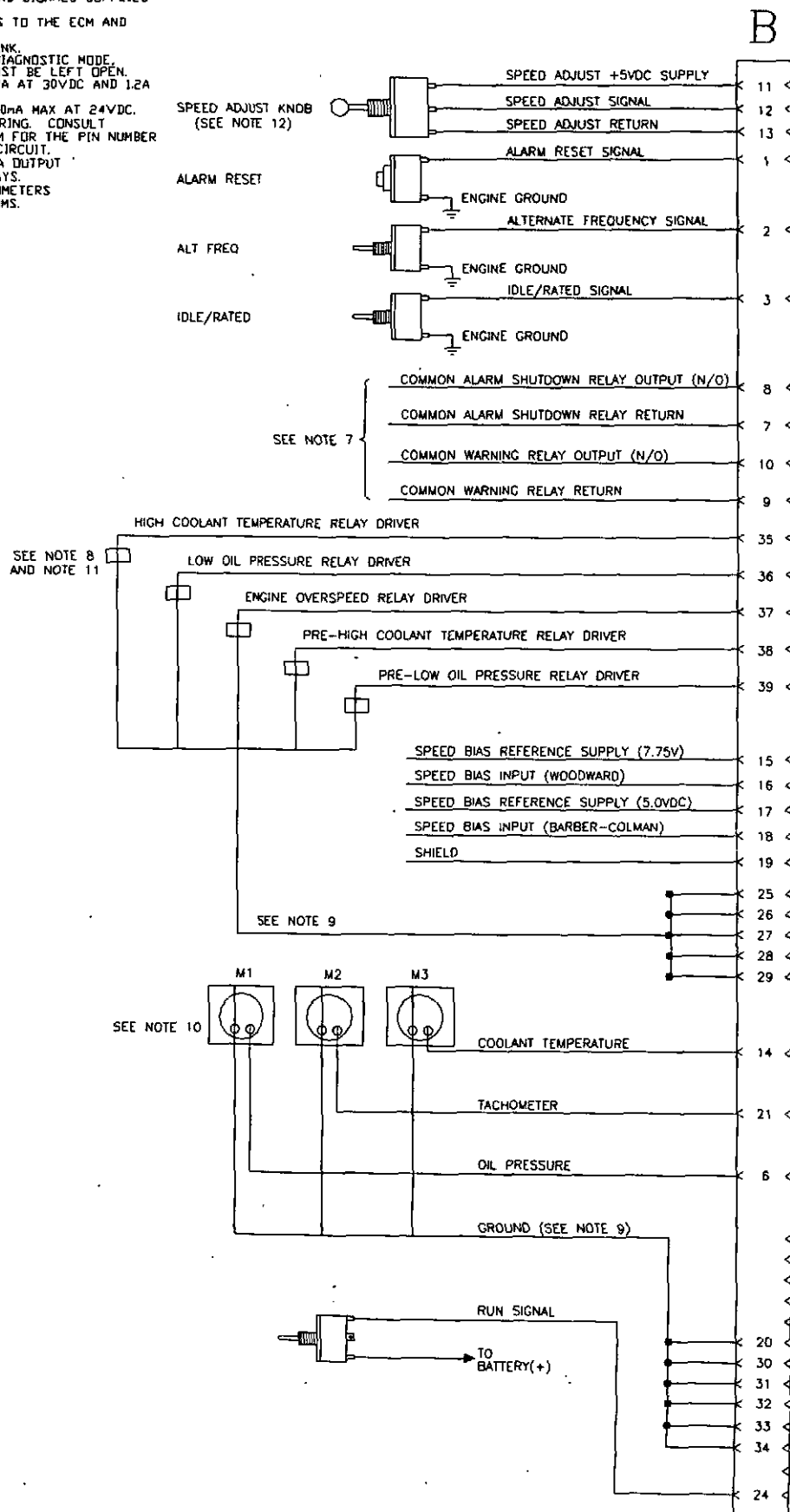


NOTES

1. OEM WIRING SHOWN BELOW IS "TYPICAL". CONSULT OEM WIRING DIAGRAM FOR SPECIFIC APPLICATIONS.
2. RED INDICATES POWER AND SIGNALS SUPPLIED BY THE ECM.
3. BLUE INDICATES POWER AND SIGNALS SUPPLIED TO THE ECM.
4. BLACK INDICATES RETURNS TO THE ECM AND GENERIC OEM WIRING.
5. GREEN INDICATES DATA LINK.
6. FOR THE ECM TO ENTER DIAGNOSTIC MODE, THE DIAGNOSTIC INPUT MUST BE LEFT OPEN.
7. RELAY CONTACTS RATED 2A AT 30VDC AND 1.2A AT 50VDC.
8. RELAY DRIVERS RATED 200mA MAX AT 24VDC.
9. CUSTOMER DETERMINES WIRING. CONSULT CUSTOMER WIRING DIAGRAM FOR THE PIN NUMBER AND ITS CORRESPONDING CIRCUIT.
10. METER DRIVERS: 0 TO 1mA OUTPUT.
11. USE NON-POLARIZED RELAYS.
12. RESISTANCE OF POTENTIOMETERS MUST BE 500 TO 5,000 OHMS.

OEM HARNESS



Cummins Engine Company, Inc.

QST30 G-Drive WIRING DIAGRAM (10/23/96)

(for ECM Part No's 3094439, 3094141, and 3094440) Bulletin No. 3666185

▲ WARNING ▲

This diagram is provided as a diagnostic tool for trained, experienced technicians only. Improper troubleshooting or repair can result in severe personal injury or property damage. See important instructions in Service Manual.

ELECTRICAL SPECIFICATIONS

ALL CONTINUITY CHECKS

- OK (no open circuit) if less than 10 Ω

SHORTS TO GROUND

ESS circuits

- OK (no short circuit) if more than 10 M Ω

All other circuits

- OK (no short circuit) if more than 10 k Ω

SHORT CIRCUIT TO EXTERNAL VOLTAGE

- OK if less than 1.5 VDC

5 V POWER SUPPLY (Sensor and Switch)

@ ECM

- 4.75 to 5.25 VDC

@ Harness

- 4.75 to 5.25 VDC

SOLENOIDS

Fuel Shutoff Valve - 24 VDC

- Coil Resistance = 28 to 32 Ohms
- Voltage = 24 VDC

ECM CONNECTOR

Cap Screw Torque = 3 N•m [25 in-lb]

FUEL PUMP

- Rack Actuator Coil = 0.55 to 0.90 ohms

SENSOR SPECIFICATIONS

ENGINE SPEED SENSOR

Torque = 34 to 47 N•m [25 to 35 ft-lb]

First Coil Resistance = 750 to 1100 Ω

Second Coil Resistance = 1100 to 1500 Ω

OIL PRESSURE SENSOR

Torque = 14 N•m [10 ft-lb]

Pressure (kPa)	Pressure (psi)	Voltage (V)
0	0	0.42 to 0.58
172	25	1.42 to 1.58
344	50	2.42 to 2.58
517	75	3.42 to 3.58
689	100	4.42 to 4.58

COOLANT TEMPERATURE SENSOR

Torque = 14 N•m [10 ft-lb]

Temperature (C)	Temperature [F]	Resistance (ohms)
0	32	30k to 36k
25	77	9k to 11k
50	122	3k to 4k
75	167	1350 to 1500
100	212	600 to 675

Rack Position Sensor Coil = 17 to 23 ohms

Rack Position Sensor Reference Coil = 17 to 23 ohms

Fault Code	Reason	Effect
15	No engine speed signal detected between pins 21 and 22 of Engine Harness Connector.	Engine is shut down and cannot be run. Common Alarm output is energized.
135	High voltage detected at engine oil pressure sensor signal pin 12 of Engine Harness ECM Connector.	No effect on performance. Common Warning output is energized.
141	Low voltage detected at engine oil pressure sensor signal pin 12 of Engine Harness ECM Connector.	No effect on performance. Common Warning output is energized.
143	Engine oil pressure has dropped below the warning threshold for low oil pressure.	No effect on performance. Common Warning output is energized. Pre-Low Oil Pressure relay driver is energized.
144	High voltage detected at engine coolant temperature sensor signal pin 14 of Engine Harness ECM Connector.	No effect on performance. Common Warning output is energized.
145	Low voltage detected at engine coolant temperature sensor signal pin 14 of Engine Harness ECM Connector.	No effect on performance. Common Warning output is energized.
146	Engine coolant temperature has exceeded the warning threshold for high coolant temperature.	No effect on performance. Common Warning output is energized. Pre-High Coolant Temperature relay driver is energized.
151	Engine coolant temperature has exceeded the alarm (shut down) threshold for high coolant temperature.	Engine will shut down. Common Alarm output is energized. High Coolant Temperature relay driver is energized.
171	Fuel pump rack position fault. One or both of the left bank or right bank fuel pump racks is not at the commanded position.	Performance could be sluggish or slow to respond. Common Warning output is energized.
234	Engine speed sensor signal on pins 21 and 22 of Engine Harness ECM Connector indicates engine speed greater than alarm (shut down) threshold.	Fuel shutoff valves are de-energized (valves close). Common Alarm output is energized. Overspeed relay driver is energized.
342	The ECM has detected a memory checksum error in the memory containing critical engine parameters.	Engine will shut down. Common Alarm output is energized. (ECM data may be lost, including fault code data, adjustable parameter settings, ECM time, and engine run time.)
36	The ECM has detected a memory checksum error in the memory containing non-critical engine parameters.	None on performance. Common Warning output is energized. (ECM data may be lost, including fault code data, adjustable parameter settings, ECM time, and engine run time.)
415	Engine oil pressure has dropped below the alarm (shut down) threshold for low oil pressure.	Engine will shut down. Common Alarm output is energized. Low Oil Pressure relay driver is energized.

ENGINE HARNESS

