en

Operating manual

Hydraulic excavator
R 9350 E

from serial number 12947

Document identification

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LIEBHERR

1.1.3 Undercarriage

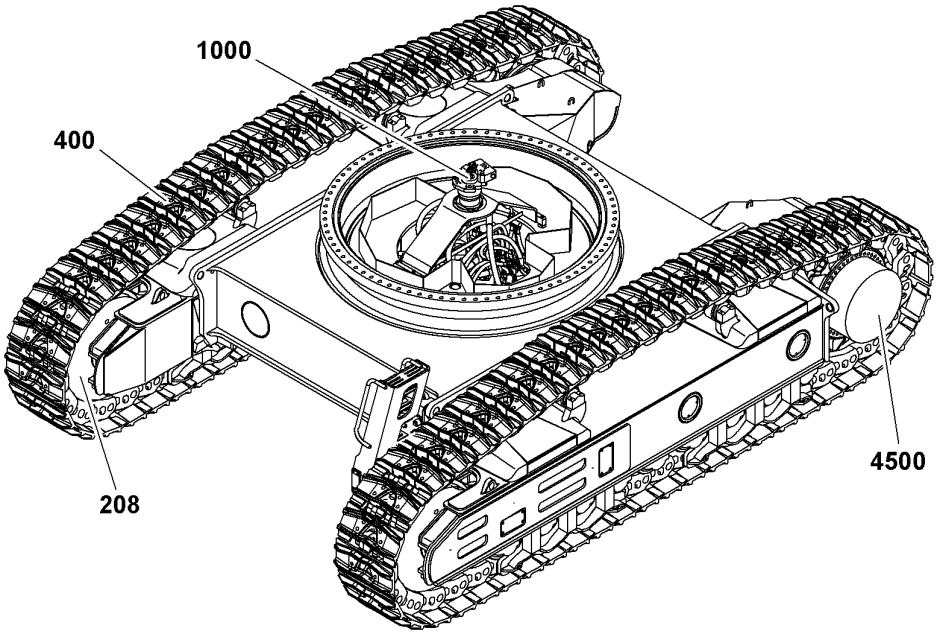


Fig. 1-3 *Undercarriage*

208 Idler
400 Track chain
1000 Rotary connection
4500 Travel gear with sprocket

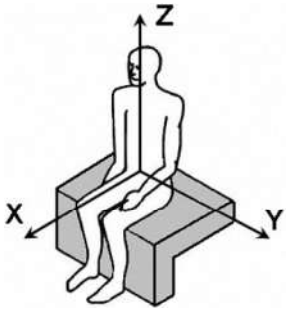
1.2 Vibration emission

Designation	Unit	Value	Measurement uncertainty
Hand-arm vibrations	m/s²	≤ 2,5	The measurement uncertainty is defined in standard EN 12096:1997
Whole-body vibrations	m/s²	≤ 0,5	

Tab. 1-1 *Vibration emissions*

Operator's seat

– The operator's seat built into the machine by the manufacturer conforms to ISO 7096:2000, EM 6.



Hand-arm vibrations

– If the machine is operated as intended, the weighted (frequency-weighted) effective value of the hand-arm vibrations in accordance with ISO 5349-1:2001 is less than 2.5 m/s².

Whole-body vibrations

– The value conforms to the specifications of the technical report ISO/TR

Built for Maximum Profitability

Electro-Hydraulic System Efficiency
Liebherr hydraulic technology in combination with the precision of electronic control contributes to the R 9350's energy optimization. The high-pressure hydraulic system and the optimized pipe and hose layout maximize usable power transmission. The hydraulic pumps are electronically managed to provide optimal pressure compensation and oil flow management. The hydraulic system is independently regulated over the engine circuit for the best operational efficiency.

Cooling System Efficiency
Liebherr's large dimensioned cooling system reduces fan power consumption and ensures an ideal machine temperature. The hydrostatic fans operate always on the required level.

Closed Loop Swing Circuit
The Liebherr Mining excavators are all equipped with a closed loop swing circuit. Kinetic energy is recovered when the swing motion is used during deceleration, to drive the main and auxiliary pumps, reducing fuel consumption and allowing faster boom lift motion.

Comfortable Cab for Efficient Work

The large and spacious cab which equips the R 9350 offers ideal working conditions and optimal operator's comfort. Mounted on silent blocks, the cab design reduces vibrations and limit noise pollution to provide a quiet environment.

Extended Components Lifetime

The R 9350's high pressure hydraulic oil filtration systems remove contaminants from the fluid to offer the highest rate of hydraulic system efficiency. To maintain the oil quality, all return hydraulic oil flow goes through a 15/5 µm fine filtration system. To promote availability, the grease and fuel tanks are sized to considerably extend the time between service intervals.

Hydraulic System Efficiency
The R 9350's hydraulic system is designed for an optimized hydraulic power management via the:
- Closed-loop swing circuit
- Pressureless boom down function
- Electronic hydraulic pumps management
- Electro-hydraulic control system
- Optimized pipe and hose layout

Central Service Station
- Hydraulic oil refill
- Engine oil refill and drainage
- Splitter box and swing gearbox oil exchange
- Attachment/swing ring bearing grease barrel refilling with filters
- Windshield washer water refilling
- Fast fuel refilling line
- Non-pressurised refueling system in option

Comfort-Oriented Cab Design
An array of features:
- Tinted laminated safety glass
- Armored front and attachment side windows
- Heavy duty sun louvers on windows
- Adjustable air suspended seat
- A/C with dust filter in fresh air/recirculated
- Pressurization to prevent dust penetration
- Trainer seat

Operator's Cab

Design	resiliently mounted, sound insulated, large windows for all around visibility, integrated falling object protection FOPS (ISO 10262)
Operator's seat	suspended, body-contoured with shock absorber, adjustable to operator's weight
Cabin windows	20.5 mm/0.8 in tinted armored glass for front window and 18 mm/0.7 in for right-hand side windows, all other windows in tinted safety glass, high pressure windshield-washer system 75 l/20 gal watertank, steel sun louvers on all windows in heavy duty design
Heating system/ Air conditioning	heavy duty, fully automatic, high output air conditioner and heater unit, contains fluorinated greenhouse gases HFC 134a with a Global Warming Potential (GWP) of 1430, the AC circuit contains 7.5 kg/16.5 lb of HFC-134 representing an equivalent of 10.7 tonnes/11.6 tons of CO_2, the 2nd AC circuit (optional) contains 4.8 kg/10.6 lb of HFC-134 representing an equivalent of 6.9 tonnes/7.6 tons of CO_2
Cabin pressurization	ventilation with filter, minimum pressurization of 50 Pa (ISO 10263-3)
Controls	joystick levers integrated into armrest of seat
Monitoring	via LCD-display, data memory
Rear vision system	camera installation on counterweight and right-hand side of the uppercarriage displayed over an additional LCD-display
Automatic engine shut off	engine self-controlled shut off
Destroking of main pumps	in case of low hydraulic oil level
Safety functions	additional gauges with constant display for: engine speed, hourmeter, voltmeter, safety mode for engine speed control and pump regulation
Noise level (ISO 6396)	Diesel: L_{pA} (inside cab) = Tier 1: 76 dB(A) Tier 2: 78 dB(A) Electric: L_{pA} (inside cab) = 75 dB(A)

Undercarriage

Design	3-piece undercarriage, box-type structures for center piece and side frames (stress relieved as a standard)
Hydraulic motor	2 axial piston motors per side frame
Travel gear	Liebherr planetery reduction gear
Travel speed	0 – 2.5 – 3.3 km/h / 0 – 1.60 – 2.00 mph
Parking brake	spring engaged, hydraulically pressure released wet multi-disc brakes for each travel motor, maintenance-free
Track components	BMP 350, maintenance-free, forged double grouser pad
Track rollers/ Carrier rollers	9/2 per side frame
Automatic track tensioner	pressurized hydraulic cylinder with accumulator and grease tensioner
Transport	undercarriage side frames are removable

Service Flap

Design	hydraulically actuated service flap, with lighting easily accessible from ground level to allow: – fuel fast refill – hydraulic oil refill – engine oil quick change – splitterbox oil quick change – swing gearbox oil quick change – swing ring teeth grease barrel refilling via grease filter – attachment/swing ring bearing grease barrel refilling via grease filter – windshield wash water refilling other coupler type on request

Central Lubrication System

Type	single line lubrication system, for the entire attachment/swing ring bearing and teeth
Grease pumps	hydraulic pumps for both circuits
Capacity	200 l/53 gal bulk container for attachment/swing ring bearing, separated 80 l/21 gal container for swing ring teeth
Refill	via the service flap for both containers, fill line with grease filters
Monitoring	via a specific Liebherr control module with data memory

Attachment

Design	box-type structure with large steel castings in all high-stress areas
Pivots	sealed with double side centering with 1 single floating pin per side, all bearings with wear resistant steel bushings, bolts hardened and chromium-plated
Hydraulic cylinder	Liebherr design, all cylinders located in well protected areas
Hydraulic connections	pipes and hoses equipped with SAE split-flange connections
Kinematics	Liebherr parallel face shovel attachment geometry, electronic controlled end-cushioning

- Do not use cold start materials (ether) in the vicinity of heat sources, naked flames or in inadequately ventilated areas.
- Do not use any starting aids containing flammable material to start diesel engines with preheating or flame glow systems. There is a risk of EXPLOSION.
- Familiarize yourself with the location and operation of fire extinguishers on the machine and with local fire warning and fire abatement options.
- It is possible to install an extinguisher into the driver's cab.
- All doors, covers and boxes locks have to be unlocked before operation in order to facilitate firefighting in case of fire. Only electrical boxes from and over 50V must remain locked during operation.

Bringing the machine safely into service

- Carry out a careful inspection tour around the machine each time before starting it.
- Ensure that no one, except an authorized person, is in the work and movement area of the machine.
- Check the machine for loose bolts, cracks, wear, leakage and damage.
- Never attempt to operate a damaged machine.
- Ensure that any damage is immediately rectified.
- Ensure that all hoods and covers are closed, but that locks are unlocked, to facilitate the fight against fire in case of.
- Ensure that all warning signs are present.
- Keep windows and interior and exterior mirrors clean. Secure doors and windows against unintended movement.
- Ensure that no one is working on or under the machine and warn personnel in the vicinity of the machine that it is about to start by sounding the horn.

Safely getting up

- Proceed with the same precautions to climb up or down onto the machine, as to install yourself at the operator's seat.
- When getting up or down, position the machine on even, horizontal ground. The upper structure should be positioned with the undercarriage in such a way that the steps and ladders are aligned with each other.
- Ensure that steps, ladders and hand-rails (grips) are in good condition. In particular, you should ensure that they are free of dirt, oil, ice and snow.
  NOTE: To ensure that the doors open properly in all weather conditions, the door seals must be dusted with talc or silicon at least every two months or more often if required. The door hinges and locks should be greased regularly.
- Face the machine when getting in or out and always use three-point support, i.e. two hands and one foot or two feet and one hand must always be in contact with the access system at the same time.
- If you are able to reach the door handle with your free hand, open the doors before you climb any higher. External influences, such as wind, can make it more difficult to open doors. Because of this, always use your hand for control when opening doors. Ensure that the door is latched open to prevent it slamming open and shut.
- In case of bad weather conditions, be particularly vigilant to realise the climbing and descent from the cab with the best safety conditions, and do or give the instructions to the execution of prior preparations to be accomplished, as enunciated above, in order to displace yourself safely.
- Be particularly vigilant with those prerequisites conditions.

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vices with sufficient load-carrying capacity.

- Park the machine on a flat surface and wedge the crawler or wheels securely.
- If required, detach a part of the machine's working attachment during transportation.
- The ramp used to drive the machine up onto the flatbed trailer should not exceed an inclination of the angle value indicated in the "Technical data" section of this manual (machine must be able to walk up unaided) and should have a wooden cover to prevent sliding back.
- The undercarriage should be swept clean, i.e. before driving up the ramp, clean any snow, ice and mud from the crawler / wheels of the machine.
- Align the machine precisely with the loading ramp.
- Attach the hand levers for fine-tune driving (crawler excavator) onto the travel pedals.
- Ensure that a spotter gives the machine operator the required signal.
- Prepare the placing block to ensure against rolling back when the machine is driving up onto the flatbed.
- Tilt the attachment up and drive up the loading ramp. While doing this, always hold the attachment securely over the loading area, drive very carefully up the ramp and onto the transportation vehicle.
- Rotate the uppercarriage carefully to the rear and lower the attachment. Due to restrictions during transport on hoe attachment, tilt the arm in and dismantle the bucket during transportation.
- After loading the machine onto the flatbed trailer, the upper structure must be secured facing the undercarriage using the stop bolts (only A devices).
- Secure the undercarriage and the remaining individual parts using chains and blocks to prevent slipping.
- Before you leave the machine, reduce pressure on all pressure lines, remove the ignition key and tilt up the safety lever.
- Lock all cab and panel doors.
- Before transportation, find out all details about the route to be travelled, particularly as they relate to width, height and weight restrictions.
- Pay particular attention when driving under electrical lines and bridges and through tunnels.
- When unloading the machine, take the same amount of care as was taken when it was loaded. Remove all chains and blocks. Start the engine as per the operating instructions. Drive carefully off the trailer's loading area and down the ramp. Hold the working attachment as securely as possible over the ground while doing this. Have a spotter guide you.

2.4 Servicing the machine safely

General safety instructions

- Maintenance and repair work may only be carried out by specially trained personnel.
- Observe statutory timetables or intervals given in the operating instructions for repeat tests / inspections. It is imperative that a suitably equipped workshop is available in order to carry out maintenance work.
- The inspection and maintenance schedule given at the end of these operating instructions defines precisely who is required / permitted to carry out what work.

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Danger!
Never cross the extern limit distance of Danger Area with any tools or any body parts. The approach area can only be considered as the working area, in order to measure the voltage or check voltage presence. The area must be roped and tagged. Parts under voltage should be protected to avoid any electrifying.

The following figure illustrates the danger area **A** and the approach area **B** around a part with voltage according to DIN EN 50110-1 (which defines areas' outer boundaries $\mathbf{D_L}$ and $\mathbf{D_V}$). Always observe local regulations concerning these areas according to the country you are working in.

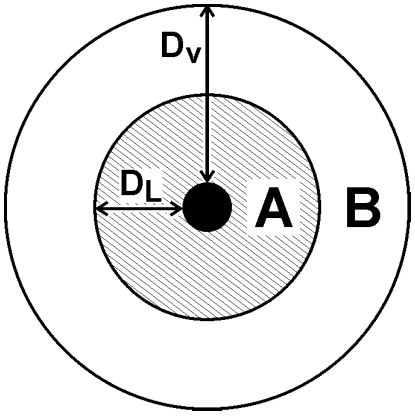

Fig. 2-1 *Danger area **A** and approach area **B***

Any job/maintenance at proximity of voltage must be done with all safety requirements presented in this manual and supplier's manuals.

THERE ARE NO SHORT CUTS IN SAFETY!

2.6 Safety guidelines to connect and start-up this electric machine

When connecting this machine to an electrical power source, as well as during the initial start-up, the following instructions and safety guidelines must be adhered to :

- The safety and accident prevention guidelines outlined in this manual, as well as all pertaining local, state and national standards, safety guideline, rules and regulations (such as ANSI, CIMA, DIN, IEC, INRS, ISO, NEC, NEMA, NF, OSHA, SAE, UL, VBG, VDE, EN, UTE, etc...) must be adhered to at all times.
- All works with regard to the electrical installation, particularly connecting the machine to an outside power source and the start-up procedure must be performed by a qualified and certified personnel.
- The entire electrical system must be properly protected against over-voltage and excessive current draw, short circuits and faulty ground.
- The entire installation must be switched off at the first fault (insulation, overcurrent, overload or ground fault) and this fault must be solved.
- To avoid electrical malfunctions, system or component damage, the supply voltage of all three phase conductors must be nearly the same (equal).
- All electrical conductors and the ground wire must be of sufficient gauge (cross

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* Estimated mass of the machine in its standard version (without optional equipment) according to its configuration: Diesel, electric, backhoe, shovel or pontoon.

Electric excavator specific signs

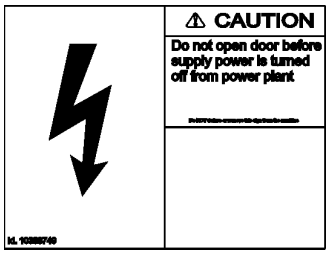


Plate 1: S1 door opening label

Indicates that the concerned element may only be opened when supply power is turned off from power plant.

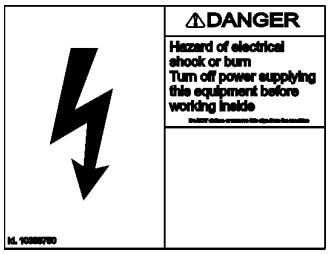


Plate 2: S1 electric shock or burn hazard label

Indicates electric shock or burn risk and gives associated safety instructions.

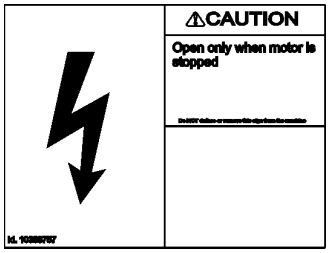


Plate 3: S1 and S2 box opening label

Indicates that the concerned element may only be opened when motor is stopped.

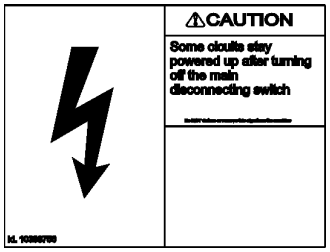


Plate 4: S1 and S2 residual voltage label

Indicates that some circuits stay powered up even after having turned the main disconnecting switch off.

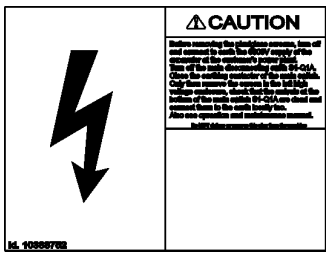


Plate 5: S1 safety instructions label

Indicates safety instructions which have to be respected when removing the plexiglass screens.

S20 – No function

S21 – High speed gear

▶ Press button.
  ↳ Transfer from normal drive to fast drive is activated.
  ↳ LED **1** in the button illuminates.

While driving, the machine will automatically transfer from normal drive to fast drive. LED **2** illuminates after transfer to fast drive.

▶ Press button again.
  ↳ Transfer from normal drive to fast drive is disabled.
  ↳ LED **1** in the button goes out.

S22 – Counterweight floodlights

▶ Press button.
  ↳ Counterweight floodlights are activated.
  ↳ LED in the button illuminates.

▶ Press button again.
  ↳ Counterweight floodlights are disabled.
  ↳ LED in the button goes out.

S36 – Special function 1 (optional)

Configuration and activation according to kit.

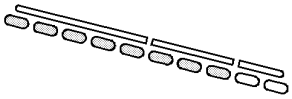
S41 – Dome light

▶ Press button.
  ↳ The interior lights are activated.

▶ Press button again.
  ↳ The interior lights are disabled.

S56 – No function

S86 – No function



P4 – Motor start display

LEDs come on only at electric motor start.

S228 – No function

S229 – No function

❑ To change to the operator's menu, the main screen must be visible.

▶ Press the **Menu** button on the main screen.
↳ The list of accessible menus is displayed.

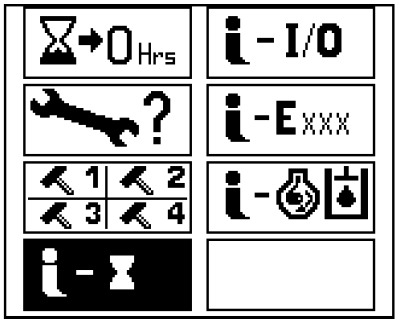


Fig. 3-11 *Menu selection in the operator's menu.*

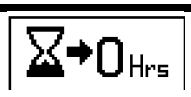
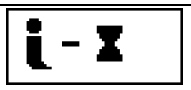
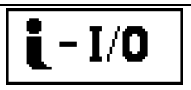
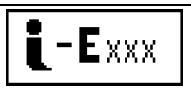
To select the operator's menu:

▶ Press arrow key **Down** or **Up**.
↳ The following or previous operator's menu will be displayed on screen with a black background.

❑ The selected menu is displayed with a black background, the **Reset daily operating hours** menu is used here as an example.

▶ Press the **Menu** button again.
↳ The submenu for the function selected is displayed.

▶ Press the **Back** button again.
↳ The submenu will be aborted.

Symbol	Description
	Reset daily operating hours counter
	Confirm service interval
	Select quantity limitation relating to attachments (eg. hammer)
	Operating hours and device data
	Status of hydraulic pumps and electrical inputs and outputs
	Recorded and stored errors
	Immobilizer (must be activated by LIEBHERR customer service using a service connector)

Tab. 3-1 *Overview of menu options*

Full screen

Fig. 3-26 *Full screen display*

The input from one camera can be switched to full screen (with the input from the other camera remaining simultaneously displayed with normal size).

To switch a camera to full screen:

- ▶ Press **F1.**
  - ↳ Camera 1 is switched to full screen while camera 2 remains displayed with normal size.
- ▶ Press **F2**.
  - ↳ Camera 2 is switched to full screen while camera 1 remains displayed with normal size.

To switch back to standard display:

- ▶ Press **F8**.
  - ↳ Screen turns back to standard display.

Note!
Additional cameras can be installed as optional feature. In this case, the additional inputs will be displayed on the screen on the remaining free fields and full screen display will be possible via corresponding **Fx** button.

Setting the vibration damping and lumbar support, switching on the seat heating (air-cushioned operator's seat, optional extras)

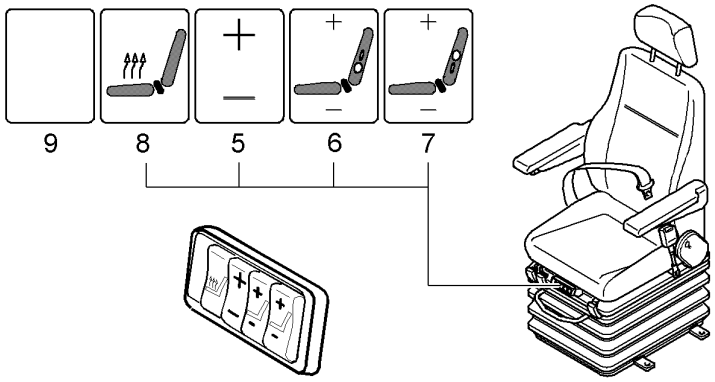


Fig. 3-35 *Switch bar on the air-cushioned operator's seat*

To set the vibration damping:

▶ Press button **5** (**+** or **-**) and set the vibration system according to body weight.

To set the lumbar support:

▶ Press button **6** (**+** or **-**) to inflate or deflate the lower lumbar chamber.

▶ Press button **7** (**+** or **-**) to inflate or deflate the upper lumbar chamber.

To set the seat heating:

▶ Use switch **8** to switch the seat heating on or off.

The seat heating switches off automatically when the temperature set is reached.

Putting on / releasing the safety belt

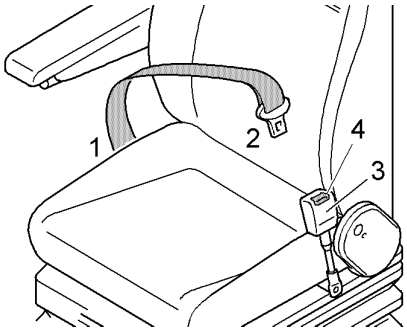


Fig. 3-36 *Safety belt*

The safety belt is automatic. It is not necessary to adjust the length of the belt.

▶ Pull the belt and buckle **2** out of the roller mount **1**.
↳ If pulled out of the roller mount sharply, the belt may lock.

▶ Push the buckle into the belt lock **3** until it fastens.

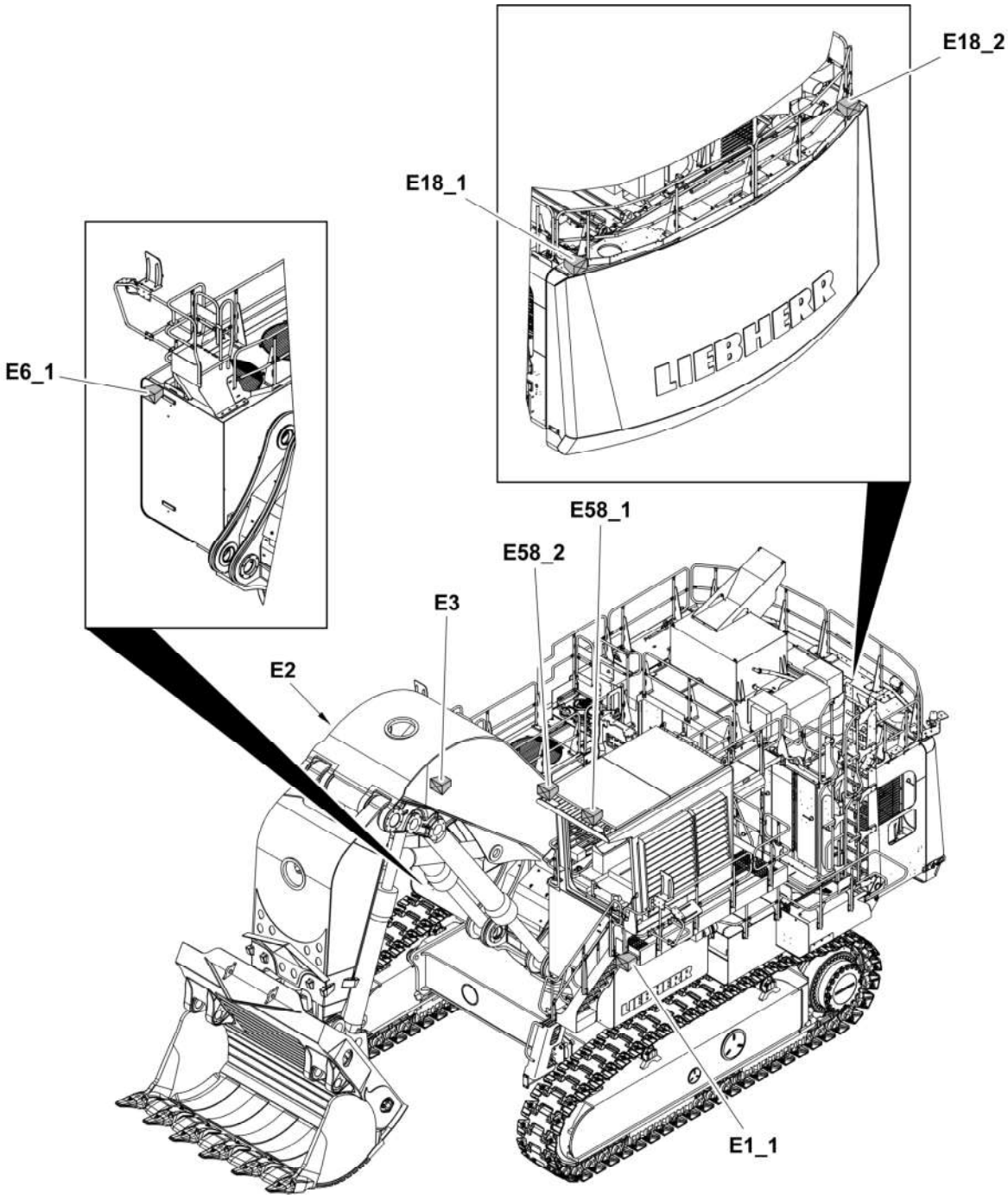


Fig. 3-45 *Floodlights installation*

1 Attachment floodlight
2 Attachment floodlight
2_2 Attachment floodlight (optional, not represented)
2_3 Attachment floodlight (optional, not represented)
6_3 Counterweight floodlight (optional, not represented)
6_4 Counterweight floodlight (optional, not represented)
6_5 Counterweight floodlight (optional, not represented)

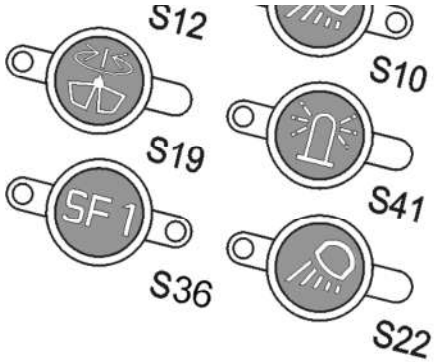


*Fig. 3-53 **S22** on control keyboard*

Note!
If no automatic check of the keyboard and monitoring display is carried out when the ignition key is in the contact position, check that the main batteries are switched on.

Switching on the 400V control system

❑ Make sure the 6kV control system is switched on.

▶ Push the button **S207**.
↳ The indicator light in the button comes on.

Service interval display

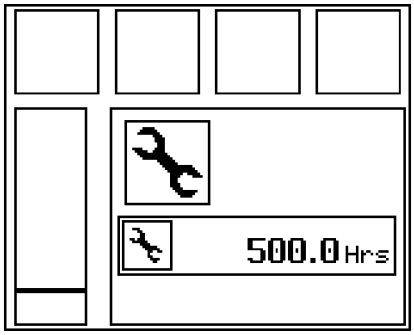


Fig. 3-54 Service interval request

After the automatic check, any service interval that may be due will be indicated by a graphic symbol.

In place of the operating hours information, the number of hours relating to the service interval required will now be displayed.

The service interval request will go out after approx. 8 seconds.

Starting the electric motor

▶ Push the button **S181**.
↳ The indicator light in the button comes on.
↳ After 8 seconds, the indicator light **H110** on the control board comes on. It means that the servo oil circuit operates.

Braking the machine

The hydrostatic travelling mechanism of the machine also functions as a service brake.

▶ Disengage the pedals for the drive units.
  ↳ The pedals will return to the neutral position.
  ↳ The travelling mechanism will be stopped.
  ↳ The machine will be braked.

When the pedals for the drive units are in the neutral position, the hydrostatic drive prevents the machine from rolling off.

In the neutral position, the parking brake will be applied automatically after a few seconds. The work equipment can, however, still be moved.

Actuating a travel pedal again will disable the travel brake.

Caution!
Disengaging the pedals quickly causes the machine to halt abruptly.

▶ Before starting the machine, always fasten the safety belt.

3.4 Working with the machine

Working safely with the machine

– Before you start working, acquaint yourself with the special features of the job site and any special precautions and warning signals. Examples of particular work environments would be on-site or traffic obstructions, the load-carrying capacity of the ground and any requirements to make the job site safe from public use.
– Always maintain a safe distance from overhangs, edges, slopes and unsafe ground.
– Be particularly careful in conditions of reduced visibility and changeable ground conditions.
– Familiarize yourself with the location of power and gas lines on the job site and take particular care when working near them. If necessary, inform the responsible authorities.
– When working in areas with underground lines (gas, electricity), adhere to the laws, regulations and rules applicable at the place of use.
– Maintain a safe distance from electrical aerial lines. Do not allow the attachment to come near cables when working near electrical aerial lines. Risk of fatality! Inform yourself about required safety distances.
– The following actions must be carried out in the event of any transfer of electricity:
  • do not move the machine or its attachment,
  • do not leave the driver's cab,
  • **warn any personnel in the vicinity not to come close to the excavator and not to touch it,**
  • instruct or initiate that someone turns off the voltage.
  • move the machine, if possible, from the danger zone to a sufficient distance,
  • Do not leave the machine until you are absolutely sure that voltage in the line, which had been touched or damaged, has been turned off!
– Before moving the machine, always ensure that any attachments are safely secured.
– When driving onto public roads, paths and squares, observe current traffic regu-

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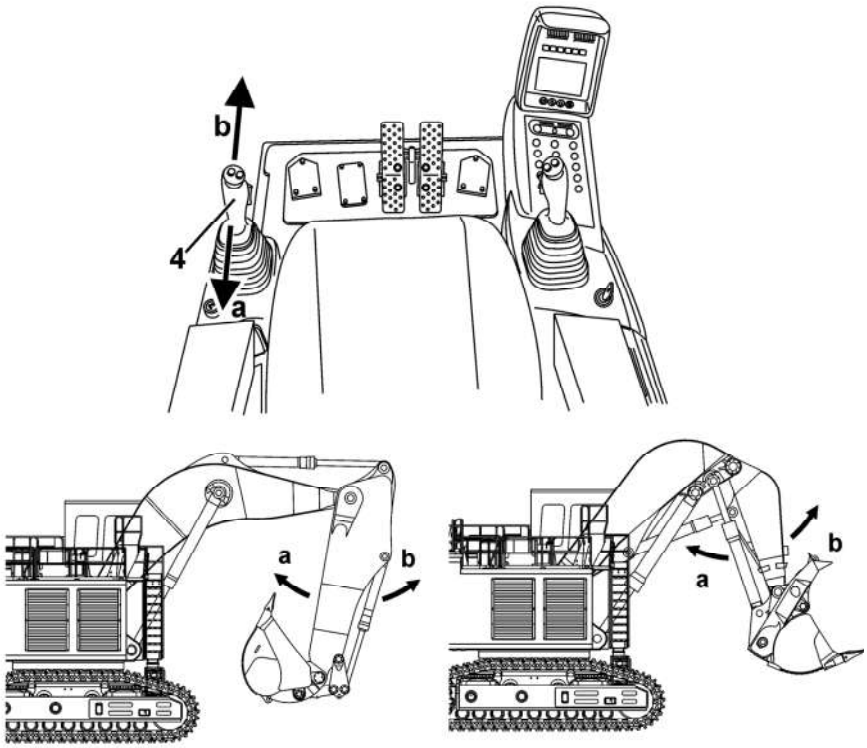

Fig. 3-65 *Operating the stick cylinder*

- ▶ Push the joystick back **a**.
  ↳ Stick will be drawn in.
- ▶ Push the joystick forwards **b**.
  ↳ Stick will be extended.

Operating the boom cylinder

The boom cylinder is operated using the right joystick **3**.

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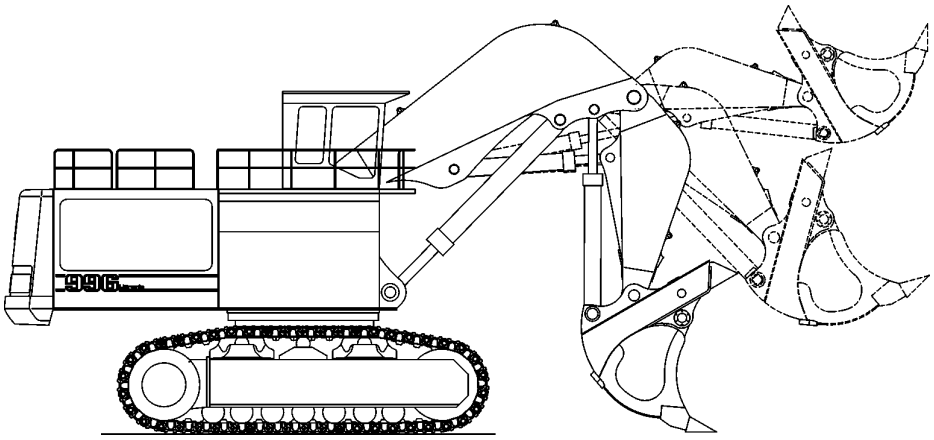


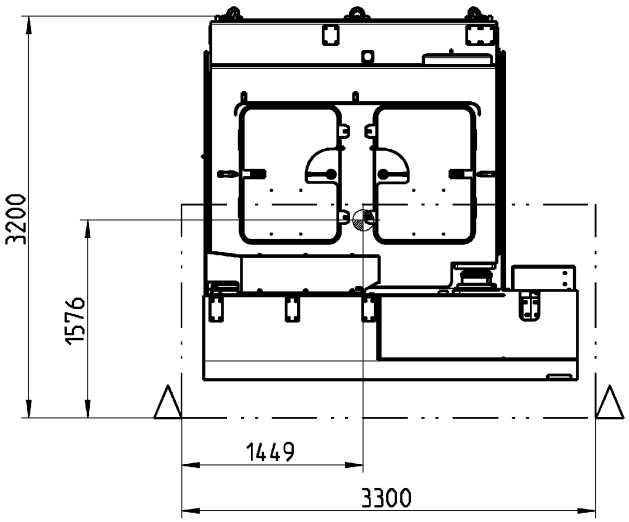
Fig. 3-79 *Digging*

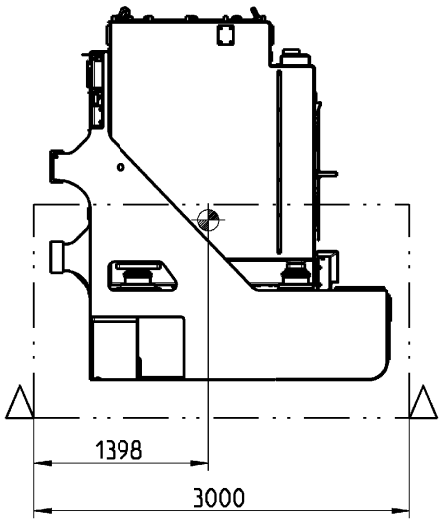
- ▶ Most digging should be started with the bucket almost fully crowded back (50mm off stops or end of cylinders).
- ▶ When cleaning up or digging at floor level, angle the teeth aggressively to break out any toe that may be encountered.
- ▶ Keeping the heel of the bucket off the ground therefore creating a void under the rear of the bucket.
- ▶ Operate with the teeth and bucket lip doing all the work.

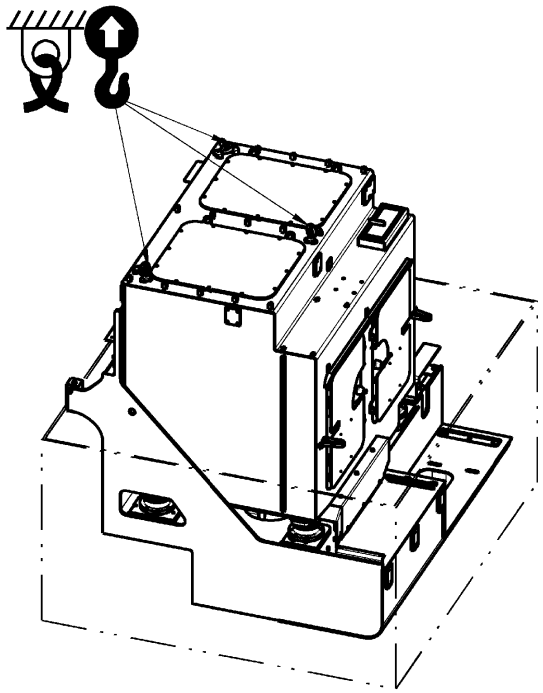
Note!
Avoid digging at right angles to the tracks.

Caution!

- ▶ Each time the stick is crowded back to commence a cut, extreme caution must be taken not to hit the tracks.
- ▶ The clam must always be closed when digging, although don't slam it shut. Avoid working on the cylinder limits and bucket stops during the digging cycle. Continual use of these practises will lead to premature failure of seals and O-rings and can cause stress fractures to the clam, stick and bucket and damage to the boom and superstructure.
- ▶ Crowd the bucket in (down) while closing the clam. This practise makes use of gravity to help minimise shock loading on the bucket cylinders.
- ▶ Never dig, or attempt to bring down any material overhang, with the bucket while the clam is open or partly open.
- ▶ Do not attempt to dig or clean the floor or face with the clam open. These practises can cause considerable damage to the clam cylinders.







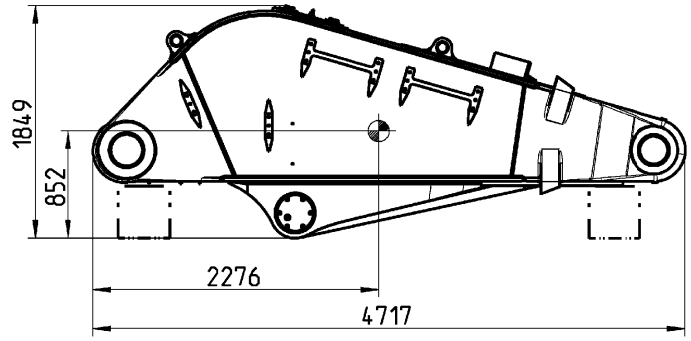
SCHWERPUNKT
CENTER OF GRAVITY
CENTRE DE GRAVITE

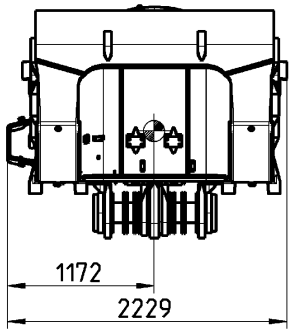
△ Keilen
Blocking
Calage

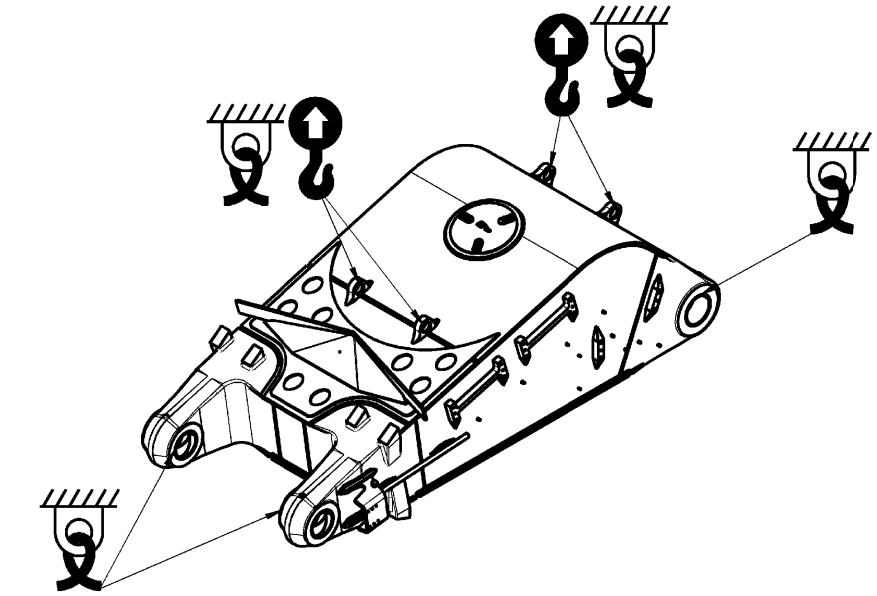
	Gerechnet Calculated Calculé	Gewogen Weighed Pesé
Gewicht ohne Werkzeug und Verpackung Weight without tool and packaging Poids sans outillage et emballage	5 800 kg	
Gewicht mit Werkzeug und Verpackung Weight with tool and packaging Poids avec outillage et emballage	6 200 kg	

LIEBHERR

Bezeichnung / Description / Dénomination	Ident-Nr. / Ident No. N° d'ident	Index / Index Index	Blatt / Page Feuille
TRANSPORTPLAN TRANSPORT DRAWING R9400E PLAN DE TRANSPORT	11069336	001	1/1







Fläche schützen
Protect surfaces
Protéger les surfaces

AUF BEIDEN SEITEN
ON BOTH SIDE
DES DEUX COTES

Fläche schützen
Protect surfaces
Protéger les surfaces

SCHWERPUNKT
CENTER OF GRAVITY
CENTRE DE GRAVITE

	Gerechnet Calculated Calculé	Gewogen Weighed Pesé
Gewicht ohne Werkzeug und Verpackung Weight without tool and packaging Poids sans outillage et emballage	12 710 kg	
Gewicht mit Werkzeug und Verpackung Weight with tool and packaging Poids avec outillage et emballage	12 710 kg	

LIEBHERR

Bezeichnung / Description / Dénomination	Ident-Nr. / Ident No. N° d'ident	Index / Index Index	Blatt / Page Feuille
TRANSPORTPLAN SCHAUFELSTIEL TRANSP.DRW.FRONT SHOVEL STICK R9350 PLAN DE TRANSP.BALANCIER CHOU.	10820948	001	1/1

4.2.5 Work equipment

Fault / error	Cause	Solution
Cylinder stretches when loaded	Piston seal in cylinder defective	Overhaul cylinder
Bearing clearance too high on equipment	Bearing points worn out	Replace bearing parts
Bucket does not move	Valve block on tilting cylinder incorrectly switched	Switch over valve block

4.3 Fuses and relays

Danger!
Incorrect or bypassed fuses do not offer the machine's operator or the electrical system the required degree of protection.

- ▶ Only use original fuses.
- ▶ Never bypass electrical fuses.
- ▶ If required, order replacement fuses from LIEBHERR.

4.3.1 Power electrical box E1003

The power electrical box **E1003** is located under the cabin in the cab elevation.

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- Make sure the equipment on which you will operate is securely supported before working (e.g. replacing teeth). Prevent metal touching metal when doing this.
- For safety reasons, never open and remove a track chain unless having previously totally released the pretension of the chain tensioning unit.
- Never lay under the machine if it is raised with work equipment and has not been securely supported with appropriate supports.
- Always jack the machine up in such a way that any weight displacement does not jeopardize stability and prevent metal touching metal while doing this.
- Work on the suspension, brake and steering systems may only be carried out by trained specialist personnel.
- If the machine has to be repaired on a slope, secure the crawler with chocks and connect the upper structure to the chassis using stop bolts.
- Only personnel with special training and experience may work on hydraulic equipment.
- When searching for leakage, wear protective gloves. A fine jet of liquid under pressure can penetrate the skin.
- Do not unscrew any lines or connections before you have set aside the equipment, switched off the engine and depressurized the hydraulic system. After switching off the engine, with the start key in contact position and with the safety lever down into its lowest position, you must operate all pilot control devices (joystick and pedals) in all directions in order to reduce the actuating and dynamic pressures in the work circuits. You must then reduce the internal tank pressure as described in these operating instructions.

Electrical system

- Check the electrical system regularly.
  Have all faults, such as loose connections, blown fuses and lamps and clogged or abraded cables rectified by personnel.
- Only use original fuses with approved current strength.
- For machines with electrical neutral and high tension leads:
  • switch the machine off immediately in the event of malfunctions in the power supply.
- Work on the machine's electrical equipment may only be carried out by skilled electrical personnel or by trained personnel under the supervision of an electrician in accordance with electrical regulations.
- When working on live parts, ensure that a second person is available to operate the emergency-off or the main switch and overvoltage release. Cordon off the working area with a red and white safety chain and a warning sign. Only use insulated tools.
- When working on neutral and high tension subassemblies, after releasing the voltage, briefly disconnect the supply cable at earth and electronic devices such as capacitors using an earthing rod.
- First test the released parts to make sure that they are off circuit, earth them and then disconnect them briefly. Insulate adjacent live parts.
- Disconnect the battery before working on the electrical system or carrying out any electric arc welding on the machine.
  First disconnect the negative, then the positive pole. When reconnecting, proceed in the reverse order.

Hydraulic accumulator

- All work on the hydraulic accumulators must be carried out by trained specialist

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Symbol	Display
	Hydraulic system
	Swing gear
	Travel gear
	Splitterbox
	Grease / Swing ring teeth
	Grease
	Cabin heater
	Windshield washer
	Check oil level
	Oil change
	First oil change
	Oil analysis
(1)	If filled with COB-2, COB-3 or COB-4 gear oil
(2)	If filled with COB-1 gear oil
(3)	Refer to the Operating Manual (section «Lubricating and operating material specifications»)

Tab. 5-1 *Lubricating chart key*

5.4.3 Service trap

To simplify the oil change and the refilling procedure, the drain of the following major components on the uppercarriage are centrally connected to a service trap:

- The splitterbox
- The two swing gears
- The hydraulic oil tank
- The tank for windshield washer fluid
- The grease tank for general lubrication
- The grease tank for swing ring teeth lubrication

Component	Adapter WIGGINS	Flow max.
Swing gear	OSP2	50 l/min
Splitterbox	C-1807	50 l/min
Hydraulic oil	6000B12	100-200 l/min
Windshield washer	EC280B8	25 l/min

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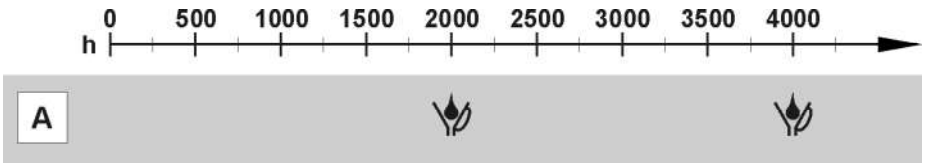

Fig. 5-11 *Oil changes at pre-set intervals*

A Mineral oils and PAO oils
h Operating hours

- ▶ Liebherr recommends that you sample the hydraulic oil every 500 operating hours (refer to the section "Condition monitoring with oil analysis").
- ▶ Change the hydraulic oil every 2000 operating hours.

Oil changes at optimized intervals

This procedure is applicable for mineral oils, PAO oils and HEES biodegradable oils.

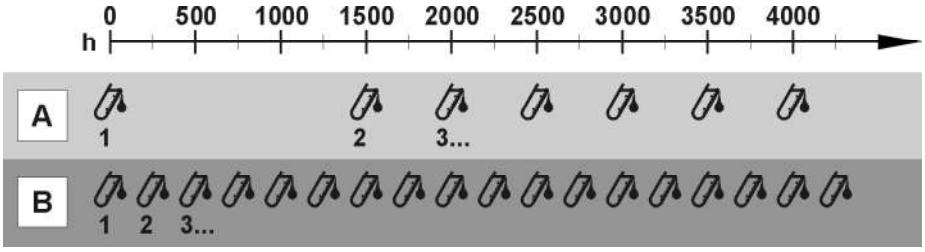

Fig. 5-12 *Oil changes at optimized intervals*

A Mineral oils and PAO oils
B HEES biodegradable oils
h Operating hours
1 First oil sample
2 Second oil sample
3 Next oil samples at regular intervals

You can extend the oil change intervals (up to 6000 operating hours and possibly even more) as long as the properties of the oil are satisfactory.

- ▶ Get a sample of the new hydraulic oil.
- ▶ If you use mineral oil or PAO oil, you must sample the hydraulic oil every 500 operating hours after the first 1500 operating hours.
- ▶ If you use HEES biodegradable oil, you must sample the hydraulic oil every 250 operating hours.
- ▶ Change the hydraulic oil immediately if the results of the analysis are not satisfactory (refer to the section "Condition monitoring with oil analysis").

5.5.3 Swing and travel gear oils

Note!
For a given machine operating temperature range, and if different viscosity grades are approved according to the following specifications, always choose the lubricant with the highest viscosity grade.

Oil sampling points

Splitterbox

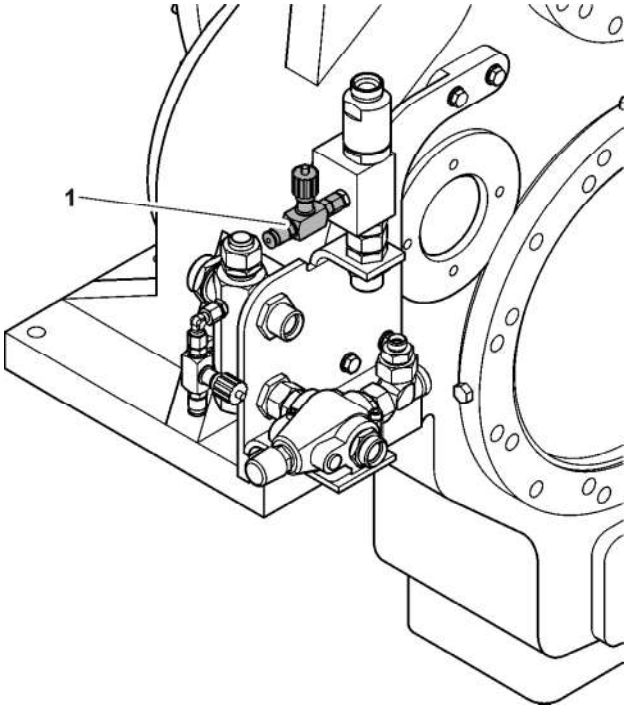

Fig. 5-16 *Sampling valve **1** for splitterbox oil*

To get a sample of the splitterbox oil:

Note!
Two sampling procedures are applicable for this component.
Always use the same sampling point and the same sampling procedure for this component to make sure that the analysis records stay relevant.

▶ Use the sampling valve **1** which is installed next to the splitterbox.

or

▶ Use a sampling pump and get the oil sample through the dipstick tube of the splitterbox.

5.8.3 Air filter

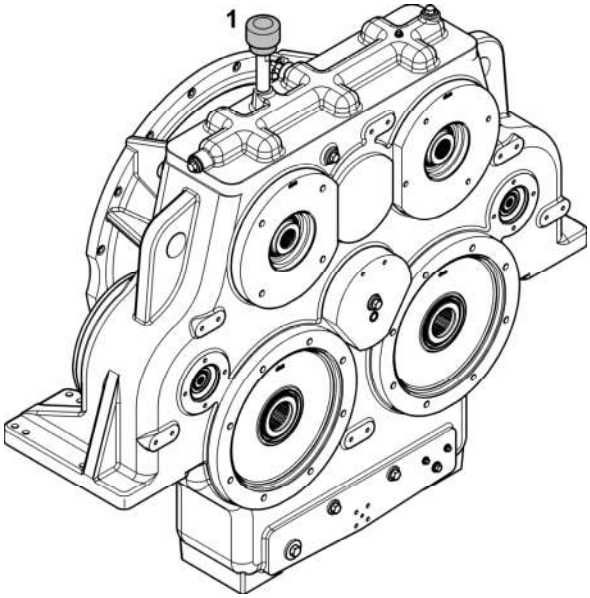

Fig. 5-24 *Breather on splitterbox*

The air filter in the splitterbox breather **1** must be checked, cleaned and changed regularly.

To clean the air filter:

- ▶ Open breather **1** by pushing it and turning it ¼ turn.
- ▶ Remove filter from breather housing.
- ▶ Check filter condition and clean it with fuel.
- ▶ Reinstall filter in breather housing.
- ▶ Close breather **1**.
- ▶ For check, clean and change intervals, see maintenance schedule.

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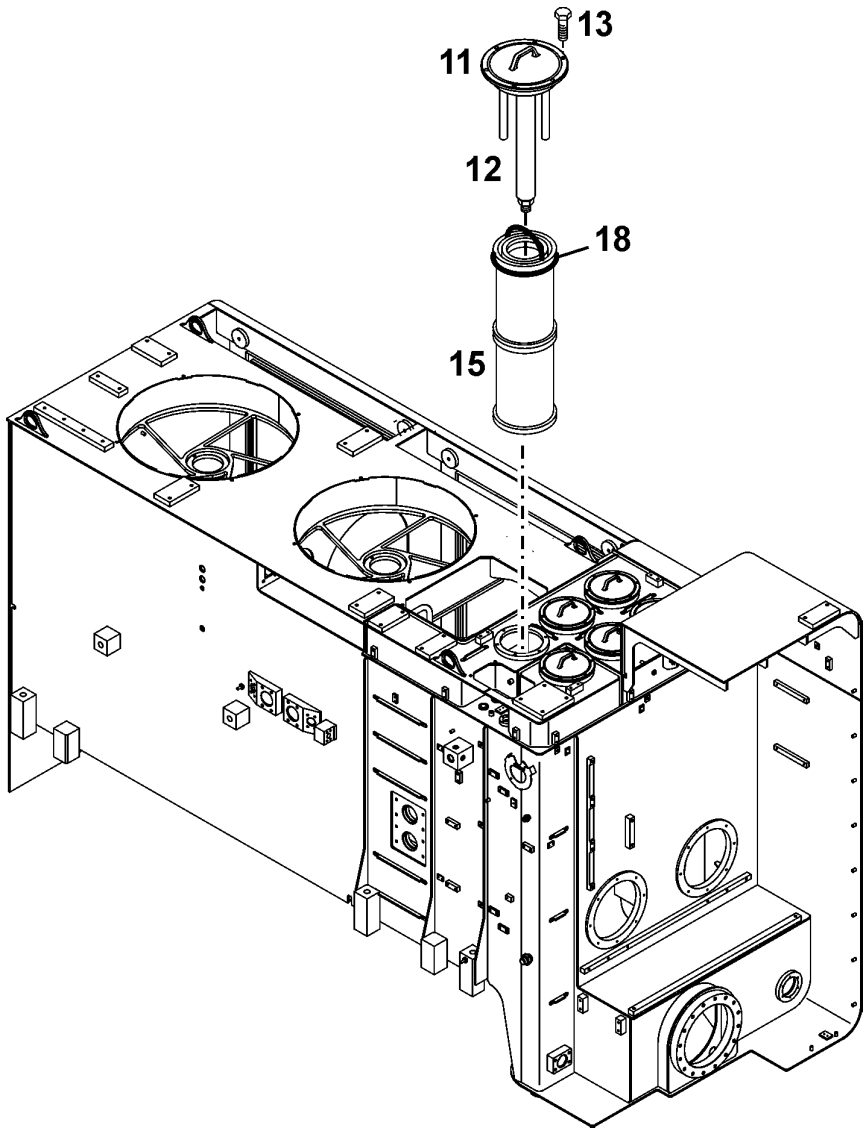

Fig. 5-36 *Filter assembly*

11 Cover
12 Magnetic rod
13 Fixing parts
15 Filter element
18 O-ring

To clean the magnetic rod and replace the filter element:

- ▶ Loosen the fixing parts **13** and lift out cover **11** and magnetic rod **12**.
- ▶ Carefully clean off any dirt sticking to the magnetic rod **12**.
- ▶ Remove the used filter element **15** from the bracket.

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- ▶ Install new filter element **5** in filter housing **6**.
- ▶ Install new sealing ring **4** during each filter element change.
- ▶ Close cover **3**.
- ▶ Reinstall sealing ring **2** or change if necessary.
- ▶ Tighten fixing screw **1**.

5.10.15 Oil cooler protection filters (optional)

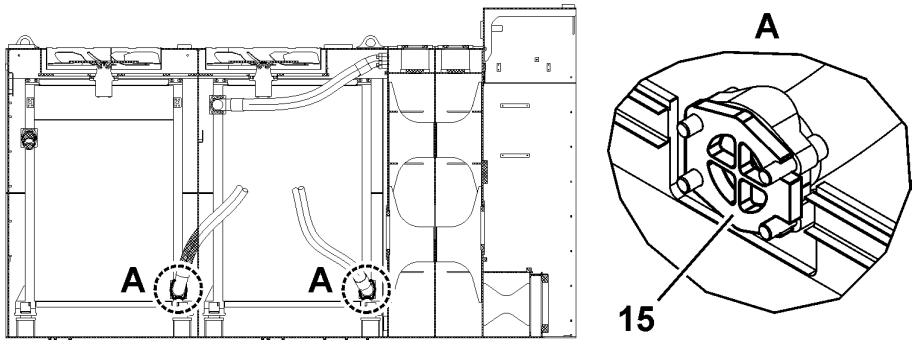

Fig. 5-45 *Oil cooler protection filter*

Protection filters **15** can be installed between the valve bank and the oil cooler in order to reduce the impact on the operating conditions of the excavator in case of possible hydraulic component failure.

- ▶ Check and clean filters regularly.
- ▶ Check filters in case of hydraulic component failure.
- ▶ Change filter in case of impact or mesh rupture.
- ▶ For maintenance intervals, see control and maintenance chart.

Caution!
If filters maintenance isn't correctly carried out, filters clogging due to regular operation of the excavator could lead to following risks:

- cooling capacity drop,
- negative impact on oil quality.

To check or change a filter:

- ❑ Shutoff valve between hydraulic tank and pumps must be closed.
- ▶ Use a vacuum pump connected to the hydraulic tank in order to minimize oil loss.

Note!
During maintenance operation, if one or several filter(s) is/are defective and if no replacement filter is available, the excavator can still be operated with one or several filter(s) missing. This until delivery of a new filter.

- ❑ Make sure to always have sufficient operational filter in order to reduce maintenance time.

5.11.5 Splitterbox – oil change

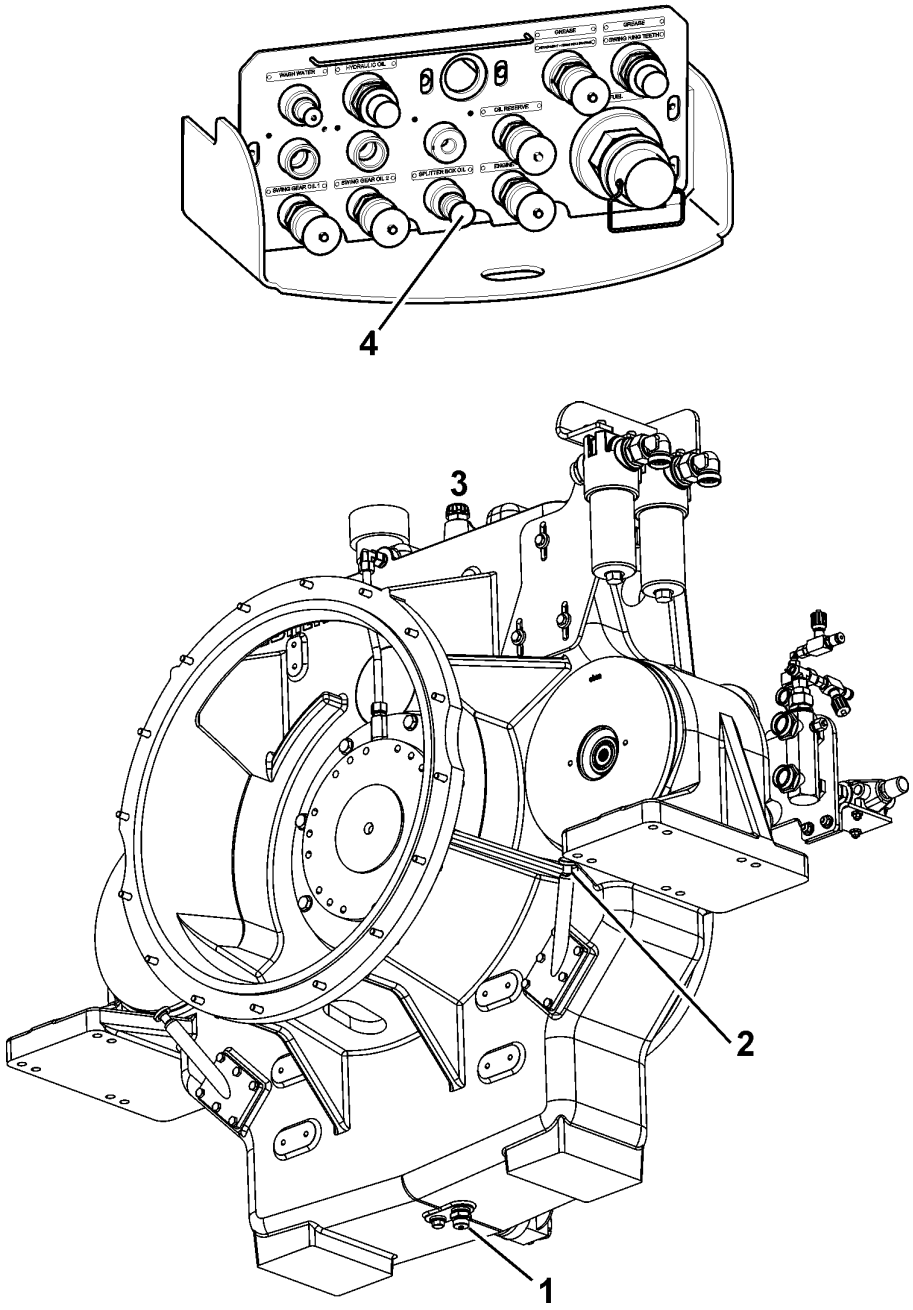

Fig. 5-53 *Oil change on the splitterbox*

1 Drain valve
2 Dipstick
3 Oil inlet cap
4 Splitterbox oil change coupling

Splitterbox oil level check

▶ Stop the electric motor and wait 15 minutes for the oil to collect into the oil pan.

▶ Read oil level using the dipstick **2**.

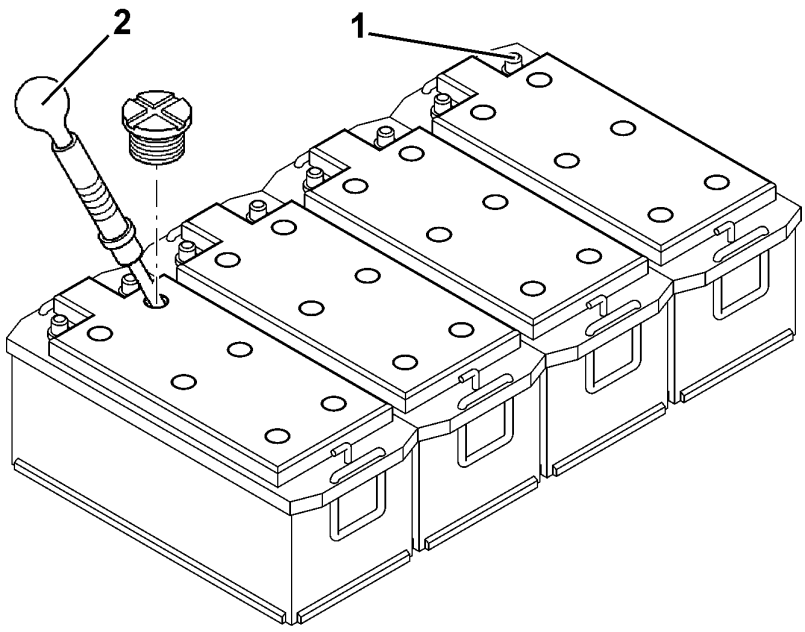

Fig. 5-61 *Battery care*

1 Cable terminal **2** Acid tester

▶ From time to time, measure the acid concentration using an acid tester **2**.

When the battery is fully charged, the **unit weight is 1.28 kg/l (31.5° Bé)**.

▶ If the acid tester displays a lower value, the batteries is virtually flat and should be charged if necessary.

- ▶ Should corrosion, rust or mechanical damage be observed, the receiver bottle has to be replaced by reasons of explosion. While replacing, take care of the mounting direction. The exit is marked with an "A" and the top side is marked with "OBEN".
- ▶ Change the filter/drier **2** in air conditioning unit at regular intervals, at least once a year. The filter/drier **2** also have to be changed after each opening of the refrigerant circuit. The arrow symbols on the filter/drier have to be placed in the direction of the expansion valve.
- ▶ In addition, the refrigerant charge of the system must be checked at regular intervals, by observing the sight glass **3** while the air-conditioning system is operating. Bubbles or foam in the sight glass **3** indicate an insufficient refrigerant charge.
- ▶ In this case, the system must be checked and refilled by a trained specialist.
- ▶ Check the color of the indicator in the sight glass **3**. If the indicator becomes yellow, it means that there is too much humidity in the system. The filter/drier **2** must be changed immediately by a trained specialist.
- ▶ Check condition of fans **5**. If one fan **5** is defective, it has to be replaced. The fans have to be free of dirt and damages.
- ▶ Check the condenser battery **6**. If necessary blow it out with pressurised air or steam, from the inner side (fan side) to the outside.
- ▶ Check for possible damages on the compressor **1**.
- ▶ Check compressor fastening.
- ▶ Check condition, alignment and tension of V-belt.

5.14.3 Dual air-conditioning system (optional)

- ▶ Also switch on the second air-conditioning system for approx. 10 minutes every 2 or 3 weeks, regardless of the season.
- ▶ Do the same following checks and maintenance works on the second air-conditioning unit as for standard air-conditioning unit.

5.14.4 Additional maintenance operations

- ▶ Check operation of evaporator blowers and condenser fans. All blowers have to be in working order in order to avoid air short circuit.
- ▶ Check electric installation.
- ▶ Check all hose fittings and couplings for leakage.
- ▶ Check setting and function of defrosting thermostat at the evaporator coil.
- ▶ Check compressor pressure switch. If the pressure at the compressor on the low pressure side is too high, the compressor pressure switch lights up an indicator lamps. This means that the compressor is not working well.

5.15 Check mounting bolts for tightness

- ▶ The mounting bolts listed below must be regularly checked and retighten if nec-

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5.15.9 Hydraulic pumps mounting bolts

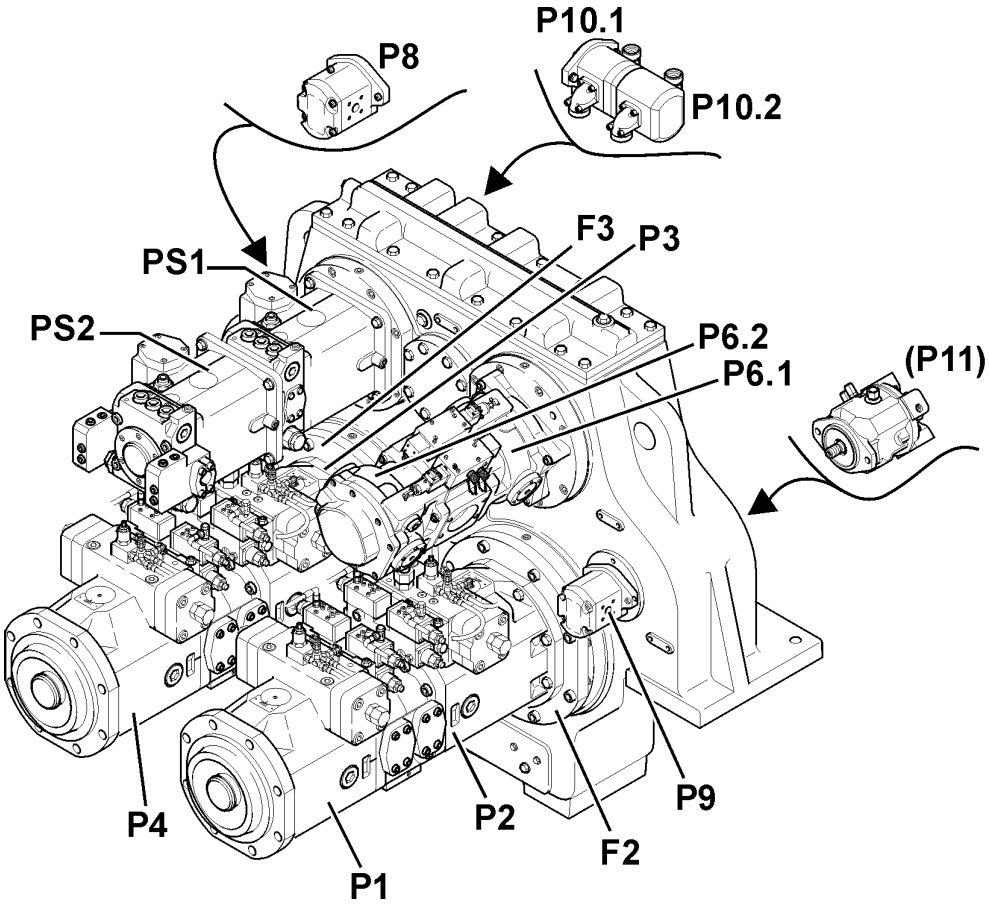

Fig. 5-78 Hydraulic pumps assembly

Note!
An intermediate flange is located between the working pumps and the splitterbox. Check and respect the following tightening torque values for the mounting bolts of the pumps (**Px**) and the flanges (**Fx**).

		Torque	Quantity
F2	Socket head screw M20x65	425 Nm	8
F3	Socket head screw M20x65	425 Nm	8
P2	Hexagonal head screw M20x65	560 Nm	8
P3	Hexagonal head screw M20x65	560 Nm	8
PS1	Hexagonal head screw M20x55	425 Nm	4
P6.1	Socket head screw M16x70	210 Nm	4
P8	Hexagonal head screw M12x45	85 Nm	2
P9	Hexagonal head screw M12x45	85 Nm	2
P10.1	Hexagonal head screw M12x45	85 Nm	2

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WORK TO BE PERFORMED DAILY Check ❑ for first and only interval *or* Check ❍ for repeat interval	Check	Initials	Comments
ELECTRIC MOTOR AND SPLITTERBOX			
Do a visual check of the air flow, clean the inlets from the cooling system if necessary	❍		
HYDRAULIC SYSTEM			
Clean magnetic rods of all return filters (weekly during the first 250 hours)	❑		
ELECTRICAL SYSTEM			
Do a visual check of the head and floodlights, clean and adjust if necessary	❍		
Do a visual check of the wiring system for damage	❍		
Check the emergency stop on the power station	❍		
Check the emergency stops on the excavator	❍		
HIGH / LOW VOLTAGE SYSTEM			
Do a visual check of the inside boxes S1 and S2 for dust and components condition	❍		
For Personal Protective Equipment inspection, refer to the PPE documentation	❍		
AIR PRESSURE SYSTEM			
Drain air tanks	❍		
CABIN, CABIN ELEVATION AND HEATER/AIR CONDITIONER			
Operate air conditioner every week for 10 minutes	❍		
Visual check condenser unit and evaporator filter	❍		
Check refrigerant level, if necessary refill circuit	❍		
Do a detailed check of the V-belt tension for air conditioner	❍		

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WORK TO BE PERFORMED AT 500, 1500, 2500 HOURS, ... Check ❑ for first and only interval *or* Check ❍ for repeat interval	Check	Initials	Comments
Do a detailed check of fuses and circuit breakers	❍		
Do a visual check of wiring system damage	❍		
Check battery electrolyte level (refill if necessary) and clean battery terminals	❍		
HIGH / LOW VOLTAGE SYSTEM			
Clean up the electric rotary connection	❍		
Check the carbon brushes of electric rotary connection, replace if necessary	❍		
Lubricate the contact bow of the slip ring	❍		
Grease the bearings of the slip ring	❍		
AIR PRESSURE SYSTEM			
Drain air tanks	❍		
For air compressor unit CN55, refer to EMS Concept User manual	❍		
For air dryer LA6700, refer to the EMS Concept User manual	❍		
CABIN			
Do a detailed check of the V-belt tension for air conditioner	❍		
Do a visual check of the cabin for oil/fluids leaks	❍		
Operate air conditioner every week for 10 minutes	❍		
Do a visual check of the condenser unit and evaporator filter	❍		
Do a visual check of the refrigerant level, if necessary refill circuit	❍		
Replace if necessary the air conditioner filter/dryer (at least once a year)	❍		
Yearly check condition of the refrigerant receiver, if necessary replace it	❍		
Perform maintenance for the second air-conditioning system (optional equipment)	❍		
Lubricate all doors seals with silicone or talc (before cold season)	❍		
Do a visual check of the AC for leaks or rubbing hoses or pipes	❍		
FIRE FIGHTING SYSTEM			
Do a visual check of the fire fighting system condition (optional equipment, refer to the fire fighting system documentation) If any issue contact fire fighting local dealer	❍		
Follow the inspection intervals recommended by the specific Health and Safety rules existing in country and/or on mine site	❍		
START THE MOTOR TO CHECK THE FOLLOWING ACTIONS			
General: Maintenance work must include the check of the correct functions of hydraulic and electric systems before starting operation	❍		

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5.18.7 2000 Hours Maintenance Schedule - R 9350 E

Serial Number: Fleet Number: SMU HOURS: Travel Hours:	Completed by: Date and Signature:

WORK TO BE PERFORMED AT 2000, 4000, 6000 HOURS, ... Check ❑ for first and only interval *or* Check ❍ for repeat interval	Check	Initials	Comments
GENERAL HYDRAULIC SYSTEM			
Do a visual check of all hoses, pipes and fittings for any external damage or leakage	❍		
Do a detailed check for good condition of pipes, hoses, clamps and fittings for damage and leakage	❍		
Do a visual check of the hydraulic components for leaks and/or damages	❍		
Do a visual check of the hydraulic cylinder rods for leaks and good condition	❍		
GENERAL FASTENING			
General hydraulic: Do a visual check for missing, broken or loosen mounting screws of all hoses, pipes, fittings and clamps, tighten if necessary	❍		
Track components: Do a visual check for missing, broken or loosen mounting screws of the sprockets, rollers, idlers, track guides, track pads, protection covers and final drives, tighten if necessary	❍		
Track components: Do a detailed check for missing, broken or loosen mounting screws of the rollers, pins locking and track guides, tighten the screws	❍		
Track components: Do a detailed check for missing, broken or loosen mounting screws of the idler axis locking keys, tighten the screws	❍		
Track components: Do a detailed check for missing, broken or loosen mounting screws of the track pads, tighten the screws	❍		
Travel gear: Do a detailed check for missing, broken or loosen mounting screws of the gears, sprocket wheels and hydraulic motors, tighten the screws	❍		
Undercarriage: Do a detailed check for missing, broken or loosen mounting screws of the side frames, tighten the screws	❍		
Undercarriage: Do a visual check for missing, broken or loosen mounting screws of all parts, tighten if necessary	❍		
Attachment: Do a visual check for missing, broken or loosen mounting screws of the handrails, pin covers fastening and greases connections, tighten if necessary	❍		
Attachment: Do a detailed check for missing, broken or loosen mounting screws of the handrails, pin covers fastening and greases connections, tighten the screws	❍		
Uppercarriage: Do a visual check for missing, broken or loosen mounting screws of the counterweight, tanks, Powerpack, control valve console, cab, cab elevation, high and low voltage boxes, catwalks, handrails, grease box, ladder, tighten if necessary	❍		

LEC/en/Edition: 09 / 2020

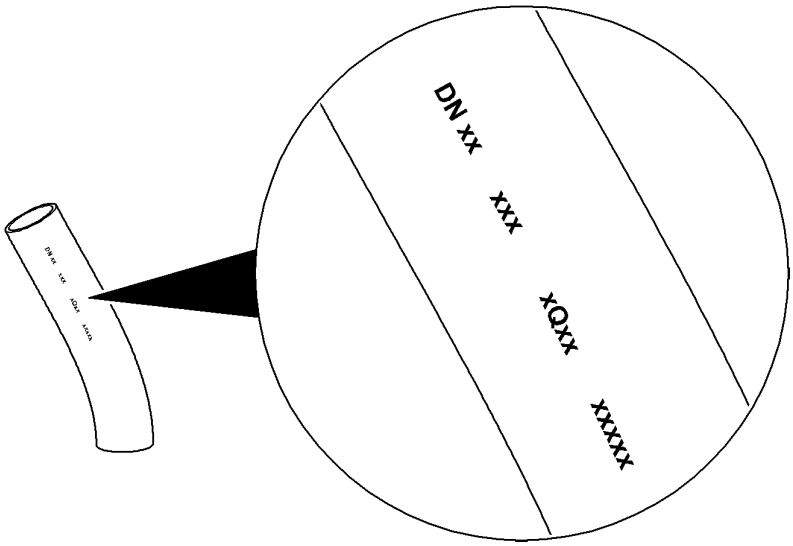


Fig. 6-2 *Marking of hose*

Hose assembly marking

The hose assembly is marked on the fittings with:

- the manufacturer identification
- the date when the hose assembly has been made
- the hose identification number
- the service pressure

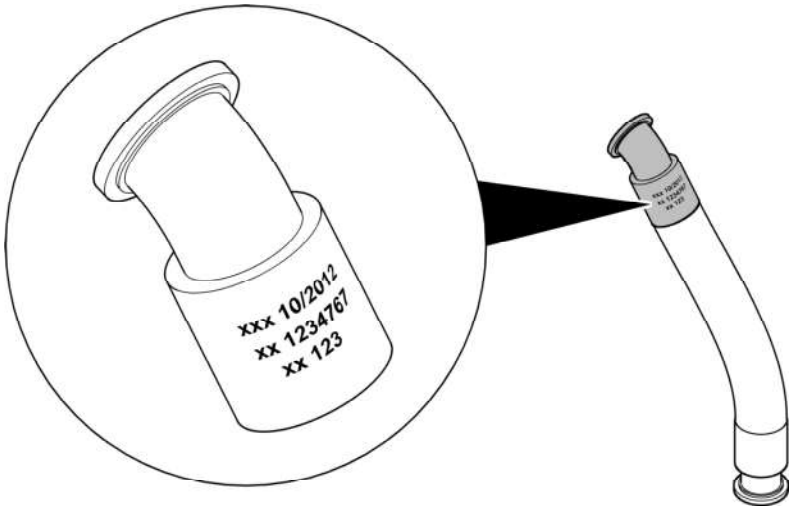
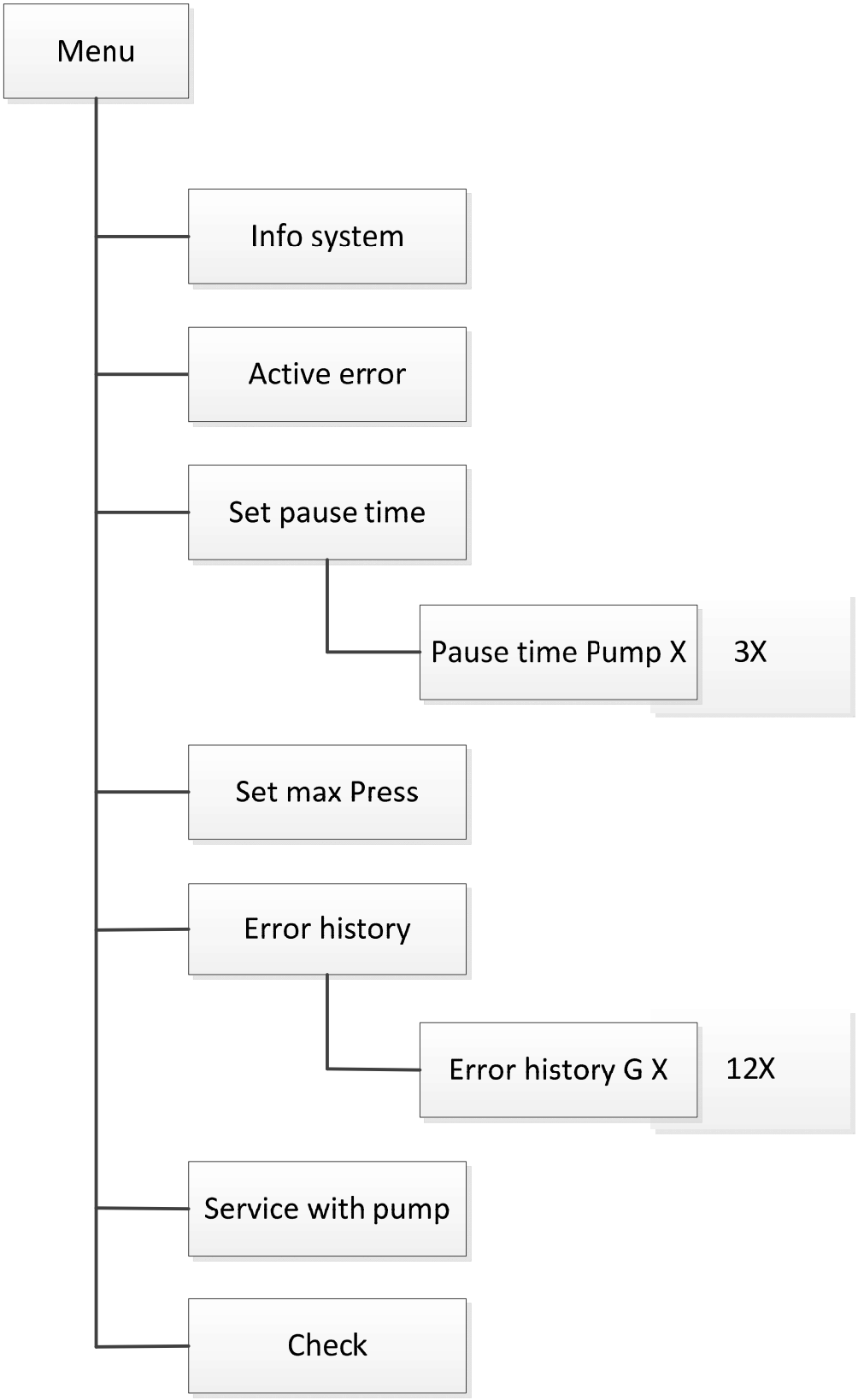


Fig. 6-3 *Marking of hose assembly*

4. Architecture of Menus



Symbol	Meaning
	**General warning** Activities which generate actual hazards (to life and limb or possible damage to the material)
	**Warning of suspended load**
	**Risk of explosion** Carry out work on electrical parts only if the atmosphere is not potentially explosive. Work has to be carried out by a specialist for maintenance and repairs in potentially explosive atmospheres.
	**Electrical component hazard, electrical shock hazard** Make sure to disconnect the system or component from the power supply before carrying out works on electrical parts. Do not use steam jet or high pressure cleaners for cleaning. Otherwise electrical components may be damaged. Do not touch cables or electrical components with wet or damp hands. Cleaning work on energized components may be carried out by electrical specialists only.
	**Risk of fire** Risk of fire and explosion when using inflammable cleaning agents.
	**Health hazard** Hazard due to spouting lubricant / pressure injection due to a leakage (defective fitting, too high system pressure or other damages).
	**Crushing hazard**
	**Slipping hazard**
	**Hot surfaces**
Symbol	**Meaning**
	**Disposal** Environmentally sound disposal and recycling

Fault lifecycle	
Lubricant spraying out due to incorrect screw connection of components or lines.	Tighten all parts with appropriate tightening torques. Use suitable hydraulic screw connections and lines for the stated pressures. Check these prior to commissioning for correct connection and damage.

Disposal lifecycle	
Contamination of the environment with lubricant and wetted parts	Dispose of the parts following the valid legal and company regulations.
People slipping due to floor contamination with spilled or leaked lubricant.	Exercise caution when disconnecting the lines. Promptly apply suitable binding agents to remove the leaked or spilled lubricant. Follow the operational instructions for handling lubricants and contaminated parts.
Contamination of the environment due to used batteries on control printed circuit boards	Dispose of used batteries following the valid legal and company regulations. Until disposal, store used battery, e.g. in a closed polyethylene bag , in order to avoid any damages.

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5.1 Filling of the reservoir

WARNING

Risk of hand injuries caused by the stirring paddle or shovel foot

- Fill lubricant via the lid only when pump is idle. Never reach into the reservoir or grease barrel while the pump is running.

- Lines are pressurized. Be careful when decoupling.
- Observe extreme cleanliness when topping up the grease reservoirs.
- Contaminated lubricant causes malfunctions and premature wear of the grease pump and other components of the system.
- Clean surroundings before exchanging or topping up
- Switch off centralized lubrication system

Filling of the container through service-plate

- Remove dust protective cap at the filling coupling and the dust protective cap at the filling nipple
- Couple the filling hose for P1 resp. P2 and switch on the filling pump
- When the reservoir is full, the sensor transmits an electric signal to the control unit. Visual control is possible by using the dipstick
- When the filling pump is switched off
  Disconnect the filling coupling and reinstall the dust protective caps

5.2 Inadvertent filling with incorrect lubricant

Should incorrect lubricant have been filled, please proceed as follows:

- Switch off the pump or centralized lubrication system and secure it against being switched on.
- Remove lubricant.
- Clean the entire centralized lubrication system (lubricant reservoir, pump housing, metering devices and line systems).
- Fill in lubricant of correct specification.
- Switch the system or pump on.
- Vent lubrication system.
- Inform your superior to ensure that the error won't occur again.

5.3 Inspections prior to initial start-up

ATTENTION

Risk of damage to the machine

Fill the feed lines and bearing housings with lubricant to specification and lubricate the lubrication points by hand. Otherwise the bearing points may become damaged due to a lack of lubricant.

Check the entire system for accordance with the intended purpose and the planning documentation. Ensure that all parameters, characteristic values and means of operation are present and have been correctly adjusted. If deviations are detected, they must be remedied without delay.

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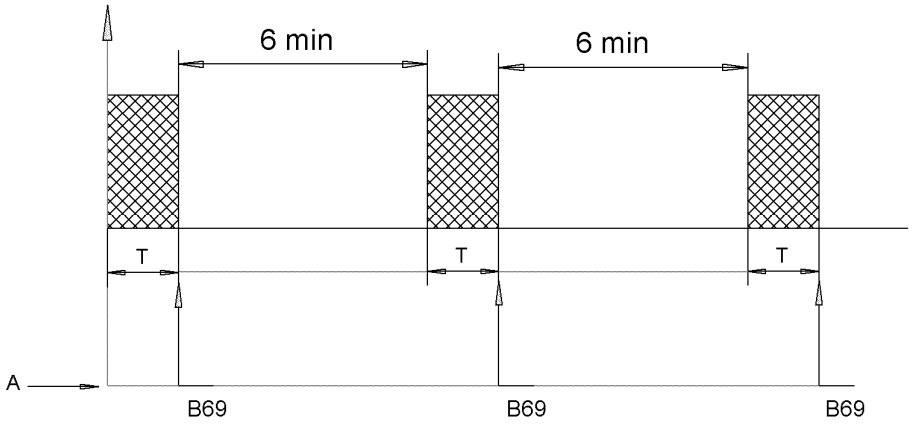
9.2.2 Greasing cycle

When the pause time has lapsed, the pump starts operating and supplies the lubricant via the main line to the LM5 injectors. The pistons inside the injectors are operated via lubricant pressure. A pre-metered amount of lubricant is dispensed to the connected SSV.

After all injectors have operated, the pressure in the main line rises until the preset pressure on the pump is reached 240 bar. The control unit stops the pump via the pressure switch B69. The pump stops running and the relief valve is deactivated at the same time. The compressed lubricant in the main line can flow back into the reservoir, the pressure drops. When the pressure has fallen below 80 bar the pistons inside the LM5 injectors return to their initial positions by means of spring force and reload the adjustable amount of lubricant by this action.

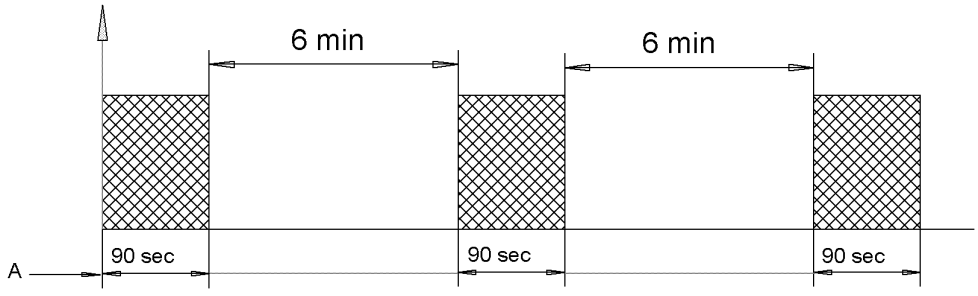
The pause time can start and the system is now ready for another lubrication cycle.

Level I
P1 with pressure control



Legend : T: running time
Pause time: 4min-10min
A: pressure control device

P1 safety mode, without pressure control



Legend : T: running time 10sec – 250 sec
Pause time: 4min-10min
A: time control device, pressure switch off

9.3.1 Grease cycle

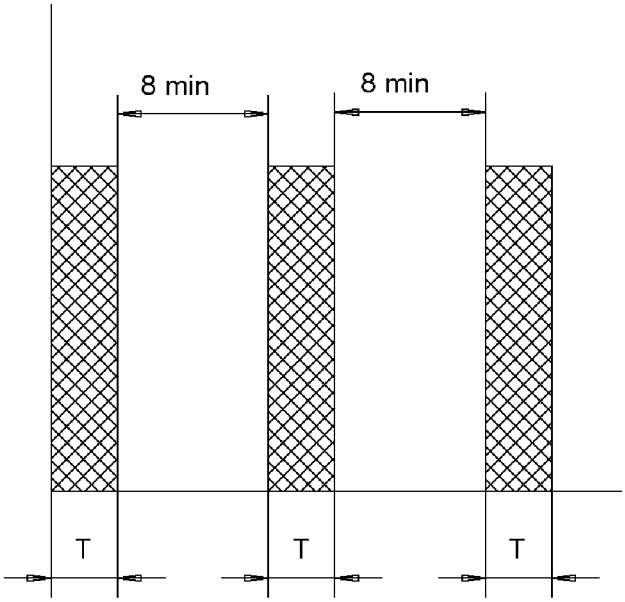


Fig. 7 Grease cycle

When the pause time has lapsed, the pump P3 supplies lubricant to the connected progressive metering device. A progressive metering device type SSV 6 is provided with the proximity switch B51 for control and monitoring purposes. After three cycles of the SSV 6, which correspond to a full lubrication cycle, the pump P3 is switched off thanks to the proximity switch B51.

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Error Codes, continuation

G	Fault	Cause	Display E__	Display G__ to:	Signalisation	Lubrication
14	Defect on filling-level sensor 4-20mA P1 (B50_1)	Connection fault	E514	P1	H138 lit Buzzer cannot be switched off Bar graph, LED L,LED LL for P1/2 flashes	Standard operation
15	Defect on filling-level sensor 4-20mA P3 (B50_2)	Earth fault	E515	P3	H138 lit Buzzer cannot be switched off Bar graph, LED L,LED LL for P1/2 flashes	Standard operation
16	Defect on filling-level sensor 4-20mA P3 (B50_2)	Failure during supply	E516	P3	H138 lit Buzzer cannot be switched off Bar graph, LED L,LED LL for P1/2 flashes	Standard operation
17	Defect on filling-level sensor 4-20mA P3 (B50_2)	Connection fault	E517	P3	H138 lit Buzzer cannot be switched off Bar graph, LED L,LED LL for P1/2 flashes	Standard operation
18	Defect on solenoid valve pump activation P1 (Y95_1)	Circuit solenoid valve open	E518	P1	H138 lit H109 active Buzzer can be switched off LED Pump1 on flashes	Switch off pump
19	Defect on solenoid valve pressure drop P1 (Y79)	Solenoid valve disconnected	E519	P1	H138 lit H109 active Buzzer can be switched off	Standard operation
20	Defect on solenoid valve winter operation P1 (Y114)		E520	P1	H138 lit H109 active Buzzer can be switched off	Standard operation
21	Defect on solenoid valve pump activation P2 (Y95_2)	Circuit solenoid valve open	E521	P2	H138 lit H109 active Buzzer can be switched off LED Pump2 on flashes	Switch off pump
22	Defect on solenoid valve pressure drop P2 (Y81)	Solenoid valve disconnected	E522	P2	H138 lit H109 active Buzzer can be switched off	Standard operation
23	Defect on solenoid valve changing-over P1 (Y80)	Circuit solenoid valve open	E523	P1	H138 lit H109 active Buzzer can be switched off LED Y80 flashes	Standard operation
24	Defect on solenoid valve changing-over P2 (Y82)	Solenoid valve disconnected	E524	P2	H138 lit H109 active Buzzer can be switched off LED Y82 flashes	Standard operation
25	Defect on solenoid valve changing-over P1/P2 (Y83)		E525	P1 + P2	H138 lit H109 active Buzzer can be switched off LED Y83 flashes	Standard operation
26	Defect on solenoid valve pump activation P3 (Y93 or M21)	Circuit solenoid valve open	E526	P3	H138 lit H109 active Buzzer can be switched off LED Pump3 on flashes	Switch off pump
27	Defect on solenoid valve winter operation P3 (Y97)	Solenoid valve disconnected	E527	P3	H138 lit H109 active Buzzer can be switched off	Standard operation

6001a02

IMPORTANT NOTE

Codings "B…", "H…", "S…", "X…", and "Y…" refer to the wiring diagram (see annex).

2. Specifications

2.1. General description

The CN55 compressor is an air-cooled V-form bi-cylinder piston machine.

It is lubricated and designed to operate up to 10 bar.

2.2. Operating principle

When the motor turns its transmission shaft generates a rotating movement at the compressor by the ROTEX® shaft coupling system.

The compressor shaft rotating movement is transformed into linear movement by means of connecting rods that facilitate air compression.

The compressed is sent into the receiver pneumatic circuit. The pressure of this air is monitored by a pressure switch placed as near as possible to the consumer units. This switch controls machine running and stopping at pre-set pressures.

The compressor was made according the related technical specifications.

It was fitted with the mechanical, electrical, electrical and pneumatic protection systems needed for its operation.

2.3. Individual protection systems 

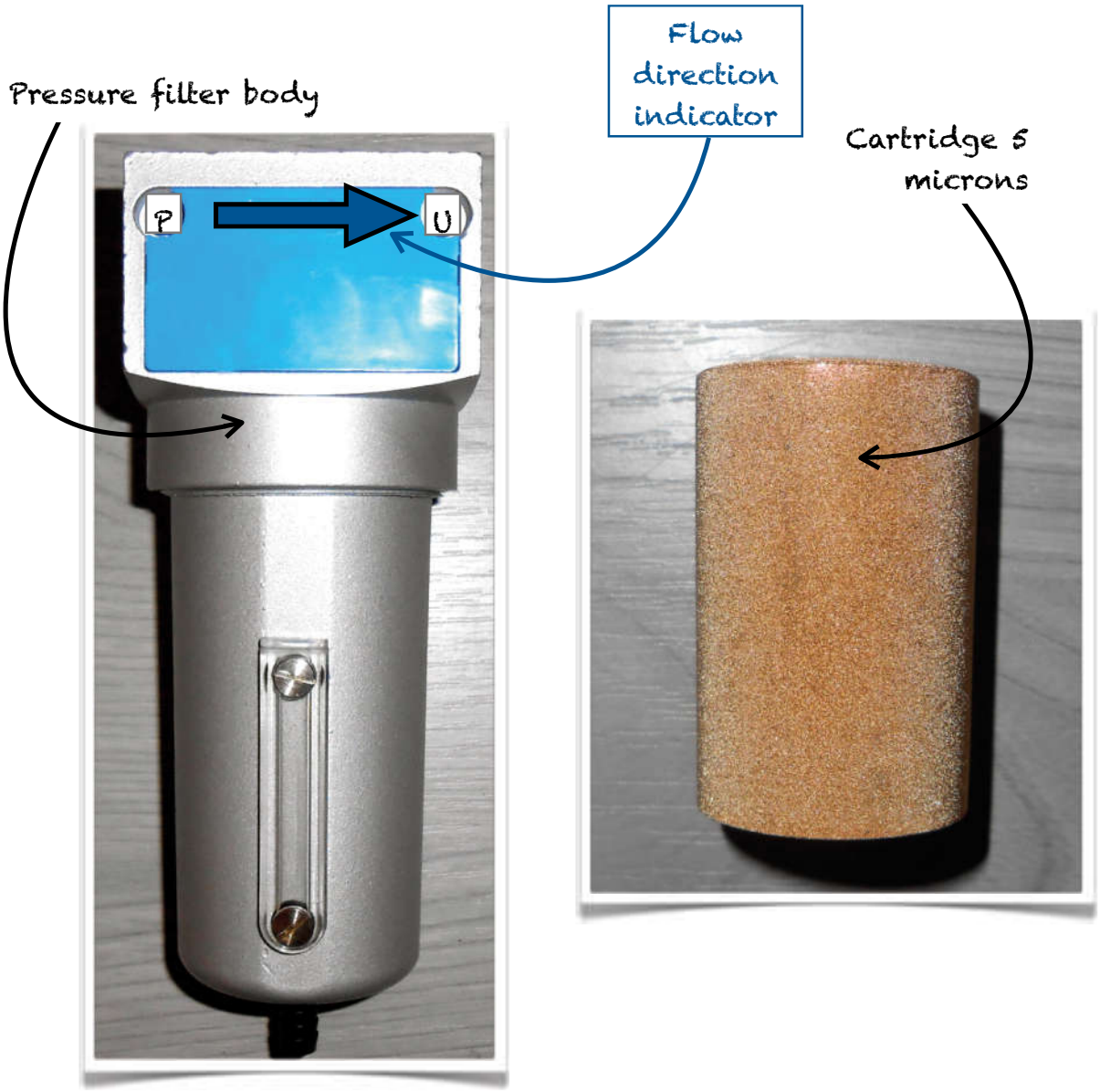
- ☑ Using compressed air means wearing protection eye-glasses. These are essential for protecting the eyes against any foreign body that could be lifted by the air jet.
- ☑ Use a mask to protect your nose and mouth.
- ☑ Operate in well-ventilated surroundings.

2.4. Installing the compressor

- ☑ The compressor should be placed on sufficiently firm ground.
- ☑ It should be mounted horizontally +/-5°.

6.1.7. Inspecting and replacing pressure filter cartridges

- ☑ Remove filter.
- ☑ Unscrew body, take out cartridge, clean and/or change it if necessary.
- ☑ Put cartridge back in place.
- ☑ Screw up body.
- ☑ Replace filter taking care to put cover back in the direction of the arrow.
- ☑ Put three rounds of Teflon on the connector threads.



User manual
LA6700 Air dryer

Id. 11088716

version n° LRNO1306LIE-LA6700 issue A

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