Maintenance Manual

EN ISO 3691-1:2015+A1:2020

F25

Counterbalanced Forklift

PART NO. MM- 2537060230

Original Instructions

Introduction

LGMG appreciates your choice of our engine powered forklift for your application.

This manual introduces engine powered forklift inspection and maintenance specifications as safety guides and for correct machine operation and maintenance.

We suggest that you read this manual in its entirety before starting, operating and maintaining the machine for the first time, and understand operating and safety instructions.

LGMG has endeavored to deliver the highest degree of accuracy possible. However, continuous improvement in the structure and performance of our products is a LGMG policy. Therefore, product design, operation and maintenance instructions are subject to change without notice. If you want to get the latest information related to the forklift or have any questions concerning this manual, please contact LGMG. Readers are encouraged to notify LGMG of errors and send in suggestions for improvement. All communications will be carefully considered for future printings of this and all other manuals.

As it is impossible to foresee all possible hazards, safety instructions in this manual and on the forklift cannot cover all safety precautions. When procedures and operations not recommended in this manual are to be performed, be sure to safeguard yourself and others and avoid damage to the forklift. If unsure about the safety of some operations, contact LGMG or dealers.

Operation and maintenance precautions in this manual are only applicable to the forklift which is used for its intended purpose. If the forklift is used for other purposes than those listed in this manual, LGMG will not accept any safety responsibilities arising from such operations. They shall be taken by users and operators.

Never perform any operation forbidden in this manual.

Keep this manual in a specified position within easy reach. This manual should be considered a permanent part of your forklift. In case of transfer of the forklift ownership or use right, this manual should be transferred as well. Should this manual become lost, damaged, or illegible, please contact us for replacement in time.

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Foreword

LGMG appreciates your choice of our engine powered forklift for your application. This manual introduces engine powered forklift maintenance specifications as safety guides and for correct machine operation and maintenance.

Our number one priority is the premium performance of the machine, which is best achieved by your familiarity with and thorough maintenance on the machine. We suggest that you read this manual in its entirety before starting, operating, repairing and maintaining the machine for the first time, and understand operating and maintenance instructions.

LGMG has endeavored to deliver the highest degree of accuracy possible. However, continuous improvement in the structure and performance of our products is a LGMG policy. Therefore, product design, operation and maintenance instructions are subject to change without notice. For the latest information regarding the forklift or any questions concerning this manual, please contact LGMG.

This manual is applicable to engine powered forklifts. Users should perform maintenance at intervals indicated in the maintenance schedule.

Keep this manual in a specified position within easy reach. This manual should be considered a permanent part of your forklift. In case of transfer of the forklift ownership or use right, this manual should be transferred as well. Should this manual become lost, damaged, or illegible, contact us for replacement in time!

⚠ Warning

- Only specially trained and properly qualified personnel shall be permitted to operate, repair and maintain this machine.
- Improper operation, maintenance and repair are dangerous and can result in personal injury or death.
- The operator should carefully read this manual before operating or maintaining this machine. Do not operate, maintain or repair the forklift until you have read

and understood this manual.

- Users should load the machine in strict accordance with its rated load capacity. Otherwise, they should be liable for all consequences incurred from overload or unauthorized modification.
- The operating instructions and precautions in this manual apply only to the intended use of the machine. If it is used for other purpose (not prohibited) than specified, be sure such operation will not pose hazards to yourself or others.
- Users should operate this machine in strict accordance with safety requirements in this manual. Otherwise, they should be liable for all consequences arising from failure to do so.

Repair and maintenance log

No.	Date	Description	Recorded by

Safety

The operator should understand and obey current national and local safety regulations. In the absence of these regulations, follow safety instructions in this manual.

Most accidents that involve forklift operation and maintenance are caused by failure to observe safety rules or precautions. Read, understand and obey all requirements, precautions and warnings in this manual and on the forklift before operation and maintenance to avoid accidents.

As it is impossible to foresee all possible hazards, safety instructions in this manual and on the forklift cannot cover all safety precautions. When procedures and operations not recommended in this manual are to be performed, be sure to safeguard yourself and others and avoid damage to the forklift. If unsure about the safety of some operations, contact LGMG or dealers.

Operation and maintenance precautions in this manual are only applicable to the forklift which is used for its intended purpose. If the forklift is used for other purposes than those listed in this manual, LGMG will not accept any safety responsibilities arising from such operations. These safety responsibilities shall be taken by users and operators.

Never perform any operation forbidden in this manual.

Signal words are used to identify the following safety information in this manual:

⚠ Danger-Indicates a hazardous situation which, if not avoided, will result in serious injury or death. It also indicates a hazardous situation which, if not avoided, will result in significant damage to the forklift.

⚠ Warning-Indicates a hazardous situation which, if not avoided, may result in serious injury or death. It also indicates a hazardous situation which, if not avoided, may result in significant damage to the forklift.

⚠ Caution-Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury. It also indicates a hazardous situation which, if not avoided, could result in damage to the forklift or reduce service life.

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Section 1 Maintenance

1.1 Scheduled maintenance

In extremely cold, dusty or moist environments, it may be necessary to perform lubrication and maintenance more often than specified in the Scheduled Maintenance section. During maintenance, all the maintenance items listed in the original requirements should be performed too.

For example, while performing monthly maintenance, perform weekly and daily maintenance as well.

Before maintenance, shut off the engine, park the machine on a firm, level surface, set the gear switch to neutral, activate parking brake, and chock wheels to prevent the machine from moving.

1.1.1 Maintenance precautions

- Regular inspection and maintenance are essential for the good performance of the forklift.
- Use only LGMG genuine parts.
- Do not change old oil with or fill other types of oil.
- Do not dump or discard used fluids and batteries at will. Be sure to dispose of them according to local laws and regulations on environmental protection.
- Develop a comprehensive maintenance/repair program.
- Keep a complete record after each maintenance/repair.
- Only trained personnel shall be permitted to repair the forklift.

⚠ No smoking or fire

- Before repair and maintenance, turn off the key switch and DC power switch. (The switches may not be turned off for some troubleshooting operations).
- Clean electrical parts with compressed air rather than water.
- Do not place hand, foot or any other body part between the mast and carriage.
- As the capacitor in the controller is live, take precautions to prevent electrocution in touching the controller even if the key switch is turned off.

1.1.2 Maintenance safety

(1) Maintenance site

⚠ Caution

- It should be a designated site where adequate equipment and safety protection facilities are available for service providers.
- The site surface should be level.
- The site should be properly ventilated.

- The site should be provided with a fire extinguisher.

(2) Precautions before maintenance

Caution

- Smoking is prohibited.
- Wear protective equipment (helmet, shoes, goggles, gloves and boots) and suitable clothing.
- Promptly clean up any oil that may have spilled.
- Before adding lubricating oil, remove dirty oil or dust from fittings with a brush or cloth.
- Remove the key switch and battery plug, unless required otherwise.
- Lower the forks to the ground before performing maintenance on the forklift.
- Clean electrical elements with compressed air.

(3) Maintenance precautions

Warning

- Do not place feet under the fork. Use extreme caution to prevent being tripped by the fork.
- When the forks are raised, place a block or other item below the inner mast to prevent the forks and mast from falling suddenly.
- Be cautious to open and close front baseplate and battery cover plate to avoid pinching fingers.
- When work cannot be completed at a time, draw a mark to facilitate subsequent work.
- Use a suitable tool rather than makeshift.
- Do not perform maintenance until high pressure in hydraulic circuits is reduced.
- In the event of high-voltage electrocution, seek medical attention immediately.
- Do not use the mast as a ladder.
- It is strictly forbidden to place hand, foot or any other body part between the frame and mast assemblies.

(4) Tire inspection and replacement

Caution

- Tires must be removed/installed by professionals.
- High-pressure air must be handled by professionals.
- Wear goggles when working with compressed air.
- Do not loosen bolts and nuts at rim connections while removing tires as air in them is high-pressure and bolt, nut

and rim looseness can be very dangerous.

- Completely deflate tires and then remove bolts and nuts at rim connections with a special tool.

(5) Jack (for replacing tires)

⚠ **Warning**

- Do not go under the forklift when it is jacked up.
- Before jacking up the forklift, check to make sure no person or load is on it.
- Stop using the jack when tires come off the ground. Put blocks under the forklift to prevent it from falling down.
- Before the forklift is jacked up, take actions to prevent it from sliding.

(6) Waste (such as used electrolyte and oil) drain requirements

⚠ **Note: Recycle scrapped parts (such as plastic and electrical components) on the forklift and waste liquid (such as hydraulic oil and brake fluid) according to local governmental regulations and never dispose of them at will.**

1.1.3 Inspect safety manuals

Maintaining operation and maintenance manuals in good condition is essential to safe machine operation. An illegible or missing manual will not provide safety and operational information necessary for a safe operating condition.

1) Ensure the operation and maintenance manuals are complete and in the cab.
2) Examine the pages of each manual to be sure that they are legible and in good condition.
3) Always return the manuals to the cab after use.

⚠ Contact the service personnel of LGMG if replacement manuals are needed.

1.1.4 Inspect decals and placards

Maintaining all the safety and instructional decals and placards in good condition is mandatory for safe machine operation. Decals alert operators and personnel to many possible hazards associated with using this machine. They also provide users with operation and maintenance information. An illegible decal will fail to alert personnel of a procedure or hazard and could result in unsafe operating conditions.

Refer to the Decals section in this manual and use decal menu and instructions to check whether all decals are in place.

Inspect all decals for legibility and damage. Replace any damaged or illegible decal immediately.

⚠ Contact the service personnel of

LGMG if replacement decals are needed.

1.1.5 Inspect for damage or loose or missing parts

This procedure should be performed every 8 hours or daily.

Daily machine condition inspections are essential to safe machine operation and good machine performance. Failure to locate and repair damage, and discover loose or missing parts may result in an unsafe operating condition.

1) Check the machine for damage, improperly installed or missing parts:
   - Electrical components, wiring and electrical cables
   - Hydraulic hoses, fittings, manifolds and cylinders
   - Fuel and hydraulic tanks
   - Tires and hubs
   - Engine and related components
   - Limit switches and horns
   - Nuts, bolts and other fasteners
   - Brake pedal and hand brake
   - Indicator lights and alarms
   - Drive shaft

   Check the entire machine for:
   - Cracks in welds or structural components
   - Chassis deformation and weld crack
   - Dents or damage to machine
   - Be sure that all structural and other critical components are present and all associated fasteners and pins are in place and properly tightened.

1.1. 6 Regular replacement of safety critical parts

As it is difficult to discover damage to some parts, users should regularly replace the parts listed in the table below to further enhance safety.

If these parts become abnormal before the due replacement date, replace them immediately.

Safety critical parts	Service life (year)
Brake hose or pipe	1-2
Hydraulic hose for lift system	1-2
Lift chain	2-4
High-pressure hoses for hydraulic system	2
Brake master cylinder cover and dust cover	1
Seals and rubber parts in the hydraulic system	2

1.2 Periodic maintenance form

1.2.1 Maintenance instructions

1. General instructions

Before starting the forklift, check to make sure the area is properly ventilated.

Wear appropriate clothing. Do not wear jewelry or loose clothing. Restrain and protect hair as necessary.

When necessary, shut the engine down and remove the ignition key.

Read the operation manual carefully.

Perform all repairs immediately, even minor ones.

Repair all leaks immediately, even minor ones.

Be sure to dispose of old materials and spare parts in a completely safe and ecological manner.

Be aware of burning and splashing hazards (such as exhaust, radiator and internal combustion engine).

2. Lubricating oil and fuel

Use recommended lubricating oil (do not use contaminated lubricating oil).

Do not fill fuel tank while engine is running.

Refuel only at designated locations.

Do not fill the tank to the top.

Do not smoke or use open flames near the forklift when the tank is open or being refueled.

3. Hydraulic system

Do not attempt to loosen fittings, hoses, or any hydraulic components while the circuit is under pressure.

⚠ Counterbalance valve: It is dangerous to change and remove a counterbalance valve or a safety valve that may be installed on a forklift cylinder. The operations can only be performed by approved technicians.

⚠ Hydraulic accumulators (if fitted): These hydraulic accumulators, which may be fitted to the forklift, are pressurized. As removing these accumulators and lines is dangerous, it must be performed by approved technicians.

Before servicing, relieve pressure in the brake system accumulator: Park the machine on a firm, level surface. Retract the forks to the stowed position, shut off the engine and chock wheels. Repeatedly depress and release the service brake pedal (foot brake). Repeatedly pull up on and release the parking brake handle (hand brake).

4. Electrical system

Do not short circuit the start relay to start the engine. If the forward/neutral/reverse selector is not in neutral and the parking brake is not

engaged, the forklift may move suddenly.

Do not contact the battery with metal objects.

Disconnect the battery before working on the electrical circuit.

5. Welding

Disconnect the battery before welding on the forklift.

Do not perform welding on assembled tires as it can increase pressure and cause tire bursting.

Disconnect the electronic control unit in order to avoid irreparable damage to electronic components.

6. Machine cleaning

Keep clear of connections, electrical parts and connectors while cleaning the machine.

If necessary, prevent water, steam or cleaning agents from entering vulnerable parts, especially electrical parts.

1.2.2 Maintenance items at all levels

√-Check, correct and adjust ×-Replace

Item	Description	Tool	Daily (8h)	Weekly (50h)	Monthly (200h)	3 months (600h)	6 months (1200h)
Battery	Electrolyte level	Visual inspection		√	√	√	√
	Specific gravity of electrolyte	Hydrometer		√	√	√	√
	Battery power		√	√	√	√	√
	Check terminals for looseness.		√	√	√	√	√
	Check connecting cables for looseness.		√	√	√	√	√
	Clean battery surface.		√	√	√	√	√
	Check for any tool on the battery surface.		√	√	√	√	√
	Check for proper ventilation.		√	√	√	√	√
	Keep away from smoke and fire.		√	√	√	√	√
Controller	Check contacts for wear.					√	√
	Check contactors for good mechanical movement.					√	√
	Check pedal micro switch for good condition.					√	√
	Check engine, battery and power unit for good connection.					√	√
	Check whether the controller fault detection system is normal.						Initial check after two years of operation
Engine	Check the engine for unusual sound and other abnormalities.		√	√	√	√	√
	Remove foreign matter from engine surface.				√	√	√
	Change engine coolant.				√	×	×
	Clean air filter.			√	√	×	×
	Clean the lubrication system and replace engine oil and filter elements.					×	×
	Check and adjust V-belt tension.			√	√	√	√
	Clean fuel filter and discharge fuel sediment.			√	√	√	√

Item	Description	Tool	Daily (8h)	Weekly (50h)	Monthly (200h)	3 months (600h)	6 months (1200h)
	Check and adjust valve clearance.					√	√
Drive system	Check for noise.		√	√	√	√	√
	Check for seepage and leakage.		√	√	√	√	√
	Change oil.						×
	Check brakes.		√	√	√	√	√
	Check gear operation.					√	√
	Check bolts at the connection with frame for looseness.					√	√
	Check for rim bolt tightening torque.	Torque wrench	√	√	√	√	√
Tire	Check for wear, crack or damage.		√	√	√	√	√
	Check tires for nails, stones or foreign objects.				√	√	√
	Check rims for damage.		√	√	√	√	√
Steering wheel	Check for gaps.		√	√	√	√	√
	Check for axial looseness.		√	√	√	√	√
	Check for radial looseness.		√	√	√	√	√
	Check for operation conditions.		√	√	√	√	√
Steering unit	Check mounting bolts for looseness.				√	√	√
	Check ports and fittings for sealing.		√	√	√	√	√
Rear axle	Check rear axle mounting bolts for looseness.				√	√	√
	Check for bend, deformation, crack or damage.				√	√	√
	Check steer yoke bearing for lubrication or replace it.					√	√
	Check for steer cylinder operation.		√	√	√	√	√
	Check steering cylinder for seepage/leakage.		√	√	√	√	√
	Check for sensor wiring and working conditions.					√	√
Brake pedal	Free play	Rule	√	√	√	√	√
	Pedal stroke		√	√	√	√	√
	Operation conditions		√	√	√	√	√

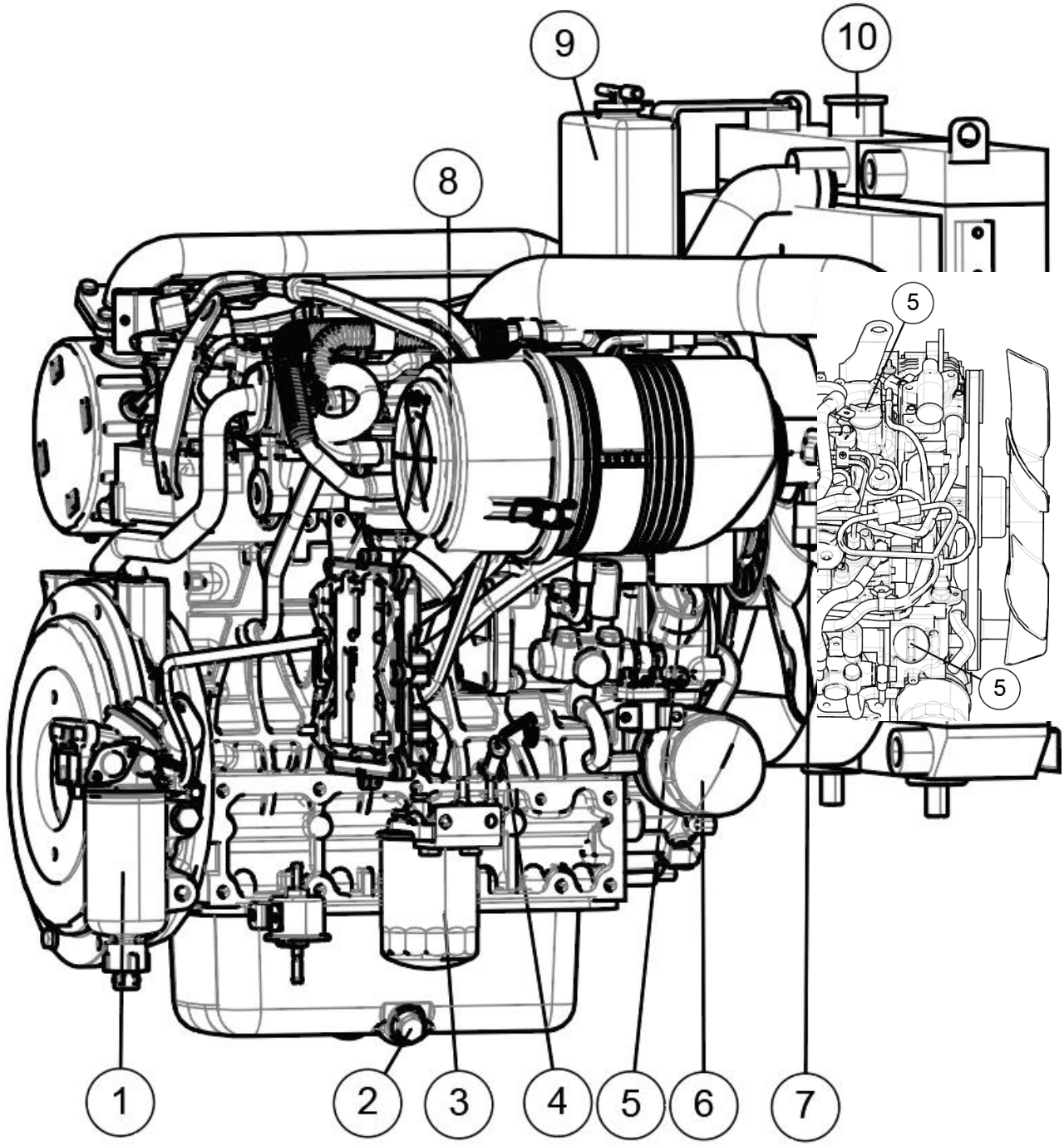
Item	Description	Tool	Daily (8h)	Weekly (50h)	Monthly (200h)	3 months (600h)	6 months (1200h)
	Check brake lines for air presence.		√	√	√	√	√
Parking brake control	Check whether brakes are safe, reliable and have enough stroke.		√	√	√	√	√
	Control performance		√	√	√	√	√
Pipe	Damage, seepage/leakage and rupture				√	√	√
	Check connection and clamping parts for looseness.				√	√	√
Brake pump	Seepage/leakage		√	√	√	√	√
	Oil pump motion					√	√
	Brake pump leak and damage					√	√
Hydraulic tank	Oil quantity check and change		√	√	√	√	×
	Clean suction strainer element.						√
	Remove foreign objects.						√
Control valve stem	Check connection for looseness.		√	√	√	√	√
	Operation conditions		√	√	√	√	√
Directional control valve	Oil leak		√	√	√	√	√
	Safety and tilt lock valves operation conditions				√	√	√
	Measure safety valve pressure.	Oil pressure gauge					√
Pipe fitting	Seepage/leakage, looseness, rupture, deformation and damage				√	√	√
	Replace pipes.						×1-2 year
Hydraulic pump	Check hydraulic pump for oil leak or noise.		√	√	√	√	√
	Check the drive gear of hydraulic pump for wear.				√	√	√
Chain sheave	Check chains for tension, deformation, damage and rust.		√	√	√	√	√
	Chain oiling				√	√	√
	Rivet pin and looseness				√	√	√
	Chain sheave deformation and damage				√	√	√

Item	Description	Tool	Daily (8h)	Weekly (50h)	Monthly (200h)	3 months (600h)	6 months (1200h)
	Check chain sheave bearing for looseness.				√	√	√
Attachment	Check for abnormal conditions.				√	√	√
Lift and tilt cylinders	Check piston rod, piston rod thread and connection for looseness, deformation and damage.		√	√	√	√	√
	Operation conditions		√	√	√	√	√
	Seepage/leakage		√	√	√	√	√
	Wear and damage of pin and cylinder bearing				√	√	√
Forks	Fork damage, deformation and wear				√	√	√
	Lock pin damage and wear					√	√
	Fork heel hook weld crack and wear				√	√	√
Mast and fork carriage	Check inner, intermediate and outer masts and horizontal beam weld for crack and damage.				√	√	√
	Check tilt cylinder bracket and mast weld for poor condition, crack and damage.				√	√	√
	Check inner, intermediate and outer masts for bad weld, crack or damage.				√	√	√
	Check fork carriage for bad weld, crack or damage.				√	√	√
	Check rollers for looseness.				√	√	√
	Mast support bearing wear and damage						√
	Check mast bearing cover plate bolts for looseness.	Test hammer			√		√
	Check lift cylinder piston rod head bolts for looseness.	Test hammer			√		√
	Roller, roller shaft and weld crack and damage				√	√	√
Overhead	Check whether installation is secure.	Test hamm	√	√	√	√	√

Item	Description	Tool	Daily (8h)	Weekly (50h)	Monthly (200h)	3 months (600h)	6 months (1200h)
guard and load backrest		er					
	Check for deformation, crack and damage.		√	√	√	√	√
Steer indicator light	Work and installation conditions		√	√	√	√	√
Horn	Work and installation conditions		√	√	√	√	√
Lights and bulbs	Work and installation conditions		√	√	√	√	√
Reverse buzzer	Check for abnormal conditions.		√	√	√	√	√
Gauge	Gauge functioning		√	√	√	√	√
Electrical line	Harness damage and looseness			√	√	√	√
	Electrical circuit connection looseness				√	√	√

Section 2 Maintenance Instructions

2.1 Engine maintenance



1.	Primary fuel filter	2.	Drain plug	3.	Secondary fuel filter	4.	Dipstick
5.	Engine oil filler	6.	Engine oil filter element	7.	Mechanical differential pressure alarm	8.	Air filter
9.	Expansion tank	10.	Coolant filler				

2.1.1 Inspect engine oil level

Insufficient or excessive oil can cause engine damage. Check engine oil level only when the engine is level and off. If the engine is running hot, shut down the engine. Wait for 10min to allow engine oil to flow into the oil pan before checking the oil level. If the engine is cold, you may check the oil level immediately.

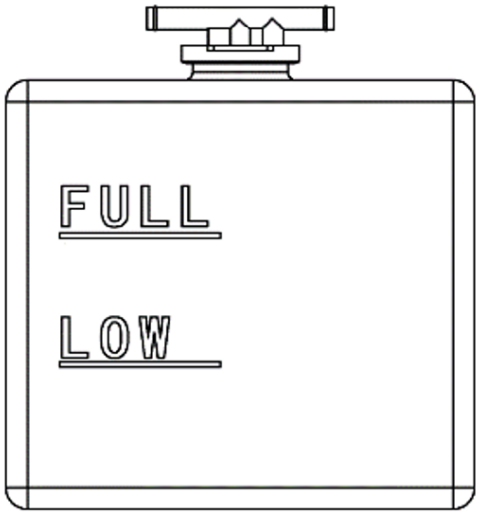
1) Pull the dipstick out, wipe it with clean cloth, and reinsert it fully. Remove the dipstick again and check the oil level, which should be between the “L” and “H” marks.

2) If the level is below the "L" mark, add oil through the filler. If the level is above the "H" mark, loosen the drain plug at the bottom of the pan to drain some oil.

⚠ Note: Too much or too little oil can cause engine damage.

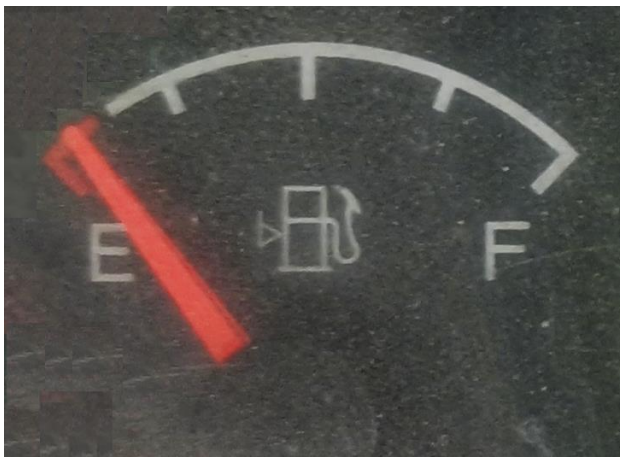
2.1.2 Inspect coolant level

1) Park the forklift on a level surface, shut off the engine and allow it to cool down.
2) The coolant level should not be below the "LOW" mark on the expansion bank or above the "FULL" mark on it.
3) Add coolant through filler as necessary.



⚠ To avid scalding, allow the engine to cool down and then remove the coolant return filler cap (2).

2.1.3 Inspect fuel level



1. Fuel level gauge

1) Check the fuel level reading on the fuel level gauge on the dashboard.
2) Keep the tank full of fuel to minimize any condensation arising from atmospheric conditions.

⚠ Note: If diesel is not added until it is used up, the engine will shut down and lots of water and impurities in the diesel at the bottom of the tank will affect normal engine operation.

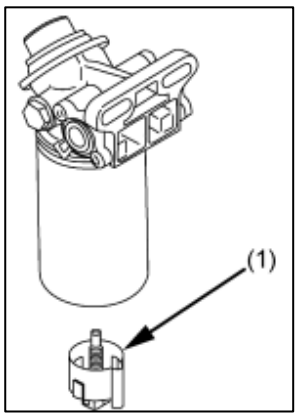
⚠ Note: Select the appropriate type of fuel based on the minimum temperature of the place where the machine is to be used.

2.1.4 Drain water from the fuel filter

⚠ Explosion and fire hazards. Engine fuel is flammable and check the location of the machine. Perform this procedure with the machine in an open and well-ventilated area away from heater, sparks, flames and lighted tobacco. Always have an approved fire extinguisher within easy reach.

⚠ Perform this procedure with the engine off.

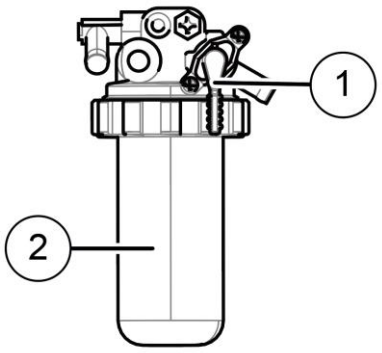
V2403 (EU Stage V)



1. Drain valve

1) Shut off the engine and locate the fuel-water separator.
2) Disconnect harnesses.
3) Place a suitable container beneath the filter and loosen the drain valve at the bottom of the filter to drain water.
4) Reinstall the fuel filter to keep out dust and dirt.
5) Bleed air from the fuel system.
6) Clean up any fuel that may have spilled.
7) Start the engine and check for fuel leaks.

V2403 (EU Stage III)



1. Fuel-water separator lever 2. Fuel-water separator

The fuel-water separator lever is ON (as shown in the figure) if in the vertical position and OFF if in the horizontal position.

1) Turn off the fuel filter lever.
2) Place a suitable container beneath the filter. Remove the fuel-water separator.
3) Drain water.
4) Reinstall the fuel filter.
5) Clean up any fuel that may have spilled.
6) Turn on the fuel filter lever.
7) Start the engine and bleed air. Check for fuel leaks.

2.1.5 Replace primary fuel filter element

⚠ The engine must be shut off!

Smoking and the use of open flame are prohibited.

Take care when contacting hot fuel!

⚠ It is forbidden to loosen fuel injection

or high-pressure fuel lines with the engine on.

⚠ Thorough clean all areas concerned.

Blow wet areas dry with compressed air.

⚠ Abide by safety rules and local laws & regulations regarding fuel. Dispose of spilled fuel and filter elements as specified. Fuel seepage/leakage to the ground is prohibited.

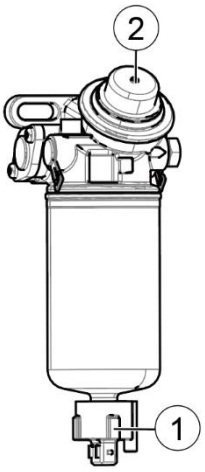
⚠ Upon completion of work on the fuel system, bleed the system, conduct a test run and check seals.

⚠ Explosion and fire hazards. Engine fuel is flammable. Check the location of the machine. Perform this procedure with the machine in an open area away from heater, sparks, flames and lighted tobacco. Always have an approved fire extinguisher within easy reach.

V2403 (EU Stage V)

1. Drain valve 2. Hand pump

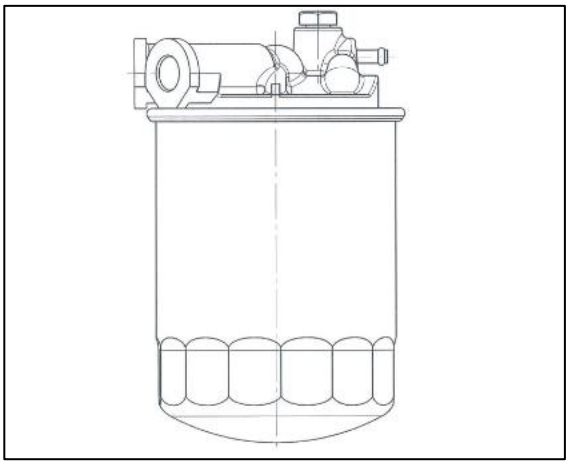
1) Clean the area around the filter and the mounting base.
2) Disconnect harnesses.
3) Place a suitable under the drain valve.
4) Use a strap wrench to remove the fuel filter.
5) Clean the sealing surface of the filter bracket



with a fiber-free cloth.

6) Apply a thin layer of oil to the seal ring of the new filter.
7) Screw in the new filter by hand until the seal is snug, and then tighten it fully.
8) Connect harnesses.
9) Take out the container and dispose of the collected fuel as required by local laws & regulations.
10) Press the hand pump continuously to bleed the fuel system.
11) Clean up any fuel that may have spilled.
12) Start the engine and check for fuel leaks.

2.1.6 Replace the secondary fuel filter



1) Use a wrench to loosen and unscrew the filter element.
2) Catch drained fuel.
3) Clean the sealing surface of the filter bracket with a fiber-free cloth.
4) Apply a thin layer of oil to the seal ring of the new filter.
5) Screw in the new filter by hand until the seal is snug, and then tighten it fully.
6) Bleed air from the fuel system.

2.1.7 Inspect the belt

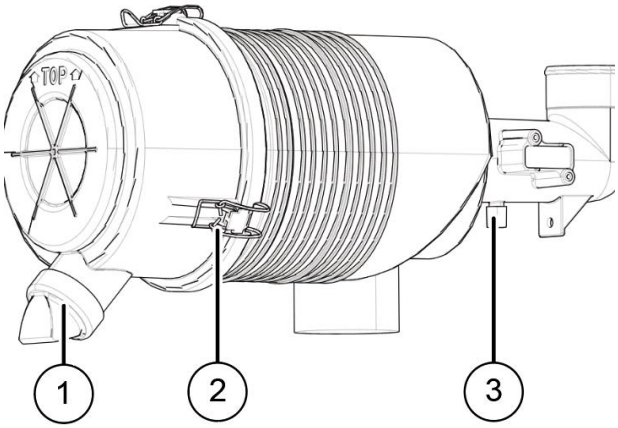
To ensure the engine operates at peak performance, check the belt for wear and crack. If the belt is worn or damaged, replace it.

Check the belt for crack, split, wear, stain, misalignment and liquid contamination.

Proper fan belt tension	Pressure exerted on the belt between pulleys
10-12 mm (0.394-0.472 in.)	Under a load of 10kgf (22.1lbs)

2.1.8 Replace the air filter element

Check the dust ejection valve daily. Replace it if cracked or deformed. Remove dust inside it.



1. Dust ejection valve
2. Latch
3. Physical differential pressure alarm

When the inlet air resistance reaches the maximum inlet air resistance of the engine, the physical differential pressure alarm will turn red. Clean the main filter element.

⚠ Perform this procedure with the engine off.

Clean the main element of air filter

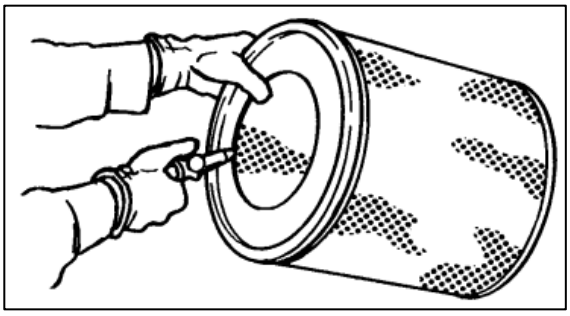
Replace the main filter element only when it has been cleaned 5-6 times or the scheduled maintenance interval has expired.

Replace the safety element at each time of replacing the main element.

It is forbidden to clean the safety element.

1) Shut off the engine and open the engine hood.
2) Remove the outer air filter cover.
3) As the main filter element with radial seal is

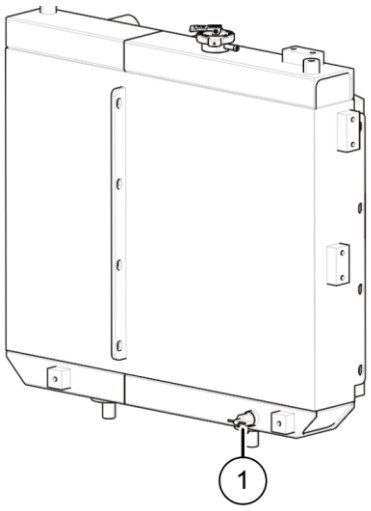
fitted snugly to the outlet pipe, it is needed to overcome resistance to remove the element. It is recommended to rotate the element while pulling it out. Avoid tapping the housing and element.



4) Clean the element from inside out with low-pressure compressed air (maximum of 207Kpa) which should be at least 30mm away from the element.
5) When replacing the safety filter element, clean the inside of the outlet pipe with a wet cloth and check the sealing surface for damage. Avoid exposing the engine air inlet (i.e., air filter outlet) whenever possible. If there is no appropriate safety element ready for replacement, cap the filter outlet.
6) Check whether the new element is in good condition, especially sealing surface and clean side, so as to avoid installing a damaged one. Do not wipe the sealing surface onto which a layer of lubricant is applied to facilitate users to install the element with ease.
7) If the safety element is just replaced, it is necessary to confirm whether the safety element is installed correctly before installing the main element, and then push the edge of the element by hand. Carefully install the main element, and confirm that the main element is completely inserted into the housing. Do not use the pressure of the end cover to push in the main element, which will damage the housing and latch. If the end cover cannot be installed in place because of the element, remove the end cover and continue to push in the main element. Install the main element in its proper position.
8) Check all fasteners (including clamps, nuts and connectors) for proper tightening. Check lines for leaks. If leaky, fix it. Any leak will cause dust to bypass the air filter and directly enter the engine. Finally, reset the alarm indicator.

2.1.9 Change coolant

If coolant is contaminated, engine overheats or the radiator becomes foamy before the expiration of the replacement interval, change coolant before the expiry date.



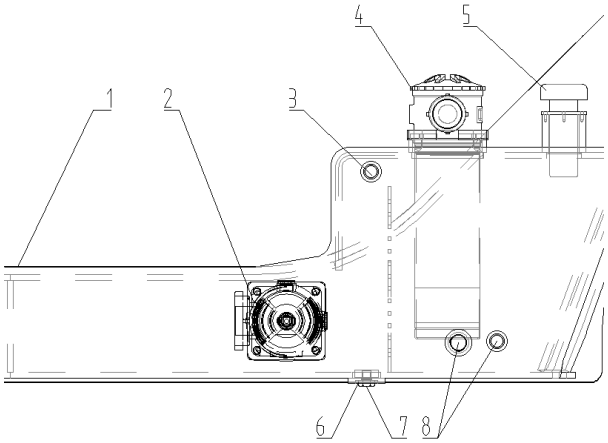
1. Radiator coolant drain port

1) Shut off the engine and allow it to cool down.
2) Remove the radiator filler cap.
3) Open the radiator, engine and transmission coolant drain valves (if fitted for the engine and transmission) and drain coolant into a container.
4) After the engine and transmission are completely drained of coolant, close the radiator, engine and transmission coolant drain valves (if fitted).
5) Check all pipes and clamps of the cooling system for damage. Replace them as necessary. Check the water radiator for leak, damage and dirt accumulation. Clean and repair it as necessary.
6) Slowly add coolant through the filler to the maximum allowable level for the radiator.
7) Install the filler cap.
8) Idle the engine, check for coolant level and leaks, and add again as needed.

2.1.10 Clean the radiator

Under any of the following circumstances, clean and flush the cooling system before the expiration of the recommended maintenance interval:

- The engine is overheated frequently.
- Bubbles are observed in coolant.
- The engine oil has entered the cooling system and the coolant is contaminated.
- Diesel has entered the cooling system and the coolant is contaminated.



⚠ Caution

Always clean the radiator with the engine off.

⚠ Caution

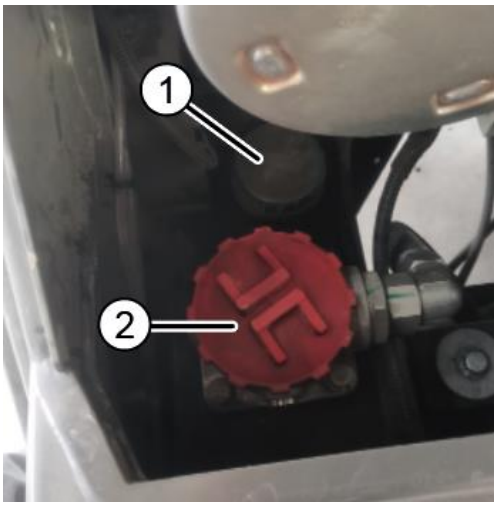
Take extra care to clean the radiator. Otherwise, it is very likely to damage its core.

1) Use compressed air to blow the radiator clean from its vent side.
2) Clean the inside of the radiator with a soft cloth.

2.1.11 Replace the engine oil filter element

1) Remove the oil filter element with a filter wrench.
2) Apply a thin layer of engine oil onto the washer of the new filter element.
3) Install the new element by hand.
4) Do not overtighten it. Otherwise, the rubber washer will be deformed. Check whether engine oil leaks from seal. Be sure to check for the oil level through the dipstick.
5) Add the engine oil to the specified level.

2.2 Hydraulic tank maintenance



Hydraulic tank

1. Tank 2. Self-sealing suction strainer 3. Oil return port

4. Oil return filter 5. Breather 6. O-ring

7. Drain plug 8. Oil return port

2.2.1 Replace the hydraulic tank return filter

Periodic replacement of the filter is essential for good machine performance and service life. A dirty or clogged filter may cause hydraulic components to perform poorly and continued use may cause component damage. Extremely dirty conditions may require that the filter be replaced more often.

1) Lower the forks and park the machine on a level surface.
2) Shut off the engine and relieve pressure in the hydraulic system.
3) Replace the filter element.
4) Reset to the original state.

2.2.2 Inspect the hydraulic oil level

Open the filler cap and check the oil level through the dipstick.

2.2.3 Inspect the hydraulic oil

Collect a sample of hydraulic oil and place in a clear container. Visually inspect the hydraulic oil for the following:

- Color: Oil should be clear, light-honey colored.
- Appearance: Oil should be clear and not cloudy and contain no particles, foreign objects, or other contamination.
- The hydraulic oil can be inspected by smell (can smell “hot” but not “burnt”) or rubbing between fingers (should feel viscous and free of any rough feel due to particles). If the hydraulic oil passes all of the above inspections, continue the scheduled maintenance intervals. If the hydraulic oil fails any of the above inspections, the hydraulic oil must be tested or replaced.

1) Replacement or testing of the hydraulic oil is essential to good machine performance and service life. Dirty hydraulic oil may cause the machine to perform poorly and continued use may cause component damage. Hostile operating environment may require this procedure to be performed more often.
2) Before replacing the hydraulic oil, the oil may be tested by an oil distributor for specific levels of contamination to verify that changing the oil is necessary.
3) If the hydraulic oil was not replaced at the two year inspection, the oil must be tested every quarter until the oil fails the test and is replaced.

Note: When replacing the hydraulic oil, it is recommended that all hydraulic filters be replaced at the same time.

2.2.4 Replace the hydraulic oil

⚠ Note: When replacing the hydraulic oil, it is recommended that hydraulic filters and strainers be replaced.

Park the machine on a level surface and stow it.

1) Close the ball valve (if equipped) of the hydraulic tank.

⚠ Component damage hazard. Do not start the engine when the hydraulic tank ball valve is closed. Otherwise, it may cause component damage. If the ball valve is closed, remove the key from the key switch and attach a warning tag.

⚠ Bodily injury hazard! Spraying hot oil can penetrate and burn skin.

2) Remove the drain plug from the hydraulic tank.

3) Completely drain the hydraulic tank into a suitable container. To accelerate draining, remove the tank filler cap.
4) Remove the filter from the hydraulic tank.
5) Clean the inside of the hydraulic tank using a mild solvent. (First clean it using chemical cleaner. After drying, flush it with clean hydraulic oil and drain the oil.)
6) Clean up the foreign matter from the magnetic ring.
7) Install a new filter.
8) Install the drain plug.
9) Fill the tank with an appropriate amount of hydraulic oil. Do not overfill. Clean up any oil that may have spilled.
10) Open the ball valve (if fitted) on the hydraulic tank.

⚠ Note: Always use pipe thread sealant when installing the drain plug and filter.

11) Operate all machine functions through a full cycle and check for leaks.
12) After the cycle, recheck the oil level and add oil to the specified level. Do not overfill.

2.3 Axle maintenance

2.3.1 Inspect tire pressure and wheel nut torque

1) Check the tire surface and sidewalls for cuts, cracks, punctures or unusual wear.
2) Check each wheel hub for damage, bends and cracks.
3) Check and adjust the tire pressure as needed:

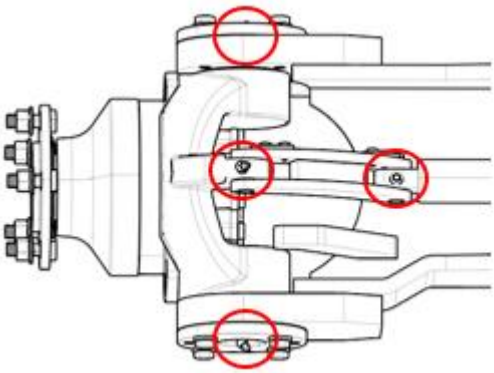
	Model	Tire pressure
Front wheel	12.5/80-18	430Kpa
Rear wheel	28x9-15	530Kpa

Wheel nut tightening torque:

	Model	Rim nut tightening torque
Front wheel	12.5/80-18	130-150N·m
Rear wheel	28x9-15	280-320N·m

⚠ Note: Before inflation, check whether the air hose is correctly connected to the tire valve. Inflate tires away from people.

2.3.2 Lubricate drive axle



A total of eight lubrication points, consistent on the left and right.

2.4 Windshield washer fluid fill

The filler is located under the right side cover plate of the seat in the cab:

1) Open the cover plate.
2) Add the fluid through the filler.

2.5 Battery maintenance

Battery

⚠ Warning: Before working on the battery, disconnect power supply connection and open the case.

The battery is located on the left side of the seat in the cab. Keep away from smoking and flames. Remove all rings, watches and other jewelry. Put on eye wear and protective gloves and clothing. Keep hands and other body parts clear of spilled electrolyte. Neutralize electrolyte spills with baking soda and water.

Proper battery condition is essential to good machine performance and operational safety. Improper voltage or damaged cables and connections can result in component damage and hazardous conditions.

⚠ Danger

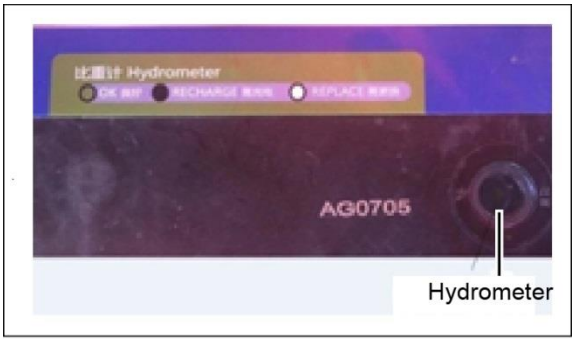
Electrocution hazard:

Live operation may result in serious injury or death. Remove all rings, watches and other jewelry before operation.

Bodily injury hazard:

The battery electrolyte is corrosive. Avoid spilling or contacting electrolyte. Neutralize any electrolyte that may have spilled with baking soda and water.

- Check whether the battery hold-down bar is secure.
- Check whether battery cable connections are tight and free of corrosion.
- Check whether batteries are leaky, dry and clean.
- Measure the specific gravity of the battery. The specific gravity reading between 1.275 and 1.285 at 30°C indicates that the battery is fully charged. Check the wiring terminal for looseness and the cable for damage.
- Check the battery hydrometer (if fitted) for color:



Hydrometer	Implication and solution
color	
White	Lack of battery fluid. Shut down the machine and remove it from service.
Black	Undervoltage or damage
Green	Measure the voltage of each battery. If below 11V, it indicates battery damage. If between 12.4V and 12.7V, it indicates good battery condition.

Battery hydrometer color and description

- If the hydrometer shows green, the battery voltage is above 12 V but the starter cannot be powered, have the battery further checked and repaired by the personnel trained and qualified in this aspect.

⚠ Note: If an external power source is needed to charge the battery, use only LGMG approved charger.

- If the peephole on the battery becomes white, replace the battery rather than charge.
- When charging, connect the positive cable first and then the negative cable.

⚠ Note: Adding terminal protectors and a corrosion preventative sealant will help eliminate the corrosion on the battery terminals and cables.

If the battery needs to be replaced, use

proper lifting techniques.

Section 3 Maintenance Datasheet

Oil selection

Type	Recommendations	Parts
Engine oil CH-4	Ambient temperature≥-10℃, SAE 15W/40	Engine (EU Stage III)
	Ambient temperature<-10℃, SAE 10W/30	
Engine oil CJ-4	Ambient temperature≥-10℃, SAE 15W/40	Engine (EU Stage V)
	Ambient temperature<-10℃, SAE 10W/30	
Gear oil	Ambient temperature between -15℃ and +49℃, 85W-90GL-5	Axle
	Ambient temperature between -25°C and +49°C, 80W-90GL-5	
Hydraulic oil	L-HM32, operating temperature≥-5℃	Hydraulic tank
	L-HV32, operating temperature≥-20°C	
Fuel	Ambient temperature ≥4℃ #0 light diesel	Fuel tank
	Ambient temperature ≥-5°C #-10 light diesel	
	Ambient temperature ≥-14°C #-20 light diesel	
	Ambient temperature ≥-29°C #-35 light diesel	
Lubricating grease	#2 or #3 Lithium base grease	Work equipment hinge pin
Antifreeze	Antifreeze -25℃ with a glycol content of 40%	Cooling system
	Antifreeze -35°C with a glycol content of 50%	
	Antifreeze -45°C with a glycol content of 60%	

Section 4 Lubrication Chart

Machine lubrication chart

○: Replace F0: Hydraulic oil

◎: Add GO: Gear oil

□: Check and adjust CG: Lubricating grease