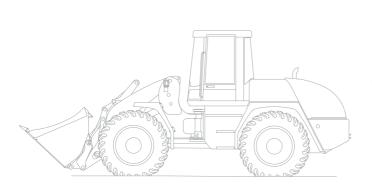


# **List of Contents**

- 1 General
- 2 Technical Data
- 3 Diesel Engine
- 4 Hydraulic System
- 5 Setting Instructions
- 6 Functional Description
- 7 Electrical System
- 8 Maintenance
- 9 Operation
- 10 Options
- **11** Repair Instructions
- 12 BDE/Special tooling



# PRESSURE AND SETTING VALUES

Suction pressure: Charge pressure (high idle): High pressure (SV): Pressure cut-off: Case pressure at + 50° C: Regulation start: Start-up speed: Engine stalling (rabbit) - dynamic: Brake inching beginning / end: Pressure switch (hydrostatic brake):	min <sup>-1</sup> (see setting min <sup>-1</sup> min <sup>-1</sup> bar bar	$0.5^{\pm 0.1}$ $30^{\pm 1}$ 480 450 2.5 $2100^{-50}$ at 180 bar HP instructions, chapter 5, measuring method 2) 1,150 $2,000^{-100}$ at 220 bar HP 5 - 13 22 instructions, chapter 5, measuring method 2)
STEERING		
Steering unit: Steering pump: Displacement: Steering pressure (high idle): Priority valve:	type make cm³/rev: bar type	Rexroth LAGC100-15/LD240-1 Cassappa 29 175 Rexroth LPS80RM/LD7-643/0
WORKING HYDRAULICS		
Working pump: Displacement: Valve bank:	make I/min. type	Cassappa 64 Walvoil SDM 100/3
PRESSURE AND SETTING VALUES	working	
Main pressure relief valve (high idle): Line relief pressures: - lifting frame lift:	max. bar bar	250 280
- lifting frame lower:	bar	anti-cavitation
<ul> <li>shovel dump in:</li> <li>shovel dump out:</li> </ul>	bar bar	280 130
- additional control circuit:	bar	230 / 230

travel

# - additional control circuit:

Lifting frame lift:	S	6.2
Lifting frame lower:	S	4.4
Shovel dump in:	S	3.0
Shovel dump out:	S	3.8

# AXLES

Front axle with self-locking differential - 20 km/h-version:	make/type	Dana 211/111
Rear axle with self-locking differential - 20 km/h-version:	make/type	Dana 311/211/174

#### **BRAKE SYSTEM**

Service brake:

Parking brake: Master cylinder:

## LUBRICANTS

Engine: Hydraulic oil:

Transmission oil:

Multi-purpose grease:

Brake medium:

#### **MAINTENANCE PARTS**

# CAPACITIES

Engine oil with oil filter - change: Hydraulic oil (tank and system) - first filling: Hydraulic oil tank (change): Fuel tank: Front axle - central housing: Front axle - wheel hub: Rear axle - central housing and reduction gearbox: Rear axle - wheel hub: Service brake: Coolant fluid hydraulically operated drum brake, front axle drum brake at the front axle ATE (mineral oil)

see engine instruction book see TEREX hydraulic oil recommendation table MIL-L 2105 B or API-GL 5 resp., SAE 85 W 90 LS or SAE 90 LS acc. to DIN 51825. Dripping point over 170° C. Lithium-saponified. ATF type A Suffix A or Dexron II D

see instruction book

#### ltr.

make

approx.	9.0	engine oil
approx.	70.0	hydraulic oil
approx.	46.0	hydraulic oil
approx.	70.0	diesel
approx.	4.0	transmission oil
approx.	0.3	transmission oil, each
approx.	4.5	transmission oil
approx.	0.3	transmission oil, each
approx.	0.25	ATF oil
approx.	15,0	water with anti-corrosive
		and anti-freeze agent

# **DIESEL ENGINE**

Manufacturer: Type: Performance according to		Deutz BF4M 2011 Turbo	
(ECE-R24/ISO1585/ISO9249): Construction:	kW	54 at 2,200 min <sup>-1</sup> 4 cylinders in line	
Cooling:		external oil cooling	
Injection:	3	direct injection, turbo charged	
Capacity:	cm³ min⁻¹	3,100 2,350 <sup>+50</sup>	
High idle: Low idle:	min <sup>-1</sup>	2,350 850 <sup>+50</sup>	
Spec. fuel consumption under full load:	g/kWh	205	
Tappet clearance - inlet cold:	mm	0.30	
Tappet clearance - outlet cold:	mm	0.50	
Torque of cylinder head studs	Nm	30 / 80 / 160	
(only in case of repair):		Tightening angle 90°	
Further data:		see engine instruction book or chapter 3	
ELECTRICAL SYSTEM			
Voltage:	V	12	
Battery:	V/Ah/A	12 / 80 / 720 (EN)	
Generator:	V/A	14 / 95	
Starter:	V/kW/PS	12 / 2.3 / 3.1	
Cold start aid:	_	heater plug	
Lighting:		in motor vehicle construction and use	
	regulation ("StVZO") and Euronorm.		
	H4 halogen headlamp.		

#### Two working lights at the front.

#### TRANSMISSION

Travel pump:	type	A 4 VG 56 DA with pressure cut-off
Displacement:	max. cm³/rev.	56
Travel motor 20/36 km/h version:	type	A 6 VM 80 DA 5 / 63 W
Displacement 20/36 km/h version:	max. cm³/rev.	80

#### TRAVEL RANGE

Two/ four pre-selectable travel ranges, electro-hydraulically controlled: **TL 100:** 20 km/h - version:

to		km/h km/h km/h	0 to 6.0 / 0 to	o 20 o 18 o 36
Cardan shaft rev. at tyres standard: option:	20 km/h - version 405/70 R20: 14,5-20: 16/70-20: 375/75 R20:	min <sup>-1</sup> min <sup>-1</sup> min <sup>-1</sup> min <sup>-1</sup>	adjustment at nor tortoise / rabbit 600 / 1,990 600 / 2,005 600 / 2,070 600 / 2,040	ninal speed
Cardan shaft rev. at tyres standard: option:	<b>36 km/h - version</b> 405/70 R20: 14,5-20: 16/70-20: 375/75 R20:	min <sup>-1</sup> min <sup>-1</sup> min <sup>-1</sup> min-1	adjustment at nor tortoise / 1./2. gear / 580 / 1,190 580 / 1,190 580 / 1,190 580 / 1,190	minal speed rabbit 1./2. gear 1,750 / 3,570 1,760 / 3,595 1,800 / 3,700 1,775 / 3,660
	0101101120.		0007 1,100	.,

# PRESSURE AND SETTING VALUES travel

PRESSURE AND SETTING VALUES	liavei	
Suction pressure: Charge pressure (high idle): High pressure (SV): Pressure cut-off: Case pressure at + 50° C: Regulation start, dynamic: Start-up speed: Engine stalling (rabbit) - dynamic: Brake inching beginning / end: Pressure switch (hydrostatic brake):	max. bar bar bar max. bar min <sup>-1</sup> (see setting min <sup>-1</sup> bar bar	0.5 $\pm$ <sup>0.1</sup> 30 $\pm$ <sup>1</sup> 480 450 2.5 2,100 $^{-50}$ at 250 bar g instructions, chapter 5, measuring method 2) 1,150 2,000 $^{-100}$ at 280 bar HP 5 - 13 22
STEERING		
Steering unit: Steering pump: Displacement: Steering pressure (high idle): Priority valve:	type make cm³/rev: bar type	LAGU 400/130-11/LD240-175M01 WSP 20.14-045 33 175 LPS 80R11/LD7-643/01
WORKING HYDRAULICS		
Working pump: Displacement: Valve bank: Servo-controlled valve:	make I/min. type type	WSP 20.14-045 72 Parker P 70 Brown PRSV C01 S053 FO
	type	
PRESSURE AND SETTING VALUES	working	
		250 280 anti-cavitation 280 130 230 / 230 30 <sup>±1</sup>
PRESSURE AND SETTING VALUES Main pressure relief valve (high idle): Line relief pressures: - lifting frame lift: - lifting frame lower: - shovel dump in: - shovel dump out: - additional control circuit:	working max. bar bar bar bar bar bar bar bar	250 280 anti-cavitation 280 130 230 / 230
PRESSURE AND SETTING VALUES Main pressure relief valve (high idle): Line relief pressures: - lifting frame lift: - lifting frame lower: - shovel dump in: - shovel dump out: - additional control circuit: - pilot pressure (charge pressure):	working max. bar bar bar bar bar bar bar bar	250 280 anti-cavitation 280 130 230 / 230
<ul> <li>PRESSURE AND SETTING VALUES</li> <li>Main pressure relief valve (high idle): Line relief pressures: <ul> <li>lifting frame lift:</li> <li>lifting frame lower:</li> <li>shovel dump out:</li> <li>additional control circuit:</li> <li>pilot pressure (charge pressure):</li> </ul> </li> <li>WORKING CYCLES <ul> <li>Lifting frame lift:</li> <li>Lifting frame lower:</li> <li>Shovel dump in:</li> </ul> </li> </ul>	working max. bar bar bar bar bar bar bar s s s	250 280 anti-cavitation 280 130 230 / 230 30 <sup>±1</sup> 5.1
<ul> <li>PRESSURE AND SETTING VALUES</li> <li>Main pressure relief valve (high idle): Line relief pressures: <ul> <li>lifting frame lift:</li> <li>lifting frame lower:</li> <li>shovel dump out:</li> <li>additional control circuit:</li> <li>pilot pressure (charge pressure):</li> </ul> </li> <li>WORKING CYCLES <ul> <li>Lifting frame lift:</li> <li>Lifting frame lower:</li> <li>Shovel dump in:</li> <li>Shovel dump in:</li> </ul> </li> </ul>	working max. bar bar bar bar bar bar bar s s s	250 280 anti-cavitation 280 130 230 / 230 30 <sup>±1</sup> 5.1

#### **BRAKE SYSTEM**

Service brake:

Parking brake: Master cylinder:

#### LUBRICANTS

Engine: Hydraulic oil:

Transmission oil:

Multi-purpose grease:

Brake medium:

# **MAINTENANCE PARTS**

# CAPACITIES

Engine oil with oil filter and oil cooler - change: Hydraulic oil (tank and system) - first filling: Hydraulic oil tank (change): Fuel tank: Front axle - central housing: Front axle - wheel hub: Rear axle - central housing and reduction gearbox: Rear axle - wheel hub: Service brake: hydraulically operated drum brake, front axle drum brake at the front axle ATE (mineral oil)

see engine instruction book see Schaeff hydraulic oil recommendation table MIL-L 2105 B or API-GL 5 resp., SAE 85 W 90 LS or SAE 90 LS acc. to DIN 51825. Dripping point over 170° C. Lithium-saponified. ATF type A Suffix A or Dexron II D

see instruction book

ltr.

make

# **DIESEL ENGINE**

TRANSMISSION Travel pump:

Travel motor 20/36 km/h version:

Displacement 20/36 km/h version:

Displacement:

4 cylinders in line external oil cooling	
n³ 3,100	
in <sup>-1</sup> 850 <sup>+50</sup> kWh 205	
m 0.50	
Tightening angle 90° see engine instruction book or chapte	er 3
A14 / 95kW/PS12 / 2.3 / 3.1heater plugcc. to German motor vehicle construction and use	
	external oil cooling direct injection, turbo charged $m^3$ 3,100 $m^1$ 2,350 $^{+50}$ $m^{-1}$ 850 $^{+50}$ /kWh 205 m 0.30 m 0.50 m 30 / 80 / 160 Tightening angle 90° see engine instruction book or chapter /Ah/A 12 / 80 / 720 (EN) /A 14 / 95 /kW/PS 12 / 2.3 / 3.1

H4 halogen headlamp. Two working lights at the front.

type

max. cm<sup>3</sup>/rev. 56

type/make 51D080 / Danfoss max. cm³/rev. 80

A 4 VG 56 DA with pressure cut-off

TRAVEL RANGE

I wo/ four pre-	-selectable travel	ranges,	electro-hydraulically controlled:	
TI 100.	20  km/h	orcion		

tort		km/h km/h km/h	0 to 6.0 / 0 to 0 to 6.0 / 0 to 0 to 12 / 0 to	18
Cardan shaft rev. at <b>20</b> tyres standard: option:	<b>km/h - version</b> 405/70 R20: 14,5-20: 16/70-20: 375/75 R20:	min <sup>-1</sup> min <sup>-1</sup> min <sup>-1</sup> min <sup>-1</sup>	adjustment at nom tortoise / rabbit 600 / 1,990 600 / 2,005 600 / 2,070 600 / 2,040	iinal speed
Cardan shaft rev. at <b>36</b> tyres standard: option:	<b>6 km/h - version</b> 405/70 R20: 14,5-20: 16/70-20: 375/75 R20:	min <sup>-1</sup> min <sup>-1</sup> min <sup>-1</sup> 	adjustment at nom tortoise / 1./2. gear / 580 / 1,190 580 / 1,190 580 / 1,190 580 / 1,190	ninal speed rabbit 1./2. gear 1,750 / 3,570 1,760 / 3,595 1,800 / 3,700 1,775 / 3,660

# PRESSURE AND SETTING VALUES

4-	
trave	I

Suction pressure: Charge pressure (high idle): High pressure (SV): Pressure cut-off: Case pressure at + 50° C: Regulation start: Start-up speed: Engine stalling (rabbit) - dynamic: Brake inching beginning / end: Pressure switch (hydrostatic brake):		max. bar bar bar max. bar bar min <sup>-1</sup> min <sup>-1</sup> bar bar	0.5 <sup>±0.1</sup> 30 <sup>±1</sup> 480 450 2.5 290 1,150 2,000 <sup>-100</sup> at 280 bar HP 5 - 13 22	
STEERING	3			
Steering ur Steering pu Displaceme Steering pr Priority valu	ump: ent: ressure (high idle):		type make cm³/rev: bar type	LAGU 400/130-11/LD240-175M01 WSP 20.14-045 33 175 LPS 80R11/LD7-643/01
WORKING	HYDRAULICS			
Working pu Displaceme Valve bank	ent: «		make I/min. type type	WSP 20.14-045 72 Parker P 70 Brown PRSV C01 S053 FO
Servo-cont			.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
	E AND SETTING VAL	LUES	working	
PRESSUR Main press Line relief µ - lifting fran - lifting fran - shovel du - shovel du - additional	<b>E AND SETTING VAI</b> sure relief valve (high i pressures: ne lift: ne lower: ump in:	dle):		250 280 anti-cavitation 280 130 230 / 230 30 <sup>±1</sup>
PRESSUR Main press Line relief µ - lifting fran - lifting fran - shovel du - shovel du - additional	RE AND SETTING VAI sure relief valve (high i pressures: ne lift: ne lower: ump in: ump out: I control circuit: sure (charge pressure	dle):	working max. bar bar bar bar bar bar bar	250 280 anti-cavitation 280 130 230 / 230
PRESSUR Main press Line relief µ - lifting fran - lifting fran - shovel du - shovel du - additional - pilot press	RE AND SETTING VAI sure relief valve (high i pressures: me lift: me lower: ump in: ump out: I control circuit: sure (charge pressure G CYCLES me lift: me lower: mp in:	dle):	working max. bar bar bar bar bar bar bar	250 280 anti-cavitation 280 130 230 / 230
PRESSUR Main press Line relief p - lifting fram - lifting fram - shovel du - shovel du - additional - pilot press WORKING Lifting fram Lifting fram	RE AND SETTING VAI sure relief valve (high i pressures: me lift: me lower: ump in: ump out: I control circuit: sure (charge pressure G CYCLES me lift: me lower: mp in:	dle):	working max. bar bar bar bar bar bar bar s s s	250 280 anti-cavitation 280 130 230 / 230 30 <sup>±1</sup> 5.1
PRESSUR Main press Line relief p - lifting fram - lifting fram - shovel du - shovel du - additional - pilot press WORKING Lifting fram Shovel dur Shovel dur Shovel dur	RE AND SETTING VAI sure relief valve (high i pressures: me lift: me lower: ump in: ump out: I control circuit: sure (charge pressure G CYCLES me lift: me lower: mp in:	dle):	working max. bar bar bar bar bar bar bar s s s	250 280 anti-cavitation 280 130 230 / 230 30 <sup>±1</sup> 5.1

#### **BRAKE SYSTEM**

Service brake:

Parking brake: Master cylinder:

#### LUBRICANTS

Engine: Hydraulic oil:

Transmission oil:

Multi-purpose grease:

Brake medium:

# **MAINTENANCE PARTS**

# CAPACITIES

Engine oil with oil filter and oil cooler - change: Hydraulic oil (tank and system) - first filling: Hydraulic oil tank (change): Fuel tank: Front axle - central housing: Front axle - wheel hub: Rear axle - central housing and reduction gearbox: Rear axle - wheel hub: Service brake: hydraulically operated drum brake, front axle drum brake at the front axle ATE (mineral oil)

see engine instruction book see Schaeff hydraulic oil recommendation table MIL-L 2105 B or API-GL 5 resp., SAE 85 W 90 LS or SAE 90 LS acc. to DIN 51825. Dripping point over 170° C. Lithium-saponified. ATF type A Suffix A or Dexron II D

see instruction book

ltr.

make

# **DIESEL ENGINE Tier 3**

Manufacturer: Type: Performance according to		Deutz TD 2011 L04W
(ECE-R24/ISO1585/ISO9249): Construction:	kW	54 at 2,200 min <sup>-1</sup> 4 cylinders in line
Cooling:		water
Injection:		direct injection, turbo charged
Capacity:	cm <sup>3</sup>	3,600
High idle: Low idle:	min⁻¹ min⁻¹	2,350 <sup>+50</sup> 850 <sup>+50</sup>
Spec. fuel consumption under full load:	g/kWh	237
Tappet clearance - inlet cold:	mm	0.30
Tappet clearance - outlet cold:	mm	0.50
Torque of cylinder head studs	Nm	30 / 80 / 160
(only in case of repair):		Tightening angle 90°
Further data:		see engine instruction book or chapter 3
ELECTRICAL SYSTEM		
Voltage:	V	12
Battery:	V/Ah/A	12 / 100 / 850 (EN)
Generator:	V/A	14 / 95
Starter: Cold start aid:	V/kW/PS	12 / 2.3 / 3.1 heater plug
Lighting: acc. to German mot		n motor vehicle construction and use tVZO") and Euronorm. eadlamp.

#### TRANSMISSION

Travel pump:	type	A 4 VG 56 DA with pressure cut-off	
Displacement:	max. cm³/rev.	56	
to Se. No. TL01001005			
Travel motor 20/36 km/h version:	type/make	51D080 / Danfoss (80 cm³/rev.)	
from Se. No. TL01001006			
Travel motor 20/36 km/h version:	type/make	A6VM80 / Hydromatik (80 cm <sup>3</sup> /rev.)	
	• •	• • • •	

# TRAVEL RANGE

Two/ four pre-selectable travel ranges, electro-hydraulically controlled:

	km/h - version:			- /
	toise / rabbit	km/h	0 to 6.0 / (	0 to 20
	km/h - version:			- <i>.</i>
Gearbox position 1, to		km/h		0 to 18
Gearbox position 2, tortoise / rabbit:		km/h	0 to 12 / (	0 to 36
Cardan shaft rev. at <b>20 km/h - version</b>			adjustment at r	nominal speed
tyres			tortoise / rabbit	t
standard:	405/70 R20:	min⁻¹	600 / 1,990	
option:	14,5-20:	min <sup>-1</sup>	600 / 2,005	
	16/70-20:	min⁻¹	600 / 2,070	
	375/75 R20:	min⁻¹	600 / 2,040	
Cardan shaft rev. at <b>36 km/h - version</b>			adjustment at r	nominal speed
			tortoise /	/ rabbit
tyres			1./2. gear /	/ 1./2. gear
standard:	405/70 R20:	min⁻¹	580 / 1,190	1,750 / 3,570
option:	14,5-20:	min⁻¹	580 / 1,190	1,760 / 3,595
•	16/70-20:	min⁻¹	580 / 1,190	1,800 / 3,700
	375/75 R20:	min-1	580 / 1,190	1,775 / 3,660
		-		

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