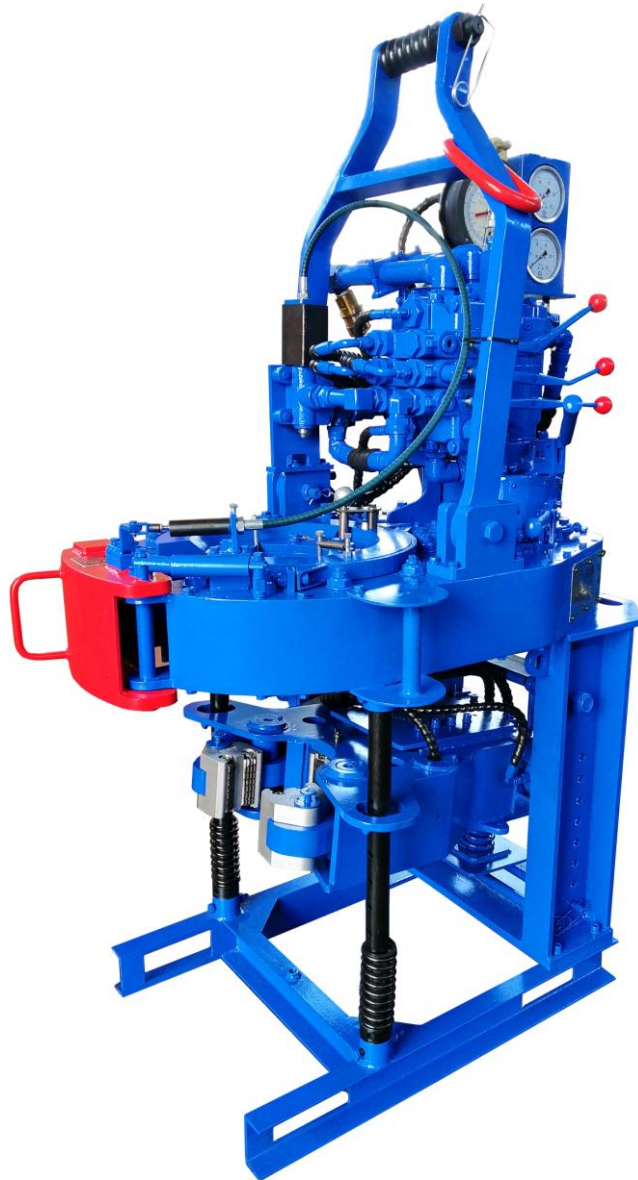




# Operating Manual for NXQ140/20 Non-Marking Hydraulic Power Tongs




Ver201903

Yancheng Teda Drilling and Production  
Equipment Co., Ltd.



## **Safety Instructions**

1. The operator must read and grasp the manual.
2. The operator must wear working clothing, safety shoes, safety helmet, protective glasses, safety gloves, etc.
3. Tie tail rope as required in the manual. And the rope should be in the right direction.
4. The operation should be carried out on the operation side.
5. During making up and breaking out, the safety door should be closed.
6. During the operation of power tongs, it is prohibited to stretch hands into the operating parts.
7. Other sundries should not be placed in operation area of power tongs.
8. During maintenance and replacement of jaw plate, tooth seat, Die, etc., pump or hydraulic source should be stopped or cut off.
9. The over-pressure and over-torque operation is prohibited.
10. Do not disassemble or add parts arbitrarily.
11. Original supporting parts of Teda  should be used.

**If the manual is changed or revised later, we have no obligation to notify any person.  
If the pictures vary from the practicality, please accept the practicality.**



## NXQ140/20 Non-Marking Hydraulic Power Tongs

YANCHENG TEDA DRILLING & PRODUCTION EQUIPMENT CO.,LTD

## Chapter I Summary

NXQ140/20 micro-marking and no-marking hydraulic power tongs is a special equipment and open power tongs which is applicable to make up or break out  $2\frac{3}{8}$ "- $4\frac{1}{2}$ " tubing and  $4\frac{1}{2}$ "- $5\frac{1}{2}$ " casing during oil field work over operation. Master and back tong device adopts jaw plate type multi-point clamping mechanism. Can choose contour coated rig dies or pyramid tooth , to ensure the column minimum damage, and can improve the pipe thread connection quality, reduce due to improper work over pipe accident etc..

characteristic:

- 1.The tongs head is the open structure which is quick and convenient for entering and retreating working position. The integral tong head has good hardness and rigidity.
- 2.Master tong is roller climbing two jaw plate structure, can install arc tooth die , the contact surface is more larger and clamp no deformation。 The assembly and disassembly is very convenient. The optimum tangent-diameter ratio design ensures reliable clamping and easy slope retreating.The back tong is the three-jaw-plate structure pushed by hydraulic cylinder. The structure is simple and the clamping is reliable;The minimum damage to the tubular column can be ensured, and the main body of the pipe string can be clamped.
- 3.Only need to change contour coated rig dies(Low stress trace in the pipe column,no liner strip trace,short for Non-Marking die,suitable for tubing as 3Cr、9Cr、13Cr、22Cr、25Cr)or Pyramid Tooth(Micro liner mark in the pipe column,and short for Micro-Marking die) could lead to the different protective effects.
- 4.Four-gear rotation is adopted for large speed regulation range. And the rated torque is large.
5. Using Safety protection device.As long as the door opened, power tongs will stop running, safe and reliable.
- 6.Master and back tong adopt integral frame structure, back tong is floating connection, The master and back tong adjustable distance, reduce the damage of pipe string shackle;
7. Use with double pump hydraulic station,allows initial makeup speeds of 15~25rpm, makeup speed is reduced as the shoulder is approached,drop to as low as 1-6rpm.
8. Matching torque and speed test system, can accurately control the torque of makeup, can timely display, control, storage, print torque parameters ( Suitable for FOX、VAM TOP、BGT1、3SB、NSCC、WSP etc special threaded bushing) .



### Chapter III Installation of Power Tongs

#### I. Hang the tongs

1. Fix the single pulley (with the load of 5 tons) on the bottom girder of the crown.
2. Put the Slip wire rope (which has a diameter of not less than 1/2") through the pulley. One end of wire rope fastened on the bottom girder, and other end fastened on the lift bucket (master tong can choose to use spring lift bucket, combined tong can choose to use hydraulic lift bucket), The height of power tongs should be equal to the average height of connectors for tripping string.

#### II. Leveling Power Tongs

It is necessary to level the tongs after Hang the tongs. Otherwise, it will lead to tong tooth slipping.

Front-rear leveling: it is adjusted through the left and right two horizontal bolts at the connection position between lifting bracket and tong body of the power tongs.

Transverse leveling: it is adjusted through leveling bolts on the upper part of lifting bracket. And it may be adjusted through turning the bolts.

#### III. Tie the back guy

Tail rope diameter should be no less than 5/8". One end of tail rope is fixed on tong tail seat. And another end is fixed on drilling platform or the derrick. Note: when tail rope is tightened, it should be in the same level with power tongs and perpendicular to median line of tong body.

#### IV. Refueling Torque Cylinder

Master tong: when stretched length of piston rod of tension cylinder reaches 1 1/8" (28 mm), it is necessary to add oil.

Composite tong: when the piston of tension cylinder is retreated to the position which is 1/4" (6.35 mm) away from cylinder end, it is necessary to add oil.

When it is necessary to add oil, remove quick connector from torque cylinder and insert it into the quick connector which is on the oil filled equipment (Purchase Code: MXQ140/20-650). After oil filling, connect it with quick connector which is on the torque meter. Then release plug on torque cylinder until the pressure on torque meter turns to zero.

**Note: Torque testing system of master tong and Torque testing assembly can be selected according to user needs.**

#### V. Pipe Connection

High-pressure oil feeding pipe: NPT1" port is connected with high-pressure hose from hydraulic station;

Low-pressure oil return pipe: NPT1 1/4" port is connected with low-pressure hose from hydraulic station;

**Note :We will supply High-pressure oil feeding pipe and Low-pressure oil return pipe for the users according to their requirement on the length connection thread.**

## VI. Safety protection device

Safety door protection device is reliable protection for power tongs, insure the safety of operating personnel.

Hydraulic control safety device consists of hydraulic controlled check valve, plunger type directional control valve and the door control unit. Plunger type directional control valve and the door control unit has a linkage, and between hydraulic controlled check valve and hydraulic motor, drives by the safety door to the movement of the plunger type directional control valve, then the hydraulic controlled check valve opened or closed. As long as the door opened, power tongs will stop running; when it is closed, power tong can return to normal work, realizing the linkage protection between safety door and hydraulic circuit.

**Note: 1. The power tongs rated system pressure is 12MPa, overpressure use is not allowed, it will cause damage to the power tongs;**

**2. Before using, the safety door must be closed, otherwise the power tong will fail to work.**

**3. This device can be selected according to the needs of users.**



## Chapter IV Operation Regulation

### I. Operator's Requirements

1. Learn overall structure and performance of power tongs basically;
2. Be familiar with the operation of hydraulic reversing handle on power tongs:

When manual reversing valve of control master tong is pushed, large gear on master tong turns in the making-up tong direction; when manual reversing valve of control master tong is pulled, large gear on master tong turns in the braking-out tong direction;

When manual reversing valve of control back tong is pushed, back tong is clamped; when manual reversing valve of control back tong is pulled, back tong is released.

3. Be familiar with the operation of shifting handle (various gears of shifting handle are shown in Figure 1):

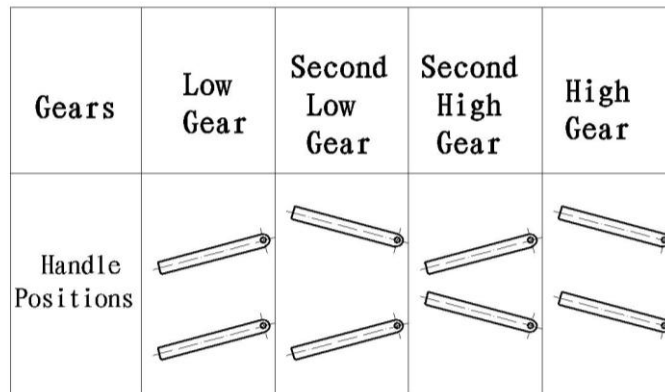


Figure 1

4. Adjustment of safety door clearance

The clearance between safety door buckle and latch seat on the shell may be regulated through adjusting turning angle of eccentric shaft for minimum clearance for normal opening of safety door.

5. Learn operation sequence and safety requirements;
6. Be familiar with the instrument operation.

### II. Operation of Power Tongs

1. Understanding of jaw plate, tooth blocks specifications: power tongs main forceps jaw plate has 6 kinds of specifications, back jaw plate has seven kinds of specifications, main clamp each kind of specification the two jaw plate; back clamp each kind of specification jaw plate the three jaw plate, contains two front jaw plate and a jaw plate (see Figure 2 and 3), which two front jaw plate is the same, on the left and right sides can be installed. When installing the jaw plate, it is necessary to check whether the tooth block is worn and clean.

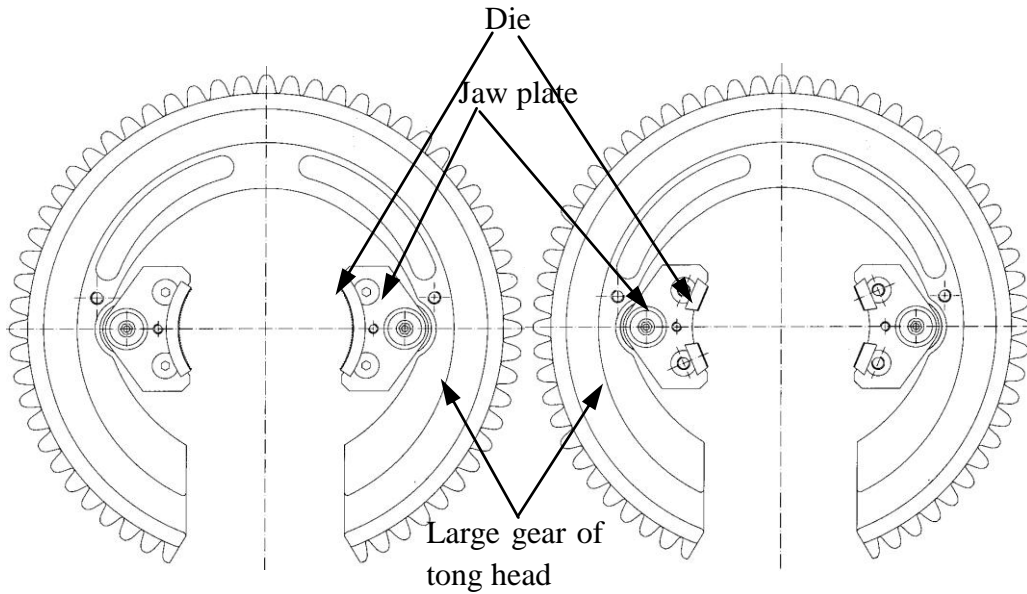


Figure 2 Tong head and jaw plate of the master tong

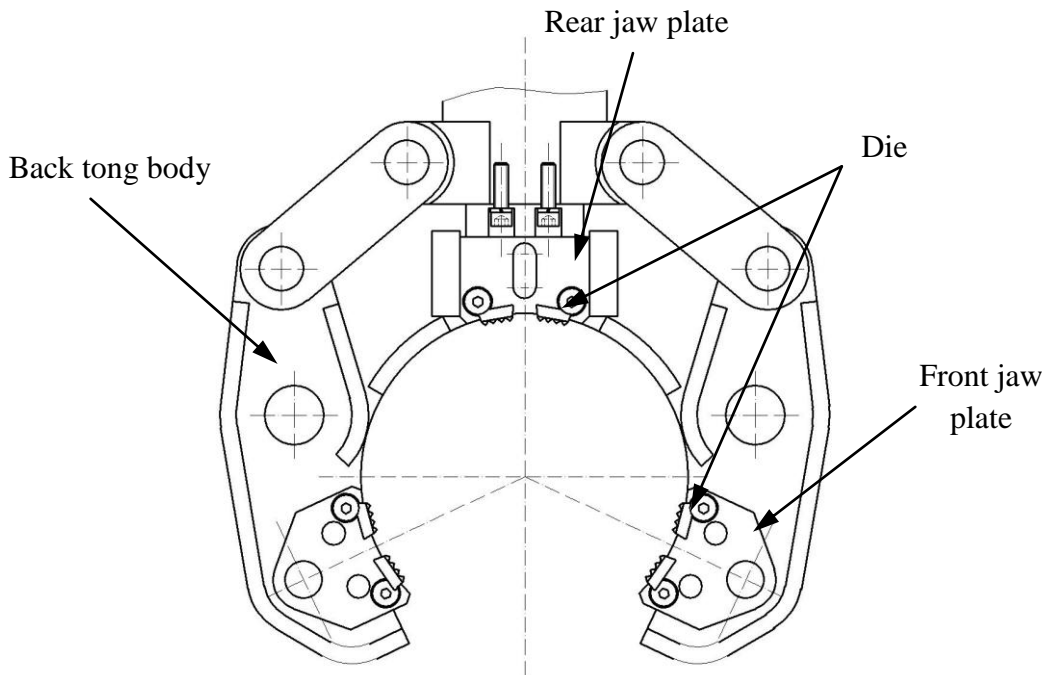


Figure 3 Back tong body and jaw plate

2. Install jaw plate and Die with corresponding size for the string.
3. Put shifting handle of the upper and lower shifting device on the neutral position;
4. Start hydraulic power station;
5. When hydraulic reversing handle is pushed or pulled, rotation noise of hydraulic motor should be heard and open gear of tong head should not rotate;
6. When shifting handle is put on any gear and hydraulic reversing handle is pushed or pulled, positive or negative rotation of open gear of tong head should be flexible;

Note: shifting should be carried out when hydraulic motor stops the rotation.

### III. Working Process

1. Align the opening of large gear of tong head with the opening of jaw plate bracket.
2. Insert reversing pin into making-up and breaking-out hole according to the operation requirements and adjust the tight degree of braking staple.
3. Align the opening of large gear of tong head with the shell opening.
4. Pull out safety door, push power tongs toward the string to allow the string to be on the central position of tong head and close safety door.
5. Making-up operation regulation
  - a. Put shifting handle on high gear and push reversing valve handle of back tong to allow back tong to clamp the string. Release reversing valve handle of back tong to allow reversing valve handle to return median position. Then push reversing valve handle of master tong to allow jaw plate to clamp the string. Large gear of tong head drives the string to rotate in the making-up direction. At the same time, observe the torque: if the readings do not reach the required value, it is necessary to shift the second high gear, the second low gear and low gear. Then push reversing valve handle of the master tong to allow jaw plate to clamp the string. And large gear of tong head drives the string to rotate. At the same time, observe the torque meter. When the readings reach the required value, release reversing valve handle of the master tong to allow reversing valve handle to return the median position.
  - b. Pull reversing valve handle of back tong to allow back tong to release the string; then pull reversing valve handle of the master tong. According the familiar degree and open gear position, the operator should select the low gear. The jaw plate will release the string. Large gear of tong head rotates in breaking-out direction until it is aligned with the shell opening. Release manual reversing valve handle to allow reversing valve handle to return the median position.
  - c. Open the safety door and remove power tongs from the string. Then one making-up operation is completed.
6. Breaking-out operation regulation
  - a. Put shifting handle on the second high gear, the second low gear and low gear and push reversing valve handle of back tong to allow back tong to clamp the string. Release reversing valve handle of back tong to allow reversing valve handle to return median position. Then pull reversing valve handle of master tong to allow jaw plate to clamp the string. Large gear of tong head drives the string to rotate in the breaking-out direction.
  - b. When the string rotates in certain degree and high gear may rotate, put shifting handle on high gear. Pull reversing valve handle of the master tong to allow jaw plate to clamp the string. And large gear of tong head drives the string to rotate in the breaking-out direction quickly.
  - c. At the end of breaking-out the tong, pull reversing valve handle of back tong to allow back tong to release the string; then push reversing valve handle of the master tong. According the familiar degree and opening position, the operator should select the low gear. The jaw plate will release the string. Large gear

of tong head rotates in making-up direction until it is aligned with the shell opening. Release reversing valve handle of the master tong to allow reversing valve handle to return the median position.

- d. Open safety door and remove power tongs from the string. Then one breaking-out operation is completed.

#### IV. Cautions

1. During the disassembly and assembly of jaw plates, you must shut down the hydraulic power unit to prevent accidents.
2. Ensure that lifting suspension of power tongs was is leveled;
3. Ensure that all the pipelines are connected properly;
4. During assembling jaw plates, jaw plates with corresponding pipe diameter should be adopted.
5. During shifting, hydraulic motor should be stopped.
6. Before safety door is closed, manual reversing valve should not be operated to avoid hands or other parts of the operator to enter the opening to lead to damage.
7. Check the clearance between safety door and the shell at any time for normal opening/closing safety door. If the clearance is too large, power tongs will be damaged.
8. Check the safety reliability of lifting rope and tail rope at any time.
9. When the pressure of overflow valve of hydraulic power unit is adjusted to 1750PSI (12MPa), pressure adjustment handle should be locked firmly.
10. When the tongs is operating under the torque higher than 15000ft.lb, it is necessary to ensure that two intermediate wheels are engaged in large open gear.

## Chapter V Care and Maintenance

- I. Establish post responsibility system.
- II. Apply lubricant on grease fitting and skidding surface before each operation.
- III. Before the operation, the tongs should be rotated for one time as required in Article 2 in Chapter IV.
- IV. After the operation, it is necessary to clean the tongs and apply butter on the rotating position of tong head to prevent rust.
- V. When the tongs is not used, it should be stored in a place far away from the drilling rig floor. The exposed part of the tong head should be coated with butter and the storage place should be clean and dry.
- VI. In the demobilization, close the oil ports to prevent the foreign objects to enter the pipelines.
- VII. After the completion of running the strings in 10 wells, overhaul is required for the power tongs.

## Chapter VII List of Parts

1. General assembly (Fig 7-1, Table 1)
2. Assembly of master tong (Fig 7-2, Table 1)
3. Assembly of tong head (Fig 7-3, Table 1)
4. Shell and Accessories I (Fig 7-4, Table 1)
5. Shell and Accessories II (Fig 7-5, Table 1)
6. Drive gear of master tong(Fig 7-6, Table 1)
7. Assembly of safety door(Fig 7-7, Table 1)
8. Gear engagement Assembly (Fig 7-8, Table 1)
9. Hydraulic pipeline (Fig 7-9, Table 1)
10. Quintuple valve(Fig 7-10, Table 1)
11. Quick coupling (2 1/8-12UN) (Fig 7-11, Table 1)
12. Quick coupling (1 7/8-12UN) (Fig 7-12, Table 1)
13. Bend sub (1 5/16-12UN) (Fig 7-13, Table 1)
14. Bend sub (9/16-18UNF) (Fig 7-14, Table 1)
15. Bend sub (NPT1 1/4-1 5/8-12UN) (Fig 7-15, Table 1)
16. Bend sub (NPT1-1 5/16-12UN) (Fig 7-16, Table 1)
17. Safety protection device (Fig 7-17, Table 17)
18. Assembly of suspension rod (Fig 7-18, Table 18)
19. Assembly of back tong (Fig 7-19, Table 19)
20. Assembly of back tong driv(Fig 7-20, Table 20)
21. Assembly of clamping cylinder(Fig 7-21, Table 21)
22. Assembly of suspension chain(Fig 7-22, Table 22)
23. Assembly of front guide rod (Fig 7-23, Table 23)
24. Hydraulic lift cylinder assembly (Fig 7-24, Table 24)
25. Torque testing assembly (Fig7-25, Table25)
26. Torque testing system of master tong (Fig7-26, Table26)
27. Oil filled equipment (Fig7-27, Table27)
28. Spring lift bucket assembly (Fig7-28, Table28)

1. General assembly (Fig 7-1, Table 1)

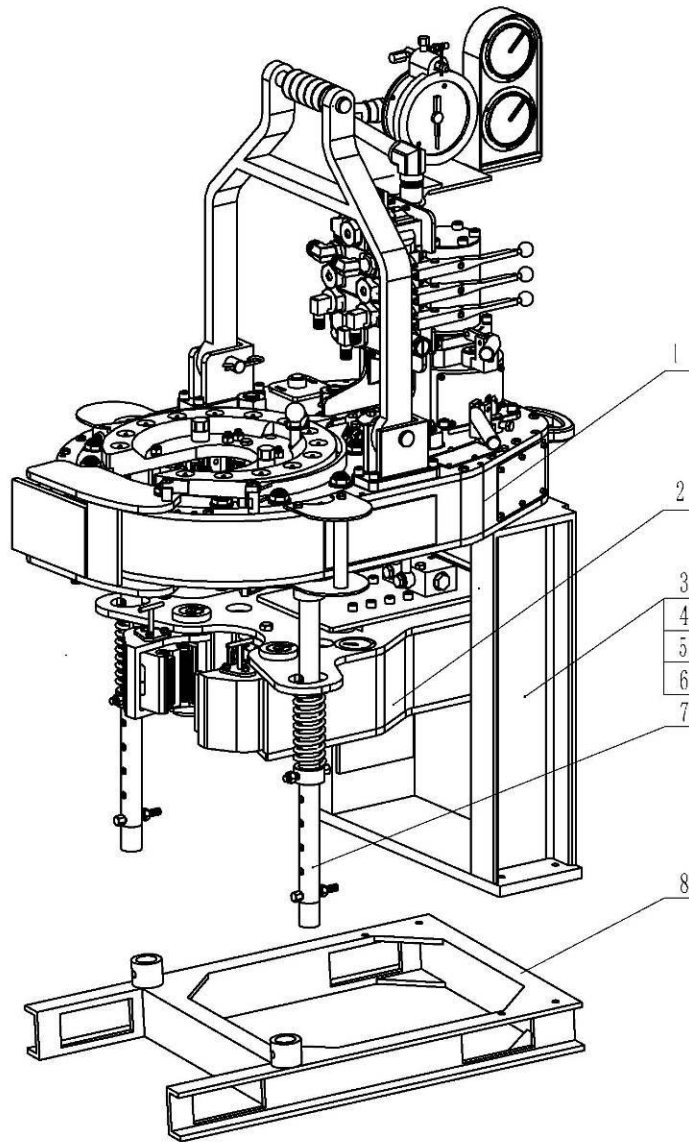


Fig. 7-1

Table 1 List of General assembly

No.	Purchase Code	Drawing No.	Names and specifications of parts	Quantity
1	HYQ5500-01	HYQ5500.1	Master tong	1
2	HYQ5500-02	HYQ5500.2	Back tong	1
3	HYQ5500-03	HYQ5500.4.1	Rear support	1
4	HYQ5500-04	HYQ5500.3	Rear support assembly	1
5	HYQ5500-05		Hexagon socket cap head screws 1/2"×1 1/4"	4
6	HYQ5500-06		Spring washer 1/2"	4
7	HYQ5500-07	KHT5500.5	Front guide assembly	2
8	HYQ5500-08	HYQ5500.4.2	Fixed seat	1

2. Assembly of master tong (Fig 7-2, Table 2)

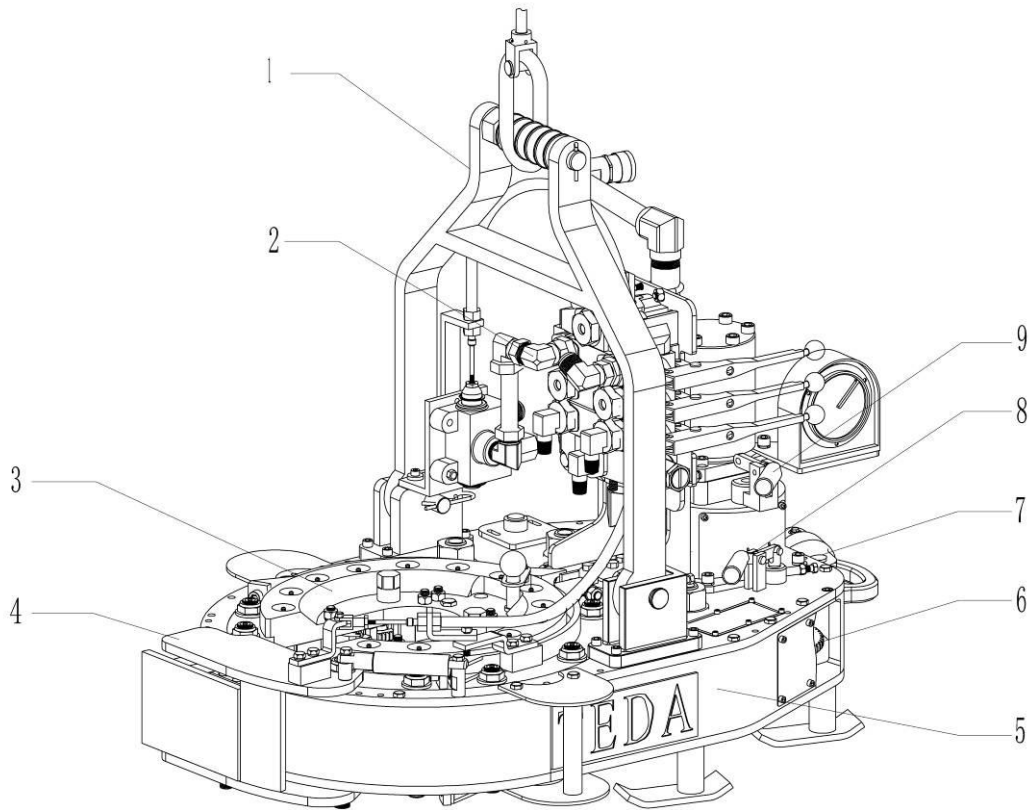


Fig. 7-2

Table 2 List of Master tong

No.	Purchase Code	Drawing No.	Names and specifications of parts	Quantity
1	HYQ5500-09	KHT5500.1.12	Suspension rod assembly	1
2	HYQ5500-10	KHT5500.1.8	Hydraulic valve and hydraulic pipeline	1
3	HYQ5500-11	HYQ5500.1.1	Tong head assembly	1
4	HYQ5500-12	KHT5500.1.10	Safety door assembly	1
5	HYQ5500-13		Shell and Accessories I	1
6	HYQ5500-14		Drive gear of master tong	1
7	HYQ5500-15	KHT5500.1.14	Torque testing assembly of master tong	1
8	HYQ5500-16		Shell and Accessories II	1
9	HYQ5500-17	KHT9625.1.14	Gear engagement assembly (upper)	1

3. Assembly of tong head (Fig 7-3, Table 3)

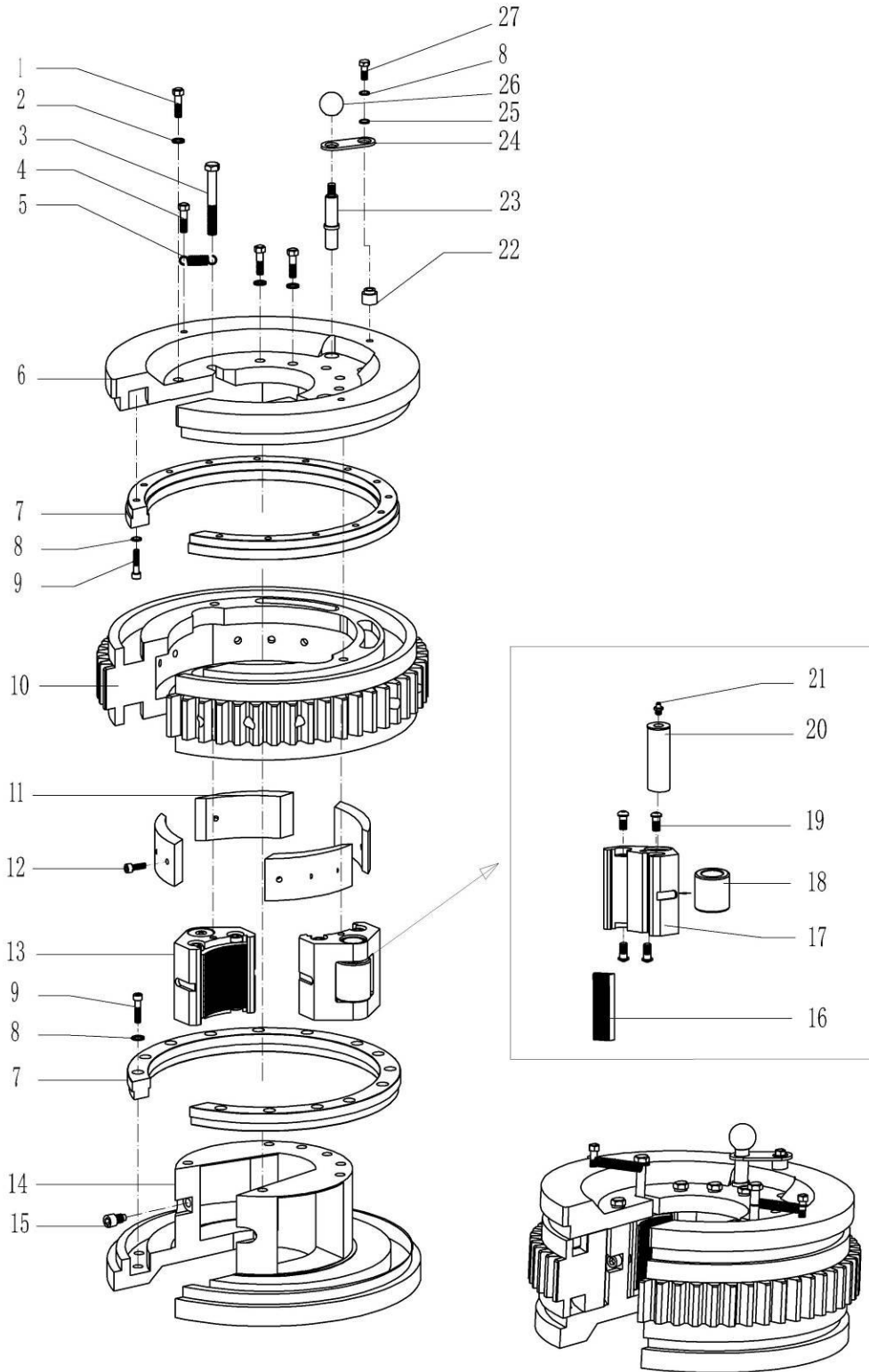


Fig. 7-3



Table 3 List of tong head

No.	Purchase Code	Drawing No.	Names and specifications of parts	Quantity
1	NXQ140-18		Hexagon bolt 5/8"×1 3/4"	7
2	NXQ140-19		Spring washer 5/8"	7
3	NXQ140-20	HYQ5500.1.1-9	Long t-bolt	2
4	NXQ140-21	HYQ5500.1.1-10	Short t-bolt	2
5	NXQ140-22	HYQ5500.1.1-5	Extension spring (Φ2×Φ12×93)	2
6	NXQ140-23	HYQ5500.1.1-1	Upper jaw plate bracke	1
7	NXQ140-24	KHT5500.1.1-12A	Centering ring	2
8	NXQ140-25		Spring washer 3/8"	29
9	NXQ140-26		Hexagon socket head cap screw 3/8"×1 1/2"	28
10	NXQ140-27	HYQ5500.1.1-2	Open gear	1
11	NXQ140-28 (2)	HYQ5500.1.1-6 (2)	Ramp	4
	NXQ140-28 (3)	HYQ5500.1.1-6 (3)	Ramp	
12	NXQ140-29		Hexagon socket head cap screw 3/8"×3/4"	12
13	NXQ140-30 (1)	HYQ5500.1.1.1 (1)	Jaw plate assembly (5 1/2")	2
	NXQ140-30 (2)	HYQ5500.1.1.1 (2)	Jaw plate assembly (5")	2
	NXQ140-30 (3)	HYQ5500.1.1.1 (3)	Jaw plate assembly (4 1/2")	2
	NXQ140-30 (4)	HYQ5500.1.1.1 (4)	Jaw plate assembly (4 ")	2
	NXQ140-30 (5)	HYQ5500.1.1.1 (5)	Jaw plate assembly (3 1/2")	2
	NXQ140-30 (6)	HYQ5500.1.1.1 (6)	Jaw plate assembly (2 7/8")	2
	NXQ140-30 (7)	HYQ5500.1.1.1 (7)	Jaw plate assembly (2 3/8")	2
14	NXQ140-31	HYQ5500.1.1-3	Lower jaw plate bracket	1
15	NXQ140-32	HYQ5500.1.1-4	Limiting bolt	2
16	NXQ140-33 (1)	XQ140-20.1.1.1(2).1 (1)	Die 2	4
	NXQ140-33 (2)	XQ140-20.1.1.1(2).1 (3)	Die (1/2)	
17	NXQ140-30 (1) -1	HYQ5500.1.1.1-1-1 (1)	Jaw (5 1/2")	2
	NXQ140-30 (2) -1	HYQ5500.1.1.1-1-1 (2)	Jaw (5")	2
	NXQ140-30 (3) -1	HYQ5500.1.1.1-1-1 (3)	Jaw (4 1/2")	2
	NXQ140-30 (4) -1	HYQ5500.1.1.1-1-1 (4)	Jaw (4 ")	2
	NXQ140-30 (5) -1	HYQ5500.1.1.1-1-1 (5)	Jaw (3 1/2")	2
	NXQ140-30 (6) -1	HYQ5500.1.1.1-1-1 (6)	Jaw (2 7/8")	2
	NXQ140-30 (7) -1	HYQ5500.1.1.1-1-1 (7)	Jaw (2 3/8")	2

No.	Purchase Code	Drawing No.	Names and specifications of parts	Quantity
18	NXQ140-34	KHT9625.1.1.1-4	Roller	2
19	NXQ140-35		Hexagon socket head cap screw 1/2"×1"	8
20	NXQ140-36	KHT9625.1.1.1-3	Roller shaft	2
21	NXQ140-37	GB/T1152	Oil cup M6×1	2
22	NXQ140-38	HYQ5500.1.1-8	Bushings	1
23	NXQ140-39	HYQ5500.1.1-7	Pin	1
24	NXQ140-40	KHT5500.1.1-6	Connection plate	1
25	NXQ140-41	GB/T95	Plain washer 10	1
26	NXQ140-42	TQ340/35Y.1.5.2-05	Ball knob	1
27	NXQ140-43		Hexagon bolt 3/8"×2 1/4"	1

4. Shell and accessories I (Fig 7-4, Table 4)

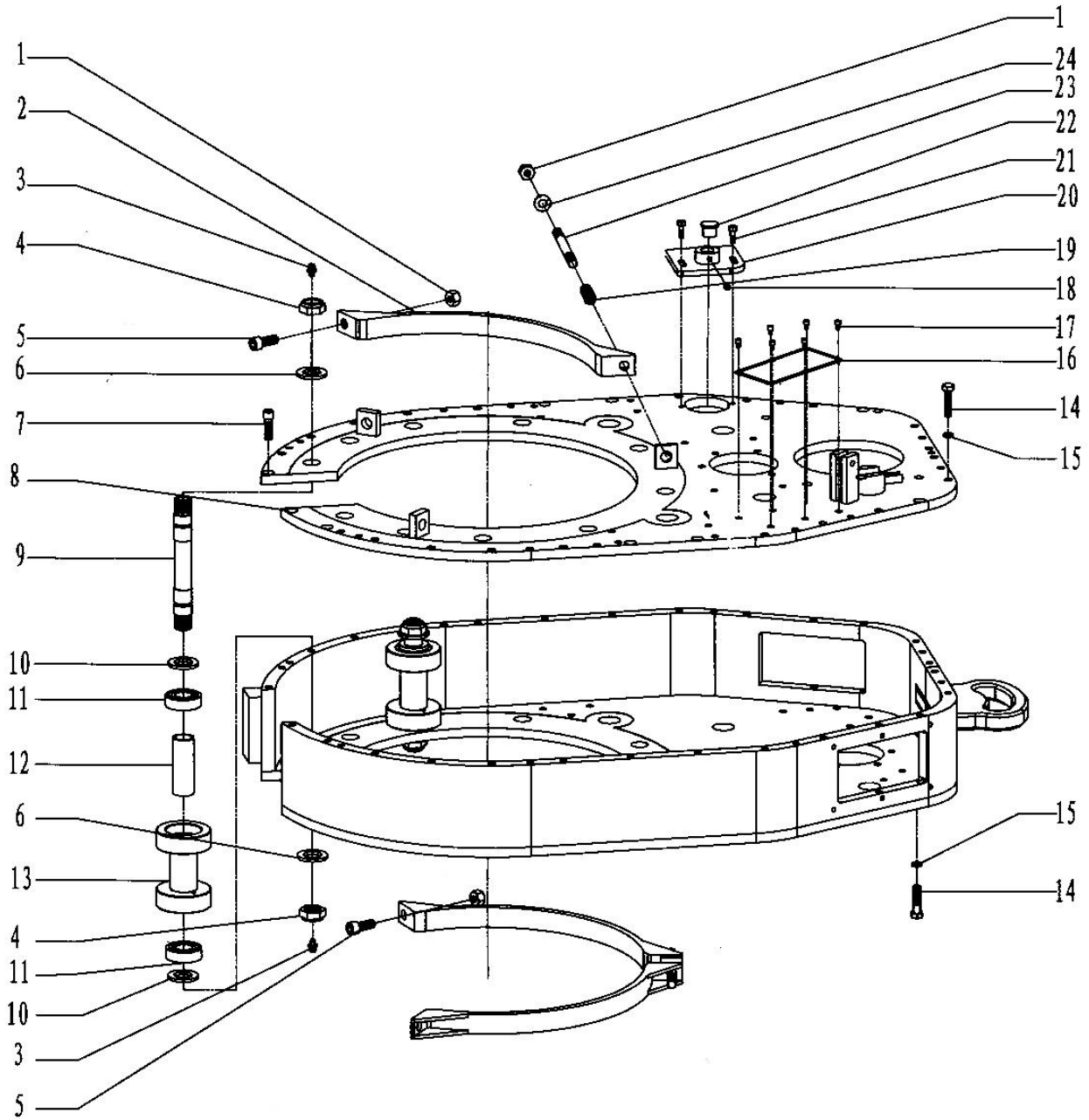


Fig. 7-4

Table 4 List of Shell and accessories I

No.	Purchase Code	Drawing No.	Names and specifications of parts	Quantity
1	NXQ140-45		Hexagon check nut 1/2"	8
2	NXQ140-46	KHT5500.1.11.1	Braking staple	4
3	NXQ140-47	GB1152	Oil cup M6	18
4	NXQ140-48	KHT5500.1.9.1	Check nut 15/16"-1 2UN	18
5	NXQ140-49		Hexagon socket cap head screws 1/2"×1 1/2"	4
6	NXQ140-50	GB/T95	Washer 24	18
7	NXQ140-51		Hexagon socket cap head screws 3/8"×1 "	18
8	NXQ140-52	HYQ5500.1.2-1	Shell	1
9	NXQ140-53	HYQ5500.1.7-1	Righting shaft	10
10	NXQ140-54	KHT5500.1.9-1	Washer	20
11	NXQ140-55	GB/T276	Aligning ball shaft 1205	20
12	NXQ140-56	KHT5500.1.9-2	Lining	10
13	NXQ140-57	KHT5500.1.9-3	Alignment Idler wheel	10
14	NXQ140-58		Hexagon bolt 3/8"×1 1/2"	38
15	NXQ140-59		Spring washer 3/8"	58
16	NXQ140-60	HYQ5500.1.2-5	Nameplate	1
17	NXQ140-61		Hexagon socket cap head screws 1/4"×5/16"	6
18	NXQ140-62		Locking bolt	1
19	NXQ140-63	TQ340/35Y.1.3-03	Braking spring	2
20	NXQ140-64	KJD9625.16	Measuring speed gear seat	1
21	NXQ140-65		Hexagon socket cap head screws 1/4"×3/4"	50
22	NXQ140-66	KJD9625.16-1	Measuring speed gear shaft	1
23	NXQ140-67	KHT5500.1.11-1	Double threaded stud	1
24	NXQ140-68	GB/T95	Plain washer 12	2

5. Shell and accessories II (Fig 7-5, Table 5)

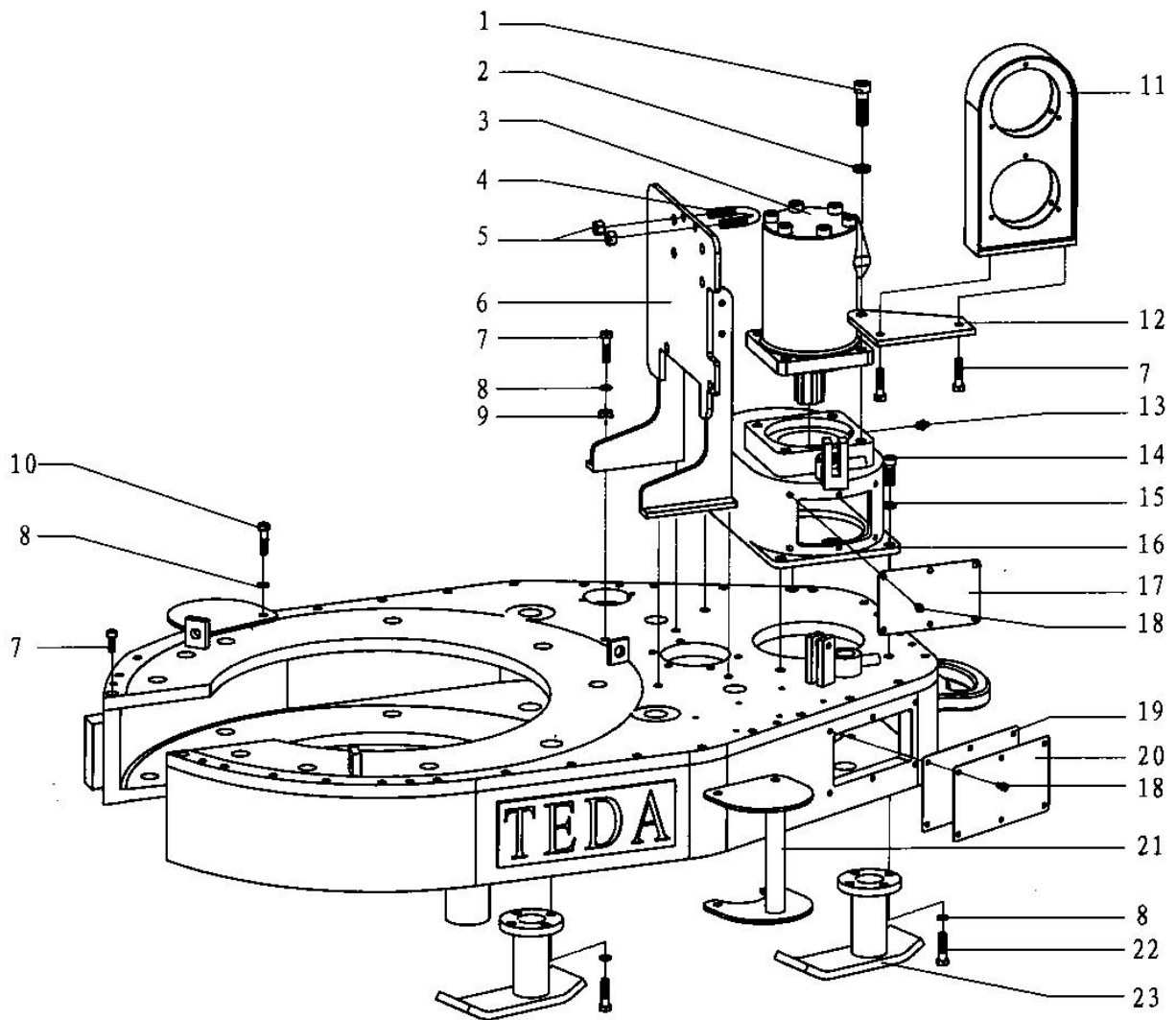


Fig. 7-5

Table 5 List of Shell and accessories II

No.	Purchase Code	Drawing No.	Names and specifications of parts	Quantity
1	NXQ140-70	KHT9625.1.11	Hexagon socket cap head screws 5/8"×2"	4
2	NXQ140-71		Spring washer 5/8"	4
3	NXQ140-72		6K-625 orbit hydraulic motor (tubular connection)	1
4	NXQ140-73	KJD9625-5	U-bolt	1
5	NXQ140-74		Check nut 3/8"	2
6	NXQ140-75	KHT5500.8.1	Valve connection assembly	1
7	NXQ140-76		Hexagon socket cap head screws 3/8"×1"	24
8	NXQ140-77		Spring washer 3/8"	78
9	NXQ140-78	KHT5500.8-1	Stair seat	4
10	NXQ140-79		Hexagon bolt 3/8"×1 1/2"	38
11	NXQ140-80	KJD9625.11	Pressure gauge seat	1
12	NXQ140-81	KJD9625-4(4)	Fixation plate of gauge seat	1
13	NXQ140-82		Forced filling oil cup NPT1/8"	1
14	NXQ140-83		Hexagon socket cap head screws 1/2"×1 1/4"	4
15	NXQ140-84		Spring washer 1/2"	4
16	NXQ140-85	KHT5500.1.7.1	Small cabinet	1
17	NXQ140-86	KHT5500.1.2-7	Orifice plate	1
18	NXQ140-87		Hexagon socket cap head screws 1/4"×5/16"	12
19	NXQ140-88	KHT9625.1.7-1	Orifice plate	1
20	NXQ140-89	KHT9625.1.2-11	Gear nameplate	1
21	NXQ140-90	KHT5500.1.2.1	Handler	2
22	NXQ140-91		Hexagon bolt 3/8"×1 1/8"	16
23	NXQ140-92	TQ245.7	Support leg	4

6. Drive gear of master tong (Fig 7-6, Table 6)

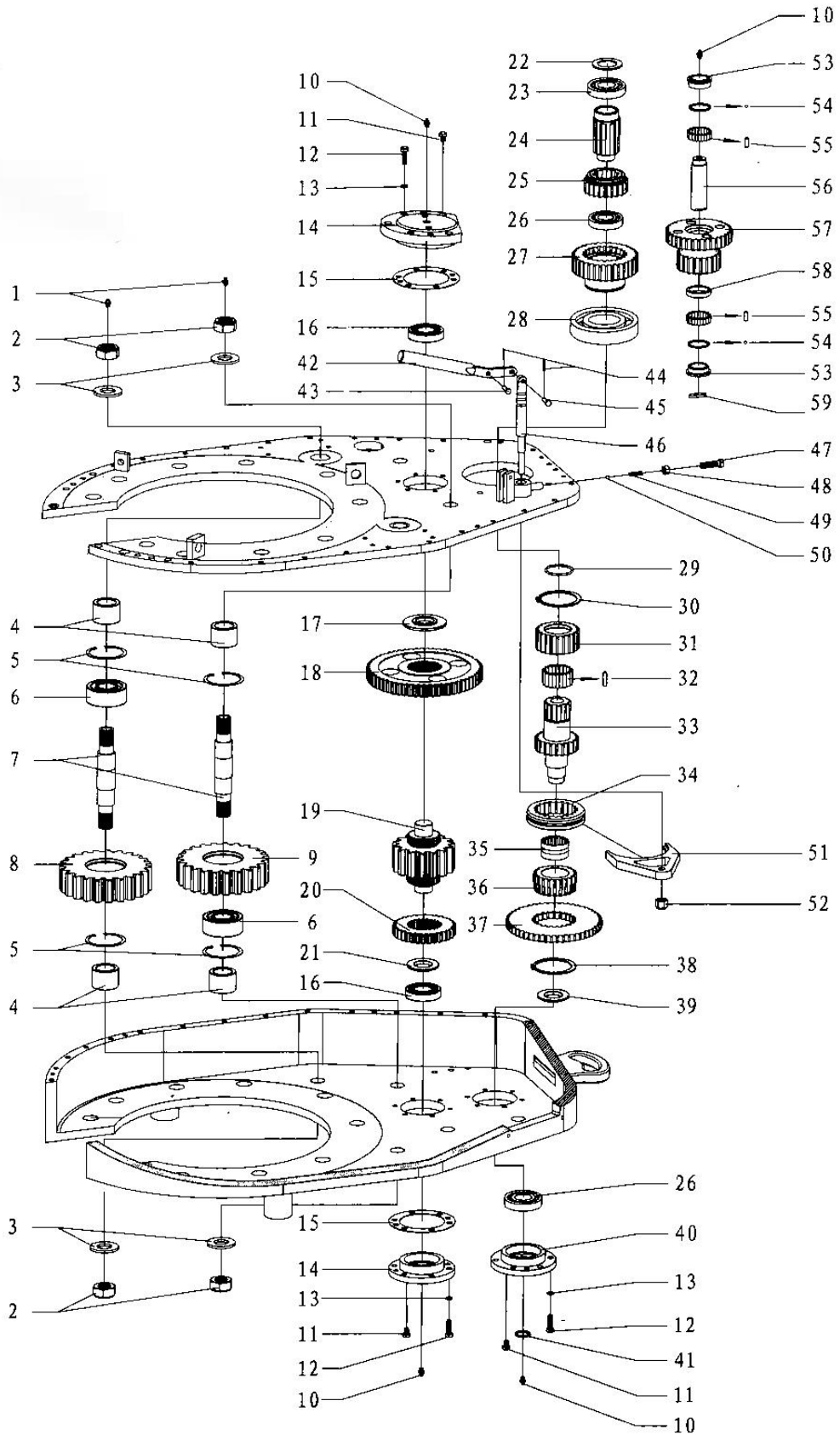


Fig. 7-6

Table 6 List of drive gear of master tong

No.	Purchase Code	Drawing No.	Names and specifications of parts	Quantity
1	NXQ140-95	GB/T1152	Oil cup M6×1	4
2	NXQ140-96		Hexagon check nut 1 1/4-7UNC	8
3	NXQ140-97	KHT9625.1.3-1	Washer	8
4	NXQ140-98	KHT9625.1.3-3	Lining ring	8
5	NXQ140-99	GB/T893.1	Elastic retainer ring for hole 90	8
6	NXQ140-100	GB/T296	Double row angular contact ball bearing 3308	4
7	NXQ140-101	HYQ5500.1.3-1	Small intermediate wheel shaft	4
8	NXQ140-102	KHT5500.1.3-2	Small intermediate wheel	2
9	NXQ140-103	KHT5500.1.4-1	Large intermediate wheel	2
10	NXQ140-104		Forced filling oil cup NPT1/8"	4
11	NXQ140-105		Hexagon bolt 3/8"×1/2"	6
12	NXQ140-106		Hexagon bolt 3/8"×1 1/4"	17
13	NXQ140-107		Spring washer 3/8"	17
14	NXQ140-108	KHT5500.1.5-1	Upper bearing cover	2
15	NXQ140-109	KHT9625.1.5-2	Spacer shim	2
16	NXQ140-110	GB/T283	Cylindrical roller bearing NJ208E	2
17	NXQ140-111	KHT9625.1.5-7	Washer	1
18	NXQ140-112	KHT5500.1.5-2	Large gear	1
19	NXQ140-113	KHT5500.1.5-3	Gear shaft	1
20	NXQ140-114	KHT5500.1.5-4	Small gear	1
21	NXQ140-115	KHT5500.1.5-6	Bearing strip	1
22	NXQ140-116	XYQ12.Z-23	Gasket	1
23	NXQ140-117	GB/T276	Ball bearing 111	1
24	NXQ140-118	KHT9625.1.6-1	Spline shaft	1
25	NXQ140-119	KHT9625.1.6-2	Shift engagement gear (upper)	1
26	NXQ140-120	GB/T276	Ball bearing 208	2
27	NXQ140-121	KHT9625.1.6-3	Main shaft gear	1
28	NXQ140-122	GB/T276	Ball bearing 218	1
29	NXQ140-123	GB/T895.2	Wire retainer ring for shaft 60	1
30	NXQ140-124	GB/T893.1	Flexible retainer ring for shaft 90	1
31	NXQ140-125	KHT9625.1.6-4	Clutch gear (upper)	1
32	NXQ140-126	GB/T309	Rolling needle φ5×29.8	41
33	NXQ140-127	KHT9625.1.6-5	Main shaft	1
34	NXQ140-128	KHT9625.1.6-6	Inner geared sleeve	1
35	NXQ140-129	GB/T5801	Single row needle roller bearing without inner ring NK50/35	1
36	NXQ140-130	KHT9625.1.6-7	Small clutch gear	1



No.	Purchase Code	Drawing No.	Names and specifications of parts	Quantity
37	NXQ140-131	KHT5500.1.6-1	Large clutch gear	1
38	NXQ140-132	GB/T893.1	Flexible retainer ring for shaft 95	1
39	NXQ140-133	KHT9625.1.6-9	Bearing strip	1
40	NXQ140-134	KHT5500.1.6-1	Bearing cover	1
41	NXQ140-135	GB/T3452	O-ring 35.5×3.55	1
42	NXQ140-136	TQ245.8-1	Operation rod	1
43	NXQ140-137	GB882-86	Pin roll B8×35	1
44	NXQ140-138	GB91-86	split pin 2.5×12	2
45	NXQ140-139	GB882-86	Pin roll B8×28	1
46	NXQ140-140	KHT9625.1.13-1	Declutch shift shaft (Lower)	1
47	NXQ140-141		Hexagon bolt 1/2"×1 3/4"	1
48	NXQ140-142		Hexagon nut 1/2"	1
49	NXQ140-143	TQ245.8-2	Positioning spring	1
50	NXQ140-144		Steel ball 5/16"	1
51	NXQ140-145	KHT9625.1.13-2	Declutch shift (Lower)	1
52	NXQ140-146		Check nut 5/8"	1
53	NXQ140-147	XYQ12.Z-27A	Support ring (2)	2
54	NXQ140-148	GB/T308	Steel ball φ6	56
55	NXQ140-149		Cylindrical roller 10×25	28
56	NXQ140-150	KHT9625.1.8-1	Mandrel	1
57	NXQ140-151	KHT9625.1.8-2	Duplex gear	1
58	NXQ140-152	XYQ12.Z-29	Spacing ring	1
59	NXQ140-153	XYQ12.Z-45	Positioning piece	1

7. Assembly of safety door (Fig 7-7, Table 7)

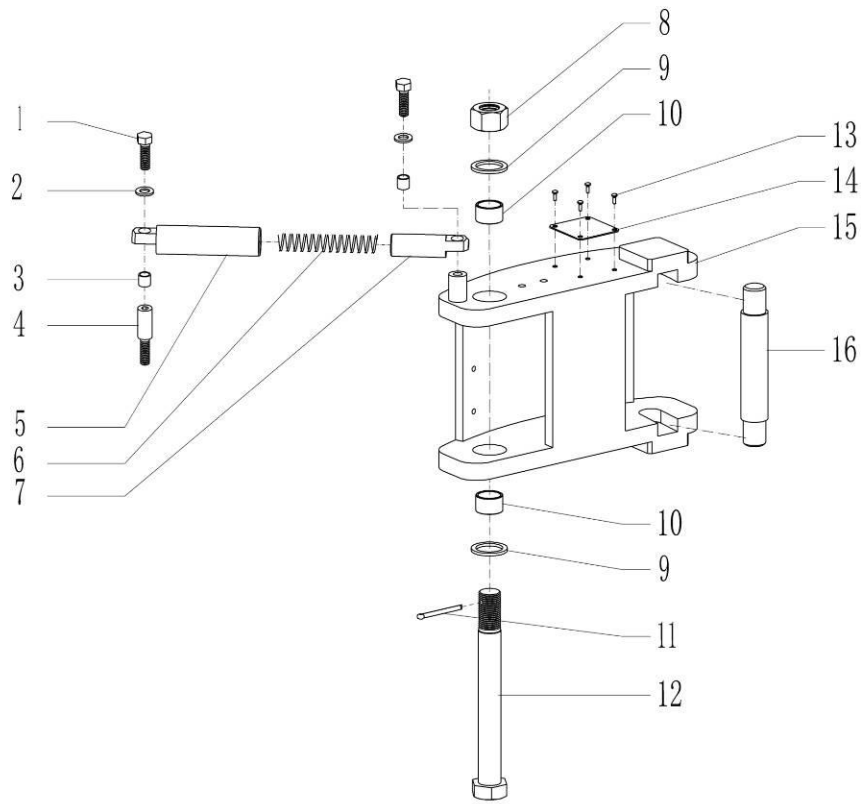


Fig. 7-7

Table 7 List of safety door assembly

No.	Purchase Code	Drawing No.	Names and specifications of parts	Quantity
1	NXQ140-156		Hexagon bolt 3/8"×1/2"	2
2	NXQ140-157	GB/T95	Washer 10	2
3	NXQ140-158	TQ245.13-1	Bushing (1)	2
4	NXQ140-159	KHT5500.1.10-4	Screw	1
5	NXQ140-160	TQ245.13.2-1	Sleeve	1
6	NXQ140-161	TQ245.13.2-2	Spring	1
7	NXQ140-162	TQ245.13.2-3	Sleeve rod	1
8	NXQ140-163	GB/T6170	Nut M24	1
9	NXQ140-164	KHT5500.1.10-6	Washer	2
10	NXQ140-165	KHT5500.1.10-5	Lining	2
11	NXQ140-166	GB/T91	Split pin 5×40	1
12	NXQ140-167	HYQ5500.1.8-2	Door spindle	1
13	NXQ140-168	GB/T70	Hexagon socket cap head screws M4×6	4
14	NXQ140-169	XYQ1.8.Z-38(3)	Warning plate	1
15	NXQ140-170	HYQ5500.1.8.1	Safety door	1
16	NXQ140-171	HYQ5500.1.8-1	Pin	1

8. Gear engagement assembly (Fig7-8, Table 8)

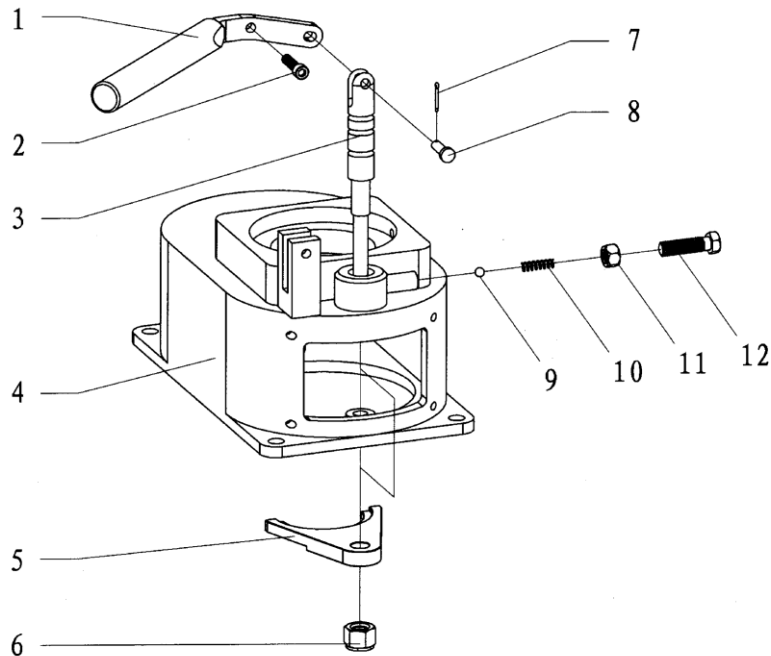


Fig. 7-8

Table 8 List of Gear engagement assembly

No.	Purchase Code	Drawing No.	Names and specifications of parts	Quantity
1	NXQ140-172	KHT9625.1.14-1	Operation rod	1
2	NXQ140-173		Hexagon socket cap head screws 5/16"×1 1/4"	1
3	NXQ140-174	KHT9625.1.14-2	Declutch shift shaft (Upper)	1
4	NXQ140-175	KHT5500.1.7.1	Small cabinet	1
5	NXQ140-176	KHT9625.1.14-3	Declutch shift (Upper)	1
6	NXQ140-177		Check nut 5/8"	1
7	NXQ140-178	GB91-86	Split pin 2.5×12	1
8	NXQ140-179	GB882-86	Pin Shaft B8×28	1
9	NXQ140-180		Steel ball 5/16"	1
10	NXQ140-181	TQ245.8-2	Positioning spring	1
11	NXQ140-182		Hexagon nut 1/2"	1
12	NXQ140-183		Hexagon bolt 1/2"×1 3/4"	1

9. Hydraulic pipeline (Fig 7-9, Table 9)

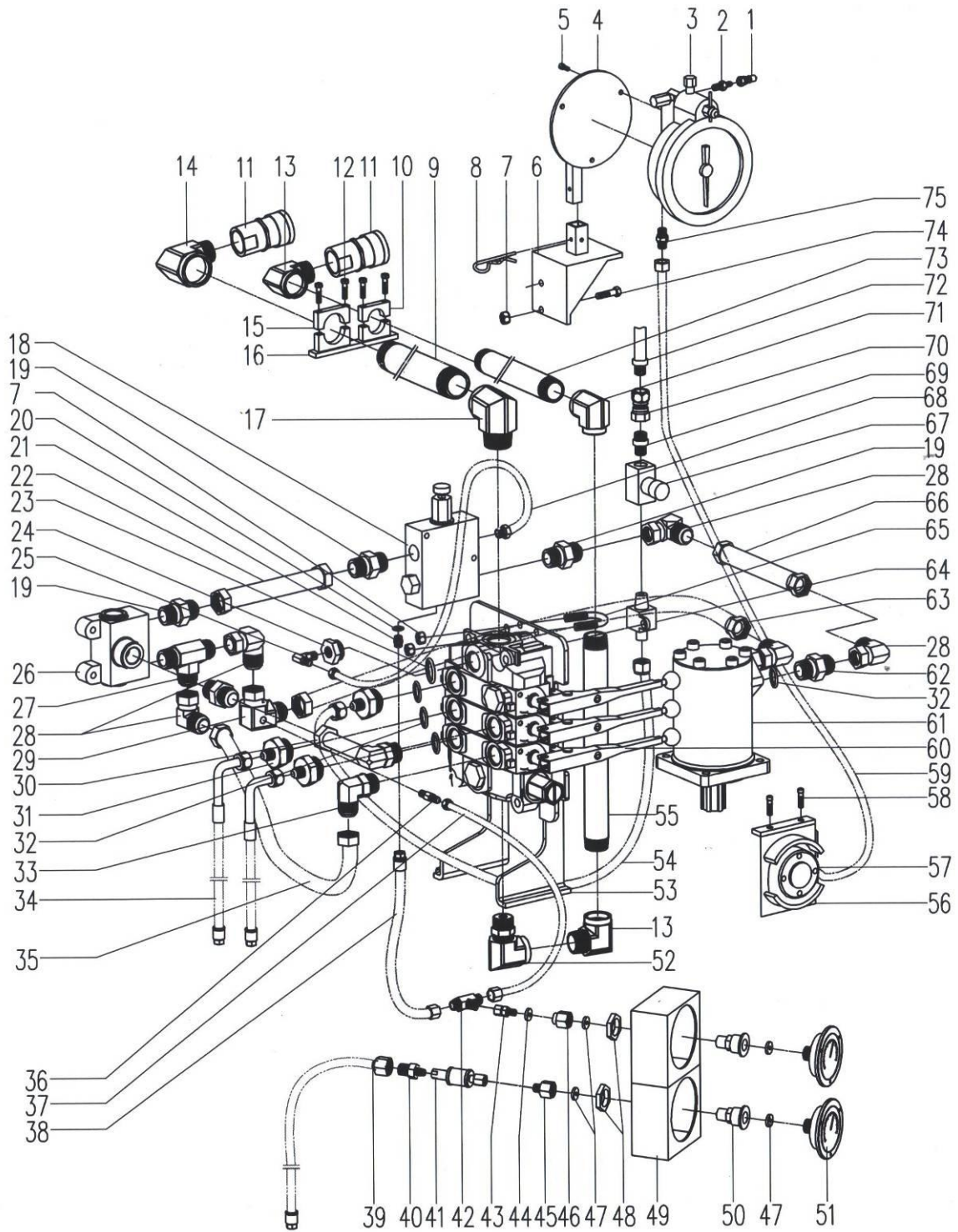


Fig. 7-9

Table 9 List of Hydraulic pipeline

No.	Purchase Code	Drawing No.	Names and specifications of parts	Quantity
1	NXQ140-185		Quick coupling (NPT1/4, outer)	1
2	NXQ140-186		One-way Adaptor (NPT1/4)	1
3	NXQ140-187	CG600	6" Torque meter (-45℃)	1
4	NXQ140-188	KJD9625.11 (3)	Torque meter table	1
5	NXQ140-189		Hexagon Socket Head Screw 1/4" × 1/2"	3
6	NXQ140-190	KJD9625-4 (2)	Torque table frame	1
7	NXQ140-191		Check nut 3/8"	8
8	NXQ140-192	TQ245-2	Circlip	1
9	NXQ140-193	KJD9625.18-6	Tube (NPT1 1/4)	1
10	NXQ140-194	KJD9625.18.7-1	Pipe box	1
11	NXQ140-195		Quick couplingr (NPT 1)	2
12	NXQ140-196	GB/T5782	Hexagon bolt M8 × 45	4
13	NXQ140-197	KJD9625.18-8	Adaptor (NPT1)	2
14	NXQ140-198	KJD9625.18-5	Adaptor(NPT1 1/4-NPT1)	1
15	NXQ140-199	KJD9625.18.7-5	Pipe clamp(Upper)	1
16	NXQ140-200	KJD9625.18.7-2	Pipe clamp(Low)	1
17	NXQ140-201	KJD9625.18.5	Adaptor (NPT1 1/4-1 5/8-12UN)	1
18	NXQ140-202		Reducing valve	1
19	NXQ140-203	KHT5500.1.15C.1-9	Adaptor 1 5/16-12UN-NPT1	2
20	NXQ140-204		Gasket 16.5 × 11.6 × 1.5	1
21	NXQ140-205		Adaptor (G1/4-9/16UNF)	1
22	NXQ140-206	KHT5500.1.8.4	Bend adaptor (1 5/16"-12UN )	1
23	NXQ140-207	GB1235-76	O-Ring 45 × 3.1	1
24	NXQ140-208	TQ508/70Y.10-4	Adaptor 1 5/8	1
25	NXQ140-209	KJD9625.18.1	Adaptor (9/16-18UNF)	1
26	NXQ140-210	RHF.0	Valve body	1
27	NXQ140-211	KHT5500.1.15C.1-8	Three-way adaptor (NPT1-1 5/16-12UN)	1
28	NXQ140-212	TQ508/70Y.10.8.4	Adaptor 1 5/16-12UN	5
29	NXQ140-213	TQ508/70Y.10.8.4B	Adaptor 1 5/16-12UN	1
30	NXQ140-214	KJD9625.18.2(2)	Adaptor 1 5/16-12UNC	1
31	NXQ140-215	KHT5500.1.8-6	Adaptor(1 5/16-12UN-3/4-UNF)	3
32	NXQ140-216	As568	O-Ring 29.75 × 2.75	5
33	NXQ140-217	TQ508/70Y.10.8.3	Adaptor	3
34	NXQ140-218		Hose 10 II -950(3/4-16UNF)	2
35	NXQ140-219	KHT5500.1.15D-1	Hose 1 5/16-12UNC, 290 × 80	1
36	NXQ140-220	YG-14	Adaptor(NPT1/4-9/16UNF)	1
37	NXQ140-221		Hose 8 II -1000(M16 × 1.5, 9/16UN -90°, )	1

38	NXQ140-222		Hose8 II -700(M16×1.5, 9/16UNF90°)	1
39	NXQ140-223		Hose6 II -2150(M20×1.5-9/16UNF, 90°)	1
40	NXQ140-224	YG-82	AdaptorNPT1/4-M20×1.5	1
41	NXQ140-225		Adaptor(NPT1/4")	1
42	NXQ140-226		Shuttle valve M16×1.5	1
43	NXQ140-227		Adaptor	1
44	NXQ140-228		ED Ring	1
45	NXQ140-229	YG-52	Adaptor(M20-NPT1/4)	1
46	NXQ140-230	YG-145	AdaptorG1/4-M20×1.5	1
47	NXQ140-231		Washer	1
48	NXQ140-232	KJD9625.11 (2) -2	Lock nut	1
49	NXQ140-233	KJD9625.11 (2) .1	Pressure gauge seat	1
50	NXQ140-234	KJD9625.11 (2) -1	Adaptor	2
51	NXQ140-235		Pressure gauge Y-60ZT(0-3600PSI)	2
52	NXQ140-236	KJD9625.18.6	Adaptor (NPT1-1 5/16-12UN)	1
53	NXQ140-237	KHT5500.1.18.1 (2)	Valve connection assembly	1
54	NXQ140-238		Hose10 II -850(3/4-16UN, 90°)	1
55	NXQ140-239	KJD9625.18-9 (2)	Tube (NPT1)	1
56	NXQ140-240	KHT5500.2.8	Torque cylinder connected seat	1
57	NXQ140-241		Pressure cylinder (Φ60)	1
58	NXQ140-242	KHT5500.2.10	Wing bolt	4
59	NXQ140-243		Hose 6 II -1500	1
60	NXQ140-244	VG35-3-004	Multi-way valve assembly (Parker)	1
61	NXQ140-245		6K-625orbit hydraulic motor (tubular connection)	1
62	NXQ140-246	TQ508/70Y.10.8-2	Adaptor1 5/16-12UN	2
63	NXQ140-247	KHT13625.1.8-1	Hose25 II -580 (1 5/16-12UNC)	1
64	NXQ140-248	KHT9625.1.9-2	Adaptor(NPT1/2-3/4UNF)	1
65	NXQ140-185	KJD9625-5	U-bolt	1
66	NXQ140-186	KHT5500.1.8.5	Tube 1 5/16-12UN(L=230)	1
67	NXQ140-187	DV10	Throttle valve	1
68	NXQ140-188		Hose10 II 1000(NPT 3/8-9/16UNF 扩口式)	1
69	NXQ140-189	YG-72	Adaptor(NPT1/2)	1
70	NXQ140-190		Quick coupling NPT1/2	1
71	NXQ140-191	KJD9625.18-10	Adaptor (NPT1)	1
72	NXQ140-192		Hose10 II -4500(3/4-16UNF、90°; NPT1/2)	1
73	NXQ140-193	KJD9625.18-9	Tube (NPT1)	1
74	NXQ140-194		Hexagon bolt 3/8"×1"	4
75	NXQ140-195		Adaptor (M14×1.-NPT1/4)	1

10. Composite valve (Fig 7-10, Table 10)

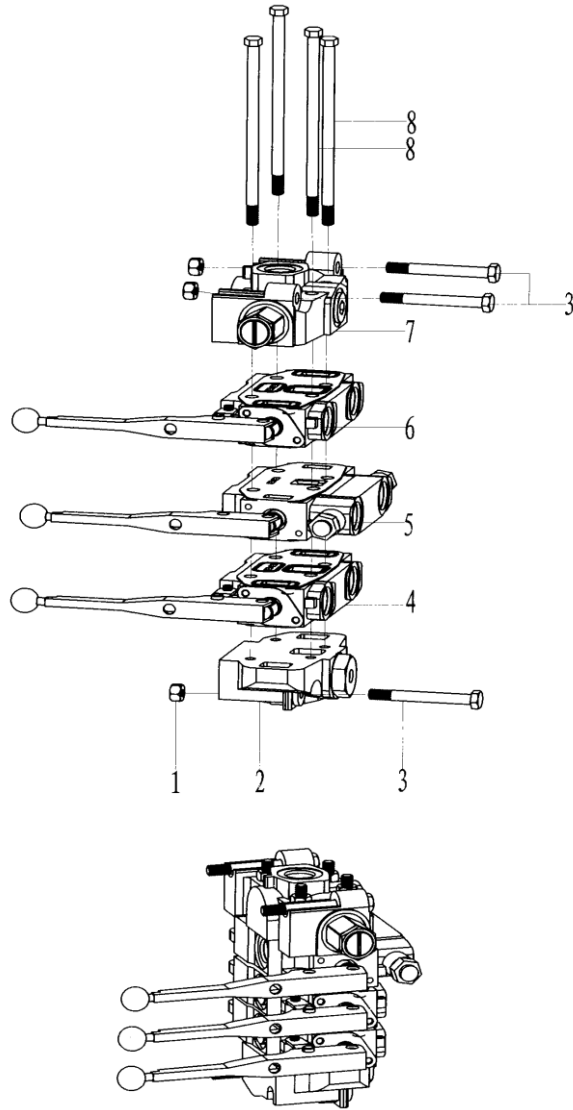


Fig. 7-10

Table 10 List of Composite valve

No.	Purchase Code	Drawing No.	Names and specifications of parts	Quantity
1	NXQ140-250		Hexagon check nut 1/2"	3
2	NXQ140-251		Connection plate assembly	1
3	NXQ140-252		Hexagon bolt 1/2"UNC×4 1/2 "	3
4	NXQ140-253		Manual reversing valve (Y)	1
5	NXQ140-254		Manual reversing valve (O)	1
6	NXQ140-255		Manual reversing valve (Y)	1
7	NXQ140-256		Overflow valve assembly	1
8	NXQ140-257		Bolt 1/2"UNC	4



11. Quick coupling (2 1/8-12UN) (Fig7-11, Table 11)

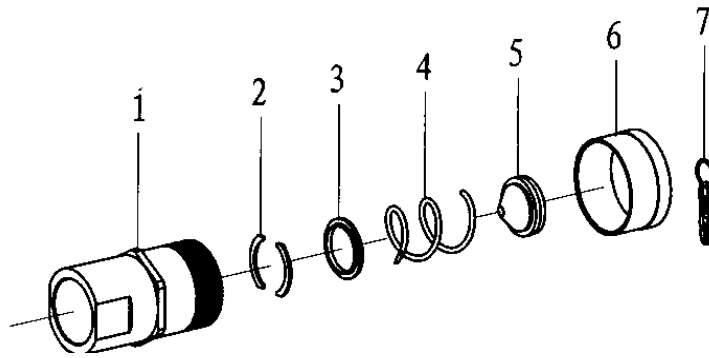


Fig. 7-11

Table 11 List of Quick coupling (2 1/8-12UN)

No.	Purchase Code	Drawing No.	Names and specifications of parts	Quantity
1	NXQ140-258	KJD9625.18.4.1-2	Connector body	1
2	NXQ140-259	KJD9625.18.4.1-5	Clamping piece	2
3	NXQ140-260	KJD9625.18.4.1-4	Washer	1
4	NXQ140-261	KJD9625.18.4.1-3	Spring	1
5	NXQ140-262	KJD9625.18.4.1.1	Connector element	1
6	NXQ140-263	KJD9625.18.4.1-1	End cover	1
7	NXQ140-264	KJD9625.18..3.1.2	Composite chain	1

12. Quick coupling (1 7/8-12UN) (Fig7-12, Table 12)

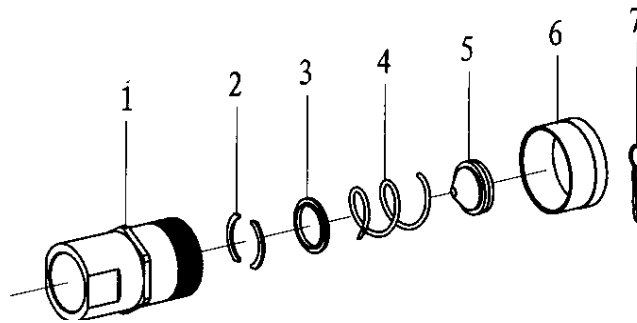


Fig. 7-12

Table 12 List of Quick coupling (1 7/8-12UN)

No.	Purchase Code	Drawing No.	Names and specifications of parts	Quantity
1	NXQ140-265	KJD9625.18.4.1-2	Connector body	1
2	NXQ140-266	KJD9625.18.4.1-5	Clamping piece	2
3	NXQ140-267	KJD9625.18.4.1-4	Washer	1
4	NXQ140-268	KJD9625.18.4.1-3	Spring	1
5	NXQ140-269	KJD9625.18.4.1.1	Connector element	1
6	NXQ140-270	KJD9625.18.4.1-1	End cover	1
7	NXQ140-271	KJD9625.18..3.1.2	Composite chain	1

13. Bend sub (1 5/16-12UN) (Fig 7-13, Table 13)

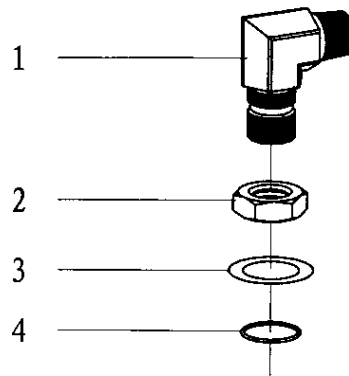


Fig. 7-13

Table 13 List of Bend sub (1 5/16-12UN)

No.	Purchase Code	Drawing No.	Names and specifications of parts	Quantity
1	NXQ140-272	KJD9625.18.2-1	Bend sub (1 5/16-12UN)	1
2	NXQ140-273	KJD9625.18.2-2	Hexagon nut 1 5/16	1
3	NXQ140-274		Washer $\Phi 44.5 \times \Phi 30.5 \times 1.5$	1
4	NXQ140-275	GB1235-76	O-ring 35 $\times$ 3.1	1

14. Bend sub (9/16-18UNF) (Fig 7-14, Table 14)

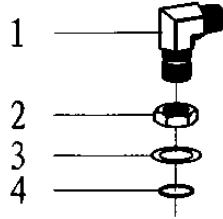


Fig. 7-14

Table 14 List of Bend sub (9/16-18UNF)

No.	Purchase Code	Drawing No.	Names and specifications of parts	Quantity
1	NXQ140-276	KJD9625.18.1-1	Bend sub (9/16-18UNF)	1
2	NXQ140-277	KJD9625.18.1-2	Hexagon nut 9/16	1
3	NXQ140-278		Washer $\Phi 20.3 \times \Phi 12.7 \times 1$	1
4	NXQ140-279	GB1235-76	O-ring 16 $\times$ 2.4	1

15. Bend sub (NPT1 1/4-1 5/8-12UN) (Figure 7-15, Table 15)

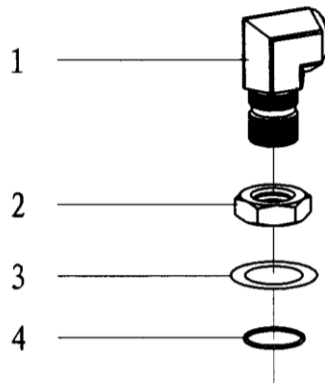


Fig.7-15

Table 15 List of Bend sub (NPT1 1/4-1 5/8-12UN)

No.	Purchase Code	Drawing No.	Names and specifications of parts	Quantity
1	NXQ140-280	KJD9625.18.5-1	Bend sub (NPT1 1/4-1 5/8-12UN)	1
2	NXQ140-281	KJD9625.18.5-2	Hexagon nut 1 5/8	1
3	NXQ140-282		Washer $\Phi 55 \times \Phi 38.5 \times 1.5$	1
4	NXQ140-283	GB1235-76	O-ring 45 $\times$ 3.1	1

16. Bend sub (NPT1-1 5/16-12UN) (Fig 7-16, Table 16)

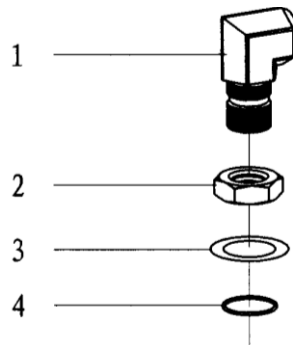


Fig.7-16

Table 16 List of Bend sub (NPT1-1 5/16-12UN)

No.	Purchase Code	Drawing No.	Names and specifications of parts	Quantity
1	NXQ140-284	KJD9625.18.6-1	Bend sub (NPT1-1 5/16-12UN)	1
2	NXQ140-285	KJD9625.18.6-2	Hexagon nut 1 5/16	1
3	NXQ140-286		Washer $\Phi 44.5 \times \Phi 30.5 \times 1.5$	1
4	NXQ140-287	GB1235-76	O-ring 35 $\times$ 3.1	1

17. Safety protection device (Fig 7-17, Table 17)

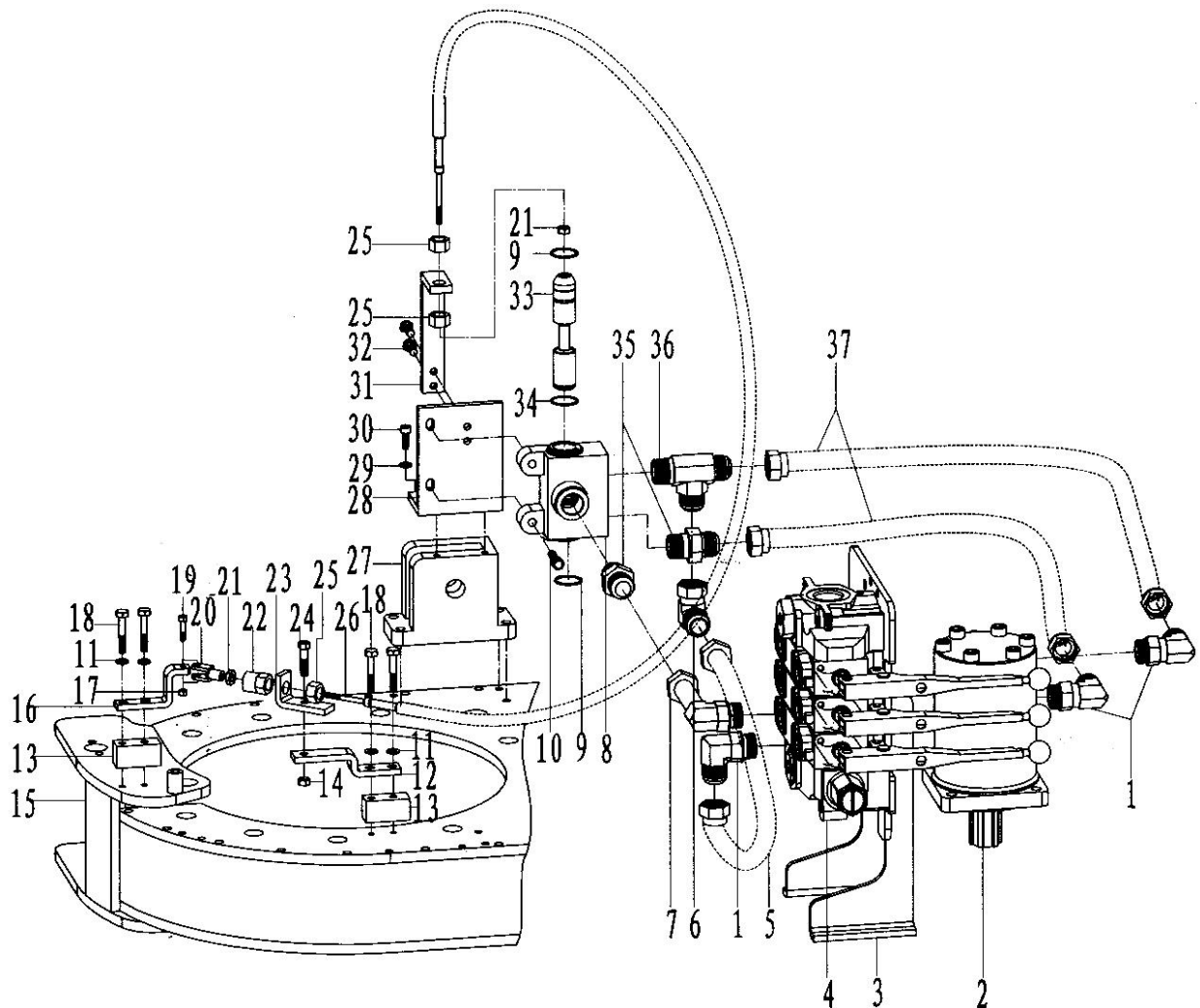


Fig 7- 17

Table 17 List of Safety protection device

No.	Purchase Code	Drawing No.	Names and specifications of parts	Quantity
1	NXQ140-288	TQ508/70Y.10.8.3	Bend adaptor ( 1 5/16"-12UN )	3
2	NXQ140-289		6K-625 orbit hydraulic motor (tubular connection)	1
3	NXQ140-290	KHT5500.1.18.1 (2)	Valve connection assembly	1
4	NXQ140-291	VG35-3-004	Multi-way valve assembly (Parker)	1
5	NXQ140-292	KHT5500.1.15D-1	Curved Hose ( 1 5/16-12UNC, 290×80)	1
6	NXQ140-293	TQ508/70Y.10.8.4	Bend adaptor ( 1 5/16"-12UN )	1
7	NXQ140-294	KJD9625.18.2(2)	Bend adaptor ( 1 5/16-12UNC)	1
8	NXQ140-295	RHF-1	Valve body	1
9	NXQ140-296	GB/T89.4.1	Washer 30	2
10	NXQ140-297		Hexagon bolt 3/8-16UNC×2 1/2	2

11	NXQ140-298		Spring washer 5/16"	4
12	NXQ140-299	KHT5500.1.15C.1-5	Connection plate (2)	1
13	NXQ140-300	KHT5500.1.15C.1-1	Plate	2
14	NXQ140-301		Nut 3/8"-16UNC	3
15	NXQ140-302	KHT5500.1.10.2	Safety door	1
16	NXQ140-303	KHT5500.1.15C.1-2	Connection plate (1)	1
17	NXQ140-304		Nut 1/4"-20UNC	1
18	NXQ140-305		Hexagon bolt 5/16"-18UNC×2"	4
19	NXQ140-306		Hexagon bolt 1/4"-20UNC×1 1/2"	1
20	NXQ140-307	KHT5500.1.15C.1-3	Rotary adaptor	1
21	NXQ140-308		Nut 1/4"-28UNC	2
22	NXQ140-309	XQ4.5.Z.6-6	Protective sleeve	1
23	NXQ140-310	KHT5500.1.15C.1-4	Rotary plate	1
24	NXQ140-311		Hexagon bolt 3/8"-16UNC×3/4"	1
25	NXQ140-312		Nut 5/8"-18UNF	3
26	NXQ140-313	173-LTT-1-71	Flexible shaft	1
27	NXQ140-314	KHT9625.1.16-1B	Suspension support	2
28	NXQ140-315	KHT5500.1.15D.1-1	Valve fixing plate (2)	1
29	NXQ140-316	KHT5500.1.15C.1-10	Washer	2
30	NXQ140-317	GB/T70	Hexagon Socket Head Screw M8×25-8.8	2
31	NXQ140-318	KHT5500.1.15C.1-6	Valve fixing plate (1)	1
32	NXQ140-319		Hexagon bolt 3/8"-16UNC×2 1/2"	2
33	NXQ140-320	RHF-2	Valve core	1
34	NXQ140-321	GB/T3452.1	O-ring 25×2.65	2
35	NXQ140-322	KHT5500.1.15C.1-9	Adaptor 1 5/16-12UN-NPT1	2
36	NXQ140-323	KHT5500.1.15C.1-8	Three-way adaptor (NPT1-1 5/16-12UN)	1
37	NXQ140-324	KHT13625.1.8-1	High-pressure hose 25 II -580 (1 5/16-12UNC)	2

18. Assembly of suspension rod (Fig 7-18, Table 18)

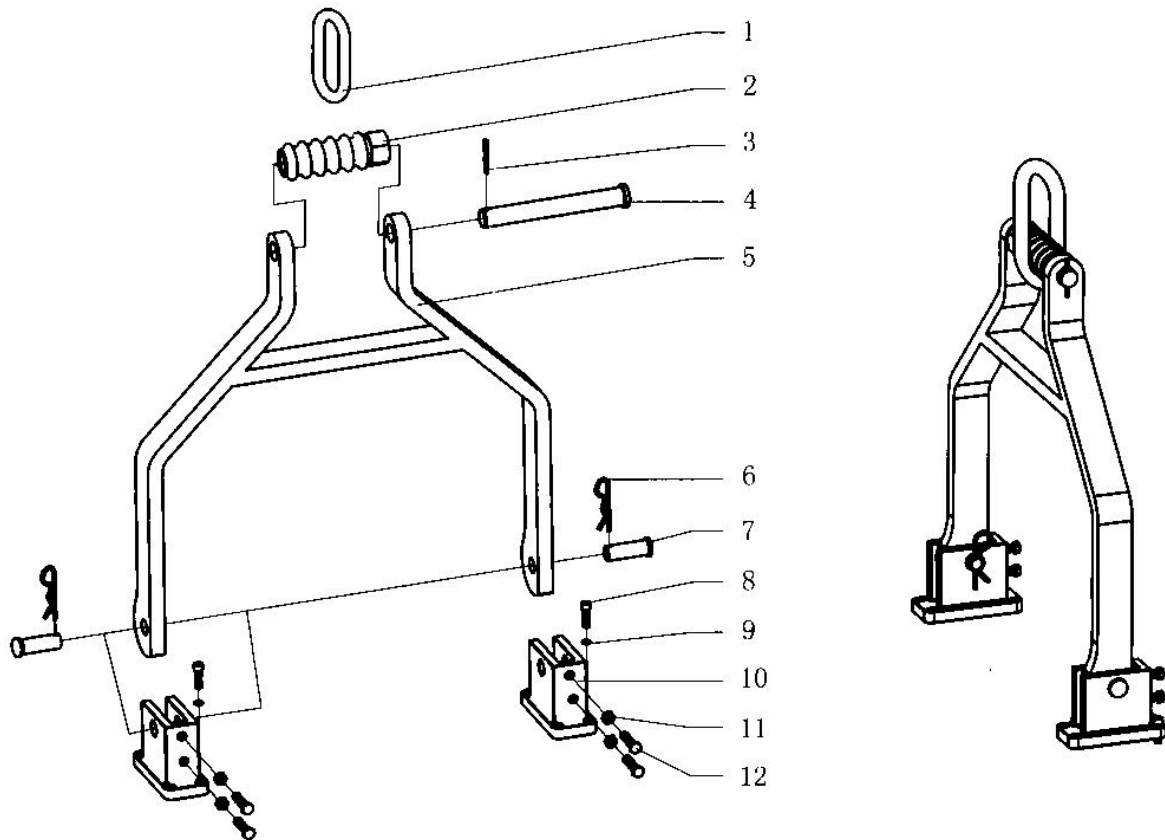


Fig. 18

Table 18 List of suspension rod assembly

No.	Purchase Code	Drawing No.	Names and specifications of parts	Quantity
1	NXQ140-330		Wire rope (5T)	1
2	NXQ140-331	TQ245.15(2)-1	Screw bar	1
3	NXQ140-332	GB/T91	Split pin 6×45	1
4	NXQ140-333	TQ245.15(2)-2	Pin shaft	1
5	NXQ140-334	KHT5500.1.12.1	Suspension rod	1
6	NXQ140-335	TQ245-2	Circlip	2
7	NXQ140-336	GB/T882	Pin Shaft B25×70	2
8	NXQ140-337		Hexagon socket cap head screws 3/8"×1 1/2"	8
9	NXQ140-338		Spring washer 3/8"	8
10	NXQ140-339	KHT9625.1.16-1	Suspension support	2
11	NXQ140-340		Hexagon thin nut 1/2"	4
12	NXQ140-341		Hexagon bolt 1/2"×2"	4

19. Assembly of back tong (Fig 7-19, Table 19)

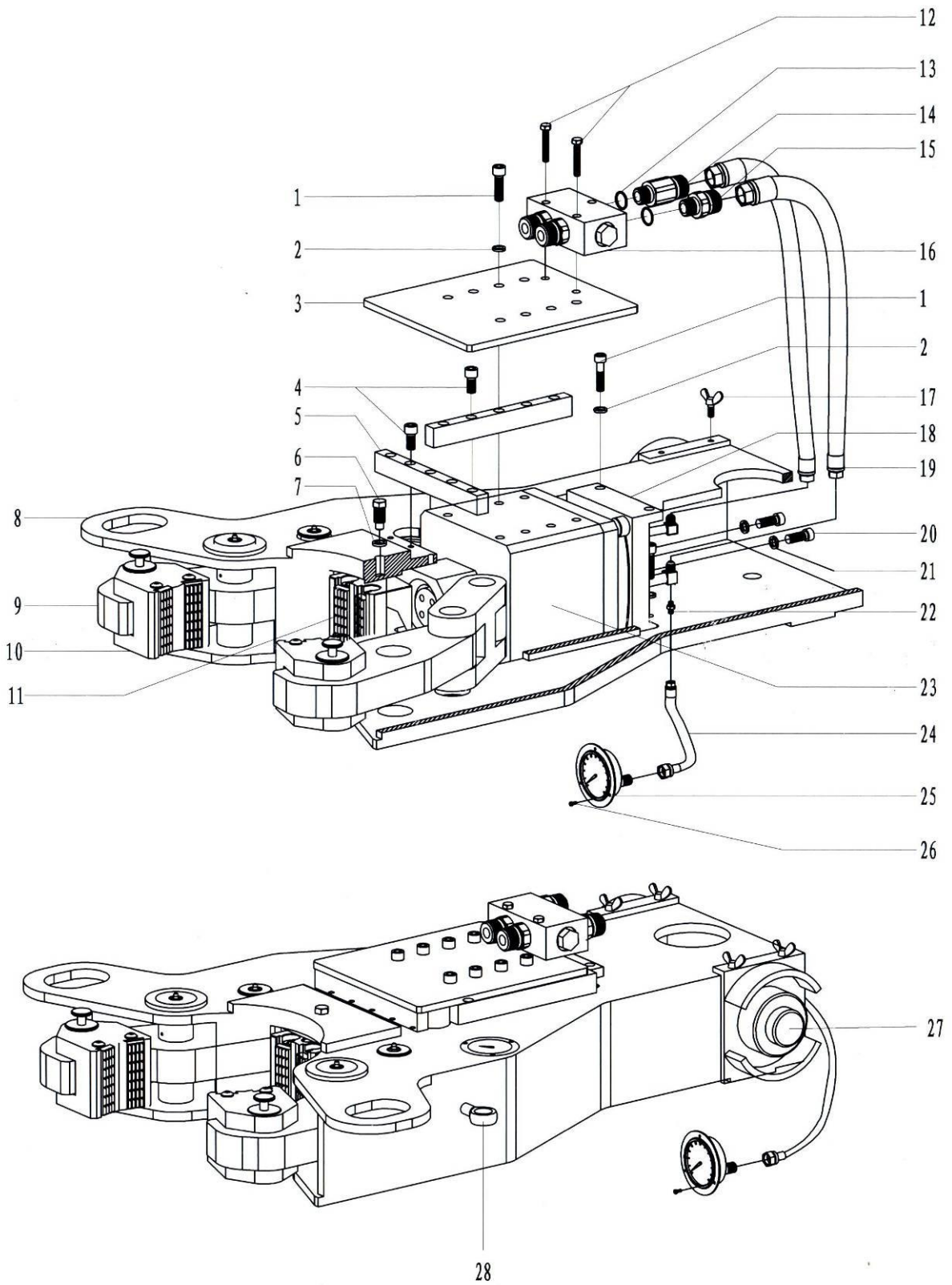


Fig.7-19



Table 19 List of back tong assembly

No.	Purchase Code	Drawing No.	Names and specifications of parts	Quantity
1	NXQ140-342		Hexagon socket cap head screws 1/2"×1 1/4"	14
2	NXQ140-343		Spring washer 1/2"	14
3	NXQ140-344	HYQ5500.2-7	Fixation bolt	1
4	NXQ140-345		Hexagon socket cap head screws 5/16"×3/4"	15
5	NXQ140-346	KHT8625.2-2	Plate 1	3
6	NXQ140-347	HYQ5500.2.3B	Stop bolts	1
7	NXQ140-348		Spring washer 5/8"	1
8	NXQ140-349	HYQ5500.2.4	Back tong body	1
9	NXQ140-350	HYQ5500.2.1	Clamping arm	2
10	NXQ140-351	HYQ5500.2.2	Rear jaw plate assembly	2
11	NXQ140-352	KHT5500.2.5	Front jaw plate assembly	1
12	NXQ140-353		Hexagon socket cap head screws 3/8"×2 3/4"	2
13	NXQ140-354		O-Ring 22×2.4	2
14	NXQ140-355	YG-45B	Adaptor (M18×1.5-3/4UNF)	1
15	NXQ140-356	YG-45	Adaptor (M18×1.5-3/4UNF)	3
16	NXQ140-357	SYS-L15H	Hydraulic lock valve	1
17	NXQ140-358	KHT5500.2.10	Wing bolt	4
18	NXQ140-359	HYQ5500.2-6	Baffle	1
19	NXQ140-360		Hose10 II -950(3/4-16UNF 90°)	2
20	NXQ140-361		Hexagon socket cap head screws 3/4"×2"	2
21	NXQ140-362		Spring washer 3/4"	2
22	NXQ140-363	PT-3	PT Adaptor (M14×1.5-M16)	1
23	NXQ140-364	KHT5500.2.6B	Clamping cylinder	1
24	NXQ140-365		HF H2-P1-3-P-600 Pressure gauge hose assembly	1
25	NXQ140-366		Pressure gauge Y-60ZT (0~2320PSI)	1
26	NXQ140-367		Cross recessed pan head screw 1/4"×1/2"	3
27	NXQ140-368	KHT8625.2.4	Torque testing assembly	1
28	NXQ140-369	GB/T825	Lifting bolt M12	2

20. Assembly of back tong drive (Fig 7-20, Table 20)

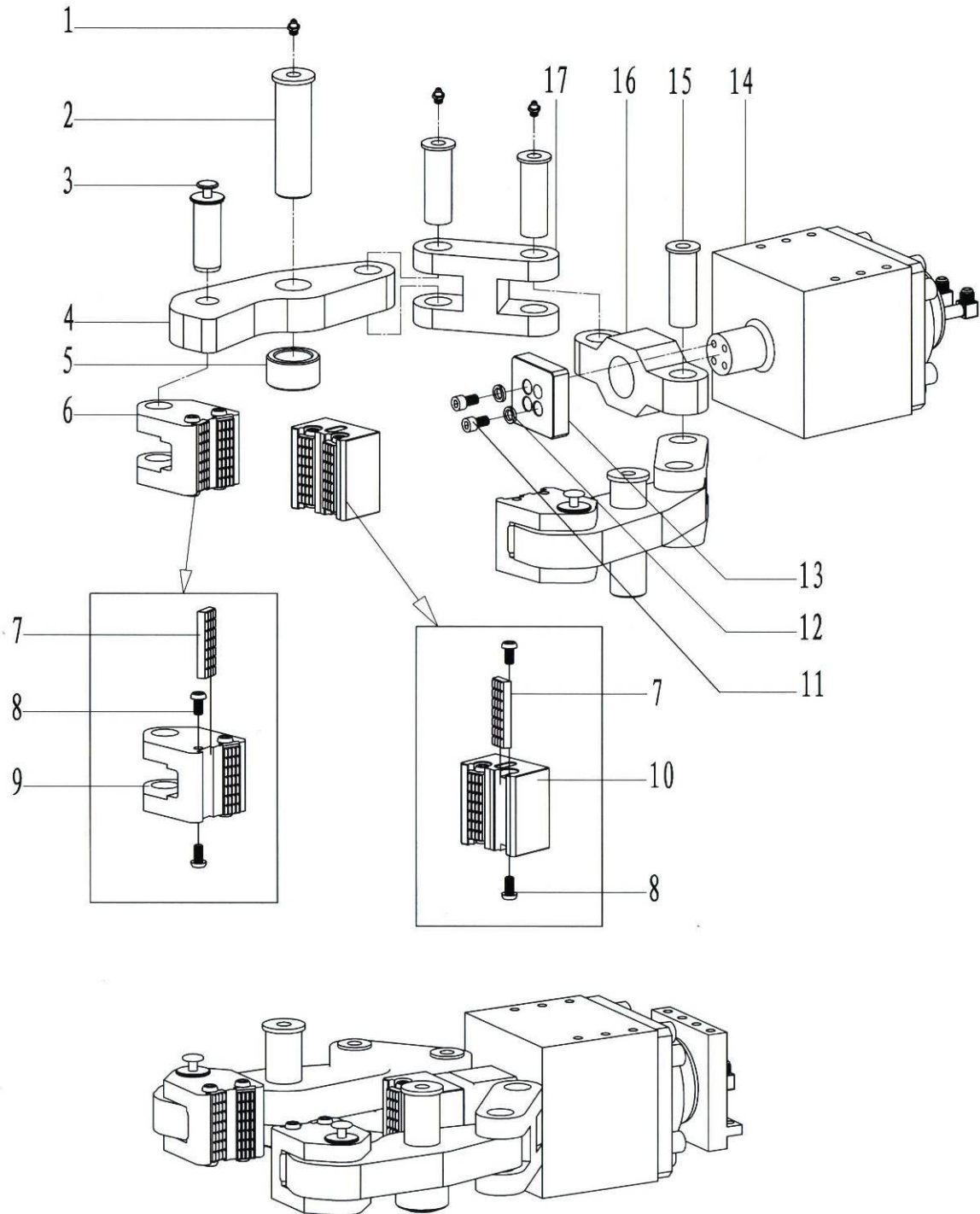


Fig.7-20

Table 20 List of back tong drive assembly

No.	Purchase Code	Drawing No.	Names and specifications of parts	Quantity
1	NXQ140-370	GB/T1152	Oil cup M6×1	6
2	NXQ140-371	KHT5500.2-1	Rotating shaft	2
3	NXQ140-372	HYQ5500.2-1	Fixed pin	2
4	NXQ140-373	HYQ5500.2.1	Clamping arm	2
5	NXQ140-374	HYQ5500.2-2	Lining	2
6	NXQ140-375	HYQ5500.2.2	Front Jaw plate assembly	2
7	NXQ140-33 (1)	XQ140-20.1.1.1(2).1 (1)	Die (1)	6
	NXQ140-33 (2)	XQ140-20.1.1.1(2).1 (3)	Die (1/2)	
8	NXQ140-376		Hexagon socket cap head screws 1/2"×1"	12
9	NXQ140-375(2)	HYQ5500.2.2 (2)	Front jaw plate (5 1/2)	2
	NXQ140-375(3)	HYQ5500.2.2 (3)	Front jaw plate (5)	2
	NXQ140-375(4)	HYQ5500.2.2 (4)	Front jaw plate (4 1/2)	2
	NXQ140-375(5)	HYQ5500.2.2 (5)	Front jaw plate (3 1/2)	2
	NXQ140-375(6)	HYQ5500.2.2 (6)	Front jaw plate (2 7/8)	2
	NXQ140-375(7)	HYQ5500.2.2 (7)	Front jaw plate (2 3/8)	2
	NXQ140-375(10)	HYQ5500.2.2 (10)	Rear Jaw plate (4)	1
	NXQ140-375(11)	HYQ5500.2.2 (11)	Rear Jaw plate (6.05)	1
10	NXQ140-377(2)	KHT5500.2.5 (2)	Rear jaw plate (5 1/2)	1
	NXQ140-377(3)	KHT5500.2.5 (3)	Rear jaw plate (5)	1
	NXQ140-377(4)	KHT5500.2.5 (4)	Rear jaw plate (4 1/2)	1
	NXQ140-377(5)	KHT5500.2.5 (5)	Rear jaw plate (3 1/2)	1
	NXQ140-377(6)	KHT5500.2.5 (6)	Rear jaw plate (2 7/8)	1
	NXQ140-377(7)	KHT5500.2.5 (7)	Rear jaw plate (2 3/8)	1
	NXQ140-377(10)	KHT5500.2.5 (10)	Rear Jaw plate (4)	1
	NXQ140-377(11)	KHT5500.2.5 (11)	Rear Jaw plate (6.05)	1
11	NXQ140-378		Hexagon socket cap head screws 3/8"×1"	4
12	NXQ140-379		Spring washer 3/8"	4
13	NXQ140-380	KHT9625.2-5	Connection seat	1
14	NXQ140-381	KHT5500.2.6B	Clamping cylinder	1
15	NXQ140-382	KHT9625.2-4B	Pin Shaft 2	2
16	NXQ140-383	HYQ5500.2-5	Connection seat	1
17	NXQ140-384	HYQ5500.2-4	Connecting rod	2

21. Assembly of clamping cylinder (Fig 7-21, Table 21)

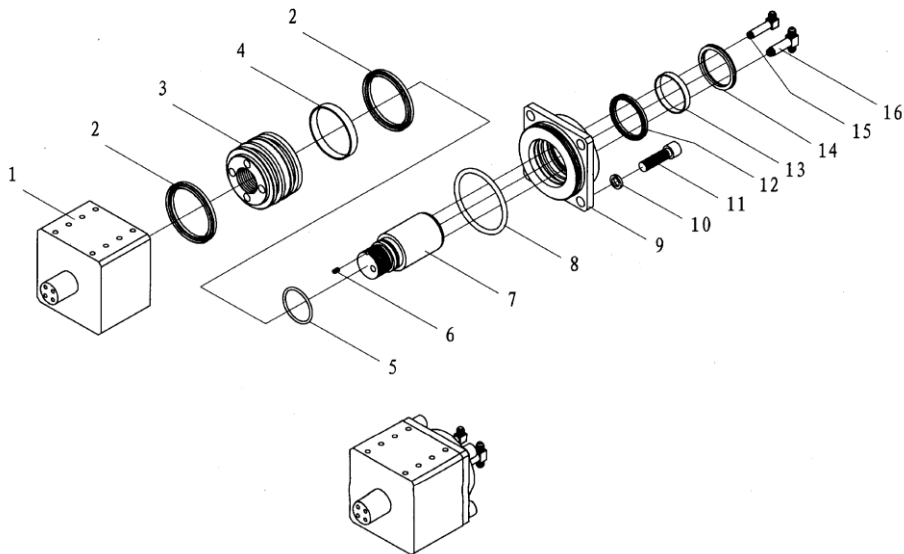


Fig.7-21

Table 21 List of clamping cylinder assembly

No.	Purchase Code	Drawing No.	Names and specifications of parts	Quantity
1	NXQ140-385	KHT5500.2.6-1	Clamping cylinder	1
2	NXQ140-386	GB/T10708.1	Y-ring 180×155×16	2
3	NXQ140-387	KHT5500.2.6-2	Piston	1
4	NXQ140-388	GB/T15242.2	Support ring SD 1800C- II A	1
5	NXQ140-389	GB/T3452.1	O-ring 87.5×5.3	1
6	NXQ140-390		Socket set screw 1/4"×5/16"	1
7	NXQ140-391	KHT5500.2.6-4	Piston rod	1
8	NXQ140-392	GB/T3452.1	O-ring 165×7	1
9	NXQ140-393	KHT5500.2.6-3	Cylinder cover	1
10	NXQ140-394		Spring washer 1"	4
11	NXQ140-395		Hexagon socket cap head screws 1"×2 1/4"	4
12	NXQ140-396	GB/T10708.1	Y-ring 125×145×16	1
13	NXQ140-397	GB/T15242.2	Support ring GD 1250B- II A	1
14	NXQ140-398	GB/T10708.3	Anti-dust sealing ring FA125×140×9.5	1
15	NXQ140-399	KHT9625.2.6-5	Right-angle connector	1
16	NXQ140-400	KHT9625.2.6-6	Tee joint	1

22. Assembly of suspension chain (Fig 7-22, Table 22)

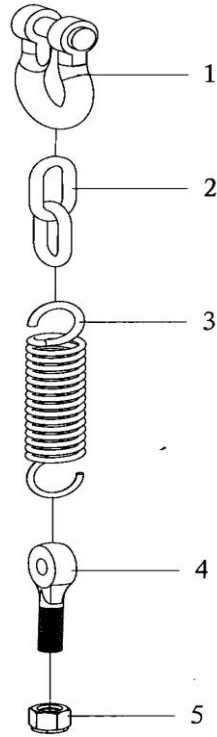


Fig. 7-22

Table 22 List of suspension chain assembly

No.	Purchase Code	Drawing No.	Names and specifications of parts	Quantity
1	NXQ140-401	JB/T8112	Shackle M-BX5 (φ12)	1
2	NXQ140-402	JB/T8108.2	Chain φ8 (L=600)	1
3	NXQ140-403	KHT5500.3-1	Extension spring	1
4	NXQ140-404	KHT5500.3-2	Eyebolt	1
5	NXQ140-405		Hexagon check nut 1/2"	1

23. Assembly of front guide rod (Fig 7-23, Table 23)

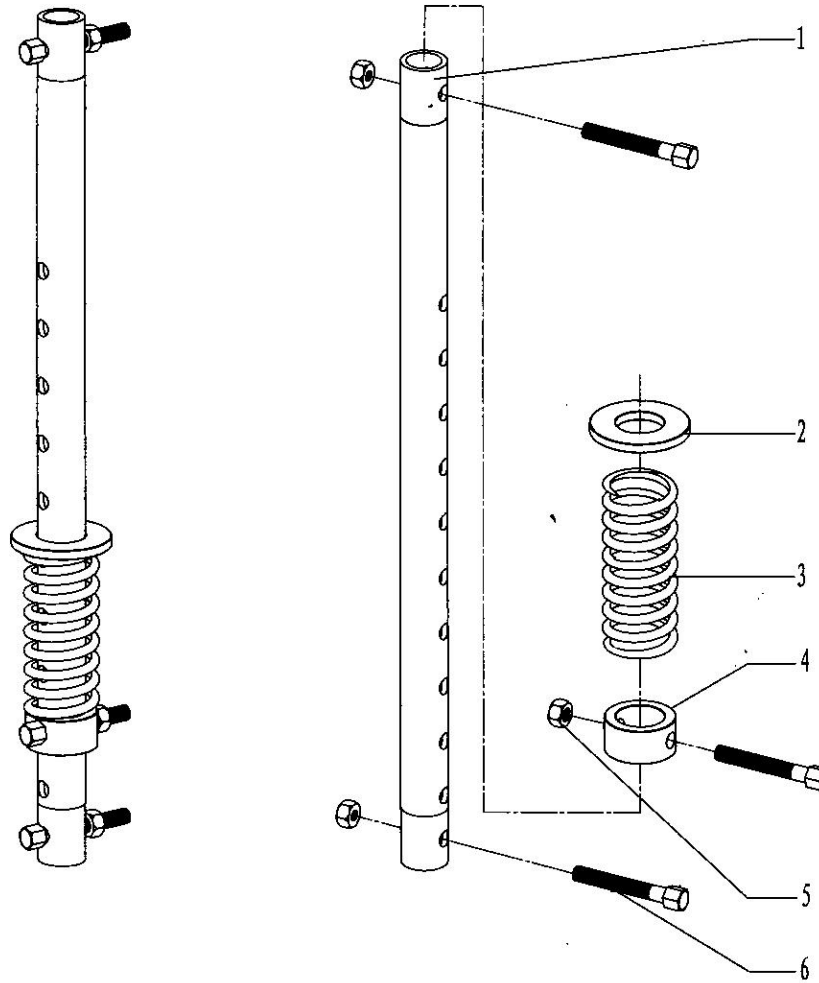


Fig. 23

Table 23 List of front guide rod assembly

No.	Purchase Code	Drawing No.	Names and specifications of parts	Quantity
1	NXQ140-406	HYQ5500.6-1	Front guide rod	2
2	NXQ140-407	KHT5500.5-2	Washer	2
3	NXQ140-408	KHT5500.5-3	Front guide rod spring	2
4	NXQ140-409	KHT5500.5-4	Fixation sleeve	2
5	NXQ140-410		Hexagon check nut 1/2"	6
6	NXQ140-411		Hexagon bolt 1/2"×3 1/2"	6

24. Hydraulic lift cylinder assembly (Fig 7-24, Table 24)

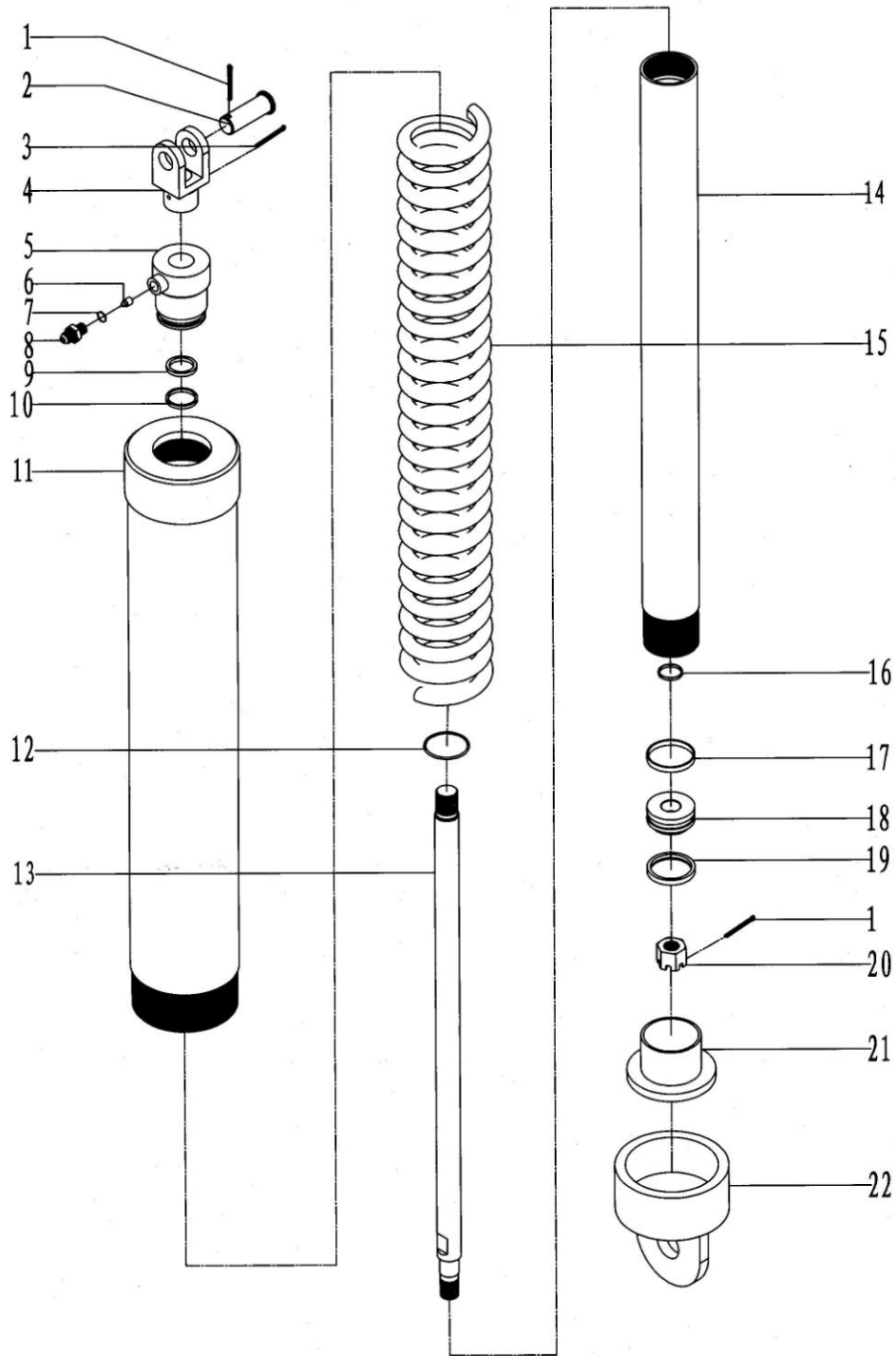


Fig. 7-24

Table 24 List of Hydraulic lift cylinder assembly

No.	Purchase Code	Drawing No.	Names and specifications of parts	Quantity
1	NXQ140-412	GB/T91	Cotter pin 6.3×50	2
2	NXQ140-413	GB/T882	Pin shaft 32×90	1
3	NXQ140-414	GB/91	Cotter pin 6.3×80	1
4	NXQ140-415	TQ340/35YA.1.16-1	Suspended head	1
5	NXQ140-416	TQ340/35YA.1.16.1	Cylinder end joint 1	1
6	NXQ140-417	XYQ12.YD-01.3	Throttle spool	1
7	NXQ140-418	GB 1235	O-Ring 24×2.4	1
8	NXQ140-419	XYQ12.YD-01.2	Joint(M18×1.5-3/4UNF)	1
9	NXQ140-420	GB/T10708.3	Dust proof RingFA40×48×5	1
10	NXQ140-421	GB/T10708.1	Y-RingY40×50×6.3	1
11	NXQ140-422	TQ340/35YA.1.16.2	Bucket body	1
12	NXQ140-423	GB/T3452.1	O-Ring 56×3.55	1
13	NXQ140-424	TQ340/35YA.1.16-4	Piston Rod	1
14	NXQ140-425	TQ340/35YA.1.16-3	Piston Rod	1
15	NXQ140-426	TQ340/35YA.1.16-2	Spring	1
16	NXQ140-427	GB/T3452.1	O-Ring 32.5×3.55	1
17	NXQ140-428	GB/T10708.1	Y-RingY63×53×6.3	1
18	NXQ140-429	TQ340/35YA.1.16-5	Piston	1
19	NXQ140-430	GB/T15242.2	SD 0630C- II A	1
20	NXQ140-431	GB/T6178	Slotted Nut M30	1
21	NXQ140-432	TQ340/35YA.1.16-6	Cylinder end joint 2	1
22	NXQ140-433	TQ340/35YA.1.16.3	Bucket end joint	1



25. Torque testing assembly (Fig7-25, Table25)

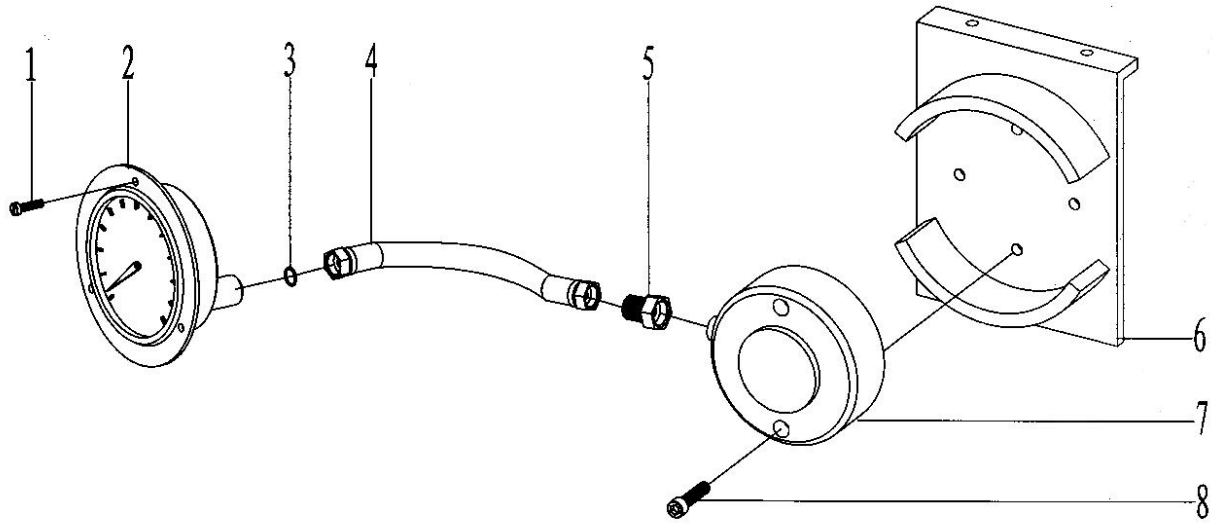


Fig .7-25

Table 25 List of Torque testing assembly

Item	Purchase Code	Drawing No.	Names and specifications of parts	Quantity
1	NXQ140-435	GB/T820	Countersunk raised head screw M5×10	3
2	NXQ140-436		Torque gauge YN100ZT(0-25000ft.lb)	1
3	NXQ140-437		Teflon washer	1
4	NXQ140-438		Hose (M14×1.5-NPT1/4, L=1600)	1
5	NXQ140-439	YG-52	Adapter connector (M20-NPT1/4)	1
6	NXQ140-440	KHT5500.2.8	Torque cylinder connected seat	1
7	NXQ140-441		Pressure cylinder	1
8	NXQ140-442		Hexagon Socket Head Screw 5/16"×2"	2

26.Torque testing system of master tong (Fig7-26, Table26)

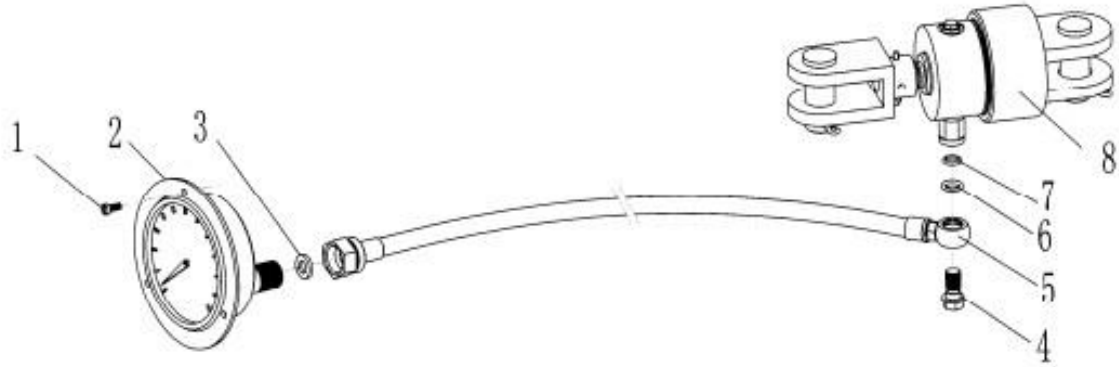


Fig .7-26

Table 26 List of Torque testing system of master tong

Item	Purchase Code	Drawing No.	Names and specifications of parts	Quantity
1	NXQ140-443	GB/T65	Countersunk raised head screw M5×10	3
2	NXQ140-444		Torque gauge YN100ZT(0-25000ft.lb)	1
3	NXQ140-445		Teflon washer	1
4	NXQ140-446	XYQ12.Z-40.02	Oil Passing Bolt	1
5	NXQ140-447	JB/ZQ4427	Hose adapter 6 I -750	1
6	NXQ140-448		Shim (Φ20×Φ14×3)	1
7	NXQ140-449	GB1235	O-Ring 18×2.4	1
8	NXQ140-450	KD13375.1.12.1	Tension cylinder	1

27. Oil filled equipment (Fig7-27, Table27)

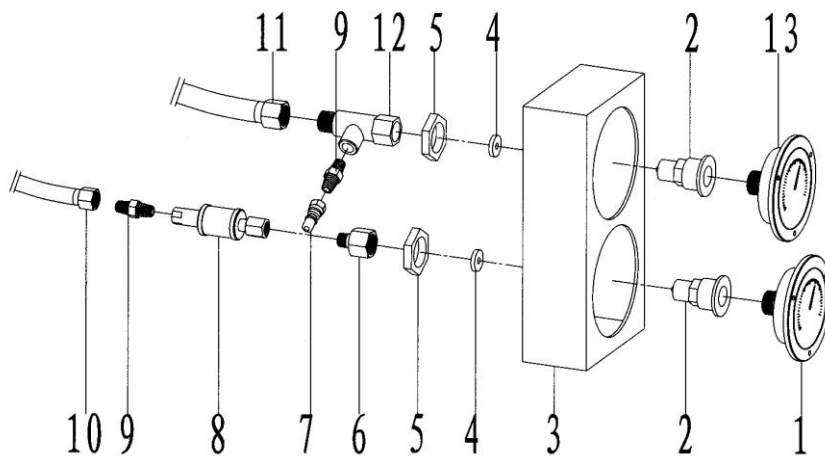


Fig.7-27

Table 27 List of Oil filled equipment

Item	Purchase Code	Drawing No.	Names and specifications of parts	Quantity
1	NXQ140-451		Torque gauge YN100ZT(0-25000ft.lb)	1
2	NXQ140-452	KJD9625.11 (2) -1	Attchment connector	2
3	NXQ140-453	KJD9625.11 (2)	Pressure gauge seat	1
4	NXQ140-454		Teflon washer	2
5	NXQ140-455	KJD9625.11 (2) -2	And the nut	2
6	NXQ140-456	YG-52	Adapter connector (M20-NPT1/4)	1
7	NXQ140-457		Quick pin connector	1
8	NXQ140-458		Quick connector	1
9	NXQ140-459	YG-68	Adaptor NPT1/4"	2
10	NXQ140-460		Hose(M20×1.5-7/16UNF, L=1200)	1
11	NXQ140-461		Hose (M14×1.5-NPT1/4, L=1600)	1
12	NXQ140-462	KHT5500.1.8.1-1	Oil filled tee joint	1
13	NXQ140-463		Pressure gauge Y-100ZT(0-3600PSI)	1

28. Spring lift bucket assembly (Fig7-28, Table28)

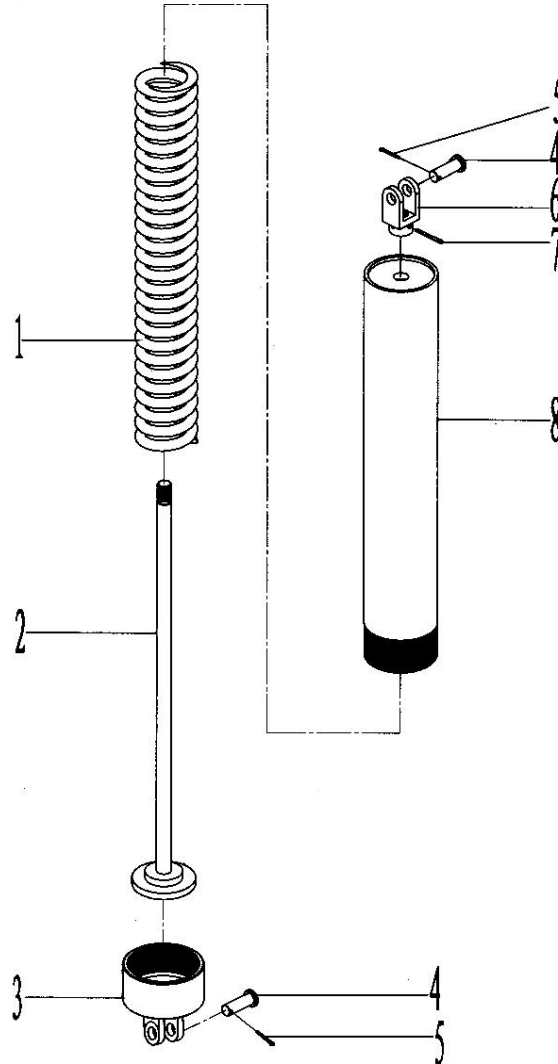


Fig.7-28

Table28 List of Spring lift bucket assembly

Item	Purchase Code	Drawing No.	Names and specifications of parts	Quantity
1	NXQ140-465	TQ340/35Y.1.13-01	Spring	1
2	NXQ140-466	TQ340/35Y.1.13.1	Hanger rod	1
3	NXQ140-467	TQ245/20Y.1.14(2)-1	End cover	1
4	NXQ140-468	GB882	Pin shaft20×60	2
5	NXQ140-469	GB91	Cotter pin4×40	2
6	NXQ140-470	XYQ12.YD-01.1	Suspended head	1
7	NXQ140-471	GB91	Cotter pin5×50	1
8	NXQ140-472	TQ340/35Y.1.13(2).1	Lift bucket	1

Chapter VIII Wearing Parts

Item	Purchase Code	Drawing No.	Names and specifications of parts	Recommended spare part quantity for one year
1	NXQ140-20	HYQ5500.1.1-9	Long t-bolt	2
2	NXQ140-21	HYQ5500.1.1-10	Short t-bolt	2
3	NXQ140-22	HYQ5500.1.1-5	Extension spring (Φ2×Φ12×93)	2
4	NXQ140-33 (1)	XQ140-20.1.1.1(2).1(1)	Die (1)	
5	NXQ140-33 (2)	XQ140-20.1.1.1(2).1(3)	Die (1/2)	
6	NXQ140-34	KHT9625.1.1.1-4	Roller	8
7	NXQ140-36	KHT9625.1.1.1-3	Roller shaft	8
8	NXQ140-39	HYQ5500.1.1-7	Pin	1
9	NXQ140-46	KHT5500.1.11.1	Braking staple	4
10	NXQ140-63	TQ340/35Y.1.3-03	Braking spring	2
11	NXQ140-321	GB/T3452.1	O Ring 25×2.65	2
12	NXQ140-386	GB/T10708.1	Y Ring 180×155×16	1
13	NXQ140-389	GB/T3452.1	O Ring 87.5×5.3	1
14	NXQ140-392	GB/T3452.1	O Ring 165×7	1
15	NXQ140-396	GB/T10708.1	Y Ring 125×145×16	2
16	NXQ140-418	GB 1235	O-Ring 24×2.4	2
17	NXQ140-421	GB/T10708.1	Y-RingY40×50×6.3	1
18	NXQ140-423	GB/T3452.1	O-Ring 56×3.55	2
19	NXQ140-427	GB/T3452.1	O-Ring 32.5×3.55	1
20	NXQ140-428	GB/T10708.1	Y-RingY63×53×6.3	1