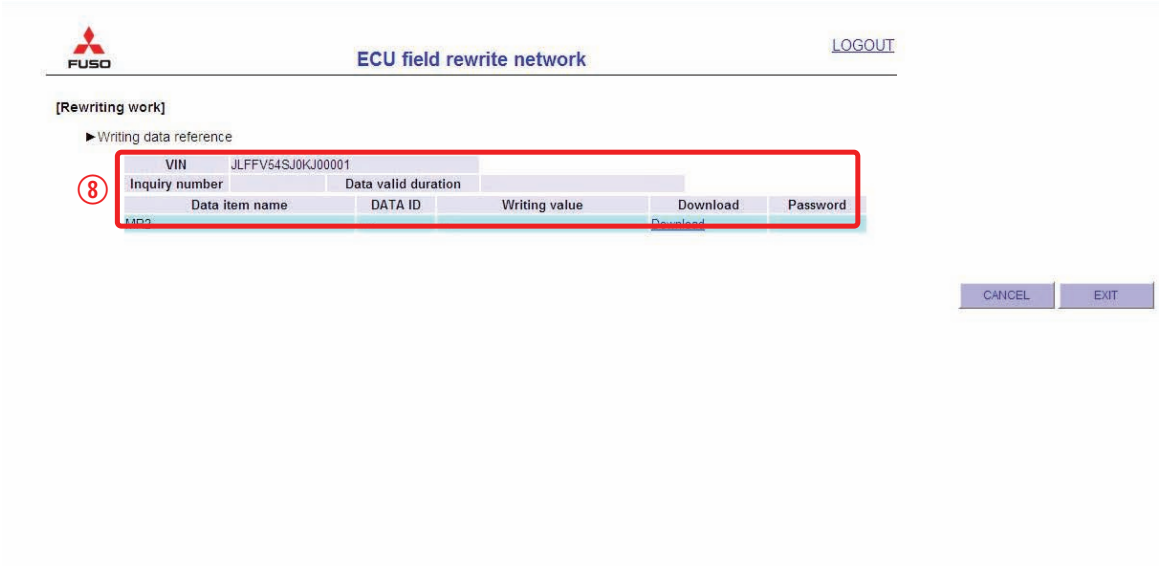
https://truckmanualshub.com/



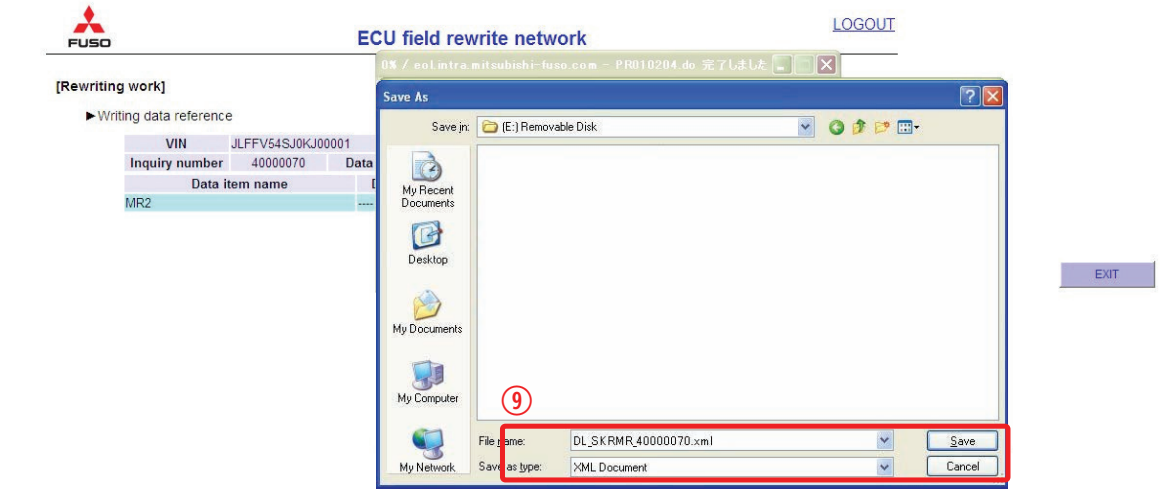
④ Enter the VIN (vehicle identification number).
⑤ Click “OK”.



⑥ Select “MR2”.
⑦ Click “OK”.

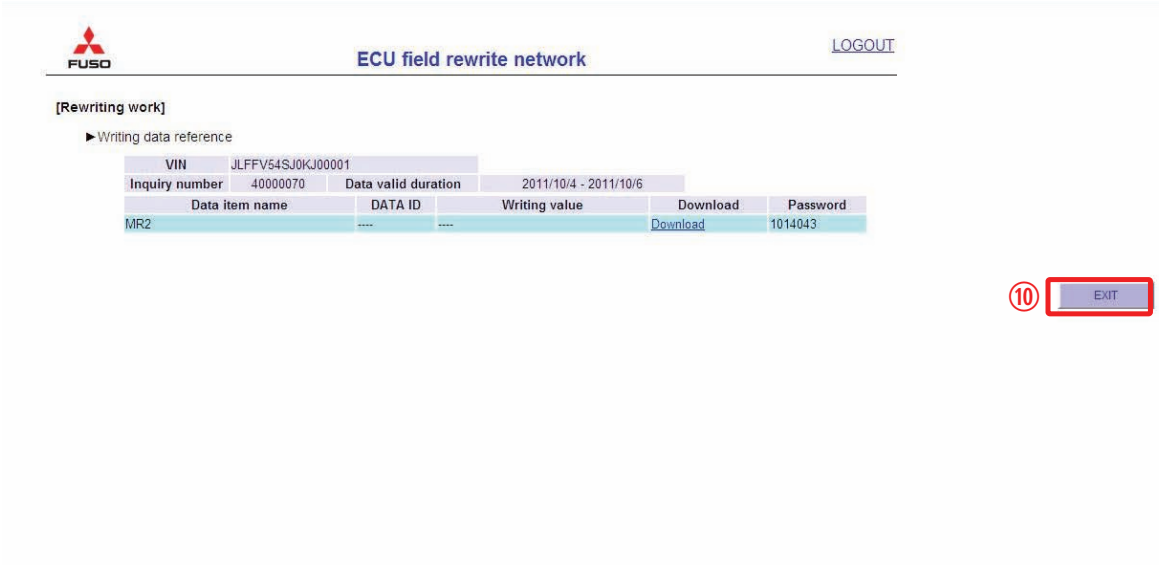


⑧ Download data.



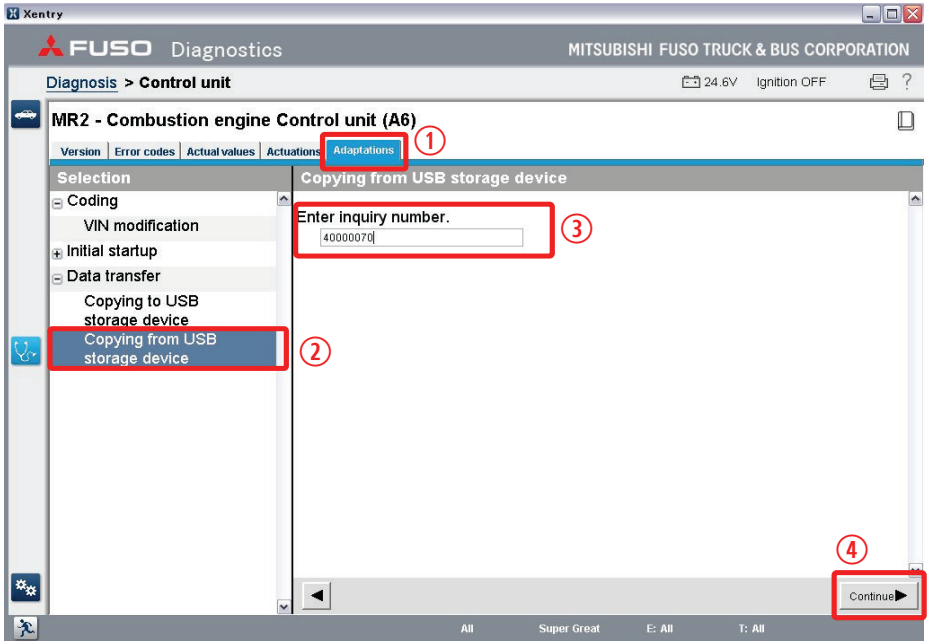
⑨ Save the data to the USB memory stick.

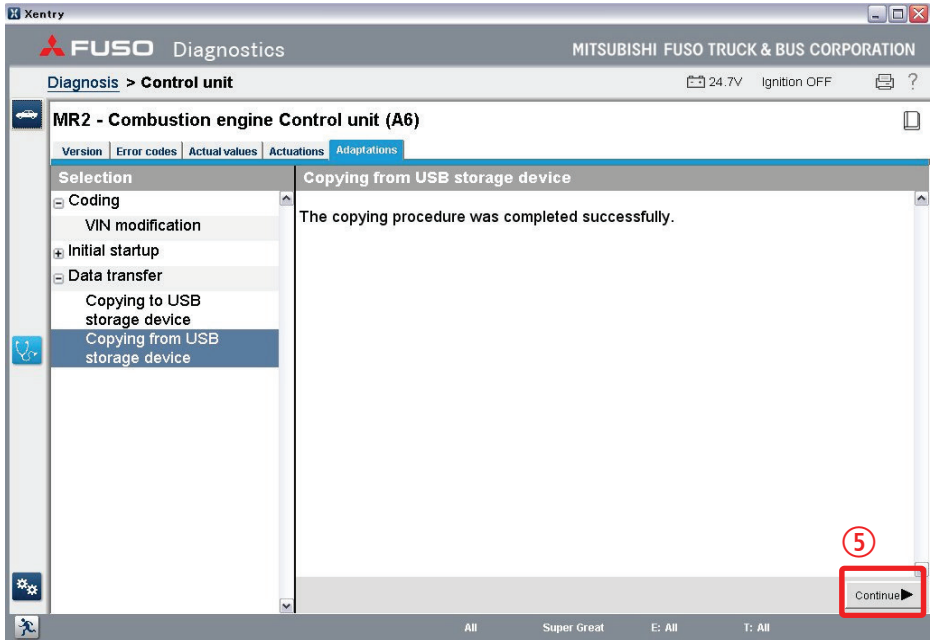
https://truckmanualshub.com/



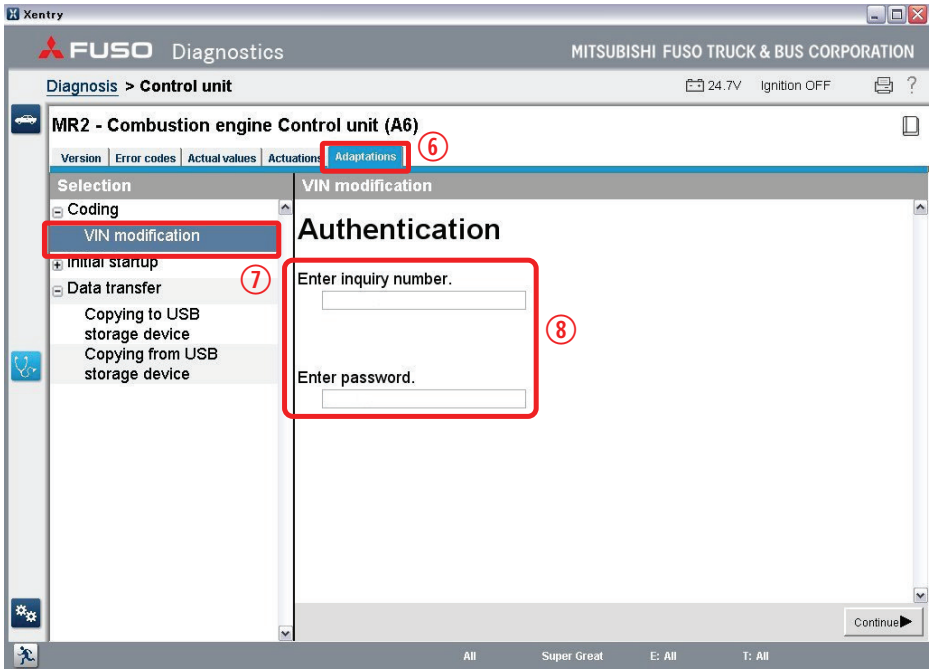
⑩ Click “EXIT”.

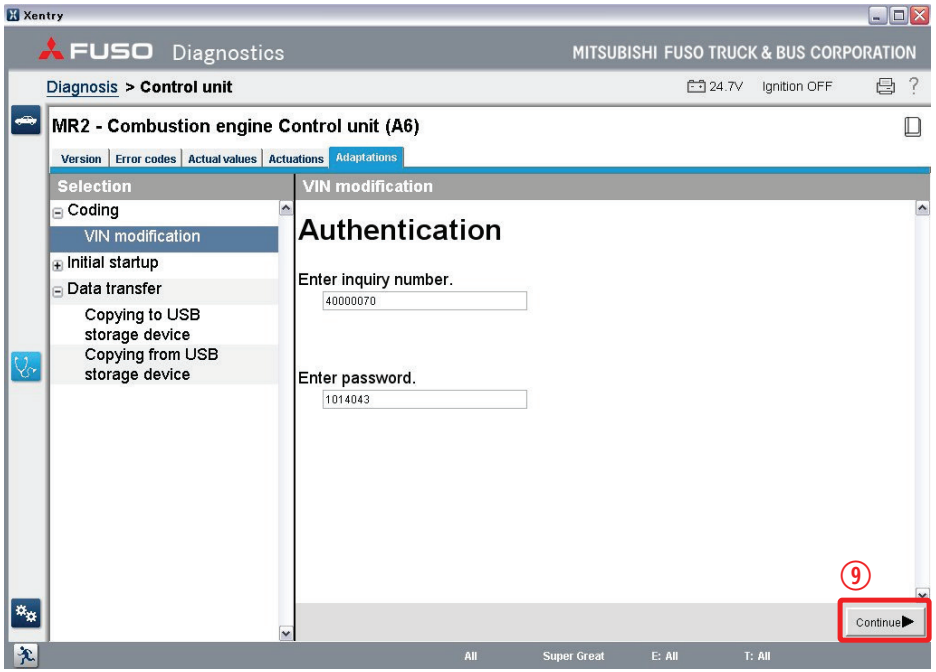
<Change VIN data>
Enter the VIN for the new MR2 as follows.





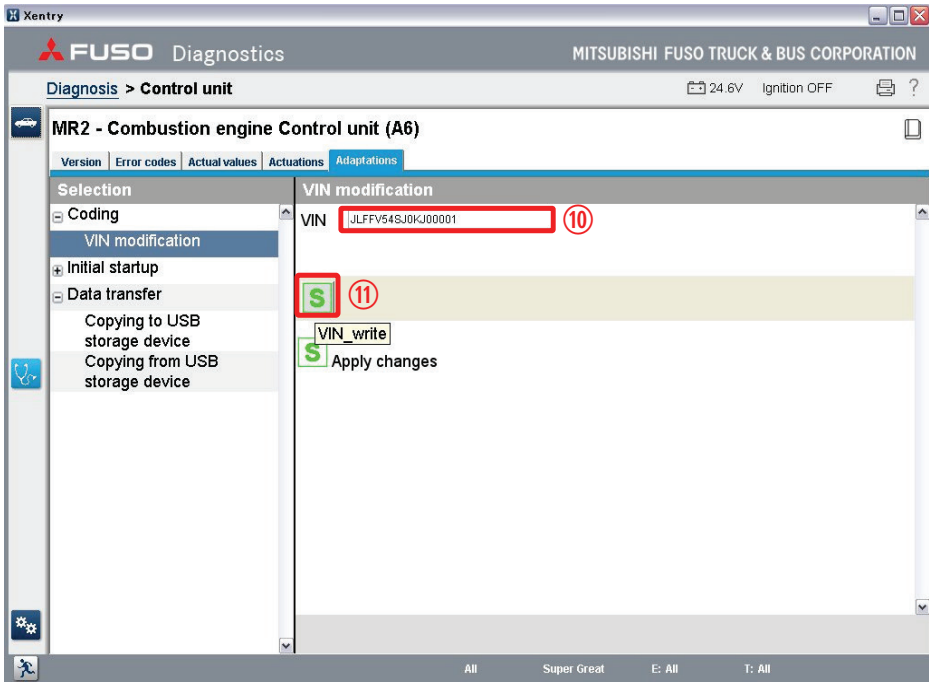
① Select “Adaptations” to copy ECU data from the USB memory stick.
② Select “Copying from USB storage device”.
③ Enter the inquiry number.
④ Click “Continue”.
⑤ Click “Continue”.

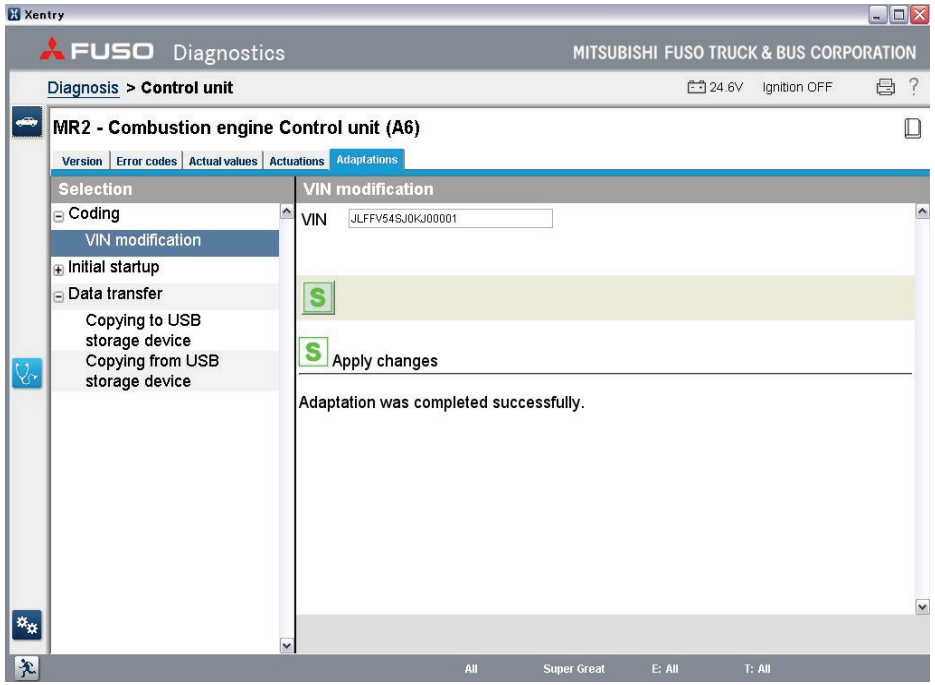




⑥ After copying ECU data from the USB memory stick, select “Adaptations”.
⑦ Select “VIN modification”.
⑧ Enter the inquiry number and password.
⑨ Click “Continue”.

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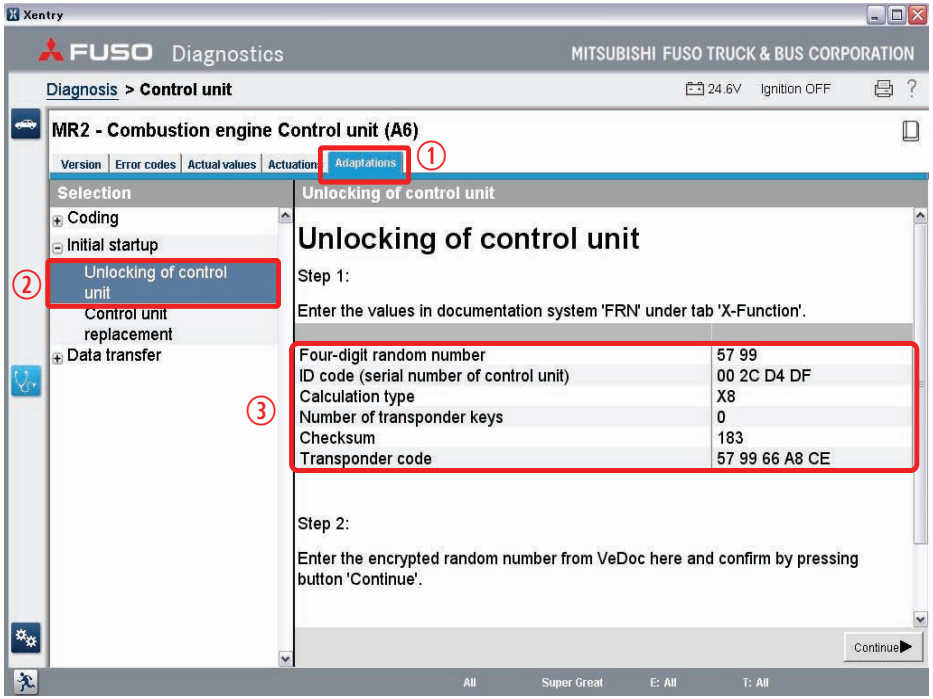




⑩ Enter a new VIN.
⑪ Click “S”.
After changing the VIN, upload ECU data to the FRN.

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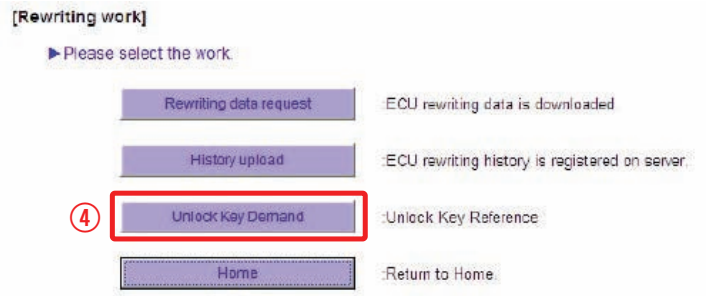
<Unlock the ECU>



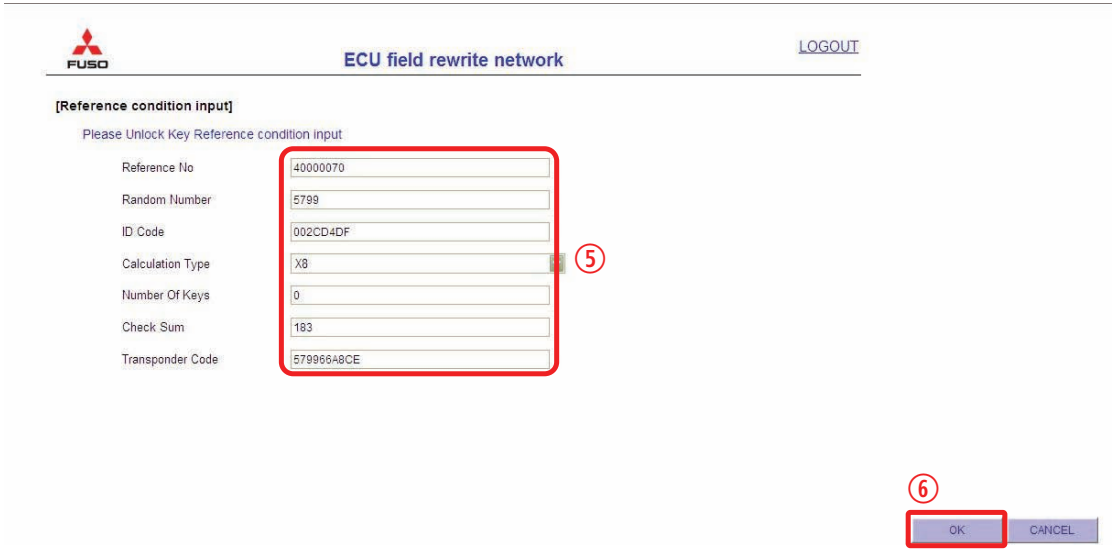
① Download ECU data from the FRN again, then select “Adaptations”.
② Select “Unlocking of control unit”.
③ Confirm the displayed information and keep this screen to enter the unlock key issued from FRN.
④ Select “Unlock key demand” on the FRN.

CAUTION

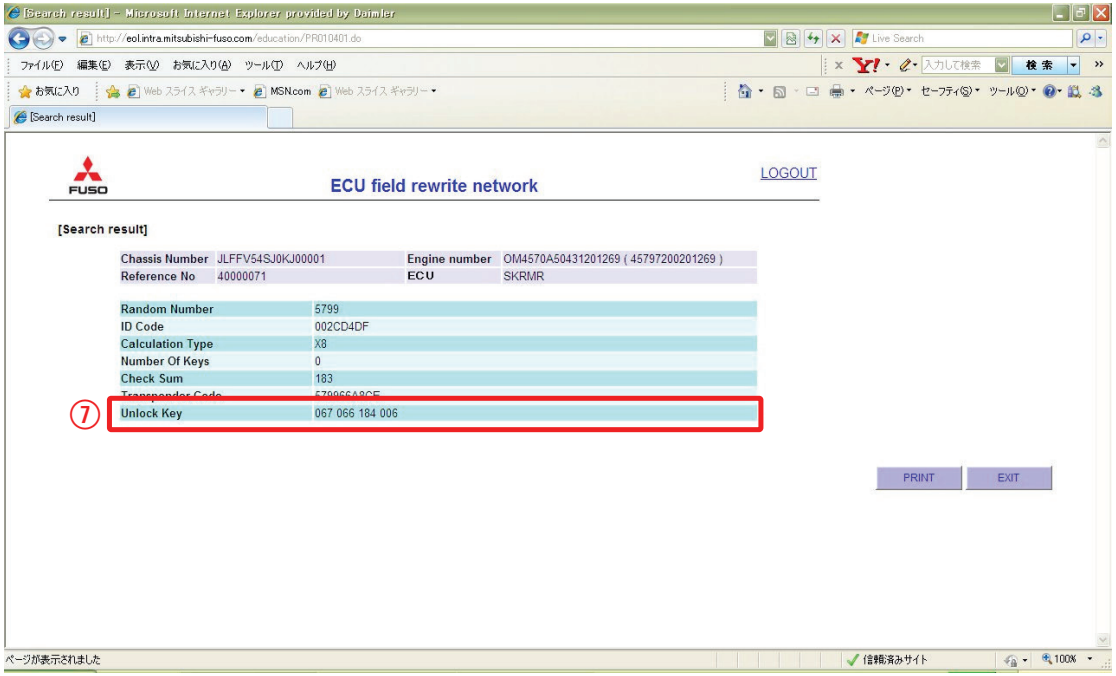
The unlock key issued from FRN will not work properly if the information screen has been closed or FD shutdown.



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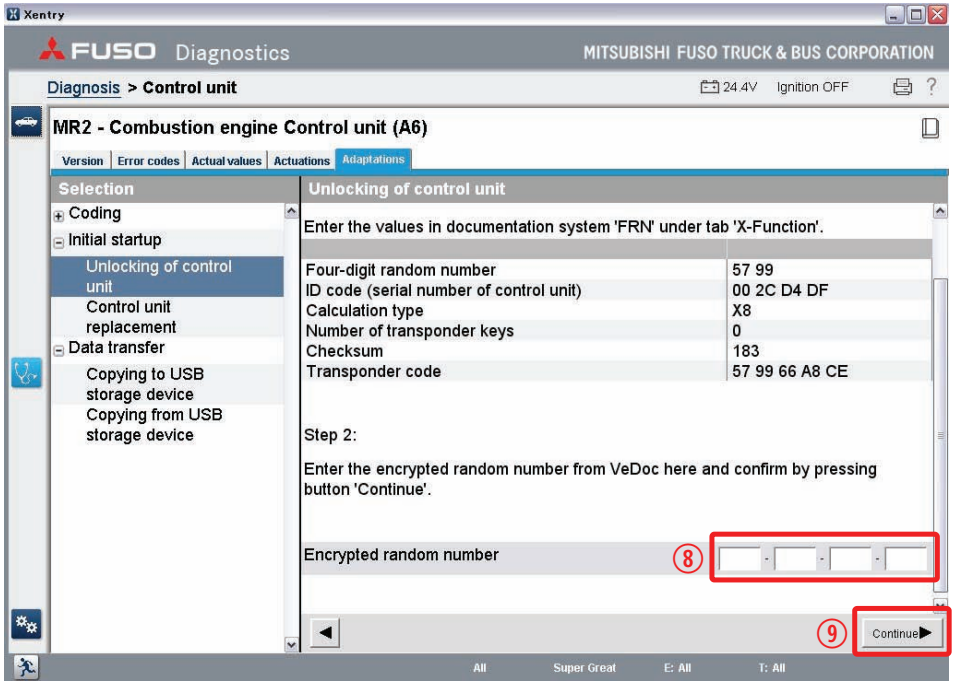


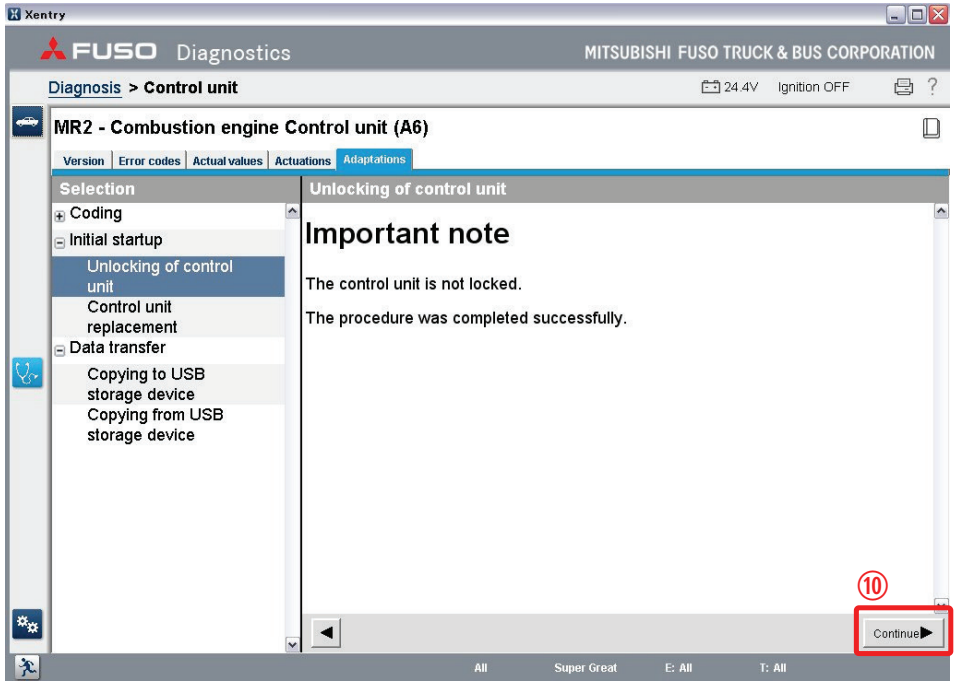
⑤ Enter the information displayed on the FD (enter the inquiry number from the ECU data in the Reference No. field).
⑥ Click “OK”.



⑦ An unlock key is issued.

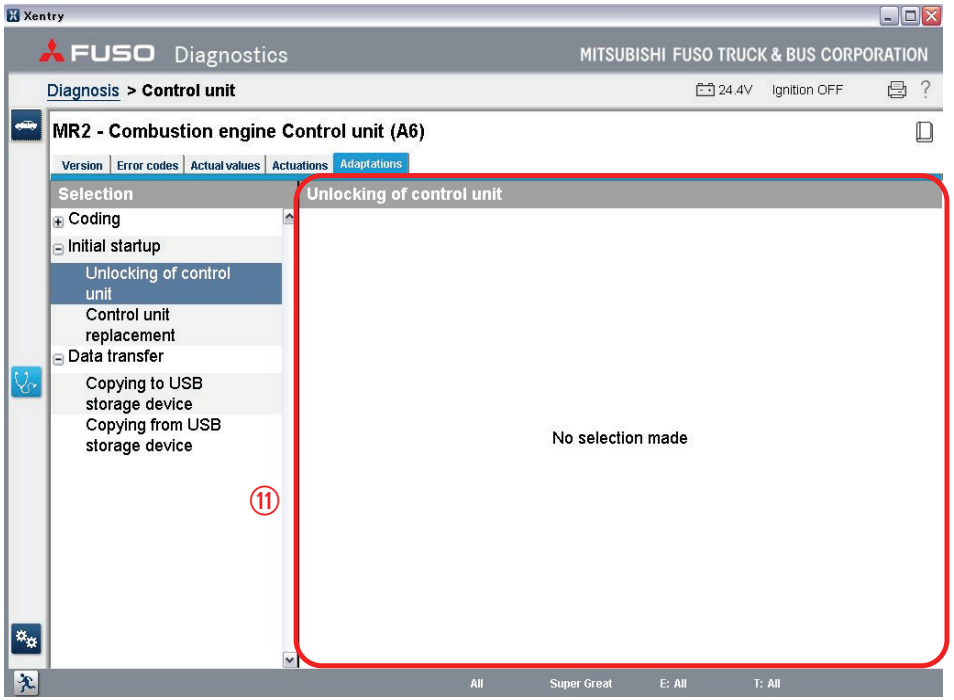
https://truckmanualshub.com/





⑧ Enter the unlock key issued from the FRN.
⑨ Click “Continue”.
⑩ Confirm that the ECU has been unlocked, then click “Continue”. Note that if you attempt to unlock an ECU that is already unlocked, a communication error will occur.

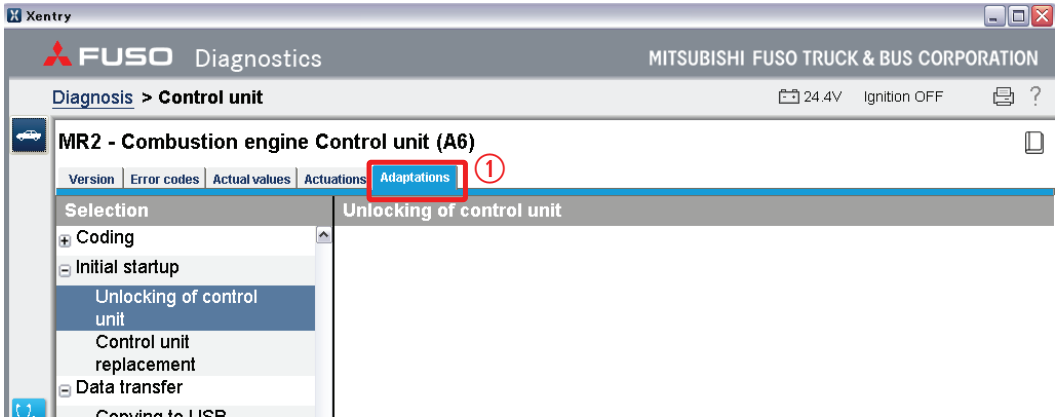
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⑪ Confirm that unlocking of the ECU is complete.

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<Replace the ECU>



① Select “Adaptations”. When the screen is displayed, turn the starter key to the OFF position and remove the connector from the CPC2 and SCR frame module (refer to the Shop Manual for details). After removing the connector from the CPC2 and SCR frame module, turn the starter key to the ON position (be sure to keep this screen displayed during this process).

CAUTION

The CPC and SCR frame module will be damaged when implementing “Control unit replacement” (reprogramming) without removing the connectors.

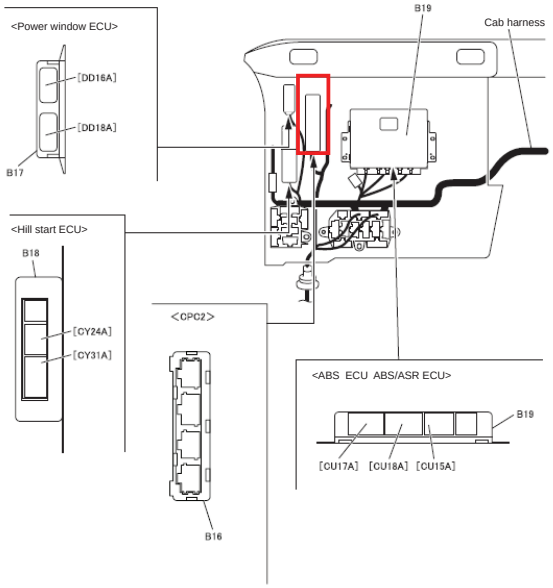
Reference: Installation position of CPC2 and SCR frame module

The following illustrations are an excerpt from OM457 (EURO V) Shop Manual diesel engine I, Pub.No.00EHT0011, OCTOBER 2011, ELECTRICAL EQUIPMENT INSTALLATION POSITION

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CPC: page 12, B16-19

B16–19 <Passenger's seat side instrument panel>



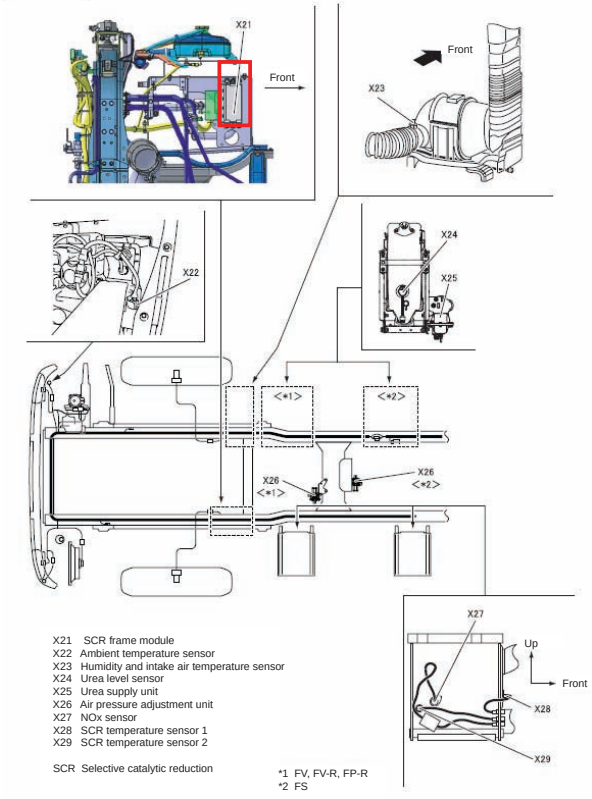
B16 CPC2
B17 Power window ECU
B18 Hill start ECU
B19 ABS ABS/ASR ECU

ABS Anti lock brake system
ASR Anti spin regulator
CPC Common powertrain controller
ECU Electronic control unit

Indicate by connector type [ ]

SCR frame module: page 50, X21-29

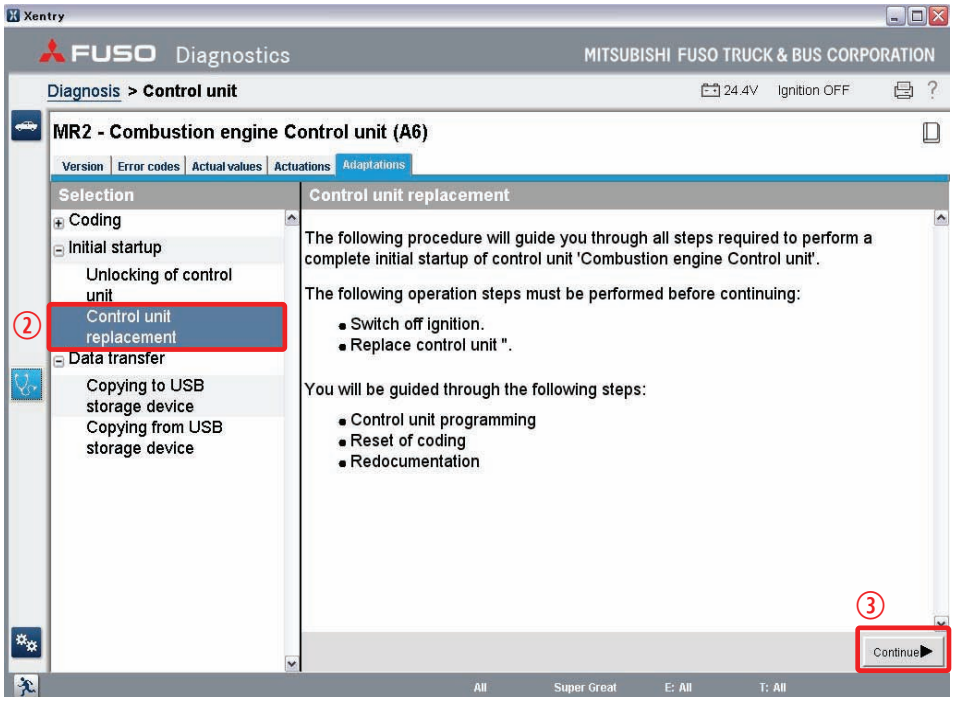
X21–29 <BlueTec® exhaust gas aftertreatment>

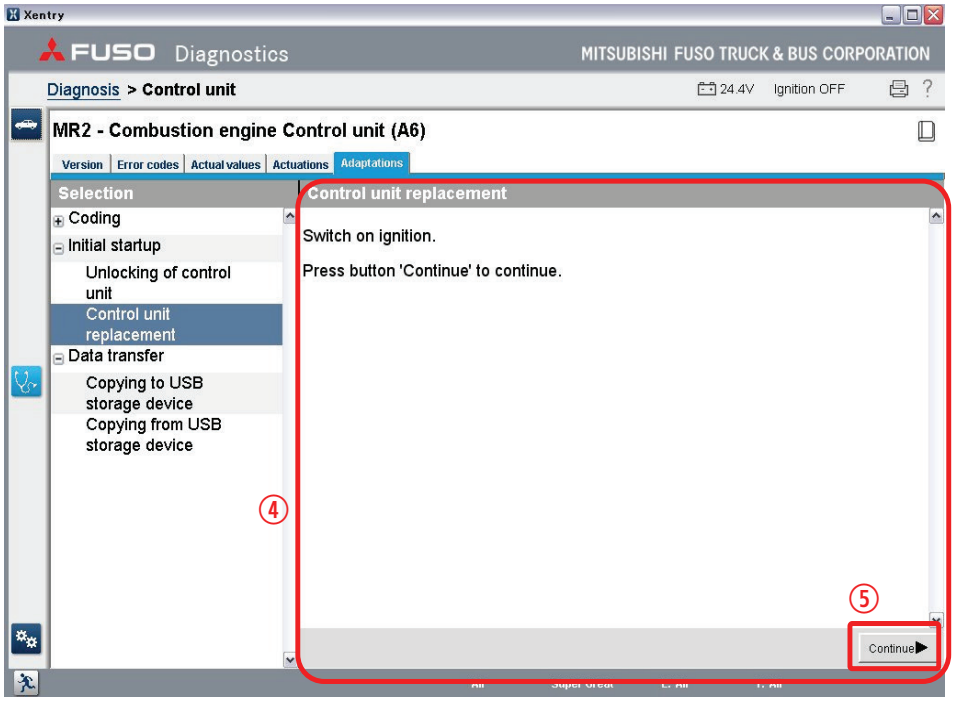


X21 SCR frame module
X22 Ambient temperature sensor
X23 Humidity and intake air temperature sensor
X24 Urea level sensor
X25 Urea supply unit
X26 Air pressure adjustment unit
X27 NOx sensor
X28 SCR temperature sensor 1
X29 SCR temperature sensor 2

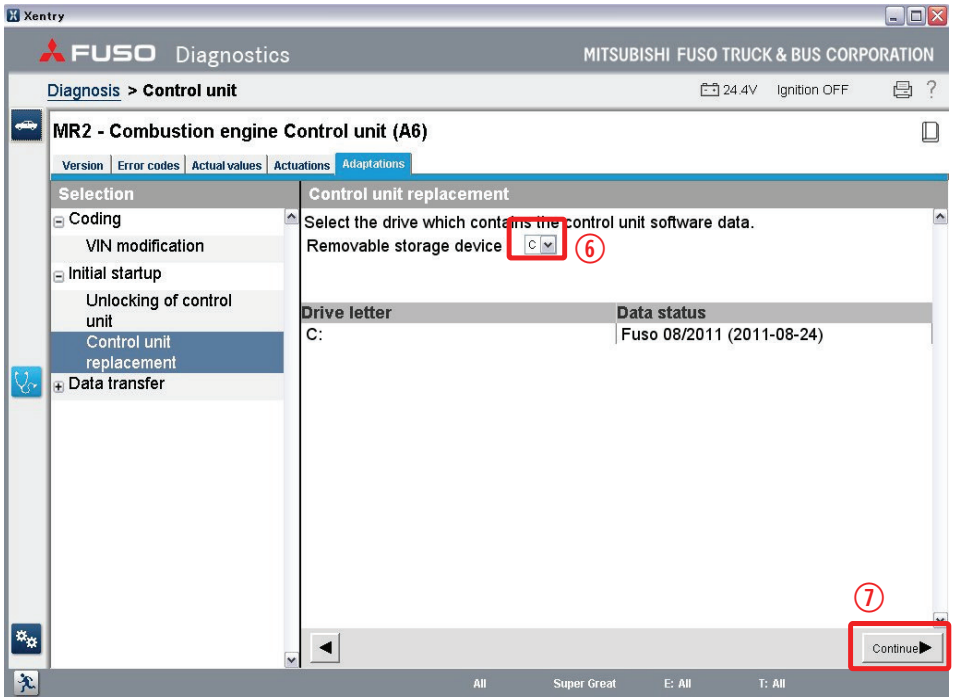
SCR Selective catalytic reduction

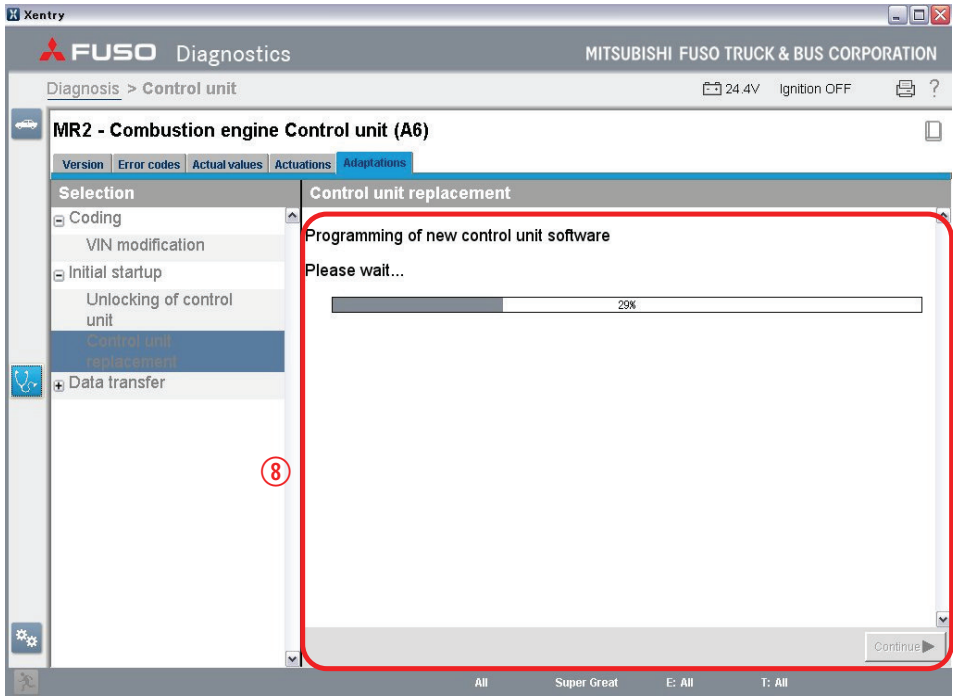
*1 FV, FV-R, FP-R
*2 FS



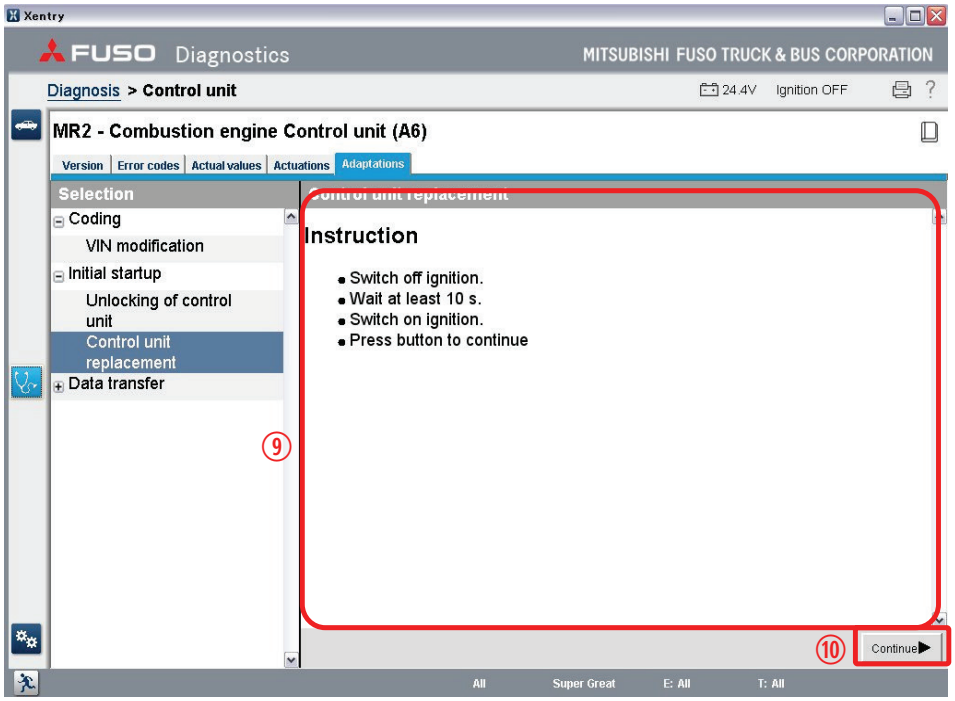


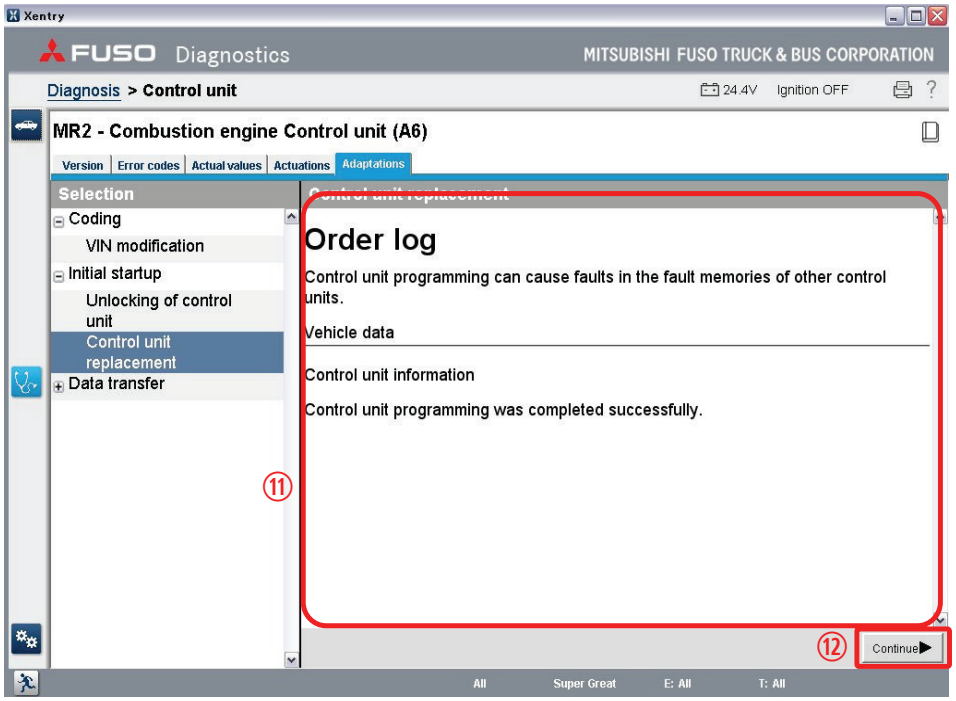
② Select “Control unit replacement”.
③ Click “Continue”.
④ Follow the screen instructions.
⑤ Click “Continue”.





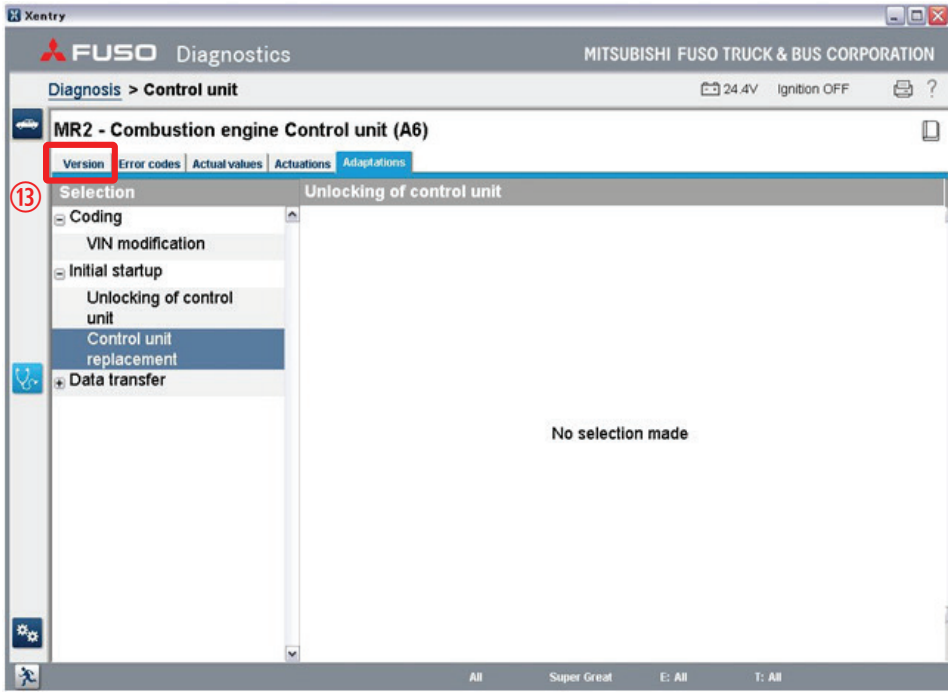
⑥ Select drive C.
⑦ Click “Continue”.
⑧ The process starts.

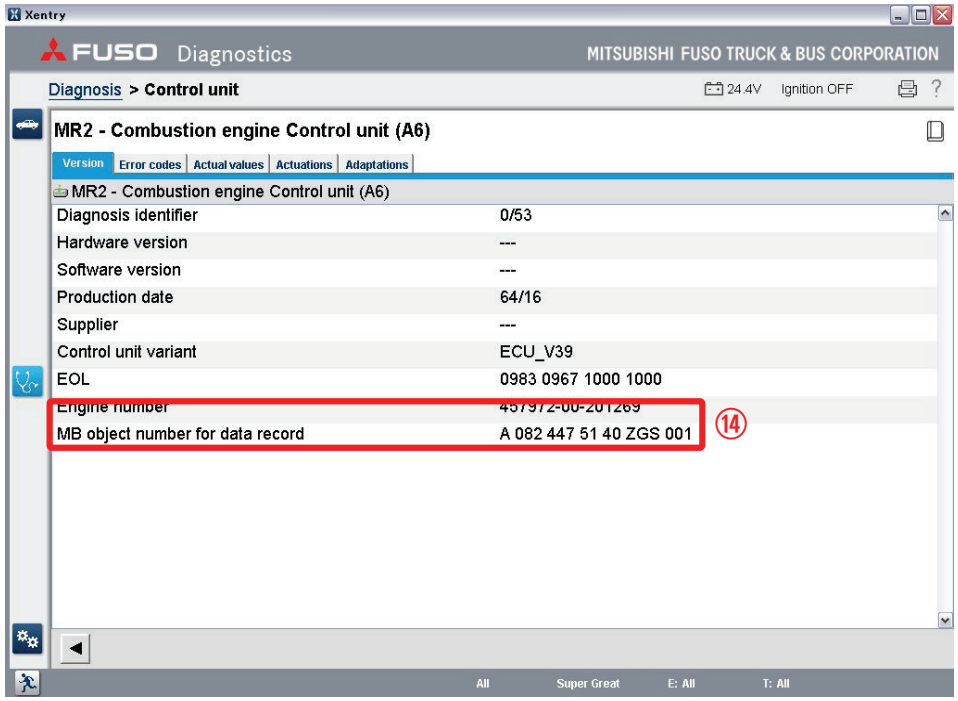




⑨ Execute each task (starter key ON/OFF) by following the screen instructions.
⑩ Click “Continue”.
⑪ Confirm that the process is complete.
⑫ Be sure to click “Continue”.

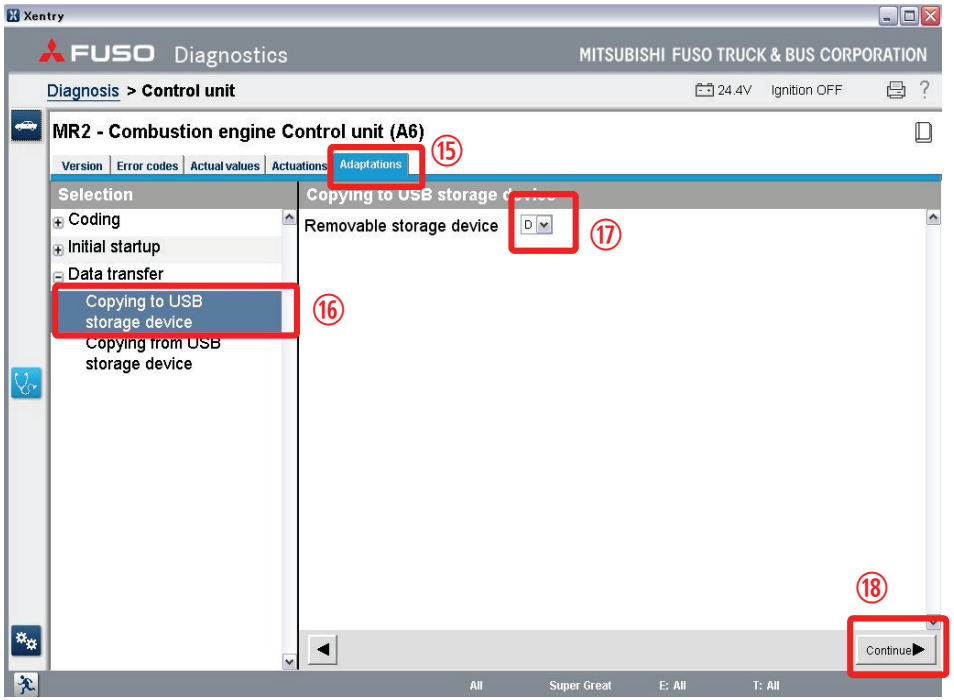
https://truckmanualshub.com/

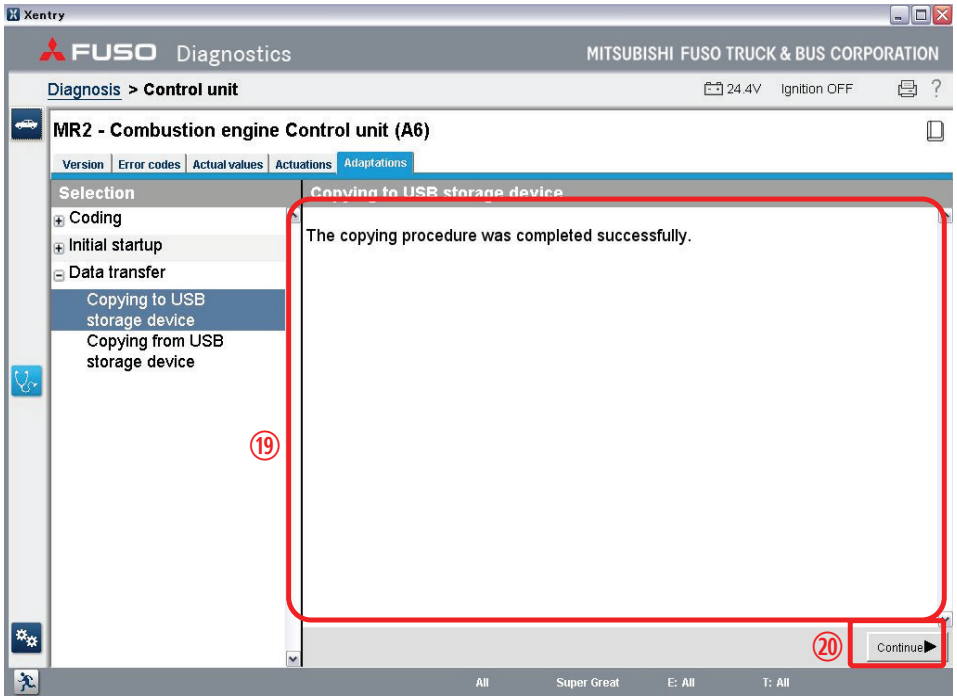




⑬ After clicking “Continue”, the screen above is displayed, then select “Version”.

⑭ Confirm the ECU data. After confirmation, turn the starter key to the OFF position and plug the connector to the CPC2 and SCR frame module. After plugging the connector, turn the starter key to the ON position again. Confirm that the engine has started. Delete the diagnosis codes that occurred in each system. If there are no problems, copy ECU data to a USB memory stick.





⑮ Select “Adaptations”.
⑯ Select “Copying to USB storage device”.
⑰ Select a USB memory stick.
⑱ Click “Continue”.
⑲ Confirm that the process is complete.
⑳ Click “Continue”. Then, upload ECU data to the FRN.

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This section describes the causes of major problems and remedies for individual problems.

Trouble/Problem	Possible cause	Remedy
The FUSO Connect is not turned on even if it is connected to the vehicle and its switch is on (the yellow light on the FUSO Connect does not come on).	Power is not supplied from the vehicle. • FUSO Connect switch is off. • Battery voltage is too low. • Vehicle harness is not connected or open-circuited. • Hardware failure.	1. Make sure the FUSO Connect switch is turned on. 2. Check the battery voltage. 3. Check that the connector is firmly connected. 4. Check the harness for open circuit (connect another harness to make sure). 5. If the above measures do not solve the problem, a hardware failure is suspected. Have the FUSO Connect and the harness inspected.

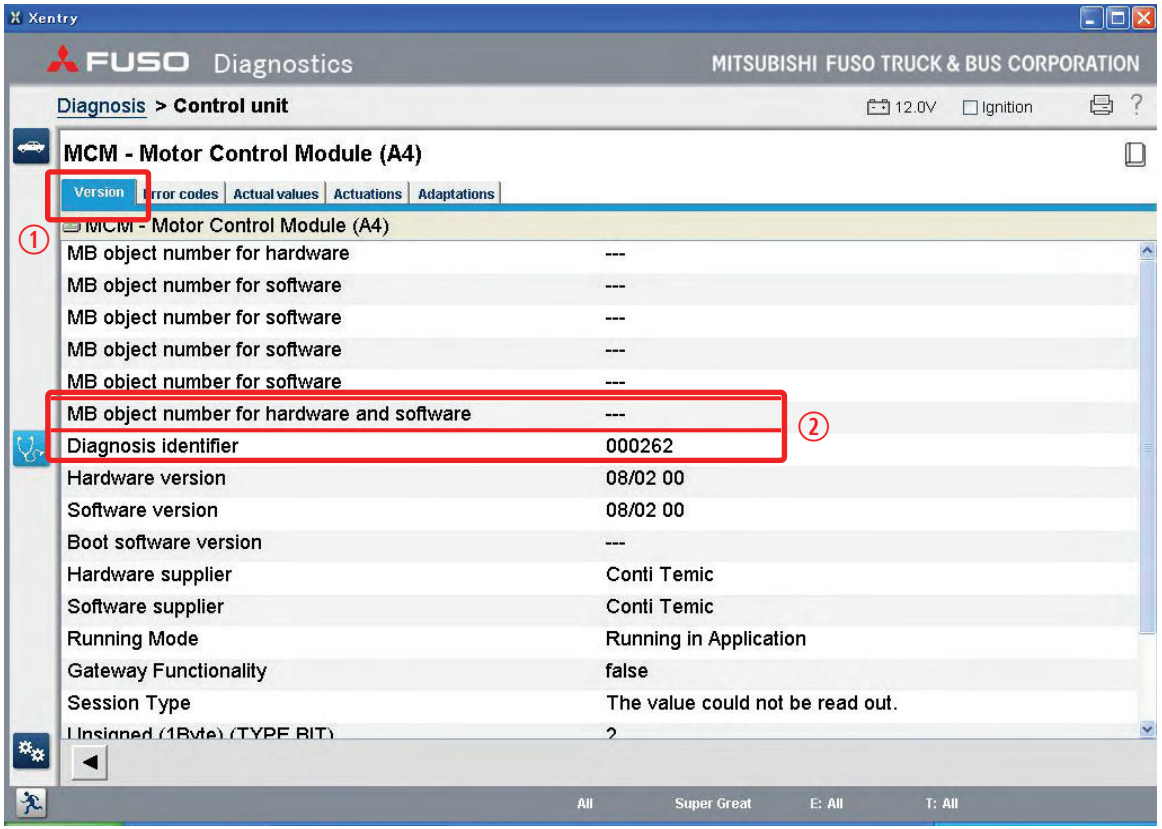
- The messages described in this section may appear together with other screens.
- Refer to the service manual for the relevant vehicle model for instructions on checking electrical circuits.
- Communication lines vary depending on the system and communication method.
- Refer to the Shop Manual for the relevant vehicle model for information on the pin assignments of diagnosis connectors.

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<For MCM>

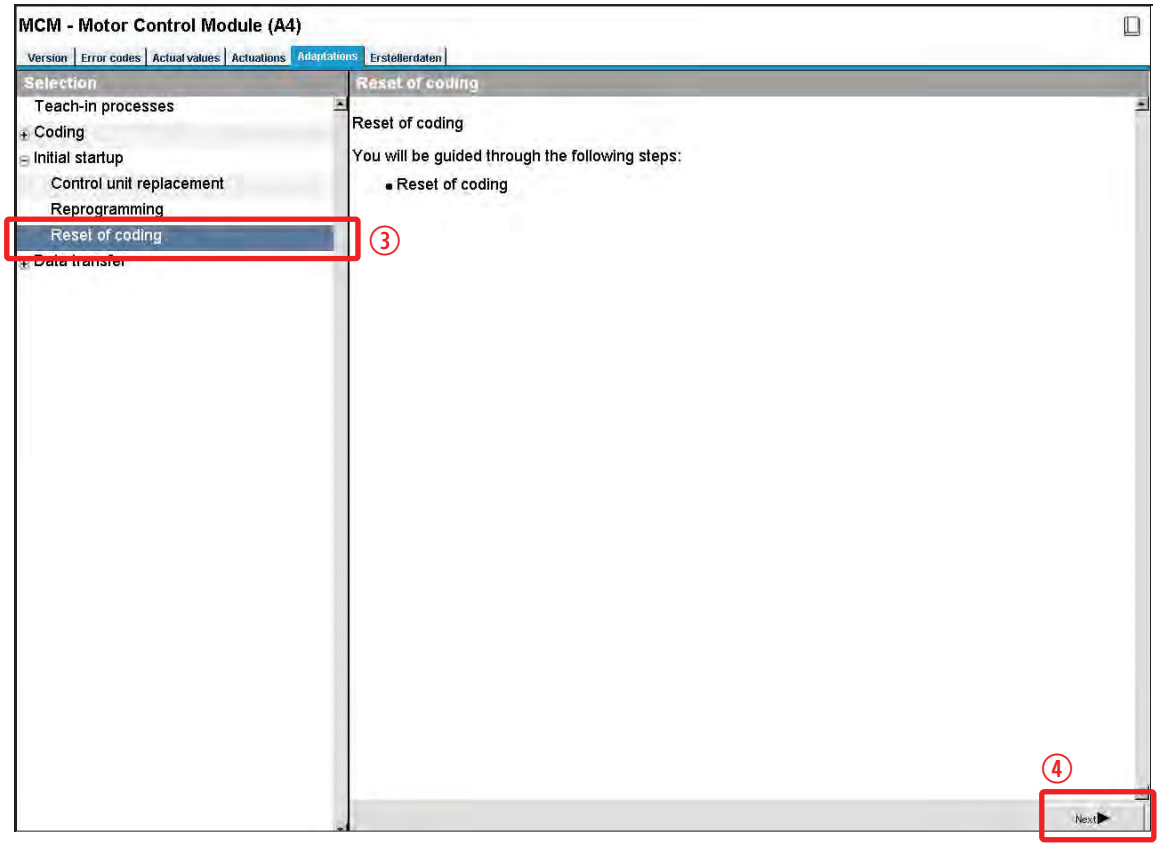
- If the FUSO Diagnosis showed an error during a flashing process, check the ECU status using the following procedure (only the introduction screen is shown below. Follow the instructions on the screen for individual steps).

Note: This screen shows sample data which is different from a real version.

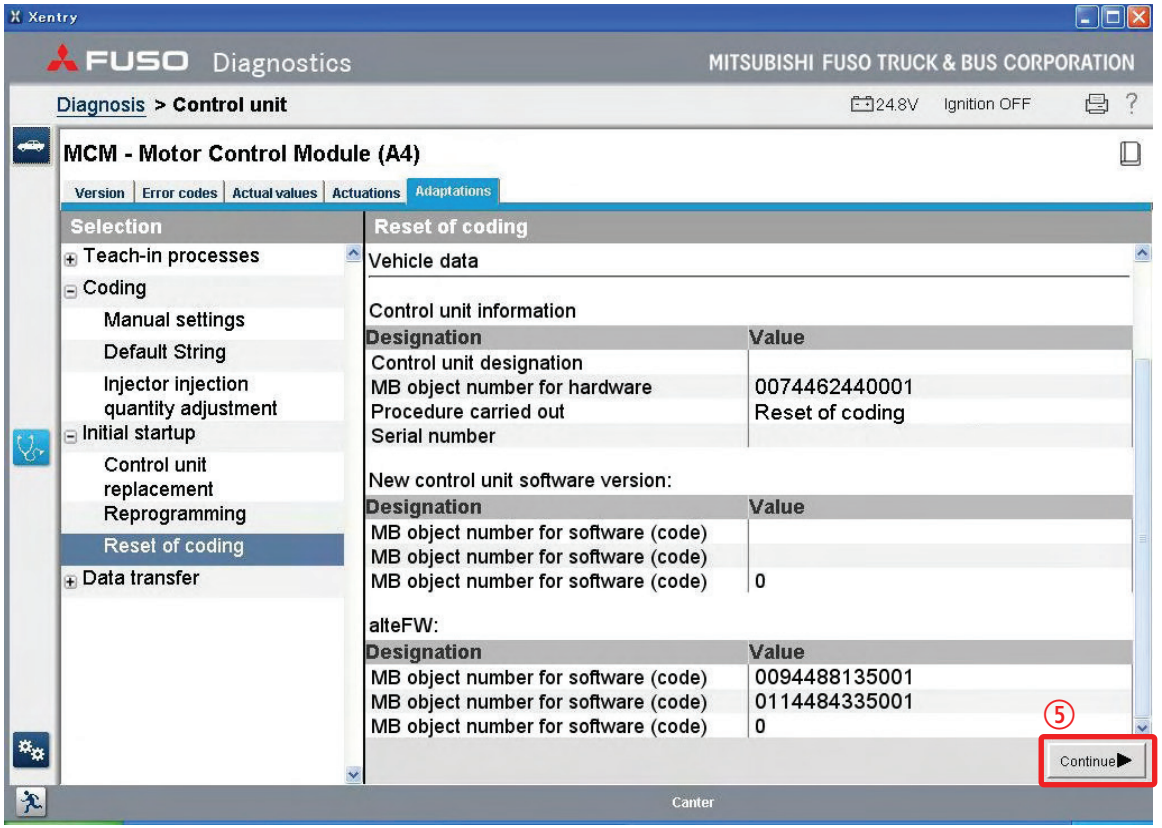


① Select “Version”.
② Check the underlined item and confirm that the ECU software is updated to a version that incorporates countermeasures. Also, check that the engine starts normally.
- If the engine does not start normally, the software has not been flashed normally.
- If the software is not updated to a version that incorporates countermeasures, execute “Control unit replacement” again.
- If there are no revisions or “----” is displayed, execute “Reprogramming” again.

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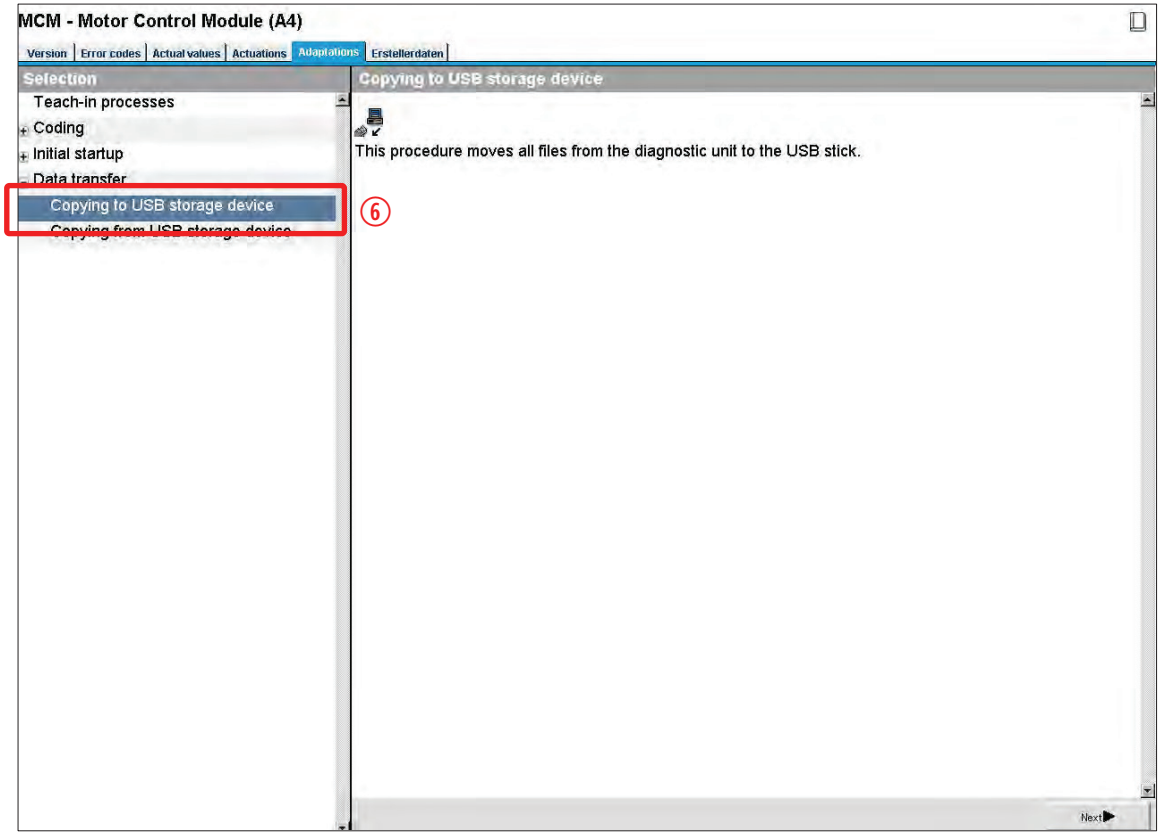


③ Select “Reset of coding”. Here, use the FRN file that was used when flashing was performed (if flashing completes normally, an upload file for the FRN is created).
④ Click “Next”.



⑤ Click “Continue”.

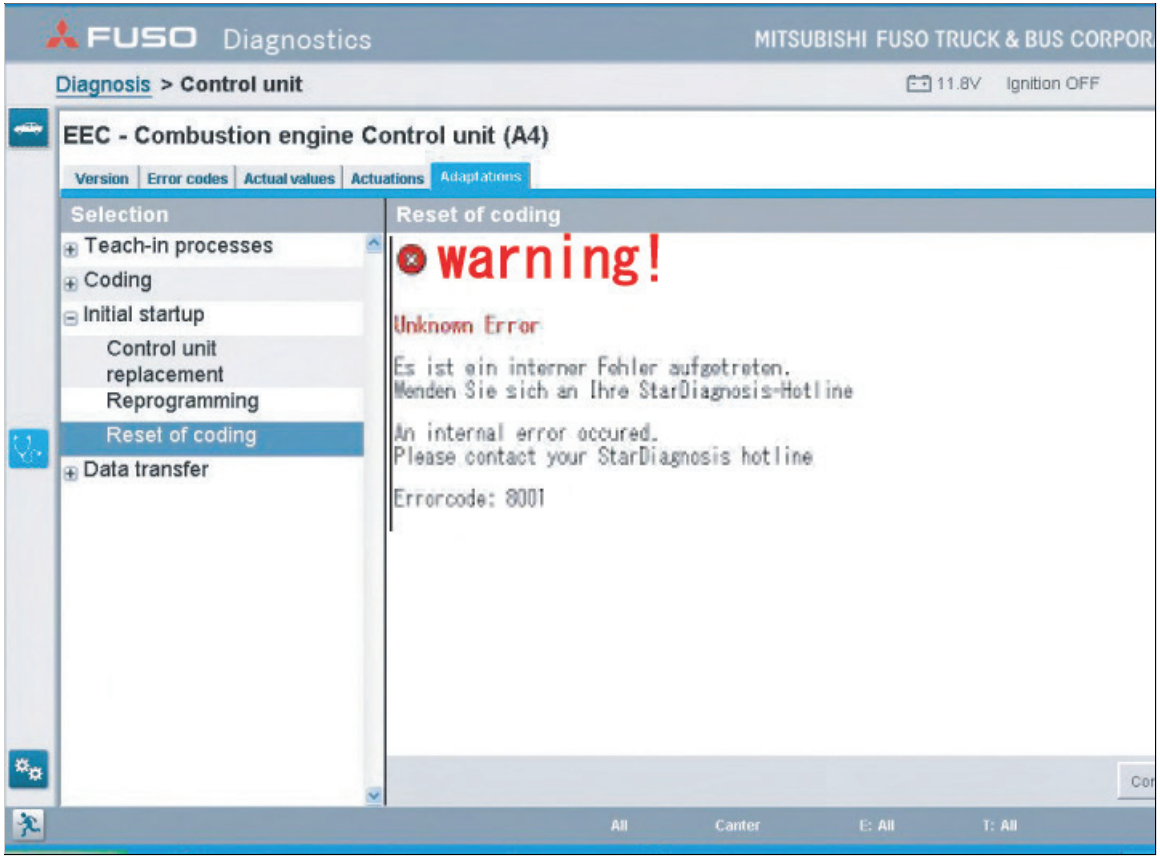
https://truckmanualshub.com/



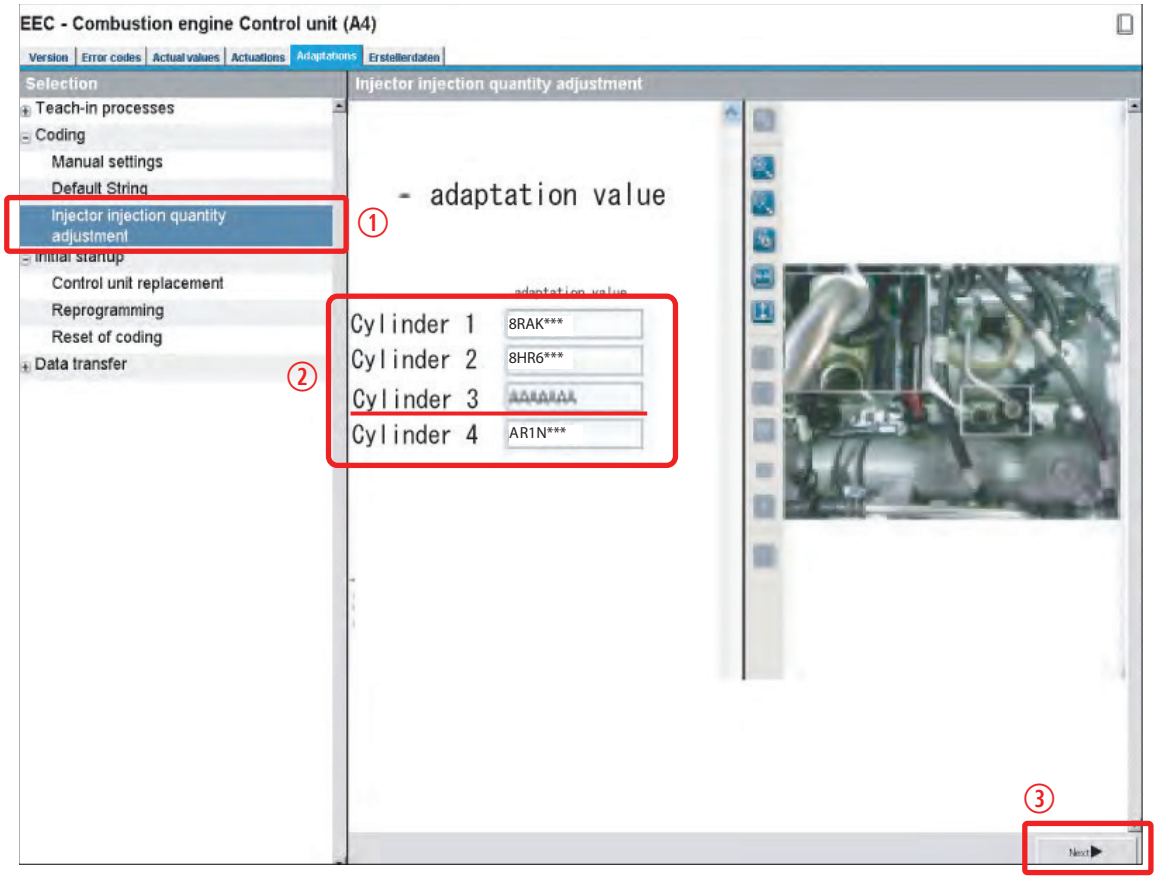
⑥ Select “Copying to USB storage device”, then upload the FRN data to the FRN server (at this time, the left part of the file name is changed from DL_XXXXX of the downloaded file to UL_XXXXX (where XXXXX is an inquiry number). Discard any file of which the inquiry number does not match as it cannot be uploaded to the FRN server).

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<For EEC>
If the following error is displayed during an ECU flashing process or when resetting coding, check the ECU status using the following procedure (only the introduction screen is shown below. Follow the instructions on the screen for individual steps).

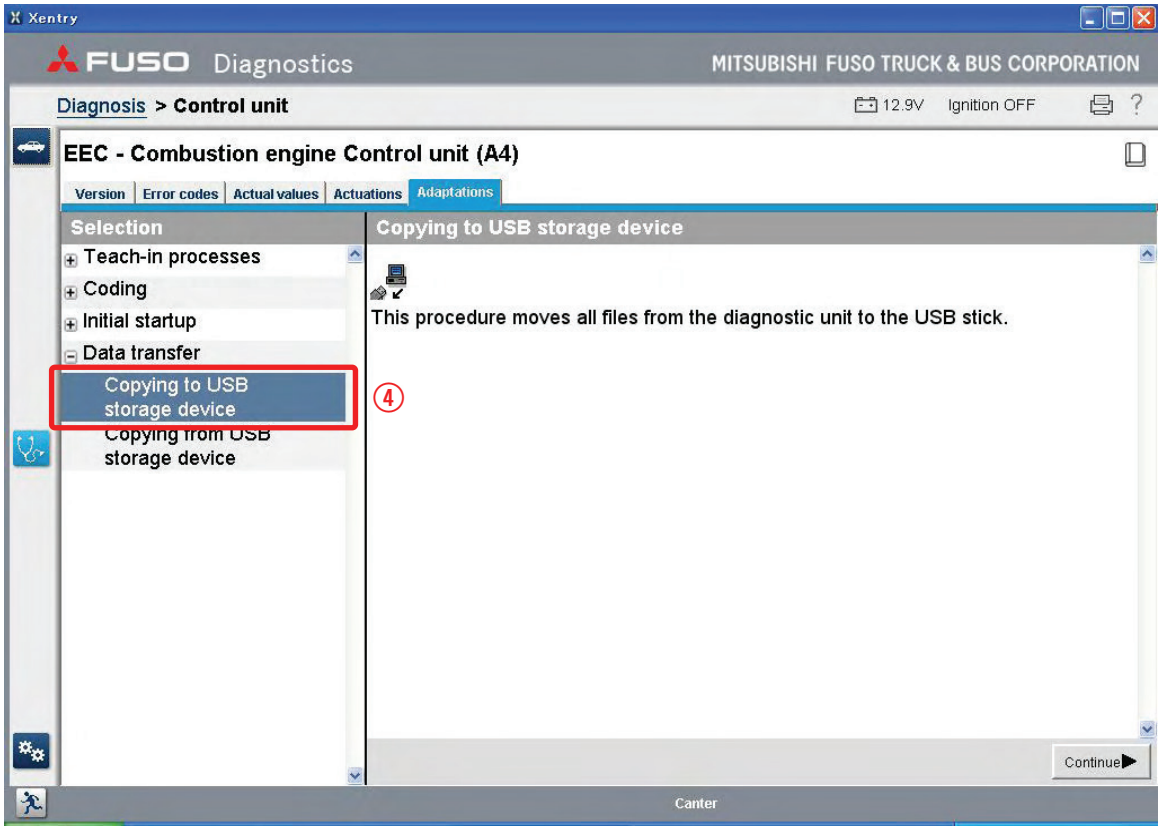


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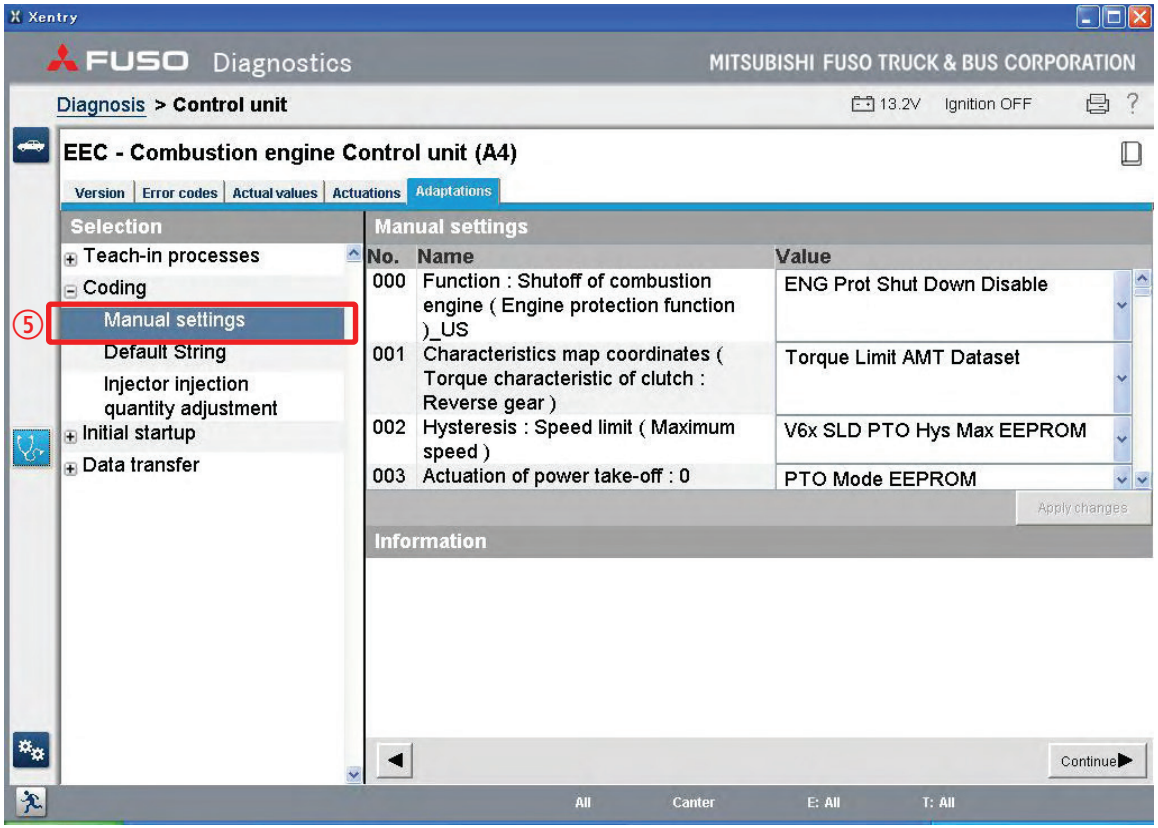
① Select “Injector injection quantity adjustment”.
② Check if “AAAAAAA” (as indicated by the red line) is shown in the adaptation value field. If “AAAAAAA” is shown, manually enter the correct injector code.
③ Click “Next”.

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④ Select “Copying to USB storage device”, then upload the FRN data to the FRN server.

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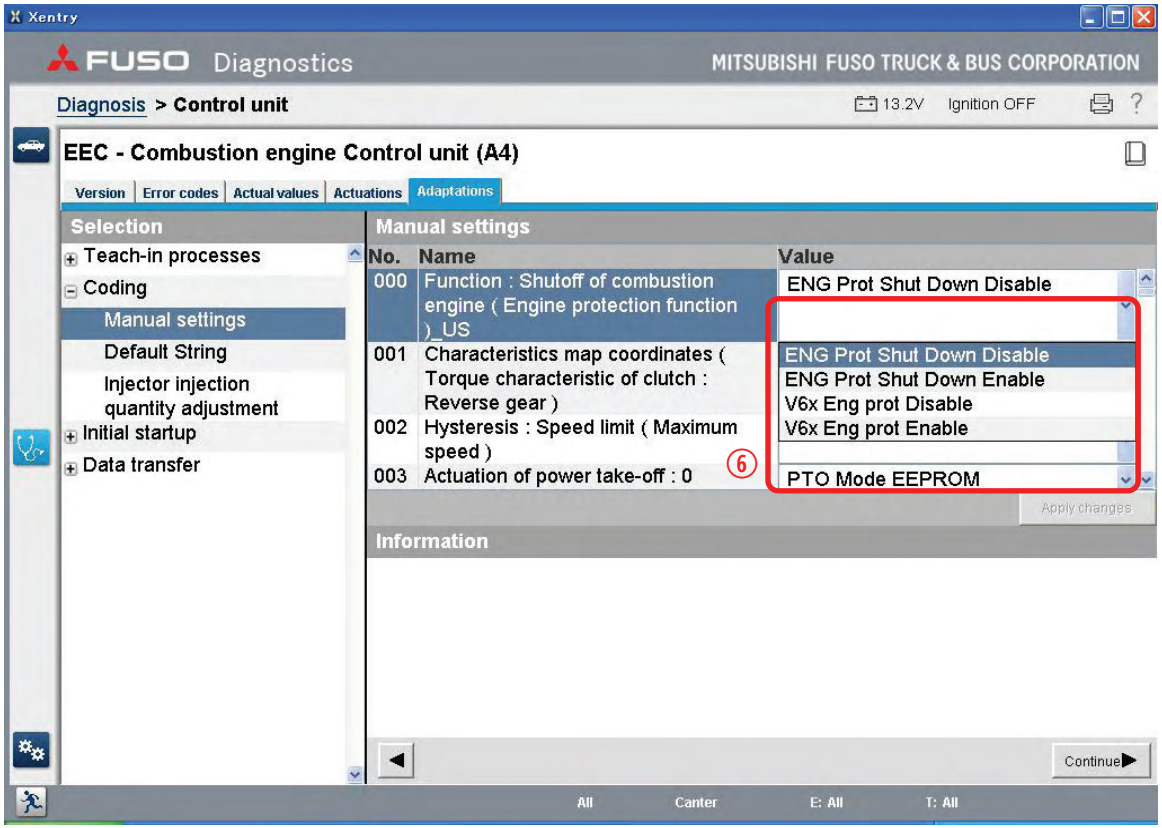


⑤ If the adaptation values of the cylinder are correct, select “Manual settings”. Change some parameter values, then undo the changes to create an FRN file.

CAUTION

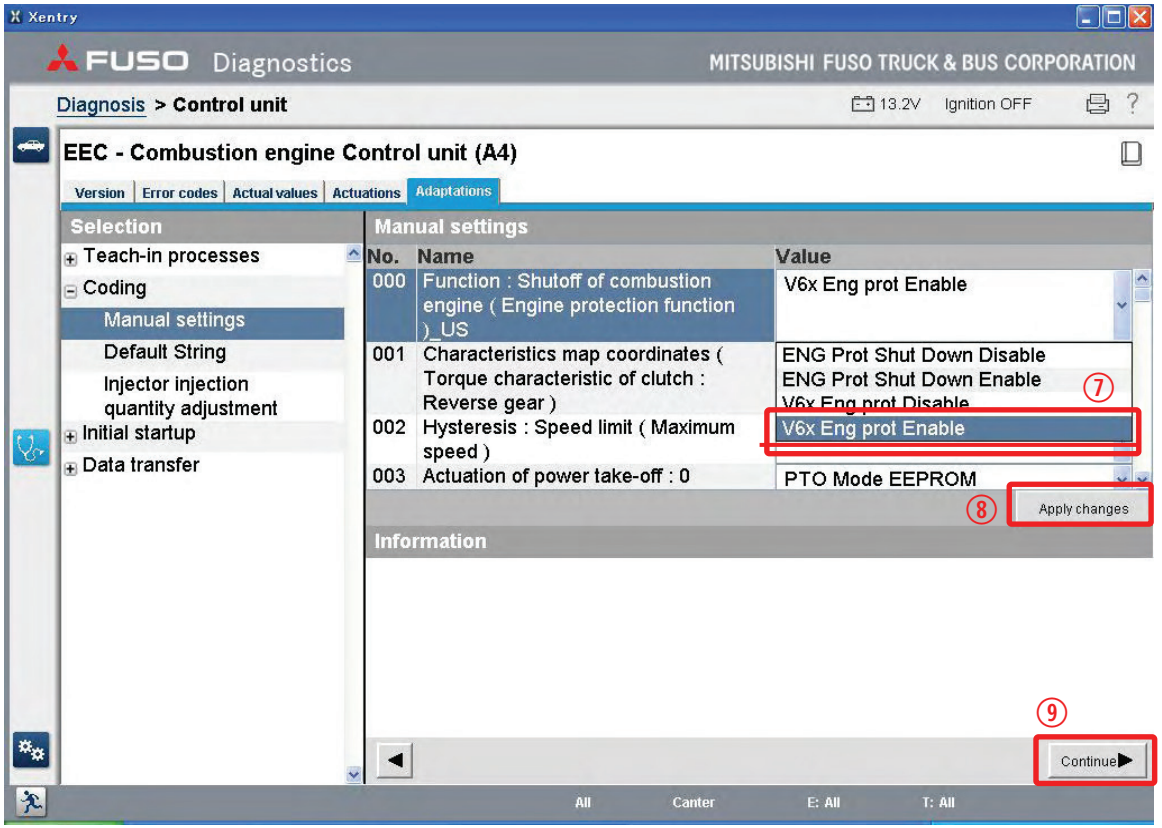
Changes to parameters must be undone; be sure to make a note of the original values. If the changes are left as they are, the vehicle will suffer from deteriorated performances.

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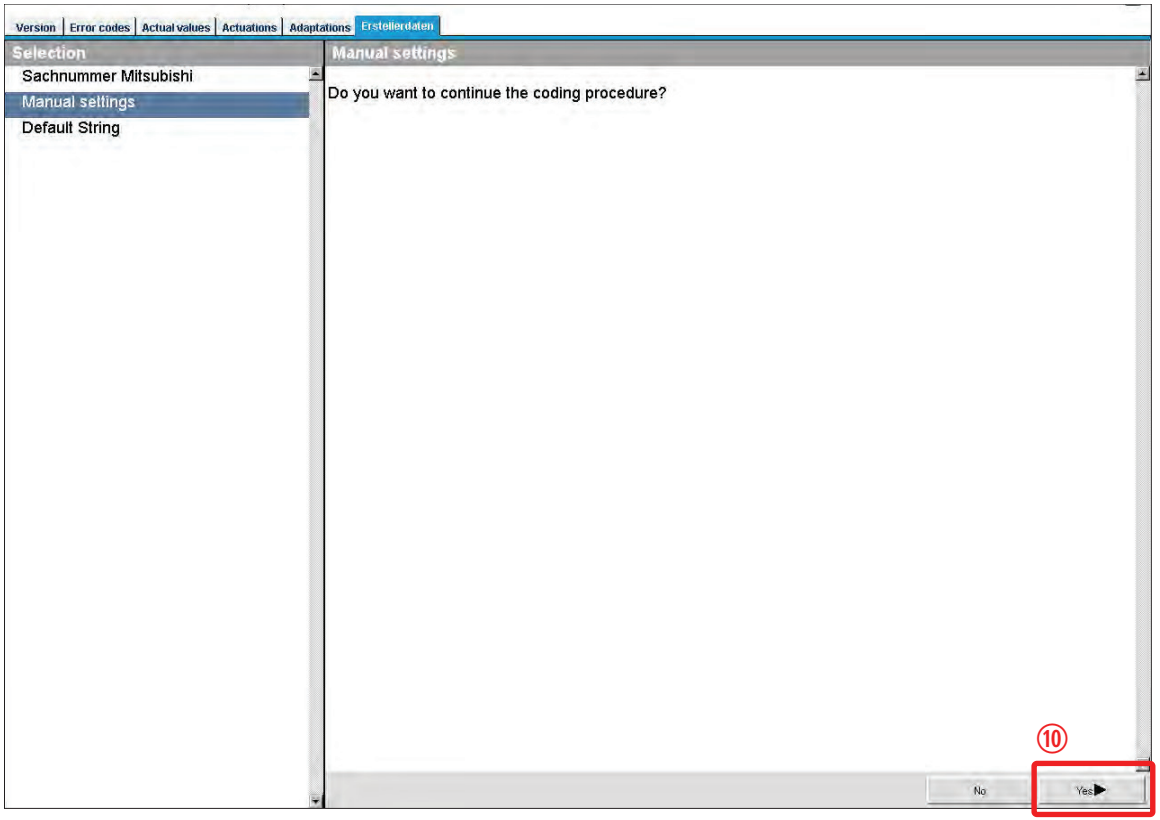
⑥ Select a parameter.

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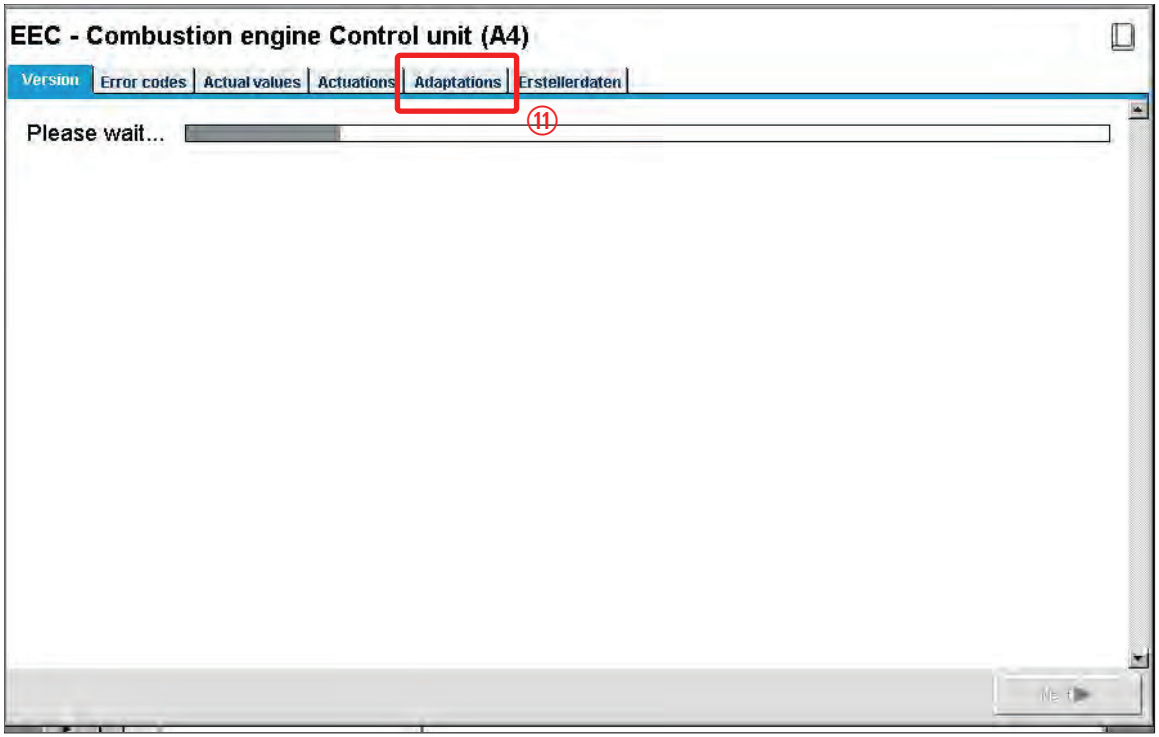
⑦ Change the parameter value.
⑧ Select “Apply changes”.
⑨ Click “Continue”.

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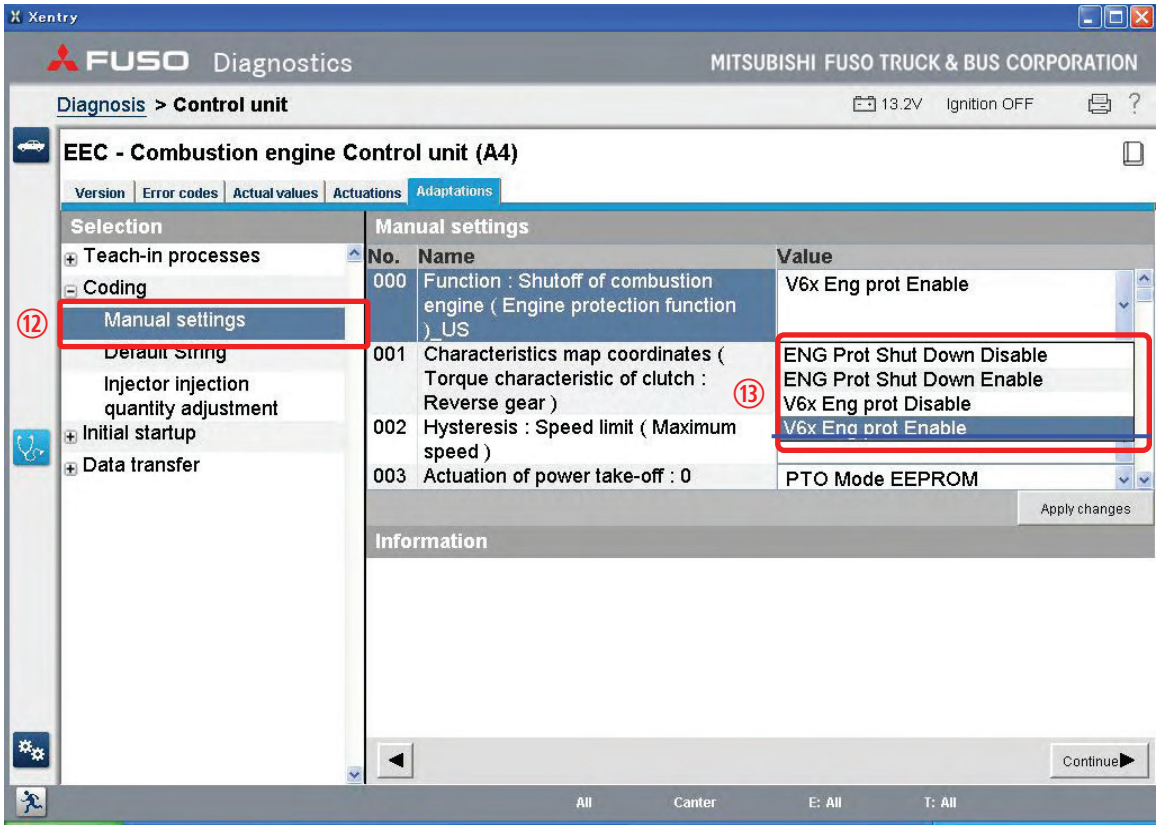
⑩ Click “Yes” to finish coding.

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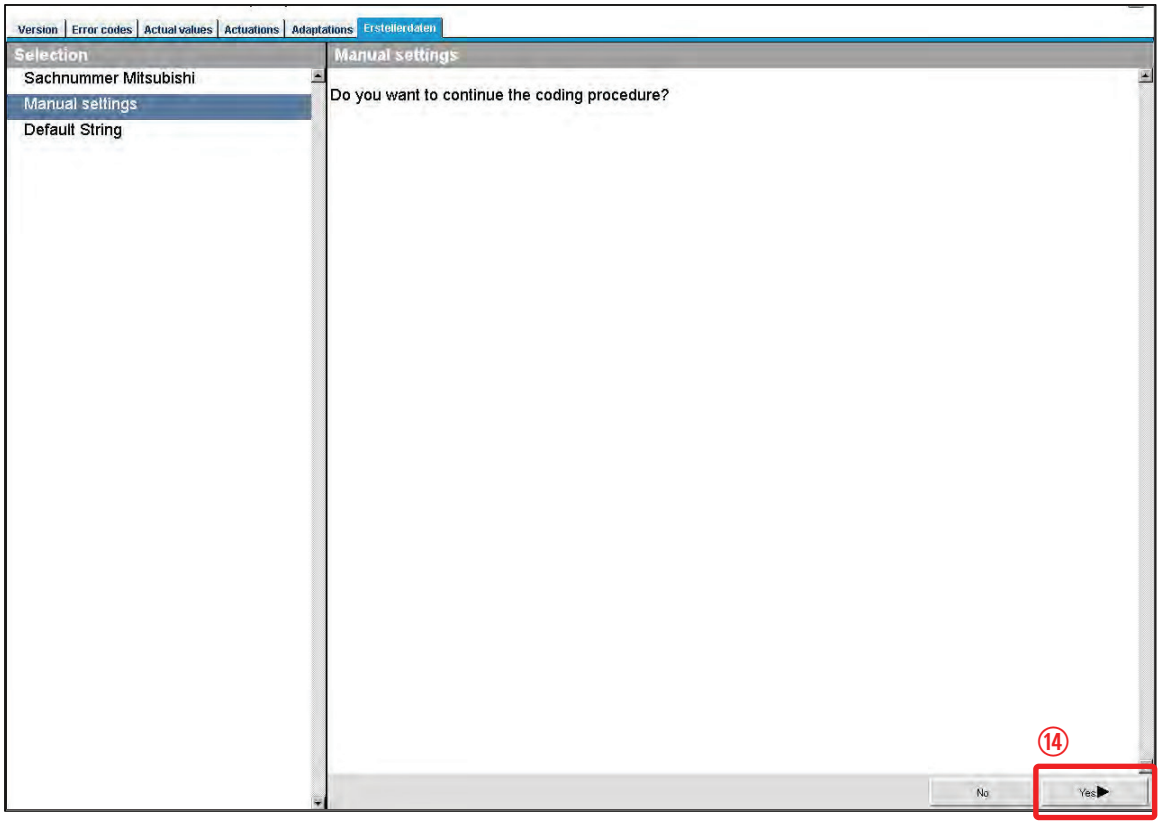
⑪ After coding, exit the “Adaptations” tab. This generates FRN data.

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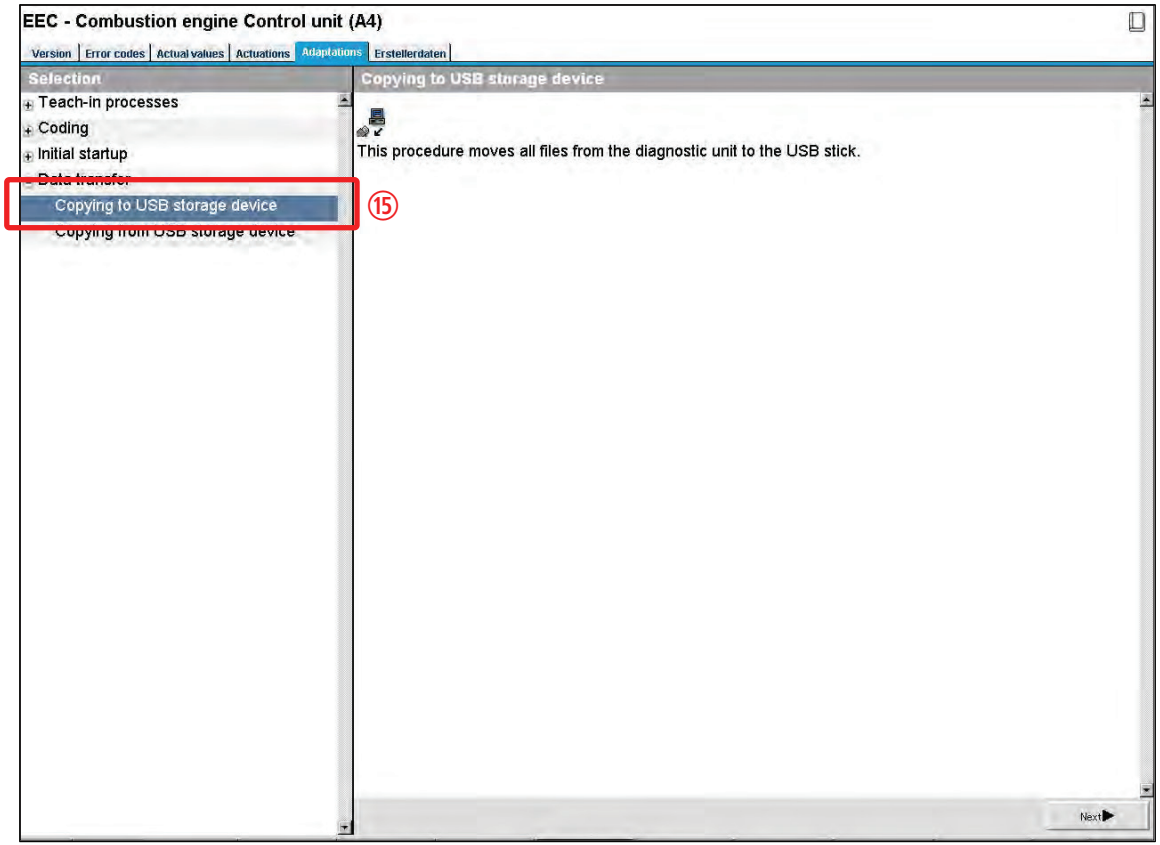
⑫ Select “Manual settings” again.
⑬ Restore the changed parameter to the original setting.

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⑭ Click “Yes”.

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⑮ Select “Copying to USB storage device”, then upload the FRN data to the FRN server.

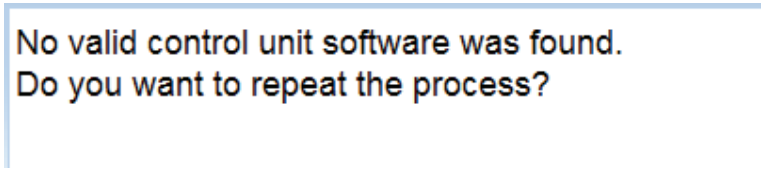
F5-030	Troubleshooting	F5-030
	How to handle errors when rewriting ECU	

(1) When you reprogram or change a control unit, the messages below may be displayed when you input the “reference number” and “password”. This may be due to the FD version not being the last, or due to a failed FD installation. Please try to re-install FD as described in “FUSO Diagnostics Application Installation Manual”.

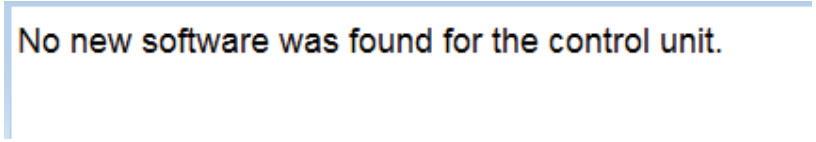
1.1) If you cannot see a control unit’s software or a fuel map parts number which you need to reprogram in certain area.



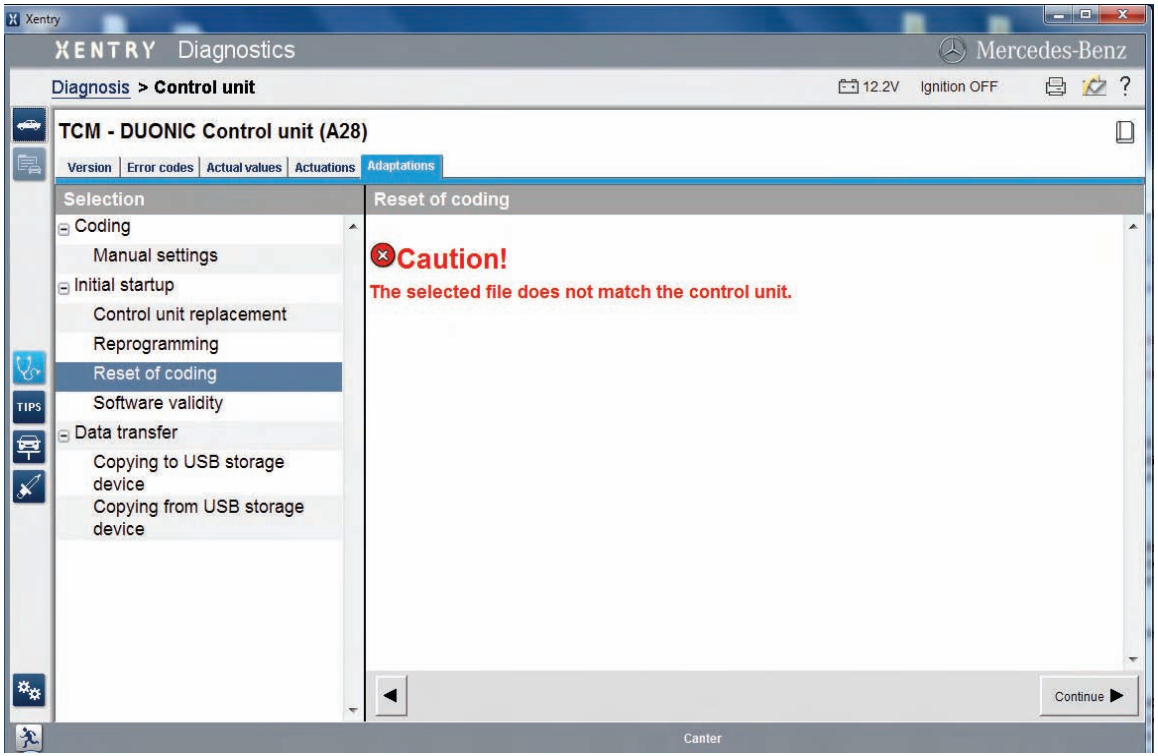
1.2) If “No valid control unit software was found”



1.3) If you see “No new software was found for the control unit” even your control unit’s software is not the latest.



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(2) If you see the message on the left image after entering the “reference number” and “password” while you are doing “Control unit replacement”, “Reprograming” or “Reset of coding”, please refer to the “Trouble case” next page.

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<Trouble case>

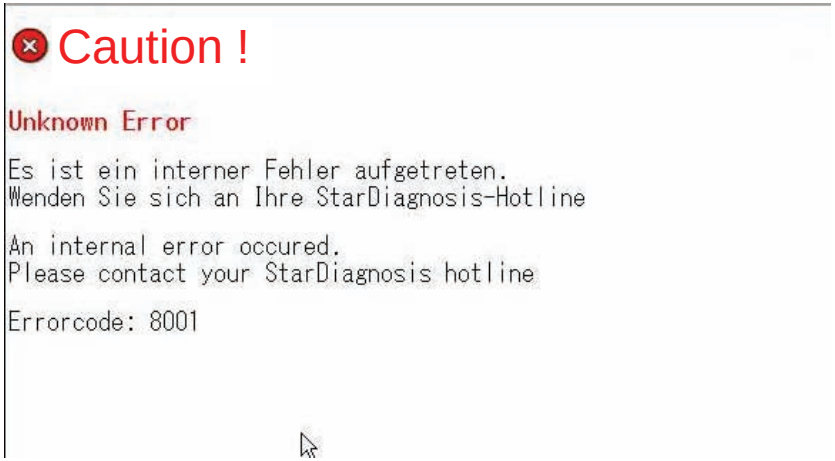
Root cause	Solution
Using another vehicle's download ECU data.	Confirm VIN.
17 digit VIN is not written in ECU <MCM>.	Replace control unit then write VIN in it.
Fuel map might not match between a vehicle and download ECU data (DL file) when you reprogram it <MCM>.	Replace control unit *In this case the UL file was not uploaded in the past.
Fuel map might not match between a vehicle and download ECU data (DL file) when you execute "Control unit replacement". The engine has not been changed or another vehicle's MCM is being reused <MCM>.	Replace the control unit after clicking "Yes" on the "Data set number confirm result" screen. *In this case the UL file was not uploaded.
Download ECU data is OK, however current ECU VIN is not match to a vehicle's VIN (reuse another vehicle's ECU, etc.).	<Small> Write proper VIN with SAM.
Download ECU data (DL file) problem.	VIN fail in the download ECU data.

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If a communication error from ECU is displayed

1. A negative ECU error response (error code: 1001, 7001, 8001) is displayed.

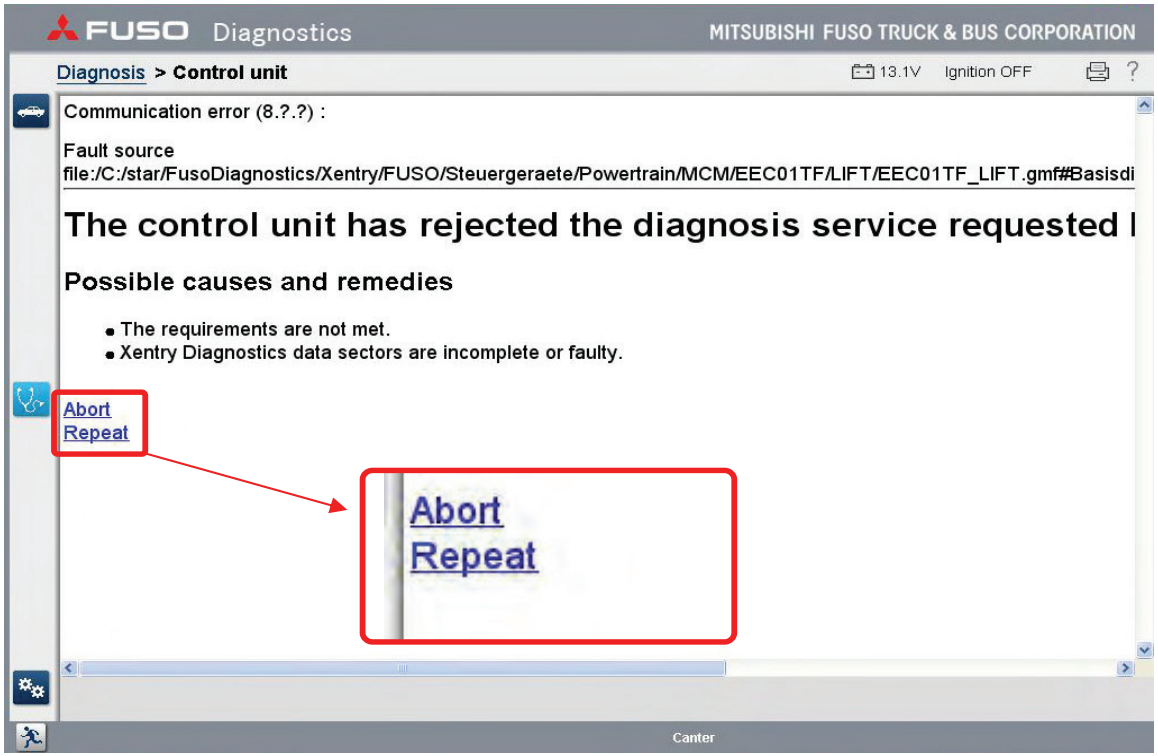
- This error is displayed when a signal sent from the FD (FUSO Diagnostics) was not normally received by the ECU.
- If this error occurs, try setting up the FD (FUSO Diagnostics) again.



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2. An error due to interrupted communication with the ECU (communication error) is displayed.

- This error is displayed when the ECU failed to operate normally due to some accident and stopped communication with the FD (FUSO Diagnostics).
- If this error occurred while rewriting software to the ECU, select “Repeat”. If the following message is displayed again, select “Abort” and perform the process again from the beginning.



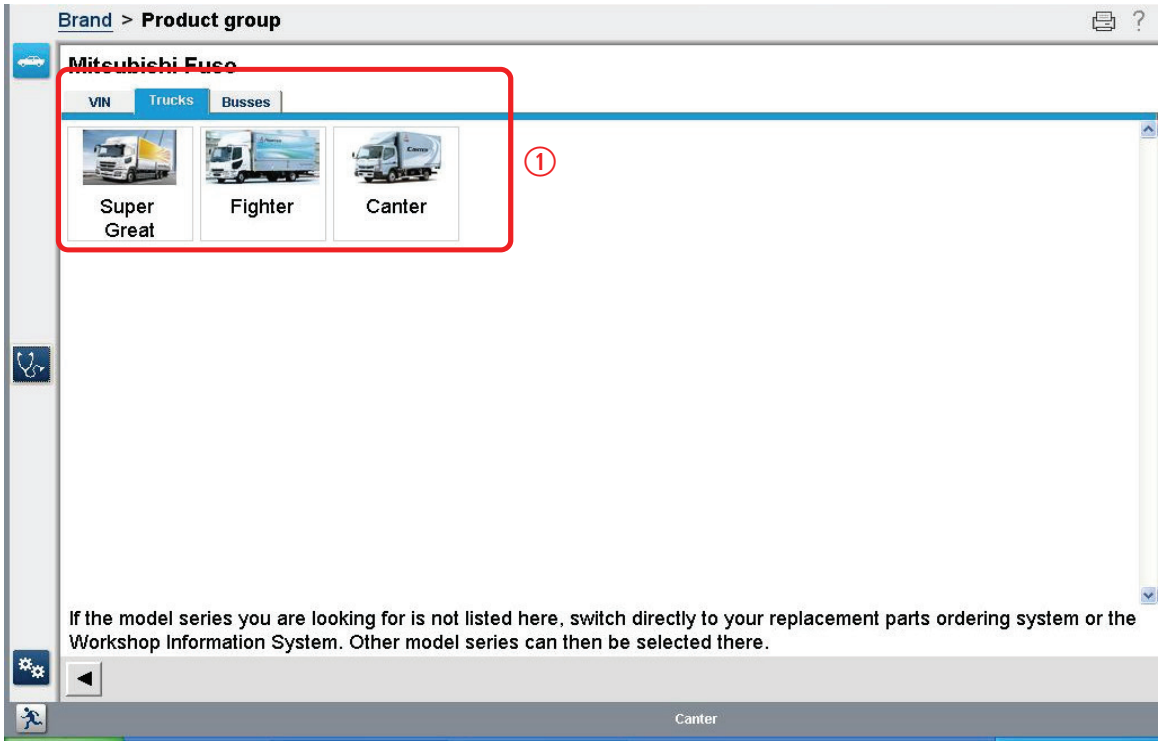
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[Activation of FUSO Diagnostics simulation]

- FUSO Diagnostics simulation is a function to allow operators to simulate individual functions only using FUSO Diagnostics.
- This function makes it possible to use FUSO Diagnostics without connecting the PC unit to the vehicle.
- For example, diagnosis codes are displayed by proceeding as follows:

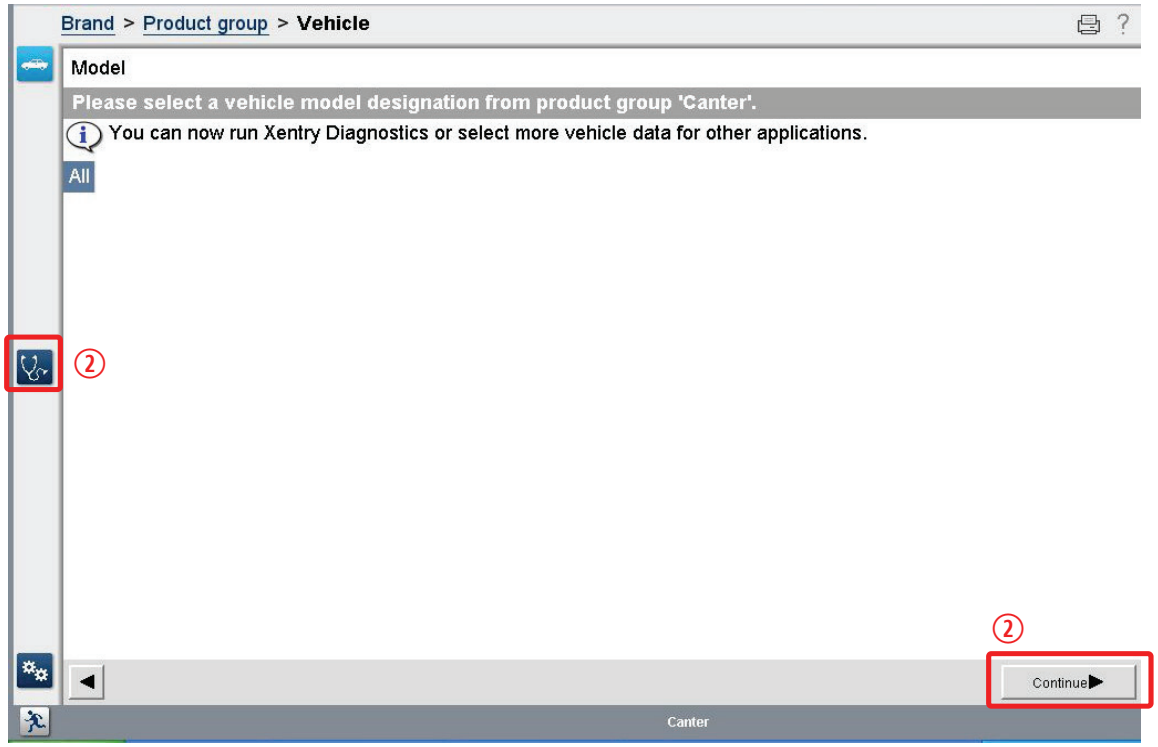


Click the “FUSO Diagnostics simulation” icon on the desktop PC screen. The “FUSO Diagnostics simulation” will be activated.



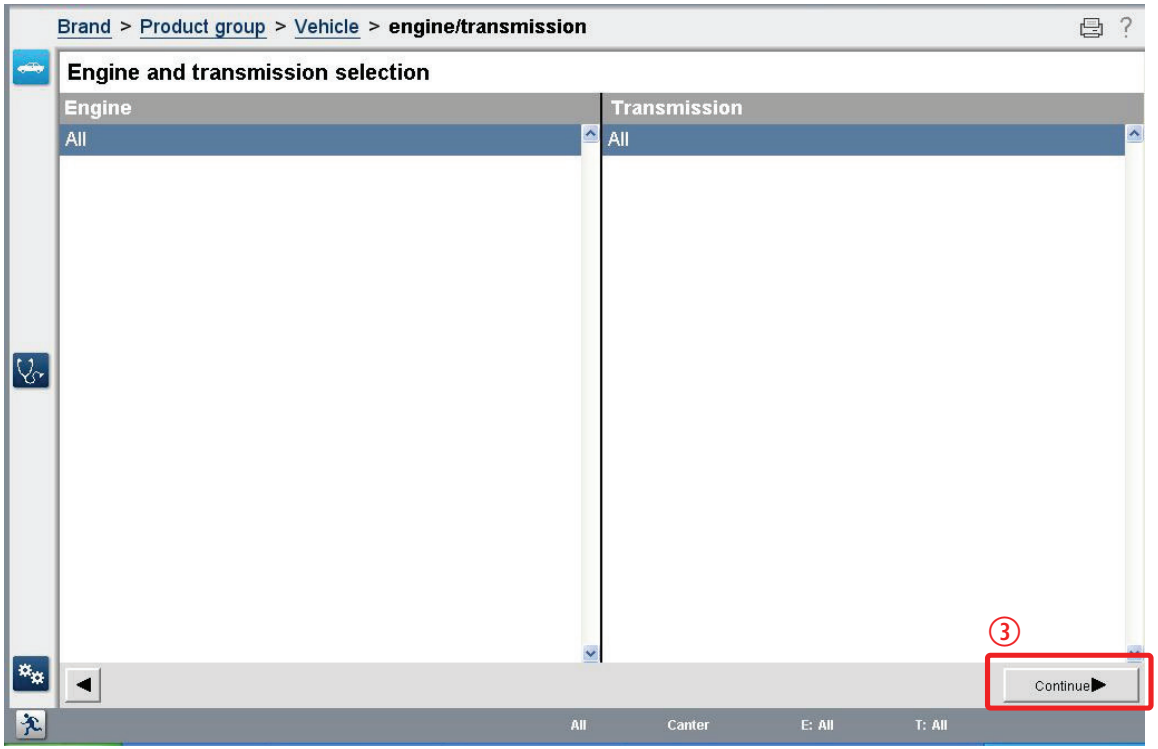
① Select the “Truck” or “Bus” tab and then a model to perform the simulation. Note: Currently, the simulation of MCM actual measured value of the Super Great and Aero-Ace/ Aero Queen cannot be performed.

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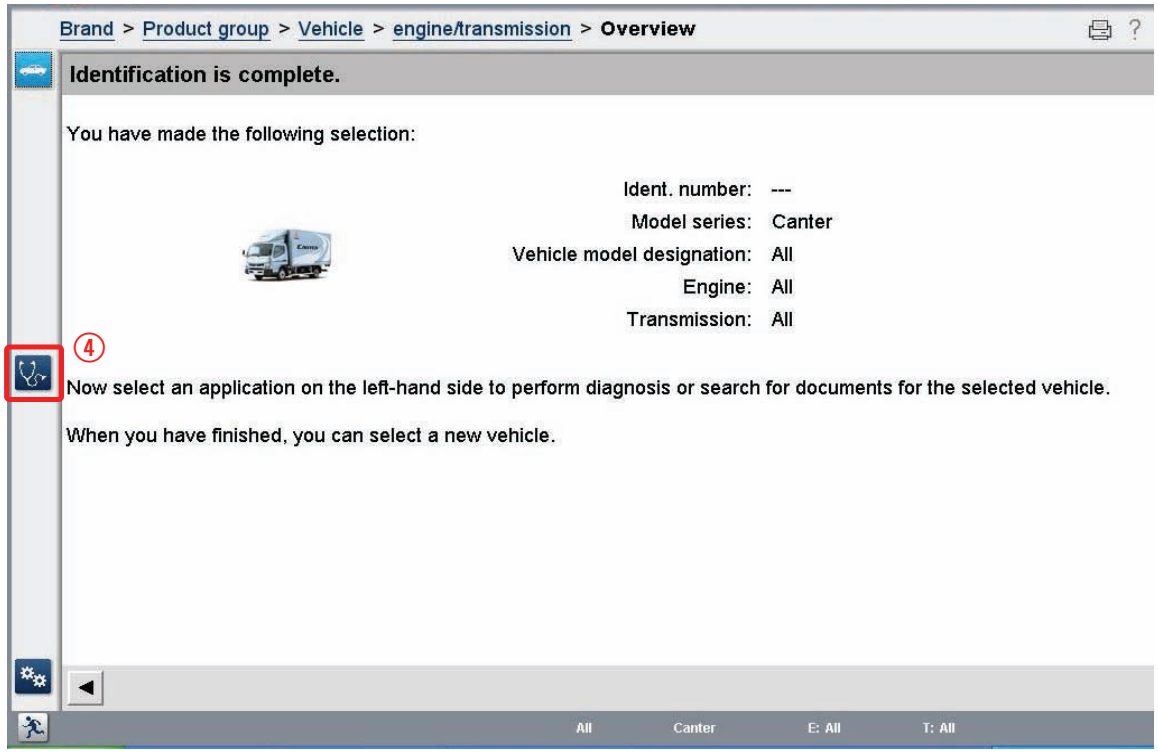
② Click “Continue”. If a vehicle model designation and vehicle specification do not need to be selected, select  to skip this screen.

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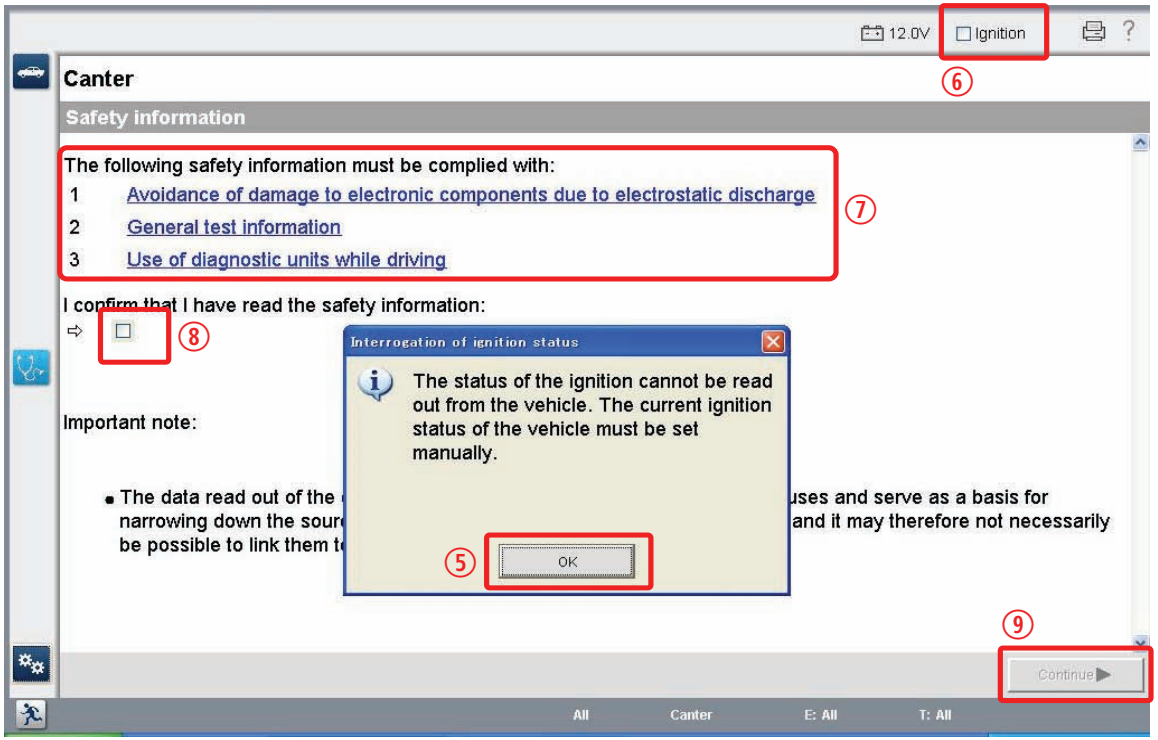
③ Click “Continue”.

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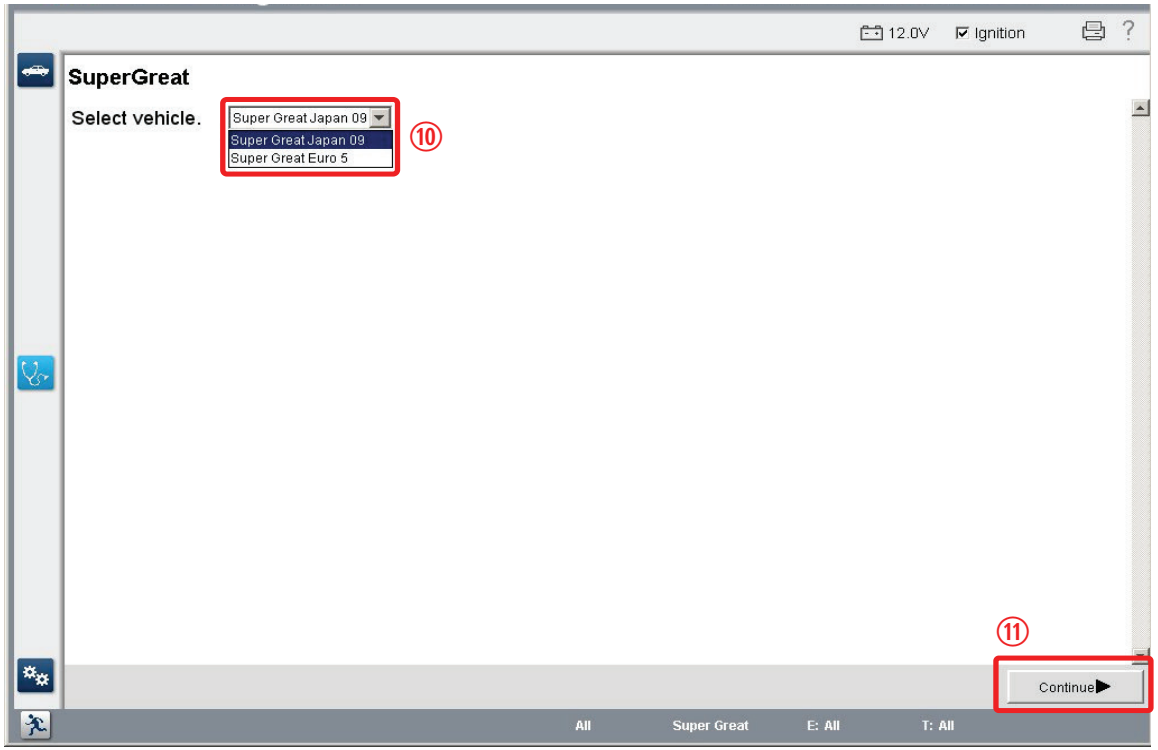
④ Click the “Start troubleshooting” button.

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⑤ Click “OK”.
⑥ If the ignition “ON” status of the vehicle is to be simulated, select the checkbox.
⑦ Click the three safety information items to check their relevant safety regulations.
⑧ Select the checkbox.
⑨ Click “Continue”. Go to step (17) for Canter and Rosa.

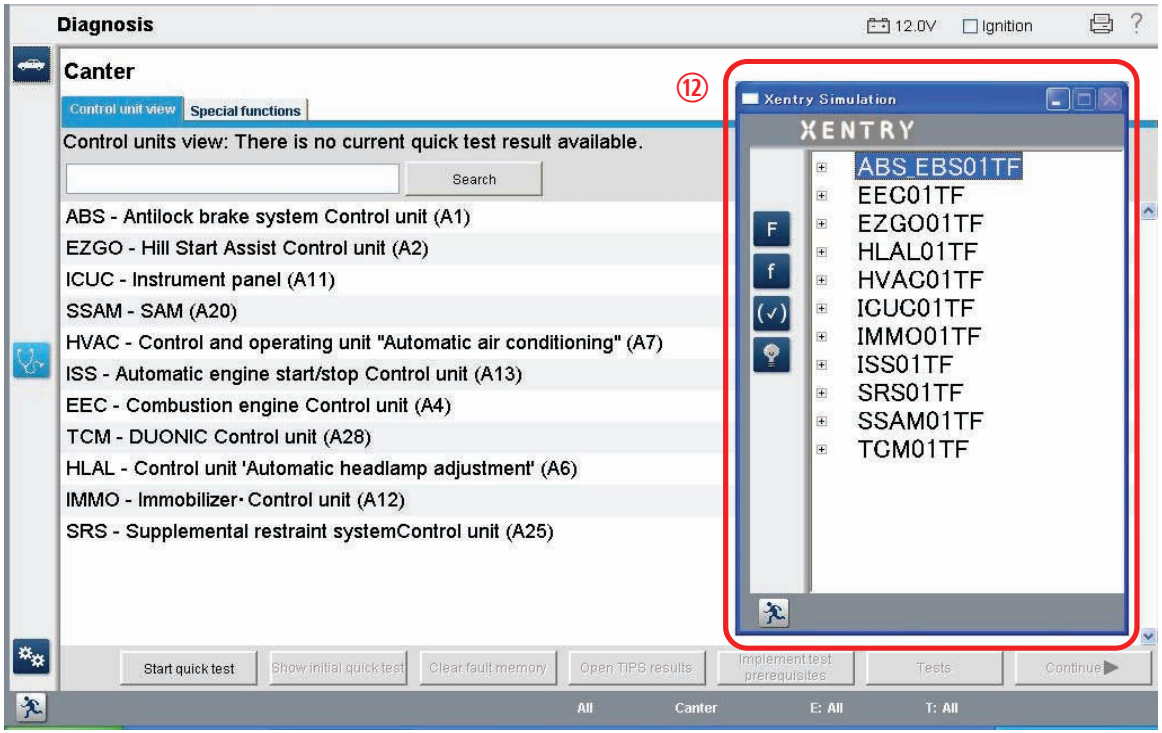
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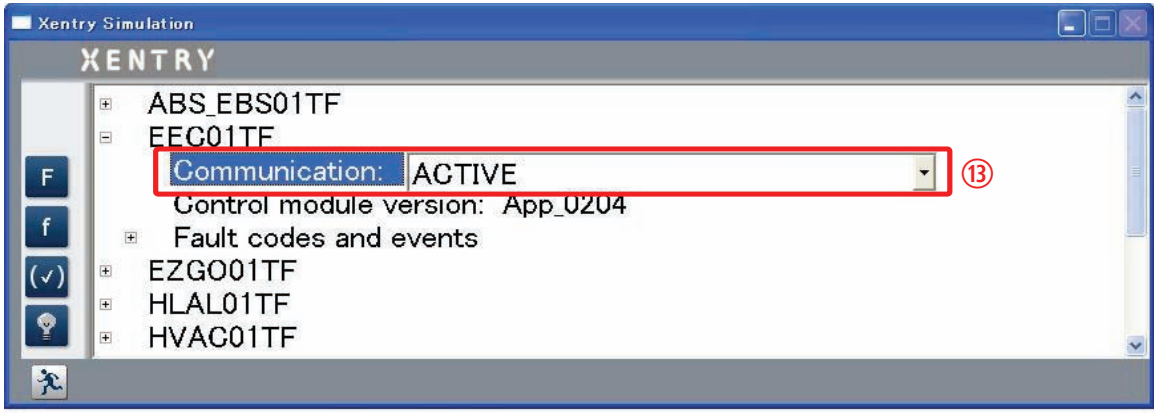


⑩ Select “Super Great Japan 09” <For Super Great only>
Select the above item whether your vehicle is a 2010 or 2012 model.

⑪ Click “Continue”.

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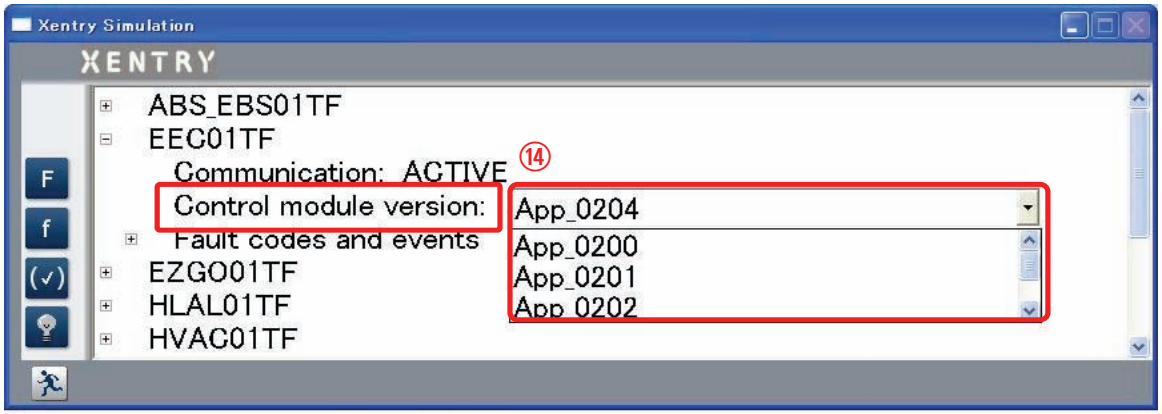




⑫ Set up the simulation conditions for the selected relevant ECU.

⑬ Confirm that the communication for the selected relevant ECU is in “Active” condition.

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⑭ Then, select the control unit variation for the relevant ECU (see next page table).

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<Canter and Rosa>

System	Display on system	Selectable control unit variations	Applicable vehicle specifications
ABS (hydraulic unit (ECU))	ABS_EBS01TF	App_0400 or App_0440	Canter (2WD)
		App_0420 or App_0460	Canter (4WD)
		App_0480	Canter (2WD) with ESP
EEC (engine ECU)	EEC01TF	App_0200	Vehicles for Japan (compliant with Emission Regulation JP09)
		App_0201	Vehicles for North America (compliant with Emission Regulation EPA10)
		App_0202	Vehicles for EU etc (compliant with Emission Regulation Euro V/5)
		App_0206 App_020E	Hybrid vehicles for EU etc (compliant with Emission Regulation Euro V/5)
		App_0207 App_020F	Vehicles for Japan (compliant with Emission Regulation JP09: NOx error correction measure version)
		App_0208 App_0210	Vehicles for EU etc (compliant with Emission Regulation Euro V/5)
		App_020A	Vehicles for North America (compliant with Emission Regulation EPA10: NOx error correction measure version)
		App_020D	Hybrid vehicles for Japan (compliant with Emission Regulation JP09: NOx error correction measure version)
		App_0212	Vehicles for North America (compliant with Emission Regulation EPA13)

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System	Display on system	Selectable control unit variations	Applicable vehicle specifications
EEC (engine ECU)	EEC01TF	App_0213	Vehicles compliant with Euro 3
		App_0214	Vehicles compliant with Euro 4
		App_0215	Vehicles compliant with Euro VI
		App_0216	Hybrid vehicles compliant with Euro VI
		App_0217	Vehicles compliant with Euro 5+
		App_0218	Vehicles for North America (compliant with Emission Regulation EPA13)
		App_0219	Vehicles for North America (compliant with Emission Regulation EPA10)
		App_021A	Vehicles for Japan (compliant with Emission Regulation JP09)
		App_021B	Hybrid vehicles for Japan (compliant with Emission Regulation JP09)
		App_021C	Vehicles for EU etc (compliant with Emission Regulation Euro V/5)
		App_021D	Hybrid vehicles for EU etc (compliant with Emission Regulation Euro V/5)

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System	Display on system	Selectable control unit variations	Applicable vehicle specifications
EZGO (lock brake ECU)	EZGO01TF	App_0001	All
HLAL (headlights auto-levelling ECU)	HLAL01TF	App_0000_C1_Sam ple	All
HVAC (air conditioner ECU and control panel)	HVAC01TF	App_0302	All
ICUC (meter cluster)	ICUC01TF	App_0001	All
IMMO (immobiliser ECU)	IMMO01TF	App_0001	All
ISS (ISS ECU)	ISS01TF	App_0001	All
SRS (airbag ECU)	SRS01TF	App_0103	All
SAM (SAM)	SSAM01TF	App001	All
TCM (DUONIC® ECU)	TCM01TF	app0001 App-e207	All
			Vehicles for Japan (compliant with Emission Regulation JP09: NOx error correction measure version)

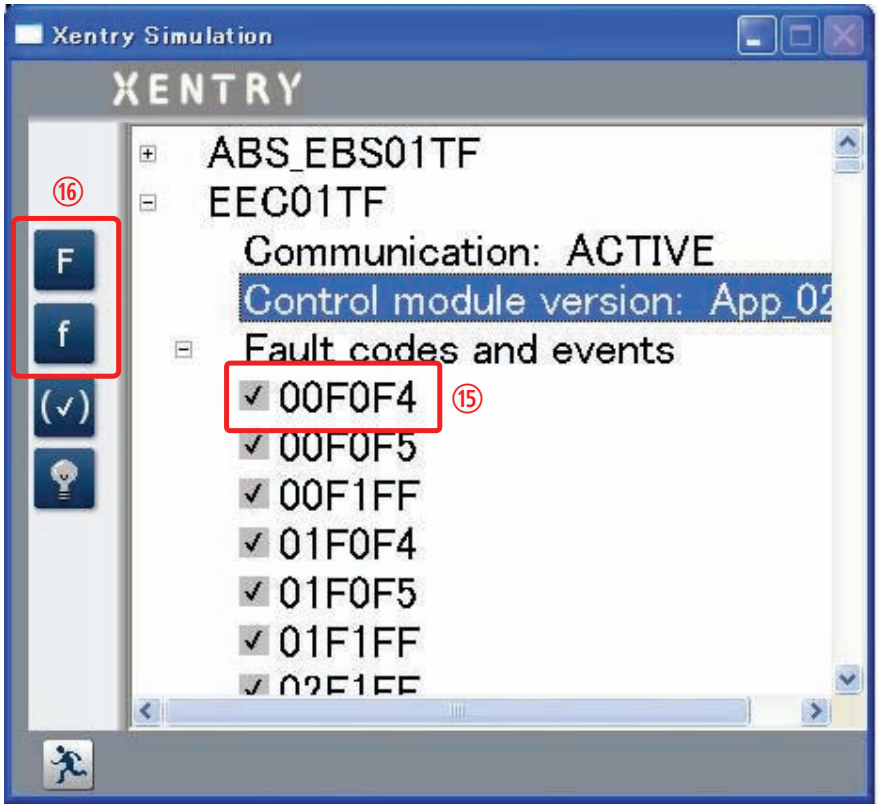
<Super Great and Aero-Queen>

System	Display on system	Selectable control unit variations	Applicable vehicle specifications
ACM (SCR ECU)	ACM02T	acm_0x011E	2010 model
		acm_0x013B	2012 model~
CPC2	CPC2	App_0222	All
MCM (engine ECU)	MCM	mcm_0x0262~0x0266	All

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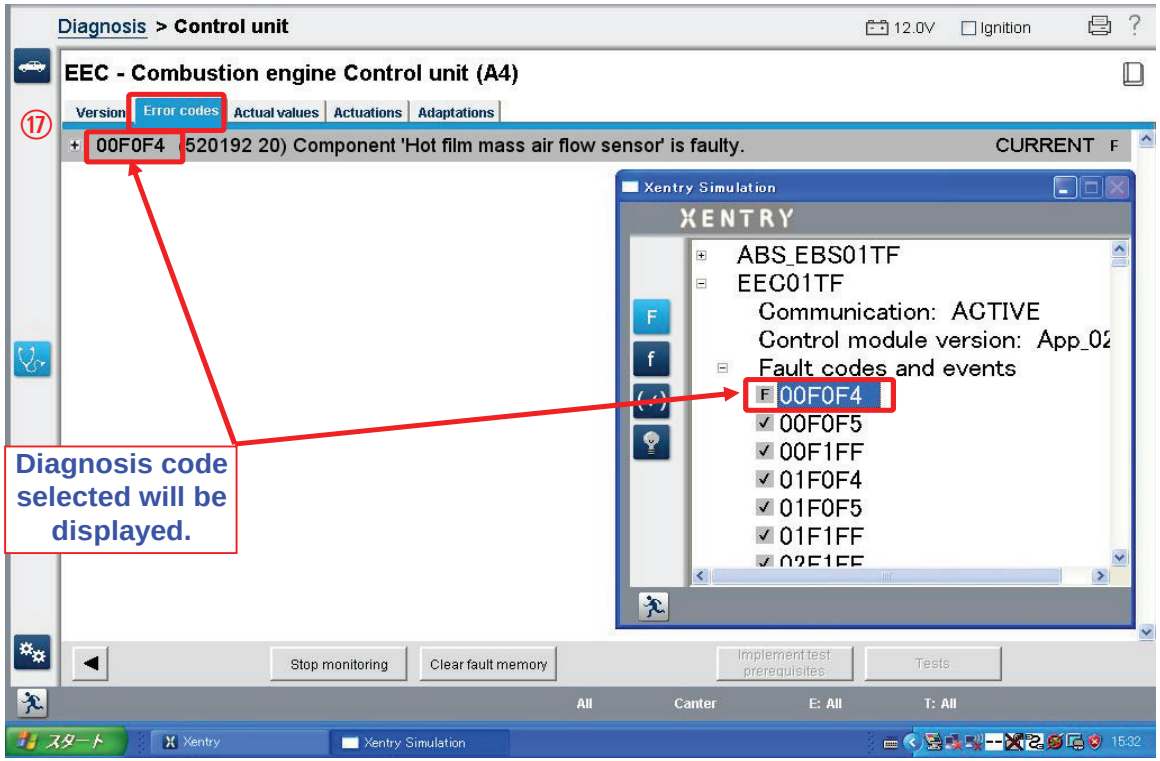
<Fighter, Aero-Ace, Aero-Star and Aero-Midi>

System	Display on system	Selectable control unit variations	Applicable vehicle specifications
ACM (SCR ECU)		acm_0x011E	2010 or 2011 model
		acm_0x0130	Fighter (compliant with Emission Regulation Euro V)
		acm_0x013B	2012 model



⑮ Select the fault code (diagnosis code) you want to generate.
⑯ Click [F] and the currently active diagnosis codes will be reproduced. Click [f] and the diagnosis codes that occurred in the past (saved in the memory) will be reproduced. To return the system to the condition where no diagnosis codes are active, click the [F] or [f] button currently selected again.

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⑰ The fault codes (diagnosis codes) to be generated can be confirmed by selecting the “Diagnosis code” tab.

- Among the fault codes (diagnosis codes) displayed on the screen may be included those that will never occur in the relevant vehicle. Select the fault codes (diagnosis codes) you want to display by referring to the applicable service manual.
- In case of Canter or Rosa, the fault codes (diagnosis codes) displayed on the screen are different from those displayed in the meter cluster or those given in the Shop Manual. Select the correct fault codes (diagnosis codes) by referring to next pages tables.

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Cross-reference table of diagnosis codes for Canter and Rosa

<ABS (Hydraulic unit (ECU)>

Diagnosis codes given on meter cluster or in service manual		Diagnosis codes shown on FUSO Diagnostics simulation display
513	2	010202
1044	5	140405
1044	6	140406
789	2	150302
789	3	150303
789	5	150305
789	7	150307
789	9	150309
790	2	160302
790	3	160303
790	5	160305
790	7	160307
790	9	160309
791	2	170302
791	3	170303
791	5	170305
791	7	170307
791	9	170309
792	2	180302
792	3	180303
792	5	180305
792	7	180307
792	9	180309

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Diagnosis codes given on meter cluster or in service manual		Diagnosis codes shown on FUSO Diagnostics simulation display
597	5	550205
597	6	550206
96	7	600007
521216	12	00F4EC
521217	12	01F4EC
521218	12	02F4EC
521219	12	03F4EC
521220	12	04F4EC
521221	12	05F4EC
521222	12	06F4EC
521223	12	07F4EC
521224	12	08F4EC
521225	12	09F4EC
521226	12	0AF4EC
521227	12	0BF4EC
521228	12	0CF4EC
521229	12	0DF4EC
521230	12	0EF4EC
521231	12	0FF4EC
521232	12	10F4EC
521233	12	11F4EC
521235	12	13F4EC
1044	12	14040C
521236	12	14F4EC
789	10	15030A
521237	12	15F4EC

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Diagnosis codes given on meter cluster or in service manual		Diagnosis codes shown on FUSO Diagnostics simulation display
790	10	16030A
791	10	17030A
521239	12	17F4EC
792	10	18030A
521240	12	18F4EC
521241	12	19F4EC
521242	12	1AF4EC
521243	12	1BF4EC
521244	12	1CF4EC
521245	12	1DF4EC
521246	12	1EF4EC
521247	12	1FF4EC
521248	12	20F4EC
521249	12	21F4EC
521250	12	22F4EC
521251	12	23F4EC
521252	12	24F4EC
521253	12	25F4EC
521254	12	26F4EC
521255	12	27F4EC
521256	12	28F4EC
521257	12	29F4EC
521258	12	2AF4EC
521259	12	2BF4EC
521260	12	2CF4EC
521261	12	2DF4EC

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Diagnosis codes given on meter cluster or in service manual		Diagnosis codes shown on FUSO Diagnostics simulation display
521262	12	2EF4EC
521263	12	2FF4EC
521264	12	30F4EC
521265	12	31F4EC
521267	12	33F4EC
521268	12	34F4EC
521269	12	35F4EC
521270	12	36F4EC
521271	12	37F4EC
521272	12	38F4EC
521273	12	39F4EC
521274	12	3AF4EC
521275	12	3BF4EC
521278	12	3EF4EC
521279	12	3FF4EC
521280	12	40F4EC
521281	12	41F4EC
521282	12	42F4EC
521283	12	43F4EC
521284	12	44F4EC
521285	12	45F4EC
521287	12	47F4EC
521288	12	48F4EC
521289	12	49F4EC
521290	12	4AF4EC
521291	12	4BF4EC

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Diagnosis codes given on meter cluster or in service manual		Diagnosis codes shown on FUSO Diagnostics simulation display
521292	12	4CF4EC
521293	12	4DF4EC
521294	12	4EF4EC
521295	12	4FF4EC
521296	0	50F4E0
521296	1	50F4E1
521296	3	50F4E3
521296	4	50F4E4
521296	5	50F4E5
521296	6	50F4E6
521297	3	51F4E3
521297	4	51F4E4
521297	12	51F4EC
521298	3	52F4E3
521298	5	52F4E5
521298	6	52F4E6
521298	12	52F4EC
521299	3	53F4E3
521299	5	53F4E5
521299	6	53F4E6
521299	12	53F4EC
521300	3	54F4E3
521300	5	54F4E5
521300	6	54F4E6
521300	12	54F4EC
521301	3	55F4E3

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Diagnosis codes given on meter cluster or in service manual		Diagnosis codes shown on FUSO Diagnostics simulation display
521301	5	55F4E5
521301	6	55F4E6
521301	12	55F4EC
521314	2	62F4E2
521315	7	63F4E7
521317	7	65F4E7
521317	10	65F4EA
521318	2	66F4E2
521319	2	67F4E2
521320	2	68F4E2
521321	0	69F4E0
521322	2	6AF4E2
521322	7	6AF4E7
521322	10	6AF4EA
521323	2	6BF4E2
521324	2	6CF4E2
521325	2	6DF4E2
521326	7	6EF4E7
521326	10	6EF4EA
521326	13	6EF4ED
521327	2	6FF4E2
521328	2	70F4E2
521329	2	71F4E2
521331	7	73F4E7
521331	10	73F4EA
521332	2	74F4E2

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Diagnosis codes given on meter cluster or in service manual		Diagnosis codes shown on FUSO Diagnostics simulation display
521333	2	75F4E2
521334	2	76F4E2
521337	2	79F4E2
521337	3	79F4E3
521337	4	79F4E4
521337	7	79F4E7
521337	10	79F4EA
521337	11	79F4EB
521337	12	79F4EC
521337	13	79F4ED
521338	12	7AF4EC
521339	2	7BF4E2
521339	3	7BF4E3
521339	4	7BF4E4
521339	7	7BF4E7
521340	12	7CF4EC
521341	2	7DF4E2
521342	2	7EF4E2
521349	7	85F4E7
521351	2	87F4E2
521352	12	88F4EC
521353	12	89F4EC
521354	12	8AF4EC
521355	12	8BF4EC
521356	12	8CF4EC
521357	12	8DF4EC

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Diagnosis codes given on meter cluster or in service manual		Diagnosis codes shown on FUSO Diagnostics simulation display
521358	12	8EF4EC
521359	12	8FF4EC
521361	12	91F4EC
521363	12	93F4EC
521367	12	97F4EC
521367	28	97F4FC
521369	19	99F4F3
932	3	A40303
932	5	A40305
932	6	A40306
932	12	A4030C
933	3	A50303
933	5	A50305
933	6	A50306
933	12	A5030C
934	3	A60303
934	5	A60305
934	6	A60306
934	12	A6030C
935	3	A70303
935	5	A70305
935	6	A70306
935	12	A7030C
938	3	AA0303
938	5	AA0305
938	6	AA0306

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Diagnosis codes given on meter cluster or in service manual		Diagnosis codes shown on FUSO Diagnostics simulation display
938	12	AA030C
939	3	AB0303
939	5	AB0305
939	6	AB0306
939	12	AB030C
940	3	AC0303
940	5	AC0305
940	6	AC0306
940	12	AC030C
941	3	AD0303
941	5	AD0305
941	6	AD0306
941	12	AD030C
521389	19	ADF4F3
521391	19	AFF4F3
521395	13	B3F4ED
521396	2	B4F4E2
521397	2	B5F4E2
521403	12	BBF4EC
521404	2	BCF4E2
521405	13	BDF4ED
521407	2	BFF4E2
521407	12	BFF4EC
521407	13	BFF4ED
521407	19	BFF4F3
521409	13	C1F4ED

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Diagnosis codes given on meter cluster or in service manual		Diagnosis codes shown on FUSO Diagnostics simulation display
237	12	ED000C
237	13	ED000D
237	14	ED000E

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<EEC (engine ECU)>

Diagnosis codes given on meter cluster or in service manual		Diagnosis codes shown on FUSO Diagnostics simulation display
30	0	1E0000
110	0	6E0000
158	0	9E0000
30	1	1E0001
110	1	6E0001
158	1	9E0001
30	2	1E0002
94	2	5E0002
110	2	6E0002
3696	2	700E02
3701	2	750E02
3702	2	760E02
521	2	090202
22	0	160000
22	1	160001
22	16	160010
22	18	160012
1321	3	290503
1321	4	290504
1074	3	320403
1074	4	320404
1074	5	320405
1076	3	340403
1076	4	340404

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Diagnosis codes given on meter cluster or in service manual		Diagnosis codes shown on FUSO Diagnostics simulation display
1076	5	340405
1076	16	340410
1076	18	340412
595	2	530202
598	2	560202
1623	19	570613
1624	19	580613
2392	9	580909
97	9	610009
1633	9	610609
354	0	620100
354	2	620102
354	16	620110
354	17	620111
354	18	620112
100	2	640002
1636	0	640600
1636	1	640601
1636	16	640610
101	2	650002
102	0	660000
102	1	660001
102	16	660010
102	17	660011
102	18	660012
1127	17	670411

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Diagnosis codes given on meter cluster or in service manual		Diagnosis codes shown on FUSO Diagnostics simulation display
105	0	690000
105	1	690001
1136	0	700400
1136	2	700402
1136	16	700410
1136	18	700412
129	16	810010
129	18	810012
132	0	840000
132	1	840001
132	2	840002
132	17	840011
132	18	840012
132	20	840014
132	21	840015
1172	2	940402
917	9	950309
1173	2	950402
1174	2	960402
1175	2	970402
30	16	1E0010
30	17	1E0011
3719	16	870E10
606	0	5E0200
558	2	2E0202
654	3	8E0203

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Diagnosis codes given on meter cluster or in service manual		Diagnosis codes shown on FUSO Diagnostics simulation display
654	5	8E0205
654	6	8E0206
520192	20	00F0F4
520192	21	00F0F5
520448	31	00F1FF
520193	20	01F0F4
520193	21	01F0F5
520449	31	01F1FF
520194	20	02F0F4
520194	21	02F0F5
520450	31	02F1FF
520195	20	03F0F4
520195	21	03F0F5
520451	31	03F1FF
520452	31	04F1FF
520453	31	05F1FF
520454	31	06F1FF
520455	31	07F1FF
520200	2	08F0E2
520200	12	08F0EC
520456	31	08F1FF
521	12	09020C
520457	31	09F1FF
520458	31	0AF1FF
520203	2	0BF0E2
520203	31	0BF0FF

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Diagnosis codes given on meter cluster or in service manual		Diagnosis codes shown on FUSO Diagnostics simulation display
520459	31	0BF1FF
520460	31	0CF1FF
3597	0	0D0E00
3597	1	0D0E01
3597	12	0D0E0C
520461	31	0DF1FF
3598	12	0E0E0C
520462	31	0EF1FF
3599	12	0F0E0C
520207	2	0FF0E2
520463	31	0FF1FF
520208	12	10F0EC
520464	31	10F1FF
520465	31	11F1FF
520210	2	12F0E2
520466	31	12F1FF
520211	0	13F0E0
520211	1	13F0E1
520212	0	14F0E0
520212	1	14F0E1
520213	0	15F0E0
520213	1	15F0E1
520469	31	15F1FF
520214	0	16F0E0
520214	1	16F0E1
520470	31	16F1FF

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Diagnosis codes given on meter cluster or in service manual		Diagnosis codes shown on FUSO Diagnostics simulation display
520215	31	17F0FF
520471	31	17F1FF
520216	31	18F0FF
520472	31	18F1FF
520217	31	19F0FF
520473	31	19F1FF
520218	31	1AF0FF
27	15	1B000F
27	17	1B0011
520219	31	1BF0FF
520220	31	1CF0FF
520221	31	1DF0FF
30	15	1E000F
520222	31	1EF0FF
520478	31	1EF1FF
520479	31	1FF1FF
3360	31	200D1F
520480	31	20F1FF
3361	3	210D03
3361	4	210D04
3361	5	210D05
3361	7	210D07
3361	12	210D0C
3361	18	210D12
520225	9	21F0E9
520481	31	21F1FF

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Diagnosis codes given on meter cluster or in service manual		Diagnosis codes shown on FUSO Diagnostics simulation display
3362	0	220D00
3362	1	220D01
3362	7	220D07
3362	19	220D13
520482	31	22F1FF
3363	0	230D00
3363	1	230D01
3363	2	230D02
3363	3	230D03
3363	4	230D04
3363	12	230D0C
520227	9	23F0E9
520483	31	23F1FF
520228	9	24F0E9
520486	12	26F1EC
520487	12	27F1EC
520232	9	28F0E9
520488	12	28F1EC
1321	12	29050C
520233	9	29F0E9
520489	12	29F1EC
1322	12	2A050C
1323	12	2B050C
520491	2	2BF1E2
1324	12	2C050C
1325	12	2D050C

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Diagnosis codes given on meter cluster or in service manual		Diagnosis codes shown on FUSO Diagnostics simulation display
520237	2	2DF0E2
520237	9	2DF0E9
1326	12	2E050C
520495	12	2FF1EC
520240	0	30F0E0
520240	9	30F0E9
520496	2	30F1E2
2609	2	310A02
520497	0	31F1E0
520497	1	31F1E1
1074	12	32040C
520243	9	33F0E9
520499	20	33F1F4
1076	12	34040C
520244	9	34F0E9
520500	0	34F1E0
520500	16	34F1F0
520500	20	34F1F4
520246	9	36F0E9
520502	0	36F1E0
520502	1	36F1E1
520247	9	37F0E9
520503	15	37F1EF
520503	16	37F1F0
520503	18	37F1F2
520503	20	37F1F4

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Diagnosis codes given on meter cluster or in service manual		Diagnosis codes shown on FUSO Diagnostics simulation display
520503	21	37F1F5
520248	9	38F0E9
520249	9	39F0E9
520505	31	39F1FF
520250	9	3AF0E9
520506	31	3AF1FF
520251	9	3BF0E9
520252	9	3CF0E9
520253	31	3DF0FF
520509	2	3DF1E2
520510	2	3EF1E2
2623	3	3F0A03
2623	4	3F0A04
520255	9	3FF0E9
520511	2	3FF1E2
520512	12	40F1EC
520513	12	41F1EC
520258	9	42F0E9
520514	12	42F1EC
520259	9	43F0E9
520515	12	43F1EC
520261	9	45F0E9
2630	2	460A02
520264	9	48F0E9
520265	9	49F0E9
3659	0	4B0E00

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Diagnosis codes given on meter cluster or in service manual		Diagnosis codes shown on FUSO Diagnostics simulation display
3659	6	4B0E06
3659	15	4B0E0F
3659	16	4B0E10
520267	9	4BF0E9
3660	0	4C0E00
3660	6	4C0E06
3660	15	4C0E0F
3660	16	4C0E10
3661	0	4D0E00
3661	6	4D0E06
3661	15	4D0E0F
3661	16	4D0E10
520269	2	4DF0E2
3662	0	4E0E00
3662	6	4E0E06
3662	15	4E0E0F
3662	16	4E0E10
520270	2	4EF0E2
520273	0	51F0E0
520273	1	51F0E1
520530	0	52F1E0
520530	1	52F1E1
520530	16	52F1F0
520530	18	52F1F2
595	31	53021F
520531	3	53F1E3

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Diagnosis codes given on meter cluster or in service manual		Diagnosis codes shown on FUSO Diagnostics simulation display
520531	4	53F1E4
84	12	54000C
84	15	54000F
2900	2	540B02
2900	9	540B09
520276	9	54F0E9
520532	4	54F1E4
520532	5	54F1E5
520533	4	55F1E4
520533	5	55F1E5
598	12	56020C
520278	9	56F0E9
520534	6	56F1E6
520279	9	57F0E9
1624	31	58061F
520280	9	58F0E9
520536	5	58F1E5
520536	6	58F1E6
520281	9	59F0E9
520537	5	59F1E5
520537	6	59F1E6
520282	9	5AF0E9
520538	0	5AF1E0
520538	1	5AF1E1
520538	3	5AF1E3
520538	4	5AF1E4

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Diagnosis codes given on meter cluster or in service manual		Diagnosis codes shown on FUSO Diagnostics simulation display
520538	5	5AF1E5
91	2	5B0002
91	3	5B0003
91	4	5B0004
520539	0	5BF1E0
520539	2	5BF1E2
520539	3	5BF1E3
520539	4	5BF1E4
520539	5	5BF1E5
520539	12	5BF1EC
604	2	5C0202
520540	3	5CF1E3
520540	4	5CF1E4
520540	5	5CF1E5
520541	0	5DF1E0
520541	1	5DF1E1
520286	9	5EF0E9
520542	31	5EF1FF
520288	9	60F0E9
520544	9	60F1E9
354	15	62010F
354	31	62011F
355	31	63011F
100	31	64001F
520549	31	65F1FF
102	15	66000F

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Diagnosis codes given on meter cluster or in service manual		Diagnosis codes shown on FUSO Diagnostics simulation display
520550	31	66F1FF
1127	15	67040F
520297	9	69F0E9
520553	31	69F1FF
520298	9	6AF0E9
520554	31	6AF1FF
520299	9	6BF0E9
520555	31	6BF1FF
108	0	6C0000
108	1	6C0001
108	2	6C0002
108	16	6C0010
108	18	6C0012
520300	9	6CF0E9
520556	31	6CF1FF
110	12	6E000C
110	31	6E001F
520558	31	6EF1FF
111	1	6F0001
520559	31	6FF1FF
1136	15	70040F
520560	31	70F1FF
520561	0	71F1E0
520562	31	72F1FF
520563	31	73F1FF
520564	31	74F1FF

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Diagnosis codes given on meter cluster or in service manual		Diagnosis codes shown on FUSO Diagnostics simulation display
520309	9	75F0E9
520310	9	76F0E9
520311	9	77F0E9
520312	9	78F0E9
520569	31	79F1FF
520570	31	7AF1FF
520571	31	7BF1FF
636	2	7C0202
636	9	7C0209
520572	31	7CF1FF
520317	9	7DF0E9
520573	31	7DF1FF
520574	31	7EF1FF
520575	31	7FF1FF
520576	31	80F1FF
520577	31	81F1FF
520578	31	82F1FF
520323	9	83F0E9
520579	31	83F1FF
132	15	84000F
520580	31	84F1FF
520325	2	85F0E2
520325	9	85F0E9
520327	12	87F0EC
520583	0	87F1E0
520583	1	87F1E1

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Diagnosis codes given on meter cluster or in service manual		Diagnosis codes shown on FUSO Diagnostics simulation display
520584	31	88F1FF
520330	2	8AF0E2
520586	31	8AF1FF
651	3	8B0203
651	5	8B0205
651	6	8B0206
1675	2	8B0602
652	3	8C0203
652	5	8C0205
652	6	8C0206
520588	12	8CF1EC
653	3	8D0203
653	5	8D0205
653	6	8D0206
520589	12	8DF1EC
3470	0	8E0D00
3470	1	8E0D01
3470	3	8E0D03
3470	4	8E0D04
3470	5	8E0D05
3470	12	8E0D0C
3726	16	8E0E10
3727	0	8F0E00
520336	31	90F0FF
3217	0	910C00
3217	1	910C01

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Diagnosis codes given on meter cluster or in service manual		Diagnosis codes shown on FUSO Diagnostics simulation display
3217	16	910C10
520337	31	91F0FF
520338	31	92F0FF
520340	0	94F0E0
3221	0	950C00
3221	1	950C01
3224	14	980C0E
520344	1	98F0E1
520344	3	98F0E3
520344	4	98F0E4
520344	6	98F0E6
520344	7	98F0E7
520347	31	9BF0FF
156	0	9C0000
156	1	9C0001
156	16	9C0010
156	18	9C0012
412	0	9C0100
412	1	9C0101
412	2	9C0102
412	16	9C0110
520348	0	9CF0E0
3232	5	A00C05
3232	6	A00C06
520352	0	A0F0E0
520352	1	A0F0E1

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Diagnosis codes given on meter cluster or in service manual		Diagnosis codes shown on FUSO Diagnostics simulation display
520353	0	A1F0E0
520353	1	A1F0E1
1442	3	A20503
1442	4	A20504
1442	5	A20505
1442	12	A2050C
3234	2	A20C02
520354	0	A2F0E0
520354	1	A2F0E1
931	3	A30303
931	4	A30304
931	5	A30305
931	12	A3030C
520355	0	A3F0E0
520355	1	A3F0E1
676	3	A40203
676	4	A40204
676	5	A40205
676	12	A4020C
677	3	A50203
677	4	A50204
677	5	A50205
520357	0	A5F0E0
520357	1	A5F0E1
520357	31	A5F0FF
520358	2	A6F0E2

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Diagnosis codes given on meter cluster or in service manual		Diagnosis codes shown on FUSO Diagnostics simulation display
520359	2	A7F0E2
520360	2	A8F0E2
3241	0	A90C00
3241	1	A90C01
3241	18	A90C12
3241	31	A90C1F
4009	3	A90F03
4009	4	A90F04
4009	5	A90F05
4009	12	A90F0C
520361	2	A9F0E2
3242	2	AA0C02
520362	2	AAF0E2
171	0	AB0000
171	1	AB0001
171	7	AB0007
171	16	AB0010
172	0	AC0000
172	1	AC0001
172	2	AC0002
3244	0	AC0C00
3244	1	AC0C01
3244	2	AC0C02
3244	16	AC0C10
3244	18	AC0C12
520364	2	ACF0E2

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Diagnosis codes given on meter cluster or in service manual		Diagnosis codes shown on FUSO Diagnostics simulation display
3245	31	AD0C1F
174	0	AE0000
174	1	AE0001
174	2	AE0002
174	16	AE0010
3246	2	AE0C02
175	19	AF0013
3248	0	B00C00
3248	1	B00C01
3248	16	B00C10
3248	18	B00C12
3251	18	B30C12
3253	16	B50C10
3253	18	B50C12
520378	31	BAF0FF
520379	0	BBF0E0
520379	1	BBF0E1
188	0	BC0000
188	1	BC0001
520380	12	BCF0EC
520380	31	BCF0FF
1213	2	BD0402
3517	1	BD0D01
190	3	BE0003
190	4	BE0004
190	5	BE0005

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Diagnosis codes given on meter cluster or in service manual		Diagnosis codes shown on FUSO Diagnostics simulation display
190	12	BE000C
520382	31	BEF0FF
959	9	BF0309
520383	31	BFF0FF
520384	31	C0F0FF
520385	31	C1F0FF
520386	9	C2F0E9
520387	9	C3F0E9
520388	9	C4F0E9
520391	0	C7F0E0
520391	9	C7F0E9
520391	12	C7F0EC
520391	31	C7F0FF
520392	1	C8F0E1
520393	5	C9F0E5
520393	6	C9F0E6
520393	31	C9F0FF
520394	5	CAF0E5
520394	6	CAF0E6
520394	31	CAF0FF
520395	5	CBF0E5
520395	6	CBF0E6
520395	31	CBF0FF
520396	5	CCF0E5
520396	6	CCF0E6
520396	31	CCF0FF

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Diagnosis codes given on meter cluster or in service manual		Diagnosis codes shown on FUSO Diagnostics simulation display
1485	7	CD0507
1485	31	CD051F
520397	31	CDF0FF
520398	31	CEF0FF
520399	31	CFF0FF
520400	31	D0F0FF
520401	31	D1F0FF
723	2	D30202
723	9	D30209
723	31	D3021F
979	0	D30300
979	1	D30301
980	9	D40309
3285	2	D50C02
3285	17	D50C11
3031	0	D70B00
3031	1	D70B01
3287	0	D70C00
3287	1	D70C01
520410	31	DAF0FF
520411	31	DBF0FF
1761	2	E10602
1761	12	E1060C
1761	31	E1061F
520418	0	E2F0E0
520418	1	E2F0E1

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Diagnosis codes given on meter cluster or in service manual		Diagnosis codes shown on FUSO Diagnostics simulation display
520419	2	E3F0E2
520419	31	E3F0FF
520420	2	E4F0E2
520420	31	E4F0FF
520421	2	E5F0E2
520421	31	E5F0FF
1254	31	E6041F
520422	2	E6F0E2
520422	31	E6F0FF
2791	0	E70A00
2791	1	E70A01
2791	3	E70A03
2791	4	E70A04
2791	5	E70A05
2791	7	E70A07
2791	12	E70A0C
2791	16	E70A10
2791	18	E70A12
2791	20	E70A14
2791	31	E70A1F
520423	16	E7F0F0
520423	18	E7F0F2
520424	0	E8F0E0
520424	1	E8F0E1
520425	19	E9F0F3
3050	2	EA0B02

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Diagnosis codes given on meter cluster or in service manual		Diagnosis codes shown on FUSO Diagnostics simulation display
3050	10	EA0B0A
3050	15	EA0B0F
3050	16	EA0B10
3050	18	EA0B12
3050	31	EA0B1F
520426	5	EAF0E5
2795	15	EB0A0F
2795	16	EB0A10
2795	17	EB0A11
2795	20	EB0A14
2795	31	EB0A1F
3051	0	EB0B00
3051	16	EB0B10
520427	5	EBF0E5
520428	5	ECF0E5
2797	2	ED0A02
2797	3	ED0A03
2797	6	ED0A06
2797	12	ED0A0C
2797	31	ED0A1F
520429	18	EDF0F2
2798	2	EE0A02
2798	3	EE0A03
2798	6	EE0A06
2798	12	EE0A0C
520431	2	EFF0E2

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Diagnosis codes given on meter cluster or in service manual		Diagnosis codes shown on FUSO Diagnostics simulation display
520431	3	EFF0E3
520431	4	EFF0E4
3058	0	F20B00
3058	1	F20B01
3058	16	F20B10
3058	18	F20B12
3058	31	F20B1F
520434	2	F2F0E2
520434	31	F2F0FF
520435	0	F3F0E0
520435	1	F3F0E1
520436	3	F4F0E3
520436	4	F4F0E4
520437	0	F5F0E0
520437	16	F5F0F0
520438	0	F6F0E0
520439	31	F7F0FF
520440	31	F8F0FF
520441	31	F9F0FF
520442	31	FAF0FF
251	2	FB0002
251	12	FB000C
520443	31	FBF0FF
4092	16	FC0F10
520444	31	FCF0FF
520445	31	FDF0FF

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Diagnosis codes given on meter cluster or in service manual		Diagnosis codes shown on FUSO Diagnostics simulation display
4094	2	FE0F02
520446	31	FEF0FF
520447	31	FFF0FF

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<EZGO (lock brake ECU)>

Diagnosis codes given on meter cluster or in service manual		Diagnosis codes shown on FUSO Diagnostics simulation display
604	2	5C0202
190	3	BE0003
810	2	2A0302
810	3	2A0303
3646	2	3E0E02
3648	2	400E02
597	2	550202
168	3	A80003
168	4	A80004
521424	3	D0F4E3
521424	5	D0F4E5
521425	12	D1F4EC
521426	12	D2F4EC
521427	2	D3F4E2
521428	12	D4F4EC
521429	2	D5F4E2
521430	12	D6F4EC
521431	4	D7F4E4
521432	4	D8F4E4
521433	4	D9F4E4
521434	5	DAF4E5
521435	2	DBF4E2
521436	12	DCF4EC
521437	19	DDF4F3

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Diagnosis codes given on meter cluster or in service manual		Diagnosis codes shown on FUSO Diagnostics simulation display
521438	2	DEF4E2
521439	2	DFF4E2
521440	2	E0F4E2

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<HLAL (headlights auto-levelling ECU)>

Diagnosis codes given on meter cluster or in service manual		Diagnosis codes shown on FUSO Diagnostics simulation display
810	2	2A0302
3597	3	0D0E03
3597	4	0D0E04
810	1	2A0301
628	31	74021F
630	31	76021F
631	2	770202
631	31	77021F
3509	3	B50D03
3509	4	B50D04
3510	3	B60D03
3510	4	B60D04
701	3	BD0203
701	4	BD0204
702	3	BE0203
702	4	BE0204
703	2	BF0202
1231	2	CF0402
1231	19	CF0413
1231	31	CF041F
1235	2	D30402
1235	19	D30413
1235	31	D3041F

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<HVAC (air conditioner ECU and control panel)>

Diagnosis codes given on meter cluster or in service manual		Diagnosis codes shown on FUSO Diagnostics simulation display
1547	3	0B0603
1547	4	0B0604
2610	4	320A04
639	19	7F0213
3981	3	8D0F03
3981	4	8D0F04
3981	7	8D0F07
3985	12	910F0C
3986	3	920F03
3986	4	920F04
3986	7	920F07
170	3	AA0003
170	4	AA0004
171	3	AB0003
171	4	AB0004

<ICUC (meter cluster)>

Diagnosis codes given on meter cluster or in service manual		Diagnosis codes shown on FUSO Diagnostics simulation display
521751	7	17F6E7
521768	19	28F6F3
629	31	75021F
639	4	7F0204

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Diagnosis codes given on meter cluster or in service manual		Diagnosis codes shown on FUSO Diagnostics simulation display
158	3	9E0003
158	4	9E0004
1213	14	BD040E
1487	3	CF0503
1487	4	CF0504

<IMMO (immobiliser ECU)>

Diagnosis codes given on meter cluster or in service manual		Diagnosis codes shown on FUSO Diagnostics simulation display
521742	12	0EF6EC
521742	31	0EF6FF
521743	2	0FF6E2
521744	2	10F6E2
521745	2	11F6E2
521746	2	12F6E2
521747	2	13F6E2
521748	2	14F6E2
521749	2	15F6E2
521750	19	16F6F3
521750	31	16F6FF

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<ISS (ISS ECU)>

Diagnosis codes given on meter cluster or in service manual		Diagnosis codes shown on FUSO Diagnostics simulation display
521768	19	28F6F3
521752	2	18F6E2
521753	2	19F6E2
521754	2	1AF6E2
521755	2	1BF6E2
521756	4	1CF6E4
521757	3	1DF6E3
521758	7	1EF6E7
521759	7	1FF6E7
521760	7	20F6E7
521761	7	21F6E7
521762	7	22F6E7
521763	19	23F6F3
521764	19	24F6F3
521765	13	25F6ED
521766	13	26F6ED
521767	4	27F6E4
521769	2	29F6E2
521770	2	2AF6E2

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<SRS (airbag ECU)>

Diagnosis codes given on meter cluster or in service manual		Diagnosis codes shown on FUSO Diagnostics simulation display
639	19	7F0213
158	3	9E0003
158	4	9E0004
521728	3	00F6E3
521728	4	00F6E4
521728	5	00F6E5
521728	6	00F6E6
521728	7	00F6E7
521729	3	01F6E3
521729	4	01F6E4
521729	5	01F6E5
521729	6	01F6E6
521729	7	01F6E7
521730	5	02F6E5
521730	6	02F6E6
521731	5	03F6E5
521731	6	03F6E6
521732	5	04F6E5
521732	6	04F6E6
521733	5	05F6E5
521733	6	05F6E6
521734	5	06F6E5
521734	6	06F6E6
521735	12	07F6EC

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Diagnosis codes given on meter cluster or in service manual		Diagnosis codes shown on FUSO Diagnostics simulation display
521736	12	08F6EC
521737	2	09F6E2
521737	4	09F6E4
521737	7	09F6E7
521737	12	09F6EC
521737	31	09F6FF
521738	31	0AF6FF
521739	31	0BF6FF
521740	31	0CF6FF
521741	3	0DF6E3
521741	4	0DF6E4
629	12	75020C
944	3	B00303
944	4	B00304
944	5	B00305
944	6	B00306
944	7	B00307
945	3	B10303
945	4	B10304
945	5	B10305
945	6	B10306
945	7	B10307

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<SAM (SAM)>

Diagnosis codes given on meter cluster or in service manual		Diagnosis codes shown on FUSO Diagnostics simulation display
639	19	7F0213
158	3	9E0003
158	4	9E0004
521728	3	00F6E3
521728	4	00F6E4
521728	5	00F6E5
521728	6	00F6E6
521728	7	00F6E7
521729	3	01F6E3
521729	4	01F6E4
521729	5	01F6E5
521729	6	01F6E6
521729	7	01F6E7
521730	5	02F6E5
521730	6	02F6E6
521731	5	03F6E5
521731	6	03F6E6
521732	5	04F6E5
521732	6	04F6E6
521733	5	05F6E5
521733	6	05F6E6
521734	5	06F6E5
521734	6	06F6E6
521735	12	07F6EC

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Diagnosis codes given on meter cluster or in service manual		Diagnosis codes shown on FUSO Diagnostics simulation display
521985	4	01F7E4
521985	5	01F7E5
521986	4	02F7E4
521986	5	02F7E5
521987	4	03F7E4
521987	5	03F7E5
521988	4	04F7E4
521988	5	04F7E5
521989	4	05F7E4
521989	5	05F7E5
521990	4	06F7E4
521990	5	06F7E5
521991	4	07F7E4
521991	5	07F7E5
521992	4	08F7E4
521992	5	08F7E5
521993	4	09F7E4
521993	5	09F7E5
521994	4	0AF7E4
521994	5	0AF7E5
521995	4	0BF7E4
521995	5	0BF7E5
521996	4	0CF7E4
521996	5	0CF7E5
521997	4	0DF7E4
521997	5	0DF7E5

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Diagnosis codes given on meter cluster or in service manual		Diagnosis codes shown on FUSO Diagnostics simulation display
521998	4	0EF7E4
521998	5	0EF7E5
521999	4	0FF7E4
521999	5	0FF7E5
522000	4	10F7E4
522000	5	10F7E5
522003	4	13F7E4
522003	5	13F7E5
522004	4	14F7E4
522004	5	14F7E5
522005	4	15F7E4
522005	5	15F7E5
522006	4	16F7E4
522006	5	16F7E5
522007	4	17F7E4
522007	5	17F7E5
522008	4	18F7E4
522008	5	18F7E5
522009	4	19F7E4
522009	5	19F7E5
522010	4	1AF7E4
522010	5	1AF7E5
522011	4	1BF7E4
522011	5	1BF7E5
522012	4	1CF7E4
522012	5	1CF7E5

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Diagnosis codes given on meter cluster or in service manual		Diagnosis codes shown on FUSO Diagnostics simulation display
522013	4	1DF7E4
522013	5	1DF7E5
522014	4	1EF7E4
522014	5	1EF7E5
522015	4	1FF7E4
522015	5	1FF7E5
522016	4	20F7E4
522016	5	20F7E5
522017	4	21F7E4
522017	5	21F7E5
522018	4	22F7E4
522018	5	22F7E5
522019	4	23F7E4
522019	5	23F7E5
522020	4	24F7E4
522020	5	24F7E5
522021	4	25F7E4
522021	5	25F7E5
522022	4	26F7E4
522022	5	26F7E5
522023	4	27F7E4
522023	5	27F7E5
522024	4	28F7E4
522024	5	28F7E5
522025	4	29F7E4
522025	5	29F7E5

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Diagnosis codes given on meter cluster or in service manual		Diagnosis codes shown on FUSO Diagnostics simulation display
522026	4	2AF7E4
522026	5	2AF7E5
522027	3	2BF7E3
522028	4	2CF7E4
522029	4	2DF7E4
522030	4	2EF7E4
522031	4	2FF7E4
522032	4	30F7E4
522033	4	31F7E4
522034	4	32F7E4
522035	3	33F7E3
522036	3	34F7E3
522037	5	35F7E5
522038	5	36F7E5
522039	5	37F7E5
522040	5	38F7E5
522041	5	39F7E5
522042	5	3AF7E5
522043	5	3BF7E5
2372	4	440904
2372	5	440905
2374	4	460904
2374	5	460905
522064	25	50F7F9
522066	25	52F7F9
522067	25	53F7F9

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Diagnosis codes given on meter cluster or in service manual		Diagnosis codes shown on FUSO Diagnostics simulation display
522069	25	55F7F9
522070	25	56F7F9
522071	25	57F7F9
522072	25	58F7F9
522073	25	59F7F9
522074	25	5AF7F9
522075	25	5BF7F9
522076	25	5CF7F9
522077	25	5DF7F9
522078	25	5EF7F9
522079	25	5FF7F9
522080	25	60F7F9
522081	25	61F7F9
522082	25	62F7F9
522096	2	70F7E2
522097	2	71F7E2
522098	2	72F7E2
522099	2	73F7E2
522100	2	74F7E2
522101	2	75F7E2
522102	2	76F7E2
522103	2	77F7E2
522104	2	78F7E2
522105	2	79F7E2
522106	2	7AF7E2
522107	2	7BF7E2

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Diagnosis codes given on meter cluster or in service manual		Diagnosis codes shown on FUSO Diagnostics simulation display
522108	2	7CF7E2
522109	2	7DF7E2
522110	2	7EF7E2
522112	3	80F7E3
522112	4	80F7E4
522113	25	81F7F9
522114	25	82F7F9
522115	25	83F7F9
522116	25	84F7F9
522117	25	85F7F9
522118	25	86F7F9
522119	17	87F7F1
522120	17	88F7F1
522121	17	89F7F1
522122	17	8AF7F1
522123	17	8BF7F1
522124	17	8CF7F1
522125	17	8DF7F1
522126	17	8EF7F1
522127	17	8FF7F1
522128	17	90F7F1
522129	17	91F7F1
522130	17	92F7F1
522131	17	93F7F1
522132	17	94F7F1
522133	17	95F7F1

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Diagnosis codes given on meter cluster or in service manual		Diagnosis codes shown on FUSO Diagnostics simulation display
522134	17	96F7F1
522135	17	97F7F1
522136	17	98F7F1
522137	2	99F7E2
522138	25	9AF7F9
522139	25	9BF7F9
522140	25	9CF7F9
522141	25	9DF7F9
522142	4	9EF7E4
522143	5	9FF7E5
522144	3	A0F7E3
522145	2	A1F7E2
522146	2	A2F7E2
522147	4	A3F7E4
522148	17	A4F7F1
522149	17	A5F7F1
522150	17	A6F7F1
522151	17	A7F7F1
522152	17	A8F7F1
522153	17	A9F7F1
522154	17	AAF7F1
522155	17	ABF7F1

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<TCM (DUONIC® ECU)>

Diagnosis codes given on meter cluster or in service manual		Diagnosis codes shown on FUSO Diagnostics simulation display
639	19	7F0213
158	3	9E0003
158	4	9E0004
521728	3	00F6E3
521728	4	00F6E4
521728	5	00F6E5
521728	6	00F6E6
521728	7	00F6E7
521729	3	01F6E3
521729	4	01F6E4
521729	5	01F6E5
521729	6	01F6E6
521729	7	01F6E7
521730	5	02F6E5
521730	6	02F6E6
521731	5	03F6E5
521731	6	03F6E6
521732	5	04F6E5
521732	6	04F6E6
521733	5	05F6E5
521733	6	05F6E6
521734	5	06F6E5
521734	6	06F6E6
521735	12	07F6EC

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Diagnosis codes given on meter cluster or in service manual		Diagnosis codes shown on FUSO Diagnostics simulation display
158	3	9E0003
158	4	9E0004
512	19	000213
520704	2	00F2E2
513	19	010213
520705	2	01F2E2
514	19	020213
520706	2	02F2E2
520707	3	03F2E3
520707	4	03F2E4
772	3	040303
772	4	040304
520708	7	04F2E7
520709	7	05F2E7
520710	7	06F2E7
522	7	0A0207
520714	3	0AF2E3
520714	4	0AF2E4
520715	3	0BF2E3
520715	4	0BF2E4
520716	3	0CF2E3
520716	4	0CF2E4
781	7	0D0307
520717	3	0DF2E3
520717	4	0DF2E4
526	2	0E0202

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Diagnosis codes given on meter cluster or in service manual		Diagnosis codes shown on FUSO Diagnostics simulation display
520718	3	0EF2E3
520718	4	0EF2E4
783	3	0F0303
783	4	0F0304
520719	2	0FF2E2
520720	2	10F2E2
785	3	110303
785	4	110304
520721	2	11F2E2
1810	2	120702
1810	3	120703
1810	4	120704
520722	2	12F2E2
520723	2	13F2E2
788	3	140303
788	4	140304
788	7	140307
788	12	14030C
2580	2	140A02
2580	3	140A03
2580	4	140A04
520724	2	14F2E2
520725	2	15F2E2
520726	2	16F2E2
520727	2	17F2E2
520728	2	18F2E2

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Diagnosis codes given on meter cluster or in service manual		Diagnosis codes shown on FUSO Diagnostics simulation display
520729	2	19F2E2
520730	2	1AF2E2
520731	19	1BF2F3
520732	2	1CF2E2
520733	2	1DF2E2
520734	2	1EF2E2
520735	2	1FF2E2
544	19	200213
520736	2	20F2E2
520737	19	21F2F3
520738	2	22F2E2
520739	2	23F2E2
520740	3	24F2E3
520740	4	24F2E4
520741	2	25F2E2
520742	2	26F2E2
520743	2	27F2E2
520744	31	28F2FF
520745	3	29F2E3
520745	4	29F2E4
520746	3	2AF2E3
520746	4	2AF2E4
520747	3	2BF2E3
520747	4	2BF2E4
520748	3	2CF2E3
520748	4	2CF2E4

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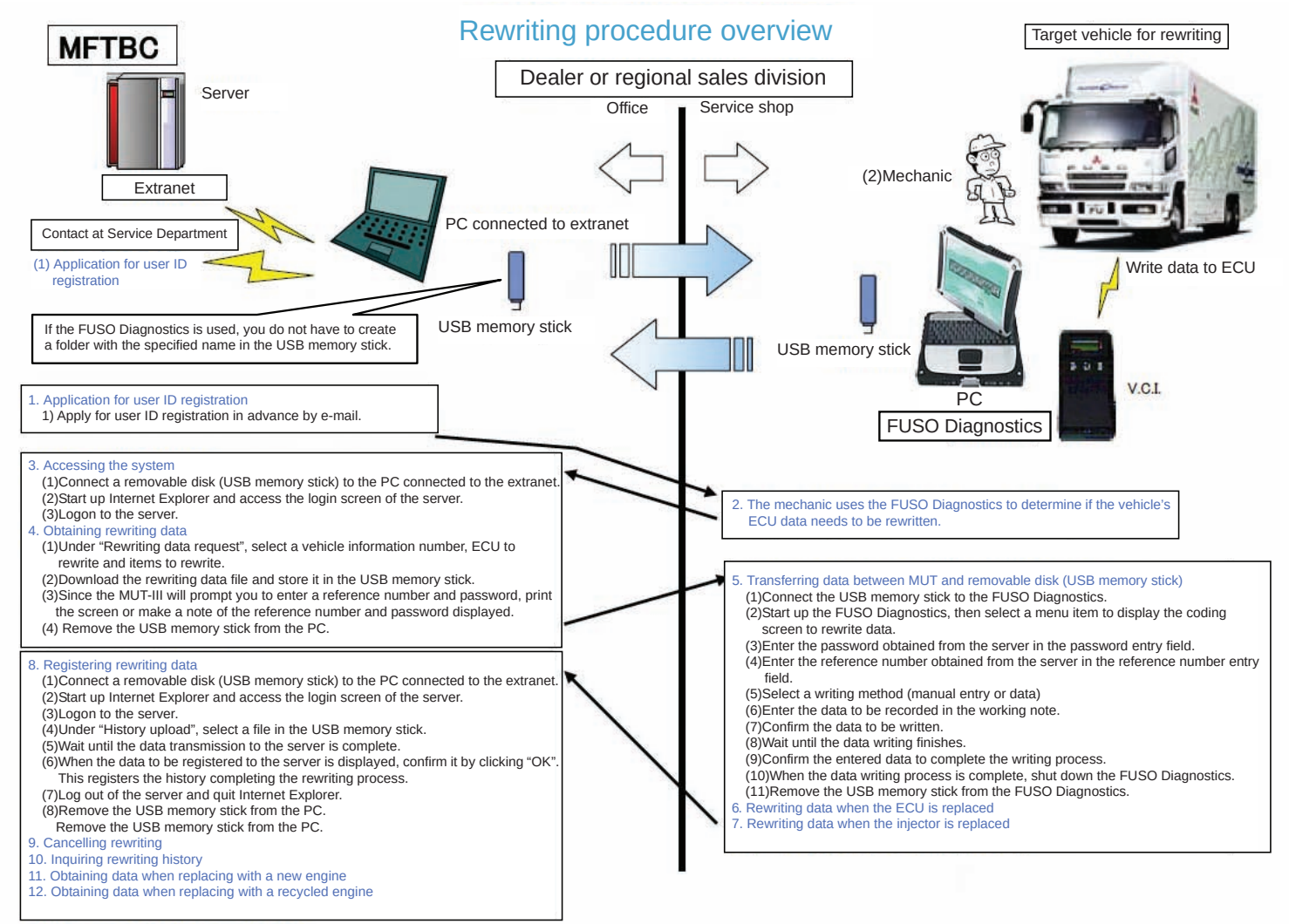
Diagnosis codes given on meter cluster or in service manual		Diagnosis codes shown on FUSO Diagnostics simulation display
520749	2	2DF2E2
520750	2	2EF2E2
520751	7	2FF2E7
520752	7	30F2E7
520753	7	31F2E7
520754	7	32F2E7
563	19	330213
520755	7	33F2E7
520756	7	34F2E7
1852	19	3C0713
1852	31	3C071F
70	19	460013
595	19	530213
1619	2	530602
1619	8	530608
84	19	540013
597	19	550213
3413	2	550D02
86	19	560013
600	19	580213
602	19	5A0213
91	19	5B0013
2910	3	5E0B03
2910	4	5E0B04
2912	19	600B13
110	19	6E0013

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Diagnosis codes given on meter cluster or in service manual		Diagnosis codes shown on FUSO Diagnostics simulation display
3187	19	730C13
3452	19	7C0D13
3453	19	7D0D13
904	19	880313
907	19	8B0313
908	19	8C0313
158	2	9E0002
1438	12	9E050C
681	12	A9020C
684	7	AC0207
177	2	B10002
177	3	B10003
177	4	B10004
177	9	B10009
188	19	BC0013
190	19	BE0013
191	2	BF0002
191	7	BF0007
191	8	BF0008
191	10	BF000A
191	12	BF000C
973	19	CD0313
740	7	E40207

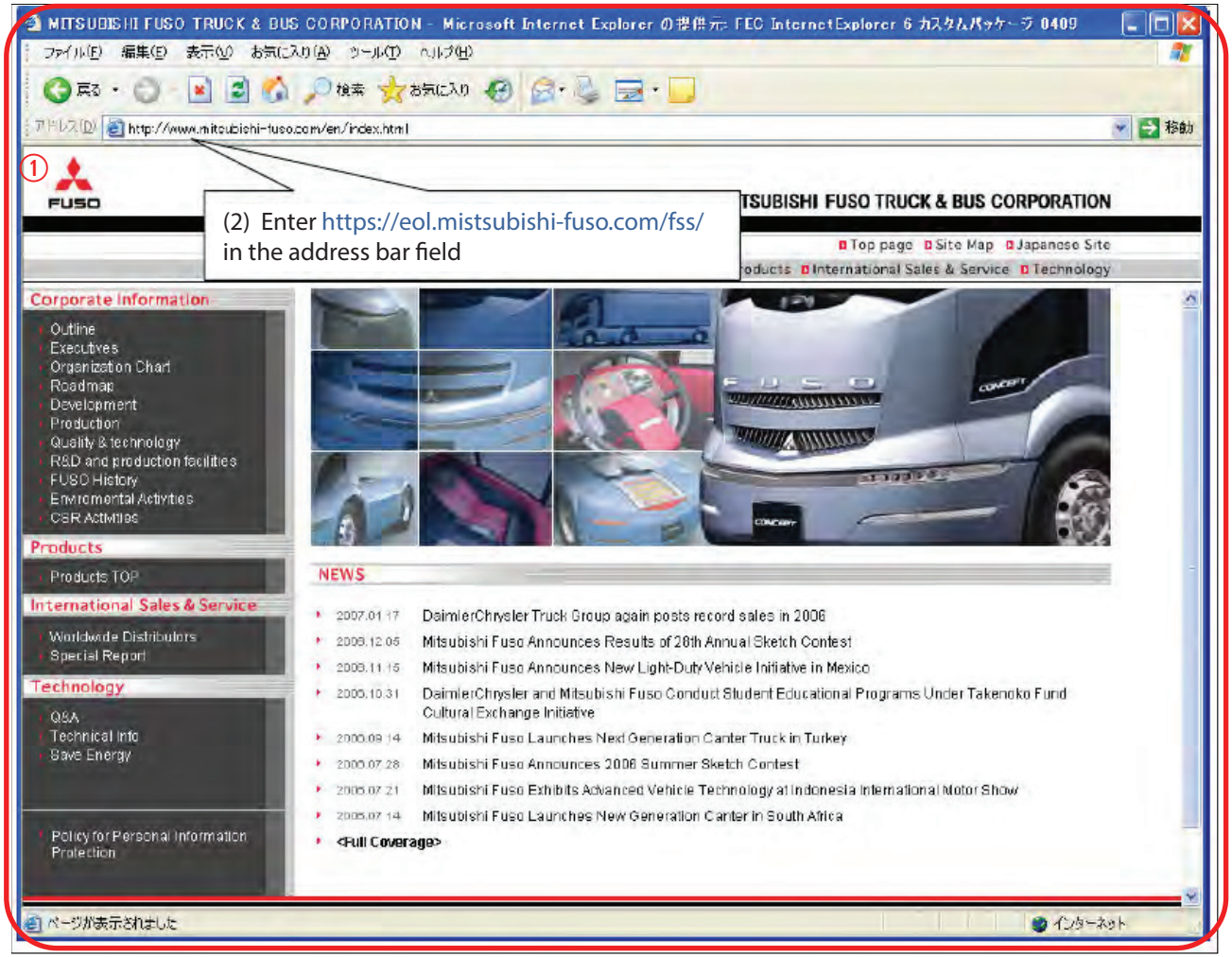
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When an ECU is updated in the field, its history data needs to be registered in the server.



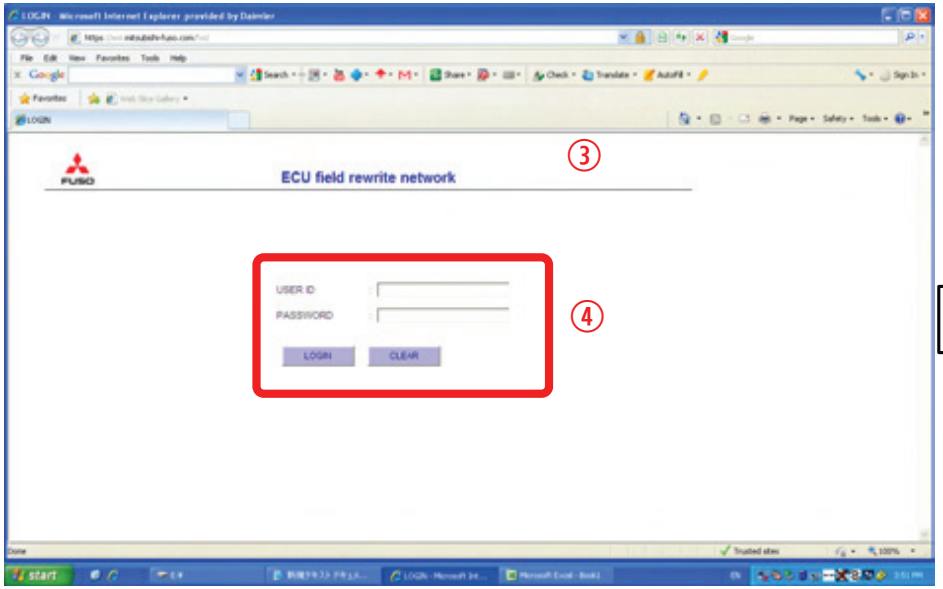
https://truckmanualshub.com/

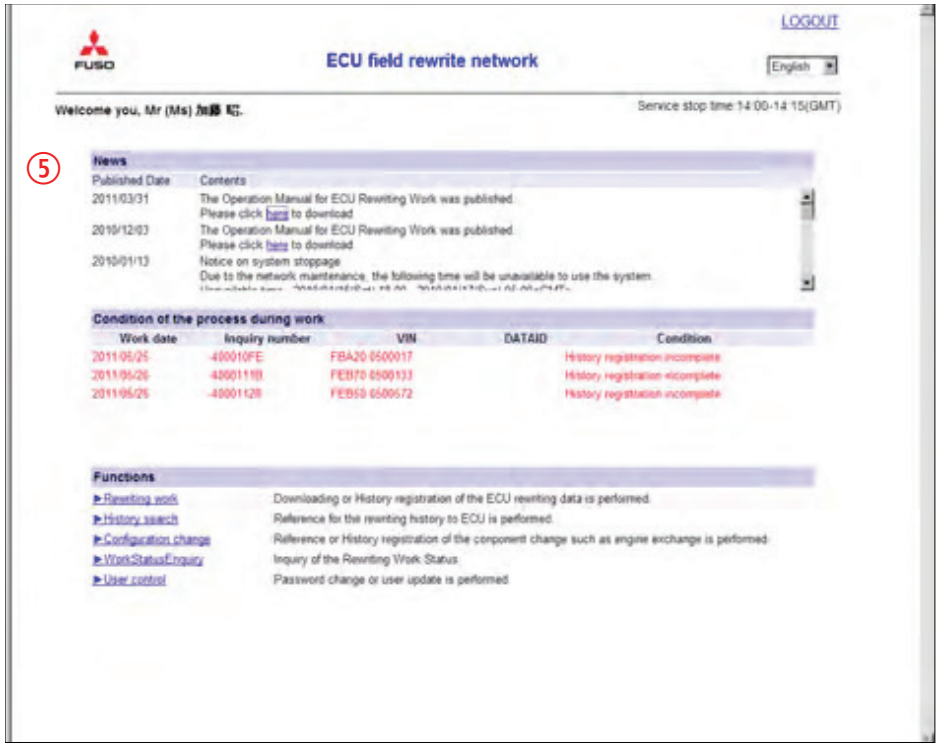
Accessing the FRN



① Display extranet home page.
② Click the link to “Rewrite ECU”.

https://truckmanualshub.com/

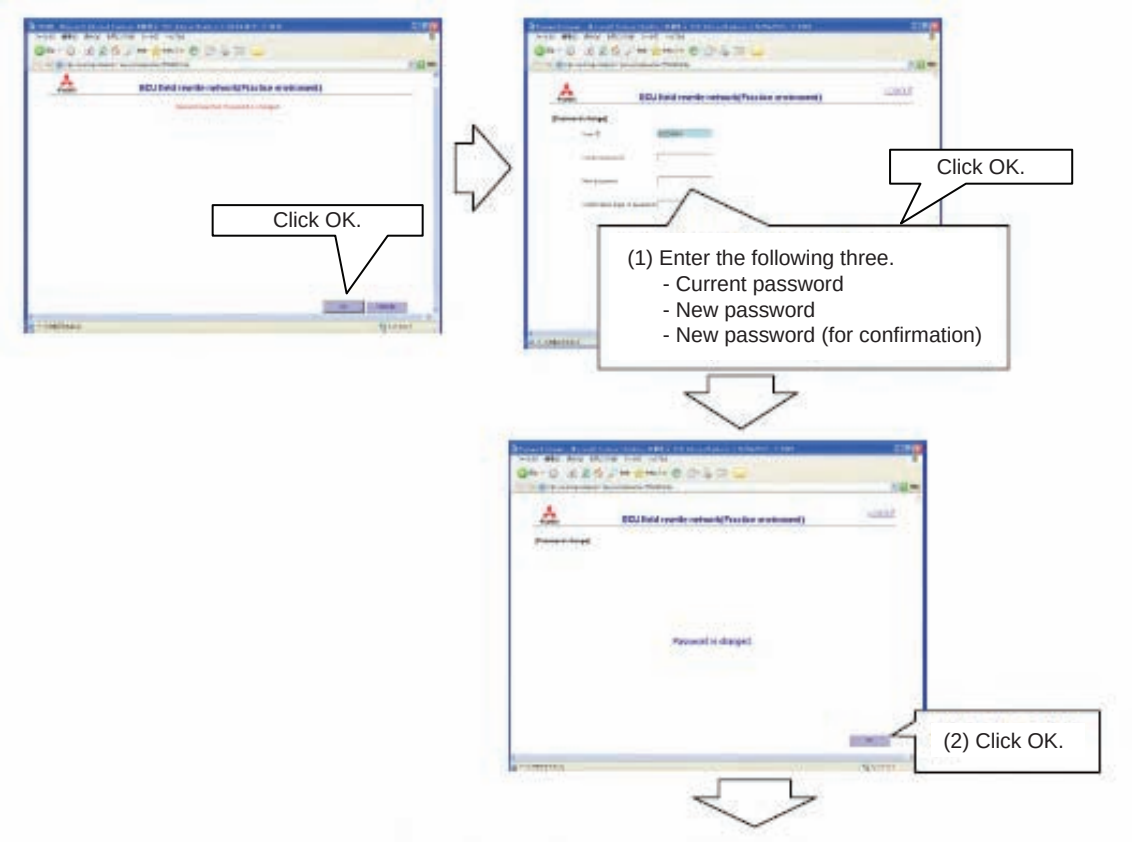




③ The FRN login page appears.
④ Enter a registered user ID and password to log in to the system.
⑤ The FRN home page appears.

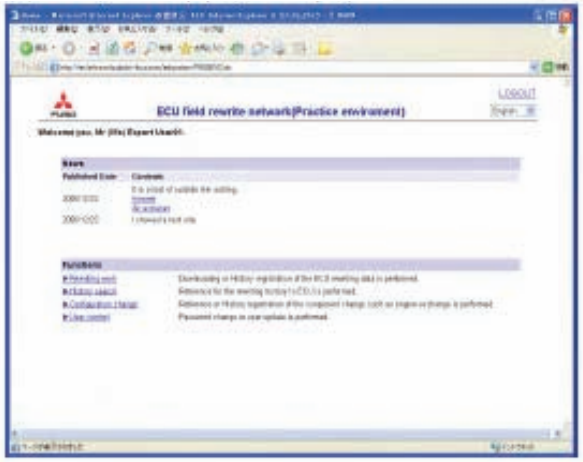
https://truckmanualshub.com/

At initial logon or when 30 or more days have passed after changing the password:



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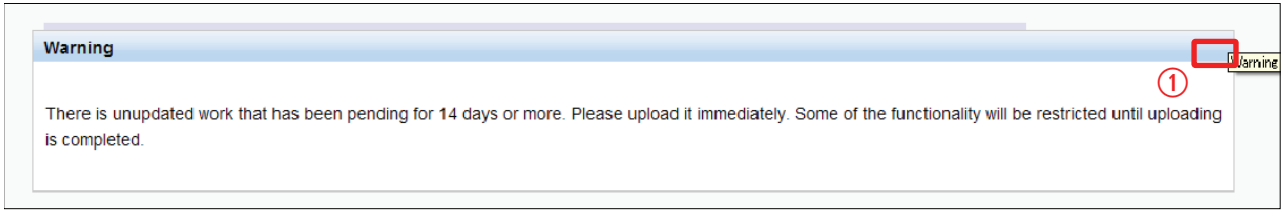
(3) The system home page is displayed



Important: Notes on password change
When a password is to be changed, set it using the following rules.
- Lower case alphanumeric characters (case-sensitive) can be used.
- Set at least six characters.
- Use one or more upper-case characters and one or more lower case characters, and one or more numbers.
- The new password cannot be identical to the previous password.

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If non updated work has been pending for 14 days or more:

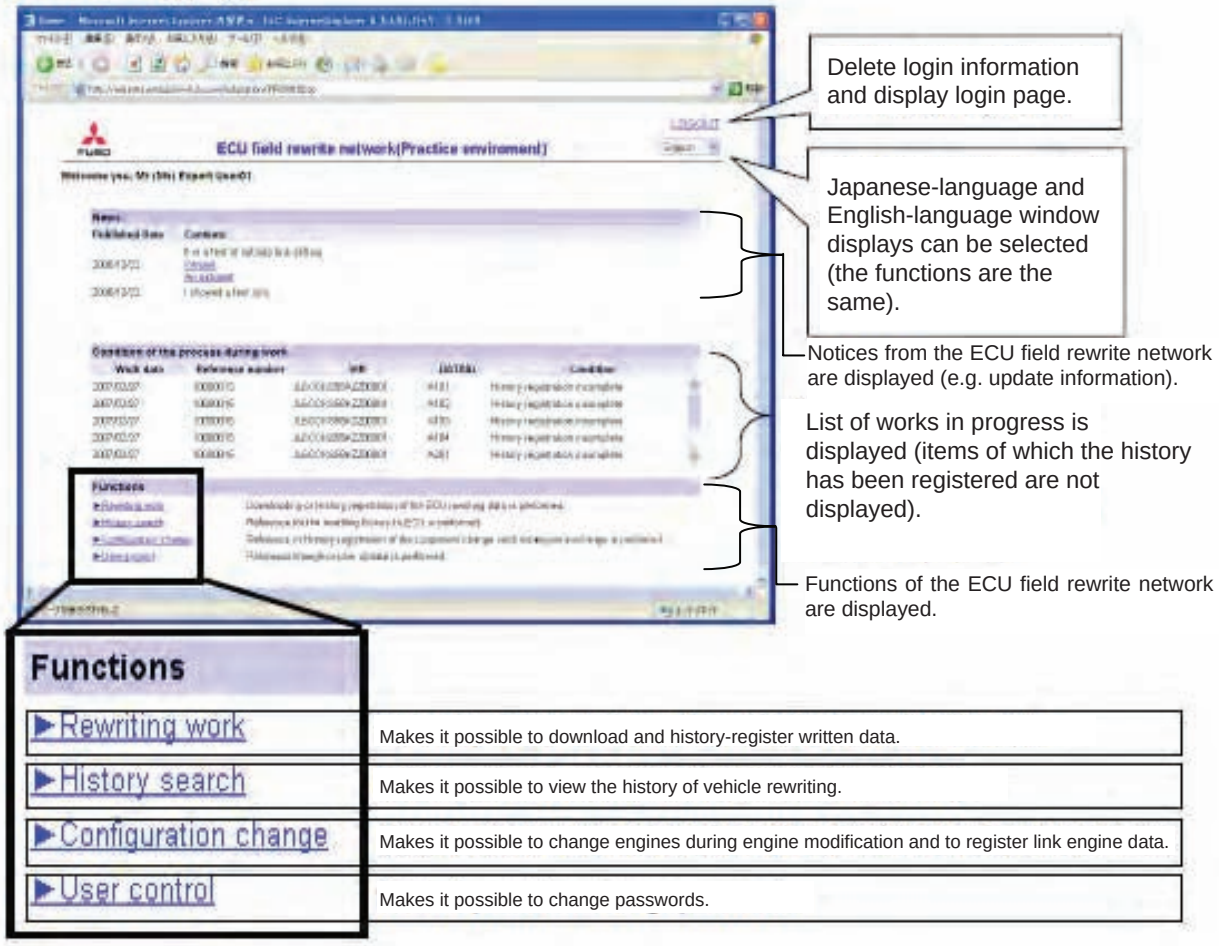


① Move the cursor to the upper right corner of the warning window or press the Esc key to close the window. Then, select “Rewriting work” → “History upload” → “Stopping rewriting” (described later) to cancel the work.

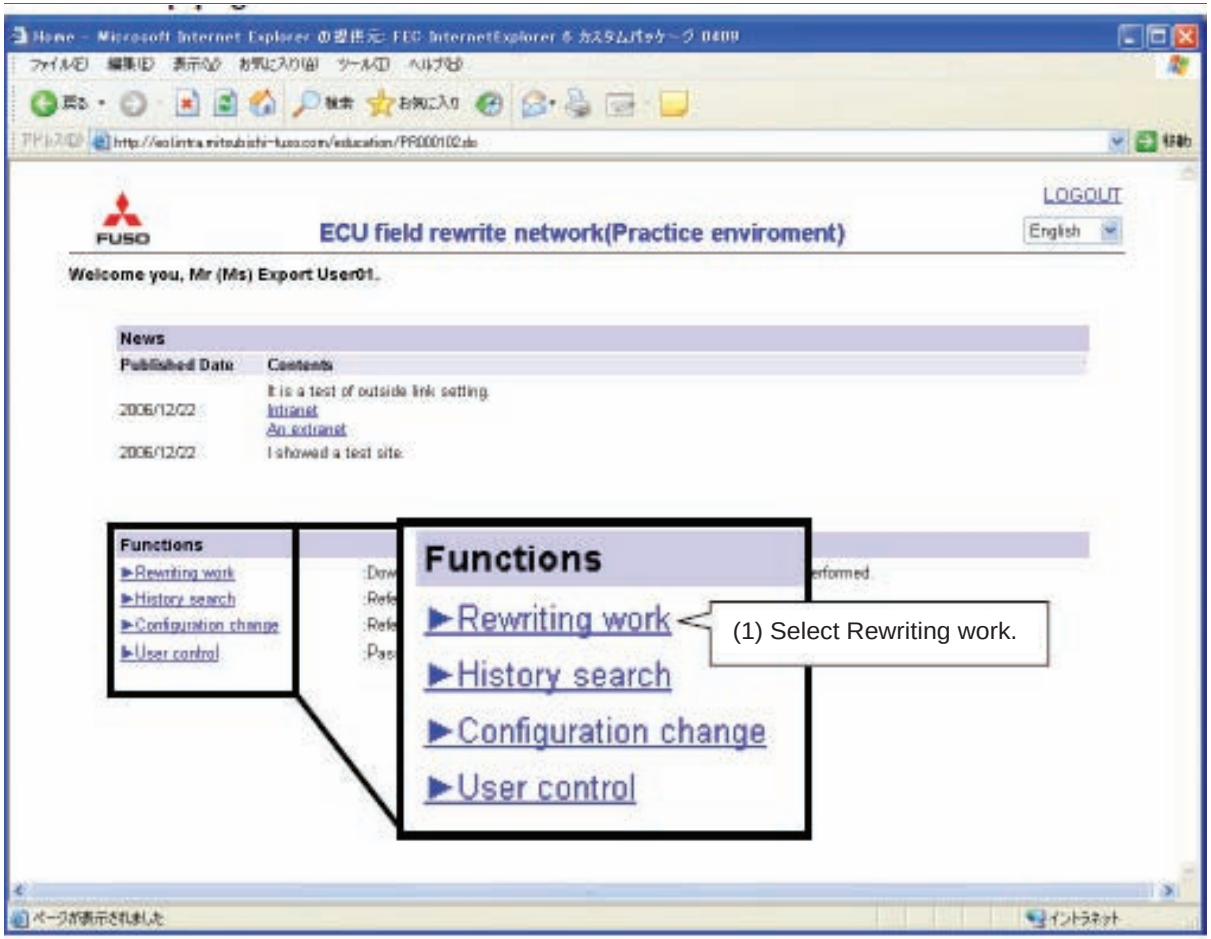
https://truckmanualshub.com/

Home page

Window: Home page

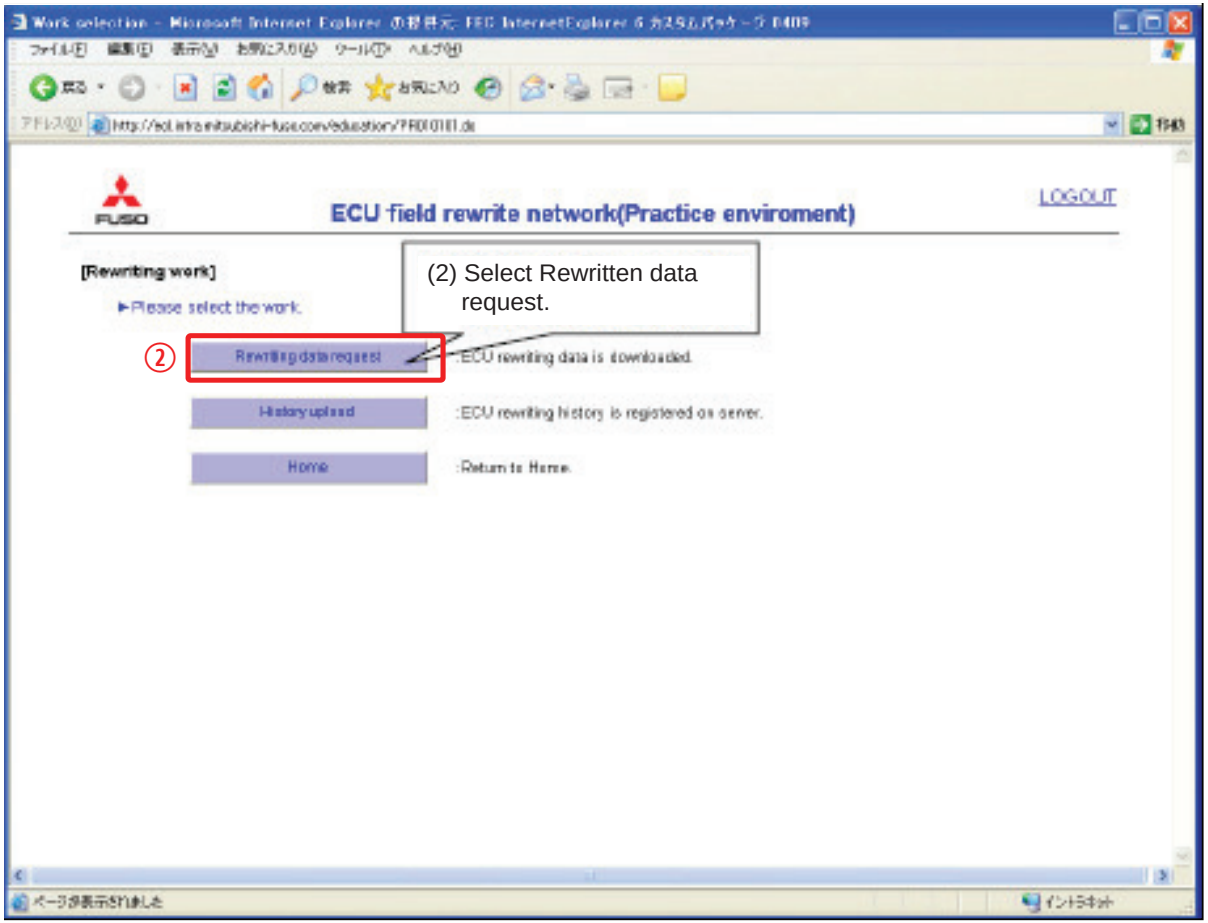


Obtaining data to be rewritten.



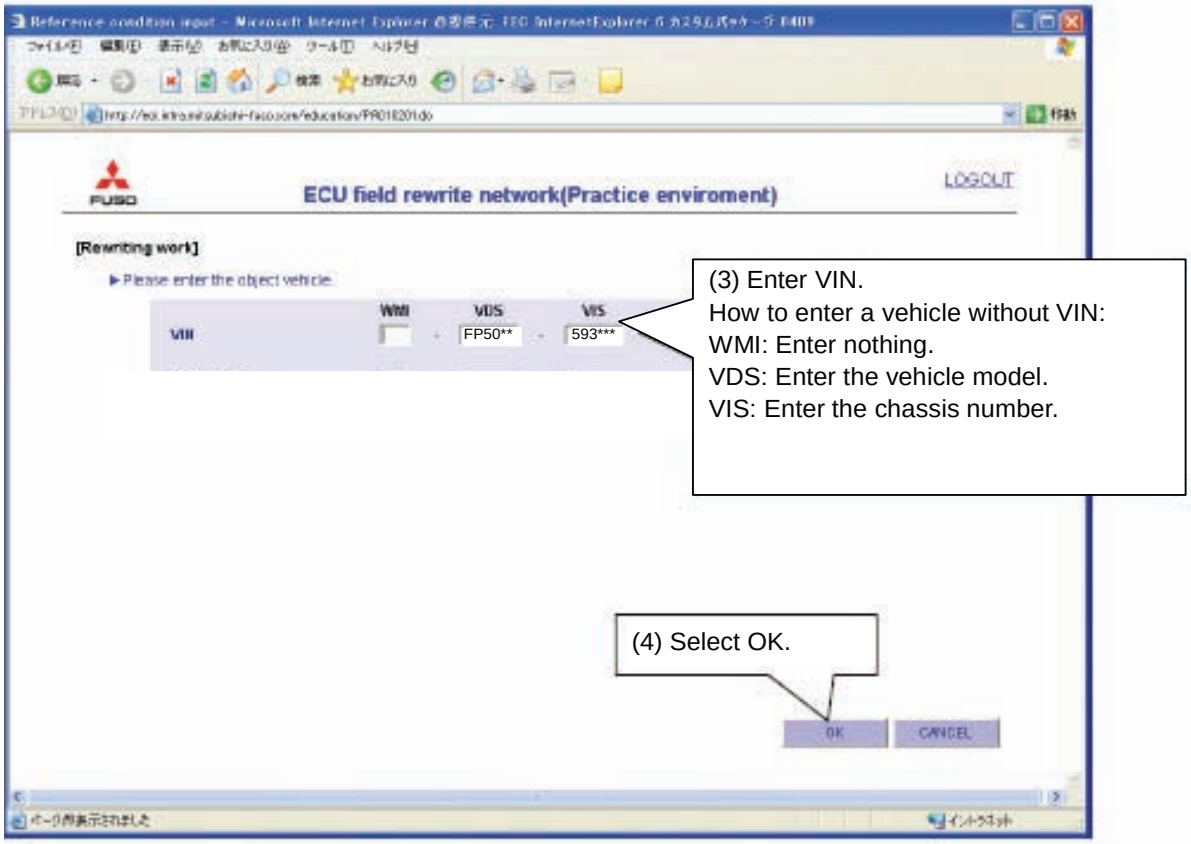
① Select “Rewriting work”.

https://truckmanualshub.com/



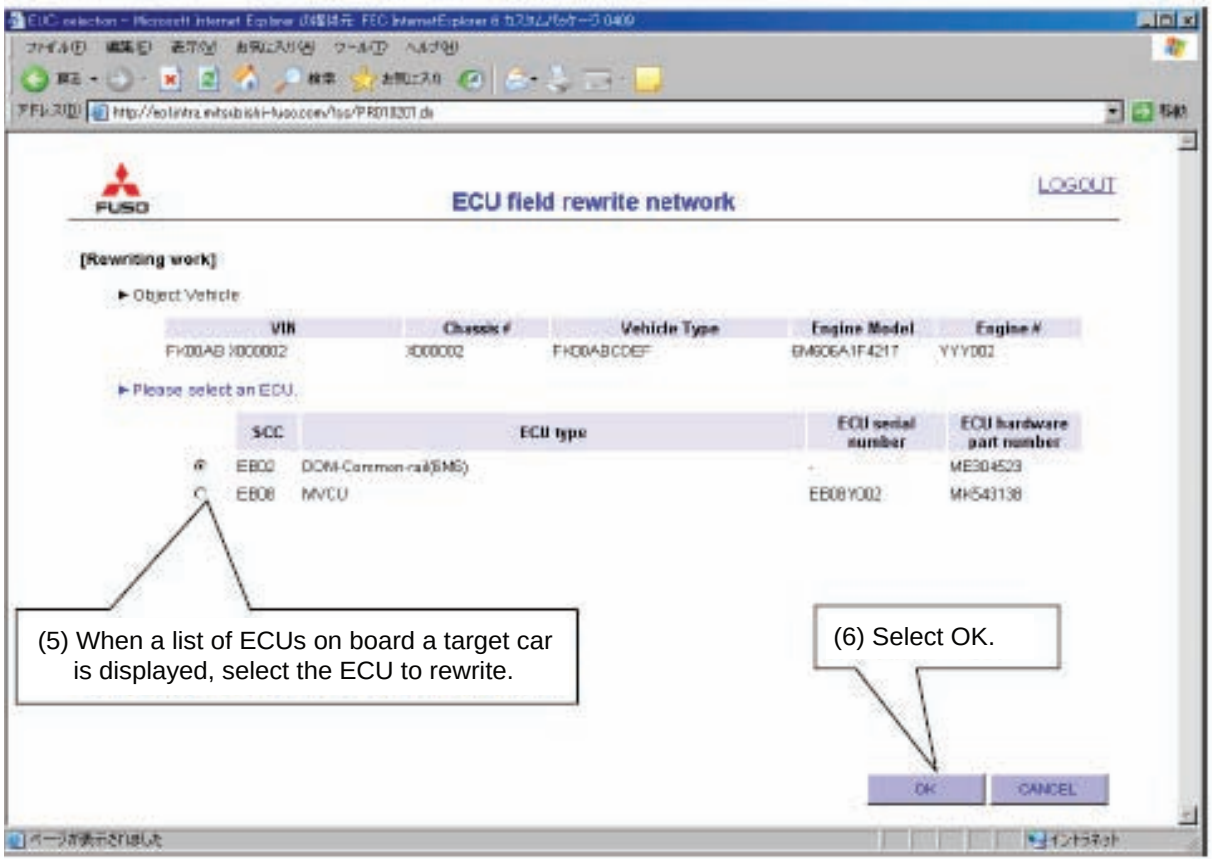
② Select “Rewriting data request”.

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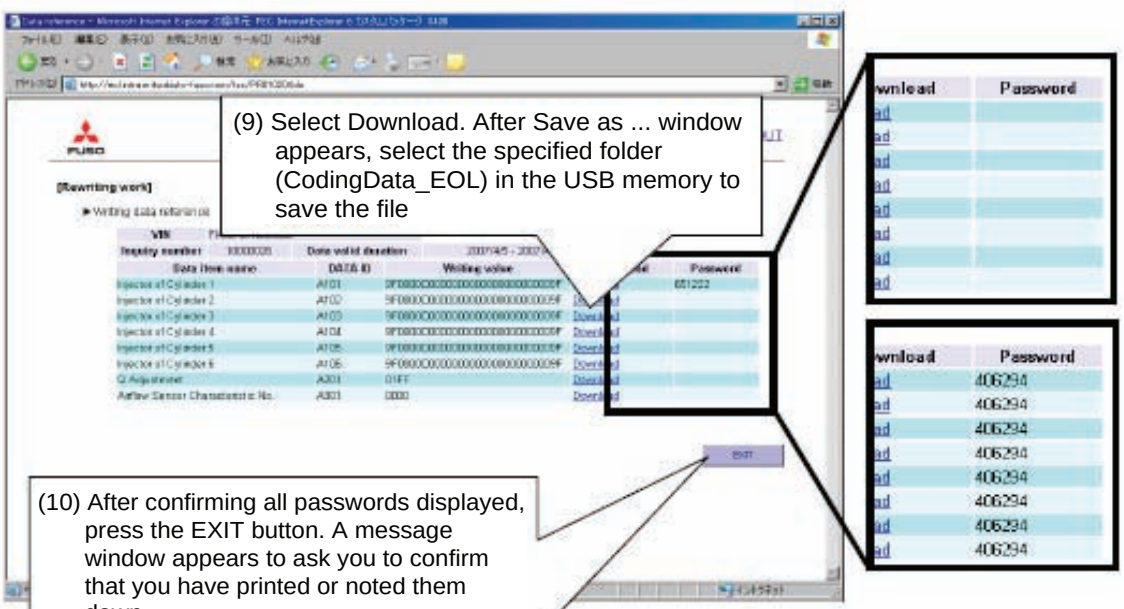
③ Enter a VIN (vehicle identification number).
④ Click “OK”.

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⑤ When a list of ECUs fitted on the vehicle is displayed, select the ECU to rewrite.
⑥ Click “OK”.

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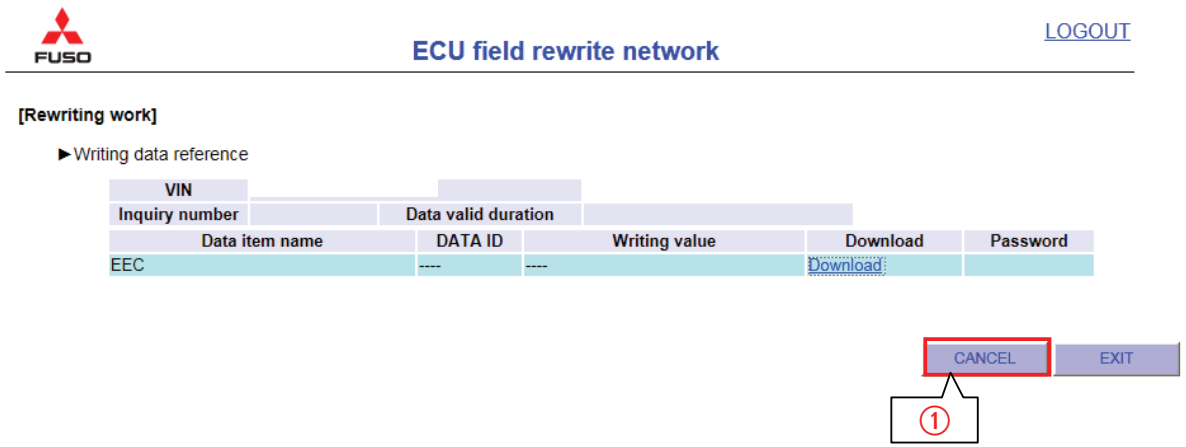
Important: Notes on downloading

- The Save as ... window appears with the default file name specified. Save the file without changing the file name (MUT cannot recognize any other file name).
- When downloading files, confirm that a password is displayed next to the “Download” selected.
- After downloading is complete, be sure to make the note of the reference number (inquiry number) and password or select the menu option “File” and then “Print” to print the screen.

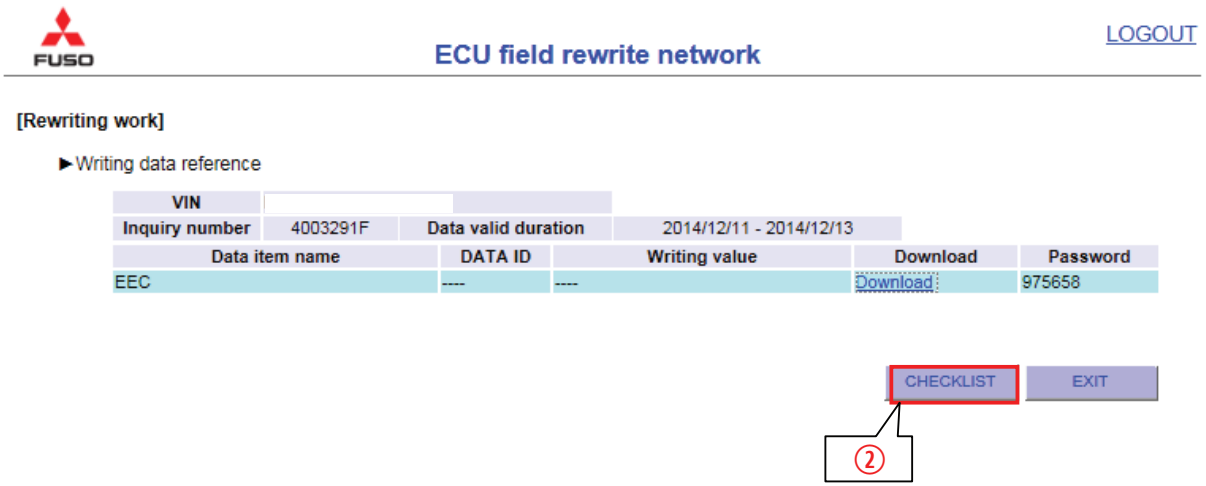
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Reference information (check list) when writing <MCM, ACM, EEC, TCM>

VIN, engine model number, software number, etc. information for the vehicle downloading is available from the view below when downloading FRN file of MCM, ACM, EEC and TCM. Please use this for confirmation.



1. Click “Download” and save FRN file.



2. Click “CHECKLIST” and save it.

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3. The check-list below is available.
(sample)
Check list for rewrite ECU by FUSO Diagnostics

Download date	2015/01/19	**Dealer name**	FUSO dealer 1
Operator	Mr. FUSO	**Inquiry number**	500XXX
Vehicle type	FEB71 500XXX	**VIN/Chassis#**	Y03828
Engine model	4P10	**Engine# at production**	B48823
ECU type	EEC01TF	**Engine# at replacement**	B48823
Software part#	A05448504001	**Fuel map part# <ENG>**	A017448924001

4P10 Engine chart for engine type on FRN/FUSO Diagnostics
<CANTER>

Engine type on FRN	Engine type on FUSO diagnostics
4P101A1FXXXX	4P10T1
4P101A2FXXXX	4P10T2
4P101A4FXXXX	4P10T4
4P101A6FXXXX	4P10T6

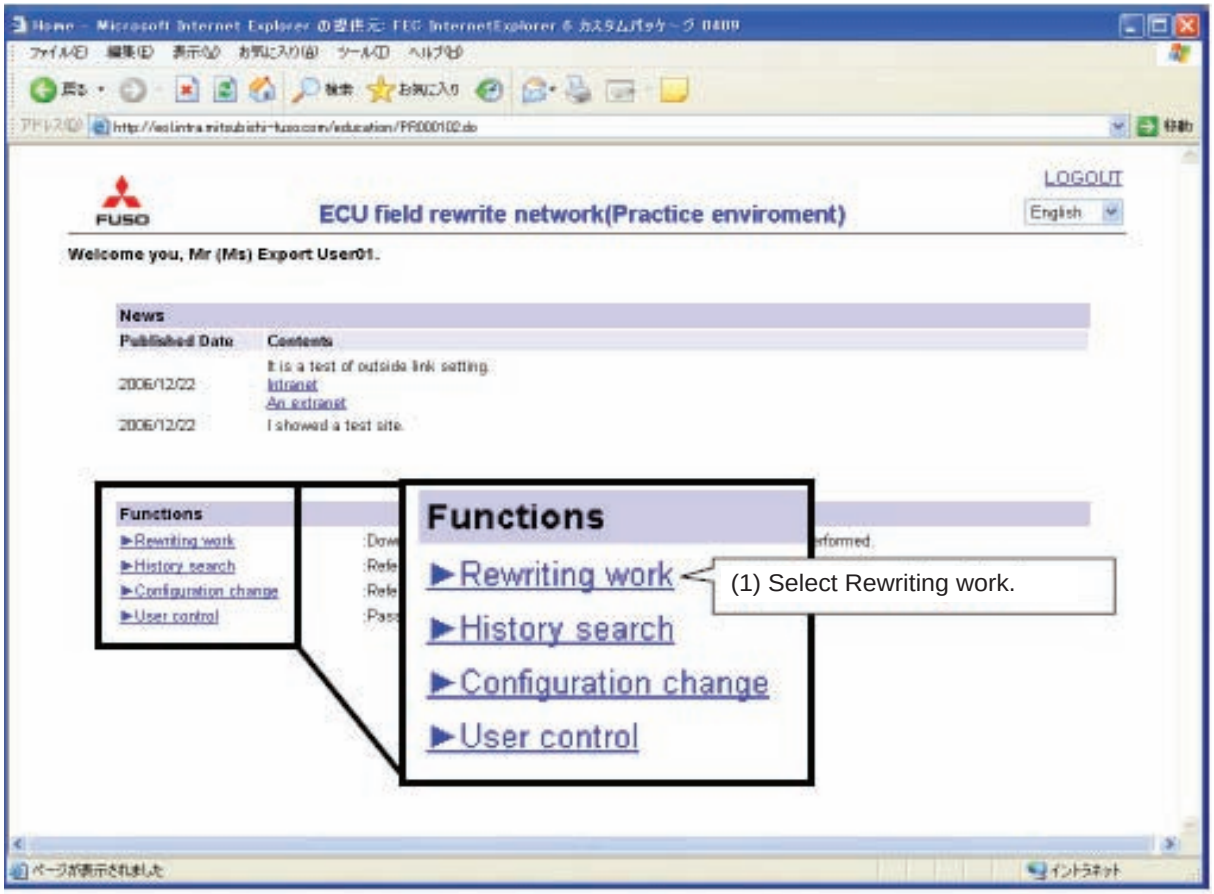
<ROSA>
Gearbox type is indicated due to one engine type

Gearbox type on FRN	Gearbox type on FUSO Diagnostics
“TCM01TF” is shown in ECU list on FRN <DUONIC>	AMT/BE
“TCM01TF” is not shown in ECU list on FRN <MT>	MT/DE

Print out and use this for conformation.

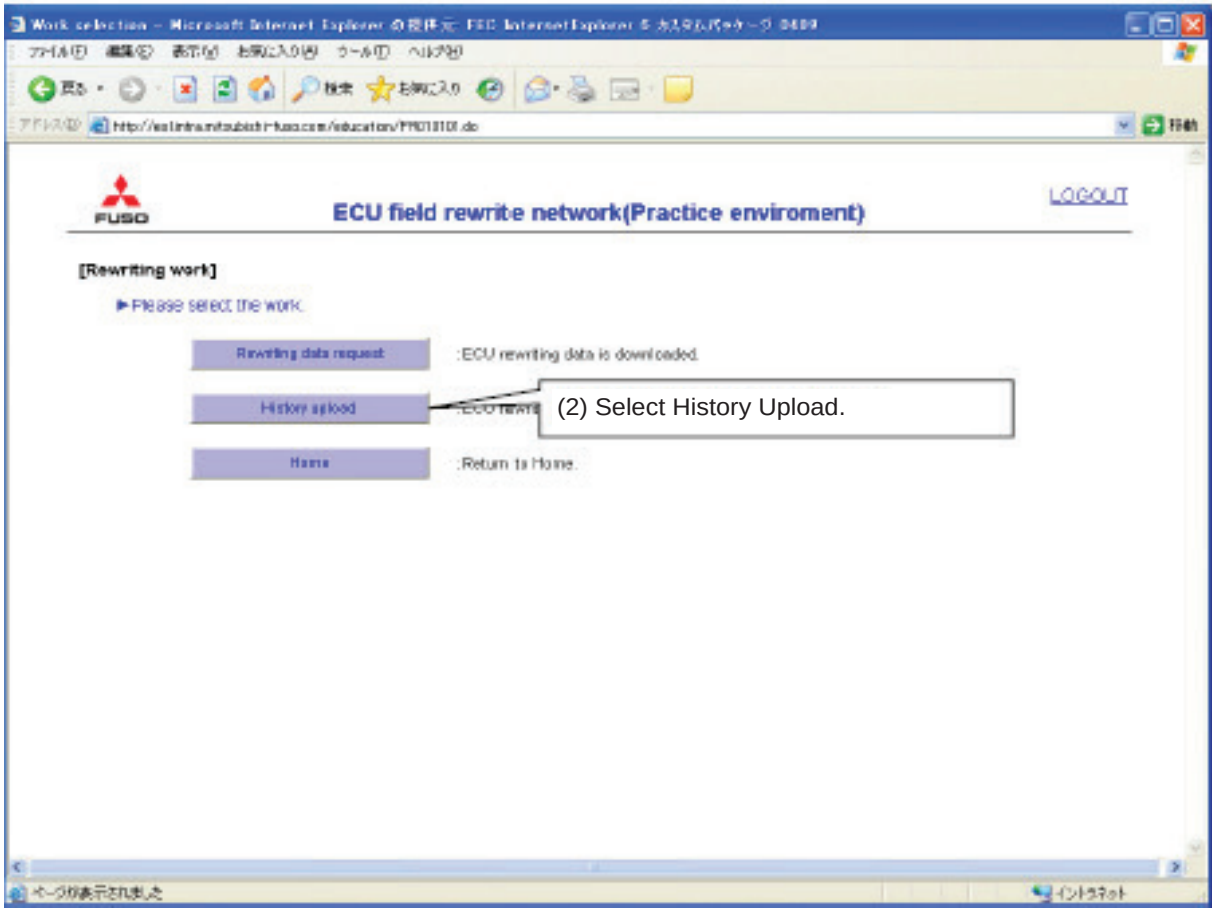
https://truckmanualshub.com/

Registering rewriting data.



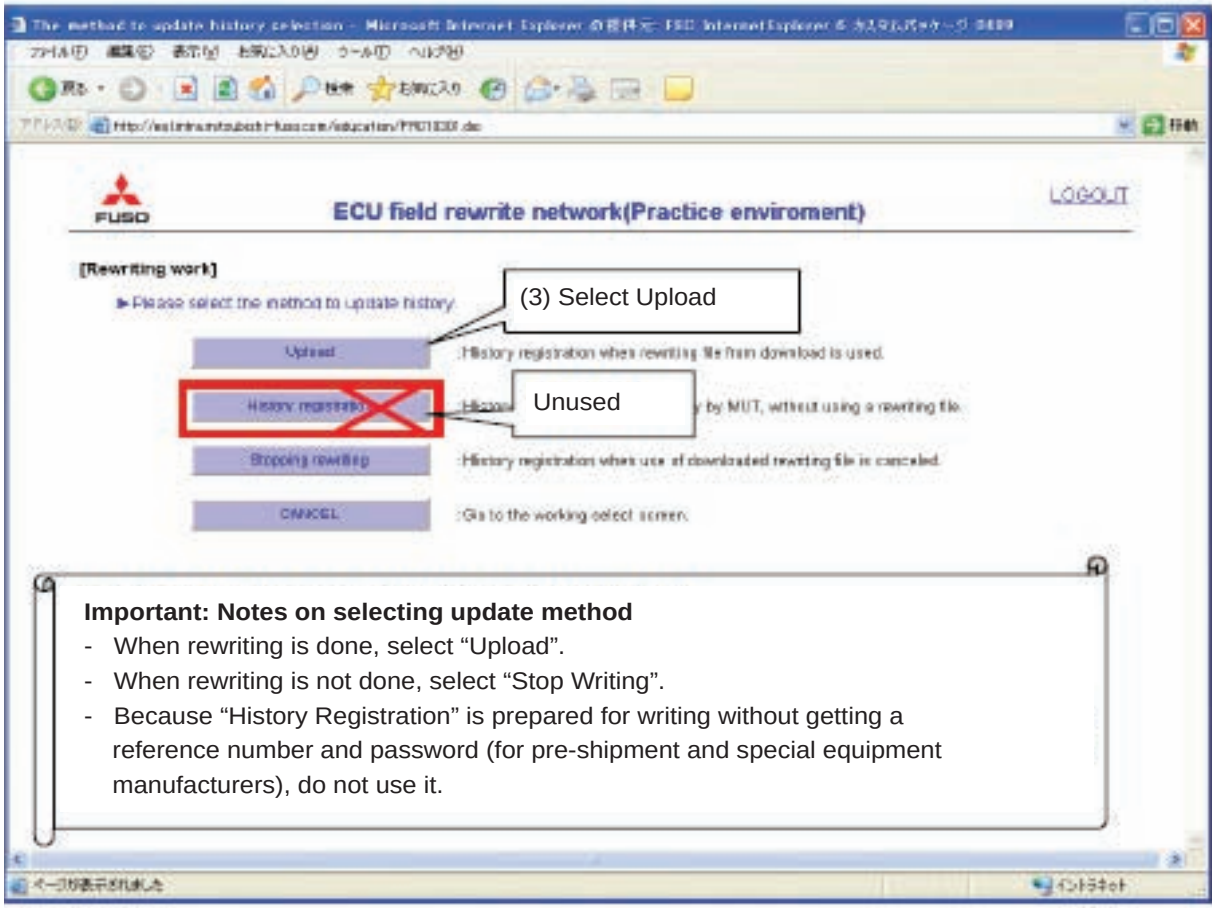
① Select “Rewriting work”.

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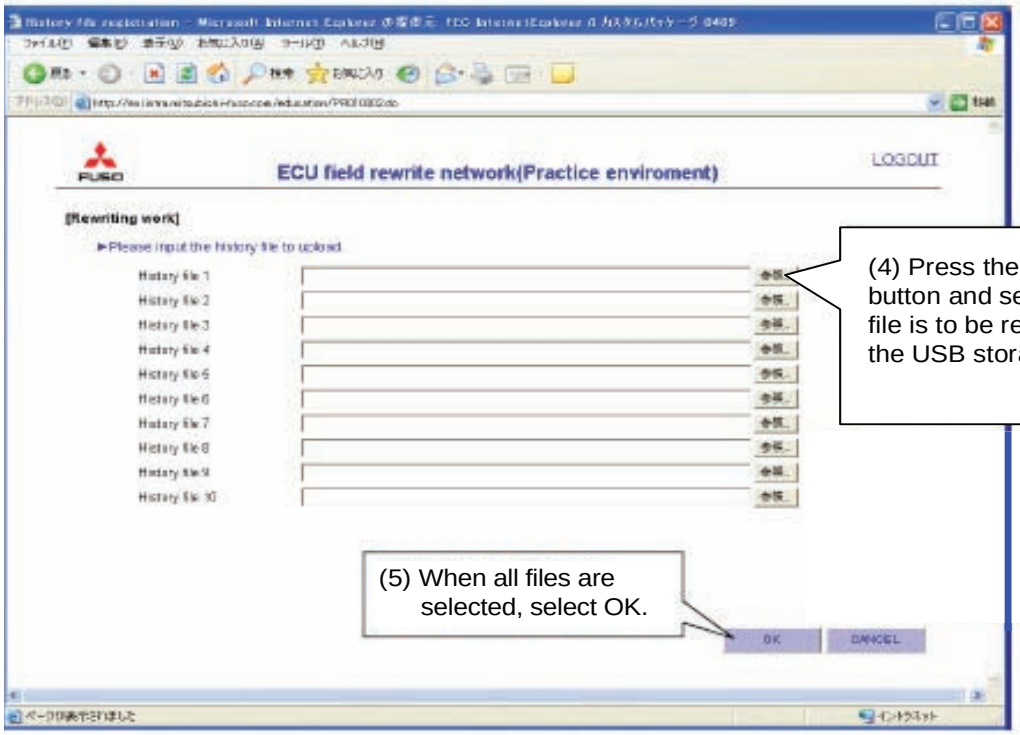
② Select “History upload”.

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③ Select “Upload”.

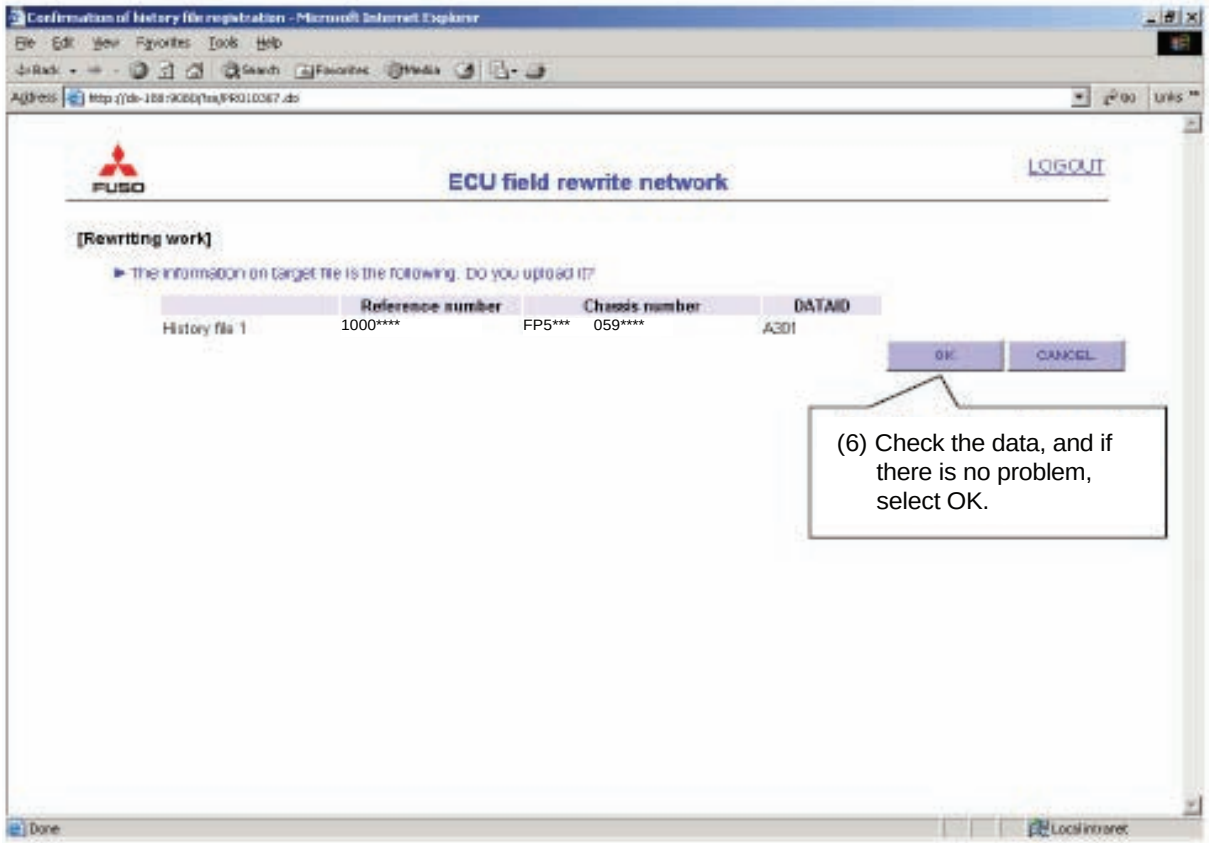
https://truckmanualshub.com/



④ Click the Browse button and select a history file to be registered.
⑤ When all files are selected, click “OK”.

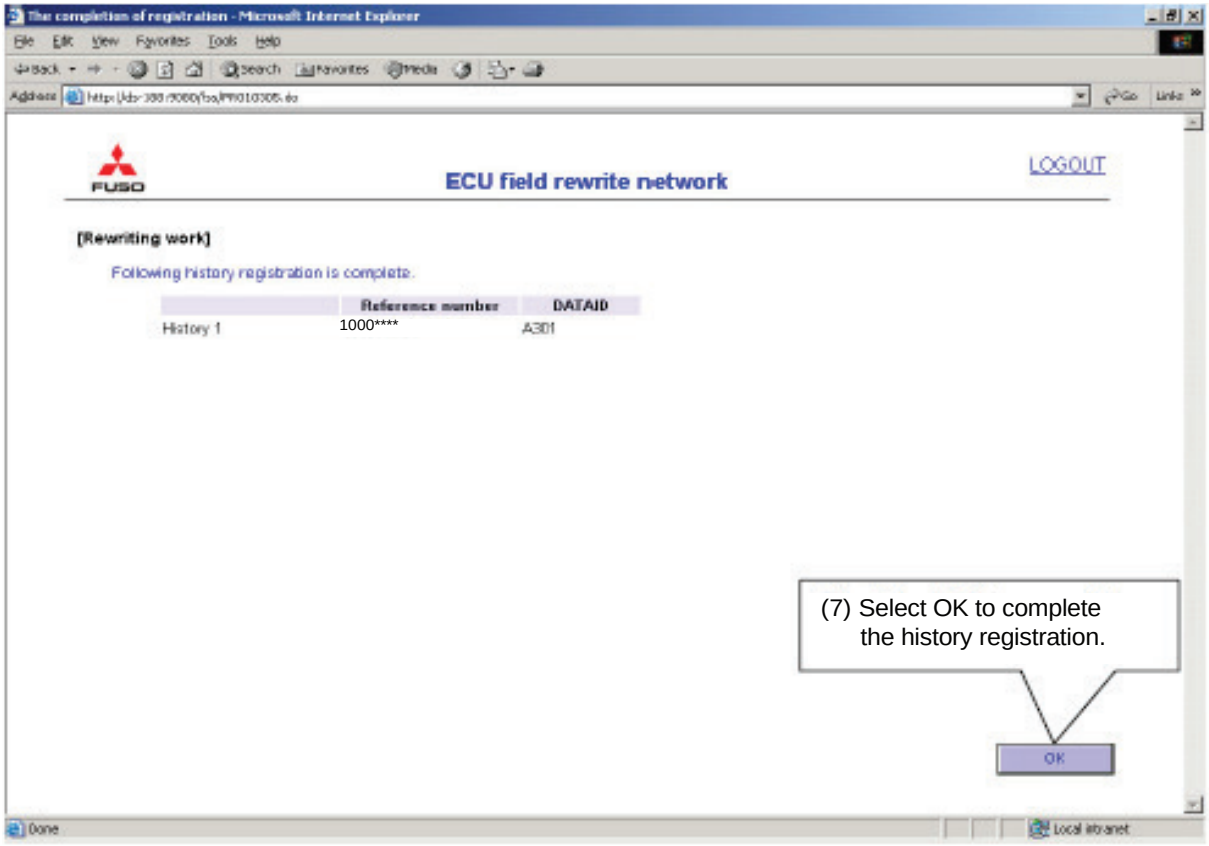
Important: Notes on upload
- Data with the same reference numbers can be collectively uploaded.
- If files with different reference numbers are registered at the same time, or an attempt is made to register data that has already been registered, an error occurs, Select another history file or cancel the registration and then re-select OK.

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⑥ Check the data, and if there is no problem, click “OK”.

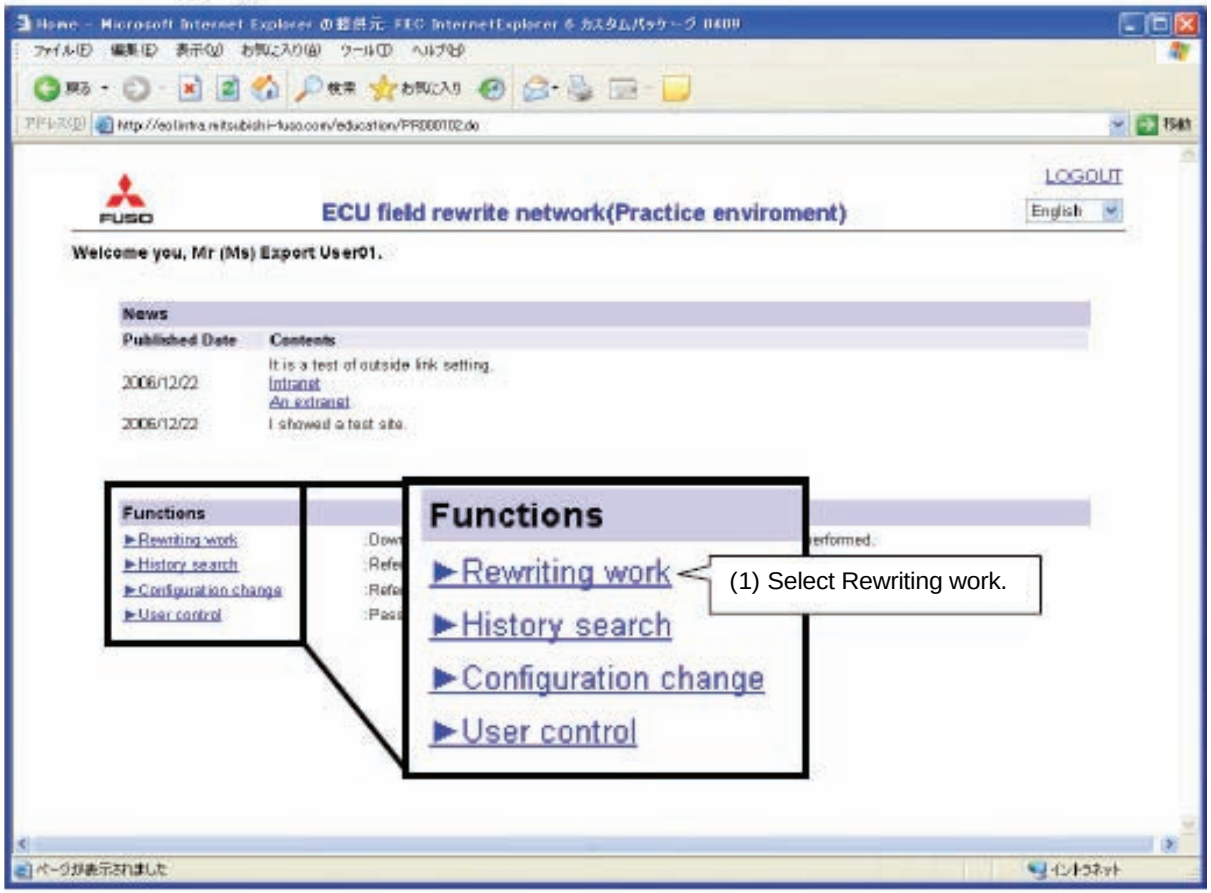
https://truckmanualshub.com/



⑦ Click “OK” to complete the history registration.

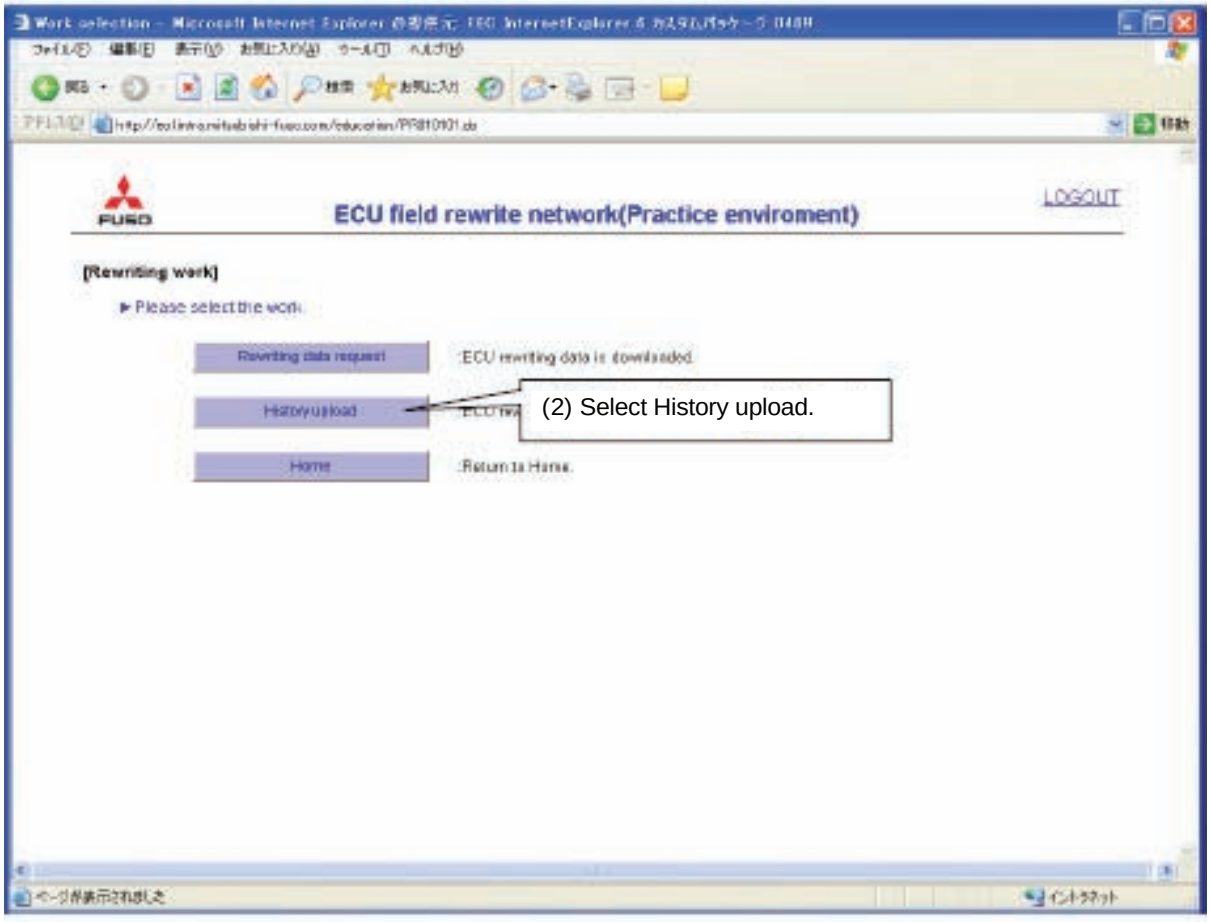
https://truckmanualshub.com/

Cancelling rewriting



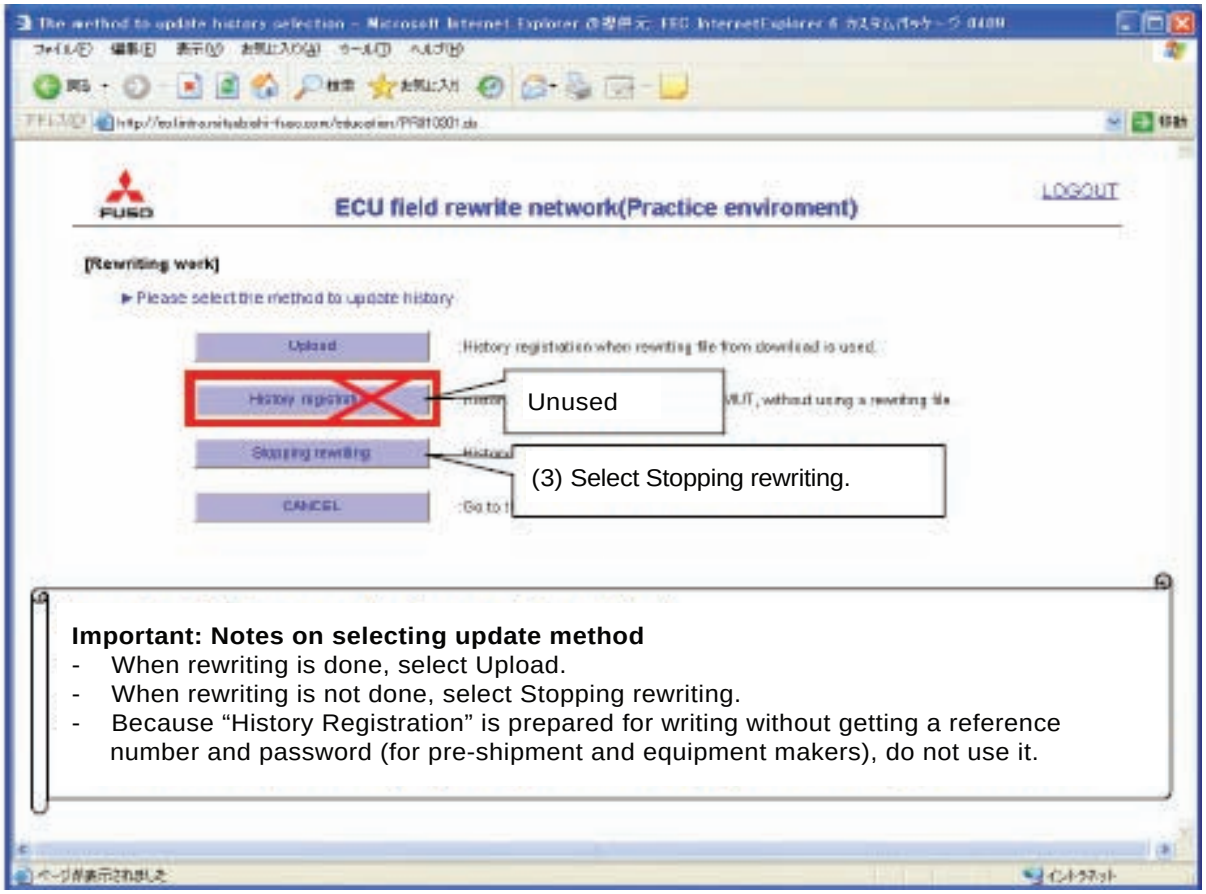
① Select “Rewriting work”.

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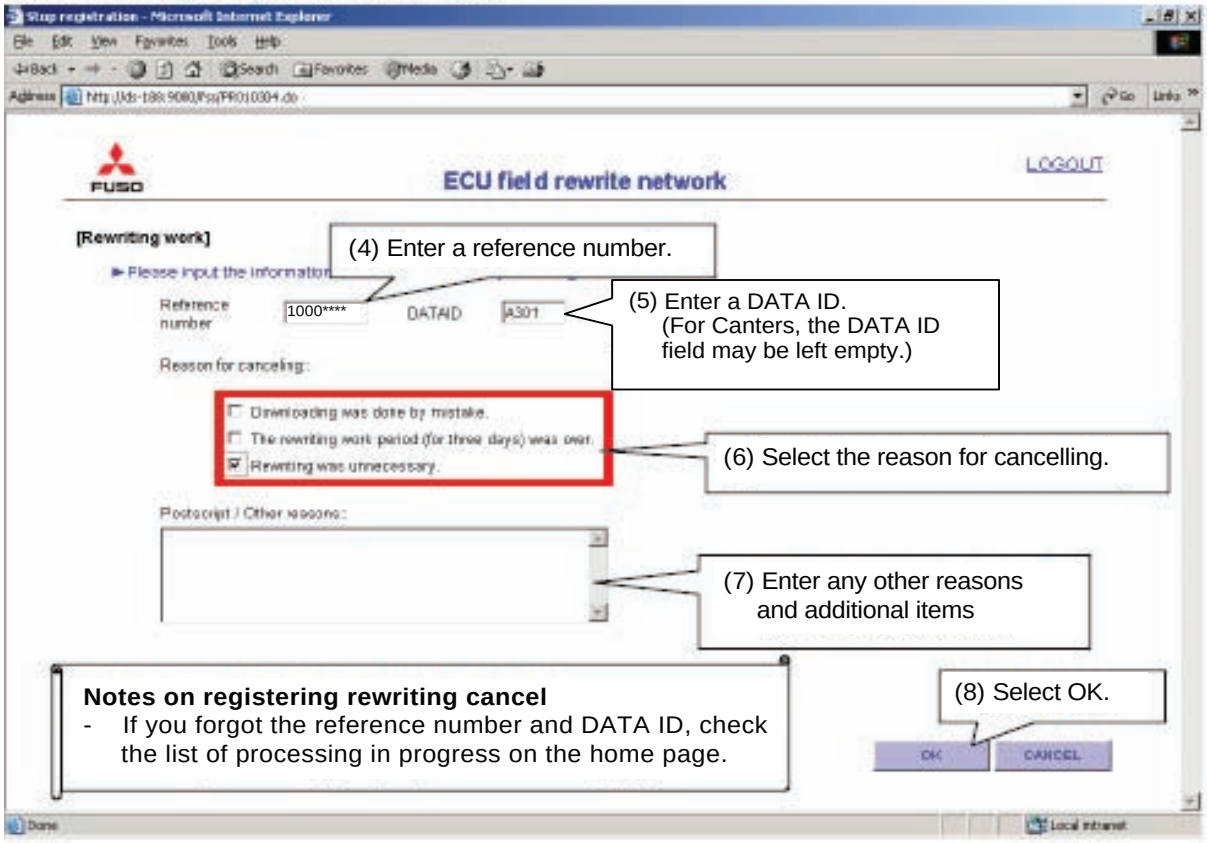
② Select “History upload”.

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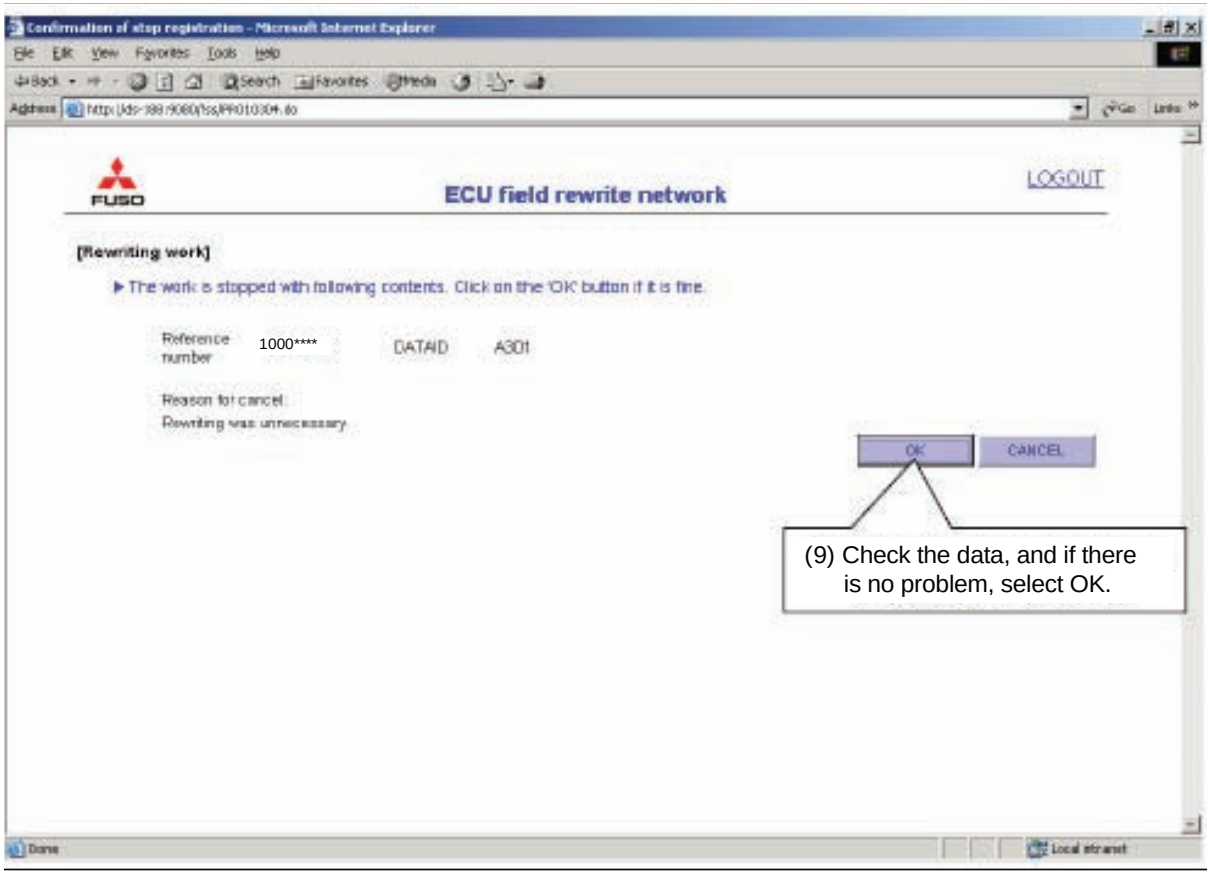
③ Select “Stopping rewriting”.

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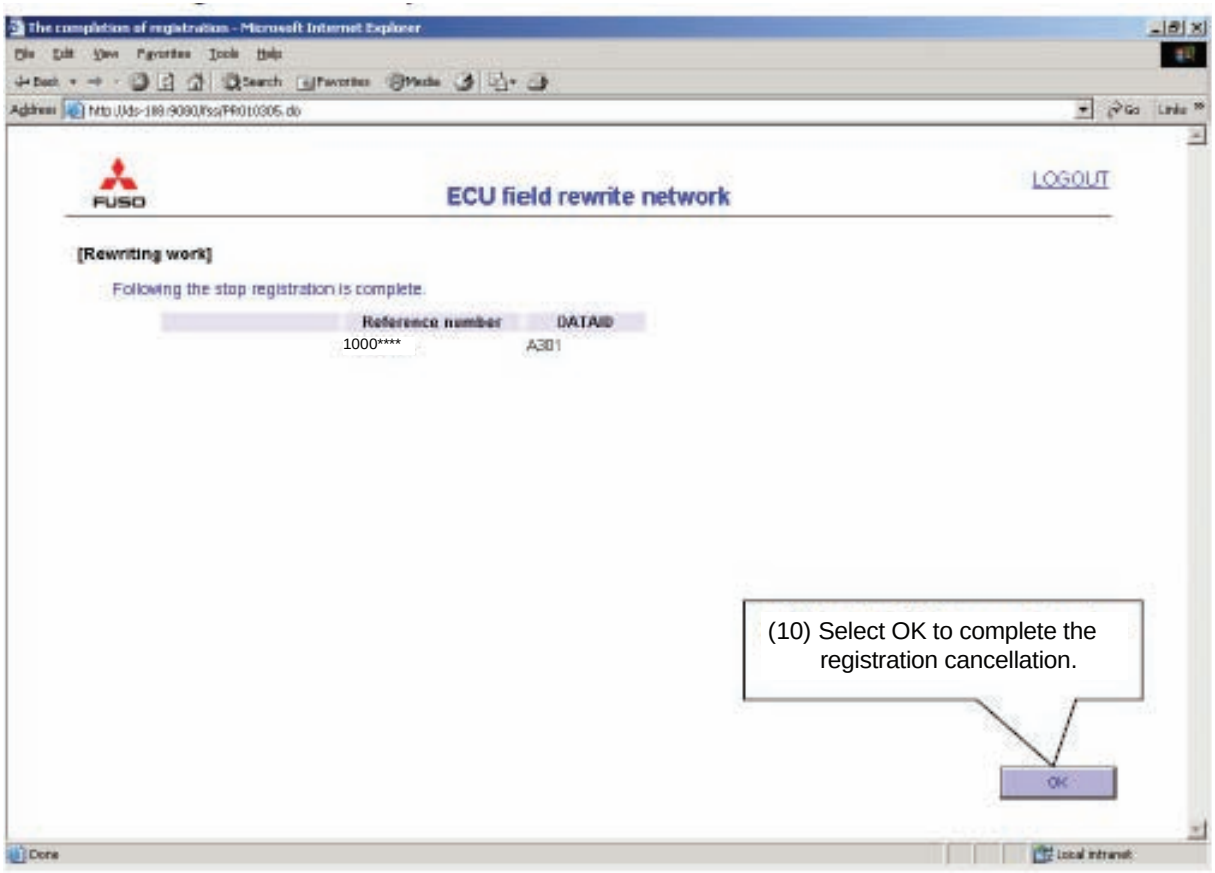
④ Enter a reference number.
⑤ Enter a DATA ID.
⑥ Select the reason for cancelling.
⑦ Enter any other reasons and additional items.
⑧ Click “OK”.

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⑨ Check the data, and if there is no problem, click “OK”.

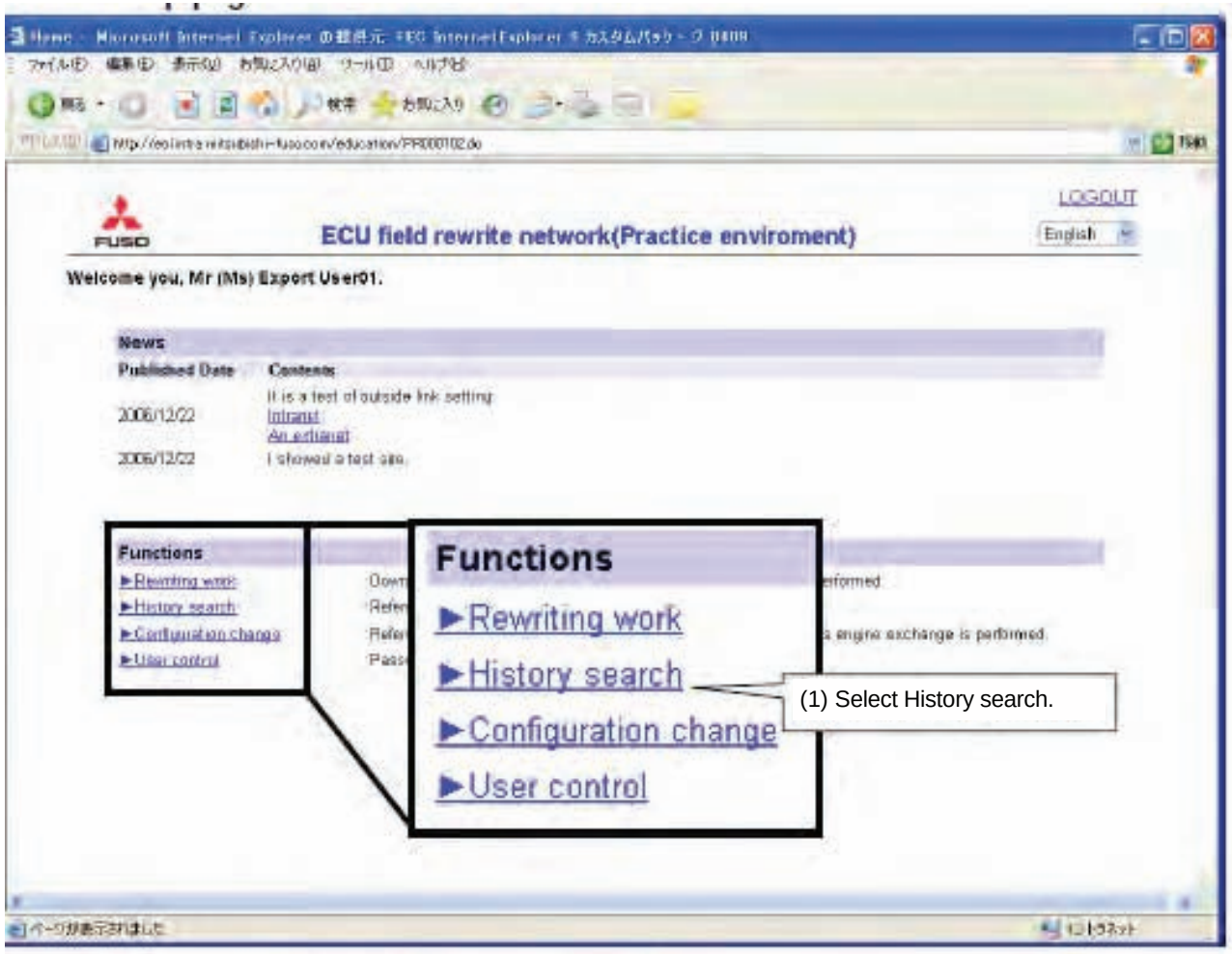
https://truckmanualshub.com/



⑩ Click “OK” to complete the registration cancellation.

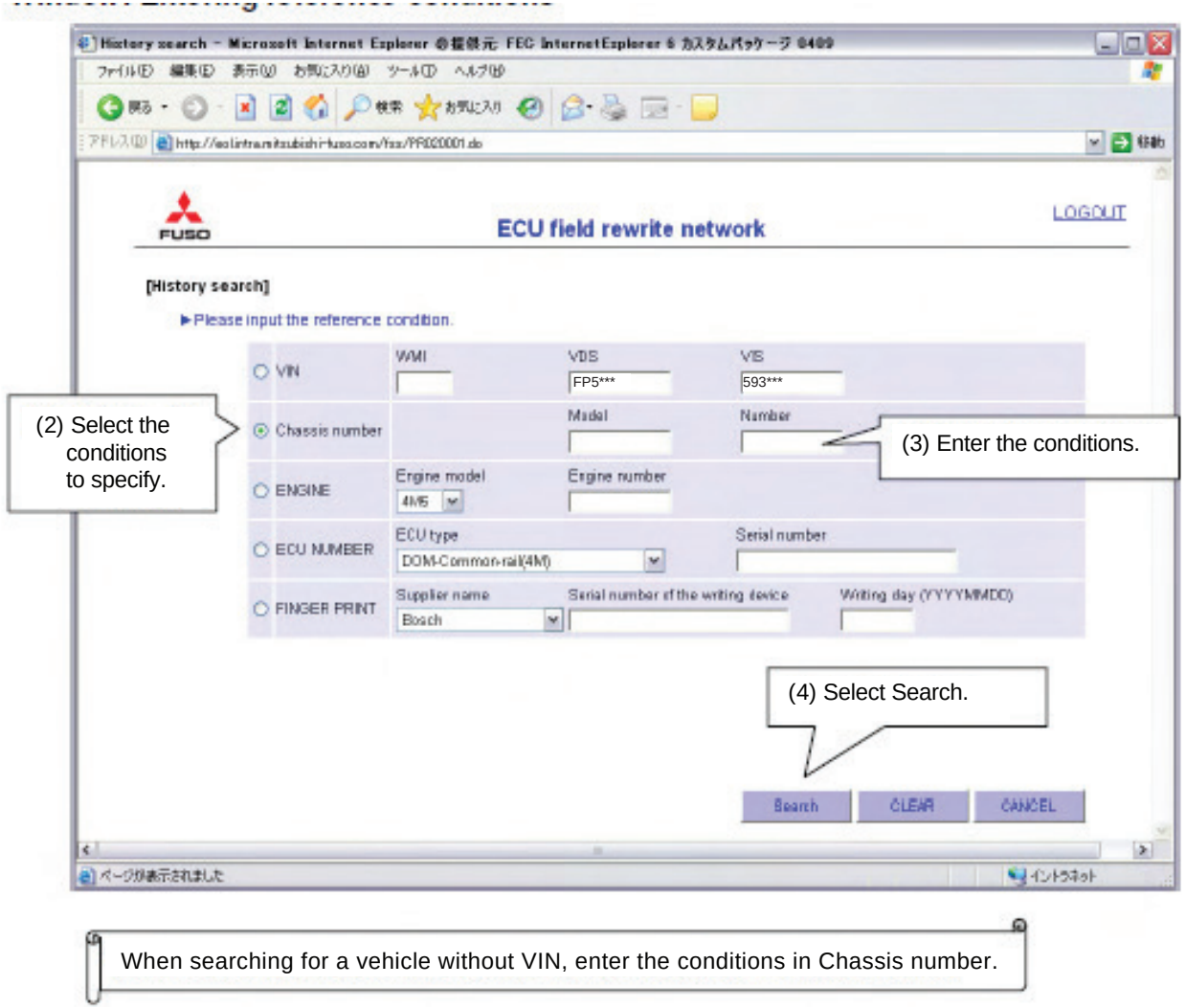
https://truckmanualshub.com/

Inquiring rewriting history



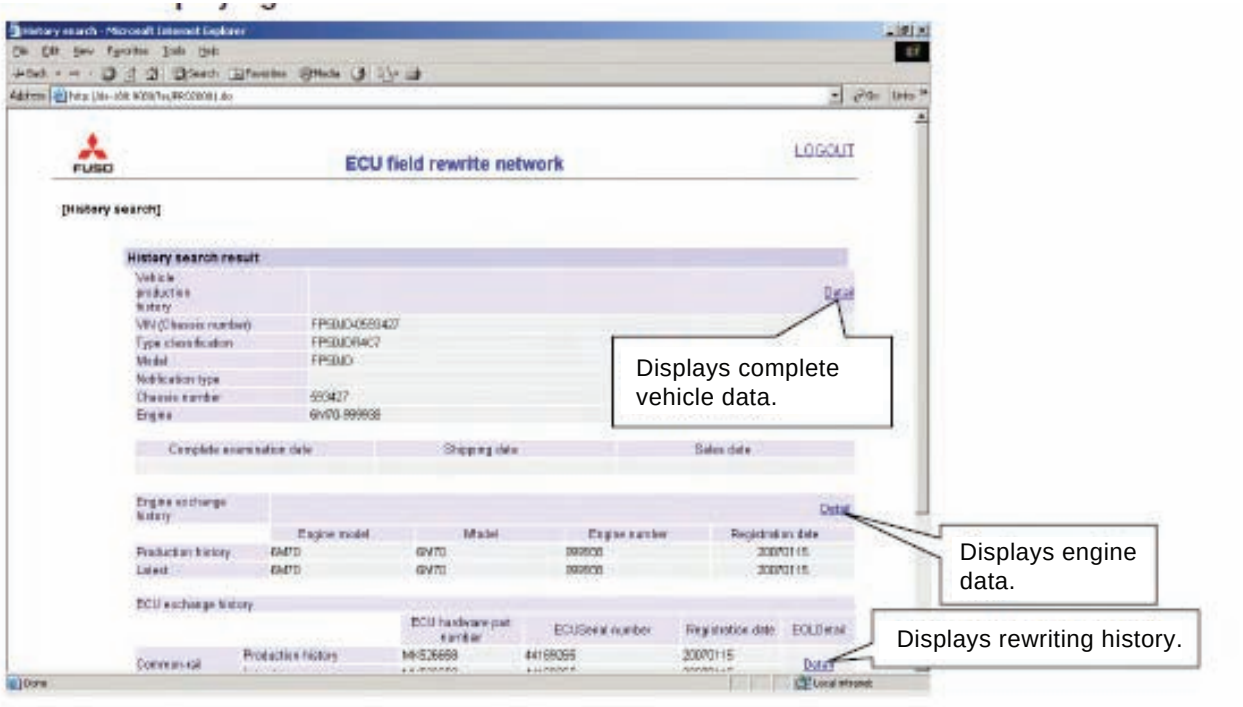
① Select “History search”.

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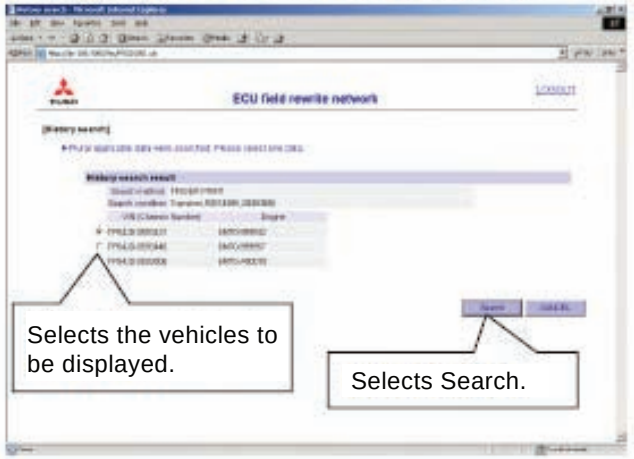
When searching for a vehicle without VIN, enter the conditions in Chassis number.

② Select the conditions to specify.
③ Enter the conditions.
④ Click “Search”.


ECU field rewrite network
LOGOUT
[History search]
History search result
Displays complete vehicle data.
Displays engine data.
Displays rewriting history.

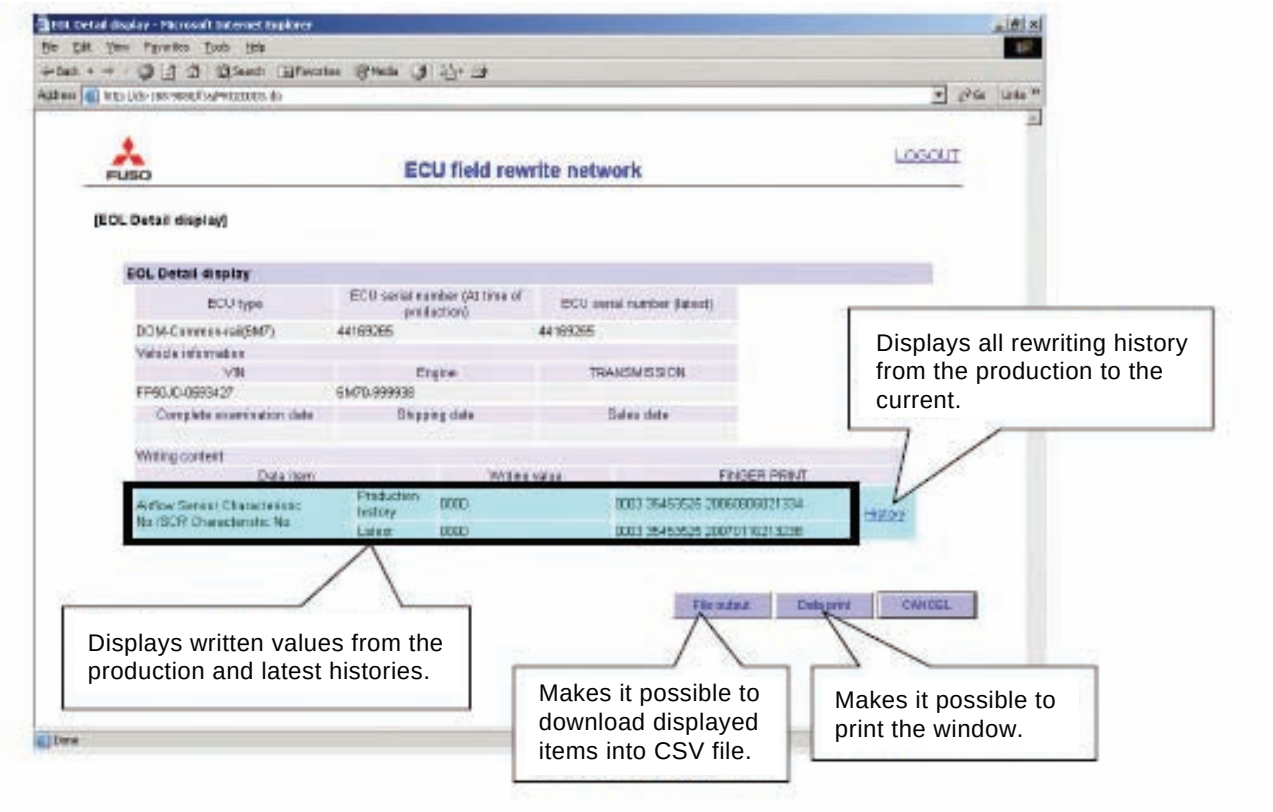
https://truckmanualshub.com/

When two or more vehicles meet the conditions

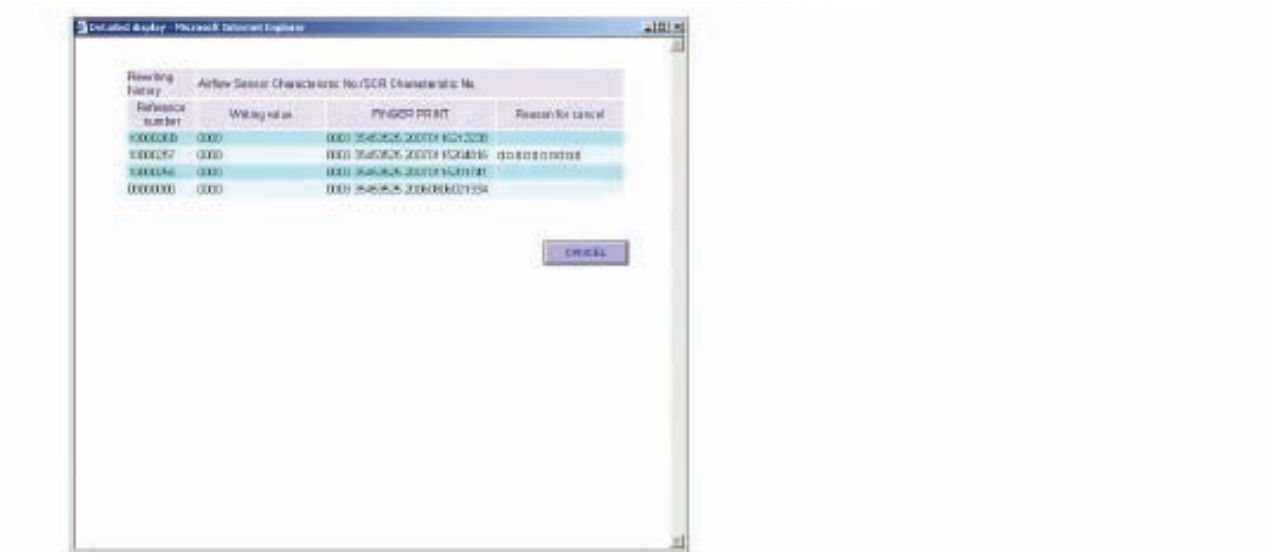


Notes on each data display

- Only the display of rewritten histories is supported.
- Detailed display is to be supported by obtaining complete vehicle, engine and gearbox data or by link.


ECU field rewrite network
LOGOUT
[ECL Detail display]
ECL Detail display
ECU type
ECU serial number (At time of production)
ECU serial number (latest)
Vehicle information
VIN
Engine
TRANSMISSION
Complete examination date
Shipping date
Sales date
Writing content
Data item
Writing value
FINGER PRINT
Production history
Latest
HISTORY
File output
Data print
CANCEL
Displays all rewriting history from the production to the current.
Displays written values from the production and latest histories.
Makes it possible to download displayed items into CSV file.
Makes it possible to print the window.

The rewriting from the production to the current is displayed



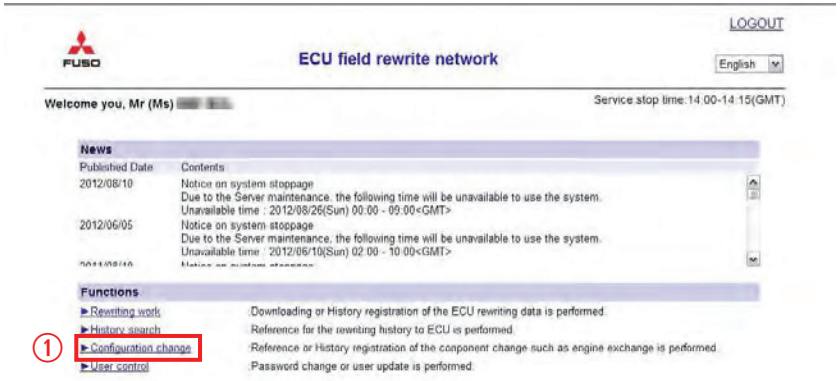
https://truckmanualshub.com/

Engine information registration method

- As a preparatory step, register the information on the new replacement engine to the FRN.

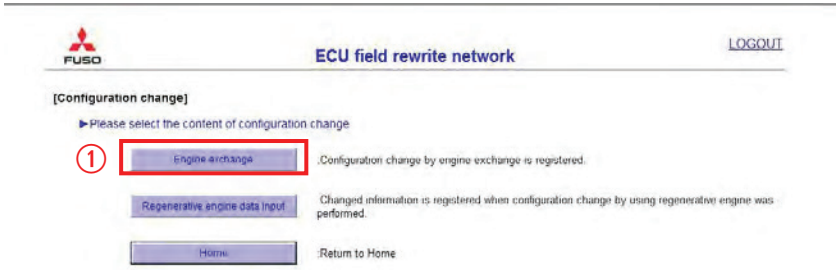
I. Procedure for changing vehicle's engine data on the FRN

1. Menu



① Click "Configuration change".

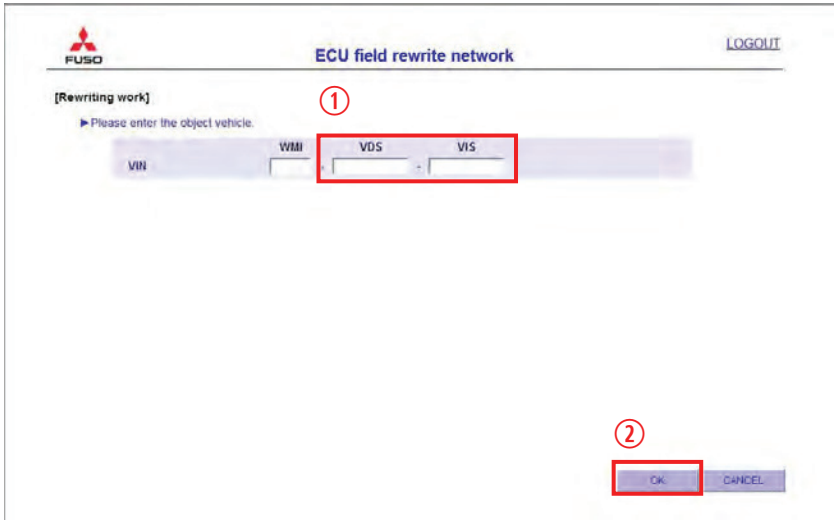
2. Change configuration



① Click "Engine exchange".

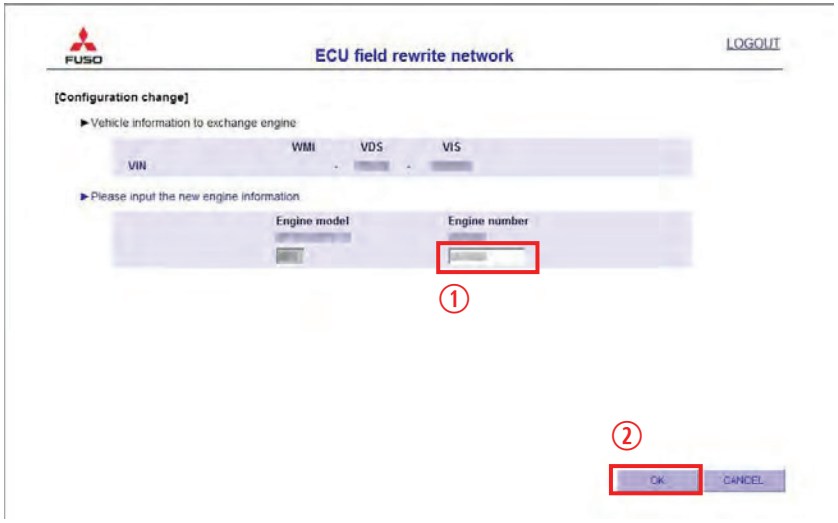
https://truckmanualshub.com/

3. Enter the VIN (vehicle identification number)



① Enter the VIN (VDS and VIS).
② Click “OK”.

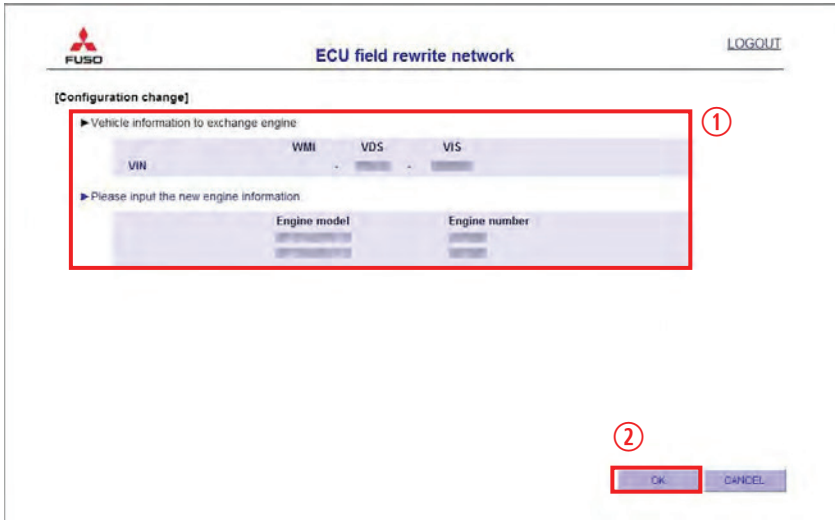
4. Enter the engine number



① Enter the engine number.
② Click “OK”.

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5. Confirm the information for the vehicle of which the engine is replaced

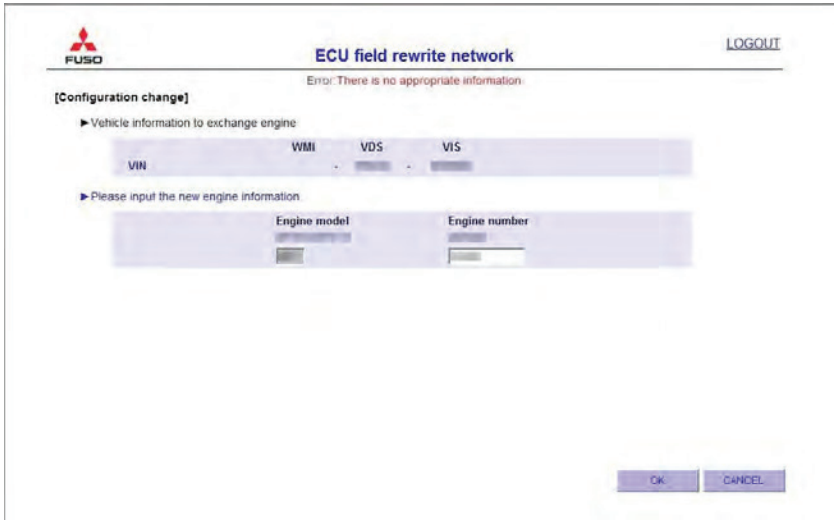


① Confirm the VIN, engine model and engine number.
② If there is no problem, click “OK”.

6. Download engine data
If you click “OK” in step 5, the display changes to the screen (page 433 : 4. Select the ECU) for downloading engine data.

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7. If there is no information on the replacement engine



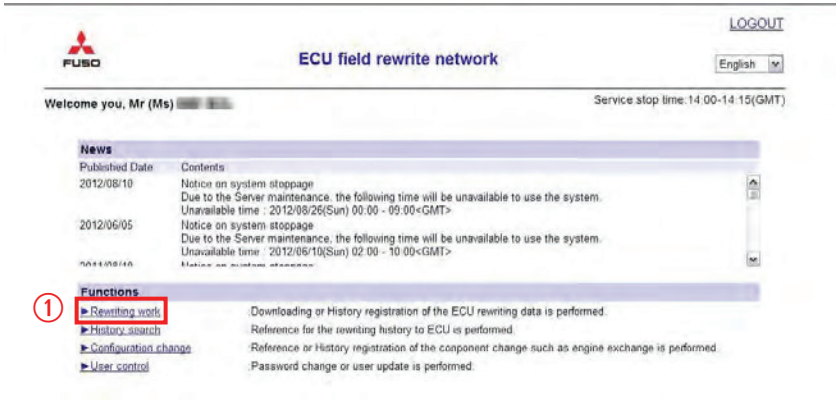
If there is no information on the replacement engine on the FRN, the screen shown on the left will be displayed. Check the engine number again.

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- As a preparatory step, download vehicle information from the FRN.

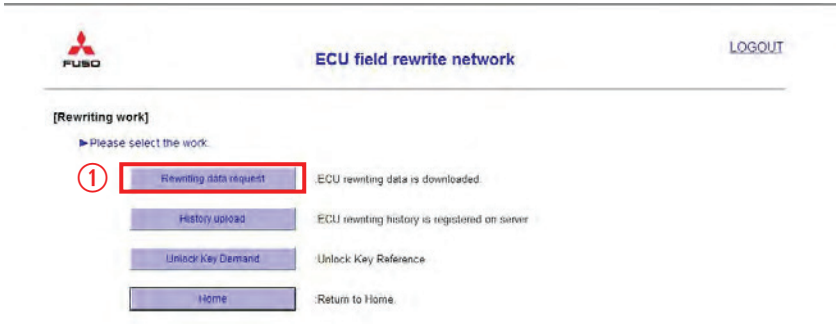
II. Procedure for downloading ECU data from FRN

1. Rewrite ECU data



① Click “Rewriting work”.

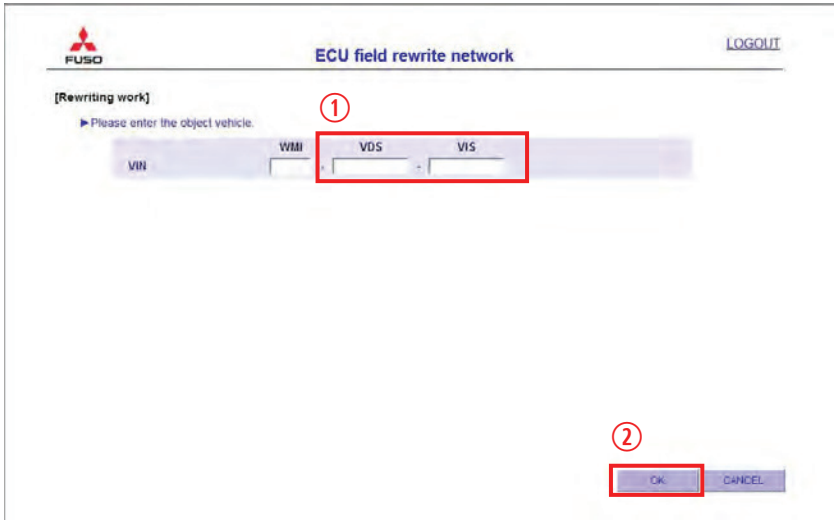
2. Request the rewriting data



① Click “Rewriting data request”.

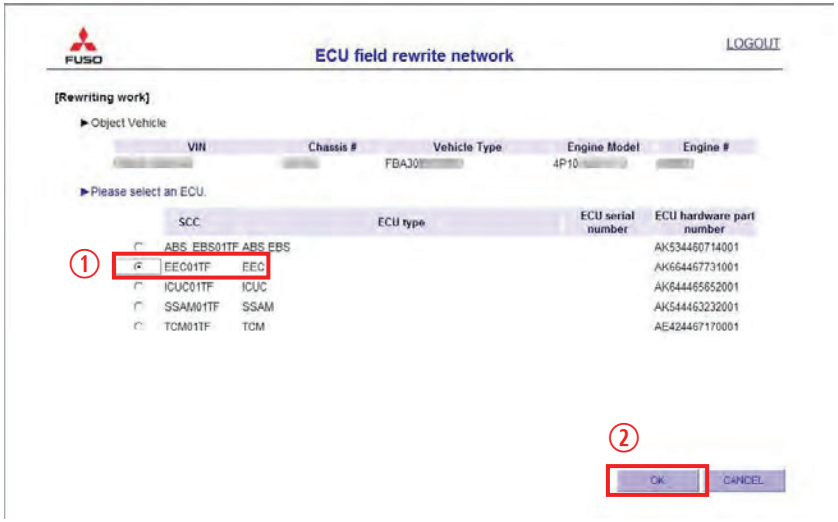
https://truckmanualshub.com/

3. Enter the VIN (vehicle identification number)



① Enter the VIN (VDS and VIS).
② Click “OK”.

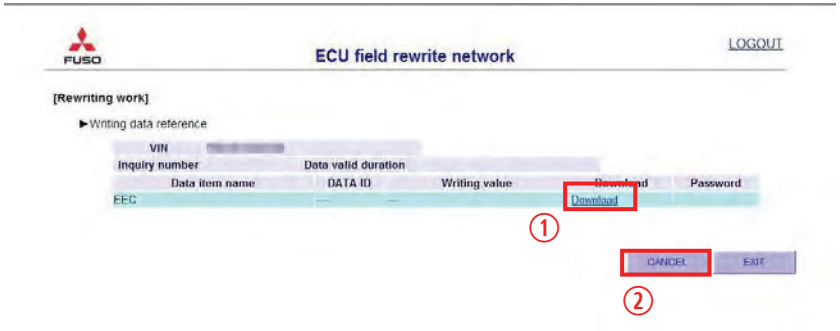
4. Select the ECU



① Select the ECU to rewrite.
② Click “OK”.

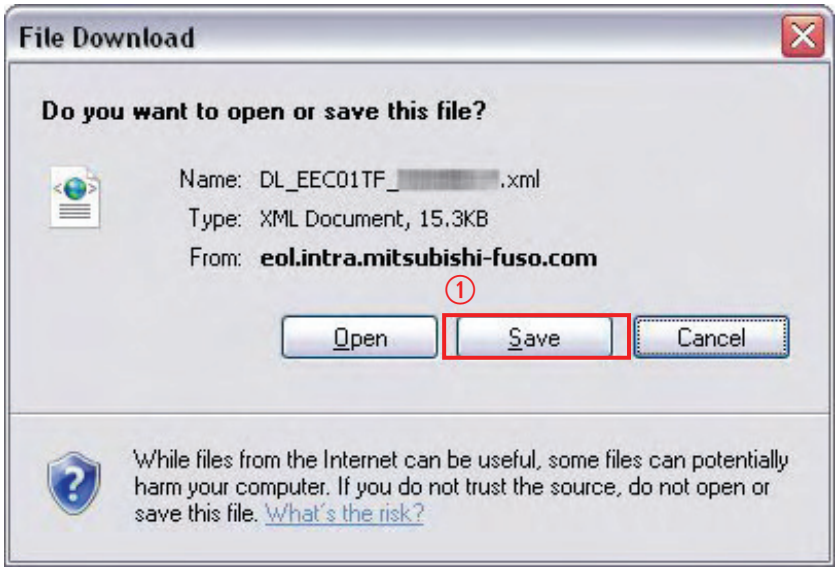
https://truckmanualshub.com/

5. Download data



① Click “Download”.
② To cancel, click “CANCEL”.
Note:
You cannot cancel after clicking “Download”.

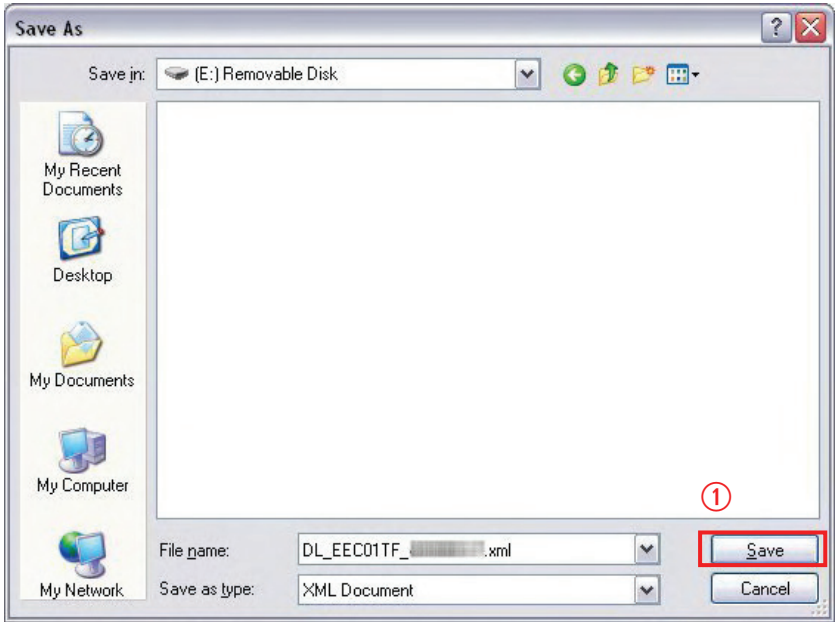
6. Save the data



① Click “Save”.

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7. Specify the saving destination

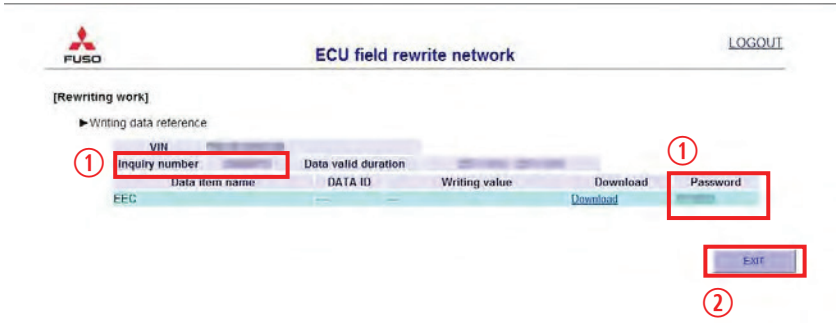


① Specify the saving destination (USB storage device) and click “Save”.

Note:

Do not change the file name. If you change the file name, FUSO Diagnostics will not recognize it.

8. Confirm the inquiry number and password



① Make a note of the inquiry number and password.

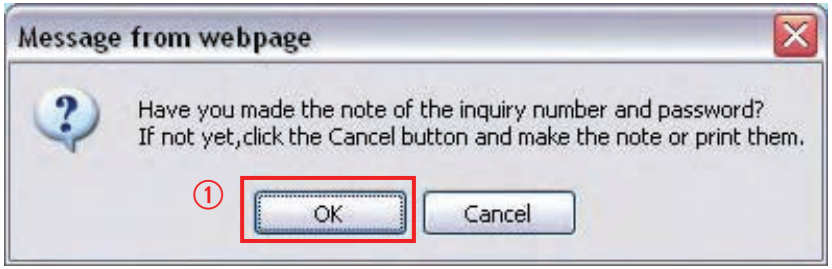
② Click “EXIT”.

Note:

The inquiry number and password are required when writing data

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9. Confirm that the inquiry number and password have been noted down



① Confirm that you have taken a note of the inquiry number and password, then click “OK”.