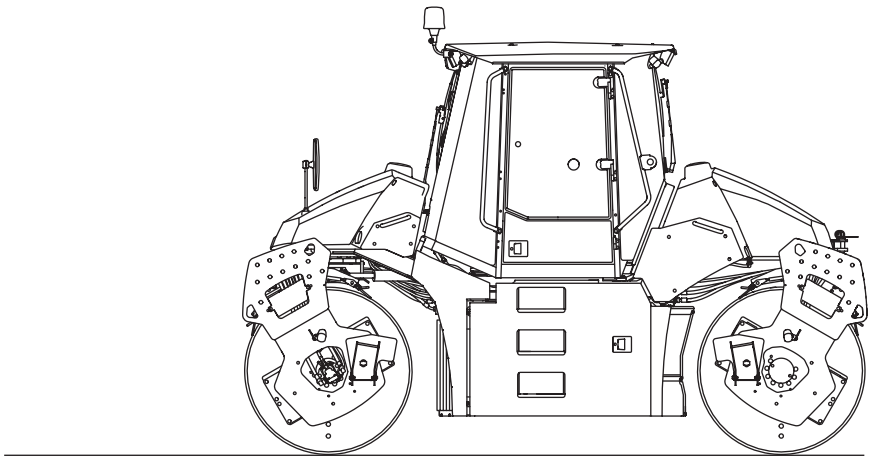
ARP 95

TANDEM ROLLER
DEUTZ TCD3,6 L4
EU Stage V / U.S. EPA Tier 4f



OPERATING MANUAL

EDITION 04/2020 EN
From Serial No. 4232031

AMMANN

ES / EU Prohlášení o shodě

(**Původní ES/EU prohlášení o shodě /** *Original EC/EU Declaration of conformity / Ursprüngliche EG-/EU-Konformitätserklärung*)

EC / EU Declaration of conformity / EG-/EU-Konformitätserklärung

(**Překlad původního ES/EU prohlášení o shodě /** *Translation original EC/EU Declaration of conformity / Übersetzung der ursprünglichen EG-/EU-Konformitätserklärung*)

Originální ES/EU prohlášení o shodě je dodané s dokumenty během expedice stroje. / *The original EC/EU Declaration of Conformity is supplied with documents during expedition of machine. / Das Original der EG-/EU-Konformitätserklärung wird mit den Unterlagen während des Versands der Maschine mitgeliefert.*

Výrobce / *Manufacturer / Hersteller:* **Adresa /** *Address / Adresse:* **IČ /** *Identification Number / Ident.-Nr:*	Ammann Czech Republic a.s. Náchodská 145, CZ-549 01 Nové Město nad Metují, Czech Republic 000 08 753
Jméno a adresa osoby pověřené sestavením technické dokumentace podle 2006/42/ES a jméno a adresa osoby, která uchovává technickou dokumentaci podle 2000/14/ES / *Name and address of the person authorised to compile the technical file according to 2006/42/EC and name and address of the person, who keeps the technical documentation according to 2000/14/EC / Name und Adresse der mit der Zusammenstellung der technischen Dokumentation beauftragten Person gemäß 2006/42/EG und Name und Adresse der mit der Aufbewahrung der technischen Dokumentation beauftragten Person gemäß 2000/14/EG:*	Ing. Radek Ostrý Ammann Czech Republic a.s. Náchodská 145, CZ-549 01 Nové Město nad Metují, Czech Republic
Popis strojního zařízení / *Description of the machinery / Beschreibung der Maschineneinrichtung:*	
Označení / *Designation / Bezeichnung:*	Tandemový válec */ Tandem roller / Tandemwalze*
Typ / *Type / Typ:*	ARP 95
Verze / *Version / Version:*	
Výrobní číslo / *Serial number / Maschinennummer:*	
Motor / *Engine / Motor:*	Deutz TCD3,6L4, vznětový, jmenovitý výkon (ISO 14396): 74,4 kW, jmenovité otáčky: 2200 min-1. / Deutz TCD3,6L4, Diesel, nominal power (ISO 14396): 74,4 kW, rated speed: 2200 RPM. / Deutz TCD3,6L4, Dieselmotor, Nennleistung (ISO 14396): 74,4 kW, Nenndrehzahl: 2200 min-1.
Prohlašujeme, že strojní zařízení splňuje všechna příslušná ustanovení uvedených směrnic / *We declare, that the machinery fulfils all the relevant provisions mentioned Directives / Wir erklären, dass die Maschineneinrichtung sämtliche entsprechenden Bestimmungen aufgeführter Richtlinien erfüllt:*	Strojní zařízení – směrnice 2006/42/ES / Machinery Directive 2006/42/EC / Maschineneinrichtung – Richtlinie 2006/42/EG Elektromagnetická kompatibilita – Směrnice 2014/30/EU / Electromagnetic Compatibility Directive 2014/30/EU / Elektromagnetische Kompatibilität – Richtlinie 2014/30/EU Emise hluku – směrnice 2000/14/ES / Noise Emission Directive 2000/14/EC / Lärmemissionen – Richtlinie 2000/14/EG
Harmonizované technické normy a technické normy použité k posouzení shody / *The harmonized technical standards and the technical standards applied to the conformity assessment / Harmonisierte technische Normen und für die Beurteilung der Konformität verwendete Normen:*	ČSN EN ISO 12100, ČSN EN 500-1+A1, ČSN EN 500-4, ČSN EN ISO 4413, ČSN EN 13309
Osoby zúčastněné na posouzení shody / *Bodies engaged in the conformity assessment / An der Konformitätsbeurteilung beteiligte Personen:*	Notifikovaná osoba č. 1016 / Notified Body No.: 1016 / Notifizierte Stelle Nr.: 1016 Státní zkušebna strojů a.s., Třanovského 622/11, 163 04 Praha 6–Řepy, ČR. / The Government Testing Laboratory of Machines J.S.C., Třanovského 622/11, 163 04 Praha 6–Řepy, Czech Republic / Staatliche Prüfstelle für Maschinen AG, Třanovského 622/11, 163 04 Praha 6–Řepy, Tschechische Republik.
Použitý postup posouzení shody / *To the conformity assessment applied procedure / Verwendetes Vorgehen der Konformitätsbeurteilung:*	Na základě směrnice 2000/14/ES příloha VI / Pursuant to the Noise Emission Directive 2000/14/EC, Annex VI / Aufgrund der Richtlinie 2000/14/EG, Anlage VI
Naměřená hladina akustického výkonu / *Measured sound power level / Gemessener Schallleistungspegel:*	LWA = 104 dB
Garantovaná hladina akustického výkonu / *Guaranteed sound power level / Garantierter Schallleistungspegel:*	LWA = 106 dB

Místo a datum vydání / *Place and date of issue / Ort und Datum der Ausgabe:* Nové Město nad Metují,

Osoba zmocněná k podpisu za výrobce / *Signed by the person entitled to deal in the name of manufacturer / Zeichnungsberechtigter für den Hersteller:*

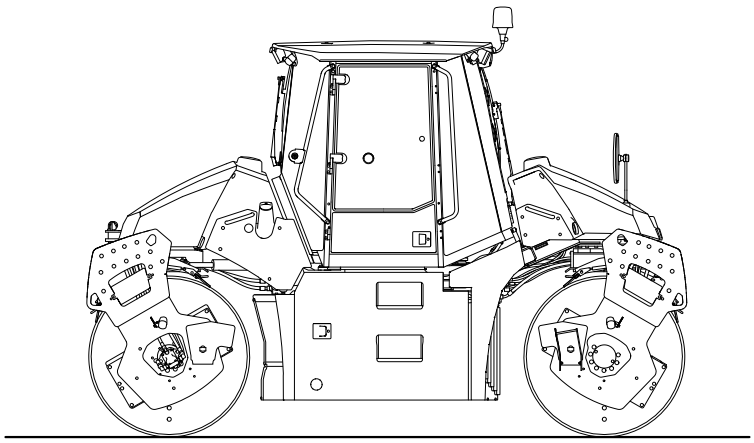
Jméno / *Name / Name:* Olga Francová
Funkce / *Grade / Stelle:* Export Manager
Podpis / *Signature / Unterschrift:*

Congratulations on your purchase of the AMMANN compaction machine. This modern compaction machine is characterised by simple operation and maintenance and is the product of many years of experience of the AMMANN company in compaction machines, especially road rollers. In order to avoid faults due to improper operation and maintenance, we request you to read this operating manual with great care and keep it for later reference.

With kind regards,

Ammann Czech Republic a.s. | Náchodská 145 | CZ-549 01 Nové Město nad Metují

☎ + 420 491 476 111 | Fax + 420 491 470 215 | info@ammann.com | www.ammann.com



423001

This instruction manual is a "translation of the original instruction manual" within the meaning of the paragraph 1.7.4.1 of the Directive of the European parliament and of the Council 2006/42/EC of 17 Mai 2006.

This manual consists of:

I. Specification manual II. Operating manual III. Maintenance manual

The purpose of this manual is to familiarize operators with safe operation of the roller and provide them information for maintenance. Therefore it is necessary to pass this manual to operators and ensure that it will be read by them carefully before the road roller is used.

AMMANN assumes no responsibility if the machine is operated incorrectly or is used incorrectly in operating modes, which may result in injury or death, damage to the machine or property or environmental pollution.

Adherence to maintenance instructions increases the reliability and lifetime of the machinery and reduces repair costs and down time.

In order to ensure smooth operation of the AMMANN compaction equipment, use only original spare parts supplied by AMMANN for repairs.

The operating instructions must always be kept available on the machine in an appropriate place.

Preface

Information, specifications, and recommended operation and maintenance instructions contained in this publication are basic and final information at the time of the printing of this publication. Print errors, technical modifications and modifications of illustrations are reserved. All dimensions and weights are approximate, and therefore not binding.

Ammann Czech Republic a.s. reserves the right to perform modifications at any time with no obligation to inform the machine user. If you identify any differences between the machine operated by you and the information contained in this publication, contact your local dealer.

SAFETY NOTICES AND SIGNS:

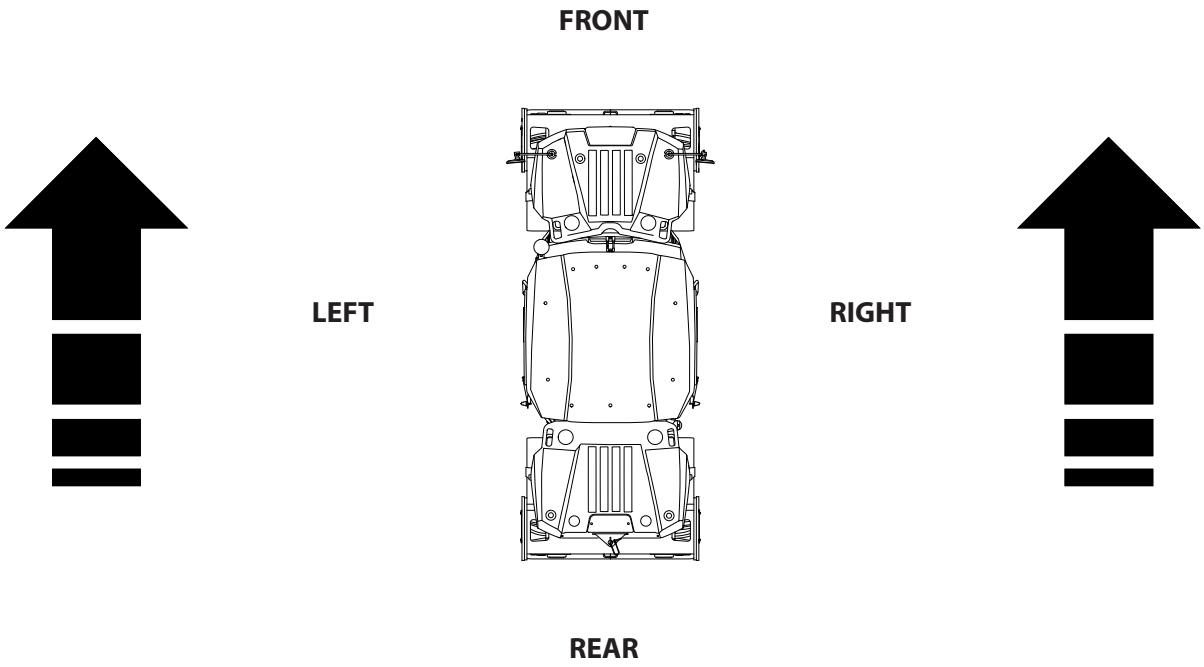
The notice warns of a serious risk of personal injury or other personal hazards.

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.



Contents

Contents

Contents

1 SPECIFICATION MANUAL

ARP 95
(Deutz Tier 4 final)

1.1 Basic data

Machine description

Tandem roller with a spine-type frame with two steerable smooth steel driven vibrating split drums. Steering enables the setting of extended track (crabbing).

ARP 95 – tandem roller with a spine-type frame with two steerable smooth steel driven vibrating split drums.

ARP 95C – tandem roller with a spine-type frame with a steerable smooth steel driven vibrating drum at the front and a wheel axle with four tyres at the back.

ARP 95 ACE – tandem roller with a spine-type frame with two steerable smooth steel driven vibrating split drums and an ACE unit measuring the compacted material.

ARP 95C ACE – tandem roller with a spine-type frame with a steerable smooth steel driven vibrating drum at the front, a wheel axle with four tyres at the back and an ACE unit measuring the compacted material.

Specification of the expected use of the machine

ARP 95, ARP 95C, ARP 95 ACE, ARP 95C ACE rollers are designed for medium and large-sized compaction work in transport construction (roads and motorways, airfields) and building construction (industrial zones, etc.).

ARP 95, ARP 95 ACE rollers are suitable for compacting asphalt mixtures up to a layer thickness (after compaction) of 140 mm (5.5 in), hydraulically consolidated mixtures up to a layer thickness of 200 mm (7.9 in), mixed soils up to a layer thickness of 300 mm (11.8 in), and sand and gravel materials up to a layer thickness of 400 mm (15.7 in).

The rollers are not suitable for compacting rockfill, loam and clay materials.

If the ACE drum is used on the machine, it is mounted at the front.

ARP 95C, ARP 95C ACE rollers are suitable for compacting asphalt mixtures up to a layer thickness (after compaction) of 40–120 mm (1.6–4.7 in), hydraulically consolidated mixtures up to a layer thickness of 150 mm (5.9 in), mixed soils up to a layer thickness of 200 mm (7.9 in), and sand and gravel materials up to a layer thickness of 300 mm (11.8 in).

The rollers are not suitable for compacting rockfill, loam and clay materials.

The machines of this line are designed for operation under conditions according to EN 60721-2-1:2014: WT, WDr, MWDr (i.e. moderate climate zone, warm dry or hot dry zone with a limited ambient temperature range of -15 °C (5 °F) to +45 °C (113 °F).

The standard version of the machine is not designed for operation on roads. For more information, please contact your dealer.

Please fill in the following data:

(see nameplate and Deutz engine nameplate)

Machine type

.....

Serial number of the machine

.....

Year of manufacture

.....

Engine type

.....

Serial number of the engine

.....

The data mentioned in the table refer always when you contact the dealer or manufacturer.

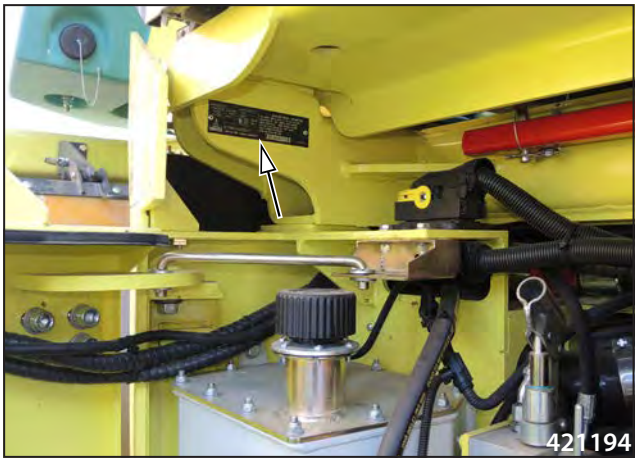
The machine that complies with the health and safety requirements is provided with a nameplate with CE marking.

1 - Name – always stated only in the English version
2 - Type
3 - Serial number
4 - Operating weight
5 - Maximum weight
6 - Rated power
7 - Version
8 - Transport weight
9 - Front axle load
10- Rear axle load
11- Year of manufacture

Nameplate
Serial number of the machine

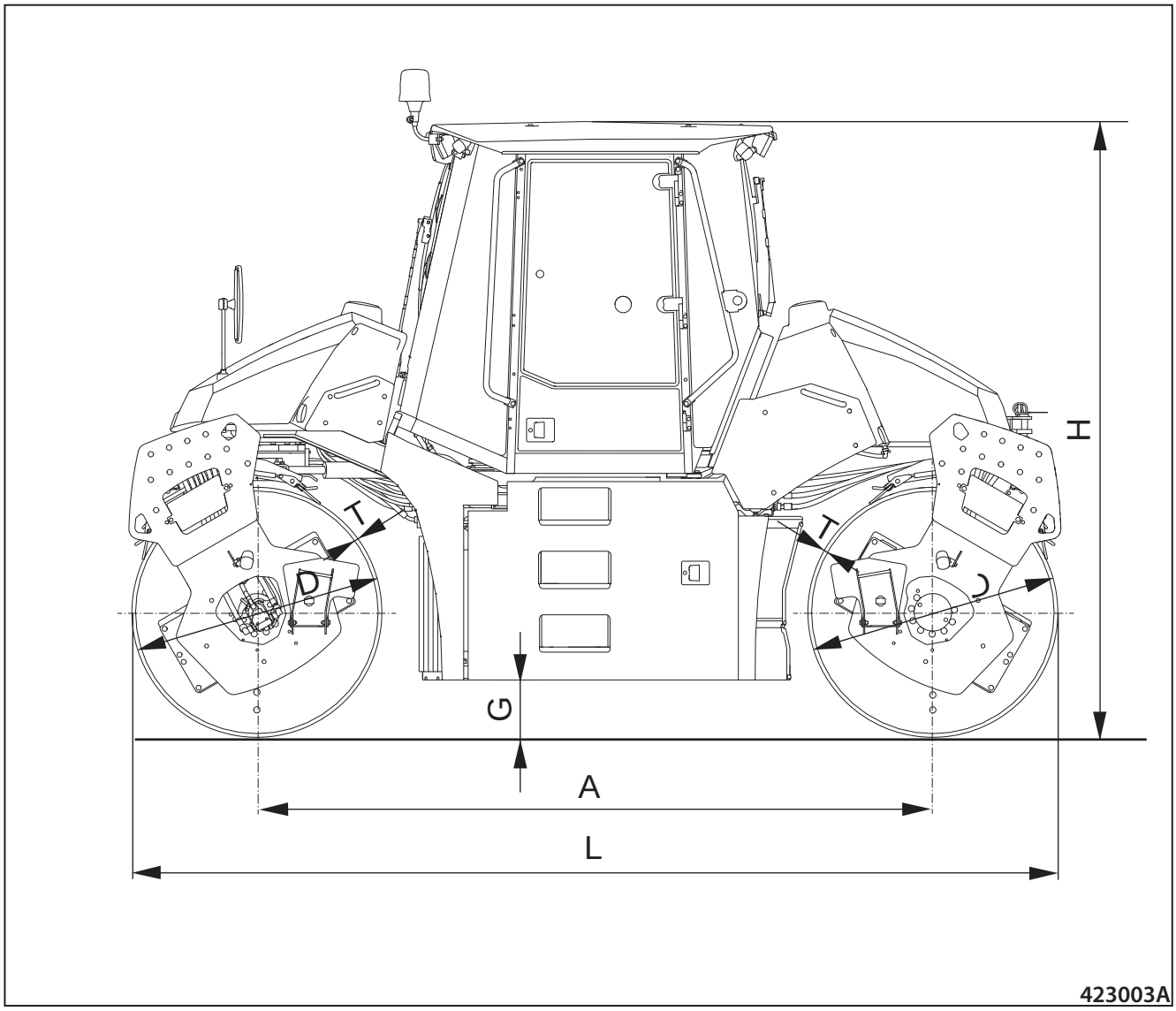
ROPS cab plate

Engine nameplate position

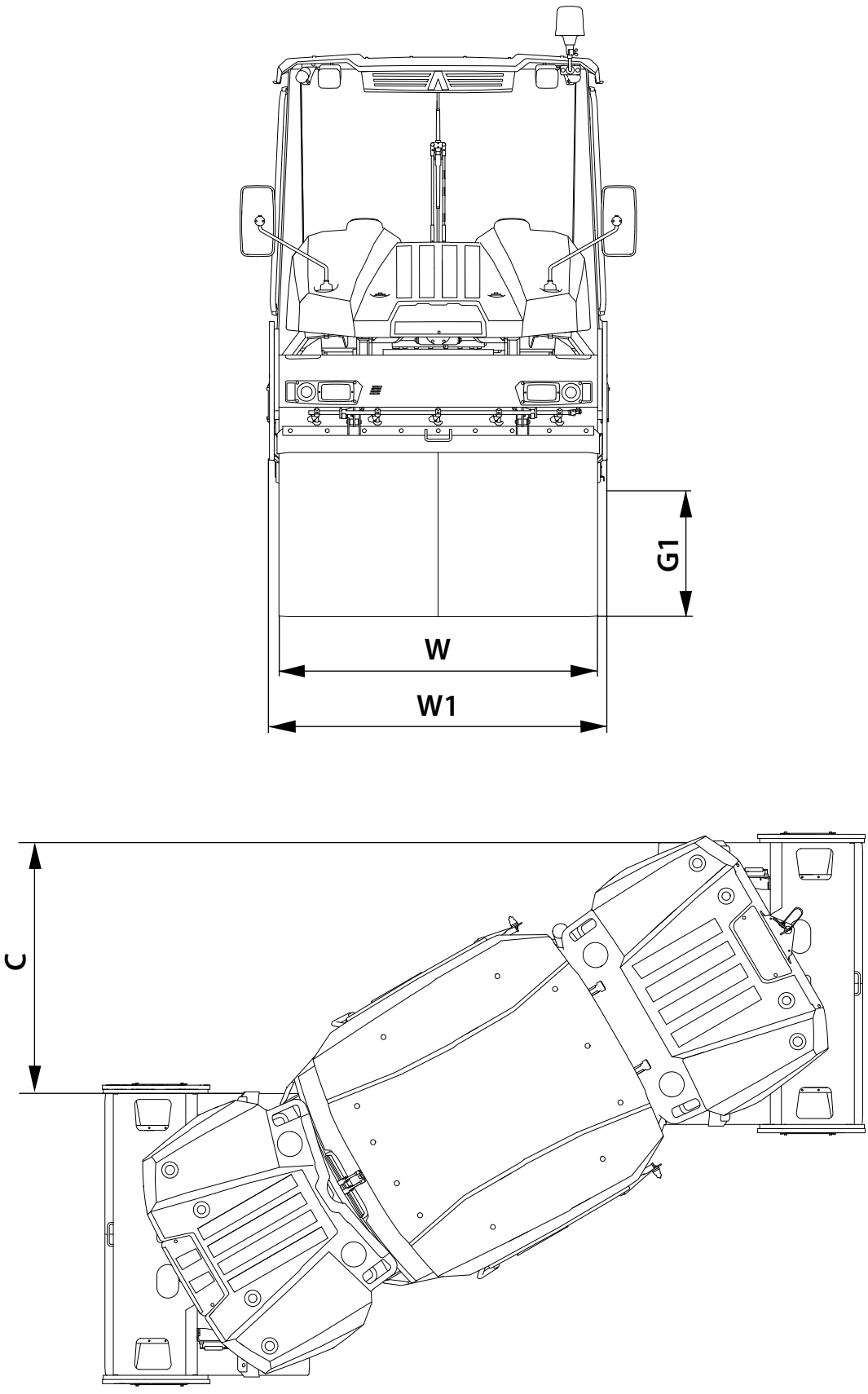


1.2 Dimensional drawing of the machine

ARP 95



	A	C	D	H	G
mm	3,300	1,390	1,220	3,000	280
in	129.9	54.7	48	118.1	11.0
	G1	**L**	**T**	**W**	**W1**
mm	830	4,520	17	1,680	1,810
in	32.7	178	0.7	66.1	71.3



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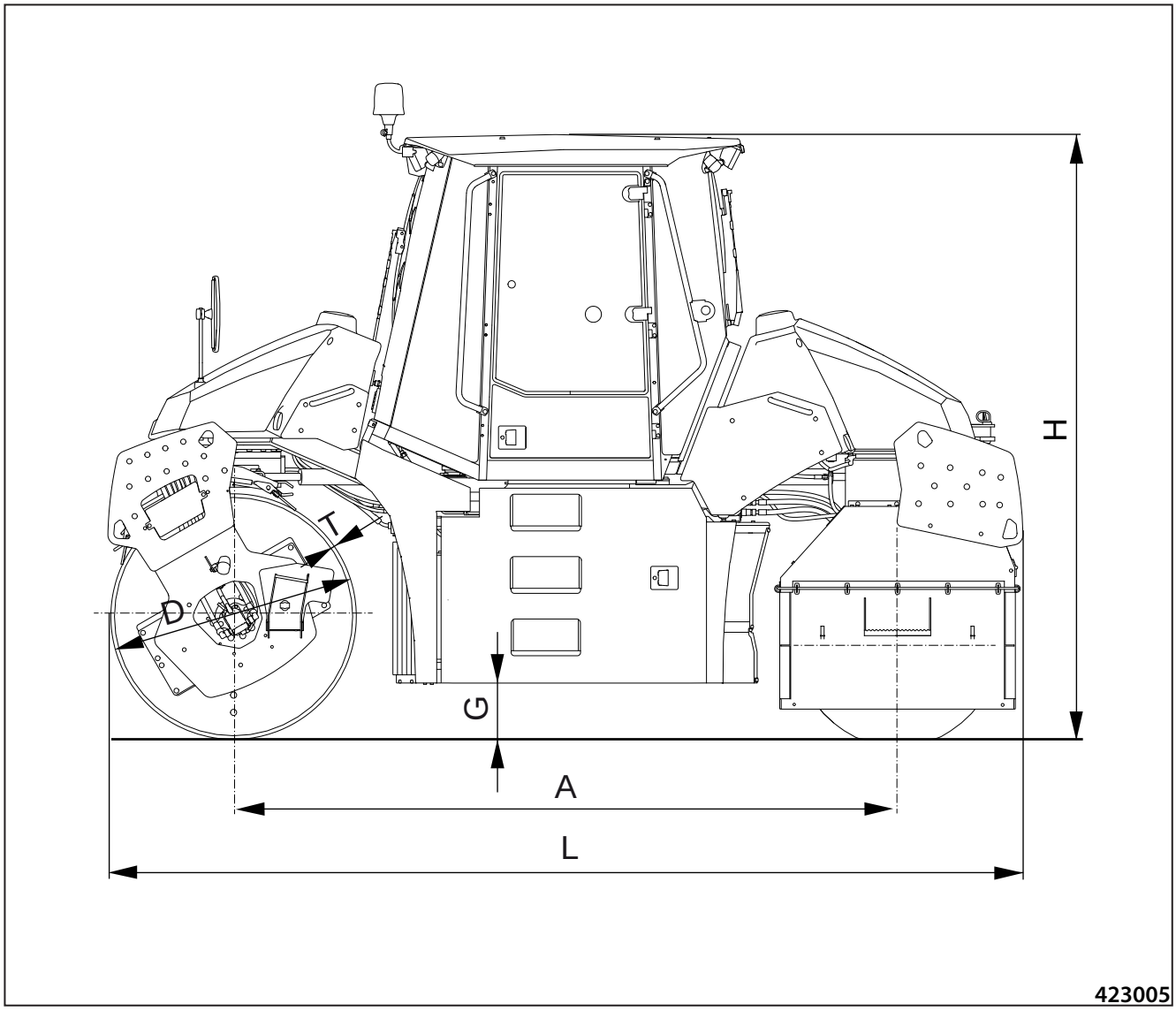
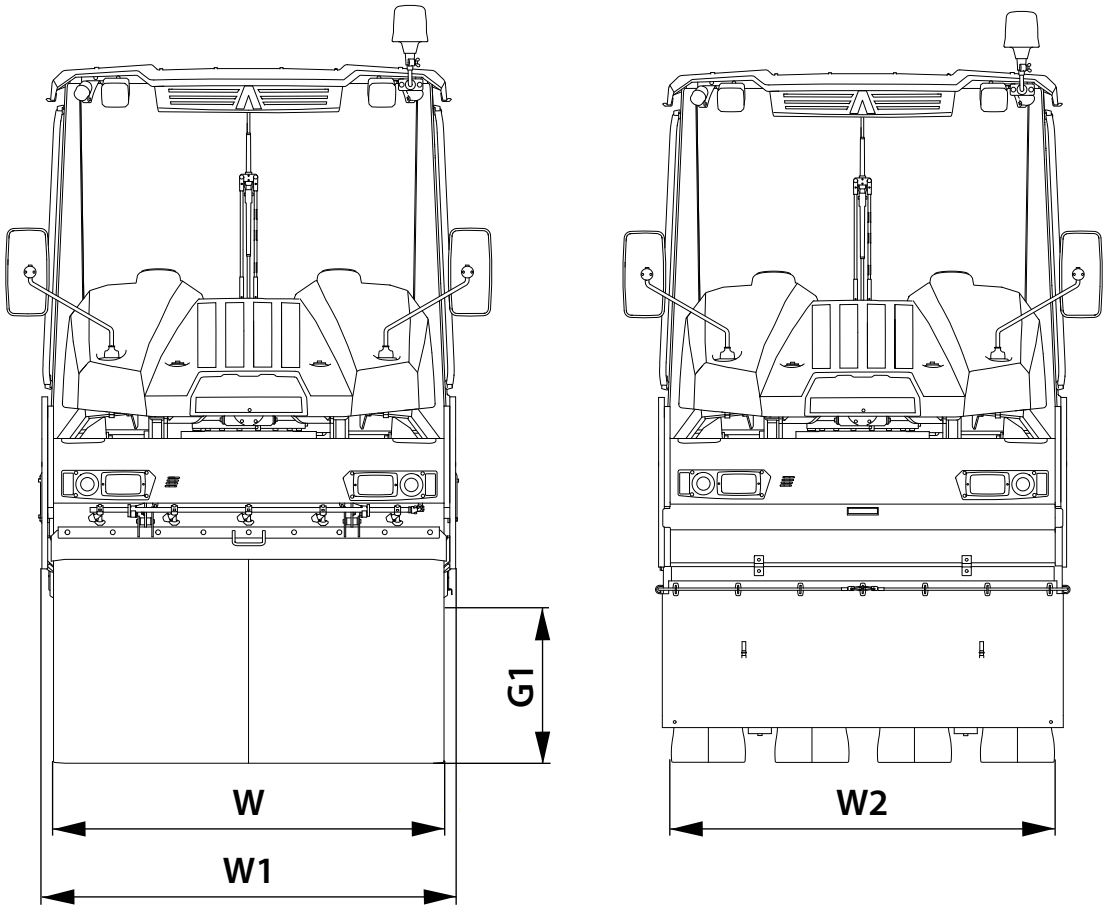
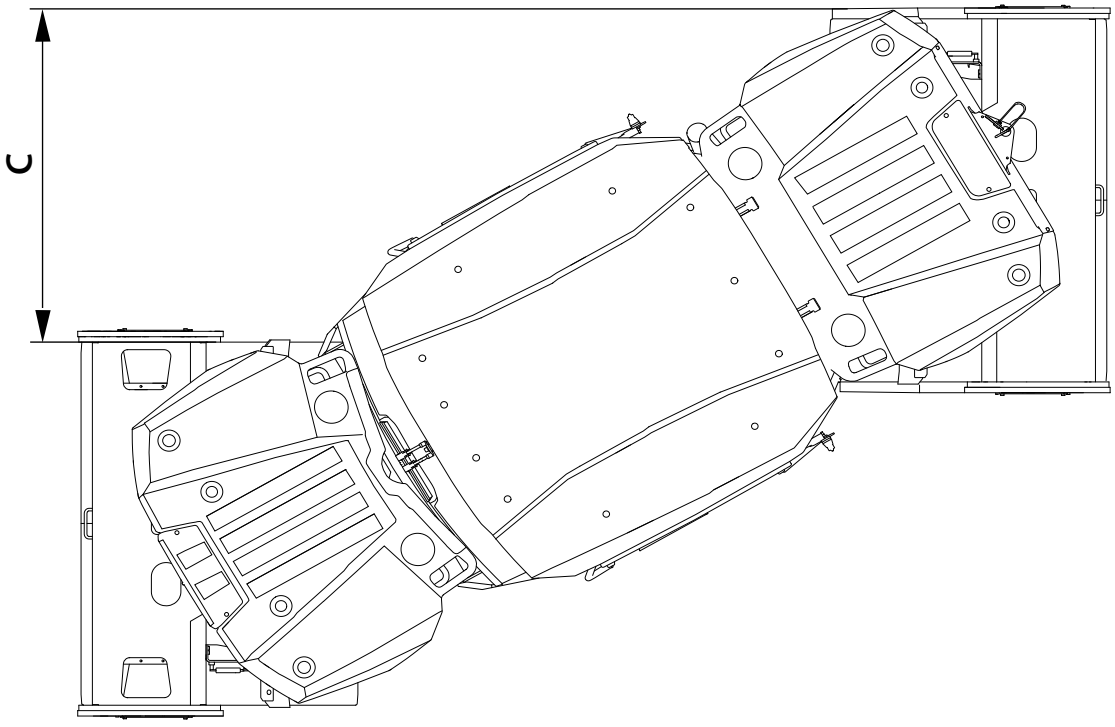
1.2 Dimensional drawing of the machine

ARP 95C



	A	C	D	H	G	G1
mm	3,200	1,350	1,220	3,000	280	720
in	126	53.2	48	118.1	11.0	28.4
	L	**T**	**W**	**W1**	**W2**	
mm	4,420	17	1,680	1,810	1,610	
in	174	0.7	66.1	71.3	63.4	





423006

1.3 Technical data

		ARP 95	ARP 95C	ARP 95 ACE	ARP 95C ACE
		EU Stage V / U.S. EPA Tier 4f			
Weight					
Operating weight of EN 500-1+A1 (CECE) with cab, ROPS	kg (lb)	9700 (21380)	9250 (20390)	9740 (21470)	9290 (20480)
Operating load of EN 500-1+A1 (CECE) with cab, ROPS on front axis	kg (lb)	4800 (10580)	4780 (10540)	4840 (10670)	4820 (10630)
Operating load of EN 500-1+A1 (CECE) with cab, ROPS on rear axis	kg (lb)	4900 (10800)	4470 (9850)	4900 (10800)	4470 (9850)
Weight of half fluid capacities	kg (lb)	470 (1040)	490 (1080)	470 (1040)	490 (1080)
Operating weight of ISO 6016 with cab, ROPS	kg (lb)	9770 (21540)	9330 (20570)	9810 (21630)	9370 (20660)
Maximum weight with the cab, ROPS, accessories, weighing	kg (lb)	11370 (25070)	10940 (24120)	11410 (25150)	10980 (24210)
Maximum permitted weight according to ROPS	kg (lb)	12000 (26460)	12000 (26460)	12000 (26460)	12000 (26460)
Static linear load of front drum	kg/cm (lb/in)	28,6 (160)	28,5 (159,3)	28,8 (161,3)	28,6 (160,2)
Static linear load of rear drum	kg/cm (lb/in)	29,2 (163,3)	-	29,2 (163,3)	-
Cab weight	kg (lb)	440 (970)	440 (970)	440 (970)	440 (970)
Weight of Ammann edge cutter	kg (lb)	150 (330)	150 (330)	150 (330)	150 (330)
Weight of two-sided edge cutter	kg (lb)	300 (660)	300 (660)	300 (660)	300 (660)
Weight of Ammann diagonal edge cutter	kg (lb)	300 (660)	-	300 (660)	-
Weight of Ammann spreader	kg (lb)	800 (1760)	800 (1760)	800 (1760)	800 (1760)
Driving characteristics					
Maximum speed	km/h (MPH)	10 (6,21)	10 (6,21)	10 (6,21)	10 (6,21)
Climbing ability without vibration	%	30	30	30	30
Climbing ability with vibration	%	25	25	25	25
Lateral static stability	%	60	60	60	60
Lateral stability during driving without vibration	%	25	25	25	25
Lateral stability during driving with vibration	%	15	15	15	15
Turning radius inner (edge)	mm (in)	3065 (120,7)	3065 (120,7)	3065 (120,7)	3065 (120,7)
Turning radius outer (contour)	mm (in)	4785 (188,4)	4785 (188,4)	4785 (188,4)	4785 (188,4)
Type of drive	-	Hydrostatic	Hydrostatic	Hydrostatic	Hydrostatic
Number of driving axles	-	2	2	2	2
Oscillation angle	°	± 6	± 6	± 6	± 6
Angle of steering	°	± 25	± 25	± 25	± 25
Steering					
Type of steering	-	Two-point	Two-point	Two-point	Two-point
Steering control	-	Hydraulic	Hydraulic	Hydraulic	Hydraulic
Linear hydraulic motors	-	2	2	2	2

		ARP 95	ARP 95C	ARP 95 ACE	ARP 95C ACE
		EU Stage V / U.S. EPA Tier 4f			
Engine					
Manufacturer	-	Deutz	Deutz	Deutz	Deutz
Type	-	TCD3,6 L4	TCD3,6 L4	TCD3,6 L4	TCD3,6 L4
Power according to ISO 14396	kW (HP)	74,4 (100)	74,4 (100)	74,4 (100)	74,4 (100)
Number of cylinders	-	4	4	4	4
Cylinder capacity	cm^3 (cu in)	3621 (221)	3621 (221)	3621 (221)	3621 (221)
Nominal speed	min^{-1} (RPM)	2200	2200	2200	2200
Maximum torque	Nm (ft lb)/rpm	410/1600	410/1600	410/1600	410/1600
Average fuel consumption	l/h (gal US/h)	7,8 (2,1)	7,8 (2,1)	7,8 (2,1)	7,8 (2,1)
DEF (AdBlue) consumption	l/h (gal US/h)	0,24 (0,1)	0,24 (0,1)	0,24 (0,1)	0,24 (0,1)
Engines complies with emission regulations	-	EU Stage V, U.S. EPA Tier 4 Final	EU Stage V, U.S. EPA Tier 4 Final	EU Stage V, U.S. EPA Tier 4 Final	EU Stage V, U.S. EPA Tier 4 Final
Cooling system of engine	-	Liquid	Liquid	Liquid	Liquid
Axle					
Tyre pressure	MPa (PSI)	-	0,16 (23,2)	-	0,16 (23,2)
Number of tyres	-	-	4	-	4
Number of front wheels	-	-	-	-	-
Number of rear wheels	-	-	4	-	4
Size of tyres	-	-	11,00x20,00 16PR	-	11,00x20,00 16PR
Type of tyres	-	-	Compactor Smooth	-	Compactor Smooth
Type of tyres	-	-	Tube type	-	Tube type
Brakes					
Operating	-	Hydrostatic	Hydrostatic	Hydrostatic	Hydrostatic
Parking	-	Mechanical multiple-disc	Mechanical multiple-disc	Mechanical multiple-disc	Mechanical multiple-disc
Emergency	-	Mechanical multiple-disc	Mechanical multiple-disc	Mechanical multiple-disc	Mechanical multiple-disc
Vibration					
Frequency I	Hz (VPM)	42 (2520)	42 (2520)	42 (2520)	-
Frequency II	Hz (VPM)	52 (3120)	52 (3120)	52 (3120)	-
Frequency II CE	Hz (VPM)	-	-	-	-
Frequency min. ACE	Hz (VPM)	-	-	37 (2220)	37 (2220)
Frequency max. ACE	Hz (VPM)	-	-	52 (3120)	52 (3120)
Amplitude I	mm (in)	0,65 (0,026)	0,65 (0,026)	0,65 (0,026)	-
Amplitude II	mm (in)	0,28 (0,011)	0,28 (0,011)	0,28 (0,011)	-
Amplitude min. ACE	mm (in)	-	-	-	-
Amplitude max. ACE	mm (in)	-	-	0,85 (0,033)	0,85 (0,033)
Centrifugal force I	kN	91	91	91	-
Centrifugal force II	kN	60	60	60	-

1.3 Technical data

		ARP 95	ARP 95C	ARP 95 ACE	ARP 95C ACE
		EU Stage V / U.S. EPA Tier 4f			
Centrifugal force min. ACE	kN	-	-	-	-
Centrifugal force max. ACE	kN	-	-	110	110
Type of drive	-	Hydrostatic	Hydrostatic	Hydrostatic	Hydrostatic
Watering					
Type of watering	-	Pressure	Pressure	Pressure	Pressure
Number of pumps	-	2	3	2	3
Number of filtrations	-	3	3	3	3
Fluid capacities					
Fuel	l (gal US)	165 (43,6)	165 (43,6)	165 (43,6)	165 (43,6)
Water for drum watering	l (gal US)	800 (211,3)	800 (211,3)	800 (211,3)	800 (211,3)
Engine (oil filling)	l (gal US)	9 (2,4)	9 (2,4)	9 (2,4)	9 (2,4)
Cooling system	l (gal US)	23 (6,1)	23 (6,1)	23 (6,1)	23 (6,1)
Hydraulic system	l (gal US)	60 (15,9)	60 (15,9)	60 (15,9)	60 (15,9)
DEF (AdBlue) Tank	l (gal US)	10 (2,6)	10 (2,6)	10 (2,6)	10 (2,6)
Vibrating drum front (oil filling)	l (gal US)	8 (2,1)	8 (2,1)	8 (2,1)	8 (2,1)
Vibrating drum rear (oil filling)	l (gal US)	8 (2,1)	-	8 (2,1)	-
Axle drive reducer	l (gal US)	-	2x2 (0,53)	-	2x2 (0,53)
Front watering tank	l (gal US)	340 (89,8)	340 (89,8)	340 (89,8)	340 (89,8)
Rear watering tank	l (gal US)	460 (121,5)	460 (121,5)	460 (121,5)	460 (121,5)
Spraying emulsion	l (gal US)	-	40 (10,6)	-	40 (10,6)
Washer tank	l (gal US)	2,75 (0,7)	2,75 (0,7)	2,75 (0,7)	2,75 (0,7)
ACE drum cooling liquid	l (gal US)	-	-	2x12,5	2x12,5
Drum cooling liquid	l (gal US)	2x30,5 (8,06)	2x30,5 (8,06)	2x30,5 (8,06)	2x30,5 (8,06)
Wiring					
Voltage	V	24	24	24	24
Battery capacity	Ah	2x55	2x55	2x55	2x55
Noise and vibration emissions					
Measured sound power level A, LpA at the operator's position (cab) *	dB	72	72	72	72
Uncertainty KpA *	dB	2	2	2	2
Guaranteed sound power level A, LWA **	dB	106	106	106	106
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)	<2,5 (<8,2)	<2,5 (<8,2)	<2,5 (<8,2)	<2,5 (<8,2)

* measured according to EN 500-4

** measured according to DIRECTIVE 2000/14/EC

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

Night lighting
LED lights on the cab, additional
AMMANN edge cutter 45° (see chamber 1.4.1)
AMMANN edge cutter 60° (see chamber 1.4.1)
AMMANN edge cutter, two-edged 45° (see chamber 1.4.1)
AMMANN edge cutter, two-edged 60° (see chamber 1.4.1)
AMMANN edge cutter, diagonal 45° (see chamber 1.4.1)
AMMANN edge cutter, diagonal 60° (see chamber 1.4.1)
ACE force – measuring system (see Chapter 1.4.2)
Printer for ACE (see Chapter 1.4.3)
Preparation for the spreader
AMMANN spreader (see chamber 1.4.3)
Air-conditioning (see Chapter 1.4.4)
Preparation for radio
Radio with USB
Beacon (see Chapter 1.4.5)
Back signal horn
Infrathermometer (see Chapter 1.4.6)
Additional rear mirrors
AMMANN Set of tools
Fire extinguisher (see Chapter 1.4.7)
Set of filters, 500 h
Set of filters, 2000 h
Covers of rotating parts
Socket 12 V
Additional documentation set
Biodegradable oil
Special colour design
ACE (see Chapter 1.4.10)
ACE & GPS
Sun protection window foil
Telematic (see Chapter 1.4.8)

1.4 Optional equipment

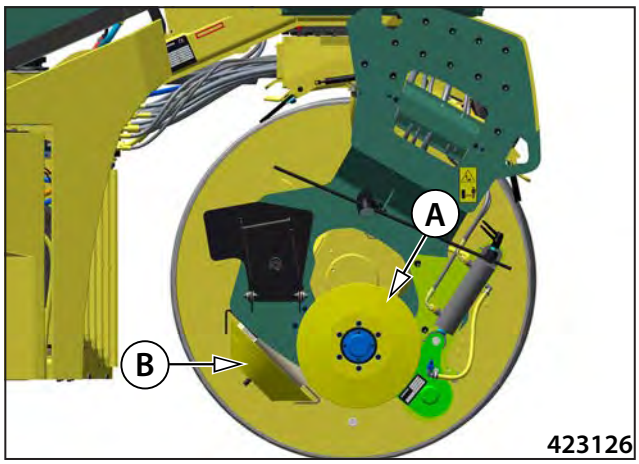
1.4.1 Edge cutter

The edge cutter is a special type of application equipment of the machine upon request of the customer.

This equipment includes a cutting disc (A) that is used for cutting and evening edges of laid bituminous layers.

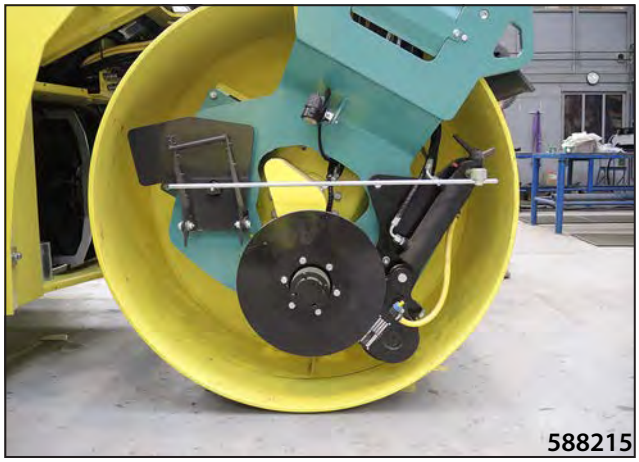
The set contains also a compaction disc (B) that is used for compacting edges of bituminous layers.

The compaction discs (B) are available in variants of 45° or 60° gradients.



Edge cutter type:

- Edge cutter, one-sided 45°/60°
- The set contains an edge cutter placed on the right side of the front drum of the machine.
- Edge cutter, two-sided 45°/60°
- The set contains two edge cutters. The edge cutters are placed on the right and left side of the front drum of the machine.
- Edge cutter, diagonal 45°/60°
- The set contains two edge cutters. The edge cutters are placed on the right side of the front drum and on the left side of the rear drum.



1.4.2 ACE FORCE

The unique measuring ACE FORCE system is able to evaluate data in real time and significantly reduces the number of required compaction passes.

The system displays and evaluates rigidity data of the compacted material in real time and displays the increase in compaction. All required information about compacting works, e.g. current stiffness of the compacted layer or current speed of the machine, are displayed on the main operator display in the cab of the operator.

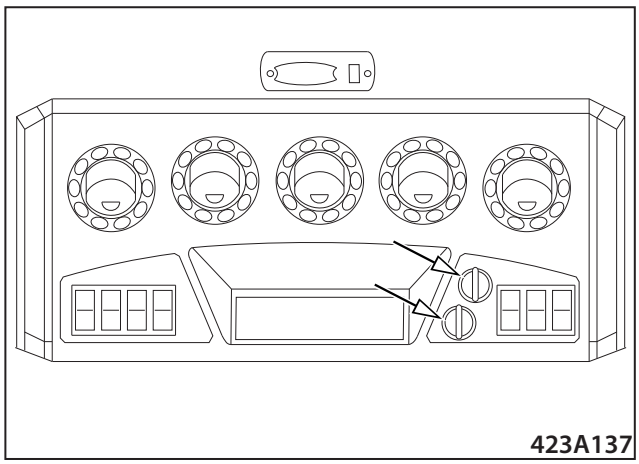
Then the measurements can be saved in the system memory using the ADS function.

1.4.3 Ammann spreader

The Ammann spreader is designed for additional application and spreading of crushed gravel on compacted asphalt layers. It is used for increasing the roughness and road safety features.

1.4.4 Air-conditioning system

The air-conditioning is a special cooling system for the operator's workplace to provide comfort and stable temperature also in extremely hot weather. The operator is able to control and precisely regulate the temperature at the operator's workplace using controls in the upper part of the cab on the right side.

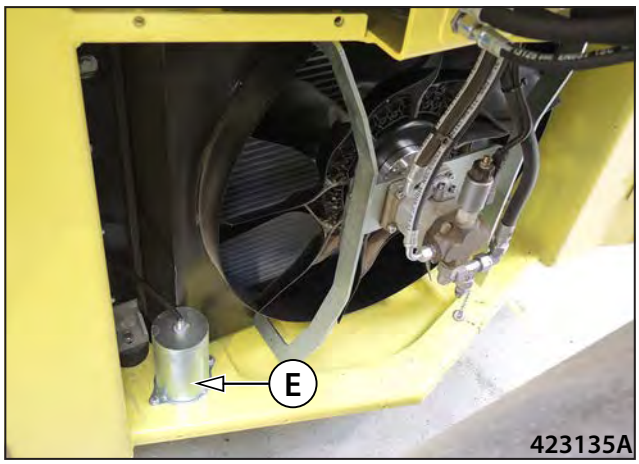


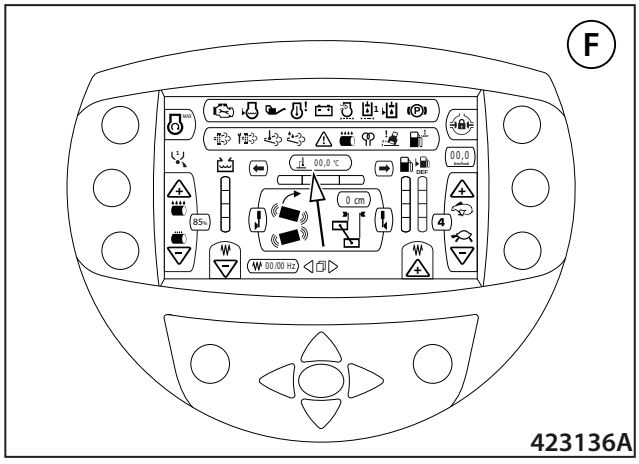
1.4.5 Beacon

The beacon is a safety device used for limiting or preventing potential hazards when working with the machine.

1.4.6 Infrathermometer

It displays the current temperature of the compacted bitumen surface using the temperature sensor (E). The temperature sensor (E) is placed in the engine compartment. Then the measured value is indicated on the main display (F).





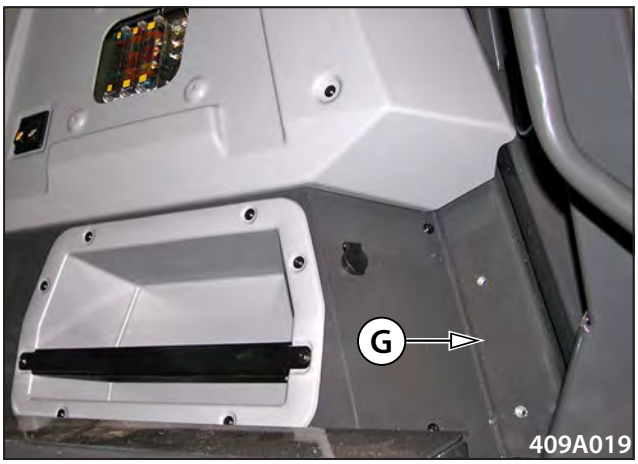
1.4.7 Fire extinguisher

The fire extinguisher is a fire protection tool and is used to smother fire in an early stage of development. The powder is not electrically conductive so it can be used to extinguish live electrical equipment.

Note

The manufacturer recommends that the machine is equipped with a fire extinguisher of a correct type.

Place to install a fire extinguisher (G).



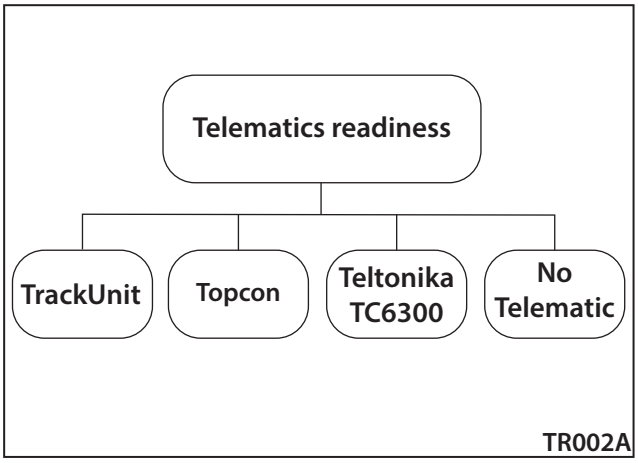
1.4.8 Telematics readiness

Global positioning system with telemetry that monitors operating systems of the machine (machine start, diesel engine speed, machine consumption, number of engine hours, etc.) ant its current position.

The GPS system allows the geofencing function (machine operation limited to a defined area) and remote machine monitoring which helps finding a stolen machine.

Note

The availability and content of the given data depends on the selected manufacturer of the telematics system.



1.4.10 ACE PRO

The Ammann Compaction Expert ACE is a measuring system for vibrating rollers. This world-unique control system allows smooth and automatic amplitude and frequency adjustment depending on the selected presetting and soil conditions.

Measured values (e.g. of stiffness, temperature) and other important process information, e.g. optimum travel speed, frequency and amplitude, are continuously displayed on the display (H) to achieve the best compaction results.

Notes

2 OPERATING MANUAL

ARP 95
(Deutz Tier 4 final)

2.1.1 Safety precautions during operation of the machine

Safety measures given in the individual chapters of the technical documentation supplied with the machine must be supplemented with safety precautions in the workplace in force within the respective country where the machine is used, with respect to organization of work, working process and personnel involved.

2.1.1.1 Before compacting works are started

- The building contractor (machine user) is liable to issue instructions for drivers and maintenance workers that include requirements for safety of operation when the machine is used.
- Before the compaction works are started, he must verify:
  - utility lines
  - underground areas (direction, depth)
  - seepage or sudden escape of harmful substances
  - ground-bearing capacity, travel plane slope
  - other obstacles and specify work safety measures.

  The contractor must make the machine driver carrying out the earth works familiar with the above items.
- He must specify a technological procedure including a working process for the specific job that specifies among others:
  - measures for works under extraordinary conditions (works within protection zones, extreme slopes, etc.)
  - precautions for any natural disaster hazards
  - work performance requirements and observance of principles of health and safety at work
  - technical and organizational measures to ensure safety of employees, workplaces and surroundings.

  He must make the machine drivers provably familiar with the technological procedures.

2.1.1.2 Work in the dangerous area

Any damage to the utility lines must be immediately reported to their provider, and at the same time measures must be taken to prevent unauthorized persons from entering the dangerous area.

The worker is not allowed to work alone in a workplace where another worker is not in sight and within an ear shot who if necessary will be able to provide help or call for help unless another effective form of supervision or communication is ensured.

2.1.1.3 Ensurance of safety measures by the provider

- He must ensure that the machine is operated only under conditions and only for purposes it is technically capable of according to conditions specified by the manufacturer and respective standards.
- He must ensure that the vibration roller is used only in such a way and at such workplaces where there is no risk of transmission of dangerous vibrations and damage to nearby facilities, etc.
- He must ensure a regular inspection of operation and technical condition, and regular machine maintenance in intervals according to the lubrication and maintenance instructions. If the technical condition of the machine does not meet requirements to such an extent that the machine endangers safety of operation, persons and property, or damages and impairs the environment, it must be put out of service until the defects are removed.
- He must specify who is allowed to carry out operation, maintenance and repairs of the machine as well as what activities can be carried out in such cases.
- Every person who drives the machine or performs maintenance and repairs of the machine must be familiarised with instructions stated in the operating manual of the machine.
- He must ensure that the fire extinguisher is checked on regular basis.
- He must ensure that the "Machine operating manual" and operation book are kept in the seat box always available for the driver.
- He must ensure continuous supervision by an appointed person during machine operation on public roads and is liable in particular for releasing instructions to ensure health protection and work safety.
- He must ensure that dangerous substances (fuel, oils, coolant, etc.) must be removed from leakage points according to their nature to avoid their adverse impact on the environment, safety of operation and human health.

2.1.1.4 Cab with integrated ROPS

- The ROPS cab must not be deformed and must not show signs of corrosion, cracks or breaks. It must be fixedly connected to the machine frame. No additional modifications of the cab may be performed without approval of the manufacturer because such modifications can reduce its strength. The screwed connections must comply with the specification and must be tightened to the specified torque, must be neither damaged nor deformed, and must not show signs of corrosion.

2.1.2 Requirements for the machine driver's qualification

- Only a driver having been trained according to ISO 7130 and other local and national instructions and standards specified for drivers of such a group of machines is allowed to operate the roller.
- Only the one who learns to drive the machine with the approval of the user for the purpose of getting preliminary practice may drive the machine with no licence, and such a person has to be under direct and continuous surveillance of a professional teacher or trainer.
- The licence (certificate) holder is obliged to take due care of the licence and when requested to submit it to the control authorities.
- The licence holder must not make any records, changes or corrections in the licence card.
- He is obliged to immediately report his lost licence to the authority that issued the licence.
- The roller may be driven without a respective licence independently and for a short term only by a worker who is mentally and physically fit, over 18 years old and is:

  a) charged by the machine manufacturer with assembling, testing and presenting the machine and possibly with training the drivers whereas he must be familiar with work safety regulations in force at the workplace

  or

  b) assigned by the building works contractor for operation (maintenance), trained and practised in a provable manner and/or having the professional qualification to operate and drive the roller in compliance with special provisions (machine operator licence, etc.).
- The machine driver must undergo training and examination concerning the work safety regulations at least once every 2 years.

2.1.3 Driver's obligations

- Before starting operation of the machine, the driver is obliged to get familiar with instructions stated in the documentation supplied together with the machine, especially with safety precautions, and strictly observe the instructions. This also applies to personnel assigned to maintain, adjust and repair the machine. (In case you do not understand some parts of the manuals, contact the nearest dealer or the manufacturer.)
- The driver must not drive a roller, unless he is fully familiarized with all functions of the machine, working and operating elements and unless he precisely knows how to operate the machine.
- The driver is obliged to follow the safety signs located on the machine and keep them legible.
- Before starting the work, the driver must get familiar with the workplace environment, i.e. with obstructions, slopes, utility line system and necessary types of workplace protections with respect to the surroundings (noise, vibration, etc.).
- The driver while working with the machine must be fastened with the safety belt.
- The safety belt and its brackets must not be damaged.
- When there is a risk to health, human life, property, failures, during hardware accidents, or there are symptoms of such risks during operation, the driver must stop his work and secure the machine against undesired starting, communicate this to a responsible worker and to a possible extent notify all the persons exposed to such hazard.
- Before starting operation of the machine, the driver is obliged to get familiar with records and operational deviations found during the previous work shift.
- Before starting the work, the driver is obliged to inspect the machine and accessories and to check control elements and communication and safety equipment for functioning according to the manual. If he finds a defect that might endanger the safety of work and is not able to repair it, then he must not put the machine into operation and must report the defect to a responsible worker.
- If the driver finds a defect during operation, he must immediately stop the machine and secure it safely against undesirable starting.
- During operation the driver must watch operation of the machine and record any detected defects into the operation book.
- The driver must maintain the operational book, which is defined for records on the machine acceptance and take-over carried out between drivers, for defects and repairs done during operation and keeping the serious events during the working shift on files.
- Before the engine is put into operation, the control must be in the brake position; no persons are allowed to stay within dangerous reach of the machine.
- The driver must always notify the others each time the machine is put into operation with the help of a sound or light signal before starting the engine of the machine.
- Before putting the machine into operation, he must check the brakes and steering for functioning. (every 24 hours verify the brake test).
- After a warning alarm, the operator may put the machine into operation only when all workers have left the endangered area. At not clearly arranged workplaces, the machine can be put into operation not earlier than after expiration of the period of time needed for people to leave the endangered area.
- During operation of the machine it is necessary to follow safety instructions and not to carry out any activity that might endanger the work safety; the operator must be fully engaged in driving the machine. He must always sit on the seat while driving the machine.
- The driver must comply with technological procedures of works or instructions of a responsible worker.
- When rolling (traversing) the machine within the workplace, he must adapt the driving speed to terrain conditions, the work performed and weather conditions. Watch continuously the clearance to avoid collision with any obstruction.
- When the machine operation is finished or stopped and the driver leaves the machine, he must take measures against unauthorized use of the machine or against spontaneous starting. Remove the key from the ignition box, lock the cab and disconnect the wiring using the disconnector.
- When the operation is completed, park the machine at a suitable parking place (flat, bearing surface) so as not to endanger stability of the machine; the machine must not interfere with traffic roads, must not be exposed to falling objects (rocks), and must be protected against any natural disaster of another kind (floods, landslides, etc.).
- When parking the machine on roads, the measures according to road traffic regulations shall be taken. The machine must be marked properly.
- After finishing the work with the machine, all of the defects, damages to the machine and any repairs made must be recorded in operation book. When drivers take turns, the driver is obliged to report any identified facts to the following driver.
- The driver must use personal protective equipment (PPE) – work clothing, safety shoes, The clothing must not be too loose, impaired, hair must be protected with a suitable cap. During maintenance (lubrication, refilling and replacement of working media) the hands must be protected with suitable gloves.
- Driver must wear ear protection when the windows are open.
- He must keep accessories of the machine as prescribed.
- He must keep the driver's stand, foot rests and walkway surfaces clean.
- If the machine could come into contact with high voltage, the following principles must be observed:
  - try to leave the hazardous zone with the machine;
  - do not leave the driver's stand;
  - warn the others to keep off and not touch the machine.
- Keep the machine free of oil contaminants and inflammable materials.

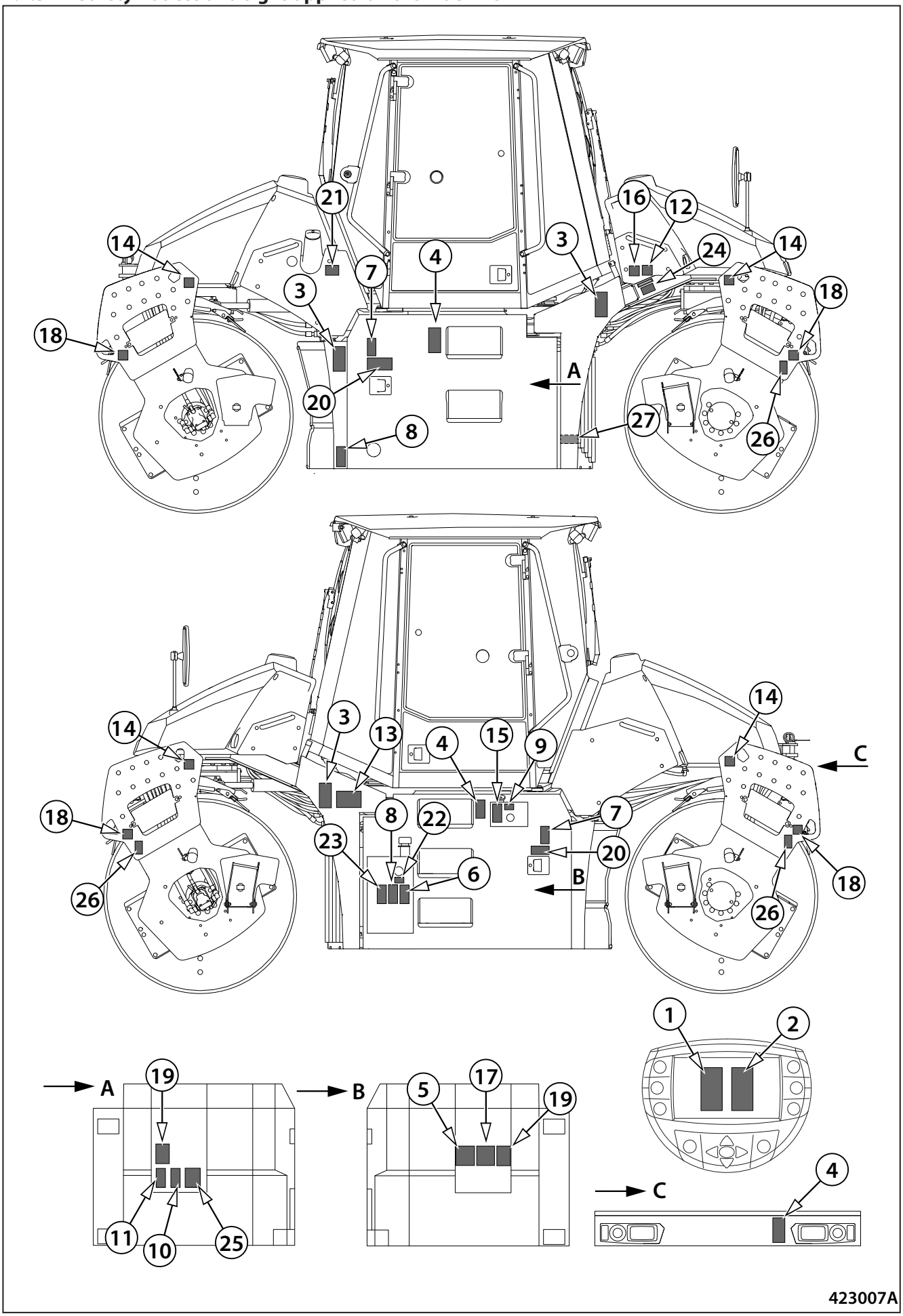
2.1.4 Forbidden activities – safety and guarantee

The following is forbidden

- Operating the machine with the engine compartment door unlocked.
- Filling the hydraulic circuit during the guarantee period in a different way than using the hydraulic unit.
- Using the machine in case of an evident defect of the machine.
- Using the machine when any of the operating fluid levels is low.
- Changing the vibration amplitude while driving. It is always necessary to stop and only then set a different amplitude.
- Wilful repair of the engine, including peripheral engine parts – alternator, starter, thermostat, electrical installation of the engine, high-pressure injection system etc.
- Working long-term in the vibro stroke mode!
- Increasing and decreasing the engine speed rapidly; you could damage the engine.
- Using the emergency brake for turning off the engine during normal operation of the machine.
- Operating the machine in the explosive environment and underground.
- Using the machine after ingestion of alcoholic beverages or drugs.
- Using the machine if its operation might endanger its technical condition, safety (life, health) of persons, facilities or objects, or road traffic and its continuity.
- Putting the machine into operation and using the machine when other persons are within its danger zone – the exception is training of a driver by an instructor.
- Putting the machine into operation and using the machine when a safety device (emergency brake, hydraulic locks, etc.) has been removed or damaged.
- Travelling and compacting in such slopes where the machine stability would be broken (overturning). The stated machine static stability is reduced by dynamic effects of the drive.
- Travelling and compacting in such gradients of slopes where there is a risk of soil breaking off (dropping) under the machine or of loss of adhesion and of uncontrolled slip.
- Controlling the machine in some other way than stated in the operation manual.
- Travelling and compacting with vibration according to the bearing capacity of the subsoil in such a distance from the slope edge or trenches where there is a risk of landslide or shoulder breaking off (dropping) together with the machine.
- Travelling and compacting with vibration in such a distance from walls, cuts and slopes where there is a risk of landslide and the machine could be covered up with soil.
- Compacting with vibration in such a distance from buildings or facilities and equipment, within which there is a risk of damage due to transmission of vibration.
- Moving and transporting persons on the machine.
- Working with the machine if the driver's stand is not properly attached to the machine frame.
- Working with the machine if there are other machines or means of transport in its danger zone, except those that operate in mutual cooperation with the machine.
- Working with the machine at a place that is not seen from the driver's stand and where hazard to people or property could occur unless the work safety is ensured through some other way, e.g. with mediate signalling by a duly instructed person.
- Working with the machine in a protected zone of electric lines or substations.
- Crossing electric cables if they are not properly protected against mechanical damage.
- Working with the machine in reduced visibility or at night unless the machine's working area and the workplace are illuminated sufficiently.
- Leaving the machine driver's place when the machine is running.
- Getting in or off on the run, jumping down from the machine.
- Sitting on external parts of the machine during a drive.
- Leaving the machine unattended – moving away from the machine without having prevented its misuse.
- Disabling safety, protective or locking systems or altering their parameters.
- Using a machine, from which the oil, fuel, coolant or other operating fluid is leaking.
- Starting the engine in a different way than it is given in the operation manual.
- Placing other items (tools, accessories) than items for personal use in the driver's stand.
- Placing materials or other items on the machine.
- Removing dirt while the machine is running.
- Performing maintenance, cleaning or repairs with the machine not secured against spontaneous movement or accidental start, and if a person can come in contact with moving parts of the machine.
- Touching moving parts of the machine with the human body or items and tools held in hands.
- Smoking or handling open fire when checking or pumping fuels, replacing and refilling oils, lubricating the machine and inspecting the battery and refilling the battery.
- Carrying rags soaked with flammable materials or flammable liquids in free vessels on the machine (in the engine compartment, cab).
- Letting the engine run in closed spaces. Exhaust fumes are dangerous to life.
- Travelling with open doors.
- Performing modifications on the machine without the prior consent of the manufacturer.
- Travelling with the seat belt not fastened.
- Moving electrical conductors.
- Using other than original spare parts.
- Intervening in electrical and electronic units in any manner.
- Using the pressure washing near the control unit of the machine.

Non-observance of the above provisions can impact on the assessment of a complaint and effectiveness of the engine guarantee period.

2.1.5 Safety notices and signs applied on the machine



1. Read the operation manual!

2702bz

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

2. Fasten your seat belt!

2687bz

Fasten your seat belt before driving!

3. Squeezing hazard

2941bz

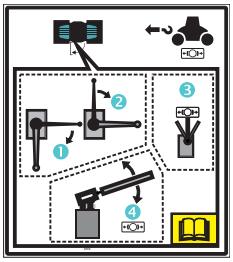
Keep a safe distance from the machine, there is a danger of squeezing by the machine between the frame and the drums.

4. Danger zone

2942bz

Keep a safe distance!

5. Emergency machine brake release



3773

If there is a failure, the machine can be towed.

6. Risk of injury


2601bz

Keep safety distance away from the rotating pulley and belt.

7. Adjust at rest


2584bz

Adjust and maintain with the engine stopped.

8. Risk of burns


2586bz

Do not touch hot parts of the machine unless you make sure that they have cooled down sufficiently.

9. Coolant


2152bz

The coolant is harmful to health. Read the Operating manual!

10. Explosion hazard


3698bz

Read Operating manual before battery maintenance, or when starting using jumper cables.

11. Disconnect the electrical installation


2668bz

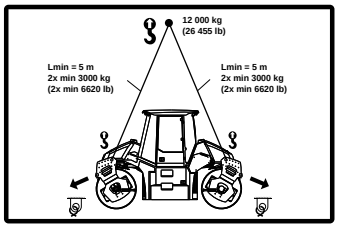
Before welding, disconnect the electrical installation, alternator, machine electronics and engine control unit.

12. Maximum machine height

3218bz

Pay attention when passing through areas with height limitations.

13. Lifting diagram



3719

To lift the machine, use binding means of sufficient loading capacity.

14. Points of suspension


2153bz

Suspend the machine only in these points.

15. Cooling liquid


3227bz

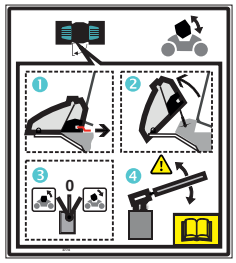
There is a risk of scalding. Do not open the expansion tank lid until the liquid cools down below 50 °C (122 °F).

16. Noise emitted

3191bz

External noise of the machine.

17. Cab lifting



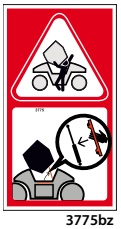
3774

Read the Operating manual before lifting the cab.

18. Sling points

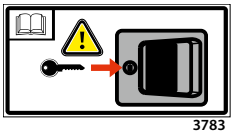
Sling the machine only in these points.

19. Securing of the cab



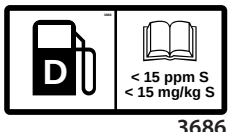
Carry out after the cab is lifted off!

20. Engine compartment door

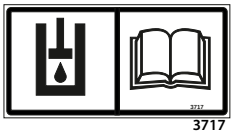


It is prohibited to operate the machine with the engine compartment door unlocked.

21. Refuelling



22. Hydraulic oil level



Read the Operating manual!

23. Washing the machine with water

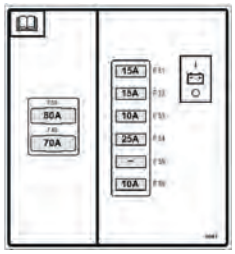
Hazardous situation. Prevent water from entering electric and electronic parts of the machine as it may result in damage of the equipment and personal injury. Read the operation manual!

24. California Proposition 65

4055bz

Exhaust gases and their components, operating fluids, batteries and other machine accessories contain chemicals known in the state of California to be substances which may cause cancer, congenital defects and other reproduction problems. When handling these substances, abide by relevant safety precautions. For further information see www.p65warnings.ca.gov

25. Battery disconnector



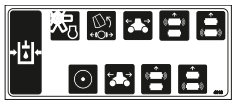
4041

26. Danger zone

3352bz

There is a risk of an accident. Keep a safe distance from the edge cutter and compactor in operation.

27. Measuring points



4016

Cooling, cab lifting, brake releasing, travel, low/high front drum vibration, low/high rear drum vibration, control.

2.1.6 Manual signals

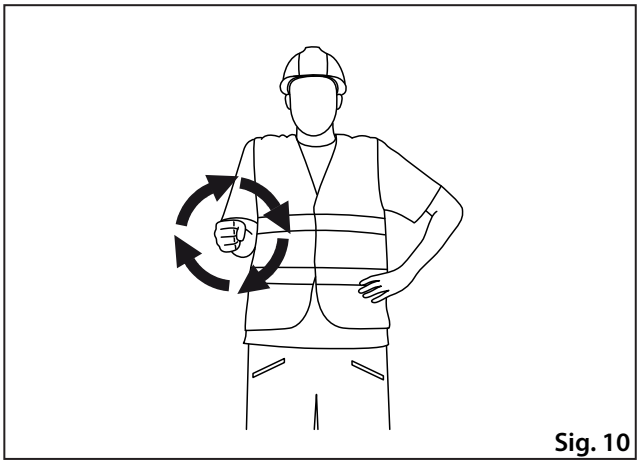
Signals given by an assistant operator if the operator cannot see the travelling or working area or work devices of the machine.

The following principles must be observed:

- For communication purposes, only a limited number of signals must be used.
- The signals must be clearly distinguishable to prevent any misunderstanding.
- Hand signals can only be used when ambient conditions allow clear communication between persons.
- Hand signals must be as similar as possible to intuitive movements.
- Single-handed signals can be done with any hand.

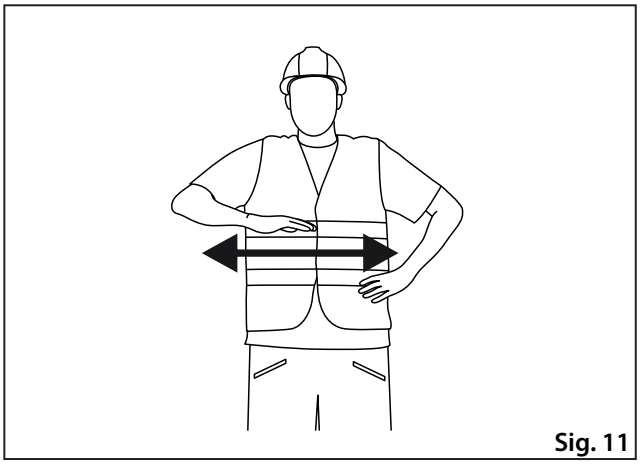
SIGNALS FOR GENERAL COMMANDS

Engine start



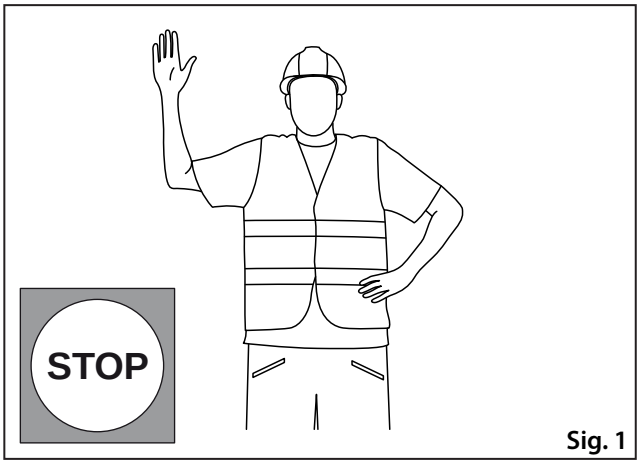
Sig. 10

Engine OFF



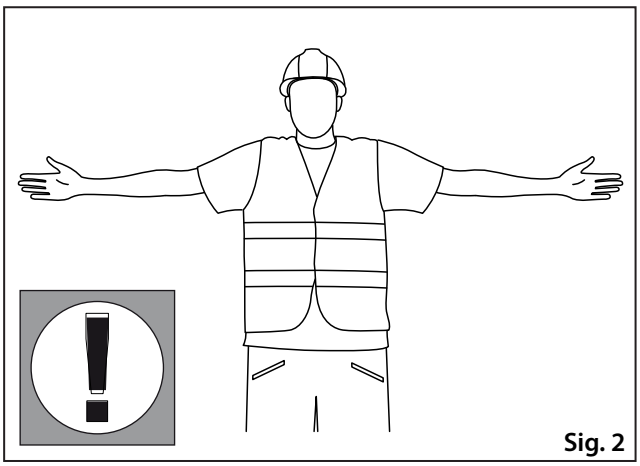
Sig. 11

Stop



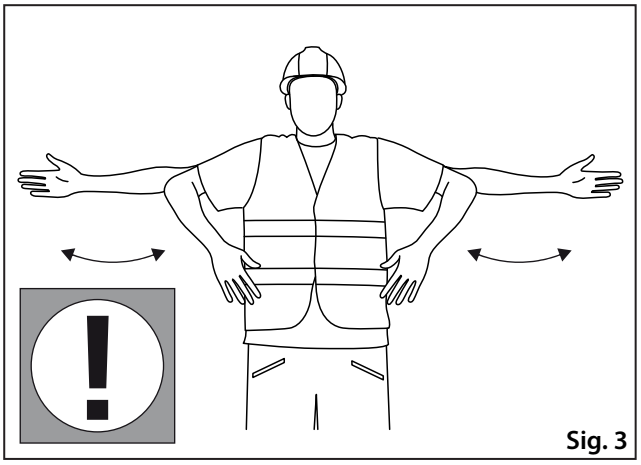
Sig. 1

Watch out!



Sig. 2

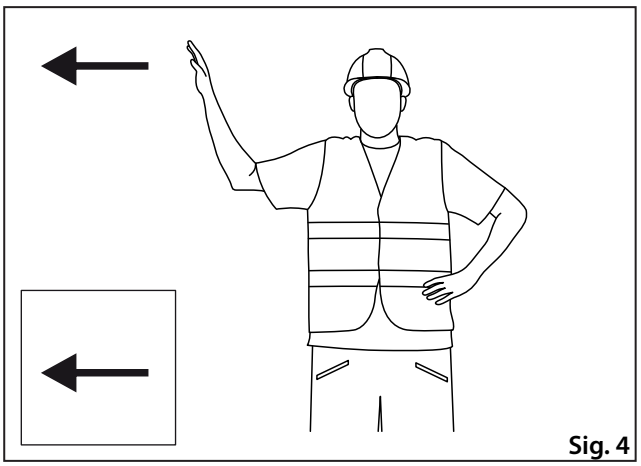
Watch out, danger!



Sig. 3

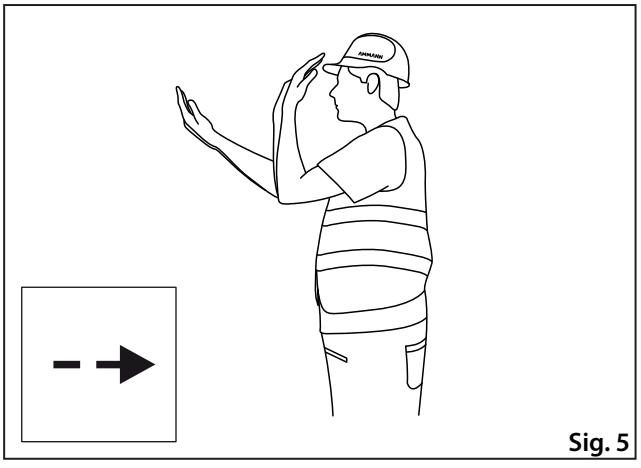
SIGNALS FOR DRIVE

Travel



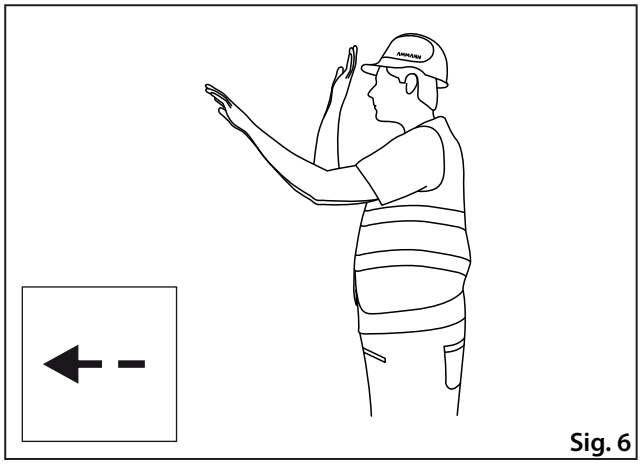
Sig. 4

Slow forward travel – towards me



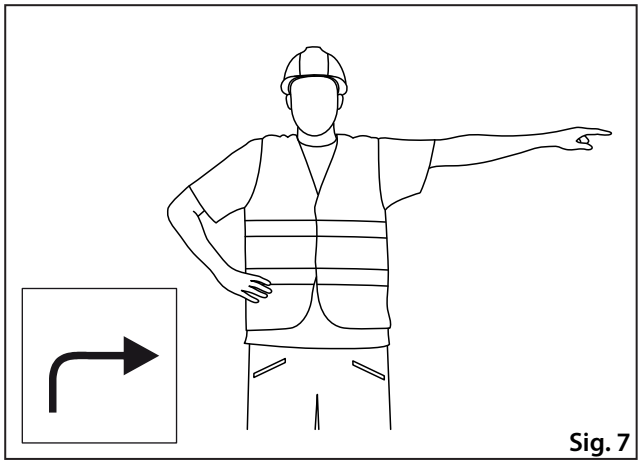
Sig. 5

Slow reverse travel – away from me



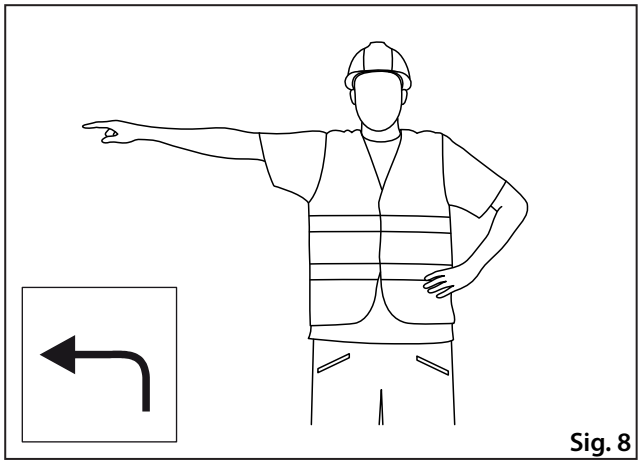
Sig. 6

Drive to the right



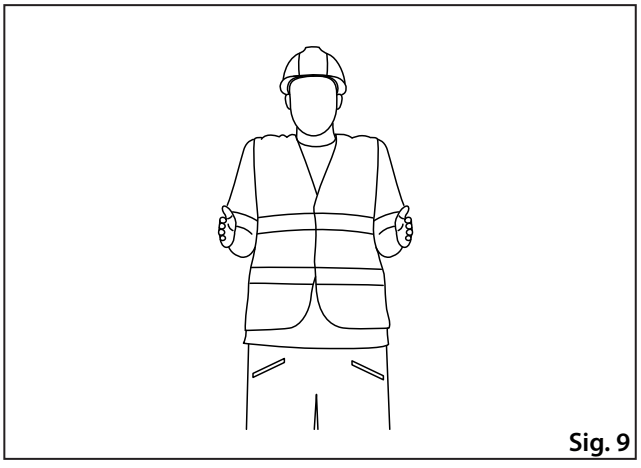
Sig. 7

Drive to the left



Sig. 8

Short distance travel



Sig. 9

2.2 Environmental and hygiene principles

2.2.1 Hygiene principles

When operating and storing the machines, the user is obliged to observe general principles of health and environmental protection, and laws and regulations relating to the given points at issue and being in force within the territory where the machine is used.

- Petroleum products, cooling system fluids, battery cartridges and coating compounds including thinners are substances harmful to health. Workers coming into contact with the above products during operation or maintenance of the machine are obliged to follow general principles of their own health protection and comply with safety and hygienic manuals made by manufacturers of the products.

  In particular we draw your attention to the following:

  - protect your eyes and skin while working with the batteries
  - protect your skin while handling petroleum products, coating compounds and coolants
  - wash your hands properly after finishing the work and before eating, treat your hands with a suitable reparation cream
  - when handling cooling systems, follow instructions given in the manuals supplied with the machine.
- Always store petroleum products, cooling system fluids, battery cartridges and coating compounds including organic thinners, and also cleaners and preserving agents in original and properly labelled containers. These materials are not allowed to be stored in unlabelled bottles or in any other containers considering the possible risk of confusion. Possible confusion with foodstuffs or beverages is very dangerous.
- If by accident the skin, eyes or mucous membrane is stained or if you breathe in the vapours of such products, apply immediately the principles of the first aid. In case of accidental ingestion of these products, immediately seek medical help.
- When working with a machine that is not provided with a cab or when the cab windows are open, always use ear protectors of suitable type and version.

2.2.2 Environmental principles

- Discarded operating fluids of individual systems of the machine and also some of its parts become hazardous wastes with dangerous properties for the environment.

  This category of waste products includes in particular:

  - organic and synthetic lubricating materials, oils and fuels;
  - coolants;
  - battery cartridges and batteries;
  - cleaning and preservative agents;
  - all dismounted filters and filter elements,
  - all used and discarded hydraulic or fuel hoses, rubber-metals and other parts of the machine contaminated by the above mentioned products.

Producer and contractual service organizations accredited by him, or dealers take back the following materials or parts free of charge:

- Oils
- Batteries

It is necessary to treat the above mentioned materials and parts after they have been discarded in accordance with relevant national regulations valid for protection of individual parts of the environment and in compliance with health protection regulations.

2.3 Preservation and storage

2.3.1 Short-term preservation and storage for 1–2 months

Wash and clean the entire machine carefully. Before parking the machine for preservation and storage, run the engine to warm it up to its operating temperature. Park the machine on a solid and flat surface at a safe place with no risk of natural disaster (floods, landslides, fire, etc.) for the machine.

In addition:

- repair paints where damaged.
- Lubricate all lubricating points, cable hoses, joints of the controls, etc.
- confirm that water fillings are drained
- check that the coolant has the required antifreeze properties
- check that the batteries are charged and/or recharge them if necessary
- lubricate chromed surfaces of piston rods with preservative grease
- We recommend you to protect the machine against corrosion with a preservative coating (applied by spraying), especially where corrosion can occur.

If you treat the machine as above described, it is not necessary to prepare the machine in a special manner before it is put into operation again.

2.3.2 Preservation and storage of the machine for a period over 2 months

For machine shut-down, the same principles are applicable as for the short-term preservation.

In addition it is recommended to:

- remove the batteries, check for condition and store them in a cool and dry room (charge the batteries regularly)
- support the drum frame so that the shock-absorbing system shows minimal sag
- protect the rubber elements by coating with special preservative agent
- lubricate chromed surfaces of piston rods with preservative grease
- preserve the machine by spraying a special liquid, in particular where there is a risk of corrosion;
- cover the suction and exhaust pipe of the engine with double PE foil and tighten it carefully with sealing tape
- spray a special liquid on the headlights, external rear-view mirrors and other elements of the external electrical installation and wrap in PE foil to protect them
- preserve the engine according to the manufacturer's manual – mark visibly that the engine is preserved.

After 6 months, we recommend you to inspect the condition of preservation and renew if required.

Never start the engine during storage!

When the machine is stored under field conditions, check that the parking place is not exposed to danger of flooding due to floods and that there is no other type of danger in this area (landslip etc.)!

Before restoring operation of the machine, wash off the preservation agents using high pressure stream of hot water with common degreasers while observing the operation manual and the ecological principles.

Remove the preservative agents and wash the machine in places provided with intercepting sumps to trap the rinsing water as well as de-preservative agents.

2.3.3 Depreservation and inspection of the delivered machine

- Check the machine according to transport documents.
- Check all parts of the machine for damage during transport and for missing parts. Inform the shipper of any discrepancies.

Before operating the machine, wash the preservative agents away using high pressure stream of hot water with common degreasers while observing ecological principles.

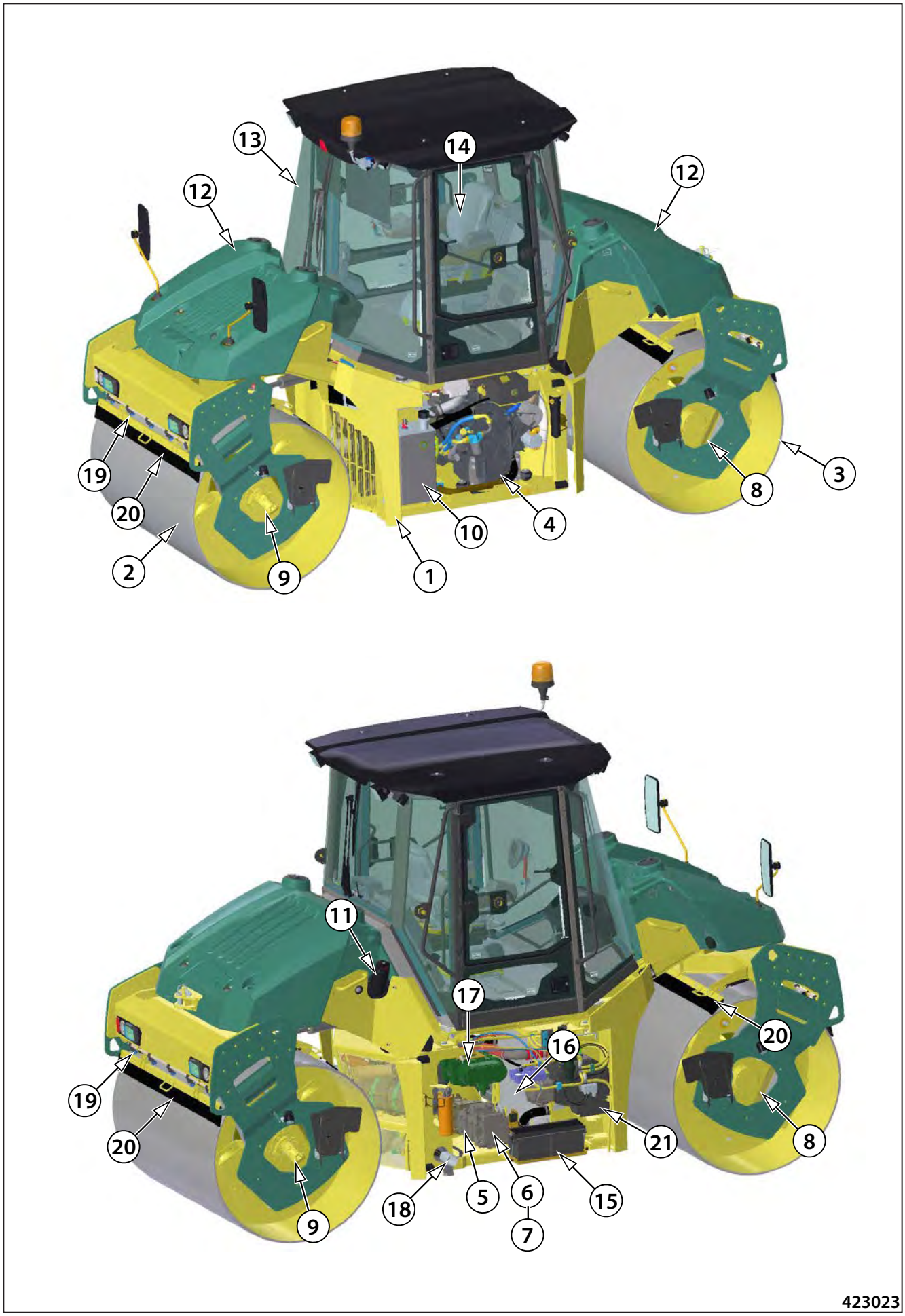
Remove the preservative agents and wash the machine in places provided with intercepting sumps to trap the rinsing water as well as de-preservative agents.

2.4 Machine disposal after its service life

When disposing the machine following its service life, the user is obliged to follow national waste and environmental regulations and acts. In the above cases, we recommend you to always contact:

- specialized companies with a respective authorization for these operations.
- the machine manufacturer or accredited contracting service organizations authorized by the manufacturer.

The manufacturer shall not be responsible for damage to the health of users or environmental damage caused by the non-compliance with the above mentioned rules.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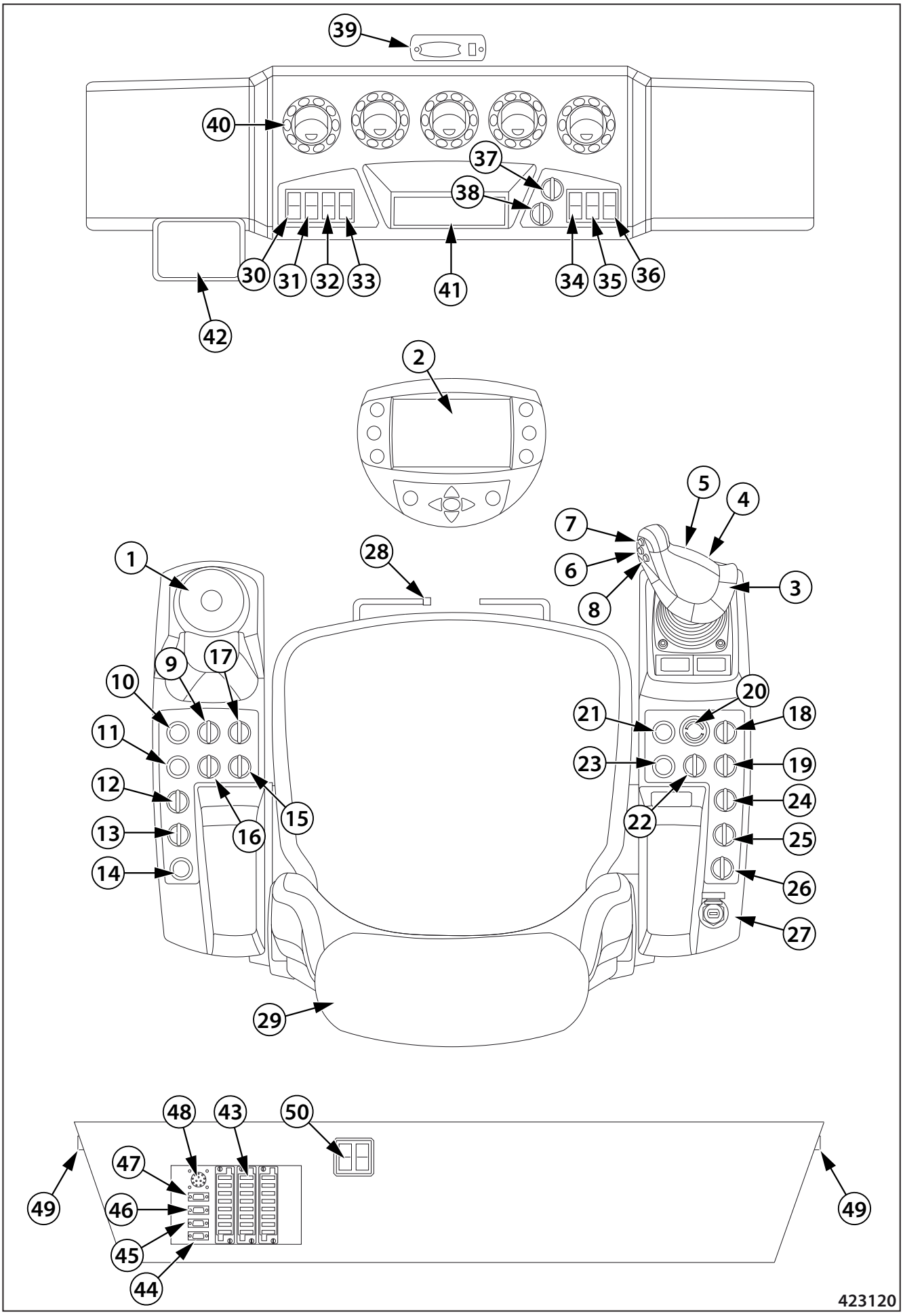
Legend:

1 - Frame
2 - Front drum
3 - Rear drum
4 - Engine
5 - Hydraulic generator for travel
6 - Hydraulic generator for front drum vibration
7 - Hydraulic generator for rear drum vibration
8 - Travel hydraulic motor
9 - Vibration hydraulic motor
10 - Hydraulic tank
11 - Fuel tank
12 - Sprinkling tank
13 - Cab with integrated ROPS
14 - Driver's stand
15 - Batteries
16 - Combined cooler
17 - Air filter
18 - Exhaust pipe
19 - Sprinkling nozzles
20 - Drum scrapers
21 - DEF (AdBlue) tank

Note

If the ACE drum is used on the machine, it is mounted at the front.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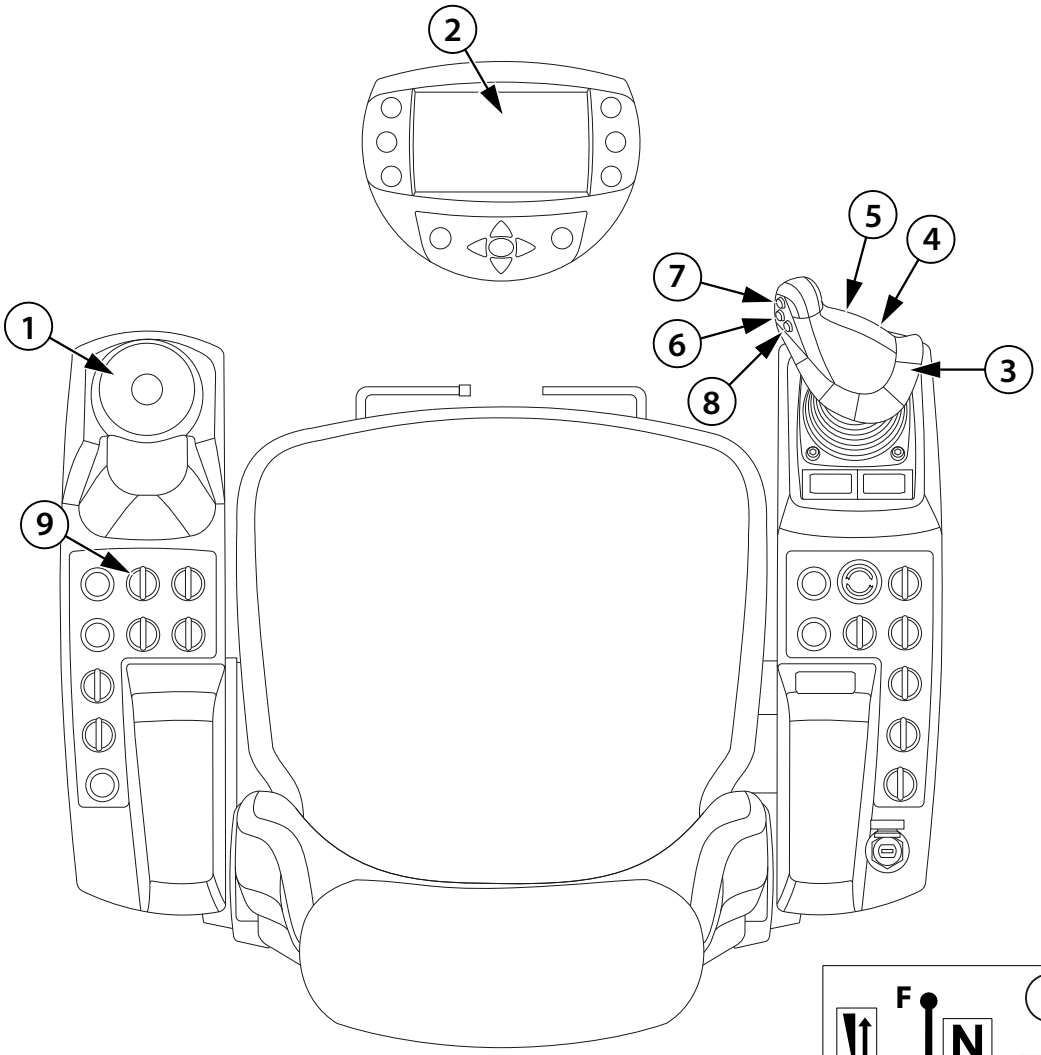
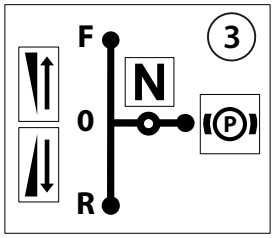
423120

Dashboard and control panels

1 - Steering wheel
2 - Display
3 - Travel control
4 - CRAB mode button – right
5 - CRAB mode button – left
6 - Vibration/spreader button
7 - Edge cutter button – up/spreader
8 - Edge cutter button – down/spreader
9 - Sprinkling pumps selector switch
10 - Sprinkling button
11 - Emulsion sprinkling button (only wheel version)
12 - Driving direction switch
13 - Spreader switch (optional)
14 - Spreader vibration (optional)
15 - Drum control mode switch
16 - Edge cutter selection (optional)
17 - Drum vibration switch
18 - Vibration amplitude selector switch
19 - Vibration mode switch (MAN/AUT)
20 - Emergency brake button
21 - Warning horn button
22 - Directions lights switch
23 - Warning lights switch
24 - Lights switch (parking/dipped) (optional)
25 - Rear lights switch (optional)
26 - Additional lights switch (optional)
27 - Ignition box
28 - Seat stop switch
29 - Operator seat
30 - Rear window heating switch
31 - Windscreen washer switch
32 - Front windscreen wiper switch
33 - Rear windscreen wiper switch
34 - Heater fan switch
35 - Warning beacon switch
36 - Cab additional lights switch (optional)
37 - Air-conditioning thermostat (optional)
38 - Air-conditioning fan speed switch (optional)
39 - Cab light
40 - Air-conditioning outlets
41 - Radio
42 - Rear view mirror
43 - Fuse box
44 - Connector CAN 2
45 - Connector CAN 1 – Diagnostics
46 - Connector ACU – Diagnostics
47 - Connector CAN 3 (ACE)
48 - Engine diagnostics
49 - 24 V socket (12 V – optional equipment)
50 - Service switch





421012A

Steering wheel (1)

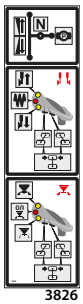
It is used for disconnecting the electrical wiring of the machine. The drum turning angle is signalled on the display (2).

There is no final position when turning the steering wheel. You can turn the steering wheel with no limits to select the driving direction (steering the drums).

Turn the steering wheel with sensibility!

Display (2)

Multifunction device for displaying functions of controls, checking instruments and machine parameters.



Travel control (3)

The travel control is used for braking the machine and setting the direction and speed of travel.

Travel control positions:

P - parking brake – parking brake of the machine enabled

N - neutral – the machine is not braked, the function avoiding the downhill driving is enabled, the engine idle speed is set

0 - zero position – the machine is not braked, the function avoiding the downhill driving is disabled, the engine working speed is set

F - forward travel

R - reverse travel

The machine braking is indicated by lighting up the brake indicator lamp on the display (2).

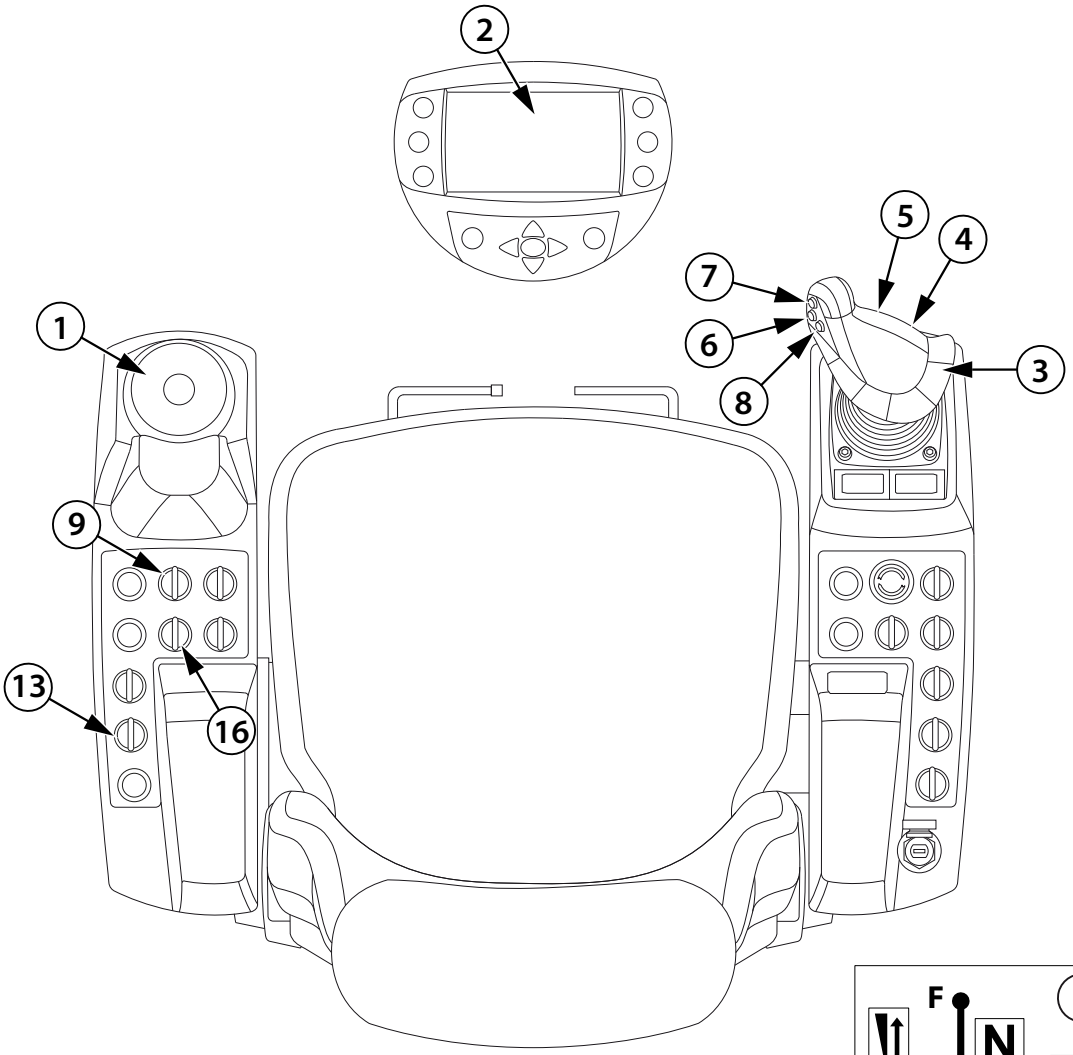
The travel speed corresponds to the speed selected on the display (2) or to the deflection of the travel control from the zero position (0).

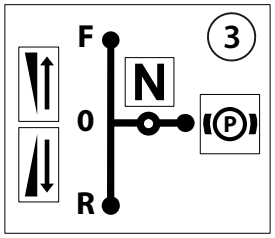
CRAB mode buttons (4) and (5)

The drums are set to the CRAB mode with the buttons (4) and (5) on the travel control (3).

Press both of the buttons (4), (5) at the same time to set the drums to the starting position

For description of the function see the chapter 2.7.2





423114


2612

Vibration button (6)

Press the button to turn on/off the function.

The function is displayed on the display (2).

Side travel control buttons:

1. Standard mode

Note

If the cutter mode is enabled, it is not possible to switch on the vibration. The vibration function is disabled.

2. Cutter mode

- The mode is enabled by switching the switch (16).


3355

Cutter button – up (7)

Use the button, to set the edge cutter to the transport position.


3355

Cutter button – down (8)

Use the button to set the edge cutter to the working position.

3. Spreader mode

- The mode is enabled by switching the switch (13).

3826A

Spreader start/stop button (6)

Press the button to turn on/off the function.

The function is displayed on the display (2).


3826B

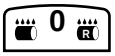
Button (7)

The button is not operating for the Amman spreader.


3826C

Button (8)

The button is not operating for the Amman spreader.



3726C

Pump sprinkling switch (9)

Select one of the two drum sprinkling pumps.

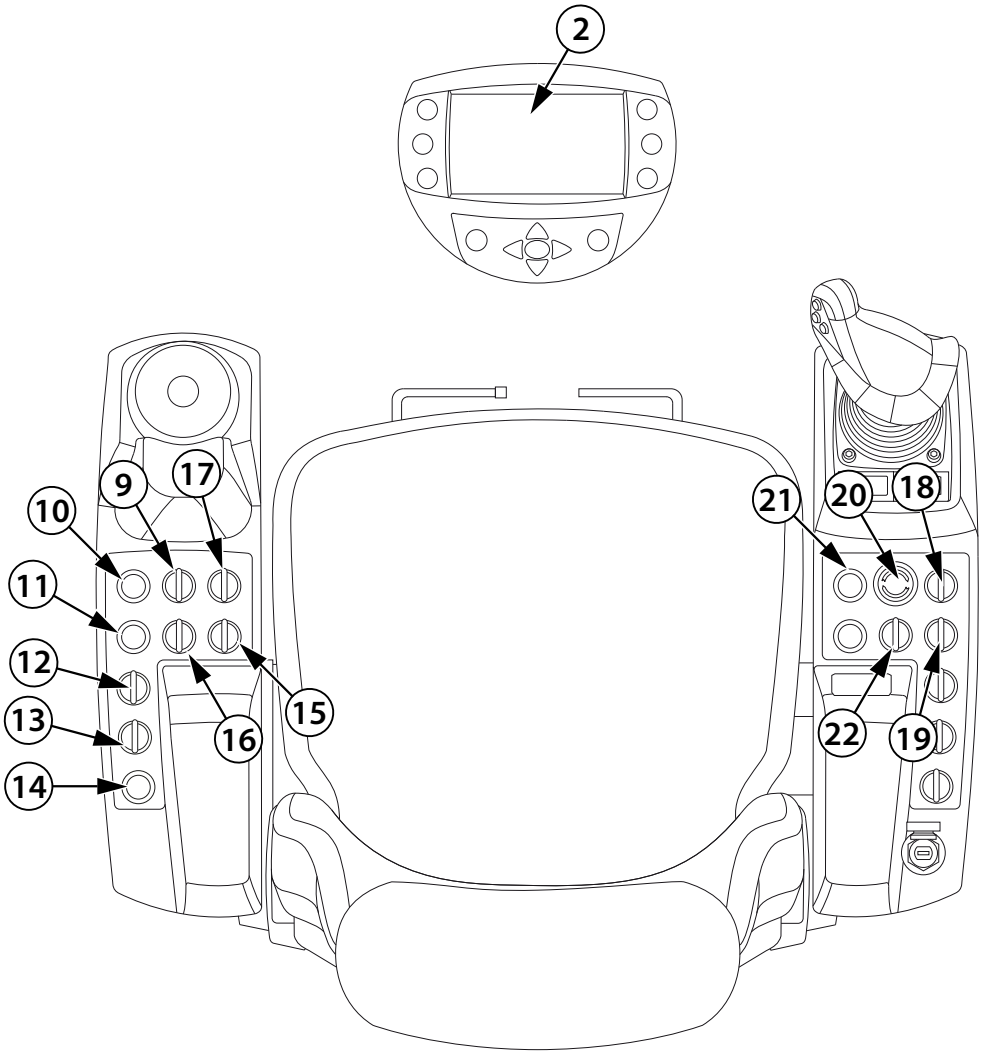
The pump operation is indicated on the display (2).

The selector switch has three positions:

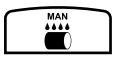
1 - 1st pump ON

0 - OFF

2 - 2nd pump ON



423115

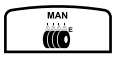


3726A

Sprinkling button (10)

Hold the button to enable the drum sprinkling function.

The function is displayed on the display (2).



3726B

Emulsion sprinkling button (11) (only wheel version)

Hold the button to enable the tyre sprinkling function.

The function is displayed on the display (2).


3740

Driving direction change switch (12)

By turning on the driving direction change switch, control functions of the machine are enabled when the seat is turned by 90° and more from the standard position for the forward driving. The driving direction switch is intended only for loading of the machine.

Left - standard operation

Right - functions enabled when the seat is turned

3726M

Spreader switch (13)

It is used for enabling the spreader function.


3726N

Spreader control (14)

The function differs depending on the connected device.

The Ammann spreader vibrator can be enabled by holding the button – it is used for emptying the wet or glued materials into the removing unit.


3739

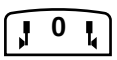
Drum control mode switch (15)

One of the three control (turning) drum modes can be selected with the switch.

Left – front drum control

Centre – both drums control

Right – rear drum control



3738

Edge cutter selection switch (16)

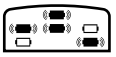
It is used for enabling the edge cutter (final compactor) function.

Left – left edge cutter / final compactor

Centre – OFF

Right – right edge cutter / final compactor

For sprinkling the edge cutter (final compactor), the sprinkling pump switch (9) must be on at the same time.


3726E

Drum vibration selector switch (17)

Left – front drum vibration

Centre – both drums' vibration

Right – rear drum vibration


3726F

Vibration amplitude switch (18)

It is used for turning on the vibration in the MAN or AUT mode.

Left - amplitude II ON (frequency 52 Hz 3120 VPM)

Right - amplitude I ON (frequency 42 Hz 2520 VPM)

When it is vibrated on the spot, the vibration will be switched off after 30 seconds. For restarting the vibration, it is necessary to select the travel direction (F/R) using the travel control (3).

3726G

Vibration mode selector switch (19) MAN/AUT

MAN – manual vibration mode; the vibration can be turned on even when the machine is not moving.

AUT – automatic mode to turn on/off the vibration.


2582

Emergency brake button (20)

Press the button to enable the machine emergency brake, which is indicated by lighting up the brake and charging indicator lamps on the display (2).

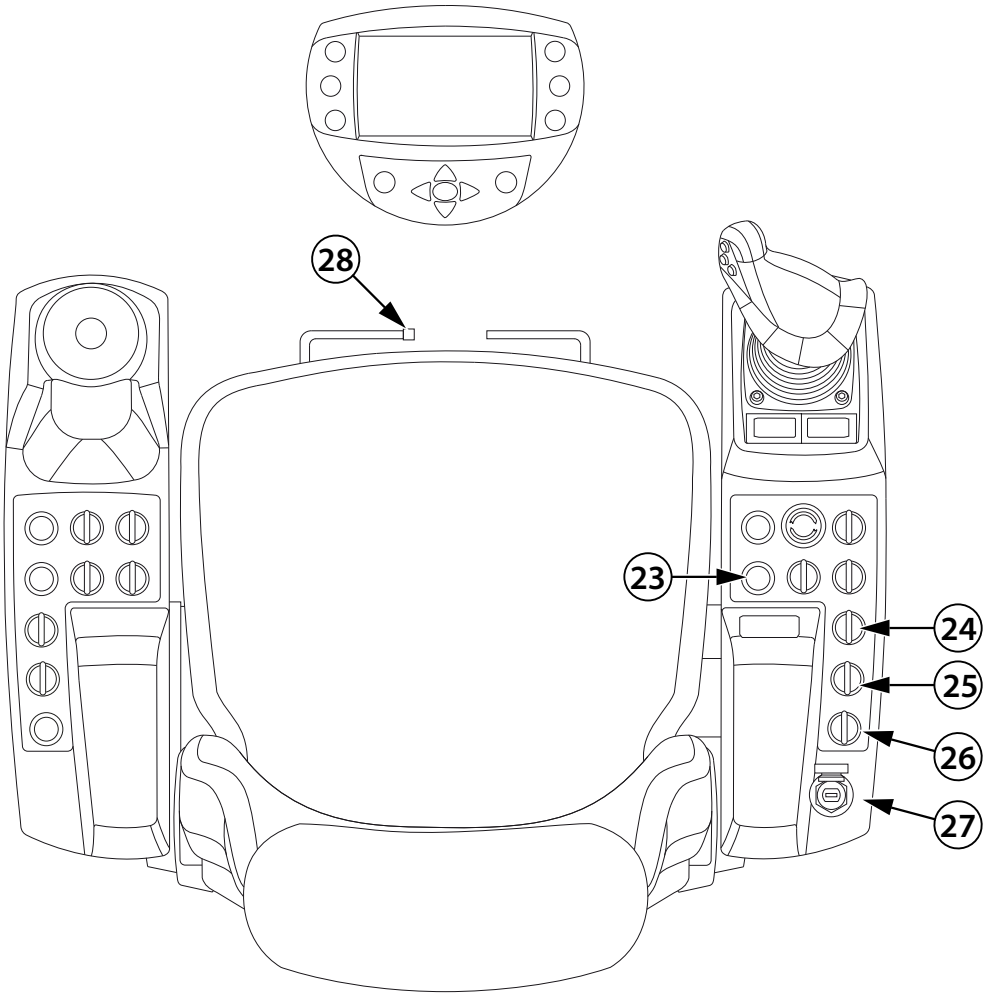
The machine stops moving and the engine stalls!


3726H

Warning horn button (21)


3726CH

Direction lights switch (22)



421012C


3726I

Warning lights switch (23)

It is used for turning on/off the warning lights – the function is indicated by flashing the indicator lamp in the warning light switch.

3726J

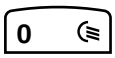
Lights switch (marker/low beam) (24)

It is used for turning on/off the parking and low beam lights.

Left – OFF

Centre – parking lights

Right – dim lights



3726K

Rear lights switch (25)

It is used for turning on/off the rear lights.

Left – OFF

Right – ON

3726L

Additional lights switch (26) (optional)

It is used for turning on/off the additional lights.

Left – OFF

Centre – additional drum lights

Right – additional drum and cab lights

Ignition box (27)

There are three positions "0-I-II" of the ignition box. The key can be inserted and removed in position "0" only.

Turn the key slightly to the right side to enable the position "I" (engine glowing) and then the position "II".

The position "II" is used for starting the engine.

Protect the ignition box with the protective cover after the key is pulled out.


3713

Seat stop switch (28)

By pressing the switch, you can set the seat to the extreme transverse position.

Operator seat (29)

Seat adjustment:

1 - Head rest position

2 - Backrest position

3 - Seat shifting

4 - Seat angle

5 - Seat springing stiffness according to the weight indicator

6 - Cross seat travel

After the lever (6) is lifted and the switch (28) is pressed, the seat can be set to the extreme transverse position.

Open the window before setting the seat in the final cross position!

Adjust the seat before driving the machine!

The driver must be fastened with the seat belt while driving!

Seat switch:

The seat switch is located in the seat cushion.

It is used for locking the engine starting, for moving off and stopping the machine if the operator does not sit on the seat.

If the driver gets up from the seat when driving for a time interval longer than 5 seconds, the speed starts to decrease to a complete stop of the machine. The neutral is set automatically regardless of the position of the travel control. After the next 5 seconds, the parking brake is enabled and the engine stalls.

If the driver sits down again within 5 seconds, the machine keeps moving at the selected speed.

If the driver sits down within 5 seconds after the machine stops, the engine does not turn off and the driver can set the machine in motion again. Before that, he must move the control to the middle (neutral) position.

For the next start of the engine, the driver must sit down again, move the travel control to the right position – braked, change over the key to the position "0" and then he can start the engine.

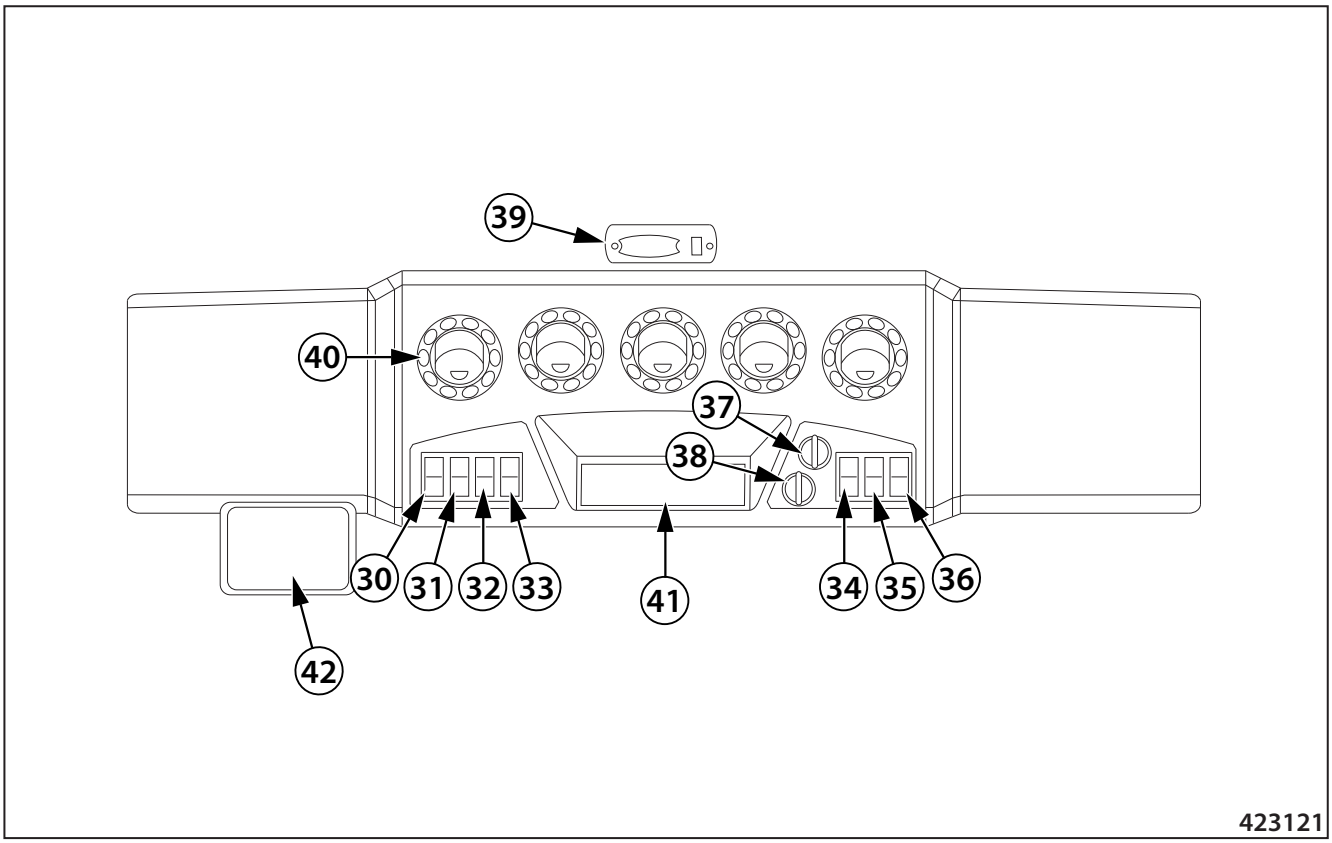
By enabling the service switch, you disable the seat switch. In such a case, it is possible to leave the seat when the engine is running.

If the drivers stops and moves the travel control to the parking brake position or starts the engine and leaves the travel control in the parking brake position, he can leave the seat and the engine will keep running.

Do not place any items on the seat switch!

Document box

There is a document box located on the back-wall of the seat.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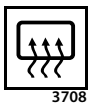

3708

Rear window heating switch (30)

It is used for turning on the rear window heating; the function is indicated by the indicator lamp in the switch.

- Off
- ON


2260

Windscreen washer switch (31)

- Windscreen washing ON
  (2 windscreen wiper cycles automatically)
- OFF
- Rear window washing ON
  (2 windscreen wiper cycles automatically)


596625

Front wiper switch (32)

- Off
- Intermittent
- Continuous wiping

The wiping interval of 5 sec. is set automatically by changing the switch from OFF to Intermittent. You can readjust the interval by changing the switch to OFF and then after a required time (from 0.5 to 60 sec.) back to the Intermittent position.


596307

Rear wiper switch (33)

- Turned OFF
- Cycler
- Continuous wiping

After the switch has been changed over from the Off position into the Cycler position, the wiping interval of 5 seconds is adjusted automatically. You can readjust the interval by changing the switch into the Off position and by reswitching the switch into the Cycler position after the required time (ranging from 0.5 to 60 seconds).


2487

Heater fan switch (34)

It is used for turning on the cab heating fan.

- Off
- Low output ON
- High output ON


592348

Warning beacon switch (35)
(optional equipment)

It is used for turning on/off the hazard beacon; the function is indicated by the indicator lamp in the switch.


596303

Auxiliary lights cab switch (36)

It is used for turning ON/OFF the additional lights; the function is indicated by the indicator lamp in the switch.

Air conditioning (optional)


2441

Air-conditioning thermostat (37)

Output air temperature switch.

OFF

ON


594701

Air-conditioning fan speed switch (38)

Air volume control.

OFF

1 - Minimum

2 - Medium

3 - Maximum


592305

Cab lighting (39)

Air-conditioning outlets (40)

The adjustment and angle of the flaps allows you to change the quantity and direction of the air flow.

Radio (41) (optional equipment)

Rear-view mirror (42)

Keep the mirrors clean and properly adjusted!

Fuse box (43)

It contains fuses F1–F28.

F1 – 15 A ..... Mounting socket 24 V

F2 – 10 A ..... Front headlamps, position lights

F3 – 7.5 A ..... Rear headlamps

F4 – 7.5 A ..... Horn, direction lights, beacon, cab lighting

F5 – 7.5 A ..... Relay K1, K2, K3, K4, K5, K13, K14

F6 – 35 A ..... Control unit

F7 – 7.5 A ..... Electromagnet for seat extension beyond the cab frame, cooling fan electromagnet

F8 – 7.5 A ..... Drum lighting, orientation lighting

F11 – 5 A ..... Emulsion sprinkling relay, drum rotation sensor (B1), vibrator frequency sensors (B2, B3), water level sensor in the water tank (S16), vibration electromagnets (Y7, Y8, Y9, Y10)

F12 – 5 A ..... Emulsion sprinkling

F13 – 10 A..... Water sprinkling

F14 – 5 A ..... Charging, brake lights, back signal horn

F15 – 5 A ..... Total STOP, service switch

F16 – 1 A ..... Key voltage for control unit

F17 – 7.5 A..... Control lever, display, switches on the left armrest, seat switch, seat rotation sensor, engine diagnostic socket

F18 – 15 A..... Urea sensor B90

F21 – 10 A..... Radio

F22 – 10A..... Relay K15, K16, K17, K18

F23 – 10 A..... Wipers, screen washers

F24 – 10 A..... Heater fan

F25 – 20 A..... Rear window heating

F26 – 10 A..... Working headlamps

F27 – 15 A..... Spreader

F28 – 5 A ..... ACE, Telematic

In the engine compartment

F31 – 15 A..... Engine computer

F32 – 15 A..... Air-conditioning

F33 – 10 A..... Fuel pump

F34 – 25 A..... Relay box (A11) – aftertreatment

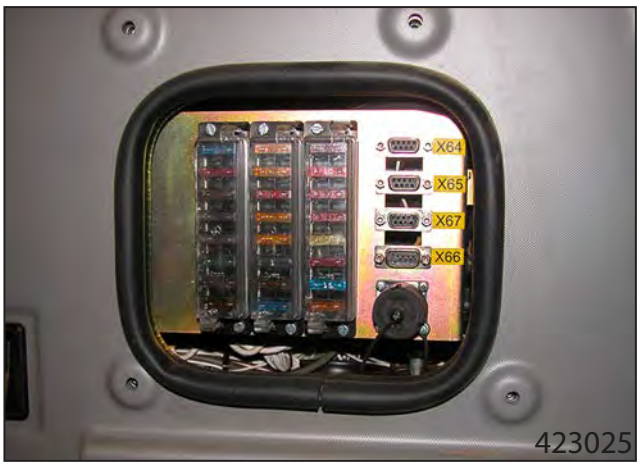
F35 ..... Reserve

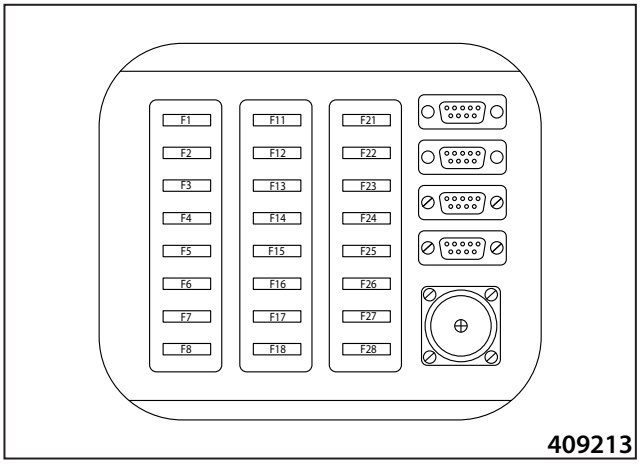
F36 – 5 A ..... Memory

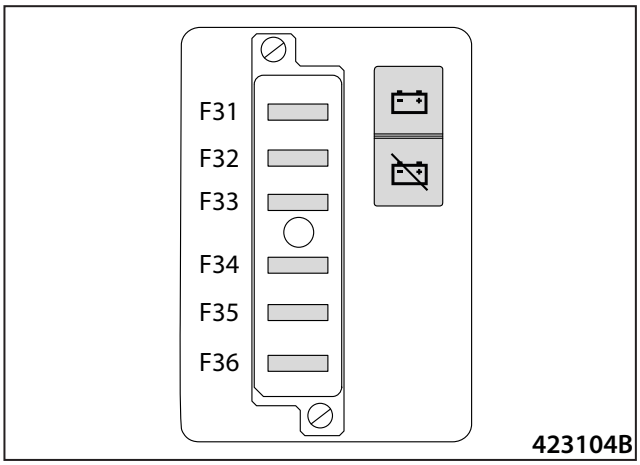
F30 – 80 A..... Main fuse

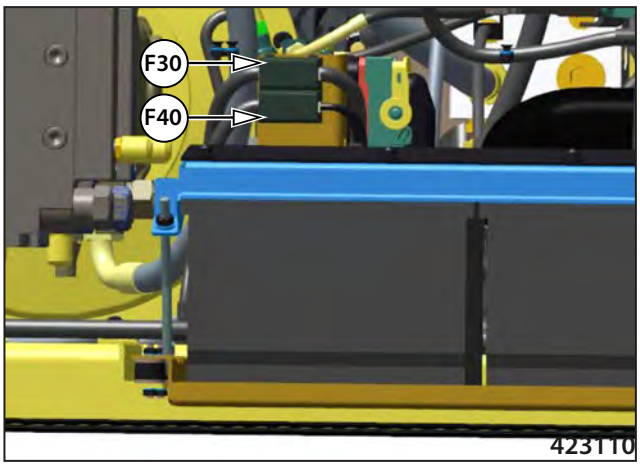
F40 – 70 A..... Glowing

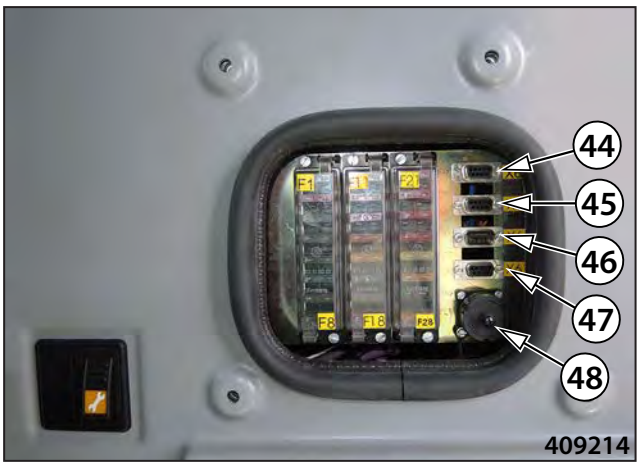
Always replace the fuses with the fuses of the same value!











CAN BUS
2679D

Connector CAN2 (44)

It is used for connecting an external computing unit (laptop) to ensure correct communication between the engine, computer, RC display and travel control.

CAN BUS
2679D

Connector CAN 1 (diagnostics) (45)

It is used for connecting an external computing unit (laptop) to ensure correct communication between the travel control and RC computer. After connecting to this bus using Bodas software, you can update PC, parameterize, troubleshoot, etc.

CAN BUS
2679D

Connector ACU (diagnostics) (46)

It is used for connecting an external computing unit (laptop) Using ACE Parameter Manager software you can modify parameters in ACU or download them to PC.

ACE
AMN109

Connector CAN 3 (diagnostics) (47)

It is used for connecting an external-computing unit (laptop) to ensure correct communication between ACU, ACE display and RC computer.

J1939
3003

Engine diagnostics (48)

It is used for connecting to ECM (Electronic Control Module) – engine control unit and troubleshooting.

Note

ECM processes engine function data and controls the engine. Sensors pick up information about the engine function and its malfunctions and transfer them to ECM. The control unit evaluates inputs and transmits back commands for the engine to function properly. Failures and other engine data are identified and stored in ECM memory. The engine function and failure data are transferred after the service equipment (laptop) is connected to the socket.

Mounting socket (49)

It is used for connecting a lamp or other equipment (24 V).

It is used for connecting the (optional 12 V) equipment.

Service switch (50)

It is used for safe movement around the machine when the engine is running without an operator at the driver's workplace.

When switched over, the control unit outputs are disconnected, the machine is braked and the idle speed is set.

When the service switch is enabled:

- the machine does not move and the engine is not running – you cannot start the engine
- the machine is moving – the machine stops, the parking brake is enabled, the engine keeps running
- the machine does not move, the engine is running – all outputs of the control until are disconnected, the parking brake is enabled.

When the service switch is enabled and the engine is running:

- the seat switch is disabled
- the sprinkling is possible
- the travel control can be moved to the neutral "N" and zero "0" position, the parking brake is enabled
- the engine speed can be increased by moving the travel control to the "F" position.

Use the switch only for service operations.

Heating control

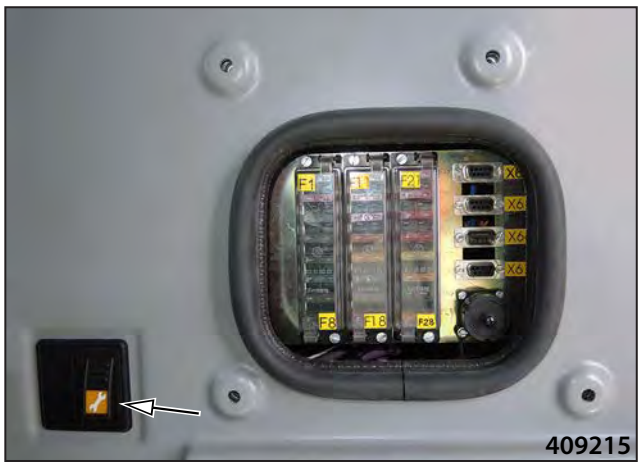
It is used for turning on the cab heating.

The liquid volume flowing to the heater can be continuously regulated from the MIN position (valve closed) to the MAX position (valve fully open).

Adjust the heating valve and recirculation valve before driving!

Air filter of cab ventilation

It includes a replaceable filter element, on which impurities from the sucked air are caught.



Heating outlet


3776A

Closed


3776B

Open

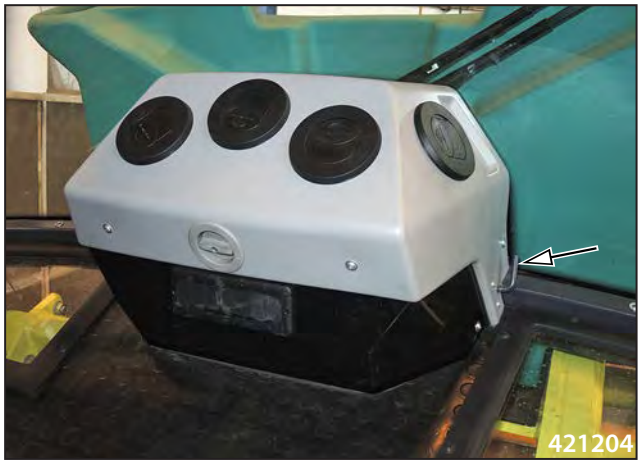
Recirculation valve


3776A

Closed


3776B

Open



Fire extinguisher (optional equipment)

Place to install a fire extinguisher.

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

Windscreen washer tank

Fill with standard available media.

Fill with antifreeze or drain before the winter season starts!

Draw bar for window unlocking

Control lever

It is used for controlling the hand pump for lifting the cab and releasing the machine brakes.

First-aid kit pocket

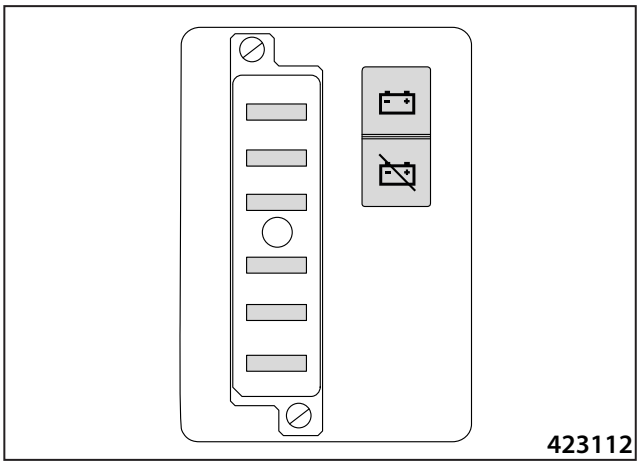
The machine must be equipped with the first-aid kit!

Battery disconnector

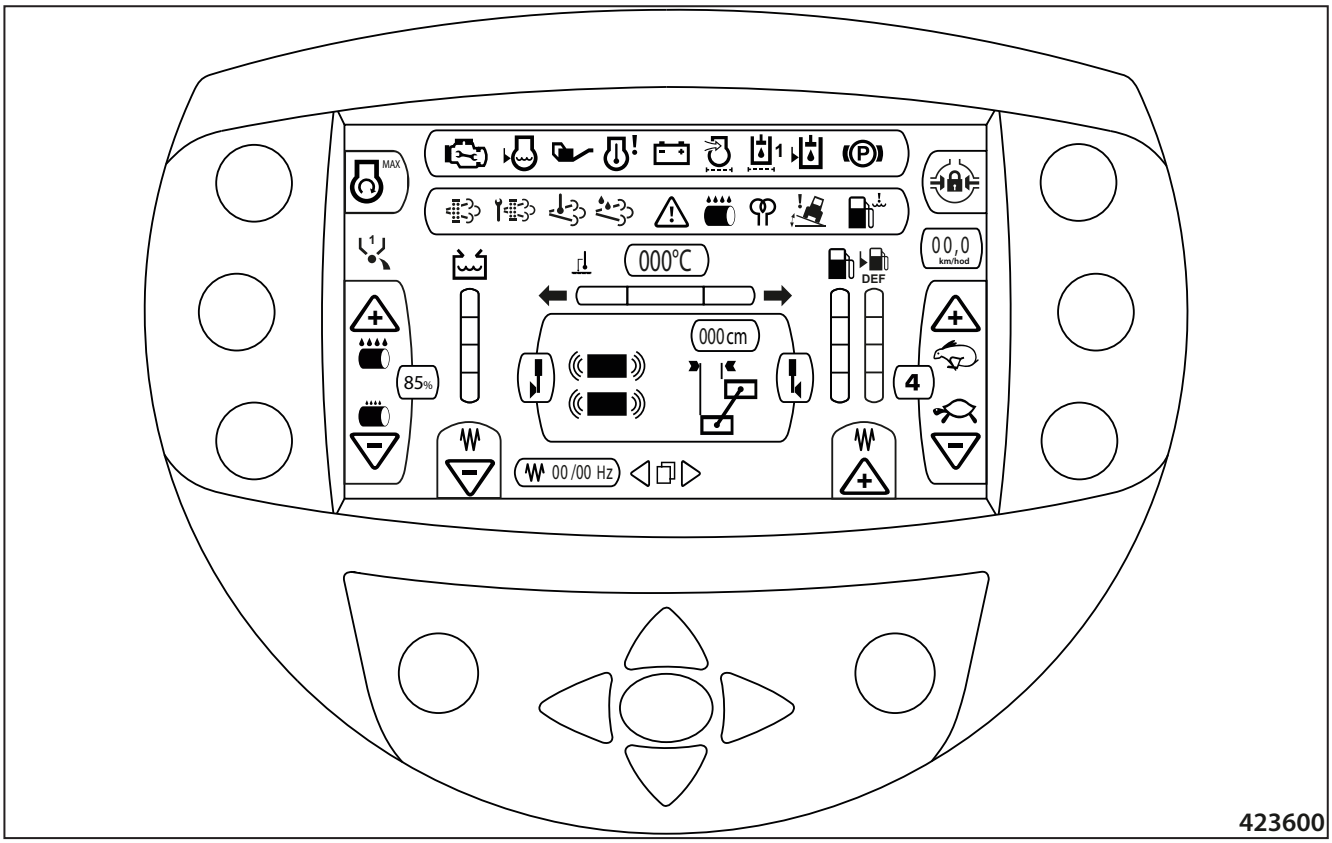
It is used to disconnect the battery from the Machine frame.

Position down - electrical installation of the machine disconnected.

Position up - electrical installation of the machine connected.



2.6.1 Display control



Operation screen

AMN112

Maximum engine speed button

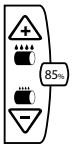
It is used for adjusting the maximum engine speed of 2,200 min^{-1} (RPM)

AMN414

Sand spreader indicator lamp

Indicator lamp indicating the spreader activation.

The indicator lamp will appear on the display when the spreader button on the armrest is enabled.



AMN41

Drum sprinkling buttons

The buttons are used for setting the drum sprinkling intensity.

0% – drum sprinkling OFF

100% – continuous drum sprinkling

AMN415

Spreader feeding device speed buttons

The buttons are displayed instead of the drum sprinkling buttons to enable the spreader function.

The buttons are used for setting the feeding device speed.

0% – minimum speed

100% – maximum speed

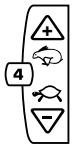

AMN42 AMN43

Vibration frequency buttons

The buttons are used for adjusting the vibration frequency.

Frequency I - 38 - 42 Hz (2280 - 2520 VPM)

Frequency II - 42 - 52 Hz (2520 - 3120 VPM)



AMN44

Speed gear buttons

The buttons are used for adjusting the speed gears.

Speed gear	forward km/h (mph)	reverse km/h (mph)	engine speed rev/min (rpm)
0	3 (1.9)	3 (1.9)	1,600
1	2 (1.2)	2 (1.2)	1,300
2	3 (1.9)	3 (1.9)	1,600
3	4.5 (2.8)	4.5 (2.8)	1,600
4	6 (3.7)	6 (3.7)	1,600
5	10 (6.21)	10 (6.21)	1,600–2,200

Note

The speed gear 0 is adjusted as starting after 15 minutes after the switch box is turned off.

Loading mode (speed gear 0)

Work functions of the machine are locked in the speed gear 0 (sprinkling, vibration, crab – only the drum offset cancellation function enabled).


AMN45

Differential lock button

It is used for turning on the differential lock.

The differential lock prevents the drum from slipping when crossing a difficult terrain.

Speed gear 0

The differential lock button is enabled automatically in the speed gear 0.

Speed gear 1–3

The differential lock can be enabled manually only in the speed gear 1–3.

Speed gear 4 and 5

The differential lock button cannot be enabled in the speed gear 4 and 5.


AMN47

Engine failure indicator lamp

The indicator lamp indicates an engine failure.

The lighting indicator lamp during operation of the engine indicates a failure. The engine stalls – the machine stops and the parking brake is enabled.

The engine can be started only after the defect is repaired!


AMN48

Coolant level indicator lamp

The indicator lamp indicates low coolant level.

The lighting indicator lamp during operation of the engine indicates a failure. The engine stalls – the machine stops and the parking brake is enabled.

The engine can be started only after the failure is repaired and the coolant is refilled to the specified limit!


AMN49

Engine lubrication indicator lamp

The indicator lamp indicates an engine lubrication failure.

If the indicator lamp lights up after the engine is started or while driving, it indicates an engine lubrication failure. Stop the machine and remove the fault.

Start the engine only after the defect is repaired!


AMN50

Engine overheating indicator lamp

The indicator lamp indicates a high temperature of the engine.

The lighting indicator lamp during operation of the engine indicates a failure. The engine stalls – the machine stops and the parking brake is enabled.

The engine can be started only after the defect is repaired!


2777

Battery charging indicator lamp

It indicates that the battery charging function is in order. After the key in the ignition box (27) is switched to the "I" position, the indicator lamp must light up and then go out after the start-up.

If the indicator lamp does not go off or it lights up¬ while driving, turn the key in the ignition box to the ¬"0" position and look for a fault!


AMN51

Air filter clogging indicator lamp

The lighting indicator lamp indicates that the filter element is clogged above the allowed limit.

Stop the machine and replace the cartridge immediately!


3494

Indicator lamp of hydraulic oil filter clogging

The lighting indicator lamp indicates that the filter cartridge is clogged.

1 - Main filter of hydraulic oil

2 - Hydraulic oil filter of control

3 - Hydraulic oil filter of the spreader (option)

Immediately replace the element!


591507

Indicator lamp for hydraulic oil level

The indicator lamp indicates low hydraulic oil level.

The lighting indicator lamp during operation of the engine indicates a failure. The engine stalls – the machine stops and the parking brake is enabled.

Repair the fault and refill the oil to the specified limit.


2703

Parking brake indicator lamp

The lighting indicator lamp indicates that the parking brake was enabled.


AMN118

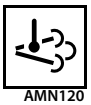
Indicator lamp of DPF (Diesel Particulate Filter) clogging

The indicator lamp signals that it is required to regenerate DPF.


AMN119

Indicator lamp of DPF (Diesel Particulate Filter) cleaning

The indicator lamp signals that it is required to replace DPF.


AMN120

Indicator lamp of high temperature of exhaust gases

The indicator lamp signals the SCR (Selective Catalytic Reduction) regeneration in progress or exceeding of limit temperature of combustion gases at normal operation.


AMN128

DEF (AdBlue) level indicator lamp

The indicator lamp indicates low level of DEF (AdBlue). Refill DEF (AdBlue).

The indicator lamp indicates the DEF (AdBlue) quality.

Danger in handling DEF (AdBlue).

Proceed according to Chapter 3.6.7.

Use only DEF (AdBlue) according to the specification in chapter 3.2.6.


AMN58

Danger warning

The indicator lamp and an audible signal indicate a diagnostic error of the machine electronics.

In case of a serious failure, the machine changes to the emergency mode (travel gear 0, working functions disabled).

An error message will be displayed. After the machine is turned off with the key, the error will be reset. After the next start-up, the machine can be operated in a usual way.

If the error occurs repeatedly, shut down the machine and call the service. For easier communication with the service team, check error messages on the service screen (3rd screen) and copy down codes of all diagnosed errors of the engine control unit and machine control unit.


3040

Sprinkling pump indicator lamp

The indicator lamp indicates that the sprinkling pump is ON.


AMN55

Engine glowing indicator lamp

It indicates the engine warming up before the cold start.

Start the engine after the indicator lamp goes out!


AMNCZ47

Dangerous lateral tilt


AMN57

Fuel filter indicator lamp

The lighting indicator lamp indicates water in the fuel filter.

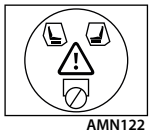
If the indicator lamp is lighting, clean the coarse fuel filter!

2.6.1 Display control

595426

DEF (AdBlue) level indicator

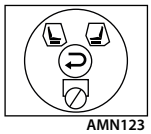
The indicator shows the DEF (AdBlue) level in the tank. Low level indicated by audible alarm. The engine power is reduced at the lack of DEF (AdBlue).


AMN122

Indicator of driving direction error

The indicator shows:

- error or the seat position sensor – disconnected line.
- error of the driving direction change switch (12) – disconnected line.
- discrepancy of the seat position and of the driving direction change switch (12).


AMN123

Indicator of driving direction change

The indicator shows the incorrect setting of the driving direction switch.


2489

Direction indicator lamps


AMN59

Water level indicator

The indicator shows the water level in the tank.


595425

Fuel gauge indicator

The indicator shows the fuel level in the tank.


3355A

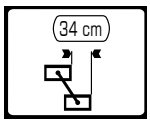
Edge cutter indicator lamp, left

The indicator lamp indicates that the edge cutter on the left side of the machine is enabled.


3355

Edge cutter indicator lamp, right

The indicator lamp indicates that the edge cutter on the right side of the machine is enabled.



AMN110

Machine extended track indicator (CRAB)

The indicator shows the drum setting. Range 0 - 1390 mm (0 - 54,7 in).


AMN61

Drum vibration indicator

The indicator shows the drum vibration.


AMN62

IR thermometer indicator

The indicator shows the compacted surface temperature in the range of 0–200 °C (32–392 °F).

AMN644

Vibration indicator

The indicator shows the selected amplitude and frequency.

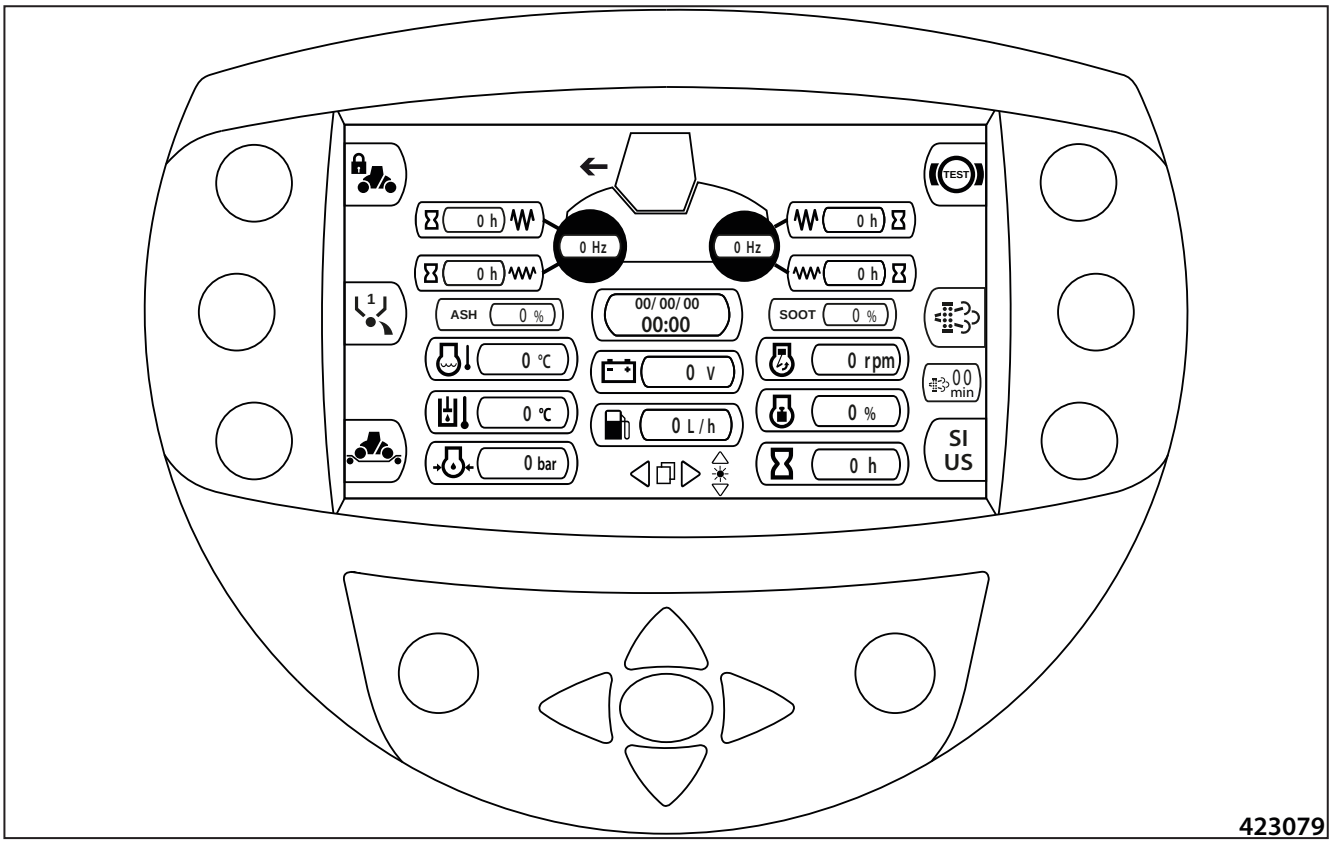

AMN66

Screen switching

Press the button to view the following screen for 15 seconds.

To set the following screen as the home screen, hold the button for 5 seconds.

2.6.1 Display control



423079

Information screen


AMN67

Ignition lock button

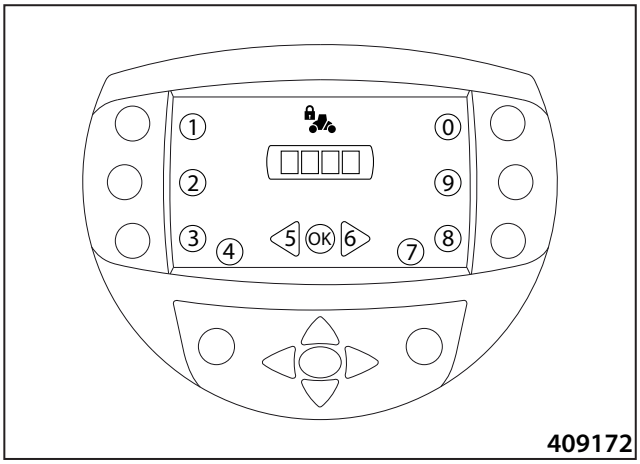
It is used for enabling and disabling the ignition lock.

The ignition lock prevents the engine from starting until PIN is entered.

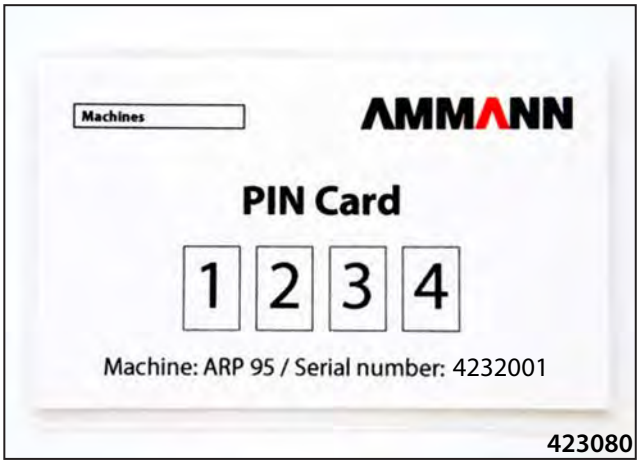
Procedure:

- Press the ignition lock button (a screen will be displayed to enter the PIN).
- Enter the PIN.
- Confirm by pressing the OK button for 4 seconds (you will hear a confirmation sound).

After the ignition is off for more than 15 minutes, entering the PIN will be required at the next engine start.



409172



423080

AMN414

Spreader selection button

It is used for selecting the spreader according to the type.

1 - Ammann spreader

2 - Screed spreader

3 - Disk spreader

After the spreader installation, it is necessary to use the button for selecting the corresponding type; otherwise the spreader control will not work correctly.


AMN68

Transport mode button

It is used for enabling and disabling the transport mode. The activation and deactivation are done by entering PIN.

The transport mode of the machine is set by the manufacturer and is used for shipping and transporting the machine to a customer.

Only the following functions are enabled in the transport mode:

- differential lock ON,
- speed gear 0 ON – speed 0–2 km/h (0–1.2 MPH).

These functions are disabled in the transportation mode:

- working functions of the machine (vibration, sprinkling, crab)
- speed gear changing

Procedure:

- Press the transport mode button (the screen will be displayed to enter the PIN).
- Enter the PIN.
- Confirm by pressing the OK button for 4 seconds (you will hear a confirmation sound).

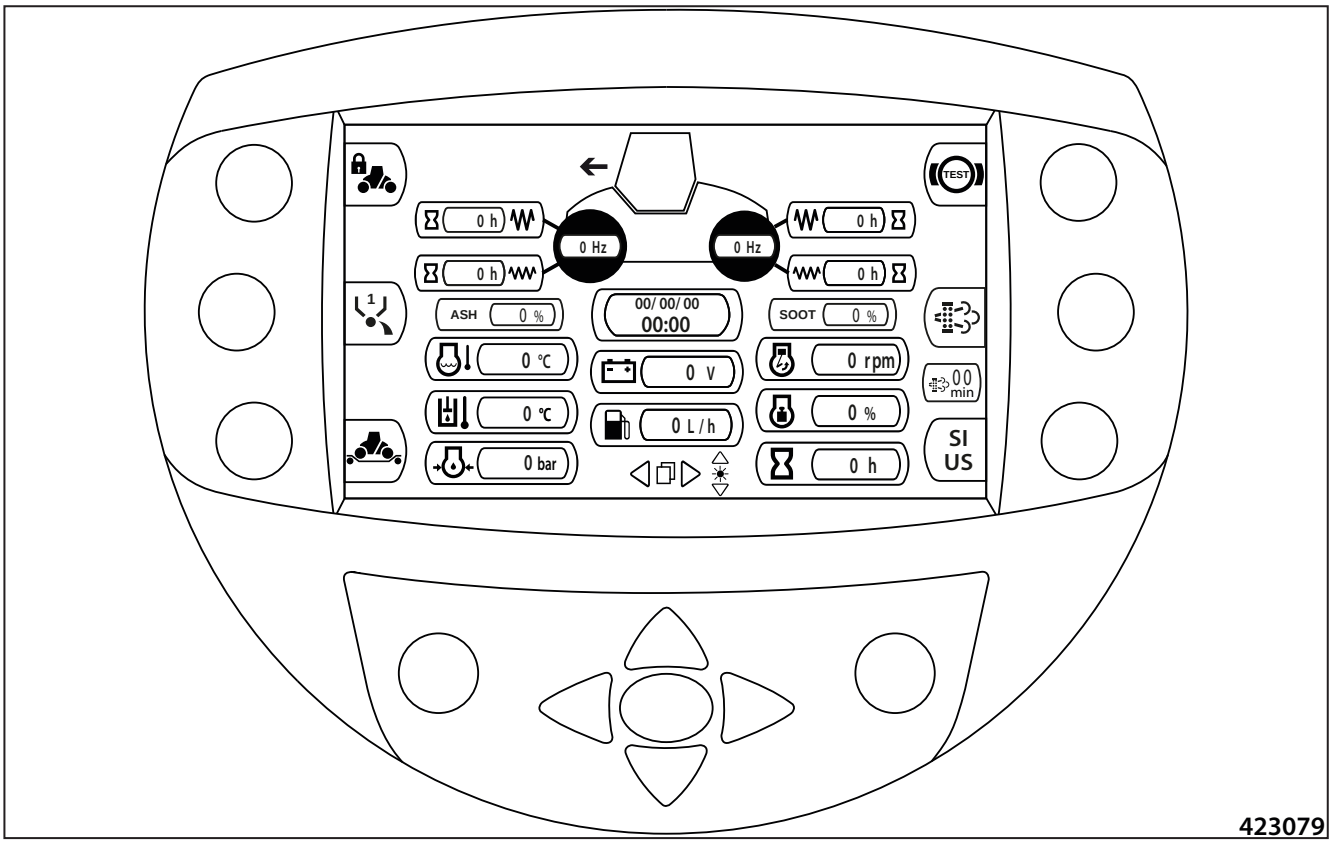
For activation and deactivation of the ignition lock function or transportation mode function, use the same PIN code.

See the PIN code on the PIN card in the documentation set. There are two PIN cards supplied with the machine.

If you fail to enter a correct PIN for the third time, wait for 15 minutes and enter the correct PIN.

If you lose the PIN card, you can contact your dealer and get your correct PIN code for your machine.

2.6.1 Display control



AMN69

Brake test button

It is used for checking the machine brakes for correct operation (the operator is prompted to check the brakes every 24 hours).

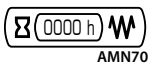

AMN118

Regeneration button

It is used for enabling the DPF regeneration.

AMN127

Button of change of SI/US units



AMN70

Worked hours indicator amplitude II

AMN71

Worked hours indicator amplitude I

AMN74

Date and time indicator

AMN114

Setting:

Press and hold the OK button for 5 seconds.

Set the date and time using the arrows.

AMN406

Ash clogging indicator

It shows the ash DPF clogging.


AMN76

Coolant temperature indicator


2635

Hydraulic oil temperature indicator

It shows the current hydraulic oil temperature.

Stop the machine and check the oil level or search for a defect!


AMN113

Engine lubrication pressure

It shows the engine lubrication pressure in kPa.


2777

Current battery voltage indicator


595425

Current fuel consumption indicator

AMN407

Sooting indicator

It shows the sooting DPF clogging.


AMN77

Motor speed indicator


AMN75

Engine load indicator

It shows the current engine load in %.


AMN73

Counter of worked engine hours

It shows the total time, during which the machine has been in operation.


AMN66

Screen switching

Press the button to view the following screen for 15 seconds.

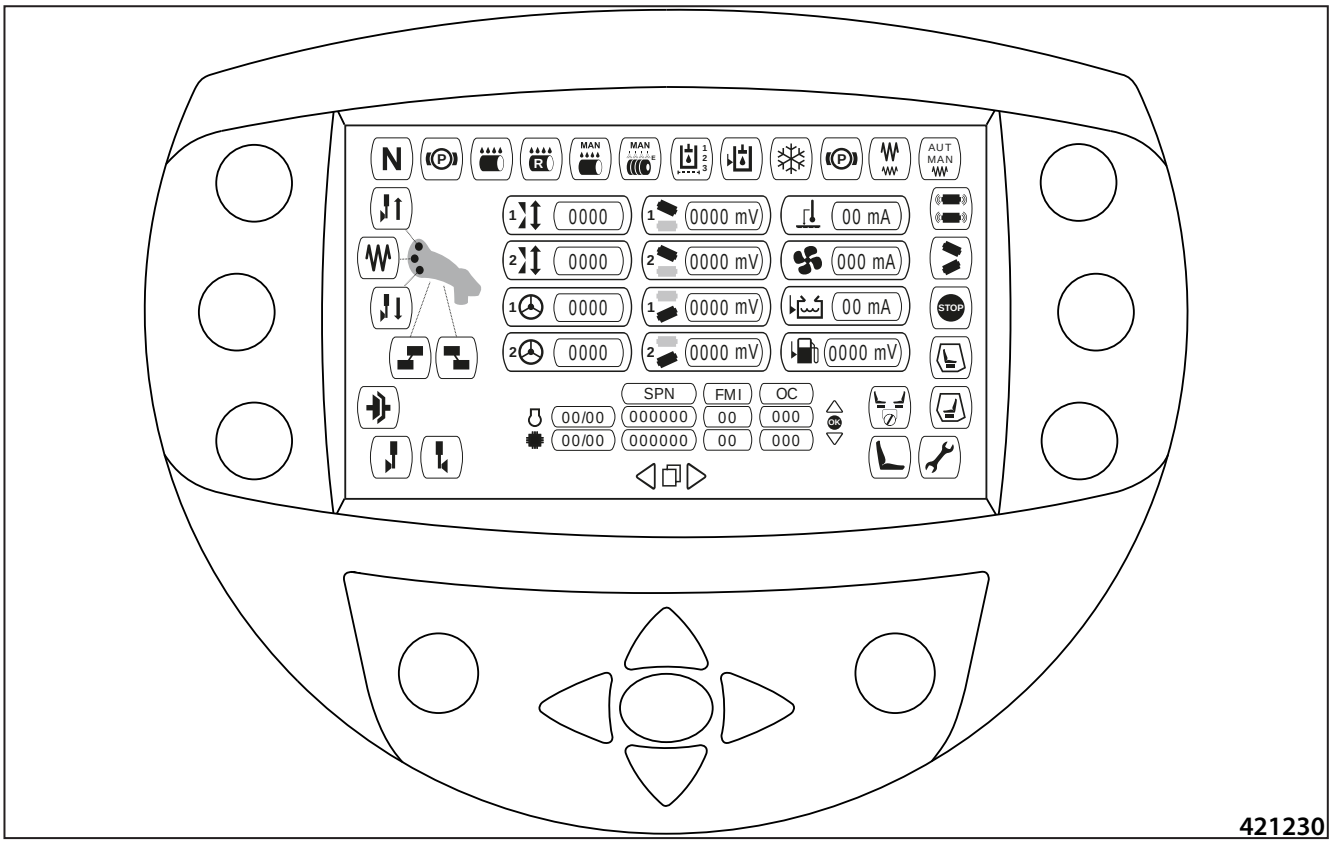
To set the following screen as the home screen, hold the button for 5 seconds.


AMN105

Display backlight

The display backlight intensity can be adjusted using the buttons.

2.6.1 Display control



Service screen

The screen is used for basic diagnostics of inputs into the machine control unit and for displaying error messages.

AMN132 **Start up conditions met**

3355 **Edge cutter switch – right**

3355A **Edge cutter switch – left**

AMN79 **Extended track button (CRAB) – left**

AMN78 **Extended track button (CRAB) – right**

AMN80 **Edge cutter button – down**

2612 **Vibration button**

AMN81 **Edge cutter button – up**

AMN82 **Neutral sensor**

2703 **Brake sensor**

AMN83 **Sprinkling pump switch 1**

AMN84 **Sprinkling pump switch 2**

AMN116 **Manual water sprinkling button**

AMN117 **Manual emulsion sprinkling button**

3349 **Switch of indication of hydraulic oil filter clogging**


591507

Hydraulic oil level switch


AMN85

Amplitude I switch


2612

Amplitude II switch

AMN86

Manual vibration switch

AMN87

Automatic vibration switch


AMN88

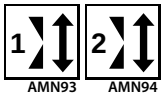
Drum vibration switch

AMN90

Emergency brake switch


3701

Service switch



AMN93 AMN94

Travel lever sensor – forward, rearward

AMN108

Crab sensor


AMN62

IR thermometer sensor (optional)


AMN97

Water level sensor


AMN98

Fuel level sensor


AMN130

Steering wheel signal sensor


594701

Fan sensor


AMN124 AMN125

Seat position sensor


AMN126

Driving direction switch


AMN92

Seat switch

AMN101

SPN (Suspect Parameter Number)
(failure source information)

AMN102

FMI (Failure Mode Identifier)
(failure cause information)

AMN103

OC (Occur counter)
(occurrence counter)


AMN106

Engine error message


AMN107

Machine error message

AMN128

Error list browsing

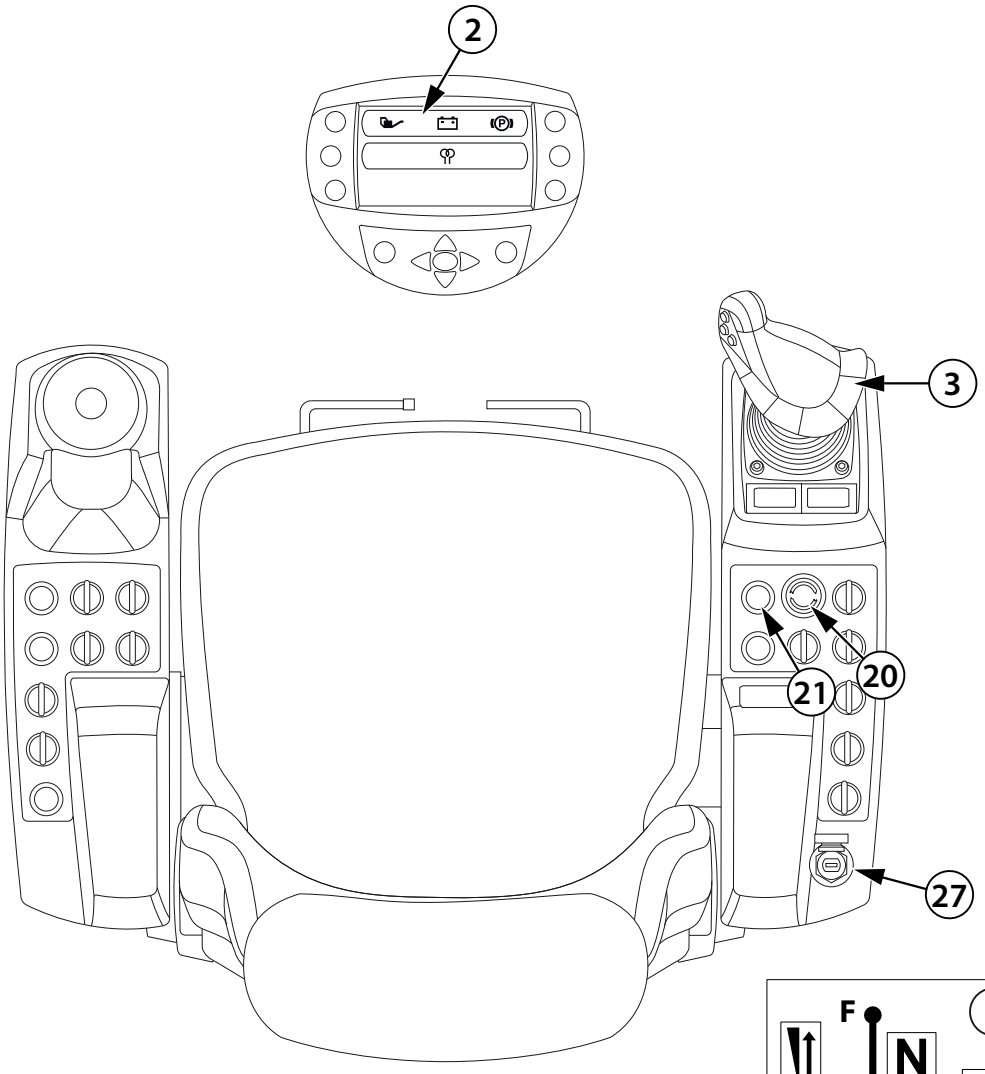
The OK button is used for switching between error lists of the control unit of the engine and of the machine. The arrows are used for scrolling in the error list.

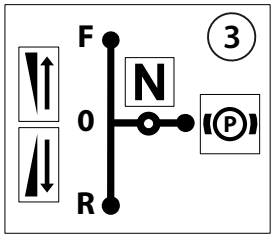

AMN129

Screen switching

Press the button to view the following screen for 15 seconds.

To set the following screen as the home screen, hold the button for 5 seconds.





421012D

2.7.1 Engine start

Daily before starting the engine, check the oil level in the engine and in the hydraulic tank, fuel level in the fuel tank and water level in the water tank. Check that there are no loosened, worn or missing parts on the machine.

Start the engine only from the driver's stand! Use the alarm horn to signal the engine starting and check that nobody is endangered by starting the engine!

Daily the machine operator must perform the brake test according to Chapter 3.6.9.

Conditions to start the engine:

- the emergency brake is disabled,
- the driver sits on the seat – the seat switch is enabled,
- the travel control is in the parking brake position,
- the service switch (50) is disabled,
- no fault is detected.

Start-up procedure:

- Turn on the battery disconnector.
- Sit down on the seat.
- Set the travel control (3) to the brake position (P).
- Check that the emergency brake (20) is not activated.
- Insert the key into the ignition box (27) in the position "0" and switch over to the position "I".
- The unlock code prompt appears on the display (2) if the ignition lock function was enabled.
- Enter the unlock code and confirm by holding the OK button until the operation screen is displayed.
- The brake, charging, lubrication and glowing indicator lamps will light up on the display.
- Wait until the glowing indicator lamp goes out.
- Use the alarm horn (21) to signal that the engine is starting.
- Turn the key to position "II" to start the engine.
- The charging and lubrication indicator lamps must go out after the starting is completed.

Note

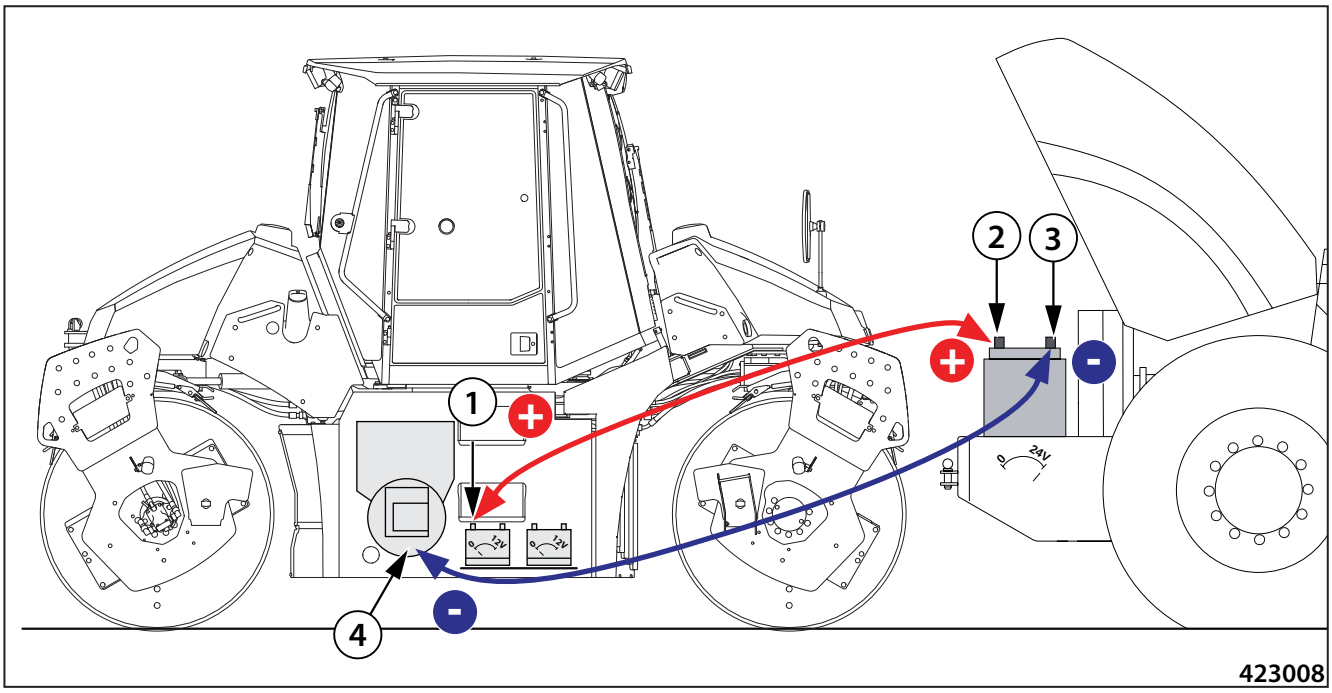
If the start-up fails, turn the key back to position "I". If the engine is not started up even after 3 attempts – check the fuel system.

Do not start the engine for more than 30 seconds. Wait for 2 minutes before starting again.

Following the engine start let the engine idle at increased speed for 3–5 min.

Do not let the engine idle for more than 10 minutes – longer idling can result in clogging of injectors, sticking of piston rings or seizure of valves!

If the coolant temperature does not reach at least 40 °C (104 °F), do not load the engine at full power!


1
2
3
4
12V
12V
24V
423008

Start-up procedure using leads from an external power supply:

The starting power supply from the external power supply must be 24V.

Always follow the undermentioned operation sequence.

1/ Connect one end of the (+) pole of the cable to the (+) pole of the discharged battery.

2/ Connect the other end of the (+) pole of the cable to the (+) pole.

3/ Connect one end of the (–) pole of the cable to the (–) pole of the external battery.

4/ Connect the other end of the (–) pole of the cable to any part of the started machine, which is attached to the engine (or with the engine block itself).

When the engine has been started, disconnect cables in reverse order.

If two batteries are used in the machine, connect the (+) cable pole to the (+) pole of the discharged battery that is not connected to the (-) pole of the second battery.

Do not connect the (-) pole of the cable to the (-) pole of the discharged battery of the machine being started! During the starting, heavy sparking may occur and gases of the charged battery may explode.

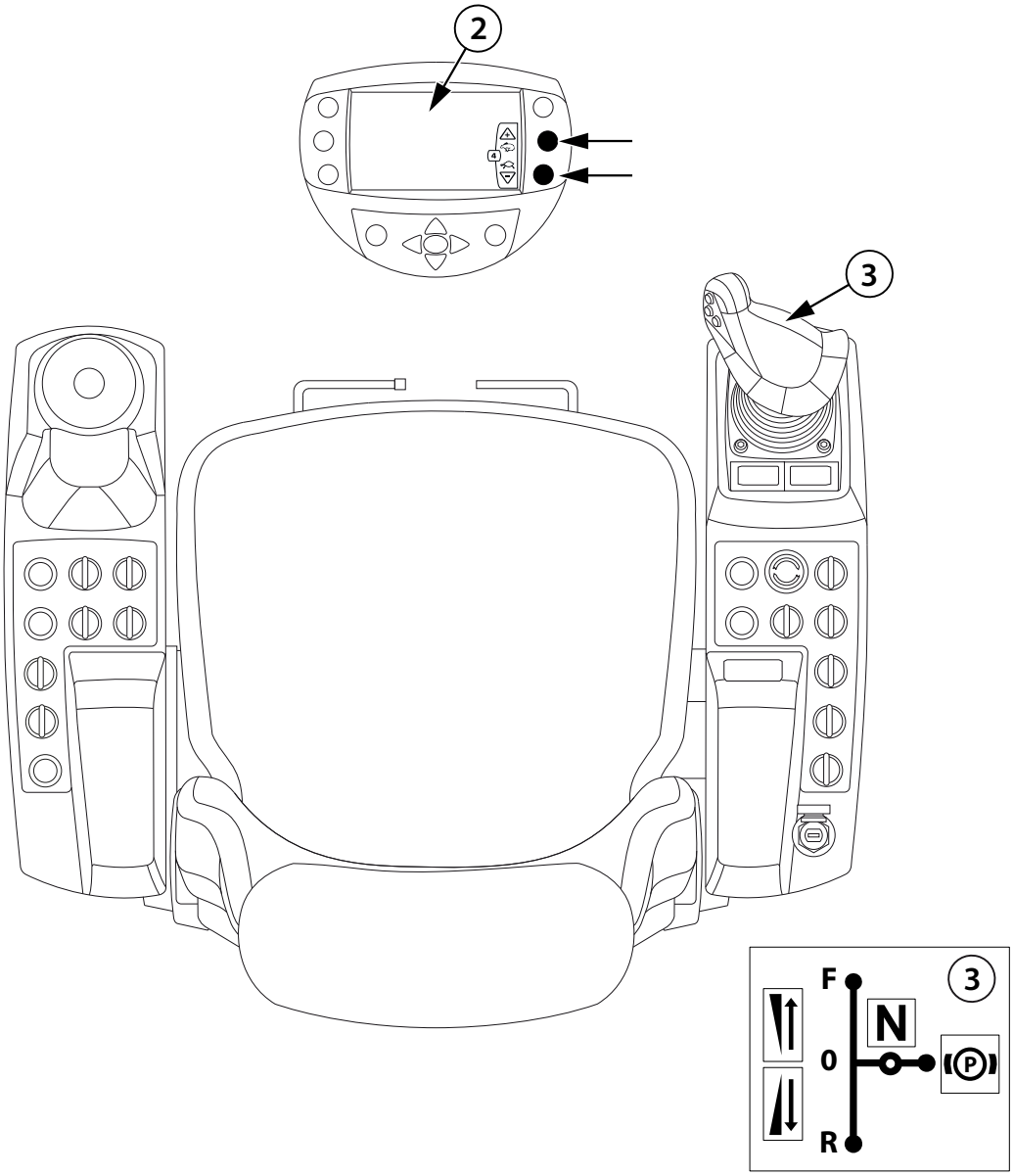
Uninsulated parts of clamps of the jump leads must not touch each other!

The jump lead connected to the (+) pole of the batteries must not come into contact with electrically conductive parts of the machine – danger of a short circuit!

Do not lean over the batteries – possibility of electrolyte burns!

Remove flammable sources (open flame, burning cigarettes, etc.)

Do not check the presence of voltage in the wire by sparking against the machine frame.



421012E

2.7.2 Drive and reverse drive

The operator must sit on the seat before the machine starts moving! If the operator stands up from the seat during the machine travel, the machine will stop and the brake will be engaged.

Use the warning horn to signal that the engine is starting and wait long enough so that all persons could leave the area around the machine or under the machine in time!

Before moving off, check that the area in front of and behind the machine is empty and that there are no persons or obstructions there!

Machine travel and reversing:

Selection of travel direction:

Start the engine.

Move the travel control (3) from the parking brake (P) to the neutral position (N) – the brake will be released and the indicator lamp of the parking brake will go out. The engine idle speed is set.

Move the travel control (3) to the position (0) and select a travel direction (F/R). The engine working speed adjusted according to the pre-set speed gear.

Travel speed selection:

The travel speed corresponds to the deflection of the travel control (3) from the zero position (0).

The speed gear can be changed using the buttons from MIN (turtle) to MAX (rabbit) on the display (2).

Speed gear	forward km/h (mph)	reverse km/h (mph)	engine speed rev/min (rpm)
0	3 (1.9)	3 (1.9)	1,600
1	2 (1.2)	2 (1.2)	1,300
2	3 (1.9)	3 (1.9)	1,600
3	4.5 (2.8)	4.5 (2.8)	1,600
4	6 (3.7)	6 (3.7)	1,600
5	10 (6.21)	10 (6.21)	1,600–2,200

Note

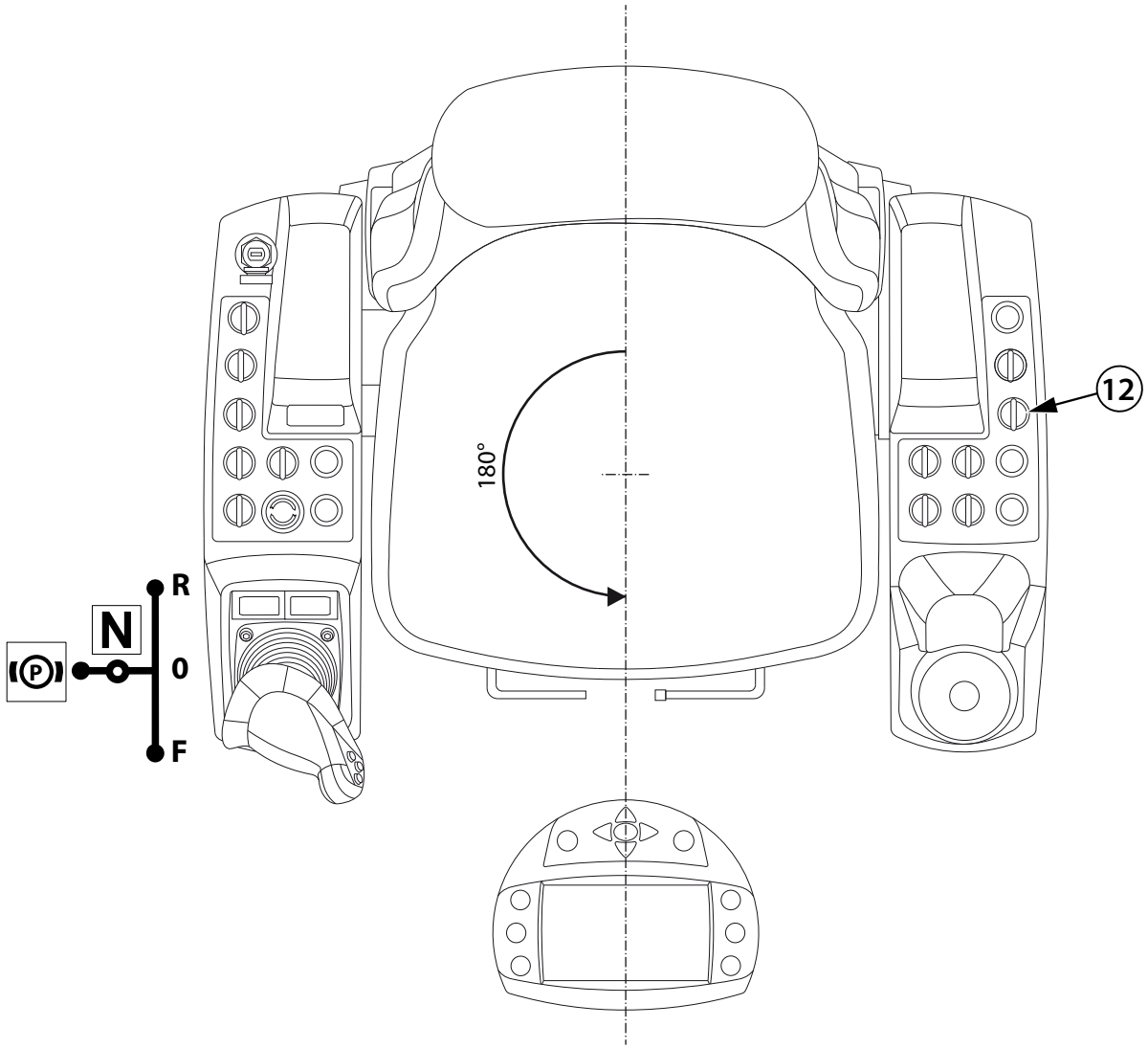
The speed gear 0 is adjusted as starting after 15 minutes after the switch box is turned off. Work functions of the machine are locked in the speed gear 0 (vibration, sprinkling, crab – only the drum offset cancellation function enabled).

Panic response

The immediate stop of the machine using the travel control (3) applies to all of the travel modes of the machine. When the travel control (3) is changed to the opposite position through (0) within 1 second, the machine will stop – the parking brake will be enabled, the engine will keep running, i.e. panic response. The machine can start moving again after the travel control (3) is changed to the brake position (P) and the travel direction (F/R) is selected.

When driving at the transport speed on long distances, stop every 30 minutes for an hour to let the machine cool down. By failing to do so you take the risk of damaging the machine, for which the manufacturer bears no responsibility.

When the traction is lost, the tractive force drops or the engine speed decreases significantly, engage the lower speed gear with the travel control button on the display (2)! If the machine is equipped with the ATC differential lock function, enable the function with the differential lock button on the display (2)!


180°
12
R
N
0
F
421215A

Change of the driving direction – turned workplace

Use the driving direction change functions when the workplace is turned by 180° only for loading or unloading the machine and for leaving a dangerous zone because the driver's workplace comfort and the view from the house are reduced. Always work with a properly informed helper while operating the machine according to Chap. 2.1.6.

When the workplace is turned by 180°:

- the speed gear "0" is set automatically and a different speed gear cannot be set,
- it is possible to reset the CRAB function,
- the vibration function is disabled,
- it is possible to enable the sprinkling and edge cutter function.

Procedure to enable the turned workplace:

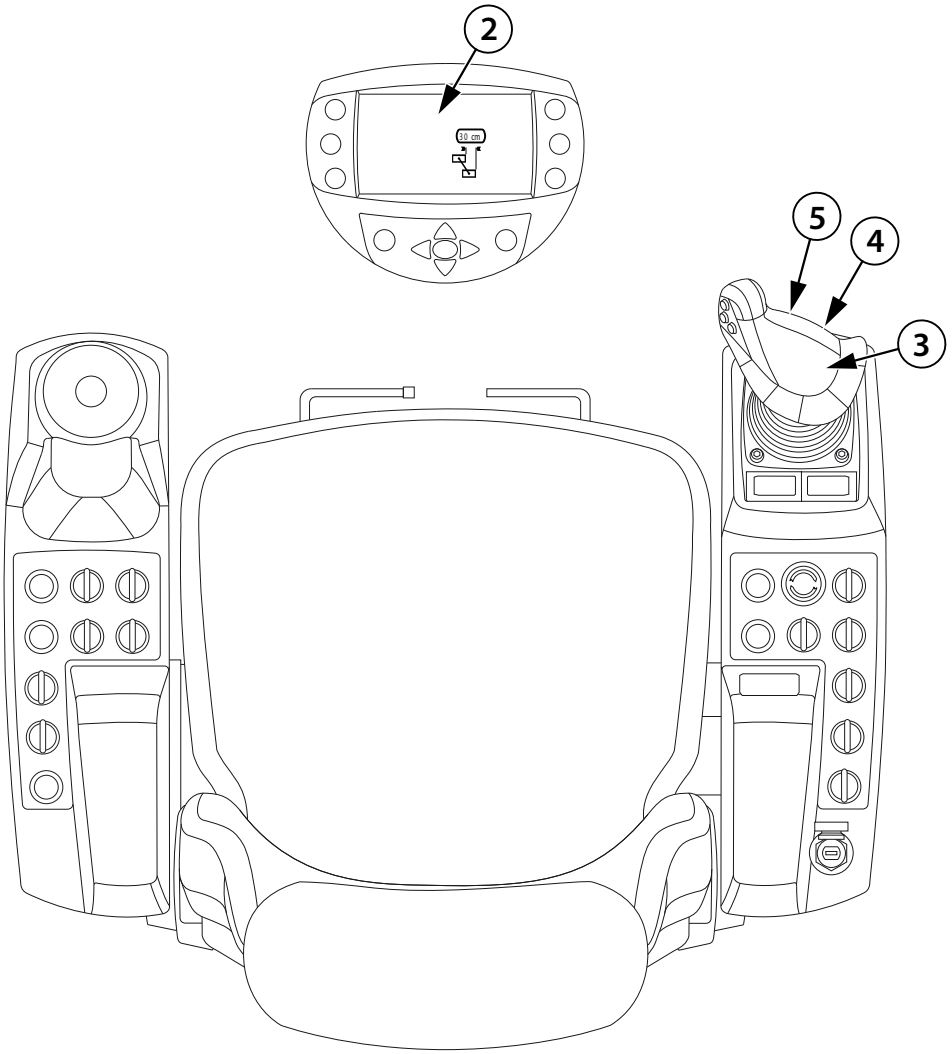
- Stop the machine and enable the parking brake.
- Turn the seat backwards (by 180°).
- A caution will appear on the display (discrepancy of the seat turning sensor and of the driving direction change switch).
- Turn on the driving direction change switch (12) by turning to the right.
- The speed gear 0 is set automatically, the functions of the travel control and of the steering wheel are changed for the turned workplace.
- By pressing the maximum engine speed button (see Chap. 2.6.1), you can enable the maximum engine speed.

Procedure to disable the turned workplace:

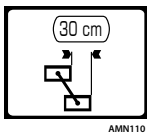
- Stop the machine and enable the parking brake.
- Turn the seat forwards (by 180°) to the standard position for the forward driving.
- A caution will appear on the display (discrepancy of the seat turning sensor and of the driving direction change switch).
- Turn off the driving direction change switch (12) by turning to the left.
- If the seat position and the switch are not in accordance, the machine does not move.

It is forbidden to use the machine when its workplace is turned back for purposes other than for loading and unloading the machine and leaving a dangerous zone!

It is forbidden to use the machine when its workplace is turned back without attendance of a properly informed helper for operating the machine!



423118



CRAB function

The function is used for offsetting one of the drums when working at kerbs.

The drums are to set to the CRAB mode with the buttons (4) and (5) on the travel control (3).

The drum setting is displayed on the display (2).

The CRAB function has three modes depending on the control mode

Front drum control - the rear drum crabs in the whole range of the angular displacement – possibility of the max. width of the machine (offset +/- 69,5 cm (27,4 in)).

Rear drum control - the front drum crabs in the whole range of the angular displacement – possibility of the max. width of the machine (offset +/- 69,5 cm (27,4 in)).

Both drums control - the rear drum crabs in a limited range (offset +/- 69,5 cm (27,4 in)) – when the smallest turning radius is needed, the crab value decreases automatically to 0 cm (however the machine remembers the value) and the original value is restored when the position is turned back.

The machine is equipped with an INTELLIGENT CRAB

After the crab is set, the machine saves the set value (offset). When the crab is changed to the other side, the crab stops automatically at the same value (offset).

If the operator requires a new crab value

Lower – he releases the crab button sooner while crabbing.

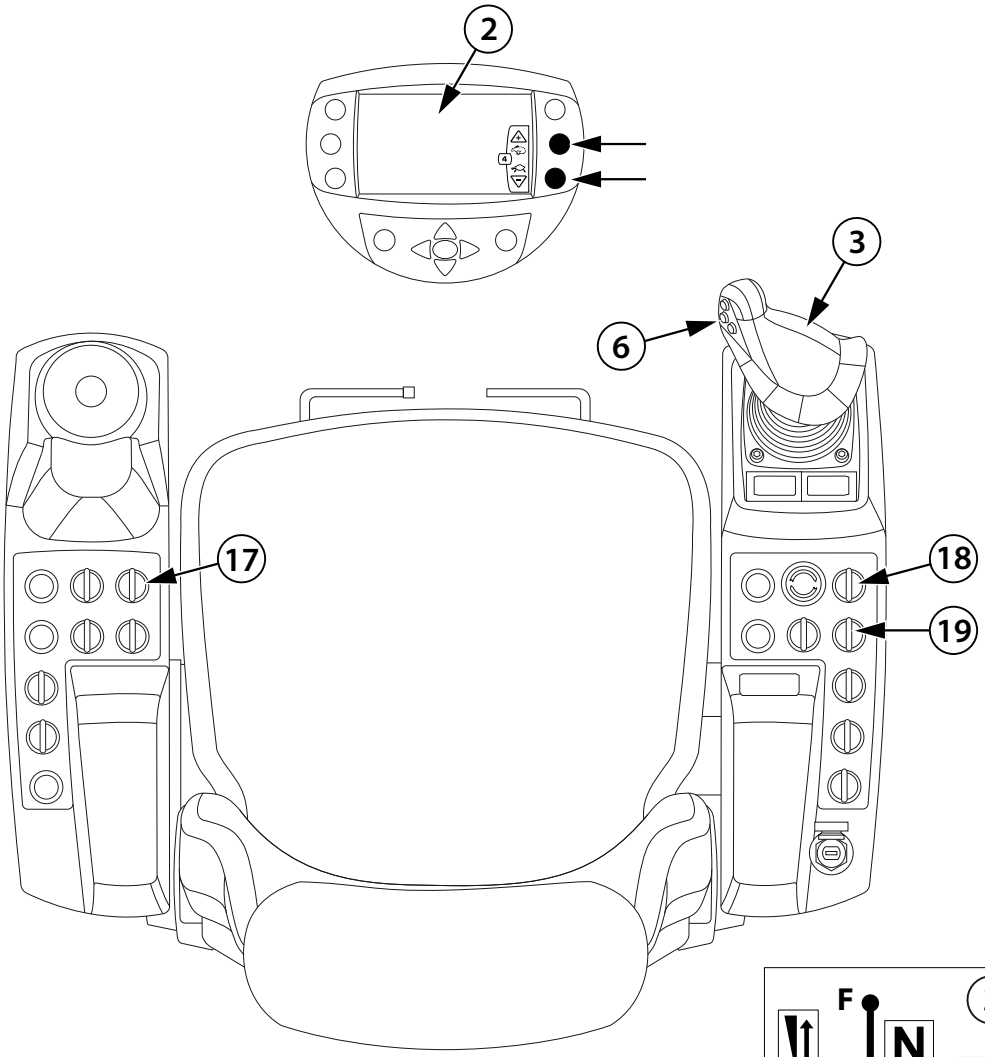
Higher – after the crab is set, he presses the button once again, the offset continues to increase.

Drum offset reset

Press the buttons (4) and (5) at the same time to cancel the drum offset (the drums will be set in one track).

Take special care when the machine travels in the CRAB mode near buildings to avoid their damage due to collision (hitting)!

If necessary, fold the external mirrors!



421012G

Machine travel and reversing with vibration

The control unit of the machine watches the maximum time of vibration on the spot. If it is exceeded, the control unit turns off the vibration and turn on it again after the distance 6 m (6.56 yd) is done.

For the maximum permissible slope gradient when driving uphill and across the slope gradient, see figures.

The given values will be lower depending on adhesive conditions and the instantaneous weight of the machine!

Use the switch (17) to select the drum vibration.

Use the switch (18) to select a vibration amplitude.

Adjust a travel speed on the display (2).

Use the travel control (3) to select a direction.

Use the switch (19) to select the MAN mode.

Turning on:

Press the button (6) on the travel control (3) to turn on the vibration.

Turning off:

Turn off the vibration by pressing the button (6) on the travel control (3).

You can turn off the vibration by shifting the travel control (3) to the neutral position (N).

Note

The MAN mode allows you to turn on the vibration on a standing machine.

Automatic vibration switching ON/OFF mode (AUT):

Turning on:

Use the switch (19) to turn on/off this function.

Press the button (6) on the travel control (3) to turn on the vibration.

The vibration will be automatically turned on when the travel speed is more than 1 km/hour (0.6 MPH).

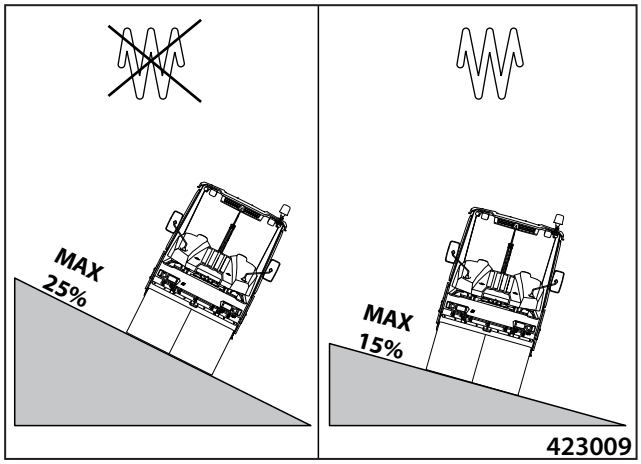
The vibration will be automatically turned off when the travel speed is less than 1 km/hour (0.6 MPH).

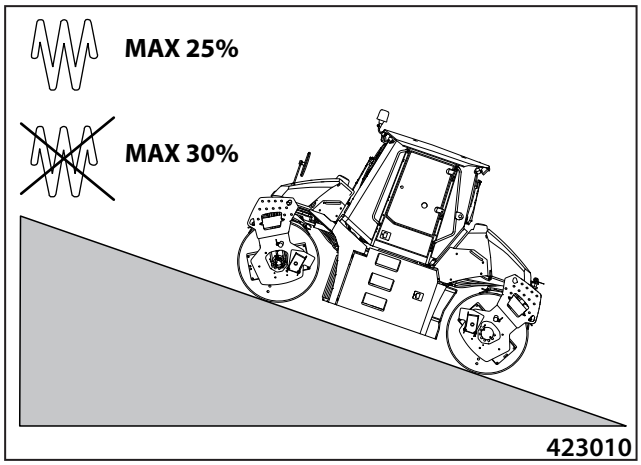
The automatic vibration function remains enabled even after the travel control (3) has been changed through the position (0).

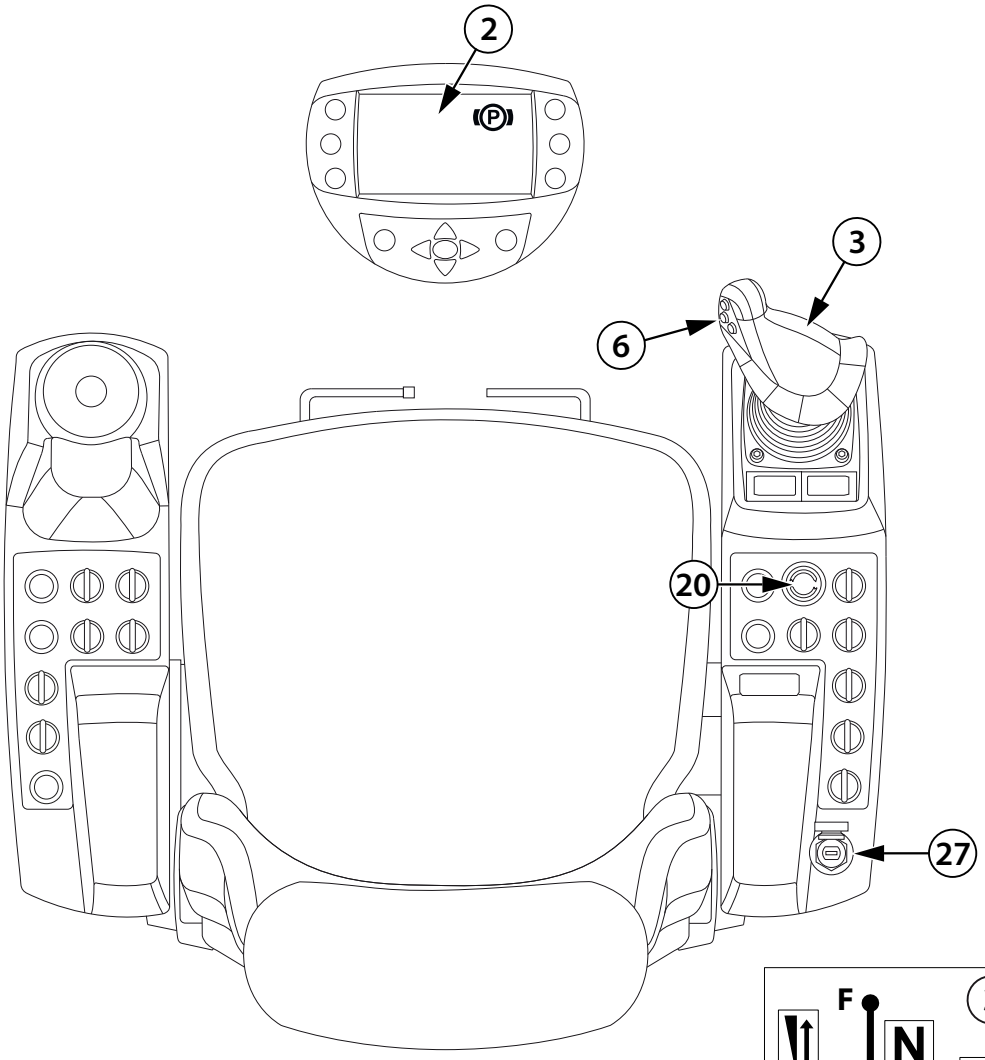
Turning off:

Turn off the vibration by pressing the button (6) on the travel control (3).

You can turn off the vibration by shifting the travel control (3) to the neutral position (N).







421012H

2.7.3 Stopping the machine and engine

Press the button (6) on the travel control (3) to switch off the vibration.

Stop the machine by changing the travel control (3) to the neutral position (N).

Brake the machine by changing the travel control (3) to the brake position (P).

Turn the key in the ignition box (27) to position "0" and close the cap of the ignition box.

Do not stop the hot engine instantly but let it idle for 3 minutes. The engine and the turbocharger will cool down slowly and evenly!

The travel control (3) must be always in the brake position (P)!

Turn off the battery disconnector when shutting down the machine!

2.7.4 Machine emergency stop

Use if there is a failure and it is impossible to stop the engine with the key in the ignition box, by enabling the panic response or by changing the travel control (3) to the brake position (P)!

Turning on:

After pressing the emergency brake button (20), the machine is braked and the engine stops.

The parking brake indicator lamp lights up on the display (2).

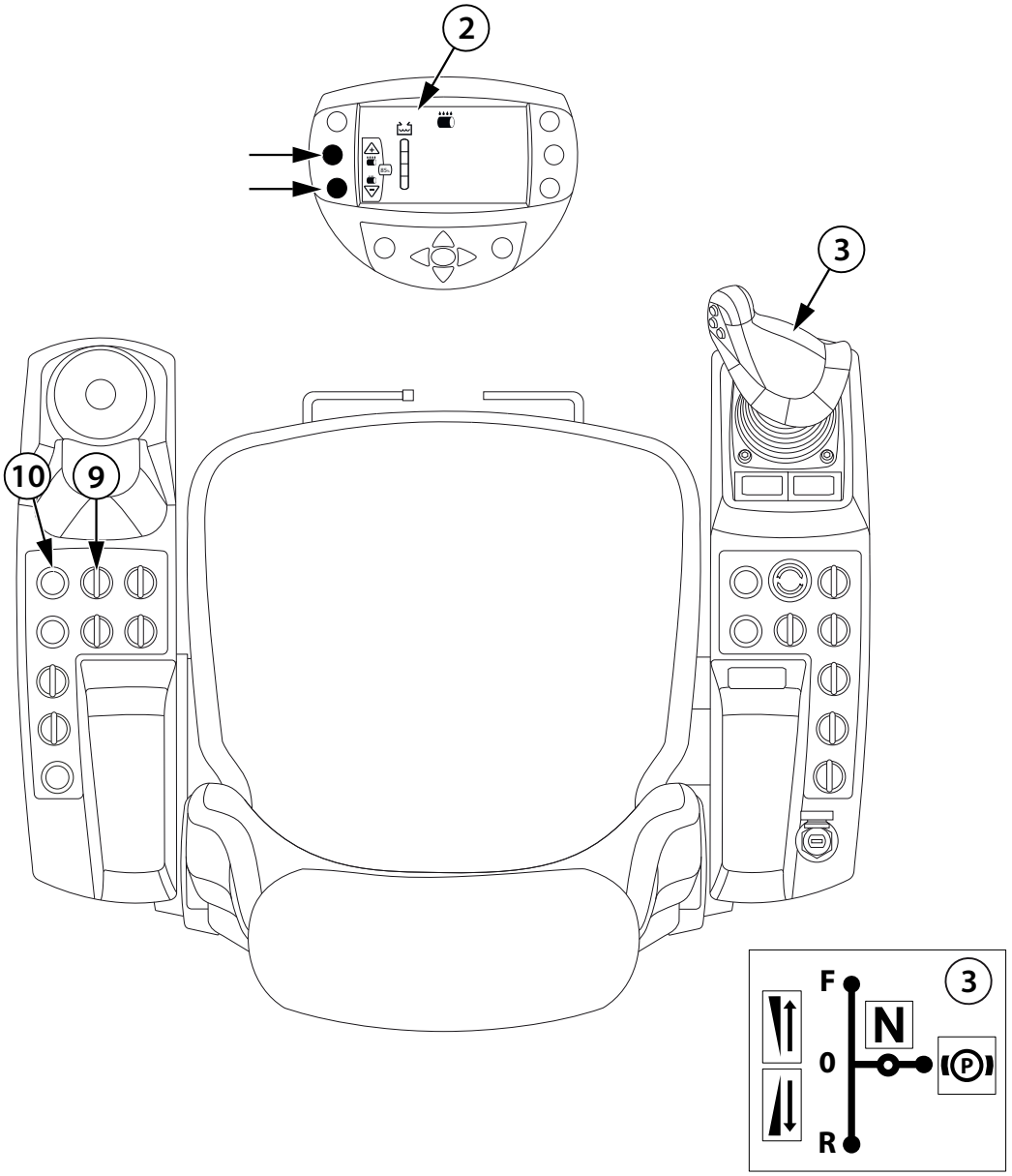
Turning off:

Turn the emergency brake button (20) in the direction of arrows.

The emergency brake indicator lamp will go off.

The parking brake indicator lamp keeps lighting on the display.

Move the travel control (3) to the position (P); you can restart the engine in this position.



421012I

2.7.5 Machine parking

Park the machine on a flat and solid surface where there is no potential natural hazard (landslides, flooding, etc.).

Change the travel control (3) to the brake position (P).

After stopping the engine, turn off the battery disconnector before leaving the machine.

Clean the machine (scrapers and drum).

Check the whole machine and repair defects that occurred during operation.

Lock the covers and cab of the machine.

Do not stop the hot engine instantly but let it idle for 3 minutes. The engine and the turbocharger will cool down slowly and evenly!

2.7.6 Sprinkling

2.7.6.1 Water sprinkling


3040

It is used for sprinkling the machine drums.

The machine is equipped with two pumps. The second pump installed on the machine serves as a spare pump.

The water level in the tank is displayed on the display (2).

Using the sprinkling button (10), it is possible to turn on the additional sprinkling of drums anytime, e.g. before driving on a compacted bitumen surface.

Turning on:

Using the sprinkling pumps selector switch (9) turn on one of the two sprinkling pumps.

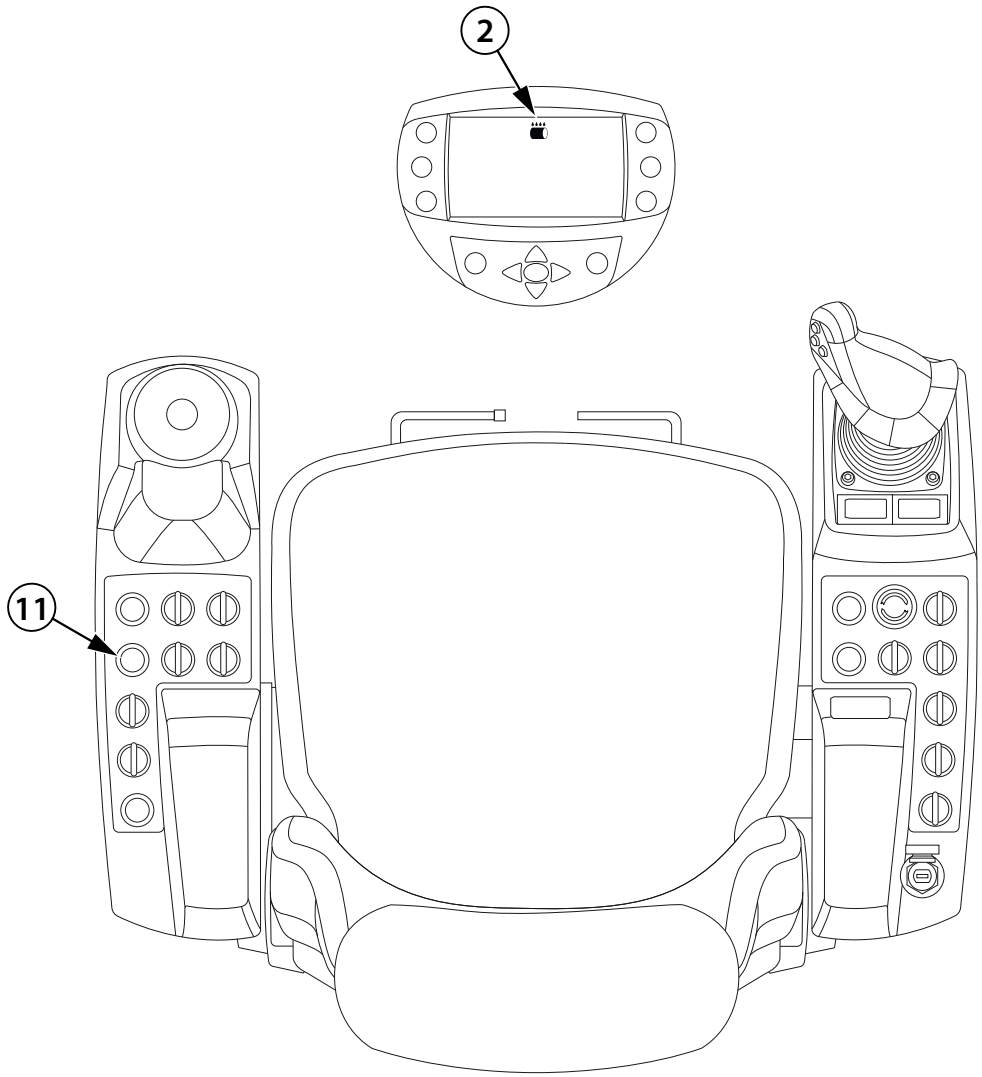
Set the sprinkling intensity on the display (2).

The sprinkling pump operation is indicated by the indicator lamp on the display (2).

Turning off:

Change the sprinkling pump switch (9) to the centre position (0).

Check the water level in the tank during operation of the machine.
For even wear, we recommend you to alter the pumps every 100 engine hours.



421012K

2.7.6.2 Emulsion sprinkling (Combi version)

It is used for sprinkling the tyres with emulsion. The separation emulsion (anti-adhesive agent) ensures effective separation of the tyres and the compacted surface.

Advantages of the use of an anti-adhesive agent:

- There are no trails on the compacted surface thanks to the effective separation effect
- Extremely low consumption of the anti-adhesive agent
- The surface can be processed at higher temperatures
- The surface does not suffer from the rolling so much thanks to the lower water consumption
- The anti-adhesive agent does not cause corrosion of the rubber tyres
- The penetration of the excessive anti-adhesive agent does not have any other negative effects
- The anti-adhesive agent is biologically degradable

The emulsion level in the tank is shown through a level gauge.

Before driving, check the emulsion level in the tank.

Turning on:

Open the cover.

Set the lever to the position.

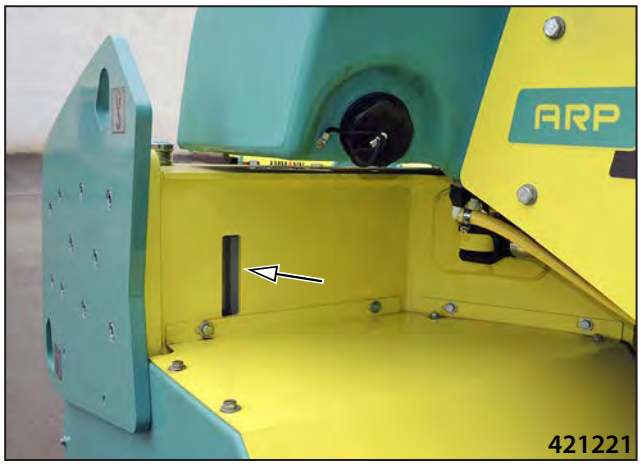
A) Sprinkling the tyres with emulsion

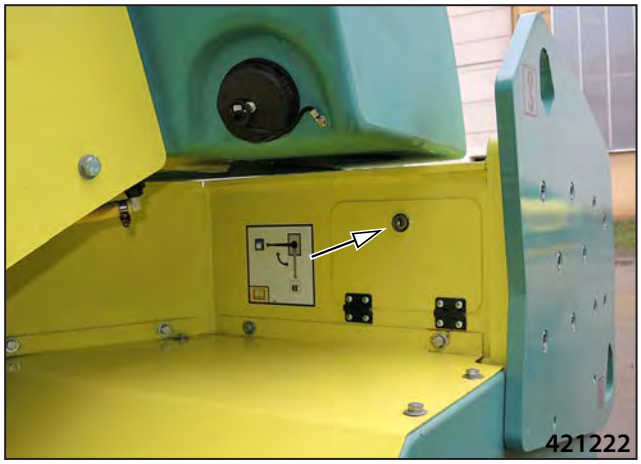
B) Sprinkling the tyres with water

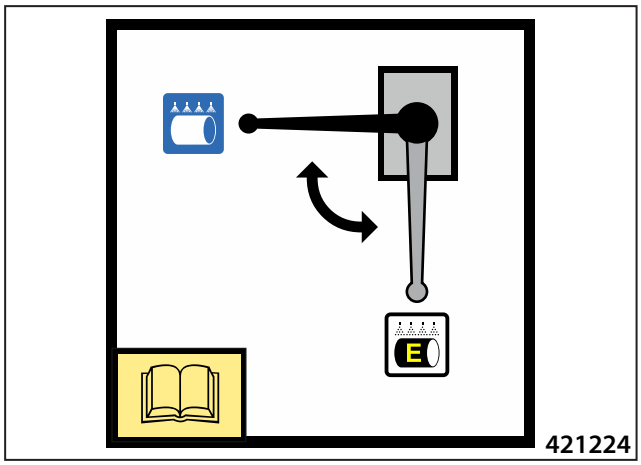
Turn on the emulsion sprinkling button (11). The sprinkling is running while the button is pressed.

The operation of the tyre sprinkling pump is indicated by the indicator lamp on the display (2).

Apply the separation emulsion all around the tyres.



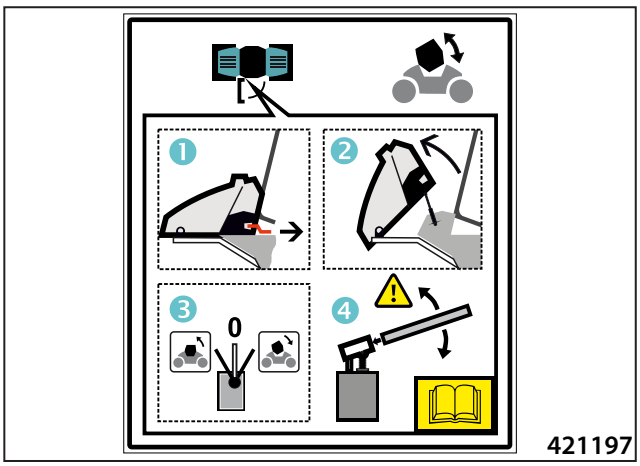




2.7.7 Cab lifting and lowering

The driver's cabin can be lifted to provide better access to the engine and other units in the engine compartment.

Lift and lower the cab when the machine is placed on a flat solid floor and the engine is off, the key is removed from the ignition box and the wiring is disconnected.



421197

Lifting process:

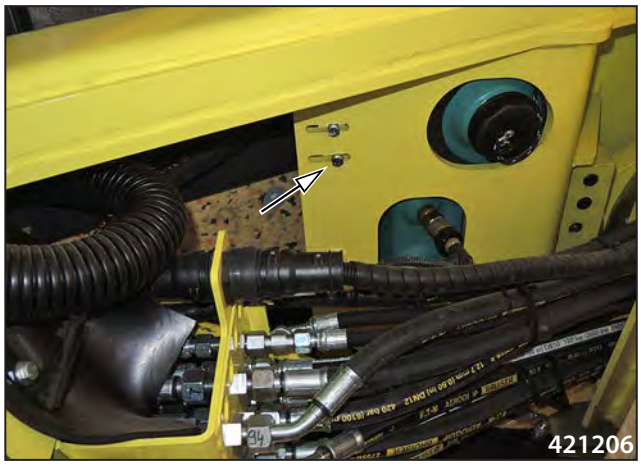
Close the valve.


423085

Drain water from the front sprinkling tank.


421159

Remove the holders of the front water tank.


421206

Remove the hose from the front tank.

Lift off the water tank.

Open the left door of the engine compartment and secure with a strut.

Remove the cab screws (8×).

Set the lever to the cab lifting position.

Insert the lever into the pump and lift the cab.

Take out the strut.

Secure the cab with the strut.

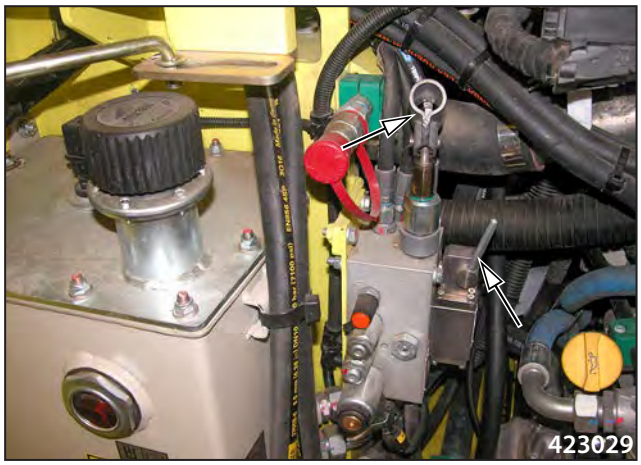
The strut is rated only to support empty cab without the driver.

Set the lever to the cab lowering position.

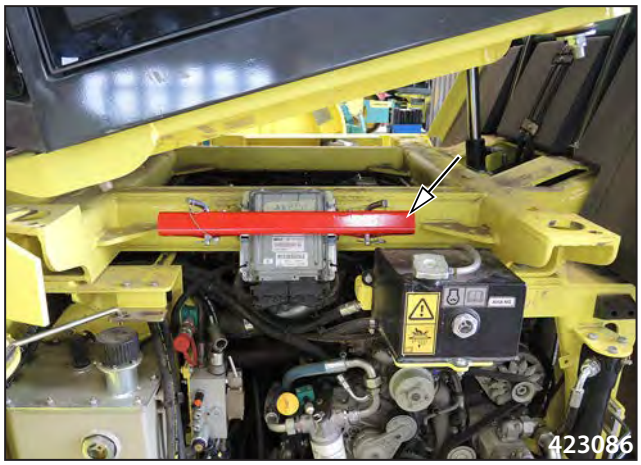
Lean the cab on the strut.

Start-up procedure:

Set the lever to the cab lifting position.

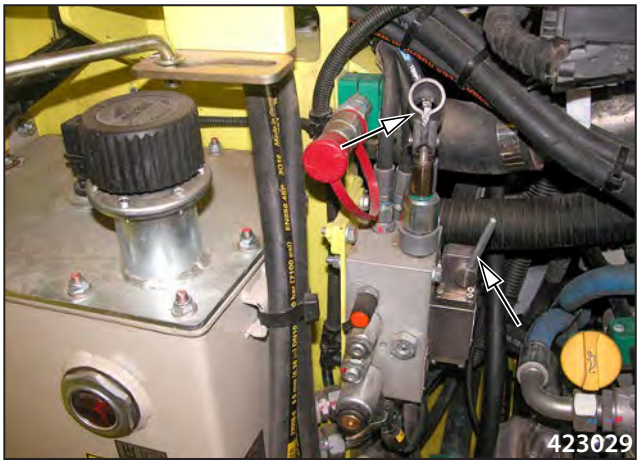


Lift the cab. Remove the strut. Mount the strut into the holder.



Set the lever to the cab lowering position.

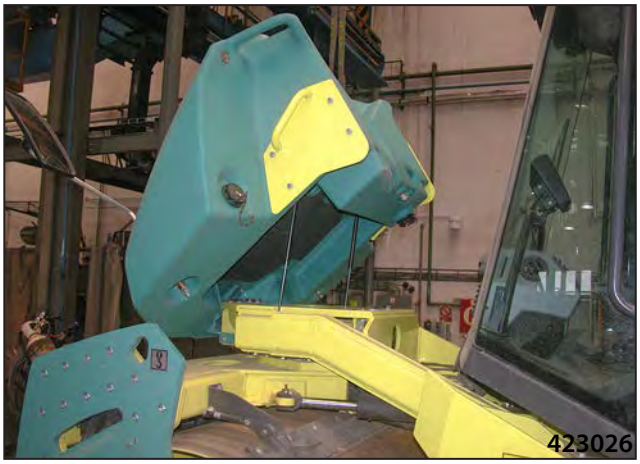
Lower the cab. Mount the cab screws (8×).



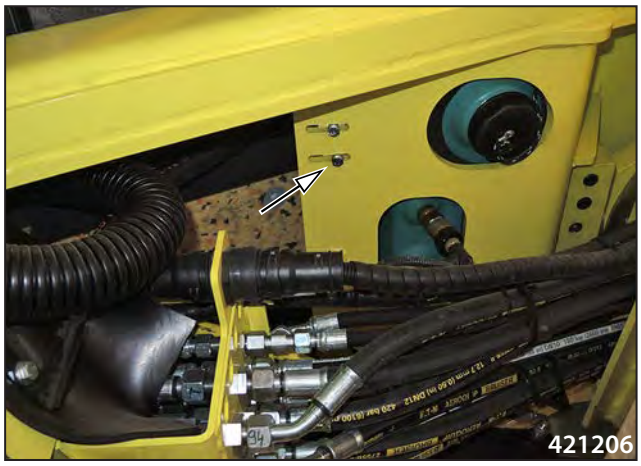
After the cabin is lowered, push the piston rod of the lifting linear hydraulic motor to the limit. This state is reached when you feel stronger resistance on the lever during lowering - the piston rod eye must not be in contact with the cabin (the cabin is floating on metal-rubber mountings) so as not to transmit vibrations to the cabin during compacting.

It is forbidden to drive with an unsecured cab.

Lower the water tank.

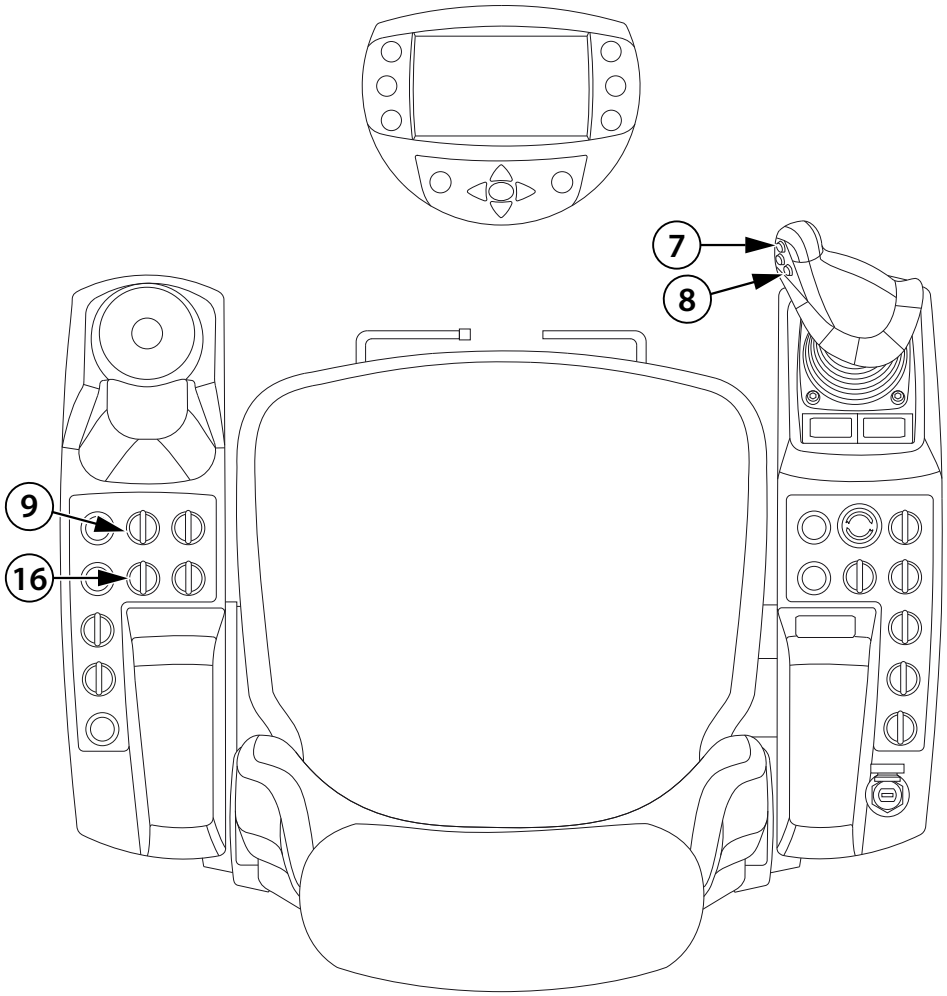


Mount the holders of the front water tank.



Mount the hoses.

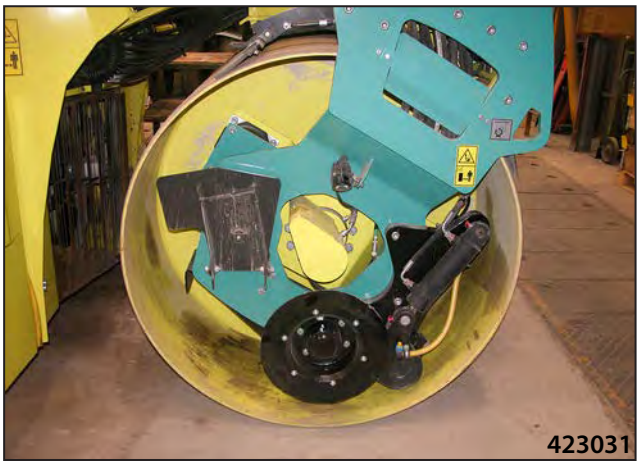
Open the valve.



421012J

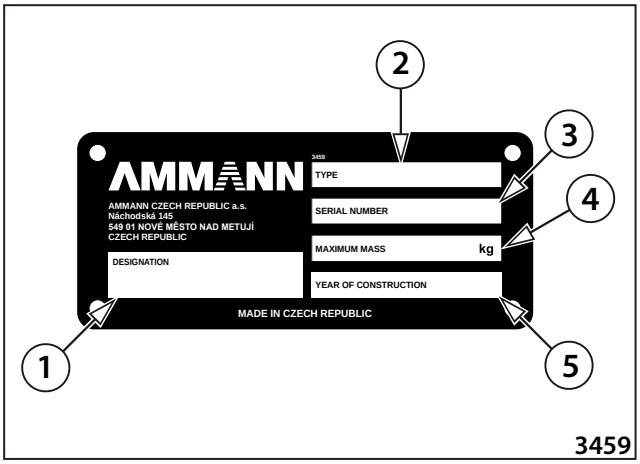
2.7.8 Ammann edge cutter (optional)

The edge cutter and final compactor are additional equipments supplied upon request of the customer; they are not included as standard accessories of the machine.



Carry out the additional assembly according to the respective instructions.

Edge cutter plate location.



Edge cutter plate

1 - Name – always stated only in the English version
2 - Type
3 - Serial number
4 - Maximum weight
5 - Year of manufacture

How to activate the cutter

Use the switch (16) to select the edge cutter (left/right).

Use the switch (9) to turn on the sprinkling pump.

Check that nobody is endangered when the edge cutter is started!

The buttons (7), (8) are used to set the cutter (of the final compaction device) to the required position.

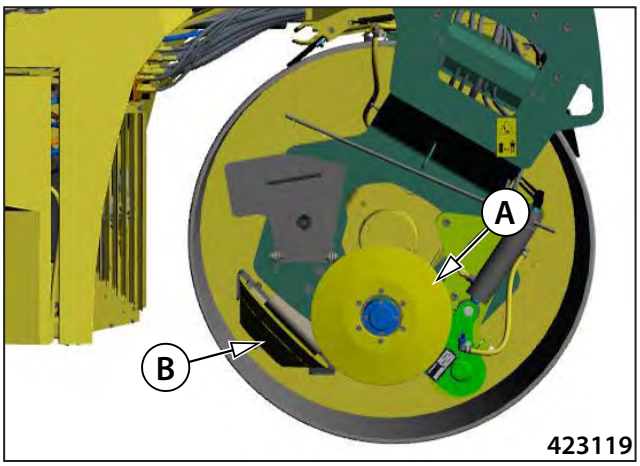
Upper button (7) – upward (setting to the transport position)

Lower button (8) – downward (setting to the working position)

The required position is being set while the button is pressed. After reaching the limit position in either direction, the cutter will automatically stop.

The cutting disc (A) is interchangeable with the final compaction disc (B).

To replace, remove the final compaction disc attachment. The not used cutting disc is to be fixed in the holder.



Note

If the cutter function is active, the vibration cannot be activated.

The vibration function is disabled.

2.7.9 Ammann spreader (optional)

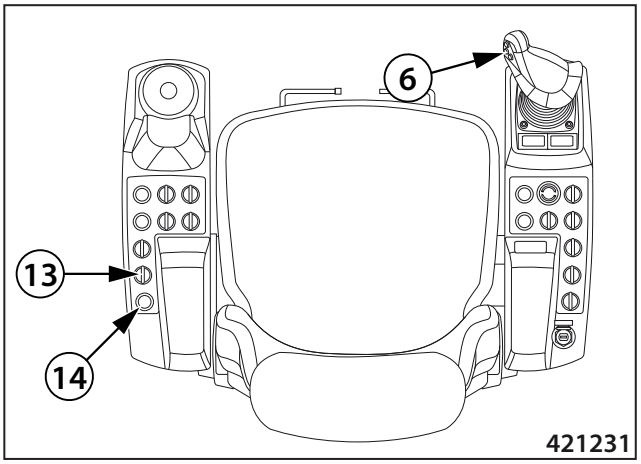
The spreader is auxiliary equipment that is available as optional. The standard machine is not equipped with a spreader.

Control of the spreader:

- Use the switch (13) to enable the spreader function. The indicator indicating the active spreader function will light up.
- Switch on the vibrator of the spreader (14) to release the spreading material if needed. The vibration is used for releasing the spreading material from the walls. The vibration is enabled while the button is pressed.
- Turn on the spreader with the button (6).
- Use the display buttons (2) to set the feeding device speed.

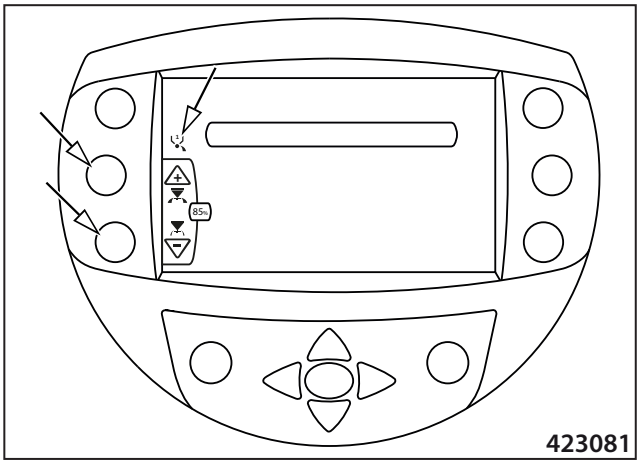
  0% – minimum speed

  100% – maximum speed



Note

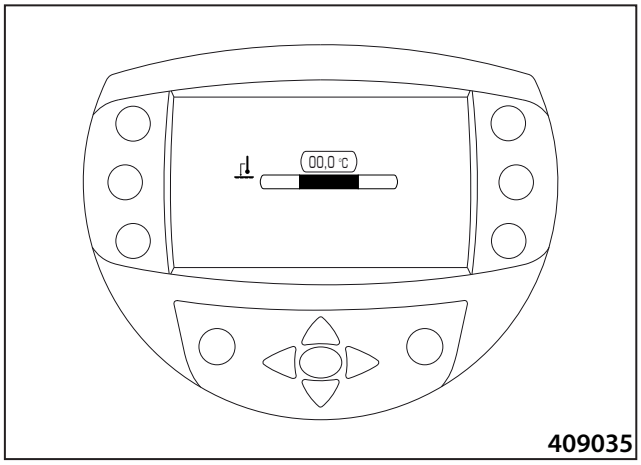
If the spreader function is enabled, the vibration of the machine and edge cutter / final compactor cannot be switched on. Functions are disabled.



2.7.10 Infrathermometer (optional)

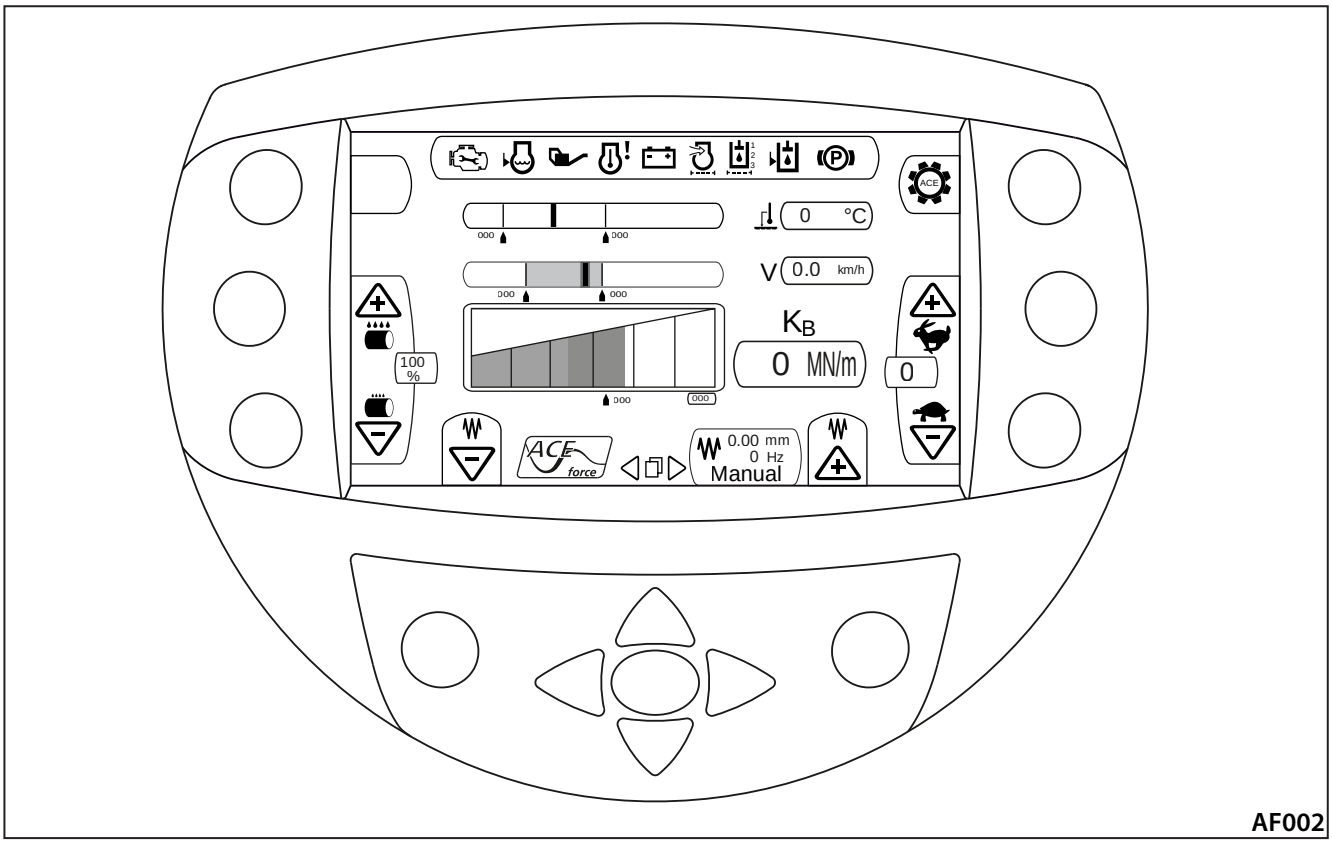
It is activated by turning on the key in the switch box (27) and it displays the temperature of the bitumen surface being rolled. The measured temperature in °C is indicated on the display (2).

The green field displays an optimal temperature range to compact with vibration.



Adjustment of the upper and lower limit of the permissible asphalt temperature:

1. Holding the OK button for about 4 sec (audible signal)
2. The blue text Set lower limit will be displayed and the digital temperature data is flashing – you can increase/ decrease the set value using the up/down arrows.
3. Using the OK button, switch over to the upper limit setting.
4. The red text Set higher limit will be displayed and the digital temperature data is flashing – you can increase/ decrease the set value using the up/down arrows.
5. By short pressing the OK button, you can anytime switch over between the upper and lower limit adjustment.
6. By holding the OK button pressed for about 4 seconds (audible signal), you save the set values in the memory.



AF002

2.7.11 ACE FORCE (optional)

Operational screen of ACE Force is located as a fourth page in machine's display. The functionality of ACE Force is operated automatically, without necessity of presetting. System is activated by start of the vibration and deactivated by stop of the vibration. System shows following values and information:

Parameter	Value
Kb	MN/m
Amplitude	mm (in)
Frequency of vibration	Hz (VPM)
Speed	km/h (mph)


AMN47

Engine failure indicator lamp


AMN48

Coolant level indicator lamp


AMN49

Engine lubrication indicator lamp


AMN50

Engine overheating indicator lamp


2777

Battery charging indicator lamp


AMN51

Air filter clogging indicator lamp


595427

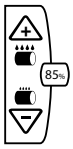
Indicator lamp of hydraulic oil filter clogging


591507

Indicator lamp of hydraulic oil level


2703

Parking brake indicator lamp



AMN41

Drum sprinkling buttons

The buttons are used for setting the drum sprinkling intensity.

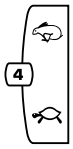
0 % – drum sprinkling OFF

100 % – continuous drum sprinkling


AMN42


AMN43

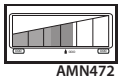
Vibration frequency buttons



AMN44A

Travel speed indicator

The ACE system functions are enabled only within the range of the working speeds 1–3/4.


AMN472

Graphical indicator of the degree of compaction

It displays an increment of Kb units during the compaction process.

If the function is enabled, it is a part of the indicator showing the required Kb value.

The range of values of the indicator of the degree of compaction can be set on the screen for setting parameters.

AMN464

Indicator of the degree of compaction

It shows a present value of the degree of compaction Kb in MN/m units.

AMN465

Parameters setting screen button

After the button is pressed, the ACE system parameters setting screen will appear.

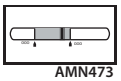

2612

Vibration setting indicator

The pictogram shows the (low/high) vibration amplitude setting.

Amplitude - value in mm

Frequency - preset value in Hz


AMN473

Graphical indicator of the required speed range

The range of required speeds is automatically calculated depending on the set frequency.

AMN466

Momentary speed indicator

It shows the momentary speed of the machine.


AMN474

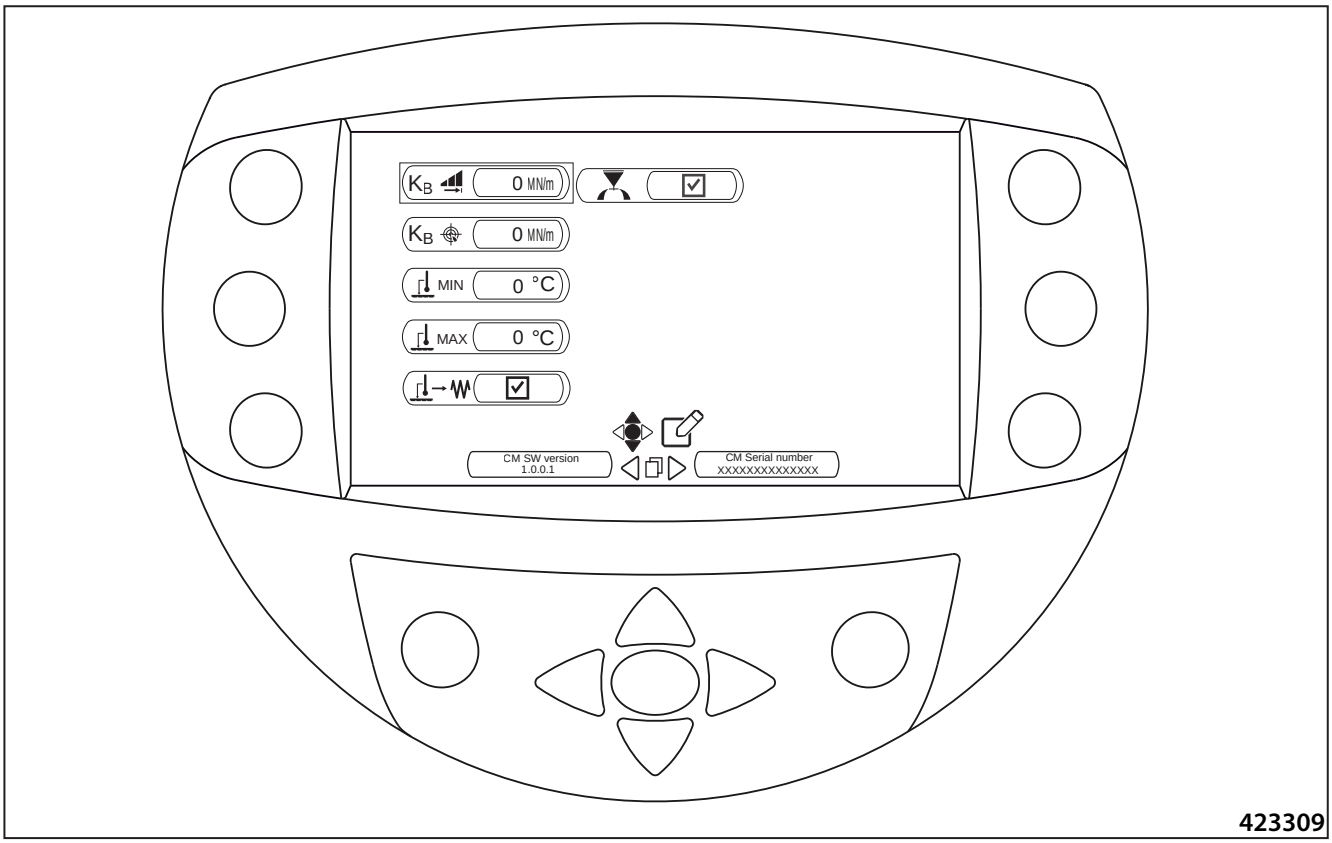
Graphical indicator of the required temperature range

The temperature range setting can be made on the parameters setting screen.


AMN475

Momentary temperature indicator

It shows a momentary temperature of the compacted surface.



2.7.11.1 Parameters setting screen

- It is used for displaying and setting parameters of the ACE system.
- The red rectangular is used as a cursor.
- Using the up/down buttons, go through the individual parameters.
- After the middle button is pressed, the cursor starts flashing. You can change the values using the up/down buttons.
- By pressing the middle button, you confirm the readjusted value.
- By pressing the left/right button, you return to the main screen.

Parameters:

AMN455 — **Upper limit of the degree of compaction Kb**

AMN456 — **The target degree of compaction Kb**

MIN ACZ80 — **Minimum temperature range value**

MAX ACZ81 — **Maximum temperature range value**

ACZ82 — **Active function of the temperature range control** (when the set temperature range is exceeded, vibrations are turned off)

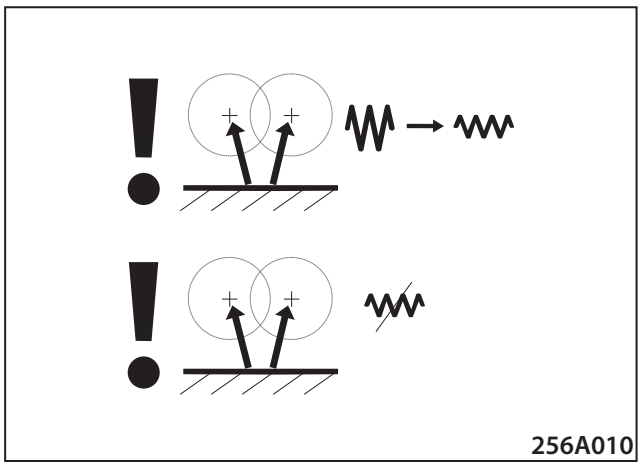
ACZ83 — **Spreader function** (it is selected when this optional function is part of the equipment)

Note:

The spreader function affects the precision of kb value calculation, therefore it must be selected according to the actual machine configuration.

The lower section of the screen displays the SW version of the compacting module and its serial number.

2.7.11.2 Double (chaotic) drum rebound



- The double drum rebound occurs when the material stiffness exceeds the applicable compaction energy of the compacting element, i.e. drum.
- During a double rebound, the drum jumps aside by more than one completed amplitude of the drum (two revolutions of the drum vibrator).
- The double drum rebound is a potentially dangerous condition which can cause damage to the machine or material being compacted. When this condition occurs, it is necessary to switch vibrations to low amplitude (when high amplitude is used) or to switch off the machine vibrations altogether (when low amplitude is used). An occurrence of this phenomenon can be caused by a change in frequency.
- The double rebound indicates that the maximum compaction rate is achieved by the given machine.
- This status is signalled by the corresponding icon on the ACE FORCE display.

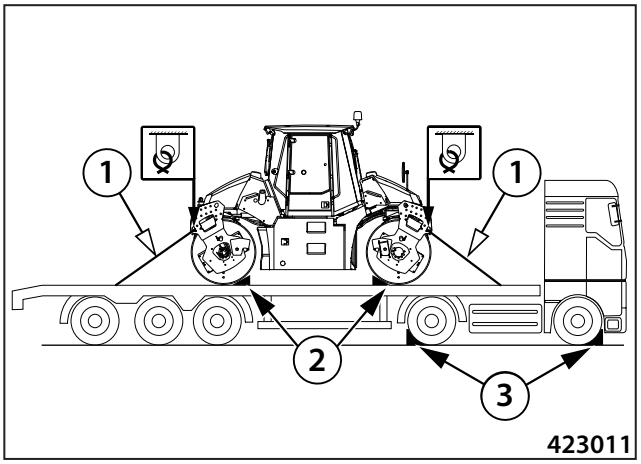
Note:

If the achieved degree of compacting is not sufficient (based on a comparison with laboratory tests), a higher degree of compacting must be achieved by using a higher weight category machine or the compacting ability of the material must be checked by a certified laboratory.

- The machine can move on its own between working sites.

When driving, observe the safety measures applicable to the working site.

- The machine should be transported on a vehicle on public roads.



When transporting the machine on a vehicle, observe regulations applicable to the given territory.

When loading and unloading, the vehicle transporting the machine must be braked and mechanically protected against accidental movement using wedges 3.

The machine on the vehicle must be properly tied and mechanically secured against longitudinal and lateral displacement as well as against tilting 1. The drums must be wedged with wedges 2.

For loading the machine use the function of transport mode (differential lock ON, speed gear 0). Working functions of the machine are locked (vibration).

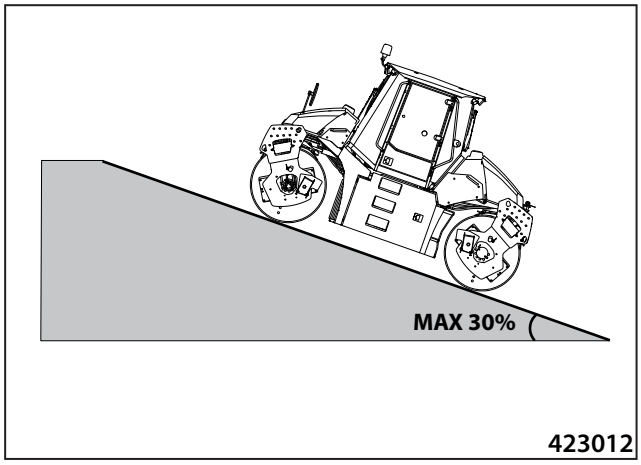
2.8.1 Loading the machine

Use a loading ramp or a crane to load the machine onto a mean of transport.

2.8.1.1 Loading the machine using a ramp

When loading the machine using a ramp, all safety regulations related to loading of the machine valid in the place of loading must be adhered to. The ramp must have an appropriate loading capacity, anti-slip surface and must be put on a flat surface. We recommend that you adhere to the BGR 233 regulation.

The maximum allowable inclination of the access ramp is 30%.

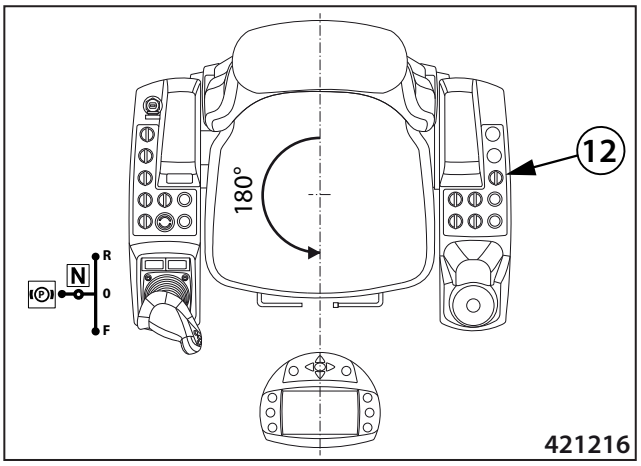


When loading the machine, another person must be present to give hand signals to the machine operator for driving on the ramp. See the list of hand signals in chapter 2.1.6.

Pay increased attention when loading the machine. Improper handling can cause serious injury or death.

Non-adherence to the prescribed parameters of the access ramp may result in damage to the machine.

2.8.1.2 Change of the driving direction – turned workplace



For loading the machine on a means of transport using loading ramps, it is possible to utilize the turned driver's workplace by 180°.

Use the driving direction change functions when the workplace is turned by 180° only for loading or unloading the machine and for leaving a dangerous zone because the driver's workplace comfort and the view from the house are reduced. Always work with a properly informed helper while operating the machine according to Chap. 2.1.6.

When the workplace is turned by 180°:

- the speed gear "0" is set automatically and a different speed gear cannot be set,
- it is possible to reset the CRAB function,
- the vibration function is disabled,
- it is possible to enable the sprinkling and edge cutter function.

Procedure to enable the turned workplace:

- Stop the machine and enable the parking brake. Turn the seat backwards (by 180°).
- A caution will appear on the display (discrepancy of the seat turning sensor and of the driving direction change switch).
- Turn on the driving direction change switch (12) by turning to the right.
- The speed gear 0 is set automatically, the functions of the travel control and of the steering wheel are changed for the turned workplace.
- By pressing the maximum engine speed button (see Chap. 2.6.1), you can enable the maximum engine speed.

Procedure to disable the turned workplace:

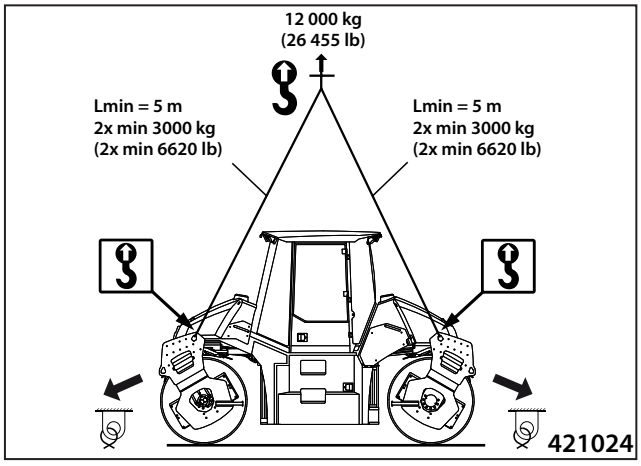
- Stop the machine and enable the parking brake.
- Turn the seat forwards (by 180°) to the standard position for the forward driving.
- A caution will appear on the display (discrepancy of the seat turning sensor and of the driving direction change switch).
- Turn off the driving direction change switch (12) by turning to the left.
- If the seat position and the switch are not in accordance, the machine does not move.

It is forbidden to use the machine when its workplace is turned back for purposes other than for loading and unloading the machine and leaving a dangerous zone!

It is forbidden to use the machine when its workplace is turned back without attendance of a properly informed helper for operating the machine!

2.8.1.3 Loading the machine using a crane

For loading with a crane, the machine is provided with lifting lugs.



Observe relevant national safety measures while loading the machine using a crane.

When the loading is completed, return the safety arm to the starting position.

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

To sling, use only lifting lugs on the machine designed for that purpose.

Only a trained slinger may carry out the slinging.

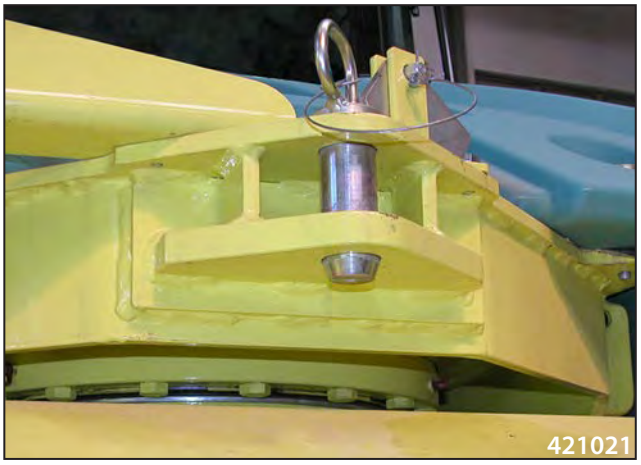
Do not enter under the lifted load!

2.9 Special conditions to use the machine

2.9.1 Towing the machine

For towing, the machine is provided with two lugs on the front yoke and with a tow gear on the rear frame of the machine. The tow gear is equipped with a pin locked with a locking catch against jumping out. You can remove the pin after raising the locking pin.

A stuck machine can be towed for a short distance if the engine is running and the travel drive and steering are working. The operator on the towed machine must steer the machine in the towing direction.



The towed machine must be attached to both tow lugs.

For towing, use undamaged tow ropes or tow bars of a sufficient capacity 1.5 × higher than the weight of the towed vehicle. Do not use a chain for the towing.

It is necessary to maintain the minimal angular deviation from the direction of towing. The maximum possible angular deviation is 30°.

The towing movement must be smooth. Do not exceed the towing speed by more than 2 km/hour (1.2 mph).

Tow the roller at the shortest distance possible – to rescue when it gets stuck or to remove when it is broken and obstructing. Do not tow for a distance exceeding 300 m (0.19 miles).

The towing machine should correspond with its size to the damaged machine. It must have a sufficient traction power (output), weight, and brake effect.

While towing downhill using a rope, another towing machine must be connected to the rear part of the damaged machine. In this way you can prevent an uncontrolled motion of the damaged machine.

If the engine does not work, or there is a defect in the hydraulic system, then you must short-circuit the hydraulic circuit and release the brake of the machine.

No person may be on the towed machine!

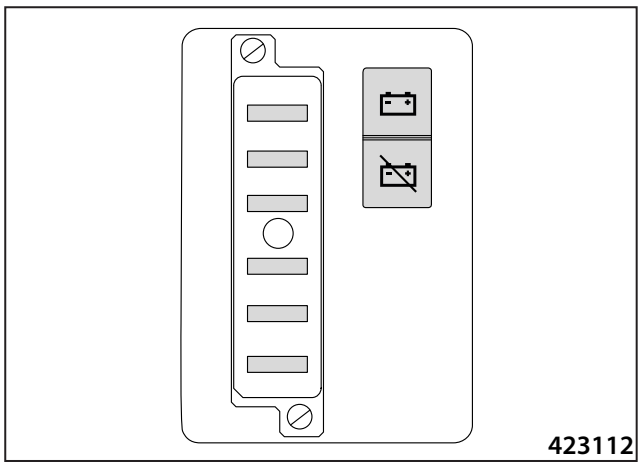
After the hydraulic circuit of the travel is short-circuited and the machine brakes are released, all of the brakes are disabled!

Before releasing the brake, secure the machine with wooden scotch blocks against movement!

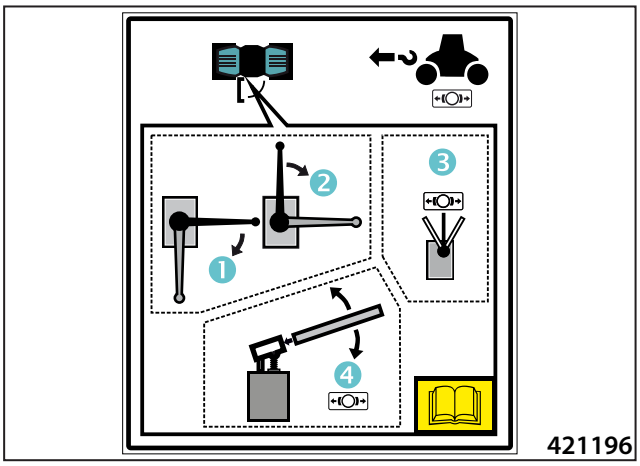
Do not touch hot parts of the machine, there is a burn hazard!

The cab (platform) and bonnet must be moved down before the brakes are released.

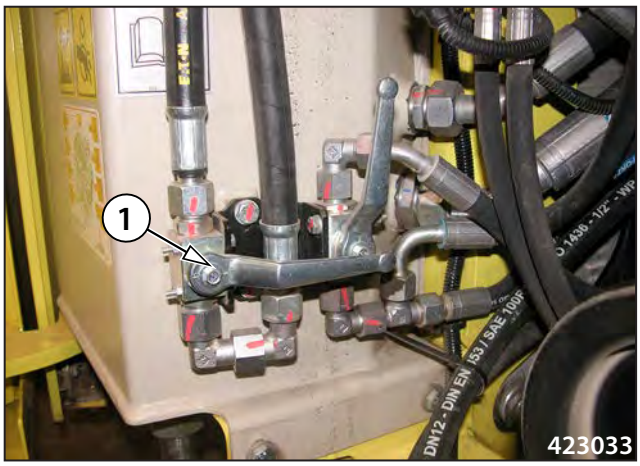
Turn off the battery disconnector.



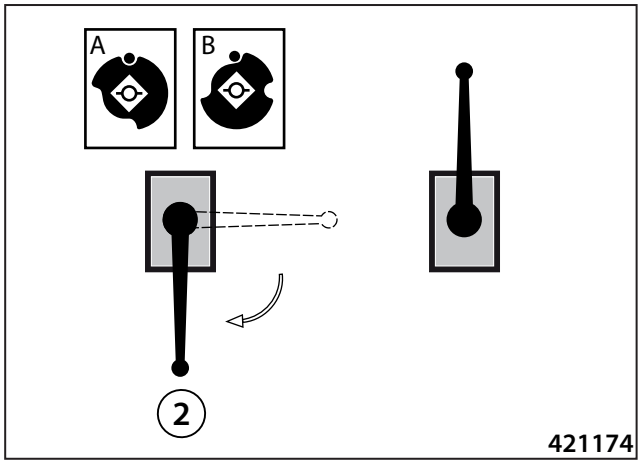
Travel pumps short-circuiting:



- Remove the lever (1).



- Adjust the washer to the position B.
- Remount the lever (1).
- Adjust the lever to the position 2.

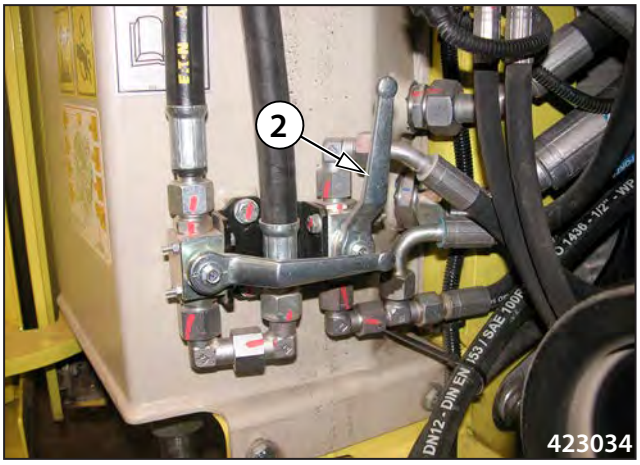


2.9 Special conditions to use the machine

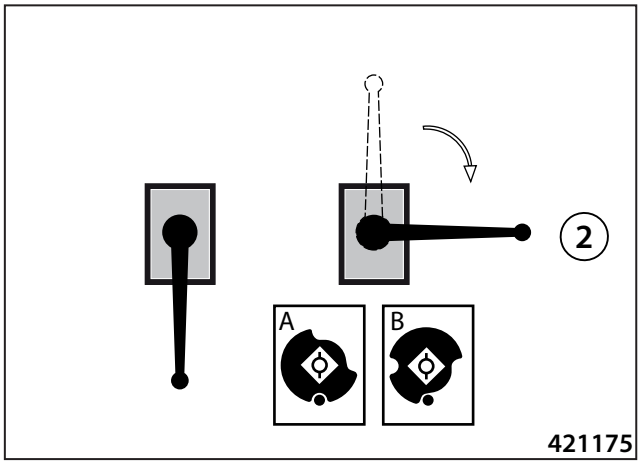
Release of the brakes:

Before releasing the brake, secure the machine with wooden scotch blocks against movement!

- Remove the lever (2).

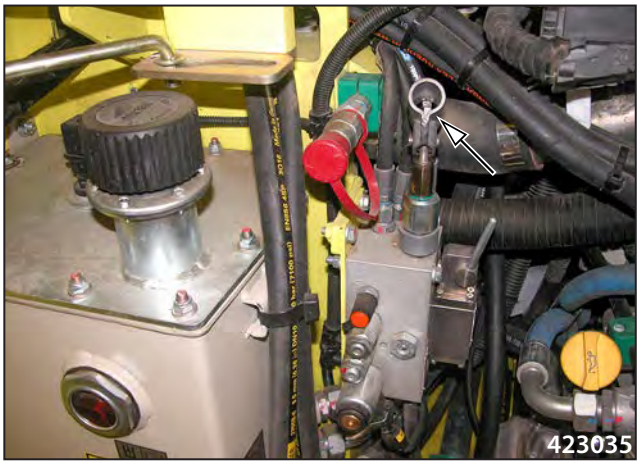


- Adjust the washer to the position B.
- Remount the lever (2).
- Adjust the lever to the position 2.



Insert the lever into the pump and pressurize the brake circuit by at least 30 full strokes (one stroke = movement of the lever up and down).

Now the machine brake is released, and the machine can be towed.



Due to leakages, the pressure in the brakes can drop during the towing.

Check that the machine brakes do not warm up when the machine is being towed.

When the towing is completed, chock the drums and restore the machine.

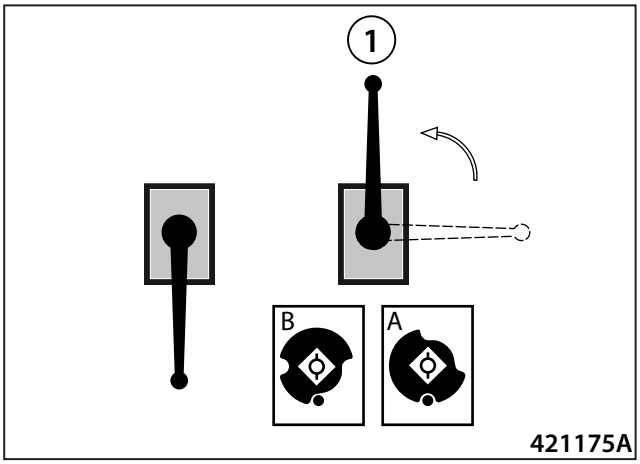
After towing away the machine, carry out the following activities:

Set the lever 2 to the position 1. The machine will brake and the parking brake will be enabled.

Remove the lever.

Adjust the washer to the position A.

Remount the lever.



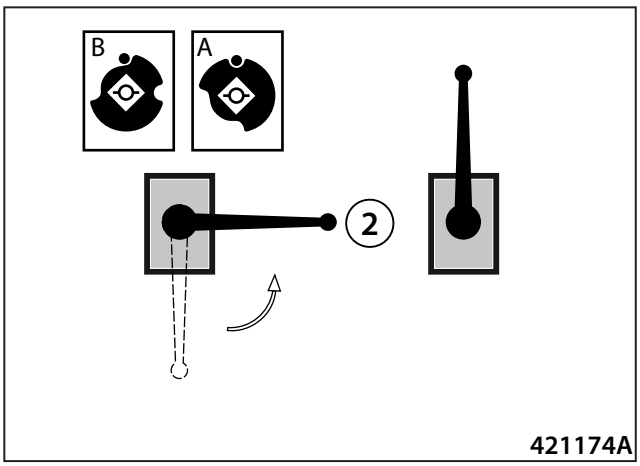
Set the lever 1 to the position 1.

Remove the lever.

Adjust the washer to the position A.

Remount the lever.

Take out the control lever and put it back in place.



2.9.2 Machine operation during the initial run-in period

When putting a new machine into operation or during the first 30 hours after a complete overhaul, do not run the machine at full power!

2.9.3 Machine operation at low temperatures

The compaction in the winter season depends on the content of fine particles and water in the soil being compacted. With the temperature dropping below the freezing point the soil becomes more solid and harder to compact.

At the temperatures below 0 °C (32 °F) it is possible to compact only dry soils (and loose stony materials), or carry out rapid compaction of non-frozen materials (before the soil gets frozen).

Preparation for work under low temperatures:

- Check concentration of the engine coolant.
- Replace the oil in the engine with the recommended one for given range of low ambient temperatures.
- Use hydraulic oil of the corresponding cinematic viscosity.
- Replace the oil in the gearbox with the oil recommended for the given range of gearbox temperatures.
- Use winter fuel.
- Check that the batteries are recharged.

The good condition of the battery is a precondition for good starting under low temperatures. The machine can be used at full power only after the operating fluids have been heated to their operating temperatures.

2.9.4 Machine operation at higher temperatures and humidity

The engine power output decreases with the increasing temperature and air humidity. Considering that both of the factors reducing the engine power are independent on each other, it is possible to describe their impact as follows:

- Every 10 °C (18 °F) of the temperature rise means a power drop by up to 4% (at a constant humidity);
- Every 10% of the relative humidity rise means a power drop by up to 2% (at a constant temperature).

At external temperatures when the hydraulic oil temperature is constantly about 90 °C (194 °F), we recommend you to replace the oil with the oil having the cinematic viscosity of 100 mm^2/s.

2.9.5 Machine operation at higher altitudes

With the increasing altitude, the engine power output decreases as a result of the lower atmospheric pressure and specific density of the incoming air.

The engine power depends on the environment, in which the machine is working.

The machine may be used up to the maximum altitude of 3,658 m (12,000 ft).

2.9.6 Machine operation in dusty environment

While operating in a very dusty environment, shorten cleaning and replacement intervals of air filter elements and replacement intervals of cabin dust filters, and shorten cleaning intervals of coolers.

The recommended cleaning interval is once a week.

2.9.7 Driving with vibration on compacted and hard materials

When the machine works with vibration on hard materials (e.g. loose stony materials) or materials with a high degree of compaction, the drum can lose its contact with the compacted material (so-called vibro-stroke). Due to this condition, the transfer of vibrations to the machine frame and to the operator's stand increases. It can be partly removed by increasing the travel speed or by changing the vibration parameters of the machine (using a smaller amplitude).

If it is necessary to work with the machine in conditions when the operator can be exposed to higher vibrations, the machine user must modify working procedures to protect the driver's health.

Note

When driving with vibration on a different background material than specified in the "Specification manual", the emission values of the vibration acceleration will be different (Chapter 1.3 – Technical data).

It is forbidden to work in the vibro-stroke mode in the long term!

In extreme cases there is a danger of damage for the machine or operator's health!

3 MAINTENANCE MANUAL

ARP 95
(Deutz Tier 4 final)

3.1 Safety and other measures during maintenance of the machine

3.1.1 Safety during machine maintenance

Carry out lubrication, maintenance and adjustment as follows:

- By professionally trained personnel;
- according to safety instructions given in the operating manual
- in intervals stated in the lubrication chart according to worked hours
- On the machine standing on a flat and solid surface and secured against movement (with scotch blocks), always with the engine off, the key removed from the ignition box and the wiring disconnected;
- At cold machine parts;
- after the machine, lubrication points and maintenance points have been cleaned
- using suitable undamaged tools,
- By replacing parts with new original parts according to the spare parts catalogue;
- By providing sufficient lighting of the entire machine during poor visibility and at night;
- By reinstalling all removed covers and safety elements after the work is completed;
- By retightening screw connections to the specified tightening torque and checking the connections for leakage;
- After the operating fluids are heated – beware of burns – use only recommended media.

After the adjustment or maintenance is completed, check all safety devices for proper operation!

3.1.2 Fire protection when operating fluids are changed

- Considering the fire danger, the flammable liquids used on the machine are divided into the following hazard classes:

  II. hazard class – diesel oil

  IV. hazard class – mineral oils, lubricating greases
- The oil change point must be where it cannot interfere in explosion or fire hazard areas.
- It must be identified by “No smoking” and “No open flame” plates and signs.
- The handling area must be dimensioned so that it can catch a volume of the flammable liquid equal to the capacity of the biggest vessel, transport container.
- It must be equipped with portable fire extinguishers.
- For handling oils and diesel fuel, use vessels such as metal barrels, jerrycans and sheet-metal cans.
- The transport containers must be properly closed during storage.
- The containers must be provided with one hole, always stored with the hole up and secured so that their content cannot flow out and drip off.
- Vessels must be marked with non-removable writings showing the contents and flammability classes.

3.1.3 Environmental and hygiene principles

When operating or maintaining the machines, the user is obliged to follow general principles of health and environment protection according to laws, ordinances and regulations in individual territories when the machine is used.

Hygiene principles

- Petroleum products, cooling system fluids, battery cartridges and coating compounds including thinners are substances harmful to health. Workers coming into contact with the above products during operation or maintenance of the machine are obliged to follow general principles of their own health protection and comply with safety and hygienic manuals made by manufacturers of the products.
- In particular we draw your attention to the following:
  - protect your eyes and skin while working with the batteries
  - protect your skin while handling petroleum products, coating compounds and coolants
  - wash your hands properly after finishing the work and before eating, treat your hands with a suitable reparation cream
  - follow instructions given in this manual.

- Always store petroleum products, cooling system fluids, battery fluids and coating compounds including thinners and also cleaners and preservative agents in their original and properly labelled containers. These materials are not allowed to be stored in unlabelled bottles or in any other containers considering the possible risk of confusion. Possible confusion with foodstuffs or beverages is very dangerous.
- If by accident the skin, eyes or mucous membrane is stained or if you breathe in the vapours of such products, apply immediately the principles of the first aid. In case of accidental ingestion of these products, immediately seek medical help.
- While working with the machine when it is provided with a platform or the cab windows are open, always use ear protectors of suitable type and version.

Environmental principles

The operating fluids of the individual systems of the machine and also some of its parts after discarded (dismounted, exchanged) become hazardous wastes with dangerous properties for the environment.

- This category of waste products includes in particular:
  - organic and synthetic lubricating materials, oils and fuels;
  - coolants;
  - battery cartridges and batteries;
  - cooling system media;
  - cleaning and preservative agents;
  - all dismounted filters and filter elements,
- all used and discarded hydraulic or fuel hoses, rubber-metals and other parts of the machine contaminated by the above mentioned products.

It is necessary to treat the above mentioned materials and parts after they have been discarded in accordance with relevant national regulations valid for protection of the environment and in compliance with regulations of the health protection.

3.2.1 Engine oil

The engine oil is specified according to the performance and viscosity classification.

Performance classification

With respect to the emission requirements of Tier 4 final, the engine manufacturer requires the use of only such oils that are certified by Deutz.

Permissible oils according to DEUTZ QUALITY CONTROL (DQC):

DQC III LA

DQC IV LA

The current list of oils corresponding to the classification can be found on the engine manufacturer's (Deutz) website (www.deutz.com).

The machine manufacturer uses oils according to classification DQC IV-10, type Valar Egida FNA 104 Low SAPS 10W-40.

If a failure occurs due to the use of incorrect oil, the warranty shall become void.

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.

Note

Exceeding the lower temperature limit does not result in damage to the engine; it can only cause some starting difficulties.

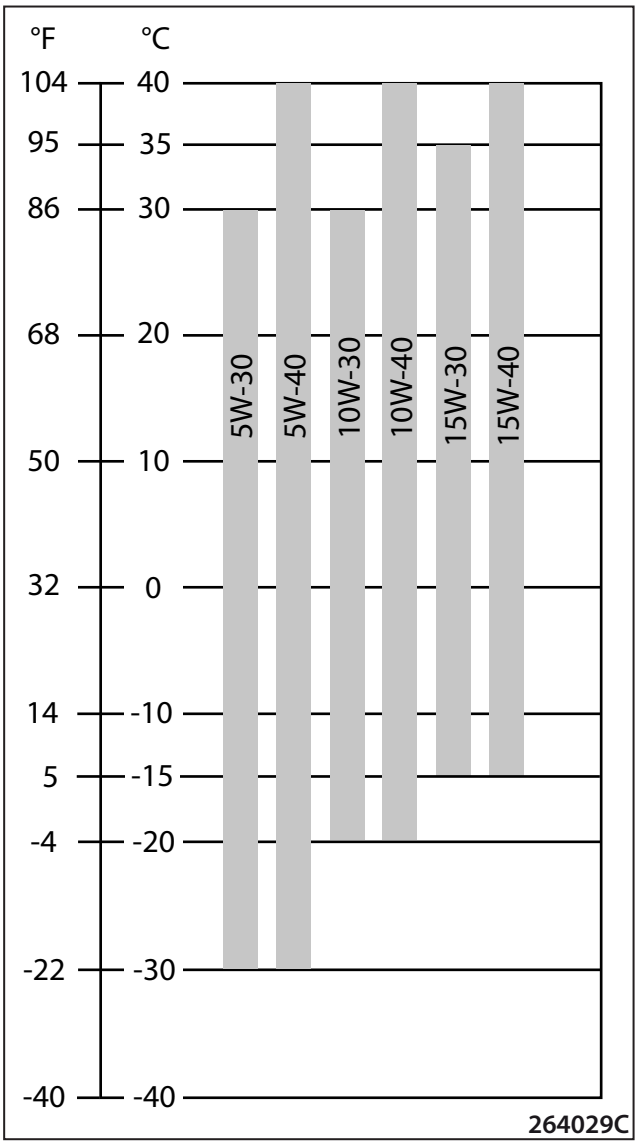
It is recommended that universal multi-range oils are used to avoid the necessity of oil changes due to changes of ambient temperature.

Exceeding the upper temperature limit can result in decreased lubricating abilities of the oil and cause high oil degradation.

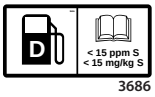
Reduce the oil change interval by half if at least one of the following applies:

- **The ambient temperature is constantly below -10 °C**
- **The oil temperature during operation of the machine is below 60 °C.**

Viscosity diagram



3.2.2 Fuel



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Diesel oil is used as fuel for the engine:

- EN 590
- ASTM D 975 S15

The engine manufacturer allows the use of fuel with a sulphur content not exceeding 0.0015 percent by weight (0.0010 percent by weight for the use of the machine in EU).

The use of fuel with a higher sulphur content will result in void of the engine warranty.

At ambient temperatures below 0 °C (32 °F), use winter diesel fuel.

Mixing diesel with special additives is forbidden.

3.2.3 Coolant

The coolant specification must meet requirements of:

- DQC CB-14
- DQC CC-14

To fill the cooling circuit, use the coolant in the mixing ratio of 50%/50% with high-quality water (thermal protection up to -37 °C).

Change the coolant every 6,000 hours of operation, after 4 years at the latest.

When the thermal protection is required under -37 °C, contact Deutz partners.

Note

The machines are filled with a cooling solution with the Bantleon Avia Antifreeze NG coolant, specification DQC CC-14 at the manufacturer's during the production.

It is a coolant based on monoethylene glycol containing silicates. Nitrite- amine- borate- and without phosphates.

Refill the cooling circuit with the same or a completely miscible coolant of the required specification.

If the use of a different, immiscible coolant is necessary, the cooling circuit must be completely drained and cleaned with clean water repeatedly, at least 3 times. However, it is not allowed to use a coolant of a different specification than stated by the engine manufacturer.

The coolant protects the cooling system from freezing, corrosion, cavitation, overheating etc.

It is forbidden to operate the machine without coolant even for a short time.

It is forbidden to use a coolant of a different than prescribed specification and base. The engine and the cooling system can get damaged and the warranty lost.

Always check the ratio of antifreeze cooling agent in the coolant with a refractometer before the winter season starts.

Water quality

Use only water whose properties correspond to values in the table:

	min.	max.
pH value	6.5	8.5
Chlorine content in mg/l		100
Sulphate content in mg/l		100
Water hardness in mmol/l		3.56

If the water properties do not correspond to the values in the table, the water must be treated.

- Too low pH value:
  - Add dilute sodium hydroxide or caustic potash.
- Too high total hardness:
  - Mix with softened, distilled or desalinated water.
- Too high chloride and/or sulphate value:
  - Mix with softened, distilled or desalinated water.

Safety instructions:

1) **Protect your hands with protective gloves.**
2) **In case of ingestion immediately seek medical treatment.**
3) **In case of contact with skin or clothing immediately wash the affected area with clean water.**
4) **Do not mix different types of coolants. The mixture can cause a chemical reaction with formation of harmful substances.**

3.2.4 Hydraulic oil

For the hydraulic system of the machine, it is necessary to use only high-quality hydraulic oils of class according to ISO 6743/HV (equal to DIN 51524 part 3 HVLP; CETOP RP 91 H).

Fill the machines normally with hydraulic oil with a kinematic viscosity of 68 mm^2/s at 40 °C (104 °F) ISO VG 68. This oil is most suitable for use within the widest range of ambient temperatures.

Synthetic hydraulic oil

The hydraulic system can be filled with synthetic oil, which if leaks 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!

3.2.5 Gear oil

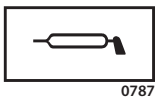
Use only high-quality oils corresponding to API GL-5, or EP or MIL-L-2105 D to lubricate reducers of the drums.

Viscosity SAE 80W/90 for ambient temperature range -10 °C ÷ 30 °C (14 °F ÷ 86 °F).

Viscosity SAE 80W/140 for ambient temperature range 20 °C ÷ 45 °C (68 °F ÷ 113 °F).

The operating temperature of the oil must not exceed 85 °C ÷ -90 °C (185 °F ÷ 194 °F).

3.2.6 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

3.2.7 Screen washer fluid

When filling the windscreen washer tank, use water (for temperatures above 0°C) and windscreen washer fluid for motor vehicles.

Replace the water with an antifreeze agent at temperatures below 0 °C (32 °F).

3.2.8 Drum coolant

Mixture:

Volume 2×30.5 l (8.1 galUS) of water.

In the ratio of 22 l (5.9 galUS) of water and 50.8 kg (110 lb) of calcium chloride – $CaCl_2$.

ACE pro drum coolant:

Volume 2×12.5 l (3.3 galUS) of water.

In the ratio of 9.3 l (2.5 galUS) of water and 20.8 kg (45.9 galUS) of calcium chloride – $CaCl_2$.

3.2.9 Air-conditioning filling

Mixture:

1.2 kg (2.65 lb) Halocarbon 134a refrigerant

0.3 l (0.08 gal US) PAG 150 oil

0.005 l (0.0013 gal US) contrast agent

3.2.10 Vibrator oil

For vibrator lubrication, use oils according to:

SAE 40, API SC/CB

3.2.11 Emulsion

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

3.2.12 DEF (AdBlue)

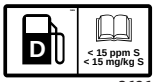
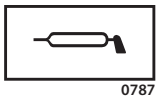
Liquid additive that is used for reducing pollutants in the exhaust gases of diesel engines.

Specification: DIN 70070, ISO 22241-1, ATSTM D 7821.

Trade name in Europe: AdBlue

Trade name in the U.S.: DEF

! Use only DEF (AdBlue) according to the recommended specification!

Part	Fluid type	Fluid quantity l (gal US)	Brand
Engine	Engine oil according to Chapter 3.2.1	9 (2.4)	 2412
Fuel tank	Fuel according to Chapter 3.2.2	165 (43.6)	 3686
Hydraulic system	Hydraulic oil according to Chapter 3.2.4	60 (15.9)	 2158
Steering joint bearings, stirrup bearings, steering swivel pins, suspensions	Lubricating grease according to Chapter 3.2.6	as required	 0787
Cooling system	Coolant according to Chapter 3.2.3	23 (6.1)	 2152
Vibratory drum	Engine oil according to Chapter 3.2.10	2×8 (2×2.1)	 2412
Axle drive reducer	Gearbox oil according to Chapter 3.2.5	2×2 (0.53)	 2186
Windscreen washer tank	Fluid according to Chapter 3.2.7	2.75 (0.72)	 2260
Sprinkling tank	Water	340 (89.8) 460 (121.5)	 AMN59
Drum coolant	Mixture according to Chapter 3.2.8	4x30,5 (4x8,1)	
ACE PRO drum coolant	Mixture according to Chapter 3.2.8	2x12,5 (2x3,3)	
Air-conditioning fluid	Mixture according to Chapter 3.2.9	-	 2441
Additional tank for emulsion sprinkling	Emulsion according to Chapter 3.2.11	40 (10.6)	 AMN242
DEF tank (AdBlue)	Mixture according to Chapter 3.2.12	10 (2.6)	 595426

3.4 Lubrication and maintenance chart

Every 20 hours of operation (daily)	
3.6.1	Engine oil check
3.6.2	Engine leakage check
3.6.3	Engine coolant check
3.6.4	Air filter dust valve inspection
3.6.5	Fan inspection
3.6.6	Fuel level check
3.6.7	Checking the oil in the hydraulic tank
3.6.8	Refilling the sprinkling tank
3.6.9	Sprinkling nozzle check
3.6.10	Inspection of warning and checking devices
3.6.11	Exhaust system leakage check
3.6.12	Belt check (air-conditioning)
3.6.13	DEF (AdBlue) level check
Every 100 hours of operation (weekly)	
3.6.14	Tyre pressure check ARP 95C, ARP 95C ACE
3.6.15	Sprinkling filter cleaning
After 200 hours of operation	
3.6.36	Gearbox oil change *
Every 250 hours of operation (every 3 months)	
3.6.16	Machine lubrication
Every 500 hours of operation (every 6 months)	
3.6.17	Inspection of the engine cooling circuit
3.6.18	Engine belt inspection
3.6.19	Engine oil change
3.6.20	Engine intake pipe inspection
3.6.21	Engine coolant concentration check
3.6.22	Electrical installation inspection
3.6.23	Fuel filter replacement
3.6.24	Air filter cartridges replacement
3.6.25	Cleaning of the cab ventilation filter
3.6.26	Air filter sensor check
3.6.27	Cleaning the water separator on the fuel filter

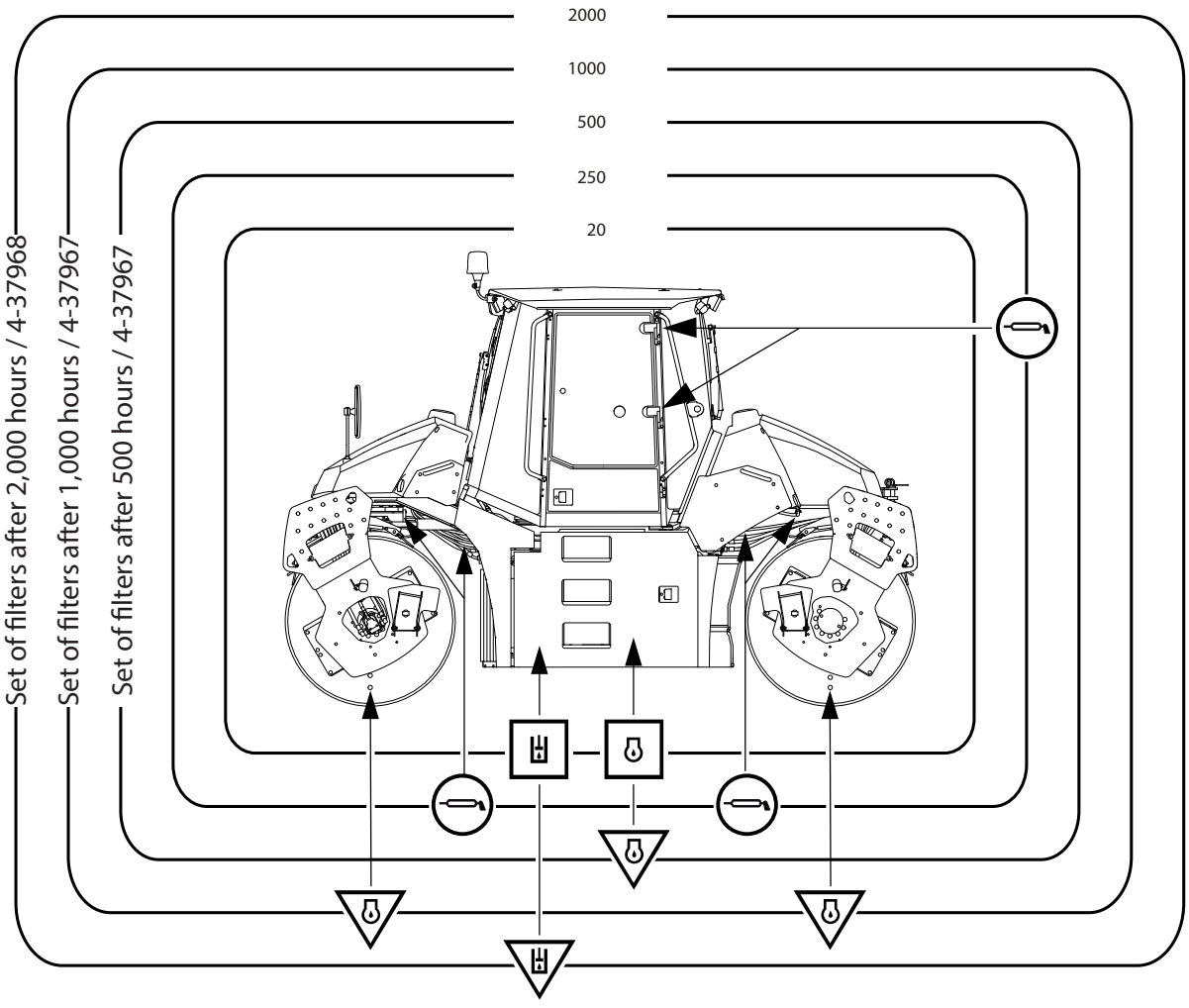
3.6.28	Check of the air-conditioning coolant level
3.6.29	DEF (AdBlue) filter replacement
After 500 hours of operation	
3.6.37	Vibrator oil change **
Every 1000 hours of operation (yearly)	
3.6.30	Engine belt inspection
3.6.31	Inspection of the shock-absorbing system
3.6.32	Water tank cleaning
3.6.33	Air cooler cleaning
3.6.34	Engine inspection
3.6.35	Engine and machine diagnostics
3.6.36	Gearbox oil change *
3.6.37	Vibrator oil change **
3.6.38	Belt check (air-conditioning)
3.6.39	Inspection of the compressor mounting (air-conditioning)
3.6.40	Battery inspection
Every 2000 hours of operation (every 2 years)	
3.6.41	Hydraulic oil change
3.6.42	Vent plug replacement
3.6.43	ACE pro filter replacement
Every 6000 hours of operation (every 4 years)	
3.6.44	Engine coolant change
Maintenance as required	
3.6.45	Fuel system venting
3.6.46	Cooler cleaning
3.6.47	Draining water from the sprinkling circuit before the winter season
3.6.48	Scraper adjustment
3.6.49	Machine cleaning
3.6.50	Checking the screw connections for tightening
3.6.51	Charging of the battery
3.6.52	Regeneration of clogged SCR (Selective Catalytic Reduction) catalyst
3.6.53	DPF (Diesel Particulate Filter) regeneration

*** First after 200 engine hours.**

**** First after 500 engine hours.**

LUBRICATION AND SERVICE PLAN ARP 95

□	INSPECTION
○	LUBRICATION
▽	REPLACEMENT



	Engine oil:	**DQC III, DQC IV**	
	Hydraulic oil:	**ISO VG 68**	**ISO 6743/HV**
	Lubricating grease:	**ISO 6743/9**	**CCEB 2**

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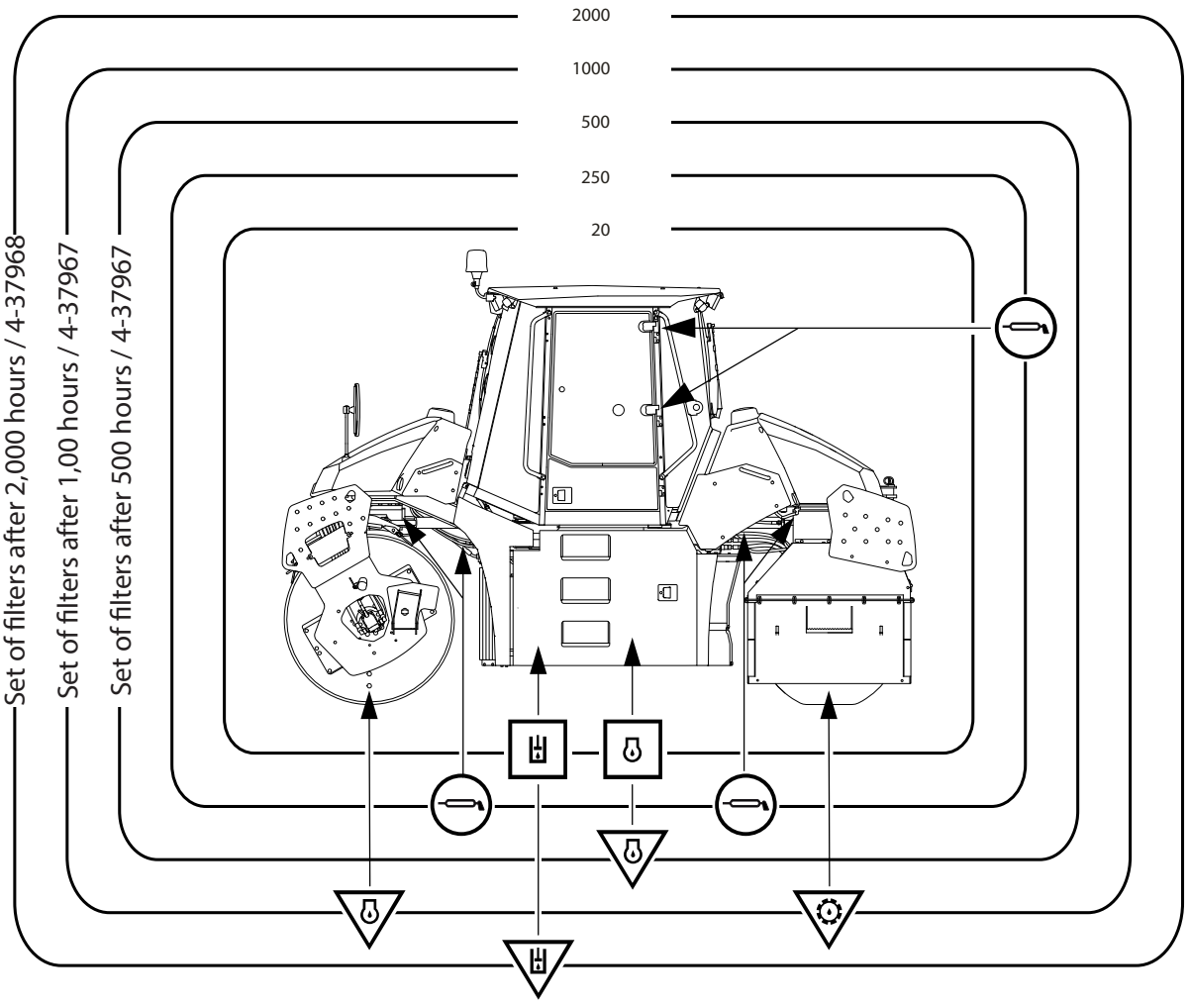
LUBRICATION AND SERVICE PLAN ARP 95 C

□	INSPECTION
○	LUBRICATION
▽	REPLACEMENT



	Engine oil:	DQC III, DQC IV	
	Hydraulic oil:	ISO VG 68	ISO 6743/HV
	Lubricating grease:	ISO 6743/9	CCEB 2
	Gear oil:	SAE 80W/90 SAE 80W/140	API GL-5 API GL-5

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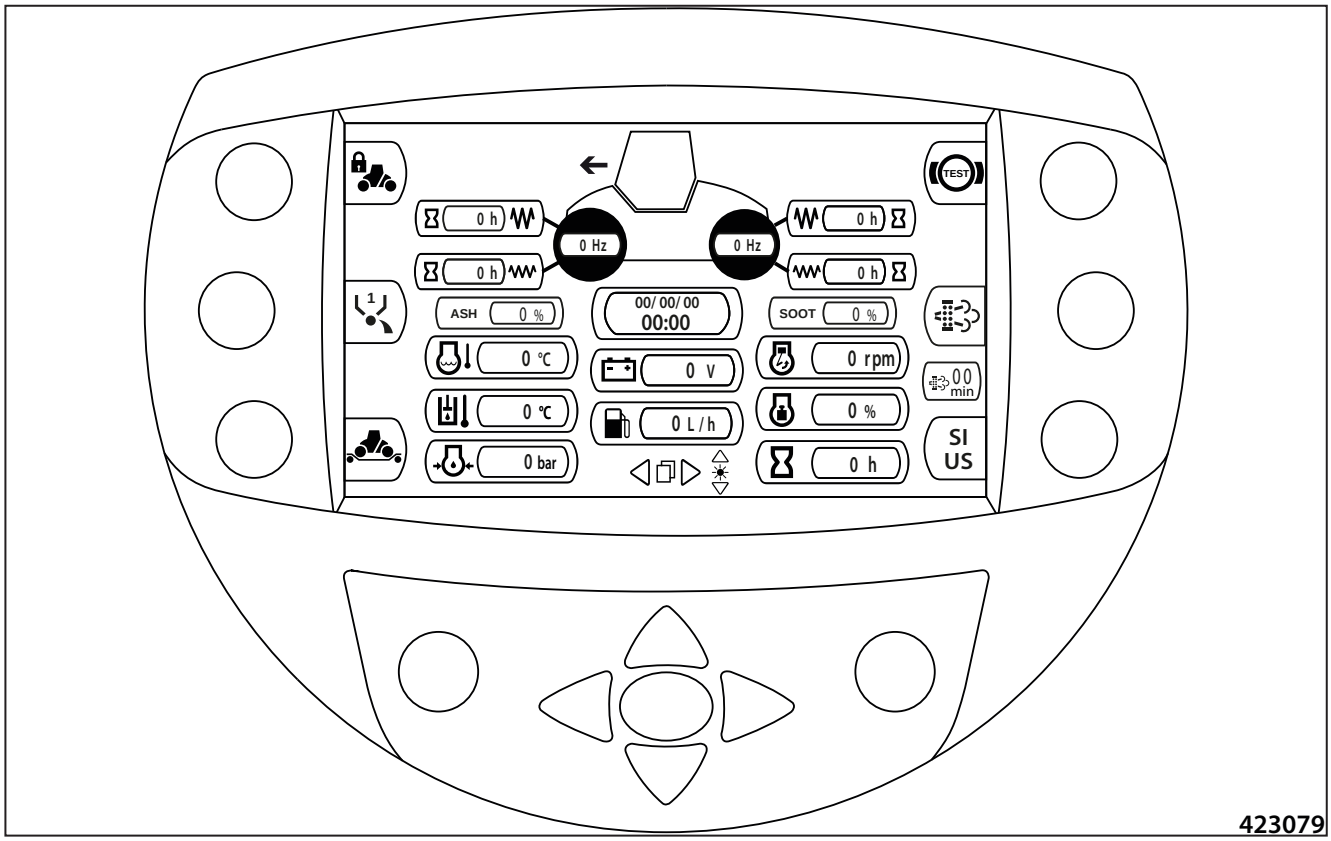
3.6 Lubrication and maintenance operations

Carry out lubrication and maintenance in regular intervals according to daily values on the counter of worked hours.



This manual includes only basic information about the engine; the other data are given in the operation and maintenance manual, which is a part of documentation supplied together with the machine.

Observe instructions specified in the operation and maintenance manual!

Retighten removed or loosened bolts, plugs, threaded joints in the hydraulic system, etc. with the tightening torque specified in tables in the chapter 3.6.50. unless a different value is given for the respective operation.

Carry out maintenance works with the machine placed on a flat, solid surface and secured against any spontaneous movement, always with the engine off, and the key removed from the ignition box and with the disconnected electrical installation (unless required otherwise).

If the engine must be running, enable the service switch.

After the first 200 hours of operation of the new machine or after its general overhaul, carry out the following operations according to Chapter:

3.6.36 Gearbox oil change

After the first 500 hours of operation of the new machine or after its general overhaul, carry out the following operations according to Chapter:

3.6.37 Vibrator oil change

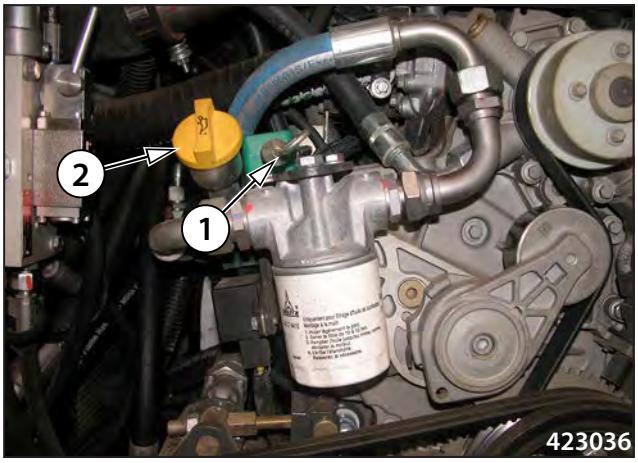
Every 20 hours of operation (daily)

3.6.1 Checking the oil in the engine

- Pull out the oil dipstick gauge (1), wipe it.
- Put it back up to the stop, pull out again and read off the level.

Note

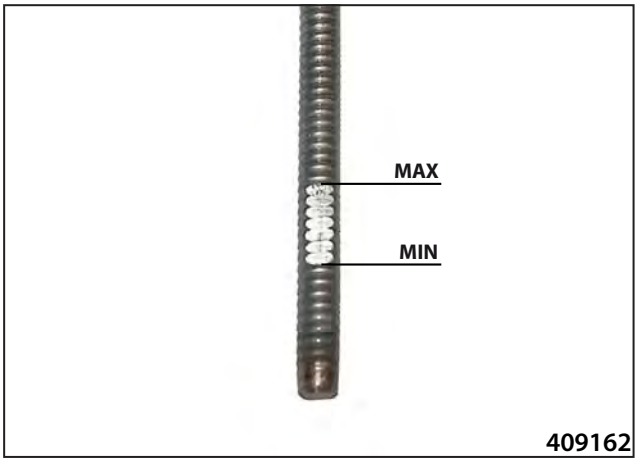
If the engine was running, wait for about 5 minutes until the oil runs down to the engine sump.



- Remove the filler plug (2) and refill the oil through the filler neck.

Note

- The lower mark MIN shows the lowest possible oil level, the upper mark MAX the highest one.
- The oil amount between MIN and MAX mark is 1.5 l (1.6 U.S. Quart).
- After refilling, wait approximately for 5 minutes until the oil runs down to the engine sump and check the level again.



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

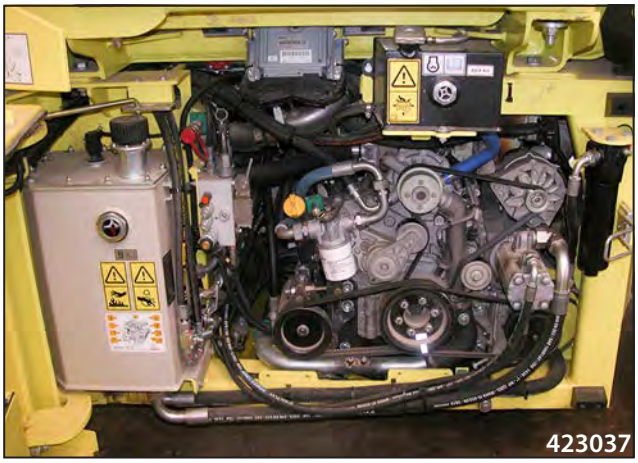
The oil level should be between the marks stamped on the oil-gauge rod.

Use the same type of oil for refilling according to Chapter 3.2.1.

3.6.2 Engine tightness check

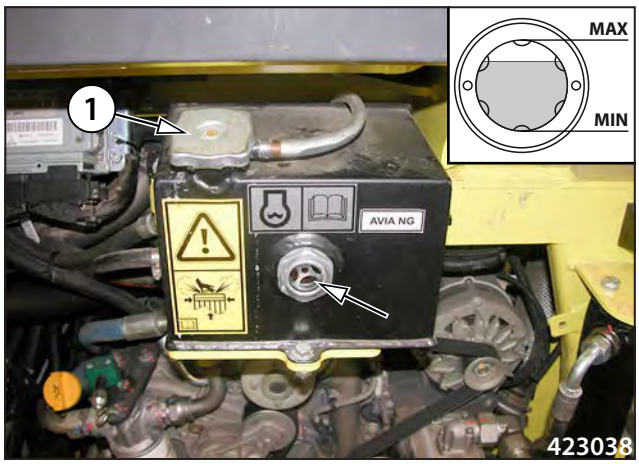
- Visually check the engine and the engine compartment for oil leakage.

Remove the identified defects.

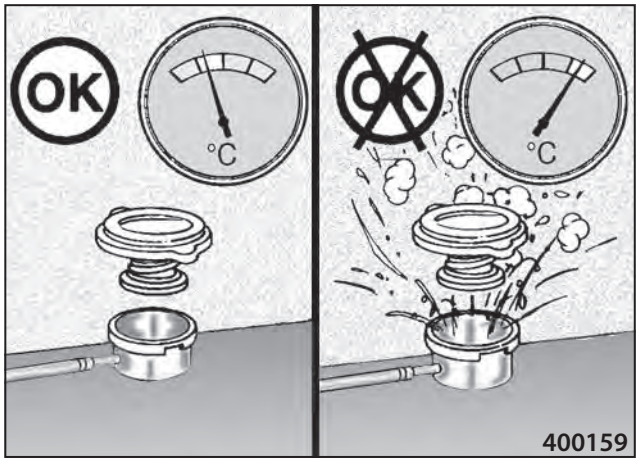


3.6.3 Engine coolant check

- Before starting the engine, visually check the level.
- Refill through the filler neck (1).
- Keep the level between the marks "MIN" and "MAX".
- In case of larger losses, find out where the cooling system leaks and repair the cause.



Remove the filler cap only after the temperature of the engine coolant drops below 50 °C (120 °F). If you remove the plug at a higher temperature, there is a risk of steam or coolant scalding due to an internal overpressure.



Do not use any additives to repair the cooling system leakage into the engine coolant!

Do not refill cold coolant into a hot engine! There is a danger of damage to the engine castings.

Refill only with a coolant containing antifreeze agents on the same basis according to Chapter 3.2.3.

3.6.4 Checking the dust valve of the air filter

- Clean the exit slit and squeeze to remove any dust trapped.

Note

Any dust trapped in the dust valve is automatically emptied during operation of the machine.

Dust valve
Order number: 1558978

Do not work with the machine if the dust valve is damaged.

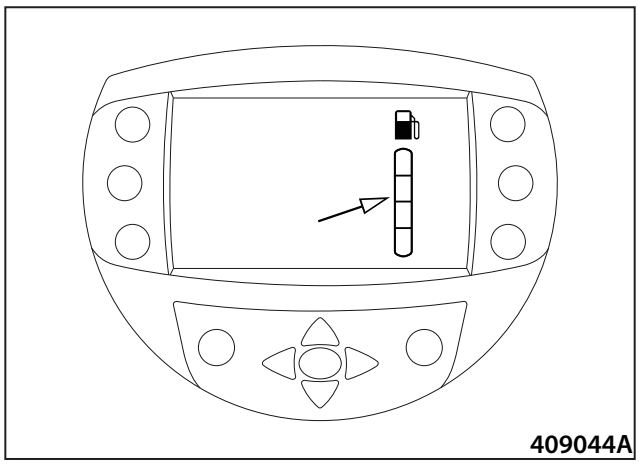
If the dust valve of the air filter is damaged, replace it with a new valve of the same type!

3.6.5 Fan inspection

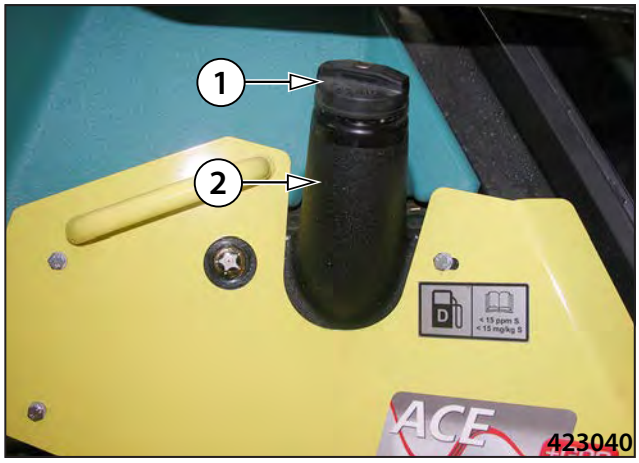
- Remove the cover.
- Check the fan visually. Replace the fan if damaged (e.g. missing parts of materials, cracks, shape changes, etc.).

3.6.6 Fuel check

- Check the fuel volume on the display and refill if necessary.



- Clean the tank filler cap (1) and the filler neck (2).
- Unlock the lock and remove the cap.
- Refill the tank up to the bottom line of the filler neck through the strainer.



Deaerating

Turn the ignition key to the "I" position.

Leave the pump running until it stops.

Turn the key to the "0" position.

Repeat three times.

Note

The fuel tank volume is 165 l (43.6 gal US).

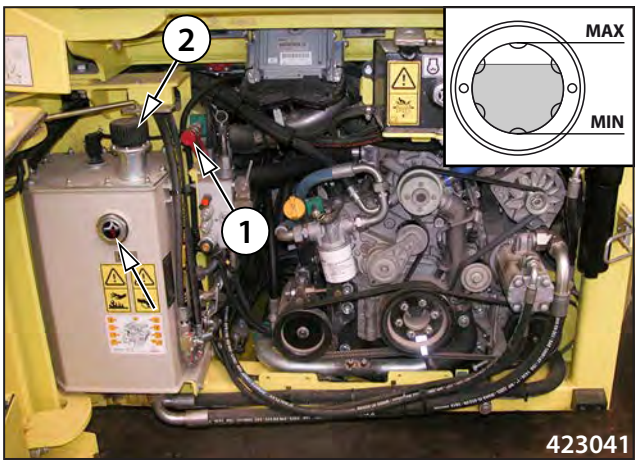
Do not smoke and do not use open flame while working.
Do not refill the fuel when the engine is running.

Use only recommended clean fuel according to Chapter 3.2.2.
Do not refill the fuel in closed spaces.

Do not spill the fuel.

3.6.7 Checking the oil in the hydraulic tank

- Check the oil level in the oil gauge.
- Refill the oil using the filling device through the quick coupling (1); proceed according to Chapter 3.6.44.



The tank filler neck cap (2) is sealed. If this seal is damaged during the guarantee period of the machine, the guarantee will become null and void.

Carry out this refilling method as emergency one – not recommended by the manufacturer!

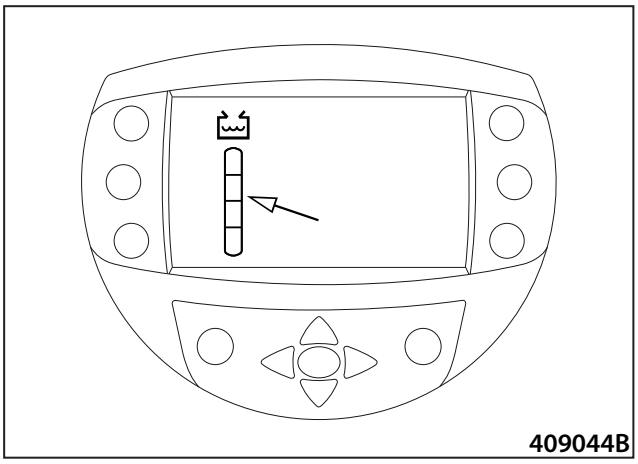
The oil level must be always visible in the oil gauge!

Fill with the specified oil according to Chapter 3.2.4.

If large oil losses occur or oil must be refilled repeatedly, find out a cause of leakage of the hydraulic system (visible leakages, leakages of screwed hose connections, hydraulic generators and hydraulic motors, etc.). If you do not find any visible oil leakage, check the oil level in the engine (oil leakage due to pump leakages) and oil leakage in vibrators (oil leakage due to hydraulic motor shaft leakages). Remove the identified defect.

3.6.8 Sprinkling tank refilling

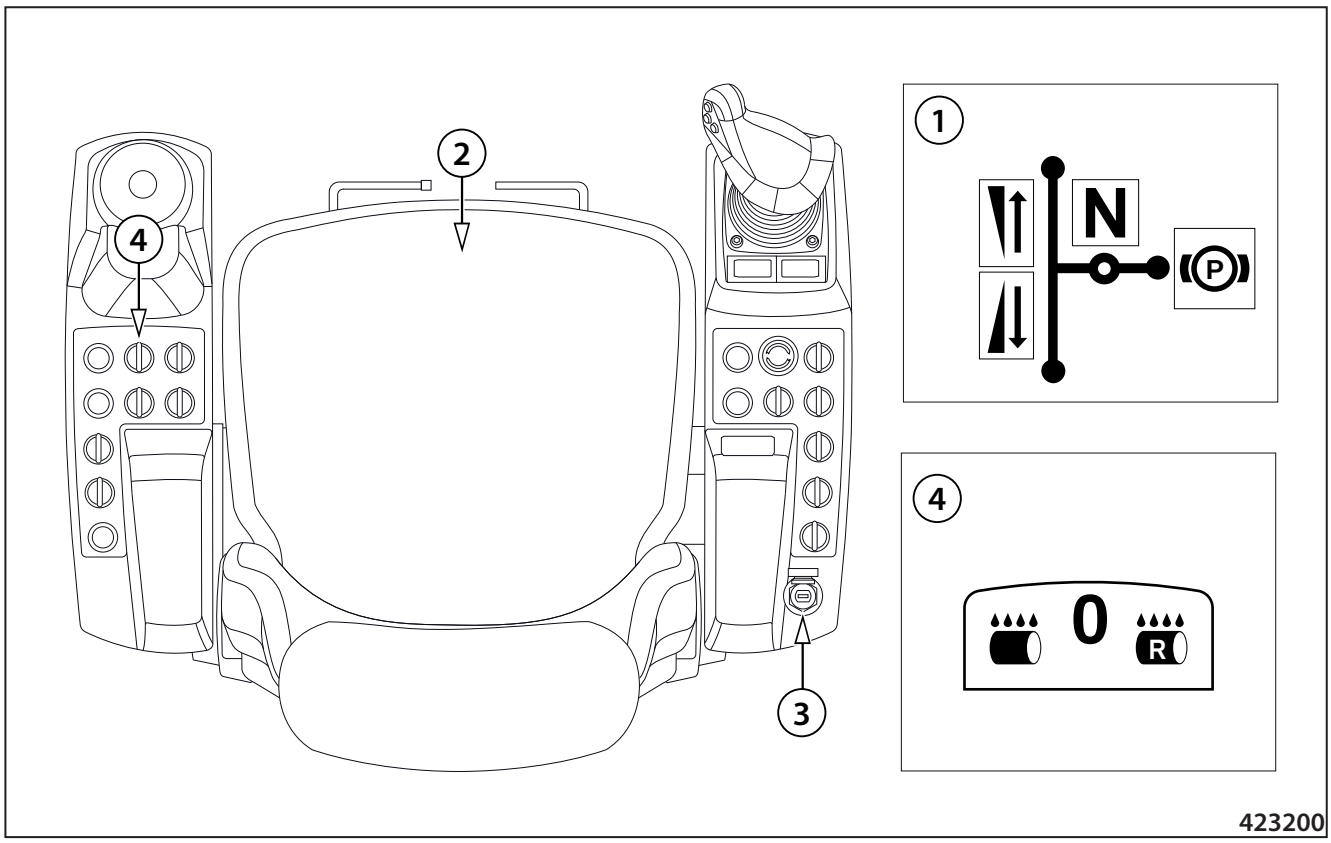
- Check the water volume on the display and refill if necessary.



- Open the cap and fill with clean water through the strainer.

Before the winter period, drain the water from the water tank and from the sprinkling system!

Proceed according to Chapter 3.6.46.



3.6.9 Check of the sprinkling nozzles

Turn on the battery disconnector.

Leave the travel lever in the P position – braked (1).

Activate the seat switch by sitting on the driver's seat (2).

Turn the ignition key (3) to the "I" position.

Activate sprinkling by the sprinkling pump switch (4).

Visually check whether sprinkling nozzles operate correctly.

In case the nozzles do not sprinkle, clean them according to Chapter 3.6.15. Sprinkling filter cleaning.

After the visual inspection of nozzles turn off sprinkling by the selector switch.

Do not load the seat switch with other objects!

3.6.10 Check of warning and checking devices

Brake test

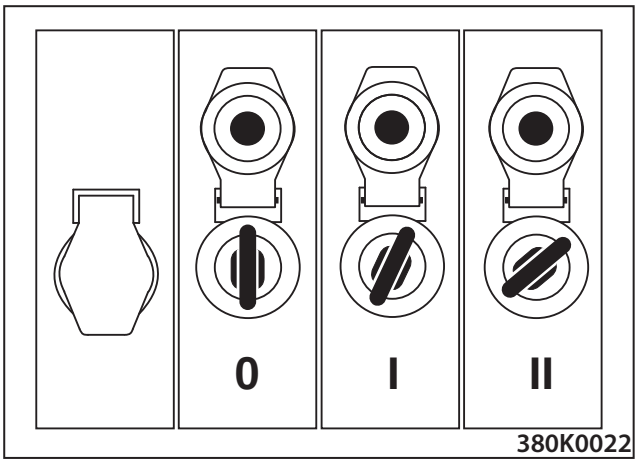
Always after the machine start-up (every 24 hours), the driver is asked for the brake testing.

The machine can continue in operating even when the brake test is not performed (the test record is stored in the memory of the machine control unit); the brake test can be carried out later.

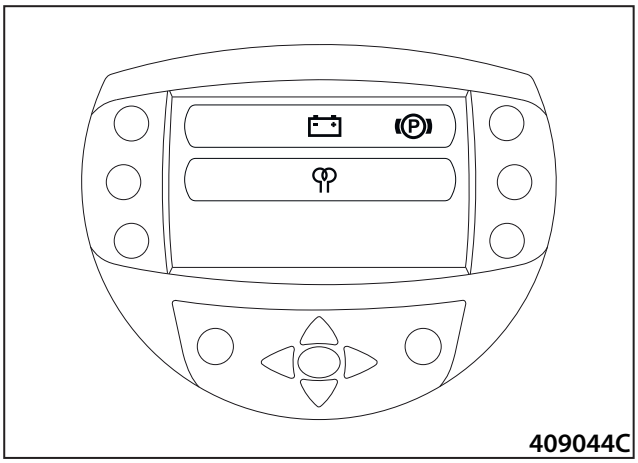
Procedure:

- Set the travel control (3) to the position P (parking brake enabled).
- Display the information screen.
- Turn on the BRAKE TEST – yellow backlight of the symbol, engine speed increased.
- Change the travel control (3) through the neutral position (N) to the forward position (F).
- Successful test result = message TEST OK
- Unsuccessful test result = message TEST NOT OK Operation possible only in the emergency mode of the machine. Call the service.

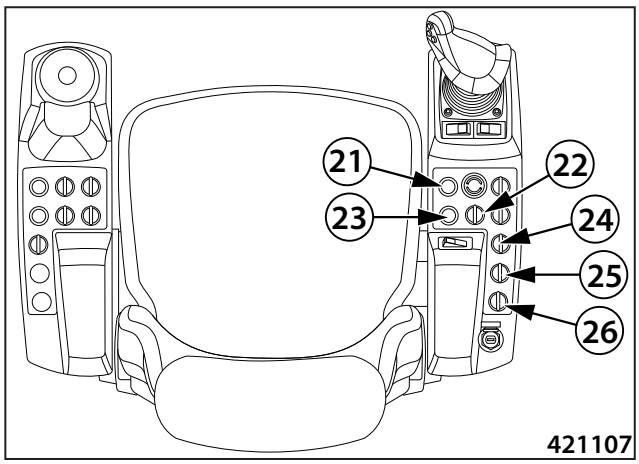
- Turn the key in the ignition box to the position "I".

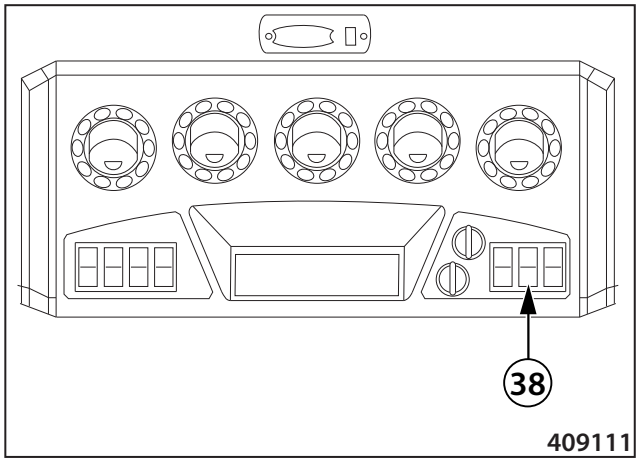


- The brake, charging, lubrication and glowing indicator lamps will light up on the display.

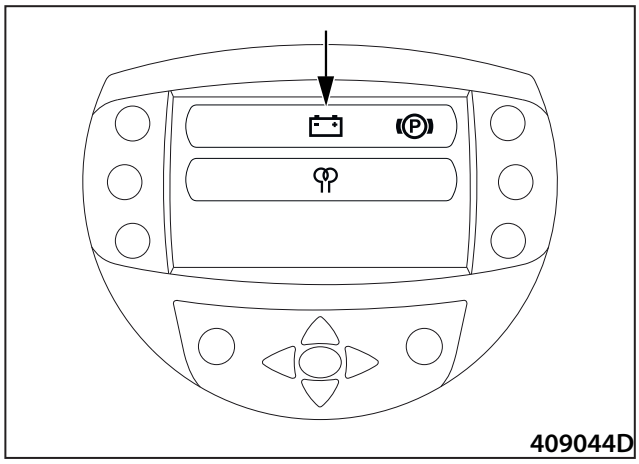


- Then test functions of the switches (21-26, 38).



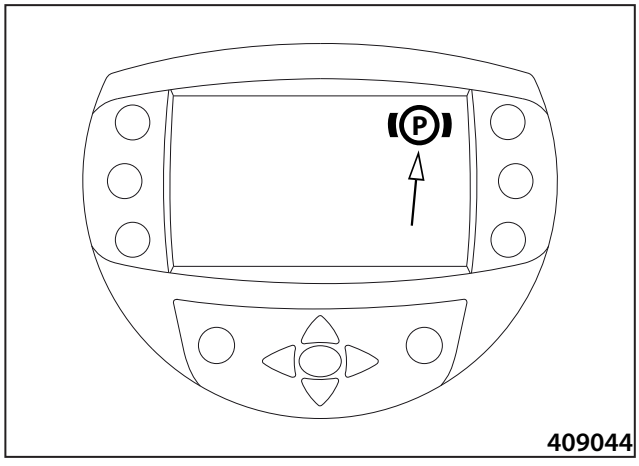


- Turn the key to position "II" to start the engine.
- The charging indicator lamp must go out after the starting is completed.



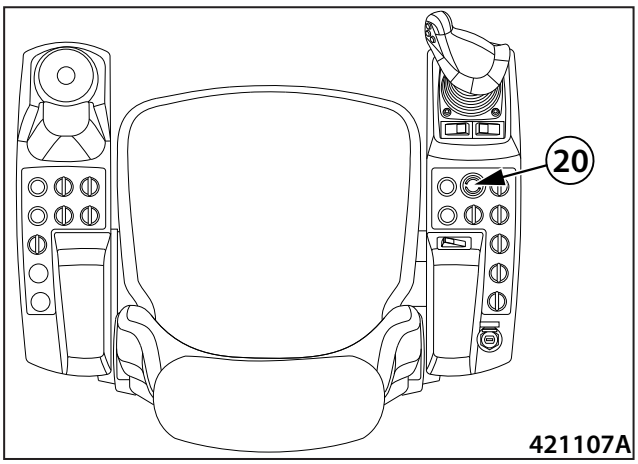
Move off the machine:

- After the travel control is changed to the neutral position (N), the brake indicator lamp goes out.



Emergency brake button function:

- Move off the machine at a low speed.
- Press the emergency brake button (20).
- The emergency brake, parking brake and recharging indicator lamp lights up on the display (2).
- Set the travel control (3) to the brake position (P). Switch over the key in the ignition box to the position "0".
- Disable the brake by turning the emergency brake button (20).
- When all starting conditions have been met, the engine can be restarted again.

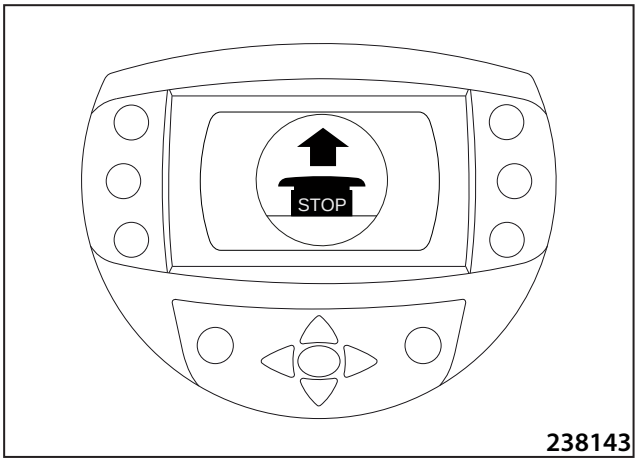


Use the audible alarm to announce the engine start!

Before starting the engine, check that the engine start does not endanger anyone!

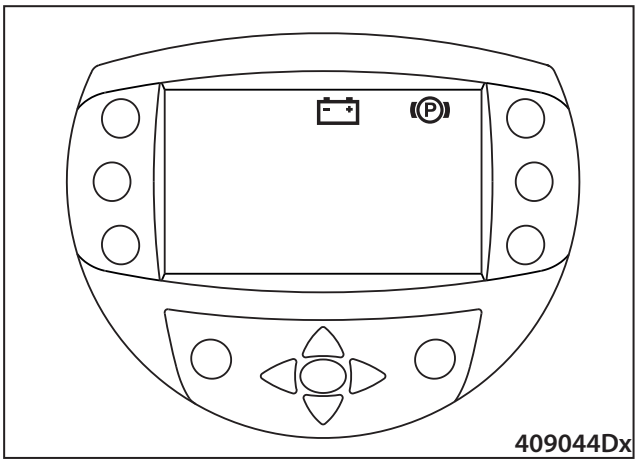
Give the audible alarm before the machine starts moving and wait long enough so that all present persons can leave the area around the machine (space under the machine) in time!

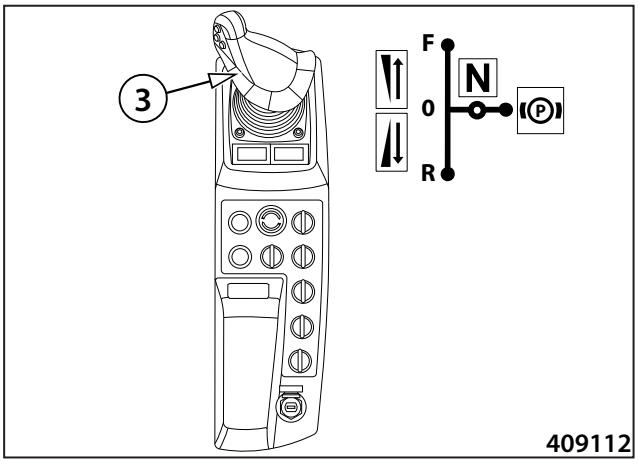
Make sure that the area in front of and behind the machine is free and no persons are present there!



During operation, check the instruments and indicator lamps continuously.

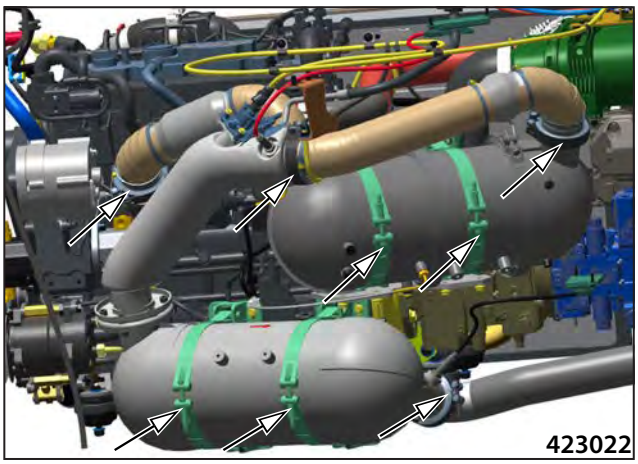
Promptly repair any failures!





3.6.11 Checking the exhaust system for tightness

- Check the clips and pipes of the exhaust system.
- Remove the identified defects.



If the exhaust piping with the flexible piece between the engine and the catalytic converter leaks or is damaged, the machine must not be operated until the defect is repaired.

3.6.12 (Air-conditioning) belt check

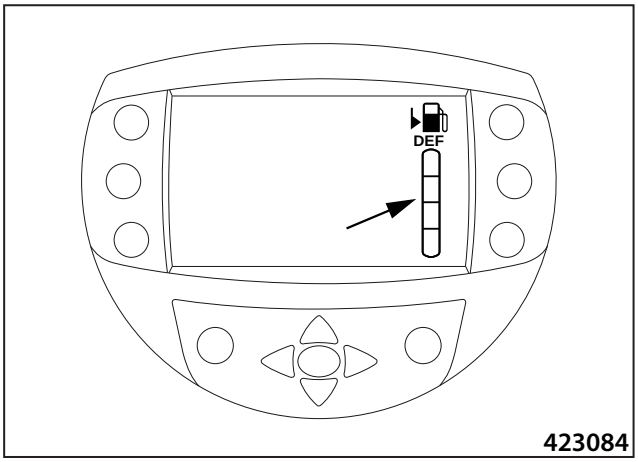
- Check the belt visually for damage. Cracks perpendicular to the belt width are not considered to be a fault.

If longitudinal cracks appear on the belt, or the belt edges are ragged, or some material parts are pulled off, then the belt must be replaced.

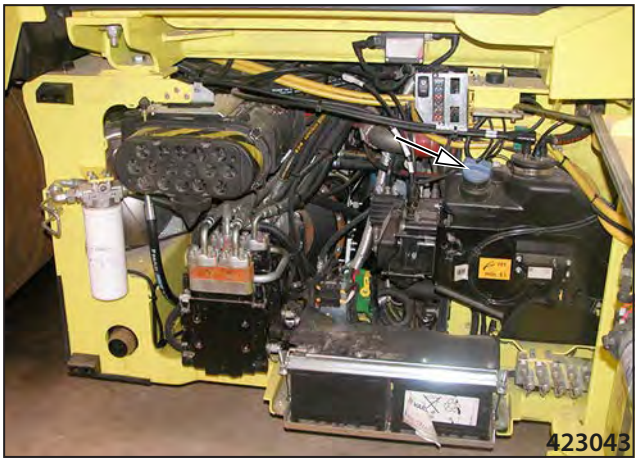
V-belt
Order number: 4-6160120117

3.6.13 DEF (AdBlue) level check

- Check the DEF (AdBlue) volume on the display and refill if necessary.



- Remove the tank cap.
- Refill DEF (AdBlue) – always at least 5 l (1.3 galUS).



Provide adequate ventilation.

In case of insufficient ventilation, wear suitable respiratory equipment. Recommended: organic fumes filter (A type), ammonia filter (K type).

Wear suitable chemical resisting, impervious gloves.

Wear goggles intended for splash water protection.

Avoid contact with skin. Wear suitable protective clothing.

Refill according to the prescribed specification according to Chap. 3.2.12

The use of an unprescribed fluid results in irrecoverable damage of the SCR system.

If incorrect fluid is used, never switch the ignition on or start the engine!

The DEF (AdBlue) concentration is monitored by the control unit. When quality requirements are not met, the engine power will decrease.

Fill when the engine is not running!

Keep the place clear to avoid contamination of the system with dust from the environment.

Add the necessary volume according to chapter 3.3.

DEF (AdBlue) quantity	DEF (AdBlue) level indicator lamp  AMN128	Engine failure indicator lamp  AMN47	Machine reactions
< 15%	Lighting	no	No
< 10%	Flashing slowly (0.5 Hz)	no	No
< 5%	Flashing slowly (0.5 Hz)	Lighting Audible signal	No
< 5% ≥ 10 min	Flashing slowly (1 Hz)	Lighting Audible signal	Engine output reduced by 25%
< 5% ≥ 15 min	Flashing slowly (2 Hz)	Flashing Audible signal	Engine output reduced by 25%
< 5% ≥ 20 min	Flashing slowly (2 Hz)	Flashing Audible signal	Output reduced to 50% + max. engine speed reduced to 1,300 rpm.

First aid instructions

Inhalation

Move the exposed person to fresh air. Get medical attention if health effects occur. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Ingestion

Rinse the mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Get medical attention if health effects occur.

Skin contact

Flush contaminated skin with soap water. Remove contaminated clothing and shoes. Get medical attention if health effects occur.

Eye contact

Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue rinsing with water for at least 10 minutes. Get medical attention if irritation occurs.

General

Evacuate the victim to a safe place as soon as possible. If unconscious, place in recovery position and get medical attention immediately. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. Keep the victim at rest in a well-ventilated area.

Accidental release measures

Environmental principles

Avoid dispersal of spilt material and run-off and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Large spill

Stop leak if without risk.

Move containers from the spill area. Prevent from entering sewers, waterways, basements or closed spaces. Absorb with DRY earth, sand or other non-combustible material. Contaminated absorbent poses the same hazard as the spilled product.

Small spill

Stop leak if without risk.

Move containers from the spill area. Absorb with liquid-binding material (sand, diatomite, universal binders, etc.) or use a spill kit.

Storage

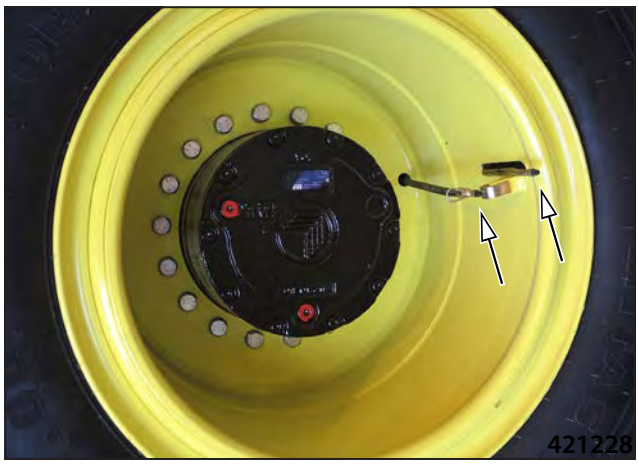
Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Provide adequate ventilation.

Every 100 hours of operation (weekly)

3.6.14 Tyre pressure check ARP 95C, ARP 95C ACE

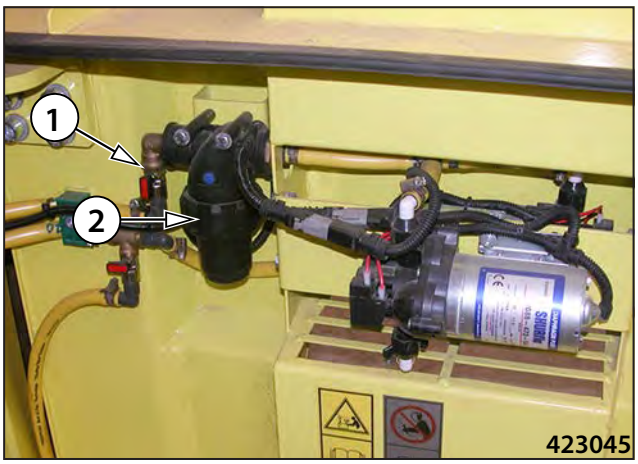
- Check the air pressure with a pressure gauge on the valve 0.16 MPa (23.2 PSI).

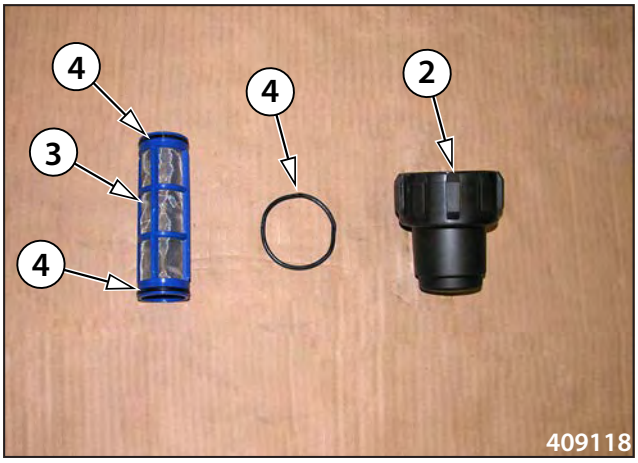
Pay attention to the equal pressure in all of the tyres.



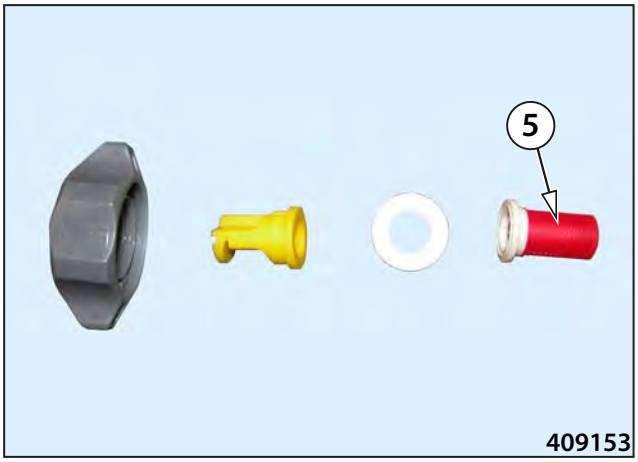
3.6.15 Sprinkling filter cleaning

- Close the water inlet using the valve (1).
- Dismount the sprinkle filter container (2), take out the sieve (3) and clean it.
- Check the seal (4).

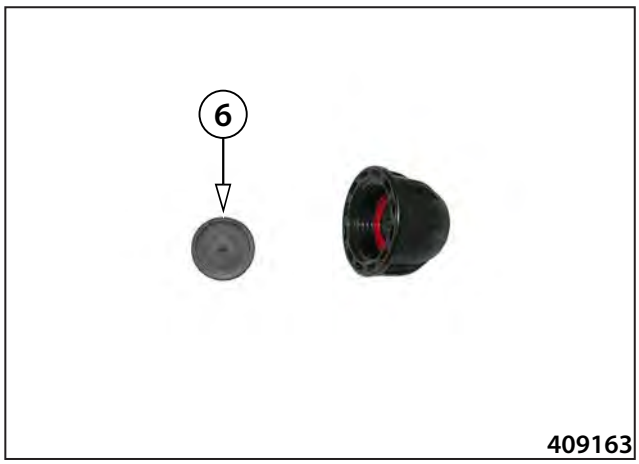




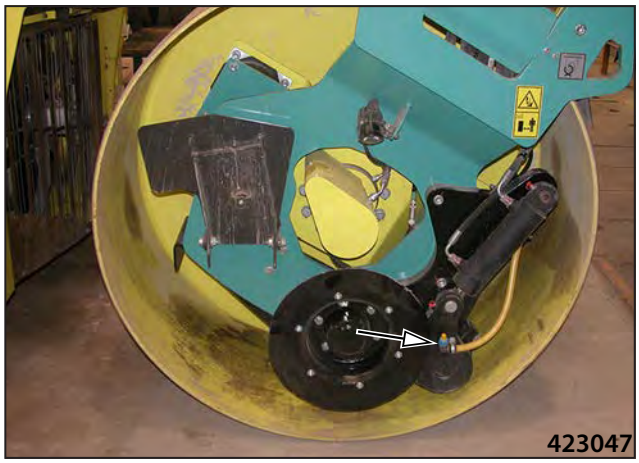
- Remove and clean the sprinkler strainers (5).

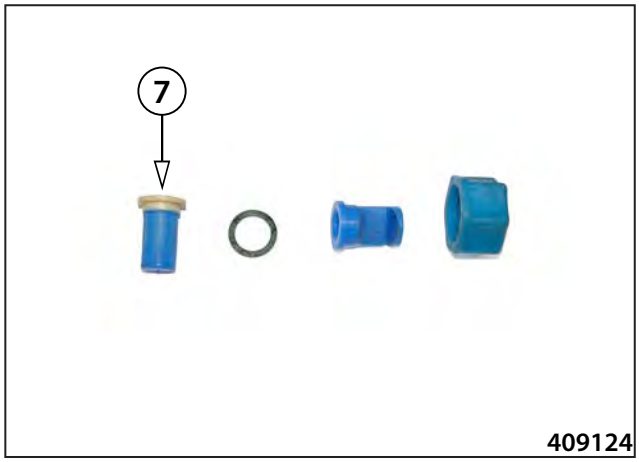


- Remove the valves and clean the membranes (6).



- Remove and clean the sprinkler strainers (7).



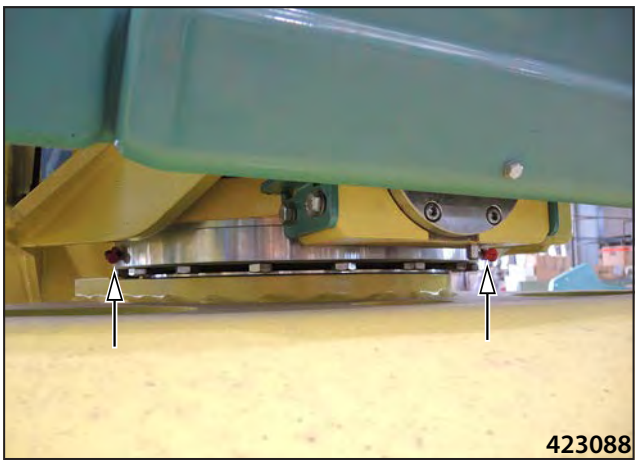


Every 250 hours of operation (every 3 months)

3.6.16 Machine lubrication

- Remove the caps on the oil nipples.
- Put on the oil nipple of the high-pressure press gradually and lubricate until the old grease starts flowing out.
- Replace the oil nipple caps.

Use recommended lubricating greases, see chapter 3.2.6.

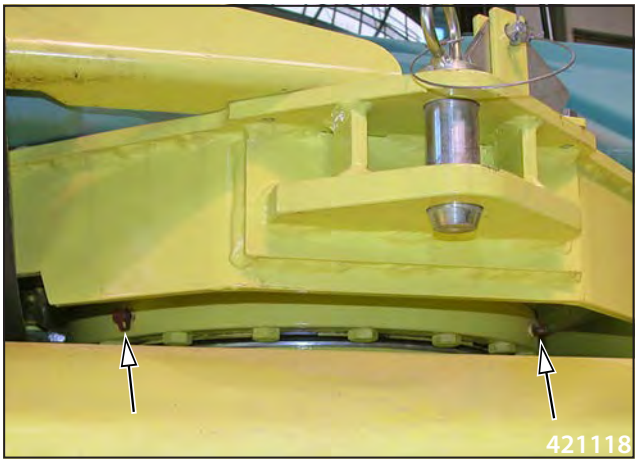


Front bearings

5×

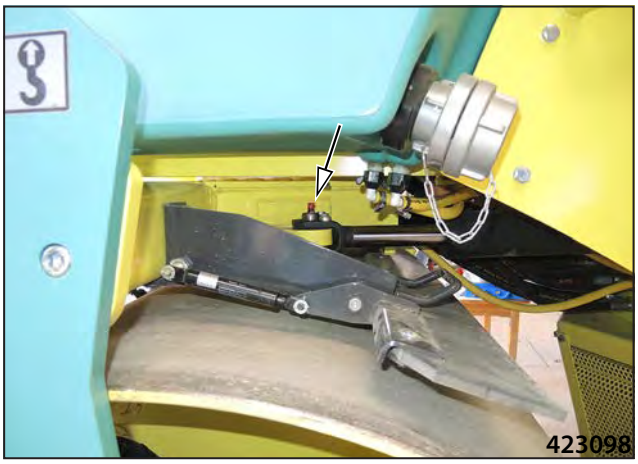
Rear bearing

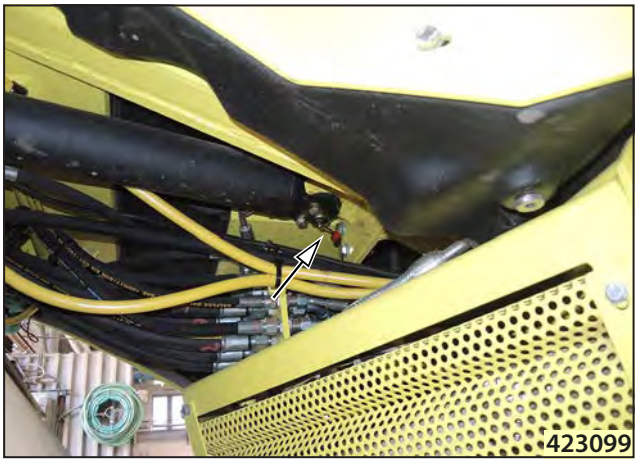
3×

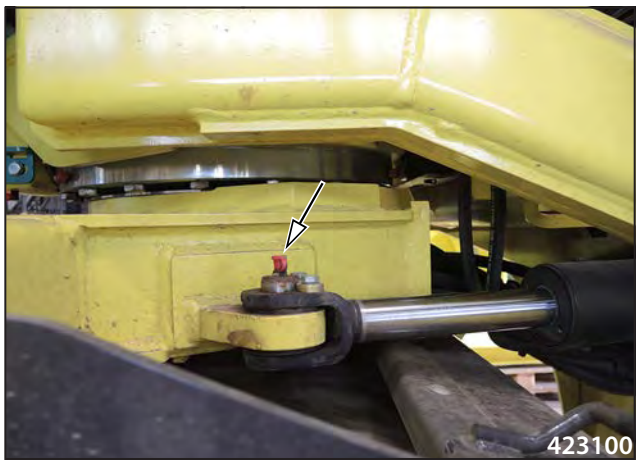


Linear hydraulic motors of steering

pins 4×

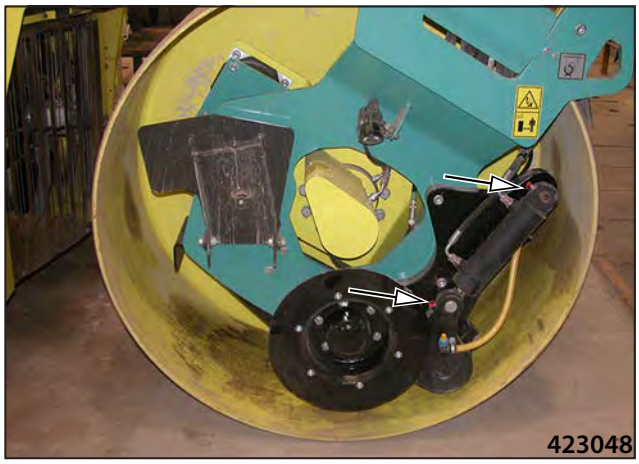






Linear hydraulic motor of edge cutter

pins 2×



Hinge pins of cab door

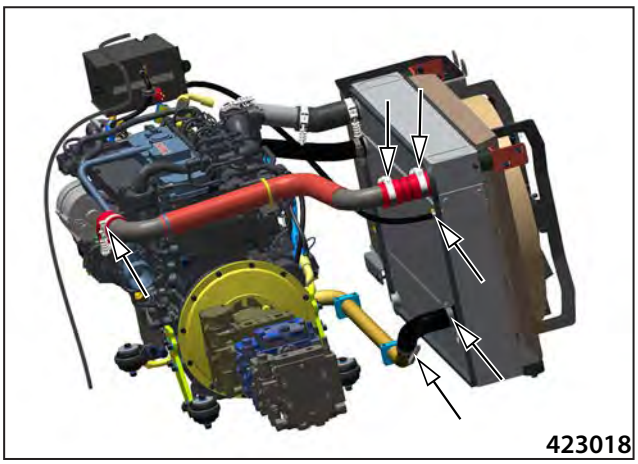
pins 6×

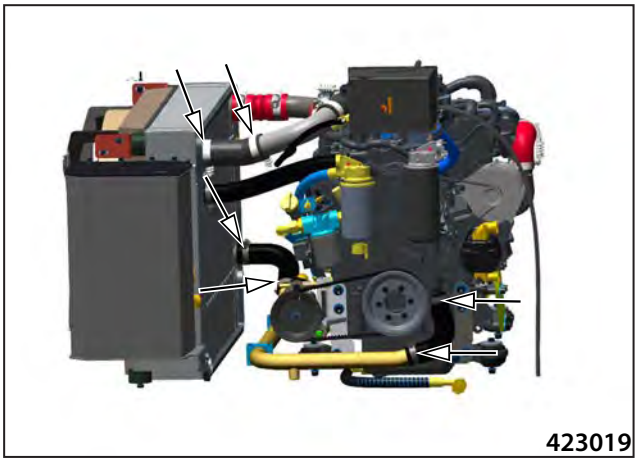
Every 500 hours of operation (every 6 months)

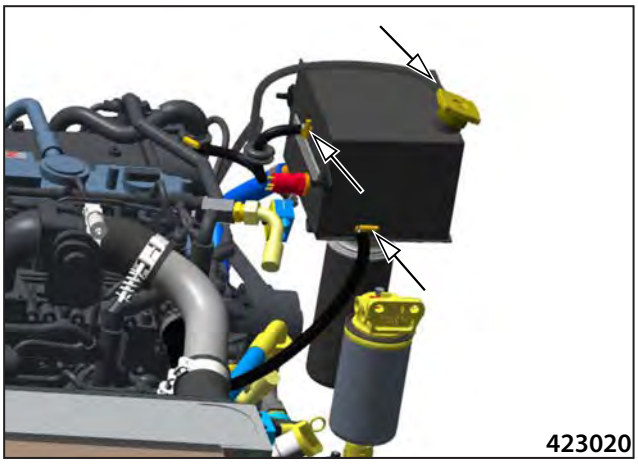
The set of filters after 500 operating hours can be ordered under the order number 4-37967. For the list of all spare parts see the table in the end of this publication.

3.6.17 Inspection of the engine cooling circuit

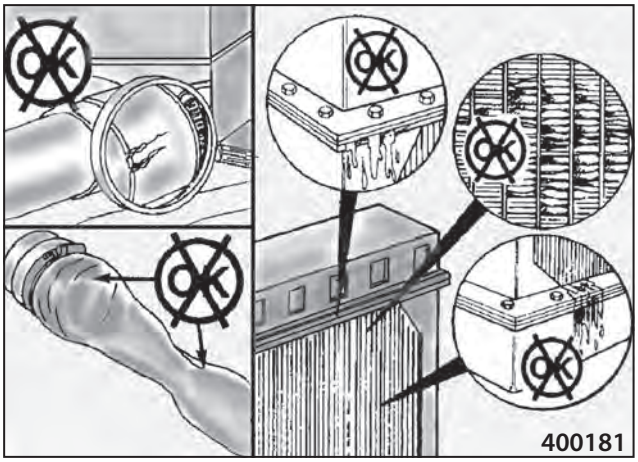
- Check the cooling circuit for leakage. Check the hoses for damage and missing hose clips.


423018


423019


423020

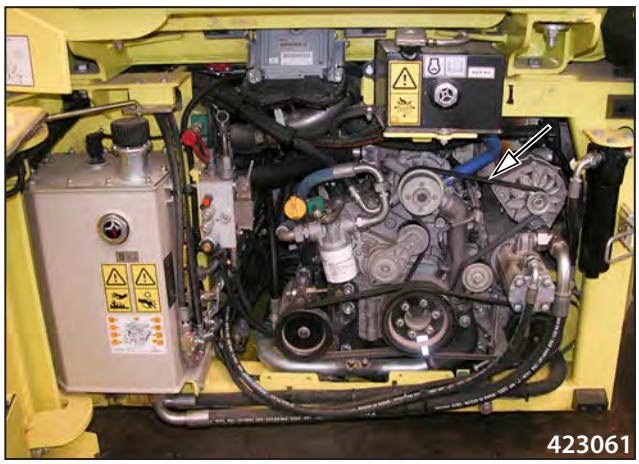
- Check the cooler fins for clogging. If fins are fouled, clean them, e.g. by purging the coolers with pressure air (steam or hot water) according to Chapter 3.6.41.



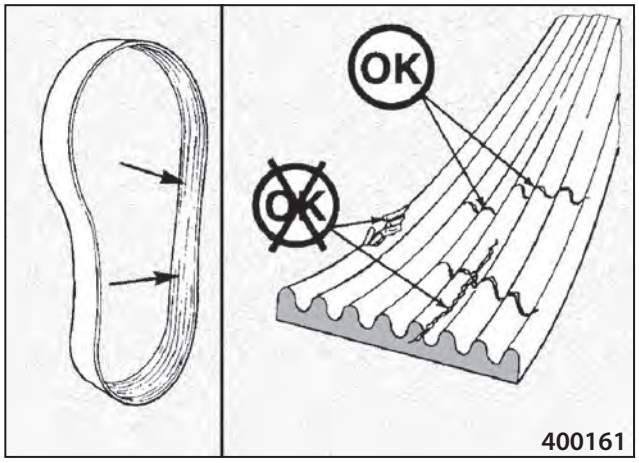
400181

3.6.18 Checking the engine belt

- Check the belt visually for damage. Cracks perpendicular to the belt width are not considered to be a fault.



If longitudinal cracks appear on the belt, or the belt edges are ragged, or some material parts are pulled off, then the belt must be replaced.

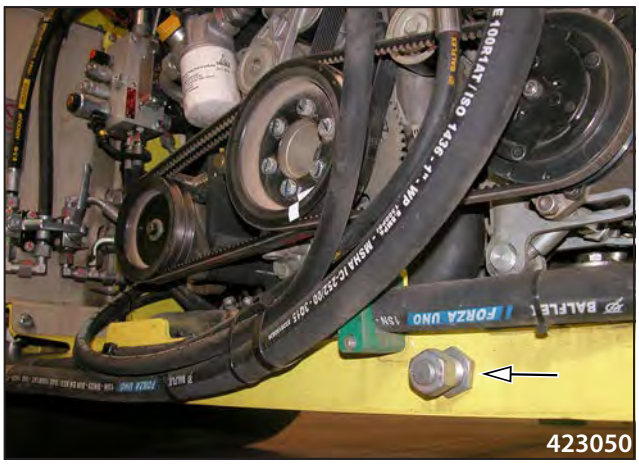


Engine belt
Order number: 1276451

3.6.19 Engine oil change

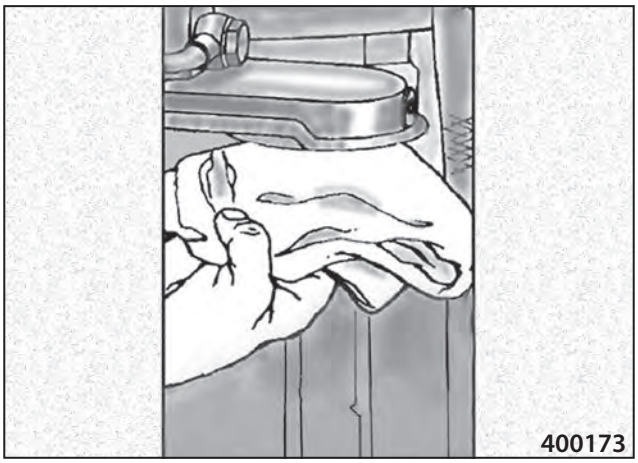
- Prepare a suitable vessel. Drained volume 9 l (2.4 gal US).
- Remove the drain plug and let the oil drain out.

The drained oil temperature must not be over 60 °C (140 °F) – risk of burns.

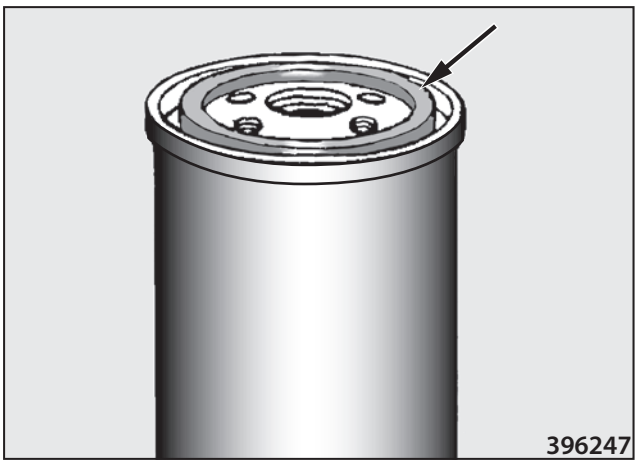


- Clean the surface around the head of the oil filter. Remove the filter.

- Clean the seating surface for the filter gasket.



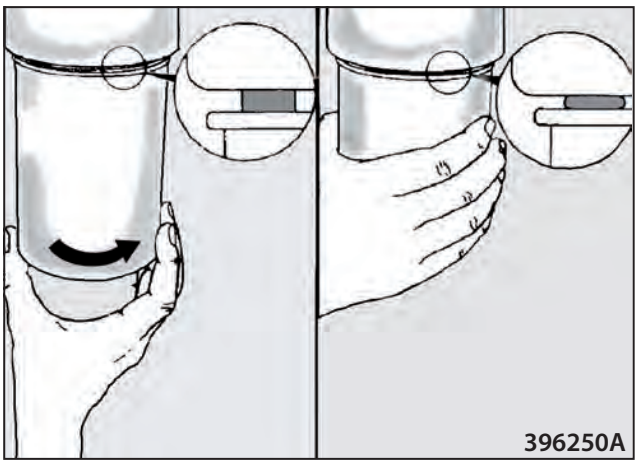
- Lubricate the gasket with oil.



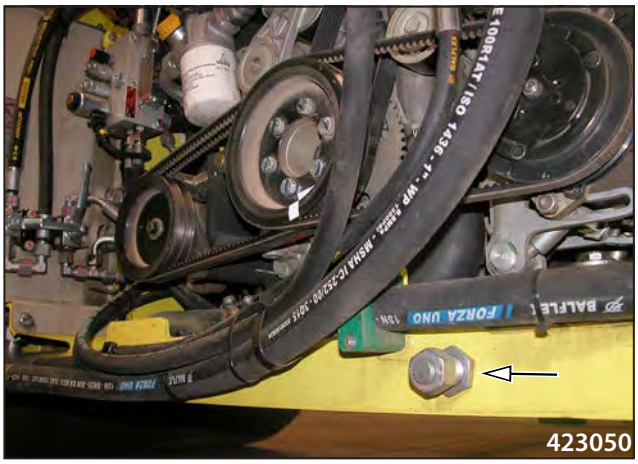
- Mount the filter and tighten with the torque of 15–17 Nm (11–12.5 lb ft).

Filter cartridge
Order number: 5-0020003

Do not overtighten the filter to prevent damage to the thread and gasket.



- Check the drain plug gasket and replace if damaged.
- Check the thread and clean the seating surface for the gasket.
- Remount the plug.



Catch the drained oil and do not let it soak into the ground.

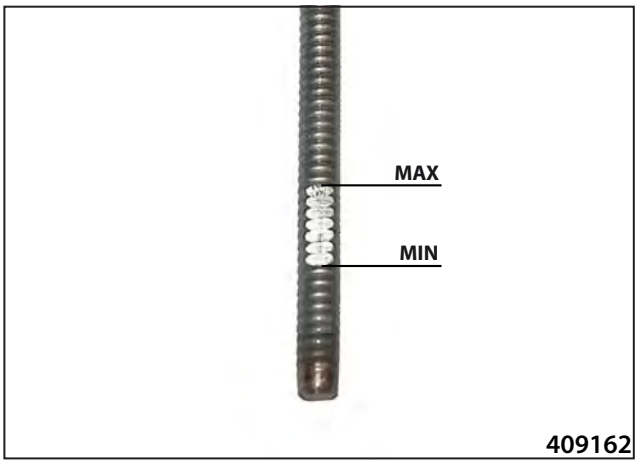
Dispose in accordance with regulations.

Store the used filters in a separate container and when handling them do not pollute the environment.

- Fill the engine with clean engine oil through the filler neck.

Note

- Fill up to the upper mark of the gauge. The total oil capacity is 9 litres (2.4 gal US).
- After you change the oil, start the engine and let it run at a higher idle speed for 2–3 minutes.
- Stop the engine and wait for about 3 minutes until the oil runs into the crankcase, then check the oil level.



Use only original filters.

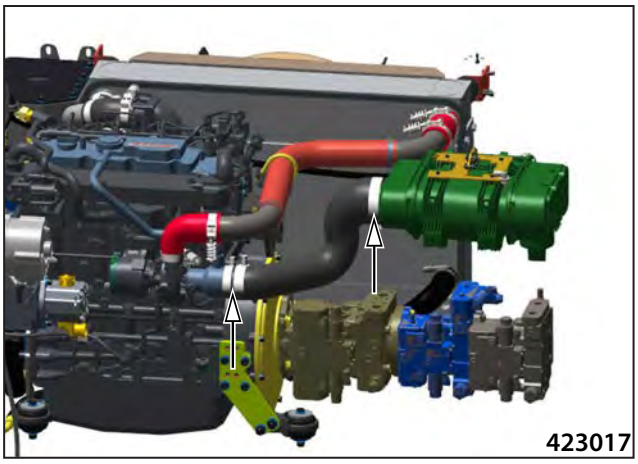
Use only oils recommended in chapter 3.2.1.

Do not overtighten the filters to prevent damage to the thread and gasket.

Check for leakage.

3.6.20 Checking the intake pipe of the engine

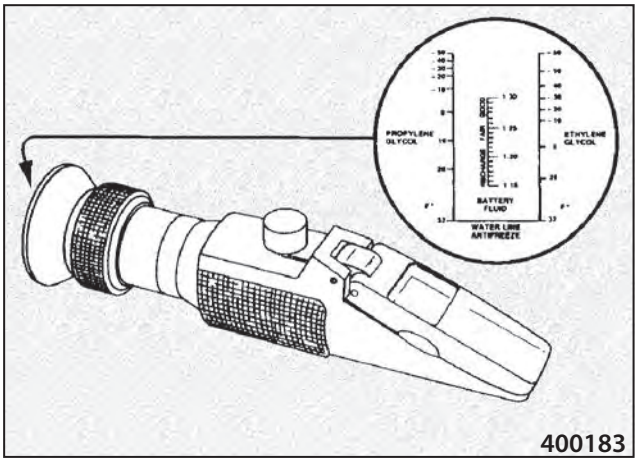
- Check the piping and connections.



Do not work with the machine if the clips or pipes are damaged!

3.6.21 Engine coolant concentration check

- Check the concentration using the refractometer.



Always check the coolant before the winter season. If the concentration was not measured for -36 °C (-33 °F), adapt it by adding antifreeze into the cooling system.

Add anti-freeze agent according to the chapter 3.2.3.

3.6.22 Electrical installation check

Check cables, connectors, protective hoses and their attachments for damage, in particular if they are near hot surfaces and moving parts of the machine including the engine. Replace damaged parts. Use only original spare parts.

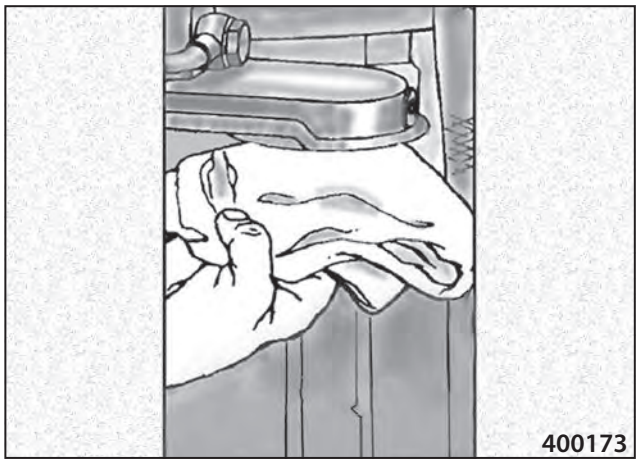
3.6.23 Fuel filter replacement

- Close the fuel valve.

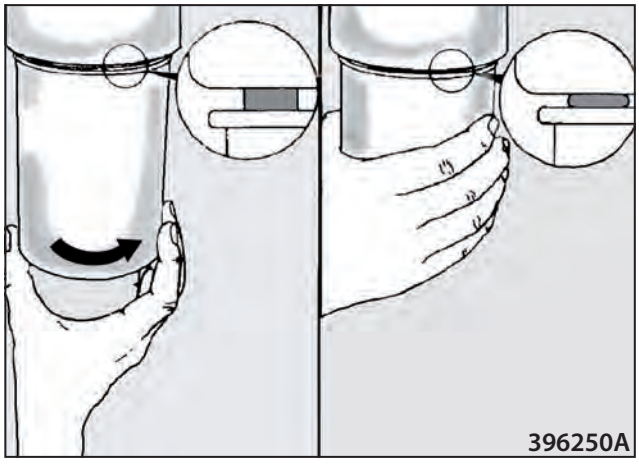
- Clean the fuel filter.
- Prepare a suitable vessel.
- Remove the filter.

Fine filter cartridge
Order number: 1238008

- Clean the sealing surface of the filter holder.



- Apply oil on the sealing O-ring.
- Mount the filter. Tightening torque 17–18 Nm (12.5–13.3 ft lb).



Fuel pre-filter

- Disconnect the connector.
- Clean the fuel filter.
- Prepare a suitable vessel.
- Remove the filter.
- Clean the sealing surface of the filter holder.
- Apply oil on the sealing O-ring.

Coarse filter cartridge
Order number: 1229401

- Mount the filter. Tightening torque 17–18 Nm (12.5–13.3 ft lb).
- Connect the sensor connector.
- Open the fuel valve.

Note

Fuel system venting 3.6.45.

Start the engine and check the filter for leaks!

During the replacement, observe fire protection measures!

Carry out the replacement in ventilated rooms where there is no fire risk.

Do not smoke and do not use open flame while working.

Use only recommended original filters.

Do not overtighten the filters to prevent damage to the thread and gasket.

Stop the fuel from leaking into the ground!

Store used filters in an environmentally friendly manner.

3.6.24 Replacement of air filter cartridges

The proper maintenance of the air filter and of the whole inlet manifold, the rubber parts in particular, will protect the engine against dust effects significantly and extend the element lifetime and efficiency.

The side effect of the filter clogging is the smoking exhaust pipe, higher fuel consumption, power loss and increased temperature of the engine.

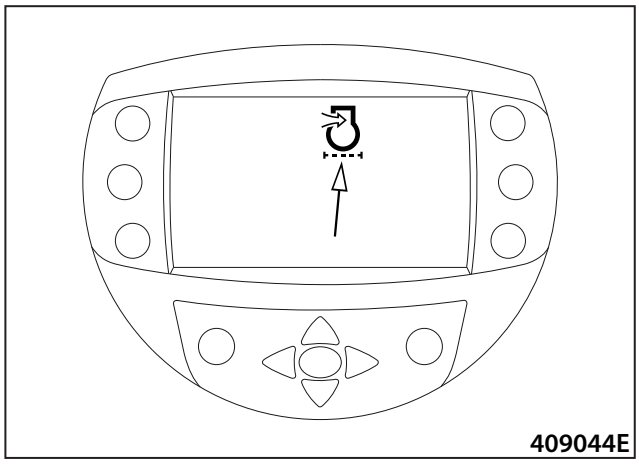
Principles of correct replacement of the filter cartridge:

- Slowly pull out the clogged element as carefully as possible.
- Always clean the inner bodies of the cleaner to prevent dust from entering the interior of the inlet manifold to the engine.
- Clean the seating surfaces for the gasket in the cleaner body.
- Examine dust marks in the removed cartridge that show its leakage in the filter body.
- Push the gasket on the new cartridge to check it for flexibility.
- Check that the gasket sits correctly.

Never use damaged elements!
Do not use different elements than required!
Do not remove the cartridges only for checking purposes!
The filter must not be open longer than necessary!
Never operate the machine with the damaged filter body!

Air filter cartridge replacement:

- The air filter contains a main element and a safety element.
- Always replace the main cartridge when the indicator lamp indicates that the air filter is clogged, however at the latest after 500 Mhs.
- Replace the safety cartridge after every third replacement of the main cartridge.
- Check the air cleaner and inlet manifold for fastening and integrity.


409044E

- Remove the filter cap.


423039

and remove the main filter element from the filter shell.

Main cartridge
Order number: 1530120

- Take out the safety cartridge from the filter housing and check.
- Replace the safety cartridge after every third replacement of the main cartridge.

If the safety cartridge is damaged, replace it with a cartridge of the same type according to the identification!

Safety cartridge
Order number: 1530109

- Clean the filter interior to prevent dust from entering the interior of the inlet manifold to the engine.

Never use compressed air to clean the filter interior.

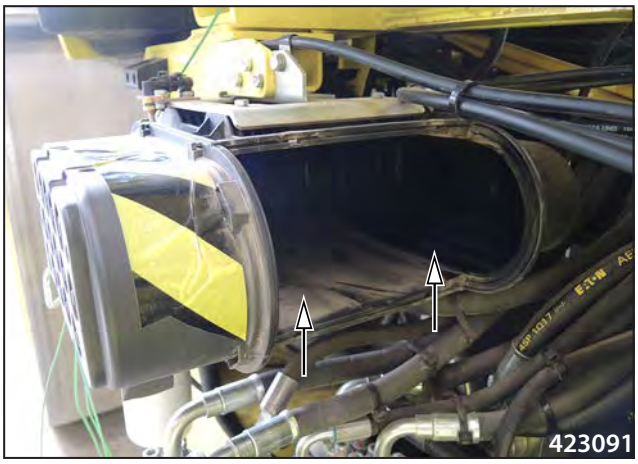
- Remove the dust valve of the air filter, clean and remount.

Dust valve
Order number: 1558978

Replace the dust valve immediately if it is damaged!


423057


423058


423091


423056

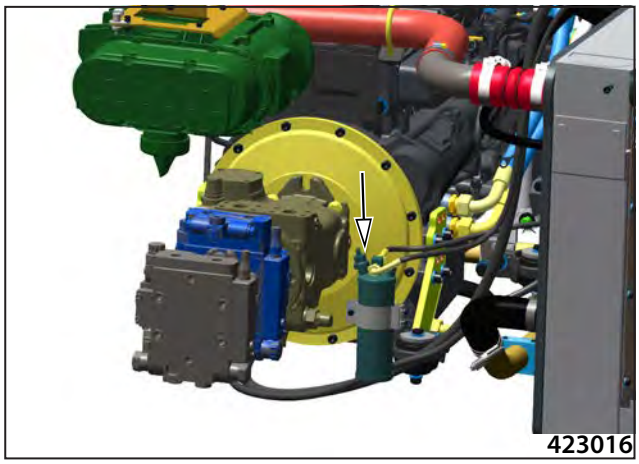
3.6.25 Cab ventilation filter cleaning

- Remove the filter cartridge.
- Knock out the element carefully.
- If the element is damaged or cannot be cleaned properly, replace it with the new one.

When working in a very dusty environment, shorten the cleaning intervals (clean regularly once a month).

Cab ventilation filter
Order number: 1263263

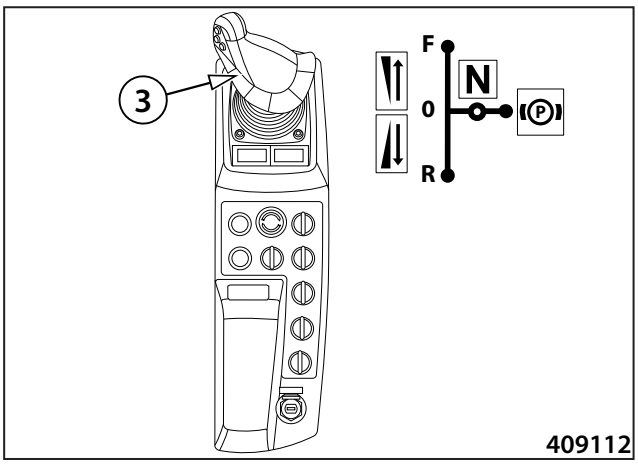
3.6.26 Coolant level check (air-conditioning)



- Check the filter dehydrator sight hole while the air conditioning system is on and the engine is running at idle speed.
- The liquid flowing in the sight hole must be transparent.
- Fogging or foam indicates a lack of coolant, i.e. reduced function of the unit. Check the hoses, their connections, and the compressor for coolant leaks.
- To remove any defects, call an authorised service company.

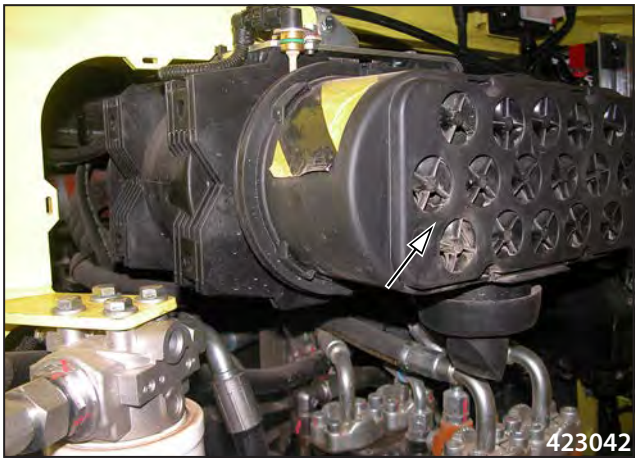
3.6.27 Checking the sensor of the air filter

- Set the travel control to the neutral position (N) – engine idle speed.

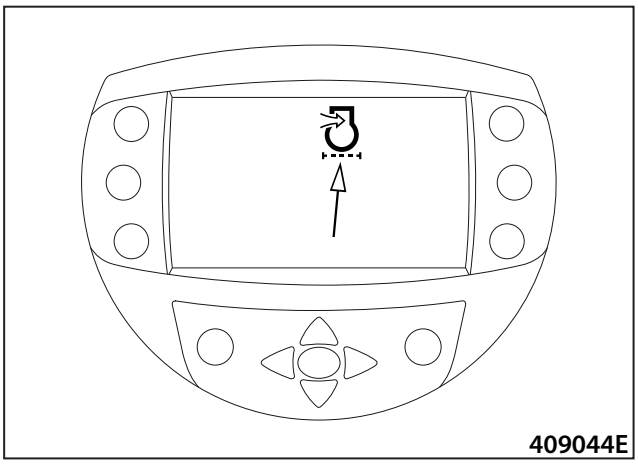


- Cover the air filter suction hole.

Do not use thin paper for covering – risk of intake hole clogging!

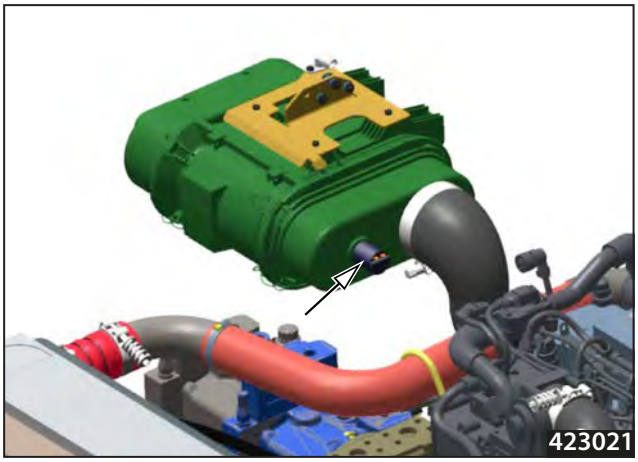


- After it is covered, the indicator lamp for the air filter clogging must light up.

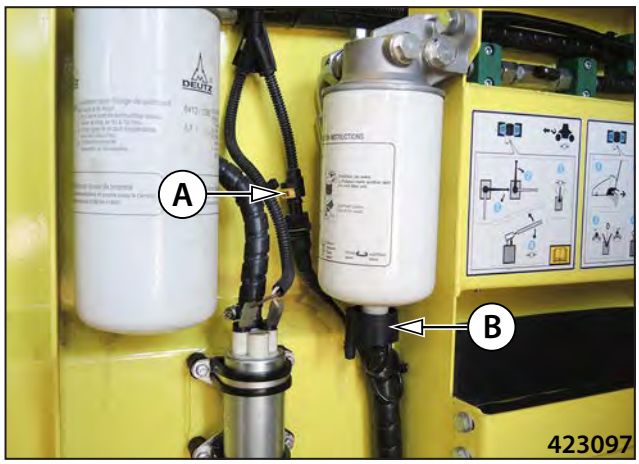


- If the indicator lamp does not light up, check the vacuum switch, contacts and supply cables.

Indicator
Order number: 4-5358520063



3.6.28 Cleaning the water separator on the fuel filter



- Turn off the engine.
- Prepare a suitable vessel.
- Disconnect the connector (A).
- Loosen the valve (B).
- Drain the fluid until clean fuel starts to run out.
- Tighten the valve. Tightening torque 1.6±0.3 Nm.
- Connect the electrical installation.

Do not smoke while working.

Do not drain the separator when the engine is running.

Use a suitable pan to catch the drained fuel with the sediment.

3.6.29 DEF (AdBlue) filter replacement

Provide adequate ventilation.

In case of insufficient ventilation, wear suitable respiratory equipment. Recommended: organic fumes filter (A type), ammonia filter (K type).

Wear suitable chemical resisting, impervious gloves.

Wear goggles intended for splash water protection.

Avoid contact with skin. Wear suitable protective clothing.

Keep clean.


4090240

Turn off the engine.

Place a vessel under the filter.

Remove the cap.

Pull out the levelling item.


4090241

Remove the cartridge.


4090242


4090243

Check the thread and clean the seating surface.

Lubricate the gasket with oil.

Insert the new filter.

Filter cartridge
Order number: 1391087

Insert the new levelling item.

Mount the cap. Tightening torque 22.5 ±2.5 Nm (16.6±1.8 ft lb).

Use only an original filter.

Do not overtighten the filters to prevent damage to the thread and gasket.

Dispose used filters in compliance with regulations.

Every 1000 hours of operation (yearly)

For the list of all spare parts see the table in the end of this publication.

3.6.30 Checking the engine belt

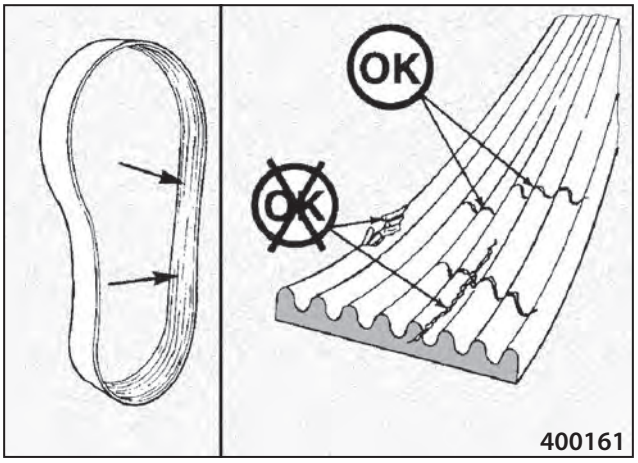
- Use the parking brake to stop the machine.

Checking the tension pulley:

- Check the tension pulley for correct function.

Checking the engine belt for wear:

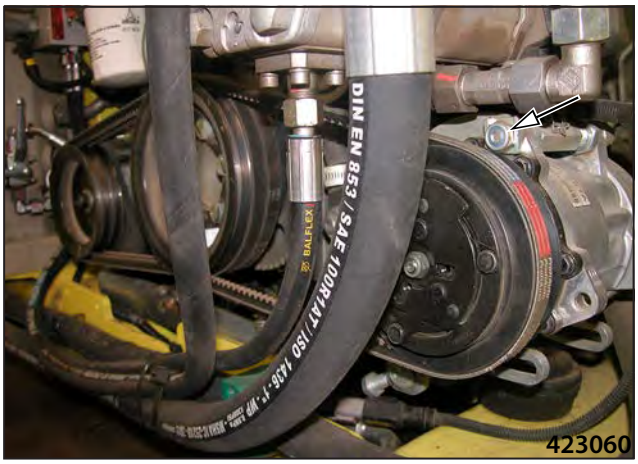
- Visually inspect the belt.
- If longitudinal cracks appear on the belt, or the belt edges are ragged, or some material parts are pulled off, then the belt must be replaced.



Engine belt
Order number: 1276451

Replacing the engine belt:

- Loosen the screws and move the compressor.
- Take out the belt.



- Lift off the tension pulley of the belt using a square lever.
- Take out the engine belt.
- Insert the new belt.

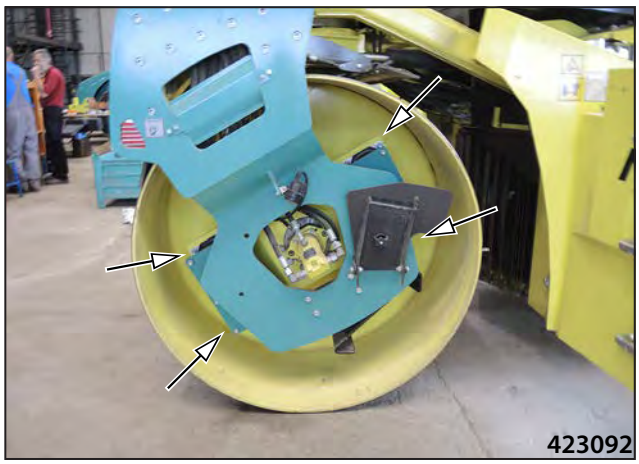
Change and tension the belt when the engine is not running!

3.6.31 Damping system check

- Recheck the rubber-metals for condition and for rubber-to-metal bond strength.

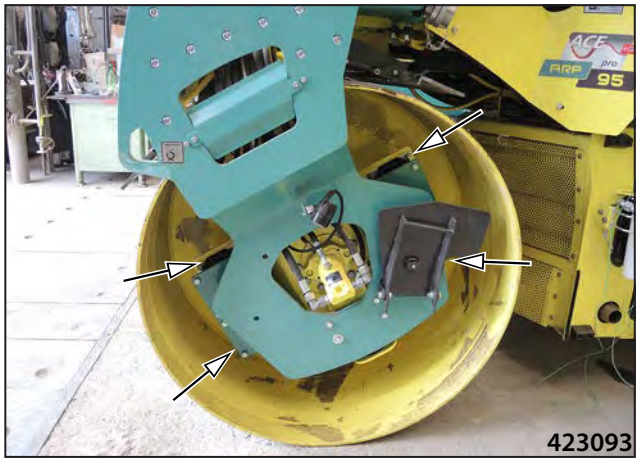
Replace if damaged.

Recheck screws and nuts for tightening.



Rubber-metals of the drums, left and right side 2×8.

Rubber-metal
Order number: 4-9200000031

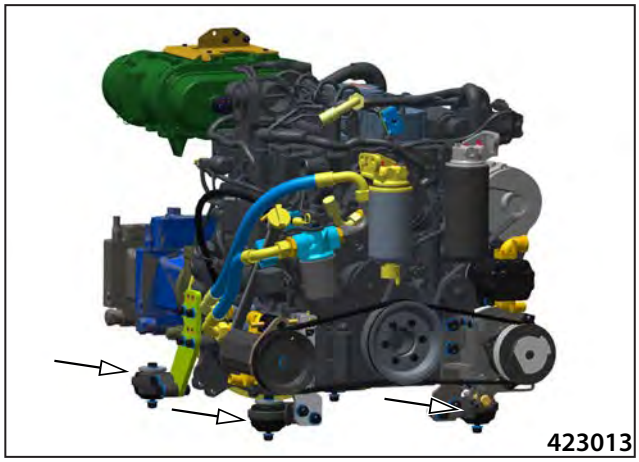


Rubber-metals of the driver's stand 4×.

Rubber-metal
Order number: 1160051

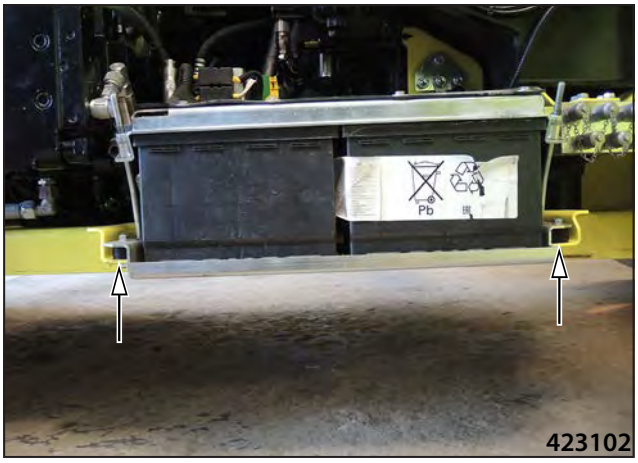
Rubber-metals of the engine 4×.

Rubber-metal
Order number: 1235638



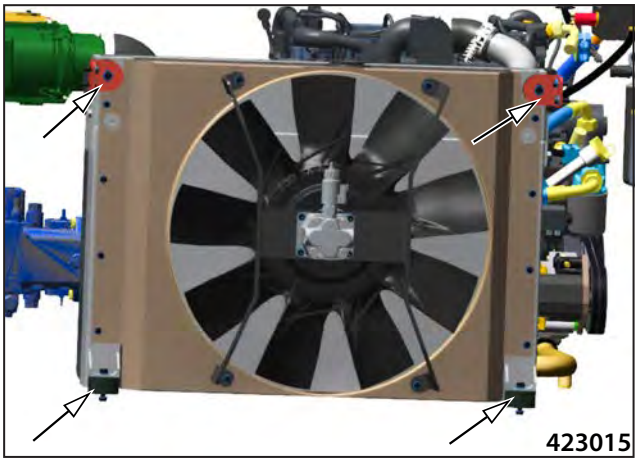
Rubber-metals of the battery holder 4×.

Rubber-metal
Order number: 4-6160070611



Rubber-metals of the cooler holder 4×.

Rubber-metal
Order number: 4-6160070610



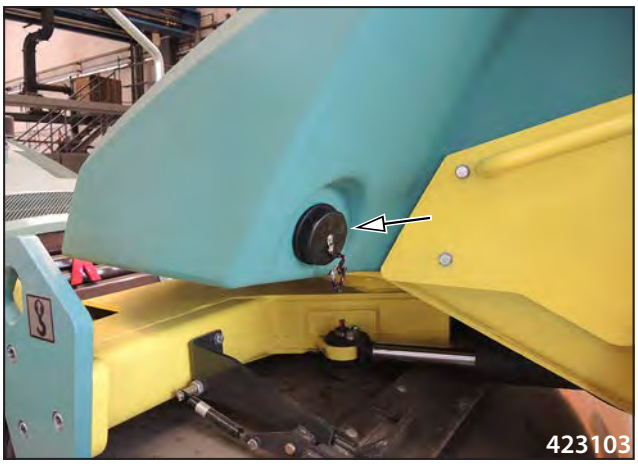
3.6.32 Cleaning the water tank

- Dismount the caps of the filler necks of the tank.
- Clean the screens in the filler necks.

- Open the drain holes of the tank.
- Rinse the tank with running water.

Before the winter season, drain water from the water tank!

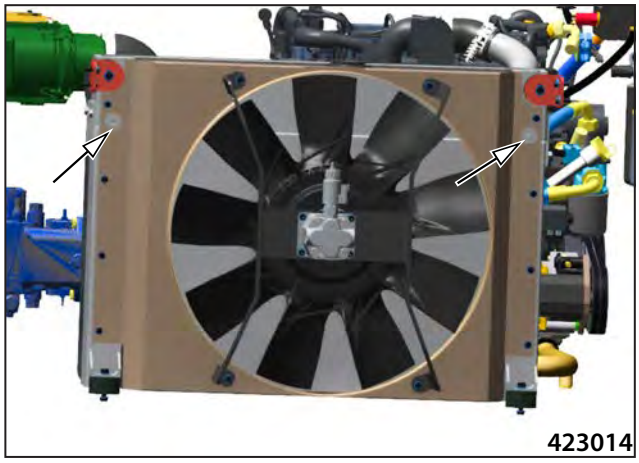
Proceed according to Chapter 3.6.46.



3.6.33 Air cooler cleaning

- Remove the covers.

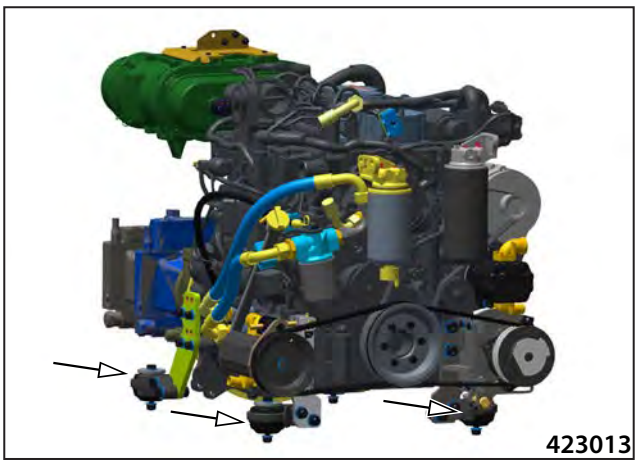
- Prepare a suitable vessel.
- Remove the plugs.
- Drain the condensate.
- Install the plugs.



- Mount the covers.

3.6.34 Checking the engine

- Check the engine for mounting in the machine frame.
- Recheck the rubber-metals for condition and for rubber-to-metal bond strength. Replace if damaged.
- Recheck screws and nuts for tightening.
- Check the engine. Replace damaged parts.
- Check the clamps and the hose connections.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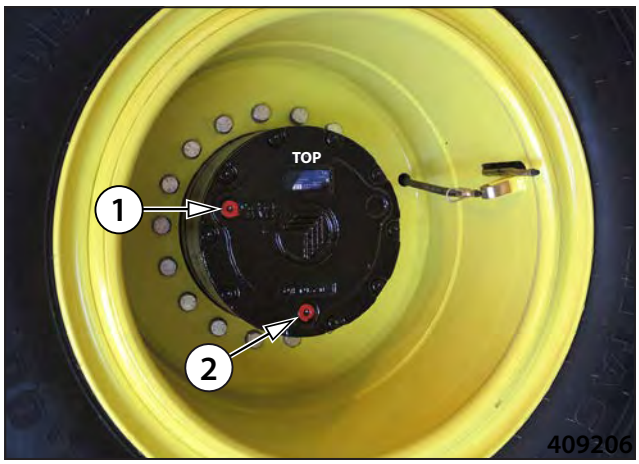
3.6.35 Engine and machine diagnostics

- Contact the authorized Deutz service centre for diagnostics of the engine.
- Contact your dealer for diagnostics of the machine.

3.6.36 Oil change in gearboxes



Check for the first time after 200 hours.

Axle gearboxes

- Clean surfaces around the plugs.
- Prepare a suitable vessel with the volume of approximately 2 l (0.5 gal US).
- Put a suitable pan under the drain plug (2).
- Unscrew all the plugs (1), (2) and let the oil flow out.
- Remount the drain plug (2) after the draining is completed.
- Fill the recommended oil through the filler plug (1).
- Check the oil level in the inspection hole (1). The oil must reach the lower edge of the opening or slightly flow out.
- Remount the plug (1); replace damaged seals of the plugs.
- Fill up the same oil type; see Chap. 3.2.5.

Change the oil after the first 200 engine hours.

Do not touch the gearbox and adjacent parts if they are hot.

Stop the oil soaking into the ground.

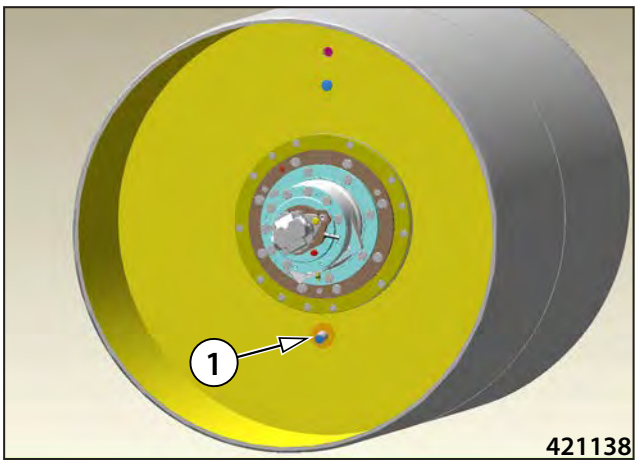
3.6.37 Oil change in vibrators

Check for the first time after 500 hours.

Oil draining:

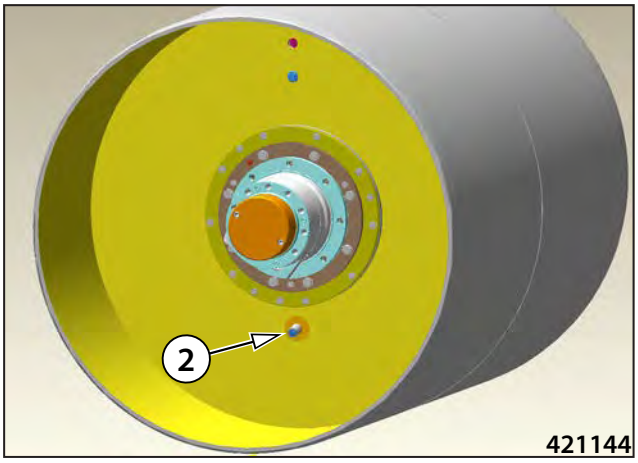
left side

- Clean the area around the plug.
- Position the machine so that the plug (1) is in the lowest position.
- Remove the plug and let the oil flow out into the vessel.



right side

- Clean the area around the plug.
- Position the machine so that the plug (2) is in the lowest position.
- Remove the plug and let the oil flow out into the vessel.



Note

Drained quantity 8 l (2.1 US gal).

Change the oil when it is warm.

Let the drained oil cool down below 50 °C (120 °F).
Do not touch hot parts of the machine.

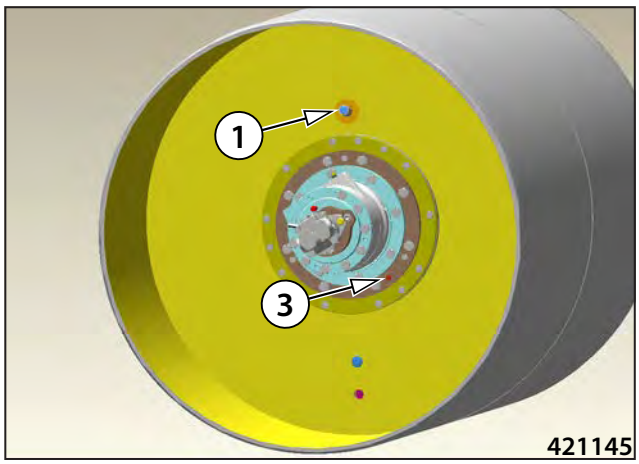
Catch the drained oil.
Dispose according to regulations.

Oil filling:

- Position the machine so that the plug (1) is in the highest position.
- Using the filler plug, refill the recommended oil (see Chapter 3.3).

Oil level check:

- Check the oil level in the inspection hole (3).
- The oil level must reach to the lower edge of the hole or the oil must flow out slightly.
- Replace the plugs, change if damaged.



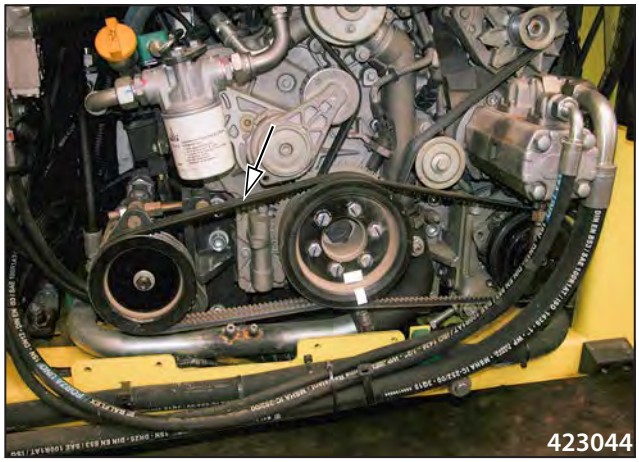
Note

Follow the same procedure for the rear drum.

3.6.38 (Air-conditioning) belt check

Checking the air-conditioning belt for tension:

- Press with your thumb at the spot where the belt length between the pulleys is the longest, using the 110 N (25 lb) force.
- The max. slack is 10 mm (0.39 in).



Checking the air-conditioning belt for wear:

- Visually inspect the belt.
- If longitudinal cracks appear on the belt, or the belt edges are ragged, or some material parts are pulled off, then the belt must be replaced.

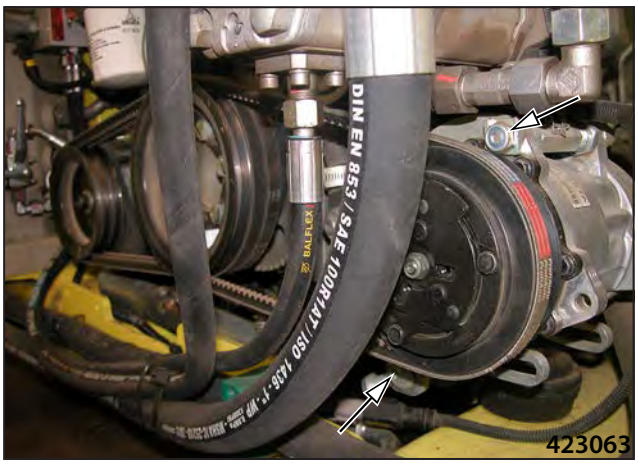
V-belt
Order number: 4-6160120117

Tensioning the air-conditioning belt:

- Loosen the screws and move the compressor.

Replacing the air-conditioning belt:

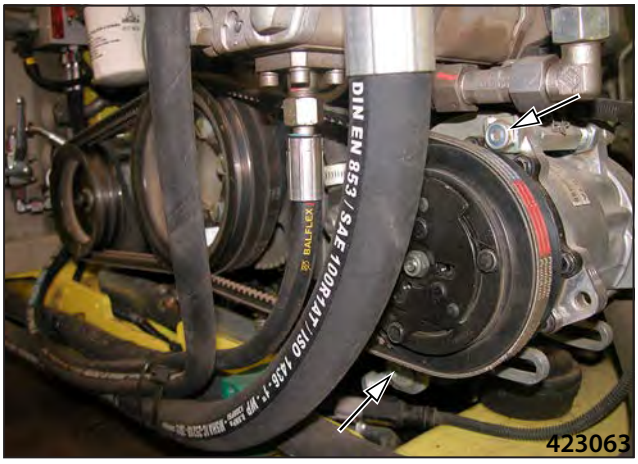
- Loosen the screws and move the compressor.
- Take out the belt.
- Insert the new belt.
- Tighten the belt and the screws.



Change and tension the belt when the engine is not running!

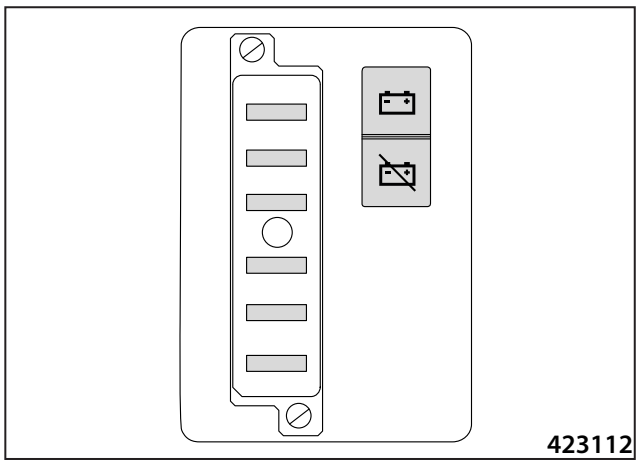
3.6.39 Checking the compressor for mounting (air-conditioning)

- Check the compressor and the compressor bracket for strength of attachment.

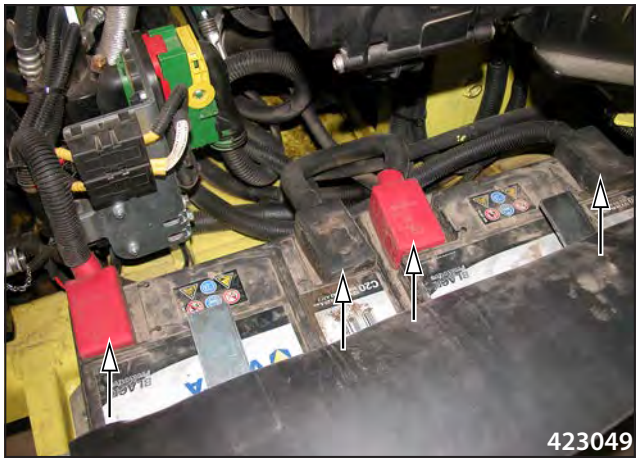


3.6.40 Battery check

- Stop the engine and use the disconnector to disconnect the wiring.



- Clean the battery surface.
- Check the condition of the terminals and clamps. Clean the terminals and clamps. Apply a thin layer of grease on the terminals.
- If a maintenance-free battery is installed in the machine, it is not necessary to check the electrolyte level and refill the electrolyte for the entire service life of the battery. Consult the condition of battery discharge – the lowest permissible voltage level (measured on the battery terminals), under which the battery could be damaged, and the charging procedure with the battery manufacturer.



Note

- If the machine is not used during the winter season for several weeks, remove the battery and store it where it is protected from frost. Before storing and during the storage period, check the batteries and the charge status.

Use rubber gloves and eye protection devices when handling the battery.

Use suitable clothing to protect your skin against contact with the electrolyte.

After eye contact with the battery electrolyte, immediately flush the affected eye thoroughly with running water for several minutes. Then seek medical advice.

After ingestion of the electrolyte drink large quantities of milk, water or suspension of magnesium hydroxide in water.

In case of skin contact with electrolyte, remove your clothing and shoes, wash the affected skin immediately with soap and water or with solution of water and soda. Then seek medical advice.

Do not eat, drink and smoke while working!

After completing the work, wash your hands and face thoroughly with water and soap!

Do not check that a wire is live by touching the machine frame.

Keep the battery dry and clean.

Charge the battery if it is low.

Remove the battery from the machine to charge.

Do not disconnect the battery when the engine is running.

When working with the battery always follow instructions of the battery manufacturer!

Disconnect the battery for repair or while handling wires and electrical components in the wiring circuit to prevent short-circuit.

When disconnecting the battery, first disconnect the cable of the (–) pole. When connecting the battery, first connect the (+) pole.

Never make direct conductive connection between both poles of the battery to avoid a short circuit and a risk of explosion of the battery.

Do not turn the battery upside down, the electrolyte can flow out.

If the electrolyte is spilled, wash the affected area with water and neutralize with lime.

Hand over the old inoperative battery for disposal.

Every 2000 hours of operation (every 2 years)

The set of filters after 2000 operating hours can be ordered under the order number 4-37968. For the list of all spare parts see the table in the end of this publication.

3.6.41 Hydraulic oil change

- Prepare a suitable vessel. Drained volume about 60 l (15.9 gal US).
- Unscrew the drain plug and let the oil flow out into the prepared pan.

Change the oil before the season starts, or after a long shut-down of the machine.

Drain the oil when cooled down below 60 °C (140 °F).

Follow the fire fighting measures!

Catch the drained oil and do not let it soak into the ground.

The used oil is ecologically hazardous waste – hand it over for disposal.

Filling the hydraulic circuit:

- Fill using the hydraulic unit.
- You can order the hydraulic unit from the machine manufacturer.

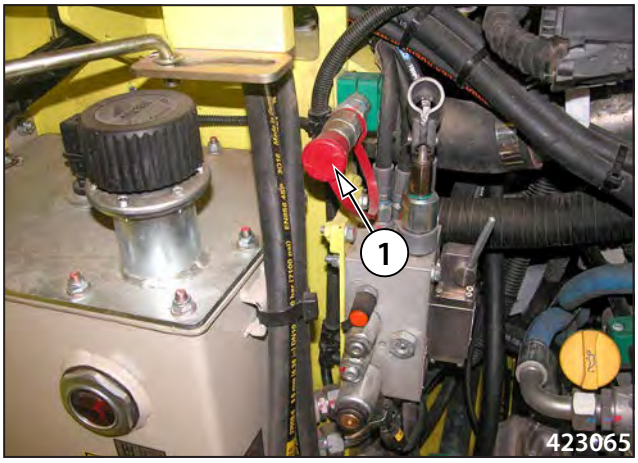
Hydraulic unit 230 V
Order number: 1251998

Hydraulic unit 110 V
Order number: 1255297

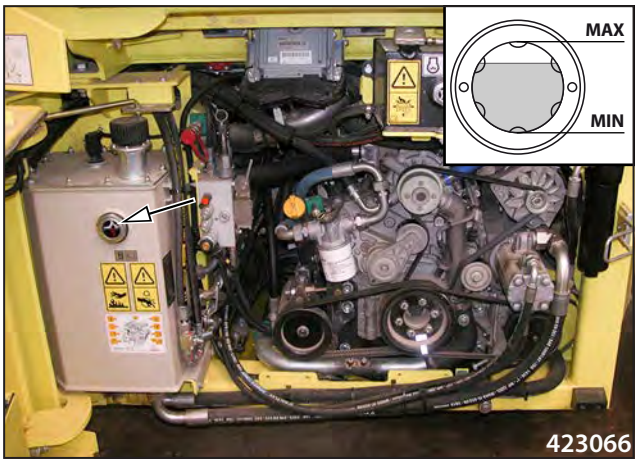
Note

The hydraulic unit 230 V is intended for operation in 230 Volt networks (Europe), the hydraulic unit 110 V is intended for operation in 110 Volt networks (North America).

- Remove the cap of the filling end piece and put the quick-coupler of the filling device onto the quick-coupler (1).
- Fill the hydraulic circuit until the clean oil starts flowing out from the drain plug. Catch the oil in a clean pan.
- When reading approximately 15 l (4 gal US), mount the drain plug back – inspect the gasket.
- Fill up the tank with the oil to the maximum level and disconnect the filling device.
- You can order the filling device from the machine manufacturer or dealer.

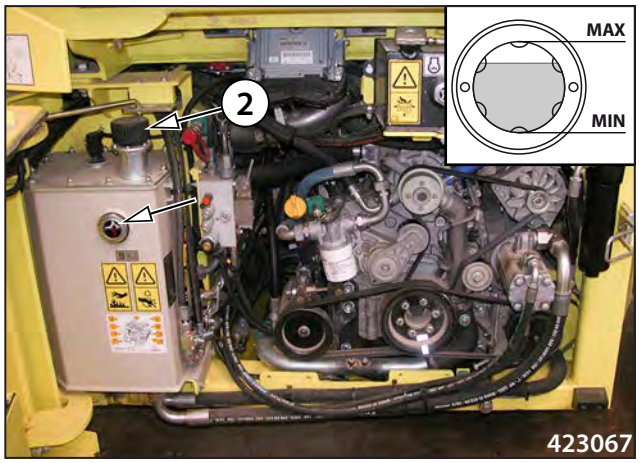


- Fill up the tank with the oil to the maximum level and disconnect the filling device.



Alternate filling through the oil tank filler

- When filled in this way, the next change interval must be reduced to half, i.e. 1,000 hours or 1 year.
- The plug of the tank filler is sealed. If the seal is broken during the guarantee period, the guarantee will become null and void!
- Fill the tank with the specified type of oil through the filler neck (2).



Ventilation filter replacement

- Replace the filler neck with the ventilation filter.

Ventilation filter
Order number: 1405919

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

Note

When the tank is refilled through the neck, a large portion of the old dirty oil remains in the circuit and the life cycle of the hydraulic units will be shorter.

Do not open the hydraulic tank uselessly!

Use the filler neck to fill the hydraulic circuit only as an emergency solution and when using this filling method shorten the next replacement interval to one half, i.e. 1,000 hours or 1 year.

When the filler neck seal is broken during the guarantee period, the machine warranty will become null and void!

After filling up the circuit, check that the indicator lamp for the hydraulic oil level does not light.

Start the engine and test the machine functions at a higher speed to fill up the circuits.

Always change the oil and replace the filter cartridge when inner parts of the units (hydraulic motors, hydraulic generators) were destroyed, or after a major repair of the hydraulic system.

Always clean and flush the hydraulic tank and replace the filter cartridge before the new unit is installed.

Maintain cleanliness while working and avoid contaminating the system with substances that can cause damage to important aggregates.

Never use chemical cleaning agents to clean the hydraulic tank.

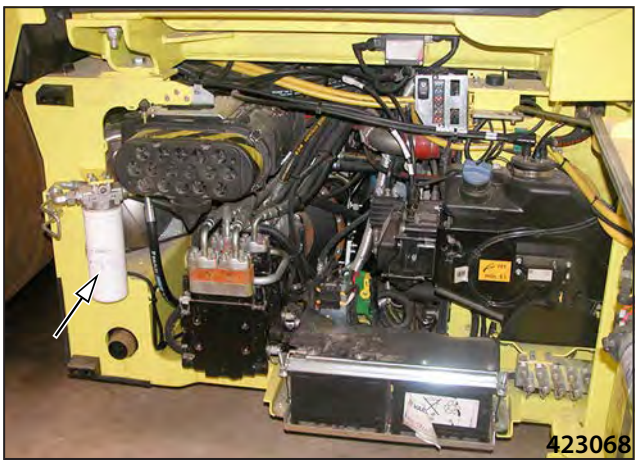
Use only lint-free materials.

Always fill the hydraulic tank with oil according to Chapter 3.2.4.

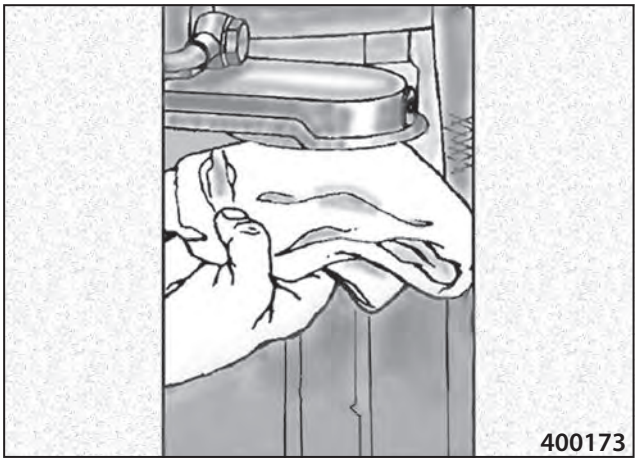
Take fire fighting and hygiene measures.

Replacement of the main pressure filter cartridge

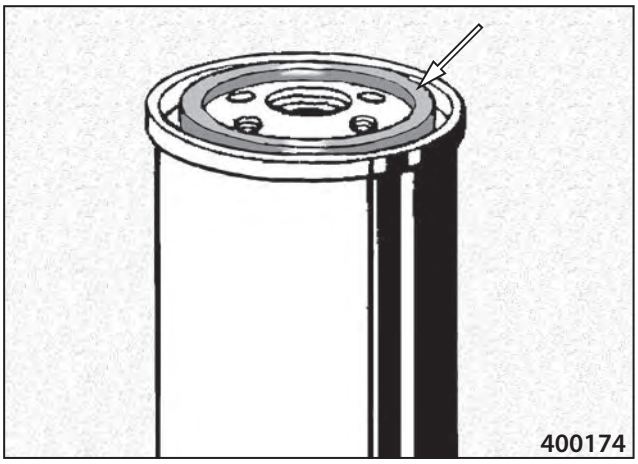
- Remove the filter.



- Clean the seating surface underneath.



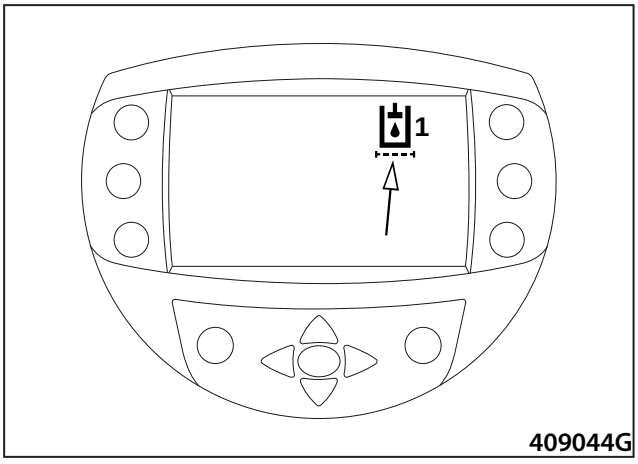
- Check the sealing rings for condition and apply clean oil on the rings.
- Mount the new filter.



Filter cartridge
Order number: 4-5358520121

Carry out the replacement always while changing oil or when the pressure filter LED lights up when the oil operating temperature reaches 50–60 °C (122–140 °F).

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

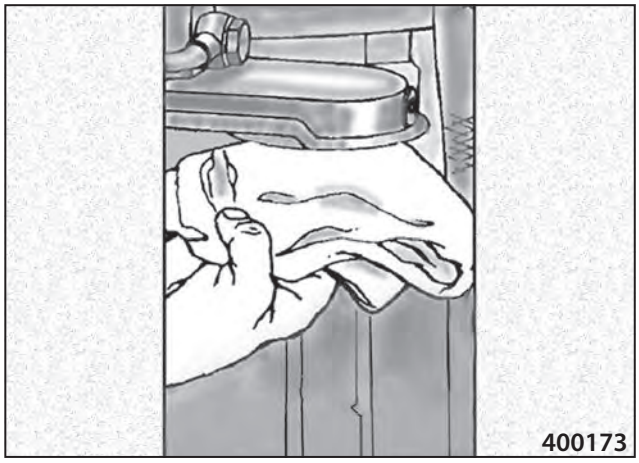


Used filter cartridges are ecologically hazardous waste – hand them over for disposal.

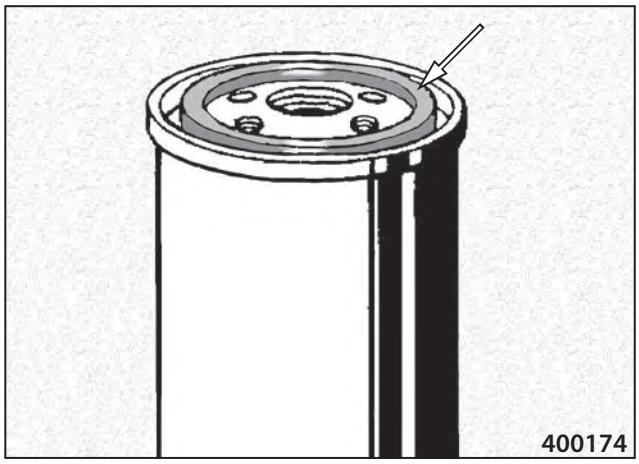
Replacement of the cartridge of the control pressure filter

- Remove the cover.
- Remove the filter.

- Clean the seating surface underneath.



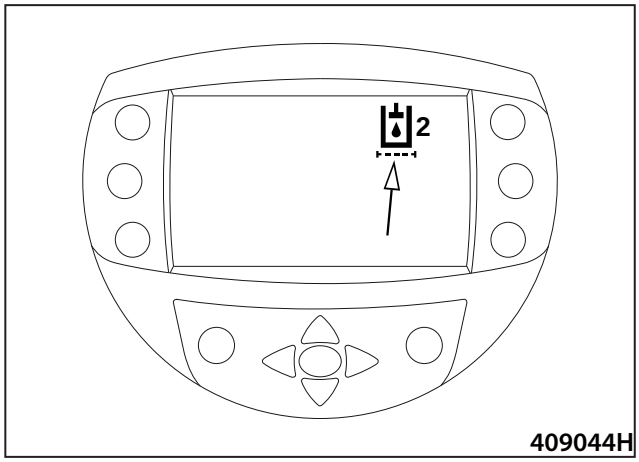
- Check the sealing rings for condition and apply clean oil on the rings.
- Mount the new filter.



Filter cartridge
Order number: 1426713

Carry out the replacement always while changing oil or when the pressure filter LED lights up when the oil operating temperature reaches 50–60 °C (122–140 °F).

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



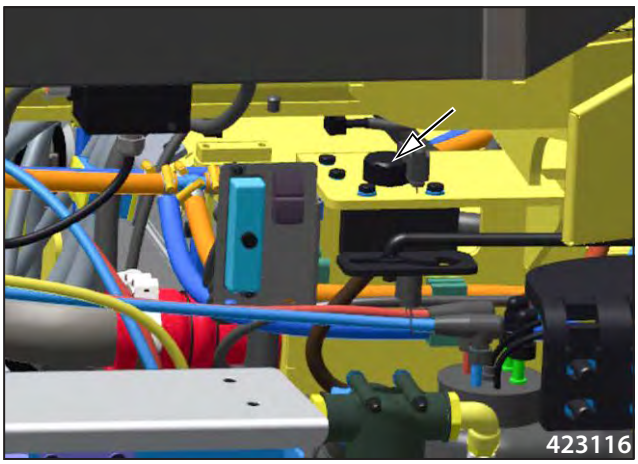
Used filter cartridges are ecologically hazardous waste – hand them over for disposal.

3.6.42 Vent plug replacement

Remove the vent plug.

Mount the new vent plug.

Vent plug
Order number: 1281431



3.6.43 Remplacement du filtre ACE pro

Remplacer le filtre.

Cartouche filtrante
N° de commande : 1201300

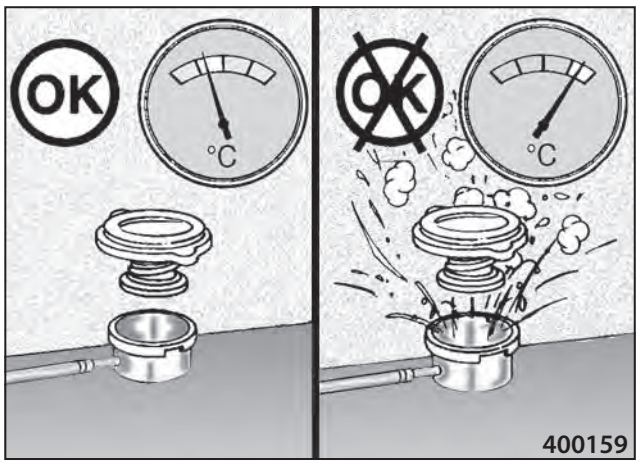
Every 6000 hours of operation (every 4 years)

3.6.44 Engine coolant change

Draining the cooling circuit:

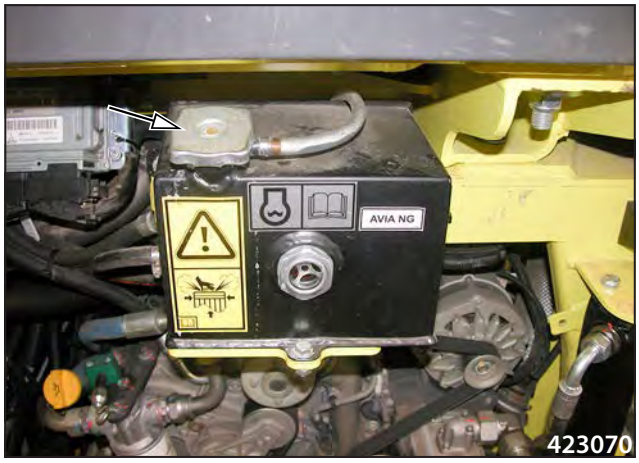
Before draining the coolant from the cooling circuit, let the engine run for 5 minutes so that the temperature of the liquid can reach 50 °C (122 °F).

Do not open the pressure plug before the coolant temperature drops below 50 °C (122 °F). Beware of gushing of the coolant and scalding when opening the pressure plug.



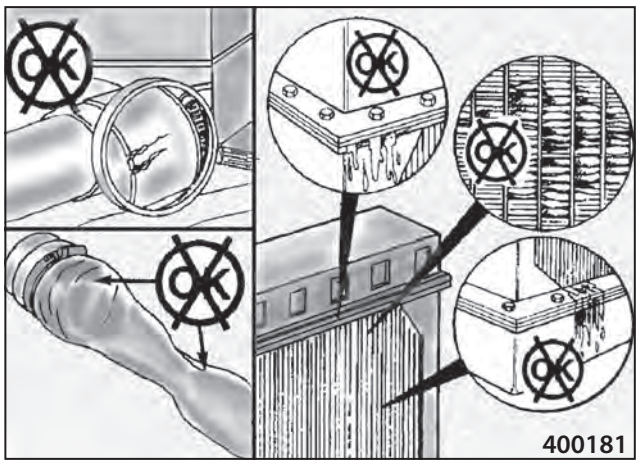
Stop the engine.

- Open the cooling system by removing the overpressure plug on the expansion tank.



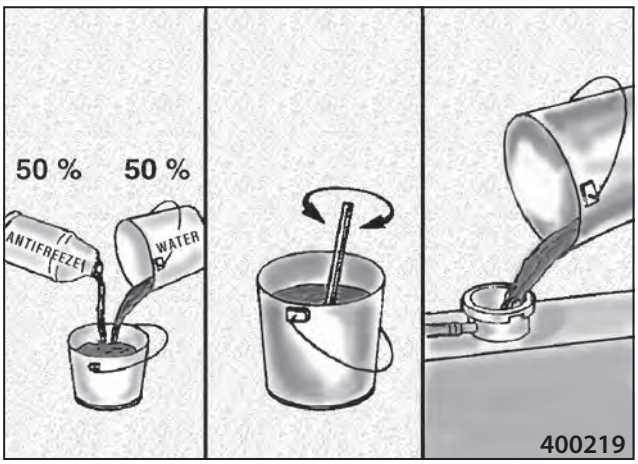
- Remove the drain plug of the cooling circuit. Let the fluid drain into the prepared pans. The drained volume is about 23 l (6.1 gal US).

- Check the cooling system for defective hoses and missing hose clips. Check the cooler for damage and leaks and the cooling fins for clogging. Clean and repair the cooler if required.



Fill the cooling circuit

- Mount the drain plug and fill the cooling system with the new coolant with the minimum ratio of 50 % water + 50 % antifreeze agent.



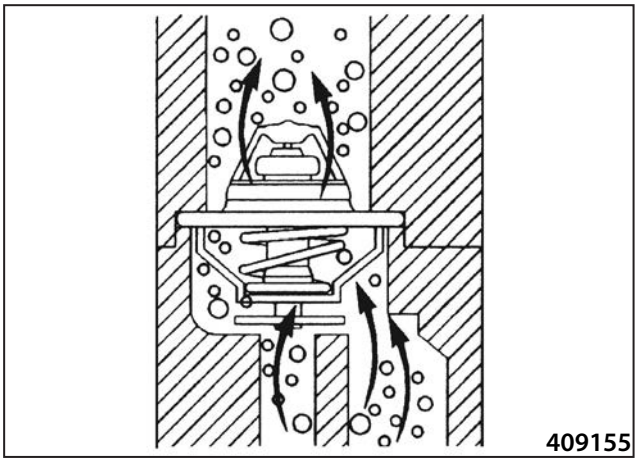
Wear gloves to protect your hands!

Protect your eyes with safety glasses or face shield!

Fill with the coolant according to Chapter 3.2.3.

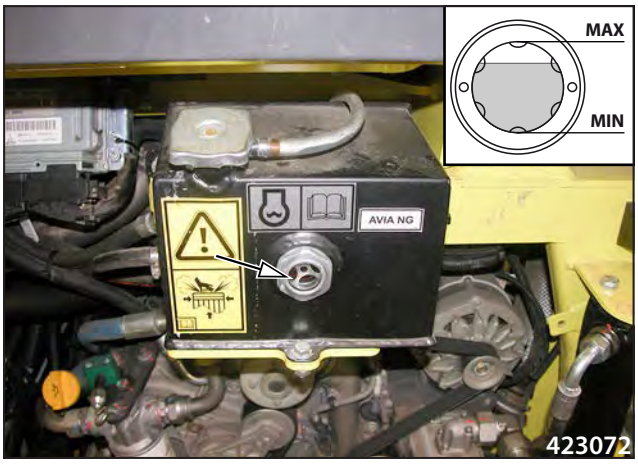
When changing coolant, follow instructions of the anti-freeze manufacturer!

- Refill the coolant to the maximum level. After filling, wait for about 2–3 minutes until the air escapes and the circuit is filled. The maximum filling rate is 10 l/min (2.6 US gal/min). Close the expansion tank with the overpressure plug.

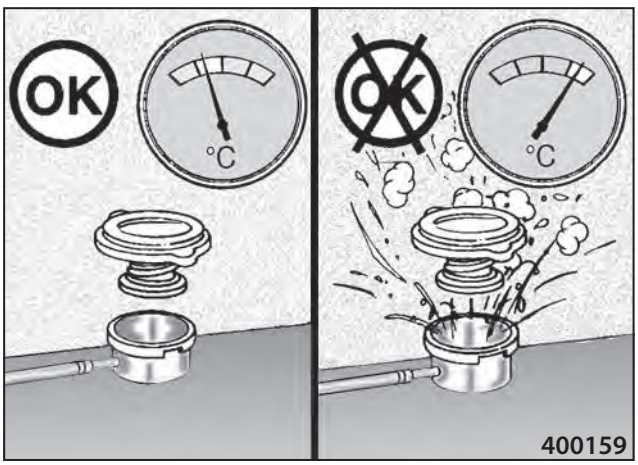


Start the engine and wait until the temperature reaches 82 °C (180 °F). While waiting, check for coolant leaks and the check the coolant level on the indicator.

- Start the engine and let it run for 5 minutes so that the liquid temperature can reach 82 °C (180 °F).
- Stop the engine.
- Check the level on the water gauge.
- Check that the coolant level on the water gauge is between MIN and MAX.



Do not open the pressure plug before the coolant temperature drops below 50 °C (122 °F). Beware of gushing of the coolant and scalding when opening the pressure plug.



Catch the used liquid and hand it over for safe disposal in accordance with regulations!

Maintenance as required

3.6.45 Fuel system venting

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

- When fuel filters have not been filled with fuel – when replacing the filters
- When replacing the fuel pump
- After a fuel system repair
- During long term shutdown of the machine
- When the tank is empty.

Low-pressure piping and filter venting:

- Prepare a suitable vessel.
- Set the key to position "I".
- Loosen the venting screws on the fuel filters.
- Bleed the system and tighten the screws.

Do not bleed when the engine is hot, the leaking fuel can cause a fire.

Observe safety regulations.

Do not smoke and do not use open flame while working on the fuel system.

Do not allow the fuel to soak into the soil!

3.6.46 Cooler cleaning

- Considering various working conditions, no regular cleaning interval can be specified.
- When working in a very dusty environment, carry out the cleaning daily. The cooler fouling results in reduced cooling effect and increased temperatures of the engine coolant and of the hydraulic oil.
- Remove the cover.
- Clean with compressed air or pressure water (steam). Clean in the direction from the fan side.

To avoid damage, do not use a too high pressure while cleaning the cooler.

When the cooler is contaminated by petroleum products, use a cleaning agent and proceed according to the manufacturer's instructions! Find out the cause of contamination!

Clean the machine in a workplace equipped with a catching system of cleaning agents to avoid contamination of the soil and water resources!

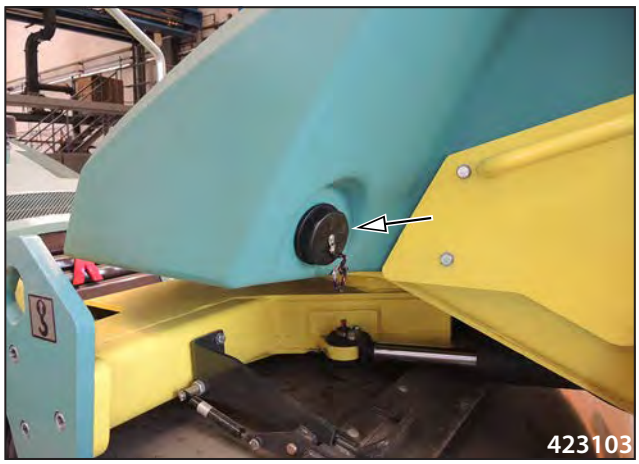
Do not use forbidden cleaning agents!

3.6.47 Draining water from the sprinkling circuit before the winter season

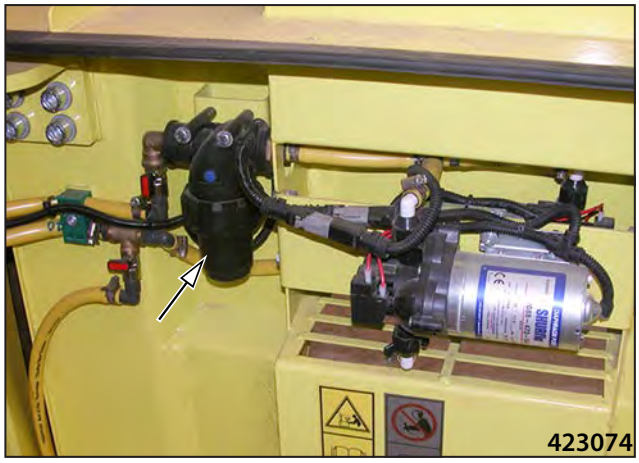
- Water must be drained from the sprinkling circuit before the winter season because the individual parts may get damaged due to frost.

Procedure for draining water from the sprinkling circuit

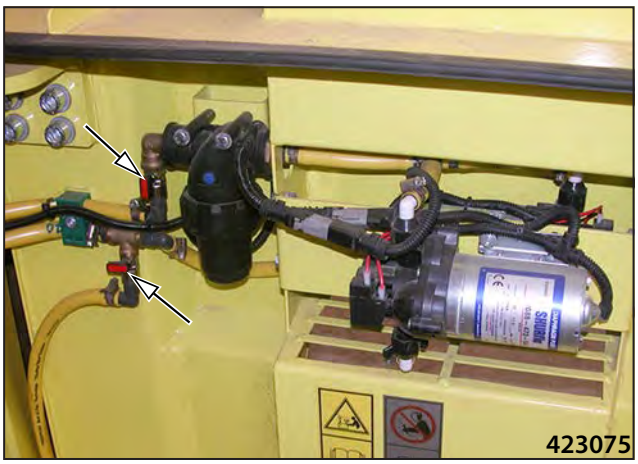
- Remove the drain plugs of the sprinkling water tanks. Keep the drain plug in a safe place.



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

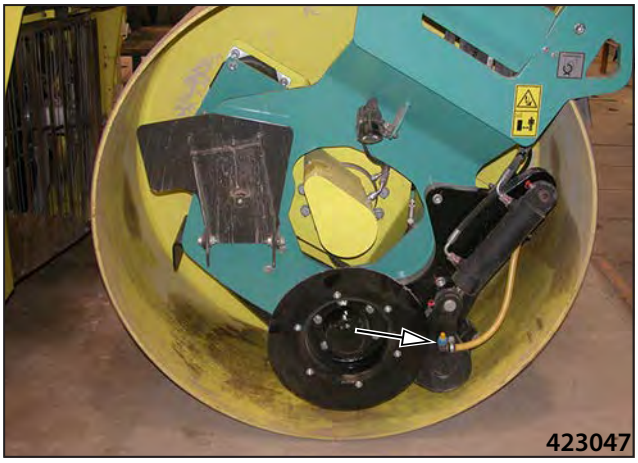


- Leave the valves open.



- Remove the piping with sprinklers on the front and rear drum. Keep in a safe place.
- Switch on the sprinkling pumps for 20 sec. to drain them.

- Remove and clean the strainer of the sprinkler of the edge cutter.
- This procedure will dewater the sprinkling circuit maximally.
- After completing all of the above mentioned operations, proceed in reverse order; at first clean thoroughly the individual parts.



Drain water in time from the sprinkling circuit to avoid any potential damage for which the manufacturer bears no responsibility!

Procedure for draining water from the interconnecting hose of the rear tank.

- Remove the interconnecting hose of the rear tank and drain water. Mount the lid back.

If the water is not drained from the interconnecting hose of the rear tank, there is a risk of damage to the water level sensor.

3.6.48 Scraper adjustment

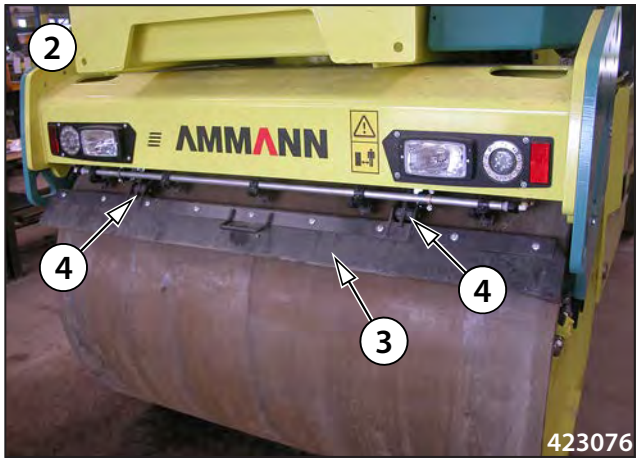
Hinged scrapers

- The machine is provided with four hinged scrapers.

Scraper setting:

- In position (1), the scraper is set in the transport position.

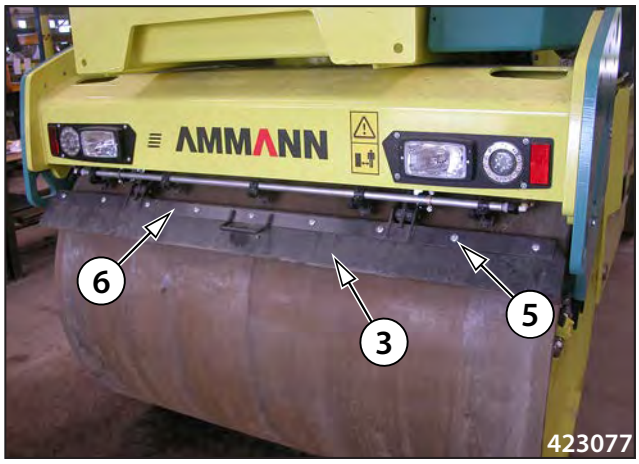
- In position (2), the scraper is set in the working position.
- In the working position, the scraper blade (3) is pushed by means of the gas struts (4) to the drum body.



Blade replacement:

- When there is excessive wear of the blade, adjust the scraper to the position (1), remove the bolts (5) and take off the blade (3) with the bar (6).
- When mounting the new blade, proceed in reverse order.
- At the same time, always check the gas struts for correct function.

Blade
Order number: 4-29060



Only the correct function of the gas struts and the timely replacement of the worn-out scraper blade will ensure perfect cleaning of the drum!

After replacing the blade, adjust the correct function of the scraper!

Hinged scrapers ARP 95C

The machine is provided with two hinged scrapers.

Scraper setting:

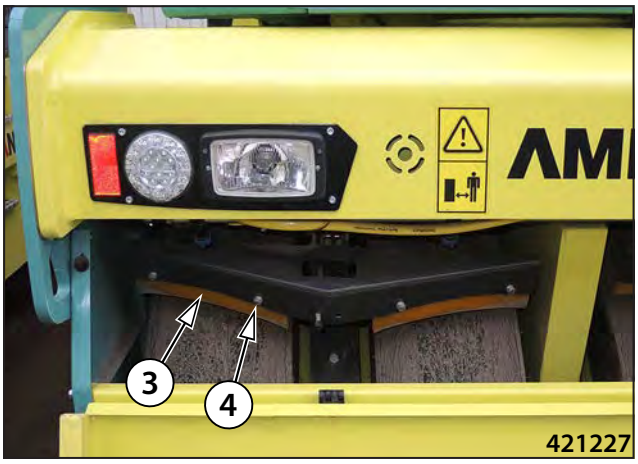
- In position (1), the scraper is set in the transport position.
- Set the scraper to the transport position by lifting up.

- In position (2), the scraper is set in the working position.
- When in working position, the scraper blade (3) is pressed against the tyre.
- Release the arresting button to set the scraper to the working position.

Blade replacement:

- When there is abnormal wear of the blade, adjust the scraper to the position (1), remove the screws (4) and take off the blade (3).
- When mounting the new blade, proceed in reverse order.

Blade
Order number: 4-28288



Only timely replacement of the worn scraper blade will ensure a perfect tyre cleaning!

After replacing the blade, adjust the correct function of the scraper!

3.6.49 Cleaning the machine

- Clean the machine from big impurities after completing the work.
- Clean the whole machine completely on regular basis, at least once a week. When working on cohesive soils, cement and lime stabilizations, clean the machine completely every day.

Disconnect the disconnector.

Clean with the engine stopped.

Do not use aggressive or easily ignitable cleaning agents (e.g. petrol and/or easily flammable substances).

Before cleaning with pressure water or steam, cover all holes, into which the cleaning agent could penetrate (e.g. intake opening of the engine). After completing the cleaning, remove the end caps.

Do not direct the running water or steam at the electric parts or insulation materials. Always cover such materials (interior of the alternator, etc.).

Clean the machine in a workplace equipped with a catching system of cleaning agents to avoid contamination of the soil and water resources!

Do not use forbidden cleaning agents!

3.6.50 Checking the screw connections for tightening

- Check regularly the screw connections for loosening.
- Use torque spanners for tightening.

	TIGHTENING TORQUE			
	For screws 8.8 (8G)		For screws 10.9 (10K)	
Thread	Nm	lb ft	Nm	lb ft
M6	10	7.4	14	10.3
M8	24	25.0	34	25.0
M8×1	19	14.0	27	19.9
M10	48	35.4	67	49.4
M10×1.25	38	28.0	54	39.8
M12	83	61.2	117	86.2
M12×1.25	66	48.7	94	69.3
M14	132	97.3	185	136.4
M14×1.5	106	78.2	148	109.1
M16	200	147.5	285	210.2
M16×1.5	160	118.0	228	168.1
M18	275	202.8	390	287.6
M18×1.5	220	162.2	312	230.1
M20	390	287.6	550	405.6
M20×1.5	312	230.1	440	324.5
M22	530	390.9	745	549.4
M22×1.5	425	313.4	590	435.1
M24	675	497.8	950	700.6
M24×2	540	398.2	760	560.5
M27	995	733.8	1400	1032.5
M27×2	795	586.3	1120	826.0
M30	1,350	995.7	1,900	1401.3
M30×2	1,080	796.5	1,520	1121.0

Values given in the table are tightening torques for dry threads (friction coefficient = 0.14). The values are not applicable to lubricated threads.

Table of tightening torques of cap nuts with sealing O-rings – hoses

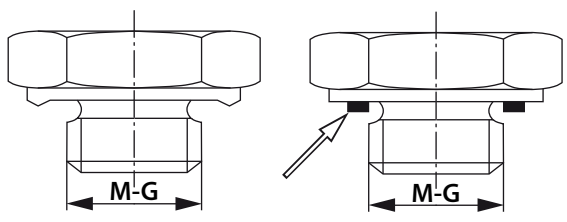
			Tightening torque values of cap nuts with O-rings – hoses					
			Nm			lb ft		
Spanner size	Thread	Pipe	Nominal	Min	Max	Nominal	Min	Max
14	12×1.5	6	20	15	25	15	11	18
17	14×1.5	8	38	30	45	28	22	33
19	16×1.5	8	45	38	52	33	28	38
		10						
22	18×1.5	10	51	43	58	38	32	43
		12						
24	20×1.5	12	58	50	65	43	37	48
27	22×1.5	14	74	60	88	55	44	65
		15						
30	24×1.5	16	74	60	88	55	44	65
32	26×1.5	18	105	85	125	77	63	92
36	30×2	20	135	115	155	100	85	114
		22						
41	36×2	25	166	140	192	122	103	142
46		28						
50	42×2	30	240	210	270	177	155	199
50	45×2	35	290	255	325	214	188	240
	52×2	38	330	280	380	243	207	280
		42						

Table of tightening torque values for necks with tightening edges or with flat gaskets

	Neck tightening torques	
G-M	**Nm**	**lb ft**
G 1/8	25	18
G 1/4	40	30
G 3/8	95	70
G 1/2	130	96
G 3/4	250	184
G 1	400	295
G 11/4	600	443
G 11/2	800	590
10×1	25	18
12×1.5	30	22
14×1.5	50	37
16×1.5	60	44
18×1.5	60	44
20×1.5	140	103
22×1.5	140	103
26×1.5	220	162
27×1.5	250	184
33×1.5	400	295
42×1.5	600	443
48×1.5	800	590

Table of tightening torques for plugs with flat gaskets

	Plug tightening torques	
G-M	**Nm**	**lb ft**
G 1/8	15	11
G 1/4	33	24
G 3/8	70	52
G 1/2	90	66
G 3/4	150	111
G 1	220	162
G 11/4	600	443
G 11/2	800	590
10×1	13	10
12×1.5	30	22
14×1.5	40	30
16×1.5	60	44
18×1.5	70	52
20×1.5	90	66
22×1.5	100	74
26×1.5	120	89
27×1.5	150	111
33×1.5	250	184
42×1.5	400	295
48×1.5	500	369



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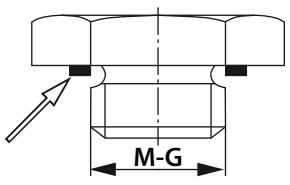

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3.6.51 Charging of the battery

- Only use chargers with an appropriate rated voltage. Check that the charger is strong enough to charge the battery not too strong to charge with excessive current.
- Read and observe the operating manual of the charger manufacturer.

- Check that the ventilation holes in the battery cover are not dirty or clogged and that gases can escape freely.
- Connect the positive terminal (+) of the battery to the positive terminal of the charger.
- Connect the negative terminal (-) of the battery to the negative terminal of the charger.
- Turn on the charger only after connecting the battery.
- Charge the battery with current corresponding to one tenth of the battery capacity.
- After charging, first turn off the charger and then disconnect the cables from the battery.

- The battery is fully charged, if:
  - electric current and voltage remain constant in the case of voltage-controlled chargers,
  - the charging voltage in the case of current-controlled chargers does not increase within two hours, the automatic charger turns off or switches to maintaining charge.

Use rubber gloves and eye protection devices when handling the battery.

Use suitable clothing to protect your skin against contact with the electrolyte.

After eye contact with the battery electrolyte, immediately flush the affected eye thoroughly with running water for several minutes. Then seek medical advice.

After ingestion of the electrolyte drink large quantities of milk, water or suspension of magnesium hydroxide in water.

In case of skin contact with electrolyte, remove your clothing and shoes, wash the affected skin immediately with soap and water or with solution of water and soda. Then seek medical advice.

Do not eat, drink and smoke while working!

After completing the work, wash your hands and face thoroughly with water and soap!

Do not check that a wire is live by touching the machine frame.

When working with the battery always follow instructions of the battery manufacturer!

Never charge a frozen battery or battery with a temperature above 45 °C.

Stop charging if the battery is hot or leaking acid.

Check that the ventilation holes in the battery cover are not dirty or clogged and that gases can escape freely. If the ventilation holes are clogged, gases can accumulate inside the battery and irreversibly damage it.

Never make direct conductive connection between both poles of the battery to avoid a short circuit and a risk of explosion of the battery.

Do not turn the battery upside down, the electrolyte can flow out.

If the electrolyte is spilled, wash the affected area with water and neutralize with lime.

Hand over the old inoperative battery for disposal.

3.6.52 Regeneration of the clogged SCR catalyst (Selective Catalytic Reduction)

During the SCR regeneration, the engine is operated in a special mode when the machine cannot be used.

During the SCR regeneration, crystals in the SCR catalyst dissolve.

The regeneration is fully controlled by the engine control unit and it is necessary to wait until the regeneration process is completed.

	Conditions for start of regeneration	Indication lamp of SCR catalyst clogging  AMN118	Engine failure indicator lamp  AMN47	Sound signal	Machine reactions
Normal operation	No need for regeneration	Off	no	no	No
Crystallisation detection	Machine at standstill and regeneration button	Flashing slowly 0.5 Hz	no	no	No
Crystallisation detection warning	Machine at standstill and regeneration button	Flashing slowly 0.5 Hz	Lighting	Yes	Engine output reduced by 25%
Crystallisation detection switch off	Machine idle and service tools required	Flashing rapidly 3 Hz	Flashing	Yes	Output reduced to 50% + max. engine speed reduced to 1,300 rpm.

Regeneration conditions:

- Park the machine in a safe area.
- The travel control level in the brake position
- Coolant temperature >70 °C
- Sufficient fuel volume – about 20 l (5.3 gal US)
- Sufficient DEF (AdBlue) volume – about 1 l (0.26 gal US).


AMN118

Start of regeneration:

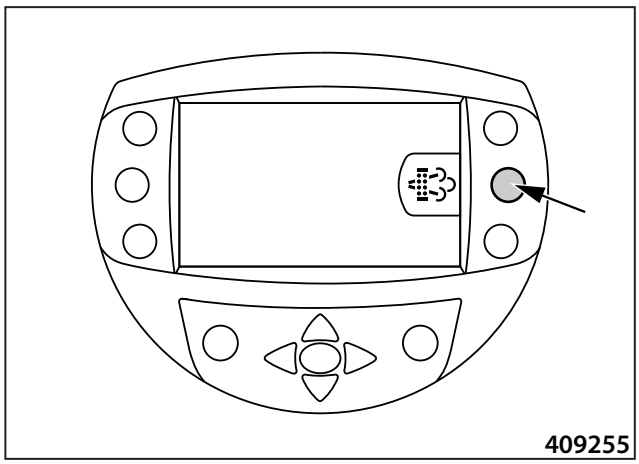
- Press the SCR catalyst regeneration button

Progress of regeneration:

- Automatic engine speed increase (about 1,800 rpm).
- Regeneration duration about 35 min.

End of regeneration:

- Automatic decrease of engine speed (about 1,000 rpm).
- Regeneration and warning indication lamp goes off.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3.6.53 DPF (Diesel Particulate Filter) regeneration

Passive regeneration

It runs automatically when the engine working conditions correspond to exhaust fume temperatures of about 350–500°C. These operating conditions correspond to the higher constant engine load (longer higher engine speed and load).

Active regeneration

It is required by the control unit of the engine when the resistance of the Diesel Particulate Filter is higher. The exhaust fume temperature is artificially increased to 600 °C – based on an engine injection timing change in combination with a higher fuel quantity.

Regeneration conditions:

- The travel control level in the brake position
- Coolant temperature >70 °C
- Service switch ON

Enable the DPF regeneration (Diesel Particulate Filter)

- Regeneration duration 10-30 min.
- The indicator lamp turns off after the regeneration is completed.

	CRT Level	Filter clogging	Conditions for start of regeneration	Regeneration mode	 AMN118 Regeneration indicator lamp	 AMN47 Engine indicator lamp	 AMN119 Cleaning indicator lamp	Engine/System responses (after exceeding the filter load)
-	Normal	<78	-	-	Off	Off	-	No
0	Heating mode	80	-	Heating mode	Off	Off	-	No
1	Request for regeneration	100	Machine at standstill and regeneration button	At standstill	Slow flashing (0.5 Hz)/101	Off	-	No
	Regeneration ON	-	Machine at standstill and regeneration button	At standstill	On	Off	-	No
2	Caution	125	Machine at standstill and regeneration button	At standstill	Fast flashing (1 Hz)/100	On	-	Output reduced by 30%
3	Stop	156	Machine at standstill and start via SERDIA	At standstill	Fast flashing (1 Hz)/101	Flashing	-	Output reduced by 30% + engine max. speed reduced to 1200 rpm
4	Filter replacement	187	Regeneration cannot be performed	Regeneration cannot be performed	Fast flashing (1 Hz)/102	Flashing	Permanently	Output reduced by 30% + engine max. speed reduced to 1200 rpm
	Caution	196	Regeneration cannot be performed	Regeneration cannot be performed	Fast flashing (1 Hz)/102	Flashing	Flashing	Output reduced by 30% + engine max. speed reduced to 1200 rpm

3.7 Troubleshooting

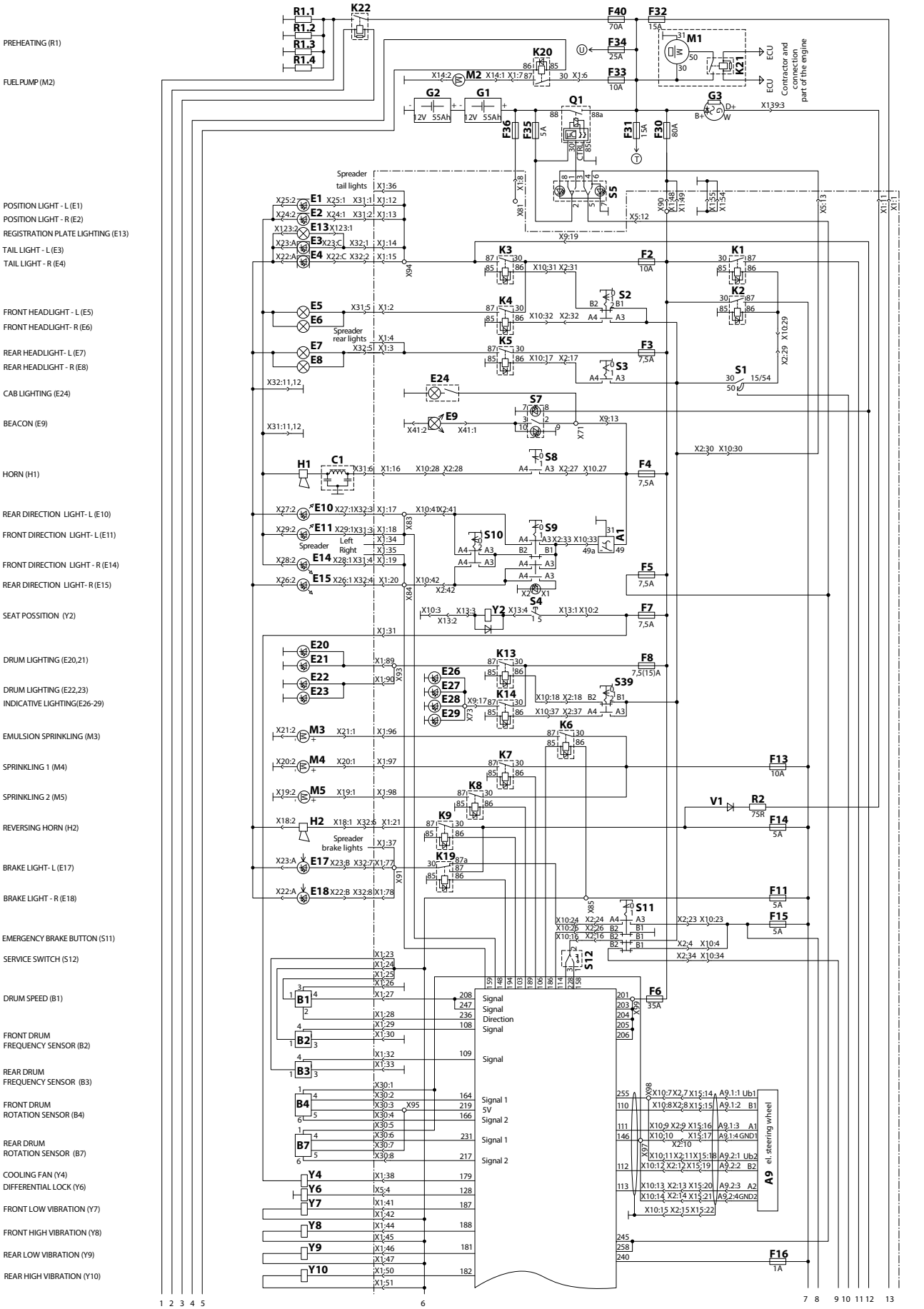
The defects are usually caused by incorrect operation of the machine. Therefore in case of any defect read carefully instructions given in the operation and maintenance manual for your machine and engine. If you cannot identify a cause of the defect, contact the service department of the authorised dealer or the manufacturer.

The troubleshooting in hydraulic and electric systems requires knowledge of hydraulic systems and electrical installations; therefore contact the service department of an authorised dealer or the manufacturer for troubleshooting.

Wiring diagram ARP 95

Legend:

A1 Turn signal light flasher
A2 Control unit Rexroth rc20-10/30
A3 IR thermometer
A4 Travel control lever
A5 Display
A6 Deutsch engine control unit
A7 Air-conditioning
A8 Time relay of rear window heating
A9 Electronic steering wheel
A10 Car radio 12V
A11 Front wiper intermittent
A12 Rear wiper intermittent
A13 Voltage converter 24/12V
A14 Voltage converter 24/12V Deutsch
A15 Relay box
B1 Drum speed sensor
B2 Front drum frequency sensor
B3 Rear drum frequency sensor
B4 Joint angle position sensor
B5 Inclinometer
B6 Fuel level gauge
B7 Rear tread rotation sensor
B8 Seat rotation sensor
B54 NOx sensor upstream of the SCR catalytic converter
B56 NOx sensor downstream of the SCR catalytic converter
B58 DPF differential pressure sensor
B65 Temperature of exhaust gases upstream of the oxy catalytic converter
B66 Temperature of exhaust gases downstream of the oxy catalytic converter
B78 Temperature of exhaust gases upstream of the SCR catalytic converter
B88 Pressure sensor downstream of the DPF module
B90 Urea sensor
C1 Noise suppressing filter
E1, E2Front parking lights
E3, E4Tail lights
E5, E6Front headlamps
E7, E8Rear headlights (on the cabin)
E9 Beacon
E10, E11 Left direction lights
E13 Licence plate lighting
E14, E15 Right direction lights
E17, E18 Brake lights
E20-E23 Drum lighting
E24 Cab lighting
E26-E29 Orientation lighting
E30-E33 Working headlights
F1 12V fuse for sockets
F2-8 Fuses – switchboard (in front of the key)
F11-28 Fuses – switchboard (after the key)
F30 Main fuse
F31 Fuses – on the machine (in front of the key)
F36 Memory power supply fuse
F40 Glowing fuse
G1, 2 Battery 55ah
G3 Alternator
H1 Horn
H2 Back signal horn
H3 Right loudspeaker
H4 Left loudspeaker
K1, 2 Power relay
K4-8, 20, 25, 26 Relay
K3, 9, 11, 13, 14, 19, 27-30 Micro relay
K22 Glowing contactor
M1 Starter
M2 Fuel pump
M3 Emulsion sprinkling
M4 Sprinkling 1
M5 Sprinkling 2
M6 Front windscreen wiper
M7 Rear windscreen wiper
M8 Front windscreen washer
M9 Rear windscreen washer
M10 Heating
Q1 Disconnecter
R1 Glowing
R2 Resistor 75 Ω
R4 Rear window heating
R7, 8, 9 Resistor 120Ω
R15 Suction circuit heating
R16 Return circuit heating
R17 Pressure circuit heating
S1 Ignition box
S2 Front headlamps switch
S3 Rear headlamps switch
S4 Switch for seat extension beyond the cab frame
S5 Electronic disconnect switch
S7 Beacon switch
S8 Horn switch
S9 Warning lights switch
S10 Direction lights switch
S11 STOP
S12 Service switch
S13 Hydraulic oil level gauge
S14 Pressure parking brake switch
S15 Hydraulic oil temperature switch
S16 Water tank level gauge
S17 Hydraulic oil filter pressure switch 1
S18 Hydraulic oil filter pressure switch 2
S19 Seat switch
S20 Vibration selector man./auto.
S21 Vibration selector low/high
S22 Vibration selector front/rear
S23 Steering mode selector front/rear
S24 Edge cutter selector
S25 Sprinkling selector
S26 Water sprinkling selector
S27 Emulsion sprinkling selector
S28 Seat rotation selector
S35 Air suction temperature
S36 Coolant level switch
S37 Air filter clogging pressure switch
S38 Water in fuel sensor
S39 Orientation lighting switch
S41 Front wiper switch
S42 Rear wiper switch
S43 Washer switch
S44 Heater fan switch
S45 Rear window heating switch
S46 Working lighting switch
S47 Air-conditioning overpressure safety element
S49 Fuel filter sensor
V Rectifier diodes
Y2 Electromagnet for seat extension beyond the cab frame
Y4 Cooling fan electromagnet
Y6 RTM differential lock
Y7 Front vibration electromagnet – low
Y8 Front vibration electromagnet – high
Y9 Rear vibration electromagnet – low
Y10 Rear vibration electromagnet – high
Y11 Travel electromagnet – reverse
Y12 Travel electromagnet – forward
Y13 Parking brake electromagnet
Y14 Left edge cutter selector electromagnet
Y15 Left edge cutter sprinkling electromagnet
Y16 Right edge cutter selector electromagnet
Y17 Right edge cutter sprinkling electromagnet
Y18 Edge cutter up electromagnet
Y19 Edge cutter down electromagnet
Y20 Edge cutter relief valve
Y23 Air-conditioning compressor coupling electromagnet
Y24 Front left steering solenoid
Y25 Front right steering solenoid
Y26 Rear left solenoid
Y27 Rear right solenoid
Y28 Urea tank heating
Y29 Urea dosing valve electromagnet
X34-35 Mounting sockets 12 V
X36 Engine diagnostic socket
X64 Diagnostic socket can1
X65 Diagnostic socket can2
X68 Diagnostic socket display


PREHEATING (R1)
FUEL PUMP (M2)
POSITION LIGHT - L (E1)
POSITION LIGHT - R (E2)
REGISTRATION PLATE LIGHTING (E13)
TAIL LIGHT - L (E3)
TAIL LIGHT - R (E4)
FRONT HEADLIGHT - L (E5)
FRONT HEADLIGHT- R (E6)
REAR HEADLIGHT- L (E7)
REAR HEADLIGHT - R (E8)
CAB LIGHTING (E24)
BEACON (E9)
HORN (H1)
REAR DIRECTION LIGHT- L (E10)
FRONT DIRECTION LIGHT- L (E11)
FRONT DIRECTION LIGHT - R (E14)
REAR DIRECTION LIGHT- R (E15)
SEAT POSSITION (Y2)
DRUM LIGHTING (E20,21)
DRUM LIGHTING (E22,23)
INDICATIVE LIGHTING(E26-29)
EMULSION SPRINKLING (M3)
SPRINKLING 1 (M4)
SPRINKLING 2 (M5)
REVERSING HORN (H2)
BRAKE LIGHT- L (E17)
BRAKE LIGHT - R (E18)
EMERGENCY BRAKE BUTTON (S11)
SERVICE SWITCH (S12)
DRUM SPEED (B1)
FRONT DRUM FREQUENCY SENSOR (B2)
REAR DRUM FREQUENCY SENSOR (B3)
FRONT DRUM ROTATION SENSOR (B4)
REAR DRUM ROTATION SENSOR (B7)
COOLING FAN (Y4)
DIFFERENTIAL LOCK (Y6)
FRONT LOW VIBRATION (Y7)
FRONT HIGH VIBRATION (Y8)
REAR LOW VIBRATION (Y9)
REAR HIGH VIBRATION (Y10)
Spreader tail lights
Spreader rear lights
Spreader brake lights
Left
Right
Signal
Signal Direction
Signal 1
5V
Signal 2
el. steering wheel
ECU
Contractor and connection part of the engine
1 2 3 4 5
6
7 8 9 10 11 12 13

108058B_1en

Wiring diagram ARP 95

Legend:

A1 Turn signal light flasher
A2 Control unit Rexroth rc20-10/30
A3 IR thermometer
A4 Travel control lever
A5 Display
A6 Deutsch engine control unit
A7 Air-conditioning
A8 Time relay of rear window heating
A9 Electronic steering wheel
A10 Car radio 12V
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A14 Voltage converter 24/12V Deutsch
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B1 Drum speed sensor
B2 Front drum frequency sensor
B3 Rear drum frequency sensor
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B5 Inclinometer
B6 Fuel level gauge
B7 Rear tread rotation sensor
B8 Seat rotation sensor
B54 NOx sensor upstream of the SCR catalytic converter
B56 NOx sensor downstream of the SCR catalytic converter
B58 DPF differential pressure sensor
B65 Temperature of exhaust gases upstream of the oxy catalytic converter
B66 Temperature of exhaust gases downstream of the oxy catalytic converter
B78 Temperature of exhaust gases upstream of the SCR catalytic converter
B88 Pressure sensor downstream of the DPF module
B90 Urea sensor
C1 Noise suppressing filter
E1, E2Front parking lights
E3, E4Tail lights
E5, E6Front headlamps
E7, E8Rear headlights (on the cabin)
E9 Beacon
E10, E11 Left direction lights
E13 Licence plate lighting
E14, E15 Right direction lights
E17, E18 Brake lights
E20-E23 Drum lighting
E24 Cab lighting
E26-E29 Orientation lighting
E30-E33 Working headlights
F1 12V fuse for sockets
F2-8 Fuses – switchboard (in front of the key)
F11-28 Fuses – switchboard (after the key)
F30 Main fuse
F31 Fuses – on the machine (in front of the key)
F36 Memory power supply fuse
F40 Glowing fuse
G1, 2 Battery 55ah
G3 Alternator
H1 Horn
H2 Back signal horn
H3 Right loudspeaker
H4 Left loudspeaker
K1, 2 Power relay
K4-8, 20, 25, 26 Relay
K3, 9, 11, 13, 14, 19, 27-30 Micro relay
K22 Glowing contactor
M1 Starter
M2 Fuel pump
M3 Emulsion sprinkling
M4 Sprinkling 1
M5 Sprinkling 2
M6 Front windscreen wiper
M7 Rear windscreen wiper
M8 Front windscreen washer
M9 Rear windscreen washer
M10 Heating
Q1 Disconnecter
R1 Glowing
R2 Resistor 75 Ω
R4 Rear window heating
R7, 8, 9 Resistor 120Ω
R15 Suction circuit heating
R16 Return circuit heating
R17 Pressure circuit heating
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S7 Beacon switch
S8 Horn switch
S9 Warning lights switch
S10 Direction lights switch
S11 STOP
S12 Service switch
S13 Hydraulic oil level gauge
S14 Pressure parking brake switch
S15 Hydraulic oil temperature switch
S16 Water tank level gauge
S17 Hydraulic oil filter pressure switch 1
S18 Hydraulic oil filter pressure switch 2
S19 Seat switch
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S21 Vibration selector low/high
S22 Vibration selector front/rear
S23 Steering mode selector front/rear
S24 Edge cutter selector
S25 Sprinkling selector
S26 Water sprinkling selector
S27 Emulsion sprinkling selector
S28 Seat rotation selector
S35 Air suction temperature
S36 Coolant level switch
S37 Air filter clogging pressure switch
S38 Water in fuel sensor
S39 Orientation lighting switch
S41 Front wiper switch
S42 Rear wiper switch
S43 Washer switch
S44 Heater fan switch
S45 Rear window heating switch
S46 Working lighting switch
S47 Air-conditioning overpressure safety element
S49 Fuel filter sensor
V Rectifier diodes
Y2 Electromagnet for seat extension beyond the cab frame
Y4 Cooling fan electromagnet
Y6 RTM differential lock
Y7 Front vibration electromagnet – low
Y8 Front vibration electromagnet – high
Y9 Rear vibration electromagnet – low
Y10 Rear vibration electromagnet – high
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Y12 Travel electromagnet – forward
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Y14 Left edge cutter selector electromagnet
Y15 Left edge cutter sprinkling electromagnet
Y16 Right edge cutter selector electromagnet
Y17 Right edge cutter sprinkling electromagnet
Y18 Edge cutter up electromagnet
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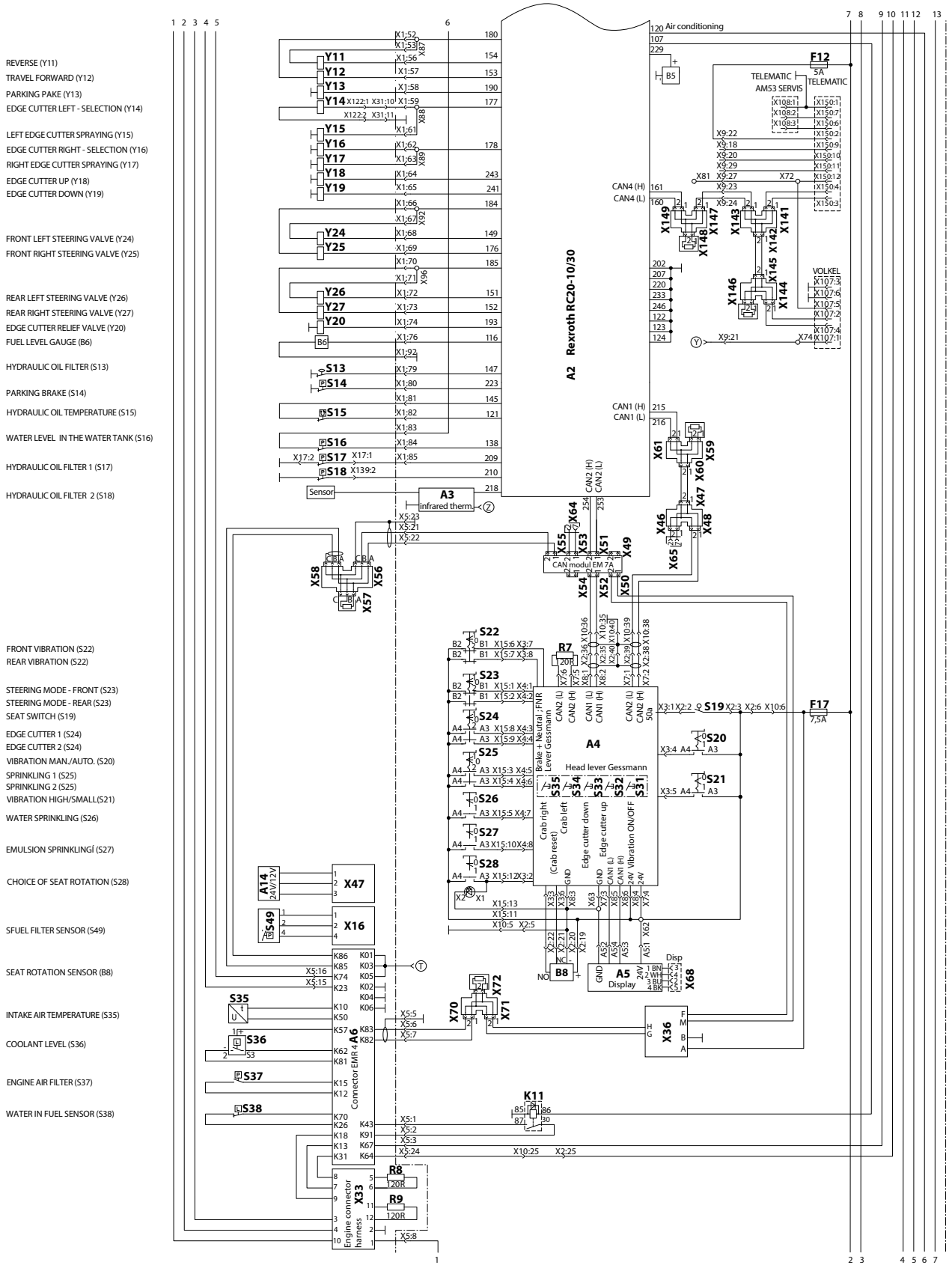
Y26 Rear left solenoid
Y27 Rear right solenoid
Y28 Urea tank heating
Y29 Urea dosing valve electromagnet
X34-35 Mounting sockets 12 V
X36 Engine diagnostic socket
X64 Diagnostic socket can1
X65 Diagnostic socket can2
X68 Diagnostic socket display


REVERSE (Y11)
TRAVEL FORWARD (Y12)
PARKING PAKE (Y13)
EDGE CUTTER LEFT - SELECTION (Y14)
LEFT EDGE CUTTER SPRAYING (Y15)
EDGE CUTTER RIGHT - SELECTION (Y16)
RIGHT EDGE CUTTER SPRAYING (Y17)
EDGE CUTTER UP (Y18)
EDGE CUTTER DOWN (Y19)
FRONT LEFT STEERING VALVE (Y24)
FRONT RIGHT STEERING VALVE (Y25)
REAR LEFT STEERING VALVE (Y26)
REAR RIGHT STEERING VALVE (Y27)
EDGE CUTTER RELIEF VALVE (Y20)
FUEL LEVEL GAUGE (B6)
HYDRAULIC OIL FILTER (S13)
PARKING BRAKE (S14)
HYDRAULIC OIL TEMPERATURE (S15)
WATER LEVEL IN THE WATER TANK (S16)
HYDRAULIC OIL FILTER 1 (S17)
HYDRAULIC OIL FILTER 2 (S18)
FRONT VIBRATION (S22)
REAR VIBRATION (S22)
STEERING MODE - FRONT (S23)
STEERING MODE - REAR (S23)
SEAT SWITCH (S19)
EDGE CUTTER 1 (S24)
EDGE CUTTER 2 (S24)
VIBRATION MAN./AUTO. (S20)
SPRINKLING 1 (S25)
SPRINKLING 2 (S25)
VIBRATION HIGH/SMALL(S21)
WATER SPRINKLING (S26)
EMULSION SPRINKLINGÍ (S27)
CHOICE OF SEAT ROTATION (S28)
SFUEL FILTER SENSOR (S49)
SEAT ROTATION SENSOR (B8)
INTAKE AIR TEMPERATURE (S35)
COOLANT LEVEL (S36)
ENGINE AIR FILTER (S37)
WATER IN FUEL SENSOR (S38)
A2 Rexroth RC20-10/30
A3 infrared therm
A4
A5 Display
A6 Connector EMR 4
Engine connector harness X33
Head lever Gessmann
Brake + Neutral ; FNR Lever Gessmann
Crab right (Crab reset)
Crab left
Edge cutter down
Edge cutter up
Vibration ON/OFF
Air conditioning
TELEMATIC AM53 SERVIS
VOLKEL
CAN modul EM 7A
CAN4 (H)
CAN4 (L)
CAN1 (H)
CAN1 (L)
CAN2 (H)
CAN2 (L)

108058B_2en

Wiring diagram ARP 95

Legend:

A1 Turn signal light flasher
A2 Control unit Rexroth rc20-10/30
A3 IR thermometer
A4 Travel control lever
A5 Display
A6 Deutsch engine control unit
A7 Air-conditioning
A8 Time relay of rear window heating
A9 Electronic steering wheel
A10 Car radio 12V
A11 Front wiper intermittent
A12 Rear wiper intermittent
A13 Voltage converter 24/12V
A14 Voltage converter 24/12V Deutsch
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B2 Front drum frequency sensor
B3 Rear drum frequency sensor
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G1, 2 Battery 55ah
G3 Alternator
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H2 Back signal horn
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H4 Left loudspeaker
K1, 2 Power relay
K4-8, 20, 25, 26 Relay
K3, 9, 11, 13, 14, 19, 27-30 Micro relay
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M2 Fuel pump
M3 Emulsion sprinkling
M4 Sprinkling 1
M5 Sprinkling 2
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M7 Rear windscreen wiper
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M9 Rear windscreen washer
M10 Heating
Q1 Disconnecter
R1 Glowing
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S14 Pressure parking brake switch
S15 Hydraulic oil temperature switch
S16 Water tank level gauge
S17 Hydraulic oil filter pressure switch 1
S18 Hydraulic oil filter pressure switch 2
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S21 Vibration selector low/high
S22 Vibration selector front/rear
S23 Steering mode selector front/rear
S24 Edge cutter selector
S25 Sprinkling selector
S26 Water sprinkling selector
S27 Emulsion sprinkling selector
S28 Seat rotation selector
S35 Air suction temperature
S36 Coolant level switch
S37 Air filter clogging pressure switch
S38 Water in fuel sensor
S39 Orientation lighting switch
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S49 Fuel filter sensor
V Rectifier diodes
Y2 Electromagnet for seat extension beyond the cab frame
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Y7 Front vibration electromagnet – low
Y8 Front vibration electromagnet – high
Y9 Rear vibration electromagnet – low
Y10 Rear vibration electromagnet – high
Y11 Travel electromagnet – reverse
Y12 Travel electromagnet – forward
Y13 Parking brake electromagnet
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Y15 Left edge cutter sprinkling electromagnet
Y16 Right edge cutter selector electromagnet
Y17 Right edge cutter sprinkling electromagnet
Y18 Edge cutter up electromagnet
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Y20 Edge cutter relief valve
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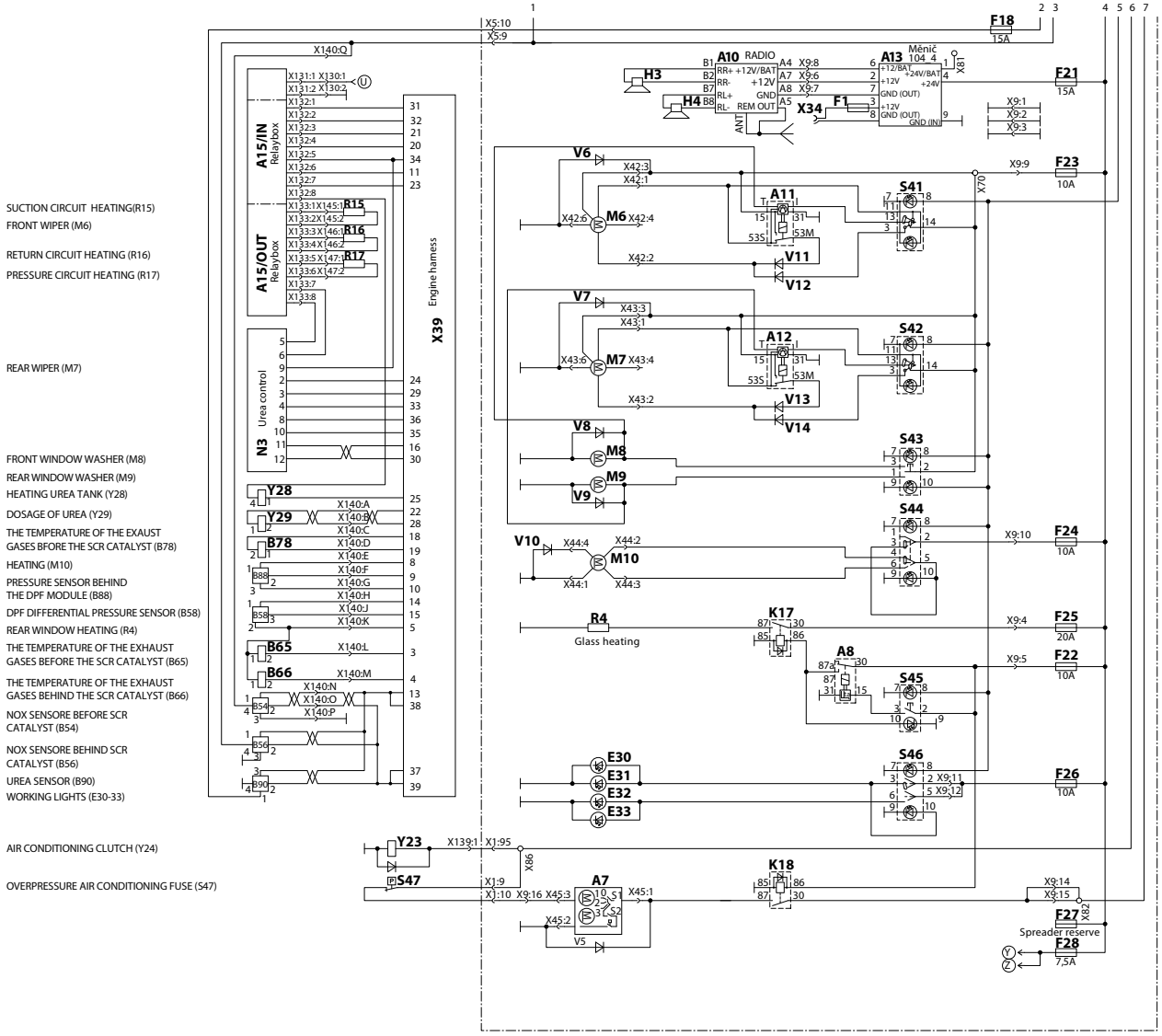
Y26 Rear left solenoid
Y27 Rear right solenoid
Y28 Urea tank heating
Y29 Urea dosing valve electromagnet
X34-35 Mounting sockets 12 V
X36 Engine diagnostic socket
X64 Diagnostic socket can1
X65 Diagnostic socket can2
X68 Diagnostic socket display


SUCTION CIRCUIT HEATING(R15)
FRONT WIPER (M6)
RETURN CIRCUIT HEATING (R16)
PRESSURE CIRCUIT HEATING (R17)
REAR WIPER (M7)
FRONT WINDOW WASHER (M8)
REAR WINDOW WASHER (M9)
HEATING UREA TANK (Y28)
DOSAGE OF UREA (Y29)
THE TEMPERATURE OF THE EXAUST GASES BFORE THE SCR CATALYST (B78)
HEATING (M10)
PRESSURE SENSOR BEHIND THE DPF MODULE (B88)
DPF DIFFERENTIAL PRESSURE SENSOR (B58)
REAR WINDOW HEATING (R4)
THE TEMPERATURE OF THE EXHAUST GASES BEFORE THE SCR CATALYST (B65)
THE TEMPERATURE OF THE EXHAUST GASES BEHIND THE SCR CATALYST (B66)
NOX SENSORE BEFORE SCR CATALYST (B54)
NOX SENSORE BEHIND SCR CATALYST (B56)
UREA SENSOR (B90)
WORKING LIGHTS (E30-33)
AIR CONDITIONING CLUTCH (Y24)
OVERPRESSURE AIR CONDITIONING FUSE (S47)
A15/IN Relaybox
A15/OUT Relaybox
N3 Urea control
X39 Engine harness
A10 RADIO
A13 Měnič
H3
H4
X34
F1
F18 15A
F21 15A
F23 10A
F24 10A
F25 20A
F22 10A
F26 10A
F27 Spreader reserve
F28 7,5A
A11
A12
S41
S42
S43
S44
S45
S46
V6
V7
V8
V9
V10
V11
V12
V13
V14
M6
M7
M8
M9
M10
R4 Glass heating
K17
K18
A8
A7
E30
E31
E32
E33
Y23
S47
Y28
Y29
B78
B88
B58
B65
B66
B54
B56
B90

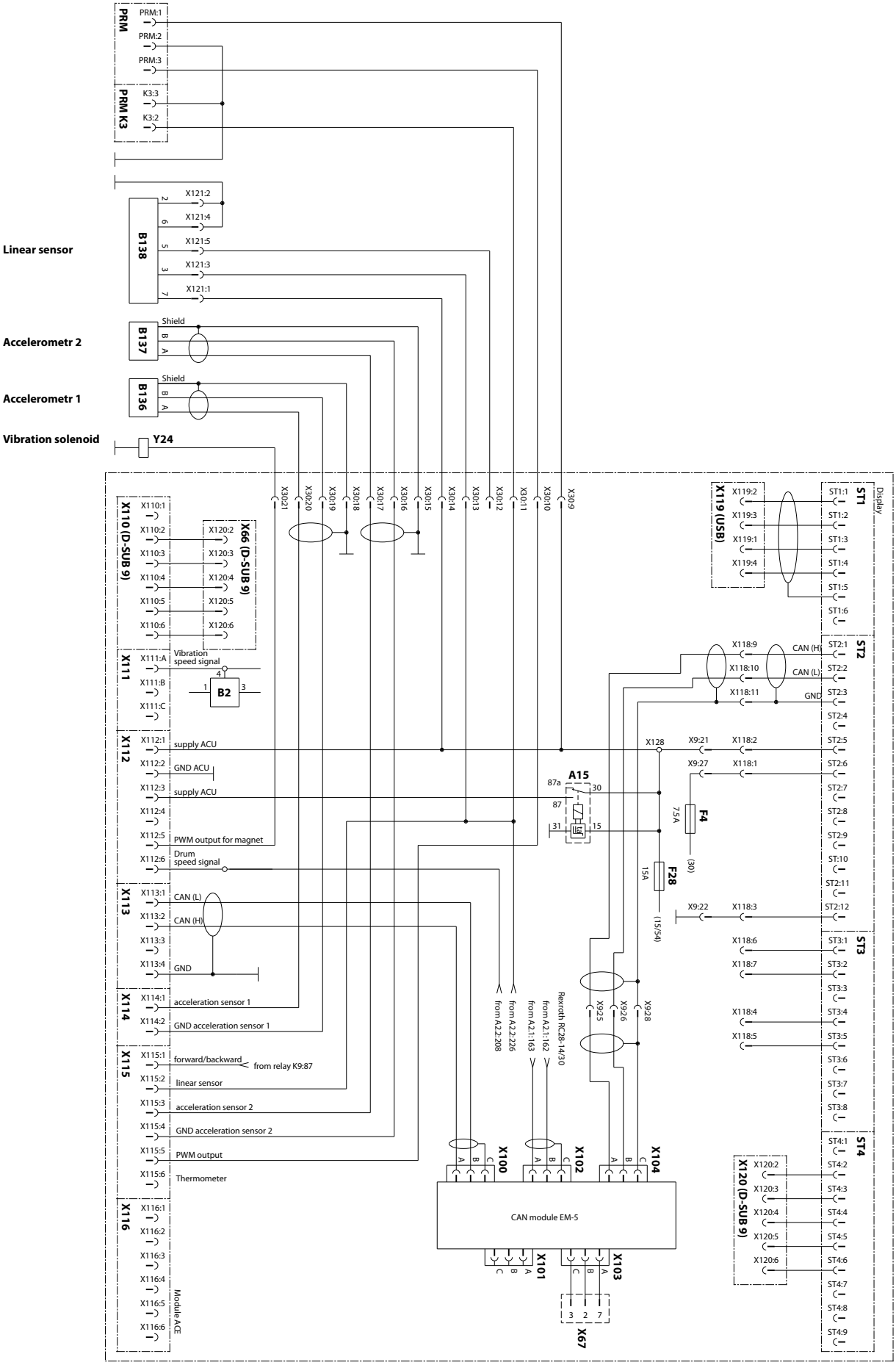
108058B_3en

3.8 Appendices

Wiring diagram ARP 95 ACE

Legend:

A15	Time relay
B2	Front drum frequency sensor
B136	Accelerometer 1
B137	Accelerometer 2
B138	Linear sensor
F4, F28	Fuses
Y24	Vibration electromagnet


PRM
PRM:1
PRM:2
PRM:3
PRM K3
K3:3
K3:2
Linear sensor
B138
X121:2
X121:4
X121:5
X121:3
X121:1
Accelerometr 2
B137
Shield
Accelerometr 1
B136
Vibration solenoid
Y24
X30:21
X30:20
X30:19
X30:18
X30:17
X30:16
X30:15
X30:14
X30:13
X30:12
X30:11
X30:10
X30:9
X110 (D-SUB 9)
X110:1
X110:2
X110:3
X110:4
X110:5
X110:6
X66 (D-SUB 9)
X120:2
X120:3
X120:4
X120:5
X120:6
X111
X111:A
X111:B
X111:C
Vibration speed signal
B2
X112
X112:1
supply ACU
X112:2
GND ACU
X112:3
supply ACU
X112:4
X112:5
PWM output for magnet
X112:6
Drum speed signal
X113
X113:1
CAN (L)
X113:2
CAN (H)
X113:3
X113:4
GND
X114
X114:1
acceleration sensor 1
X114:2
GND acceleration sensor 1
X115
X115:1
forward/backward
from relay K9:87
X115:2
linear sensor
X115:3
acceleration sensor 2
X115:4
GND acceleration sensor 2
X115:5
PWM output
X115:6
Thermometer
X116
X116:1
X116:2
X116:3
X116:4
X116:5
X116:6
Module ACE
A15
87a
30
87
31
15
F4
7.5A
F28
15A
(30)
(15/54)
X128
X9:21
X9:27
X9:22
X118:2
X118:1
X118:3
X118:9
X118:10
X118:11
CAN (H)
CAN (L)
GND
X119 (USB)
X119:2
X119:3
X119:1
X119:4
ST1
ST2
ST3
ST4
Display
ST1:1
ST1:2
ST1:3
ST1:4
ST1:5
ST1:6
ST2:1
ST2:2
ST2:3
ST2:4
ST2:5
ST2:6
ST2:7
ST2:8
ST2:9
ST:10
ST2:11
ST2:12
ST3:1
ST3:2
ST3:3
ST3:4
ST3:5
ST3:6
ST3:7
ST3:8
ST4:1
ST4:2
ST4:3
ST4:4
ST4:5
ST4:6
ST4:7
ST4:8
ST4:9
X118:6
X118:7
X118:4
X118:5
X9:25
X9:26
X9:28
Rexroth RC28-14/30
from A2.1:162
from A2.1:163
from A2.2:226
from A2.2:208
X100
X102
X104
CAN module EM-5
X101
X103
X67
3 2 7
X120 (D-SUB 9)
X120:2
X120:3
X120:4
X120:5
X120:6

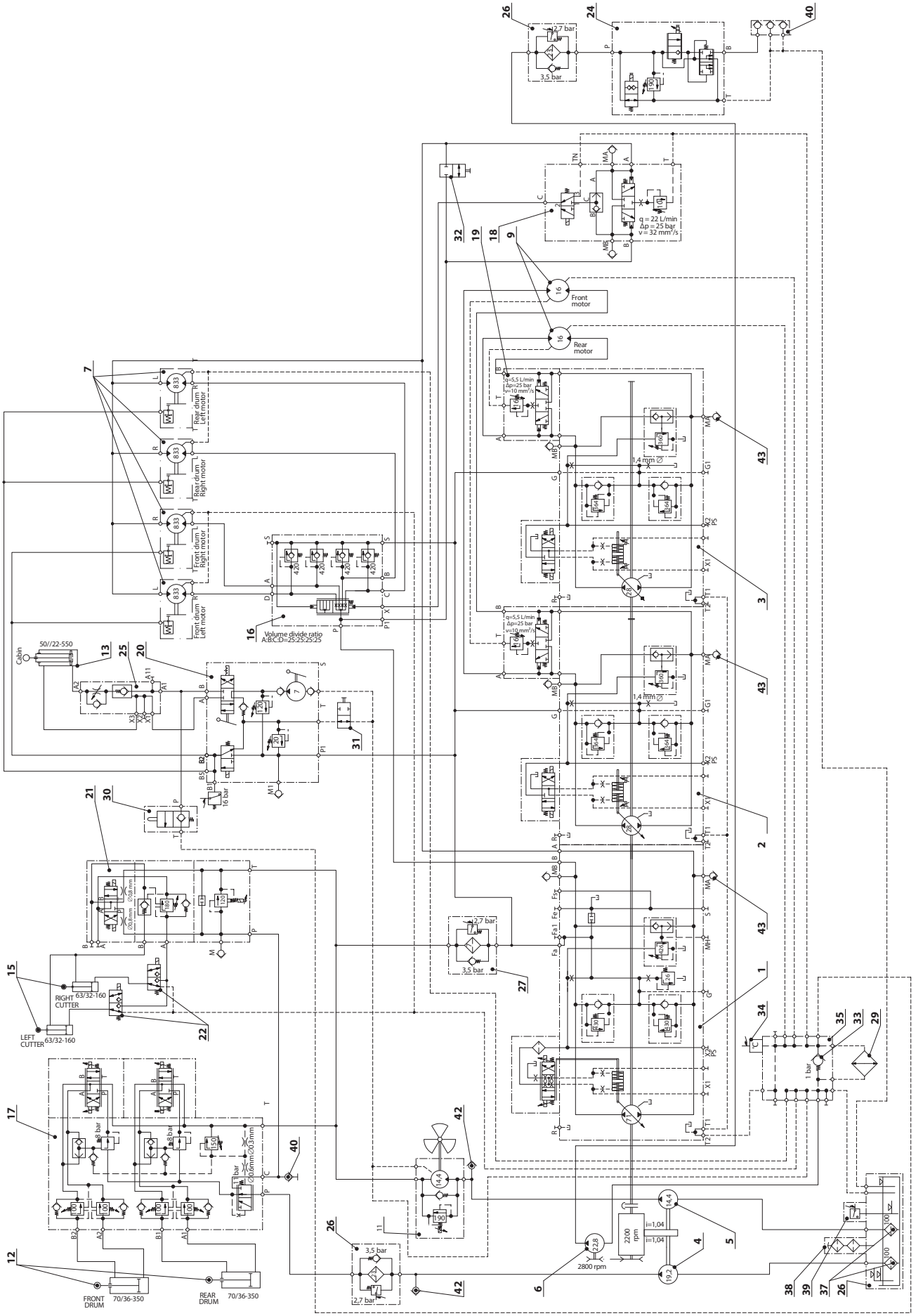
325319en

3.8 Appendices

Hydraulic system diagram ARP 95

Legend:

1 Travel pump
2 Vibration pump
3 Vibration pump
4 Steering pump + ACE
5 Cooling pump
6 Spreader pump
7 Drum travel hydraulic motor
9 Vibration hydraulic motor
11 Cooling hydraulic motor
12 Steering hydraulic motor
13 Cab lifting hydraulic motor
14 ACE control hydraulic motor
15 Edge cutter hydraulic motor
16 Flow divider
17 Steering block
18 Flushing block and RTM control
19 Flushing block
20 Brake and lifting block
21 Edge cutter block
22 Edge cutter switching block
24 Spreader block
25 Hydraulic lock
26 Hydraulic filter
27 Hydraulic filter
28 Hydraulic filter
29 Cooler
30 Pressure-relief valve
31 Ball valve
32 Ball valve
33 One-way valve (check valve)
34 Hydraulic oil temperature sensor
35 Leak cube
36 Hydraulic tank
37 Suction basket
38 Filling neck
39 Level indicator
40 Quick-coupling
41 Filling quick-coupling
42 Measuring quick-coupling
43 Measuring quick-coupling


Front motor
Rear motor
Rear drum Left motor
Rear drum Right motor
Front drum Right motor
Front drum Left motor
Volume divide ratio A:B;C:D=25:25:25:25
Cabin
RIGHT CUTTER
LEFT CUTTER
FRONT DRUM
REAR DRUM
70/36-350
63/32-160
2,7 bar
3,5 bar
16 bar
1,4 mm
2800 rpm
2200 rpm
i=1,04

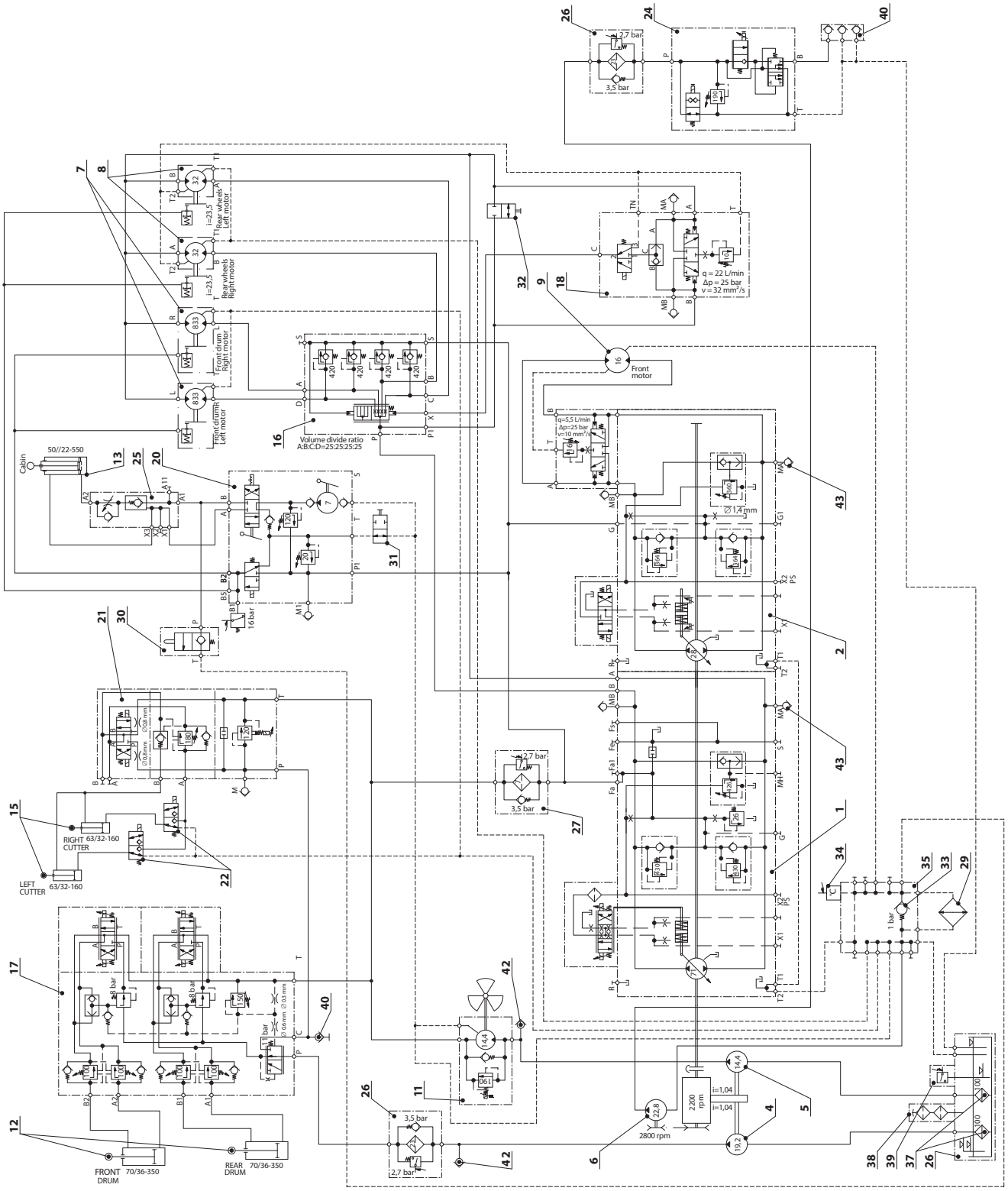
38124

3.8 Appendices

Hydraulic system diagram ARP 95C

Legend:

1 Travel pump
2 Vibration pump
4 Steering pump
5 Cooling pump
6 Spreader pump
7 Drum travel hydraulic motor
8 Tyre axle hydraulic motor
9 Vibration hydraulic motor
11 Cooling hydraulic motor
12 Steering hydraulic motor
13 Cab lifting hydraulic motor
15 Edge cutter hydraulic motor
16 Flow divider
17 Steering block
18 Flushing block and RTM control
20 Brake and lifting block
21 Edge cutter block
22 Edge cutter switching block
24 Spreader block
25 Hydraulic lock
26 Hydraulic filter
27 Hydraulic filter
29 Cooler
30 Pressure-relief valve
31 Ball valve
32 Ball valve
33 One-way valve (check valve)
34 Hydraulic oil temperature sensor
35 Leak cube
36 Hydraulic tank
37 Suction basket
38 Filling neck
39 Level indicator
40 Quick-coupling
41 Filling quick-coupling
42 Measuring quick-coupling
43 Measuring quick-coupling


Rear wheels Left motor
Rear wheels Right motor
Front drum Right motor
Front drum Left motor
Front motor
Volume divide ratio A:B:C:D=25:25:25:25
Cabin
50//22-550
RIGHT CUTTER 63/32-160
LEFT CUTTER 63/32-160
FRONT DRUM 70/36-350
REAR DRUM 70/36-350
2,7 bar
3,5 bar
16 bar
1 bar
2800 rpm
2200 rpm
i=1,04
i=23,5
q = 22 L/min
Δp = 25 bar
v = 32 mm²/s
q=5,5 L/min
Δp=25 bar
v=10 mm²/s

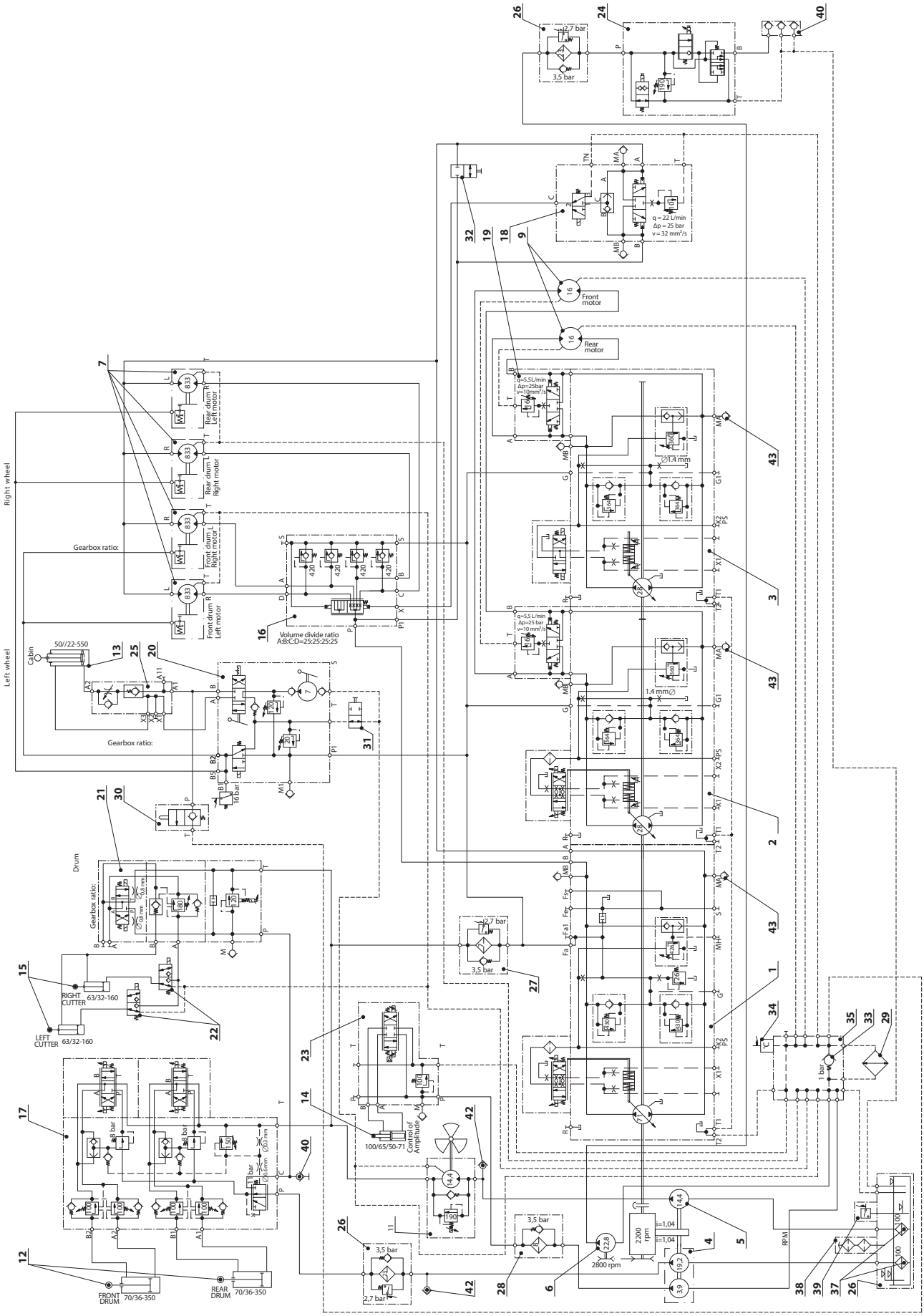
38131

3.8 Appendices

Hydraulic system diagram ARP 95 ACE

Legend:

1 Travel pump
2 Vibration pump
3 Vibration pump
4 Steering pump & ACE
5 Cooling pump
6 Spreader pump
7 Drum travel hydraulic motor
9 Vibration hydraulic motor
11 Cooling hydraulic motor
12 Steering hydraulic motor
13 Cab lifting hydraulic motor
14 ACE control hydraulic motor
15 Edge cutter hydraulic motor
16 Flow divider
17 Steering block
18 Flushing block and RTM control
19 Flushing block
20 Brake and lifting block
21 Edge cutter block
22 Edge cutter switching block
23 ACE control block
24 Spreader block
25 Hydraulic lock
26 Hydraulic filter
27 Hydraulic filter
28 Hydraulic filter
29 Cooler
30 Pressure-relief valve
31 Ball valve
32 Ball valve
33 One-way valve (check valve)
34 Hydraulic oil temperature sensor
35 Leak cube
36 Hydraulic tank
37 Suction basket
38 Filling neck
39 Level indicator
40 Quick-coupling
41 Filling quick-coupling
42 Measuring quick-coupling
43 Measuring quick-coupling


Front motor
Rear motor
Right wheel
Left wheel
Gearbox ratio:
Volume divide ratio
A:B:C:D=25:25:25:25
Cabin
50//22-550
Drum
RIGHT CUTTER 63/32-160
LEFT CUTTER 63/32-160
FRONT DRUM 70/36-350
REAR DRUM 70/36-350
100/65/50-71
Control of Amplitude
2,7 bar
3,5 bar
16 bar
1 bar
2200 rpm
2800 rpm
RPM
i=1,04
q = 22 L/min
Δp = 25 bar
v = 32 mm²/s
q=5,5L/min
Δp=25bar
v=10mm²/s
q=5,5 L/min
Δp=25 bar
v=10 mm²/s
1.4 mm
Rear drum Left motor
Rear drum Right motor
Front drum Right motor
Front drum Left motor

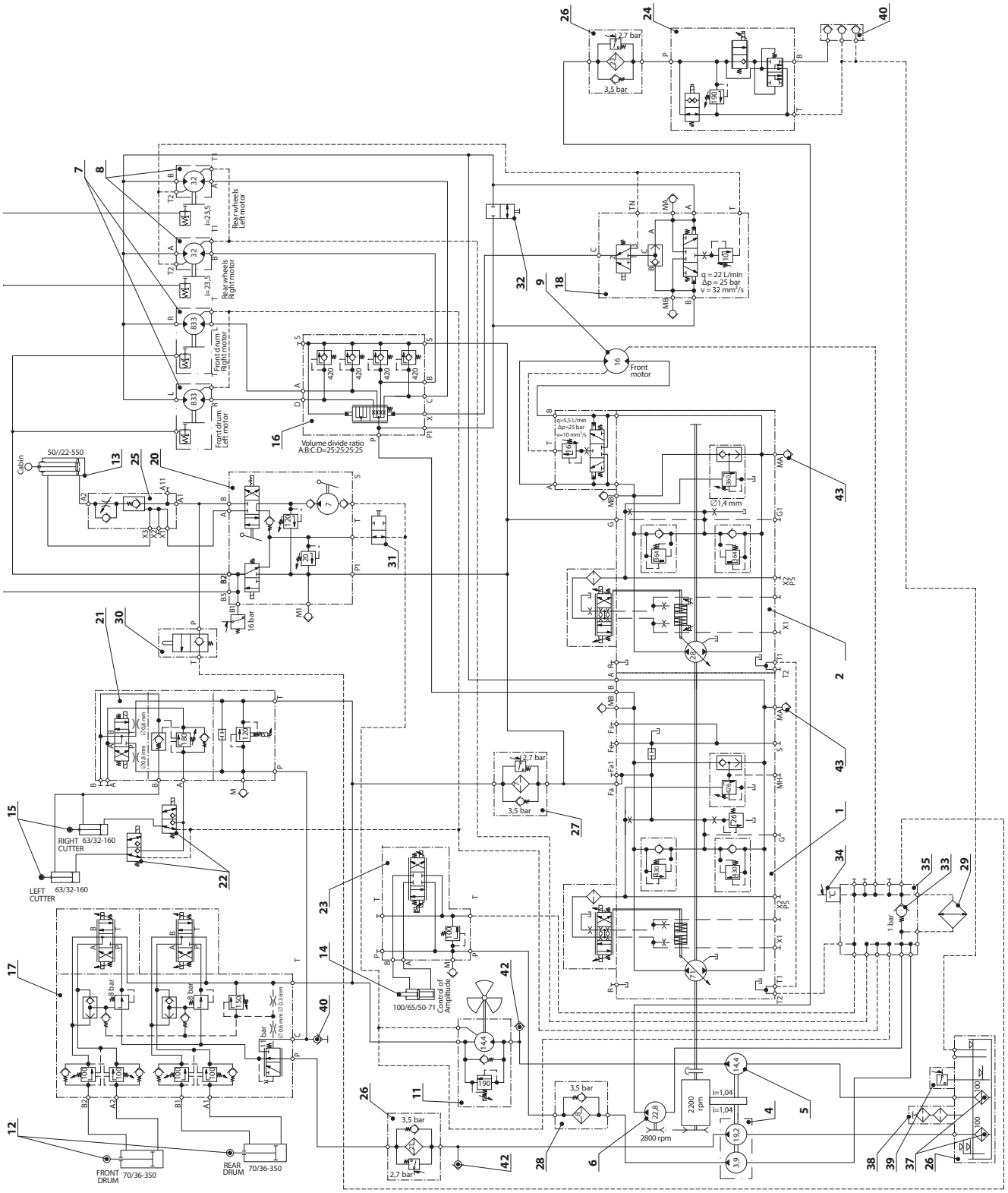
38123

3.8 Appendices

Hydraulic system diagram ARP 95C ACE

Legend:

1 Travel pump
2 Vibration pump
4 Steering pump & ACE
5 Cooling pump
6 Spreader pump
7 Drum travel hydraulic motor
8 Tyre axle hydraulic motor
9 Vibration hydraulic motor
11 Cooling hydraulic motor
12 Steering hydraulic motor
13 Cab lifting hydraulic motor
14 ACE control hydraulic motor
15 Edge cutter hydraulic motor
16 Flow divider
17 Steering block
18 Flushing block and RTM control
20 Brake and lifting block
21 Edge cutter block
22 Edge cutter switching block
23 ACE control block
24 Spreader block
25 Hydraulic lock
26 Hydraulic filter
27 Hydraulic filter
28 Hydraulic filter
29 Cooler
30 Pressure-relief valve
31 Ball valve
32 Ball valve
33 One-way valve (check valve)
34 Hydraulic oil temperature sensor
35 Leak cube
36 Hydraulic tank
37 Suction basket
38 Filling neck
39 Level indicator
40 Quick-coupling
41 Filling quick-coupling
42 Measuring quick-coupling
43 Measuring quick-coupling


Rear wheels Left motor
Rear wheels Right motor
Front drum Right motor
Front drum Left motor
Front motor
Volume divide ratio A:B:C:D=25:25:25:25
Cabin
50//22-550
RIGHT CUTTER 63/32-160
LEFT CUTTER 63/32-160
FRONT DRUM 70/36-350
REAR DRUM 70/36-350
100/65/50-71
Control of Amplitude
2,7 bar
3,5 bar
16 bar
q = 22 L/min
Δp = 25 bar
v = 32 mm²/s
2800 rpm
2200 rpm
i=1,04
∅1,4mm

38130

3.8 Appendices

Table of spare parts for regular maintenance

Chapter	Spare part	Order number
Every 20 hours of operation (daily)		
3.6.4	Dust valve	1558978
3.6.12	V-belt	4-6160120117
Every 500 hours of operation (every 6 months)		
3.6.18	Belt	1276451
3.6.19	Oil filter	5-0020003
3.6.23	Fuel filter, fine	1238008
3.6.23	Fuel filter, coarse	1229401
3.6.24	Air filter cartridge, main	1530120
3.6.24	Air filter cartridge, safety	1530109
3.6.24	Dust valve	1558978
3.6.25	Cab ventilation filter	1263263
3.6.27	Indicator	4-5358520063
Every 1000 hours of operation (yearly)		
3.6.30	Belt	1276451
3.6.31	Rubber metal element	4-9200000031
3.6.31	Rubber metal element	1160051
3.6.31	Rubber metal element	1235638
3.6.31	Rubber metal element	4-6160070611
3.6.31	Rubber metal element	4-6160070610
3.6.38	V-belt	4-6160120117
Every 2000 hours of operation (every 2 years)		
3.6.41	Filter element	4-5358520121
3.6.41	Ventilation filter	1405919
3.6.41	Filter element	1426713
Maintenance as required		
3.6.47	Blade	4-29060
3.6.47	Blade	4-28288

Content of the filter set after 500 hours (4-37967)

Chapter	Spare part	Number of parts	Order number
3.6.19	Oil filter	1 pc	5-0020003
3.6.23	Fuel filter, coarse	1 pc	1229401
3.6.23	Fuel filter, fine	1 pc	1238008
3.6.24	Air filter cartridge, main	1 pc	1530120
3.6.24	Air filter cartridge, safety	1 pc	1530109
3.6.25	Cab ventilation filter	1 pc	1263263
3.6.29	AdBlue filter	1 pc	1391087

Content of the filter set after 2000 hours (4-37968)

Chapter	Spare part	Number of parts	Order number
3.6.19	Oil filter	1 pc	5-0020003
3.6.23	Fuel filter, coarse	1 pc	1229401
3.6.23	Fuel filter, fine	1 pc	1238008
3.6.24	Air filter cartridge, main	1 pc	1530120
3.6.24	Air filter cartridge, safety	1 pc	1530109
3.6.25	Cab ventilation filter	1 pc	1263263
3.6.29	AdBlue filter	1 pc	1391087
3.6.41	Ventilation filter	1 pc	1405919
3.6.41	Filter element	1 pc	4-5358520121
3.6.41	Filter element	1 pc	1426713
3.6.42	Vent plug	1 pc	1281431

3.8 Appendices

Notes

For additional product information
and services please visit:
www.ammann.com