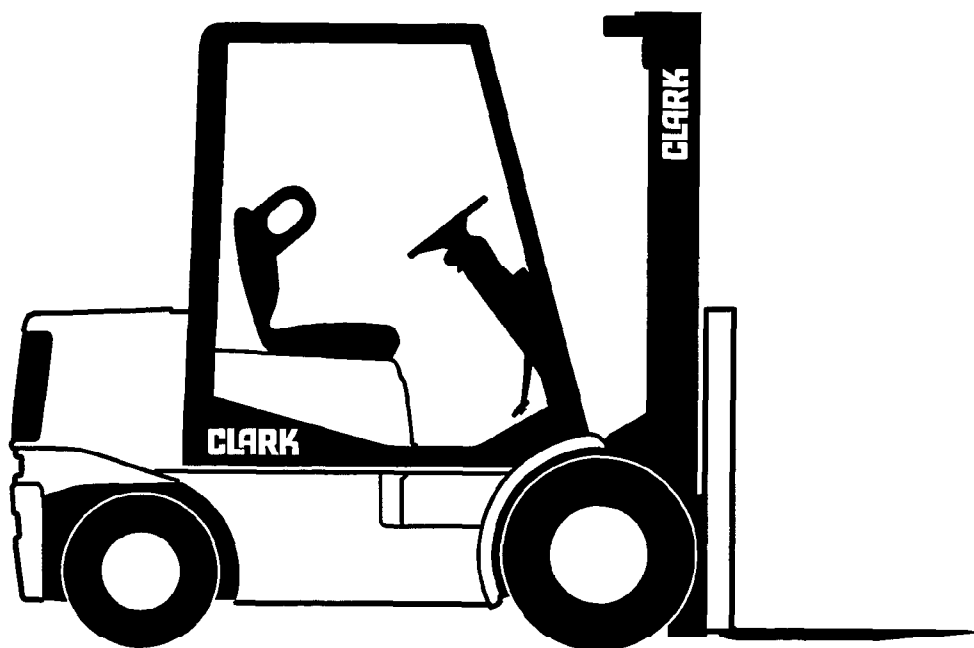


SM-612 Rv 1 CGC/CGP 40/70



Truck Models Covered by this Manual

This manual consists of a “base” module that pertains to all CGP 40/60 and CGC 40/70 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.” Groups are listed in the indexes on the next page.

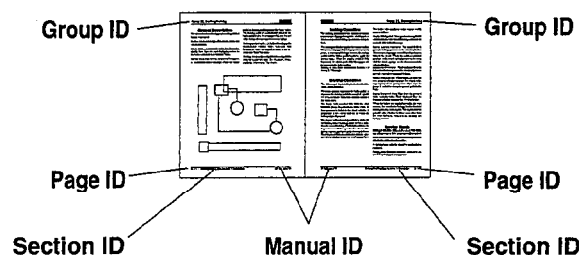
Each Group begins with a table of contents that shows the *Sections* contained within the Group. Lengthy Sections also begin with a table of contents.

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

Each Section 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.

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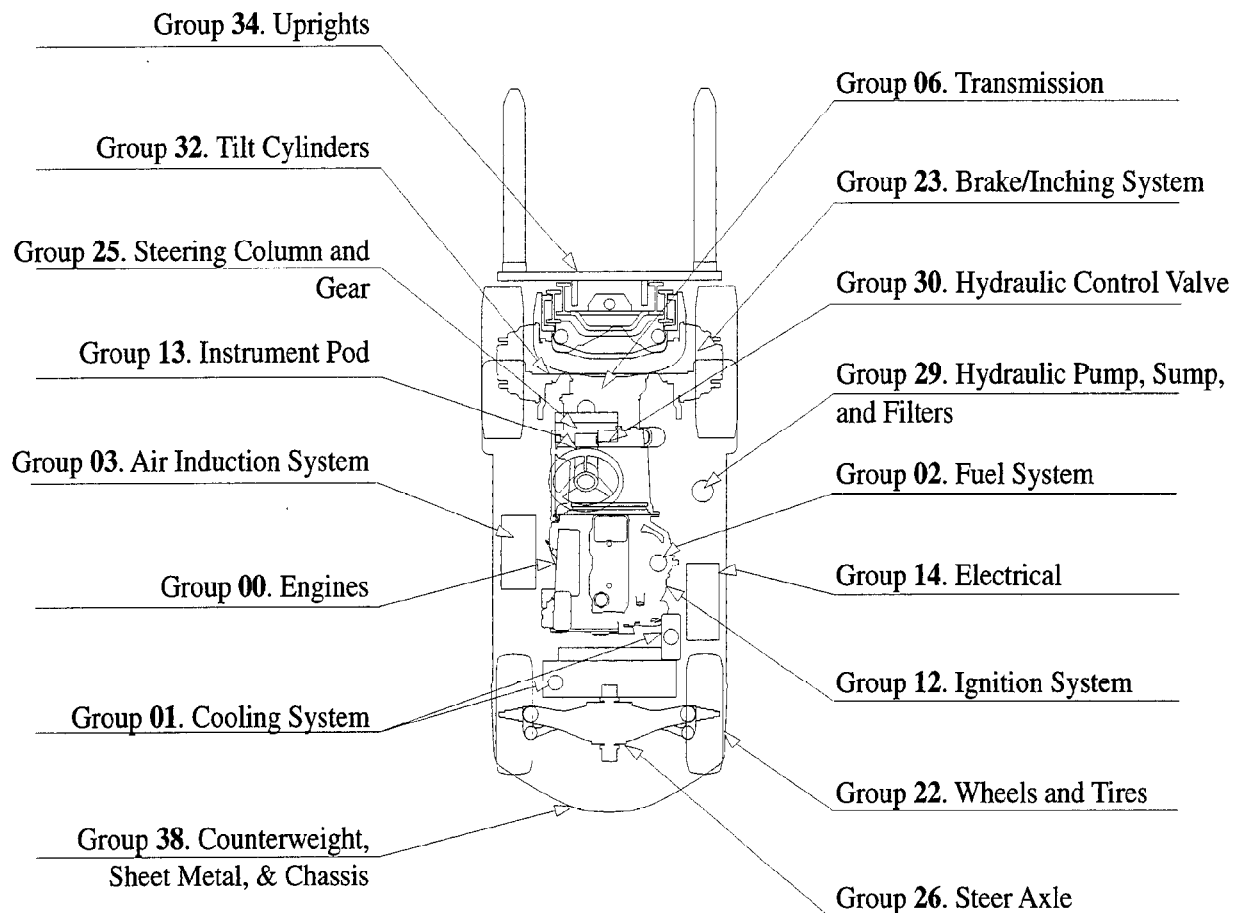
Group Index

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Group PS. Periodic Service	Group 23. Brake System
Group 00. Engines	Group 25. Steering Column and Gear
Group 01. Cooling System	Group 26. Steer Axle
Group 02. Fuel System	Group 29. Hydraulic Pump, Sump, and Filters
Group 03. Air Induction System	Group 30. Hydraulic Control Valve/Lift Circuit
Group 06. Transmission	Group 32. Tilt Cylinders
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Pictorial Index



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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.

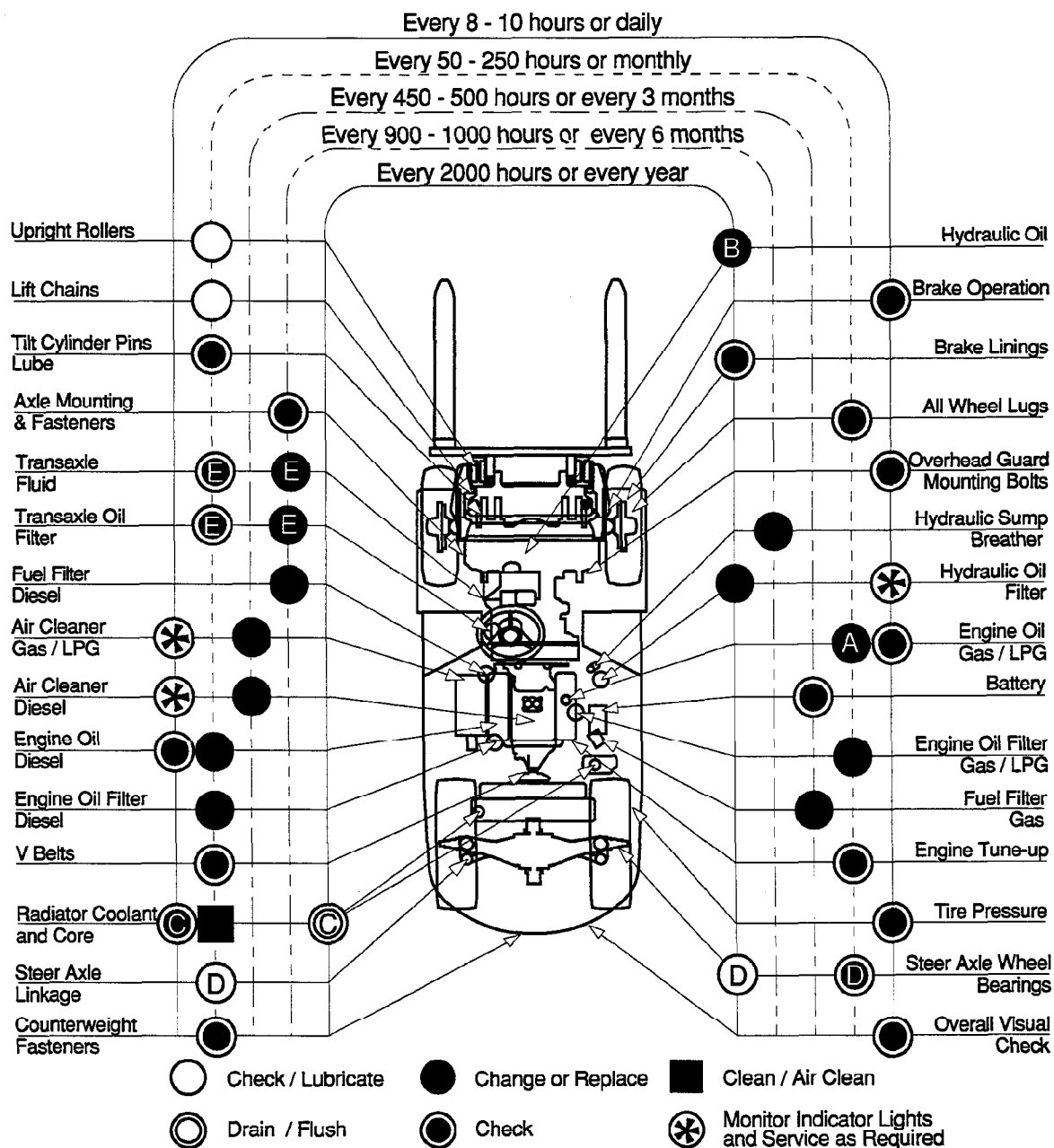
IMPORTANT

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.

Group PS, Periodic Service**Service Chart/Lubrication Points**

A decal, similar to the illustration below, is located on the underside of the truck's engine cover. This decal is a basic guide to periodic maintenance intervals and tasks. A more detailed chart is supplied on the next page.



A - Engine Oil 15W40
API, CC, CD / SG, SF

B - Hydraulic Oil
Clark # 2776239

C - Engine Coolant
50 / 50 Mixture

D - MP Grease
NLG # 2

E - Transaxle Fluid
Clark # 2776236

- Intervals refer to elapsed hour meter time and are based on Clark's experience found to be suitable and convenient under normal operating conditions.
- Service and Maintain as per Service and Operator Manuals. Special or harsh conditions may need additional intervals.

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. Operators should refer to Operator's Manual for Daily Checks.

TASKS	1st 50 Hours	Every 50-250 Hours	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 filler 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		•			
Coolant -hydrometer test				•	
Coolant change - drain & flush					•
Coolant hoses - inspect/replace		•			•
Radiator - air clean		•			
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 injectors/lines - clean/inspect				•	
Filler cap/screen - clean/inspect		•			
Fuel filter, diesel - replace				•	
Fuel filter, gas - 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		•			
Throttle linkage - check/adjust		•			

* Oil change interval may be determined by laboratory analysis

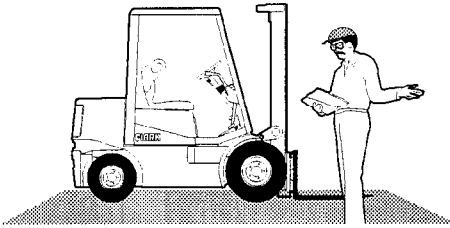
Group PS, Periodic Service

CLARK

TASKS	1st 50 Hours	Every 50-250 Hours	Every 450-500 Hours (or 3 months)	Every 900-1000 Hours (or 6 months)	Every 2000 Hours (or 1 year)
Group 02 - Air Intake & Exhaust					
Air filter element - replace			•		
Air hoses/clamps - inspect		•			
Exhaust pipe/muffler - inspect		•			
Group 06 - Transaxle					
Air vent - inspect, clean or replace on standard transaxle		•			
Axle end lube - clean/repack	During brake repairs				
Axle mounting bolts - inspect/tighten				•	
Charging pump - stall test standard transaxle		•			
Clutch pack operation - stall test standard transaxle		•			
Pressure checks					•
Fluid change - drain/fill				•	
Fluid filter - replace	•			•	
Fluid level/condition - check/sample	•	•			
Inching operation - check/test		•			
Oil cooler / lines - inspect		•			
Transmission strainer - clean on standard transaxle					•
Group 12 - Ignition and Starting 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 - Gauges, Indicators					
Hourmeter - check		•			
Lamp check - at start-up		•			
Wiring harness - inspect				•	
Group 14 - Electrical: Alternator, Regulator, Battery					
Alternator - inspect/test					•
Alternator drive belts - inspect/adjust	•	•			
Alternator output - test					•
Battery electrolyte level - check/add		•			
Battery condition - cranking voltage test		•			
Battery terminals/cables - clean/tighten		•			
Group 22 - Wheels And Tires					
Wheel mounting bolts - tighten	•	•			
Tire pressure/condition - check	•	•			

Group PS, Periodic Service**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.

NOTICE

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. Do not operate with a damaged overhead guard.

Carriage, Load Backrest, and Upright

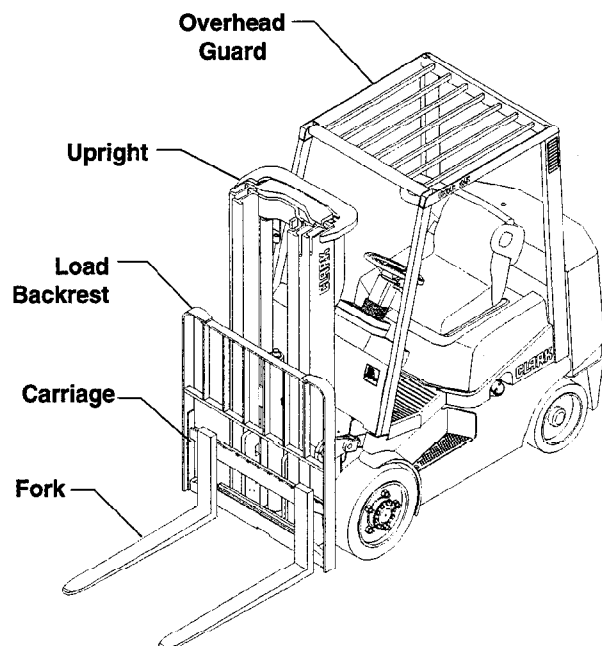
(See Group 34 for detailed inspection procedure.)

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 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.

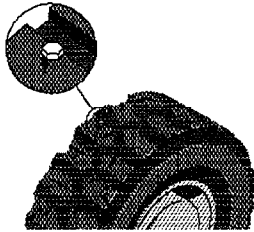
! WARNING

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.

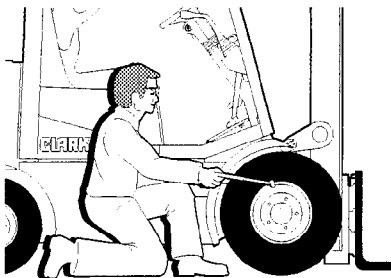
Inspect the fork latches to ensure that they are in good condition, operate freely, and lock correctly.

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 or 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.

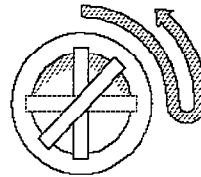
Now prepare to start the truck and test its operation.

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 hydro-static truck, depress accelerator pedal slightly.)