TOYOTA

INDUSTRIAL EQUIPMENT

SERVICE MANUAL

4,500 lb. Powered Pallet Walkie

Model 7HBW23

Serial No. 24,501 and up

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Fault Codes

ETAC provides fault information by displaying fault codes via LED display built into the handle head. See "Power Amplifier Fault Codes" on page 5-26.

Open Circuit

A lack of a continuous path between two or more electrical connections; usually greater than one megohm resistance.

Overvoltage Cutoff

Occurs when there is very high voltage (greater than 34V) at power amplifier B+ connection. Code C42 or E142 may be displayed and truck must be restarted.

PIN-Key Code

Trucks produced with a standard handle mounted keypad are protected from unauthorized operation by Personal Identification Number (PIN) keypad entry codes. Up to 10 operators can be assigned their own individual PIN-key code (of one to four digits) for access to the truck. Each operator can also set individual driver parameters. Default operator PIN-key code is number 1.

Short Circuit or "Short"

A short circuit is an unspecified path in a circuit that provides unwanted full or partial continuity between two or more locations in an electrical circuit.

Example 1: Two insulated wires are physically next to each other and insulation has worn off each of the wires. Conductors are now touching each other, causing a short circuit.

Example 2: Insulation has worn away on a power cable from battery to a junction post in the truck. Wire conductors are touching tractor frame, causing a short circuit of the battery cable.

Speed Limiting

ETAC limits maximum speed:

- "Max speed, Slow Mode" parameter determines maximum speed value sent by ETAC to the power amplifier (max. PWM) for both directions of travel while in Slow. This is a programmable parameter.
- "Max speed, Fast Mode" parameter determines maximum speed value sent by ETAC to the power amplifier (max. PWM) for both directions of travel while in Fast. This is a programmable parameter.

Thermal Cutback (Power Amplifier)

Thermal cutback of the power amplifier is below –13°F (–25°C) or above 185°F (85°C). At 185°F to 203°F (85°C to 95°C), PWM drive current limit is linearly decreased from full set current down to zero. At –13°F to –40°F (–25°C to –40°C). Current limit is reduced to approx. half the set current, resulting in reduced travel speed. Below –40°F (–40°C) or above 203°F (95°C), the allowed PWM is 0%.

Tractor

Body section of the truck that contains motors, drive unit, controls, and handle.

Truck Off Delay (Keypad only)

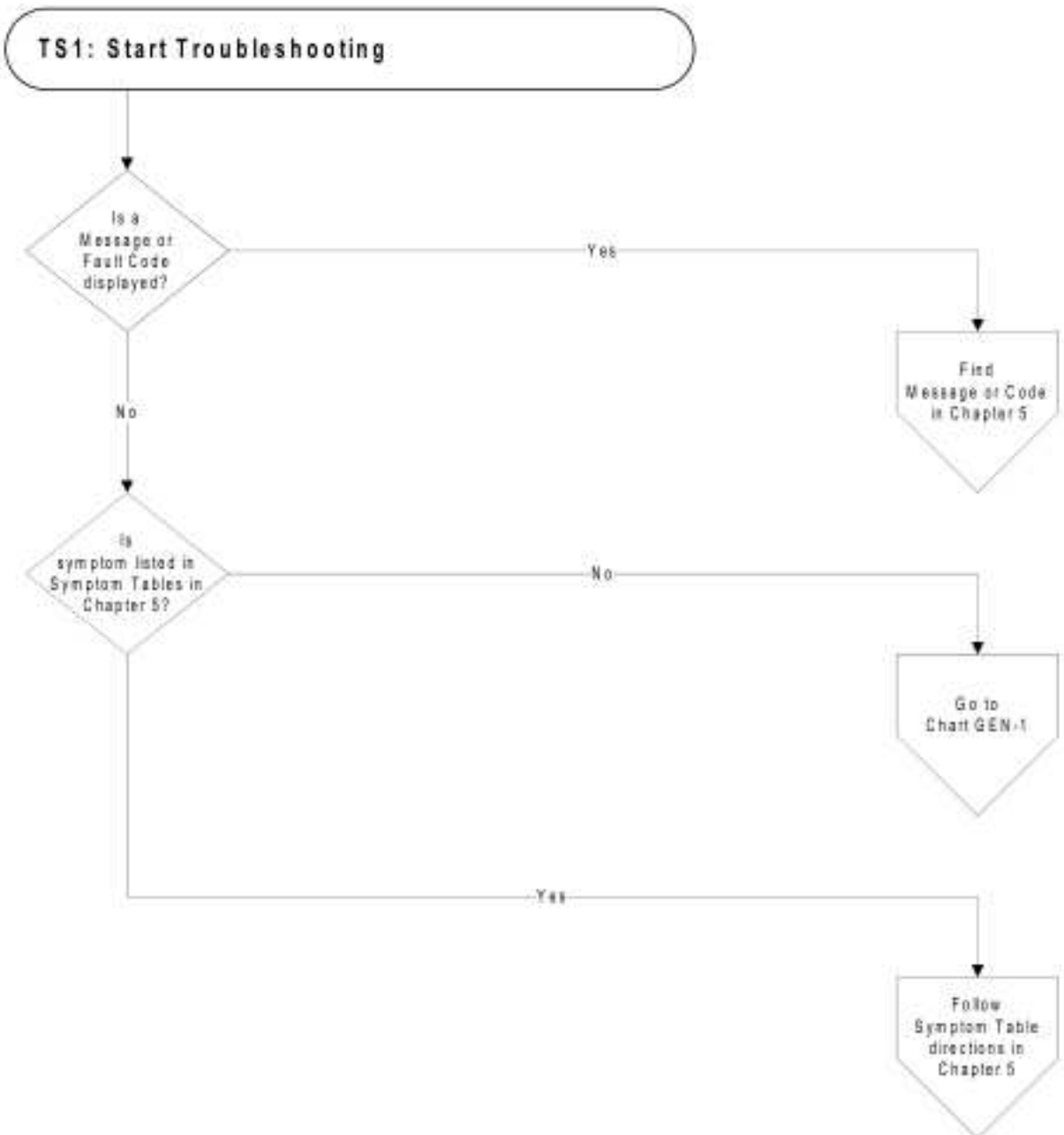
Sets the truck OFF delay time (energy saving feature). If this time delay passes while truck is in a brake position and the truck is idle (no inputs requested), ETAC powers the truck OFF. Driver parameter settings are 0 to 20 minutes. When parameter is set to 0, or truck has key switch option, the truck never powers OFF.

Undervoltage Cutoff

Occurs when there is very low voltage (less than 13V) at power amplifier B+ connection. Code C41 is displayed and truck must be restarted.

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Troubleshooting Flowcharts



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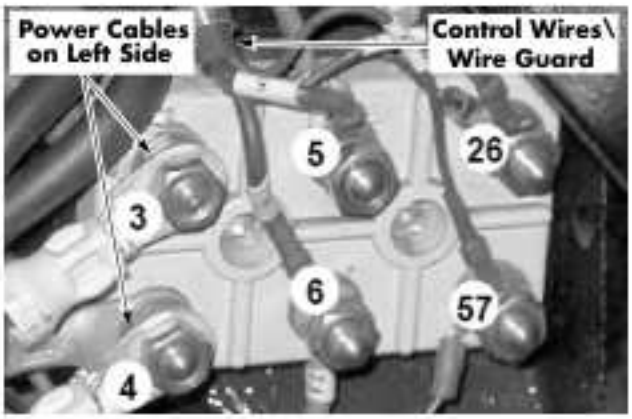


Figure 6-7. Motor Terminal Block

7. Remove the stem mount and control handle as an assembly from the drive unit, remove harness from truck. See Figure 6-8

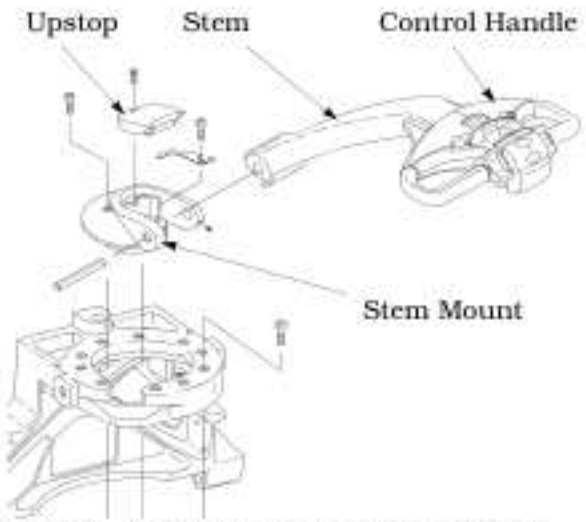


Figure 6-8. Upstop, Stem Mount and Control Handle

8. Lay the new harness into the truck.
9. Connect the truck end of the harness.
10. Install the harness (long wire guard and power wires) down through the transmission opening.
11. Position power cables and control wires as shown in Figure 6-7.
12. Connect power cables and control wires to the drive motor terminal block.

NOTE: Make sure power wires are vertically stacked one on top of the other next to S25 switch, and above the power terminals and wire guard with ring terminal. See Figure 6-9.

13. When installing the ring terminals, install ring terminal and secure middle nut, torque to 79 in. lbs. (8.925 Nm). Install ring terminal and secure outer nut, making sure wire is out of the way before torquing outer nut to 79 in. lbs. (8.925 Nm).
14. Make sure the short wire guard and wire tie are located inside the transmission.

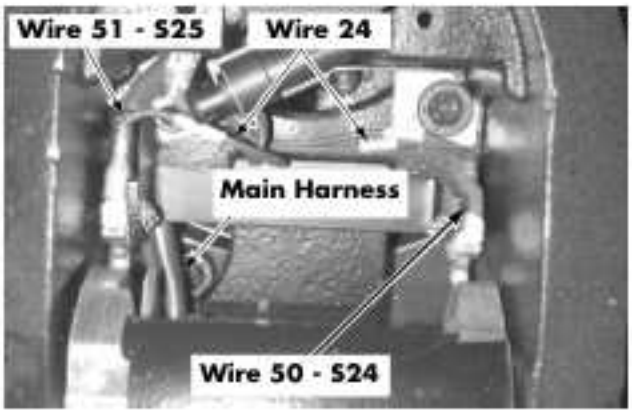


Figure 6-9. Stem Mount with Harness Wiring

15. Install the stem mount and control handle assembly.
16. Reconnect connector J11 and switches S24 and S25 (wires 24, 50 and 51) inside the stem mount. See Figure 6-9.
17. Install the control handle upstop and truck covers.
18. Reconnect the battery connector.
19. Turn the main ON/OFF switch to the ON position. Enter the key code and press the green ON button (I) on the keypad, or turn the key switch ON.
20. Check all operation functions on the steering control handle.

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