# 1.20: Tightening torques (Liebherr Standard WN 4037)

## 1 Tightening torques for screws with metric coarse and fine thread

The assembly preloads FM given in the table, show a 90% utilisation of the screw extension limit $\sigma(0,2)$. The tightening torques MA are calculated from FM.

Involved screws are those with the following surface finish:

- black-chrome finished or phosphatised
- galvanized
- DAKROMET 500
- Screws and nut without rework or surface treatment and ungreased, for mean friction factor μ=0,12.

| Metric coarse thread | | | | Metric fine thread | | | |
|---|---|---|---|---|---|---|---|
| Thread | Class | Assembly preloads FM in N | Tightening torques MA in Nm | Thread | Class | Assembly preloads FM in N | Tightening torques MA in Nm |
| **M4** | 8.8<br>10.9<br>12.9 | 4050<br>6000<br>7000 | 2,8<br>4,1<br>4,8 | | | | |
| **M5** | 8.8<br>10.9<br>12.9 | 6600<br>9700<br>11400 | 5,5<br>8,1<br>9,5 | | | | |
| **M6** | 8.8<br>10.9<br>12.9 | 9400<br>13700<br>16100 | 9,5<br>14,0<br>16,5 | | | | |
| **M7** | 8.8<br>10.9<br>12.9 | 13700<br>20100<br>23500 | 15,5<br>23,0<br>27,0 | | | | |
| **M8** | 8.8<br>10.9<br>12.9 | 17200<br>25000<br>29500 | 23,0<br>34,0<br>40,0 | **M8×1** | 8.8<br>10.9<br>12.9 | 18800<br>27500<br>32500 | 24,5<br>36<br>43 |
| | | | | **M9×1** | 8.8<br>10.9<br>12.9 | 24800<br>36500<br>42500 | 36<br>53<br>62 |
| **M10** | 8.8<br>10.9<br>12.9 | 27500<br>40000<br>47000 | 46,0<br>68,0<br>79,0 | **M10×1** | 8.8<br>10.9<br>12.9 | 31500<br>46500<br>54000 | 52<br>76<br>89 |
| | | | | **M10×1,25** | 8.8<br>10.9<br>12.9 | 29500<br>43000<br>51000 | 49<br>72<br>84 |
| **M12** | 8.8<br>10.9<br>12.9 | 40000<br>59000<br>69000 | 79,0<br>117,0<br>135,0 | **M12×1,25** | 8.8<br>10.9<br>12.9 | 45000<br>66000<br>73000 | 87<br>125<br>150 |
| | | | | **M12×1,5** | 8.8<br>10.9<br>12.9 | 42500<br>62000<br>73000 | 83<br>122<br>145 |
| **M14** | 8.8<br>10.9<br>12.9 | 55000<br>80000<br>94000 | 125,0<br>185,0<br>215,0 | **M14×1,5** | 8.8<br>10.9<br>12.9 | 61000<br>89000<br>104000 | 135<br>200<br>235 |

PREVIEW - YOUFIXTHIS.COM

# 1.22: Assembly instruction for pistons and piston nuts (hydraulic cylinders)

**According to standard WN 4121 B (04/2005)**

## 1 Scope of application

This factory standard applies exclusively to the assembly of hydraulic cylinders with a thread diameter of M42 and greater. For the valid factory standard number, refer to the drawing. The standard may not be adopted or transferred to apparently similar geometries.

The torques have been determined empirically and are subject to changes. THe revision and release dates indicate the latest version of the factory standard.

For threads with diameters smaller than M42, the applicable tightening torques are indicated in the drawings.

The values in the drawings are always binding.

## 2 Description

**Preparation :**

- ▶ Clean the contact surfaces (threads contact faces between piston rod, piston and piton nut) and apply a thin layer of Gleitmo high-performance lubricating grease (ID no. 8300 004, 40 g tube) on both sides.

### 2.1 Definitions :

**Pretightening torque :**

The piston is secured with a torque wrench applied to the square / hexagon head of the assembly wrench. The position of the torque wrench must be carefully noted.

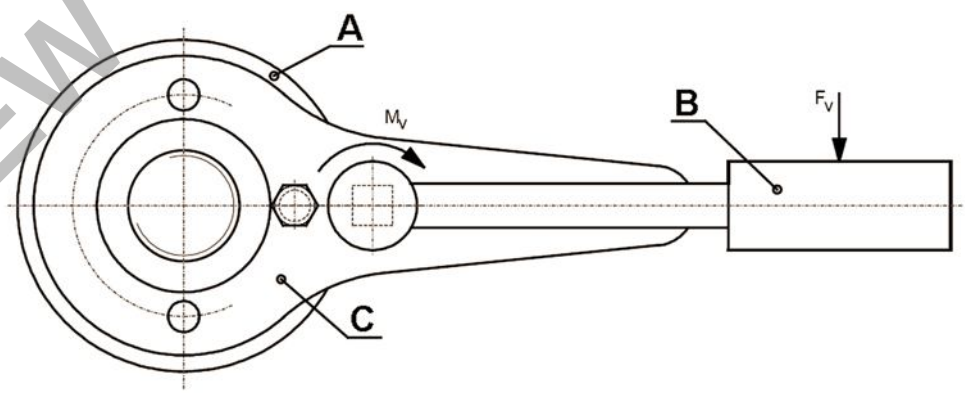



***Fig. 1*** *Torque wrench*

| | | | |
|---|---|---|---|
| **A** | Piston | **C** | Assembly wrench |
| **B** | Torque wrench | | |

When applying the pretightening torque, the torque wrench **must** point in the **same** direction as the assembly wrench.

Proceed in the same w<ay to tighten the piston nut, using a suitable assembly wrench.

PREVIEW - YOUFIXTHIS.COM

### 3.2 Oil change intervals for turbocharged engines

| Operating conditions | Sulphur content of fuel | Oil change interval depending on oil quality | |
|---|---|---|---|
| | | CF-4<br>CG-4<br>CH-4<br>CI-4 | E3<br>E4 |
| Temperature normally not dropping below -10 °C | max 0.5 %<br>higher than 0.5 % | 250 h<br>125 h | 500 h<br>250 h |
| below -10 °C | max 0,5 %<br>higher than 0,5 % | 125 h<br>- | 250 h<br>125 h |

***Tab. 4*** *Oil change intervals*

The oil change intervales of the diesel engine are based on the following criteria:
- First oil and filter change afetr 500 operating hours, if the oil of the first filling was oil of E4 quality
- Subsequent filter changes after 500 operating hours
- Subsequent oil changes depending on the climat, sulphur content of the fuel and oil grade
- If the above number of operating hours is not reached within 12 months, change the engine oil and the oil filter at least once every year.

## 4 Fuel

### 4.1 Permitted fuel specifications

The diesel fuels must conform with the minimal requirements regarding to the following fuels specifications:

DIN EN 590

ASTM D 975 - 89a 1 D und 2 D

Other fuel specifications can be used only after consultation with LIEBHERR diesel engine development.

### 4.2 Lubricity / Sulphur content

In DIN EN 590 is max. 350 mg/kg = max. 0,035 mass% sulphur content.

Fuels with «poor sulphur content», with a sulphur content smaller than 0.05% are not suitable, except with additives addition. The lubricity of the fuel must be < 460µm in a HFFR test (60°).

**Caution!**
Fuels with more than 0,5 mass% sulphur, require to halve the oil change interval. Fuels with more than 1 mass% sulphur are prohibited.

**Note!**
The ASTM D 975 fuel standard does not specufy that the fuels must undergo a fuel lubricity test. A written confirmation of compliance must be requested from the fuel supplier. The additives should be added by teh supplier, who is responsible for the fuel quality. We advise machine operators not to add any secondary lubricity additives to the fuel.
ASTM D 975 fuels must have a cetane number of minimum 15. A cetane number of more than 50 is preferable, especially at temperatures below 0°C (32°F).

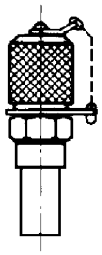
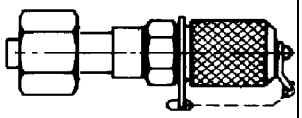
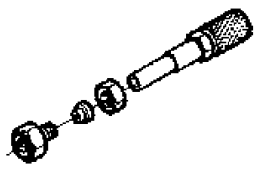
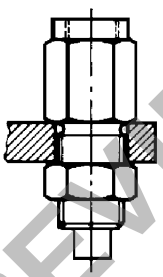
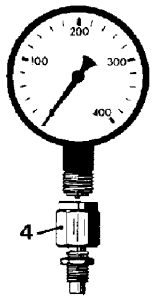
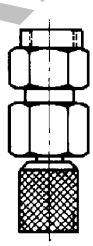
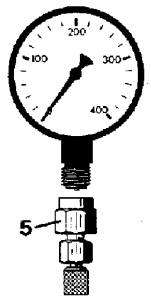
PREVIEW - YOUFIXTHIS.COM

# Group 2: Tools

## 2.01: Special tools for maintenance and repair

**Spezialwerkzeuge zur Wartung und Reparatur**

**Outillage spécial utilisé pour l'entretien et les réparations**

| Darstellung<br>Representation<br>Dessin | Nr.<br>No.<br>N° | Benennung<br>Desciption<br>Dénomination | Größe<br>Size<br>Grand. | Ident. Nr.<br>Order no<br>N°code | Gerät<br>Model<br>Type | Anwendung<br>Application<br>Application |
|---|---|---|---|---|---|---|
|  | 1<br><br><br><br>2 | Messstutzen<br>Pipe adaptator<br>Embout | NW 10<br><br><br><br>NW 12 | 7002404<br><br><br><br>7008688 | alle<br>Typen |  |
|  | 13<br>14<br>15<br>16<br>17<br>18 | Messstutzen<br>Pipe adaptator<br>Embout | M22x1,5<br>M14x1,5<br>M16x1,5<br>M18x1,5<br>M20x1,5<br>M24x1,5 | 5607671<br>5607616<br>5607605<br>5607617<br>7409922<br>7409923 | 914<br>alle<br>alle<br>914/924<br>914/924<br>914/924 | Form K<br>K Form<br>Forme K<br>Nach / From / Selon –<br>LH673-02 |
|  | 25 | Manometeran-schluss<br>BSP coupling<br>Raccord | R 1/2 " | 7002436 | alle<br>Typen |  |
|  | 30 | Manometer Direktan-schluss<br>Direct gauge cou-pling<br>Raccord (brancht. direct du manométre) | R 1/2 " | 7002435 | alle<br>Typen |  |

PREVIEW - YOUFIXTHIS.COM

# 3.20: Technical data

R 914 C Litronic from serial number 19527

**Types 1062 HDSL 2400 / 1063 HDSL 2250 / 1064 HDSL 2000 / 1065 HDS 2000**

| General | | 1065 HDS 2000 | 1064 HDSL 2000 | 1063 HDSL 2250 | 1062 HDSL 2400 |
|---|---|---|---|---|---|
| Operating weight | kg | 23730 - 25935 | | | |
| Length without attachment | mm | 4905 | 5050 | | |
| Width | mm | 2505-2750 | 2505-2750 | 2816-3000 | 2966-3150 |
| Height without attachment | mm | 3090 | 3070 | | |
| Tail radius | mm | 2790 | | | |
| Ground clearance | mm | 475 | 470 | | |
| Digging force | kN | 85 - 121 | | | |
| Breakout force | kN | 142 - 165 | | | |
| Total drawbar max. (at reduced speed and max. pressure) | kN | 260 | 264 | | |

| Engine | | 1065 HDS 2000 | 1064 HDSL 2000 | 1063 HDSL 2250 | 1062 HDSL 2400 |
|---|---|---|---|---|---|
| Type | | D 934 S A6 | | | |
| Rating at nominal speed per DIN ISO 9249 | kW | 115 (157 hp) | | | |
| Nominal speed | RPM | 1800 | | | |
| Max. torque | Nm | 760±10 at 1500 RPM | | | |
| Oil quantity (fulling quantity on oil change with filter) | l | 31 | | | |
| Oil quality / -viscosity and oil change intervall | | see subgroups 1.50 and 3.61 | | | |
| Fuel tank capacity | l | 380 | | | |
| Further informations | | see subgroup 4.12 | | | |

| Hydraulic system | | 1065 HDS 2000 | 1064 HDSL 2000 | 1063 HDSL 2250 | 1062 HDSL 2400 |
|---|---|---|---|---|---|
| Hydraulic pump | type | DPVP 108 | | | |
| Design | | swash plate - axial pump piston | | | |
| Max. power of the working pumps | kW | 90 | | | |
| Max. volume | $cm^3$ | 2 x 107,7 | | | |
| Max. flow (theoretical) | l/min | 2x214 | | | |
| Max. flow (Qmax) | l/min | 416 | | | |
| Min. flow (Qmin) | l/min | 136 | | | |
| | | | | | |
| Oil quantity (fulling quantity on oil change with filter) | l | approx. 284 | | | |
| Oil quality / -viscosity and oil change intervall | | see subgroups 1.50 and 3.61 | | | |
| Control valve block | type | VT5 VW 25/18 | | | |
| 7 ways rotary connection | type | DDF 525 | | | |

PREVIEW - YOUFIXTHIS.COM

# 3.61: Inspection and maintenance schedule

R 914 C Litronic from serial no. 19527
R 924 C Litronic from serial no. 19846

**Caution!**
Careful maintenance is only possible, if the machine is clean. Especially visual inspections, e.g. for cracks, can only be carried out properly on a clean machine.

▶ Clean the machine thoroughly before starting any maintenance work (see also chapter «Save maintenance of the machine», subchapter «Cleaning» and «Crack inspection»).

**Note!**
The daily maintenance tasks of the machine operator include a functional test of the brakes (swinging, gear brake, parking brake), steering, electrical and hydraulic system.
Further more, a visual inspection of the motor, the hydraulic system, the gearbor and the axles for leakage has to be carried out daily.

| Maintenance / Inspection at operating hours | | | | | | WORK TO BE CARRIED OUT R 914 C / R 924 C | | |
|---|---|---|---|---|---|---|---|---|
| at delivery | every 8 - 10 | every 10 - 50 | every 500, 1500 | every 1000, 3000 | every 2000, 4000 | **By maintenance personnel (Operator)**<br>■ First and single interval<br>● Repeat interval<br>♦ Special interval every 250 hours | **By authorized trained personnel**<br>❑ First and single interval<br>❍ Repeat interval | **Note** |
| | | | | | | **DIESEL ENGINE** | | |
| ❍ | ● | ● | ❍ | ❍ | ❍ | Check motor oil level and pressure | | |
| ❍ | ● | ● | ❍ | ❍ | ❍ | Check coolant level and temperature | | |
| ❍ | ● | ● | ❍ | ❍ | ❍ | Check for air filter clogging at the maintenance indicator | | |
| | ● | ● | ❍ | ❍ | ❍ | Check and drain water separator at fuel filter | | |
| | | ● | ❍ | ❍ | ❍ | Drain water and deposit at fuel tank | | |
| | | ● | ❍ | ❍ | ❍ | Emply dust collecting container at ait filter (shorten or extend interval if necessary) | | |
| | | ● | ❍ | ❍ | ❍ | Check oil level in the distribution block | | |
| | | | ❍ | ❍ | ❍ | Replace oil in the distribution block | | |
| | | | ❍ | ❍ | ❍ | Check and clean cooler, pressure relief valve, coolant hose and fan | | |
| | | | ❍ | ❍ | ❍ | Check ribbed V-belts | | |
| | | | ❍ | ❍ | ❍ | Replace lubricating oil filter cartridge | | |
| | | | ❍ | ❍ | ❍ | Replace motor oil | | 1) |

PREVIEW - YOUFIXTHIS.COM

# Group 2: Tools

**Special tools for maintenance and repair ..... 2.01**

**Special Tools for Liebherr diesel engine ..... 2.02**

**Special tools for the hydraulik System ..... 2.03**

**Special tools for electrical connectors ..... 2.06**

**Special tools for gears ..... 2.07**

**Common tools ..... 2.08**

**Measuring tool for spool travel ..... 2.10**

**Tools for hydraulic piston ..... 2.12**

1 Mounting wrench for hydraulic cylinders piston . . . . . 2.12.1
2 Piston nut wrench . . . . . 2.12.2
3 Piston wrench . . . . . 2.12.4
3.1 Mounting and spreader sleeve . . . . . 2.12.4

**Slotted nut wrench for the slotted nut on the swing gear SAT ..... 2.14**

**Mounting device for disk brake on swing gear SAT ..... 2.15**

**Mounting device for disk brake on travel gear ..... 2.16**

**Mounting device for disk brake on travel gear ..... 2.17**

**Eichwerten LMS System / Valeurs de calibrage ..... 2.19**

**Mounting tool for sleeping seal ..... 2.22**

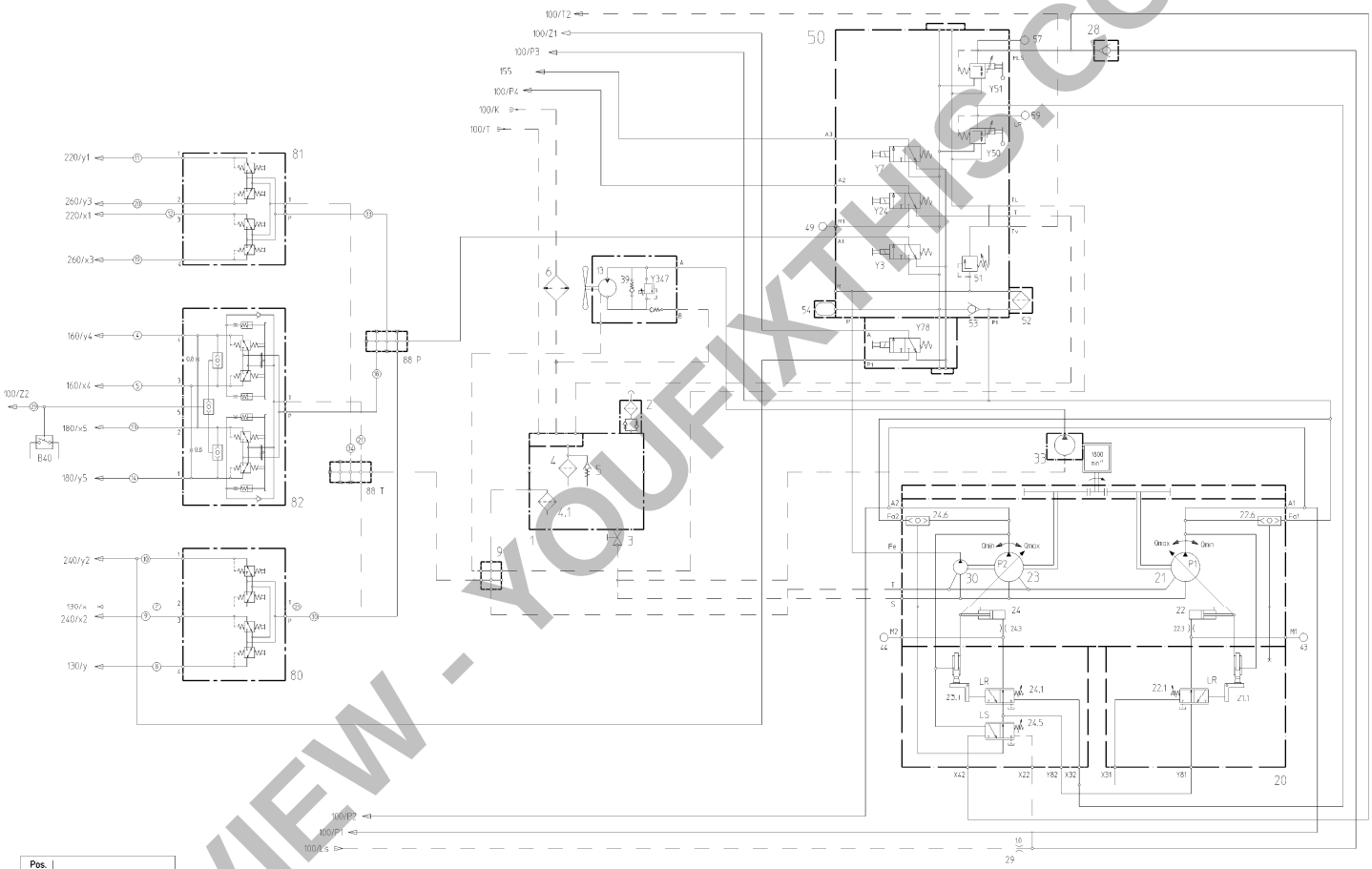
PREVIEW - YOUFIXTHIS.COM

# 8.81: Electrical diagram

## 1 Components list

| Pos. | Description | Step | Location |
|---|---|---|---|
| **A3** | radio (A) | 3 | armrest left |
| A 1001 | print plate ESP 01 | 9-23 | armrest right |
| A 1010 | print plate A1010 | 1-4;6-23;30 | armrest left |
| A 1011 | print plate A1011 | 3;30 | armrest left |
| A 1016 | print plate A1016 | 26 | armrest left |
| | | | |
| **B2** | transmitter diesel engine coolant temperature | 5 | diesel engine |
| B3 | switch coolant level diesel engine | 9 | expansion tank |
| B5 | transmitter oil pressure diesel engine | 5 | diesel engine |
| B8 | transmitter hydraulic oil temperature | 9 | hydraulic tank |
| B12 | transmitter engine speed | 5 | diesel engine |
| B12-1 | transmitter engine speed | 5 | diesel engine |
| B12-2 | transmitter engine speed | 5 | diesel engine |
| B12-3 | transmitter engine speed | 5 | diesel engine |
| B14 | switch oil level | 9 | hydraulic tank |
| B19L | sensitiv switch joystik left | 17 | armrest left |
| B19R | sensitiv switch joystik right | 17 | armrest right |
| B21 | pressure switch overload | 19 | attachment |
| B33-2 | flow limitation hammer | 19 | under driver stand |
| B33-4 | flow limitation | 16 | driver stand rear |
| B39 | transmitter fuel level | 20 | fuel tank |
| B40 | pressure switch travel pedal | 18 | travel pedal |
| B43 | switch / air conditioning | 27 | air conditioning |
| B44 | switch / air conditioning | 27 | dryer unit |
| B46 | transmitter / boost air pressure | 5 | diesel engine |
| B50 | loudspeaker | 3 | cab |
| B50-2 | transmitter central lubrication tank level | 30 | fuel tank |
| B51 | inductiv switch control circuit of central lubrication | 30 | fuel tank |
| B55-1 | inductiv switch cut-off cylinder (option) | 29 | attachment |
| B55-2 | inductiv switch cut-off cylinder (option) | 29 | attachment |
| B98 | transmitter / air temperature of boost air | 5 | diesel engine |
| B99-2 | water level | 5 | diesel engine |
| B144 | pressure switch 4-20mA travel engine regulation | 16 | distribution block |
| B159 | pressure switch 4-20mA stick | 16 | cab rear |
| B160 | pressure switch 4-20mA boom | 16 | cab rear |
| B161 | pressure switch 4-20mA swing gear | 19 | cab rear |
| B162 | pressure switch 4-20mA translation | 19 | under driver stand |
| B163 | pressure switch 4-20mA bucket | 17 | cab rear |
| B164 | pressure switch 4-20mA res. 2 | 17 | under driver stand |
| B181 | transmitter oil level | 5 | diesel engine |
| B182 | transmitter fuel temperature | 5 | diesel engine |
| B183 | transmitter fuel pressure | 5 | diesel engine |

PREVIEW - YOUFIXTHIS.COM




| Pos. | |
|---|---|
| 80 | L1 : Stiel ausfahren<br>L2 : Drehen rechts<br>L3 : Stiel einfahren<br>L4 : Drehen links |
| 81 | R1 : Auslegersenken<br>R2 : Löffel ausklappen<br>R3 : Ausleger heben<br>R4 : Löffel ankippen |
| 82 | FL1 : vorwärts<br>FL2 : rückwärts<br>FR1 : vorwärts<br>FR2 : rückwärts |

**Pos Hydraulikzylinder**

| | | ø Kolben | ø Stange | Hub |
|---|---|---|---|---|
| 235 | Ausleger | 130 | 90 | 1275 |
| 255 | Stiel | 110 | 95 | 1400 |
| 275 | Löffel | 120 | 80 | 895 |

**Pos Pumpen und Motoren**

| | | | |
|---|---|---|---|
| 20/21 | Arbeitspumpe P1/P2 | 107.7 cm3/U | 1994 min-1 |
| 30 | Servopumpe | 20 cm3/U | 1994 min-1 |
| 130 | Drehwerkmotor | 75 cm3/U | |
| 200 | Fahrmotor links | xxx cm3/U | |
| 201 | Fahrmotor rechts | xxx cm3/U | |
| 35 | Lüfterpumpe | 19 cm3/U | 2730 min-1 |
| 36 | Lüftermotor | 25 cm3/U | 1200 min-1 |

00 kg

9-Mai-2006

LFR

HYDRAULIKSCHEMA
HYDRAULIC SCHEME
SCHEMA HYDRAULIQUE

1062 7010 00 001

10080316

1 2

PREVIEW - YOUFIXTHIS.COM

Tightening torques for screws with metric coarse and fine thread

| Metric coarse thread | | | | Metric fine thread | | | |
|---|---|---|---|---|---|---|---|
| **M16** | 8.8<br>10.9<br>12.9 | 75000<br>111000<br>130000 | 195,0<br>280,0<br>330,0 | **M16×1,5** | 8.8<br>10.9<br>12.9 | 82000<br>121000<br>141000 | 205<br>300<br>360 |
| **M18** | 8,8<br>10,9<br>12,9 | 94000<br>135000<br>157000 | 280<br>390<br>460 | **M18×1,5** | 8,8<br>10,9<br>12,9 | 110000<br>157000<br>184000 | 310<br>440<br>520 |
| | | | | **M18×2** | 8,8<br>10,9<br>12,9 | 102000<br>146000<br>170000 | 290<br>420<br>490 |
| **M20** | 8,8<br>10,9<br>12,9 | 121000<br>173000<br>202000 | 390<br>560<br>650 | **M20×1,5** | 8,8<br>10,9<br>12,9 | 139000<br>199000<br>232000 | 430<br>620<br>720 |
| **M22** | 8,8<br>10,9<br>12,9 | 152000<br>216000<br>250000 | 530<br>750<br>880 | **M22×1,5** | 8,8<br>10,9<br>12,9 | 171000<br>245000<br>285000 | 580<br>820<br>960 |
| **M24** | 8,8<br>10,9<br>12,9 | 175000<br>249000<br>290000 | 670<br>960<br>1120 | **M24×1,5** | 8,8<br>10,9<br>12,9 | 207000<br>295000<br>346000 | 760<br>1090<br>1270 |
| | | | | **M24×2** | 8,8<br>10,9<br>12,9 | 196000<br>280000<br>325000 | 730<br>1040<br>1220 |
| **M27** | 8,8<br>10,9<br>12,9 | 230000<br>330000<br>385000 | 1000<br>1400<br>1650 | **M27×1,5** | 8,8<br>10,9<br>12,9 | 267000<br>381000<br>445000 | 1110<br>1580<br>1850 |
| | | | | **M27×2** | 8,8<br>10,9<br>12,9 | 255000<br>365000<br>425000 | 1070<br>1500<br>1800 |
| **M30** | 8,8<br>10,9<br>12,9 | 280000<br>400000<br>465000 | 1350<br>1900<br>2250 | **M30×1,5** | 8,8<br>10,9<br>12,9 | 335000<br>477000<br>558000 | 1540<br>2190<br>2560 |
| | | | | **M30×2** | 8,8<br>10,9<br>12,9 | 321000<br>457000<br>534000 | 1490<br>2120<br>2480 |
| **M33** | 8,8<br>10,9<br>12,9 | 350000<br>495000<br>580000 | 1850<br>2600<br>3000 | **M33×1,5** | 8,8<br>10,9<br>12,9 | 410000<br>584000<br>683000 | 2050<br>2920<br>3420 |
| | | | | **M33×2** | 8,8<br>10,9<br>12,9 | 395000<br>560000<br>660000 | 2000<br>2800<br>3300 |
| **M36** | 8,8<br>10,9<br>12,9 | 410000<br>580000<br>680000 | 2350<br>3300<br>3900 | **M36×1,5** | 8,8<br>10,9<br>12,9 | 492000<br>701000<br>820000 | 2680<br>3820<br>4470 |
| | | | | **M36×3** | 8,8<br>10,9<br>12,9 | 440000<br>630000<br>740000 | 2500<br>3500<br>4100 |
| **M39** | 8,8<br>10,9<br>12,9 | 490000<br>700000<br>820000 | 3000<br>4300<br>5100 | **M39×1,5** | 8,8<br>10,9<br>12,9 | 582000<br>830000<br>971000 | 3430<br>4890<br>5720 |
| | | | | **M39×3** | 8,8<br>10,9<br>12,9 | 530000<br>750000<br>880000 | 3200<br>4600<br>5300 |

PREVIEW - YOUFIXIT.COM

# 1.24: Assembly instruction for piston rod bearings with external threads (hydraulic cylinders)

**According to standard 4122 B (01/2005)**

## 1 Scope of application

This factory standard applies exclusively to the assembly of hydraulic cylinders.

For the valid factory standard number, refer to the drawing. The standard may not be adopted or transferred to apparently similar geometries.

The torques have been determined empirically and are subject to changes. THe revision and release dates indicate the latest version of the factory standard.

## 2 Description

**Preparation:**

▶ Clean the thread and apply a thin layer of Gleitmo high-performance lubricating grease (ID no. 8300 004, 40 g tube) on both sides.

### 2.1 Definitions

**Pretightening torque:**

The piston rod bearing is secured with a torque wrench applied to the square of the assembly wrench. The position of the torque wrench must be carefully noted.

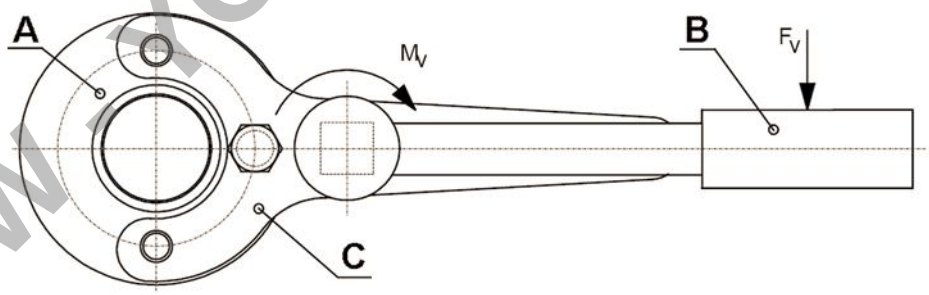



*Fig. 1 Torque wrench*

| | | | |
|---|---|---|---|
| **A** | Piston | **C** | Assembly wrench |
| **B** | Torque wrench | | |

When applying the pretightening torque, the torque wrench **must** point in the **same** direction as the assembly wrench.

**Turning distance:**

Radian measure [mm] between the bearing head outer diameter and the cylinder tube, tavelled **after** application of the pretightening torque.

**Turning angle:**

Angle [°] travelled by the bearing head after application of the pretightening torque.

PREVIEW - YOUFIXTHIS.COM

### 4.3 Improving Diesel fuel fluidity in cold climates

As soon as the ouside temperature lowers, diesel fuels form paraffin crystals which amplify the flow resistance in the fuel filter. This leads to insufficient fuel supply.

In temperate climates, the fluidity at low temperature is guaranteed by the DIN EN 590 until:

0°C / 32°F from 15.04. to 30.09.
-10°C / 14°F from 01.10. to 15.11. and from 1.3. to 14.04.
-20°C / -4°F from 16.11. to 29.02.

When the weather is cold or when the ouside temperatures are lower than -20°C / -4°F, if the fuel is not fluid enough, we recommand the use of a fuel filter heating.

Other approved fuels :

fuels in conformity with the DIN EN 590 norme until 5% vol. FAME.

**Caution!**
Supplementation of petrol of gaz is forbidden because of security reasons and also technical reasons.
Such supplementation is neither compatible with the high pressure nor with the injection system of your diesel engine. It would lead to engine degradation because of lubrication shortage.

## 5 Hydraulic oil

### 5.1 Moneral oil

Use oils meeting one of the below listed recommandations:

| | |
|---|---|
| **Single grade oils:** | API - CD / CCMC - D4 / ACEA - E1<br>Mercedes-Benz-recommendations, Page No. 226.0 and 227.0 |
| **Multi grade oils:** | API - CD + SF / CCMC - D5 / ACEA - E3<br>Mercedes-Benz-recommendations, Page No. 227.5, 228.1 and 228.3 |

***Tab. 5*** *Recommended oils for hydraulic oil applications*

You can choose your engine oil used for hydraulic oil applications according to the following graph:

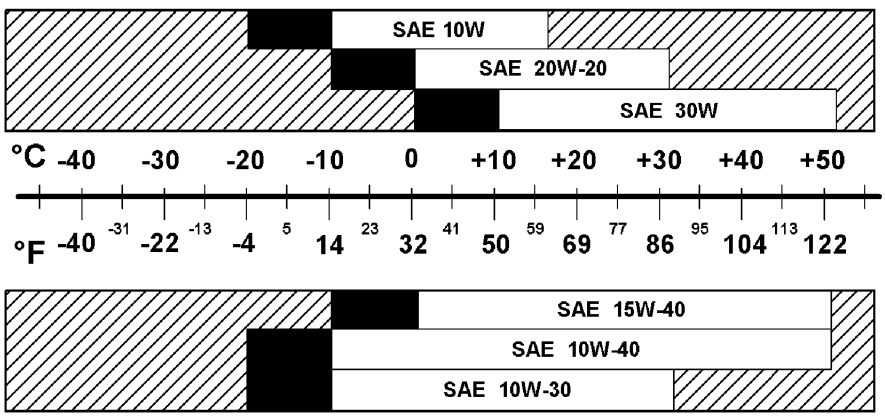
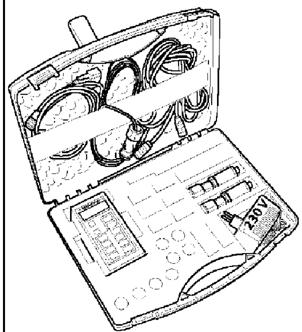
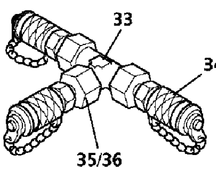
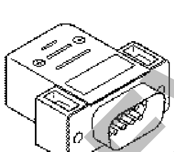



***Fig. 2*** *Engine oil for hydraulic oil applications*

PREVIEW - YOUFIXTHIS.COM

| **Darstellung<br>Representation<br>Dessin** | **Nr.<br>No.<br>N°** | **Benennung<br>Desciption<br>Dénomination** | **Größe<br>Size<br>Grand.** | **Ident. Nr.<br>Order no<br>N°code** | **Gerät<br>Model<br>Type** | **Anwendung<br>Application<br>Application** |
|---|---|---|---|---|---|---|
|  | 84<br><br><br><br>85<br><br><br><br><br><br><br>86 | -Druckaufnehmer<br>-Pressure sensor<br>-Capteur de pression<br>Hydrotechnik<br><br>-Direktanschluss für Druckaufnehmer<br>-Connecting wire for pressure sensor<br>-Raccord pour capteur de pression<br><br>-Messkabel MK 12<br>-Measuring wire MK 12<br>-Càble de mesure MK 12 | 0-600 bar<br><br><br><br><br><br><br><br><br><br><br>12 m | 614062401<br><br><br><br>614062601<br>614064701<br><br><br><br><br><br>614063701 | alle<br>Typen | |
|  | 100<br><br><br><br><br>101<br><br><br><br><br><br><br>102<br><br><br><br>103 | Stutzen<br>Pipe adaptator<br>Embout de prise de pression<br><br>Messstutzen mit Metallkappe<br>Pipe adaptator with metalic cap<br>Prise de pression + embout métall<br><br>Überwurfmutter<br>Cap nut<br>Ecrou de raccord<br><br>Schneidring<br>Cutting ring<br>Bague de sertissage | | 4901372<br><br><br><br><br>7002404<br><br><br><br><br><br><br>4774002<br><br><br><br>4774001 | alle<br>Typen | Zum Druckabgleich in Verbindung mit Werkzeug Nr. 75 / 85<br><br>For pressure equilibration in connection with tool no 75 / 85<br><br>Pour l'équilibrage en pression en utilisant l'outil n° 75 / 85 |
|  | 109 | Service Stecker (grün)<br>Service plug (green)<br>Connecteur de service (vert) | | 9684328 | | Für Kommunikation mit und Parametrieren des elektronischen Steuerkreis über Baggerdisplay<br>For communicating with and adjusting the electronic control circuit via the display of the excavator<br>Pour communication avec et paramétrage du circuit électronique de commande, via le display de la pelle<br><br>Gültig für / Valid for / Valable pour :<br>- Litronic 2 |

PREVIEW - YOUFIXTHIS.COM

# 3.21: Technical data

R 924 C Litronic from serial number 19846

**Types1066 HDSL 2400 / 1067 HDSL 2250 / 1068 HDSL 2000 / 1069 EW 3400**

| General | | 1066 HDSL 2400 | 1067 HDSL 2250 | 1068 HDSL 2000 | 1069 EW 3400 |
|---|---|---|---|---|---|
| Operating weight | kg | 26170 - 28340 | | | |
| Length without attachment | mm | 5250 | | | |
| Width | mm | 2966-3150 | 2816-3000 | 2566-2750 | 3966-4150 |
| Height without attachment | mm | 3070 | | | |
| Tail radius | mm | 2940 | | | |
| Ground clearance | mm | 470 | | | |
| Digging force | kN | 97 - 139 | | | |
| Breakout force | kN | 146 - 179 | | | |
| Total drawbar max. (at reduced speed and max. pressure) | kN | 264 | | | |

| Engine | | 1066 HDSL 2400 | 1067 HDSL 2250 | 1068 HDSL 2000 | 1069 EW 3400 |
|---|---|---|---|---|---|
| Type | | D 934 S A6 | | | |
| Rating at nominal speed per DIN ISO 9249 | kW | 130 (177 hp) | | | |
| Nominal speed | RPM | 1800 | | | |
| Max. torque | Nm | 760±10 at 1500 RPM | | | |
| Oil quantity (fulling quantity on oil change with filter) | l | 31 | | | |
| Oil quality / -viscosity and oil change intervall | | see subgroups 1.50 and 3.61 | | | |
| Fuel tank capacity | l | 380 | | | |
| Further informations | | see subgroups 4.12 | | | |

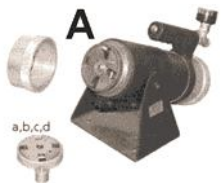
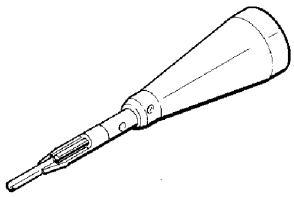
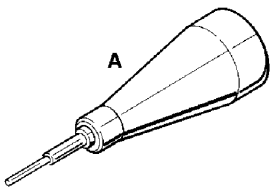
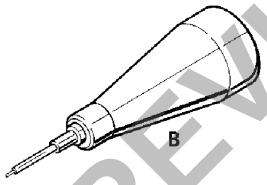
| Hydraulic system | | 1066 HDSL 2400 | 1067 HDSL 2250 | 1068 HDSL 2000 | 1069 EW 3400 |
|---|---|---|---|---|---|
| Hydraulic pump | type | DPVP 108 | | | |
| Design | | swash plate - axial pump piston | | | |
| Max. power of the working pumps | kW | 90 | | | |
| Max. volume | $cm^3$ | 2 x 107,7 | | | |
| Max. flow (theoretical) | l/min | 2x214 | | | |
| Max. flow (Qmax) | l/min | 416 | | | |
| Min. flow (Qmin) | l/min | 136 | | | |
| | | | | | |
| Oil quantity (fulling quantity on oil change with filter) | l | approx. 284 | | | |
| Oil quality / -viscosity and oil change intervall | | see subgroups 1.50 and 3.61 | | | |
| Control valve block | type | VT5 VW 25/18 | | | |
| 7 ways rotary connection | type | **DDF 525** | | | |

PREVIEW - YOUFIXTHIS.COM

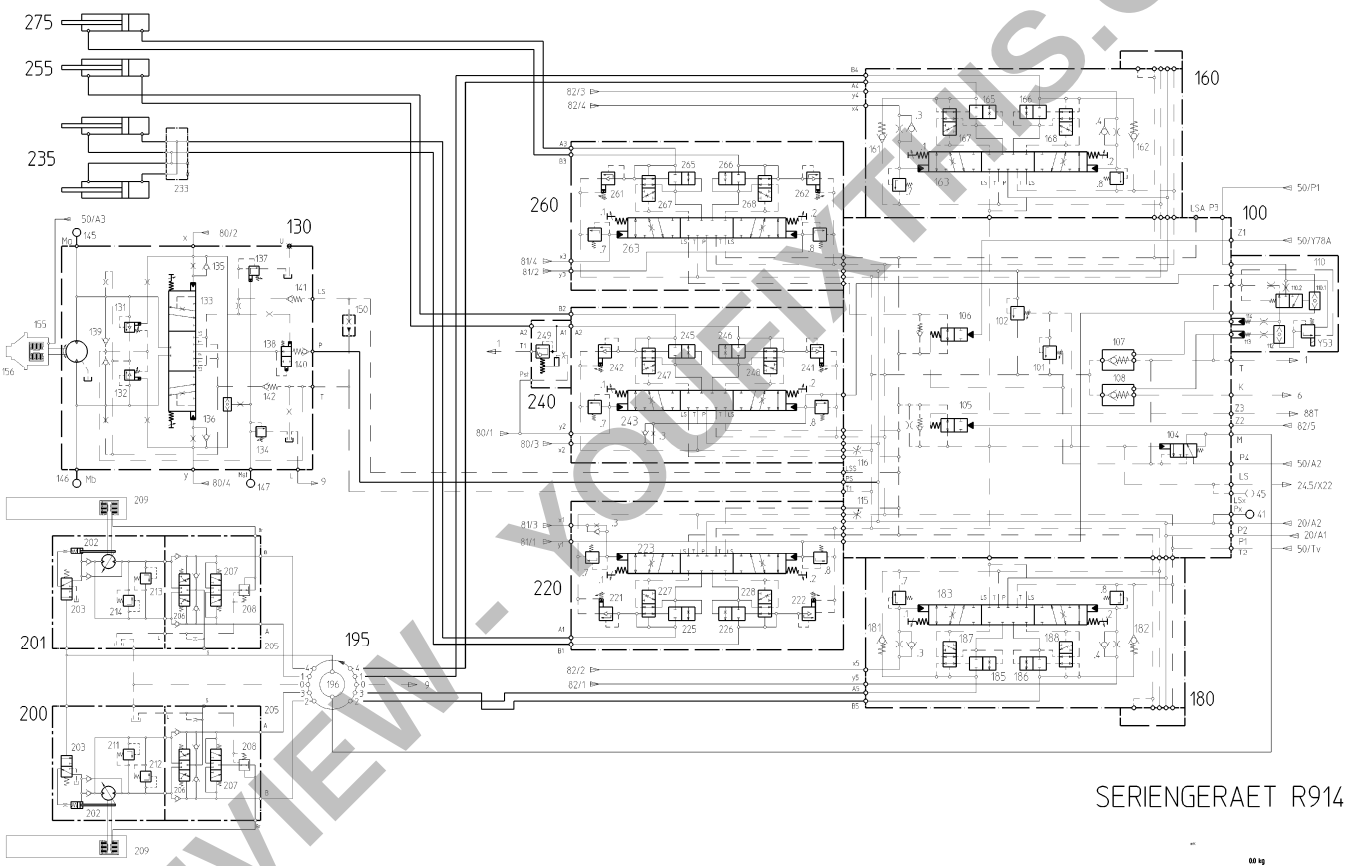
| Maintenance / Inspection at operating hours | | | | | | WORK TO BE CARRIED OUT R 914 C / R 924 C | | |
|---|---|---|---|---|---|---|---|---|
| at delivery | every 8 - 10 | every 10 - 50 | every 500, 1500 | every 1000, 3000 | every 2000, 4000 | **By maintenance personnel (Operator)**<br>■ First and single interval<br>● Repeat interval<br>♦ Special interval every 250 hours | **By authorized trained personnel**<br>❑ First and single interval<br>❍ Repeat interval | **Note** |
| | | | ❍ | ❍ | ❍ | Check oil, coolant and fuel systems for leakage | | |
| | | | ❍ | ❍ | ❍ | Replace water filter cartridge (at least once a year) | | |
| | | | ❍ | ❍ | ❍ | Check corrosion inhibitor and antifreeze agent in coolant (Replace coolant every 2 years) | | |
| | | | ❍ | ❍ | ❍ | Check condition of the fastening device of the engine electronic regulation box | | |
| | | | ❍ | ❍ | ❍ | Check condition of the switches, sensors, cables and plug connections | | |
| | | | ❑ | ❍ | ❍ | Check intake and exhaust system for leakage (first time after 500 operating hours) | | |
| | | | | ❍ | ❍ | Check and adjust engine speed control | | |
| | | | | ❍ | ❍ | Check / adjust valve clearance | | |
| | | | | ❍ | ❍ | Check motor brackets and oil pan for proper mounting | | |
| | | | | ❍ | ❍ | Grease flywheel teeth | | |
| | | | | ❍ | ❍ | Check flame glow unit (before start of winter season) | | |
| | | | | ❍ | ❍ | Replace cartridge of the fuel fine filter (shorten interval, if necessary) | | 4) |
| | | | | ❍ | ❍ | Replace cartridge of the fuel prefilter (shorten interval, if necessary) | | 4) |
| | | | ❍ | ❍ | ❍ | Replace the oil separator filter element | | |
| | | | | | | Replace air filter main element (based on maintenance indicator / once a year) | | |
| | | | | | | Replace air filter safety element (at every 3rd replacement of the main element / once a year) | | niemals reinigen! |
| | | | | | | Check air ducts between filter, engine and radiator (at filter maintenance) | | |
| | | | | | | Replace oil separator (every 2 years) | | |
| | | | | | | Replace coolant (correct antifreeze and anticorrosive mixture) every 2 years (only by specialized and qualified personnel) | | |
| | | | | ❍ | | Check / Replace the injection valve (every 3000 operating hours or upon power drop) | | |
| | | | | ❍ | | Check axial clearance of the coolant pump (first time at 6000 then every 3000 operating hours) | | |
| **HYDRAULIC SYSTEM** | | | | | | | | |
| ❍ | ● | ● | ❍ | ❍ | ❍ | Check the oil level in hydraulic tank | | |
| ❍ | ■ | ● | ❍ | ❍ | ❍ | Clean magnetic rod in return filter (daily during the first 300 operating hours) | | |

PREVIEW - YOUFIXTHIS.COM

PREVIEW - YOUFIXTHIS.COM

| Darstellung<br>Representation<br>Dessin | Nr.<br>No.<br>N° | Benennung<br>Desciption<br>Dénomination | Größe<br>Size<br>Grand. | Ident. Nr.<br>Order no<br>N°code | Gerät<br>Model<br>Type | Anwendung<br>Application<br>Application |
|---|---|---|---|---|---|---|
|  | 60 | Pneumatic power crimp equipment to crimp inserts for connectors DEUTSCH<br>Pneumatische Bördelanlage zum quetschen der Deutsch Kontakte<br>Sertiseuse pneumatique pour contacteur | HDP 400 | 8504158 | alle Typen | |
| | 61<br>62<br>63<br>64 | Deutsch<br>Werkzeug (Buchsen und Stifte)<br>Tools (sockets and pins)<br>Outillage (douilles et broches) | 4<br>8<br>12<br>16 | 8504159<br>8504160<br>8504161<br>8504162 | | |
|  | 70 | Einbauwerkzeug zum Einführen der verkabelten Crimpkontakte in die Steckverbinder SURE-SEAL CT 31<br><br>Insertion tool to insert crimped contact into the connectors SURE-SEAL CT 31<br><br>Outil d'insertion des contacts sertis dans les connecteurs SURE-SEAL CT 31 | | 7367023 | alle Typen | |
|  | 75 | A:Ausbauwerkzeug Stiftkontakte aus Steckverbinder SURE SEAL<br><br>Extraction tool for pin contacts of connectors SURE SEAL<br><br>Outil d'extraction pour broches des connecteurs SURE-SEAL | | 7567020 | alle Typen | |
|  | 80 | B: Ausbauwerkzeug Buchesenkontakte<br><br>Extraction tool for socket contacts<br><br>Outil d'extraction pour douilles<br><br>C: Ausbauwerkzeug für Kontakte der Steckverbinder MICROTIMER<br><br>Extraction tool for contacts of connectors MICROTIMER<br><br>Outil d'extraction pour contacts des connecteurs MICROTIMER | | 7567022<br><br>7370373 | alle Typen | |
| | 85 | Einbauröhrchen für Werkzeug Nr. 42<br><br>Pipe for tool no. 42<br><br>Tube pour outil n° 42 | CT 31 | 7022464 | alle Typen | |

PREVIEW - YOUFIXTHIS.COM




SERIENGERAET R914C-R924C

00 kg

LFR

HYDRAULIKSCHEMA
HYDRAULIC SCHEME
SCHEMA HYDRAULIQUE

1062 7010 00 001

10080316

2 2

PREVIEW - YOUFIXTHIS.COM

## 2 Tightening torques of screw-in studs (Ermeto)

Mating material: steel (grease well before inserting!)

| Type with sealing edge | | | Type with EOLASTIC seal | | |
|---|---|---|---|---|---|
| Type | Thread M or G | Tightening torques (Nm) | Type | Thread M or G | Tightening torques (Nm) |
| **Light-duty series L** | | | | | |
| GE 06 LM A 3 C | M 10×1 | 18 | GE 06 LM ED A 3 C | M 10×1 | 18 |
| GE 06 LR A 3 C | G 1/8 A | 18 | GE 06 LR ED A 3 C | G 1/8 A | 18 |
| GE 08 LM A 3 C | M 12×1,5 | 30 | GE 08 LM ED A 3 C | M 12×1,5 | 25 |
| GE 08 LR A 3 C | G 1/4 A | 35 | GE 08 LR ED A 3 C | G 1/4 A | 35 |
| GE 10 LM A 3 C | M 14×1,5 | 45 | GE 10 LM ED A 3 C | M 14×1,5 | 45 |
| GE 10 LR A 3 C | G 1/4 A | 35 | GE 10 LR ED A 3 C | G 1/4 A | 35 |
| GE 12 LM A 3 C | M 16×1,5 | 65 | GE 12 LM ED A 3 C | M 16×1,5 | 55 |
| GE 12 LR A 3 C | G 3/8 A | 70 | GE 12 LR ED A 3 C | G 3/8 A | 70 |
| GE 15 LM A 3 C | M 18×1,5 | 80 | GE 15 LM ED A 3 C | M 18×1,5 | 70 |
| GE 15 LR A 3 C | G 1/2 A | 140 | GE 15 LR ED A 3 C | G 1/2 A | 90 |
| GE 18 LM A 3 C | M 22×1,5 | 140 | GE 18 LM ED A 3 C | M 22×1,5 | 125 |
| GE 18 LM A 3 C | M 22×1,5 | 140 | GE 18 LM ED A 3 C | M 22×1,5 | 125 |
| GE 18 LR A 3 C | G 1/2 A | 100 | GE 18 LR ED A 3 C | G 1/2 A | 90 |
| GE 22 LM A 3 C | M 22×1,5 | 140 | GE 22 LM ED A 3 C | M 26×1,5 | 180 |
| GE 22 LR A 3 C | G 3/4 A | 180 | GE 22 LR ED A 3 C | G 3/4 A | 180 |
| GE 28 LM A 3 C | M 33×2,0 | 340 | GE 28 LM ED A 3 C | M 33 x 2,0 | 310 |
| GE 28 LR A 3 C | G 1 A | 330 | GE 28 LR ED A 3 C | G 1 A | 310 |
| GE 35 LM A 3 C | M 42×2,0 | 500 | GE 35 LM ED A 3 C | M 42×2,0 | 450 |
| GE 35 LR A 3 C | G 1 1/4 A | 540 | GE 35 LR ED A 3 C | G 1 1/4 A | 450 |
| GE 42 LM A 3 C | M 48×2,0 | 630 | GE 42 LM ED A 3 C | M 48×2,0 | 540 |
| GE 42 LR A 3 C | G 1 1/2 A | 630 | GE 42 LR ED A 3 C | G 1 1/2 A | 540 |
| **Heavy-duty series S** | | | | | |
| GE 06 SM A 3 C | M 12×1,5 | 35 | GE 06 SM ED A 3 C | M 12×1,5 | 35 |
| GE 06 SR A 3 C | G 1/4 A | 55 | GE 06 SR ED A 3 C | G 1/4 A | 55 |
| GE 08 SM A 3 C | M 14×1,5 | 55 | GE 08 SM ED A 3 C | M 14×1,5 | 55 |
| GE 08 SR A 3 C | G 1/4 A | 55 | GE 08 SR ED A 3 C | G 1/4 A | 55 |
| GE 10 SM A 3 C | M 16×1,5 | 70 | GE 10 SM ED A 3 C | M 16×1,5 | 70 |
| GE 10 SR A 3 C | G 3/8 A | 90 | GE 10 SR ED A 3 C | G 3/8 A | 80 |
| GE 12 SM A 3 C | M 18×1,5 | 110 | GE 12 SM ED A 3 C | M 18×1,5 | 90 |
| GE 12 SR A 3 C | G 3/8 A | 90 | GE 12 SR ED A 3 C | G 3/8 A | 80 |
| GE 14 SM A 3 C | M 20×1,5 | 150 | GE 14 SM ED A 3 C | M 20×1,5 | 125 |
| GE 14 SR A 3 C | G 1/2 A | 150 | GE 14 SR ED A 3 C | G 1/2 A | 115 |
| GE 16 SM A 3 C | M 22×1,5 | 170 | GE 16 SM ED A 3 C | M 22×1,5 | 135 |
| GE 16 SR A 3 C | G 1/2 A | 130 | GE 16 SR ED A 3 C | G 1/2 A | 115 |
| GE 20 SM A 3 C | M 27×2,0 | 270 | GE 20 SM ED A 3 C | M 27×2,0 | 180 |
| GE 20 SR A 3 C | G 3/4 A | 270 | GE 20 SR ED A 3 C | G 3/4 A | 180 |
| GE 25 SM A 3 C | M 33×2,0 | 410 | GE 25 SM ED A 3 C | M 33×2,0 | 310 |
| GE 25 SR A 3 C | G 1 A | 340 | GE 25 SR ED A 3 C | G 1 A | 310 |

PREVIEW - YOUFIXTHIS.COM

**Use of other water-based anti-corrosion**

**Note!**

- Change the coolant **every year**.
- The mixture proportion must consist of **7.5%** of anti-corrosion and **92.5%** of water.
- To test this, use the refractometre 2710 from Gefo.

**Use of the refractometre in order to test the mixture proportion**




***Fig. 9-4*** *Refractometre Gefo no. 2710*

Refractometre adjustment:

- ❑ Adjust the 0-line with the adjusting screw (water-line)
- ❑ Visual acuity is adjusted by rotating the eyepiece

Mesure :

- ▶ Clean meticulously the cover and the prism
- ▶ Put 1-2 drops of the sample on the prism
- ▶ Close the cover
  ↳ the liquide spreads all over the prism
- ▶ Observe through the eyepiece by orienting the object in front of a light source. Set the scale accurately
- ▶ Read the value on the blue stripline
- ▶ Estimate the concentration using the following graph:

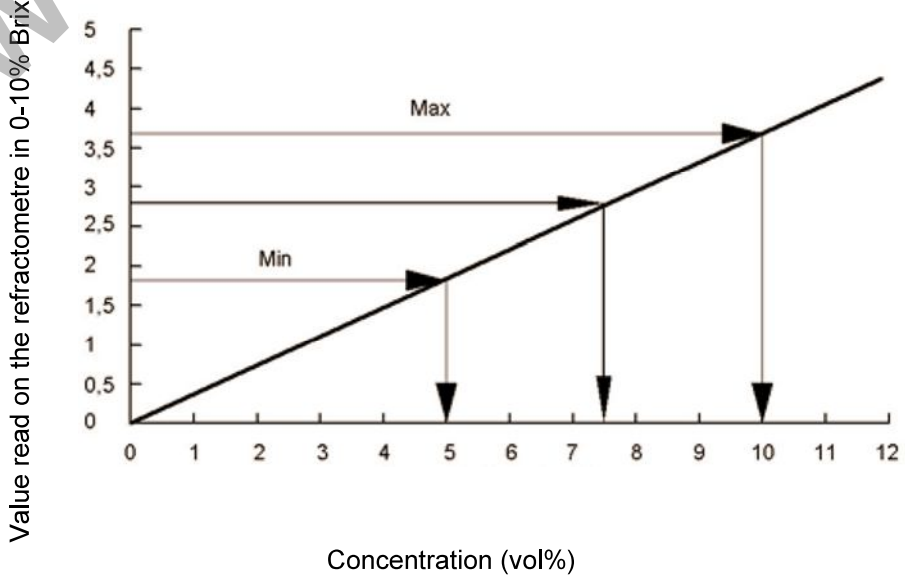



***Fig. 5*** *Conversion table - refractometre Gefo no. 2710*

PREVIEW - YOUFIXTHIS.COM

**Lieferumfang Litronic Messsystem**

| Pos. | Bezeichnung Designation / Désignation | | Ident-Nr. |
|---|---|---|---|
| 1 | LMS - Litronic<br>Messsystem, bestehend aus:<br>Measuring kpl. containing :<br>Système de mesure comprenant : | 1* | 6140 620 01 |
| 1.1 | Messgerät / Measuring tool / instrument de mesure | | 6140 621 01 |
| 1.2 | Transportkoffer / carrying case / coffret de transport | | 6140 622 01 |
| 1.3 | Trageriemen / straps / courroie d'épaule | | 6140 623 01 |

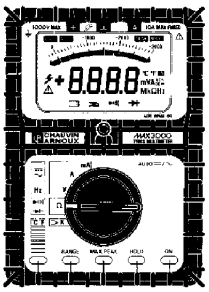
Zusätzlich werden, je nach Anforderung, verschiedene Aufnehmer und Kabel benötigt, welche gesondert bestellt werden müssen.

Besides, on request, several sensors and wires can be needed, wich have to be ordered in addition.

En outre, selon votre demande, divers capteurs et câbles sont nécessaires, devant être commandé en sus.

| Pos. | Sensoren / Sensors / Capteurs | Grösse / Size / Dimensions | | Ident-Nr. |
|---|---|---|---|---|
| 2 | OEM - Drucksensor, Messbereich<br>OEM - Pressure sensor<br>OEM - Capteur de pression | 0 - 1000 bar<br>0 - 20 mA | | 1001 8329 |
| 3 | OEM - Drucksensor, Messbereich<br>OEM - Pressure sensor<br>OEM - Capteur de pression | 0 - 600 bar<br>0 - 20 mA | 6* | 6140 624 01 |
| 4 | OEM - Drucksensor, Messbereich<br>OEM - Pressure sensor<br>OEM - Capteur de pression | 0 - 60 bar<br>0 - 20 mA | 3* | 6140 625 01 |
| 5 | OEM - Drucksensor, Messbereich<br>OEM - Pressure sensor<br>OEM - Capteur de pression | 0 - 10 bar<br>0 - 20 mA | | 1002 7591 |
| 6 | OEM - Drucksensor, Messbereich<br>OEM - Pressure sensor<br>OEM - Capteur de pression | -1 / +6 bar<br>4 - 20 mA<br>(LWE) | | 5718 886 08 |
| 7 | Druckaufnehmer Direktanschluss nach MINIMESS<br>Connection for pressure sensor to MINIMESS<br>Adaptateur pour pressostat vers MINIMESS | Serie 1620 - 0° | 6* | 6140 626 01 |
| 8 | Druckaufnehmer Direktanschluss nach MINIMESS<br>Connection for pressure sensor to MINIMESS<br>Adaptateur pour pressostat vers MINIMESS | Serie 1620 - 90° | 3* | 6140 647 01 |
| 9 | Temperaturaufnehmer Pt 100<br>Temperature sensor Pt 100<br>Capteur de température Pt 100 | -50 °C / +200 °C | 1* | 6140 627 01 |
| 10 | P / T - Messkupplung, MINIMESS<br>P / T - Measuring coupling, MINIMESS<br>P / T - Adaptateur prise de mesure, MINIMESS | Serie 1620<br>G 1/4“ | 1* | 6140 628 01 |
| 11 | P / T - Messkupplung, MINIMESS<br>P / T - Measuring coupling, MINIMESS<br>P / T - Adaptateur prise de mesure, MINIMESS | Serie 1620<br>M10 x 1,5 | 1* | 1004 1274 |
| 12 | Messturbine<br>Measuring turbineTurbine de mesure | RE 4 - 10<br>1 - 10 l/min | 1* | 5010 031 |

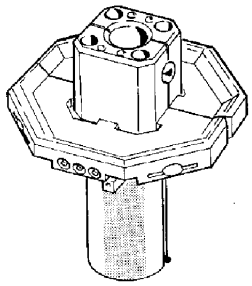
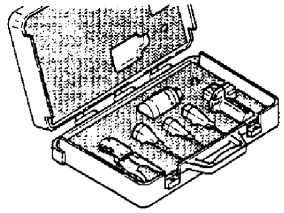
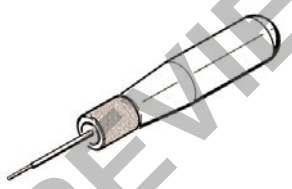
PREVIEW - YOUFIXTHIS.COM

| Darstellung<br>Representation<br>Dessin | Nr.<br>No.<br>N° | Benennung<br>Desciption<br>Dénomination | Größe<br>Size<br>Grand. | Ident. Nr.<br>Order no<br>N°code | Gerät<br>Model<br>Type | Anwendung<br>Application<br>Application |
|---|---|---|---|---|---|---|
|  | 125 | Drehzahlmesser Piezzo<br><br>Revolution - Indicator<br><br>Compte-tours Piezzo | A 2106 450 | 10286429 | alle Typen | Zum Messen der Motordrehzahl über Impulsfrequenz der Einspritzleitung<br><br>To check the engine RPM via impulse frequency of the injection line<br><br>Mesure de régime du moteur thermique par rapport aux impulsions de la pompe à injection |
|  | 130<br><br><br><br><br>131<br><br><br>132 | Drehzahlmesser Ornel<br>Revolution - Indicator<br>Compte-tours Ornel<br><br>Drehzahlmesser Shimpo<br>Revolution - Indicator<br>Compte-tours Shimpo<br><br>Streifen / Stripes / Pastilles | HT 460<br><br><br><br><br>DT 205 | 7006974<br><br><br><br><br>7364284<br><br><br>614063201 | alle Typen | Zum Messen der Drehzahl über Reflexions-Streifen<br><br>To check the RPM via reflexions stripe<br><br>Mesure de régime par l'intermédiaire d' une patille réflectrice<br><br>mit / with / avec / n° 130 |
|  | 145<br><br><br><br><br><br><br><br><br><br><br><br>146<br><br><br><br><br><br>147<br><br><br><br><br>148 | Vielfachmessgerät mit Digitalanzeige<br><br>Multimeter with digital display<br><br>Contrôleur universel à affichage digital<br><br><br><br><br><br><br>Zusatz - Messwerkzeuge<br>Measuring tools kit<br>Outillages optionnels de mesures<br><br><br><br>Meßkabelsatz<br>Measuring cable set<br>Lot de câbles de mesure<br><br><br><br>Bereitschaftstasche<br>Carrying case<br>Pochette de protection | Chauvin Arnoux MAX 3000 | 10018500<br><br><br><br><br><br><br><br><br><br><br><br>5616316<br><br><br><br><br><br>886125008<br><br><br><br><br>6001128 | alle Typen | Für Spannungs-, Strom- und Widerstans-messungen von Elektroanlagen und Elektro - Ventilen<br><br>For voltage, current and resistance measurements of electrical systems and electrical valves<br><br>Mesure de la tension, de la résistance de circuits et clapets électriques<br><br><br><br>In Verbindung mit /<br>To be used with tool /<br>A usiter avec l' outillage / n° 145<br><br><br><br>In Verbindung mit /<br>To be used with tool /<br>A usiter avec l' outillage / n° 145<br><br><br><br>In Verbindung mit /<br>To be used with tool /<br>A usiter avec l' outillage / n° 145 |

PREVIEW - YOUFIXTHIS.COM

| Maintenance / Inspection at operating hours | | | | | | WORK TO BE CARRIED OUT R 914 C / R 924 C | | |
|---|---|---|---|---|---|---|---|---|
| at delivery | every 8 - 10 | every 10 - 50 | every 500, 1500 | every 1000, 3000 | every 2000, 4000 | **By maintenance personnel (Operator)**<br>■ First and single interval<br>● Repeat interval<br>♦ Special interval every 250 hours | **By authorized trained personnel**<br>❑ First and single interval<br>❍ Repeat interval | **Note** |
| | | | ❑ | ❍ | ❍ | Replace return filter cartridge (first at 50 hours) | | 2) |
| | | | ❑ | ❍ | ❍ | Replace bypass flow filter element (first at 500 operating hours / minimum every 6 months) | | 2) |
| | | | ❍ | ❍ | ❍ | Replace oil filter in the servo control circuit | | |
| | | | ❍ | ❍ | ❍ | Check proper mounting of elements | | |
| | | | ❍ | ❍ | ❍ | Drain water from hydraulic tank<br>(max. permissible water content for environmentally friendly fluids = 0.1%; insert bypass filter and take oil sample) | | |
| | | | ❍ | ❍ | ❍ | Check hammer return filter for clogging, replace it if necessary | | |
| | | | | ❍ | ❍ | Replace return filter cartridge | | 2) |
| | | | | ❍ | ❍ | Clean hydraulic oil cooler (shorten interval, if necessary) | | |
| | | | | ❍ | ❍ | Check hydraulic system for leakage and functioning | | |
| | | | | ❍ | ❍ | Check / adjust primary and secondary pressure relief valves | | |
| | | | | ❍ | ❍ | Bleed servo system and hydralic pumps | | |
| | | | | | ❍ | Replace hydraulic oil in tank (optimise interval by carrying out oil analyses) | | 2), 3) |
| | | | | | ❍ | Replace breather filter on hydraulic tank | | 2) |
| **ELECTRICAL SYSTEM** | | | | | | | | |
| ❍ | ● | ● | ❍ | ❍ | ❍ | Check indicator lights and gauges on control panel when starting | | |
| ❍ | | | | ❍ | ❍ | Check lightings | | |
| | | | ❍ | ❍ | ❍ | Check level and specific gravity of electrolyte, cable clamp and battery terminals | | |
| | | | ❍ | ❍ | ❍ | Spray slip ring of the swing gear connection with Cramolin contact spray (if necessary) | | |
| ❍ | | | | ❍ | ❍ | Carry out functional tests of entire unit and of all components | | |
| **SWING GEAR** | | | | | | | | |
| ❍ | | | ❍ | ❍ | ❍ | Check oil level; check for leaks | | |
| | | | | ❍ | ❍ | Check funktioning and efficience of the swing brake | | |
| | | | | ❍ | ❍ | Check gear and hydraulic motor mounting | | |

PREVIEW - YOUFIXTHIS.COM

| Darstellung<br>Representation<br>Dessin | Nr.<br>No.<br>N° | Benennung<br>Desciption<br>Dénomination | Größe<br>Size<br>Grand. | Ident. Nr.<br>Order no<br>N°code | Gerät<br>Model<br>Type | Anwendung<br>Application<br>Application |
|---|---|---|---|---|---|---|
|  | 90 | Hilfswerkzeug zum halten des SURE-SEAL Steckverbinder 2, 3, und 4 polig beim Ein und Ausbau der angecrimten Kontakte<br><br>Auxilitary tool for holding SURE-Seal connectors with 2, 3 and 4 contacts during insertion and extraction of crimped contacts<br><br>Outil de maintien des connecteurs SURE-SEAL 2, 3 et 4 pôles pendant l'insertion et l'extraction des contacts sertis | | 7367021 | alle Typen | |
| | 95 | Gleich wie Werkzeug 324 für 5, 6 und 7 polig<br><br>The same as tool 342, for connections with 5, 6 and 7 contacts<br><br>Idem 342, pour connecteurs 5,6 et 7 pôles | | 7367085 | | |
|  | 100 | Reparatur - Set beinhaltet Sonderwerkzeuge 40 ,41, 42, 45 und 46, sowie Bedienungsanleitung und Gleitmittel<br><br>Kit for fielt repair contents special tools 40, 41, 42 45 and 46, operating instruction and lucatingfluid<br><br>Nécessaire de réparation contient les outillages spéciaux 40, 41, 42, 45 et 46, une notice d'utilisation et le lubrifant pour les contacts | | 7015073 | alle Typen | |
|  | 105 | Ausbauwerkzeug CA-COM Kontakte<br>Extraction tool CA-COM contact<br>Outil d'extraction de contacts CA-COM | 15S<br>16S | 7367019 | alle Typen | |
|  | 110 | Zylinderspule Auswährter<br>Solenoid tester<br>Testeur solénoïde | | 6204661 | alle Typen | |

PREVIEW - YOUFIXTHIS.COM

# Introduction

This manual contains technical data, design and functional descriptions, as well as service and set up instructions. The documents include numbers of drawings, functional diagrams, as well as detailed views of units and assemblies of LIEBHERR hydraulic excavators.

This manual has been created in order to assist the customer support services, but does of course replace neither proper technical training and qualification of the user nor participation in LIEBHERR operator training courses.

General basic technical information is not included in this manual. For operating instructions and information on spare parts, please refer to the separate documentation.

For maintenance and reparation of the machine, follow conscientiously the safety instructions and warnings.

## Symbols used in this manual

In this manual the description of tasks and procedures that are associated with specific dangers are accompanied by safety instructions mentioning the danger related to described work. The safety instructions are graded according to the severity of the risk, and are identified with the symbols «**Danger»** and «**Caution»**, which have the following significances:

These terms are identified by symbols in the operating instructions and :



**Danger!**
Warning referring to a danger where there is a high probability of death or serious injury to operators, unless the prescribed safety measures are taken.



**Caution!**
Warning relating to dangers that might lead to injury or machine damages, unless the prescribed safety measures are taken.

The symbol «**Note»** is destined to attract the attention of the persons having to intervene on the machine upon observations and comments concerning the procedure to be followed for operating as well for maintenance or repair works.



**Note!**
Comments and advices which will, if adhered to, help you to keep your excavator operating, to insure longlife to your machine and to facilitate certain procedures.

## Signification of specific punctuation marks in descriptions

– This mark introduces «an entry in a list».

  • This mark introduces «an entry in a sublist».

❑ This mark indicates «a requirement that must be fulfilled», before going on with the procedure below.

▶ This mark identifies «an injunction to perform the mentioned action».

  ↳ This mark indicates «the normally expected result of a carried out action».

## About the contain of this Service Manual

This manual may not be replicated or made available to third parties without the explicit written consent of LIEBHERR, who retains all rights in this documents.

All rights reserved - Printed in France.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

# PREVIEW ONLY

You're viewing 25 of 818 pages

## The full manual includes:

- All 818 pages, complete
- Searchable PDF (find any keyword)
- No watermarks
- Instant download
- Print-ready quality

GET FULL MANUAL NOW

**Liebherr R 914 C, R 924 C Service Training**

**Scan or click anywhere**
**youfixthis.com**

*Click anywhere on this page to get the full manual*