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MODEL: KJD – 9625

CASING TONG

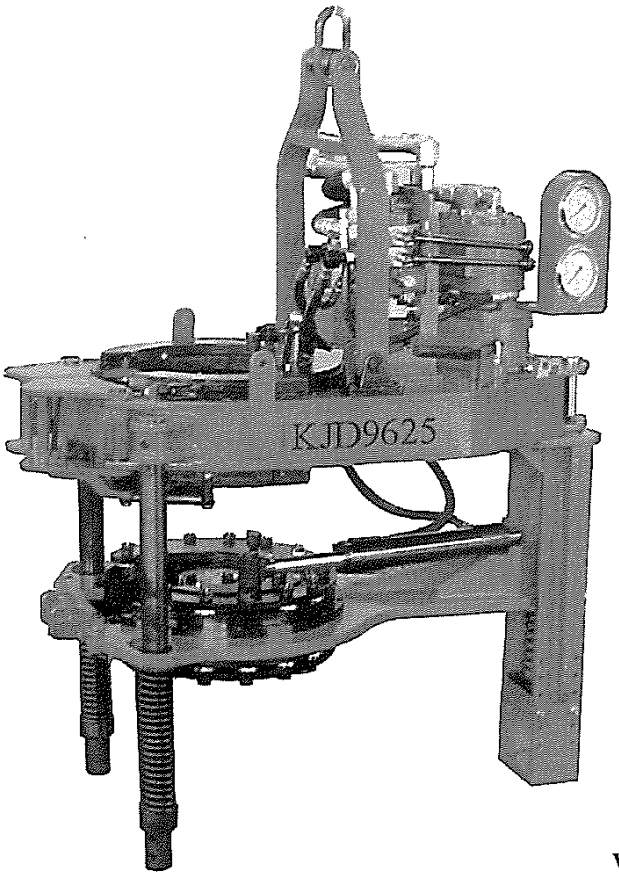
MAINTENANCE AND OPERATION MANUAL

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.

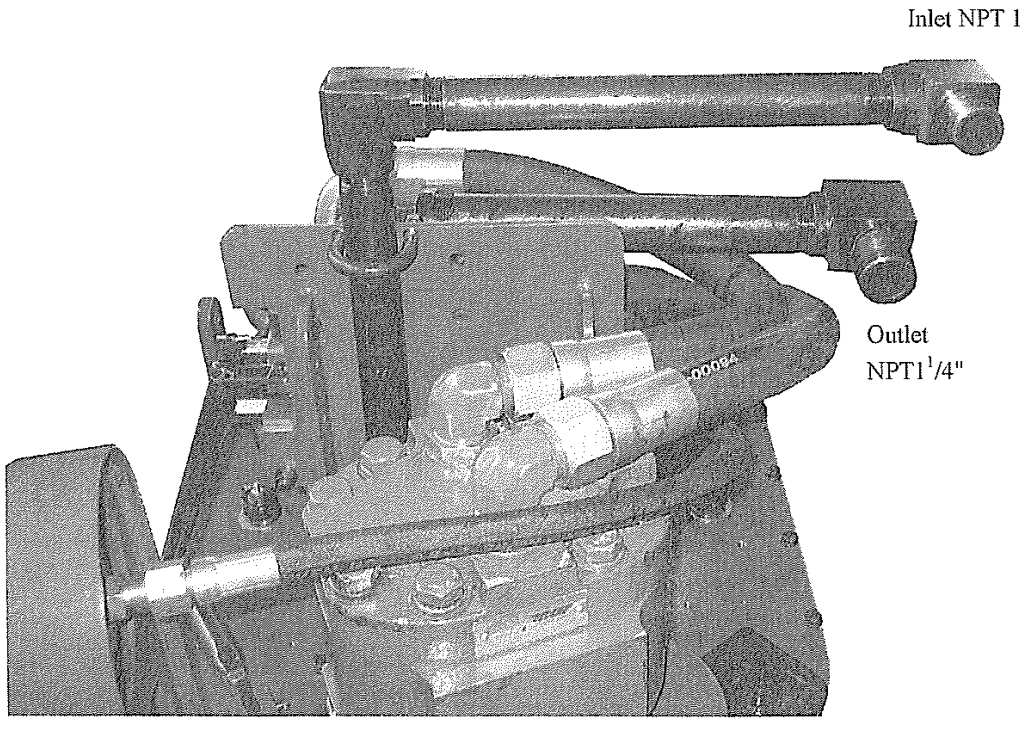


Fig. 1

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 Φ12mm, 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 General assembly (Fig2. Table2)

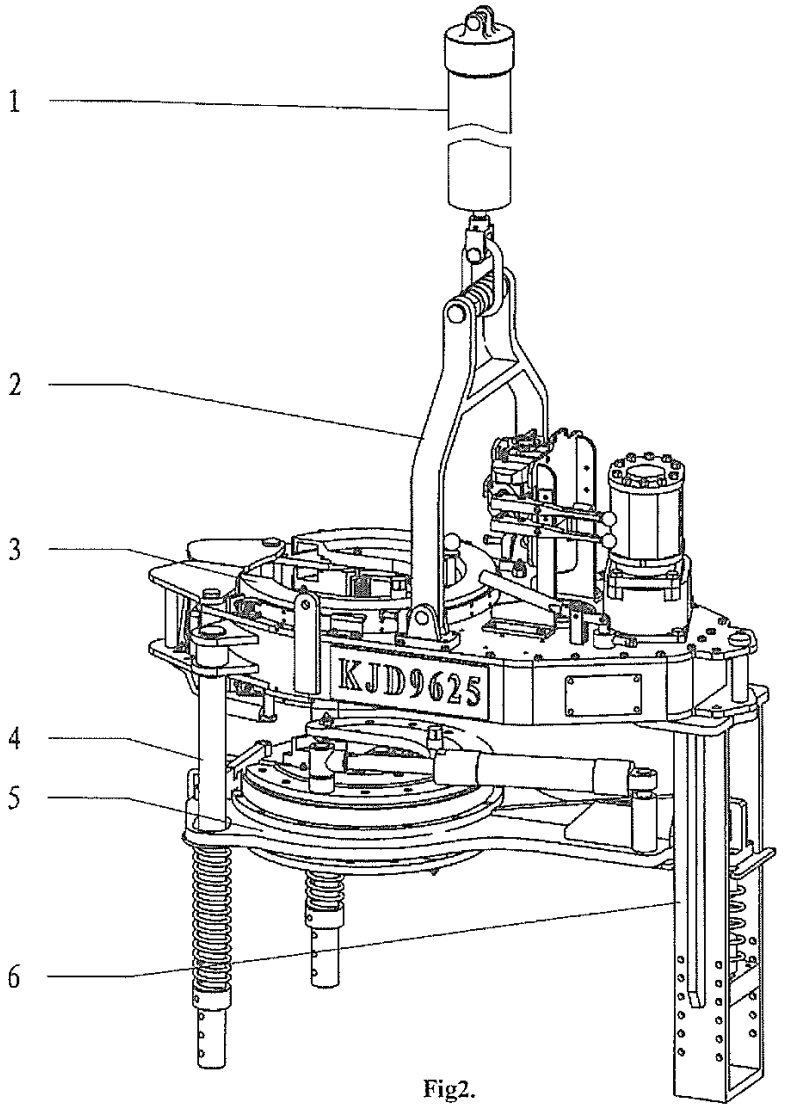


Fig2.

Table2. General assembly

Item	P/ N	Drawing No.	Description	Qty
1	KJD-01	TQ245.14(2)	Spring lifter	1
2	KJD-02	TQ245.15(2)	Suspending rod assembly	1
3	KJD-03	KJD9625.Z	Master tong	1
4	KJD-04	KJD9625.Q	Fore guide pole assembly	2
5	KJD-05	KJD9625.B	Backup tong	1
6	KJD-06	KJD9625.H	Back seat assembly	1

8.2 Master tong (Fig3. Table3)

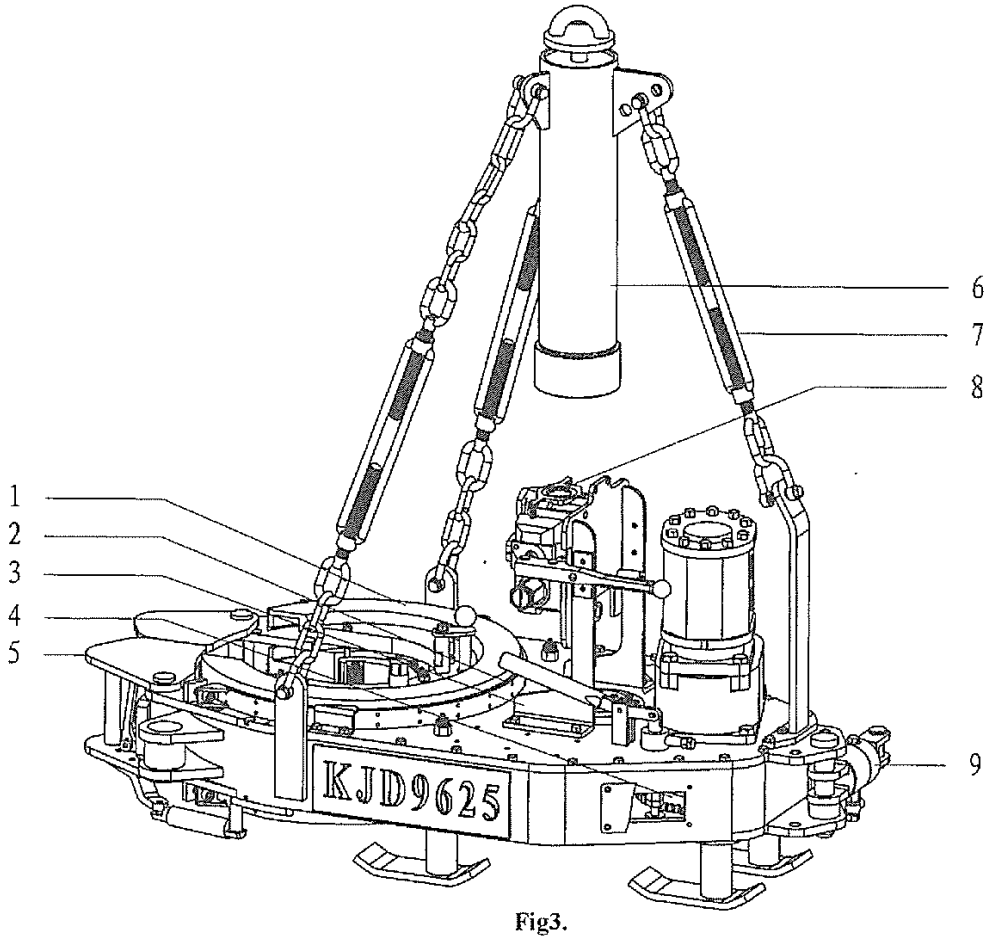
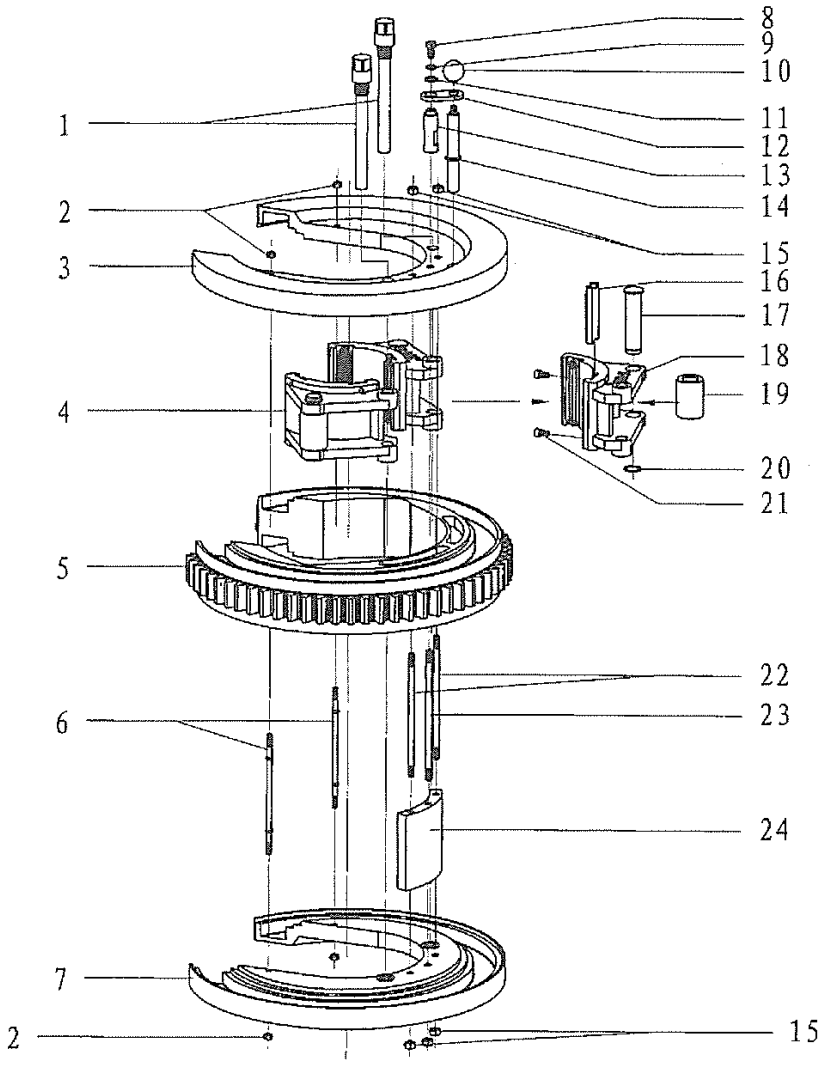


Fig3.

Table3. 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

8.3 Tong head assembly (Fig4. Table4)



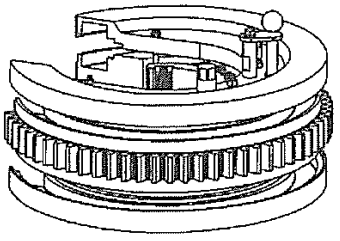


Fig4.

Table 4. 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 5/8"	2
	KJD-25	KJD9625.1.2(2)	Jaw set assembly (2) $8^5/_8$″	2
	KJD-26	KJD9625.1.2(3)	Jaw set assembly (3) 7″	2
	KJD-27	KJD9625.1.2(4)	Jaw set assembly (4) $5^1/_2$″	2
	KJD-28	KJD9625.1.2(5)	Jaw set assembly (5) 5″	2
	KJD-29	KJD9625.1.2(6)	Jaw set assembly (6) $4^1/_2$″.	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 5/8"	2
	KJD-44	KJD9625.1.2-1(2)	Jaw set(2) $8^5/_8$″	2
	KJD-45	KJD9625.1.2-1(3)	Jaw set(3) 7″	2
	KJD-46	KJD9625.1.2-1(4)	Jaw set(4) $5^1/_2$″	2
	KJD-47	KJD9625.1.2-1(5)	Jaw set(5) 5″	2
	KJD-48	KJD9625.1.2-1(6)	Jaw set(6) $4^1/_2$″	2
19	KJD-49	TQ245.1.2-3	Roller	10
20	KJD-50	GB/T894.1	Retaining rings for shafts(external) 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

8.4 Case body, centralizing and brake assembly (Fig5. Table5)

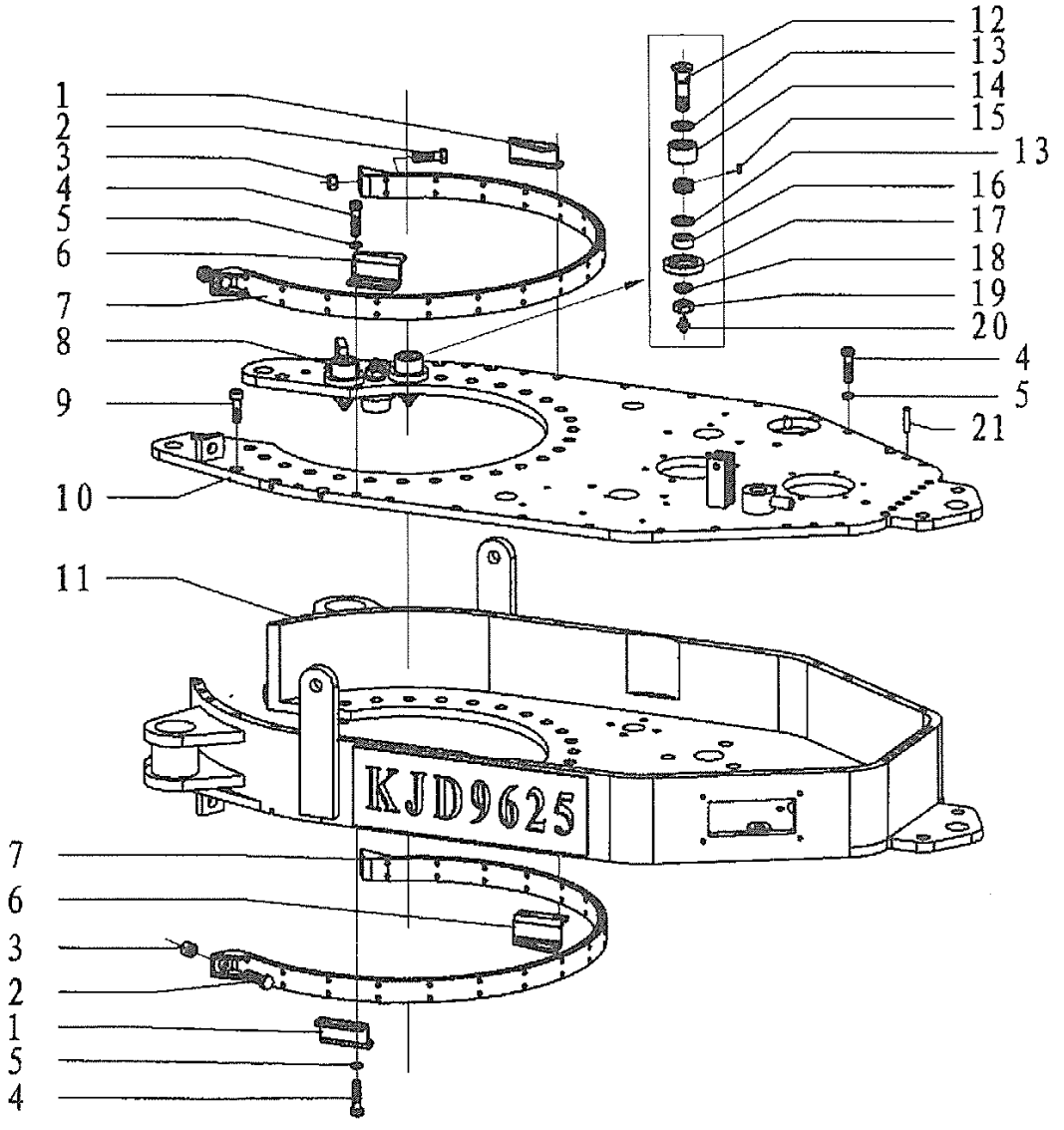


Fig5.

Table 5. 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

8.5 Case body and tong tail accessories (Fig6. Table6)

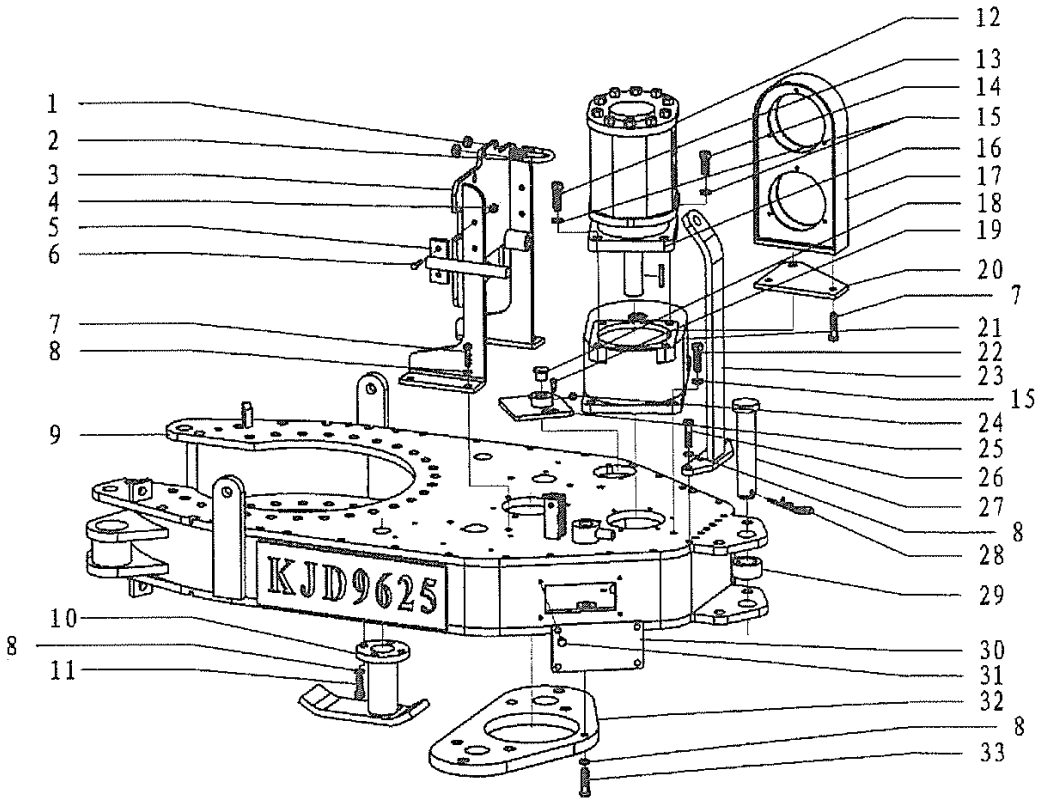


Fig6.

Table6. 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	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	KJD9625-4	Fixation plate	4
22	KJD-105		Hex head bolt 1/2″ ×1 1/16″	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

8.6 Transmission gear part (Fig7. Table7)

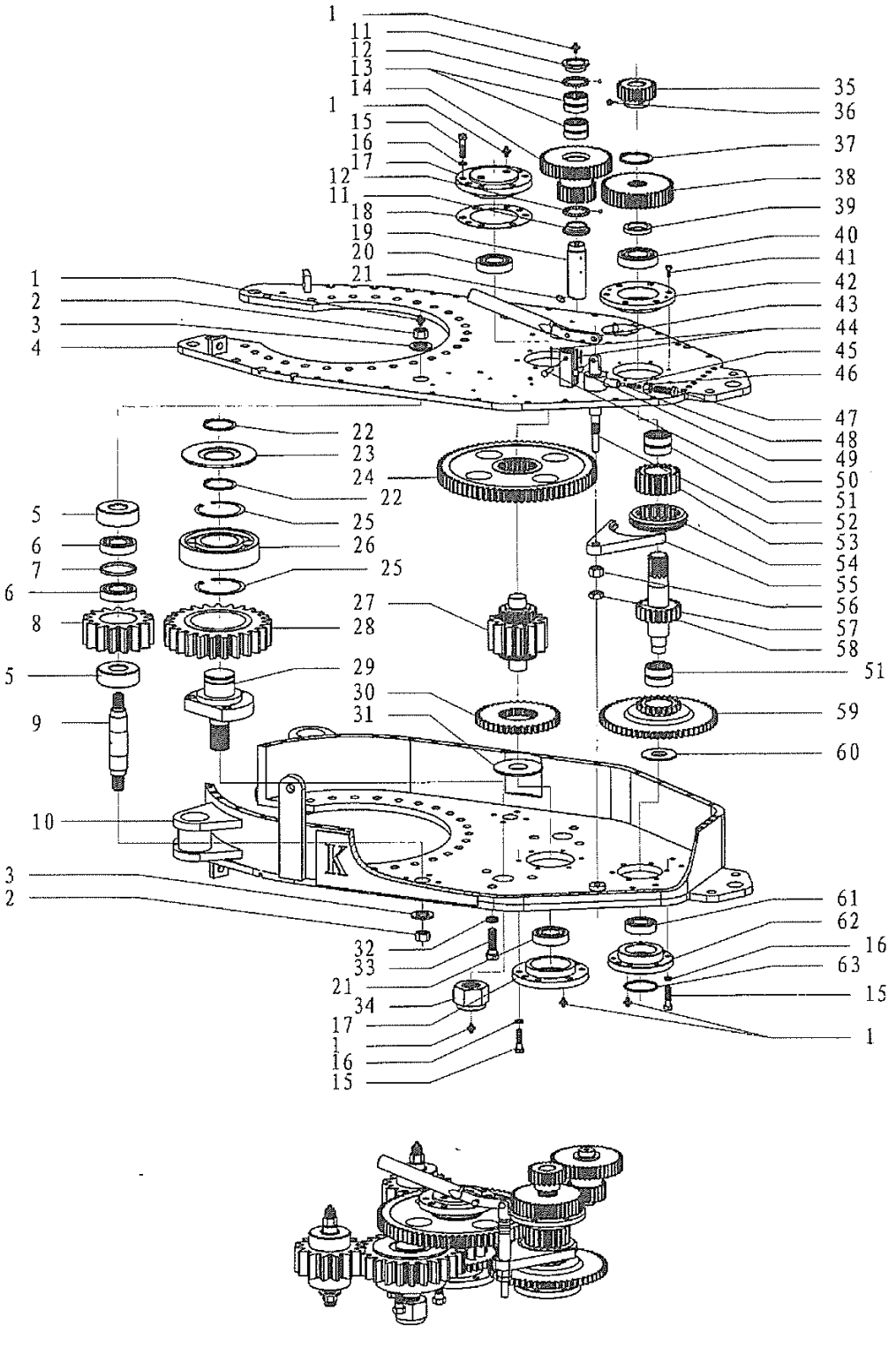


Fig7.

Table 7. 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	Retaining rings for shafts(external) 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	Retaining rings for shafts(external) 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

8.7 Safety door (Fig8. Table8)

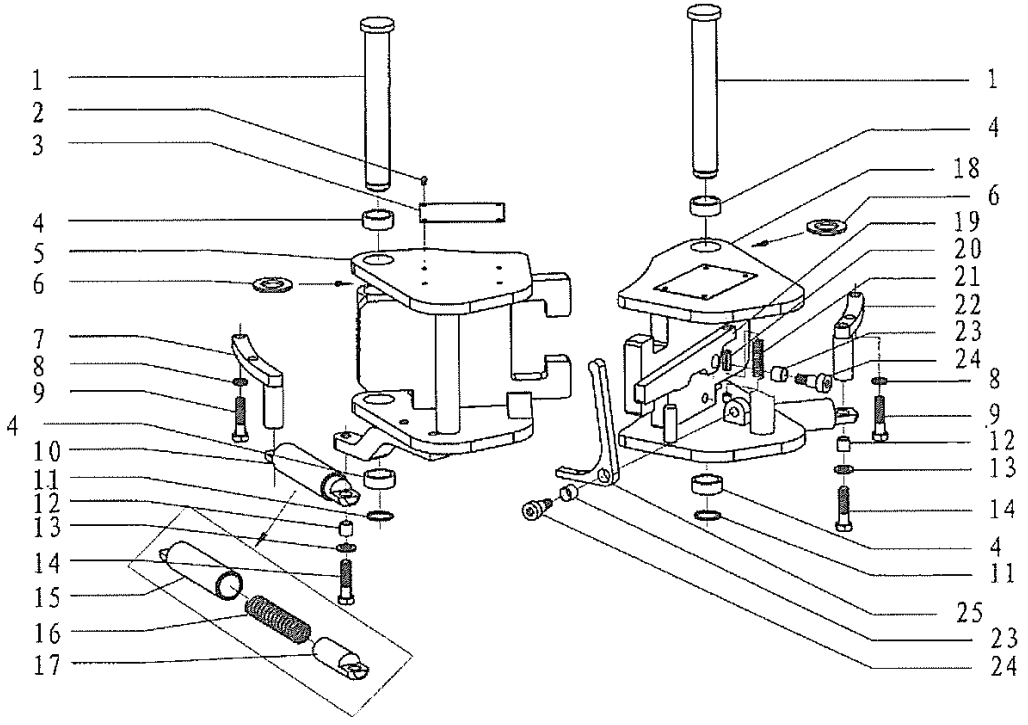


Fig8.

Table 8 . 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	Retaining rings for shafts(external) 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

8.8 Hydraulic combination valve and tube (Fig9. Table9)

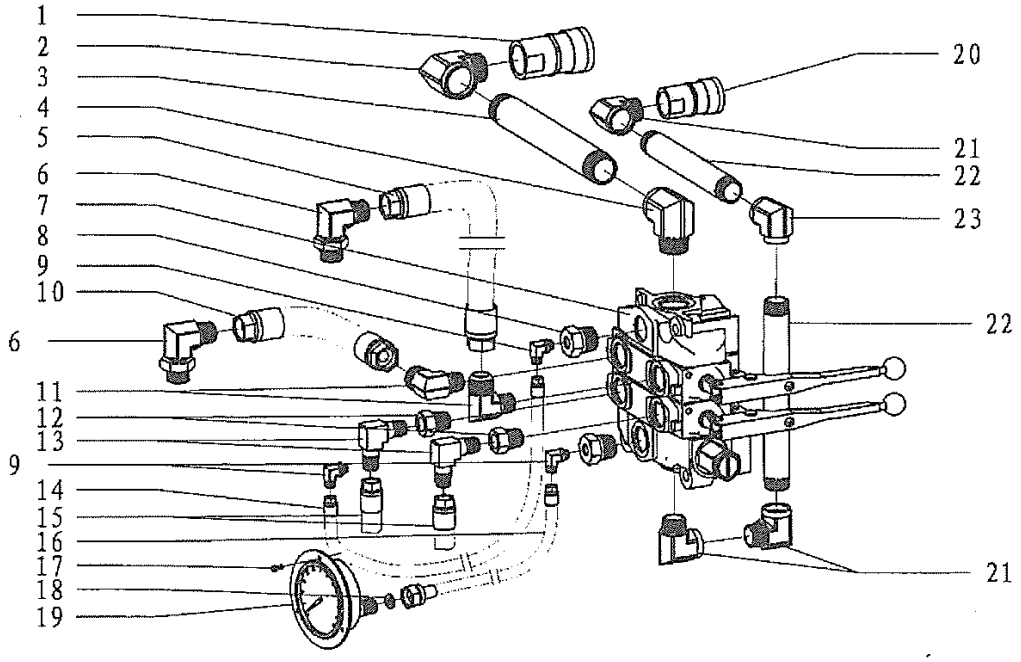


Fig9.

Table9 . Hydraulic combination valve and tube

Item	P/ N	Drawing No.	Description	Qty
1	KJD-300	KJD9625.18.3	Quick exchange adaptor(2 1/8-12UN)	1
2	KJD-301	KJD9625.18-7	Bend adaptor(NPT1 1/4)	1
3	KJD-302	KJD9625.18-6	Tube (NPT1 1/4)	1
4	KJD-303	KJD9625.18-5	Bend adaptor(NPT1 1/4in -NPT1)	1
5	KJD-304		Inlet Hose (1 5/16-12UN)	1
6	KJD-305	KJD9625.18.2	Bend adaptor(1 5/16-12UN)	2
7	KJD-306		Hydraulic combination valve assembly (2)	1
8	KJD-307	KJD9625.18-1	Adaptor(NPT1-9/16UNF)	2
9	KJD-308	KJD9625.18.1	Bend adaptor(9/16-18UNF)	3
10	KJD-309		Outlet Hose (1 5/16-12UN)	1
11	KJD-310	KJD9625.18-4	Bend adaptor(1 5/16-12UN-NPT3/4)	2
12	KJD-311	KJD9625.18-2	Adaptor(NPT3/4-NPT1/2)	2
13	KJD-312	KJD9625.18-3	Right angle adaptor(NPT1/2)	2
14	KJD-313		Hose 8□-600(9/16UNF)	1
15	KJD-314		Hose 10□-1400(NPT1/2)	2
16	KJD-315		Hose 8□-850(M20×1.5-9/16UNF)	1
17	KJD-316	GB/T818	Bolt M5×8	3
18	KJD-317		PTFE Washer	1
19	KJD-318		GuageY-100ZT(0-3600PSI)	1
20	KJD-319	KJD9625.18.4	Quick exchange adaptor adaptor(1 7/8-12UN)	1
21	KJD-320	KJD9625.18-10	Bend adaptor(NPT1)	1
22	KJD-321	KJD9625.18-9	Tube (NPT1)	2
23	KJD-322	KJD9625.18-8	Bend adaptor(NPT1)	3

8.8.1 Hydraulic valve bank (three connection valve) (Fig10. Table10)

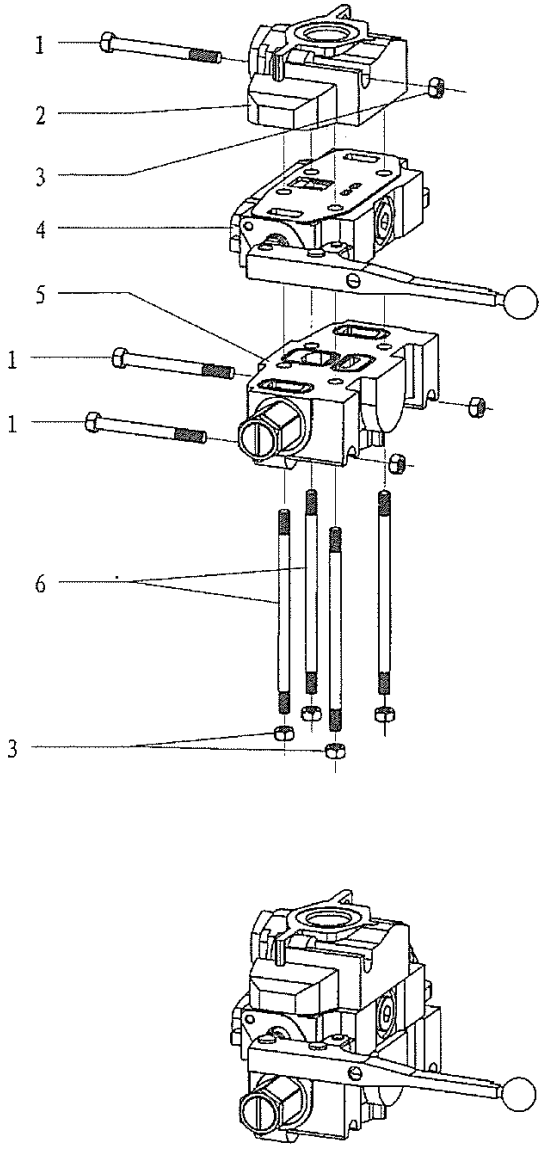


Fig10.

Table10 . 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	4

8.8.2 Hydraulic valve bank (four connection valve) (Fig11. Table11)

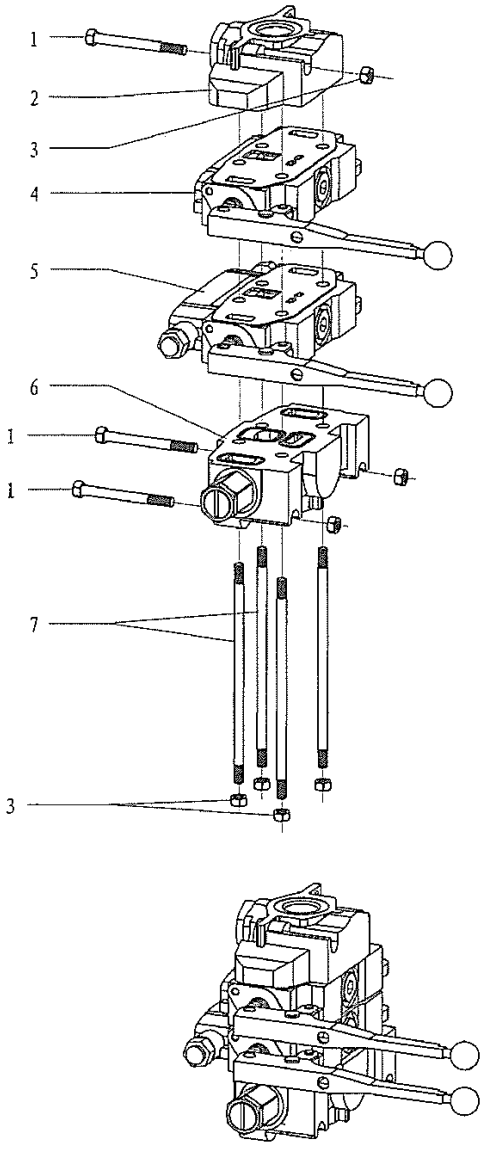


Fig11.

Table 11. 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	4

8.8.3 Quick exchange adaptor adaptor(2 1/8-12UN) (Fig16. Table16)

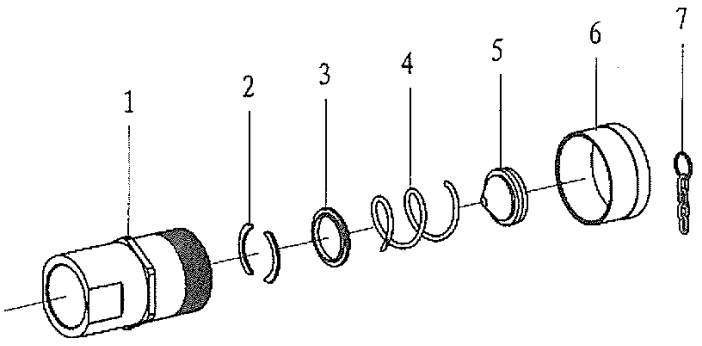


Fig16.

Table16 . Quick exchange adaptor adaptor(2 1/8-12UN)

Item	P/ N	Drawing No.	Description	Qty
1	KJD-330	KJD9625.18.3-2	Adaptor body	1
2	KJD-331	KJD9625.18.3-5	Clip	2
3	KJD-332	KJD9625.18.3-4	Washer	1
4	KJD-333	KJD9625.18.3-3	Spring	1
5	KJD-334	KJD9625.18.3.1	Core	1
6	KJD-335	KJD9625.18.3-1	End cover	1
7	KJD-336	KJD9625.18.3.2	Combination chain	1

8.8.4 Quick exchange adaptor adaptor(1 7/8-12UN) (Fig17. Table17)

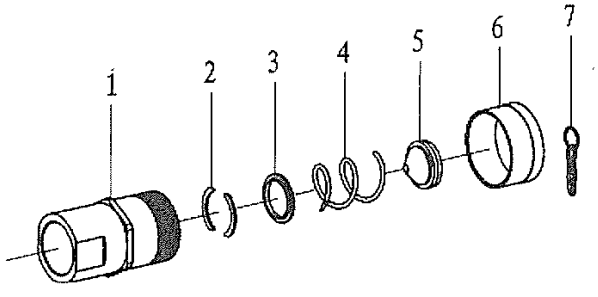


Fig17.

Table17 . Quick exchange adaptor adaptor(1 7/8-12UN)

Item	P/ N	Drawing No.	Description	Qty
1	KJD-340	KJD9625.18.4-2	Adaptor body	1
2	KJD-341	KJD9625.18.4-5	Clip	2
3	KJD-342	KJD9625.18.4-4	Washer	1
4	KJD-343	KJD9625.18.4-3	Spring	1
5	KJD-344	KJD9625.18.4.1	Core	1
6	KJD-345	KJD9625.18.4-1	End cover	1
7	KJD-346	KJD9625.18.4.2	Combination chain	1

8.8.5 Bend adaptor(1 5/16-12UN) (Fig18. Table18)

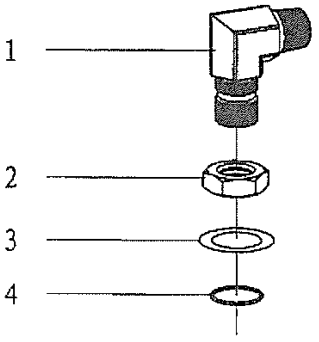


Fig18.

Table18 . Bend adaptor(1 5/16-12UN)

Item	P/ N	Drawing No.	Description	Qty
1	KJD-350	KJD9625.18.2-1	Bend adaptor(1 5/16-12UN)	1
2	KJD-351	KJD9625.18.2-2	Nut 1 5/16	1
3	KJD-352		Washer Φ44.5× Φ30.5×1.5	1
4	KJD-353	GB1235-76	O Ring 35×3.1	1

8.8.6 Bend adaptor(9/16-18UNF) (Fig19. Table19)

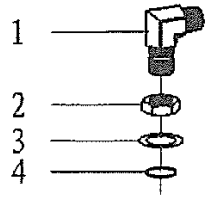


Fig19.

Table19 . Bend adaptor(9/16-18UNF)

Item	P/ N	Drawing No.	Description	Qty
1	KJD-360	KJD9625.18.1-1	Bend adaptor(9/16-18UNF)	1
2	KJD-361	KJD9625.18.1-2	Nut 9/16	1
3	KJD-362		Washer Φ20.3× Φ12.7×1	1
4	KJD-363	GB1235-76	O Ring 16×2.4	1

8.9 Pulling cylinder (Fig20. Table20)

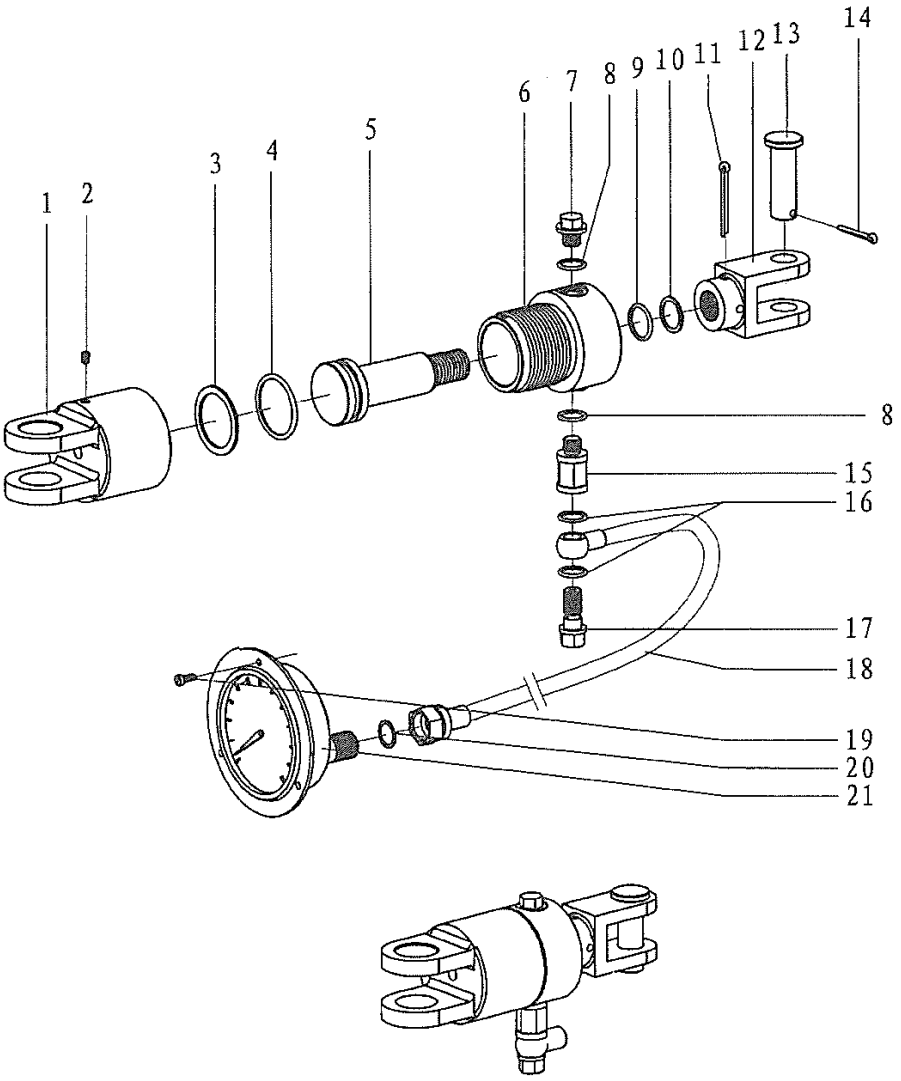


Fig20.

Table 20. 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	GB1235-76	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	GB1235-76	O ring 18×2.4	2
9	KJD-248	GB1235-76	O ring 37×3.1	1
10	KJD-249	GB1235-76	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		Copper washer Φ20×Φ14×3	2
17	KJD-256	XYQ12Z-40.02	Oil passt bolt	1
18	KJD-257		Hose 8-/750(Φ14-M20×1.5)	1
19	KJD-258	GB/T818	Cross head countersunk screw M5×8	3
20	KJD-260		PTFE Washer	1
21	KJD-259		Pressure gauge Y-100ZT(0-3600PSI)	1

8.10 Backup tong (Fig21. Table21)

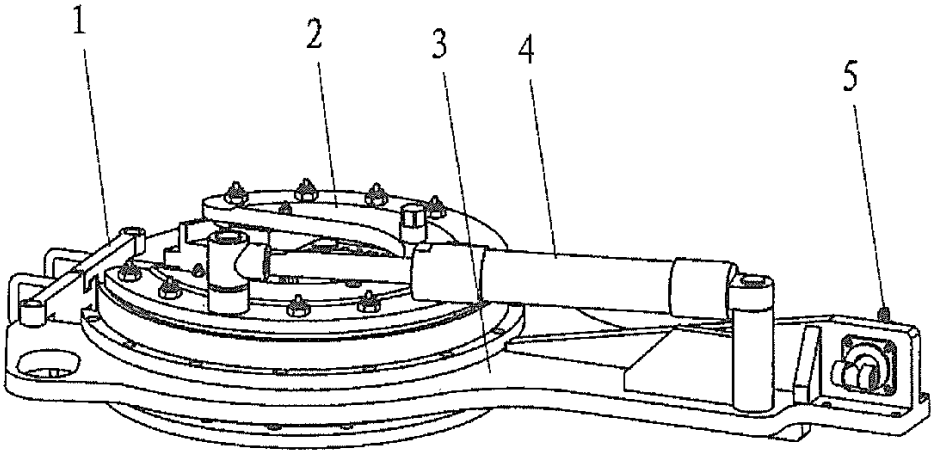


Fig21.

Table 21. Backup tong

Item	P/ N	Drawing No.	Description	Qty
1	KJD-370	KJD9625.B.5	Backup tong safty door assembly	1
2	KJD-371	KJD9625.B.1	Backup tong head	1
3	KJD-372	KJD9625.B.2	Backup tong body	1
4	KJD-373	KJD9625.B.3	Clamp hydraulic cylinder	1
5	KJD-374	KJD9625.B.4	Sensor hydraulic cylinder	1

8.11 Backup tong head (Fig22. Table22)

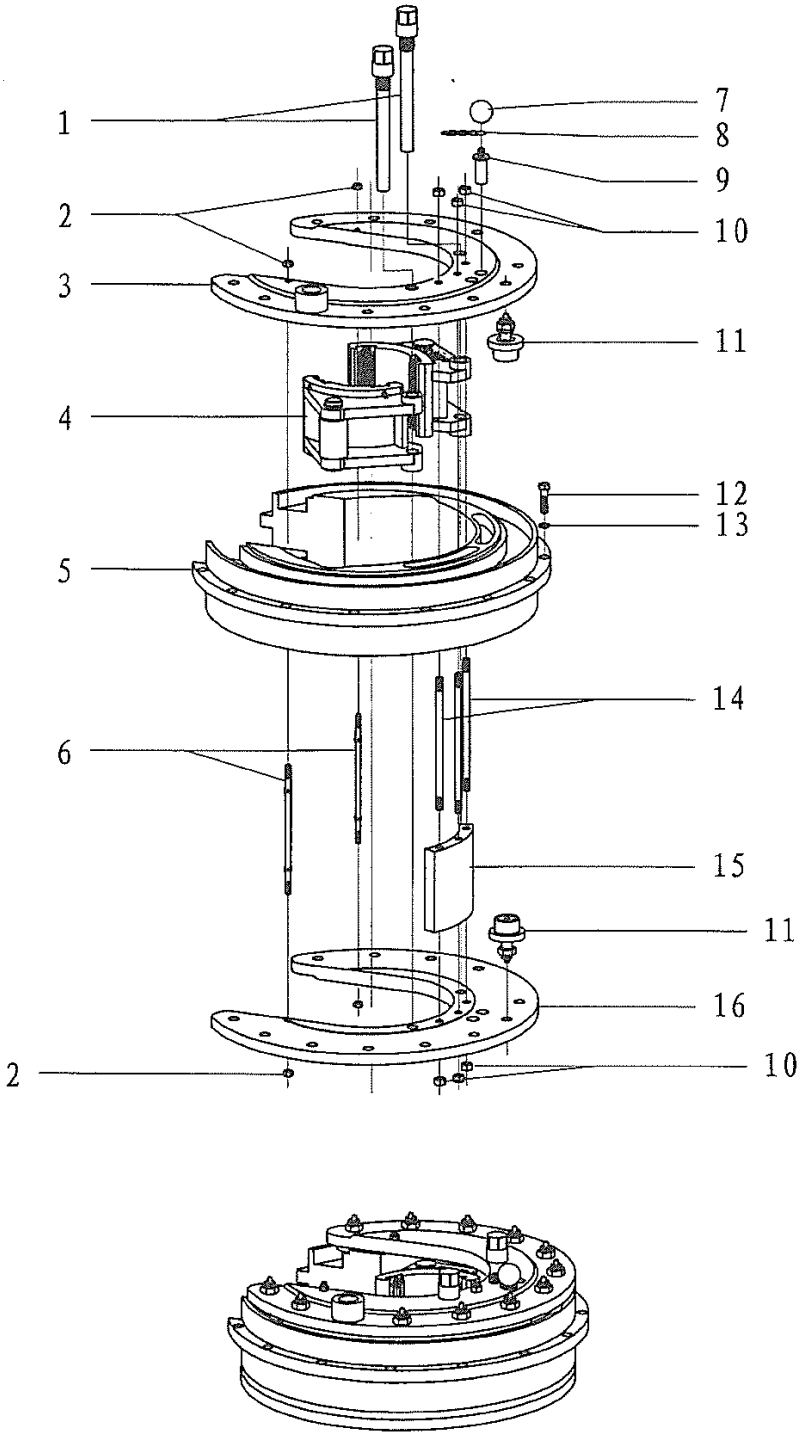


Fig22.

Table 22. Backup tong head

Item	P/ N	Drawing No.	Description	Qty
1	KJD-380	KJD9625.B.1-5	Jaw set bolt	2
2	KJD-381		Hex avoid lossen nut 5/16 "	4
3	KJD-382	KJD9625.B.1-1	Up jaw braket	1
4	*KJD-24*	*KJD9625.1.2(1)*	*Jaw set assembly (1) 9 5/8"*	*2*
	KJD-25	*KJD9625.1.2(2)*	*Jaw set assembly (2) $8^{5}/_{8}$ "*	*2*
	KJD-26	*KJD9625.1.2(3)*	*Jaw set assembly (3) 7 "*	*2*
	KJD-27	*KJD9625.1.2(4)*	*Jaw set assembly (4) $5^{1}/_{2}$ "*	*2*
	KJD-28	*KJD9625.1.2(5)*	*Jaw set assembly (5) 5 "*	*2*
	KJD-29	*KJD9625.1.2(6)*	*Jaw set assembly (6) $4^{1}/_{2}$ "*	*2*
5	KJD-383	KJD9625.B.1-2	Ramp body	1
6	KJD-384	KJD9625.B.1-3	Support screw	2
7	KJD-385	KJD9625.1.1-1	Handle ball	1
8	KJD-386	KJD9625.B.1-7	Combination chain	1
9	KJD-387	KJD9625.B.1-6	Reverse shaft	1
10	KJD-388		Hex avoid lossen nut 3/8"	6
11	KJD-389	KJD9625.2	Centralizing assembly	25
12	KJD-390		Hex head bolt3/8"×1 1/2"	13
13	KJD-391	GB93-87	Spring washer10	13
14	KJD-392	KJD9625.B.1-8	Double head screw	3
15	KJD-393	KJD9625.1-6	Back bend board	2
16	KJD-394	KJD9625.B.1-4	Down jaw braket	1

8.12 Clamp hydraulic cylinder (Fig23. Table23)

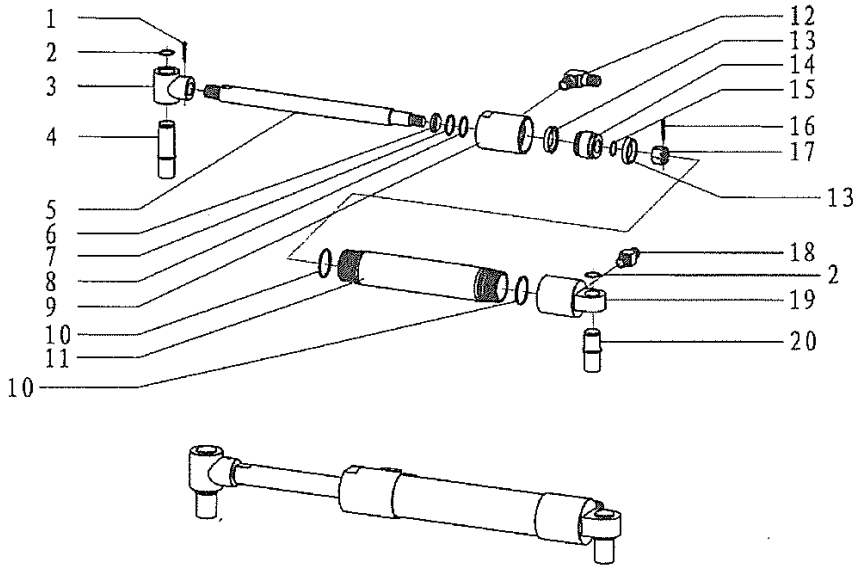


Fig23.

Table 23. Clamp hydraulic cylinder

Item	P/N	Drawing No.	Description	Qty
1	KJD-400	GB/T91	Cotter pin 4×50	1
2	KJD-401	GB/T894.1	Retaining rings for shafts(external) 30	2
3	KJD-402	KJD9625.B.3-2	Rod adaptor	1
4	KJD-403	KJD9625.B.3-1	Pin shaft (1)	1
5	KJD-404	KJD9625.B.3-3	Piston rod	1
6	KJD-405	GB/T10708.3	Seal FA40×32×5	1
7	KJD-406	GB/T3452.1	Retainer ring A32.5×37×1.5	1
8	KJD-407	GB/T3452.1	O Ring31.5×3.55	1
9	KJD-408	KJD9625.B.3-4	Cylinder end adaptor(1)	1
10	KJD-409	GB/T3452.1	O Ring58×3.55	2
11	KJD-410	KJD9625.B.3-5	Oil cylinder	1
12	KJD-411	KJD9625.18-3	Right angle adaptor(NPT1/2)	1
13	KJD-412	GB/T10708.1	Yseal Y50×40×5	2
14	KJD-413	KJD9625.B.3-6	Piston	1
15	KJD-414	GB/T3452.1	O Ring25×2.65	1
16	KJD-415	GB/T91	Cotter pin 4×36	1
17	KJD-416	GB/T6178	Nut M20	1
18	KJD-417	KJD9625.B.3-9	Adaptor	1
19	KJD-418	KJD9625.B.3-7	Cylinder end adaptor(2)	1
20	KJD-419	KJD9625.B.3-8	Pin shaft (2)	1

8.13 Sensor hydraulic cylinder (Fig24. Table24)

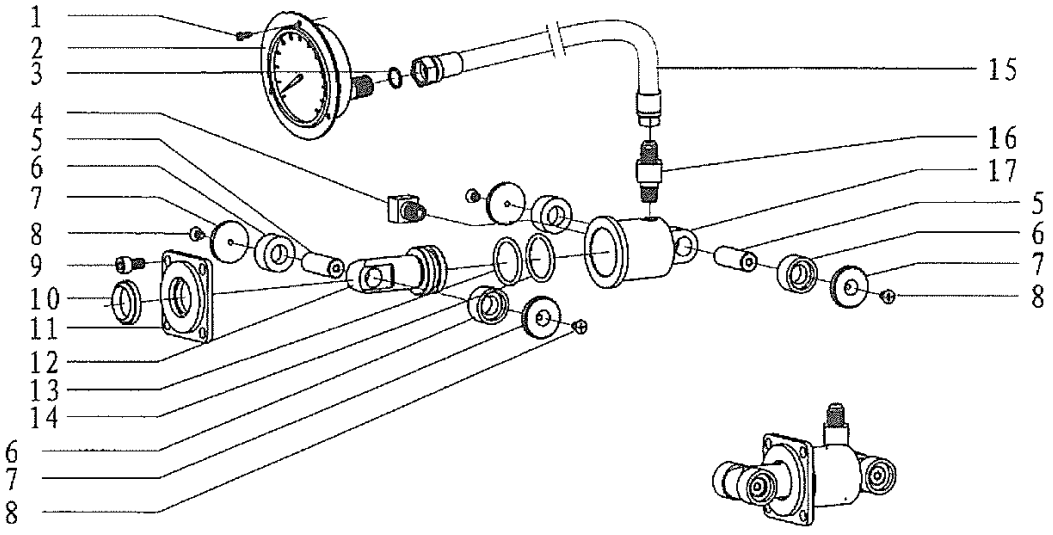


Fig24.

Table 24. Sensor hydraulic cylinder

Item	P/N	Drawing No.	Description	Qty
1	KJD-420	GB/T818	Cross recessed countersunk head screws M5×8	3
2	KJD-421		Guage Y-100ZT(0-3600PSI)	1
3	KJD-422		PTFE Washer	
4	KJD-423	JB/ZQ449-1986	Screw stopper NPT1/4	1
5	KJD-424	KJD9625.B.4-2	Roller shaft	2
6	KJD-425	KJD9625.B.4-1	Roller	4
7	KJD-426	GB/T891	Retainer ring Φ16	4
8	KJD-427		Cross recessed countersunk head screws 10×1/2"	4
9	KJD-428		Hex head bolt5/16"×5/8"	4
10	KJD-429	GB/T10708.3	Seal FA36×28×5	1
11	KJD-430	KJD9625.B.4-4	End cover	1
12	KJD-431	KJD9625.B.4-3	Piston Rod	1
13	KJD-432	GB/T3452.1	Retainer ring A34.5×40×1.5	1
14	KJD-433	GB/T3452.1	O Ring 33.5×3.55	1
15	KJD-434		Hose 8-/1200(M20×1.5-9/16UNF)	1
16	KJD-435	KJD9625.B.4-6	Adaptor	1
17	KJD-436	KJD9625.B.4-5	Cylinder body	1

8.14 Backup tong safty door assembly (Fig25. Table25)

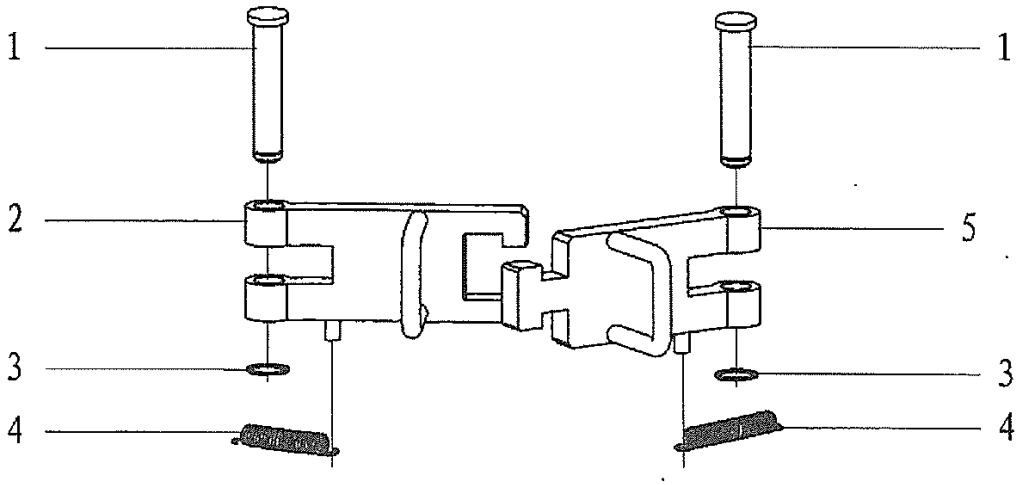


Fig25.

Table 25. Backup tong safty door assembly

Item	P/ N	Drawing No.	Description	Qty
1	KJD-440	KJD9625.B.5-1	Door shaft	2
2	KJD-441	KJD9625.B.5.1	Left door	1
3	KJD-442	GB/T894.1	Retaining rings for shafts(external) 20	2
4	KJD-443	XQ12X.1-62	Drag spring (Φ2×Φ12×63)	2
5	KJD-444	KJD9625.B.5.2	Right door	1

8.15 Fore guide pole assembly (Fig26. Table26)

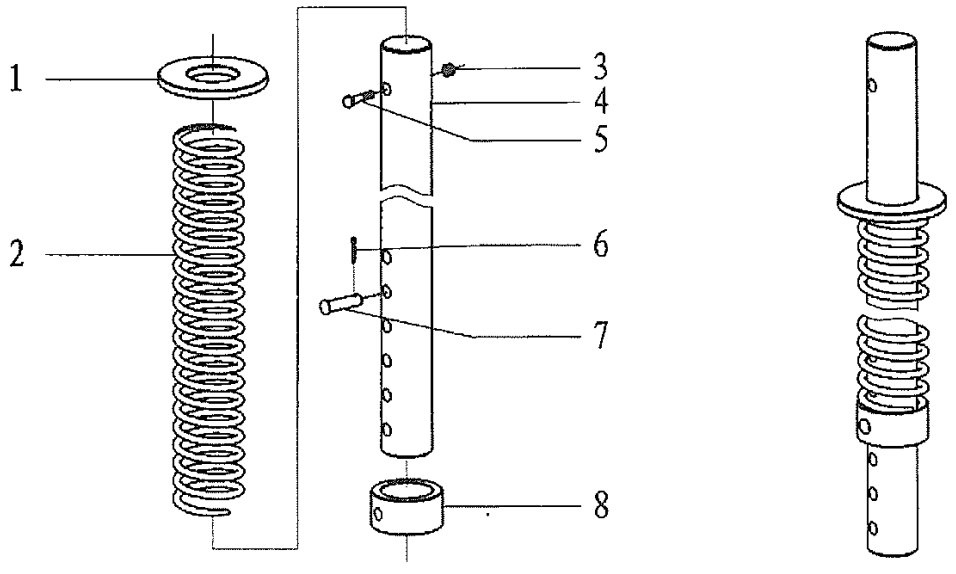


Fig26.

Table 26. Fore guide pole assembly

Item	P/ N	Drawing No.	Description	Qty
1	KJD-450	KJD9625.Q-2	Washer	1
2	KJD-451	KJD9625.Q-3	Fore guide pole spring	1
3	KJD-452		Hex avoid lossen nut 1/2 "	1
4	KJD-453	KJD9625.Q-1	Fore guide pole	1
5	KJD-454		Hex bolt 1/2"×3 1/4"	1
6	KJD-455	GB/T91	Cotter pin 3.2×30	1
7	KJD-456	GB/T882	Pin shaft B12×90	1
8	KJD-457	KJD9625.Q-4	Fastness ring	1

8.16 Back seat assembly (Fig27. Table27)

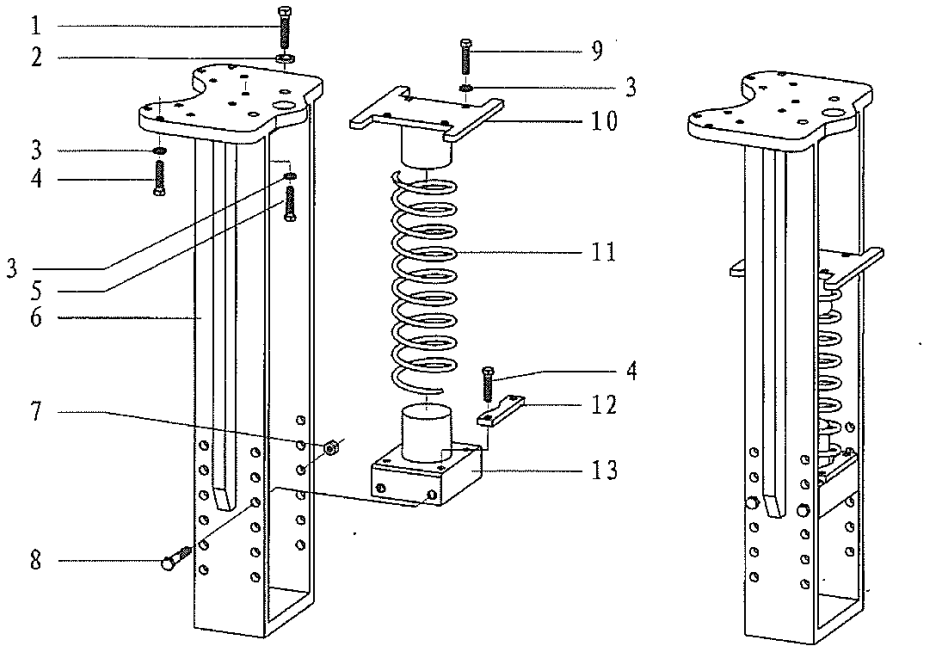


Fig27.

Table 27. Back seat assembly

Item	P/ N	Drawing No.	Description	Qty
1	KJD-460		Hex bolt 5/8"×1 1/2"	2
2	KJD-461	GB93-87	Spring washer16	2
3	KJD-462	GB93-87	Spring washer10	14
4	KJD-463		Hex bolt 3/8"×1 1/2"	12
5	KJD-464		Hex bolt 3/8"×2 1/4"	2
6	KJD-465	KJD9625.H.1	Back suspend seat	1
7	KJD-466		Hex avoid lossen nut 1/2 "	2
8	KJD-467		Hex bolt 1/2"×8"	2
9	KJD-468		Hex bolt 3/8"×1 1/4"	4
10	KJD-469	KJD9625.H.2	Location seat	1
11	KJD-470	KJD9625.H-1	Back suspend seatSpring	1
12	KJD-471	KJD9625.H-2	Fastness block	1
13	KJD-472	KJD9625.H.3	Support seat	1

8.17 Spring lifter **(Fig28. Table28)**

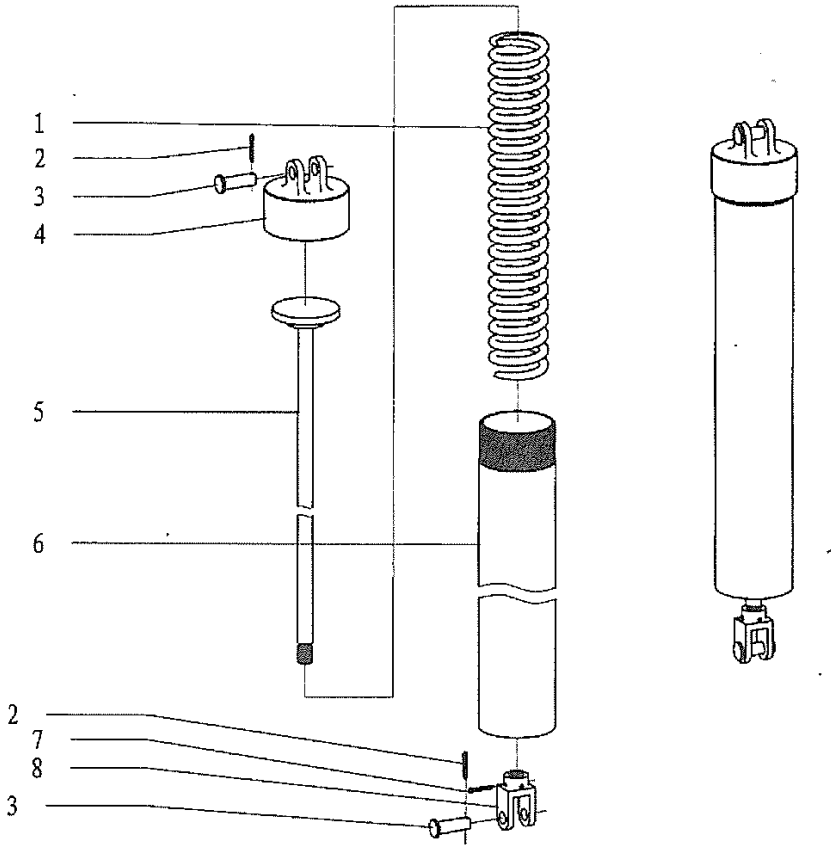


Fig28.

Table 28. Spring lifter

Item	P/ N	Drawing No.	Description	Qty
1	KJD-480	TQ340/35Y.1.13-01	Spring	1
2	KJD-481	GB91-86	Cotter pin 5×30	2
3	KJD-482	GB882-86	Pin shaft 20×70	2
4	KJD-483	TQ245.14(2)-1	End cover	1
5	KJD-484	TQ340/35Y.1.13.1	Suspend rod	1
6	KJD-485	TQ245.14(2).1	Suspend cylinder	1
7	KJD-486	GB91-86	Cotter pin 5×50	1
8	KJD-487	XYQ12.YD-01.1	Suspend head	1

8.18 Suspending rod assembly (Fig29. Table29)

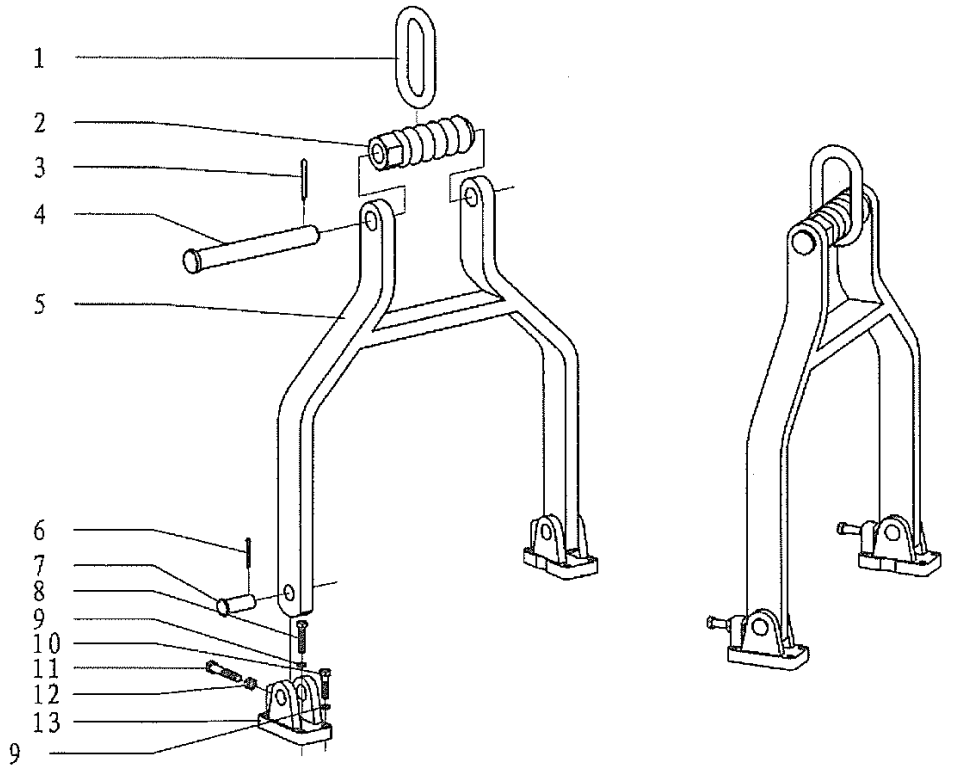


Fig29.

Table 29. Suspending rod assembly

Item	P/ N	Drawing No.	Description	Qty
1	KJD-490	TQ245.15(2)-3	Flying ring	1
2	KJD-491	TQ245.15(2)-1	Screw bar	1
3	KJD-492	GB/T91	Cotter pin 6×45	1
4	KJD-493	TQ245.15(2)-2	Pin shaft	1
5	KJD-494	TQ245.15(2).1	Suspending rod	1
6	KJD-495	GB/T91	Cotter pin 6×40	2
7	KJD-496	GB/T882	Pin shaft B25×70	2
8	KJD-497		Hex bolt 3/8″×1 1/2″	4
9	KJD-498	GB93-87	Spring Washer10	8
10	KJD-499		Hex bolt 3/8″×2 1/4″	4
11	KJD-500		Hex bolt 1/2″×2 1/4″	2
12	KJD-501		Hex thin nut 1/2″	2
13	KJD-502	TQ245.15(2)-4	Suspend seat	2

9. Table of Quick-wearing or Spare Parts (recommended for the one-year storage of one tong, actual figures may vary according to the purchase period and the optional pieces.)

Item	P/ N	Drawing No.	Description	Qty
1	KJD-21	KJD9625.1-4	Jaw set bolt	2
2	KJD-39	KJD9625.1.1-2	Reverse shaft	1
3	KJD-41	KJD9625.1.2-2	Die	48
4	KJD-42	TQ245.1.2-2	Roller shaft	20
5	KJD5-49	TQ245.1.2-3	Roller	20
6	KJD-51		Hexagon socket head cap screw 5/16″ UNC×1/2″	96
7	KJD-66	TQ245.3	Brake belt assembly	2
8	KJD-67	KJD9625.2	Centralizing assembly	75
9	KJD-71	KJD9625.2-1	Centralizing shaft	75
10	KJD-72	TQ245.2-1	Seal cushion	150
11	KJD-73	TQ245.2-3	Centralizing roller	75
12	KJD-74	TQ245.2-4	Washer	75
13	KJD-75	TQ245.2-5	Support cushion	75
14	KJD-76		Spring washer 5/8″	75
15	KJD-77		Hex nut 5/8″	75
16	KJD-78	GB/T1152	Oil cup M6×1	75
17	KJD-80	GB/T309	Roller 3.5×15.8	1500
18	KJD-242	GB/T3452.1	Retainer ring A45×50×1.5	1
19	KJD-243	GB1235	O Ring 50×3.1	1
20	KJD-248	GB1235	O Ring 37×3.1	1
21	KJD-249	GB/T3452.1	Retainer ring A32.5×37×1.5	1
22	KJD-380	KJD9625.B.1-5	Jaw set bolt	2
23	KJD-387	KJD9625.B.1-6	Reverse shaft	1
24	KJD-407	GB/T3452.1	O Ring31.5×3.55	1
25	KJD-412	GB/T10708.1	Y seal Y50×40×5	2