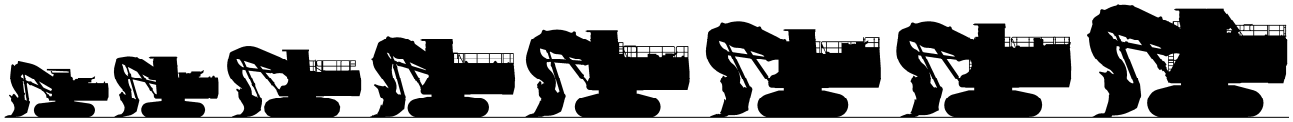
Operating Instructions

CE

Hydraulic Excavator

RH 120E No.

Bucyrus HEX GmbH



1 INTRODUCTION

	Operating instructions	Target group
Part 1	**INTRODUCTION** **FUNDAMENTAL** **SAFETY INSTRUCTIONS**	**Operating personnel** **+** **Inspection and servicing personnel** **+** **Repair personnel**
Part 2	**OPERATION**	**Operating personnel** The operating personnel must have know-how relevant to the operation and the application of this or comparable machines.
Part 3	**INSPECTION AND SERVICING**	**Inspection and servicing personnel** The inspection and servicing personnel must have know-how relevant to the inspection and servicing of this or comparable machines.
Part 4	**REPAIR WORK**	**Repair personnel** The repair personnel must have know-how and experience relevant to the repair of this or comparable machines.
Part 5	**ANNEX**	**Operating personnel** **+** **Inspection and servicing personnel** **+** **Repair personnel**
Part 6	**INDEX**	**Operating personnel** **+** **Inspection and servicing personnel** **+** **Repair personnel**

Gas, dust, steam and smoke

Always start and operate the engine in a well-vented area;

If in an enclosed area, vent the exhaust to the outside;

Do not modify or tamper with the exhaust system

California Proposition 65 WARNING

Diesel engine exhaust and some of its constituents are known in the state of California to cause cancer, birth defects, and other reproductive harm.

Operate fuel-operated heating systems only on adequately ventilated premises. Before starting the machine on enclosed premises, make sure that there is sufficient ventilation.

Observe the regulations in force at the respective site.

Carry out welding, flame-cutting and grinding work on the machine only if this has been expressly authorized, as there may be a risk of explosion and fire.

Before carrying out welding, flame-cutting and grinding operations, clean the machine and its surroundings from dust and other inflammable substances and make sure that the premises are adequately ventilated (risk of explosion).

Hydraulic equipment

Check all lines, hoses and screwed connections regularly for leaks and obvious damage. Repair damage immediately. Splashed oil may cause injury and fire.

Depressurize all system sections and pressure pipes (hydraulic system) to be removed in accordance with the specific instructions for the unit concerned before carrying out any repair work.

Hydraulic lines must be laid and fitted properly. Ensure that no connections are interchanged. The fittings, lengths and quality of the hoses must comply with the technical requirements.

Noise

During operation, all sound baffles of the machine must be closed.

Always wear the prescribed ear protectors.

Oil, grease and other chemical substances

When handling oil, grease or other chemical substances, observe the product-related safety regulations (see safety specifications).

Be careful when handling hot consumables (risk of burning or scalding).

Transporting and recommissioning

The machine must be loaded and transported only in accordance with the operating instructions.

Use only appropriate means of transport and lifting gear of adequate capacity.

The recommisioning procedure must be strictly in accordance with the operating instructions.

Excavator layout

Fig. 2-1:

Undercarriage

1 - Track drive
2 – Idler
3 - Track roller
4 - support roller
5 - Crawler track
6 - Track tensioner
7 - Slewing ring
8 - Ladder

Superstructure

10 - Engine
11 - Radiator (engine cooling liquid)
11 - Reservoir (cooling liquid)
13 - Air-intake system
14 - Exhaust system
15 - Fuel tank
16 - Hydraulic oil reservoir
17 - Hydraulic oil cooler
18 - Engine oil reservoir (optional)
19 - Pump transfer gearbox
20 - Working pump
21 - Cooling oil pump
22 - Servo system pump
23 - Servo system pump
24 - Gearbox circulating pump
25 - Slewing pump
26 - Fan drive pump (cooler, hydraulic oil)
27 - Fan drive pump (radiator, engine cooling liquid)
28 - Air compressor drive (air conditioning system)
29 – Slewing gear
30 – Travel block and rotor
31 – Driver`cab
32 – Control stand with BCS
33 – Control cabinet
34 – Air conditioner (optional)
35 – Fire-extinguisher
36 – Control cabinet with battery main switch
37 - Batteries
38 - Service-station, (tanklift)
39 - Ladder
40 - Ladder
41 - Grease container for central lubrica ting system
42 - Tool cabinet (optional)
43 - Counterweight
44 - On-board crane (optional)
45 - Drive unit (onboard crane, optional)

Loading bucket

51 – Boom
52 - TriPower linkage
53 – Stick
54 - Bottom-dump bucket
55 - Boom cylinder
56 - Stick cylinder
57 - Tipping cylinder
58 - Bottom-dump cylinder
64 - Control valves
65 - Quick-action valve

Backhoe bucket

53 - Stick
55 - Boom cylinder
56 - Stick cylinder
59 - Monoblock boom
60 - Backhoe bucket
61 - Backhoe cylinder
62 - Toggle link
63 - Toggle lever
64 - Control valves
65 - Quick-action valve

Driver's seat

The driver's seat (Fig. 2-24:) can be adjusted in inclination, height and fore-and-aft position. The seat suspension can be adjusted to suit the driver's weight.

Never adjust the seat while driving. Concentrate on the road to avoid accidents.

Before carrying out any seat adjustments:

– stop the machine

– set the control lever to "0"

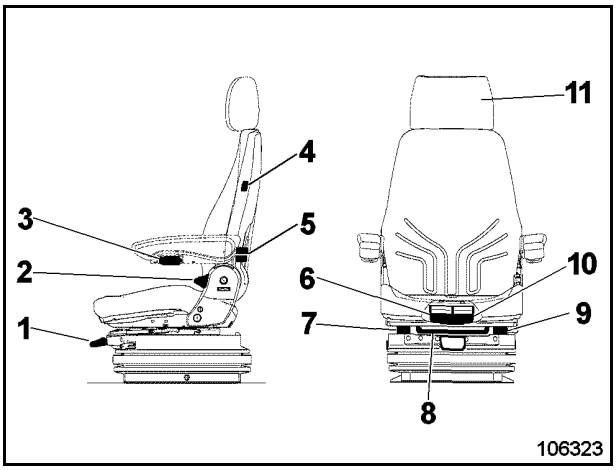


Fig. 2-24:

Pos.	Function
1	Height adjustment
2	Backrest adjustment
3	Armrest adjustment
4	Seat heating ON / OFF
5	Lumbar support, inflate / deflate the air chambers
6	Fore-and-aft position adjustment of the seat
7	Cushioning effect adjustment
8	Fore-and-aft position adjustment of the complete drivers seat
9	Longitudinal / horizontal cushioning adjustment
10	Inclination adjustment of the seat
11	Headrest height and inclination adjustment

Fig. 2-42

No.	Element	Function	Symbol
31	**Botton** **Emergency OFF**	Shuts off the whole electrical system	
32	**Key-switch**	Switches the electrical system on and off	
33	**Buzzer**	**Gives an acoustic warning signal if a fault is reported** ▪ Fault in engine system (engine 1 and/or 2; left and/or right) ▪ Coolant level (engine 1 and / or 2; left and / or right) too low ▪ Engine oil pressure (engine 1 and / or 2; left and / or right) too low ▪ Engine oil temperature (engine 1 and / or 2; left and / or right) too high ▪ Hydraulic oil level too low ▪ Distributor gearbox temperature (1 and / or 2; left and / or right) too high ▪ Slewing pump temperature (1 and / or 2; left and / or right too high ▪ Slewing gearbox temperature (1 and / or 2) too high ▪ Fault in lubricating system **Lower the equipment to the ground and shut off engin immediately if the buzzer (33) sounds and the BCS indicates a fault. The buzzer (33) continues to sound until the fault has been retified.**	

Fig. 2-47:

No.	Element		Function	Symbol
71	**Switch**	**Travel motors**	Preselection: CW: 1st gear stage forward / reverse travel CCW: 2nd gear stage (fast gear) Only parallel forward travel is possible. When the switch is in this position and another travel function (e.g. reverse travel) is switched on, there is an automatic change to 1st gear.	
72	**Switch**	**Undercarriage holding brake**	CCW: brake permanently applied The excavator can not be driven CW: Every time the excavator stops, the undercarriage brake is automatically applied after approx. 8 sec. The undercarriage brake is automatically released when the travel function is activated. **Actuate switch only when the excavator is stationary. Do not use as service brake.**	
73	**Taster**	**Reset**	Activate after a fault in the central lubricating system	
74	**Switch**	**Elecrtonic excavator control**	Switches on the electronic servo control	
75	**Switch**	**ECO (Power Control)**	Adjusts the hydraulic power (flow rate) CCW – 80 % of hydraulic power CW 100 % of hydraulic power	
76	**Cigarette lighter**			
77	**Switch**	**Engine speed reduction**	CCW: normal operation with automatic diesel engine speed reduction; active during operation pauses. CW: automatic speed reduction off	

Fig. 2-52:

No.	Element		Function	Symbol
131	**Pressure gauge**	**Engine oil pressure (engine 1 left)**	Indicates the oil pressure in the diesel engine lubricating system	
132	**Thermometer**	**Engine temperature (engine 1 left)**	Indicates the cooling-water temperature	
133	**Pressure gauge**	**Engine oil pressure (engine 2 right)**	Indicates the oil pressure in the diesel engine lubricating system	
134	**Thermometer**	**Engine temperature (engine 2 right)**	Indicates the cooling-water temperature	
135	**Warning lamp**	**Alternator (engine 1 left)**	Lits up when the batteries are not recharged	
136	**Warning lamp**	**Engine oil pressure (engine 1 left)**	Lits up when the engine oil pressure is too low	
137	**Warning lamp**	**IDLE-Auto (engine 1 left)**	Lights during the engine´s run-down phase of 5 minutes	
138	**Warning lamp**	**Engine temperature (engine 1 left)**	Lits up when the engine temperature is too high	
139	**Warning lamp**	**Cooling water level (engine 1 left)**	Lits up when the cooling-water level is too low	
140			free for optional	
141	**Warning lamp**	**Alternator (engine 2 right)**	Lits up when the batteries are not recharged	
142	**Warning lamp**	**Engine oil pressure (engine 2 right)**	Lits up when the engine oil pressure is too low	
143	**Warning lamp**	**IDLE-Auto (engine 2 right)**	Lights during the engine´s run-down phase of 5 minutes	
144	**Warning lamp**	**Engine temperature (engine 2 right)**	Lits up when the engine temperature is too high	
145	**Warning lamp**	**Cooling water level (engine 2 right)**	Lits up when the cooling-water level is too low	
146			free for optional	

Assemblies resp. reservoirs	Measuring device	Remarks
Fuel tank	BCS fuel indicator (2, Fig. 2-61:)	Stop filling when the fuel tanks are full (service station shuts off automatically by counter-pressure). Optional The fuel level is also indicated on the fuel level gauges (21, Fig. 2-62:) for the right fuel tank and (22) for the leftt fuel tank. When the battery main switches are in position OFF the immersed tube sensors in both tanks are then electrical activated by toggle switch (23). This is necessary to check the fuel level in both tanks after all.

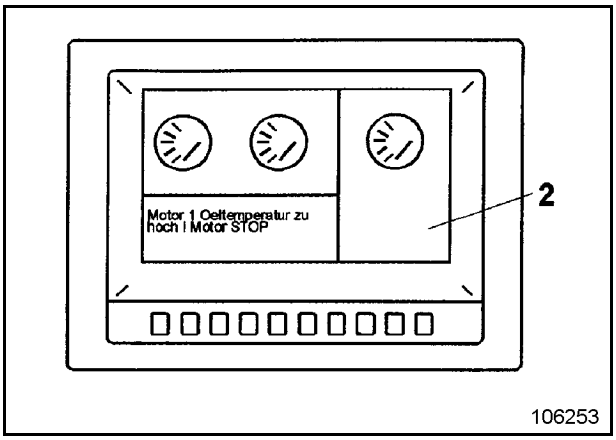


Fig. 2-61:

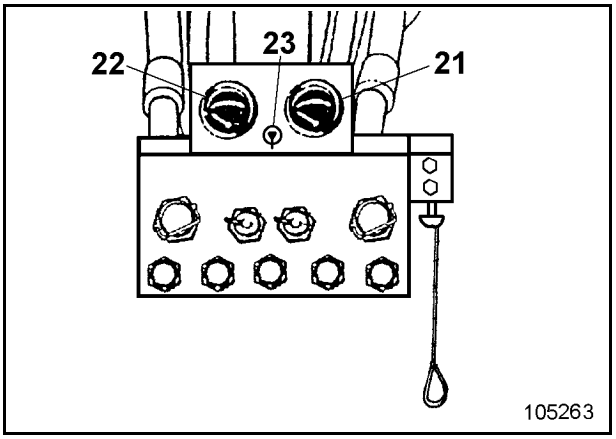


Fig. 2-62:

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Back-up heating (option)

The back-up heating control elements are located in the satellite (182, Fig. 2-83:).

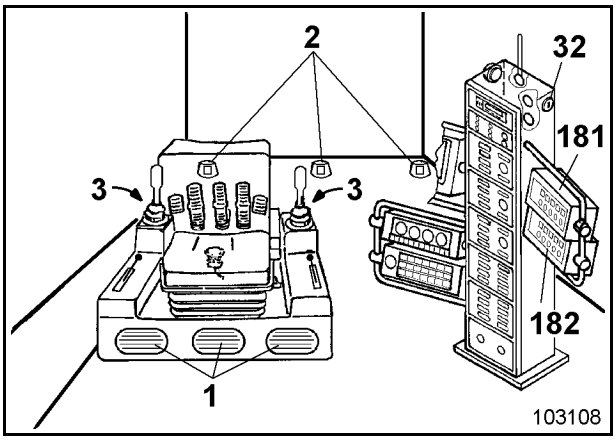


Fig. 2-83:

Do not switch on the back-up heating when the air conditioner is set to ”cooling”.

Control panel (Eberpächer)

(Fig. 2-84:)

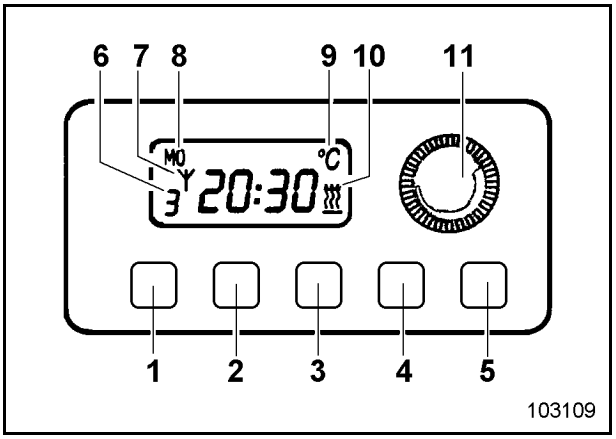


Fig. 2-84:

1	Pushbutton	set heating time
2	Pushbutton	heating time preselect
3	Pushbutton	heating on / off
4	Pushbutton	change set data
5	Pushbutton	Einstelldaten verändern
6	Symbol	change set data
7	Symbol	radio remote-control
8	Symbol	time and day of the week
9	Symbol	temperature
10	Symbol	operation
11	Selector	temperature

TRANSPORTING THE MACHINE

Transport - Safety instructions

The machine must be loaded and transported only after all safety regulations have been observed and complied with.

Entrust loading and transporting of the machine to a company experienced in the transport of heavy equipment.

The responsability for loading and transporting lies with the transport company or their representative.

Remove oil, grease, soil, mud, snow, ice and other materials from the excavator's crawler tracks and from ramps and loading platforms of the transport vehicle to minimize slipping.

Secure the transport vehicle against rolling away.

Use only tying equipment of sufficient strength (the weights and dimensions of the excavator are set out in the "Technical specifications").

Transport

The dimensions and the service weight of the fully assembled excavator do not allow the excavator to be transported in an undismantled state on a low-bed trailer over public roads.

Therefore, the following components and modules must be dismantled beforehand.

Weights and suspensions points are marked on the modules.

NOTES

INSPECTION AND SERVICING WORK, FIRE AND EXPLOSION HAZARD

Safety instructions

Prior to commencing work, obtain informationon the national and corporate rules for the prevention of accidents and avoiding fires.

Pay particular attention to hazards caused by combustible and easily flammable substances.

Obtain information on the safe handling of the fire extinguishers to be used.

Avoid smoking and open fire on, next to and below the excavator.

Even battery gases can ignite in open flames or fire.

Combustible and easily or highly inflammable substances or liquids increase the risk of fire and explosion. This is also valid for pressure vessels containing flammable substances as, for instance, spray oil or cold-starting fluid (ether). They are heat-sensitive and can explode even if exposed only to intensive sunlight.

These substance can also ignite themselves if they come close to hot units or objects as, for instance, a turbocharger.

Do not store these substances on the excavator. If combustible, easily or highly flammable substances or liquids were used during maintenance operations, they must be completely removed from the excavator at the end of the work.

Avoid parking the excavator in places where

- combustible substances such as coal dust or tar are present.
- open or smouldering fire may occur.

Remove the excavator from such an area where combustible or easily flammable liquids have spilled from the excavator onto the ground.

Flying sparks (caused by welding, flame cutting, grinding, electrical short-circuit) may cause fire on the ground that can spread to the excavator.

Place suitable fire guardings (fire barriers) if open fire or flying sparks cannot be avoided during repair work.

If necessary, also cover the ground with fire-protective blankets.

Apply special protection to cables, cable ducts as well as to hose and pipe lines.

Have all your welding, flame cutting and grinding work approved before starting work.

The engine compartment can be equipped with pressure vessels containing cold-starting fluid (ether). Ether is toxic and highly flammable; the vessels are under pressure. These pressure vessels can explode if exposed to high temperatures (above 49°C / 120°F) or in the event of damage. Protect the pressure vessels against damage before beginning to work in or close to the engine compartment.

Ensure sufficient ventilation.

Do not keep any fire extinguishers that are not suitable or have not been tested.

Do not extinguish flammable liquids with water. Use:

- dry-powder, carbon-dioxide or foam extinguishing compounds.

When getting into contact with burning substances, the fire-fighting water would abruptly evaporate and distribute the substance such as oil over a wide area. Water causes short-circuits in the electrical system thus possibly entailing new hazards.

Call the fire brigade.

Clean the excavator carefully after the maintenance, if oil, grease, fuel, detergents or cold-starting fluid have been spilt over the machine. If possible, use a steam-jet cleaner for cleaning.

Plan A – E

Plan A - after every 250 OH
(at 250, 750, 1250 ... OH)

Plan B - after every 500 OH
(at 500, 1500, 2500 ... OH)

Plan C - after every 1000 OH
(at 1000, 2000, 3000, 4000 ... OH)

Plan D - after every 5000 OH
(at 5000, 15000, 25000 ... OH)

Plan E - after every 10000 OH
(at 10000, 20000, 30000, ... OH)

Location	Servicing work	Menge / No.	Plan A	Plan B	Plan C	Plan D	Plan E
Servicing in acc. with W or T			●	●	●	●	●
Monitoring, warning and control elements							
- Joystick							
- Control spool	oil lightly	2 x 4 [6]			●	●	●
- Pedal							
- Control spool (machine with loading shovel)	oil lightly	3 x 2 [6]			●	●	●
- Control spool (machine with backhoe bucket)	oil lightly	2 x 2 [6]			●	●	●

[6] apply a thin layer of hydraulic oil

Lubricating chart – Grease / Backhoe bucket (legend)

No.	Greasing point	Number	Lubricant properties	Grease every .... operating hours
1	Central lubricating system – grease container	1	**V** [18]	10
3	Ramp-type ladder (optional) - central greasing point	1	**V** [18]	1000
4	On-board crane			250
	- Bearing	4	**V** [18]	250
	- Joint (column / boom)	2		250
	- Cylinder bearing	5		250
	- Slewing ring	1	**Graphitspray**	250
5	Monitoring, warning and control elements			
	- Joystick	2 x 4 [19]	**II** [18]	1000
	- Pedal	3 x 2 [19]		1000

All other greasing points are supplied with grease by the central lubricating system.

Filling quantities - Grease

Greasing point	Lubricant properties	Filling quant.	
		kg	lb
Central lubricating system – grease container (different containers available)	**V** [18]	appr. 180 / appr. 500	appr. 397 / appr. 1102
Internal gearing – Roller-bearing slewing ring		appr. 150	appr. 330.7
Idler (permanent grease filling)	**Tribol** Terex O&K part no. 2764564	2 x appr. 4.4	2 x appr. 9.7
Track rollers (permanent grease filling)		14 x appr. 14	14 x appr. 30.9
Support rollers (permanent grease filling)		4 x appr. 1.3	4 x appr. 2.9

[18] see "LUBRICANTS" section.

[19] apply a thin layer of hydraulic oil

III.b Oils for swing gearboxes

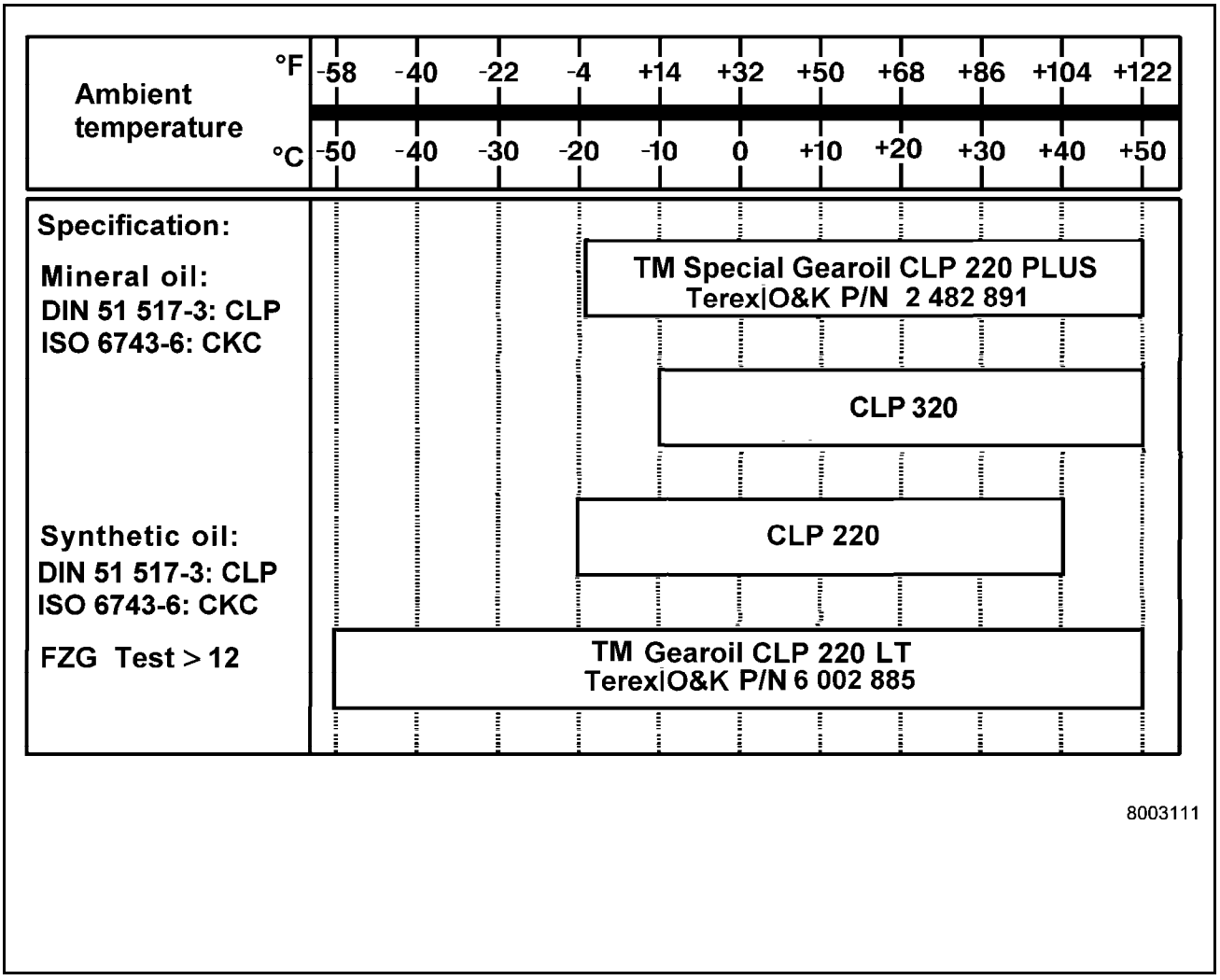


Fig. 3-7:

Replacing the oil filter

Read and observe: "Inspection and servicing – Safety instructions".

Risk of scalding from hot engine oil.

The filter housing may also be hot.

Wear protective gloves and firm working clothing.

Collect escaping oil and discard with-out polluting the environment

Oil filters

Carry out servicing of the full-flow oil filters (1, Fig. 3-25:) in accordance with the engine operating instructions.

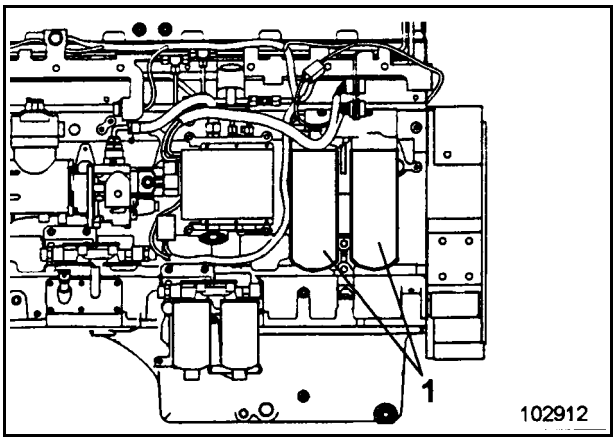


Fig. 3-25:

Replacement

- Shut off the engines
- Unscrew the filters
- Install new filter together with slightly oiled sealing ring and tighten by hand.

Replacing the oil filter (oil interval prolonging)

Read and observe: "Inspection and servicing – Safety instructions".

Risk of scalding from hot engine oil.

The filter housing may also be hot.

Wear protective gloves and firm working clothing.

Collect escaping oil and discard with-out polluting the environment

Oil filters

Carry out servicing of the oil filters (1, Fig. 3-25:) in accordance with the engine operating instructions.

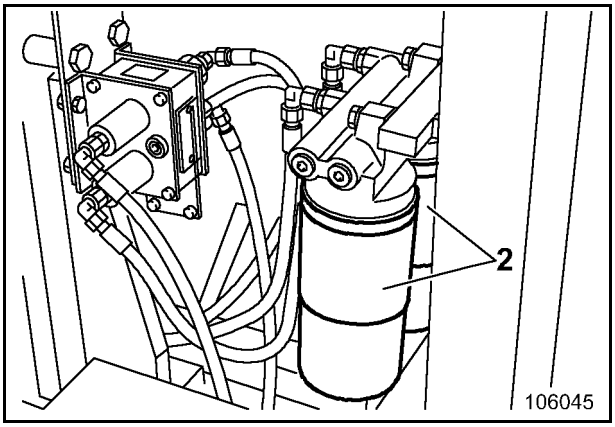


Fig. 3-26:

Replacement

- Shut off the engines
- Unscrew the filters
- Install new filter together with slightly oiled sealing ring and tighten by hand.

Air-intake lines

At regular intervals:

➲ check intake lines for leaks and hose clamps for tightness;

➲ replace hoses between filter housing and engine.

During all works on the air-intake system ensure proper sealing to prevent unfiltered air from reaching the engines.

Dust collection

Dust accumulating on the filter-housing bottom is constantly sucked away by the exhaust system during operation.

The non-return valves (1, Fig. 3-44:) in the suction lines prevent engine exhaust gases from being sucked in.

At regular intervals:

➲ check suction lines for leaks and hose clamps for tightness.

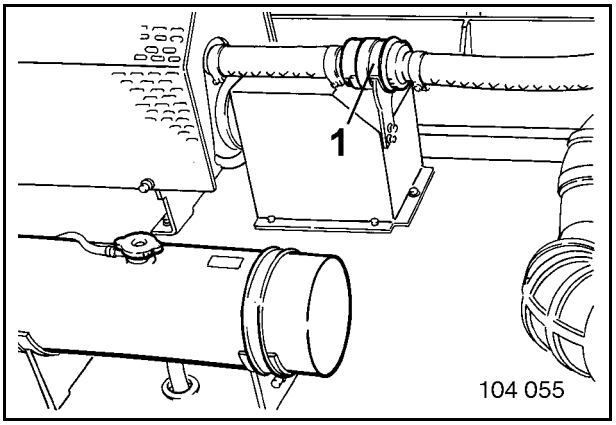


Fig. 3-44:

Checking and cleaning the filter element

Check the filter paper of the element by inserting a lamp into the element (Fig. 3-57:). Any damage can then be seen.

Replace damaged or distorted element immediately.

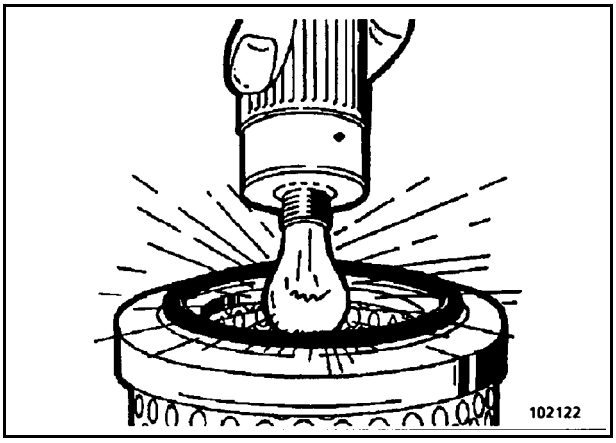


Fig. 3-57:

Check element seal. If damaged, replace filter element too.

Cleaning with compressed air allows the filter element to be re-used immediately.

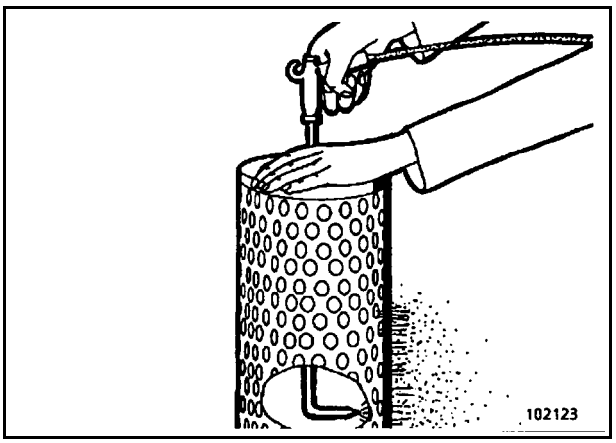


Fig. 3-58:

Blow filter element (Fig. 3-58:) dry with compressed air by moving the compressed-air piston up and down inside it.

The pressure at the nozzle must not exceed 6 bars (87 psi).

Cleaning is completed when no more dust is seen to leave the filter element.

Never clean filter element by beating it against hard objects.

Replace main filter element after 1000 operating hours or 3 cleaning cycles, but not later than after one year of operation.

Bypass valves (hydraulic oil reservoir)

Read and observe the "Inspection and servicing – Safety instructions" chapter.

Shut off the engines.

Risk of scalding caused by hot hydraulic oil.

The hydraulic oil reservoir itself may also be hot.

Avoid skin contact.

Skin contact with hydraulic oil may cause skin injury.

Wear protective gloves and firm working clothing.

Collect escaping hydraulic oil and discard without polluting the environment.

Cleaning the filter screens

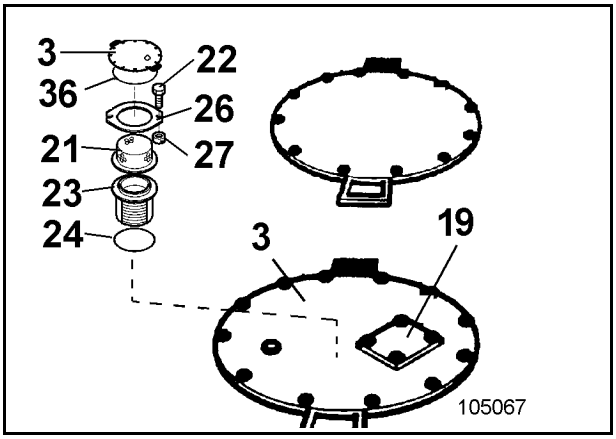


Fig. 3-83:

- Remove cover (3, Fig. 3-83:) together with sealing ring (36).
- Unscrew screws (22). Withdraw bypass valve.
- Take off screen (23) together with sealing ring and clean in white spirit or paraffin oil. Replace, if required.
- Check sealing ring for damage and replace, if required.
- Re-assemble the bypass valve.
- Check sealing ring (24) for damage and replace, if required.
- Insert bypass valve and fasten with screws (22).
- Clean also the screen of the bypass valve in the filter housing (cooling-system).
  The bypass valve is located under the cover (10, Fig. 3-84:). (See under "Bypass valves / Filter housing (cooling-system").

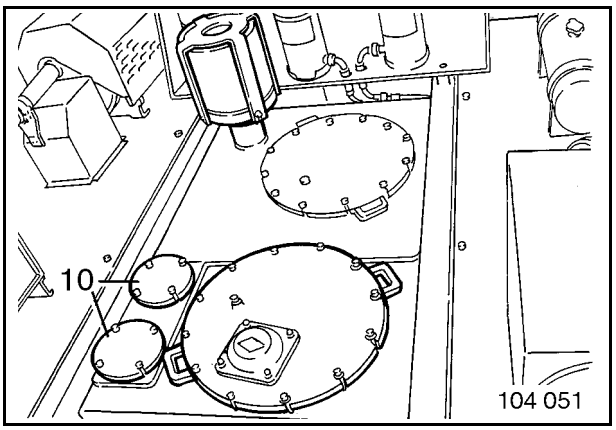


Fig. 3-84:

Replacing the bypass valves and sealing rings

- Remove bypass valve as described under "Cleaning the screens".
- Re-assemble the bypass valve with a new screen (23, Fig. 3-83:) and a new sealing ring.
- Insert bypass valve with new sealing ring (24) and fasten with screws (22).
- Replace also the bypass valve and sealing ring in the filter housing (cooling-system).
  The bypass valve is located under the cover (10, Fig. 3-84:). (See under "Bypass valves / Filter housing (cooling-system").

Venting the hydraulic system

Hydraulic pumps, hydraulic motors, hydraulic cylinders, travel brake valves, suction lines of hydraulic pumps, oil cooler manifolds and the servo control system must be vented

- after assembly on site and prior to initial commissioning,
- before each recommissioning of the excavator, e.g. after extensive repair work to the hydraulic system or after prolonged downtimes,
- after each hydraulic oil change,
- after replacement of hoses or lines.

Venting the hydraulic components

- Hydraulic pumps and hydraulic motors (with electric motors shut off).

  Open the highest leakage oil port and fill in clean hydraulic oil up to the lower edge of the opening.

  Check the hydraulic system under load. Pay attention to noises produced by the hydraulic pump or the hydraulic motors. Abrupt movements of the working equipment are a sign of entrapped air in the system. Remaining air pockets can be eliminated by actuating all hydraulic functions.

- **Hydraulic cylinder**

  Before the initial admission of the cylinder with oil, the piston must be in either of the two extreme piston positions. In other words, the piston rod (1, Fig. 3-100: and Fig. 3-101:) must be either completely retracted or completely extended.

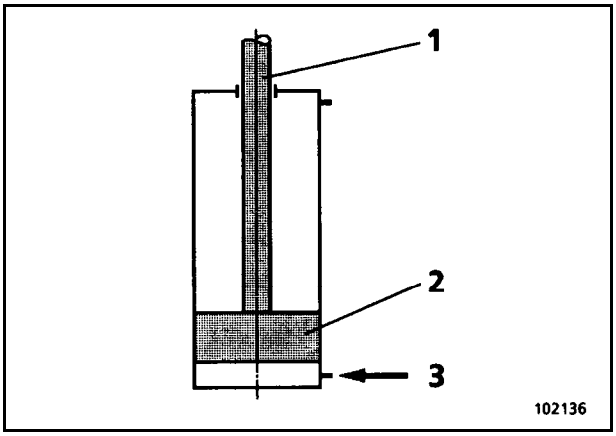


Fig. 3-100:

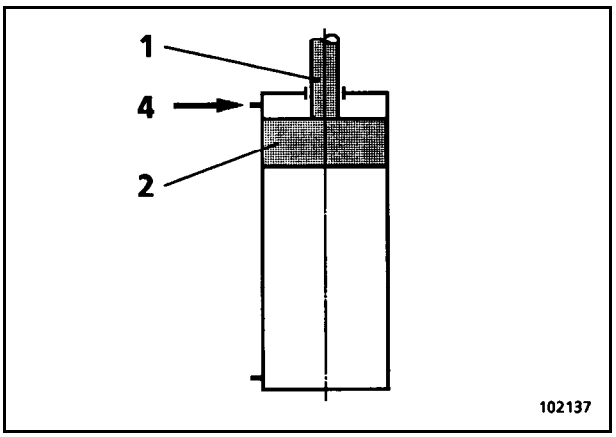


Fig. 3-101:

Always admit oil first to that side of the cylinder where the piston (2) is. This is

- the piston-side port (3) when the piston rod is retracted (1, Fig. 3-100:),
- the rod-side port (4) when the piston rod is extended (1, Fig. 3-101:).

If, for assembly reasons, the piston rod is in-middle position, admit oil first to the piston-side port (4).

When oil is admitted for the first time to the cylinder, the oil flow must be reduced. Therefore extend or retract the piston rod as slowly as possible.

The screws/nozzles of the following components must be opened until oil emerges bubble-free from the opening:

Always vent only the system section that has been opened.

- the travel brake valve at the venting screw,
- the oil cooler manifold at the mini-measuring ports,
- the servo system at the venting screws of the control blocks (under the servo caps),
- the intake line at the venting screw (with drive motors stationary).

SWING GEARBOX

(For swing gearbox P/N 3676892)

Read and observe: "Inspection and servicing - Safety instructions.

Shut off the engines.

Secure the machine as described in the "Securing the machine" section.

Protect the skin from contact with gearbox oil.
Skin contact with cooling liquid is a potential health hazard.

The gearbox housings may be hot.
Wear protective gloves and firm working clothing.

Collect escaping oil carefully and dispose of in an environmentally acceptable manner.

These swing gearboxes have two seperated oil chambers. Each gearbox is connected to two expansion reservoirs for gearoil:

- Expansion reservoir for oil in the gearbox housing (5).
- Expansion reservoir for oil in the brake chamber (6).

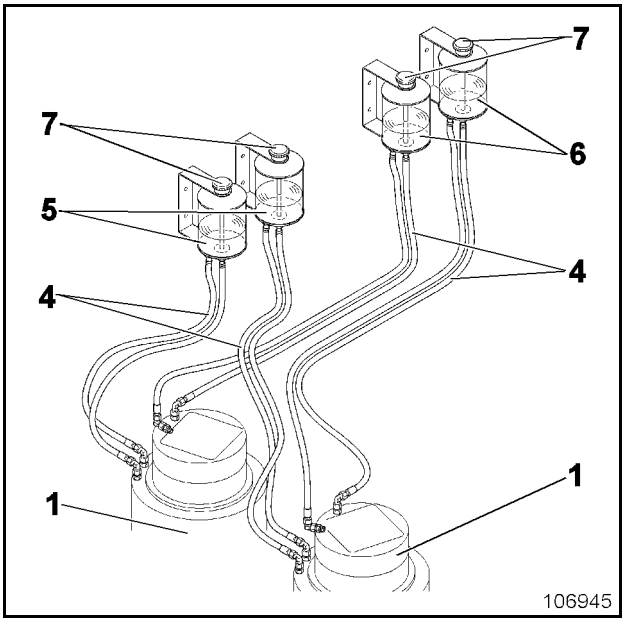


Fig. 3-118:

Gearbox - Checking the oil level / Topping up with oil

➲ Check the oil level visually at expansion tanks (5 and 6, Fig. 3-118:). The expansion tanks must be filled with gearbox oil up to abt. 1/3.
The oil level is visible from outside (light/dark area).

➲ If necessary, unscrew cap (7) and fill in oil.

The hoses (4, Fig. 3-118:and Fig. 3-119:) connect the gearboxes (1) with the expansion reservoirs (5 and 6).

Check all threaded joints for leaks.

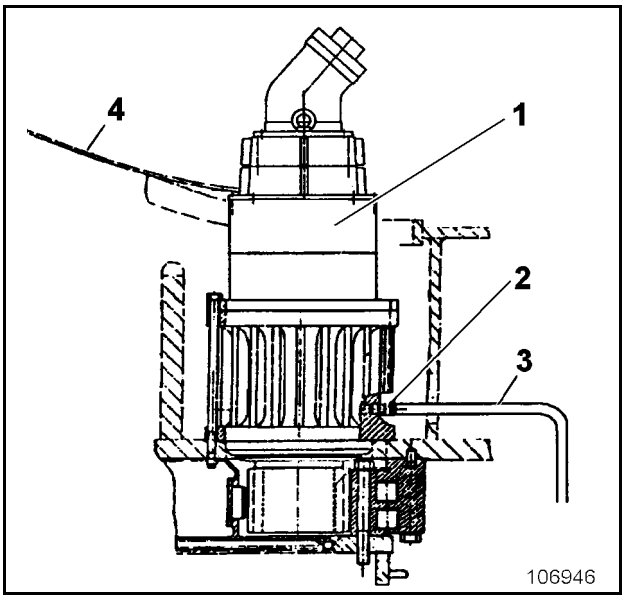


Fig. 3-119:

SLEWING RING

Read and observe: "Inspection and servicing - Safety instructions.

Shut off the engines.
Wear protective gloves and firm protective clothing.

Slewing ring - Instructions

The grease filling must be replaced:

- when repairs have been carried out on the slewing ring, the slewing ring seals or the slewing ring housing.

Remove old grease completely before filling in new grease.
If greater losses are detected, locate cause immediately to prevent damage to the slewing ring. Greases and greasy cleaning rags must not be allowed to pollute the environment. Discard grease and greasy cleaning rags separately from other waste without polluting the environment.

Bearing races

The **central lubricating system** supplies grease continuously to the two **roller bearing races** and the **internal gearing** .

The grease is pumped to the greasing points of the bearing races by a distributor (Fig. 3-134:).

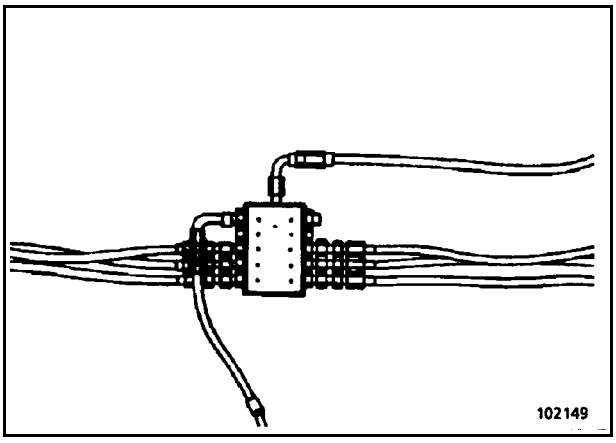


Fig. 3-134:

Internal gearing

The internal gearing (1, Fig. 3-135:) and the pinion (2) are enclosed in a housing (3, Fig. 3-136:). The housing forms a grease-filled trough in which the pinion of the slewing mechanism moves.

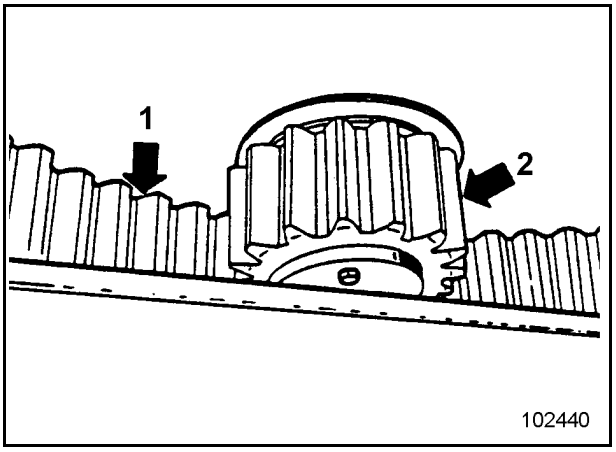


Fig. 3-135:

The grease is pumped to the greasing port of the grease trough by the distributor (Fig. 3-134:). The amount of grease used up during operation is replenished by the central lubricating system.

The housings have a check opening which is closed with a cover (2, Fig. 3-136:For checking, the cover must be removed.

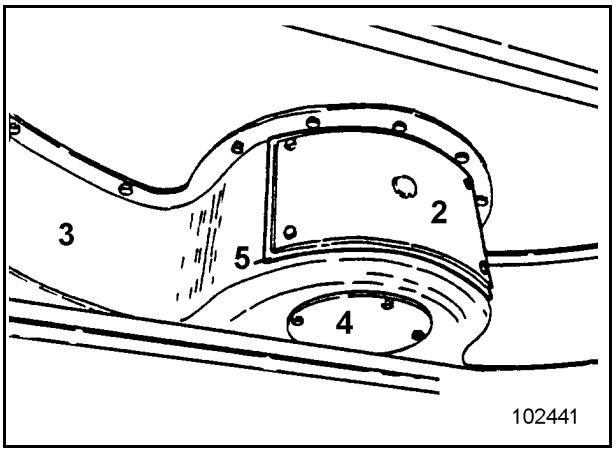


Fig. 3-136:

OTHER MAINTENANCE

Engine

Information about maintenance can be found in the engine operating instructions.

Further servicing works not described are carried out by the Terex O&K Service or the engine manufacturer.

Cleaning

Check the engines regularly.

- If the engine is cleaned with a steam-jet cleaner, make sure that the jet is not directed towards electrical components.
- If no steam-jet cleaner is available, the engines must be cleaned with suitable cleaning agents (cold cleaners).

Means of fastening

➲ Check fastening screws regularly for tightness.

The seating planes of the screws must be free from paint, dirt and rust.

Cooling system

Check the radiators regularly.

➲ Shut off the engines.

➲ Remove any accumulated dirt.

➲ Clean the fan blades.

➲ Clean the radiators with a jet of water or compressed-air from the outside.

➲ Dry up coolers.

Do not clean radiators with a wire brush or similar hard objects.

In case of firmly adhering dirt, remove radiator and clean.

Exhaust system

Check the fastening screws regularly for tightness when the exhaust system is cold.

Heating and air conditioning

Change the filter mats in the air suction regulary.

The filter mats are located under the driver`seat.

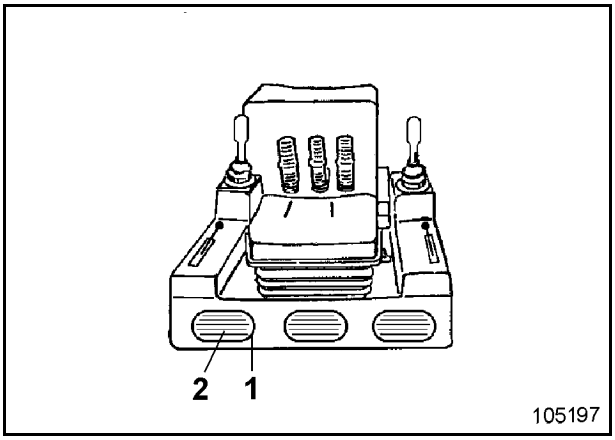


Fig. 3-155:

➲ Remove cover (1, Fig. 3-155:)-

➲ Change filter mats (2)

➲ Fasten cover (1) again.

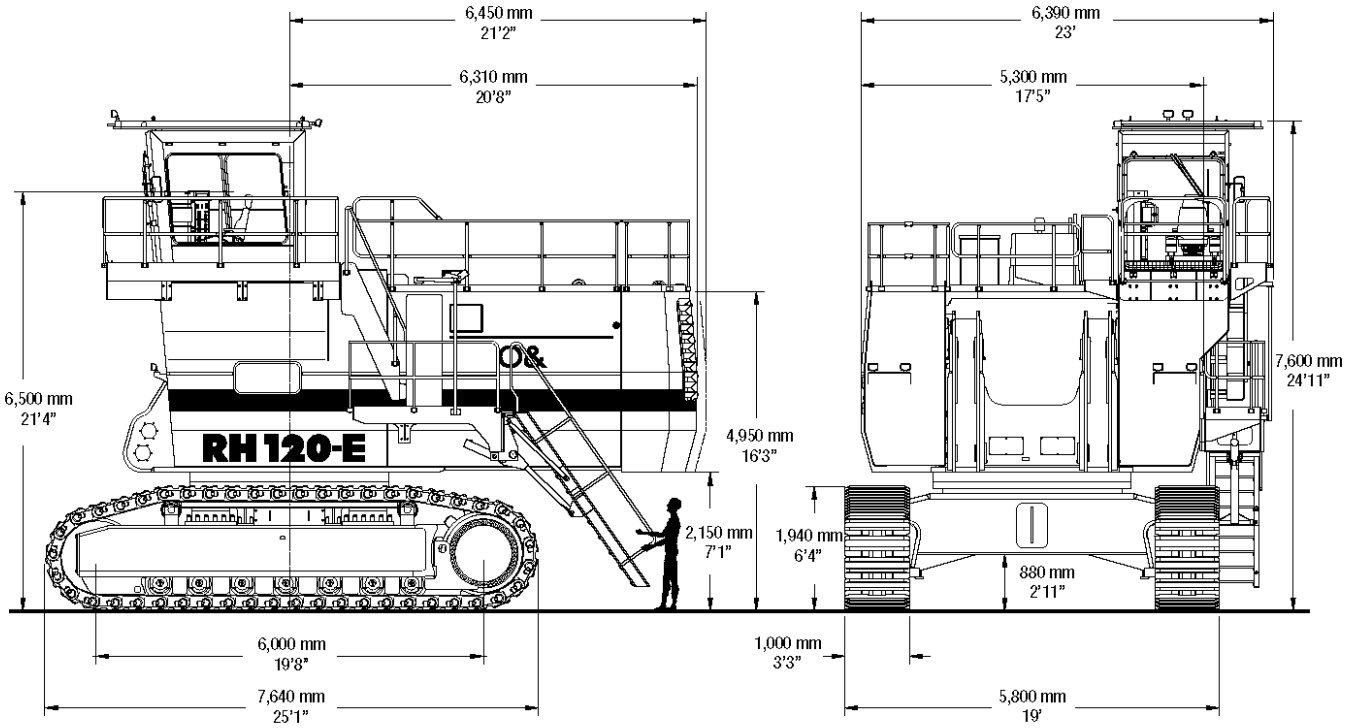
4 REPAIR WORK

	Operating instructions	Target group
Part 1	**INTRODUCTION** **FUNDAMENTAL** **SAFETY INSTRUCTIONS**	**Operating personnel** **+** **Inspection and servicing personnel** **+** **Repair personnel**
Part 2	**OPERATION**	**Operating personnel** The operating personnel must have know-how relevant to the operation and the application of this or comparable machines.
Part 3	**INSPECTION AND SERVICING**	**Inspection and servicing personnel** The inspection and servicing personnel must have know-how relevant to the inspection and servicing of this or comparable machines.
Part 4	**REPAIR WORK**	**Repair personnel** The repair personnel must have know-how and experience relevant to the repair of this or comparable machines.
Part 5	**ANNEX**	**Operating personnel** **+** **Inspection and servicing personnel** **+** **Repair personnel**
Part 6	**INDEX**	**Operating personnel** **+** **Inspection and servicing personnel** **+** **Repair personnel**

Working hydraulics – Fault table

Fault								Remedial action	
Working and slewing functions not operational								Check Adjust Replace Top up Reduce Clean	**P** **E** **W** **A** **S** **R**
No boom function									
No bucket function									
No backhoe function									
No stick function									
Working movements too slow									
Power loss in working hydraulics								1) Contact the Terex O&K Service	
Uncontrolled working movements									
Cause								**Abschnitt**	
•							Electronic excavator control not activated/defective	Working	**P**
•	•	•	•	•		•	Malfunction of pressure-relief valve		**1)**
•						•	Servo system pump defective		**1)**
	•	•	•	•	•		• Malfunction of primary / sencondary pressure-relief valves		**1)**
					•		Engine speed too low		**P**
					•		ECO-power switch in 80%-position		**P**
					•		Fuel filter contaminated	Fuel filter	**P/W**
					•		Insufficient engine power	Engine malfunction	**1)**
					•		Hydraulic oil temperatur too high (warning lamp lit, PMS fault indicator lamp lit) oil cooler contaminated	Hydraulic oil cooler cleaning	**P/R**
					•		Engine coolant temperature too high (warning lamp lit and PMS fault indicator lamp flashing)		**1)**
						•	Malfunction of solenoid valves		**1)**
					•	•	Malfunction of control spool		**1)**
•							Engine coupling defective		

Hydraulic Mining Excavator | RH 120-E



RH 120-E

General Data:

Operating weight		
Face Shovel	284 t	313 sht
Backhoe	287 t	316 sht
Engine output SAE J 1995		
Caterpillar C18	1,044 kW	1,400 HP
Cummins QSK 19-C	1,008 kW	1,350 HP
Standard bucket capacity		
Face Shovel (SAE 2:1)	16.5 m^3	21.6 yd^3
Backhoe (SAE 1:1)	17.0 m^3	22.2 yd^3

Features:

- TriPower shovel attachment
- Independent oil cooling system
- Spacious walk-through machine house
- 5-circuit-hydraulic system
- Electronic-hydraulic servo control
- Board Control System (BCS)
- Torque control in closed-loop swing circuit
- Automatic central lubrication system
- Xenon working lights