



SB-10055968-8941

Product Improvement Campaign

No: C1006710
Issued: 4/1/2014
Revised: 4/21/14
Re: Engine Protection System
Group: 13 **Models:** FE/FG
Expires: 4/1/2015

SUBJECT:
Product Improvement Campaign C1006710 – Engine Protection System

MODELS:
FEC52, FEC72, FEC92, FGB72

VEHICLES INVOLVED:
Certain 2012 through 2015 model year FEC52, FEC72, FEC92 and FGB72 trucks produced from February 3, 2011 through February 24, 2014.

OWNER NOTIFICATION:
Owners of affected vehicles will be notified by mail.

MODIFICATION:
The EEC will be reprogrammed to include an Engine Protection System (EPS) that will prevent engine damage resulting from low oil pressure. When the EPS detects low oil pressure, a buzzer will sound and the engine will shut down 40 seconds after the buzzer has sounded. The engine EEC will be reprogrammed on all affected vehicles. Note: If any EEC-related DTC's are present, the vehicle must be diagnosed prior to EEC reprogramming, and any components found to be defective must be replaced.

CAMPAIGN CLAIM SUBMITTAL:
Claim labor for EPS programming via Fusonet using the Recall Claim Entry screen. Enter all requested information, including the Campaign Number. The system will apply the labor allowance shown.

Campaign Reimbursement					
Campaign Number	Models	Allowances		Labor Description	Part Number
C1006710	FEC52	Labor Time	0.4 hour	Reprogram the EEC to include EPS	N/A
	FEC72 FEC92 FGB72	Parts Pricing	N/A		

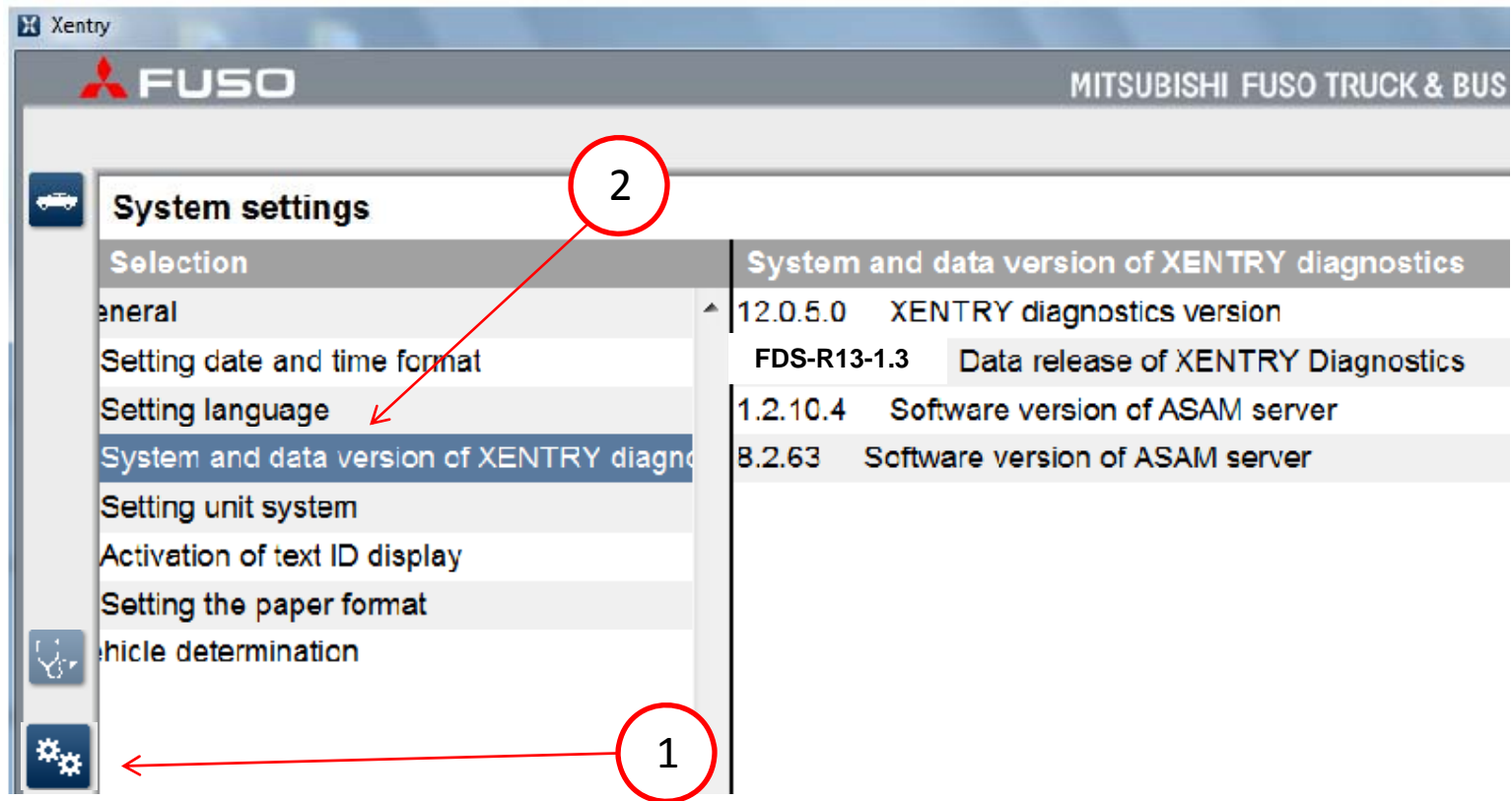
- REPAIR PROCEDURE:**
1. Park the vehicle on a flat, level surface, turn off the engine, apply the parking brake and chock the wheels.
CAUTION! Do not remove the wheel chocks until all modification work has been completed.
 2. Perform the Campaign using the attached modification procedure.
 3. Upon completion, affix an EPS label to the EEC cover as shown below:





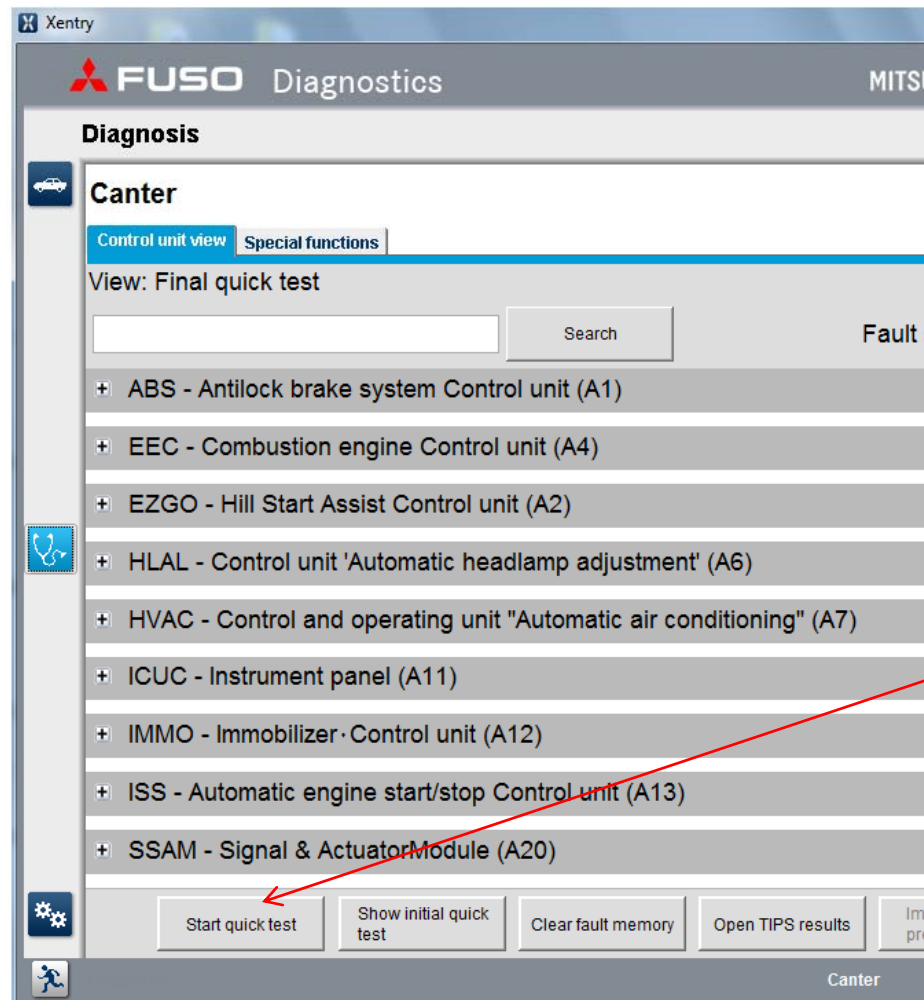
Modification Procedure

1 - Connect Fuso Diagnostics (FD) to the vehicle. Check the version of the XENTRY diagnostic program to ensure that version **FDS-R13-1.3** is installed. Click the gear icon (1). Click **System and data version of Xentry diagnostics** (2). Check for version **FDS-R13-1.3**.





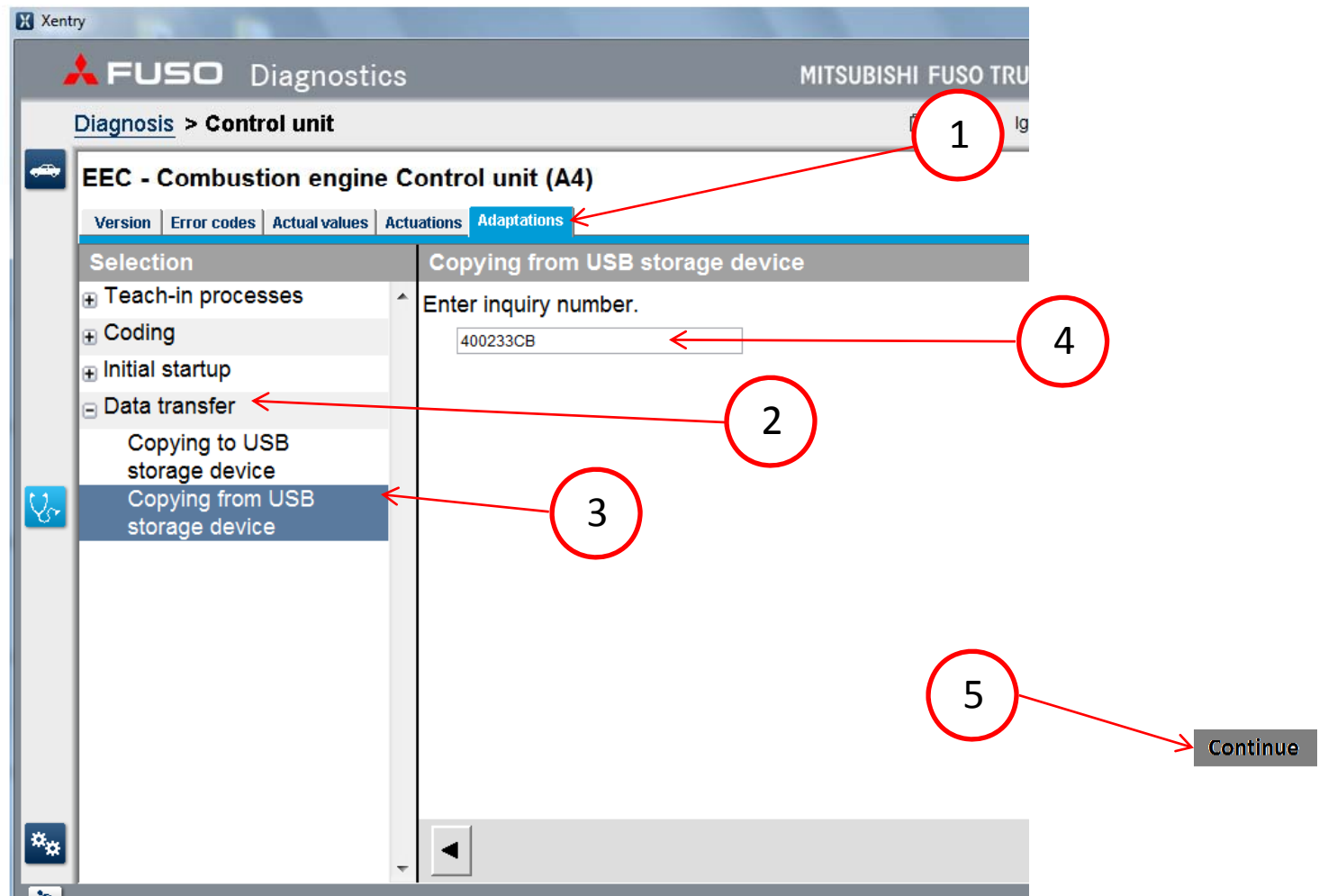
2. Start Fuso Diagnostics and navigate to the home screen which shows all the vehicle's controller units. Perform a **“quick test”** on the vehicle's Electronic Control Units (ECU). It is not advisable to reprogram any ECU with Diagnostic Trouble Codes (DTC) present in the system.



Check all systems for DTCs.



3. Download an inquiry number and password from MFTBC's EOL website for the EEC (See SIB 14-005). Load the file to a USB storage device (flash drive).
4. Connect the USB storage device to the FD computer. Follow steps below. (1) Click **Adaptations**. (2) Click **Data transfer**. (3) Click **Copying from USB storage device**. (4) Enter the **Inquiry number**. (5) Click **Continue**.



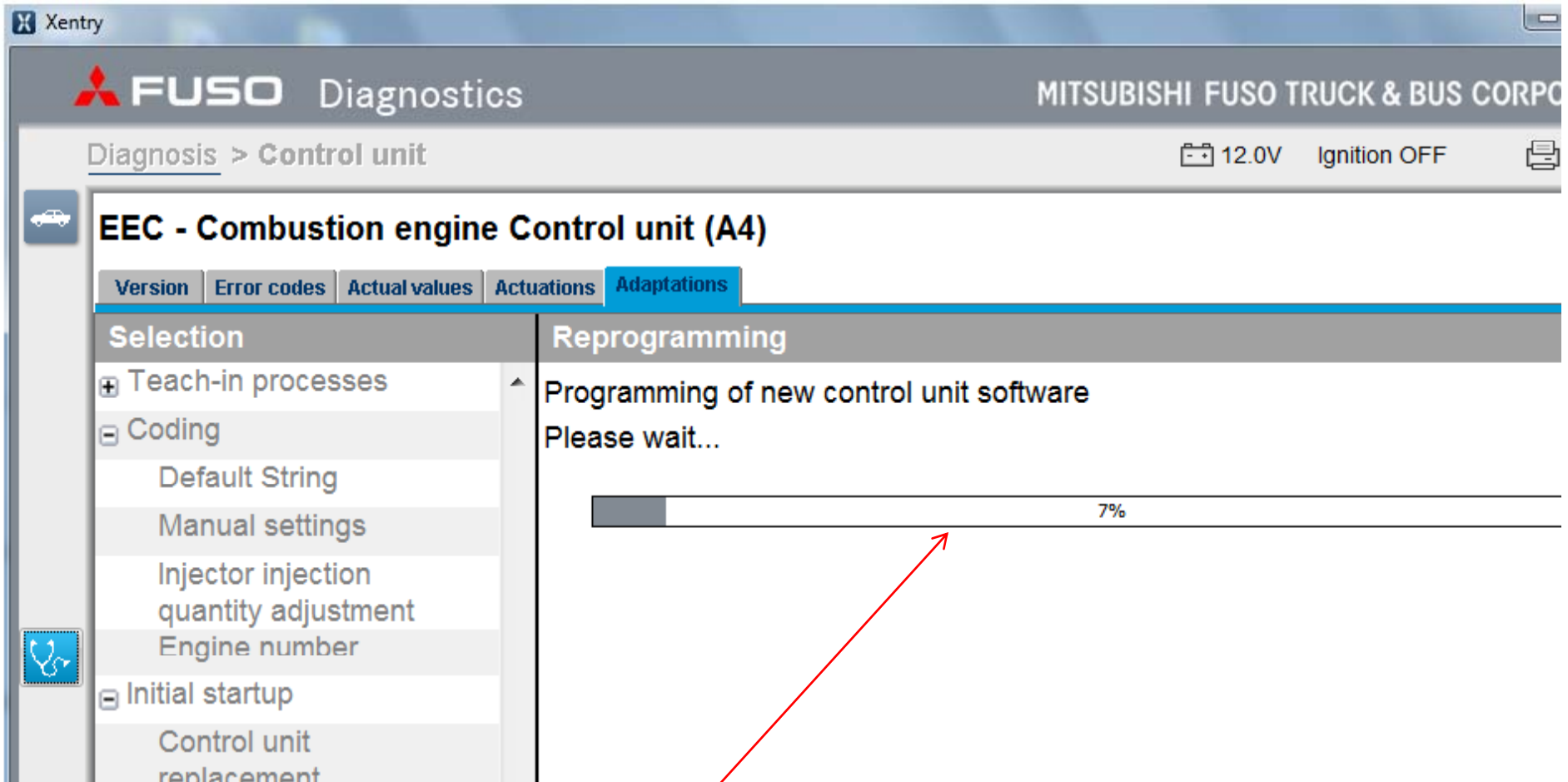


5. When the file has successfully transferred, (1) Open the “+” symbol next to Initial startup. (2) Click Reprogramming. The screen will display that **“A new software version is available and can be installed.”**(3) Click **Yes**, when prompted - Enter the Inquiry number and password.

The screenshot shows the FUSO Diagnostics software interface. The title bar reads "Xentry" and "FUSO Diagnostics MITSUBISHI FUSO TRUCK & BUS". The breadcrumb navigation shows "Diagnosis > Control unit". The status bar indicates "12.0V Ignition OFF". The main content area is titled "EEC - Combustion engine Control unit (A4)" and has tabs for "Version", "Error codes", "Actual values", "Actuations", and "Adaptations". The "Adaptations" tab is active, showing a "Reprogramming" section. A message states: "A new software version is available and can be installed. Available software packages: Flashware 0174486240_001". Below the message is the question "Do you want to install the new software version?" and a "Yes" button. A red circle labeled "1" points to the "+" symbol next to "Initial startup" in the sidebar. A red circle labeled "2" points to the "Reprogramming" option in the sidebar. A red circle labeled "3" points to the "Yes" button. A red oval highlights the message and the flashware number. A red box contains the text: "Please note: The Flashware number that is displayed may be different than shown."



6. As the program loads, a status bar will be displayed.



Wait for the program to load, the status will reach 100%



7. When this portion of the reprogramming finishes, you are prompted to turn the starter switch OFF and click **Continue**.

The screenshot shows the FUSO Diagnostics software interface. The title bar indicates 'Xentry' and 'FUSO Diagnostics'. The main header shows 'MITSUBISHI FUSO T' and a battery voltage of '11.9V'. The navigation path is 'Diagnosis > Control unit'. The selected unit is 'EEC - Combustion engine Control unit (A4)'. The 'Adaptations' tab is active, showing a list of options under 'Selection' and 'Reprogramming'. The 'Reprogramming' section is circled in red and contains the instruction: 'Switch off ignition. Press button 'Continue' to continue.' A red arrow points from this instruction to a 'Continue' button at the bottom right of the screen.

Selection	Reprogramming
⊕ Teach-in processes	Switch off ignition.
⊖ Coding	Press button 'Continue' to continue.
Default String	
Manual settings	
Injector injection quantity adjustment	
Engine number	
⊖ Initial startup	
Control unit replacement	
Reprogramming	
Reset of coding	



8. When prompted, turn the starter switch to ON, click **Continue**.

Xentry

FUSO Diagnostics MITSUBIS

Diagnosis > **Control unit**

EEC - Combustion engine Control unit (A4)

Version | Error codes | Actual values | Actuations | **Adaptations**

Selection	Reprogramming
+ Teach-in processes	Switch on ignition.
- Coding	Press button 'Continue' to continue.
Default String	
Manual settings	
Injector injection quantity adjustment	
Engine number	
- Initial startup	
Control unit replacement	
Reprogramming	
Reset of coding	

Continue



9. As the program loads, a progress bar is displayed.

The screenshot shows the FUSO Diagnostics interface. At the top, it says 'FUSO Diagnostics' and 'MITSUBISHI FUSO TRUCK & BUS'. Below that, the navigation path is 'Diagnosis > Control unit'. On the right, it shows '11.9V' and 'Ignition OFF'. The main title is 'EEC - Combustion engine Control unit (A4)'. There are tabs for 'Version', 'Error codes', 'Actual values', 'Actuations', and 'Adaptations'. The 'Adaptations' tab is selected. On the left, there is a 'Selection' list with items: 'Teach-in processes', 'Coding', 'Default String', 'Manual settings', 'Injector injection quantity adjustment', 'Engine number', 'Initial startup', 'Control unit replacement', and 'Reprogramming'. The 'Reprogramming' item is highlighted. On the right, under the 'Reprogramming' section, there is a progress bar labeled '0s' and 'Please wait...'. A red arrow points to the end of the progress bar.

Selection

- Teach-in processes
- Coding
 - Default String
 - Manual settings
 - Injector injection quantity adjustment
 - Engine number
- Initial startup
 - Control unit replacement
 - Reprogramming

Reprogramming

0s

Please wait...

Wait for the status bar to reach the end.



10. When the **Order log** screen is displayed, (1) Click **Continue**, and (2) click the **Version** tab.

The screenshot shows the FUSO Diagnostics software interface. The main window title is "Xentry" and the application title is "FUSO Diagnostics". The breadcrumb navigation shows "Diagnosis > Control unit". The current control unit is "EEC - Combustion engine Control unit (A4)". The "Version" tab is selected and highlighted with a red circle labeled "1". The "Order log" section is expanded, showing "Control unit programming can cause faults in the fault memories of other control units." and "Vehicle data". Below this, there is a table for "Control unit information" and another table for "New control unit software version:". The "Continue" button is located at the bottom right of the screen and is highlighted with a red circle labeled "2".

Designation	Value
Control unit designation	
MB object number for hardware	MK667731
Procedure carried out	Control unit programming
Serial number	

Designation	Value
MB object number for software (code)	
MB object number for software (code)	
MB object number for software (code)	0



11. On a Canters that comply with EPA 10 emissions ('12-'14 M/Y), navigate to the **Adaptations** screen of the EEC menu. Click **Teach-in processes** (1). Click **017 Status of exhaust after treatment** (2). Scroll down and click the green **S** (3). On OBD2013 vehicles ('14 ½ -'15 M/Y), skip this Step and proceed to **Step 15**.

FUSO Diagnostics MITSUBISHI FUSO TRUCK & BUS CORPORATION

Diagnosis > Control unit

EEC - Combustion engine Control unit (A4)

Version | Error codes | Actual values | Actuators | **Adaptations**

Selection

Teach-in processes

- 000 Engine oil
- 001 Injection valve (Reset)
- 002 Pressure limiting valve in rail
- 003 Rail pressure sensor
- 004 Lambda control tester
- 005 Air mass flow rate / Intake air temperature sensor
- 008 Exhaust gas recirculation valve
- 009 Starter
- 010 BlueTec®
- 011 Diesel particulate filter
- 012 Differential pressure sensor of diesel particular filter
- 013 Combustion engine Control unit (Data transfer)
- 017 Status of exhaust aftertreatment**
- 018 Flight recorder

017 Status of exhaust aftertreatment

Explanation

- Resetting of learned values of component 'Combustion engine Control unit' (Status of exhaust aftertreatment)

Requirements for teach-in process

Name	Actual value	Specified value
Status of combustion engine	Ignition ON	Ignition ON

Status of associated actual value

Name	Actual value	Specified value
FUSO object number for software	0154484440001	
Status of exhaust aftertreatment	00 00 00 00 00 00 00	
	00 00 00 00 00 00 00	
	00 00 00 00 00 00 00	

S

Continue ▶



12. Click the car icon in the upper left corner. Click **Yes**. Turn the starter switch to the OFF position. Remove the key from the switch for 1 minute.

1

2

EEC - Combustion engine Control unit (A4)	
Version	Error codes
Actual values	Actuations
Adaptations	
EEC - Combustion engine Control unit (A4)	
Software version	14/02 01
Boot software version	10/23 00
Hardware supplier	Bosch
Software supplier	
Software supplier	
Software supplier	
Control unit variant	
FUSO object number for hardware	
FUSO object number for software	0154484440001
FUSO object number for software (Boot software version)	0114485140001
FUSO object number for software (Number of data record)	0174486040001
Original vehicle identification number	JL6CRG1A7CK003044
Current VIN	JL6CRE1A3DK001040
SCN (software calibration number) (CAL ID)	F1CE3481H*Paaa4
CVN (calibration verification number) (CVN)	19 07 EE 28

Center



13. Turn the starter switch to the ON position. Navigate to the **EEC** menu. (1) Click on **Adaptations** tab. (2) Click **Coding**. (3) Click **Manual settings**. (4) Enter the Inquiry number & password. (5) Click **Continue**.

The screenshot displays the FUSO Diagnostics software interface. The main window title is "FUSO Diagnostics" and the current view is "Diagnosis > Control unit". The selected unit is "EEC - Combustion engine Control unit (A4)".

The interface is divided into two main sections: "Selection" on the left and "Manual settings" on the right.

Selection:

- Teach-in processes
- Coding (2)
- Default String
- Manual settings (3)
- Injector injection quantity adjustment
- Engine number
- Initial startup
- Data transfer

Manual settings:

Authentication

Enter inquiry number. (4)

Enter password.

(5) **Continue**

Callout 1 points to the "Adaptations" tab in the top navigation bar. Callout 2 points to the "Coding" option in the Selection list. Callout 3 points to the "Manual settings" option in the Selection list. Callout 4 points to the inquiry number input field. Callout 5 points to the "Continue" button.



14. Open the **Manual settings** list and scroll down. If an item in the list is found to be **red**, change the item to the first item that appears in the drop down box. **CHECK ALL ITEMS IN THE LIST, CHANGING ALL THOSE THAT APPEAR IN RED!!!**

Diagnosis > Control unit

EEC - Combustion engine Control unit (A4)

Version | Error codes | Actual values | Actuators | Adaptations

Selection	Manual settings		
	No.	Name	Value
⊕ Teach-in processes		'Power take-off	
⊖ Coding	007	Power take-off	INVALID
Default String	008	Maximum vehicle speed limit	320km/h
Manual settings	009	Power take-off Type of controller	#1
Injector injection quantity adjustment	010	Power take-off Setting of specified rpm 1	
Engine number	011	Power take-off Setting of specified rpm 2	1000rpm ←
⊖ Initial startup			1010rpm
Control unit replacement			1020rpm
Reprogramming			1030rpm
Reset of coding			1040rpm
⊖ Data transfer			1050rpm
Copying to USB storage device			1060rpm
Copying from USB storage device			1070rpm

Information

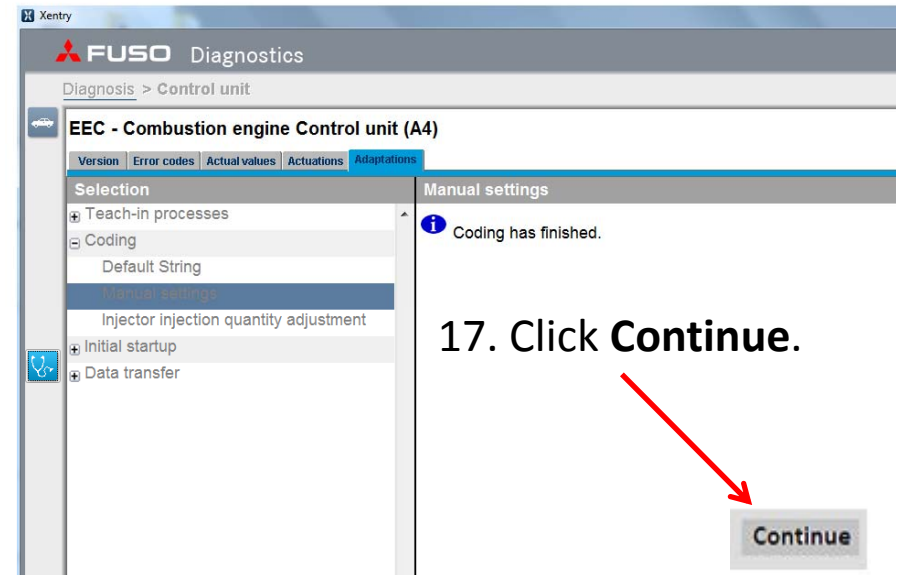
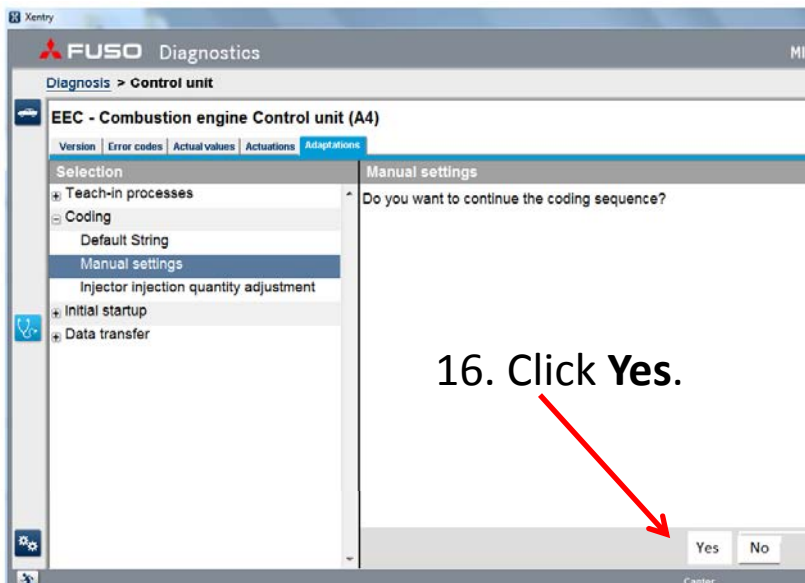
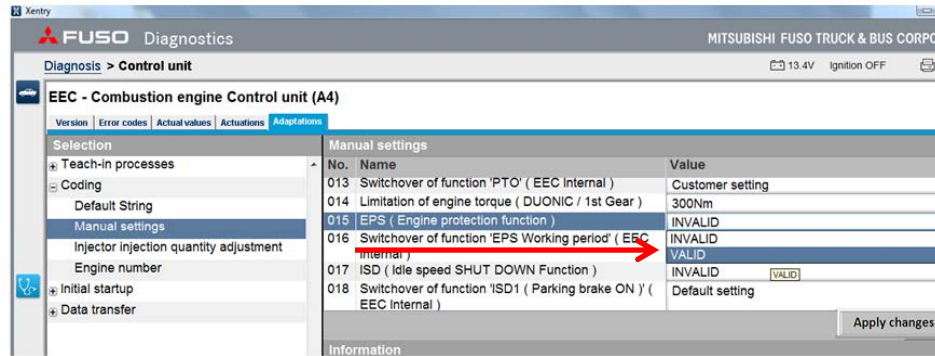
009 Power take-off Type of controller : #2

Continue

Choose the 1st value in the list.



15. Change item # **015 EPS (Engine protection function)** from **INVALID** to **VALID**.
NOTE: This will force the engine to shut down when oil pressure is low.





18. When the **Manual settings** list reloads, the program has completed. Click **Version**.

The screenshot shows the FUSO Diagnostics interface. The main window title is 'Xentry' and the application title is 'FUSO Diagnostics'. The breadcrumb navigation is 'Diagnosis > Control unit'. The selected control unit is 'EEC - Combustion engine Control unit (A4)'. The 'Manual settings' tab is active, displaying a table of settings. A red arrow points to the 'Version' tab in the top navigation bar.

No.	Name	Value
020	Switchover of function 'ISD1 (Parking brake OFF)' (EEC Internal)	Default setting
021	Switchover of function 'ISD2 (Parking brake OFF)' (EEC Internal)	Default setting
022	ISD1 Warning Working period (Parking brake ON)	165 Second
023	ISD2 Engine off time (Parking brake ON)	180 Second
024	ISD1 Warning Working period (Parking brake OFF)	165 Second
025	ISD2 Engine off time (Parking brake OFF)	180 Second

19. When the **Version** screen loads, click the car icon.

The screenshot shows the FUSO Diagnostics interface. The main window title is 'Xentry' and the application title is 'FUSO Diagnostics'. The breadcrumb navigation is 'Diagnosis > Control unit'. The selected control unit is 'EEC - Combustion engine Control unit (A4)'. The 'Version' tab is active, displaying a table of version information. A red arrow points to the car icon in the left sidebar.

Version	Error codes	Actual values	Actuations	Adaptations
EEC - Combustion engine Control unit (A4)				
MB object number for hardware				K66 446 77 31 001
MB object number for software				0
MB object number for hardware and software				---
Diagnosis identifier				00020A
Hardware version				10/22 00
Software version				10/23 00
Software version				12/25 00
Software version				14/02 01
Boot software version				10/23 00
Hardware supplier				Bosch



20. Click **Yes**. Turn the starter switch to the OFF position. Remove the key from the switch for 1 minute.

Xentry

FUSO Diagnostics

Diagnosis > Control unit

EEC - Combustion engine Control unit (A4)

Version | Error codes | Actual values | Actuators | Adaptations

EEC - Combustion engine Control unit (A4)	
Software version	14/02 01
Boot software version	10/23 00
Hardware supplier	Bosch
Software supplier	
Software supplier	
Software supplier	
Control unit variant	
FUSO object number for hardware	
FUSO object number for software	0154484440001
FUSO object number for software (Boot software version)	0114485140001
FUSO object number for software (Number of data record)	0174486040001
Original vehicle identification number	JL6CRG1A7CK003044
Current VIN	JL6CRE1A3DK001040
SCN (software calibration number) (CAL ID)	F1CE3481H*Paaa4
CVN (calibration verification number) (CVN)	19 07 EE 28

Ending the diagnosis session

Do you really want to exit the vehicle?

Yes No

Canter



21. Turn the starter switch to the ON position. Navigate back to the EEC menu. Click on the **Actual values** tab (1). Click **Status** (2). Check items # **160** & **161** (3). If the learned value of the mass air flow sensor is zero, you must relearn the sensor.

The screenshot shows the FUSO Diagnostics interface. The top bar includes the FUSO logo, 'Diagnostics', and 'MITSUBISHI FUSO TRUCK & BUS CORPORATION'. The main area is titled 'Diagnosis > Control unit'. Below this, the 'EEC - Combustion engine Control unit (A4)' is selected. The 'Actual values' tab is highlighted with a red circle and labeled '1'. In the left sidebar, the 'Status' option is highlighted with a red circle and labeled '2'. The main table, titled 'Actual values', has the following data:

No.	Name	Actual value	Specified value
158	Status of component 'MIL'	DOES NOT LIGHT UP	
159	Status of component 'Indicator lamp 'ENGINE STOP''	DOES NOT LIGHT UP	
160	Air mass flow rate Learned value 1	1.1%	
161	Air mass flow rate Learned value 2	0.1%	
162	Status of air conditioning	OFF	
164	Position of accelerator pedal (Kickdown recognition)	OFF	
165	Status of power take-off	OFF	

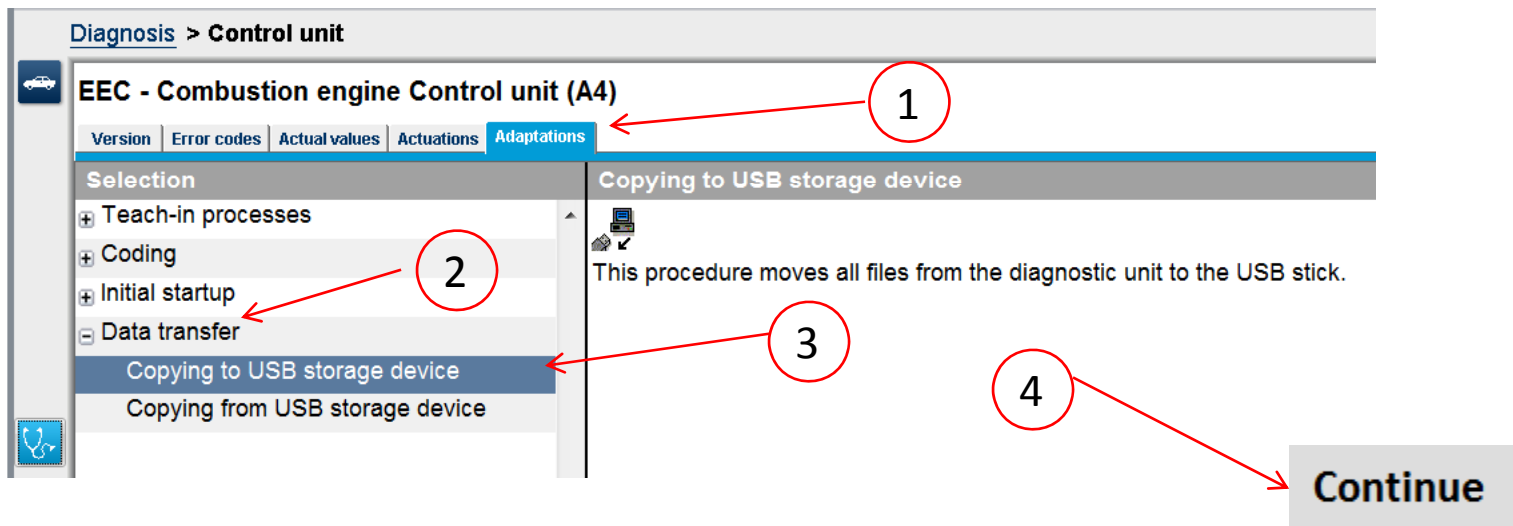
Items 160 and 161 are highlighted with a red box and labeled '3'. The 'Status' option in the sidebar is also highlighted with a red box.



22. If the values in items # **160** & **161** are zero, relearn the mass air flow sensor using the following method:

- Turn off the air conditioning switch.
- Run the engine until the engine coolant temperature is above 60°C (140°F). This will be more than 5 bars on the coolant temperature gauge on the meter cluster.
- Idle the engine for 2 minutes.
- Accelerate the engine to wide open throttle until the buzzer sounds. (About 15 seconds)
- Turn the starter switch to the OFF position for 60 seconds. Navigate back to items #160 & #161. Recheck the values. NOTE: The difference between the 2 values should be +/-5%.

23. Turn the starter to the ON position. Navigate to the EEC program. Click **Adaptations**. Click **Data transfer**. Click **Copying to USB storage device**. Click **Continue**.





24. The drive where the USB storage device is shown. Click **Continue**.

The screenshot shows the 'Diagnosis > Control unit' window for the 'EEC - Combustion engine Control unit (A4)'. The 'Adaptations' tab is active. Under the 'Selection' section, 'Copying to USB storage device' is highlighted. A dropdown menu for 'Removable storage device' is open, showing 'E'. A red circle highlights this dropdown, and a red arrow points from it to a 'Continue' button on the right.

The screenshot shows the same diagnostic software interface. The 'Copying to USB storage device' step is now completed, and the message 'The copying procedure was completed successfully.' is displayed in the main area.

25. The history file containing the coding changes to the EEC is now on the USB storage device. It can be uploaded to the EOL website (See SIB 14-005).