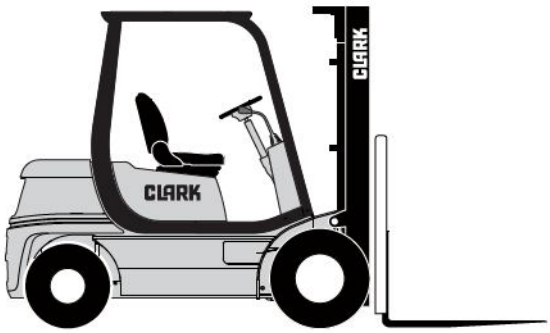
SERVICE MANUAL

CQ 20/25/30 D/L

RATED CAPACITY: 2000 – 3000kg



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CLARK
THE FORKLIFT

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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".

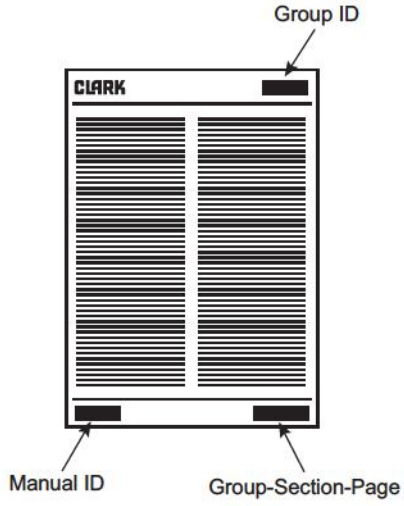
Each Group begins with a table of contents that shows the *Sections* contained within the Group. Lengthy Sections also begin with a table of contents.

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

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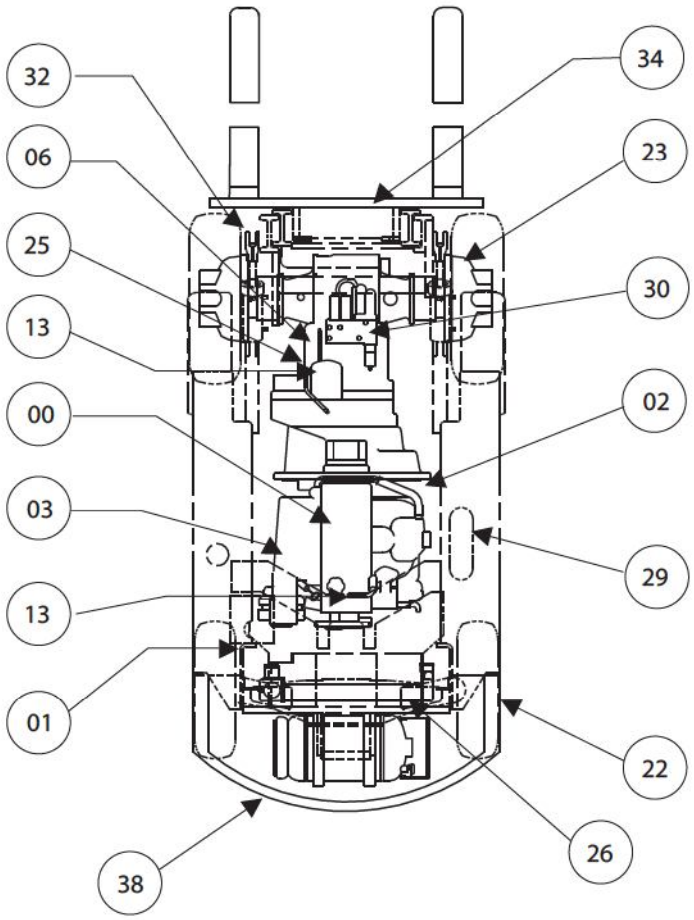


GROUP PS

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.

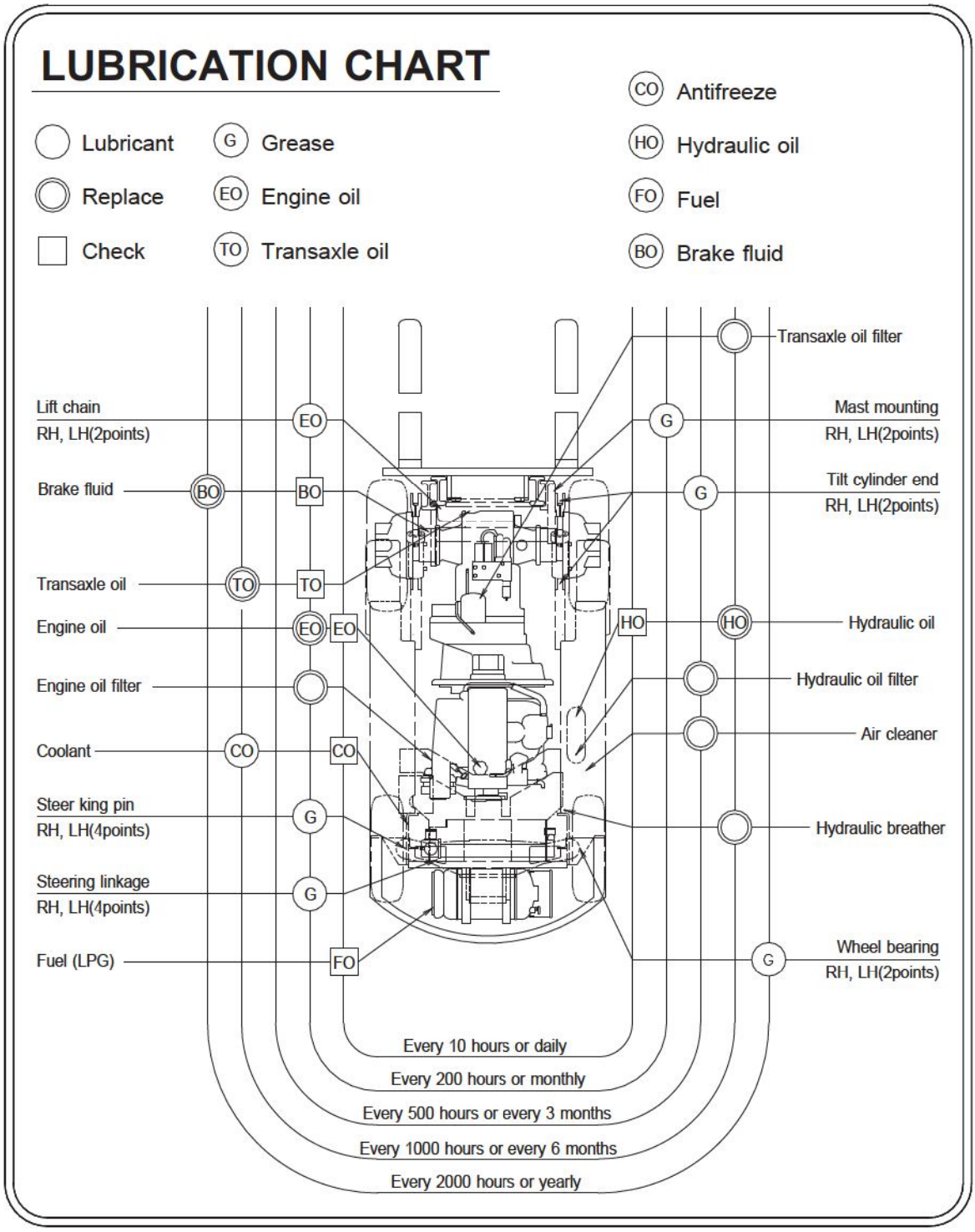
IMPORTANT

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		●			

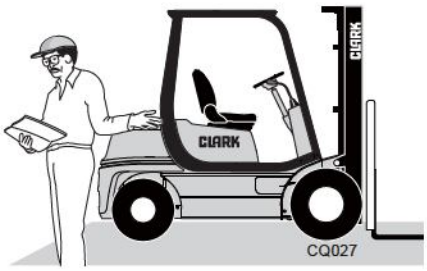
TASKS	First 50 Hours	Every 50-200 Hours (or 1 month)	Every 450-500 Hours (or 3 months)	Every 900-1000 Hours (or 6 months)	Every 2000 Hours (or 1 year)
Throttle linkage - check / adjust		●			
Group 03 - Air Intake & Exhaust					
Air filter element - replace				● (Diesel)	● (Gas/LPG)
Air hoses / clamps - 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

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

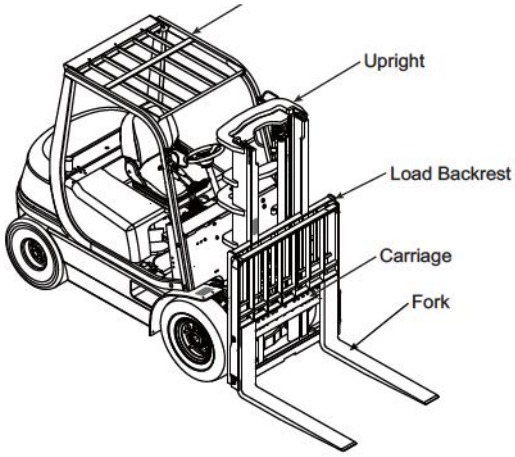
(See Group 34 for detailed inspection procedure.)

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.