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MODEL: JKJD – 9625 – 9 5/8 TONG

HYRAULIC POWER TONG

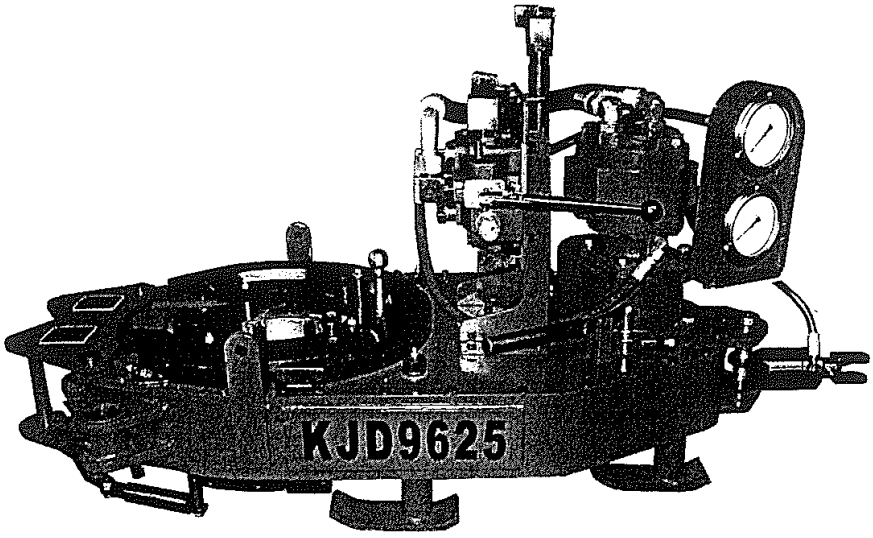
PARTS OPERATION AND MAINTENANCE MANUAL

YANCHENG TEDA

DRILLING AND PRODUCTION EQUIPMENT CO., LTD.

MODEL KJD9625

CASING TONG



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MAINTENANCE AND OPERATION MANUAL

SAFETY CAUTION

1.Operators should read and understand this manual before operation.

2.Operators should wear protective clothing, hard hat and safety boots.

3.Tie the back guy according to the instructions.

4.Make sure to operate at the side of the tong opening.

5.Close the safety door in make-up/break-out operation.

6.Keep hands away from rotating parts.

7.Keep sundries out of the operation range.

8.Cut off the hydraulic source and move the tong off the wellhead during maintenance, changing dies or other parts.

9.Never use the power tong under over-pressure or over-torque conditions, otherwise the tubing will be damaged and so the planetary gear of the tong will be damaged.

10.Keep the tong turning center according to the center of tubing before make-up/break-out, otherwise the planetary gear of the tong would be damaged.

11.Don't dismantle or add parts to the tong.

12.Please adopt the original fitting parts made by TEDA.

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.

1. Summary

KJD9625 Casing Power Tong is used to make up and break out for casing operation in oil fields. It has greatly reduced the labor of worker, enhanced connection quality of thread and diminished accidents in inappropriate casing operation. The power tong has the following features as well:

- Opening type, convenient and prompt to enter and slide off the working position, with an integral tong head of great strength and rigidity.
- Double swing head jaws, convenient to assemble and disassemble.
- Brake belt assembly, easy to operate and convenient to maintain and replace.
- Open gear supporting structure, improving the strength and rigidity.
- Wholly hydraulic mode and mechanical gear shift.
- The jaws are cast with precise technology, artistic and strong.
- With optional torque control system to display, record and control the make-up torque.

2. Technical parameters

(1) Application range 41/2″ 、5″ 、51/2″ 、7″ 、85/8″ 、95/8″ Casing
(2) Torque Range @ 2000 psi / 13.8 Mpa
High gear:2400ft-lbs./3254Nm
Low gear: 12000 ft-lbs. /16270Nm
(3) Maximum RPM @ 40 GPM / 151 LPM
High gear:84 rpm
Low gear:16 rpm
(4) Oil Flow 40 GPM @ 2000 psi / 151 LPM @ 13.8 Mpa

3. Installation

3.1 Hang the tongs

a) Fix the single pulley (3 ton) under beam of the crown block.
b) Get a wire rope (at least 1/2") through the pulley, with one end fixed on the base beam. The height of the tong should be at the same level as the average height of joint when making up and breaking out casing.

3.2 Level the tongs

The tongs must be leveled when hung up, or the gears will be easy to slide.

a) Front and back level - adjust the two screws at the joint where the tongs are connected with their hanger.
b) Crosswise level - turn the screw rod at the top of the hanger.

3.3 Tie the back guy

The wire, at least 5/8", is connected with the ring of the oil tank at the end of the tongs, the other end fixed on the derrick or the drilling platform.

☐The wire should be almost at the same level of the tongs, and be at an angle of 90° with the tong central line.

3.4 Filling oil into pulling cylinder

When the piston rod is pulled out long, oil must be filled. Use the hand oiling pump equipped with the tong to oil the torque cylinder until the hand of torque gauge acts.

3.5 Connect the pipes

High pressure oil hose joint connects with high-pressure hose from the power station.

Low-pressure return hose joint connects with low pressure hose from the power station.

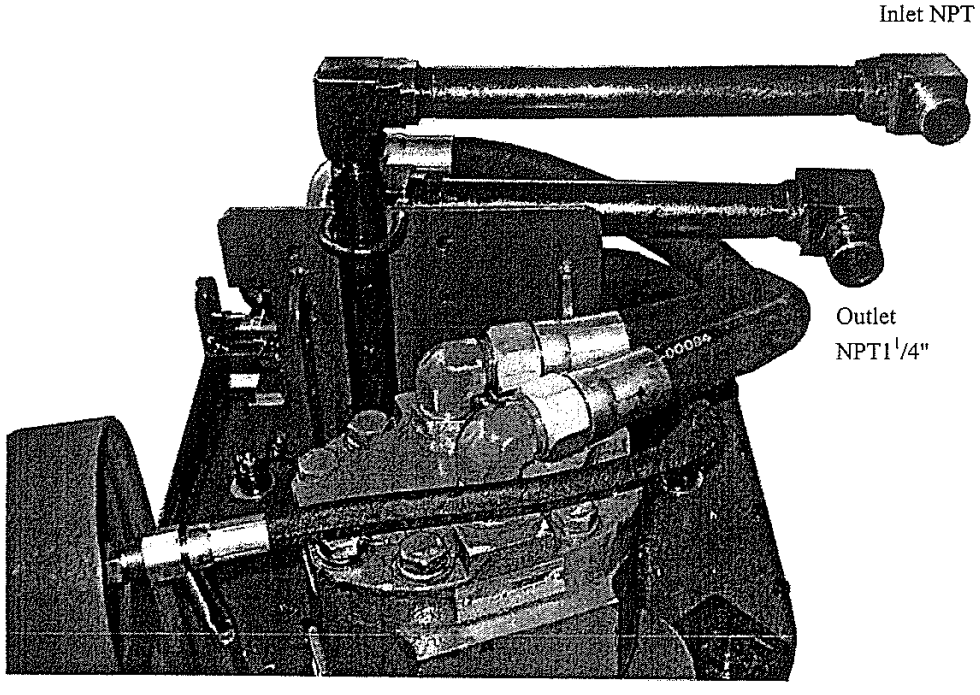


Fig. 1

4. Operation

4.1 Requirements

a) The operator should know the tong structure and the properties.

b) The operator should know the use of the hydraulic hand-reversing valve and of the speed change gas valve.

c) The operator should know the operation sequence and safety requirements.

d) The operator should know the functions of the gauge.

4.2 Preparation for the operation .

a) Install the jaws that go with the casing pipe. Note that the two jaws are different, and should be installed correctly.

b) Put the handles of the hydraulic hand-reversing valve and the speed change gas valve at neutral position.

c) Start the hydraulic power station.

d) Push or pull the handle of the hydraulic hand-reversing valve, and you will hear the hydraulic motor while the tong head notched gear remains still.

e) Set the handle of the speed changer gas valve at high or low gear. Push or pull the handle of the hydraulic reversing valve, and the notched gear turns smoothly in forward and reverse direction.

4.3 Working process

a) Align the gear's notch with the jaw rack's notch.

b) Set the reverse shaft into "make up " or "break out" hole, and adjust the brake band.

c) Align the gear notch with the case notch.

d) Draw open the safety door, push the tongs to working position and close the door.

☐ Making up

a. High gear operation: Set the handle of speed change air valve at high speed position and the handle of hydraulic reversing valve at "make up" position. Jaws clamp the casing tightly and drive the casing rotate in "make up" direction. At the same time watch the torque gauge. When the reading is not up to the needed, change to low gear.

b. Low gear operation: Stop the motor and put the speed change air valve at low gear, and operate the direction-reversing valve, the casing pipe will turn slowly. Watch the torque gauge at the same time. When the reading reaches the needed value, put the handle of hydraulic reverse valve at mid position.

c. Set the handle of hydraulic reverse valve at "break out" position, then choose low gear according to the proficiency of operator and the position of notched gear. Jaws loose. The rotary gear turns in "break out" position. When it aligns with the case notch, set the handle of hydraulic reverse valve at mid position.

d. Open the safety door and draw back the tong. That is one make-up.

☐ Breaking out

a. Low gear operation: set the handle of the speed shift gas valve at low gear position, the handle of the hydraulic reversing valve at "break out" position, and the casing turns slowly in the direction to break out.

b. High gear operation: When the casing turns to a certain angle it can turn at high gear, stop the tong and set the handle of the reversing gas valve at high gear position, and then the casing turns at high speed in the direction to break out.

c. When the screw threads are apart, the operator may choose a proper position for the handle of the speed shift gas valve according to his own proficiency and the gear notch position. Push the handle of the hydraulic reversing valve to "make up" position. When the gear notch and the case notch are aligned, set the handle of the hydraulic reversing valve in the middle position.

d. Open the safety door, and slide the tong off the casing. A break-out is done.

☐Never dismount hydraulic hoses under high pressure, or serious accidents or equipment failure may occur!
☐Keep hand or clothes off the running part of the hydraulic tong!
☐Nobody but operators is allowed to approach the power tong, in case accidental harm should be caused due to turning the control handle!

☐The casing string will be damaged at over torque!
☐The casing tong will be damaged if used at over pressure!

☐Carry out the make-up operation at torque recommended by API.

5. Trouble shooting (Table1)

Trouble	Causes	Remedy
The head doesn't turn	1. No pressure from hydraulic station. 2.Damage of the hydraulic reversing valve. 3. Gear changing system fails.	1 . Check the station. Add pressure. 2. Replace the valve. 3. Repair
No neutral gear	1. Damage of hand-reversing valve. 2. Damage of dial fork	1 Change a new valve 2. Repair the fork.
Speed is not enough	1. Low pressure or low flow from the power station. 2. Bad leakage loss from oil motor or hand-reversing valve.	1 .Check the station pressure. 2. Replace the motor or hand-reversing valve.
Head slide	1 . Disagreement of the sizes of the jaws and casing. 2. Tongs not be leveled. 3. Dies worn out. 4. Die notch filled with oil dirt. 5. Brake band too loose or worn out. 6.Jaw roller failure to turn.	1 . Change the jaws. 2. Level the tongs. 3. Change the dies. 4. Get rid of it with a wire brush. 5. Adjust or change the band. 6. Check the roller or oil and repair the pin shaft.
Torque valve less than rated	1. Low pressure from the hydraulic power station or its insufficient oil discharge. 2. Function failure of the hydraulic motor or of the reversing valve. 3.Insufficient oil in the torque cylinder or the sealing ring worn out. 4.Torque gauge failure.	1.Deal with it according to the instruction of hydraulic power station. 2. Repair or change it. 3. Fill in oil or change the ring. 4. Repair or change the torque gauge.
Motor is running but the tong head keeps still or moves slowly, or will stop even loaded light	1. Gear changing device fails 2.Much leakage loss from the hydraulic motor or the hand- reversing valve. 3.Gear of gearbox damaged or seriously worn out.	1.Repair or change. 2.Repair or change the motor and the valve. 3. Check or repair the gearbox .

6. Lubrication

6.1 Maintenance after each workover

- ☐ Wrap each oil nipple with clean plastic film after the hose is removed to keep sundries out.
- ☐ Clear dirty objects outside the tong body and clean with kerosene or diesel oil.
- ☐ Dismount the baffle, fill enough molybdenum disulfide grease to each gear .
- ☐ Fill enough engine oil 20# to the rotating axle and the gears of the master tong and backup tong.
- ☐ Clear all the sundries inside the groove of the die,.
- ☐ Carry out maintenance according to the daily maintenance requirement.

6.2 Check the hydraulic motor every half year, supply oil according to the specified oil supply amount, increase the break-out system pressure slowly, if the pressure fails to arrive at 16MPa，replace the hydraulic motor at once.

6.3 The hydraulic oil for the power tong must be effectively filtered to keep sand or iron scraps out, the filter precision should be above 0.025mm (10mil). The following hydraulic oils are recommended:

(1) hydraulic oil L-HS32，application ambient temperature: -30℃-+40℃;

(2) hydraulic oil L-HM46，application ambient temperature: 0℃-+40℃.

☐ Don't clean bearing or oil nipple with steam, otherwise, parts like bearing may get dusted and damaged!

☐ Don't rinse the pressure sensor with steam, or it may be damaged!

☐ The hydraulic oil temperature should be lower than 65℃, the sealing may fail and the rotation speed of the power tong will be slower due to the high temperature of the oil!

☐ Recommended summer brand: hydraulic oil L-HM46， for winter use or for both summer and winter use: hydraulic oil L-HS32.

☐ When replacing oil, the sediment at the bottom of the oil tank should be cleared.

7 Carry, store , opening the box and after-sales service

7.1 Carry

☐Handle hydraulic power tong steadily and smoothly, keep from getting damp, upside down or damaged.

☐Suspend hydraulic power tong with wire over Φ 12mm, keep the tong body balanced.

☐Keep the tong balanced and horizontal not to swing so as to avoid bumping or damaging.

7.2 Store

☐Store in places free of sunshine, rain and moist, with excellent ventilation and ambient temperature below 45℃.

☐Don't leave the tong on muddy ground or in the open air

☐Protect the oil entrance in storage to prevent dirt or dust.

☐Valid storage time for new hydraulic power tong is one year since delivery. Replace part or all of the sealing pieces and hoses after expiration.

7.3 Opening the box

☐After opening the box, check the appearance of the power tong, check goods according to the packing list.

7.4 Service

☎ Service line:86-515-6585387 86-515-6582548 86-515-6583024

FAX: 86-515-6582386

E-mail: hjzhjz12@263.net

8 Figures and detailed part tables

8.1 Master tong **(Fig2. Table2)**
8.2 Tong head assembly **(Fig3. Table3)**
8.3 Case body, centralizing and brake assembly **(Fig4. Table4)**
8.4 Case body and tong tail accessories **(Fig5. Table5)**
8.5 Transmission gear part **(Fig6. Table6)**
8.6 Safety door **(Fig7. Table7)**
8.7 Hydraulic valve bank (three connection valve) **(Fig8. Table8)**
8.8 Hydraulic valve bank (four connection valve) **(Fig9. Table9)**
8.9 Pulling cylinder **(Fig10. Table10)**

8.1 Master tong **(Fig2. Table2)**

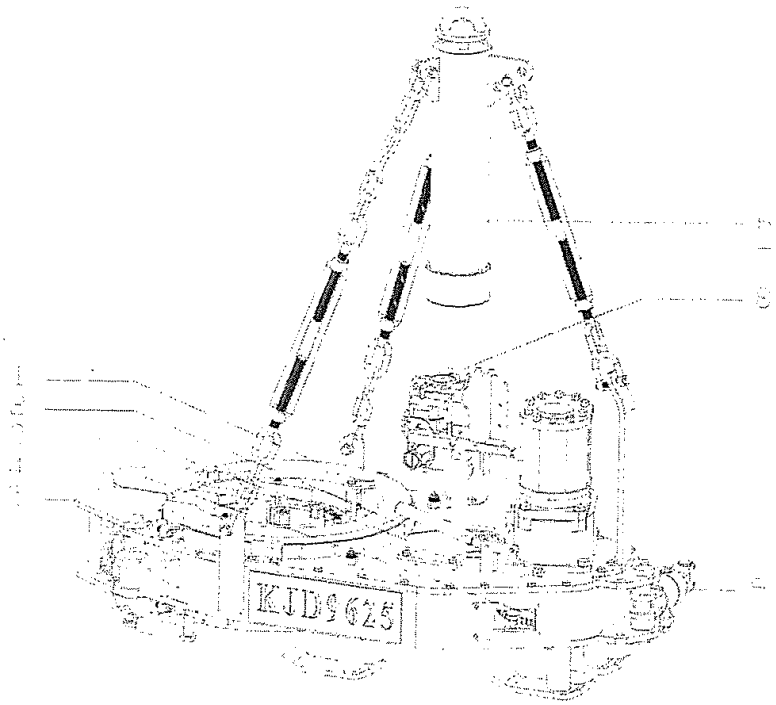
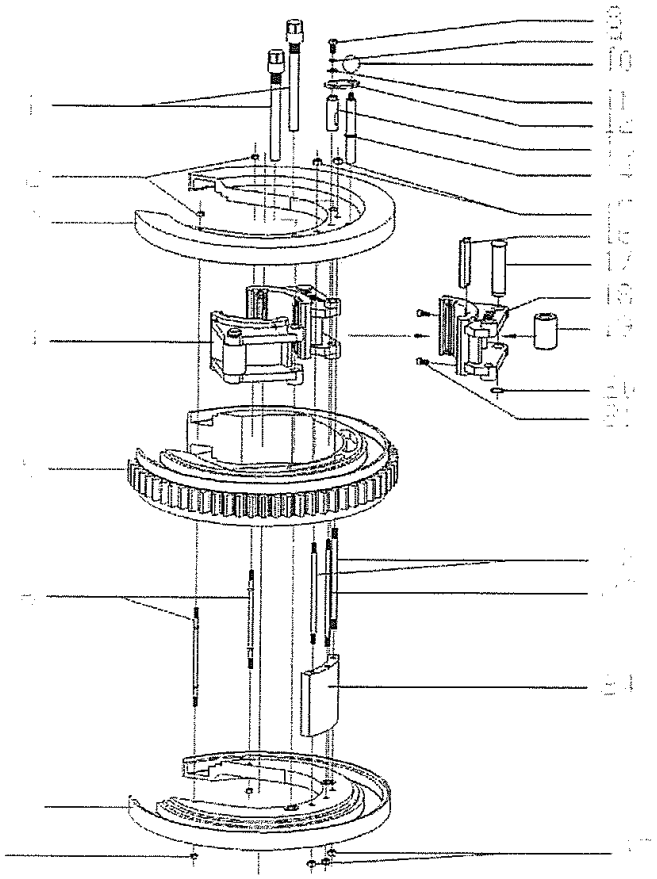


Table2. Detailed table for Master tong

Item	P/ N	Drawing No.	Description	Qty
1	KJD-10	KJD9625.1	Tong head assembly	1
2	KJD-11		Case body, centralizing and brake assembly	1
3	KJD-12		Case body and tong tail accessories	1
4	KJD-13		Transmission gear part	1
5	KJD-14	KJD9625.15	Safety door	1
6	KJD-15	TQ245.14	Spring lift assembly	1
7	KJD-16	TQ245.15	Suspending combined chain	1
8	KJD-17		Hydraulic valve bank (three connection valve)	1
9	KJD-18	TQ245.12	Pulling cylinder	1

8.2 Tong head assembly **(Fig3. Table3)**



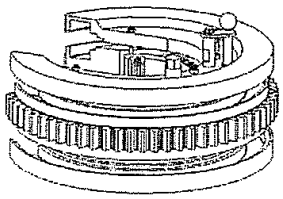


Table 3. Detailed table for tong head assembly

Item	P/ N	Drawing No.	Description	Qty
1	KJD-21	KJD9625.1-4	Jaw set bolt	2
2	KJD-22		Nylon nut 5/16″	4
3	KJD-23	KJD9625.1-1	Upper jaw set bracket	1
4	KJD-24	KJD9625.1.2(1)	Jaw set assembly (1) $9\frac{5}{8}$"	2
	KJD-25	KJD9625.1.2(2)	Jaw set assembly (2) $8\frac{5}{8}$″	2
	KJD-26	KJD9625.1.2(3)	Jaw set assembly (3) 7″	2
	KJD-27	KJD9625.1.2(4)	Jaw set assembly (4) $5\frac{1}{2}$″	2
	KJD-28	KJD9625.1.2(5)	Jaw set assembly (5) 5″	2
	KJD-29	KJD9625.1.2(6)	Jaw set assembly (6) $4\frac{1}{2}$″	2
5	KJD-30	KJD9625.1-2	Open gear	1
6	KJD-31	KJD9625.1-3	Fore support screw rod	2
7	KJD-32	TQ245.1-4	Lower jaw set bracket	1
8	KJD-33		Hex bolt 3/8″ UNC×1″	1
9	KJD-34		Spring washer 3/8″	1
10	KJD-35	KJD9625.1.1-1	Handle ball	1
11	KJD-36	GB/T95	Flat washer 10	1
12	KJD-37	TQ245.1.1-1	Connection board	1
13	KJD-38	KJD9625.1.1-3	Connection screw rod	1
14	KJD-39	KJD9625.1.1-2	Reverse shaft	1
15	KJD-40		Nylon nut 3/8″	5
16	KJD-41	KJD9625.1.2-2	Die	24
17	KJD-42	TQ245.1.2-2	Roller shaft	10
18	KJD-43	KJD9625.1.2-1(1)	Jaw set(1) $9\frac{5}{8}$"	2
	KJD-44	KJD9625.1.2-1(2)	Jaw set(2) $8\frac{5}{8}$″	2
	KJD-45	KJD9625.1.2-1(3)	Jaw set(3) 7″	2
	KJD-46	KJD9625.1.2-1(4)	Jaw set(4) $5\frac{1}{2}$″	
	KJD-47	KJD9625.1.2-1(5)	Jaw set(5) 5″	2
	KJD-48	KJD9625.1.2-1(6)	Jaw set(6) $4\frac{1}{2}$″	2
19	KJD-49	TQ245.1.2-3	Roller	10
20	KJD-50	GB/T894.1	Circlip for shaft 25	10
21	KJD-51		Hexagon socket head cap screw 5/16″ UNC×1/2″	48
22	KJD-52	KJD9625.1-5	Double head bolt	2
23	KJD-53	KJD9625.1.1-4	Screw rod	1
24	KJD-54	KJD9625.1-6	Back support bend plate	1

8.3 Case body, centralizing and brake assembly **(Fig4. Table4)**

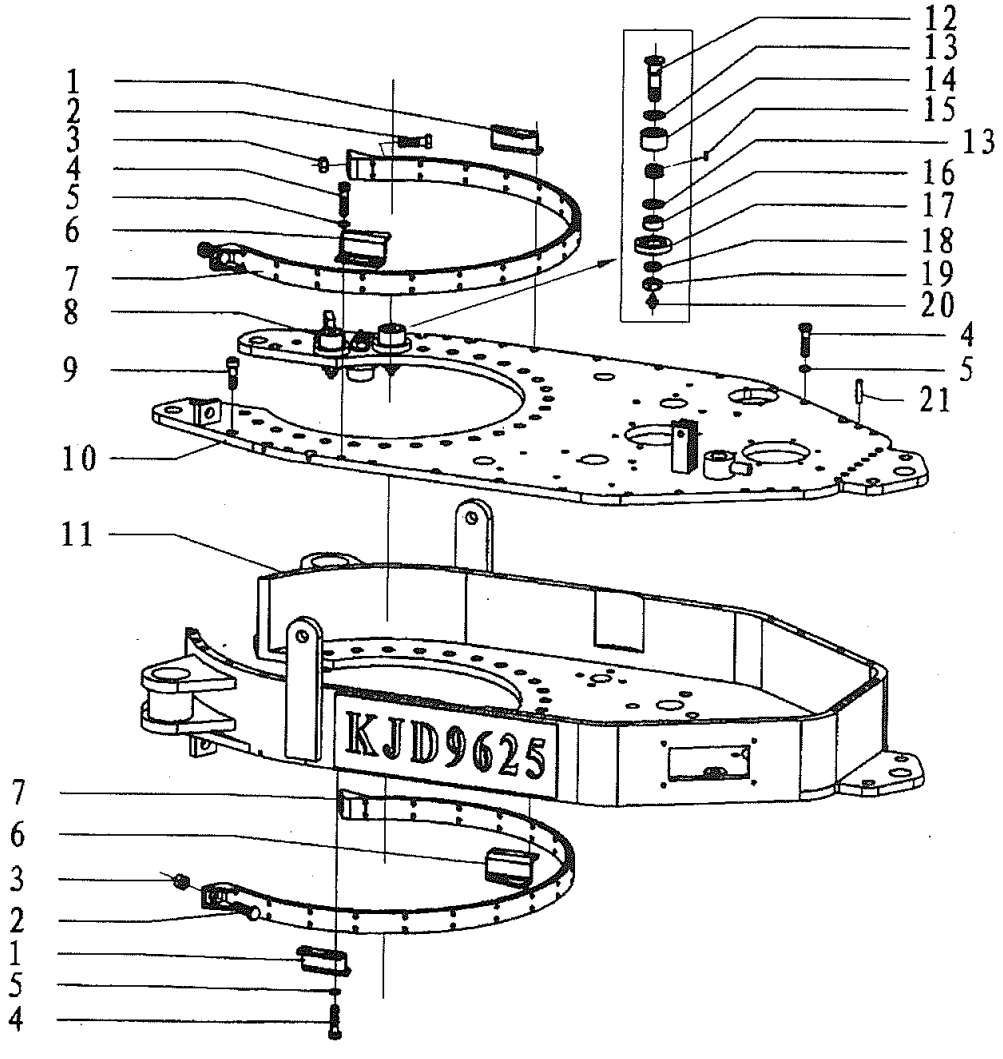


Table 4 . Detailed table for case body, centralizing and brake assembly

Item	P/ N	Drawing No.	Description	Qty
1	KJD-60	TQ245-7	Restrict block (left)	2
2	KJD-61		Hex head bolt 1/2″ UNC×2 1/4″	4
3	KJD-62		Hex nut 1/2″	4
4	KJD-63		Hex head bolt 3/8″ UNC×1 1/2″	18
5	KJD-64		Spring washer 3/8″	18
6	KJD-65	TQ245-7	Restrict block (right)	2
7	KJD-66	TQ245.3	Brake belt assembly	2
8	KJD-67	KJD9625.2	Centralizing assembly	50
9	KJD-68		Hexagon socket head cap screw 3/8″ UNC×1″	10
10	KJD-69	KJD9625.4-1	Face plate	1
11	KJD-70		Lower case body	1
12	KJD-71	KJD9625.2-1	Centralizing shaft	50
13	KJD-72	TQ245.2-1	Seal cushion	100
14	KJD-73	TQ245.2-3	Centralizing roller	50
15	KJD-80	GB/T309	Roller 3.5×15.8	1000
16	KJD-74	TQ245.2-4	Washer	50
17	KJD-75	TQ245.2-5	Support cushion	50
18	KJD-76		Spring washer 5/8″	50
19	KJD-77		Hex nut 5/8″	50
20	KJD-78	GB/T1152	Oil cup M6×1	50
21	KJD-79	GB/T119	Cylinder pin A10×30	8

8.4 Case body and tong tail accessories **(Fig5. Table5)**

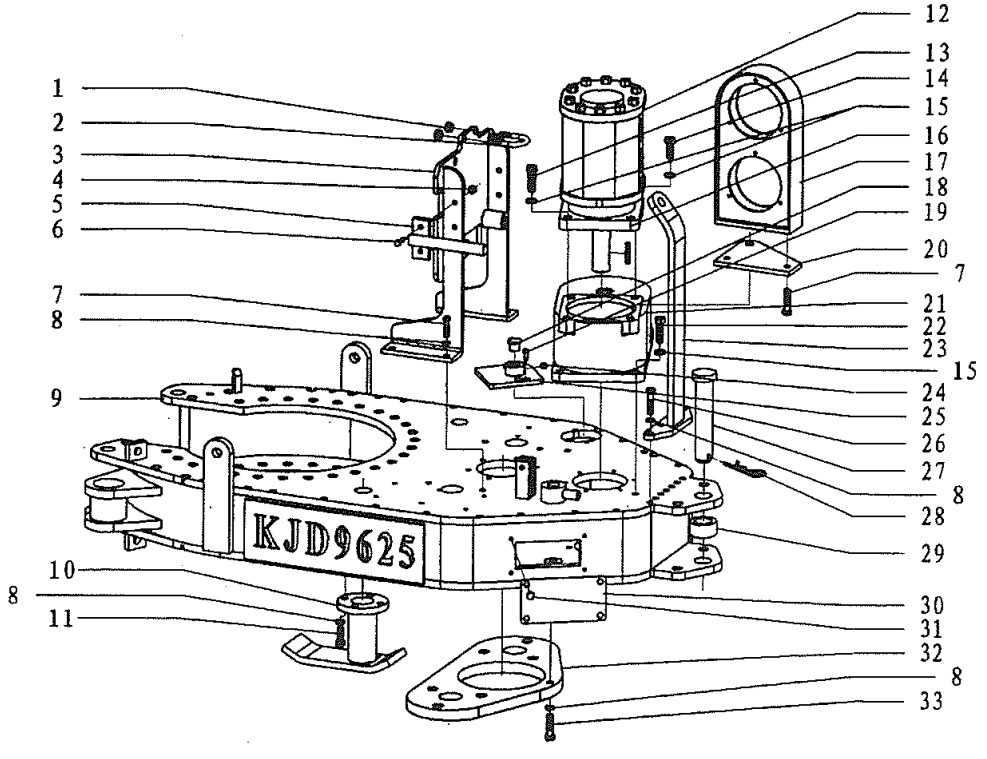
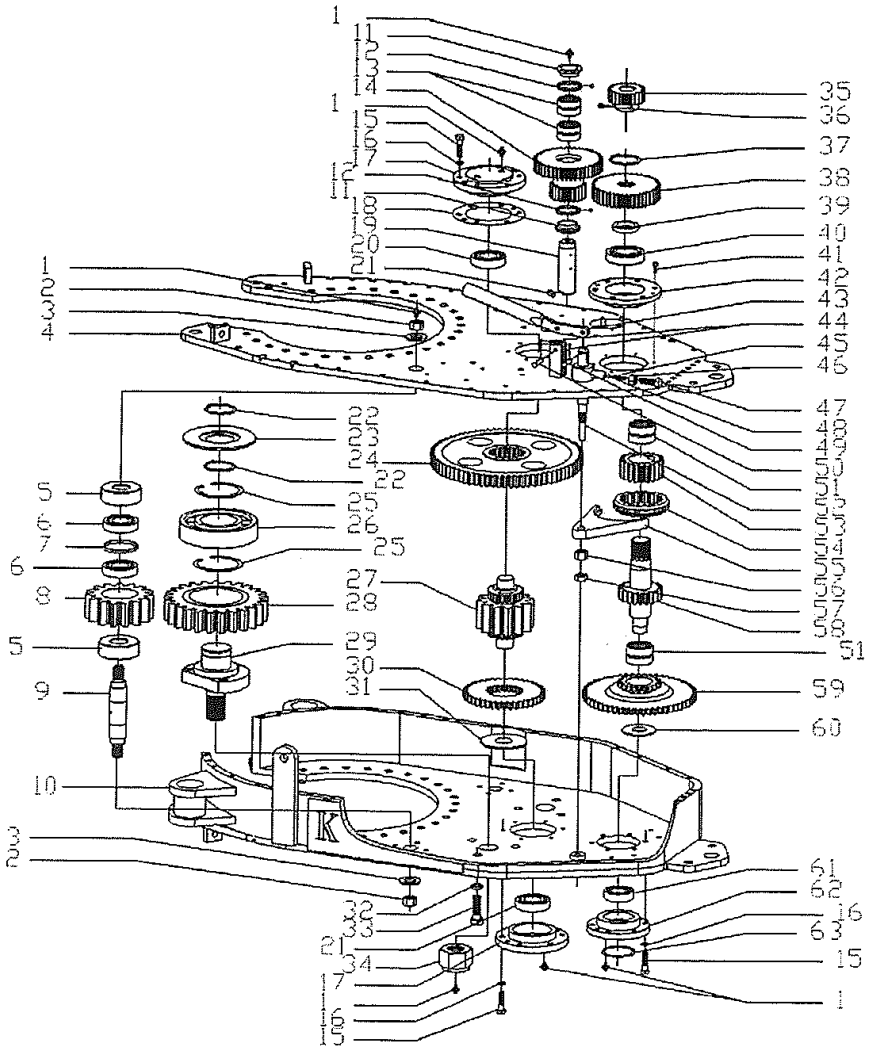


Table 5. Detailed table for case body and tong tail accessories

Item	P/N	Drawing No.	Description	Qty
1	KJD-85		Nylon nut 3/8″	2
2	KJD-86	KJD9625-5	U-shaped bolt	1
3	KJD-87	KJD9625.14	Valve connection plate	1
4	KJD-88		Nylon nut 1/4″	2
5	KJD-89	KJD9625.13	Rail	1
6	KJD-90		Hex head bolt 1/4″ UNC×1″	2
7	KJD-91		Hex head bolt 3/8″ UNC×1″	6
8	KJD-92		Spring washer 3/8″	24
9	KJD-93	KJD9625.4	Case body	1
10	KJD-94	TQ245.7	Support foot	4
11	KJD-95		Hex head bolt 3/8″ UNC×1 1/8″	16
12	KJD-96		Hydraulic motor M75C878	1
13	KJD-97		Hex head bolt 1/2″ ×1 7/8″	2
14	KJD-98		Hex head bolt 1/2″ ×1 1/4″	2
15	KJD-99		Spring washer 1/2″	8
16	KJD-100		Key 8×6×37	1
17	KJD-101	KJD9625.11	Pressure gauge seat	1
18	KJD-118	KJD9625.16-2	Shaft	1
19	KJD-102		Hex head bolt 1/4″ ×3/4″	2
20	KJD-103	KJD9625-1	Small box case	1
21	KJD-104		Hex head bolt 1/2″ ×1 1/16″	4
22	KJD-105	KJD9625-4	Pressure gauge seat immobility plate	1
23	KJD-119	KJD9625.10	Suspending back support seat	1
24	KJD-106		Hexagon socket flat end fasten screw 5/16″ ×1/4″	1
25	KJD-107	KJD9625.16.1	Measure speed gear seat	1
26	KJD-108		Hex head bolt 3/8″ UNC×1 3/4″	4
27	KJD-109	KJD9625-7	Tail guy pin	1
28	KJD-110	TQ245-2	Circlip	1
29	KJD-111	KJD9625-3	Washer	1
30	KJD-112	TQ245-4	Baffle	1
31	KJD-113		Hex head bolt 5/16″ UNC×3/8″	4
32	KJD-114	TQ245-3	Connection plate	1
33	KJD-115		Hex head bolt 3/8″ UNC×1 1/2″	1

8.5 Transmission gear part **(Fig6. Table6)**



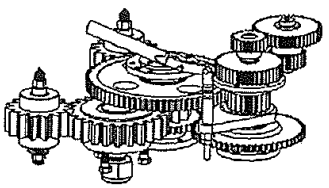


Table 6. Detailed table for transmission gear part

Item	P/ N	Drawing No.	Description	Qty
1	KJD-125		Oil cup NPT1/8	10
2	KJD-126		Nylon nut 7/8″	4
3	KJD-127	GB/T95	Flat washer 24	4
4	KJD-128		Upper case body	1
5	KJD-129	TQ245.9-1	Support cushion	4
6	KJD-130	GB/T283	Cylinder roller bearing 42507E	4
7	KJD-131	TQ245.9-2	Spacer	2
8	KJD-132	TQ245.9-3	Small idler gear	2
9	KJD-133	KJD9625.5-1	Small idler gear shaft	2
10	KJD-134		Lower body case	1
11	KJD-135	KJD9625.8-3	Support ring	2
12	KJD-136		Steel ball 1/4″	46
13	KJD-137	GB/T5801	Roller needle bearing RNA6906	2
14	KJD-138	KJD9625.8-1	Duplex gear	1
15	KJD-139		Hex head bolt 3/8″ UNC×1 1/4″	18
16	KJD-140		Spring washer 3/8″	18
17	KJD-141	KJD9625.7-1	Bearing cover	2
18	KJD-142	TQ245.6-2	Adjusting cushion	
19	KJD-143	KJD9625.8-2	Duplex gear shaft	1
20	KJD-144	GB/T283	Roller bearing 42307E	2
21	KJD-145	XYQ3C.Z-36	Locating block	1
22	KJD-146	GB/T894.1	Circlip for shaft 60	4
23	KJD-147	TQ245.11-1	Water proof guard	2
24	KJD-148	KJD9625.7-2	Big gear	1
25	KJD-149	GB/T893.1	Circlip for hole 110	4
26	KJD-150	GB/T283	Roller bearing 42512E	2
27	KJD-151	TQ245.6-4	Gear shaft	1
28	KJD-152	TQ245.11-2	Big idler gear	2
29	KJD-153	KJD9625.6-1	Big idler gear shaft	2
30	KJD-154	KJD9625.7-3	Small gear	1
31	KJD-155	TQ245.6-6	Support disc	1
32	KJD-156		Spring washer 5/8″	6
33	KJD-157		Hex head bolt 5/8″ UNC×2 1/4″	6
34	KJD-158		Nylon nut 1 1/2″	2
35	KJD-159	KJD9625-2	Motor gear	1
36	KJD-160		Hexagon socket fasten screw 3/8″ UNC×3/8″	1
37	KJD-161	GB/T894.1	Circlip for shaft 38	1
38	KJD-162	KJD9625.9-2	Spline gear	1
39	KJD-163	KJD9625.9-3	Washer	1
40	KJD-164	GB/T276	Deep groove ball bearing 6208	1

Item	P/ N	Drawing No.	Description	Qty
41	KJD-165		Hexagon socket fasten screw 1/4″ UNC×1/2″	6
42	KJD-166	KJD9625.9-4	Upper bearing seat	1
43	KJD-167	TQ245.8-1	Operation handle	1
44	KJD-168	GB/T91	Cotter pin 2.5×12	2
45	KJD-169	TQ245.8-2	Locating spring	1
46	KJD-170		Hex nut 1/2″ UNC	1
47	KJD-171		Hex head bolt 1/2″ UNC×1 3/4″	1
48	KJD-172		Steel ball 5/16″	1
49	KJD-173	GB/T882	Pin shaft B8×28	1
50	KJD-174	GB/T882	Pin shaft B8×35	1
51	KJD-175	GB/T5801	Roller needle bearing RNA6907	2
52	KJD-176	KJD9625.12-1	Fork shaft	1
53	KJD-177	KJD9625.9-5	Shifting gear	1
54	KJD-178	KJD9625.9-6	Interior gear sleeve	1
55	KJD-179	TQ245.8-4	Fork	1
56	KJD-180		Hex nut 5/8″	1
57	KJD-181		Hex thin nut 5/8″	1
58	KJD-182	KJD9625.9-1	Main shaft	1
59	KJD-183	KJD9625.9-7	Clutch gear	1
60	KJD-184	KJD9625.9-9	Support disc	1
61	KJD-185	GB/T283	Roller bearing 42206E	1
62	KJD-186	KJD9625.9-8	Lower shaft support seat	1
63	KJD-187	GB/T3452.1	O ring 28×3.55	1

8.6 Safety door **(Fig7. Table7)**

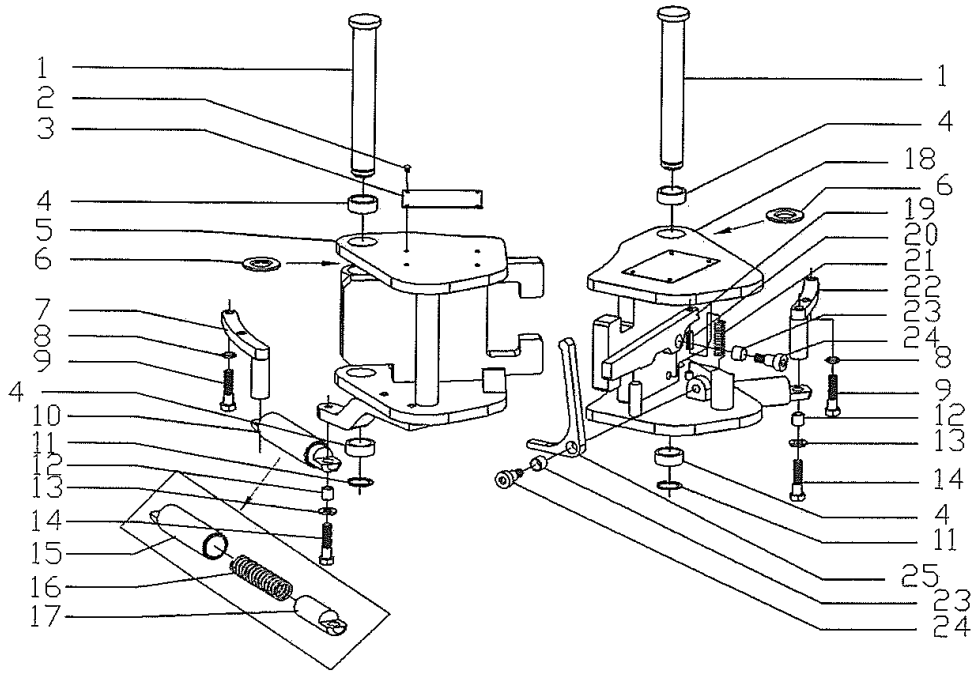
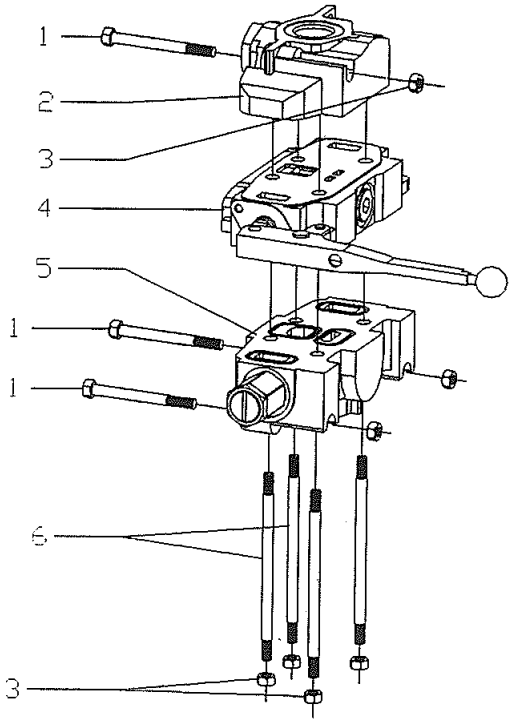


Table 7 . Detailed table for safety door

Item	P/ N	Drawing No.	Description	Qty
1	KJD-195	TQ245.13-2	Pin shaft	2
2	KJD-196	GB/T872	Rivet 4×5	8
3	KJD-197	KJD9625.15-1	Warning plate	2
4	KJD-198	TQ245.13-3	Sleeve(2)	4
5	KJD-199	KJD9625.15.2	Safety door (left)	1
6	KJD-200	TQ245.13-4	Copper cushion	2
7	KJD-201	KJD9625.15.1	Sleeve connection rod (1)	1
8	KJD-202		Spring washer 3/8″	4
9	KJD-203		Hex head bolt 3/8″ UNC×1 3/8″	4
10	KJD-204	TQ245.13.2	Spring sleeve assembly	2
11	KJD-205	GB/T894.1	Circlip for shaft 25	2
12	KJD-206	TQ245.13-1	Sleeve (1)	4
13	KJD-207	GB/T845	Flat washer 10	4
14	KJD-208		Hex head bolt 3/8″ UNC×1″	4
15	KJD-209	TQ245.13.2-1	Sleeve	2
16	KJD-210	TQ245.13.2-2	Spring	2
17	KJD-211	TQ245.13.2-3	Sleeve rod	2
18	KJD-212	KJD9625.15.3	Safety door (right)	1
19	KJD-213	TQ245.13-6	Door bolt	1
20	KJD-214	GB/T879	Pin 8×20	1
21	KJD-215	TQ245.13-7	Spring	1
22	KJD-216	KJD9625.15.4	Sleeve rod (2)	1
23	KJD-217	TQ245.13-8	Sleeve (3)	2
24	KJD-218	KJD9625.15-2	Rotation shaft	2
25	KJD-219	TQ245.13-9	Switch handle	1

8.7 Hydraulic valve bank (three connection valve) **(Fig8. Table8)**



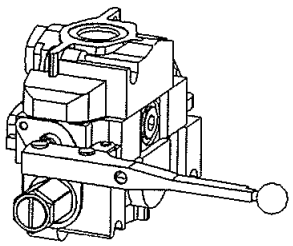


Table 8 . Detailed table for hydraulic valve bank (three connection valve)

Item	P/ N	Description	Qty
1	KJD-225	Hex head bolt 3/8″ UNC×4″	4
2	KJD-226	Connection board assembly	1
3	KJD-227	Nylon nut 3/8″	8
4	KJD-228	Hand control valve assembly	1
5	KJD-229	Overflow valve assembly	1
6	KJD-230	Bolt 3/8″ UNC×6 1/2″	4

8.8 Hydraulic valve bank (four connection valve) **(Fig9. Table9)**

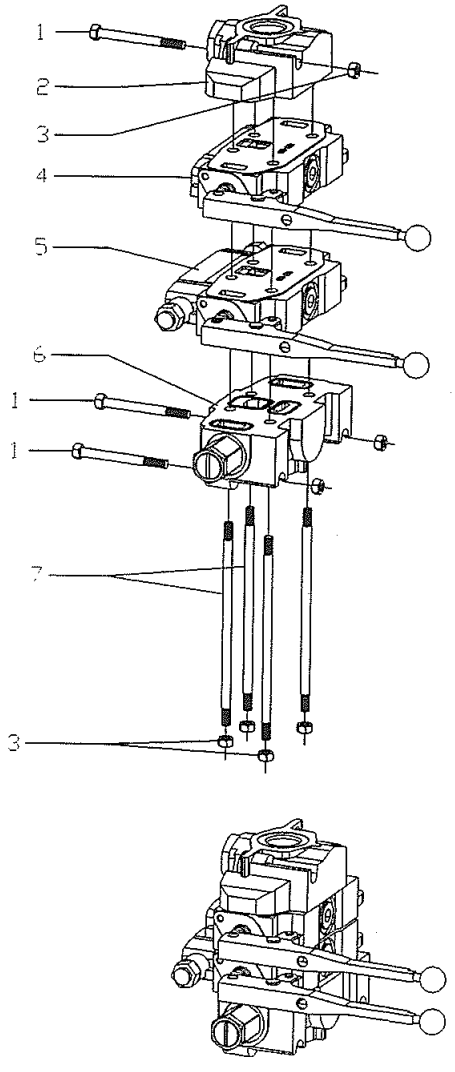
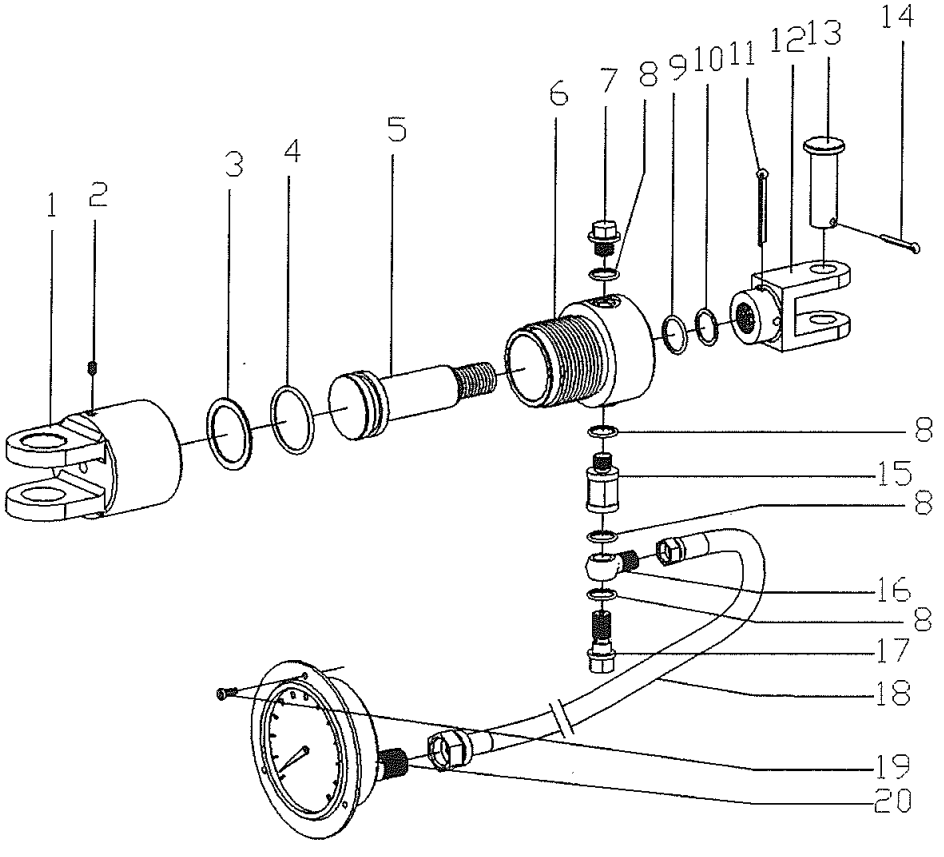


Table 9. Detailed table for Hydraulic valve bank (four connection valve)

Item	P/N	Description	Qty
1	KJD-231	Hex head bolt 3/8″ UNC×4″	4
2	KJD-232	Connection board assembly	1
3	KJD-233	Nylon nut 3/8″	8
4	KJD-234	Hand control valve assembly	1
5	KJD-235	Backup valve assembly	1
6	KJD-236	Overflow valve assembly	1
7	KJD-237	Bolt 3/8″ UNC×8 1/2″	4

8.9 Pulling cylinder **(Fig10. Table10)**



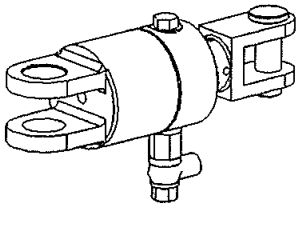


Table 10. Detailed table for pulling cylinder

Item	P/ N	Drawing No.	Description	Qty
1	KJD-240	TQ245.12-3	Cylinder end adapter	1
2	KJD-241	GB/T78	Fasten screwM6×10	1
3	KJD-242	GB/T3452.1	Retainer ring A45×50×1.5	1
4	KJD-243	GB1235-76	O ring 50×3.1	1
5	KJD-244	TQ245.12-2	Piston rod	1
6	KJD-245	TQ245.12-1	Cylinder body	1
7	KJD-246	JB1000	Screw plug M14×1.5	1
8	KJD-247	GB/T3452.1	O ring 18×2.4	4
9	KJD-248	GB1235-76	O ring 37×3.1	1
10	KJD-249	GB/T3452.1	Retainer ring A32.5×37×1.5	1
11	KJD-250	GB/T91	Cotter pin 5×50	1
12	KJD-251	XYQ12.YD-01.1	Suspending head	1
13	KJD-252	GB/T882	Pin shaft 20×60	1
14	KJD-253	GB/T91	Cotter pin 4×40	1
15	KJD-254	TQ345/35Y.1.15.1-03	Longer adapter	1
16	KJD-255	YG-5	Adapter	1
17	KJD-256	YG-6	Oil passage bolt	1
18	KJD-257		Hose 6-/700(M14×1.5-M20×1.5)	1
19	KJD-258	GB/T818	Cross head countersunk screw M5×8	3
20	KJD-259		Pressure gauge Y-100ZT(0-3600PSI)	1

9. **Table for wearing parts** (Stock quantity is recommended for tong's one year use, which varies according to purchasing period or usage in fact.)

Item	P/ N	Drawing No.	Description	Qty
1	KJD9625-21	KJD9625.1-4	Jaw set bolt	2
2	KJD9625-39	KJD9625.1.1-2	Reverse shaft	1
3	KJD9625-41	KJD9625.1.2-2	Die	48
4	KJD9625-42	TQ245.1.2-2	Roller shaft	20
5	KJD9625-49	TQ245.1.2-3	Roller	20
6	KJD9625-66	TQ245.3	Brake belt assembly	2
7	KJD9625-67	KJD9625.2	Centralizing assembly	75
8	KJD9625-71	KJD9625.2-1	Centralizing shaft	75
9	KJD9625-72	TQ245.2-1	Seal cushion	150
10	KJD9625-73	TQ245.2-3	Centralizing roller	75
11	KJD9625-74	TQ245.2-4	Washer	75
12	KJD9625-75	TQ245.2-5	Support cushion	75
13	KJD9625-78	GB/T1152	Oil cup M6×1	75
14	KJD9625-80	GB/T309	Roller 3.5×15.8	1500
15	KJD9625-242	GB/T3452.1	Retainer ring A45×50×1.5	1
16	KJD9625-243	GB1235	O seal ring 50×3.1	1
17	KJD9625-248	GB1235	O seal ring 37×3.1	1
18	KJD9625-249	GB/T3452.1	Retainer ring A32.5×37×1.5	1