Gill500 Interchangeable Closed-head Tong

Introduction Manual

Big Rig Supply Co., Ltd.

Safety Instruction

Please read the operational manual carefully before operation.

1. The operator can’t operate the power tong without wearing the working clothes, anti-slip working shoes and safety helmet .
2. Keep sundries out of working area.
3. Tie the back guy according to the instruction. Don’t tie it in the wrong direction.
4. Hands are not allowed to put into the rotating parts of power tong；
5. The operator shall control the lever slowly at the beginning of make-up or break-out operation, then operate after the pipe is fully clamped；
6. The clutch must be immersed in the hydraulic oil；
7. The hydraulic source should be shut off during the period of maintenance or replacing parts；
8. Over-pressure and over-torque are forbidden；
9. Never randomly add or dismount any parts to the tong；

Contents

1 .Summary

Gill500 Interchangeable Closed-head Tong is same with 58-93R Closed-Head power tong， it is a safe and accurate unit for the makeup and breakout of tubing and casing 1-5/16" O.D. through 7"O.D. It is a kind of special machine used to makeup the tubing thread in oilfield workover operation,it is a heavy duty workover power tong which applies to max.7”casing,the max.torque is over 8 kN.m,it can applies to all kinds of complicated workpver operation work.

This power tong has features below:

- Closed head design,which can better ensure the alignment of the tube and more accuracy of the alignment.
- Two speed operation which have a big differential，fast speed in high gear，big torque in low gear,and torque can be controlled；
- With lubricating device which can ensure the sufficient lubrication of the moving parts and absolute seal.
- Roller chain drive is adapted in the tail end.
- Using adjustable friction clutch can not parking shift, not only improve the service life of transmission parts, but also has the ability of overload protection.
- Pliers drive motor, hydraulic control valves and back-ups reversing valve adopts imported assembly.
- High strength safety torque arm.
- The back-up tong adopts cylinder clamping which can reduce the damage to the pipe.
- Can equipped with hydraulic spring lift bucket, satisfy any operation position.

2.Main technical parameters

2.1	Application Range	Master Tong：	Φ33.3~178mm （1 5/16″-7″）
		Backup Tong	Φ33.3~155.6 mm （1 5/16″-6 1/8″）
2.2	Speed (rpm)	Low Gear	27 r/min
	(@33.5 GPM/127LPM)	High Gear	126 r/min
2.3	Torque	Low Gear	8100N.m (6000ft.lbs)
	(@2000 PSI/14 MPa)	High Gear	1763 N.m (1300ft.lbs）
2.4	Overall Dimension (L ×W ×H)		
	Combined tong	1295.4×652.3×671.5mm (51″×24$^{2}/_{3}$″×26$^{7}/_{16}$″)	
	Hydraulic Lift	2032×203.2×203.2mm (80″×8″×8″)	
2.5	Hydraulic lift cylinder range	1652.9mm (65″)	
2.6	Weight	455kg (1000 lbs)	

3. Structure characters and working principle

Gill500 Interchangeable Closed-head Tong is made up of master tong, backup tong, hydraulic control valve and hydraulic lift。(see **Fig.**1)

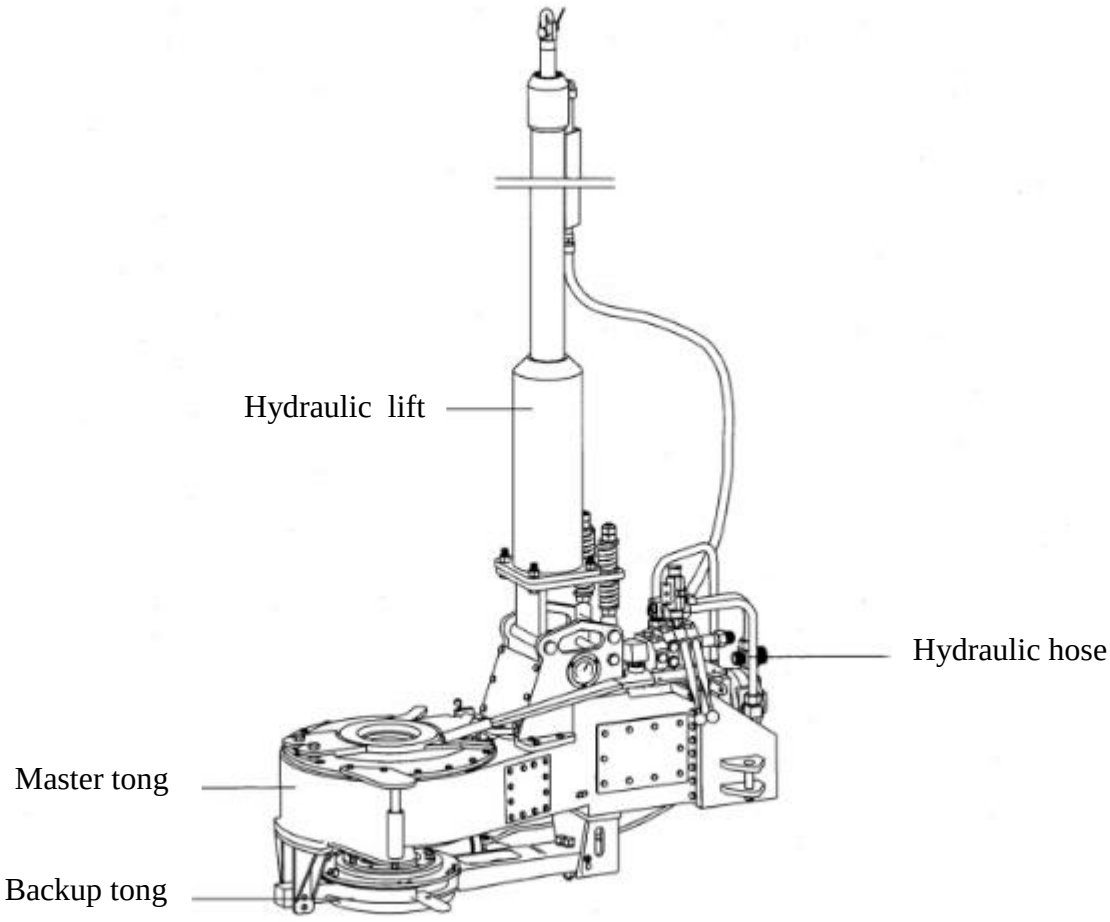

Fig.1

During the operation, hydraulic lift hangs the master tong and backup tong to the proper height through controlling the hydraulic control valve, backup tong grips pipe through oil cylinder clamp mechanism, master tong is driven by hydraulic motor, pushing tong head clamp mechanism through gear transmission, and gripping the pipe rotation clockwise or anticlockwise, then make-up and beak-out operation is done.。

3.1 Master tong

Master tong is made up of hydraulic motor, drive assembly, clutch assembly，sprocket assembly，roller chain，tong head assembly, transmission case assembly and etc. Hydraulic motor input power, through the transmission assembly, clutch, sprocket assembly through the chain to drive the head assembly to rotate,There are two gears, high gear and low gear。

Tong head assembly and working principle: (see **Fig.**2)

The tong head of power tong is key part, the power tong adopted planetary claw clamp mechanism which are made up of tong head big gear, jaw set assembly (jaw set, insert, jaw set pin), brake ring and etc. operating the hand control valve to make the big gear rotation. By the brake force, fulfill jaw set grip pipe and rotation with the pipe, so makeup or break out operation is done. After makeup and breakout operation, operating the hand control valve to make the tong head reverse rotate, so bring the jaw set assembly reverse rotate to unloose the pipe。

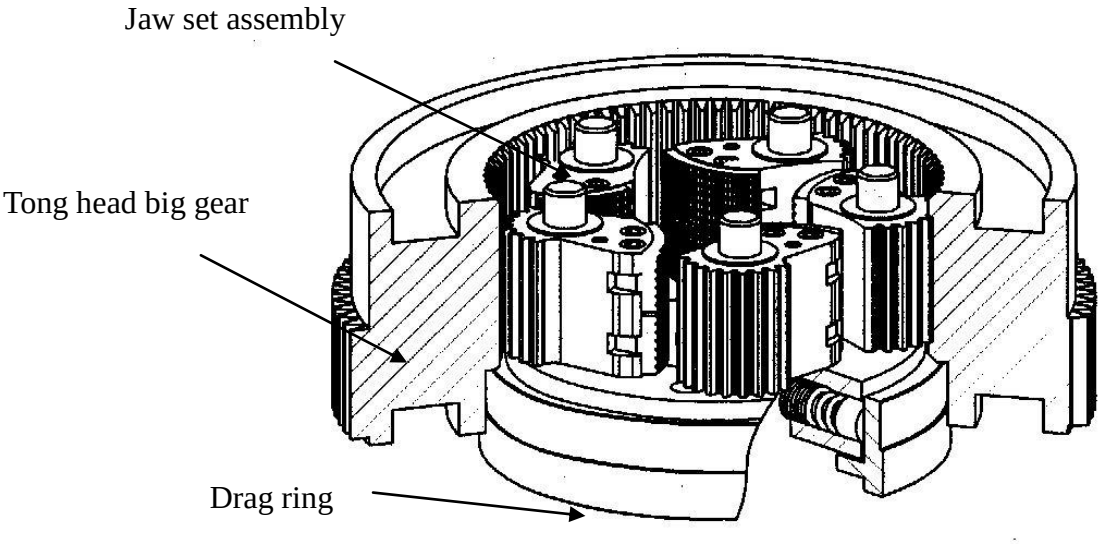

Fig.2

3.2 Backup tong Backup tong is made up of tong head clamp mechanism and air cylinder. It is suspended under master tong through the fore and back positioner。

Backup tong head clamp mechanism and working principle: (see **Fig.**3)

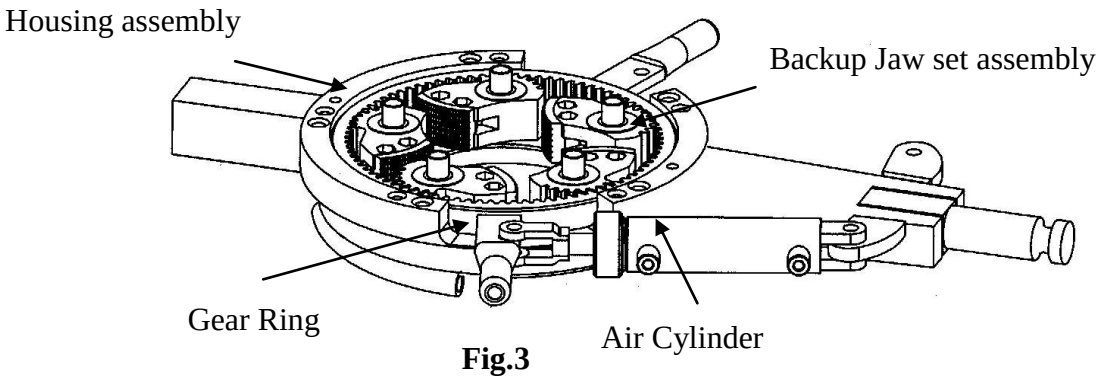

Fig.3

Backup tong adopts planetary claw clamp mechanism, which is made up of backup tong main housing assembly, inner gear ring assembly, backup jaw set assembly (jaw set, insert and shaft), etc. air cylinder assembly pushing interior gear ring rotation, the inner ring make jaw set rotation circling shaft, then the die grip the pipe tightly, and ensure the master tong fulfill makeup and breakout operation. After makeup and breakout operation, reverse operating the hand control valve, the air cylinder assembly make gear ring reverse rotate and bring the jaw set reverse rotate to unloose the pipe.

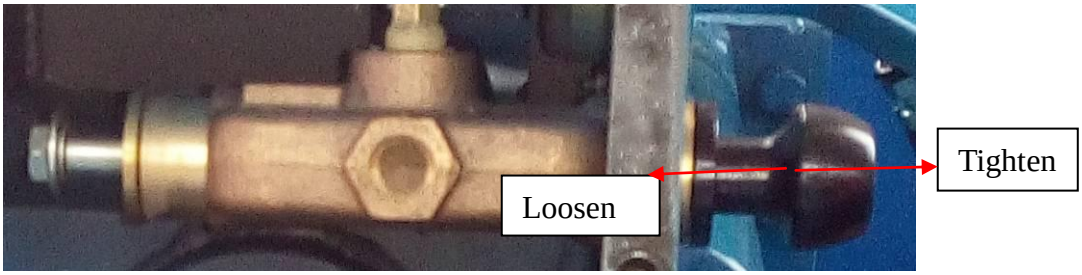

Fig.4

Instructions of backup tong

1. To reverse Backup from Breakout to Makeup, pull the pin and let Backup tong drop down, as shown in picture ；
2. Handle will swivel to turn Backup tong over ；
3.Lift Backup Tool back into position and replace pin。

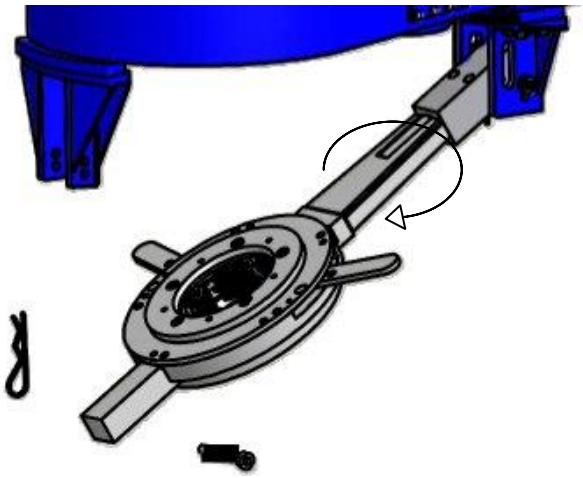

Fig.5

3.3 Hydraulic control valve

Hydraulic control valve is made up of manual control valve, lift control valve, (see **Fig.**6).The control valve can control the makeup and breakout of master tong; Lift control valve is used to control the hydraulic lift bucket, has pressure-adjusting mechanism which overflow hydraulic oil when it is loaded, used to control hydraulic lift cylinder, adjusting the tong's suspending height to make back tong die plate align with pipe coupling or pipe;And equipped with pressure regulating mechanism to achieve overload overflow；

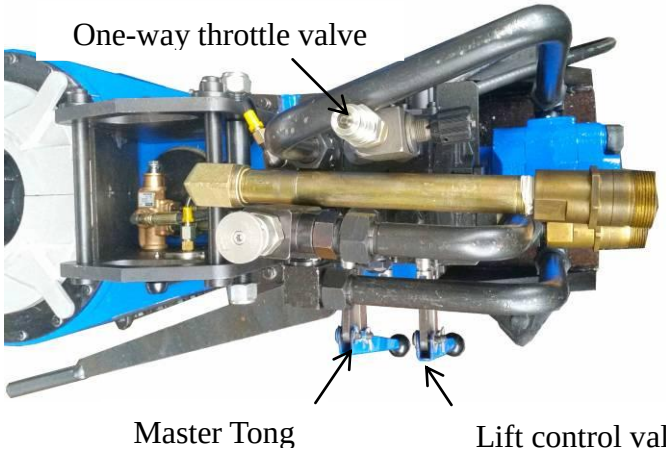

Fig.6

4 Installation and adjustment

4.1 Check before installation

4.1.1 If power tong is damaged by improper transportation, repair it at once；

4.1.2 Check tightness of fasteners and make sure slack fastener is secured；

4.2 Hanging

4.2.1 Connecting hydraulic lift with control valve；

4.2.2 Installing a three-tons load block in the derrick；

4.2.3 Using a soft wire rope (its diameter is more than 12mm) through the block in the derrick, one end of the wire rope is tied to hydraulic lift, the other end is fixed to the derrick, so power tong could be hung freely；

4.2.4 The height of block installation supporting point should be more than 15m away from wellhead；

4.2.5 The suspension height is proper as long as backup tong rightly faces the pipe collar or drilling pipe joint, meanwhile the stroke of hydraulic lift is in half way, so that adjusting is convenient。

4.3 Installation of hydraulic hoses

4.3.1 Installation of hydraulic lift hoses； (see **Fig.1**)

4.3.2 Installation of oil cylinder hoses.；

4.3.3 Installation of inlet and outlet hoses。

4.4 Leveling

4.4.1 Check whether the power tong is level or not, if it is not level, make the power tong in level status by adjusting the regulation screw (see **Fig.**7) in the hanging seat；

4.4.2 Adjusting the pin shafts (see **Fig.**4) of front and back support seat, making backup tong be paralleled with master tong. When making up or breaking out small drill pipe, master tong and backup tong respectively clamp the joints of above and down drill pipe, if space between master tong and backup tong is not enough, the space must be adjusted only by adjusting pin shafts in front and back support seat；

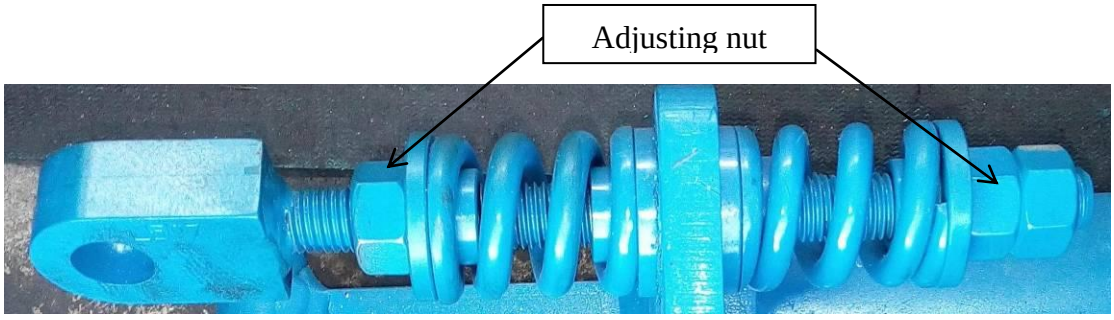

Fig.7

4.5 Check oil level

The power clamp is driven by the hydraulic motor input, and the transmission assembly, the clutch, and the sprocket wheel drive through the chain to rotate. The wet multi disc friction clutch friction plate must be soaked in a closed box body of the hydraulic oil, hydraulic oil level to be higher than the center of the clutch shaft, we can shell level observed in the mouth to judge. Loosen the oil plug and oil spill, the oil that meet, if there is no oil overflow, you need to add lubricating oil。

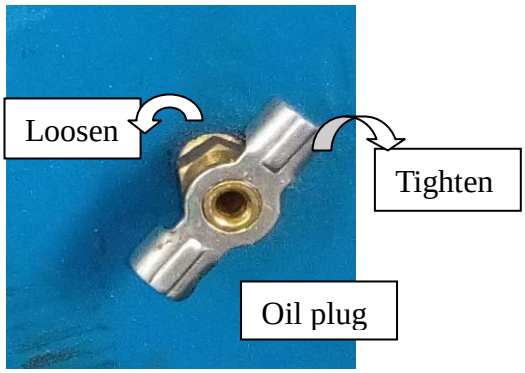

Fig.8

4.6 Back guy (see **Fig.** 9)

4.6.1 Tying the back guy after the tong leveled, the one end of the back guy is tied to the tail of power tong, and the other end of back guy is tied to the derrick；

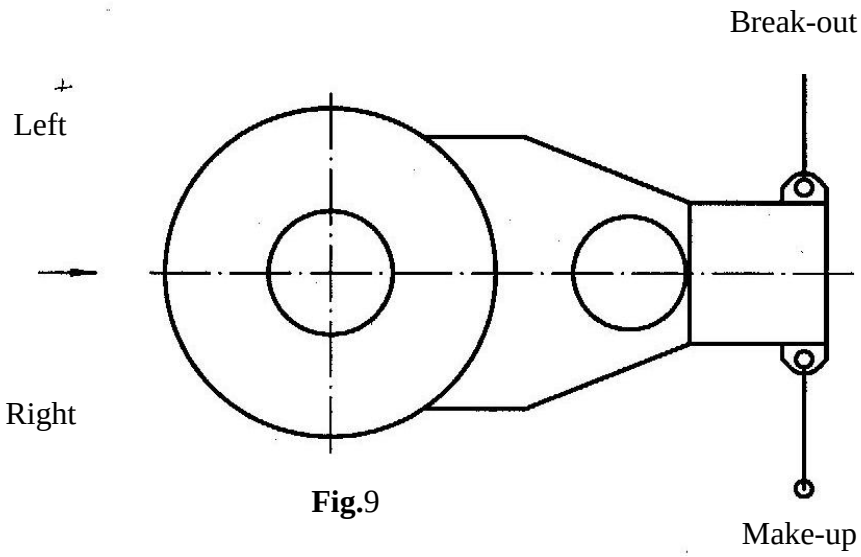

Fig.9

4.6.2 The height of back guy in the derrick is same as that of tong, meanwhile back guy is perpendicular with the center line of the tong body in a tension status；

4.6.3 The back guy should bear at lease three tons load, generally made of soft wire rope；

4.6.4 Paying attention to the direction of back guy, watching from the front of the tong head, the back guy should be in the right side of the tong during make-up operation, and back guy should be in the left side of the tong during break-out operation. It couldn’t be inversely connected.；

4.7 Setting hydraulics for proper operation

4.7.1 Check all hose connections before engaging hydraulic power source ；

4.7.2 Engage hydraulic power source；

4.7.3 Adjust tong relief valve. The relief valve on the tong operates in makeup direction only；

A.Turn relief valve adjusting screw to left to reduce pressure until tong reduces speed.

B.Place tong on tubing to be made up and gradually increase the pressure to reach make up required. Check manufacturers' recommended makeup torque for type of joint being made up.

C.Lock relief valve adjusting screw and make up second joint checking torqe when tong stalls.

D.Make minor corrections as necessary until torque readings are satisfactory.

E. If tong grips and slips , increase pressure on drag plugs by screwing in drag screws in drag ring. Adjust screws evenly.

NOTE : It is not necessary to change makeup torque to break-out. Tong operates at system pressure for breakout. System pressure is controlled by a relief valve set at 2200 PSI in power unit tank.PSI should not exceed 2500 PSI 。

4.7.4 If pump fails to pick up oil after hoses have been connected or if tong runs in surges, screw out relief valve all the way and let pressure back to tank.Circulate to remove air.Screw In pressure screw until tong operates.Repeat if necessary.

4.7.5 In operating tong,stop operating lever in center position one second before reversing motor. This reduces fluid shock in motor.

4.8 Testing

4.8.1 Supplying oil into the hydraulic power tong；

4.8.2 Operating hydraulic lift valve handle to see whether rising or lowering hydraulic lift is reliable and flexible or not；

4.8.3 In high gear and low gear running the tong for 3-5 minutes without load, and observing if there is any abnormal noise；

4.8.4 Inspecting the master tong and backup tong whether clamping and unloosing is synchronous or not, if not, exchanging the direction of backup tong control valve or inverting backup tong；

4.8.5 Trying to clamp the pipe in high gear and adjusting the supply oil pressure according to torque.

5. Operation and usage

5.1 Jaw set assembly and its dismantlement

Jaw set assembly consist of jaw sets, inserts (dies), inserts screws, nut. when replacing the dies, take out the upper cover of tong head, then take out brake ring cover and jaw set assembly, unloosing screws in jaw set assembly and taking out old dies, at last replacing new dies and fitting conversely.

Make-up

Break-out

5.2 Adjustment of brake torque (see Fig.10)

Adjusting the spring of brake cap and making jaw set assembly achieve relative movement with tong head big gear.

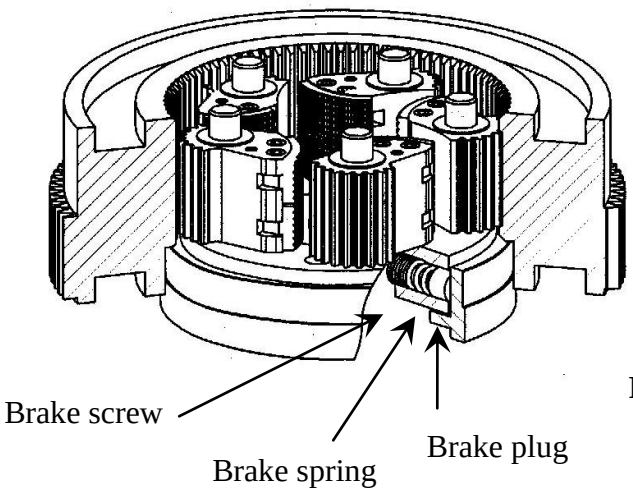

Fig. 10

5.3 Make-up and break-out operations (base on right rotation thread, left rotation thread is contrary)

The operator should be familiar with the pressure and torque relationship table (see **Fig.**11), and adjusting the prime makeup pressure according to the pipe requirement of prime makeup torque. The insufficient torque could effect the quality of well service. The over-torque could damage the pipe.

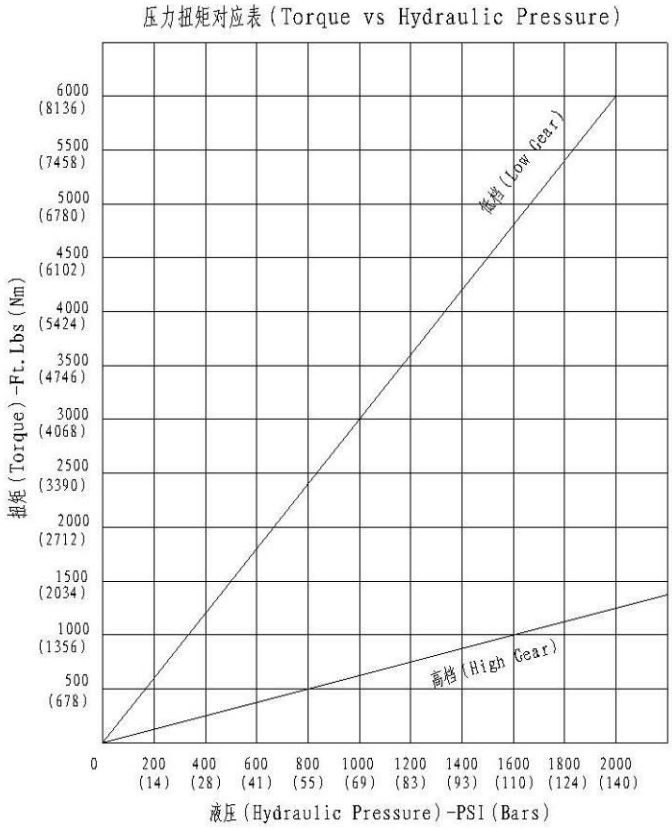

Fig.11

5.3.1 Makeup operation

Pushing hand control valve handle forward during make-up operation, make master tong rotation along clockwise direction, after every make-up operation, pulling the control valve handle outward so as to make tong head reverse rotation reset. A complete make-up operation is done.

5.3.2 Breakout operation

During the break-out operation(the makeup operation as a reference), turn the master tong jaw set assembly 180 °, change the position of direction control handle in the backup tong control valve, turn the backup tong 180 °, operating the hand control valve handle outward, to make the master tong anticlockwise rotation, and so could fulfill breakout operation. After every break out operation, pushing the hand control valve handle inward to make reset, a complete break out operation is done.

5.4 Shifting operation

This power tong has one Clutch Lever ,altering the lever position could get two different gearshifts， push for the low gear, pull for the high gear.

5.5 Hydraulic lift control

Control valve handle to push the handle of the control valve, lift power clamp on the lift, control valve handle to pull out, then the power clamp down.

5.6 Jaw sets lists

When more than one drag ring assembly is required, do not duplicate the same items included in other drag ring assemblies.

MASTER JAW INSERT AND O.D.TUBULAR SELECTION CHART						
O.D.Tubular	Jaw	Insert	Cover Plate	Drag Ring	Split Guide Bell	Assembly Number
1 5/16"	J503-1 (1 5/16"-2 1/16")	N503-2	XQB8-69 （1）	XQB8-89 （1）	XQB8-17 （1）	XQB8-272 （1）
1 3/4" - 2 1/16"		N503-1				
2 3/8" - 3 1/2"	J503 (2 3/8"-3 1/2")	N503				
4" - 4 1/2"	J506 (4"-5 1/2")	N505-2	XQB8-69 （3）	XQB8-89 （3）	XQB8-17 （3）	XQB8-272 （3）
5" - 5 1/2"		N505-3				
6 5/8" - 7"	J509 (6 5/8" - 7")		XQB8-69 （4）	XQB8-89 （4）	XQB8-17 （4）	XQB8-272 （4）
BACKUP JAW INSERT AND O.D.TUBULAR SELECTION CHART						
O.D.Tubular	Jaw	Insert	Cover Plate	Drag Ring		Assembly Number
1 5/16"	BU502 (1 5/16"-3 3/4")	N503-1	XQB8-235 （1）	XQB8-245（1）		XQB8-273 （1）
1 3/4" - 2 1/16"		N503-2				
2 3/8" - 3 3/4"		N503				
3 1/16" - 4 1/2"	BU503 (3 1/16"-4 1/2")	N503				
4 1/2" - 5 9/16"	BU504 (4 1/2"-5 9/16")					
5" - 6 1/16"	BU505 (5"-6 1/16")					
6 5/8" - 7"	BU506 (6 5/8" - 7")		XQB8-235 （2）	XQB8-245（2）		XQB8-273 （2）

5.7 Adjustment For Clutch

1. Remove side panel from operator's side of tong;
2. Be sure the tong is in neutral position;
3. Rotate clutch with hand until slot in adjusting collar is facing toward the opening in tong;
4. Insert screwdriver or similar object in slot in the adjusting collar;
5. Pry the adjusting collar away from pressure plate so that the teeth are separate from each other;
6. Rotate adjusting collar in the direction shown to adjust clutch;
7. Follow the above procedure for both ends of the clutch;
8. Adjust left end of clutch for high gear;
9. Adjust right end of clutch for low gear;
10. If the clutch slips or the disc stack heats up, adjustment is required.

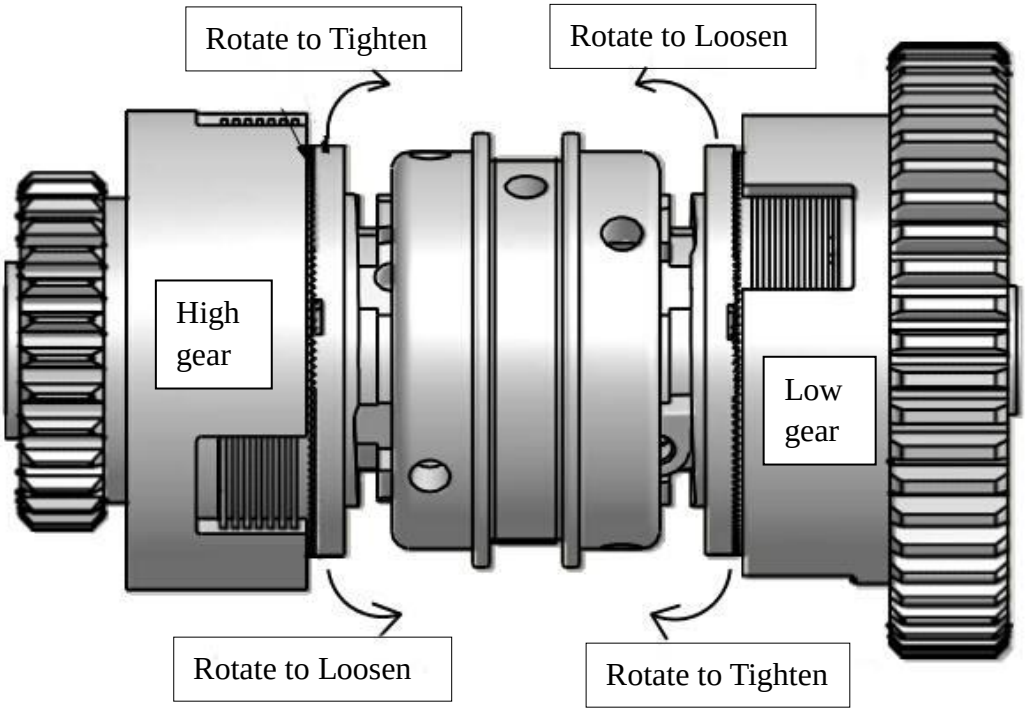

Fig 12

5.8 Steps to dismantle

1. Raise tong to top of hydraulic lift travel;
2. Use a line to lower tong and hydraulic lift to ground;
3. Shut off hydraulic source to tong. Engage lever on control valve for lift to release pressure off lift hose;
4. Disconnect hoses and prepare unit for transporting.

6 Lubrication and maintenance

6.1 Operation maintenance

1.Grease lube fittings weekly ；

2 . Check the transmission after each use . If water or dirt is found in transmission ,change oil .Under normal conditions , oil should be changed every 100 work - hours ；

3 . Clean and grease tong head and backup tool after every trip .Use kerosene or solvent and a wire brush for cleaning . After cleaning , apply cup grease to jaws , pins , ring gear , and top seal ；

4 . Do not use steam clean tong head . Steam cleaning tong head will force water by the top seal into the transmission , removing all of the lubricants from top seal and causing it to harden . If steam cleaning is used , guide bell should be pinned in place . after cleaning , check the transmission for the presence of water 。

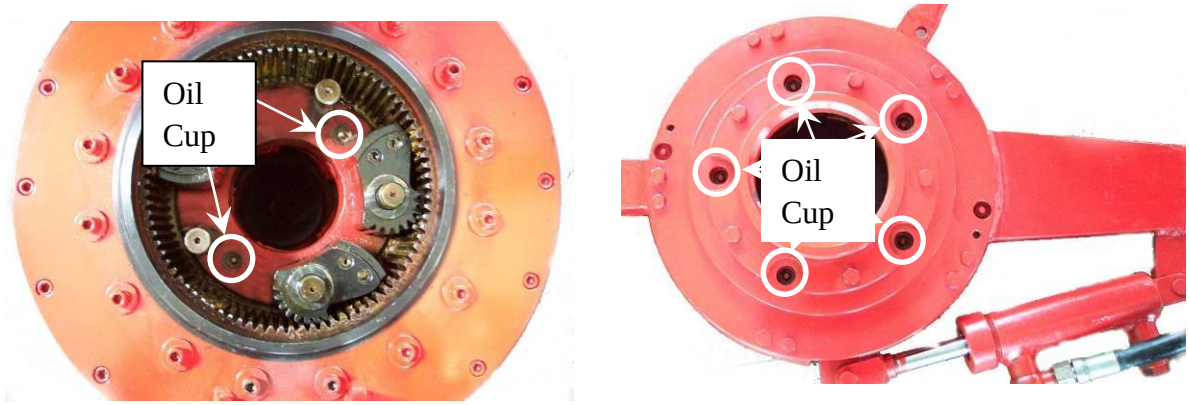

Fig 13

6.2 Manufacturer hydraulic oil recommendation

6.2.1 Lubrication requirements

Transmission

Oil meeting API classification MS:

Temperature above 32 °FSAE 30W

Temperatures below 32 °FSAE low

Transmission capacity--9.46L

Lubricating device--Any soft gun lubricant

6.2.2 Oil-type

Oils used in hydraulic systems perform the dual function of lubrication and transmission of power.Oil must be selected with care and with the assistance of a reputable supplier。

Crankcase oils meeting or exceeding the“Five Engine Test Sequence”for evaluating oils for API(American Petroleum Institute) service MS (Maximum Severity) best serve the needs of mobile hydraulic systems， These engine sequence tests were adopted by the Society of Automotive Engineers， American Society for Testing Materials，and automotive engine builders，The MS classification is the key to selection of oils containing the type of compounding that will extend the operating life of the hydraulic system，Oils meeting Diesel engine requirements，DG through DS classifications, may or may not have the type of compounding desired for high performance hydraulic systems.

HYDRAULIC SYST EM OPERATING RANGE (Mm. to Max .)	SAE VISCOSITY	API SERVICE CLASSIFICATION
-17.8 ℃-82.2 ℃	10W	MS
-9.4 ℃-98.9 ℃	20-30W	MS
0 ℃-110 ℃	30W	MS
-17.8 ℃-98.9 ℃	10-30W	MS

Automatic Transmission Fluid， Type “A,” is usually satisfactory for power steering systems or those systems operating under moderate hydraulic service。

6.2.3 Operating temperatures

These temperature ranges for each grade of oil are satisfactory If suitable procedures are followed for low temperature start-up conditions and if sustained operation is avoided at the upper temperature limits. Operation in excess of these temperatures results in increased wear of the system components and causes more rapid deterioration of the oil. For optimum operation, a maximum oil viscosity of 4,000 SSU at the low temperature start-up condition and a minimum oil viscosity of 60 SSU for the sustained high temperature operating condition are recommended， Good oils are the most economical. Specifications can be set up which will indicate, to a limited degree, the characteristics essential in a good hydraulic oil. These are listed herein and should be checked with the oil manufacturer prior to the use of their product.

6.2.4 Viscosity

Viscosity is the measure of fluidity. The oil must have sufficient body to provide adequate sealing effect between working parts of pumps、valving、cylinders、 etc; but not enough to cause pump intake cavitation or sluggish valve action.Viscosity recommendations must at best be a compromise, which takes Into consideration the working temperature range, the type of hydraulic equipment used, and class of service。Refer to table of oil viscosity recommendations.

6.2.5 Viscosity index

The viscosity Index Is a measure of the rate at which temperature changes cause a change in oil viscosity. It is very desirable that the oil viscosity remain as nearly constant as possible under the wide range of temperature conditions encountered in operating mobile construction machinery.The viscosity Index (Vi.) of hydraulic oil should not be less than 90 for this type of service.

6.2.6 Additives

Research has developed a number of additive agents which materially improve various characteristic of oils for hydraulic systems. They may be selected for compounding with a view toward reducing wear, Increasing chemical stability, inhibiting corrosion, depressing pour point and improving the anti-foam characteristics. Proper use of additive agents requires specialized knowledge，and they should be Incorporated by the oil manufacturer only, as serious trouble may otherwise result.

Most oil companies have several brands of crankcase oils of somewhat varying formulation that will meet the API service classification of MS. The more desirable of these oils for hydraulic service will contain higher amounts of the type of compounding that avoids scuffing and wear of cam lobes and valve lifters. These oils will also be formulated to be stable under oxidative conditions and when in contact with small amounts of moisture. There should also be reasonable protection against rust to any ferrous materials submerged in the oil or covered by the oil’s film.

6.2.7 Cleanliness

Thorough precautions should be taken to filter the oil in the entire hydraulic system prior to its initial use to remove paint, metal chips, welding shot, lint, etc. If this is not done, damage to the hydraulic system will probably result. In addition, continuing filtration is required to remove sludge and products of wear and corrosion, throughout the life of the system.

Precautions should be taken in the design of hydraulic circuits to assure that a means is provided to keep the oil clean. This can best be accomplished by the use of a 25-micron full-flow filter or a 10-micron bypass filter plus a micronic filter type air breather or sealed reservoir.

6.2.8Miscelianeous

The performance of hydraulic valves and cylinders is less affected by the lubricating quality of the oil and, therefore, selection of the oil is less critical than for pumps and motors. It is always good practice, however, to use the best quality oil available for all components.

7. Ordinary trouble and trouble shooting

Symptom	Causes	Remedies
Master tong or backup tong slippage	1 The groove of dies filled with dirt	Cleaning the dirt
	2 Dies worn out	Replacing dies
	3 Tong body not leveled	Adjusting according to contents 4.4
Master tong clamp normal but backup tong slippage	The brake torque of tong head is insufficient	Adjusting or replacing brake spring
	The hoses of master tong and backup tong is reverse connected	Reconnecting the hose correctly
Rotation speed is decreasing	The supply oil of hydraulic pump is insufficient	Adjusting the oil supply
	The one-way valve of quick adaptor could not open thoroughly or oil lines are clogged	Replacing the quick adaptor or cleaning the pipes
Rotation of master tong is not stable	Insufficient oil supply and air into the oil lines	Cleaning the filter core and supply sufficient oil
Hydraulic motor is rotating but the tong head couldn't move	Transmission shaft or gear is damaged	Replacing the damaged parts
Output of the torque is low	Insufficient oil supply	Adjusting the supply oil pressure
Leakage in the sealing section of hydraulic system	oil temperature exceeded 65℃	Cooling the oil
	sealing parts are damaged	Replacing the sealing parts
The noise in the clutch is too large.	There are impurities in the gearbox	Clean the gearbox, replace the hydraulic oil

8. Carrying and storage

8.1 Carrying

□ Carrying the unopened packing box with the power tong should be smooth and safe, and making sure the packing box be avoid of moisture, rain, turnover and damage.

□ Carrying hydraulic power tong should use Φ10 mm or more wire rope and paying attention to balance of tong body.

□ Not tilted and swinging too much, so it could prevent damage to power tong.

8.2 Storage

□ The hydraulic power tong should put in a place where is shading, no moisture, waterproof and well-ventilated, the ambient temperature less than 45℃.

□ It couldn't be put in a muddy place or exposed place.

□ Protecting outlets and inlets of oil lines and hoses, and preventing dirt into oil during the storage period.

□ Effective storage period of power tong is a year from the product date, exceeding the period the power tong still could be used, but all the sealing parts and grease oil should be replacing prior to usage.

8.3 Open packing box

First inspecting the appearance of the hydraulic power tong, the inspecting and receiving the items according to the packing list.

9 After sales service

Our company has professional after sales service teams and service network.

Tel: 086-515-6582548 086-515-6583024

Fax: 086-515-6582386

10 Drawing and detailed tables of parts

10.1 General Assembly（Fig. 14,Table 1)

10.2 Assembly of Master Tong(Fig. 15，Table 2）

10.3 Split Guide Bell and Accessories（Fig. 16，Table 3）

10.4 Assembly of Tong Head（ Fig. 17，Table 4）

10.5 Assembly of Drive（Fig. 18，Table 5 ）

10.6 Assembly of Sprocket（Fig. 19，Table 6）

10.7 Assembly of Clutch（Fig. 20，Table 7）

10.8 Hydraulic Pipeline（Fig. 21，Table 8）

10.9 Assembly Oil Pump （Fig. 22，Table 9）

10.10 Assembly of Hydraulic Lift （Fig. 23，Table 10）

10.11 Assembly of Backup Tong（Fig. 24，Table 11）

10.12 Assembly of Air Cylinder（Fig. 25，Table 12）

10.13 Assembly of Air Valve（Fig. 26，Table 13）

10.1 General Assembly（Fig. 14,Table 1）

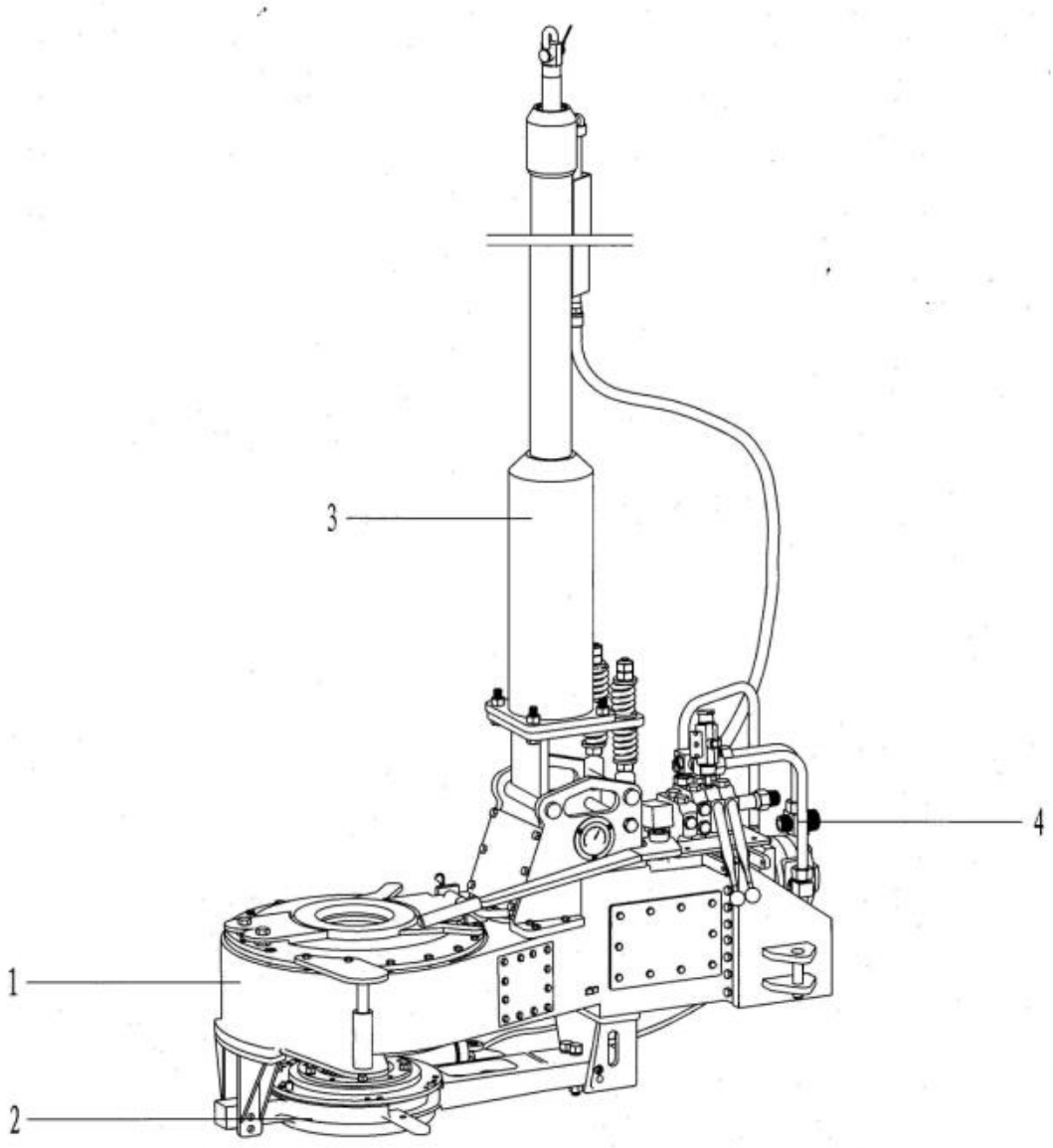

Fig. 14

Table 1 List of General Assembly

No.	Part Number	Drawing No.	Description	Quantity
1	XQB8-01	XQB8.Z	Master Tong	1
2	XQB8-02	XQB8.B.0	Backup Tong	1
3	XQB8-03	XQB8.D.0	Hydraulic Lift	1
4	XQB8-04	XQB8.Z.7	Commercial Hydraulic	1

10.2 Assembly of Master Tong(Fig. 15，Table 2）

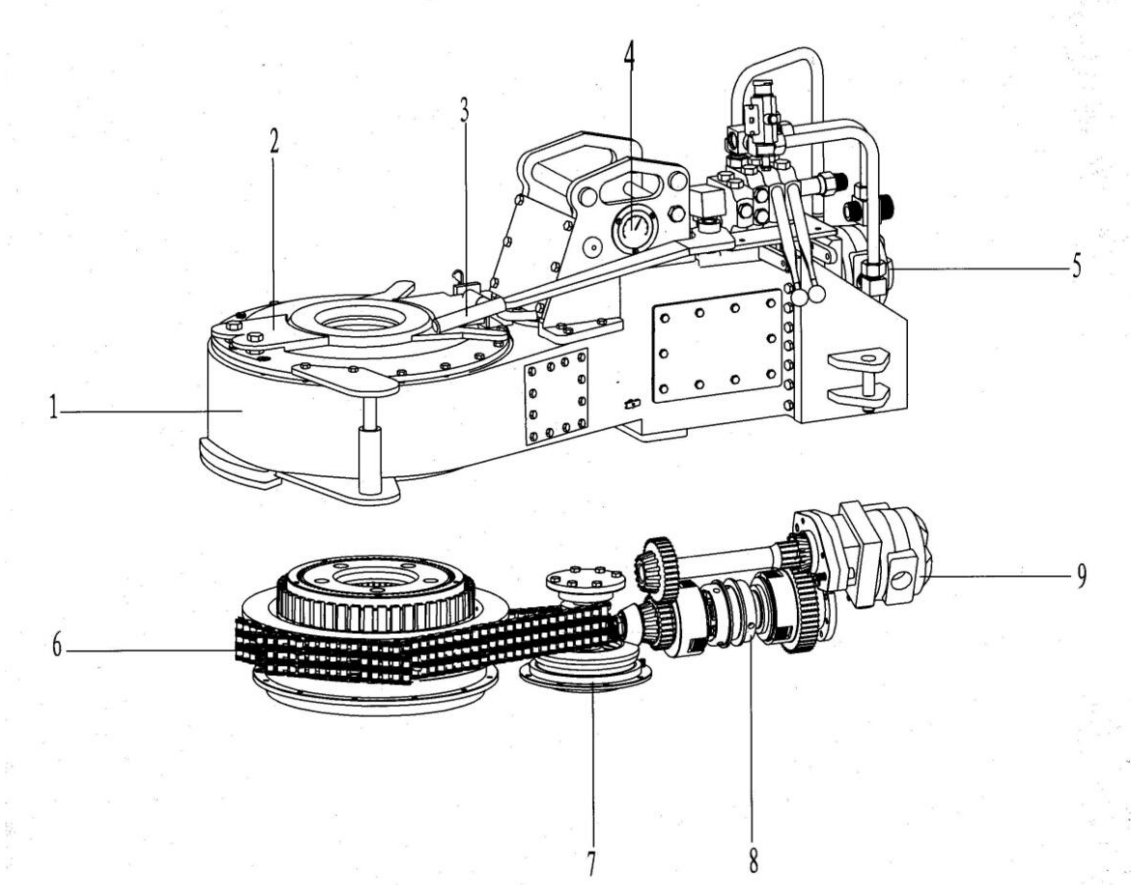

Fig. 15

Table 2 List of Master tong

No.	Part Number	Drawing No.	Description	Quantity
1	XQB8-05	XQB8.Z.1	Transmission Case Assembly	1
2	XQB8-06	XQB8.Z.3	Split Guide Bell	1
3	XQB8-07	XQB8.Z.1.5	Clutch Lever w/Shaft	1
4	XQB8-08	XQB8.Z.6	Hydraulic Torque Gauge Assembly	1
5	XQB8-09		Motor PERMCO M5100	1
6	XQB8-10	12A-3-88	Roller Chain	1
7	XQB8-11	XQB8.Z.4	Sprocket Assembly	1
8	XQB8-12	XQB8.Z.9	Clutch Assembly	1
9	XQB8-13	XQB8.Z.8	Drive Assembly	1

10.3 Split Guide Bell and Accessories（Fig. 16，Table 3）

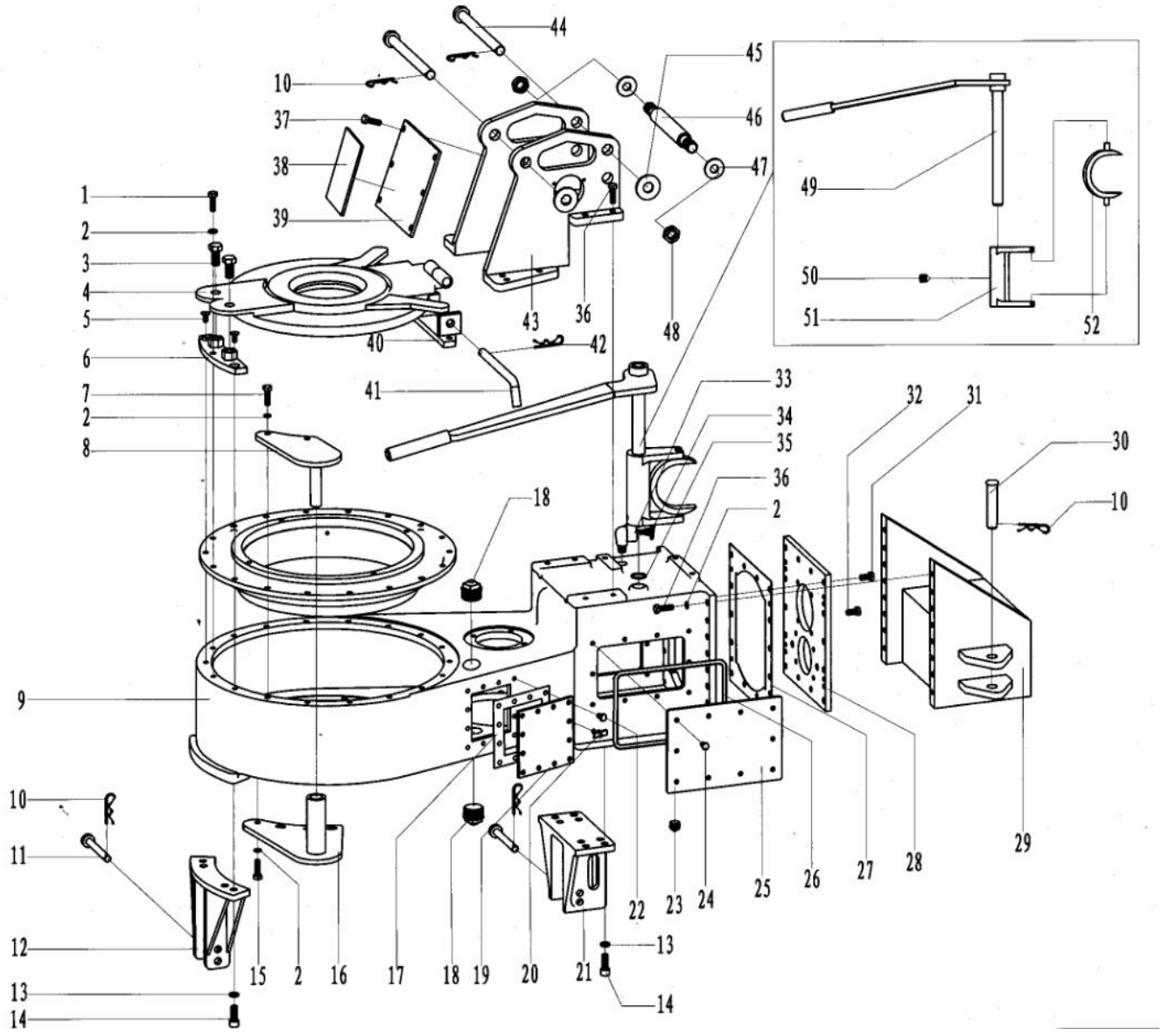

Fig. 16

Table 3　List of Split Guide Bell and Accessories

No.	Part Number	Drawing　No.	Description	Quantity
1	XQB8-14		Capscrew (3/8"UN ×1-3/4" Hex)	4
2	XQB8-15		Lock Washer 3/8"	38
3	XQB8-16		Capscrew (5/8"UN ×1 1/4" Hex)	2
4	XQB8-17(1)	XQB8.Z.3.2-2A	Split Guide Bell（1 5/16"-3 1/2"）	1
	XQB8-17(2)	XQB8.Z.3.2-2D	Split Guide Bell（3 1/2"-6 1/16"）	1
	XQB8-17(3)	XQB8.Z.3.2-2C	Split Guide Bell（4" -5 1/2"）	1
	XQB8-17(4)	XQB8.Z.3.2-2B	Split Guide Bell（6 5/8"-7"）	1
5	XQB8-18		Flt Hd Capscrew3/8"UN×1 3/8"	2
7	XQB8-19		Capscrew 3/8"×1 5/8 Skt	4
8	XQB8-20	XQB8.Z.1.7	Handlebar （Upper）	2
9	XQB8-21	XQB8.Z.1.1	Transmission Case	1
10	XQB8-22	TQ245-2	Safety Pin	6
11	XQB8-23	XQB8.Z.1-2	Pull Pin	2
12	XQB8-24	XQB8.Z.1-1	Front Positioner	1
13	XQB8-25		Lock Washer 1/2"	12
14	XQB8-26		Capscrew 1/2"×3/4" Skt	12
15	XQB8-27		Capscrew (3/8"UN ×2 3/4" Hex)	4
16	XQB8-28	XQB8.Z.1.6	Handlebar （Lower）	2
17	XQB8-29	XQB8.Z.1-4	Sealing Paper（1）	1
18	XQB8-30	XQB8.Z.1-5	Plug, 1-1/4" XQ Hd Pipe	2
19	XQB8-31	XQB8.Z.1-3	Side Plate for Chain	1
20	XQB8-32	XQB8.Z.1.2	Pet Cock (1/8" Pipe)	1
21	XQB8-33	XQB8.Z.1-6	Back Positioner	1
22	XQB8-34		Capscrew (5/16" ×3/4" Hex)	12
23	XQB8-35	XQB8.Z.1-7	Plug, 1/2" Skt. Pipe	1
24	XQB8-36		Capscrew (5/16" ×1/2" Hex)	20
25	XQB8-37	XQB8.Z.1-8	Side Plate （2）	2
26	XQB8-38	GB/T3452.1	O Ring236×7	2
27	XQB8-39	XQB8.Z.1-15	Sealing Paper（2）	1
28	XQB8-40	XQB8.Z.1-14	Transmission End Plate	1
29	XQB8-41	XQB8.Z.1.3	Counterbalance	1
30	XQB8-42	XQB8.Z.1-18	Tail Rope Pin	2
31	XQB8-43		Capscrew (3/8" ×1" Hex)	12

32	XQB8-44		Cap Screw 3/8"×1" Skt	2
33	XQB8-45	XQB8.Z.1-9	Ell, 1/4" Std. Blk Street	1
34	XQB8-46	XQB8.Z.1.4	Oil Sight Gauge	1
35	XQB8-47	AS568-214	O-Ring 24.99×3.53	1
36	XQB8-48		Capscrew, 3/8" ×1-1/4" Hex Hd	26
37	XQB8-49		Capscrew (3/8" ×3/4" Hex)	6
38	XQB8-50	XQB8.Z.1-19	Name Board	1
39	XQB8-51	XQB8.Z.1-12	Guard Cover	1
40	XQB8-52	XQB8.Z.3.3	Fixed Base	1
41	XQB8-53	XQB8.Z.3-1	Fixed Pin	1
42	XQB8-54	XYBQ8A.Z.2-4	Pin	1
43	XQB8-55	XQB8.Z.1.8	Suspension Support	2
44	XQB8-56	XQB8.Z.1-13	Leveling Pin	2
45	XQB8-57		Flat Washer, 3/4"	2
46	XQB8-58	XQB8.Z.1-17	Strut	1
47	XQB8-59		Flat Washer, 7/8"	2
48	XQB8-60		Lock Nut 7/8″	2
49	XQB8-61	XQB8.Z.1.5	Clutch Lever w/Shaft	1
50	XQB8-62		Fastening Screw 3/8"UN×1/2"	1
51	XQB8-63	XQB8.Z.1-10	Clutch Shifting Yoke	1
52	XQB8-64	XQB8.Z.1-11	Clutch Shifting Fork	1

10.4 Assembly of Tong Head（ Fig. 17，Table 4）

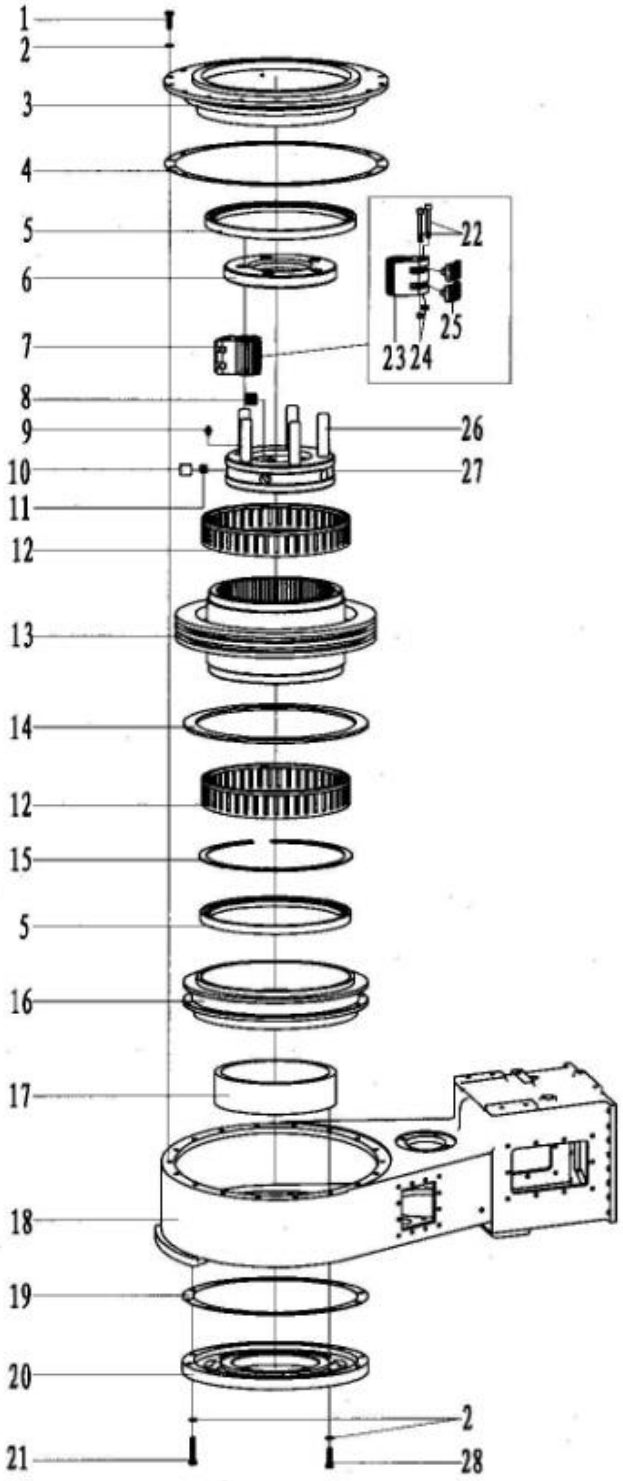

Fig. 17

Table 4 List of Tong Head

No.	Part Number	Drawing No.	Description	Quantity
1	XQB8-65		Capscrew, 3/8” × 1-1/4” Hex	9
2	XQB8-15		Lock Washer 3/8"	33
3	XQB8-66	XQB8.Z.2-2	Bearing Race (Top)	1
4	XQB8-67	XQB8.Z.2-1	Sealing Paper（3）	3
5	XQB8-68	HG4-338-66	Oil Seal	2
6	XQB8-69(1)	XQB8.Z.2.2.1-6	Cover Plate（1）	1
	XQB8-69(2)	XQB8.Z.2.2.2-5	Cover Plate（2）	1
	XQB8-69(3)	XQB8.Z.2.2.3-4	Cover Plate（3）	1
	XQB8-69(4)	XQB8.Z.2.2.4-3	Cover Plate（4）	1
7	XQB8-70(1)	XQB8.Z.2.3.1	Jaw（1）	5
	XQB8-70(2)	XQB8.Z.2.3.2	Jaw（2）	5
	XQB8-70(3)	XQB8.Z.2.3.3.	Jaw（3）	5
	XQB8-70(4)	XQB8.Z.2.3.4	Jaw（4）	5
	XQB8-70(5)	XQB8.Z.2.3.5	Jaw（5）	5
	XQB8-70(6)	XQB8.Z.2.3.6	Jaw（6）	5
	XQB8-70(7)	XQB8.Z.2.3.7	Jaw（7）	5
8	XQB8-71(1)	XQB8.Z.2.2.1-3	Set Screw （1）	5
	XQB8-71(2)	XQB8.Z.2.2.2-3	Set Screw （2）	5
9	XQB8-72		Grease Fitting 1/4	1
10	XQB8-73(1)	XQB8.Z.2.2.1-1	Drag Plug（1）	5
	XQB8-73(2)	XQB8.Z.2.2.2-1	Drag Plug（2）	5
	XQB8-73(3)	XQB8.Z.2.2.3-1	Drag Plug（3）	5
11	XQB8-74(1)	XQB8.Z.2.2.1-2	Drag Spring（1）	5
	XQB8-74(2)	XQB8.Z.2.2.2-2	Drag Spring（2）	5
12	XQB8-75	XQB8.Z.2.1	Roller Bearing	2
13	XQB8-76	XQB8.Z.2-4	Final Drive Gear	1
14	XQB8-77	XQB8.Z.2-3	Base Ring	2
15	XQB8-78	XQB8.Z.2-8	Oil Seal Protector	1
16	XQB8-79	XQB8.Z.2-7	Bearing Race (Bottom)	1
17	XQB8-80	XQB8.Z.2-9	Drag Ring Sleeve	1
18	XQB8-81	XQB8.Z.1.1	Transmission Case	1
19	XQB8-82	XQB8.Z.2-5	Sealing Paper（4）	2
20	XQB8-83	XQB8.Z.2-6	Bearing Cap (Bottom)	1
21	XQB8-84		Capscrew (3/8" ×2-1/4")	12

22	XQB8-85(1)	XQB8.Z.2.3.1-2	Insert Screw（1）	10
	XQB8-85(2)	ASME B18.3-2003	Capscrew (5/16" ×2 1/2" Hex)	5
23	XQB8-86(1)	XQB8.Z.2.3.1-3	Jaw J503	5
	XQB8-86(2)	XQB8.Z.2.3.2-4	Jaw J505-2	5
	XQB8-86(3)	XQB8.Z.2.3.3-3	Jaw J506	5
	XQB8-86(4)	XQB8.Z.2.3.1-6	Jaw J503-1	5
24	XQB8-87（1）		Press Nut3/8"-16UNC	10
	XQB8-87（2）		Press Nut5/16"-16UNC	5
25	XQB8-88(1)	XQB8.Z.2.3.1-1	Insert N503	10
	XQB8-88(2)	XQB8.Z.2.3.2-1	Insert N505	10
	XQB8-88(3)	XQB8.Z.2.3.2-2	Insert N505-1	10
	XQB8-88(4)	XQB8.Z.2.3.3-1	Insert N505-2	10
	XQB8-88(5)	XQB8.Z.2.3.3-2	Insert N505-3	10
	XQB8-88(6)	XQB8.Z.2.3.2-3	Insert N505-4	10
	XQB8-88(7)	XQB8.Z.2.3.1-4	Insert N503-1	10
	XQB8-88(8)	XQB8.Z.2.3.1-5	Insert N503-2	10
26	XQB8-90(1)	XQB8.Z.2.2.1-5	Jaw Pin（1）-1″	5
	XQB8-90(3)	XQB8.Z.2.2.3-3	Jaw Pin（3）-3/4″	5
	XQB8-90(4)	XQB8.Z.2.2.4-2	Jaw Pin（4）-5/8″	5
27	XQB8-89(1)	XQB8.Z.2.2.1-4	Drag Ring（1）	1
	XQB8-89(2)	XQB8.Z.2.2.2-4	Drag Ring（2）	1
	XQB8-89(3)	XQB8.Z.2.2.3-2	Drag Ring（3）	1
	XQB8-89(4)	XQB8.Z.2.2.4-1	Drag Ring（4）	1
28	XQB8-271		Capscrew (3/8" ×1-1/2" Hex)	12

10.5 Assembly of Drive（Fig. 18，Table 5 ）

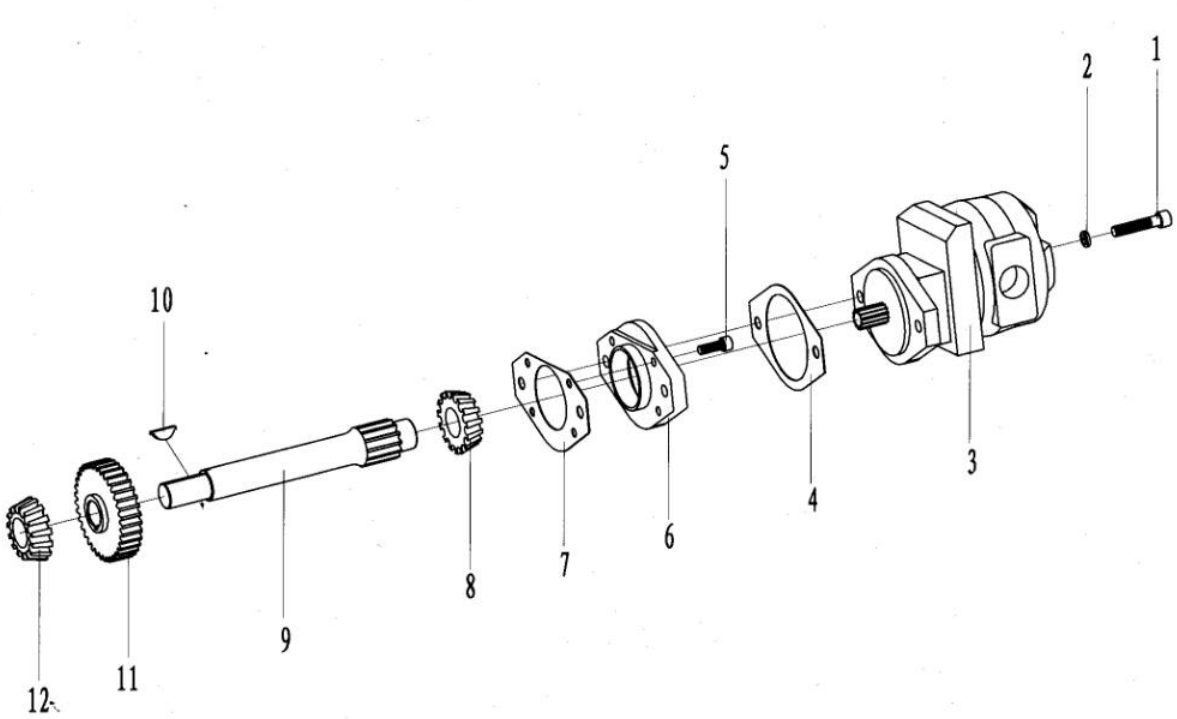

Fig. 18

Table 5 List of Drive Assembly

No.	Part Number	Drawing No.	Description	Quantity
1	XQB8-91		Capscrew (1/2" ×2-1/4" Hex)	2
2	XQB8-25		Lock Washer, 1/2"	2
3	XQB8-9		Motor M25X (1-1/2)	1
4	XQB8-92	XQB8.Z.8-6	Motor pad paper	1
5	XQB8-44		Capscrew (3/8" ×1" Hex)	4
6	XQB8-93	XQB8.Z.8-5	Bearing Cap Motor Mount	1
7	XQB8-94	XQB8.Z.8-4	Sealing Paper	1
8	XQB8-95		Timken Bearing	1
9	XQB8-96	XQB8.Z.8-3	Drive Shaft	1
10	XQB8-97	XQB8.Z.8-2	Hy Pro Key #18	1
11	XQB8-98	XQB8.Z.8-1	High Drive Gear	1
12	XQB8-99		Timken Bearing	1

10.6 Assembly of Sprocket（Fig. 19，Table 6）

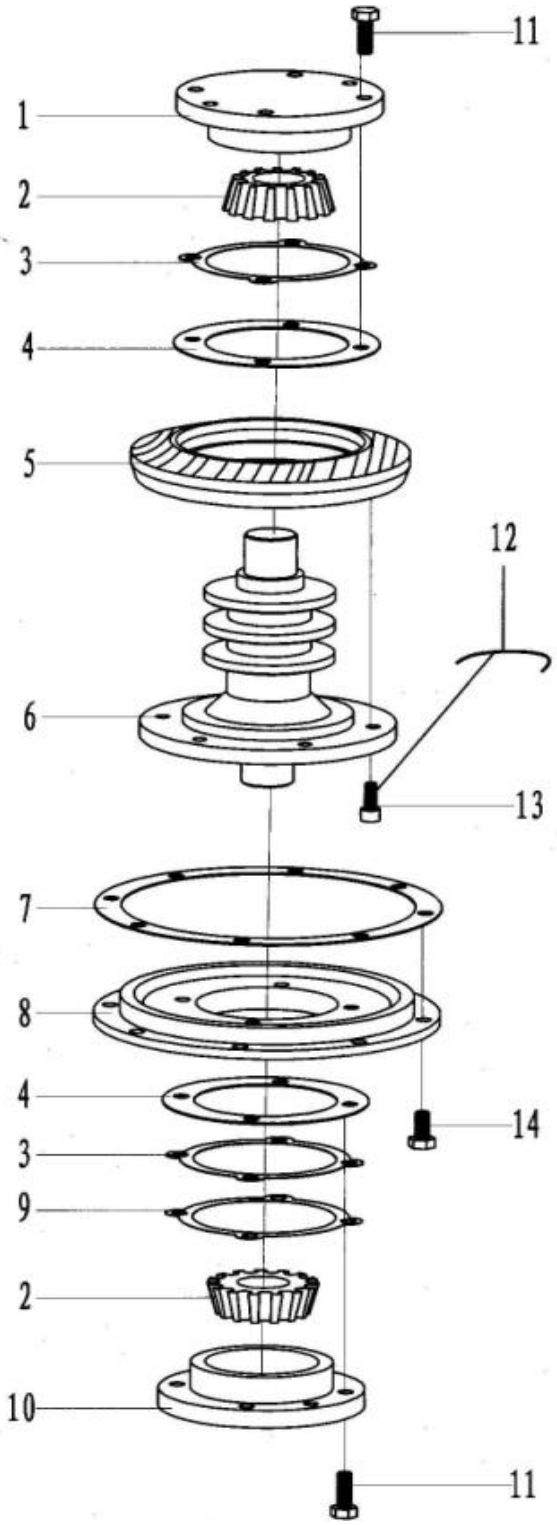

Fig. 19

Table 6 List of Sprocket Assembly

No.	Part Number	Drawing No.	Description	Quantity
1	XQB8-100	XQB8.Z.4-10	Bearing Cap, Top	1
2	XQB8-101		Timken Bearing	2
3	XQB8-102	XQB8.Z.4-3	Pad	6
4	XQB8-103	XQB8.Z.4-2	Sealing Paper（1）	2
5	XQB8-104	XQB8.Z.4-9	Ring & Pinion Gear	1
6	XQB8-105	XQB8.Z.4-8	Ring Gear & Hub Sprocket	1
7	XQB8-106	XQB8.Z.4-6	Sealing paper（2）	1
8	XQB8-107	XQB8.Z.4-5	Ring Gear Cover	1
9	XQB8-108	XQB8.Z.4-4	Adjustment Pad	2
10	XQB8-109	XQB8.Z.4-1	Bearing Cap, Bottom	1
11	XQB8-44		Capscrew (3/8" ×1" Hex)	8
12	XQB8-110		Wire ø1×200	3
13	XQB8-111	XQB8.Z.4-7	Skt Set Screw (5/16" ×5/16")	6
14	XQB8-49		Capscrew (3/8" ×3/4" Hex)	8

10.7 Assembly of Clutch（Fig. 20，Table 7）

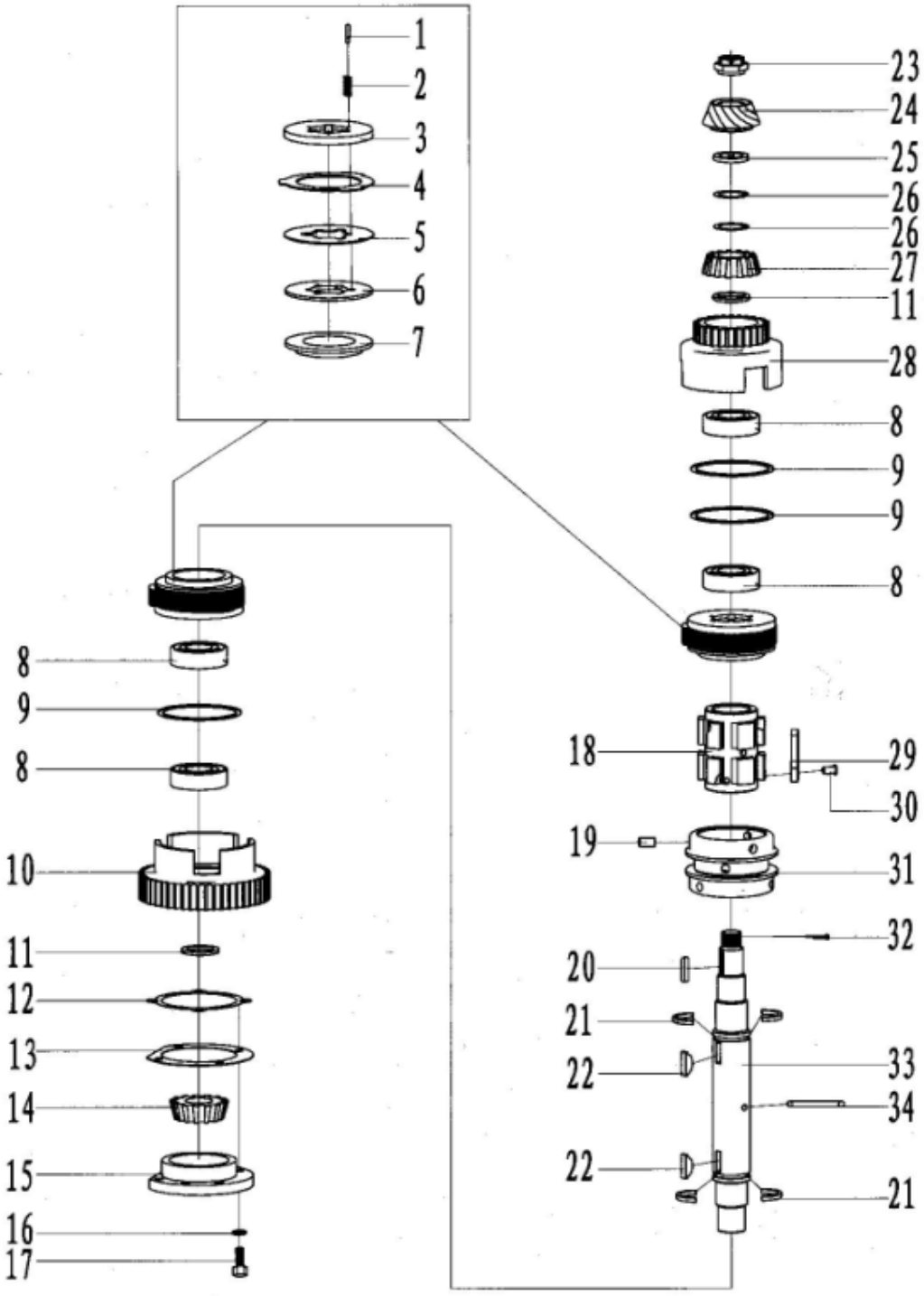

Fig. 20

Table 7 List of Clutch Assembly

No.	Part Number	Drawing No.	Description	Quantity
1	XQB8-112	XQB8.Z.9-10	Spring Pin	6
2	XQB8-113	XQB8.Z.9-11	Separating Spring	6
3	XQB8-114	XQB8.Z.9-9	Thrust Plate	2
4	XQB8-115	XQB8.Z.9-12	Outer Disc	14
5	XQB8-116	XQB8.Z.9-13	Inner Disc	12
6	XQB8-117	XQB8.Z.9-14	Pressure Plate	2
7	XQB8-118	XQB8.Z.9-15	Adjustment Collar	2
8	XQB8-119	GB/T276	Ball Bearing	4
9	XQB8-120	XQB8.Z.9-27	Spirolox Ring	3
10	XQB8-121	XQB8.Z.9-23	Low Clutch Gear Assembly	1
11	XQB8-122	XQB8.Z.9-6	Bearing Spacer	2
12	XQB8-123	XQB8.Z.9-26	Sealing paper	1
13	XQB8-102	XQB8.Z.4-3	Pad	1
14	XQB8-101		Timken Bearing	1
15	XQB8-124	XQB8.Z.9-25	Bearing Cap, Back	1
16	XQB8-15		LockWasher 3/8"	4
17	XQB8-44		Capscrew (3/8" ×1" Hex)	4
18	XQB8-125	XQB8.Z.9-18	Body	1
19	XQB8-126	XQB8.Z.9-22	Body Pin shaft	6
20	XQB8-127	XQB8.Z.9-3	Clutch Shaft Pinion Key	1
21	XQB8-128	XQB8.Z.9-8	Split Ring	4
22	XQB8-129	XQB8.Z.9-16	No.CHyProKey	6
23	XQB8-131	XQB8.Z.9-2	Ring & Pinion Gear	1
24	XQB8-130	XQB8.Z.9-1	Clutch Shaft Nut, 1"	1
25	XQB8-132	XQB8.Z.9-4	Shim	1
26	XQB8-133	XQB8.Z.9-5	Pinion Shim	2
27	XQB8-134		Bearing	1
28	XQB8-135	XQB8.Z.9-7	High Clutch Gear Assy	1
29	XQB8-136	XQB8.Z.9-19	Dog	6
30	XQB8-137	XQB8.Z.9-20	Dog Pivot	6
31	XQB8-138	XQB8.Z.9-21	ShIpper Sleeve	1
32	XQB8-139	GB/T91	Cotter pin 3.2×30	1
33	XQB8-140	XQB8.Z.9-24	Clutch Shaft	1
34	XQB8-141	XQB8.Z.9-17	Pin shaft	1

10.8 Hydraulic Pipeline（Fig. 21，Table 8）

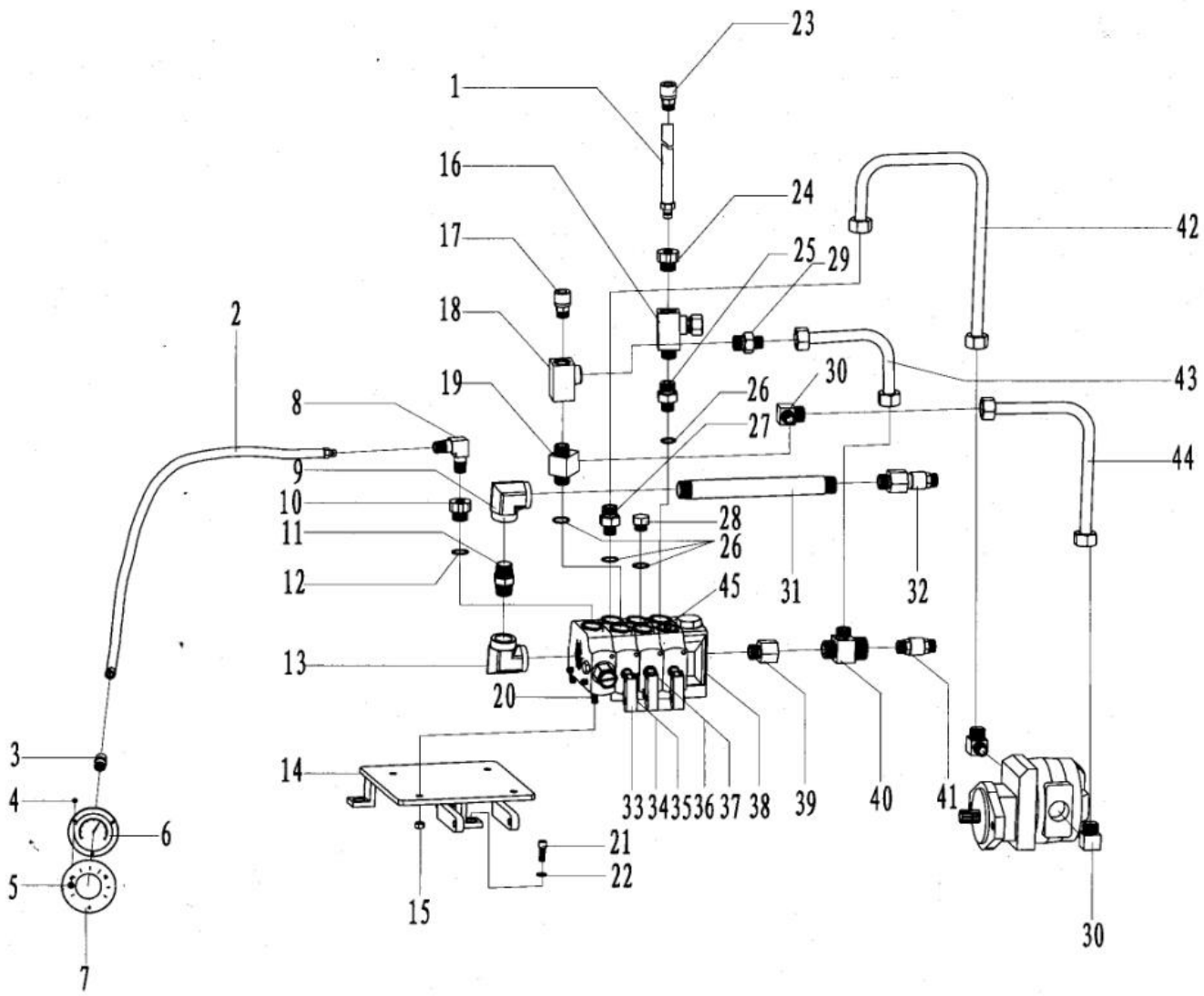

Fig. 21

Table 8 List of Hydraulic Pipeline

No.	Part Number	Drawing No.	Description	Quantity
1	XQB8-142		Hose10 II - 1800（NPT3/8-NPT1/2）	1
2	XQB8-143		Hose 7/16" x 10" Stainless	1
3	XQB8-144	XQB8.Z.6-2	Collar 1/4" Std. Blk	1
4	XQB8-145	GB/T41	Nut 6/32"	3
5	XQB8-146	GB/T819	Flat Hd. Screw 6/32" x 1"	3
6	XQB8-147	XQB8.Z.6-1	Pressure Gage 2-1/2" - 2000 #	1
7	XQB8-280	XQB8.Z.6-4	Engraved Dial Face	1
8	XQB8-148	TQ508/70Y.9.2.3-5	Ell 7/16" Flare to 1/4" Pipe	1

9	XQB8-149	KJD9625.18-10	Ell, 1” x 90 Degree,s,H.P.	1
10	XQB8-150	XYBQ8A.Z.11-1	Adapter Connector（1 1/16"UN-NPT1/4"）	1
11	XQB8-151	XQB8.Z.7-10	Oil inlet Connector NPT1"	1
12	XQB8-152	GB1235-76	O Ring32×3.1	1
13	XQB8-153	XQB8.Z.7.5	Bend Sub（1 1/16"-12UN）	1
14	XQB8-154	XQB8.Z.7.1	Valve Plate	1
15	XQB8-155		Hexagon Check Nut 5/16″	3
16	XQB8-156	DV10	Throttle Valve	1
17	XQB8-157	NV-12	Cartridge Style Relief Valve	1
18	XQB8-158	XQB8.Z.7-7	Block	1
19	XQB8-159	XQB8.Z.7-6	Adapter Connector（NPT1"-NPT3/4"）	1
20	XQB8-160		Capscrew (5/16" x 2 1/2" Hex)	3
21	XQB8-49		Capscrew (3/8" x 3/4" Hex)	3
22	XQB8-15		LockWasher 3/8"	3
23	XQB8-161		Coupling Half 3/8 Female	1
24	XQB8-162	XYBQ8A.Z.11-5	Adapter Connector（7/8"-14UNF/NPT1/2"）	1
25	XQB8-163	YG-72	Adaptor(NPT1/2）	1
26	XQB8-164	GB1235-76	O Ring26×2.4	6
27	XQB8-165	XQB8.Z.7-3	Adapter Connector（1 5/16"UN-7/8"UNF）	1
28	XQB8-166	XQB8.Z.7-11	Plug（7/8"-14UNF）	3
29	XQB8-167	XQB8.Z.7-5	Adapter Connector（7/8"-14UNF/NPT3/4")	1
30	XQB8-168	XQB8.Z.7-4	Ell, 1” Pipes 1” Tube, 90-Degrees	3
31	XQB8-169	KJD9625.18-9	Tube (NPT1)	1
32	XQB8-170	KJD9625.18.4	Coupling Half, 1”	1
33	XQB8-171	XQB8.Z.7-13	Linkage	2
34	XQB8-172	GB/T882	Pin ShaftB8×26	2
35	XQB8-173	GB/T91	Cotter Pin 3×15	2
36	XQB8-174	GB/T882	Pin ShaftB6×25	2
37	XQB8-175	GB/T91	Cotter Pin 2×15	2
38	XQB8-176	V20-3-011	Commercial Valve	1
39	XQB8-177	XQB8.Z.7-8	Adapter Connector（1 1/16"-12UN-NPT1")	1
40	XQB8-178	XQB8.Z.7-9	Return Tee	1
41	XQB8-179	KJD9625.18.3	Dust Cap, 1-1/4”	1
42	XQB8-180	XQB8.Z.7.2	Steel Tubing（1）	1
43	XQB8-181	XQB8.Z.7.4	Steel Tubing（3）	1
44	XQB8-182	XQB8.Z.7.3	Steel Tubing（2）	1
45	XQB8-183	XQB8.Z.7-14	Valve Baffle	3

10.9 Assembly Oil Pump （Fig. 22，Table 9）

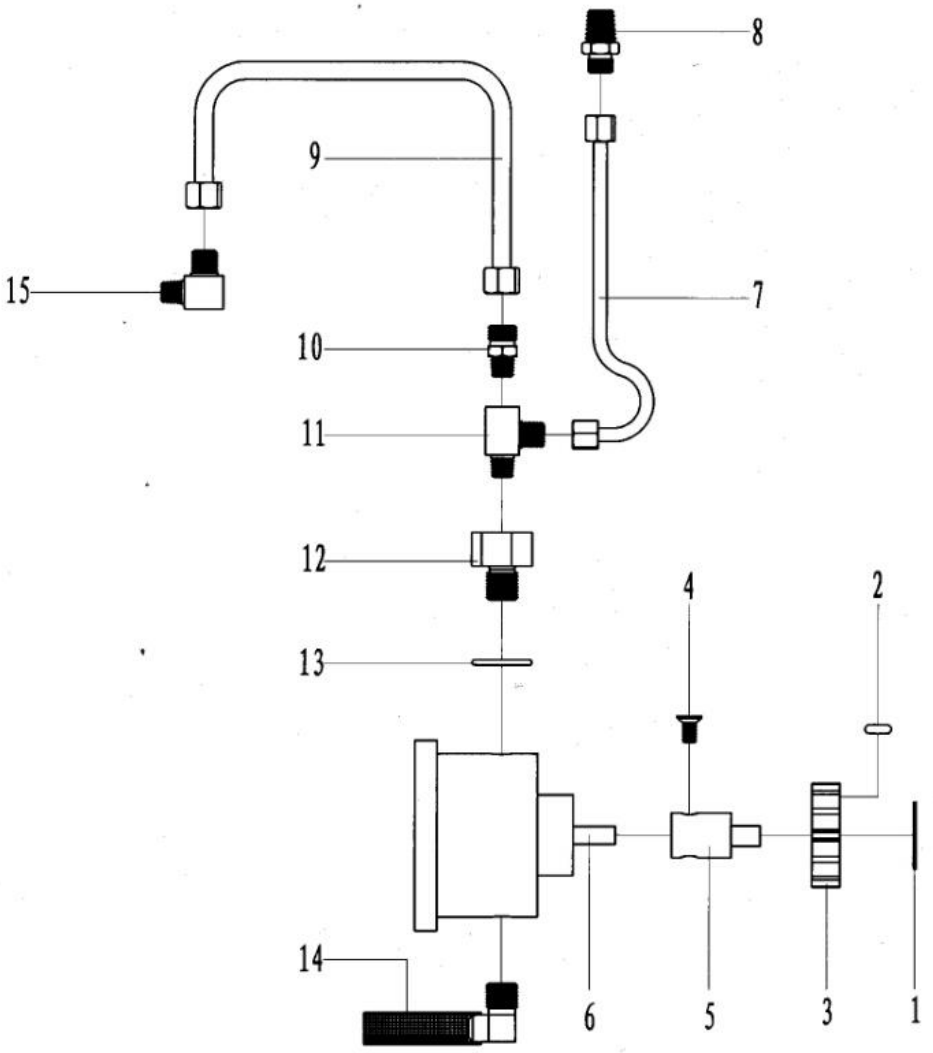

Fig. 22

Table 9 List of Oil Pump Assembly

No.	Part Number	Drawing No.	Description	Quantity
1	XQB8-184	GB/T894.1	Circlip for shaft A11	1
2	XQB8-185	GB/T1096	Key 4×4×12	2
3	XQB8-186	XQB8.Z.10-1	Gear	1
4	XQB8-187		Head Screw 5/16"UN-5/16"	1
5	XQB8-188	XQB8.Z.10-7	Guide Rod	1
6	XQB8-189	SNBY2.5/1.6	OIL PUMP ASSY	1
7	XQB8-190	XQB8.Z.10.1	Oil Pump Line (1/4")	1
8	XQB8-191	XQB8.Z.10-2	Str. 1/4" OK x 1/4" Pipe	1
9	XQB8-192	XQB8.Z.10.2	Oil Pump Line (5/16")	1
10	XQB8-193	XQB8.Z.10-3	Adapter connector（NPT1/8"-1/2"UN)	1
11	XQB8-194	XQB8.Z.10-4	Three Way Connector	1
12	XQB8-195	XQB8.Z.10-6	Adapter Connector（NPT1/8"-M14)	1
13	XQB8-196	GB1235-76	O Ring15×2.4	2
14	XQB8-197	XQB8.Z.10.3	Screen Filter	1
15	XQB8-198	XQB8.Z.10-5	Adapter Connector（NPT1/8"-1/2"UN)	1

10.10 Assembly of Hydraulic Lift （Fig. 23，Table 10）

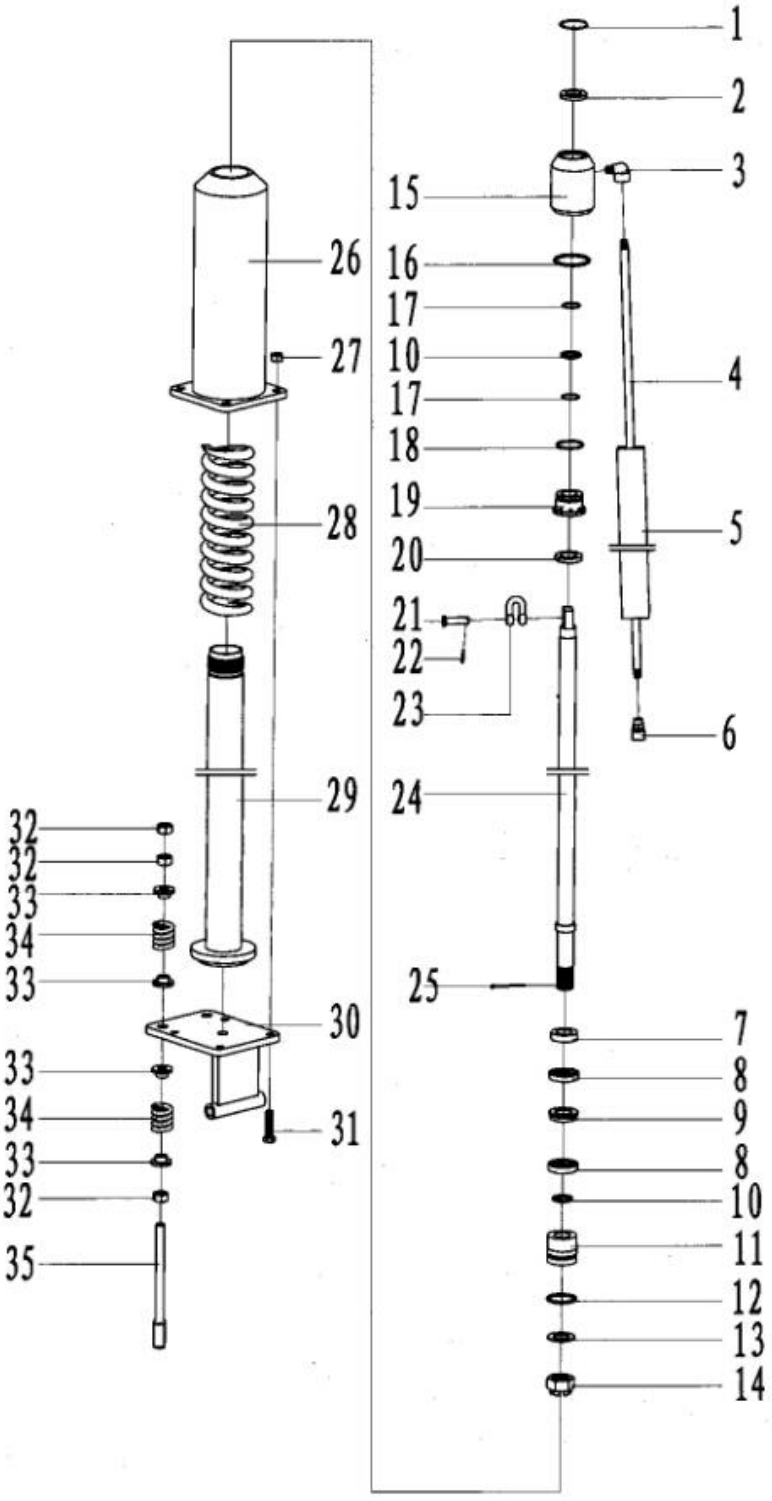

Fig. 23

Table 10 List of Hydraulic Lift Assembly

No.	Part Number	Drawing No.	Description	Quantity
1	XQB8-199	GB/T893.1	Snap Ring	1
2	XQB8-200	GB/T9877.1	Oil Seal	1
3	XQB8-201	XQB8.D-12	Ell 3/8 Street	1
4	XQB8-202	XQB8.D-13	Pass Line	1
5	XQB8-203	XQB8.D.5	Smart Cover	1
6	XQB8-204	XQB8.D-18	Coupling Half 3/8 Male	1
7	XQB8-205	XQB8.D-6	Bumper Washer	1
8	XQB8-206	XQB8.D-8	Cup	2
9	XQB8-207	XQB8.D-7	Cup Retainer	1
10	XQB8-208	AS568-325	O Ring3/16×1 1/2×1 7/8	2
11	XQB8-209	XQB8.D-9	Piston	1
12	XQB8-210	AS568-332	O Ring3/16×2 3/8×2 3/4	1
13	XQB8-211	XQB8.D-10	Machine Bushing 1 1/2 Flat	1
14	XQB8-212	XQB8.D-11	Nut-Castle	1
15	XQB8-213	XQB8.D-2	Top Cap Assembly	1
16	XQB8-214	AS568-337	O Ring3/16×3×3 3/8	1
17	XQB8-215		Backup Ring	2
18	XQB8-216	AS568-228	O Ring1/8×2 1/8×2 3/8	1
19	XQB8-217	XQB8.D-3	Bush	1
20	XQB8-218	XQB8.D-4	Buffer Pad	1
21	XQB8-219	XQB8.D-1	Pin Shaft	1
22	XQB8-220	GB/T91	Cotter Pin 4×20	1
23	XQB8-221	G209	Clevis 1/2	1
24	XQB8-222	XQB8.D-17	Lift Rod	1
25	XQB8-223	GB/T91	Cotter Pin 1/4×3	1
26	XQB8-224	XQB8.D.3	Spring Housing	1
27	XQB8-225		Nut 5/8 NC	4
28	XQB8-226	XQB8.D-5	Cushion Spring	1
29	XQB8-227	XQB8.D.2	Working Barrel	1
30	XQB8-228	XQB8.D.4	Bottom Plate	1
31	XQB8-229		Cap Screw 5/8"×2 1/2 Hex	4
32	XQB8-230		Nut 3/4 NC	6
33	XQB8-231	XQB8.D-16	Spring Guide	8
34	XQB8-232	XQB8.D-15	Compression Spring	4
35	XQB8-233	XQB8.D-14	Bolt	2

10.11 Assembly of Backup Tong（Fig. 24，Table 11）

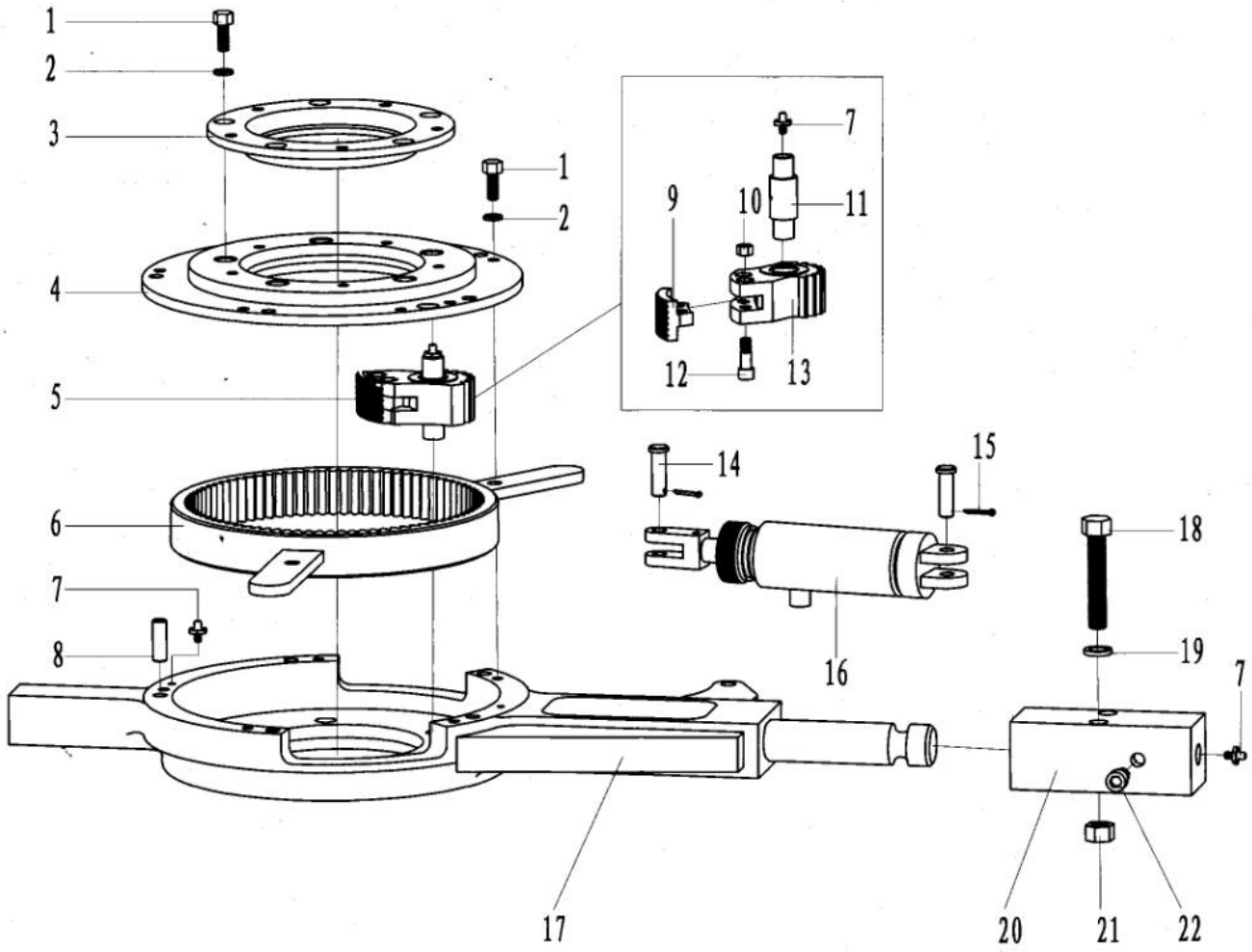

Fig. 24

Table 11 List of Backup Tong

No.	Part Number	Drawing No.	Description	Quantity
1	XQB8-44		Capscrew (3/8" ×1" Hex)	10
2	XQB8-15		Lock Washer 3/8"	10
3	XQB8-234	XQB8.B-2	Plate Adaptor	1
4	XQB8-235(1)	XQB8.B-1	Top Plate 1	1
	XQB8-235(2)	XQB8.B（2）-1	Top Plate 2	1
5	XQB8-236(1)	XQB8.B.2.1	Jaw 2 3/8"-3 3/4"	5
	XQB8-236(2)	XQB8.B.2.2	Jaw 3 1/16"-4 1/2"	5
	XQB8-236(3)	XQB8.B.2.3	Jaw 4 1/4"-5 9/16"	5
	XQB8-236(4)	XQB8.B.2.4	Jaw 2 3/8"-3 3/7"	5
	XQB8-236(5)	XQB8.B（2）.2	Jaw 6 5/8"-7"	5
6	XQB8-237	XQB8.B.3	Gear Ring w/Handles	1
7	XQB8-72		Grease Fitting 1/4"	8
8	XQB8-238	XQB8.B-6	Dowel Pin 1/2"×1 1/2"	5
9	XQB8-88(1)	XQB8.Z.2.3.1-1	Insert N503	5
10	XQB8-87		Nut 3/8" NC	10
11	XQB8-239(1)	XQB8.B-3	Backup Tool Pin Assembly 1	5
	XQB8-239(2)	XQB8.B(2)-3	Backup Tool Pin Assembly 2	5
12	XQB8-240	XQB8.B.2.1-1	Inner Screw	10
13	XQB8-241(1)	XQB8.B.2.2-1	Jaw 3 1/16"-4 1/2"	5
	XQB8-241(2)	XQB8.B.2.1-2	Jaw 2 3/8"-3 3/4"	5
14	XQB8-242	XQB8.B-4	Fixed pin	2
15	XQB8-243	GB/T91	Cotter Pin 3.2×18	2
16	XQB8-244	XQB8.B.4	Air Cylinder	1
17	XQB8-245(1)	XQB8.B.1	Housing Assembly 1	1
	XQB8-245(2)	XQB8.B(2).1	Housing Assembly 2	1
18	XQB8-246		Cap Screw 5/8"×3 1/2" Hex	2
19	XQB8-247		Washer 5/8 "Lock	2
20	XQB8-248	XQB8.B-5	Swivel	1
21	XQB8-249		Nut 5/8" NC	2
22	XQB8-250		Cap Screw 1/2"×3/4" Skt	2

10.12 Assembly of Air Cylinder（Fig. 25，Table 12）

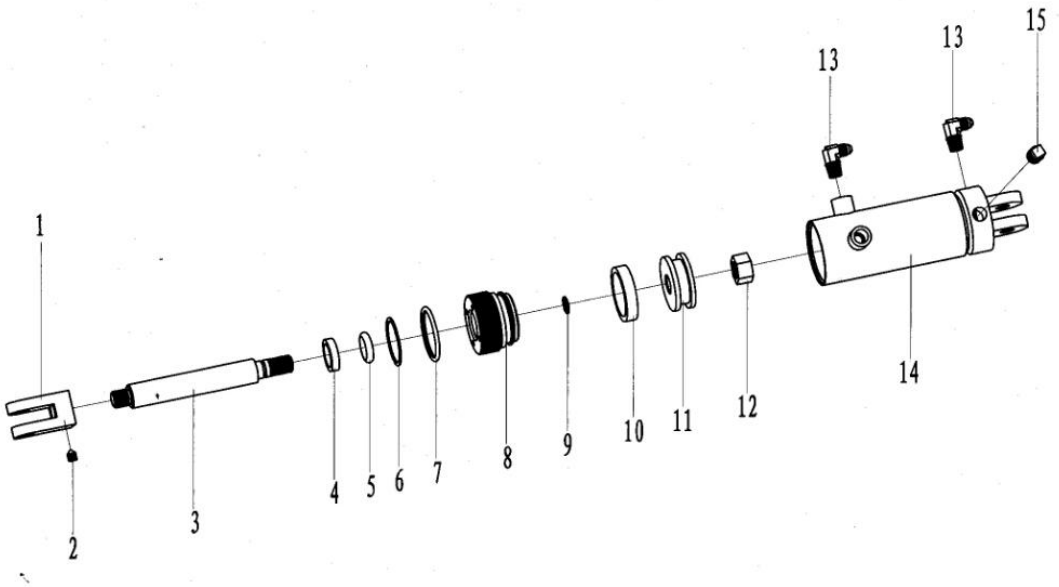

Fig. 25

Table 12 List of Air Cylinder

No.	Part Number	Drawing No.	Description	Quantity
1	XQB8-251	XQB8.B.4-6	Bucket End Joint	1
2	XQB8-252		Slotted Screw 1/4"UNC×1/4"	1
3	XQB8-253	XQB8.B.4-6	Piston Rod	1
4	XQB8-254	A5 2014 3587	Dust Proof O-Ring 22×30×7	1
5	XQB8-255	BA209300030	BA-Ring 22.2×28.6×6.4	1
6	XQB8-256	AS568-224	Backup Ring 45.01×3×1.02	1
7	XQB8-257	AS568-224	O-Ring 44.04×3.53	1
8	XQB8-258	XQB8.B.4-5	Cylinder cover	1
9	XQB8-259	AS568-014	O-Ring 12.42×1.78	1
10	XQB8-260	CP-0518-012-08420-D	CP-Piston Combination Seal	1
11	XQB8-261	XQB8.B.4-2	Piston	1
12	XQB8-262		Nut 5/8 -18UNF	1
13	XQB8-263	TQ508/70Y.9.2.3-5	Ell 7/16" Flare to 1/4" Pipe	2
14	XQB8-264	XQB8.B.4.1	Cylinder Body	1
15	XQB8-265	XQB8.B.4-1	Plug, 1/4" XQ Hd Pipe	2

10.13 Assembly of Air Valve（Fig. 26，Table 13）

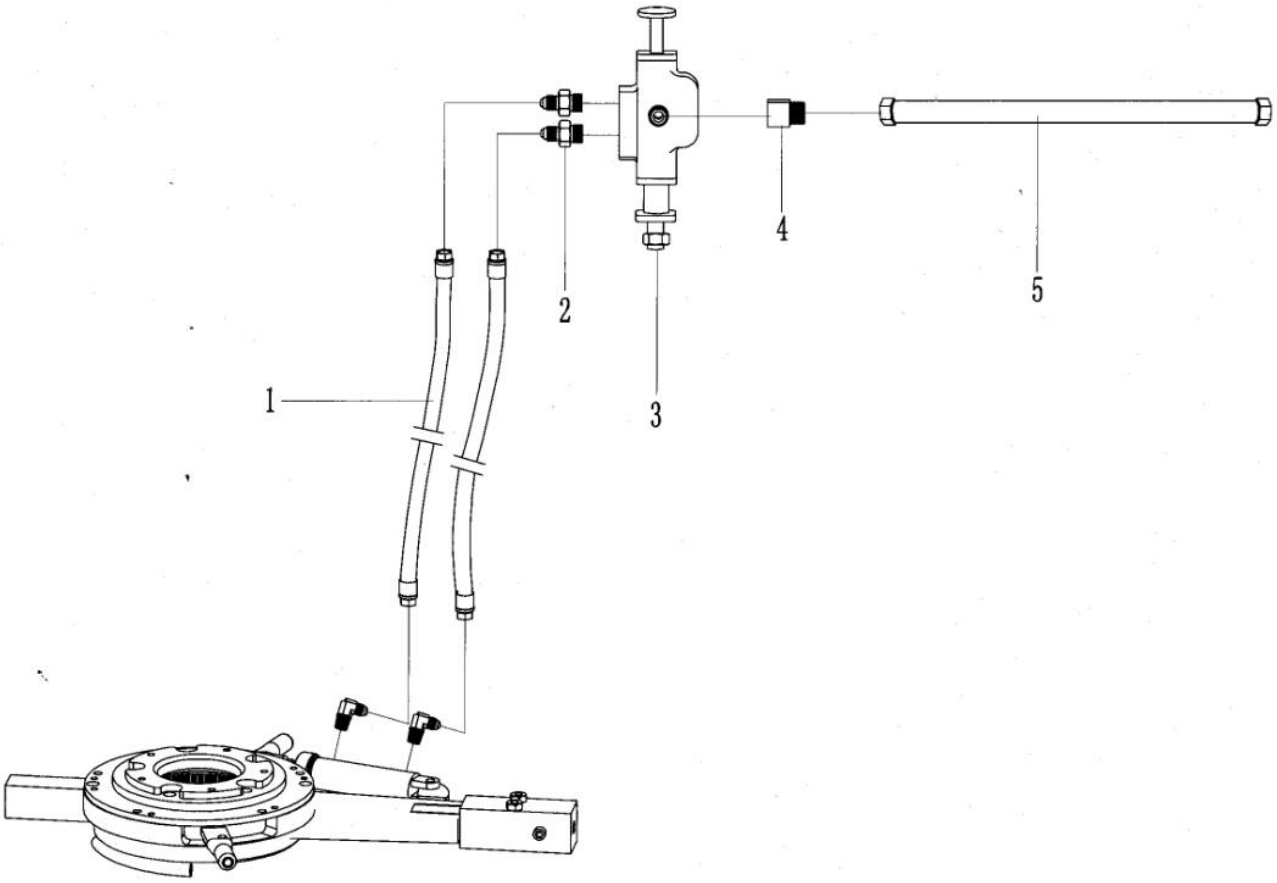

Fig. 26

Table 13 List of Air Valve

No.	Part Number	Drawing No.	Description	Quantity
1	XQB8-266		Hose 7/16 Flare	1
2	XQB8-267	YG-37	Ell 7/16" Flare to 1/4" Pipe	1
3	XQB8-268	M04824685	Air Valve	1
4	XQB8-269	TQ508/70Y.9.2.3-5	Ell 7/16" Flare to 1/4" Pipe	1
5	XQB8-270		Hose， 7/16 ×24"	1

11.Tong Drag Ring Assembly

Drag Ring Assembly 1-5/16" - 3-1/2" O.D. (5-1/2" Bore)			
Part Number	Drawing No.	Description	Quantity
XQB8-71(1)	XQB8.Z.2.2.1-3	Set Screw—1"	5
XQB8-73(1)	XQB8.Z.2.2.1-1	Drag Plug (1)	5
XQB8-74(1)	XQB8.Z.2.2.1-2	Drag Spring (1)	5
XQB8-90(1)	XQB8.Z.2.2.1-5	Jaw Pin—1"	10
XQB8-72		Grease Fitting 1/4"	1
Drag Ring Assembly 3-1/2" - 6-1/16" O.D. (6-1/4" Bore)			
Part Number	Drawing No.	Description	Quantity
XQB8-71(2)	XQB8.Z.2.2.2-3	Set Screw—1/2"	5
XQB8-73(2)	XQB8.Z.2.2.2-1	Drag Plug (2)	5
XQB8-74(2)	XQB8.Z.2.2.2-2	Drag Spring (2)	5
XQB8-90(1)	XQB8.Z.2.2.1-5	Jaw Pin—1"	10
XQB8-72		Grease Fitting 1/4"	1
Drag Ring Assembly 4" - 5-1/2" O.D. (7-1/4"Bore)			
Part Number	Drawing No.	Description	Quantity
XQB8-71(2)	XQB8.Z.2.2.2-3	Set Screw —1/2"	5
XQB8-73(3)	XQB8.Z.2.2.3-1	Drag Plug (3)	5
XQB8-74(2)	XQB8.Z.2.2.2-2	Drag Spring (2)	5
XQB8-90(2)	XQB8.Z.2.2.3-3	Jaw Pin—3/4"	5
XQB8-72		Grease Fitting 1/4"	1
Drag Ring Assembly 6-5/8" O.D. (7-7/8" Bore)			
Part Number	Drawing No.	Description	Quantity
XQB8-71(2)	XQB8.Z.2.2.2-3	Set Screw —1/2"	5
XQB8-73(3)	XQB8.Z.2.2.3-1	Drag Plug (3)	5
XQB8-74(2)	XQB8.Z.2.2.2-2	Drag Spring (2)	5
XQB8-90(3)	XQB8.Z.2.2.4-2	Jaw Pin—5/8"	5
XQB8-72		Grease Fitting 1/4"	1

12.Wearing Parts

List of Wearing Parts

No.	Part Number	Drawing No.	Description	Quantity
1	XQB8-47	AS568-214	O-Ring 24.99×3.53	1
2	XQB8-64	XQB8.Z.1-11	Clutch Shifting Fork	1
3	XQB8-70(6)	XQB8.Z.2.3.6	Jaw（6）	5
4	XQB8-88(1)	XQB8.Z.2.3.1-1	Insert N503	15
	XQB8-88(4)	XQB8.Z.2.3.3-1	Insert N505-2	10
	XQB8-88(5)	XQB8.Z.2.3.3-2	Insert N505-3	10
	XQB8-88(7)	XQB8.Z.2.3.1-4	Insert N503-1	15
5	XQB8-113	XQB8.Z.9-10	Separating Spring	6
6	XQB8-114	XQB8.Z.9-11	Thrust Plate	6
7	XQB8-116	XQB8.Z.9-12	Inner Disc	14
8	XQB8-117	XQB8.Z.9-13	Pressure Plate	12
9	XQB8-134	XQB8.Z.9-5	Bearing	2
10	XQB8-141	XQB8.Z.9-17	Pin shaft	1
11	XQB8-152	GB1235-76	O Ring32×3.1	1
12	XQB8-164	GB1235-76	O Ring26×2.4	6
13	XQB8-196	GB1235-76	O Ring15×2.4	2
14	XQB8-208	AS568-325	O Ring3/16×1 1/2×1 7/8	2
15	XQB8-210	AS568-332	O Ring3/16×2 3/8×2 3/4	1
16	XQB8-214	AS568-337	O Ring3/16×3×3 3/8	1
17	XQB8-215		Backup Ring	2
18	XQB8-216	AS568-228	O Ring1/8×2 1/8×2 3/8	1
19	XQB8-236(3)	XQB8.B.2.3	Jaw 4 1/4"-5 9/16"	5
	XQB8-236(4)	XQB8.B.2.4	Jaw 2 3/8"-3 3/7"	5
	XQB8-236(5)	XQB8.B（2）.2	Jaw 6 5/8"-7"	5
20	XQB8-254	A5 2014 3587	Dust Proof O-Ring 22×30×7	1
21	XQB8-255	BA209300030	BA-Ring 22.2×28.6×6.4	1
22	XQB8-256	AS568-224	Backup Ring 45.01×3×1.02	1
23	XQB8-257	AS568-224	O-Ring 44.04×3.53	1
24	XQB8-259	AS568-014	O-Ring 12.42×1.78	1
25	XQB8-260	CP-0518-012-08420-D	CP-Piston Combination Seal	1