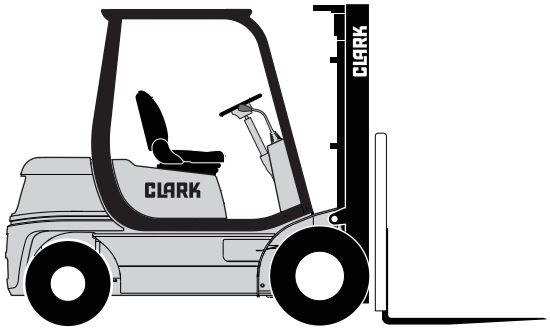
SERVICE MANUAL

CQ 20/25/30 D/L

RATED CAPACITY: 2000 – 3000kg



Book No. SM 794
Aug. 2008

CLARK
THE FORKLIFT

(Head office) 202-1 Ojung-Dong, Ojung-Gu,
Bucheon-city, Kyunggi-do, Korea
(Factory) No.18 Huaihedong Road,
Huangdao Economic & Technical Development Area,
Qingdao Shandong Province, China

Truck Models Covered by this Manual

This manual consists of "base" module that pertains to all CQ20-30 models and other modules that pertain only to specific models. Manuals shipped with the truck contain the base module and the modules specific to the purchased truck.

You may, however, purchase specific modules and expand your manual to fully cover multiple models. To do so, order the desired modules as you would any other Clark part.

Arrangement and Use of this Manual

Clark arranges parts and service procedures by standardized *Groups*. In this manual, Groups are similar to "chapters".

Each Group begins with a table of contents that shows the *Sections* contained within the Group. Lengthy Sections also begin with a table of contents.

Each Group and Section has an identifying name and number, or "ID".

Each page also has a unique ID. The page ID consists of three numbers separated by hyphens. The three numbers represent the Group number, the Section number, and the page number. For example, "00-1-2" on the lower corner of the page indicates Group 00, Section 1, page 2.

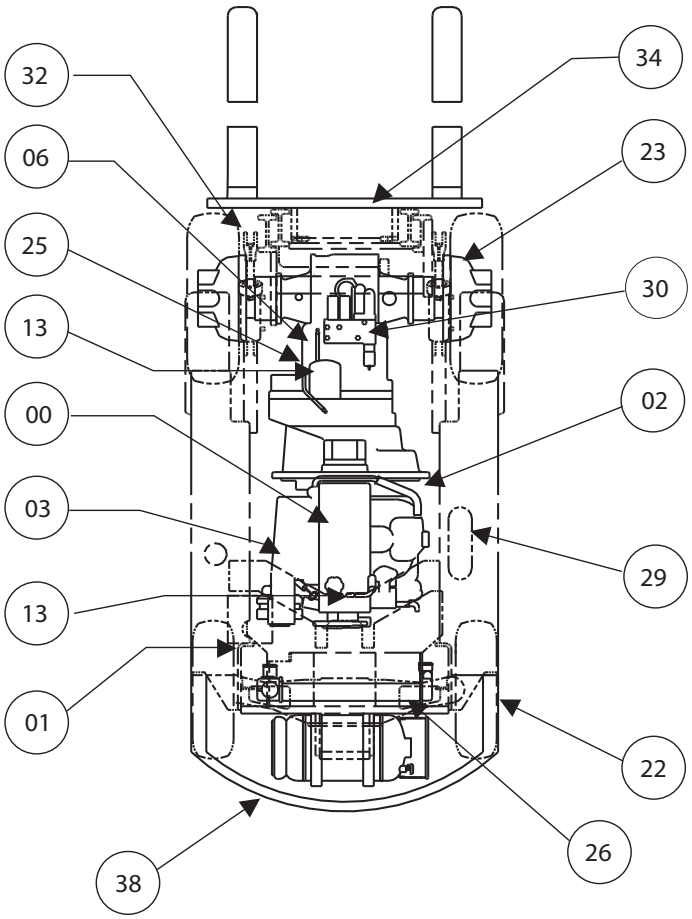
The Group number sometimes has a letter or letters added to it in parentheses if one or more variations of the Group exist. For example, if the truck has a standard transaxle, Group 06 is expressed as "06(S)"; if the truck has a hydrostatic transmission, Group 06 is expressed as "06(H)".

You can quickly locate a specific point in the manual by using the headers and footers that appear on every Section page. The following illustration points out these areas.

This manual is intended for the use of trained service personnel. Please read Group SA, "Safe Maintenance", and the *Operator's Manual* before working on or operating the truck.

CONTENTS

(Group Index)



GROUP PS

PERIODIC SERVICE

Section 1

Maintenance Schedules

"Periodic Service" and "Planned Maintenance"

The term "periodic service" includes all maintenance tasks that should be performed on a regularly scheduled basis.

The term "Planned Maintenance" indicates a formalized program of basic inspections, adjustments, and lubrications that the Clark service organization provides customers at a prescribed interval, usually 50-250 hours. The recommended basic "Planned Maintenance" procedure is given in Section 2 of this Group.

The current Section,"Maintenance Schedules," specifies all maintenance tasks—including Planned Maintenance tasks—that should be performed periodically, and suggests intervals at which they should be performed.

Determining Maintenance Intervals

Time intervals on the charts on the next four pages and elsewhere in this manual relate to truck operating hours as recorded on the hourmeter, and are based on experience Clark has found to be convenient and suitable under normal operation. Standard operating condition classifications are:

Normal Operation: Eight-hour material handling, mostly in buildings or in clean, open air on clean, paved surfaces.

Severe Operation: Prolonged operating hours or constant usage.

Extreme Operation:

- In sandy or dusty locations, such as cement plants, lumber mills, and coal dust or stone crushing sites.
- High-temperature locations, such as steel mills and foundries.
- Sudden temperature changes, such as constant trips from buildings into the open air, or in refrigeration plants.

If the lift truck is used in severe or extreme operating conditions, the maintenance intervals should be shortened accordingly.

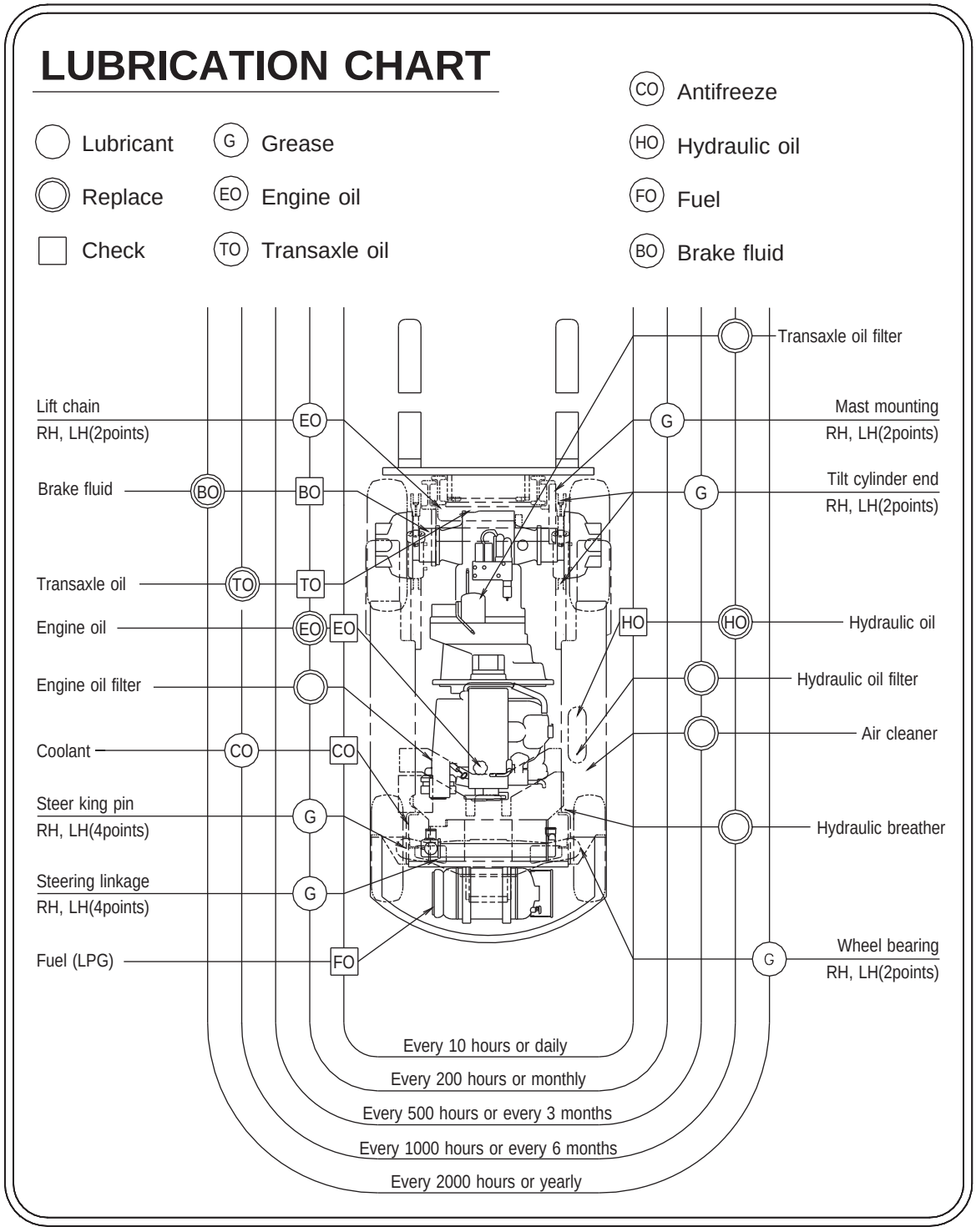
IMPORTANT

MAINTENANCE INTERVALS. If the lift truck is used in severe or extreme operating conditions, the maintenance intervals should be shortened accordingly.

Since the operating environments of lift trucks vary widely, the above descriptions are highly generalized and should be applied as actual conditions dictate.

LUBRICATION

Perform periodic maintenance, replacement and lubricating according to following lubrication chart to maintain optimum condition. Otherwise service, life will be reduced and breakdowns may occur frequently.



Recommended Periodic Service Schedule

This chart lists maintenance tasks that should be done periodically, the suggested time intervals, and the service manual Group in which the task is covered.

Apply as appropriate for diesel, gas, and LPG trucks. Refer to Operator's Manual for **Daily Checks**.

TASKS	First 50 Hours	Every 50-200 Hours (or 1 month)	Every 450-500 Hours (or 3 months)	Every 900-1000 Hours (or 6 months)	Every 2000 Hours (or 1 year)
Group PS - Periodic Maintenance					
Perform Planned Maintenance inspections, lubrications, and adjustments		●			
Group 00 - Engine					
Exhaust smoke from gas engine - inspect (blue-oil ; black-fuel)		●			
Idle / governed rpm - check / adjust		●			
Mounts / brackets - inspect / tighten		●			
Oil change - drain / fill*	●	●			
Oil filter cap & seal - clean / check		●			
Oil filter - replace	●	●			
Oil level / condition - check	●	●			
Stall rpm - check on standard transaxle truck		●			
Tune up - determine if needed by stall check and / or functional test		●			
Valve tappet adjustment - diesel engine		●			
Group 01 - Cooling System					
Coolant level/condition - check / sample		●			
Coolant protection level - hydrometer test				●	
Coolant change - drain & flush					●
Coolant hoses - inspect / replace		●			●
Fan blades - inspect loose / damaged		●			
Fan belt(s) - check tension, wear	●	●			
Radiator cap - inspect / test		●			●
Thermostat - test / replace					●
Water pump - check leaks / wear		●			
Group 02 - Fuel System					
Carburetor idle / air - check / adjust		●			
CO level - check / adjust					●
Diesel injector s /lines - clean / inspect				●	
Filler cap / screen - clean / inspect		●			
Fuel filter, Diesel - replace			●		
Fuel filter, LPG - replace				●	
LPG lock-off valve filter - inspect / replace					●
LPG tank mounting / guard - inspect		●			
LPG tank shut-off valve - inspect / test		●			
LPG vaporizer / regulator / hoses - inspect		●			

TASKS	First 50 Hours	Every 50-200 Hours (or 1 month)	Every 450-500 Hours (or 3 months)	Every 900-1000 Hours (or 6 months)	Every 2000 Hours (or 1 year)
Throttle linkage - check / adjust		●			
Group 03 - Air Intake & Exhaust					
Air filter element - replace				● (Diesel)	● (Gas/LPG)
Air hoses / clamps - inspect		●			
Exhaust pipe / muffler - inspect		●			
Group 06 - Transaxle					
Charging pump - stall test standard transaxle		●			
Clutch pack operation - stall test standard transaxle		●			
Pressure checks					●
Fluid replace - drain / fill	●			●	
Fluid filter - replace	●			●	
Fluid level / condition - check / sample	●		●		
Inching operation - check / test		●			
Oil cooler / lines - inspect		●			
Strainer - clean on standard transaxle					●
Group 12 - Ignition System					
Diesel cold starting plug - test					●
Distributor cap / rotor - inspect		●			
Electronic ignition - test					●
Ignition timing - check / adjust			●		
Ignition wiring - inspect		●			
Neutral start - check		●			
Parking brake interlock - check		●			
Spark plugs - regap / replace			●		
Starter motor - inspect / test					●
Starter solenoid - inspect / test					●
Group 13 - Electrical System					
Hourmeter - check		●			
Lamp check - at start-up		●			
Wiring harness - inspect				●	
Group 20 - Driveaxle					
Axle end lube - clean / repack					●
Axle mounting bolts - inspect / tighten		●			
Fluid replace	●			●	
Group 22 - Wheels And Tires					
Wheel mounting bolts - tighten	●	●			
Tire pressure / condition - check	●	●			
Group 23 - Brake System					
Operation - check		●			
Service brake - check wear					●
Brake lines - check	●	●			
Parking brake - check / adjust	●	●			
Fluid check / lubricate		●			

TASKS	First 50 Hours	Every 50-200 Hours (or 1 month)	Every 450-500 Hours (or 3 months)	Every 900-1000 Hours (or 6 months)	Every 2000 Hours (or 1 year)
Fluid replace - drain / fill					●
Group 26 - Steer Axle and Lines					
Operation - check		●			
Power steering relief pressure - check					●
Steer axle mounting - inspect		●			
Steer wheel bearings - check		●			
Steer wheel bearings - lubricate / adjust					●
Steering cylinder seals - check leakage		●			
Steering linkage - lubricate		●			
Group 29 - Hydraulic Pump, Sump, and Filter					
Hydraulic fluid level/condition - check / sample		●			
Hydraulic fluid change - drain / fill					●
Hydraulic suction screen - clean					●
Hydraulic fluid filter - replace	●		●		
Hydraulic tank breather - clean / replace					●
Group 30 - Hydraulic Valve & Linkage					
Hydraulic system relief pressure - test / adjust					●
Group 32 - Tilt Cylinders					
Tilt cylinder adjustment - check / adjust		●			
Tilt cylinder drift - test		●			
Tilt cylinder mounting - check / tighten		●			
Tilt cylinder rod ends - check / tighten / lubricate		●			
Tilt cylinder rod / seals - check for leaks		●			
Group 34 - Upright, Lift Cylinder, Carriage, Forks					
Operation - check		●			
Carriage and lift chain - lubircate		●			
Carriage chain condition - inspect / adjust		●			
Forks, latches, stop pin - inspect / check wear		●			
Lift chain condition - inspect / adjust		●			
Load backrest		●			
Upright lift cylinder downdrift-test		●			
Upright rollers - check		●			
Upright trunnion bolts - tighten		●			

* Oil change interval may be determined by laboratory analysis

Section 2

The Planned Maintenance Program

This Section defines a set of basic service procedures, known as the “Planned Maintenance Program”, and describes systematic approach for performing them.

Introduction to Planned Maintenance

A program of regular, routine inspections, lubrication, and other service tasks is important for the long life and trouble-free operation of the lift truck.

The Clark service organization offers customers a formalized program—called Planned Maintenance, or PM—for performing these tasks.

PM Intervals

The PM inspections, adjustments, and lubrications are typically performed on each covered truck at 50-250 hour intervals. (See Section 1, in this Group about defining service intervals.)

The PM Form

As an aid to service technicians performing and documenting PM inspections, Clark has prepared a "Gas, LPG or Diesel Planned Maintenance Report" form. A black-and-white copy of this form is inserted in Section 3 of this Group.

We recommend that you use this form as a checklist and to make a record of your inspection and truck condition. This record can be used to inform the owner of needed repairs and help establish the optimal PM intervals.

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

The Basic PM Procedures

The chart on the next page lists the basic PM tasks. The actual PM program may be modified to meet the specific needs of the truck application.

The procedures beginning on page 4 outline a systematic approach to performing the PM tasks. These procedures consist of:

- External visual checks you make as you walk around the truck with it turned off.
- Operational checks you make while operating the truck.
- Tests, adjustments, and lubrication you perform with the covers removed.

⚠ CAUTION

- **Do not make repairs or adjustments unless authorized to do so.**
- **Disconnect the battery ground cable (-) from the engine or frame before working on electrical components.**
- **Always wear safety glasses.**
- **Wear a safety (hard) hat in industrial plants and in special areas where protection is necessary or required.**
- **Remove all jewelry (watch, rings, bracelets, etc.) before working on the truck.**

The Recommended PM Task Chart

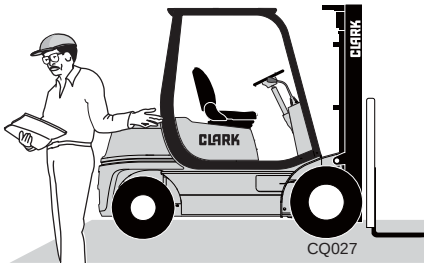
Listed by Service Manual Group

Group PS - The Basic PM Procedures
Visual inspection
Functional performance check - test dirve
Air cleaning of truck
Lubrication, filters, and fluid levels checks
Critical fasteners torque check
Group 00 - Engine
Exhaust smoke (blue-oil ; black-fuel)
Idle RPM - check/adjust
Max no-load gov'd RPM - check/adjust
Mounts/brackets - inspect/tighten
Oil filler cap & seal - clean/check
Oil level/condition - check
Stall RPM - check
Group 01 - Cooling System
Coolant hoses - inspect/replace
Coolant level/condition - check/sample
Coolant protection level - hydrometer test
Fan belt(s) - check tension, wear
Fan blades - inspect loose/damaged
Fan speed control - inspect
Group 02 - Fuel System & Exhaust
Air hoses/clamps - inspect
Exhaust pipe/muffler - inspect
LPG tank mounting/guard - inspect
LPG tank shut-off valve - inspect/test
LPG vaporizer/regulator/hoses - inspect
Throttle linkage - check/adjust
Group 06 - Transaxle
Charging pump - stall test standard transaxle
Clutch pack - stall test standard transaxle
Fluid level/condition - check/sample
Inching operation - check/test
Oil cooler/lines - inspect
Group 12 - Ignition System
Distributor cap/rotor - inspect
Ignition wiring - inspect
Parking brake interlock - test
Group 13 - Electrical System
Hourmeter - check
Indicator lights - check
Wiring harness - inspect

Alternator - inspect/test
Alternator dirve belts - inspect/adjust
Alternator output - test
Battery condition - performance load test
Battery electrolyte level - check/add
Battery terminals/cables - clean/tighten
Neutral start - check
Starter cranking voltage - test
Group 22 - Wheels And Tires
Tire pressure/condition - check
Group 23 - Brake System
Brake lines - check
Check operation
Parking brake - check/adjust
Service brake - check wear
Group 26 - Steer Axle & Lines
Operation - check
Steer axle mounting - inspect
Steer wheel bearings - check
Steering cylinder seals - check leakage
Steering valve - check leakage
Group 29 - Hydraulic Pump, Sump and Filter
Hydraulic fluid level/condition - check/sample
Lines - check for leakage
Group 30 - Hydraulic Valve & Linkage
Hydraulic system relief pressure - test/adjust
Linkage and control handle operation - check
Group 32 - Tilt Cylinders
Tilt cylinder mounting - check/tighten
Tilt cylinder rod ends - check/tighten
Tilt cylinder rod/seals - check condition
Group 34 - Upright, Lift Cylinders, Carriage, Forks
Carriage/lift chain - lubricate
Carriage chain condition - inspect/adjust
Forks, latches, stop pin - inspect/check wear
Lift chain condition - inspect/adjust
Load backrest - inspect
Operation of lift and tilt cylinder - check
Racking - check for
Upright trunnion bolts - tighten

Visual Inspection

First, perform a visual inspection of the lift truck and its components. Walk around the truck and take note of any obvious damage and maintenance problems.



Decals, Fasteners, and Leaks

Check for loose fasteners and fittings.

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

NOTE

Do not operate a lift truck with damaged or missing decals and nameplates. Replace them immediately. They contain important information. See Group 40 for decal locations.

Inspect the truck before and after starting engine for any signs of external leakage: fuel, engine oil or coolant, transmission fluid, etc.

Check for hydraulic oil leaks and loose fittings. DO NOT USE BARE HANDS TO CHECK.

CAUTION

Hydraulic Fluid Pressure. Do not use your hands to check for hydraulic leakage. Oil may be hot or under pressure. Fluid under pressure can penetrate your skin and cause serious injury.

Overhead Guard

Be sure that the overhead guard and any other safety devices are in place, undamaged, and attached securely. Inspect welds and structural members for cracks or other damage. Also check for loose or missing fasteners.

Carriage, Load Backrest, and Upright

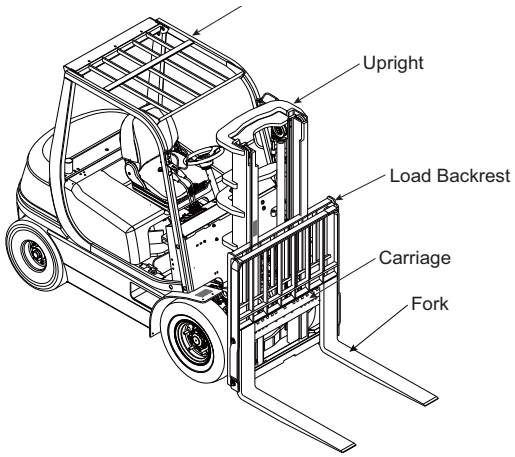
(See Group 34 for detailed inspection procedure.)

Inspect the welds on the carriage, load backrest, and upright for cracks. Be sure that the mounting fasteners are in place and tight.

Inspect the upright assembly: rails, carriage rollers, carriage fork bars, lift chains, and lift and tilt cylinders. Look for obvious wear and maintenance problems and 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 the lift chains for wear, rust and corrosion, cracked or broken links, stretching, etc. Check that the lift and carriage chains are correctly adjusted to have equal tension. Check that the 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 the carriage stops and cylinder retainer bolts. Check all welded connections.

Inspect all lift line hydraulic connections for leaks. Check the lift cylinder rods for wear marks, grooves and scratches. Check the cylinder seals for leaks.



Forks

Inspect the load forks for cracks, breaks, bending and wear as described in Group 34.

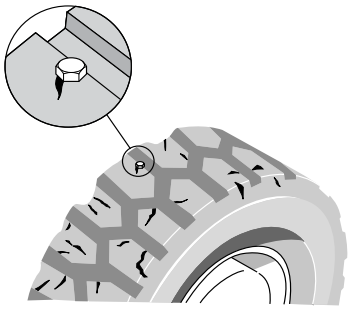
WARNING

HEEL WEAR. If the fork blade at the heel is worn down by more than 10 percent, the load capacity is reduced and the fork must be replaced. See Group 34 for inspection procedures.

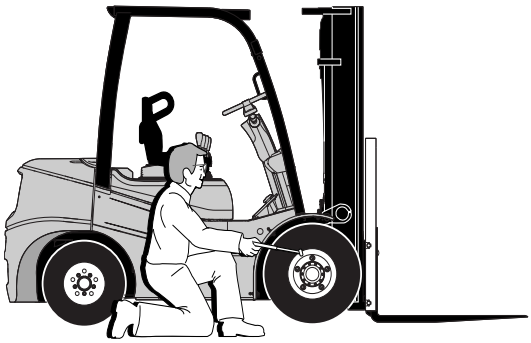
Inspect the fork latches to ensure that they are in good condition, operate freely, and lock correctly.

Wheels and Tires

Check the condition of the drive and steer wheels and tires. Remove objects that are embedded in the tread. Inspect the tires for excessive wear or breaks or "chunking out.



Check all wheel lug nuts or bolts to be sure none are loose or missing. Have missing bolts or lug nuts replaced and tightened to correct torque as explained in Group 22.



WARNING

Check tire pressure from a position facing the tread of the tire, not the side. Use a long-handled gauge to keep your body away. If tires are low, the tire may require removal and repair. Incorrect (low) tire pressure can reduce truck stability. See "Specifications" in Group 22 for proper inflation pressure.

Brake and Inching Pedal Freeplay

There should be no inching and 4~6mm braking pedal freeplay. Both pedals should be at same the height. Adjust as described in Group 23.

Functional Tests

Be sure that :

- Parking brake is applied
- Directional control is in "N" (neutral).

Test the horn, lights, and all other safety equipment. Be sure they are properly mounted and working correctly. Test all controls to ensure that they operate freely and return to neutral properly.

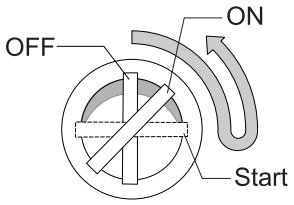
Now prepare to start the truck and test its operation.

Starting System

A 3-position starter switch is standard equipment.

Check the **neutral start** function by placing the direction control lever in forward or reverse and turning key switch to "start" position. The starter must not engage until the direction control lever is moved to "neutral" position.

As you start the engine, check the instrument display. All indicator lights should come on for a 2-second lamp check. The seat belt prompt light should remain on for 4 seconds, accompanied by a buzzer sound. The parking brake light should remain on if the brake is set. If the truck has a diesel engine, the glow plug preheat light should remain on for 6 seconds. If the lights do not operate as described, refer to Group 13 to diagnose the problem.



Engine Shut Down Mode

If the truck's fault protection system detects low engine oil pressure, excessive transmission oil temperature, or excessive engine coolant temperature, the truck will go into "shutdown mode"—a buzzer will sound for 30 seconds, after which the truck will shut itself off. The truck may be restarted, but if the fault condition still exists, the engine will again shutdown in 30 seconds.

Parking Brake Interlock

The transmission should disengage when the parking brake is on and reengage when the parking brake is released.

1. Apply the parking brake.
2. Start the engine, if it is not already running.
3. Place the direction control in forward or reverse. Make sure the path is clear in the chosen direction.

4. Accelerate briefly. The truck should not move or put any strain on the parking brake if the interlock system is OK.
5. Release the parking brake (and service brake). Truck should move slowly in selected direction. (On hydrostatic truck, depress accelerator pedal slightly.)

Accelerator, Brake/Inching System, Direction Control, and Parking Brake

WARNING

Fasten your seat belt before driving the truck.

Make sure that you on a level surface, the travel area is clear in front of the truck, the parking brake is release, and the truck is running.

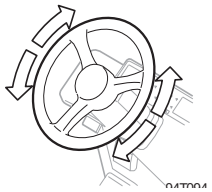
1. Push the brake (right) pedal down fully and hold. The brakes should apply before the pedal reaches the floorplate. If the pedal continues to creep downward, report the failure immediately. Do not operate the truck until the brakes are repaired.
2. Move the direction control lever from neutral to forward.
3. For standard transaxle trucks: Release the brake pedal and let the truck travel slowly forward. Then push down on the brake pedal to stop the truck. The brakes should apply smoothly and equally.
4. For hydrostatic transmission trucks:
   a. Release the brake pedal. The transmission should not engage and the truck should not move.
   b. Accelerate briefly, then release the accelerator pedal. Do not depress the brake pedal. The truck should decelerate to a stop briefly after the accelerator pedal is released.
   c. Depress the brake pedal and depress the accelerator pedal slightly, the truck should not move.
5. Be sure the travel area is clear behind the truck. Repeat steps 2 through 4 in the reverse direction.
6. Drive the truck and check that it accelerates and decelerates smoothly and stops properly.
7. Depress the inching (left) pedal and depress the accelerator to see if the transmission disengages properly.
8. Check the function of the parking brake. Park the truck on a grade and apply the parking brake. The parking brake should hold a lift truck with rated load on a 15% grade.

CAUTION

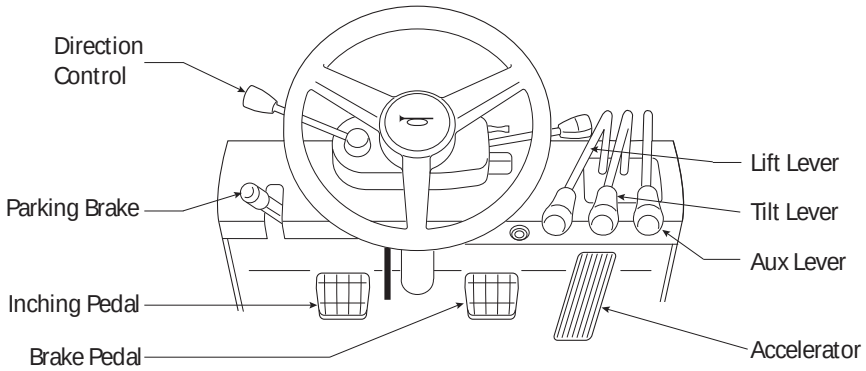
If the service brake, parking brake, or interlock is not operating properly, take the truck out of service until it is repaired.

Steering System

Check the steering system by moving the steering handwheel in a full right turn and then in a full left turn. Return the steer wheels to the straight-ahead position. The steering system components should operate smoothly when the steering handwheel is turned. Hard steering, excessive play(looseness), or unusual sounds when turning or maneuvering indicates a need for inspection or servicing.



If the truck has a steering system fault, take the truck out of service until it is repaired.



Operator's Controls. Standard arrangment shown.

Lift Mechanisms and Controls

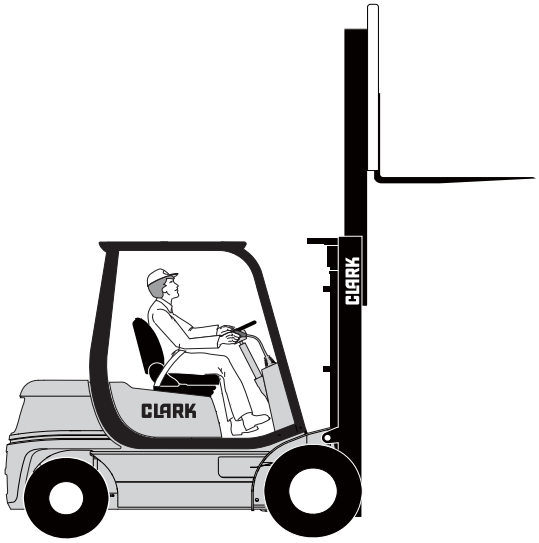
(See Group 34 for detailed test procedure.)

1. Check the function of the lift system and controls with the engine running.
2. Pull back on the tilt control lever and hold until the upright reaches the full back tilt position. Push forward on the lever to return the upright to the vertical position. Release the lever.
   If there is excessive play between rails and channels, upright adjustment is required. If there is racking, adjustment of the cylinder rod yokes is required.

   CAUTION

   Be sure that there is adequate overhead clearance before raising the upright.

3. Pull back on the lift control lever and raise the fork carriage to full height. Watch the upright assembly as it rises. All movements of the upright, fork carriage, and lift chains must be even and smooth, without binding or jerking. Watch for chain wobble or looseness; the chains should have equal tension and move smoothly without noticeable wobble. Release the lever.



   If the maximum fork height cannot be reached, this indicates there is low oil level in the hydraulic sump or severe binding within the upright.
4. Push forward on the lift control lever. Watch the upright as it lowers. If you suspect a problem with lifting or lowering speeds, refer to Group 34 to diagnose the problem.

Auxiliary Controls

If the truck is equipped with an attachment, test the control lever for correct function and operate the attachment to check its function

When you have completed the operational tests, park and leave truck according to standard shutdown procedures. Be sure to make a record of all maintenance and operating problems you find.

Air Cleaning the Truck

CAUTION

Wear suitable eye protection and protective clothing.

Open the hood and remove the floorplate.
Then air clean the following: upright assembly, drive axle, radiator from both counterweight and engine sides, engine and accessories, driveline and related components, and steer axle and steer cylinder.

Use an air hose with special adapter or extension that has a control valve and nozzle to direct the air properly. Use clean, dry, low-pressure compressed air. Restrict air pressure to 30 psi (207 kPa), maximum. (OSHA requirement).

It is important to maintain a lift truck in a clean condition. Do not allow dirt, dust, lint or other contaminants to accumulate on the truck. Keep the truck free from leaking oil and grease. Wipe up all oil or fuel spills. Keep the controls and floorboards clean, dry, and safe. A clean truck makes it easier to see leakage, loose, missing, or damaged parts, and will help prevent fires. A clean truck will run cooler.

The environment in which a lift truck operates determines how often and to what extent cleaning is necessary. For example, trucks operating in manufacturing plants which have a high level of dirt, dust or lint, (e.g. cotton fibers, paper dust, etc.) in the air or on the floor or ground, require more frequent cleaning. The radiator, especially, may require daily air cleaning to ensure correct cooling. If air pressure does not remove heavy deposits of grease, oil, etc., it may be necessary to use steam or liquid spray cleaner.

Truck Chassis Inspection and Lubrication

Lubrication requirements are given in the "Service Chart/ Lubrication Points" chart in Section 1 of this Group. Also see Lubricants and Shop Supplies" in Group 40 for parts information, and "General Specifications" in Group 40 for lubricant specifications.

Lubrication and inspection of truck chassis components includes steer wheels, steer axle linkages, and steer wheel bearings, and drive wheel bearings. To check these items, the truck must be properly raised and blocked as described in "Lifting, Jacking, and Blocking" in Group SA.

Check for play in wheel bearings by attempting to move the wheel side to side and up and down, by hand.

Inspect the steering cylinder piston rods, seal, and fasteners for damage and leaks, and looseness.

Check linkages by observing whether the steer wheels lag when you turn the handwheel.

Lubricate the steer axle linkage rod ends and pivot points. Be sure to clean the grease fittings before lubricating. Remove the excess grease from all points after lubricating. Lubricate miscellaneous linkage as needed.

Upright and Tilt Cylinder Lubrication

Clean the fittings and lubricate the tilt cylinder rod end bushings (forward end). Clean the fittings and lubricate the tilt cylinder base rod end bushings (rear end). Clean and lubricate the upright trunnion bushings.

Lift Chain Lubrication

Lubricate the lift chains as described in Group 34.

Under-the-Hood Inspection

General Checks

Check all fluid levels and make sure that the following items are clean, secure, and in good condition:

- Hoses, lines, clamps, and fittings
- Wires, cables, and connectors
- Distributor, distributor cap, and rotor, coil, and plug wires (gas/LPG engine only)
- Control linkages, pedals, and levers
- Engine mounts
- Fan and fan belts
- Oil filler cap
- Steering gear (check for leaks).

CAUTION

To avoid the possibility of personal injury, never work in engine compartment with engine running except when absolutely necessary to check or make adjustments. Take extreme care to keep face, hands, tools, loose clothing, etc., away from fan and drive belts. Also, remove watches, bracelets, and rings. Do not smoke.

Engine Air Cleaner

Do not open the air cleaner to check the filter element. The filter element should be replaced only at the specified service interval or when the air filter light indicates that it is dirty.

Fluid Checks

Battery

Inspect the battery for any damage, cracks, leaking condition, etc. If the terminals are corroded, clean and protect them with CLARK Battery Saver (available from your Clark dealer). If the battery has removable cell caps, check to be sure the cells are all filled. If necessary, refill with distilled water.

Engine Cooling System

Check coolant level in the coolant recovery bottle and in the radiator as described in Group 01.

CAUTION

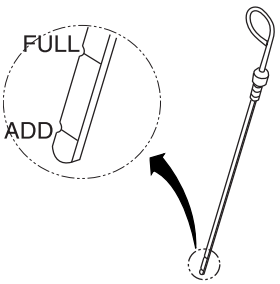
STEAM. Do not remove the radiator cap when the radiator is hot. Steam from the radiator will cause severe burns.

Coolant should be checked on a daily basis in high-cycle applications.

Engine Oil

Oil Level: With the truck level and the engine shutdown for at least 5 minutes, check the engine oil level.

Locate the engine oil dipstick. Pull the dipstick out, wipe it with a clean wiper and reinsert it fully into the dipstick tube. Remove the dipstick and check oil level.



It is normal to add some oil between oil changes. Keep the oil level above the ADD mark on the dipstick by adding oil as required. Use only the oil specified in Group 00.

Oil Change: Change oil as described in Group 00.

Diesel Engine Oil Filter: Replace as described in Group 00.

Hydraulic Fluid Level

Check the hydraulic sump tank fluid level as described in Group 29. Correct fluid level is important for proper system operation. Low fluid level can cause pump damage. Overfilling can cause fluid leakage.

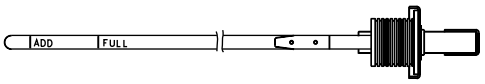
Hydraulic fluid expands as its temperature rises. Therefore, it is preferable to check the fluid level at operating temperature (after approximately 30 minutes of truck operation).

Fill the oil level above the LOW mark on the dipstick by adding only the hydraulic fluid prescribed in Group 29. DO NOT OVERFILL.

Transaxle Fluid Level

Check the transaxle fluid level with the engine running, as explained in Group 06.

Fill to the FULL mark on the dipstick, using the transaxle fluid specified in Group 06.



Stall Test

On standard transaxle trucks, perform the stall test described in Group 00 to determine engine and transaxle condition.

Cranking Voltage Test

To determine battery condition, check the cranking voltage as described in Group 14.

Critical Fastener Torque Checks

For safety it is important that the correct torque be maintained on all critical fasteners of components which directly support, handle or control the load and protect the operator.

Check torque of critical items, including:

- Drive axle mounting
- Drive and steer wheel mounting
- Counterweight mounting
- Overhead guard mounting
- Operator’s cell mounting
- Tilt cylinder mounting and yokes
- Upright mounting and components.

CLARK

GAS LPG or DIESEL
PLANNED MAINTENANCE REPORT

CUSTOMER	
MODEL & SERIAL NO	
ATTACHMENT NO	
AUTHORIZED SIGNATURE	
INSPECTOR	

DATE	
DATE LAST P.M.	
CUST P.O.NO.	
HOUR METER	
HRS. LAST P.M.	

C	✔ OK
O	OK
D	Potential
E	Urgent

✔ OK
x = Adjust (not P.M)
r = Repair or replace
s = Requires shop repair

SPECIAL INSTRUCTIONS

COMMENTS:

A. TEST DRIVE MACHINE						
a. Drive Train Noise						
b. Steering Operation						
c. Service Brake Operation						
d. Inching Operation						
e. Transmission Operation						
f. Clutch Operation						
g. Hydraulic System Operation						
h. Engine Performance						
i. Parking Brake Operation						
j. Pedal Pads & Linkages						
k. Return to neutral						
00 ENGINE						
a. Mounting						
* b. Tighten Head Bolts						
c. RPM - Idle						
Gov. No Load						
Tilt By - Pass						
d. Vacuum - Idle						
Gov. No Load						
Tilt By - Pass						
e. Stall RPM						
Fwd Rev						
High Low						
f. Inspect Exhaust for Smoke						
01 CLEANING & LUBRICATION						
a. Air Clean Truck/Radiator						
b. Lubricate Truck						
01 ENGINE OILING						
a. Check for Leakage						
b. Check Oil Level						
* c. Drain & Replace Oil						
* d. Replace Oil Filter						
e. Filler Cap Condition						
f. Clean Crankcase Breather						
* g. Check/Replace PCV						
01 COOLING SYSTEM						
a. Coolant Level/Condition						
b. Degree Protection						
c. Inspect Fan & Control						
* d. Inspect & Adjust Belts						
* e. Drain/Flush Radiator						
f. Coolant Leakage						
g. Inspect Water Pump						

02. FUEL SYSTEM						
a. Clean Filler Cap						
b. Check Accelerator & Return Spring						
c. Choke Operation						
d. Fuel Leakage						
e. Inspect Tank Fitting LPG						
f. Solenoid Valve Operation LPG						
g. Clean/Replace Filter						
i. Parking Brake Operation						
02. AIR INTAKE & EXHAUST						
a. Clean or Replace Air Filter						
b. Hoses & Clamps						
c. Muffler & Exhaust						
04. CLUTCH						
a. Lubricate Throw Out Bearing and Linkage						
b. Pedal Adjustment						
c. Fluid Level						
06 & 08 TRANSMISSION						
a. Fluid Level						
* b. Condition of Fluid						
c. Clean Air Vent						
* d. Replace Filter						
e. Fluid Leakage						
f. Inspect Control Linkage						
11 IGNITION & CRANKING SYSTEM						
a. Check Neutral Start						
b. Check Anti - Restart						
c. Distributor Condition						
* d. Point Condition/Dwell						
e. Timing Setting						
f. Lube Distributor						
* g. Wiring Condition						
12 BATTERY AND CABLES						
* a. Clean & Check Terminals						
b. Fluid Level						
c. Cranking Voltage						

12 CHARGING SYSTEM						
a. Alternator Mtg						
* b. Inspect & Adjust Belts						
c. Regulator Output Volts						
13 GAUGES-LIGHTS-INDICATORS						
a. Hour Meter Operation						
b. Gauges-All Operate						
c. Lights-All Operate						
d. Wiring Condition						
e. Horn						
20 DRIVE AXLE						
* a. Differential Level						
b. Clean Air Vent						
c. Security of Mounting						
d. Check Wheel Bearin						
23 WHEELS AND TIRES						
a. Tighten Mounting Bolts						
b. Tire Condition						
RF LF						
RR LR						
c. Check Air Pressure						
23 BRAKE SYSTEM						
a. Check for Leakage						
b. Cylinder Fluid Level						
c. Clean Vent Cap						
d. Pedal Free Travel						
e. Pedal Drift						
f. Cylinder Mounting						
* g. Check Service/Park Brake						
h. Hoses Fittings-Condition						
26 STEER AXLE						
a. Security of Mounting						
b. Axle Stop Adjustment						
c. Drag Link Adjustment						
d. Articulation Stops						
e. Check Wheel Bearings						
26 STEERING SYSTEM						
a. Check for Leakage						
b. Oil Level - Condition						
c. Security of Mounting						
d. Tilt Column Operation						

29 / 30 HYDRAULIC SYSTEM						
a. Check for Leakage						
b. Fluid Level-Condition						
c. Clean/Replace Breather						
* d. Replace Filter Element						
e. Linkage Adjustment						
f. Hose Condition						
g. Lift Speed (In./Sec.)						
No Load						
Full Load						
h. Drift Test (In./Min.)						
Lift Cylinder						
Tilt Cylinder						
32 TILT CYLINDERS						
a. Check for Leakage						
b. Cylinder Rod Condition						
c. Mounting Security						
d. Tilt Cylinder Adjustment						
34 UPRIGHT-CARRIAGE						
a. Security of Mounting						
b. Roller Condition/Clearance						
c. Chain Condition						
d. Chain Adjustment						
e. Latches						
f. Cylinder Condition						
g. Forks, Locks, Stops						
h. Rail Condition						
i. Trunnion Ring Condition						
j. Check Free Lift Guide						
34 LOAD BACK REST						
a. Condition						
b. Security of Mounting						
38 SHEET METAL & CWT						
a. Decals-Missing/Condition						
b. Seat Condition-Operation						
c. Side Door Latches						
d. Counterweight bolts						
39 OVERHEAD GUARD						
a. Condition						
b. Security of Mounting						
53 ATTACHMENTS						
a. Mounting Bolts						
b. Leakage						
c. Operation						

GROUP 00 (D-TIER2~3)

DIESEL ENGINE
(Tier2 - 4TNE94L, Tier3 - 4TNE98)