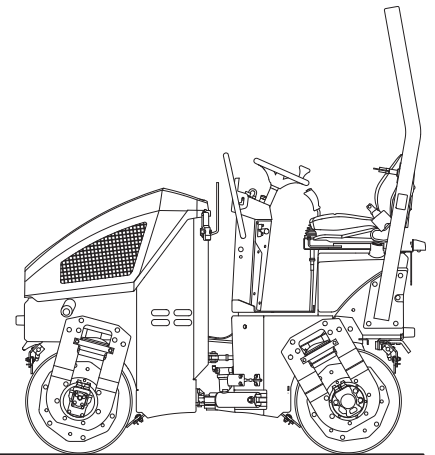


# ARX 10.1

LIGHT TANDEM ROLLER  
HONDA GX630  
EU STAGE V, EPA PHASE 3



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## OPERATING MANUAL

EDITION 10/2024 EN  
Product Identification Number 3098747 -

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# 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.

<b>Výrobce</b> / Manufacturer / Hersteller:	Ammann Czech Republic s.r.o.
<b>Adresa</b> / Address / Adresse:	Náchodská 145, CZ-549 01 Nové Město nad Metují, Czech Republic
<b>IČ</b> / Identification Number / Ident.-Nr:	000 08 753
<b>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</b> / 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 s.r.o. Náchodská 145, CZ-549 01 Nové Město nad Metují, Czech Republic
<b>Popis strojního zařízení</b> / Description of the machinery / Beschreibung der Maschineneinrichtung:	
<b>Označení</b> / Designation / Bezeichnung:	Lehký tandemový válec / Light Tandem Roller / Leichte Tandemwalze
<b>Typ</b> / Type / Typ:	ARX 10.1
<b>Verze</b> / Version / Version:	
<b>Product Identification Number:</b>	
<b>Motor</b> / Engine / Motor:	Honda GX630, zážehový, jmenovitý výkon (SAE J1995): 15,5 kW, jmenovitá otáčky: 3400 min <sup>-1</sup> . / Honda GX630, petrol, nominal power (SAE J1995): 15,5 kW, rated speed: 3400 RPM. Honda GX630, benzinmotor, Nennleistung (SAE J1995): 15,5 kW, Nenndrehzahl: 3400 min <sup>-1</sup> .
<b>Prohlašujeme, že strojní zařízení splňuje všechna příslušná ustanovení uvedených směrnic</b> / 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
<b>Harmonizované technické normy a technické normy použité k posouzení shody</b> / The harmonized technical standards and the technical standards applied to the conformity assessment / Harmonisierte technische Normen und für die Beurteilung der Konformität verwendete Normen:	Emise hluku – směrnice 2000/14/ES / Noise Emission Directive 2000/14/EC / Lärmemissionen – Richtlinie 2000/14/EG EN ISO 12100:2010, EN 474-1:2022, EN 474-13:2022
<b>Osoby zúčastněné na posouzení shody</b> / 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.
<b>Použitý postup posouzení shody</b> / 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
<b>Naměřená hladina akustického výkonu</b> / Measured sound power level / Gemessener Schallleistungspegel:	L <sub>WA</sub> = 102 dB
<b>Garantovaná hladina akustického výkonu</b> / Guaranteed sound power level / Garantierter Schallleistungspegel:	L <sub>WA</sub> = 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:

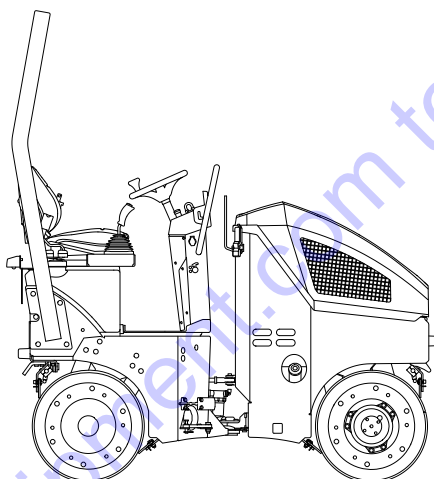
**Jméno** / Name / Name: Mgr. Petr Lubas  
**Funkce** / Grade / Stelle: COD Demand Manager  
**Podpis** / Signature / Unterschrift:

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 s. r. o. | Náchodská 145 | CZ-549 01 Nové Město nad Metují  
☎ + 420 491 476 111 | Fax + 420 491 470 215 | info@ammann.com | www.ammann.com



623001

These instructions are "original instructions for use" within the meaning of paragraph 1.7.4.1 of Directive 2006/42/EC of the European Parliament and of the Council of 17 May 2006.

**This operating 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 s. r. o. 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.

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## SAFETY NOTICE 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.

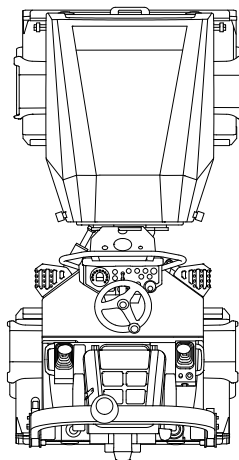
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### ! CAUTION !

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

---

FRONT



LEFT

RIGHT

REAR

## Contents

<b>2</b>	<b>OPERATING MANUAL .....</b>	<b>19</b>
<b>2.1</b>	<b>Main safety precautions.....</b>	<b>21</b>
2.1.1	Safety precautions during operation of the machine .....	21
2.1.1.1	Before compacting works are started .....	21
2.1.1.2	Work in the dangerous area.....	21
2.1.1.3	Danger zone of the machine and safe distance .....	22
2.1.1.4	Ensurance of safety measures by the provider .....	25
2.1.1.5	Protective ROPS frame .....	25
2.1.2	Requirements for the qualification of machine operators.....	26
2.1.3	Driver's obligations .....	27
2.1.4	Forbidden activities – safety and guarantee.....	28
2.1.5	Safety notices and signs applied on the machine .....	31
2.1.6	Hand signals .....	35

<b>2.2</b>	<b>Environmental and hygiene principles</b>	<b>38</b>
2.2.1	Hygiene principles	38
2.2.2	Environmental principles	38
<b>2.3</b>	<b>Preservation and storage</b>	<b>39</b>
2.3.1	Short-term preservation and storage for 1–2 months	39
2.3.2	Preservation and storage of the machine for a period over 2 months	39
2.3.3	Machine depreservation	41
<b>2.4</b>	<b>Machine disposal after its service life</b>	<b>43</b>
<b>2.5</b>	<b>Machine description</b>	<b>44</b>
<b>2.6</b>	<b>Controls and checking instruments</b>	<b>46</b>
2.6.1	Dashboard and control panels	47
<b>2.7</b>	<b>Machine operation and use</b>	<b>56</b>
2.7.1	Starting the engine	57
2.7.2	Drive and reverse drive	61
2.7.3	Stopping the machine and turning off the engine	69
2.7.4	Machine emergency stop	69
2.7.5	Machine parking	71
2.7.7	Sprinkling	73
2.7.9	ROPS lifting and lowering	74
2.7.9.1	Protective ROPS frame with a plastic canopy	76
2.7.10	Telematics readiness	82
2.7.13	Lowering and raising of the plastic canopy	83
<b>2.8</b>	<b>Machine transport</b>	<b>85</b>
2.8.1	Loading the machine	86
2.8.1.1	Loading the machine using a ramp	86
2.8.1.2	Loading the machine using a crane	87
<b>2.9</b>	<b>Special conditions to use the machine</b>	<b>88</b>
2.9.1	Machine operation during initial run period	88
2.9.2	Machine operation at low temperatures	88
2.9.3	Machine operation at higher temperatures and humidity	88
2.9.4	Machine operation at higher altitudes	88
2.9.5	Machine operation in dusty environment	89
2.9.6	Driving with vibration on compacted and hard materials	89

# Contents

<b>3</b>	<b>MAINTENANCE MANUAL .....</b>	<b>91</b>
<b>3.1</b>	<b>Safety and other measures during maintenance of the machine .....</b>	<b>93</b>
3.1.1	Safety during machine maintenance .....	93
3.1.2	Fire protection when operating fluids are changed .....	93
3.1.3	Environmental and hygiene principles .....	94
<b>3.2</b>	<b>Specification of operating fluids .....</b>	<b>95</b>
3.2.1	Engine oil .....	95
3.2.2	Fuel.....	96
3.2.3	Vibrator lubricating grease.....	96
3.2.4	Hydraulic oil.....	96
3.2.5	Lubricating grease.....	96
3.3	Fluids .....	97
<b>3.4</b>	<b>Lubrication and maintenance chart.....</b>	<b>98</b>
<b>3.5</b>	<b>Lubrication and service plan .....</b>	<b>100</b>
<b>3.6</b>	<b>Lubrication and maintenance operations .....</b>	<b>101</b>
	<b>Every 20 hours of operation (daily).....</b>	<b>102</b>
3.6.1	Fuel check .....	102
3.6.2	Engine oil check .....	103
3.6.3	Checking the oil in the hydraulic tank .....	104
3.6.4	Cleaning the hydraulic oil cooler .....	105
3.6.5	Air filter check .....	106
3.6.6	Sprinkling tank refilling .....	107
3.6.7	Scraper adjustment.....	107
3.6.8	Inspection of warning and checking devices.....	108
3.6.9	Engine leakage check.....	109
3.6.10	Brake test .....	110
3.6.10.1	Check of the parking brake.....	110
3.6.10.2	Check of the emergency brake.....	111
3.6.10.3	Check of the service brake.....	112
3.6.11	Check of the tightness of the fuel and hydraulic system .....	113
	<b>Every 50 hours of operation .....</b>	<b>114</b>
3.6.12	Battery inspection .....	114
	<b>Every 100 hours of operation .....</b>	<b>115</b>
3.6.13	Air filter cleaning .....	115
3.6.14	Engine oil change .....	116
3.6.15	Checking and adjusting the spark plug.....	118
3.6.16	Cleaning the spark arrester .....	119
	<b>Every 200 hours of operation .....</b>	<b>120</b>
3.6.17	Sprinkling filter cleaning .....	120

<b>Every 300 hours of operation .....</b>	<b>121</b>
3.6.18 Fuel filter replacement .....	121
3.6.19 Spark plug replacement .....	122
3.6.20 Valve clearance check and adjustment.....	123
3.6.21 Checking and adjusting the idle speed .....	123
<b>Every 500 hours of operation .....</b>	<b>124</b>
3.6.22 Electrical installation check .....	124
3.6.23 Replacement of air filter cartridges.....	124
3.6.24 Checking the rubber-metal elements of the hydraulic oil cooler .....	125
3.6.25 Checking the fuel system hoses .....	125
<b>Every 1000 hours of operation .....</b>	<b>126</b>
3.6.26 Cleaning the combustion chamber .....	126
3.6.27 Hydraulic oil and filter replacement.....	126
3.6.28 Damping system check .....	130
3.6.29 Swinging support check .....	131
3.6.30 Articulation joint check .....	131
<b>Every 1500 hours of operation .....</b>	<b>132</b>
3.6.31 Changing the vibrator lubricant.....	132
3.6.32 Checking the condition of vibrator bearings.....	132
<b>Every 2000 hours of operation .....</b>	<b>133</b>
3.6.33 Replacing the rubber-metal elements of the hydraulic oil cooler .....	133
<b>Maintenance as required .....</b>	<b>134</b>
3.6.34 Replacing the fuel system hoses .....	134
3.6.35 Gas strut replacement .....	135
3.6.36 Cleaning the water tank .....	136
3.6.37 Cleaning the machine.....	137
3.6.38 Draining water from the sprinkling circuit before the winter season.....	138
3.6.39 Rear-view mirrors.....	139
3.6.40 Charging of the battery .....	140
3.6.41 Checking the screw connections for tightening.....	141
<b>3.7 Troubleshooting .....</b>	<b>143</b>
<b>3.8 Appendices .....</b>	<b>144</b>
Wiring diagram.....	144
Hydraulic diagram ARX 10.1 .....	146
Content of the filter set after 100 hours (4-760302).....	149
Content of the filter set after 300 hours (4-760301).....	149
Content of the filter set after 500 hours (4-760300).....	149
Content of the filter set after 1000 hours (4-760299) .....	149



# **1 SPECIFICATION MANUAL**

## **ARX 10.1**

### **(Honda Phase 3)**

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# 1.1 Basic data

## Machine description

Light tandem roller with an articulated frame and two smooth drums. Both drums are hydrostatic-driven, the front drum is vibrating. The concept of the frame allows compacting close to walls and elevated kerbs on one side of the machine. It is convenient for works within constrained areas due to its small dimensions and short turning radius. The operator's post provides perfect control of both edges of the drums.

## Specification of the expected use of the machine

The machine is designed for small compaction works in road construction (building local roads, cycle paths, pavements, parking areas and garage driveways) and in building construction (small industrial areas).

**ARX 10.1** - The machine is suitable for compacting asphalt mixes up to the (compacted) layer thickness of 60 mm (2.4"), mixed soils up to the layer thickness of 100 mm (3.9") or sandy and gritty materials up to the layer thickness of 150 mm (5.9").

The machine is not suitable for compacting rock fill, loam and clay materials.

The machines are designed for operation in arid, temperate and cold climates according to EN 60721-2-1:2014 with a limited temperature range from -15 °C (5 °F) to +40 °C (104 °F) and a maximum absolute humidity of 25 g.m<sup>-3</sup>. Storage temperature from -25 °C (-12 °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 Honda engine nameplate)

Machine type  
.....

Product Identification Number  
.....

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.

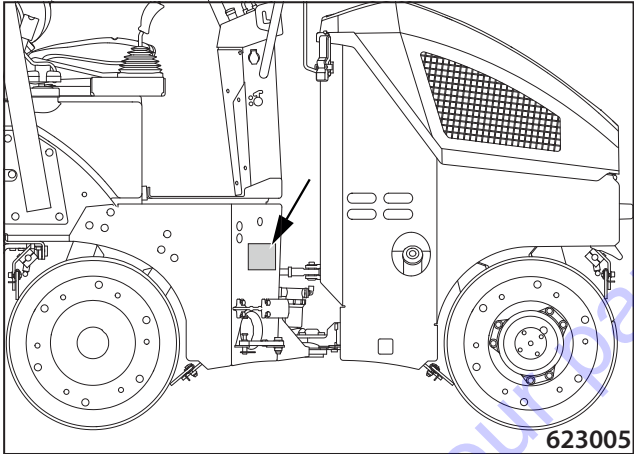
The machine that complies with the requirements as to health protection and safety is provided with a nameplate with CE certification.

- 1. Name – always mentioned only in the English version
- 2. Type
- 3. Product identification number
- 4. Rated power
- 5. Operating weight
- 6. Maximum weight
- 7. Shipping weight
- 8. Version
- 9. Engine emissions
- 10. Front axle load
- 11. Rear axle load
- 12. Model year
- 13. Month/year of manufacture

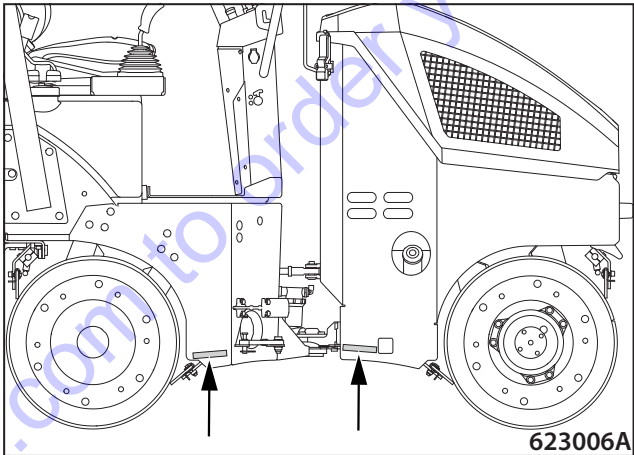
<b>AMMANN</b> 4321 AMMANN CZECH REPUBLIC s.r.o. Náchodská 145 549 01 NOVÉ MĚSTO NAD METUJÍ CZECH REPUBLIC				<b>CE</b> <b>UK</b> <b>CA</b>	
DESIGNATION					
TYPE			VERSION		
PRODUCT IDENTIFICATION NUMBER					
NOMINAL POWER		kW		ENGINE EMISSIONS	
OPERATING MASS		kg		FRONT AXLE LOAD kg	
MAXIMUM MASS		kg		REAR AXLE LOAD kg	
SHIPPING MASS		kg		MODEL YEAR	
MONTH / YEAR OF CONSTRUCTION					
MADE IN CZECH REPUBLIC					

4321

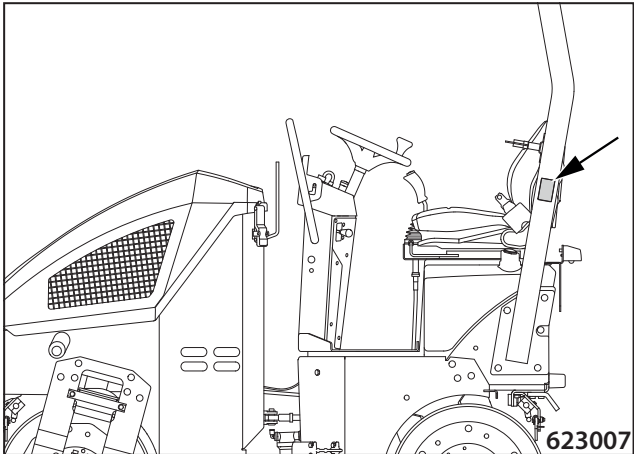
Nameplate position  
Nameplate



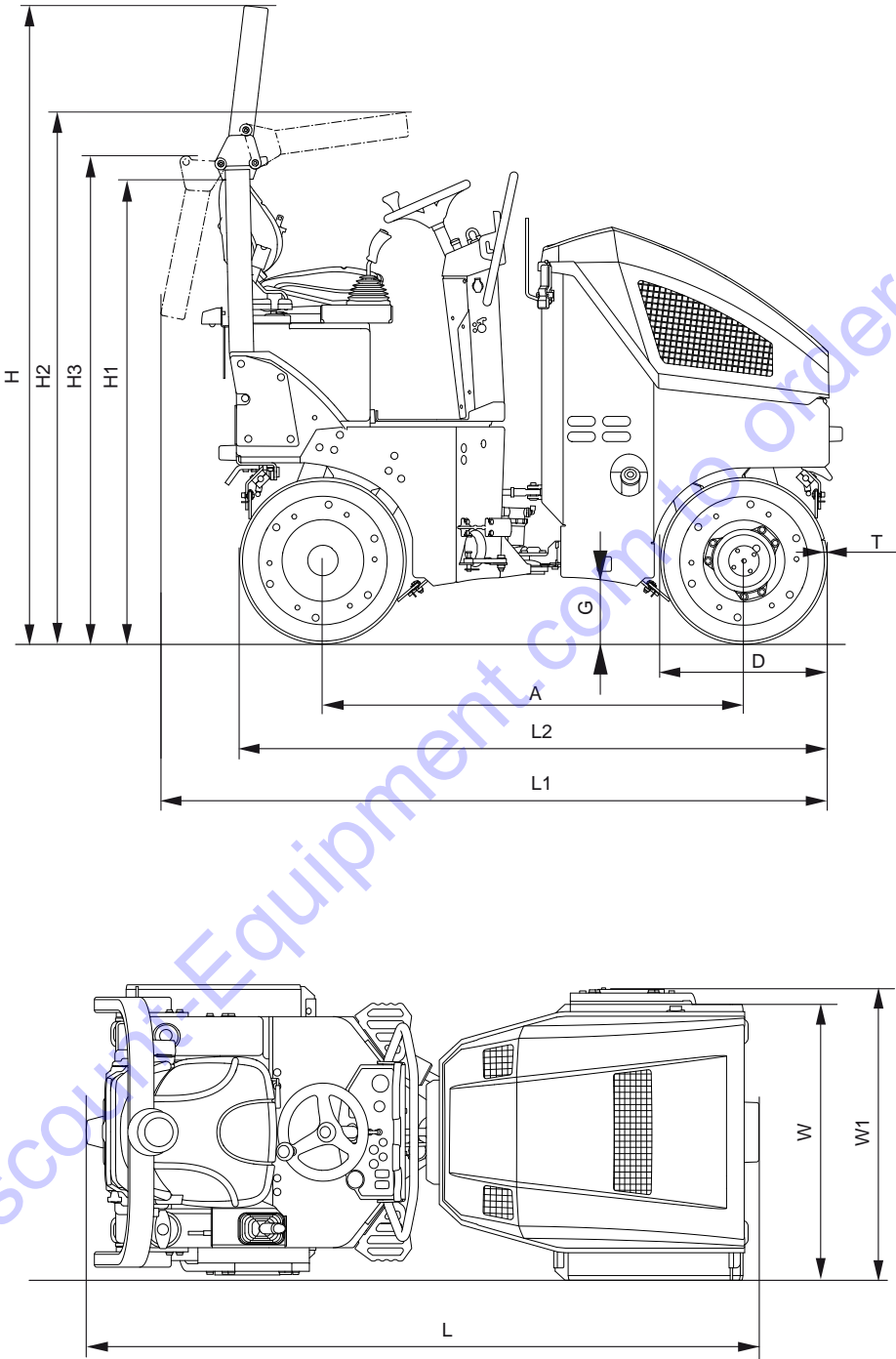
Serial number of the machine frame



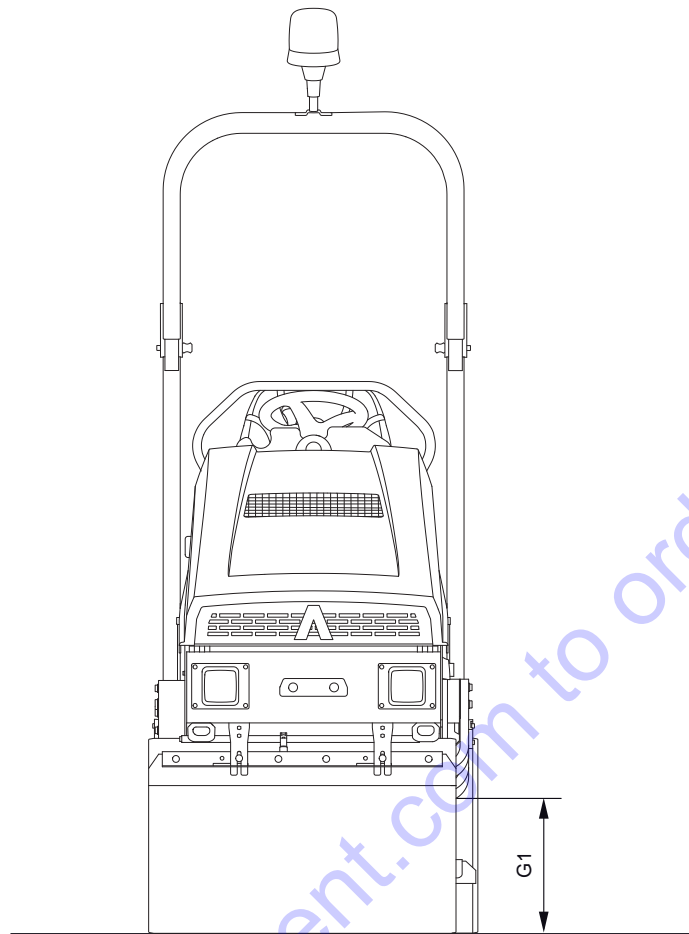
Position of the ROPS nameplate  
ROPS nameplate



1.2 Dimensional drawing of the machine



623003A



623004A

mm (in)	ARX 10.1	
	EU Stage V, EPA Phase 3	
<b>A</b>	1440	(56,7)
<b>D</b>	572	(22,5)
<b>G</b>	206	(8,1)
<b>G1</b>	370	(14,6)
<b>H</b>	2400	(94,5)
<b>H1</b>	1620	(63,8)
<b>H2</b>	1830	(72,0)
<b>H3</b>	1725	(67,9)
<b>L</b>	2140	(84,3)
<b>L1</b>	2330	(91,7)
<b>L2</b>	2020	(79,5)
<b>W</b>	900	(35,4)
<b>W1</b>	950	(37,4)
<b>T</b>	10	(0,4)

\* The dimensional drawing of the machine is identical for both types of ROPS frame.

### 1.3 Technical data

		ARX10.1
		EU Stage V, EPA Phase 3
<b>Weight</b>		
Operating weight of EN 500-1+A1 (CECE)	kg (lb)	1300 (2870)
Operating load of EN 500-1+A1 (CECE) on front axis	kg (lb)	570 (1260)
Operating load of EN 500-1+A1 (CECE) on rear axis	kg (lb)	730 (1610)
Weight of half fluid capacities	kg (lb)	65 (140)
Operating weight of ISO 6016	kg (lb)	1310 (2890)
Maximum weight with accessories	kg (lb)	1398 (3080)
Maximum permitted weight according to ROPS	kg (lb)	1700 (3750)
Static linear load of front drum	kg/cm (lb/in)	6,3 (10)
Static linear load of rear drum	kg/cm (lb/in)	8,1 (20)
Weight of Canopy	kg (lb)	33 (70)
Deduction for the transport weight to the EN 500-1+A1 (CECE) operating weight.	kg (lb)	140 (310)
<b>Driving characteristics</b>		
Maximum transport speed	km/h (MPH)	7,5 (4,7)
Climbing ability without vibration	%	30
Climbing ability with vibration	%	30
Lateral static stability	%	53
Lateral stability during driving without vibration	%	20
Lateral stability during driving with vibration	%	10
Turning radius inner (edge)	mm (in)	2470 (97,2)
Turning radius outer (contour)	mm (in)	3460 (136,2)
Type of drive	-	Hydrostatic
Number of driving axles	-	2
Oscillation angle	°	5
Angle of steering	°	33
<b>Steering</b>		
Type of steering	-	Joint
Steering control	-	Hydrostatické
Linear hydraulic motors	-	1



		<b>ARX10.1</b>
		<b>EU Stage V, EPA Phase 3</b>
<b>Engine</b>		
Manufacturer	-	HONDA
Type	-	GX 630
Power according to SAE J1995	kW	15,5
Number of cylinders	-	2
Cylinder capacity	cm <sup>3</sup> (cu in)	688 (42)
Nominal speed	min <sup>-1</sup> (RPM)	3400
Working speed I	min <sup>-1</sup> (RPM)	3400
Maximum torque	Nm (ft lb)/rpm	48,3 / 2500
Average fuel consumption	l/h (gal US/h)	4,5 (1,2)
Engines complies with emission regulations	-	EU Stage V / EPA Phase 3
Cooling system of engine	-	vzduchová
<b>Brakes</b>		
Operating	-	Hydrostatic
Parking	-	Mechanical multiple-disc
Emergency	-	Mechanical multiple-disc
<b>Vibration</b>		
Frequency I	Hz (VPM)	76 (4560)
Amplitude I	mm (in)	0,5 (0,02)
Centrifugal force I	kN	16,4
Type of drive	-	Hydrostatic
<b>Watering</b>		
Type of watering	-	Pressure
Number of pumps	-	1
Number of filtrations	-	2
<b>Fluid capacities</b>		
Fuel	l (gal US)	30 (7,9)
Water for drum watering	l (gal US)	110 (29,1)
Engine (oil filling)	l (gal US)	1,35 (0,4)
Hydraulic system	l (gal US)	15 (4)
<b>Wiring</b>		
Voltage	V	12
Battery capacity	Ah	50

### 1.3 Technical data

		ARX10.1
		EU Stage V, EPA Phase 3
<b>Noise and vibration emissions</b>		
Measured sound pressure level A, $L_{pA}$ at the operator's position (platform) *	dB	87
Uncertainty $K_{pA}$ *	dB	2
Guaranteed sound power level A, $L_{WA}$ **	dB	106
Declared highest weighted effective value of vibration acceleration transmitted to the whole body (platform) ***	$m/s^2$ (ft/s <sup>2</sup> )	<0,5 (<1,6)
Declared total value of vibration acceleration transmitted to hands (platform) ***	$m/s^2$ (ft/s <sup>2</sup> )	<2,5 (<8,2)
<b>Optional equipment</b>		
Frame ROPS Warning Beacon for ROPS LED Road Lights Additional Lights for ROPS Back-up Alarm Water Tank Lock Hydraulic Oil Biodegradable Seat Belt 3" Additional Mirror Base Machine Tandem Version In-Line Toolset Certificate of Origin Additional Documentation Printed Maintenance Kit 100h Overseas Shipping Preparation Roof for ROPS Warning Beacon for Hard Canopy Additional Lights for Hard Canopy Telematics ServiceLink Light Maintenance Kit 200h Back-up Alarm Adaptive Frame Rigid ROPS		

\* measured according to EN 474-13:2022

\*\* measured according to DIRECTIVE 2000/14/EC and EN ISO 3744:2010

\*\*\* measured according to EN 1032:2003+A1:2008 while driving with vibration on gravel foundation

## **2 OPERATING MANUAL**

### **ARX 10.1**

### **(Honda Phase 3)**

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### 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 operators and maintenance workers that include requirements to provide for safe operation of the machine.
- Before the compacting 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.

He must make the machine operator 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 operators provably familiar with the technological procedure.

#### 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 Main safety precautions

### 2.1.1.3 Danger zone of the machine and safe distance

#### Danger zone of a stationary machine:

The danger zone of a stationary machine (1) with the engine off or running may only be entered for the purpose of maintenance work and cleaning of the machine, provided that the following conditions are met:

- If the machine is stationary and secured against spontaneous movement,
- Entry is allowed only to professionally qualified, instructed and trained personnel intended for the operation and maintenance of the machine.

All workers on the jobsite, in the vicinity of the machine but not directly operating or maintaining the machine, must keep a safe distance from the machine and not enter the danger zone of a stationary machine with the engine switched off or running.



**The danger zone of a stationary machine with the engine switched off or running is at a distance of 3 m from a stationary machine on the left and right side of the machine and 10 m in front and rear of the direction of travel of the machine!**

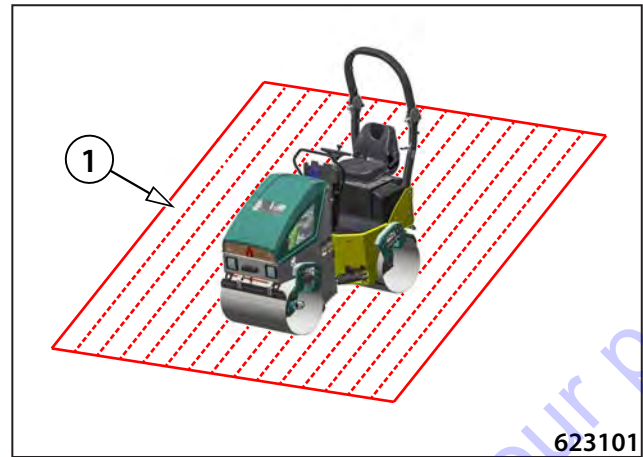
**Only professionally qualified, instructed and trained personnel designated to operate and maintain the machine may enter the danger zone of the machine!**

**The machine owner and the machine operator must ensure that all workers on the jobsite comply with the prohibition of entry into the danger zone of the machine!**

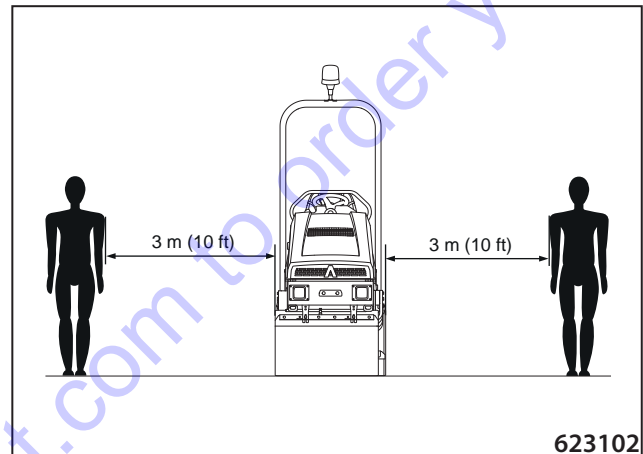
**The machine owner and the machine operator must ensure that, in areas where it is not possible to observe the specified safe distances, supervision is provided by another person or even several persons who will oversee the movement of surrounding persons and the movement of the machine! These persons must be in contact with the machine operator by means of a communication device or by means of the designated signals according to Chapter 2.1.6. Hand signals.**

**These requirements during machine operation are considered mandatory with regard to the safety of persons!**

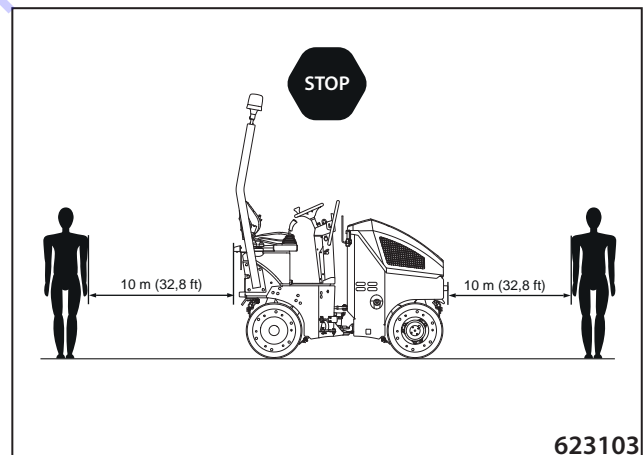
**AMMANN assumes no responsibility if the machine is operated incorrectly or is used incorrectly in operating modes, which may result in personal injury or death, damage to the machine or property!**



623101



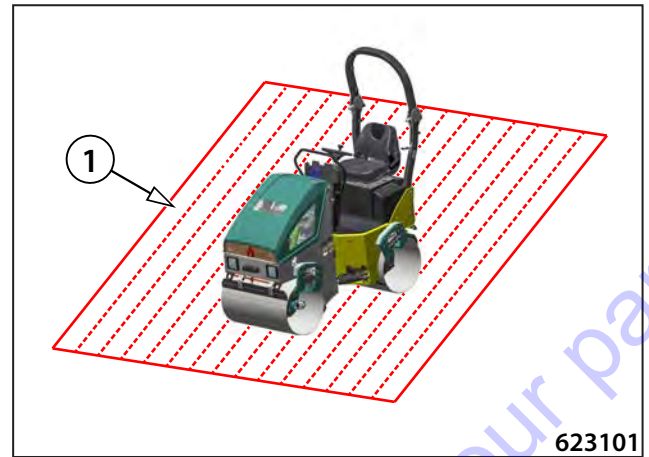
623102



623103

## Danger zone of a moving machine:

No persons may be present in the danger zone of the machine (1) when the machine is in motion.



623101

All workers on the jobsite near the machine but not directly operating the machine must keep a safe distance from the machine and not enter the machine's danger zone while the machine is in motion.



The machine's danger zone is at a distance of 3 m from a moving machine on the left and right side of the machine and 15 m in front and rear of the direction of travel of the machine!

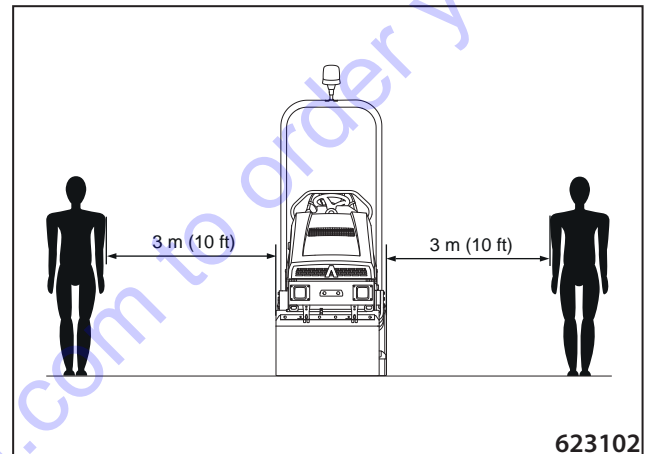
No persons may be present in the danger zone of the machine when the machine is moving!

The machine owner and the machine operator must ensure that all workers on the jobsite comply with the prohibition of entry into the danger zone of the machine!

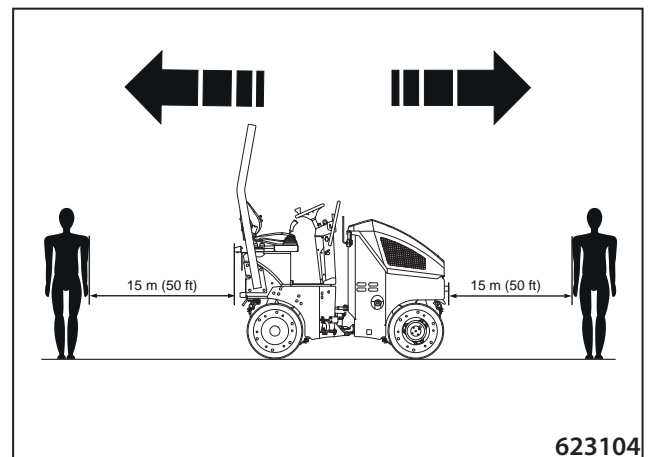
The machine owner and the machine operator must ensure that, in areas where it is not possible to observe the specified safe distances, supervision is provided by another person or even several persons who will oversee the movement of surrounding persons and the movement of the machine! These persons must be in contact with the machine operator by means of a communication device or by means of the designated signals according to Chapter 2.1.6. Hand signals.

These requirements during machine operation are considered mandatory with regard to the safety of persons!

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



623102



623104

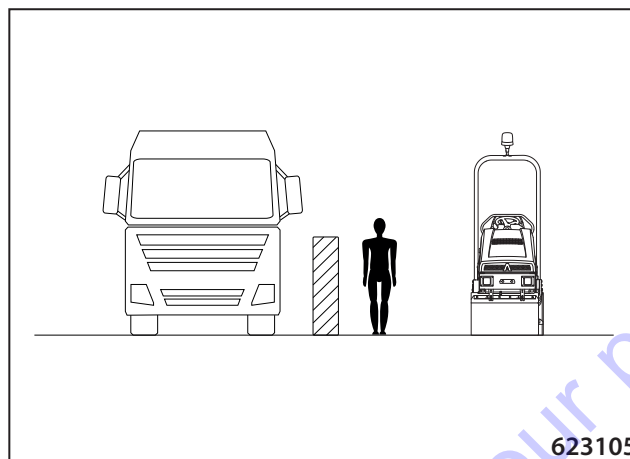


## 2.1 Main safety precautions

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### **Safe distance between a public road and the construction site:**

The safe distance between a public road and the construction site must be defined by a visible barrier against unauthorized entry into the construction site.



The safe distance between a public road and the construction site shall be determined by the machine operator on the basis of the relevant national regulations.



**The machine owner and operator must ensure a safe distance between the public road and the jobsite area!**

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

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## 2.1.1.4 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 machine is used only in such a way and in such a workplace 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 "Operating manual" is available at a designated location in the machine.
- 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 places of leakage according to their nature to avoid their adverse impact on the environment, safety of operation and human health.

## 2.1.1.5 Protective ROPS frame

When the ROPS protection frame is used:

- the machine frame must not be damaged (broken, bent, etc.) in the connection point
- the protective ROPS frame itself must not show corrosion, cracks or breaks
- the protective ROPS frame must not be loose during operation of the machine
- all bolted connections must meet requirements of the specification and must be tightened to the specified torque
- bolts must not be damaged, distorted and must not show rust marks.
- Additional modifications must not be carried out on the protective ROPS frame without the approval of the manufacturer because they can result in decrease of its strength (e.g. holes, welding, etc.).
- The machine weight must not exceed the maximum permissible weight according to the protective ROPS frame.

## **2.1 Main safety precautions**

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### **2.1.2 Requirements for the qualification of machine operators**

Only a person having been trained according to ISO 7130 and other local and national instructions and standards specified for operators of this group of machines, is allowed to operate the machine.

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## 2.1.3 Driver's obligations

- Before starting operation of the machine, the machine operator 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.)
- He may drive the machine only if he is fully familiarized with all functions of the machine and working and operating elements and knows precisely 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 operator must get familiar with the workplace environment, i.e. with obstructions, slopes, utility line system and with necessary types of workplace protections with respect to the surroundings (noise, vibration, etc.).
- The machine must not be operated with the ROPS protective frame lowered. There is a risk of fatal injury.
- The operator 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 operator 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 operator is obliged to get familiar with the records and operating deviations found out 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 operator finds a defect during operation, he must immediately stop the machine and secure it safely against undesirable starting.
- During operation the operator must watch the machine run and record any detected defects into the operation logbook.
- The operator must maintain an operation logbook which is meant for records of machine acceptances and take-overs carried out between operators, of defects and repairs done during operation and keeping files of serious events during the work shift.
- Before putting the machine into operation, he must check the brakes and steering for functioning.
- Before the engine is put into operation, the travel control must be in the parking brake position (P); 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.
- After a warning alarm, the operator may put the machine into operation only when all workers have left 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.
- The driver must always sit on the seat while driving the machine considering the restrictions imposed by the seat switch.
- When rolling (traversing) the machine within the workplace, he must adapt the driving speed to terrain conditions, the work performed and weather conditions. He must watch continuously the clearance to avoid collision with any obstruction.
- If the operator finishes or interrupts operation of the machine and leaves the machine, they must carry out safety measures against unauthorized use of the machine and undesired start up. Set the travel control to the parking brake position (P), remove the key from the ignition box, lock the dashboard cover and disconnect the wiring using the disconnecter.
- 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 the operation logbook. When the operators take turns, one operator is obliged to report any identified facts to the other operator.
- The operator must use personal protective equipment – work clothes, work shoes, protective helmet and protective goggles.
- Keep the machine equipped with the prescribed machine accessories and equipment.
- He must keep the operator's stand, foot rests and walkways clean.
- Keep the machine free of oil contaminants and inflammable materials.
- 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 operator's stand;
  - warn the others to keep off and not touch the machine.

## 2.1 Main safety precautions

### 2.1.4 Forbidden activities – safety and guarantee

#### The following is forbidden

- Controlling the machine in some other way than stated in the operating manual.
- Using the machine in case of an evident defect of the machine.
- Using the machine when any of the operating fluid levels is low.
- To repair the engine without authorization – except common changes of operating fluids and filters, only an authorized service organization is allowed to intervene in the engine, including the peripheral components of the engine (for example, the alternator, the starter, the thermostat, the electrical installation of the engine).
- 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.
- Operate the machine in potentially explosive atmospheres (ATEX) and underground areas.
- 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 a 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.
- 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 operator's stand is not properly attached.
- Working with the machine when the bonnet, cab or platform is lifted off.
- Operate 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 operator's stand and where hazard to people or property could occur unless the occupational safety is ensured through some other way, e.g. by a duly instructed signalling person.
- Work with the machine and operate 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 seat of the machine operator when the machine is running.
- Getting in or off on the run, jumping down from the machine.
- Sitting on the railing or 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 oil, fuel, coolant or other operating fluid is leaking.
- Starting the engine in a different way than given in the operating manual.
- Placing other items (tools, accessories) than items for personal use on the operator'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.
- Conveying rags saturated with inflammable materials and inflammable liquids in loose vessels on the machine (in the engine compartment).
- Leave the engine running in enclosed, unventilated areas. Exhaust fumes are dangerous to life.
- 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.

- Filling the hydraulic circuit during the guarantee period in a different way than using the hydraulic unit.
- Working long-term in the vibro stroke mode!
- Operate the machine when the ROPS protective frame is lowered. Use the lowered frame only for transporting the machine.
- Operating the machine without external rear view mirrors.

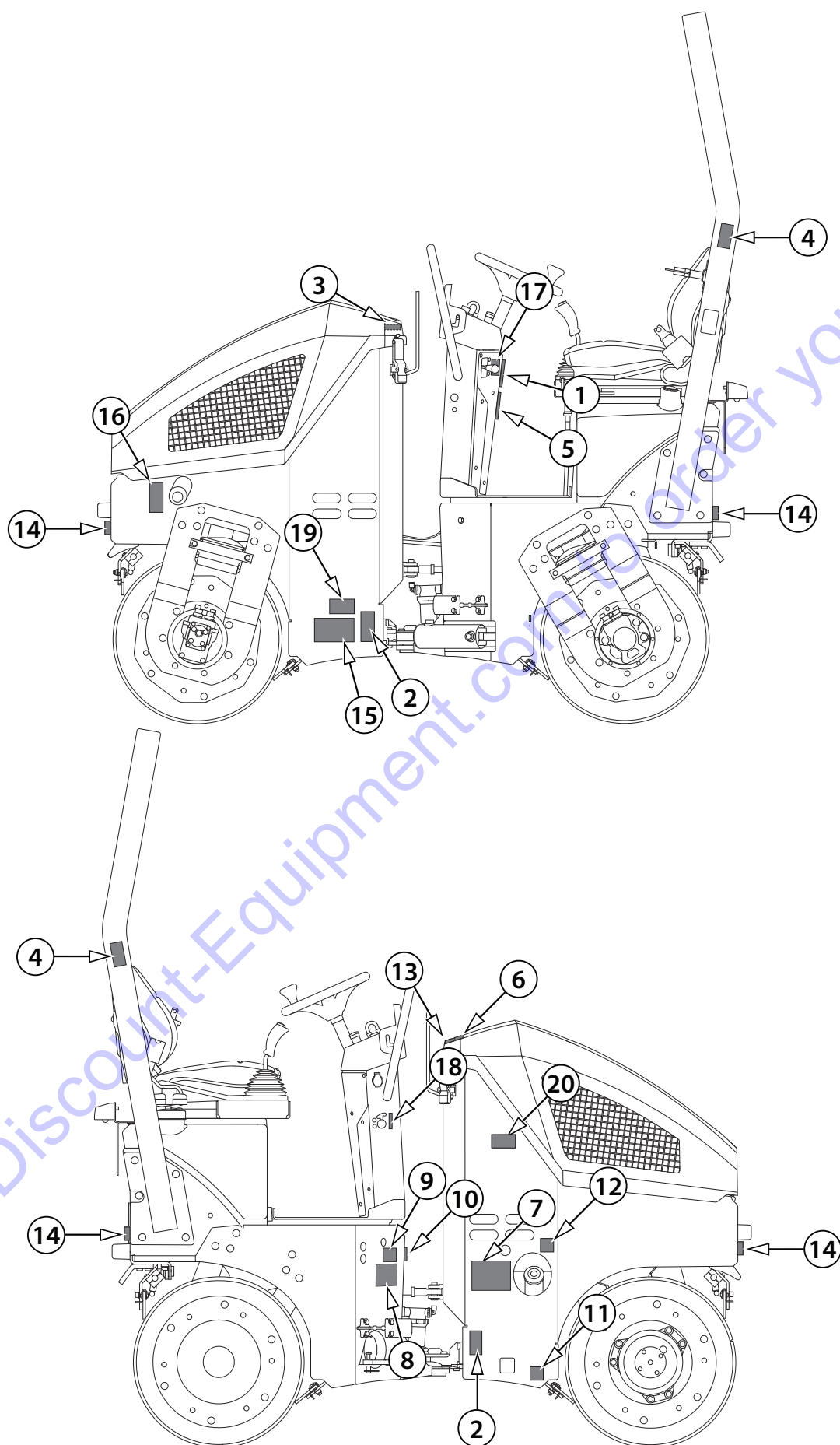


**Non-observance of the above provisions can impact on the assessment of a complaint and effectiveness of the engine guarantee period.**

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## 2.1 Main safety precautions



623051C

## 2.1.5 Safety notices and signs applied on the machine

- 1 Read the operating manual  
Hearing protection  
Washing the machine with water  
Keep calm and adjust



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

Hearing protection - Dangerous noise level! Use hearing protection.

Washing the machine with water - Dangerous 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!

Keep calm and adjust - Turn off the engine and remove the key from the ignition box before performing maintenance or repairs.

4338

- 2 Pinch points



3865

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

- 3 Risk of injury



3866

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

- 4 Risk of injury



3864bz

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

## 2.1 Main safety precautions

- 5 Using the parking and emergency brakes



3867bz

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

- 6 Safety belt



3863bz

Fasten the safety belt before the machine starts moving.

- 7 Fuel check

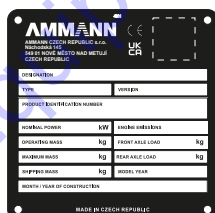


4369bz

Check the fuel level in the tank. Do not overfill the tank – fill to the bottom of the filler neck.

Use eye protection and avoid smoking or handling open flames when checking and handling fuel. Read the Operating Manual.

- 8 Nameplate of the machine



4321bz

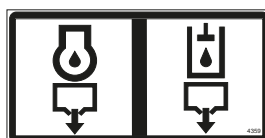
- 9 Emitted noise



3191bz

External noise level of the machine.

- 10 Drain plugs of the engine and hydraulic oil



4359

11 Fuel drain plug



3213

12 Fuelling



4294bz

13 Lifting point



2153bz

When lifting, suspend the machine only in these holes.

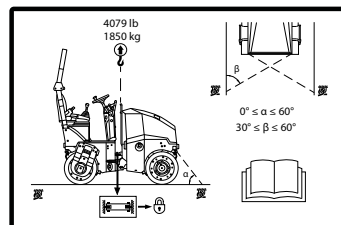
14 Fastening hole



3048bz

When transporting, fasten the machine only in these holes.

15 Suspension diagram



4186bz

To lift the machine, use slings with a sufficient lifting capacity according to chapter Loading the machine. Before hanging, lock the articulation of the machine.

## 2.1 Main safety precautions

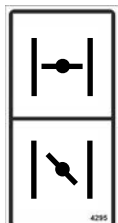
### 16 Risk of injury



4231bz

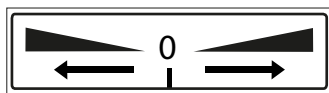
There is a risk of burns. Do not touch hot parts of the machine unless you have made sure that they have sufficiently cooled down.

### 17 Choke



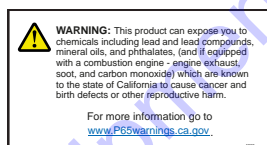
4295bz

### 18 Engine speed



2273bz

### 19 California Proposition 65



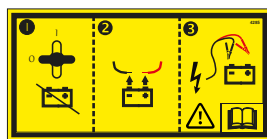
4305bz

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.

Further information see [www.p65warnings.ca.gov](http://www.p65warnings.ca.gov)

### 20 Charging the battery



4285bz

Risk of electric shock! Charge the battery according to the operating manual!

## 2.1.6 Hand signals

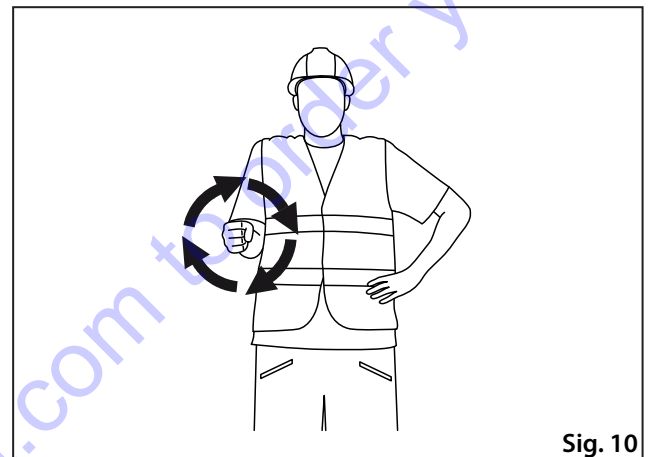
Signals given by an assistant operator if the operator cannot see the travelling or working area or work devices of the machine.

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.

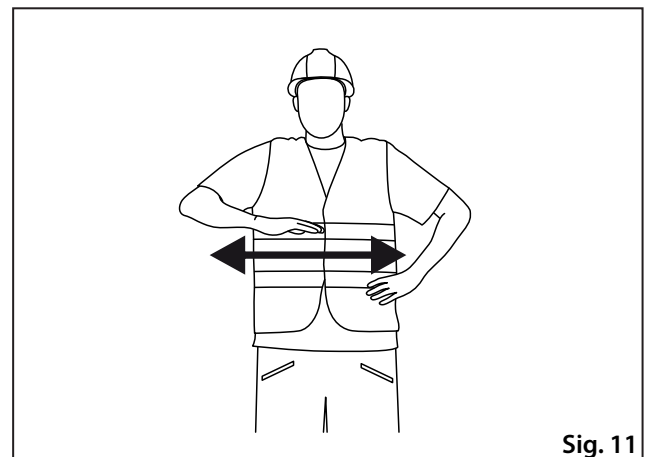
### SIGNALS FOR GENERAL COMMANDS

#### Engine start



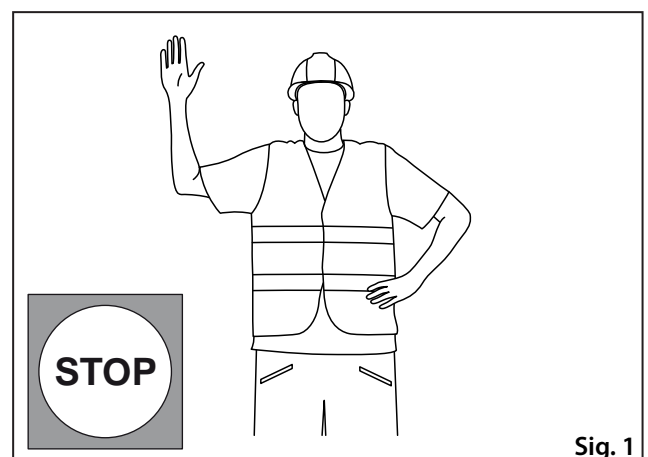
Sig. 10

#### Engine OFF



Sig. 11

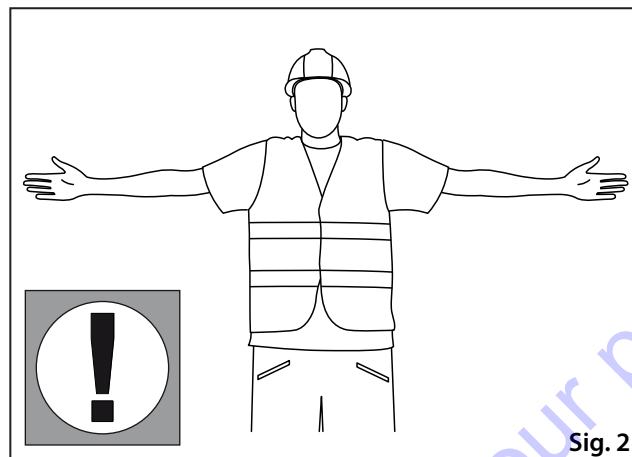
#### Stop



Sig. 1

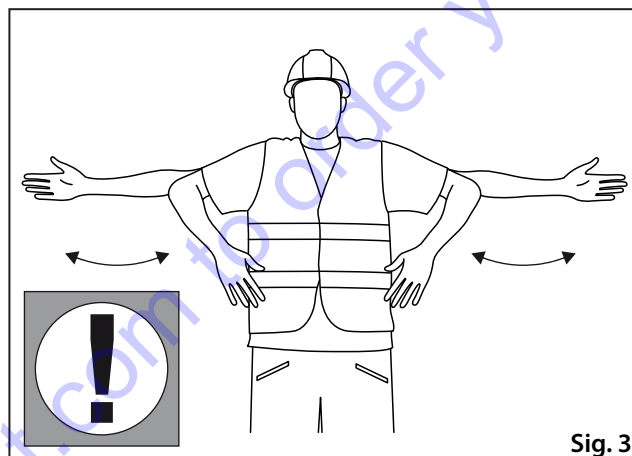
## 2.1 Main safety precautions

Watch out!



Sig. 2

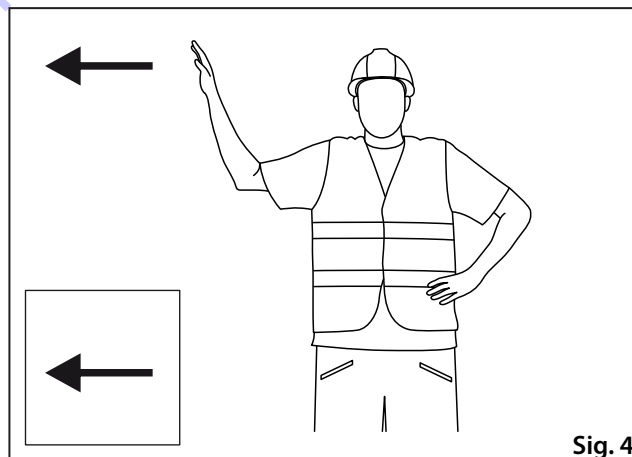
Watch out, danger!



Sig. 3

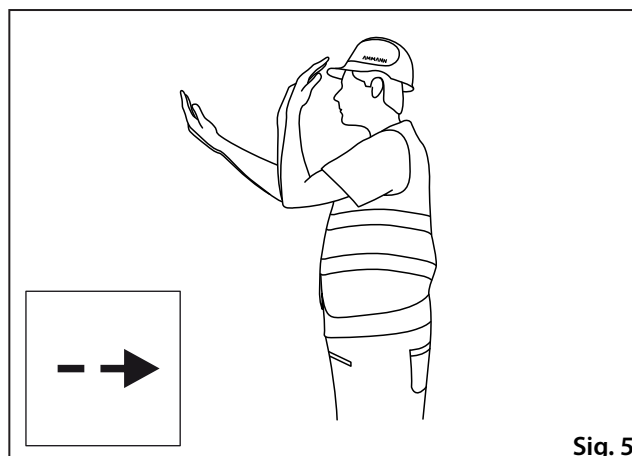
### SIGNALS FOR DRIVE

Travel



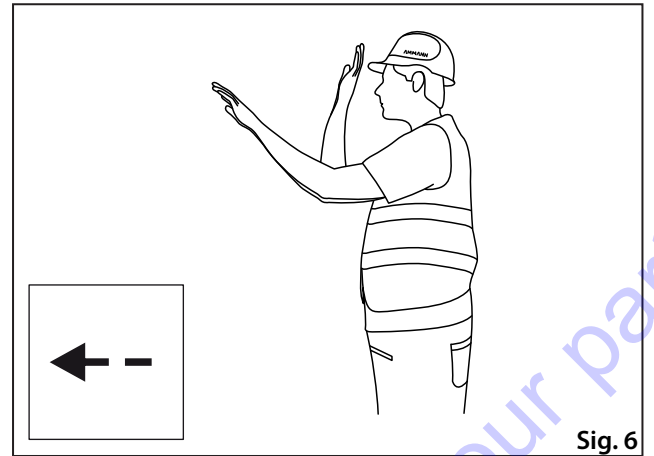
Sig. 4

Slow forward travel – towards me

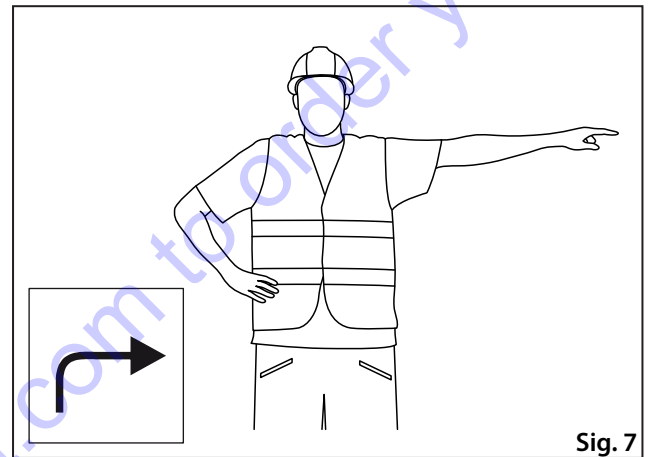


Sig. 5

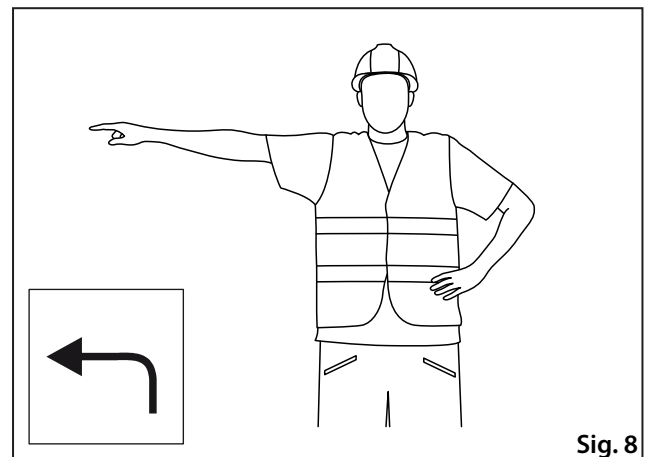
Slow reverse travel – away from me



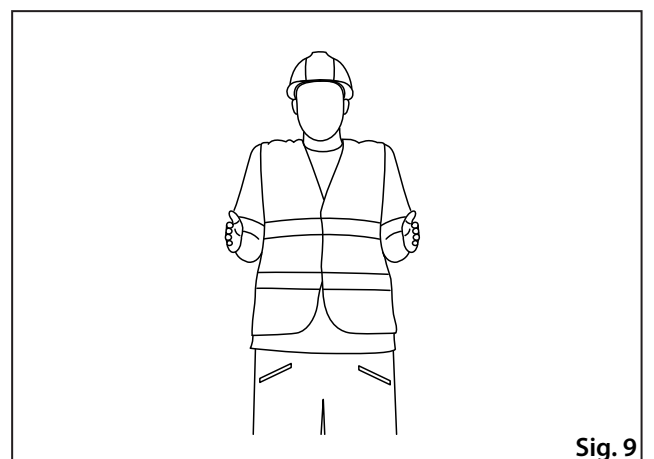
Drive to the right



Drive to the left



Short distance travel





## 2.2 Environmental and hygiene principles

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### 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 within the territory where the machine is used.**

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- Petroleum products, cooling system fluids, battery fluids 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 fluids and batteries;
- cleaning and preservative agents;
- all dismounted filters and filter cartridges,
- all used and discarded hydraulic or fuel hoses, rubber-metal elements 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 applicable to environmental and health protection.**

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## 2.3 Preservation and storage

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### 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 lubrication points
- 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.

### 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
- 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
- When storing the machine outdoors, protect the ROPS frame by wrapping it in PE film carefully secured with adhesive tape. Prolonged exposure to rain may cause damage to the ROPS frame.
- preserve the engine according to the manufacturer's manual – mark visibly that the engine is preserved.



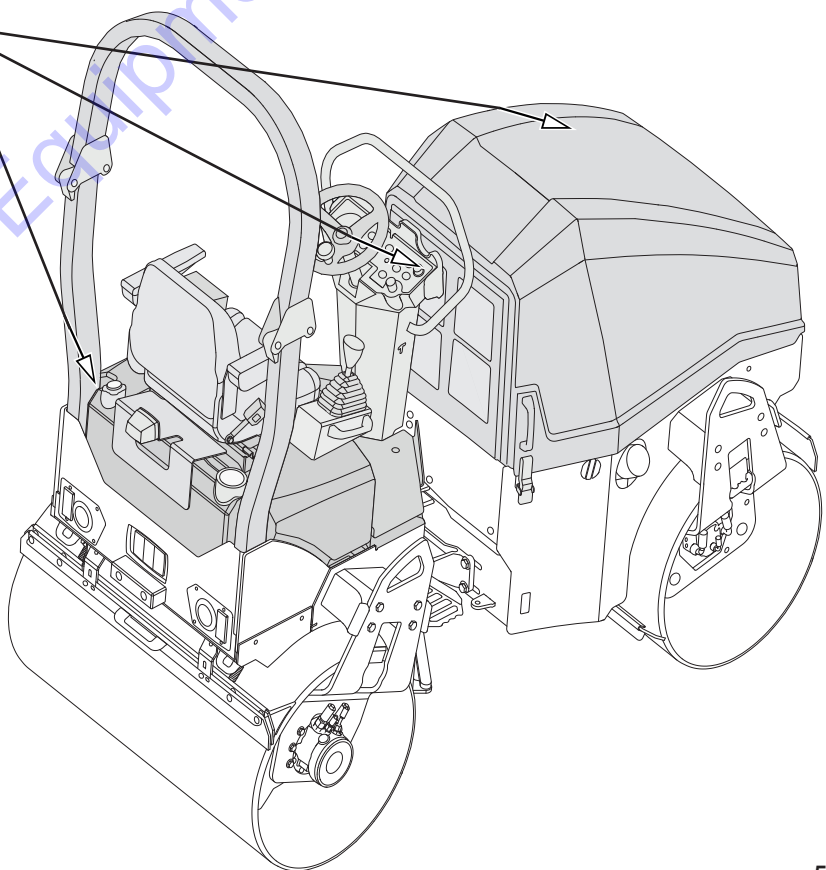
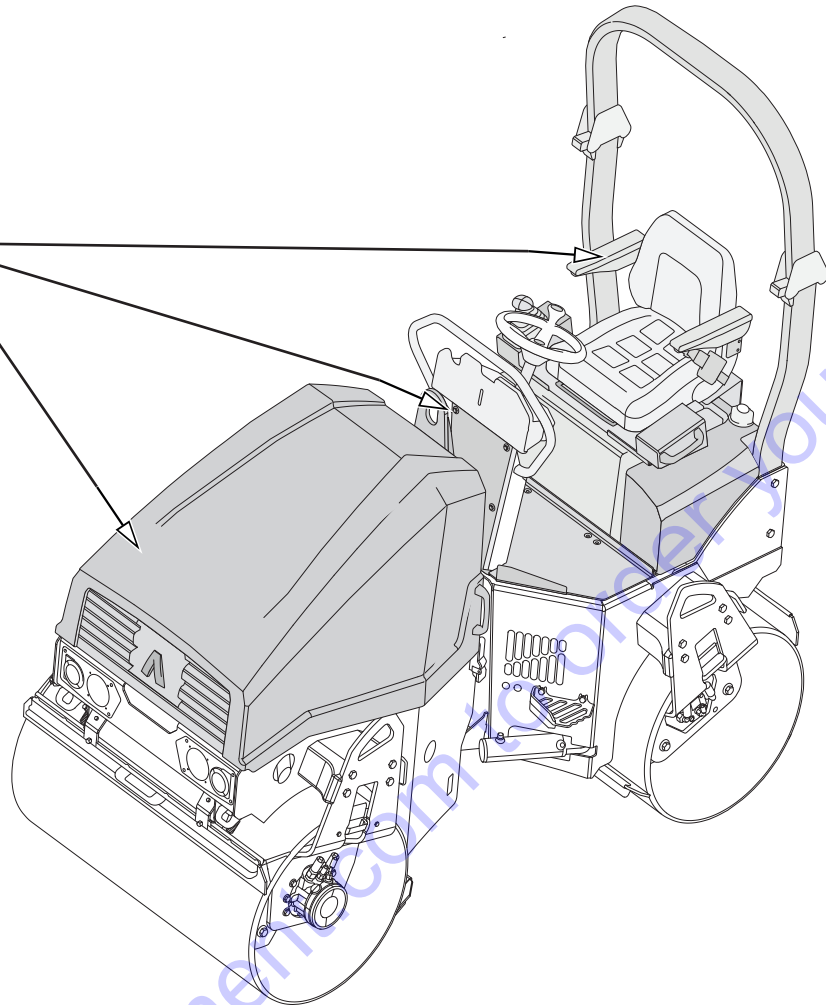
**After 6 months, we recommend you to inspect the condition of preservation and renew if required.**

**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.)!**

---

## 2.3 Preservation and storage



588589A

### 2.3.3 Machine depreservation

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



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

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

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

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

Remove the preservation according to the manufacturer's manual.



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

## 2.4 Machine disposal after its service life

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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:

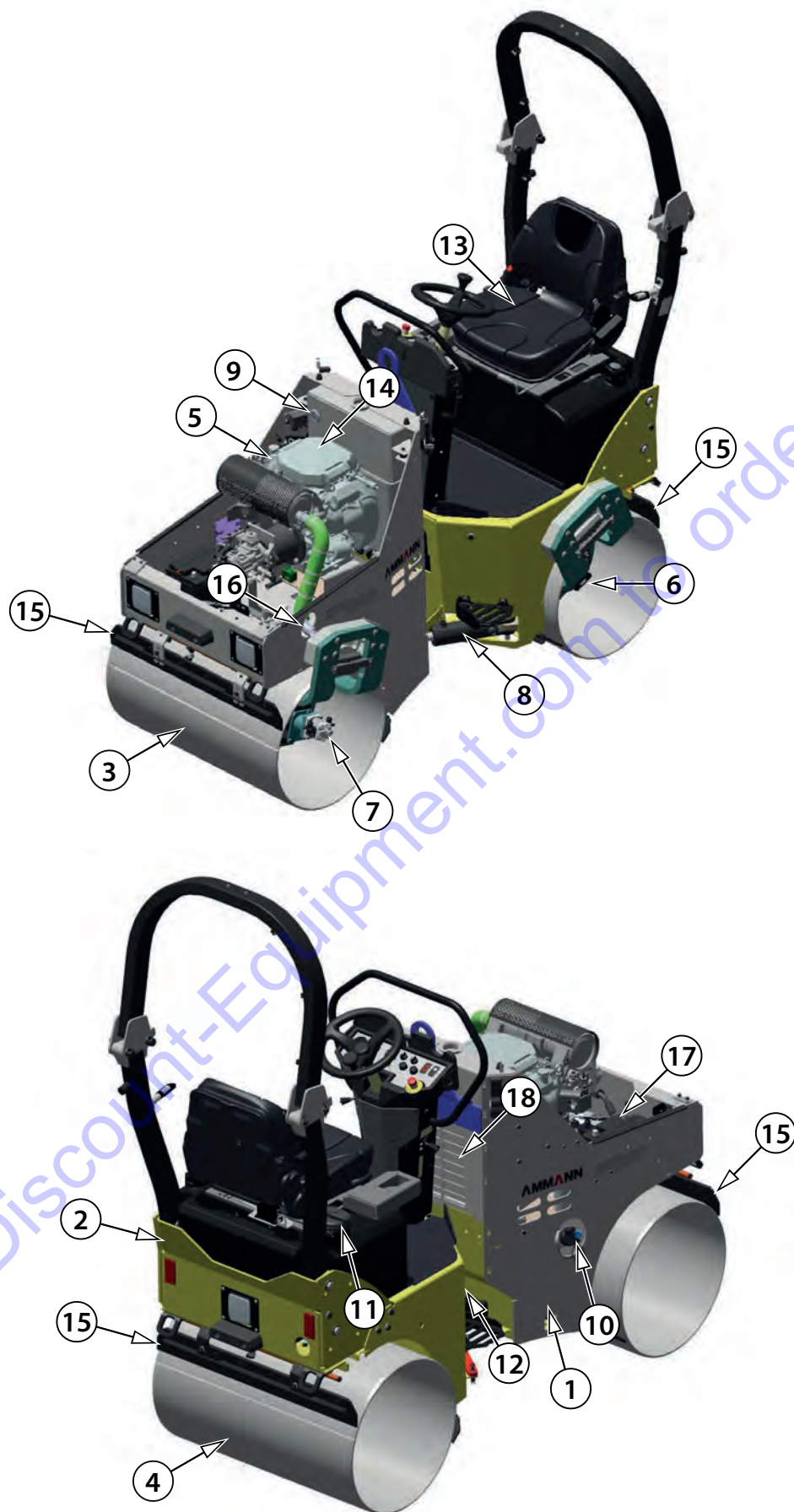
- specialized companies with a respective authorization for these operations
- the machine manufacturer or accredited contracting service organizations authorized by the manufacturer.



**The machine manufacturer Ammann shall not be liable for damage to the health of users or environmental damage caused by non-compliance with the above mentioned rules.**

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## 2.5 Machine description

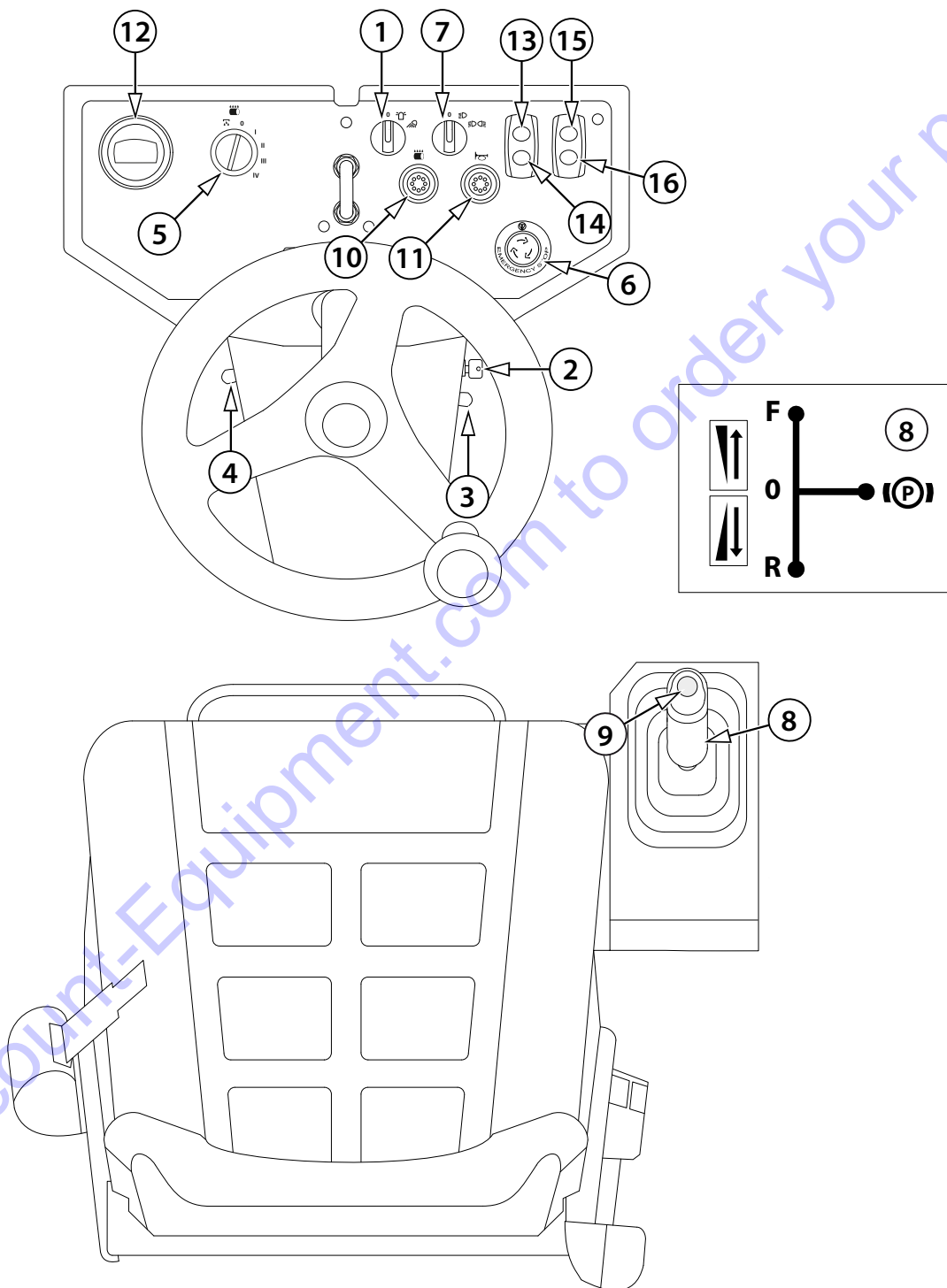


623011

**Legend:**

- 1 - Front frame
- 2 - Rear frame
- 3 - Front drum
- 4 - Rear drum
- 5 - Engine
- 6 - Travel hydraulic motor
- 7 - Vibration hydraulic motor
- 8 - Steering joint
- 9 - Hydraulic oil level indicator
- 10 - Fuel tank
- 11 - Sprinkling tank
- 12 - Sprinkling filter
- 13 - Operator's stand
- 14 - Air filter
- 15 - Drum scraper
- 16 - Exhaust pipe
- 17 - Battery
- 18 - Hydraulic oil cooler

## 2.6 Controls and checking instruments



623012A

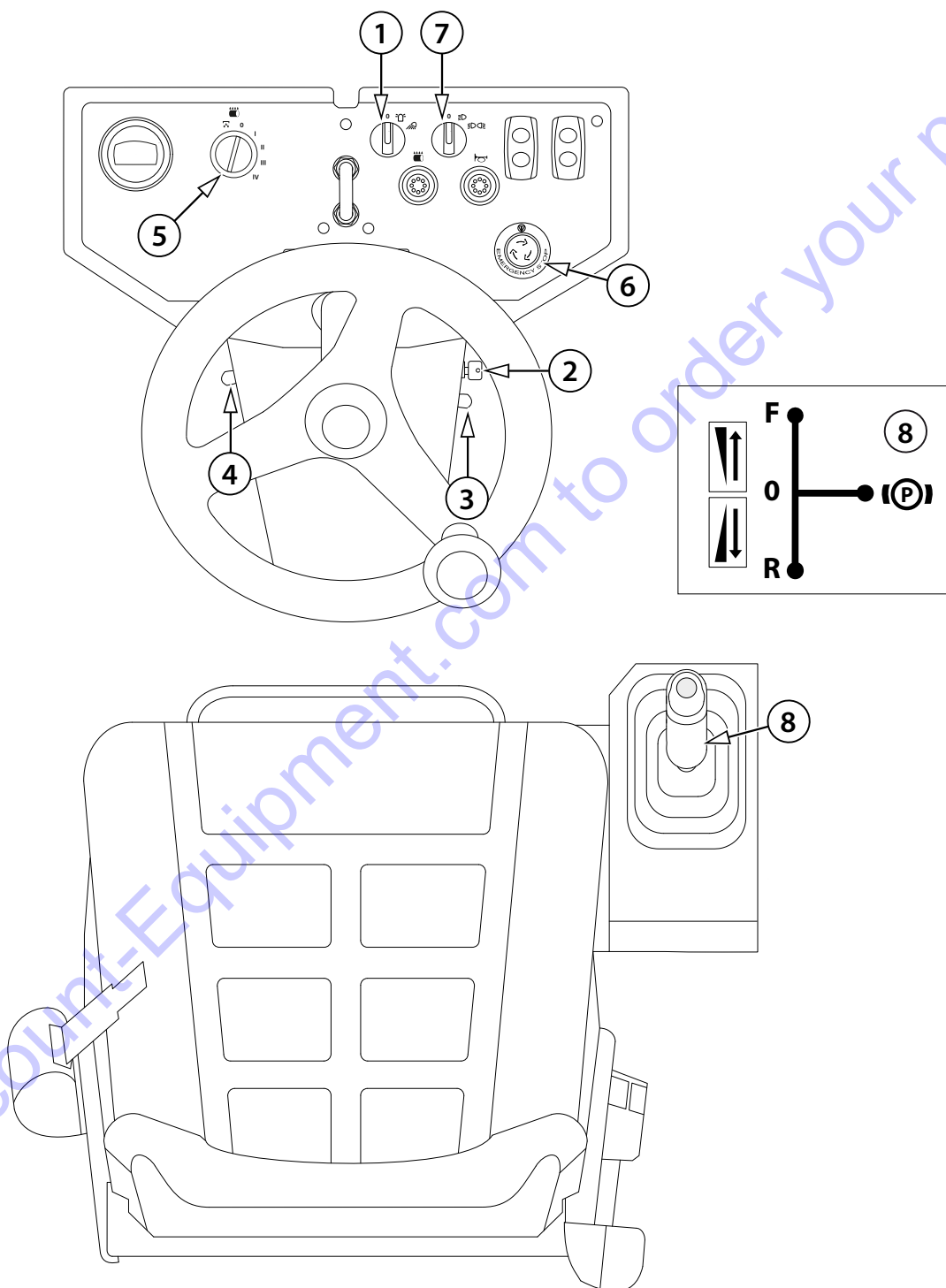


## 2.6.1 Dashboard and control panels

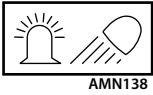
### Legend:

- 1 - Beacon and rear light change-over switch
- 2 - Ignition box
- 3 - Engine speed control
- 4 - Choke
- 5 - Sprinkler cycling device
- 6 - Emergency brake button
- 7 - Lights switch (outline lights / front lights)
- 8 - Travel control
- 9 - Vibration button
- 10 - Sprinkling button
- 11 - Horn switch
- 12 - Display
- 13 - Battery charging indicator lamp
- 14 - Engine lubrication indicator lamp
- 15 - Error indicator lamp
- 16 - Indicator lamp for hydraulic oil temperature

## 2.6 Controls and checking instruments



623013A



## Beacon and ROPS change-over switch (1)

- Off
- Beacon flashing continuously
- ROPS frame lights

## Ignition box (2)

- 0 - OFF
- I - ON
- II - Engine starting

## Engine speed control (3)

The control setting allows you to better adjust the speed and the vibration power to the given soil conditions.

Idle speed: Set the control down.

Big working speed: Set the control to the position I (100%).

## Big working speed:

- 100% vibration capacity
- 100% of the travel speed
- 100% engine speed

## Choke (4)

Down position – choke closed

Up position – choke open



## Sprinkling cycling device (5)

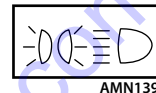
Turn the switch to the left to put the pump into continuous operation – continuous sprinkling.

Turn the switch to any of the four positions to the right to switch on a sprinkling cycle interval.



## Emergency brake button (6)

Pressing the button activates the emergency brake of the machine. The machine stops, the engine shuts down.



## Lights switch (7)

- Off
- Front working lights
- Front and rear working lights

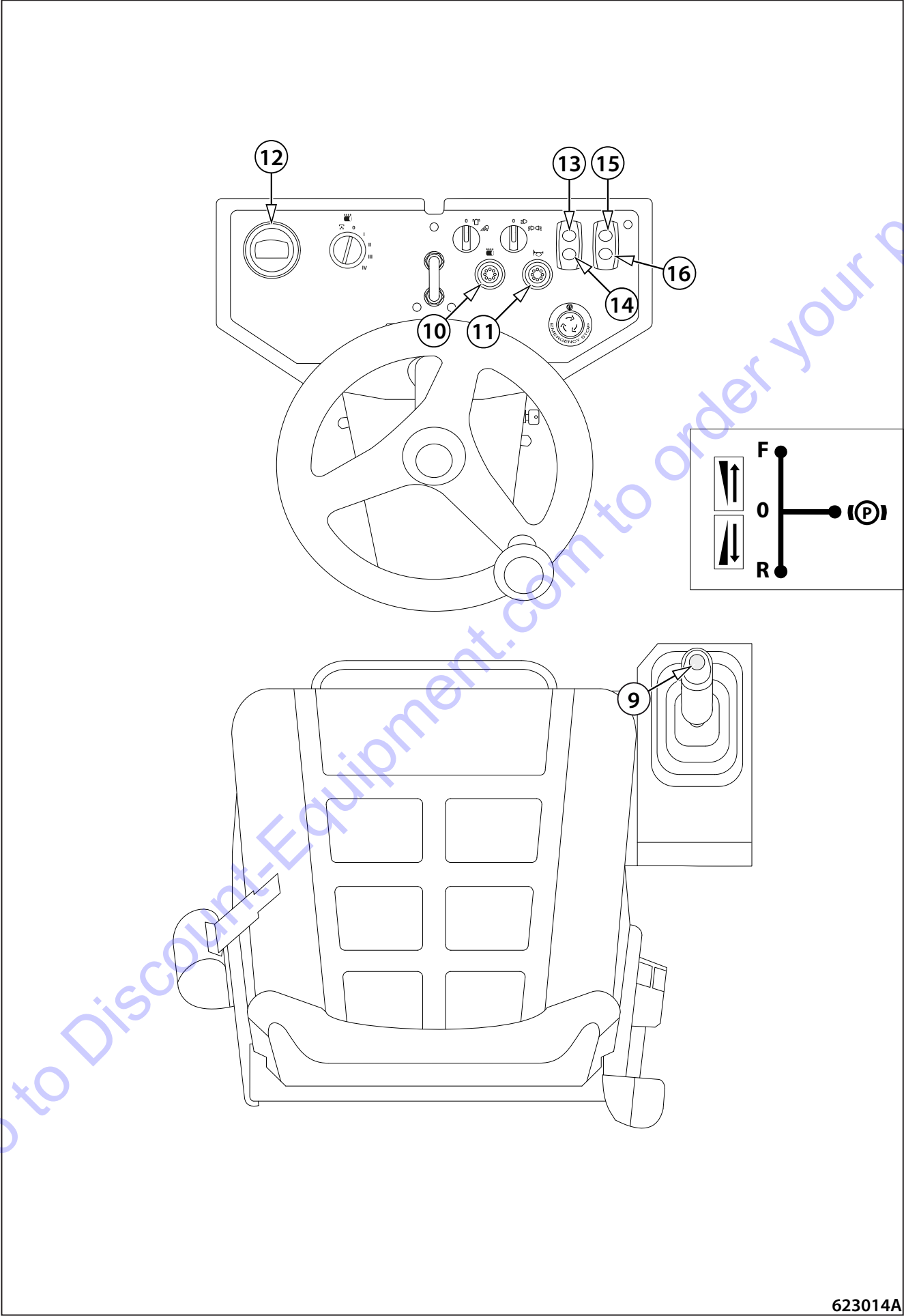
## Travel control (8)

The travel control is used for setting the parking brake, forward (F) / reverse (R) direction and the travel speed of the machine. Direction and speed of machine travel is controlled by shifting the control from zero position (0) forward or backward. The travel speed corresponds to the deflection of the travel control. The travel control is fixed in the set position except for the zero position (0).

There is a vibration switch on the travel control.

- P – Parking brake – parking brake of the machine enabled
- 0 – Zero position
- F – Forward travel
- R – Reverse travel

2.6 Controls and checking instruments



623014A



**Vibration button (9)**

Press the switch to turn on/off the vibration function.



**Sprinkling button (10)**

Pressing the button turns on the drum sprinkling function. Releasing the button turns off the sprinkling function.



**Warning horn button (11)**

Press the button to switch on the warning horn.  
Release the button to switch off the warning horn.

**Display (12)**

Engine hours counter and fuel level display.



**Battery charging indicator lamp (13)**

When the battery charging indicator lamp lights up during operation or it does not go off after the engine is started, turn off the engine.

If the indicator lamp is still lit up when the engine is started, contact the service centre.



**Engine lubrication indicator lamp (14)**

When the engine lubrication indicator lamp lights up during operation or does not go off after the engine is started up, you must stop the machine immediately and turn off the engine!

Check the engine for oil leaks and for correct oil level.

If the oil level in the engine is correct, call the service!



**Error indicator lamp (15)**

Indicator lamp continuously on – error of the emergency brake button (6). Check that the emergency brake (6) is disabled.

Indicator lamp flashing – error of the seat switch.



**Indicator lamp for hydraulic oil temperature (16)**

The indicator lamp for hydraulic oil temperature lights up when the oil temperature exceeds 85 °C.



**If the indicator lights up, stop the machine at a suitable place and wait until the temperature of the hydraulic system decreases.**

**Operating an overheated machine will reduce the life of the hydraulic components and void the warranty. Hydraulic system components may also jam or seize.**

## 2.6 Controls and checking instruments

### Seat

#### Seat adjustment

- 1 Backrest inclination adjustment
- 2 Seat springing stiffness
- 3 Longitudinal seat travel

#### Seat springing stiffness

Turn the switch (2) to set stiffness according to driver's weight between 50 and 120 kg (110 - 265 lb).



**Adjust the seat before driving the machine.**

**The driver must be fastened with the safety belt while driving.**

**Non-observance of this instruction can lead to death or serious injury.**

**During travel of the machine, the driver must have his legs on the machine platform; there is a risk of injury when the machine turns.**

#### Longitudinal seat travel

- After raising the lever (3), it is possible to move the seat in the longitudinal direction forward-rearward.

#### Seat switch

The seat switch is located in the seat cushion.

If the driver is not sitting on the seat, the seat switch is deactivated and the operation of the machine is restricted in one of the following ways – blocking of engine start, blocking of moving off, stopping of the machine or switching off the engine.

These restrictions vary depending on:

- the time period for which the seat switch is deactivated,
- the position of the travel control (if it is in the parking brake "P" position or outside this position)

#### Engine start blocking

If the driver is not sitting on the seat, engine start is blocked unless the travel control is in the parking brake position (P).

To enable engine start, set the travel control to the parking brake position (P).

#### Movement blocking

If the driver is not sitting on the seat, moving off is blocked. In this case, moving the travel control out of the parking brake (P) position immediately switches off the engine.

To enable engine start, sit on the seat and set the travel control to the parking brake position (P).



## Machine stop

If the driver leaves the seat for more than 5 seconds when the travel control is not in the parking brake position (P), the engine shuts down.

To re-enable engine start, sit on the seat and set the travel control to the parking brake position (P).



**It is forbidden to load the seat switch with other items!**

**When operating the machine, the driver must follow the safety regulations and not carry out any activity that might endanger the safety of work; the driver must fully focus on steering the machine.**

**When operating the machine, the driver must always sit on the seat.**

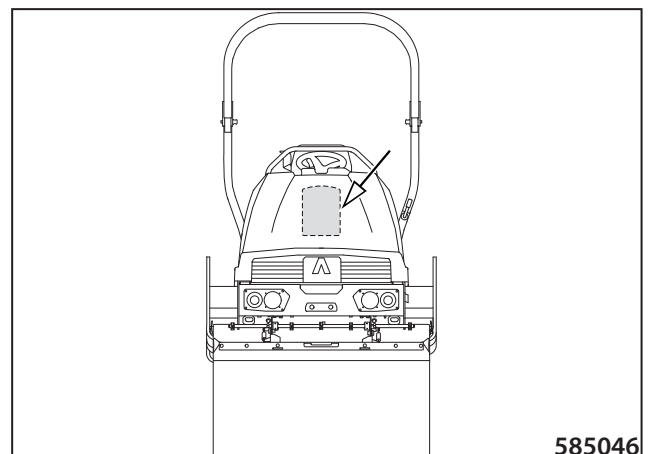
**When leaving the machine, the driver must take measures against unauthorized use of the machine and against unintentional starting.**

## Document box

The storage box situated on the inner upper side of the bonnet is used for storing the Operating Instructions and other documents related to the operation of the machine.



**The Operating Manual must always be kept in the machine in an appropriate place to be always available for the driver of the machine for viewing.**



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## 2.6 Controls and checking instruments

### Fire extinguisher (optional equipment)

Place to install a fire extinguisher.

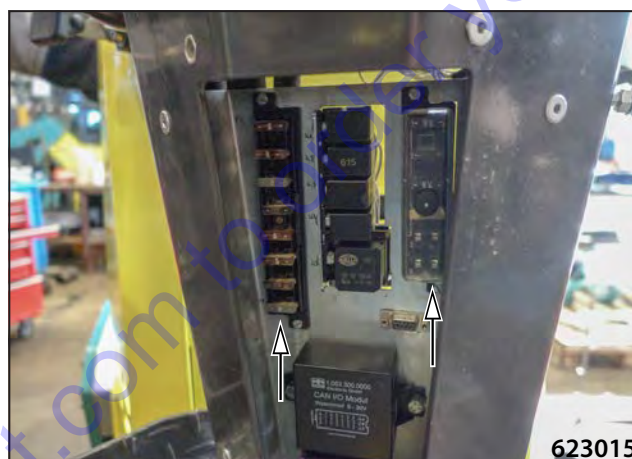


The manufacturer recommends that the machine be equipped with a fire extinguisher.



### Fuse box

F1 – 5	Vibration
F2 – 5	Control unit – electronics
F3 – 2	Emergency brake button, seat switch, parking brake microswitch in the travel control
F4 – 10	Pressure switch oil, engine
F5 – 5	Display, telematics
F6 – 20	Control unit – power outputs
F7 – 7.5	Horn, telematics – memory
F8	Reserve
F9 – 7.5	Working lights
F10 – 7.5	Beacon, ROPS lights
F11 – 7.5	Drum sprinkling
F12 – 5	Reversing horn
F13	Reserve
F14	Reserve
F20 – 30	Main fuse





### Dashboard cover

The cover protects the dashboard from:

- weather effects
- vandalism
- handling by others

The cover of the dashboard can be locked with a padlock; the padlock is not delivered in the machine equipment.



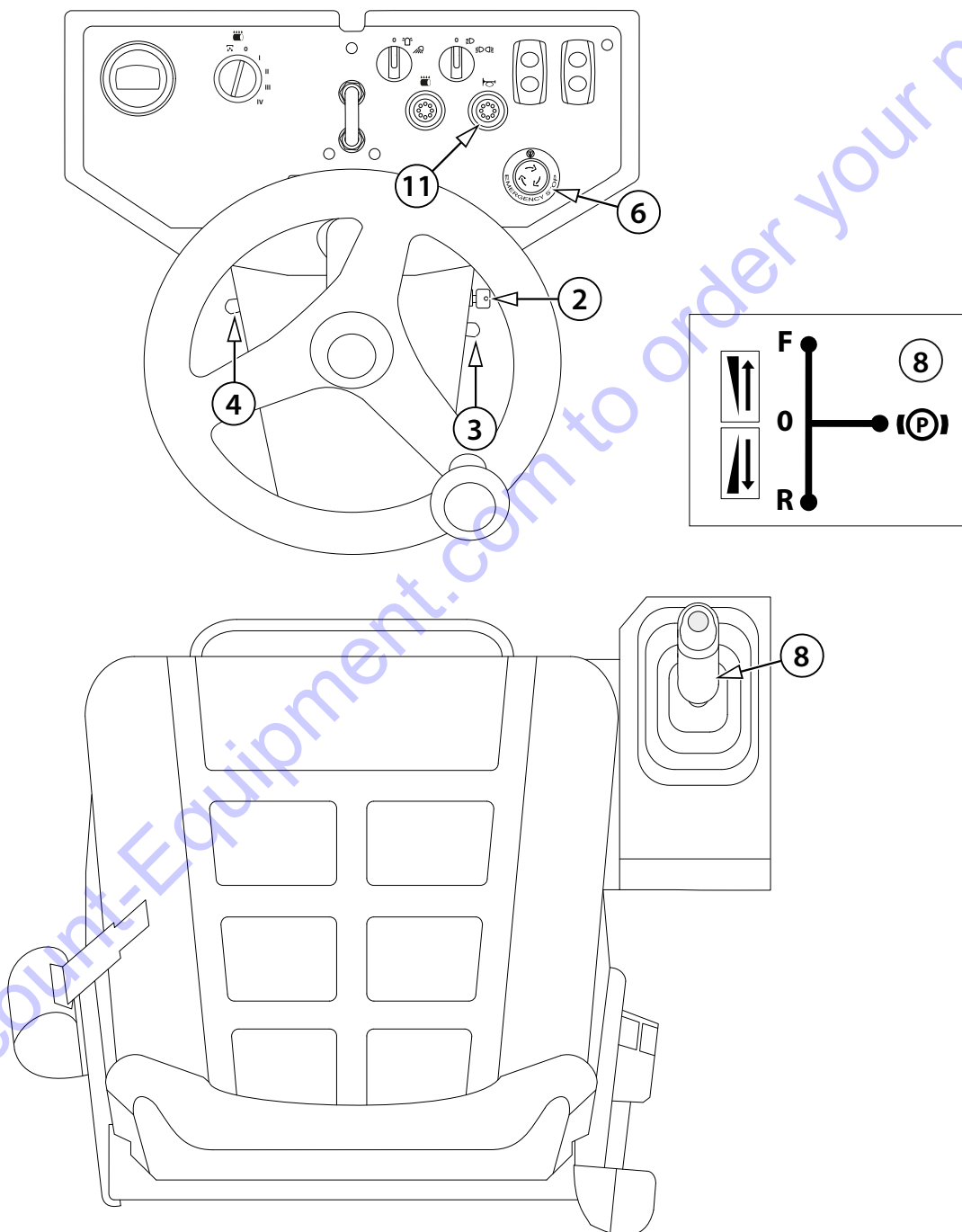
### Engine bonnet

The bonnet protects the engine from:

- weather effects
- vandalism
- handling by others

The bonnet of the engine can be locked with a padlock; the padlock is not delivered in the machine equipment.

## 2.7 Machine operation and use



623024A

## 2.7.1 Starting the engine

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 warning horn to signal the engine starting and check that nobody is endangered by starting the engine!

### Starting the engine:

Turn on the battery disconnecter.

Sit down on the seat.

Fasten your seat belt.

Set the engine speed switch (3) to the idling speed position.

Set the travel control (8) to the brake position (P).

Check that the emergency brake (6) is not enabled.

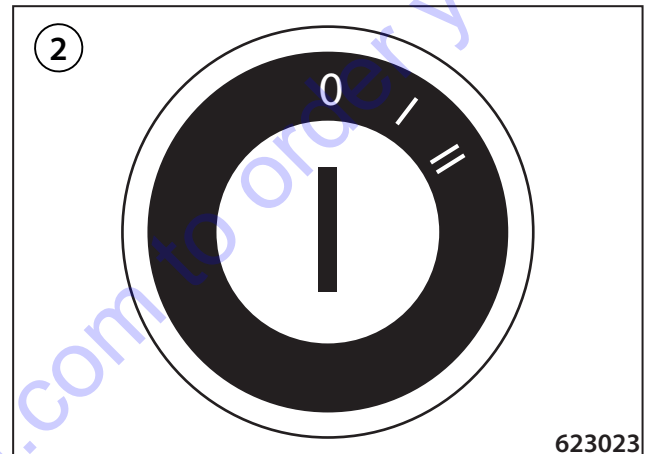
Insert the key into the ignition box (2) in the position "0" and switch over to the position "I".

Use the warning horn (11) to signal that the engine is starting.

Open the choke (4) by moving the lever upwards.

Then turn the key to the "II" position to start the engine. Once the engine started, release the key.

After approx. 10 seconds from engine start, close the choke (4) by setting the lever back to the down position.

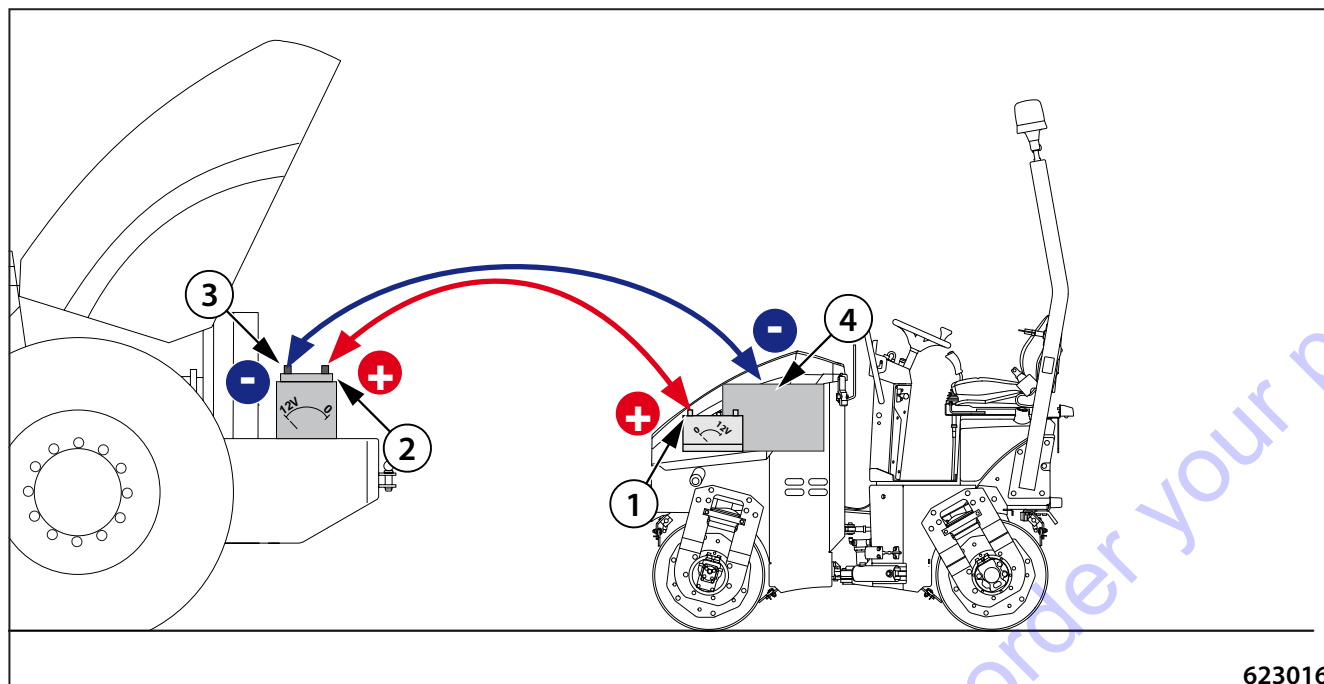


**When driving with a cold engine and cold hydraulic oil, the braking distances are longer than when the oil has reached its operating temperature.**

**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.**

## 2.7 Machine operation and use



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

**The starting supply from the external power supply must be 12 V.  
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 of the external battery.
- 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.**



**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!**

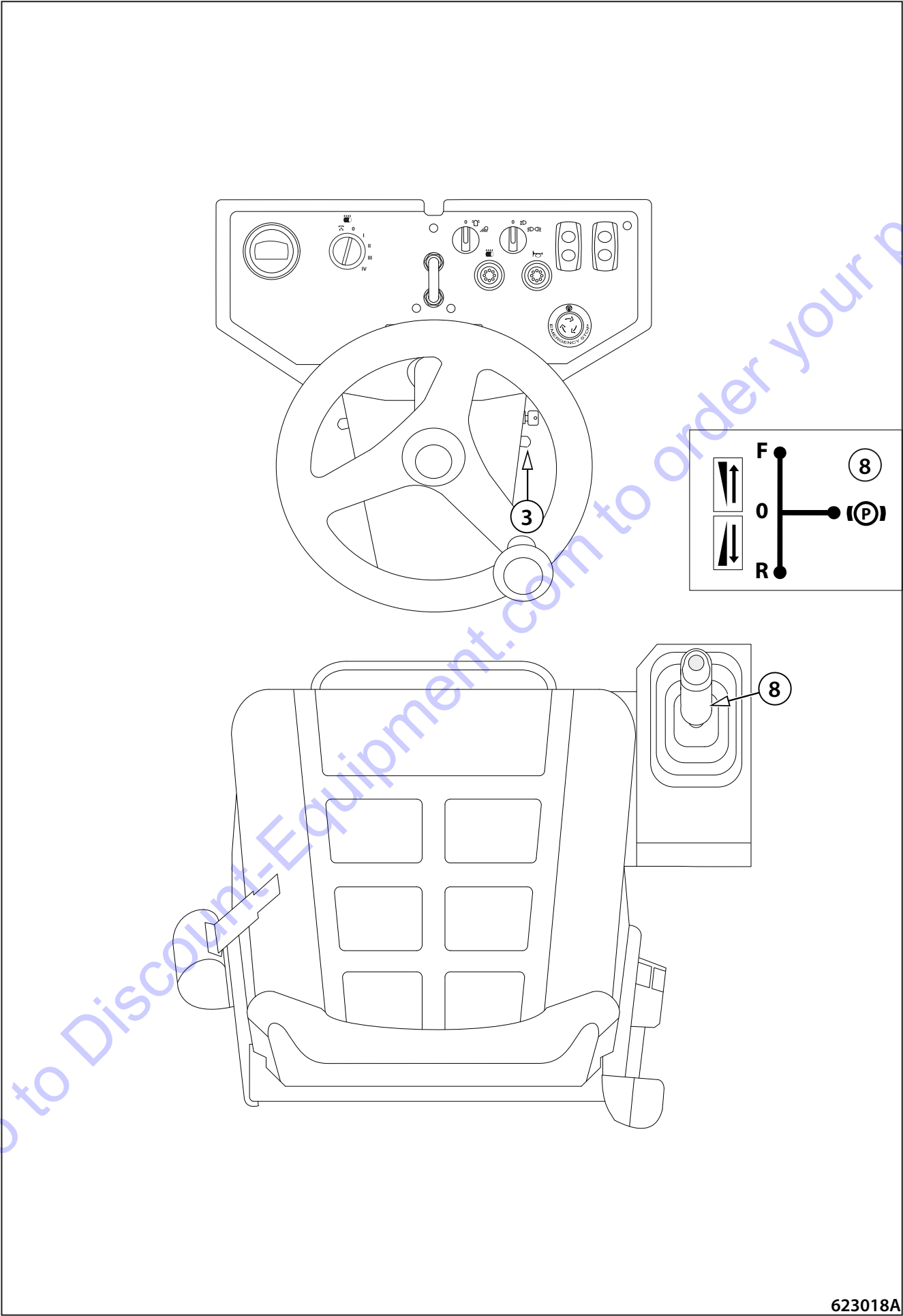
**Do not lean over the batteries – possibility of electrolyte burns!**

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

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

---

2.7 Machine operation and use



623018A

## 2.7.2 Drive and reverse drive



**Before moving off, check that the articulation joint of the machine is locked.**

**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!**

**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!**

**The operator must not control the machine from the ground. If they do so and do not sit on the seat when they move the travel control (8) out of the parking brake position (P), the machine will not brake or start and the engine will shut down.**

**The operator must not leave the operator seat when operating the machine. If he does so anyway and leaves the seat when the travel control (8) is in deflected form the parking brake position (P), the machine behaves according to the seat switch description (Chapter 2.6).**

### **Start the engine**

- Start the engine according to Chapter 2.7.1.
- The engine speed control (3) must be in its lower position.

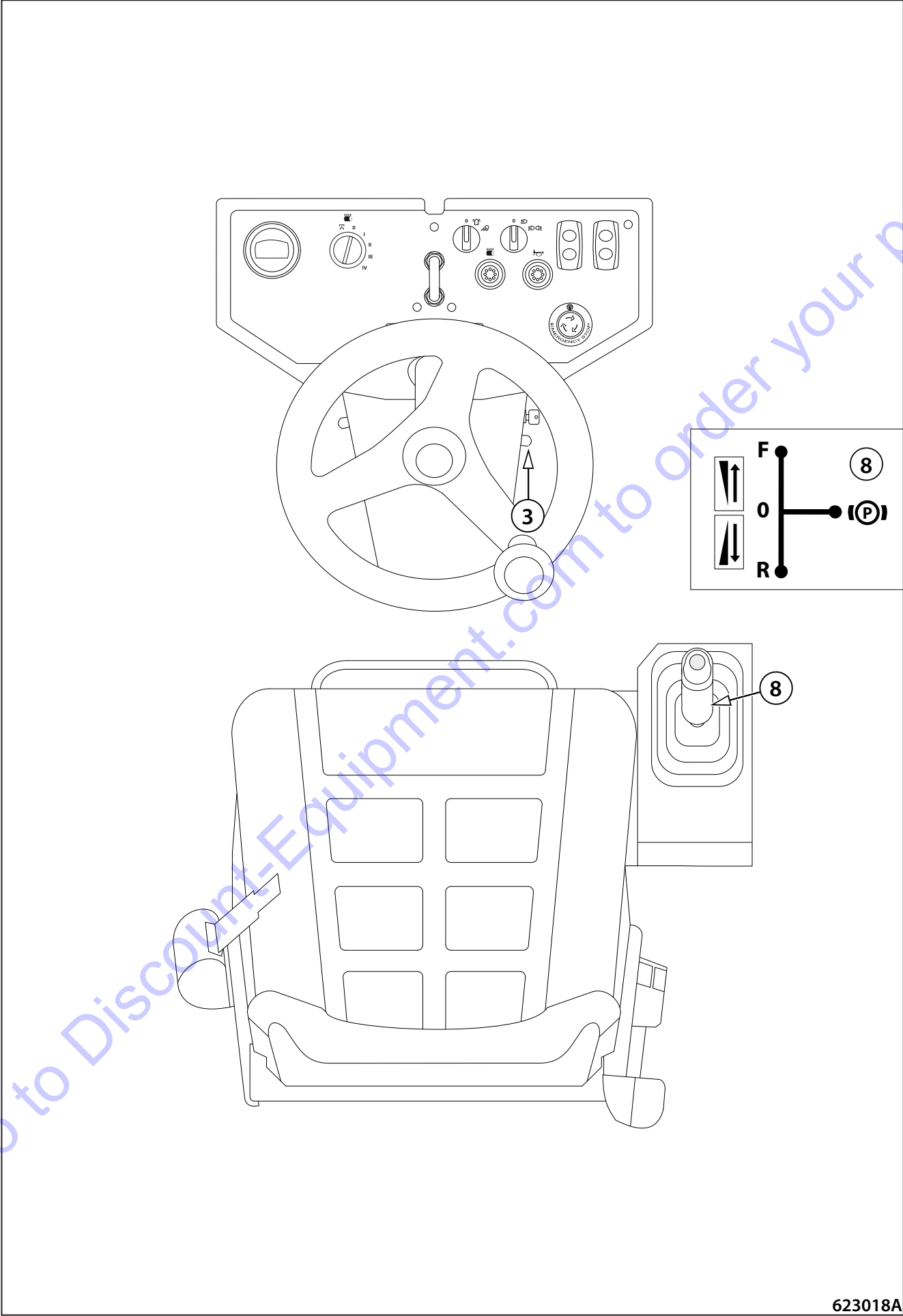
### **Selection of the working engine speed**

- Big working speed: Set the control to the position I (100%).

### **Big working speed:**

- 100% of the travel speed
- 100% engine speed

2.7 Machine operation and use



623018A



### Selection of the travel direction

- Move the travel control (8) from the parking brake (P) to position (0) and select the travel direction (F / R).

When the driver releases the travel control (8), it does not return to the zero position automatically. The travel control remains in the selected position.

### Travel speed selection

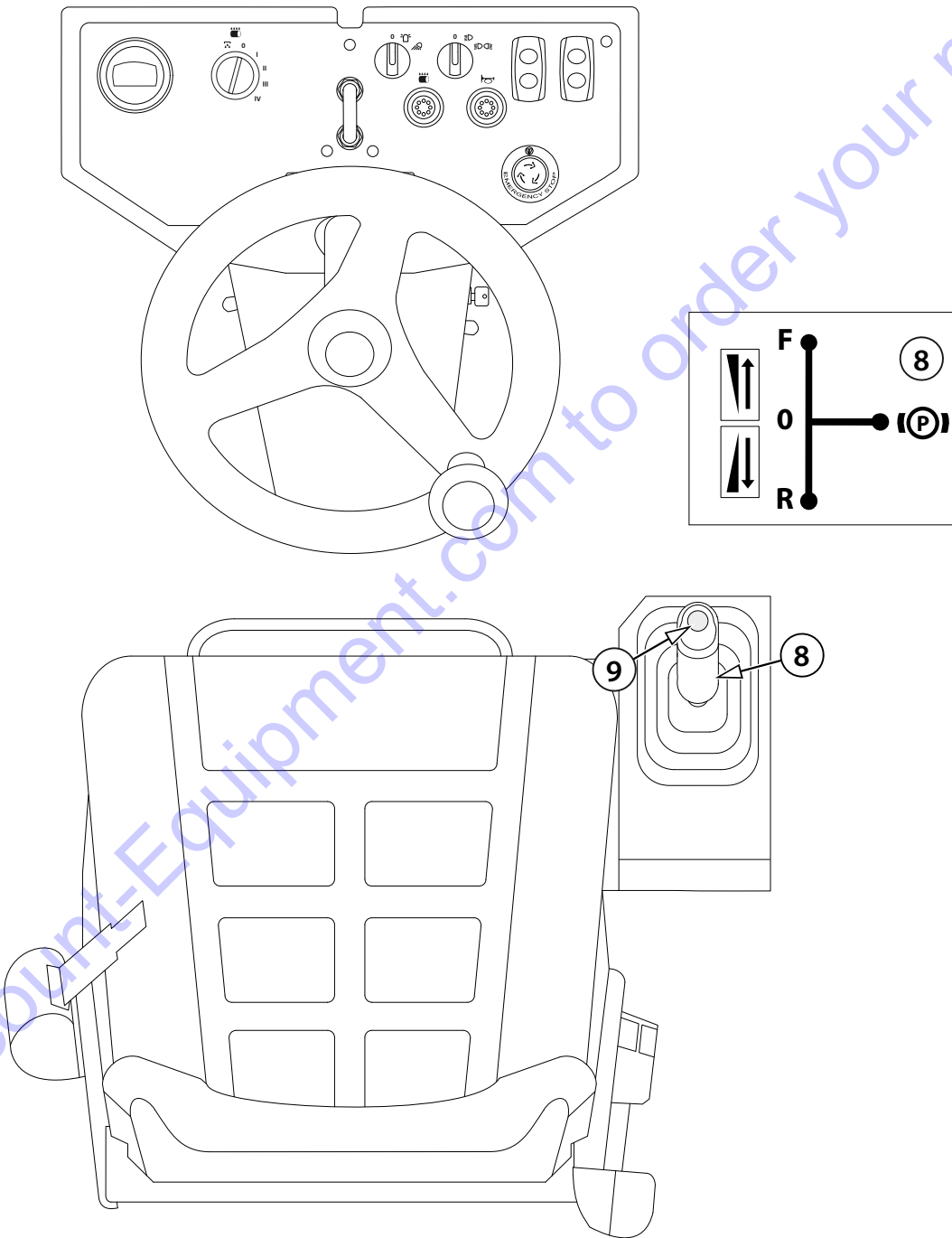
- The travel speed corresponds to the deflection of the travel control (8) from the zero position (0) at the given engine speed (3).

### Note

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

When the driver moves travel control from the brake position (P) without sitting on the seat at that time, the engine will shut down.

2.7 Machine operation and use



623019A

## **Machine travel and reversing with vibration**



**It is forbidden to enable the vibration when the machine is standing.**

---

Using the travel control (8) select the forward (F) or reverse (R) travel direction.

### **Turning on**

- Turn on the vibration with the vibration button (9).

### **Turning off**

- Turn off the vibration with the vibration button (9).

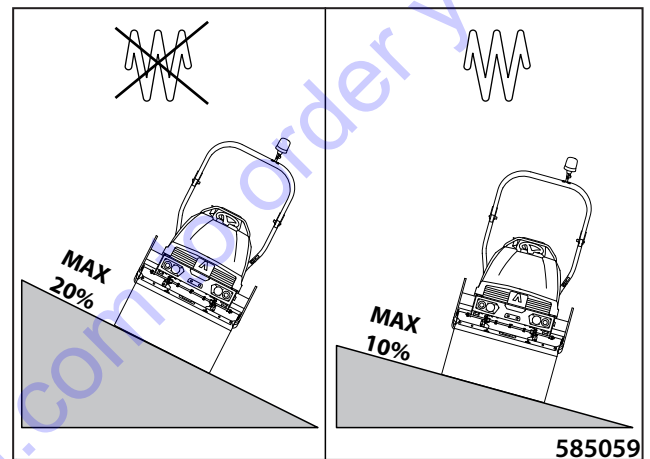
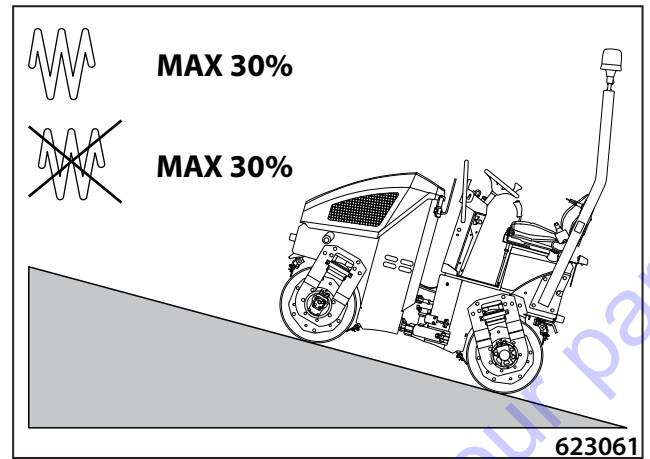


For the maximum permissible slope gradient when driving uphill and across the slope gradient, see figures.

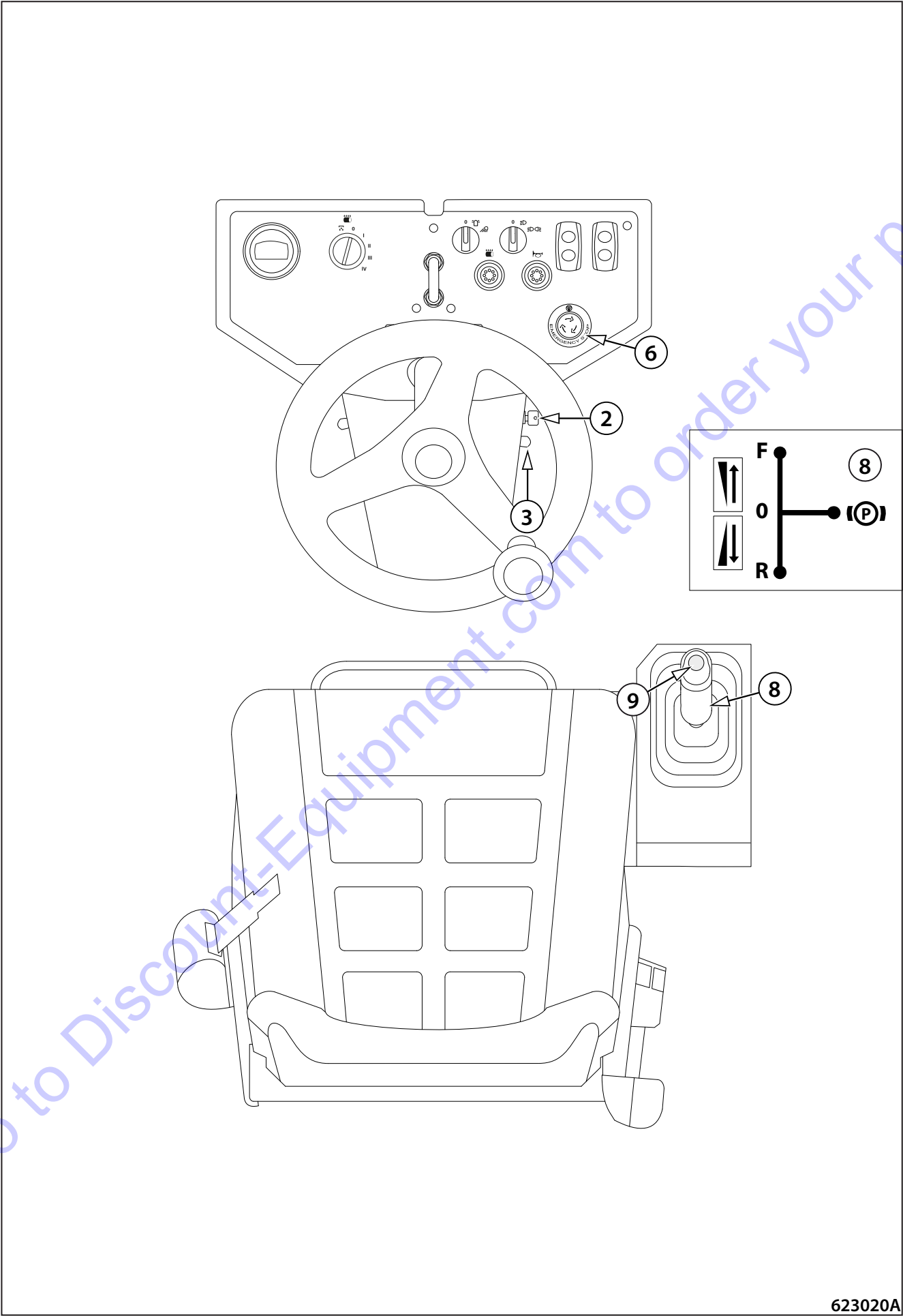
The given values will be lower depending on adhesive conditions and the instantaneous weight of the machine!

Prevent potential danger and pay extra attention to the adherence to permitted slope gradients.

Observe safety precautions. The machine operator must always be fastened with the safety belt.



2.7 Machine operation and use



623020A

### 2.7.3 Stopping the machine and turning off the engine

Turn off the vibration with the vibration button (9).

Turn off the sprinkling cycling device by switching to the "0" position.

Brake the machine by moving the travel control (8) to the parking brake position (P).

Set the engine speed control (3) to the idle speed.

Switch over the key in the ignition box (2) to the position "0", take out the key from the ignition box and close the lid.

Turn off the battery disconnecter when shutting down the machine.

### 2.7.4 Machine emergency stop



**In a dangerous situation requiring the machine to immediately stop, press the emergency brake button (6).**

**The machine will stop moving immediately, the engine will stop working and the parking brake will be enabled.**

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#### **Turning on:**

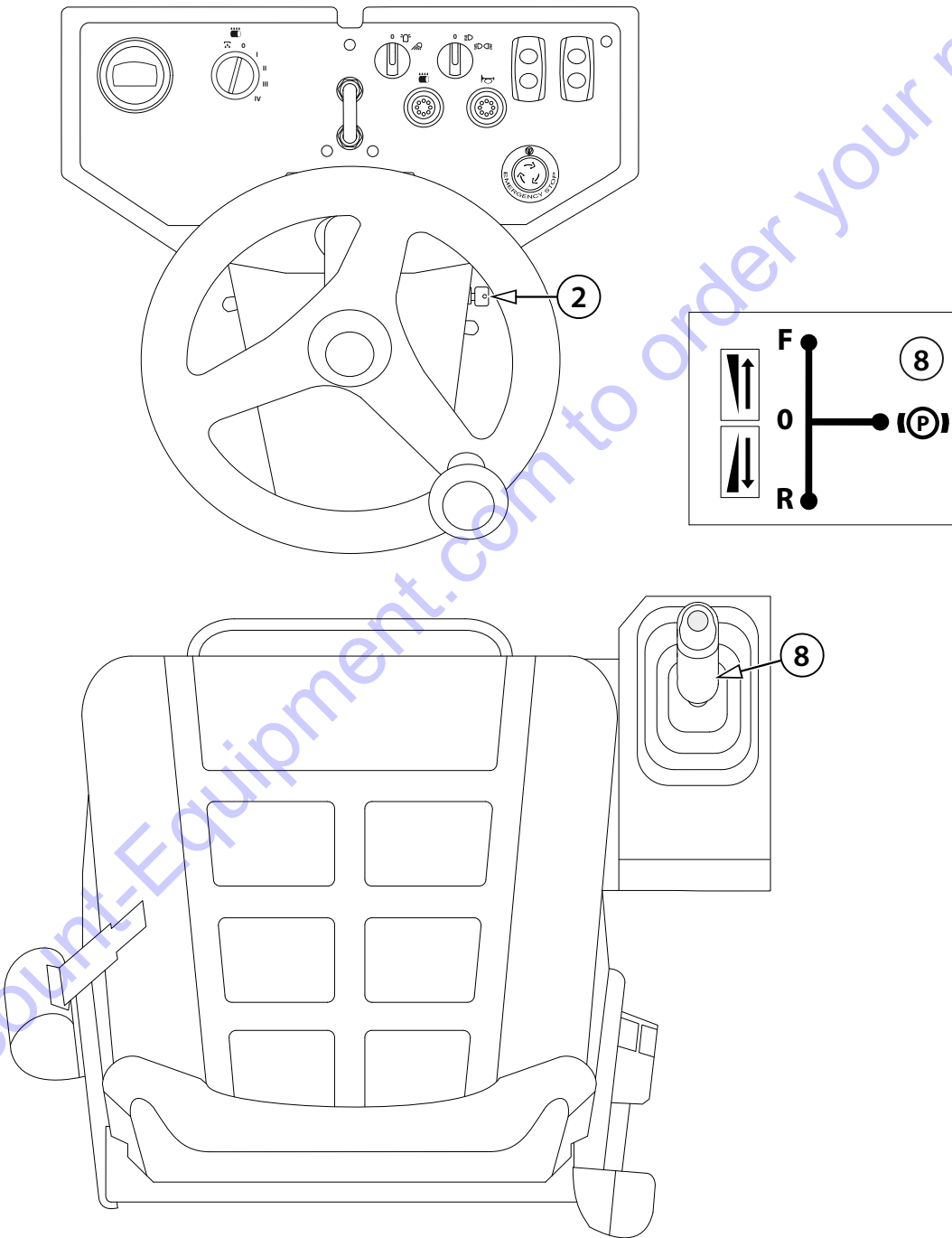
Press the emergency brake button (6) to brake the machine immediately, turn off the engine and apply the parking brake.

#### **Turning off:**

Turn the emergency brake button (6) in the direction of arrows.

Follow the chapter 2.7.1 Engine starting to restart the engine.

2.7 Machine operation and use



623021A

### **2.7.5 Machine parking**

Shut down the machine on a flat and solid surface where there is no potential natural hazard (e.g. landslides, flooding).

Change the travel control (8) to the parking brake position (P).

Switch over the key in the ignition box (2) to the position "0", take out the key from the ignition box and close the lid.

Turn off the battery disconnecter.

Clean the machine from dirt.

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

Lock the cover of the dashboard and the engine bonnet with a padlock.

#### **Note**

The padlock is not delivered in the machine equipment.

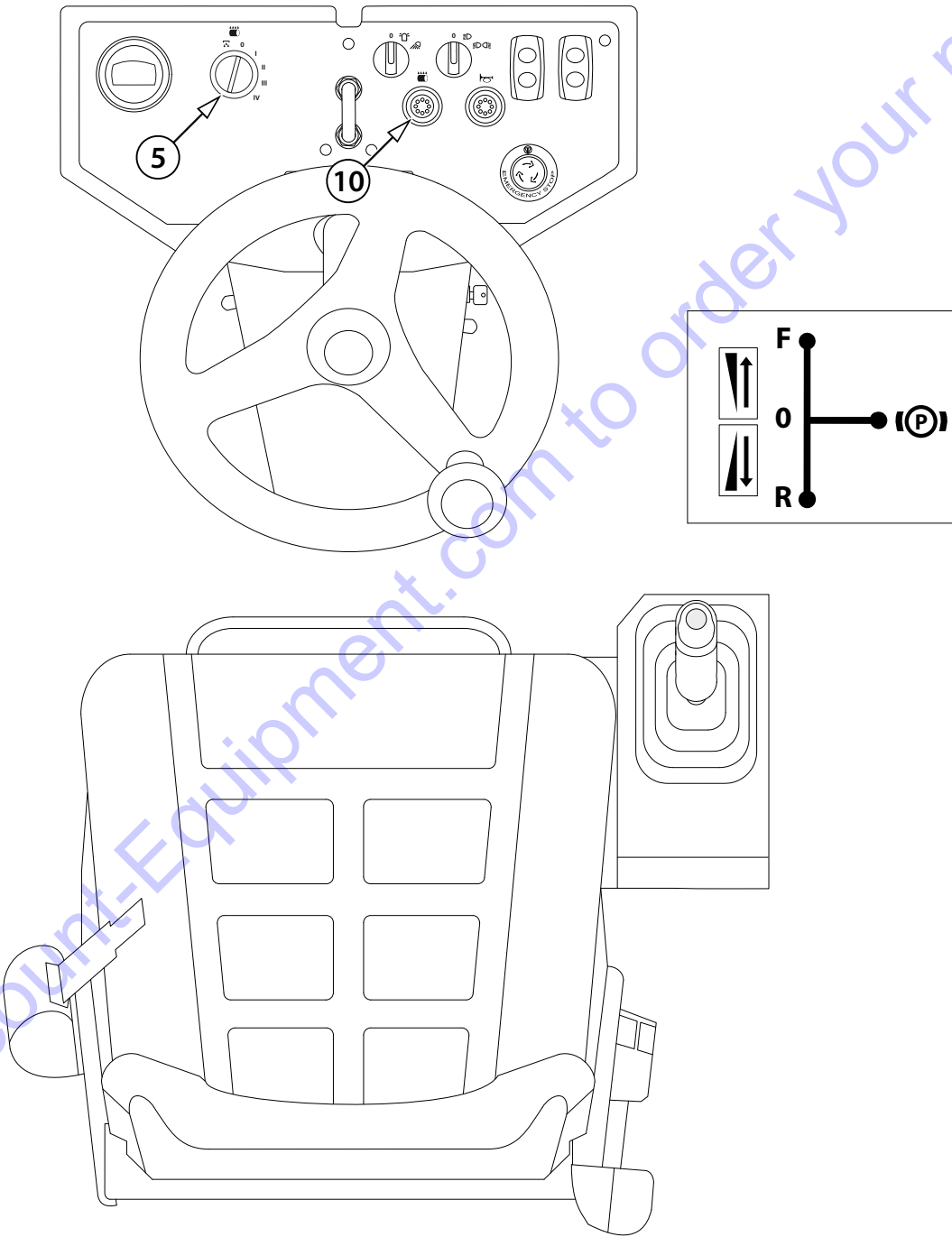
Protect the dashboard and the engine compartment from unauthorized access of others by locking the dashboard cover and the engine bonnet.



**It is forbidden to use the parking brake for bringing the machine to a stop.**

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## 2.7.7 Sprinkling

The water level in the tank is shown on the indicator (1).  
Hole to fill the water tank (2).

**The sprinkling can be started under the conditions that:**

- The engine of the machine is started,
- the emergency brake is disabled.

### Note

In the interval sprinkling mode, also the conditions of the machine in motion or of active manual vibration must apply.

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

### Sprinkling cycling device

Turn on the sprinkling with the sprinkling cycling device (5).

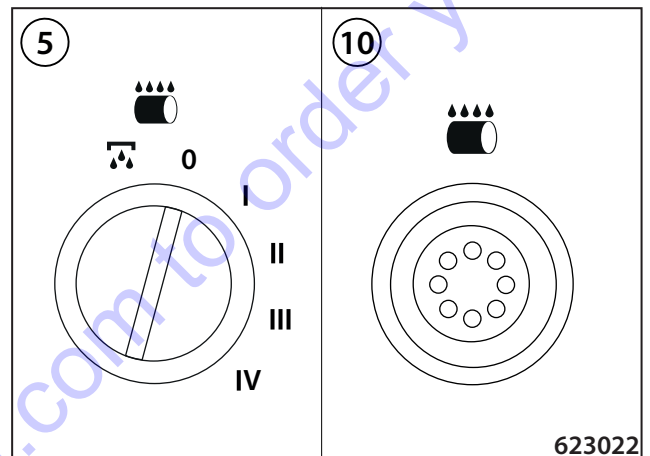
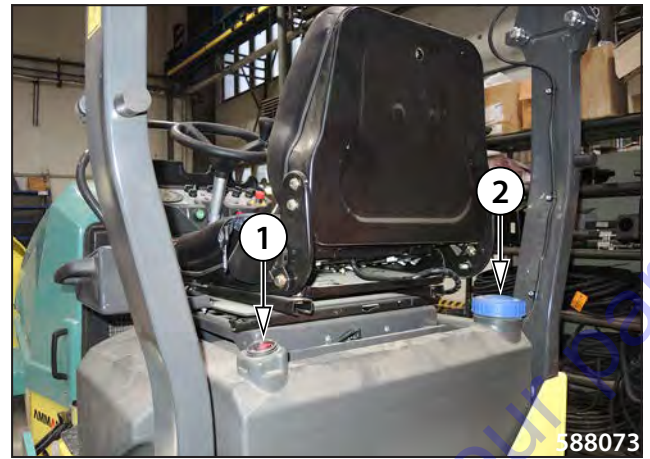
Turn the switch to the left to put the pump into continuous operation – continuous sprinkling.

Turn the switch to any of the four positions to the right to switch on a sprinkling cycle interval.

### Manual sprinkling

Using the sprinkling button (10), it is possible to turn on the sprinkling at any time, e.g. before driving on a compacted bitumen surface.

The sprinkling can be started for sprinkling the front and rear drum.



## 2.7 Machine operation and use

### 2.7.9 ROPS lifting and lowering

#### ROPS lifting

Lift the ROPS to the vertical position and mount the front screws of the ROPS on the left and right side.



Mount the cotter pins.



## ROPS lowering

Remove the split pins.



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



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



**Lower and raise the ROPS with the help of another person so that both persons stand from the sides of the machine (A).**

**There is a risk of injury from the falling ROPS.**

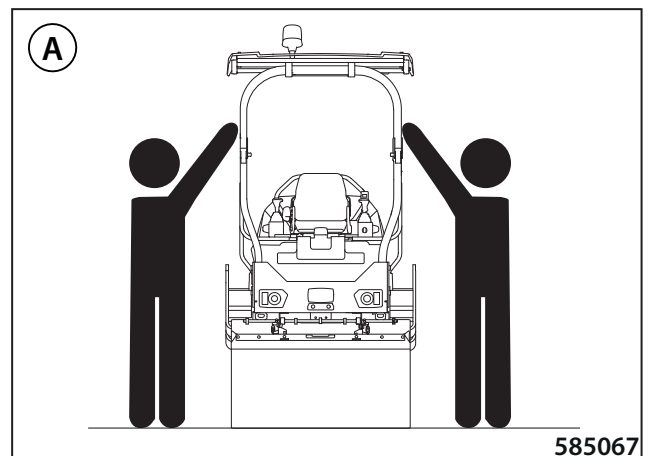
**Do not operate the machine when the ROPS is lowered.**

**There is a risk of fatal injury.**

**Lower the ROPS only during the transport.**



**The tightening torque of the ROPS screws is 147 Nm.**



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## 2.7 Machine operation and use

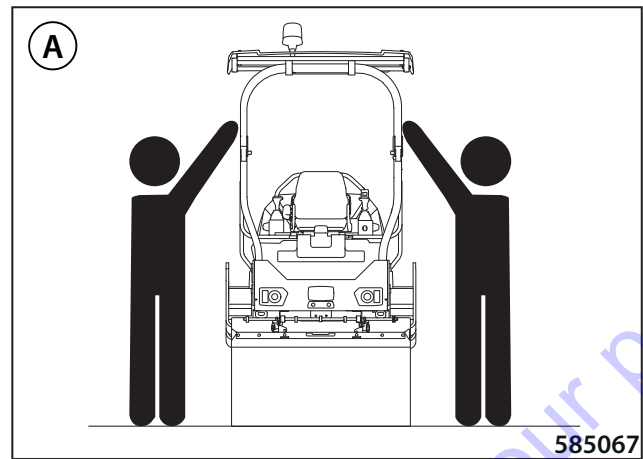
### 2.7.9.1 Protective ROPS frame with a plastic canopy

Only lower or raise the ROPS frame with the help of another person.



Lower and raise the ROPS with the help of another person so that both persons stand from the sides of the machine (A).

Use the lowered frame only for transporting the machine. Do not operate the machine when the ROPS frame is lowered.

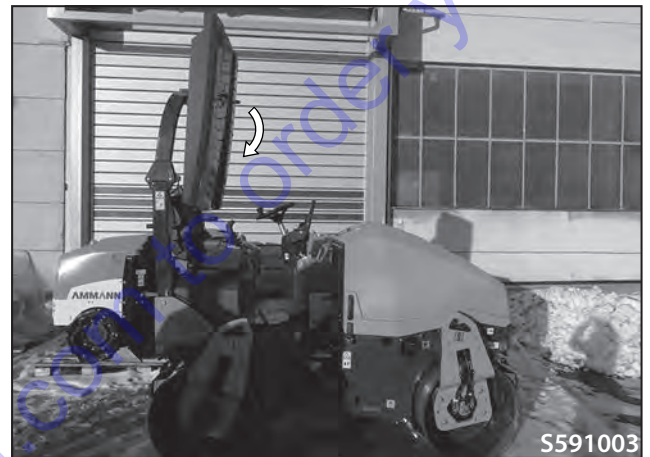
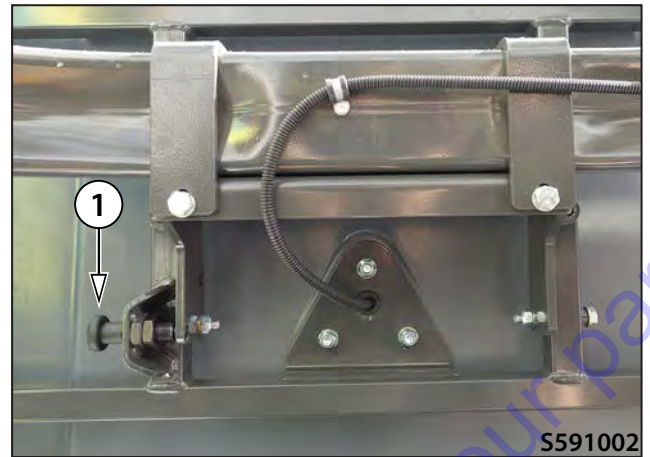


#### Lowering procedure

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



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



Remove the cotter pins on the left and right side of the ROPS frame.

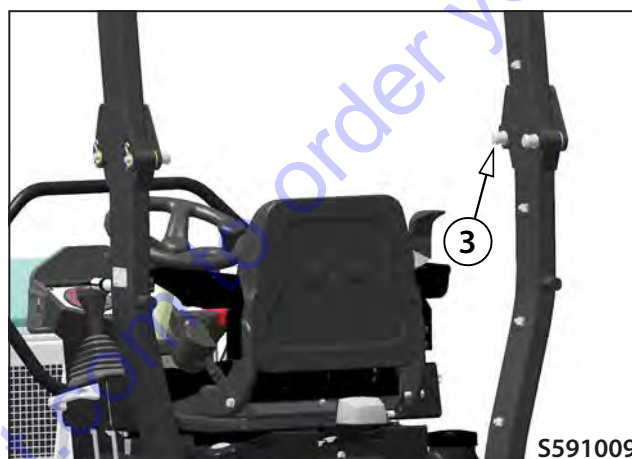
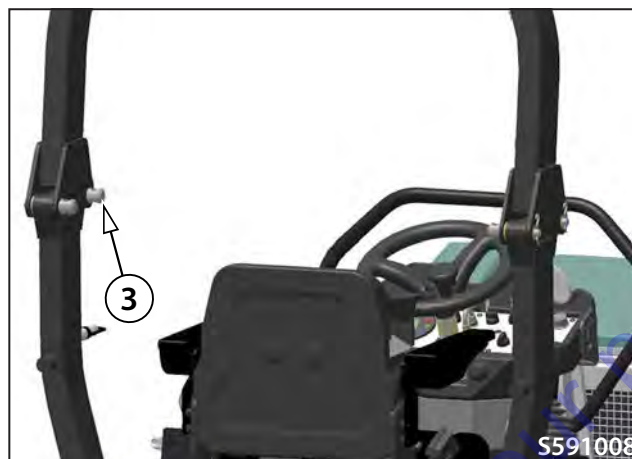


Loosen the rear pegs (2) on the left and right side of the ROPS frame by approximately two turns.



## 2.7 Machine operation and use

Remove the front pegs (3) on the left and right side of the ROPS frame.

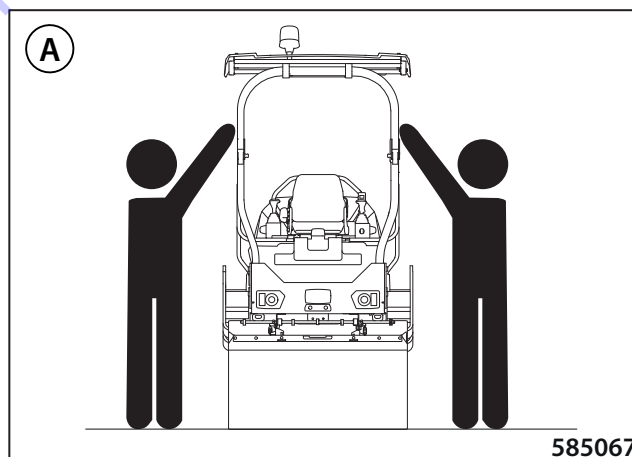


Lower the ROPS frame with the help of another person.

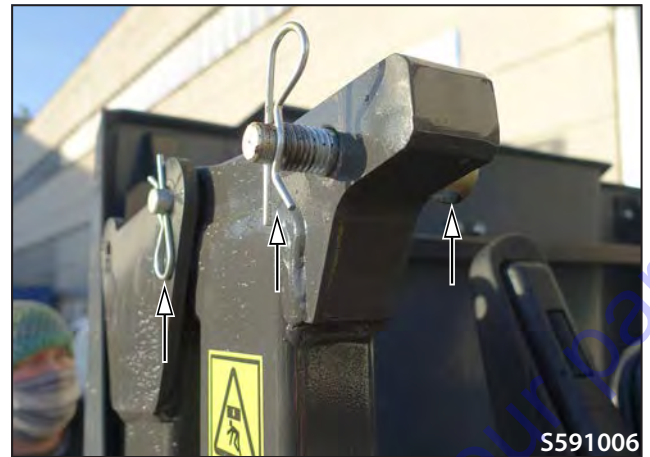


**The frame may fall when it is being raised or lowered and cause injury.**

**Lower and raise the ROPS with the help of another person so that both persons stand from the sides of the machine (A).**

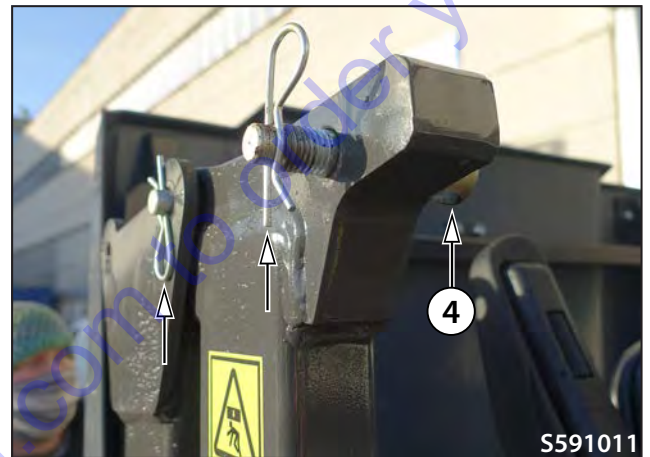


Insert the pegs at the top of the frame on the right and left side and secure them with cotter pins.



## Raising procedure

Remove the cotter pins and remove the front pegs (4) on the left and right side of the ROPS frame.

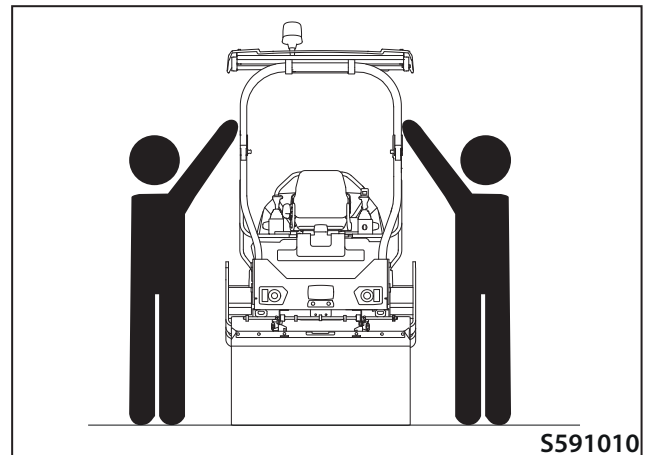


Raise the ROPS frame with the help of another person.



**The frame may fall when it is being raised or lowered and cause injury.**

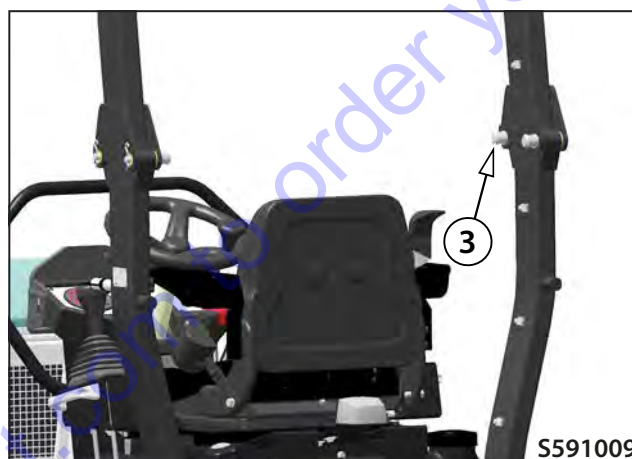
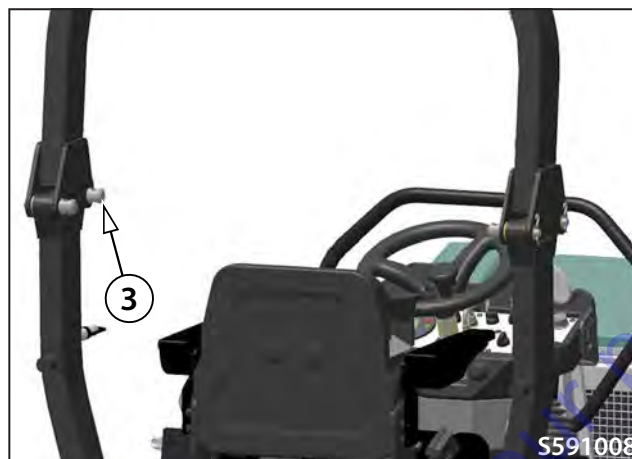
**Lower and raise the ROPS with the help of another person so that both persons stand from the sides of the machine (A).**





## 2.7 Machine operation and use

Insert the front pegs (3) on the left and right side of the ROPS frame.



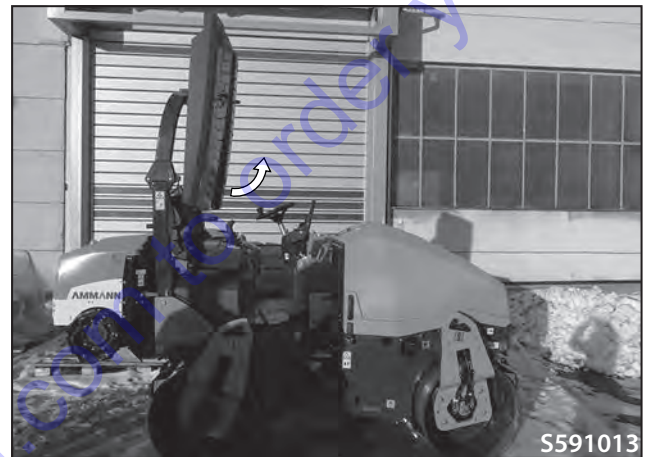
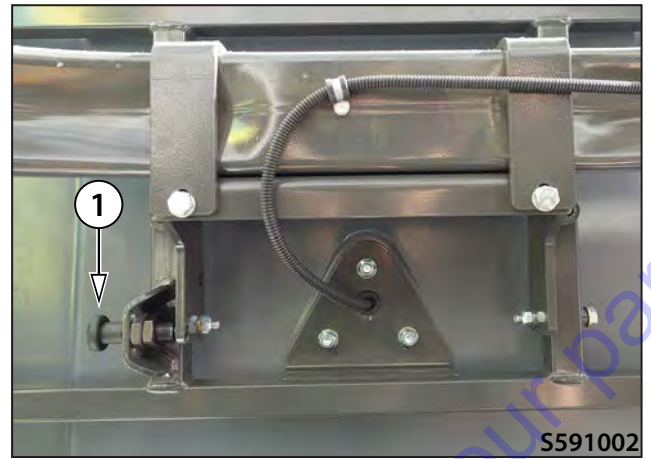
Tighten the rear pegs (2) on the left and right side of the ROPS frame.



Mount the cotter pins on the left and right side of the ROPS frame.



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



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



## 2.7 Machine operation and use

---

### 2.7.10 Telematics readiness

Global positioning system with telemetry that monitors the machine's operating systems (machine start-up) and 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.



**Turn off the battery disconnecter before installation or maintenance.**



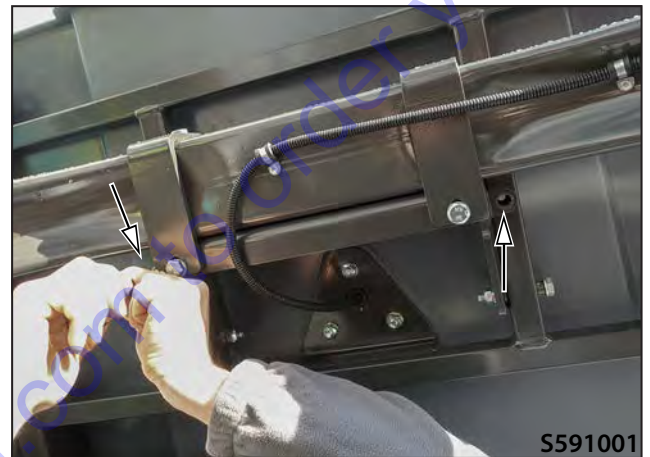
**Installation shall only be carried out by trained personnel according to the wiring diagram.**

**In case of a failure, contact your dealer or Ammann Technical Support.**

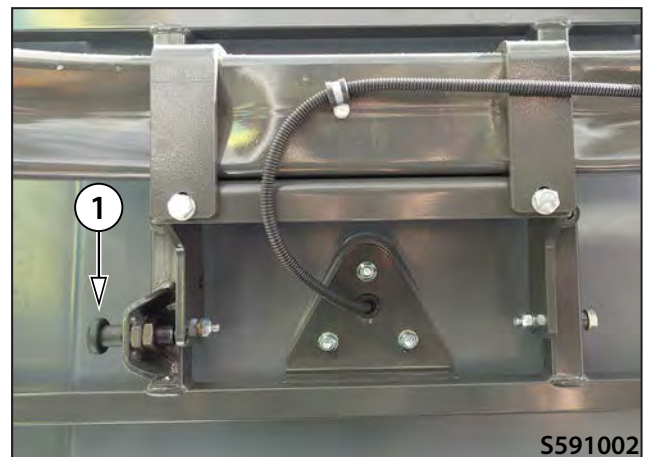
### 2.7.13 Lowering and raising of the plastic canopy

#### Lowering procedure

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



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

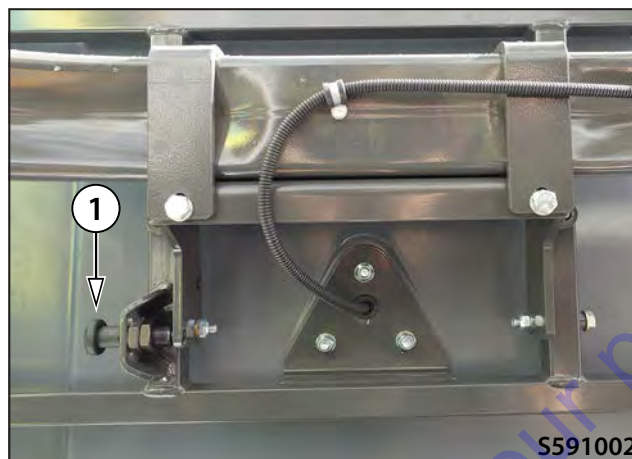




## 2.7 Machine operation and use

### Raising procedure

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



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



- The machine can move on its own within the work site.



**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 (1).**

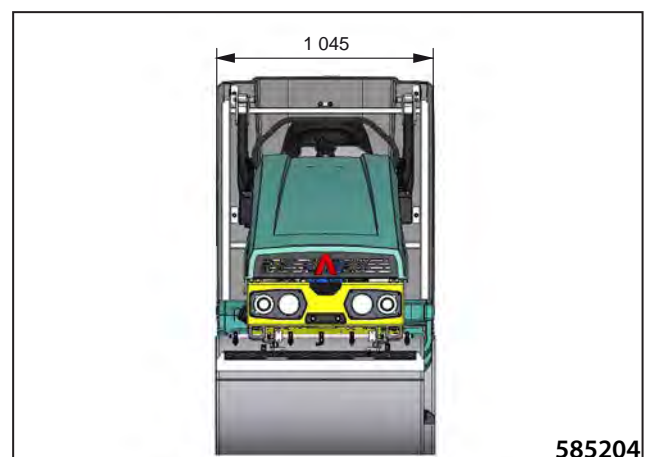
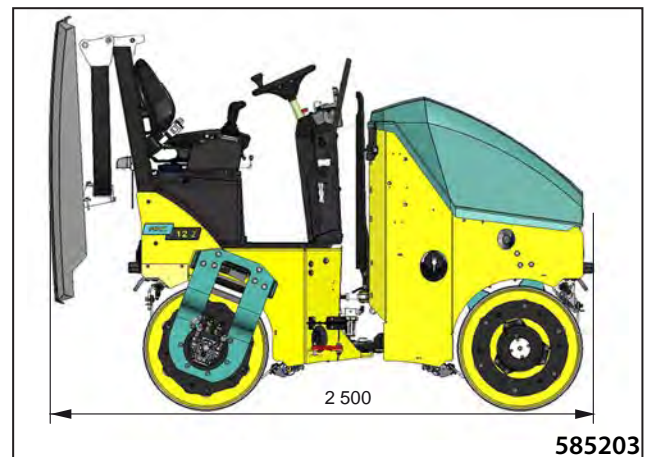
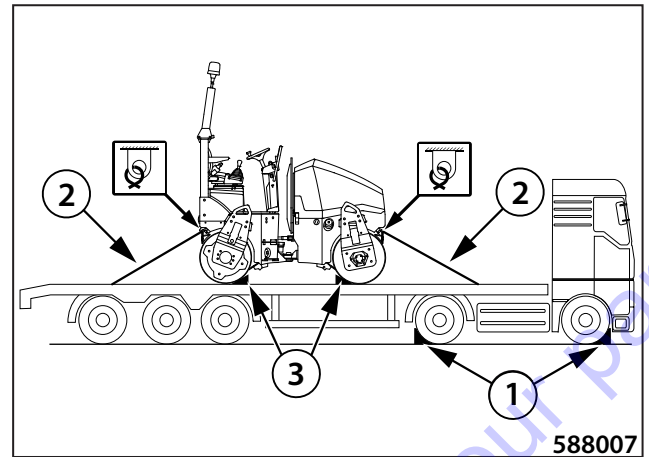
**The articulation joint of the machine must be secured with a strut against tilting on the vehicle.**

**The machine on the vehicle must be properly anchored and mechanically secured with the slings (2) in tie-down holes against longitudinal and lateral displacement as well as against overturning. The machine drums must be secured against accidental movement using wedges (3).**

**The battery disconnecter must be off.**

**If the machine is equipped with folding scrapers, the scrapers must be folded, see Chapter 3.6.9 Scraper adjustment.**

**Take extra care when loading a machine with a plastic canopy.**



### Machine freeing and towing according to ČSN EN 10532

Maximum machine weight	1500 kg
Traction force	22 kN
Minimum rope length for forward towing	1500 mm
Minimum rope length for reverse towing	1500 mm

## 2.8 Machine transport



For freeing or towing the machine, use two ropes or chains of equal length.

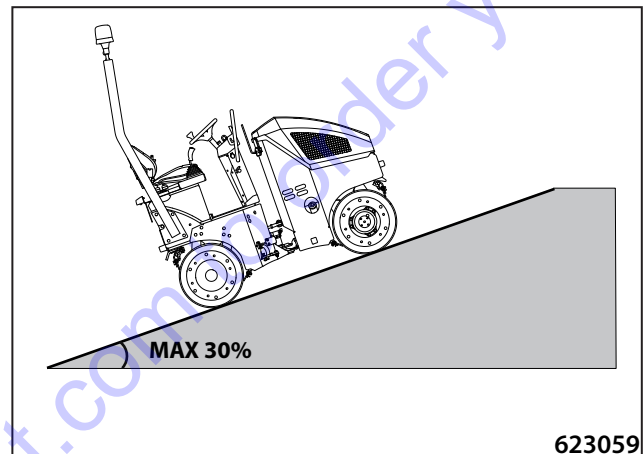
### 2.8.1 Loading the machine

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 Loading the machine using a crane

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

Use a crane with a sufficient load capacity.

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



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



Observe safety regulations while loading and unloading!

Use a crane with a sufficient load capacity!

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

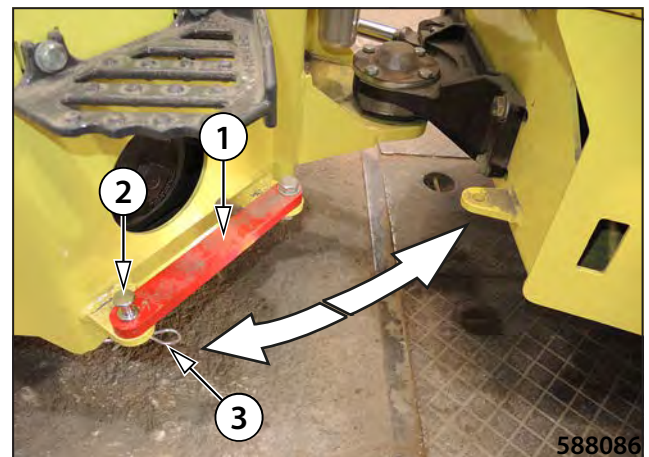
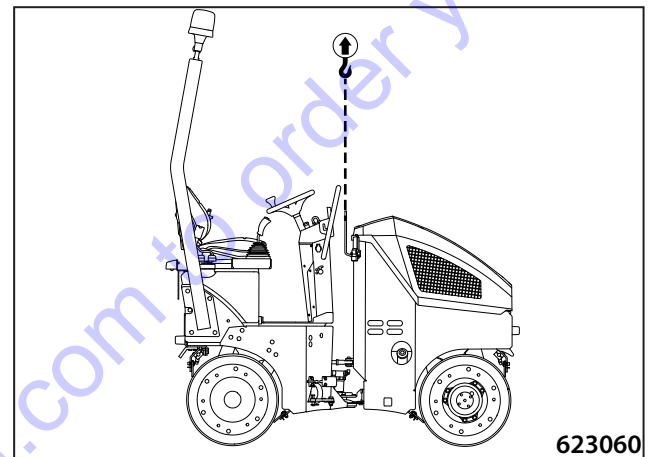
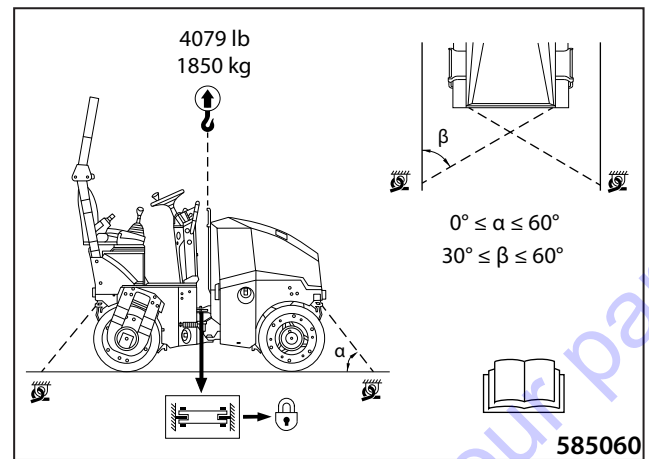
The machine must be tied to the 1-point suspension!

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

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

Do not enter under the lifted load!

The battery disconnecter must be off when loading the machine with a crane.





## 2.9 Special conditions to use the machine

---

### 2.9.1 Machine operation during initial run 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!

### 2.9.2 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).

#### Prepare the machine for operation at low temperatures:

- Replace the engine oil with the oil recommended for the range of ambient temperatures.
- Use hydraulic oil of the corresponding cinematic viscosity.
- Use fuel with winter additive.
- Check the battery for charging.

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.

### 2.9.3 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 higher ambient temperatures, we recommend replacing the oil with the ISO VG 100 oil with the cinematic viscosity of 100 mm<sup>2</sup>/s at 40 °C (104 °F).

### 2.9.4 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.**

---

### 2.9.5 Machine operation in dusty environment



**While operating in a very dusty environment, shorten cleaning and replacement intervals of air filter cartridges and shorten cleaning intervals of coolers.**

**The recommended cleaning interval is once a week.**

### 2.9.6 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 driver's stand increases. It can be partially removed by increasing the travel speed.

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 – Noise and vibration emissions.

## **3 MAINTENANCE MANUAL**

### **ARX 10.1**

### **(Honda Phase 3)**

## 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 – petrol fuel
  - IV hazard class IV – 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 fuel, use vessels such as metal barrels, jerry cans 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 Safety and other measures during maintenance of the machine

### 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 fluids 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 (dis-mounted, 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 fluids and batteries;
  - cooling system media;
  - cleaning and preservative agents;
  - all dismounted filters and filter cartridges,
  - all used and discarded hydraulic or fuel hoses, rubber-metal elements 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 Specification of operating fluids

### 3.2.1 Engine oil



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

#### Performance classification according to

API (AMERICAN PETROLEUM INSTITUTE)

ACEA (ASSOCIATION DES CONSTRUCTEURS EUROPPÉENS DE AUTOMOBILE)

#### Viscosity classification

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

Use oil that meets or exceeds API SJ grade specifications.

#### Note

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

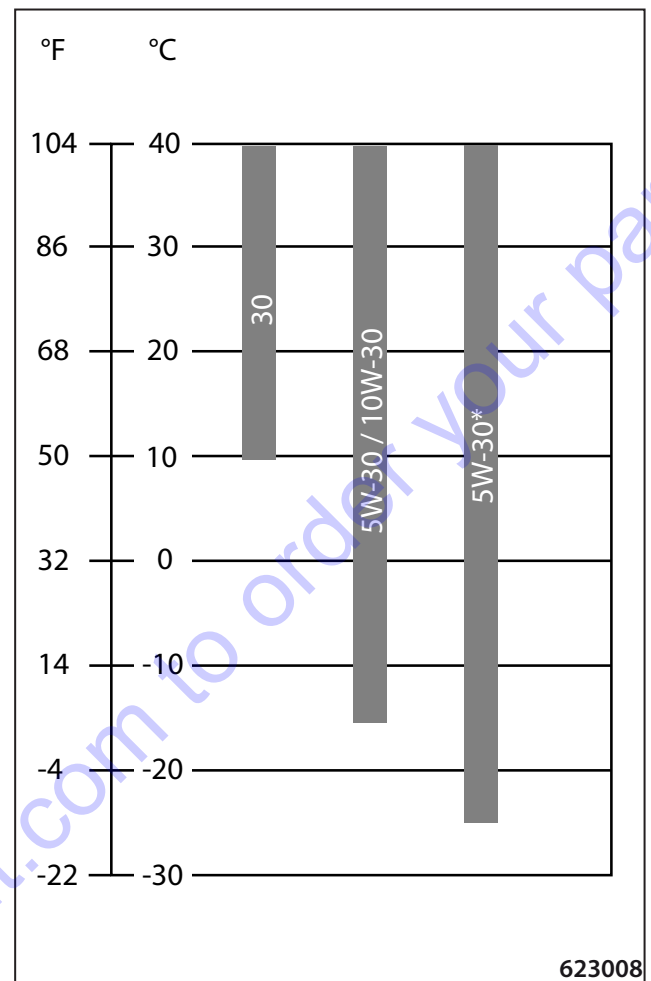
It is recommended that universal multi-range oils are used to avoid the necessity of oil changes due to changes of ambient temperature.

SAE 10W-30 or 5W-30 is recommended for normal use. For starting/operating temperatures of -15 °C and -25 °C, use 5W-30 full synthetic oil. Oils with other viscosities may be used if the average temperature at the point of use is within the specified range – viscosity chart.



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

Viscosity diagram



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## 3.2 Specification of operating fluids

### 3.2.2 Fuel



The engine uses petrol:

The engine manufacturer recommends unleaded petrol:

USA	Petrol with an octane rating of PON 86 or higher.
Outside the USA	Petrol with an octane rating of RON 91 or higher
	Petrol with an octane rating of PON 86 or higher

#### Note

You may use regular unleaded petrol that contains no more than 10% ethanol (E10) or 5% methanol. In addition, methanol must contain solvents and corrosion inhibitors.

Using fuel with a higher ethanol or methanol content than recommended above may cause starting and/or performance problems.

Damage to metal, rubber and plastic parts of the fuel system may also occur.

Engine damage or performance problems caused by the use of fuel with a higher ethanol or methanol content than recommended above are not covered under warranty.

### 3.2.4 Hydraulic oil



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

Fill the machines with hydraulic oil that has cinematic viscosity of 46 mm<sup>2</sup>/s at 40 °C (104 °F) ISO VG 46. This oil is the most appropriate to be used within the widest range of ambient temperatures.

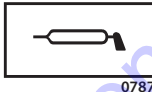
#### Synthetic hydraulic oil

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!**

### 3.2.3 Vibrator lubricating grease



To lubricate the machine, use Valar intensive HTF 00.

### 3.2.5 Lubricating grease




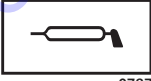



To lubricate the machine you must use plastic grease containing lithium according to:

ISO 6743/9 CCEB 2

DIN 51 502 KP2K-30

### 3.3 Fluids

Part	Fluid type	Fluid quantity l (gal US)	Brand
Engine	Engine oil according to Chapter 3.2.1.	1.35 (0.4)	 2412
Fuel tank	Fuel according to Chapter 3.2.2.	27 (7.1)	 4294bz
Hydraulic system	Hydraulic oil according to Chapter 3.2.4.	15 (4)	 2158
Steering joint bearings, stirrup bearings, steering swivel pins, suspensions	Lubricating grease according to Chapter 3.2.5.	as required	 0787
Sprinkling tank	Water	110 (29.1)	 AMN59



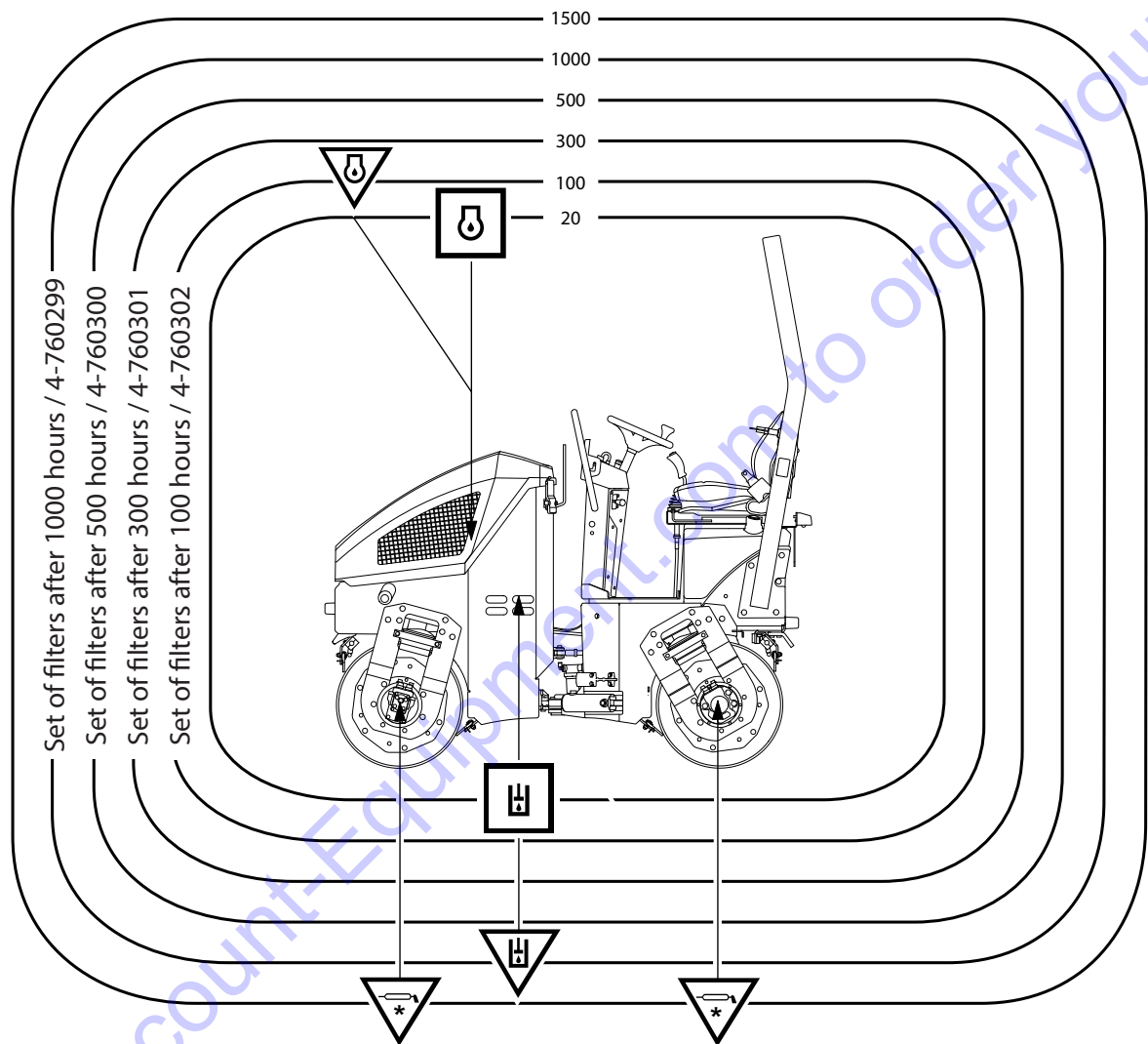
### 3.4 Lubrication and maintenance chart

Every 20 hours of operation (daily)	
3.6.1	Fuel check
3.6.2	Checking the oil in the engine
3.6.3	Checking the oil in the hydraulic tank
3.6.4	Cleaning the hydraulic oil cooler
3.6.5	Air filter check
3.6.6	Sprinkling tank refilling
3.6.7	Scraper adjustment
3.6.8	Checking the warning and checking devices
3.6.9	Engine leakage check
3.6.10	Brake test
3.6.11	Checking the tightness of the fuel and hydraulic system
After 20 hours of operation	
3.6.14	Engine oil change
Every 50 hours of operation	
3.6.12	Battery check
After 50 hours of operation	
3.6.27	Hydraulic oil and filter replacement **
Every 100 hours of operation	
3.6.13	Air filter cleaning
3.6.14	Engine oil change*
3.6.15	Checking and adjusting the spark plug
3.6.16	Cleaning the spark arrester
Every 200 hours of operation	
3.6.17	Sprinkling filter cleaning
Every 300 hours of operation	
3.6.18	Fuel filter replacement
3.6.19	Spark plug replacement
3.6.20	Valve clearance check and adjustment
3.6.21	Checking and adjusting idle speed

After 500 hours of operation, but at least once a year	
3.6.22	Electrical installation check
3.6.23	Replacement of air filter cartridges
3.6.24	Checking the rubber-metal elements of the hydraulic oil cooler
3.6.25	Checking the fuel system hoses
Every 1000 hours of operation	
3.6.26	Cleaning the combustion chamber
3.6.27	Hydraulic oil and filter replacement **
3.6.28	Damping system check
3.6.29	Swinging support check
3.6.30	Articulation joint check
Every 1500 hours of operation	
3.6.31	Changing the vibrator lubricant
3.6.32	Checking the condition of vibrator bearings
Every 2000 hours of operation	
3.6.33	Replacing the rubber-metal elements of the hydraulic oil cooler
Maintenance as required	
3.6.34	Replacing the fuel system hoses
3.6.35	Gas strut replacement
3.6.36	Cleaning the water tank
3.6.37	Cleaning the machine
3.6.38	Draining water from the sprinkling circuit before the winter season
3.6.39	Rear-view mirrors
3.6.40	Charging of the battery
3.6.41	Checking the screw connections for tightening
<p>* First after 20 engine hours.</p> <p>** First after 50 engine hours.</p>	

# LUBRICATION AND SERVICE PLAN

<input type="checkbox"/>	INSPECTION
<input type="radio"/>	LUBRICATION
<input type="checkbox"/>	REPLACEMENT



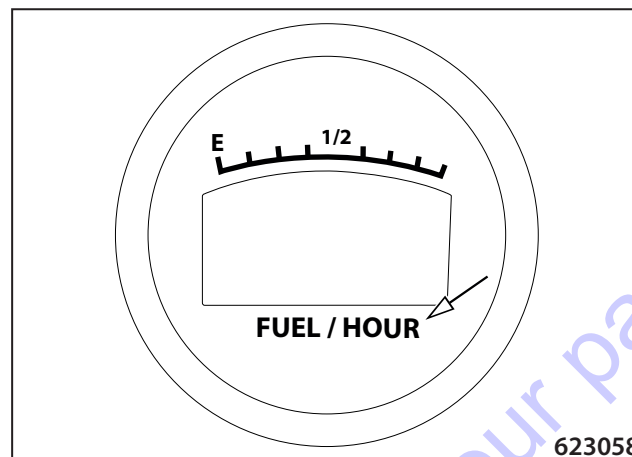
	Engine oil:	<b>SAE 10W/30</b> <b>SAE 5W/30</b>	<b>API SJ</b>
	Hydraulic oil:	<b>ISO VG 46 HVLP</b>	
	Lubricating grease:	<b>VALAR INTENSIVE HTF 00</b>	

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### 3.6 Lubrication and maintenance operations

The lubrication and maintenance chart contains tasks and instructions that must be followed at certain intervals.

The worked hours can be determined by daily reading of the data on the worked hours counter.



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.



**Follow also instructions given in the engine operating 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 3.6.41 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).**

**After the first 50 hours of operation of the new machine or after its general overhaul, carry out the following operations according to Chapter:**

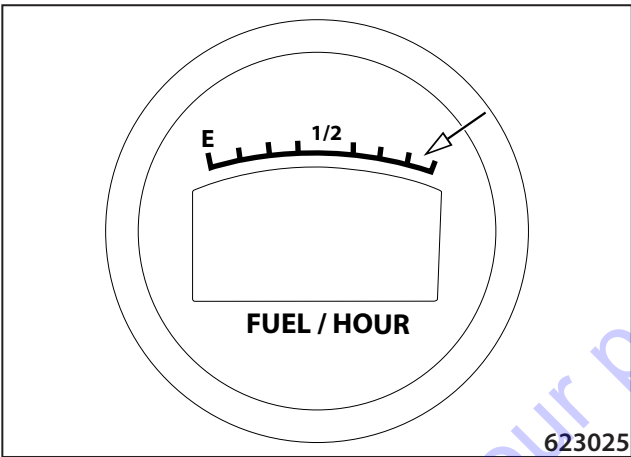
- 3.6.14 Engine oil change
- 3.6.27 Hydraulic oil and filter replacement

### 3.6 Lubrication and maintenance operations

#### Every 20 hours of operation (daily)

##### 3.6.1 Fuel check

- Check the fuel level on the dashboard and refill if necessary.



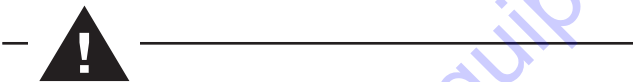
- Clean the tank cap and the filler neck.
- Unlock the lock and remove the cap.
- Refill the tank up to the bottom line of the filler neck.

**Note**

The fuel tank volume is 27 l (7.1 gal US).



**Fill up the same fuel type; see Chap. 3.2.2.**  
**Check the fuel tank and the fuel circuit for leaks.**



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



**Stop the fuel soaking into the ground.**

### 3.6.2 Engine oil check

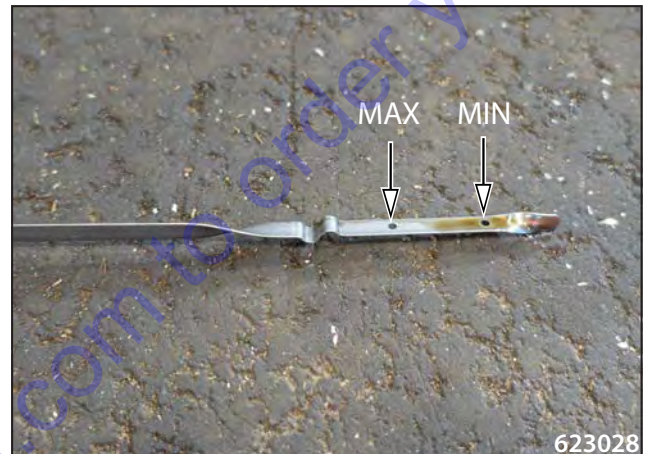
- Wait for about 5 min. until the oil flows down into the engine sump.
- Take out the oil dipstick, wipe it, insert fully back and take it out again to read out the oil level.



- Keep the level within the range of gauge marks imprinted in the dipstick.
- Refill the oil as required.
- Refill engine oil through the filler neck.
- Check the engine for leaks and remove the cause.
- Check the engine for damaged and/or missing parts and for changes in appearance.

#### Note

The total volume of oil in the engine is 1.35 l (0.4 gal US).



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

**Carry out the check after the oil has been cooled down.**

**Fill up the same oil type; see Chap. 3.2.1.**



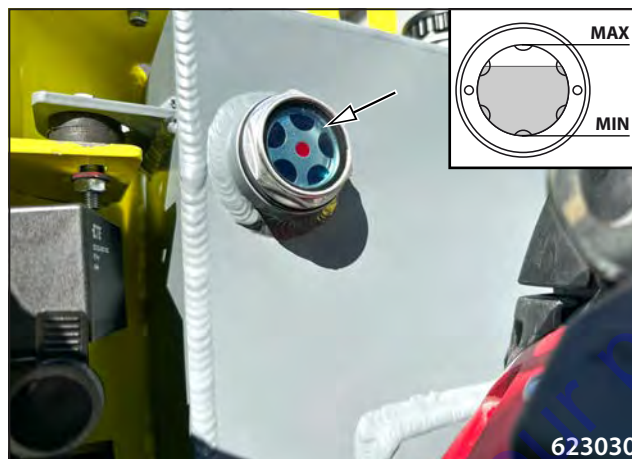
**Stop the oil soaking into the ground.**



## 3.6 Lubrication and maintenance operations

### 3.6.3 Checking the oil in the hydraulic tank

- Check the hydraulic oil level always when the engine is cold but running.
- Put the machine on a flat terrain.
- Let the engine run at idle.
- Check the oil level in the inspection hole.
- The ideal oil level is when the gauge is half-full.
- Refill the hydraulic oil according to chapter 3.6.27 if required.





### 3.6.4 Cleaning the hydraulic oil cooler

- Check the cooling fins that they are not dirty or clogged.
- Clean the fins with water or blow through with compressed air.
- When working in a very dusty environment, carry out the cleaning daily. Clogged coolers result in reduced cooling effect and increased temperature of the hydraulic oil.



**Never clean the cooler with high pressure (e.g. with strong water jets).**

**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!**

**Do not smoke while working!**

**Check the hydraulic circuit for leakage.**



**Follow environmental standards and regulations when cleaning the machine!**

**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 Lubrication and maintenance operations

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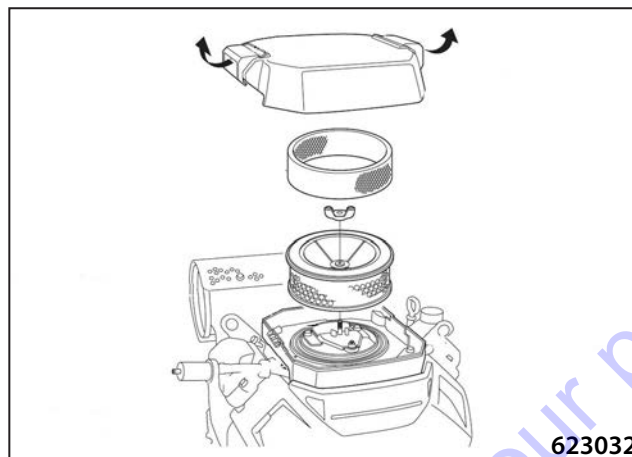
### 3.6.5 Air filter check

Open the air cleaner cover and check the filter cartridges.  
Clean or replace clogged filter cartridges.



**Always replace damaged filter cartridges.**

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## 3.6.6 Sprinkling tank refilling

- Check the water level in the tank in the inspection hole.



- Open the tank cap and refill with clean water.



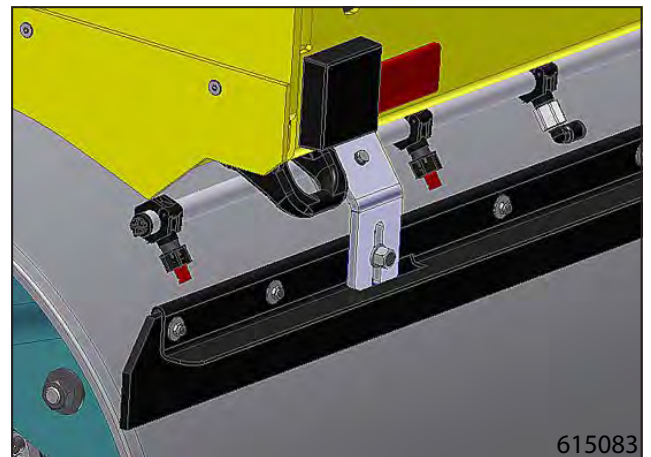
**Before the winter period, drain the water from the water tank and from the sprinkling system!**



## 3.6.7 Scraper adjustment

### Fixed scrapers

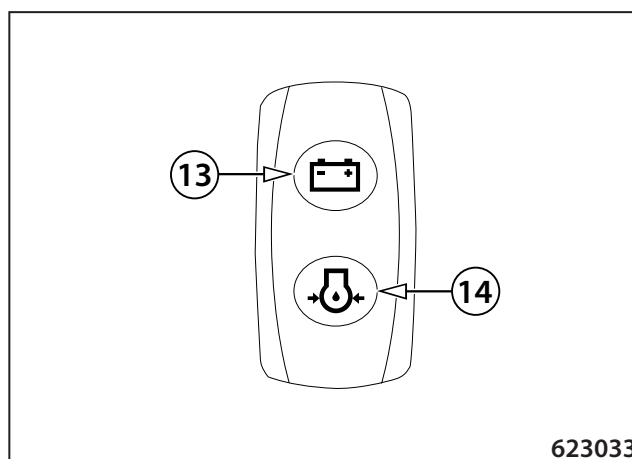
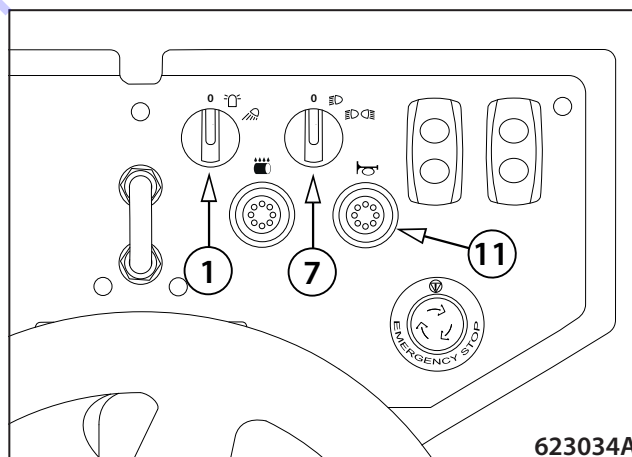
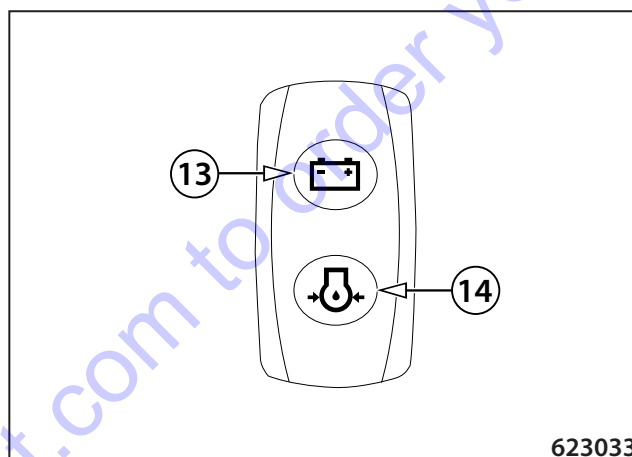
- Loosen the screws and move the scraper so that it is in contact with the drum.



## 3.6 Lubrication and maintenance operations

### 3.6.8 Inspection of warning and checking devices

- Turn the key in the ignition box to the position I.
- The battery charging indicator lamp (13) and the engine lubrication indicator lamp (14) will illuminate.
- Then check the switches (1, 7, 11) for operation.
- Start the engine according to Chapter 2.7.1.
- After the start, the indicator lamps for battery charging (13) and engine lubrication (14) must go off.



## 3.6.9 Engine leakage check

- Visually check the engine and the engine compartment for oil leakage.
- Remove the identified defects.



## 3.6 Lubrication and maintenance operations

### 3.6.10 Brake test

#### 3.6.10.1 Check of the parking brake

- This test verifies the function of the parking brake. If the operator does not carry out the test, further operation of the machine is the full responsibility of the owner.

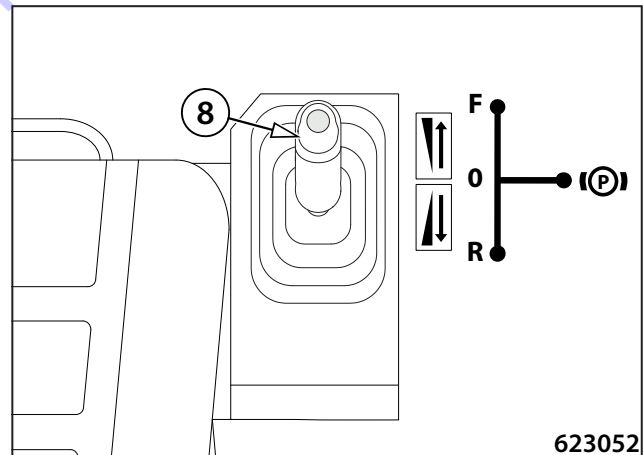


**Carry out the test on a non-slip test surface with a 20% slope or on a non-slip tilting platform.**

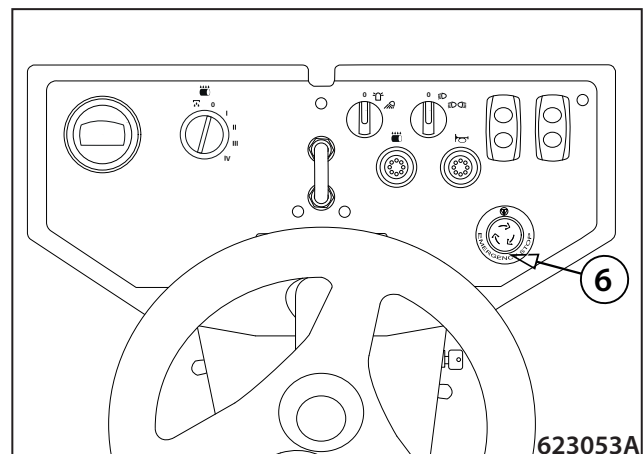
**Check that the area in front of and behind the machine is empty and free of persons or obstacles.**

**Ensure a suitable safe distance in front of the machine, behind the machine as well as on its sides.**

- Sit in the driver's position and start the engine according to Chapter 2.7.1.
- Place the machine on a non-slip test surface with a 20% slope or on a non-slip tilting platform.
- Change the travel control (8) to the parking brake position "P".



- If the machine stops, the parking brake test has been successful.
- If the machine does not stop:
  - place the machine on a level, solid surface,
  - change the travel control to the parking brake position (P),
  - turn off the engine,
  - secure the machine with chocks against unintentional movement,
  - contact service.



### 3.6.10.2 Check of the emergency brake

- This test verifies the function of the emergency brake. Due to possible wear of the parking brake, the emergency brake check is to be performed with a stationary machine. During normal operation, the emergency brake button is to be used in the event of danger when the machine is running. After pressing the emergency brake button, the traction force immediately stops and the parking brake (P) engages.



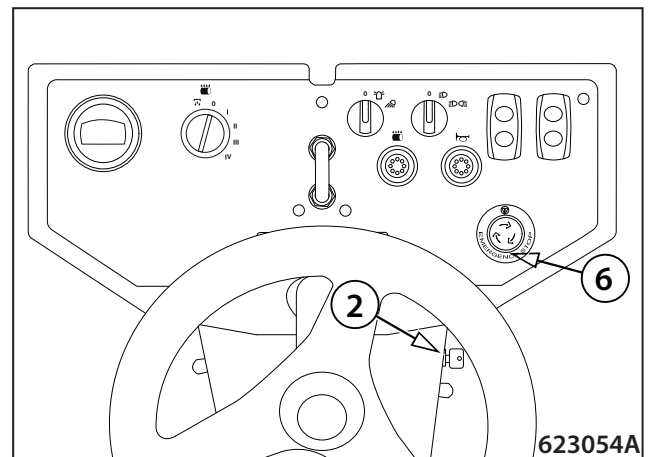
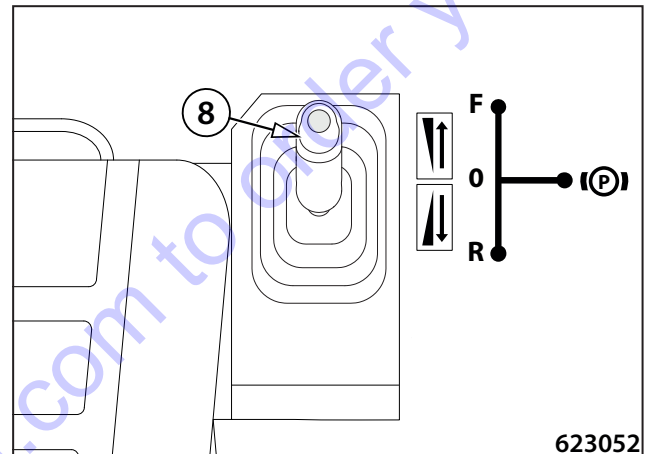
**Check that the area in front of and behind the machine is empty and that there are no persons or obstacles there! Ensure a suitable safe distance in front of the machine, behind the machine as well as on its sides.**

#### Procedure

- Place the machine on a flat and solid surface.
- Sit in the driver's position and start the engine according to Chapter 2.7.1.
- Press the emergency brake button (6). The engine stops and the parking brake (P) engages.
- If the engine does not shut down, turn it off using the key in the ignition box, secure the machine against spontaneous movement using wedges on a level and solid surface and contact service.

#### Note:

The emergency stop button (6) is only to be used to stop the machine in an emergency. Use the service brake to stop the machine normally. To turn off the engine normally, use the ignition box (2) – turn the key to the "0" position.



## 3.6 Lubrication and maintenance operations

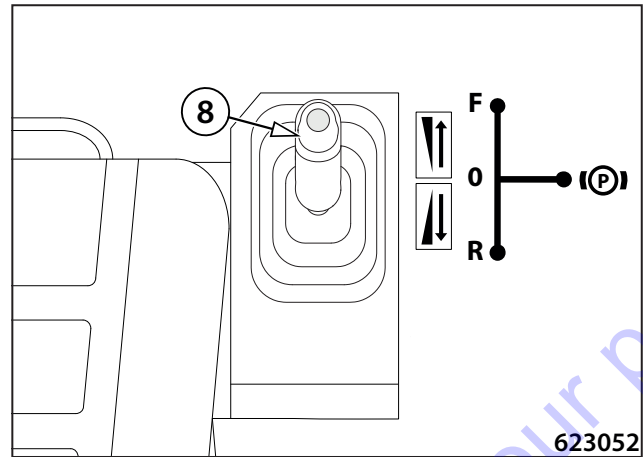
### 3.6.10.3 Check of the service brake

- This test verifies the function of the service brake. After activating the service brake, the hydraulic components of the machine drive adjust to stop the machine. The service brake can be controlled at any time. Using the service brake does not activate the parking brake (P).



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

**Perform the test on a level and solid surface. If the test is performed on a slope, the machine may start moving due to leaking hydraulics even though the service brake is in order!**



#### Procedure

- Place the machine on a flat and solid surface.
- Sit in the driver's position and start the engine according to Chapter 2.7.1.
- Move off by setting the travel control (8) to the forward travel position "F".
- Set the travel control to the zero position "0".
- The machine will stop and the parking brake will not activate.
- To move off again or control the brake during braking, move the travel control (8) back to the forward travel position "F".
- If the machine does not stop, activate the emergency brake, secure the machine against spontaneous movement using wedges on a level and solid surface and contact service.



**Activation of the emergency brake will cause a high mechanical and hydraulic load of the machine. Always test the parking brake after activating the emergency brake while driving.**

### **3.6.11 Check of the tightness of the fuel and hydraulic system**

- Visually check the condition of the fuel and hydraulic system for leaking operating fluids or damage to individual system components (material degradation – ageing).
- Remove the identified defects.

Go to Discount-Equipment.com to order your parts



## 3.6 Lubrication and maintenance operations

### Every 50 hours of operation

#### 3.6.12 Battery inspection

- Stop the engine.
- 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.

#### MAINTENANCE-FREE BATTERY

- In case of a maintenance-free battery version (the battery has no accessible plugs), check only the rest voltage on the terminals. The batteries cannot be refilled. If the rest voltage is 12.6 V and more, the battery is fully charged. If the rest voltage is below 12.4 V, the battery should be charged immediately. After the battery is charged, leave it to stand for 2–3 hours and then measure the voltage again. The mounting is recommended 24 hours after the charging.

#### Note

The rest voltage is the voltage measured at the terminals of the battery, which was at rest for at least 12 hours – it was not either charged or discharged.



**Do not turn the battery upside down; the electrolyte may pour down from the degassing plugs.**

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

**Hand over the old inoperative battery for disposal.**



**Keep the battery dry and clean.**

**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.**

**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!**

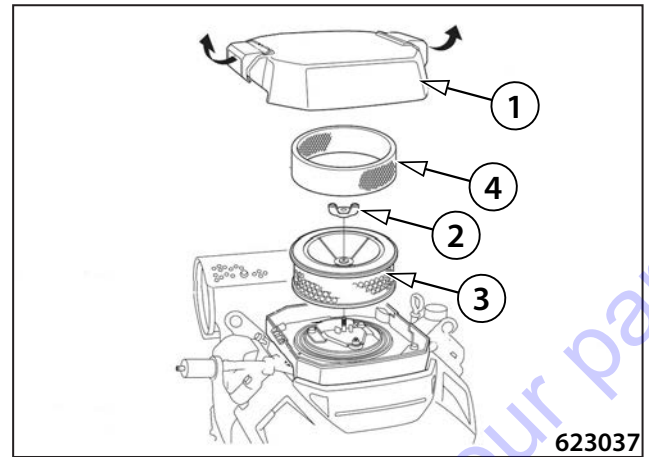
**Do not check that a wire is live by touching the machine frame.**

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

## Every 100 hours of operation

### 3.6.13 Air filter cleaning

- Remove the air filter cover (1).
- Remove the wing nut (2).
- Remove the paper filter cartridge (3).
- Remove the foam filter cartridge (4) from the paper filter cartridge.

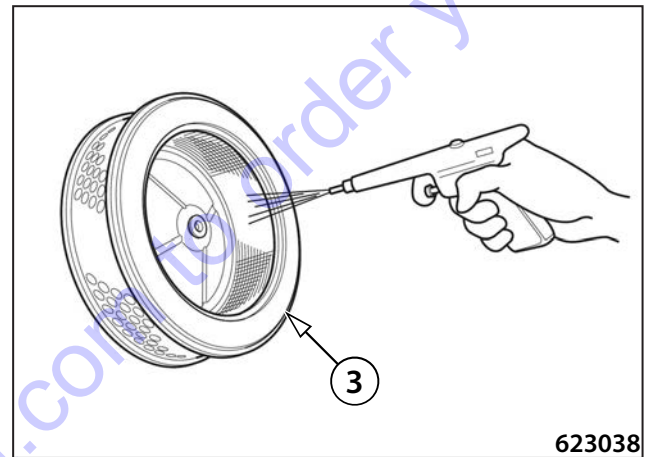


#### Cleaning the paper filter cartridge (3):

- Tap the paper cartridge forcefully several times on a solid surface to remove dirt, or blow compressed air through the filter cartridge from the air cleaner body side. The pressure must not exceed 207 kPa (2.1 kgf/cm<sup>2</sup>).



**Do not brush the paper cartridge as this will cause dirt to enter the fibres. If it is excessively dirty, replace the paper filter cartridge.**



#### Cleaning the foam filter cartridge (4):

- Wash the foam filter cartridge with warm soapy water, rinse and allow to dry properly.
- Soak the filter cartridge in clean engine oil and wring out the excess oil.



**If too much oil is left in the foam, the engine will smoke after starting.**

- Use a damp cloth to clean dirt from the inside of the housing and air filter cover.
- Take extra care to prevent dirt from entering the air chamber that leads to the carburettor.
- Place the foam filter cartridge (4) on top of the paper filter cartridge (3) and install the assembled filter cartridge.
- There must be a seal under the filter cartridge.
- Mount the wing nut (2).
- Secure the air cleaner cover latch properly.
- Mount the air filter cover (1).



**If the filter cartridges are damaged, replace them.**

## 3.6 Lubrication and maintenance operations

### 3.6.14 Engine oil change



Carry out for the first time after 20 hours.



**Beware of the risk of scalding when draining hot oil.**  
**Let the oil cool down below 50 °C (122 °F).**  
**Follow the fire-fighting measures.**

#### Engine oil draining

- The total volume of oil in the engine is 1.35 l (0.4 gal US)
- Remove the drain plug and let the oil drain out.
- Remount the plug.

#### Engine oil filter replacement

- Remove the filter and drain the oil into a suitable container.



**Dispose of used engine oil according to applicable environmental regulations.**

- Clean the area around the engine oil filter
- Coat the seal of the new engine oil filter with clean engine oil.



**Use only a genuine Honda engine oil filter or one of equivalent quality. Using an improper filter or a non-Honda filter, if not of equivalent quality, may cause engine damage.**



- Carefully install the new oil filter by hand until you feel the gasket seat against the filter mounting base, then tighten the filter another  $\frac{3}{4}$  turn using a socket spanner.

## Engine oil filter

Order number: 1808898

## Note

Oil filter tightening torque: 12 N·m (1.2 kgf·m)

- Top up engine oil according to chapter 3.6.14.
- Start the engine and check for leaks.

## Engine oil filling

- Fill the engine through the filler neck.
- Keep the level within the range of gauge marks imprinted in the dipstick (1). The lower mark shows the lowest possible oil level, the upper mark indicates the highest.
- Refill the oil to the upper oil level mark (1). The oil volume is 1.35 l (0.4 gal US) including the oil filter volume.

## Note

After refilling, start the engine for 2–3 min. Check tightness of drain plug and filter.

Stop the engine and wait for 5 minutes until the oil runs down into the engine sump. Then check the level with the oil dipstick.



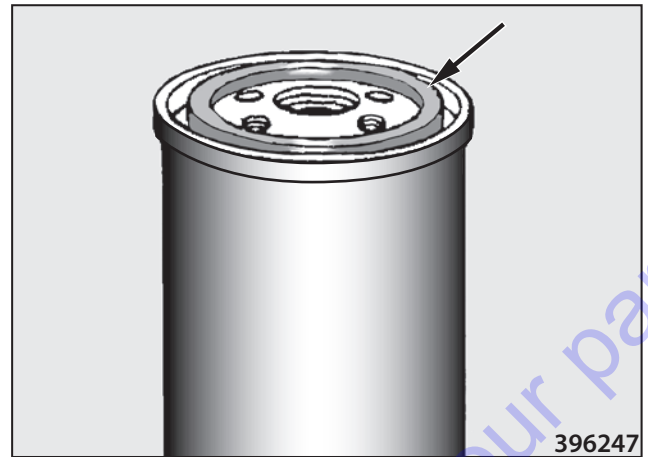
**When changing oil, check that the old oil has been drained from the tank completely. Do not mix different types of oils.**

**Use recommended filters only; refer to the spare parts catalogue. Use recommended oils; see Chap. 3.2.1.**



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

**Used oil and filters are environmentally hazardous waste – hand it over for disposal.**





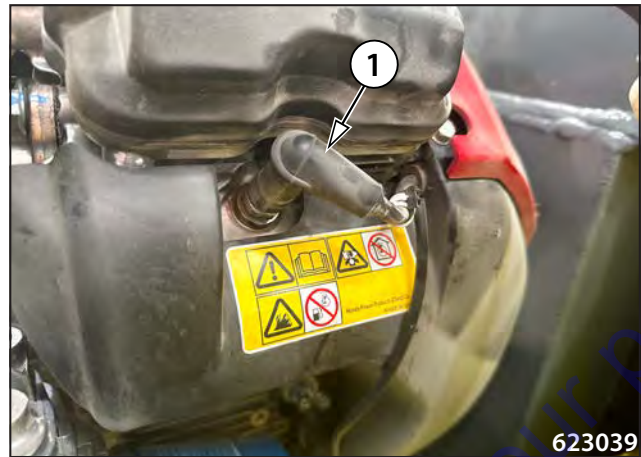
## 3.6 Lubrication and maintenance operations

### 3.6.15 Checking and adjusting the spark plug

- Allow the engine to cool down before starting work on the spark plugs.
- The spark plugs must have the correct electrode spacing and there must be no dirt on them.

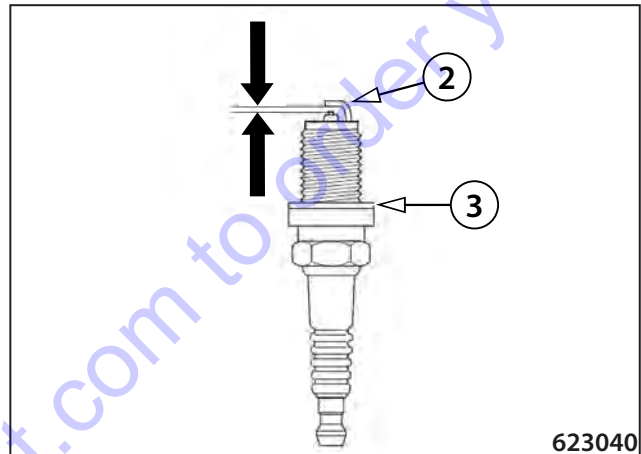
#### Procedure

- Disconnect the spark plug caps (1) and clean the area around the spark plug.
- Remove the spark plugs with a 5/8" spark plug spanner.



#### Replace the spark plugs if:

- if damaged,
- very dirty,
- if the sealing pad is defective,
- if the electrode is worn.
- If necessary, replace the spark plug according to chapter 3.6.19.
- Measure the distances of the spark plug electrodes with a feeler gauge. If necessary, correct the distance by bending the outer electrodes (2). The distance must be 0.7–0.8 mm.
- Carefully install the spark plug by hand, taking care not to damage the threads.
- Tighten the spark plug with a 5/8" spark plug spanner to compress the sealing pad (3).
- Once seated, tighten the spark plug an extra 1/8-1/4 turn to compress the pad (3).
- Fit the spark plug caps (1) to the spark plugs.



**A loose spark plug can cause overheating and engine damage.**

**An over-tightened spark plug can damage the threads in the cylinder head.**

### 3.6.16 Cleaning the spark arrester



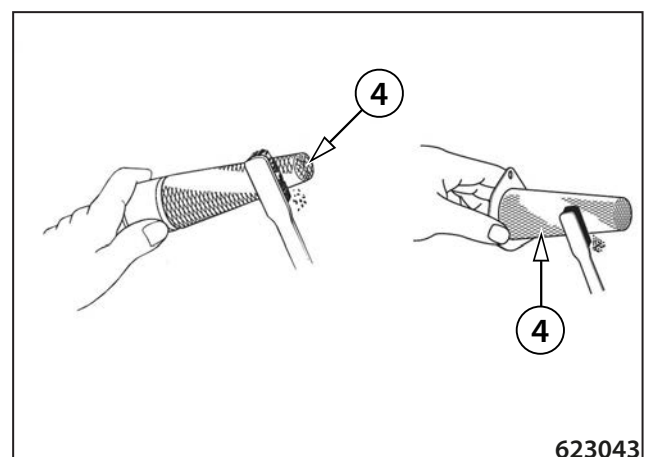
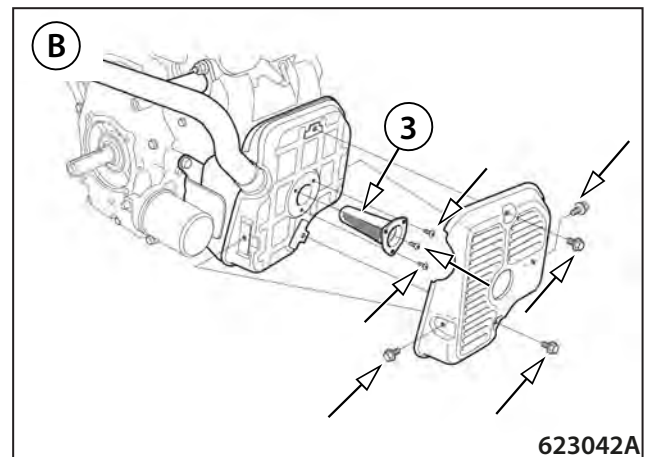
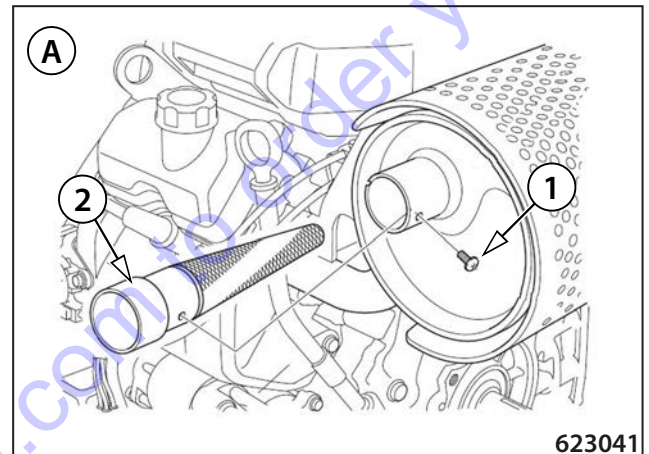
In Europe and other countries where Directive 2006/42/EU applies, have the cleaning carried out by a qualified service centre.



There is a risk of burns. Allow the spark arrester to cool down before cleaning and checking the spark arrester.

#### Remove the spark arrester:

- Upper type exhaust muffler (A).  
Remove the special spark arrester screw (1).  
Remove the spark arrester (2).
- Side type exhaust muffler (B).  
Remove the exhaust muffler cover using the screws (4x).  
Remove the spark arrester screws (3x) and remove the spark arrester (3).
- Carefully brush the carbon deposits from the spark arrester screen (4).
- The spark arrester must not be cracked and there must be no holes in it.
- If the spark arrester is damaged, replace it.
- Reinstall the spark arresters and exhaust muffler protector in reverse order of the removal procedure.



## 3.6 Lubrication and maintenance operations

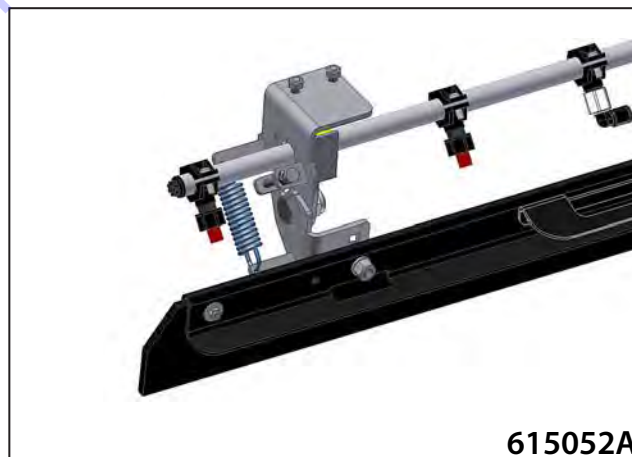
### Every 200 hours of operation

#### 3.6.17 Sprinkling filter cleaning

- Remove the sprinkling filter vessel, remove the strainer, clean it and mount back.
- Check the seal.
- Replace if damaged.



- Remove and clean the sprinkler strainers.



Every 300 hours of operation

## 3.6.18 Fuel filter replacement



If you do not have the necessary tools and qualifications, repairs to these parts must be carried out by a qualified Honda service centre.

### Fuel filter

Order number: 1808924





## 3.6 Lubrication and maintenance operations

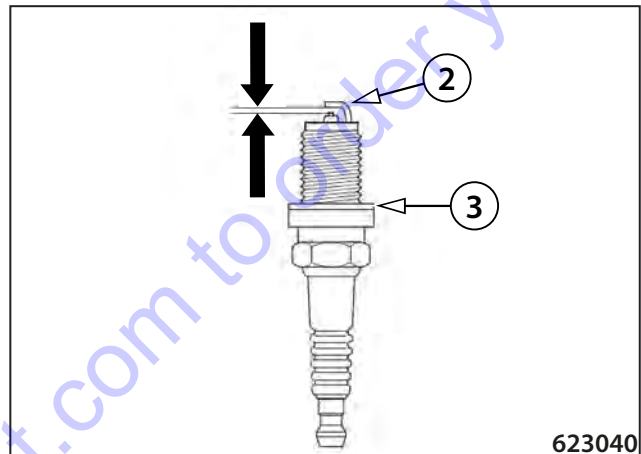
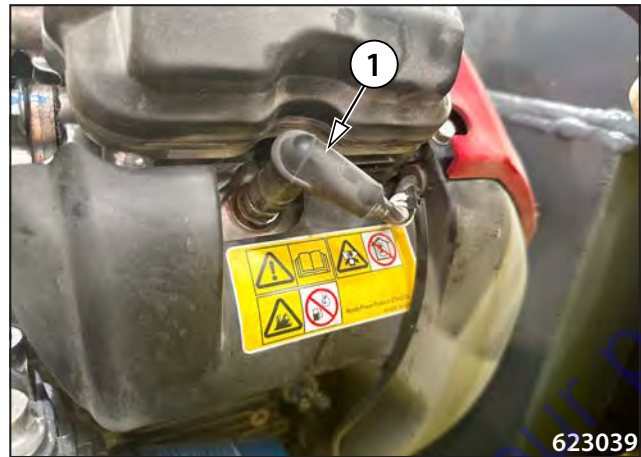
### 3.6.19 Spark plug replacement

- Spark plug recommended by the engine manufacturer: ZFR5F (NGK)



**Incorrect spark plugs can damage the engine.**

- Allow the engine to cool down before starting work on the spark plugs.
- The spark plugs must have the correct electrode spacing and there must be no dirt on them.
- Replacement procedure:
- Disconnect the spark plug caps (1) and clean the area around the spark plug.
- Remove the spark plugs with a 5/8" spark plug spanner.
- Measure the distances of the spark plug electrodes with a feeler gauge. If necessary, correct the distance by bending the outer electrodes (2). The distance must be 0.7–0.8 mm.
- Carefully install the new spark plug by hand, taking care not to damage the threads.
- Tighten the spark plug with a 5/8" spark plug spanner to compress the sealing pad (3).
- Once seated, tighten the spark plug an extra 1/2 turn to compress the pad (3).
- Fit the spark plug caps (1) to the spark plugs.



#### Spark plug

Order number: 1808927



**A loose spark plug can cause overheating and engine damage.**

**An over-tightened spark plug can damage the threads in the cylinder head.**

### 3.6.20 Valve clearance check and adjustment



If you do not have the necessary tools and qualifications, repairs to these parts must be carried out by a qualified Honda service centre.

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### 3.6.21 Checking and adjusting the idle speed



If you do not have the necessary tools and qualifications, repairs to these parts must be carried out by a qualified Honda service centre.

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## 3.6 Lubrication and maintenance operations

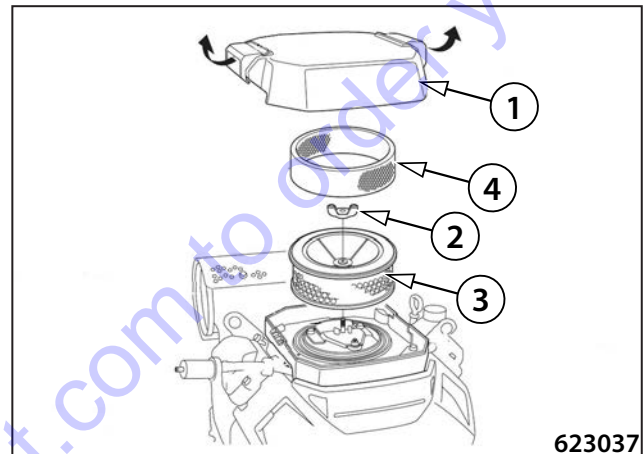
### Every 500 hours of operation

#### 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 Replacement of air filter cartridges

- Remove the air filter cover (1).
- Remove the wing nut (2).
- Remove the paper filter cartridge (3).
- Remove the foam filter cartridge (4) from the paper filter cartridge.
- Use a damp cloth to clean dirt from the inside of the housing and air filter cover.
- Take extra care to prevent dirt from entering the air chamber that leads to the carburettor.
- Place the foam filter cartridge (4) on top of the paper filter cartridge (3) and install the assembled filter cartridge.
- There must be a seal under the filter cartridge.
- Mount the wing nut (2).
- Secure the air cleaner cover latch properly.
- Mount the air filter cover (1).



#### Air filter cartridge

Order number: 1808897

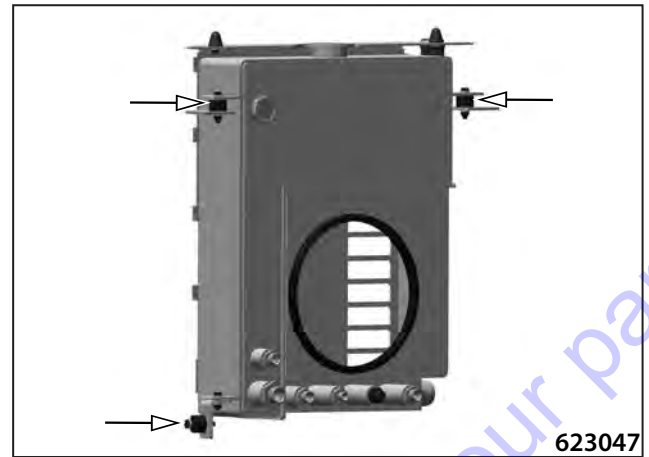
### 3.6.24 Checking the rubber-metal elements of the hydraulic oil cooler

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



**Replace if damaged.**

**Recheck screws and nuts for tightening.**



### 3.6.25 Checking the fuel system hoses

Check the clips and fuel hoses visually. If clips are loosened or hoses worn out, ensure remedy.



**If you do not have the necessary tools and qualifications, repairs to these parts must be carried out by a qualified Honda service centre.**

## 3.6 Lubrication and maintenance operations

Every 1000 hours of operation

### 3.6.26 Cleaning the combustion chamber



If you do not have the necessary tools and qualifications, repairs to these parts must be carried out by a qualified Honda service centre.

### 3.6.27 Hydraulic oil and filter replacement



Check for the first time after 50 hours.



Carry out the replacement always while changing oil when the oil operating temperature reaches 50–60 °C (122–140 °F).

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

#### Filling and draining 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

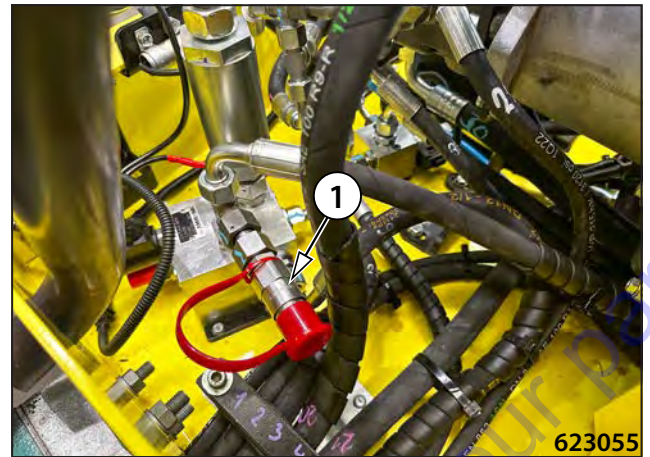
#### Note

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).



## Hydraulic oil draining

- Prepare a suitable vessel. The drained volume is about 15 l (4 gal US).
- Remove the cap of the filling end piece and put the quick-coupling of the filling device onto the quick-coupling (1).
- Drain the hydraulic oil.



## Hydraulic oil filter replacement

- Remove the filter.



- Clean the seating surface underneath.



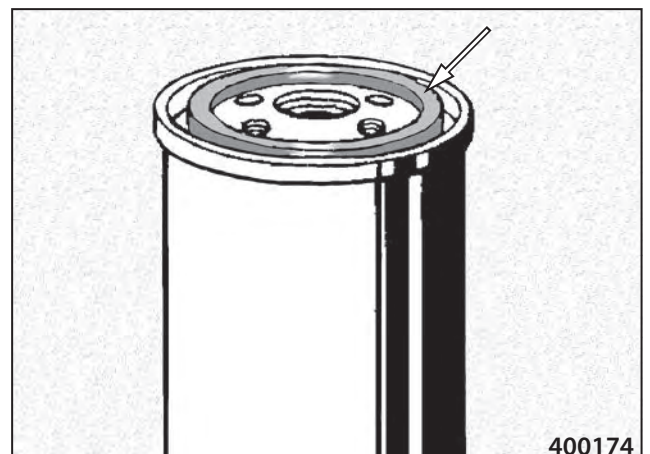
- Check the sealing rings for condition and apply clean oil on the rings.
- Mount the new filter.

## Hydraulic oil filter

Order number: 1808926



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





### 3.6 Lubrication and maintenance operations

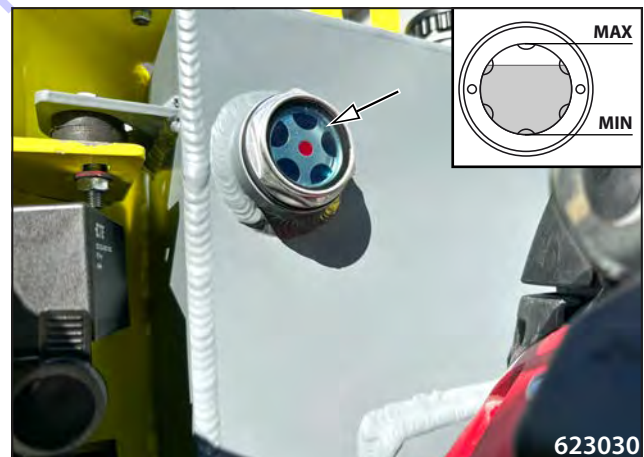
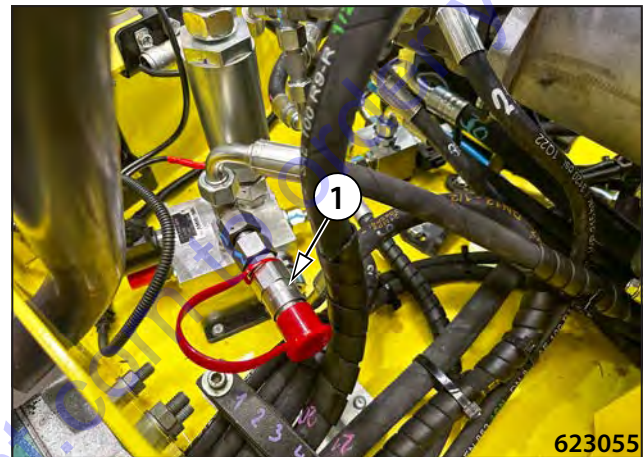
#### Cleaning the hydraulic filter on the vibration block

- Remove the hydraulic filter on the vibration block.
- Rinse the filter and reinstall it.



#### Hydraulic oil filling

- Remove the cap of the filling end piece and put the quick-coupling of the filling device onto the quick-coupling (1).
- Keep filling the hydraulic circuit until the desired amount of hydraulic oil is shown on the dipstick.
- Fill up the tank with the oil to the maximum level and disconnect the filling device.



## Alternate filling through the oil tank filler neck

- With this filling method, the next change interval must be reduced by one half.
- The tank filler neck cap 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.

### 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 unnecessarily!**

**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.**

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

**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!**



## 3.6 Lubrication and maintenance operations

### 3.6.28 Damping system check

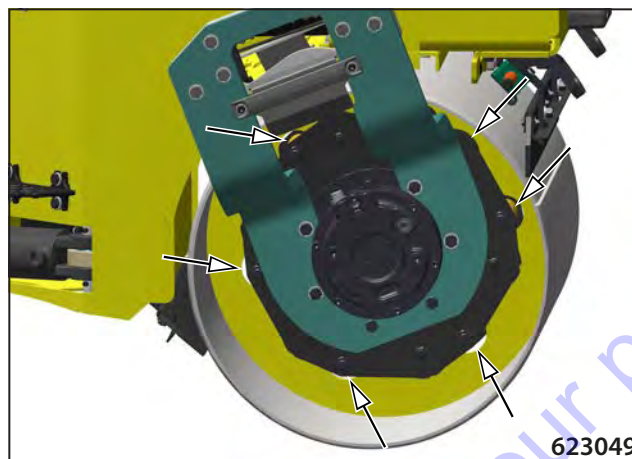
- Recheck the rubber-metal elements for condition and for rubber-to-metal bond strength.

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#### Drum rubber-metal element

Order number: 1-494045

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**Replace if damaged.**

**Recheck screws and nuts for tightening.**

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### 3.6.29 Swinging support check

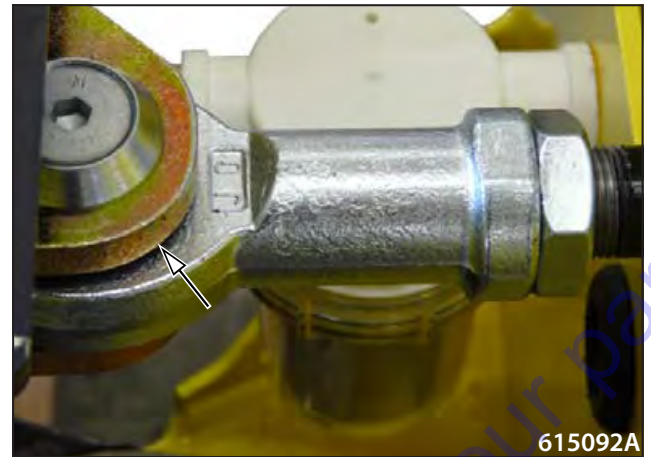
- Check the swing support for excessive clearance.

#### Machine equipped with a one-point lifting lug

- Lift the machine with a crane while using the one-point lifting lug.
- Visually check the clearance of the swinging support by applying pressure on the machine alternatively upwards and downwards.

#### The machine is not equipped with a one-point lifting lug

- Lift the machine slightly with a suitable hydraulic jack.
- Visually check the clearance of the swinging support by applying pressure on the machine alternatively upwards and downwards.



### 3.6.30 Articulation joint check

- Check the articulation joint for excessive clearance.

#### Machine equipped with a one-point lifting lug

- Lift the machine with a crane while using the one-point lifting lug.
- Visually check the clearance of the articulated joint by applying pressure on the machine alternatively upwards and downwards.

#### The machine is not equipped with a one-point lifting lug

- Lift the machine slightly with a suitable hydraulic jack.
- Visually check the clearance of the articulated joint by applying pressure on the machine alternatively upwards and downwards.

## 3.6 Lubrication and maintenance operations

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**Every 1500 hours of operation**

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### 3.6.31 Changing the vibrator lubricant

- To change the vibrator lubricant, contact an authorized service centre.

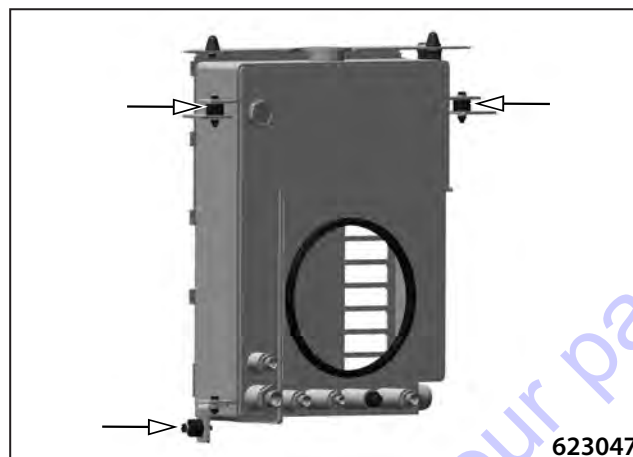
### 3.6.32 Checking the condition of vibrator bearings

- The condition of vibrator bearings shall be checked by an authorized service centre when changing the vibrator lubricant.

**Every 2000 hours of operation**

## 3.6.33 Replacing the rubber-metal elements of the hydraulic oil cooler

- Replace the rubber-metal elements of the hydraulic oil cooler.



## 3.6 Lubrication and maintenance operations

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### Maintenance as required

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#### 3.6.34 Replacing the fuel system hoses



If you do not have the necessary tools and qualifications, repairs and replacement of these parts must be carried out by a qualified Honda service centre.

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### 3.6.35 Gas strut replacement

- The gas struts are maintenance-free. They do not require any maintenance, such as e.g. lubrication. They are designed according to given requirements and work trouble-free for years. As soon as the struts stop performing their function, replace them with new ones.

#### Gas strut

Order number: 1205428



**Before beginning to replace the gas strut, secure the engine bonnet against free fall.**

**There is a risk of injury!**

#### Removal

- Use a screwdriver to pull out the clamps and release the struts.
- Pull out the gas strut away from the ball stud.

#### Installation

- Push the new gas strut on the ball stud.
- The clamp then needs to be safely seated.



**Do not install the gas strut if it is damaged due to mechanical handling.**

**Use genuine parts only!**



**If you do not need the gas struts any more, dispose of them environmentally.**



## 3.6 Lubrication and maintenance operations

### 3.6.36 Cleaning the water tank

- Remove the cap of the filler neck of the tank.
- Clean the strainer in the filler neck.



- Remove the drain plug of the water tank.
- Rinse the tank with running water.



### 3.6.37 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.



**Before cleaning with pressure water or steam, cover all holes, into which the cleaning agent could penetrate. 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 with the engine stopped.**

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



**Follow environmental standards and regulations when cleaning the machine!**

**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 Lubrication and maintenance operations

### 3.6.38 Draining water from the sprinkling circuit before the winter season

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

#### Procedure for draining water from the sprinkling circuit

- Release the quick coupler of the sprinkling hose.
- Push the ring against the screw joint.
- Remove the hose from the coupler.
- The water will flow out automatically.
- Turn on the sprinkling and let the pump run briefly. The remaining water will flow out.
- Removal of the sprinkling filter
- Remove and clean the vessel with the sprinkling filter. Keep the vessel with the filter in a safe place.



### 3.6.39 Rear-view mirrors

Before driving the machine, the machine operator (driver) must clean and adjust the external rear view mirrors so that they can clearly see the area behind the machine even when the machine is moving.



**It is forbidden to operate the machine without the external rear view mirrors!**

**Always clean and adjust the external rear view mirrors when the machine is stationary and secured against unintentional movement!**

**Clean and adjust the external rear view mirrors from the ground or from the driver's stand!**

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## 3.6 Lubrication and maintenance operations

### 3.6.40 Charging of the battery

- Remove the battery from the machine to charge.
- 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.**

### 3.6.41 Checking the screw connections for tightening

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

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

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						

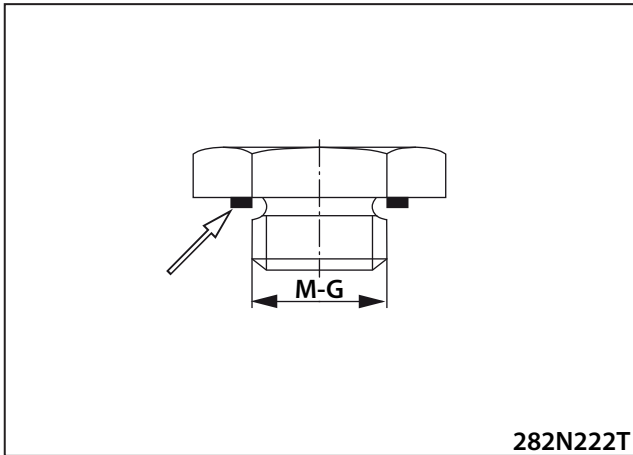
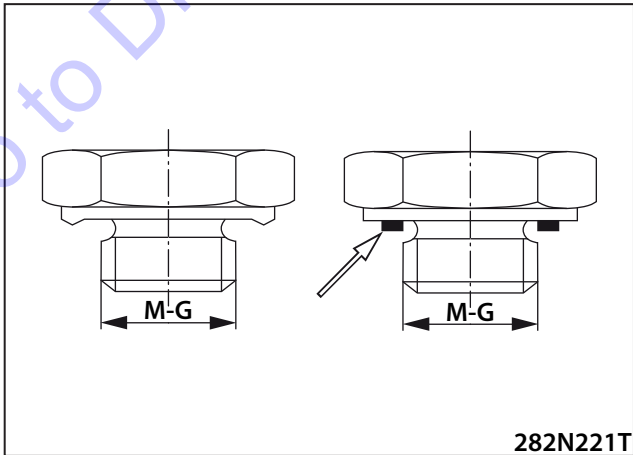
### 3.6 Lubrication and maintenance operations

Table of tightening torque values for necks with tightening edges or with flat gaskets

G-M	Neck tightening torques	
	Nm	lb ft
G 1/8	25	18
G 1/4	40	30
G 3/8	95	70
G 1/2	130	96
G ¾	250	184
G 1	400	295
G 1 1/4	600	443
G 1 1/2	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

G-M	Plug tightening torques	
	Nm	lb ft
G 1/8	15	11
G 1/4	33	24
G 3/8	70	52
G 1/2	90	66
G ¾	150	111
G 1	220	162
G 1 1/4	600	443
G 1 1/2	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



### 3.7 Troubleshooting

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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.

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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.

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## 3.8 Appendices

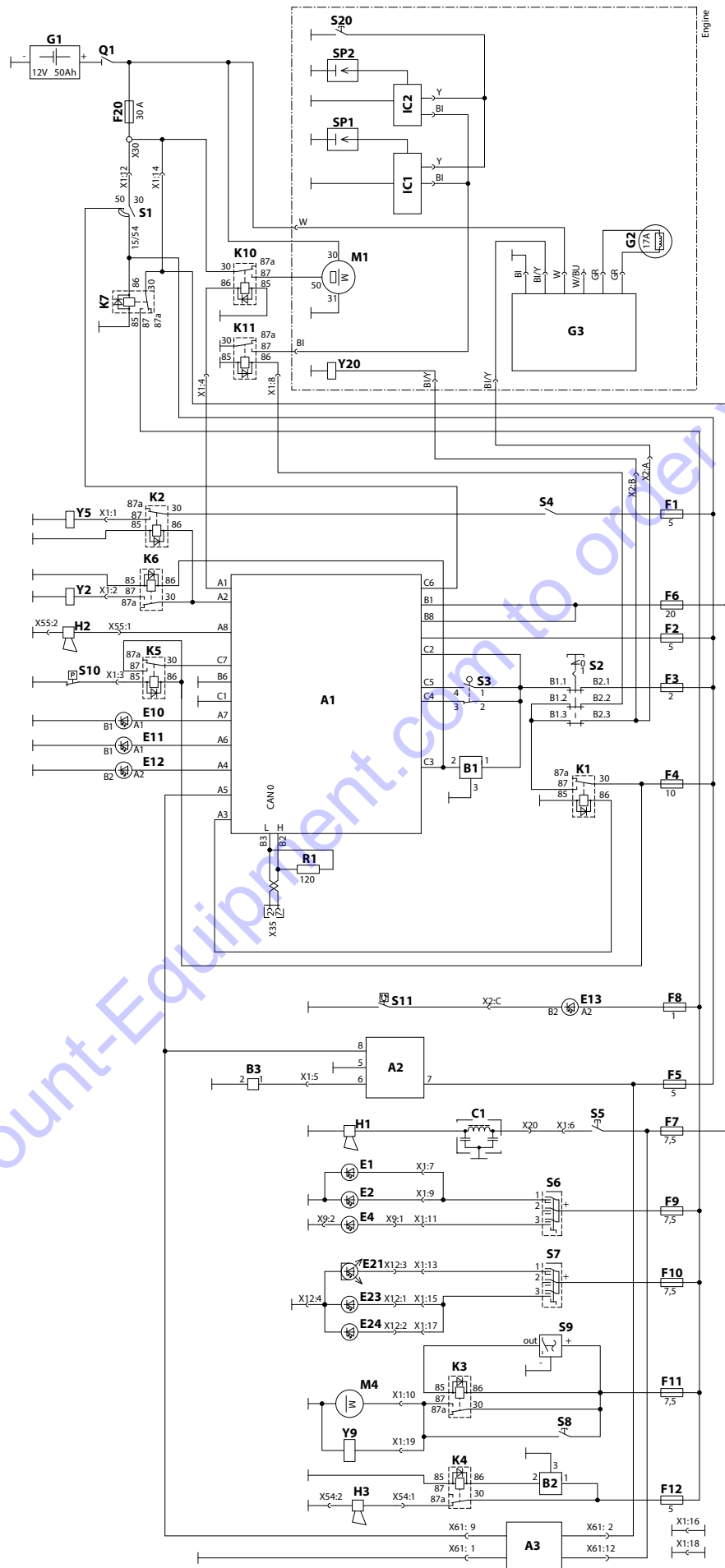
### Wiring diagram

#### Legend:

A1	Machine control unit	H1	Horn	S10	Engine oil pressure switch
A2	Display	H2	Seat horn	S11	Hydraulic oil temperature switch
A3	Telematics unit	H3	Reversing horn	S20	Oil level switch
B1	Parking brake switch	IC1	Ignition coil	SP1	Spark plug
B2	Reversing horn switch	IC2	Ignition coil	SP2	Spark plug
B3	Fuel level sensor	K1-K6	Auxiliary relay	X35	Machine diagnostics socket
C1	Noise suppressing filter	K10	Starter relay	X15	Mounting socket
E1	Left front main light	K11	Auxiliary relay	Y2	Brake valve
E2	Right front main light	M1	Starter	Y5	Vibration valve
E4	Rear main light	M4	Sprinkling pump	Y9	Sprinkling valve
E10	Error lamp	Q1	Battery disconnecter	Y20	Fuel cut solenoid
E11	Charge lamp	R1	Resistor		
E12	Oil pressure lamp	S1	Ignition switch		
E13	Hydraulic oil temperature	S2	Emergency button		
E21	Beacon	S3	Seat switch		
E23, E24	ROPS light	S4	Vibration switch		
F1-F13	Fuses	S5	Horn button		
F20	Main fuse	S6	Main lights switch		
G1	Battery	S7	Beacon, ROPS lights switch		
G2	Dynamo	S8	Sprinkling switch		
G3	Regulator	S9	Sprinkling cyler		

(\*) Optional equipment

(\*\*) not available



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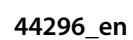
## 3.8 Appendix

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### Hydraulic diagram ARX 10.1

#### Legend:

- 1 "Propel pump"
- 2 Gear pump for vibration and steering
- 4 Propel motor
- 5 Propel motor
- 6 Vibration motor
- 8 Hydraulic steering cylinder
- 10 Steering unit
- 12 Hydraulic vibration block
- 13 Hydraulic brake block
- 15 Hydraulic filter
- 16 Hydraulic filter
- 17 Check valve
- 19 Hydraulic tank with hydraulic cooler
- 20 Ventilating filter
- 22 Check valve
- 24 Temperature switch
- 25 Filling quick coupling
- 27 Test coupling
- 28 Test coupling
- 29 Test coupling



### 3.8 Appendix

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Chapter	Spare part	Order number
3.6.14	Engine oil filter	1808898
3.6.18	Fuel filter	1808924
3.6.19	Spark plug	1808927
3.6.23	Air filter cartridge	1808897
3.6.27	Hydraulic oil filter	1808926
3.6.28	Drum rubber-metal element	1-494045
3.6.35	Gas strut	1205428

**Content of the filter set after 100 hours (4-760302)**

Chapter	Spare part	Number of parts	Order number
3.6.14	Engine oil filter	1	1808898

**Content of the filter set after 300 hours (4-760301)**

Chapter	Spare part	Number of parts	Order number
3.6.14	Engine oil filter	1	1808898
3.6.18	Fuel filter	1	1808924
3.6.19	Spark plug	2	1808927

**Content of the filter set after 500 hours (4-760300)**

Chapter	Spare part	Number of parts	Order number
3.6.14	Engine oil filter	1	1808898
3.6.23	Air filter cartridge	1	1808897

**Content of the filter set after 1000 hours (4-760299)**

Chapter	Spare part	Number of parts	Order number
3.6.14	Engine oil filter	1	1808898
3.6.23	Air filter cartridge	1	1808897
3.6.27	Hydraulic oil filter	1	1808926

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