Rexroth
Bosch Group

Mobile control block, 6-way version sandwich plate design

SM 12

RE 64122-S/06.2011

English

Repair Manual

The data specified above only serve to describe the product. No statements concerning a certain condition or suitability for a certain application can be derived from our information. The information given does not release the user from the obligation of own judgment and verification. It must be remembered that our products are subject to a natural process of wear and aging.

The title page shows an illustration of an example configuration. The delivered product may therefore deviate from the illustration.

The original operating instructions were written in French.

Subject to revision.

Contents

1 Introduction

This manual deals with the instructions relative to servicing and maintenance operations for the SM 12 control blocks. For the inspections and servicing operations associated with the hydraulic system of the machine to which the block is connected, please consult the maintenance manual supplied by the equipment manufacturer.

It is recommended that only qualified personnel perform the installation, connection and maintenance of this device, and that all operations be carried out in compliance with the technical standards in force and the cleanliness regulations specific to this type of installation.

To ensure maximum performance and safety during maintenance operations we advise you to **READ THIS MANUAL THOROUGHLY.**

All information, illustrations, instructions and characteristics contained in this document are based on the latest product information available at the time of publication. In its attempts to maintain a high-quality product, BOSCH REXROTH reserves the right to make design or technical modifications at any time and without prior notification.

Related documents

SM 12 is a system component.

- Also follow the instructions for the other system components.
- Also follow the instructions in the following manuals:
  - System documentation from the system manufacturer
  - Service instruction manual RE64025
  - Datasheet RE64122
  - Spare parts manual RDEF64122-E

2 Safety instructions

2.1 General safety instructions

See service instruction manual RE64025.

2.2 Safety instructions in this document

In this manual, there are safety instructions before the steps whenever there is a danger of personal injury or damage to the equipment. The measures described to avoid these hazards must be observed.

Safety instructions are set out as follows :

⚠ DANGER

Type of risk!

Description

- precautions

Tableau 1: Signal words/warning signs

Signal word/ warning sign	Application
⚠ DANGER	Indicates an imminently hazardous situation which, if not avoided, will certainly result in serious injury.
⚠ WARNING	Indicates a potentially hazardous situation which, if not avoided, could result in serious injury.
NOTICE	Indicates property or environment damages, practices not related to personal injury.
CAUTION	Indicates a delicate operation.
	Use or application hints.

3 Troubleshooting

CAUTION

BEFORE STARTING ANY PROCEDURES OF TROUBLE SHOOTING OR REMOVING THE CONTROL BLOCK, INSPECT THE GLOBAL MACHINE'S HYDRAULIC SYSTEM TO ELIMINATE ALL POSSIBLE MALFUNCTIONS NOT RELATED TO THE SM 12 CONTROL BLOCK.

Tableau 2: Abnormal operation of the actuators connected to the control block

Malfunction	Probable cause	Additional Checks	Remedy
Lack of strength at all actuators	1 - Primary pressure relief valve defective	Take a pressure measurement (see block specifications)	Replace primary pressure relief valve (see § 6.1)
	2 - Primary pressure relief valve out of adjustment		Make necessary adjustments (see § 5.4)
Lack of force on one actuator only	1 - Secondary pressure relief valve out of adjustment		Reset to original pressure (refer to block specifications).
	2 - Secondary pressure relief valve blocked "open" (return to tank)		Replace secondary pressure relief valve (see § 7.1)
Movement performance slow	Spool stroke incorrect	Manual control: measure spool stroke (see § 7.3)	If stroke is incorrect: replace the distribution element (see § 8)
Lack of load hold at work	Load hold check valve failure		Replace check valve or distribution element (see § 8 and 7.9)
Lack of load hold at neutral position or relief valve internal leak	Excessive clearance between the housing and the spool or relief valve internal leak		Replace the distribution element (see § 8) or secondary pressure relief valve (see § 7.1)

Tableau 3: Abnormal control block operation

Malfunction	Probable cause	Additional Checks	Remedy
Detent malfunction	Mechanism defective		Replace mechanical detent (see § 7.4)
Defective manual operation type R5: no movement	Ball joint broken		Replace the operation (cf. § 7.6)
Defective manual operation type M1 : lever stiff	1 - Nut overtightened		Adjust tightening torque (cf. § 7.5)
	2 - System defective		Replace the operation (cf. § 7.5)
Increase of force on controls or spool return defective	Control block assembly tie rods too tight	Check tightening torque	Loosen and tighten to 18 ± 10% N.m. ***CAUTION*** REMOVE CONTROL BLOCK FROM ITS FIXATION POINTS
	Spool seals obsolete		Replace spool seals (see § 7.2)

Tableau 4: Visual defects

Malfunction	Probable cause	Additional Checks	Remedy
Spool leaking oil	Spool seals defective		Replace spool seals (see § 7.2) Check the rubber boot condition
Oil leakage at pressure relief valves and plugs	Seals defective		Remove pressure relief valve or plug and replace seals (see § 7.1)
Oil leakage between elements	Seals between elements defective		Remove working sections and replace seals (see § 8)
	Control block assembly tie rods not enough tight	Check tightening torque	Tight to 18 ± 10% N.m. ***CAUTION*** REMOVE CONTROL BLOCK FROM ITS FIXATION POINTS
Oil leaking from hydraulic operator housing	Seal between housing and body defective		Replace seal (see § 7.7)
R5 manual operation boot damaged			Replace boot (cf. § 7.6)

4 Fundamental rules

4.1 General information concerning control block connection

When removing the block, all openings must be plugged immediately to prevent any contamination of the hydraulic system.

When replacing the block, remove the plastic plugs from the openings and lines just before making the connections.

Do not tighten connectors to a torque greater than that specified in the assembly instructions.

Check the hydraulic installation's oil quality and filtration capacity during all servicing/maintenance operations.

The use of Teflon tape, hemp and joint filler is prohibited.

Hydraulic lines and connections must not be under any strain whatsoever.

5 Removal / installation of the SM 12 control block

5.1 General recommendations

NOTICE

Property damages risk

- BEFORE REMOVING THE SM 12 CONTROL BLOCK FROM THE MACHINE, THE BLOCK AND ITS SURROUNDINGS MUST BE THOROUGHLY CLEANED (DO NOT DIRECT THE JET OF A PRESSURE WASHING UNIT DIRECTLY AT THE UNIT).
- NO IMPURITIES MUST ENTER THE HYDRAULIC SYSTEM. PLASTIC PLUGS ARE TO BE FITTED ON LINES AND ORIFICES IMMEDIATELY FOLLOWING THEIR REMOVAL.

⚠ DANGER

- Wear protective clothing and use suitable equipment to prevent accidents, particularly concerning the hydraulic fluid.
- Use the lifting eyes and suitable handling equipment.
- Set all actuators connected to the machine in neutral position (on the ground, at lower limit ...) to avoid accidents which could result from uncontrolled movements of the equipment when the hydraulic system is disconnected.
- With the machine off, release the pressure remaining in the system by manipulating all of the distribution spools. This is performed by moving the handle in all directions.

5.2 Removal of the SM 12 control block

- Install a vacuum pump on the tank to limit oil leakage when connections are removed.
- After disconnecting the lines from the block, immediately fit the sealing plugs. Make sure to collect any possible oil leakage in a suitable receptacle.
- Unscrew the mounting screws and remove the control block.

5.3 Installation of the SM 12 control block

- Contact faces must be perfectly clean.
- Check the evenness of support area on the machine (Tolerance: 0.5 mm).
- Check the condition of line connector seals.
- Clean the block if it has been in storage for a long period of time.
- Correctly place and secure the control block onto the machine with the mounting screws.
- Connect the lines to the block as per the connecting diagram and tighten to the torque specification (refer to the table in the Data sheet).
- Ensure that hoses are not twisted or rub.

Once correctly installed, the unit can be placed into operation.

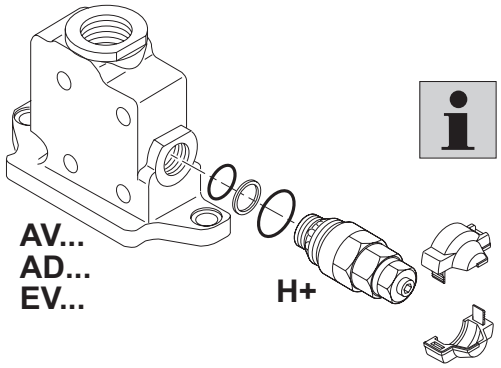
5.4 Starting, maximal pressure set up

- Decalibrate the primary pressure relief valve (17 mm open end spanner on counternut) before starting the machine,
- Maintain one of the control block spool valve in action before the linked hydraulic receiver is at the end of stroke.

On the spool valve, the value of the secondary valve pressure must be greater than that of the primary pressure relief valve to adjust.

- Adjust the maximum pressure measured in M using the primary pressure relief valve (6 mm socket wrench).
- Tighten the counternut of the adjusting screw to the torque: 20 ± 10% N.m.

6 Inlet and outlet elements repair procedure



6.1 Primary pressure relief valve replacement

The control block does not need to be removed from the machine to perform this operation.

DANGER

Oil pressure

Machine off:

- place all of the machine's actuators connected to the control block in neutral position,
- release stored pressure by operating all the spools.

NOTICE

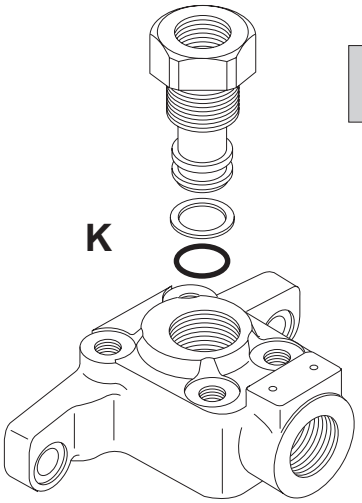
Environment damages risk

- Install a vacuum pump on the tank to limit oil leakage during this operation.
- Collect possible leaks with a suitable receptacle.

On the inlet element, unscrew the primary pressure relief valve (24 mm open end spanner).

Reassembly:

1. install the primary pressure relief valve on the inlet element, torque: 45 ± 10% N.m.
2. set the primary pressure relief valve to the specified value (see § 5.4),
3. fit a new appropriate locking cover.



6.2 Removal of the outlet element type K cartridge

The control block does not need to be removed from the machine to perform this operation.

DANGER

Oil pressure

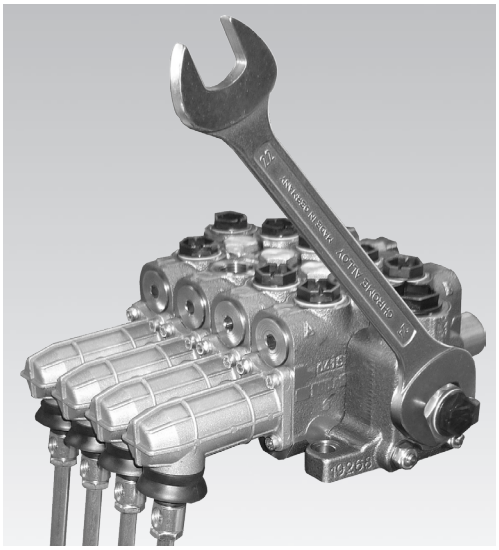
Machine off:

- place all of the machine's actuators connected to the control block in neutral position,
- release stored pressure by operating all the spools.

NOTICE

Environment damages risk

- Install a vacuum pump on the tank to limit oil leakage during this operation.
- Collect possible leaks with a suitable receptacle.



On the outlet element, unscrew the cartridge (32 mm open end spanner).

Reassembly:

1. replace the o-ring and the back-up ring of the cartridge,
2. blow Loctite residues in the orifice and on the cartridge thread,
3. apply a droplet of Loctite 577 oiltight on two to three threads of the cartridge,
4. torque for the cartridge : 150 ± 10% N.m.

CAUTION

WAIT FOR 8 HOURS BEFORE USING THE MACHINE TO LET THE LOCTITE 577 DRY COMPLETELY.

6.3 Removal of the outlet element type KW adjustable flow control

The control block does not need to be removed from the machine to perform this operation.

DANGER

Oil pressure

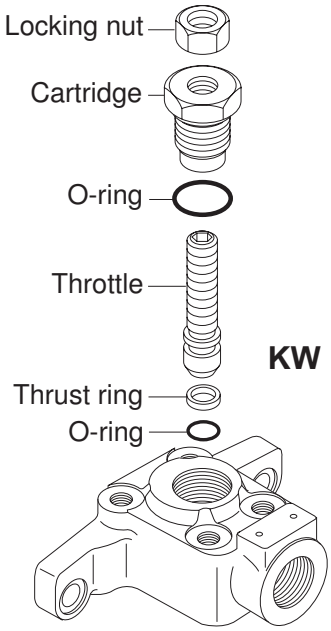
Machine off:

- place all of the machine's actuators connected to the control block in neutral position,
- release stored pressure by operating all the spools.

NOTICE

Environment damages risk

- Install a vacuum pump on the tank to limit oil leakage during this operation.
- Collect possible leaks with a suitable receptacle.



Cartridge removal

On the outlet element, unscrew the cartridge (27 mm open end spanner).

Reassembly:

1. replace the throttle o-ring and thrust ring,
2. replace the cartridge o-ring,
3. mount the cartridge inside the outlet element, torque for the cartridge : 70 ± 10% N.m.

Flow setting

Loosen the locking nut (18 mm open end spanner).

Calibrate the flow unscrewing in reverse direction the throttle (6 mm socket wrench).

Torque for the locking nut : 50 ± 10% N.m.

6.4 Removal of the outlet element type KV check valve

The control block does not need to be removed from the machine to perform this operation.

DANGER

Oil pressure

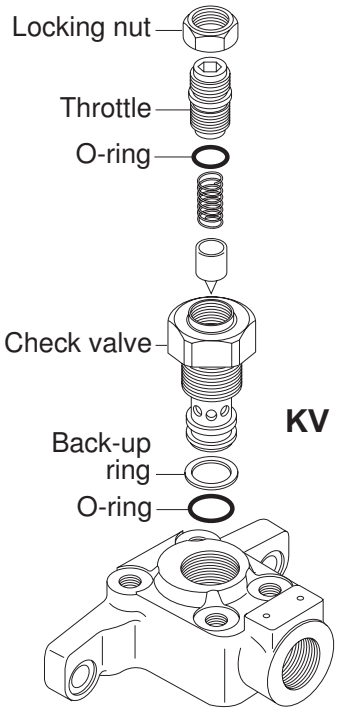
Machine off:

- place all of the machine's actuators connected to the control block in neutral position,
- release stored pressure by operating all the spools.

NOTICE

Environment damages risk

- Install a vacuum pump on the tank to limit oil leakage during this operation.
- Collect possible leaks with a suitable receptacle.



Outlet check valve removal

On the outlet element, unscrew the check valve (24 mm open end spanner).

Reassembly :

1. replace the check valve o-ring and back-up ring,
2. mount the check valve inside the outlet element, torque for the valve : 150 ± 10% N.m.

Outlet check valve setting

Loosen the locking nut (19 mm open end spanner).

Unscrew the throttle (6 mm socket wrench).

1. replace the throttle o-ring,
2. mount the throttle inside the check valve and set it to the specified value,
3. torque for the locking nut : 50 ± 10% N.m.

6.5 Removal of the Externe pilot oil supply block X

The control block does not need to be removed from the machine to perform this operation.

DANGER

Oil pressure

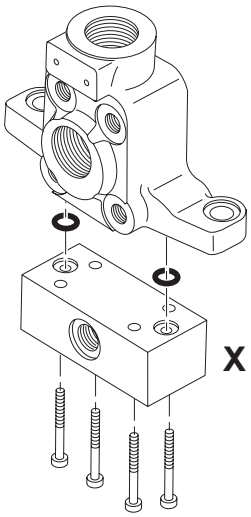
Machine off:

- ▶ place all of the machine's actuators connected to the control block in neutral position,
- ▶ release stored pressure by operating all the spools.

NOTICE

Environment damages risk

- ▶ Install a vacuum pump on the tank to limit oil leakage during this operation.
- ▶ Collect possible leaks with a suitable receptacle.



On the inter-connecting located underside the outlet element, unscrew the 4 mounting screws (4 mm socket wrench).

Remove:

- the plate
- the 2 o-rings.

Reassembly:

1. replace the 2 o-rings,
2. reassemble parts in reverse order,
3. torque for the 4 mounting screws: 6 ± 10% N.m.

6.6 Removal of the Interne pilot oil supply block Y

The control block does not need to be removed from the machine to perform this operation.

DANGER

Oil pressure

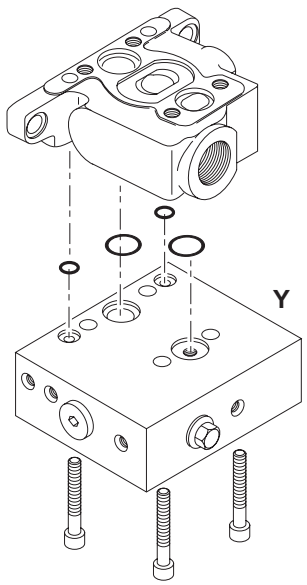
Machine off:

- ▶ place all of the machine's actuators connected to the control block in neutral position,
- ▶ release stored pressure by operating all the spools.

NOTICE

Environment damages risk

- ▶ Install a vacuum pump on the tank to limit oil leakage during this operation.
- ▶ Collect possible leaks with a suitable receptacle.



Block remplacement

On the plate adjacent to the inlet element, unscrew the 4 mounting screws (6 mm socket wrench).

Remove:

- the block
- the 4 o-rings.

Reassembly:

1. replace the block and the 4 o-rings,
2. reassemble parts in reverse order,
3. torque for the 4 mounting screws: 18 ± 10% N.m.

7 Distribution element repair procedure

7.1 Secondary valves replacement

The control block does not need to be removed from the machine to perform this operation.

DANGER

Oil pressure

Machine off:

- place all of the machine's actuators connected to the control block in neutral position,
- release stored pressure by operating all the spools.

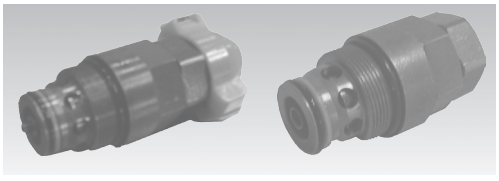
NOTICE

Environment damages risk

- Install a vacuum pump on the tank to limit oil leakage during this operation.
- Collect possible leaks with a suitable receptacle.

Relief valve A, B, H or anti-cavitation check valve E

On the distribution element in question, unscrew the secondary valve (24 mm open end spanner).



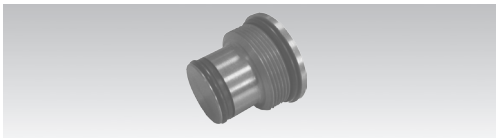
Replace the 3 seals or replace the pressure relief valve.

Reassembly:

1. if necessary, set the pressure relief valve to the specified value,
2. install the secondary pressure relief valve on the distribution element,
3. torque for the secondary valve: 70 ± 10% N.m.
4. relief valve: fit a new appropriate locking cover.

Plug Q

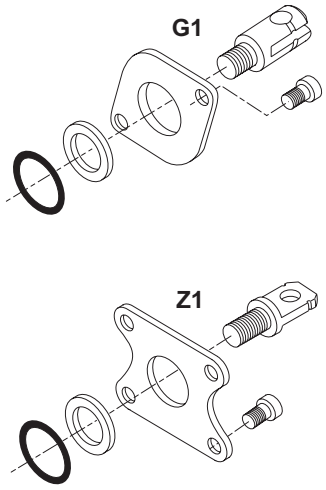
On the distribution element in question, unscrew the plug (6 mm socket wrench).



Replace the 3 seals or replace the plug.

- Reassembly : torque : 70 ± 10% N.m.

7.2 Removal of a spool return via a spring operation A2 Z1 or A2 G1



The control block does not need to be removed from the machine to perform this operation.

DANGER

Oil pressure

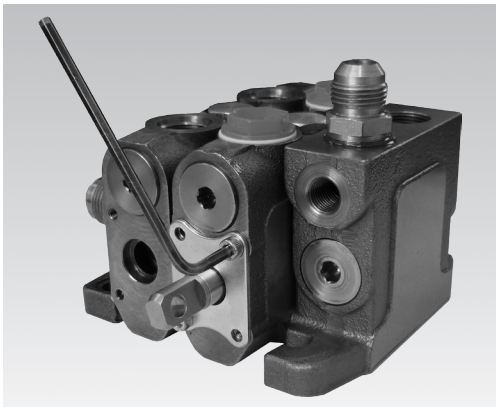
Machine off:

- ▶ place all of the machine's actuators connected to the control block in neutral position,
- ▶ release stored pressure by operating all the spools.

NOTICE

Environment damages risk

- ▶ Install a vacuum pump on the tank to limit oil leakage during this operation.
- ▶ Collect possible leaks with a suitable receptacle.



Tongue Z1 or fork G1 side

On the distribution element in question, unscrew the mounting screws on the plate (4 mm socket wrench).

Remove:

- mounting screws (L=8 mm) (tongue : 4 screws ; fork : 2 screws),
- the plate,
- the o-ring and the wiper ring.

Reassembly:

1. replace the o-ring and the wiper ring,

CAUTION

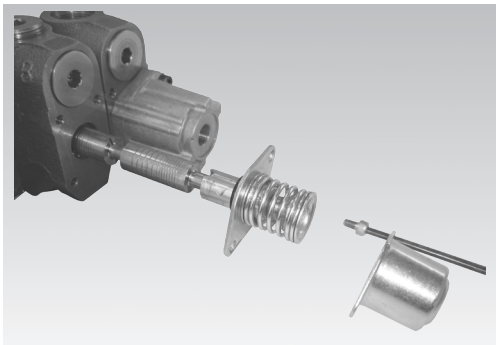
POSITION THE LIP PART OF THE WIPER RING ON THE OUTSIDE.

2. reassemble parts in reverse order,
3. torque for mounting screws: 5 ± 10% N.m.

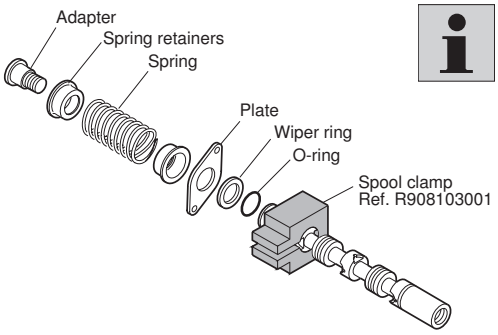
Cover side A2

On the distribution element in question, unscrew the 2 mounting screws on the cover (L = 10 mm) (4 mm socket wrench).

Remove the cover.



Remove the spool from the working section.



Use the spool clamp (Rexroth-Ref. R9 08 103 001) and a vuce to secure the spool.

CAUTION

IN ORDER TO AVOID DAMAGING THE SPOOL, PLACE IT APPROXIMATELY 30 MM FROM THE END OF THE SPOOL (NEVER IN THE CENTRE).

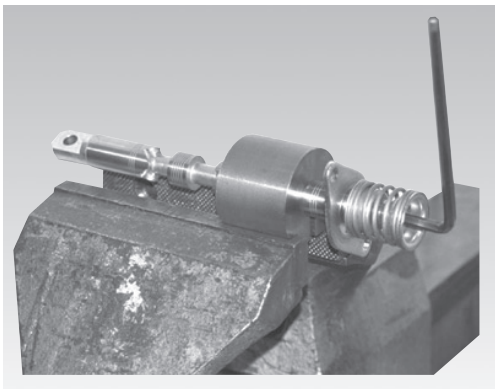
Beforehand, heat the spool to 200° C in an oven or, failing that, with a heat gun. Do not use fire.

⚠ WARNING

Hot spool!

Danger of burns

- ▶ Wear thick protective gloves when handling the hot spool.



Remove the adapter (5 mm socket wrench).

Remove:

- 2 spring retainers,
- the spring,
- the plate,
- the o-ring and the wiper ring.

Distribution element repair procedure

Reassembly:

1. replace the o-ring and the wiper ring,

CAUTION

SEALS MUST BE FITTED ON THE END OF THE SPOOL SO THAT THEY ARE NOT DAMAGED ON THE SPOOL GROOVES AND THEIR TIGHTNESS PROPERTY DOES NOT DETERIORATE.

POSITION THE LIP PART OF THE WIPER RING ON THE OUTSIDE.

2. reassemble parts in reverse order,
3. grease the spring,
4. except of coating, apply a droplet of loctite 262 on the end of the spool internal thread,
5. torque for the adapter: 10 ± 10% N.m,
6. mount the spool inside the distribution element,
7. torque for the 2 cover screws: 5 ± 10% N.m

CAUTION

WAIT FOR 8 HOURS BEFORE USING THE MACHINE TO LET THE LOCTITE 262 DRY COMPLETELY.

Tongue replacement (if necessary)

Beforehand, heat the spool to 200° C in an oven or, failing that, with a heat gun. Do not use fire.

CAUTION

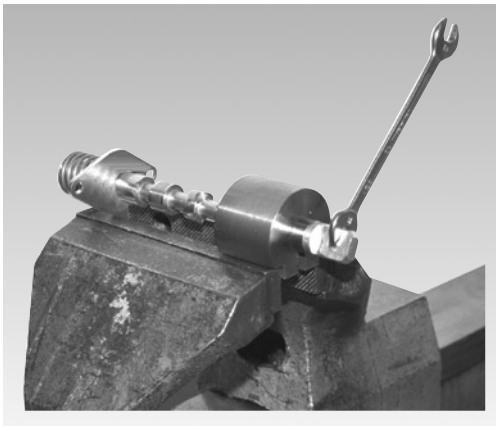
DO NOT USE A WELDING TORCH TO HEAT THE TONGUE AS SPOOL DEFORMATION MAY RESULT.

⚠ WARNING

Hot spool!

Danger of burns

- ► Wear thick protective gloves when handling the hot spool.



Loosen the tongue (6 mm open end spanner).

Reassembly:

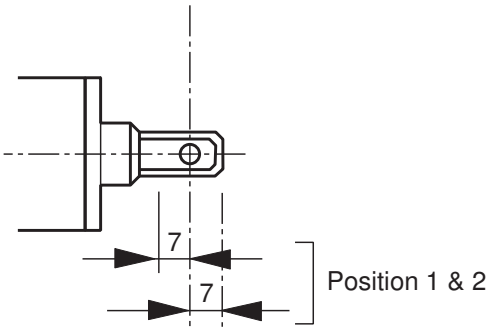
1. except of coating, apply a droplet of loctite 262 on the end of the tongue thread,
2. reassemble parts in reverse order,
3. torque for the tongue: 10 ± 10% N.m,
4. torque for the 2 mounting screws: 10 ± 10% N.m.

CAUTION

WAIT FOR 8 HOURS BEFORE USING THE MACHINE TO LET THE LOCTITE 262 DRY COMPLETELY.

7.3 Spool stroke measurement (3 position)

Move the control lever of the element in question in all possible positions, and measure the corresponding spool stroke values at the tongue.



7.4 Removal of a mechanical detent system B2, C2, D2 or E2

The control block does not need to be removed from the machine to perform this operation.

DANGER

Oil pressure

Machine off:

- place all of the machine's actuators connected to the control block in neutral position,
- release stored pressure by operating all the spools.

NOTICE

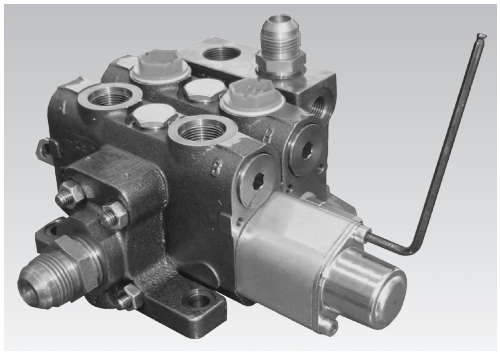
Environment damages risk

- Install a vacuum pump on the tank to limit oil leakage during this operation.
- Collect possible leaks with a suitable receptacle.

Tongue side: see § 7.2

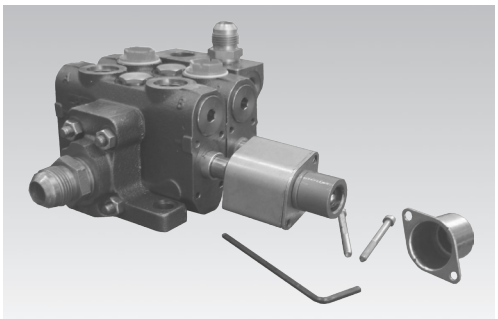
Cover side

Unscrew the 2 mounting screws (4 mm socket wrench).



Remove the cover.

Remove the spool from the working section.



CAUTION

TO REMOVE THE SPOOL, DO NOT PULL ON THE LOCKING SLEEVE IN ORDER TO AVOID LOOSING THE BALLS.

Use the spool clamp (Rexroth-Ref. R9 08 103 001) and a vuce to secure the spool.

CAUTION

IN ORDER TO AVOID DAMAGING THE SPOOL, PLACE IT APPROXIMATELY 30 MM FROM THE END OF THE SPOOL (NEVER IN THE CENTRE).

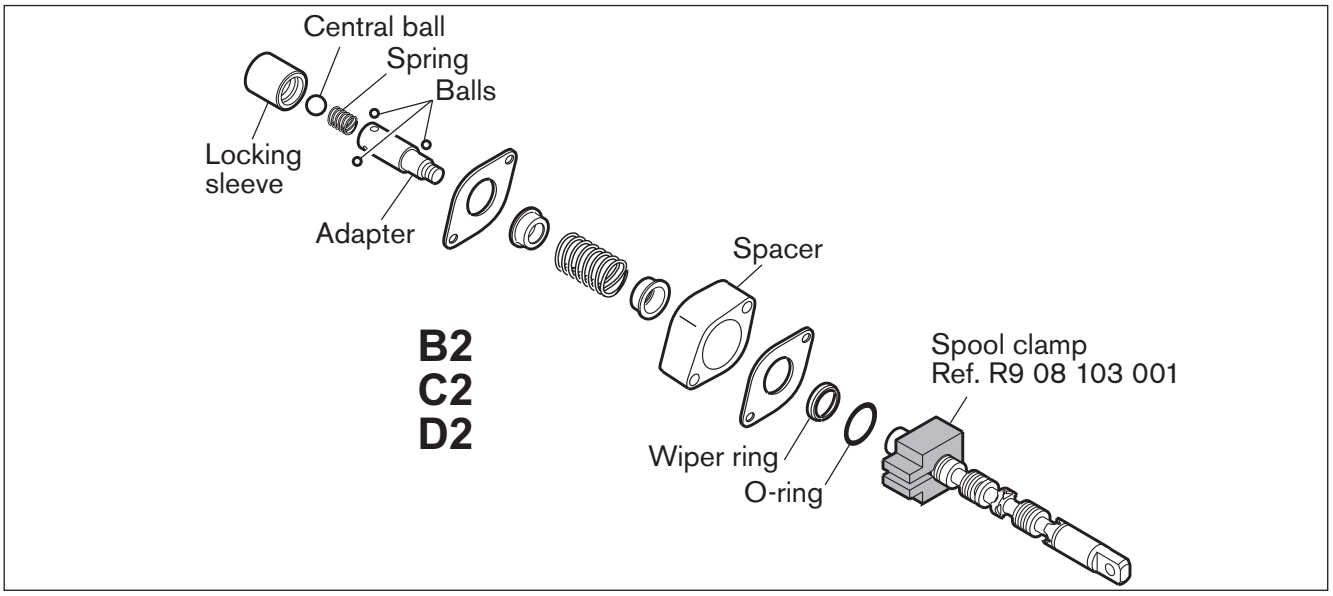


Illustration 1: Exploded view of mechanical detent system position 1, 2 or 1 and 2

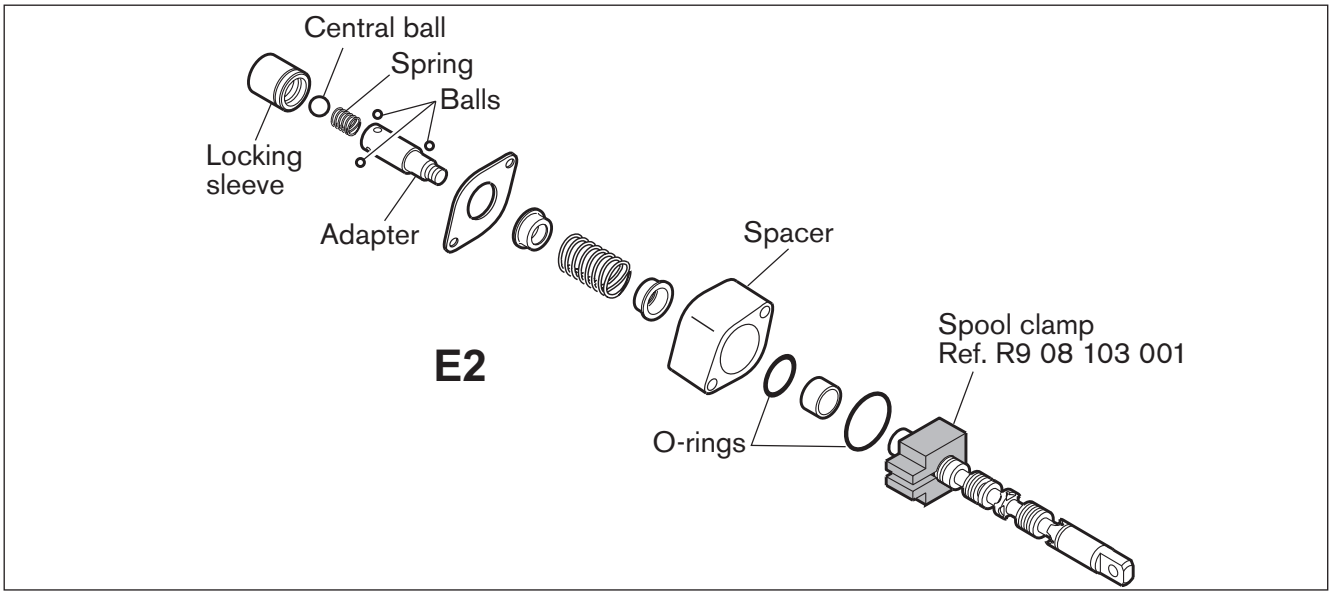
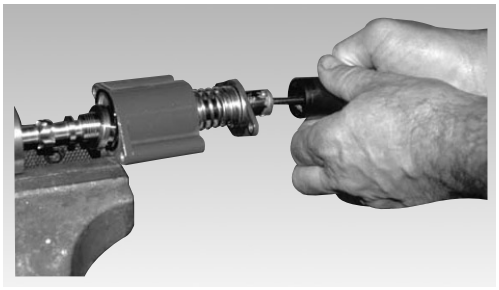


Illustration 2: Exploded view of mechanical detent system position 3

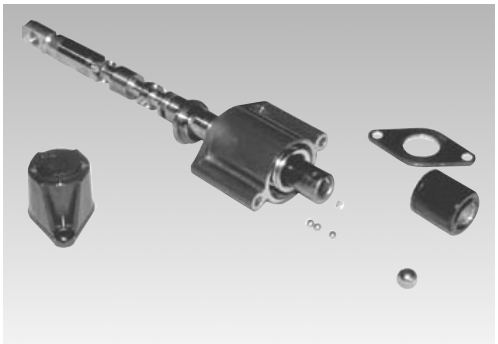


Using a metal rod (min. length = 80 mm, Ø 6), push the central ball while extracting the detent bush.

CAUTION

MARK THE ORIENTATION OF THE DETENT BUSH FOR THE REASSEMBLY.

Distribution element repair procedure



Remove the balls and the spring.

Remove the balls and the spring.

Reassembly:

1. introduce the spring into the adapter,
2. place the 3 balls into the radial holes of the adapter and hold them with a small amount of grease,
3. position the central ball against with the spring,
4. slip the detent bush onto a metal rod,
5. using the rod, press the central ball into the adapter, then slide the detent bush onto the adapter, making sure that the 3 balls are still in place,

CAUTION

The orientation of the detent bush must be respected.

6. remove the metal rod, assembly is complete.

Reassembly of the system inside the distribution element:

7. replace the seals;

CAUTION

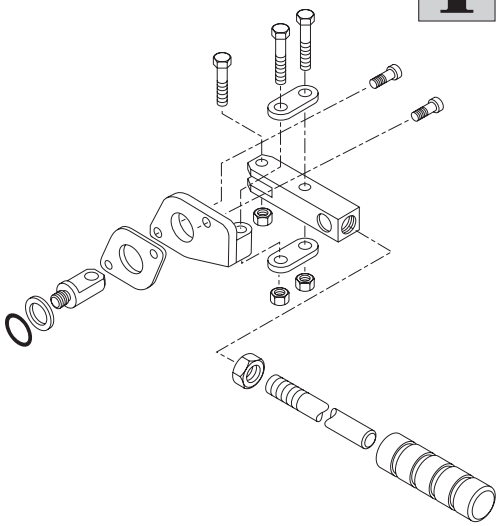
POSITION THE LIP PART OF THE WIPER RING ON THE OUTSIDE.

SEALS MUST BE FITTED ON THE END OF THE SPOOL SO THAT THEY ARE NOT DAMAGED ON THE SPOOL GROOVES AND THEIR TIGHTNESS PROPERTY DOES NOT DETERIORATE.

LUBRIFICATE THE LIP SEAL WITH CLEAN HYDRAULIC OIL AND SLIDE IT PERPENDICULARLY ONTO THE SPOOL.

8. torque for the 2 screws: 6 ± 10% N.m

7.5 Removal of a manual operation M1



The control block does not need to be removed from the machine to perform this operation.

DANGER

Oil pressure

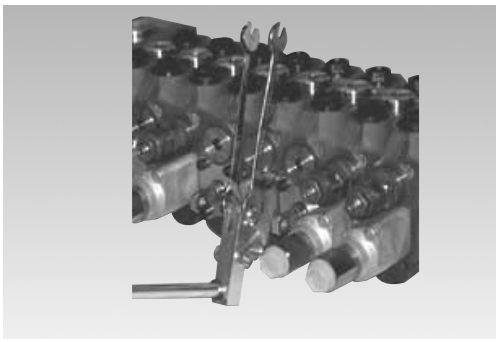
Machine off:

- place all of the machine's actuators connected to the control block in neutral position,
- release stored pressure by operating all the spools.

NOTICE

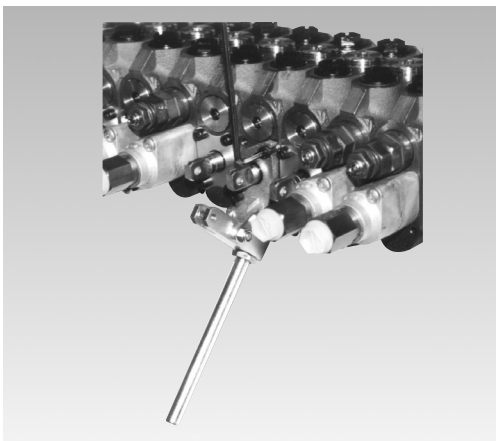
Environment damages risk

- Install a vacuum pump on the tank to limit oil leakage during this operation.
- Collect possible leaks with a suitable receptacle.



Remove the joint nut, tongue side (two 10 mm open end spanners).

Flip over the operator lever.

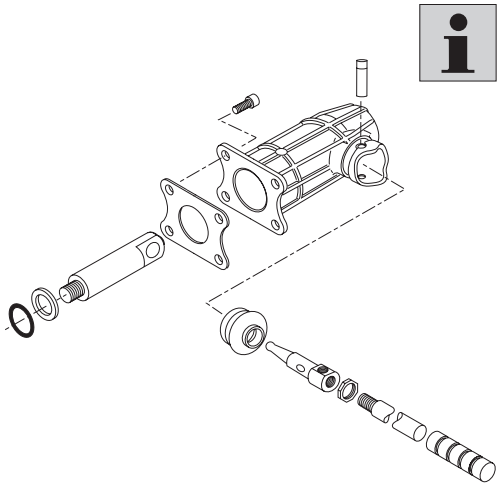


Remove the mounting screws of the unit ble (4 mm socket wrench).

Remove the operator and the flange.

Reassembly:

1. reassemble parts in reverse order,
2. torque for mounting screws: 5 ± 10% N.m.
3. do not overtighten the bolt so as not to block the joint.



7.6 Removal of a manual operation with encapsulated lever R5

The control block does not need to be removed from the machine to perform this operation.

DANGER

Oil pressure

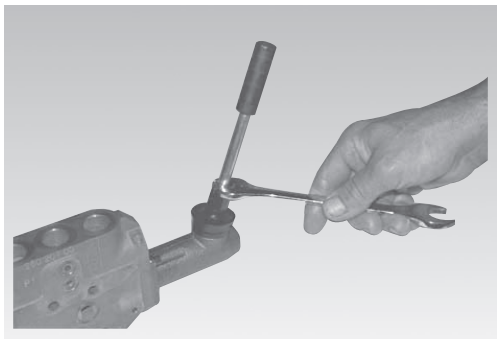
Machine off:

- place all of the machine's actuators connected to the control block in neutral position,
- release stored pressure by operating all the spools.

NOTICE

Environment damages risk

- Install a vacuum pump on the tank to limit oil leakage during this operation.
- Collect possible leaks with a suitable receptacle.



Rubber boot replacement

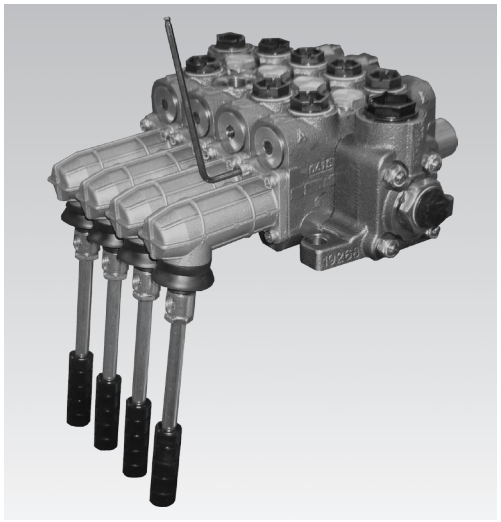
Loosen the locking nut (17 mm open end spanner).

Unscrew the lever.

Remove and replace the defective rubber boot.

Reassembly:

1. reassemble parts in reverse order.
2. torque for the locking nut : 40 ± 10% N.m.



Removal of the complet operation

Remove the 4 mounting screws (4 mm socket wrench).

Pull on the lever and slightly lift the operator to remove the assembly.

Remove the flange.

Reassembly:

1. replace the o-ring and the wiper ring,

CAUTION

POSITION THE LIP PART OF THE WIPER RING ON THE OUTSIDE.

SEALS MUST BE FITTED ON THE END OF THE SPOOL SO THAT THEY ARE NOT DAMAGED ON THE SPOOL GROOVES AND THEIR TIGHTNESS PROPERTY DOES NOT DETERIORATE.

2. reassemble parts in reverse order.
3. torque for the 4 mounting screws : 5 ± 10% N.m.

7.7 Removal of a hydraulic operation H200 or H400

The control block does not need to be removed from the machine to perform this operation.

DANGER

Oil pressure

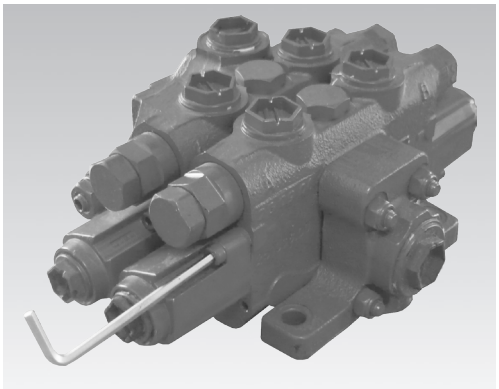
Machine off:

- place all of the machine's actuators connected to the control block in neutral position,
- release stored pressure by operating all the spools.

NOTICE

Environment damages risk

- Install a vacuum pump on the tank to limit oil leakage during this operation.
- Collect possible leaks with a suitable receptacle.



Removal of the hydraulic cover

Remove the 2 mounting screws (4 mm socket wrench).

Remove :

- the cover,
- the o-ring.

Reassembly:

1. replace the cover o-ring,
2. reassemble parts in reverse order.
3. torque for mounting screws : 5 ± 10% N.m.

7.8 Removal of a electro-hydraulic operation W200

The control block does not need to be removed from the machine to perform this operation.

DANGER

Oil pressure

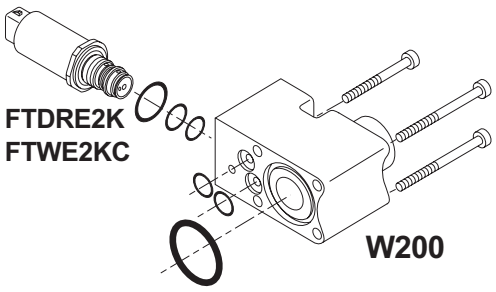
Machine off:

- place all of the machine's actuators connected to the control block in neutral position,
- release stored pressure by operating all the spools.

NOTICE

Environment damages risk

- Install a vacuum pump on the tank to limit oil leakage during this operation.
- Collect possible leaks with a suitable receptacle.



Removal of the proportional valve

Unscrew the solenoide (24 mm open end spanner).

Reassembly:

1. replace the 3 solenoide o-rings,
2. torque for the solenoide: 45 ± 10% N.m.

Removal of the housing

Remove the 4 mounting screws (4 mm socket wrench).

Remove:

- the housing
- the 3 o-rings

Reassembly:

1. replace the 3 housing o-rings,
2. reassemble parts in reverse order.
3. torque for mounting screws : 6 ± 10% N.m.

7.9 Removal of a check-valve

The control block does not need to be removed from the machine to perform this operation.

DANGER

Oil pressure

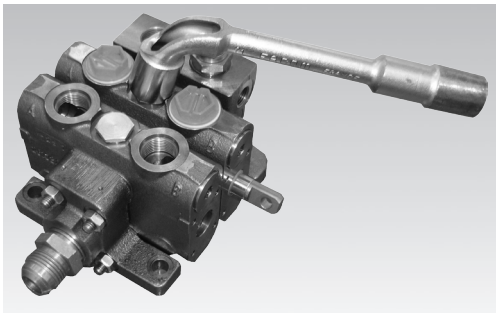
Machine off:

- ▶ place all of the machine's actuators connected to the control block in neutral position,
- ▶ release stored pressure by operating all the spools.

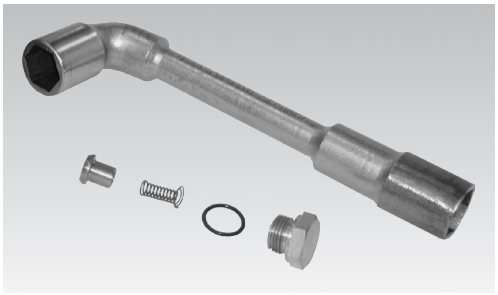
NOTICE

Environment damages risk

- ▶ Install a vacuum pump on the tank to limit oil leakage during this operation.
- ▶ Collect possible leaks with a suitable receptacle.



Unscrew the plug (21 mm open end spanner).



Remove:

- the spring,
- Remove the compensator piston using a magnet to extract it from its bore.

NOTICE

Risk of infection when using magnetic tool

- ▶ Clean parts to remove any attracted metal particle.
- ▶ Do not use magnet for reassembly.

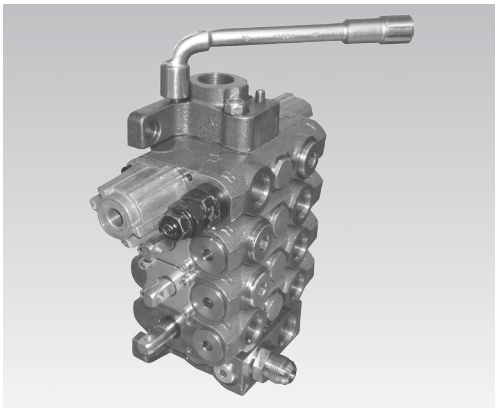
Reassembly:

1. replace the plug o-ring,
2. reassemble parts in reverse order.
3. torque for the plug: 70 ± 10% N.m.

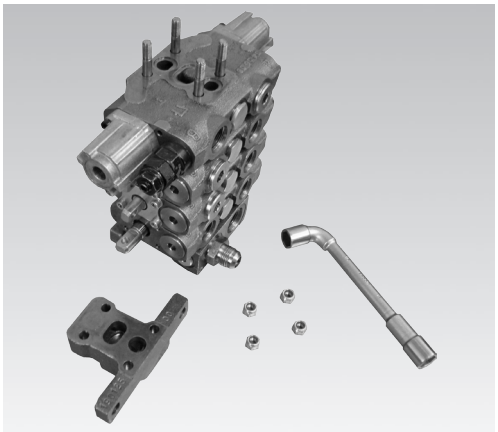
8 Control block Disassembly / Assembly

Preliminary operations

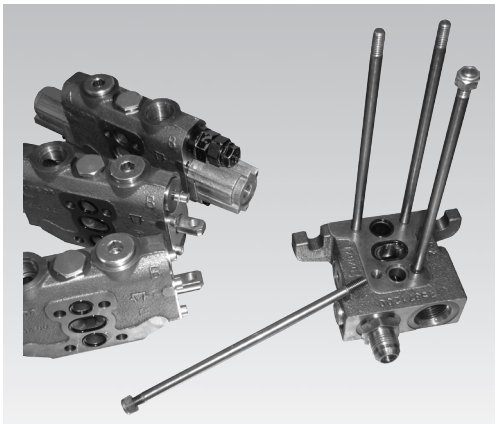
Remove the control block from the machine (see § 5).



Remove the 4 nuts (13 mm ring wrench).



Remove the outlet element.



Separate the working sections from the inlet element.

In case of inlet element replacement, remove the tie rods with a stud puller.

Reassembly:

1. replace the O-rings located between the working sections, the inlet element and the outlet element,
2. check the cleanliness of the element faces,
3. in case of inlet element replacement, torque for the 4 tie rods: 30 ± 10% N.m,
4. reassemble sections in reverse order,
5. place the control block horizontally on an even support area to tight the nuts,
6. torque for the 4 nuts M8: 18 ± 10% N.m.

Notes

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