

# INTRODUCTION

## GENERAL

This section has the description and the repair procedures for the instrument cluster. Information on the steering column is in the following sections: **STEERING HOUSING AND CONTROL UNIT, 1600 SRM 512** for the S/H2.00–3.20XM (S/H40–65XM); and **STEERING HOUSING, 1600 SRM 565** for the S/H1.25–1.75XM, S/H2.00XMS (S/H25–35XM, S/H40XMS.)

## DESCRIPTION (See FIGURE 1.)

The instrument cluster is installed on the steering housing. The instrument cluster has a series of gauges and indicator lights that help let the operator know about the condition of the lift truck and its systems. A list of the gauges and indicator lights and their operation is shown in TABLE 1.

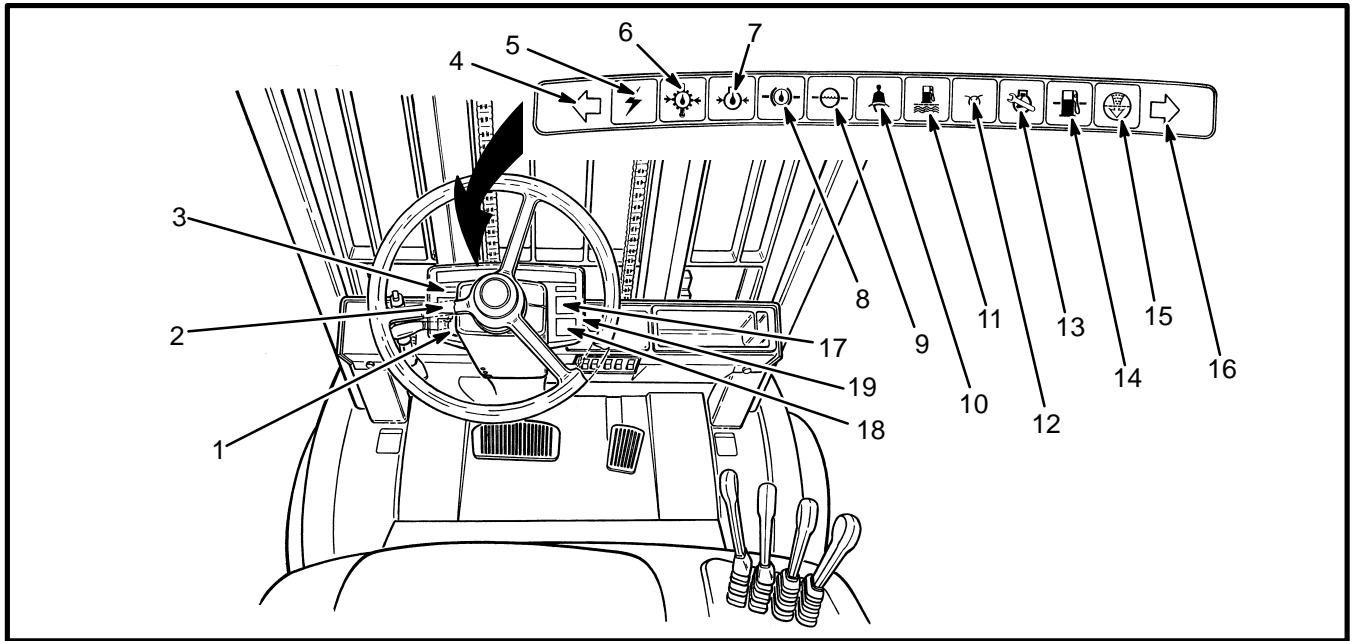
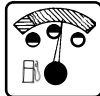
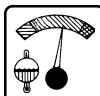


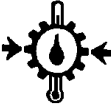




FIGURE 1. INSTRUMENT CLUSTER

TABLE 1. INSTRUMENT CLUSTER (See FIGURE 1.)

ITEM NO.	ITEM	FUNCTION
1	Fuel Gauge 	This gauge indicates the amount of fuel in the gasoline or diesel fuel tank. The sending unit for the fuel gauge is in the fuel tank. If the fuel gauge does not work, check the wiring or replace the sending unit or gauge. To check the wiring, see the section for <b>DIAGRAMS</b> .
2	Coolant Temperature Gauge 	This gauge indicates engine coolant temperature when the key switch is in the <b>ON</b> position. During normal operation the gauge needle will be in the green area. The sending unit for the coolant temperature gauge is in the cylinder head. If the temperature gauge does not work, check the wiring or replace the sending unit or gauge. To check the wiring, see the section for <b>DIAGRAMS</b> .  <b>⚠ CAUTION</b> Do not continue to operate the lift truck when the gauge indicates that the engine is too hot (needle in the red zone).








ITEM NO.	ITEM	FUNCTION
3	Hourmeter	The hourmeter operates when the key switch is in the <b>ON</b> position. Periodic Maintenance recommendations are based on these hours.
4	Left-Hand Turn Indicator (Optional) 	The light is on when the turn indicator lever is in the left turn position.
5	Warning Light, Alternator 	The light will be <b>ON</b> when the key switch is <b>ON</b> and the engine is not running. The light must go <b>OFF</b> when the engine is running. If the light does not function correctly, check the alternator as described in the section for the <b>ELECTRICAL SYSTEM</b> . To check the wiring, see the section for <b>DIAGRAMS</b> . <b>⚠ CAUTION</b> <b>Do not continue to operate the lift truck if the red light is ON at engine speeds above idle.</b>
6	Warning Light, Transmission Oil Temperature 	The red light is <b>ON</b> when the key switch is in the <b>START</b> position and must go <b>OFF</b> when the engine is running. The sending unit for the temperature light is at the bottom of the transmission housing, on the front side. If the temperature light does not work, check the wiring or replace the sending unit or light. To check the wiring, see the section for <b>DIAGRAMS</b> . <b>⚠ CAUTION</b> <b>Do not continue to operate the lift truck if the red light is ON.</b>
7	Warning Light, Engine Oil Pressure 	The red light is <b>ON</b> when the key switch is in the <b>ON</b> position and must go <b>OFF</b> when the engine is running. The sending unit for the warning light is in the engine block. If the warning light does not work, check the wiring or replace the sending unit or light. To check the wiring, see the section for <b>DIAGRAMS</b> . <b>⚠ CAUTION</b> <b>Stop the engine immediately if the red light is ON while the engine is running.</b>
8	Warning Light, Brake Fluid Level 	The red light is <b>ON</b> when the key switch is in the <b>START</b> position and must go <b>OFF</b> when the engine is running. If the light is <b>ON</b> when the engine is running, the brake fluid level in the reservoir is low. There is a float in the master cylinder that actuates the warning light. If the light does not work, check the wiring, the master cylinder or replace the light. To check the master cylinder, see the section for the <b>BRAKE SYSTEM</b> . To check the wiring, see the section for <b>DIAGRAMS</b> . <b>⚠ CAUTION</b> <b>Do not continue to operate the lift truck if the light is ON during operation.</b>



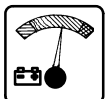
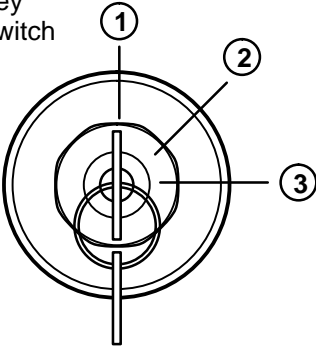
(More Content includes: Brake system, Capacities, and specifications, Frame, Hydraulic, System, Industrial battery, Main control, Valve, Mast repair, Fasteners, Schematics diagrams, Steering axle, Steering system, Wire harness repair And more)

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ITEM NO.	ITEM	FUNCTION
9	Warning Light, Coolant Level in the Radiator 	<p>The red light is <b>ON</b> when the key switch is in the <b>START</b> position and must go <b>OFF</b> when the engine is running. If the light is <b>ON</b> when the engine is running, the level of the coolant in the radiator is too low. The sending unit for the warning light is in the top of the radiator. If the warning light does not work, check the wiring or replace the sending unit or light. To check the wiring, see the section for <b>DIAGRAMS</b>.</p> <p><b>⚠ CAUTION</b> Do not continue to operate the lift truck if the light is <b>ON</b> during operation.</p>
10	Warning Light, Fasten Seat Belt 	<p>The red light is <b>ON</b> for ten seconds anytime the key switch is put in the <b>ON</b> position. This warning light is activated by a switch in the seat. If the light does not work correctly, check the switch, wiring or replace the circuit board. To check the wiring, see the section for <b>DIAGRAMS</b>.</p> <p><b>⚠ WARNING</b> Always fasten the seat belt when operating the lift truck.</p>
11	Warning Light, Water in Fuel Filter (Diesel Only) 	<p>The red light is <b>ON</b> when the key switch is in the <b>START</b> position and must go <b>OFF</b> when the engine is running. If the light is <b>ON</b> when the engine is running, there is water in the fuel filter. The sending unit for the warning light is in the fuel filter. If the warning light does not work, check the wiring or replace the sending unit or light. To check the wiring, see the section for <b>DIAGRAMS</b>.</p>
12	Indicator Light, Cold Start (Diesel Only) 	<p>The red light is <b>ON</b> when the key switch is <b>ON</b> and the glow plugs are activated. The length of time that the light is <b>ON</b> (glow plugs activated) is determined by the temperature of the engine. When the light goes out, the engine can be started. When the starter is cranking, the light will come <b>ON</b> again until the starter is off and the engine is running.</p>
13	Malfunction Indicator Lamp (Only on units with GM 2.2L engine) 	<p>This light will be <b>ON</b> when the key switch is <b>ON</b> and the engine is not running. This light will illuminate when the ECM computer senses a fault in the operation of the engine. If the engine will start, the operation of the engine will not be correct until the fault is corrected. If this light is <b>ON</b> when the engine is running, a trained service person must make repairs and adjustments. See the sections for <b>ELECTRONIC ENGINE CONTROL</b>.</p>
14	Indicator Light, Low LPG Fuel Level 	<p>The red light is <b>ON</b> when the key switch is in the <b>START</b> position and must go <b>OFF</b> when the engine is running. If the light is <b>ON</b> when the engine is running, the fuel level in the tank is low. The sending unit for the light is in the fuel line at the fuel filter. If the warning light does not work, check the wiring or replace the sending unit or light. To check the wiring, see the section for <b>DIAGRAMS</b>.</p>
15	Indicator Light, Air Filter Restriction 	<p>The red light is <b>ON</b> when the key switch is in the <b>START</b> position and must go <b>OFF</b> when the engine is running. If the light is <b>ON</b> when the engine is running, the air cleaner has a restriction and needs cleaning. The sending unit for the light is in the canister for the air filter. If the light does not work, check the wiring or replace the sending unit or light. To check the wiring, see the section for <b>DIAGRAMS</b>.</p>

ITEM NO.	ITEM	FUNCTION
16	Right-Hand Turn Indicator (Optional) 	The light is on when the turn indicator lever is in the right turn position.
17	Engine Oil Pressure Gauge 	<p>This gauge indicates the pressure of the oil in the engine. During normal operation the gauge needle will be in the green area. The sending unit for the gauge is in the engine block. If the gauge does not work, check the wiring or replace the sending unit or gauge. To check the wiring, see the section for <b>DIAGRAMS</b>.</p> <p><b>⚠ CAUTION</b>  <b>Do not continue to operate the lift truck when the gauge indicates low oil pressure (needle in the red area).</b></p>
18	Voltmeter 	<p>This gauge indicates the output of the alternator. During normal operation the gauge needle will be in the green area. If the gauge does not work correctly, check the alternator as described in the <b>ELECTRICAL SYSTEM</b>. See the section for <b>DIAGRAMS</b> to check the wiring.</p> <p><b>⚠ CAUTION</b>  <b>Do not continue to operate the lift truck when the gauge indicates in the yellow or red areas of the gauge.</b></p>
19	Key Switch 	<p>The key switch has three positions:</p> <p>No. 1 Position: <b>OFF</b> position. De-energizes all electric circuits except for the horn.</p> <p>No. 2 Position: <b>ON</b> position. Energizes all electric circuits except the starter circuit. The key switch will be in this position during normal operation.</p> <p>No. 3 Position: <b>START</b> position. Energizes the starter motor for starting the engine. A spring returns the key to position No. 2 (<b>ON</b> position) when the key is released.</p> <p><b>NOTE:</b> There is a mechanical lockout that prevents the key switch from being returned to the <b>START</b> position without first being returned to the <b>OFF</b> position.</p>

## REPAIRS

### REMOVAL AND DISASSEMBLY (See FIGURE 2. and FIGURE 3.)

#### CAUTION

To prevent damage to electrical components, disconnect the negative battery cable before removing the covers.

1. Remove the steering control unit as described in the following sections: **STEERING HOUSING AND CONTROL UNIT, 1600 SRM 512** for the S/H2.00–3.20XM (S/H40–65XM); and **STEERING HOUSING, 1600 SRM 565** for the S/H1.25–1.75XM, S/H2.00XMS (S/H25–35XM, S/H40XMS.)

2. Disconnect the two wiring harnesses at the instrument cluster.

3. Remove the screws that hold the instrument cluster to the steering housing.

4. Remove the screws that hold the cover to the housing. Replace parts in the cluster as necessary. The parts in the cluster cannot be repaired.

### ASSEMBLY AND INSTALLATION (See FIGURE 2. and FIGURE 3.)

1. Install the parts in the instrument cluster that were removed or replaced as shown in FIGURE 3. Make sure the seal is installed between the housing and the cover.

2. Install the instrument cluster on the steering housing. Install and tighten the four capscrews. Connect the two wiring harnesses at the instrument cluster.

3. Install the steering control unit and cover as described in the following sections: **STEERING HOUSING AND CONTROL UNIT, 1600 SRM 512** for the S/H2.00–3.20XM (S/H40–65XM) and the S/H1.50–2.00XMS (S/H30–20XMS); and **STEERING HOUSING, 1600 SRM 565** for the S/H1.25–1.75XM, S/H2.00XMS (S/H25–35XM, S/H40XMS.) Connect the battery. Check that the gauges and indicators operate as described.

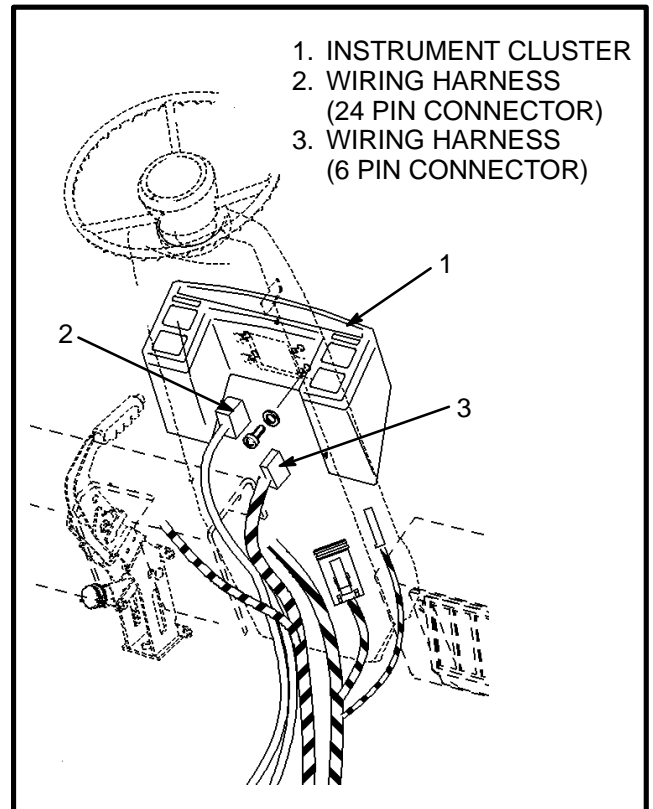


FIGURE 2. INSTRUMENT CLUSTER MOUNTING

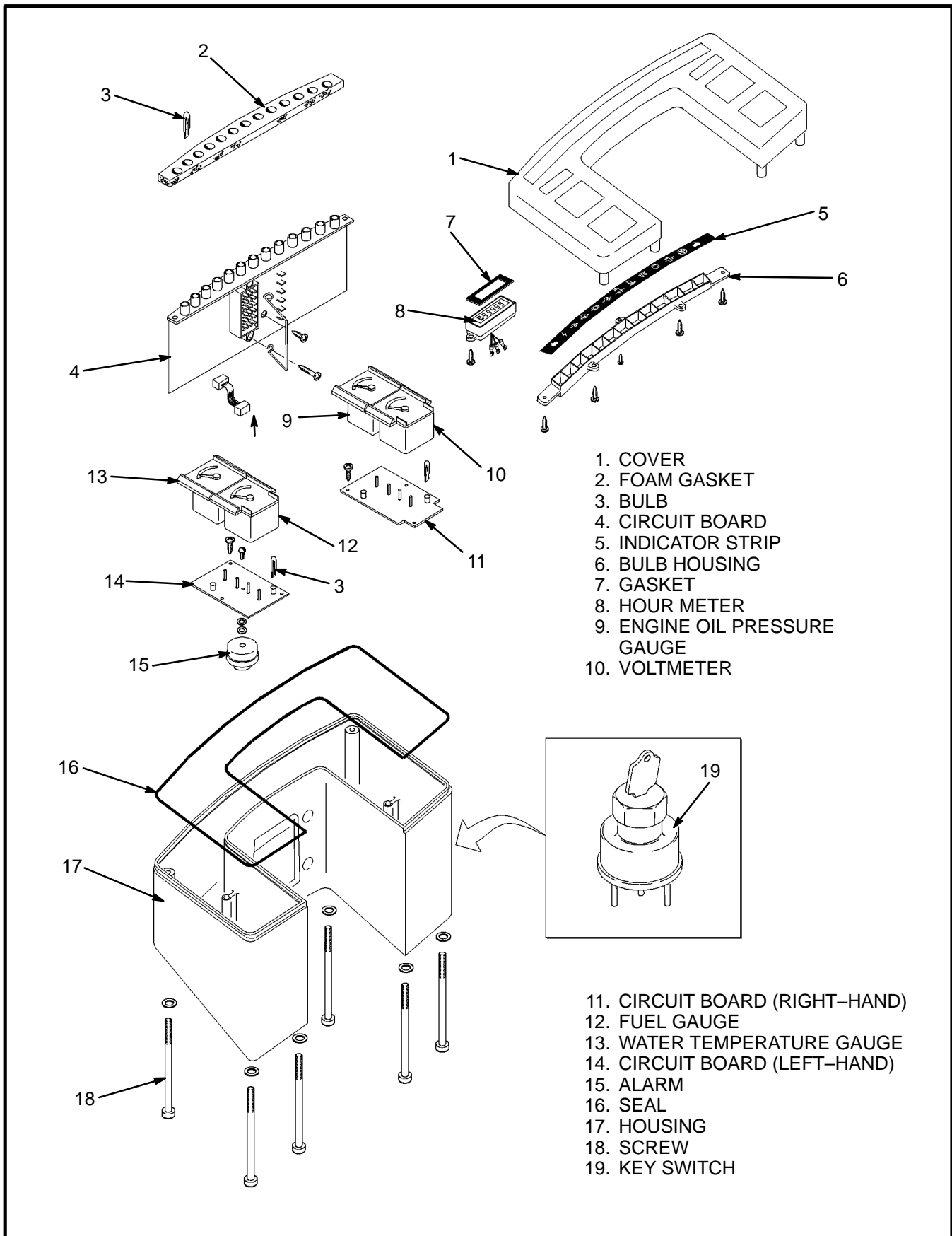
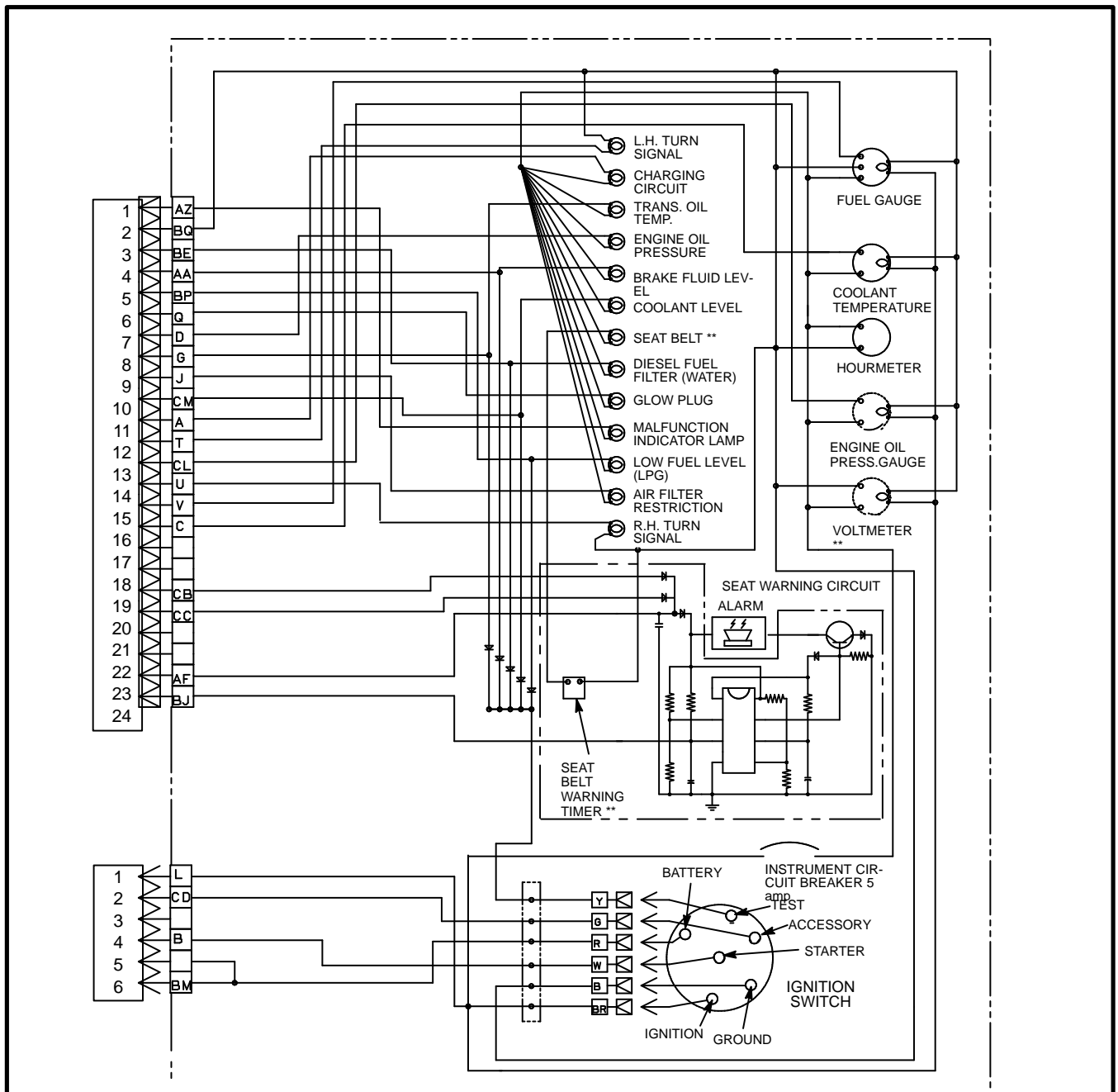


FIGURE 3. INSTRUMENT CLUSTER



\*\*NOT USED IN EUROPE

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### 24 PIN CONNECTOR FUNCTIONS

- |  |                             |                   |
|--|-----------------------------|-------------------|
| 1. MALFUNCTION INDICATOR (GM GAS ONLY) | 10. LOW COOLANT LEVEL GAUGE | 18. NOT USED      |
| 2. CLUSTER GROUND                      | 11. CHARGING CIRCUIT        | 19. REVERSE       |
| 3. DIESEL FUEL FILTER                  | 12. L.H. TURN SIGNAL        | 20. FORWARD       |
| 4. LOW BRAKE FLUID LEVEL               | 13. ENGINE OIL PRESS. GAUGE | 21. NOT USED      |
| 5. LOW FUEL LEVEL (LPG)                | 14. R.H. TURN SIGNAL        | 22. NOT USED      |
| 6. GLOW PLUG                           | 15. FUEL GAUGE              | 23. PARKING BRAKE |
| 7. ENGINE OIL PRESSURE                 | 16. COOLANT TEMP.           | 24. SEAT SWITCH   |
| 8. TRANS. OIL TEMP.                    | 17. NOT USED                |                   |
| 9. AIR FILTER RESTRICTION              |                             |                   |

### 6 PIN CONNECTOR FUNCTIONS

1. IGNITION
2. ACCESSORY
3. NOT USED
4. STARTER
5. BATTERY
6. BATTERY

FIGURE 4. INSTRUMENT CLUSTER SCHEMATIC