CAT® Lift Trucks

Service Manual

Chassis & Mast

MC/FC

2P3000	AT34-30121-49999
2P3500	AT34-30121-49999
2PC4000	AT34-80121-99999
2P4000	AT35-30121-49999
2P5000	AT35-30121-49999
2P5500	AT36-30121-49999
2P6000	AT13F-30121-49999
2P6500	AT13F-80121-99999
2P7000	AT13F-80121-99999
2PD4000	AT18C-30121-49999
2PD5000	AT18C-30121-49999
2PD5500	AT37-30121-49999
2PD6000	AT14E-30121-49999
2PD6500	AT14E-80121-99999
2PD7000	AT14E-80121-99999
GP15NM	AT34-T0100-T9999
GP18NM	AT34-W0100-W9999
GP20CNM	AT34-P0100-P9999
GP20NM	AT17D-P0100-P9999
GP25NM	AT17D-T0100-T9999
GP25NM-HP	AT35-T0100-T9999
GP30NM	AT13F-P0100-P9999
GP35NM	AT13F-T0100-T9999

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

99719-8M110

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5.4 When An Error Occurs

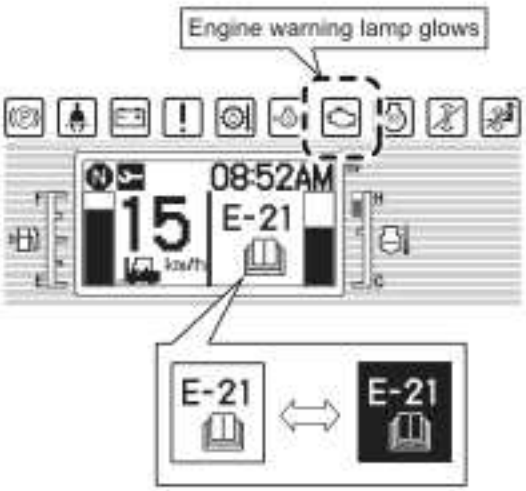
When an error occurs, the screen displays the corresponding error code. The error code will be erased by placing the key switch to the ON position after solving the cause of the trouble and then by turning the key switch to the OFF position. (The error code remains displayed on the screen until the cause of the trouble is removed.)

Refer to the engine service manual for the error codes relating to engine troubles (error codes from ECM).

The order of error display is; engine failures, serious failures and minor failures.

5.4.1 When an engine failure occurs

The corresponding error code is displayed in the main area, and the black and white in the error code display is reversed. Also the engine warning lamp glows.

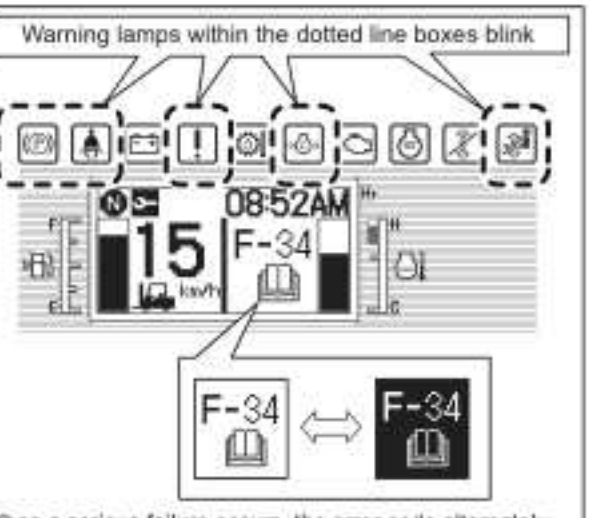


When an engine failure occurs, the error code alternately changes between black characters on a white background and white characters on a black background.

215135

5.4.2 When a serious failure occurs

The corresponding error code is displayed in the main area, and the black and white in the error code display is reversed. Also all warning lamps shown in the figure (right) blinks.



When a serious failure occurs, the error code alternately changes between black characters on a white background to white characters on a black background.

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b. Adjust the clearance to 1.0 mm (0.039 in.), between push rod and piston of the brake master cylinder **2**. To do this, turn the push rod clockwise until it contacts the piston, then turn it back counterclockwise for approx. 0.8 turns, and finally secure the clevis with nut. After this adjustment, check the brake pedal play.

Brake pedal free play	1.5 to 6.5 (0.06 to 0.26)

Unit: mm (in.)

(2) Inching pedal, adjustment

a. Adjust the height A of the inching pedal from the floor plate top surface to the inching pedal top surface to the following standard value with the stopper bolt **3**, and lock it when the standard value is obtained.

Inching pedal height A	187.6 to 191.6 (7.39 to 7.54)

Unit: mm (in.)

b. Adjust the clearance b between the end of bolt and the brake link in the portion B to the following value and lock it firmly with the nut.

Item	1 ton class	2-3 ton classes
Clearance b between bolt end and brake link	10 (0.39)	11.6 (0.46)

Unit: mm (in.)

(3) Stop light switch, adjustment

a. Adjust the stop light switch position so that the stop light glows for sure when the brake pedal is pressed, and mount the switch into position.

Stop light switch mounting position C	0.5 to 1.0 (0.020 to 0.039)

Unit: mm (in.)

6.8.3 INCHING CABLE, ADJUSTMENT START BY

(1) Block the rear wheels, then raise the front wheels observing the procedure described in the preceding oil pressure measurement section. Connect an oil pressure gauge to the oil pressure tap (position D in the illustration).

(2) Make sure that the projection of the inching rod is 33.5 to 34.5 mm (1.32 to 1.36 in.).

(3) Insert 0.5mm (0.020in.) thick shim between inching pedal stopper and inching pedal stopper bolt 3 so that the play of inching cable is 0 mm (0 in.).

(4) Tighten the inching cable locknut 3.

(5) Remove the 0.5 mm (0.020 in.) thick shim.

(6) Make sure that the inching pedal stopper has contact with the stopper bolt.

(7) Lightly press the inching pedal by hand, and make sure that the clearance A between inching pedal stopper and stopper bolt is 0.4 to 1.1 mm (0.016 to 0.0039 in.) when the inching lever is just about to move.

⚠ CAUTION

If the play of inching cable is not properly adjusted, the following failure will occur.

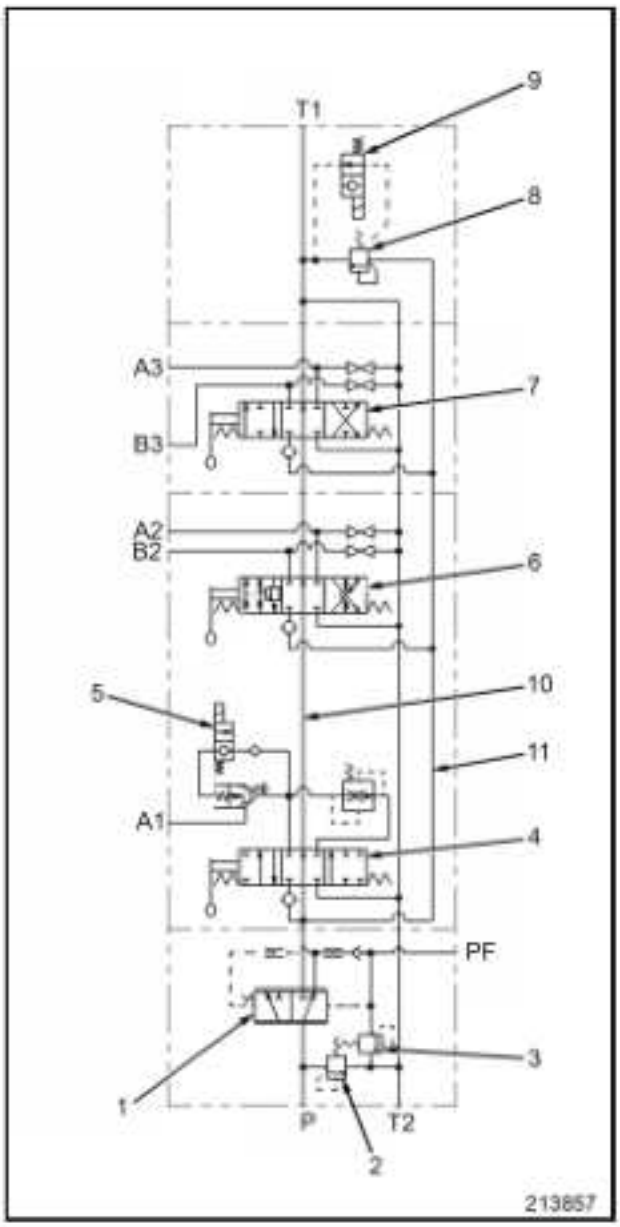
1) When the play is less than 0.4 mm (0.016 in.): Even if the inching pedal is not pressed, or when the operator has put his/her foot on the inching pedal lightly, the clutch oil pressure decreases, and the clutch slips. This results in the premature wear or burnout of friction plates.

2) When the play is more than 1.1 mm (0.0039 in.)
Even if the inching pedal is fully depressed, the clutch oil pressure will not decrease enough to disengage the clutch completely. This results in premature wear or burnout of friction plates.

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11.6..2 HYDRAULIC CIRCUIT DIAGRAM OF MC HYDRAULIC CONTROL VALVE

- For the entire diagram of the hydraulic system, see "Hydraulic Circuit Diagram (for Models with MC Control Valve), Page 11-3".



P : SUPPLIED OIL FROM PUMP

PF : TO STEERING VALVE

T2 : RETURN FROM STEERING VALVE

T1 :TO HYDRAULIC TANK

A1 :TO LIFT CYLINDER

A2 : TO TILT CYLINDER ROD END

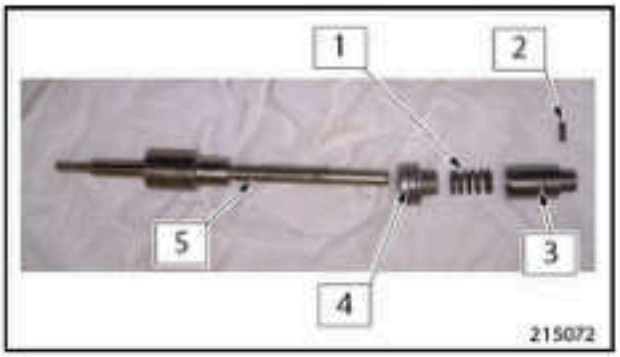
B2 : TO TILT CYLINDER HEAD END

A3 : TO ACTUATOR FOR ATTACHMENT VALVE

B3 : TO ACTUATOR FOR ATTACHMENT VALVE

1. PRIORITY VALVE
2. MAIN RELIEF VALVE
3. STEERING SYSTEM RELIEF VALVE
4. LIFT VALVE
5. SECOND VALVE (OPERATES IN CONJUNCTION WITH LIFT LOWERING SWITCH)
6. TILT VALVE
7. ATTACHMENT VALVE
8. UNLOAD VALVE
9. SOLENOID FOR UNLOAD VALVE
10. CENTER BYPASS PORT
11. PARALLEL FEEDER

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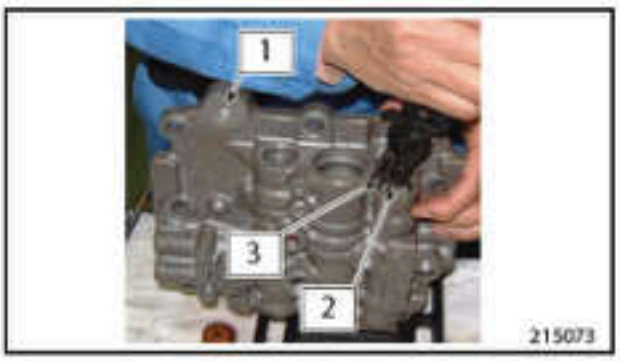
1. INCHING VALVE SPRING
2. SPRING PIN
3. INCHING STOPPER 2
4. INCHING VALVE
5. INCHING ROD

6.6.8 OIL SEAL AND PLUG, REMOVAL

6.6.8.1 REGULATOR VALVE SECTION

(1) With inching lever mounting portion faced upward, hold the control valve body in a vise.

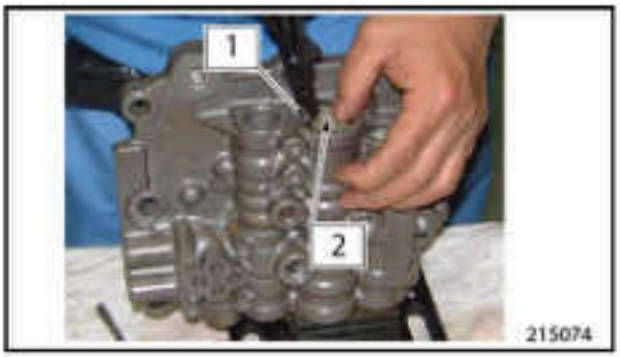
(2) Remove the snapring from regulator valve section, and remove the main relief plug together with O-ring.



1. INCHING LEVER MOUNTING PORTION
2. MAIN RELIEF PLUG
3. SNAPRING

6.6.8.2 ACCUMULATOR VALVE SECTION

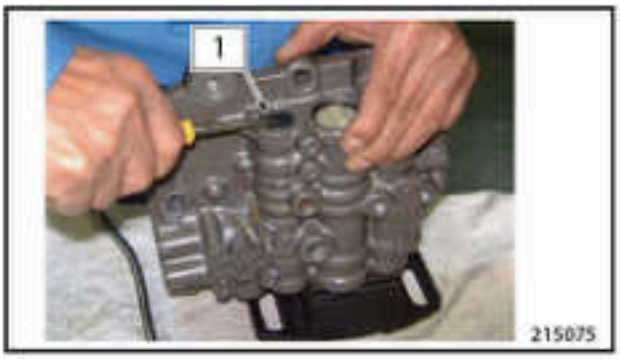
Remove the snapring from accumulator valve section, and remove the accumulator plug together with O-ring.



1. SNAPRING
2. ACCUMULATOR PLUG

6.6.8.3 INCHING VALVE SECTION

(1) Remove the inching rod oil seal.



1. INCHING ROD OIL SEAL

(2) Remove the snapring from inching valve section.

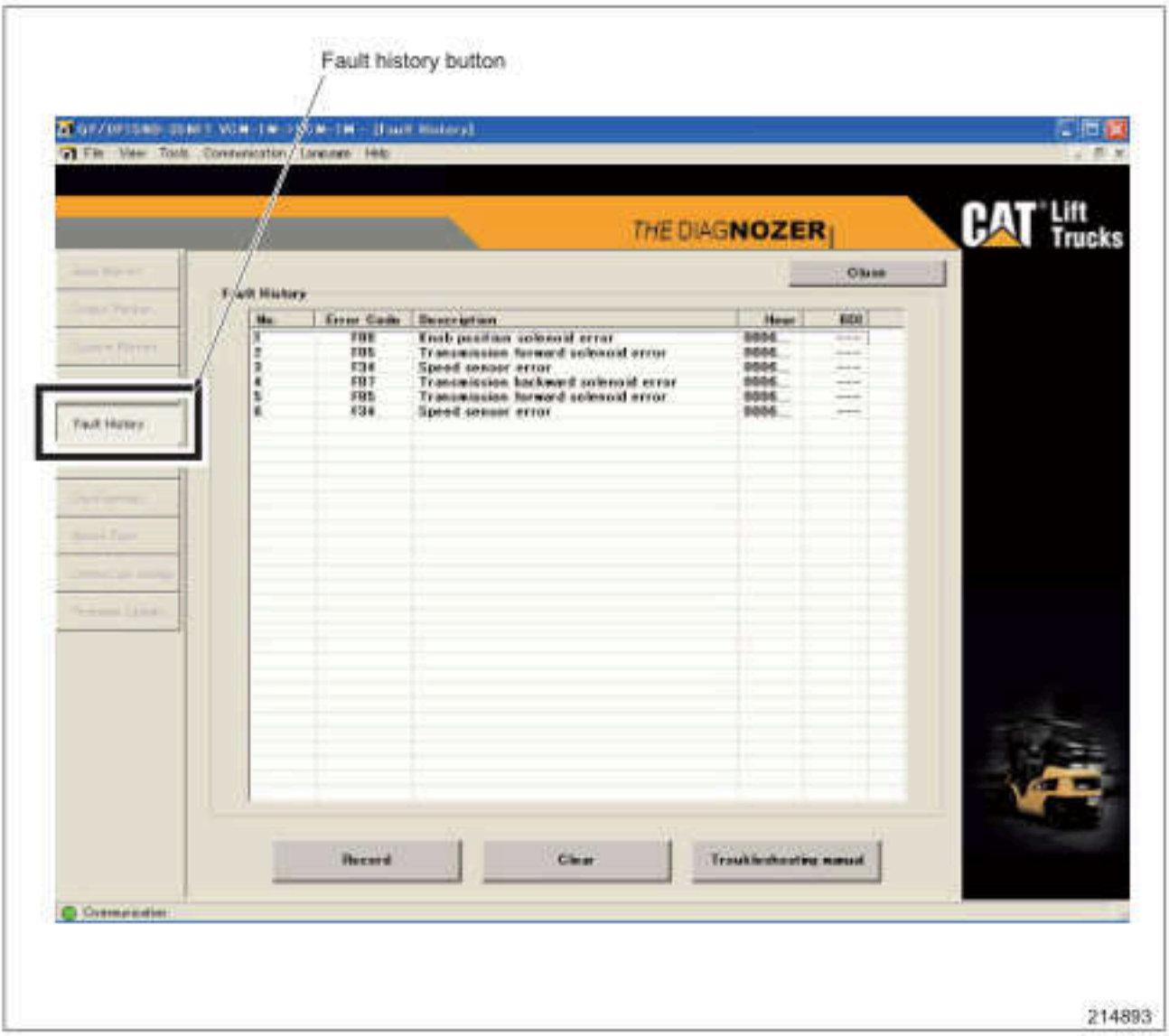


1. SNAPRING

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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.



When the read is successful



Success dialog

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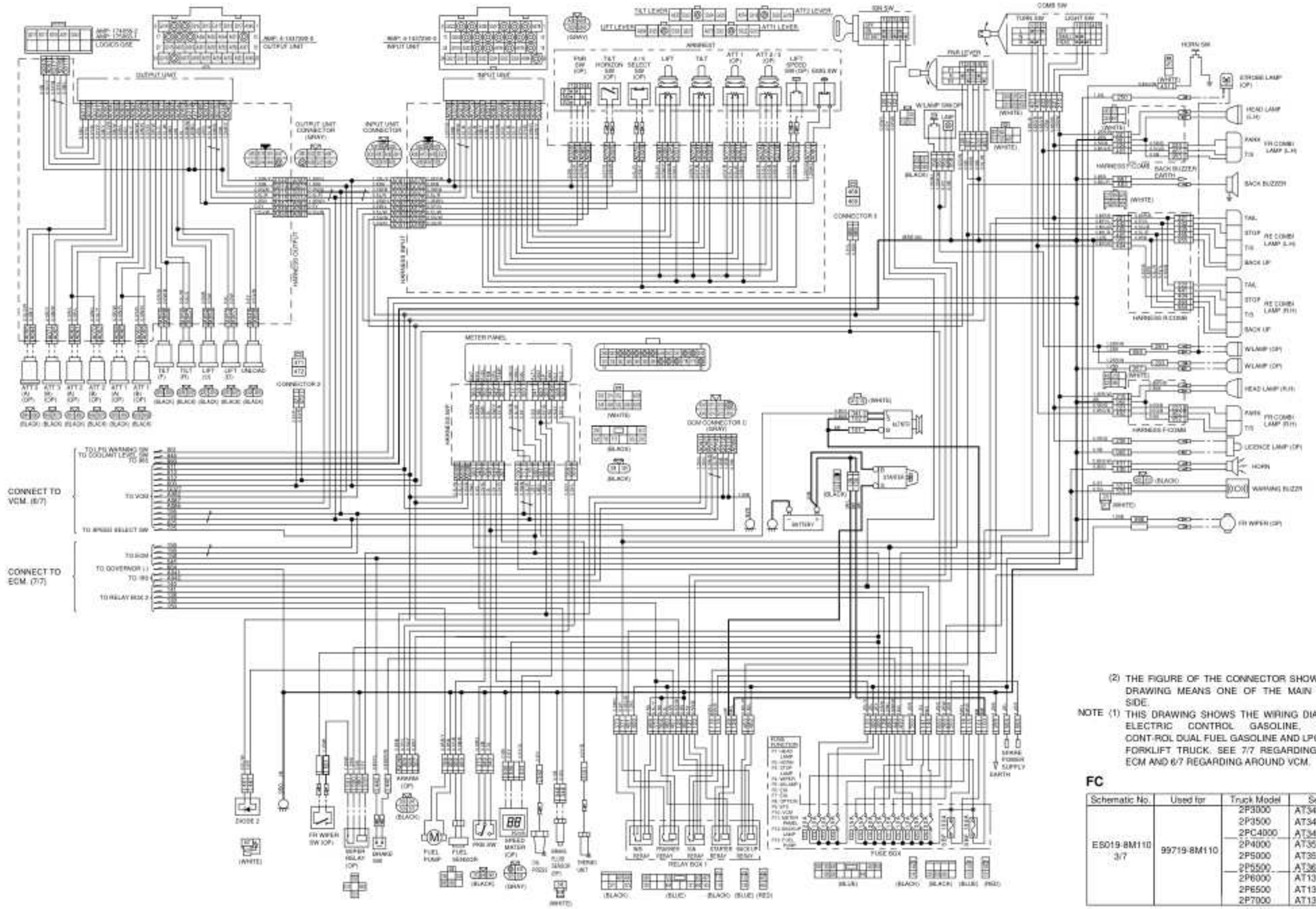
When the read is unsuccessful



Error dialog

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(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 ELECTRIC CONTROL GASOLINE, ELECTRIC CONT-ROL DUAL FUEL GASOLINE AND LPG TYPE OF FORKLIFT TRUCK. SEE 7/7 REGARDING AROUND ECM AND 6/7 REGARDING AROUND VCM.

FC

Schematic No.	Used for	Truck Model	Serial No.
ES019-8M110 3/7	99719-8M110	2P3000	AT34-30121 up
		2P3500	AT34-30121 up
		2PC4000	AT34-80121 up
		2P4000	AT35-30121 up
		2P5000	AT35-30121 up
		2P5500	AT35-30121 up
		2P6000	AT13F-30121 up
		2P6500	AT13F-80121 up
		2P7000	AT13F-80121 up

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