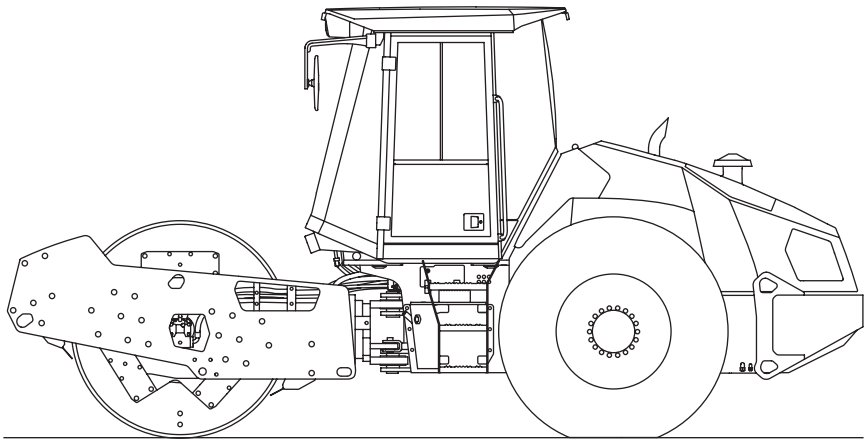
ARS 110

SINGLE DRUM ROLLER
DEUTZ TCD3.6 L4
EU Stage IV / U.S. EPA Tier 4f
EU Stage V / U.S. EPA Tier 4f



WORKSHOP MANUAL

EDITION 07/2022 EN
ARS 110 DE St IV / T4f Product Identification Number 3035595 -
ARS 110 DE St V / T4f Product Identification Number 3036353 -

AMMANN

SAFETY NOTICES AND SIGNS:

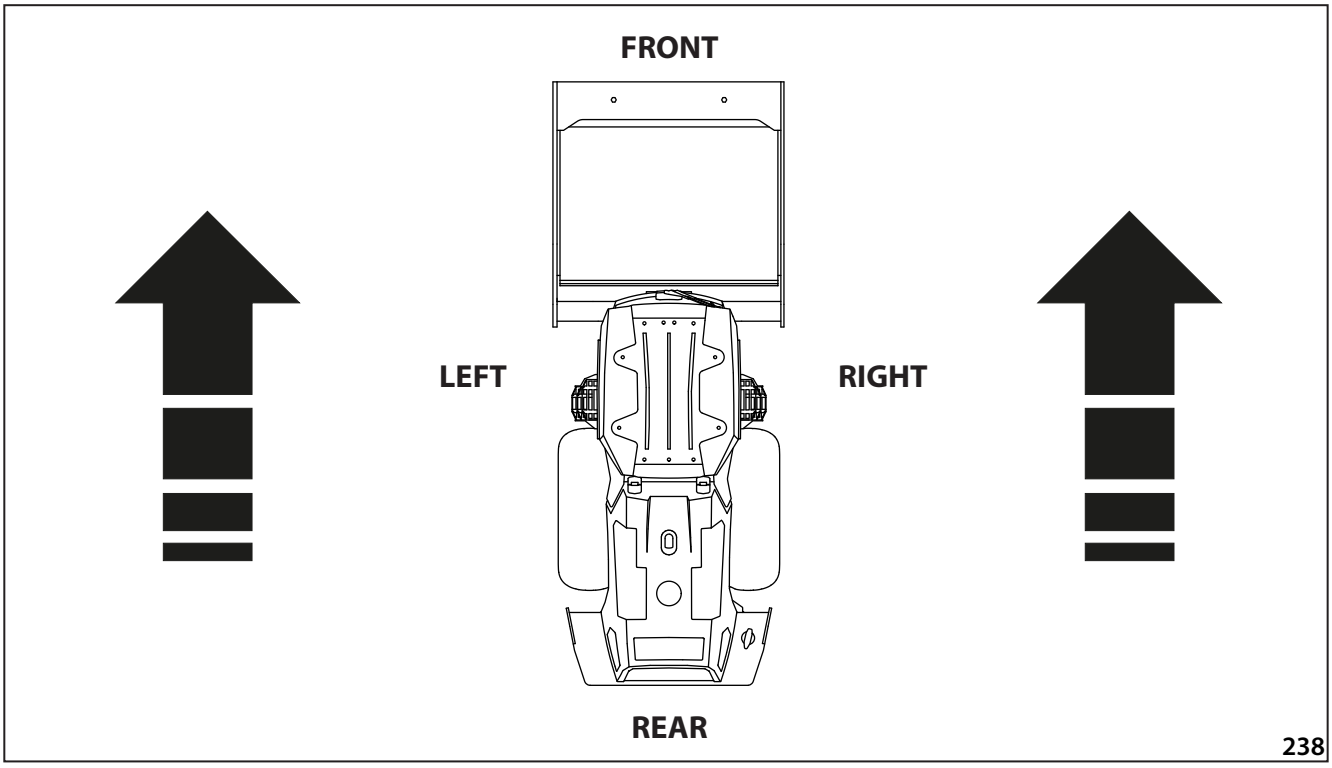
The notice warns of a serious risk of personal injury or other personal hazards.

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.



3 Specification manual

		ARS 110			
		EU Stage V / U.S. EPA Tier 4f			
		D	HX	PD	HXPD
Fluid capacities					
Fuel	l (gal US)	345 (91.1)	345 (91.1)	345 (91.1)	345 (91.1)
Engine (oil filling)	l (gal US)	10 (2.6)	10 (2.6)	10 (2.6)	10 (2.6)
Cooling system	l (gal US)	32.5 (8.6)	32.5 (8.6)	32.5 (8.6)	32.5 (8.6)
Hydraulic system	l (gal US)	76 (20.1)	76 (20.1)	76 (20.1)	76 (20.1)
Drum vibrator	l (gal US)	7.3 (1.9)	7.3 (1.9)	7.3 (1.9)	7.3 (1.9)
Drum cooling liquid (up to -25°C)	l (gal US)	60 (15.9)	60 (15.9)	60 (15.9)	60 (15.9)
Wheel gearbox	l (gal US)	1.5 (0.4)	1.7 (0.4)	1.5 (0.4)	1.7 (0.4)
Drum gearbox	l (gal US)	1.5 (0.4)	2.6 (0.7)	1.5 (0.4)	2.6 (0.7)
Washer tank	l (gal US)	2.75 (0.7)	2.75 (0.7)	2.75 (0.7)	2.75 (0.7)
Gear + vibrator box (joint filling) of ACE	l (gal US)	25.5 (6.7)	25.5 (6.7)	25.5 (6.7)	25.5 (6.7)
ACE drum cooling liquid	l (gal US)	100 (26.4)	100 (26.4)	100 (26.4)	100 (26.4)
DEF (AdBlue) Tank	l (gal US)	22 (5.8)	22 (5.8)	22 (5.8)	22 (5.8)
Wiring					
Voltage	V	24	24	24	24
Battery capacity	Ah	2x90	2x90	2x90	2x90
Noise and vibration emissions					
Measured sound power level A, L_{pA} at the operator's position (cab) *	dB	78	78	78	78
Uncertainty K_{pA} *	dB	2	2	2	2
Guaranteed sound power level A, L_{WA} **	dB	108	108	108	108
Declared highest weighted effective value of vibration acceleration transmitted to the whole body (cab) ***	m/s^2 (ft/s^2)	<0.5 (<1.6)	<0.5 (<1.6)	<0.5 (<1.6)	<0.5 (<1.6)
Declared total value of vibration acceleration transmitted to hands (cab) ***	m/s^2 (ft/s^2)	<4.1 (<13.5)	<4.1 (<13.5)	<4.1 (<13.5)	<4.1 (<13.5)

* measured according to EN 500-4

** measured according to DIRECTIVE 2000/14/EC and EN 500-4

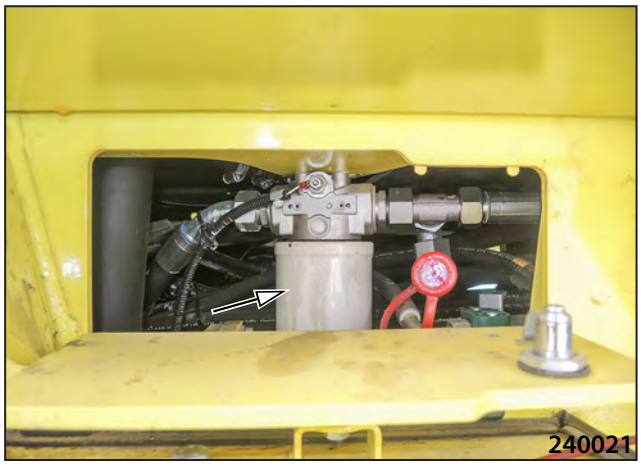
*** measured according to EN 1032+A1 while driving with vibration on gravel foundation

5.1 Description of basic elements

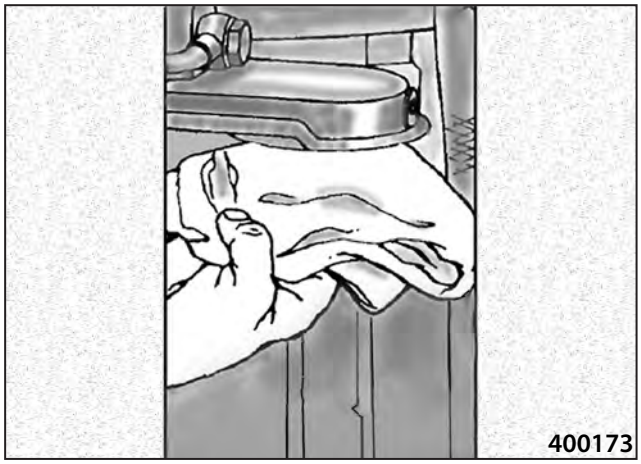
1. Front frame
2. Rear frame
3. Vibration hydraulic motor
4. Machine locking
5. Bonnet
6. Right side wall
7. Left side wall
8. Integrated ROPS frame
9. Fuel tank
10. Hydraulic tank, hydraulic oil level indicator
11. Drum scraper
12. Steering joint

5.6.4 Hydraulic oil filter replacement

Remove the filter.



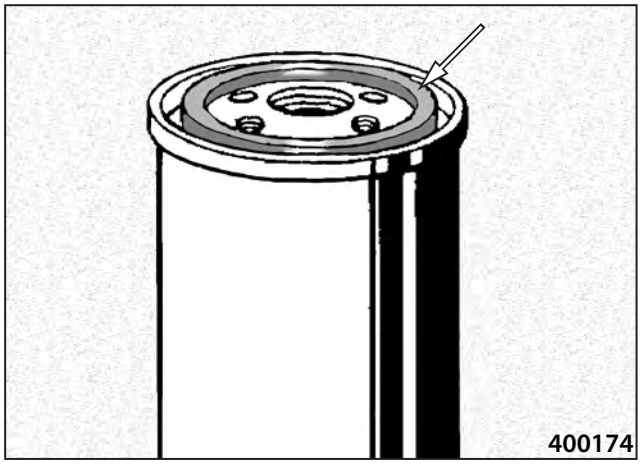
Clean the seating surface underneath.



Check the seal ring for condition.

Lubricate the ring with clean oil.

Mount the new filter.

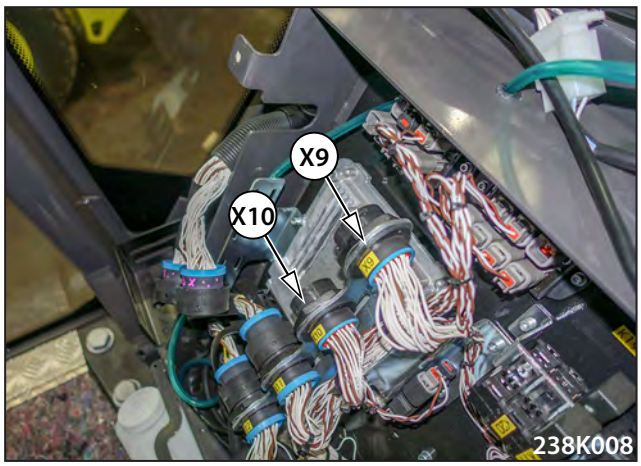


Always change the oil and replace the filter when inner parts of the units (hydraulic motors, hydraulic generators) were destroyed, or after a major repair of the hydraulic system. Clean and rinse out the hydraulic tank before mounting the new unit and refill with oil. When the engine is running at a higher speed, test functions of the machine. Check for leakage.

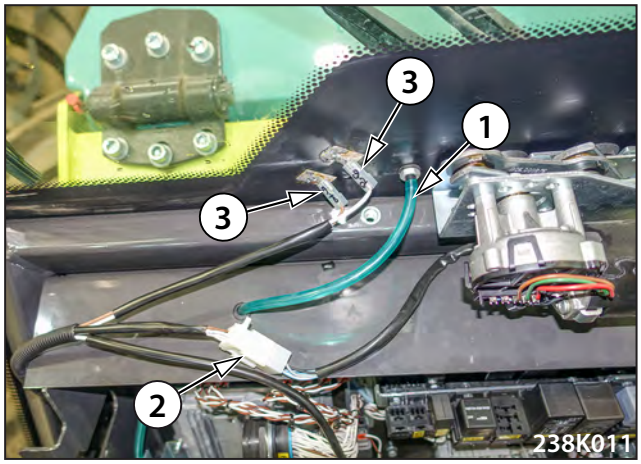
Use only original filter cartridges according to the spare parts catalogue.

Used filter cartridges are ecologically hazardous waste – hand them over for disposal.

Disconnect the connectors X9 and X10.



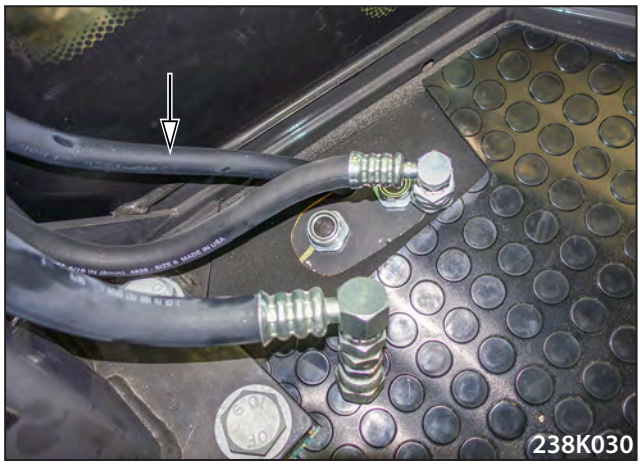
Disconnect the washer tube (1), the wiper connector (2) and the rear window heating connectors (3).

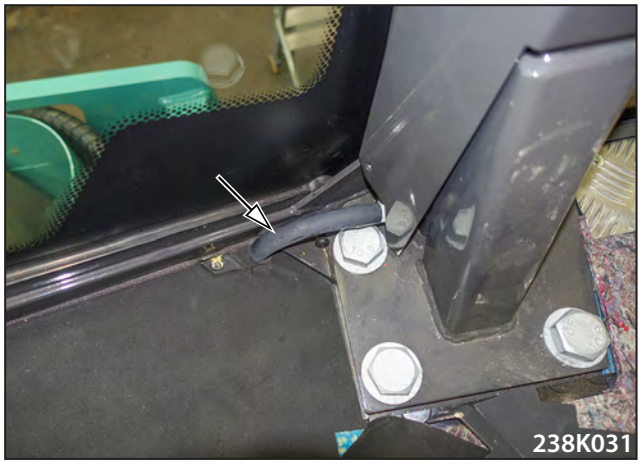


Attach the disconnected electrical installation to the cab frame using cable ties.

Applicable only for machines with air-conditioning system

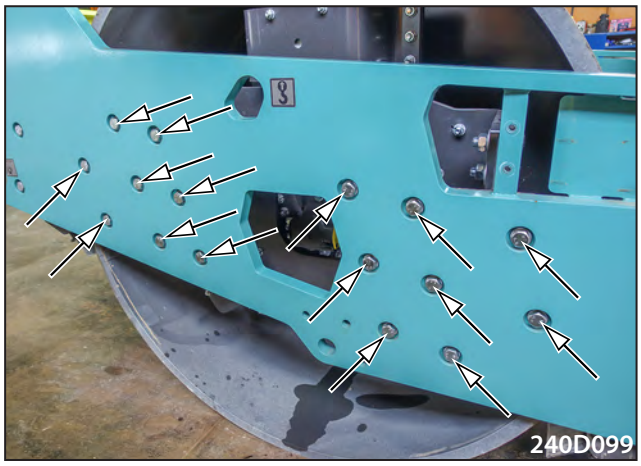
Insert the hoses of air-conditioning overflow into the opening in the floor.

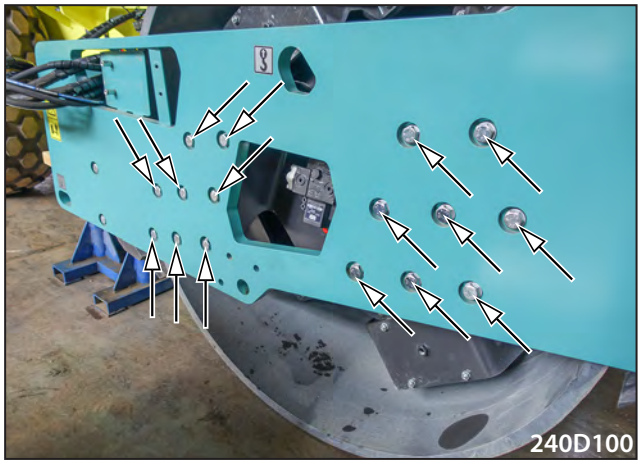




Mount the air-conditioning hoses using quick-couplings.

Remove the bracket screws on both sides of the machine.





Loosen the screws on the left side of the drum and insert the bracket towards the drum.

Hang the drum on the crane, and take it slowly out of the frame.

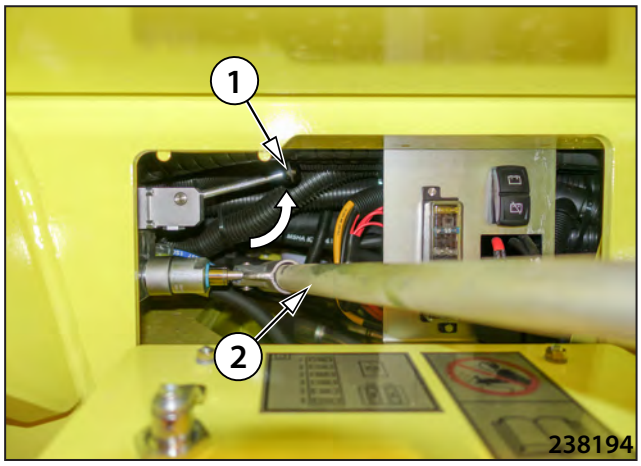
8 Rear drum (not included in the machine equipment)

11. 2 Hydraulic parts

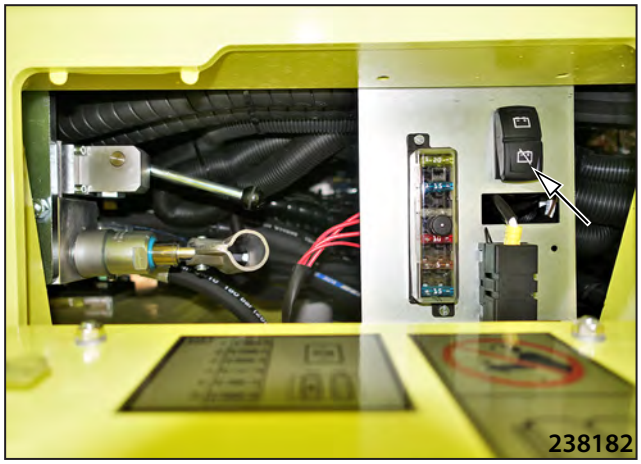
11.2.1 Travel pump replacement

Move the brake block lever (1) to the upper position.

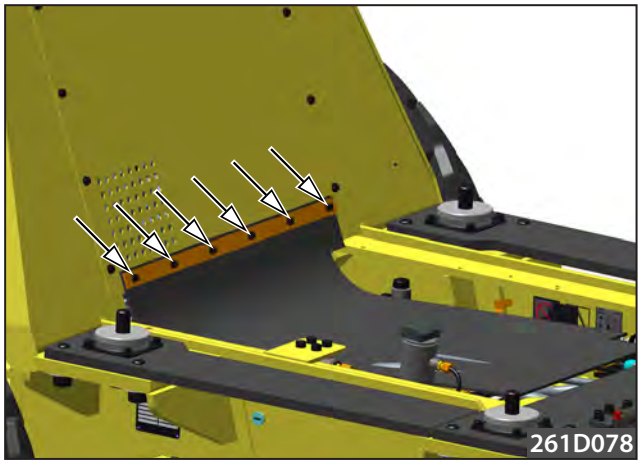
Insert the lever (2) into the pump and lift the cab by pumping.



Disconnect the electrical installation using the disconnector.

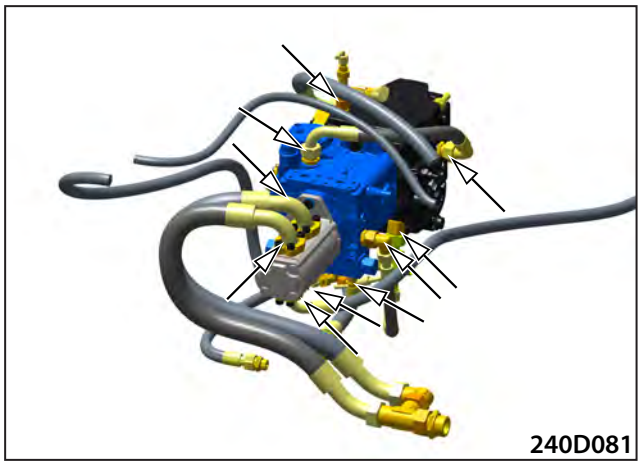


Remove the rubber gasket.



Remove the hoses from the pumps. Blank off the pump outlets and hose ends.

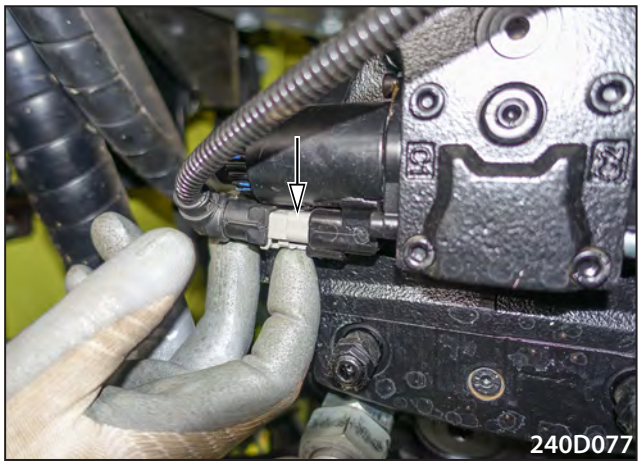
Disconnect the electrical installation from the pumps.



11.3 Electrical installation

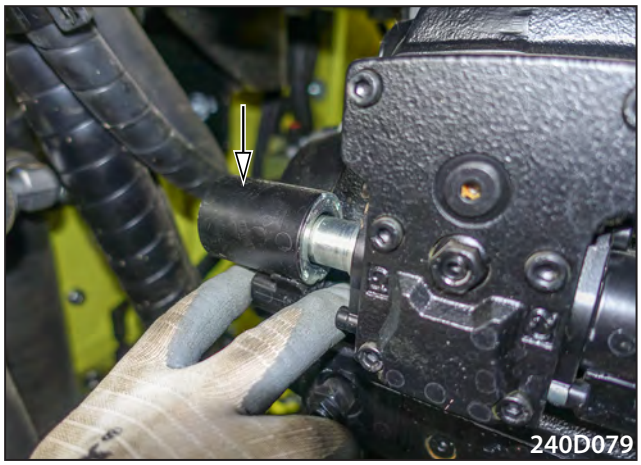
11.3.1 Travel pump coils replacement

Disconnect the coil connector.

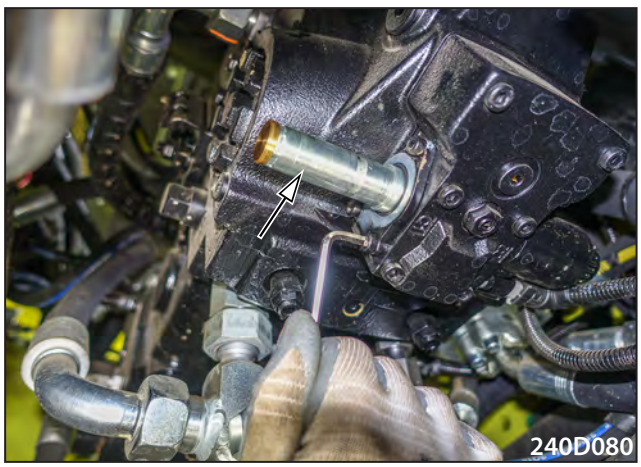


Remove the nut and the sealing O-ring..

Take out the coil.



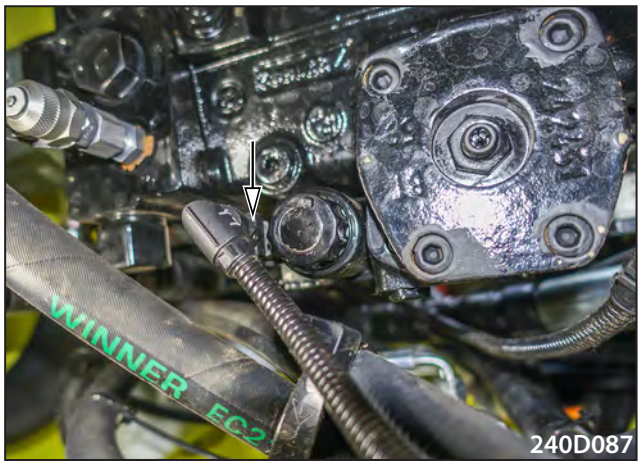
Remove the electromagnet.



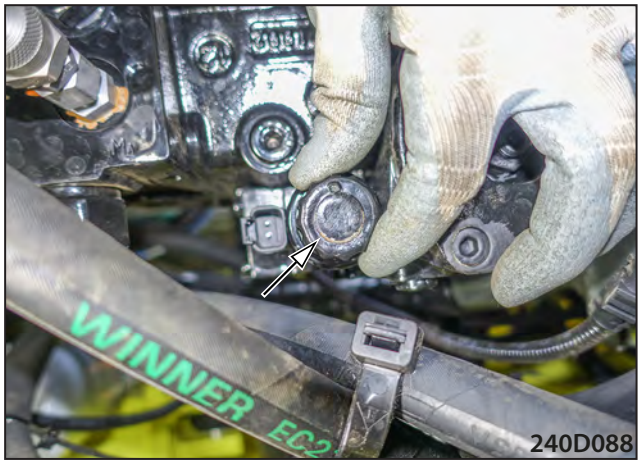
12.3 Electrical installation

12.3.1 Vibration pump coil replacement

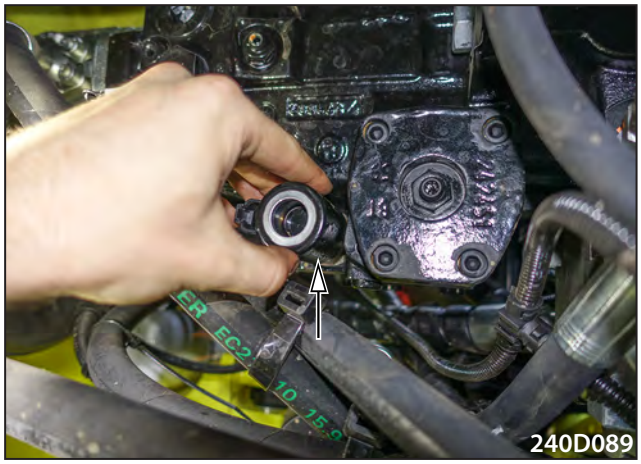
Disconnect the coil connector.



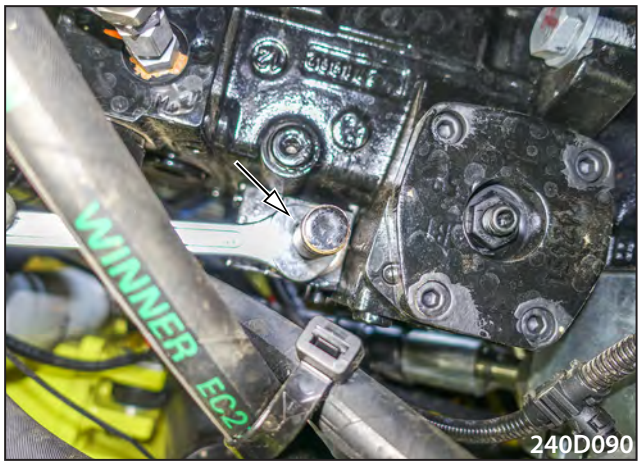
Remove the nut.



Take out the coil.

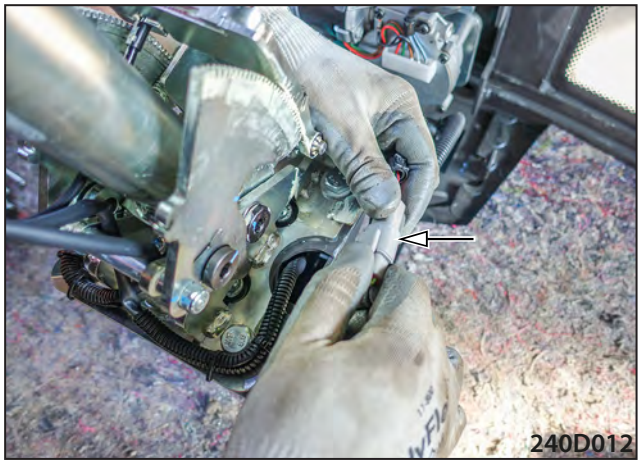


Remove the electromagnet.



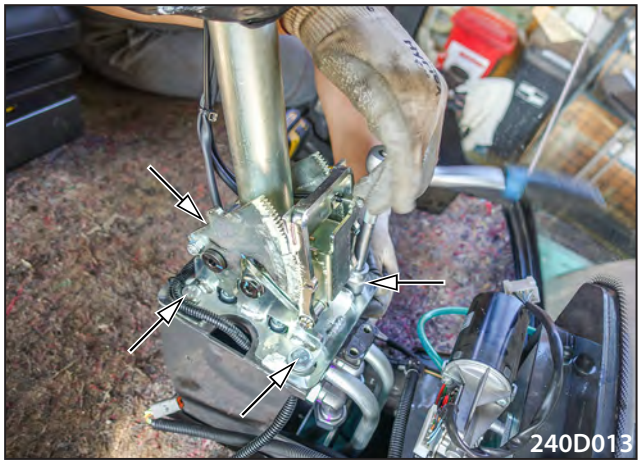
Remove the rubber seal of the steering column.

Disconnect the connector of the steering column.



Remove the screws of the steering column attachment.

Put the column aside.

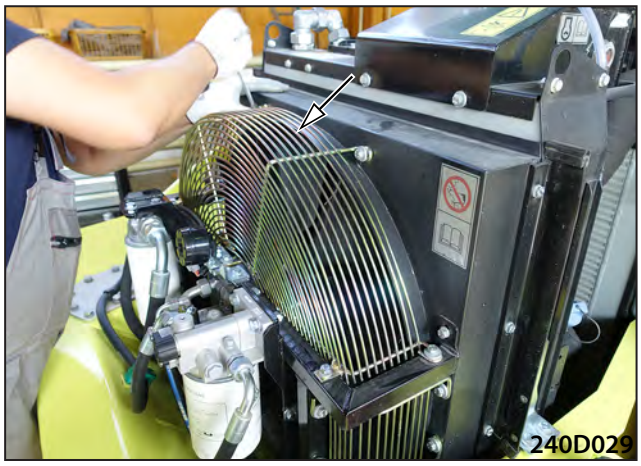


Dismount the protective cover of the cab.

14.2.1 Cooling hydraulic motor replacement

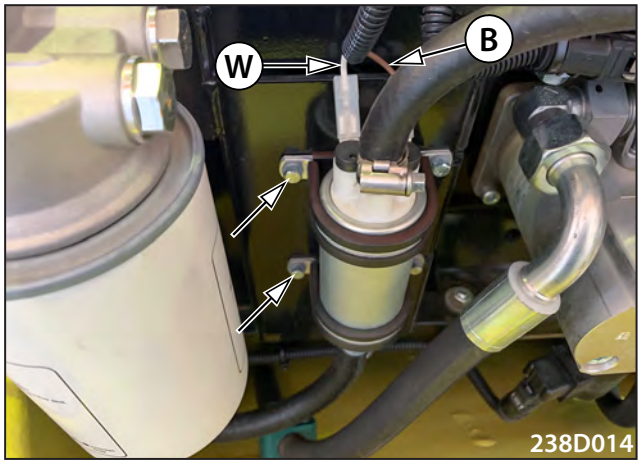
Removal

Remove the fan cover.

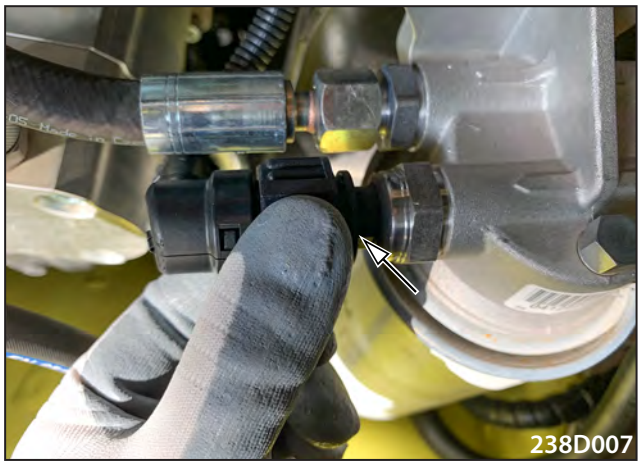


Disconnect the brown (B) and white (W) connector of the fuel pump.

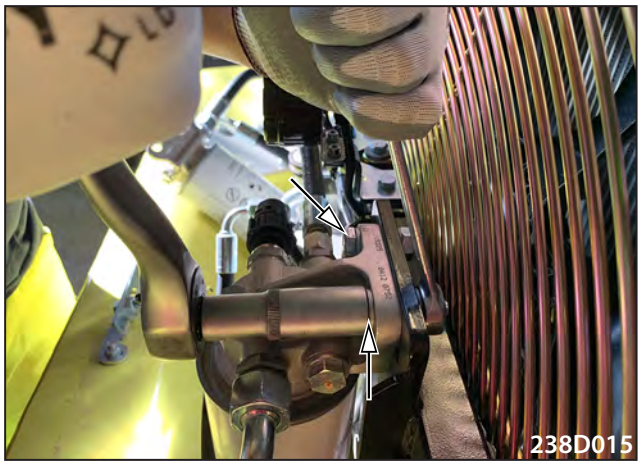
Remove the pump from the holder.



Disconnect the connector of the fuel filter.



Remove the fuel filter.



14.3 Electrical installation

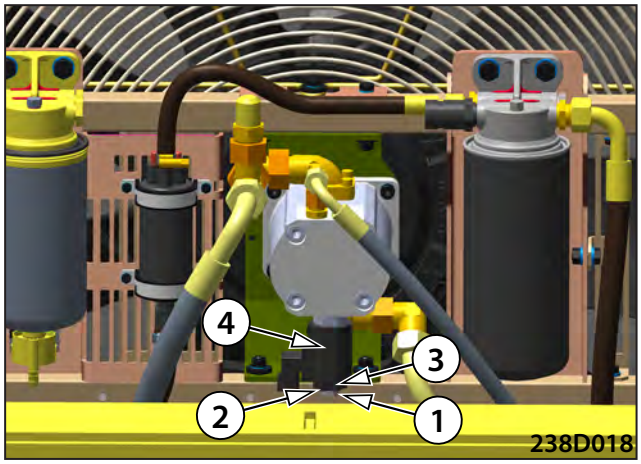
Connector

14.3.1 Replacement of the electromagnet coil of the cooling hydraulic motor

Remove the nut (1).

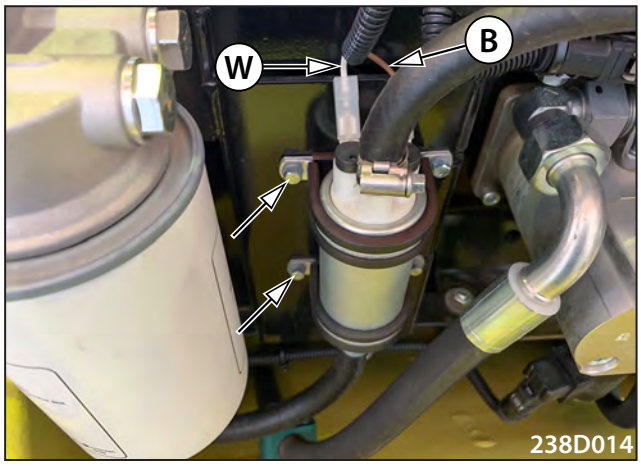
Remove the cover (2) and the sealing (3).

Remove the coil of the hydraulic motor (4).



Mount the pump on the holder.

Connect the brown (B) and white (W) connector of the fuel pump.



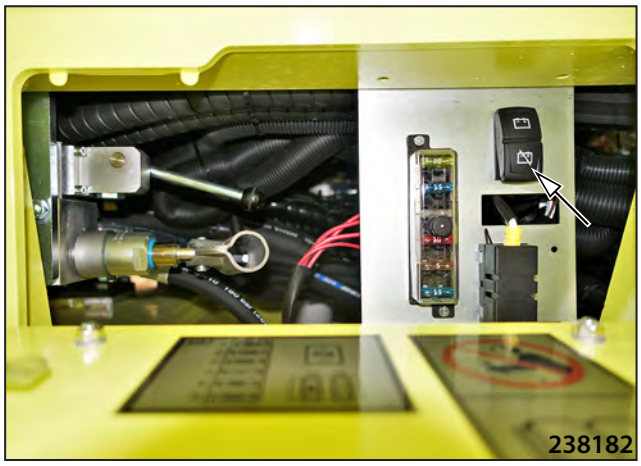
Mount the fan cover.

15.4 Mechanical parts

Removal of the cooler

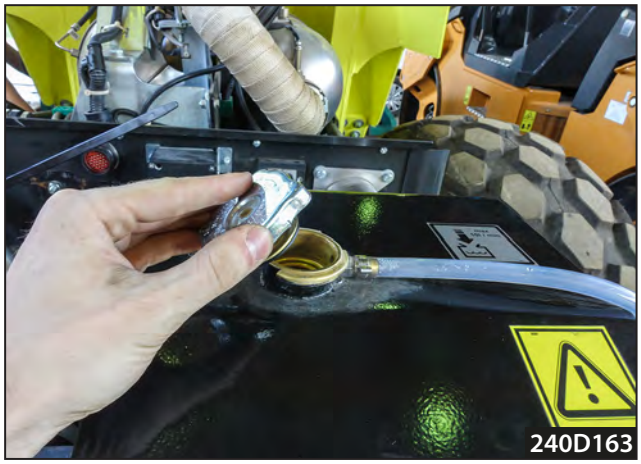
Remove the bonnet (Chapter 5.4.1).

Disconnect the electrical installation using the disconnector.



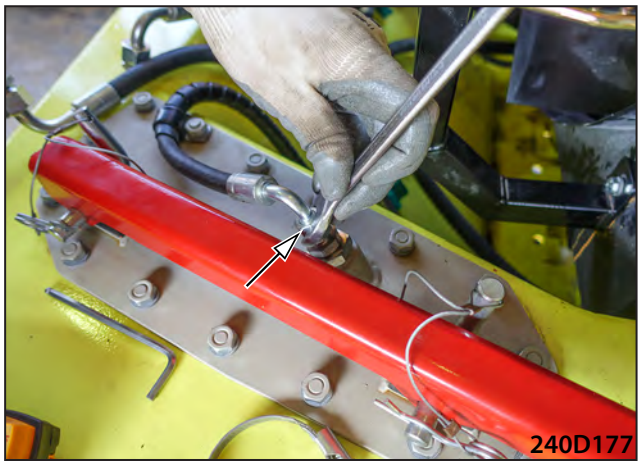
Drain the coolant from the engine into a prepared vessel. The drained coolant volume is approximately 29 l (7.7 US gal).

Remove the pressure plug of the coolant tank.

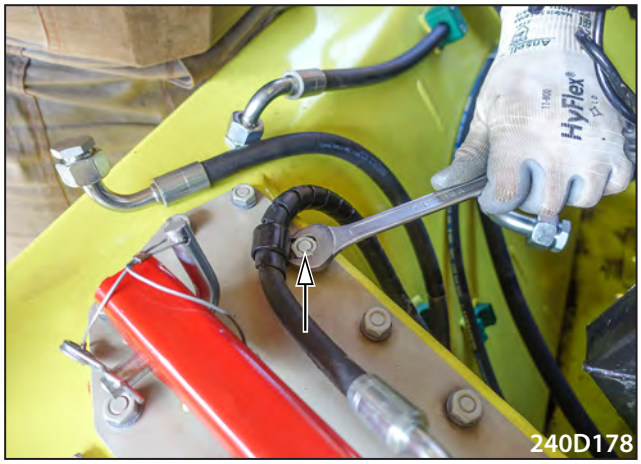


Drain the hydraulic oil into a prepared vessel. The drained oil volume is about 90 l (23.8 gal US).

Remove the fuel hose.



Remove the hose from the clip.



Disconnect the fuel gauge connector.

Hang the cooler on a crane with sufficient load capacity. Cooler weight ca. 175 kg (386 lb).

17.2.2 Preparation for welding works

Electrical installations may be damaged during welding works on a roller with the installed battery!

Completely remove the battery before welding works on the roller.

Place grounding cables of the welding equipment as near to the point of welding as possible. The grounding point must be free of paint.

Danger of injury!

Incorrectly welded cast pieces may result in material cracks.

Welding of cast pieces is prohibited!

17.2.3 Starting the battery by means of another battery (jumping)

Attach the red cable to the (+) clamps of both batteries.

Connect one end of the green or black cable to the (-) clamps of both batteries.

Press the starter. Let the engine run.

Wait until the engine evenly rotates at idle speed and disconnect the cables form the clamps.

Start with the (-) clamp.

Battery poles and clamps must be clean. If they show a coat of sulphate (whitish or greenish), they must be loosened and cleaned.

Error number BODAS/HEX	Error number SPN/DEC/Display	Name	Description	Saved	Only the active are displayed
8646	34374	Blade up valve output	Error at the blade lifting output.	Yes	No
8647	34375	Blade down valve output	Error at the blade lowering output.	Yes	No
8648	34376	Blade floating valve output	Error at the blade floating position output.	Yes	No

18.1.5 ACE errors

Error number BODAS/HEX	Error number SPN/DEC/Display	Name	Description	Saved	Only the active are displayed
8700	34560	ACE system fault	General ACE error. CM, parameters…	Yes	No
8701	34561	ACE compaction module	Error of communication with CM	Yes	No
8702	34562	ACE parameters	Incorrect ACE parameters	Yes	No

Error codes	SPN	FMI	Error description
753	523919	2	DPF burner air pump pressure sensor, plausibility error
755	523919	0	„DPF burner air pump pressure sensor, pressure above upper shutoff threshold“
758	523919	1	„DPF burner air pump pressure sensor, pressure below lower shutoff threshold“
761	523919	3	„DPF burner air pump pressure sensor, short circuit to battery or open load“
762	523919	4	DPF burner air pump pressure sensor, short circuit to ground
763	523920	2	Exhaustgaspressure upstream burner, plausibility error
765	523920	0	„Exhaustgaspressure upstream burner, pressure above upper shutoff threshold“
770	523920	3	„Exhaustgaspressure upstream burner, short circuit to battery or open load“
771	523920	4	Exhaustgaspressure upstream burner, short circuit to ground
772	102	2	Pressure downstream charge air cooler, plausibility error
774	102	1	„Pressure downstream charge air cooler, pressure below lower physical threshold“
776	102	3	„Pressure downstream charge air cooler, short circuit to battery or open load“
777	102	4	„Pressure downstream charge air cooler, short circuit to ground“
780	523699	3	„Boost pressure control; negative governor deviation below limit“
781	523699	4	„learning valu too high No detail informationen!“
785	523889	3	„over teperature of device driver of pressure control valve No detail informationen!“
791	411	0	„signal range check low error of pressure control valve AD-channel delta pressure across venturi in EGR line above physical high limit“
793	411	0	„Plausibility Check fault for deviation of desired and actual EGR-mass flow, where the latter is calculated out of EGR Delta Pressure Sensor“
795	411	3	„Sensor error differential pressure Venturiunit (EGR), signal range check low.“
796	411	4	„Sensor error differential pressure Venturiunit (EGR), signal range check high.“
805	524025	14	„Particulate filter regeneration. Regeneration after time X is not successful (The error occurs when the regeneration times (3x) over the max. has been aborted allowed recovery time).“
806	524058	2	Particulate filter; regeneration not succesful
807	3253	2	Differential pressure DPF, plausibility error
809	3251	0	Differential pressure DPF maximum value is exceeded
810	3251	0	„Differential pressure sensor across DPF exceeds warning high limit“
812	3251	1	„Differential pressure DPF, pressure below lower shutoff threshold.“
813	3251	1	„Differential pressure DPF, pressure below lower warning threshold.“
814	3253	3	„Electrical error differential pressure B58 (DPF). (signal range check high)“
815	3253	4	„Electrical error differential pressure (DPF). signal range check low.“
825	523009	9	„The pressure relief valve (PRV) has reached the number of allowed activations.“
826	523470	2	„Pressure relief valve is forced to open, perform pressure increase.“
827	523470	2	„Pressure Relief Valve (PRV) forced to open. Performed by pressure increase.“
828	523470	12	„Pressure Relief Valve (PRV) forced to open. Shutoff conditions.“
829	523470	12	„Pressure Relief Valve (PRV) forced to open. Warning conditions.“

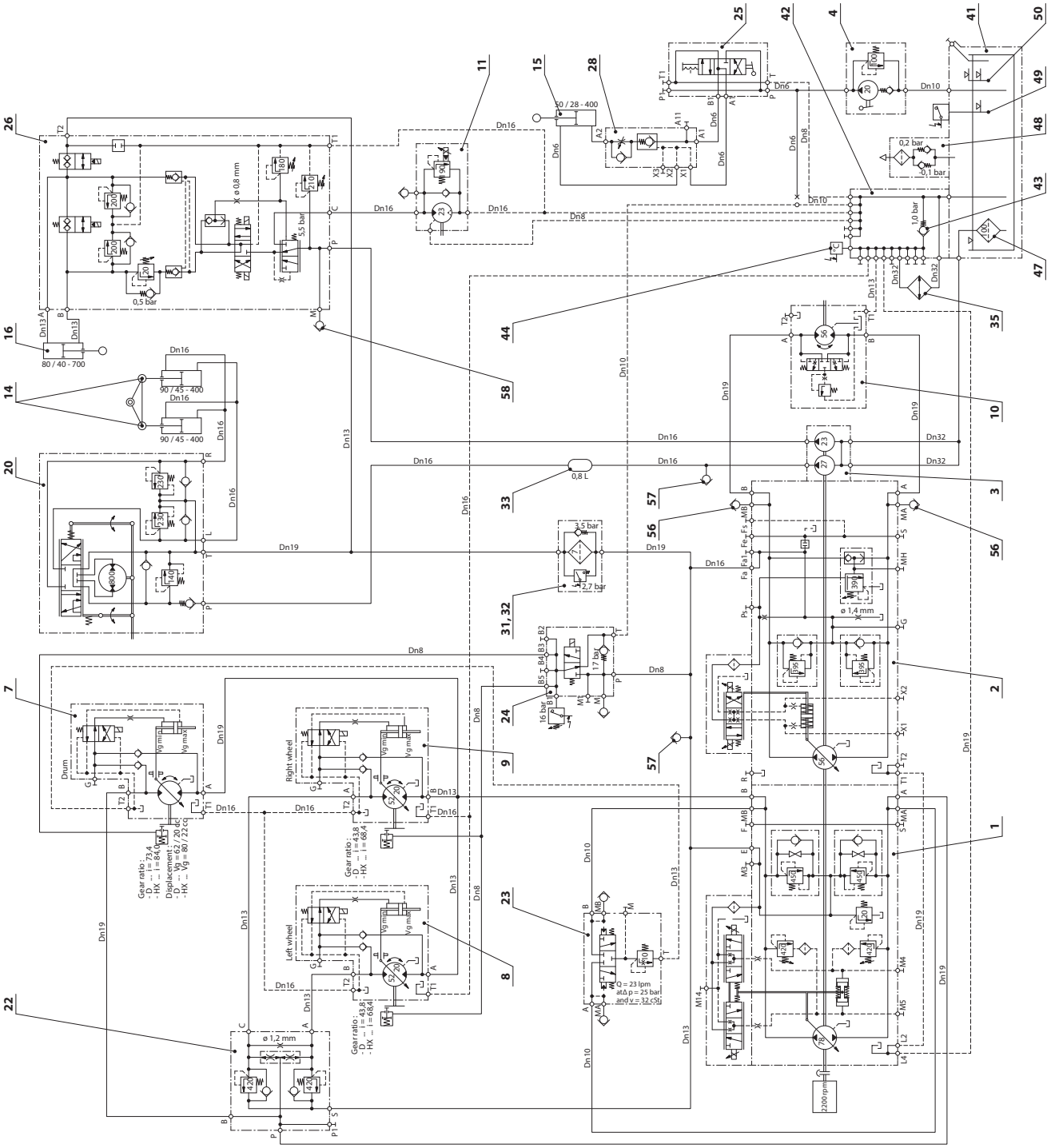
Error codes	SPN	FMI	Error description
1524	2659	0	„Exhaust Gas Recirculation AGS Sensor; Sensed exhaust mass value above maximum physical value“
1525	2659	1	„Exhaust Gas Recirculation AGS Sensor; Sensed exhaust mass value below miniimum physical value“
1526	2659	12	„Exhaust Gas Recirculation AGS Sensor; plausibility error, AGS sensor has not passed the burn off process“
1527	2659	2	„Exhaust Gas Recirculation AGS Sensor; Temperature of EGR mass not plausible“
1529	524070	2	„(Upstream NOx-Sensor) Diagnostic Fault Check for invalid upstream NOx value (Sensor self diagnostic DFC set by Deutz-SW) NOx-Sensor before SCR-Cat: Invalid upstream NOx value“
1530	524071	2	„(Downstream NOx-Sensor) Diagnostic Fault Check for invalid downstream lambda value (Sensor self diagnostic DFC set by Deutz-SW)“
1531	524072	2	„(Upstream NOx-Sensor) Diagnostic Fault Check for invalid upstream lambda value (Sensor self diagnostic DFC set by Deutz-SW)“
1532	524073	2	„(Downstream NOx-Sensor) Diagnostic Fault Check for invalid downstream NOx value (Sensor self diagnostic DFC set by Deutz-SW)“
1533	524074	9	„NOx sensor downstream SCR-CAT, sensor internally open load“
1534	524075	11	„NOx sensor downstream SCR-CAT, sensor internally short circuit“
1535	524076	9	NOx sensor upstream SCR-CAT, sensor internally open line
1536	524077	11	„NOx sensor upstream SCR-CAT, sensor internally short circuit“
1537	524078	9	„NOx sensor downstream SCR-CAT, lambda value above upper physical threshold“
1538	524079	9	„NOx sensor downstream SCR-CAT, lambda value below lower physical threshold“
1539	524080	9	„NOx sensor upstream SCR-CAT, lambda value above upper physical threshold“
1540	524081	9	„NOx sensor upstream SCR-CAT, lambda value below lower physical threshold“
1541	524082	9	„(Downstream NOx-Sensor) Diagnostic Fault Check for downstream NOx value over maximum limit (DFC set by Deutz-SW)“
1542	524083	9	„NOx-Sensor downstream SCR-CAT, NOx value below minimum value.“
1543	524084	9	„NOx-Sensor upstream SCR-CAT, NOx value above maximum value.“
1544	524085	9	„NOx sensor upstream SCR-CAT, NOx value below lower physical threshold“
1545	524149	2	„Plausibility error between pressure downstream turbine (PTrbnDs) and ambient air pressure (EnvP)“
1555	524063	5	„Relay Urea backflow line heater: broken wiring detected (open load) in-line engine: SCR-backflow line (K29) V-engine: Master: SCR-suction / backflow line (K32.1) Slave: SCR-suction / backflow line (K32.2)“
1556	524063	5	SCR main relay not connected
1557	524063	5	SCR heater pressureline; open load
1558	524063	3	SCR heater mainrelay; short circuit to battery
1559	524063	4	„SCR heater main relay load side (K31) on heating valve (Y31), Short cut to ground.“
1560	524063	5	„Relay Urea suction line: broken wiring detected (open load) Row engine: SCR suction line (K28) V-engine: Master: common SCR-suction line (K28) Slave: commoon SCR backflow line (K29)“
1561	524063	5	SCR heater supply module; open load

19.1 Hydraulic system

19.1.1 Travel pump zero position adjustment

19.1.1.1 Travel pump magnetic coil check

Check of the travel pump magnetic coil (chap. 17.2.1)



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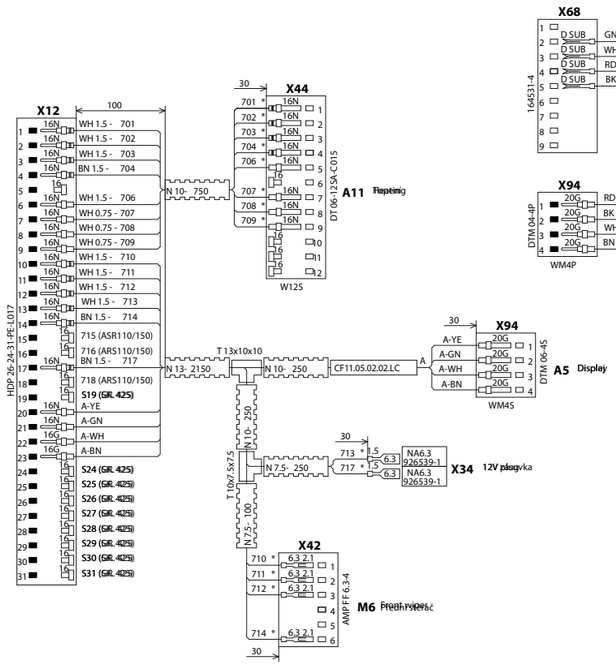

CABLE HARNESS LEGEND:

LEGENDA:

6.3	Faston
#5 2.5	Kruhové oko
1.0	Drátová koncovka
1.0–2.5	Špičková trubičková
	Kontakt
	Zástrčka
	Těsnění vodiče
Ce9	Matice
No 6.3	Izolační návlek
Se 7.5	Spona
Re 13/7.5	Redukce
Le 10	Úchyt
T 10–10–7.5	Odbočka T
SEM 9	Zásuvka a SEM přímá
	Konektor faston
	Konektor DIN
	Konektor Saurer
1 2	Nástrčka
1 2	Zásuvka

Vodič:

R – 1 – 1200 (100)

Barva vodiče / Wire color; Průřez mm² / Cross section mm²; Délka / Length; Číslo / Wire number

Kabel:

H03VV–F2X0.75 – 2500

Typ / Type; Délka / Length

Ochranná hadice:

NW13 – 700

Type; Délka / Length

TABLE OF COLOR SYMBOLS:

WH	B	Bílá
BK	C	Černá
BN	H	Hnědá
BU	M	Modrá
RD	R	Červená
GY	S	Šedá
YE	Y	Žlutá
GN	Z	Zelená
VT	-	Fialová
OG	-	Oranžová

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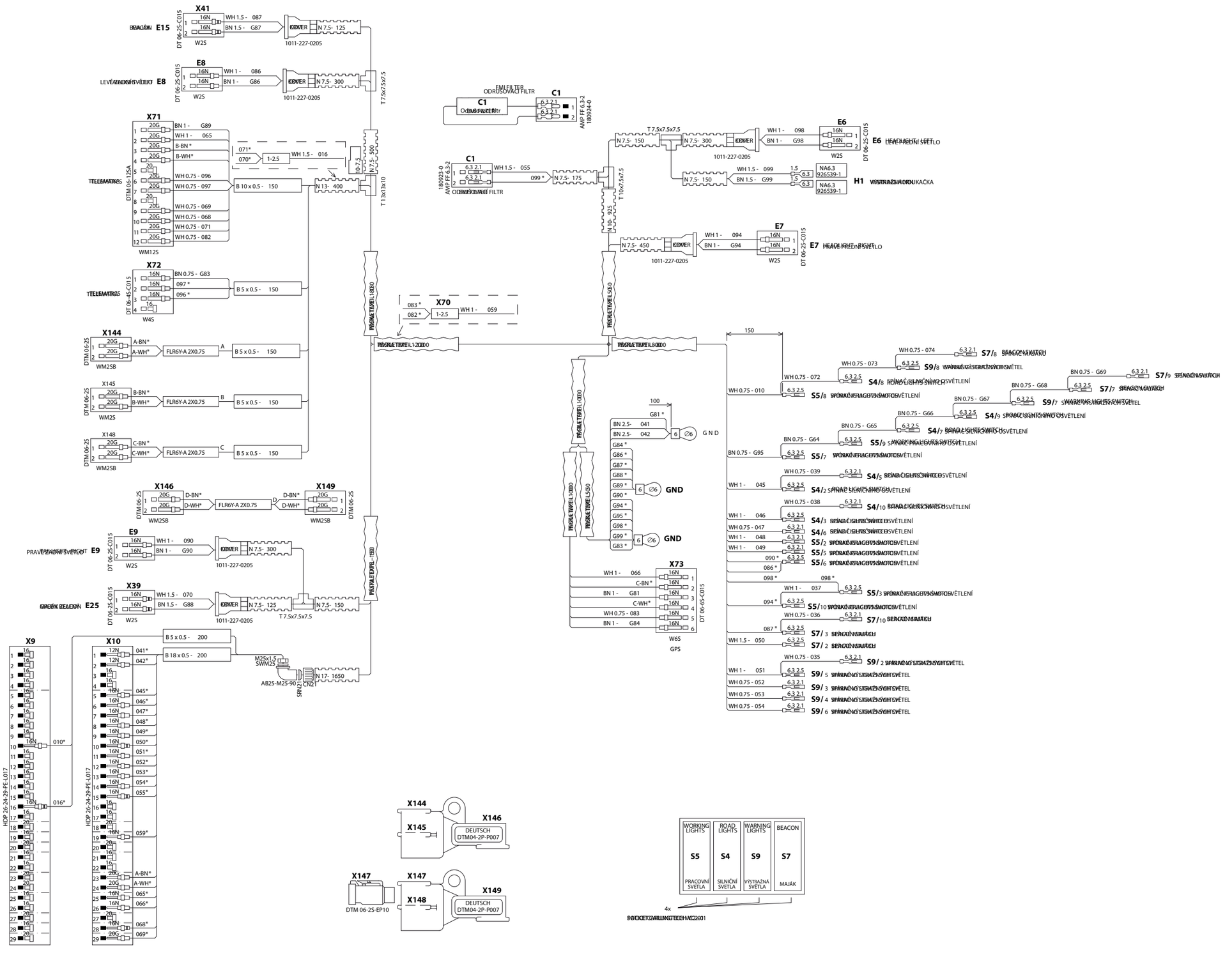

CABLE HARNESS LEGEND:

LEGENDA:

Faston	Faston
Kulatý otvor	Kulatý otvor
Drátěná koncovka	Drátěná koncovka
Spojka trubičková	Spojka trubičková
Contact	Kontakt
Sealing plug	Těsnící zátka
Sealing wire seal	Těsnění vodiče
Metric	Metrický
Insulation sleeve	Izolační návlek
Clip	Svorka
Reducer	Redukce
Direct	Přímá
Bulkhead	Průchodka
Bulkhead and SEM straight	Průchodka a SEM přímá
Connector Faston	Konektor faston
Electronic DIN	Elektronika DIN
Electronic Starter	Elektronika Starter
Receptacle connector	Zásuvka
Plug connector	Zástrčka

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

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

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

TABLE OF COLOR SYMBOLS: TABULKA BAREV A SYMBOLŮ:

WH	B	White / Bílá
BK	C	Black / Černá
BN	H	Brown / Hnědá
BU	M	Blue / Modrá
RD	R	Red / Červená
GY	S	Grey / Šedá
YE	Y	Yellow / Žlutá
GN	Z	Green / Zelená
VT	-	Violet / Fialová
OG	-	Orange / Oranžová