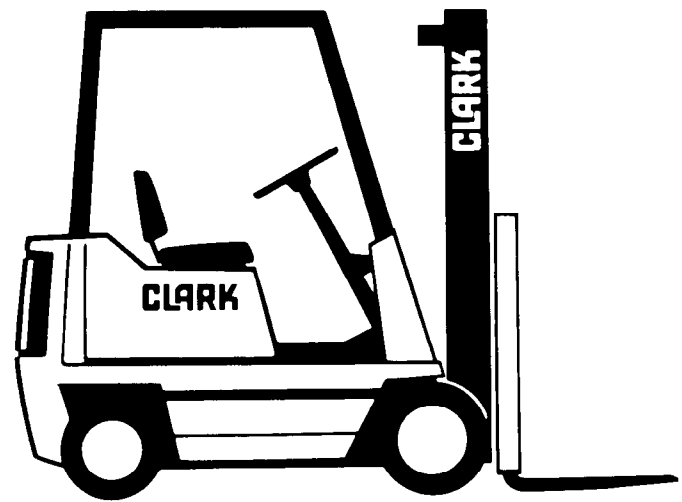

Service & Adjustment Manual



SM 538
NS/NP 246 (P.M.)

CLARK

Service Publications
Department
Battle Creek,
Michigan 49016

SERVICE MANUAL SM538

NP/NS 300 C&D

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FOREWORD

Clark Equipment Company welcomes you to the growing group of professional people who own, operate and maintain Clark lift trucks. This manual will familiarize you with service maintenance and overhaul information about your new truck. It has been especially prepared to help you maintain your Clark lift truck in an efficient and safe operating condition.

Regular, correct maintenance and care of your lift truck is not only important for full and efficient truck life; it is essential for your safety. A faulty lift truck is a potential source of danger to the operator, and to other personnel working near it. The importance of maintaining your lift truck in a safe operating condition by servicing it regularly and, when necessary, repairing it promptly cannot be emphasized too strongly.

To assist you in keeping your lift truck in good operating condition, this manual includes an outline of planned maintenance (PM) procedures that are considered essential to the life and safe performance of your truck. Brief procedures for inspections, operational checks, cleaning, lubrication, and adjustments are included for your reference.

Clark recommends that a planned maintenance and safety inspection program (PM) be performed by a trained and authorized mechanic on a regular basis. The PM program provides the opportunity to make thorough inspections and checks on the safe condition of your truck. Necessary adjustments and repairs can be done during the PM, which will increase the life of components and reduce unscheduled downtime. The need for major adjustments, repairs, or replacements is found and corrections made as required; not after failure has occurred.

HOW TO USE THIS MANUAL

This manual is intended to be used by persons who are trained and authorized to do lift truck maintenance. The recommended procedures for routine servicing and adjustments as well as for removal and overhaul of major components of the truck are outlined. It is written to show and describe the adjustment, removal, disassembly, inspection, repair, and assembly steps that are normally required to service these components.

The detailed procedures are arranged in sequence by numbered GROUP and Section. The GROUP numbers are the same as the component group in the Master Parts Book. Each GROUP has its own Table of Contents, so that you can find the various topics within more easily. If you cannot find a topic in the Table of Contents, check the Index at the back of the manual.

Component specifications, information notes and safety messages are included at the proper step of each procedure. To be better prepared to do the necessary service work, please take time to read the entire procedure, including any special instructions, before doing any work.

Specifications of selected truck components are included at the back of the manual for easy reference.

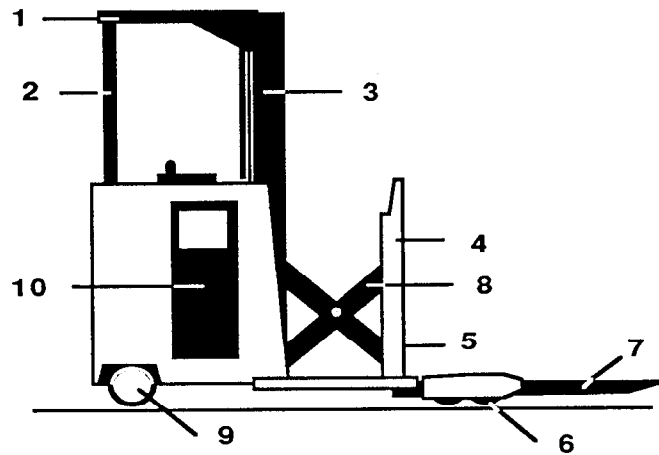
Also refer to the Operator's Manual, located on the truck, for additional information and instructions on the operation and maintenance of your truck.

If you have need for more information on the care and repair of your truck, please contact your authorized Clark dealer.

NOTICE - The descriptions and specifications included in this manual were in effect at the time of printing. Clark Equipment Company reserves the right to make improvements and changes in specifications or design, without notice and without incurring obligation. Please check with your authorized CLARK dealer for information on possible updates or revisions.

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PICTORIAL INDEX



**NP/NS 300 Narrow Aisle
Trucks**
(NP) = Pantograph
(NS) = Straddle (no
pantograph)

- 1. Overhead guard
- 2. Overhead guard rear post
- 3. Upright assembly
- 4. Load backrest extension
- 5. Fork carriage
- 6. Load wheels (NP model shown)
- 7. Load forks
- 8. Pantograph mechanism (NP only)
- 9. Swivel caster
- 10. Battery compartment

SAFETY AND OPERATIONAL CHECKS

PM Interval:

A = 8 - 10 hours, or daily

B = 50 - 250 hours, or every month

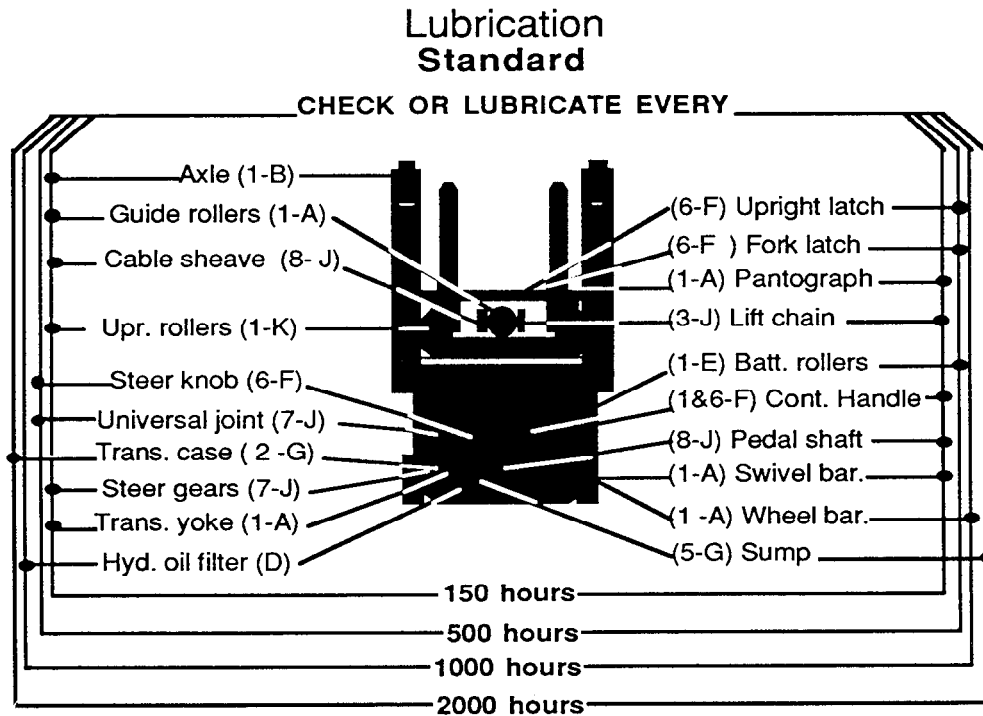
C = 450 - 500 hours, or every 3 months

D = 900 - 1000 hours, or every 6 months

E = 2000 hours, or every year

DAILY MAINTENANCE CHECKS	A	B	C	D	E
Check truck for obvious damage and leaks.	•				
Check / clean battery terminals	•				
Check electrolyte level.	•				
Check capacity, warning plates, decals	•				
Check condition of tires and wheels. Remove embedded objects.	•				
Check wheel lug nuts.	•				
Check hydraulic sump oil level.	•				
Check gauges and instruments.	•				
Check warning lights and hourmeter.	•				
Check overhead guard condition and bolts.	•				
Check horn operation and other warning devices.	•				
Check steering operation.	•				
Check service brake operation.	•				
Check parking brake operation.	•				
Check directional and speed controls operation.	•				
Check accelerator	•				
Check lift, tilt, and aux operation.	•				
Check upright, lift chains, and fasteners.	•				
Check load backrest extension and forks.	•				

RECOMMENDED PLANNED MAINTENANCE AND LUBRICATION SCHEDULE



Lubricants

- | | |
|---|------------------------------|
| (1) - MP1- multipurpose grease NLG1 # 1 | (6) - SAE 20 Engine oil |
| (2) - GL5 - transmission lubricant AP1GL5 | (7) - 886785 Spray lubricant |
| (3) - CL - chain lubricant Clark 886399 | (8) - Dry graphite |
| (5) - MS68 Hydraulic oil | |

Method

- | | |
|--|--------------------------------|
| (A) - Use standard lube gun | (F) - Apply light film |
| (B) - Use lube gun and adaptor for flush type fittings | (G) - Drain, flush and refill |
| (C) - Clean in solvent and re-oil | (H) - Repack bearing |
| (D) - Change filter | (J) - Clean and lubricate |
| (E) - Remove, clean and repack | (K) - Apply to channel of rail |

SAFETY SIGNS AND SAFETY MESSAGES

Improper or careless techniques cause accidents. Don't take chances with incorrect or damaged equipment. Read and understand the procedures for safe operation and maintenance outlined in this manual.

STAY ALERT! Follow safety rules, regulations and procedures. Accidents can be avoided by recognizing dangerous procedures or situations before they occur.

DRIVE AND WORK SAFELY and follow the safety signs and their messages displayed on the truck and in this manual.

SAFETY SIGNS and MESSAGES are placed in this manual and also on the lift truck to provide instructions and to identify specific areas where potential hazards exist and special precautions should be taken. Be sure you know and understand the meaning of these instructions, signs and messages. Damage to the truck or death or serious injury to you or other persons may result if these messages are not followed.

NOTICE This message is used when special information, instructions or identification is required relating to procedures, equipment, tools, pressures, capacities and other special data.

IMPORTANT This message is used when special precautions should be taken to ensure a correct action or to avoid damage to or malfunction of the truck or a component.

CAUTION This message is used as a reminder of safety hazards which can result in personal injury if proper precautions are not taken.

WARNING This message is used when a hazard exists which can result in injury or death if proper precautions are not taken.

DANGER This message is used when an extreme hazard exists which will result in death or serious injury if proper precautions are not taken.

USER SAFE MAINTENANCE PRACTICES

The following instructions have been prepared from current industry and government safety standards applicable to industrial truck operations and maintenance. These recommended procedures specify conditions, methods, and accepted practices that aid in the safe maintenance of industrial trucks. They are listed here for the reference and safety of all workers during maintenance operations. Carefully read and understand these instructions and the specific maintenance procedures before attempting to do any repair work. When in doubt of any maintenance procedure, please contact your local CLARK dealer.

1. Powered industrial trucks can become hazardous if maintenance is neglected. Therefore, suitable maintenance facilities, trained personnel, and procedures must be provided.

2. Maintenance and inspection of all powered industrial trucks shall be done in conformance with the manufacturer's recommendations.

3. A scheduled planned maintenance, lubrication, and inspection program shall be followed.

4. Only trained and authorized personnel shall be permitted to maintain, repair, adjust, and inspect industrial trucks, and in accordance with the manufacturer's specifications.

5. Properly ventilate work area, vent exhaust fumes, and keep shop clean and floor dry.

6. Avoid fire hazards and have fire protection equipment present in the work area. Do not use an open flame to check for level, or leakage of fuel, electrolyte, or coolant. Do not use open pans of fuel or flammable cleaning fluids for cleaning parts.

7. Before Starting Work On Truck:

a) Raise drive wheel(s) off of floor or disconnect power source and use blocks or other positive truck-positioning devices.

b) Put blocks under the load engaging means, innermast(s), or chassis before working on them.

c) Disconnect battery before working on the electrical system.

8. Before working on engine fuel system of gasoline powered trucks with gravity-feed fuel systems, be sure fuel shutoff valve is closed.

9. Before working on engine fuel system of LP-gas powered trucks, close LP-gas cylinder valve and run engine until there is no more fuel in the system and engine stops running. If engine will not run, close LP-tank valve and vent fuel slowly in a safe area.

10. Operation of the truck to check performance must be conducted in an authorized, safe, clear area.

11. Before Starting To Drive Truck:

a) Be in operating position.

b) Disengage clutch on manual transmissions, or apply brake on trucks with powershift transmission and electric trucks.

c) Put directional control in neutral.

d) Start engine or turn on power.

e) Check functioning of lift and tilt systems, directional and speed controls, steering, brakes, warning devices, and any load handling attachments.

12. Before Leaving The Truck:

a) Stop truck.

b) Fully lower the load engaging means, upright, carriage, forks, or attachments.

c) Put directional control in neutral.

d) Apply the parking brake.

e) Stop the engine or turn off power.

f) Turn off the control or ignition circuit.

g) Put blocks at the wheels, if truck is on an incline.

13. Handle LP-gas cylinders with care. Damage such as dents, scrapes, or gouges may dangerously weaken the tank and make it unsafe for use.

14. Brakes, steering mechanisms, control mechanisms, warning devices, lights, governors, lift overload devices, guards and safety devices, lift and tilt mechanisms, articulating axle stops, and frame members must be carefully and regularly inspected and maintained in a safe operating condition.

USER SAFE MAINTENANCE PRACTICES

15. Special trucks or devices designed and approved for hazardous area operation must receive special attention to ensure that maintenance preserves the original, approved safe operating features.

16. Fuel systems must be checked for leaks and condition of parts. Extra special consideration must be given in the case of a leak in the fuel system. Action must be taken to prevent the use of the truck until the leak has been corrected.

17. All hydraulic systems must be regularly inspected and maintained in conformance with good practice. Tilt and lift cylinders, valves, and other similar parts must be checked to assure that "drift" or leakage has not developed to the extent that it would create a hazard.

18. When working on hydraulic system, be sure the engine is turned off or battery disconnected on electric trucks, upright is in its fully-lowered position, and hydraulic pressure relieved in hoses and tubing. **WARNING** -- Always put blocks under the carriage and upright rails when necessary to work with upright in an elevated position.

19. The truck manufacturer's capacity, operation and maintenance instruction plates, tags, or decals must be maintained in legible condition.

20. Batteries, motors, controllers, limit switches, protective devices, electrical conductors and connections must be inspected and maintained in conformance with good practice. Special attention must be paid to the condition of electrical insulation.

21. To avoid injury to personnel or damage to the equipment, consult the manufacturer's procedures in replacing contacts on any battery connection.

22. Industrial trucks must be kept in a clean condition to minimize fire hazards and help in the detection of loose or defective parts.

23. Modifications and additions that affect capacity and safe truck operation must not be done without the manufacturer's prior written approval. Capacity, operation and maintenance instruction plates, tags or decals must be changed accordingly.

24. Care must be taken to assure that all replacement parts, including tires, are interchangeable with the original parts and of a quality at least equal to that provided in the original equipment. Parts, including tires, are to be installed per the manufacturer's procedures. Always use genuine CLARK or CLARK-approved parts.

25. When removing tires, follow industry safety practices. Most important, deflate pneumatic tires completely prior to removal. Following assembly of tires on multi-piece rims, use a safety cage or restraining device while inflating.

26. Use special care when removing heavy components from the truck, such as counterweight, upright, etc. Be sure that lifting and handling equipment is of the correct capacity and in good condition.

NOTICE -- You should also be familiar with additional operating and maintenance safety instructions contained in the following publications:

ANSI/ASME B56.1 - 1983: Safety Standard for Low Lift and High Lift Trucks (Safety Code For Powered Industrial Trucks). Published by: Society of Mechanical Engineers, United Engineering Center, 345 E. 47th Street, New York, N.Y. 10017.

NFPA 505-1982: Fire Safety Standard for Powered Industrial Trucks: Type Designations, Areas of Use, Maintenance and Operation. Available from: National Fire Protection Assoc., Inc., Batterymarch Park, Quincy, MA 02269.

General Industry Standards, OSHA 2206: OSHA Safety and Health Standards (29 CFR 1910), Subpart N-Materials Handling and Storage, Section 1910.178 Powered Industrial Trucks. For sale by: Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

PM - PLANNED MAINTENANCE PROGRAM

CONTENTS	PG
General	1
Visual Inspection	1
Functional Tests	5
Test Drive The Truck	8
Air Cleaning	11
Critical Fastener Torque Check	11
Lubrication, Fluids and Filters	11

GENERAL

A planned maintenance program of regular, routine inspections and lubrication is important for long life and trouble-free operation of your lift truck. Make and keep records of your inspections. Use these records to help establish the correct PM intervals for your application and to indicate maintenance required to prevent major problems from occurring during operation.

PM Report Form

As an aid in performing and documenting your PM inspections, Clark has prepared an "ELECTRIC TRUCK PLANNED MAINTENANCE REPORT" form. Copies of this form may be obtained from your authorized CLARK dealer. We recommend that you use this form as a checklist and to make a record of your inspection and truck condition.

The periodic maintenance procedures outlined in this manual are intended to be used with PM report form. They are arranged in groupings of maintenance work that are done in a logical and efficient sequence.

A check mark or entry is made on PM Report Form when PM is performed. Please note special coding system for indicating importance of needed repairs and/or adjustments.

When you have finished PM inspections, be sure to give a copy of report to designated authority or person responsible for lift truck maintenance.

Do not make repairs or adjustments unless authorized to do so.

For safety, it is good practice to:

Remove all jewelry (watch, rings, bracelets, etc.) before working on the truck.

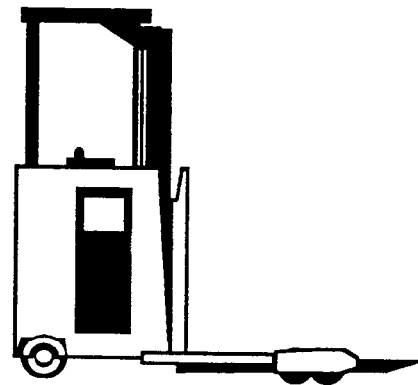
Disconnect battery from truck receptacle before working on electrical components.

Always wear safety glasses. Wear a safety (hard) hat in industrial plants and in special work areas where protection is necessary or required.

HOW TO PERFORM THE PM PERIODIC INSPECTIONS AND MAINTENANCE

VISUAL INSPECTION

First, perform a visual inspection of lift truck and its components. Walk around truck and take note of any obvious damage and maintenance problems. Check for loose fasteners and fittings.



Check to be sure all capacity, safety, and warning plates or decals are attached and legible.

NOTICE

NAMEPLATES & DECALS

Do not operate a lift truck with damaged or missing decals and nameplates. Replace them immediately. They contain important information.

Inspect truck for any signs of external leakage: transmission fluid, etc. Check for hydraulic oil leaks and loose fittings. **DO NOT USE BARE HANDS TO CHECK.** Oil may be hot or under pressure.

SAFETY NOTE

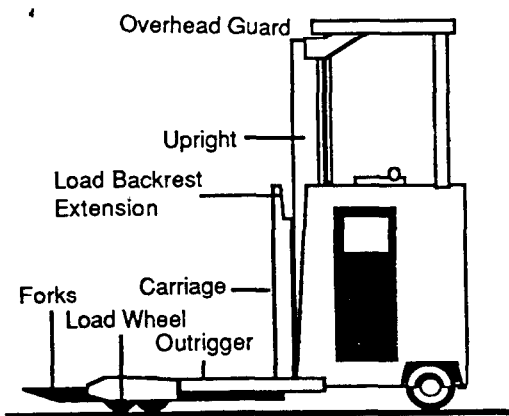
HYDRAULIC FLUID PRESSURE

Do not use your hands to check for hydraulic leakage. Fluid under pressure can penetrate your skin and cause serious injury.

Be sure that driver's overhead guard, load backrest extension, finger guards, shields, padding, and any other safety devices are in place, undamaged, and attached securely.

NOTICE - For trucks equipped with spark-enclosed construction (EE), or with polyurethane tires: Check ground strap for security of attachment and wear damage.

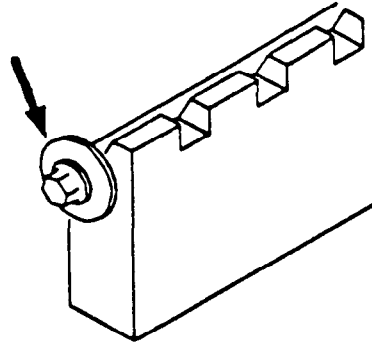
Then, check all of the critical components that handle or carry the load.



Check overhead guard for damage. Be sure that it is properly positioned and all mounting fasteners are in place and tight.

Check load backrest for damage. Inspect welds on carriage and load backrest for cracks. Be sure that mounting fasteners are all in place and tight.

NOTE - If load backrest has been removed, a bolt and washer must be in place on each end of top fork bar to act as a fork stop.



SAFETY NOTE

Uprights can drop suddenly. Look at upright, but keep hands out.

Inspect upright assembly: rails, carriage rollers, lift chains, lift and tilt cylinders, reach mechanism and reach cylinder. Look for obvious wear and maintenance problems, damaged or missing parts. Check for any loose parts or fittings. Check for leaks, any damaged or loose rollers, and rail wear (metal flaking). Carefully check lift chains for wear, rust and corrosion, cracked or broken links, stretching, etc. Check that lift and carriage chains are correctly adjusted to have equal tension. Check that lift chain anchor fasteners and locking means are in place and tight.

Be sure all safety guards and chain retainers are in place and not damaged. Inspect carriage stops and cylinder retainers. Check all welded connections.

Inspect all lift line hydraulic connections for leaks. Check lift cylinder rod, tilt cylinder rod and reach cylinder rod for wear marks, grooves, and scratches. Check cylinder seals for leaks.

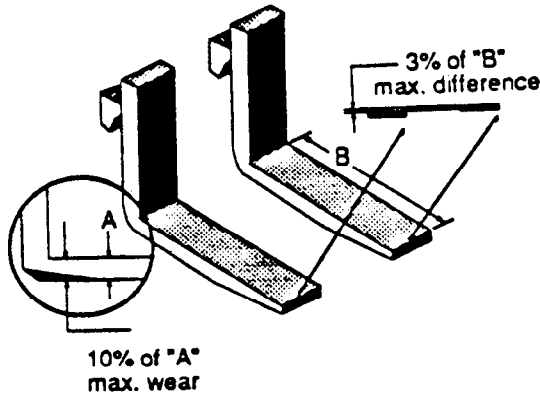
IMPORTANT

Uprights and lift chains require special attention and maintenance to maintain them in safe operating condition. Refer to Lift Chain Maintenance section for additional information.

Forks

Inspect load forks for cracks, breaks, bending and wear. The fork top surfaces should be level and even with each other. The height difference between both fork tips should be no more than 3% of fork length.

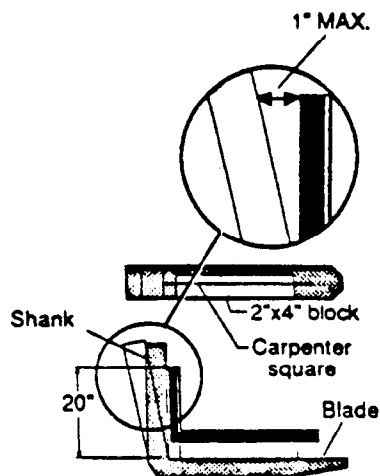
$\text{FORK LENGTH} \times .03 = \text{HEIGHT DIFFERENCE}$



Check amount of wear at heel of fork.

WARNING

If fork blade at the heel is worn down by more than 10%, load capacity is reduced and the fork must be replaced. (IE. $1.75 \times .9 = 1.575$ MINIMUM THICKNESS PERMITTED FOR AN ORIGINAL FORK THICKNESS OF 1.75 INCHES).

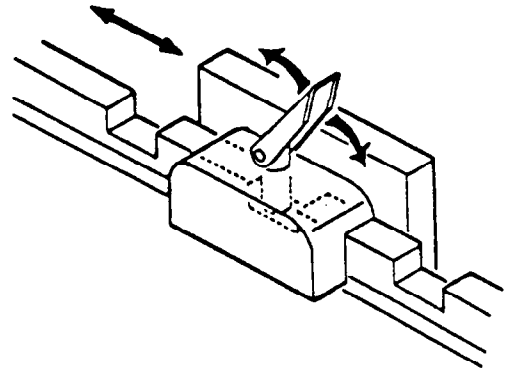


Inspect forks for twists and bends. To check, put a 2" thick metal block, at least 4" wide by 24" long on

blade of fork with 4" surface against blade. Put a 24" carpenters square on top of block and against shank. Check fork 20" above blade to be sure it is not bent more than 1 inch maximum.

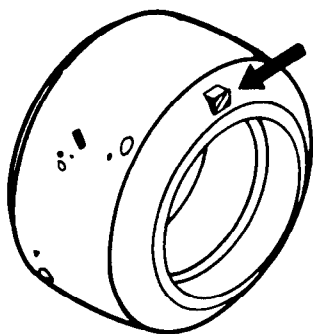
If fork blades are obviously bent or damaged, have them inspected by a trained maintenance person.

Inspect fork latches. Be sure they are not damaged or broken and operate freely and lock correctly. Check fork stop pins (or bolt and washer) for secure condition.



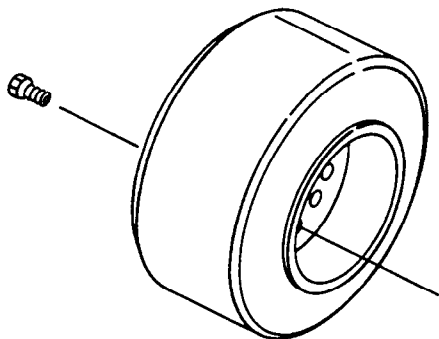
Wheels and Tires

Check condition of drive wheel and tire, of stabilizing caster wheel, and of load wheels. Remove objects that are embedded in treads. Inspect tires for excessive wear and breaks or "chunking out", and bond failure between tire and rim.



Check all wheel lug nuts or mounting fasteners to be sure none are loose or missing.

Have missing fasteners replaced and loose fasteners tightened to correct torque before operating truck.



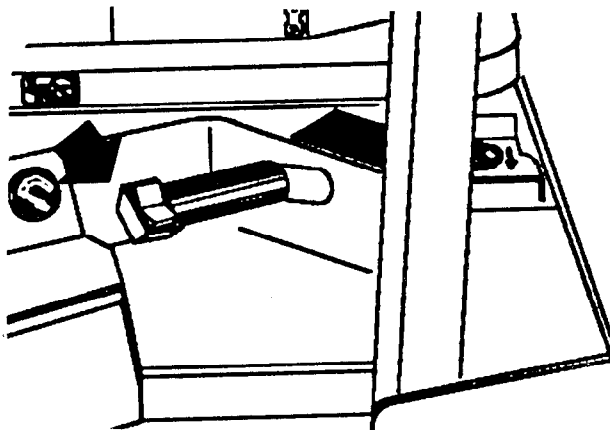
SAFETY NOTE

Personnel working on wheels and tires must be trained and qualified to do wheel and tire maintenance.

FUNCTIONAL TESTS

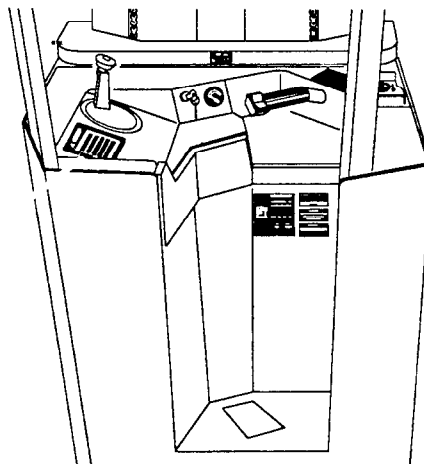
Be sure that all controls and systems are functioning correctly.

Test all warning devices, horn, lights, and other safety equipment and accessories. Be sure they are properly mounted and working correctly.



Press horn button to check horn function. If horn or any other part does not operate, report failure and have it repaired before truck is put back into operation.

Operate brake pedal, all hydraulic controls: reach, and auxiliary (if installed), operator hand control accelerator and directional control, and steering system. Be sure all controls operate freely and return to neutral properly.



Check function of foot brake mechanism. Apply, then release foot-operated pedal. When correctly adjusted, foot pedal should move to brake-applied position by spring action when released. If foot pedal binds or does not operate freely, apply lubricant to linkage at pivot points.

Fully rotate operators control handle and then release, to check for free movement.

Check directional control by rotating control handle both ways, then releasing handle, for correct function. Report any malfunction. Do not attempt to operate truck until repair has been made.

Be sure lift and tilt control feature of control handle moves freely and returns to center or neutral position when released.

Before starting a lift truck, begin from a safe condition. Check to see that:

Brake is applied (foot is not on brake pedal).
Forks are fully lowered to floor.
You are familiar with how all controls function.
All controls are in neutral or other correct position.

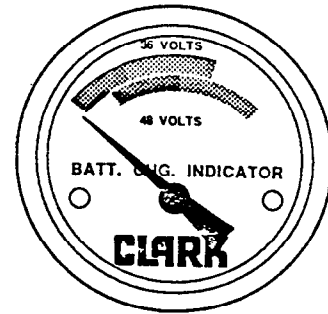
Turn key switch ON.



Check hour meter operation. With key switch ON, release brake (step on brake pedal). The steer pump and hourmeter should begin operating. Watch for movement of indicator in the dial opening. Report any malfunction or damage.

Turn key switch off and remove foot from brake. Power steer motor should stop running after an eight (8) second delay.

Write hourmeter reading on PM report form.



Check battery discharge indicator. The indicator should register in green area when key switch is ON. Also, check function of battery discharge indicator when making a battery load test, below.

Battery Load Test

Check battery condition by holding operator hand control in full back-tilt position, allowing pump to run against loading of bypass relief pressure for a few seconds. Watch battery discharge indicator. The needle should stay in green area. If needle falls into red area, battery is faulty or charge level is low and battery must be recharged before completing other electrical tests and performance parts of PM.

BEFORE DRIVING THE TRUCK, DO THESE TESTS:

Test for correct function of lift pump motor switch on LIFT portion of operator control handle. Turn key switch ON. Slowly pull back on operator control handle (RAISE position). The pump motor should start to run as handle moves from neutral position. Push handle forward (LOWER position) until upright starts to lower. Pump will stop running. Pump motor should not operate when handle is moved to "lower" position.

If operator control handle movement is excessive before pump starts, or if pump does not stop running when handle returns to neutral, spool position switch needs repair or adjustment.

Test for correct function of motor switch for TILT, REACH, and AUX function control.

Slowly move tilt control portion of operator control handle forward and then backwards, while

pressing on blue side of toggle switch (showing picture of TILT on switch). (Pressing this blue switch prevents LIFT motor from turning ON).

This movement should activate tilt cylinder.

Repeat test for reach control, if installed, by depressing yellow side of toggle switch (showing picture of REACH on switch) and pulling back or pushing forward on control handle at same time. Refer to discussion above if handle movement or switch action is not correct.

Check function of parking brake microswitch. With key switch ON and parking brake applied (foot off brake pedal), move operator control handle to FORWARD position. Rotate operator control handle for FWD direction slowly. The drive motor should not operate. If it does, microswitch on the parking brake linkage is not adjusted correctly. Also, check REVERSE direction rotation of handle.

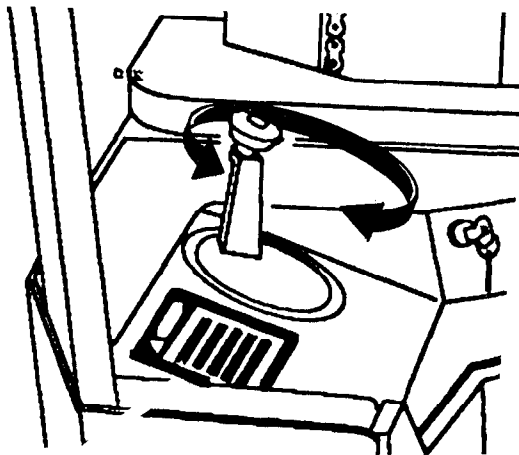
Check brake switch and braking action. Release brake by stepping on brake pedal. Rotate operators control handle to move truck slowly forward. Then, apply brake by taking foot off brake pedal. The brake should turn drive motor off and stop and hold truck from further movement.

To check brake holding capability and adjustment, park truck on a grade and apply brake. The brake should hold a lift truck with rated load on a 15% grade. When brake pedal is released, brake should not drag.

CAUTION - Do not operate a lift truck if brake is not operating properly.

Test for correct function of power steering pump switch and system. Turn key switch ON, and release brake. The steer pump should begin operating.

With truck not moving, check steering system by moving steering handwheel in a full right turn, and then in a full left turn. Return handwheel (steer wheel) to straight-ahead position. The steering components should operate smoothly when steering wheel is turned. Listen for steering pressure relief valve to by-pass when steer wheel hits stops. The steer pump and motor should not stall or exhibit excessive loading. If it does, power steering system relief pressure valve may be malfunctioning.



Turn key switch OFF and apply brake. Steer pump should stop after an eight (8) second delay.

NOTICE - The steering system, steer wheel and steering linkage should be inspected periodically for abnormal looseness and damage. Check for any changes in steering action. Hard steering, excessive freeplay (looseness) or unusual sounds when turning or maneuvering indicates a need for inspection and servicing.

Never operate a truck which has a steering system fault.

TEST DRIVE THE TRUCK

NOTE - It is recommended that these tests be conducted with a rated capacity load, if possible.

Test truck for general correct operation and drive train function, by driving truck in both forward and reverse directions first in a straight line and then, slowly, through a series of full right and left turns.

Check all around to be sure that your intended path of travel is clear of obstructions and pedestrians.

Test for correct function of SCR traction control.

Check CREEP SPEED, 1A RANGE, and PLUGGING.

1. Check CREEP SPEED and 1A RANGE while driving truck in a straight line in both FORWARD and REVERSE directions. CREEP SPEED should be obtained at beginning of SCR RANGE after rotating operator control handle a slight amount.

1A RANGE - When operator control handle is rotated farther, truck should accelerate in SCR RANGE and make a smooth transition into 1A RANGE for maximum travel speed. As 1A contactor closes, there should be very little surge as truck goes out of SCR RANGE and into 1A. All speed changes should be smooth while increasing and decreasing speed. Listen for any unusual drive train noises or actions of controls and drive train components.

Stop truck with brake. Note any unusual reactions in driving or braking performance, and need for adjustment.

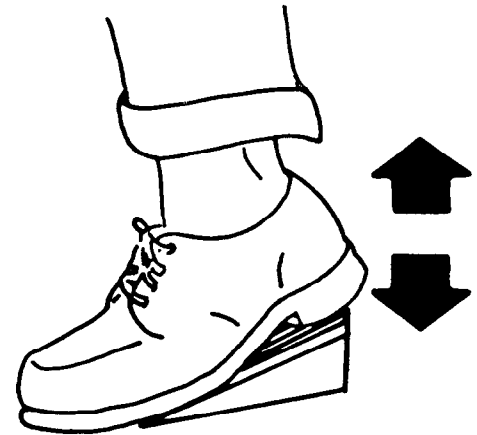
2. PLUGGING is an SCR control function which provides for reversing direction of travel under controlled conditions. A correctly-adjusted plugging control should result in a smooth deceleration, or gradual stop of travel from any speed in one direction, and acceleration in opposite direction. Plugging speed and distance is determined by amount operator control handle is rotated.

Check PLUGGING function first at a slow speed. If operating correctly, then test at full speed. First, drive truck in FORWARD direction. Rotate operator control handle and allow truck to accelerate to desired travel speed. Then, reverse rotation of operator control handle to REVERSE

position. The truck should slow to a smooth, controlled stop and accelerate in opposite direction. Repeat test by rotating operator control handle backward to FORWARD position.

Check acceleration control of operator control handle while conducting speed range tests. It must move easily and smoothly throughout acceleration stroke, and return without binding. There should be no restriction to movement on either acceleration or deceleration.

Test brake (drive motor cut-off) switch. Drive truck FORWARD (or in REVERSE) at creep speed. While holding operator control handle steady in creep-speed position, remove foot from brake pedal. The braking action should interrupt power to drive motor and stop truck. Depress brake pedal and move control handle to NEUTRAL and then to FORWARD (or REVERSE). The drive motor should start again moving truck.



Retest brake operation by applying and releasing brakes several times while driving truck. 1) Check for quick pedal return, and for full stopping without pulling to one side 2) Listen for brake squeal and other abnormal noise.

Check steering control operation. First, drive truck in a straight line. Then, drive **SLOWLY** (creep speed) through a series of full right and left turns. The truck must drive in a straight line without drifting toward either side. Check steering response and smoothness of operation. Turning effort must be same in either direction.

NOTICE - It is recommended that following tests also be conducted with a rated capacity load, if available.

Test for general drive train operation and noises. Drive truck at various speed and operating conditions, in both FORWARD and REVERSE directions. Test shifting from NEUTRAL to

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