



**ASC 200 and ASC 250
CUMMINS TIER III**

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. Printer's errors, technical modifications, and modifications of figures are reserved. All dimensions and weights are approximate and, therefore, not binding.

Ammann Czech Republic a.s. reserves the right to perform modifications without 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.

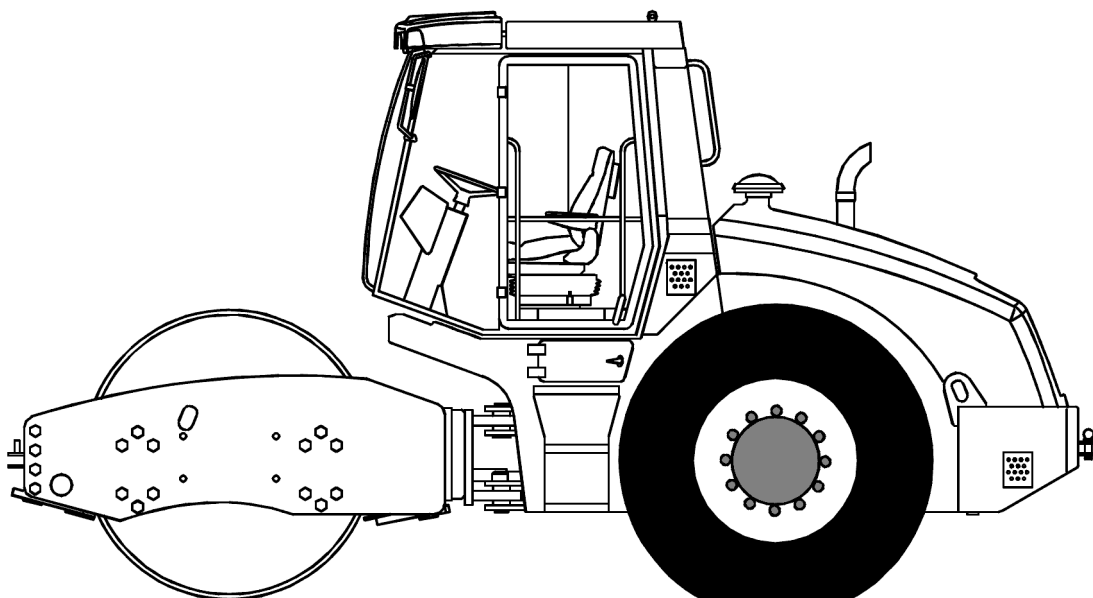
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Congratulations on your purchase of an AMMANN road roller. This modern compaction device is characterised by simple operation and maintenance and is the product of many years of AMMANN experience in the field of road roller engineering. In order to avoid faults due to improper operation and maintenance we request that you read this operating manual with great care and keep it for later reference.

With kind regards,

AMMANN

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ASC001

This manual consists of:

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

The following explanations serve to familiarise the machinist (operator) with the roller and to support him during handling and maintenance. It is therefore absolutely necessary to provide the operator with these instructions and to ensure that he reads them carefully before using the road roller. This aids training comprehension during the first use of the road roller.

Subsequent faults due to improper operating are avoided.

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

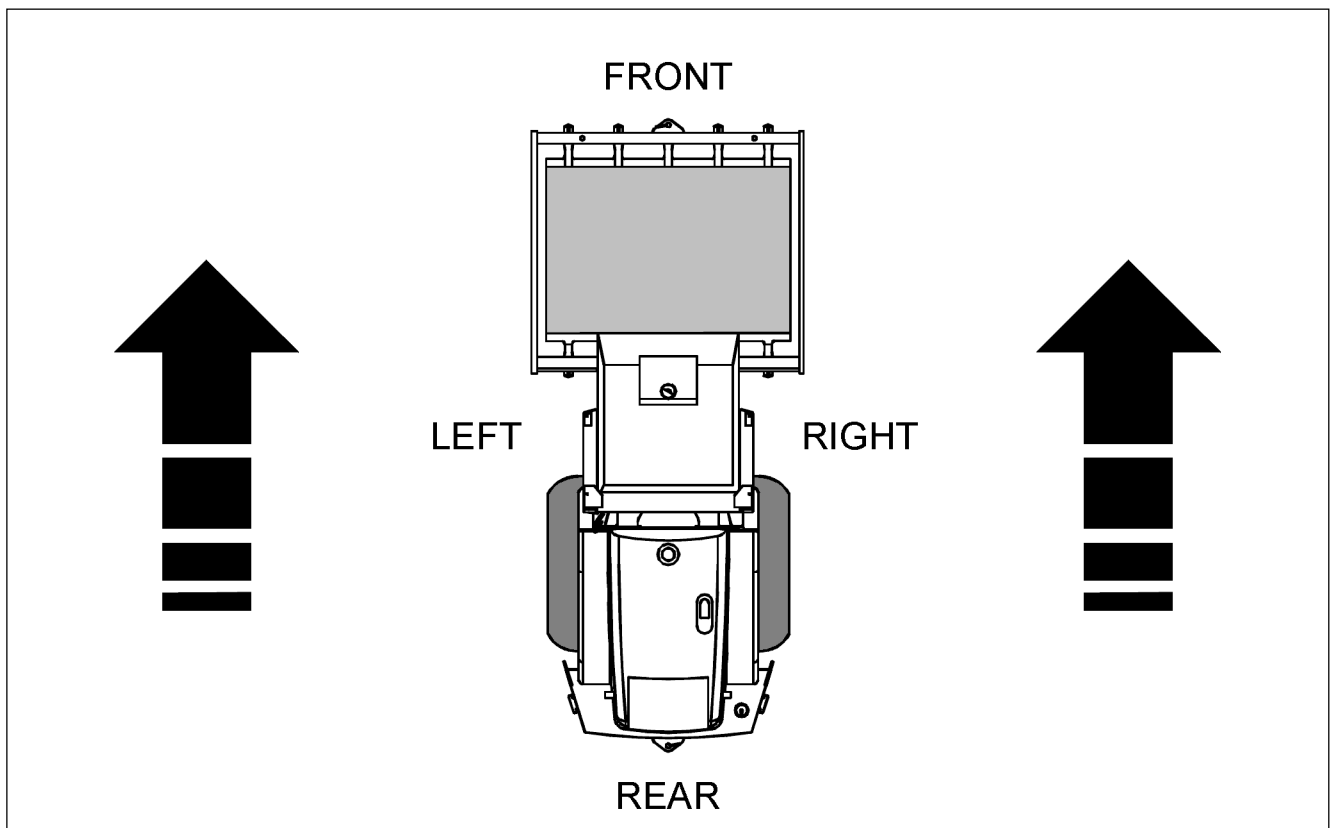
AMMANN accepts no liability for continued safe functioning of the road roller if it is incorrectly operated and / or operating modes are employed which represent improper use.

Spare parts must meet AMMANN technical specifications. These requirements are fulfilled if only original AMMANN spare parts are used.

These instructions must always be kept available on the equipment.

! NOTICE !

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



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1. SPECIFICATION MANUAL

ASC 200 and ASC 250 (Cummins tier 3)

1.1. Basic Data

Introduction

Single drum vibratory rollers of line ASC 200, ASC 250 are outstanding by their up-to-date design, adopted technologies, as well as modern styling. These machines offer maximal comfort to the operator, are easy to operate, extremely reliable and require minimal maintenance. The utilized frequency, amplitude and centrifugal force of vibration were optimized by means of compaction tests to reach extra high compaction effect on various materials.

Application Range

The vibratory rollers of ASC 200, ASC 250 line are especially suitable for use at large compaction jobs of highway construction (construction of highways, railways, airports), hydraulic engineering (construction of earth dams) and civil engineering (industrial areas, ports etc.).

The rollers are designated for operation in climates defined by the standard ČSN IEC 721-2-1 (038900) as: WT, WDr, MWDr (that is: moderate, warm dry, hot dry) limited by the temperature range: -15 °C (5 °F) to +45 °C (113 °F).

Versions of the Rollers:

The vibratory roller ASC 200 D with the smooth drum is suitable for compaction of all sorts of soil. Mainly, it is suitable for compaction of rockfill (unsorted blasted-off rock). It can also compact silty clays up to the layer thickness of 35 cm (13,8 in) (after compaction), loams up to the layer thickness of 70 cm (27,6 in), mixed soils up to the layer thickness of 90 cm (35,4 in), sands and gravels up to the layer thickness of 110 cm (43,3 in) and rockfills up to the layer thickness of 180 cm (70,9 in). Maximal allowed grain size is 2/3 of the layer thickness.

The vibratory roller ASC 200 PD with the padfoot drum, which creates vibratory and mastication effect at the same time, is suitable for compaction of silty clays up to the layer thickness of 40 cm (15,7 in) (after compaction), loams up to the layer thickness of 70 cm (27,6 in) and mixed soils up to the layer thickness of 90 cm (35,4 in). It can be also used for pulverization and compaction of plate-shaped stones (slates etc.).

The vibratory roller ASC 250 D with the smooth drum is suitable for compaction of all sorts of soil. Mainly, it is suitable for compaction of rockfill (unsorted blasted-off rock). It can also compact silty clays up to the layer thickness of 45 cm (17,7 in) (after compaction), loams up to the layer thickness of 80 cm (31,4 in), mixed soils up to the layer thickness of 100 cm (39,4 in), sands and gravels up to the layer thickness of 130 cm (51,2 in) and rockfills up to the layer thickness of 200 cm (78,7 in). Maximal allowed grain size is 2/3 of the layer thickness.

The vibratory roller ASC 250 PD with the padfoot drum, which creates vibratory and mastication effect at the same time, is suitable for compaction of silty clays up to the layer thickness of 50 cm (19,6 in) (after compaction), loams up to the layer thickness of 80 cm (31,5 in) and mixed soils up to the layer thickness of 100 cm (39,4 in). It can be also used for pulverization and compaction of plate-shaped stones (slates etc.).

Vibratory roller ASC200/250 HD with increased traction force - smooth drum

Vibratory roller ASC200/250 HDPD with increased traction force – padded drum

Vibratory roller ASC200/250 HT for permanently hard conditions and on slopes above 30 % - smooth drum

Vibratory roller ASC200/250 HTPD for permanently hard conditions and on slopes above 30 % - padded drum

Vibratory roller ASC 200/250 PDB with padded drum and a blade for material spread. Blade is optional per order.

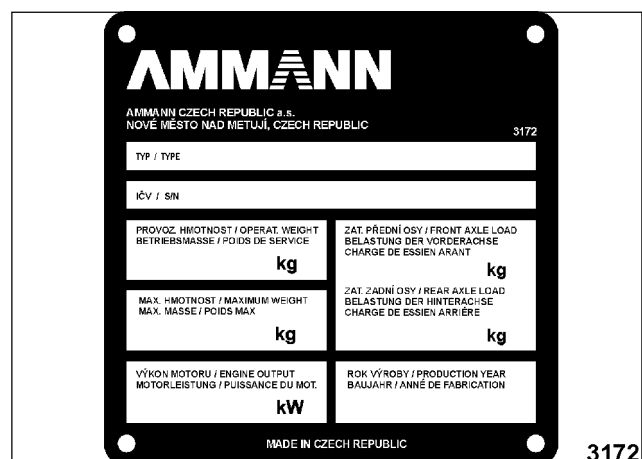
In the course of proposal has been respected requirements of international norms for hygiene, ergonomi and safety. The machine fulfil conditions for „CE“ mark.

Decal - CE

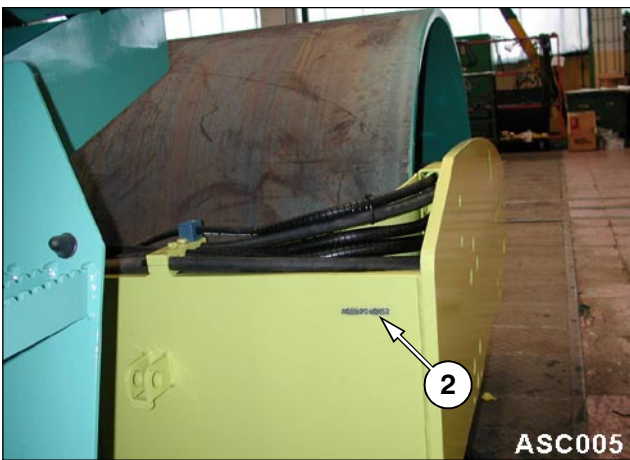
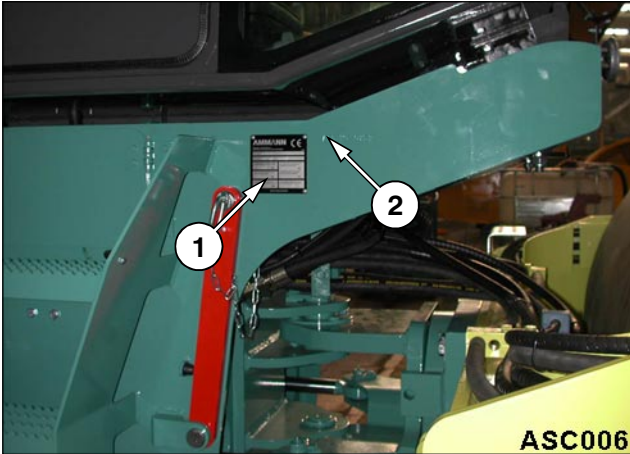


The machine does not meet requirements according to „CE“ specification and there is not „CE“ mark.

Decal



Location of the Decal at the Machine



- 1 - decal
- 2 - frame number

Please refer to the data in the table below always when approaching the dealer or the manufacturer.

Please fill in the following data:

(see Pin label, Label of the CUMMINS engine)

Type of machine

.....
Serial number of the machine

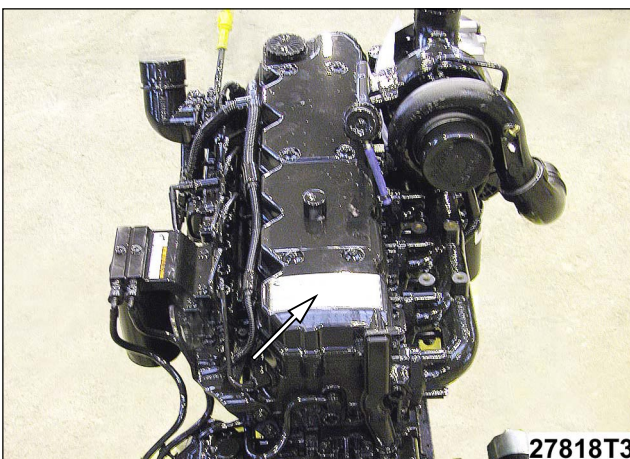
.....
Production year

.....
Type of engine

.....
Serial number of the engine

.....

Engine CUMMINS - Serial Number

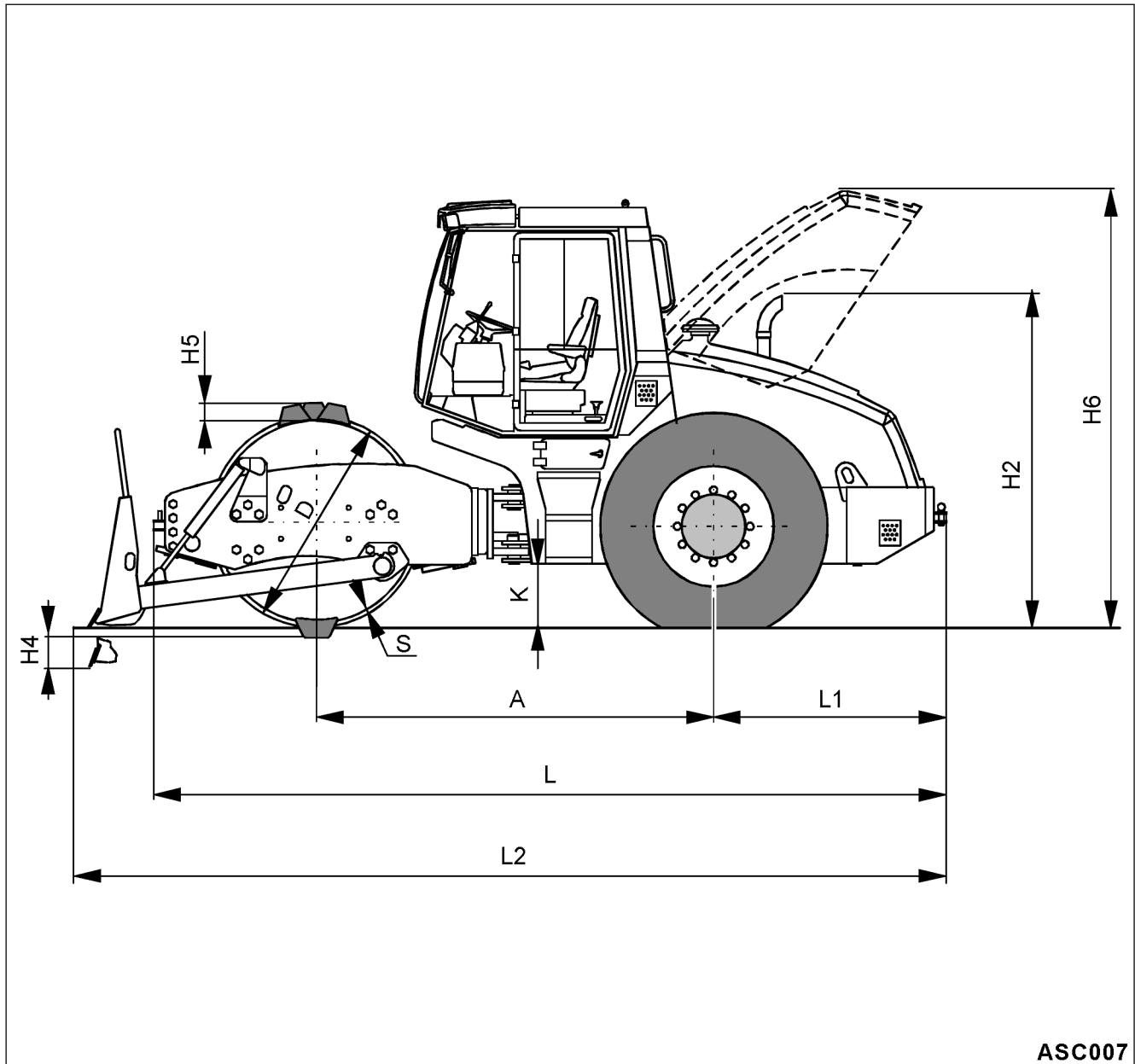


Engine CUMMINS - Serial Number



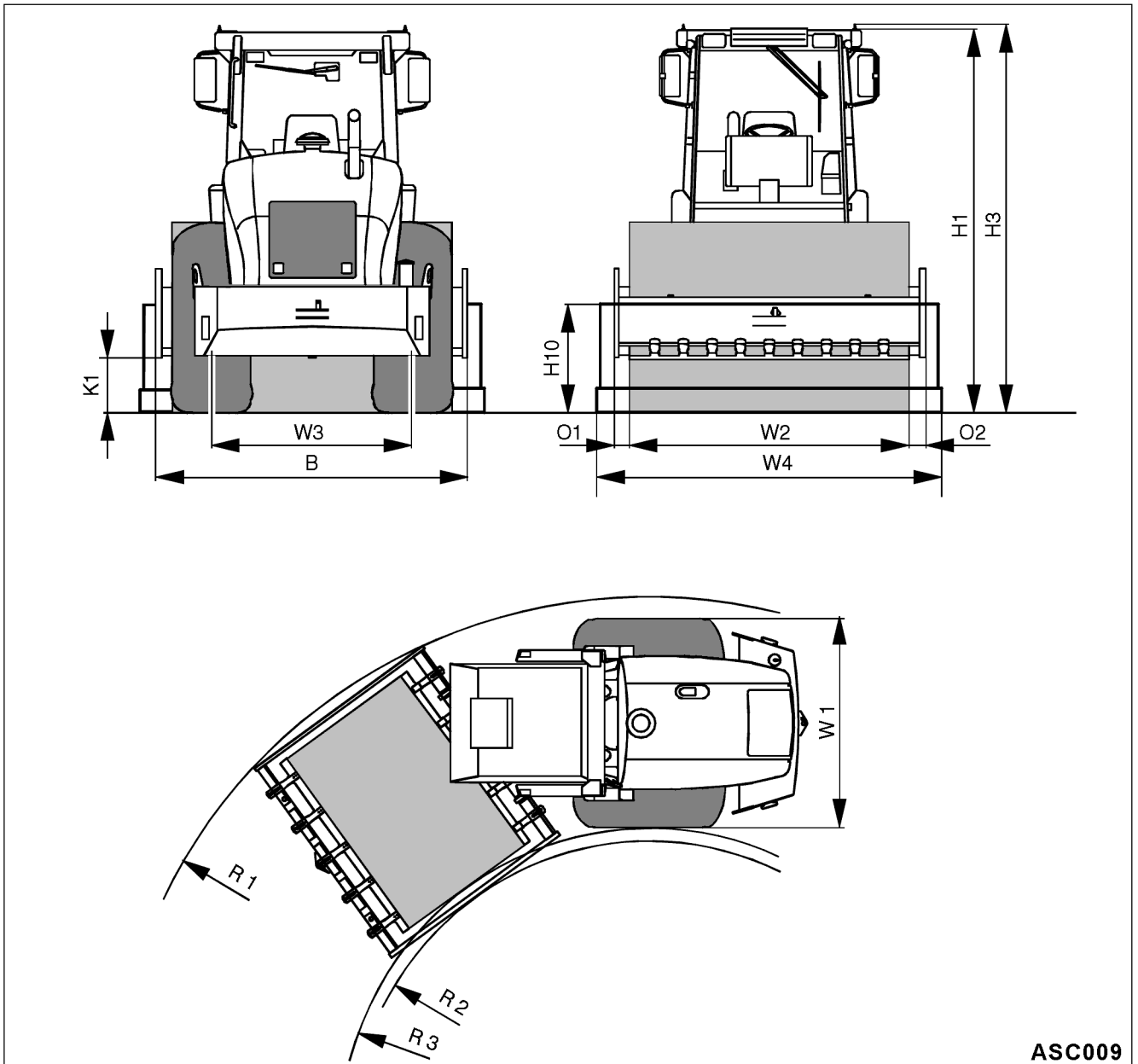
1.2. Dimension Chart

Dimension Chart of the Machine ASC 200 (with cab and protective frame)



mm (in)	A	B	D	H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	K
ASC 200 D	3160	2500	1700	3210	2560	3265	-	-	3730	2580	2445	3270	1030	500
	(124,4)	(98,4)	(66,9)	(126,4)	(100,8)	(128,5)	(-)	(-)	(146,8)	(101,6)	(96,3)	(128,7)	(40,6)	(19,7)
ASC 200 PD	3160	2500	1600	3210	2560	3265	-	120	3730	2580	2445	3270	1030	500
	(124,4)	(98,4)	(63,0)	(126,4)	(100,8)	(128,5)	(-)	(4,73)	(146,8)	(101,6)	(96,3)	(128,7)	(40,6)	(19,7)
ASC 200 PDB	3160	2500	1600	3210	2560	3265	242	120	3730	2580	2445	3270	1030	500
	(124,4)	(98,4)	(63,0)	(126,4)	(100,8)	(128,5)	(9,52)	(4,73)	(146,8)	(101,6)	(96,3)	(128,7)	(40,6)	(19,7)

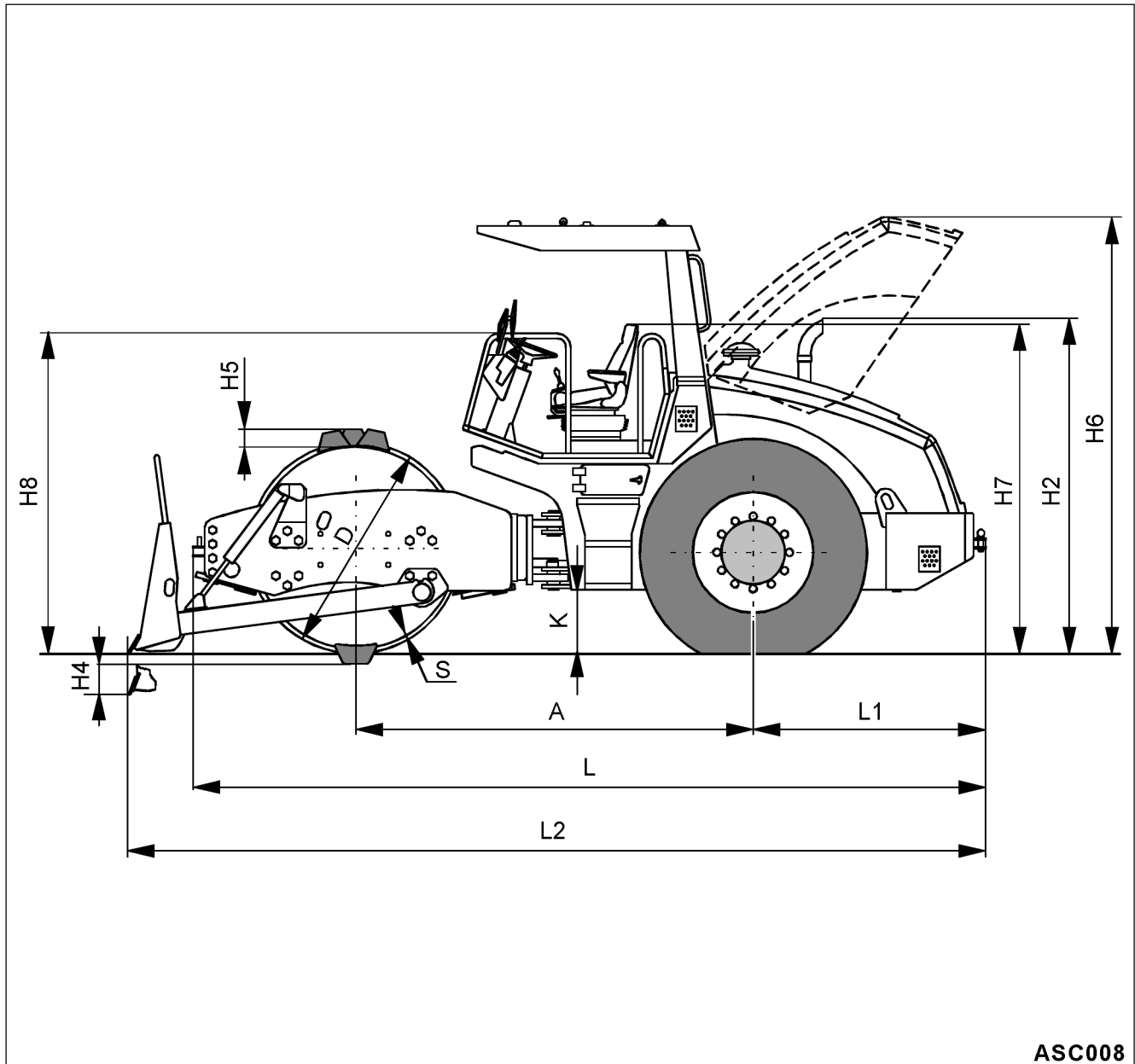
Dimension Chart of the Machine ASC 200 (with cab and protective frame)



mm (in)	K1	L	L1	L2	O1	O2	R1	R2	R3	S	W1	W2	W3	W4
ASC 200 D	430	6300	1770	-	120	140	6280	3780	3900	45	2180	2240	1590	-
	(16,9)	(248)	(69,7)	(-)	(4,72)	(5,5)	(247,2)	(148,8)	(153,5)	(1,77)	(85,8)	(88,2)	(62,5)	(-)
ASC 200 PD	430	6300	1770	-	120	140	6280	3780	3900	30	2180	2240	1590	-
	(16,9)	(248)	(69,7)	(-)	(4,72)	(5,5)	(247,2)	(148,8)	(153,5)	(1,18)	(85,8)	(88,2)	(62,5)	(-)
ASC 200 PDB	430	6300	1770	6790	120	140	6615	3780	3900	30	2180	2240	1590	3000
	(16,9)	(248)	(69,7)	(-)	(4,72)	(5,5)	(247,2)	(148,8)	(153,5)	(1,18)	(85,8)	(88,2)	(62,5)	(118,1)

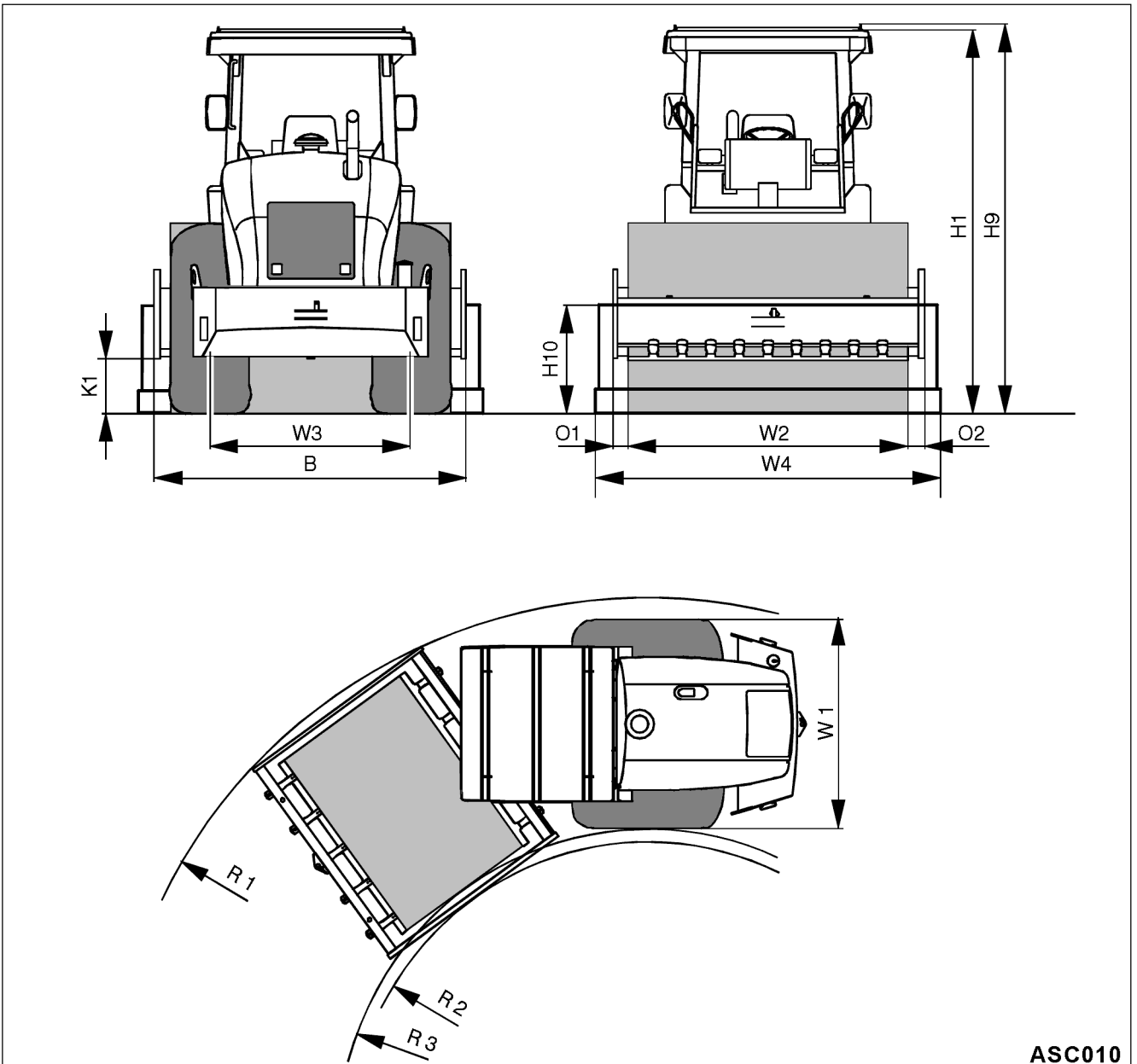
1.2. Dimension Chart

Dimension Chart of the Machine ASC 200 (with platform, protective frame and canopy)



mm (in)	A	B	D	H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	K
ASC 200 D	3160	2500	1700	3210	2560	3265	-	-	3730	2580	2445	3270	1030	500
	(124,4)	(98,4)	(66,9)	(126,4)	(100,8)	(128,5)	(-)	(-)	(146,8)	(101,6)	(96,3)	(128,7)	(40,6)	(19,7)
ASC 200 PD	3160	2500	1600	3210	2560	3265	-	120	3730	2580	2445	3270	1030	500
	(124,4)	(98,4)	(63,0)	(126,4)	(100,8)	(128,5)	(-)	(4,73)	(146,8)	(101,6)	(96,3)	(128,7)	(40,6)	(19,7)
ASC 200 PDB	3160	2500	1600	3210	2560	3265	242	120	3730	2580	2445	3270	1030	500
	(124,4)	(98,4)	(63,0)	(126,4)	(100,8)	(128,5)	(9,52)	(4,73)	(146,8)	(101,6)	(96,3)	(128,7)	(40,6)	(19,7)

Dimension Chart of the Machine ASC 200 (with platform, protective frame and canopy)

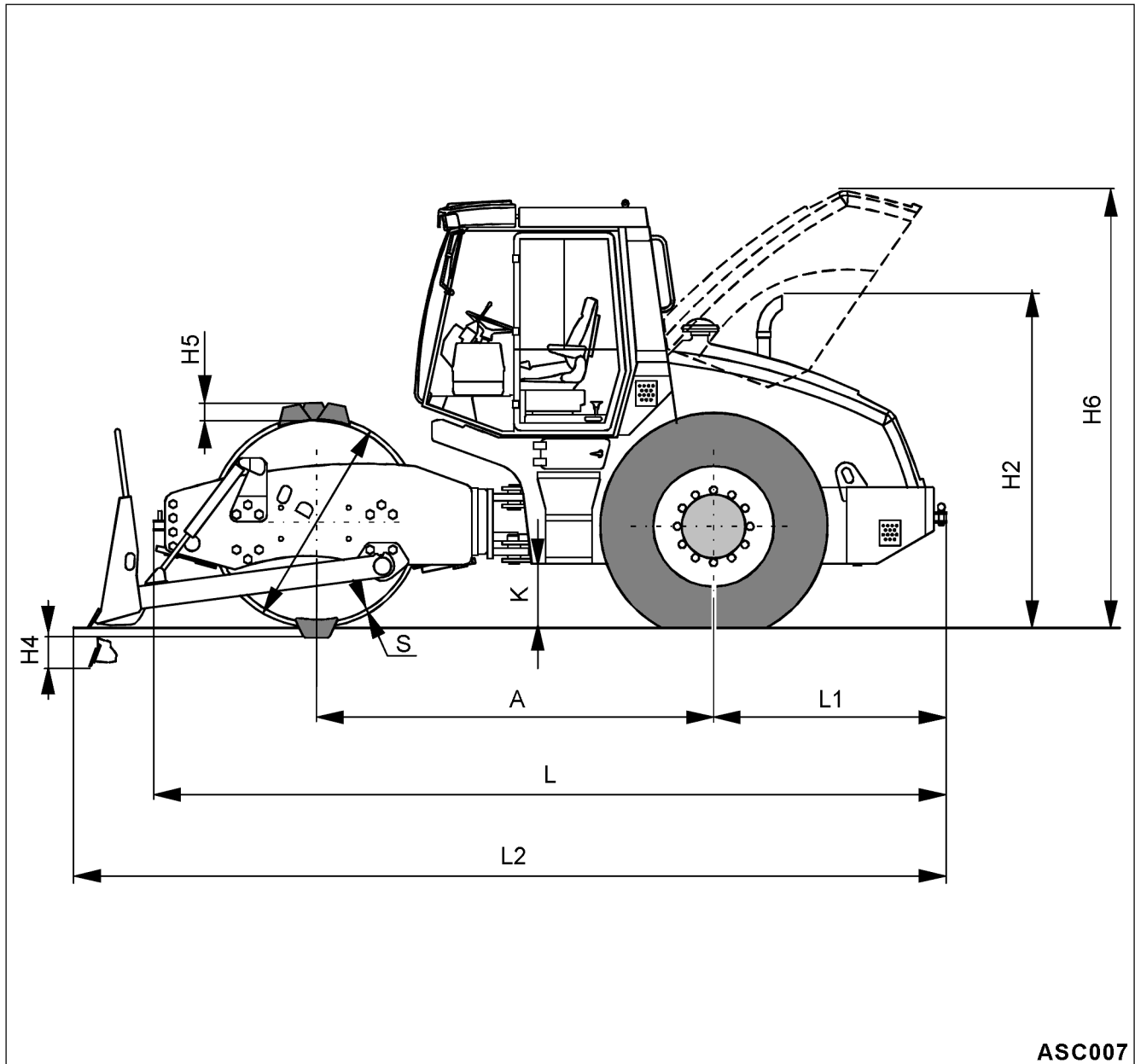


ASC010

mm (in)	K1	L	L1	L2	O1	O2	R1	R2	R3	S	W1	W2	W3	W4
ASC 200 D	430	6300	1770	-	120	140	6280	3780	3900	45	2180	2240	1590	-
	(16,9)	(248)	(69,7)	(-)	(4,72)	(5,5)	(247,2)	(148,8)	(153,5)	(1,77)	(85,8)	(88,2)	(62,5)	(-)
ASC 200 PD	430	6300	1770	-	120	140	6280	3780	3900	30	2180	2240	1590	-
	(16,9)	(248)	(69,7)	(-)	(4,72)	(5,5)	(247,2)	(148,8)	(153,5)	(1,18)	(85,8)	(88,2)	(62,5)	(-)
ASC 200 PDB	430	6300	1770	6790	120	140	6615	3780	3900	30	2180	2240	1590	3000
	(16,9)	(248)	(69,7)	(-)	(4,72)	(5,5)	(247,2)	(148,8)	(153,5)	(1,18)	(85,8)	(88,2)	(62,5)	(118,1)

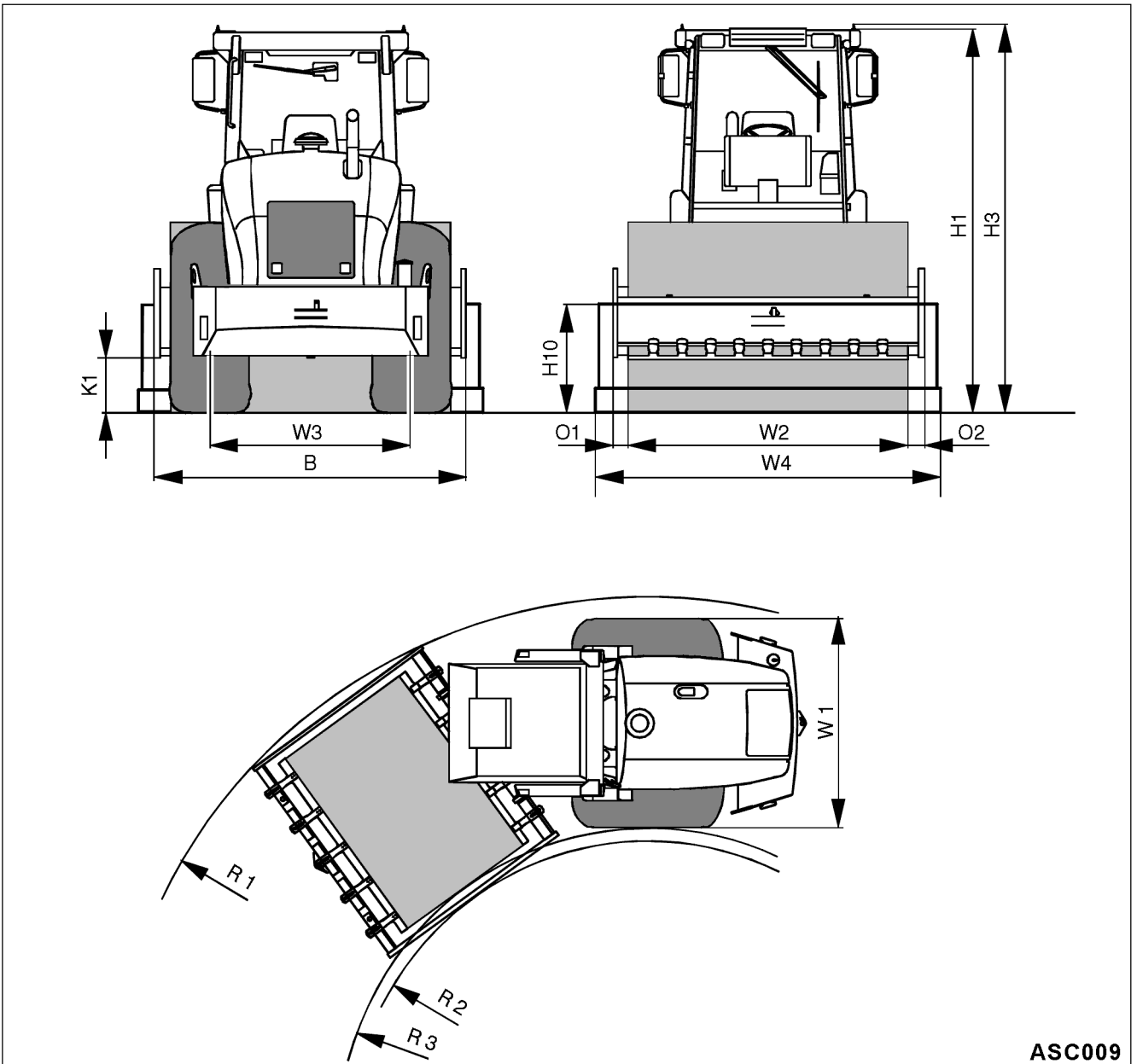
1.2. Dimension Chart

Dimension Chart of the Machine ASC 250 (with cab and protective frame)



mm (in)	A	B	D	H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	K
ASC 250 D	3290	2500	1700	3210	2560	3265	-	-	3730	2580	2445	3270	1030	500
	(129,5)	(98,4)	(66,9)	(126,4)	(100,8)	(128,5)	(-)	(-)	(146,8)	(101,6)	(96,3)	(128,7)	(40,6)	(19,7)
ASC 250 PD	3290	2500	1600	3210	2560	3265	-	154	3730	2580	2445	3270	1030	500
	(129,5)	(98,4)	(63,0)	(126,4)	(100,8)	(128,5)	(-)	(6,1)	(146,8)	(101,6)	(96,3)	(128,7)	(40,6)	(19,7)
ASC 250 PDB	3290	2500	1600	3210	2560	3265	252	154	3730	2580	2445	3270	1030	500
	(129,5)	(98,4)	(63,0)	(126,4)	(100,8)	(128,5)	(9,9)	(6,1)	(146,8)	(101,6)	(96,3)	(128,7)	(40,6)	(19,7)

Dimension Chart of the Machine ASC 250 (with cab and protective frame)

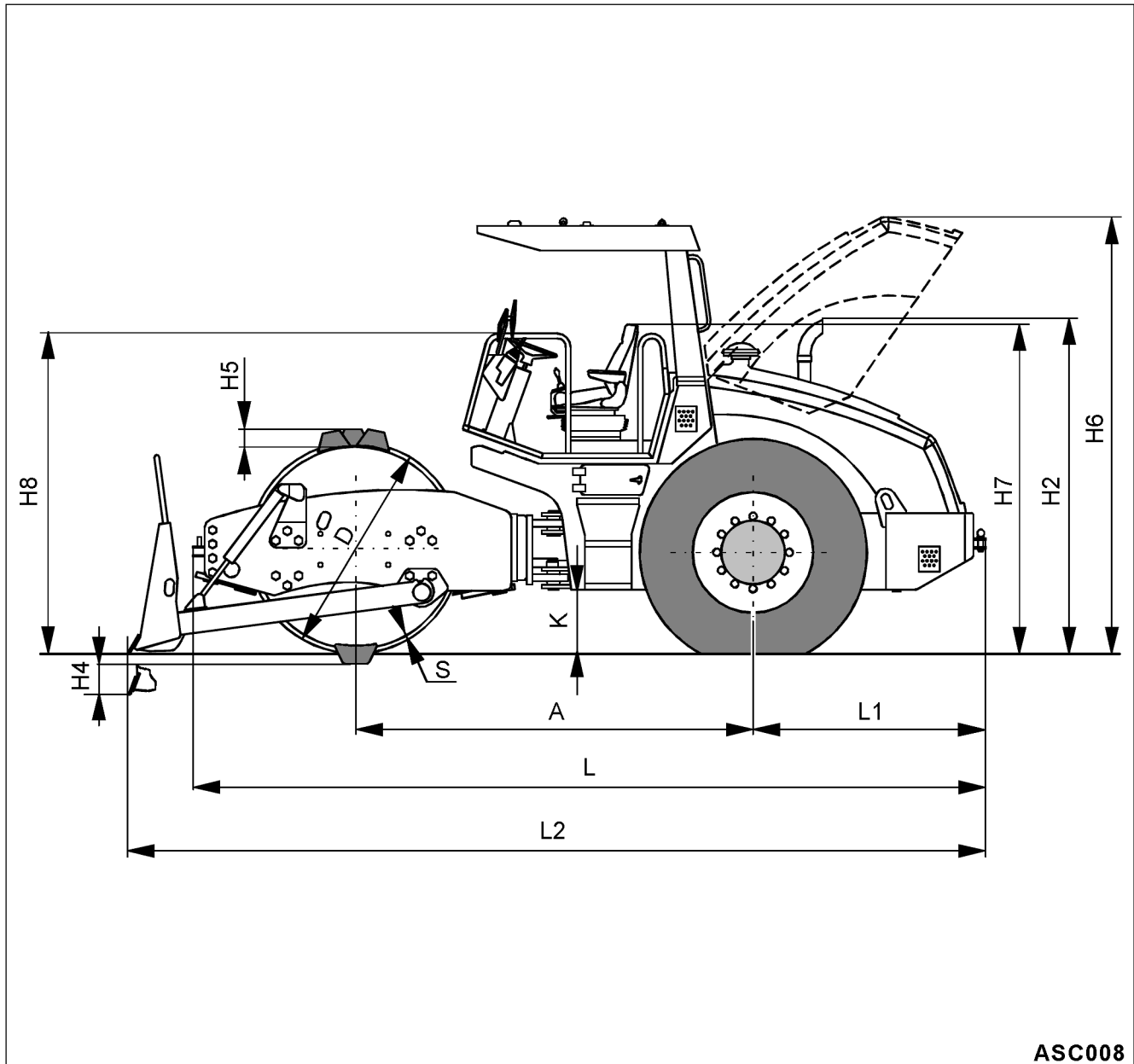


ASC009

mm (in)	K1	L	L1	L2	O1	O2	R1	R2	R3	S	W1	W2	W3	W4
ASC 250 D	430	6560	1770	-	120	140	6315	3815	3950	50	2180	2240	1590	-
	(16,9)	(258,2)	(69,7)	(-)	(4,72)	(5,5)	(248,6)	(150,2)	(153,5)	(1,97)	(85,8)	(88,2)	(62,5)	(-)
ASC 250 PD	430	6560	1770	-	120	140	6315	3815	3950	30	2180	2240	1590	-
	(16,9)	(258,2)	(69,7)	(-)	(4,72)	(5,5)	(248,6)	(150,2)	(153,5)	(1,18)	(85,8)	(88,2)	(62,5)	(-)
ASC 250 PDB	430	6560	1770	6990	120	140	6820	3815	3950	30	2180	2240	1590	3000
	(16,9)	(258,2)	(69,7)	(275,2)	(4,72)	(5,5)	(268,5)	(150,2)	(153,5)	(1,18)	(85,8)	(88,2)	(62,5)	(118,1)

1.2. Dimension Chart

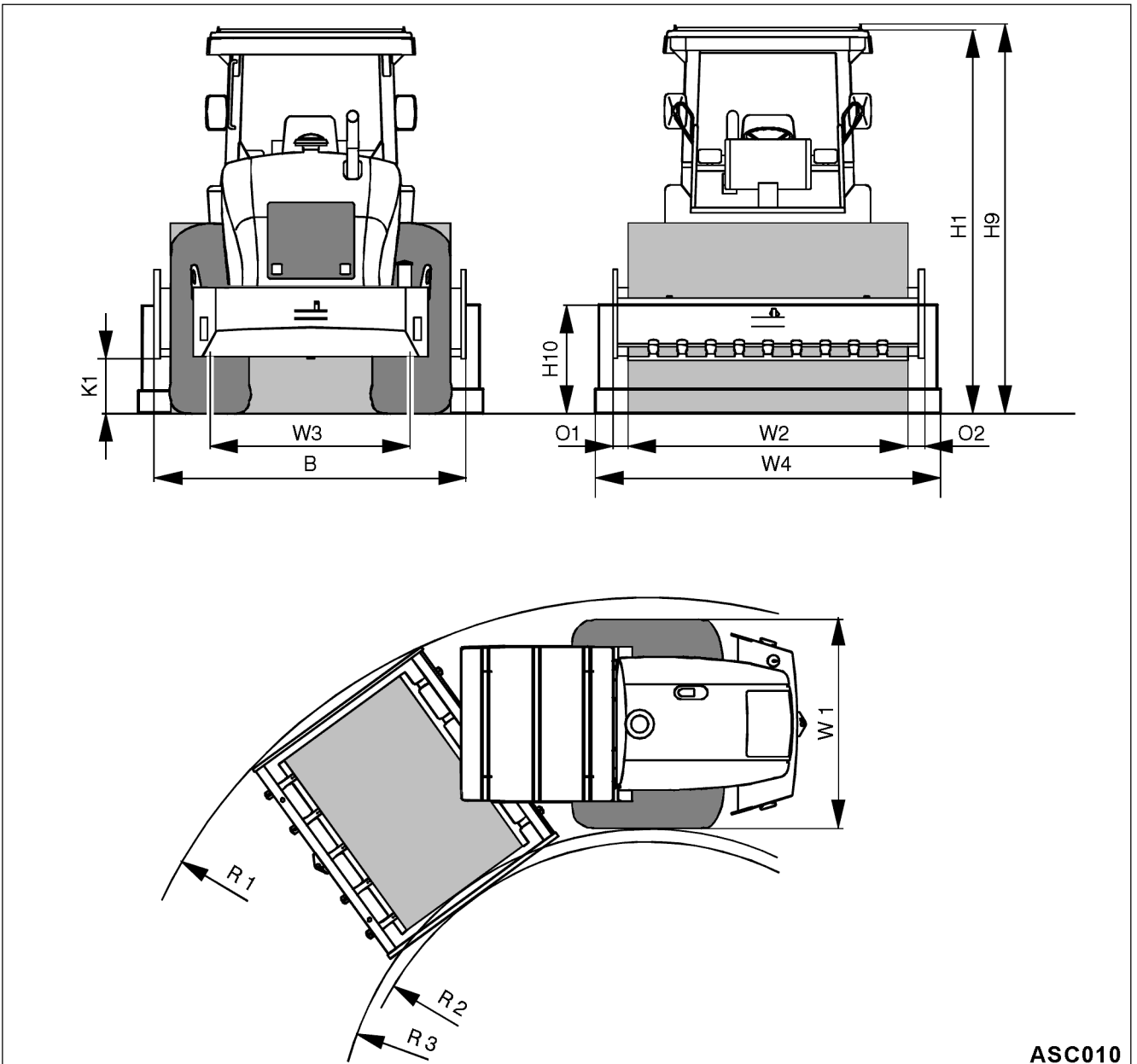
Dimension Chart of the Machine ASC 250 (with platform, protective frame and canopy)



ASC008

mm (in)	A	B	D	H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	K
ASC 250 D	3290	2500	1700	3210	2560	3265	-	-	3730	2580	2445	3270	1030	500
	(129,5)	(98,4)	(66,9)	(126,4)	(100,8)	(128,5)	(-)	(-)	(146,8)	(101,6)	(96,3)	(128,7)	(40,6)	(19,7)
ASC 250 PD	3290	2500	1600	3210	2560	3265	-	154	3730	2580	2445	3270	1030	500
	(129,5)	(98,4)	(63,0)	(126,4)	(100,8)	(128,5)	(-)	(6,1)	(146,8)	(101,6)	(96,3)	(128,7)	(40,6)	(19,7)
ASC 250 PDB	3290	2500	1600	3210	2560	3265	252	154	3730	2580	2445	3270	1030	500
	(129,5)	(98,4)	(63,0)	(126,4)	(100,8)	(128,5)	(9,9)	(6,1)	(146,8)	(101,6)	(96,3)	(128,7)	(40,6)	(19,7)

Dimension Chart of the Machine ASC 250 (with platform, protective frame and canopy)



mm (in)	K1	L	L1	L2	O1	O2	R1	R2	R3	S	W1	W2	W3	W4
ASC 250 D	430	6560	1770	-	120	140	6315	3815	3950	50	2180	2240	1590	-
	(16,9)	(258,2)	(69,7)	(-)	(4,72)	(5,5)	(248,6)	(150,2)	(153,5)	(1,97)	(85,8)	(88,2)	(62,5)	(-)
ASC 250 PD	430	6560	1770	-	120	140	6315	3815	3950	30	2180	2240	1590	-
	(16,9)	(258,2)	(69,7)	(-)	(4,72)	(5,5)	(248,6)	(150,2)	(153,5)	(1,18)	(85,8)	(88,2)	(62,5)	(-)
ASC 250 PDB	430	6560	1770	6990	120	140	6820	3815	3950	30	2180	2240	1590	3000
	(16,9)	(258,2)	(69,7)	(275,2)	(4,72)	(5,5)	(268,5)	(150,2)	(153,5)	(1,18)	(85,8)	(88,2)	(62,5)	(118,1)

1.3. Technical Data

1.3.1. Weights

		ASC 200 D	ASC 200 PD
Operation weight with cab EN500-1	kg (lb)	20405 (44985)	20475 (45139)
Operation weight EN500-1			
to drum	kg (lb)	14080 (31041)	14150 (31195)
to axle	kg (lb)	6325 (13944)	6325 (13944)
Static linear load	kg/cm (lb/in)	62,9 (352)	(-)
Operation weight EN500-1 with cab and protective frame ROPS	kg (lb)	20705 (45646)	20775 (45800)
to drum	kg (lb)	14150 (31195)	14220 (31350)
to axle	kg (lb)	6555 (14451)	6555 (14451)
Static linear load	kg/cm (lb/in)	63,2 (353,7)	(-)
Operation weight with cab according to ISO 6016	kg (lb)	20575 (45359)	20645 (45514)
to drum	kg (lb)	14015 (30898)	14085 (31052)
to axle	kg (lb)	6560 (14462)	6560 (14462)
Static linear load	kg/cm (lb/in)	62,6 (350,3)	(-)
Operation weight with cab and protective frame ROPS according to ISO 6016	kg (lb)	20875 (46020)	20945 (46175)
to drum	kg (lb)	14085 (31052)	14155 (31206)
to axle	kg (lb)	6790 (14969)	6790 (14969)
Static linear load	kg/cm (lb/in)	62,9 (352,1)	(-)
Operation weight with cab and protective frame ROPS according to ISO 6016	kg (lb)	23500 (51808)	(-)
to drum	kg (lb)	16710 (36839)	(-)
to axle	kg (lb)	6790 (14969)	(-)
Operation weight with cab and tires filled with liquid (to -25°C/-13°F) according to ISO 6016	kg (lb)	21775 (48005)	21845 (48159)
to drum	kg (lb)	14015 (30897)	14085 (31052)
to axle	kg (lb)	7760 (17108)	7760 (17107)
Static linear load	kg/cm (lb/in)	62,6 (350,3)	(-)
Operation weight with cab, protective frame ROPS and tires filled with liquid (to -25°C/-13°F) according to ISO 6016]	kg (lb)	22075 (48666)	22145 (48820)
to drum	kg (lb)	14085 (31052)	14155 (31206)
to axle	kg (lb)	7990 (17614)	7990 (17614)
Static linear load	kg/cm (lb/in)	62,9 (352)	(-)

		ASC 200 HD ASC 200 HT	ASC 200 HDPD ASC 200 HTPD
Operation weight with cab EN500-1	kg (lb)	21605 (47631)	21675 (47785)
Operation weight EN500-1			
to drum	kg (lb)	14080 (31041)	14150 (31195)
to axle	kg (lb)	7525 (16590)	7525 (16590)
Static linear load	kg/cm (lb/in)	62,9 (352)	(-)
Operation weight EN500-1 with cab and protective frame ROPS			
to drum	kg (lb)	21905 (48292)	21975 (48447)
to axle	kg (lb)	14150 (31195)	14220 (31350)
Static linear load	kg/cm (lb/in)	7755 (17097)	7755 (17097)
		63,2 (353,7)	(-)
Operation weight with cab according to ISO 6016	kg (lb)	21775 (48006)	21845 (48160)
to drum	kg (lb)	14015 (30898)	14085 (31052)
to axle	kg (lb)	7760 (17108)	7760 (17108)
Static linear load	kg/cm (lb/in)	62,6 (350,3)	(-)
Operation weight with cab and protective frame ROPS according to ISO 6016			
to drum	kg (lb)	22075 (48667)	22145 (48821)
to axle	kg (lb)	14085 (31052)	14155 (31206)
Static linear load	kg (lb)	7990 (17615)	7990 (17615)
		62,9 (352,1)	(-)
Operation weight with cab and protective frame ROPS according to ISO 6016			
to drum	kg (lb)	24700 (54454)	(-)
to axle	kg (lb)	16710 (36839)	(-)
	kg (lb)	7990 (17615)	(-)

1.3. Technical Data

		ASC 250 D ASC 250 HD ASC 250 HT	ASC 250 PD ASC 250 HDPD ASC 250 HTPD
Operation weight with cab EN500-1	kg (lb)	25030 (55180)	25215 (55588)
Operation weight EN500-1			
to drum	kg (lb)	17510 (38602)	17695 (39010)
to axle	kg (lb)	7520 (16578)	7520 (16578)
Static linear load	kg/cm (lb/in)	78,2 (437,7)	(-)
Operation weight EN500-1 with cab and protective frame ROPS	kg (lb)	25330 (55842)	25515 (56250)
to drum	kg (lb)	17570 (38734)	17755 (39142)
to axle	kg (lb)	7760 (17108)	7760 (17108)
Static linear load	kg/cm (lb/in)	78,4 (439,2)	(-)
Operation weight with cab according to ISO 6016	kg (lb)	25200 (55555)	25385 (55963)
to drum	kg (lb)	17450 (38470)	17635 (38878)
to axle	kg (lb)	7750 (17085)	7750 (17085)
Static linear load	kg/cm (lb/in)	31,9 (178,5)	(-)
Operation weight with cab and protective frame ROPS according to ISO 6016	kg (lb)	25500 (56217)	25685 (56625)
to drum	kg (lb)	17510 (38602)	17695 (39010)
to axle	kg (lb)	7990 (17615)	7990 (17615)
Static linear load	kg/cm (lb/in)	78,2 (437,7)	(-)
Operation weight with cab, protective frame ROPS and padfoot segments according to ISO 6016	kg (lb)	28125 (62004)	(-)
to drum	kg (lb)	20135 (44389)	(-)
to axle	kg (lb)	7990 (17615)	(-)

Operating weight according to EN 500 is weight of the machine with full operating liquid, half filling of fuel, water tank of sprinkling and operator's weight 75 kg (165 lb).

Operating weight according to ISO 6016 is weight of the machine with maximum operating liquid, of fuel, water tank of sprinkling and operator's weight 75 kg (165 lb).

The weights may differ depending on additional modifications of the machine made on special request of the customer or if additional options and/or accessories are used.

Weights of machine without cabin can be calculated from all the above weights by deducting

Operation weight	kg (lb)	-220 (485)	-220 (485)
to drum	kg (lb)	-100 (220)	-100 (220)
to axle	kg (lb)	-120 (265)	-120 (265)
Static linear load	kg/cm (lb/in)	-0,45 (2,5)	(-)

The weight of the machine with the cover roof is calculated on all models by deducting the weight of the cab and adding the following weights:

Operation weight	kg (lb)	+140 (308)	+140 (308)
to drum	kg (lb)	+60 (132)	+60 (132)
to axle	kg (lb)	+80 (176)	+80 (176)
Static linear load	kg/cm (lb/in)	+0,27 (1,5)	(-)

For all machine variants, the weight of machine including blade is calculated by adding the weights below:

Operation weight			
to drum	kg (lb)	+1350 (2976)	+1350(2976)
to axle	kg (lb)	-270 (595)	-270 (595)

1.3.2. Travel Parameters

		ASC 200 D	ASC 200 PD
Travel speed - infinitely adjustable in both directions			
1st speed range (work)	km/h (MPH)	1. 0 - 2,5 (0 - 1,55)	0 - 2,5 (0 - 1,55)
		2. 0 - 3,1 (0 - 1,92)	0 - 3,1 (0 - 1,92)
		3. 0 - 3,9 (0 - 2,42)	0 - 3,9 (0 - 2,42)
2nd speed range (transport)	km/h (MPH)	0 - 12,2 (0 - 7,58)	0 - 12,2 (0 - 7,58)
Theoretical gradability *			
1st speed range (work)	%	130	129
2nd speed range (transport)	%	24	24
Practical gradability by forward run *			
- without vibration	%	50	55
- with vibration	%	50	55

		ASC 200 HD	ASC 200 HDPD
Travel speed - infinitely adjustable in both directions			
1st speed range (work)	km/h (MPH)	1. 0 - 2,5 (0 - 1,55)	0 - 2,5 (0 - 1,55)
		2. 0 - 2,85 (0 - 1,77)	0 - 2,85 (0 - 1,77)
		3. 0 - 3,0 (0 - 1,86)	0 - 3,1 (0 - 1,92)
2nd speed range (transport)	km/h (MPH)	0 - 8,7 (0 - 5,4)	0 - 8,8 (0 - 5,46)
Theoretical gradability *			
1st speed range (work)	%	140	139
2nd speed range (transport)	%	26	26
Practical gradability by forward run *			
- without vibration	%	55	55
- with vibration	%	55	55

		ASC 200 HT	ASC 200 HTPD
Travel speed - infinitely adjustable in both directions			
1st speed range (work)	km/h (MPH)	1. 0 - 1,8 (0 - 1,12)	0 - 1,8 (0 - 1,12)
		2. 0 - 2,35 (0 - 1,46)	0 - 2,35 (0 - 1,46)
		3. 0 - 2,9 (0 - 1,8)	0 - 3,0 (0 - 1,86)
2nd speed range (transport)	km/h (MPH)	0 - 7,5 (0 - 4,66)	0 - 7,6 (0 - 4,74)
Theoretical gradability *			
1st speed range (work)	%	207	205
2nd speed range (transport)	%	29	28
Practical gradability by forward run *			
- without vibration	%	60	60
- with vibration	%	60	60

1.3. Technical Data

		ASC 200 D; HD; HT	ASC 200 PD; HDPD; HTPD
Approach angle			
- front	(°)	30	30
- rear	(°)	31	31
Transversal stability with cabin and ROPS frame			
- straight frame (static)	(°)	37	37
- full turn (static)	(°)	32	32
Max. allowed transversal inclination			
- without vibration	(°)	23	23
- with vibration	(°)	5	9

* Weight according to ISO 6016 with cab and ROPS frame

		ASC 250 D	ASC 250 PD
Travel speed - infinitely adjustable in both directions			
1st speed range (work)	km/h (MPH)	1. 0 - 2,5 (0 - 1,55)	0 - 2,5 (0 - 1,55)
		2. 0 - 2,8 (0 - 1,74)	0 - 2,8 (0 - 1,74)
		3. 0 - 3,1 (0 - 1,92)	0 - 3,2 (0 - 1,99)
2nd speed range (transport)	km/h (MPH)	0 - 9,5 (0 - 5,9)	0 - 9,5 (0 - 5,9)
Theoretical gradability *			
1st speed range (work)	%	102	101
2nd speed range (transport)	%	21	21
Practical gradability by forward run *			
- without vibration	%	45	50
- with vibration	%	45	50

		ASC 250 HD	ASC 250 HDPD
Travel speed - infinitely adjustable in both directions			
1st speed range (work)	km/h (MPH)	1. 0 - 2,2 (0 - 1,36)	0 - 2,2 (0 - 1,36)
		2. 0 - 2,55 (0 - 1,58)	0 - 2,55 (0 - 1,58)
		3. 0 - 2,9 (0 - 1,8)	0 - 3,0 (0 - 1,86)
2nd speed range (transport)	km/h (MPH)	0 - 8,1 (0 - 5,03)	0 - 8,2 (0 - 5,1)
Theoretical gradability *			
1st speed range (work)	%	110	111
2nd speed range (transport)	%	24	24
Practical gradability by forward run *			
- without vibration	%	55	55
- with vibration	%	55	55

		ASC 250 HT	ASC 250 HTPD
Travel speed - infinitely adjustable in both directions			
1st speed range (work)	km/h (MPH)	1. 0 - 1,8 (0 - 1,12)	0 - 1,8 (0 - 1,12)
		2. 0 - 2,3 (0 - 1,43)	0 - 2,3 (0 - 1,43)
		3. 0 - 2,8 (0 - 1,74)	0 - 2,8 (0 - 1,74)
2nd speed range (transport)	km/h (MPH)	0 - 8,7 (0 - 5,4)	0 - 8,7 (0 - 5,4)
Theoretical gradability *			
1st speed range (work)	%	153	151
2nd speed range (transport)	%	26	25
Practical gradability by forward run *			
- without vibration	%	60	60
- with vibration	%	60	60
		ASC 250 D; HD; HT	ASC 250 PD; HDPD; HTPD
Approach angle			
- front	(°)	30	30
- rear	(°)	31	31
Transversal stability with cabin and ROPS frame			
- straight frame (static)	(°)	39	39
- full turn (static)	(°)	34	34
Max. allowed transversal inclination			
- without vibration	(°)	23	23
- with vibration	(°)	5	9

* Weight according to ISO 6016 with cab and ROPS frame

1.3.3. Vibration

ASC 200

Drive - hydrostatic. Vibration exciter - two-stage, circular non-directed vibration.

Frequency	Hz (VPM)	28/34 (1680/2040)
Rated amplitude	mm (in)	2,0/1,0 (0,087/0,039)
Centrifugal force	kN (lb)	400/300 (89892/67419)

ASC 250

Drive - hydrostatic. Vibration exciter - two-stage, circular non-directed vibration.

Frequency	Hz (VPM)	28/34 (1680/2040)
Rated amplitude	mm (in)	2,2/1,1 (0,087 /0,043)
Centrifugal force	kN (lb)	460/340 (103376/76408)

1.3. Technical Data

1.3.4. Engine

Make	Cummins Diesel
Type	QSB6.7-C220
Serial number
Number of cylinders	6
Total displacement	cm ³ (cu in) 6700 (409)
Output according to ISO 3046/1 (DIN 6271)	kW (HP) 164 (220)
Rated speed	min ⁻¹ (RPM) 2200
Maximal torque	Nm (ft lb) 949 (700) /1500 min ⁻¹ (RPM)
Specific fuel consumption at rated speed	g/kWh (lb/hp-hr) 232 (0,381)
Fuel speed at normal operation	l/h (gal US/h) ASC 200: 21,5 (5,7) ASC 250: 22,2 (5,9)
Fuel pre-filter - Fleetguard	FS 19732*
Fuel cleaners - Fleetguard	3957413*
Oil cleaner - Fleetguard	LF 3970*
Air cleaner	Donaldson FRG G130120
Air filter element	Donaldson P780331
Air filter safety element	Donaldson P780332
Cooling system	liquid cooled engine with cooler 48910
Coupling	CENTA CF-H-030-1 Sa 03
Engine fulfills requirements of	Dir. 97/68/EU Stage 3 EPA/CARB 40 CFR Part 89 Tier 3

* Exact denomination of these parts is dependent on modification of the engine. For spare parts ordering always refer to the serial number of your engine.

1.3.5. Axle

The front axle consists of the drum, the rear axle of the axle housing with two drive gearboxes with the wheels.

Tire size		23,5x25" thread NB57(EM-30) (16PR) MITAS
Average contact pressure on soil	kPa (PSI)	235 (32,9) ASC 200
Tire inflation	kPa (PSI)	150 (22) ASC 200
Average contact pressure on soil	kPa (PSI)	344 (49,8) ASC 250
Tire inflation	kPa (PSI)	150 (22) ASC 250
Tire size		23,5x25" thread NB38(EM-20) (16PR) MITAS
Average contact pressure on soil	kPa (PSI)	330 (46,2) ASC 200
Tire inflation	kPa(PSI)	150 (22) ASC 200
Average contact pressure on soil	kPa (PSI)	469 (68)
Tire inflation	kPa(PSI)	150 (22)

1.3.6. Brakes

Service brake		hydrostatic system of travel
Parking emergency brake		three band brakes installed in the gearboxes of the wheels and the drum, governed by springs with hydraulic release
Releasing pressure	MPa (PSI)	1,7 (246)

1.3. Technical Data

1.3.7. Steering

Hydraulic power steering with two hydraulic cylinders

Hydraulic pump of steering

Power steering unit

Jihostroj Q 43R

DANFFOS OSPB 1000 ON

Safety pressure	MPa (PSI)	14 (2030)
Hydraulic cylinders		2x HV 110/55/400
Steering angle max.		± 36°
Oscillation angle		± 10°

1.3.8. Vibratory Drum

		ASC 200 D	ASC 200 PD
Drum dia	mm (in)	1700 (67)	1600 (63)
Drum dia over pads	mm (in)	-	1840 (72,5)
Drum width	mm (in)	2240 (88,25)	2240 (88,25)
Drum shell thickness	mm (in)	45 (1,77)	30 (1,18)
Number of pads		-	150
Height of a pad	mm (in)	-	120 (4,73)
Area of a pad	cm ² (sq in)	-	143 (22,07)
		ASC 250 D	ASC 250 PD
Drum dia	mm (in)	1700 (67)	1600 (63)
Drum dia over pads	mm (in)	-	1908 (75,1)
Drum width	mm (in)	2240 (88,25)	2240 (88,25)
Drum shell thickness	mm (in)	50 (1,97)	30 (1,18)
Number of pads		-	150
Height of a pad	mm (in)	-	154 (6,1)
Area of a pad	cm ² (sq in)	-	145 (22,5)

1.3.9. Hydrostatic Drive of Travel

Hydraulic pump of travel variable output with skew plate, electrohydraulically controlled

Delivery per revolution

Safety pressure

Kontroller

Drum drive gear-box

Filtration block

Filter element

Drum drive hydromotor

Wheel gears

Hydraulic motors of wheel drives

The distributor block

ASC 200

	Sauer 90 R 100
cm ³ (cu in/rev)	100 (6,08)
MPa (PSI)	42 (6090)
	Sauer MCH
	Trasmital 715C3B 108 H6 (D; PD; HD; HDPD)
	Trasmital 715C3B 129 H6 (HT;HTPD)
	Hytos 729-0060
	Argo V3.0720-46
	Sauer 51 C 110
	Trasmital 709C3B63,1 H1(D; PD; HD; HDPD)
	Trasmital 709C3B75,5 H1 (HT; HTPD)
	Sauer 51C060
	Hytos 880-0303

ASC 250

Hydraulic pump of travel variable output with skew plate, electrohydraulically controlled

Delivery per revolution

Safety pressure

Kontroller

Drum drive gear-box

Filtration block

Filter element

Drum drive hydromotor

Wheel gears

Hydraulic motors of wheel drives

The distributor block

	Sauer 90 R 100
cm ³ (cu in/rev)	100 (6,08)
MPa (PSI)	42 (6090)
	Sauer MCH
	Trasmital 715C3B129 H6 (D; PD; HD; HDPD)
	Lohmann GFT110T3 1288 (HT;HTPD)
	Hytos 729-0060
	Argo V3.0720-46
	Sauer 51 C 110
	Trasmital 709C3B63,1 H1(D; PD; HD; HDPD)
	Trasmital 709C3B 75,5 H1 (HT;HTPD)
	Sauer 51C060
	Hytos 880-0303

1.3.10. Hydrostatic Drive of Vibration

Hydraulic pump of vibration variable-output, with skew plate, electrohydraulically controlled

Delivery per revolution

Safety pressure

Hydromotor of vibration

	Sauer 90 R 100
cm ³ (cu in/rev)	100 (6,08)
MPa (PSI)	35 (5075)
	Sauer 90 M 100

1.3. Technical Data

1.3.11. Hydraulic Oil Tank

Suction basket

Argo AS 080-1

1.3.12. Lifting and lowering of the Hood and the Cabin

Hydraulic set

Hytos SMA 03 731-0433

Filter

SF 56/48

Block of lifting

Hytos 729-0030

Hydraulic cylinders of hood lifting

2x HM 25/18-320

Hydraulic cylinder of cab lifting

HM 40/22-320

Hand pump

Technometra RC 16

Hydraulic locks

- for hood lifting and lowering

2x Hytos RJV1-05 Typ 535-0118

- for cab lifting and lowering

Hytos RJV1-05 Typ 535-0118

1.3.13. Cooling System of Hydraulic Oil

Oil cooler

Emmegi 48910

1.3.14. Fluids

Engine oil	l (gal US)	19,7 (5,2)
Cooling system	l (gal US)	30 (7,9)
Fuel	l (gal US)	405 (107)
Hydraulic system	l (gal US)	100 (26,4)
Drum drive gear-box	l (gal US)	7,7 (2,0)
Wheel gears	l (gal US)	2x4,4 (2x1,2)
Vibratory drum	l (gal US)	7,5 (1,98)
	l (gal US)	9,5 (2,51) (ASC250 HT)
Tank of windscreen washer	l (gal US)	2,7 (0,71)
Cooling system of the Drum	l (gal US)	185 (48,9)
Liquid-filled tyres up to -25 °C (-13 °F)	kg (lb)	2 x 600 (2 x 1323)
to 0 °C (32 °F)	kg (lb)	2 x 500 (2 x 1102)
They represent additional weight per separate order for:		ASC 200
They represent additional weight per standard order for:		ASC 250

1.3.15. Electrical Installation

Rated voltage	V	24
Capacity of battery	Ah	2 x 100

1.3.16. Safety Devices

Emergency brake	stoppage of all functions and braking
Hydraulic locks	protective device preventing fall of the hood or cabin at failure of the lifting system
Oil leak protection	automatically stops the machine and optically signals in a case of oil leak
Battery disconnecter	disconnects electrical installation

1.3. Technical Data

1.3.17. Hygienical Data

The machine with cab and closed windows:

Noise:

The acoustic pressure level affecting the driver:
(measured according the EN 11 204 and prEN 500-4:2001
on the elastic material, stopped machine with vibration)

$$L_{pA} = 82 \text{ dB (A)}$$

Guaranteed sound power level - according to CE
(measured due to the Directive 2000/14/EC, EN ISO 3744
on the elastic material, stopped machine with vibration)

$$L_{WA} = 110 \text{ dB(A)}$$

Guaranteed sound power level - nonconforming CE
(measured due to the Directive 2000/14/EC, EN ISO 3744
on the elastic material, stopped machine with vibration)

$$L_{WA} = 113 \text{ dB(A)}$$

The vibrations:

The mean effective value of the vibrations acceleration:

- transfered to the body
(measured according the EN 1032
on the sand base under the vibration travel)
- transfered to the hands
(measured according the ISO 5349
on the sand base under the vibration travel)

$$a_w < 0,5 \text{ m/s}^2 \text{ (vectorial sum)}$$

$$a_w < 2,5 \text{ m/s}^2 \text{ (vectorial sum)}$$

The machine with the cab with opened windows:

Noise:

The acoustic pressure level affecting the driver:
(measured according the EN 11204 and prEN 500-4:2001
on the elastic material, stopped machine with vibration)

$$L_{pA} = 84 \text{ dB(A)}$$

The machine without cab:

Noise:

The acoustic pressure level affecting the driver:
(measured according the EN 11204 and prEN 500-4:2001
on the elastic material, stopped machine with vibration)

$$L_{pA} = 92 \text{ dB(A)}$$

1.3.18. Requirements of Traffic Regulations

The basic machine model is not intended to be moved under own power on public roads, since its appointment is not in compliance with the regulation for public roads.

1.3.19. Accessories

A) Rolling Over Protective Structure (ROPS)

Compliant with international standards EN 500-4:1995; SAE J 1040:APR88; AS 2294:1990; ISO 3471:1994 for maximum machine weight 30 500 kg (67240 lb).

Weight of the ROPS frame	kg (lb)	300 (661)
Fastened to the machine frame with		20 bolts M 24 x 90 ČSN 02 1143.55 (8G)
Tightening torque	Nm (in lb)	549 (4854)



282N104T

B) Dozing Blade

Blade width	mm (in)	3000 (118,1)
Blade height	mm (in)	1030 (40,6)
Ground clearance at transport position	mm (in)	ASC 200: 600 (26) ASC 250: 705 (27,8)
Cutting depth	mm (in)	ASC 200: 242 (9,5) ASC 250: 252 (9,9)
Weight of blade (total)	kg (lb)	1080 (2381)
Fastened to the machine frame with		2 bolts M 24 x 120 (8G) 3 bolts M 24 x 140 (8G) 6 bolts M 24 x 160 (8G) 5 bolts M 24 x 180 (8G)
Tightening torque	Nm (in lb)	549 (4854)
Distributor		HP8-1-STA
Safety pressure	MPa (PSI)	14 (2030)
Hydraulic cylinders		HM 80/40/500 111131

C) Padfoot Segments

Number of segments		3
Drum dia over pads	mm (in)	1956 (77)
Total number of pads		150
Height of a pad	mm (in)	120 (4,73)
Area of a pad	cm ² (sq in)	143 (22,07)
Weight of one segment	kg (lb)	814 (1794)
Total weight of segments	kg (lb)	2625 (5786)
Fastened to the drum with		18 bolts M 24 x 150 (8G)
Tightening torque	Nm (in lb)	549 (4854)

1.3. Technical Data

D) FOPS roof cover

The cover complies with international standards ISO 3449:1992; SAE J 231:JAN81; AS 2294:1990 and approval level II. It is mounted on the ROPS protective frame.

Cover weight	kg (lb)	140 (309)
Attached to ROPS by		4 bolts M16x30(8G)
Tightening torque	Nm (in lb)	165 (1457)



282N105T

E) ATC - interaxle differential

Control unit	Sauer Susmic S1X-26G2 511982
Proportional valve	Sauer 507832 24V
Slope sensor	Sauer MCX 106A 1005X 742361

F) FOPS cab

This is a standard cab with a reinforced roof protecting against falling objects. The cab complies with international standards ISO 3449:1992; SAE J 231:JAN81; AS 2294:1990 and approval level II.

Notes:

2. OPERATING INSTRUCTIONS

**ASC 110, ASC 130, ASC 150
ASC 200 and ASC 250
(Cummins tier 3)**

2.1.1. Safety Regulations and Instruction for Operation of the Machine

The safety regulations stated in the individual chapters of the documentation delivered with the machine are to be complemented with safety regulations valid for the respective country of use and on the respective jobsite with regards to organization of work, work processes and personnel.

2.1.1.1. Beginning of Compaction Works

- The contractor (the company which operates the machine) is obliged to issue regulations for operation and maintenance of the machine, which must contain also the requirements for safety of work.
- Before the work is started, it is necessary to check:
 - location of engineering networks
 - underground spaces (direction, depth)
 - suction and/or escape of dangerous agents
 - bearing power of soil, inclination of the work area

These facts must be communicated to the machine's operator designated to carry out the work.

- It is necessary to issue a technological procedures for the actual work activity, which would set up:
 - measurements for operation under exceptional conditions (work in protective zones, at extreme slopes, etc.);
 - measurements for protection from the forces of nature;
 - requirements for operational safety;
 - technical and organizational measurements for securing safety of personnel, jobsite and the surrounding area.

The technological procedures must be communicated to the machine's operator.

2.1.1.2. Operation in an imperiled area

Whatever damage to service networks must be reported immediately to the operating company, simultaneously, access by unauthorized persons to the imperiled area must be limited.

No worker must be left alone whenever there is no other worker in sight that could provide or call for help, unless another effective method of control and contact has been installed.

2.1. Safety Regulations

2.1.1.3. Work safety precepts on behalf of the operator

The operator

- must make sure that the machine is operated only under conditions and for the purpose to which the machine has been designed as defined by the manufacturer and applicable standards,
- must make sure that the vibration roller is used only under such conditions and in such locations where there is no danger of transmitting vibrations and causing damage to nearby structures, etc.,
- must provide for regular inspection of operations, technical conditions, for regular maintenance at intervals specified in the Instructions for Maintenance and Lubrication. In cases of noncompliance to such degree that would endanger safe operation, personnel, property, and the environment, the machine must be removed from operations until the defects have been corrected,
- must define who may perform specific functions during operations, maintenance, and repairs of the machine,
- everybody who drives, maintains, and repairs the machine must be acquainted with the rules listed in the Operation Manual for the machine
- must provide for the fire extinguisher to be checked regularly,
- must store the Operations Manual and the Operations Diary in the defined location, the seat box, to be available to the driver at all times
- must provide a steady supervision by a defined worker during operations on public roads, and in particular must issue work safety regulations,
- must provide for the removal of dangerous matters (fuel, oil, cooling fluid, etc.) from spots of leakage in line with their nature to prevent any adverse effect on the environment, work safety and health of personnel.

When using ROPS frame

- the machine frame in the spot of connection must not be damaged (broken bent, etc.)
- the ROPS frame itself must not be corroded, damaged, or show any hair fractures or breaks,
- the ROPS frame must not be loose during operation,
- all screw connections must be as specified and tightened to the specified torque,
- the bolts must not be damaged, deformed, and/or corroded,
- the ROPS frame must not be modified without the manufacturer's approval, since its firmness could be affected (such as holes, welds, etc.),
- the weight of the machine with the protective frame may not exceed approved weight for which the ROPS has been approved.

2.1.2. Requirements for the competence of the driver

- The roller may be operated by a driver, who has been trained to ISO 7130 and other local and national regulations and standards for drivers of this category
- Only such person may drive the machine without proper certification that is being instructed with the owner's permission in operating the machine under a direct supervision of a special instructor for the purpose of gaining preliminary skills.
- The roller may be operated without the proper certificate momentarily without supervision by a worker who is mentally and physically fit, older than 18 years, and who has been
 - a) entrusted by the machine manufacturer for the assembly, testing and demonstration of the machine, and/or instructing drivers, while having been instructed himself in work safety regulations applicable to the site
 - b) designated by the builder for the operation (maintenance), evidently trained and instructed, and/or having professional training in operating and driving according to special regulations (machinist certificate, etc.)

2.1.3. The driver's duties

- Before the start of operations, the driver must become acquainted with instructions published in the machine documentation, particularly with safety rules, and adhere to them. This applies also to personnel entrusted with maintenance, adjustments and repairs. If some sections of the manuals are not clear enough, contact the nearest dealer or the manufacturer.
- The driver may not drive the machine unless fully cognizant of all functions of the machine, its working and controlling elements, and unless he knows exactly how to operate the machine.
- The driver must comply with all safety signs placed on the machine, and keep them in legible state.
- Before the start of operations the driver must become acquainted with the site, its obstacles, slopes, service network, and required types of working site protection regarding noise, vibration, etc.
- When a situation arises endangering health, lives, property, during defects of technical nature, and/or when signs are present indicating such possibilities during operations, unless the driver can remove the danger by himself, he must cease his work and secure the machine against involuntary start, report to his supervisor, and advise all persons imperiled by the situation.
- The driver must become acquainted before the start of the machine with records of operating deviations made by the preceding shift.
- The driver must inspect the machine before starting work, accessories, control elements, information and safety equipment, whether functional as instructed. Should he not be able to correct by himself a defect affecting work safety, he may not start the machine, and must report the defect to his supervisor.
- The driver must wear safety belts.
- The safety belt and its anchors must not be defective.
- Should the driver discover a defect during work, he must stop the machine immediately, and secure it against involuntary start
- During operations the driver must monitor the machine and record defects in the operation diary.
- The driver must keep up to date the operation diary, which serves the purpose of recording transfers of the machine between drivers, defects and repairs during operation, and important events during the shift.
- Prior to starting the engine, the control levers must be in neutral, nobody may be present in the vicinity of the machine.
- The driver informs of the startup by audible or visual signals always before the start of the engine.
- The driver must check brakes and steering before operations.

2.1. Safety Regulations

- Following the warning signal the operator may start the machine first after all personnel have left the vicinity of the machine. On a difficult to oversee site the machine may be started after a certain time allowed for vacating it.
- The driver must follow safety regulations, not perform actions affecting work safety, and fully attend work on hand.
- He must have regard for the work process and/or instructions given by the supervisor.
- The speed of the machine must be adjusted to the condition of the grounds, the operation, and the weather, and the site must be observed to avoid meeting an obstacle.
- When the operator leaves the machine unattended at the end of an operation or its interruption, he must secure the machine against unauthorized use and incidental startup by removing ignition key, locking the cabin door, and switching off electrical circuits.
- After the operation has been finished, the machine must be parked on a flat and firm ground in a stable position off public roads and out of reach of falling objects (soil) and natural dangers like floods, landslides, etc.
- When the machine is parked on public roads, it must be done according to regulations applicable to public roads. The machine must be provided with proper signs.
- Following operations the machine's defects and repairs must be recorded in the operations diary. The driver of the next shift must be made aware of existing situation.
- The driver must use personal protective means – dress and shoes. The dress may not be too loose and torn; hair must be protected by a suitable head covering. Hands must be protected by suitable gloves for maintenance (lubrication, handling fluids).
- The driver must wear headsets effective against noise levels of 90 dB on a machine without cabin.
- He must keep accessories as prescribed.
- He must keep his station, steps and stepping points clean.
- Before lifting the cabin or hood, he must check for free space and electrical wiring in the area, and make sure that nobody is in danger when refolding the cabin and closing the hood.
- Should the machine touch high voltage lines,
 - try to leave the area of danger with the machine
 - do not leave the station
 - warn others not to approach and touch the machine
- Maintain the machine free of oil and inflammable materials.



To follow safety messages under all circumstances to avoid risk of serious injury or death.



To follow safety messages under all circumstances to avoid risk of injury.



To follow environmental regulations to protect environment (contamination of water sources or soil).

! NOTE !

Pay attention to signs to avoid damage of the machine.

NOTE:

Additional information for operators.

2.1.4. Forbidden actions

It is not permitted to

- operate the machine under the influence of alcohol or drugs
- use the machine while its technical condition, personal safety (lives or health), property, or public roads traffic would be endangered,
- operate the machine while other people would be in the vicinity, except during instructions by a teacher,
- operate the machine, if some of its safety equipment has been removed or damaged, like emergency brake, hydraulic locks, etc.
- travel and compact on slopes that could lead to the instability of the machine (tipping over). The stated static stability is lowered by the dynamic effect of travel.
- travel and compact on slopes where the ground could slide with the machine, or the lack of adhesion could initiate an uncontrolled skid.
- operate the machine contrary to Operating instructions.
- travel and compact with vibration adjusted to ground firmness near edges of slopes and excavations to cause danger of slides with the machine,
- travel and compact with vibration on at a distance from walls, cuts, and slopes that could cause danger of landslides over the machine,
- compact with vibration on at a distance from buildings and constructions that could cause damage through vibration effects
- transport people on the machine,
- operate the machine unless the driver's station is firmly anchored
- operate the machine with open hood
- operate the machine with other machinery or vehicles near by, except those that are participating in the operation,
- operate the machine at a site, which cannot be surveyed by the driver and where people or property could be endangered, unless work safety is secured by other means, such as signalization by another properly instructed person,
- operate the machine near electrical wires or transformer stations,
- travel over electrical cables, unless properly protected against mechanical damage,
- operate the machine in deteriorated visibility and at night, unless the site and the machine are sufficiently illuminated,
- leave the seat with the machine running
- leave the machine unsecured, unless secured against misuse
- eliminate safety and protection devices, fusing, or change their settings,
- use the machine with oil, fuel, cooling or other fluids leaking
- start the engine contrary to the Operating instructions
- place other things on the driver's platform except for personal belongings,
- deposit material and other items on the machine,
- remove dirt while the machine is running,
- maintain, clean, or repair unless the machine is secured against involuntary movement or starting, and the worker's contact with moving parts is not prevented,
- touch moving parts of the machine bodily or by hand holding tools,
- smoke and handle open flame during inspection and tanking fuel, changing or adding oil, lubrication, checking and topping battery,
- carry on the machine – in the cabin or under the hood – rags soaked in flammable fluids and flammable fluids in open cans,
- leave the engine running in closed rooms. Exhaust fumes are deadly.

Applicable standards and regulations

ISO 6749
ISO 4510
ISO 8152

2.1. Safety Regulations

2.1.5. Safety signs and symbols marked on the machine

1. Risk of grasp



Dangerous space with risk of grasp. (Symbols located on the left and right side of the rear crossbar of the front frame)

2. Risk of burn



Risk of burn. Do not touch the hot parts of the machine until you've checked they are cold enough. (Symbol located on the internal side of the side door)

3. Risk of injury



Risk of injury and reeling. Do not touch the rotating parts while the motor is still running. (Symbol located on the left side of the cooler)

4. Coolant



Risk of scald. Do not open the lid of the expansion tank until the liquid gets cooled down below 50 °C (122 °F). (Symbol located on the equalizing tank)

5. Adjust machine while switched off



There is a risk of injury and hand capture in the rotating parts of the machine. Do not make adjustment and maintenance while the motor is still running. (Symbol located on the internal side of the side door)

6. Read instruction manual



Read the instruction manual before start up of the machine. (Symbol located on the left side of the control board.)

7. Safety belt



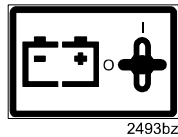
Fasten your safety belt before machine start. (Symbol located on the left side of the control board)

8. Machine maximum height



Attention to be paid when driving through places with a height limit. (Symbol located on the left side, on the frame under the cab)

9. Battery disconnecter



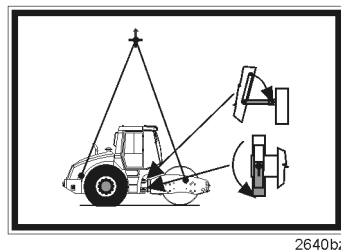
Switch the battery disconnecter into „O“ position in the case of a failure and after end of work. (Symbol located on the panel under the left side door)

10. Handbook



Indication of a box containing the machine handbook (Symbol located at the back of the seat)

11. Hanging figure



To lift machine, binding means of sufficient capacity to be used. Lock the machine joint before hanging it. (Symbol located on the left side door)

12. Hanging spots



Suspend the machine in these spots only. (Symbols located on the both sides of the frames)

13. Disconnect the alternator



Prior to welding on the machine disconnect the alternator, ATC, control unit of engine (Symbol located on the internal side of the side door)

14. First-aid kit



Indication of the first-aid kit box. (Symbol located in the top left corner of the cab)

2.1. Safety Regulations

15. Ear protection



If there is no cab at the machine or if working with the windows open, be sure to wear an ear protection. (Symbol located on the central post of the control)

16. Noise emission



Symbol located on the right side of frame under cabine.

17. Danger of injury



Danger of being wound by the belt. (symbol placed on the left side of the cooler)

18. Electrical equipment



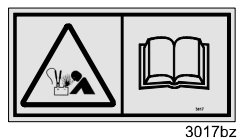
Cover the electrical equipment when washing the machine. (symbol placed on the left side of the cooler)

19. Dangerous area



Keep safety distance from the machine. (symbol placed on the left side of the runner and on the back of the machine frame)

20. Danger of explosion



Pay attention when servicing the battery – read the maintenance manual. (symbol placed on the fuel tank)

21. Emergency exit



(symbol placed on the right window of the cabin)

22. Sling Points



The machine is to be rigged in these points. (Symbols located on the both sides of the frames)

2.1. Safety Regulations

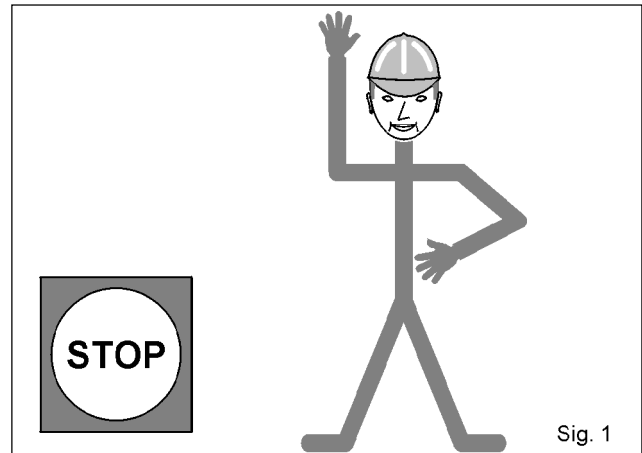
2.1.6. Hand Signals

Signals given by Machine assistant operator unless driver visually contains the rolling space or working space or working equipment, tool.

Signals for general commands

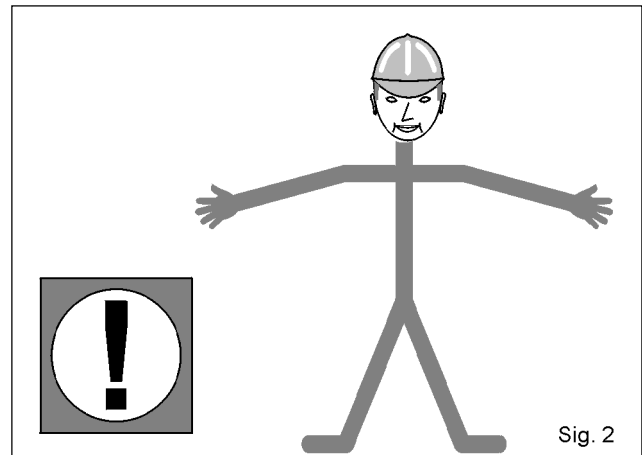
Stop

One arm erected with open palm in the direction of the driver, second arm akimbo.



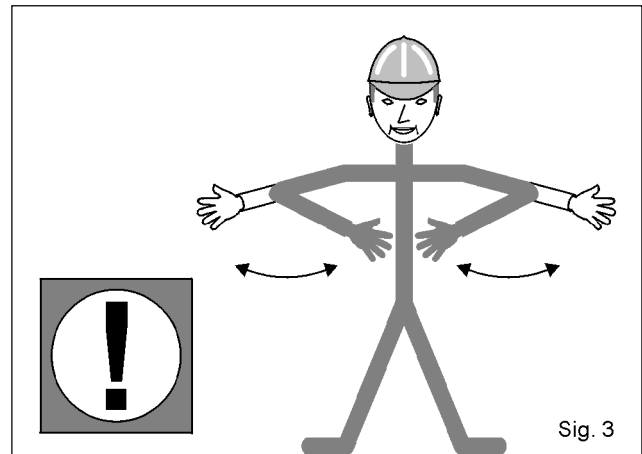
Attention

Both arms sideways raised horizontally – palms forward.



Attention, Danger

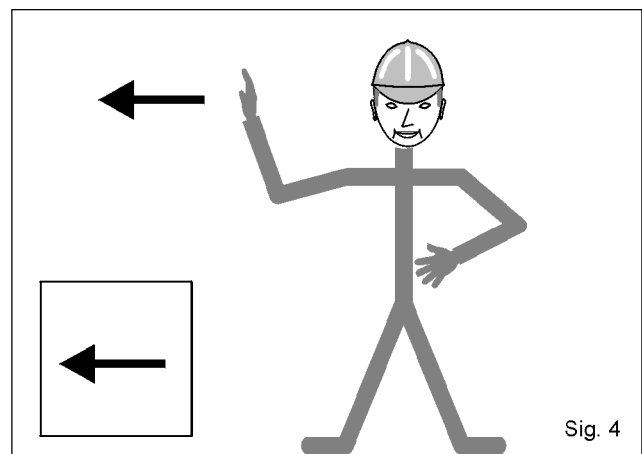
Swinging motion of both of the arms with antebrachium from the position of arms sideways raised horizontally to the position of arms sideways raised – arms bending across and back.



SIGNALS FOR DRIVE

Departure with the Machine

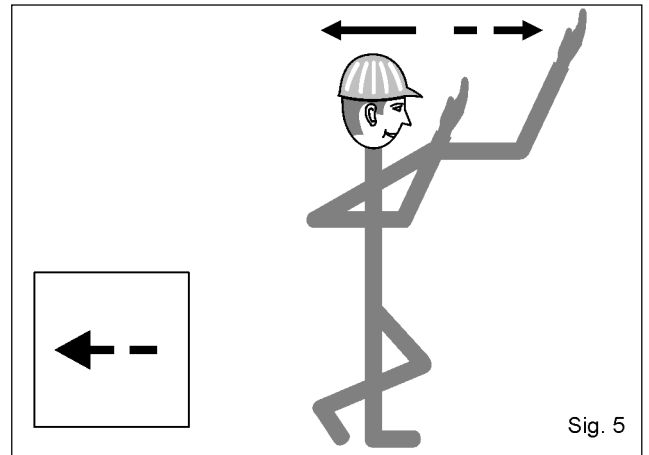
One arm erected – bent with open palm, long motion of antebrachium in the direction of required motion, second arm akimbo.



OPERATING INSTRUCTIONS

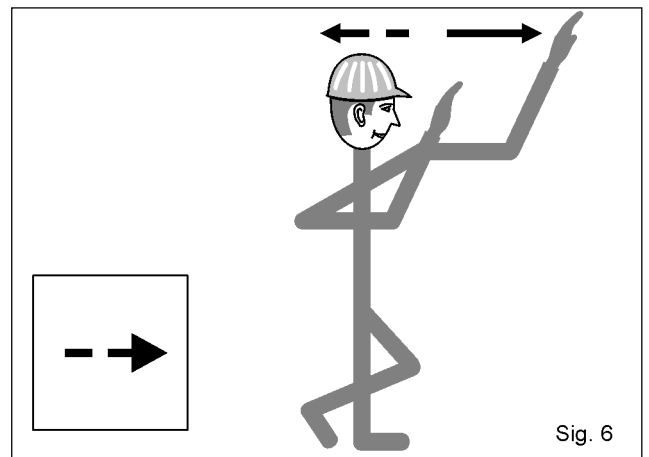
Low-speed cruising forward – towards me

Both arms erected abreast bending across, with palms towards the body – short swinging movements of ante-brachium towards the body and backward.



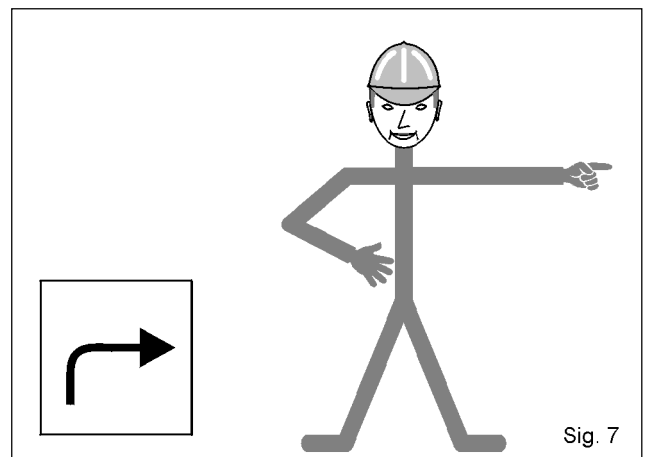
Low-speed cruising backward – away from me

Both arms erected abreast bending across, with palms away from the body - short swinging movements of ante-brachium away from the body and back.



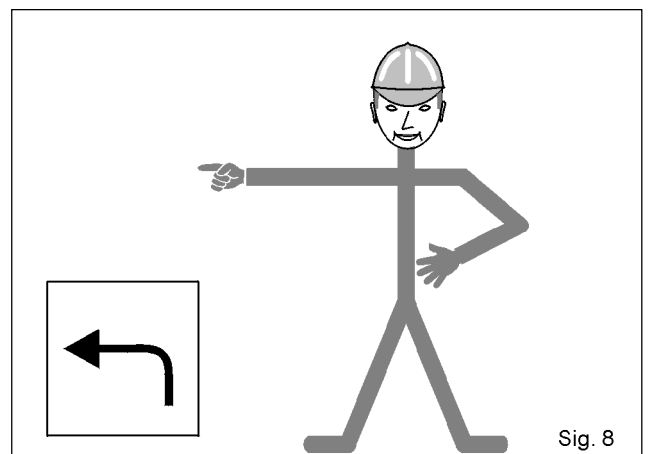
Driving to the right

Left arm sideways raised, right arm akimbo.



Driving to the left

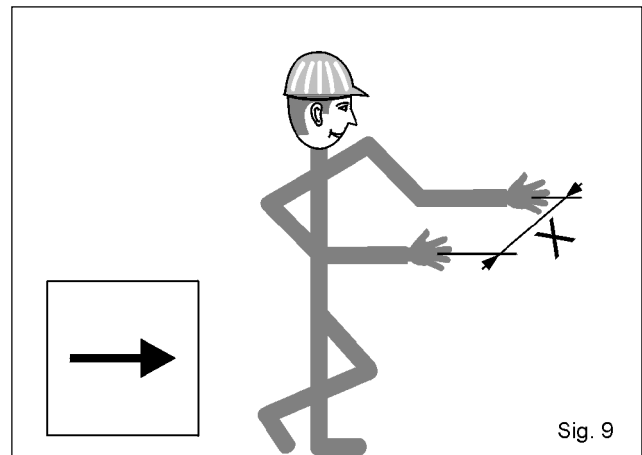
Right arm sideways raised, left arm akimbo.



2.1. Safety Regulations

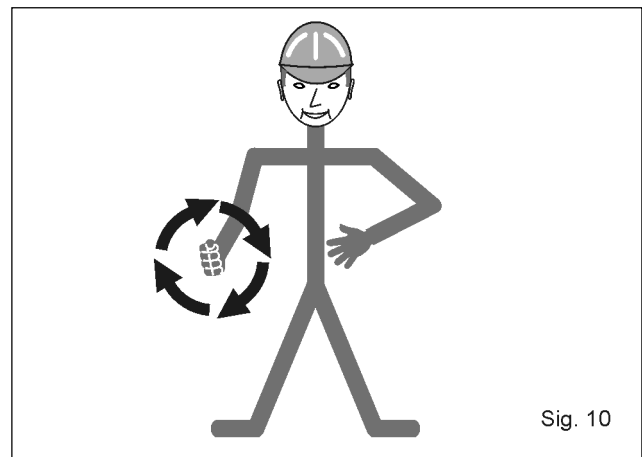
Short motion

Both arms lifted forward bending across. Mark the „X“ distance between palms, then the motion signal follows.



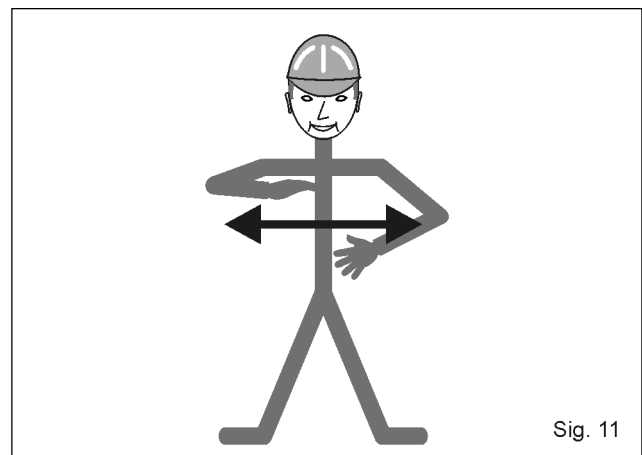
Engine start

Circular motion of right hand's antebrachium, with the fist closed.



Engine cut off

Oscillating motion of right hand sideways raised in front of the body to the sides.



2.2. Environmental and Hygienical Principle



The user must observe general rules of health and environment protection, and all applicable laws, notices and regulations in the country of use, when operating or parking the machine.

2.2.1. Health rules

- Oils, refrigerants, battery acids, and lacquers with their thinners are injurious to health. Workers that come in contact with such products during operation and maintenance must observe general health protection rules and safety and health instructions issued by the manufacturers of such products.

Observe primarily rules

- for the protection of eyes and skin when working with batteries
- for the protection of skin when working with oils, lacquers and refrigerants
- for washing hands after work and before meals, apply suitable hand cream,
- for work with refrigerants as instructed by the manufacturer of the machine.
- Store oils, refrigerants, battery acids, lacquers, organic thinners, cleaning and conservation products always in original containers correctly marked on the outside. Do not allow storage in unmarked bottles and other containers to prevent confusion. Particularly confusing food and drink is dangerous.
- Should skin, mucous membranes, or eyes be affected, or fumes breathed in, apply first aid immediately. Seek medical aid immediately in case of swallowing any of the listed products.
- Use hearing protectors of the correct type and shape when working with machines without a cabin or with open windows.

2.2.2. Ecological rules

- The fills of specific systems and some components become waste with risk factors to the environment when discharged.

This category of products includes mainly

- organic and synthetic lubricants, oils and fuels
- refrigerants
- battery acids and batteries
- fill tires
- cleaning and conservations means
- all discarded filters and cartridges
- some used and discarded hydraulic and air hoses, rubberized metals and other components soiled by above-listed products.

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

- oils
- batteries
- tyres



The above-listed products and parts when discarded must be handled according to applicable national regulations for the protection of environment and health.

2.3. Conservation and Storing

2.3.1. Short-term storage of 1 to 2 months

Wash and clean the machine thoroughly. Warm up the engine to operating temperature before starting conservation for storage. Place the machine on a firm and flat surface in a secure location where there is no danger of damaging the machine by forces of nature like floods, landslides, fire, etc.

then

- repair any defective lacquer
- grease all lubrication places, cables, lever elbows, etc.
- check that water tanks are drained
- check whether the refrigerant is frost resistant
- check the charge of batteries and recharge if necessary
- cover chrome plated surface of pistons with conservation grease
- we recommend to protect the machine against corrosion by spraying it with conservation means, mainly in spots endangered by corrosion.

A machine that has been treated in this manner doesn't require any special processing before next use.

2.3.2. Conservation and storage for more than 2 months

Same rules for short-term storage apply here as well, moreover,

- remove batteries, check condition and store in a dry, cool room – recharge battery regularly,
- support the drum frame so that the shock absorbing system is not loaded,
- protect rubber components with a layer of special conservation preparation
- inflate tires to prescribed pressure and protect them against direct sunshine
- cover chrome plated surface of pistons with conservation grease
- for conservation spray the machine with a special preparation particularly in places subject to possible corrosion
- cover exhaust and intake of the engine with double PE foil and sticky tape over it
- protect headlights, outside rearview mirrors and other electrical components outside by spraying over them special preparation and covering with PE foil,
- conserve the engine as instructed by manufacturer and leave a sign that the engine has been conserved.

! NOTE !

We recommend that you inspect the conservation condition. After 6 months inspect and renew if necessary.

Do not start the engine while stored!

If the machine is stored outside, check whether the site is not in danger of being flooded in case of bad weather or endangered in any other way.



Before starting operations again, wash off conservation with high-pressured hot water with ordinary degreasing means added as directed, while observing environmental rules.

Remove conservation and wash the machine in places with catch basins available to collect rinse water and chemicals.

2.3.3. De-conservation and inspection of brand new machines

Check the machine against delivery documentation.

Check whether any parts were damaged during transport or are missing. Inform the shipper of any discrepancies.



Before starting operations again, wash off conservation with high-pressured hot water with ordinary degreasing means added as directed, while observing environmental rules.

Remove conservation and wash the machine in places with catch basins available to collect rinse water and chemicals.

2.4. Liquidation of the Machine After Termination of Its Service Life

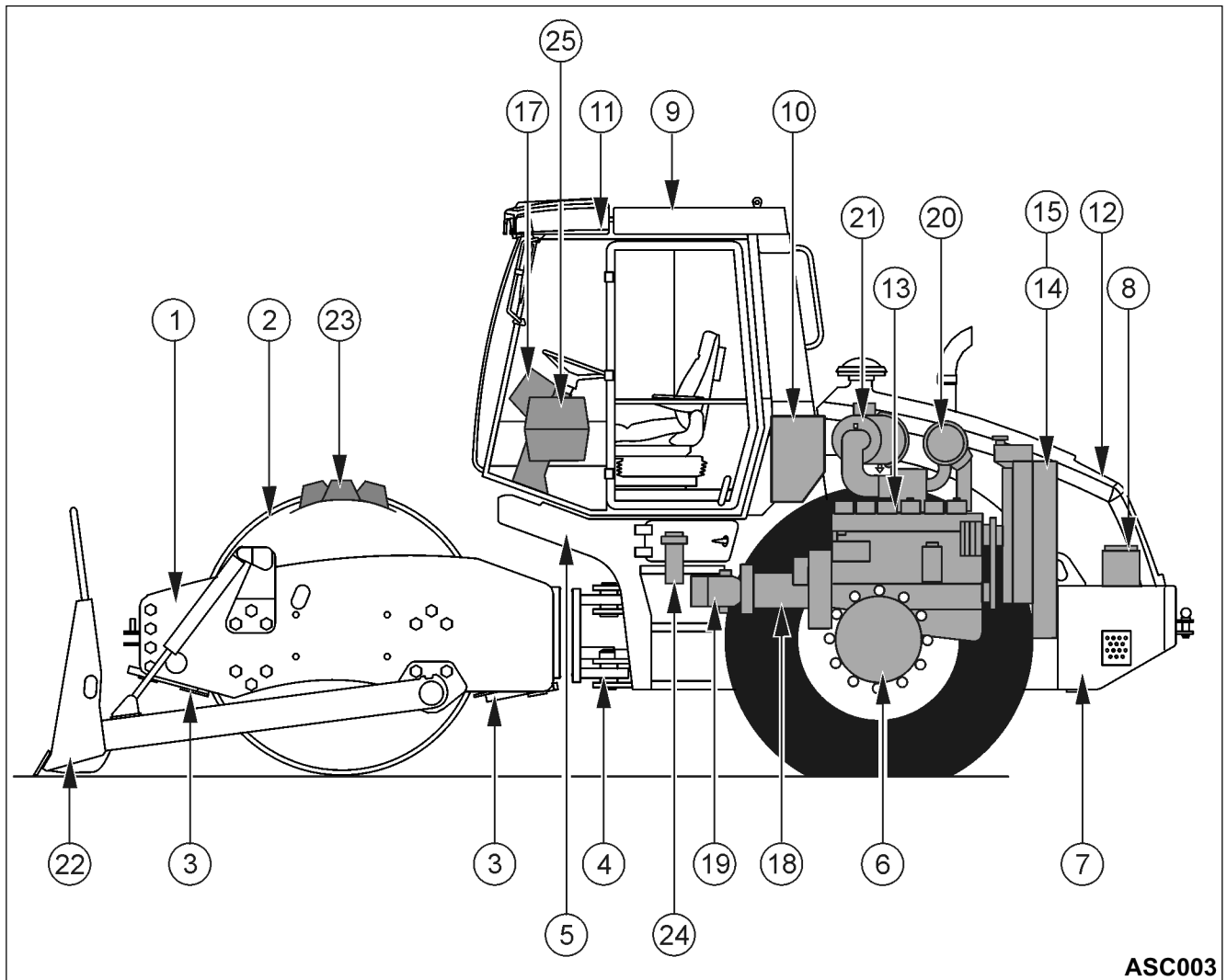
In disposing of the machine at the end of its life, the user must observe national regulations and laws on waste disposal and protection of environment. We recommend that you refer always to

- specialized companies authorized to deal with such cases
- the machine manufacturer or authorized service establishments.



The manufacturer is not responsible for injuries to health and damages to the environment caused by disobeying this notice.

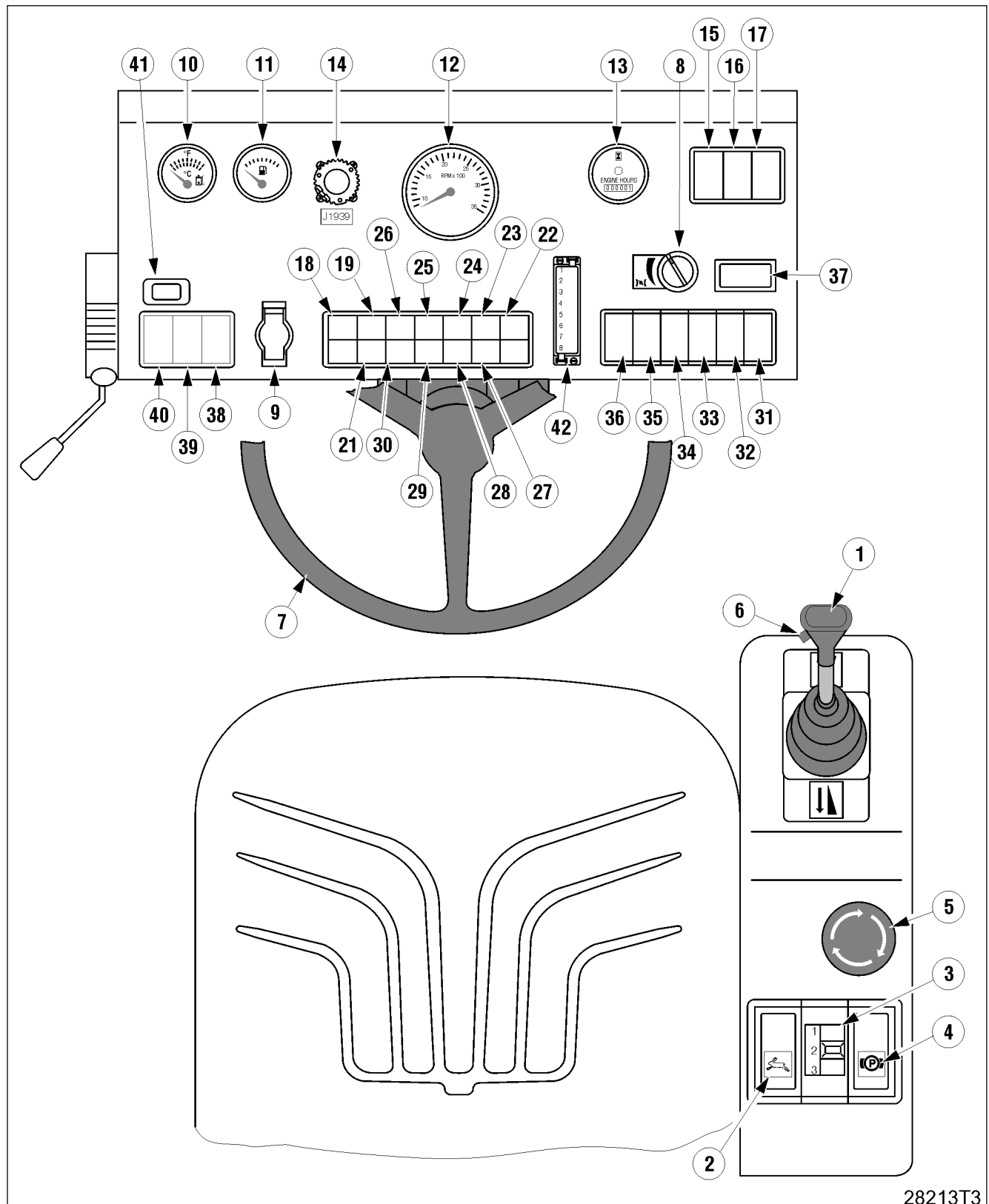
Main Components of the Machine



- | | |
|-------------------------|------------------------------------|
| 1 - Drum frame | 13 - Engine |
| 2 - Vibratory drum | 14 - Hydraulic oil cooler |
| 3 - Scraper | 15 - Liquid radiator |
| 4 - Articulated joint | 17 - Driver's workplace |
| 5 - Tractor frame | 18 - Pump of travel |
| 6 - Axle | 19 - Pump of vibration |
| 7 - Fuel tank | 20 - Exhaust silencer |
| 8 - Batteries | 21 - Air cleaner |
| 9 - ROPS frame | 22 - Dozing blade |
| 10 - Hydraulic oil tank | 23 - Padfoot segments |
| 11 - Cabin | 24 - Hydraulic oil pressure filter |
| 12 - Hood | 25 - Air condition system |

2.6. Controls and control devices

Controls and control devices

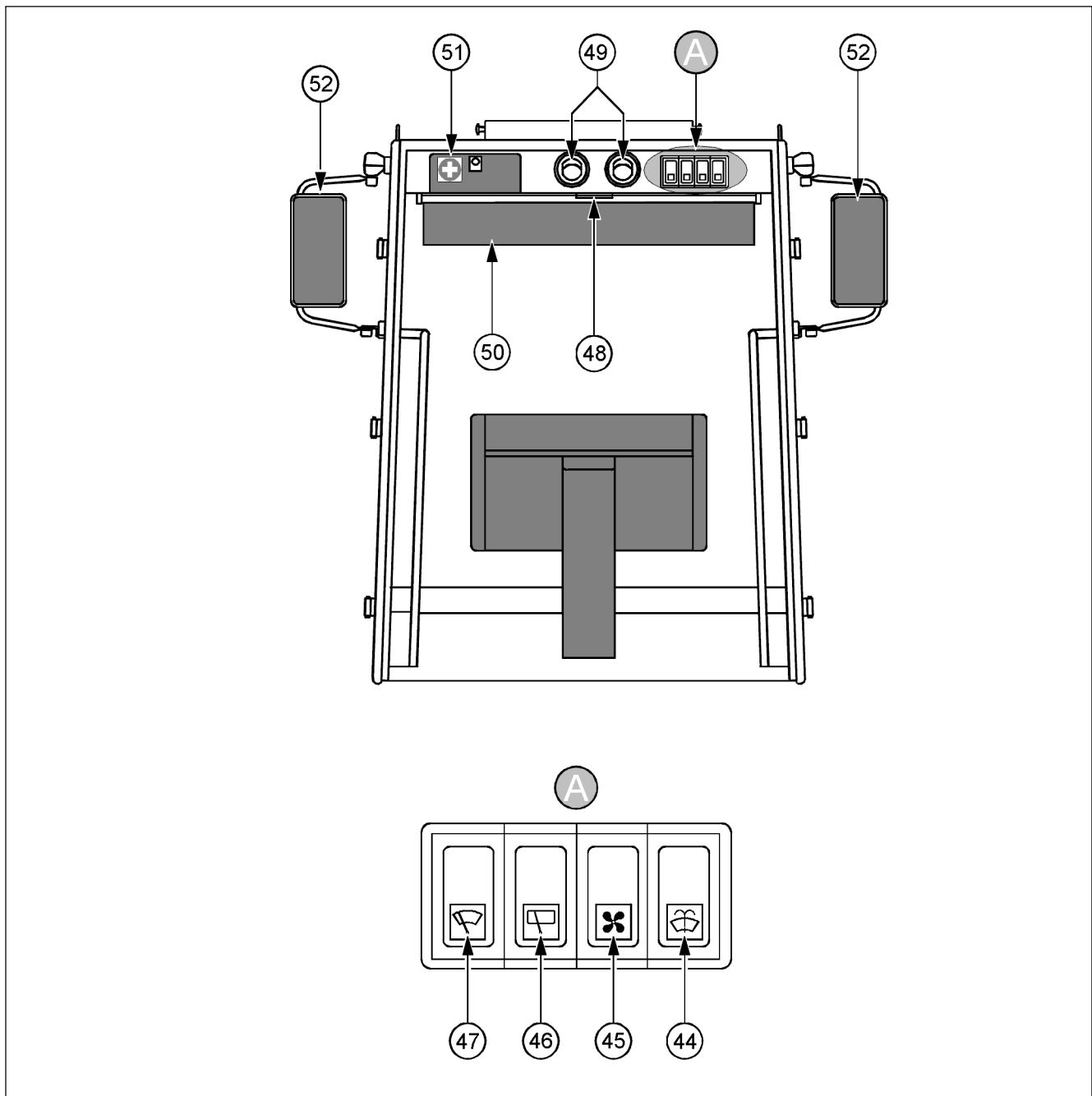


28213T3

- 1 - Travel control
- 2 - Transport gear selector
- 3 - Working gear pre-selector
- 4 - Parking brake switch
- 5 - Emergency brake push-button
- 6 - Vibration switch
- 7 - Steering wheel
- 8 - Engine speed selector
- 9 - Switchbox
- 10 - Hydraulic oil thermometer
- 11 - Fuel gauge
- 12 - Revolution counter
- 13 - Hourmeter
- 14 - Engine diagnostics
- 15 - Engine idling switch
- 16 - Engine diagnostics switch
- 17 - Troubleshooting switch (idle speed option)
- 18 - Stop engine - signal lamp
- 19 - Engine warning - signal lamp
- 21 - WTS (**W**ait – **T**o – **S**tart) indicator lamp – engine heating
- 22 - Battery charging - signal lamp
- 23 - Brake - signal lamp
- 24 - Idle (neutral) position - signal lamp
- 25 - Air filter - signal lamp
- 26 - ATC - interaxle differential - signal lamp
- 27 - Oil level in hydraulic tank - signal lamp
- 28 - Vibration on - signal lamp
- 29 - Clogging of the pressure filter of hydraulic oil - signal lamp
- 30 - Indicators - signal lamp
- 31 - Horn push-button
- 32 - Rear lights - switch + signal lamp
- 33 - Front lights - switch + signal lamp
- 34 - Auxiliary lights - switch + signal lamp
- 35 - Warning lights - switch + signal lamp
- 36 - Warning beacon - switch + signal lamp
- 37 - Indicators switch
- 38 - Drum traction slip control - switch + signal lamp
- 39 - Heating fan - switch + signal lamp
- 40 - Vibration pre-selector
- 41 - ATC connector
- 42 - Fuse box

2.6. Controls and control devices

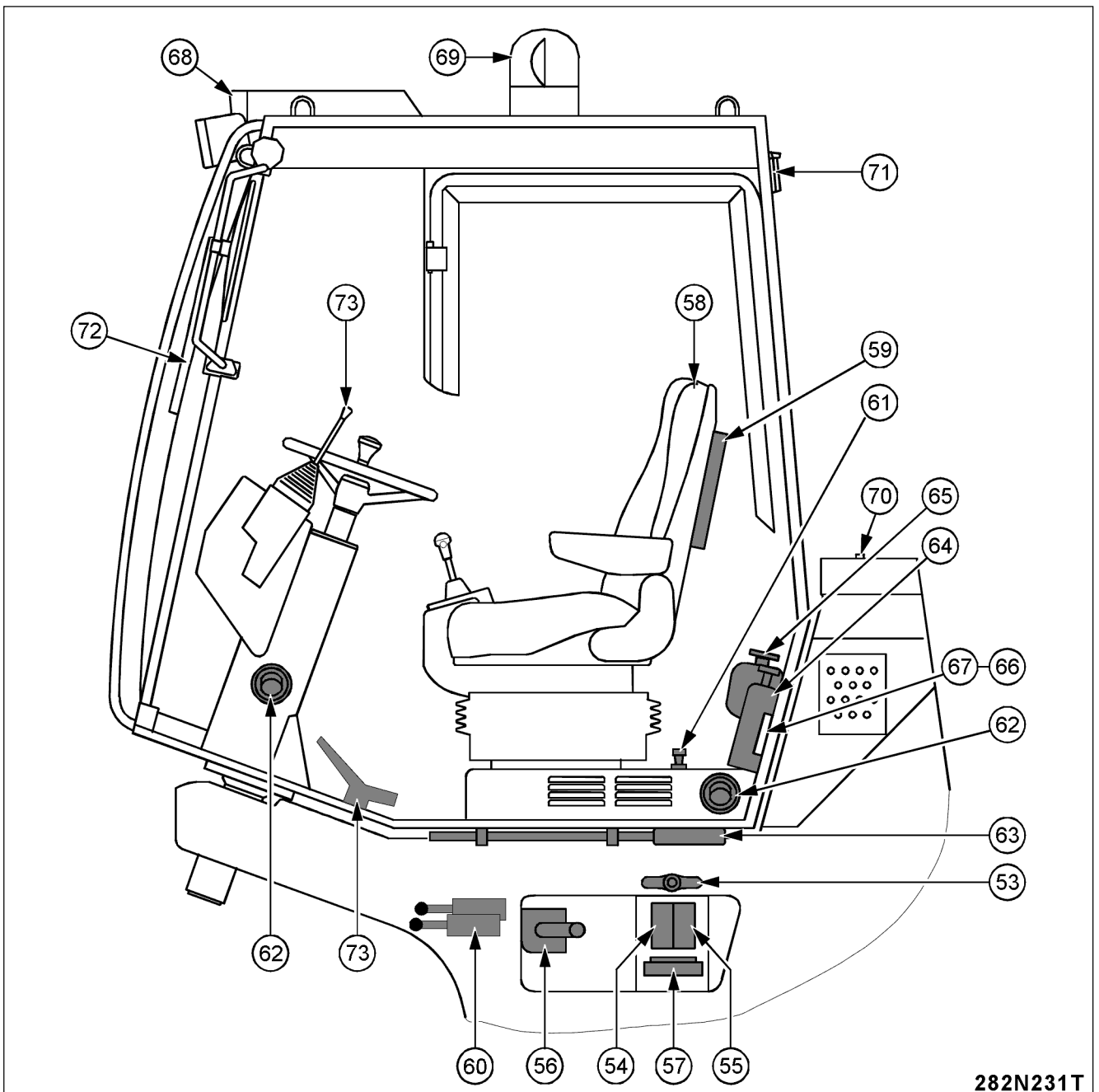
Layout of controls and cabin accessories



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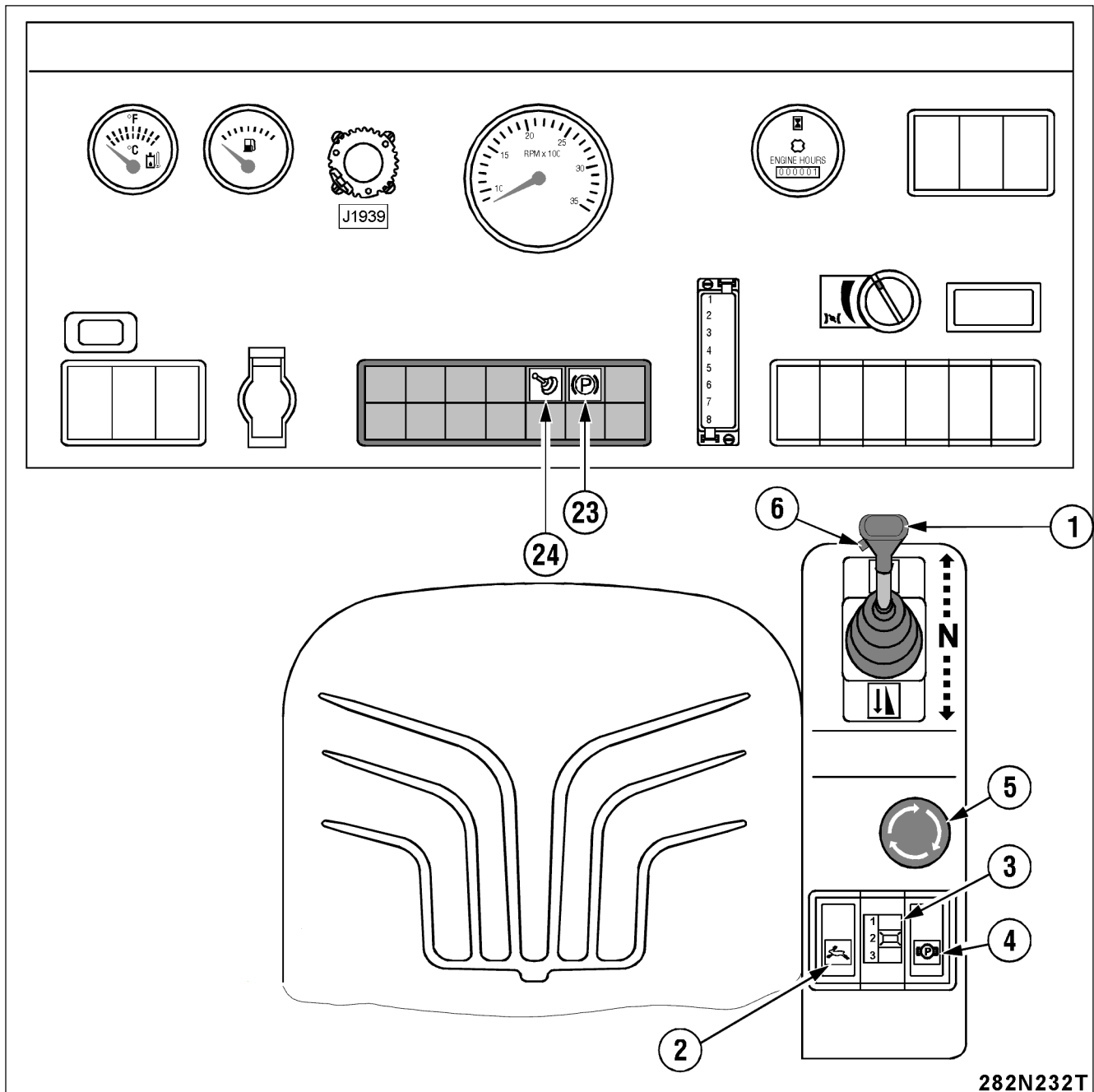
- 44 - Windshield washer switch
- 45 - Fan switch
- 46 - Rear wiper switch
- 47 - Front wiper switch
- 48 - Cabin illumination
- 49 - Vent jets
- 50 - Sun shield
- 51 - Glove box
- 52 - Rear mirrors

Cabin



- | | |
|---|---------------------------------|
| 53 - Battery disconnecter | 64 - Fire extinguisher |
| 54 - Cabin lifting and lowering switch | 65 - Washer tank |
| 55 - Bonnet lifting and lowering switch | 66 - Bottle holder |
| 56 - Manual hydro-generator for lifting and lowering of driver's stand and bonnet | 67 - Storage compartment |
| 57 - (50A) fuse | 68 - Cabin ventilation filter |
| 58 - Driver's seat | 69 - Beacon |
| 59 - Box | 70 - Beacon connector |
| 60 - Levers of lifting and lowering of cab and hood | 71 - Rear wiper |
| 61 - Heat control | 72 - Front wiper |
| 62 - Heating vents | 73 - Blade control - hand pedal |
| 63 - Manual hydro-generator operating lever | |

2.6. Controls and control devices



Travel control 1

Use this control to adjust the travel direction and speed. The travel speed depends on degree of the control movement from the neutral position. At the same time, it is only used as a operating brake of the machine. The control is locked in the set position. Signal lamp 24 will light up to indicate neutral position of the control (N). Vibration switch 6 is located in the control grip.

! NOTE !

The engine can only be started when in neutral.

Vibration cannot be activated in neutral (vibrator bearings are not lubricated during vibration on the spot).



Transport gear selector 2

595971

When the gear selector is on, the transport gear is engaged ("rabbit" signal lamp of the selector is on). The machine can reach the maximum speed at reduced towing power and reduced climbing capacity.

NOTE:

When the selector is off, the working gear mode is selected. The machine can reach the maximum towing power and climbing capacity - see pre-selector 3.

! NOTE !

Selector 2 - transport gear - can be activated when driving on finished surface.

It is possible to activate the selector while loaded.

Should towing power be insufficient, turn the transport gear selector off.



Do not activate the selector while working with the machine!

Do not turn the selector off at higher speeds - this will cause rapid deceleration and impact in the hydraulic system. Turn the selector off at low speeds or when the machine is stopped!



sta02

Working gear pre-selector 3

Use the pre-selector to choose one of three working gears in both directions obr. 20. Maximum speeds reached in pre-selector "1" to "3" positions correspond to common working speeds used for compacting and are factory-preset. The machine can reach the maximum towing power (climbing capacity) in position "3".

! NOTE !

Pre-selector 3 can only be operated if selector 2 is off.

Use positions 1 and 2 of the pre-selector on even surface only.

Use position 3 of the pre-selector when climbing.



2703

Parking brake push-button 4

Use the brake of the machine when the engine is running. The brake pilot lamp is shining. Then the operator can leave the seat.

NOTE:

In this case the seat switch is not activated.



2582

Emergency brake push-button 5

In case of failure when it is not possible to stop the machine by moving the travel control 1, emergency brake controlled by push-button 5 must be used. Activate the emergency brake by pressing the button; the roller will brake, engine will stop and the signal lamp 23 will light up. Turn the button in the direction of the arrow to release the brake.

! NOTE !

If the emergency brake is pushed, it is not possible to start the engine.

Vibration switch 6

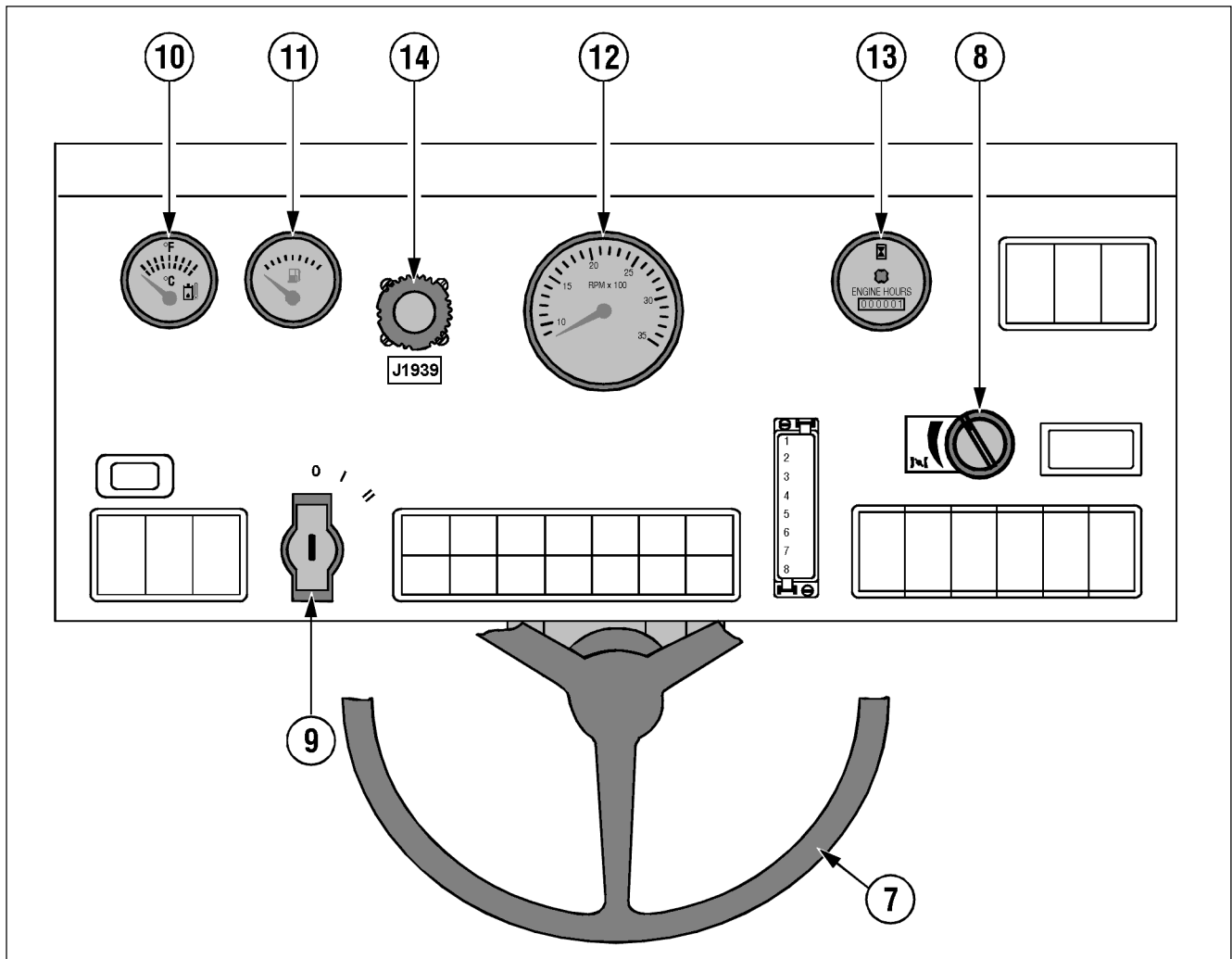
Press the switch to turn on vibration. Press it again to turn vibration off.

! NOTE !

The signal lamp will indicate "on" status.

Vibration can only be turned on if selector 2 is off.

2.6. Controls and control devices



282N008t

Steering wheel 7

Use the steering wheel to steer the machine.

! NOTE !

When driving without vibration, set optimum speed (e.g. 1800 rpm) to ensure safe steering.



Engine speed selector 8

Use this control to decrease combustion engine speed.

Note

The switch 8 decrease from max to min engine speed.

Switch box 9

There are three positions: "0", "I" and "II". In "0" position, all appliances of fuses F1, F2 and F7 are connected; in "I" position, remaining appliances are connected; "II" spring position is used for starting the machine. Stop the machine by turning the key to "0" position; the key can then be removed.

Note

The key of switch box is used for door of cabine and servis door under cabine and tools box.

! NOTE !

Remove the key from the switch box when leaving the machine!

In cabinless machines, protect the ignition box from water and dirt by folding the box cover after having removed the key.



Hydraulic oil thermometer 10

Indicates the hydraulic oil temperature during operation.

! NOTE ! Top limit is 90 °C for oils of viscosity grades HV 68 and HV 100. 50 - 60 °C (122 - 140 °F) is the optimum working temperature.

Using other viscosity grade oils:

Oil viscosity	Max. allowed oil temperature
HV 46	80 °C
HV 32	70 °C



Fuel gauge 11

Indicates the level of fuel in fuel tank.

! NOTE !

Check the gauge regularly during operation.

Revolution counter 12

Indicates engine revolutions per minute.

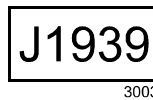


Hourmeter 13

Indicates hours of running engine. The counter starts counting (adding) at starting the engine.

Note

Counting hours does not depend on engine speed.



Connector 14

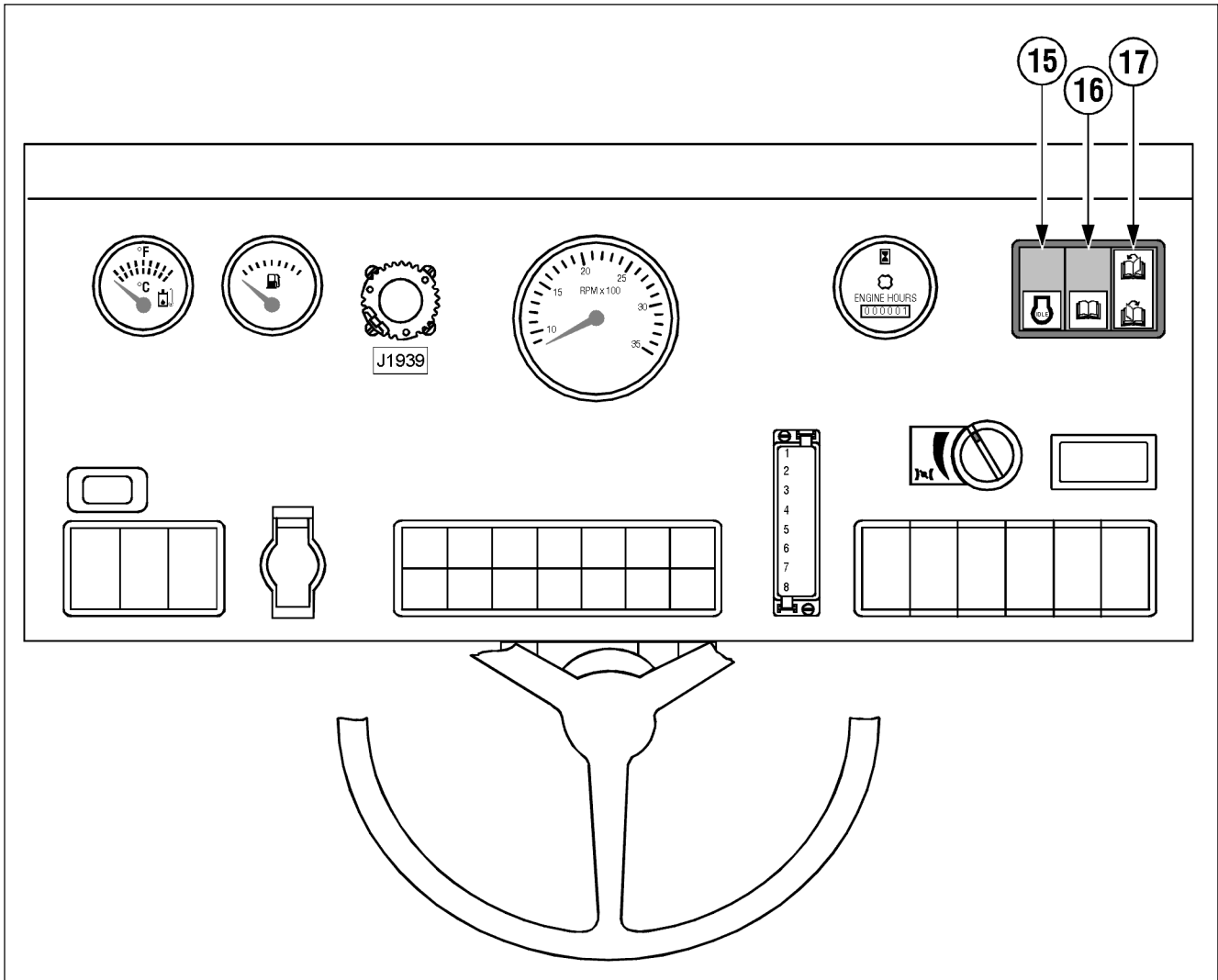
Use the connector to connect ECM (Electronic Control Module) and diagnostics trouble.

Note

ECM processes engine function data and controls the engine. Sensors pick up information on engine function and malfunctions and transfer it to ECM. The control module analyses input and returns commands for the engine to function properly.

Malfunctions and other data is identified and stored in ECM memory. This data will be transferred after connecting a service device (notebook) to connector 14.

2.6. Controls and control devices



282N009T



Engine idling switch 15

3006

Use the switch to turn on engine idling with an engine start. Signal lamp in the switch will light up upon activating.



Engine diagnostics switch 16

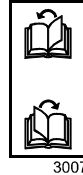
3005

In case of a malfunction of the engine, clutch the diagnostics switch 16 to identify the defect on the basis of flashing code on signal lamp 18.

Note

Signal lamp 18 or 19 will go on in case of an engine malfunction, depending on severity of the defect. After activating switch 16, the will start flashing the code of the first defect see chapter 2.7.7.

If both pilot lamps indicating defects (yellow – 19 and red – 18) go on after pressing the switch when the ignition box is on that means no defects have been identified by engine ECM.



3007

Troubleshooting switch 17 (idle speed option)

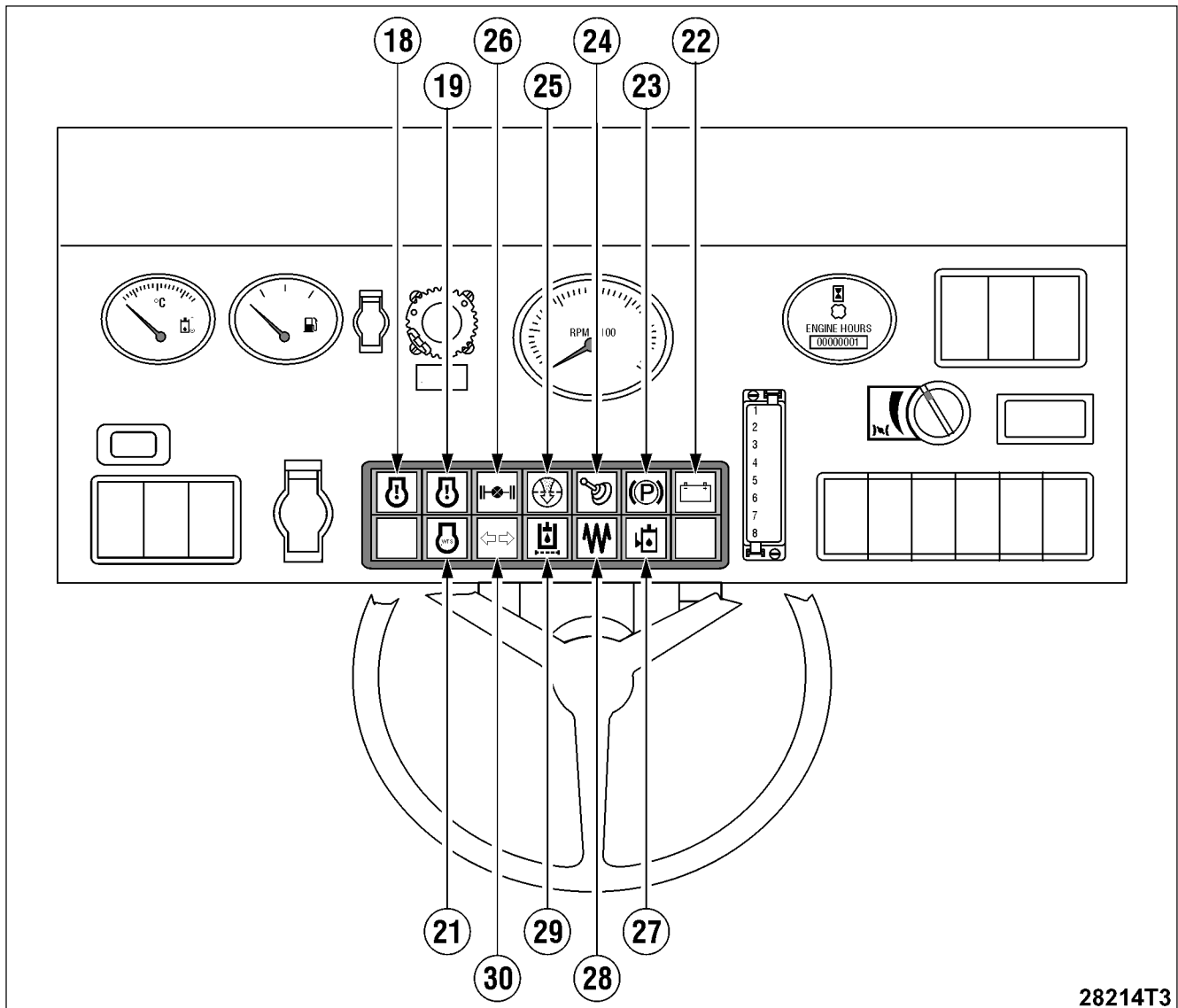
The switch is in the middle position.

Turn it continuously any direction (+ forward or - backward) to find defects according to flashing codes of signal lamps 18 or 19.

Note

In the event that the engine idle switch 15 is in the position of idle speed and the engine diagnostics switch 16 is switched off, it is possible to select, using the switch 17, an idle engine speed within the range of 650 to 1,200 RPM by repeated switching in the switch 17. By switching in the upper half of the switch 17, the idle engine speed is reduced. By switching in the lower half of the switch 17, the idle engine speed is increased. The selected speed is stored into the memory of the engine computer and it is set to the last pre-selected value with a new start. Within the factory setting, the idle engine speed is set to 850 RPM and the machine parameters are adjusted at this setting.

2.6. Controls and control devices



28214T3

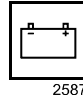


Stop engine - signal lamp 18

Stop the engine as soon as possible if this red lamp goes on.



After the signal lamp goes on, stop operation and engine while keeping safety at work!
Do not start the engine before the defect has been repaired!



Battery charging - signal lamp 22

Indicates proper function of battery charging. The lamp must go on at turning the ignition key 7 to "I" position and go off after the engine has been started.

! NOTE !

If it does not go off, detect the cause!



Engine warning - signal lamp 19

This yellow lamp indicates a defect - the engine must be checked.

Note

The searching fault engine see chap. 2.7.7.

! NOTE !

Repair the defect as soon as possible!



Brake signal lamp 23

This lamp (on) indicates that the machine is braked.



Zero position of neutral - signal lamp 24

This lamp indicates neutral position of the travel control; the engine can be started in this position.

! NOTE !

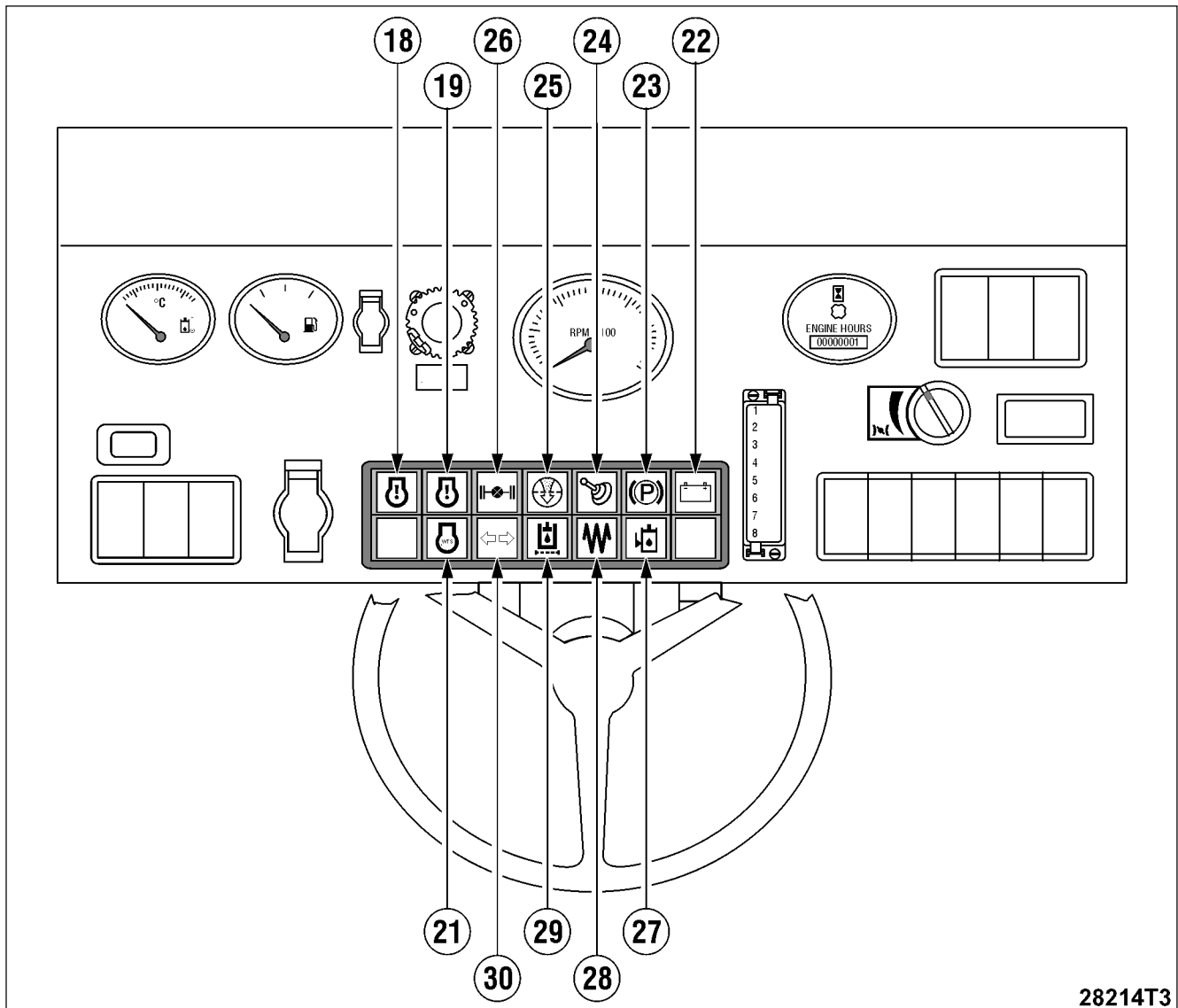
Check the neutral position before starting the engine!



WTS (WAIT – TO – START) indicator lamp 21

Heating before the starting of the engine.

2.6. Controls and control devices



28214T3



Clogged air cleaner - signal lamp 25

This lamp (on) indicates excessively clogged air filter.

! NOTE !

Replace filters immediately!



ATC - interaxle differential - signal lamp 26

Flashing lamp indicates a defect on ATC.

Note

For function description ATC, see chapter 2.7.8.



Hydraulic oil level - signal lamp 27

This lamp (on) indicates oil level in the tank under the lower limit. The machine and engine will automatically stop (environmental protection).

! NOTE !

It is possible to start engine only after repairing the defect and refilling oil in the hydraulic tank to proper level!



Vibration on - signal lamp 28

This lamp (on) indicates vibration is on.

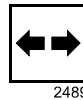


Clogging of the pressure filter of hydraulic oil - signal lamp 29

At oil temperature of 50 - 60°C, this lamp (on) indicates clogging of the filter.

! NOTE !

Replace the filter immediately!



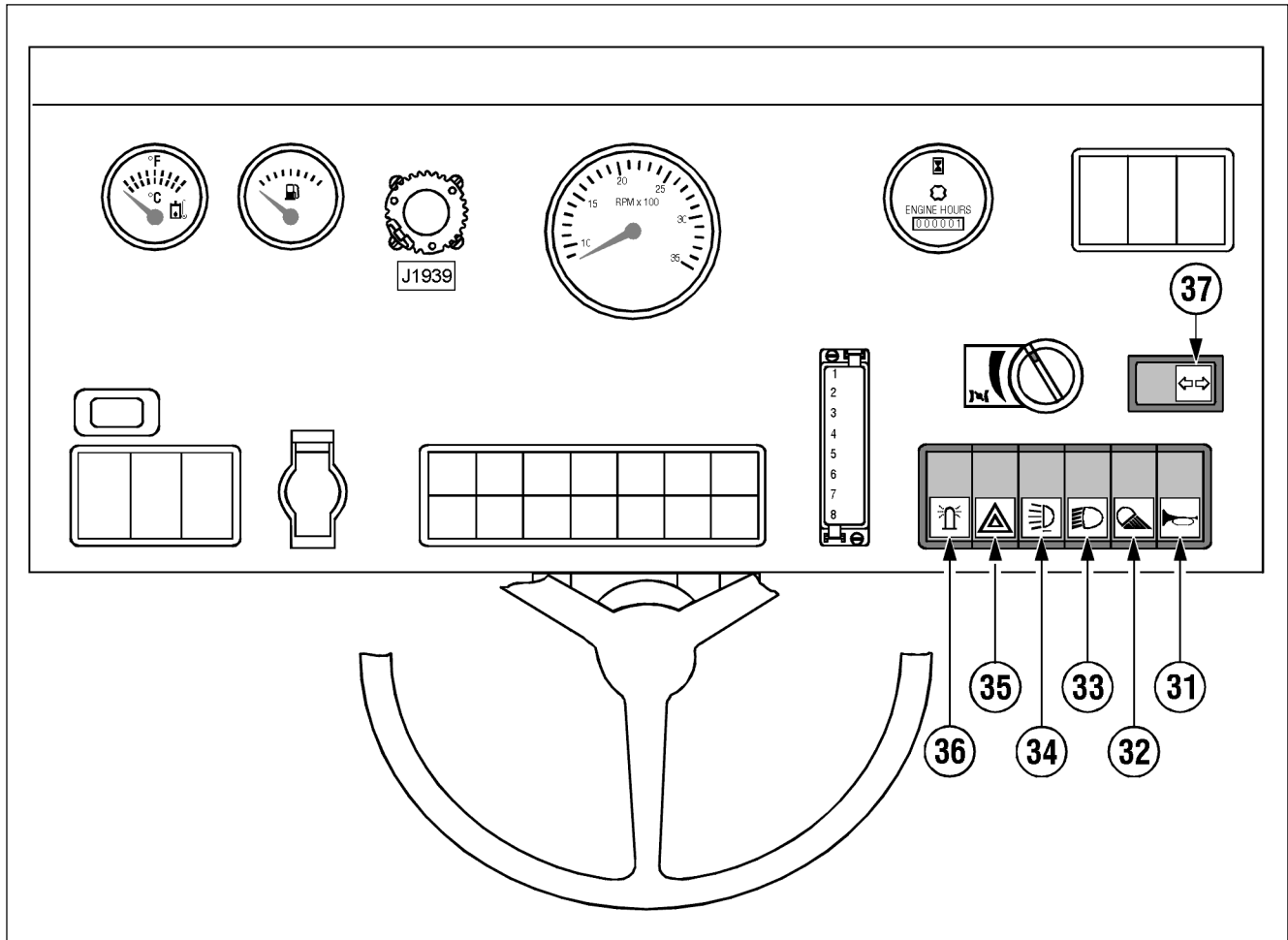
Indicators - signal lamp 30

The lamp is flashing when direction indicators are on.

! NOTE !

Check function of indicators.

2.6. Controls and control devices



282N011T



Horn push-button 31

Press the button to horn.



Beacon switch 36

Use the switch to turn on warning beacon.
The lamp in the switch indicates beacon on.



Rear lights switch 32

Use the switch to turn on rear lights. The lamp in the switch indicates lights lit up.

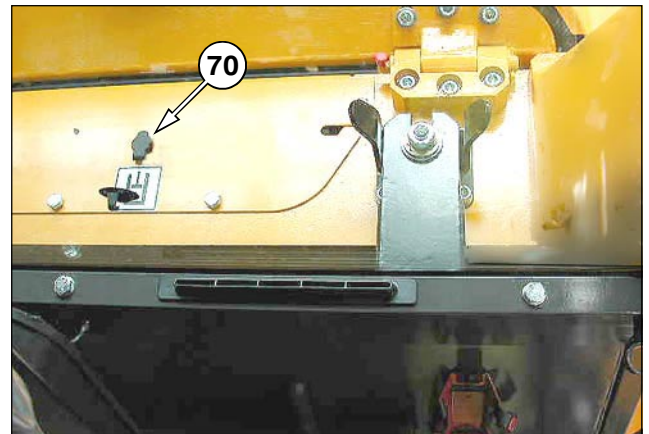
! NOTE !

The beacon must be connected to connector 70.



Parking + front working lights switch 33

position - off
position - parking lights and dashboard illumination on
position - main headlights on
The lamp in the switch indicates lights lit up.

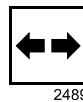


282N187T



Auxiliary lights switch 34

Use the switch to turn on auxiliary lights.
The lamp in the switch indicates lights lit up.



Indicators - position switch 37

Move the position switch to the right to turn on right indicators and to the left to turn on left indicators.

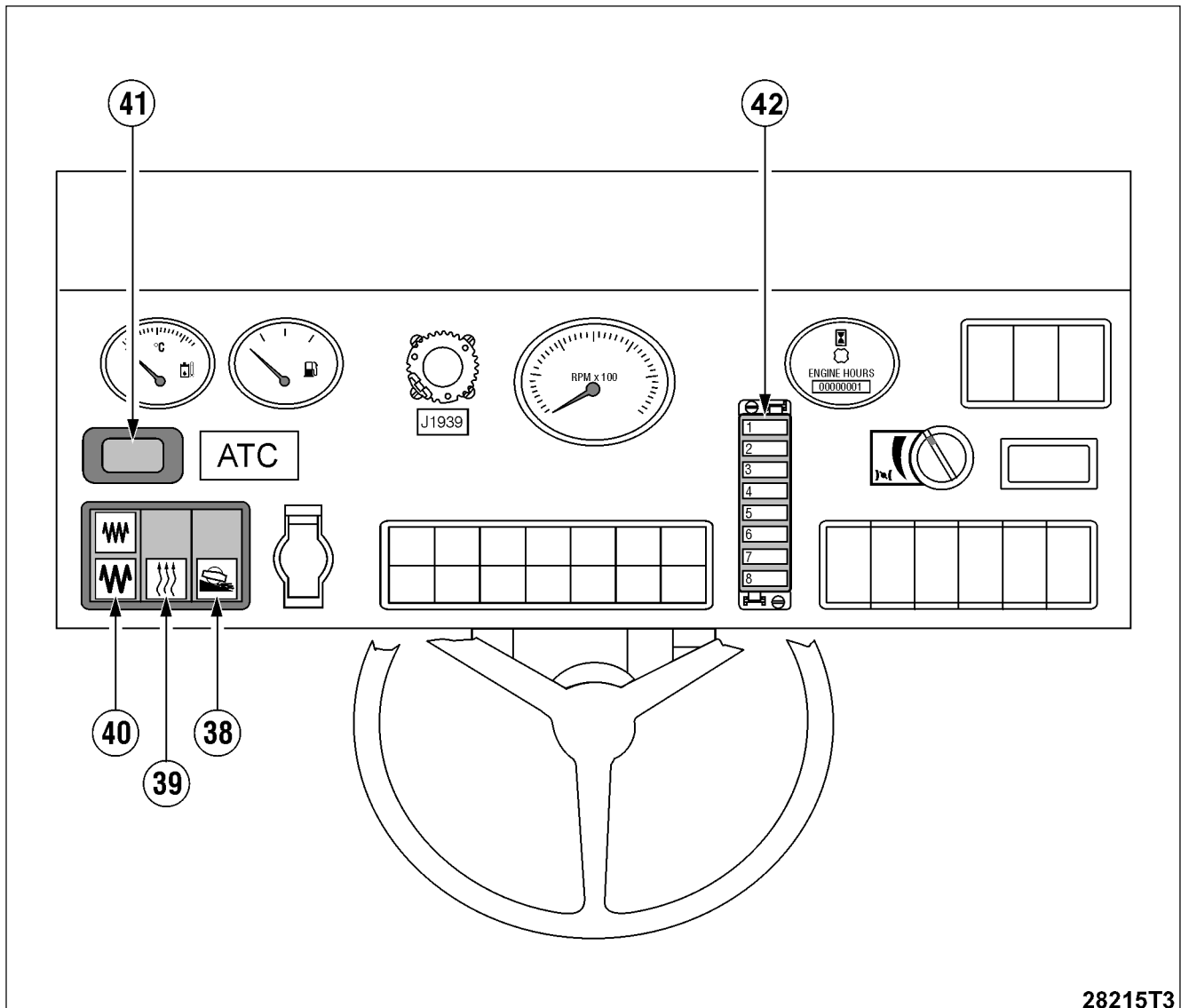
Flashing indicators signal lamp indicates the direction indicators are on 30.



Warning lights switch 35

Use the switch to turn on warning lights.
The flashing lamp in the switch indicates lights on.

2.6. Controls and control devices



28215T3



2854

Drum traction slip control switch 38

Located on the control panel if the machine is not equipped with ATC function.

The lamp in the switch indicates the function on.

! WARNING!

Apply traction slip control only for driving up to platforms of transporting vehicles.

Selector 2 must be off while switch 38 is on. At the same time, vibration is locked.



2487

Heating fan switch 39

position - off

position - high speed of fan motor

position - low speed of fan motor

Fan ensures air circulation inside the cabin only.



2476

Vibration pre-selector 40

Position - low amplitude and high frequency is on

Position - high amplitude and low frequency is on

ATC connector 41

Use this connector to connect a service device (notebook) in order to communicate with the control module (susmic) and to troubleshoot.

Fuse box 42

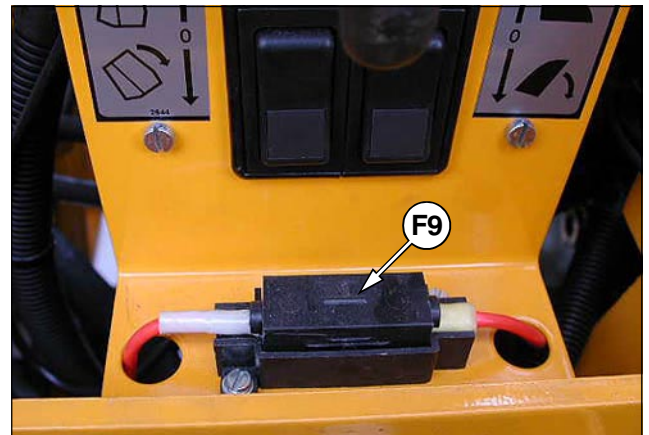
- Fuse (F1) -20 A (upper fuse) front + rear lights, front parking + rear lights, auxiliary headlights, dashboard illumination, lifting and lowering of bonnet and driver's stand, license plate illumination.
- Fuse (F2) -10 A cabin illumination, horn, direction indicators, beacon.
- Fuse (F3) -7.5 A brake, brake signal lamp, brake lights, magnets - transporting speed of wheels, vibration magnets, vibration-on signal lamp, back horn, hydraulic oil level signal lamp, travel control neutral position signal lamp
- Fuse (F4) -7.5 A ATC (interaxle differential)
- Fuse (F5) -5 A fuel gauge, revolution counter, hour-meter, hydraulic oil thermometer, charging signal lamp, air filter signal lamp, stop engine signal lamp, engine warning signal lamp, hydr. oil filter warning lamp, WTS engine heating indicator lamp
- Fuse (F6) -15 A ventilation fan, heating fan, front and rear washers, front and rear wipers.
- Fuse (F7) -20 A reserve (air conditioning)
- Fuse (F8) -20 A engine diagnostics socket

! NOTE !

Replace fuse with fuse of the same rate only!!!

Fuse (F9) - 50 A

Secures protection of electric pump used for lifting and lowering of bonnet and driver's stand.



282N020T

! NOTE !

Replace the fuse with a genuine one of the same rate 50 A.

Engine fuses

- Fuse (F10) - 125A WTS engine heating
- Fuse (F11) - 30 A engine electronics
- Fuse (F12) radio



282N244T

2.6. Controls and control devices



Windshield washer switch 44

Use the switch to turn on front and rear washers at the same time.



Roof fan switch 45

Use this switch to turn on the roof fan.

NOTE

The fan draws outside air, through a filter.



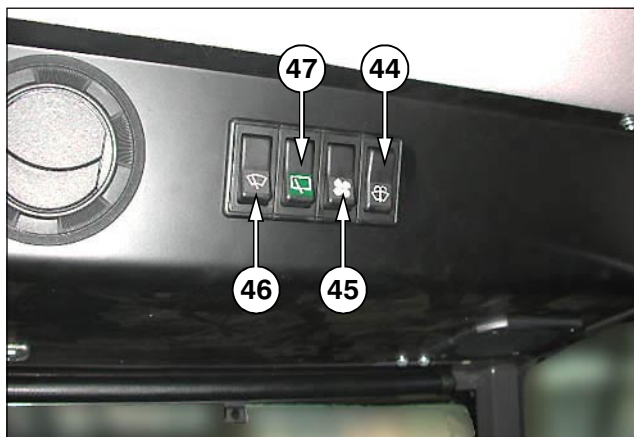
Front wiper switch 46

Use the switch to turn on the front wiper.



Rear wiper switch 47

Use the switch to turn on the rear wiper.

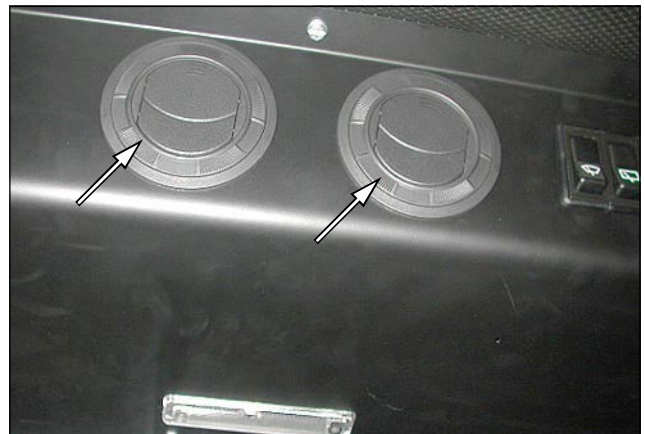


Roof light 48



Vent jets 49

Tilt the vents to adjust amount of fresh air, swivel to adjust direction.



Sun shield 50

Move the shield vertically to adjust it.



Glove box 51

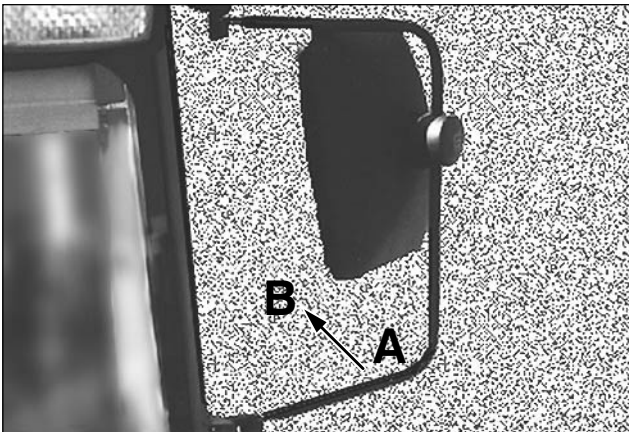
Use this box to store first aid kit.



282N017T

Rear mirrors 52

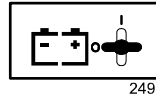
When working in congested environment or when transporting the machine, rear mirrors can be folded 90 degrees from A working position to B transporting position.



282N022T

! NOTE !

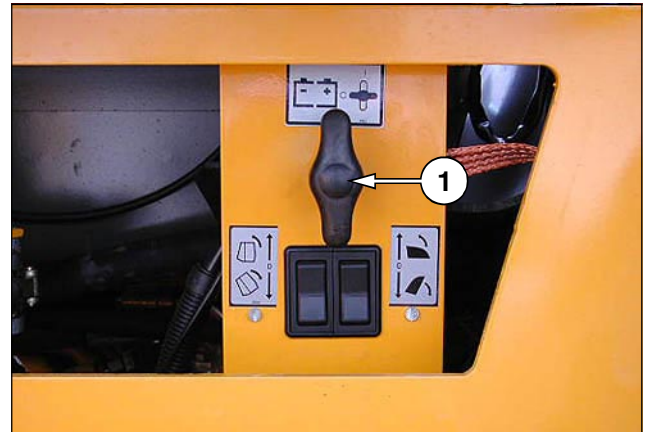
Keep rear mirrors clean and properly adjusted!!!



Battery disconnecter 53

Use the disconnecter 1 to disconnect battery.

O position - electric system of the machine is disconnected
I position - electric system of the machine is connected



282N048T

! NOTE !

After stopping the machine, disconnect battery using the disconnecter!



Always disconnect battery when washing the machine!

2.6. Controls and control devices



2644

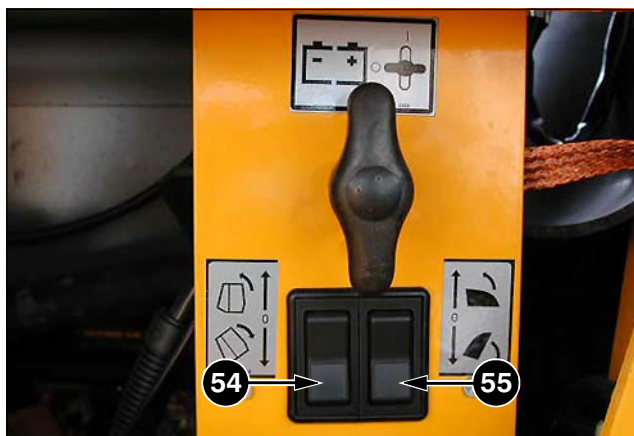
Lifting and lowering driver's stand switch 54,



2644A

Lifting and lowering bonnet switch 55

Press buttons 54 or 55 to turn on lifting or lowering.



282N018T

Manual hydro-generator 56

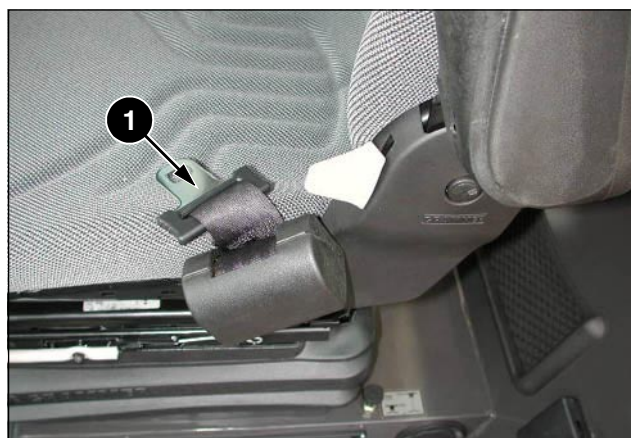
Use this device to manually lift or lower bonnet or driver's stand in case of electric-hydraulic unit failure or low battery.



282N019T

Driver's seat 58

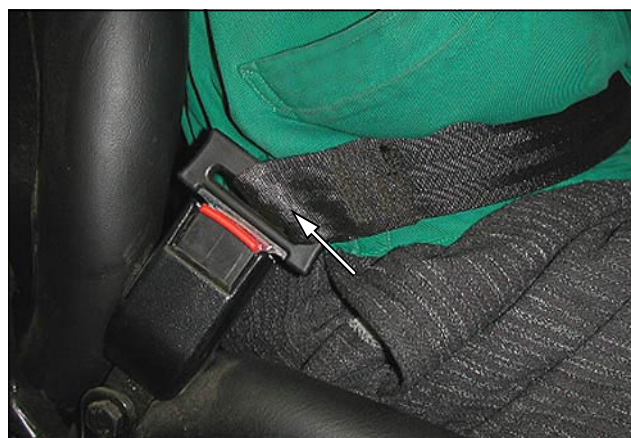
Adjustable, sprung, equipped with two-point retractor belt 1.



282N021T



Driver must fasten the seat-belt during drive!



282N023T

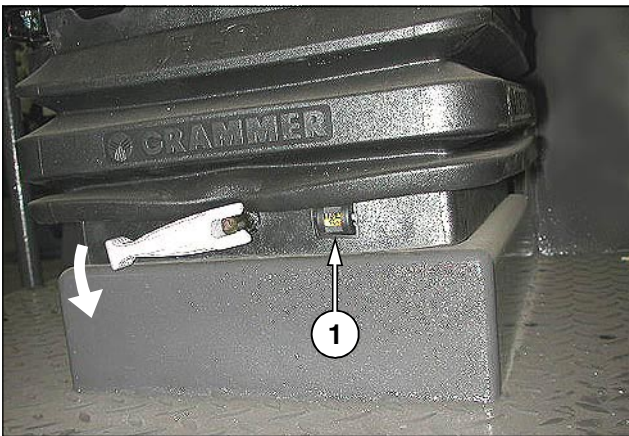
SEAT ADJUSTING ELEMENTS:

Backrest inclination adjustment - raise the lever to tilt the backrest infinitely as necessary.



282N025T

Seat spring stiffness adjustment - turn the catch to adjust stiffness according to driver's weight indicator 1 between 50 and 130 kg (110 - 266 lb) in 10 kg (22 lb) increments.



282N027T

Horizontal seat squab adjustment - raise the lever to move the seat single handedly forward or backward.



282N028T

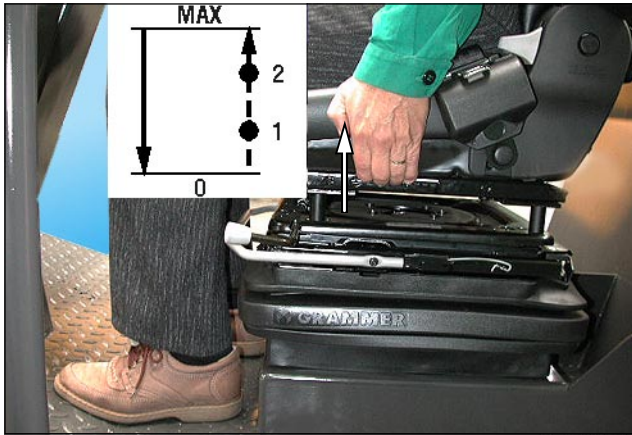
Horizontal seat adjustment - raise the handle to move the seat with control panel forward or backward.



282N028T

2.6. Controls and control devices

Vertical seat adjustment - grasp the seat at the bottom and lift it to gradually adjust height of the seat. The seat must click into the position. You have to lift it to the top position first to be able to put it back to its lowest position.



282N030T

Arm rest adjustment - raise and turn the screw to cast down a raise the rest.



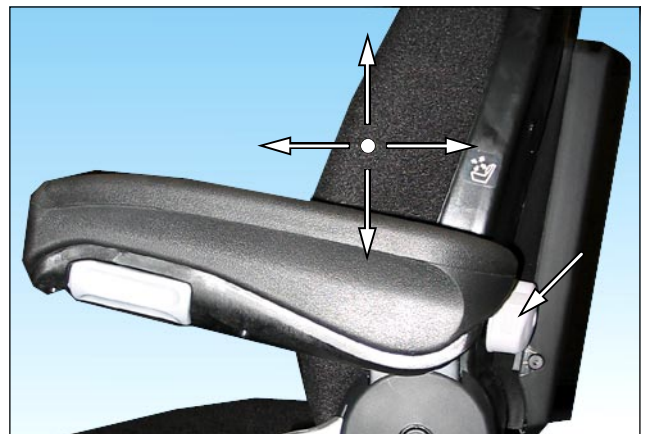
282N031T

Lumbac support adjustment - Turning of driver is regulated lumbar support.

Seat slight turning - raise the lever to slight turning to the right.



282N029T



388N034



Do not swivel the seat while driving!



Adjust the seat before driving the machine!

Box 59

Fold out the back wall of the seat to use the box to store operation manual.



282N032T

Seat switch

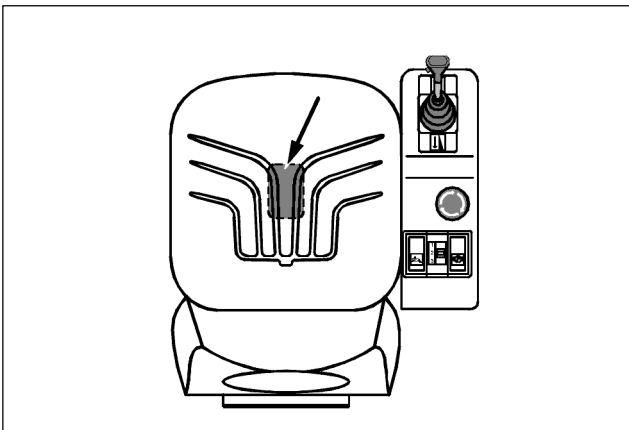
The seat switch is located in the seat squab.

The function of the seat switch is activated when the driver leaves its seat during the ride. Afterwards, speed will decrease until the dead stop, which takes for 3 seconds. After another 5 seconds, the roller brakes to a stop and the engine stalls.

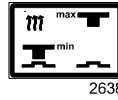
For subsequent engine start, the driver must sit down, move the travel control device to the neutral position, and switch on the brake switch. Before starting, it is necessary to turn off the key to "0" position and then it is possible to start up the engine. Before run-up, release the brake by switching-off of the switch.

If the driver sits down before 3 seconds pass, the roller keeps on going in selected speed.

If the driver sits down after the roller stopping until 5 seconds pass, the engine does not stall and it does not brake to a stop and the driver can again drive off. Before that, the driver must move the control device to the neutral position and again select the original driving direction.



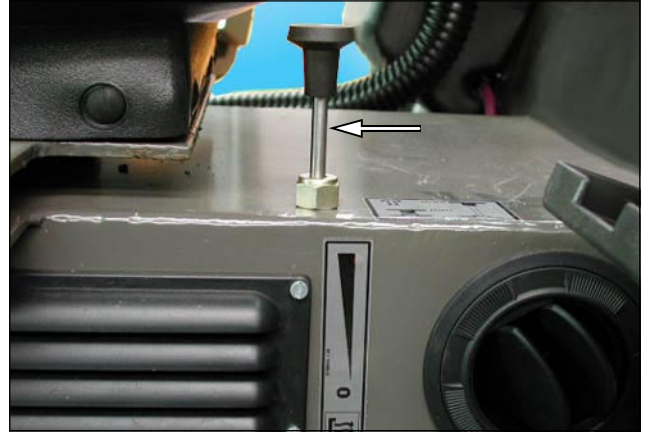
282N233T



2638

Heating control 61

Amount of liquid flowing to the heating radiator can be infinitely controlled from fully closed (valve closed) to fully open valve.



282N034T

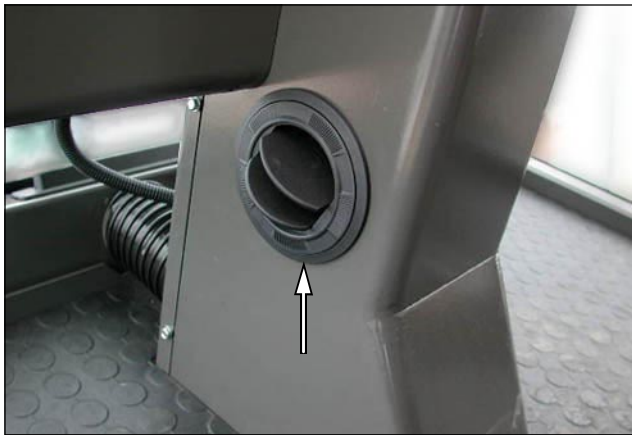


**Adjust the heating valve
before driving!**

2.6. Controls and control devices

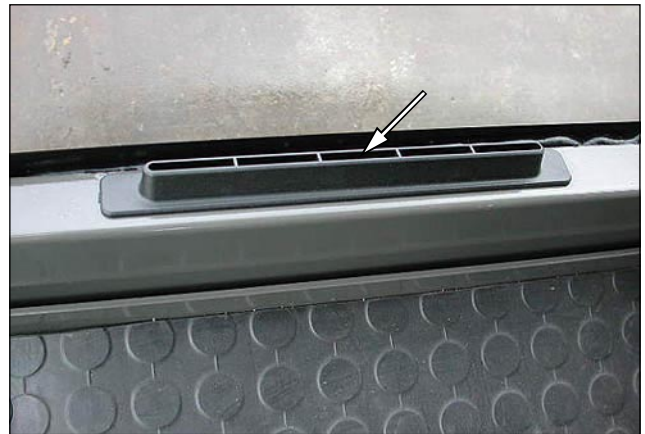
Heating vents 62

Tilt the vents to adjust amount of fresh air, swivel to adjust direction.



282N035T

Front and rear windshields are blown with hot air to avoid dewing.



282N037T



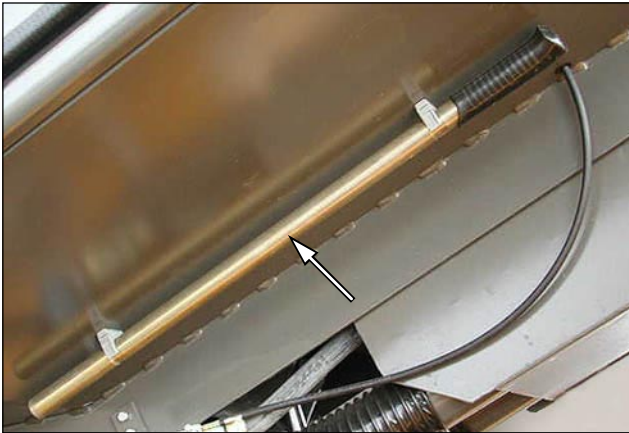
282N036T

! NOTE !

Ensure proper ventilation while heating!

Hydro-generator control lever 63

Use the lever to control manual hydro-generator of lifting and lowering the cabin and bonnet.



Fire extinguisher 64

For instructions how to use the fire extinguisher, see the label.



Get familiar with using the fire extinguisher!

Inspect the fire extinguisher regularly!

2.6. Controls and control devices

Washer tank 65

The tank is used for supplying solution to two pumps of windshield washers - for front and rear washer jets.



282N040T

Bottle holder 66

Fold out the holder to keep standard bottle.



282N041T

! NOTE !

Fill the tank with anti-freeze solution before winter!

Storage compartment 67

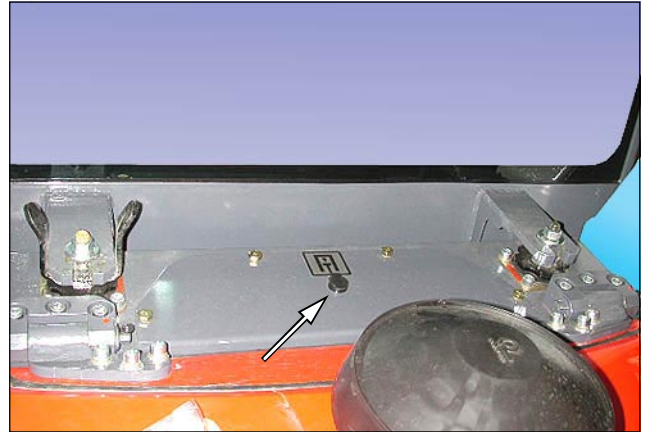
Compartment for driver's personal belongings.



282N042T

Connector 70

Use this connector for warning beacon.



282N043T

2.7. Controlling and operation of the machine

2.7.1. Starting the engine



Blow horn before starting the engine to check that nobody is endangered by starting the engine!

Start-up procedure:

- Turn on battery disconnecter.



282N018T

- Turn on the engine idle switch 15.
- Make sure that the emergency brake “STOP” button 5 is not pressed down.
- Switch over the ignition box key 9 to the “I” position – the brake indicator lamp 23, charging indicator lamp 22, neutral indicator lamp 24, and WTS indicator lamp 21 – engine heating light up.
- The engine diagnostics indicator lamps 18 and 19 light up and go out after 4 seconds.
- Wait until the WTS indicator lamp 21 goes out. Switch over the ignition box key to the “II” position and start the engine (keep the key in the “II” position only until the engine starts).
- The charging signal lamp must go off after starting up the engine.

WARNING!

Do not start longer than 30 seconds. Wait for 2 minutes before next starting.

Repeat starting procedure 3 times at most; then detect the cause in fuel system. Missing smoke in the exhaust pipe indicates failure in fuel supply to the engine.

After starting up, check correct engine operation by indicators.

Do not run up the engine rapidly; let the engine run at idle speed for 3 to 5 minutes to stabilize pressure in the engine and to have bearings lubricate.

Do not let the engine run at idle speed for longer than 10 minutes to avoid engine damage.

Do not load the engine with full power until the temperature of cooling liquid reaches 60 °C (140 °F).

Starting will be blocked at the following instances:

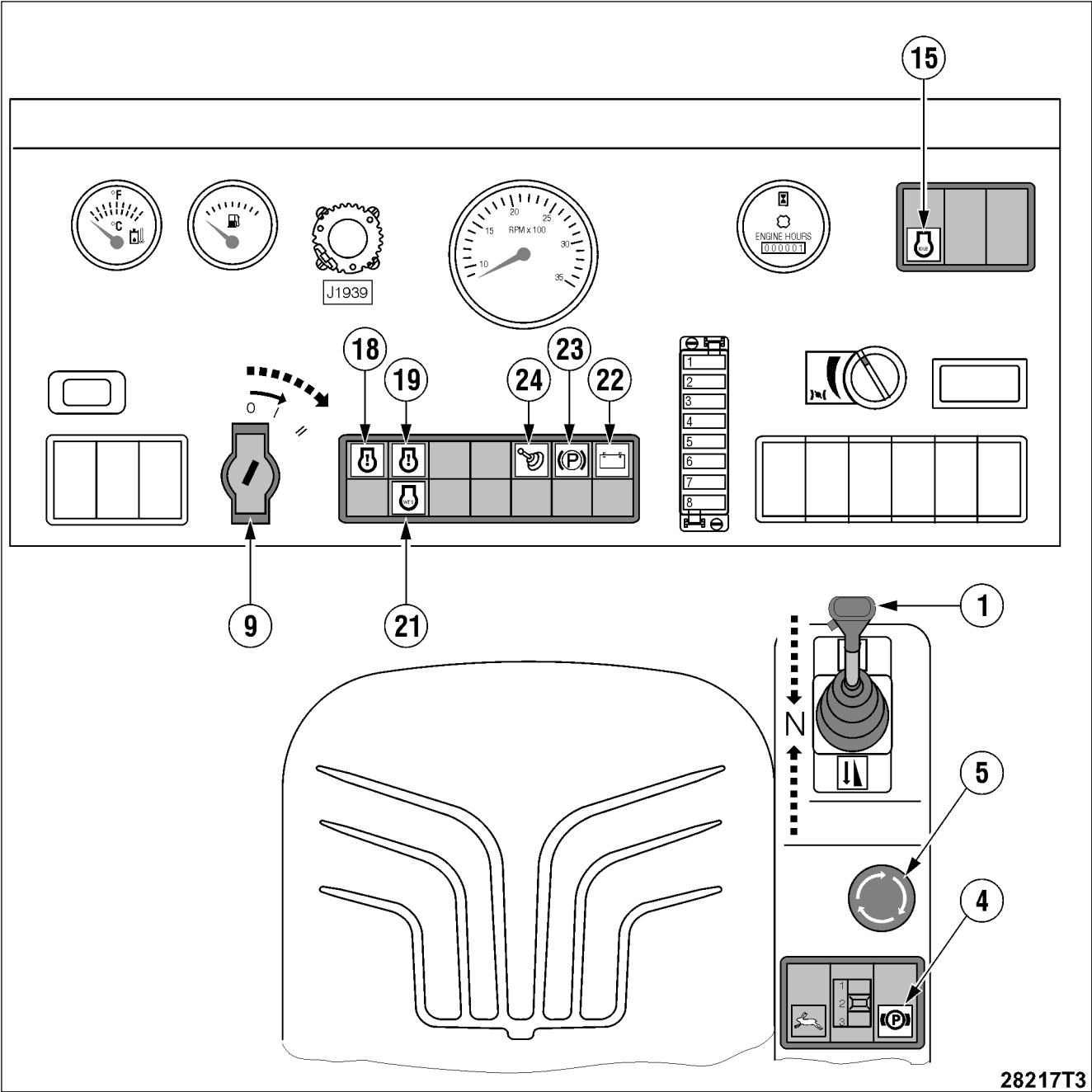
If the engine idle switch 15 is switched off.

If the brake switch 4 is not switched on.

STOP button 5 is pressed

Control 1 is not in neutral.

If the operator is not sitting on the seat.



2.7. Controlling and operation of the machine

! NOTE !

Starting voltage of the external starting source must be 24 V.

Keep the specified order of operations under all conditions!

1. Connect one terminal of the (+) cable pole to the (+) pole of the flat battery.
2. Connect the other terminal of the (+) cable pole to the (+) pole of the battery in the supporting machine.
3. Connect one terminal of the (-) cable pole to the (-) pole of the battery in the supporting machine.
4. Connect the other terminal of the (-) cable pole to the part of the started machine that is securely connected to the engine (or connect the terminal to the proper engine block).

- After starting up, disconnect starting cables in reverse order.
- If using a starting power unit without connected batteries, do not disconnect the power unit before a battery will be connected in the machine.



Do not connect the (-) pole cable to the (-) pole of the flat battery in the started machine! When starting, extensive sparking may occur that might ignite fumes generated by the battery.

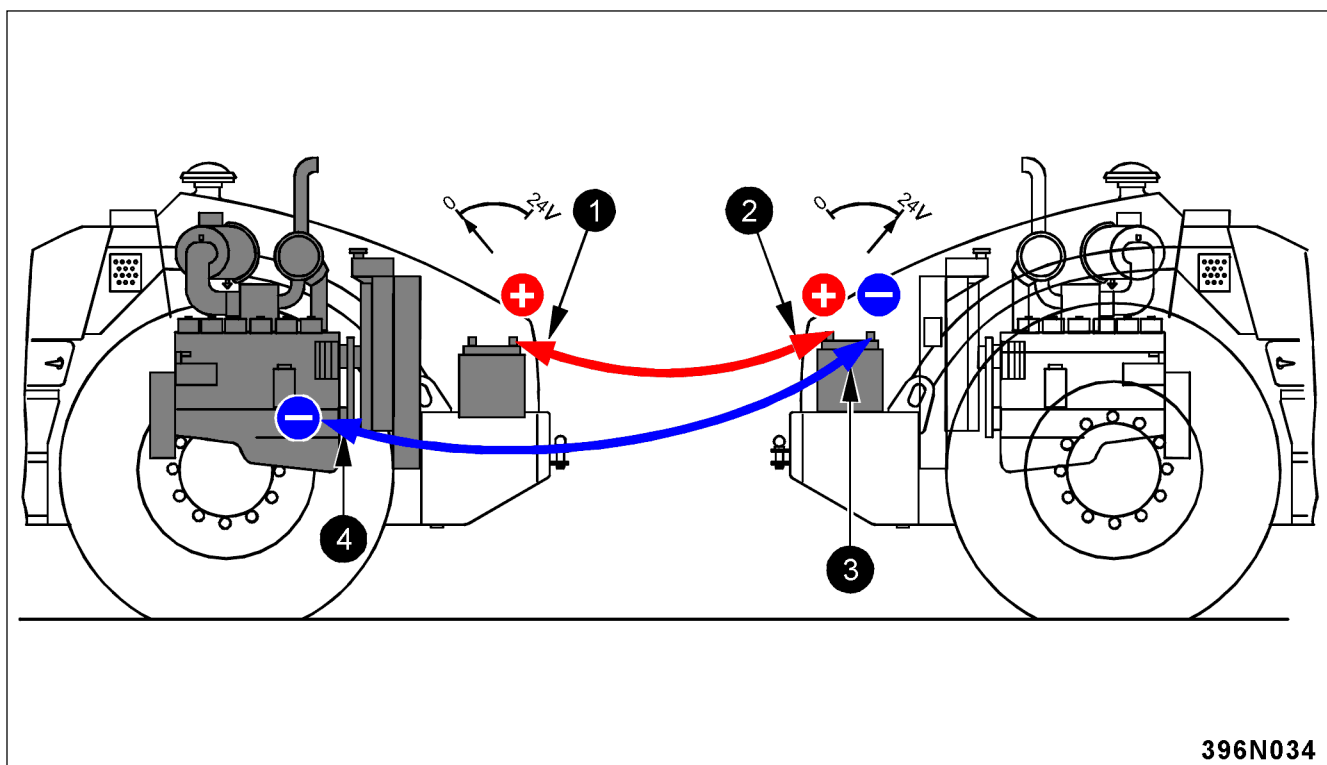
Prevent bare parts of starting cable clips from mutual contact!

The starting cable connected to the (+) pole of the battery must not come into contact with electrically conducting parts of the machine - risk of short circuit.

Do not lean over batteries - beware of electrolyte burns!

Keep away sources of fire (open flames, lit cigarettes etc.)

Do not test whether wires are live by touching the frame of the machine!



396N034

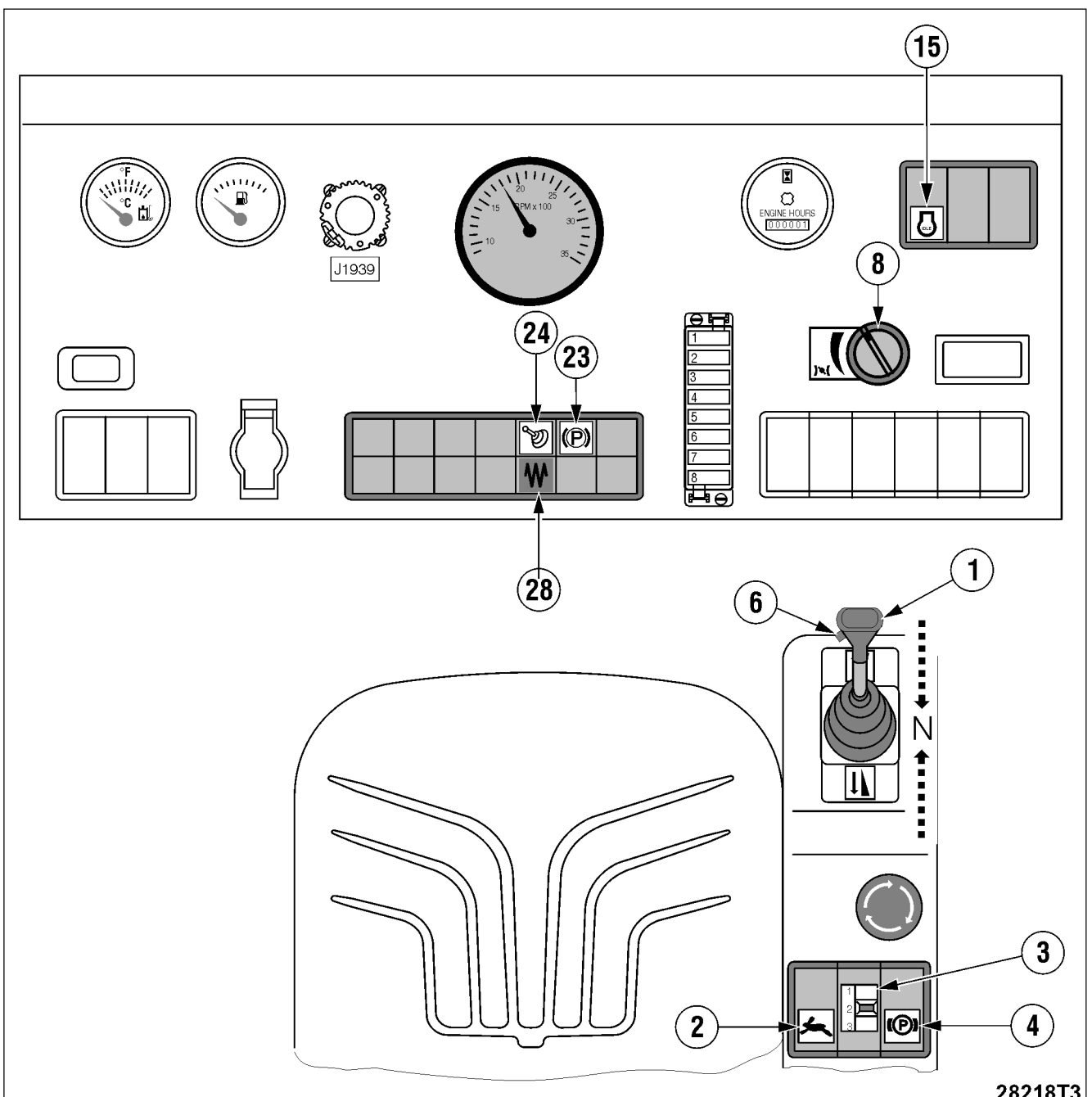
2.7.2. Travel and reversing without vibrations



Give the acoustic signal before starting driving the machine and wait for period sufficiently long for all persons being able to leave the area around the machine (area under the machine) in time!

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

- Turn off gear selector 2 to set the working gear mode.
- Select appropriate range of working gear on the working gear pre-selector 3.
- Switch off the switch 15 IDLE. Using the selector 8, set the required engine speed (e.g. 1,800.min⁻¹ (RPM)).
- Check whether vibration is not on - the signal lamp 28 must not be on; use switch 6 to turn it off.
- Release brakes of the machine with a switch 4. Signal lamp will go off.



2.7. Controlling and operation of the machine

Selecting driving direction and speed

- Move the travel control 1 from neutral to the required direction - little movement = low speed and vice versa. Upon moving the travel control 1, the neutral 24 signal lamp will go off.

Reversing - move the control 1 to the opposite direction via neutral.

Note:

By means of the selector 8, it is possible to select the operating speed of the engine; from the maximum to the minimum operating speed according to the machine load. The maximum parameters of the machine are achieved at the maximum engine speed.

! NOTE !

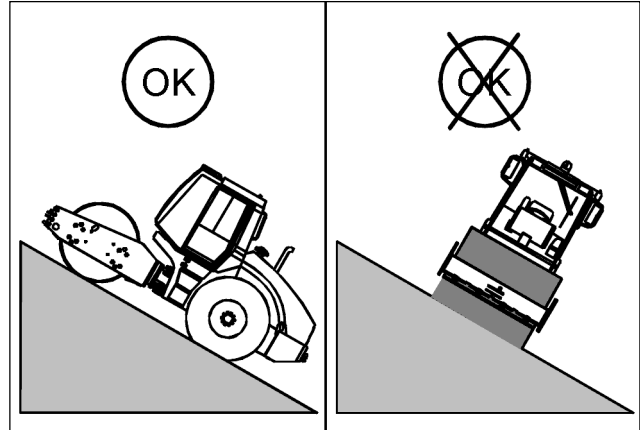
Selector 2 - transport gear - can be activated when driving on finished surface.

It is possible to activate selector 2 while the machine is under load; rabbit symbol will light up.

Should towing power be insufficient, turn the transport gear selector off 2.



Do not drive across (traverse) slopes with high inclination! Drive directly up the slope!



282N049T



Prior to driving down a steep slope, engage working gear by deactivating selector 2!

Deactivate selector 2 while the machine is stopped or moving in a low speed! Do not turn selector off at higher speeds - this will cause rapid deceleration and impact in the hydraulic system.

Do not use engine speed selector 8 to control the machine speed.

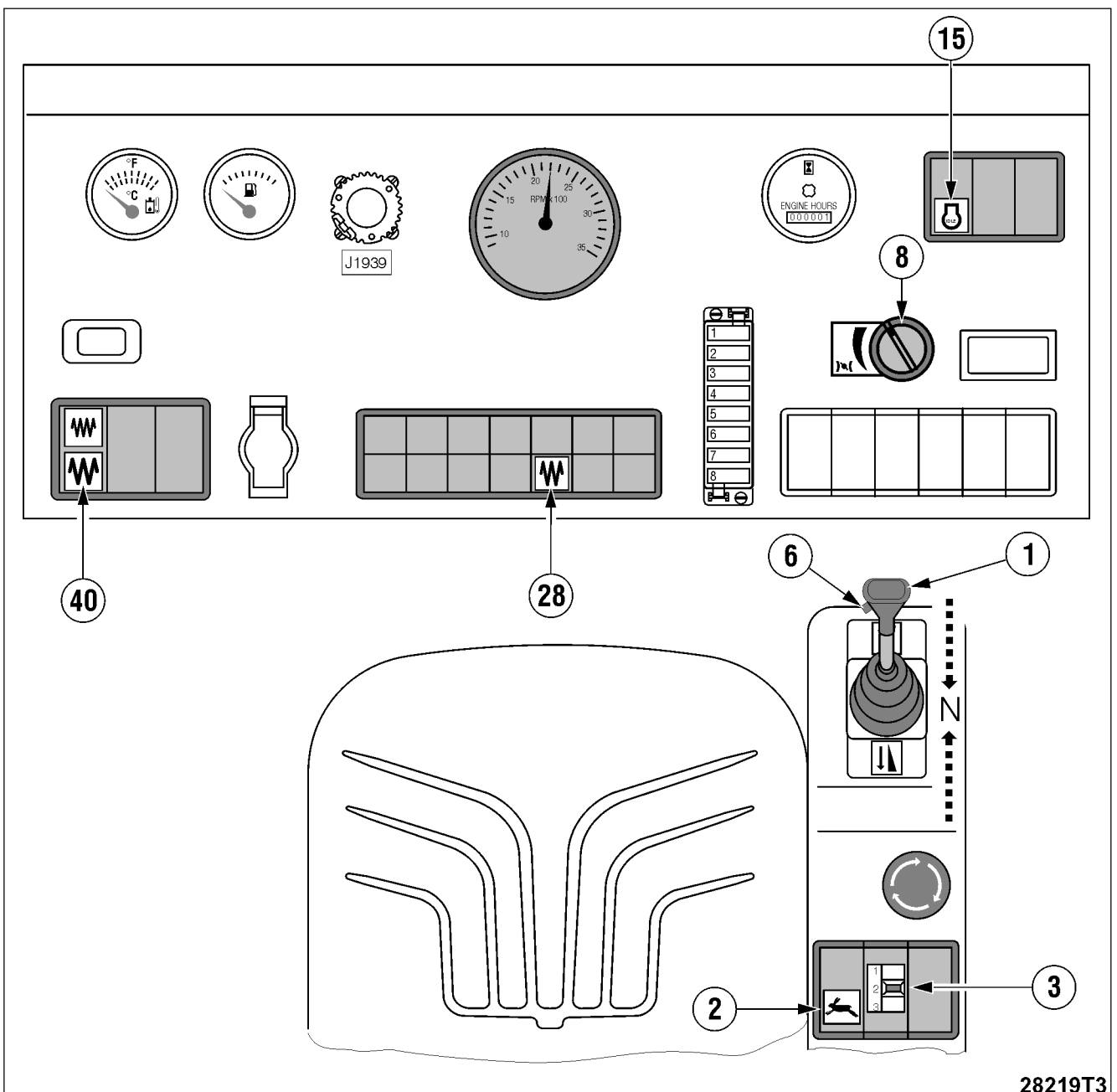
If you have to stop the machine in a slope, first move travel control 1 to neutral and then press parking brake button 4.

2.7.3. Travel with vibration

- Turn off gear selector 2 to set the working gear mode.
- Switch pre-selector 3 to appropriate working gear range.
- Use pre-selector 40 to turn on vibration amplitude.
- Use selector 8 to adjust maximum engine speed. The switch 15 must be switched off.
- Start moving and use switch 6 to turn on vibration. Signal lamp 28 will light up; the drum will start vibrating.
- Press and release switch 6 to stop vibration.

Note:

Within the range of the selected speed of the selector 8, it is possible to turn on the vibration.



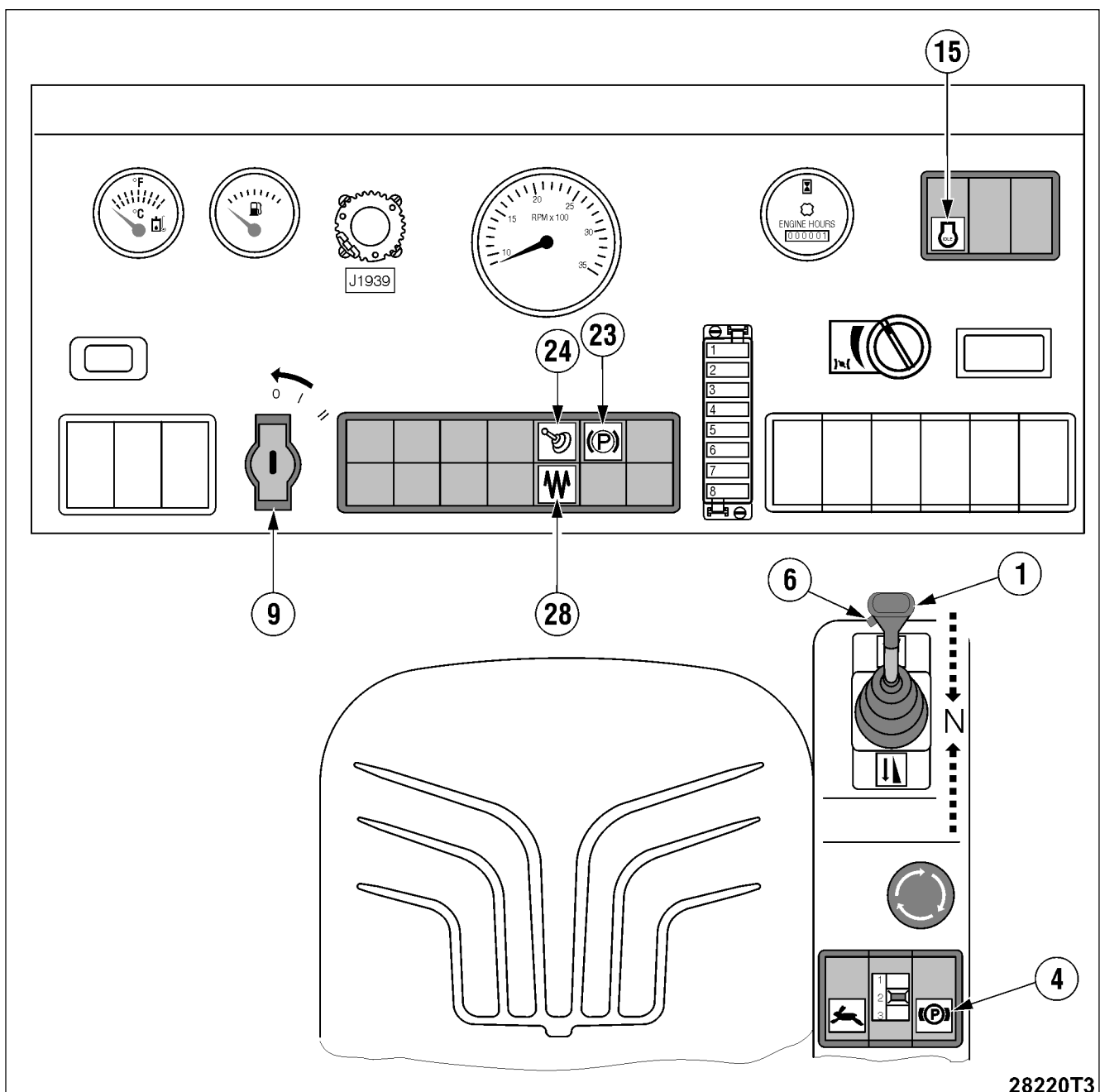
2.7. Controlling and operation of the machine

2.7.4. Stopping the machine and engine

- Use switch 6 to deactivate vibration - signal lamp 28 will go off.
- Use control 1 to stop the machine - signal lamps 23 and 24 will light up. Brake the machine with a switch 4.
- **Press button 15 to adjust idling speed.**
- Turn the ignition key to "0" position and take it out. Close the ignition box cover.

! NOTE !

Do not stop the engine immediately; let it idle for 3 minutes to cool it down and turbocharger.



2.7.5. Emergency stopping



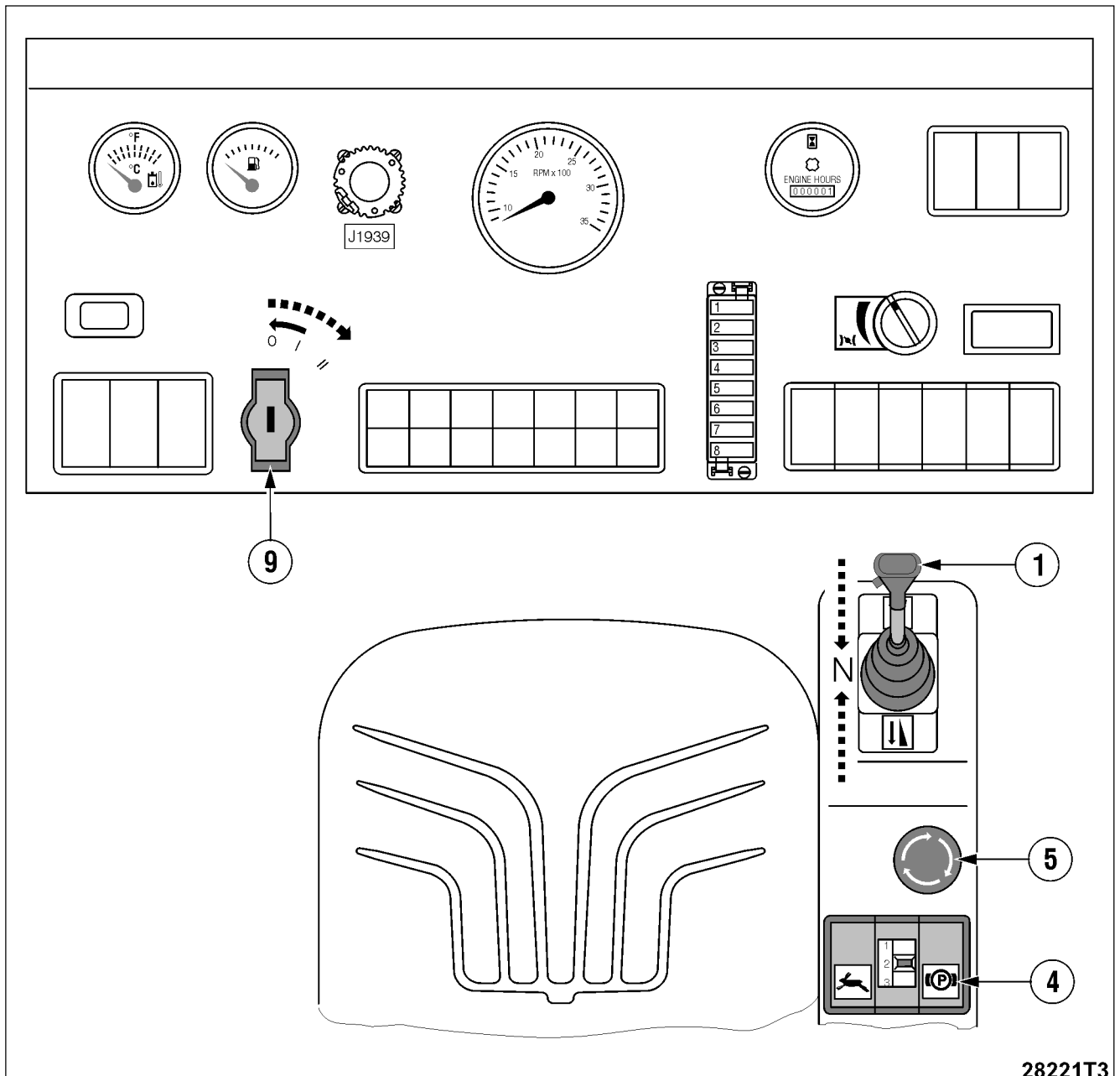
Use this way of stopping in case of defect, when the machine cannot be stopped by moving travel control 1 to neutral position, or is it impossible to shut down the engine by starter switch key.

! NOTE ! Before restarting the engine, turn the button 5 in the direction of the arrow, move the travel lever 1 in to "N" position. Brake the machine with switch 4 and turn off the key 9 to „0“ position.



Never use it during normal operation to shut down the engine.

- Press button 5 - the engine will stop and the machine as well.



28221T3

2.7. Controlling and operation of the machine

2.7.6. Dead parking of the machine

- Stop the machine - see chapter 2.7.4.
- Turn off the battery disconnecter.
- Clean the machine from dirt (scraper and tyres).
- Check the whole machine and repair defects arisen during the operation.
- Check the tyre pressure.
- Secure wheels and drum with scotch blocks.
- Lock covers of instruments or the cabin and door under the driver's stand.



Stop the machine on even and firm surface.

Check the place of parking for risk of natural dangers (landslides, floods etc.)

2.7.7. Troubleshooting according to flashing codes

- In case of engine fault, either stop engine red signal lamp 18 or engine warning yellow lamp 19 will light up.
- **Before troubleshooting stop the engine and turn the ignition key 9 to "I" position.**
- Press button 16 to activate error code. The lighting signal lamp will start flashing in the code corresponding to the defect and it repeat twice in the same sequence.
- Press button 17 to move to the next error. You can search for error codes stored in ECM index using symbols of switch 17: upper symbol forward or bottom symbol backward.

NOTE: If only one defect is identified, its error code will be signalled repeatedly even if you press switch 17 in either direction.



After the signal lamp 18 goes on, stop operation and engine while keeping safety at work!

Do not start the engine before the defect has been repaired!

! NOTE !

If signal lamp 19 lights up, repair the defect as soon as possible!

Example of flashing error code

Flashing code consists of three digits.

Example: code 123 signal lamp

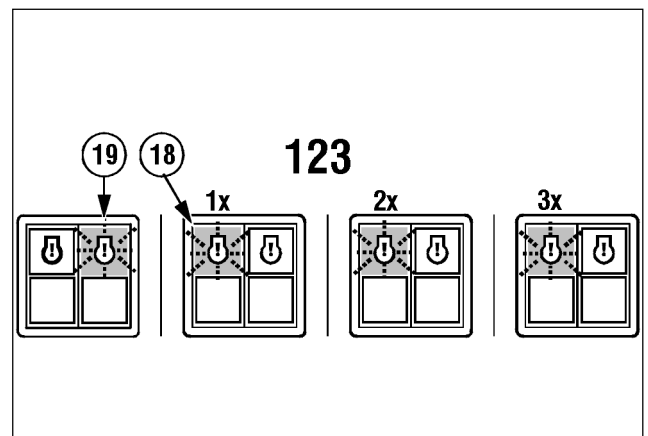
Yellow lamp 19 will flash, red lamp 18 will flash the code after 1-2 sec.

Number 1: red will flash once, then pauses for 1-2 sec.

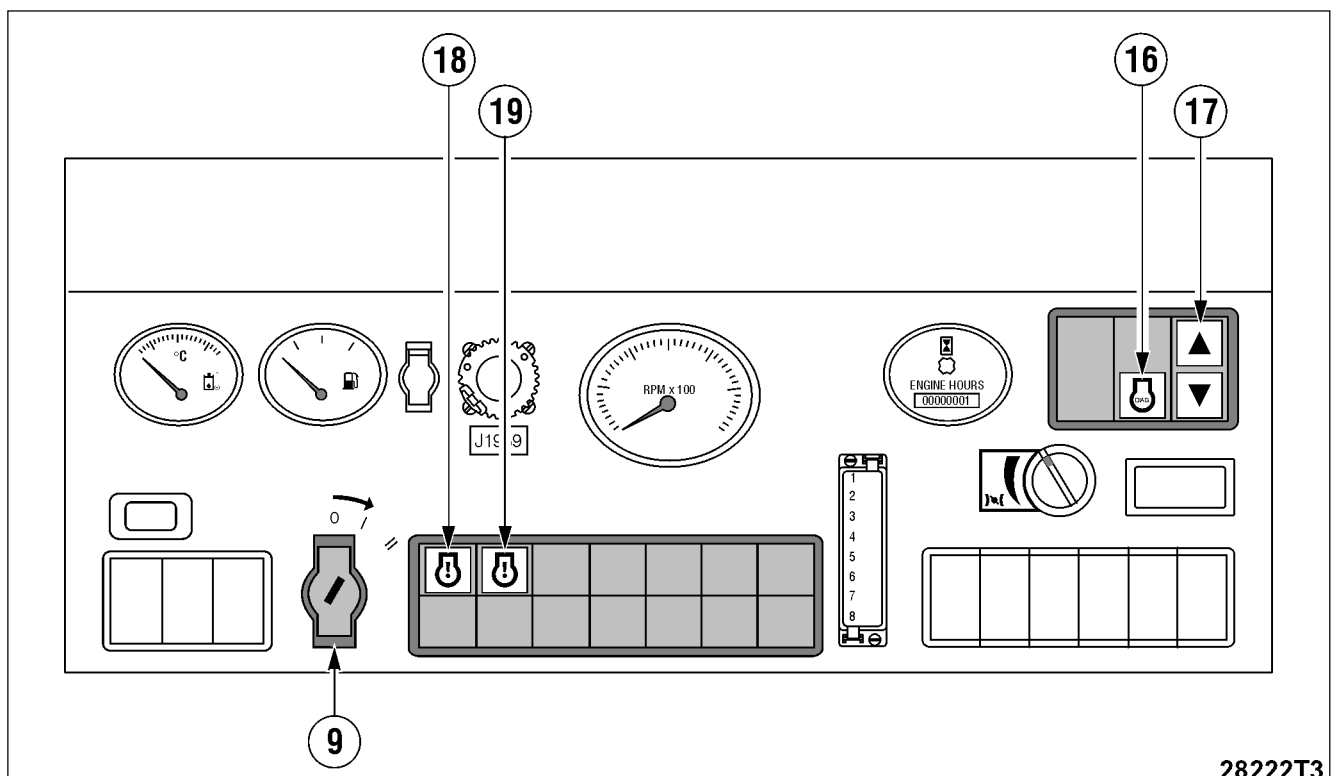
Number 2: red will flash twice, then pauses for 1-2 sec.

Number 3: red will flash thrice.

When the number has finished flashing in red, a yellow lamp will appear again. The three – digit code will repeat in the same sequence. Press button 17 to move to the next error.



282N239T



28222T3

2.7. Controlling and operation of the machine

2.7.8. ATC function

- ATC (Ammann Traction Control) - interaxle differential - prevents slipping of wheels and drum in case of exceeding adhesion limit when driving in heavy conditions or on slopes.
- Activate ATC by turning ignition key to "I" position. It is working in the whole range of working and transport gears.
- Flashing signal lamp 26 indicates an ATC defect.

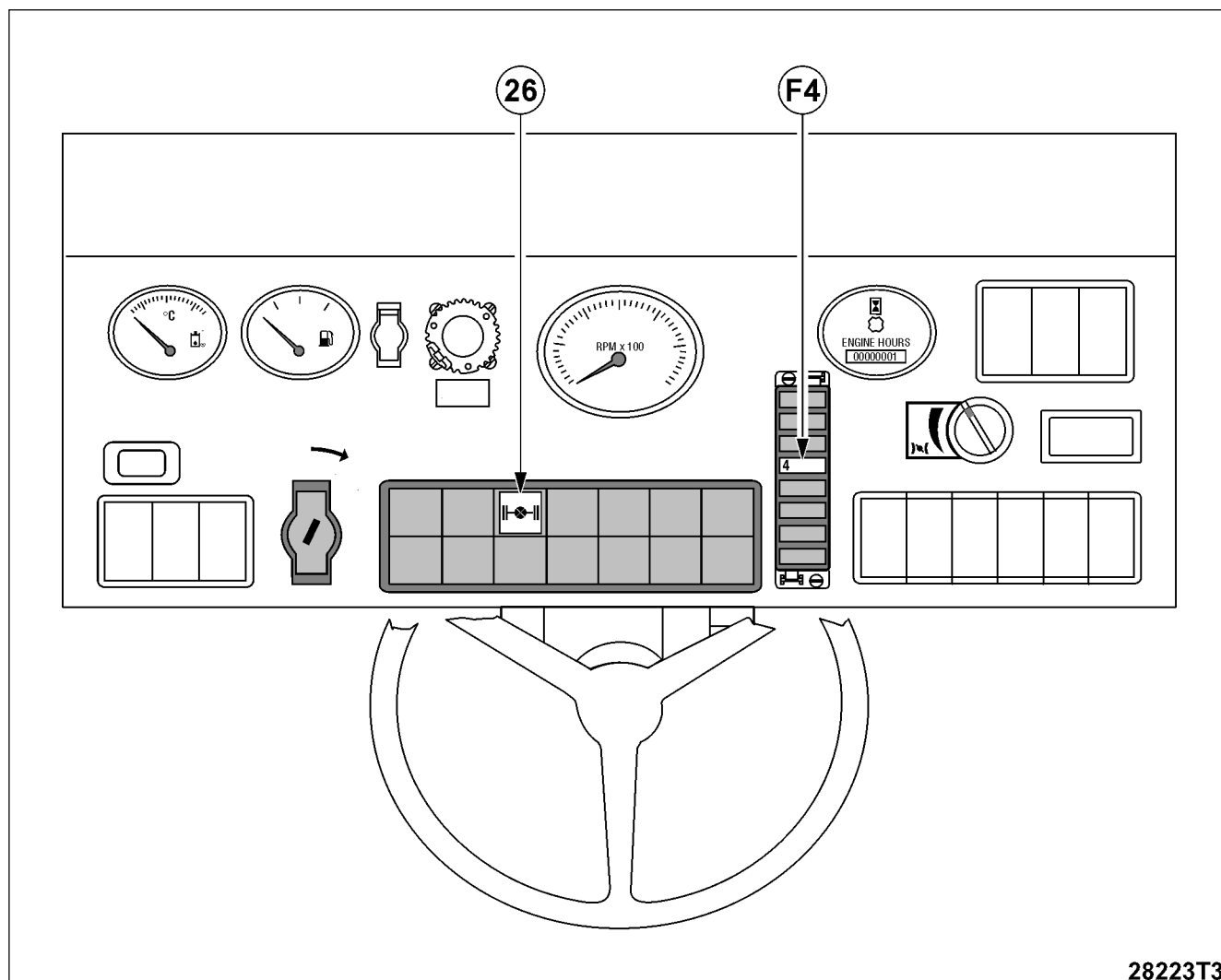
NOTE

In case of ATC defect, transport gear cannot be engaged or, if adhesion limit is exceeded, drum or one of wheels will start slipping.

- **In case a wheel locks up while driving** (the cell of drum rotations sensor fails or the contact to the cell is broken), the wheel will be unlocked automatically (while driving) after 5 seconds and will start turning. The wheel will lock up again for five seconds after stopping the machine and engine and subsequent starting and driving away. The machine may work in this condition.
- **In case the drum locks up while driving** (the cell of one-of-wheels rotations sensor fails or the contact to the cell is broken), the drum will be unlocked automatically (while driving) after 5 seconds and will start turning. The drum will lock up again for five seconds after stopping the machine and engine and subsequent starting and driving away. The machine may work in this condition.

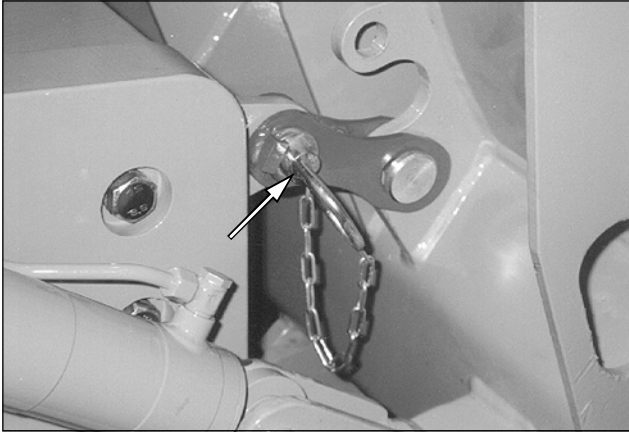
Disabling ATC

To avoid wheel or drum lock-up during repeated engine starts, disable ATC by removing fuse F4 in the dashboard.



2.7.9. Blade

- Unlock the blade on both sides.
- For locked (secured) blade.



396S0019

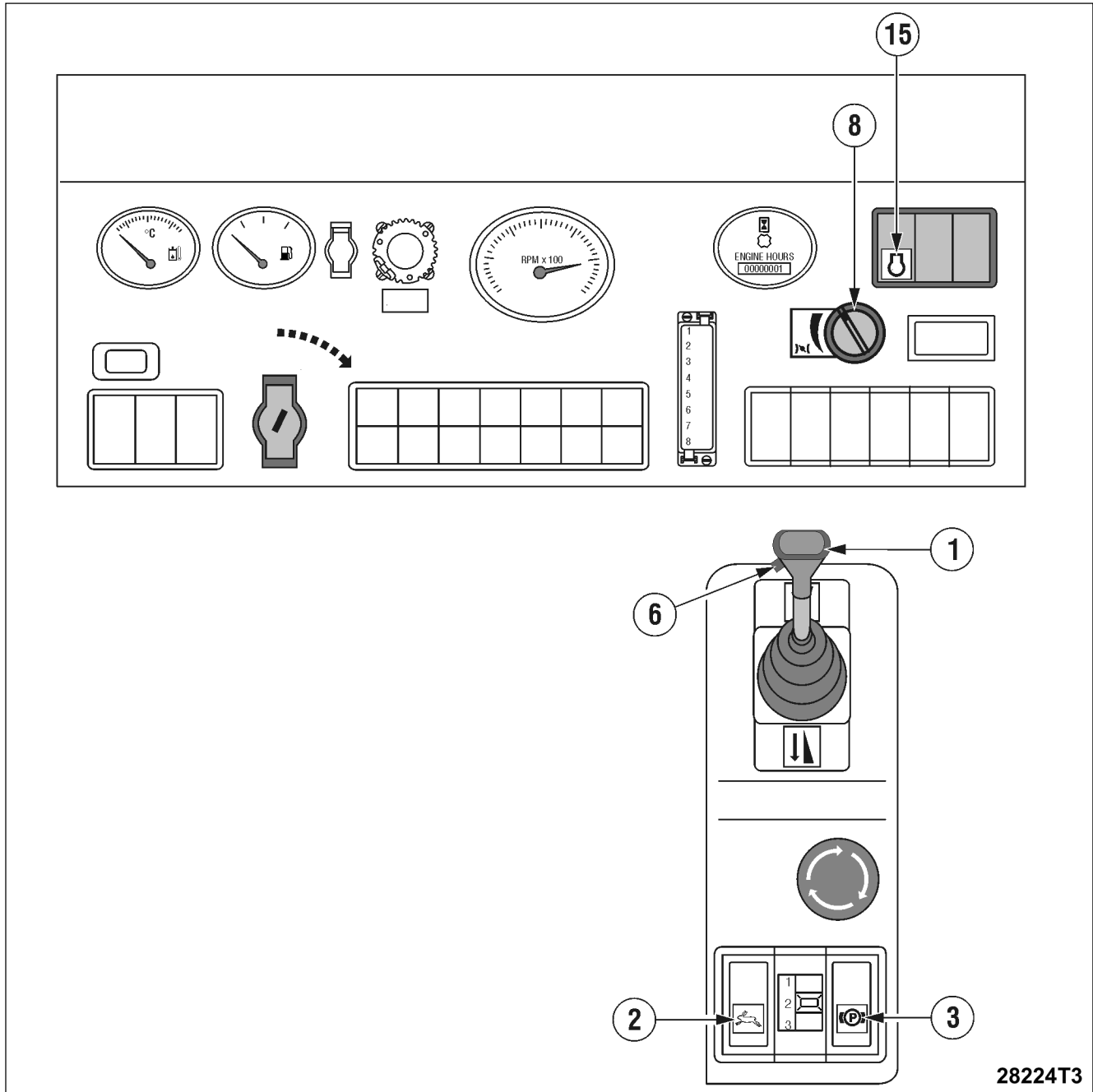
- For unlocked blade.



396S0020

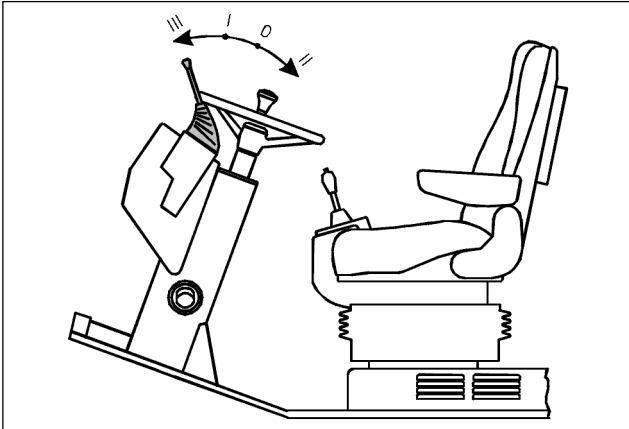
2.7. Controlling and operation of the machine

- Start the engine. Switch off the "Idle" switch 15, set maximum RPM 8 (or those proportional to the subsequent output). Switch off the gear selector 2 and choose a suitable range of speed of operation on the appropriate preselector 3.



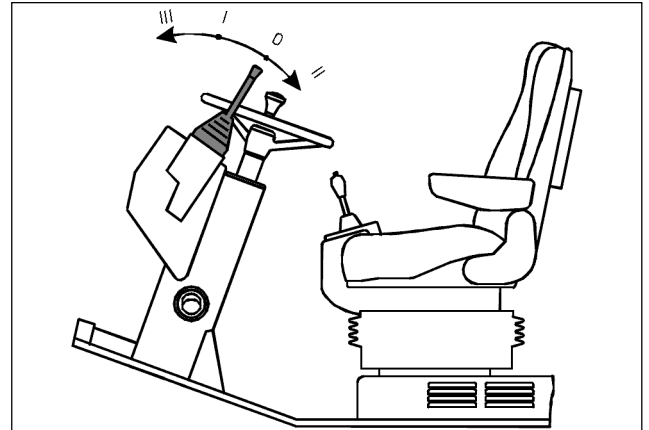
OPERATING INSTRUCTIONS

- Lower the blade down to the earth by shifting the blade controller forwards from "0" position to "III" (floating position).



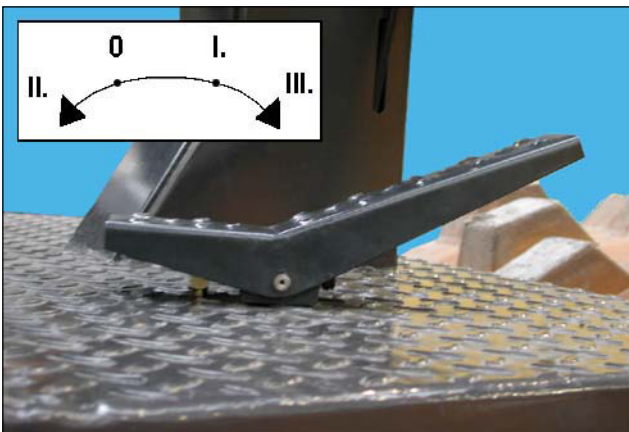
282N090T

- Return the controller (pedal) to "0" position and start driving.



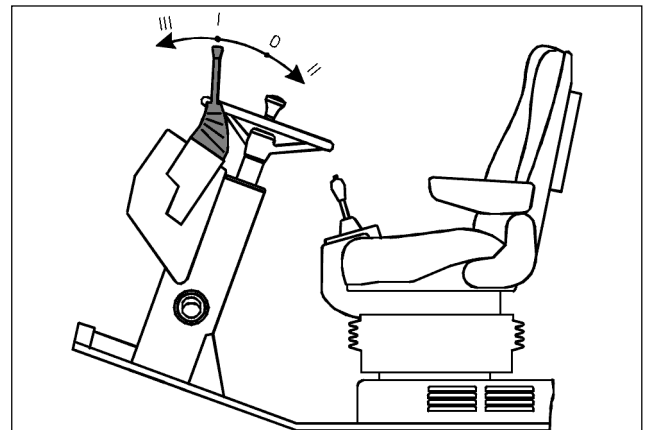
282N091T

or pedal.



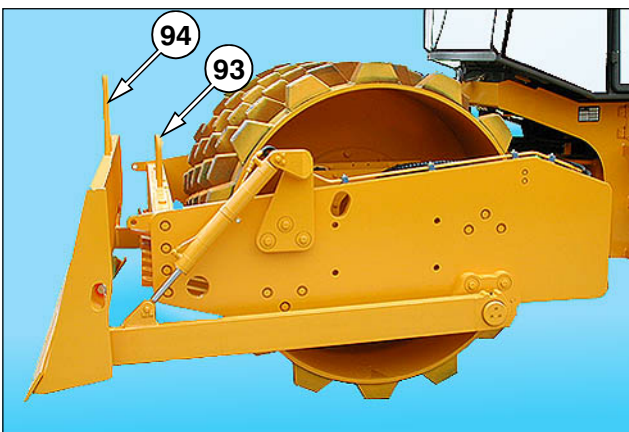
208M0053

- The blade then starts digging after shifting the controller (pedal) to "I" position.



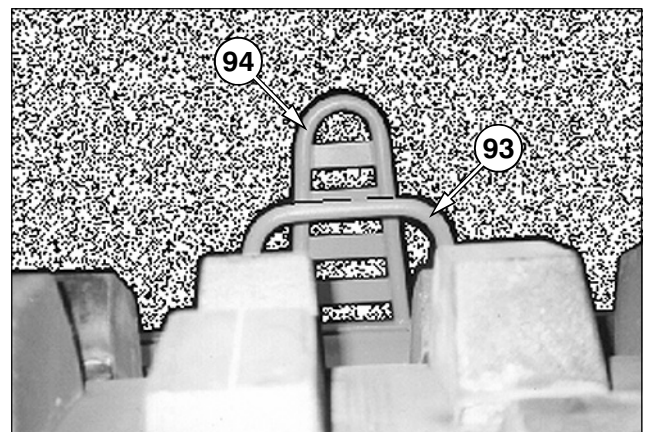
282N092T

- Find the position of the of the fixed indicator 93 on the drum frame beam as related to the movable indicator with the blade 94 and remember this information. This is then the basic position of the blade.



282N103T

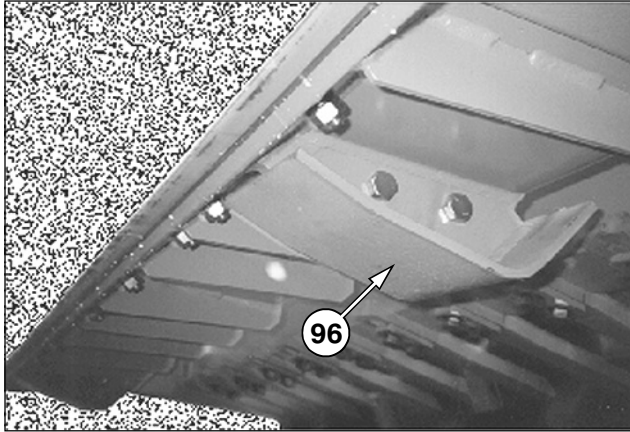
- The size of the digging can be read on the basis of the relative position of both the fixed 93 and movable 94 indicators. (Each shift by one increment means the blade will move by 50 mm).



282N087T

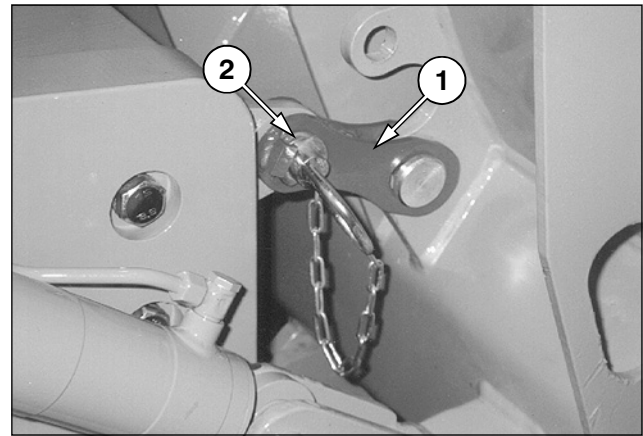
2.7. Controlling and operation of the machine

- Floating position can be used for shovelling the material. The blade slides over removable skids 96. It can be also used for the regressive spreading and evening of the material.



282N088T

- After finishing work with the blade secure it in the upper position using both safety pull rods 1 and pins 2.



396S0019

NOTE:

- The functions in 4 positions
 - position 0 (initial position of the pedal)
 - position I. (blade moves down)
 - position II. (blade moves up)
 - position III. (blade is in floating position)
- Volume of the shovelled material can be corrected by lowering the blade (blade lever in "I" position) or by lifting it up (the lever is in "II" position) dependently on traction power of the machine.
- Blade edges are removable and they can be turned by 180° after their wear.

! NOTE !

Do not adjust the scrapers, do not carry out any maintenance at the blade unless it is lowered to the ground and the engine stopped, or unless the blade is secured by both safety links.

Do not work with the blade when it is secured.

In case that only one link is secured, the blade can be damaged.

2.7.10. Lifting driver's stand and bonnet

! NOTE ! Fold the seat and rest before lifting drivers stand. Just the machine with integrated roof in ROPS.



282N225T

Lifting driver's stand

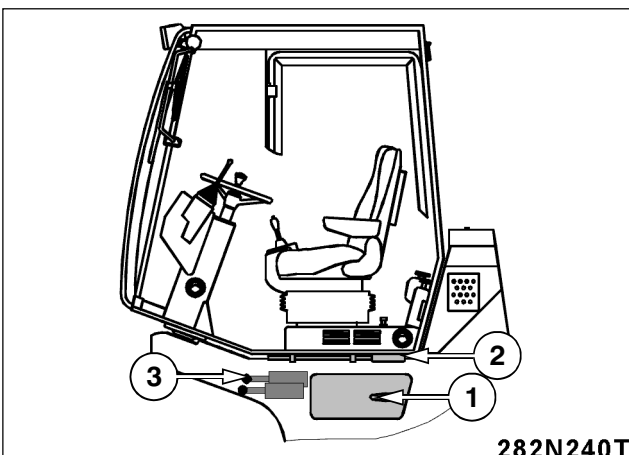
- Remove nuts of the driver's stand.



282N056T

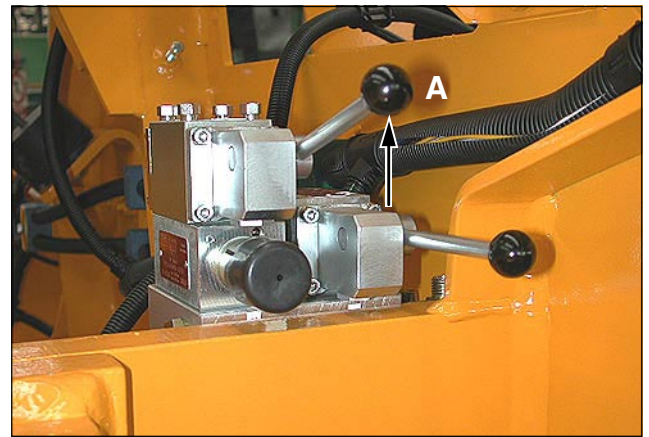
- Open the cover 1 on the left side under the driver's stand. Take out the pump lever 2.

Levers of lifting and lowering 3



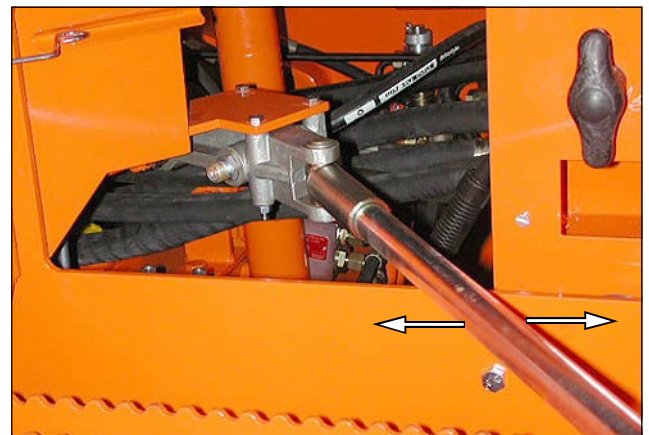
282N240T

- Move the lever to A position (**lifting**).



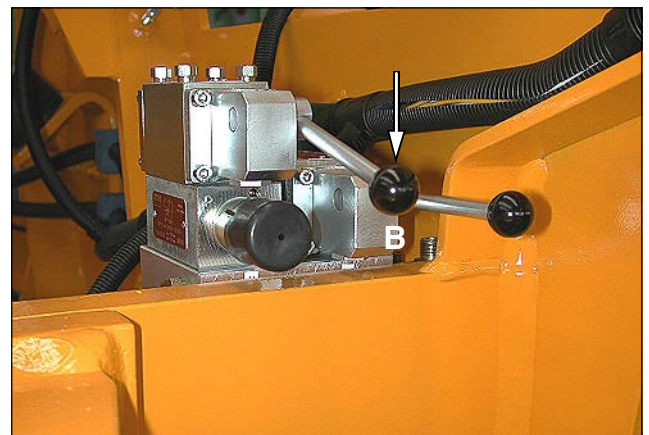
282N057T

- Insert the lever to the pump and lift the driver's stand.



282N058T

- Move the lever to B position (**lowering**) and pump.



282N059T

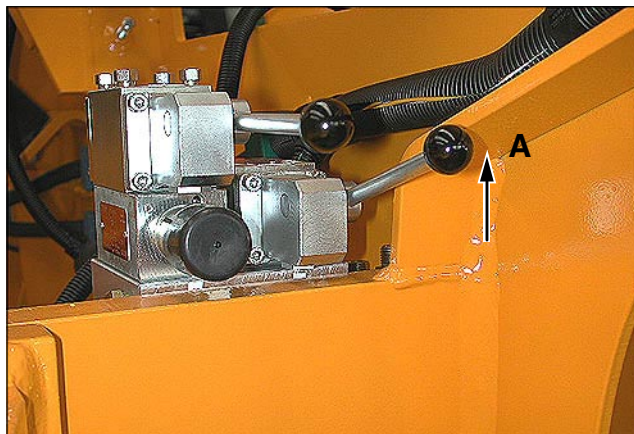


Screw the driver's stand in after lowering. If the driver's stand is not screwed in properly, the machine may overturn and cause lethal injuries.

2.7. Controlling and operation of the machine

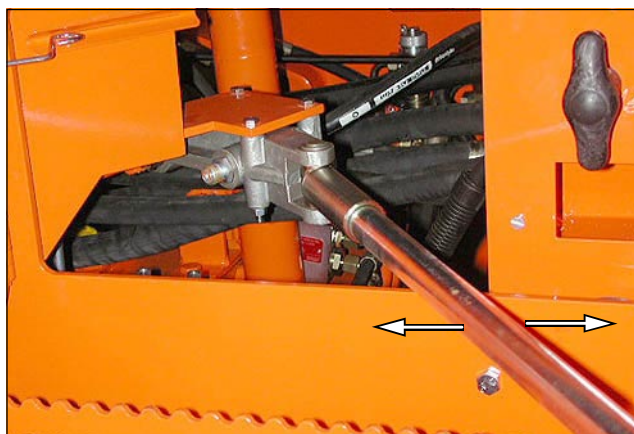
Lifting bonnet

- Move the lever to A position - (lifting).



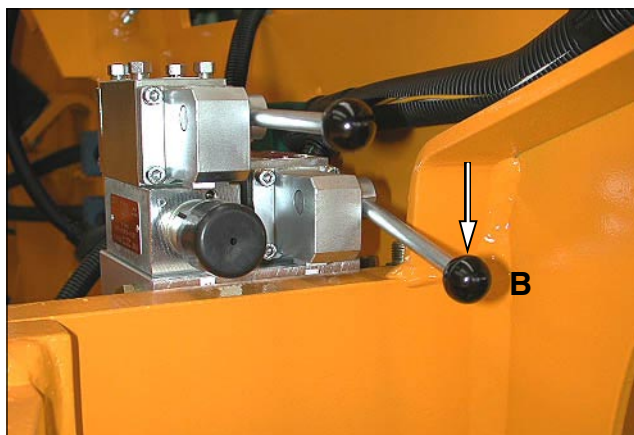
282N060T

- Insert the lever to the pump and lift the driver's stand.



282N058T

- Move the lever to B position (lowering) and pump with the manual hydro-generator.



282N061T

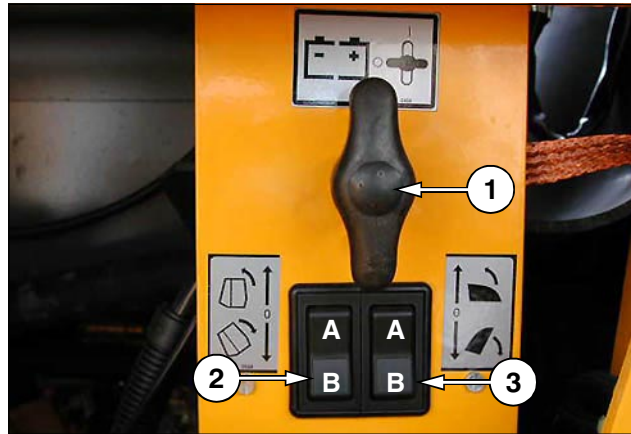
Lifting and lowering using electric-hydraulic pump (optional)

- Remove nuts of the driver's stand.



282N056T

- Connect electric system by turning the battery disconnecter 1.
- Press and hold button 2 (lifting driver's stand) or button 3 (lifting bonnet) in "A" position. Press and hold appropriate button in "B" position to perform lowering.



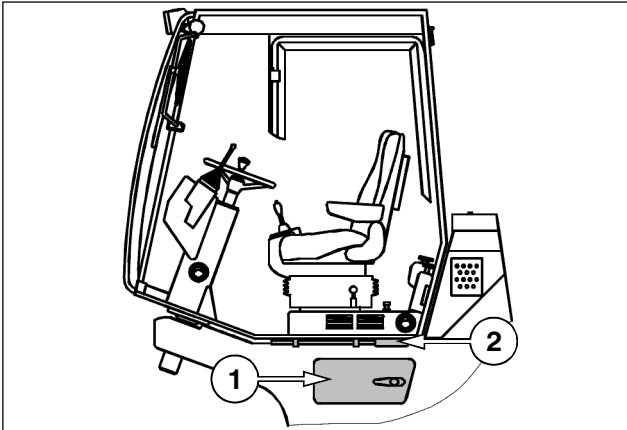
282N018T



Screw the driver's stand in after lowering. If the driver's stand is not screwed in properly, the machine may overturn and cause lethal injuries.

Manual lifting and lowering

- In case of el-hydraulic unit or flat battery, use the manual hydro-generator to perform lifting and lowering.
- Open the cover 1 on the left side under the driver's stand. Take out the pump lever 2.



282N055T

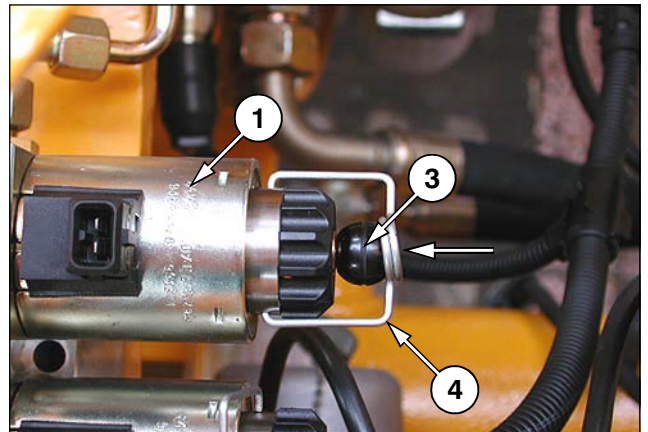
Driver's stand

- Remove nuts of the driver's stand.



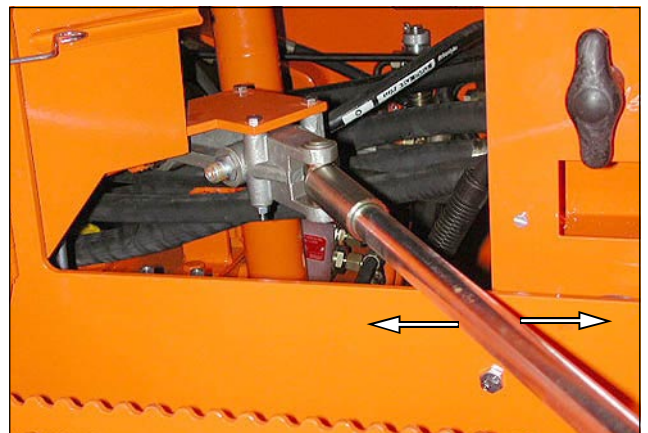
282N056T

- Push the sliding valve 3 on the switchboard 1 and secure it in the position with safety pin 4.



282N062T

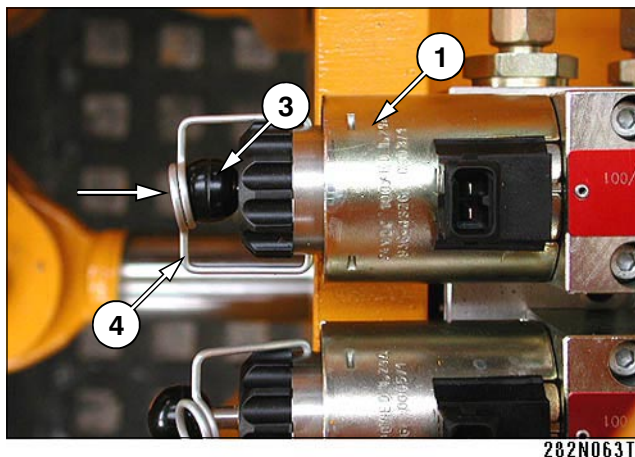
- Insert the lever to the pump and lift the driver's stand.



282N058T

2.7. Controlling and operation of the machine

- Unlock the safety pin of lifting before starting lowering.
- Push the sliding valve 3 on the other side of the switchboard 1, secure it with safety pin 4 and pump to lower the driver's stand.



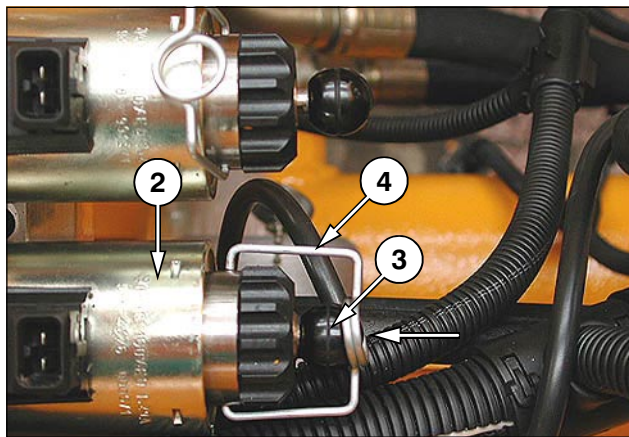
282N063T



Screw the driver's stand in after lowering. If the driver's stand is not screwed in properly, the machine may overturn and cause lethal injuries.

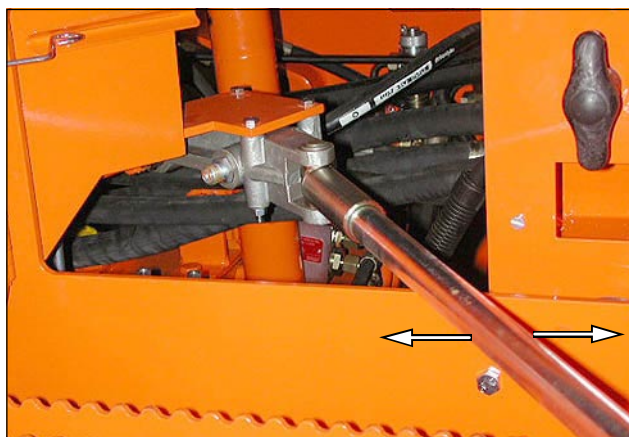
Bonnet

- Push the sliding valve 3 on the switchboard 2 and secure it in the position with safety pin 4.



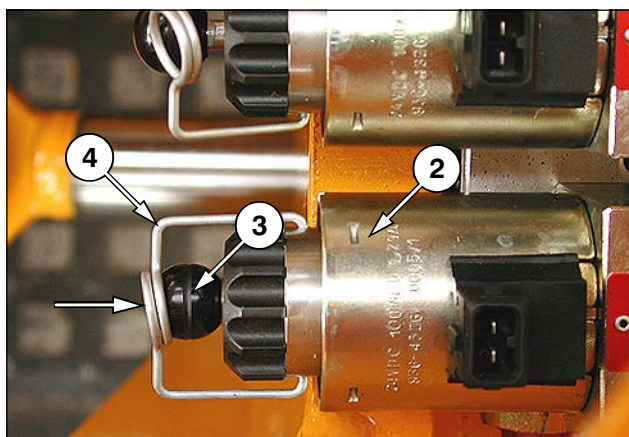
282N064T

- Pump to lift the bonnet.



282N058T

- Unlock the safety pin of lifting before starting lowering.
- Push the sliding valve 3 on the other side of the switchboard 2, secure it with safety pin 4 and pump to lower the bonnet.



282N065T

2.8. Shifting the machine (transport) OPERATING INSTRUCTIONS

2.8.1. Transporting the machine on its own

The machine may drive on its own between worksites if not using public roads.

! NOTE !

When transporting the machine on finished roads, use transport gear - activate selector 2.

In case of long distance transport, make an hour cooling break after three hours of drive. Make another hour break after next 2 hours of drive. This will help prevent overheating and damaging gearboxes.



Safety rules of the site must be followed.

2.8. Shifting the machine (transport)

2.8.2. Transporting the machine on public roads

! NOTE !

The standard version of the machine is not equipped with facilities to travel on public roads - traveling on public roads is forbidden!



The machine must be attached to the transporting vehicle by tying ropes (1) on tying spots. Tying spots: rear lifting eyes and slings in side plates of the drum frame.

When transporting the machine on public roads, the regulations governing public road traffic must be followed.

During the actual transport, no persons may stay on the driver's stand, on the machine or on the transporting vehicle platform.



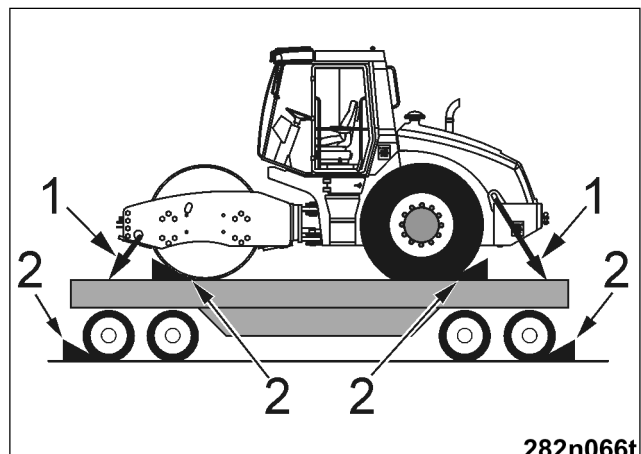
Use switch 38 to turn on drum traction slip control when driving up the transporting vehicle. It is recommended to underlay drum with rubber strips or wooden planks etc.

The vehicle transporting the roller must be braked for loading and unloading and mechanically secured against undesirable movements by scotch blocks (2).

The person guiding the machine must communicate with the driver by prescribed communication signals, he/she must stand all the time on the same location, away from the machine and the transporting vehicle. He/she must be within the field of driver's vision (visual contact) for all the time of driving up and down.

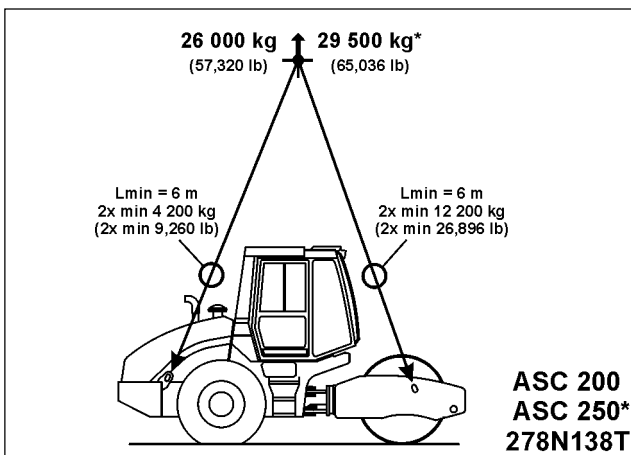
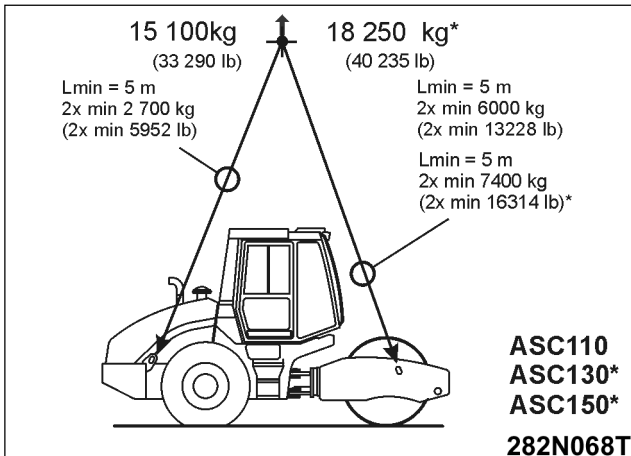
During driving up and down the transporting vehicle, all persons but the driver must be away from the machine in such a distance that they cannot be injured in case of an accident (fall of the machine).

Hooking at a Carrier Vehicle



2.8.3. Loading the machine

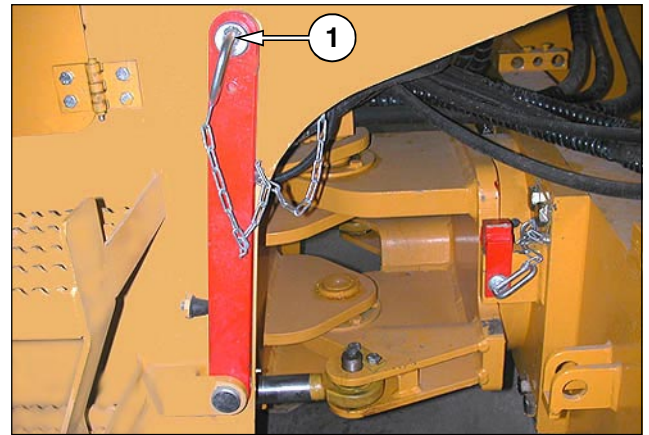
- Use drive-up ramps or crane to load the machine to a transporting vehicle.
- The roller is equipped with lifting eyes for loading by crane:



- Lock the joint against movements prior to lifting the roller.

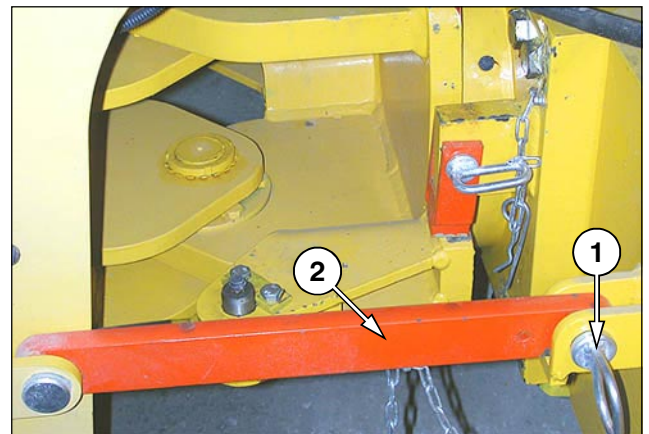
Joint locking:

- Unlock and pull pin 1.



282N069T

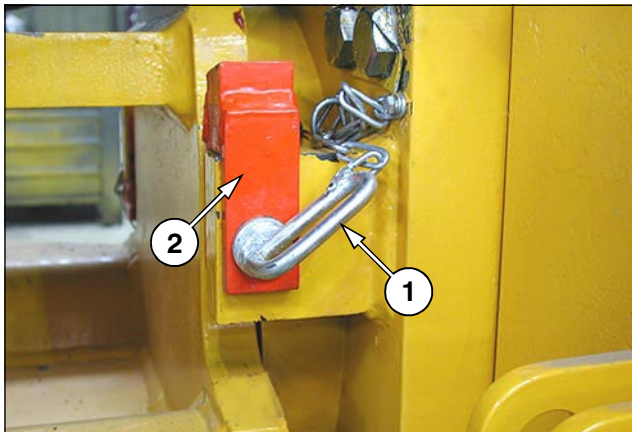
- Fold arm 2 and secure it with pin 1 and locking pin.



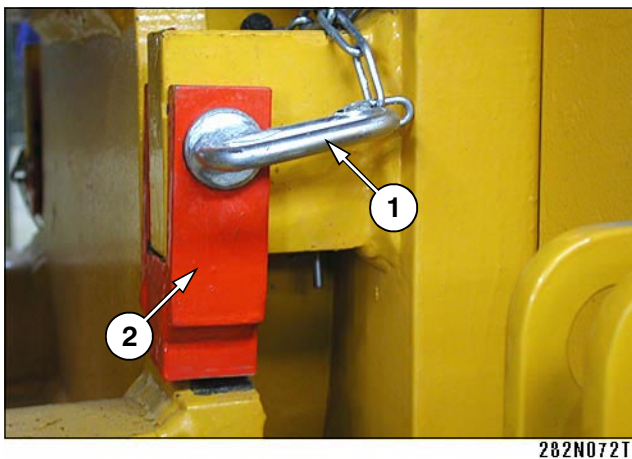
282N070T

2.8. Shifting the machine (transport)

- Unlock and pull pins 1 of two blocks 2 on both sides from the joint. (options)



- Turn blocks 2 and secure with pin 1 and locking pin.



Do not step under the hanging load!



Return the safety arm and blocks to default positions after loading is complete.

Observe appropriate regulations while loading and unloading the machine.

Use appropriate unimpaired tying means of sufficient capacity.

Use appropriate crane of sufficient capacity.

To tie the machine, use only lifting eyes designed for the purpose.

Only a qualified slinger may attach slings.

2.8.4. Dismantling cabin and ROPS frame

- If the machine height on the transporting vehicle is higher than allowed for transport, dismantle cabin and ROPS frame.

Dismantling ROPS

- Hang the frame by lifting eyes.

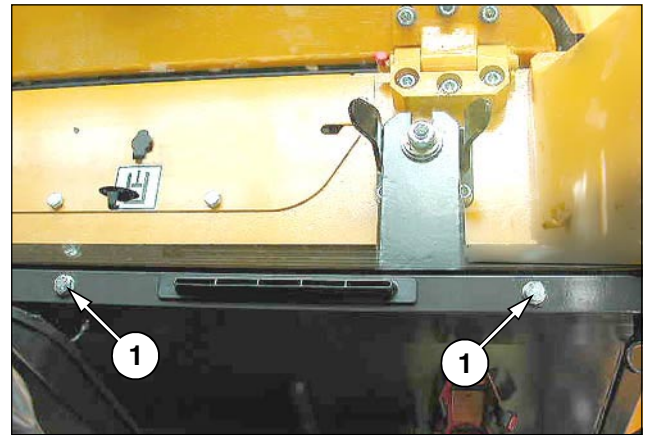
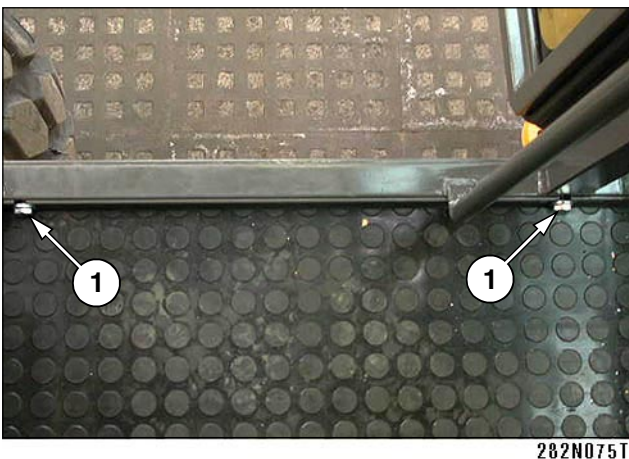


- Dismantle bolts and remove the frame.



Dismantling cabin

- Remove bolts 1 fastening the cabin to the platform.



- Disconnect electric system by disconnecting connector between steering column and front windshield.



- Disconnect electric system of washer and lines to windshield washing jets. Hang the cabin by eyes and remove.



2.9. Using the machine under special conditions

2.9.1. Towing

- In case of failure the Machine can be towed to a distance necessarily needed. For this reason the Machine has been fitted with two eyes on the frame of drum.



Make sure the Machine is attached to both of the eyes when being towed!

Options:

- Pin is also used for front towing lug on the crossbar of the front frame.



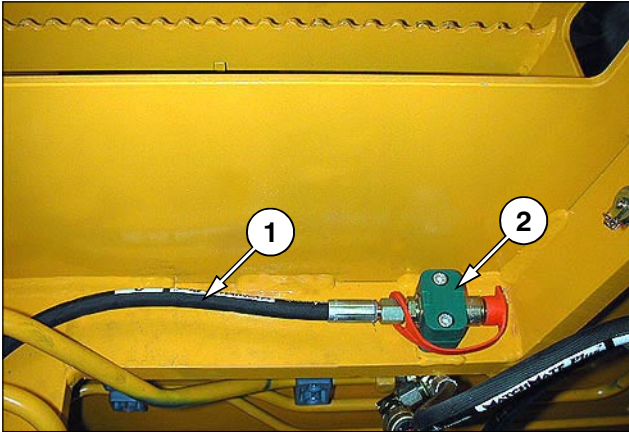
It is forbidden to use the machine for towing towed vehicles (e.g. tanks, compressors, house trailers etc.).

- Rear towing lug on the fuel tank is equipped with a pin locked with a locking catch against jumping out. It is possible to remove the pin after raising the locking pin.



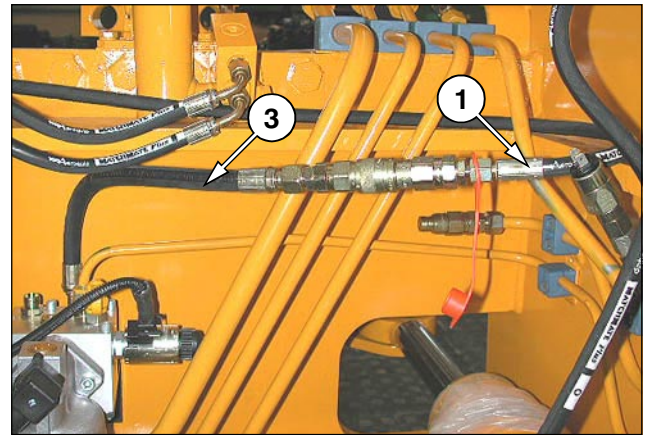
Releasing drum and wheels for ASC 110 - ASC 130 - ASC 150:

- Release all multi-plate brakes to avoid slipping of drum and wheels.
- Release hose 1 in clip 2.



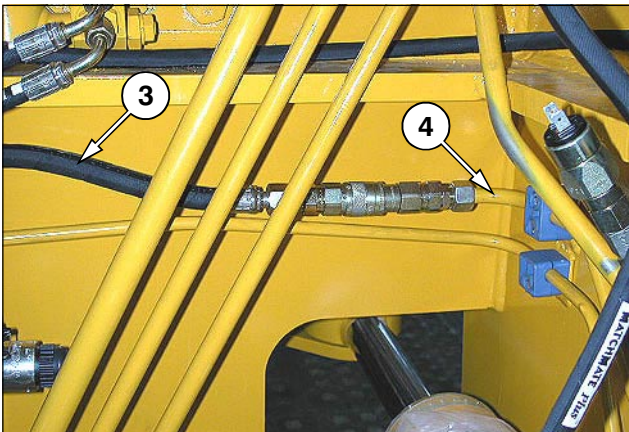
282N080T

- Connect hose 1 of the manual hydro-generator with hose 3 of pressure filter.



282N082T

- Disconnect hose 3 from tube 4.

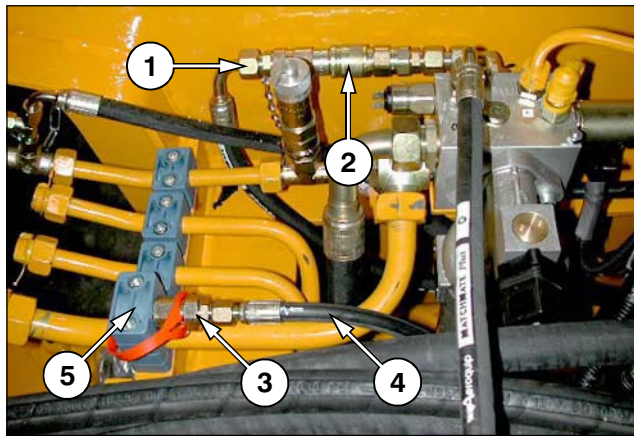


282N081T

2.9. Using the machine under special conditions

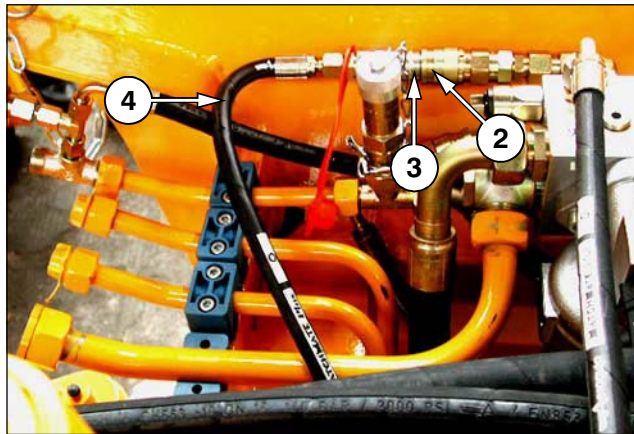
Releasing brakes of the drum and the wheels for ASC 200÷250

- Release hose 4 by quick coupler 3 in clamp 5.
- Disconnect hose 1 from pressure filter to hydraulic tank in quick coupler 2.



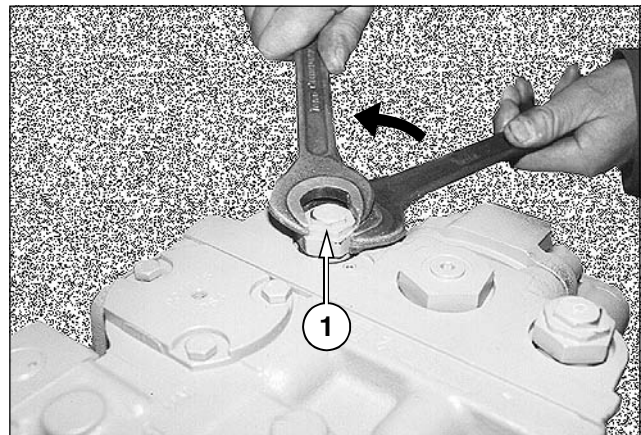
396N028

- Connect quick coupler 3 on hose 4 to manual hydraulic generator with quick coupler 2 in hose 1.



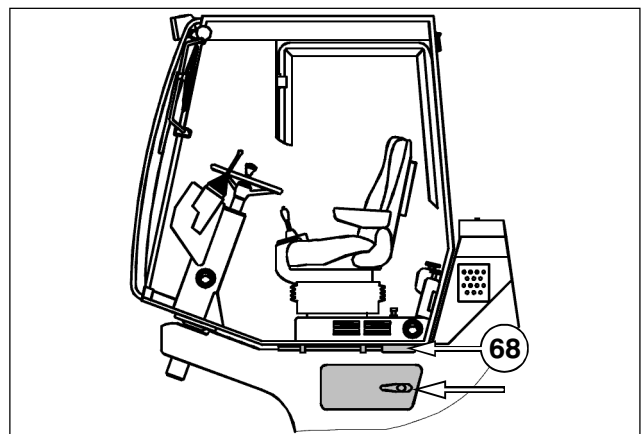
396N029

- Unscrew central parts 1 (hexagonal 27 mm (11/16")) by three turns anti-clockwise on two multi-purpose safety valves of the hydro-generator of travel.



282N083T

- Open the cover on the left side under cabin. Take out the lever 68 under the driver's stand.



282N055T

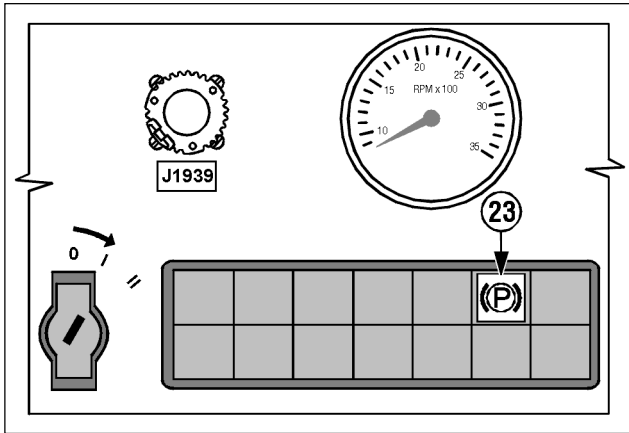
- Insert the lever 68 into the manual hydro-generator and pump until the machine is unbraked for towing now.



282N058T

OPERATING INSTRUCTIONS

- Turn the ignition key to I position and check signal lamp of brake 23 switched off.



282N084T

! NOTE !

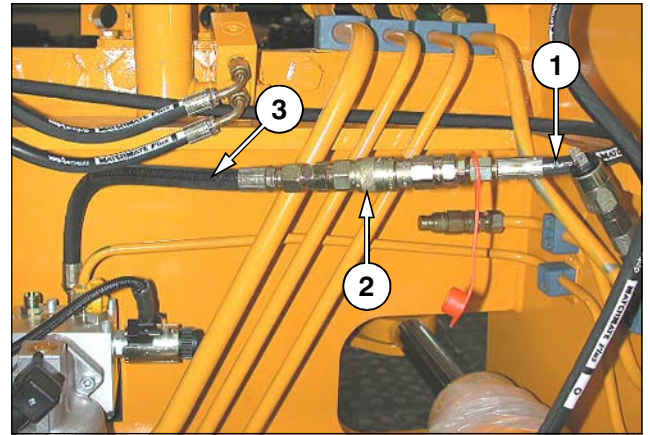
During towing, leakage may cause pressure in brakes decrease. If brake signal lamp 23 lights up during towing, pump more.



After towing, put the machine into its original condition.

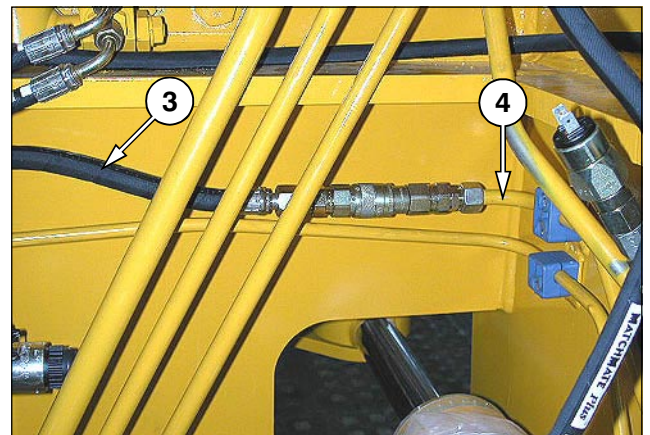
To put the machine into the original condition for ASC 110 - ASC 130 - ASC 150:

- Disconnect hose 1 from hose 3 in the quick coupling 2.



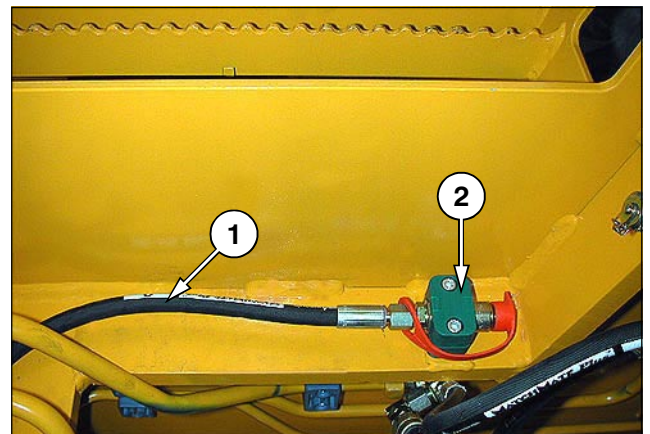
282N082T

- Connect hose 3 back to tube 4.



282N081T

- Fix hose 1 in clip 2.

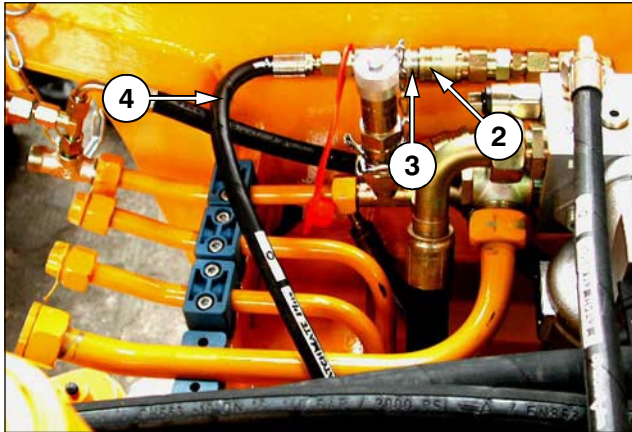


282N080T

2.9. Using the machine under special conditions

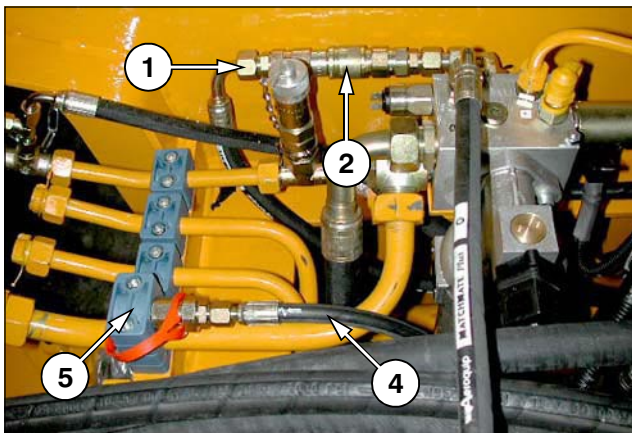
To put the machine into the original condition for ASC 200÷250

- Disconnect hoses 4.



396N029

- Reconnect hose 1 into the pressure filter and hydraulic travel generator loop.
- Fix hose 4 in clamp 5.



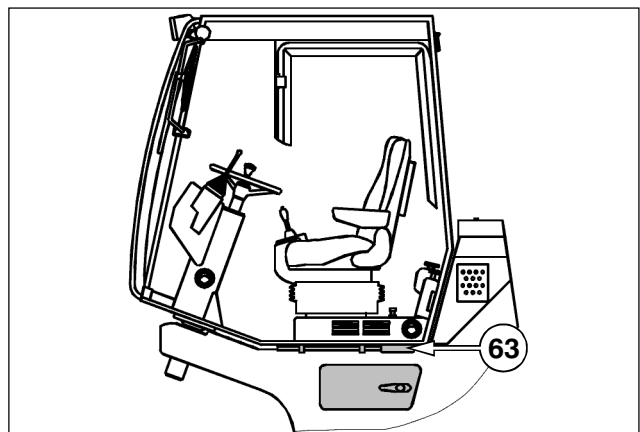
396N028

- Screw back multi-purpose valves on the hydro-generator.



282N083T

- Put the manual hydro-generator lever 63 to the holder under the driver's stand.



282N055T

! WARNING!

During towing, leakage may cause pressure in brakes decrease. When towing, check brakes for heating due to insufficient brake release.



After releasing brakes and short-circuiting the travel hydraulic circuit, all brakes are out of operation!

Use unimpaired towing cables or towing bars of sufficient capacity - dimensioned to weight 1.5 times higher than weight of the towed machine. It is not permitted to use chains for towing.

No persons can be present on the machine with non-working engine.

It is necessary to keep the deviation from the straight towing angle as little as possible. Maximum deviation is 30 degrees.

The movement during towing must be smooth. Do not exceed towing speed of 2 kmph (1.2 mph). Do not tow the machine for distances longer than 300 m (0.19 miles).

The towing machine should be equal by size to the damaged machine. It must be sufficiently powerful (towing power), heavy and have sufficient brake effect.

When towing downhill using a cable, it is necessary to connect another towing machine to the rear part of the damaged machine. This will prevent uncontrolled movement of the damaged machine.

Do not start the engine during towing.

The bogged roller may be pulled out for short distance, if the engine is running and the driving unit and steering are functional. The drive on the towed roller must steer the roller in the dragging direction.

If the engine is stopped. Avoid damaging inoperable power train, steering and brake system.

2.9.2. Driving with vibrations on compacted and hard material

When driving with vibration on more compacted subgrade material, so called vibro-strike may occur.

The same applies when driving with vibration on hard materials (such as stone aggregate). This situation results in increased transmission of vibrations to the machine frame and the driver's stand. It can be partially reduced by increasing travel speed or by changing vibration parameters (using smaller amplitude).

Note:

Emission data of vibration acceleration will be different during driving with vibration on subgrade material other than the one specified in "Specification manual" - Sanitary data.

! NOTE !

If working with the machine under conditions exposing the operator to increased vibrations cannot be avoided, the keeper of the machine must modify working procedures so that it is not harmful to the driver's health.

NOTE

These are general requirements for safe towing of the damaged machine under standard conditions. Any specific conditions that may occur during towing must be consulted with a machine distributor.

2.9. Using the machine under special conditions

2.9.3. Using the machine under heavy weather conditions

2.9.3.1. Operating the machine under low temperature

Compacting in winter depends on content of fine particles and water in compacted soil. The lower temperature below zero, the firmer soil and more difficult compacting.

If it is necessary to compact at temperatures below 0 °C (32 °F), dry soil can be compacted (and stone aggregates) or non-frozen material must be compacted quickly before it will freeze.

Prepare the machine for operation under low temperature:

- Check concentration of engine cooling liquid.
- Exchange engine oil for oil recommended for the specific range of low ambient temperatures.
- Use hydraulic oil of appropriate kinematic viscosity.
- Exchange oil in drum and wheel gearbox for recommended oil for the specific gearbox operating temperature range.
- Use winter fuel.
- Check battery charge.

Good battery condition is essential for good starting under low temperature. You can lower the threshold starting temperature to 4 to 5 °C (39.2 to 41 °F) by warming batteries to approx. 20 °C (68 °F) (take them out and store them in a heated room).

Minimum temperature of engine cooling liquid is 60 °C (140 °F).

Use the machine at full power only after warming of service fluids to the operating temperature (you can help it by partially covering the radiator).

! NOTE !

If oil HV 100 is filled in the hydraulic system, the machine must not be started at ambient temperature lower than +2 °C (36 °F).

If it is necessary to start the machine for a month or longer at ambient temperature lower than -8 °C (18 °F), exchange oil in hydraulic system for oil of HV 46 viscosity grade.

At temperatures below -13 °C (9 °F), use HV 32 oil (e.g. BP BARTRAN HV 32, ESSO UNIVIS N 32, etc.).

The machine cannot be started at temperatures below -23 °C (-9 °F) without pre-heating service fluids.

2.9.3.2. Operating the machine at higher temperature and humidity

Engine power output decreases with increasing temperature and air humidity. With regards to the fact that the two factors are independent of each other, their influence can be described as follows:

- every 10 °C (18 °F) of temperature rise results in power output decrease of up to 4 % (at a constant humidity)
- every 10 % of relative humidity rise results in power output decrease of up to 2 % (at a constant temperature).

At high ambient temperatures when hydraulic oil temperature reaches permanently around 90 °C (194 °F), it is recommended to exchange hydraulic oil for oil a grade higher - of kinematic viscosity 100 mm²/s (e.g. BP BARTRAN HV 100, ESSO UNIVIS N100, etc.).

Output class on ISO 6743/HV	HV (HVLV)
Viscosity class on ISO 6743/4, DIN 51519	VG 100
Viscosity class on CETOP RP 91H	HV 100

! NOTE !

When working under extreme conditions, when cooling liquid or hydraulic oil temperatures reach maximum allowed limits, it is possible to increase cooling capacity of the cooling system by removing bonnet lower shields resulting in better withdrawal of hot air from the engine compartment.



282N095T

- If the hydraulic system is filled with oil of grade HV 46, the maximum allowed oil temperature is 80 °C (144 °F);
HV 32, the maximum allowed oil temperature is 70 °C (158 °F).

2.9. Using the machine under special conditions

2.9.3.3. Operating the machine in higher altitude

In higher altitude, engine power output decreases as a result of lower atmospheric pressure and specific density of incoming air.

Altitude in m	(ft)	Power output decrease (%)
0	0	0
500	(1640)	3
1000	(3281)	6
1500	(4921)	10
2000	(6562)	15
2500	(8202)	21
3000	(9843)	28

If the engine produces black exhaust fumes in higher altitude, contact a service organisation of the engine manufacturer that will set up the injection pump for the required operating conditions.

2.9.3.4. Operating the machine in extremely dusty conditions

! NOTE !

Shorten intervals of cleaning air filters, engine cooler, hydraulics and cabin dust filters in extremely dusty conditions.

It is recommended to clean these elements every week.

2.9.4. Filling tyres with water

This is useful to increase weight allocated to axle and to lower gravity center when working in extreme conditions. Fill the inside of tyres with a solution of water, hydrated lime (calcium hydroxide) and anhydrous calcium chloride (CaCl_2) or magnesium chloride (MgCl_2). See the table for mixing ratios for individual temperatures, for one tyre:

Freezing point	Water	Calcium chloride CaCl_2	Calcium hydroxide	Added weight
$^{\circ}\text{C}$ [$^{\circ}\text{F}$]	l [gal US]	kg [lb]	kg [lb]	kg [lb]
-18 [0]	458 [121]	120 [265]	2 [4.4]	580 (1280)
-25 [-13]	458 [121]	141 [312]	2,2 [4.9]	600 (1323)
-30 [-22]	458 [121]	155,5 [343]	2,5 [5.5]	617 (1360)

Preparing the solution:

! NOTE !

Wash any spills with fresh water.

Protect metal parts and electric system from contact with the solution.

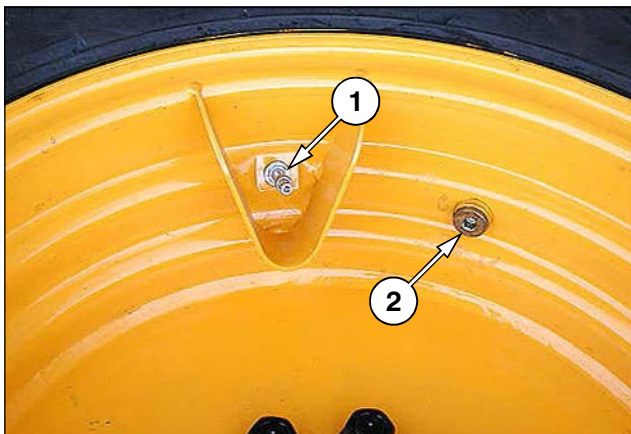
The solution must not be filled in the engine cooling system.



Always add anhydrous calcium chloride CaCl_2 to water, never vice versa!!

Filling procedure:

- Secure the drum by scotch blocks from both sides, lift the rear part of the roller and release brake of wheel hydromotors, see chapter 2.9.1.
- Rotate tyres so that valves 1 are at top positions. Blow off both tyres and screw out inflation valves 1 and caps 2.



282N085T

- Screw the filler (gr. 635 - spare parts list) to the cap opening 2 and insert the hose of filling device (higher-positioned container, pump etc.). Start filling tyres with prepared solution.
- Repeat the procedure for the other tyre.
- Unscrew the filler and screw in inflation valves and caps again.
- Inflate tyres to the prescribed pressure and screw in valve caps.
- Activate brakes - see chapter 2.9.1.
- In regions where temperatures do not fall below zero (i.e. down to 0°C (32°F)), add extra weight in the form of solution of water and copper sulphate $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ (bluestone).
- For one tyre, mix 500 l (132 US gal) of water and 0.17 kg (0.4 lb) of copper sulphate $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$.
- Fill tyres with the solution.

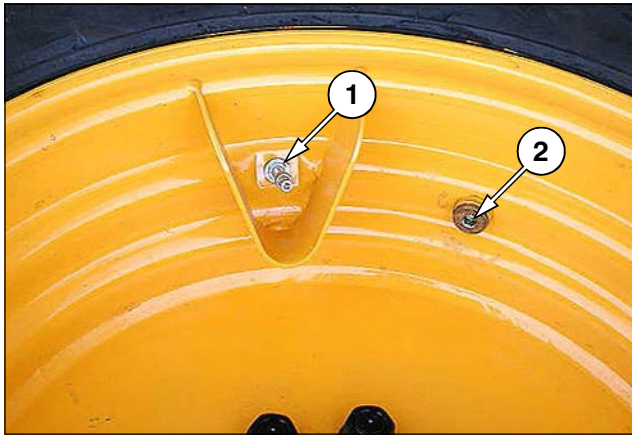


Use safety goggles (safety shield) and rubber gloves.

2.9. Using the machine under special conditions

Draining:

- Secure the drum by scotch blocks from both sides, lift the rear part of the roller and release brake of wheel hydromotors, see chapter 2.9.1.
- Rotate tyres so that valves 1 are at top positions. Unscrew valves. **Warning! The solution will squirt out at unscrewing.** Unscrew caps 2.



282N085T

- Screw the filler into the opening see gr. 635 Parts catalogue.
- Rotate tyres so that fillers are at bottom positions.
- Apply a hose with pressured air to inflation valve and inflate until the solution stops draining.
- After draining tyres, unscrew fillers and screw in valves and caps again.
- Inflate tyres to the prescribed pressure.
- Activate brakes - see chapter 2.9.1.

! NOTE !

Use safety goggles (safety shield) and rubber gloves.

2.9.5. Installing air conditioner

When retrofitting air condition unit, it is necessary to keep sufficient distance between the oil cooler and air conditioner condenser in order that air flow the machine cooling system is not affected. (This would reduce cooling capacity of radiators.) Minimum distance is 50 mm (2 in).

3. MAINTENANCE MANUAL

ASC 200 and ASC 250 (Cummins tier 3)

3.1. Safety Standards at Lubrication and Maintenance

3.1.1. Safety during maintenance

Lubrication, maintenance and adjustment process:

- use qualified personnel.
- according to safety instructions in the Operating manual for the vibration roller.
- according to intervals in the lubrication table according to working hours.
- on the Machine located on flat solid surface, secured against self-motion (with scotch blocks) and this always with the engine OFF, key removed from ignition, and with the wiring disconnected.
- with the machine parts cooled off.
- after cleaning the machine, the lubricating and maintenance points, and spots to be repaired.
- with proper undamaged tools.
- by replacing parts with new original ones. The manufacturer cannot be responsible for damages caused by using different units or parts.
- under proper illumination of the machine when working at reduced visibility or at night
- in case the work involves removing covers and safety cartridges, reassemble them after completing the work
- retighten bolts with applicable torque and check tightness of the joints.
- pay attention not to get burnt after heating up fluids - use recommended fills.

3.1.2. Fire safety during changing contents

- From fire safety point of view, inflammable liquids used in the machine are classified into following classes:
 - II class of fire danger - Diesel
 - IV. class of fire danger - mineral oils, lubrication greases
- The location of oil change operation must not conflict with places subject to explosion or fire hazard.
- It must be marked by tables and signs prohibiting smoking and open flame.
- The manipulation area must be of such design and dimensions so that it can contain the amount of inflammable liquid equal to the content of the largest tank or transport package.
- The site must be equipped with portable fire extinguishers.
- Metal barrels, canisters or tin cans should be used for handling oils or Diesel fuel.
- Transport containers must be duly closed while being stored.
- The containers must have one opening, they must always be stored with the opening upside and secured against leaks.
- The containers must be marked by permanent signs showing the content and the class of fire danger.



Operations performed while the engine is running (adjusting) must be performed with another person present. This person must have immediate access to the emergency stop and must be in permanent communication contact with the adjusting person so that the engine can be stopped immediately, if necessary.

3.1. Safety Standards at Lubrication and Maintenance

3.1.3. Environmental and health regulations

During operation and maintenance of the machines the user must follow general principles of health and environment protection, and laws, notices and regulations relating to this subject, applicable in the territory.

3.1.3.1. Health regulations

- Oil products, contents of cooling systems and batteries, and paints including thinners are materials injurious to health. The workers coming into contact with these products when operating and maintaining the machine must follow general principles of health protection and safety and health instructions by manufacturers of these products.

We especially draw attention to:

- eyes and skin protection when working with batteries
 - skin protection when working with oil products, painting compounds and coolants
 - proper washing of hands after work and before meals. Treat your hands with proper skin cream
 - follow instructions in the operator's manual when working with cooling systems.
- Store oil products, coolants and battery acids, painting compounds including organic thinners and cleaning and preservation agents always in their original, properly marked containers. Avoid storing these materials in unmarked bottles or other containers because of risk of possible substitutions. Possible substitution of food and beverages is particularly dangerous.
 - In case of accidental staining skin, mucous membranes, eyes, or in case of inhaling fumes, immediately apply first aid. In case of accidental ingestion of these products seek out medical help immediately.
 - Always use proper type and design of ear-protectors when working with the machine without cabin or with open windows.

3.1.3.2. Environmental principles



Contents of specific machine systems and some of its parts are wastes dangerous to the environment after when discarded (disassembly, changing contents).

Especially the following items belong to this category of waste products:

- organic and synthetic grease, oils and fuel
- hydraulic brake fluids
- coolants
- battery contents and batteries as such
- contents of air-conditioning systems
- cleaning and preservatives
- fill tires
- all removed filters and filter cartridges
- all used and discarded hydraulic and fuel hoses, rubberized metal pieces, and other machine elements contaminated by the above-mentioned products.



After discarding, these materials must be treated in compliance with applicable national regulations for the protection of specific segments of the environment, and in compliance with health protection regulations.

3.2.1. Engine oil



Engine oil is specified by its performance and viscosity classifications.

Performance classification according to

API (AMERICAN PETROLEUM INSTITUTE)

CCMC (COMITE of COMMON MARKET AUTOMOBILE CONSTRUCTORS).

ACEA (ASSOCIATION DES CONSTRUCTEURS EUROPEENS DE AUTOMOBILE)

Viscosity classification

To determine SAE (Society of Automotive Engineers) viscosity class, the ambient temperature and type of operation in place of usage of the machine are decisive.

Permitted oil according to API: CH-4/SJ, ACEA E-5

All season - SAE 15W-40 (e.g. Valvoline, Premium Blue,) with ambient temperature above -15 °C (5 °F).

NOTE

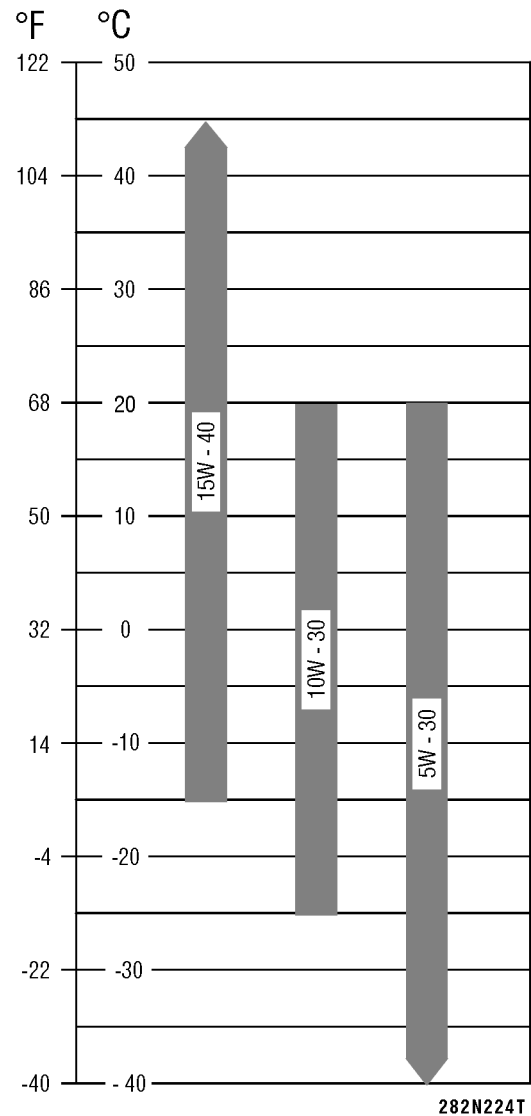
Exceeding of the lower temperature limit does not damage the engine, it may only cause starting problems.

It is suitable to use general-purpose multi-grade oil in order that oil need not be exchanged because of ambient temperature changes.

For easier start at temperatures below 0 °C (32 °F), SAE 10W-30 oil is recommended by the engine manufacturer.

Use of synthetic engine oils is permitted subject to the same performance and viscosity limitations of mineral (petroleum) based engine oils.

The same oil change intervals must be applied to the synthetic oils that are applied to mineral (petroleum) based engine oils.



! WARNING !

Exceeding the upper temperature limit must not last for long, taking into consideration reduced lubricating properties of oil.

When using oil according to API CG-4/SH, the exchange interval should be cut to one half, i.e. 250 hours or 3 months.

3.2. Fills specification

3.2.2. Fuel



Diesel is used as fuel:

- CEN EN 590 or DIN/EN 590 (draft)
- DIN 51 601 (February, 1986)
- BS 2869 (1988): A1 and A2
- ASTM D 975-88: 2-D
- VV-F-800C: DF-A, DF-1 and DF-2
- NATO code F-54 and F-75

NOTE

Environmental Agency recommends to use fuel with sulphur content less than 0.05 weight percent.

! WARNING !

Therefore use winter Diesel fuel at outdoor temperatures below 0 °C (32 °F). Special Diesel fuel with additives intended for very low temperatures must be used at outdoor temperatures below -15 °C (5 °F) ("super Diesel").

3.2.3. Coolant



Use coolant consisting of 50% of frost-resistant ethyl glycol agent and water according to Table all year-round for the cooling system of the engine. Use the coolant with antifreeze even in zones where temperatures do not fall below -36 °C (-34 °F). The coolant is not only protecting the cooling system against frost but increases also the boiling point. Inhibitors contained in the antifreeze protect parts of the engine cooling system and extend their life. Propylene antifreeze may also be used as coolants.

Prepare coolant by mixing the antifreeze with water.

Use water in compliance with the criteria given in the table for preparing the coolant:

The antifreeze must contain anticorrosive agents protecting all materials (including rubber and head seals) of the cooling system. They must be low siliceous and must comply with testing criteria of ASTM 4985. The following antifreeze may be used:

SUNOCO - PERMANENT ANTIFREEZE

SHELL - Glycoshell AF 511 S

TEXACO - HAVOLINE Antifreeze Coolant/AFC

CASTROL - ANTIFREEZE MB

! WARNING !

Do not use more than 50% of antifreeze in the coolant, unless absolutely necessary.

Never use a ratio higher than 68%.

Antifreeze is manufactured in different bases.

Their mutual mixing is not recommended. Anti-corrosive properties may be lost when mixing different types of coolants.

Nitric amines dangerous to health are formed when mixing the nitride-base antifreeze and the amine-base agent.

Check the ratio of antifreeze in the coolant before wintertime using a refractometer (hydrometer).

Do not use antifreeze aggressive to aluminum - it may cause corrosion of the radiator.

3.2.4. Hydraulic oil



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

Standardly refill the machines with hydraulic oil of kinematic viscosity 68 mm²/s at the temperature of 40 °C (104 °F) ISO VG 68. This oil is the most suitable one to use in the broadest range of ambient temperatures.

Manufactured by	Sort of oil
Output class on ISO 6743/HV	HV (HVLP)
Viscosity class on ISO 6743/4, DIN 51519	VG 68
Viscosity class on CETOP RP 91H	HV 68
AGIP	AGIP ARNICA 68
AVIA	AVILUB HVI 68
BP	BARTRAN HV 68
CASTROL	HYSPIN AWH 68
CHEVRON	EP 68 HV
ELF	HYDRELF 68
ESSO	UNIVIS N 68
FINA	HYDRAN HV 68
FUCHS	RENOLIN MR 68 HV
MOBIL	MOBIL DTE 16
ÖMV	HLP - M 68
SHELL	TELLUS T 68
TEXACO	RANDO OIL HD CZ 68
TOTAL	EQUIVIS ZS 68

! WARNING !

At high ambient temperatures, when the oil temperature reaches continual 90 °C (194 °F), we recommend replacing the oil with one of kinetic viscosity 100 mm²/s - HV 100 (BP BARTRAN HV 100; ESSO UNIVIS N 100, etc.)

Should it be required to start the machine at temperatures below -8 °C (18 °F) lasting more than one month, replace oil in the hydraulic system with one of kinetic viscosity 46 mm²/s - viscosity class HV 46.

At temperatures below -13 °C (9 °F), replace oil with one of kinetic viscosity 32 mm²/s - viscosity class HV 32, such as BP BARTRAN HV 32, ESSO UNIVIS N 32, etc.) see Operating Instructions chapt. 2.9.3.

Synthetic hydraulic oil

Hydraulic system can be filled with synthetic oil, such as PANOLIN - HLP Synth. 15/22/32/68 that is completely degradable by microorganisms found in water and soil in case of leak.

! WARNING !

Water content (condensation water) in oil must not exceed the limit of 0,1%.

Operating fluid must be checked by taking samples in regular intervals - see the chart.

When filling older machines with synthetic oil, the residual limit of mineral oils must not exceed 8% of the total fill.

When filling biologically degradable oils, mixing with up to 2% of the total tank content is allowed.

When changing over from mineral oil to synthetic or when mixing oils of different brands, always consult the procedure with the oil manufacturer or dealer!

Interval of taking samples	Common operation	Extreme conditions
1. check	500 h	250 h
2. check	1000 h	500 h
subsequent checks	1000 h or once a year	500 h or once a year

3.2. Fills specification

3.2.5. Gearbox oil



Use high quality oils complying with API GL-5 or EP or MIL-L-2105 C for lubricating the drum gearbox and axle (wheels) drive gearboxes.

Viscosity SAE 80W/90 for outdoor temperature range $-10\text{ }^{\circ}\text{C} \div +30\text{ }^{\circ}\text{C}$ ($14\text{ }^{\circ}\text{F} \div 86\text{ }^{\circ}\text{F}$).

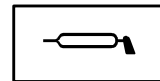
Viscosity SAE 80W/140 for outdoor temperature range $+20\text{ }^{\circ}\text{C} \div +45\text{ }^{\circ}\text{C}$ ($68\text{ }^{\circ}\text{F} \div +113\text{ }^{\circ}\text{F}$).

Manufactured by	Sort of oil	
	$-10\text{ }^{\circ}\text{C} \div +30\text{ }^{\circ}\text{C}$ ($14\text{ }^{\circ}\text{F} \div 86\text{ }^{\circ}\text{F}$)	$+20\text{ }^{\circ}\text{C} \div +45\text{ }^{\circ}\text{C}$ ($68\text{ }^{\circ}\text{F} \div +113\text{ }^{\circ}\text{F}$)
SHELL	SPIRAX HD	SPIRAX HD
AGIP	ROTRA MP	ROTRA MP
ARAL	GETRIEBEOL HYP	GETRIEBEOL HYP
BP - MACH	HYPOGEAR EP	HYPOGEAR EP
CASTROL	HYPOY	HYPOY
CHEVRON	UNIVERSAL GEAR LUBRICANTE	UNIVERSAL GEAR LUBRICANTE
ELF	TRANSELF8	TRANSELF8
ESSO	GEAR OIL GX PONTONIC MP	GEAR OIL GX PONTONIC MP
I.P.	PONTIAX HD	PONTIAX HD
MOBIL	MOBILUBE HD	MOBILUBE HD
TOTAL	TRASMISSION TM	TRASMISSION TM

! WARNING !

The operating oil temperature must not exceed $85\text{ }^{\circ}\text{C} \div 90\text{ }^{\circ}\text{C}$ ($185\text{ }^{\circ}\text{F} \div 194\text{ }^{\circ}\text{F}$).

3.2.6. Lubricating grease



Plastic grease containing lithium in compliance with NLGI-2 regulation (Mobilplex EP-1, Retinax A, Alvania, Grease No 3 etc.) must be used to grease the machine.

ISO 6743/9 CCEB 2

DIN 51 502 KP2K-30

(Mogul LA 2, Mobilplex EP-1, Retinax A, Alvania, Grease No 3 etc.).






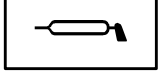




3.2.7. Windshield washer liquid



Water (at temperatures down to $0\text{ }^{\circ}\text{C}$) and windshield washer agent are used as fills in the washer can.

! WARNING !

Replace water with antifreeze at temperatures below $0\text{ }^{\circ}\text{C}$ ($32\text{ }^{\circ}\text{F}$).

Fills of...	Type of fill	Quantity l (gal US)	Brand
Engine	Engine oil according to chapter 3.2.1.	19,7 (5,2)	
Fuel tank	Diesel according to chapter 3.2.2.	405 (107)	
Hydrostatic system	Hydraulic oil according to chapter 3.2.4.	100 (26,4)	
Drum gearbox	Gearbox oil according to chapter 3.2.5.	7,7 (2)	
Axle gearbox	Gearbox oil according to chapter 3.2.5.	2x4,4 (2x1,2)	
Joint bearings - joint and steering cylinder	Plastic grease according to chapter 3.2.6.	as required	
Engine cooling system - coolant	All year round - anti-freeze liquid according to chapter 3.2.3 for temperatures down to -25°C (-13°F)	30 (7,9)	
Vibrating drum	Engine oil, see the engine	7,5 (1,98) 9,5 (2,51) (ASC250HD)	
Battery	Distilled water	as required	
Windshield washers	Water and antifreeze - ratio according to outdoor temperature	2,7 (0,71)	
Tires	Air or liquid see Operating Instructions chapter 2.9.4.		

3.4. Lubrication and Maintenance Chart

To be carried out regularly, every (hours)	□ INSPECTION, CHECKING, REPLENISHING, ADJUSTMENT						CHAPTER
	◇ CLEANING						
	○ LUBRICATION ▽ EXCHANGE						
20 daily	100 weekly	250 3 months	500 6 months	1000 1 year	2000 2 years	Maintenan. as needed	THE PLACE
●							Engine oil
●							Engine cooling liquid
●							Oil in hydraulic tank
●							Crankcase breather tube
●							Cooling fan, engine belt
●							Air cleaner vacuum valve
●							Fuel in fuel tank
●							Fuel - water separator
●							Safety and monitoring devices
	●						Tyre inflating pressure
		●					Charge air cooler, charge air piping, air intake piping
		●					Cooling fan, engine belt
		●					Engine and hydraulic cooler, cooling circuit
		●					Battery
		●					Air cleaner vacuum switch
		●				●	Articulation joint bearings, pins
		●					Oil charge - vibrator

27801T3A

20 daily	100 weekly	250 3 months	500 6 months	1000 1 year	2000 2 years	Maintenan. as needed	□	◇	○	▽	THE PLACE	
	●						●				Oil charge - drum and wheel gearboxes	3.6.18.
			●							●	Engine oil and filter	3.6.19.
			●							●	Fuel filter	3.6.20.
			●				●				Cooling liquid concentration	3.6.21.
			●				●				Wheel bolts	3.6.22.
				●			●				Cooling fan belt tensioner, fan hub	3.6.23.
				●*						●	Gearboxes wheel, drum oil	3.6.24.
				●			●				Damping system - drum and cabin	3.6.25.
				●				●			Fuel tank	3.6.26.
					●					●	Vibrator oil	3.6.27.
					●					●	Hydraulic oil and filter	3.6.28.
					●			●			Suction strainer of the lifting and lowering unit	3.6.29.
					●					●	Engine cooling liquid	3.6.30.
					●		●				Vibration damper, rubber	3.6.31.
					●		●				Drum coolant	3.6.32.
						●				●	Air cleaner - filter element	3.6.33.
						●		●			Engine cooler, hydraulic oil cooler	3.6.34.
						●		●			Cabin ventilation filter	3.6.35.
						●		●			Cleaning the machine	3.6.36.
						●	●				Scrapers	3.6.37.
						●	●				Threaded joints	3.6.38.
!Overhead set adjust! - every 5000 hours or 4 years - contact Cummins servis												
* First after 100 hours												

27802T3A

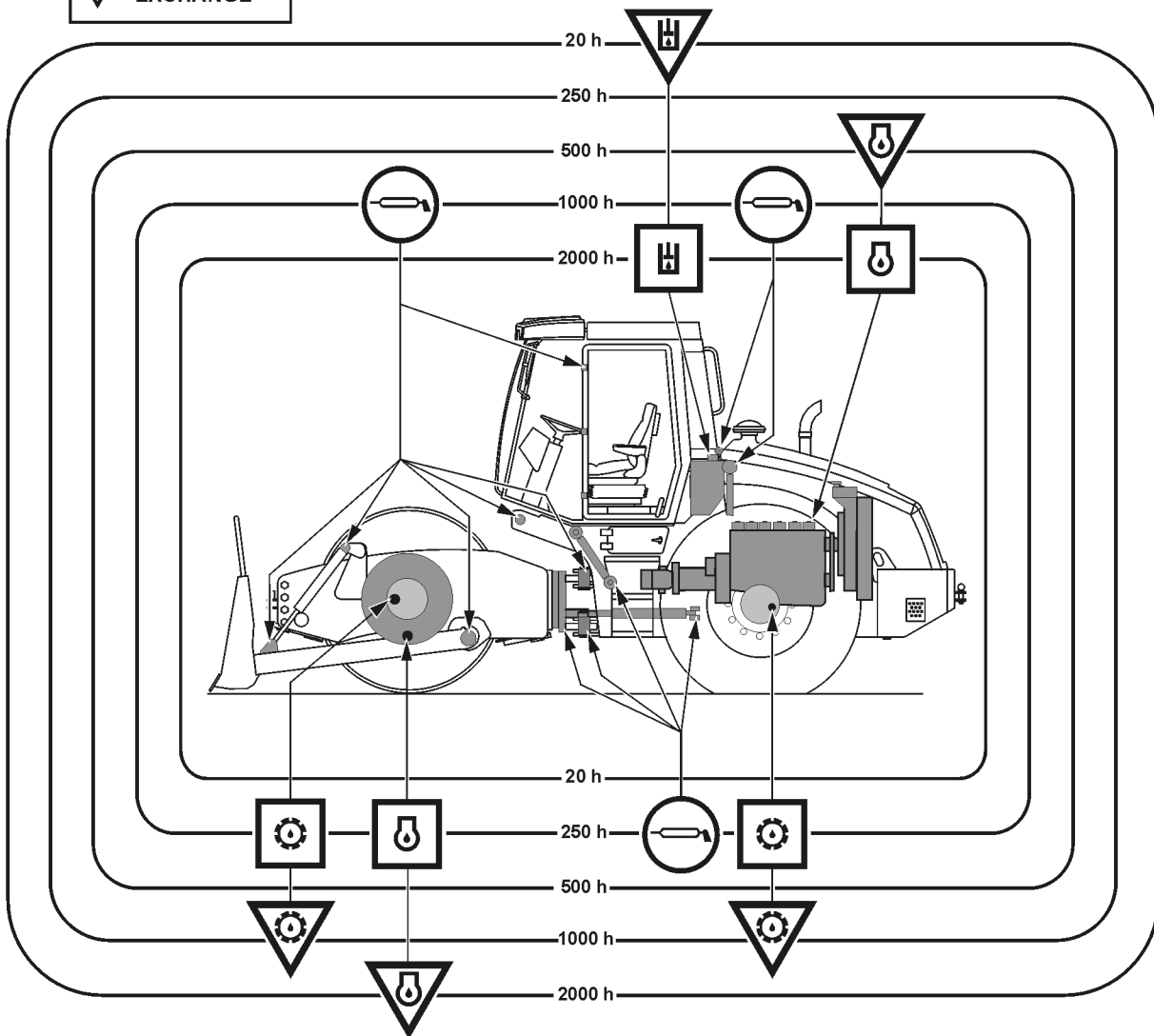
3.5. Lubrication Chart

LUBRICATION PLAN

ASC 200 ASC 250

LEGEND

□	CONTROL
○	LUBRICATE
▽	EXCHANGE

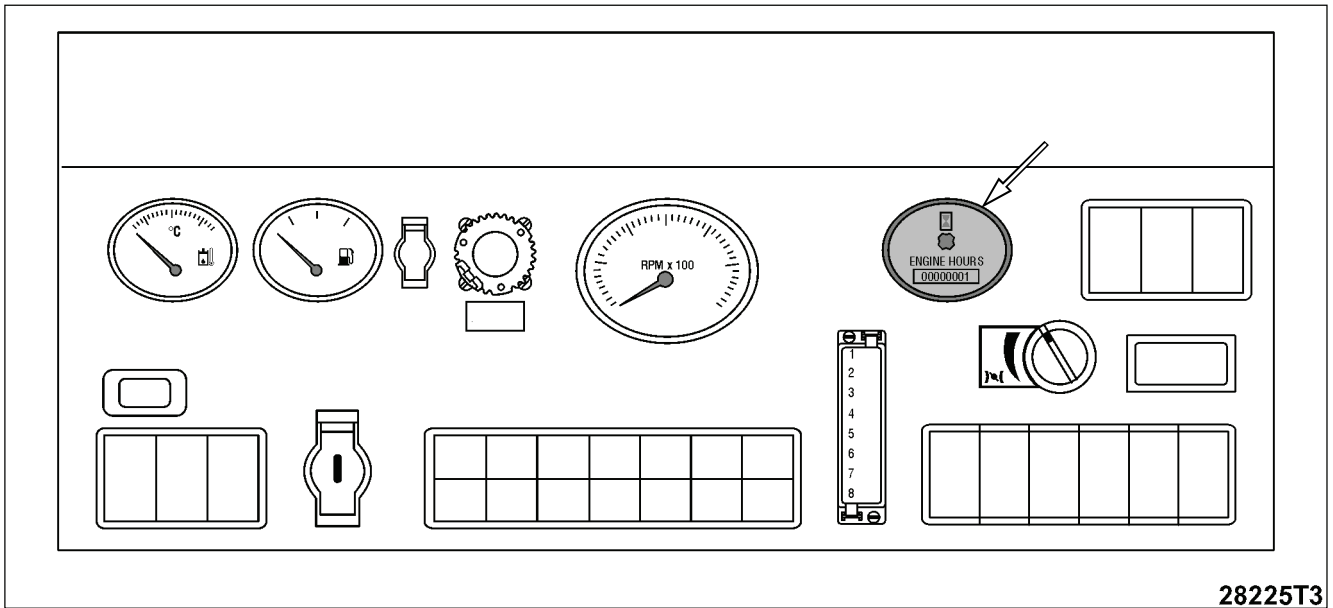


	Engine oil:	SAE 15W/40, API CH-4	
	Hydraulic oil:	ISO VG 68	ISO 6743/HV
	Grease:	ISO 6743/9	CCEB 2
	Transmission oil:	SAE 80W/90; API GL-5; MIL-L2105 C SAE 80W/140; API GL-5; MIL-L-2105 C	

27803T3A

3.6. Individual Operations of Maintenance **MAINTENANCE MANUAL**

Ensure regular and repetitive lubrication and maintenance at intervals according to daily reading of the working hours counter.



This manual includes only basic information on the engine; the rest is provided in the operation and maintenance manual of the engine, which is a part of documentation supplied with the machine.

! NOTE !

Follow the instructions given in the manual for operation and maintenance of the engine!

Disassembled or loose bolts, plugs, threaded connections of hydraulics etc. should be tightened with torque according to tables in chapter 3.6.38., unless a different value is listed for the particular operation.



Carry out the maintenance with the Machine stationed on a flat, paved surface, and secured against self-motion, ALWAYS with the engine turned OFF, key removed from the ignition box, and wiring cut OFF (unless otherwise required).

After the first 100 hours of working with a new machine (or after machine general overhaul), make the following operations:

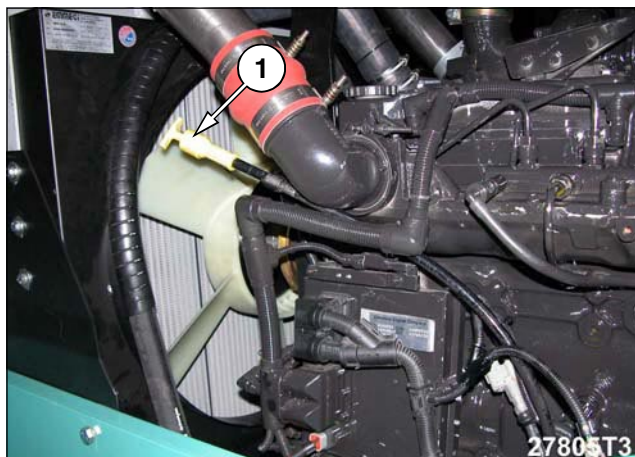
3.6.24. The first oil exchange in drum and axle gearboxes

3.6. Individual Operations of Maintenance

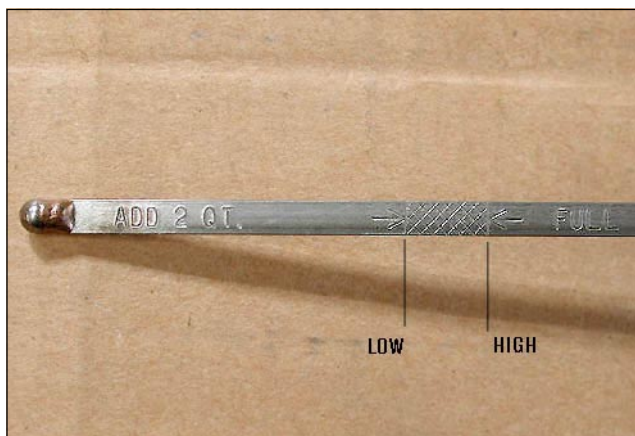
Every 20 Hours or Daily

3.6.1. Checking the amount of oil in the engine

- Wait approx. 5 min. until oil runs down to the engine sump.
- Take out the oil dipstick 1, 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 pressed in the dipstick. The lower mark L (Low) marks the lowest possible oil level, the upper mark H (High) the highest one.



Every 20 Hours or Daily

- Refill oil after removing the filler plug through the oil filler. Wait approx. 1 min until the level is stable and check again.
- Refill the identical type of oil. Use oils according to chapter 3.2.1.
- Check the engine for leakage, repair possible causes.
- Check the engine for damaged and missing parts and for changes in appearance.

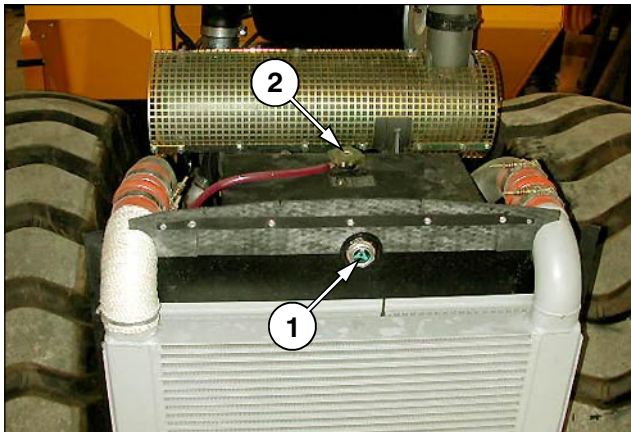
! WARNING !

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

Every 20 Hours or Daily

3.6.2. Checking cooling liquid of the engine

- Check visually the level 1.
- Refill coolant through the filler 2.



278N103T

Every 20 Hours or Daily

! WARNING !

The level must not fall below the level indicator eyesight.

Refill only cooling liquids containing the frost-resistant agents on the identical basis, according to chapter 3.2.3.

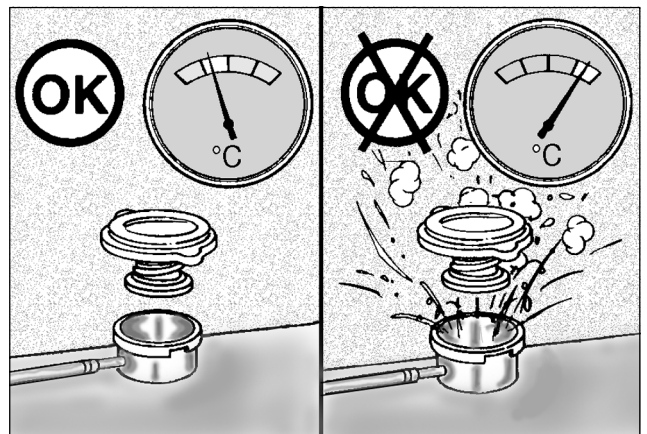
Do not add additives eliminating untightness of the cooling system to the engine cooling liquid!

Do not refill cold cooling liquid into hot engine. Engine castings might get damaged.

In case of larger losses, find the location of cooling system leaks and repair the cause.



Dismantle the filling plug only when the temperature of engine cooling liquid falls to less than 50 °C (120 °F). If you open it at higher temperatures, you risk scalding by steam or by cooling liquid due to the inner overpressure.



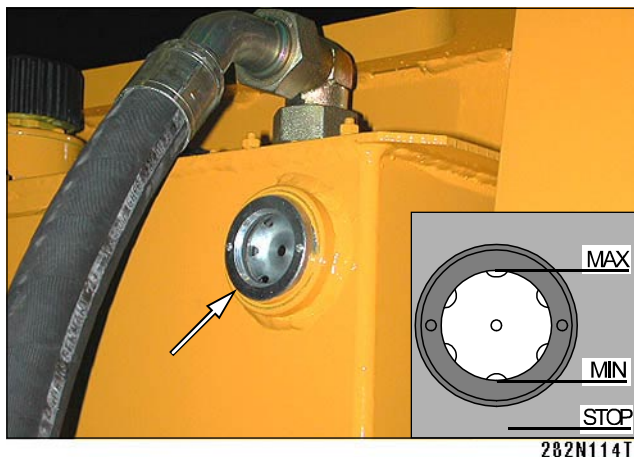
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3.6. Individual Operations of Maintenance

Every 20 Hours or Daily

3.6.3. Checking oil in the hydraulic tank

- Check the oil level. (oil gauge).

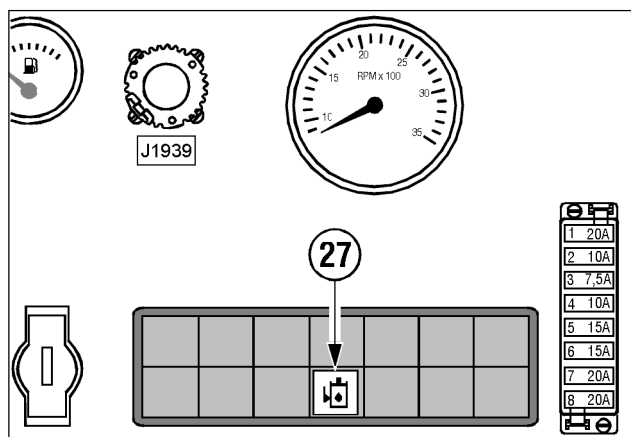


Every 20 Hours or Daily

- Refill oil using filling device by means of filling quick coupling according to chapter 3.6.28.

! WARNING !

If the oil level falls below the lower edge of the "MIN" oil-level indicator, the engine will automatically stop and signal lamp 27 will light up.



NOTE

In case of more extensive losses find the location of hydraulic system leaks and repair the cause.

By stopping the engine in case of oil leakage, the hydraulic system of the machine is protected and operation is environment-friendly, since in case of hydraulic hose damage not all the content of the hydraulic tank but only limited amount would leak out. The engine can only be started after refilling oil.

Every 20 Hours or Daily

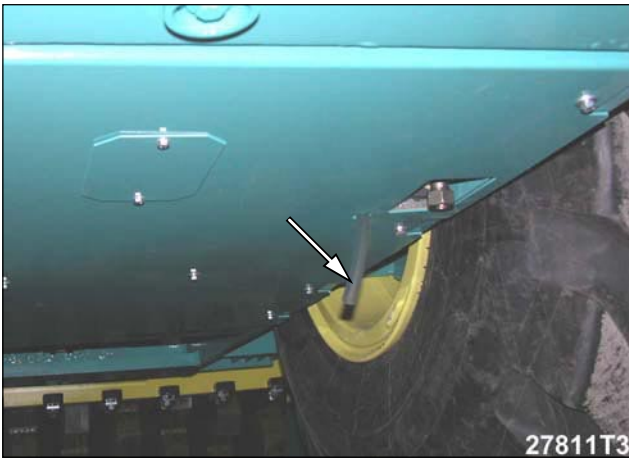
Every 20 Hours or Daily

3.6.4. Crankcase breather tube

- Inspect the breather tube for sluge, debris, or ice the tube.

Note:

Inspect the tube more frequently in icy conditions.



3.6. Individual Operations of Maintenance

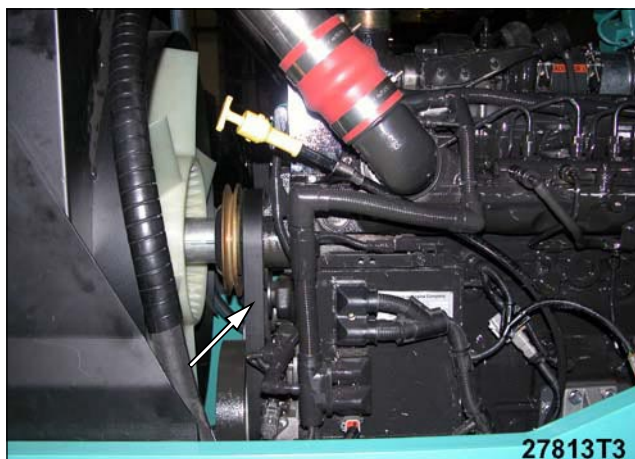
Every 20 Hours or Daily

3.6.5. Checking of the condition ventilator and belt

- Check the ventilator visually. In case of any damage (e.g. missing parts of the material, cracks, changes in shape etc.) replace the ventilator.

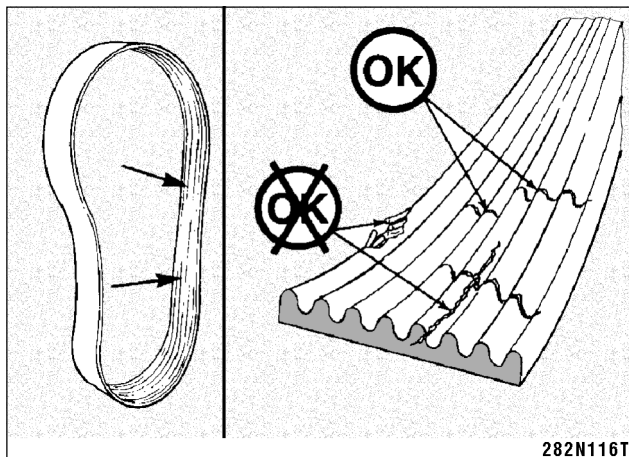


- Check visually the belt for its deterioration.



Every 20 Hours or Daily

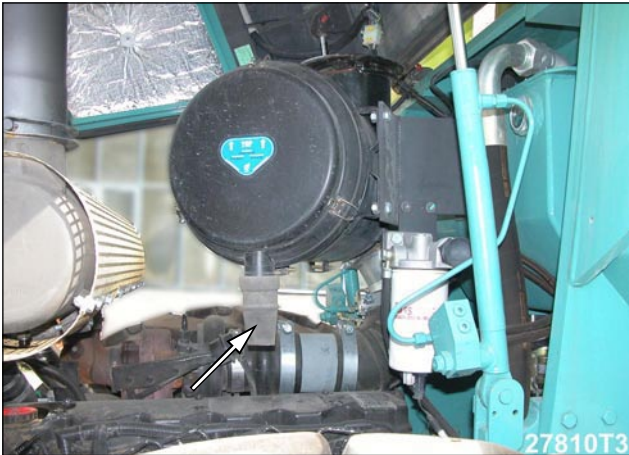
- Traverse (across the belt width) cracks are acceptable. Longitudinal (direction of belt length) cracks that intersect with traverse cracks are not acceptable. Replace the belt if it is frayed or has pieces of material missing.



Every 20 Hours or Daily

3.6.6. Checking the vacuum valve of the air cleaner

- Clean the exit slit and remove the trapped dust by pushing.



Every 20 Hours or Daily

NOTE

- Collected dust is stored in the dust valve and automatically emptied during the machine operation.
- If the machine is equipped with air pre-filter (optional), clean it daily.

! WARNING !

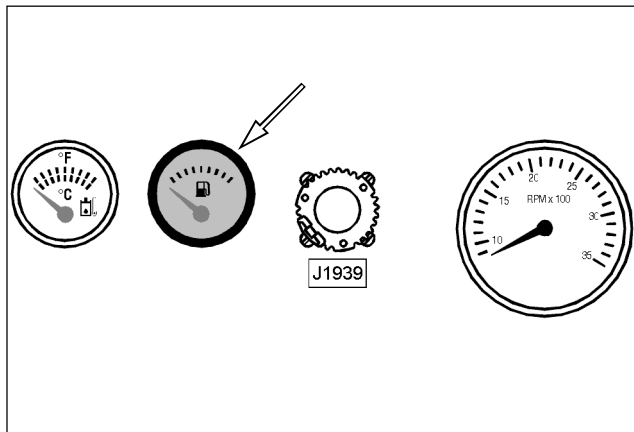
Do not operate the machine if the dust valve is damaged.

3.6. Individual Operations of Maintenance

Every 20 Hours or Daily

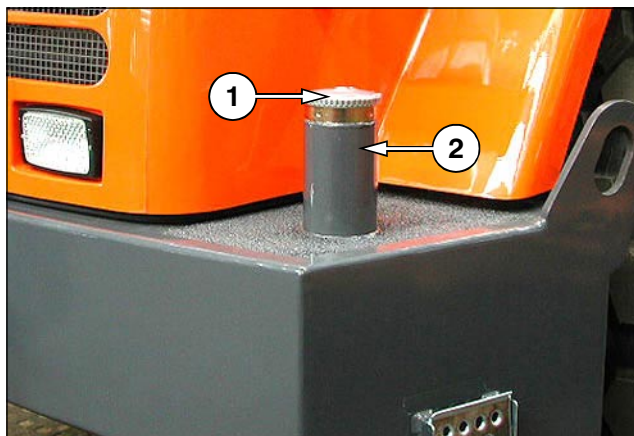
3.6.7. Checking fuel level

- Check the amount of fuel on fuel gauge; in case of insufficient amount refill fuel.



282N120T

- Clean the fuel tank cap 1 and fuel filler 2.



282N121T

Every 20 Hours or Daily

- Refill the fuel tank up to the lower edge of the tank filler through the strainer.



282N122T

NOTE

The capacity of the fuel tank is 405 l (107 US gallons). The capacity of full fuel tank is approximately 34 hours of operation of the machine.



Do not smoke nor use open fire when working.

! WARNING !

Do not use up the fuel tank. In such case the whole fuel system must be de-aerated, which is rather tedious operation.

Use clean and recommended fuel only, according to chapter 3.2.2.

Do not refill fuel under running engine.

Do not refill fuel in closed room.



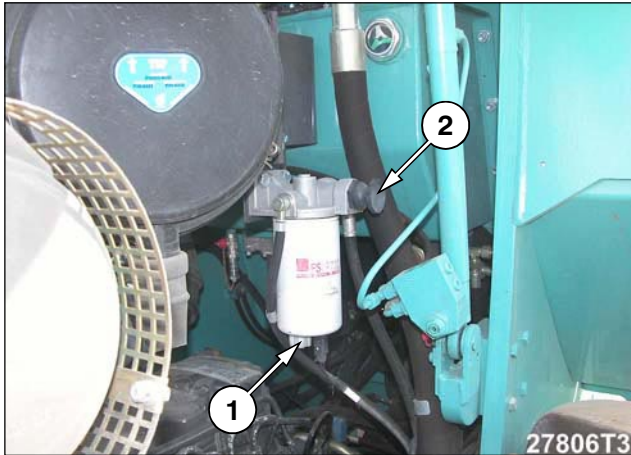
Do not spill fuel.

Every 20 Hours or Daily

Every 20 Hours or Daily

3.6.8. Cleaning the water separator

- Prepare a vessel for draining the settling.
- Use your hand to open the drain valve 1. Turn the valve counterclockwise approximately $3\frac{1}{2}$ turns until the valve drops down 25 mm (1 in) and draining occurs and let fuel drain until clean fuel starts to drain.



! WARNING !

If you drained more than 6 cl (2 ozs) of fuel, refuel into the fuel filter with hand pump.



Do not smoke nor use open fire when working.

Do not drain the separator under running engine.



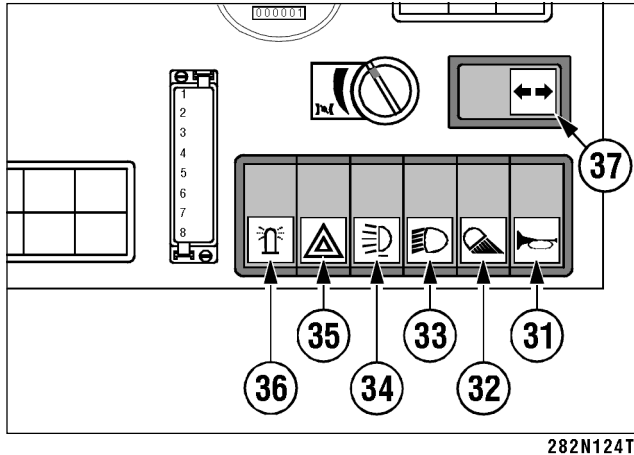
Catch the drained fuel with sediments to a suitable container.

3.6. Individual Operations of Maintenance

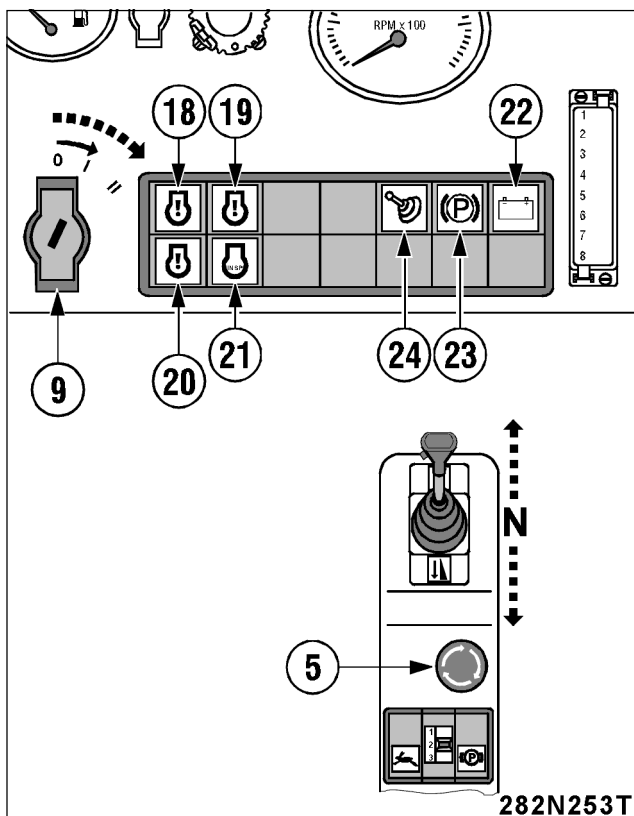
Every 20 Hours or Daily

3.6.9. Checking warning and control devices

- Turn on switches 31, 32, 33, 34, 35, 36, 37, test the horn, beacon and lights.



- Turn the ignition key to I position. Signal lamps 18, 19, 20, 21, 22, 23, 24 will light up.
- ECM signal lamps 18, 19, 20, 21 go off after 3 seconds.
- Start the engine - signal lamp 22 must go off and test the emergency brake 5 and signal lights 23.



Every 20 Hours or Daily



Continuously check devices and signal lights during operation

Repair any indicated defects immediately!



Announce starting the engine by the acoustic signal!

Check before starting of the engine that nobody is endangered!

Give the acoustic signal before starting driving the machine and wait for period sufficiently long for all persons being able to leave the area around the machine (area under the machine) in time!

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

Every 100 Hours

Every 100 Hours

3.6.10. Checking the tyre pressure

! WARNING !

Rotate tyres so that valves are at top positions.



282N085T

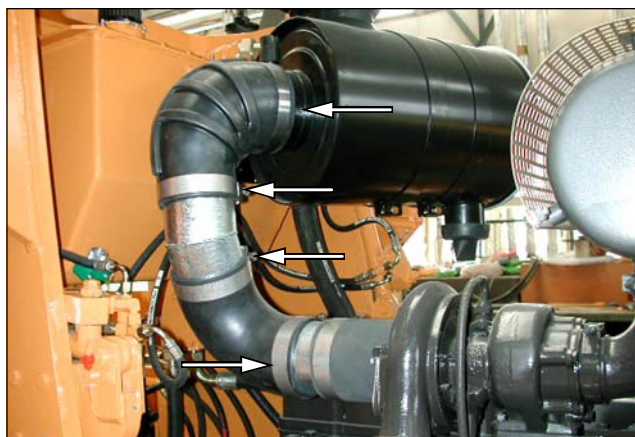
- Check the pressure in cold tyres, by air pressure meter.
- Keep the tyre pressure at 150 kPa (22 PSI).

3.6. Individual Operations of Maintenance

Every 250 Hours or Once in 3 Months

3.6.11. Checking the engine inlet piping

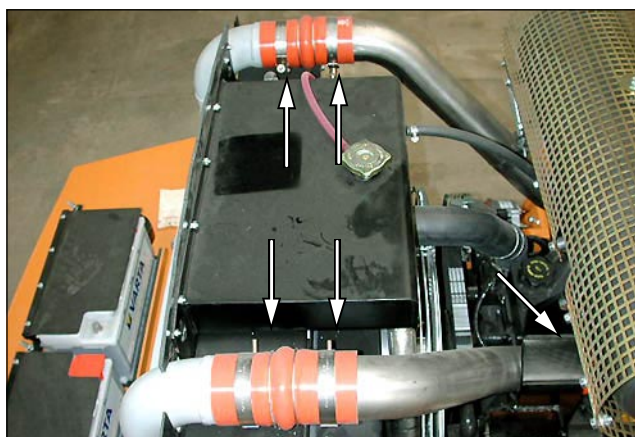
- Check the tightness of engine inlet piping.
- Check for any damage of the rubber hose of the inlet piping leading from the filter, and for missing clamping clips.



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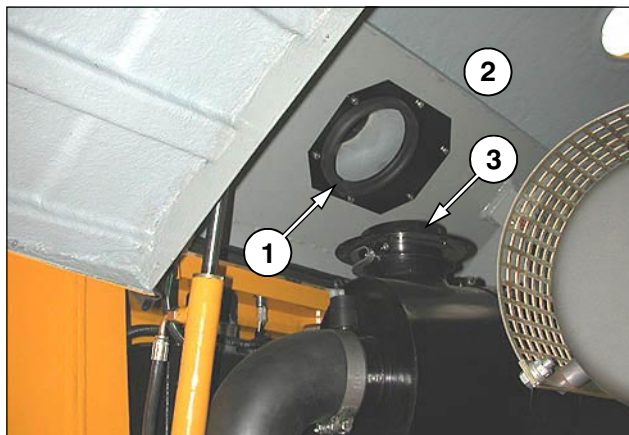
278N106T



278N107T

Every 250 Hours or Once in 3 Months

- Check again tightness between the bonnet 2 and the air cleaner 3.



282N118T

- Replace damaged sealing 1 with a new one.

! WARNING !

Do not operate the machine if the sealing between the bonnet and the air cleaner is damaged or not tight.

Every 250 Hours or Once in 3 Months

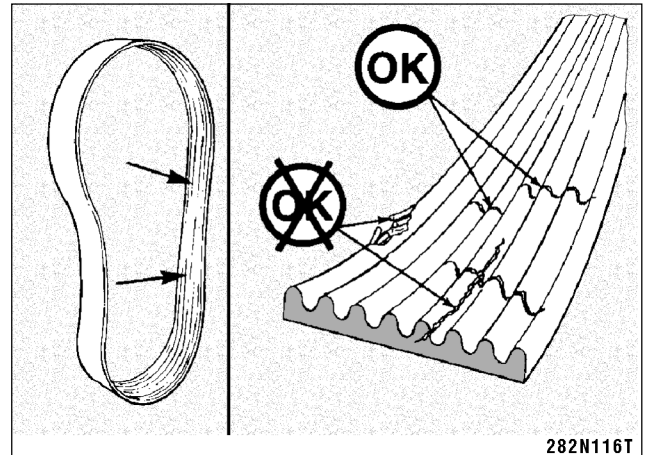
3.6.12. Checking of the condition ventilator and belt

- Check the ventilator visually. In case of any damage (e.g. missing parts of the material, cracks, changes in shape etc.) replace the ventilator.

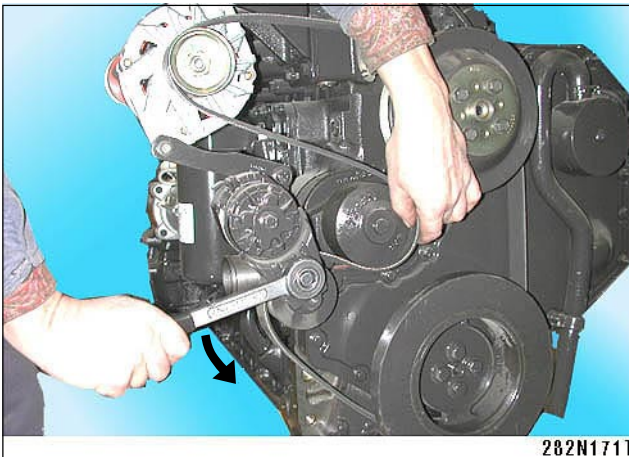


Every 250 Hours or Once in 3 Months

- Check visually the belt, for intersecting cracks. Traverse (across the belt width) cracks are acceptable. Longitudinal (direction of belt length) cracks that intersect with traverse cracks are not acceptable. Replace the belt if it is frayed or has pieces of material missing.



- Lift the belt-tensioning pulley using the lever and remove the belt.

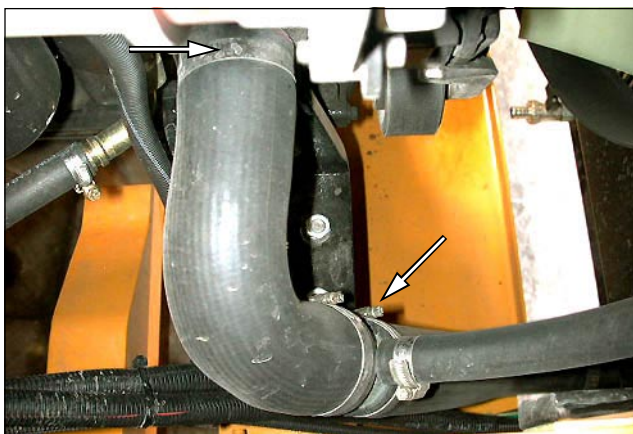
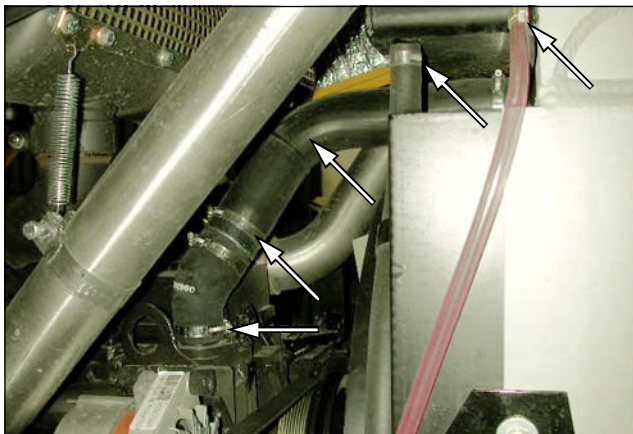


3.6. Individual Operations of Maintenance

Every 250 Hours or Once in 3 Months

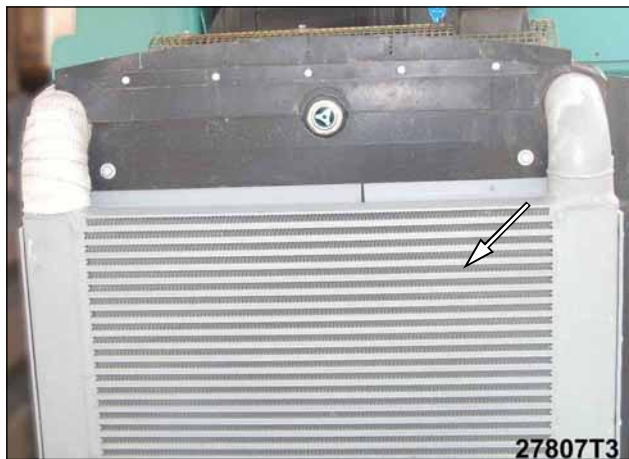
3.6.13. Checking the cooling circuit of the engine

- Check tightness of the cooling circuit. Check the circuit for damaged hoses and for missing hose clips.

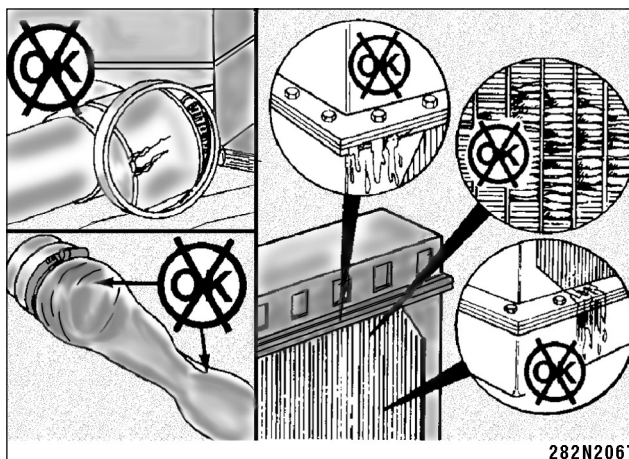


Every 250 Hours or Once in 3 Months

- Check whether the oil cooler gills and the engine radiator gills are not clogged. In case of clogged gills clean them for instance by blowing the radiators through with pressure air (steam or warm water) according to chapter 3.6.34.



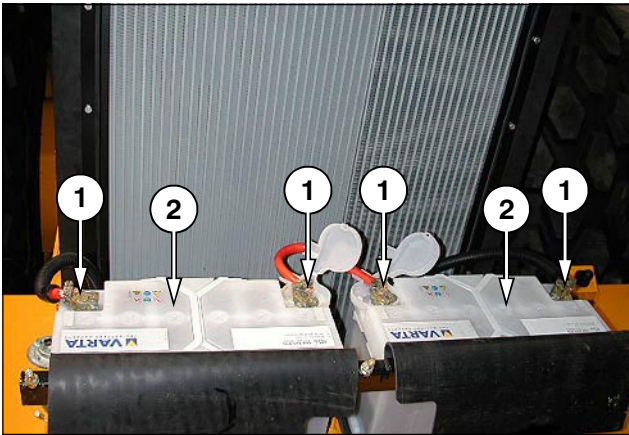
- Check for cracks, holes, or other damage.



Every 250 Hours or Once in 3 Months

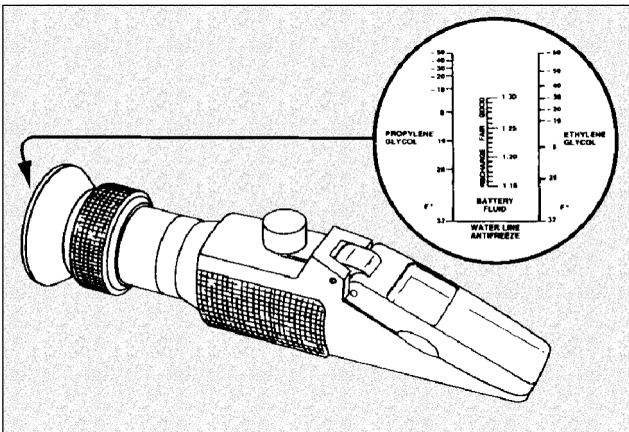
3.6.14. Checking batteries

- Place the roller onto flat, firm surface.
- Stop the engine and disconnect the electric system using the isolating master switch.
- Clean the surface of batteries.
- Check the condition of poles and terminals 1 and clean them. Slightly wipe terminals with grease.
- Check the level of electrolyte after opening plugs of the battery cells 2 - the level of electrolyte in all cells should be 5 - 15 mm (0.2-0.6 in) above the plates, or to the lower edge of the gauge in the battery cells. Refill the cells whose electrolyte level is lower, than 5 mm (0.2 in) above the plates, with distilled water.



282N136T

- Measure electrolyte density in the individual cells using a refractometer



282N137T

Every 250 Hours or Once in 3 Months

or hydrometer.



282N138T

- Compare measured values with the chart.

	Density			
	in g/cm ³		in °Be (Beume)	
	20 °C 68 °F	Tropics	20 °C 68 °F	Tropics
fully charged	1,28	1,23	32°	27°
semi charged	1,2	1,12	24°	16°
exhausted - charge immediately!	1,12	1,08	16°	11°

NOTE

- Check the level using a glass tube.
- Should the machine not be used during winter period - for couple of weeks, dismantle the batteries and store them away from frosts. Check batteries and charge level before and during storage.

! NOTE !

Keep the batteries dry and clean.

Close batteries after checking.

Refill battery with distilled water only - never with acid.

Refill distilled water immediately before working with the machine or before recharging the battery.

Recharge insufficiently charged battery.

Recharge batteries dismantled from the machine.

Open the plugs before recharging.

Do not disconnect the battery under running engine.

3.6. Individual Operations of Maintenance

Every 250 Hours or Once in 3 Months



Always follow the instructions of the manufacturer, when working with the battery.

Use protective gloves and eye protection equipment when working with the battery.

Wear suitable dress to protect your skin against staining with electrolyte.

In case of an eye injured by electrolyte immediately wash the eye with flowing water for couple of minutes. Then seek medical advice.

In case of ingestion of electrolyte drink maximum possible amount of milk, water or mixture of magnesium oxide with water.

In case of staining your skin with electrolyte take off your clothes and shoes, wash injured spots with soap water or with solution of soda and water as soon as possible. Then seek medical advice.

Do not eat, drink and smoke during operation!

Wash your hands and face carefully with soap and water after finishing you work!

Do not test whether wires are alive by touching the frame of the machine.

Disconnect the battery to avoid short-circuit when repairing it or manipulating with wires and electric equipment in the circuit of electric system.

Disconnect the minus pole wire first when disconnecting the battery. Connect the plus pole wire first when connecting the battery.

In case of contact of both poles of the battery the short-circuit may cause explosion of the battery.

Every 250 Hours or Once in 3 Months



Do not turn batteries upside down to avoid draining of electrolyte from venting of the battery.

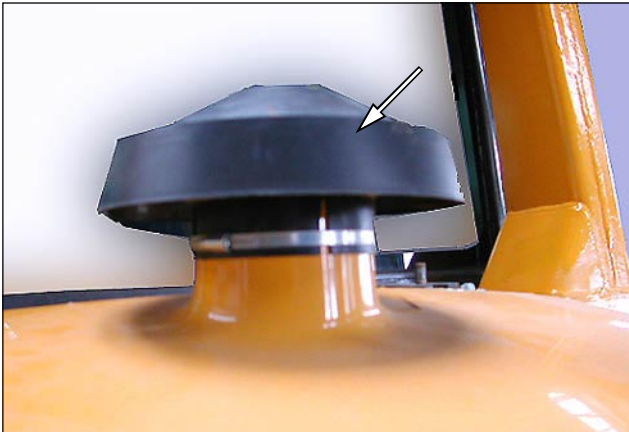
In case of spilling electrolyte wash such a place with water and neutralise with lime.

Dispose of old damaged batteries.

Every 250 Hours or Once in 3 Months

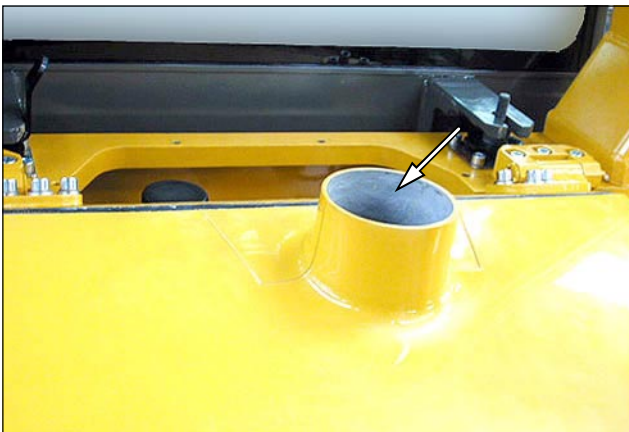
3.6.15. Checking the function of vacuum switch of the air cleaner

- Set engine speed to increased speed of approx. from 1,500 rpm to max. 2,000 rpm.
- Dismantle the engine suction cover.



282N139T

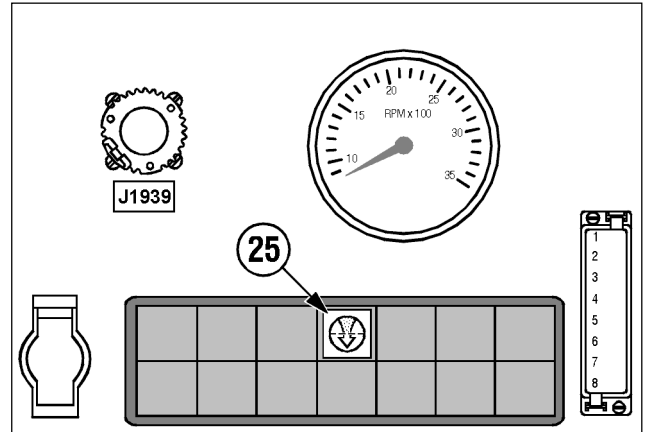
- Shortly cover the inlet opening of the air cleaner on the engine bonnet.



282N140T

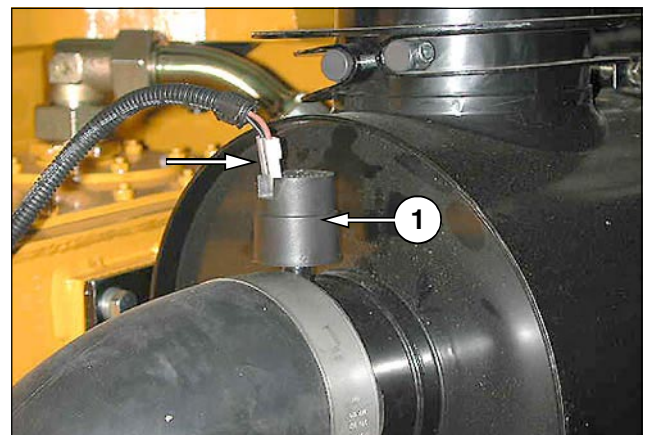
Every 250 Hours or Once in 3 Months

- After such covering the signal lamp 25 of the air cleaner clogging must light up.



282N141T

- If it does not light up, check the following:
vacuum switch 1
bulb in the signal lamp 25, contacts, supply wire.



282N142T

3.6. Individual Operations of Maintenance

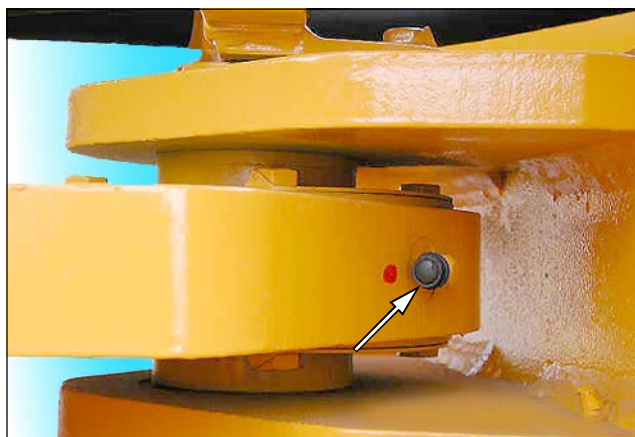
Every 250 Hours or Once in 3 Months

3.6.16. Lubrication of the machine

- Place the roller onto flat, firm surface.
- Stop the engine and disconnect electric system using the isolating master switch.
- Remove the caps on the grease nipples.
- Successively mount the grease nipple of pressure lubricator and continue greasing until the old grease starts to drain out.
- Return the grease nipple caps.

Steering

upper bearing



lower bearing



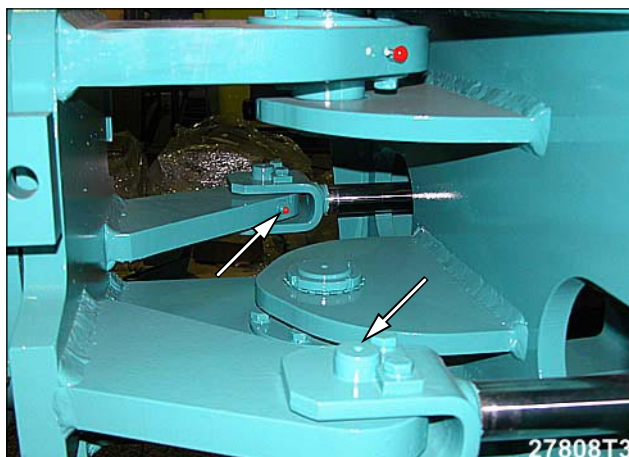
Every 250 Hours or Once in 3 Months

bearing 4x



Steering hydraulic cylinders

front pins 2x



rear pins 2x



Every 250 Hours or Once in 3 Months

Hydraulic cylinders of bonnet lifting

upper pins 2x



282N148T

lower pins 2x



282N149T

Every 250 Hours or Once in 3 Months

Hydraulic cylinder of driver's post lifting

lower pins 2x



282N150T

Door hinges pins

pins 6 x



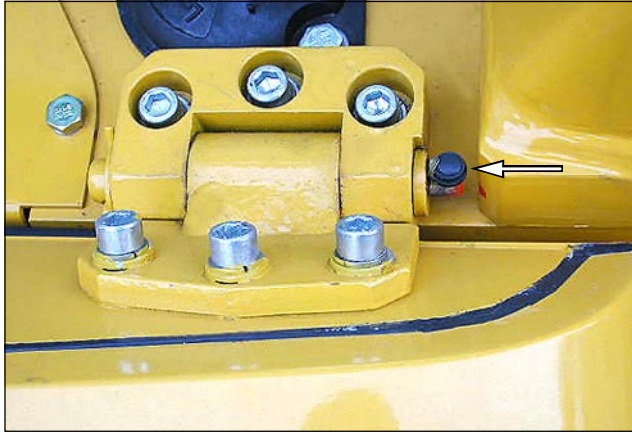
282N151T

3.6. Individual Operations of Maintenance

Every 250 Hours or Once in 3 Months

Bonnet hinges pins

pins 2 x



282N153T

Every 250 Hours or Once in 3 Months

Front pins of cabin attachment

pins 2 x



282N154T

! NOTE !

Use only recommended lubricating greases, see chapter 3.2.6.

Every 250 Hours or Once in 3 Months

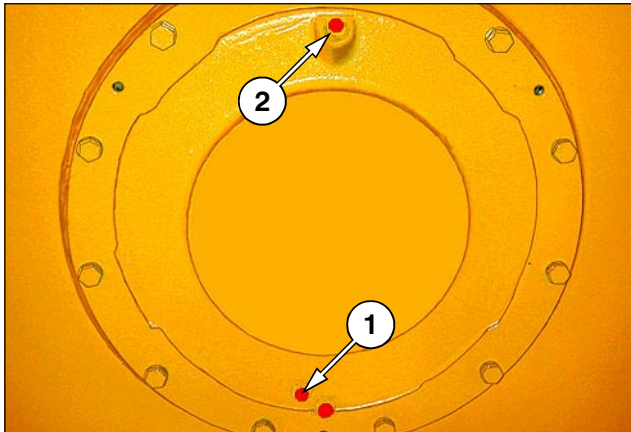
Every 250 Hours or Once in 3 Months

3.6.17. Checking oil in the vibrator

- Stop the machine in order that the plugs on the left side of the drum are in the position according to fig.

NOTE:

To better illustrate the position of plugs the drum frame was not installed.



282N155T

- Clean the area around the checking plug (1).
- Unscrew the plug (1) and check the oil level. The oil level must reach the checking opening or slightly flow out.
- Refill oil after unscrewing filling plug (2).
- Clean the plugs and mount again.

! NOTE !

Refill the identical type of oil.



Check oil when it is cooled down.



Avoid leakage of oil to the soil.

3.6. Individual Operations of Maintenance

Every 250 Hours or Once in 3 Months

3.6.18. Checking oil in gearboxes

Wheel gearbox

- Stop the machine on even, firm surface in order that the gearbox plugs of both wheels are in the position according to fig.



278N113T

- Clean the area around the checking plug.
- Unscrew the plug and check the oil level. The oil level must reach the checking opening or slightly flow out.
- Refill oil through the checking plug, if necessary.
- Clean the plug and mount again.

Every 250 Hours or Once in 3 Months

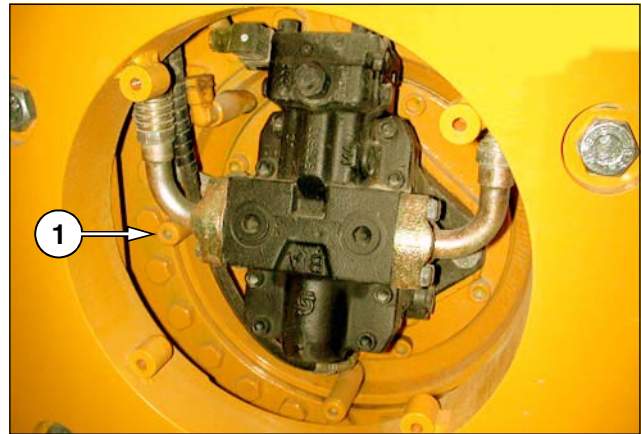
Drum gearbox

- Disassembly the cover on the right side of the frame.



278N123T

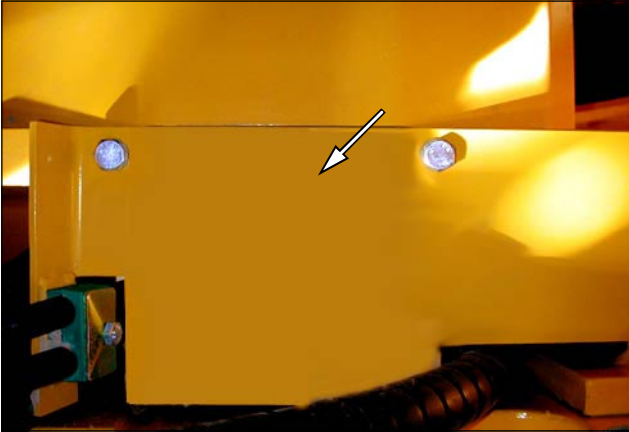
- Clean the area around the checking plug 1.
- Unscrew the plug 1 and check the oil level. The oil level must reach the checking opening or slightly flow out.



278N114T

Every 250 Hours or Once in 3 Months

- Dismantle cover and refill oil through the filling plug 2, if necessary.



278N116T

Every 250 Hours or Once in 3 Months

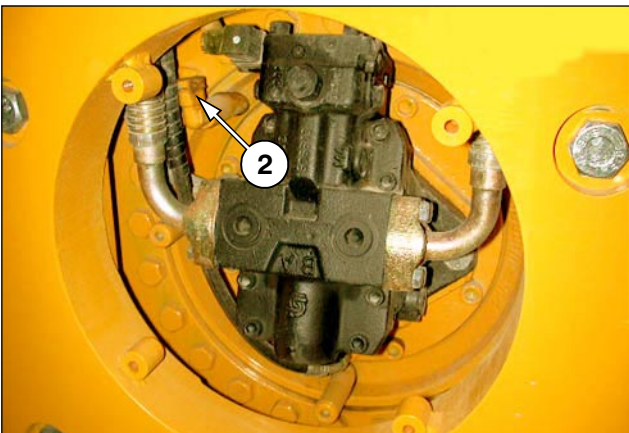
- Clean the plugs and mount again.
- Check tightness of the gearboxes.



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



278N115T



278N114T

3.6. Individual Operations of Maintenance

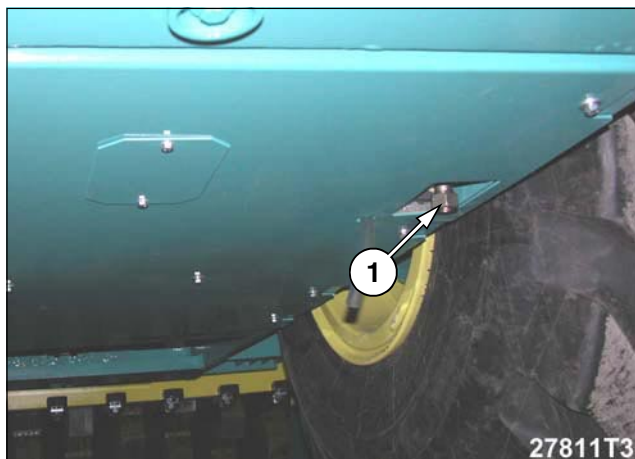
Every 500 Hours or Once in 6 Month

3.6.19. Engine oil and the filter exchange

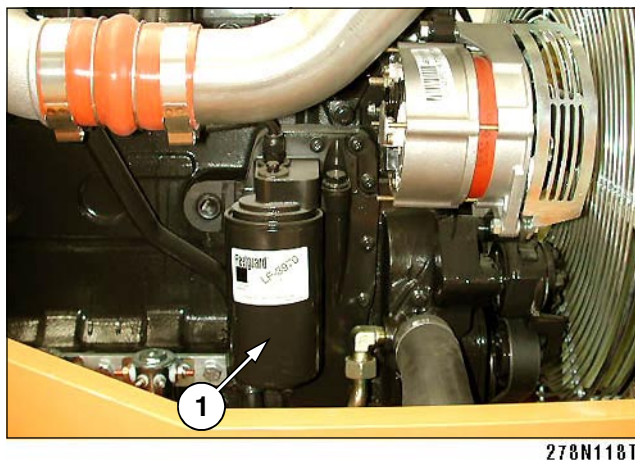
! NOTE !

Drain the oil after stopping the operation immediately, when is temperature of cooling liquid 60 °C (140 °F). Alternatively, operate the engine until the cooling liquid temperature reaches 60 °C (140 °F).

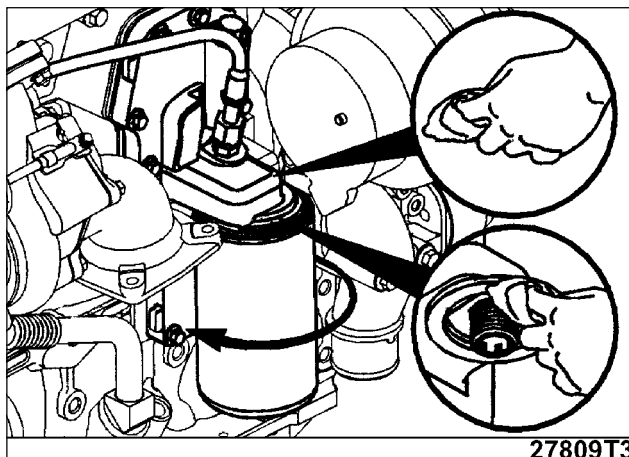
- Prepare a suitable container with the capacity of approximately 20 l (21 qt).
- Dismantle the drain plug 1 and let oil drain.



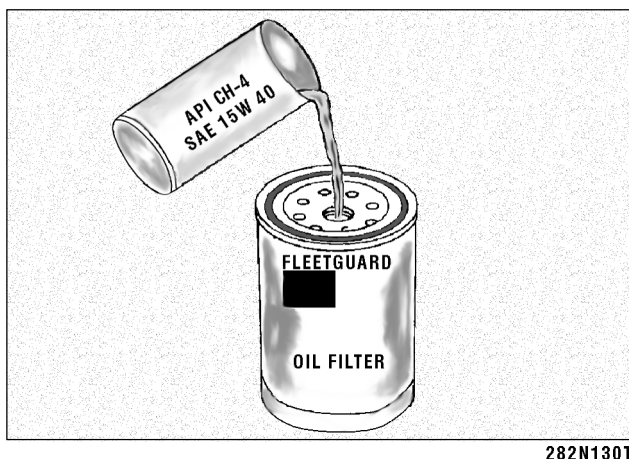
- Clean the area around the oil filter head. Dismantle the filter 1. Clean the contact area of the filter sealing.



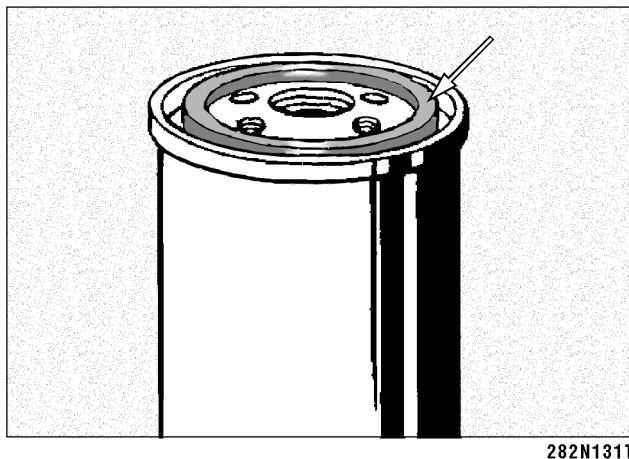
Every 500 Hours or Once in 6 Month



- Take a new filter and fill it with clean engine oil.



- Wipe the sealing with oil.

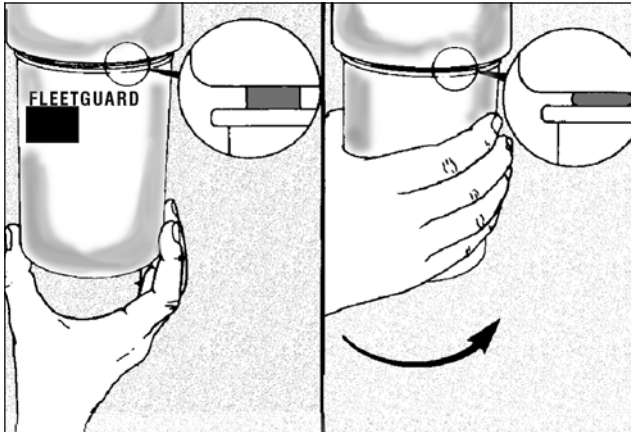


Every 500 Hours or Once in 6 Month

- Tighten 3/4 to 1 turn after gasket makes contact with the filter head.

! NOTE !

Do not tighten the filter too tight, the thread and sealing might get damaged.



278N132T

- Check the drain plug sealing replace it, if damaged.
- Check the engine sump thread and clean the contact area of the sealing.
- Mount the plug back. Tightening torque is 60 Nm (44 ft-lb).
- Fill the engine through the filler.



27805T3

Every 500 Hours or Once in 6 Month

- Refill oil to the upper oil level mark (H). Oil charge is 19.7 l (20.8 qt) inclusive of fill oil filter.



278N101T

NOTE

- After refilling, start the engine for 2 - 3 min. Check tightness of drain plug and filter.
- Stop the engine, wait for approx. 5 min. until oil runs down to the engine sump. Then check the level with oil dipstick.

! NOTE !

Exchange oil after 6 months at the latest, if 500 hours of operation have not been reached by that time. Exchange oil in the interval that comes first.

Use recommended filters - see the specifications manual or Spare parts catalogue. Use recommended oil - see chapter 3.2.1.



Beware of scalding when draining hot oil. Let oil cool down to less than 50 °C (122 °F).

Follow the fire safety measures!



Collect drained oil; do not let it soak into the ground.

Used oil and filters are environmentally dangerous waste - have them liquidated.

3.6. Individual Operations of Maintenance

Every 500 Hours or Once in 6 Month

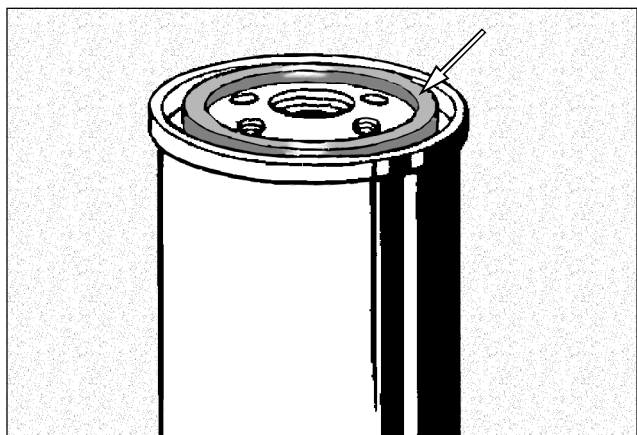
3.6.20. Engine fuel filter exchange

Fuel filter

- Clean area around the fuel filter head, remove filter.

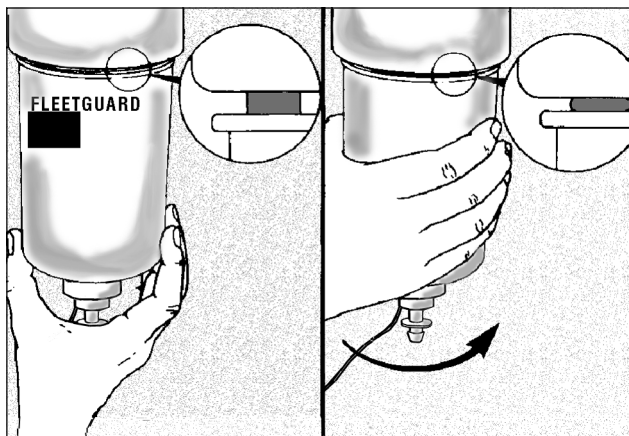


- Lubricate the O ring seal of new filter with lubricating oil.



Every 500 Hours or Once in 6 Month

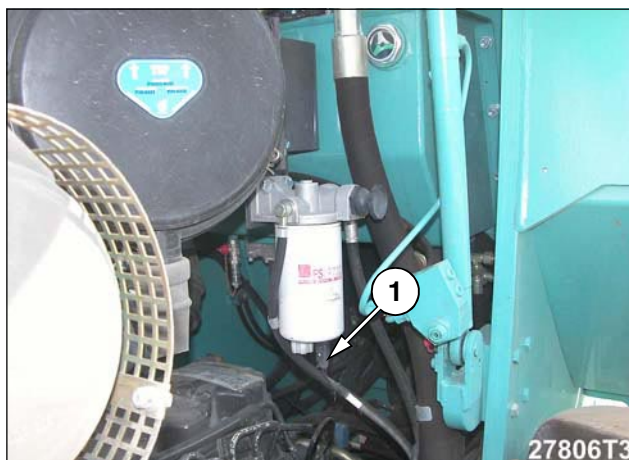
- Tighten 3/4 turn after gasket makes contact with the filter head.



- Torque value 34 Nm (25 ft-lb).

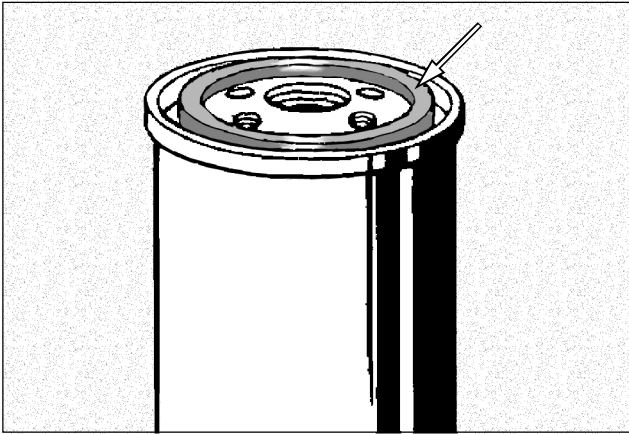
Pre-filter

- Disconnect separator sensor connector.



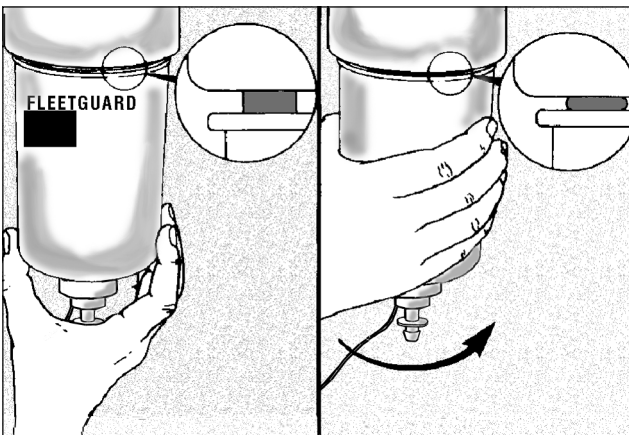
Every 500 Hours or Once in 6 Month

- Clean the area around the fuel filter head, remove filter.
- Lubricate o ring seal with of new filter clean lubricating oil.



282N131T

- Tighten the fuel filter an additional 3/4 turn after contact with the filter head, connect connector of sensor separator water.

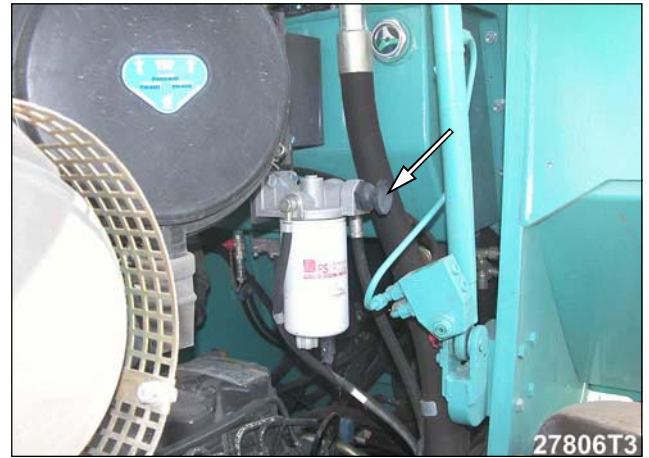


278N133T

- Torque value 34 Nm (25 ft-lb).

Every 500 Hours or Once in 6 Month

- Refuel with hand pump in fuel pre-filter.



27806T3

Note:

It is not necessary to vent air from the high pressure system before starting the engine.

! NOTE !

Use original specified filters.



Do not smoke nor use open fire when working!



Collect leaking fuel.

Store used filters in a separate container and dispose of them.

3.6. Individual Operations of Maintenance

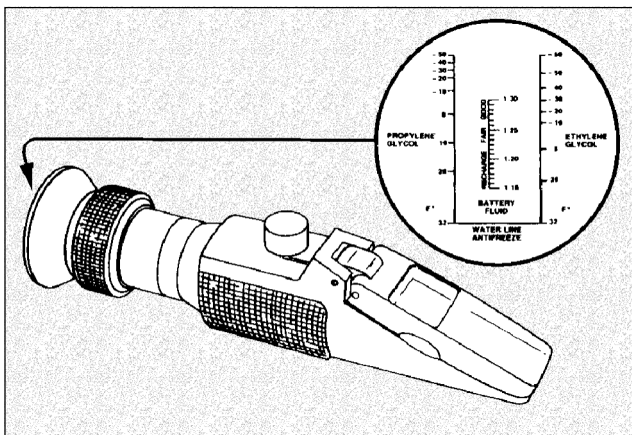
Every 500 Hours or Once in 6 Month

3.6.21. Checking cooling liquid

- Check the concentration of anti-freeze agent in cooling liquid using a refractometer.



282N161T



282N137T

! NOTE !

Check the cooling liquid always before winter season. In case the concentration measured is not sufficient for -32 °C (-25 °F), adjust it by adding frost-resistant agent into cooling liquid or exchange cooling liquid.

- Add anti-freeze agent according to chapter 3.2.3.

Every 500 Hours or Once in 6 Month

3.6.22. Checking tightening of wheel bolts

- Check tightening of wheel bolts using a torque wrench.
- Tightening torque is 314 Nm (232 lb ft).

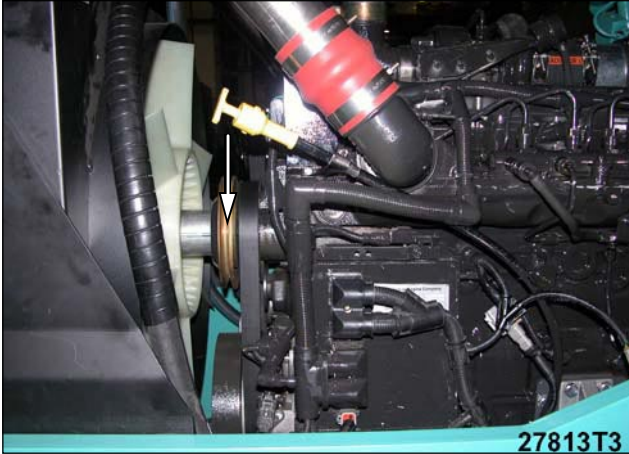


278N113T

Every 1000 Hours or Once a Year

3.6.23. How to check tightening pulley and belt of the engine

- With the engine running inspect visually any vibrations of the fan pulley.

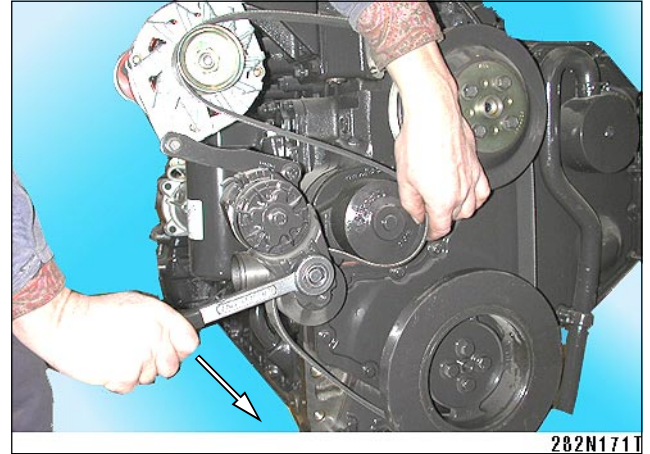


- Stop the engine!
- Confirm the stop of tensioner arm does NOT contact bump stop of the bush. Replace the belt if it makes a contact. When the arm stops continue to contact bump stop of the bush, replace the tensioner.

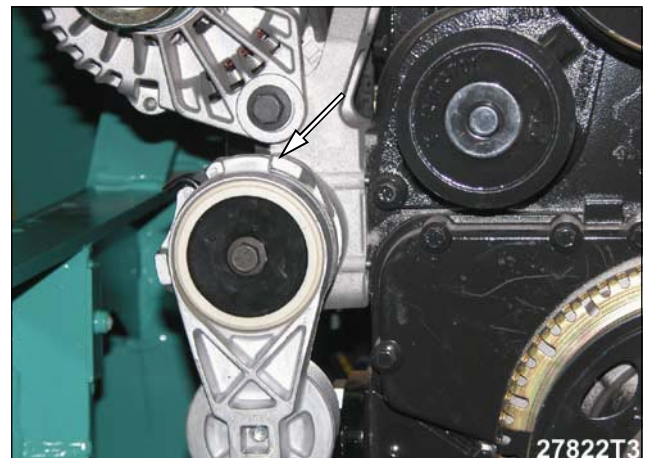


Every 1000 Hours or Once a Year

- Lift the belt tightening pulley using a lever with a square end of 10 mm (3/8 in) and remove the belt.



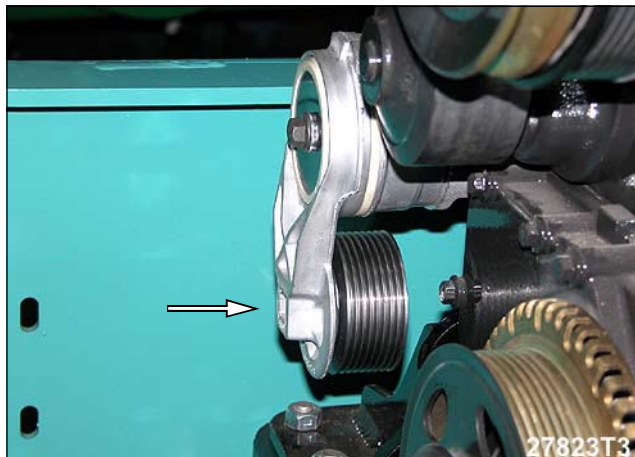
- With the belt removed, check to confirm the stop of the tensioner arm comes into contact with the bump stop of the bush. Unless so, replace the tensioner.



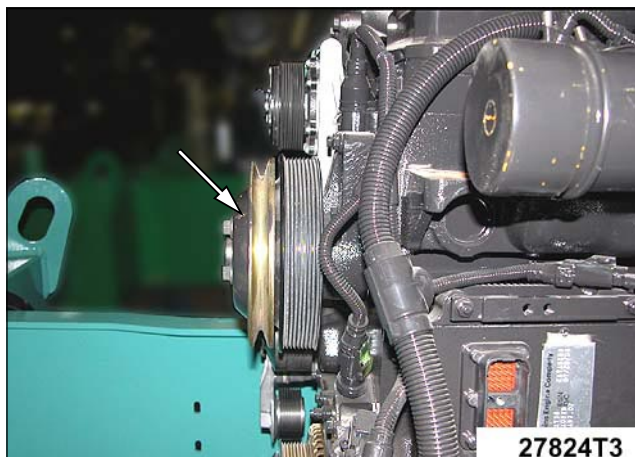
3.6. Individual Operations of Maintenance

Every 1000 Hours or Once a Year

- Check the pulley (arm) does not deflects from the vertical axis. Maximal deflection allowed is 3 mm (0.12 in). Inspect the tensioner pulley along with the arm to make sure there are no fissures over there.



- Check axial clearance of fan pulley. This clearance may not exceed 0,15 mm (0.006 in).
- Reinstal the belt back.

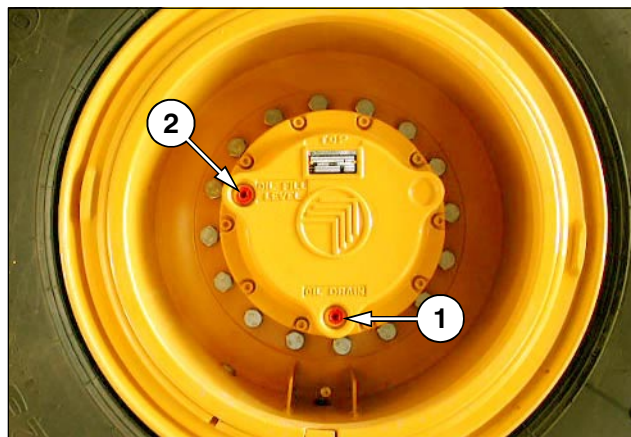


Every 1000 Hours or Once a Year

3.6.24. Exchanging oil in gearboxes

Axle (wheel) gearboxes

- Place the roller onto a flat, firm surface so that the axle gearbox plugs are in the position according to Fig. Clean the area around plugs. Put appropriate vessel under the drain plug 1. Unscrew both plugs and clean them and drain oil.



- After draining oil mount back the drain plug 1, replace damaged plug sealing.
- Fill oil through the upper plug 2 until the level reaches the opening or until it starts flowing out.
- Mount back the upper plugs 2, replace damaged plug sealings.

! NOTE !

Perform the first oil exchange after reaching 100 operation hours.

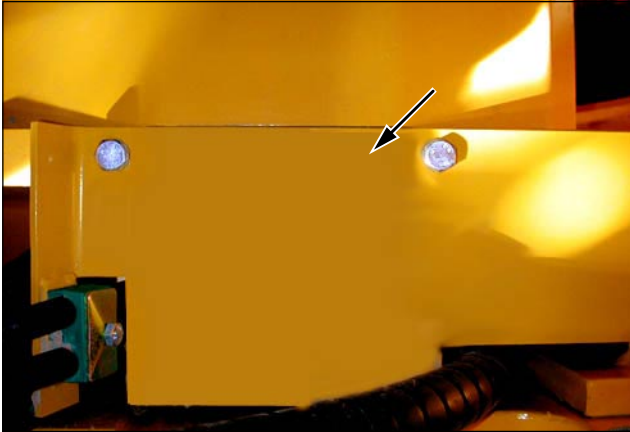


Do not touch the gearbox and adjacent parts if they are hot.

Every 1000 Hours or Once a Year

Drum gearbox - right side

- Unscrew covers.

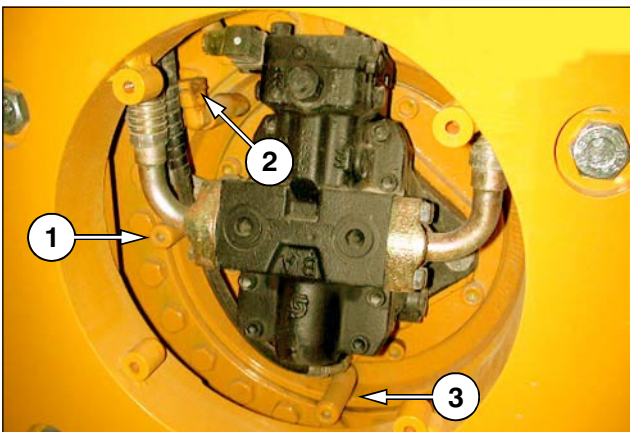


278N116T



278N123T

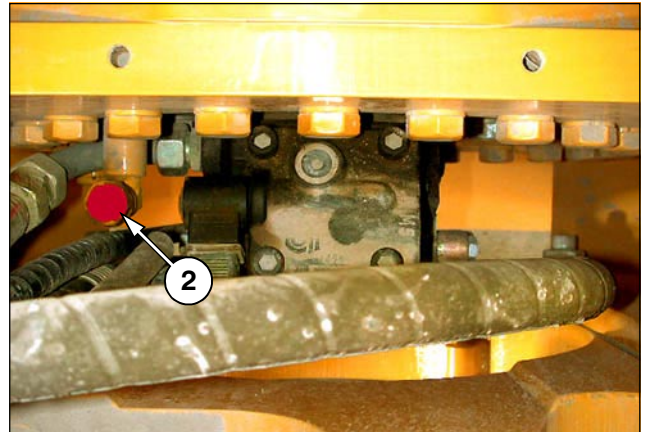
- Clean the area around plugs.
- Put appropriate vessel under the drain plug 3.
- Unscrew all plugs 1, 2, 3 and let oil drain.



278N114T

Every 1000 Hours or Once a Year

- Mount the drain plug 3 after draining is finished.
- Refill recommended oil through the filling plug 2.



278N115T

- Check oil level in the checking opening 1. The oil level must reach the lower edge of the opening or slightly flow out.
- Mount the plugs 1 and 2, replace damaged plug sealings.

! NOTE !

Perform the first oil exchange after reaching 100 operation hours.



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

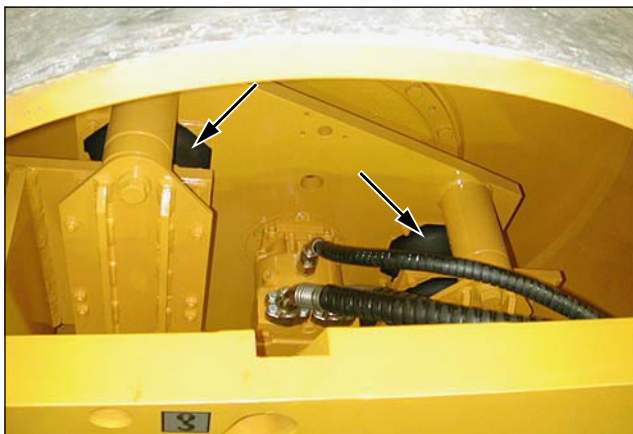
3.6. Individual Operations of Maintenance

Every 1000 Hours or Once a Year

3.6.25. Checking the damping system

- Check the condition of metal-rubber mountings and bonding of metal with rubber.

Drum damping system - left side;



278N124T

Drum damping system - right side;



278N125T

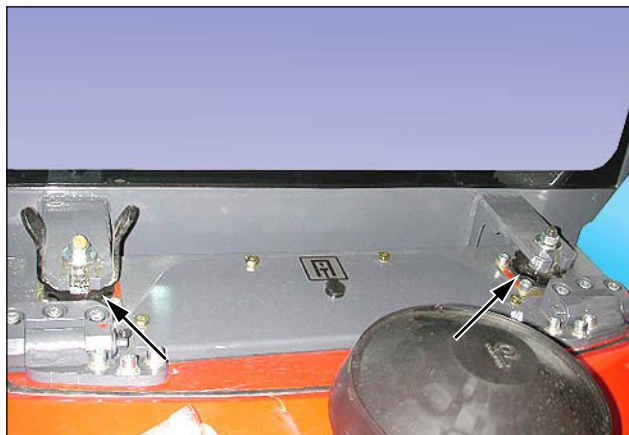
Front metal-rubber mountings - driver's post



282N154T

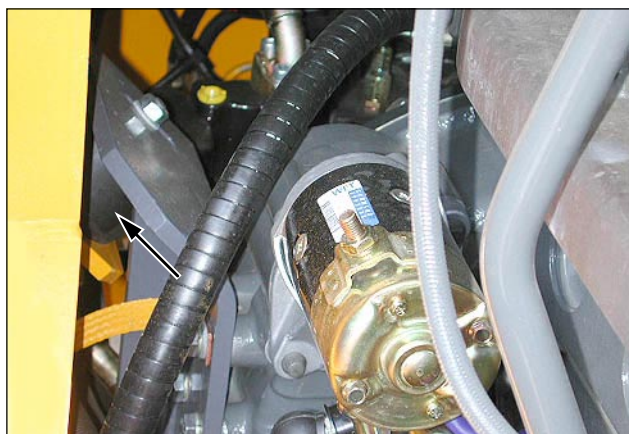
Every 1000 Hours or Once a Year

Rear metal-rubber mountings - driver's post



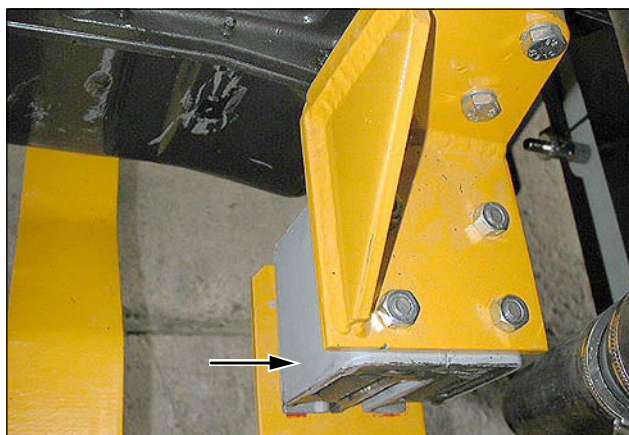
282N043T

Front metal-rubber mountings of the engine



282N183T

Rear metal-rubber mountings of the engine



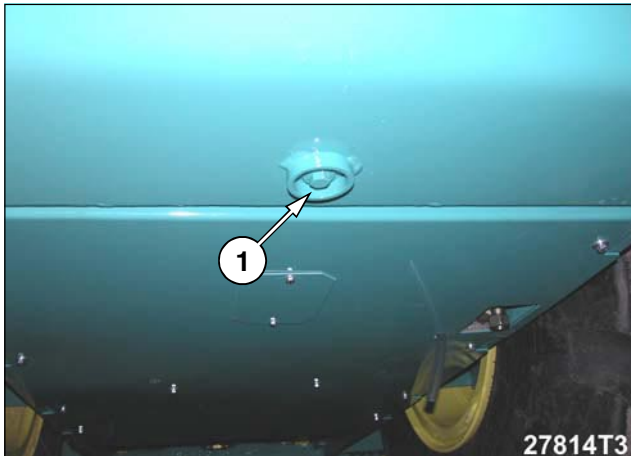
282N184T

- Replace damaged mountings.
- Check again tightening of bolts and nuts.

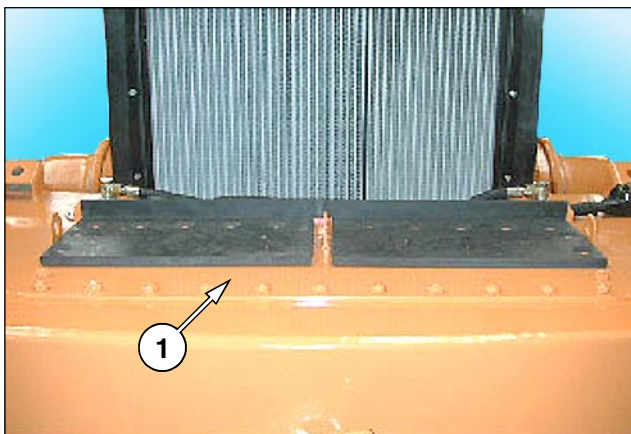
Every 1000 Hours or Once a Year

3.6.26. Cleaning the fuel tank

- Unscrew the drain plug 1 and let fuel drain into a vessel.



- Flush the tank with clean fuel.
- Screw the plug 1 in.
- In case of more serious fouling dismantle the batteries and the tank cover 1. Check and clean the inside of the tank. Insert a new sealing teflon strip between the cover and the tank and screw in the cover. Mount the batteries.



Every 1000 Hours or Once a Year

NOTE

Clean the tank when minimum of fuel is inside.

Approximately 45 l (12 US gal) of fuel remains in the tank after using up the tank capacity.



Do not smoke nor use open fire when working!!!



Follow environmental regulations when cleaning the tank.

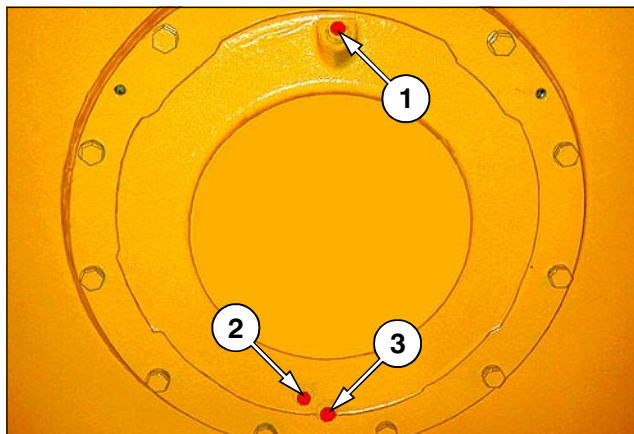
Avoid fuel spills.

3.6. Individual Operations of Maintenance

Every 2000 Hours or Every 2 Years

3.6.27. Oil exchange in the vibrator

- Place the roller onto a flat, firm surface so that the drain plug on the left side of the drum 3 is in the lowest position and the opposite filling plug 1 in the highest position.



282N155T

- Put appropriate vessel under the drain plug.
- Unscrew all plugs and let oil drain.
- Mount the drain plug 3 after draining is finished.
- Refill recommended oil to the edge of the checking opening 2 through the filler 1.
- Mount remaining plugs.

! NOTE !

Change oil when it is warm.



Let drained oil cool down to less than 50 °C (122 °F).



Avoid leakage of oil to the soil.

Every 2000 Hours or Every 2 Years

3.6.28. Exchanging hydraulic oil and filter

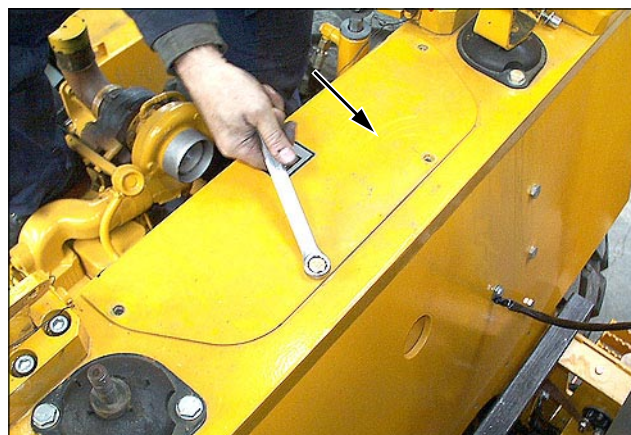
! NOTE !

Exchange oil before the season or after longer downtime of the machine.

- Fit the hose to the drain cock.

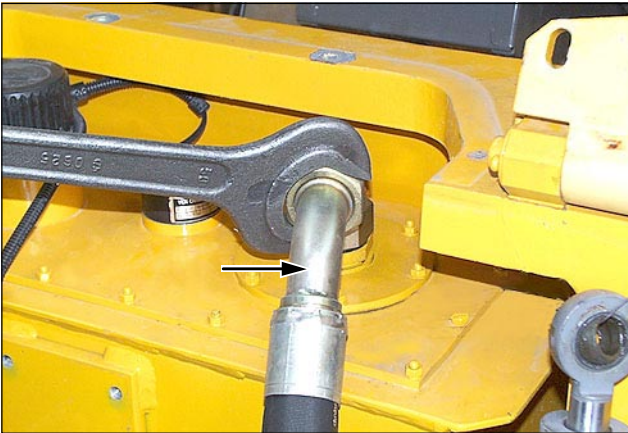


- Let oil drain into a prepared vessel - the total amount of oil is approximately 73 l (19.3 US gal).
- Dismantle the cover.



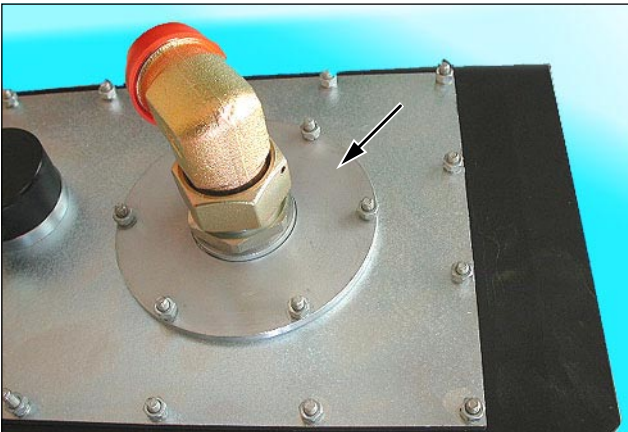
Every 2000 Hours or Every 2 Years

- Dismantle suction hose.



282N191T

- Dismantle cover with suction strainer.



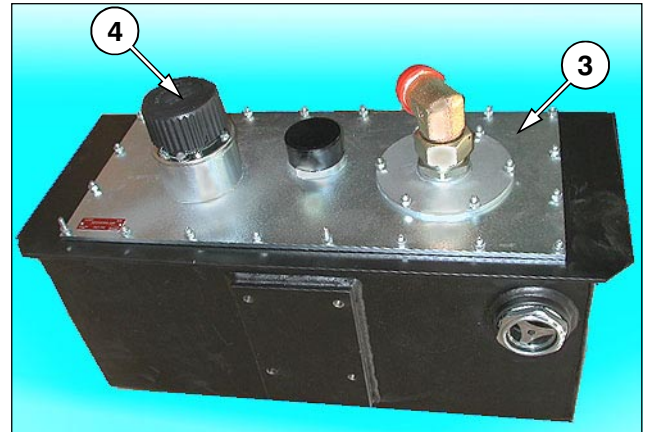
282N192T

Every 2000 Hours or Every 2 Years

- Dismantle the suction strainer from the suction pipe. Wash the suction strainer and blow the strainer with pressure air from inside.
- Check the condition of the suction strainer; replace the strainer in case of damaged filter part.
- Check the inside of the tank. Carefully clean the bottom and flush it with new oil if there are any impurities on the bottom.
- Reassemble and wipe the "O" ring with clean oil.

NOTE

For easier cleaning it is possible to dismantle the whole upper cover 3 with the filler 4. If you dismantled the whole upper cover 3, use a new teflon sealing strip.



282N193T



Drain oil after it has cooled down below 50 °C (122 °F).

Follow the fire safety measures!



After disconnecting the hydraulic circuits blind all holes with plugs.

Collect drained oil; do not leave it soak into the soil.

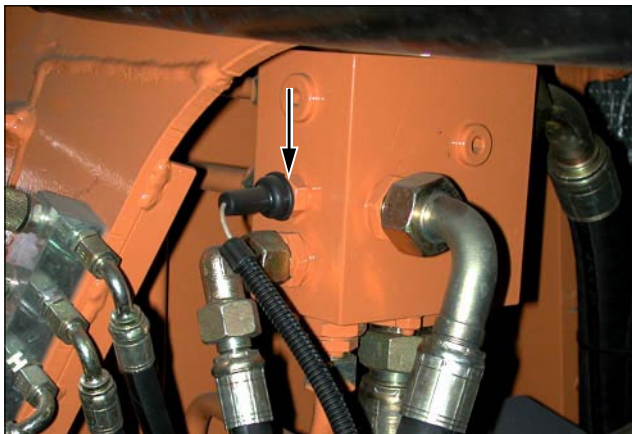
Used oil is environmentally dangerous waste - have them liquidated.

3.6. Individual Operations of Maintenance

Every 2000 Hours or Every 2 Years

Checking the oil thermometer sensor

- Dismantle the sensor and clean the contact.



212UM022

- Dip the sensor into warm oil of known temperature and read out the oil temperature on the thermometer. Replace the sensor if not working properly.

Filling the hydraulic circuit:

- Use a filling device with the following parameters:
 - min. pressure 6 MPa (870 PSI)
 - filtering property 3 to 10 μm
- Open the cover on the right side under the cabin and remove the cap of filling terminal.



282N194T

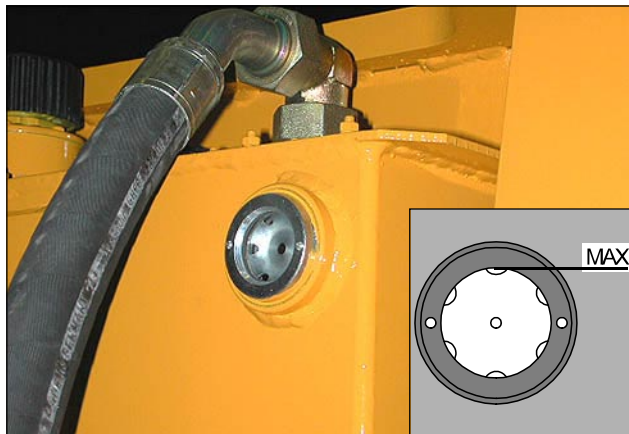
Every 2000 Hours or Every 2 Years

- Mount the quick coupling of the filling device to the quick coupling.



282N195T

- Fill the hydraulic circuit until clean oil starts to flow out of the hose. Collect it to a clean vessel.
- After flowing out of approximately 15 l (4 US gal), close the drain cock.
- Refill oil in the tank to maximum and disconnect the filling device.



282N114T

Every 2000 Hours or Every 2 Years

ALTERNATIVE FILLING THROUGH THE TANK FILLER

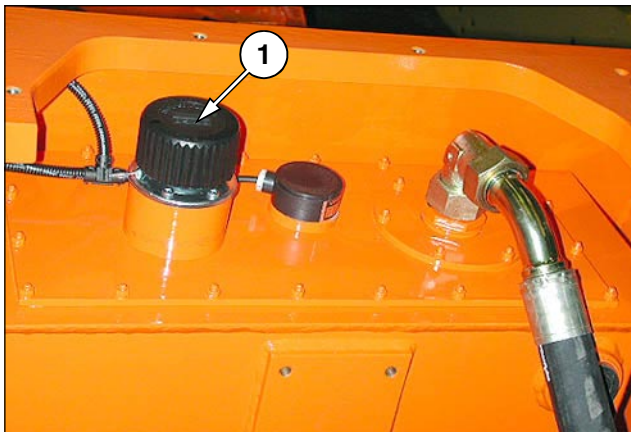
! NOTE !

The alternative way of filling the hydraulic circuit is only emergency solution! When filling through the tank filler, large amount of old dirty oil remains in the circuit, which reduces lifetime of hydraulic units.

In this way of filling it is necessary to cut the next exchange interval to one half, i.e. 1000 h or 1 year.

The cap of the tank filler is sealed. In case of breaking the seal during warranty period, the warranty expires.

- Refill the tank through 1 the filler with specified type of oil up to the bottom of the strainer in the filler.



282N196T

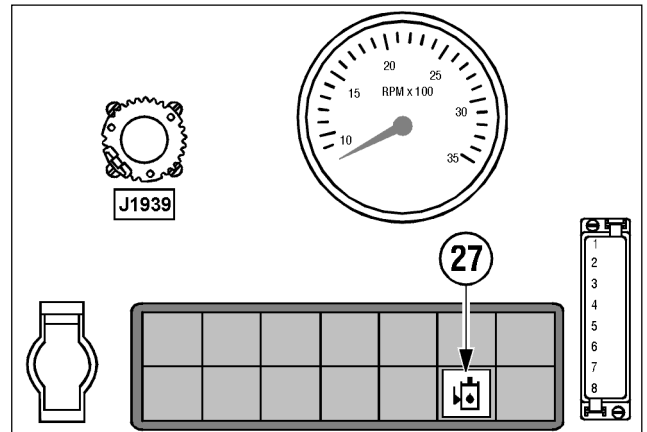
NOTE

You can order a filling device at the manufacturer of the machine or your dealer.

Every 2000 Hours or Every 2 Years

! NOTE !

After filling the circuit, check whether signal lamp doesn't shine.



282N197T

! NOTE !

Start the engine and run functions of the machine at increased engine speed to let circuits fill.

Check tightness of filter, temperature sensor, suction hose and cover.

Keep the machine clean. Avoid polluting the system with materials that may damage important units!

Follow the fire safety measures!

Do not open the hydraulic tank unnecessarily!

Exchange oil and filter always, when inner part of a unit (hydromotors, hydro-generators) were destroyed or after a considerable repair of hydraulic system. Clean and rinse the hydraulic tank before assembling a new unit. Exchange filter.

Do not use chemical detergents to clean the tank.

Use clothes not loosing staples to clean it.

Use oils in accordance with chapter 3.2.4.

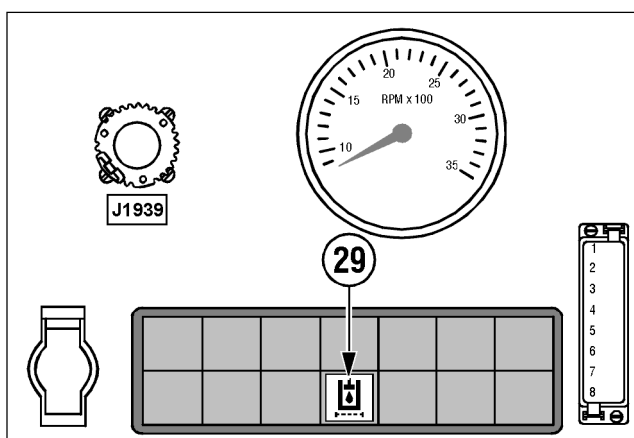
3.6. Individual Operations of Maintenance

Every 2000 Hours or Every 2 Years

Exchanging the filter element of pressure filter

Exchange the filter element always in the following occasions:

- when changing oil
- if the signal lamp of pressure filter (29) lights up after the working temperature reached 50 through 60 °C (122 - 140 °F).



- Dismantle the filter container 2.



Every 2000 Hours or Every 2 Years

- Take out the filter element.
- Carefully clean the filter container.
- Clean the contact surface of the filtration block from the lower side.
- Check the condition of sealing rings and lubricate them with clean oil.
- Insert a new element into the filter container - tighten with torque of 40 + 10 Nm (30 + 7 lb ft).

! NOTE !

Use original filter elements according to spare parts catalogue only.



Used filter elements are environmentally dangerous waste - have them liquidated.

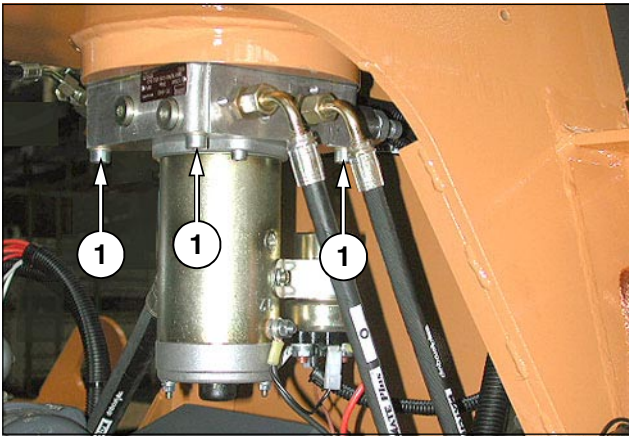
Every 2000 Hours or Every 2 Years

3.6.29. Cleaning of the suction strainer of lifting and lowering of the bonnet and the driver's post

! NOTE !

Clean the strainer when exchanging hydraulic oil.

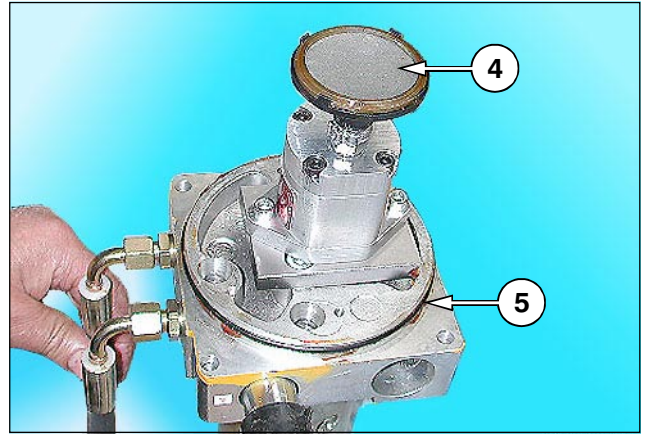
- Unscrew bolts 1, take out the unit from the bottom of the tank.



282N201T

Every 2000 Hours or Every 2 Years

- Remove the suction strainer 4. Wash the suction strainer in petrol and blow through the strainer with pressure air. Check the sealing ring 5.



282N202T



Avoid leakage of oil to the soil!

3.6. Individual Operations of Maintenance

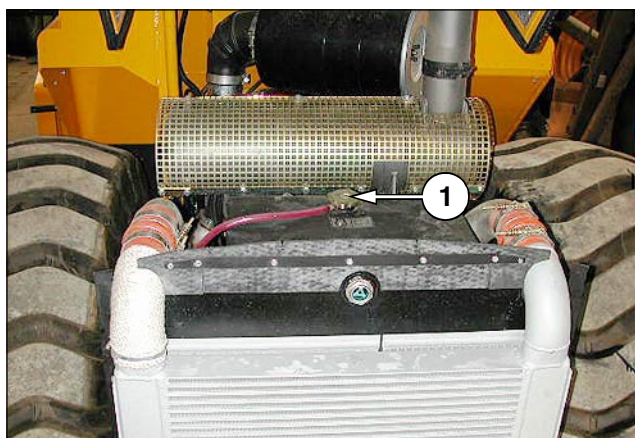
Every 2000 Hours or Every 2 Years

3.6.30. Exchanging the engine cooling liquid

! NOTE !

Exchange the coolant after operation of the machine or after warming the coolant (by running the engine) to 50 °C (122 °C).

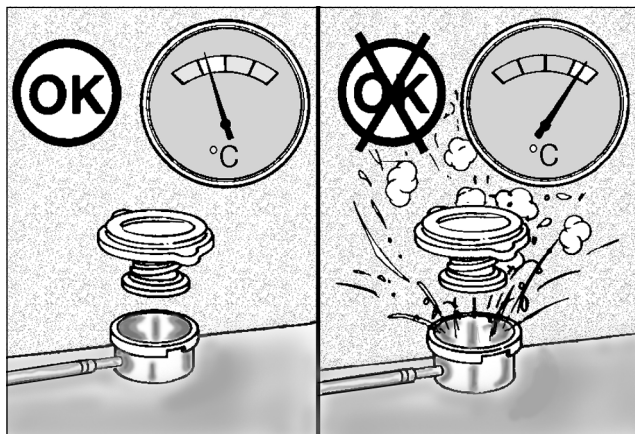
- Open cooling system by removing pressure plug (1) on the equaliser reservoir.



278N128T



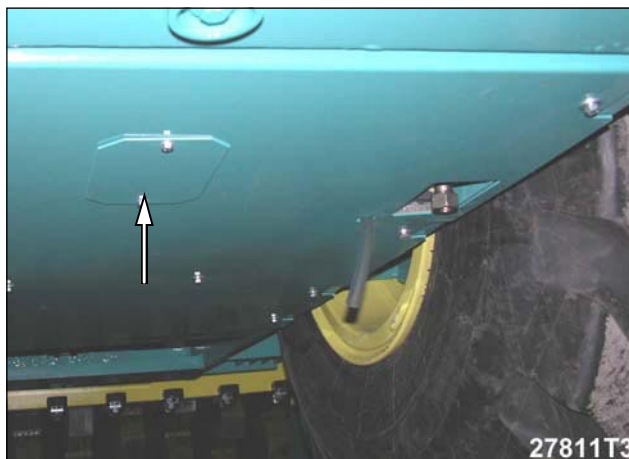
Do not dismantle the pressure plug before the temperature of cooling liquid falls lower than to 50 °C (122 °C). Beware of gushing of the coolant and scalding when opening the pressure plug.



282N205T

Every 2000 Hours or Every 2 Years

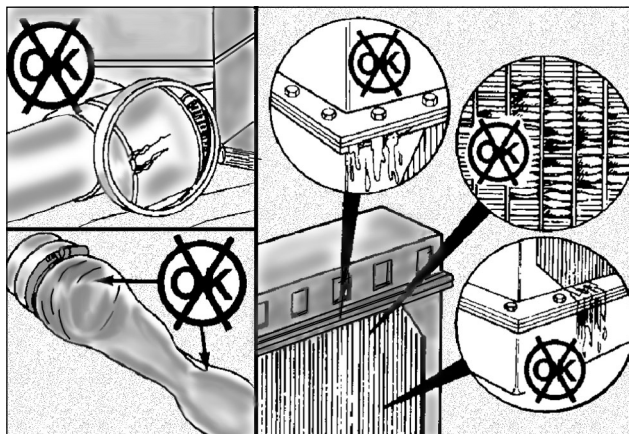
- Open the drain cock in the cooler lower chamber. Let liquid drain into prepared vessels. The quantity drained is approximately 30 l (7.9 gal US).



27811T3

NOTE

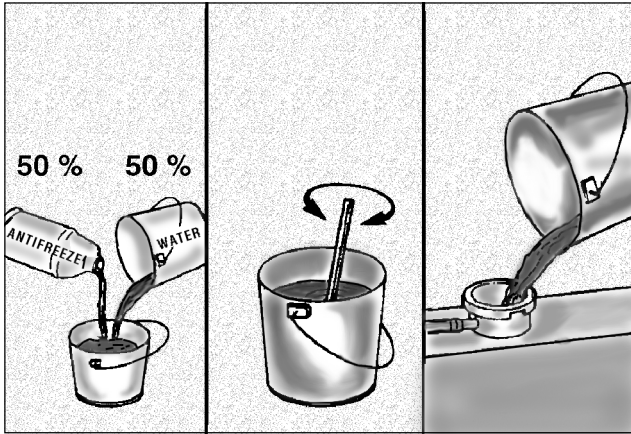
- Check cooling system for defective hoses and missing hose clips. Check the condition of the cooler - search for defects, leaks and cooling gills blocked with impurities. Clean and repair it, if necessary.



282N206T

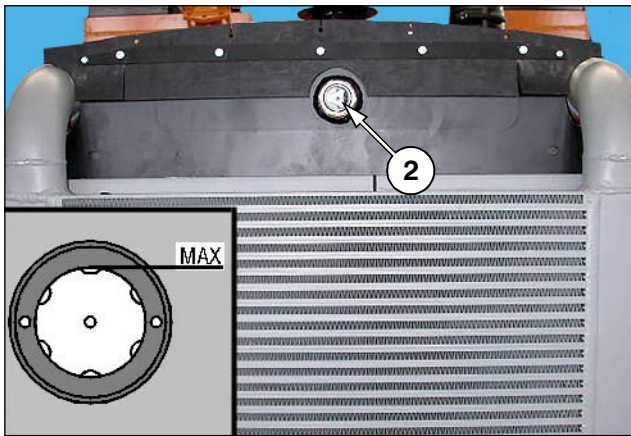
Every 2000 Hours or Every 2 Years

- After closing the drain cock, fill cooling system with new cooling liquid with ratio of 50% of water + 50% of anti-freeze agent.



282N207T

- Fill it up to the upper edge of the level indicator. After filling, wait for approx. 2-3 minutes until air goes off and the circuit is filled. The maximum filling rate is 19 l/min (5 US gal/min). Close the equaliser reservoir with the pressure plug.



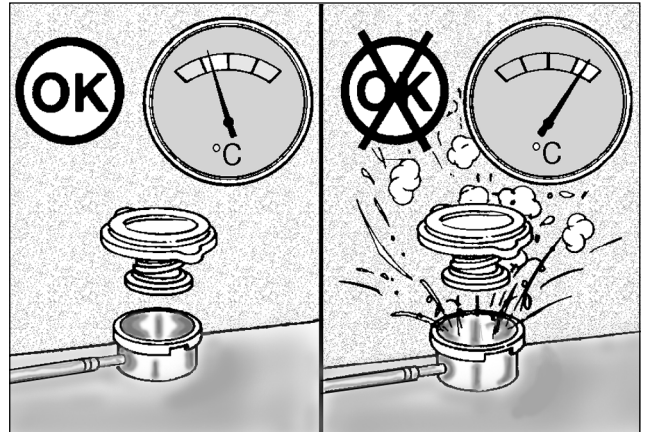
278N129T

- Start the engine and wait until the temperature reaches 80 °C (175 °F). Check during your waiting for any leakage of cooling liquid.
- Stop the engine.
- Check the level on the indicator (2). If the level is low, refill cooling liquid to maximum.

Every 2000 Hours or Every 2 Years



Do not dismantle the pressure plug before the temperature of cooling liquid falls lower than to 50 °C (122 °C). Beware of gushing of the coolant and scalding when opening the pressure plug.



282N205T

! NOTE !

Use cooling liquid according to chapter 3.2.3.!



Follow the instructions of the manufacturer of anti-freeze fluid when changing coolant!

Protect your hands with gloves!

Use safety glasses or safety shield!



Collect used liquid and have it safely disposed according to valid regulations!

NOTE:

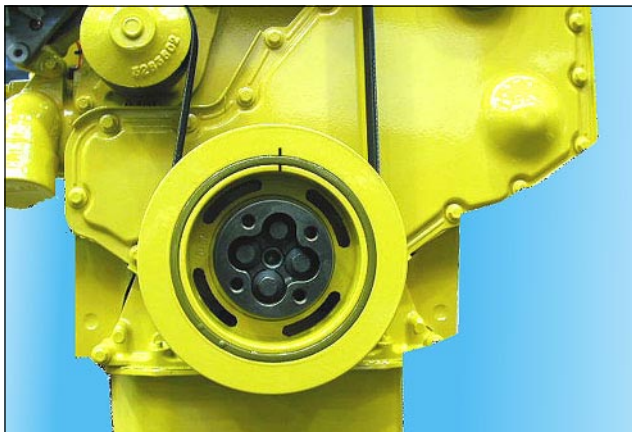
When making the change, please flush the system with mixture of water and soda (sodium carbonate) at the ratio of 0,5 kg (1.1 lb) of soda per 23 l (6.0 gal) of water in line with instructions of CUMMINS Engine Operating Manual supplied. Refill the system with this mixture and heat up to 80 °C (176°F) with the engine running – do NOT install the expansion vessel cap. Turn OFF the engine and drain the water. Refill with clean water and heat up again the motor. Then drain the water. Repeat this till water is clean.

3.6. Individual Operations of Maintenance

Every 2000 Hours or Every 2 Years

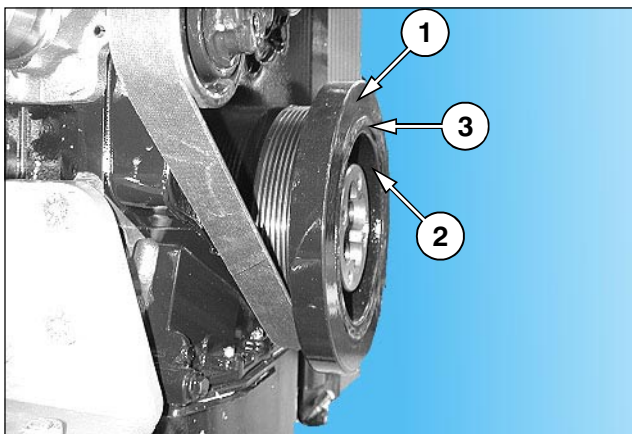
3.6.31. Checking torsion vibration damper of the engine

- Check the position of pressed marks on the face of both parts of torsion vibration damper. If the marks are shifted from each other by more than 1.59 mm (1/16 in), it is necessary to exchange the damper.



282N216T

- Check whether the rubber component 3 is not higher or lower above the level of metal parts 1 and 2 by more than 3.18 mm (1/8 in). If the limit is exceeded, exchange torsion vibration damper.



282N217T

Every 2000 Hours or Every 2 Years

- Check visually whether the torsion vibration damper is not moving forward. Check the vibration damper for evidence of fluids loss, dents and wobble.

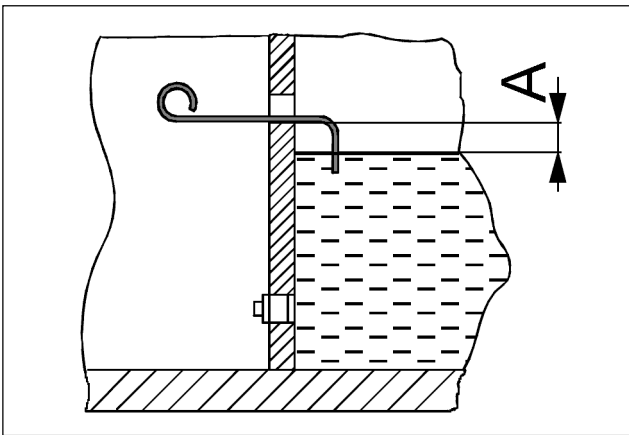
! NOTE !

With time, the flexible silicone filling of the damper gets rigid and no longer works properly. Non-working damper may cause considerable damage to the engine.

Every 2000 Hours or Every 2 Years

3.6.32. Checking coolant in the drum

- Stop the machine on a firm, flat, and horizontal surface, and lace the plugs as illustrated.
- Switch the motor off, and electrical breaker, and remove key from ignition box.
- Remove upper plug 1.
- Check the level, which must reach the low edge of the opening and may not drop below „A“ = 20 mm [0,8 in].



278N131T

- If the level is 20 mm [0,8 in] below the edge of the opening, add 20 l [5.3 gal US] of clean water.
- If you have to add 20 l [5.3 gal US] four times in a row, check the tightness and repair.
- Drain the old liquid and refill with new one mixed as follows:

Water l [gal US]	Calcium chloride CaCl ₂ kg [lb]	Hydrated lime kg [lb]
162 [42,8]	42 [92]	1 [2,2]

Every 2000 Hours or Every 2 Years



Wash off spilled liquid with clean water.

The solution may not spill over metal parts and electrical wiring.

This solution may not be used in the motor radiator.

Dehydrated Calcium chloride CaCl₂ is to be added to water, not vice versa.

Protect your eyes with goggles and your hands with rubber gloves.

3.6. Individual Operations of Maintenance

Maintenance - As Needed

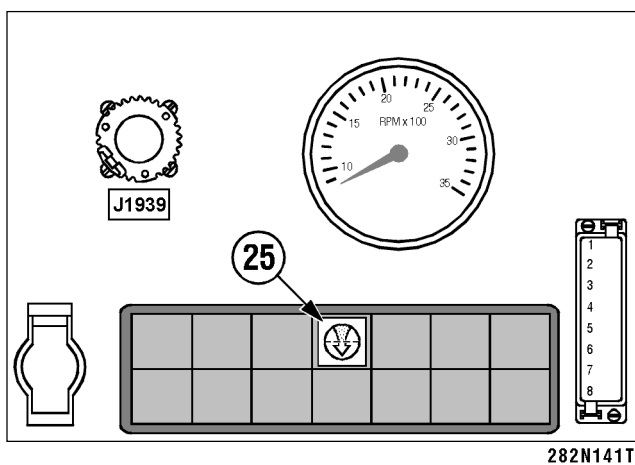
3.6.33. Exchanging cleaner elements of air cleaner

NOTE

The air cleaner contains the main and safety elements.

! NOTE !

If signal lamp 25 lights up, the both elements must be exchanged.



- Lift the bonnet to the limit position. (See Operating instructions, chapter 2.7.10.)
- Remove the lid.



Maintenance - As Needed

- Carefully remove the main element.

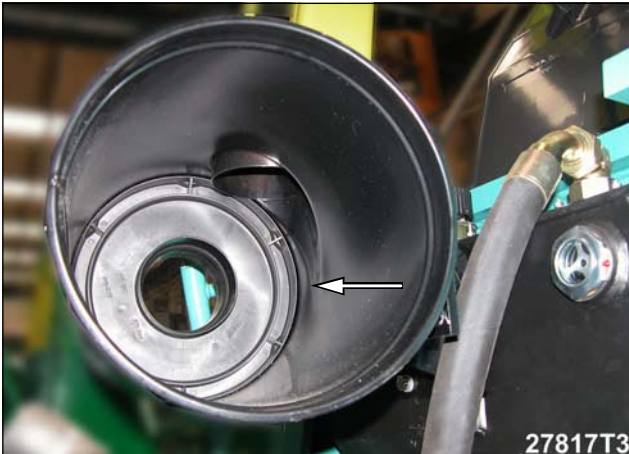


- After remove the safety element.

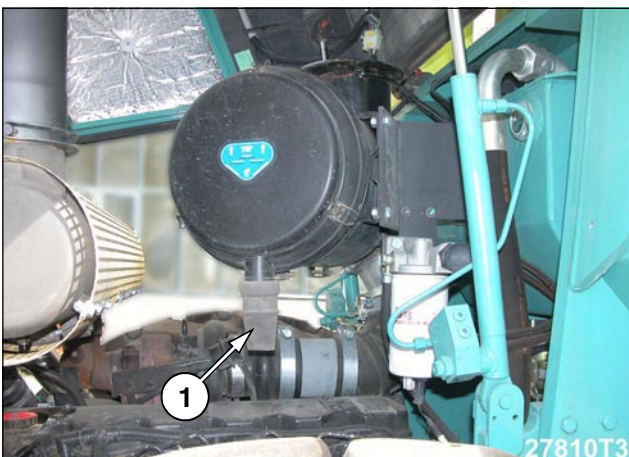


Maintenance - As Needed

- Clean the inside of the cleaner and contact surface in order that the engine inlet pipe does not get blocked. Check connections and piping for any untightness and clogging of the engine inlet opening on the bonnet (e.g. by leaves).



- Insert the new safety element.
- Mount the new main element. Check whether the both cartridges fits correctly and whether are sealing.
- Remove the dust valve 1, clean it and mount it back.



Maintenance - As Needed

! NOTE !

Do not clean the inside of the cleaner by pressure air; dust might get into the engine inlet piping.

Replace both elements after 1 year of service at the leatest.

Use original elements only.

When washing the machine, make sure water cannot pour into the air cleaner.

In case of absorbing water, exchange main element. Dry the cleaner body.

Replace defective vacuum valve immediately!

Do not operate the machine with damaged cleaner body or cover.

3.6. Individual Operations of Maintenance

Maintenance - As Needed

3.6.34. Cleaning the engine radiator and hydraulic oil radiator

- Due to variable working conditions it is not possible to determine any fixed interval of cleaning.
- In case of work in very dusty conditions clean the radiator daily. Clogged radiators will result in lower cooling capacity and increasing temperatures of engine cooling liquid and hydraulic oil.
- Clean it using pressure air or pressure water (steam). Cleaning direction is from the ventilator side.



Maintenance - As Needed

! NOTE !

Do not use cleaner with too high pressure so as not to damage radiator honey-combs.

In case of contamination of the radiator by oil products, use a cleaning agent and proceed according to the manufacturer's instructions! Find the cause of contamination!



Follow environmental standards and regulations when cleaning the machine!

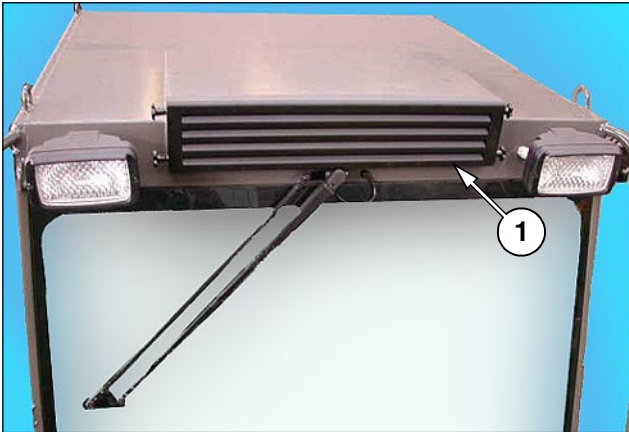
Clean the machine in a site equipped with an intercepting system for cleaning agents so that the soil and water sources are not contaminated!

Do not use forbidden cleaning agents!

Maintenance - As Needed

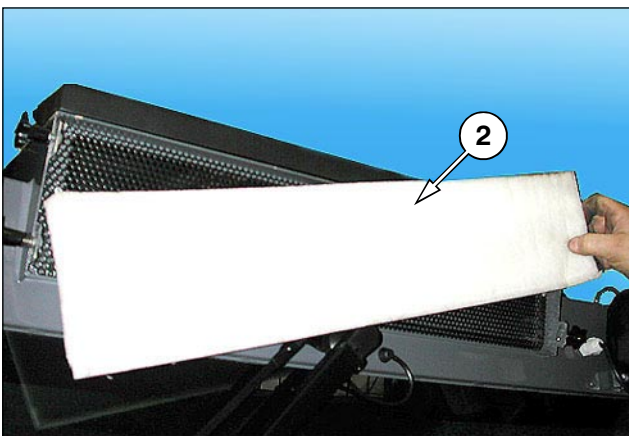
3.6.35. Cleaning the air cleaner of cabin ventilation

- Dismantle the cover grill 1.



282N214T

- Take out the cleaner with cleaning element 2.



282N215T

- Carefully beat out the element and wash it in a detergent solution. If you damage the cleaning element or you are not able to clean it properly, replace it with a new one.

! NOTE !

Clean it once in a month. In case you work in very dusty conditions, make the interval shorter.

Maintenance - As Needed

3.6.36. Cleaning the machine

- Clean the machine from major impurities after finishing your work.
- Perform overall cleaning regularly at least once in a week. When working in cohesive soils, cement and lime stabilisation's, the overall cleaning must be performed daily.

! NOTE !

Blind all openings into which the cleaning agent might penetrate (e.g. engine inlet opening) prior to pressure water washing. Remove these blinders after washing the machine.

Do not expose electric parts or insulation material to direct water or steam flow. Always cover such materials (inside of the alternator etc.).

Disconnect batteries using the isolating master switch.

Work with stopped engine.

Do not use aggressive and highly inflammable cleaning agents (e.g. petrol or highly inflammable materials).



Follow environmental standards and regulations when cleaning the machine!

Clean the machine in a site equipped with an intercepting system for cleaning agents so that the soil and water sources are not contaminated!

Do not use forbidden cleaning agents!

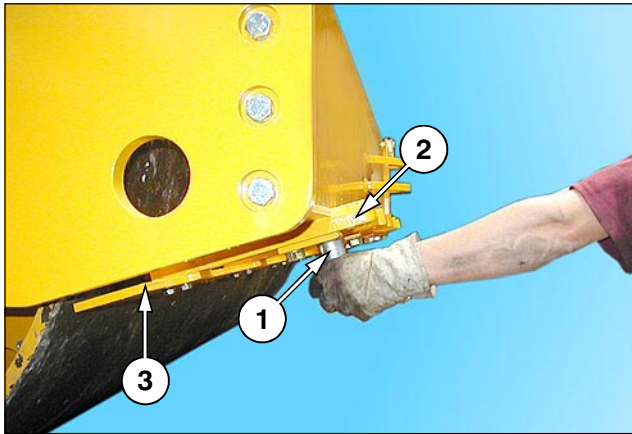
3.6. Individual Operations of Maintenance

Maintenance - As Needed

3.6.37. Adjusting scrapers

Scrapers for the smooth drum

- Loosen bolts 1, see fig., and move holders 2 towards the drum to the distance of 15 mm (0.6 in) between the scraper and the drum.



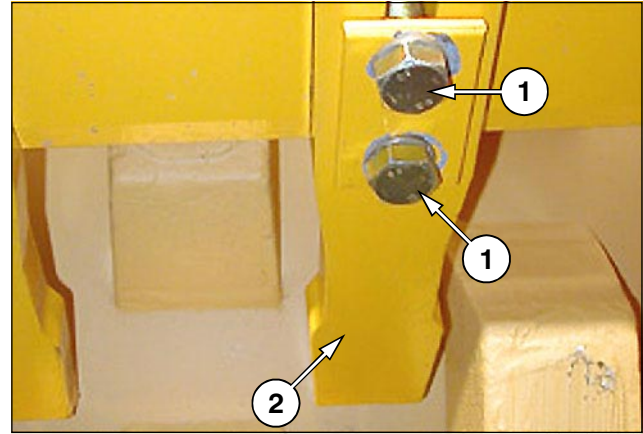
! NOTE !

If you can not move scrapers any more within the range of oval openings of the holders 2 due to the wear of the scrapers, dismantle the scraper 3 and move it closer to the drum by one hole.

Maintenance - As Needed

Scrapers for the taper foot drum

- Loosen bolts 1 and move individual scrapers 2 towards the drum to the distance of 25 mm (1 in).



! NOTE !

Rear scrapers of the taper foot drum are longer. When replacing worn scrapers, replace the front scrapers with rear ones and the rear scrapers with new ones.

If you set too short distance between the scraper and drum, they may get into contact when cornering with the machine.

Maintenance - As Needed

Maintenance - As Needed

3.6.38. Checking and tightening bolted joints

- Check regularly for loosened bolted joints.
- Use torque wrenches to tighten them.

	TIGHTENING MOMENT			
	For the screws 8,8 (8G)		For the screws 10,9 (10K)	
Worm	Nm	lb-ft	Nm	lb-ft
M6	10	7,4	14	10,3
M8	24	25,0	34	25,0
M8x1	19	14,0	27	19,9
M10	48	35,4	67	49,4
M10x1,25	38	28,0	54	39,8
M12	83	61,2	117	86,2
M12x1,25	66	48,7	94	69,3
M14	132	97,3	185	136,4
M14x1,5	106	78,2	148	109,1
M16	200	147,5	285	210,2
M16x1,5	160	118,0	228	168,1
M18	275	202,8	390	287,6
M18x1,5	220	162,2	312	230,1
M20	390	287,6	550	405,6
M20x1,5	312	230,1	440	324,5
M22	530	390,9	745	549,4
M22x1,5	425	313,4	590	435,1
M24	675	497,8	950	700,6
M24x2	540	398,2	760	560,5
M27	995	733,8	1400	1032,5
M27x2	795	586,3	1120	826,0
M30	1350	995,7	1900	1401,3
M30x2	1080	796,5	1520	1121,0

The values given in the chart are torques used for dry threads (friction factor 0.14). These values are not applicable for lubricated threads.

3.6. Individual Operations of Maintenance

Maintenance - As Needed

Table of insert nuts tightening moments of the hoses with sealing "O" ring

			Tightening moments for the nuts with sealing "O"ring					
			Nm			lb-ft		
Size spanner	Worm	Hose	Nominal	Min	Max	Nominal	Min	Max
14	M12x1.5	6	20	15	25	15	11	18
17	M14x1.5	8	38	30	45	28	22	33
19	M16x1.5	8	45	38	52	33	28	38
		10						
22	M18x1.5	10	51	43	58	38	32	43
		12						
24	M20x1.5	12	58	50	65	43	37	48
27	M22x1.5	14	74	60	88	55	44	65
		15						
30	M24x1.5	16	74	60	88	55	44	65
32	M26x1.5	18	105	85	125	77	63	92
36	M30x2	20	135	115	155	100	85	114
		22						
41	M36x2	25	166	140	192	122	103	142
46		28						
50	M42x2	30	240	210	270	177	155	199
50	M45x2	35	290	255	325	214	188	240
	M52x2	38	330	280	380	243	207	280
		42						

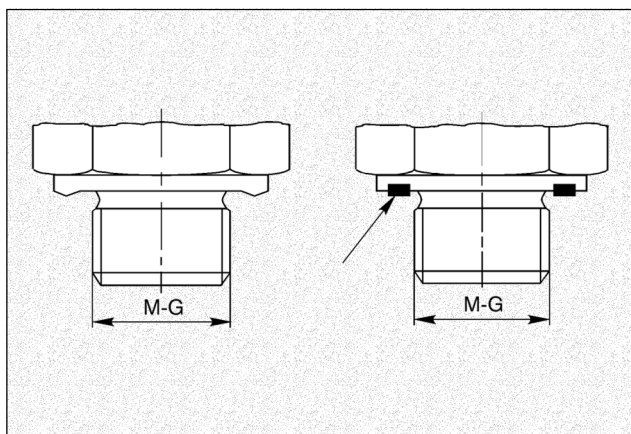
Maintenance - As Needed

Table of tightening moments for necks with tightening edge, or with flat packing

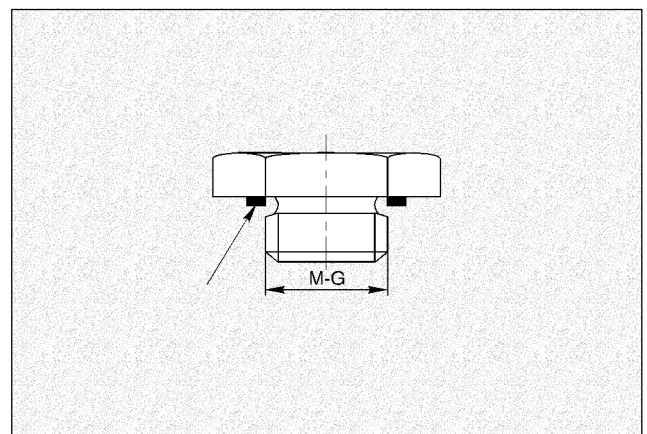
G - M	Tightening moments for the necks	
	Nm	lb -ft
G 1/8"	25	18
G 1/4"	40	30
G 3/8"	95	70
G 1/2"	130	96
G 3/4"	250	184
G 1"	400	295
G 1 1/4"	600	443
G 1 1/2"	800	590
M 10 x 1	25	18
M 12 x 1,5	30	22
M 14 x 1,5	50	37
M 16 x 1,5	60	44
M 18 x 1,5	60	44
M 20 x 1,5	140	103
M 22 x 1,5	140	103
M 26 x 1,5	220	162
M 27 x 1,5	250	184
M 33 x 1,5	400	295
M 42 x 1,5	600	443
M 48 x 1,5	800	590

Table of tightening moments for plugs with flat packing edge

G - M	Tightening moments for the plugs	
	Nm	lb -ft
G 1/8"	15	11
G 1/4"	33	24
G 3/8"	70	52
G 1/2"	90	66
G 3/4"	150	111
G 1"	220	162
G 1 1/4"	600	443
G 1 1/2"	800	590
M 10 x 1	13	10
M 12 x 1,5	30	22
M 14 x 1,5	40	30
M 16 x 1,5	60	44
M 18 x 1,5	70	52
M 20 x 1,5	90	66
M 22 x 1,5	100	74
M 26 x 1,5	120	89
M 27 x 1,5	150	111
M 33 x 1,5	250	184
M 42 x 1,5	400	295
M 48 x 1,5	500	369



282N221T



282N222T

3.6. Individual Operations of Maintenance

! NOTE !

Usually, defects are caused by incorrect operation of the machine. Therefore, in case of any troubles read again properly through the instructions given in the operation and maintenance manual for the machine and engine. If you cannot identify the cause, contact a service department of an authorised dealer or the manufacturer.

! NOTE !

Troubleshooting in hydraulic and electric systems requires knowledge of these systems; therefore a service department of an authorised dealer or the manufacturer should be called to solve these problems.

3.8. Appendixes

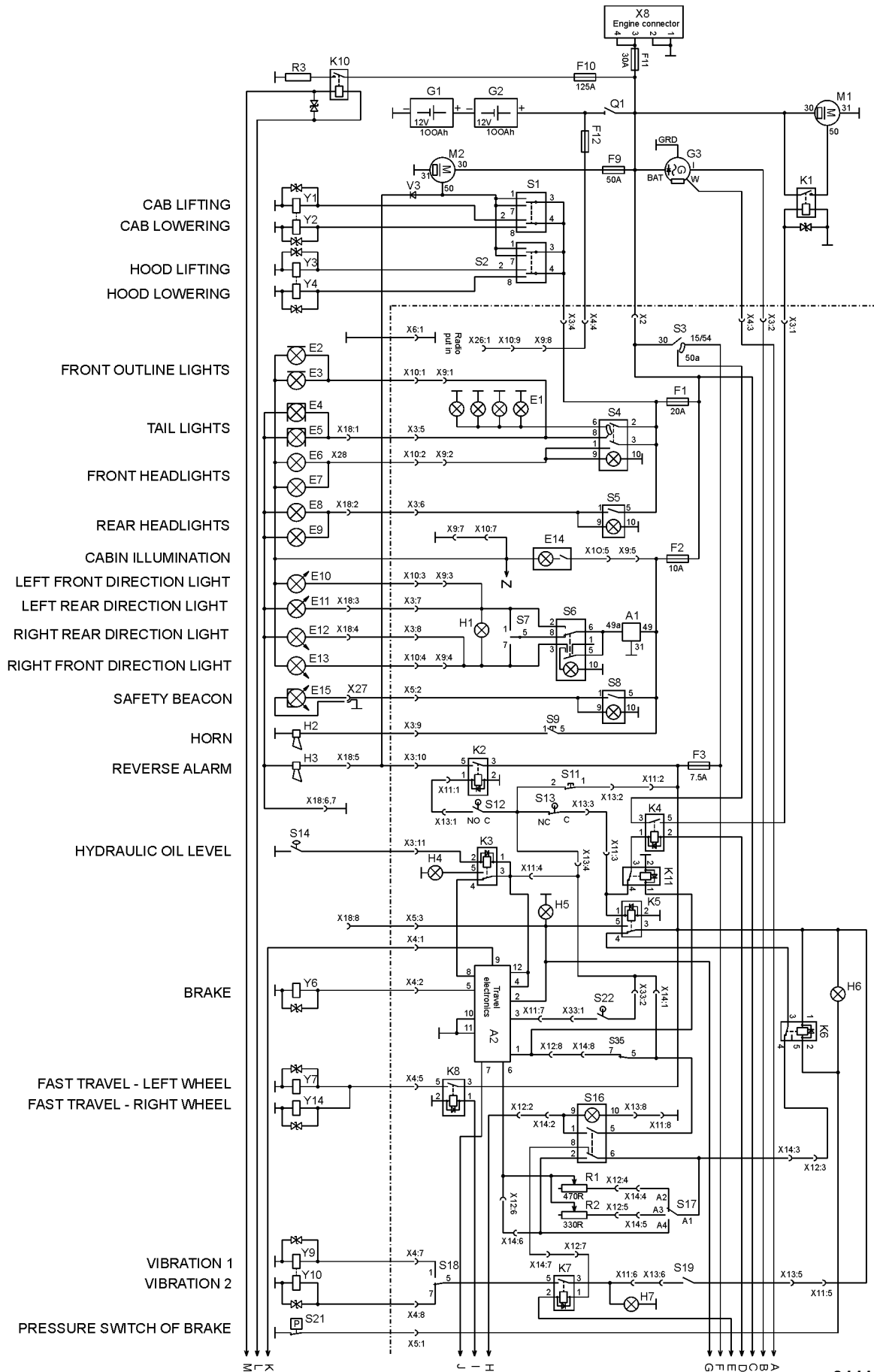
Wiring scheme

Wiring scheme - seat switch - with engine QSB according to TIER 3 (Ammann Traction Control)

Legend: (the schematic reflects machine version that includes all controlling elements and accessories)

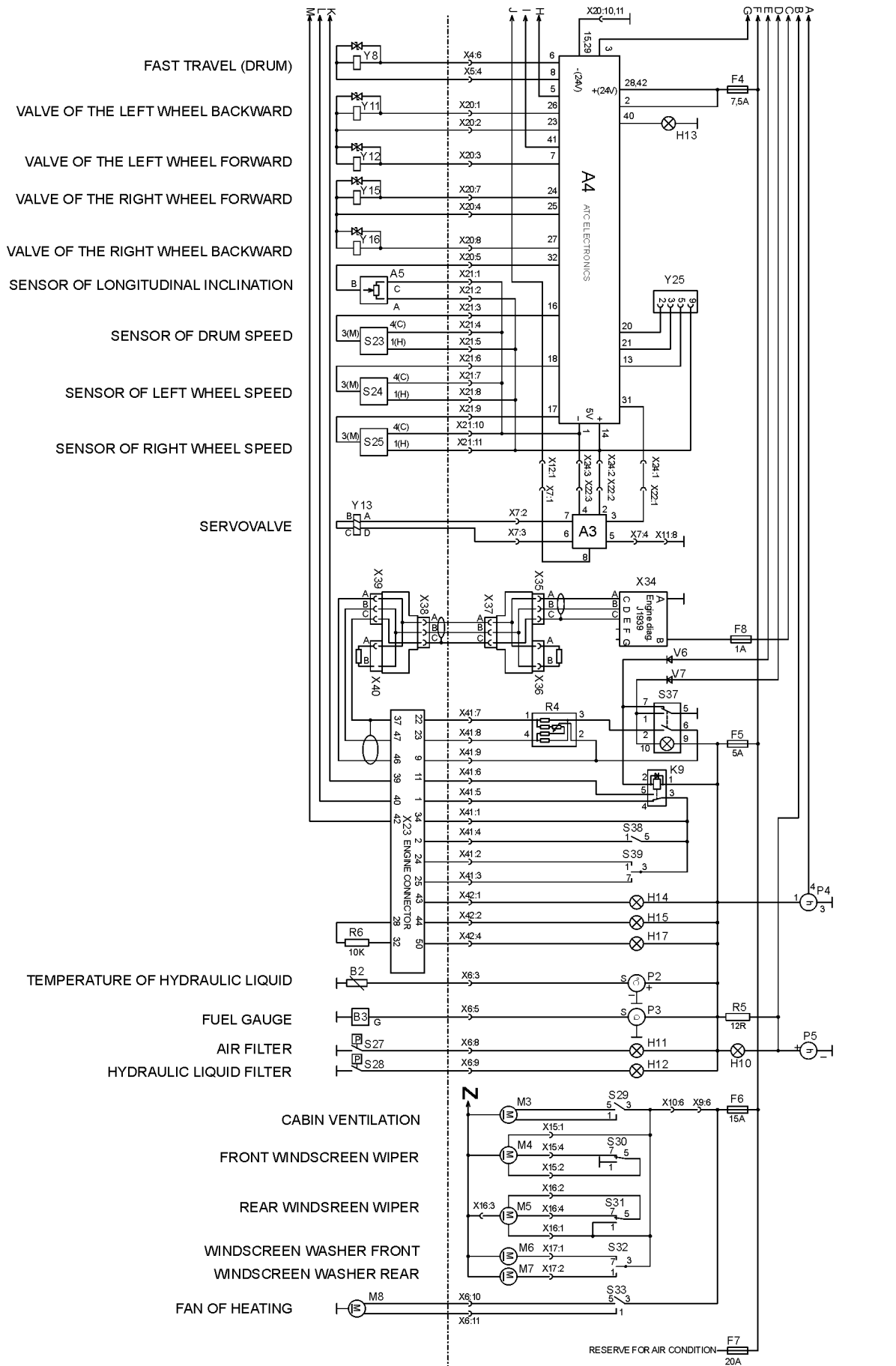
A1 - Interrupter of direction lights	S5 - Switch of rear headlights
A2 - Travel safe electronics	S6 - Switch of warning lights
A3 - Travel controller	S7 - Change-over switch of direction lights
A4 - ATC control unit	S8 - Switch of safety beacon
A5 - Sensor of longitudinal inclination	S9 - Push button of horn
B2 - Sensor of hydraulic oil thermometer	S11 - Push button of emergency brake
B3 - Fuel level sensor	S12 - Switch of back-up alarm (at the travel controller)
E1 - Instruments illumination	S13 - Switch of neutral (at the travel controller)
E2,3 - Front outline lights	S14 - Float of the hydraulic oil tank
E4,5 - Tail lights	S15 - Pressure switch of steering
E6,7 - Front headlights	S16 - Fast travel switch
E8,9 - Rear headlights	S17 - Speed preselector switch
E10,11 - Left direction lights	S18 - Change-over switch of vibration
E12,13 - Right direction lights	S19 - Switch of vibration (at the travel controller)
E14 - Cabin illumination	S21 - Pressure switch of brake
E15 - Safety beacon	S22 - Seat switch
F1-12 - Fuses	S23 - Sensor of drum speed
G1,2 - Batteries	S24 - Sensor of left wheel speed
G3 - Alternator	S25 - Sensor of right wheel speed
H1 - Indicator of direction lights	S27 - Underpressure switch of air filter clogging
H2 - Horn	S28 - Underpressure switch of hydraulic filter clogging
H3 - Back-up alarm	S29 - Change-over of cabin ventilation *
H4 - Indicator of hydraulic oil level	S30 - Switch of front windscreen wiper
H5 - Neutral position Indicator of the travel controller	S31 - Switch of rear windscreen wiper
H6 - Indicator of brake	S32 - Push button of windscreen washers
H7 - Indicator of vibration preselection	S33 - Change-over switch of fan of heating
H10 - Indicator of charging	S35 - Parking brake push button
H11 - Indicator of air filter clogging	S36 - Limit switch of traction spin of the drum
H12 - Indicator of hydraulic filter clogging	S37 - Engine idle speed switch
H13 - Indicator of ATC (Ammann Traction Control)	S38 - Engine diagnostic switch
H14 - Stop engine warning lamp (red)	S39 - Trouble shooting switch
H15 - Engine defect warning lamp (yellow)	V3 - Blocking diode (only machine with signalling of sound lift cabin)
H17 - WTS (Wait To Start) indicator lamp (white) – engine preheating	V4-7 - Blocking diode
K1 - Start relay	X2-24 - Connectors
K2-9 - Auxiliary relay	X25 - Diagnostic socket
K10 - Preheating relay	X27 - Socket of safety beacon
K11 - Auxiliaries relay	X28-33 - Connectors
M1 - Starter	X34 - Engine diagnostic
M2 - Electric motor of hood & cabin lifting system	X35-40 - Connectors J1939
M3 - Fan of cabin ventilation *	X41-42 - Connectors
M4 - Front windscreen wiper	Y1 - Solenoid valve cab lifting
M5 - Rear windscreen wiper	Y2 - Solenoid valve cab lowering
M6 - Front windscreen washer	Y3 - Solenoid valve hood lifting
M7 - Rear windscreen washer	Y4 - Solenoid valve hood lowering
M8 - Fan of heating	Y6 - Solenoid valve of brake
P2 - Hydraulic oil thermometer	Y7 - Solenoid valve of fast travel speed (left wheel)
P3 - Fuel gauge	Y8 - Solenoid valve of fast travel speed (drum)
P4 - Engine speedometer	Y9 - Solenoid valve of vibration I.
P5 - Hour counter	Y10 - Solenoid valve of vibration II.
Q1 - Battery master switch	Y11 - Solenoid valve - LH wheel backward
R1,2,5,6- Resistors	Y12 - Solenoid valve - LH wheel forward
R3 - Engine preheating	Y13 - Solenoid of the pump of travel
R4 - Engine speed control	Y14 - Solenoid valve of fast travel speed (right wheel)
S1 - Push button of cabin lifting system	Y15 - Solenoid valve - RH wheel forward
S2 - Push button of hood lifting system	Y16 - Solenoid valve - RH wheel backward
S3 - Switch box	
S4 - Switch of front headlights	

*- Without the fan M3, switch S29 on the rollers with aircondition



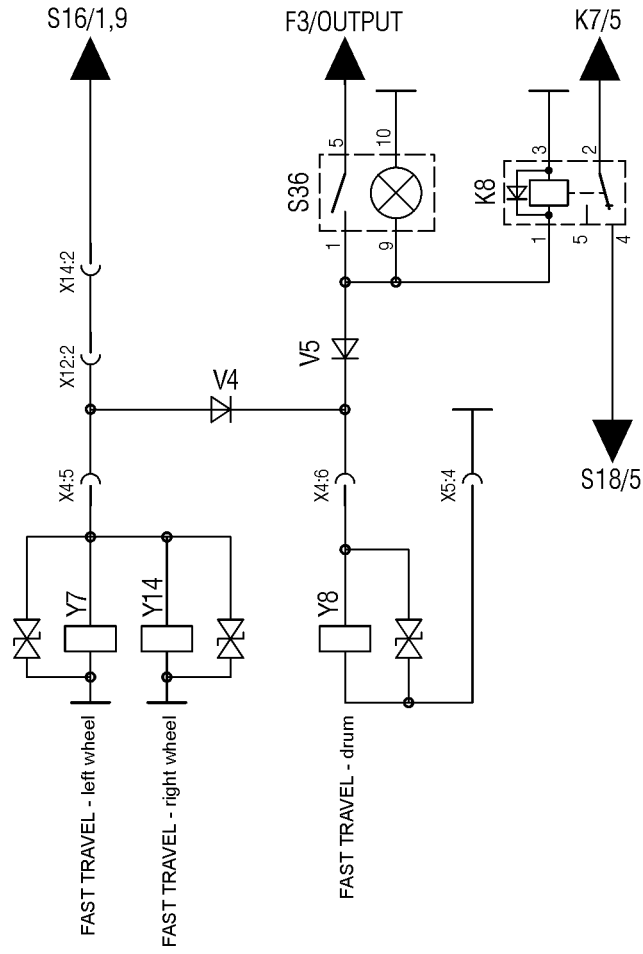
211141_1A

3.8. Appendixes



211141_2A

Connection of solenoid valves Y7, Y14, Y8, inter-wheel differential lock, without control unit A4.



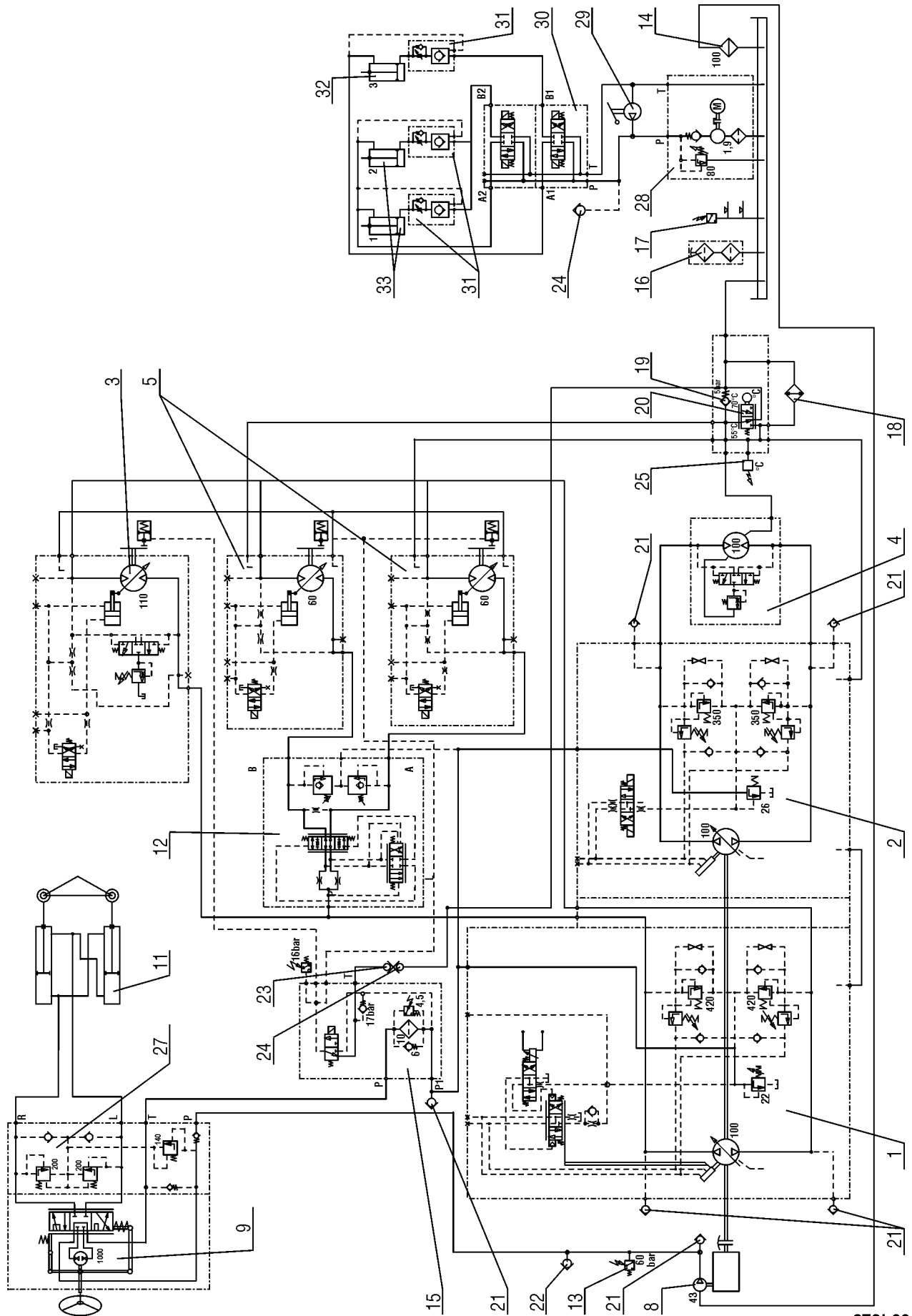
28203A

3.8. Appendixes

Hydraulic circuit - ASC 200/250 - Inter - wheel differential lock

Diagram:

1 - Travel pump	SAUER
2 - Vibration pump	SAUER
3 - Drive drum hydromotor	SAUER
4 - Vibration hydromotor	SAUER
5 - Wheel hydromotors	SAUER
8 - Steering pump	JIHOSTROJ
9 - Power steering unit	REXROTH
11 - Steering hydraulic cylinder	AXL SEMILY
12 - Divider lock	HYTOS
13 - Switch 60 bar	HYTOS
14 - Suction strainer	HYTOS
15 - Block of filter	HYTOS
16 - Filler	ARGO
17 - Hydraulic tank float	
18 - Combined cooler	EMMEGI
18 - One-way valve	HYTOS
20 - Thermoregulator	
21 - Check point	STAUFF
22 - Quick-release coupling - male	FASTER
23 - Quick-release coupling - female	FASTER
24 - Quick-release coupling - male	FASTER
25 - Temperature sensor	
27 - Valve plate	DANFOS
28 - Lifting electro-hydraulic generator SMA03	HYTOS
29 - Lifting hand hydraulic generator RC16	SAUER
30 - Lifting block	HYTOS
31 - Hydraulic lock	HYTOS
32 - Cabin lifting hydraulic cylinder	AXL SEMILY
33 - Bonnet lifting hydraulic cylinder	AXL SEMILY



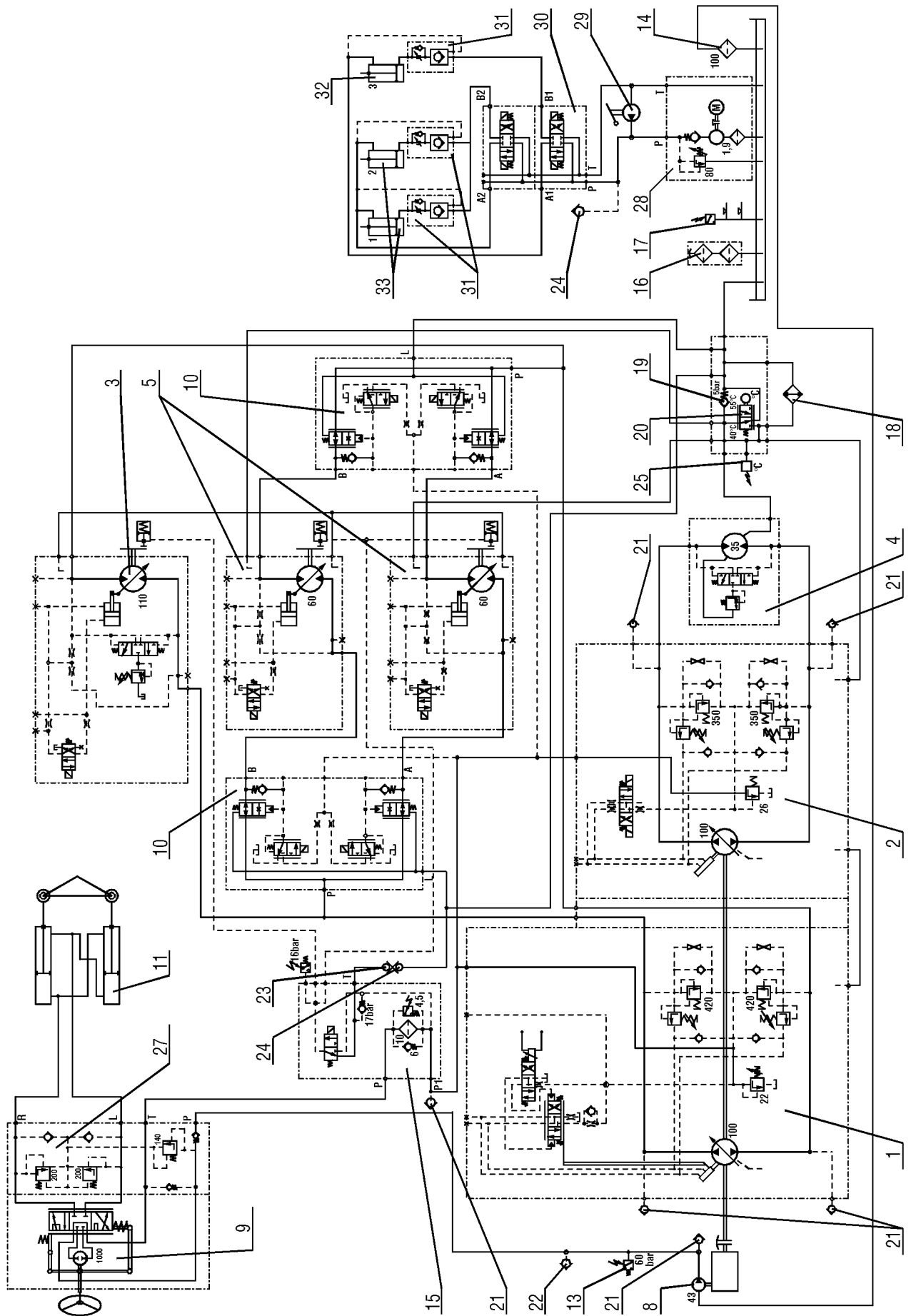
278h005

3.8. Appendixes

Hydraulic circuit - ASC 200/250 - Interaxle differential lock ATC

Diagram:

1 - Travel pump	SAUER
2 - Vibration pump	SAUER
3 - Drive drum hydromotor	SAUER
4 - Vibration hydromotor	SAUER
5 - Wheel hydromotors	SAUER
8 - Steering pump	JIHOSTROJ
9 - Power steering unit	DANFOS
10 - Valve ATC	SAUER
11 - Steering hydraulic cylinder	AXL SEMILY
13 - Switch 60 bar	HYTOS
14 - Suction strainer	HYTOS
15 - Block of filter	DONALDSON
16 - Filler	ARGO
17 - Hydraulic tank float	
18 - Combined cooler	EMMEGI
18 - One-way valve	HYTOS
20 - Thermoregulator	
21 - Check point	STAUFF
22 - Quick-release coupling - male	FASTER
23 - Quick-release coupling - female	FASTER
24 - Quick-release coupling - male	FASTER
25 - Temperature sensor	
27 - Valve plate	HYTOS
28 - Lifting electro-hydraulic generator SMA03	HYTOS
29 - Lifting hand hydraulic generator RC16	SAUER
30 - Lifting block	HYTOS
31 - Hydraulic lock	HYTOS
32 - Cabin lifting hydraulic cylinder	AXL SEMILY
33 - Bonnet lifting hydraulic cylinder	AXL SEMILY



278H0004

