

Dozer Maintenance Safety

Safety Instructions

WARNING

AVOID DEATH OR SERIOUS INJURY

Instructions are necessary before operating or servicing machine. Read and understand the Operation & Maintenance Manual and signs (decals) on machine. Follow warnings and instructions in the manuals when making repairs, adjustments or servicing. Check for correct function after adjustments repairs or service. Untrained operators and failure to follow instructions can cause death or serious injury.

General

Safe Operation is Operator's Responsibility

Only trained and authorized personnel should operate and maintain the machine.

Follow all safety rules, regulations and instructions when operating or performing maintenance on machine.

- Do not operate machine if you are under the influence of drugs or alcohol. An operator who is taking prescription drugs must get medical advice to determine if he or she can safely operate a machine.
- When working with other personnel on a work site, be sure that all personnel know nature of work and understand all hand signals that are to be used.
- Be sure that all guards and shields are installed in their proper location. Have guards and shields repaired or replaced immediately if damaged.
- Be sure that you understand the use and maintenance of all safety features such as safety lever and seat belt. Use them properly.
- Never remove, modify or disable any safety features. Always keep them in good operating condition.
- Always check for and know the location of underground and overhead utility lines before excavating.
- Failure to use and maintain safety features according to instructions in this manual, Safety Manual and Shop Manual can result in death or serious injury.

Know Your Machine

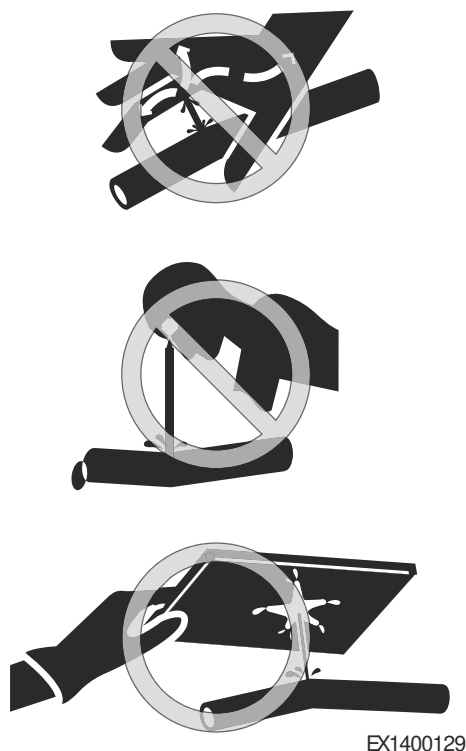
Know how to operate your machine. Know the purpose of all controls, gauges, signals, indicators and monitor displays. Know the rated load capacity, speed range, braking and steering characteristics, turning radius and operating clearances. Keep in mind that rain, snow, ice, loose gravel, soft ground, slopes etc., can change operating capabilities of your machine.

Proper Work Tools and Attachments

Only use work tools and attachments that are recommended by dealer for use on machines. When installing and using optional attachments, read instruction manual for attachment, and general information related to attachments in this manual. Because HD HYUNDAI CONSTRUCTION EQUIPMENT cannot anticipate, identify or test all attachments that owners may want to install

Hydraulic System

Figure 10



Check hydraulic tubes, hoses and fittings for damage, wear or for leaks. Hydraulic lines and hoses must be properly routed and have adequate support and secure clamps. Leaks can cause fires. Never use a flame or bare skin to check for leaks.

Tighten or replace any parts that show leakage.

Check that all hose and tube clamps, guards, and cushions are securely attached. If they are loose, they can vibrate during operation and rub against other parts. This can cause damage to hoses and cause high-pressure oil to spray on hot surfaces, causing a fire and death or serious injury.

Always clean fluid spills. Do not use gasoline or diesel fuel for cleaning parts. Use commercial nonflammable solvents.

Fueling

Figure 11



Use caution when you are refueling a machine.

Fuel is flammable and can catch fire if it is brought close to a flame.

Spec. Combination Criteria	Rear Attachment	mm	RIPPER, TOWING DRAWBAR
	SHOE	mm	700(LGP), 510(XL)
	STD	LGP BLADE, LGP SHOE, NON-REAR ATTACHMENT	
	OPTION 1	XL BLADE, XL SHOE, NON-REAR ATTACHMENT	
	OPTION 2	LGP BLADE, LGP SHOE, RIPPER	

Performance Tests

Use operational performance test procedure to quantitatively check all system and functions on the machine.

Purpose of Performance Tests

1. To comprehensively evaluate each operational function by comparing the performance test data with the standard values.
2. According to the evaluation results, repair, adjust, or replace parts or components as necessary to restore the machine's performance to the desired standard.
3. To economically operate the machine under optimal conditions.

Kinds of Tests

1. Base machine performance test is to check the operational performance of each system such as engine, travel, swing, and hydraulic cylinders.
2. Hydraulic component unit test is to check the operational performance of each component such as hydraulic pump, motor, and various kinds of valves.

Performance Standards

"Performance Standard" is shown in tables to evaluate the performance test data.

Precautions for Evaluation of Test Data

1. To evaluate not only that test data is correct, but also in what range the test data is.
2. Be sure to evaluate the test data based on the machine operation hours, kinds and state of work loads, and machine maintenance conditions.

The machine performance does not always deteriorate as the working hours increase. However, the machine performance is normally considered to reduce in proportion to the increase of the operation hours. Accordingly, restoring the machine performance by repair, adjustment, or replacement shall consider the number of the machine's working hours.

Definition of "Performance Standard"

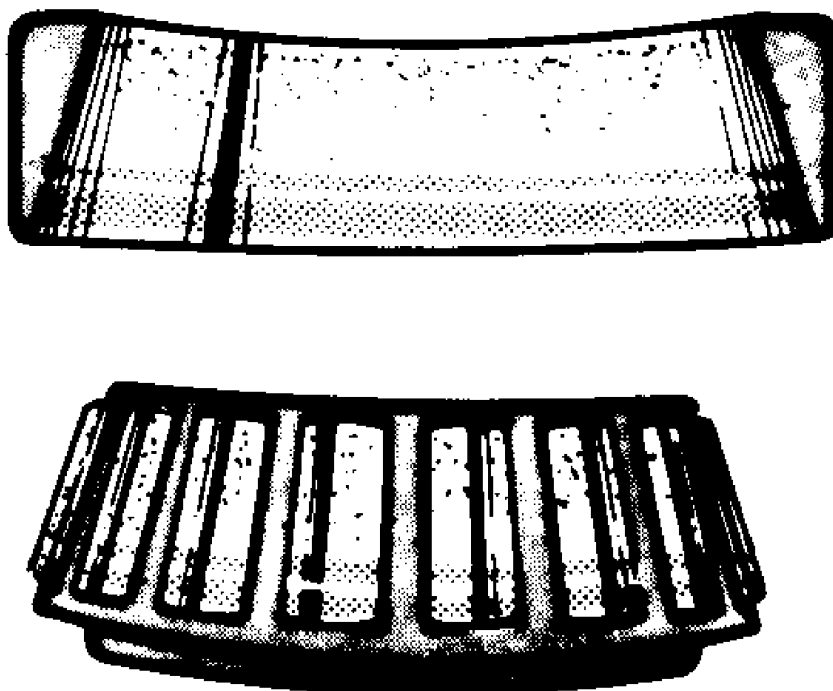
1. Operation speed values and dimensions of the new machine.
2. Operational performance of new components adjusted to specifications. Allowable errors will be indicated as necessary.

Preparation for Performance Tests

Observe the following rules to perform performance tests accurately and safely.

Stain Discoloration

Figure 50



HASA610S

Discoloration can range from light brown to black caused by incorrect lubrication or moisture.

If the stain can be removed by light polishing or if no evidence of overheating is visible, the bearing can be reused.

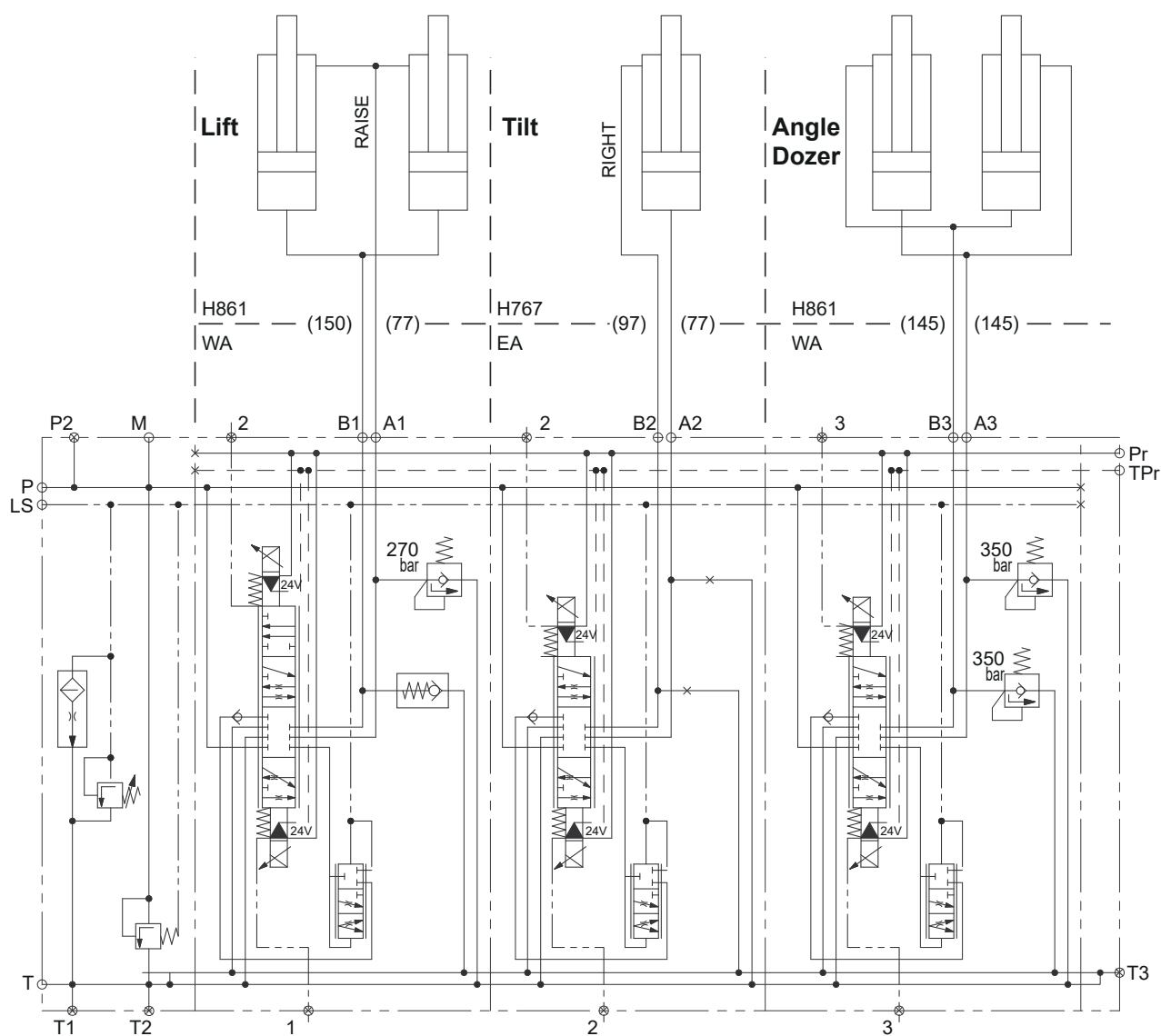
Check seals and other related parts for damage.

Phenomenon	Causes	Troubleshooting
	Large gap of the turbocharger wheel, causing interference with the wall	Check if there is any sand or metallic foreign substance
	Damaged turbocharger wheel	Check if there is any sand or metallic foreign substance
	Damaged wheel and shaft of the turbocharger	Check if there is any sand or metallic foreign substance
	Poor rotating force of the turbocharger wheel	Check if there is any sand or metallic foreign substance
Oil Leakage	Deformed or damaged intake unit hose	Replace it
	Poor clamping state	Adjust and tighten the clamp
	Contaminated or damaged air filter	Replace and check if the impeller of the turbocharger is damaged
	Leakage of coolant from the turbocharger or oil from the oil hose	Replace the hose and the gasket
	Poor turbo actuator operation	Replace the turbocharger
Oil Leakage	Leakage from the engine block and the exhaust manifold	Check the engine
	Contaminated blowby gas and abnormal oil amount	Check the turbo impeller and the turbo intake outlet
	Large gap of the turbocharger wheel, causing interference with the wall	Check if there is any sand or metallic foreign substance
	Damaged turbocharger wheel	Check if there is any sand or metallic foreign substance
	Damaged wheel and shaft of the turbocharger	Check if there is any sand or metallic foreign substance
	Poor rotating force of the turbocharger wheel	Check if there is any sand or metallic foreign substance
Oil Consumption	Poor clamping state	Adjust and tighten the clamp
	Leakage of coolant from the turbocharger or oil from the oil hose	Replace the hose and the gasket
	Leakage from the engine block and the exhaust manifold	Check the engine
	Contaminated blowby gas and abnormal oil amount	Check the turbo impeller and the turbo intake outlet
	Large gap of the turbocharger wheel, causing interference with the wall	Check if there is any sand or metallic foreign substance
	Damaged turbocharger wheel	Check if there is any sand or metallic foreign substance
	Damaged wheel and shaft of the turbocharger	Check if there is any sand or metallic foreign substance
	Poor rotating force of the turbocharger wheel	Check if there is any sand or metallic foreign substance

Main Control Valve

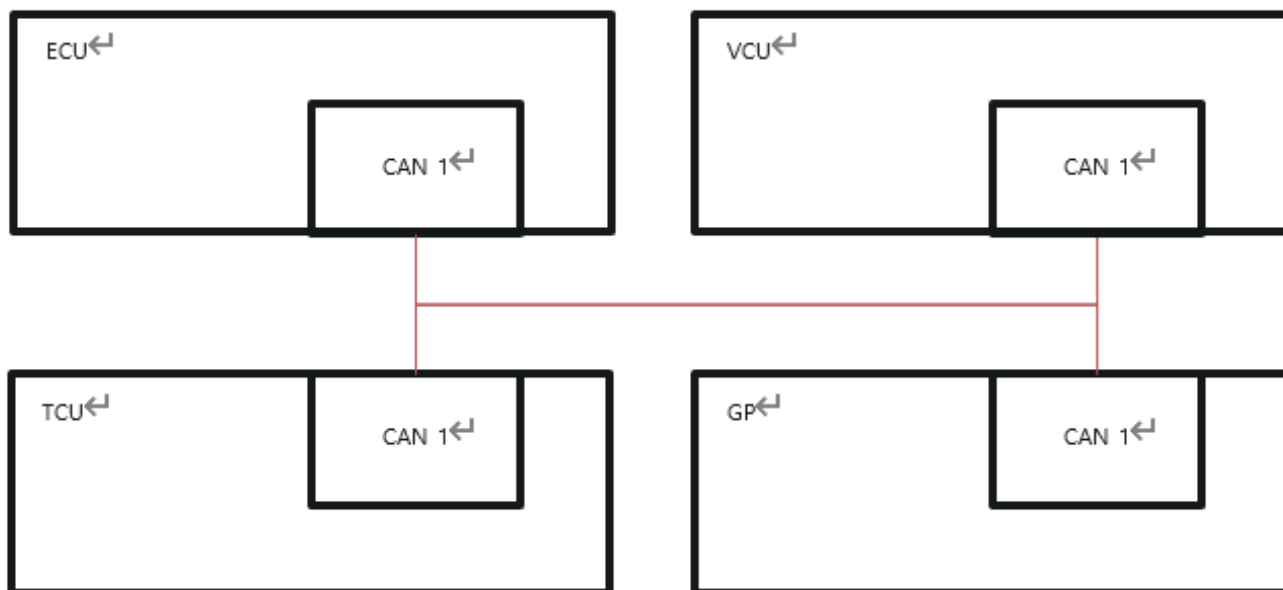
Circuit

Figure 96



DS2201313

Figure 127

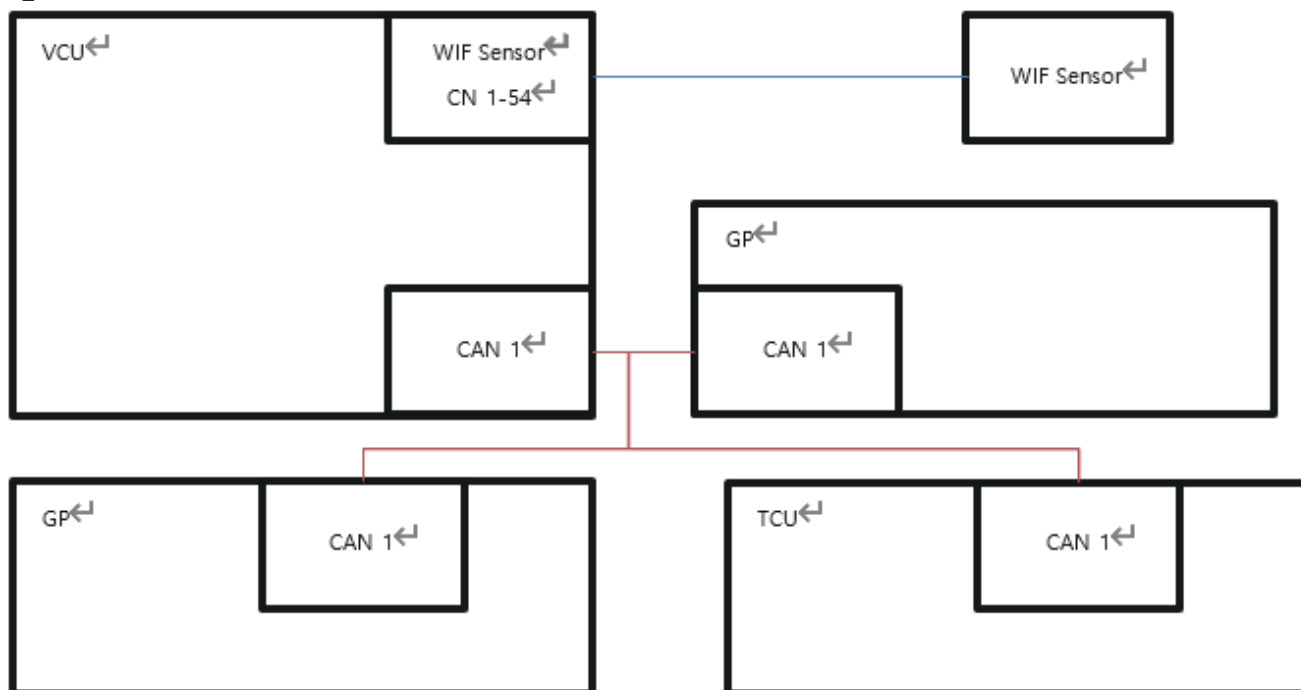


DS2201447

WIF (Water In Fuel) Warning

Purpose - To detect and warn of moisture in the fuel of the equipment

Figure 128

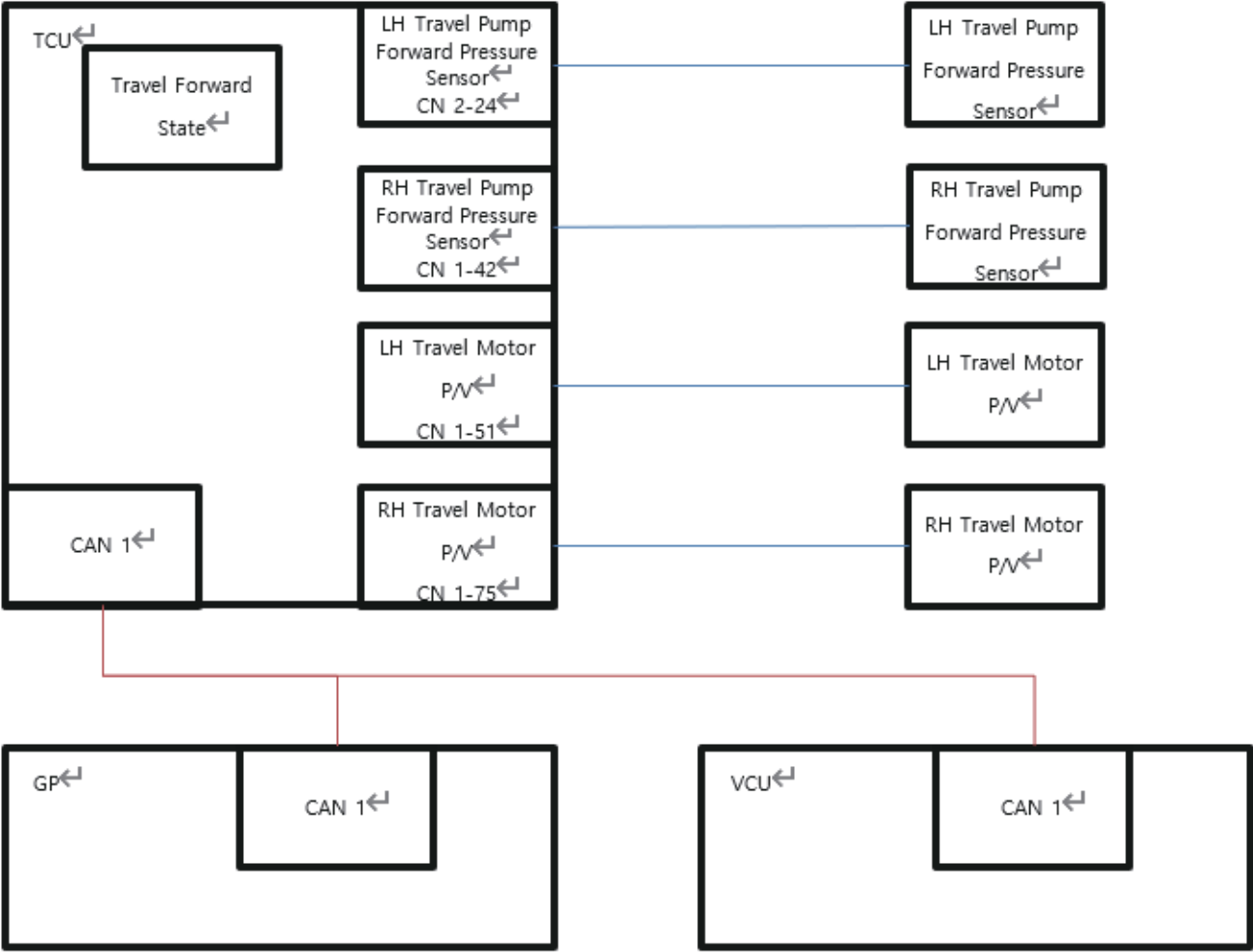


DS2201448

Engine Oil Pressure Warning

Purpose - To detect and warn of engine oil abnormalities

Figure 151



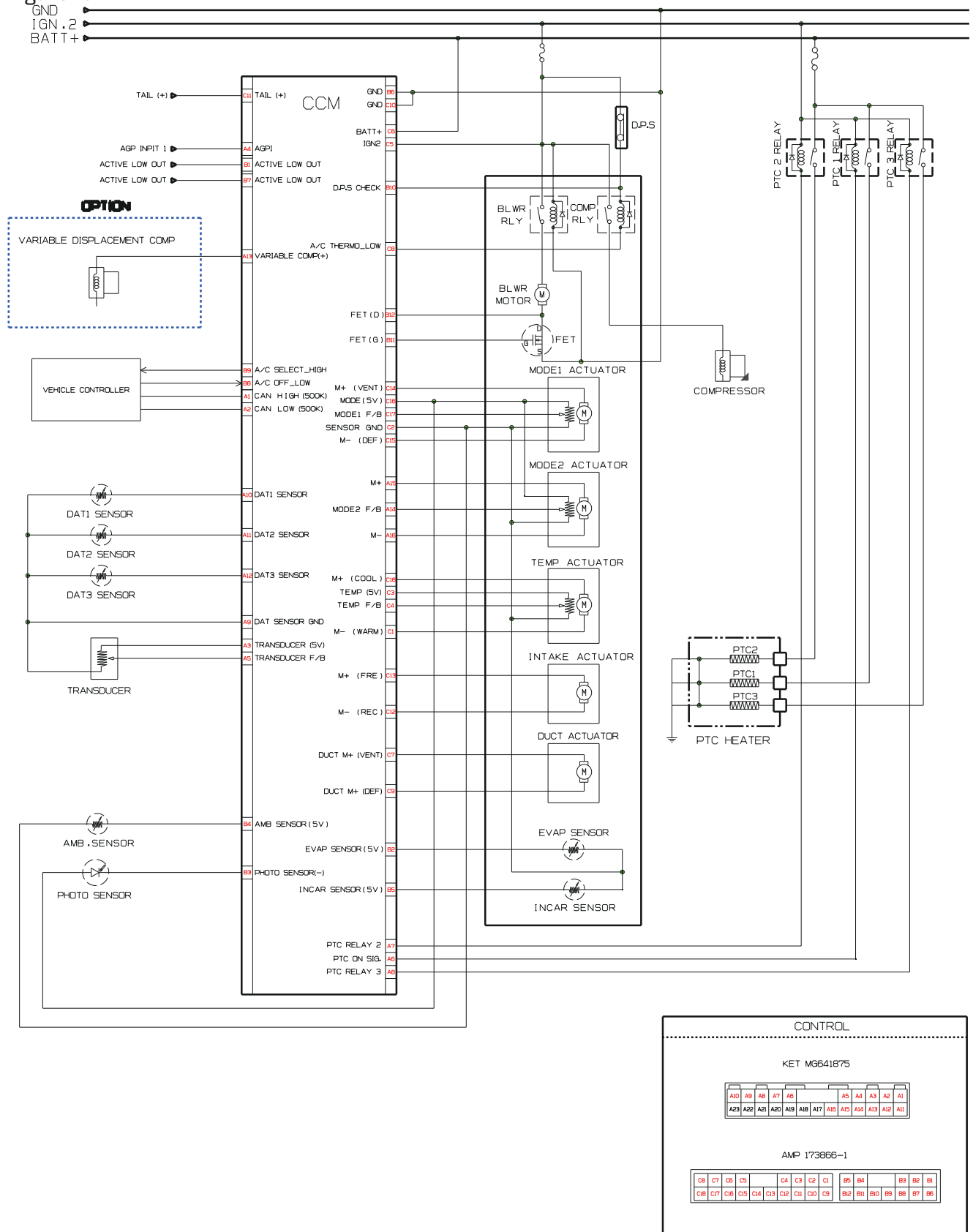
DS2201498

Travel Load Limit Control

Purpose - To prevent the engine from turning off while driving

Air Conditioner/Heater Circuit Diagram

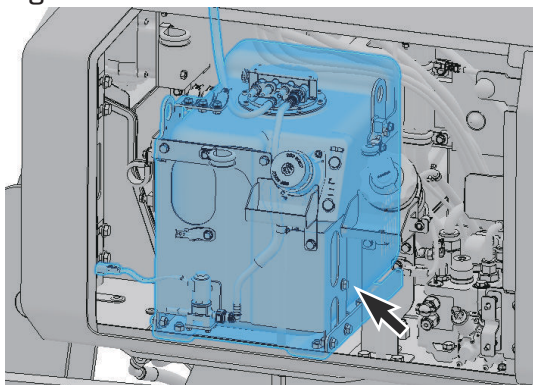
Figure 191



DS2301081

4. Remove DEF (AdBlue®) tank from frame.

Figure 25



DS2200884

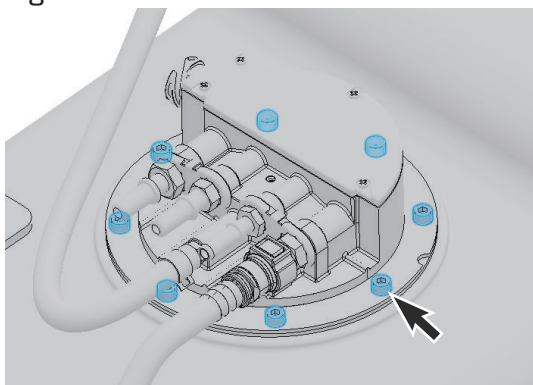
- DEF (AdBlue®) tank weight: about 20 kg (44.1 lb)

NOTE: Apply adhesive (Loctite #262) to the mounting bolt.

DEF (AdBlue®) Quality Sensor

1. Remove the bolts (1).

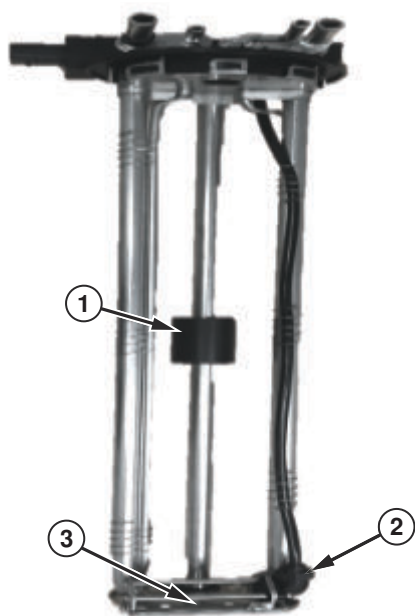
Figure 26



DS2200885

2. Remove DEF (AdBlue®) quality sensor from tank.

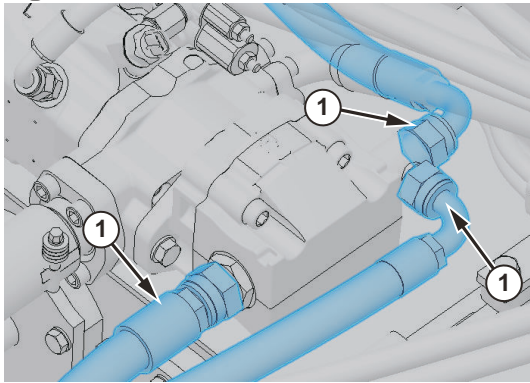
Figure 27



DS1902317

2. Disconnect the hoses and adapters from fan pump.

Figure 53



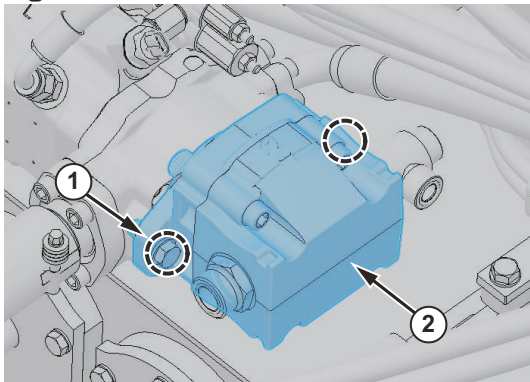
DS2200890

NOTE: Attach identification tags to the removed hoses for reassembling. After disconnecting hoses from fan pump, plug them to prevent dirt or dust from entering. Disconnect the hoses from the bottom to top of fan pump.

Fan Pump

1. Tie pump with rope to lift it.

Figure 54



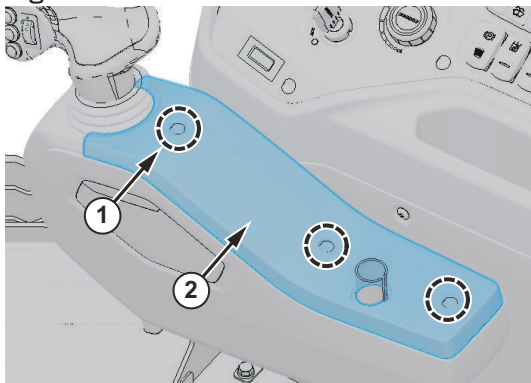
DS2200891

2. Remove mounting bolts (1) and fan pump (2) from main pump.
 - Tool: 19 mm ()
 - Torque: 107.9 N.m (11 kg.m, 79.6 ft lb)
 - Fan pump weight: about 15 kg (33 lb)

Stand Cover - Right Side

1. Remove the cap and bolts (1) from armrest bracket.

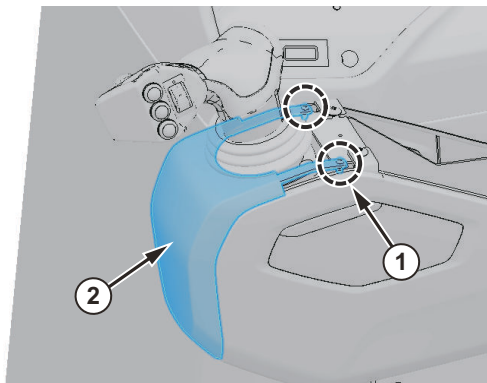
Figure 98



DS2200901

2. Remove right stand cover (2).
3. Remove the bolts (1) from armrest bracket.

Figure 99



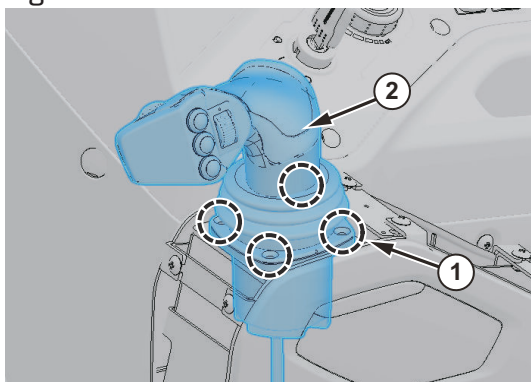
DS2200902

4. Remove right stand cover (2).

Right Joystick

1. Remove the bolts (1) from armrest bracket.

Figure 100



DS2200903

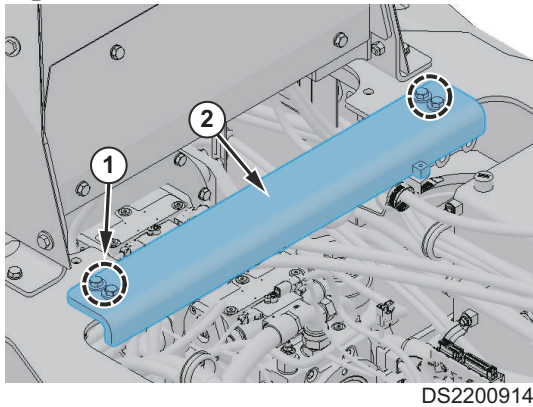
2. Remove right joystick (2).

- Fan pump weight: about 20 kg (44.1 lb)

Support

1. Remove bolts (1) from support (2).

Figure 146



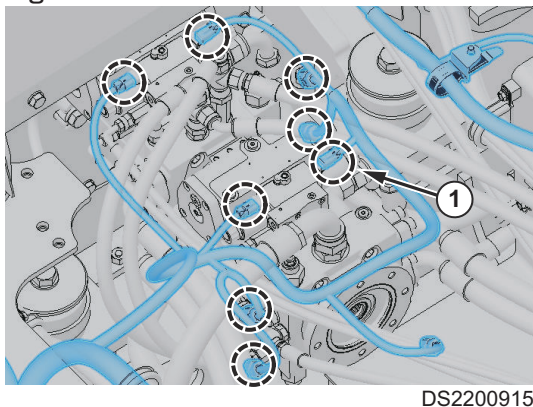
- Tool: 19 mm ()
- Torque: 107.9 N.m (11 kg.m, 79.6 ft lb)

2. Remove support (2).

Wiring Harness

1. Disconnect harness connectors (1) from HST pump.

Figure 147

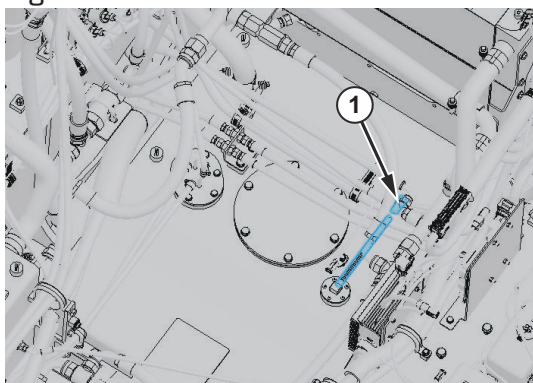


NOTE: Check the location of the connectors before disconnecting. Be careful not to let water get into electrical components. If water gets into electrical system, this will cause an electrical short circuit and result in improper machine operation.

Harness Connector

1. Disconnect wire harness (1) from fuel sensor.

Figure 207



DS2200925

Hydraulic Hoses and Fittings

1. When disconnecting the hose, fuel left in the hose may flow out. Therefore, place the end of the hose into a suitable container to prevent contamination of the ground and environment.

Figure 208



EX1504170

2. Remove hose from fuel tank.

Figure 209



DS2200926

NOTE: Cap the open ends of hose with plug.

3. Disconnect any additional hydraulic hose connections as necessary.

Fuel Tank Assembly

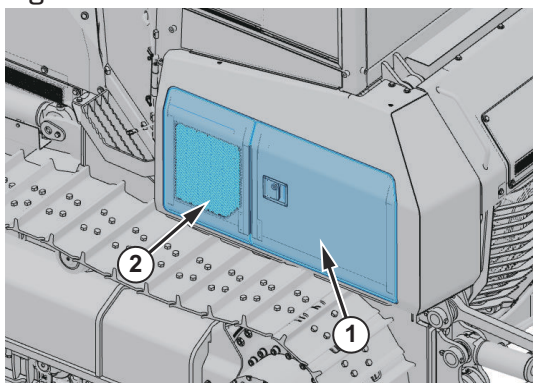
1. Remove bolts (1) and bracket (2) from fuel tank.

- Tool: 22 mm ()
- Torque: 176.5 N.m (18 kg.m, 130.2 ft lb)

Removal

1. Open the left side door (1, 2).

Figure 246

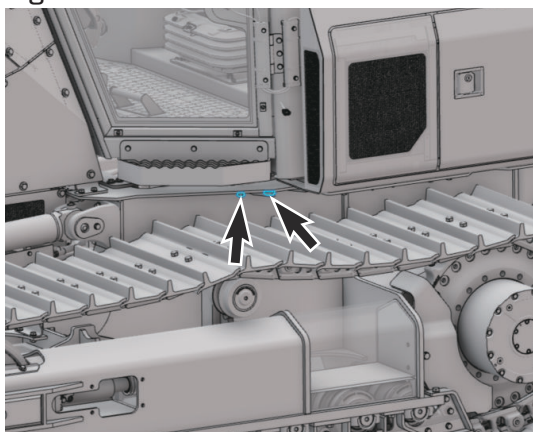


DS2200849

Tilt the Cabin

1. To operate cabin tilting system, remove bolts and nuts under the cabin.

Figure 247



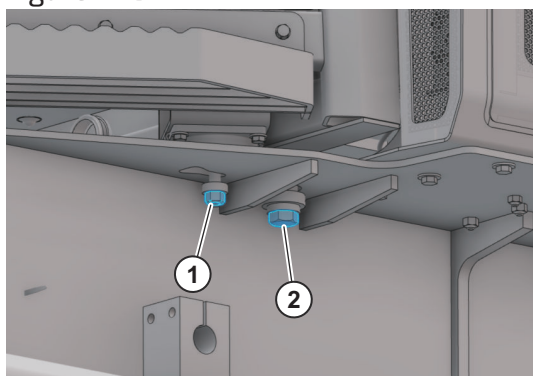
DS2201285

NOTE: Both the left/right bolts of the cabin must be removed.

NOTE: Failure to remove bolts can cause serious damage to the machine.

2. Remove nuts (1).

Figure 248



DS2201286

- Tool: 24 mm ()
- Torque: 215.7 N.m (22 kg.m, 159 ft lb)

3. Remove bolts (2).