Small Wheel Loaders
321D

Service Manual

Ber 7-29290

CASE

01 General

02 Service data

03 Engine

04 Travel drive

05 Axles

06 Steering

07 Brakes

08 Working hydraulic

09 Electrical system

10 Frame

11 Fittings, pipes and hoses

12 Sealing, protective, testing and cleaning agents

FOREWORD

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This **Technical Handbook (THB)** has been written with **the servicing mechanic** in mind and contains important information required to carry out repair and servicing procedures.

Read through the **Technical Handbook**, but also the **Operating Instructions** for the **Wheel Loader** before commencing any servicing or repair work. The **Technical Handbook**, as well as the **Operating Instructions** and **Spare Parts List** should be used as a source of reference and assistance - even when the user is well acquainted with the range of the Wheel Loaders.

Using the Technical Handbook allows the experienced mechanic to carry out repair work in a correct manner.

Using the Technical Handbook

The Technical Handbook is divided into main and sub-groups that deal with the machine as actually delivered. Any auxiliary attachments or optional upgrading introduced later are not described.

The main table of contents allows to find the required information quickly.

For the sake of clarity, the illustrations have been simplified and can therefore differ slightly from the actual appearance of the machine.

Servicing and repair

Servicing and repair work should be carried out as soon as possible. This keeps overall servicing & repair costs to a minimum and increases the availabilily of the Wheel Loader.

During servicing and repair work, always follow the instructions contained in the Technical Handbook and Operating instructions.

The **After Sales Service** is always available for assistance and advice.

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FUNDAMENTAL SAFETY INSTRUCTIONS

Warnings and symbols

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The following signs are used in the manual to designate instructions of particular importance:

Precautionary rules and measures designed to protect the machine operator and other persons from life-threatening danger or injuries and to prevent extensive damage.

Information and precautionary measures designed to prevent damage to the machine or other property.

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Danger in the event of non-obser-vance of the safety instructions

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This wheel loader has been built in accordance with state-of-the-art standards and the recognized safety rules.

However, operating the machine if a fault is suspected or has occurred, or carrying out repair work inexpertly may

- **endanger the lives of persons in contact with it**
- **damage the machine and other property.**

The wheel loader must be stopped immediately on any damage being suspected or occurring to ensure that the safety of the operator, of other persons at the place of use or of other material property is not compromised.

All components are carefully co-ordinated. Trouble-free operation and a long service life can only be achieved with original spare parts.

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Organizational measures

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The operating instructions must always be at hand at the place of use of the machine, e.g. by stowing them in the tool compartment or tool-box provided for such purpose.

In addition to the operating instructions, observe and instruct the user in all other generally applicable legal and other mandatory regulations relevant to accident prevention and environmental protection.

These compulsory regulations may also deal with the handling of hazardous substances, issuing and/or wearing of personal protective equipment or traffic regulations.

The operating instructions must be supplemented by instructions covering the duties involved in supervising and notifying special organizational features, such as job organization, working sequences or the personnel entrusted with the work.

Personnel entrusted with work on the machine must have read the operating instructions and in particular the chapter on safety before beginning work. Reading the instructions after work has begun is too late. This applies especially to persons working only occasionally on the machine, e.g. during setting up or maintenance.

Check - at least from time to time - whether the personnel is carrying out the work in compliance with the operating instructions and paying attention to risks and safety factors.

For reasons of security, long hair must be tied back or otherwise secured, garments must be close-fitting and no jewellery, such as rings, may be worn. Injury may result from being caught up in the machinery or from rings catching on moving parts.

Use protective equipment wherever required by the circumstances or by law.

Observe all safety instructions and warnings attached to the machine.

See to it that safety instructions and warnings attached to the machine are always complete and perfectly legible.

In the event of safety-relevant modifications or changes in the behaviour of the machine during operation, stop the machine immediately and report the malfunction to the competent authority/person.

Never make any modifications, additions or conversions which might affect safety without the supplier's approval. This also applies to the installation and adjustment of safety devices and valves as well as to welding work on load-bearing elements.

Spare parts must comply with the technical requirements specified by the manufacturer. Spare parts from original equipment manufacturers can be relied to do so.

Replace hydraulic hoses within stipulated and appropriate intervals, even if no safety-relevant defects have been detected.

Adhere to prescribed intervals or those specified in the operating instructions for routine checks and inspections.

For the execution of maintenance work, tools and workshop equipment adapted to the task on hand are absolutely indispensable.

The personnel must be familiar with the location and operation of fire extinguishers.

Observe all fire-warning and fire-fighting procedures.

Selection and qualification of personnel

Any work on and with the machine must be executed by reliable personnel only. Statutory minimum age limits must be observed.

Employ only trained or instructed staff and set out clearly the individual responsibilities of the personnel for operation, set-up, maintenance and repair.

Make sure that only authorized personnel works on or with the machine.

Define the machine operator's responsibilities - also with regard to observing traffic regulations - giving the operator the authority to refuse instructions by third parties that are contrary to safety.

Do not allow persons to be trained or instructed or persons taking part in a general training course to work on or with the machine without being permanently supervised by an experienced person.

Work on the electrical system and equipment of the machine must be carried out only by a skilled electrician or by instructed persons under the supervision and guidance of a skilled electrician and in accordance with electrical engineering rules and regulations.

Work on chassis, brake and steering systems must be performed by skilled personnel only, which has been specially trained for such work.

Work on the hydraulic system must be carried out only by personnel with special knowledge and experience of hydraulic equipment.

OPERATING, SAFETY INSTRUCTIONS

Standard operation

Avoid any operational mode that might be prejudicial to safety.

Before beginning work, familiarize yourself with the surroundings and circumstances of the site, such as obstacles in the working and travelling area, the soil bearing capacity and any barriers separating the construction site from public roads.

Take the necessary precautions to ensure that the machine is used only when in a safe and reliable state.

Operate the machine only if all protective and safety-oriented devices, such as removable safety devices, emergency shut-off equipment, soundproofing elements and exhausters, are in place and fully functional.

Check the machine at least once per working shift for obvious damage and defects. Report any changes (incl. changes in the machine's working behaviour) to the competent organization/person immediately. If necessary, stop the machine immediately and lock it.

In the event of malfunctions, stop the machine immediately and lock it. Have any defects rectified immediately.

Start the machine from the driver's seat only.

During start-up and shut-down procedures always watch the indicators in accordance with the operating instructions.

Before setting the machine in motion, make sure that nobody is at risk.

Before starting work or travelling with the machine, check that the braking, steering, signalling and lighting systems are fully functional.

Before setting the machine in motion always check that the accessories have been safely stowed away.

When travelling on public roads, ways and places always observe the valid traffic regulations and, if necessary, make sure beforehand that the machine is in a condition compatible with these regulations.

In conditions of poor visibility and after dark always switch on the lighting system.

Persons accompanying the driver must be seated on the passenger seats provided for this purpose.

When crossing underpasses, bridges and tunnels or when passing under overhead lines always make sure that there is is sufficient clearance.

Always keep at a distance from the edges of building pits and slopes.

Avoid any operation that might be a risk to machine stability.

Never travel across slopes; always keep the working equipment and the load close to the ground, especially when travelling downhill.

On sloping terrain always adapt your travelling speed to the prevailing ground conditions. Never change to a lower gear on a slope but always before reaching it.

Before leaving the driver's seat always secure the machine against inadvertent movement and unauthorized use.

MAINTENANCE, SAFETY INSTRUCTIONS

Observe the adjusting, maintenance and inspection activities and intervals set out in the operating instructions, including information on the replacement of parts and equipment. These activities may be executed by skilled personnel only.

Brief operating personnel before beginning special operations and maintenance work, and appoint a person to supervise the activities.

In any work concerning the operation, conversion or adjustment of the machine and its safety-oriented devices or any work related to maintenance, inspection and repair, always observe the start-up and shut-down procedures set out in the operating instructions and the information on maintenance work.

Ensure that the maintenance area is adequately secured.

If the machine is completely shut down for maintenance and repair work, it must be secured against inadvertent starting by:

- removing the ignition key and
- attaching a warning sign.

Carry out maintenance and repair work only if the machine is positioned on stable and level ground and has been secured against inadvertent movement and buckling.

To avoid the risk of accidents, individual parts and large assemblies being moved for replacement purposes should be carefully attached to lifting tackle and secured. Use only suitable and technically perfect lifting gear and suspension systems with adequate lifting capacity. Never work or stand under suspended loads.

The fastening of loads and the instructing of crane operators should be entrusted to experienced persons only. The marshaller giving the instructions must be within sight or sound of the operator.

For carrying out overhead assembly work always use specially designed or otherwise safety-oriented ladders and working platforms. Never use machine parts as a climbing aid.

Wear a safety harness when carrying out maintenance work at greater heights.

Keep all handles, steps, handrails, platforms, landings and ladders free from dirt, snow and ice.

Clean the machine, especially connections and threaded unions, of any traces of oil, fuel or preservatives before carrying out maintenance/repair. Never use aggressive detergents. Use lint-free cleaning rags.

Before cleaning the machine with water, steam jet (high-pressure cleaning) or detergents, cover or tape up all openings which - for safety and functional reasons - must be protected against water, steam or detergent penetration. Special care must be taken with electric motors and switchgear cabinets.

Ensure during cleaning of the machine that the temperature sensors of the fire-warning and fire-fighting systems do not come into contact with hot cleaning agents as this might activate the fire-fighting system.

After cleaning, remove all covers and tapes applied for that purpose.

After cleaning, examine all fuel, lubricant, and hydraulic fluid lines for leaks, loose connections, chafe marks and damage. Any defects found must be rectified without delay.

Always tighten any screwed connections that have been loosened during maintenance and repair.

Any safety devices removed for set-up, maintenance or repair purposes must be refitted and checked immediately upon completion of the maintenance and repair work.

Ensure that all consumables and replaced parts are disposed of safely and with minimum environmental impact.

WARNING OF SPECIAL DANGERS

Electric energy

Use only original fuses with the specified current rating. Switch off the machine immediately if trouble occurs in the electrical system.

When working with the machine, maintain a safe distance from overhead electric lines. If work is to be carried out close to overhead lines, the working equipment must be kept well away from them. Caution, danger! Check out the prescribed safety distances.

If your machine comes into contact with a live wire

- do not leave the machine
- drive the machine out of the hazard zone
- warn others against approaching and touching the machine
- have the live wire de-energized
- do not leave the machine until the damaged line has been safely de-energized.

The electrical equipment of machines is to be inspected and checked at regular intervals. Defects such as loose connections or scorched cables must be rectified immediately.

Gas, dust, steam and smoke

Operate internal combustion engines and 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 and pneumatic 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, compressed-air system) to be removed in accordance with the specific instructions for the unit concerned before carrying out any repair work.

Hydraulic and compressed-air 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 and other chemical substances, observe the product-related safety regulations.

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

TRANSPORTING AND TOWING - RECOMMISSIONING

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

For towing the machine observe the prescribed transport position, admissible speed and itinerary.

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

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

REPAIR WORK - SAFETY INSTRUCTIONS

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Operator's manual

Never carry out repair work without having read and understood the operator's manual.

Pay special attention to:

"Fundamental Safety Instructions", "Inspection and servicing - safety instructions" and all warnings and safety instructions attached to the machine.

The descriptions of job sequences provide only experienced personnel with the necessary instructions.

The operator's manual must be kept with the machine at all times.

Repair personnel

Repair personnel must have know-how and experience relevant to repairing this or comparable machines.

In the absence of such know-how, meticulous training must be given by experienced repair personnel.

Blocking the articulated joint

When carrying out repair work in the pivoting range, block the articulated joint. Remove the block on completing work.

Prestressed units

Never open defective prestressed units but replace them as an entirety.

In exceptional cases, open only when the system and the operating sequence are precisely known and any special tools required are available.

The operator's manual contains no information on this point.

Dismantling components

Never dismantle while the machine is at operating temperature.

Oils, greases, brake fluid or coolants may have a high temperature and result in burning or scalding.

Leave time for the machine to cool down.

Before starting work, depressurize piping and hoses, cylinders, radiator, hydraulic tank, air-brake reservoir and other systems or units.

Replace defective components in good time to prevent major damage.

Clean the defective component carefully before dismantling it.

Mark the dismantled parts in the correct sequence to facilitate assembly.

When dismantling the component, close off exposed hose and piping connections, exposed drill holes and housing carefully to prevent any dust from penetrating.

Never remove lead seals

Never change the rated pressure of pressure relief.

Never remove lead seals from pressure relief valves and accumulators.

After the repair work

To prevent corrosion, coat all bright metal machine parts with a grease film.

On completing the work, reassemble all protective devices, covers, and sound- and vibration-insulation material.

Never start up the driving motor while work is being done on the machine.

Check the repaired components and all machine functions with a trial run.

Never release the machine for recommissioning until it is fully functioning.

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ACCUMULATORS

Safety instructions

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Accumulators are installed in the hydraulic system. These accumulators contain nitrogen under high initial pressure.

Even when the hydraulic pressure in the system is reduced, the nitrogen remains in the accumulator.

The accumulators are completely safe in operation. If incorrectly handled, however, there is a risk of explosion.

So:

- Never handle accumulator mechanically, never weld or solder it.
- Testing and servicing work must be carried out by experts only.
- Prior to any testing and servicing work, depressurize the hydraulic part of the system.
- To dismantle the accumulator, always wear goggles and working gloves.
- Fill accumulator with nitrogen only, never with compressed air or oxygen.
- Report any defects or damage to the machine owner without delay.
- Prior to recommissioning, an inspection by a specialist or expert is essential if the accumulator was damaged or if the admissible operating temperature or operating pressure was exceeded.

Never remove or paint over warning and information plates, rating plates or type identification markings. Replace illegible or damaged plates immediately.

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ENGINE

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Engine - repair instructions

Read and observe: "Repair, safety instructions" and operating instructions for engine before working on the engine.

Risk of injury from rotating or hot engine parts!

Switch off engine and leave to cool down.

Do repair work only if machine is secured as described in section "Securing the machine".

Check and change V-belts only when engine is stationary.

Repair work on the engine demands extensive know-how and special tools.

In cases of doubt, have the repair work carried out by your Dealer.

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Assisted starting (jump-starting) - Safety instructions

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Risk of explosion

Battery gases contain hydrogen and are readily flammable. Keep any potential ignition sources, such as unshielded lights or burning cigarettes, away from the batteries.

Risk of injury from splashing acid and battery gases.
Never lean over the batteries when jump-starting a vehicle.
Wear goggles.

Never use assisted starting when the batteries are defective or frozen.

Never connect batteries (battery assemblies) unless they have the same voltage.

Use only tested jumper cables with insulated terminal clips and an adequate lead diameter.

Ensure that the bodies of the supplying and receiving machines are not in contact. Otherwise a current flow might result from connecting the positive poles. Risk of short-circuiting.

Never use jumper cables with overvoltage, e.g. two or three batteries or booster units connected in series and generating voltages in excess of 12V.

Never use welding generators or welding transformers as a source of current.

Position jumper cables in such a way that they cannot be caught by rotating engine components.

Read and observe: "Inspection and servicing - Safety instructions", paying special attention to the section "Handling batteries".

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WELDING OPERATIONS

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Welding operations - safety instructions

Never perform welding operations unless you are qualified to do so.

Observe the accident prevention regulations.

Any work on receptacles that contain or have contained substances which are

- **combustible or which encourage combustion, which**
- **are susceptible to explosion, or which**
- **may develop health-hazardous gases, vapours, mist or dust during welding operations**

must be carried out only under expert supervision and only by experienced persons authorized to do such work.

Should you have any problems or queries, apply to the aftersales service department.

Prior to any welding operations on the machine:

- **Disconnect the battery, first the negative terminal and then at the positive terminal.**
- **Disconnect the positive terminal at the alternator.**
- **Protect the disconnected terminals and plugs from short-circuiting and soiling by covering them with foil or adhesive tape.**

Apply the welding current terminals very close to the welding point.

The welding current must not flow through gearboxes, bolted or articulated joints or hydraulic cylinders.

On completion of the welding operation, restore all electrical connections.

When connecting the battery, first connect the positive terminal and then the negative terminal.

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SERVICE DATA

321D

Nr. 591 052 -

CASE

Functional description: hydrostatic travel drive of wheel loader 321D

(Figs. 3 - 5)

The variable displacement pump (A3) and the feed pump (A2) are driven by the diesel engine (1).

The feed pump (A2) pumps oil through the feed circuit filter (A19). If the filter cartridge is excessively soiled, the soiling indicator (A6) responds.
If counterpressure is too high in front of a soiled filter cartridge, the feed circuit bypass valve (A14) opens and directs part of the pressure oil back to the suction side of the feed pump (A2).

The feed pressure is limited to ca. 25 bars by the feed pressure relief valve (A9) and can be checked at the measuring point (P_{SP}).
Feed oil is directed to the respective suction side (dependent on travel direction) of the variable displacement pump via the replenishing valves (A5) integrated in the high-pressure relief valves (A4) to compensate for leakages.

Depending on the speed of the diesel engine (1), the feed pump (A2) generates a variable flow. The variation of flow is determined by sensing the dynamic pressure at restrictor (A10) . The higher the dynamic pressure the higher the speed of the drive engine (1). Depending on the dynamic pressure at restrictor (A10), control valve (A7) derives a higher or lower amount of control pressure from the feed pressure.

N.B.:
The control valve (A7) is set in such a way that ca. 50 bars travelling pressure (P_{HD}) are built up at an engine speed of ca. 1100 rpm. In the technical data, this is referred to as regulation threshold.

The control pressure is applied to the electromagnetically activated switching valve (A11). When the operator activates the travel direction switch, the switching valve (A11) is electrically activated and directs the control pressure to the required side of the adjusting cylinder (A13). The pump swivels out and pumps pressure oil to the hydraulic motor (A15).

On activation of the pedal-operated brake valve (B5), the generated braking pressure acts on the inching valve (B10).

Depending on the height of the actual braking pressure, the inching valve (B10) opens a larger or smaller connection between the control pressure and the tank, so that light application of the brake pedal reduces the control pressure only slightly, and the control pressure is directed completely into the hydraulic tank at a braking pressure (P_{in}) of ca. 14 bars. As a consequence, the travelling machine is braked by means of the travel drive.

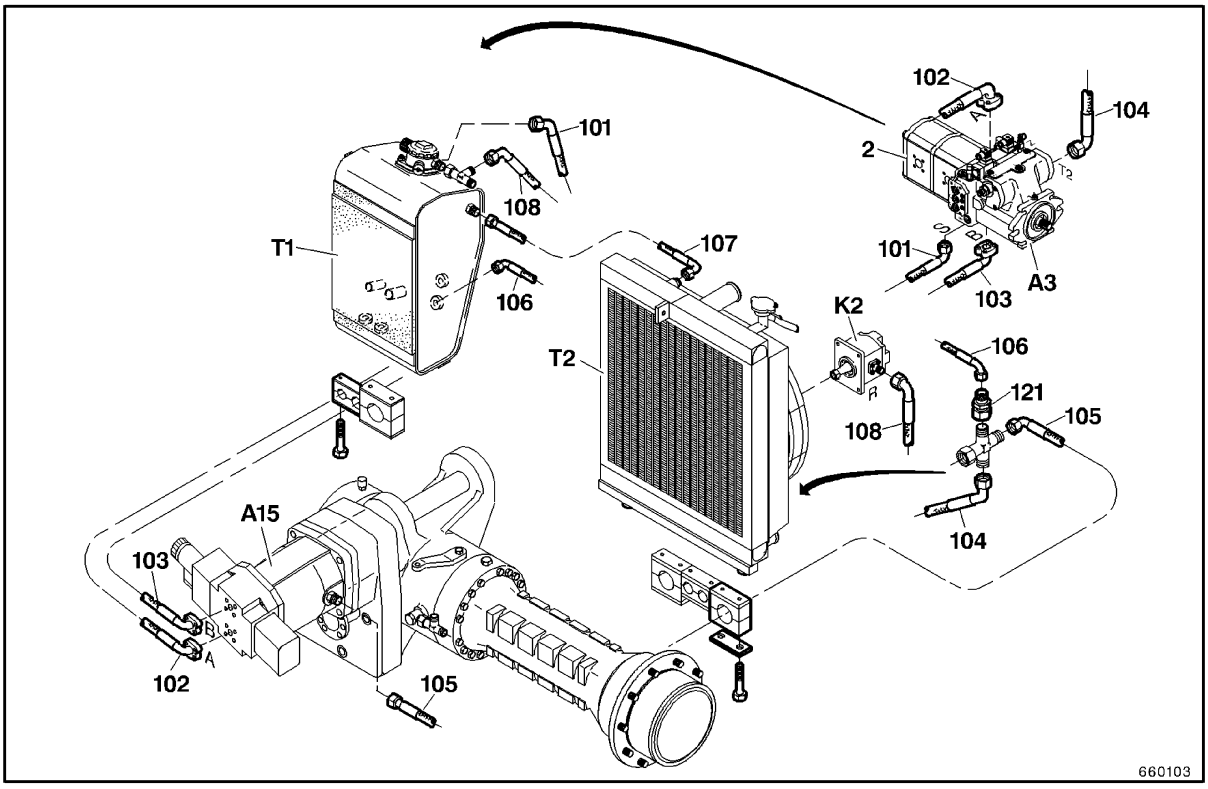
N.B.:
Inching means reducing travelling speed (= braking) by reducing the control pressure of the travel pump. The inching is the auxiliary brake of the machine.

When the machine is travelling, the pressure oil is pumped to the hydraulic motor (A15) by the travel pump (A3).
In the event of high pressure at travelling exceeding a value of ca. 420 bars, the pressure cutout (A8) reduces the control pressure until the high pressure remains constant at the set value.
In addition to the pressure cutout, the high pressure at travelling is secured with two pressure relief valves (A4) which respond, however, only at ca. 450 bars. Depending on travel direction (forward or reverse), one or the other of the pressure relief valves responds.

The switching valve (A17) can direct the high pressure at travelling to the adjusting cylinder (A18). This increases the displacement of the hydraulic motor (A15), resulting in the drive turning more slowly but strongly (= creep speed).
The switching valve (A17) is activated either electrically (with the travel direction switch) or by the high pressure at travelling.

In the case of high-pressure dependent switchover, the oil pressure goes via one of the check valves (A16) onto the switching valve (A17).
If the hydraulic motor (A15) is under pressure in excess of ca. 140 bars, the valve (A17) switches over even if it is not electrically activated. This results in the high pressure at travelling being directed onto the piston base side of the adjusting cylinder (A18).

In practice, this means that the machine switches automatically to the slower gear from a certain travelling resistance onwards. It also means that the so-called creep speed (= transmission range 1) has to be engaged only if a lower travelling speed is required. In all other situations, transmission range 2 is preferable.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104
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2
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T1
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A3
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K2
T2
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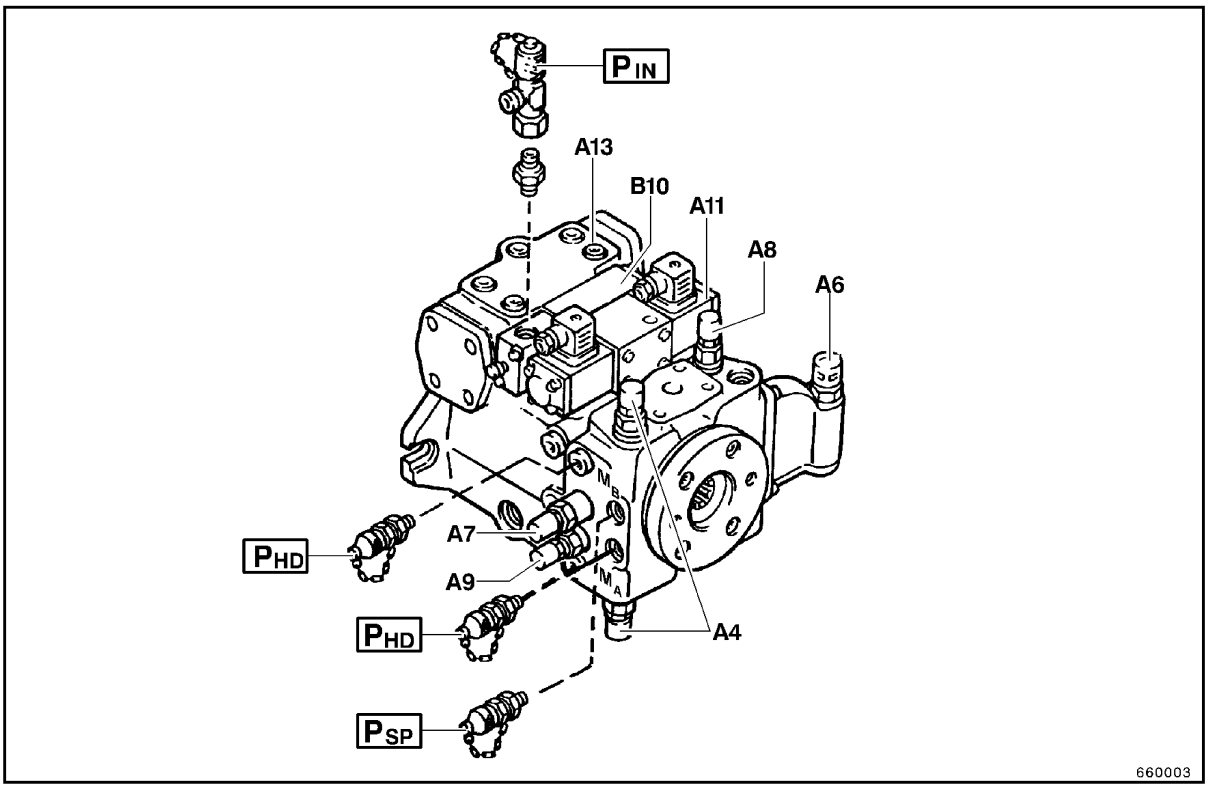
Fig. 4


PIN
A13
B10
A11
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A6
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660003

Fig. 5

Travel drive installation

2 - Double pump steering and working hydraulics / braking system

T1 - Hydraulic tank
T2 - Combined cooler

B10 - Inching valve

A3 - Variable displacement axial-piston pump A4VG-Da
A4 - High-pressure relief valve, deblockable
A6 - Soiling indicator, feed circuit filter
A7 - Control valve
A8 - Pressure cutout
A9 - Feed pressure relief valve
A11 - Electromagnetically activated switching valve for forward and reverse travel
A13 - Adjusting cylinder, forward/reverse/neutral
A15 - Axial-piston oil motor A6VM - HA 1U

K2 - Fan motor

Pressure measuring points

P_{SP} - Feed pressure

P_{HD} - High pressure at travelling

P_{HD^*} - High pressure at travelling (at travel motor)

P_{in} - Actual braking pressure □

Adjusting work at the hydrostatic travel drive

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For all testing and adjusting work on the travel drive, the hydraulic oil temperatur must be ca. 60 - 70˚C.

Mechanical zero position

The mechanical zero position is not normally self-adjusting. Control or adjustment is therefore necessary only when:

- the pump has been dismantled and reassembled,
- the operator complains that the loader, despite the travel direction switch being set to neutral position, is moving in one direction. In this case, however, the functioning of the travel direction switch and the electromagnetically activated switching valve (A11) should **first** be checked.

To check the mechanical zero position, a pressure gauge (measuring range 600 bars) must be connected to both measuring points for the high pressure at travelling (P_{HD}).

N.B.:

The machine must now be secured with appropriate measures against forward or reverse movement. The safety instructions must be observed.

The engine is started up, the travel direction switch is set to neutral.

After slackening the lock nut (A13, Part 9) the centering rod (A13, Part 5) is turned with a socket wrench 5 mm until the same pressure (in this case feed pressure) is read off at both measuring points (P_{HD}).

After adjustment, the centering rod (A13, Part 5) must be secured with the lock nut (A13, Part 9).

The mechanical zero position is set.

Checking and adjusting high pressure at travelling

The high pressure at travelling (P_{HD}) is limited both by the high-pressure relief valves (A4) and by the pressure cutout (A8).

N.B.:

The maximum high pressure is attained only if the displacement switchover at the hydraulic motor (A15) is prevented. For this purpose the regulation threshold adjusting screw (A15, Part 2) must be **unturned** by ca. 3 turns. On completion of work, the regulation threshold of the hydraulic motor must be reset. For all high-pressure measurements, transmission range 2 (driving) must be selected at the travel direction lever.

If resetting of the regulation threshold of the engine is to be avoided, a pressure drop due to spinning wheels can generally also be avoided by applying the parking brake as far as the limit stop and preventing the travel drive from being switched off with the handbrake switch.

Adjusting cylinder (A13)

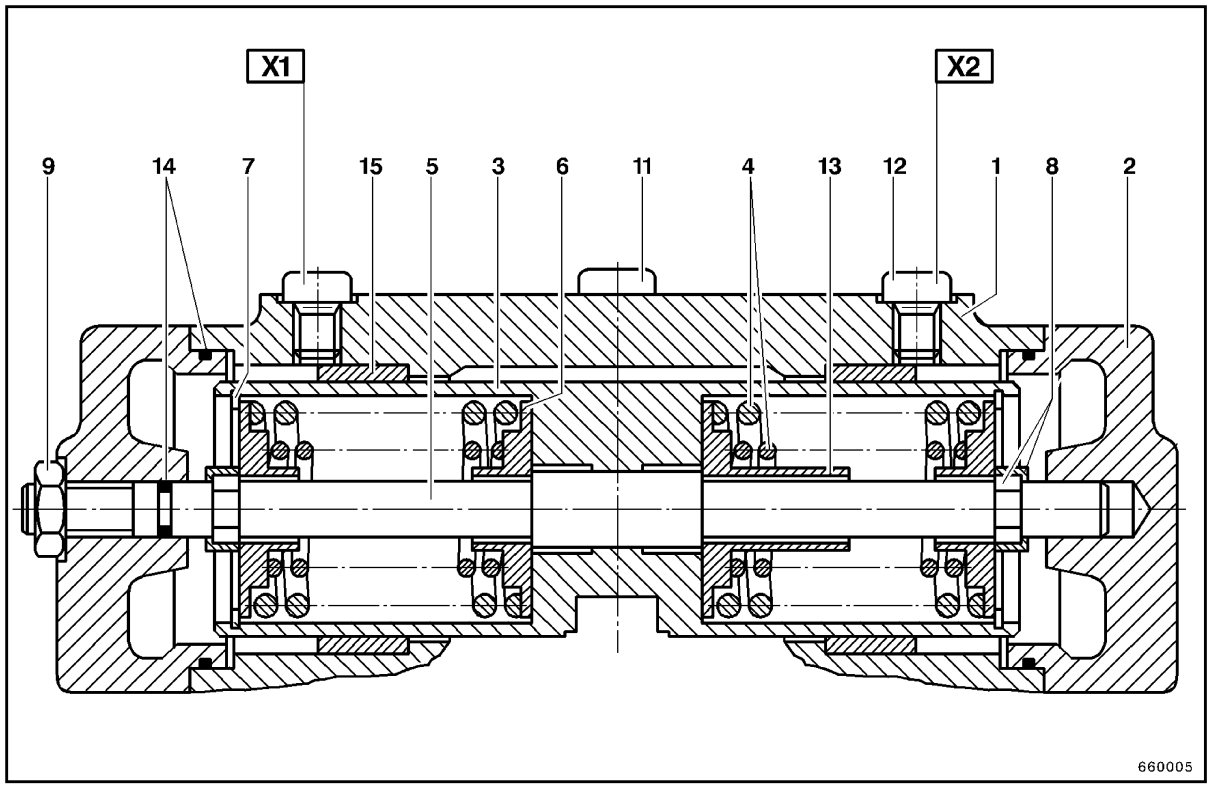

Fig. 6

Parts Fig. 6

1 - Cylinder bore in pump housing
2 - Cap
3 - Adjusting piston
4 - Compression spring
5 - Centering rod
6 - Spring plate
7 - Circlip
8 - Check nut or ring and sleeve
9 - Lock nut

11 - Vent screw
12 - Dummy screw for control pressure testing connection (M 12 x 1.5)
13 - Spacer sleeve
14 - O-ring
15 - Bearing bushing

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High-pressure relief valve (A4)

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To check the high-pressure relief valves (A4), the adjusting screw for pressure cutout (A8, Part 1) must first be tightened to the limit stop and a pressure gauge (measuring range 600 bars) connected at the corresponding measuring point (P_{HD}).

It is advisable first to measure the dimension "X" (Fig. 8) at the adjusting screw (A8, Part 1) and to make a note of the measurement for later resetting.

The wheel loader is then driven in transmission range 2 against a wall or a mound of earth, with the pressure gauge being observed. The maximum attainable pressure in forward and reverse direction is ca. 450 bars.

N.B.:

The machine must not be driven for more than 5 seconds against the high-pressure relief valves (A4), as they are otherwise damaged by the high temperature.

The high-pressure relief valves (A4) normally need virtually no adjustment.
If the high pressure has to be adjusted, however, the cap (A4, Part 2) is removed and the lock nut (A4, Part 3) slackened.
The pressure can then be set at the adjustment screw (A4, Part 1).

When adjustment is completed, the lock nut (A4, Part 3) is retightened and the cap (A4, Part 2) refitted.

N.B.:

When the lock nut (A4, Part 3) has been tightened, the pressure is checked again. The high-pressure setting must be secured with a lead seal on completion of work.

High-pressure relief valve (A4), deblockable

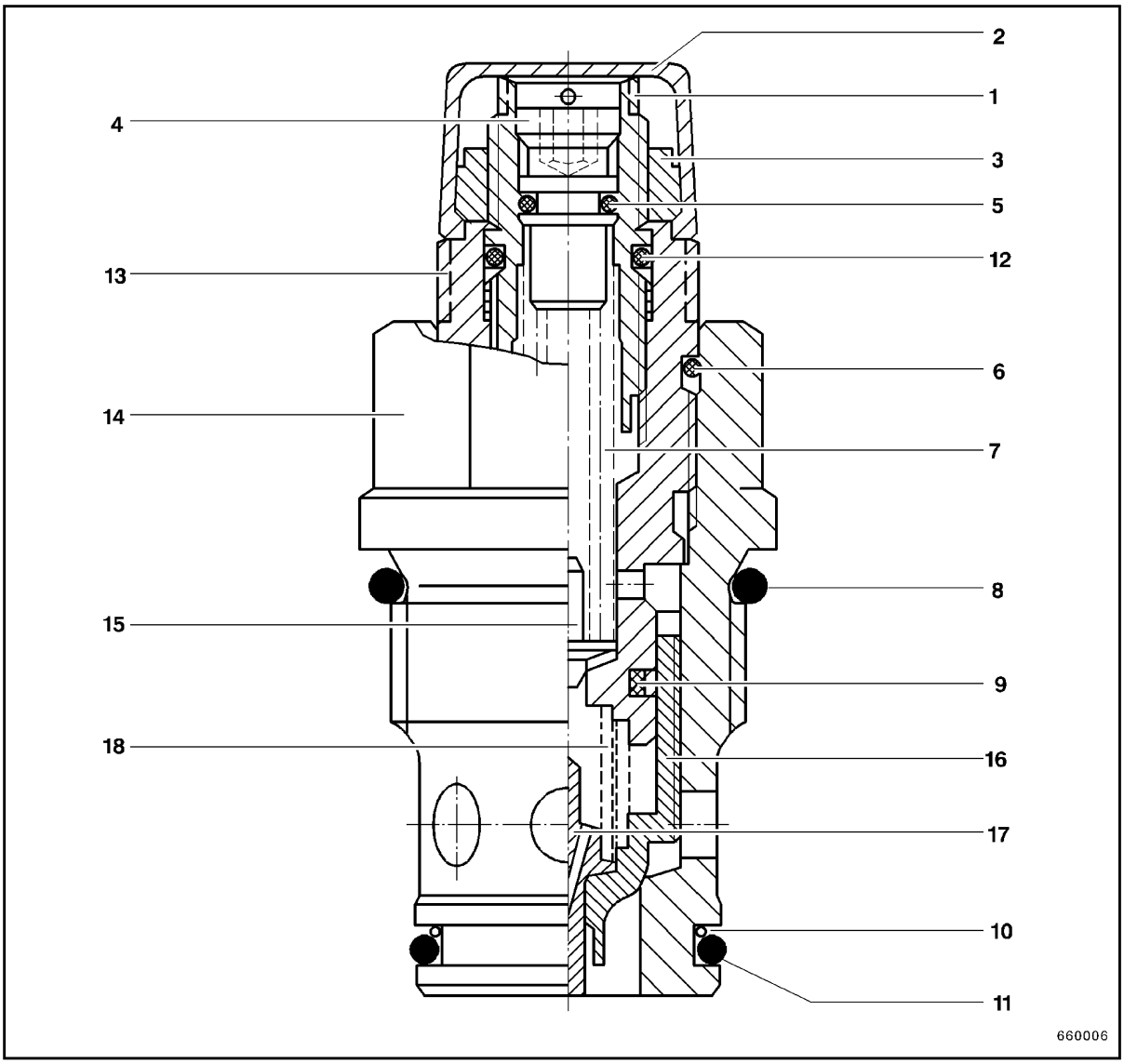

Fig. 7

Parts Fig. 7

1 - Adjusting screw SW 11
2 - Cap
3 - Lock nut SW 19 / 20 Nm
4 - Bypass set screw loosen by 3 turns with tool size SW 4 / 10 Nm
5 - O-ring
6 - Sealing ring
7 - Spring
8 - O-ring
9 - Piston seal
10 - Retaining ring
11 - O-ring
12 - O-Ring
13 - Screw plug SW 22 / 100 Nm
14 - Valve housing SW 32 / 150 Nm
15 - Pilot piston
16 - Piston
17 - Restrictor needle
18 - Spring

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Pressure cutout (A8)

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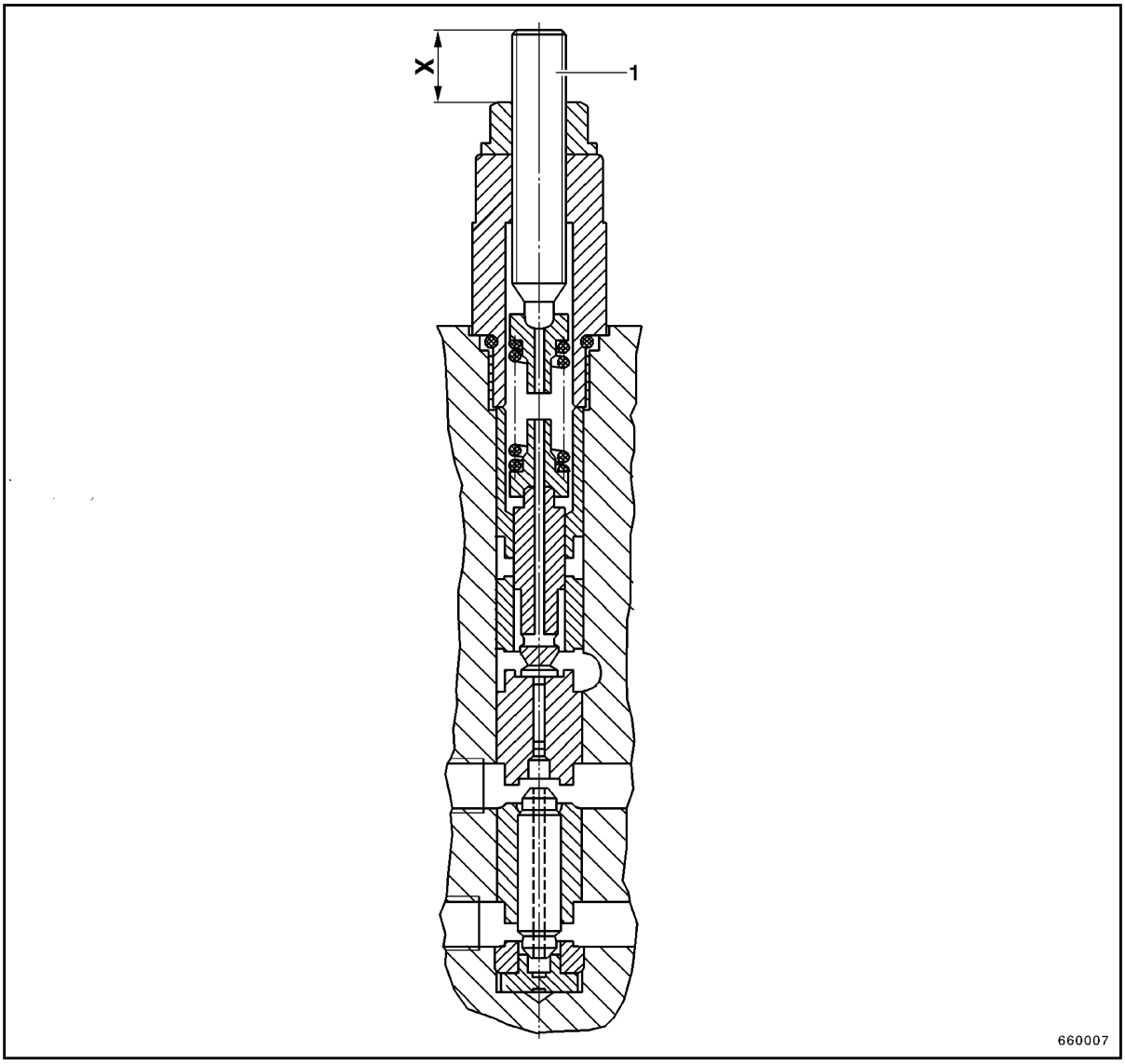

Fig. 8

As the pressure cutout acts both forwards and in reverse, it is sufficient to check the high pressure in forward direction. For this purpose a pressure gauge (measuring range 600 bars) is connected to the forward-travel pressure measuring connection (P_{HD}) and the wheel loader driven against a wall or mound of earth.

The pressure cutout can be adjusted in built-in state at the adjusting screw for pressure relief (A8.1). The adjustment value of the pressure cutout is 420 $\pm$ 10 bars.

N.B.:

Prior to dismantling the pressure cutout (A8), it is advisable to measure dimension X and to make a note of it for later resetting.

Parts Fig. 8

1 - Adjusting screw

Suggest:

If the above button click is invalid.

Please download this document

first, and then click the above link

to download the complete manual.

Thank you so much for reading

Switching valve (A11), electromagnetically activated

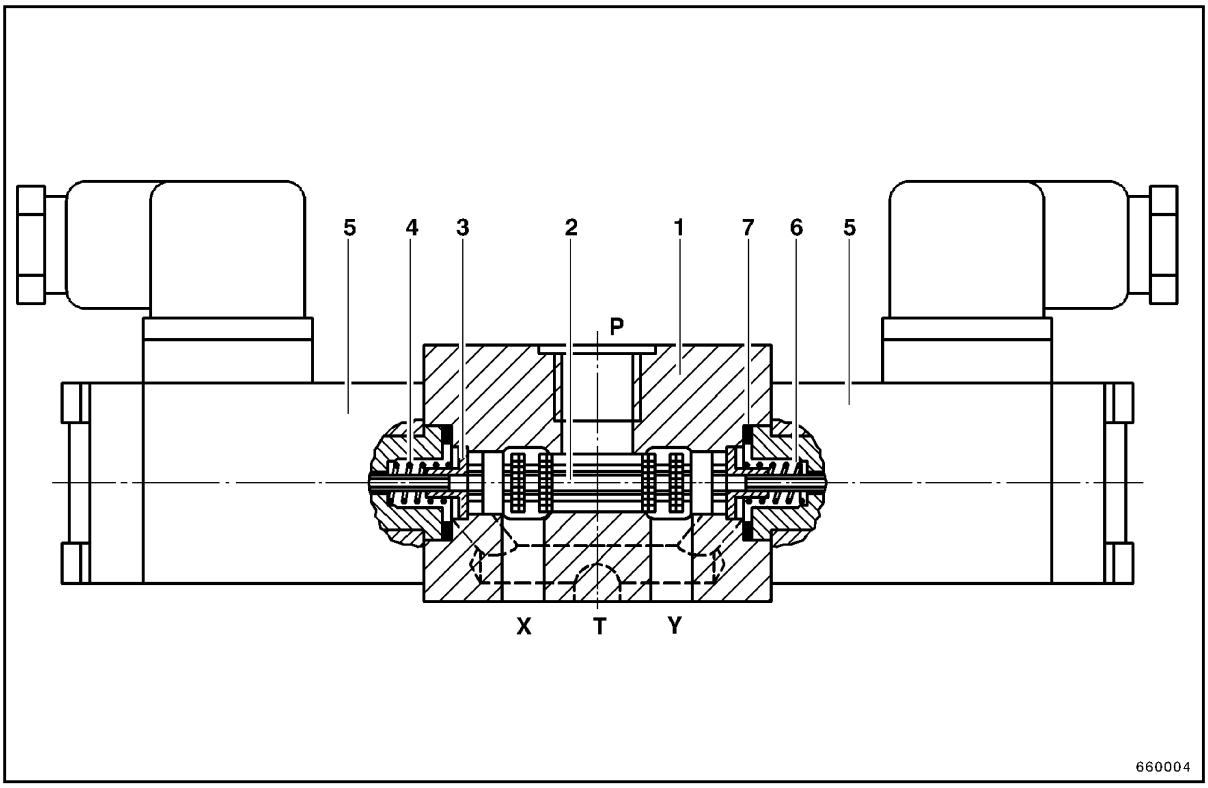

Fig. 9

Parts Fig. 9

1 - Housing
2 - Control piston
3 - Spring plate
4 - Spring
5 - Magnet
6 - Tappet
7 - Gasket

□