CAT® Lift Trucks

Service Manual

Chassis & Mast — MC/FC

GP15N	ET34L-02001-up
GP18N	ET34L-42001-up
GP20CN	ET34L-61001-up
GP20N	ET17DL-01001-up
GP25N	ET17DL-53001-up
GP30N	ET13FL-02001-up
GP35N	ET13FL-51001-up
DP15N	ET16D-01001-up
DP18N	ET16D-41001-up
DP20CN	ET16D-61001-up
DP20N	ET18C-01001-up
DP25N	ET18C-55001-up
DP30N	ET14E-04001-up
DP35N	ET14E-53001-up

For use with S4Q2, S4S and K21/K25 Engine Service Manuals.

99719-6M110

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Chapter 1 GENERAL INFORMATION

1. Model View 1-1
2. Truck Models Covered 1-2
3. Serial Number Locations 1-3
4. Dimensions 1-4
5. Technical Data 1-5
6. Performance 1-7

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8. Electrical Schematic

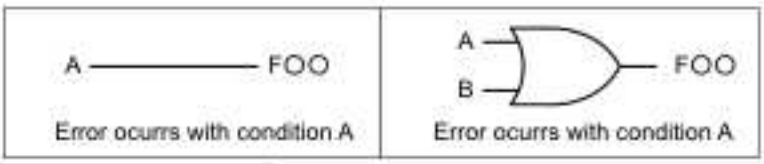
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10.2 Troubleshooting

10.3 Diagnosis Table (F Code)

10.3.1 Error Code Table

Error descriptions

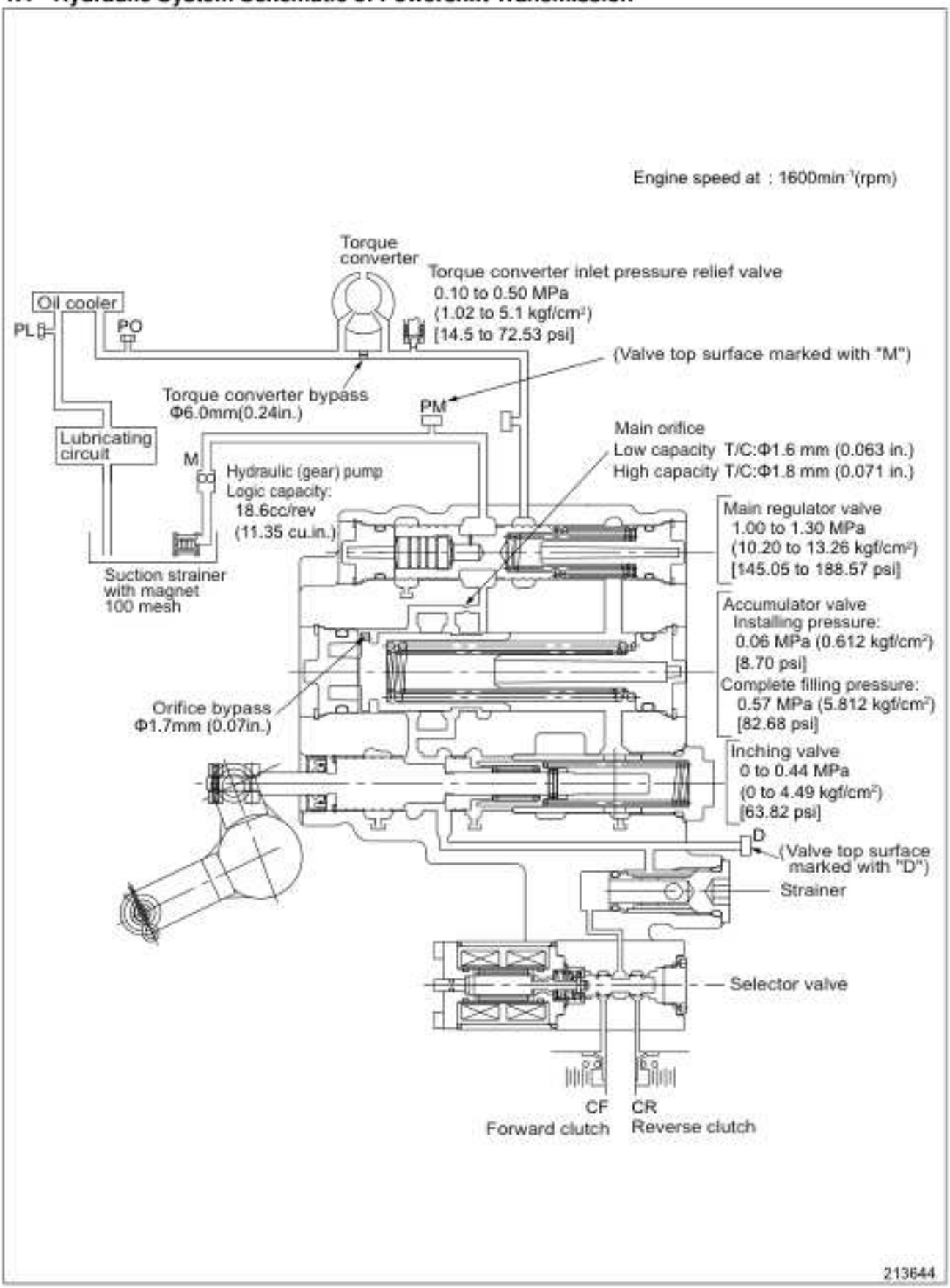
Diagnosis	Lift lever neutral error (F10) — Error name and error code
Logic conditions	Input signal < 2.3V Input signal < 2.7V (with the key in ON position) — Error logic conditions  
Recovery	Recovers automatically when the lever is placed in neutral. — Error recovery condition
Action	Turn OFF all solenoid outputs of operating functions. — Actions to be taken when errors occur
LED blink pattern	C — See "LED light emitting pattern" of "10.3.2 LED blink pattern."

Diagnosis	VCM Memory error (F01)
Logic conditions	EEPROM Sum check value Controller type unmatched (with the key in ON position) 
Recovery	Turn on power again.
Action	Stop the operation of controller (excluding GSE and CAN communication)
LED blink pattern	B

Diagnosis	VCM Battery voltage fault (F02)
Logic conditions	Power supply voltage is 7V or less Power supply voltage is 21V or more (1 second's continuity) 
Recovery	Recovers automatically
Action	Turn OFF the all solenoid outputs.
LED blink pattern	B

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1.4 Hydraulic System Schematic of Powershift Transmission



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5.6 Forward Input Shaft Gear Assembly, Reassembly

5.6.1 Forward clutch piston, Reassembly

(1) Place the input shaft on the special tool (stand, 91A68-01300).

Part name	Part number
Stand	91A68-01300

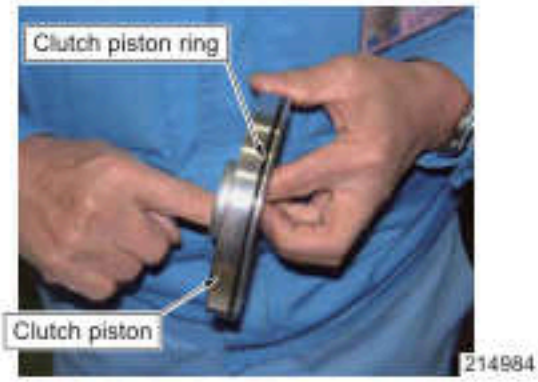


(2) Install seal ring to input shaft.

Part name	Part number	Quantity
Seal ring	65425-03300	1

(3) Install piston ring to forward clutch piston.

Part name	Part number	Quantity
Clutch piston	91A24-21500	1
Piston ring	65425-13000	1

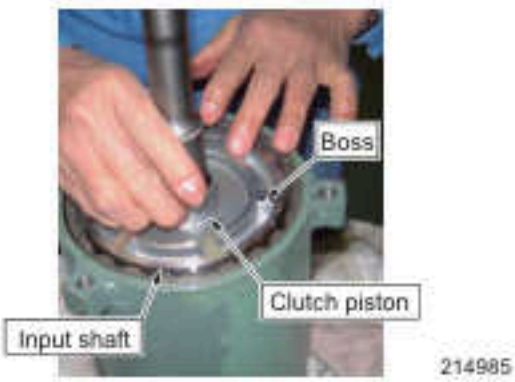


(4) Apply oil to piston ring and sliding area of clutch piston.

(5) Install input shaft to clutch piston.

(6) Using a wooden bar, install clutch piston.

Note: When installing the clutch piston with a wood bar, be sure to tap on the boss of clutch piston.



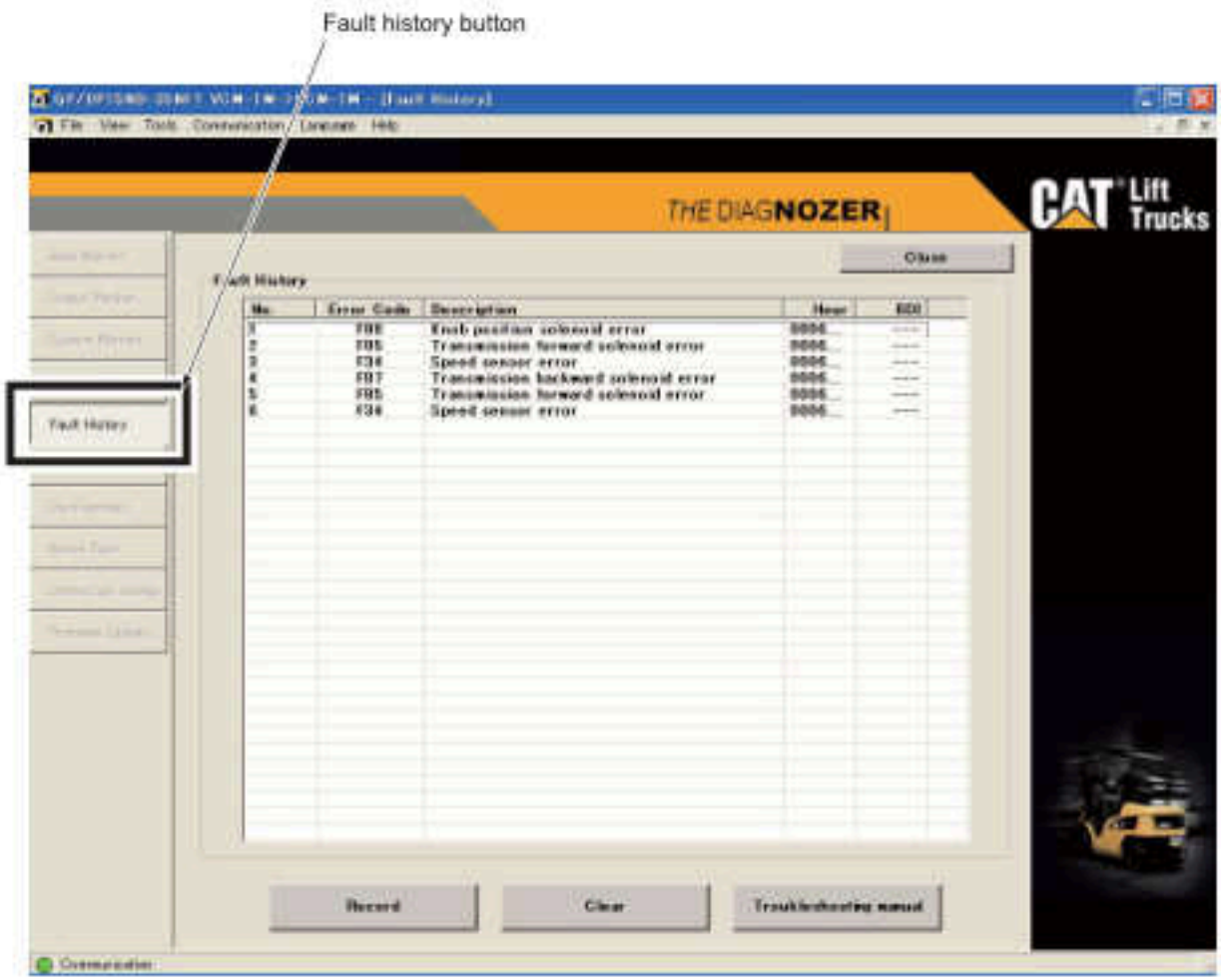
(7) Install clutch spring and spring retainer.



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(5) Error history

Click fault history button from the menu or toolbox to read past faults stored in the memory of controller. If the read is successfully completed, the dialog box displays "Read successful" message. If not, "Read error" message is displaced, and the fault history monitor screen will be displayed in the main windows.



214893

When the read is successful



Success dialog

214894

When the read is unsuccessful

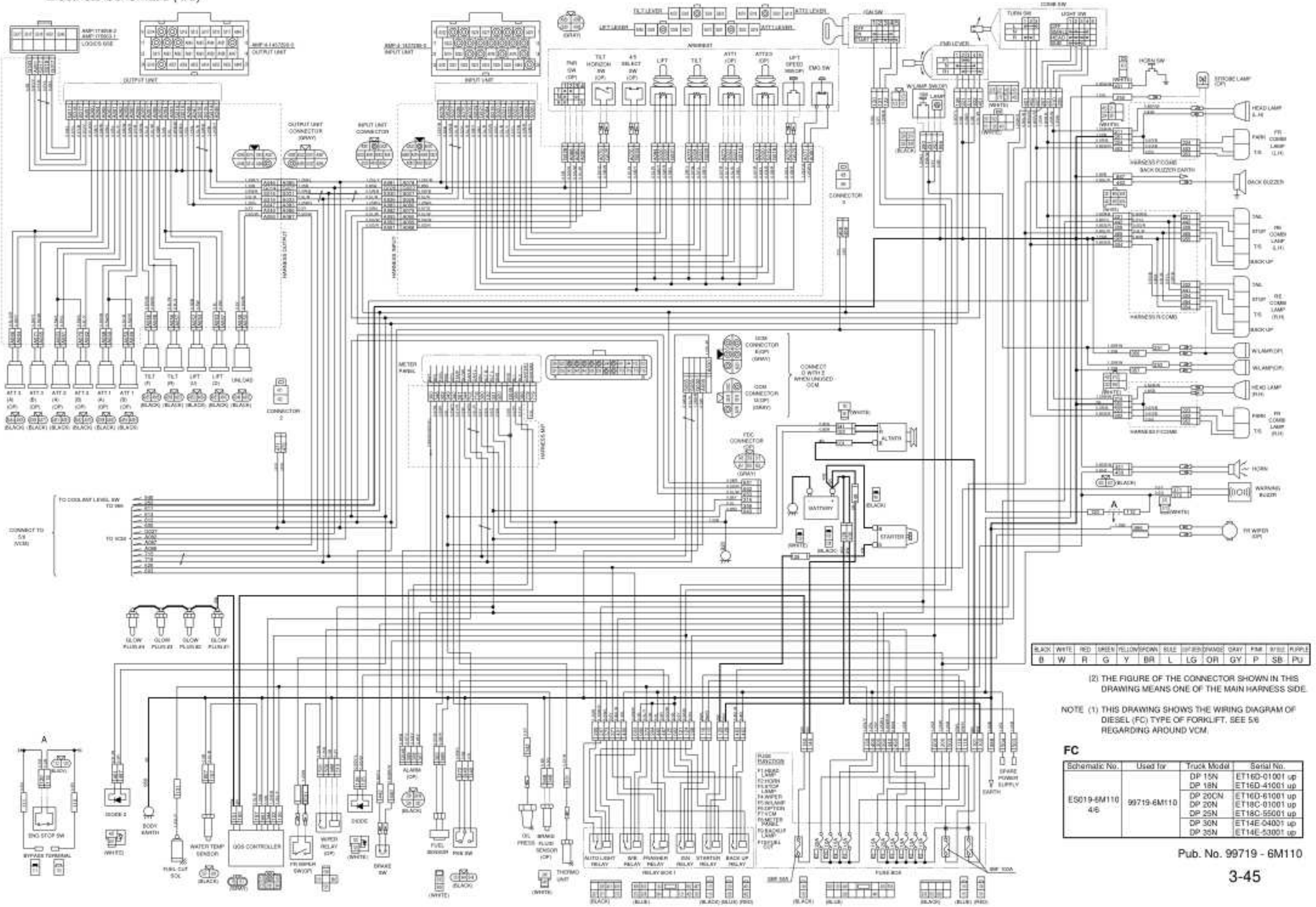


Error dialog

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Electrical Schematic (4/6)



BLACK	WHITE	RED	GREEN	YELLOW	BROWN	BLUE	LIGHT GREEN	ORANGE	GRAY	PINK	SKY BLUE	PURPLE
B	W	R	G	Y	BR	L	LG	OR	GY	P	SB	PU

(2) THE FIGURE OF THE CONNECTOR SHOWN IN THIS DRAWING MEANS ONE OF THE MAIN HARNESS SIDE.

NOTE (1) THIS DRAWING SHOWS THE WIRING DIAGRAM OF DIESEL (FC) TYPE OF FORKLIFT. SEE 5/6 REGARDING AROUND VCM.

FC

Schematic No.	Used for	Truck Model	Serial No.
ES019-6M110 4/6	99719-6M110	DP 15N DP 18N	ET16D-01001 up ET16D-41001 up
		DP 20CN DP 20N DP 25N	ET16D-61001 up ET18C-01001 up ET18C-55001 up
		DP 30N DP 35N	ET14E-04001 up ET14E-53001 up

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