

List of Contents

- 1 General**
- 2 Technical Data**
- 3 Diesel Engine**
- 4 Hydraulic System**
- 5 Setting Instructions**
- 6 Functioning Description**
- 7 Electrical System
- 8 Maintenance
- 9 Operation
- 10 Options
- 11 Repair Instructions
- 12 Service-Bulletins

Shut-off valve	make	Knappheide
Shut-off valve (high idle):	bar	110 ^{±5}
Pilot pressure (charge pressure) – high idle:	bar	30 ⁺²

SWING DRIVE

Swing gear:	type	ZFP DR - 140
Swing motor:	type	A 2 FM 28
Swing pressure (valves at the swing motor):	bar	100 / 250

CYLE TIMES:

Articulated boom, boom up / down:	s	4.7 / 4.0
Intermediate boom up / down:	s	4.3 / 4.5
Stick in / out:	s	5.2 / 4.7
Bucket in / out:	s	3.1 / 2.6

AXLES

Front axle:	make/type	DANA 311 / 212 / 100
Rear axle:	make/type	DANA 162 / 54

BRAKES

Brake pump:	make	Cassappa
Displacement:	cm ³ /rev.	5
Brake shut-off valve:	make	Wabco
Switching range:	bar	120 – 150 ^{±10}
Foot brake valve:	make	Wabco
Brake pressure:	bar	40 ⁺⁵
Beginning / end of brake inching:	bar	5 - 13
Parking brake:		spring-loaded brake in the front axle
Service brake:	bar	oil-immersed multi-disk brake, front and rear axle

LUBRICANTS

Engine oil:	see engine instruction book
Hydraulic oil:	see Schaeff hydraulic oil specification in the operating manual
Transmission oil:	SAE 80W 90LS / API-GL 5, SAE 85 W 90 LS or SAE 90 LS
Multi-purpose grease:	acc. to DIN 51825, lithium-saponified multi-purpose grease, K2K-30

MAINTENANCE PARTS

see operating manual

CAPACITIES

ltr.

Engine oil (first filling):

approx. 10.0 engine oil

Hydraulic oil (tank and system):

approx. 190.0 hydraulic oil

Hydraulic oil (change):

approx. 125.0 hydraulic oil

Fuel tank:

approx. 240.0 diesel

Steering front axle - central housing:

approx. 7.2 transmission oil

Steering front axle – gearbox:

approx. 0.9 transmission oil

Steering front axle – wheel hub:

approx. 0.9 transmission oil, each

Rear axle - central housing:

approx. 8.0 transmission oil

Rear axle – wheel hubs:

approx. 2.1 transmission oil, each

Swing gear:

Hydraulic oil, lubrication by circulation of the oil

Service brake:

connected to the hydraulic system

Cooling agent:

approx. 12.0 water with anti-corrosive and anti-freeze agent

DIESEL ENGINE

Manufacturer:		KHD
Type:		BF 4 M 2012 – Tier 2
Performance acc. to DIN 70020:	kW/PS	67 / 91 at 2,000 min ⁻¹
Cooling:		water / antifreeze mixture
Injection:		direct injection
Capacity:	cm ³	4,040
High idle:	min ⁻¹	2,150 ⁺⁵⁰
Low idle:	min ⁻¹	800 ⁺⁵⁰
Spec. fuel consumption under full load:	g/kWh	227
Tappet clearance - inlet cold:	mm	0.3 ^{+0.1}
Tappet clearance - exhaust cold:	mm	0.5 ^{+0.1}
Engine oil pressure (Low idle):	bar	0,8
Torque cylinder head studs:	Nm	1 st step: 40 2 nd step: 70 Tightening angle: 180° see engine instruction book

Further data:

ELECTRICAL SYSTEM

Voltage:	V	12
Battery:	V/Ah/A	12 / 135 / 1000 (EN)
Generator:	V/A	14 / 70
Starter:	kW/PS	3.1 / 4.2
Cold start aid:		air intake heater plate
Lighting:		acc. to German motor vehicle construction and use regulation ("StVZO") and Euronorm

TRANSMISSION

Travel pump:	type	A 4 VG 90 DA 1 DT 8 with pressure cut-off
Displacement:	cm ³ /rev.	0 to 90
Travel motor	20/25 km/h version:	type A 6 VM 140 DA 1
	36 km/h version:	type A 6 VM 107 DA 1
Displacement:	20/25 km/h version:	cm ³ /rev. max. 140
	36 km/h version:	cm ³ /rev. max. 107
Pilot-operated valve, pedal:	type	Rexroth 2 TH 6 RP 20

TRAVEL RANGE

Symbol „tortoise“:	km/h	0 to 6
Symbol „rabbit“:	km/h	0 to 20
HML 42:	20/25 km/h - version	
tortoise / rabbit:	km/h	0 to 6 / 0 to 20 or 25
HML 42:	36 km/h - version	
4 pre-selectable travel ranges, electro-hydraulically operated:		
Gearbox position 1,	tortoise / rabbit:	km/h 0 to 7 / 0 to 16
Gearbox position 2,	tortoise / rabbit:	km/h 0 to 16 / 0 to 36
Cardan shaft rev. at	20 km/h - version	adjustment at nominal speed tortoise / rabbit
with standard tyres:	9.00-20 14PR:	min ⁻¹ 570 / 1,840
option:	600/40-22.5:	min ⁻¹ 570 / 1,795
	315/80 R 22.5	min ⁻¹ 570 / 1,780
Cardan shaft rev. at	25 km/h - version	adjustment at nominal speed tortoise / rabbit
with standard tyres:	9.00-20 14PR:	min ⁻¹ 570 / 2,150
option:	600/40-22,5:	min ⁻¹ 570 / 2,065
	315/80 R 22.5:	min ⁻¹ 570 / 2,050

Cardan shaft rev. at **36 km/h - version**

adjustment at nominal speed

			Tortoise	/	rabbit
			1 st / 2 nd gear	/	1 st / 2 nd gear
with standard tyres:	9.00-20 14PR:	min ⁻¹	510 / 1,180	/	1,440 / 3,300
option:	600/40-22,5:	min ⁻¹	510 / 1,180	/	1,400 / 3,230
	315/80 R 22.5:	min ⁻¹	510 / 1,180	/	1,395 / 3,200

PRESSURE AND SETTING VALUES

travel

Suction pressure:	bar	- 0,25
Charge pressure (high idle):	bar	30 ⁺²
High pressure (SV):	bar	480
Pressure cut-off:	bar	460 ⁻¹⁰
Case pressure at + 50° C:	max. bar	2.5
Regulation start (dynamic):	bar	220 ^{±10}
Start-up speed:	min ⁻¹	1,000 ⁺⁵⁰ (50 bar HP)
Engine stalling (tortoise dynamic):	min ⁻¹	1,900 ^{±50} at 230 ⁺¹⁰ bar HP

STEERING

Steering unit:	type	Rexroth LAGC 160-14/LD 200-140/M01
Steering pump:	make	Cassapa
Displacement:	cm ³ /rev.	16,6
Steering pressure (high idle):	bar	140 ⁺⁵
Priority valve:	type	Rexroth LPS 40 R11/LD7

WORKING HYDRAULICS

Working pump (variable displacement pump):	type	A 10 VO 100 DFSR
Displacement:	cm ³ /rev.	0 to 100
Gear pumps (triple):	type	Cassapa
Displacement:	cm ³ /rev.	16.6 + 11.1 + 4.8
LS-pressure relief valve:	bar	280 (valve bank 1)
LS-regulator (stand-by pressure):	bar	22 ^{±1} at 2,150 min ⁻¹ (variable displacement pump)
Servo-controlled valve (joystick), right / left:	type	Rexroth 4TH6 NE-70-10
Servo-controlled valve, linear lever (stabilising):	type	Hydro-Control HC-RCB-01-A01
Servo-controlled valve, pedal (intermediate boom/articulation):	type	Rexroth 2TH6 RP 20
Valve bank 1, articulated boom:	type	Rexroth 5 SX 14
Valve bank 2:	type	Rexroth 4 SM 12

PRESSURE AND SETTING VALUES

working

Valve bank 1 (SX 14)

LS valve	bar	280
Main relief valve (high idle)	bar	310
Line relief pressures		
- Boom, articulated boom (up/down):	bar	300 / 300
- Stick:	bar	300 / 300
- Bucket:	bar	300 / 300
- Intermediate boom, articulated boom (in/out):	bar	300 / 150
- Additional control circuit / breaker:	bar	300 / 300

Valve bank 2 (SM 12)

Main pressure relief valve 2 (high idle)	bar	230
Line relief pressures		
- Swing (valves at swing motor):	bar	100/250 / 100/250
- Articulation:	bar	---/---
- Stabilising:	bar	---/---
- Option: front dozer blade	bar	150 ⁺¹⁰ (Bosch safety valve in the undercarriage)

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