



Service Manual

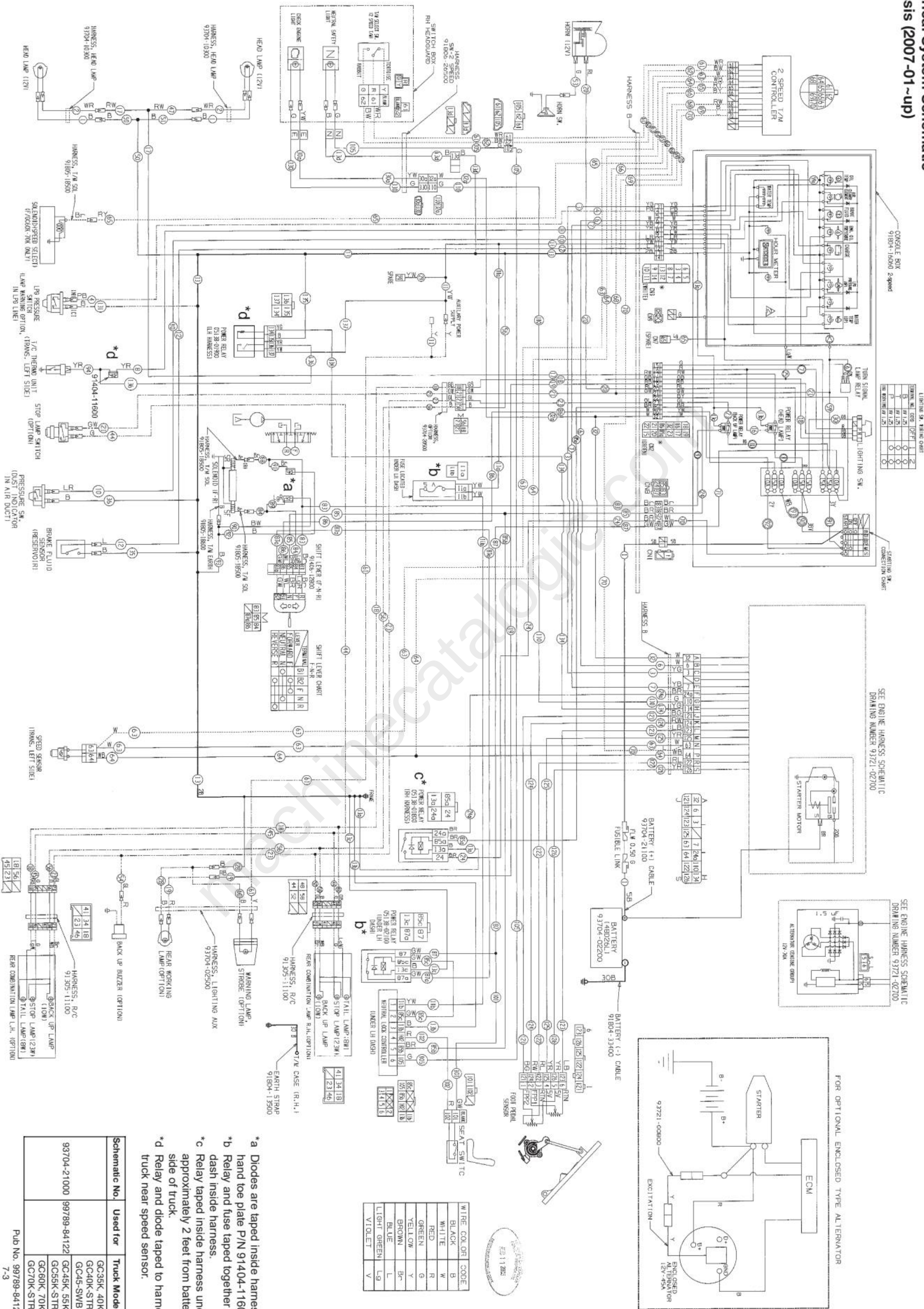
GM 4.3L, G6 Engine LPG Fuel System Supplement

GC35K	AT87A-10231-up
GC40K	AT87A-10231-up
GC40K-STR	AT87A-10231-up
GC45K-SWB	AT87A-10231-up
GC45K	AT88A-10231-up
GC55K	AT88A-10231-up
GC55K-STR	AT88A-10231-up
GC60K	AT89A-10231-up
GC70K	AT89A-10231-up
GC70K-STR	AT89A-10231-up

4 — LPG SYSTEM DIAGNOSIS

Step	Action	Value(s)	Yes	No
6	- Connect a calibrated 0-5" PSI pressure gauge to the primary pressure test port of the EPR. - Make sure the manual shut-off valve is open and turn the ignition to ON. - Crank the engine and observe the pressure gauge. - Does the pressure gauge indicate the proper primary fuel pressure?	2.0 – 4.0 PSI	Go to Step 7	If NO pressure was indicated, Go to Step 14 If LOW or HIGH pressure was indicated, Go to Step 15
7	LPG is a gaseous fuel and requires higher secondary ignition voltages than gasoline fueled engines. Check the ignition system for proper ignition secondary voltage output with J 26792 or equivalent. Remove the spark plugs and check for the following: - Correct plug type for LPG application. - Wet electrodes (oil fouling) - Cracks - Wear - Improper gap - Burned electrodes - Heavy deposits Were any faulty conditions found in the ignition system check?		Correct the faulty condition and Go to Step 20	Go to Step 8
8	Perform a leak-down test on the engine. Are all cylinder leak-down test results within specification?	<10% leakage	Go to Step 12	Repair the engine as necessary and Go to Step 20
9	- Turn OFF the manual fuel shut-off valve. - Start the engine and let it run until it dies. - Remove the LPG Temperature Sensor from the EPR (DO NOT disconnect the electrical connector). - Inspect the inside of the low-pressure fuel supply hose for heavy-end deposits. Are there any deposits built-up in the low-pressure fuel supply hose?		Go to Step 16	Go to Step 10

Electrical System Schematic
Chassis (2007-01~up)



FUNCTIONAL CHECK

Any blow-by in excess of the system capacity, from a badly worn engine, sustained heavy load, etc., is exhausted into the air cleaner and is drawn back into the engine.

Proper operation of the crankcase ventilation system depends on a sealed engine. If irregular oil flow or dilution is noted and the crankcase ventilation system is functioning properly, check the engine for another possible cause. Correct any of these problems first.

If an engine is idling rough, inspect for a clogged PCV orifice, a dirty vent filter, air cleaner element, or plugged hose. Replace any faulty items found. Use the following procedure:

1. Remove the PCV hose from the rocker arm cover.
2. Operate the engine at idle.
3. Place your thumb over the end of the hose in order to check for vacuum. If there is no vacuum at the hose end, inspect for plugged hoses and/or clogged or damaged manifold vacuum port.
4. Turn the engine OFF.
5. Inspect the PCV orifice in the valve cover for debris or blockage. Clean with carburetor cleaner as necessary.

ELECTRONIC PRESSURE REGULATOR (EPR)

REMOVAL PROCEDURE

1. Disconnect the negative battery cable.
2. Relieve the propane fuel system pressure. Refer to *Propane Fuel System Pressure Relief*.
3. Disconnect Shut-Off Valve electrical connector.
4. Disconnect the LPG fuel inlet line from the Shut-Off Valve fitting.
5. Clamp both coolant lines near the EPR fittings.
6. Disconnect the supply and return coolant lines from the EPR.
7. Disconnect the EPR electrical connector.
8. Remove the retaining pins from the water inlet and outlet fittings, fuel hose and Temperature Sensor.
9. Remove coolant inlet and outlet fittings, fuel hose and Temperature Sensor.
10. Remove the nuts securing the EPR to the lower EPR Mounting Bracket.
11. Remove the EPR and bracket assembly.
12. Remove the bolts attaching the EPR to the upper EPR bracket
13. Remove the screw from the top of the Shut-Off Valve and remove the coil.
14. Remove Shut-Off Valve from the EPR with brass fittings and as a single assembly.
15. Remove Vibration mounts from EPR.

If the Single S/N password entered is correct for the software but does not match the entered S/N of the targeted ECM, the prompt in Figure 3 will be displayed.

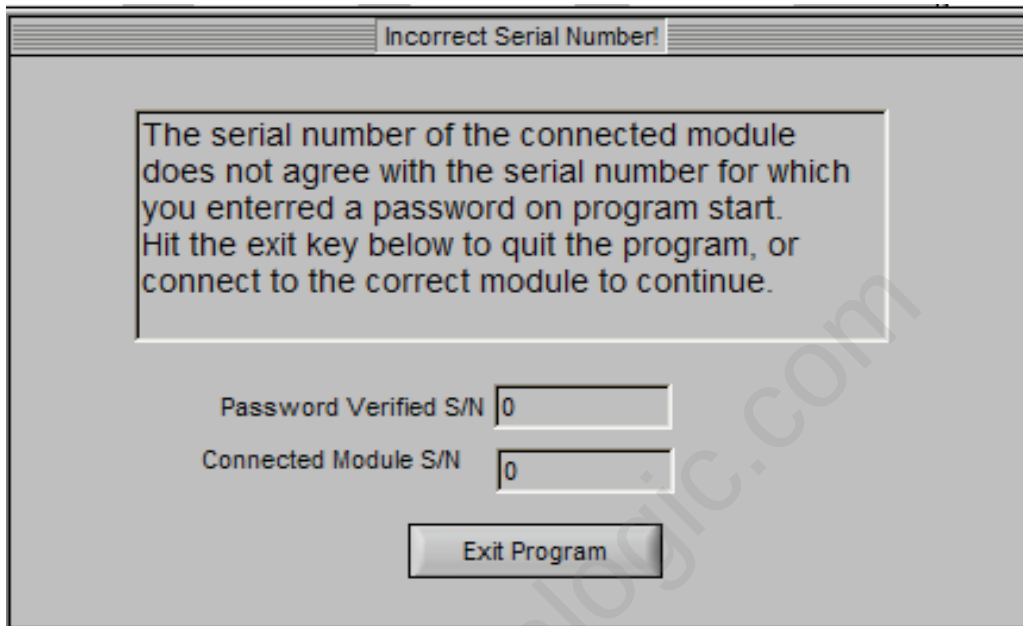


Figure 3: Incorrect Serial Number Message

Figure 4 shows the communication status if a valid software password is entered when attempting to connect to an ECM with a different key. In this instance the software will load but will not connect to the target (ECM).



Figure 4: Not Authorized to Connect Message

In the event you receive this error message call your OEM support group for more information.

REPAIRING TWISTED LEADS



1. Locate Damaged Wire.
2. Remove insulation as required.



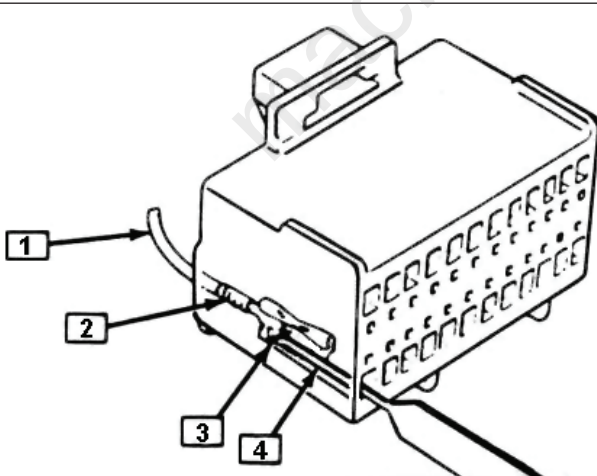
3. Splice two wires together using splice clips and rosin core solder.



4. Cover splice with tape to insulate from other wires.
5. Retwist as before and tape with electrical tape and hold in place.

MICRO-PACK

Refer to Figure 2 and repair procedure for replacement of a Micro-Pack terminal.

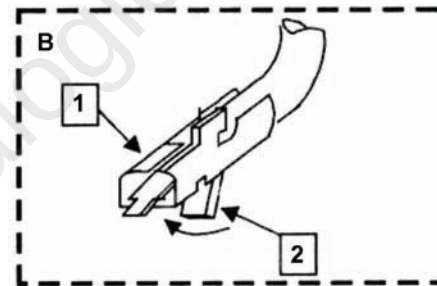
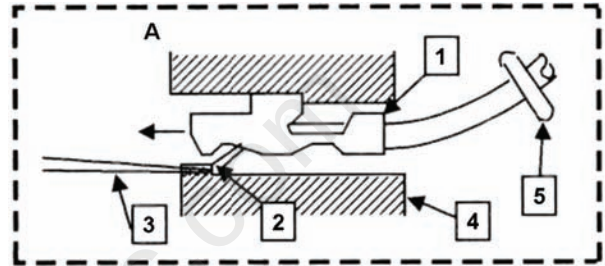


Micropack Connector

1. Cable
2. Terminal
3. Locking Tang
4. Tool J33095/BT8234-A

METRI-PACK

Some connectors use terminals called Metri-Pack Series 150. They are also called "Pull-To-Seat" terminals because of the method of installation. The wire is inserted through the seal and connector, the terminal is crimped on the wire and then pulled back into the connector to seat it in place.



Metri-Pack Series 150 Terminal Removal

1. Slide the seal back on the wire.
2. Insert tool BT-8518, or J 35689, or equivalent, as shown in insert "A" and "B" to release the terminal locking tab (2).
3. Push the wire and terminal out through the connector. If reusing the terminal, reshape the locking tab (2).

WEATHER-PACK

A Weather-Pack connector can be identified by a rubber seal, at the rear of the connector. The connector is used in the engine compartment to protect against moisture and dirt that may oxidize and/or corrode the terminals. Given the low voltage and current levels found in the electronic system, this protection is necessary to ensure a good connection.

Full Version Available

Caterpillar GC45K Forklift LPG Service Manual (99789-84122)

Caterpillar GC45K Forklift LPG service manual, covers fuel systems, regulators, mixers, and engine gas faults. Downloadable PDF format.

[VIEW THE FULL MANUAL](https://machinecatalogic.com/caterpillar-gc45k-forklift-lpg-service-manual-99789-84122/)

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