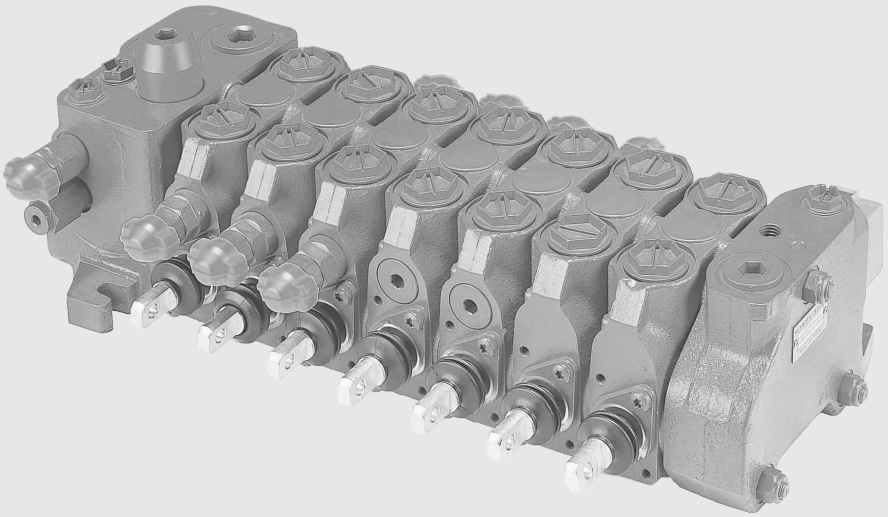
Rexroth
Bosch Group

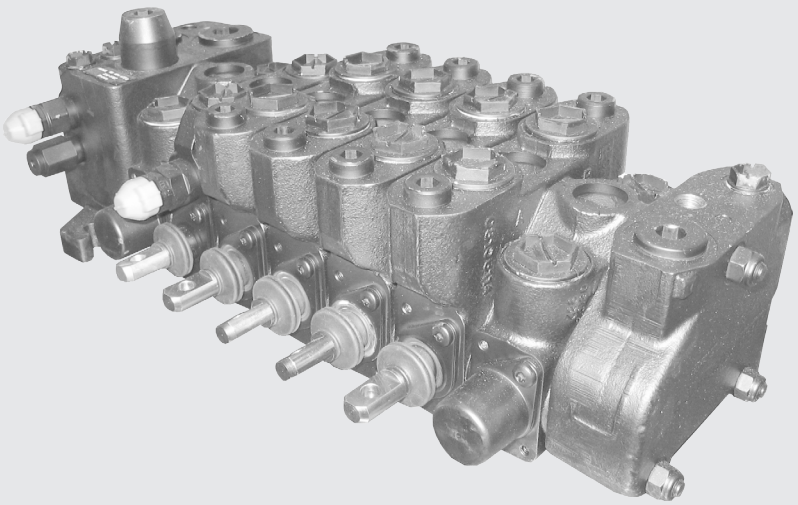
Directional control block with flow distribution independent of the pressure and available flow

SX 14, SX 14 S

Assembly instructions

RE 64125-S/11.2010
Replaces : 10.05
English





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 SX 14 and SX 14 S 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

SX 14 and SX 14 S are system components.

- 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 RE64125
  - Spare parts manual RDEF64125-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

Table 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 SX 14 CONTROL BLOCK.

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

Malfunction	Probable cause	Additional Checks	Remedy
Lack of strength at all actuators	1 - LS pressure relief valve defective	Take a pressure measurement (see block specifications)	Replace LS pressure relief valve (see § 6.1)
	2 - LS 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). SX14S: change secondary pressure relief valve
	2 - Secondary pressure relief valve blocked "open" (return to tank)		Replace secondary pressure relief valve (see § 7.1)
Lack of speed in the performance of a movement or all movements	SX 14 with "open center" on the inlet element (if so equipped) - Piston if the "open center" blocked in position P toward T		Replace housing + piston assembly (see § 8 and 6.4)
Movement performance slow	1 - Spool stroke incorrect	Manual control: measure spool stroke (see § 7.3) Direct electrical control: - check solenoid resistance (R : 2.5 Ω à 25 °C)	If stroke is incorrect: replace housing + spool assembly (see § 8 and 7.2) If resistance is incorrect: replace solenoid (see § 7.7)
	2 - Hydraulic operator adjustable stopnut out of adjustment		Make necessary adjustments (see § 7.4)
	3 - Individual compensator pressure blocked		Replace housing + pressure compensator assembly (see § 8 and 7.8)
Lack of load hold at work	1 - Load hold check valve failure		Replace housing + valve assembly (see § 8 and 7.8)
Lack of load hold at neutral position or relief valve internal leak	1 - Excessive clearance between the housing and the spool		Replace housing + spool assembly (see § 8 and 7.2) or secondary pressure relief valve (see § 7.1)
Steering abnormally hard	1 - Flow divider adjustment problem	1 - Adjustment piston sliding freely	Replace control sub-system (see § 6.3)
		2 - Adjustment piston blocked	Replace housing + control system assembly (see § 8 and 6.3)
Steering response time abnormally long	Filter of the check piston's flow divider is clogged		Replace the filter (see § 6.3)
Clamp operation malfunction (SX 14 installed on backhoe loader)	1 - Solenoid on the outlet element defective	Check solenoid resistance (R : 7.6 Ω à 20 °C)	If resistance is incorrect: replace the solenoid (see § 6.6)
	2 - Shuttle valve malfunction on the outlet element		Replace shuttle valve (see § 6.6)
	3 - 2-way valve defective		Replace 2-way valve (see § 6.6)
Simultaneous movement malfunction	1 - Blockage of the individual compensator orifice		Remove and clean individual compensator (see § 7.8)
	2 - Individual pressure compensator blocked		Replace the housing + pressure compensator assembly (see § 7.8)
	3 - LS line leakage		Replace LS flow regulator (see § 6.2)

Table 3: Abnormal machine operation

Malfunction	Probable cause	Additional Checks	Remedy
Engine remains under load after spools are returned to neutral	1 - flow regulator blocked		Replace flow regulator (see § 6.2)
	2 - Flow regulator filter clogged		Replace the filter (see § 6.2)

Table 4: Abnormal control block operation

Malfunction	Probable cause	Additional Checks	Remedy
detent malfunction	1 - Mechanism defective		Replace mechanical detent (see § 7.5)
	2 - Solenoid defective	Check solenoid resistance (for electrical detent) (R : 16.5 Ω at 20 °C)	If resistance is incorrect: Replace solenoid (see § 7.6)
Increase of force on controls or spool return defective	Control block assembly tie rods too tight	Check tightening torque	Loosen and tighten to 42 ± 10% N.m. ***CAUTION*** REMOVE CONTROL BLOCK FROM ITS FIXATION POINTS
	Spool seals obsolete		Replace spool seals (see § 7.2)

Table 5: 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)
Oil leaking from hydraulic operator housing	1 - Seal between housing and body defective		Replace seal (see § 7.4)
	2 - seal of adjustable stop nut defective		Replace seal (see § 7.4)
Tongue control boot damaged			Replace boot (see § 7.2)

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 SX 14, SX 14 S control block

5.1 General recommendations

NOTICE

Property damages risk

- BEFORE REMOVING THE SX 14 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 SX 14, SX 14 S 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 SX 14, SX 14 S 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 LS pressure relief valve (19 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 ls pressure relief valve to adjust.

- Adjust the maximum pressure measured in M using the LS 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 LS pressure relief valve replacement

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

DANGER

Oil pressure

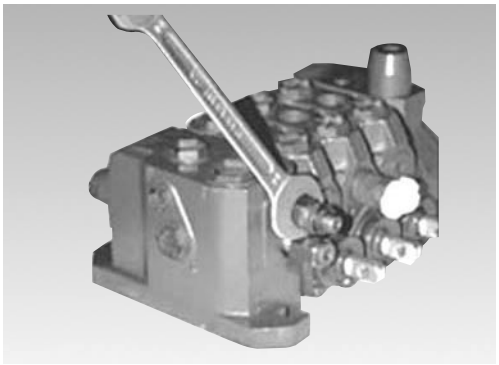
Machine off:

- 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 LS pressure relief valve (24 mm open end spanner).

Reassembly:

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

6.2 Flow regulator replacement

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

DANGER

Oil pressure

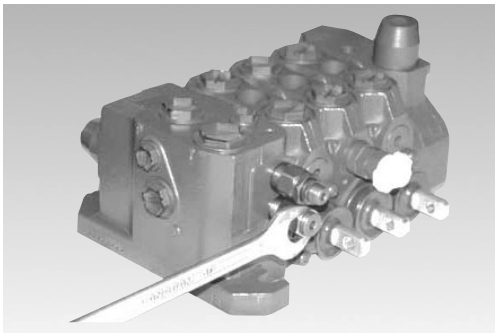
Machine off :

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

NOTICE

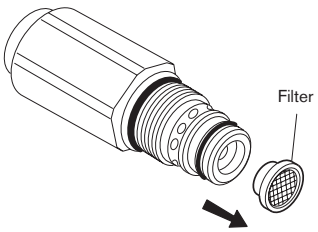
Environment damages risk

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



On the inlet or outlet element:

1. unscrew the LS pressure relief valve (see § 6.1),
2. unscrew the flow regulator (22 mm open end spanner).



Flow regulator filter replacement:

Using pliers, extract the filter from the end of the flow regulator. Be careful not to damage the seal and the end of the flow regulator.

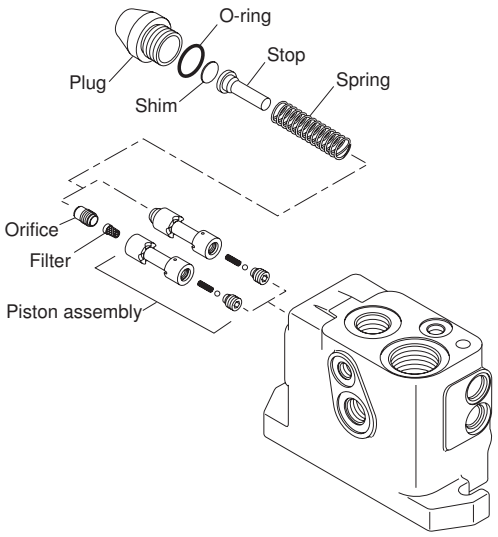
- Reassemble the filter in reverse order.

Reassembly:

1. install the flow regulator on the inlet or outlet element, torque: 20 ± 10% N.m,
2. install the LS pressure relief valve (see § 6.1).

6.3 Flow divider replacement

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



DANGER

Oil pressure

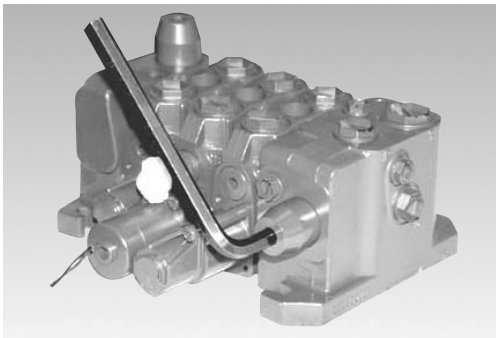
Machine off :

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

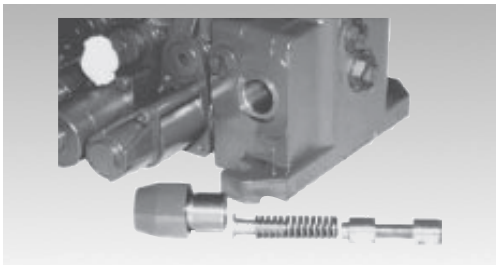
NOTICE

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 plug (12 mm socket wrench).



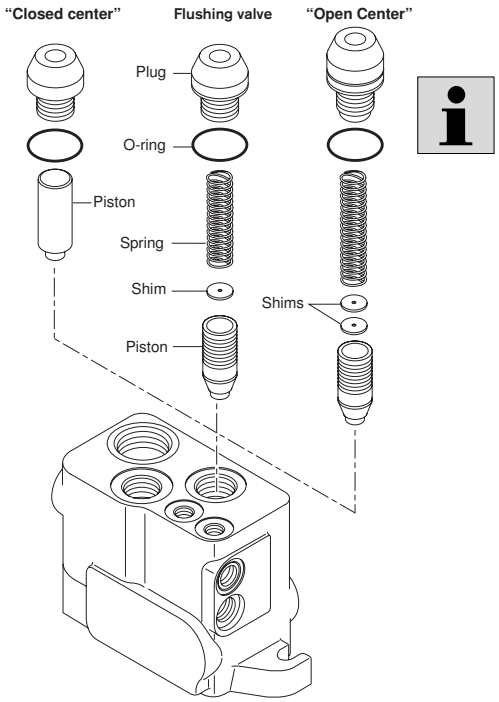
Remove:

- the shim,
- the stop,
- the spring,
- the piston assembly.

Replace defective parts.

Reassembly:

1. replace the plug O-ring,
2. reassemble parts in reverse order,
3. torque for the plug: 100 ± 10% N.m.



6.4 Removal of the "closed center' or of the flushing valve or of the "closed center

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

DANGER

Oil pressure

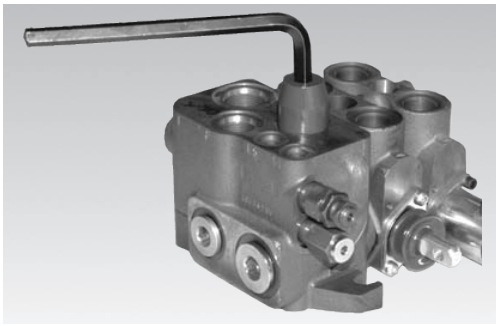
Machine off :

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

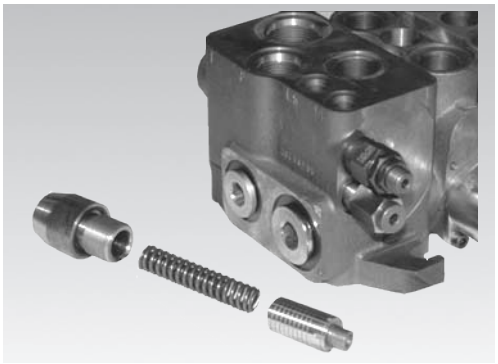
NOTICE

Environment damages risk

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

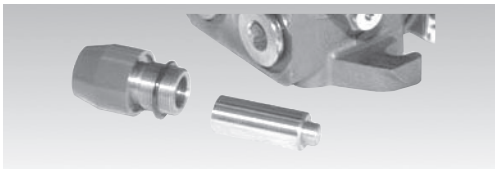


On the inlet element, unscrew the flushing value plug (12 mm socket wrench).



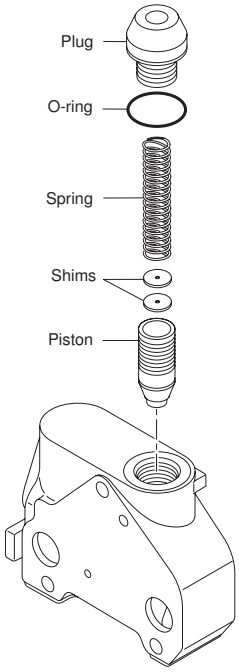
Remove:

- the spring (flushing valve or open center),
- shims (flushing valve or open center),
- the piston.



Reassembly:

1. replace the plug O-ring,
2. reassemble parts in reverse order,
3. torque for the plug: 100 ± 10% N.m.



6.5 Removal of the outlet element flushing valve

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

DANGER

Oil pressure

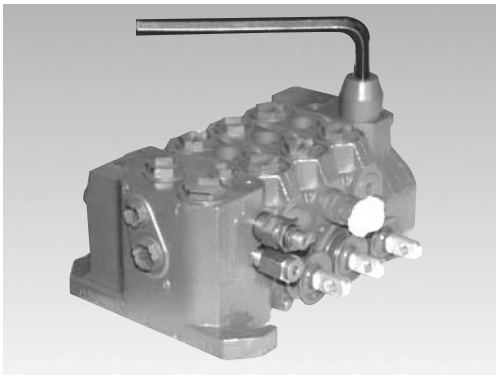
Machine off :

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

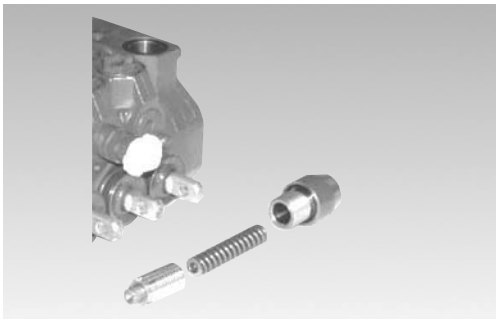
NOTICE

Environment damages risk

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



On the outlet element, unscrew the flushing valve plug.(12 mm socket wrench).



Remove:

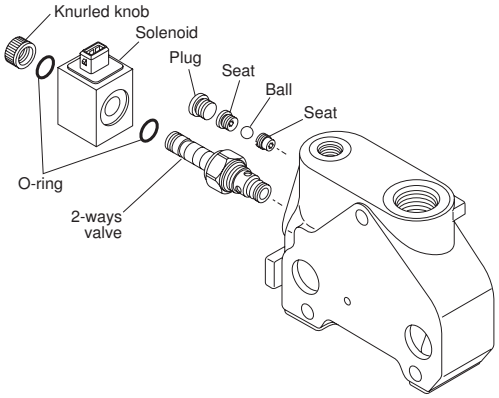
- the spring,
- shims,
- the piston.

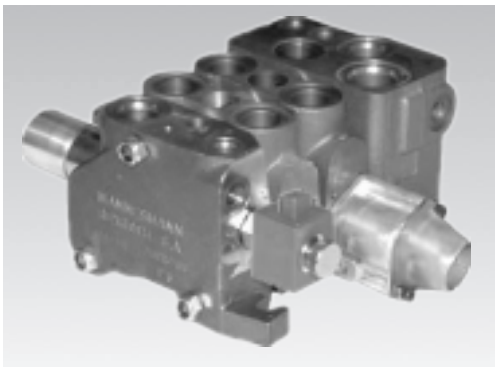
Reassembly:

1. replace the plug O-ring,
2. reassemble parts in reverse order,
3. torque for the plug: 100 ± 10% N.m.

6.6 Solenoid valve, "clamps" and shuttle valve removal (installed on backhoe loader)

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.

Solenoid replacement

On the outlet element, unscrew the knurled knob from the solenoid.

Pull the solenoid off the stem of the 2-ways valve.

Reassembly:

1. replace the 2 seals of the solenoid,
2. torque for the knob: 3,5 ± 10% N.m.

2-ways valve replacement

Unscrew the 2-ways valve (24 mm wrench).

Replace solenoid + 2-ways valve assembly.

- Reassembly: torque: 45 ± 10% N.m.

Shuttle valve or selector removal

On the outlet element, unscrew the plug (8 mm socket wrench).

Unscrew the upper seat (4 mm socket wrench).

Remove the ball using a magnet.

Unscrew the lower seat (4 mm socket wrench).

Replace shuttle valve parts.

Apply a droplet of Loctite 542 pneumatic/hydraulic sealant on the seats thread.

CAUTION

DO NOT PUT LOCTITE ON THE BALL.

Reassembly:

1. reassemble parts in reverse order.
2. torque for the lower seat: 20 ± 10% N.m.
3. torque for the upper seat: 20 ± 10% N.m.
4. torque for the plug: 20 ± 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

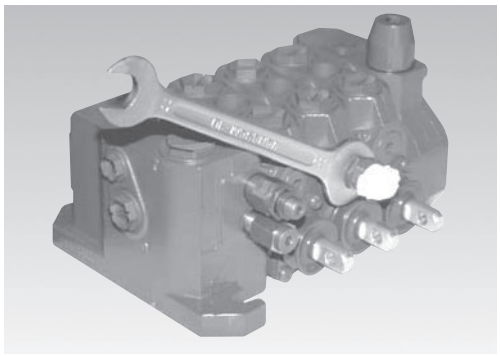
Machine off :

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

NOTICE

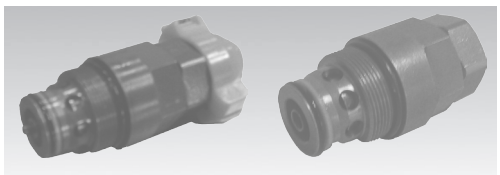
Environment damages risk

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



Secondary valve replacement on a standard SX 14 element (relief valve or anti-cavitation check valve)

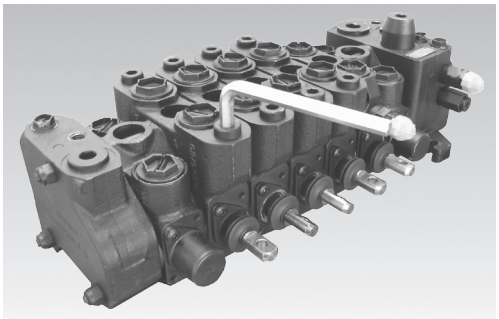
On the distribution element in question, unscrew the secondary valve (24 mm open end spanner).



Replace the 3 valve seals or the pressure relief valve.

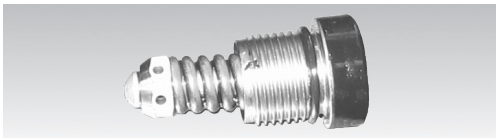
Reassembly:

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. anti-cavitation check valve: fit a new appropriate locking cover.



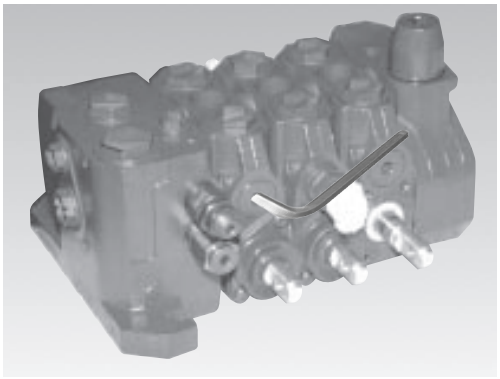
Secondary valve replacement on a SX 14 S element (relief valve or anti-cavitation check valve)

On the distribution element in question, unscrew the secondary valve (10 mm socket wrench).



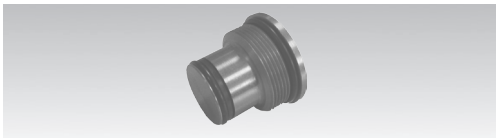
Replace the valve seal or the pressure relief valve.

► Reassembly: torque: 30-35 N.m.



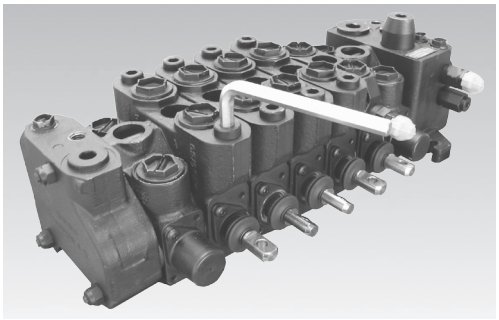
Plug replacement on a standard SX 14 element

On the distribution element in question, unscrew the plug (8 mm socket wrench).



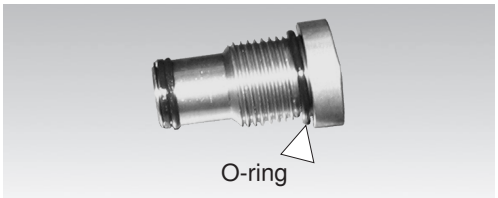
Replace the 3 plug seals or the plug.

► Reassembly: torque: 70 ± 10% N.m.



Plug replacement on a SX 14 S element

On the distribution element in question, unscrew the plug (10 mm socket wrench).



Replace the plug o-ring or the plug.

► Reassembly: torque: 30-35 N.m.

7.2 Removal of spool with spring return

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

DANGER

Oil pressure

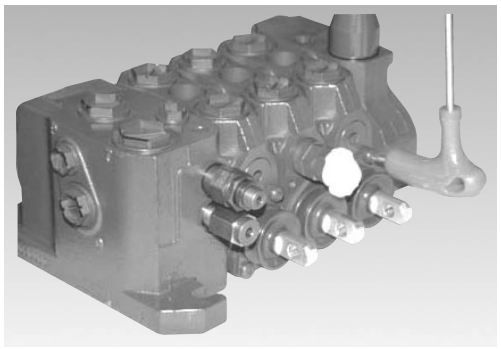
Machine off :

- ▶ 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

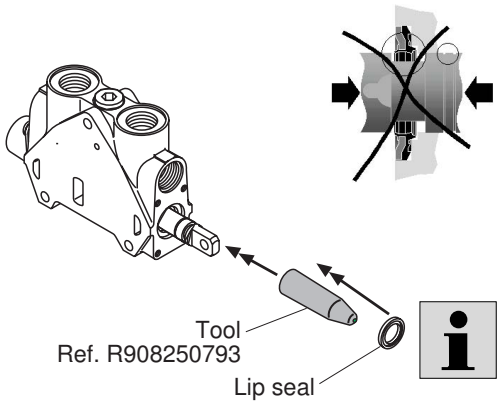
On the distribution element in question, unscrew the 2 mounting screws (screwdriver Torx Tx30).

Remove:

- mounting screws (L=12 mm),
- the boot and its plate,
- the second plate.

Reassembly:

1. replace the lip seal, or replace the old spool seals (wiper ring + O-ring) by a lip seal,



CAUTION

POSITION THE METALLIC PART OF THE LIP SEAL ON THE OUTSIDE.

THE LIP SEAL MUST BE FITTED ON THE END OF THE SPOOL SO THAT IT IS NOT DAMAGED ON THE SPOOL GROOVES AND ITS TIGHTNESS PROPERTY DOES NOT DETERIORATE. (SEE § 9)

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

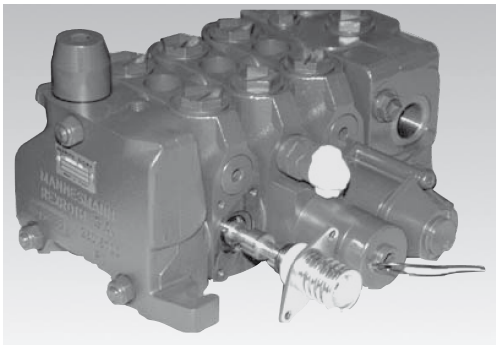
Use tool Rexroth-Ref. R9 08 250 793.

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

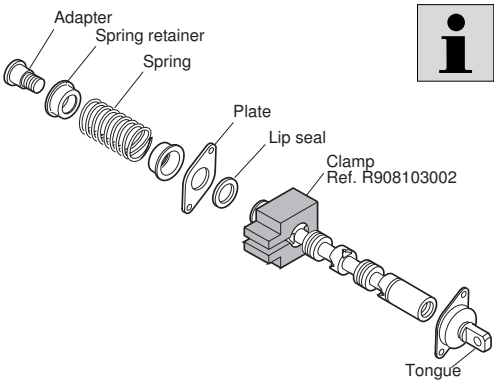
Cover side

On the distribution element in question, unscrew the 2 mounting screws (screwdriver Torx Tx30).

Remove the cover.



Remove the spool from the working section.



Use the spool clamp (Rexroth-Ref. R9 08 103 002) 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).

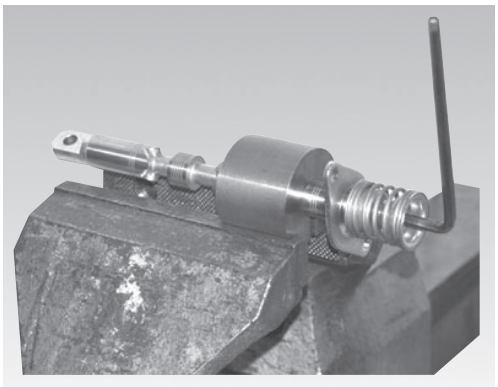
Beforehand, heat the spool to 200° C in an oven or, failing that, with a heat gun. Do not use fire.

AVERTISSEMENT

Hot spool!

Danger of burns

- Wear thick protective gloves when handling the hot spool.

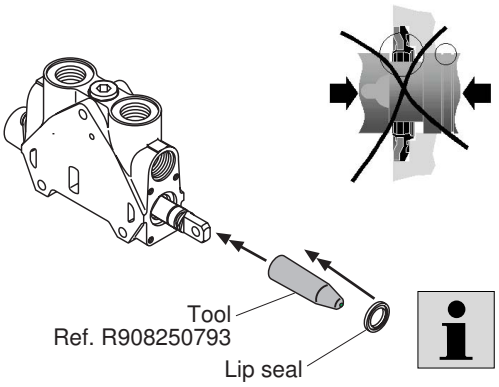


Remove the adapter (5 mm socket wrench).

Remove:

- 2 spring retainers,
- the spring,
- the plate,
- the lip seal or old spool seals (wiper ring + O-ring).

Distribution element repair procedure



Reassembly:

1. replace the lip seal, or replace the old spool seals (wiper ring + O-ring) by a lip seal.

CAUTION

POSITION THE METALLIC PART OF THE LIP SEAL ON THE OUTSIDE.

THE LIP SEAL MUST BE FITTED ON THE END OF THE SPOOL SO THAT IT IS NOT DAMAGED ON THE SPOOL GROOVES AND ITS TIGHTNESS PROPERTY DOES NOT DETERIORATE. (SEE § 9)

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

Use tool Rexroth-Ref. R9 08 250 793.

2. grease the spring,
3. except of coating, apply a droplet of loctite 262 on the end of the spool internal thread,
4. reassemble the return system parts in reverse order,
5. 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.

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

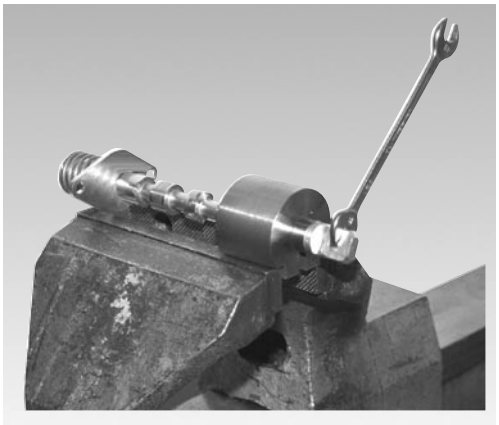
DO NOT USE A WELDING TORCH TO HEAT THE TONGUE AS SPOOL DEFORMATION MAY RESULT.

AVERTISSEMENT

Hot spool!

Danger of burns

- Wear thick protective gloves when handling the hot spool.



Loosen the tongue with an open end spanner (8 mm open end spanner).

Reassembly:

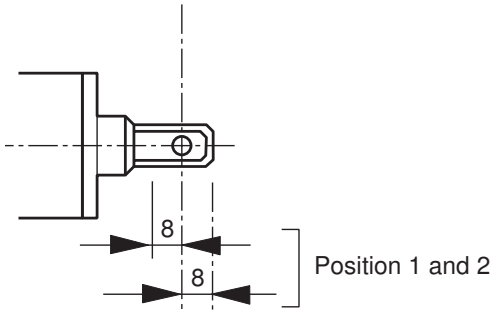
1. except of coating, apply a droplet of loctite 262 on the end of the tongue thread,
2. reassemble parts in reverse order,
3. torque for the tongue: 10 ± 10% N.m,
4. torque for the 2 mounting screws: 10 ± 10% N.m.

CAUTION

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

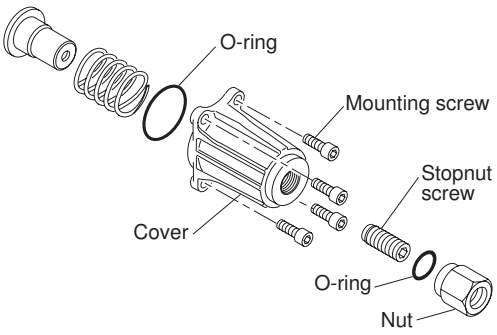
7.3 Spool stroke measurement (3 position)

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 Hydraulic operation removal

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



DANGER

Oil pressure

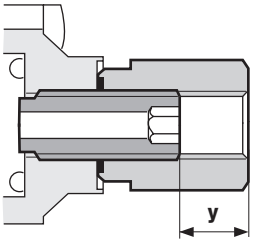
Machine off :

- 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

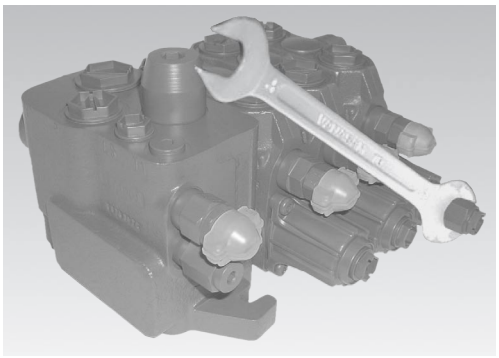
- Install a vacuum pump on the tank to limit oil leakage during this operation.
- Collect possible leaks with a suitable receptacle.



Adjustable stop nut seal replacement

Using a vernier, measure before replacement the dimension y between the stopnut screw and the nut tip (see diagram below).

This value y is to be thoroughly respected when reassembling to ensure an identical flow adjustment.



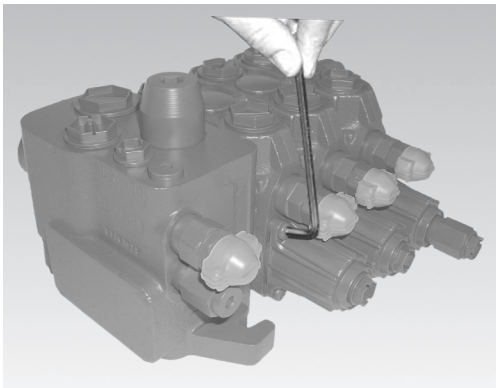
Remove the nut (Gaz: 22 mm open end spanner, UNF: 27 mm open end panner)

Reassembly:

1. replace the nut O-ring or replace the nut + stopnut screw assembly,
2. torque for the nut: 40 ± 10% N.m.

CAUTION

WHILE TIGHTNING THE NUT, BLOCK THE STOPNUT SCREW USING A 6 MM SOCKET WRENCH.



Hydraulic control housing removal

Remove the 4 mounting screws (6 mm socket wrench).

Remove:

- the cover,
- the O-ring,
- the spring,
- the spring retainer.

Reassembly:

1. replace the O-ring on the body,
2. reassemble parts in reverse order,
3. torque for the 4 mounting screws: 10 ± 10% N.m.

7.5 Removal of mechanical detent system (pull function only)

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

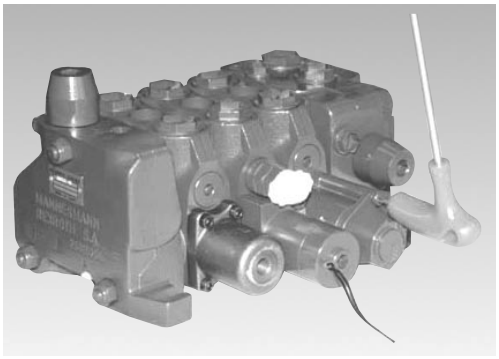
Environment damages risk

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

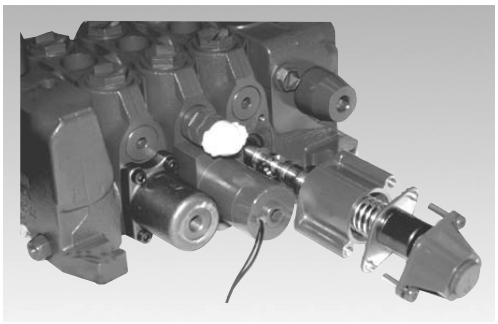
Tongue side: see § 7.2

Cover side

Unscrew the 4 mounting screws (screwdriver Torx Tx30).



Remove the cover.



Remove the spool from the working section.

Use the spool clamp (Rexroth-Ref. R9 08 103 002) 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).

Distribution element repair procedure

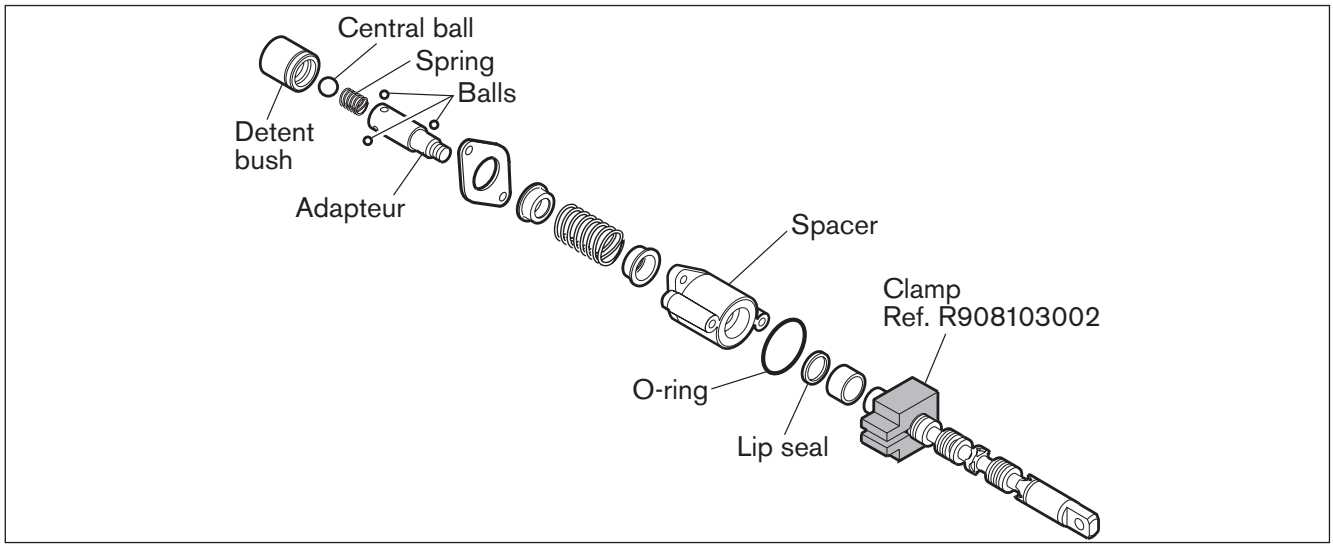
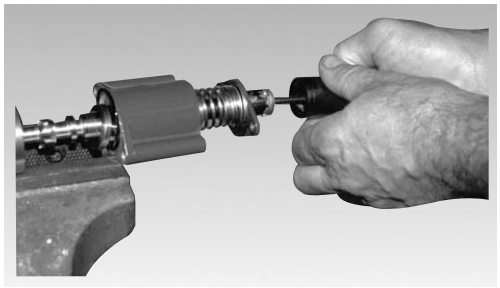


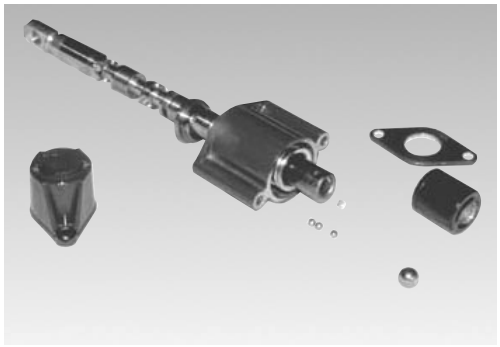
Figure 1: Exploded view of the mechanical detent system pull function



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.



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,

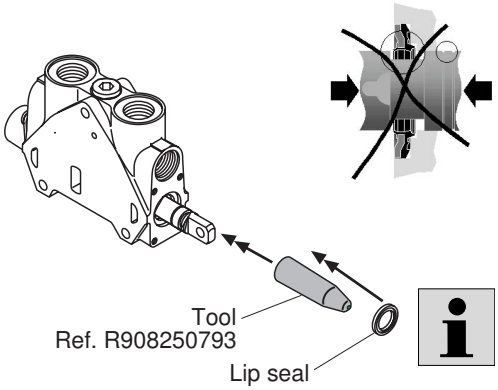
CAUTION

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 O-ring on the spacer,
8. replace the lip seal, or replace the old spool seals (wiper ring + O-ring) by a lip seal on the spacer side and tongue side (see § 7.2).



CAUTION

POSITION THE METALLIC PART OF THE LIP SEAL ON THE OUTSIDE.

THE LIP SEAL MUST BE FITTED ON THE END OF THE SPOOL SO THAT IT IS NOT DAMAGED ON THE SPOOL GROOVES AND ITS TIGHTNESS PROPERTY DOES NOT DETERIORATE. (SEE § 9)

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

Use tool Rexroth-Ref. R9 08 250 793.

9. torque for the 2 screws of the spacer: 10 ± 10% N.m.
   torque for the 2 screws of the cover: 10 ± 10% N.m.

7.6 Removal of electrical detent system (spool pushed or spool pulled)

This operation can be performed independently of the solenoid replacement operation.

Remove the control block from the machine for this operation, if necessary.

⚠ DANGER

Oil pressure

Machine off :

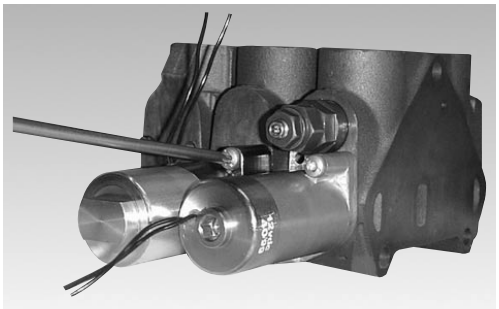
- place all of the machine's actuators connected to the control block in neutral position,
- release stored pressure by operating all the spools.

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.

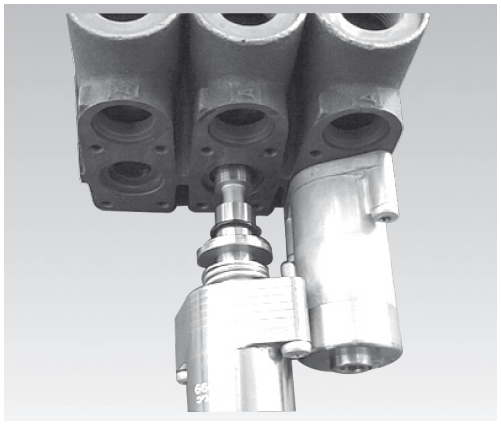
Tongue side: see § 7.2



Cover side

Remove the 2 mounting screws (screwdriver Torx Tx30)

Distribution element repair procedure



Remove the spool from the distribution element.

Use the spool clamp (Rexroth-Ref. R9 08 103 002) 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).

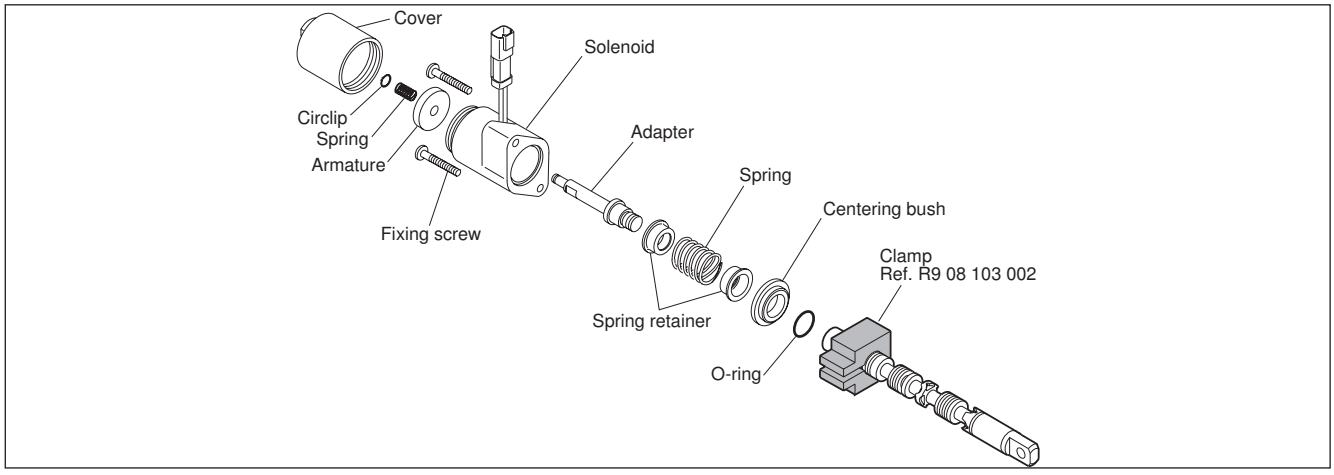


Figure 2: Exploded view of the electrical detent system spool pulled

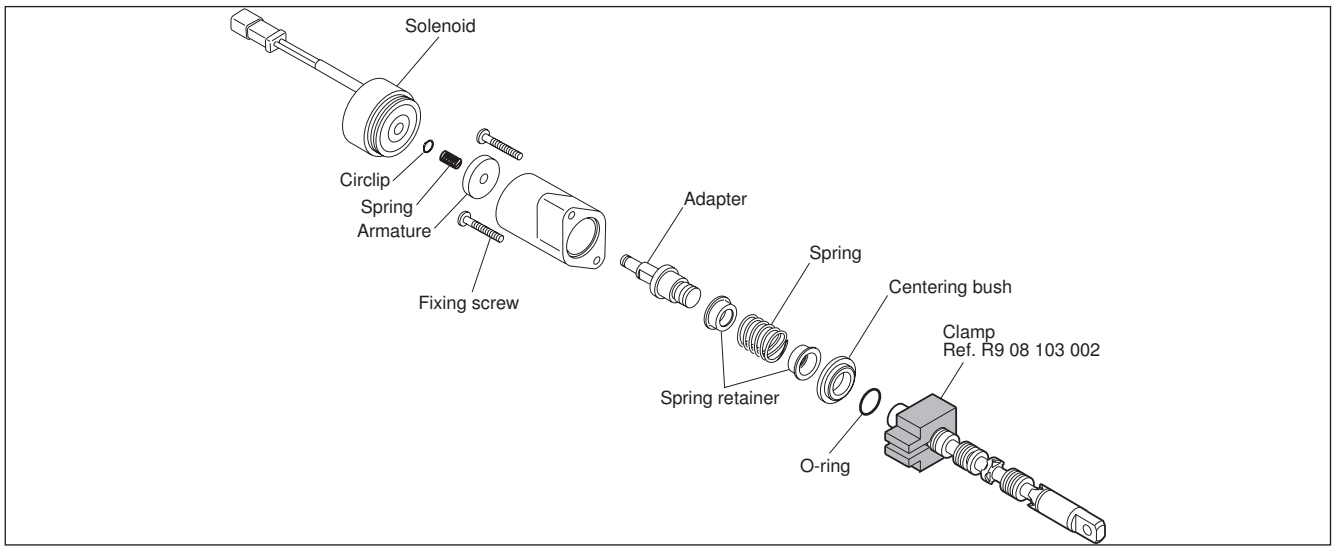
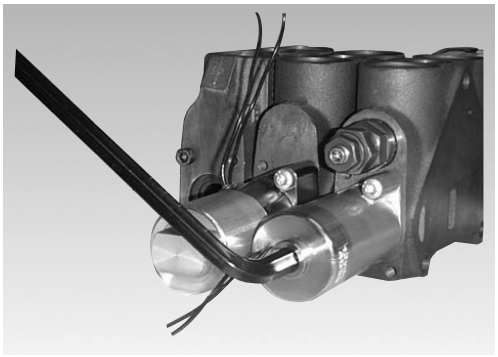


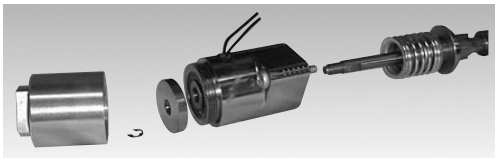
Figure 3: Exploded view of the electrical detent system spool pushed



Spool pushed system: Remove the solenoid (10 mm socket wrench).

Spool pulled system: Remove the cover (19 mm open-end spanner).

To replace solenoid on spool pushed system, the control block does not need to be removed from the machine.



Remove:

- the circlip,
- the spring,
- the armature,
- the solenoid.

Remove the adapter (6 mm open-end spanner)

Remove:

- 2 spring retainers,
- the second spring,
- the centering bush,
- the O-ring.

Reassembly:

1. replace the O-ring,
2. tongue side: replace the lip seal, or replace the old spool seals (wiper ring + O-ring) by a lip seal on (see § 7.2),
3. reassemble parts in reverse order,
4. install a new solenoid if necessary,
5. torque for the adapter: 10 ± 10% N.m,
6. torque for the cover or of the solenoid: 20 ± 10% N.m,
7. torque for the 2 mounting screws: 10 ± 10% N.m,

7.7 Electrical controlled spool removal

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

DANGER

Oil pressure

Machine off :

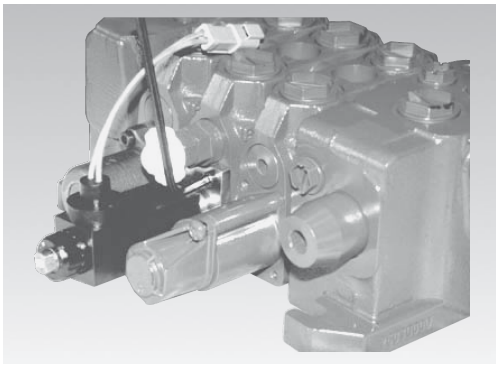
- place all of the machine's actuators connected to the control block in neutral position,
- release stored pressure by operating all the spools.

NOTICE

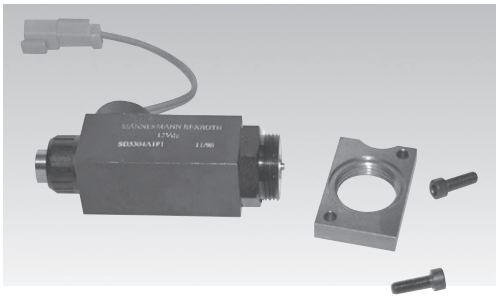
Environment damages risk

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

Solenoid control replacement



Remove the 2 mounting screws and the solenoid control (5 mm socket wrench).



Remove the mounting plate from the solenoid control.

Repeat the operation on the other side of the distribution element.

Reassembly:

1. replace the O-rings on the solenoid control and mounting plate,
2. reassemble parts in reverse order,
3. torque for the solenoid: 10 ± 10% N.m,
4. torque for the 2 mounting screws: 10 ± 10% N.m.

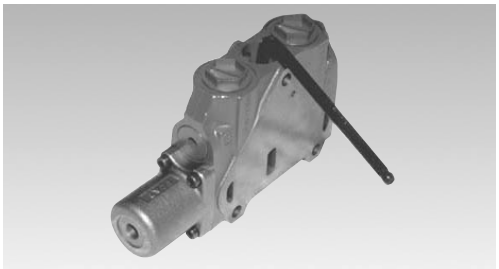
7.8 Pressure compensator or check valve removal

Preliminary operations

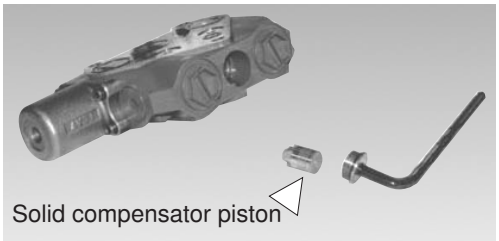
Remove the control block from the machine (see § 5).

Remove the distribution element in question (see § 8).

Individual pressure compensator removal on a standard SX 14 element



Unscrew the compensator plug (8 mm socket wrench).



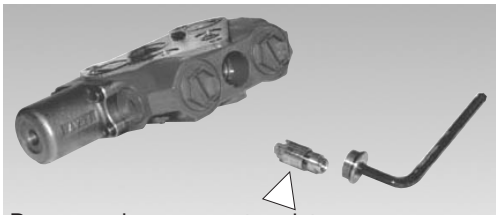
Solid compensator piston

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.



Dampened compensator piston

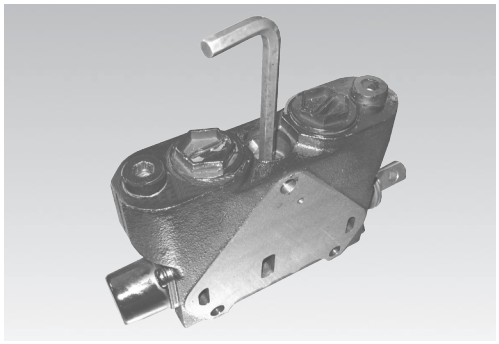
Clean the piston's nozzle with compressed air to remove all traces of pollution.

Check the condition of the bore in the distribution element body.

Reassembly:

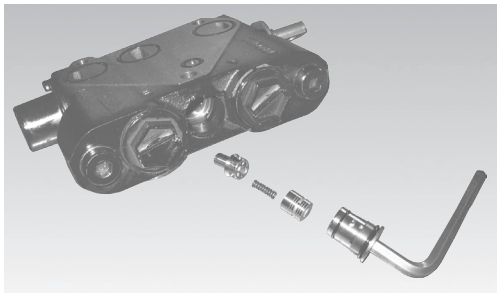
1. replace the plug O-ring,
2. reassemble parts in reverse order,
3. torque for the plug: 60 ± 10% N.m.

Distribution element repair procedure



Check valve - compensator removal on a SX 14 S C element

Unscrew the plug (8 mm socket wrench).



Remove using a magnet to extract it from its bore:

- the compensator piston,
- the spring,
- the poppet.

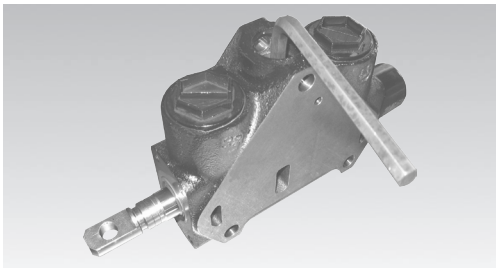
NOTICE

Risk of infection when using magnetic tool

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

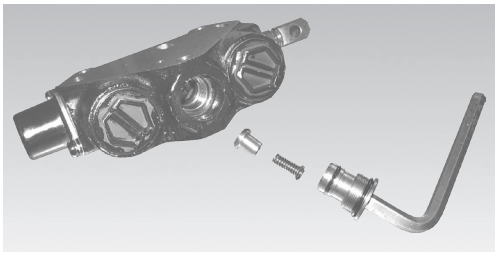
Reassembly:

1. replace the 2 plug O-rings,
2. reassemble parts in reverse order,
3. torque for the plug: 60 ± 10% N.m.



Check valve removal on a SX 14 S L element

Unscrew the plug (8 mm socket wrench).



Remove using a magnet to extract it from its bore:

- the spring,
- the poppet.

NOTICE

Risk of infection when using magnetic tool

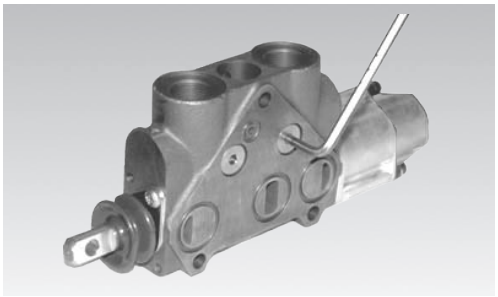
- ▶ Clean parts to remove any attracted metal particle.
- ▶ Do not use magnet for reassembly.

Reassembly:

1. replace the 2 plug O-rings,
2. reassemble parts in reverse order,
3. torque for the plug: 60 ± 10% N.m.

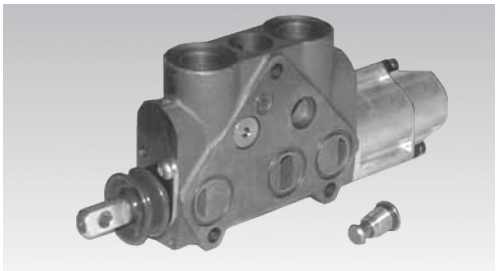
Check valve removal on a standard SX 14 element

Unscrew the ckeck valve plug (5 mm socket wrench).



Reassembly:

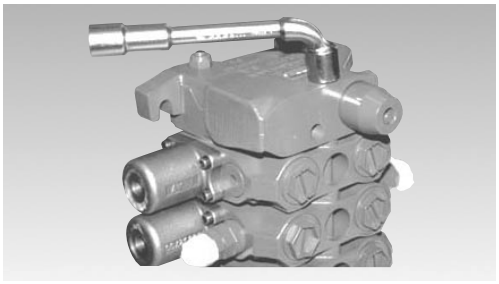
1. replace the plug O-ring,
2. torque for the plug: 30 ± 10% N.m.



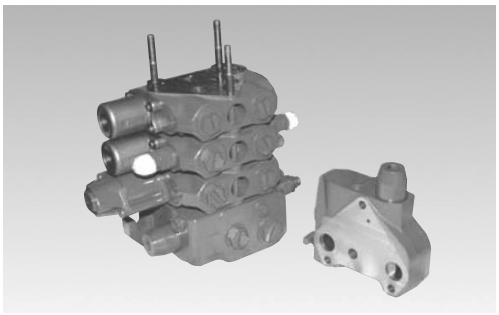
8 Control block Disassembly / Assembly

Preliminary operations

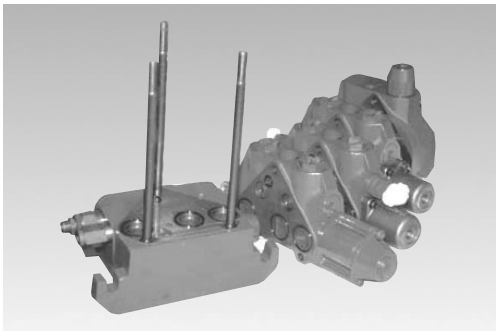
Remove the control block from the machine (see § 5).



Remove the 3 nuts (16 mm or 17 mm ring wrench).



Remove the outlet element.



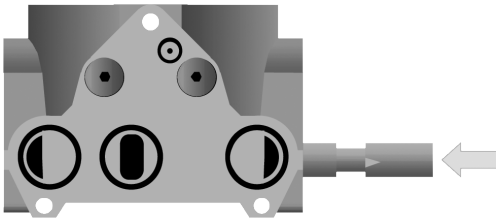
Separate the working sections from the inlet element.

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

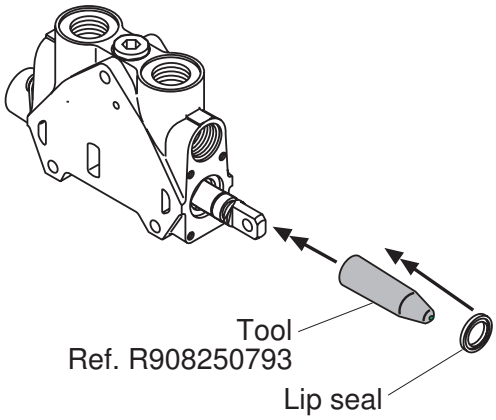
Reassembly:

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 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 3 nuts M10: 42 ± 10% N.m.

9 Precaution when replacing the spool lip seal

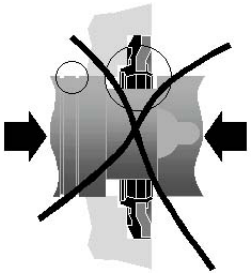


Place the spool in the working section.



Place tool Rexroth-Ref. R9 08 250 793 over the pool.

Lubrificate the lip seal with clean hydraulic oil and slide it perpendicularly onto the tool, positioning the metallic part of the lip seal on the outside.



The lip seal must be fitted on the end of the spool so that it is not damaged on the spool grooves and its tightness property does not deteriorate.

Notes

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