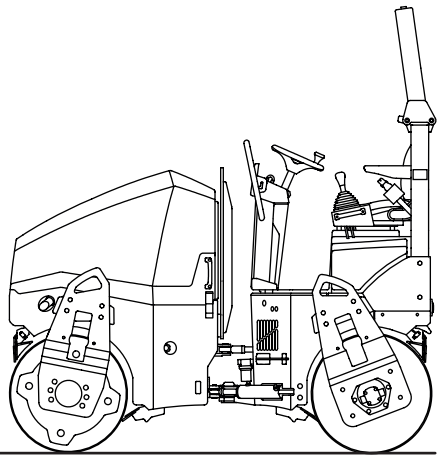
ARX 23.1
ARX 26.1

TANDEM ROLLER
KUBOTA D1703-M-DI-E4B
EU Stage V, U.S. EPA Tier 4f



WORKSHOP MANUAL

EDITION 07/2022 EN

ARX 23.1 KU St V / T4f Product Identification Number 3035577 -
ARX 26.1 KU St V / T4f Product Identification Number 3042949 -

AMMANN

SAFETY NOTICES AND SIGNS:

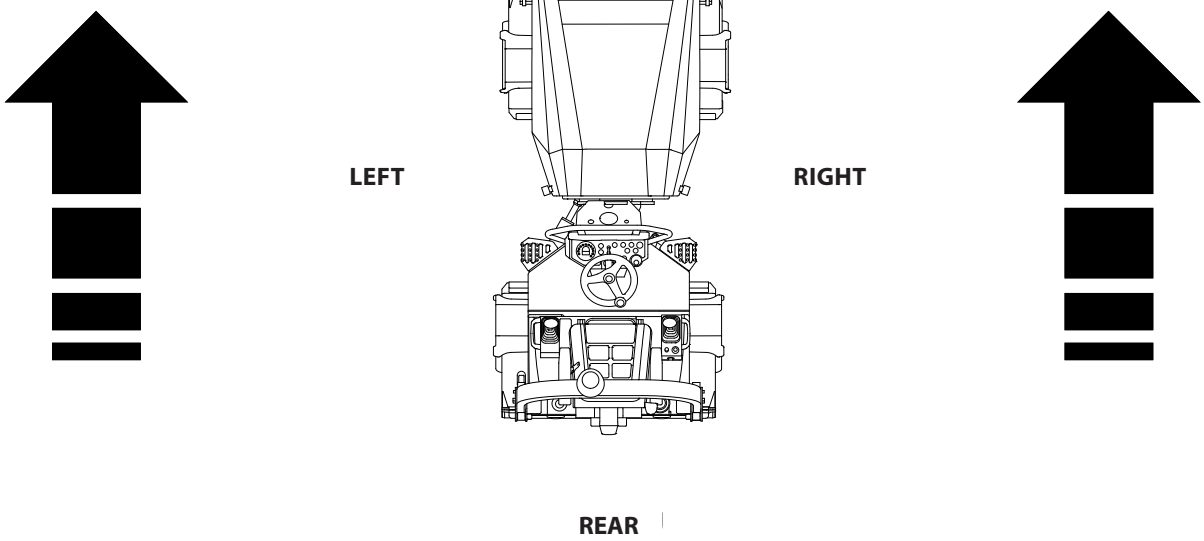
The notice warns of a serious risk of personal injury or other personal hazards.

The notice warns of possible damage to the machine or its parts.

The notice warns of the necessity of environmental protection.

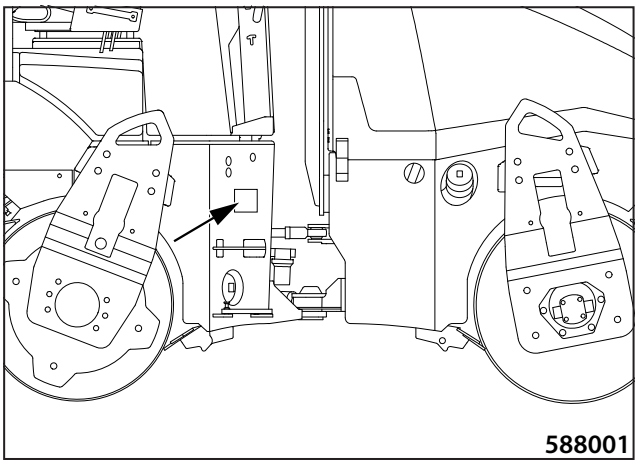
! CAUTION!

As used in this operating manual, the terms right, left, front and rear indicate sides of the machine moving forward.

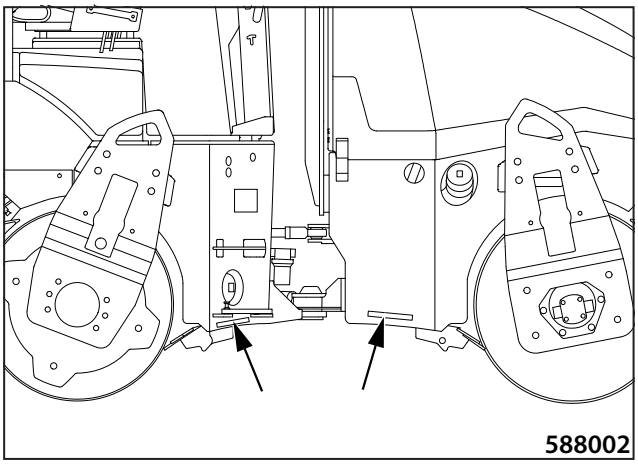


Nameplate position

Nameplate

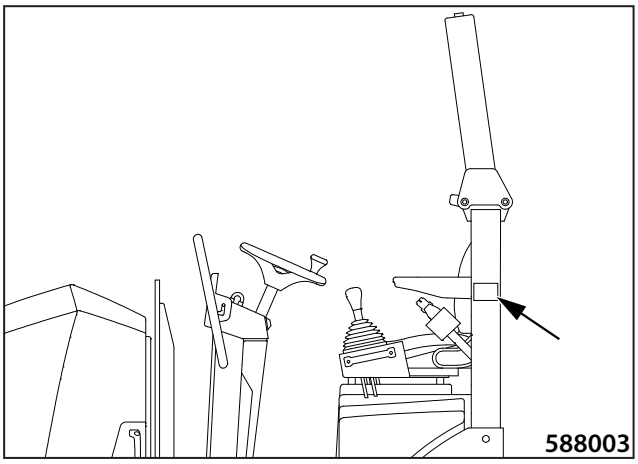


Serial number of the machine frame



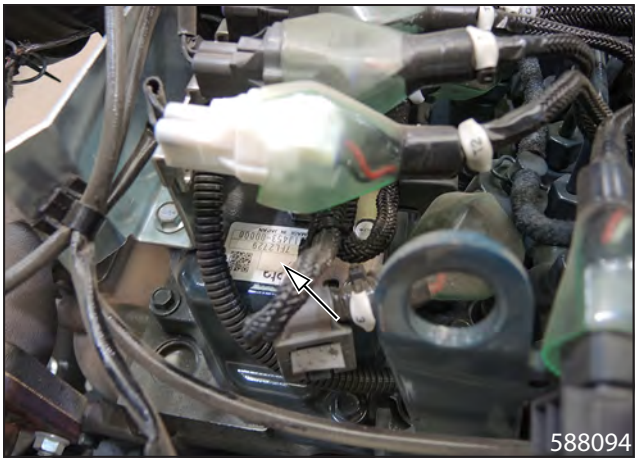
Position of the ROPS nameplate

ROPS nameplate



Engine nameplate position

Serial number of the Kubota engine



4.1.4 Hydraulic oil

For the hydraulic system of the machine, it is necessary to use only high-quality hydraulic oil grades according to ISO 6743/HV (equal to DIN 51524 part 3 HVLP).

Fill the machines normally with hydraulic oil that has cinematic viscosity of 46 mm2/s at 40°C (104°F) ISO VG 46. This oil is most appropriate for its use within the widest range of ambient temperatures.

Synthetic hydraulic oil

The hydraulic system can be filled with synthetic oil, which if leakages occur will be degraded completely by micro-organisms present in water and soil.

Please consult always with oil manufacturer or dealer any switching from mineral oil to synthetic one or mixing the oils of various brands!

4.1.5 Lubricating grease

To lubricate the machine you must use plastic grease containing lithium according to:

ISO 6743/9 CCEB 2

DIN 51 502 KP2K-30

4.1.6 Emulsion

For sprinkling the tyres, use anti-adhesive emulsion of RHODOSIL EMULSION E1P with water in the mixing ratio of 1.5:100.

5.4.7 Swinging support

5.4.8 Replacement of joint head

Secure the machine.

Mount a lock against cranking.

Place the hydraulic jack to the centre of the swinging joint.

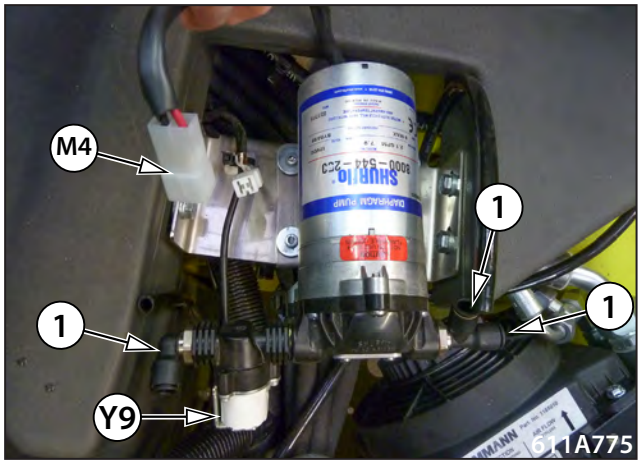
Slightly unload the roller.

Remove the lower sheet metal.

(3x) Disconnect water piping (1).

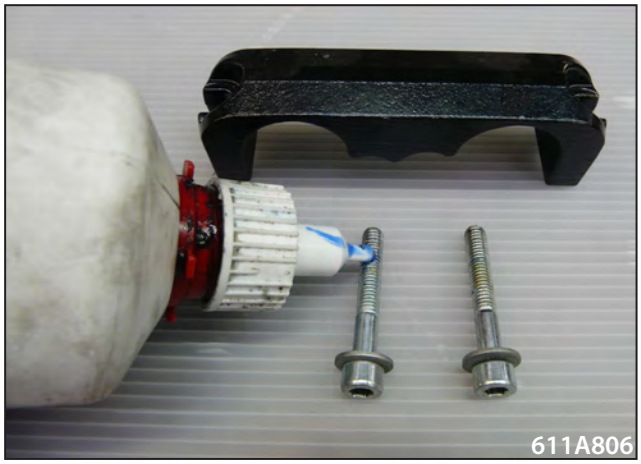
Disconnect the (M4) connector from the water pump.

Disconnect the (Y9) connector from the shut-off valve.



Secure the screws with a suitable adhesive, e.g. Loxeal 53-84

Install the clamp.

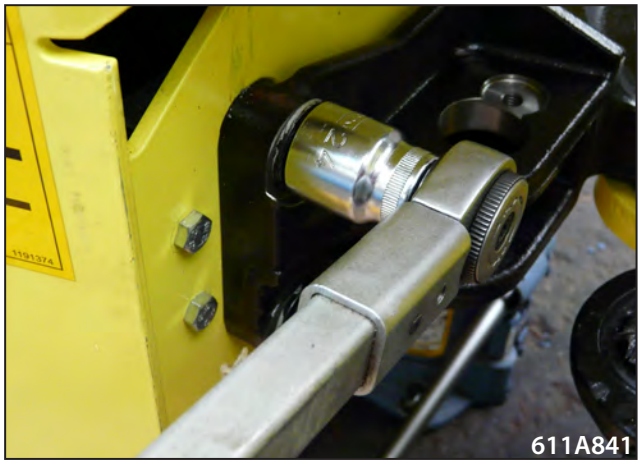


Re-install hose bundles.

Fix them using a cable coupling.

Mount the bearing flange to the chassis using hexagonal screws. Tighten tightly at the tightening torque of 210 Nm.


611A840


611A841

Apply the Würth motordich preparation on the bearing, flange and the lid.

611A842

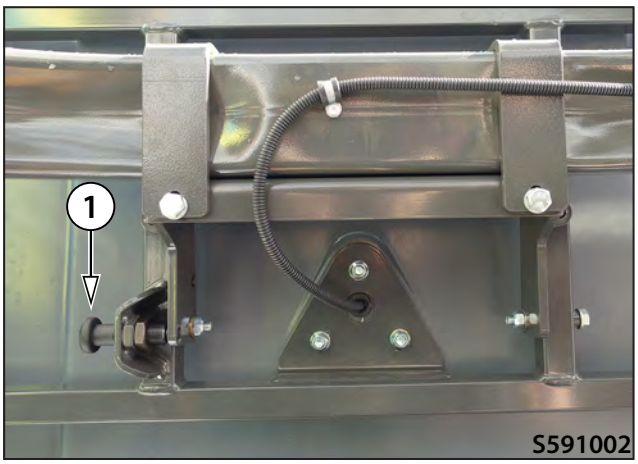
Disconnect water piping.

Disconnect the X9 connector.

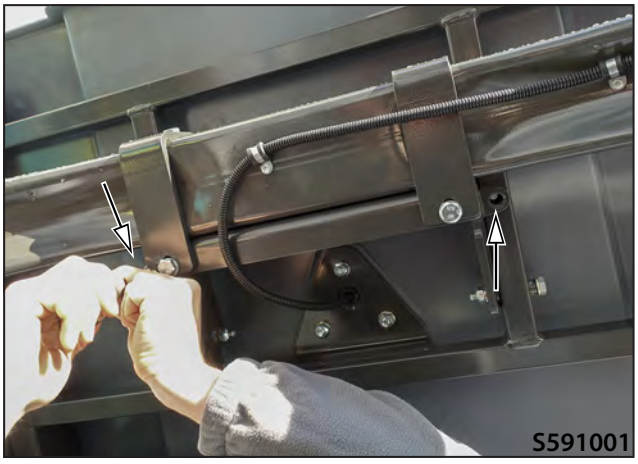
Mount the eye bolt (M8) in the front to the appropriate inner thread.

Now the water tank can be carefully taken out.

Release the canopy by pulling out the lever (1) slightly and raise the canopy.



Mount the screws (2x) at the bottom of the plastic canopy.



7 Front drum

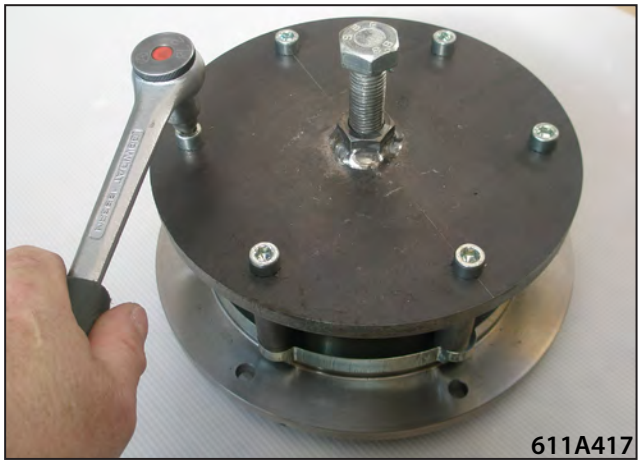
- Material:
- 114544 Thrust plate

Place the thrust plate on the centre of the shaft.


611A416

- Material:
- 1145447 Puller tool

Screw on the puller tool on the sealing flange.


611A417

Pre-load the tool using an impact wrench.


611A418

Heat up the bearing with a gas flame to release it.


611A419

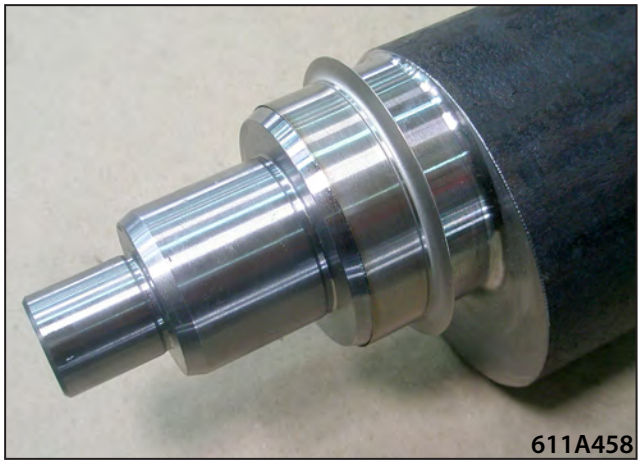
Insert the SpeedySleeve ring into the assembly tool.

Place the tool on the vibration shaft.

Using a nylon mallet and the assembly tool for SpeedySleeve ring place the ring to the correct position.

A position of the ring will be determined by the assembly tool

Mounted SpeedySleeve ring



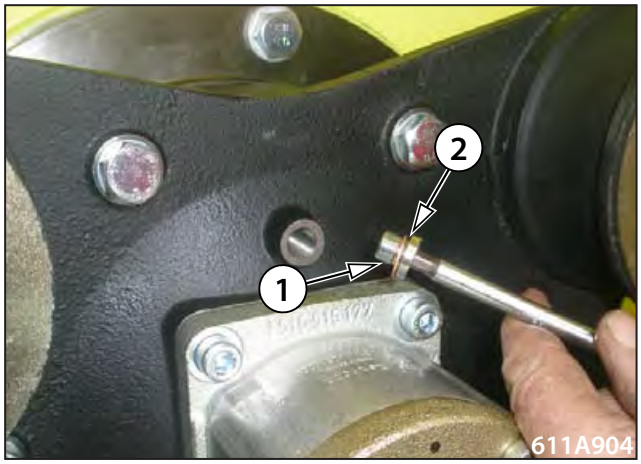
- Material:
  - (4x) M8x25 cheese head screw

Mount the vibration motor on the bearing support with a torque of 25 Nm.

- Material:
  - Screw plug with the inner hexagon G1/4“ zinc-plated (1)
  - Seal ring 13.4 / 10.2x1.0 (2)

Secure the screw plug with a suitable adhesive, e.g. Loxeal 53-84

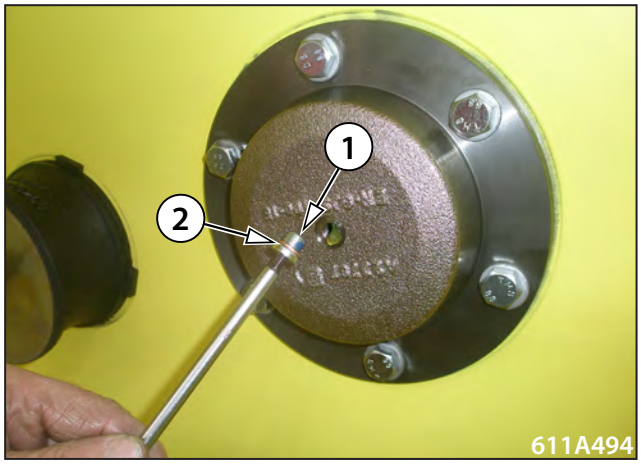
Using the screwdriver (SW5) mount the screw plug and the seal ring.



- Material:
  - Screw plug with the inner hexagon G1/4“ zinc-plated (1)
  - Seal ring 13.4 / 10.2x1.0 (2)

Secure the screw plug with a suitable adhesive, e.g. Loxeal 53-84

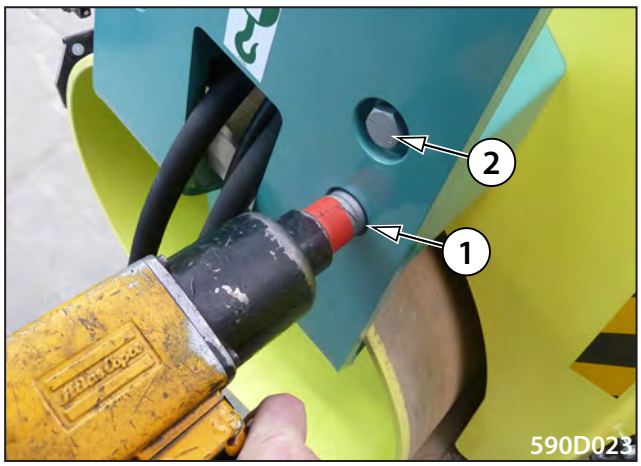
Using the screwdriver (SW5) mount the screw plug and the seal ring.



Introduce the wheel support (1) by means of a crane and locate it on the drum.

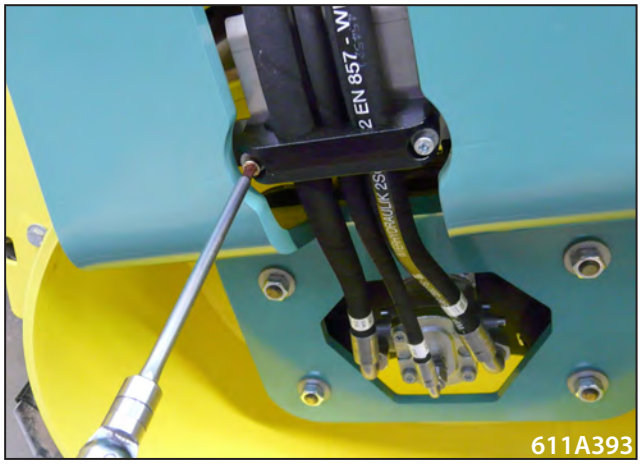
Mount two upper screws of the roller support (2) on the vibration motor side of the machine (size 24).

Tighten two lower screws of the roller support (1) on the vibration motor side of the machine (size 24).



Mount the hydraulic hoses.

Mount the hose clip (hexagonal socket wrench, size 5).

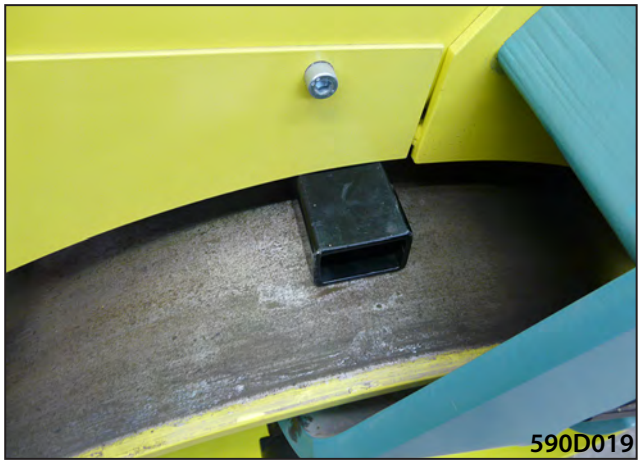


On both sides of the rear drum

Release the pressure on the rubber couplings by lifting the machine chassis.

Remove the spacers between the drum and chassis on both sides.

Lower the machine down to the ground.



8.4.1.2 Drum disassembly

(4x) Remove M8x25 cheese head screws (SW6) on the vibration motor.

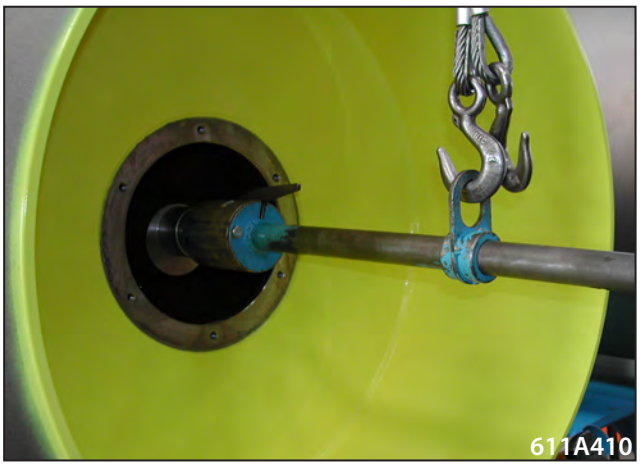
Take the vibration motor out.

(6x) Remove M10x25 hexagonal screws (SW17) from the travel bearing flange.

Take the travel bearing flange out.

Take the vibration shaft out.

A safe fastening is a prerequisite for taking out the vibration shaft.



Note

When you do not have an appropriate auxiliary tool, especially for taking out vibration shaft, we recommend that you stand up the drum. The side of the vibration motor should be up.

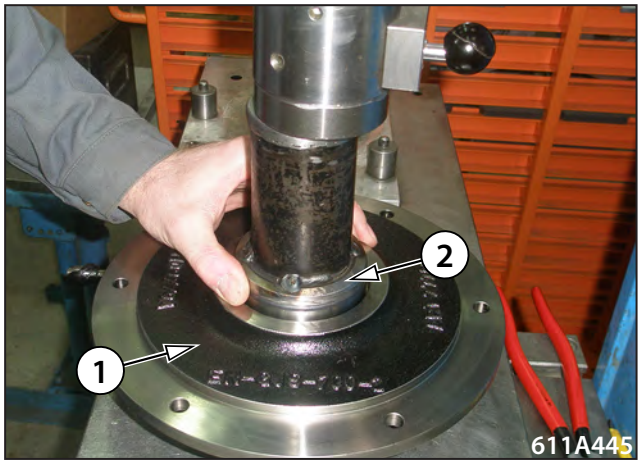
(6x) Remove M10x25 hexagonal screws (SW17).

Take the vibration bearing flange out.

- Material:
  - Roller bearing NJ 2308 E.TVP2.C3

Clean the roller bearing (1) and insert it to the flange.

Push in the flange (1) and the roller bearing (2).



Assembled flange and roller bearing.

Insert the inner lock ring.

- Material:
  - Shaft seal ring A60/95x10
  - Isopropylalcohol

Soak the shaft seal ring in alcohol and insert it to the flange fastening.

- Material:
  - (6x) M10x60/26 hexagonal screw
  - (6x) U washer D13/24 x2.5

Mount the screws and U washers together.

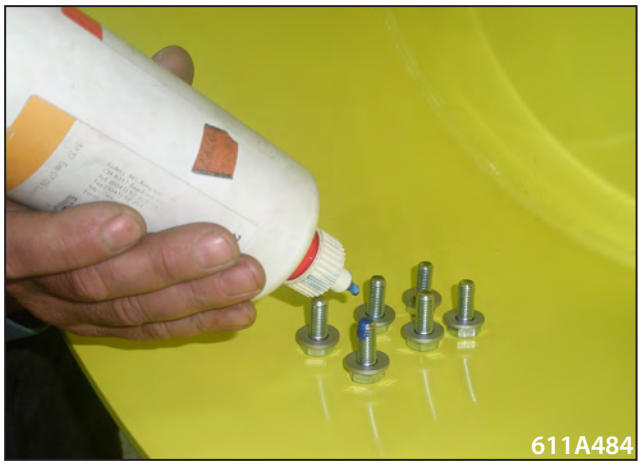
Apply the adhesive on the screws.

Screw on the screws at a torque of 48 Nm.

- Material:
  - (6x) M10x25 hexagonal screw
  - (6x) Lock washer 10.5/23x2.5

Assemble the screws and lock washer.

Secure the screws with a suitable adhesive, e.g. Loxeal 53-84



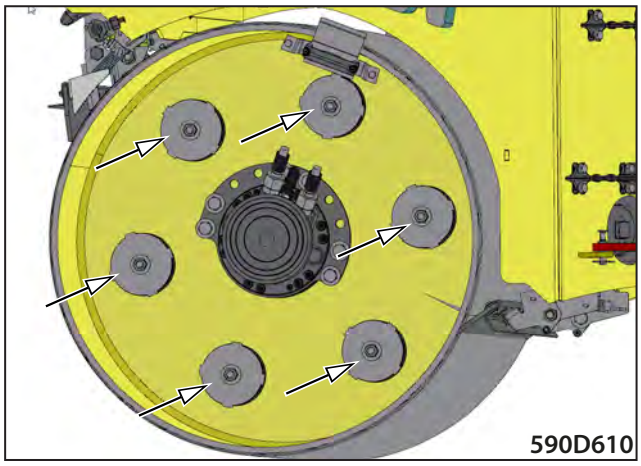
Screw on the screws at a torque of 48 Nm.

The shaft seal ring can be pushed out when the vibration shaft is inserted.

Remove the venting screw in the housing!

Remove the rubber-metal elements from the drum.

Use installation tool pn 4-64614022_00.



Clean the area for mounting the new rubber-metal elements and the thread.

Mount new rubber-metal elements.

The tightening torque is 210 Nm.

Secure the rubber-metal elements with the LOXEAL 83-54 (re-moveable thread lock) adhesive.

9 Front axle (not part of machine equipment)

11 Travel

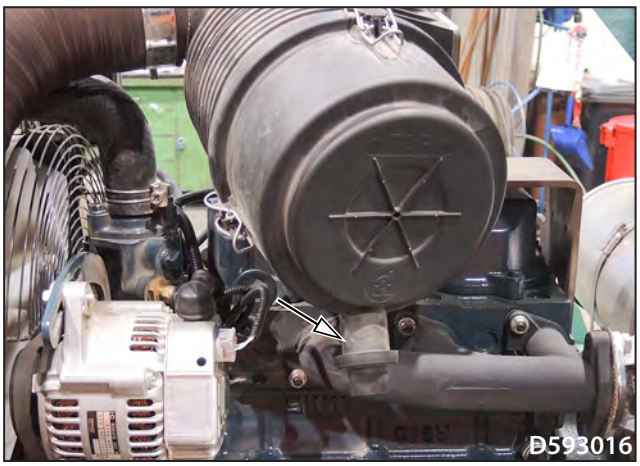
12 Vibration

15 Engine

15.4.4 Inlet air filter

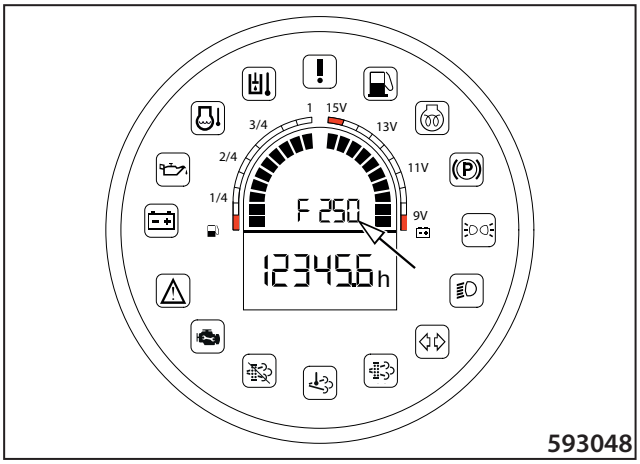
Drain of impurities

To empty impurities, press the drain of impurities of the inlet air filter at least once a week.



If the F250 error code appears on the display during operation of the machine, the cartridge must be replaced, however after 500 operation hours at the latest.

The manufacturer does not recommend you to clean the cartridges because there is a possibility of reducing the capacity by up to 40% and damaging the cartridge during the cleaning.



Remove the filter cap.

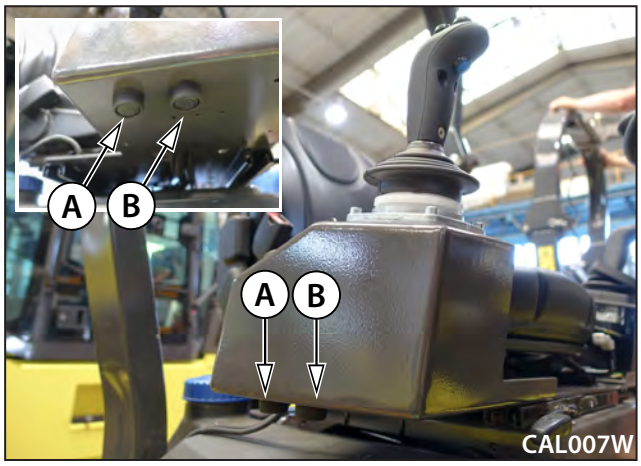
Take out the main cartridge.

17 General procedures

17.4.1 Calibration mode

The calibration mode is used for:

- selecting the HARD/SOFT ramp for the working speed,
- setting the temperature units °C/°F,
- enabling/disabling the left travel lever,
- enabling / disabling the telematics,
- calibrating the minimum current of travel coils (according to Chapter 17.4.2).



CAL007W

Procedure to select parameters

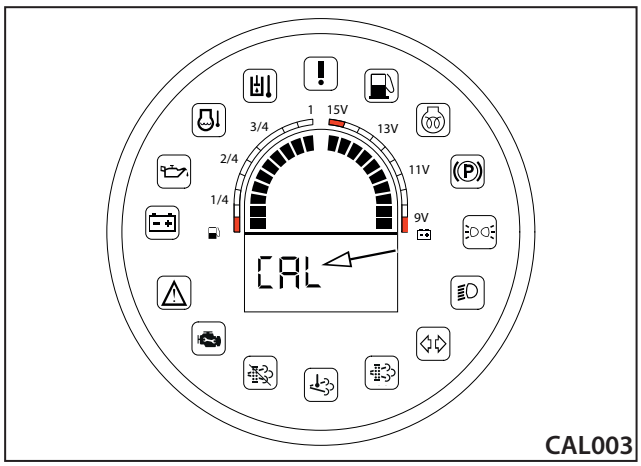
The following procedure is for the B1, B2 , B3 and B4 tabs. To calibrate the foil current (B5) proceed according to Chapter 17.4.2.

Turn the key in the ignition box to the "I" position.

Sit in the driver's seat (activation of the seat switch).

Set the travel control to the parking brake position "P".

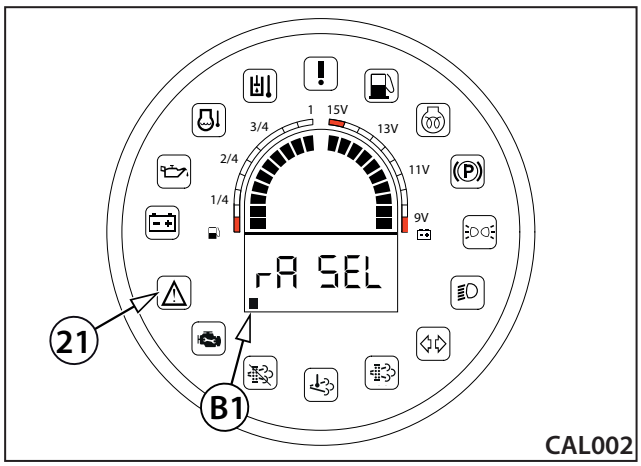
Press the calibration button (B) for 5 seconds. While the button is held down, the display shows the "CAL" status.



CAL003

After 5 seconds, the display shows B1 and at the same time the error message indicator lamp (21) starts flashing. The error message indicator lamp (21) flashes for the duration of the calibration mode.

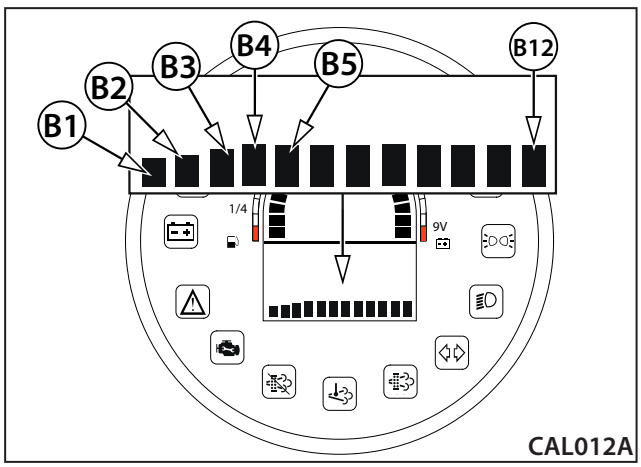
Use the select button (13) to select the tab and press OK (12) to confirm. The display will show the current state of the set parameter (e.g. SOFT when choosing the ramp – B1). Note: This does not apply to the B5 tab when the calibration of the minimum coil current of the travel pump is started by pressing the button.



CAL002

Note:

To display the B5 tab, press the brake test button (A) for 5 seconds.



CAL012A

Kubota engine errors

Error severity

- High – The engine failure indicator lamp is red.
- Medium – The error message indicator lamp is yellow.
- Low – The emergency stop indicator lamp is yellow.

If an engine error is displayed, stop the machine and contact service.

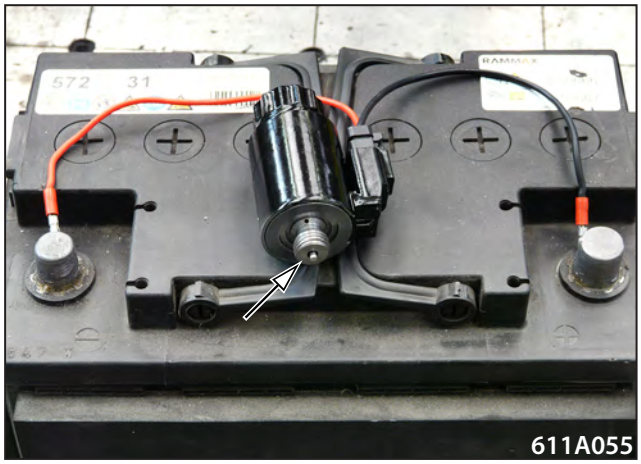
Error	Description	Error severity
F100	Pressure limiter emergency open	High
F101	SCV(MPROP) stuck	High
F102	Fuel leak (in high pressured fuel system)	High
F103	Rail pressure sensor: Low	High
F104	Rail pressure sensor: High	High
F105	Injector charge voltage: High	High
F106	Open circuit of harness/coil in 1st cylinder injector	High
F107	Open circuit of harness/coil in 3rd cylinder injector	High
F108	Open circuit of harness/coil in 4th cylinder injector	High
F109	Open circuit of harness/coil in 2nd cylinder injector	High
F110	Engine overheat	High
F111	Engine overrun	High
F112	Oil pressure error	High
F113	ECU FLASH ROM error	High
F114	ECU CPU (Main IC) error	High
F115	ECU CPU (Monitoring IC) error	High
F116	Injector charge voltage: Low	High
F117	Open circuit of SCV (MPROP)	High
F118	SCV (MPROP) drive system error	High
F119	Injector drive IC error or Open circuit	High
F120	Internal injector drive circuit short	High
F121	Sensor supply voltage 1: Low	High
F122	Sensor supply voltage 1: High	High
F123	No.1 & 4 cylinder injector short to +B or GND	High
F124	No. 2 & 3cylinder injector short to +B or GND	High
F125	Pressure limiter not open	High
F126	Rail pressure failure after pressure limiter open	High
F127	CAN2 Bus off	High
F128	CAN1 Bus off	High
F129	CAN-KBT Frame error	High
F150	MAF sensor: Low	High
F151	MAF sensor: High	High
F152	Emission deterioration	High
F153	Emergency Exhaust gas temperature sensor 0: High	High
F154	Emergency Exhaust gas temperature sensor 1: High	High
F155	Emergency Exhaust gas temperature sensor 2: High	High
F156	Excessive PM5	High
F157	High exhaust gas temp. after emergency high temp. DTC.	High

Measure resistance of the magnetic coil Y3/Y4.

The resistance value is approximately 6 Ohm.

Connect the voltage of 12 V to the magnetic valve.

The valve (arrow) must visibly switch on.



Change the position of the magnetic coil connector

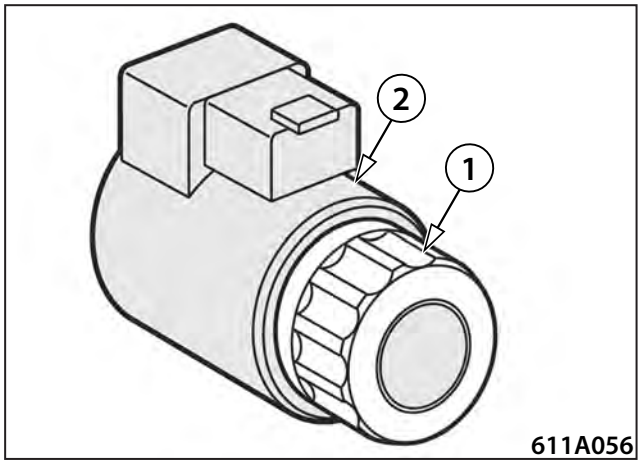
The position of the connector can be changed by turning the magnet body as needed.

Release the lock nut (1) of the magnet.

Turn the lock nut (1) by one turn to the left.

Turn the body of the magnet (2) to the required position.

Tighten the lock nut again. Tightening torque of the lock nut: 5+1 Nm.



Check the valve seat and cone for damage and contamination.

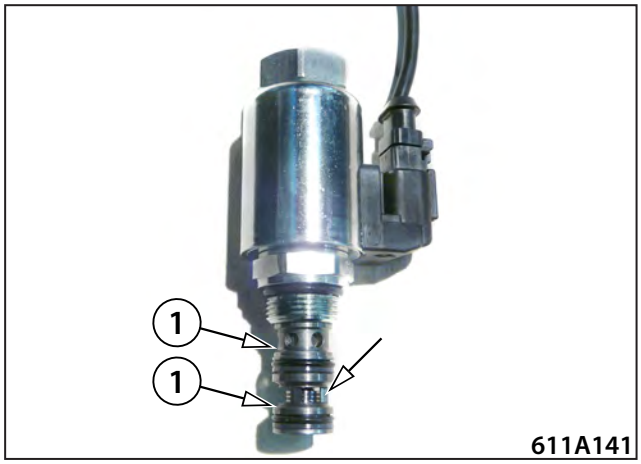
Tighten screwed joints/plugs firmly (90 Nm).

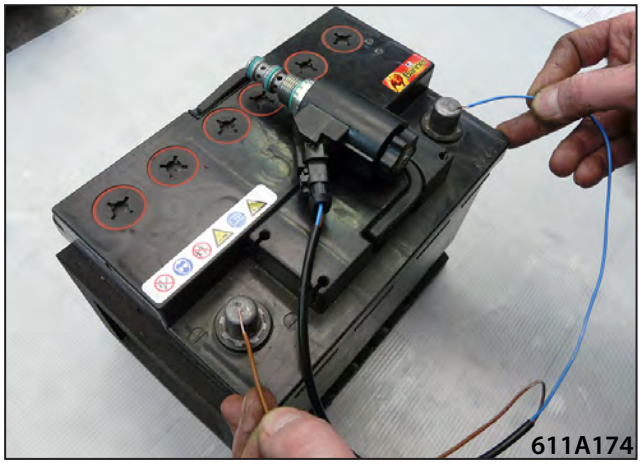
18.2.11.2 Magnetic coil

Connect the voltage of 12 V to the magnetic valve.

The valve (arrow) must visibly and audibly switched on.

Check seal rings (1) for damage.





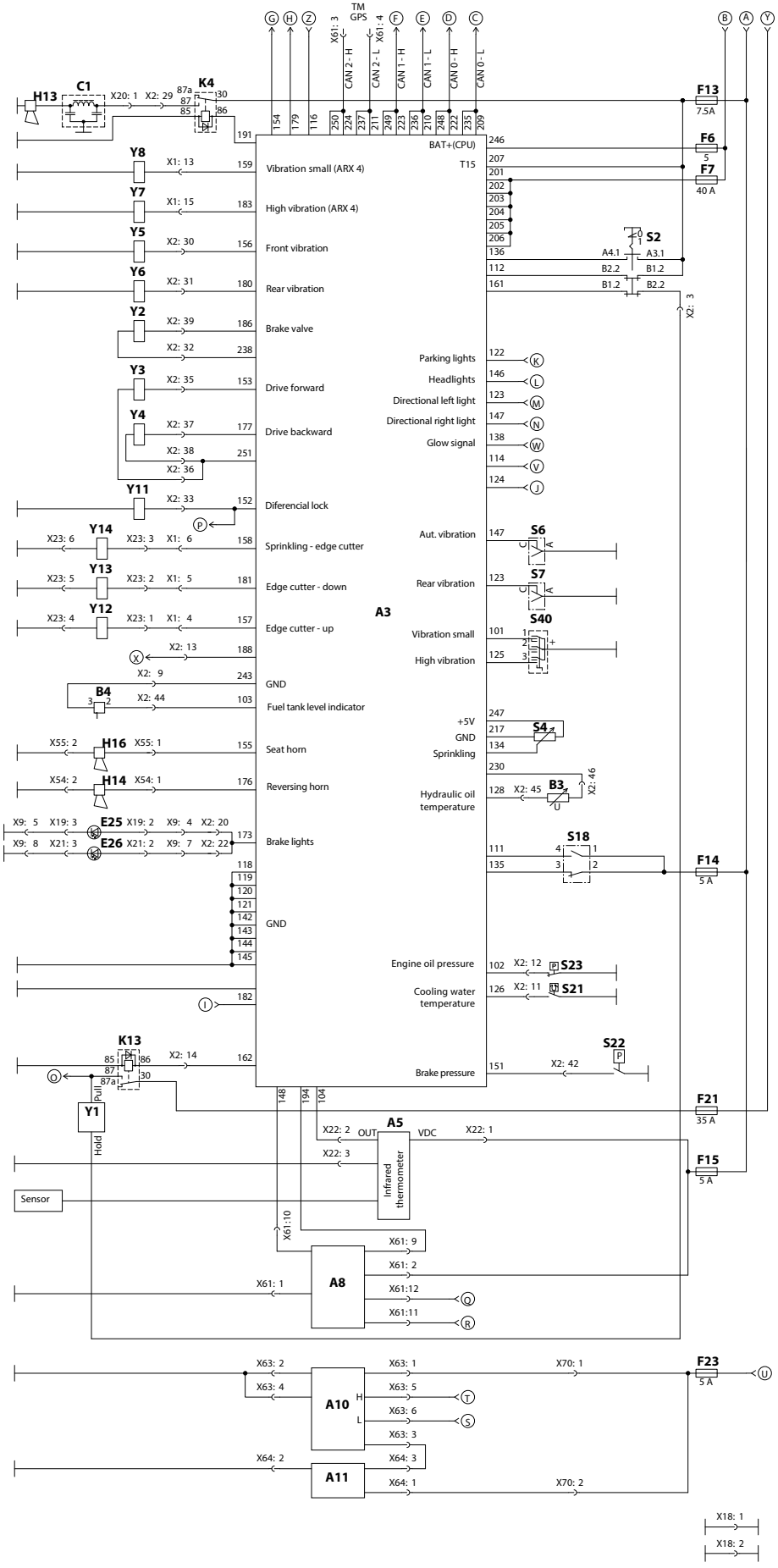
Measure resistance of the magnetic coil.

The resistance value is 8 – 9 Ohm.

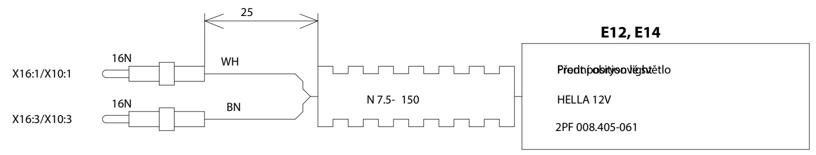
Note

When remounting the magnetic coil observe the torque of 50 Nm.

19 Annexes


TM GPS
CAN 2 - H
CAN 2 - L
CAN 1 - H
CAN 1 - L
CAN 0 - H
CAN 0 - L
H13
C1
K4
F13
7.5A
F6
5
F7
40 A
S2
Y8
Vibration small (ARX 4)
Y7
High vibration (ARX 4)
Y5
Front vibration
Y6
Rear vibration
Y2
Brake valve
Y3
Drive forward
Y4
Drive backward
Y11
Diferencial lock
Y14
Sprinkling - edge cutter
Y13
Edge cutter - down
Y12
Edge cutter - up
B4
Fuel tank level indicator
H16
Seat horn
H14
Reversing horn
E25
E26
Brake lights
GND
BAT+(CPU)
T15
Parking lights
Headlights
Directional left light
Directional right light
Glow signal
A3
Aut. vibration
Rear vibration
Vibration small
High vibration
S6
S7
S40
+5V
GND
Sprinkling
S4
Hydraulic oil temperature
B3
S18
F14
5 A
Engine oil pressure
S23
Cooling water temperature
S21
S22
Brake pressure
K13
Y1
Pull
Hold
F21
35 A
A5
Infrared thermometer
Sensor
F15
5 A
A8
A10
A11
F23
5 A
X18: 1
X18: 2

38177D_3en



LEGENDA / CABLE HARNESS LEGEND:

- Faston
- Kabelové oko / Ring tongue
- Dutinka koncová / Wire ferrule
- Spojka trubičková / Butt splice
- Kontakt / Contact
- Zástrčka / Plug
- Těsnění / Single wire seal
- Matice / Locknut
- Návlek / Insulation sleeve
- Spona / Clip
- Redukce / Reducer
- Úpinka / Clamp
- Odbočka T / T outlet
- Průchodka / Cable gland SEM straight
- Konektor faston / Faston connector
- Konektor DIN / DIN connector
- Konektor Starer / Starer connector
- Zásuvka / Receptacle connector
- Zástrčka / Plug connector

Vodič / Wire: R - 1 - 1200 (100)
Barva / Wire color; Průřez / Cross section mm²; Délka / Length; Číslo / Wire number

Kabel / Cable: H03VV-F2X0.75 - 2500
Typ / Type; Délka / Length

Ochranná hadice / Protective hose: NW13 - 700
Typ / Type; Délka / Length

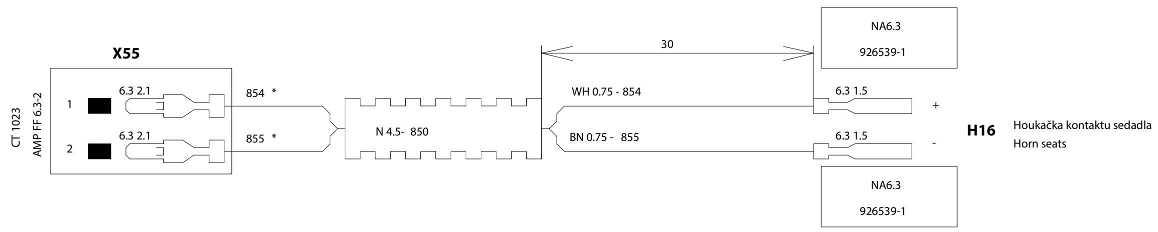
TABULKA SYMBOLŮ BAREV / TABLE OF COLOR SYMBOLS:

WH	B	Bílá / White
BK	C	Černá / Black
BN	H	Hnědá / Brown
BU	M	Modrá / Blue
RD	R	Rudá / Red
GY	S	Šedá / Grey
YE	Y	Žlutá / Yellow
GN	Z	Zelená / Green

ARX2.1 Tier 4 final

Houkačka sedadla / Seat horn

Objednací číslo 434319 / Part Number 434319



LEGENDA: / CABLE HARNESS LEGEND:

- 9.5 — Faston
- ø5 2.5 — Kabelové oko / Ring tongue
- 1.0 — Dutinka koncová / Wire ferrule
- 1.0–2.5 — Spojka trubičková / Butt splice
- Kolík / Contact
- Záslepka / Plug
- Těsnění / Wire seal
- Ce9 — Matice / Lock nut
- Na 6.3 — Návlek / Insulation sleeve
- Sp 7.5 — Spona / Clip
- Re 13/7.5 — Redukce / Reducer
- Up 10 — Upínka / Clamp
- T 10–10–7.5 — Odbočka T / T outlet
- NW10 SEM 9 — Průchodka / Conduit gland SEM straight
- 2x6.3 — Konektor fastor / Faston connector
- Konektor DIN / DIN connector
- Konektor Sauer / Sauer connector
- 1, 2 — Vidlice / Receptacle connector
- 1, 2 — Zásuvka / Plug connector

Vodič: / Wire:

R – 1 – 1200 (100)

Barva / Wire color; Průřez mm² / Square mm²; Délka / Lenght; Číslo / Wire number

Kabel:

H03VV–F2X0.75 – 2500

Typ / Type; Délka / Lenght

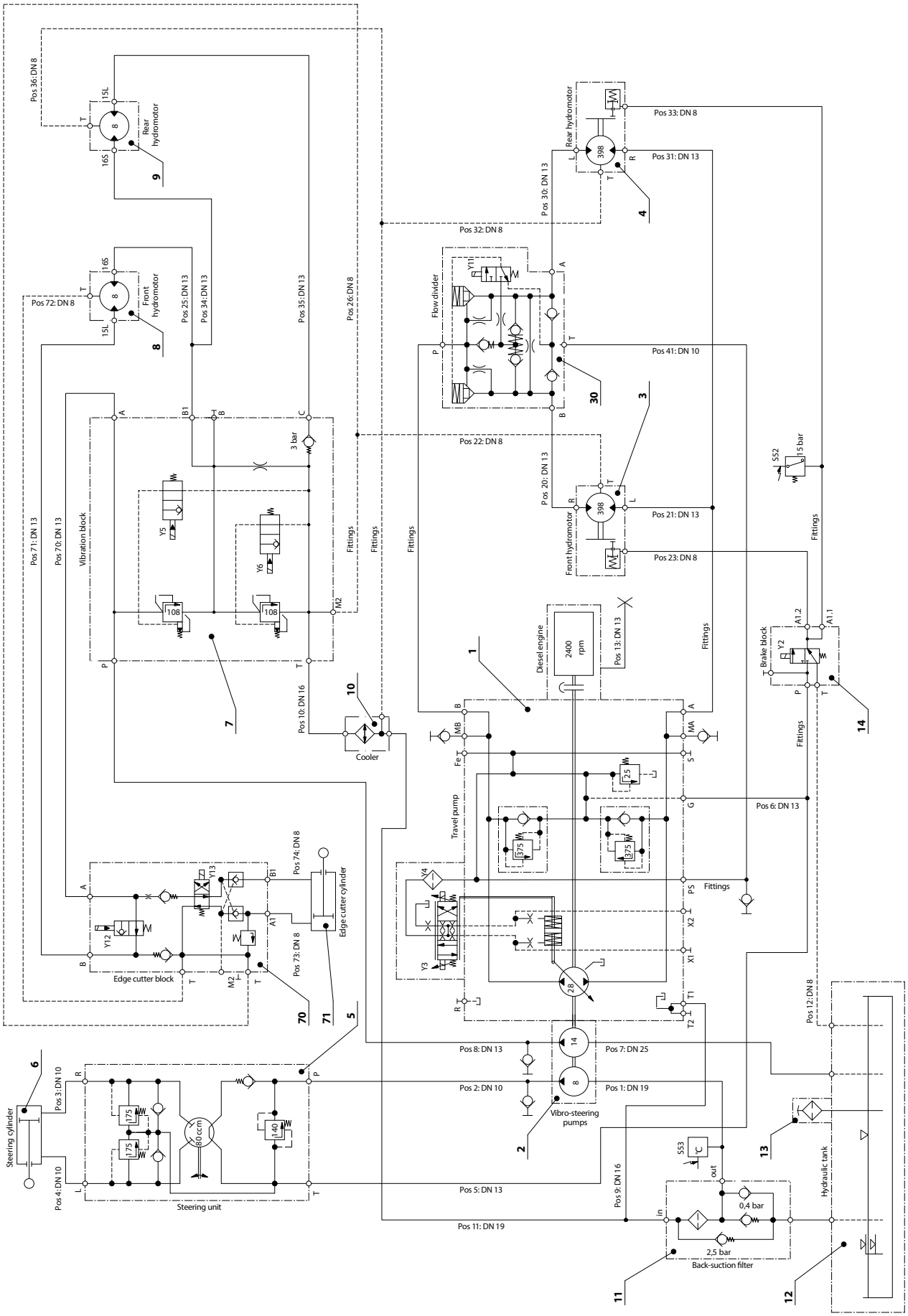
Ochranná hadice: / Conduit:

NW13 – 700

Typ / Type; Délka / Lenght

Tabulka symbolů barev: / TABLE OF COLOR SYMBOLS:

WH	B	Bílá / White
BK	C	Černá / Black
BN	H	Hnědá / Brown
BU	M	Modrá / Blue
RD	R	Rudá / Red
GY	S	Šedá / Grey
YE	Y	Žlutá / Yellow
GN	Z	Zelená / Green


Pos 36: DN 8
15L
16S
Rear hydromotor
9
Pos 72: DN 8
16S
15L
Front hydromotor
8
Pos 25: DN 13
Pos 34: DN 13
Pos 35: DN 13
Pos 26: DN 8
Pos 71: DN 13
Pos 70: DN 13
Vibration block
A
B1
B
C
P
T
3 bar
Y5
Y6
108
M2
Fittings
7
Pos 10: DN 16
10
Cooler
Pos 74: DN 8
Pos 73: DN 8
Edge cutter cylinder
Edge cutter block
Y13
Y12
A1
B1
M2
70
71
5
6
Steering cylinder
Pos 3: DN 10
Pos 4: DN 10
175
175
80 ccm
140
Steering unit
Pos 33: DN 8
Rear hydromotor
398
Pos 31: DN 13
Pos 30: DN 13
4
Pos 32: DN 8
Flow divider
Y11
Pos 41: DN 10
30
3
Pos 22: DN 8
Pos 20: DN 13
Front hydromotor
Pos 21: DN 13
Pos 23: DN 8
SS2
15 bar
Fittings
Diesel engine
2400 rpm
Pos 13: DN 13
1
Brake block
A1.2
A1.1
Y2
14
MB
MA
Fe
S
Travel pump
25
375
375
G
Pos 6: DN 13
Y4
Y3
PS
X2
X1
T1
T2
28
R
Pos 8: DN 13
Pos 7: DN 25
Pos 2: DN 10
Pos 1: DN 19
14
8
Vibro-steering pumps
2
Pos 12: DN 8
SS3
out
in
0,4 bar
2,5 bar
Back-suction filter
Pos 9: DN 16
Pos 5: DN 13
Pos 11: DN 19
13
Hydraulic tank
11
12

43424_en