

Product Improvement Campaign

No: C1006210 Issued: 4/16/2013 Re: V68.1 EEC Reprogramming Group: 13 Models: FE/FG Expires: 4/16/2014

SUBJECT:

Product Improvement Campaign C1006210 - V68.1 EEC Reprogramming

MODELS:

FEC52, FEC72, FEC92, FGB72

VEHICLES INVOLVED:

Certain 2012, 2013 and 2014 model year FEC52, FEC72, FEC92 and FGB72 trucks produced from April 8, 2011 through March 31, 2013.

OWNER NOTIFICATION:

Owners of affected vehicles will be notified by mail.

MODIFICATION:

The engine EEC will be reprogrammed on all affected vehicles. 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.

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. Turn the key to the off position and wait at least one minute. Then, fill the DEF tank. The DEF tank level must be full prior to performing any reprogramming!
- 3. Confirm that the vehicle's battery(s) and the Fuso Diagnostics (FD) laptop are properly charged. Connect the laptop's charging cord before reprogramming. Do not rely on internal battery voltage. Insufficient truck or laptop voltage could cause errors during reprogramming. NOTE: IT IS NOT RECOMMENDED TO HAVE A BATTERY CHARGER ON THE VEHICLE WHILE REPROGRAMMING THE ECU. CHARGE THE BATTERY(S) COMPLETELY, AND THEN DISCONNECT THE CHARGER BEFORE STARTING THE REPROGRAMMING PROCEDURE.
- 4. Connect Fuso Diagnostics (Version FDS-R12-2.2) and check for DTC's. If **no** DTC's are present, proceed to step 5. If DTC's **are** present, skip step 5 and proceed to step 6.
- 5. Perform Modification Procedure 1 V68.1 EEC Upgrade and reprogram the engine EEC, then submit for reimbursement following **CAMPAIGN CLAIM SUBMITTAL** on page 3. Skip steps 6 and 7.
- 6. If DTC's are present **DO NOT IMMEDIATELY REPROGRAM THE EEC!** First, examine the condition of the DEF dosing modulator, and then perform Modification Procedure 2 V68.1 EEC Upgrade.

Examine dosing condition as follows: - Go to the Selection under the "Actuations" tab.

- Perform the 28.6 second test in the "009 Test of DEF metering amount" and examine the dosing condition if needed.





- Diagnose the DTC's and replace any defective components, then reprogram the engine EEC following Modification Procedure 1. Submit for EEC reprogramming using CAMPAIGN CLAIM SUBMITTAL and diagnosis and repair using WARRANTY CLAIM SUBMITTAL FOR DIAGNOSIS AND DEFECTIVE COMPONENT REPLACEMENT on page 3.
- 8. Affix a red sticker to the EEC cover as shown below to indicate completion of reprogramming. Additional red stickers can be procured through MFTA Customer Service at 877-711-0707.



POTENTIAL REPLACEMENT PARTS:

	Potential Replacement Parts								
Part #	Part Name	Qty.	Remarks						
ME556058	Urea Modulator Gasket	1	Replace if urea modulator is removed for diagnosis.						
ML239040	Exhaust NOx Sensor	1	Replace only if determined to be defective.						
ME422856	Air Flow Sensor	1	Replace only if determined to be defective.						
QC000523	Intake Temperature Sensor	1	Replace only if determined to be defective.						
ME556056	Urea Modulator	1	Replace only if determined to be defective.						
ME557325	Exhaust Temperature Sensor 1	1	Replace only if determined to be defective.						
ME557326	Exhaust Temperature Sensor 2	1	Replace only if determined to be defective.						
ME422097	Intake Humidity Sensor	1	Replace only if determined to be defective.						

CAMPAIGN CLAIM SUBMITTAL:

Claim labor for EEC reprogramming 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				
C1006210	FEC52 FEC72	Labor Time	1.6 hours	Fill DEF tank with up to 1 ½ gallons of fluid and					
	FEC92 FGB72	Parts Pricing	US\$8.34	reprogram EEC	DEP003				

PARTS PRICING ADJUSTMENT TABLE:

Part #	Part Name	Qty	Dealer Net	33% Mark Up	Recall Reimbursement
DEF003	Diesel Exhaust Fluid	1.5	US\$4.18/gal	US\$5.56/gal	US\$8.34

WARRANTY CLAIM SUBMITTAL FOR DIAGNOSIS AND DEFECTIVE COMPONENT REPLACEMENT:

Submit a special **Warranty Service Claim S** (WSC S) via Fusonet for the diagnosis and defective component replacement. Enter all requested header information, including the information listed below. **IMPORTANT! Any labor operation from the table below submitted on the WSC S must be accompanied by its associated replacement part.**

Warranty Service Claim Header Entry					
Claim Type	S				
Failed Labor Operation Number	C1006210				
A Code	8B				
B Code	XC				
Failed Part Number	NPN				

	Warranty Service Claim Labor and Parts Entry and Failure Work Description for FE Models (Labor Operation / Work Code / Quantity / Labor Time)											
Labor	Troubleshooting DTC's	C10062 / 1Y/ 1 / 3.9 hours										
Part	ME556058	ME556058										
Labor	R/R NOx Sensor C10062 / 2Y / 1 / 0.4 hour											
Part	ML239040											
Labor	R/R Air Flow & Intake Temp Sensor C10062 / 3Y / 1 / 0.2 hour											
Part	ME422856											
Labor	R/R Boost Pressure & Temp Sensor	C10062 / 4Y / 1 / 0.5 hour										
Part	QC000523											
Labor	R/R DEF Dosing Modulator	C10062 / 5Y / 1 / 0.2 hour										
Part	ME556056											
Labor	R/R DPF Exh Gas Temp Sensor 1&2	C10062 / 6Y / 1 or 2 / 0.3 or 0.6 hour										
Part	ME557325 or ME557326											
Labor	R/R Humidity & Intake Air Temp Sensor	C10062 / 7Y / 1 / 0.2 hour										
Part	ME422097											

Warranty Comments

Include all DTC's retrieved from the EEC, and the results of the diagnostic steps taken to repair the vehicle.

Modification Procedure 1 – Upgrading EEC Software to V68.1

IMPORTANT: All technical issues must be remedied before a performing the reprogramming procedure below, and the DEF tank level must be full prior to performing any reprogramming.

- Check the "FUSO object number for software" using FD, under the "Version" tab of the EEC. If the object number is 0154484440001 [Characteristics Map Coordinates (DIESEL FUEL METERING) – 0164480940001 <FE>, 0164481040001 <FG>], the EEC has already been updated to Version V68.1 P17. If the EEC has not been updated to V68.1, continue to Step 2.
- 2. Fix all technical issues (DTC's, component failures, etc.) before upgrading the EEC to software version V68.1.

There must be NO active or pending DTC's present in the EEC when starting the upgrade reprogramming procedure. If technical issues exist, perform Modification Procedure 2. Note: DTC 552558-31 indicates a NOx-related failure.

3. Perform the ECU after-run process.

Turn the ignition switch from the ON to OFF position, then remove the key for one minute to complete the after-run process.

4. Check Air Flow Sensor (AFS) calibration value using FD.

Record the AFS learning values (#152 & #153) for later comparison.

- Go to MFTBC's Field Rewrite Network (FRN) website at <u>https://eol.mitsubishi-fuso.com/fss/</u>. Download the EEC file to a USB storage device. Record the inquiry number and password for an EEC control module.
- 6. Insert the USB mass storage device into the laptop. Open the *Adaptations* tab, open the *Data transfer* tab, and click On *Copying from USB storage device*.
- 7. Upgrade Engine software to V68.1 using FD.

EEC - Combustion engine Control unit (A4)	
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	000207
Diagnosis identifier	
Hardware version	10/22 00
Software version	10/23 00
Software version	11/27 00
Software version	11/49 01
Boot software version	10/23 0
Hardware supplier	Bosch Software number
Supplier	
Software supplier	Bosch
Software supplier	Bosch
Software supplier	Bosch
Control unit variant	App_0207
FUSO object number for hardware	MK667731
FUSO object number for software	0114487740001
Characteristics map coordinates (DIESEL FUEL METERING)	0144483340001
Part number of software 'Boot software version (MFTBC)'	0114485140001
Original vehicle identification number	JL6BNC1A3Ch 6104
Current VIN	FBA30500002XXXX
SCN (software calibration number) (CAL ID)	F1CE3481V'D

(1). Software object number and version The software part number can be checked under the "Version" tab in the EEC on Fuso Diagnostics (2).Perform EEC Reprogramming to upgrade to V68.1.

Go to MFTBC's Field Rewrite Network website at <u>https://eol.mitsubishi-fuso.com/fss/</u> and obtain an inquiry number and password for an EEC control module.

a) "Transfer data from USB storage device"

Open "Adaptations" tab – insert the USB flash drive containing the EEC control module data into a USB port on the FUSO Diagnostics laptop.

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	🙏 FUSO Diagno	ostics			MITSUBISHI FUS	SO TRUCH	(& BUS CORP	ORATION
	Diagnosis > Control unit					🗂 12.1V	Ignition OFF	昌 ?
-	EEC - Combustion en	gine Co	ntrol unit (/	44)				
	Version Error codes Actual va	lues Actua	tions Adaptations					
	Selection		Selection					
		~						
	Initial startup							
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b) Open the "Data Transfer" Selection.

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	🙏 FUSO Diagn	ostics			MITSUBISHI	FUSO TRUC	K & BUS CORP	ORATION
	Diagnosis > Control uni	t				⊡ 12.1V	Ignition OFF	昌 ?
-	EEC - Combustion e	ngine Co	ontrol unit (A4)				
	Version Error codes Actual	alues Actu	ations Adaptation	s				
	Selection		Selection					
		^						
	Initial startup							
	😑 Data transfer							
	Copying to USB storage device							
V~	Copying from USB storage device							
					No selection ma	de		
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c) Click "Copying files from USB storage device" - Click "Continue".



d) Verify the USB drive location, and then click "Continue".

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	Diagnosis > Control unit					⊡ 12.1V	Ignition OFF	日 ?	
-	EEC - Combustion engin	e Control unit	(A4)					Ľ)
	Version Error codes Actual values	Actuations Adaptatio	ns						
	Selection	Copying fr	om USB storag	je device					
	⊕ Teach-in processes	Removable	storage device	Ev				l	^
	Coding								
	Initial startup								
	Data transfer								
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e) Enter the Inquiry #, and then click "Continue".

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	FUSO Diagnos	stics		MITSUBISHI FUSO	O TRUCK &	BUS CORPOR	ATION
	Diagnosis > Control unit			Ē	1 2.1∨ Igr	nition OFF	巳 ?
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	Version Error codes Actual value	es Actuations Adaptation	ns				
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f) The transfer of files has completed.

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	FUSO Diagnostic			MITSUBISHI	FUSO TRUCH	(& BUS CORF	ORATION
	Diagnosis > Control unit				⊡ 12.1V	Ignition OFF	昌 ?
	EEC - Combustion engine	Control uni	it (A4)				
	Version Error codes Actual values	Actuations Adapta	tions				
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	Data transfer						
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- g) Start the Reprogramming Sequence
 - Click the "Adaptations" Tab.
 - Open the "Initial Startup" drop down list.
 - Click the "Reprogramming" icon Follow the instructions on the screen Turn the Ignition Switch off for a least 1 minute, then click "Continue".



h) Turn the ignition switch to the "ON" position, then click "Continue".

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	Diagnosis > Control unit				⊡ 11.7V	Ignition OFF	Ð	?
	EEC - Combustion engin	ne Control unit	A4)				Ľ)
	Version Error codes Actual values	s Actuations Adaptatio	ns					
	Selection	Reprogran	ming					
	Teach-in processes	Switch on in	nition					^
	Coding	Switch on ig						
	□ Initial startup	Press buttor	'Continue' to continue.					
	Control unit							
	Reprogramming							
	Reset of coding							
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i) Enter the Inquiry # and Password, then click "Continue".

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📥 FUSO	Diagnostics	MITSUBISHI FUSO TRUCK & BUS CORPORATION
Diagnosis > Cor	ntrol unit	🖽 11.7V Ignition OFF 🛛 😓 ?
EEC - Combu	istion engine Control un	iit (A4)
Version Error cod	es Actual values Actuations Adapt	ations
Selection	Reprogr	ramming
⊕ Teach-in proc ⊕ Coding	Auth	entication
lnitial startup Control unit replacemer	t Enter inqu	uiry number.
Reprogram Reset of co	ming oding	sauard
€ Data transfer		iswora. 1
***	_	Continue
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j) Verify the drive location, then click "Continue".

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	FUSO Diagno	stics	MITSUBISHI FUSO TRUCK & BUS CORPORATION
	Diagnosis > Control unit		🗂 11.4V Ignition OFF 🛛 😫 ?
-	EEC - Combustion eng	gine Control unit (A4)	
	Version Error codes Actual val	ues Actuations Adaptations	
	Selection	Reprogramming	
	Teach-in processes	Select the drive which	contains the control unit software data.
	⊕ Coding	Removable storage de	vice C v
	□ Initial startup		
	Control unit	Drive letter	Data status
	Reprogramming	C:	Fuso 08/2011 (2011-08-24)
12	Reset of coding		
<u>v</u>	⊕ Data transfer		
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k) Click "Yes".



I) After programming begins, wait for the status bar to reach 100%.

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	Diagnosis > Control unit				⊡ 13.6∨	Ignition OFF	日 ?
	EEC - Combustion eng	gine Control unit (A4)				
	Version Error codes Actual value	ues Actuations Adaptation	s				
	Selection	Reprogram	ming				
		Brogramming	of now control unit	coffwaro			^
	⊕ Coding	Frogramming		Soliware			
	■ Initial startup	Please wait					
	Control unit			0%			
	Reprogramming						
	Reset of coding						
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m) Turn ignition key to the "OFF" position, then click "Continue".

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	Diagnosis > Control uni	it			 13.6V	Ignition OFF	ß	?
	EEC - Combustion e	ngine Control uni	it (A4)					
	Version Error codes Actual	values Actuations Adapta	tions					
	Selection	Reprogra	amming					
		Switch off	ignition.					^
	■ Initial startup	Press but	on 'Continue' to continue	.				
	Control unit replacement							
	Reprogramming							
U.	Reset of coding							
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n) Wait for the status bar to complete the 60 second count.

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	Diagnosis > Cont	rol unit				⊡ 13.6V	Ignition OFF	日 ?
	EEC - Combust	tion engine C	ontrol unit ((A4)				
	Version Error codes	Actual values Actu	ations Adaptation	าร				
	Selection		Reprogram	nming				
	Teach-in proces	sses 🔷	00					606
	⊟ Initial startup			Di				
	Control unit			Please wait ur	till the progress ba	r reacnes th	e ena.	
	replacement	ha a						
	Reprogramm	ing						
\bigvee_{α}	Reset of codi	ing						
	⊕ Data transfer							
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o) Turn the ignition key "ON", then click "Continue".

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	Diagnosis > Control unit				E 13.6V	Ignition OFF	日 ?	
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	Version Error codes Actual value	es Actuations Adaptatio	ns					
	Selection	Reprogran	nming					
	 Teach-in processes 	Switch on ig	nition.				•	~
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	Control unit							
	Reprogramming							
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p) Wait for the status bar to complete the 10 second count.

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	Diagnosis > Control unit					E 13.6V	Ignition OFF	昌 ?
	EEC - Combustion eng	gine Co	ontrol unit	(A4)				
	Version Error codes Actual value	ues Actua	ations Adaptation	15				
	Selection		Reprogran	nming				
		~	0s					10s
	□ Initial startup			Please wait ur	ntil the progress ha	r reaches th	e end	
	Control unit			i lease wait a	in the progress be	in reaches th	e ena.	
	Reprogramming				Abort			
	Reset of coding							
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q) Then, wait for system to finish the data download.

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<u>Diagnosis</u> >	Control unit				 13.6V	Ignition OFF	日 ?	
EEC - Com	bustion engine	Control unit (A4)				Ľ)
Version Error	codes Actual values	Actuations Adaptation	IS					
Selection		Reprogram	iming					
⊕ Teach-in β ⊕ Coding	processes	The codings	of control unit " are	being written			Į	^
⊟ Initial start	up	This process	s can take some time					
Control	unit nont			99%				
Reprogr	ramming							
Reset of	f coding							
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r) Wait for the program to finish the sequence and display the "Order log". The programming has completed. <u>Note</u>: Click "Continue" before proceeding to the next operation.

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FEC. Combustion anning Control unit (Ad)			3	onware
EEC - Combustion engine Control unit (A4)			t	ne "Ver
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				S
Diagnosis identifier	000207			
Diagnosis identifier				
Hardware version	10/22 00			0 - 41
Software version	10/23 00			Sonw
Software version	11/27 00			
Software version	11/49 01			Diese
Boot software version	10/23 00			Motor
Hardware supplier	Bosch			meter
Supplier				Diese
Software supplier	Bosch			Dicoc
Software supplier	Bosch			Meter
Software supplier	Bosch			
Control unit variant	App 0207	\sim		
FUSO object number for hardware	MK667731	0	(
FUSO object number for software	011448774000	50	itware N	lumber
Characteristics map coordinates (DIESEL FUEL METERING)	0144483340001			
Part number of software 'Boot software version (MFTBC)'	0114485140001	-		
Original vehicle identification number	JL6BNC1A3CK006104			
Current VIN	FBA30500002XXXXXX	\sim	\sim	
SCN (software calibration number) (CAL ID)	F1CE3481V*D	E	uol man	
CVN (calibration verification number) (CVN)	FF C2 64 1E		uermap	
		~		

(3). Check software object number and version Software part number can be checked under the "Version" tab in the EEC

Software version	V68.1
Software(FE/FG)	0154484440001
Diesel Fuel Metering – FE	0164480940001
Diesel Fuel Metering – FG	0164481040001

Diagnosis > Control unit			12.8V	Ignition OFF	8
EEC - Combustion eng	ine Co	ontrol unit (A4)			Ę
Version Error codes Actual value	es Actu	ations Adaptations			
		Reset of coding			
Teach-in processes	^	Desite for the			
Coding		Reset of coding			
Manual settings		You will be guided through the following steps:			
Default String		 Reset of coding 			
Injector injection					
quantity adjustment					
Control unit					
replacement					
Reprogramming					
Reset of coding					
Data transfer					

(4). Perform Reset of coding Choose "Reset of coding".

(5). Perform the ECU after-run process.

Turn the ignition switch from the ON to OFF position, then remove the key for one minute to complete the after-run process.

Reprogramming functions complete – Continue with "Reset and learning" functions below.



- (6) Erase SCR related value
 - Perform "018 Reset : Status of exhaust aftertreatment" after reprogramming
- Wait 10 seconds while the screen fully loads data.
- Scroll down to the bottom of the page and click the green button.
- Wait for the screen to indicate that all of the Actual values have changed to "00".
- When all zeros appear, the reset is complete.



Caution:

The DEF level warning lamp in DEF level indicator on meter cluster may be flashing, due to SCR related failure history until implementing "018 Reset : Status of exhaust aftertreatment".

1	Diagnosis > Contro	ol unit		12.0V	□ Ignition t	3	?
-	EEC - Combusti	on engine Contr	ol unit (A4)				
	+ 09020C (521 1	2) The signal value	of component 'Brake' is in	nplausible.	CURRENT	F	
	+ 24F0E9 (5202)	28 9) CAN timeout f	ault. Error on transmission	of CAN message	CURRENT	F	i
	+ 23F0E9 (5202 'SAM')	27 9) Error on trans	mission of CAN message	CAN message 'VIN' from control unit	CURRENT	F	Ì
	+ 28F0E9 (5202	32 9) CAN timeout f	ault. Error on transmission	of CAN message	CURRENT	F	I
	+ 30F0E0 (52024	40 0) The temperat	ure of component 'NOx ser	nsor' is not OK.	CURRENT	F	ł
-	+ 54F0E9 (5202)	76 9) CAN timeout f	ault. Error on transmission	of CAN message	CURRENT	F	ſ
	+ 56F0E9 (5202)	78 9) CAN timeout f	ault. Error on transmission	of CAN message	CURRENT	F	l
	+ 60F0E9 (5202)	88 9) CAN timeout f	ault. Error on transmission	of CAN message	CURRENT	F	i
	+ 6AF0E9 (5202	98 9) CAN timeout t	ault		CURRENT	F	l
	+ 6CF0E9 (5203	00 9) CAN timeout	fault		CURRENT	F	i
	+ 620112 (354 1 is too l	8) The signal voltag ow.	ge of component 'Humidity	and temperature sensor "Intake air"	CURRENT	F	
2	4	Stop monitoring	Clear fault memory	implement lest			

(7). Clear error codes Choose "Clear fault memory".

Confirm that all error codes are cleared except the codes below. 520240-0 / 520584-31 / 520586-31

(The screen on the left is only an example)

NOTE: If DTC 520570-31 appears in the EEC and the SCR lamp is illuminating, perform the "<u>Procedure to clear DTC 520570-31</u>" on page 19 after completing all Engine EEC software reprogramming procedures.





(8) Conduct air flow sensor learning using fast learning function

·Perform "006 Reset Hot film mass air flow sensor".

•On vehicles that will allow fast learning, perform the fast learning procedure as follows.

- Turn off the air conditioning switch.
- •Run the engine until the engine cooling water temperature rises above 60C {140F}. (more than 5 bars on the meter cluster)
- Intake temperature must be between -20C to 40C {-4F to 104F}. If the temperature is below -20C {-4F}, move the vehicle to a location that will allow a warmer intake temperature.
- Wait for approximately 2 minutes with the engine idling.
- For best auditory results, perform the test while sitting in the cab with the doors and windows closed.
- •Hold the engine speed at wide open throttle (WOT) for about 15 seconds until the buzzer sounds (If the buzzer does not sound – hold the accelerator pedal down again at WOT for 15 seconds).
- •Turn off the engine and wait at least for 60 seconds to allow the after-run to finish completely and turn the ignition on again.

Note: Refer to the MF000002 Addendum for a detailed procedure.



• After fast learning has finished, compare the air flow sensor learning values (#152, #153) recorded in step 5 on page 1 to the default values.

Note 1: The value should not exceed the previously recorded value by +/- 5.0000%

Example:		
Original Value:	+ 1.0000%	
New Value Range:	-4.0000% to +6.0000%	

Note 2: The AFS values should be not greater than 6.0000% (it should no longer be 0.0000%).

If the values are higher than this, perform fast learning again.

If the values remain outside of the acceptable range, perform Modification Procedure 2.



(9) Perform manual DPF regeneration using FD.Perform "012 Regeneration of diesel particulate filter"

NOTE 1: Coolant temperature must rise to at least 60C {140F} before performing the manual DPF regeneration.

NOTE 2: If DTC 520570-31 appears in the EEC and the SCR lamp is illuminating, perform the "<u>Procedure to clear DTC 520570-31</u>" on page 19 after completing all Engine EEC software reprogramming procedures.

NOTE :

If this error screen appears, select "Abort".



Diagnosis > Control unit		C1 12	IV Ignition OFF	0 0	?
Version Error codes Actual version Actualized	ol unit (A4)				D
Selection of actual value group	Actual value				
Temperature values - Pressure values	No.	Name	Actual value	Specified value	Г
Voltage values Speed values	E 112	Exhaust gas volume flow rate (Diesel oxidation catalytic converter BACK)	0.000m*3/h		-
Air mass (specified value) Torque values	D 113	Exhaust gas recirculation	-0.0366%		ĥ
Injection quantity Vehicle mileage	■ 114 ① = 115	NOx values	12- 0.0001kg		
Time Efficiency of catalytic converter	E 116	converter (NH3) Status of function 'Control of	00 02 00 00	6	-
Diesel particulate filter	Information				
EGR VGT Urea values Engine brake					
Stop menitoring		Tatly Bargraph	Line graph	10	

(10) Check NOx value

· Check NOx value (#114) within 2 min.

Nov voluo	Less than 200-	
NUX value	(And other than "-0-" or "-1-")	

If this value is not within the acceptable range, proceed to Modification Procedure 2.

 (11) Turn the ignition off and wait 60 seconds. Turn ignition on again and check for DTC's in the EEC using FD. Ignore the following codes: 520240-0 / 520584-31 / 520586-31

- (12) Erase failure memory in all ECUs in the vehicle.
 - Navigate to the "Diagnosis" screen.
 - In the "Control unit view", choose "Start quick test"
 - After the quick tests finishes, choose "Clear fault memory"

• Choose "Start quick test" again to ensure all codes have cleared.

FUSO Diagnostics		MITSUBISHI FUSO T	RUCK & BUS CO	ORPORATIO
Diagnosis		CD 12.1V	Ignition OFF	8 12
Canter Cantol unit view Stockal functions				
Control units view: Final quick test	Search	Fault status filter	м г-т	1.0
+ ABS - Antilock brake system Con	trol unit (A1)			1
+ EZGO - Hill Start Assist Control u	nit (A2)			T
+ ICUC - Instrument panel (A11)				1
+ SSAM - Signal & ActuatorModule	(A20)			1
+ HVAC - Control and operating un	t "Automatic air condition	ning* (A7)		1
+ ISS - Automatic engine start/stop	Control unit (A13)			1
+ EEC - Combustion engine Control	l unit (A4)			F
+ TCM - DUONIC Control unit (A28)			1
+ HLAL - Control unit 'Automatic he	adlamp adjustment' (A6)			1
+ IS MO - Immobilizer- Control unit / Start quick test S ow inSal quick te	Ciear fault memory Open	TPS results	- 1940.	
	Clear fault me	mory		

Xentry			
🕹 🕹 FUSO Diagnostic	s Mitsue	BISHI FUSO TRUCK & BUS CORP	ORATION
Diagnosis > Control unit		12.9V Ignition OFF	₿?
EEC - Combustion engine Version Error codes Actual values A	Control unit (A4) ctuations Adaptations		
Selection a. Teach-in processes a. Coding b. Ihilai startup Data transfer Copying to USB storage device Copying from USB storage device	This procedure moves all files from the diagon	oslic unit to the USB slick.	
°0			Continue
	×		Committee

(13). Collect EEC data to be uploaded to the FRN website. Perform "Copying to USB storage device".

(14). Upload EEC data to the FRN website.

Procedure to clear DTC 520570-31



_	Discussion of Constructionality	_	23 mar	Inches OFF		
	Diagnosis > Control Unit		13.4V	ignation OFF	CO 1	0 1
	EEC - Combustion engine	Actual	ntrol unit (A4)			C
	Selection		012 Regeneration of diesel particulate filter			
	001 Cold start	-	Name	Actual valu	0	
	002 Pressure regulating		Coolant temperature	71.0000°C		
	valve in rail 003 Pressure limiting		Pressure differential in diesel particulate filter (Correction values)	0.300000kP	•	
	valve in rail		Temperature in component 'DPF' (Internal)	282.000°C		
	Boost pressure control		Exhaust temperature upstream of diesel oxidation catalytic converter	132.000°C		
4.	007 Control of exhaust gas recirculation 008 Engine brake		Exhaust temperature upstream of diesel particulate filter	282.000°C		
	Solenoid valve 009 Test of DEF		S S			
	010 Leak tester		Start			
	011 Emptying DEF lines		Carry out actuation.			
	diesel particulate filter	ſ				

👗 FUSO Diagnostics		MITSUBISHI FUSO T	RUCK & BUS CO	DRPOR	TION
Diagnosis		12.1V	Ignition OFF	01	2 ?
Canter Cardinal and where Special functions					
Control units view: Final quick test	Search	Fault status filter	м г.	1	
+ ABS - Antilock brake system Contr	rol unit (A1)			1	
+ EZGO - Hill Start Assist Control un	hit (A2)			1	
+ ICUC - Instrument panel (A11)				1	
+ SSAM - Signal & ActuatorModule ((A20)			1	
+ HVAC - Control and operating unit	"Automatic air conditio	ning* (A7)		1	
+ ISS - Automatic engine start/stop (Control unit (A13)			1	
+ EEC - Combustion engine Control	unit (A4)			F	e,
+ TCM - DUONIC Control unit (A28)	i i			1	
+ HLAL - Control unit 'Automatic hea	idlamp adjustment' (A6)			1	
+ IMMO - Immobiliter - Control wolf (Start quick test Show initial quick te	Clear fault memory Oper	TPS results	- Dett.	Control	•

If after finishing all software update procedures, DTC 520570-31 appears in the EEC and the SCR lamp is illuminating, Please perform the procedure below.

(1) Erase failure memory in all ECUs in the vehicle.

- Navigate to the "Diagnosis" screen.
- · In the "Control unit view", choose "Start quick test"

• After the quick tests finishes, choose "Clear fault memory"

• Choose "Start quick test" again to ensure all codes have cleared.

(2) Confirm DTC 520570-31 still appears.

NOTE : the codes below also may appear with 520570-31: 1254-31 / 6DF1FF

(3) Perform a manual DPF regeneration using FD.

• Perform "012 Regeneration of diesel particulate filter".

NOTE : Coolant temperature must rise to at least 60C {140F}

• After, approximately 15 minutes, the error will resolve (Allow DPF regeneration to finish automatically.)

(4) After DPF regeneration, turn off the ignition and wait 60 seconds

•Turn the ignition on again and confirm that there are no DTC's present in then EEC using FD.

Note: Ignore the following codes: 520240-0 / 520584-31 / 520586-31

(5) Press "Start quick test, then erase the failure memory in all ECU's.

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13E-130
```

Modification Procedure 2 NOx Level 1 Diagnosis

13E-130

1. Checks to be made at NOx Level1 error occurrence

- When the following diagnostic code occurs, carry out troubleshooting based on the questionnaire without deleting any diagnostic code.
- Diagnostic code 3361–18 (Indication in FUSO Diagnostics: Too high exhaust emission level output from NOx sensor (non-processed data)) or 520558–31(Indication in FUSO Diagnostics: System information (System information trouble group: SCR 6)) occurs, carry out troubleshooting with the following procedure.



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1.1 DPF manual regeneration methods in creep mode

- If the vehicle is the state of torque and power limitation, run the engine at idle a few hours until creep mode is reached. In creep mode a manual regeneration can be started.
- Turn the starter switch to the OFF position, wait at least 60 seconds and complete the after-run.
- Turn the starter switch to the ON position and after a lapse of 10 seconds or longer, start the engine.
- Warm up the engine until the engine coolant temperature exceeds 60 \degree C {140 \degree F}.
- Press the Diesel Particulate Filter cleaning switch to perform the manual regeneration of Diesel Particulate Filter. In the manual regeneration, the engine speed increases to 1500 - 2500 rpm and it takes approximately 20 minutes to complete the manual regeneration.
- After that, engine revolution goes to idling and DPF manual regenerating is end.

1.2 Check density of DEF.

• Check the DEF density in the DEF tank.

Standard 32.5±0.8%	Standard value
--------------------	-------------------

• If the measured value exceeds a standard value, exchange the DEF to new one.

1.3 Check relevant systems.

• Perform the following checks in this order.

(1) NOx sensor

Component HCB117.LB1				566
Control unit				₿?
EEC - Combustion engine Contro Version Error codes Charlotters Actuations	al unit (A4)	atan]		D
Selection Current Value Group	Current Val	201		
Speed values	1D Num	Description	Value	Targets/Limits
Air mass (specified value)	168	Item (Engine brake Solenoid valve)	0.0000%	[5.0000
Torque values injection quantity	170	Signal voltage of component 'Torque sensor 'Power take-off'	0.0000%	second.
Vehicle mileage	781	Smoke limit	0.000kg	
Time	□ 725	Exhaust gas volume flow rate (Diesel	0.000m*3/s	
Efficiency of catalytic converter Diesel particulate filter	159	exitation catalytic converter BACK) Exhaust gas recirculation actuator	0.0000%	[5.0000
EGR	872	NOx values	0-	
VGT	686	Fill level of NOx storage catalytic conveder (NH3)	0.0000kg	
Urea values	m 538	Status of function 'Control of exhaust	00 00 00 00	
Engine brake	Note			
Status				
Switch status				
Status of glow system				
Other actual values				
Display of all actual values	*			
Page Scarring		Show Tarry Show Targraph Years	Show Scope Vere	

- Drive the vehicle at 80 km/h [49.7mph] about for 30 minutes to collect the service data (actual measurements) using FUSO Diagnostics. Then check to confirm that the NOx sensor is active (NOx value of FUSO Diagnostics other than "-1-" is indicated).
- OR
 - Turn on DPF manual regeneration and then right after finished DPF manual regeneration check the service data (actual measurements) using FUSO Diagnostics. Then check to confirm that the NOx sensor is active (NOx value of FUSO Diagnostics other than "-1-" is indicated)
 - Within 10 minutes, Run the engine at idle to determine the NOx value of FUSO diagnostics. If a value more than 200ppm (200 in reading of FUSO Diagnostics) is indicated continuously, faulty NOx sensor is suspected. Replace the NOx sensor.

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(2) Air flow & intake air temperature sensor.

• Inspect the air flow & intake air temperature sensor according to the following flowchart:



v of catalytic o

e Control unit (A4)

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TROUBLESHOOTING Inspection procedure

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13E-130

- (1.3.2.1) Verification of learning value of airflow sensor
 - Check the learning values of the airflow by FUSO Diagnostics tool and record them.
 - NB. In case of FUSO Diagnostics display "0.021", the value means "2.1%".

	FUSO Diagnostics	MITSUBISHI F		& BUS CORP	
Ĩ	Diagnosis > Control unit		C3 12.0V	(grition	₿ ?
-	EEC - Combustion engine Control unit (A4)				E
	Versen Error codes Actual values Actuations Adaptations				
	EEC - Combustion engine Control unit (A4) MB object number for hardware and software				
I	Diagnosis identifier	000201			
	Hardware version	08/02 00			
	Software version	08/02 00			
	Boot software version	00/00 00			
	Hardware supplier	MB			
	Software supplier	MB			
-	FUSO object number for hardware				
	FUSO object number for software				
	Characteristics map coordinates (DIESEL FUEL METERING) Part number of software 'Boot software version (MFTBC)'				
	Status of control unit	Running in Application			
	Diagnosis gateway	false			
	Type of diagnosis session	The value could not be re-	ad out.		
	Diagnosis variant	2			

• There are two learning methods available for airflow sensor; one performed with the vehicle stationary (first learning), and one

(1.3.2.2) Perform the learning procedure for the airflow sensor.

- performed with the vehicle running.
 However note that not all vehicles can perform first learning. The vehicle that initial study is possible is as follows.
- ECU software version : from 67.1 (variant 020A*) <EPA13MY>
- ECU software version : from 68.1

DATE 10, ♥8(FRI)	Р
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	P122311

- On vehicles where it is possible to do first learning, perform the first learning procedure as follows after resetting the learning value using FUSO Diagnostics:
- Please note that before perform the AFS learning, be sure to take AFS reset and turn off the engine once and wait at least for 60 seconds to have the after-run finished completely before proceeding to the verification check.

- Turn off the air conditioning switch.
- Using FUSO Diagnostics, check to ensure that the learning value of the airflow sensor is "0".
- Run the engine until the engine cooling water temperature rises above 60 ° C {140 ° F}. (on meter cluster: Over 5 points)
- Wait for about 2 minutes with the engine idling.
- Keep the engine revolution to high-idling for about 15 seconds until the buzzer beeped.
- Verify If the learning value is to be verified using FUSO Diagnostics, turn off the engine once and wait at least for 60 seconds to have the after-run finished completely before proceeding to the verification check.

13E-130		Inspection procedure	- 13E-130
		 Let the air flow sensor re-learning by followin let it do repeatedly until the difference of the 2% (from the constant value). Ex) In case of last learning value is "2.1%" (FUSO D "0.021") Less than 2% : 0.1 to 4.1% (FUSO Diagnostics dis 0.041"). Turn off the air conditioning switch. Run the engine until the engine cooling water to 70 to 111°C {158 to 232 ° F}. Using FUSO Diagnostics, check to ensure that temperature is 0 to 50°C{32 to 122 ° F}. Using FUSO Diagnostics, check to ensure that pressure is more than 81kPa {12psi, 0.8kgf/cm² Check that DPF manual regeneration is not act Operate the engine in the mean time. In normal driving conditions, drive the vehicle w transmission in 5th gear for more than 7 secon condition. Either fully loaded, steep hill or fast h the ECU a chance to learn. (For DUONIC-equip manual mode.) The upper limit of correction of values obtained learning is 3%. If the learning value is to be verified using FUSC off the engine once and wait at least for 60 sec after run finished completely before proceeding check. 	5/16 g procedure. And value be less than Diagnostics display splay "0.001 to emperature within the intake air the Atmospheric {} (810hPa). tive. study by running. <i>i</i> th the ds in full load ighway. This gives oped vehicle, use d from one time D Diagnostics, turn conds to have the to the verification
	P116753	 (2.3) Inspection of airflow sensor & intake air temperatintake air-related components Check that there is no dust on the "clean sid system. If dust is present check that the rubb filter is fitted correctly. Check that there is no clogging or dirt in the a by following procedure. Shine light inside the element. Replace the element if thin spots or broken parts filter paper, or if the packing at the top of the element. 	cure sensor and e" of the air filter per seal on the ir cleaner element are evident in the ment is damaged. ent is damp with
		 oily soot. Blow a jet of compressed air at a pressure not hig {100psi, 7kgf/cm²} against the inside surfaces of t Move the compressed air int up and down along a 	gher than 685kPa he element.

P116752

- Move the compressed air jet up and down along all pleats of the filter paper element.
- Oily air flow & intake air temperature sensor can be evidence that there is another faulty part in the system. In such a case, check other air intake-related parts for contamination and clean them if contaminated.

TROUBLESHOOTING Inspection procedure

Metal mesh Air cleaner Air cleaner Air flow & intake air temperature sensor Air flow & intake air temperature sensor Air flow & intake air temperature sensor P122296E



- Check that there is no dirt or deformation in the metal mesh.
 - Attach the metal mesh to the air hose by direction of illustration.

- Check the engagement and attachment state of Airflow & intake air temperature sensor's align slit and air hose's key.
- Inspect the lines connecting the airflow & intake air temperature sensor with the air cleaner and the turbocharger for installed conditions of clamps and air leakage through the sealing sections.
- Check that the clips are correctly closed and the sealing is correct without gaps.
- Inspect the gap between airflow & intake air temperature sensor and turbocharger.

XENTRY Diagnostics			Mercede	s-Benz
Diagnosis > Control unit		11 12 PC		8 ?
EEC - Combustion engine Control un	nit (A4)			E
Selection	Recetting of learned values of component Hot film mass	air flow samsar*		
Practice of processes Resetting of channel values of composed "Engine of composed" Engine of composed the setting of an engine composed the setting of an engine restance values of composed the setting of an engine composed the setting comp	Requirements for teach-in process - speake ON - Combustions engine AT STANDST&L Start teach in process Start teach in process			
converter Resultion of learned values of				-

- (2.4) Resetting method of learning values using FUSO Diagnostics
 - Use FUSO Diagnostics to reset the learning value of the airflow sensor.



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TROUBLESHOOTING Inspection procedure

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(3) SCR temperature sensor 1 and 2

Composed EEGBITE.LBT				5161
ontrol unit				6 7
EEC - Combustion engine Contro Version from codes Actuations Actuations	Adaptations Ended	an distan		Ľ
Selection Current Value Group	Current V	alues		
Temperature values	1D	Description	Value	Targets/Limits
Pressure values	Num			and the second second
Voltage values	0 989	Temperature at component 'Oxygen	-273.0°C	
Speed values	710	second second	073 010	_
Air mass (specified value)	0 /12	catablic converter (BACK)	-2/3.0 ℃	
Torque values	D 700	Temperature at component 'SCR	-273.0°C	
Injection quantity		catalytic converter (FORWARD)		
Vehicle mileage	284	Temperature at component 'Addition?	-273.0°C	
Time	m 876	Temperature at component	-273.0°C	
Efficiency of catalytic converter	-	'Combustion engine Control unit'		
Diesel particulate filter	397	Ambient temperature	-273.0°C	
EGR	540	Coolant temperature	-273.0°C	
VGT	Note			
Urea values				
Engine brake				
Status				
Switch status				
Ctatue of alow sustans	*			-
Paule Scarring		Ston Rarpath law	thow Scope Ver	- C

HOT range

- Run the engine at idle for 1 hour and then, using FUSO Diagnostics, check that both SCR temperature sensors 1 and 2 give the same measurements (tolerance within 15°C {27° F} at a temperature between 50 and 150°C {122 and 302° F}).
- After DPF manual regeneration is completed, using FUSO Diagnostics, check that both SCR temperature sensors 1 and 2 give the same measurements (tolerance within 40°C{72°F} at a temperature between 480 and 600°C{896 and 1112°F}).

COLD range

- Inspect the sensor by whichever procedure for engine cold temperature range condition.
- (3.1) On-vehicle inspection
 - After engine has cooled down. Check using FUSO Diagnostics that both SCR temperature sensors give the same measurements as other temperature sensors (tolerance within 15 ° C [27 ° F]).

(3.2) Inspection by removal

- Removal the SCR temperature sensor 1 and 2 and do visual check and if it is dirty then you should clean it.
- Using a known temperature reference source, measure the resistance between terminals 1 and 2.

	—18°C {-0.4 °F}	187 Ω							
	-12°C {10 °F}	191 Ω							
	−7°C {19 ° F}	195 Ω							
	−1°C {30 ° F}	200 Ω							
	0°C {32 [°] F}	201 Ω							
	4°C {39 °F}	204 Ω							
Ctourd and	10°C {50 °F}	208 Ω							
Standard	16°C {61 °F}	212Ω							
value	21°C {70 °F}	217Ω							
	27°C {81 [°] F}	221 Ω							
	32°C {90 °F}	225 Ω							
	38°C {100 °F}	229 Ω							
	50°C {122 °F}	239 Ω							
	100°C {212 °F}	276 Ω							
	150°C {302 °F}	313Ω							

- If the measurement is out of reference value, replace the sensor.
- Measure resistance between each pin to sensor body. Resistance should be greater than 1 M Ω (open circuit).



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(4) Boost pressure & boost temperature sensor (temperature sensing section)

• Check the boost pressure & temperature sensor by whichever procedure.

Control unit Control unit (A4) Control unit (A4)

(4.1) On-vehicle inspection

- When the engine is cold, check using FUSO Diagnostics that this sensor gives the same measurement as other temperature sensors (tolerance within 15°C [27°F]).
- Visually check the sensor and clean it if contaminated.



(4.2) Inspection by removal

- Remove boost pressure & temperature sensor with wiring.
 - Do visual check and if it is clogged with soot you should clean it.
 Use distilled water.
- Remove engine ECU connector.
- Using a known temperature reference source, measure the resistance between terminals 6 and 12 at the ECU connector side.

	−40°C {−40 [°] F}	48153 <i>Ω</i>								
	−30°C {−22 ° F}	26855 Ω								
	−20°C {−4 [°] F}	15614 <i>Ω</i>								
	−10°C {14 [°] F}	9426 Ω								
	0°C {32 [°] F}	5886.7 Ω								
	10°C {50 °F}	3791.1 Ω								
	20°C {68 [°] F}	2510.6 Ω								
	30°C {86 °F}	1715.4 Ω								
Standard	40°C {104 °F}	1199.6 Ω								
value	50°C {122 °F}	851.1 Ω								
	60°C {140 °F}	612.27 Ω								
	70 [°] C {158 [°] F}	446.33 Ω								
	80°C {176 [°] F}	329.48 Ω								
	90°C {194 °F}	246.15 Ω								
	100°C {212 °F}	186Ω								
	110°C {230 °F}	142.08 Ω								
	120°C {248 °F}	109.65 Ω								
	130°C {266 °F}	85.45 Ω								

• If the measurement is out of standard value, replace the sensor.

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(5) DEF dosing module, DEF supply module (motor and heater)



- Check that there are no gas leaks and adhesion of deposits on the attachment part of the DEF dosing module. If there is some abnormality, then it is possibility that the attachment failure of the DEF dosing module is the cause of NOx errors.
- Remove the DEF dosing module. Check the DEF dosing module and its mount are in a proper condition.
- Replace gasket (ME556058), if dosing module is removed.



Gasket between dosing module and intermediate pipe (ME556058) $\,$

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- Verify that the injection hole in the DEF dosing module is free from any deposits. Replace the DEF dosing module if the injection hole is blocked.
- Clean the DEF dosing module if other places than the injection hole are deposited, please use distillated water.
- When at the actuator test (Actuation) function of FUSO Diagnostics there is no abnormality, there is no problem even with when there is a deposit.





• If any deposits are found on the mounting section of the DEF dosing module, remove them completely before the module is re-installed. After the module is installed, be sure to perform forced DPF regeneration using FUSO Diagnostics.

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TROUBLESHOOTING Inspection procedure

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Rewrite software to the latest version of the engine electronic control unit.

CAUTION A

- When the software of engine electronic control unit is not the latest version, the actuator test (Actuations) function of FUSO Diagnostics may not operate normally.
- Test the leakage(DEF): Accept by making use of the actuator test (control) function of FUSO Diagnostics.
- Perform the test with a DEF dosing module removed from intermediate pipe.
- Recommended FUSO Diagnostics version:FDS-R12-2.2. or newer
- Verify that there is no leakage of DEF at the time of test execution.
- Replace the DEF dosing module if leakage is found at dosing module tip.
- Replace the DEF tube if leakage is found on DEF tube itself.
- Re-check the DEF tube install condition if the leakage is found from DEF tube junction part.
- After the additional test is finished, make the starter switch OFF and wait 60 minutes and finish the after run.
- Test the dosing rate of DEF by making use of the actuator test (control) function of FUSO Diagnostics.
- Verify that the specified amount of solution is dosed. Replace the DEF dosing module if the amount is abnormal, and then perform the actuator test (control) again. If the amount is still abnormal, replace the DEF supply module (motor and heater).
- After addition test is finished, switch OFF and wait 60 seconds to finish the after run.
- Retest the dosing rate of DEF by making use of the actuator test (control) function of FUSO Diagnostics to check for dosing condition.
- Verify that DEF is sprayed evenly in three directions as shown in the illustration.
- Replace the DEF dosing module if the spray pattern is abnormal.
- After addition test is finished, switch OFF and wait 60 seconds to finish the after run.
- Attach a new gasket to the DEF dosing module.
- Stick and install the DEF dosing module to intermediate pipe.
- Push the clamp central part until it applies the hook of a new clamp and stick and install the clamp to dosing module. In this regard, do not adhere oil or grease to clamp and screw.

Tightening torque	$5_{-0.5}^{0}$ N·m{3.7}_{-0.3}^{0}lbs.ft, 0.5 $_{-0.05}^{0}$ kgf·m}

- When attaching the DEF tube to the DEF dosing module. If it needs the lubrication, please use distillated water.
- Check the gas leakage after attaching the DEF dosing module.









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(6) DFP exhaust gas temperature sensor 1 and 2



(6.1) Cleaning

- Check that the sensor portion is free of soot, oily substance, etc.
- If not, clean the sensor portion as follows.
- Spray a cleaner on the sensor portion from 2 or 3 cm [0.79 or 1.18in.] away.
 - Recommended cleaners:
 - Nonchlorinated solvent In 20 to 30 seconds after spraying, wipe the sensor portion clear of the

sprayed cleaner using a soft waste cloth the like.

Be sure to wait for 20 to 30 seconds before wiping. It takes the cleaner that long to dissolve foreign matter.



(6.2) Inspection

- Removal the DPF exhaust gas temperature sensor 1 and 2 and do visual check and if it is dirty then you should clean it.
- Using a known temperature reference source, measure the resistance between terminals 1 and 2.

	— 18°C [—0.4 ° F]	187 Ω
	-12°C [10 ° F]	191 Ω
	−7°C [19 ° F]	195 Ω
	−1°C [30 °F]	200 Ω
	0°C [32 ° F]	201 Ω
	4°C [39 °F]	204 Ω
Standard	10°C [50 °F]	208 Ω
value	16°C [61 °F]	212 Ω
	21°C [70 °F]	217 Ω
	27°C [81 °F]	221 Ω
	32°C [90 °F]	225 Ω
	38°C [100 °F]	229 Ω
	50°C [122 ° F]	239 Ω
	100°C [212 ° F]	276 Ω
	150°C [302 °F]	313 Ω

- If the measurement is out of reference value, replace the sensor.
 - Measure resistance between each pin to sensor body. Resistance should be greater than 1 $M\,\Omega\,$ (open circuit).



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(7) Humidity and Intake Air temperature sensor



(7.1) inspection of sensor output signal

- Write down the humidity value on FD service #056 at key-on and engine off state. (value A)
- Key off at once and wait for around one second to complete engine after run. Write down again the humidity value at key-on and engine off state. (value B : second time)
- Do once again (value C : third time)
- Compare these three values if the values are inside of below.
 +-10%
- Replace the sensor if the values out of threshold.

(7.2) Check daiagnosis failure code in the past

• Replace the sensor if the diagnosis code of "354-17" or "354-18" was recorded in the failure memory.

TROUBLESHOOTING Inspection procedure

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1.4 Probable cause of diagnostic code occurrence

Diagr	nostic codes that occurred																				
				5	2	2	+	0	-			5	5	31	0	1	16	18	31	5	Remarks
		-15	-17	2-1	12-1	0-1	0–3	2-2	2-2	1-7	2-2	72-	74-	50-	58-	58-	58-	58-	41-	42-	Remains
Parts to be inspec	sted	27	27	10	10	11	11	13	13	17	17	11	11	30	30	30	30	30	32	32	
Atmospheric sens	or (built-in engine ECU.)			0	Ø																*1
Air cleaner															_	-		_			See Gr15
Intake manifold															0	0	0	0			See Gr15
★Metal mesh																					See Gr15
★Position of Air f	low and intake air																				See Gr15
Air flow and	★ Air flow sensor							0	0						0	0	0	0			See Gr13E-#306
intake air								•	•						0		0	0			
temperature sensor	Intake air temperature sensor									0	Ø	0	0								See Gr13E-#306
Humidity and	Humidity sensor																				See Gr13E-#347
intake air temperature sensor	Intake air temperature sensor									Ø	Ø	0	Ø								See Gr13E-#347
Turbocharger															0	0	0	0			See Gr15
VGT position sensor <jp></jp>																					
Water temperature sensor						0	0														See Gr13E-#262
Thermostat						0	0														See Gr14
Intercooler outlet temperature sensor $\langle EPA angle$											0	0	0								*1
EGR cooler outlet temperature sensor(EPA)																					*1
Boost pressure and temperature	★Boost temperature sensor										Ø	Ø	0								See Gr13E-#346
sensor	Boost pressure sensor			0	0																See Gr13E-#346
	EGR valve														0	0	0	0			*2
EGR actuator	position sensor	0	0												0	0	0	0			*2
EGR cooler	I														0	0					See Gr17
Injector															0	0	0	0			See Gr13E-#582
Injection timing																					See Gr11
Pressure sensor (Common rail unit)																				*2
EBS (Exhaust Bra	ke system)														0	0	\bigcirc	0			*2
Lambda sensor														0							*3
Exhaust gas temperature sensor 1																			0	0	See Gr13E-#336
Diesel Oxidation Catalyst																					*3
Exhaust gas temp	erature sensor 2																		0	0	See Gr13E-#336
DPF																					*3
DPF differential pressure sensor																					See Gr13E-#334
★SCR temperature sensor1																			0	0	See Gr13E-#336
★SCR temperatu	re sensor2																		0	0	See Gr13E-#336
★NOx sensor														0							

©: Major probable causes for diagnostic code occurrence

O: Possible causes for diagnostic code occurrence

*1:See Gr13E "FUSO Diagnostics Service Data (Actual values)"

*2:See Gr13E "FUSO Diagnostics Actuator Test (Actuations)"

*3 Contact nearest Mitsubishi-Fuso dealer.

TROUBLESHOOTING Inspection procedure

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Diagr	ositic codes that occurred							¢	4										
								20 +	21 ×	20	21	5	2	0	-	0	-	Ģ	
		i−2	5-31)-2	7-12	3-12)-12	92-	92-	93-	93-	-01-	-10-	11-	211-	212-	212-	213-	Remarks
Parts to be inspec	sted	3244	3245	3246	3597	3598	3596	5201	5201	5201	5201	5202	5202	5202	5202	5202	5202	5202	
Atmospheric sens	or (built-in engine ECU.)																	-,	*1
Air cleaner								0	O	0	0		_						See Gr15
Intake manifold								0	0	0	0								See Gr15
★Metal mesh								0	0	0	0								See Gr15
★Position of Air f	low and intake air																		See Crif
temperature sense	or							0	0	0	0								See Grij
Air flow and	★Air flow sensor							0	0	0	0								See Gr13E-#306
intake air temperature sensor	Intake air temperature sensor																		See Gr13E-#306
Humidity and	Humidity sensor						0												See Gr13E-#347
intake air	Intake air temperature												-						
temperature sensor	sensor																		See Gr13E-#347
Turbocharger								0	0	0	0								See Gr15
VGT position sensor <jp></jp>					\odot														
Water temperature sensor												0							See Gr13E-#262
Thermostat																			See Gr14
Intercooler outlet	temperature sensor(EPA)																		*1
EGR cooler outlet	temperature sensor(EPA)																		*1
Boost pressure and temperature	★Boost temperature sensor							Ø	Ø	Ø	Ø	Ø							See Gr13E-#346
sensor	Boost pressure sensor					0		0	0	0	0								See Gr13E-#346
	EGR valve							0	0	0	0								*2
EGR actuator	\star position sensor						0	0	0	0	0								*2
EGR cooler								0	0	0	0								See Gr17
Injector													0	0	\odot	\odot	0	0	See Gr13E-#582
Injection timing													0	0	0	0	0	0	See Gr11
Pressure sensor (Common rail unit)					0													*2
EBS (Exhaust Bra	ke system)							0	0	0	0								*2
Lambda sensor																			*3
Exhaust gas temperature sensor 1		0	0	0															See Gr13E-#336
Diesel Oxidation (Catalyst																		*3
Exhaust gas temp	erature sensor 2	Ô	0	0															See Gr13E-#336
DPF																			*3
DPF differential pressure sensor							$^{\odot}$	0	0	0	0								See Gr13E-#334
★SCR temperatu	re sensor1		0	$^{\odot}$															See Gr13E-#336
★SCR temperatu	re sensor2		0	0															See Gr13E-#336
★NOx sensor																			

©: Major probable causes for diagnositic code occurrence

O: Possible causes for diagnositic code occurrence

*1:See Gr13E "FUSO Diagnostics Service Data (Actual values)"

*2:See Gr13E "FUSO Diagnostics Actuator Test (Actuations)"

*3 Contact nearest Mitsubishi-Fuso dealer.

*4: For this diagnositic code inspection refer to "1.3 (2) Air flow & intake air temperature sensor (air flow sensing section)"

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Diagr	nositic codes that occurred	13-1	14-0	14-1	30-2	40-0	52-0	52-1	53-0	53-1	54-0	54-1	155-0	55-1	64-2	0-6/	1-6/1	91–2	Remarks
Parts to be inspec	oted	5202	5202	5202	5203	5203	5203	5203	5203	5203	5203	5203	5203	5203	5203	5203	5203	5204	
Atmospheric sens	or (built-in engine ECU.)																		*1
Air cleaner																			See Gr15
Intake manifold																			See Gr15
★Metal mesh																			See Gr15
★Position of Air f	flow and intake air																		See Cr15
temperature sense	or																		See Grij
Air flow and	★Air flow sensor															0	0		See Gr13E-#306
intake air temperature sensor	Intake air temperature sensor																		See Gr13E-#306
Humidity and	Humidity sensor																		See Gr13E-#347
intake air temperature sensor	Intake air temperature sensor																		See Gr13E-#347
Turbocharger																			See Gr15
VGT position sensor <jp></jp>																			
Water temperature sensor																			See Gr13E-#262
Thermostat																			See Gr14
Intercooler outlet temperature sensor(EPA)																			*1
EGR cooler outlet temperature sensor(EPA)						0													*1
Boost pressure and temperature	★Boost temperature sensor																		See Gr13E-#346
sensor	Boost pressure sensor																		See Gr13E-#346
	EGR valve					0													*2
EGR actuator	\star position sensor					0													*2
EGR cooler	·					0													See Gr17
Injector		0	0	0			0	0	0	0	0	0	0	0		0	0		See Gr13E-#582
Injection timing		0	0	0															See Gr11
Pressure sensor (Common rail unit)						0	0	0	0	0	0	0	0		0	0		*2
EBS (Exhaust Bra	ke system)																		*2
Lambda sensor							0	0	0	0	0	0	0	0		0	0		*3
Exhaust gas temp	erature sensor 1														0			0	See Gr13E-#336
Diesel Oxidation (Datalyst																	0	*3
Exhaust gas temp	erature sensor 2														0			$^{\odot}$	See Gr13E-#336
DPF																			*3
DPF differential p	ressure sensor																		See Gr13E-#334
★SCR temperatu	re sensor1				\bigcirc										0				See Gr13E-#336
★SCR temperatu	re sensor2				0										0				See Gr13E-#336
★NOx sensor																			

©: Major probable causes for diagnositic code occurrence

O: Possible causes for diagnositic code occurrence

*1:See Gr13E "FUSO Diagnostics Service Data (Actual values)"

*2:See Gr13E "FUSO Diagnostics Actuator Test (Actuations)"

*3 Contact nearest Mitsubishi-Fuso dealer.

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1.5 Procedure of eliminate the warning lamp <EPA>

(1) The case of the mileage or running time of after diagnostic code was occurred are less than 320km{200miles} or 4 hours. (Torque and power is restricted)

Control unit					
Selection Current Value Group	Cu	mont Va	lues		
Sneed values	-	ID	Description	Value	Targets/Limits
Air mass (specified value)	0	168	Item (Engine brake Solenoid valve)	0.0000%	
Torque values Injection quantity	0	170	Signal voltage of component 'Torque sensor 'Power take-off'	0.0000%	30.00001
Vehicle mileage		781	Smoke limit	0.000kg	
Time		725	Exhaust gas volume flow rate (Diesel	0.000m*3/s	
Efficiency of catalytic converter Diesel particulate filter	0	159	exidation catalytic converter BACK) Exhaust gas recirculation actuator	0.0000%	[5.0000
EGR		872	NOx values	0-	100
VGT		686	Fill level of NOx storage catalytic	0.0000kg	
Urea values	100	538	Status of function 'Control of exhaust	00 00 00 00	
Engine brake	7/6	de:			-
Status					
Switch status					
Status of glow system					
Other actual values					
Display of all actual values					
Paula Scarring	A.C. Inc		Store Range and View	Those Scope Verse	1

- Turn the starter switch to the OFF position, wait at least 60 seconds and complete the after-run.
- Turn the starter switch to the ON position and after a lapse of 10 seconds or longer, start the engine.
- Drive the vehicle at 80 km/h about for 30 minutes to collect the service data (actual measurements) using FUSO Diagnostics. Then check to confirm that the NOx sensor is active (NOx value of FUSO Diagnostics other than "-1-" is indicated).(The value of SCR temperature sensor 1 is more than 250°C [482°F])
- After running of above procedure, check the warning lamp is eliminated.

(2) The case of the mileage or running time of after diagnostic code was occurred are more than 320km{200miles} or 4 hours. (Creep mode)

- Turn the starter switch to the OFF position, wait at least 60 seconds and complete the after-run.
- Turn the starter switch to the ON position and after a lapse of 10 seconds or longer, start the engine.
- Warm up the engine until the engine coolant temperature exceeds 60°C {140 $^\circ$ F}.
- Press the Diesel Particulate Filter cleaning switch to perform the manual regeneration of Diesel Particulate Filter. In the manual regeneration, the engine speed increases to 1500 - 2500 rpm and it takes approximately 20 minutes to complete the manual regeneration.
- After that, the engine speed drops to idle and warning goes out. It may not go out immediately and it can take 10 minutes for the lamp to go out.