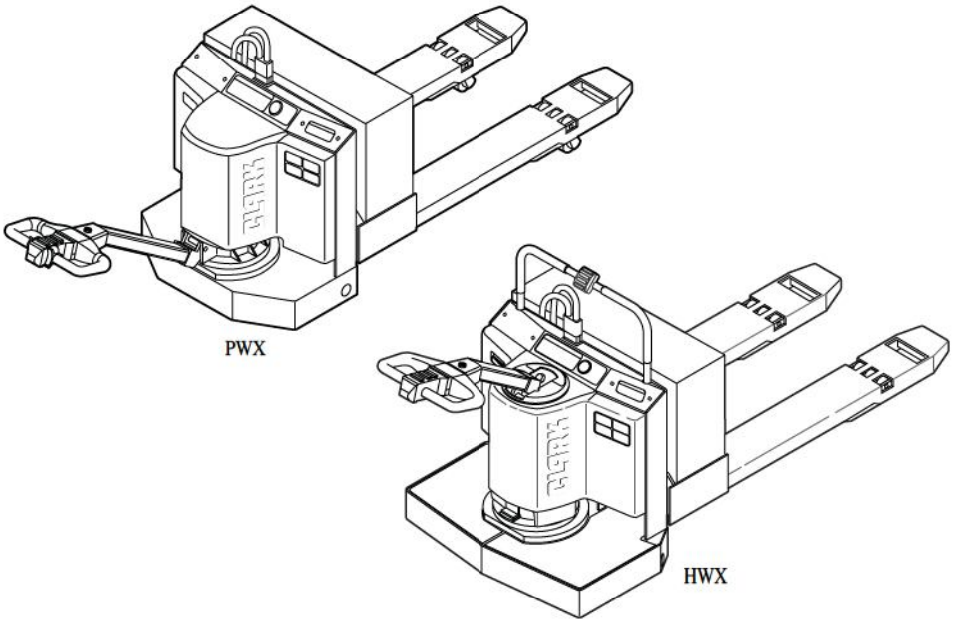
SM-781
HWX/PWX
Service Manual



September 2007

CLARK
THE FORKLIFT

Technical Publications
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Contents by Group

Contents are listed here by Group number :

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Section 2.

Planned Maintenance Program

P.M. CHECK SHEET

A special coding system on the P.M. Check Sheet allows truck condition to be reported with a minimum number of words. As the P.M. is performed, a check mark should be made in the appropriate box of the component being checked.

- (√) indicates the particular truck component or system has been checked and is O.K.
- (x) indicates the component or system is in need of a minor adjustment or service (not part of the normal P.M.) that should be taken care of in the near future.
- (r) indicates there is a potential problem that could result in damage to a component or system and requires attention.
- (s) indicates the need for urgent repair or replacement of a component or system and the truck should be shut down as eminent damage or possible injury may result.

The nature of problems found during a PM should be noted in the "comments" portion of the check sheet. Whenever a system or component is faulty or unsafe, it must be noted on the check sheet, and reported to the designated authority at the conclusion of the P.M.

WARNING

Remove all jewelry before examining electrical components.

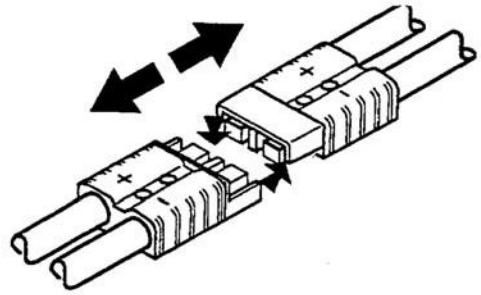
Visual Inspection			
A. Oil leaks	√		
B. Switches	√		
C. Drive Tire	√		
D. Load Wheels	√		
E. Caster Wheels	√		
F. Control Linkage	√		
Operational Tests			
A. Brakes			s
B. Brake Switch		r	
C. Horn	√		
D. Steering	√		
E. Speed Control	x		
F. Lift and Lower Control	√		

CODE			
	√	=	O.K
O.K.	x	=	Adjust(Not P.M)
Pontential	r	=	Repair or Replace
Urgent	s	=	Requires Shop Repair

Visual Inspection

1, Inspect Battery Plug & Truck Recelitacle

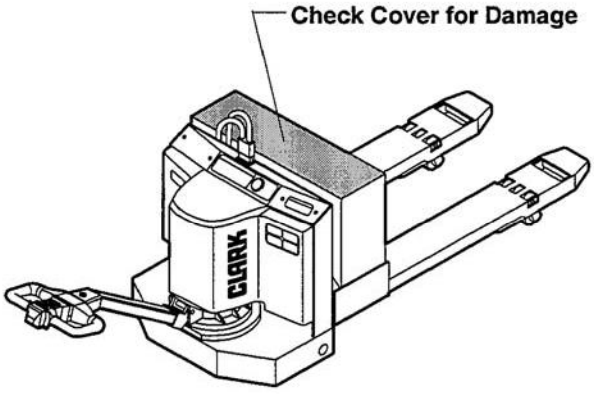
- Disconnect battery from truck.
- Inspect the spring loaded connectors in the truck battery receptacle and check the battery plug connectors. Severely burned connectors should be noted on the P.M. check sheet.



Disconnect Battery and check the Spring Loaded Connectors

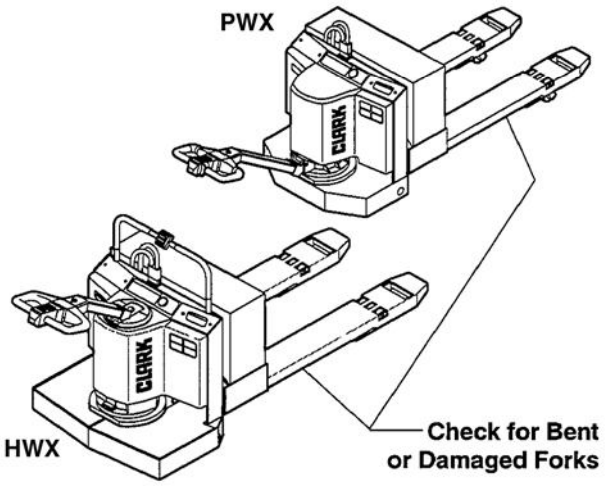
2, Inspect Battery Cover for damage

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



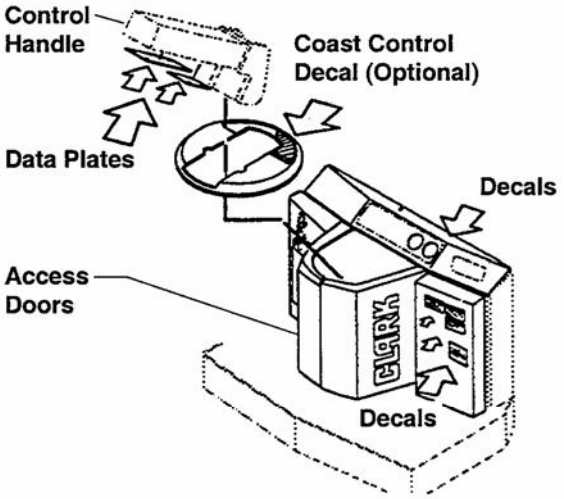
3_ Inspect Pallet Forks for obvious damage

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



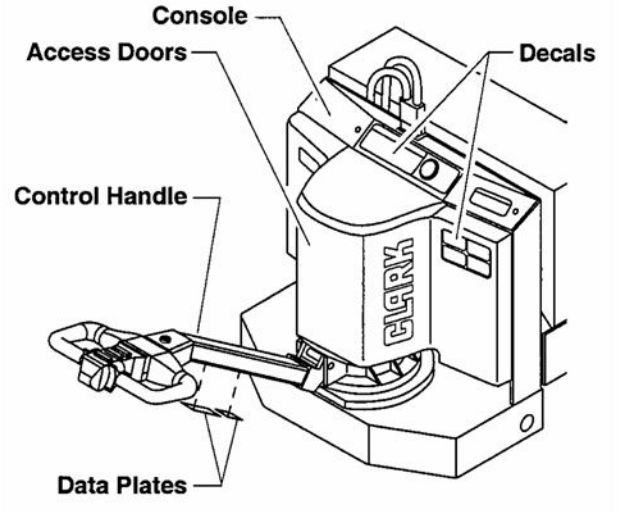
4. Rider Models

- l Inspect Frame Components
- l Check truck console, access cover and doors for damage.
- l Inspect nameplates and decals for damage and to be sure they are not missing.



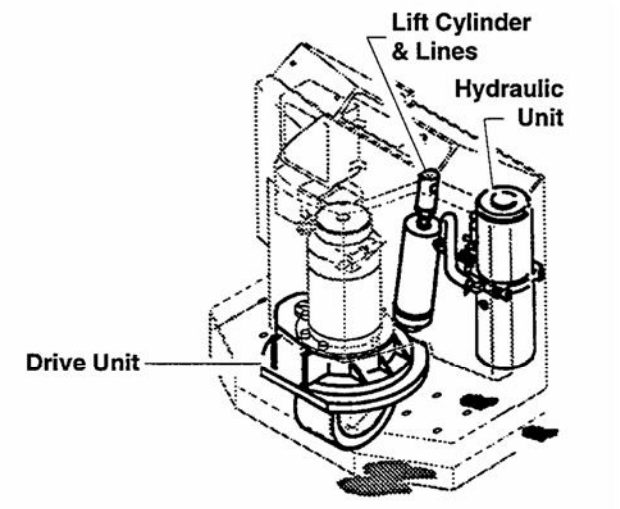
4A. Walkie Models

- Inspect Frame Components
- Check truck console, access cover and doors for damage.
- Inspect nameplates and decals for damage and to be sure they m not missing.



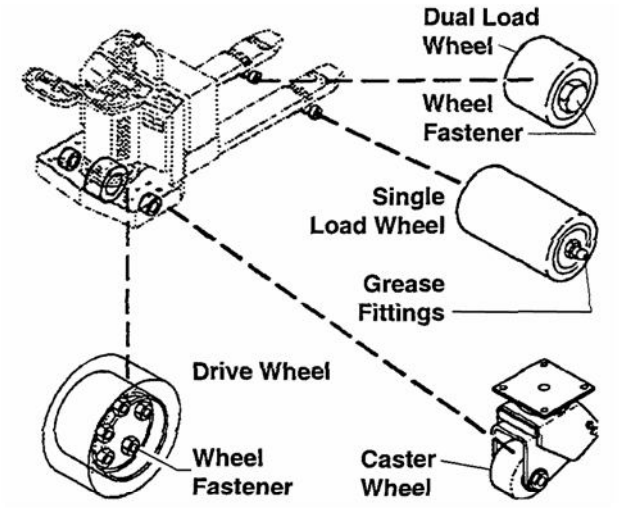
5, Check for obvious oil leaks

- 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 P.M.



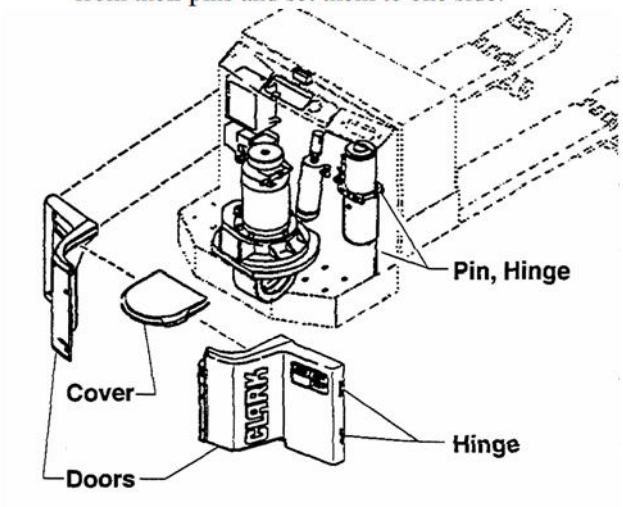
6. Inspect Tires & Wheels

- 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.
- Be sure, wheel fasteners are secure and none are missing.
- Make certain grease fittings are not damaged or missing.



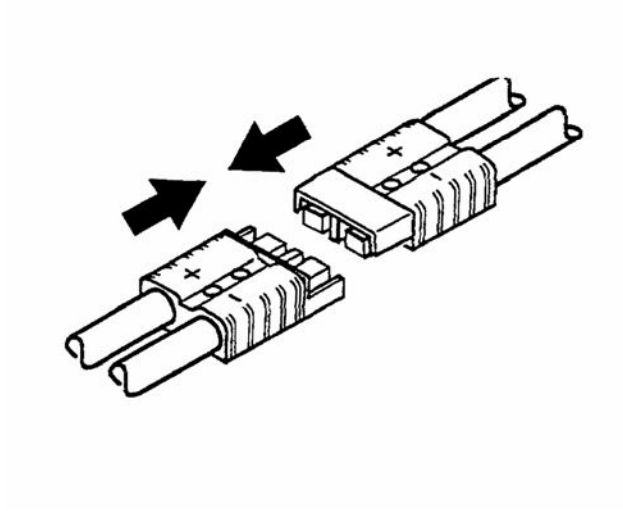
7. Expose Internal Components

- 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

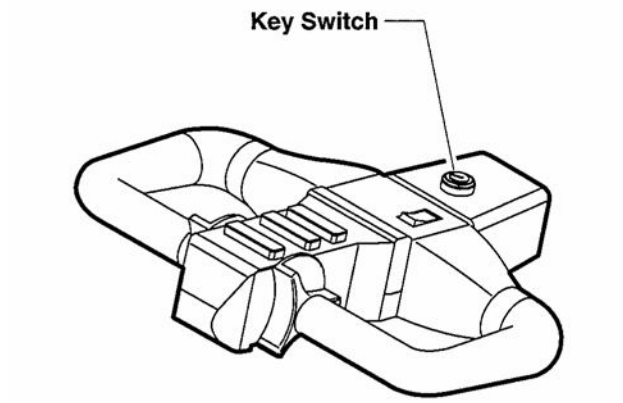
- Connect truck battery and check truck operation.



Operational Tests

9. All Models

- Turn the key switch on.

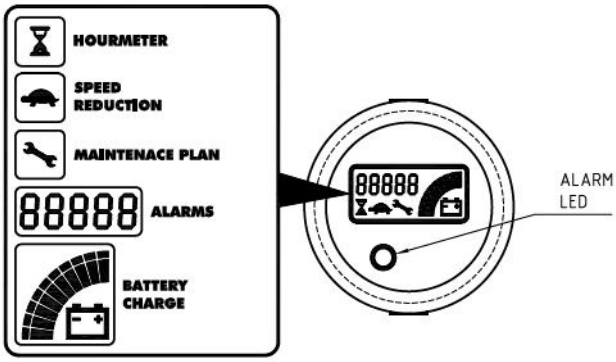


10. All Models

Check the horn to be sure it operates.

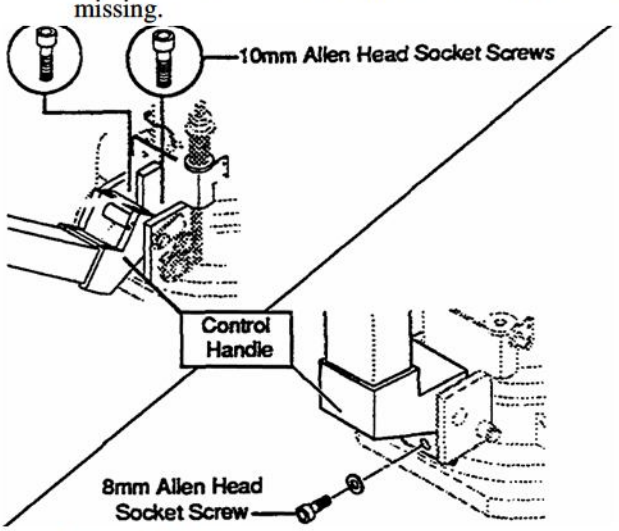
11. All Models

- Check the hour meter to be sure it operates.

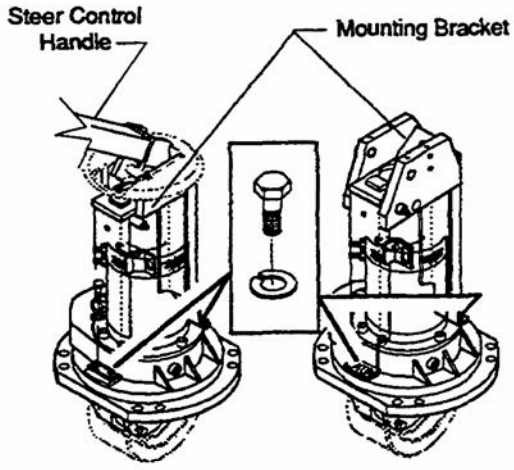


12. Check Steer Control Handle

- 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 none missing.

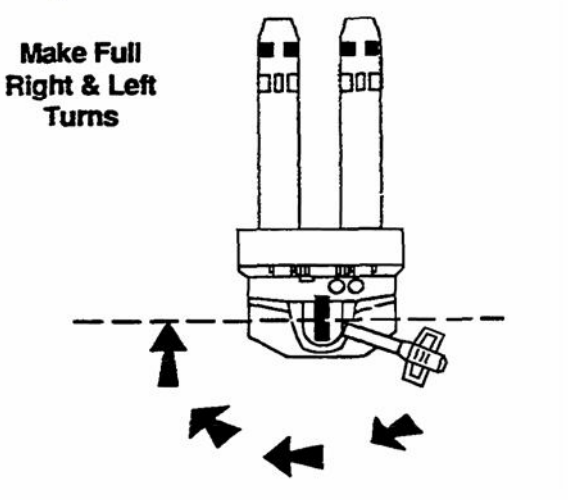


- Rider Models
- Check the mounting bracket to be sure it is securely mounted to the base of the drive unit.
- Make sure fasteners are tight and none are missing.



13. Check Steering

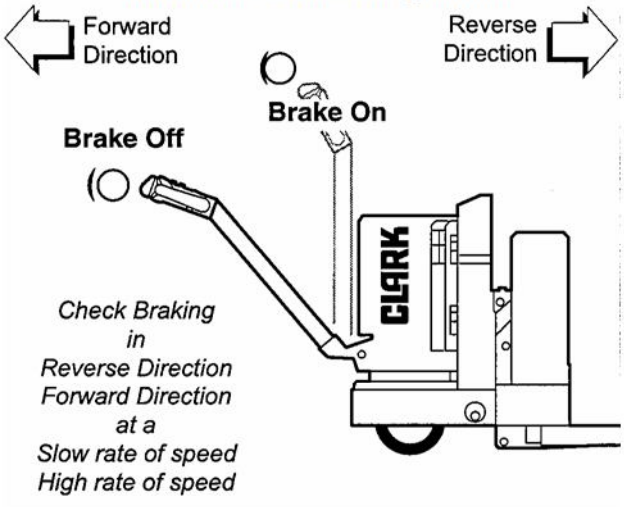
- Operate truck in reverse at a slow rate of speed. Move control handle through a full right and full left turn. Steering should be smooth without binding or hesitation.
- If there is binding, hard spots or movement appears to be stiff this indicates either lack of lubrication, misadjusted or damaged steering ring.
- Report condition on the P.M. check sheet.



14. Check Brake Oneration

- 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.

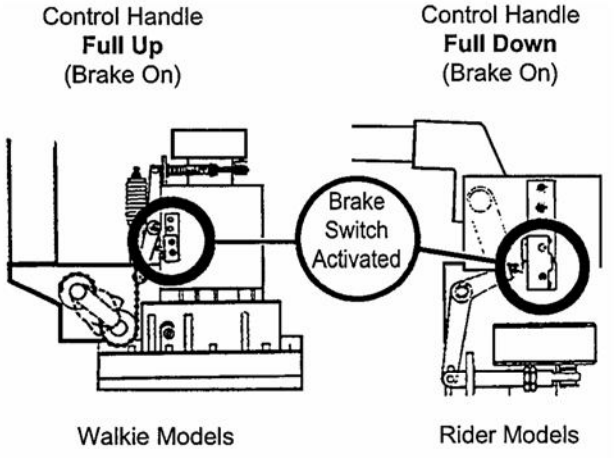
As Control Handle annroaches "Brake On" position:



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.

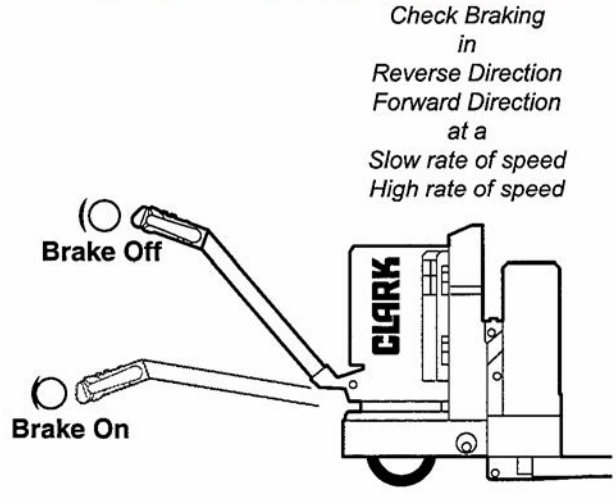
14A. Next, check for proper brake operation by moving the handle downward from the 10 ° (brake off) position. The brake check should be done at Low and High Speeds, and in Forward & Reverse directions.



- 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.

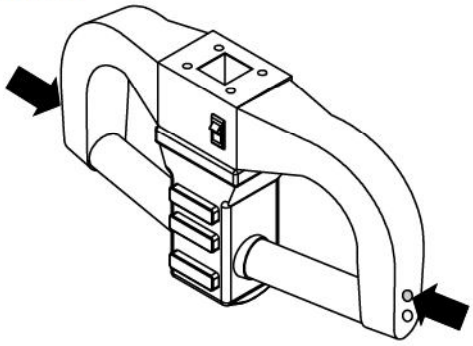
15. Optional Coast Control (HWX Models)

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

- Press the two order picking switches at the same time for 1 sec to activate the coast control function.
- Select the Forward switch ON and press one of the order picking switches for 1 sec to deactivate the coast control function.

CAUTION

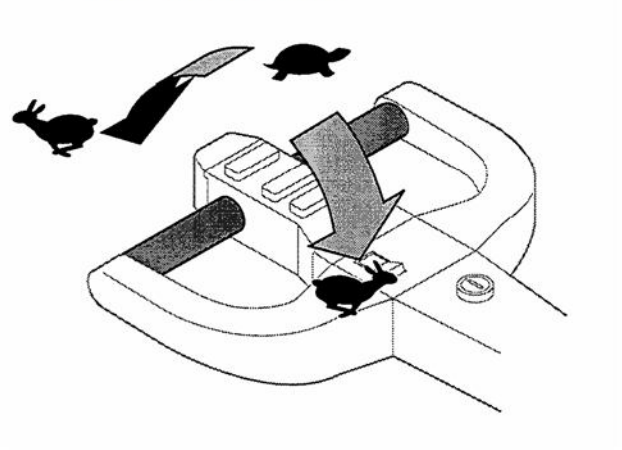
Be sure the brake switch should be OFF position during activating the coast control function.



16. Check Travel Speeds Check Acceleration Check High Speed

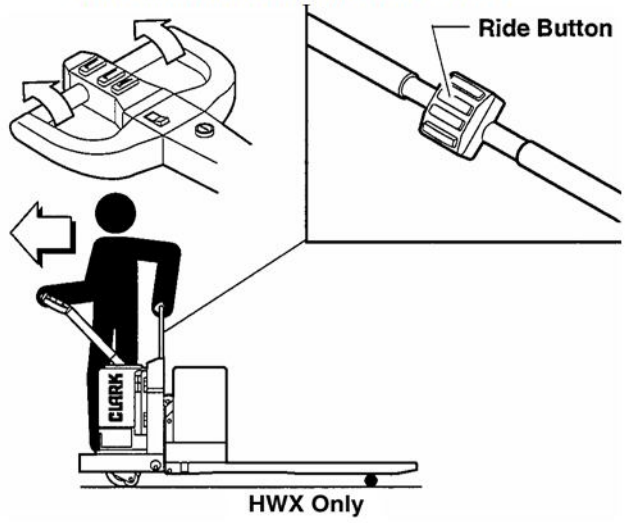
- Drive truck in a straight line, looking in the direction of travel.
- Listen for any unusual drive train noise.
- Accelerate from low to high speed. Acceleration should be a smooth transition from creep through

top speed. If transition is erratic, the accelerator circuit should be checked.



17. Check Hi-Speed Control

- Drive truck forward, in a straight line of travel.
- Fully rotate Directional Speed Control (1) until maximum (solid state control) speed is obtained
- Depress Hi-Speed Button (2). This transition should be smooth. If it is not, if it is erratic, jerky etc., the accelerator should be adjusted (Group 19). Note condition on the P.M. check sheet.

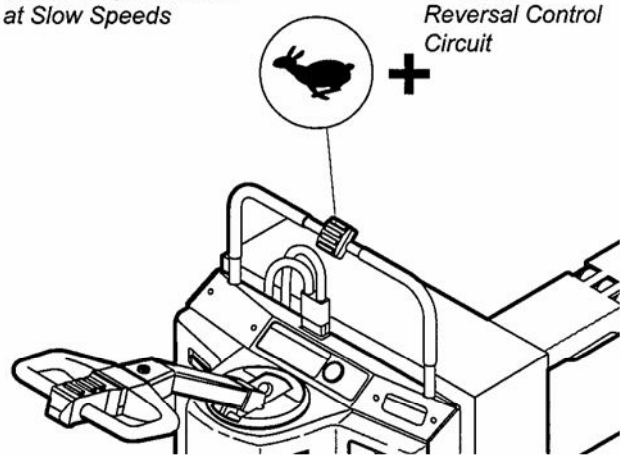


18. Override Control

- 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

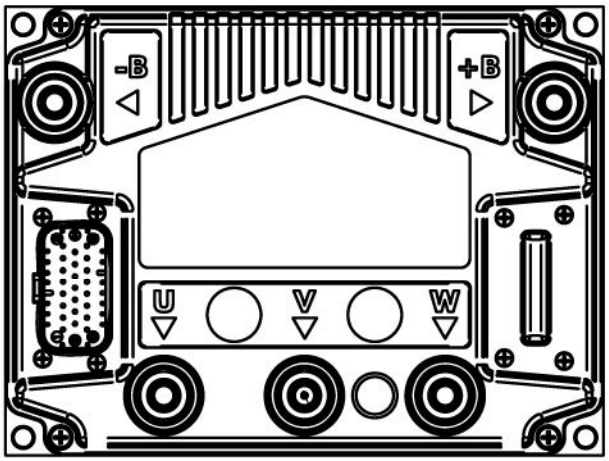
Using a shorting device without a "resistor load" could cause damage to the control.

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. HWX 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 lOO- 120 lb. in.
- 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