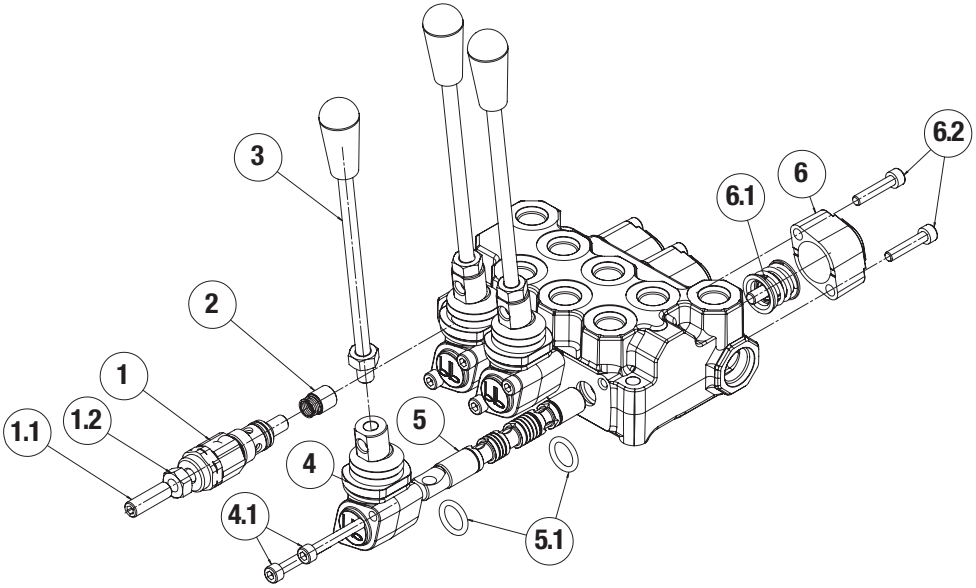
PARTS LIST:



Drawing 1

BM20 SPARE PARTS

Nº Parts	Parts	Nº sub part	Sub part
1	Relief Valve kit	1.1	Screw
		1.2	Nut
2	Check valve		
3	Kit handle		
4	Handle cap kit	4	Handle cup
		4.1	Screw
5	Spool kit	5.1	Seal
		5	Spool
6	Positioner kit	6	Positioner cap
		6.1	Positioner kit
		6.2	Screw

CHANGING THE VALVE SPOOL AND SEALS (See drawing 1):

Step 1. Remove the Handle (Part 3).
Step 2. Remove the Bolts (Part 6.2) with a 5mm hex key and remove the Positioner Cap (Part 6).
Step 3. Using a 5mm hex key remove the positioner (Part 6.1).
Step 4. Remove the bolts (Part 4.1) with a 5mm hex key and remove the Handle Cap (Part 4).
Step 5. Always start on the Positioner Cap side when removing the O-rings. Move the Spool (Part 5) only far enough to expose the O-ring (Part 5.1). Be careful not to push the spool too far past the O-ring groove as this will cut the O-ring on the Handle Cap side. Remove the O-ring with a pick.
Step 6. Remove the spool through the Positioner Cap end of the valve. Remove the Handle Cap side O-ring with a pick.
Step 7. Lightly oil the new spool with clean hydraulic fluid. Insert the spool into the valve and push and pull it within the valve casting to make sure there is very little resistance. If resistance is felt please try a new spool to eliminate binding.
Step 8. Push the spool back on the Handle Cap end so the O-ring can be installed in the groove.
Step 9. After the O-ring is installed in the Handle Cap end slowly push the spool from the Positioner Cap end to expose the O-ring groove. Be careful not to push the spool too far past the O-ring groove as this will cut the O-ring on the Handle Cap side. Install the O-ring in the groove.
Step 10. Install the Handle Cap first and tighten the bolts to 6.3 ft. lbs.
Step 11. Install the Positioner into the spool and tighten to 9.6 ft. lbs. Then install the Positioner Cap and tighten the bolts to 6.3 ft. lbs.
Step 12. Add the Handle to the valve and move it back and forth to see if you feel any sticking of the spool. If it is not sticking the installation is complete.
If it feels like it's sticking, loosen the Caps and realign, then try it again, this should fix the sticking issue.

CHANGING THE SPRING POSITIONER TO DETENT POSITIONER (See drawing 1):

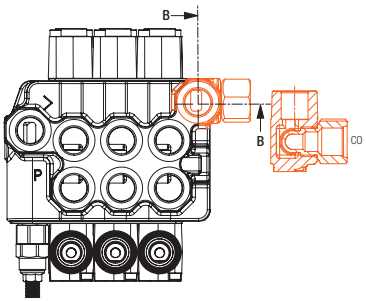
Step 1. Remove the bolts (Part 6.2) with a 5mm hex key and remove the Positioner Cap (Part 6).
Step 2. Using a 5mm hex key remove the old Positioner (Part 6.1).
Step 3. Install the new Positioner into the Spool and tighten to 9.6 ft. lbs.
Step 4. Install the Positioner Cap and tighten the bolts to 6.3 ft. lbs.

SETTING THE RELIEF VALVE

An adjustable relief valve is standard on all monoblock directional valves. Standard factory setting is 2,100 PSI.
The relief pressure is adjusted by releasing the Nut (Part 1.2), and turning the Adjusting Screw (Part 1.1) with a 4 mm hex key wrench. Turning the Adjusting Screw clockwise will increase the pressure and counter-clockwise will decrease the pressure (a pressure gauge must be installed in the inlet line whenever the relief pressure is adjusted). Adjustable pressure range is 1,300 PSI to 3,600 PSI. Do not backout adjusting screw to the point it falls out.

OPTIONAL

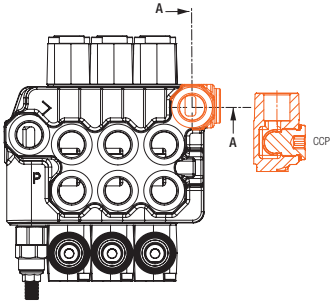
Power Beyond Adapter (CO)



HOW TO INSTALL POWER BEYOND ADAPTER (CO)

Step 1. Screw the power beyond adapter into the T2 port with 22 mm hex wrench and tighten to 18 ft. lbs. When the Power Beyond Plug is installed a hose must be attached to the T1 port and run back to the reservoir. Failure to do this will cause the valve not to function properly.

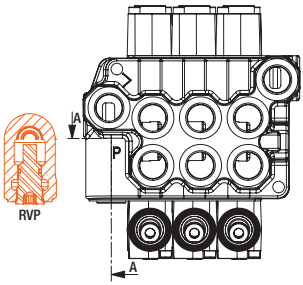
Closed Center Plug (CCP)

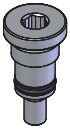


HOW TO INSTALL CLOSED CENTER PLUG (CCP)

Step 1. Screw the Closed Center Plug into the T2 port with 8 mm hex key and tighten to 29.5 ft. lbs. When the Closed Center Plug is installed a hose must be attached to the T1 port and run back to the reservoir. Failure to do this will cause the valve not to function properly.

Relief Valve Plug (RVP)





HOW TO INSTALL RELIEF VALVE PLUG (RVP)

Step 1. Remove the Relief Valve (Part 1) whit a 22 mm wrench.
Step 2. Take out the load Check Valve (Part. 2) and install on the relief valve plug
Step 3. Screw the Relief Valve Plug into the Relief Valve port with 8 mm hex key and tighten to 44 ft. lbs.

WARNING

- All hydraulic valves must be properly installed into the hydraulic system to prevent personal injury and/or property damage. Further, the improper servicing of a valve may result in personal injury and/or property damage. Please read and understand all catalogue and service information before starting, as with all mechanical work the proper tools, knowledge, and safety equipment are required, always wear safety glasses.

- Make sure all pressure has been relieved in the hydraulic lines before installing or servicing a hydraulic valve.

- Escaping hydraulic fluid under pressure can have sufficient force to penetrate skin, causing serious personal injury. Do not use your hand to check for hydraulic leaks.

- Before installing or servicing a hydraulic component make sure all weight has been removed from the cylinders or motors before disconnecting hydraulic lines.

- Disconnecting the hydraulic lines while the cylinder or motor is under load may result in the unexpected rapid movement of machine resulting in serious personal injury.

- Do not exceed the operating specifications for pressure, flow or temperature, all hydraulic systems require a means to limit the maximum pressure. This requires either a pressure relief valve in the system or a pump that has pressure compensation.

- Overpressure may cause sudden and unexpected failure of a component in the hydraulic system resulting in serious personal injury, always use a gauge when adjusting a relief valve.