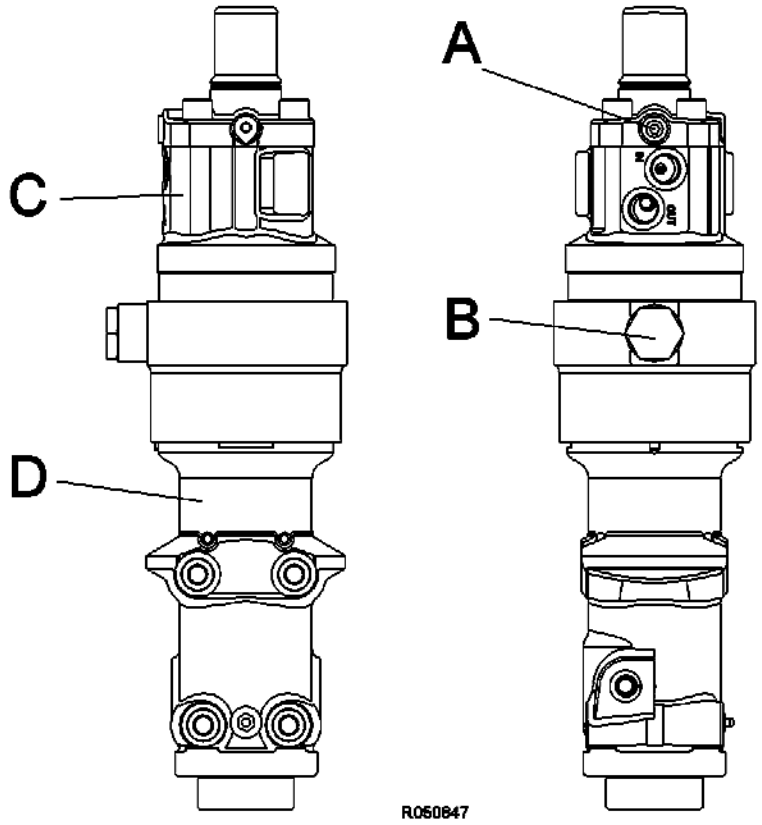
AVANT B70 Silent
AVANT B110 Silent
AVANT B160 Silent
Workshop Manual

1. DISASSEMBLY AND ASSEMBLY

1.1 MAIN COMPONENTS

LOCATION OF MAIN COMPONENTS (HAMMER MECHANISM)



A. Pressure measuring plug
B. Pressure accumulator
C. Valve body
D. Cylinder and front head

1.2 RELEASING HYDRAULIC PRESSURE FROM HAMMER

RELEASING PRESSURE

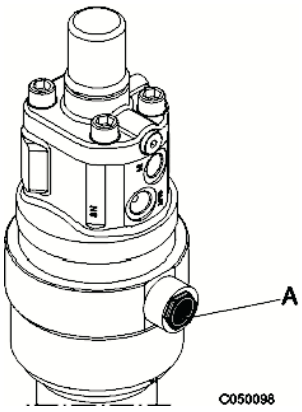
Warning! The hydraulic pressure inside the hammer must always be released before making any adjustments or repairs when the hammer is connected to the carrier. There may also be pressurized oil trapped inside the hammer even if the hammer is disconnected from the carrier. Release the hydraulic pressure according to the following instructions before opening any plugs or valve covers.

1. Stop the carrier engine.
2. Operate boom and hammer controls to release any pressure trapped inside hoses.

Warning! This procedure does not release the pressure from the pressure accumulators! Read the instructions dealing with the accumulator before disassembling the hammer. See “Releasing pressure from accumulator” on page 4.

1.3 RELEASING PRESSURE FROM ACCUMULATOR

LOCATION OF ACCUMULATOR REFILLING PLUG

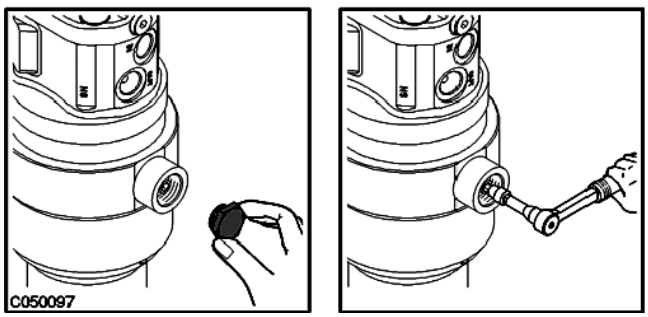


Item	Description
A	Shield plug

RELEASING PRESSURE FROM ACCUMULATOR

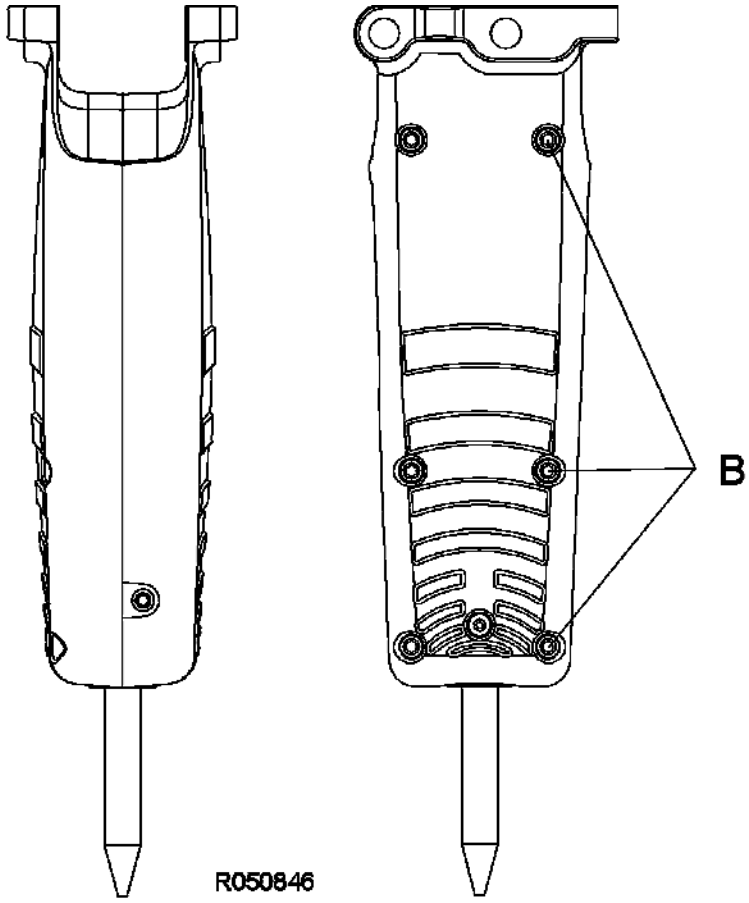
Warning! Do not disassemble hammer before releasing pressure from accumulator.

1. Remove shield plug from accumulator.
2. Open filling plug carefully. Wait until all nitrogen gas has escaped.



1.4 HOUSING

TORQUES, ADJUSTMENTS AND LUBRICANTS



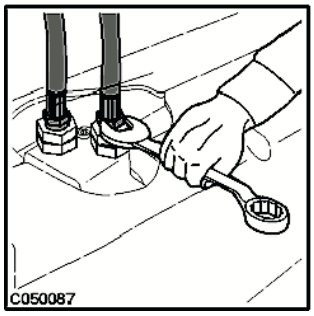
Item	Tightening torques		
Model	B70	B110	B160
Housing plate mounting screws (B)	70 Nm	175 Nm	175 Nm

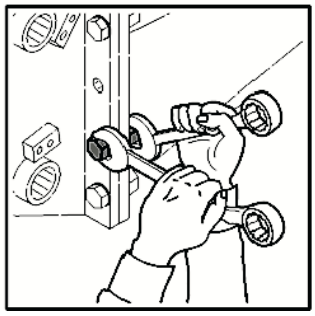
Item	Lubricant
All screw threads and bearing surfaces	Thread grease

DISASSEMBLING HOUSING

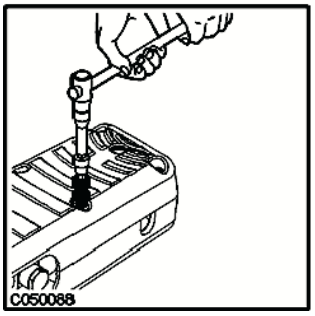
Warning! The hammer must be secured from falling down in either direction when handling it. Check that the lifting capacity of the hoist you are using is sufficient for the job.

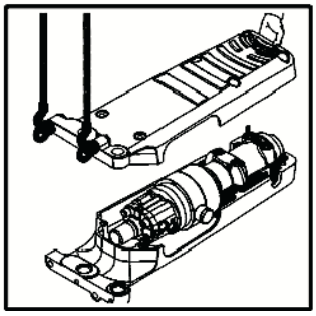
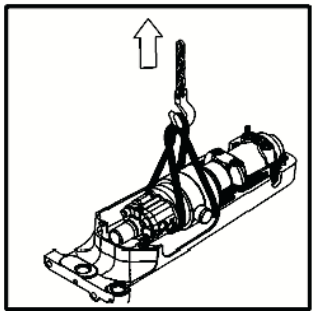
1. Remove hydraulic hoses.
2. Open mounting bracket screws.





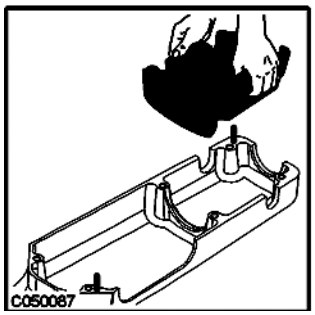
3. Remove screws and lock washers.
4. Install lifting eye nuts using screws to the housing plate flange.
5. Lift housing plate off with lifting device.
6. Lift hammer mechanism out from housing.

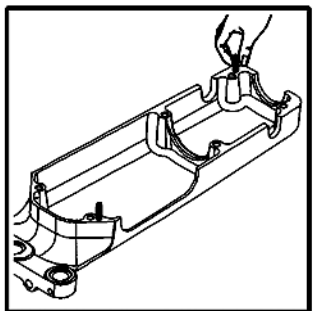


7. Remove dampers.

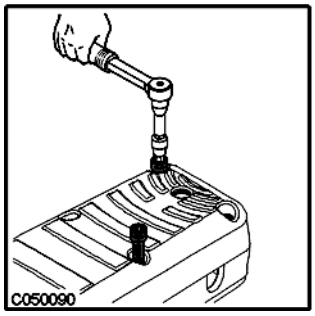
8. Remove parallel pins.

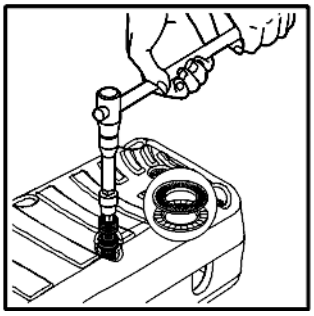




ASSEMBLING HOUSING

1. Install dampers to both housing plates.
2. Insert parallel pins.
3. Install hammer mechanism into its place.
4. Lower remaining housing plate into its correct position.
5. Install compression screws crosswisely.
6. Compress housing plates together with compression screws.
7. Grease threads and bearing surfaces of screws and lock washers.
8. Install screws and lock washers to remaining holes and tighten fully; Then replace compression screws.
9. Torque screws to specified setting.

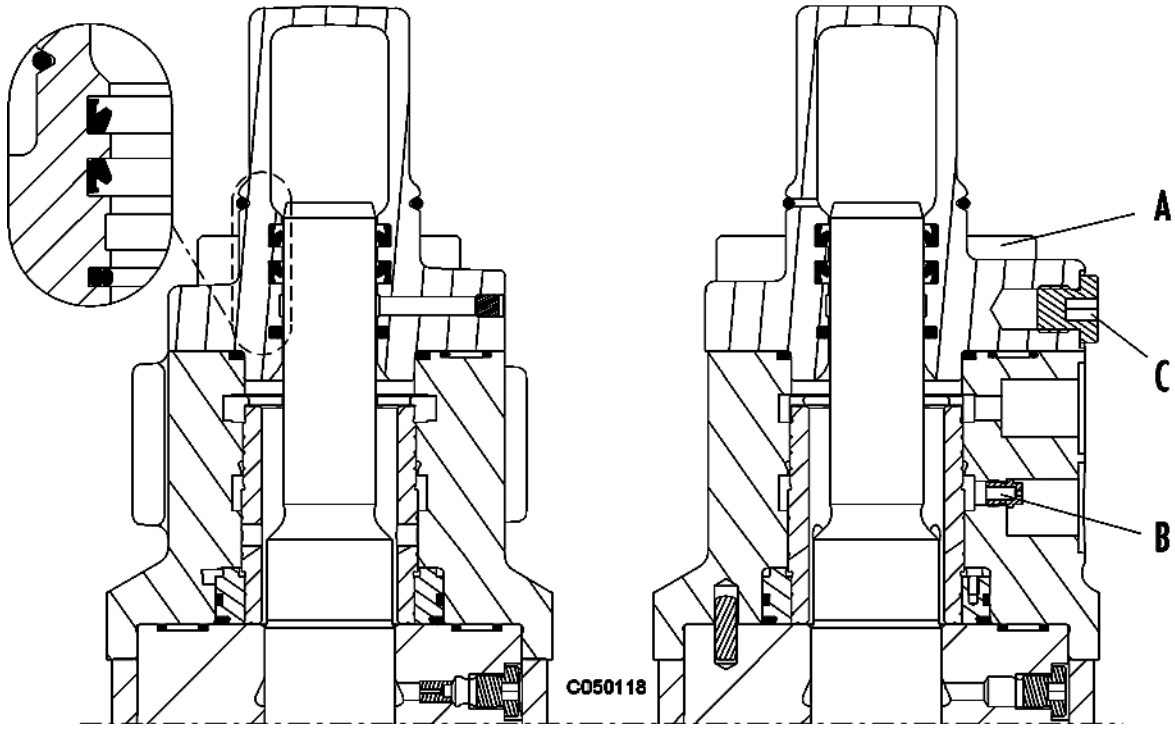




10. Install mounting bracket.
11. Grease screws with lock washers and nuts.
12. Torque screws to specified setting.
13. Install hydraulic hoses.
14. Install hammer to carrier.

1.5 VALVE BODY AND DISTRIBUTOR

TORQUES, ADJUSTMENTS AND LUBRICANTS

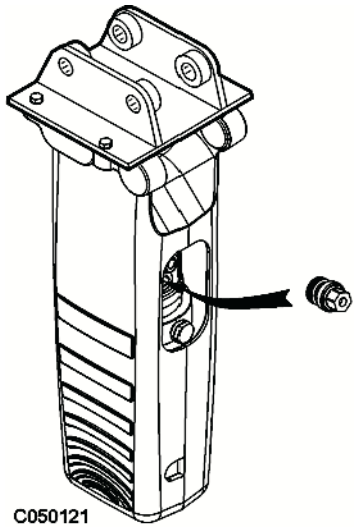


Item	Tightening torques		
Model	B70	B110	B160
Cover screws (A)	70 Nm	175 Nm	460 Nm
Nozzle (B), width across flats 7 mm	20 Nm	20 Nm	30 Nm
Pressure measuring plug (C)	30 Nm	30 Nm	30 Nm

Item	Lubricant
All seals and O-rings	O-ring grease
All parts	Hydraulic oil
Contact surfaces of cover, valve body and cylinder	Anticorrosive agent (e.g. CRC 3-36)
Screw threads and bearing surfaces, lock washers	Thread grease

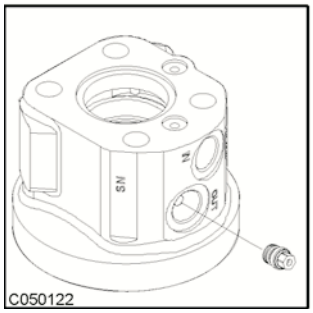
OPERATING PRESSURE ADJUSTMENT

The hammer is tuned at factory to suit for specified AVANT carrier models. This is done with a nozzle which is inside the OUT-port of the breaker, located on the valve housing.



The nozzle adjust the operating pressure of the hammer. If the nozzle is not suitable for the excavator, then the hammer power may be low or the oil has a tendency for heating. In either case please contact your dealer for further instructions.

1. Remove hose fitting from "OUT" port.
2. Remove nozzle from inside "OUT" port using socket wrench.

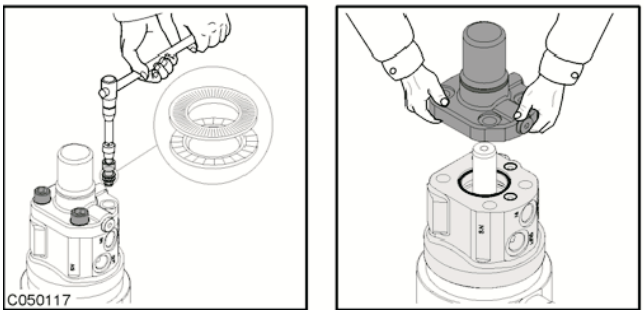


3. Insert proper nozzle and tighten it to specified setting. Do not apply locking fluid.
4. Install hose fitting to "OUT" port.

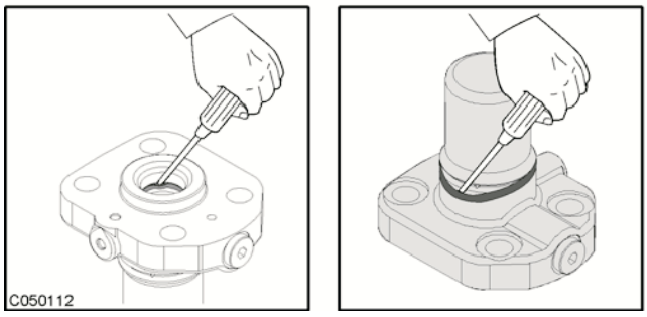
DISASSEMBLING VALVE BODY AND DISTRIBUTOR

Warning! Make sure that accumulator is depressurized! See "Releasing pressure from accumulator" on page 4.

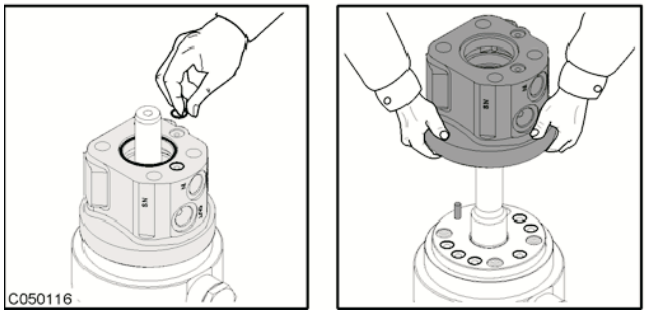
1. Open cover screws and remove cover.



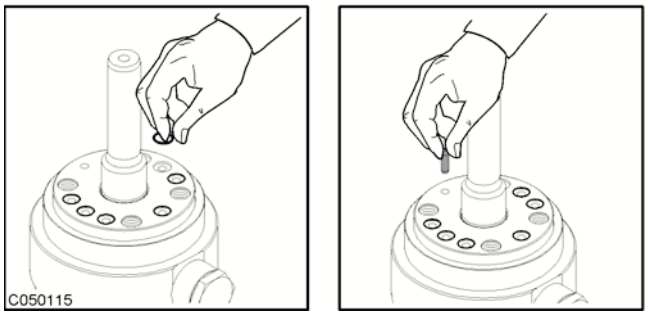
2. Remove seals and O-ring from cover.



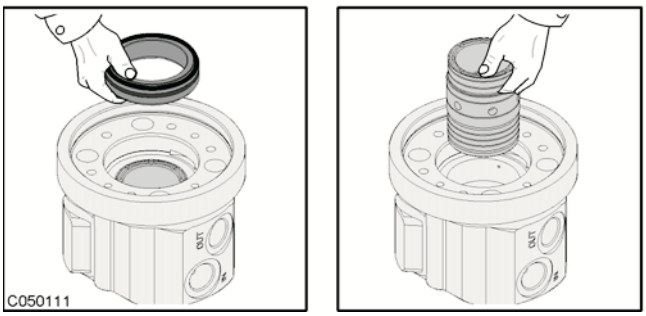
3. Remove O-rings from valve body.
4. Lift valve body off and set valve body upside down on work bench.



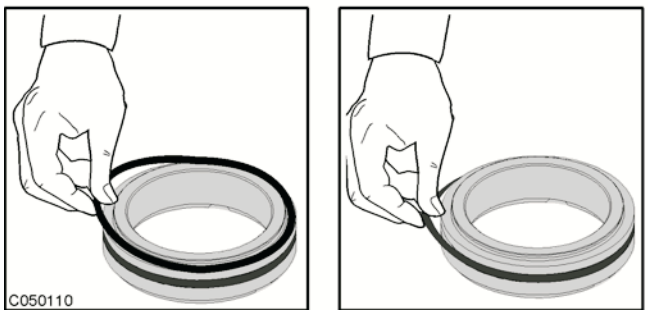
5. Remove O-rings and parallel pin from cylinder.



6. Remove steering ring and distributor from valve body.



7. Remove O-rings from steering ring.

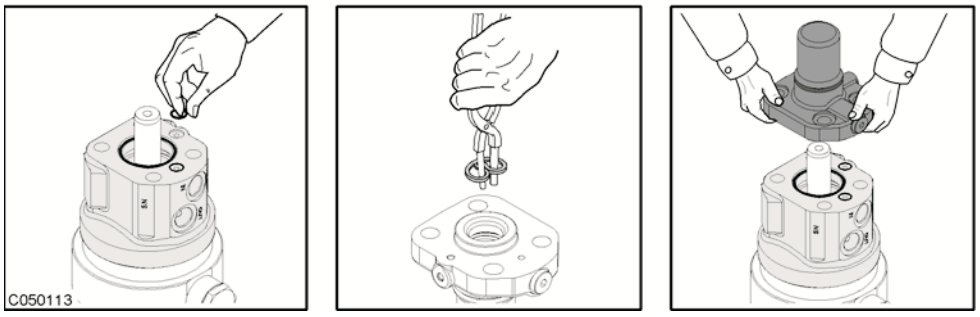


ASSEMBLING VALVE BODY AND DISTRIBUTOR

1. Check all parts for wear and damage. If necessary, use fine emery cloth or grinding agent. Clean and oil all parts.
2. Install O-rings to steering ring.
3. Oil parts properly and insert distributor into steering ring.
4. Apply oil on distributor parts and valve body hole.
5. Install steering ring and distributor to the valve body. Check that distributor moves freely inside.
6. Install O-rings to cylinder.
7. Insert parallel pin.

8. Apply anticorrosive agent on contact surfaces of valve body and cylinder.
9. Install valve body.

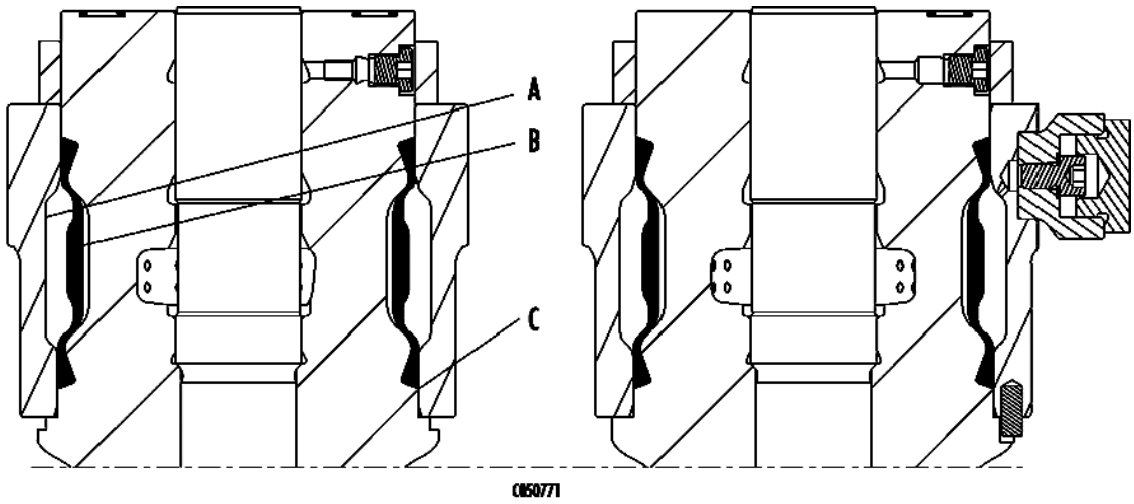
10. Install O-rings to valve body.
11. Install seals and O-ring to cover using suitable pliers.
12. Install cover.



13. Install cover screws and lock washers. Torque screws to the specified settings.

1.6 PRESSURE ACCUMULATOR

LUBRICANTS FOR PRESSURE ACCUMULATOR



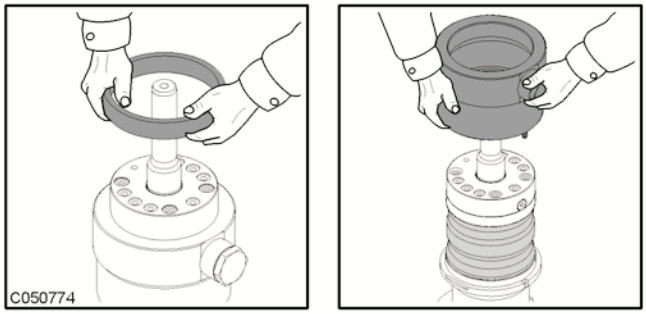
Item	Lubricant
Accumulator cover (gas side) (A)	Silicone grease
Accumulator membrane (inner side) (B)	Hydraulic oil
Casting burr (C)	

DISASSEMBLING PRESSURE ACCUMULATOR

Warning! Make sure that accumulator is depressurized! See “Releasing pressure from accumulator” on page 4.

1. Remove cover, valve body and distributor. See “Valve body and distributor” on page 8.
2. Remove support ring.

3. Remove accumulator cover.



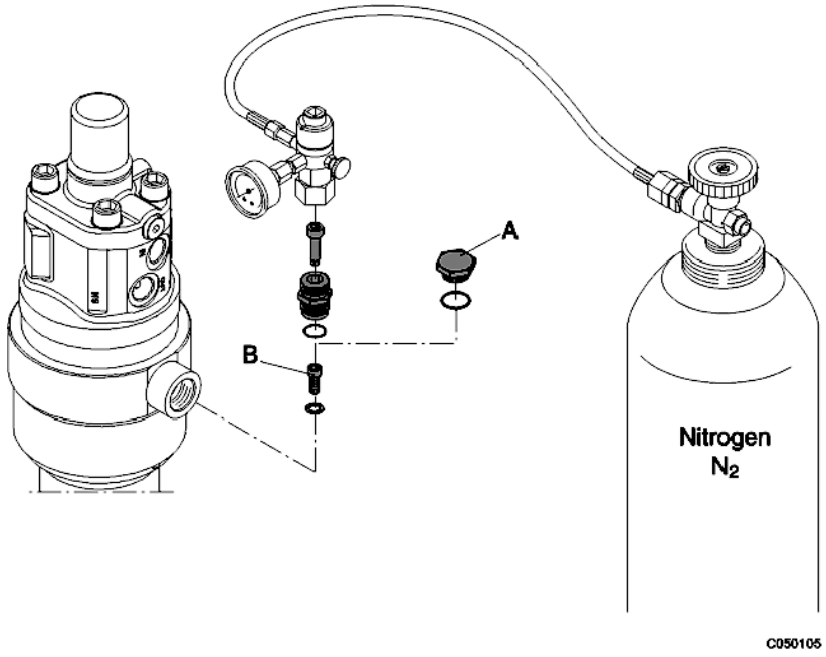
4. Remove membrane from cylinder.

ASSEMBLING PRESSURE ACCUMULATOR

1. Clean and dry parts carefully.
2. Apply thin layer of oil to membrane and accumulator area in cylinder.
3. Put cylinder on vise.
4. Install a new membrane on cylinder. Check that the edge of the membrane which have casting burr go first. Be careful not to damage the membrane when pulling it over shoulders of cylinder.
5. Apply silicone grease inside accumulator cover. To prevent risk of gas leak be careful not to stain silicone in sealing grooves. Align split pin between accumulator cover and cylinder. Install accumulator cover in its place. Use plastic hammer if necessary.
6. Install support ring.
7. Install distributor, valve body and cover. See “Valve body and distributor” on page 8.

1.7 CHARGING ACCUMULATORS

TORQUES, ADJUSTMENTS AND LUBRICANTS



Item	Tightening torque
Shield plug (A)	150 Nm
Accumulator filling plug (B)	20 Nm

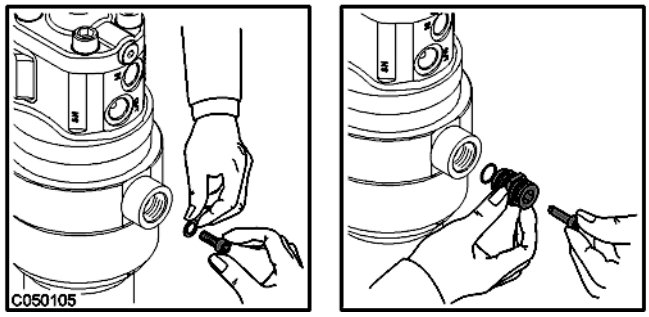
Item	Charging pressure (Nitrogen N_2)
Accumalator	25 bar

CHARGING ACCUMULATOR

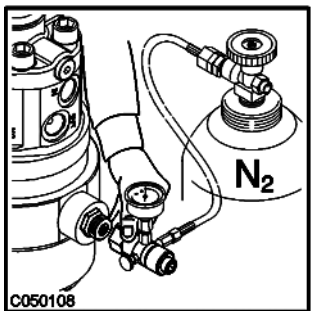
Warning! Use only nitrogen (N_2) for charging accumulator. Use of other gases may cause accumulator to explode.

1. Install new usit ring.
2. Install filling plug.
3. Install adapter with O-ring.
4. Insert pin.

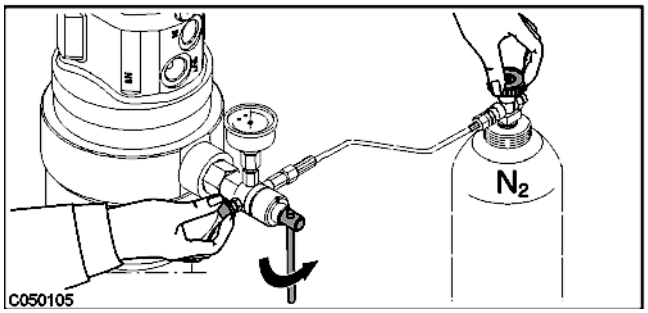
5. Insert pin.



6. Install charging device.

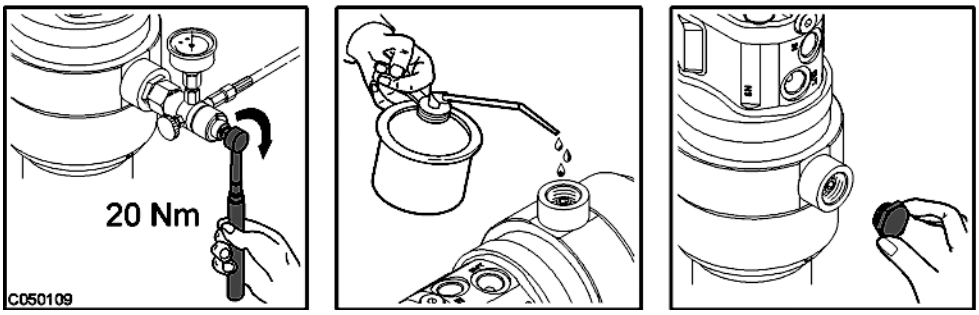


7. Connect charging system to nitrogen bottle.
8. Tighten filling plug carefully through charging device until you feel it stop, then open it three (3) turns.
9. Open discharge valve on charging device fully.
10. Carefully open nitrogen gas bottle valve and adjust gas flow to minimum.



11. CAUTION! Charging device does not have any pressure relief valve. Shut gas bottle valve when gauge shows correct charging pressure.
12. Close discharge valve on charging device and charge accumulator 2-3 bar above specified charging pressure. Observe pressure gauge reading.
13. Shut nitrogen bottle valve.
14. Wait 10 minutes for nitrogen gas pressure to stabilize inside accumulator.

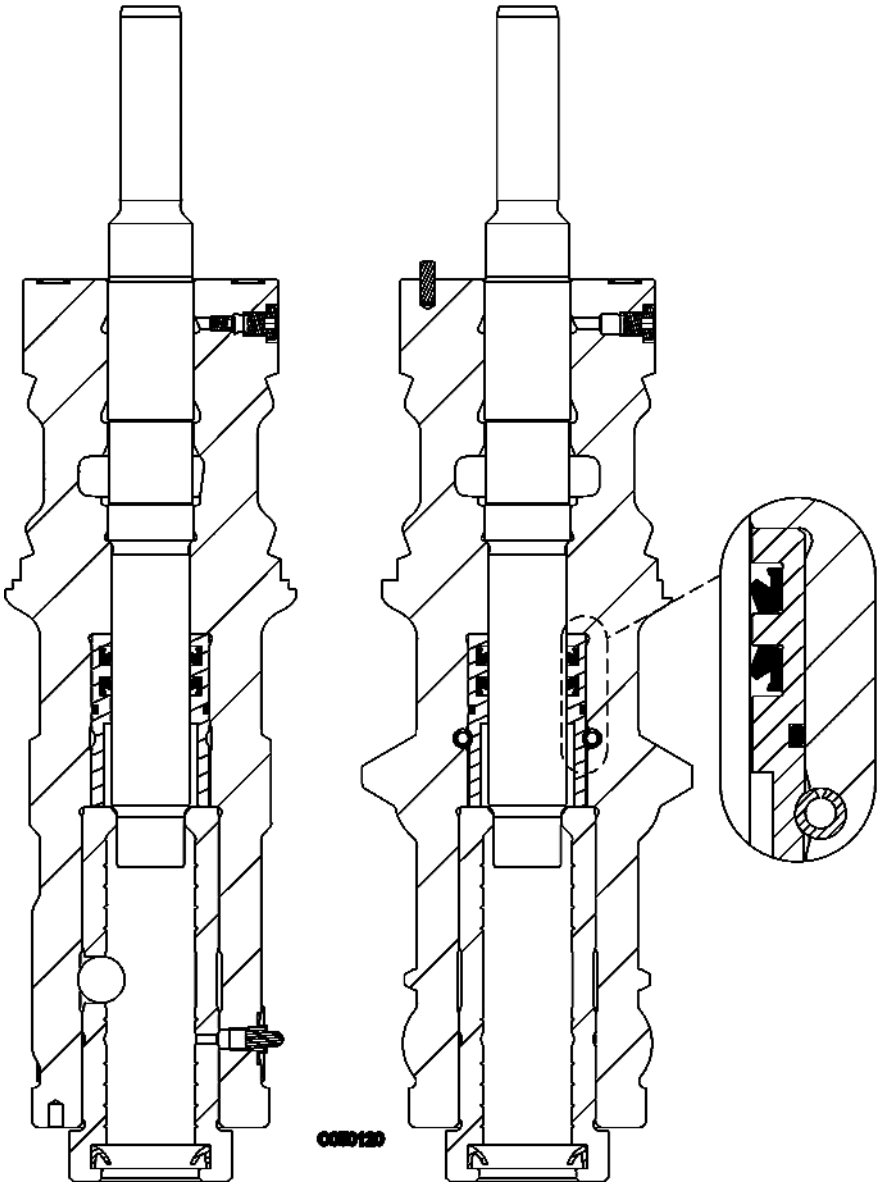
15. Adjust pressure in accumulator to correct setting by carefully opening discharge valve.
16. Torque filling plug through charging device to specified setting.
17. Release pressure from charging hose by opening discharge valve.
18. Remove charging system from accumulator.
19. Check accumulator for nitrogen leak by filling Usit-ring area with thin oil. If gas bubbles appear, discharge accumulator and replace Usit-ring.
20. Install shield plug with O-ring.



21. Torque plug to specified setting.

1.8 BODY PARTS

TORQUES, ADJUSTMENTS AND LUBRICANTS

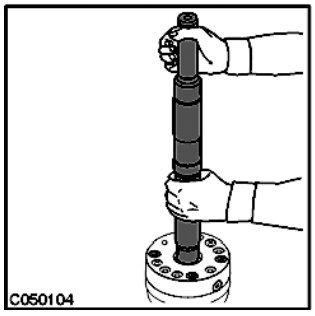


Item	Lubricants and accessories
Contact surfaces of cylinder and valve body	Anticorrosive agent (e.g. CRC 3-36)
All seals and O-rings	O-ring grease
Screw threads and bearing surfaces, lock washers. Outer surfaces of the lower tool bushing.	Thread grease

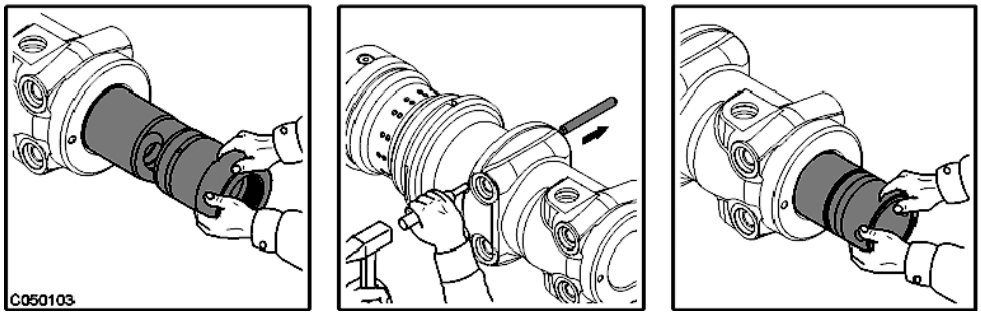
DISASSEMBLING BODY PARTS

Warning! The hydraulic pressure inside the hammer must always be released before removing any of the plugs or valves. Read the instructions on releasing the hydraulic pressure from the hammer. See "Releasing hydraulic pressure from hammer" on page 3.

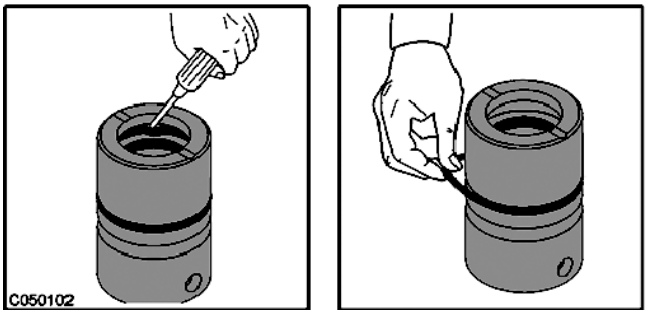
1. Remove piston.



2. Set power cell to horizontal position. Remove lower tool bushing.
3. Remove split pins.
4. Remove seal carrier. Use hook and sliding hammer.



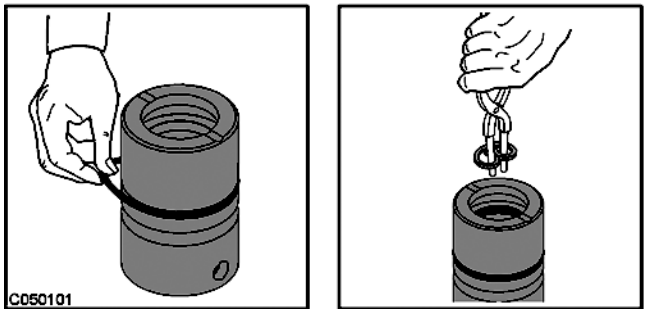
5. Remove seals and O-ring from seal carrier.



ASSEMBLING BODY PARTS

1. Check all parts for wear and damage. If necessary, use fine emery cloth or grinding agent. Clean and oil all parts.

2. Install seals and O-ring to the seal carrier using suitable pliers.

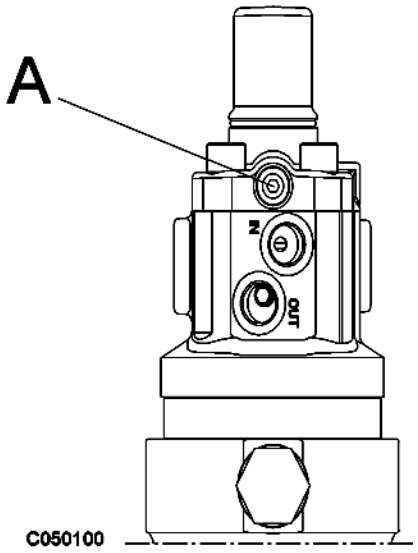


3. Oil seal carrier and cylinder properly and install seal carrier to the cylinder. Note the seal carriers direction. Align split pin holes in the seal carrier and cylinder.
4. Install lower tool bushing and tool retaining pin.
5. Install split pins to the cylinder.
6. Oil cylinder and piston properly. Insert piston into cylinder.

2. TESTING

2.1 MEASURING HAMMER OPERATING PRESSURE

SPECIFICATIONS FOR MEASURING OPERATING PRESSURE



Item	Description
Plug (A)	Pressure measuring port

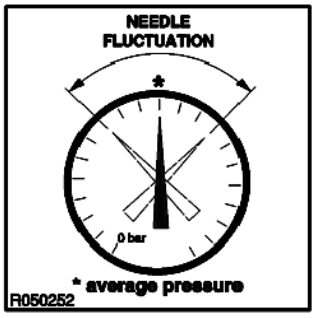
Item	Torque
Plug (A)	30 Nm

MEASURING HAMMER OPERATING PRESSURE

Warning! The hydraulic pressure inside the hammer must always be released before making any adjustments or repairs when the hammer is connected to the carrier. There may also be pressurized oil trapped inside the hammer even if the hammer is disconnected from the carrier. Release the hydraulic pressure according to the following instructions, or wait at least 10 minutes before opening any plugs or valve covers.

Warning! When measuring hammer operating pressure, you are working in hammer's danger area. Protect yourself against flying debris.

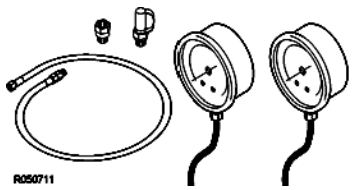
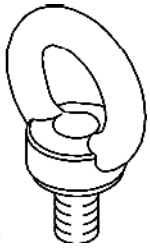
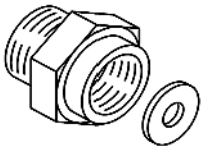
1. Hammer operating pressure must be measured with carrier hydraulic circuit in its normal operating temperature. Before starting hammer operating pressure measuring procedure, operate carrier until hydraulic oil has warmed sufficiently.
2. Stop the carrier engine. Operate boom and hammer controls to release any pressure trapped inside hoses.
3. Start carrier and set correct input oil flow to the hammer e.g. by adjusting engine revolutions or if carrier has power/work modes, please select mode intended for hammer work.
4. Position tool e.g. on a thick steel plate and start to operate hammer.
5. Read average pressure reading on low pressure gauge.

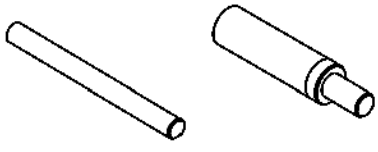


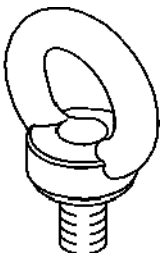
6. Stop carrier. Wait ten minutes for oil pressure to drop.

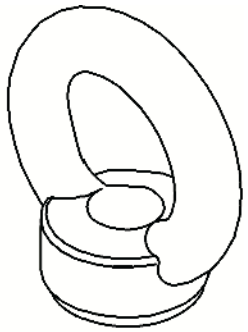
3. SERVICE TOOLS

3.1 SPECIAL SERVICE TOOLS

Name	Part no.	Qty	Picture
Pressure gauge assembly 60 bar and 250 bar	41787	1	 R050711
Hammer lifting adapter	42132	1	 R050075
Adapter for French nitrogen bottle	901311	1	 R050073

Name	Part no.	Qty	Picture
Drift pins			 R050072
Drift pin D7		1	
Drift pin D20	102998	1	

Name	Part no.	Qty	Picture
Lifting eyes			 R050076
Lifting eye M16	90690	2	

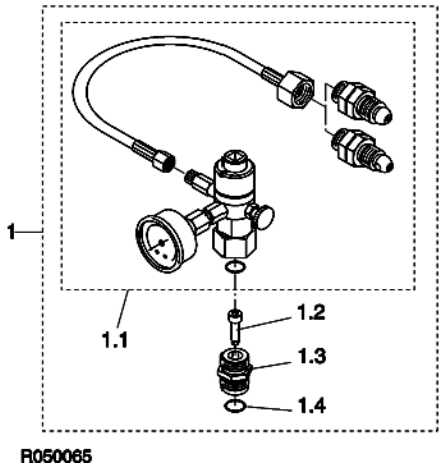
Name	Part no.	Qty	Picture
Lifting eye nuts			 R050858
Lifting eye M16		2	
Lifting eye M20		2	

3.2 STANDARD SERVICE TOOLS

Name	Specification
Torque wrench	150-700 Nm (3/4")
Torque wrench	20-200 Nm (1/2")
Torque wrench	15 Nm (1/2")
Ratchet handle	1/2"
Extension	L=125 mm (1/2")
Sliding T-handle	3/4"
Adapter	3/4"->1/2"
Adapter	1/2"->3/4"
Combination spanner	36 mm
Hex. socket	7 mm (1/2")
Hex. socket	9 mm (1/2")
Hex. socket	36 mm (3/4")
Allen type screw socket	3 mm (1/2")
Allen type screw socket	5 mm (1/2")
Allen type screw socket	6 mm (1/2")
Allen type screw socket	10 mm (1/2")
Pry bars	400 mm
Lifting chain	
Hammer	Plastic, 1000 g
Hammer	Ball headed, 680 g
Hammer	2000 g
Slide hammer	
Screwdriver	6x150 mm
Screwdriver	8x250 mm

Name	Specification
Oil can	0.5 l
Grease gun	
Flowmeter	15-25 l/min
Flowmeter	20-150 l/min
Pressure gauge	40 bar

3.3 SPECIAL SERVICE TOOLS FOR B110 AND B160

Item	Name	Part no.	Qty	Picture
1	Accumulator charging kit (incl. parts 1.1-1.4)	40633	1	
1.1	Charging device	101688	1	
1.2	Socket	40601	1	
1.3	Adapter	101635	1	
1.4	O-ring	901135	1	

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