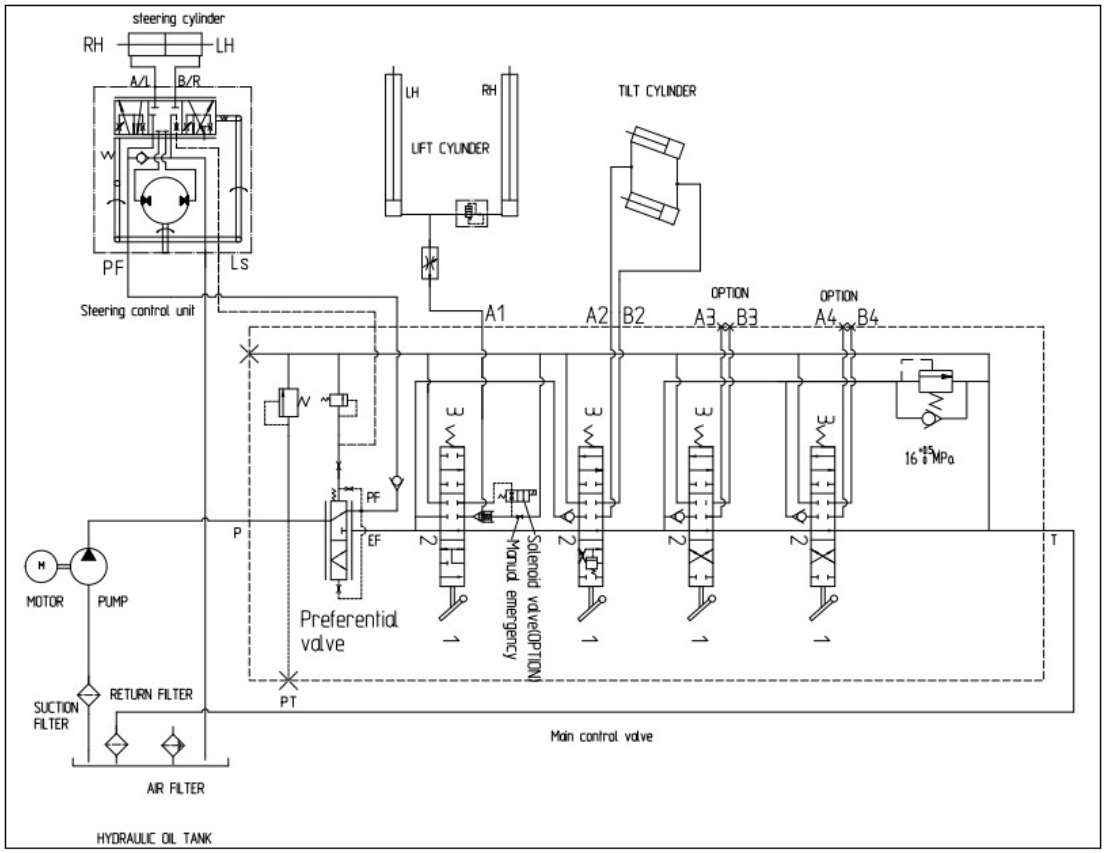
SECTION 6 HYDRAULIC SYSTEM

GROUP 1 STRUCTURE AND FUNCTIONS

1. HYDRAULIC CIRCUIT



1) LIFT ASCENDING, TILTING REAR

When pulling lift and tilt operation lever, spools of first and second blocks move to position of lift ascending tilting backward. Hydraulic oil of hydraulic pump flows into main control valve to push rod check valve of spool to large chamber of lift cylinder and small chamber of tilt cylinder.

At the same time, hydraulic oil from small chamber of lift cylinder and large chamber of tilt cylinder returns to hydraulic oil tank. This hydraulic oil flow forms lift ascending and tile backward.

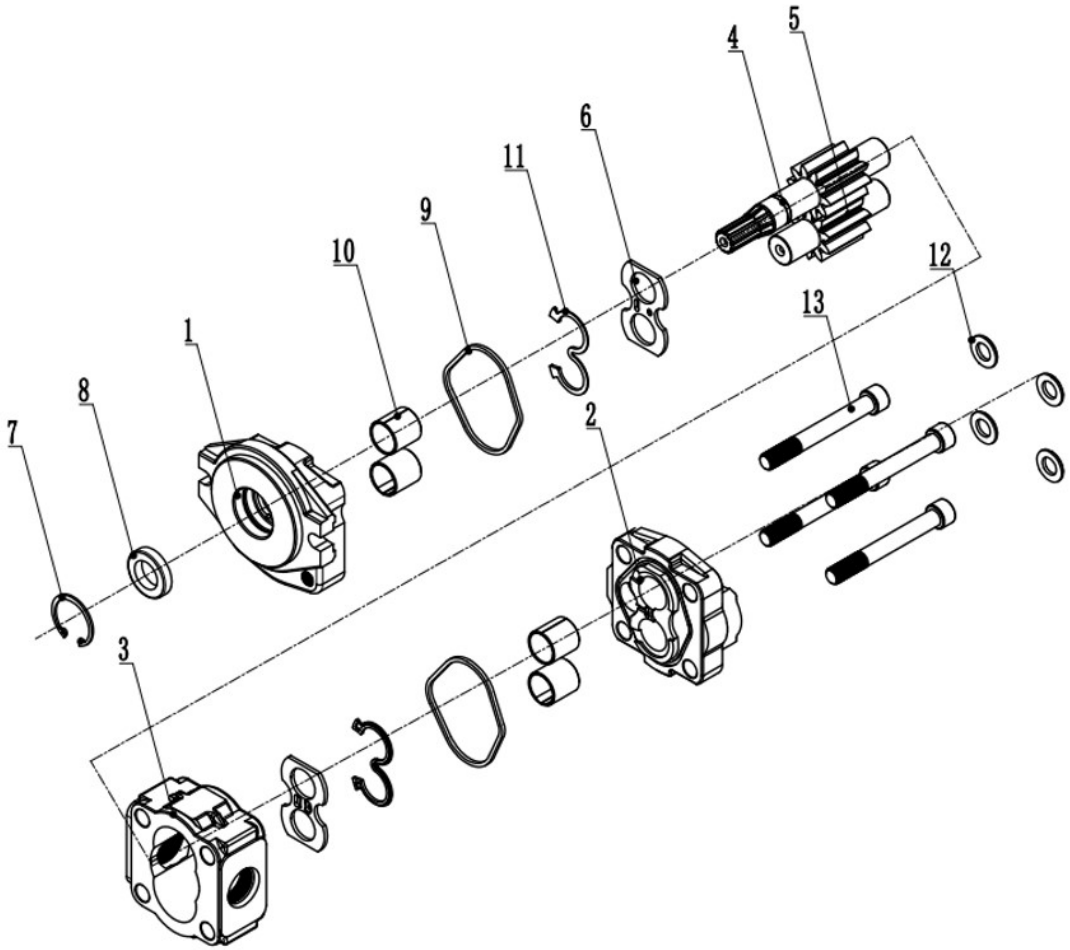
2) LIFT DESCENDING, TILTING FORWARD

When pushing lift and tilt operation lever, spools of first and second blocks move to position of lift descending tilting forward. Hydraulic oil of hydraulic pump flows into main control valve to push rod check valve of spool to move to large chamber of tilt cylinder.

Large and small chambers of lift cylinder are connected to return path to let return of hydraulic oil, and mast descends with weight of forks.

Hydraulic oil from small chamber of tilt cylinder is returned to hydraulic oil tank. This hydraulic oil flow forms tilting forward.

2. HYDRAULIC GEAR PUMP

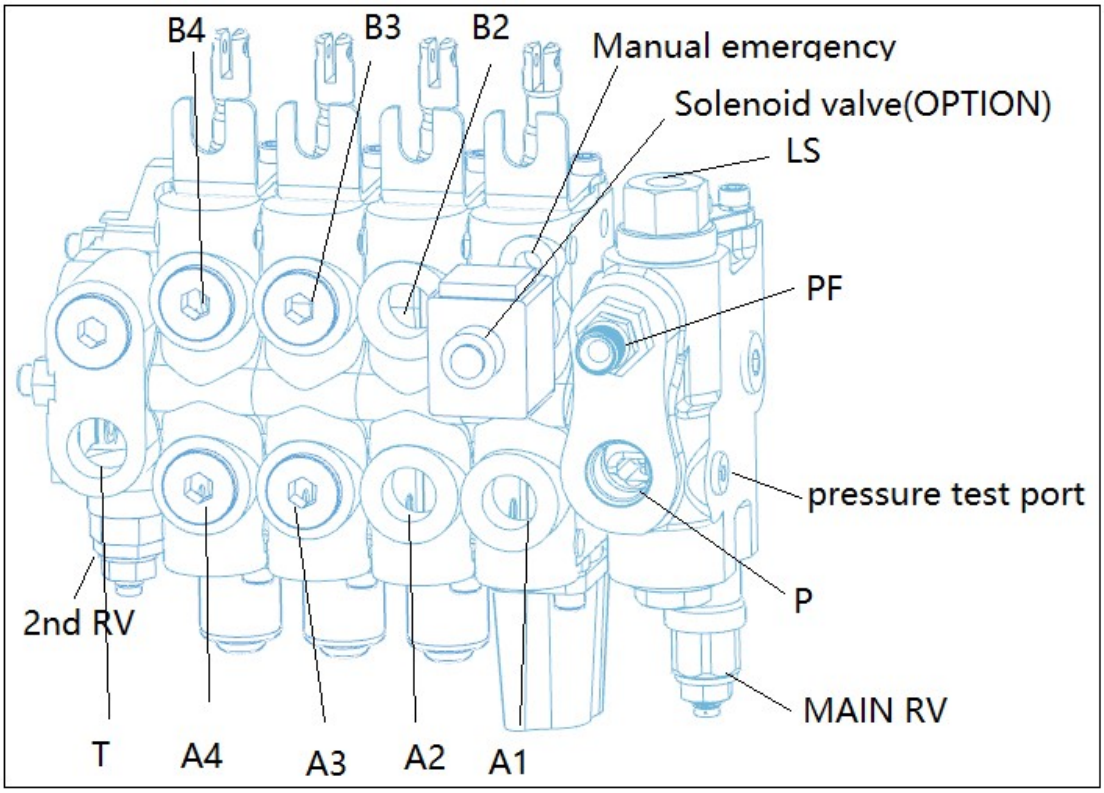


1	Cover-Front	6	Plate	10	Bush
2	Cover-Rear	7	Ring-Retain	11	3 Type Seal
3	Body-Middle	8	Oil Seal	12	Washer
4	Main Gear	9	Ring-Seal	13	Bolt
5	Slave Gear				

※ Seal kit: 7,8,9,11

3. MAIN CONTROL VALVE

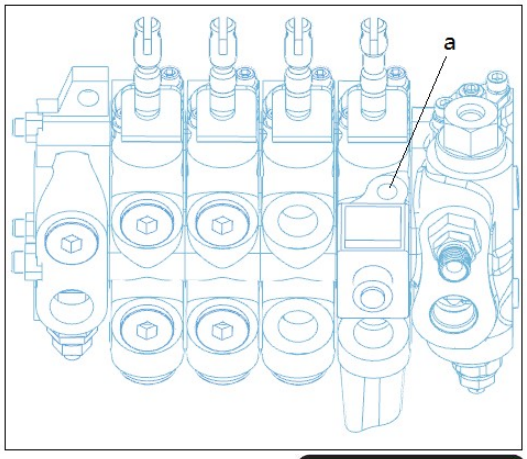
1) STRUCTURE



Port	Port name	Dimensions	Fastening torque
			kgf·m
A1	Lift	M20*1.5	5
A2, B2	Tilting	M20*1.5	5
A-, B-	Aux.	M20*1.5	5
P	Inlet	M22*1.5	7
T	Outlet	M22*1.5	7
PT	Gauge, pilot	PT1/8	1.5
PF	PF	M16*1.5	3
LS	LS	M12*1.5	1.5

2) FUNCTIONS

Emergency mast lowering.



In case that the mast can't be lowered due to a problem in the controller, activate the emergency lowering valve on the MCV assy by rotating the valve (a).

⚠ **Manual override features are intended for emergency use, not for continuous-duty operation.**

① Loosen and remove the MCV cover connecting bolts.
Tightening torque :1.5 - 1.8 kgf·m

② Use the L-wrench (5 mm) to loosen the bolts counterclockwise until lowering of the mast begins.

※ Do not undo the bolts more than 1.5 turns.

※ If lowering still does not begin, there is a mechanical block. Do not under any circumstances continue to unscrew the emergency lowering feature.

③ After lowering is complete, the valve must be screwed back in again.

※ Do not exceed a tightening torque of maximum 1.8 kgf·m.

⚠ **When operating the emergency lowering valve in order to lower the mast inevitably, always make certain that any person should not stand or pass under the mast, the fork and platform so as to avoid from unexpected accident such severe personal injury or death.**

Cutoff solenoid for blocking hydraulic pressure

This equipment is a mast interlock that preventing activation of hydraulic functions of main control valve until operator sits on the seat. The system is also a key-lowering interlock system that prevents fork descending while start key is kept on OFF position. This safety function is defined in ISO 3691-1, and should not discretionally be deactivated on main control valve.

Relief valve

① Primary relief valve (DV1)

Primary relief valve limits max. pressure of lifting and tilting function. When lifting or tilting function operates simultaneously with aux. function, max. pressure of lifting or tilting function is limited by pressure setup of secondary relief valve. Primary relief valve does, typically, not require field adjustment. Refer to testing and adjustment of relief valve for further information of adjustment.

② Secondary relief valve (DV2)

Secondary relief valve limits max. pressure of aux. (attachment) function, and pressure setting of the valve is lower than primary relief valve. Secondary relief valve may require pressure adjustment dependent upon types of attachments. If it is required to adjust pressure, adjustment within 90% of primary relief valve pressure is recommended (e.g., 200 × 0.9=180 bar). If pressure of secondary relief valve is too close to pressure of primary relief valve, interference

between circuits may take place. Refer to testing and adjustment of relief valve for further information of adjustment. Up to 2 optional functions are provided.

3) RELIEF VALVE PRESSURE TESTING AND ADJUSTMENT

Test specifications

- Hydraulic motor speed: High rpm
- Oil temperature: 50±5°C (122±9°F)
- Relief valve pressure setting
  - Primary : 195＋5bar
  - Secondary :160+5 bar
- Tools : lock nut 17mm，internal hex 5mm

⚠ **Primary relief valve (DV1) should not be used for pressure boosting at field. When boosting pressure of primary relief valve higher than specified setting, system may be damaged.**

⚠ **Check relief valves in safe and clean environment.**

⚠ **Make sure there is no bystanders or other workers in the vicinity of system during operation and testing.**

⚠ **Pressurized hydraulic oil may remain in hydraulic system after turning off. Fully lower folks onto the ground to prevent personal safety accident. Loosened mast chain indicates fully lowering of forks.**

⚠ **Turn engine off before disassembling, fastening, removing or adjusting piping parts (e.g., fitting, plug and hose), and fully move main control valve lever forward and backward two or three times to fully discharge hydraulic oil from circuits. Open tank oiling cap to relieve pressure. When air breather filter inside hydraulic oil tank is clogged, pressure may reside inside tank.**

⚠ **Hot hydraulic oil may cause severe burn. Never touch components or hydraulic oil during testing. Make sure that hydraulic oil is cooled down to safe temperature before installing or removing testing systems.**

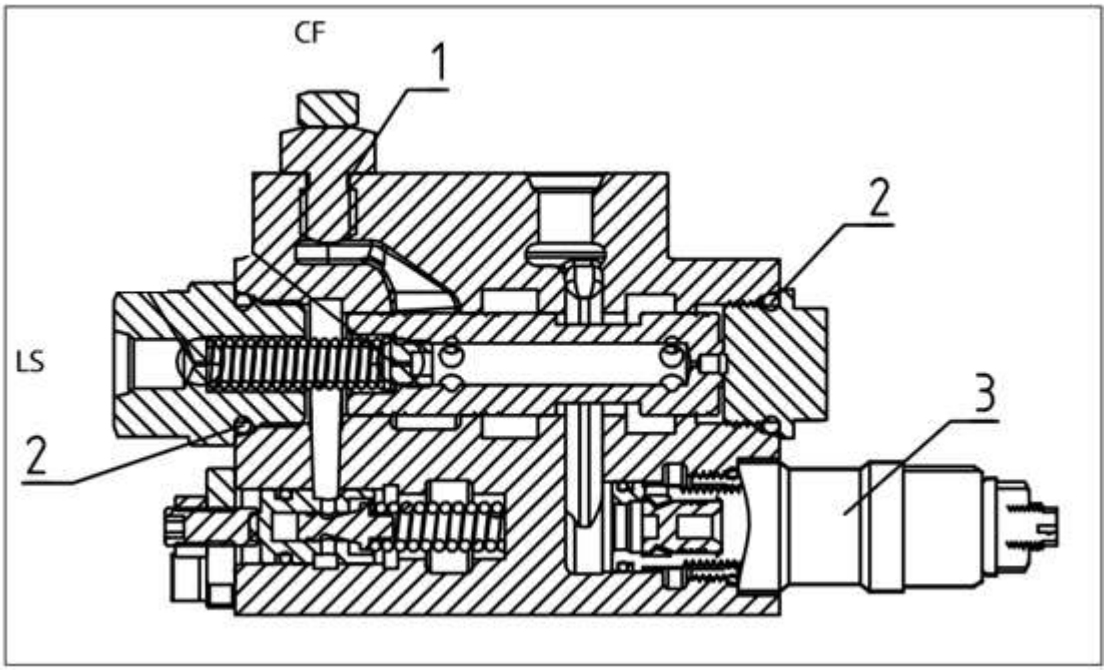
⚠ **Your skin may contact with pressurized hydraulic oil. Fully lower forks onto the ground before removing test plug from valve, and then relieve pressure from all of circuits.**

① Operate hydraulic system until oil temperature reaches specified value in test specifications.
② Lower forks onto the ground, stop engine, and then apply parking brake.
③ Open cover of main control valve.
④ Connect pressure gauge to pressure check port (G) of main control valve.
⑤ Operate pump motor in accordance with test specifications.
⑥ Pull lift lever to raise forks to the top, and keep the conditions as they are.
⑦ Read pressure gauge. Compare value on the gauge with specifications.
⑧ Loosen lock nuts of main control valve and relief valve, and turn adjustment screw to adjust pressure.
- Fastening torque :3.8 kgf·m
- If pressure is lower than specification, turn relief valve adjustment screw clockwise.
- If pressure is higher than specifications, turn relief valve counterclockwise.

⚠ **Adjustment screw of MCV relief valve is very sensitive. Rotate the screw by a quarter turn to prevent overpressure.**

⑨ Repeat Steps 7 and 8. When pressure is compliant with the specifications, remove testing equipment.

4) PREFERENTIAL VALVE

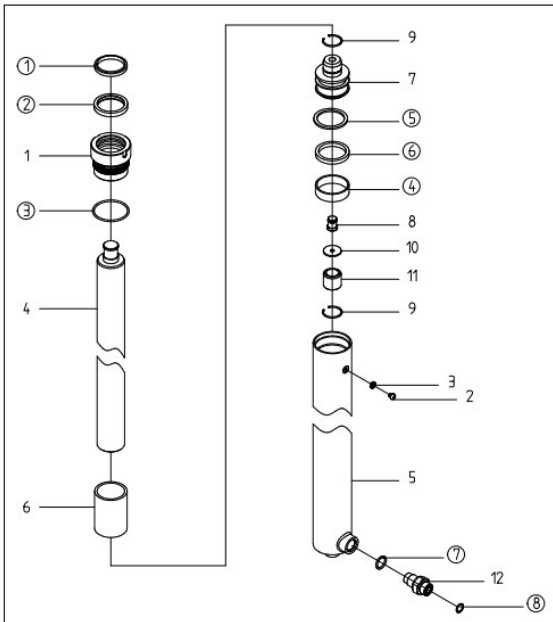


1 O-Ring 2 O-Ring 3 Main Relief Valve

The priority valve is integrated into the main valve. The valve is affected by the LS signal on the steering device to ensure that sufficient oil is supplied to the steering circuit. The valve maintains a constant steering force and speed to resist changes in the pump hydraulic oil supply flow, and first supplies hydraulic oil to the steering circuit.

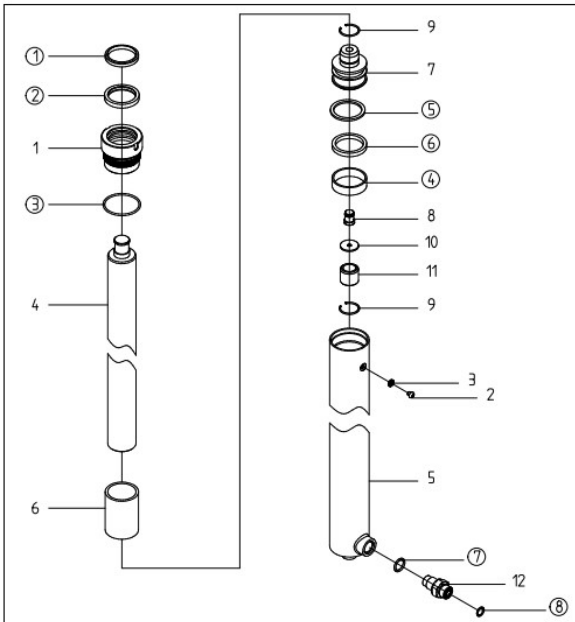
4. LIFT CYLINDER

1) V MAST



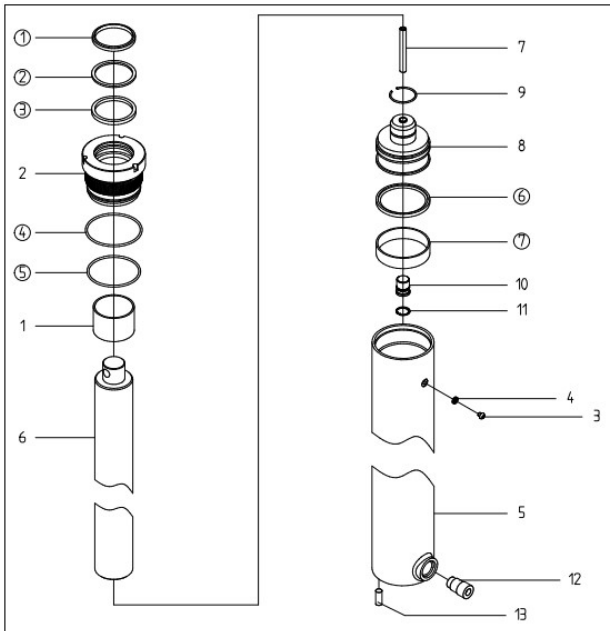
⑧	AS568 014	O-RING 12.42x1.78	1	NBR		NOK
⑦	AS568 116	O-RING 18x2.65	1	NBR		NOK
⑥	OSI 45x35x6	U-PACKING	1	PU		NOK
⑤	Ø45x Ø35x3	RING-BACKUP	1	PIFE		
④	D45x15x2.5	RING-WEAR	1	PF		
③	AS568 133	O-RING 45x2.65	1	NBR		NOK
②	ISI 35x45x6	U-PACKING	1	PU		NOK
①	LBI 35x43x5/6.5	WIPER-SNAP	1	PU		NOK
	37MD16V55x35-MFB密封包明细					
12	HHI020-SV100	SHUT-OFF VALVE75L/Min	1	ASSEMBLY	※One of 2 Cyl.	
11	TLC-15T24	VALVE-SLEEVE	1	20		
10	TLC-15T23	SPACER	1	45		
9	GB895.1-86	STOP RING d0=24	2	65Mn		
8	TLC015-SV100	CHECK VALVE	1	ASSEMBLY		
7	TLC-15T22A	PISTON	1	45		
6	LIFT-GT35x43xK	SPACER	1	45		
5	SEE TABLE	PIPE	1	WELD		
4	SEE TABLE	ROD	1	45		
3	GB982-77	GASKET 6	1	COMPOSITE		
2	GB70.2-85	SCREW M6x5	1	8.8GRADE		
1	37MD16V55x35-1	GLAND	1	QT450-10		
NO. 序号	PART NO. 代 号	PART NAME 名 称	Q'TY 数量	MATERIAL 材 料	WEIGHT 重量	REMARK 备注

2) TF MAST



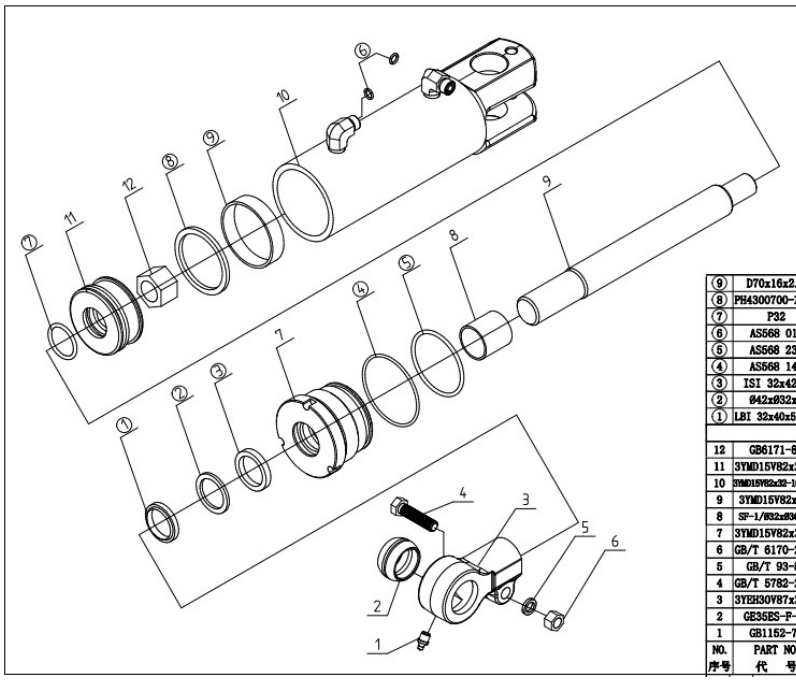
⑧	AS568 014	O-RING 12.42x1.78	1	NBR		NOK
⑦	AS568 116	O-RING 18x2.65	1	NBR		NOK
⑥	OSI 45x35x6	U-PACKING	1	PU		NOK
⑤	Ø45xØ35x3	RING-BACKUP	1	PIFE		
④	D45x15x2.5	RING-WEAR	1	PF		
③	AS568 133	O-RING 45x2.65	1	NBR		NOK
②	ISI 35x45x6	U-PACKING	1	PU		NOK
①	LBI 35x43x5/6.5	WIPER-SNAP	1	PU		NOK
	37MD16TF55x35-MFB密封包明细					
12	HHI020-SV100	SHUT-OFF VALVE75L/Min	1	ASSEMBLY	※One of 2 Cyl.	
11	TLC-15T24	VALVE-SLEEVE	1	20		
10	TLC-15T23	SPACER	1	45		
9	GB895.1-86	STOP RING d0=24	2	65Mn		
8	TLC015-SV100	CHECK VALVE	1	ASSEMBLY		
7	TLC-15T22A	PISTON	1	45		
6	LIFT-GT35x43xK	SPACER	1	45		
5	SEE TABLE	PIPE	1	WELD		
4	SEE TABLE	ROD	1	45		
3	GB982-77	GASKET 6	1	COMPOSITE		
2	GB70.2-85	SCREW M6x5	1	8.8GRADE		
1	37MD16V55x35-1	GLAND	1	QT450-10		
NO. 序号	PART NO. 代 号	PART NAME 名 称	Q'TY 数量	MATERIAL 材 料	WEIGHT 重量	REMARK 备注

3) TF FREE MAST



⑦	D65x20x2.5	RING-WEAR	1	PF		
⑥	PH4200650-Z13N	SEAL-PISTON 65x54x4.2	1	COMBINATION SEAL		TSS
⑤	G60	O-RING Ø65x3.1	1	NBR		NOK
④	G65	O-RING Ø70x3.1	1	NBR		NOK
③	ISI 45x55x6	U-PACKING	1	PU		NOK
②	D55xd45x3	RING-BACKUP	1	PIFE		
①	LBI 45x53x5/6.5	WIPER-SNAP	1	PU		NOK
37MD16TF76x45-MFB密封包明细						
13	GB119-86	PIN A10x25	1	35		
12	HHI025-SV100	SHUT-OFF VALVE 90L/Min	1	ASSEMBLY		
11	GB893.1-86	RETAINING RING D22	1	65Mn		
10	TLC030-SV100	CHECK VALVE	1	ASSEMBLY		
9	TLC-30T39	STOP RING	1	65Mn		
8	37MD16TF76x45-3	PISTON	1	45		
7	TLC-30T37	PIPE	1	20		
6	SEE TABLE	ROD	1	45		
5	SEE TABLE	TUBE ASS'Y	1	WELD		
4	GB982-77	GASKET 6	1	COMPOSITE		
3	GB70.2-85	SCREW M6x5	1	8.8GRADE		
2	37MD16TF76x45-1	GLAND	1	45		
1	SF-1/45x50x45	DU BUSH	1	COMPOSITE		
NO. 序号	PART NO. 代 号	PART NAME 名 称	Q'TY 数量	MATERIAL 材 料	WEIGHT 重量	REMARK 备注

5. TILT CYLINDER



⑨	D70x16x2.5	RING-WEAR	1	PF		
⑧	PH4300700-Z13N	SEAL-PISTON 70x54.6x6.3	1	COMBINATION SEAL		TSS
⑦	P32	O-RING 38x3.5	1	NBR		NOK
⑥	AS568 011	O-RING 7.65x1.78	2	NBR		NOK
⑤	AS568 230	O-RING 70x3.5	1	NBR		NOK
④	AS568 149	O-RING 71x2.65	1	NBR		NOK
③	ISI 32x42x6	U-PACKING	1	PU		NOK
②	Ø42xØ32x3	RING-BACKUP	1	PIFE		
①	LBI 32x40x5/6.5	WIPER-SNAP	1	PU		NOK
3YMD15V82x32-MFB密封包明细						
12	GB6171-88	NUT-HEXAGON M24x2	1	8GRADE		
11	3YMD15V82x32-3	PISTON	1	45		
10	3YMD15V82x32-100R(1)	TUBE ASS'Y	1	WELD		
9	3YMD15V82x32-2	ROD	1	42CrMo		
8	SF-1/Ø32xØ36x35	DU BUSH	1	COMPOSITE		
7	3YMD15V82x32-1	GLAND	1	45		
6	GB/T 6170-2000	NUT-HEXAGON M12	1	10GRADE		
5	GB/T 93-87	WASHER-SPRING 14	1	65Mn		
4	GB/T 5782-2000	BOLT-HEXAGON M12x50	1	10.9GRADE		
3	3YEH30V87x35-1	EYE-ROD	1	45FORGE		
2	GE35ES-F-01	BEARING-SPHERICAL	1	GCr15		
1	GB1152-79	NIPPLE-GREASE M10x1	1	ASSEMBLY		
NO. 序号	PART NO. 代 号	PART NAME 名 称	Q'TY 数量	MATERIAL 材 料	WEIGHT 重量	REMARK 备注

GROUP 2 OPERATIONAL CHECKS AND TROUBLESHOOTING

1. OPERATIONAL CHECK

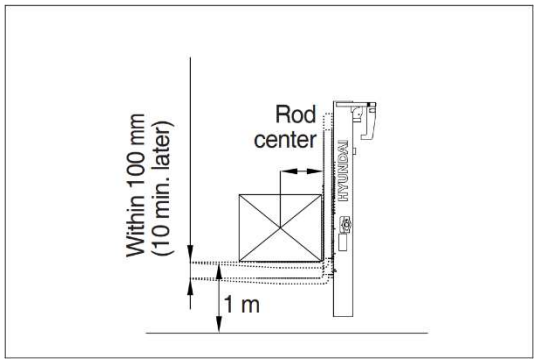
1) INSPECTION ITEMS

① Visually check rod for deformation, crack or destruction.

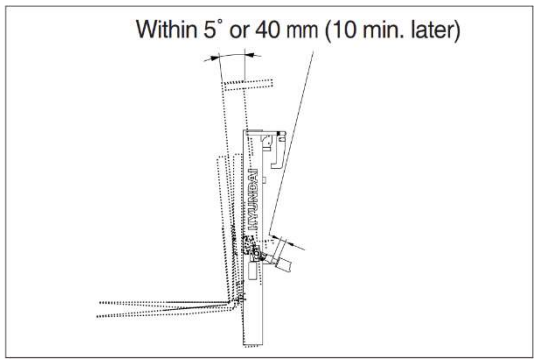
② Place mast in horizontal direction, and lift it from the ground by 1 m. Measure hydraulic drift (distance for fork lowering, and mast tilting forward) 10 minutes later.

· Inspection conditions
- Hydraulic oil temperature: 45±5℃
- Rated load
- Mast kept vertical

· Hydraulic drift
- Lowering: Within 100 mm
- Tilting forward: Within 5° or 40 mm



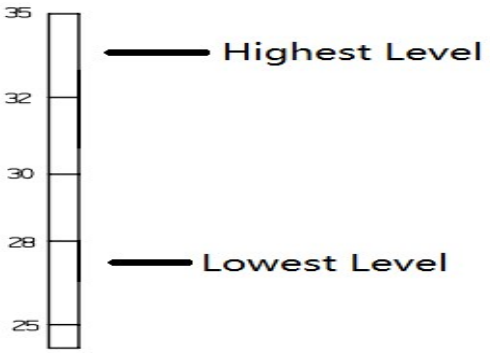
③ If hydraulic drift is greater than specified value, replace control valve or cylinder packing.



2) HYDRAULIC OIL

① Make use of dipstick to measure oil level, and make it up, if required.

② Clean suction strainer fixed on outlet port pipe with screw when exchanging hydraulic oil.



3) MAIN CONTROL VALVE

Raise forks to the highest position, and measure hydraulic pressure. Make sure that pressure of hydraulic oil is 210 bar.

2. FAILURE DIAGNOSIS AND TROUBLESHOOTING

1) HYDRAULIC SYSTEM

Trouble	Possible cause	Troubleshooting
Sudden drop of forks	· Defective seal inside control valve · Oil leak from joint or hose. · Defective seal inside cylinder.	· Replacing spool or valve body. · Replacing · Packing exchange.
Large tilting angle by tare weight of mast	· Leaning backward: Defective check valve. · Leaning forward: Defective tilting lock valve. · Oil leak from joint or hose. · Defective seal inside cylinder.	· Cleaning or replacing. · Cleaning or replacing. · Replacing. · Seal replacing.
Slow speed of fork lifting or mast tilting	· Insufficient hydraulic oil. · Intrusion of air in hydraulic oil. · Oil leak from joint or hose. · Excessive restriction on oil flow on pump suction. · Relief valve failed in keeping at specified pressure. · Defective seal inside cylinder. · High viscosity of hydraulic oil · Mast not moving smoothly. · Oil leak on lift control valve spool. · Oil leak on tilting control valve spool.	· Oil making up. · Air bleeding · Replacing. · Filter cleaning. · Relief valve adjusting. · Packing exchange. · Replacing with ISO VG46. · Adjusting rolls in rail interval · Replacing spool or valve body. · Replacing spool or valve body.
Abnormal noise from hydraulic system	· Excessive restriction on oil flow on pump suction. · Defective hydraulic pump gear or bearing.	· Filter cleaning. · Gear or bearing replacing.
Control valve lever locked	· Foreign substance between spool and valve body. · Defective valve body.	· Cleaning. · Evenly tightening body mounting bolt.
Rise of oil temperature	· Insufficient hydraulic oil. · High viscosity of hydraulic oil. · Oil filter clogged.	· Oil making up. · Replacing with ISO VG46. · Filter cleaning.

2) HYDRAULIC GEAR PUMP

Trouble	Possible cause	Troubleshooting
Oil leak from oil seal	· Backlashing · Abnormally high pressure on suction port · Seal damaged by foreign substance · Damage or abrasion of seal of shaft · Defective centering of shaft	· Rotating pump in correct direction · Keeping pressure proper · Replacing oil seal with new part · Centering adjustment. · Pump replacing.
Oil leak on cover or body interface	· Bolt loosened or damaged on cover and body · Deterioration or damage of oil seal by thermosetting of gasket	· Bolt fastening or keeping pressure proper. · Replacing gasket with new part
Oil leak on port	· Port fitting damaged or loosened · Port seal damaged · Port damaged	· Port tightening and keeping design pressure intact · Port seal replacing · Pump replacing
Discharge flow insufficient, or pressure not established	· Insufficient oil in tank · Internal oil leak by abnormally high pressure, or improper oil viscosity · Capability degraded by oil contamination · Cavitation by negative pressure · Internal part destructed · Backlashing	· Suppling oil of proper type and capacity into tank, and cooling system replacing. · Exchanging contaminated oil. · Using suction pipe of proper length and width, and replacing filter to prevent negative pressure. · Suction valve opening · Pump replacing · Rotating pump in correct direction, and preventing abnormally high temperature on suction side.
Rise of tank or oil temperature	· Abnormal heat generated by frequent operation of pressure control valve · Internal part destructed	· Setting to proper pressure. · Pump replacing.
Noise and vibration	· Poor mounting · Cavitation · Air induced · Vibration of piping or mounted flange · Chattering of relief valve · Internal part destructed	· Centering adjustment · Using suction pipe of proper length and width, and replacing filter to prevent negative pressure. · Filling tank with oil, and preventing air inducing with suction pipe. · Reinforcing pipe and mounting flange, and preventing resonance. · Replacing relieve valve. · Pump replacing.

※ Capability of disassembled pump may not be restored after reassembling.

※ If pump is destructed, replace the assembly.

※ If it is inevitable to disassemble pump, consult with the authorized shop or dealer of HD HYUNDAI.

3) LIFT CYLINDER

Trouble	Possible cause	Troubleshooting
Oil leak on rod cover through rod	· Foreign substance on packing. · Severe flaw on rod. · Abnormal distortion of dust seal. · Chromium plating damaged	· Packing replacing. · Grinding rod surface with oil stone. · Dust seal replacing. · Rod replacing.
Oil leak on cylinder rod cover thread	· O-ring damaged.	· O-ring replacing.
Rod shrunken	· Flaw on internal surface of tube. · Very serious flaw on internal surface of tube. · Foreign substance into piston seal.	· Grinding rod surface with oil stone. · Cylinder tube replacing. · Piston seal replacing.
Abrasion (play between cylinder tube and abrasion ring)	· Serious play between cylinder tube and abrasion ring.	· Abrasion ring replacing.
Abnormal noise when tilting operation	· Insufficient lubricant on anchor pin or bushing or pin abraded. · Tilt cylinder rod bent.	· Applying lubricant or replacing. · Replacing.

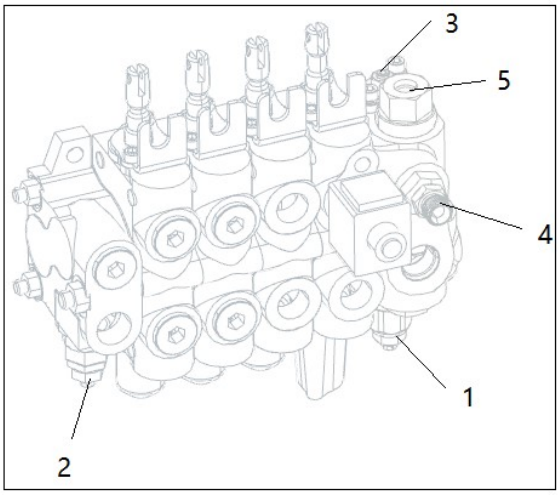
GROUP 3 DISASSEMBLY AND ASSEMBLY

Always work in clean environment, and comply with the followings:

- Make sure that there is no damage of parts immediately after accepting them.
- All of components should be cleaned with solvent, and dried with compressed air before reassembling.
- Care should be exercised for protecting rubber seal from damage.
- Care should be exercised for protecting precise-machined surface from damage.
- Components should be inserted into housing not exercising large force. If large force is required, dimensional tolerances of parts are not complied with or misaligned.
- If force of hands is not sufficient, use press or rubber mallet.
- Never strike part with iron hammer.
- Proper press should be used for metal bushing.
- Do not use mallet for mounting bearings.
- Always pay attention to rotation direction when assembling parts.

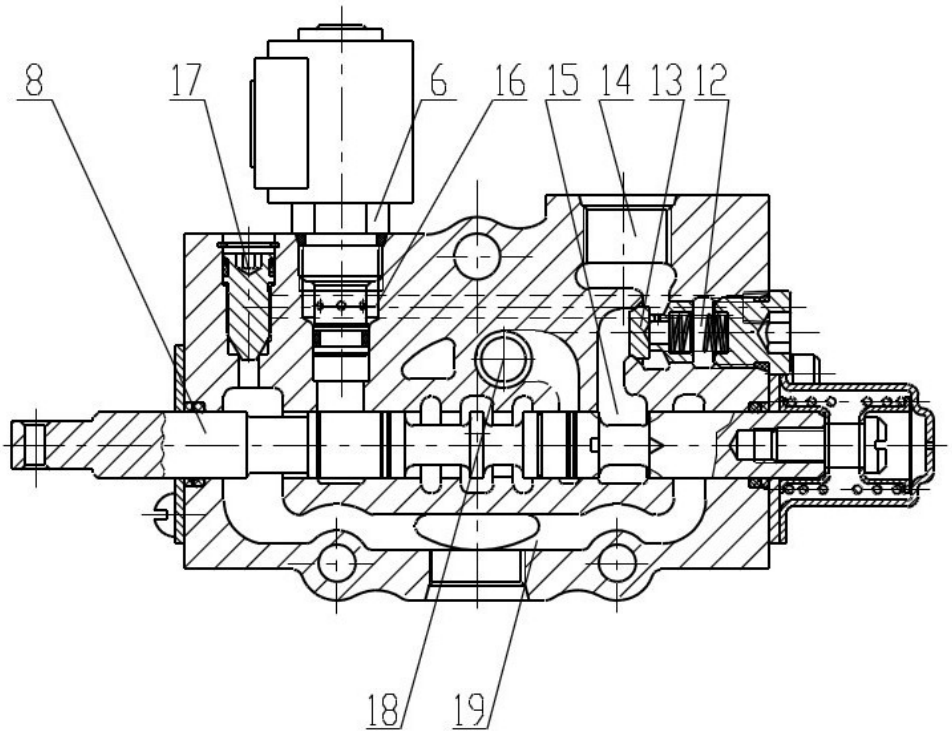
1. MAIN CONTROL VALVE

1) STRUCTURE



1	Main relief valve	3	Steering relief valve	5	To steering unit LS port
2	2 nd relief valve	4	To steering unit P port		

2) DISASSEMBLING AND ASSEMBLING



① Hydraulic oil model: N32 hydraulic oil

② During handling, installation and storage, avoid collision and damage to the processing oil port.

③ It is not allowed to disassemble and assemble in dusty places before installation to prevent dirt from entering.

④ Before use, check whether the rated pressure, spool valve function, oil circuit type and function meet the system requirements.

⑤ The mounting plate and bracket shall be flat, and the tightening force of the mounting screws shall be uniform, and the valve shall not be twisted.

⑥ The working fluid should be clean, and the cleanliness of the fluid should reach NAS 1638 level 10 or above.

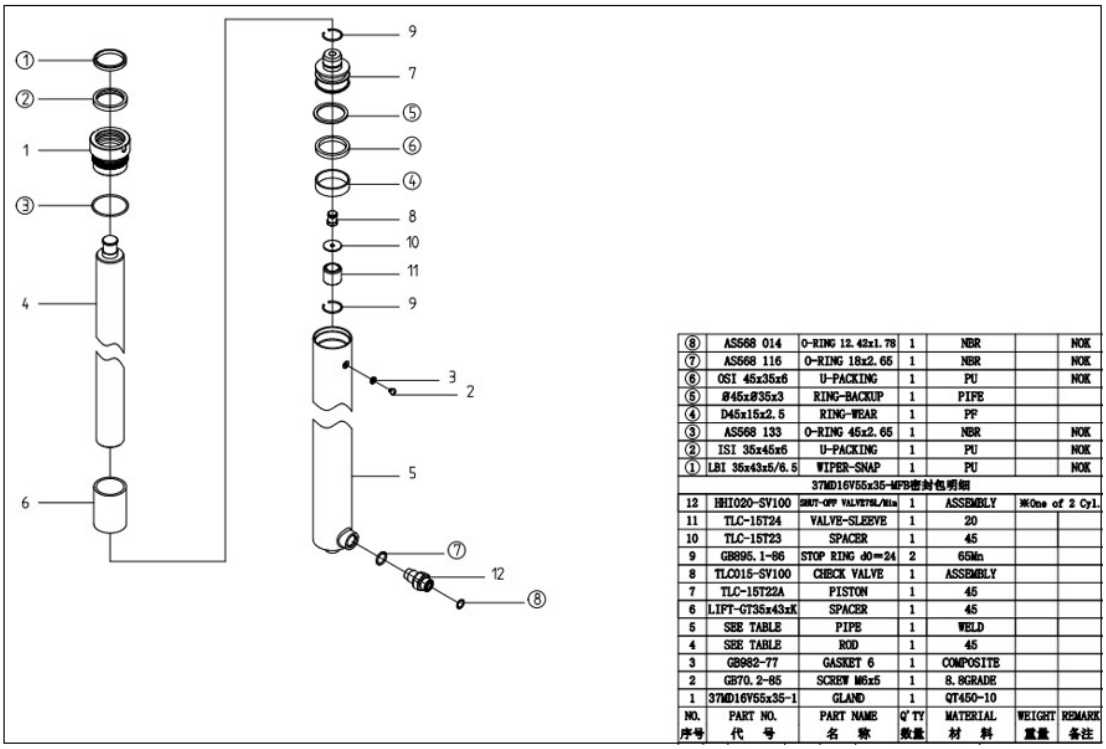
⑦ Allowable oil temperature: - 20 ℃~80 ℃.

⑧ Connect the oil ports correctly, and the pipeline should not be too thin or too long.

⑨ On the premise that the user complies with the rules of storage, use, installation and transportation, the factory implements "three guarantees" in case of failure due to manufacturing quality problems within one year from the date of delivery.

2. LIFT CYLINDER

1) STRUCTURE

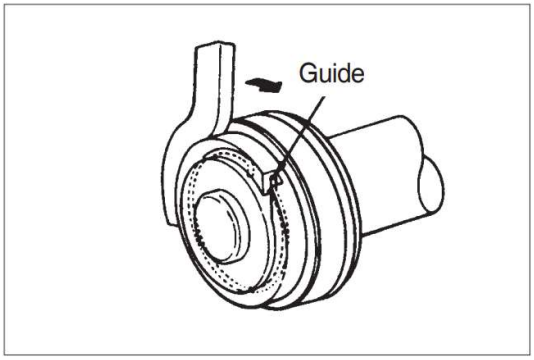


⑧	AS568 014	O-RING 12.42x1.78	1	NBR		NOK
⑦	AS568 116	O-RING 18x2.65	1	NBR		NOK
⑥	OSI 45x35x6	U-PACKING	1	PU		NOK
⑤	Ø45xØ35x3	RING-BACKUP	1	PIFE		
④	D45x15x2.5	RING-WEAR	1	PF		
③	AS568 133	O-RING 45x2.65	1	NBR		NOK
②	ISI 35x45x6	U-PACKING	1	PU		NOK
①	LBI 35x43x5/6.5	WIPER-SNAP	1	PU		NOK
	37MD16V55x35-MFB密封包明细					
12	HHI020-SV100	SHUT-OFF VALVE70L/Min	1	ASSEMBLY	※One of 2 Cyl.	
11	TLC-15T24	VALVE-SLEEVE	1	20		
10	TLC-15T23	SPACER	1	45		
9	GB895.1-86	STOP RING d0=24	2	65Mn		
8	TLC015-SV100	CHECK VALVE	1	ASSEMBLY		
7	TLC-15T22A	PISTON	1	45		
6	LIFT-GT35x43xK	SPACER	1	45		
5	SEE TABLE	PIPE	1	WELD		
4	SEE TABLE	ROD	1	45		
3	GB982-77	GASKET 6	1	COMPOSITE		
2	GB70.2-85	SCREW M6x5	1	8.8GRADE		
1	37MD16V55x35-1	GLAND	1	QT450-10		
NO. 序号	PART NO. 代 号	PART NAME 名 称	Q'TY 数量	MATERIAL 材 料	WEIGHT 重量	REMARK 备注

Inner diameter	Outer diameter	Stroke	Rod (outer diameter)
45 mm	55 mm	1495 mm	35 mm

2) DISASSEMBLING

Hold cylinder tube in vice, and loosen and remove cylinder head.
Remove space from cylinder tube, and pull bushing out. Connect wrench to the hole of retainer at the end of piston, and turn the wrench. Lift the edge of guide and turn guide to move guide.

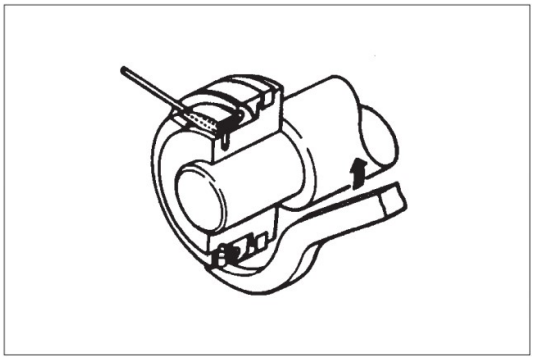


3) CHECKING AND INSPECTION

Inspection items	Standard dimensions	Limit on repair	Troubleshooting
Gap between cylinder rod and bushing	0.072 - 0.288mm	0.5mm	Bushing Replacing
Gap between piston ring and tube	0.05 - 0.030mm	0.5mm	Piston ring Replacing

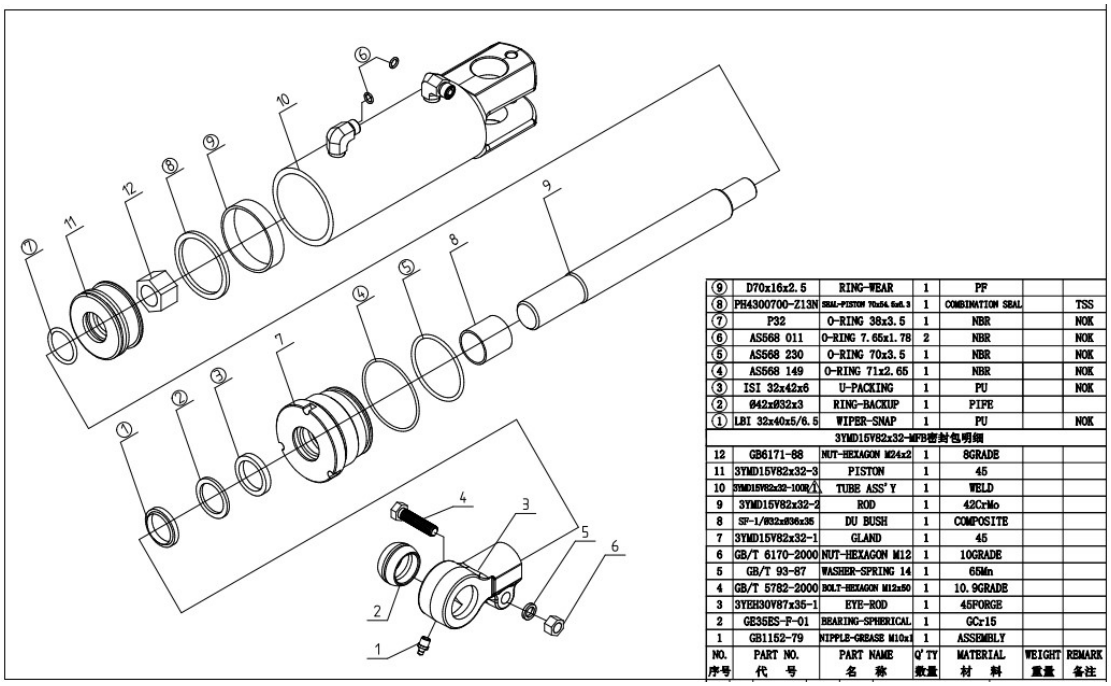
4) ASSEMBLING

Put piston ring in hydraulic oil of 40-50℃, and expand inner diameter of the ring, and assemble it on piston. Install piston seal.
Bend and turn the edge of guide install guide.



3. TILT CYLINDER

1) STRUCTURE



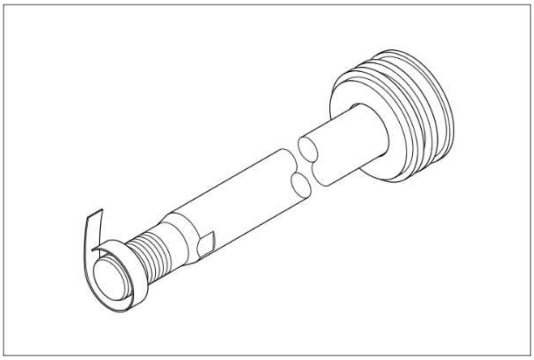
NO. 序号	PART NO. 代 号	PART NAME 名 称	Q'TY 数量	MATERIAL 材 料	WEIGHT 重量	REMARK 备注
⑨	D70x16x2.5	RING-WEAR	1	PF		
⑧	PH4300700-Z13N	SEAL-PISTON 70x54.6x8.3	1	COMBINATION SEAL		TSS
⑦	P32	O-RING 38x3.5	1	NBR		NOK
⑥	AS568 011	O-RING 7.65x1.78	2	NBR		NOK
⑤	AS568 230	O-RING 70x3.5	1	NBR		NOK
④	AS568 149	O-RING 71x2.65	1	NBR		NOK
③	ISI 32x42x6	U-PACKING	1	PU		NOK
②	Ø42xØ32x3	RING-BACKUP	1	PIPE		
①	LBI 32x40x5/6.5	WIPER-SNAP	1	PU		NOK
		3YMD15V82x32-MFB密封包明细				
12	GB6171-88	NUT-HEXAGON M24x2	1	8GRADE		
11	3YMD15V82x32-3	PISTON	1	45		
10	3YMD15V82x32-100R①	TUBE ASS'Y	1	WELD		
9	3YMD15V82x32-2	ROD	1	42CrMo		
8	SF-1/Ø32xØ36x35	DU BUSH	1	COMPOSITE		
7	3YMD15V82x32-1	GLAND	1	45		
6	GB/T 6170-2000	NUT-HEXAGON M12	1	10GRADE		
5	GB/T 93-87	WASHER-SPRING 14	1	65Mn		
4	GB/T 5782-2000	BOLT-HEXAGON M12x50	1	10.9GRADE		
3	3YEH30V87x35-1	EYE-ROD	1	45FORGE		
2	GE35ES-F-01	BEARING-SPHERICAL	1	GCr15		
1	GB1152-79	NIPPLE-GREASE M10x1	1	ASSEMBLY		

Inner diameter	Outer diameter	Stroke	Rod (outer diameter)
70mm	82mm	88mm	32mm

2) DISASSEMBLING

Hold flat area on the bottom of cylinder tube in vice, mark fastening torque on the end of rod head, and then separate rod head. Hook wrench on the notch of cylinder head, and then separate cylinder head from cylinder tube.

Wind valleys of thread of rod with adhesive tape to protect dust seal and rod seal inside cylinder head from damage.



3) CHECKING AND INSPECTION

Inspection items	Standard dimensions	Limit on repair	Troubleshooting
Gap between cylinder rod and bushing	0.072 - 0.288mm	0.5mm	Replacing bushing
Gap between rod head bushing and pin	0.10 - 0.35mm	0.6mm	Replacing bushing