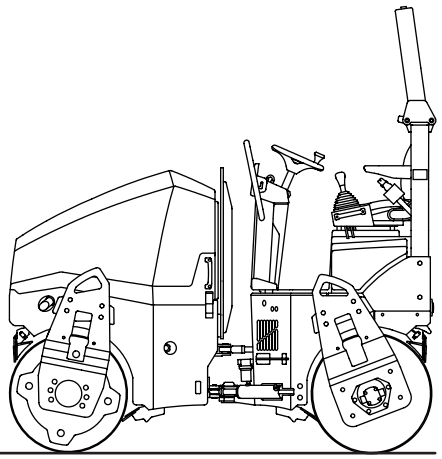
ARX 23-2
ARX 26-2

TANDEM ROLLER
KUBOTA D1803-CR-E5
EU Stage V, U.S. EPA Tier 4f



OPERATING MANUAL

EDITION 07/2021 EN
ARX 23-2 KU St V / T4f Product Identification Number 3004560 -
ARX 26-2 KU St V / T4f Product Identification Number 3004562 -

AMMANN

Note

2.1.5 Safety notices and signs applied on the machine

1 Read the operating instructions

2946bz

Get perfectly familiar with the machine operation and maintenance according to the operation manual!

2 Risk of squeezing

3865

Keep a safe distance from the machine; there is a danger of squeezing by the machine between the front and rear frame.

3 Risk of injury

3866

There is a risk of injury. Do not touch rotating parts while the engine is running. There is a risk of burns. Do not touch hot parts of the machine unless you make sure that they are sufficiently cold.

4 Risk of injury

3864bz

There is a risk of fatal injury. Do not operate the machine when the protective ROPS frame is lowered.

5 Using the parking and emergency brakes

3867bz

Use the parking brake only when the machine is stopped. Use the emergency brake only for stopping the machine in emergency.

2.3.3 Removal of preservation of the machine

- Check all parts of the machine for damage during storage and for missing parts.

If the machine has been preserved, remove the preservative agents as follows:

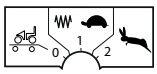
Wash off the preservative agents using a high-pressure stream of hot water with common degreasers:

- **Wash the machine while observing environmental principles.**
- **Caution! Do not use a high-pressure stream to wash the edge cutter and the highlighted parts of the machine as shown in Fig. 588589, as this could seriously damage the machine.**
- **Prevent water from entering the air filter, electrical and electronic parts of the machine.**
- **Do not use a high-pressure stream near the control unit!**
- **Use a high-pressure stream at a maximum angle of 90 degrees downwards.**

Remove the preservation and wash the machine in places with intercepting sumps to catch the water and de--preservation agents.

Remove the preservation according to the manufacturer's manual.

Before putting the machine into operation, check the operating fluids.



AMN010D

Travel mode switch (4)

Loading mode (0)

- Limited travel speed.
- Activated differential lock.
- Blocked working functions of the machine (vibration).

Working mode (1)

- Machine working speed (7 km/h).
- Option to activate the differential lock for the time necessary.
- Option to activate the working functions of the machine (vibration).

Transport mode (2)

- Machine transport speed (10 km/h).
- Deactivated differential lock.
- Blocked working functions of the machine (vibration).


AMN83

Sprinkling potentiometer (5)

OFF in the position "0". Turn the sprinkling potentiometer from the position "1" to the position "MIN" to smoothly control the sprinkling intensity of the drums.

AMN142

Emergency brake button (6)

Pressing the button activates the emergency brake of the machine. The machine stops, the engine shuts down. After activating the emergency brake button the indicator lamps for battery charging (22), engine lubrication (23), parking brake (29) and emergency stop (26) are shown on the display.

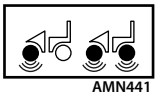
3726G

Vibration mode selector switch (manual mode / automatic mode) (7)

- Manual vibration mode – vibration can be switched on when the machine is stationary or moving. Drum sprinkling – vibration can be switched on when the machine is stationary or moving.
- Automatic vibration mode – vibration is automatically switched on when the machine starts moving and automatically switched off when the machine stops. Automatic activation of drum sprinkling when the machine starts moving and automatic deactivation of drum sprinkling when the machine stops.

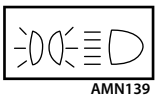

3726CH

Turn signals switch (8)


AMN441

Vibrating drum selector switch (9)

- front drum
- front and rear drum


AMN139

Lights switch (outline lights / front lights) (10)

- outline lights
- front lights

Fire extinguisher

Place to install a fire extinguisher.

The manufacturer recommends that the machine be equipped with a fire extinguisher.

Fuse box (37)

F1 – 7.5 A .....parking lights

F2 – 7.5 A .....tail lights, licence plate light

F3 – 15 A .....headlamps

F4 – 15 A .....rear light, ROPS lights, beacon, green beacon, monitoring device

F5 – 5 A.....direction indicators

F6 – 5 A.....control unit – electronics

F7 – 40 A .....control unit – power part

F8 – 5 A.....display, alternator excitation

F9 – 25 A .....hydraulic oil cooler

F10 – 10 A.....service socket, seat heating

F11 - 7.5 A (15 A*) water sprinkling pump, emulsion sprinkling pump at the axle

F12 – 7.5 A.....right travel lever, left travel lever, differential lock switch, working mode selector, horn switch, brake tester, calibration button

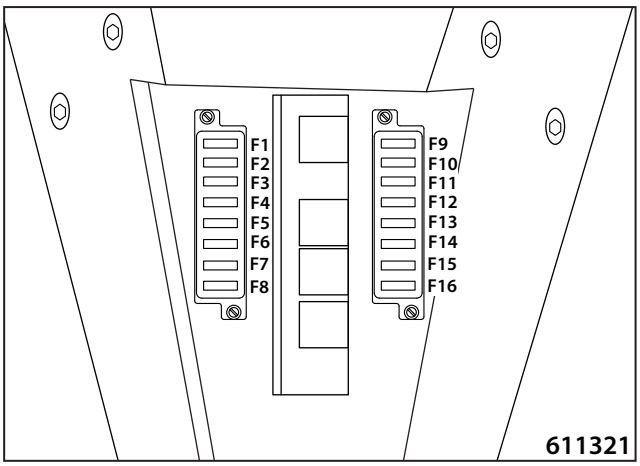
F13 – 7.5 A.....horn

F14 – 5 A .....seat switch

F15 – 5 A .....infra thermometer, monitoring device

F16 .....reserve

* ARX23-2C/ ARX26-2C



Battery disconnector fuses

F20 – 70 A.....main fuse

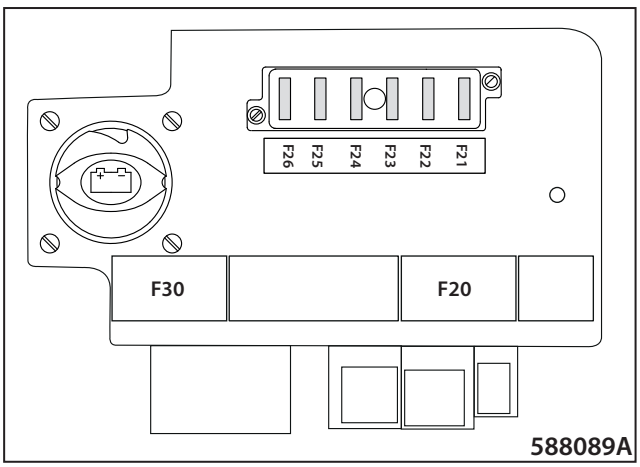
F30 – 50 A.....glowing

F21 – 25 A.....ECU main fuse

F22 – 5 A .....ECU

F23 – 7.5 A.....fuel pump

F24 – 5 A compaction module



Travel speed selection

- The travel speed is set on the active travel control. Set and leave the inactive travel control in the parking brake position (P).
- The travel speed corresponds to the deflection of the travel control (11) forward or rearward from the zero position (0) at the given operating mode (4).
- The travel speed can be changed with the travel mode switch (4).

Panic response

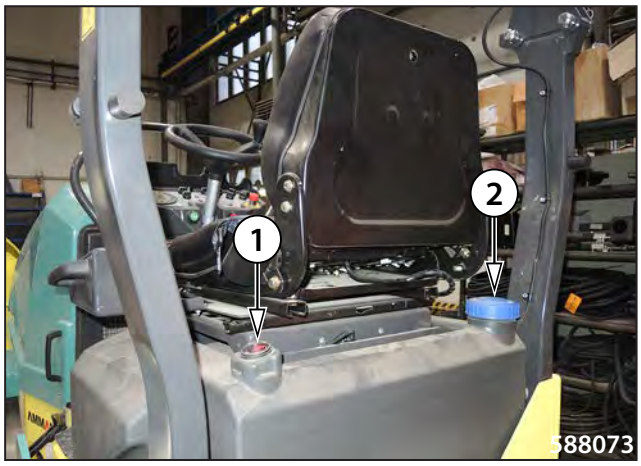
The immediate stop of the machine using the travel control (11) applies to all of the travel modes of the machine. When the travel control (11) is changed to the opposite position through (0) within 1 second, the machine will stop – the parking brake will be engaged and the engine will keep running, i.e. panic response. When the machine vibration is on, the vibration will stop also when the manual vibration mode is selected. The machine can start moving again after the travel control (11) is changed to the parking brake position (P) and the travel direction (F/R) is selected.

Note

If the driver leaves the driver's seat while the travel control is not in the brake position (P), the machine behaves according to the seat switch description (Chapter 2.6).

When the driver moves travel control from the brake position (P) without sitting on the seat at that time, the engine will be stopped after 5 seconds.

2.7.7 Sprinkling



The water level in the tank is shown on the indicator (1).

Hole to fill the water tank (2).

Check the water level in the tank before putting the machine into operation.

Turn on the sprinkling with the sprinkling potentiometer (5).

Position 0 – sprinkling OFF

Position 1 – sprinkling ON

Turning from the position 1 to the right to turn on the interval sprinkling.

In the interval sprinkling mode you can continuously control the sprinkling break interval.

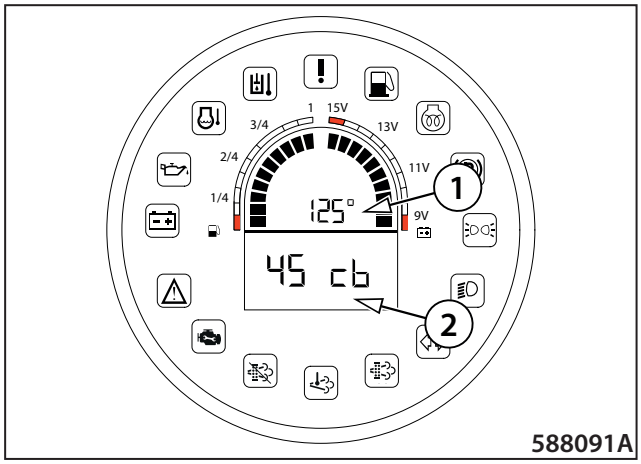
Using the sprinkling switch (13), it is possible to turn on the sprinkling at any time, e.g. before driving on a compacted bitumen surface.

Note

At a combined machine, the sprinkling switch (13) is used for sprinkling the tyres and the sprinkling potentiometer (5) is used for sprinkling the drum.

Sprinkling automatically deactivates if the machine is not moving and automatic vibration is set.

2.7.8 ACE Force (Optional)



The ACE Force system measures current surface compaction at the first drum and shows the value of compaction in the unit of cb (MN/m) on the multifunctional display.

1 - surface temperature

2 - compaction value

ACE Force is switched on and off by pressing the vibration switch (12). Values are not saved or printed.

Dismount the front frame screws on the left and right sides.

Tilt the ROPS safety frame to the back and secure it in a suitable way.

Tilt and lift the ROPS with the help of another person.

There is a risk of injury from the falling ROPS.

Do not operate the machine when the ROPS is lowered. There is a risk of fatal injury.

Lower the ROPS only during the transport.

The tightening torque of the ROPS screws is 147 Nm.

2.7.14 Principles of use of the machine with a diesel particulate filter (DPF)

2.7.14.1 Diesel particulate filter (DPF)

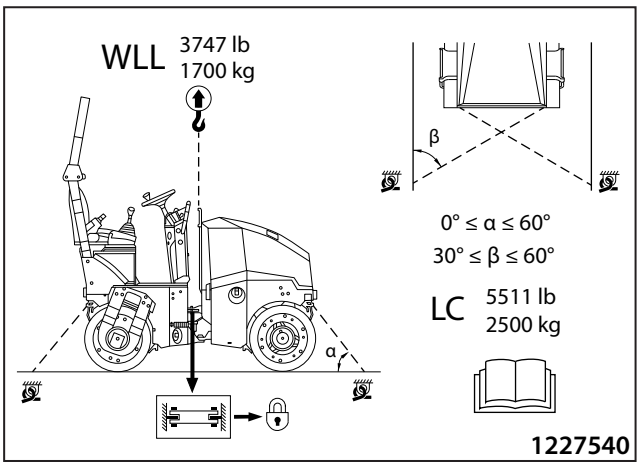
- It absorbs solid particles contained in exhaust gases and reduces fine dust in the emissions produced by diesel engines.
- Conditions for maintaining the DPF in a fully functional state.
  - Use fuels with low sulphur content (according to Chapter 3.2.2).
  - Use only the oil recommended by the engine manufacturer (according to Chapter 3.2.1).
  - Do not interfere with the DPF, do not tamper with it.
  - When operating the machine, do not leave the switch in the DPF regeneration suppression position. Operate the machine only when the switch is in the AUTO position.
  - Replace the DPF after 6000 hours or after 5 years at the latest.
  - Avoid short engine operating times and low engine load (long engine idling times).

2.8.1.2 Loading the machine with a crane

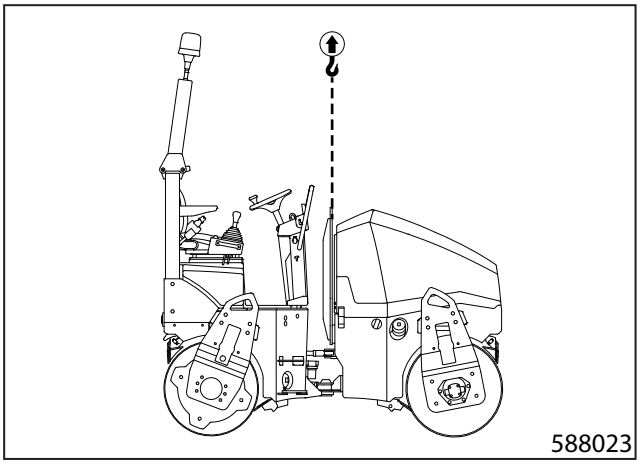
For loading with a crane, the machine is provided with a 1-point or 4-point suspension.

Use a crane with a sufficient load capacity.

Observe the relevant national safety measures when loading th emachine with a crane.



Before lifting, the articulation joint of the machine must be secured with the strut 1 against tilting and secured with the pin 2 and the lock 3.



Observe safety regulations while loading and unloading!

Use a crane with a sufficient load capacity!

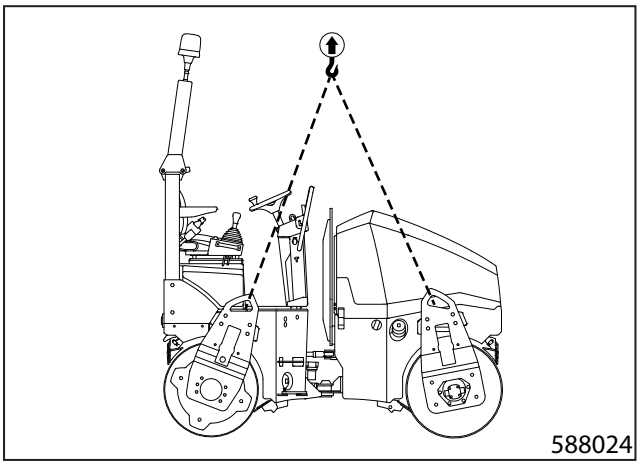
Use corresponding and unbroken hoisting slings with a sufficient load capacity!

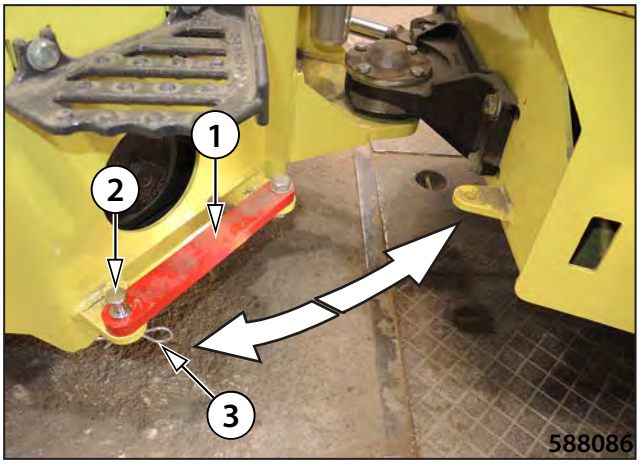
The machine must be tied to the 4-point or 1-point suspension!

The maximum permissible working load for the one-point suspension is 2.7 tons.

Only a trained person (slinger) may carry out the tying of the machine!

Do not enter under the lifted load!





3.2 Specification of operating fluids

3.2.1 Engine oil

Engine oil has been specified as per its performance classification and viscosity classification.

Performance classification according to

API (AMERICAN PETROLEUM INSTITUTE)

ACEA (ASSOCIATION DES CONSTRUCTEURS EUROPÉENS D'AUTOMOBILE)

Viscosity classification

To determine the SAE (Society of Automotive Engineers) viscosity class, the ambient temperature and type of operation where the machine is used are decisive.

Use of permissible oils according to API: CJ-4

SAE 15W-40 year-round

Note

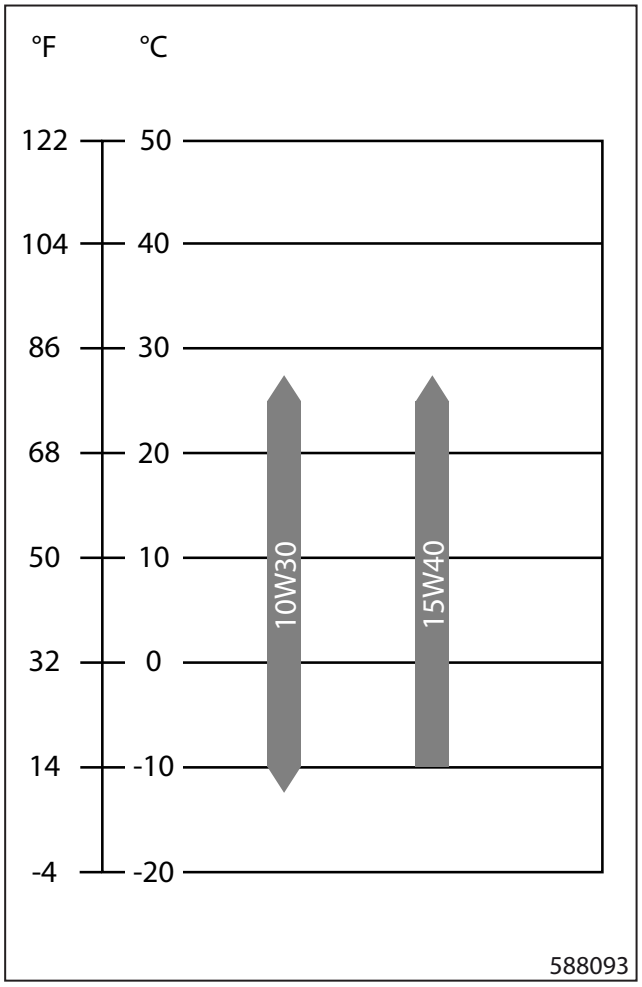
The exceeding of the lower temperature limit does not result in damage to the engine; however, it can cause some difficulties with starting.

It is recommended to use universal multi-range oils to avoid the necessity of oil changes due to changes of ambient temperature.

For easy starts at the temperatures below 0 °C (32 °F), the engine manufacturer recommends the SAE 10W-30 oil.

Exceeding the upper temperature limit, considering the reduced lubricating capabilities of the oil must not last for long.

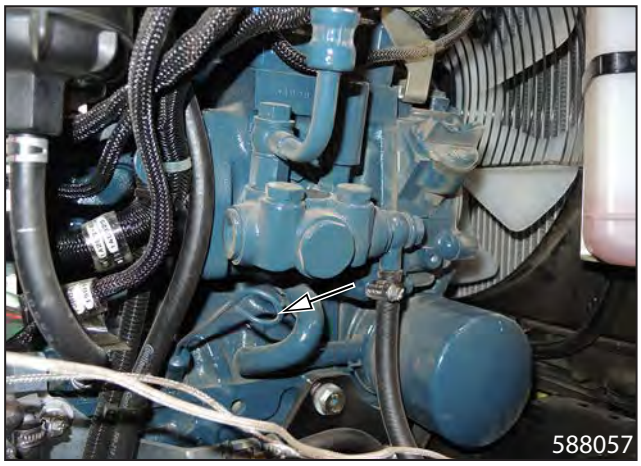
Viscosity diagram



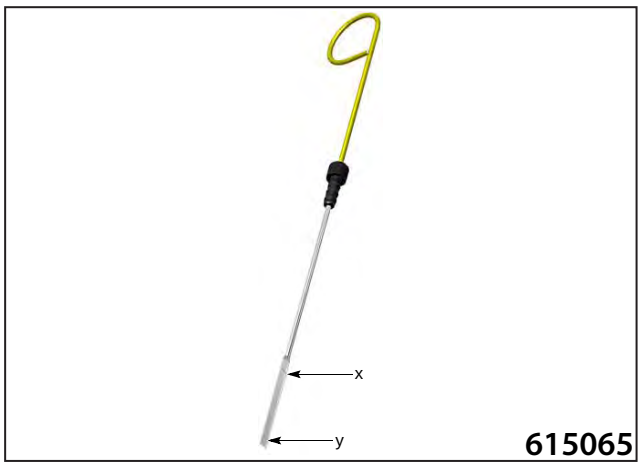
3.6.2 Engine oil check

Wait for about 5 min. until the oil flows down into the engine sump.

Take out the oil dipstick, wipe it, insert fully back and take it out again to read out the oil level.



Keep the level within the range of gauge marks imprinted in the dipstick. The lower mark shows the lowest possible oil level, the upper mark indicates the highest.



Refill the oil as required.

Refill the engine oil into one of the two filler necks:

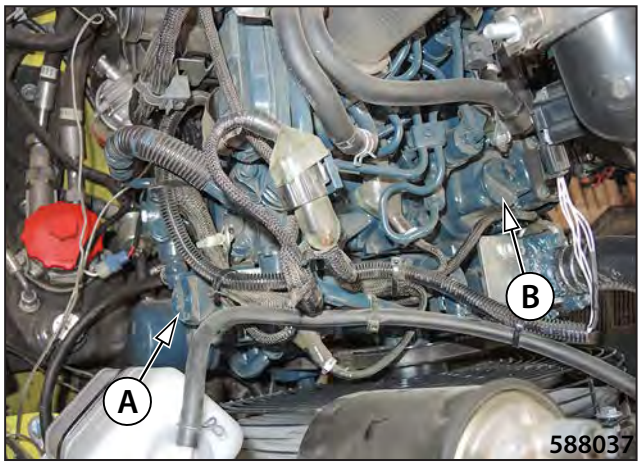
- filler neck on the left side of the engine (A),
- filler neck on the engine (B).

Check the engine for leaks and remove the cause.

Check the engine for damaged and missing parts and for changes in appearance.

Note

The total volume of the oil in the engine is 7 l (1,85 gal US).



Do not use the engine unless the oil level in the engine is correct.

Carry out the check after the oil has been cooled.

Refill only oil of the same grade according to the chapter 3.2.1.

Stop the oil soaking into the ground.

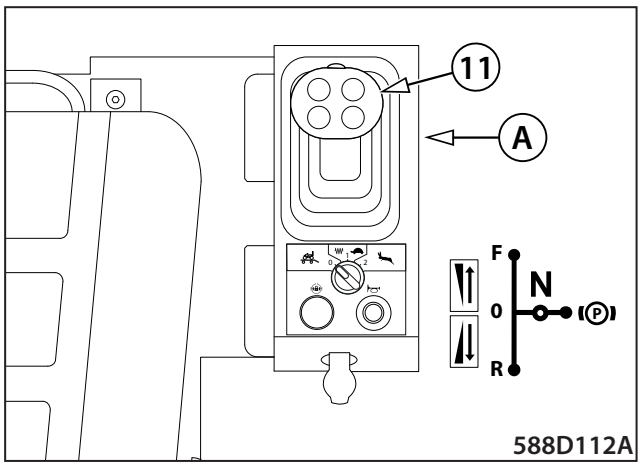
3.6.14 Brake test

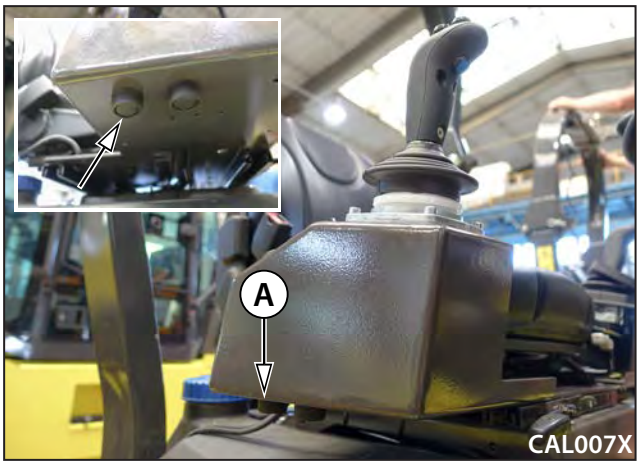
3.6.14.1 Check of the parking brake

This test verifies the function of the parking brake. The ability of the parking brake to hold the machine can be checked using the "Brake Test" mode. After starting this mode, the traction force of the machine acts on the stationary machine with the parking brake (P) engaged for a given time.

Perform the test on a level and solid surface.

Check that the area in front of and behind the machine is empty and that there are no persons or obstacles there! Ensure a suitable safe distance in front of the machine, behind the machine as well as on its sides.





Procedure

Place the machine on a flat and solid surface.

Sit in the driver's position and start the engine according to Chapter 2.7.1.

The travel control (11) must be in the parking brake position "P".

Switch to the "Brake test" mode by pressing the brake test button (A) for 5 seconds. While the button is held down, the display shows the "btn br" status.

After 5 seconds, the display shows the "br tSt" status.

Start the test by setting the travel control to the forward travel position.

- The machine must not move off. If the machine moves off, the test is unsuccessful – the machine stops by itself after 3 seconds or it can be stopped by moving the travel control (11) to any position except for the forward position.

The test can be interrupted prematurely by moving the lever anywhere out of the forward position. This stops the traction force. The machine is still in the "Brake test" mode.

For normal operation or to repeat the brake test, stop the "Brake test" mode by moving the travel control (11) back to the parking brake position "P".

To repeat the test, follow the steps above to start the "Brake test" mode.

After an unsuccessful brake test, secure the machine against spontaneous movement by wedges and contact service.

3.6.22 Engine oil change

Carry out for the first time after 50 hours.

Drain the oil after the operation is finished immediately after the coolant has been cold down to 60 °C (140 °F), or warm up the engine during operation until the coolant temperature reaches 60 °C (140 °F).

The engine oil drain plug is on the left side in front between the front and rear frame of the machine.

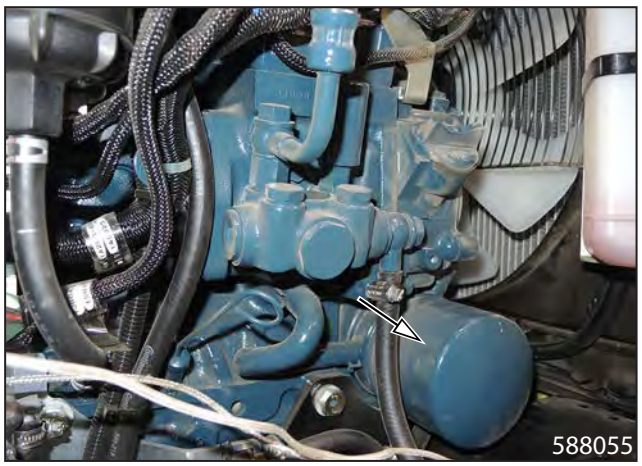
Turn the machine to the right to get better access to the drain plug.

The total volume of oil in the engine is 7 litres (1.85 US gal).

Remove the drain plug and let the oil drain out.

Remount the plug.

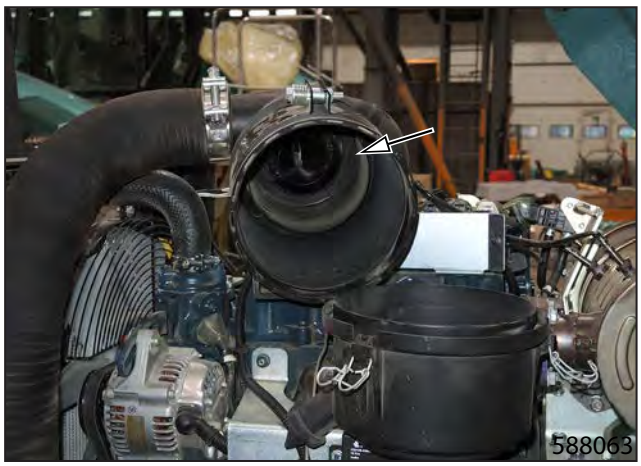
Clean the surface around the head of the oil filter. Remove the filter. Clean the seating surface for the filter gasket.



Clean the internal area of the filter and of the contact surface so that no dust is taken into the inner supply piping towards the engine.

Insert the new safety cartridge.

Insert the new main cartridge. Check that both cartridges are mounted correctly and are sealing.



Remove the dust valve of the air filter, clean and remount.

Check connections and the piping for leakage and the engine inlet opening on the bonnet for clogging (e.g. by leaves).

Do NOT clean filter's inner space with pressure air so no dust is taken into the engine induction manifold.

Use original cartridges, only.

Take care not to splash water into the air filter.

Replace the dust valve immediately if it is damaged!

NEVER operate the Machine with filter body or lid damaged.

3.6.46 Draining water from the sprinkling circuit before the winter season

Water must be drained from the sprinkling circuit before the winter season because the individual parts may get damaged due to frost.

Procedure for draining water from the sprinkling circuit

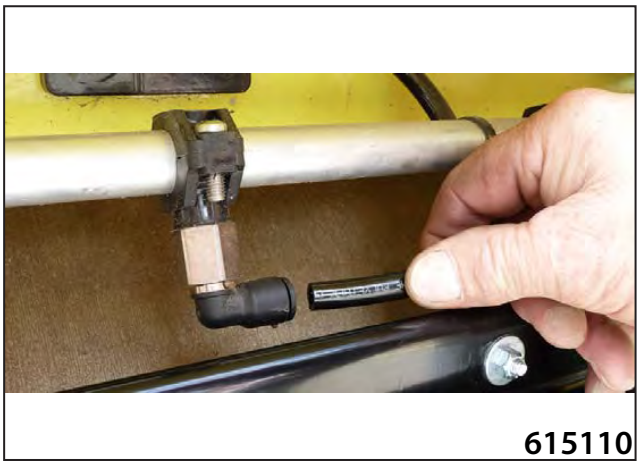
Release the quick coupler of the sprinkling hose.

Push the ring against the screw joint.

Remove the hose from the coupler.

The water will flow out automatically.

Turn on the sprinkling and let the pump run briefly. The remaining water will flow out.


615110

Removal of the sprinkling filter

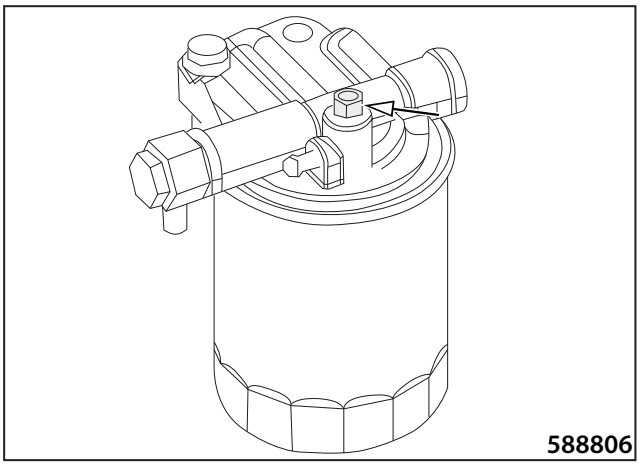
Remove and clean the vessel with the sprinkling filter. Keep the vessel with the filter in a safe place.


615111B

3.6.47 Fuel system venting

Vent the fuel system before the first start in the following cases:

- Unless fuel filters have been filled with fuel - upon filter replacement
- Upon fuel pump replacement
- Following fuel system repair
- Long-term shut-down of the machine
- When the tank is empty

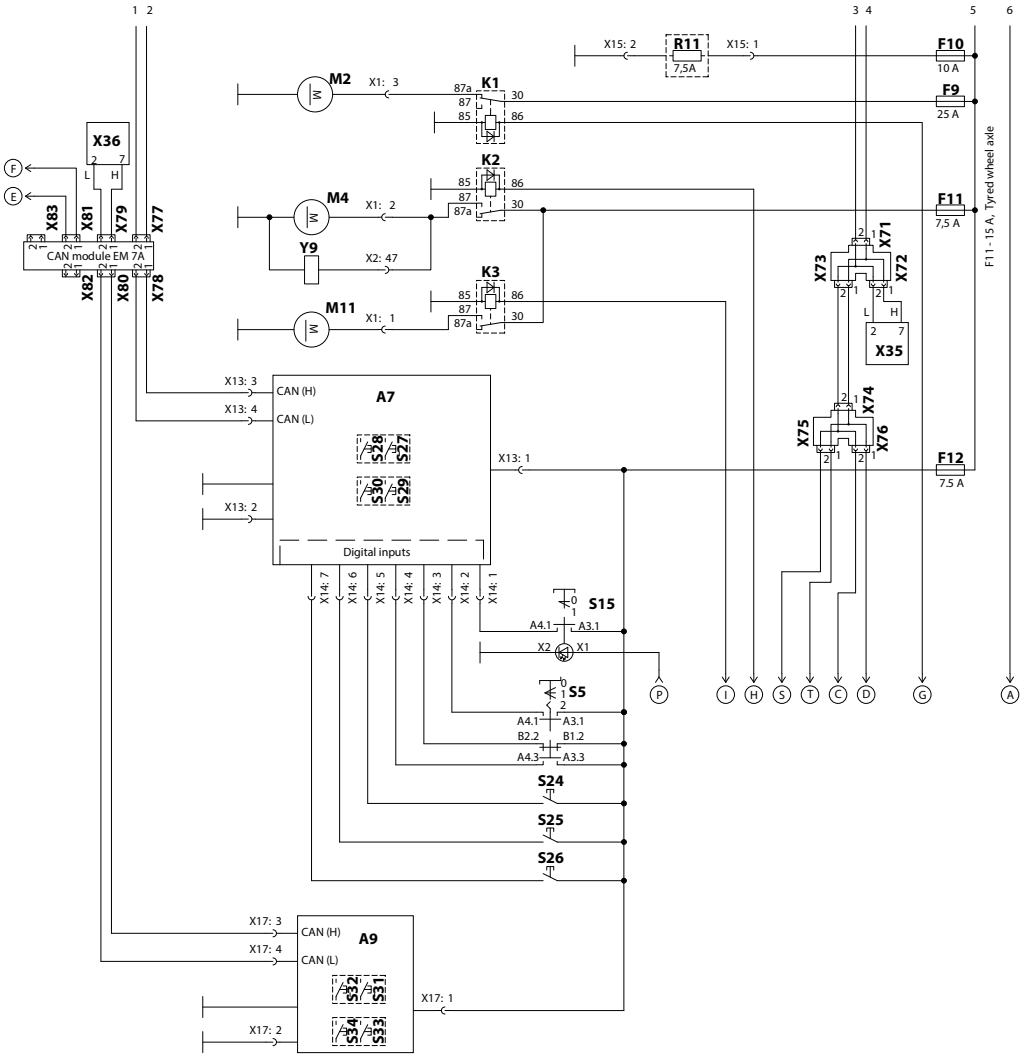

588806

Low-pressure piping and filter venting:

Prepare a suitable vessel.

Connect the fuel filter bleeding hose and insert the other end into the catch pan.


593407


1 2
3 4
5
6
X15: 2
R11
7,5A
X15: 1
F10
10 A
F9
25 A
F11
7,5 A
F12
7,5 A
F11 - 15 A, Tyred wheel axle
M2
X1: 3
K1
87a
87
85
30
86
K2
M4
X1: 2
Y9
X2: 47
K3
M11
X1: 1
X36
2 7
L H
F
E
X83
X81
X79
X77
X82
X80
X78
CAN module EM 7A
X71
X72
X73
X35
X74
X75
X76
A7
CAN (H)
CAN (L)
X13: 3
X13: 4
X13: 1
X13: 2
S28
S27
S30
S29
Digital inputs
X14: 7
X14: 6
X14: 5
X14: 4
X14: 3
X14: 2
X14: 1
S15
A4.1
A3.1
X2
X1
S5
B2.2
B1.2
A4.3
A3.3
S24
S25
S26
P
I
H
S
T
C
D
G
A
A9
X17: 3
X17: 4
X17: 1
X17: 2
S32
S31
S34
S33

38152D_2en

Error on the display	Description
F42	Asphalt Temperature sensor failure
F45	ACE frequency out of range
F46	ACE amplitude low
F48	ACE timeout on CAN
F50	[SF] SF2.4 - SafetyFunction Parking brake monitoring
F51	CAN_BUS0 error
F52	CAN_BUS1 (ECU-Engine-Levers) error. Displayed as EBUS.
F53	CAN_BUS2 error
F54	SW failure safety
F55	SW failure non safety
F56	Machine ECU failure
F57	ECU sensor supply failure
F58	Machine ECU temperature out of range
F59	Error list failure
F60	Engine type autodetection failed
F61	Engine CAN communication lost
F62	[HW] Alternator error - P-terminal output not detected
F63	[HW] Engine speed is too high - above SETPOINT_B

Safety function errors

Error on the display	Description
F70	[SF] SF2.1 - SafetyFunction Drive pump diagnostic
F71	[SF] SF2.2 - SafetyFunction Operator presence detection hard ramp
F72	[SF] SF2.3 - SafetyFunction Emergency stop
F73	[SF] SF2.5 - SafetyFunction Drive lever position validation
F74	[SF] SF2.6 - SafetyFunction Parking brake diagnostic
F76	[SF] SF3.1 - SafetyFunction Drive lever crosscheck
F77	[SF] SF3.2 / SF3.7 - SafetyFunction Operator presence detection soft ramp
F78	[SF] SF3.3 - SafetyFunction Gear switch pump limitation
F79	[SF] SF4.1 - SafetyFunction Drive lever CAN validation external input lever right
F80	[SF] SF4.1 - SafetyFunction Drive lever CAN validation
F81	[SF] SF4.2 - SafetyFunction Drive lever Emergency Stop - panic reaction
F82	[SF] SF4.7 - SafetyFunction Drive lever presence
F83	[SF] SF6.1 - SafetyFunction Gear switch crosscheck
F84	[SF] SF7.1 - SafetyFunction Drive lever autodetection