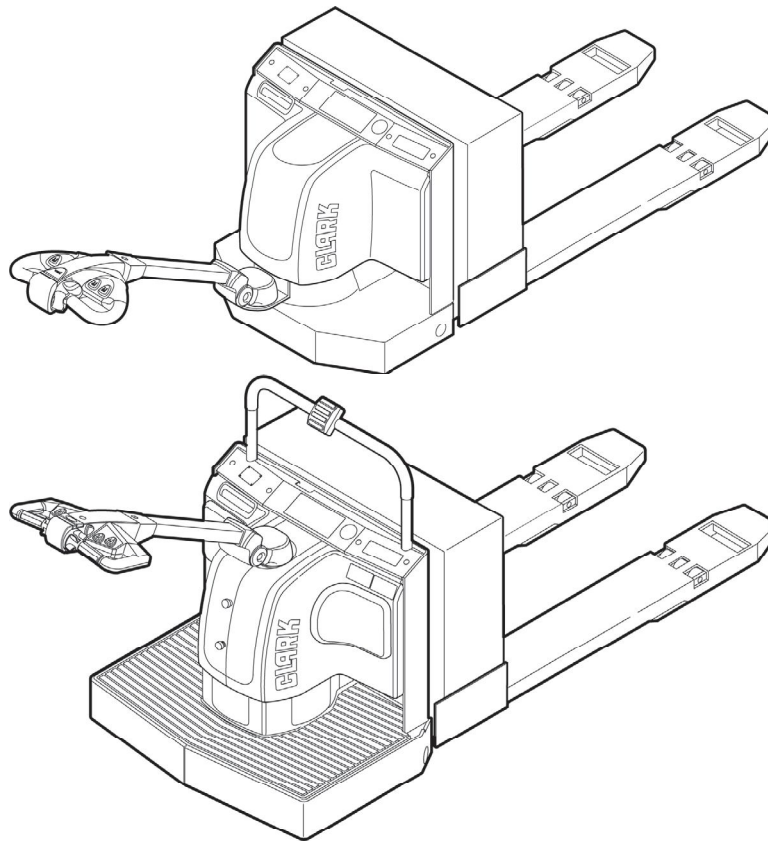


SM-748

PWxE 30/40

HWxE 30/40

Service Manual



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Rev 1.0



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Contents by Group

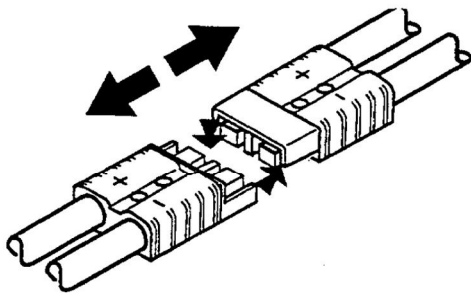
Contents are listed by Group Number:

PS	PERIODIC SERVICE
12	BATTERY
14	WIRING
16	ELECTRIC MOTORS
17	CONTACTORS
19	MOTOR CONTROLS
20	DRIVE UNIT
22	DRIVE TIRE
23	BRAKE
25	STEERING
28	HYDRAULIC SYSTEM
34	LIFT CYLINDER
35	LIFT LINKAGE AND LOAD WHEELS
39	SHEET METAL
40	SPECIFICATIONS

Visual Inspection

1. Inspect Battery Plug & Truck Receptacle

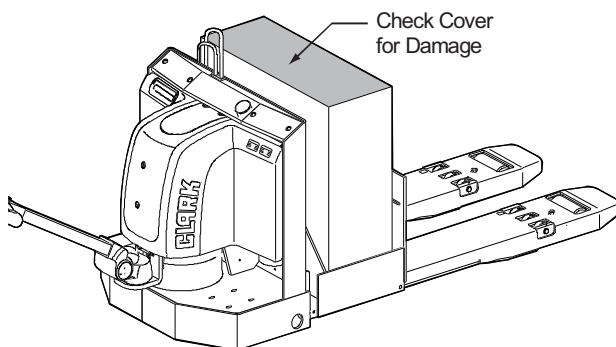
- Disconnect battery from truck.
- Inspect the spring loaded connectors in the truck battery receptacle and check the battery plug connectors. Severely burned connectors should be noted on the PM check sheet.



Disconnect Battery and check the Spring Loaded Connectors

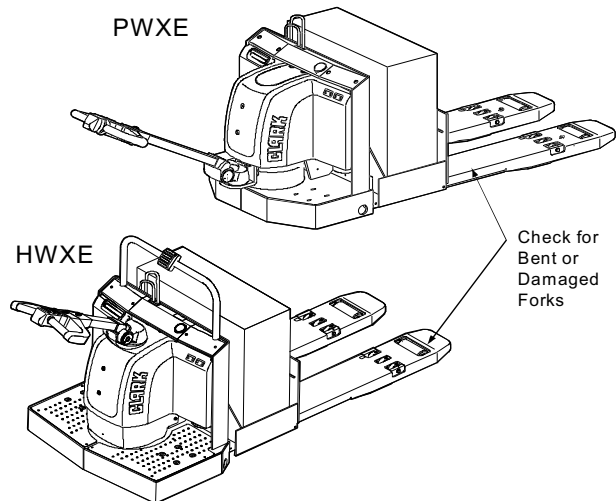
2. Inspect Battery Cover for damage

- The cover should not be dented. A badly dented cover could short out across the battery cell connectors.
- The cover should be free to swing open and closed without binding.



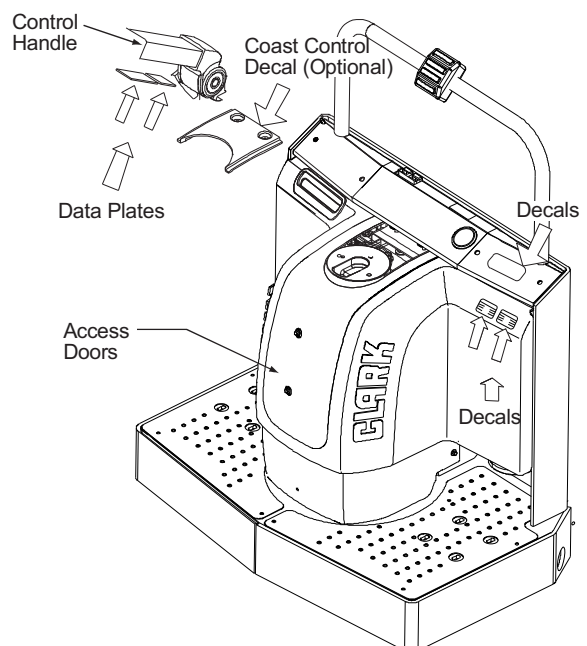
3. Inspect Pallet Forks for obvious damage

- Forks should not be bent or warped. If the forks are damaged, report condition to the designated authority.



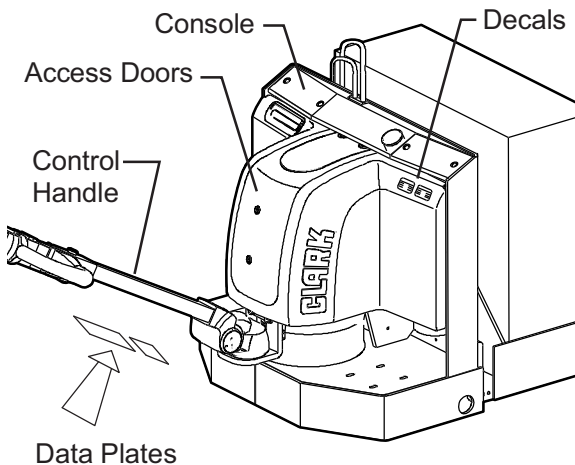
4 A. Rider Models

- Inspect frame components
- Check truck console, access cover and doors for damage.
- Inspect nameplates and decals for damage and to make sure they are not missing.



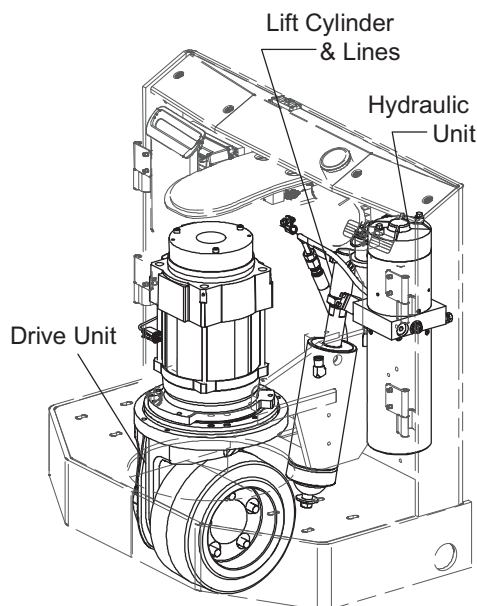
4 B. Walkie Models

- Inspect frame components
- Check truck console, access cover and doors for damage.
- Inspect nameplates and decals for damage and to make sure they are not missing.



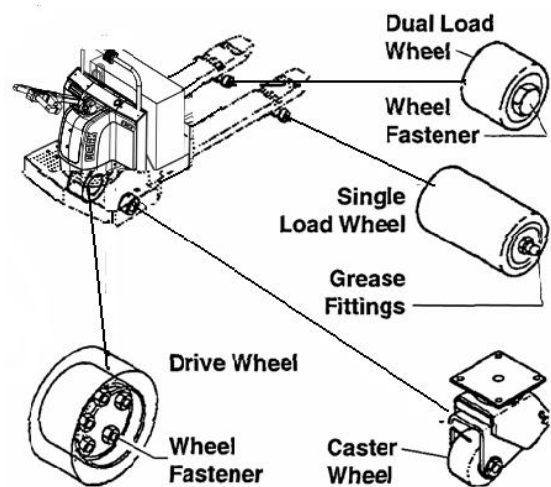
5. Check for obvious oil leaks

- Make a quick overall inspection for leakage. If an oil leak appears to be major, note condition on the check sheet for immediate attention. Minor leaks should be repaired during the PM.



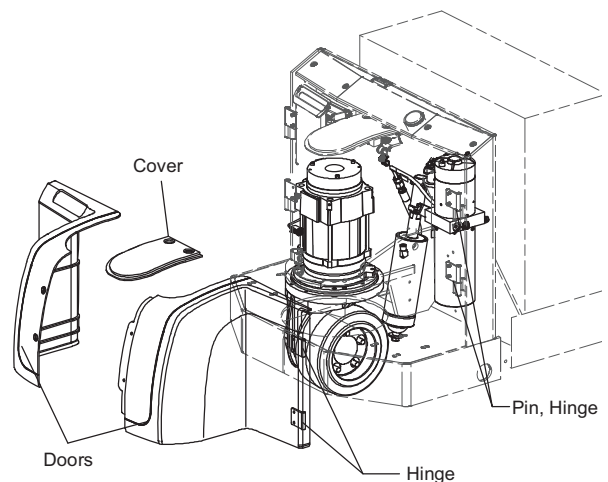
6. Inspect Tires & Wheels

- Check for obvious damage to tires on the load, caster and drive wheels.
- Look for excessive tire wear, cuts, breaks, chunking or bond failure between the tires and wheels. Note condition on the PM check sheet.
- Remove embedded objects from the tires.
- Make sure wheel fasteners are secure and none are missing.
- Make certain grease fittings are not damaged or missing.



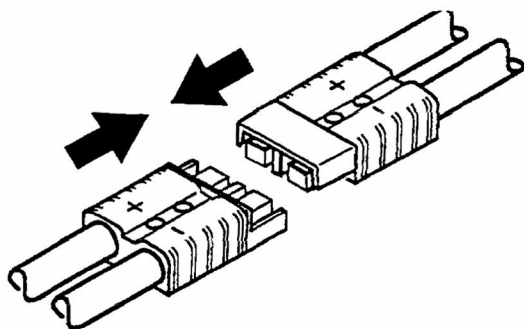
7. Expose Internal Components

- Open the access doors exposing the drive unit, brake, lift cylinder, hydraulic unit and SCR control. Each door hangs on a hinge pin. Lift the doors from their pins and set them to one side.



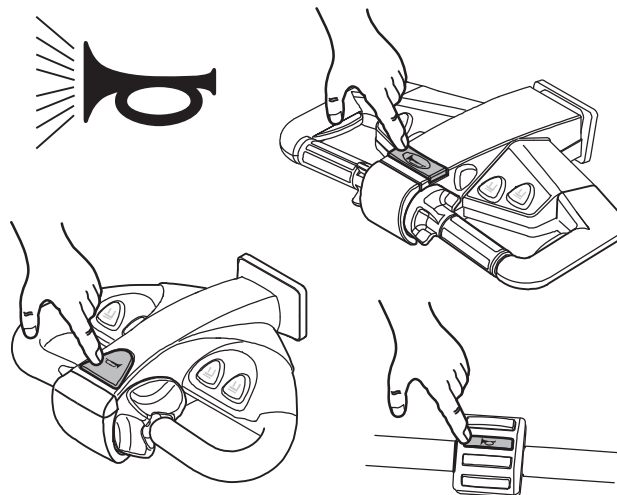
8. Connect Truck Battery

- Connect truck battery and check truck operation.



10. All Models

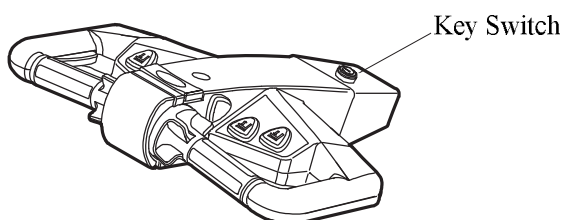
Check the horn to be sure it operates.



Operational Tests

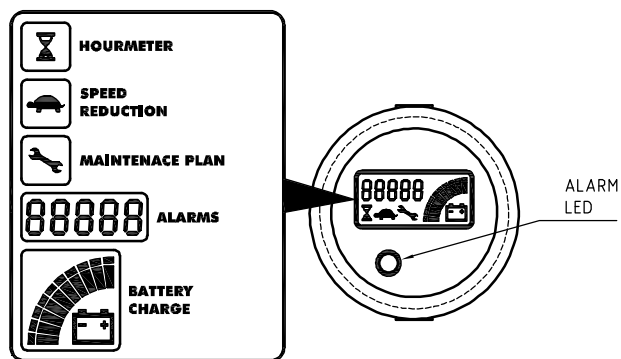
9. All Models

- Turn the key switch on.



11. All Models

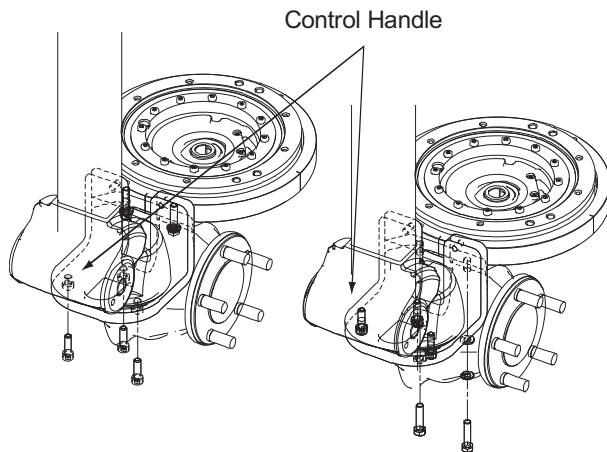
- Check the hour meter to be sure it operates.



12. Check Steer Control Handle

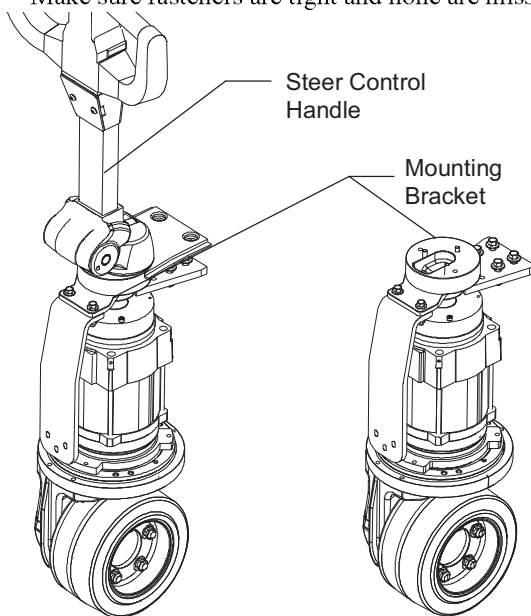
Walkie Models:

- Be certain the control handle is mounted securely at the base of the drive unit.
- Make sure fasteners are tight and none are missing.



Rider Models:

- Check the mounting bracket to be sure it is securely mounted to the base of the drive unit.
- Make sure fasteners are tight and none are missing.



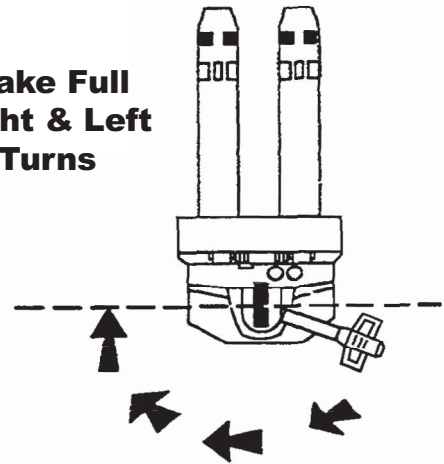
13. Check Steering

- Operate truck in reverse at a slow rate of speed. Move control handle through a full right and full

left turn. Steering should be smooth without binding or hesitation.

- If there is binding, hard spots or movement appears to be stiff this indicates a lack of lubrication, mis-adjusted or damaged steering ring.
- Report condition on the P.M. check sheet.

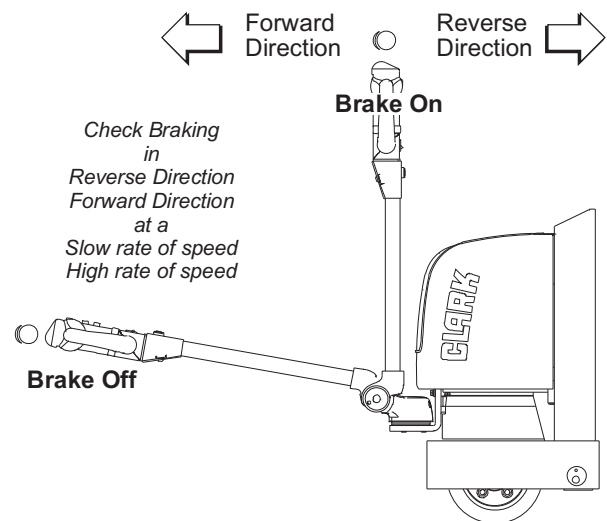
**Make Full
Right & Left
Turns**



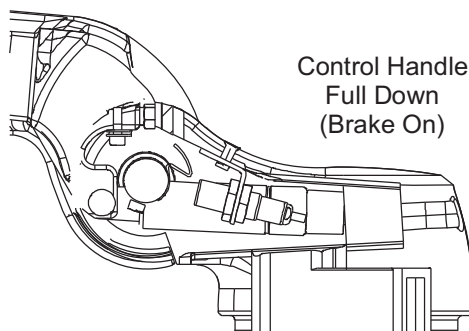
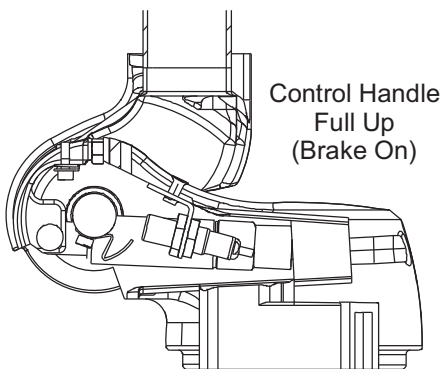
14. Check Brake Operation

- Move the steer control handle downward 10° degrees from vertical (brake on) position.
- Operate truck in reverse at a slow rate of speed.
- Slowly move control handle upward from the 10° travel (brake off) position.

**As Control Handle
approaches "Brake On" position:**



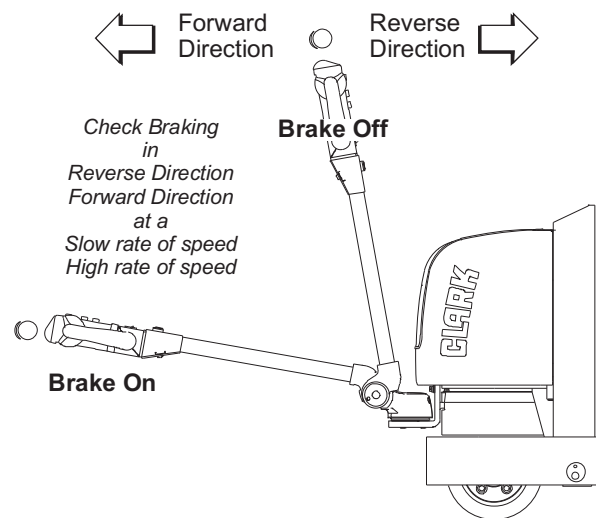
1. The brake switch should operate shutting off the drive motor.
2. The brake should operate bringing the truck to a stop.
 - Operate the truck in forward at a slow rate of speed.
 - Slowly move control handle upward from the 10° (brake off) position. The brake should apply when handle reaches the full up (brake on) position.
 - Now, check the brake at a high rate of speed in both forward and reverse directions.
 - Next, check for proper brake operation by moving the handle downward from the 10° (brake off) position. The brake check should be done at low and high Speeds, and in forward and reverse directions.



- If operation is not satisfactory, note condition on the P.M. check sheet. Report condition to designated authority for immediate attention.

NOTE

Plugging control is normally used for gradual brake applications. Braking with the steer control handle is normally used in emergency situations and parking the truck.



WARNING

After checking the coast control, be certain to deactivate this function position before resuming normal truck travel.

15. Optional Coast Control (HWXE Models)

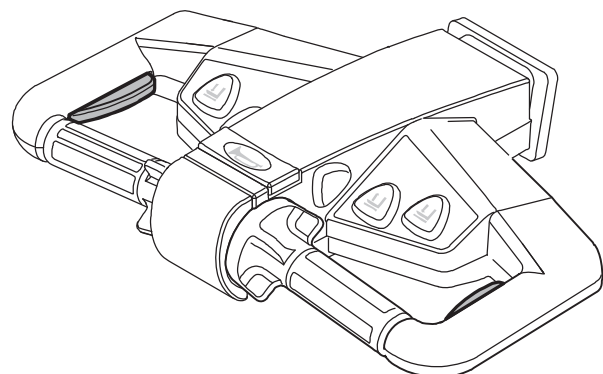
The coast control deactivates the brake and enables the truck to be "jogged" with the travel control and coasted for order picking.

- Press both order picking switches at the same time for 2 seconds to activate the coast control function.
- Rotate the directional control to Forward and press either order picking switches for 2 seconds to deactivate the coast control function.



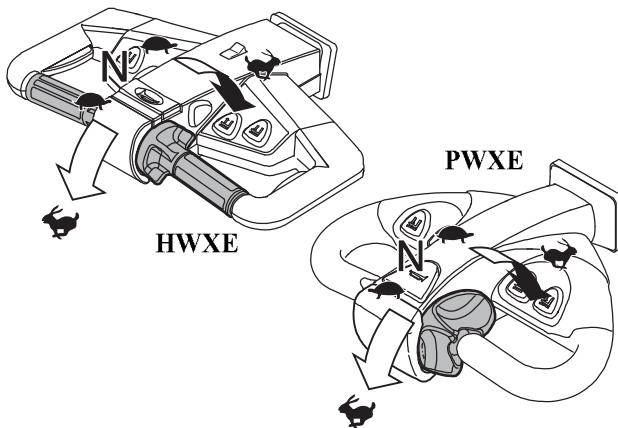
CAUTION

Be sure the brake switch should be OFF position during activating the coast control function.



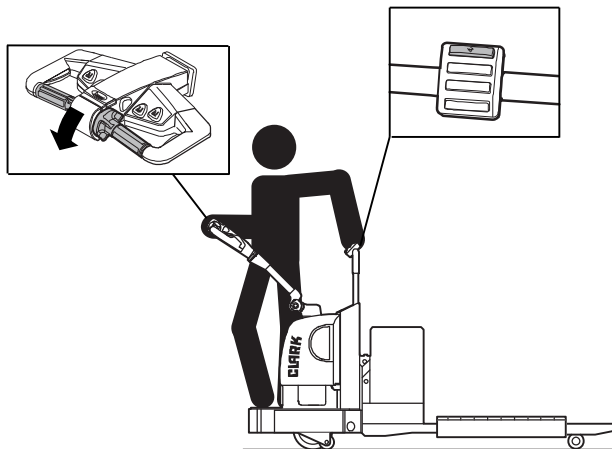
16. Check Travel Speeds Check Acceleration Check High Speed

- Drive truck in a straight line, looking in the direction of travel.
- Listen for any unusual drive train noise.
- Accelerate from low to high speed. Acceleration should be a smooth transition from creep through top speed. If transition is erratic, the accelerator circuit should be checked.



17. Check High Speed Control (HWXE Only)

- Drive truck forward, in a straight line of travel.
- Fully rotate the direction speed control fully until maximum speed is obtained.
- Depress the high-speed button. This transition should be smooth. If it is not, if it is erratic, jerky etc., the accelerator should be adjusted (see Group 19). Note condition on the P.M. check sheet.



18. Override Control

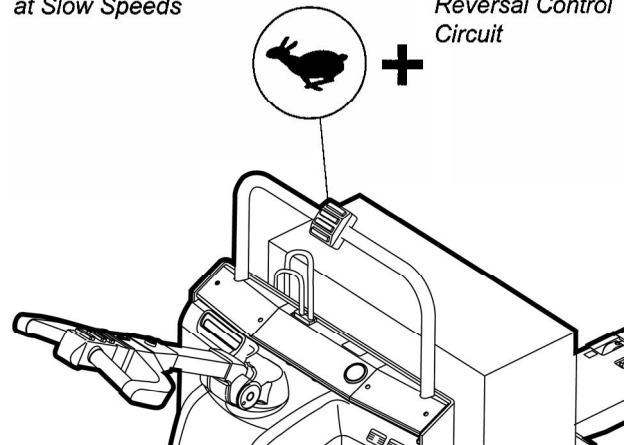
- The override control is used to by-pass the emergency reversal switch circuit. This is desirable when the truck is operating in areas where plastic strip curtain doors (etc.) are used.

Example:

- When moving a truck through this type door, pressure from the door strips can cause the emergency reversal switch to operate changing the direction of truck travel. By overriding the reversal switch, the truck can pass through the curtain door without miss hap.
- To simulate the above, operate truck in slow speed reverse. Depress button to override and then depress the reversal (belly) switch. Truck travel should remain in slow speed reverse. Note condition on the P.M. check sheet.

*The Override Control
Circuit Only Functions
at Slow Speeds*

*Depress Button
to Override
Reversal Control
Circuit*



19. Elevate and Lower Pallet Forks

- Elevate pallet forks to maximum lift height. As the forks elevate, check to be sure they elevate smoothly and evenly without binding.
- Lower forks. Look for erratic motion as they lower. They should lower smoothly without hesitation.
- If there is erratic, jerking motion or binding of linkage as the forks elevate or lower, the lift linkage should be checked and adjusted (Group 35). Note condition on the P.M. check sheet.

20. Discharge the Capacitors

- Be sure the battery is unplugged.
- Discharge capacitors using a 100 ohm, 10 watt resistor connected between the positive and negative power terminals on the control. Hold the resistor in place for 10 seconds before removing.



CAUTION

Using a shorting device without a "resistor load" could cause damage to the control.



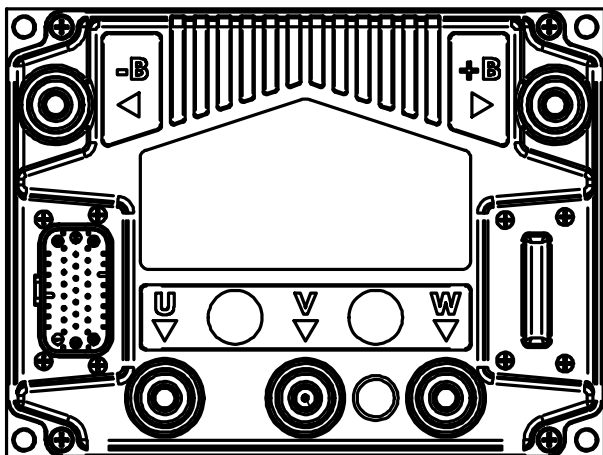
WARNING

Discharging the capacitors without using specified resistor could cause serious Injury to yourself and bystanders.



WARNING

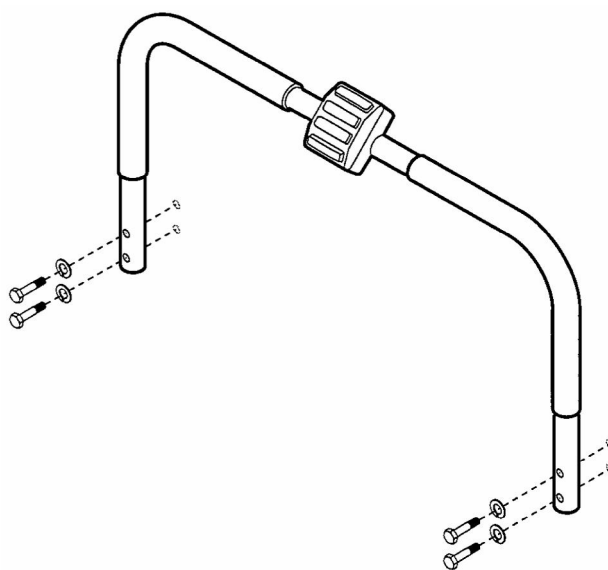
Prior to discharging the capacitors, make certain the cover is installed on the control panel power base.



21. HWXE Models

Inspect Operator Grab Rail

- Check hand rail for security of mounting. Try moving hand rail fore and aft checking for loose connections and damage. The mounting bolts should be torqued to 100- 120 lb. in. (11.3- 13.6 Nm).
- Make certain the switch housing is mounted securely and the switches are not damaged.
- Check wire harness condition. Check for loose connections and harness damage. Report condition on P.M. check sheet



Section 3

PM Inspection Form

- As an aid to service technicians performing and documenting PM inspections, CLARK has prepared an Electric Truck Planned Maintenance Report form, located on the following page.
- Use this form as a checklist, and make a record of your inspection and truck condition. Note the special coding system for indicating the importance of needed repairs and/ or adjustments.