



LGMG North America Inc.



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Maintenance Manual

SR3369D/SR4069D/SR3390D/SR4390D/ SR5390D

Mobile Elevating Work Platform ANSI

 **WARNING**

Before operation and maintenance, the drivers and service personnel shall always read and thoroughly understand all information in this manual. Failure to do so may result in, fatal accidents or personal injury.

This manual must be kept with this machine at all times.

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Foreword

Thank you for choosing to use this Mobile Elevating Work Platform from LGMG North America. This machine is designed according to A92.20-2018. The information specified in this manual is intended for the safe and proper operation of this machine for its' intended purpose.

For maximum performance and utilization of this machine, thoroughly read and understand all the information in this manual before starting, operating, or performing maintenance on this machine.

Ensure all preventive maintenance to the machine is performed according to the interval specified in the maintenance schedule.

Keep this manual with this machine for reference at all times. When the ownership of this machine is transferred, this manual shall be transferred with this machine. This manual must be replaced immediately if it is lost, damaged, or becomes illegible.

This manual is copyrighted material. The reproduction or copy of this manual is not allowed without the written approval of LGMG North America.

The information, technical specifications and drawings in this manual are the latest available when this manual is issued. Due to continuous improvement, LGMG North America reserves the right to change the technical specifications and machine design without notice. If any specifications and information in the manual are not consistent with your machine, please contact the service department of LGMG North America.

WARNING

Only personnel who have been properly trained and qualified to operate or maintain this machine can operate, repair and maintain this machine.

Improper operation, maintenance, and repair are dangerous and can cause personal injury and death.

Before any operation or maintenance, the operator shall thoroughly read this manual. Do not operate, perform any maintenance or make any repairs on this machine before reading and understanding this manual.

The user shall load the platform strictly according to the load rating of the platform. Do not overload the platform or make any modifications to the platform without permission from LGMG North America.

The operation regulations and preventions in this manual are only applicable for the specified use of this machine.

Safety Precautions

The operator of this machine shall understand and follow the existing safety regulations of state and local governments. If these are unavailable, the safety instructions in this manual shall be followed.

To help prevent accidents, read and understand all warnings and precautions in this manual before operation or performing maintenance.

It is impossible to foresee every possible hazard and the safety instructions in this manual may not cover all safety prevention measures. Always ensure the safety of all personnel and protect the machine against any damage. If unable to confirm the safety of some operations, contact LGMG North America.

The operation & maintenance prevention measures listed in this manual are only applicable to the specified uses of this machine. LGMG North America assumes no responsibility if this machine is used beyond the range of this manual. The user and the operator shall be responsible for the safety of such operations.

Do not perform any operation forbidden in this manual in any situation.

The following signal words are applicable for identifying the level of safety information in this manual.

 **Danger:**

An imminent situation, that if not avoided, will result in severe injuries or death. This is also applicable to situations that will cause serious machine damage, if not avoided.

 **Warning:**

A potentially dangerous situation, that if not avoided, may result in severe injuries or death. This is also applicable to situations that may cause serious machine damage, if not avoided.

 **Notice:**

A situation, that if not avoided, may result in minor or intermediate injury. This is also applicable to situations that may cause machine damage or shorten machine service life.

Chapter 1 Maintenance

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1.1 Compliance

- 1) The operator is only allowed to perform routine maintenance items as specified in this manual.
- 2) Regular maintenance inspections should be performed by qualified authorized service technicians as required by the manufacturer.

Maintenance Symbols

The following symbols are used in this manual to help convey relevant meanings in the instructions. When one or more symbols are shown at the first part of the maintenance program, the meanings expressed are as follows.



Indicates a tool required to carry out this procedure.



Indicates a new part required to carry out this procedure.



Indicates that the engine must be cooled down before carrying out this procedure.

1.2 Check for Operation and Safety Manual

It is required to keep the Operation and Safety Manual in good condition for safe operation. The manual and shall be stored in the manual storage box provided in the work platform. An illegible or missing manual is unable to provide necessary safety and operation information for safe operation.

- 1) Confirm that the storage container is present and in a good condition.
- 2) Confirm both the responsibility manual and safety manual are in the storage container

within the work platform by the operator.

- 3) Check each page of the manual to be legible and in good condition.
- 4) Put the manual into the file storage box after use.



If the manual needs to be replaced, please contact the service staff of LGMG North America.

1.3 Check for Decals and Warning Labels

It is required to keep all safety and description decals and warning labels in good condition for safe operation of the platform. Labels warn operators and maintenance personnel of possible hazards in using the platform. They also provide users with operation and maintenance information. Illegible labels cannot warn personnel of steps or hazards and may lead to unsafe operating conditions.

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

Check for legibility and damage of all the decals and immediately replace any damaged or illegible decal.

If the decals need to be replaced, please contact the service staff of LGMG North America.

1.4 Check for Damaged, Loose, or Missing Parts

This step is performed every 8 hours or daily, whichever comes first.

Carrying out daily equipment status check is necessary for ensuring safe equipment operation and maintaining good equipment performance. Incorrect positioning, repairing damaged equipment, and loose or missing parts may result in unsafe operating conditions.

- 1) Check for damaged parts for the whole platform, and check for incorrect installation or missing parts and components, including:

- Electrical components, wiring and cables
 - Hydraulic hoses, connectors, valve blocks and hydraulic cylinders
 - Fuel and hydraulic tanks
 - Wear pads
 - Tires and wheels
 - Engine and related components
 - Limit switches and horn
 - Nuts, bolts, and other fasteners
 - Platform extension components
 - Platform entrance door
 - Indicators and alarms
 - Safety arm
 - Scissors arms pin and fastener
 - Platform control handle
 - Outrigger cover and foot pad
- 2) Check the entire machine for:
- Cracks in welds or structural components
 - Whether the platform, scissors, and chassis are deformed or have cracked weld joints.
 - Damage to the machine
 - Ensure all structural components and other key components are complete and all relevant fasteners and pins are in the correct position and properly tightened.
 - Ensure the guardrail has been installed, and guardrail bolts have been properly installed and tightened.

⚠ Notice: If the platform must be raised to check the machine, ensure the safety arm is in the correct position. See the "Operation Instructions" section.

1.5 Checking Platform Control Station and Ground Control Station

This step is performed every 8 hours or daily, whichever comes first.

The functions of the test equipment and the red emergency shutdown switch are required for safe operation of the platform. If there is an unsafe working condition or any normal operation failure, the red emergency shutdown switch will disable all functions and shut down the engine. Each function shall be enabled for smooth operation without any pause, jitter or abnormal noise.

- 1) Pull out the red emergency shutdown switches on the Ground Control Station and Platform Control Station.
- 2) Turn the key switch to Ground Control Station. Start the engine.
- 3) Try to operate each function switch without using the enabling switch.

Result: No functions should operate.

- 4) Press and hold the enabling switch and activate each function switch.

Result: All functions should operate. The alarm shall sound when the platform lowers.

- 5) Push the red emergency shutdown switch button on the Ground Control Station to the "Off" position.

Result: The engine will be shut down and all functions will be disabled.

- 6) Turn the key switch to the platform control unit, and pull out the red emergency shutdown switch to the "On" position on the Ground Control Station.
- 7) Start the engine from the work platform.
- 8) Try to perform all platform functions without using the function enable switch.

Result: No functions should operate.

- 9) Press and hold the function enabling switch. Try to perform all platform functions.

Result: : All functions should operate.

- 10) Push the red emergency shutdown switch button at the Platform Control Station to the "Off" position.

Result: The engine will be shut down and all functions will be disabled.

1.6 Checking the Wiring

- 1) This check item shall be conducted every 8

hours or daily, whichever comes first.

- 2) Keeping the wiring in good condition is critical for safe operation and good performance of the platform. Failure to find and replace burned, scratched, corroded, or bent wires will result in unsafe operating conditions or even cause damage to platform parts.

Electric Shock/Explosion Hazards

 **Danger: Thermal contact or live**

conductors may lead to serious accidents. Do not wear rings, watches or other jewelry.

- 1) Check if the ground wires under the chassis are missing or damaged.
- 2) Check the following areas for wires burned, scratched, corroded, bent or loosened:
 - Interior of Ground Control Station box
 - Hydraulic valve group wiring
 - Wiring in battery area inside the battery tray
 - Interior of Platform Control Station box
- 3) Turn the key switch to the platform control station position and pull out the red emergency shutdown switches on the Ground Control Station and Platform Control Station.
- 4) Raise the platform to a height about 3.2 m/10.5ft off of the ground.
- 5) Lift the safety arm and move it to the middle of scissors axle sleeve, rotate it upward until it is vertical.
- 6) Lower the platform height until the safety arm contacts the axle sleeve completely.

Crushing Hazards

 **Warning: When the platform is**

lowered, make sure the operator's hand is not between the scissors.


- 1) Check the chassis and scissors area for burned, scratched, corroded, bent, or loosened wiring:

- 2) Check the following areas for burned, scratched, corroded, bent, or loosened wiring:
 - Scissor arm wiring harness
 - ECU to platform harness
 - Harness connectors connected to the platform
- 3) Check the free coating of insulating oil in the following locations:
 - Harness connectors connecting the ECU with PCU
 - All harness connectors connecting level sensors
- 4) Ascend the platform and restore the safety arm to the installation position.
- 5) Shut down the machine after descending the platform to the folding position.

1.7 Checking the Batteries



Sound battery condition is critical to good engine performance and safe operation. Improper electrolyte levels or damaged cables or wires may cause damage to engine components and cause hazardous conditions.

 **Notice: This check is not required for machines with sealed or maintenance-free batteries.**

 **Warning: danger of electric shock.**

Contact with an electrical circuit may result in death or serious personal injury. Take off all rings, watches and other accessories.

 **Warning: danger of bodily injury.**

The battery contains acidic substances. Avoid overflow of acidic substance or contact with it in the battery. Use soda and water to neutralize any acidic

substances overflowing from the battery.

- 1) Wear protective clothing and protective glasses.
- 2) Make sure the battery cables are firmly secured and not corroded.
- 3) Make sure the battery hold down bracket is secure.
- 4) Remove the battery vent cover.
- 5) Check the acid liquid level of the battery. If necessary, add distilled water till level with the bottom of the battery vent holes. Never add excessive distilled water.
- 6) Install the vent cover.
- 7) When the vehicle is shut down for extended periods of time, turn off the main power switch.



Notice: Adding a terminal

protector and an anti-corrosion sealant will help remove corrosion caused to battery terminals and cables.

1.8 Checking Tires and Hubs

This check item is conducted every 200 hours or every two months, whichever comes first.

Keeping tires and hubs in a good condition is critical for safe operation and good performance. Failure of the tires and hubs may cause the platform to tilt. If such failure is not found and repaired in time, it will also cause damage to platform parts.

- 1) Check treads and sides of tires for scratches, cracks, punctures, and other abnormal wear.
- 2) Check if the hubs are damaged, bent or cracked.
- 3) Check whether or not the sealing screws for tires are loose. If there is loosening of screws, and there is slight or no leakage of fillers, and no significant deformation is found for the tire body, screws which are slightly larger than the diameter (about 5mm) of the vent hole can be installed with

a hammer. If leakage of a large quantity of fillers is found, and the tire body deforms significantly, it is necessary to reduce the height of the working platform and replace the tires immediately.

1.9 Checking the Hydraulic Oil Tank Breather

- 1) This check item shall be conducted every 8 hours or daily, whichever comes first.
- 2) An unobstructed hydraulic oil tank breather is essential for good mechanical performance and long service life of the platform. A dirty or clogged breather may result in poor platform performance. More frequent checks are required for a harsh working environment.

① Remove the exhaust cover from the hydraulic oil tank cap.

② Check for ventilation.

Result: Air can pass through the breather.

Result: If air does not pass through the breather, clean or replace the exhaust cover. Continue with Step 3.



Notice: Air is supposed to pass

freely while checking ventilation of the breather.

- 3) Carefully clean the tank breather with mild solvent and dry it with low pressure compressed air. Repeat Step 2.
- 4) Install the breather.

1.10 Checking for Hydraulic Oil Leakage

Check leakage every 8 hours or daily.



Danger of personal injury.

Leaking hydraulic oil may penetrate and burn the skin.


Check for leakage of hydraulic oil, oil droplets or oil in the following areas:

All hydraulic cylinders.

Each valve element
 Each oil pipe and connector
 Drive motor
 Drive hub
 Filter
 Hydraulic oil tank
 Hydraulic pump
 Under the chassis
 Ground area under the platform.

1.11 Checking the Hydraulic Filter


Check or replace the hydraulic filter every 500 hours or six months, whichever comes first.

 **If the work environment is dusty, increase the maintenance interval.**

It is necessary to replace the hydraulic filter to maintain good machine performance and service life. Dirty or blocked filters may cause a decrease in machine performance and continuous use may result in damage to components.

 **Danger of personal injury.**

Be careful with hot oil. Contact could lead to severe burns.

 **Perform this step when the engine is turned off.**

Replacement of the Return Oil Filter Element of Hydraulic Oil Tank

- 1) This step shall be performed every 500 hours or half a year, whichever comes first.
- 2) It is crucial to replace the return oil filter element for good performance and service life of the machine. Dirty or blocked filters may affect machine performance and continuous

use will result in damage to components. The filter elements should be replaced more frequently under extremely dirty working condition.

Be careful: danger of scalding.

Watch out for hot oil. Contact with hot oil may cause severe burn.


- ① Remove the oil tank cover.
- ② Remove the filter element flange.
- ③ Pull the filter element out and install a new filter element.
- ④ Install flange and cover plate.
- ⑤ Make note of the replacement time and date on the filter element replacement table using a marker.
- ⑥ Turn the key switch to the Ground Control Station, and pull out the red emergency shutdown button on the Ground Control Station and Platform Control Station.
- ⑦ Press the lift function button.
- ⑧ Check the filter components for oil leakage.

Replacing the High-Pressure Filter Element

- 1) Place an appropriate container under the filter.
- 2) Remove the nuts at the bottom of the filter cover with a wrench and remove the filter cover.
- 3) Remove the filter element from the filter cover.
- 4) Check the seal of filter cover and replace if necessary.
- 5) Install the new high-pressure filter element and tighten.
- 6) Clean any oil spilled during installation.
- 7) Check the filter cover and the associated elements to ensure there is no leakage.

1.12 Replacing the Hydraulic Oil Tank Air Filter

Replace it every 500 hours or six months. If the work environment is extremely dirty, increase the service interval.


 **Perform this step when the engine is shut down.**

- 1) Remove the filter element.
- 2) Scrub out the inside and tail cover of the tank with a piece of damp cloth.
- 3) Install a new air filter element.

1.13 Checking Hydraulic Oil Level

Check hydraulic oil level every 8 hours or daily.


It is crucial to keep the hydraulic oil at the proper oil level. If the oil is not at a proper level, damage to the hydraulic components will occur. Through routine inspection, the inspector can determine changes in the hydraulic oil level, which can indicate the problems in the hydraulic system.


 **Notice: Perform this procedure when the platform is in the stowed position and the engine is shut down.**


- 1) Park the vehicle on flat ground and the platform is in the stowed position.
- 2) Check the oil level on the hydraulic oil tank gauge. With the machine in the stowed condition, the hydraulic oil level shall be between 1/3 - 2/3 of the oil level gauge, and add hydraulic oil if necessary.

1.14 Replacing the Hydraulic Oil

Replace the hydraulic oil every 2000 hours or two years, whichever comes first.

 **If the hydraulic oil is not replaced during the two-year inspection, send an oil sample to a qualified test lab quarterly. Replace it when the test is not satisfactory.**

 **Perform this step when the machine is in the stowed position.**

 **When removing the hose assembly or couplers, the O-rings or hose ends on the coupler must be replaced and tightened to the specified torque during installation.**

Close the two ball valves located on the hydraulic oil tank (if equipped).

 **Hazard of damage to components.**

Do not start the engine when the ball valve on the hydraulic oil tank is closed, otherwise components will be damaged. If the ball valve is closed, remove the key from the key switch and hang a warning sign on the equipment.

- 1) Remove the oil drain plug, ring magnet, and oil drain flange from the hydraulic oil tank.
- 2) Drain the hydraulic oil from the hydraulic oil tank into a suitable container.
- 3) Disconnect the hose connected to the oil tank. Cap or cover the hose coupler to prevent foreign matter from entering.
- 4) Remove the fasteners securing the hydraulic oil tank.
- 5) Remove the hydraulic oil tank from the machine.
- 6) Remove the filter screen from the hydraulic oil tank and clean it with a mild solvent.
- 7) Flush the inside of hydraulic oil tank with mild solvent.
- 8) Clean the foreign material from the ring magnets.
- 9) Install the filter screen.
- 10) Install the oil drain plug, ring magnet, and oil drain flange.
- 11) Install the hydraulic oil tank on the machine.

- 12) Install hose.
- 13) Add hydraulic oil to the hydraulic oil tank until the oil level is between the 1/3 - 2/3 marks on the sight gauge. Do not overfill the tank.
- 14) Clean any spilled hydraulic oil.
- 15) Open the ball valve on the hydraulic oil tank.

⚠ Danger of damage to components.

After installing the hydraulic oil tank, make sure to open the two ball valves and fill the hydraulic pump with oil.

- 16) Operate all machine functions through an entire cycle and check for oil leakage.
- 17) Recheck the liquid level of oil tank and refill oil to 1/3 - 2/3 after a complete operating cycle.

1.15 Checking Oil Level in the Drive Hub

Perform this check every 250 hours or quarterly.

Incorrect oil level in the drive hub will lead to reduced equipment performance. Continuous use in this condition will result in damage to components.

- 1) Drive the machine until one drain plug is at the highest point.
- 2) Remove the other plug and check the oil level.

Result: The oil level shall be the same as the bottom of the drain plug hole.

- 3) When required, remove the upper plug and add oil until the oil level is the same as the bottom of the lower plug hole.
- 4) Apply pipe thread sealant to the plug and install the plug in the reducer.
- 5) Repeat this step for each reducer.

| | |
|-------------------|-----------------------|
| Oil specification | 80-90/W |
| Capacity | 0.68 L (each reducer) |

1.16 Replacing Drive Hub Gear Oil

Replace the oil after the first 50 hours of use, then every 1,000 hours or yearly.

It is necessary to replace the drive hub gear oil to maintain good equipment performance and service life. Failure to replace the oil every year may result in reduced equipment performance, and continuous use will result in damage to components.

- 1) Select the drive hub to be maintained, and drive the equipment until one plug is at the lowest point.
- 2) Remove the two plugs and drain the oil into the proper container.
- 3) Drive the machine until a plug is at the highest point.
- 4) Add oil from the hole at the high point until the oil level is the same as the hole at the bottom. Install the plugs.
- 5) Repeat this procedure for each reducer.

| | |
|-------------------|-----------------------|
| Oil specification | 80-90/W |
| Capacity | 0.68 L (each reducer) |

1.17 Engine Maintenance – Deutz


1.17.1 Checking engine oil level





⚠ Do not perform maintenance on running engines!

No smoking and open flames!

Be careful when coming in contact with high temperature engine oil. There is a danger of scalding!

 **When maintaining the engine oil system, pay attention to the surface cleaning. Carefully clean all areas involved. Blow wet parts with compressed air.**

 **Please observe the safety regulations for engine oil and relevant local regulations. Dispose of spilled engine oil and filter elements as required. Waste oil cannot drain into the ground.**

 **Test run shall be carried out after each operation. At the same time, pay attention to the sealing and lubricating oil pressure, and then check the engine oil level.**

Check the engine oil level every 8 hours or every day.

Insufficient or excessive engine oil may cause damage to the engine. The engine oil level can only be checked when the engine is placed horizontally and closed. If the engine is hot, close the engine and check the engine oil level 5 minutes later. Check it immediately if the engine is cooled.


- 1) Insert the oil measuring rod and clean it with a piece of clean and fiber-free cloth.
- 2) Insert the oil measuring rod into the bottom.
- 3) Pull out the oil measuring rod and read the value of engine oil level.
- 4) The engine oil level shall always be between MIN and MAX!
- 5) Fill up to the maximum liquid level if necessary.


1.17.2 Replacement of engine oil and filter

 **Do not operate on running engines!**

No smoking and open fires!

Be careful when contacting with high temperature engine oil. Danger of scalding!

 **When operating on the oil system, pay attention to the surface cleaning. Carefully clean all areas involved. Blow wet parts with compressed air.**

 **Please observe the safety regulations for engine oil and relevant local regulations. Dispose of spilled engine oil and filter elements as required. Waste oil cannot drain into the ground.**

 **Test run the engine after each**

procedure. Pay attention to engine oil pressure. Check for leaks and engine oil level after shutting down the engine.

Check the engine oil level every 8 hours or daily.

Change the engine oil and filter every 1000 hours or yearly, whichever comes first. (If the ambient temperature continues to be below -10°C. (14 °F) or the temperature of engine oil is below 60°C (84 °F), or the Sulphur content in the diesel fuel is 0.5 - 1%, the oil change period is reduced by a half; if the engine oil does not reach the replacement interval period within a year, the oil shall be replaced at least once a

year.)

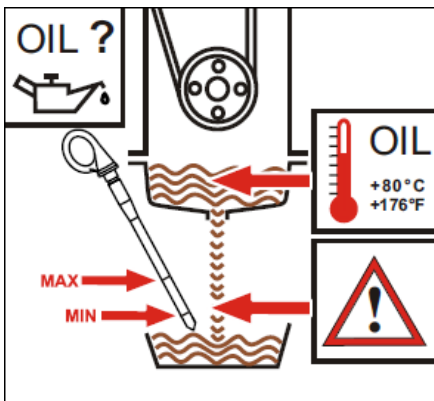
! Danger of Burn

Contact with high-temperature engine parts and oil will cause severe burns.

! Perform the following procedure

after the engine is warmed up to normal operating temperature.

Changing the Engine Oil



- 1) Place the machine on a level surface.
- 2) Warm up and run the engine (engine oil temperature > 80°C).
- 3) Shut down the engine.
- 4) Place the container under the engine oil drain plug.
- 5) Remove the drain plug and drain the engine oil.
- 6) Install a new seal ring on the drain plug. Install the plug and tighten it.
- 7) 7) Replace the engine oil filter. Refer to Replacing the Engine Oil Filter below.
- 8) Add new engine oil at the engine oil filler.
- 9) Warm up and run the engine (engine oil temperature > 80°C).
- 10) Ensure the machine is on a level surface.
- 11) Check the engine oil level and add more if necessary.

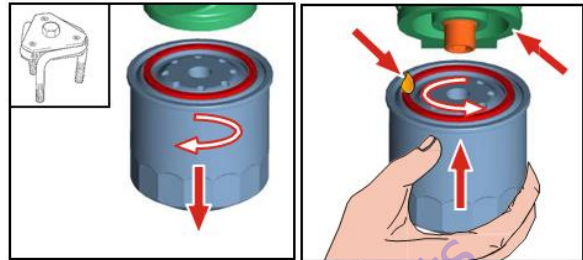
Replacement of the engine oil filter

The engine oil filter element must also be

replaced every time the engine oil is replaced.

! Never fill the filter in advance.

There is risk of contamination.



- 1) Place a proper container under the filter to catch draining oil.
- 2) If a torsion stopper is installed, remove the clamping clamp (optional).
- 3) Loosen and unscrew the filter element with a filter wrench.
- 4) Clean the sealing surface of the filter holder with a clean lint-free cloth.
- 5) Apply a thin layer of engine oil to the seal ring of the new filter.
- 6) 5) Screw in a new filter hand tight and then tighten it to 10-12 Nm.
- 7) Install the clamping clamp of a torsion stopper (optional).

1.17.3 Checking for Fuel Leakage


! The engine must be shut down!


No smoking and open flames!

Be careful when contacting high temperature fuel!

Observe relevant local and safety regulations for handling and disposing of fuel. Dispose of spilled fuel and filter elements in accordance with applicable regulations. The fuel must not penetrate into the ground.

Visually check for fuel leakage every 8 hours or daily.


 There is danger of explosion and fire. Engine fuel is combustible. Check the location of the machine. When this step is performed, the machine shall be away from any heaters, sparks, open flames, and be in an open and well-ventilated area. A fire extinguisher certified for use on diesel fuel fires shall be placed in an easily accessible place.

 There is danger of explosion and fire. If any fuel leaks, prevent any additional personnel from entering the area or operating the equipment. Repair the leak immediately.

1.17.4 Draining the Fuel Filter

 Risk of explosion and fire.

Engine fuel is combustible. The location where the equipment is must be inspected. When this procedure is performed, equipment shall be located in an open and well-ventilated area, away from the heaters, sparks, and open flames. A qualified fire extinguisher shall be placed at the location that is easily accessible.

 Perform this step when the engine is shut down.

Check and drain the fuel filter every 8 hours or every day.

- 1) Shut down the engine, and find the fuel filter.
- 2) Disconnect the wiring.
- 3) Loosen the drain plug located at the bottom of the filter cartridge, draining any water into an appropriate container. Once

fuel starts to flow out, tighten the drain plug immediately.

- 4) Wipe up any fuel that may have spilled or splashed.
- 5) Start the engine from the ground control and inspect for any leakage from the fuel filter.

 Risk of explosion and fire.


In the event of fuel leakage, prevent any unauthorized personnel from entering the area and prohibit any operation of the equipment. Repair the leak immediately.


1.17.5 Replacing the Fuel Filter


 The engine must be shut down!


No smoking and open flames!

Be careful around high temperature fuel!

 Do not loosen the fuel injection lines or high-pressure oil lines while the engine is running.

 Carefully clean all areas around the fuel filter.

 Observe relevant local and safety regulations for handling and disposing of fuel. Dispose of spilled fuel and filter elements in accordance with applicable regulations. The fuel must not seep into the ground.

 After completing any procedure on the fuel system, check for proper

operation and any leakage.

Replace the filter after the first 50 hours, and every 500 hours, or quarterly thereafter. Replace the filter more frequently in the presence of an extremely dirty work environment.

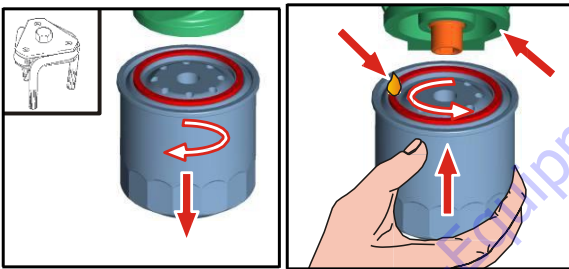
⚠ There is danger of explosion and fire. The engine fuel is combustible. Check the location of the machine.

When this step is performed, the machine shall be away from any heaters, sparks, open flames, and be in an open and well-ventilated area.

A certified fire extinguisher for extinguishing fuel fires must be easily accessible place.

⚠ Never fill the fuel filter in advance.

There is risk of contamination.



- 1) If a torsion stopper is installed, remove the clamping clamp (optional).
- 2) Unscrew the filter element with a filter wrench.
- 3) Use a proper container to catch any draining fuel.
- 4) Clean the sealing surface of the filter with a clean lint-free cloth.
- 5) Apply a thin layer of fuel to the seal ring of the new filter.
- 6) Screw in the new filter by hand until snug and then tighten to 10-12 Nm.
- 7) Fix the clamping clamp of a torsion stopper (optional).
- 8) Bleed the fuel system.

1.17.6 Checking the Engine Air Filter

Check the maintenance indicator on the air filter every 8 hours or daily.

⚠ Perform this step when the engine is shut down.



Check the maintenance indicator on the air filter. When the indicator is red, the filter element needs to be maintained and cleaned or replaced.

1.17.7 Cleaning or Replacing the Air Filter

Clean the air filter every 500 hours or half a year.

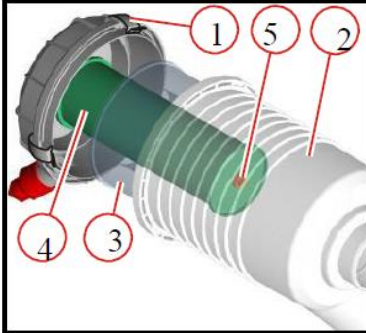
⚠ Do not perform maintenance on a running engine!

⚠ Thoroughly clean all external surfaces when performing maintenance on the engine air system, and close the suction inlet when necessary. Handle old filter elements in an environmentally friendly manner.

Cleaning the Air Filter

 **Do not clean the filter element (3)**

with gasoline or any flammable liquid.



- 1) Open the mounting plate (1).
- 2) Remove the filter cover (2) and remove the filter element (3).
- 3) Filter element (3): For slight contamination, purge with dry compressed air (maximum 5 bar) from inside to outside for cleaning (general cleaning times are no more than 5 times);
- 4) Replace it in case of serious contamination.

Replacement of the Safety Filter Tube (4)

 **Never clean the safety filter tube (4).**

- 1) Remove the bolt (5) and the safety filter tube.
- 2) Install a new safety filter tube (4) and secure with the bolt (5).
- 3) 3) Install the filter element (3), the outer cover (2), and secure with the mounting plate.

1.17.8 Checking Engine Coolant

Level

Check the coolant liquid level every 8 hours or daily.

 **Engine coolant at high**

temperature can cause scalding.

**The cooling system is under pressure!
The cap can only be opened when cool.**

Coolant must have the specified concentration of cooling system protectant!

Observe all safety and local regulations for coolant.

Dispose of spilled coolant as specified. It must not penetrate into the ground.


Never run the engine without coolant, even for a very short time.

- 1) Carefully open the cap for the cooling system.
- 2) The coolant liquid level shall always be between min and max marks on the coolant reservoir. If necessary, fill to the maximum level.

1.17.9 Filling or Replacing Engine

Coolant

Replace engine coolant every 2,000 hours or two years.

 **Engine Coolant at high temperature can cause scalding.**

The cooling system is under pressure! The cap can only be opened when cool.

The coolant must have a specified concentration of cooling system protectant!

Please observe all safety and local regulations for coolant disposal.

Dispose of the spilled coolant as specified. It must not penetrate the ground.

Never run the engine without coolant, even for a very short time..

Draining of the Cooling System

- 1) Carefully open the cap.
- 2) Place the drain container under the coolant

drain.

- 3) Open the drain and drain the coolant from the radiator.
- 4) Close the radiator drain.
- 5) Install the coolant cap.

Filling of the Cooling System

- 1) Carefully open the cooling system cap.
- 2) Loosen the cooler exhaust bolts that may be present.
- 3) Fill the coolant to max level.
- 4) Close the cooler cap.
- 5) Run the engine to operating temperature.
- 6) Shut down the engine.
- 7) Check the coolant level when the engine is cooled, and fill it to max if necessary.

1.17.10 Checking the Engine

Drive Belt

Check it every 8 hours or every day.

 **Only check the belt when the engine is shut down.**

 **There is danger of burns.**

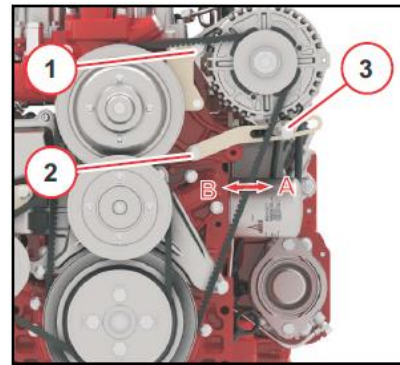
High-temperature engine components can cause serious burns.

Checking the Belt

- 1) Visually inspect all belt drives for damage.
- 2) Replace damaged belts.
- 3) Reinstall the protector if applicable.
- 4) With a new belt, ensure the position is correct. After 15 minutes of run time, check belt tension.

Replacing the Belt

Replace the belt every 2,000 hours or two years, whichever comes first.




- 1) Loosen bolts (1,2,3).
- 2) Move the bolt (3) in direction B, until it is loose.
- 3) Remove the old belt, and install a new one.
- 4) Move the bolt (3) in direction A until the correct belt tension is reached.
- 5) Check the belt tension.
- 6) Tighten the bolts and nuts.


1.18 Engine

Maintenance-Kubota

1.18.1 Checking Engine Oil Level



 **Do not perform maintenance on a running engine! No smoking or open fires are permitted! If the engine has been operated, the engine oil will be very hot and there is a danger of scalding!**

 **When checking or changing engine oil, make sure all surrounding surfaces are clean.**

 **Observe safety regulations and relevant local regulations for engine oil. Dispose of spilled engine oil and filter**

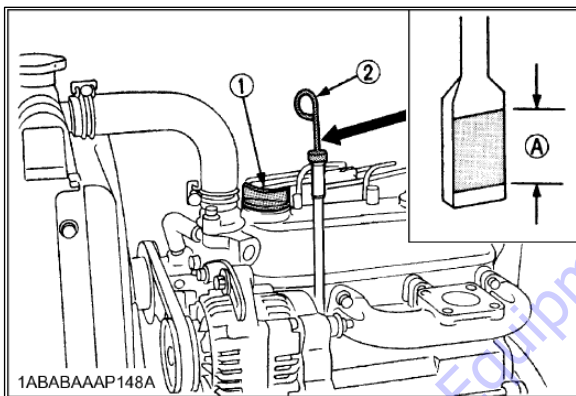
elements as required. Waste oil must not drain into the ground.

⚠ Test run the engine after each

procedure. Pay attention to engine oil pressure. Check for leaks and engine oil level after shutting down the engine.

Check the engine oil level every 8 hours or every day.

Insufficient or excessive engine oil may cause damage to the engine. The engine oil level can only be checked when the engine is placed horizontally and shut down. If the engine is hot, shut down the engine and check the engine oil level 5 minutes later. The oil can be checked immediately if the engine is cool.



1. Oil fill plug 2. Oil measuring rod

- 1) Pull out the engine dipstick and clean it with a clean, lint-free cloth.
- 2) Fully insert the dipstick into the dipstick tube.
- 3) Pull out the dipstick and read the engine oil level.
- 4) The engine oil level shall always be between the MIN and MAX marks!
- 5) If necessary, add oil up to the maximum level.

1.18.2 Changing the Engine Oil and Filter

⚠ Do not perform maintenance on

running engines! No smoking or open fires are permitted! If the engine has been operated, the engine oil will be very hot and there is a danger of scalding!

⚠ When checking or changing

engine oil, make sure all surrounding surfaces are clean.

⚠ Observe safety regulations and

relevant local regulations for engine oil. Dispose of spilled engine oil and filter elements as required. Waste oil must not drain into the ground.

⚠ Test run the engine after each

procedure. Pay attention to engine oil pressure. Check for leaks and engine oil level after shutting down the engine.

Change the engine oil and filter every every 150 hours. (If the ambient temperature continues to be below -10°C. (14 °F) or the temperature of engine oil is below 60°C (84 °F), or the Sulphur content in the diesel fuel is 0.5 - 1%, the oil change period is reduced by a half; if the engine oil does not reach the replacement interval period within a year, the oil shall be replaced at least once a year.

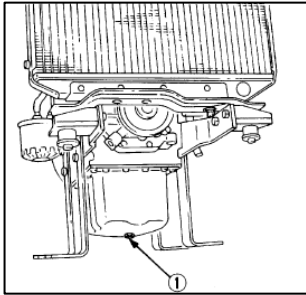
⚠ Danger of Burns

Contact with high-temperature engine parts and oil will cause severe burns.

 Perform the following procedure

after the engine is warmed up to normal operating temperature.

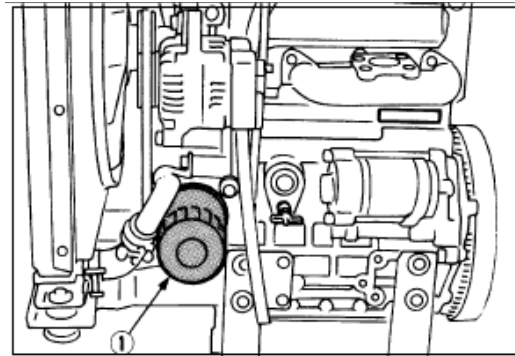
Changing the Engine Oil -Kubota engine



1.Oil drain plug

- 1) Place the machine on a level surface).
- 2) Warm the engine up to operating temperature ($> 80^{\circ}\text{C}$).
- 3) Shut down the engine.
- 4) Place a proper container under the engine oil drain plug.
- 5) Remove the drain plug and drain the engine oil.
- 6) Install a new seal ring on the drain plug. Install the plug and tighten it.
- 7) Replace the engine oil filter. Refer to Replacing the Engine Oil Filter below.
- 8) Add new engine oil at the engine oil filler.
- 9) Warm up and run the engine (engine oil temperature $> 80^{\circ}\text{C}$).
- 10) Ensure the machine is on a level surface.
- 11) Wait for more than five minutes after filling the oil. Check the engine oil level and fill it if necessary.

Replacing the Engine Oil Filter



1. Oil filter

The engine oil filter element must be replaced every time the engine oil is replaced.

 **Never fill the filter in advance.**

There is risk of contamination.

- 1) Place a proper container under the filter to catch draining oil.
- 2) If a torsion stopper is installed, remove the clamping clamp (optional).
- 3) Loosen and unscrew the filter element with a filter wrench.
- 4) 3) Clean the sealing surface of the filter holder with a clean lint-free cloth.
- 5) 4) Apply a thin layer of engine oil to the seal ring of the new filter.
- 6) Screw in a new filter by hand until sealed.
- 7) Fix the clamping clamp of a torsion stopper (optional).

1.18.3 Checking for Fuel Leakage

 **The engine must be shut down!**


No smoking and open flames!


Be careful when around high temperature fuel!

Observe relevant local and safety regulations for handling and disposing of fuel. Dispose of spilled fuel and filter elements in accordance with

applicable regulations. The fuel must not penetrate into the ground.

Visually check for fuel leakage every 8 hours or daily.

 There is danger of explosion and fire. Engine fuel is combustible. Check the location of the machine. When this step is performed, the machine shall be away from any heaters, sparks, open flames, and be in an open and well-ventilated area. A fire extinguisher certified for use on diesel fuel fires shall be placed in an easily accessible place.


 There is danger of explosion and fire. If any fuel leaks, prevent any additional personnel from entering the area or operating the equipment. Repair the leak immediately.


1.18.4 Cleaning or Replacing the Fuel Filter


 The engine must be shut down!


No smoking and open flames!

Be careful when around high temperature fuel!


 Do not loosen the injection lines or the high-pressure oil lines when the engine is running.

 Carefully clean all areas around the fuel filter.

 Observe relevant local and safety regulations for handling and disposing of fuel. Dispose of spilled fuel and filter elements in accordance with applicable regulations. The fuel must not seep into the ground.

 After completing any procedure on the fuel system, check for proper operation and any leakage.

Replace the filter after the first 50 hours, and every 400 hours, or quarterly thereafter. Replace the filter more frequently in the presence of an extremely dirty work environment.

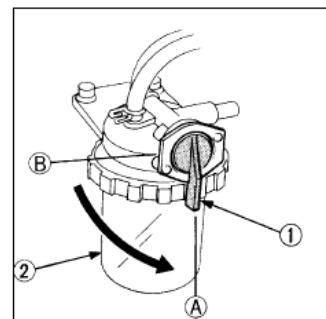
 There is danger of explosion and fire. The engine fuel is combustible. Check the location of the machine.

When this step is performed, the machine shall be away from any heaters, sparks, open flames, and be in an open and well-ventilated area.

A certified fire extinguisher for extinguishing fuel fires must be easily accessible place.

 Never fill the filter in advance.

There is risk of contamination.



1. Fuel filter handle 2. Fuel filter pot
A: Open state B: Close state

- 1) Clean the fuel filter after every 100 hours operation to prevent dust from entering.
- 2) Close the fuel filter handle.

- 3) Remove the top cover and clean the interior with clean diesel fuel.
- 4) Remove the filter and clean it with clean diesel fuel or replace it with a new one.
- 5) Apply a thin layer of diesel fuel to the seal ring of the new filter.
- 6) Reinstall the fuel filter.
- 7) Bleed the fuel system.

1.18.5 Checking the Engine Air

Filter

Check the maintenance indicator for the air filter every 8 hours or daily.

⚠ Perform this step when the engine is shut down.

Check the maintenance indicator on the air filter. When the indicator is red, the filter element needs to be maintained and cleaned or replaced.

1.18.6 Cleaning or Replacement of Air Filter

Clean the air filter every 250 hours or quarterly.

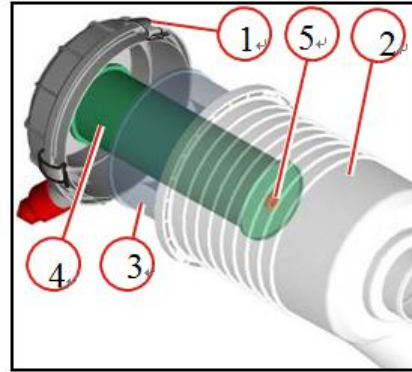
⚠ Do not perform maintenance on a running engine!

⚠ Thoroughly clean all external surfaces when performing maintenance on the engine air system, and close the suction inlet when necessary. Handle old filter elements in an environmentally friendly manner.

Cleaning of air filter

⚠ Do not clean the filter element (3)

with gasoline or any flammable liquid.



- 1) Open the mounting plate (1).
- 2) Remove the filter cover (2) and remove the filter element (3).
- 3) For slight contamination, clean the filter element (3) with dry compressed air (maximum 5 bar) from inside to outside for cleaning (clean no more than 5 times).
- 4) Replace the filter in case of serious contamination.

Replacement of the Safety Filter Tube (4)

⚠ Never clean the safety filter tube (4).

Replace every 1,000 hours or yearly.

- 1) Remove the bolt (5) and the safety filter tube.
- 2) Install a new safety filter tube (4) and secure with the bolt (5).
- 3) Install the filter element (3), the outer cover (2), and secure with the mounting plate.

1.18.7 Checking Engine Coolant

Level

Check the coolant liquid level every 8 hours or daily.

⚠ Engine coolant at high temperature can cause scalding.

The cooling system is under pressure! The cap can only be opened when cool.

Coolant must have the specified concentration of cooling system protectant!

Observe all safety and local regulations for coolant.

Dispose of spilled coolant as specified. It must not penetrate into the ground.

Never run the engine without coolant, even for a very short time.

- 1) Carefully open the cap for the cooling system.
- 2) The coolant liquid level shall always be between min and max marks on the coolant reservoir. If necessary, fill to the maximum level.

1.18.8 Filling or Replacing Engine

Coolant

Replace engine coolant every 2,000 hours or two years.



Engine Coolant at high temperature can cause scalding.

The cooling system is under pressure! The cap can only be opened when cool.

The coolant must have a specified concentration of cooling system protectant!

Observe all safety and local regulations for coolant disposal.

Dispose of the drained coolant as specified. It must not seep into the ground.

Never run the engine without coolant, even for a very short time.

Draining of the Cooling System

- 1) Carefully open the cap.
- 2) Place the drain container under the coolant drain.
- 3) Open the drain and drain the coolant from the radiator.
- 4) Close the radiator drain.

- 5) Install the coolant cap.

Filling the Cooling System

- 1) Carefully open the cooling system cap.
- 2) Loosen the cooler exhaust bolts that may be present.
- 3) Fill the coolant to max level.
- 4) Close the cooler cap.
- 5) Run the engine to operating temperature.
- 6) Shut down the engine.
- 7) Check the coolant level when the engine is cooled, and fill it to max if necessary.

1.18.9 Checking the Engine Drive

Belt

Check it every 8 hours or daily.



Only check the belt when the engine is shut down.



There is danger of burns.

High-temperature engine components can cause serious burns.

Checking the Belt

- 1) Visually inspect whether all belt drives for damage.
- 2) Replace damaged belts.
- 3) Reinstall the protector if applicable.
- 4) With a new belt, ensure the position is correct. After 15 minutes of run time, check belt tension.

1.19 Checking or Replacing Scissor Arm Wear Pads

This step shall be performed every 1,000 hours or yearly, whichever comes first.

The quality of the scissor arm wear pads block is crucial to the machine's safe operation. Worn wear pads may cause damage to the components and unsafe working hazards.

Check the wear pads in the stowed position of the platform.

- ① Measure the height of the wear pads on the chassis slide rail and platform slide rail.

Result: The measurement result is less than 8 mm. Replace the wear pad.

- ② Apply lubricant between the chassis slide rail and wear pad, and the platform slide rail and the wear pad.

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1.20 Regular Maintenance

Maintenance intervals of quarterly, yearly, and two years must be completed by qualified personnel upon training in maintenance of the machine in accordance with procedures in the machine maintenance manual.

For machines that are idle for more than three months, a quarterly check must be performed before they can be put into service.

1.21 Engine Fault Table

| Faults | Cause | Measures |
|---|---|--|
| Engine does not start or is difficult to start | Not disconnected (if possible) | Check coupling |
| Engine does not start and diagnostic lamp flashes | Fuel tank empty | Tanks |
| | Fuel suction pipe blocked | Check |
| | Below starting limit temperature | Check |
| | Cold starting device | Check/replace |
| | Wrong SAE viscosity class of the engine lubricating oil | Change the lubricating oil |
| | Fuel quality does not comply with operating manual | Change the fuel |
| | Battery defective or discharged | Check battery |
| | Cable connection to starter loose or oxidized | Check cable connections |
| | Starter defective or pinion does not engage | Check starter |
| | Air filter clogged / turbocharger defective | Check/replace |
| | Air in fuel system | Vent fuel system |
| | Compression pressure too low | Check compression pressure |
| | Exhaust gas backpressure too high | Check |
| | Injection line leaks | Check injection line |
| High-pressure pump defective | Check/replace | |
| Engine does not start and diagnostic lamp flashes | Engine electronics prevents starting | Check error according to error code and eliminate error if necessary |
| Engine starts, but runs irregularly or fails | Exhaust gas backpressure too high | Check |
| | Compression pressure too low | Check compression pressure |
| | Cold starting device | Check/replace |
| | Air in fuel system | Vent |
| | Fuel filter contaminated | Clean |
| | Fuel quality does not comply with operating manual | Change the fuel |
| | Injector defective | Change |
| | Injection line leaks | Check injection line |
| | Engine cable harness defective | Check/replace |
| Speed changes are possible and | Engine electronics has detected | Check error according to error |

| | | |
|---|---|---|
| diagnostic lamp lights up | a system error and activates an equivalent speed | code and eliminate error if necessary |
| Engine becomes excessively hot. Temperature warning system activates | Vent line blocked | Clean |
| | Lube oil cooler defective | Check/replace |
| | Lube oil filter contaminated on the air or lube oil side | Change |
| | Lube oil level too high | Check lube oil level, drain off if necessary. |
| | Lubricating oil level too low | Fill up lube oil |
| | Injector defective | Change |
| | Coolant heat exchanger soiled | Clean |
| | Defective cooling water pump (torn or loose V-belt) | Check whether torn or loose |
| | Low coolant | Fill up |
| | Resistance in cooling system is too high / flow volume too low | Check the cooling system |
| | Fan / viscous coupling defective, V-belt torn or loose | Check/replace/tension |
| | Charge air line leaking | Check charge air line |
| | Charge air cooler soiled | Check/clean |
| | Air filter clogged / turbocharger defective | Check/replace |
| | Air filter maintenance switch / maintenance indicator defective | Check/replace |
| | Fan defective/V-rib belt torn or loose | Check fan/V-belt, change if necessary |
| | Exhaust gas backpressure too high | Check |
| | Throttle valve defective | Check/replace |
| | Coolant temperature transmitter | Check/replace |
| Coolant thermostat defective | Check/replace | |
| Coolant cover defective | Check/replace | |
| Engine output is deficient | Lube oil level too high | Check lube oil level, if necessary drain off. |
| | Fuel suction temperature too high | Check the system |
| | Fuel quality does not comply with operating manual | Change the fuel |
| | Air filter clogged / turbocharger defective | Check/replace |
| | Air filter maintenance switch / maintenance indicator defective | Check/replace |
| | Fan defective/V-rib belt torn or loose | Check fan/V-belt, change if necessary |
| | Charge air line leaking | Check charge air line |
| | Charge air cooler soiled | Clean |
| | Injection line leaks | Check injection line |
| | Injector defective | Change |
| | Throttle valve defective | Check/replace |
| Exhaust gas recirculation, actuator defective | Check/replace | |

| | | |
|---|---|---|
| | Exhaust gas backpressure too high | Check/clean |
| | Exhaust gas turbocharger defective | Change |
| Engine performs poorly and diagnostic lamp lights | Engine electronics reduce performance | Please contact your LGMG Distributor |
| Engine does not run on all cylinders | Injection line leaks | Check injection line |
| | Injector defective | Change |
| | Compression pressure too low | Check compression pressure |
| | Engine cable harness defective | Check/replace |
| Engine lubricating oil pressure is nonexistent or excessively low | Lubricating oil level too low | Fill up lube oil |
| | Excessive inclination of engine | Check engine mounting / reduce inclination |
| | Wrong SAE viscosity class of the engine lubricating oil | Change the lubricating oil |
| | Lubricating oil pressure sensor defective | Check/replace |
| | Lubricating oil control valve jammed | Check/clean |
| | Lubricating oil suction pipe blocked | Check/clean |
| Engine lubricating oil consumption excessive | Lube oil level too high | Check lube oil level, if necessary drain off |
| | Excessive inclination of engine | Check engine mounting / reduce inclination |
| | Crankcase breather | Check/replace |
| Lubricating oil in the exhaust system | Engine operated continuously with too low a load (< 20-30%) | Check load factor |
| | Valve shaft seals defective | Check/replace |
| | Exhaust gas turbocharger defective | Check/replace |
| Engine producing blue smoke | Lube oil level too high | Check lube oil level, if necessary drain off |
| | Excessive inclination of engine | Check engine mounting / reduce inclination |
| Engine producing blue smoke | Lube oil level too high | Check lube oil level, if necessary drain off |
| | Excessive inclination of engine | Check engine mounting / reduce inclination |
| Engine producing white smoke | Fuel quality does not comply with operating manual | Change the fuel |
| | Injector defective | Change |
| | Condensation | Warm up engine so that water residues evaporate |
| Engine producing black smoke | Air filter clogged / turbocharger defective | Check/replace |
| | Air filter maintenance switch / maintenance indicator defective | Check/replace |
| | Charge air line leaking | Check charge air line |
| | Injector defective | Change |
| | Air filter clogged / turbocharger defective | Check/replace |
| | Charge air line leaking | Check charge air line |
| | Injector defective | Change |

| | | |
|--|--|--------|
| | Differential pressure of flow meter defective | Change |
| | Nox sensor defective | Change |
| | Differential pressure sensor of diesel particulate filter is issuing an implausible signal | Change |
| | Differential pressure line added | Clean |

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1.22 Engine Fault Codes

Engine Fault Codes-Deutz

| DTC-Code | FTB | SPN | FMI | Error Identification |
|----------|-----|-------|-----|--|
| 1088 | 0 | 4781 | 0 | DPF soot load exceeded warning level. |
| 1089 | 0 | 4781 | 16 | Too much standstill time in short time interval. |
| 1090 | 0 | 10156 | 0 | The standstill-regeneration mode time exceeds the short-limit. |
| 1091 | 0 | 3735 | 16 | Standstill required and no successful standstill longer than escalation threshold 2. |
| 1092 | 0 | 3735 | 0 | Standstill required and no successful standstill longer than escalation threshold 2. |
| 1093 | 0 | 4766 | 1 | Regeneration temperature in standstill main phase not reached. |
| 1102 | 0 | 171 | 2 | Static plausibility check failed for EnvT_t. Temperature shows a deviation from expected value at cold start conditions. |
| 1113 | 0 | 102 | 0 | SRC high in manifold pressure sensor Bank1. |
| 1114 | 0 | 102 | 1 | SRC low in manifold pressure sensor Bank1. |
| 1115 | 0 | 102 | 3 | DFC for plausibility check for maximum threshold of the pressure sensor of the intake manifold - Bank 1. |
| 1116 | 0 | 102 | 4 | DFC for plausibility check for minimum threshold of the pressure sensor of the intake manifold - Bank 2. |
| 1118 | 0 | 102 | 1 | DFC for physical range check for minimum threshold of the pressure sensor of the intake manifold - Bank 2 |
| 1121 | 0 | 102 | 2 | DFC for signal variation check for pressure sensor of the intake manifold - Bank 2. |
| 1122 | 0 | 102 | 0 | Intake air pressure valve sensor, warning condition exceeded. |
| 1123 | 0 | 102 | 1 | Intake air pressure valve sensor, shutoff condition exceeded. |
| 1124 | 0 | 1209 | 2 | Pressure turbine upstream differs from ambient pressure while engine not running. |
| 1125 | 0 | 1209 | 15 | Pressure turbine upstream above upper limit. |
| 1126 | 0 | 1176 | 1 | Pressure turbine upstream below lower limit. |
| 1127 | 0 | 1209 | 2 | Pressure turbine upstream stuck check failed. Pressure does not change between engine operating points. |
| 1130 | 0 | 1209 | 3 | Diagnostic fault check for SRC high for outlet-valve downstream pressure. |
| 1131 | 0 | 1209 | 4 | Diagnostic fault check for SRC low for outlet-valve downstream pressure. |
| 1134 | 0 | 3251 | 3 | DFC to report an error in case of signal line Short circuitrd to battery. |
| 1135 | 0 | 3251 | 4 | DFC to report an error in case of signal line Short circuitrd to ground. |
| 1136 | 0 | 3251 | 14 | DFC for reporting communication error. |
| 1137 | 0 | 3251 | 14 | DFC for reporting data error. |
| 1138 | 0 | 3251 | 14 | DFC for reporting fast channel1 error. |
| 1139 | 0 | 3251 | 14 | DFC for reporting fast channel 2 signal range error. |
| 1149 | 0 | 3251 | 2 | Particle filter difference pressure value not plausible. |
| 1150 | 0 | 3251 | 0 | Particle filter difference pressure above shut off threshold. |
| 1151 | 0 | 3251 | 16 | Particle filter difference pressure above warning threshold. |
| 1152 | 0 | 3251 | 1 | Particle filter difference pressure below shut off threshold. |
| 1153 | 0 | 3251 | 18 | Particle filter difference pressure below warning threshold. |

| DTC-Code | FTB | SPN | FMI | Error Identification |
|----------|-----|--------|-----|--|
| 1161 | 0 | 5571 | 16 | The pressure relief valve (PRV) has reached the number of allowed activations. |
| 1162 | 0 | 5571 | 2 | Pressure relief valve is forced to open, perform pressure increase. |
| 1163 | 0 | 5571 | 2 | Pressure Relief Valve (PRV) forced to open. Performed by pressure increase. |
| 1164 | 0 | 5571 | 16 | Pressure Relief Valve (PRV) forced to open. Shutoff conditions. |
| 1165 | 0 | 5571 | 15 | Pressure Relief Valve (PRV) forced to open. Warning conditions. |
| 1166 | 0 | 5571 | 0 | Open Pressure Relief Valve (PRV) was detected. |
| 1167 | 0 | 5571 | 2 | Unexpected opening of the pressure relief valve. |
| 1168 | 0 | 5571 | 2 | Successful PRV opening cannot be ensured. |
| 1169 | 0 | 5571 | 13 | Averaged rail pressure after PRV opening is outside the expected tolerance range. |
| 1170 | 0 | 5571 | 16 | Open time of Pressure Relief Valve (PRV) for wear out monitoring had exceeded. |
| 1171 | 0 | 94 | 1 | Fuel pressure build up during engine start not successful. |
| 1172 | 0 | 1347 | 5 | Electrical fuel pre - supply pump; open load. |
| 1174 | 0 | 1347 | 3 | Electrical fuel pre - supply pump; short circuit to battery. |
| 1175 | 0 | 1347 | 4 | Electrical fuel pre - supply pump. Short circuit to ground. |
| 119 | 0 | 1231 | 14 | Error generated from DemEvent ComCILBusOffNode_APPL_CAN: CAN Busoff Error for Application CAN. |
| 1190 | 0 | 7103 | 13 | Rail pressure below setpoint, speed-dependent threshold exceeded. |
| 1191 | 0 | 7103 | 13 | Railpressure metering unit: Fuel quantity balance is disrupted. |
| 1194 | 0 | 7103 | 13 | Negative rail pressure governor deviation at zero delivery by metering unit. |
| 1195 | 0 | 7103 | 1 | Rail pressure value is below minimum rail pressure threshold. |
| 1197 | 0 | 7103 | 0 | Maximum rail pressure exceeded. |
| 1198 | 0 | 7103 | 2 | Setpoint of metering unit in overrun mode not plausible. |
| 120 | 0 | 639 | 14 | Error generated from DemEvent ComCILBusOffNode_PT_CAN: CAN Busoff Error for Powertrain CAN. |
| 1200 | 0 | 5357 | 14 | Shut-off due to undershoot of minimum rail pressure. |
| 1202 | 0 | 157 | 0 | Maximum rail pressure exceeded in limp home mode. |
| 1208 | 0 | 157 | 3 | Sensor error rail pressure. Sensor voltage above upper limit. |
| 1209 | 0 | 157 | 4 | Sensor error rail pressure. Sensor voltage below lower limit. |
| 121 | 0 | 520252 | 2 | Wrong checksum in the CAN message EAT Control. |
| 1212 | 0 | 629 | 12 | Error generated from DemEvent RBA_IOEXTLIB_KEEPALIVE_DRV: KeepAlive error during runtime at an external device. |
| 1213 | 0 | 629 | 12 | Error generated from DemEvent RBA_IOEXTLIB_KEEPALIVE_INI: KeepAlive error during initialisation phase at an external device. |
| 1215 | 0 | 629 | 12 | DFC generated from DemEvent rba_MemDiag_MemReadErr: Read diagnosis error for non volatile memory. |
| 1216 | 0 | 629 | 12 | DFC generated from DemEvent rba_MemDiag_MemWrErr: Write diagnosis error for non volatile memory. |
| 1218 | 0 | 629 | 12 | DFC generated from DemEvent rba_MultiStackTrace_Threshold: |

| DTC-Code | FTB | SPN | FMI | Error Identification |
|----------|-----|------|-----|--|
| | | | | Stack memory threshold overrun. |
| 1219 | 0 | 629 | 12 | DFC generated from DemEvent rba_SyC_IrrSwOffTrigEngRun_Event: Observation Counter Irregular Switch Off Counter Triggered by Engine Running. |
| 122 | 0 | 4207 | 2 | Checksum fault. |
| 123 | 0 | 4207 | 2 | Checksum fault. |
| 1233 | 0 | 5826 | 15 | NCD Inducement level 1 for EU. |
| 1235 | 0 | 5826 | 0 | NCD Inducement level 2 for EU. |
| 1236 | 0 | 5826 | 14 | NCD Pretrigger for inducement level 2. |
| 124 | 0 | 4207 | 2 | Checksum fault. |
| 125 | 0 | 4207 | 2 | Checksum fault. |
| 1274 | 0 | 91 | 3 | Sensor error accelerator pedal (channel 1), short circuit to battery. |
| 1275 | 0 | 2623 | 3 | Sensor error accelerator pedal (channel 2), short circuit to battery. |
| 1276 | 0 | 29 | 3 | Signal Range Check High for remote APP signal 1. |
| 1277 | 0 | 2625 | 3 | Short circuit to battery of remote accelerator pedal signal 2. |
| 1280 | 0 | 91 | 4 | Sensor error accelerator pedal (channel 1), short circuit to ground. |
| 1281 | 0 | 2623 | 4 | Sensor error accelerator pedal (channel 2), short circuit to ground. |
| 1282 | 0 | 29 | 4 | Signal Range Check Low for remote APP signal 1. |
| 1283 | 0 | 2625 | 4 | Short circuit to ground of remote accelerator pedal signal 2. |
| 1289 | 0 | 3509 | 14 | Failure of sensor supply voltage 1. |
| 1290 | 0 | 3509 | 0 | DFC generated from DemEvent SSpMon1OV: Overvoltage error at sensor supply 1 . |
| 1291 | 0 | 3509 | 6 | DFC generated from DemEvent SSpMon1SCG: Short circuit to ground error at sensor supply 1. |
| 1292 | 0 | 3509 | 1 | DFC generated from DemEvent SSpMon1UV: Undervoltage error at sensor supply 1 . |
| 1293 | 0 | 3510 | 14 | Failure of sensor supply voltage 2. |
| 1294 | 0 | 3510 | 0 | DFC generated from DemEvent SSpMon2OV: Overvoltage error at sensor supply 2. |
| 1295 | 0 | 3510 | 6 | DFC generated from DemEvent SSpMon2SCG: Short circuit to ground error at sensor supply 2. |
| 1296 | 0 | 3510 | 1 | DFC generated from DemEvent SSpMon2UV: Undervoltage error at sensor supply 2. |
| 1306 | 0 | 677 | 3 | Starter relay high side. Short circuit to battery. |
| 1307 | 0 | 677 | 4 | Starter relay high side. Short circuit to ground. |
| 1308 | 0 | 677 | 5 | Starter relay low side no load error. |
| 1310 | 0 | 677 | 3 | Starter relay low side short circuit to battery. |
| 1311 | 0 | 677 | 4 | Starter relay low side short circuit to ground. |
| 1323 | 0 | 91 | 11 | Plausibility error between APP1 and APP2 or APP1 and idle switch. |
| 1326 | 0 | 29 | 11 | In case of dual analog accelerator pedal, it is the plausibility check between RmtAPP1 and RmtAPP2 and in case of potentiometer switch accelerator pedal, it is the plausibility check between APP1 and idle switch. |
| 1346 | 0 | 1041 | 14 | Terminal 50 was operated too long. |
| 1354 | 0 | 105 | 0 | High charged air cooler temperature. Warning threshold exceeded. |

| DTC-Code | FTB | SPN | FMI | Error Identification |
|----------|-----|--------|-----|---|
| 1355 | 0 | 105 | 0 | High charged air cooler temperature. Shut off threshold exceeded. |
| 1357 | 0 | 1136 | 0 | Physical range check high for ECU temperature. |
| 1358 | 0 | 1136 | 1 | Physical range check low for ECU temperature. |
| 1359 | 0 | 1136 | 15 | Signal Range Check Maximum for ECU temperature sensor. |
| 1360 | 0 | 1136 | 17 | Signal Range Check Minimum for ECU temperature sensor. |
| 1361 | 0 | 1136 | 2 | Diagnostic Fault Check for TECU sensor plausibility. |
| 1362 | 0 | 412 | 15 | Physical Range Check high for EGR cooler downstream temperature. |
| 1363 | 0 | 412 | 17 | Physical Range Check low for EGR cooler downstream temperature. |
| 1364 | 0 | 412 | 3 | Electrical error EGR cooler downstream temperature. Signal range check high. |
| 1365 | 0 | 412 | 4 | Electrical error EGR cooler downstream temperature. Signal range check low. |
| 1372 | 0 | 51 | 5 | Throtte valve, open load. |
| 1375 | 0 | 51 | 3 | Throtte valve, short circuit to battery1. |
| 1376 | 0 | 51 | 3 | Throtte valve, short circuit to battery2. |
| 1377 | 0 | 51 | 4 | Throtte valve, short circuit to ground1. |
| 1378 | 0 | 51 | 4 | Throtte valve, short circuit to ground2. |
| 1379 | 0 | 51 | 6 | Throttle valve, over load. |
| 1382 | 0 | 51 | 7 | Status of diagnostic fault check valve jammed closed. |
| 1383 | 0 | 51 | 7 | Status of diagnostic fault check valve jammed opened. |
| 1391 | 0 | 51 | 3 | Throtte valve, short circuit to battery. |
| 1392 | 0 | 51 | 4 | Throtte valve, short circuit to ground. |
| 1397 | 0 | 105 | 0 | TIntkVUs_t above upper limit. |
| 1398 | 0 | 105 | 1 | TIntkVUs_t below lower limit. |
| 1399 | 0 | 4766 | 2 | Dynamic plausibility check for TOxiCatDs_t failed. Temperature difference between ToxiCatUs_t and ToxiCatDs_t too high. |
| 1400 | 0 | 4766 | 2 | Plausibility check for TOxiCatDs_t failed. Temperature is too low. |
| 1401 | 0 | 4766 | 15 | Temperature downstream DOC, temperature above upper warning threshold. |
| 1402 | 0 | 4766 | 3 | Sensor error exhaust gas temperature downstream (DOC); signal range check high. |
| 1403 | 0 | 4766 | 4 | Sensor error exhaust gas temperature downstream (DOC); signal range check low. |
| 1404 | 0 | 4765 | 2 | Temperature upstream DOC, plausibility error. |
| 1405 | 0 | 4765 | 15 | Temperature upstream DOC, temperature above upper warning threshold . |
| 1406 | 0 | 4765 | 3 | Sensor error exhaust gas temperature upstream (DOC); signal range check high. |
| 1407 | 0 | 4765 | 4 | Sensor error exhaust gas temperature upstream (DOC); signal range check low. |
| 1408 | 0 | 4765 | 2 | Stuck check for TOxiCatUs_t failed. Temperature does not change anymore. |
| 142 | 0 | 520256 | 9 | Timeout of EAT Control Receive Message. The message is not received. |

| DTC-Code | FTB | SPN | FMI | Error Identification |
|----------|-----|--------|-----|---|
| 144 | 0 | 523211 | 9 | Timeout error of CAN-Receive-Frame EBC1. |
| 154 | 0 | 523212 | 9 | Timeout error of CAN-Receive-Frame ComEngPrt. Engine Protection. |
| 1540 | 0 | 520254 | 8 | The standstill-regeneration mode time exceeds the long limit threshold. |
| 1541 | 0 | 520255 | 2 | Hoses connected to the dp DPF SENT sensor inverted. Swap the hoses. |
| 155 | 0 | 523741 | 14 | Engine shut off request through CAN. |
| 1587 | 0 | 97 | 0 | Water in fuel level prefilter; maximum value exceeded. |
| 188 | 0 | 523240 | 9 | Timeout CAN-message FunModCtl. Function Mode Control. |
| 219 | 0 | 520253 | 2 | Rolling counter fault CAN message EAT Control. |
| 220 | 0 | 4206 | 2 | Fault check for Rolling Counter of TSC1AE |
| 221 | 0 | 4206 | 2 | Fault check for Rolling Counter of TSC1AR |
| 222 | 0 | 4206 | 2 | Fault check for Rolling Counter of TSC1TE |
| 223 | 0 | 4206 | 2 | Fault check for Rolling Counter of TSC1TR |
| 349 | 0 | 3349 | 0 | Timeout error of CAN-Receive-Frame Active TSC1AE. |
| 350 | 0 | 3349 | 0 | Timeout error of CAN-Receive-Frame Passive TSC1AE. |
| 351 | 0 | 3349 | 0 | Timeout error of CAN-Receive-Frame Active TSC1AR. |
| 352 | 0 | 3349 | 0 | Timeout error of CAN-Receive-Frame Passive TSC1AR. |
| 353 | 0 | 3349 | 0 | Timeout error of CAN-Receive-Frame TSC1TE - active. |
| 354 | 0 | 3349 | 0 | Short circuit to ground error. |
| 355 | 0 | 3349 | 0 | Timeout error of CAN-Receive-Frame TSC1TR. |
| 356 | 0 | 3349 | 0 | Passive timeout error of CAN-Receive-Frame TSC1TR. |
| 361 | 0 | 3349 | 0 | Timeout error of CAN-Receive-Frame TSC1AE. Traction Control. |
| 363 | 0 | 3349 | 0 | Timeout error of CAN-Receive-Frame TSC1AR. Retarder. |
| 365 | 0 | 3349 | 0 | Timeout error of CAN-Receive-Frame TSC1TE. Setpoint. |
| 367 | 0 | 3349 | 0 | Timeout Error of CAN-Receive-Frame TSC1TR; control signal. |
| 38 | 0 | 1485 | 3 | Short circuit to battery error. |
| 39 | 0 | 1485 | 3 | Short circuit to battery error of actuator relay 2. |
| 40 | 0 | 1485 | 3 | Short circuit to battery of actuator relay 3. |
| 41 | 0 | 1485 | 4 | Short circuit to ground error. |
| 42 | 0 | 1485 | 4 | Short circuit to ground of actuator relay 2. |
| 43 | 0 | 1485 | 4 | Short circuit to ground of actuator relay 3. |
| 48 | 0 | 168 | 0 | Physical range check high for battery voltage. |
| 49 | 0 | 168 | 1 | Physical range check low for battery voltage. |
| 50 | 0 | 168 | 3 | Sensor battery voltage error; signal range check is high. |
| 51 | 0 | 168 | 4 | Sensor battery voltage error; signal range check is low. |
| 516 | 0 | 523982 | 0 | Powerstage diagnosis disabled. High battery voltage. |
| 517 | 0 | 523982 | 1 | Powerstage diagnosis disabled. Low battery voltage. |

| DTC-Code | FTB | SPN | FMI | Error Identification |
|----------|-----|------|-----|--|
| 52 | 0 | 168 | 0 | High battery voltage; warning threshold is exceeded. |
| 567 | 0 | 27 | 5 | EGR valve, open load. |
| 570 | 0 | 27 | 3 | EGR valve, short circuit to battery1. |
| 571 | 0 | 27 | 3 | EGR valve, short circuit to battery2. |
| 572 | 0 | 27 | 4 | EGR valve, short circuit to ground1. |
| 573 | 0 | 27 | 4 | EGR valve, short circuit to ground2. |
| 574 | 0 | 27 | 6 | EGR valve, over load. |
| 577 | 0 | 27 | 7 | Status of diagnostic fault check valve jammed closed. |
| 578 | 0 | 27 | 7 | Status of diagnostic fault check valve jammed opened. |
| 582 | 0 | 5763 | 3 | EGR valve, short circuit to battery. |
| 583 | 0 | 5763 | 4 | EGR valve, short circuit to ground. |
| 586 | 0 | 3055 | 14 | Internal software error ECU. Injection cut off. |
| 587 | 0 | 190 | 0 | Engine speed above warning threshold. Overspeed detection in component engine protection. |
| 588 | 0 | 190 | 0 | Engine speed above warning threshold (FOC-Level 1). |
| 589 | 0 | 190 | 0 | Engine speed above warning threshold (FOC-Level 2). |
| 590 | 0 | 190 | 0 | Engine speed above warning threshold (Overrun Mode). |
| 610 | 0 | 171 | 15 | Environment temperature sensor, temperature above upper physical threshold. |
| 613 | 0 | 171 | 3 | Sensor error SCR-System environment temperature. DPF-System air inlet temperature, signal range check high. |
| 614 | 0 | 171 | 4 | Sensor error SCR-System environment temperature. DPF-System air inlet temperature, signal range check low. |
| 615 | 0 | 723 | 8 | Sensor camshaft speed, disturbed signal. |
| 616 | 0 | 723 | 14 | Sensor camshaft detection. Out of range, signal disrupted, no signal. |
| 617 | 0 | 723 | 13 | Offset angle between crank- and camshaft-sensor is too large. |
| 618 | 0 | 4201 | 8 | Sensor crankshaft detection. Out of range, signal disrupted or no signal. |
| 619 | 0 | 4201 | 14 | Speed detection, out of range, signal disrupted or no signal. |
| 68 | 0 | 1669 | 14 | Error generated from DemEvent CAN_E_TIMEOUT: CAN Hardware registers are not updated within the expected time. |
| 70 | 0 | 110 | 2 | Defect fault check for dynamic plausibility test. |
| 709 | 0 | 97 | 3 | DFC SAE J1939 error. |
| 710 | 0 | 97 | 4 | Sensor error water in fuel, signal range check low. |
| 721 | 0 | 94 | 15 | Low fuel pressure system, max. physical range exceeded. |
| 723 | 0 | 94 | 3 | Sensor error low fuel pressure, signal range check high. |
| 724 | 0 | 94 | 4 | Sensor error low fuel pressure, signal range check low. |
| 725 | 0 | 94 | 1 | Low fuel pressure system, warning threshold exceeded. |
| 726 | 0 | 94 | 1 | Low fuel pressure, shut off threshold exceeded. |
| 75 | 0 | 110 | 3 | Sensor error coolant temperature; Signal range check high. |
| 76 | 0 | 110 | 4 | Sensor error coolant temperature; Signal range check low. |
| 77 | 0 | 110 | 0 | High coolant temperature; Warning threshold exceeded. |
| 78 | 0 | 110 | 0 | Coolant temperature; System reaction initiated. |

| DTC-Code | FTB | SPN | FMI | Error Identification |
|----------|-----|------|-----|--|
| 797 | 0 | 676 | 12 | Cold start aid relay error. |
| 798 | 0 | 676 | 5 | Cold start aid relay: Open load. |
| 799 | 0 | 676 | 5 | Cold start aid relay: Open load. |
| 80 | 0 | 411 | 2 | Intake air massflow not in expected range. |
| 803 | 0 | 676 | 3 | Intake Air Heater Device: Short circuit to battery. |
| 805 | 0 | 676 | 4 | Powerstage on CJ945, short circuit to ground. |
| 807 | 0 | 2797 | 14 | Number of possible injections limited by the injection valve. |
| 815 | 0 | 2797 | 4 | Booster voltage too low. |
| 816 | 0 | 5358 | 5 | Open load on the power stage of injection valve 0. |
| 817 | 0 | 5359 | 5 | Open load on the power stage of injection valve 1. |
| 818 | 0 | 5360 | 5 | Open load on the power stage of injection valve 2. |
| 819 | 0 | 5361 | 5 | Open load on the power stage of injection valve 3. |
| 820 | 0 | 5362 | 5 | Open load on the power stage of injection valve 4. |
| 821 | 0 | 5363 | 5 | Open load on the power stage of injection valve 5. |
| 822 | 0 | 2797 | 6 | Short circuit of the HDEV power stage high-side (bank0 error). |
| 823 | 0 | 2798 | 6 | Short circuit of the HDEV power stage high-side (bank1 error). |
| 824 | 0 | 5358 | 6 | Short circuit of the power stage low-side (cylinder error 0). |
| 825 | 0 | 5359 | 6 | Short circuit of the power stage low-side (cylinder error 1). |
| 826 | 0 | 5360 | 6 | Short circuit of the power stage low-side (cylinder error 2). |
| 827 | 0 | 5361 | 6 | Short circuit of the power stage low-side (cylinder error 3). |
| 828 | 0 | 5362 | 6 | Short circuit of the power stage low-side (cylinder error 4). |
| 829 | 0 | 5363 | 6 | Short circuit of the power stage low-side (cylinder error 5). |
| 83 | 0 | 111 | 1 | Coolant level too low. |
| 830 | 0 | 5358 | 6 | Short circuit between high-side and low-side of the power stage (high-side non plausible error). |
| 831 | 0 | 5359 | 6 | Short circuit between high-side and low-side of the power stage (high-side non plausible error). |
| 832 | 0 | 5360 | 6 | Short circuit between high-side and low-side of the power stage (high-side non plausible error). |
| 833 | 0 | 5361 | 6 | Short circuit between high-side and low-side of the power stage (high-side non plausible error). |
| 834 | 0 | 5362 | 6 | Short circuit between high-side and low-side of the power stage (high-side non plausible error). |
| 835 | 0 | 5363 | 6 | Short circuit between high-side and low-side of the power stage (high-side non plausible error). |
| 836 | 0 | 105 | 3 | Signal Range Check high for intake valve upstream temperature. |
| 837 | 0 | 105 | 4 | Signal Range Check Low for intake valve upstream temperature. |
| 838 | 0 | 2797 | 14 | Check of missing injector adjustment value programming (IMA) injector 1. |
| 839 | 0 | 2798 | 14 | Check of missing injector adjustment value programming (IMA) injector 2. |
| 840 | 0 | 4257 | 14 | Check of missing injector adjustment value programming (IMA) injector 3. |
| 841 | 0 | 4258 | 14 | Check of missing injector adjustment value programming (IMA) injector 4. |

| DTC-Code | FTB | SPN | FMI | Error Identification |
|----------|-----|--------|-----|---|
| 853 | 0 | 0 | 0 | |
| 854 | 0 | 7103 | 5 | Open load diagnosis of MeUn power stage. |
| 855 | 0 | 7103 | 3 | Short circuit to battery on the high side power stage of MeUn. |
| 856 | 0 | 7103 | 3 | Short circuit to battery on the low side power stage of MeUn. |
| 857 | 0 | 7103 | 4 | Short circuit to ground on the high side power stage of MeUn. |
| 858 | 0 | 7103 | 4 | Short circuit to ground on the low side power stage of MeUn. |
| 859 | 0 | 7103 | 6 | Short circuit between high side and low side power stage of MeUn. |
| 868 | 0 | 629 | 12 | Function monitoring: fault of ECU ADC - Null Load Test Pulse. |
| 869 | 0 | 629 | 12 | Function monitoring: fault of ECU ADC - test voltage. |
| 870 | 0 | 629 | 12 | DFC to indicate ICO request from MoCSOP module. |
| 871 | 0 | 91 | 14 | Function monitoring: Monitoring of accelerator pedal position. |
| 875 | 0 | 190 | 2 | Function monitoring: fault of engine speed check. |
| 876 | 0 | 5357 | 2 | Diagnostic fault check to report the plausibility error between level 1 energizing time and level 2 information. |
| 877 | 0 | 5441 | 2 | Diagnostic fault check to report the error due to plausibility between the injection begin v/s injection type. |
| 878 | 0 | 5357 | 2 | Diagnostic fault check to report the error due to non plausibility in ZFC |
| 879 | 0 | 523612 | 12 | Diagnosis fault check to report the error to demand for an ICO due to an error in the Pol2 shut-off. |
| 88 | 0 | 598 | 10 | No clutch edge within calibrated time. |
| 880 | 0 | 523612 | 12 | Diagnosis fault check to report the error to demand for an ICO due to an error in the Pol3 efficiency factor. |
| 881 | 0 | 523612 | 12 | Diagnosis fault check to report the error to demand for an ICO due to an error in change of EOM. |
| 882 | 0 | 5357 | 2 | Diagnosis fault check to report the error to demand for an ICO due to an error in total torque relevant quantity. |
| 883 | 0 | 5357 | 2 | Diagnostic fault check to report the error due to injection quantity correction. |
| 884 | 0 | 5442 | 2 | Diagnostic fault check to report the plausibility error in rail pressure monitoring. |
| 885 | 0 | 29 | 2 | DFC to report the fault in Remote APP plausibility check. |
| 886 | 0 | 677 | 2 | Function monitoring: fault of ECU powertrain active. |
| 887 | 0 | 513 | 2 | DFC to report the fault in energizing time comparison. |
| 888 | 0 | 513 | 2 | DFC to report fault in torque comparison error. |
| 889 | 0 | 520250 | 2 | Function monitoring: error in the post-build selectable monitoring. |
| 890 | 0 | 629 | 12 | Status of the EMM alarm FCCU0 which is read out of the FCCU hardware module. |
| 891 | 0 | 629 | 12 | Internal ECU error. |
| 893 | 0 | 629 | 12 | Internal ECU error. |
| 894 | 0 | 629 | 12 | Internal ECU error. |
| 895 | 0 | 629 | 12 | Internal ECU error. |
| 896 | 0 | 629 | 12 | Internal ECU error. |
| 897 | 0 | 629 | 12 | Internal ECU error. |
| 898 | 0 | 629 | 12 | Internal ECU error. |

| DTC-Code | FTB | SPN | FMI | Error Identification |
|----------|-----|------|-----|--|
| 899 | 0 | 629 | 12 | Internal ECU error. |
| 900 | 0 | 629 | 12 | Internal ECU error. |
| 901 | 0 | 629 | 12 | Internal ECU error. |
| 902 | 0 | 629 | 12 | Internal ECU error. |
| 903 | 0 | 629 | 12 | Internal ECU error. |
| 904 | 0 | 629 | 12 | Internal ECU error. |
| 905 | 0 | 629 | 12 | Internal ECU error. |
| 906 | 0 | 629 | 12 | Internal ECU error. |
| 907 | 0 | 629 | 12 | Internal ECU error. |
| 908 | 0 | 629 | 12 | Internal ECU error. |
| 909 | 0 | 629 | 12 | Internal ECU error. |
| 91 | 0 | 1109 | 2 | Engine shut off demand ignored. |
| 910 | 0 | 629 | 12 | Internal ECU error. |
| 911 | 0 | 629 | 12 | Internal ECU error. |
| 912 | 0 | 629 | 12 | Internal ECU error. |
| 913 | 0 | 629 | 12 | Internal ECU error. |
| 914 | 0 | 629 | 12 | Internal ECU error. |
| 915 | 0 | 629 | 12 | Internal ECU error. |
| 916 | 0 | 629 | 12 | Internal ECU error. |
| 917 | 0 | 629 | 12 | Internal ECU error. |
| 918 | 0 | 629 | 12 | Internal ECU error. |
| 919 | 0 | 629 | 12 | Internal ECU error. |
| 92 | 0 | 1109 | 14 | Shut off request from supervisory monitoring function. |
| 920 | 0 | 629 | 12 | Internal ECU error. |
| 921 | 0 | 629 | 12 | Internal ECU error. |
| 922 | 0 | 629 | 12 | Internal ECU error. |
| 923 | 0 | 629 | 12 | Internal ECU error. |
| 924 | 0 | 629 | 12 | Internal ECU error. |
| 925 | 0 | 629 | 12 | Internal ECU error. |
| 926 | 0 | 629 | 12 | Internal ECU error. |
| 927 | 0 | 629 | 12 | Internal ECU error. |
| 928 | 0 | 629 | 12 | Internal ECU error. |
| 929 | 0 | 629 | 12 | Internal ECU error. |
| 930 | 0 | 629 | 12 | Internal ECU error. |
| 931 | 0 | 629 | 12 | Internal ECU error. |
| 932 | 0 | 629 | 12 | Internal ECU error. |
| 933 | 0 | 629 | 12 | Internal ECU error. |
| 935 | 0 | 629 | 12 | Internal ECU error. |
| 936 | 0 | 629 | 12 | Internal ECU error. |

| DTC-Code | FTB | SPN | FMI | Error Identification |
|----------|-----|-----|-----|--|
| 937 | 0 | 629 | 12 | Internal ECU error. |
| 938 | 0 | 629 | 12 | Internal ECU error. |
| 939 | 0 | 629 | 12 | Internal ECU error. |
| 940 | 0 | 629 | 12 | Internal ECU error. |
| 941 | 0 | 629 | 12 | Internal ECU error. |
| 942 | 0 | 629 | 12 | Internal ECU error. |
| 943 | 0 | 629 | 12 | Internal ECU error. |
| 944 | 0 | 629 | 12 | Internal ECU error. |
| 945 | 0 | 629 | 12 | Internal ECU error. |
| 996 | 0 | 629 | 12 | Diagnostic fault check to report ABE active state. |
| 997 | 0 | 629 | 12 | Function monitoring: fault of ECU, WDA active by inquiry/response communication. |
| 998 | 0 | 629 | 12 | Function monitoring: fault of ECU, Error Pin active suspicion of HW fault. |
| 999 | 0 | 629 | 12 | Function monitoring: fault of ECU, WDA active by overvoltage detection. |

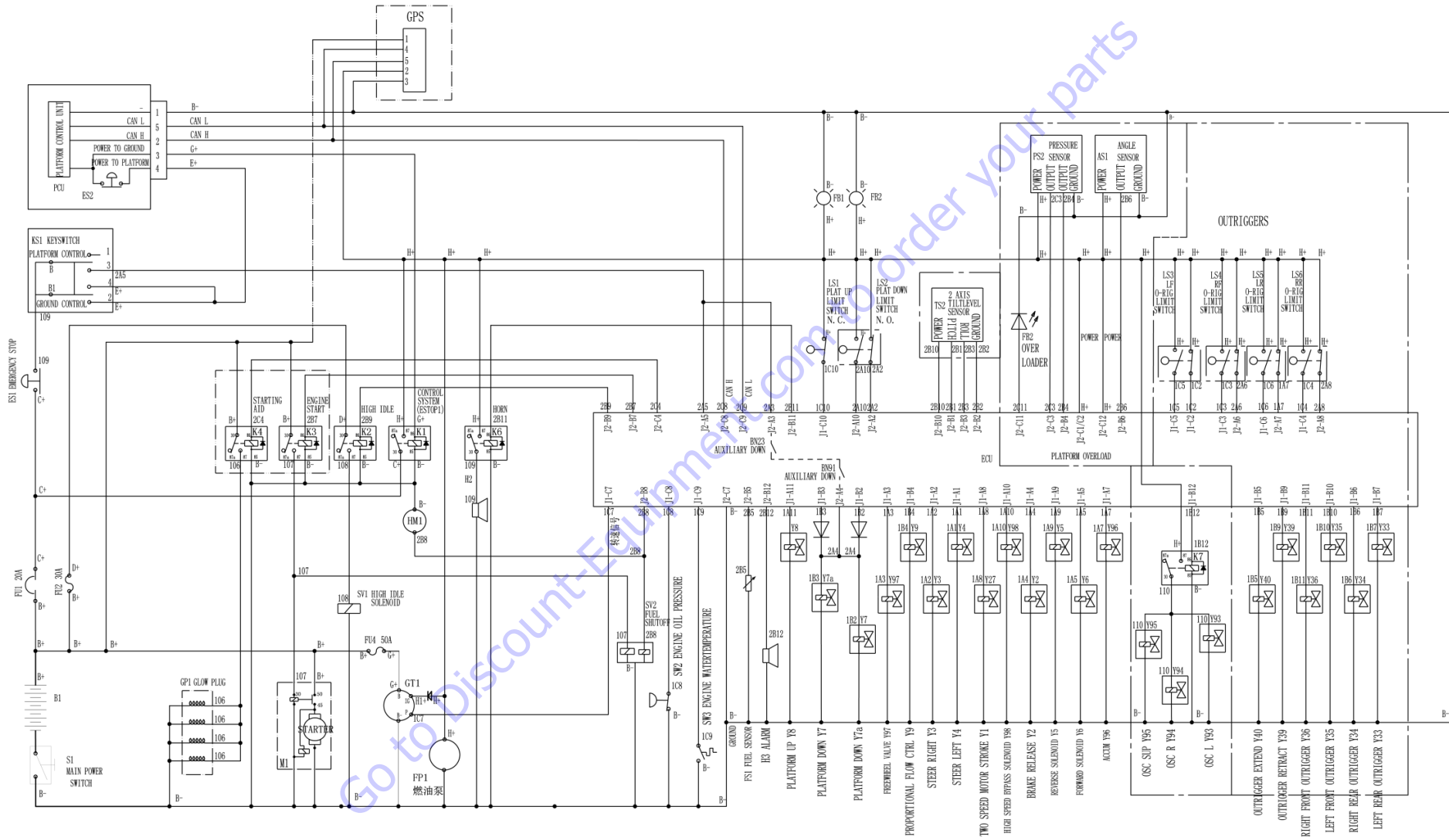
Engine Fault Codes -kubota

| DTC | SPN | FMI | Detection item | DTC set parameter |
|--------------------------------|--------|-----|---|---|
| Engine overheat | 110 | 0 | Overheat of engine water temperature | Engine water temperature $\geq 110^{\circ}\text{C}$ |
| Water temperature sensor: High | 110 | 3 | Open circuit of sensor / harness, + B short circuit | Voltage of coolant temperature sensor is 4.9 V or above |
| Water temperature sensor: Low | 110 | 4 | Ground short circuit of sensor / harness | Voltage of coolant temperature sensor is 0.1 V or less |
| Battery voltage: High | 158 | 3 | Open circuit, short circuit, or damage of harness. Failure of battery | ECU recognition of battery voltage is above 18 V. |
| Engine overrun | 190 | 0 | Engine speed exceeds threshold speed | Engine speed $> 2990 \text{ min}^{-1} \text{ (rpm)}$ |
| Sensor supply voltage 1: Low | 3509 | 4 | Sensor supply voltage 1 | Voltage to sensor is below 4.00 V |
| Actuator Abnormal | 523771 | 2 | Open circuit, short circuit, or damage of harness. | Actuator current $> 3.0\text{A}$ or $< 80\text{mA}$ |
| Engine Speed Sensor Abnormal | 523772 | 2 | Open circuit, short circuit, or damage of harness. | Engine speed = $0 \text{ min}^{-1} \text{ (rpm)}$ after Starter signal into ECU |

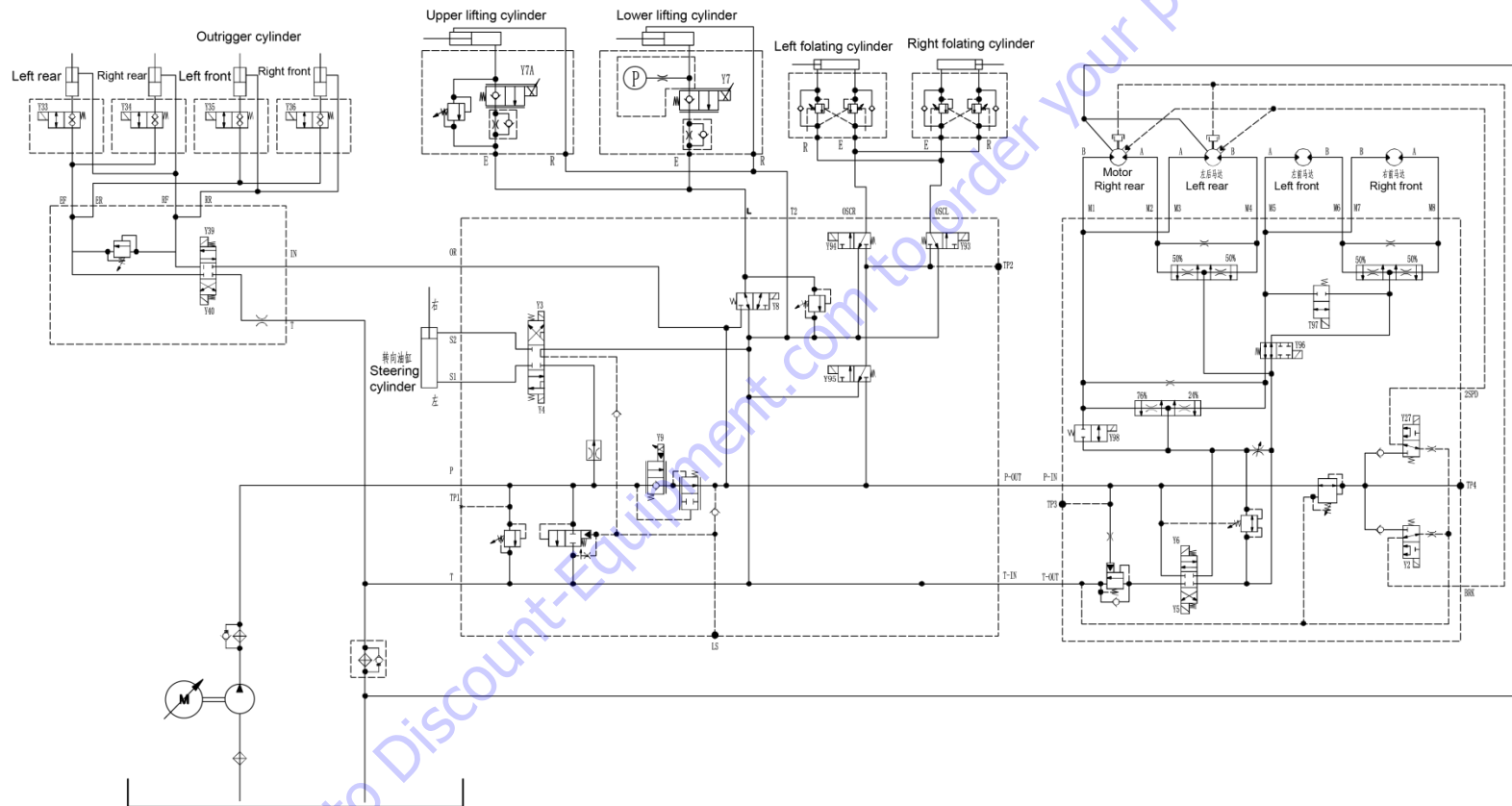
Chapter 2 Schematics

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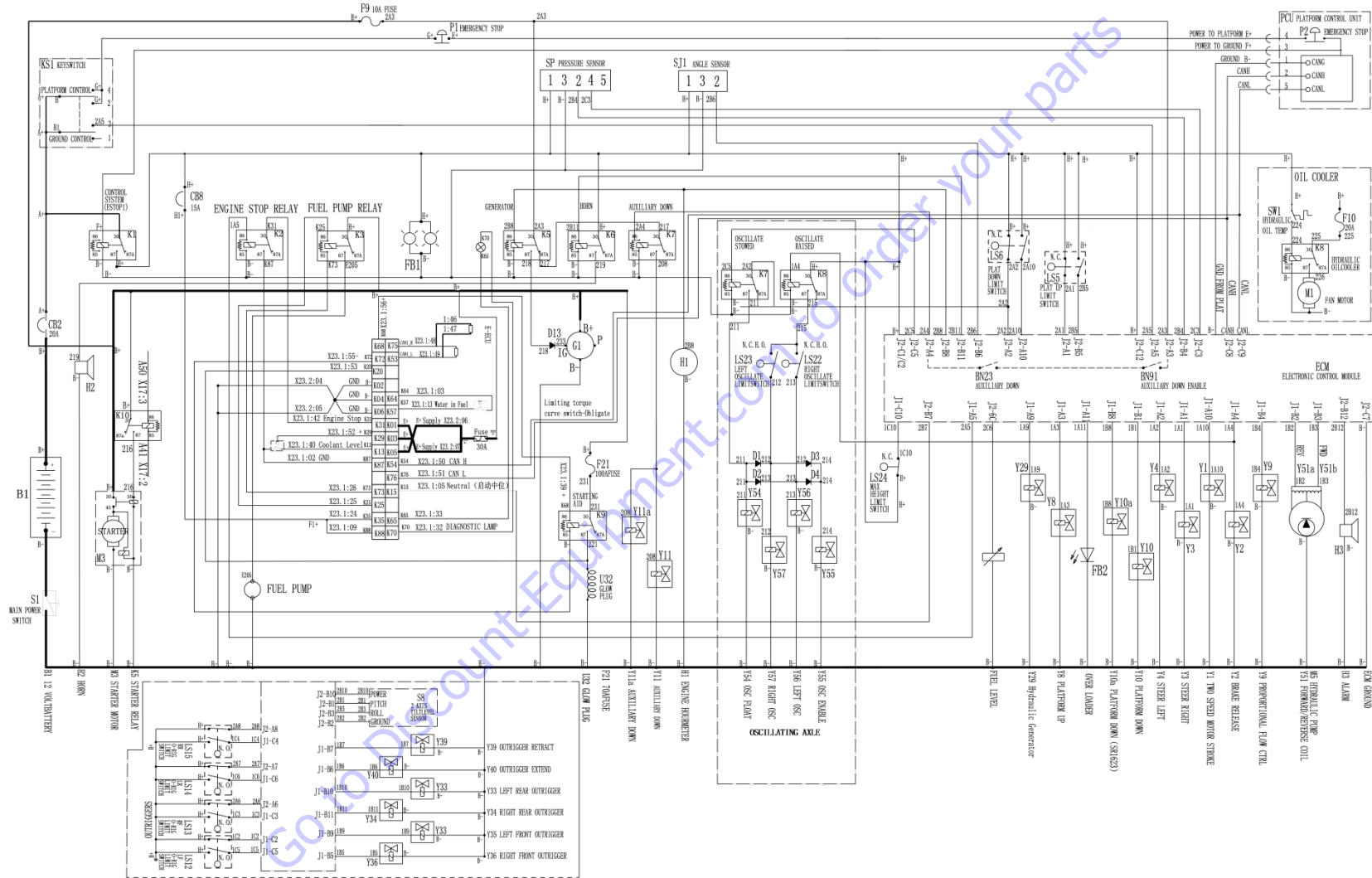
SR3369D/SR4069D Electric schematic



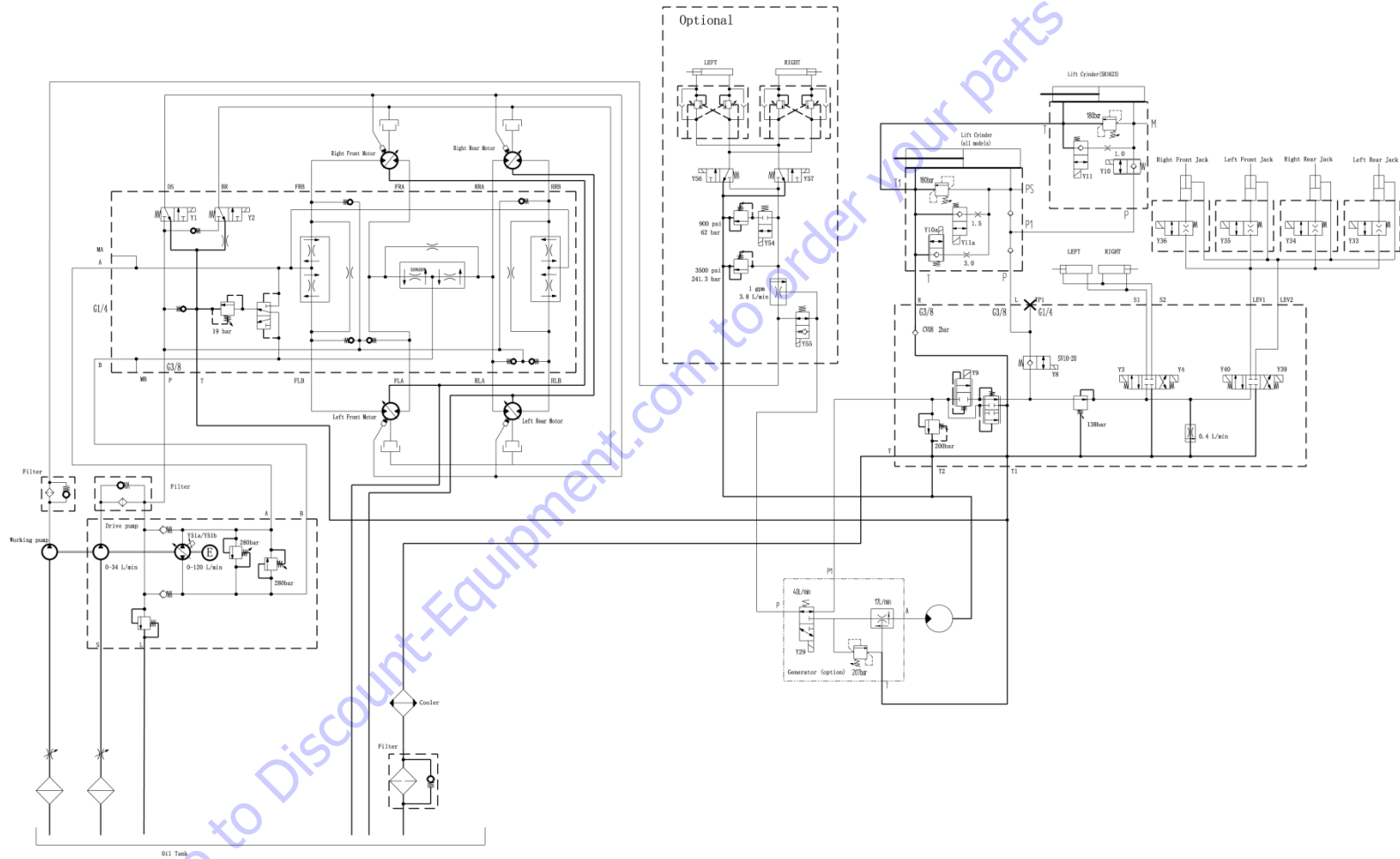
SR3369D/SR4069D Hydraulic schematic



SR3390D/SR4390D/SR5390D Electric schematic



SR3390D/SR4390D/SR5390D Hydraulic schematic



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California Proposition 65



WARNING

Operating, servicing and maintaining this equipment can expose you to chemicals including engine exhaust, carbon monoxide, phthalates, and lead, which are known to the State of California to cause cancer and birth defects or other reproductive harm. These chemicals can be emitted from or contained in other various parts and systems, fluids and some component wear by-products. To minimize exposure, avoid breathing exhaust, do not idle the engine except as necessary, service your equipment and vehicle in a well-ventilated area and wear gloves or wash your hands frequently when servicing your equipment or vehicle and after operation. For more information go to www.P65Warnings.ca.gov/passenger-vehicle.

Breathing diesel engine exhaust exposes you to chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

- Always start and operate the engine in a well-ventilated area.
- If in an enclosed area, vent the exhaust to the outside.
- Do not modify or tamper with the exhaust system.
- Do not idle the engine except as necessary.

For more information go to www.P65warnings.ca.gov/diesel.

PARTS FINDER

**Search Website
by Part Number**



**Search Manual
Library For Parts
Manual & Lookup Part
Numbers – Purchase
or Request Quote**

A screenshot of the "Search Manuals" form. It includes fields for "Brand", "Model", "Serial", "Part Number", "Part Name", and "Quantity". There is a "Search" button at the bottom.

**Can't Find Part or
Manual? Request Help
by Manufacturer,
Model & Description**

A screenshot of the "Parts Order Form". It is a form with multiple rows for entering part information, including fields for "Quantity", "Description", "Manufacturer", "Model", "Serial", "Part Number", "Part Name", "Quantity", "Date Received", "Order Code", "Phone", "Fax", "E-mail", and "Organization".

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Click on this link: <http://www.discount-equipment.com/category/5443-parts/> and choose one of the options to help get the right parts and equipment you are looking for. Please have the machine model and serial number available in order to help us get you the correct parts. If you don't find the part on the website or on once of the online manuals, please fill out the request form and one of our experienced staff members will get back to you with a quote for the right part that your machine needs.

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SR3369D/SR4069D/SR3390D/
SR4390D/SR5390D

Mobile Elevating Work Platform
Maintenance Manual

Third Edition – July 2020



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