General

This section contains repair and maintenance procedures for the AC traction and hydraulic motors. The hydraulic and traction motors are available with multiple motor sizes and software configurations. See Table 1 and Table 2.

Additional information concerning the traction motor may be included in other sections when the information is more closely related to other systems. Other systems may include:

- **Frame** 0100SRM2082
- **Master Drive Unit** 0630SRM2084
- **Steering System** 1600SRM2085
- **Brake System** 1800SRM2086
- **Hydraulic System** 1900SRM2087 for lift truck models N30ZDRS3, N35ZRS3, N40ZRS3 (C265)
- **Hydraulic System** 1900SRM2189 for lift truck models N35ZR3, N40ZR3, N45ZR3, N30ZDR3, N35ZDR3 (E264)
- **Electrical System** 2200SRM2088
- **Periodic Maintenance** 8000SRM2095

Table 1. Traction Motor Configuration

Motor	Description	Stack Length	Speed Loaded / Unloaded
24V	Utility / TSA-140	140mm	6.5 MPH / 6.5 MPH
36V	Utility / TSA-160	160mm	6.7 MPH / 6.7 MPH
36V	Standard / TSA-160	160mm	6.5 MPH / 7.4 MPH
36V	Premium HP / TSA-160	160mm	6.5 MPH / 8 MPH

Table 2. Hydraulic Pump and Motor Configuration

Motor	Pump	Description	Stack Length	Unloaded FPM	Loaded FPM	Mast
24V	19.2cc	Utility	170-180mm	66	35	5.5
36V	32cc	Premium	200-230mm	150	80	9.4
36V	28/9cc (Dual Pump)	Premium HP	200-230mm	175	95	9.4
36V	25cc	Standard	200-230mm	130	70	5.5
36V	19.2cc	Utility	170-180mm	77	50	9.4
36V	32cc	Standard HP	200-230mm	N/A	N/A	9.4

DISCHARGING THE INTERNAL CAPACITORS

When working with the electrical systems of the truck, it is necessary to discharge the internal capacitors of the controllers associated with each circuit affected.

WARNING

Capacitors inside the controllers can hold an electrical charge after the battery is disconnected. Discharge the internal capacitors before servicing the electrical system to prevent injury or electronic damage.

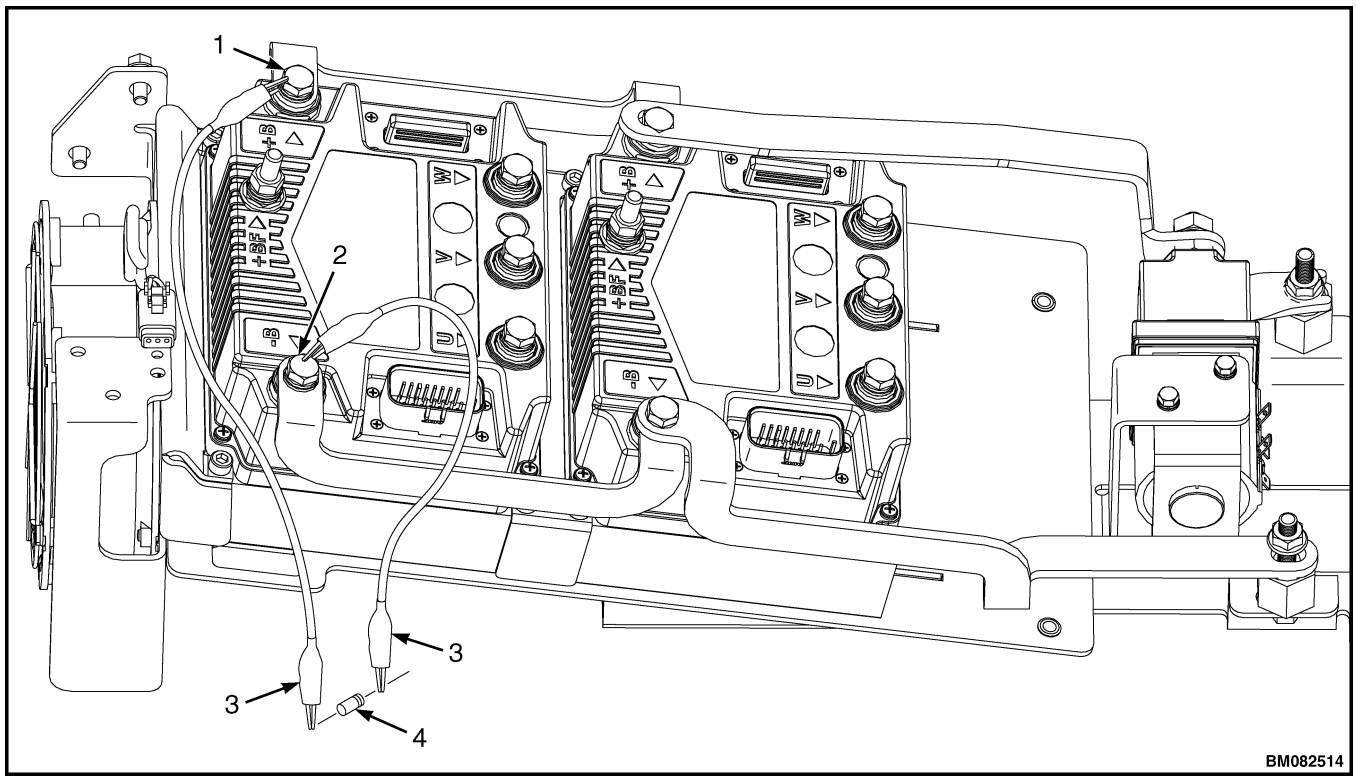
WARNING

To avoid personal injury and prevent electrical shock, perform the following steps before performing any troubleshooting or adjustments, and connecting or disconnecting a handset or PC.

CAUTION

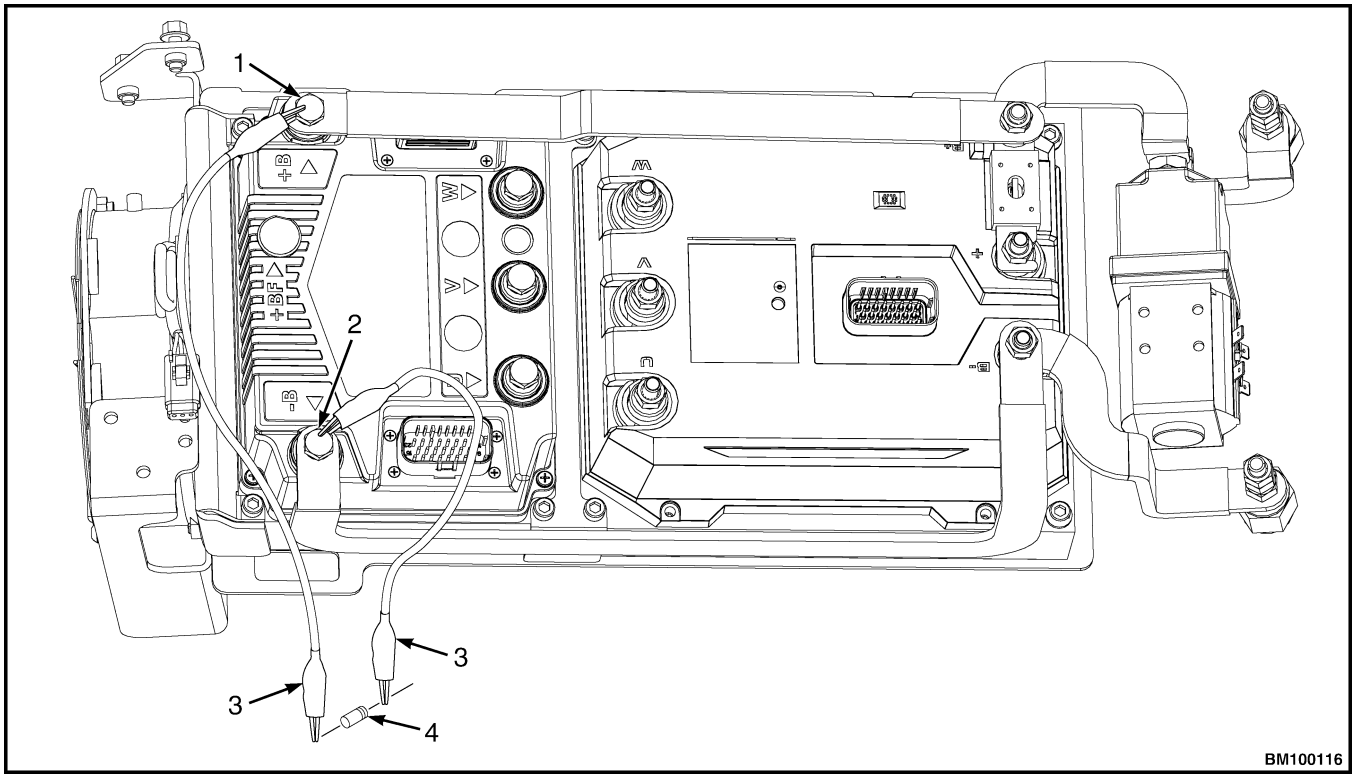
To avoid controller damage, always disconnect the battery. Discharge the capacitor and never put power to the controller with any power wire disconnected. Never short any controller terminal or motor terminal to battery. Make sure to use proper procedures when servicing the controller.

1. Move the lift truck to a safe, level area and completely lower the mast. Turn the key switch to the **OFF** position and attach a **DO NOT OPERATE** tag to the control handle. Block the drive wheel to prevent unexpected movement.
2. Disconnect the battery power cable connector from the truck connector located on the right side of the frame. Pull the battery cable connector handle to separate the battery connector from the truck connector.
3. Remove the operator compartment cover. See the **Frame** manual listed above, for procedures.
4. Discharge the internal capacitor in the controllers by connecting a 200-ohm, 2-watt resistor across the controller B+ and B- terminals of the motor controller for 10 seconds. Remove the resistor after discharging the capacitors. See Figure 1, Figure 2, and Figure 3.



1. POSITIVE CONNECTION (B+)
2. NEGATIVE CONNECTIONS (B-)
3. INSULATED JUMPER WIRES
4. 200-OHM, 2-WATT RESISTOR

Figure 1. Discharging the Internal Capacitors - Utility Lift Trucks (24V/36V)



1. POSITIVE CONNECTION (B+)
2. NEGATIVE CONNECTIONS (B-)
3. INSULATED JUMPER WIRES
4. 200-OHM, 2-WATT RESISTOR

Figure 2. Discharging the Internal Capacitors - Standard Controls (36V)