



OPERATION, MAINTENANCE AND PARTS MANUAL TRUCK - MOUNTED CONCRETE BOOM PUMP MODEL: **ST48R5**



REED, provides this manual for the guidance of all owners, operators and servicing personnel in order to obtain the longest possible trouble-free service. It contains data, specifications, warranty, schematics, operating instructions, lubrication procedures, maintenance procedures, illustrated parts breakdown, vendor information, service bulletins, and safety rules.

Serial No.:

Date Delivered:

Customer:

NOTE: Additional copies of this manual may be obtained through the **REED** Parts Department.

FIRST EDITION: JANUARY 20, 2009
PART NUMBER: **ST48R5**



REED

**TRUCK MOUNTED CONCRETE BOOM PUMPS
TWO • FOUR • SIX
2 – 4 – 6
WARRANTY**

REED warrants each of its new Truck Mounted Concrete Boom Pumps to be free of defects in material and workmanship under normal use and service for a period of Two • Four • Six years from date of delivery based on the following conditions:

- Two (2) year or 4000 pumping hours whichever comes first, covering "bumper to bumper" excluding:
 - ✓ Truck (truck is covered under Mack warranty)
 - ✓ Wear Parts
- Four (4) years covering the Seimens PLC (Programmable Logic Control)
- Six (6) years covering the steel structural parts

The **WARRANTY** is issued **ONLY** to the **INITIAL USER**. The warranty periods begins when the product is delivered to the initial user or when first put into service, whichever occurs first. Said warranty is void if the machine is subject to misuse, neglect, accident or abuse.

The **STRUCTURAL WARRANTY** will not be honored unless; regular inspections have taken place and repairs as recommended as a result of the inspection. Inspection guidelines are detailed in the **ACPA BOOM INSPECTION BOOK**, attached in the extreme rear of the "Operations, Maintenance, and Parts Manual". The frequency of inspection must adhere to the **ACPA BOOM INSPECTION BOOK**. For **WARRANTY** to be considered valid, these inspections must be performed by a "qualified person" as defined by the **ACPA SAFETY MANUAL** (also at the extreme rear of the "Operations, Maintenance, and Parts Manual").

REED'S obligation under this warranty is limited to correcting without charge, at its factory, any parts or parts thereof which shall be returned to its factory, transportation prepaid and upon **REED'S** examination proves to have been originally defective. Correction of such defects by repair or replacement shall constitute fulfillment of all obligations to the initial user. This warranty does not include labor or transportation charges unless specifically identified and authorized in writing by **REED**. Nor does the warranty apply to any unit upon which repairs or unauthorized alterations have been made.

This warranty does not apply to normal maintenance service or to normal replacement of certain machine parts, which are subject to normal wear (such as concrete cylinders and wear components, valve mechanisms, delivery systems and bracketry, chassis decking / walkways, steps and hand rails, hopper grate, etc.) **REED** makes no warranty in respect to trade accessories or outside vendor components including truck chassis, such being subject to the warranties of their respective manufacturers.

THIS IS A LIMITED WARRANTY AND IS IN LIEU OF ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. In no event shall **REED** be liable for incidental, general or consequential damages, loss or any expense directly or indirectly related and resulting from use or lack of use caused by delay in delivery, parts failure, or any other causes associated with the product use. No person, firm or corporation is authorized to assume for **REED** any other liability in connection with the sale of **REED** products.

Effective January 25, 2008

ST48R5 OPERATION MANUAL

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INTRODUCTION

This operation manual introduces the technical characteristics, performance parameters, operating principle, safe operation, safe maintenance, safe inspection, safe repair, and other aspects of the truck mounted concrete boom pump.

Reading and understanding this operation manual will help maximize performance and reliability, and help minimize dangers, improper operation, and repair costs.

The truck mounted concrete boom pump is only to be used for the purpose of placing concrete.

The operation manual is applicable to a **STANDARD EQUIPPED TRUCK MOUNTED CONCRETE BOOM PUMP**. It is possible some truck mounted concrete boom pumps are supplied with various options and specialized equipment.

All product descriptions, illustrations and specifications found throughout this manual were in effect at the time the manual was released for printing. It should be noted **REED RESERVES THE RIGHT TO MAKE CHANGES IN DESIGN OR TO MAKE ADDITIONS TO OR IMPROVEMENTS IN THE PRODUCT WITHOUT IMPOSING ANY OBLIGATIONS UPON ITSELF TO INSTALL THEM ON PRODUCTS PREVIOUSLY MANUFACTURED.**

SAFETY

Everyone involved with the operation, maintenance, inspection, and repair of the truck mounted concrete boom pump **MUST READ** and **UNDERSTAND** this operation manual and the accompanying American Concrete Pumping Association (ACPA) Safety Manual.

- Use only qualified, experienced, and trained personnel wearing protective equipment at all times.
- For safe use, maintenance, inspection, and repair of the truck mounted concrete boom pump, only operate, maintain, inspect, and repair in accordance with this operation manual and ACPA Safety Manual.
- Contact REED Technical Support and Service when assistance is required.
- Performance and safety features must never be altered, disconnected, or removed.

Safety Alert Symbols and Signal Word Explanations

The following safety alert symbols, signals, and explanations are adopted from the ACPA Safety Manual.

The triangle with the exclamation point inside is used to alert the operator to an important safety point, and is called a safety alert symbol. One of the following color coded signal words will appear after the safety alert symbol:



If the safety alert symbol is followed by the signal word **DANGER** with white letters in a red box, the safety alert symbol indicates a hazardous situation which, if not avoided, **WILL** lead to death or serious injury.

If the safety alert symbol is followed by the signal word **WARNING** with black letters in an orange box, the safety alert symbol indicates a potentially hazardous situation which, if not avoided, **COULD** result in death or serious injury.

If the safety alert symbol is followed by the signal word **CAUTION** with black letters in a yellow box, the safety alert symbol indicates a potentially hazardous situation which, if not avoided, **COULD** result in minor to moderate injury.

The signal word **CAUTION**, used in a yellow box, but without safety alert symbol means the safety symbol alert addresses a hazard which, if not avoided, **COULD** cause damage to equipment or property.

Safety Decals

Decals and placement of decals are standardized by the Concrete Pump Manufacturers Association (CPMA) for your protection. They are placed at appropriate areas on the truck mounted concrete boom pump to be constant warnings of dangers. Know and adhere to the information they provide. Contact REED Customer Service for complimentary replacements of safety decals.

Lockout/Tagout

The Lockout/Tagout procedure applies to all REED concrete pumping equipment.

Before performing any maintenance on a concrete pump;

- Unit must be OFF and the ignition key must be removed from the control panel or dash.
- Key must be securely stored in toolbox or with operator performing maintenance.
- Signage must be posted to indicate machine is currently under Lockout/Tagout.

Operator Qualifications

Everyone involved with the operation, maintenance, inspection, and repair of the truck mounted concrete boom pump **MUST READ** and **UNDERSTAND** this operation manual and the accompanying American Concrete Pumping Association (ACPA) Safety Manual.



- Individuals who cannot read and understand this operation manual, ACPA Safety Manual, signs, warnings, notices, and operating instructions, in the language in which it is printed, must not be allowed to operate the truck mounted concrete boom pump.
- Only qualified, experienced, and trained personnel may be allowed to operate the truck mounted concrete boom pump.
- Operation, maintenance, inspections, and repair must only be made by qualified, experienced, and trained personnel.
- Obey all applicable local and government statutes and regulations applying to safe operation and driving of truck mounted concrete boom pumps.

PRODUCT DESCRIPTION

The operation of the truck mounted concrete boom pump encompasses the use of hydraulic and electrical systems. The truck mounted concrete boom pump is designed to safely pump wet concrete through a delivery system of pipes and hoses attached to a boom within its published ratings and specifications.

Stability of the truck mounted concrete boom pump during operation of the boom is provided by hydraulic outriggers. Controls for the outriggers are located on the passenger and driver sides of the truck mounted concrete boom pump.

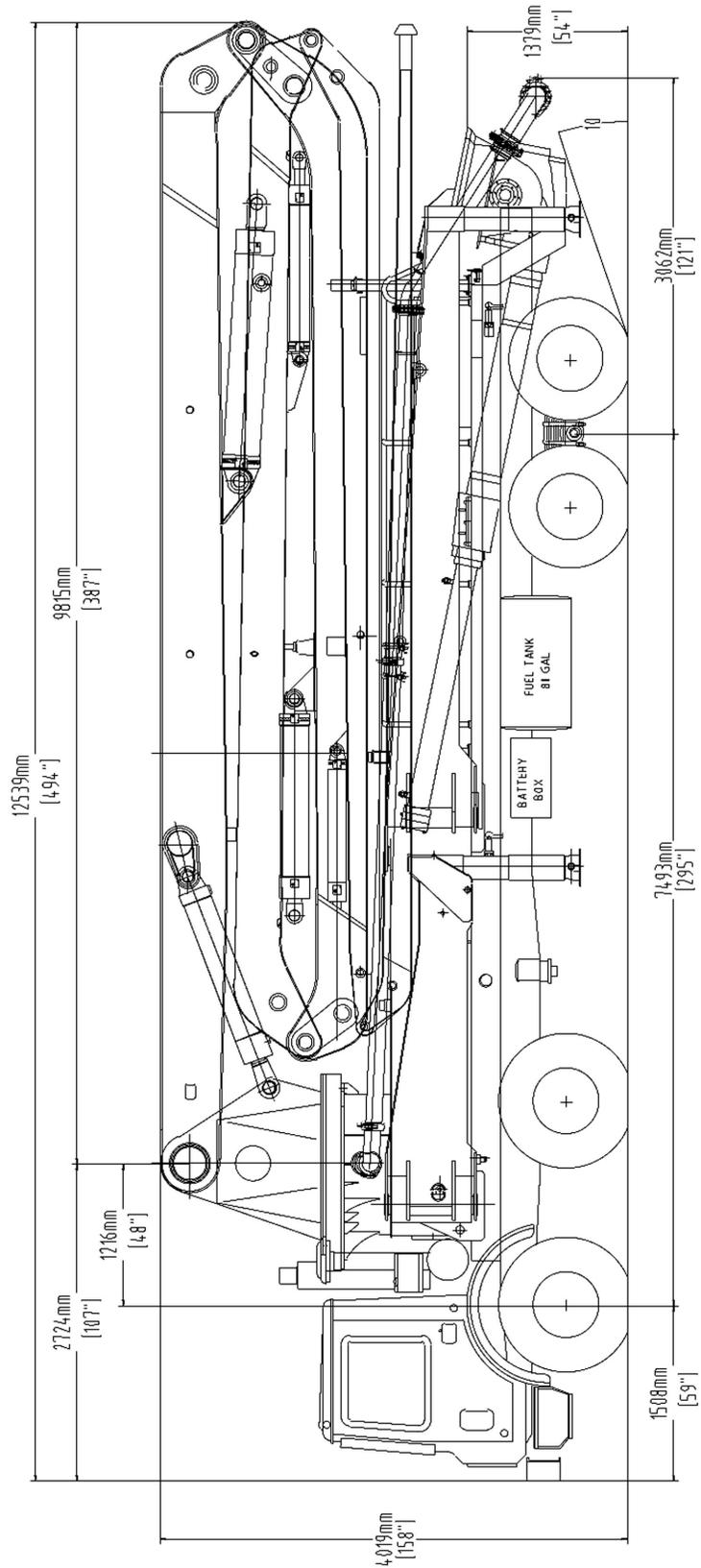
The boom is mounted on a pedestal structure directly behind the chassis cab and is equipped with a rotational mechanism incorporating a low friction rotational bearing. Each boom section can be operated independently through the pre-established design articulation parameters of each section. The boom function controls are located on or near the pedestal structure and the remote.

A steel pipe delivery line is installed from the hopper discharge outlet, along the deck, through the pedestal and attached along side of the boom sections. A heavy duty end hose is provided to facilitate concrete placement.

The pumping system employs an s-tube design valve system. This system incorporates material cylinders, powered by hydraulic cylinders that cycle alternately. With concrete material in the hopper and the pump operating, a material cylinder retracts material inside the cylinder. At full retraction of the cylinder, a signal is sent to the s-tube swing cylinders causing the s-tube to shift position to the fully loaded material cylinder. The piston of the loaded cylinder then pushes the material through the s-tube and into the delivery lines. The shifting from one cylinder to the other cylinder takes place providing a continuous flow of material through the delivery piping system. The pump can be operated at the control panel on the deck or can be operated from the remote control.

The power for operation of the boom and concrete pump is provided by the truck engine, which drives the hydraulic pumps through a power take-off (PTO) unit.

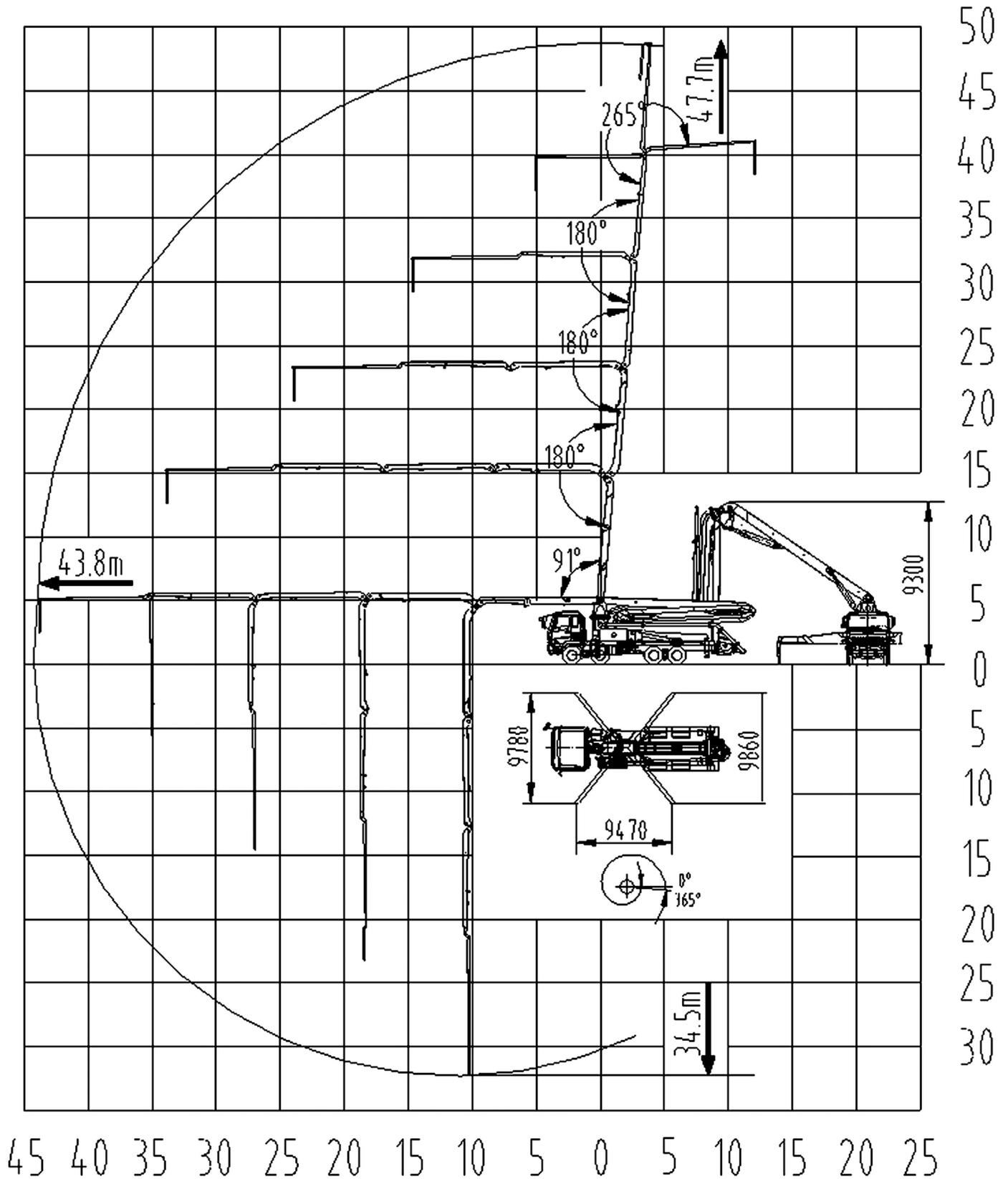
DIMENSIONS



TECHNICAL SPECIFICATIONS

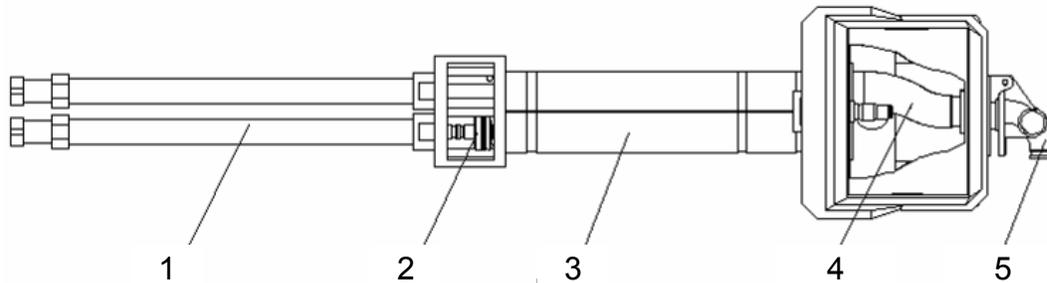
GENERAL SPECIFICATIONS	
Chassis Model	Mack MR688S
Wheelbase	7493 mm
Hydraulic System	Closed Loop
Water Tank Capacity	560 l
PUMP SPECIFICATIONS	
Output	125 m ³ /hr
Concrete Pressure	85 bar
Concrete Cylinder Diameter	230 mm
Stroke Length	2000 mm
Strokes per Minute	25
Hopper Pressure	600 l
Hydraulic Pressure	320 bar
Hydraulic Oil Capacity	380 l
BOOM SPECIFICATIONS	
Boom Sections	5
Fold Type	Roll and Fold
Section 1 Length	9.05 m
Section 2 Length	8.60 m
Section 3 Length	8.60 m
Section 4 Length	8.45 m
Section 5 Length	8.40 m
Delivery Pipe Diameter	125 mm
Hydraulic Pressure	320 bar
Hydraulic Oil Capacity	900 l

BOOM ARTICULATION DIAGRAM



PRODUCT OVERVIEW

Concrete Pumping System



1. Drive Cylinder 2. Concrete Piston 3. Concrete Cylinder 4. S-Tube 5. Hopper Elbow

The hydraulic oil flow created by the hydraulic pump, driven by the engine on the truck, pushes the drive cylinder pistons, inside the drive cylinders (1), alternately back and forth. Because the drive pistons and concrete pistons (2), inside the concrete cylinders (3), are linked together, the pistons move synchronously.

Forward Pumping

When the drive cylinder pistons retract, along with the concrete piston, concrete will be sucked from the hopper into the concrete cylinder. Then, when the drive piston, along with the concrete piston, is pushed towards the hopper, the concrete piston will pump concrete through the concrete cylinders into the s-tube (4), and out to the hopper elbow (5).

Next, the pump switches at the end of the stroke. Then the s-tube valve shifts to the other concrete cylinder which has sucked concrete and then starts the next cycle.

Reverse Pumping

Reverse pumping links the concrete piston in the sucking stroke and s-tube valve to suck concrete from the s-tube instead of the hopper. As a result, the concrete piston pumps concrete into the hopper.

Pumping is controlled using the control panel and the remote.

Outriggers

The truck mounted concrete boom pump is equipped with front and rear outriggers. The front set consists of a hydraulic telescopic beam that extends on a diagonal direction out toward the chassis cab. The beams are equipped with a hydraulic leveling jack. The rear set consists of a beam that hydraulically swings out away from the chassis to a diagonal position; also equipped with a leveling jack. Both sets are used to stabilize the unit before operation of the boom. Controls for the outriggers are located on the passenger and driver sides of the truck mounted concrete boom pump.

Boom

The boom consists of 4 sections and each sections movement is independently controlled with lever valves and the remote. A control is also provided for the rotation of the complete structure.

The booms sections are identified by numbers.

SECTION 1

Section 1 is the 1st boom section which has 1 end attached to the masthead and the other end attached to the 2nd boom section.

SECTION 2

Section 2 is the 2nd boom section which has 1 end attached to the 1st boom section and the other end attached to the 3rd boom section.

SECTION 3

Section 3 is the the 3rd boom section which has 1 end attached to the 2nd boom section and the other end attached to the 4th boom section.

SECTION 4

Section 4 is the last boom section and has 1 end attached to the 3rd boom section.

Control Panel



The control panel located on the deck features switches to control Emergency Shutdown, Forward Pumping, Reverse Pumping, Pumping Output, Engine RPM, Hydraulic Oil Cooling Fan, Local/Remote Control, Lights, S-Tube Shift, Drive Cylinder Extension, and Horn. A text display is also on the control panel to gauge engine RPM.

Transmitter and Receiver

The truck mounted concrete boom pump is equipped with a wireless remote control system which consists of a transmitter and a receiver. The transmitter is to be carried by the operator for convenient operation of the equipment, controlling pumping and the boom.



PUMPING AND DRIVING MODES

Pump Mode Precautions

Refer to the ACPA Safety Manual and the Setup section of this operation manual for setup area safety precautions not limited to the following guidelines:



- Ensure the machine can be safely setup and safely operated in the chosen location.
- The operator must have a clear view over the entire working area. Ensure the area is clear of any obstructions (such as electrical wires, trees, and personnel) that may compromise safety.
- Examine the entire area of the proposed setup to ensure stability. The machine must be positioned on level ground. Keep a sufficient distance away from slopes, pits, trenches, and excavations as governed by the ACPA safety manual.

Engaging Pump Mode

To Engage Pump Mode

- 1) Depress clutch
- 2) Flip 24V Converter Switch on
- 3) Push System Switch on
- 4) Push PUMP Switch on
- 5) Shift into desired gear
- 6) Release clutch

Drive Mode Precautions

Refer to the ACPA Safety Manual for driving safety precautions not limited to the following guidelines:



- Concrete must be cleaned out of the delivery system.
- Boom must be completely folded and resting on the boom rest before operating outriggers.
- Jack cylinders and outriggers must be completely retracted with safety locks engaged before driving.
- Outrigger pads and other miscellaneous equipment must be stored and secure.
- Obey all traffic laws when driving the truck mounted concrete boom pump.

Engaging Drive Mode

To Engage Drive Mode:

- 1) Depress clutch
- 2) Push DRIVE Switch on
- 3) Push System Switch off
- 4) Flip 24V Converter Switch off
- 5) Shift into desired gear
- 6) Release clutch

SETUP AREA

Refer to the ACPA Safety Manual for setup area safety precautions not limited to the following guidelines:



- Ensure the machine can be safely setup and safely operated.
- The operator must have a clear view over the entire working area.
- Ensure the area is clear of any obstructions (such as electrical wires, trees, and personnel) that may compromise safety.
- Examine the entire area of the proposed setup to ensure stability. The machine should be positioned on level ground.
- Keep a sufficient distance away from slopes, pits, trenches, and excavations.

OUTRIGGERS

The outriggers are driven by hydraulic cylinders that extend to support and stabilize the truck mounted concrete boom pump boom operations. The truck mounted concrete boom pump is equipped with front and rear outriggers. The front set consists of hydraulic telescopic beams that extend on a diagonal direction out toward the chassis cab. The rear set consists of an outrigger beam that hydraulically swings out away from the chassis to a diagonal position. The outriggers are equipped with a hydraulic leveling jack.

Outrigger Precautions

Refer to the ACPA Safety Manual for outrigger safety precautions not limited to the following guidelines:



- Clear the area while extending or retracting outriggers, personnel may be injured or killed within this area.
- Surface of the supporting ground must be horizontally level solid ground and have load bearing capacity in accordance with ACPA guidelines.
- Fully extend all outriggers and rest jacks on outrigger pads.
- The maximum inclination angle of the machine is 3°.
- Only unfold the boom after properly placing the outriggers and only retract outriggers when the boom is secure on the boom rest.
- Do not drive with boom unfolded or outriggers extended.
- Engage outrigger safety locks devices and secure boom before traveling.

Outrigger Operation

On each side of the truck mounted concrete boom pump, there is 1 group of 4 section operation valves for the outriggers, which control extracting or retracting, swinging out or swinging in, and up or down operation for outriggers and outrigger jack cylinders.

CAUTION

- Before starting outrigger operations, the outrigger safety locks must be unlocked.

Facing the left side of the valve group, you can see the following parts in the order from the left to right:

- 1) Safety interlock/control button must be pushed while an outrigger control is actuated. If the button is released, even if outrigger control lever is actuated, outrigger operations will cease to function
- 2) Lever for jack cylinder operation of front outrigger
- 3) Lever for extraction or retraction of front outrigger
- 4) Lever for swingout operation of rear outrigger
- 5) Lever for jack cylinder operation of rear outrigger



Movement direction of the outrigger and jacks is determined by upward or downward movement of the lever. Fully extend outriggers and use jack cylinders to stabilize machine within 3° of horizontal.



- Fully extend outrigger footprint to ensure stability and ensure the machine is horizontally level (bubble levels should not exceed 3°) before operating boom to prevent tipping.
- Securely fold boom onto boom rest before retracting outriggers. Ensure the outriggers have been locked in the fully folded and retracted position before driving.

BOOM

The boom is mounted on a pedestal structure directly behind the chassis cab and is equipped with a rotational mechanism incorporating a low friction rotational bearing. Each boom section can be operated independently through the pre-established design articulation parameters of each section. The boom function controls are located on or near the pedestal structure and the remote.

Boom Precautions

Refer to the ACPA Safety Manual for boom safety precautions not limited to the following guidelines:



- Boom must not come within 17 feet of powerlines.
- Outriggers must be fully extended, leveling unit within 3°, before boom is unfolded.
- Do not operate outriggers until boom is completely folded and secure on the boom rest.
- Do not drive with boom unfolded.
- Only operate boom when the entire boom is within clear sight.
- Boom must not be used as a crane.
- Extra pipe or hose must not impose an additional load on the boom.

Boom Operation

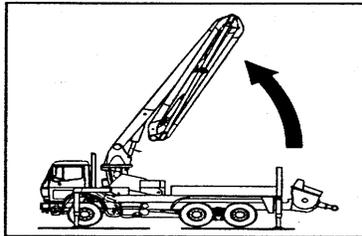
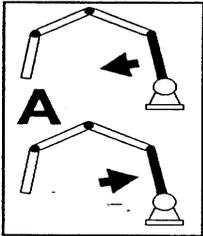
The boom consists of 4 sections:

SECTION 1 - The first boom section attached to the masthead

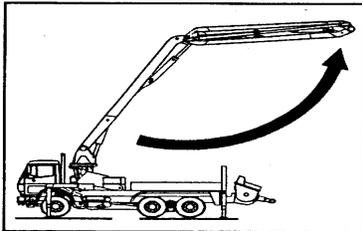
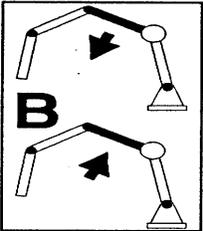
SECTION 2 - The second boom section attached to the first section

SECTION 3 - The third boom section attached to the second boom section

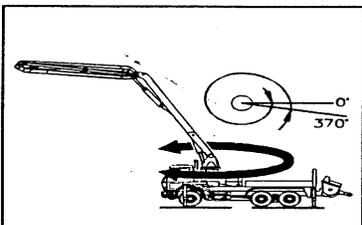
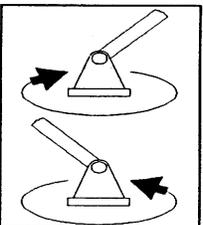
SECTION 4 - The last section of the 4 section boom



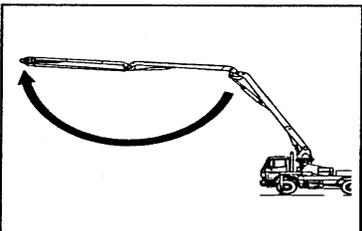
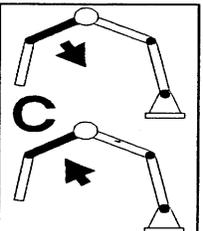
1) Actuate control lever "A" to unlock safety hook and that the entire structure is raised to at least 70°.



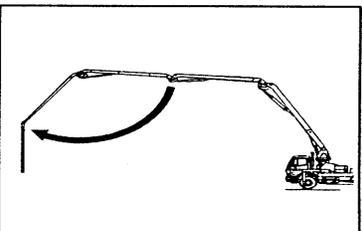
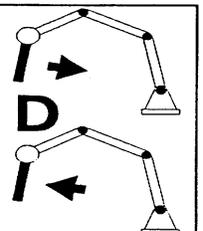
2) Actuate control lever "B" to raise boom "B" opening to at least 120°.



3) Actuate the **ROTATION** control rotating the rotation bearing until the boom is over front of cab.



4) Open boom section "C" with appropriate control to approximately 180°.



5) Open boom section "D" to desired position

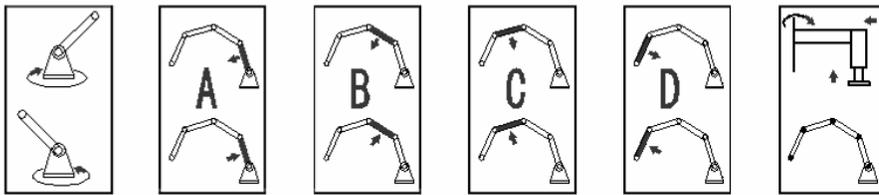
Manual Boom Control Operation

The boom control valves are located on the pedestal near the masthead. The control valves are 3 position hydraulic directional type valves, which can be manually or remote operated.

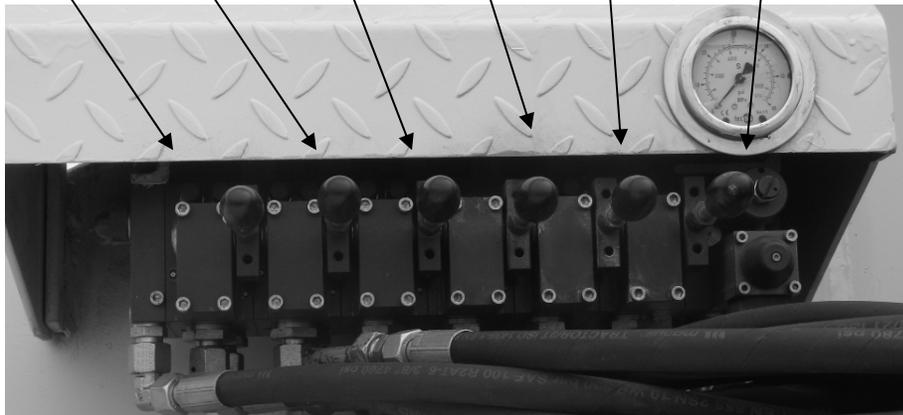
CAUTION

The boom control valve is a proportional valve; the speed of the boom sections is proportional to the trigger angle of the actuating lever. Because of this load sensitivity, the actuating levers should be gradually actuated for gradual acceleration and hence smooth operation. Correspondingly, when stopping boom movement, the actuating lever should be returned gradually to center for smooth operation.

- | | |
|---|---------------------------------|
| 1. Boom Rotation | 2. Upward/Downward of Segment 1 |
| 3. Upward/Downward of Segment 2 | 4. Upward/Downward of Segment 3 |
| 5. Upward/Downward Turning of Segment 4 | 6. Boom and Outrigger |

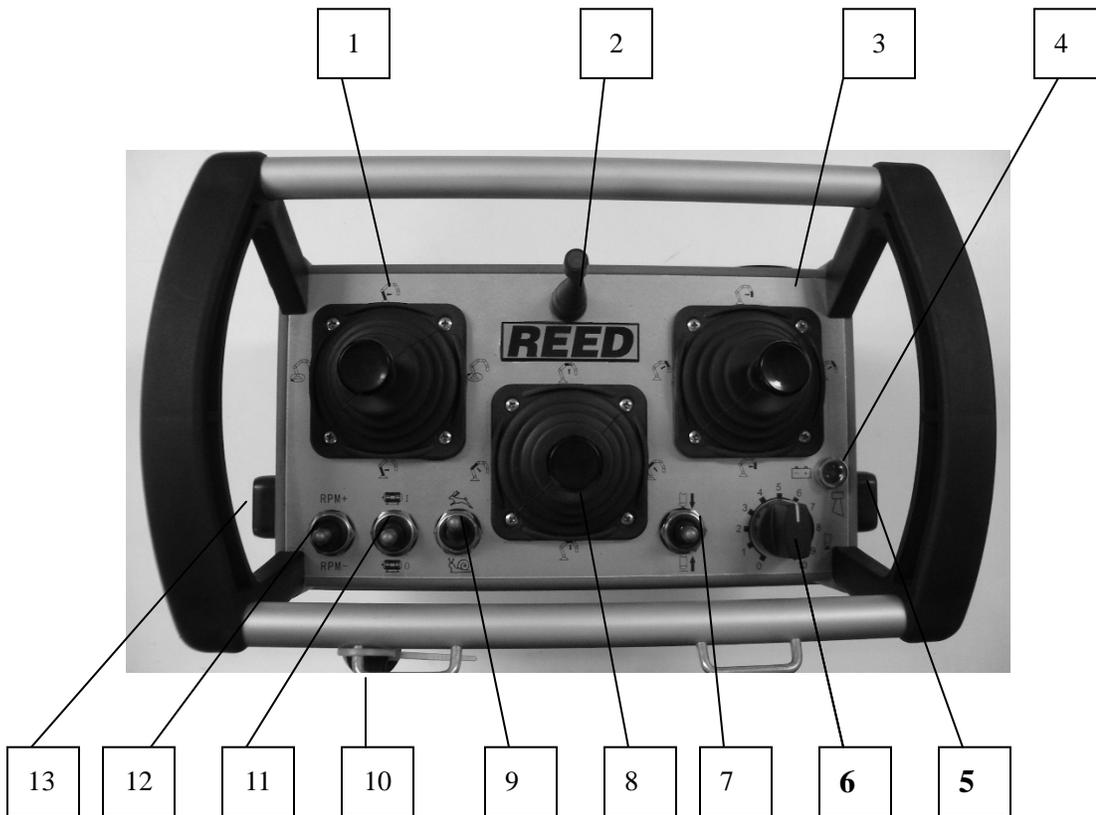


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Remote Boom Control Operation

The truck mounted concrete pump is equipped with a remote control system which consists of a transmitter and a receiver. The receiver is installed near the control box of the truck mounted concrete pump. The transmitter is to be carried by the operator for convenient operation.



1. Boom Rotation, Section 1 Folding/Unfolding Lever
2. Antenna
3. Section 4 Folding/Unfolding Lever
4. Battery Low Voltage Indicator
5. Horn Button
6. Pumping Volume
7. Positive/Reverse Pump
8. Section 2 & 3 Folding/Unfolding Lever
9. Boom Fast/Slow
10. Remote On Key
11. Engine Start/Stop
12. Engine RPM
13. Emergence Shutdown Switch

Remote Control Activation

- 1) Turn the LOCAL/REMOTE switch on the control panel to the REMOTE position.
- 2) Turn on the transmitter (the status light of the transmitter will flash green when entering normal working status).
- 3) Press the HORN button and the system will reset enabling remote control.

Precautions of the operation are identical to manual operation. Special attention should be paid to the gradual transition of the lever from starting and stopping the boom sections movement.

The transmitter will automatically shut off when controls are being affected by RF interference; then the boom movement stops and repressing the start button is required to reset the system and enable the transmitter to reenter its working status.

Speed of boom movement can be selected by controlling the FAST/SLOW switch on the fully proportional remote control.

When an EMERGENCY STOP button is pressed, electrical and hydraulic functions will be stopped. Address conditions for EMERGENCY STOP, press the HORN switch to reset and enable system.

After cancellation of the emergency shutdown, the toggle lever switch of PUMP START/STOP on the remote must be pushed to the off position (0); the remote can only be started again by pressing the horn button to restart the system.

Severe RF disturbance from radio stations, TV stations and other electromagnetic signals require the use of a teather for remote control. Connect the supplied teather to the transmitter and receiver.

Closing and Securing Boom

After cleaning the boom, fold the boom in the REVERSE sequence from the boom unfolding.



- Take precaution to secure the boom using straps before driving.

CONTROL PANEL



Concrete pumping operations are controlled utilizing the system control box. See description of each function below:

CONTROL Switch

LOCAL position for local control mode using control box controls
REMOTE position for remote control mode using radio remote

RPM Switch

RPM+ to raise engine RPM
RPM- to lower engine RPM

DRIVE CYLINDER Switch

EXTEND position to extend concrete piston position through concrete cylinder
RETRACT position to retract concrete piston position through concrete cylinder

S-TUBE Switch

EXTEND position to extend shift cylinder to swing and change s-tube position
RETRACT position to retract shift cylinder to swing and change s-tube position

PUMP Switch

ON position to turn forward pumping on
OFF position to turn forward pumping off

REVERSE Pump Switch

ON position to turn reverse pumping on
OFF position to turn reverse pumping on

VOLUME Switch

0 - 100% variable output

COOLER Switch

AUTO position will flush hydraulic oil through the cooler at 55° C
MANUAL position will flush hydraulic oil through the cooler until switch shifted back to center neutral or AUTO position

HORN Switch

Toggle HORN switch to power horn and reset system settings

LIGHTS Switch

Toggle LIGHTS switch on to turn on system lights

EMERGENCY STOP

Pressing EMERGENCY STOP switches stop all pump and boom functions as well as releasing accumulator pressure. To reenale operations after addressing issues, release activated EMERGENCY STOP switches and reset system by activating the HORN switch.

PUMPING

Everyone involved with the operation, maintenance, inspection, and repair of the machine **MUST READ** and **UNDERSTAND** this manual and the accompanying American Concrete Pumping Association (ACPA) Safety Manual.

Contact REED Technical Support and Service when assistance is required.

Pumping Precautions

Refer to the ACPA Safety Manual for pump safety precautions not limited to the following guidelines:



- Never put your hands or any other body part into any area of the machine, including, but not limited to hopper, s-tube, and waterbox.
- Concrete is pumped at extremely high pressures, do not open blocked delivery line or place body in way of endhose discharge.
- Press Emergency Stop button whenever safety or performance is compromised. After pressing any Emergency Stop button, the machine functions will turn off. After addressing emergency situation, the machine system must be reset by activating the Horn Switch.
- Replace, do not repair damaged pipes and hose.
- Keep hopper grate closed.
- Keep sufficient material in the hopper to prevent the induction of air into the concrete cylinders. When compressed air within the delivery line is abruptly released, the concrete being pumped is discharged in an explosive manner.
- Never bend the end hose during pumping. A bend is an obstruction of the material flow allowing pressure to build up in the system creating a dangerous condition.
- Reversing pumping direction may, or may not, relieve concrete pressure in the system.

- Do not allow the end hose to be guided or maneuvered by hand.



- Move the concrete within the concrete pump delivery system during pumping stoppage to avoid segregation (or separation) and solidification.
- Clean out the delivery system and concrete pump if pumping operations are suspended for too long.
- Concrete output is influenced and related to the quality and consistency of the concrete mix. Mix consistency is a decisive factor when it comes to the filling rate of the material cylinders.

Priming the Pump

Prime the delivery line ahead of the actual concrete mix to lessen the possibility of packing when the line is filled with concrete.

- 1) Mix prime packs as directed by the prime pack manufacturer (typically 2 packs for new pipe, 1 pack thereafter).
- 2) Cycle machine 2-3 times to verify pump is ready for operation.
- 3) Pour prime pack mixture into prime port on swing out elbow and then reseal prime port.
- 4) Fill hopper with concrete and begin pumping at low to medium volume.

Pumping Operation

Before filling hopper with concrete, check for safe work conditions and safe operation of functions, follow priming procedures and activate the AGITATOR SWITCH for agitator operation.

After hopper is filled with concrete:

- 1) Turn Pump Switch On.
- 2) Initially pump at low to medium volume at preset minimum RPM, use the VOLUME CONTROL switch and engine RPM to gradually increase pumping output.

3) Using the remote transmitter, control boom to pump concrete to desired location.

Cleaning Precautions

Everyone involved with the operation, maintenance, inspection, and repair of the machine **MUST READ** and **UNDERSTAND** this manual and the accompanying American Concrete Pumping Association (ACPA) Safety Manual.

Contact REED Technical Support and Service when assistance is required.

Refer to the ACPA Safety Manual for cleaning safety precautions not limited to the following guidelines:



- Never put your hands or any other body part into any area of the machine, including, but not limited to hopper, s-tube, and waterbox.
- Keep hopper grate closed during cleaning.



- Do not operate the water hose when there is no water in the water tank.

Cleaning the System

Effective clean-up removes concrete in the hopper, s-tube, concrete cylinders and delivery system.

- 1) Upon completion of pumping, reverse pump concrete back into the hopper.
- 2) After all possible concrete is reversed pumped into the hopper; remove end hose from tip section of the boom.
- 3) Insert water soaked cleanout spongeball into the tip section opening.
- 4) Position the boom at a 15° angle, relative to horizontal.
- 5) Pump in reverse to suck the spongeball through the delivery pipe.
- 6) After the sponge ball is sucked through the delivery pipe, open the hopper swingout elbow to remove the sponge.
- 7) Open the clean out door of the hopper in the designated area to empty hopper of concrete.
- 8) Turn on the water pump and use the water hose to wash the end hose, hopper swingout elbow, s-tube, concrete cylinder, agitators, grate, and hopper.
- 9) Finally, wash and clean the entire machine.
- 10) In extremely cold temperatures, the water tank and water pump should be thoroughly e to prevent freezing.

MAINTENANCE

This section introduces safe maintenance of the truck mounted concrete pump. In order to achieve normal and safe operation of the truck mounted concrete pump all inspection, maintenance, and repair work must be performed. Safe inspection, maintenance, and repair will minimize maintenance costs and health hazards and maximize performance.

Maintenance Precautions

Everyone involved with the operation, maintenance, inspection, and repair of the truck mounted concrete boom pump **MUST READ** and **UNDERSTAND** this operation manual and the accompanying American Concrete Pumping Association (ACPA) Safety Manual.

Contact REED Technical Support and Service when assistance is required.



- Maintenance must be performed by trained, experienced, and certified personnel in the appropriate fields.
- The following maintenance guide is a general guide to aid trained, experienced, and certified personnel.
- Trained, experienced, and certified personnel must wear appropriate protective equipment.
- Ensure unit is shutoff and utilize lockout/tagout safety products before performing maintenance.

Recommended Daily Inspections

1) Chassis

Check

- Engine oil level
- Fuel tank level
- Tire condition and pressure
- Fuel, oil, and other leaks
- Chassis lighting, brakes, and signals

2) Sub-Frame and Decking

Check

- Subframe for weld cracks, missing bolts, deformation
- Structural integrity of decking, steps, walkways
- Tool boxes and miscellaneous features are secure

3) Drive Components

Check

- Power take-off mounting secure and oil level
- No interference of drive lines
- All hydraulic pumps in good condition
- Cables, wires, hoses, and tubing secure
- Hydraulic leaks
- Lubrication points

4) Outriggers

Check

- For missing parts such as rollers, pins, bolts, and nuts
- Hydraulic cylinders are secure
- Foot pads secure
- Condition of hydraulic hoses and tubing
- Switches undamaged, emergency stop switch-push/pulls
- Level sight gauge in good condition
- Lubrication points

5) Boom Pedestal and Rotation Assembly

Check

- Pedestal and rotation assembly for structural damage and/or cracked welds

- Rotation gear mounting bolts are secure
- Drive pinion and gear teeth in good condition
- Reduction unit securely mounted
- Rotation limit stops in good condition
- Delivery piping, clamps secure
- Hydraulic hoses, tubing secure, properly clamped no leaks
- Oil levels full
- Lubrication points

6) Boom

Check

- For structural damage and cracked welds
- Bushings, pins, and retainers secure
- Hydraulic cylinders are in good condition and securely mounted
- Hydraulic hoses, tubing secure, properly clamped with no leaks
- Delivery line not damaged, no dents, secured properly to boom
- All clamps secure, retaining pin in place
- Lubrication points

7) End Hose

Check

- For damage, condition, free of cuts internal and external
- Mounted securely to boom, support brackets intact
- Locking levers, lever springs in place, in good condition
- Hose clamps secure, retaining chain in good condition, shackles and pins tight

8) Boom Control Valve

Check

- Hydraulic control valve bank securely mounted
- Each control lever moves freely, returns when released
- Protective rubber boots in good condition
- Control identification decal in good condition
- Hydraulic tubing, hoses and electrical wiring secure and clamped
- No hydraulic leaks

9) Concrete Pump

Check

- For structural damage, cracked welds, and attachment to sub-frame

Hydraulic drive cylinders in good condition, secure, no leakage
Material cylinders secure
Water box structurally sound, clean, cover in place, drain functional
Proximity switches
S-tube shift mechanism structurally sound, all pins and retainers in place
Hydraulic shift cylinders in good condition
Bearing housing, seals etc. in good condition
Hydraulic hoses secure no leaks
Clamps of delivery pipes are loose or damaged
Lubrication points

10) Hopper Assembly

Check

For structural damage, dents, cracked welds
S-tube secure, in good condition
Condition of wear plate, wear ring, seals
Connection of S-tube to outlet seals, bearing
Hopper grating is structurally sound, opens and closes
Vibrator securely mounted, wiring connections secure
Hopper drain is functional
Transfer delivery line undamaged, secured all clamps tight with pin retainers
Outlet elbow secure, clamp tight

11) Agitator

Check

Agitator paddles and shaft for damage, cracked welds
Drive motor secure, bearings, seals housing in good condition
Control valve securely mounted, levers move freely
Hydraulic hoses and tubing secure, clamped

12) Lube System

Check

Lube pump securely mounted, gaskets, lid in place
Lube line connections tight, clamped
Ample grease in reservoir

13) Control Panel

Check

Switches in good condition, stay in position or momentary return to center
Instruments and gauges in good condition, lights operate
Control identification in good condition

14) Remote Controls

Check

Switches in good condition, stay in position or momentary return to center
Boom control levers move freely, return to center, protective rubber boots in good condition
Cord in good condition, not damaged or cut and securely connected

15) Hydraulic System

Check

Filler caps in place
Level sight gauges in good condition
Hydraulic filter condition gauges
Hydraulic oil cooler securely mounted, fan motor in good condition
Hydraulic fluid levels to proper levels
Hoses and tubing's secure, no leaks, minimal wear

16) Electrical System

Check

Electrical connections are well secured and free of rust
Wire insulators free of aging or peeling

17) Water System

Check

Filler caps in place
Level sight gauges
Water level full
Hoses and tubing minimum wear

Suggested General Inspection Schedule

	Inspection	Inspection Interval (Daily/ Per Hour)						Also Inspect
		Daily	250	500	1000	1500	2000	
General	Lubrication Points	•						Weekly
	Visual And Functional Check Of All Safety Equipment	•						
	Tighten Nuts and Bolts							As Required
	Certified Boom Inspection			•				Annually
	Wire, Hose, and Tube Conditions	•						
Hydraulic System	Oil Level	•						
	Discharge Condensed Water	•						
	Hoses and Tubes	•						
	Replace All Hydraulic Oil And Analyze				•			
	Clean Hydraulic Cylinders				•			
Drive Cylinder	Seals Of Hydraulic Cylinders							Monthly
Hydraulic Oil Filter	Replace Filter Element							As Required
Water Tank	Water Level	•						
Gearbox	Replace All Oil In Gear Box			•				
	Rotating Speed Reducer			•				

Truck Mounted Concrete Boom Pump Operation Manual

	Inspection	Inspection Interval (Daily/ Per Hour)						Also Inspect
S-Tube	Wear	•						
	Check And Adjust Enclosed Gasket	•						
	S-Tube Bolt			•				
Delivery Pipe	Clamps	•						
	Wall Thickness	•						
	Gaskets			•				
Concrete Piston	Connector		•					
	Concrete Cylinder And Concrete Piston Wear	•						
Delivery System	Wear	•						
Lubrication System	Oil Level	•						

LUBRICATION

The truck mounted concrete pump is equipped with several critical areas that require lubrication.

CAUTION

- Rapid wear and component breakdown will result if the unit is operated with inadequate lubrication.
- Follow the recommended interval and if need be increase the interval when above normal usage takes place.

Boom and Outrigger Area Lubrication

Boom and outrigger lubrication points involve all the articulated joints on the boom, the swivels and rotating joints of the concrete delivery piping and the pivot points of the swing out outriggers.

CAUTION

- Before making the connection of the lube pump to grease fitting be sure to clean the grease fittings to prevent contaminants from entering the lube point.
- Wipe off any excess lubricant after greasing.

Recommended interval: every 60 hours of operation under normal usage, more frequent as required.

Concrete Pump Area Lubrication

Some of these areas critical lube points are connected to the central lubrication distribution block and fed by the automatic lube pump. The main lube pump and reservoir is located at rear of unit near hopper. This system will automatically feed the central distribution block at the preset interval.

CAUTION

- The reservoir must be checked and lubricant replenished if necessary on a daily basis.
- For areas not connected to the auto lube system, use a manual lube pump and pump a sufficient number of strokes to ensure thorough lubrication of each point.
- Visually check each point and wipe off any excess lubricant.

Rotation Bearing Lubrication

Greasing serves to reduce the ball friction and maintains the bearing seal as well as offering protection against the entry of contaminants. Inject the grease until it is made to exit from the gasket.

For lubrication of gear teeth on bearing and pinion, smear or brush recommended oil on all areas of teeth.

Bearing lubricant: **GENERAL PURPOSE GREASE, SHELL ALVANIA ELPFH2
OR EQUAL**

Gear teeth lubricant: **SHELL MALLEUS FLUID “C” OR EQUAL**

Recommended interval: **EVERY 100 HOURS OF OPERATION**

Gear Reduction Unit Lubrication

This unit is located on the outside of the turret pedestal and requires attention on a daily basis. An oil level plug is located on side of reduction unit. The breather and fill extends from reduction unit opposite oil level plug and is readily accessible. Remove the cap to add oil if necessary.

Lubricant: **SHELL OMALA OIL 150**

Interval: **CHECK DAILY FILL AS REQUIRED (TOTAL CAPACITY OF OIL = 5.6 LITERS)**

Power Take-Off (PTO) Lubrication

The PTO unit contains two (2) areas requiring lubrication attention. One area is the main gear box and the other is the pump shaft cavity.

The oil level plug for the main section is located on side of the casing. Remove plug to check level. When required add oil through breather fill fitting.

The oil level plug for the pump shaft cavity is located on side of flange ring. Remove plug to check level. When required add oil through cavity breather fill unit.

Recommended lubricants are mineral oil meeting CLP DIN 51517-3 and synthetic oils meeting CLP PG DIN 51517-3 and CLP HC DIN 51517-3. Check level every 100 hours of operation

HYDRAULIC SYSTEM MAINTENANCE

The concrete boom pump is equipped with 2 hydraulic systems. One system is used to meet the hydraulic requirements for concrete pump operation and the other hydraulic system is used for the boom and outrigger operations. Contamination is the most common cause for hydraulic system failure. Extreme care must be exercised to prevent contaminants from entering the system. Always cap or plug open ports and hydraulic lines.

The concrete boom pump utilizes in its hydraulic system a fluid manufactured by the SHELL OIL CO. and is designated as TELLUS #46. It is to be used in ambient temperatures of 39-90° F (4-32° C). The normal fluid temperature will range from 100-167° F (38-75° C).

CAUTION

- Use only shell tellus 46 or equal hydraulic fluid and never mix with other type fluids. Always use a CLEAN fluid. Using impure or other type of fluids not specified will contaminate the hydraulic system and can lead to eventual system malfunction or damage and possibly deteriorate the hydraulic seals.
- Fluid Level - It is important that the fluid level of the boom and pump hydraulic systems be checked constantly. Maintain fluid to proper level at all times.
- Return Filters - For the concrete pump these are 10 micron filters with disposable elements. Change element when filter condition gauges indicates to do so. For the boom system the element is a 25 micron type.
- Pressure Filters - These filters are 10 micron filters with disposable element. Change when condition indicator depicts to do so. The boom filter is also a 10 micron filter with condition indicator.

- Hydraulic Tank - Change oil in tank every 1500 hours of operation or yearly whichever comes first.

Adding Hydraulic Fluid

CAUTION

- Exercise extreme care when adding fluid to the hydraulic tank, preventing contamination.
- 1) To prevent any dirt or water from entering the hydraulic tank, thoroughly clean area around filler opening.
 - 2) Fill appropriate reservoir with clean hydraulic fluid using clean pump filters and fine wire mesh, 200 mesh or finer.
 - 3) Replace filler cap immediately after filling tank to proper level.

CAUTION

- Do not use a cloth for straining fluid as lint is harmful to the hydraulic system.

Filter Servicing

Hydraulic filters in the system provide continuous hydraulic fluid filtration to prevent contamination which will cause rapid wear, component breakdown, and eventual failure.

The filter assemblies on the pump circuit are equipped with condition indicators. These need to be checked periodically and the element changed when so indicated.

CAUTION

- The filter for the boom hydraulics is a pressure filter. It is not equipped with a condition indicator thus a log needs to be kept and element changed every 250 hours of operation.
- 1) Shut off machine and use Lockout/Tagout. On pump circuit allow accumulator system to depressurize.

- 2) Place a drain pan underneath the filter housing to catch any fluid drainage.
- 3) Clean area around filter housing.
- 4) On the return filters carefully unscrew filter element, remove and discard properly.
- 5) For the high pressure filters loosen bolt on bottom of filter housing until free then remove element.
- 6) If element has a gasket lightly smear a small amount of oil on the element gasket.
- 7) Replace the element in the filter and secure filter housing.
- 8) Start up machine and observe for any leakage.

CAUTION

- Don not wash and reuse filter elements, use new filters to prevent contamination.

Cleaning the Hydraulic Tank

The boom hydraulic tank is located inside the boom pedestal. The tank is equipped with a filler breather cap located on top of the tank as well as return filter assembly and a high pressure filter.

The pump hydraulic tank is located on the right side between the front and rear outriggers. The tank is equipped with a filler cap located on top of the tank and access covers on both the outer side and top side of the tank. On the side of the tank, there are 2 suction filters for pre-filtering of the fluid before it enters the system.

CAUTION

- The hydraulic tanks should be drained and cleaned after 1500 hours of operation or yearly whichever comes first. This will assist in keeping the systems clean and in proper condition. The following is suggested and generally will apply to both hydraulic tanks.
- 1) Shut off machine and use Lockout/Tagout. On pump circuit allow accumulator system to depressurize.

- 2) Place a suitably sized drain container under the hydraulic tank drain.
- 3) Open drain valve to drain tank.
- 4) Remove the access cover(s) on the hydraulic tank being careful not to damage the gaskets.
- 5) Remove filters.
- 6) After tank has drained, flush the inside of the hydraulic tank with clean solvent and wipe clean with lint free cloths, do not use paper towels, removing any particles from tank.
- 7) Close the tank drain valve.
- 8) Reinstall the filter housings after replacing filters.
- 9) Reinstall access covers with gaskets.
- 10) Clean the filler breather with solvent and air blow dry.
- 11) Refill the hydraulic tank with new clean hydraulic fluid.
- 12) Start machine and check for leaks.

Bolt Torque Chart

Tightening-moment is determined by bolt diameter, bolt material, and loading area of bolt head. Refer to the following charts for general torque values. When replacing bolts, new bolts of identical dimensions and grades must be used.

Bolt Size	Pitch 0.2d (mm)	Grade		Grade		Grade	
		4.6		5.6		6.8	
		Force	Torque	Force	Torque	Force	Torque
		N	T (Nm)	N	T (Nm)	N	T (Nm)
M8	1.6	5800	9	7140	11	11200	
M10	2	9310	18	11300	22	17800	36
M12	2.4	13500	32	16500	39	25900	62
M16	3.2	25200	80	30800	98	48300	154
M20	4	39400	158	48000	192	75600	302
M24	4.8	56800	272	69100	332	108000	518
M30	6	90300	542	109000	654	172000	1032
M36	7.2	131000	943	160000	1152	151000	1807

Bolt Size	Pitch 0.2d (mm)	Grade		Grade		Grade	
		8.8		10.9		12.9	
		Force	Torque	Force	Torque	Force	Torque
		N	T (Nm)	N	T (Nm)	N	T (Nm)
M8	1.6	14800	23	21200	34	24800	39
M10	2	23500	47	33600	67	39400	78
M12	2.4	35400	85	49000	118	57200	137
M16	3.2	66100	211	91000	291	106000	339
M20	4	102000	408	142000	568	166000	664
M24	4.8	148000	710	205000	984	239000	1174
M30	6	235000	1410	326000	1956	380000	2280
M36	7.2	343000	2470	474000	3412	554000	3988

Hose Torque Chart

When tightening hoses and tubes, refer to the following table:

Hose Size		Md (Nm)	Hose Size		Md (Nm)
6	L	20	18	L	120
8	L	40	20	S	250
12	L	55	25	S	400
15	L	70	30	S	500
16	S	130	38	S	800

TROUBLESHOOTING AND REPAIRS

Everyone involved with the operation, maintenance, inspection, and repair of the machine **MUST READ** and **UNDERSTAND** this manual and the accompanying American Concrete Pumping Association (ACPA) Safety Manual.



Troubleshooting and repairs must be performed by trained, experienced, and certified personnel in the appropriate fields. The following troubleshooting guide is a general guide to aid trained, experienced, and certified personnel identify and repair potential issues only.

Contact REED Technical Support and Service when assistance is required.

Pumping System Troubleshooting

Piston of Drive Cylinder Does Not Move

- 1) Connection wire to pumping start button loose or disconnected; check and replace if necessary.
- 2) Auxiliary relay burnt; check and replace if necessary.
- 3) Solenoid directional control valve failure; typically coil failure; check and replace if necessary.
- 4) Improper adjustment of pumping volume switch; check and adjust if necessary.
- 5) Insufficient hydraulic oil inside hydraulic cylinder; check and adjust if necessary.
- 6) Filter element severely blocked; check and replace if necessary.

Piston of Drive Cylinder Does Not Change Direction

- 1) Gap between proximity switch and induction shield too large; adjust the gap to within 2~3mm if necessary.
- 2) Bottom surface of proximity switch become insulated due to grease or the other contaminants; clean bottom surface of the proximity switch if necessary.
- 3) Wrong placement of two proximity switches; check and adjust if necessary.
- 4) Failure of proximity switches; check and replace if necessary.
- 5) Coil of solenoid directional control valve failure; check and replace if necessary.

- 6) Auxiliary relay burnt; check and replace if necessary.

Piston of Drive Cylinder Slow

- 1) Drive cylinder check valve damaged; check and replace if necessary.
- 2) Improper adjustment of pumping volume switch; check and adjust if necessary.
- 3) Insufficient control pressure. Adjust main pump charge pressure to 3MPa and flushing valve to 2.5Mpa if necessary.
- 4) Blockage of filter element or insufficient oil pressure; check and replace if necessary.
- 5) Incorrect RPM; check and adjust if necessary.
- 6) Failure of directional control valve; spool cannot move to the required position; check and replace if necessary.

Concrete Output of Poor Condition: Irregular or Insufficient Concrete Output

- 1) Severe wear of concrete piston; check and replace if necessary.
- 2) Gap between wear plate and wear ring too large; check and adjust if necessary.
- 3) Poor quality of supplied concrete; demand quality concrete.
- 4) S-tube partially blocked; check and clear if necessary.

Pumping Does Not Stop

- 1) KAI contact point of auxiliary relay burnt and damaged; check and replace if necessary.
- 2) Failure of shutdown switch; check and replace if necessary.

S-Tube Does Not Swing

- 1) S-tube blocked with object; check and clear if necessary.
- 2) Failure of pilot relief valve occurred and caused insufficient reversing pressure; check and replace if necessary.
- 3) Failure of accumulator pump causes insufficient pressure; check and replace if necessary.
- 4) Poor quality of aggregate or long shutdown time; demand quality concrete and/or cycle during downtime to prevent blockage.

S-Tube Weak Swing

- 1) Insufficient pressure inside accumulator or bladder. Recharge gas into the bladder and make nitrogen pressure larger than 10.5MPa or replace it with a new accumulator bladder and recharge it to 10.5MPa if necessary.
- 2) Load releasing switch not fully closed; check and replace if necessary.
- 3) Oil leakage in swing cylinder; check and replace if necessary.
- 4) Spool of pilot relief valve severely worn and damaged which causes reversing pressure be lower than 15MPa; check and replace if necessary.
- 5) Coil failure of directional control valve or spring breaking of valve spool: abrasion of spool of the directional control valve occurs and internal leakage appears; check and replace if necessary.

S-Tube Has Insufficient Swing

- 1) Copper alloy bearing of swing oil cylinder has distortion or non-uniform thickness; check and replace if necessary.
- 2) See S-Tube Weak Swing section

Concrete Leakage of S-Tube

- 1) Sleeve of the s-tube has distortion or the bearing is severely worn and has a large gap; check and replace if necessary.

Lubrication System

- 1) Lube distributor fully clogged; check and clear if necessary.
- 2) Failure of check valve of the lubricating pump; check and replace if necessary.
- 3) Failure of relief valve of lubricating system; check and replace if necessary.

- 4) High viscosity lube cannot pass filtration screen; check and replace if necessary.
- 5) Lube line is fully blocked; typically the lubricating point at the s-tube outlet; check and clear if necessary.

Agitation System

- 1) Poor aggregate; agitation resistance too large; check concrete and demand quality concrete.
- 2) Adjustment pressure of agitation relief valve insufficient; adjust the pressure to 12MPa if necessary.
- 3) Agitation blade damaged; check and replace if necessary.
- 4) Gear pump of agitation system damaged; check and replace if necessary.
- 5) Operation lever of reversing valve is broken; check and replace if necessary.
- 6) Agitation shaft or shaft liner damaged; check and replace if necessary.

Proximity Switches

- 1) Bottom surface has accumulated oil and waste, which has caused ineffective induction; check and replace if necessary.
- 2) Gap too large and causing ineffective induction; check and adjust to 2-3mm if necessary.
- 3) Water temperature in the water box too high causing irregular swing of s-tube; check and add cool water if necessary.
- 4) Fully damaged; check and replace if necessary.

Accumulator

- 1) Accumulator charge leakage; check bladder pressure with appropriate accumulator charge kit and replace if necessary.

Cooler

- 1) Temperature activating switch damaged; check and replace if necessary.
- 2) Cooler solenoid valve damaged; check and replace if necessary.

Oil Overheating

- 1) High pumping volume of low quality concrete; lower output volume of concrete until quality concrete is delivered.
- 2) Blockage causing overheating; check for and clear blockage if necessary.
- 3) See section regarding Cooler.

Boom System Troubleshooting

Boom Inoperable

- 1) Insufficient pressure in boom hydraulic system; check maximum pressure and adjust if necessary. If desired maximum pressure cannot be achieved, check hydraulic pump and replace if necessary.
- 2) Control valve damaged. Check electrical signals to coils and manually actuate control valve to identify issue and replace if necessary.

Boom Vibration

- 1) Insufficient lubrication; check and lubricate lubrication points if necessary.
- 2) Boom pins and other articulating parts damaged; check and replace if necessary.
- 3) Rotational thrust bearing and rotating gears too large; check and replace if necessary.
- 4) Bolts of rotational thrust bearing are loose; fasten and/or replace bolts if necessary.

Boom Rotation Too Slow or Not Rotating

- 1) Valve blocked; check and clear if necessary.

- 2) Boom pump not horizontal; check and adjust if necessary.

Boom Abnormal Operation

- 1) Control valve blocks dirty or damaged; check and clean or replace if necessary.
- 2) Oil leakage in hydraulic cylinder; replace seals if necessary.

Cannot Lubricate Pins

- 1) Lubricating units blocked or damaged; check and replace if necessary.
- 2) Blockage in lubricating groove; check and clear if necessary.

MAINTENANCE

This section introduces safe maintenance of the truck mounted concrete pump. In order to achieve normal and safe operation of the truck mounted concrete pump all inspection, maintenance, and repair work must be performed. Safe inspection, maintenance, and repair will minimize maintenance costs and health hazards and maximize performance.

Maintenance Safety

Everyone involved with the operation, maintenance, and repair of the truck mounted concrete boom pump **MUST READ** and **UNDERSTAND** this operation manual and the accompanying American Concrete Pumping Association (ACPA) Safety Manual.



- Maintenance must be performed by trained, experienced, and certified personnel in the appropriate fields.
- The following maintenance guide is a general guide to aid trained, experienced, and certified personnel.
- Trained, experienced, and certified personnel must wear appropriate protective equipment.
- Ensure unit is shutoff and utilize lockout/tagout safety products before performing maintenance.

Recommended Daily Inspections

1) Chassis

Check

- Engine oil level
- Fuel tank level
- Tire condition and pressure
- Fuel, oil, and other leaks
- Chassis lighting, brakes, and signals

2) Sub-Frame and Decking

Check

- Subframe for weld cracks, missing bolts, deformation
- Structural integrity of decking, steps, walkways
- Tool boxes and miscellaneous features are secure

3) Drive Components

Check

- Power take-off mounting secure and oil level
- No interference of drive lines
- All hydraulic pumps in good condition
- Cables, wires, hoses, and tubing secure
- Hydraulic leaks
- Lubrication points

4) Outriggers

Check

- For missing parts such as rollers, pins, bolts, and nuts
- Hydraulic cylinders are secure
- Foot pads secure
- Condition of hydraulic hoses and tubing
- Switches undamaged, emergency stop switch-push/pulls
- Level sight gauge in good condition
- Lubrication points

5) Boom Pedestal and Rotation Assembly

Check

- Pedestal and rotation assembly for structural damage and/or cracked welds

- Rotation gear mounting bolts are secure
- Drive pinion and gear teeth in good condition
- Reduction unit securely mounted
- Rotation limit stops in good condition
- Delivery piping, clamps secure
- Hydraulic hoses, tubing secure, properly clamped no leaks
- Oil levels full
- Lubrication points

6) Boom

Check

- For structural damage and cracked welds
- Bushings, pins, and retainers secure
- Hydraulic cylinders are in good condition and securely mounted
- Hydraulic hoses, tubing secure, properly clamped with no leaks
- Delivery line not damaged, no dents, secured properly to boom
- All clamps secure, retaining pin in place
- Lubrication points

7) End Hose

Check

- For damage, condition, free of cuts internal and external
- Mounted securely to boom, support brackets intact
- Locking levers, lever springs in place, in good condition
- Hose clamps secure, retaining chain in good condition, shackles and pins tight

8) Boom Control Valve

Check

- Hydraulic control valve bank securely mounted
- Each control lever moves freely, returns when released
- Protective rubber boots in good condition
- Control identification decal in good condition
- Hydraulic tubing, hoses and electrical wiring secure and clamped
- No hydraulic leaks

9) Concrete Pump

Check

- For structural damage, cracked welds, and attachment to sub-frame

Hydraulic drive cylinders in good condition, secure, no leakage
Material cylinders secure
Water box structurally sound, clean, cover in place, drain functional
Proximity switches
S-tube shift mechanism structurally sound, all pins and retainers in place
Hydraulic shift cylinders in good condition
Bearing housing, seals etc. in good condition
Hydraulic hoses secure no leaks
Clamps of delivery pipes are loose or damaged
Lubrication points

10) Hopper Assembly

Check

For structural damage, dents, cracked welds
S-tube secure, in good condition
Condition of wear plate, wear ring, seals
Connection of S-tube to outlet seals, bearing
Hopper grating is structurally sound, opens and closes
Vibrator securely mounted, wiring connections secure
Hopper drain is functional
Transfer delivery line undamaged, secured all clamps tight with pin retainers
Outlet elbow secure, clamp tight

11) Agitator

Check

Agitator paddles and shaft for damage, cracked welds
Drive motor secure, bearings, seals housing in good condition
Control valve securely mounted, levers move freely
Hydraulic hoses and tubing secure, clamped

12) Lube System

Check

Lube pump securely mounted, gaskets, lid in place
Lube line connections tight, clamped
Ample grease in reservoir

13) Control Panel

Check

Switches in good condition, stay in position or momentary return to center
Instruments and gauges in good condition, lights operate
Control identification in good condition

14) Remote Controls

Check

Switches in good condition, stay in position or momentary return to center
Boom control levers move freely, return to center, protective rubber boots in good condition
Cord in good condition, not damaged or cut and securely connected

15) Hydraulic System

Check

Filler caps in place
Level sight gauges in good condition
Hydraulic filter condition gauges
Hydraulic oil cooler securely mounted, fan motor in good condition
Hydraulic fluid levels to proper levels
Hoses and tubing's secure, no leaks, minimal wear

16) Electrical System

Check

Electrical connections are well secured and free of rust
Wire insulators free of aging or peeling

17) Water System

Check

Filler caps in place
Level sight gauges
Water level full
Hoses and tubing minimum wear

Suggested General Inspection Schedule

	Inspection	Inspection Interval (Daily/ Per Hour)						Also Inspect
		Daily	250	500	1000	1500	2000	
General	Lubrication Points	•						Weekly
	Visual And Functional Check Of All Safety Equipment	•						
	Tighten Nuts and Bolts							As Required
	Certified Boom Inspection			•				Annually
	Wire, Hose, and Tube Conditions	•						
Hydraulic System	Oil Level	•						
	Discharge Condensed Water	•						
	Hoses and Tubes	•						
	Replace All Hydraulic Oil And Analyze				•			
	Clean Hydraulic Cylinders				•			
Drive Cylinder	Seals Of Hydraulic Cylinders							Monthly
Hydraulic Oil Filter	Replace Filter Element							As Required
Water Tank	Water Level	•						
Gearbox	Replace All Oil In Gear Box			•				
	Rotating Speed Reducer			•				

Operation Manual of Truck Mounted Concrete Pump

	Inspection	Inspection Interval (Daily/ Per Hour)						Also Inspect
S-Tube	Wear	•						
	Check And Adjust Enclosed Gasket	•						
	S-Tube Bolt			•				
Delivery Pipe	Clamps	•						
	Wall Thickness	•						
	Gaskets			•				
Concrete Piston	Connector		•					
	Concrete Cylinder And Concrete Piston Wear	•						
Delivery System	Wear	•						
Lubrication System	Oil Level	•						

LUBRICATION

The truck mounted concrete pump is equipped with several critical areas that require lubrication.

CAUTION

- Rapid wear and component breakdown will result if the unit is operated with inadequate lubrication.
- Follow the recommended interval and if need be increase the interval when above normal usage takes place.

Boom and Outrigger Area Lubrication

Boom and outrigger lubrication points involve all the articulated joints on the boom, the swivels and rotating joints of the concrete delivery piping and the pivot points of the swing out outriggers.

CAUTION

- Before making the connection of the lube pump to grease fitting be sure to clean the grease fittings to prevent contaminants from entering the lube point.
- Wipe off any excess lubricant after greasing.

Recommended interval: every 60 hours of operation under normal usage, more frequent as required.

Concrete Pump Area Lubrication

Some of these areas critical lube points are connected to the central lubrication distribution block and fed by the automatic lube pump. The main lube pump and reservoir is located at rear of unit near hopper. This system will automatically feed the central distribution block at the preset interval.

CAUTION

- The reservoir must be checked and lubricant replenished if necessary on a daily basis.
- For areas not connected to the auto lube system, use a manual lube pump and pump a sufficient number of strokes to ensure thorough lubrication of each point.
- Visually check each point and wipe off any excess lubricant.

Rotation Bearing Lubrication

Greasing serves to reduce the ball friction and maintains the bearing seal as well as offering protection against the entry of contaminants. Inject the grease until it is made to exit from the gasket.

For lubrication of gear teeth on bearing and pinion, smear or brush recommended oil on all areas of teeth.

Bearing lubricant: **GENERAL PURPOSE GREASE, SHELL ALVANIA ELPFH2
OR EQUAL**

Gear teeth lubricant: **SHELL MALLEUS FLUID “C” OR EQUAL**

Recommended interval: **EVERY 100 HOURS OF OPERATION**

Gear Reduction Unit Lubrication

This unit is located on the outside of the turret pedestal and requires attention on a daily basis. An oil level plug is located on side of reduction unit. The breather and fill extends from reduction unit opposite oil level plug and is readily accessible. Remove the cap to add oil if necessary.

Lubricant: **SHELL OMALA OIL 150**

Interval: **CHECK DAILY FILL AS REQUIRED (TOTAL CAPACITY OF OIL = 5.6 LITERS)**

Power Take-Off (PTO) Lubrication

The PTO unit contains two (2) areas requiring lubrication attention. One area is the main gear box and the other is the pump shaft cavity.

The oil level plug for the main section is located on side of the casing. Remove plug to check level. When required add oil through breather fill fitting.

The oil level plug for the pump shaft cavity is located on side of flange ring. Remove plug to check level. When required add oil through cavity breather fill unit.

Recommended lubricants are mineral oil meeting CLP DIN 51517-3 and synthetic oils meeting CLP PG DIN 51517-3 and CLP HC DIN 51517-3. Check level every 100 hours of operation

HYDRAULIC SYSTEM MAINTENANCE

The concrete boom pump is equipped with 2 hydraulic systems. One system is used to meet the hydraulic requirements for concrete pump operation and the other hydraulic system is used for the boom and outrigger operations. Contamination is the most common cause for hydraulic system failure. Extreme care must be exercised to prevent contaminants from entering the system. Always cap or plug open ports and hydraulic lines.

The concrete boom pump utilizes in its hydraulic system a fluid manufactured by the SHELL OIL CO. and is designated as TELLUS #46. It is to be used in ambient temperatures of 39-90° F (4-32° C). The normal fluid temperature will range from 100-167° F (38-75° C).

CAUTION

- Use only shell tellus 46 or equal hydraulic fluid and never mix with other type fluids. Always use a CLEAN fluid. Using impure or other type of fluids not specified will contaminate the hydraulic system and can lead to eventual system malfunction or damage and possibly deteriorate the hydraulic seals.
- Fluid Level - It is important that the fluid level of the boom and pump hydraulic systems be checked constantly. Maintain fluid to proper level at all times.
- Return Filters - For the concrete pump these are 10 micron filters with disposable elements. Change element when filter condition gauges indicates to do so. For the boom system the element is a 25 micron type.
- Pressure Filters - These filters are 10 micron filters with disposable element. Change when condition indicator depicts to do so. The boom filter is also a 10 micron filter with condition indicator.

- Hydraulic Tank - Change oil in tank every 1500 hours of operation or yearly whichever comes first.

Adding Hydraulic Fluid

CAUTION

- Exercise extreme care when adding fluid to the hydraulic tank, preventing contamination.
- 1) To prevent any dirt or water from entering the hydraulic tank, thoroughly clean area around filler opening.
 - 2) Fill appropriate reservoir with clean hydraulic fluid using clean pump filters and fine wire mesh, 200 mesh or finer.
 - 3) Replace filler cap immediately after filling tank to proper level.

CAUTION

- Do not use a cloth for straining fluid as lint is harmful to the hydraulic system.

Filter Servicing

Hydraulic filters in the system provide continuous hydraulic fluid filtration to prevent contamination which will cause rapid wear, component breakdown, and eventual failure.

The filter assemblies on the pump circuit are equipped with condition indicators. These need to be checked periodically and the element changed when so indicated.

CAUTION

- The filter for the boom hydraulics is a pressure filter. It is not equipped with a condition indicator thus a log needs to be kept and element changed every 250 hours of operation.
- 1) Shut off machine and use Lockout/Tagout. On pump circuit allow accumulator system to depressurize.

- 2) Place a drain pan underneath the filter housing to catch any fluid drainage.
- 3) Clean area around filter housing.
- 4) On the return filters carefully unscrew filter element, remove and discard properly.
- 5) For the high pressure filters loosen bolt on bottom of filter housing until free then remove element.
- 6) If element has a gasket lightly smear a small amount of oil on the element gasket.
- 7) Replace the element in the filter and secure filter housing.
- 8) Start up machine and observe for any leakage.

CAUTION

- Don not wash and reuse filter elements, use new filters to prevent contamination.

Cleaning the Hydraulic Tank

The boom hydraulic tank is located inside the boom pedestal. The tank is equipped with a filler breather cap located on top of the tank as well as return filter assembly and a high pressure filter.

The pump hydraulic tank is located on the right side between the front and rear outriggers. The tank is equipped with a filler cap located on top of the tank and access covers on both the outer side and top side of the tank. On the side of the tank, there are 2 suction filters for pre-filtering of the fluid before it enters the system.

CAUTION

- The hydraulic tanks should be drained and cleaned after 1500 hours of operation or yearly whichever comes first. This will assist in keeping the systems clean and in proper condition. The following is suggested and generally will apply to both hydraulic tanks.
- 1) Shut off machine and use Lockout/Tagout. On pump circuit allow accumulator system to depressurize.

- 2) Place a suitably sized drain container under the hydraulic tank drain.
- 3) Open drain valve to drain tank.
- 4) Remove the access cover(s) on the hydraulic tank being careful not to damage the gaskets.
- 5) Remove filters.
- 6) After tank has drained, flush the inside of the hydraulic tank with clean solvent and wipe clean with lint free cloths, do not use paper towels, removing any particles from tank.
- 7) Close the tank drain valve.
- 8) Reinstall the filter housings after replacing filters.
- 9) Reinstall access covers with gaskets.
- 10) Clean the filler breather with solvent and air blow dry.
- 11) Refill the hydraulic tank with new clean hydraulic fluid.
- 12) Start machine and check for leaks.

Bolt Torque Chart

Tightening-moment is determined by bolt diameter, bolt material, and loading area of bolt head. Refer to the following charts for general torque values. When replacing bolts, new bolts of identical dimensions and grades must be used.

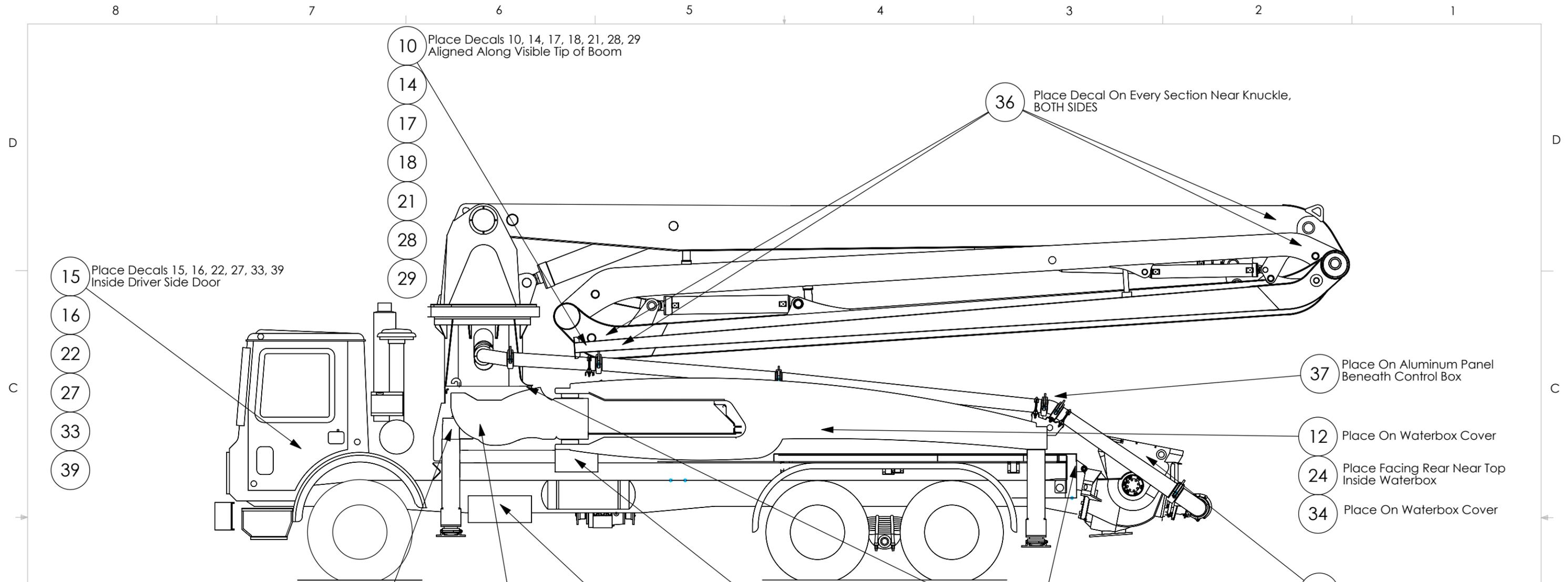
Bolt Size	Pitch h 0.2d (mm)	Grade		Grade		Grade	
		4.6		5.6		6.8	
		Force	Torque	Force	Torque	Force	Torque
		N	T (Nm)	N	T (Nm)	N	T (Nm)
M8	1.6	5800	9	7140	11	11200	
M10	2	9310	18	11300	22	17800	36
M12	2.4	13500	32	16500	39	25900	62
M16	3.2	25200	80	30800	98	48300	154
M20	4	39400	158	48000	192	75600	302
M24	4.8	56800	272	69100	332	108000	518
M30	6	90300	542	109000	654	172000	1032
M36	7.2	131000	943	160000	1152	151000	1807

Bolt Size	Pitch 0.2d (mm)	Grade		Grade		Grade	
		8.8		10.9		12.9	
		Force	Torque	Force	Torque	Force	Torque
		N	T (Nm)	N	T (Nm)	N	T (Nm)
M8	1.6	14800	23	21200	34	24800	39
M10	2	23500	47	33600	67	39400	78
M12	2.4	35400	85	49000	118	57200	137
M16	3.2	66100	211	91000	291	106000	339
M20	4	102000	408	142000	568	166000	664
M24	4.8	148000	710	205000	984	239000	1174
M30	6	235000	1410	326000	1956	380000	2280
M36	7.2	343000	2470	474000	3412	554000	3988

Hose Torque Chart

When tightening hoses and tubes, refer to the following table:

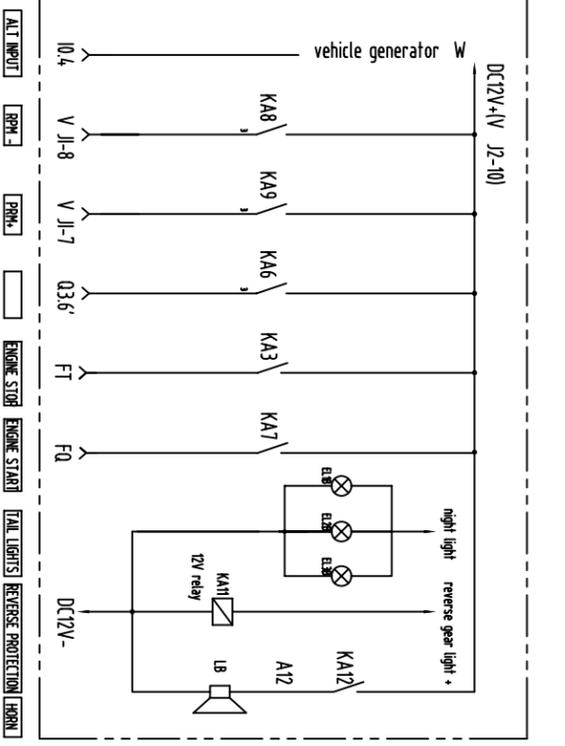
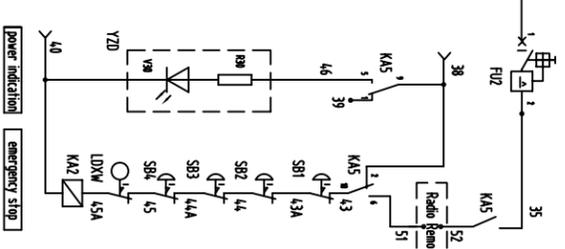
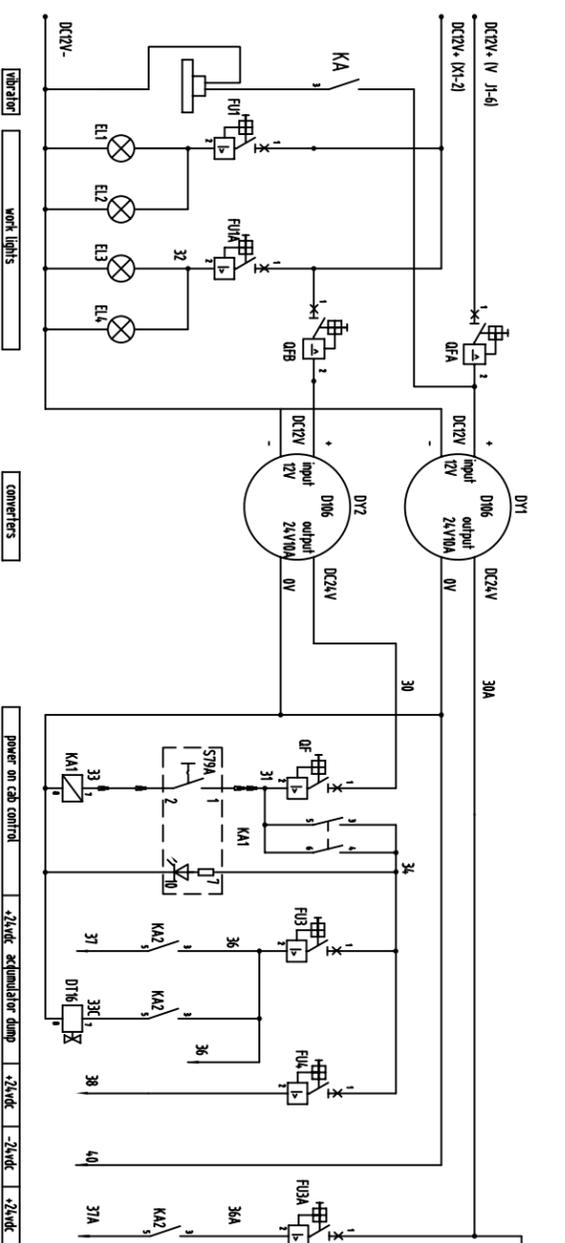
Hose Size		Md (Nm)	Hose Size		Md (Nm)
6	L	20	18	L	120
8	L	40	20	S	250
12	L	55	25	S	400
15	L	70	30	S	500
16	S	130	38	S	800



CPMA ID	REED #	REED Description	CPMA Qty
10	803240	Decal, Blockage Hazard	1
11	803223	Decal, Tipping Hazard	2
12	800916	Decal, Waterbox Hazard	1
13	803224	Decal, Do Not Step	2
14	800922	Decal, Reverse Pump	1
15	800925	Decal, Safety Training	3
16	800929A	Decal, Safety Gear	1
17	800921	Decal, Over Pressure Hazard	1
18	800923	Decal, Retaining Pins	1
19	800919	Decal, Crushing Hazard	4
20	803225	Decal, Leaks Hazard	8
21	800928	Decal, Boom Crack Hazard	1
22	803226	Decal, How to Order	1
23	800918	Decal, Agitator Hazard, Foot	2
24	803227	Decal, Missing Guard	1
25	800917	Decal, Agitator Hazard, Hand	2
26	803228	Decal, Off Platform	4
27	803229	Decal, CPMA	1
28	803230	Decal, Starting Discharge	1
29	800927	Decal, Not a Crane	1
30	803231	Decal, Toxic Dust	2
31	800915	Decal, Stay Clear	4
32	803232	Decal, Extending Outrigger	2
33	803233	Decal, Safety Instructions	1
34	800924	Decal, Remote Control	1
35	803234	Decal, Outriggers	2
36	800913	Decal, 17Ft Hazard	8
37	800930	Decal, 1-14 Op Signals	1
38	803235	Decal, 1-7 Op Signals	0
39	803236	Decal, CPMA	1
40	803237	Decal, Pressurized Pipes	25
41	803238	Decal, Pressurized Hoses	25
42	803239	Safety Tags	25

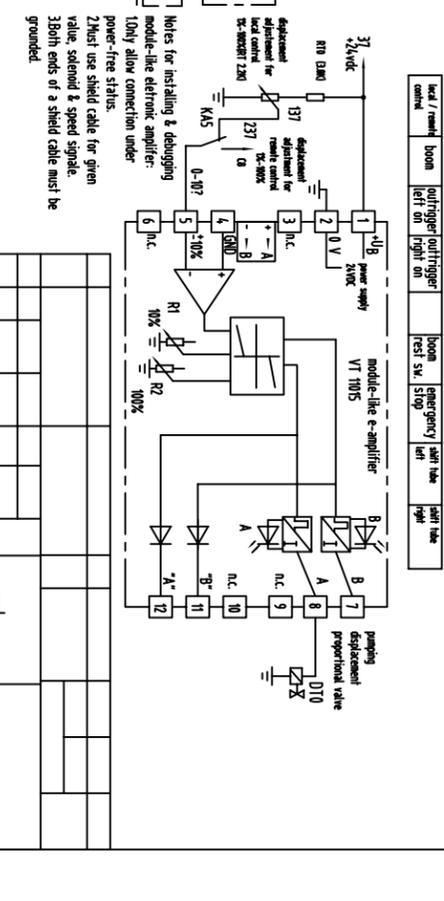
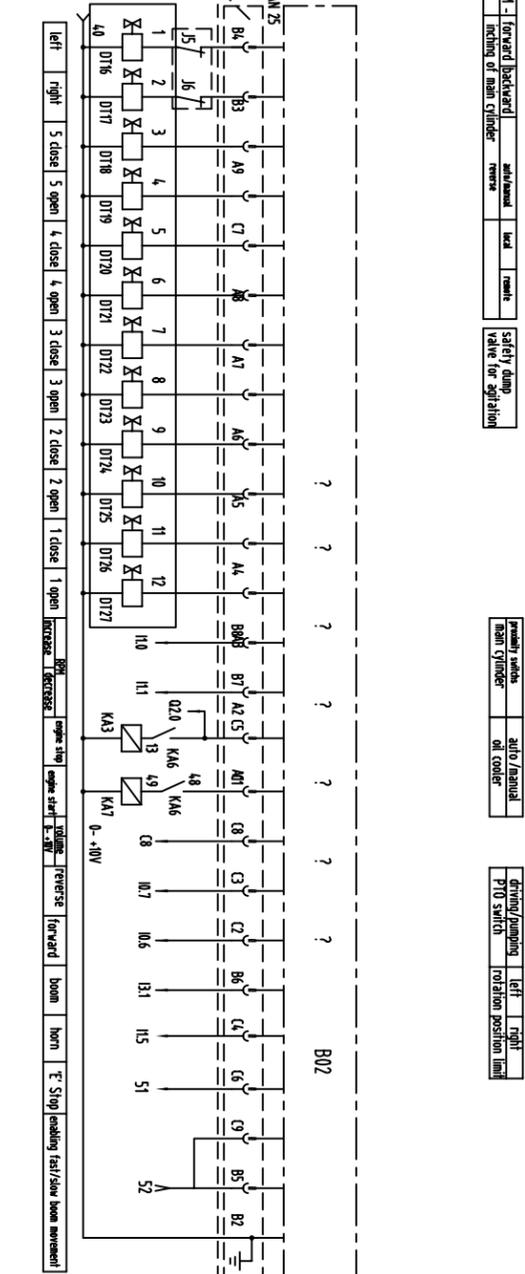
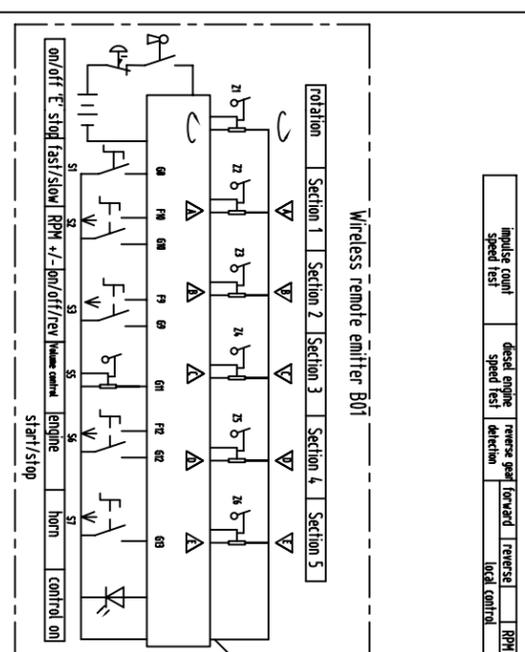
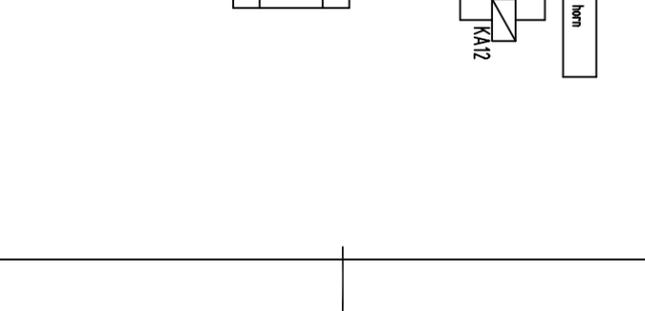
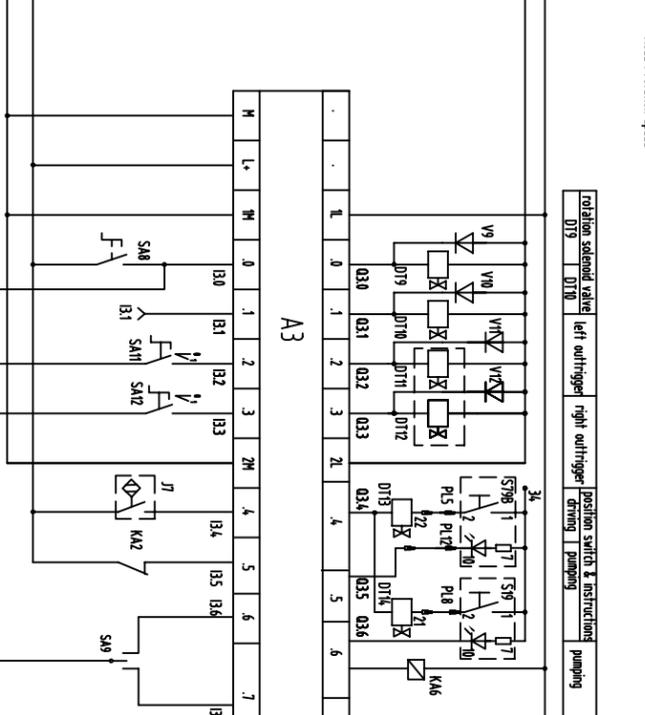
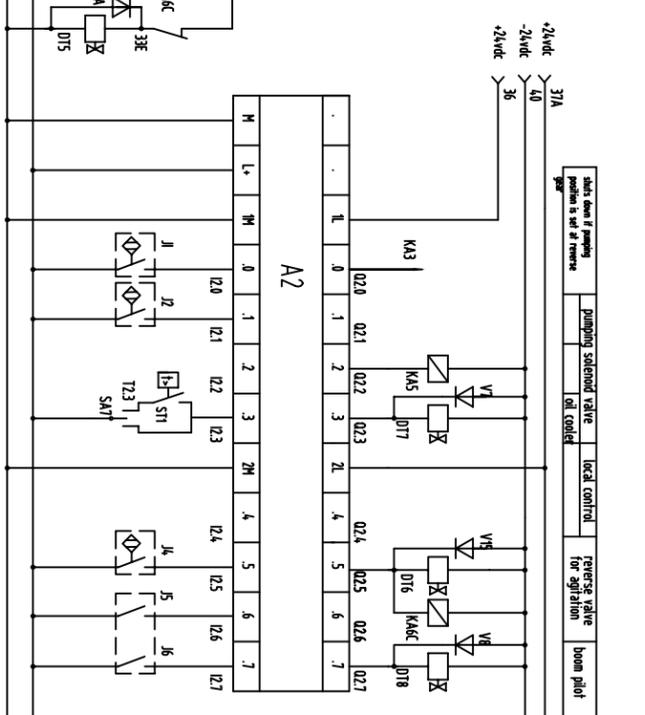
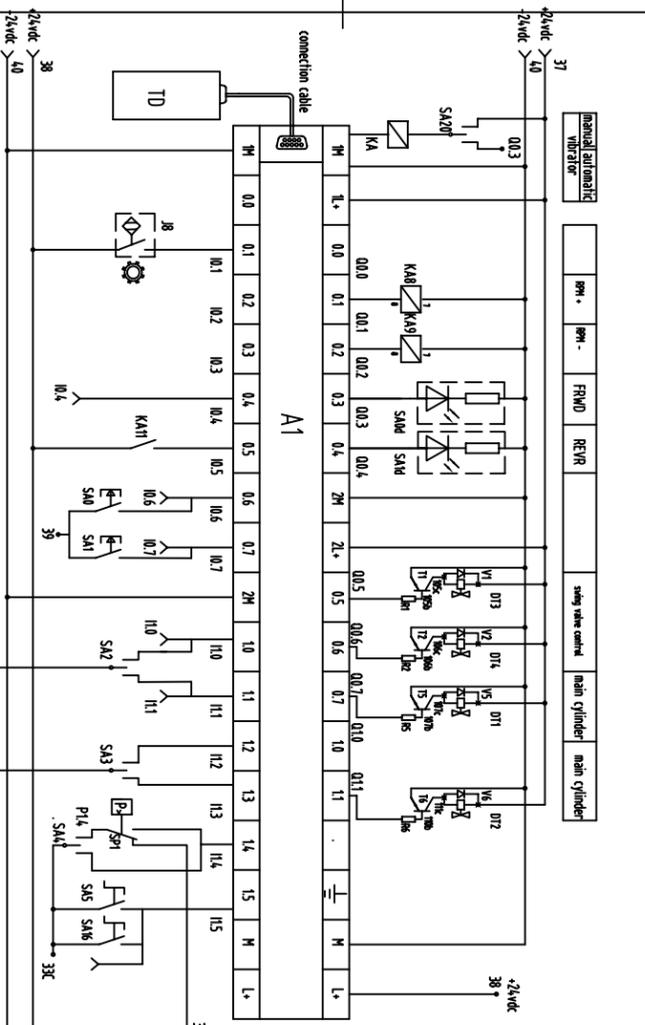
NOTES
 1. Place Decals 40, 41 Next To Clamps ON ALL Straight Pipe
 2. Place Decal 42 ON ALL Clamps

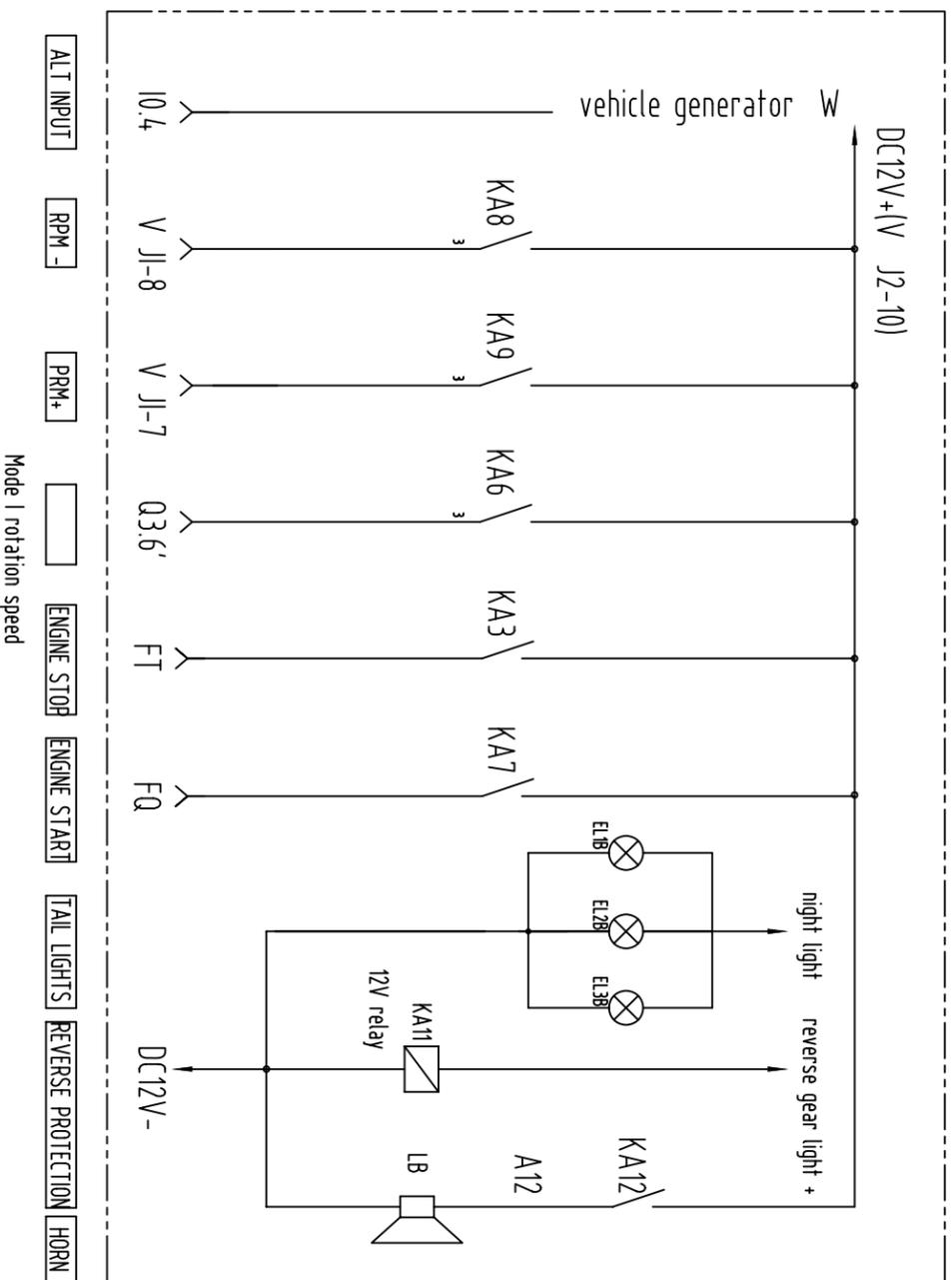
				DO NOT SCALE DRAWING UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES			REED CONCRETE PLACING EQUIPMENT CHINO, CA 91710	
				TOLERANCES: FRACTIONAL ± 1/16 XX ± .031 XXX ± .010 ANGULAR: MACH ± 1 BEND ± 1			TITLE Decal Legend	
				BREAK ALL SHARP EDGES .010 MAX x 45			MATERIAL MATERIAL	
				ALL MACHINED SURFACES UNLESS OTHERWISE SPECIFIED			PART NUMBER 803243	
REV DATE DESCRIPTION OF CHANGE BY				DRAWN CT 0606			THIS DRAWING IS THE PROPERTY OF REED MANUFACTURING AND IS LOANED WITHOUT CONSIDERATION OTHER THAN THE BORROWERS AGREEMENT THAT IT SHALL NOT BE REPRODUCED, COPIED, LOANED, OR DISPOSED OF, DIRECTLY OR INDIRECTLY, NOR USED FOR ANY PURPOSE OTHER THAN THAT FOR WHICH IT IS SPECIFICALLY FURNISHED.	
REVISION				CHECKED CT 0606			REV. SHEET 1 OF 1	



1 Movement status of each solenoid valve:

work status	solenoid	D11	D12	D13	D14	D15	D16	D17	D18	D19
positive pump	+	-	-	+	-	-	-	-	-	-
reverse pump	-	+	+	-	-	-	-	-	-	-
inching forward	-	-	-	-	-	-	-	-	-	-
inching backward	-	-	-	-	-	-	-	-	-	-
swing cylinder forward	-	-	-	-	-	-	-	-	-	-
swing cylinder backward	-	-	-	-	-	-	-	-	-	-
oil cooler	-	-	-	-	-	-	-	-	-	-
positive agitator rotation	-	-	-	-	-	-	-	-	-	-
reverse agitator rotation	-	-	-	-	-	-	-	-	-	-
warning horn & siren	-	-	-	-	-	-	-	-	-	-
accumulator	-	-	-	-	-	-	-	-	-	-



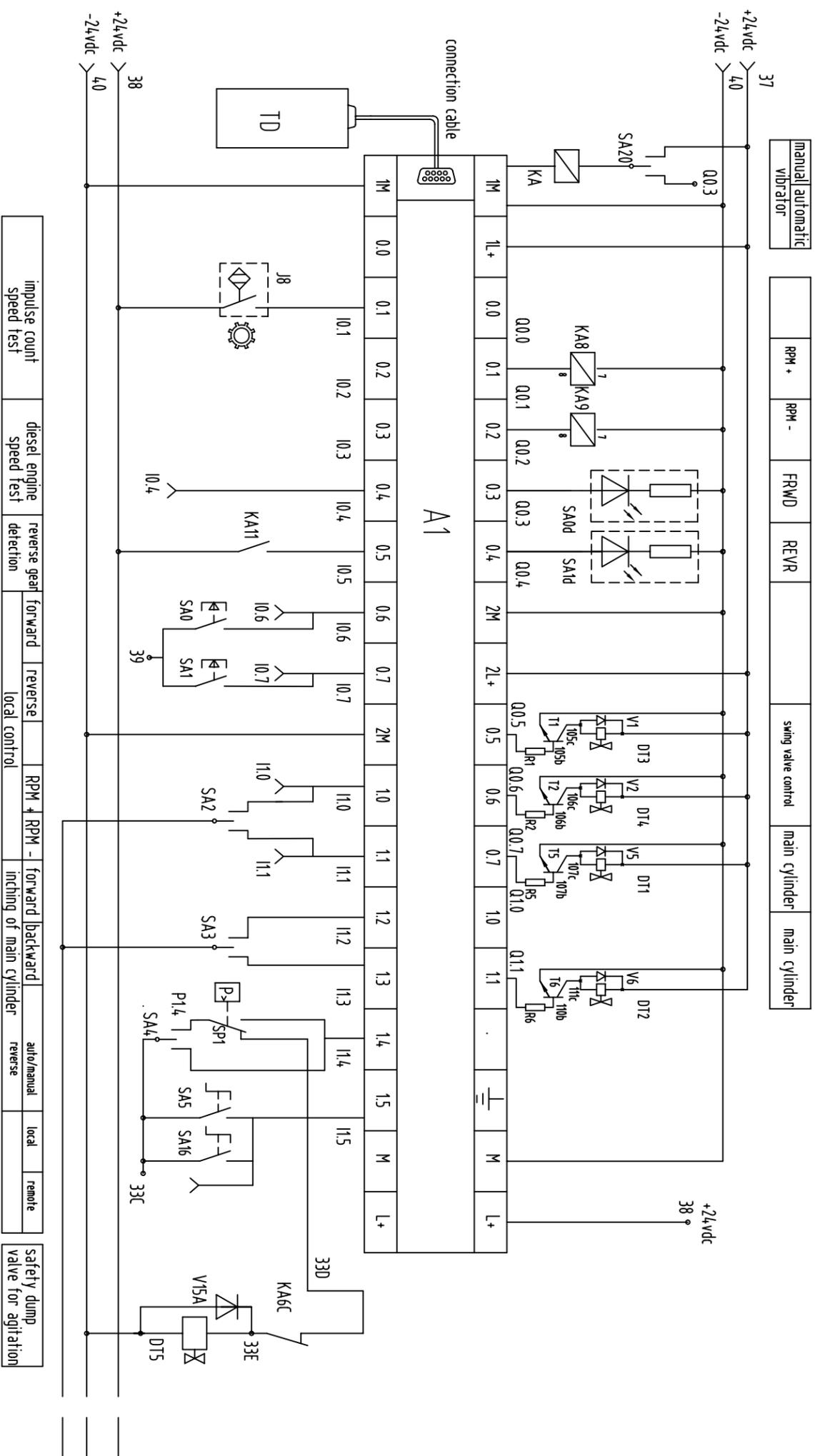


Description

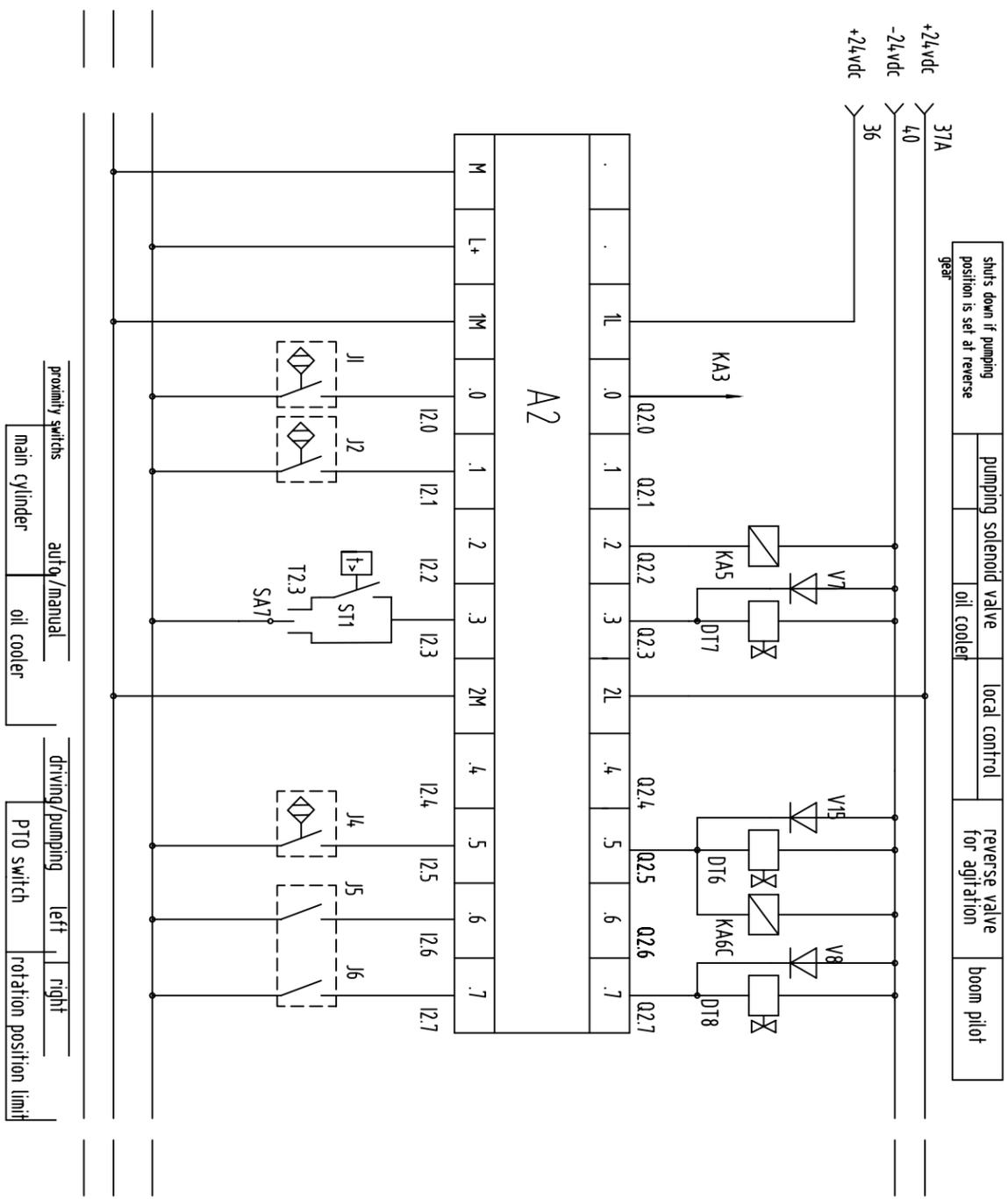
1.Movement status of each solenoid valve:

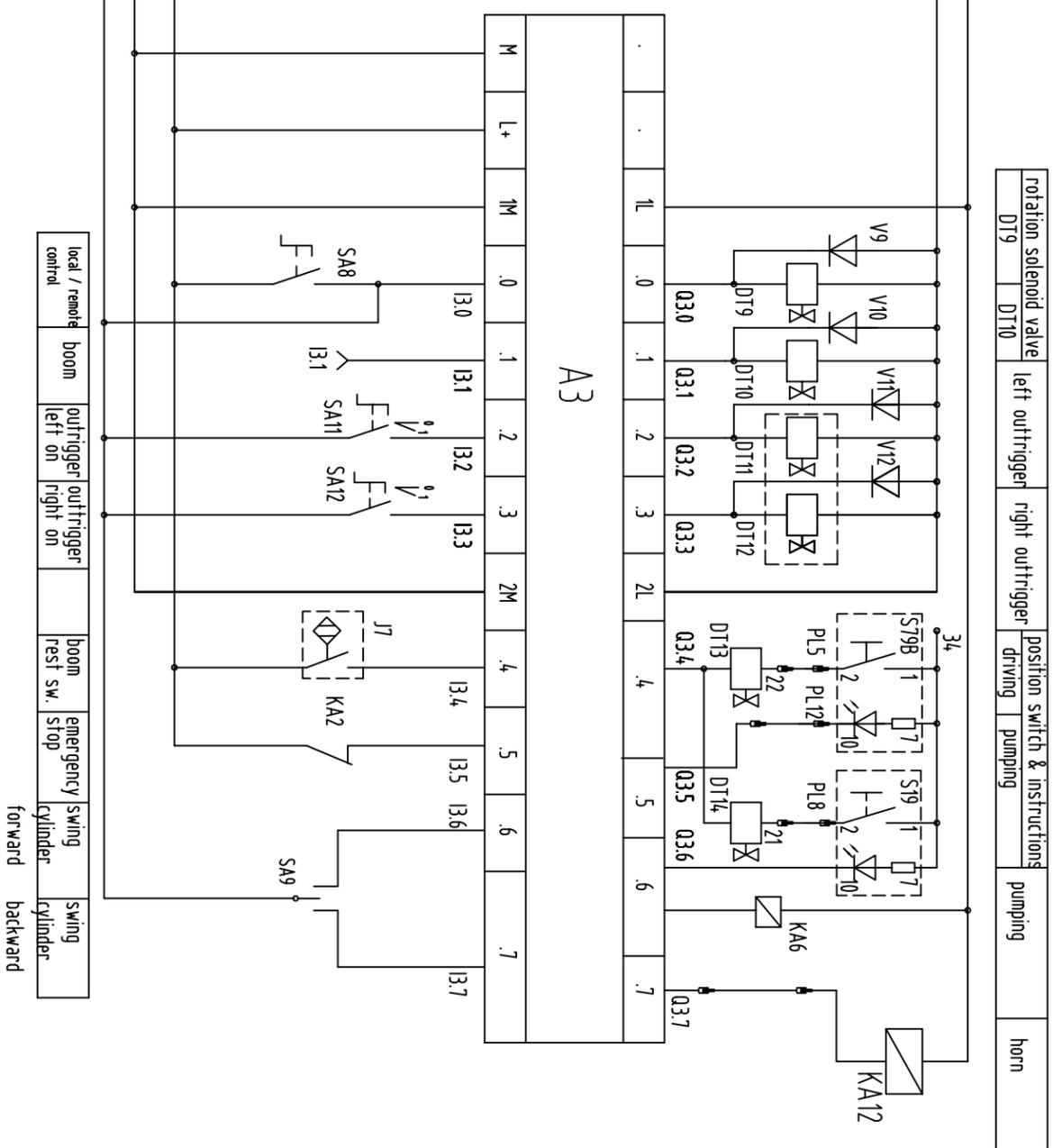
solenoid	DT1	DT2	DT3	DT4	DT5	DT6	DT7	DT8	DT16
work status									
positive pump	+/-	-/+	+/-	-/+					
reverse pump	+/-	-/+	-/+	+/-					
inching forward	+	-	+						
inching backward	-	+							
swing cylinder forward			+	-					
swing cylinder backward			-	+					
oil cooler							+		
positive agitating rotation					+	-			
reverse agitating rotation					-	+			
moving boom & outrigger								+	
accumulator									-

- 2.Vehicle chassis circuit within a block between 2 points
- 3.Remote control part within dashline block
- 4.multi-way valve within green block
- 5.Site installation of width indicator light, which is to be connected to vehicle circuit.
- 6.Relay K41 is installed on the PA panel of power distribution of modified vehicle in the cab.
- 7.X06 indicates 31-core modification plug on BBM control unit of chassis-modified vehicle.

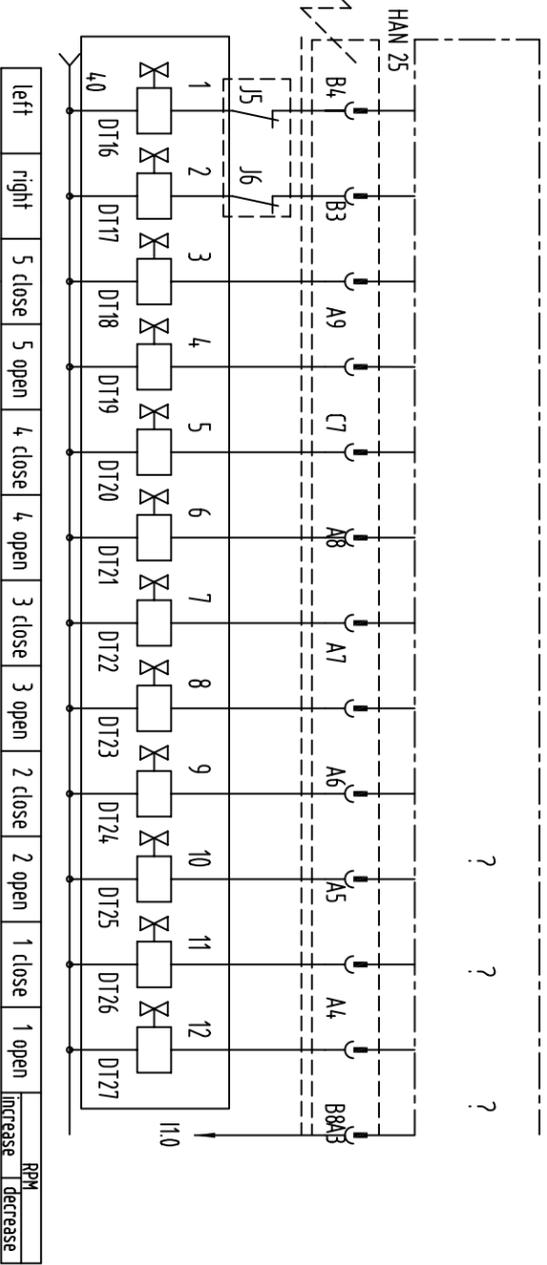
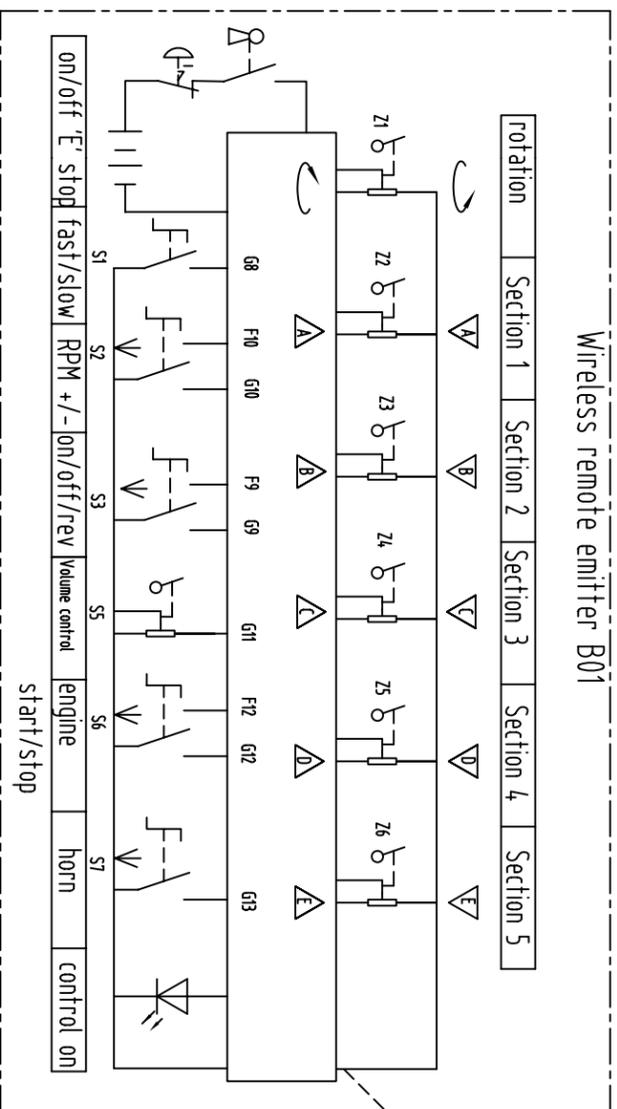


impulse count speed test	diesel engine speed test	reverse gear detection	forward	reverse	RPM +	RPM -	forward	backward	auto/manual	reverse	local	remote	safety dump valve for agitation

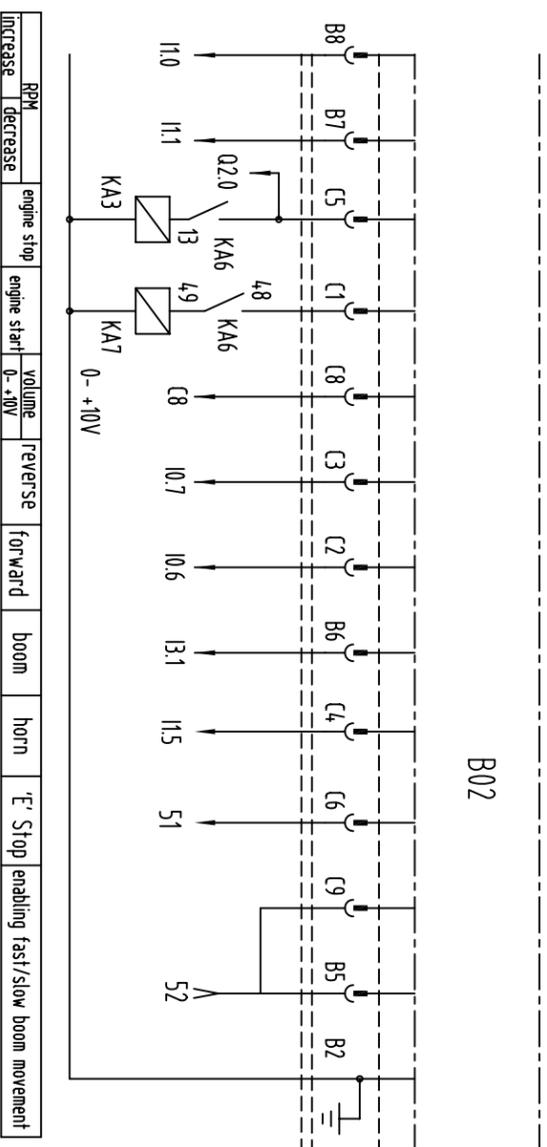




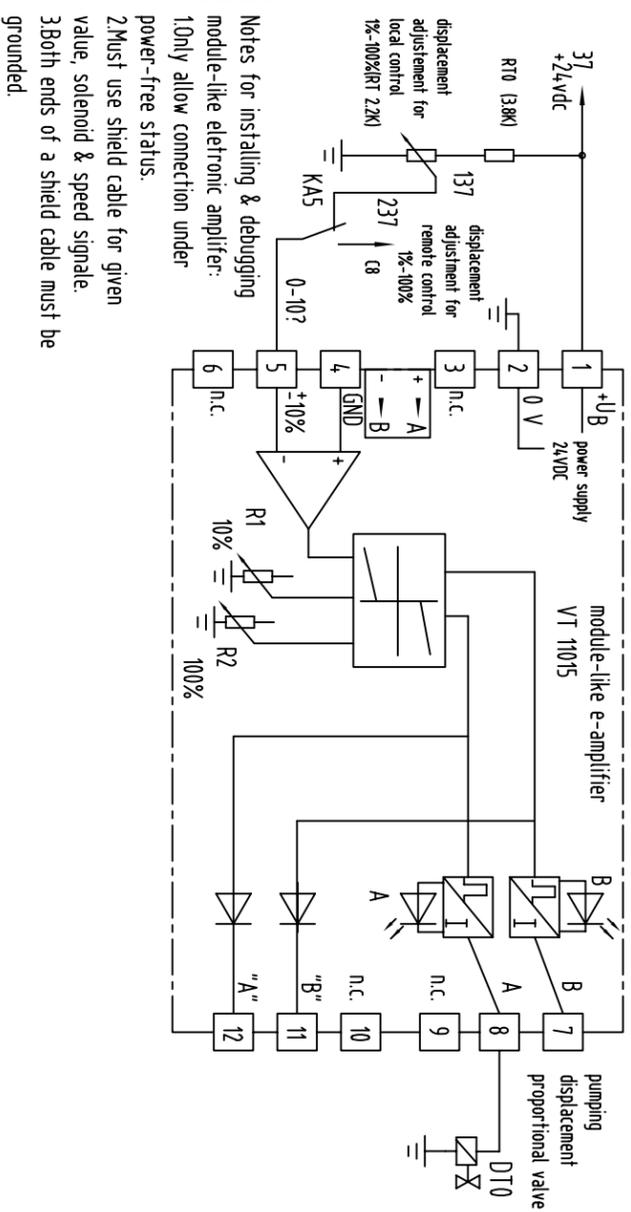
Wireless remote emitter B01



left	right	5 close	5 open	4 close	4 open	3 close	3 open	2 close	2 open	1 close	1 open	RPM increase	RPM decrease
------	-------	---------	--------	---------	--------	---------	--------	---------	--------	---------	--------	--------------	--------------



RPM	engine stop	engine start	volume	reverse	forward	boom	horn	'E' Stop enabling fast/slow boom movement
Increase	decrease		0-+10V					



Notes for installing & debugging module-like electronic amplifier:
 1. Only allow connection under power-free status.
 2. Must use shield cable for given value, solenoid & speed signal.
 3. Both ends of a shield cable must be grounded.



ST48R5

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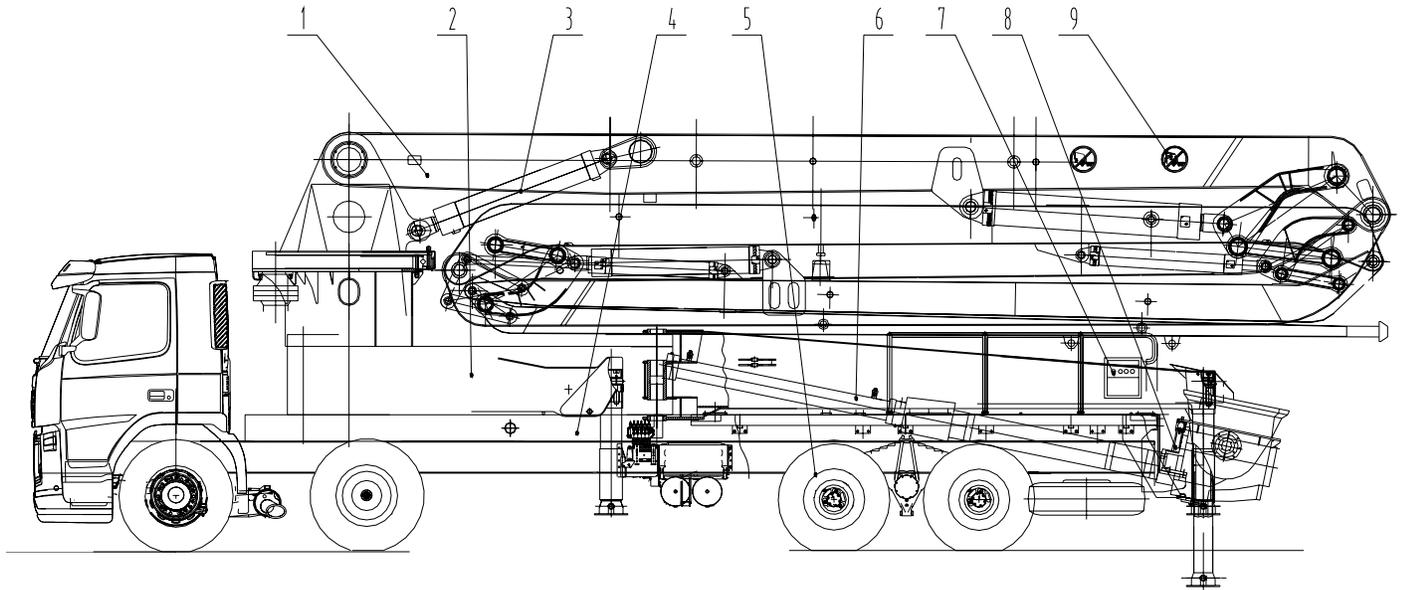


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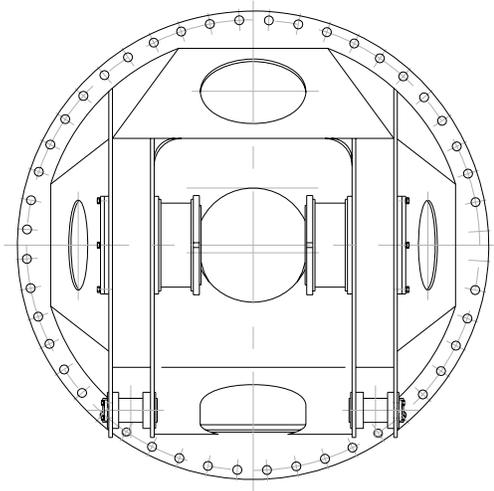
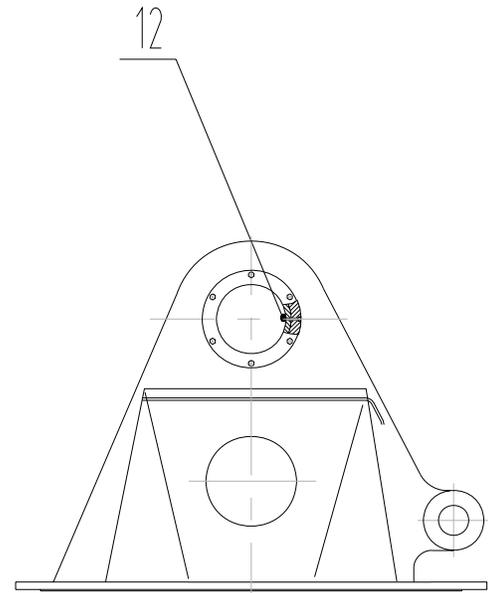
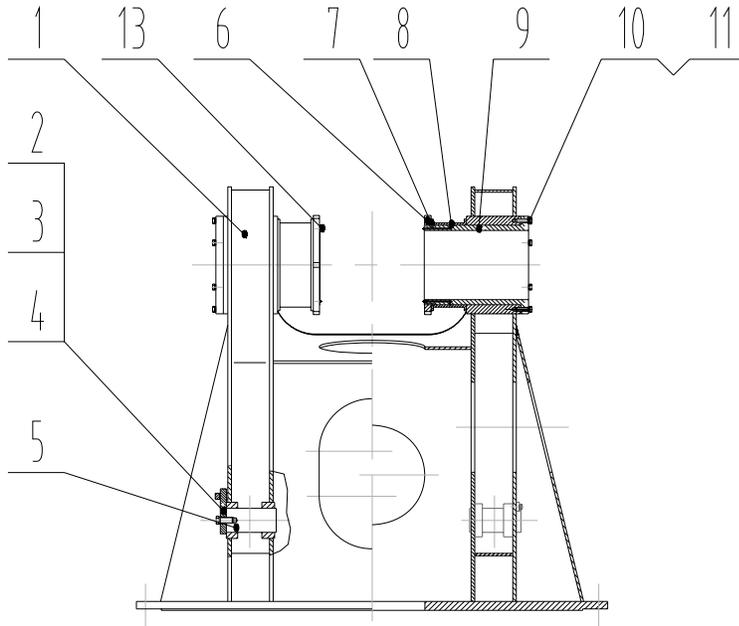
CHAPTER 1 MACHINE OVERVIEW



No.	Name	Code	Material	Parent	Weight	Quantity
1	Boom	BC48.1				1
2	Pedestal	BC48.2				1
3	Hydraulic system	BC48.6				1
4	Sub-frame assembly	BC48.4				1
5	Chassis modification	BC48.5				1
6	Pumping system	BC48.3				1
7	Electrical system	BC48.7				1
8	Lubrication system	BC48.8				1
9	Decals	BC48.9				

CHAPTER 2 BOOM

2.1 MASTHEAD





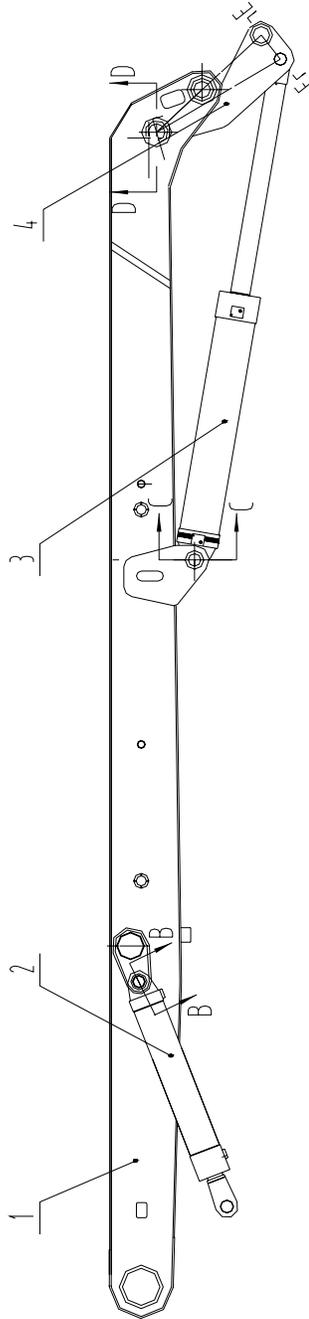
ST48R5

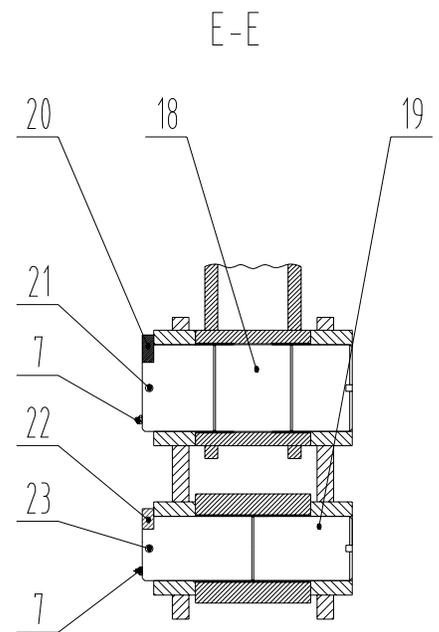
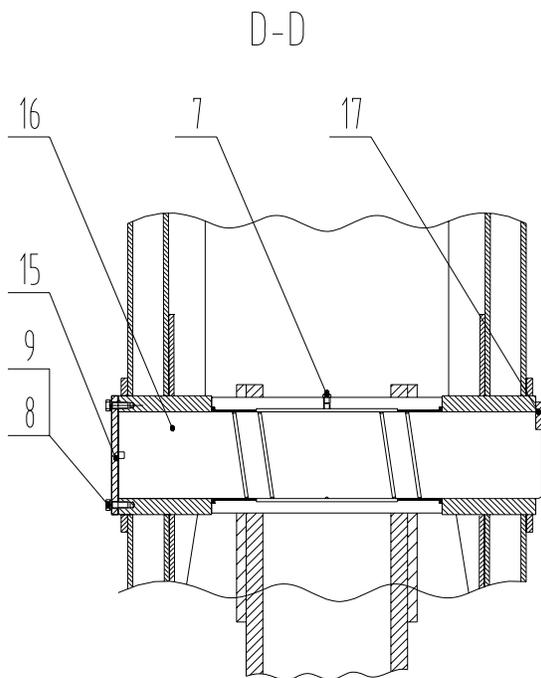
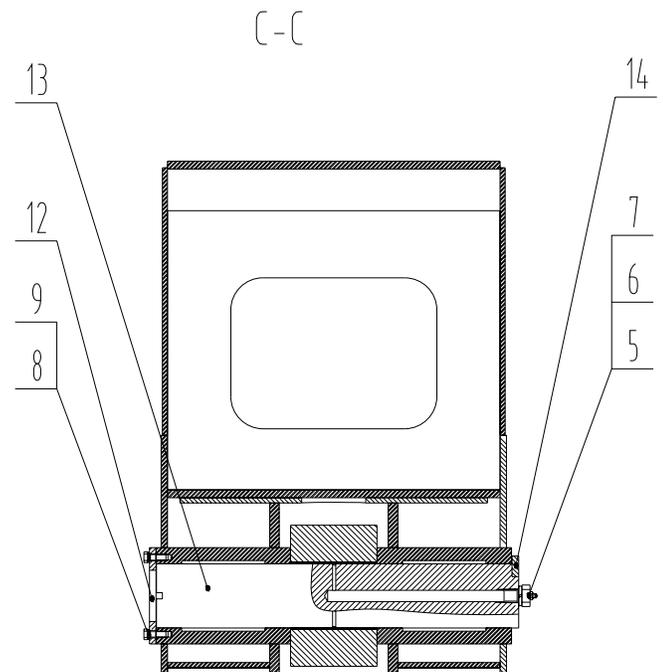
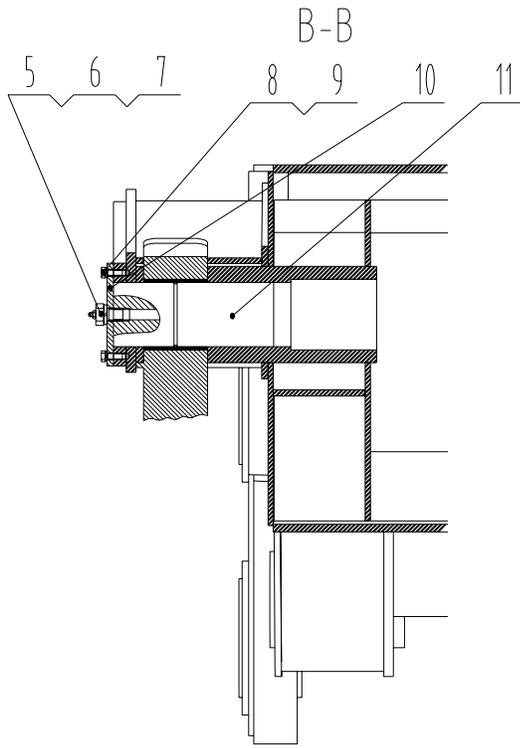
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No.	Name	Code	Material	Parent	Weight	Quantity
1	Masthead	BC48.2.3.1				1
2	Plate	BC42.2.2-1				22
3	Bolt M20×40-10.9	GB5783-86				22
4	Washer 20	GB93-87				22
5	Pin	BC48.2.3-6				22
6	Nut	BC48.2.3-3				2
7	Washer	BC48.2.3-4				2
8	Bushing 1	BC48.2.3-5				2
9	Bushing 2	BC48.2.3-1				2
10	Bolt M12×45-8.8	GB5783-86				12
11	Washer 12	GB7244-87				12
12	Bolt M8×22	GB75-85				22
13	nipple,grease nipple M6×1	GB1152-89				4

2.2 BOOM SECTION 1

2.2.1 SECTION 1





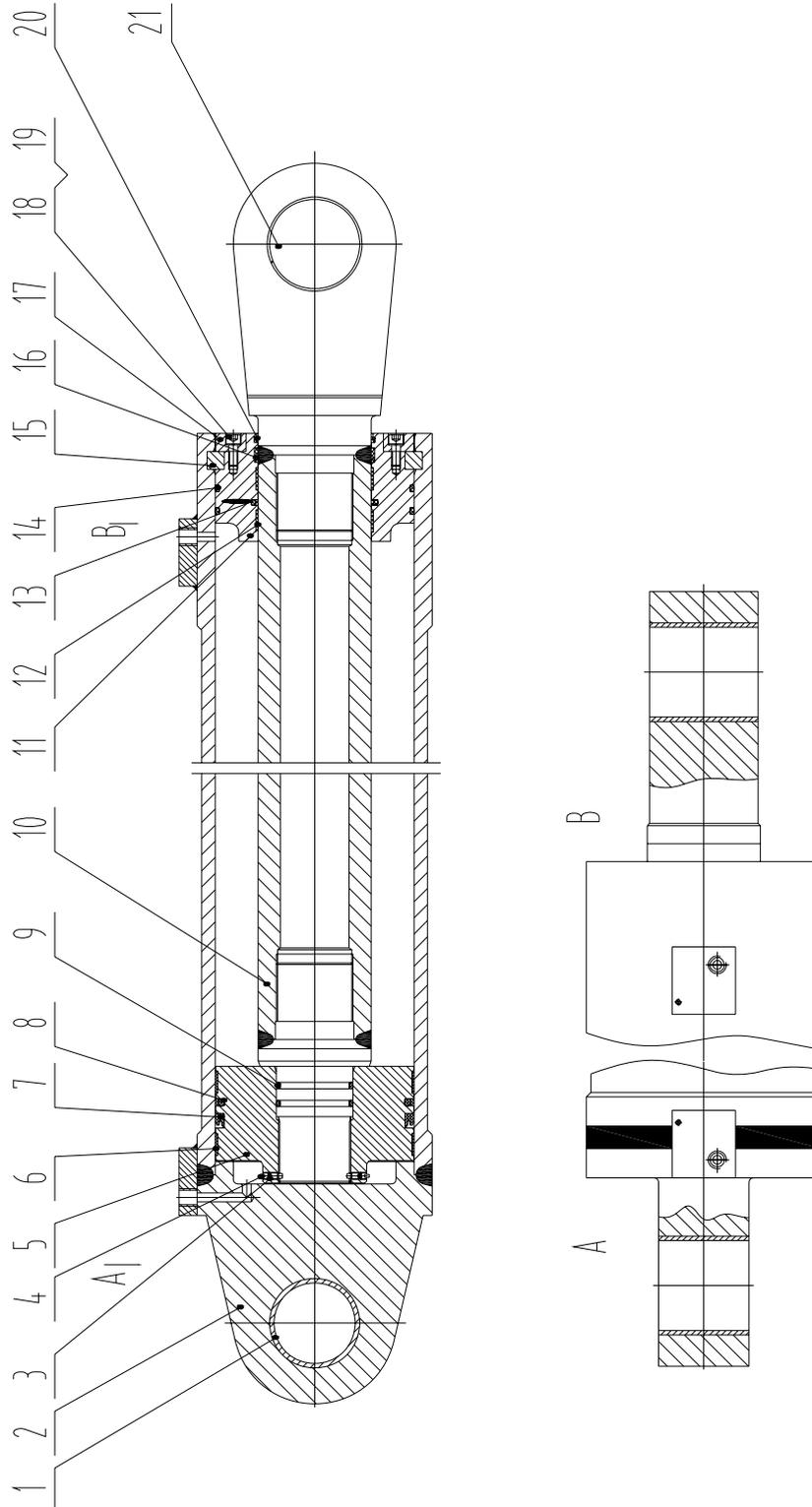


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No.	Name	Code	Material	Parent	Weight	Quantity
1	Section 1	BC48.1.1.1				1
2	Cylinder1,section1	BC48.1.1.2				2
3	Cylinder2,section1	BC48.1.1.3				1
4	lever,link lever	BC48.1.1.4				1
5	Bolt M20×30	BC48.1.1-1				3
6	Gasket 20	GB93-87				3
7	nipple,grease nipple M10×1	GB1152-89				6
8	Bolt M10×30	GB5783-86				16
9	Washer 10	GB93-87				16
10	Plate	BC48.1.1-2				2
11	Pin	BC48.1.1-3				2
12	Plate	BC48.1.1-4				1
13	Pin	BC48.1.1-5				1
14	Plate	BC48.1.1-6				1
15	Plate	BC48.1.2-5				1
16	Pin	BC48.1.1-7				1
17	Plate	BC48.1.2-2				1
18	Pin	BC48.1.1-8				1
19	Pin	BC48.1.1-9				1
20	Plate	BC48.1.1-10				1
21	pin,cotter pin 12 × 200	GB91-86				1
22	Plate	BC48.1.1-11				1
23	pin,cotter pin 12 × 160	GB91-86				1

2.2.1-1 CYLINDER 1 OF SECTION 1



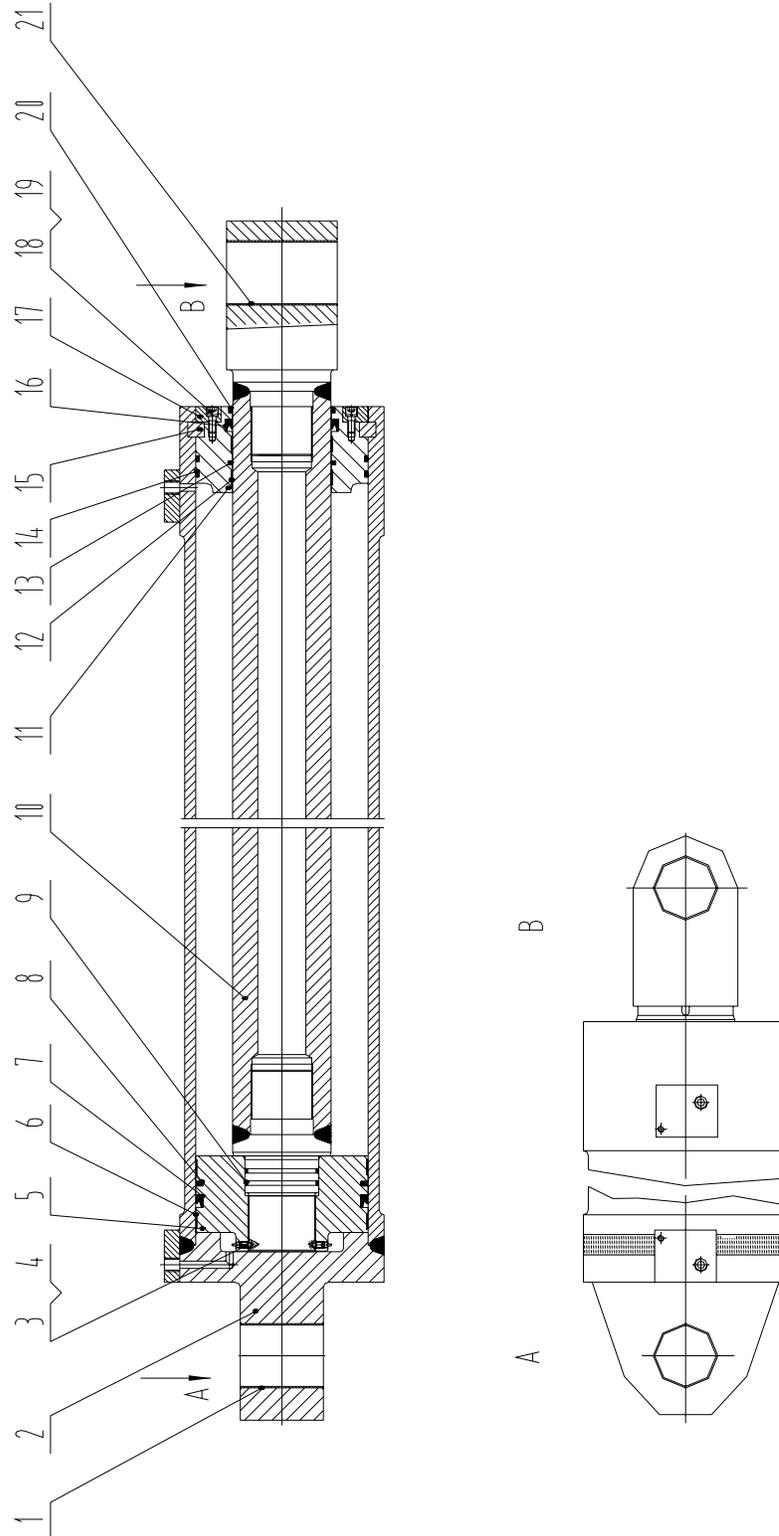


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No.	Name	Code	Material	Parent	Weight	Quantity
1	bushing,bi-metal	SJ-1				1
2	body,Cylinder body	0-01				1
3	Bolt M8×20	GB/T79-2000				2
4	ring,snap ring 115	GB/T894.1-1986				1
5	Piston	0-1/G15C				1
6	ring,guide ring 215 ×220 × 25	GP 7502200				2
7	band,guide band 220	B7 M020				1
8	seal,bearing seal 220	OK 0220				1
9	O-ring 75 ×5.3	GB/T3452.1-1992				2
10	rod,piston rod	0-02				1
11	carrier,seal carrier	0-2/G15A				1
12	ring,guide ring 125 ×130× 25	GR 7501250				2
13	Seal 125	PO-55-171-1250				1
14	O-ring 206 ×7	GB/T3452.1-1992				2
15	ring,key ring	0-3/G15A				1
16	seal,bearing seal 125	BS C233				1
17	ring,snap ring	0-4/G15A				1
18	Bolt M10×25	GB/T70.1-2000				6
19	Washer 10	GB/T93-1987				6
20	seal,ring 125	AD 0125				1
21	bushing,bi-metal	SJ-2				1

2.2.1-2 CYLINDER 2 OF SECTION 1





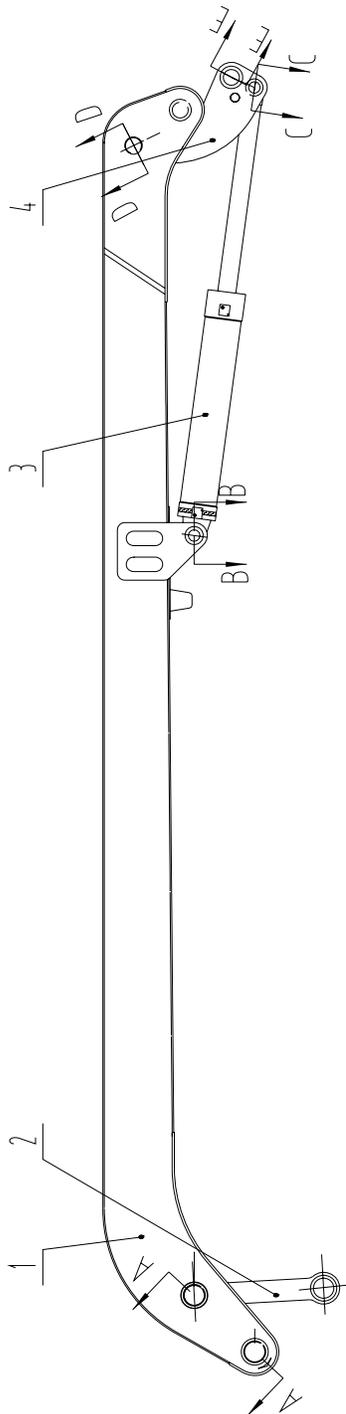
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No.	Name	Code	Material	Parent	Weight	Quantity
1	Bushing	SJ-1				1
2	body,cylinder body	0-01/G16D				1
3	Bolt M10 ×20	GB/T79-2000				2
4	ring,snap ring 150	GB/T894.1-1986				1
5	Piston	0-1/G16C				1
6	ring,guide ring 275 ×280 ×25	GP7502800C380				2
7	seal,bearing seal	B8280AP5008				1
8	seal,bearing seal	OK028000701				1
9	O-ring 109× 5.3	GB/T3452.1-1992				2
10	rod,piston rod	0-01				1
11	carrier,seal carrier	0-2/G16A				1
12	ring,guide ring 160 × 165 × 25	GR7501600C380				2
13	seal,bearing seal	OD160005200171D				1
14	O-ring 265× 7	GB/T3452.1-1992				2
15	ring,key ring	0-3/G16A				1
16	seal,bearing seal	BSG085P5008				1
17	ring,snap ring	0-4/G16A				1
18	Bolt M12 ×30	GB/T70.1-2000				6
19	Washer 12	GB/T93-1987				6
20	seal,ring	AY160A P5008				1
21	Bushing □	SJ-2				1

2.3 SECTION 2

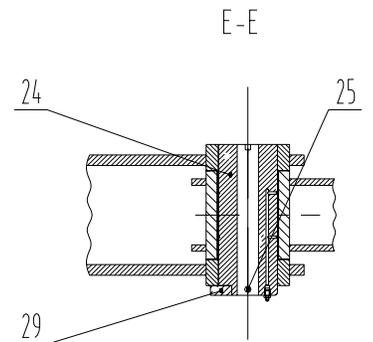
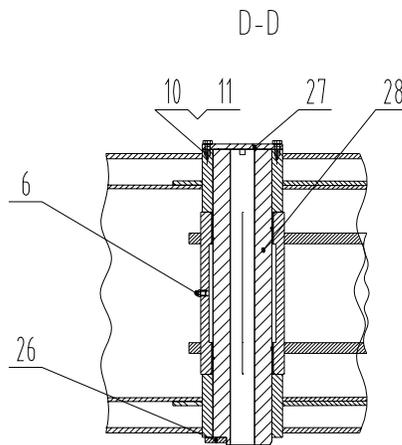
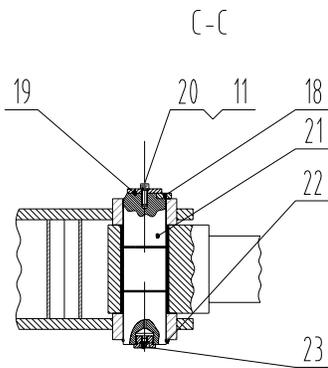
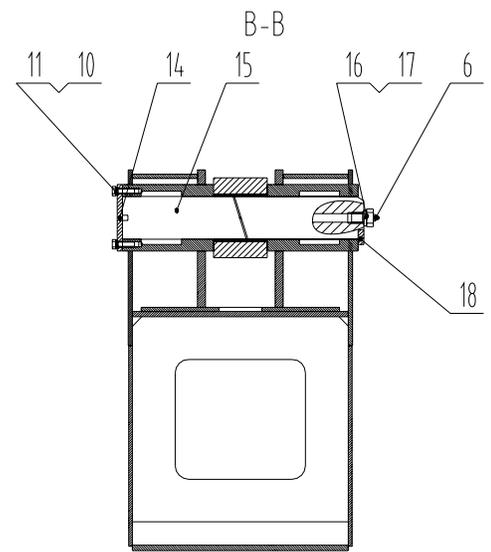
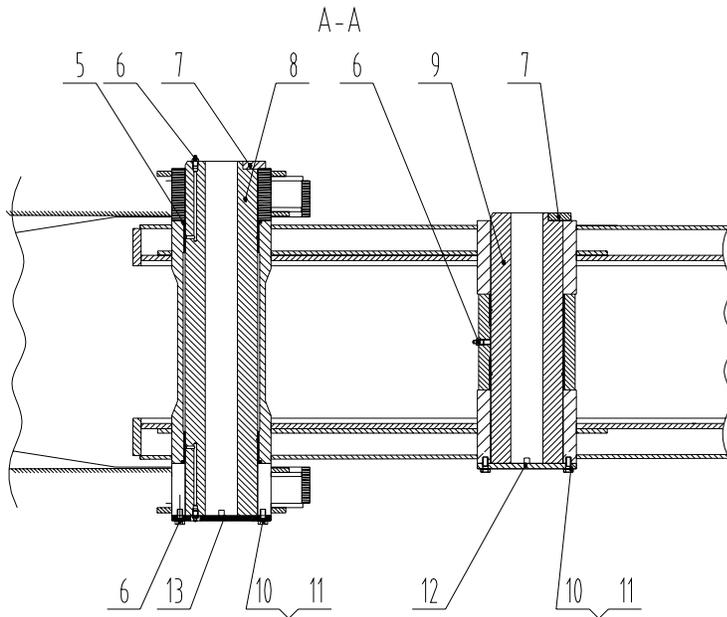
2.3.1 SECTION 2





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No.	Name	Code	Material	Parent	Weight	Quantity
1	Section 2	BC48.1.2.1				1
2	link,lever link 1	BC48.1.2.2				1
3	Cylinder,section2	BC48.1.2.3				1
4	Link,lever link 2	BC48.1.2.4				1
5	Bushing	BC48.1.2-1				2
6	Nipple,grease nipple M10×1	GB1152-89				7
7	Plate	BC48.1.2-2				2
8	Pin	BC48.1.2-3				1
9	Pin	BC48.1.2-4				1
10	Bolt M10×35	GB5783-86				16
11	Washer 10	GB93-87				13
12	Plate	BC48.1.2-5				1
13	Plate	BC48.1.2-6				1
14	Plate	BC48.1.2-7				1
15	Pin	BC48.1.2-8				1
16	Bolt M20×30	BC48.1.1-1				1
17	Washer 20	GB93-87				1
18	Plate	BC48.1.4-5				2
19	Ring,snap ring	BC48.1.4-4				2
20	Bolt M10×25	GB70-85				1
21	Pin	BC48.1.2-9				1
22	Ring,snap ring 80	GB894.1-86				1
23	Screw plug	ZBC37.1.1-7				1
24	Pin	BC48.1.2-10				1
25	pin,Cotter pin12×180	GB91-86				1
26	Plate	BC48.1.3-2				1
27	Plate	BC48.1.3-4				1
28	Pin	BC48.1.2-11				1
29	Plate	BC48.1.2-12				1



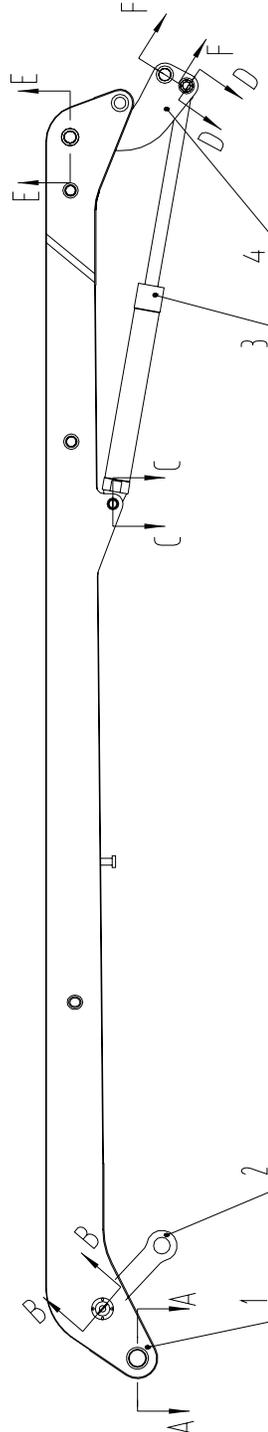
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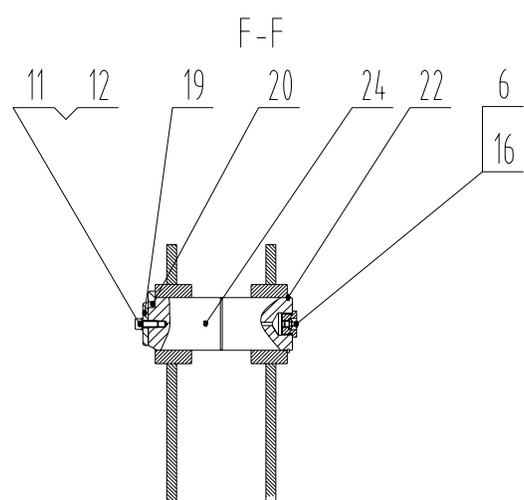
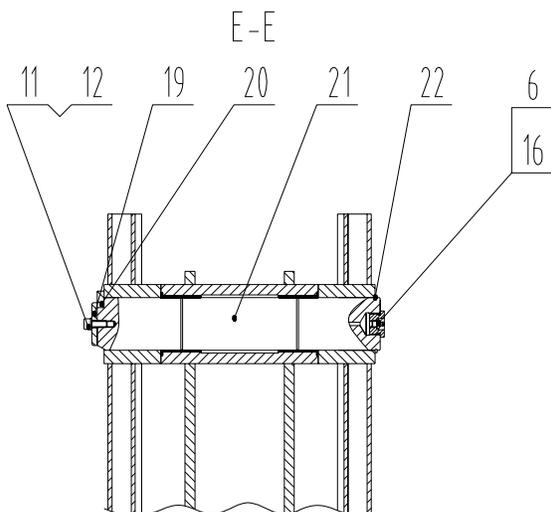
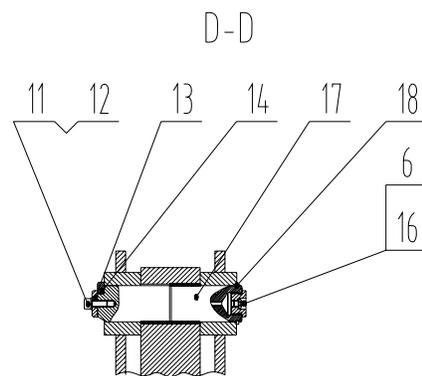
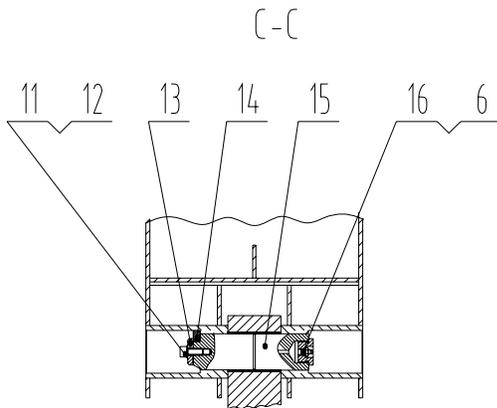
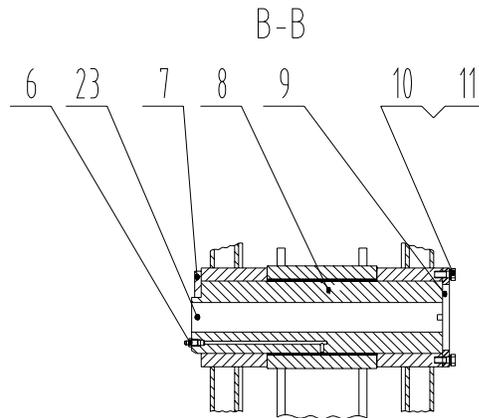
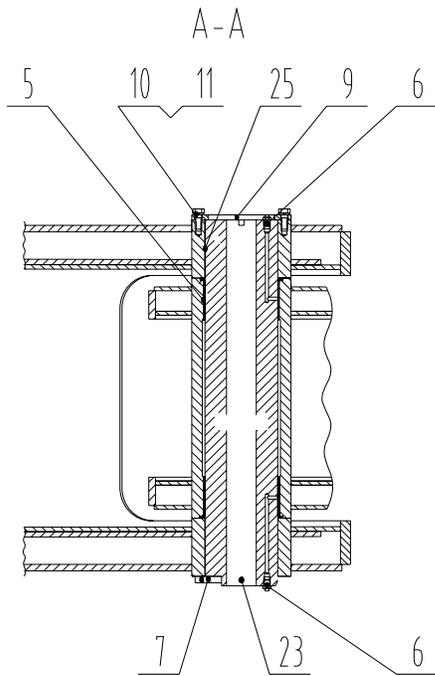
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No.	Name	Code	Material	Parent	Weight	Quantity
1	bushing,bi-metal bushing	SJ-1				1
2	Cylinder body	0-01/G17				1
3	Bolt M8 ×16	GB/T79-2000				2
4	Ring,snap ring 110	GB/T894.1-1986				1
5	Piston	0-1/G17C				1
6	Ring,guide ring 220× 215× 25	GP 750 2200				2
7	Seal,bearing seal 220× 200 ×15	B7 M020				1
8	Seal,bearing seal 220× 199 ×8	OK 0220				2
9	o-ring 75 ×5.3	GB/T3452.1-1992				2
10	Rod,piston rod	0-01				1
11	carrier,seal carrier	0-2/G15A				1
12	ring,guide ring 125× 130× 25	GR 7501250				2
13	Seal,bearing seal 125	P0-55-171-1250				1
14	O-RING 206 ×7	GB/T3452.1-1992				2
15	Seal,bearing seal 125	BS C233				1
16	Ring,key ring for hole	0-3/G15A				1
17	Ring,snap ring	0-4/G15A				1
18	Bolt M10×25	GB/T70.1-2000				6
19	Washer 10	GB/T93-1987				6

2.4 SECTION 3

2.4.1 SECTION 3





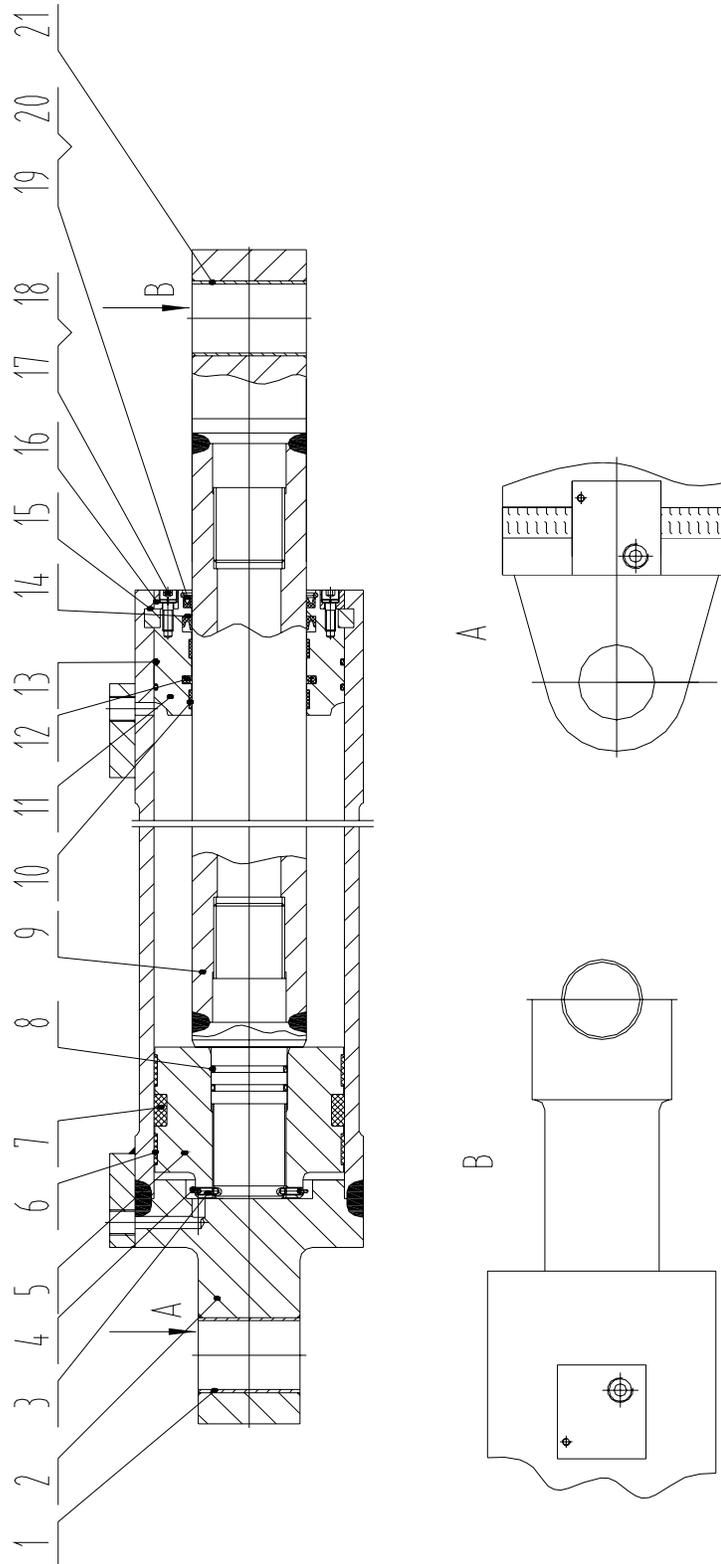


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No.	Name	Code	Material	Parent	Weight	Quantity
1	Section 3	BC48.1.3.1				1
2	Link,lever link 1	BC48.1.3.2				1
3	Cylinder,Section3	BC48.1.3.3				1
4	Link,lever link 2	BC48.1.3.4				1
5	Bushing Φ115×Φ110×60	BC48.1.3-1				2
6	Nipple,grease nipple M10×1	GB1152-89				7
7	Plate	BC48.1.3-2				2
8	Pin Φ110×380	BC48.1.3-3				1
9	Plate	BC48.1.3-4				2
10	Bolt M10×25	GB5783-83				8
11	Washer 10	GB93-87				12
12	Bolt M10×25	GB70-85				4
13	Ring,snap ring	BC48.1.3-5				2
14	Plate	BC48.1.3-6				2
15	Pin Φ55×175	BC48.1.3-7				1
16	plug,Screw plug	ZBC37.1.1-7				4
17	Pin Φ55×218.5	BC48.1.3-8				1
18	ring,snap ring shaft 55	GB894.1-86				1
19	Ring,snap ring	BC48.1.3-9				2
20	Plate	BC48.1.3-10				2
21	Pin Φ80×430	BC48.1.3-11				1
22	ring,snap ring shaft 80	GB894.1-86				2
23	pin,cotter pin8×140	GB91-86				2
24	Pin Φ80×218	BC48.1.3-12				1
25	Pin Φ110×556	BC48.1.3-13				1

2.4.1-1 CYLINDER OF SECTION 3





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No.	Name	Code	Material	Parent	Weight	Quantity
1	Bushing	SJ-1				1
2	Assembly of cylinder body	0-01				1
3	Bolt M6×16	GB/T79-2000				2
4	Ring,snap ring 85	GB/T894.1-1986				1
5	Piston	0-1				1
6	Ring,guide ring 145 ×150× 25	GP 7501500C380				2
7	Seal,bearing seal 150	ZC015100250				1
8	O-RING 53×5.33	GB/T3452.1-1992				2
9	Rod,piston rod assembly	0-02				1
10	Ring,guide ring 90 ×95 ×15	GR7300900C380				2
11	Carrier,seal carrier	0-2				1
12	Seal,bearing seal 90	PO-55-171-1250				1
13	O-RING 142.47 ×3.53	AS568-255				2
14	Seal,bearing seal 90	BS 9005				1
15	Ring,key ring for hole	0-4/G18A				1
16	Ring,snap ring	0-5/G18A				1
17	Bolt M8×25	GB/T70.1-2000				6
18	Washer 8	GB/T93-1987				6
19	Anti-dust ring 90× 104× 8	AF 9033 Z5071				6
20	Ring,snap ring 105	GB/T895.1-1986				1
21	Bushing	SJ-2				1

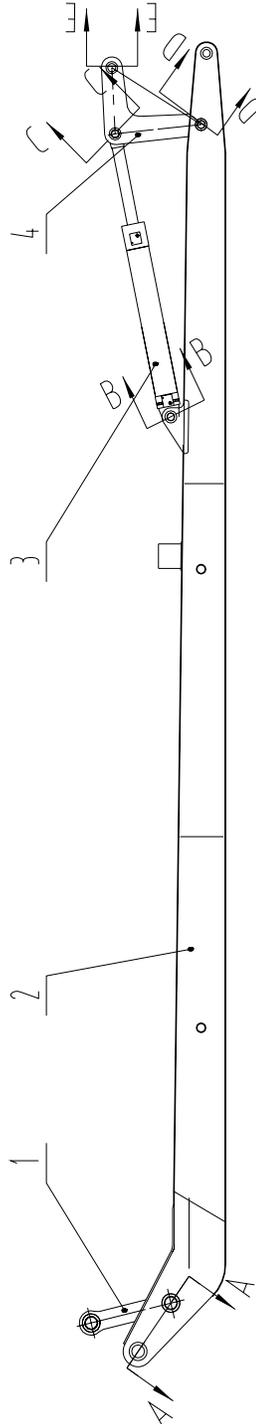


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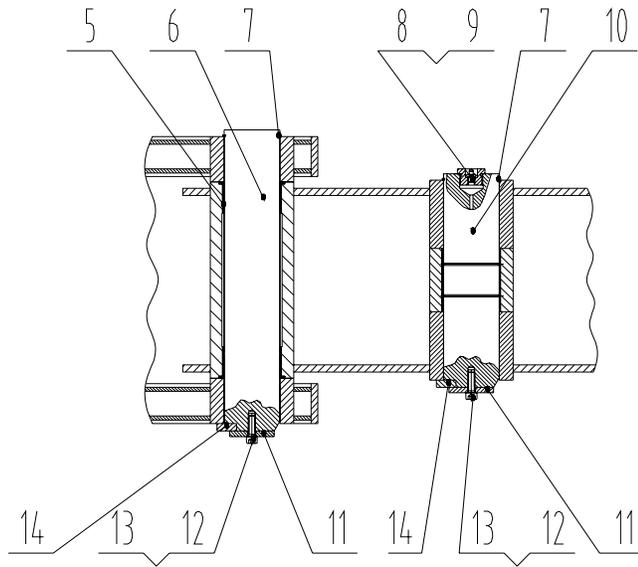
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2.5 SECTION 4

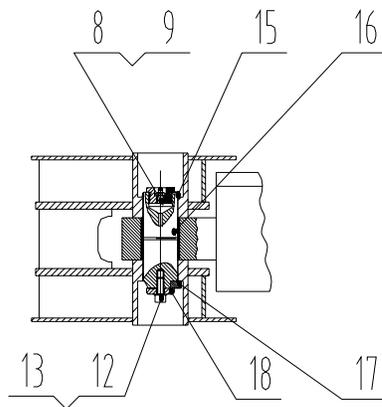
2.5.1 SECTION 4



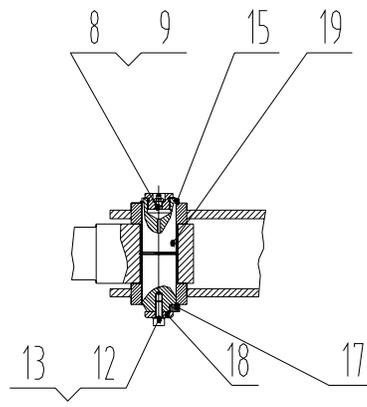
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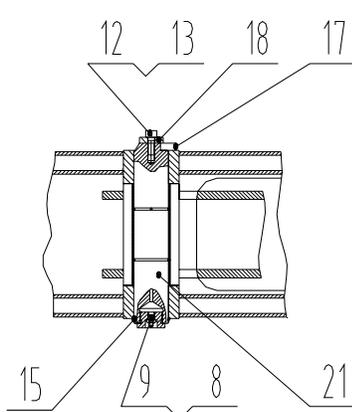
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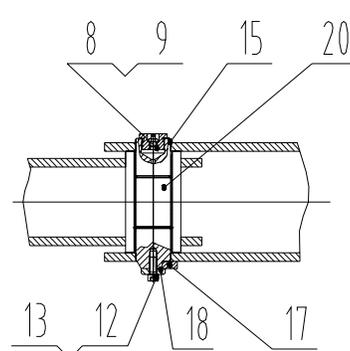
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D-D



E-E



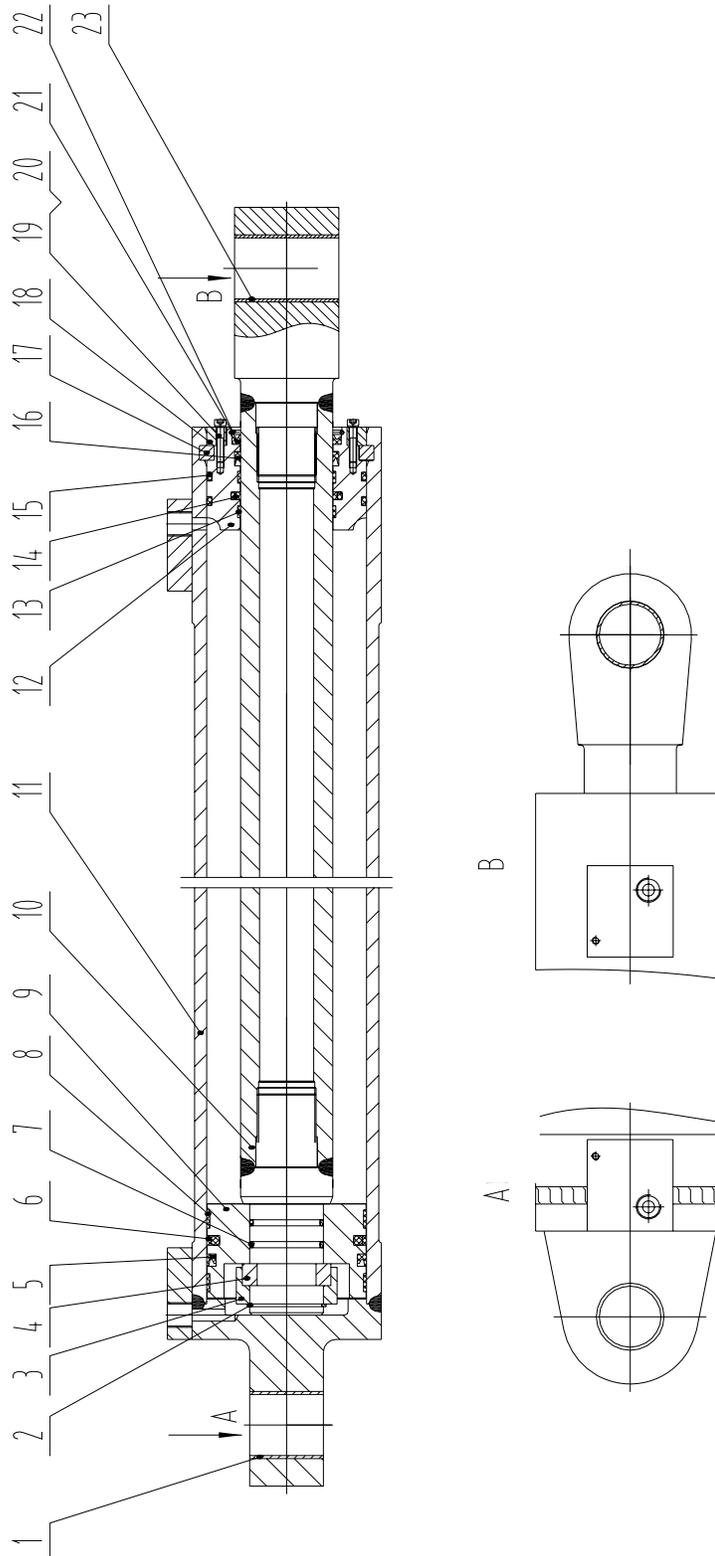


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No.	Name	Code	Material	Parent	Weight	Quantity
1	Link,lever link	BC48.1.4.1				1
2	Section 4	BC48.1.4.2				1
3	Cylinder,section4	BC48.1.4.3				1
4	Link,lever link	BC48.1.4.4				1
5	Bushing	BC48.1.4-1				2
6	Pin	BC48.1.4-2				1
7	Ring,snap ring 80	GB894.1-86				2
8	Plug,screw plug	BC37.1.1-7				5
9	Nipple,grease nipple M10×1	GB1152-89				5
10	Pin	BC48.1.4-3				1
11	Ring,snap ring	BC48.1.4-4				2
12	Bolt M10×25	GB70-85				5
13	Washer 10	GB93-87				5
14	Plate	BC48.1.4-5				2
15	Ring,snap ring 50	GB894.1-86				4
16	Pin	BC48.1.4-6				1
17	Plate	BC48.1.5-3				3
18	Ring,snap ring	BC48.1.5-4				3
19	Pin	BC48.1.4-7				1
20	Pin	BC48.1.4-8				1
21	Pin	BC48.1.4-9				1

2.5.1-1 CYLINDER OF SECTION 4





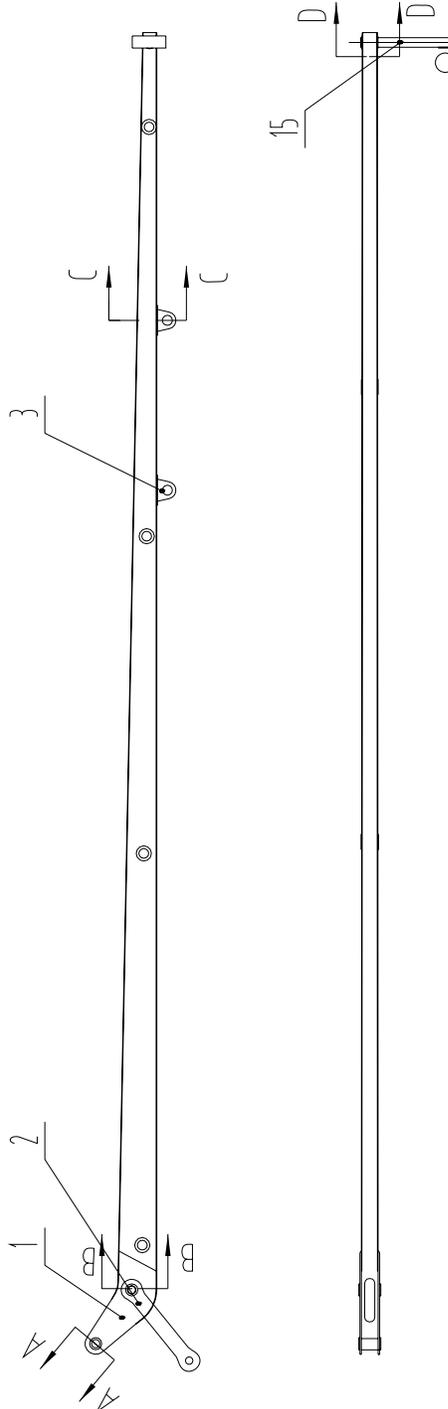
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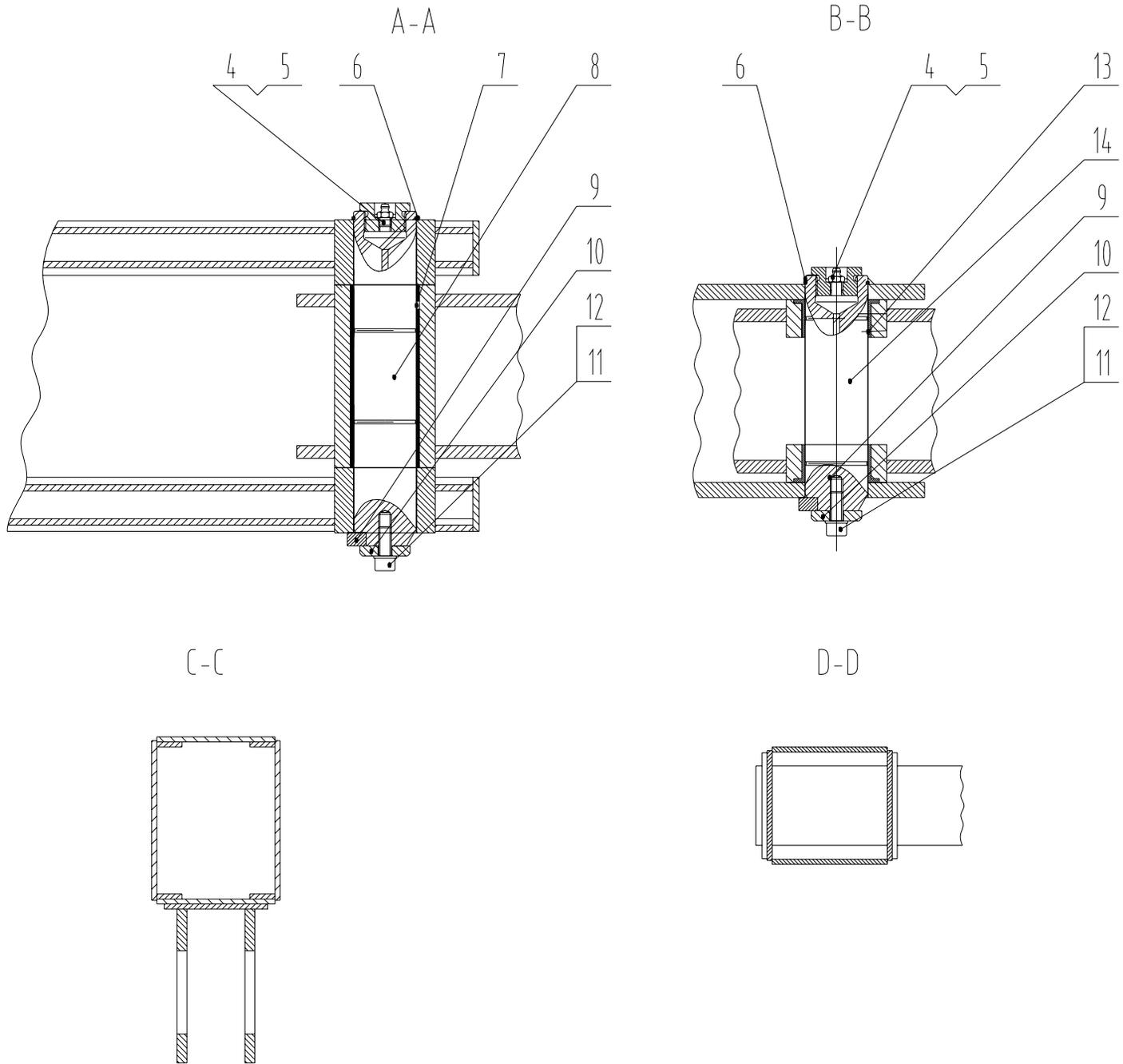
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No.	Name	Code	Material	Parent	Weight	Quantity
1	Bushing	SJ-2				1
2	Ring,snap ring 60	GB/T894.1-1986				1
3	Ring,key ring cap	0-1/G19A				1
4	Ring,key ring shaft	0-2/G19A				1
5	Seal,bearing seal B7130A	B7 130A				1
6	Seal,bearing seal OK0130	OK013000701				1
7	O-RING 53×3.55	GB/T3452.1-1992				2
8	Ring,guide ring 125× 130 ×15	FR C055				2
9	Piston	0-3/G19A				1
10	Rod,piston rod (G)	0-01				1
11	Cylinder body	0-01/G19A				1
12	Carrier,seal carrier	0-5/G19A				1
13	Ring,guide ring 75 ×80× 9.7	FR 7506				2
14	Seal,bearing seal	OD075005200171D				1
15	O-RING 118 ×5.3	GB/T3452.1-1992				2
16	Seal,bearing seal BS7590	BS 7590				1
17	Ring,key ring	0-3A/G19				1
18	Ring,snap ring	0-6/G19				1
19	Bolt M5 ×30	GB/T70.1-2000				8
20	Washer 5	GB/T93-1987				8
21	seal,ring AF7537	AF 7537				1
22	Ring,snap ring 90	GB/T895.1-1986				1
23	Bushing	SJ-2				1

2.6 SECTION 5

2.6.1 SECTION 5







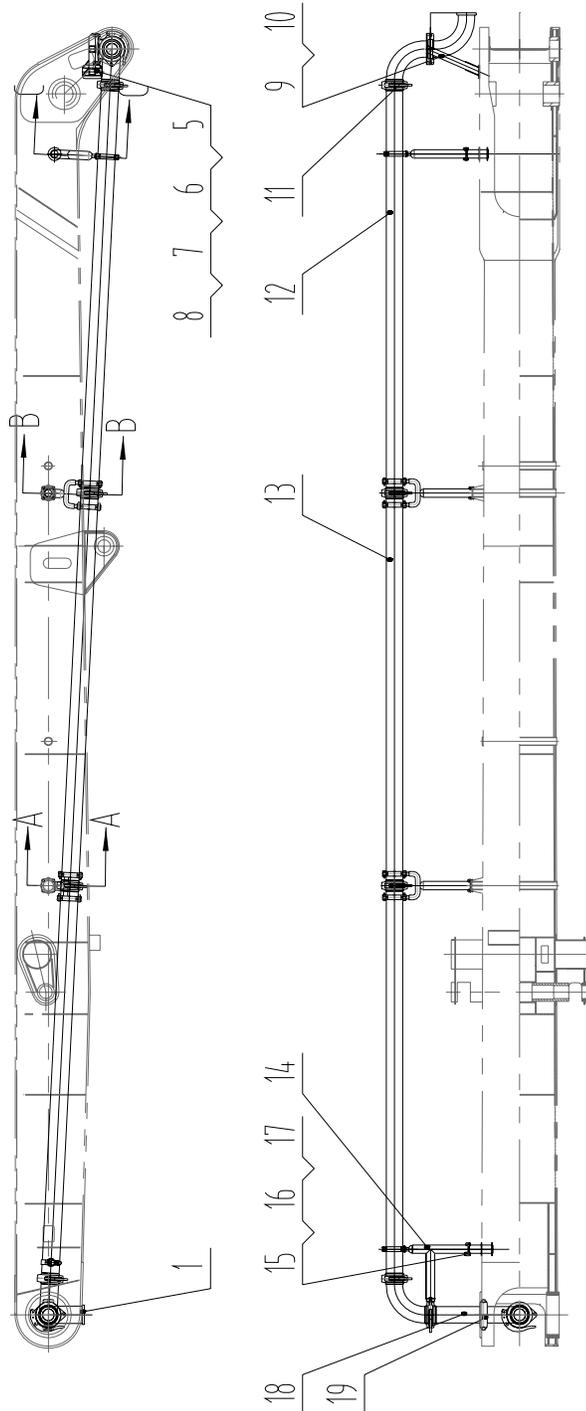
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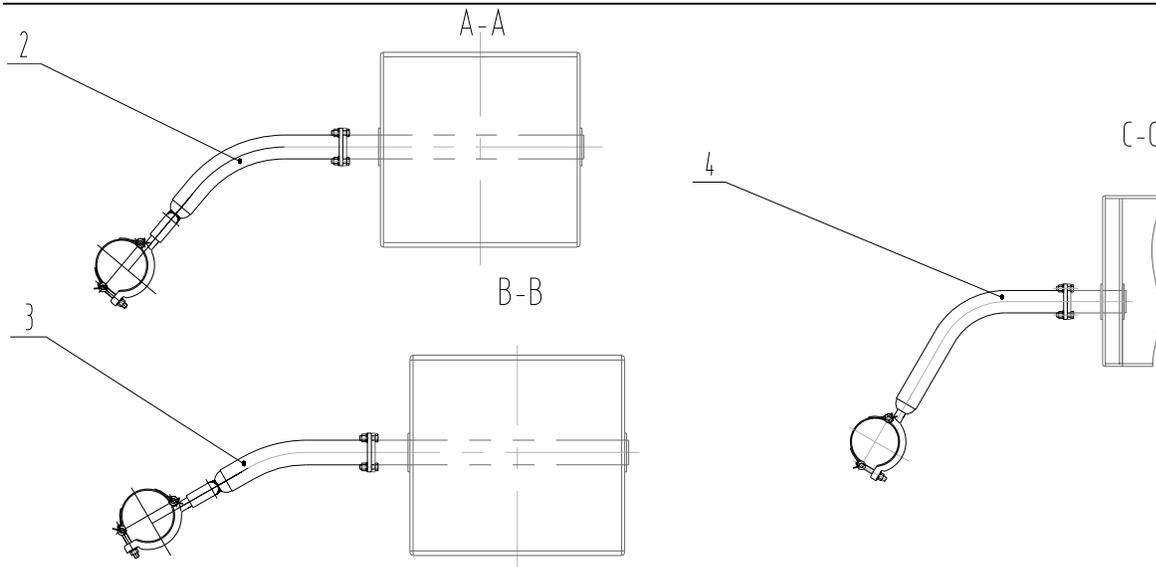
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No.	Name	Code	Material	Parent	Weight	Quantity
1	Section 5	BC18.1.5.1				1
2	Link,lever link	BC48.1.5.2				1
3	support,hose support	BC48.1.5.3				2
4	Plug,screw plug	ZBC37.1.1-7				2
5	Nipple,grease nipple M10×1	GB1152-89				2
6	Ring,snap ring 50	GB894.1-86				2
7	Bushing 1	BC48.1.5-1				2
8	Shaft 1	BC48.1.5-2				1
9	Plate	BC48.1.5-3				2
10	Ring,snap ring	BC48.1.5-4				2
11	Bolt M10×25	GB70-85				2
12	Washer 10	GB93-87				2
13	Bushing 2	BC48.1.5-5				2
14	Shaft 2	BC48.1.5-6				1
15	pipe,tip	BC48.1.5.4				1

2.7 DELIVERY PIPE

2.7.1 DELIVERY PIPE OF SECTION 1





No.	Name	Code	Material	Belongs	Weight	Quantity
1	elbow,125mm lp R275/90°	ZBC37.10.1				3
2	Pipe,support pipe 1	BC48.8.1.1				1
3	Pipe,support pipe 2	BC48.8.1.2				1
4	Pipe,support pipe 3	BC48.8.1.3				1
5	Bolt M14×45	GB5782-86				2
6	Nut M14	GB6170-86				2
7	plate,base plate	BC48.8.1-1				2
8	Washer 14	GB97.1—85				2
9	Pipe,support pipe 4	BC48.8.1.4				1
10	clamp, pipe clamp Special 125mm hp pipe clip	ZBC37.10.8				2
11	clamp,pipe clamp 125mm hp	60Z1407.14.17				6
12	pipe,125mm hp straight L=3114	BC48.8.1.5				1
13	pipe,125mm hp straight L=3000	ZBC37.10.6				2
14	Pipe,support pipe 5	BC48.8.1.6				1
15	Bolt M12×40	GB5782-86				12
16	Nut M12	GB6170-86				12
17	Washer 12	GB97.1—85				12
18	pipe,125mm hp	BC48.8.1.7				1

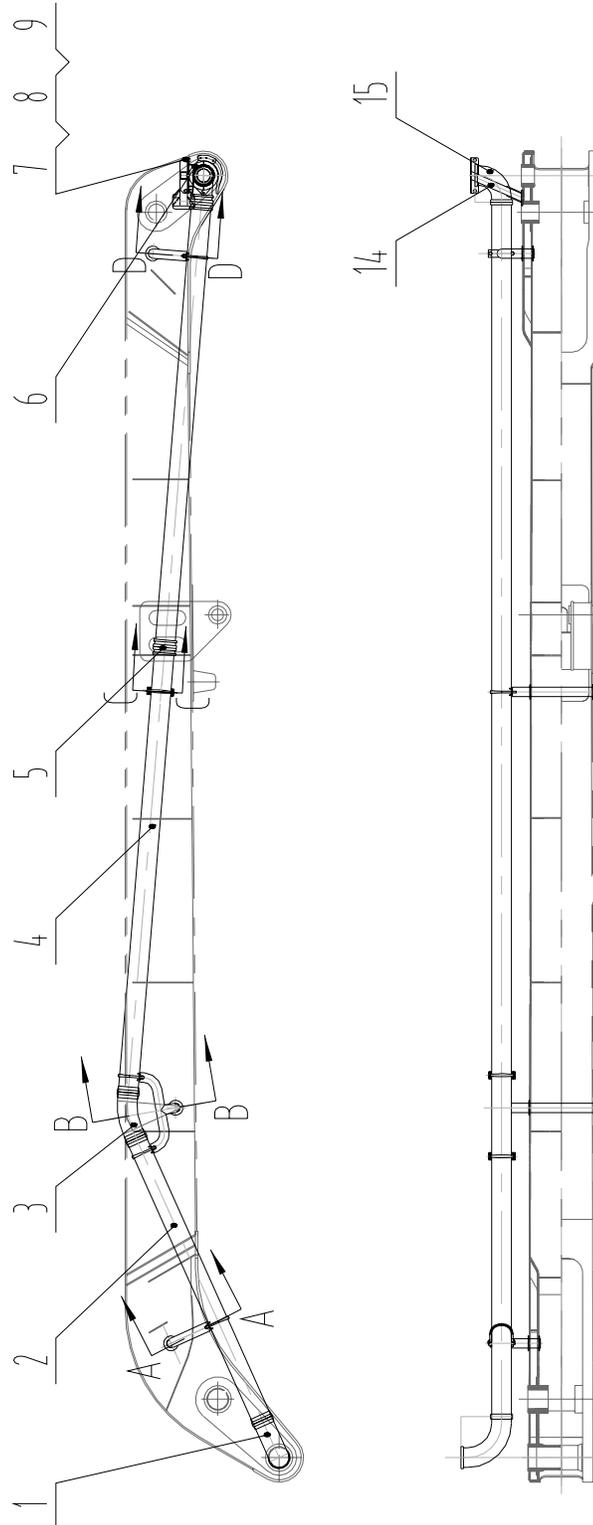


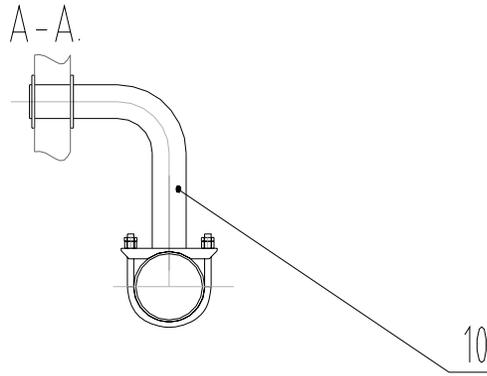
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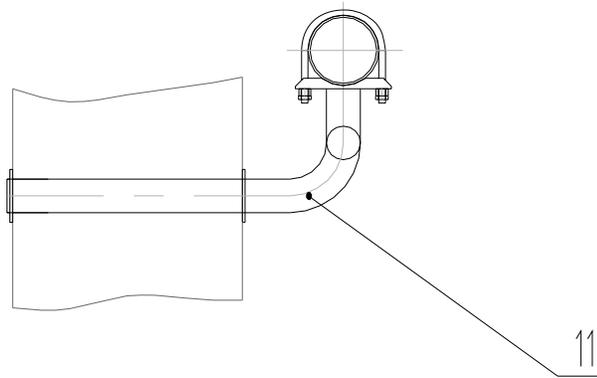
	pipe(L=404.7)					
19	125A penetrate-wall pipe clamp	ZBC37.10.10				1

2.7.2 DELIVERY PIPE OF SECTION 2

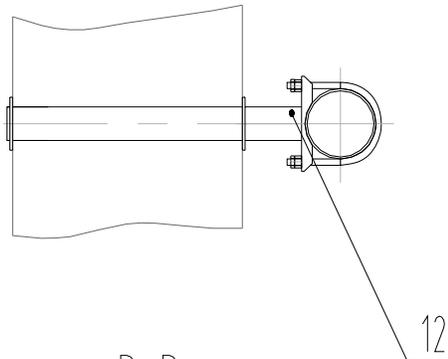




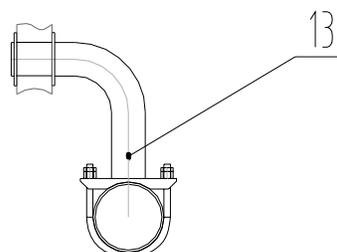
B-B;



C-C.



D-D.



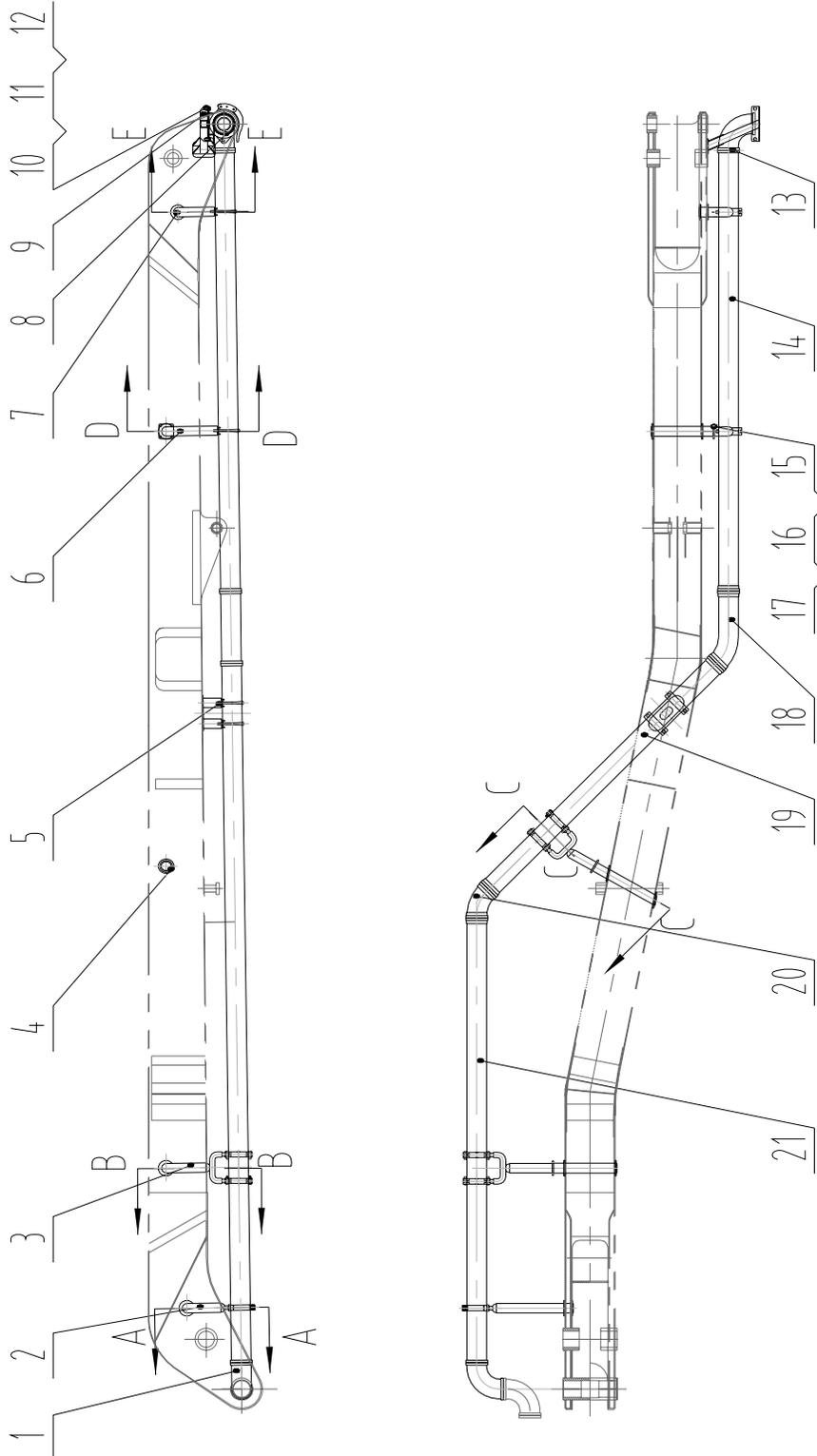


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No.	Name	Code	Material	Parent	Weight	Quantity
1	elbow,125A R275/90°	ZBC37.10.1				1
2	pipe,125A straight L=2079	BC48.8.2.1				1
3	elbow,125A R300/29°	BC48.00-2203				1
4	pipe,125A straight L=3000	ZBC37.10.6				2
5	clamp,pipe 125A (for truck mounted pump)	60Z1407.14.17				5
6	Special 125A Pipe clip assembly	ZBC37.10.8				1
7	Bolt M14×35	GB5782-86				2
8	Nut M14	GB6170-86				2
9	Washer 14	GB97.1—85				2
10	Pipe,support pipe 1	BC48.8.2.2				1
11	Pipe,support pipe 2	BC48.8.2.3				1
12	Pipe,support pipe 3	BC48.8.2.4				1
13	Pipe,support pipe 4	BC48.8.2.5				1
14	Pipe,support pipe 5	BC48.8.2.6				1
15	elbow,125A R180/90°	BC48.00-2215				1

2.7.3 DELIVERY PIPE OF SECTION 3

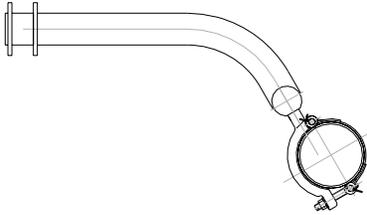




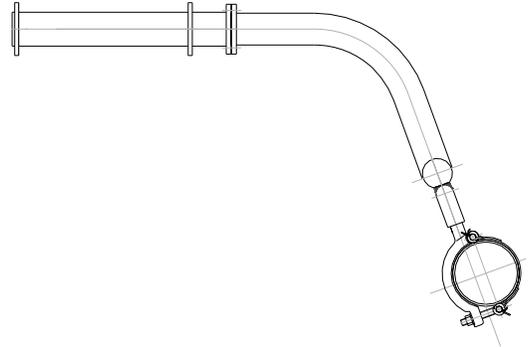
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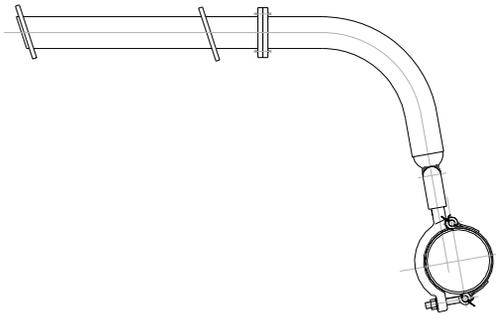
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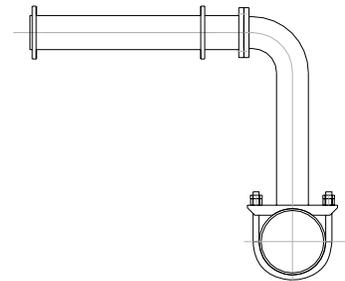
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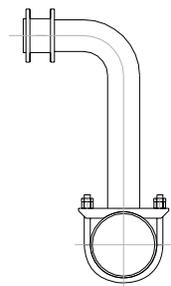
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D-D



E-E



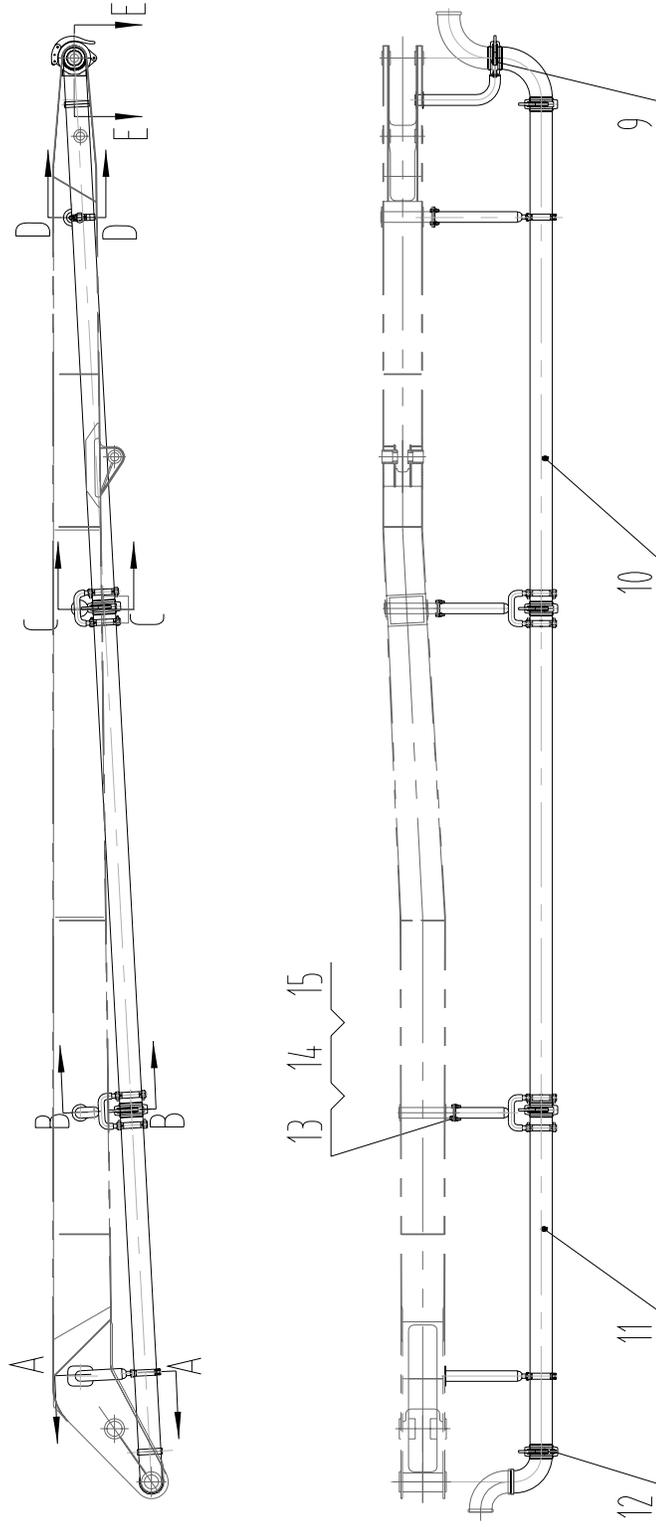


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No.	Name	Code	Material	Parent	Weight	Quantity
1	elbow,125A R180/90°	BC48.8.2.8				2
2	Pipe,support pipe 1	BC48.8.3.1				1
3	Pipe,support pipe 2	BC48.8.3.2				1
4	Pipe,support pipe 3	BC48.8.3.3				1
5	Pipe,support pipe 4	BC48.8.3.4				1
6	Pipe,support pipe 5	BC48.8.3.5				1
7	Pipe,support pipe 6	BC48.8.3.6				1
8	Special 125A Pipe clip assembly	ZBC37.10.8				1
9	Pipe,support pipe 7	BC48.8.3.7				1
10	Bolt M14×35	GB5782-86				2
11	Nut M14	GB6170-86				2
12	Washer 14	GB97.1-85				2
13	clamp,pipe 125A (for truck mounted pump)	60Z1407.14.17				6
14	pipe,125A straight L=3000	ZBC37.10.6				1
15	Bolt M12×40	GB5782-86				12
16	Nut M12	GB6170-86				12
17	Washer 12	GB97.1-85				12
18	elbow,125A Special 45°	BC48.8.3.8				1
19	pipe,125A straight L=2193.8	BC48.8.3.9				1
20	elbow,125A R275/45°	BC48.8.3.10				1
21	pipe,125A straight L=3042.8	BC48.8.3.11				1

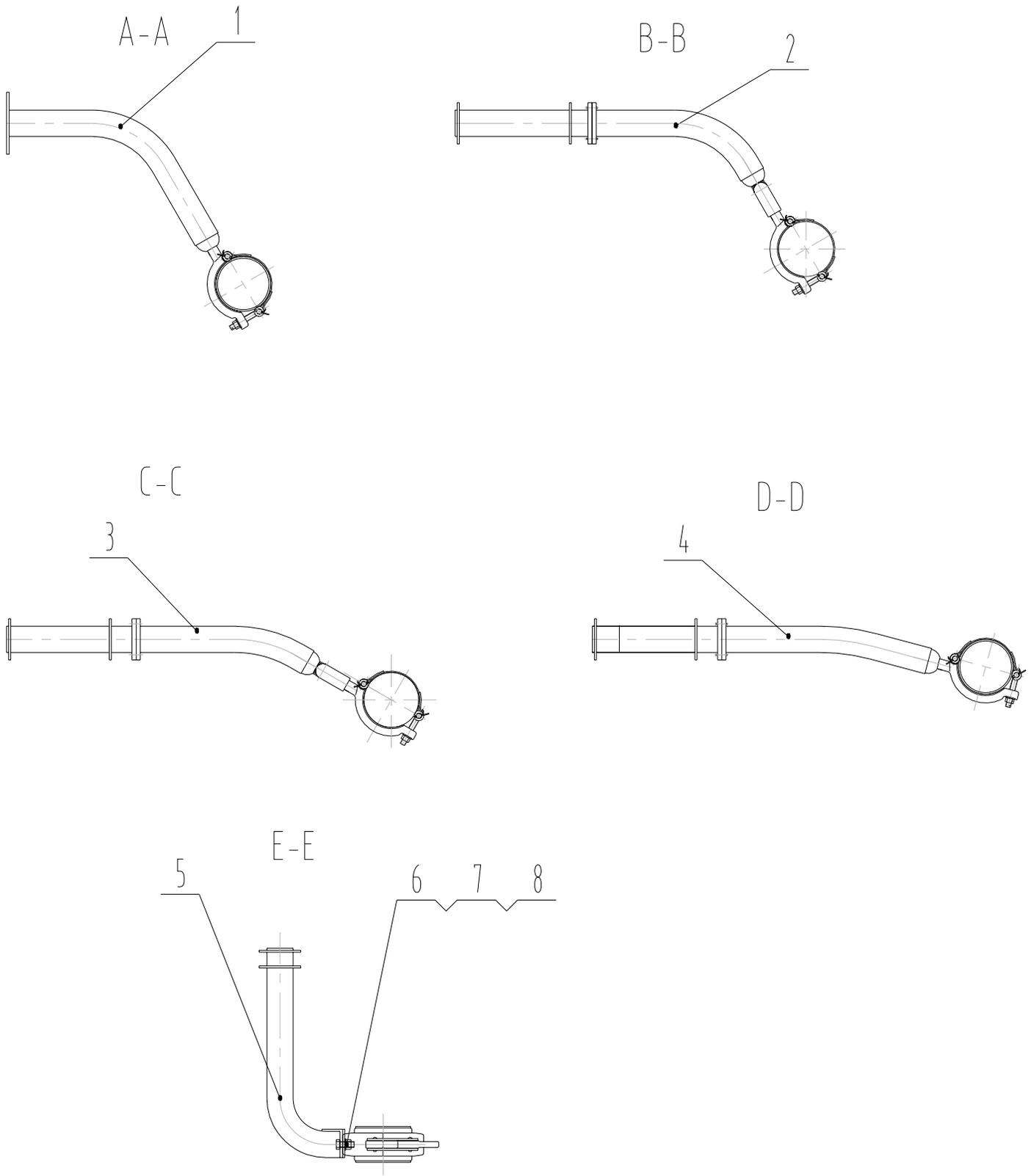
2.7.4 DELIVERY PIPE OF SECTION 4





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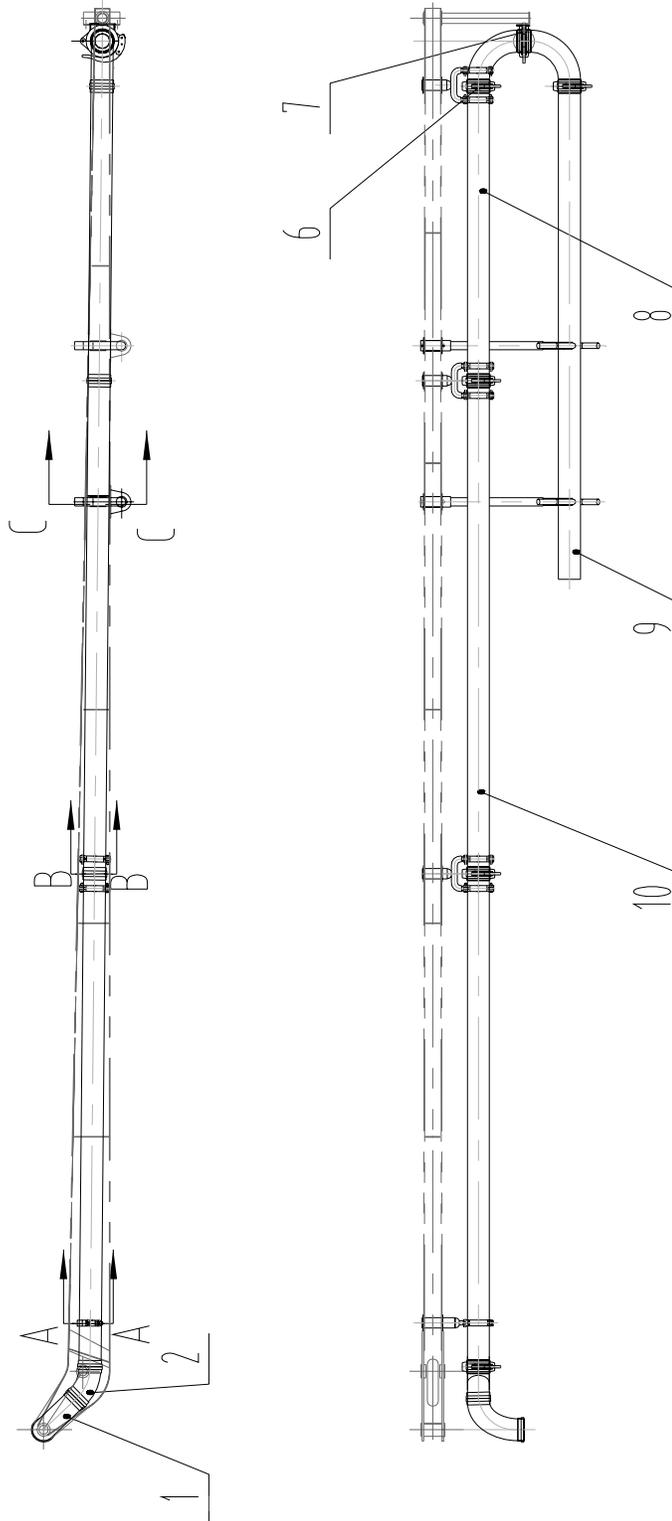


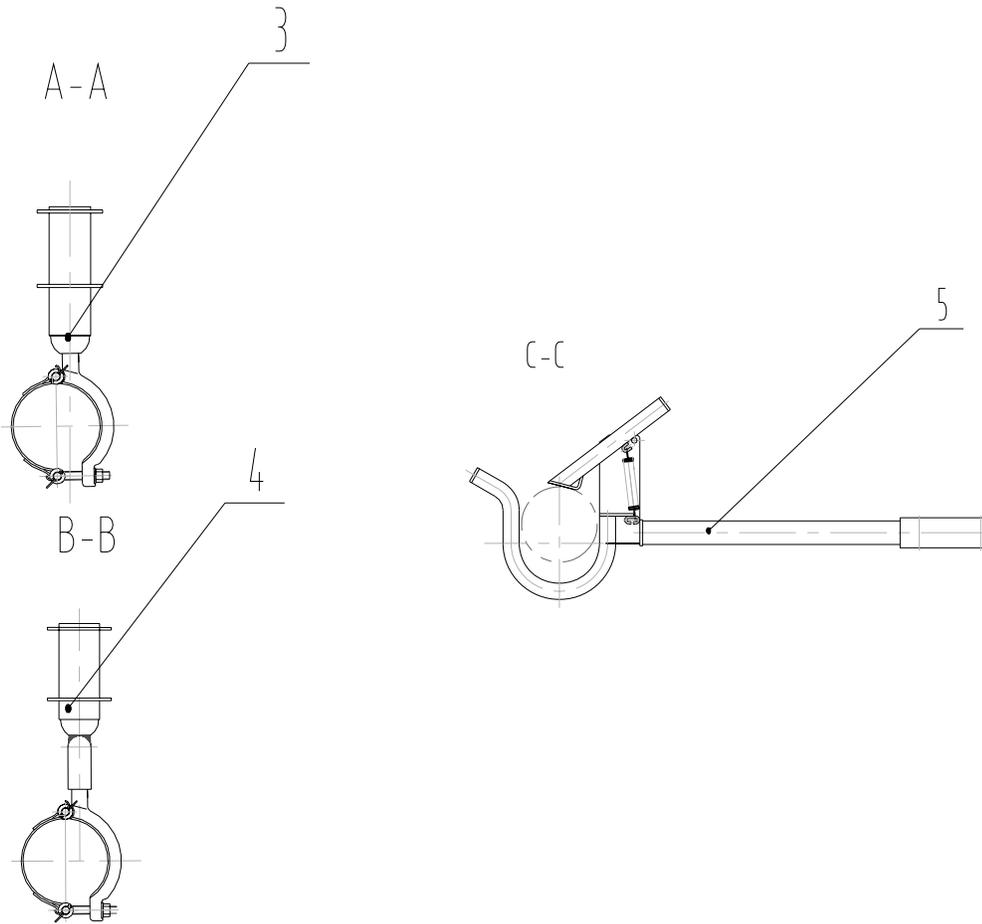
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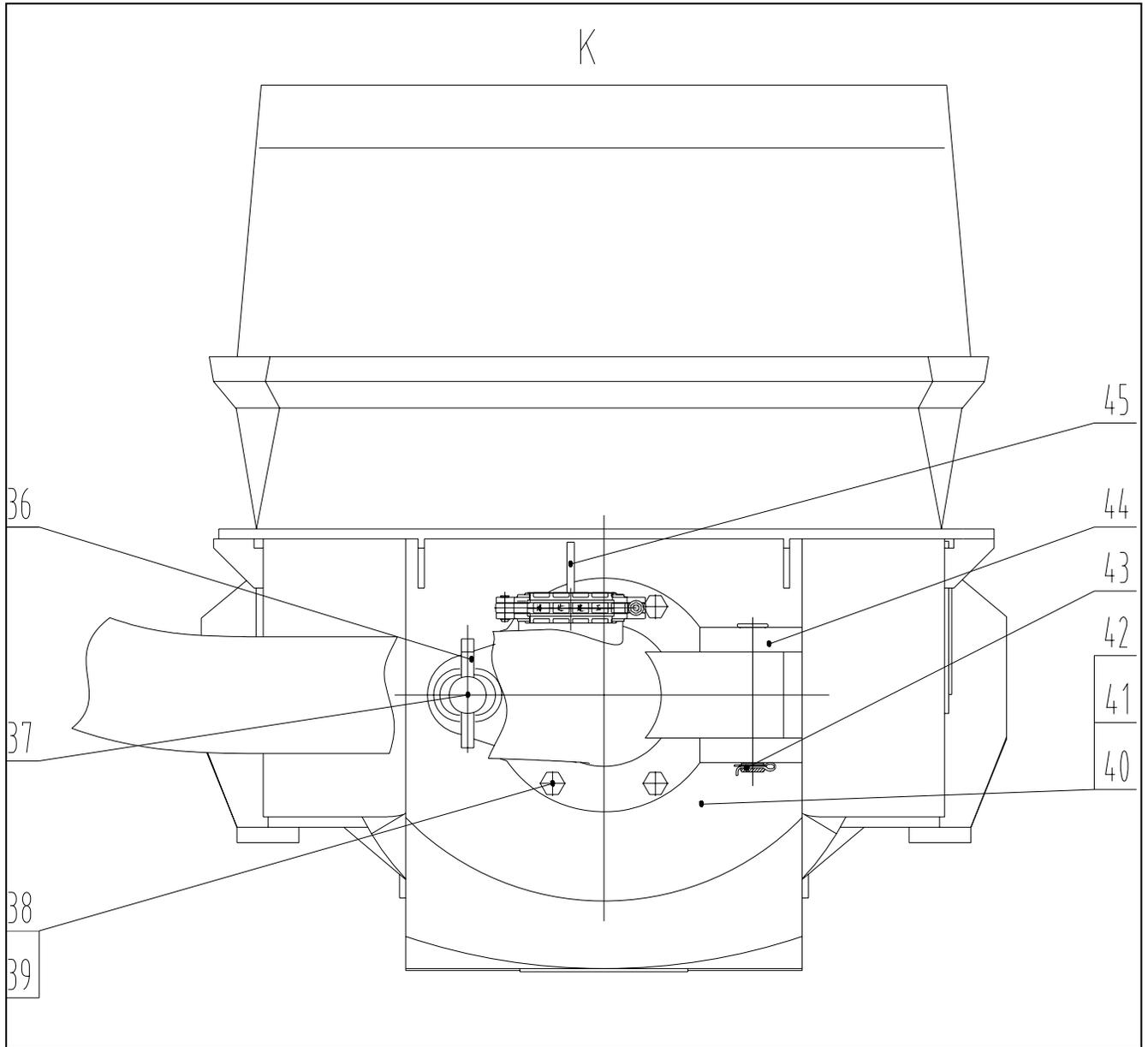
No.	Name	Code	Material	Parent	Weight	Quantity
1	Pipe,support pipe 1	BC48.8.4.1				1
2	Pipe,support pipe 2	BC48.8.4.2				1
3	Pipe,support pipe 3	BC48.8.4.3				1
4	Pipe,support pipe 4	BC48.8.4.4				1
5	Pipe,support pipe 5	BC48.8.4.5				1
6	Bolt M14×35	GB5782-86				2
7	Nut M14	GB6170-86				2
8	Washer 14	GB97.1—85				2
9	Special 125A Pipe clip assembly	ZBC37.10.8				1
10	pipe,125A straight L=3000	ZBC37.10.6				2
11	pipe,125A straight L=2035	BC48.8.4.6				1
12	clamp,pipe 125A (for truck mounted pump)	60Z1047.14.17				4
13	Bolt M12×40	GB5882-86				12
14	Nut M12	GB6170-86				12
15	Washer 12	GB97.1-85				12

2.7.5 DELIVERY PIPE OF SECTION 5





No.	Name	Code	Material	Parent	Weight	Quantity
1	Elbow ,125A R275/90°	ZBC37.10.1				3
2	Elbow,125A R275/45°	BC48.8.3.10				1
3	Pipe,support pipe 1	BC48.8.5.1				1
4	Pipe,support pipe 2	BC48.8.5.2				3
5	Pipe,support pipe 3	BC48.8.5.3				2
6	125APipe clamp (for truck mounted pump)	60Z1407.14.17				6
7	Special 125A Pipe clamp assembly	ZBC37.10.8				1
8	pipe,125A straight L=1785	BC48.8.5.4				1
9	Tube	BC48.8.5.5				1
10	pipe,125A straight L=3000	ZBC37.10.6				2



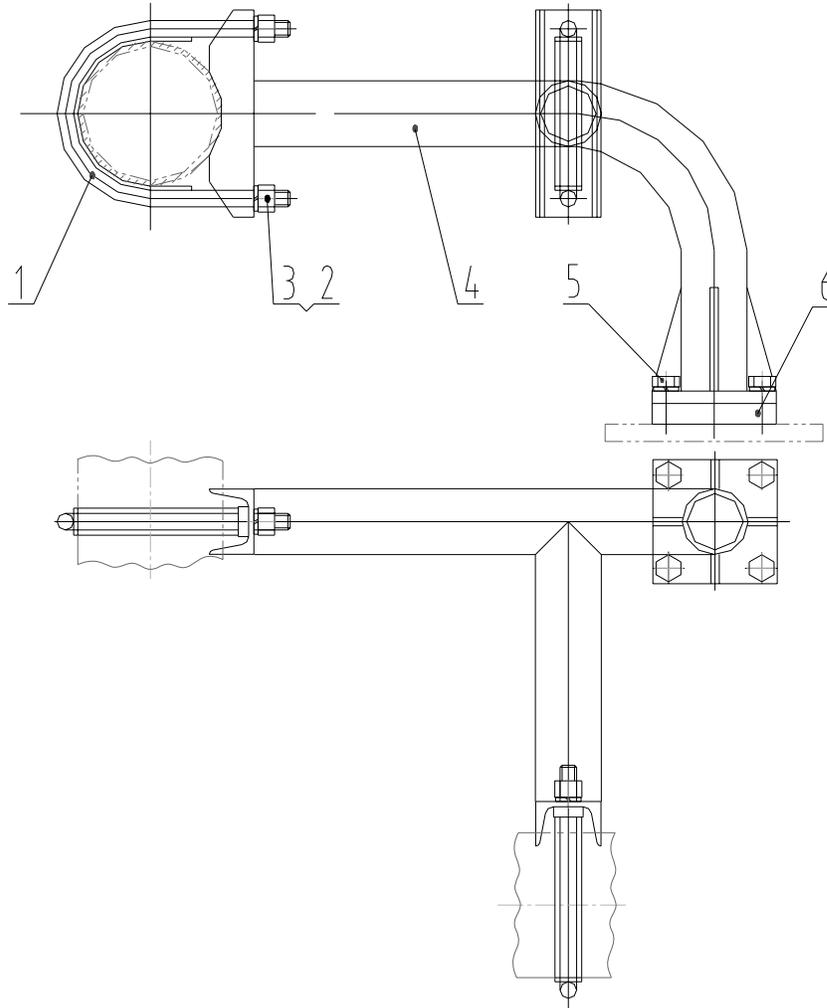


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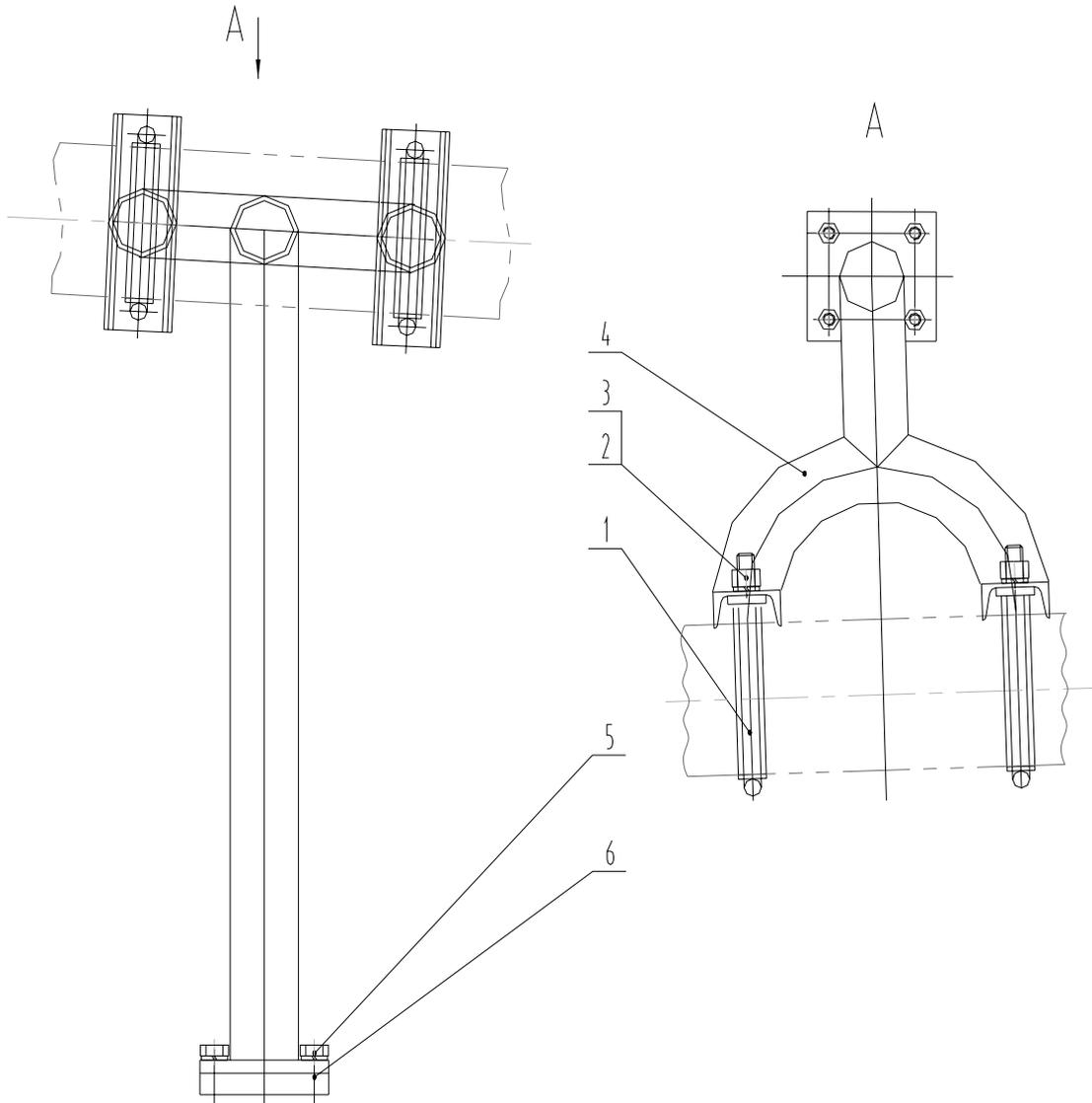
No.	Name	Code	Material	Parent	Weight	Quantity
19	elbow,90-degree Φ 125	BC37.3.6				1
20	pipe,straight ϕ 125 \times 460	BC37.3.7				1
21	clamp,125 (Φ 148)	BC37.3.8				2
22	Support 1	BC37.3.9				1
23	Support 2	BC37.3.10				1
24	straightpipe Φ 125 (L=3661)	BC37.3.11				1
25	Support 3	BC37.3.12				1
26	30-degree elbow Φ 125	BC37.3.13				1
27	Support 4	BC37.3.14				1
28	Straight reducer pipe Φ 150-125	BC37.3.15				1
29	Φ 150Pipeclipassembly	60S1816.14.1				3
30	elbow,swingout	BC37.3.16				1
31	90-degree Φ 150 Elbow	BC37.3.17				1
32	Support 5	BC37.3.18				1
33	Support 6	BC37.3.19				1
34	125APipeclipassembly Φ 157)	60S1816.14.13				4
35	straight pipe Φ 125(L=2127)	BC37.3.20				1
36	Wedge	BC37.3-6				1
37	Angle pin	BC37.3-7				1
38	Bolt M24 \times 125	GB70-85				6
39	Washer 24	GB93-87				6
40	Concrete outlet	BC37.3.21				1
41	O-ring Φ 205 \times 7	GB3452.1-82				1
42	O-ring Φ 258 \times 7	GB3452.1-82				1
43	Cotter pin Φ 5 \times 56	GB/T91-2000				1
44	Pin Φ 35 \times 210	BC37.3-8				1
45	Cleanout cover	BC37.3.22				1

Support 1



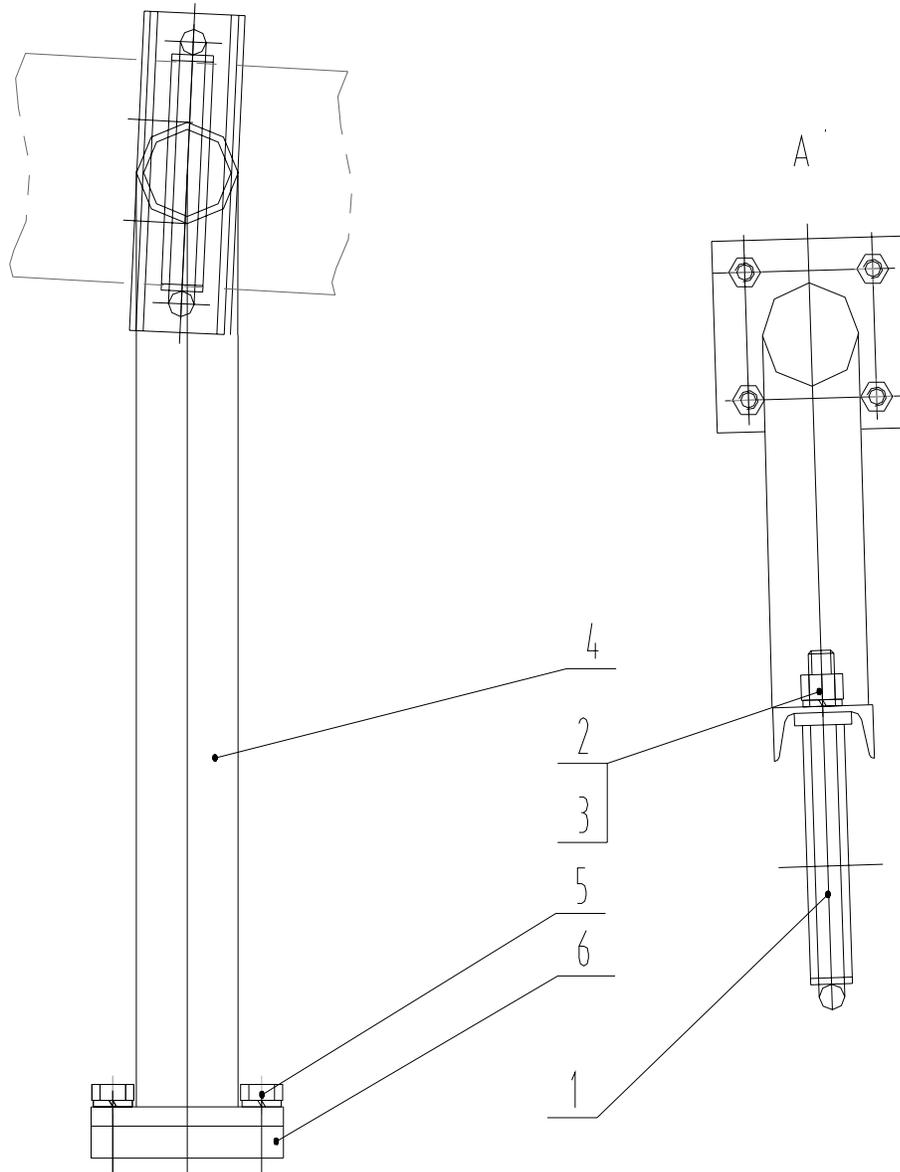
No.	Name	Code	Material	Parent	Weight	Quantity
1	bolt,U-bolt	BC37.3.9.1				2
2	Washer 16	GB93-87				8
3	Nut M16	GB41-86				4
4	pipe,Support pipe	BC37.3.9.2				1
5	Bolt M16×30	GB5780-86				4
6	plate,base plate	BC37.3.9-1				1

Support 2



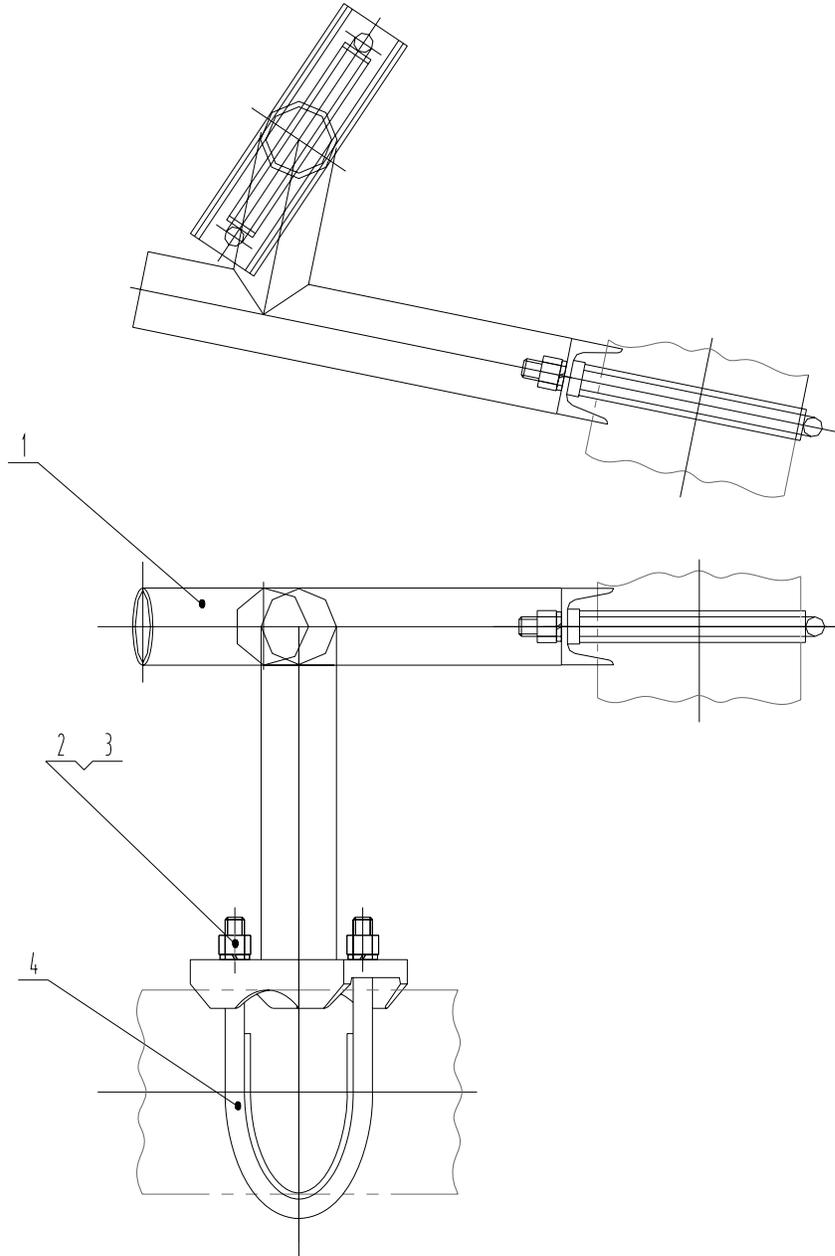
No.	Name	Code	Material	Parent	Weight	Quantity
1	bolt,U-bolt	BC37.3.9.1				2
2	Washer 16	GB93-87				8
3	Nut M16	GB41-86				4
4	pipe,support pipe	BC37.3.10.1				1
5	Bolt M16×30	GB5780-86				4
6	plate,base plate	BC37.3.9-1				1

Support 3



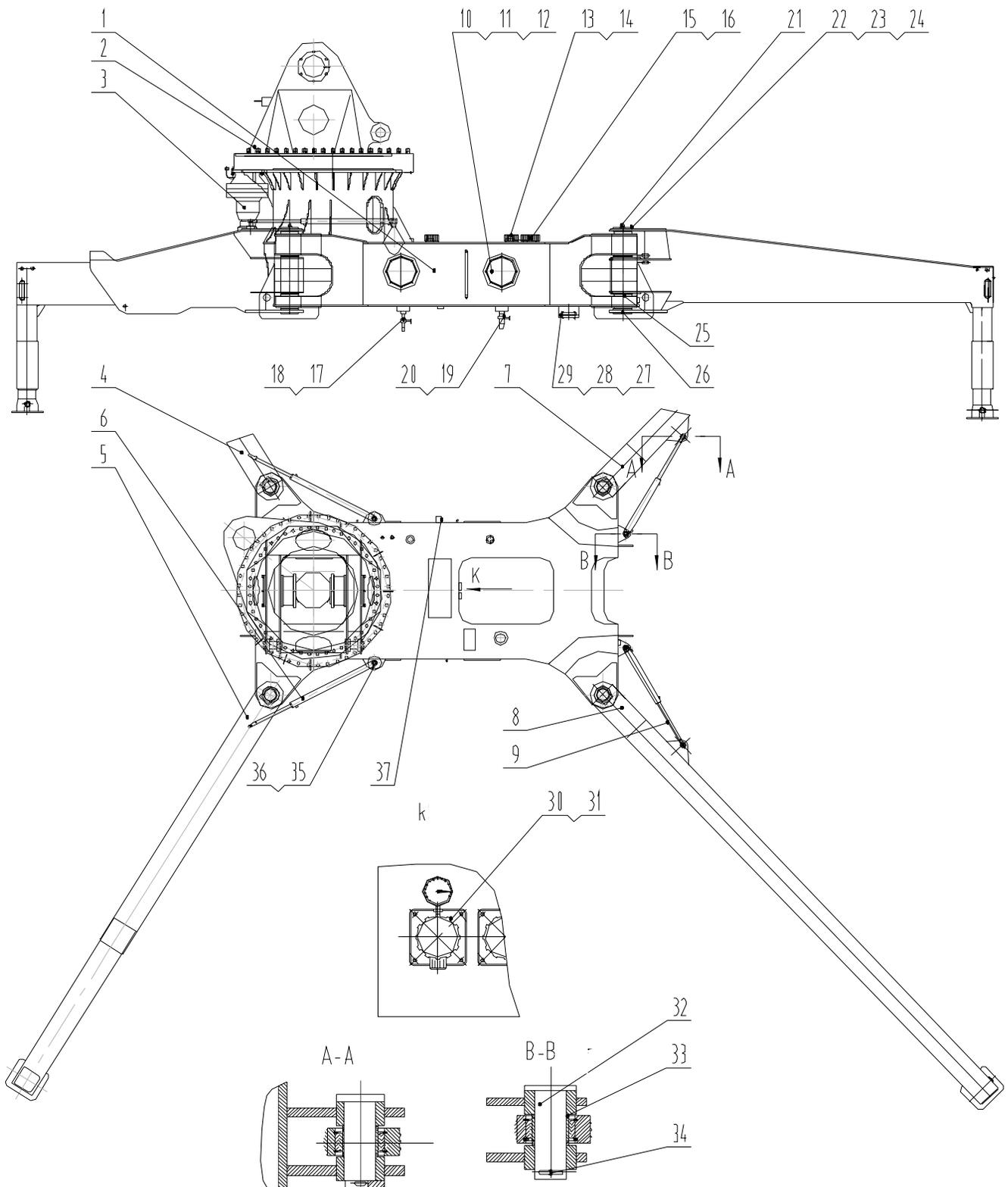
No.	Name	Code	Material	Parent	Weight	Quantity
1	Bolt,u-bolt	BC37.3.9.1				2
2	Washer 16	GB93-87				8
3	Nut M16	GB41-86				4
4	Pipe,support pipe	BC37.3.12.1				1
5	Bolt M16×30	GB5780-86				4
6	Plate,base plate	BC37.3.9-1				1

Support 5



No.	Name	Code	Material	Parent	Weight	Quantity
1	Pipe, support pipe	BC37.3.18.1				1
2	Washer 16	GB93-87				4
3	Nut M16	GB41-86				4
4	Bolt, u-bolt	BC37.3.18.2				2

CHAPTER 3 MASTHEAD, PEDESTAL, AND OUTRIGGERS





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No.	Name	Code	Material	Parent	Weight	Quantity
1	pedestal	BC48.2.1				1
2	masthead	BC48.2.2				1
3	rotation drive assembly	BC48.2.3				1
4	outrigger, driver front	BC48.2.4				1
5	outrigger, passenger front	BC48.2.5				1
6	swingout cylinder of front outrigger	BC48.2.6				2
7	swingout cylinder of rear outrigger	BC48.2.7				2
8	outrigger, driver rear	BC48.2.8				1
9	outrigger, passenger rear	BC48.2.9				1
10	flange	BC48.2-1				5
11	o-ring 307×5.3	GB3452.1-82				5
12	bolt m10×16	GB5781-86				52
13	cap,oil tank cap	LE0827-91				2
14	bolt m5×12	GB5781-86				12
15	filter,air filter	EF-80				1
16	bolt m8×30	GB70-85				4
17	pipe,1" pipe	GB3289.26-82				2
18	valve,ball 1"	BC48.00-3018				2
19	pipe,1 1/2" pipe	GB3289.26-82				1
20	valve,ball 1 1/2"	BC48.00-3020				1
21	nipple, grease nipple m10×1	JT7490.1-1995				4
22	bolt m12×20	GB5783-86				32
23	washer 12	GB93-87				32
24	plate	BC42.2-2				8
25	shaft	BC48.2-1				4
26	copper packing	BC42.2-4				8
27	level,bubble 30	BC48.00-3027				2
28	nut m6	GB6170-86				16
29	bolt m6×50	GB5783-86				8
30	filer,oil filter	ES094				2
31	bolt m10×20	GB5783-86				16
32	shaft	BC42.2-5				4
33	spacer	BC42.2-6				8

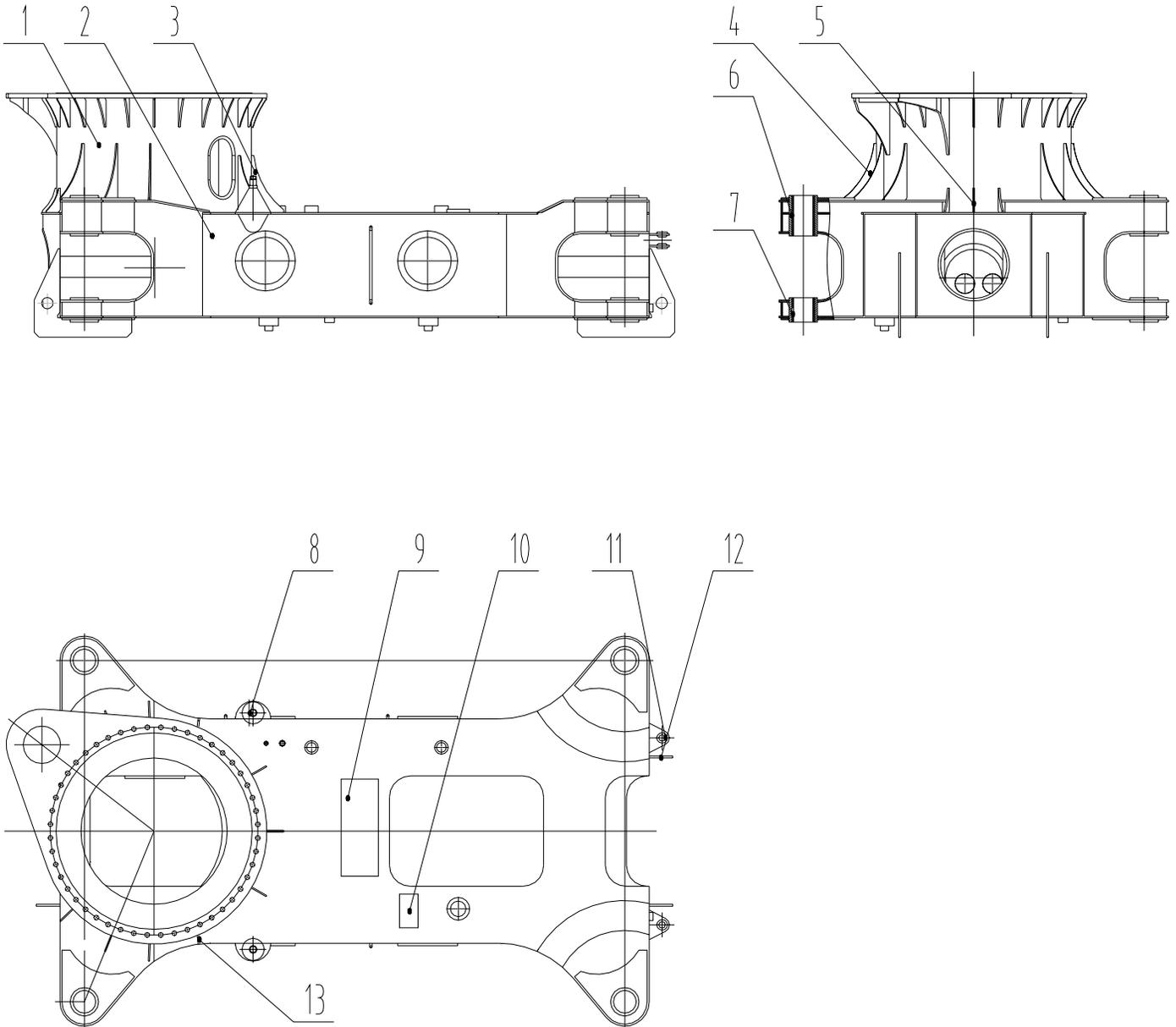


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34	pin 6.3×70	GB91-86				4
35	nut m36×1.5	BC42.2-9				4
36	pin 4×50	GB91-86				4
37	level,fluid thermometer	level CYW-160				1

3.1 PEDESTAL OF MASTHEAD



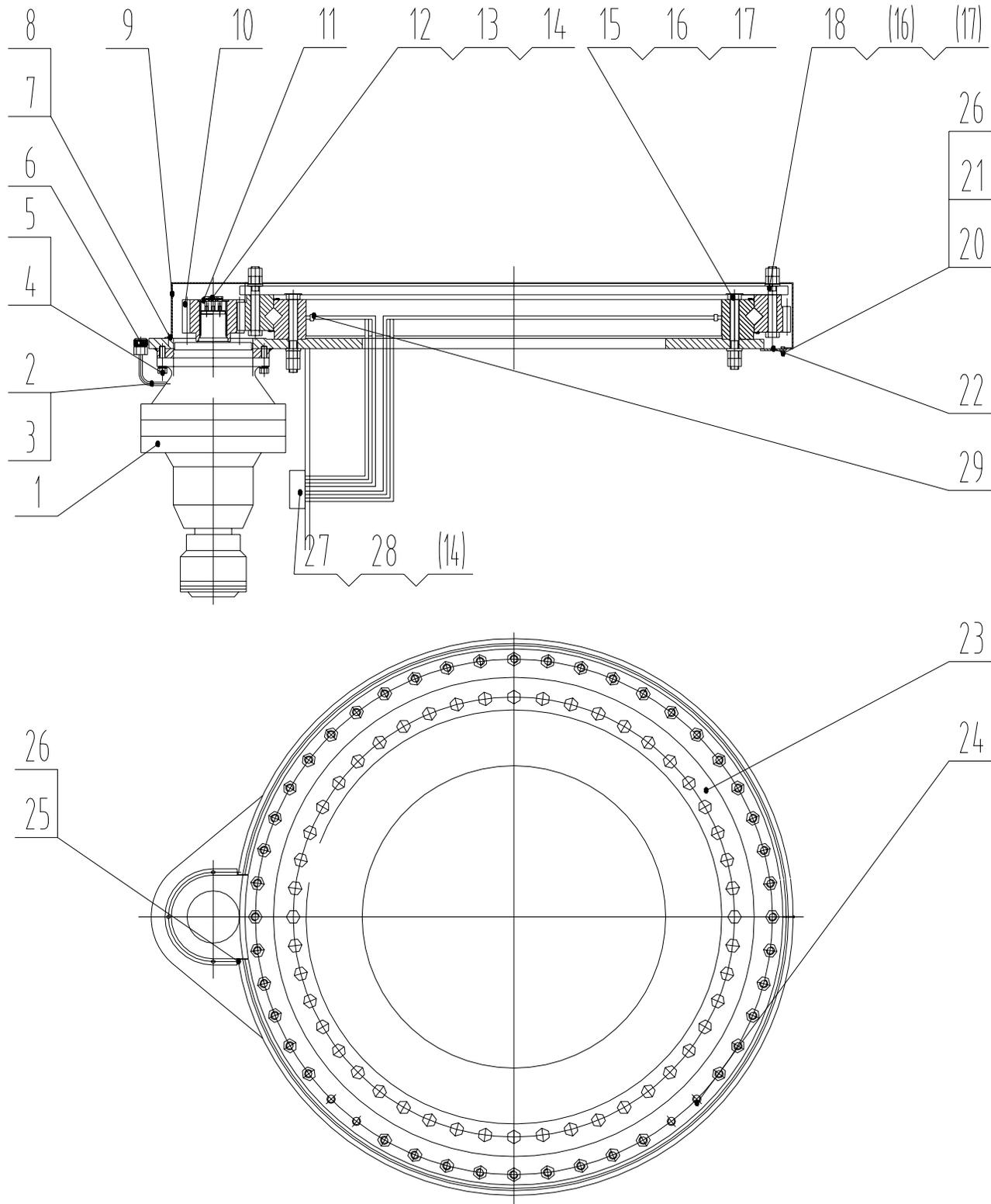


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No.	Name	Code	Material	Parent	Weight	Quantity
1	Pedestal of Masthead	BC48.2.4.1				1
2	Oil-water tank welding assembly	BC48.2.4.2				2
3	Gusset Gusset 1	BC48.2.4-1				3
4	Gusset 2	BC48.2.4-2				6
5	Gusset 3	BC48.2.4-3				3
6	Bearing 1	BC48.2.4-4				4
7	Bearing 2	BC48.2.4-5				4
8	Support of swingout cylinder to front outrigger	BC48.2.4.1				2
9	rest,section 1 rest	BC48.2.4.2				1
10	rest,section 5 rest	BC48.2.4.8				1
11	Pedestal spherical ball	BC42.2.1.3				4
12	Rib	BC42.2.1-3				4
13	Gusset 4	BC48.2.4-6				2

3.3 ROTATION ASSEMBLY



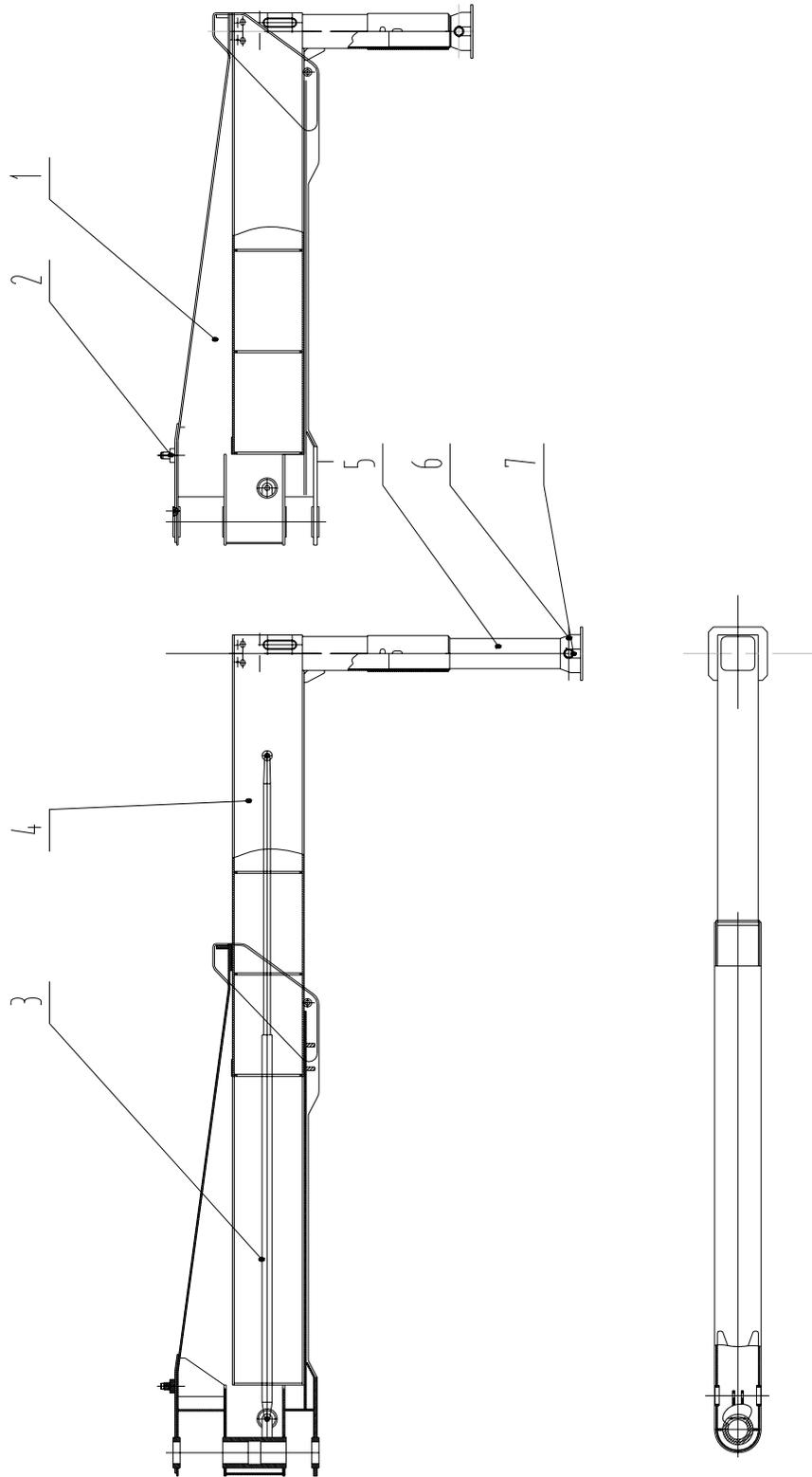


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No.	Name	Code	Material	Parent	Weight	Quantity
1	Gearbox	BC48.00-3301				1
2	Oil transmission tube	BC42.2.3-1				1
3	Oil transmission joint	BC42.2.3-2				1
4	Washer 16	GB93-87				10
5	Bolt M16×55-10.9	GB5783-86				10
6	Ventilation cap	BC42.2.3-3				1
7	Bolt M6×10	GB70-85				3
8	Washer 6	GB93-87				3
9	Shield	BC42.2.3.1				1
10	Gear	BC42.2.3-4				1
11	Cover	BC42.2.3-5				1
12	Bolt M10×30	GB70-85				3
13	Washer 10	GB93-87				3
14	Nipple,grease nipple M10×1	GB1152-89				3
15	Bolt M27×200-10.9	GB5782-86				48
16	Nut M27-10	GB6170-86				184
17	Washer 27	GB/T1230-91				96
18	Bolt M27×190-10.9	GB5782-86				44
20	Bolt M8×25	GB5783-86				8
21	Nut M8	GB41-86				8
22	Plate	BC42.2.3-10				8
23	rotation bearing	06.139003ZZ10				1
24	Bolt M27×140-10.9	GB5782-86				4
25	Bolt M8×10	GB5782-86				4
26	Washer 8	GB93-87				12
27	Joint	BC42.2.3-6				1
28	Copper tube	BC42.2.3-7				4
29	Joint body	BC42.2.3-8				4

3.4 FRONT OUTRIGGER



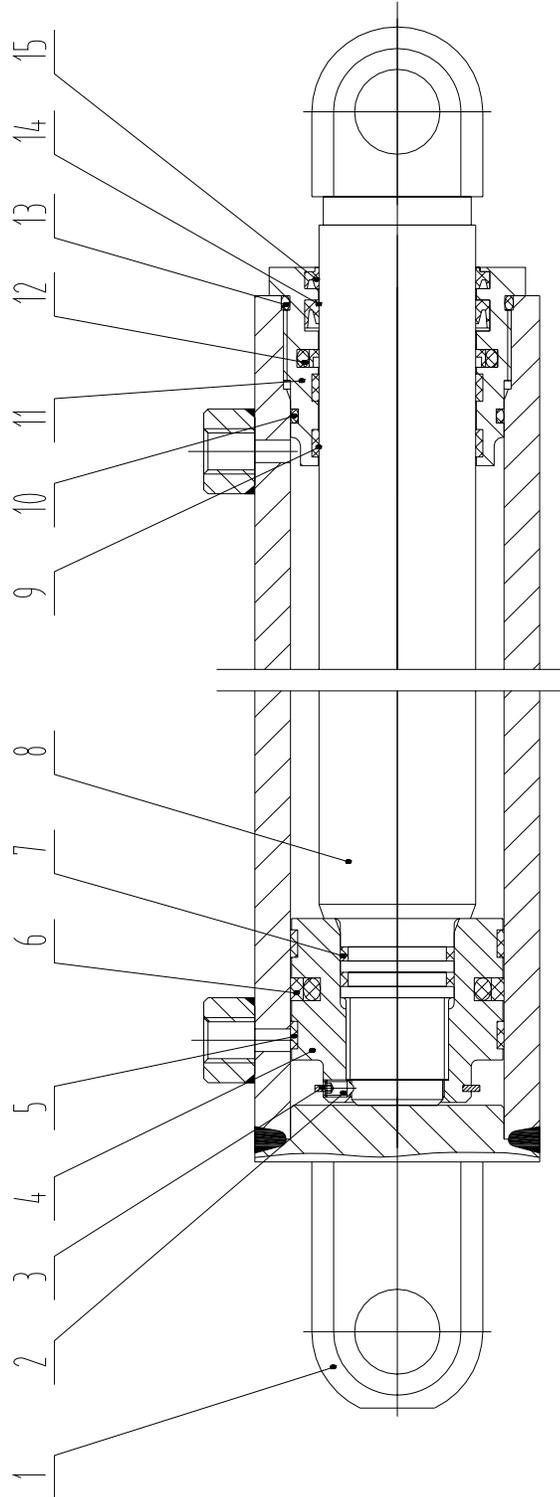


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No.	Name	Code	Material	Parent	Weight	Quantity
1	Front outrigger arm	BC48.2.1.1				2
2	Support of swingout cylinder to outrigger	BC42.2.4-4				2
3	Outrigger extend cylinder	BC48.00-3403				2
4	Extend arm	BC48.2.4.3				2
5	Internal support	BC42.2.4.6				4
6	Outrigger support	BC42.2.4.7				4
7	Pin	BC42.2.4-6				4
8	Cotter pin	BC48.2.1-1				4

3.4.1 OUTRIGGER EXTEND CYLINDER



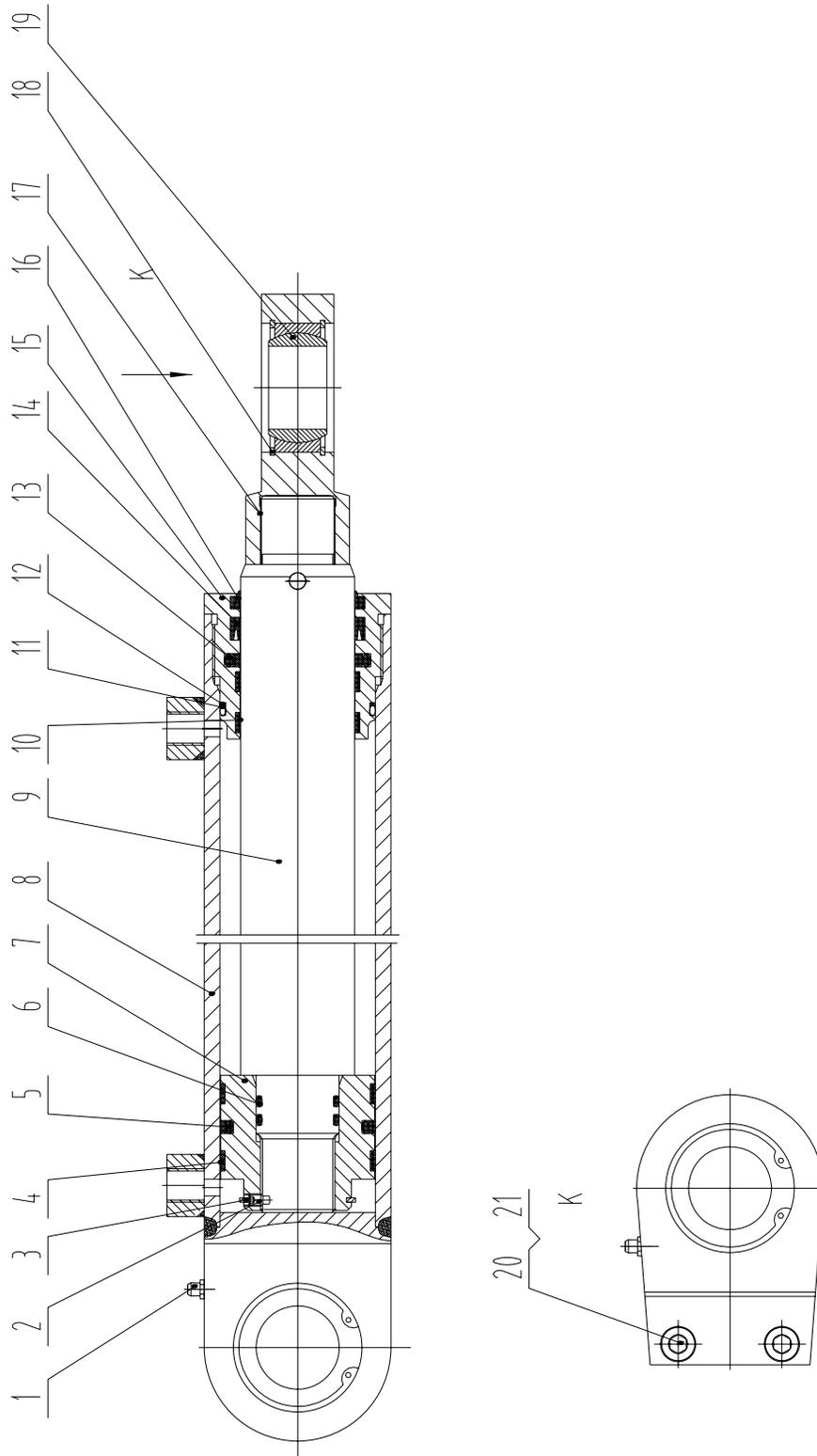


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No.	Name	Code	Material	Parent	Weight	Quantity
1	Assembly of cylinder body	0-01/G26				1
2	Bolt M6 ×10	GB/T79-2000				1
3	Ring,snap ring	GB/T894.2-1986				1
4	Piston	0-1/G6A				1
5	Ring,guide ring 70 ×75 ×9.7	FR7005Q5029				2
6	Seal,bearing seal 75 ×62× 6.3	KR2075 00701				1
7	O-RING 33.5 ×3.55	GB/T3452.1-1992				2
8	Rod,piston rod	0-1/G26				1
9	Ring,guide ring 55 ×60 ×9.7	FR5507Q5029				2
10	O-RING 67×3.55	GB/T3452.1-1992				1
11	Carrier,seal carrier	0-3/G6				1
12	Seal,bearing seal	PO-55-171-0550				1
13	O-RING 75 ×3.55	GB/T3452.1-1992				1
14	Seal,bearing seal	BS5564P5008				1
15	Anti-dust ring	AY5050 P5008				1

3.5 SWINGOUT CYLINDER OF FRONT OUTRIGGER



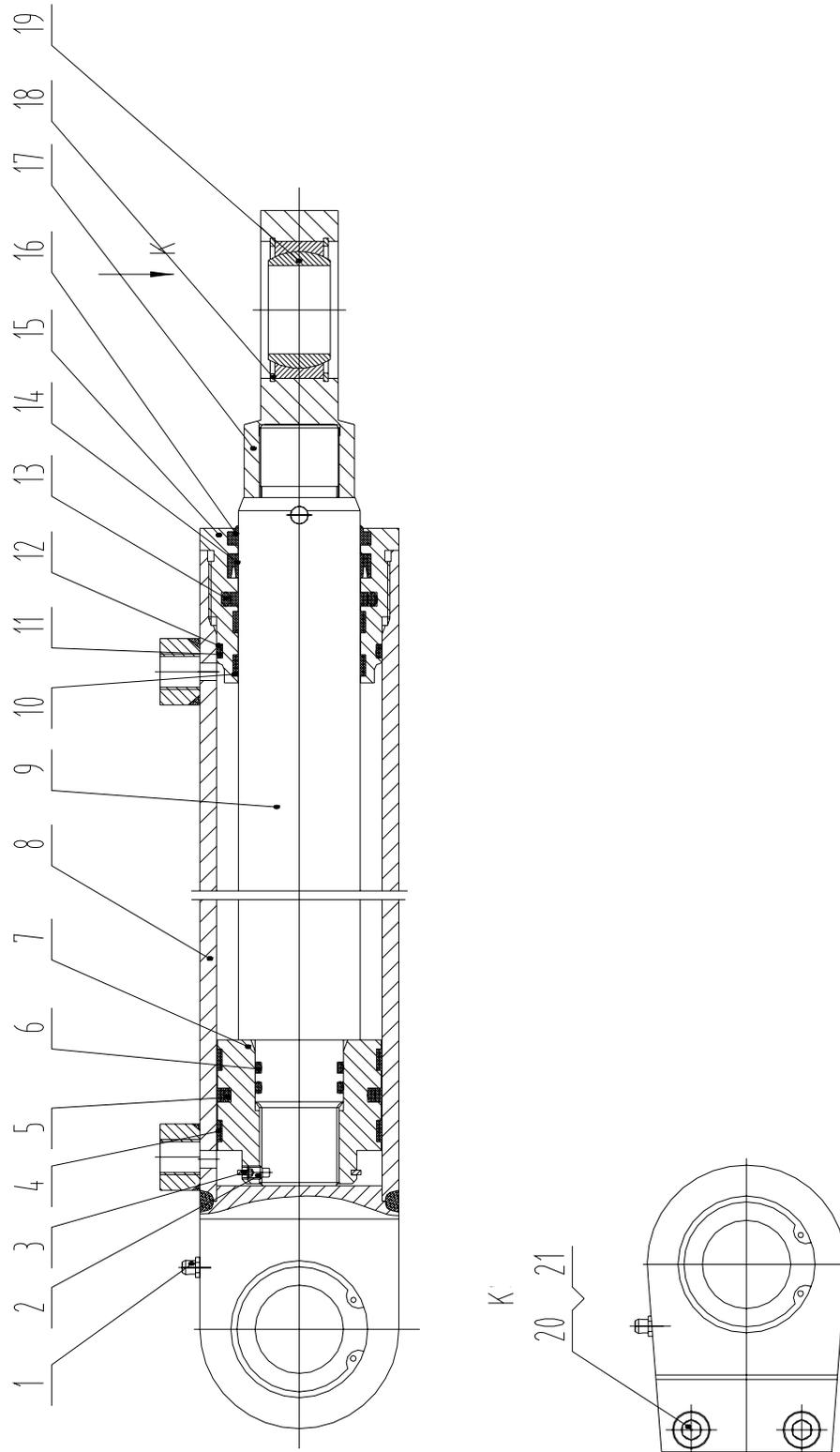


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No.	Name	Code	Material	Parent	Weight	Quantity
1	Nipple,grease nipple M8 ×1	GB1152-1989				
2	Bolt M6×10	GB/T79-2000				
3	Ring,snap ring 50	GB/T894.1-1986				
4	Ring,guide ring 70 ×75× 9.7	FR 7005				
5	Seal,bearing seal 75 ×62× 6.3	KR 2075				
6	O-RING 33.5 ×3.55	GB/T3452.1-1992				
7	Piston	0-1				
8	Assembly of cylinder body	0-01/G6				
9	Rod,piston rod	0-2/G6				
10	Ring,guide ring 55 ×60 ×9.7	FR 5507				
11	O-RING 69 ×3.55	GB/T3452.1-1992				
12	Ring,snap ring	0-2				
13	Seal of rod,piston rod assembly	PO-55-171-0550				
14	Seal,bearing seal 55 ×65× 10	BS 5564				
15	Carrier,seal carrier	0-3/G6				
16	Anti-dust ring 55× 65 ×6.8	AY 5050				
17	Spherical ball	0-4/G6A				
18	Ring,snap ring 62	GB/T893.1-1986				4
19	Joint bearing	GE40ES				2
20	Bolt M10× 30	GB/T70.1-2000				2
21	Washer 10	GB/T70.1-2000				2

3.6 SWINGOUT CYLINDER OF REAR OUTRIGGER



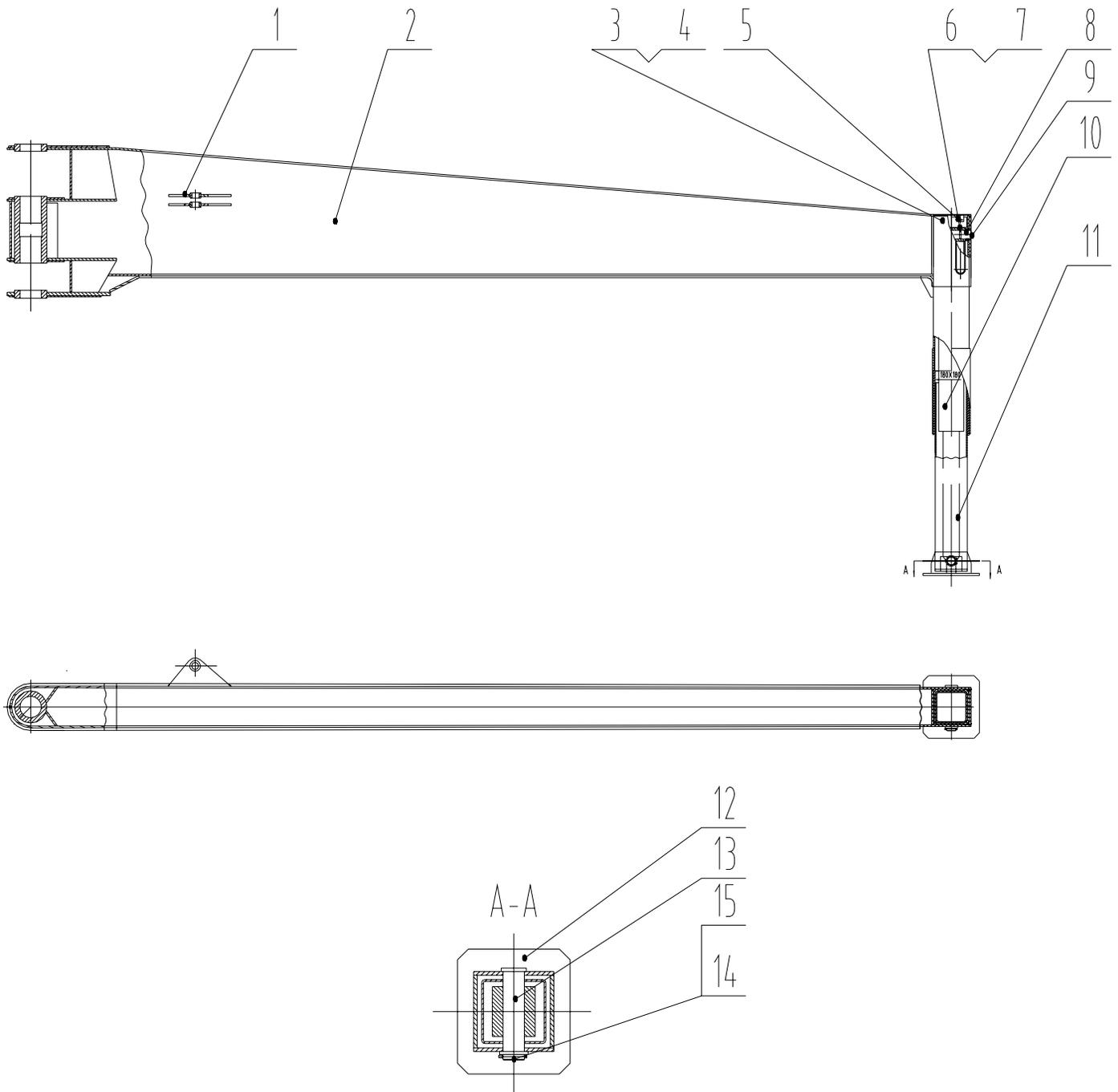


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No.	Name	Code	Material	Parent	Weight	Quantity
1	Nipple,grease nipple M8 ×1	BC48.00-3301				2
2	Bolt M6×10	GB/T79-2000				1
3	Ring,snap ring 50	GB/T894.1-1986				1
4	Ring,guide ring 70 ×75× 9.7	FR 7005				2
5	Seal,bearing seal 75 ×62× 6.3	KR 2075				1
6	O-ring 33.5 ×3.55	GB/T3452.1-1992				2
7	Piston	0-1/G6A				1
8	Assembly of cylinder body	0-01/G7				1
9	Rod,piston rod	0-2/G7				1
10	Ring,guide ring 55 ×60 ×9.7	FR 5507				2
11	O-RING 69 ×3.55	GB/T3452.1-1992				1
12	Ring,snap ring	0-2/G6A				1
13	Rod,piston rod assembly seal	PO-55-171-0550				1
14	Seal,bearing seal 55 ×65× 10	BS 5564				1
15	Carrier,seal carrier	0-3/G6				1
16	Anti-dust ring 55× 65 ×6.8	AY 5050				1
17	Spherical ball	0-4/G6A				1
18	Ring,snap ring 62	GB/T893.1-1986				4
19	Joint bearing	GE40ES				2
20	Bolt M10× 30	GB/T70.1-2000				2
21	Washer 10	GB/T70.1-2000				2

3.7 LEFT-REAR OUTRIGGER



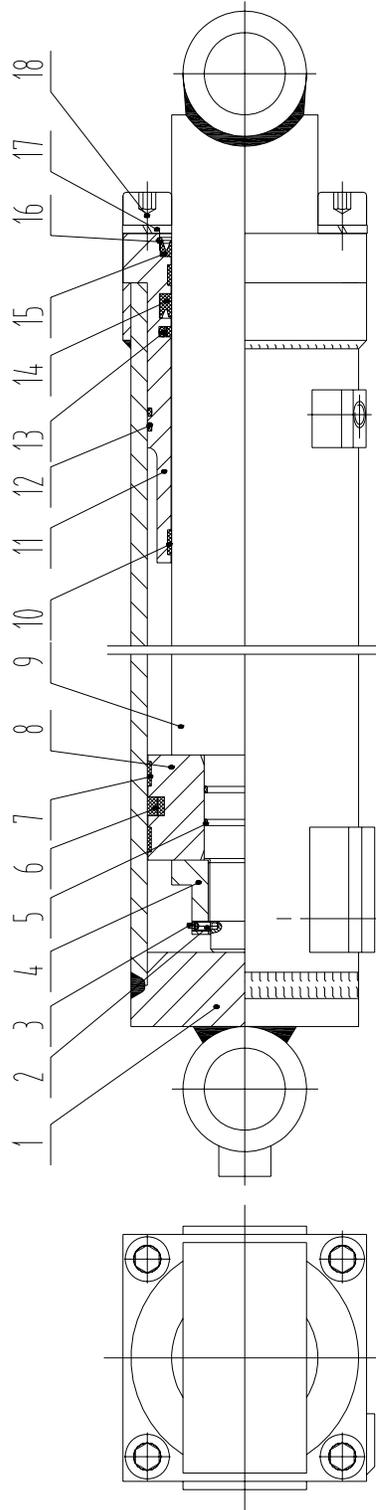


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No.	Name	Code	Material	Parent	Weight	Quantity
1	mount plate	BC48.2.5.1				2
2	Outrigger arm	BC48.2.6.1				1
3	Bolt M8×30	GB70-85				2
4	Washer 8	GB93-87				2
5	Cover	BC42.2.4.5				1
6	Bolt M8×40	GB77-85				2
7	Nut M8	GB41-86				2
8	Shaft	BC42.2.4-5				1
9	Bolt M10×30	GB5783-86				1
10	Left outrigger cylinder	BC42.2.5.2				1
11	Internal support	BC42.2.4.6				1
12	Outrigger support	BC42.2.4.7				1
13	Pin	BC42.2.4-6				1
14	Ring,snap ring	BC42.2.4-7				1
15	Cotter pin8×60	GB91-86				1

3.7.1 OUTRIGGER CYLINDER



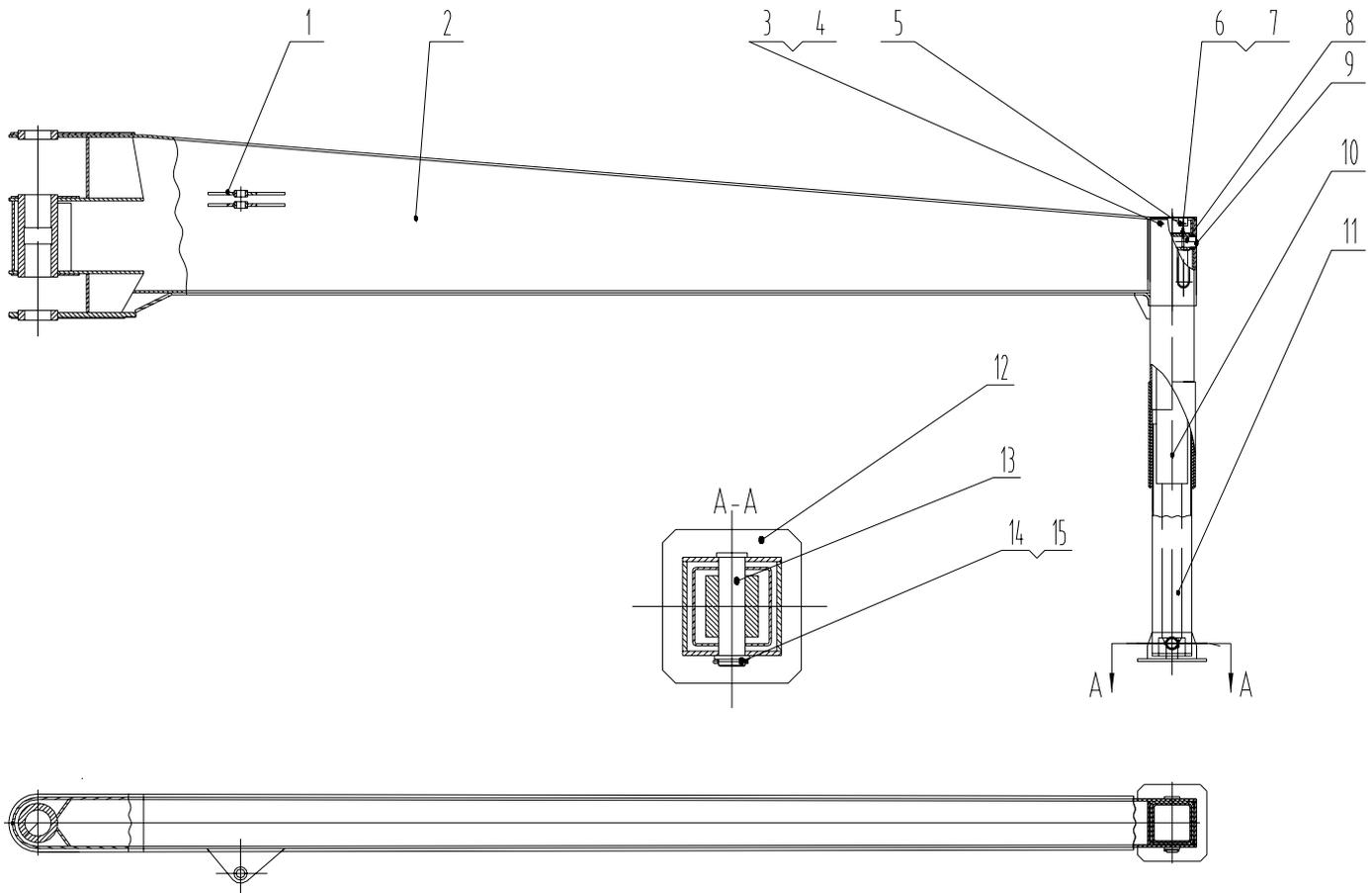


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No.	Name	Code	Material	Parent	Weight	Quantity
1	Assembly of cylinder body	0-01/G9				1
2	Bolt M6×14	GB/T79-2000				1
3	Ring,snap ring 65	GB894.2-86				1
4	Nut	0-01				1
5	O RING 45×2.65	GB/T3452.1-92				2
6	Piston seal,bearing seal 120×99×10.5	KR11200070				1
7	Ring,guide ring 115×120×15	FR B053				2
8	Piston	0-2				1
9	Rod,piston rod assembly	0-02/G9				1
10	Ring,guide ring 90×95×15	FR 9095				2
11	Carrier,seal carrier	0-3/G9				1
12	O RING 12×3.55	GB/T3452.1-92				2
13	Seal of rod,piston rod assembly	PO-55-171-0900				1
14	Rod,piston rod Seal,bearing seal	BS 9005				1
15	Anti-dust ring 90×104×8	AF 9033				1
16	Ring,snap ring 105	GB/T895.1-86				1
17	Bolt M20×60	GB/T70.1-2000				4
18	Washer 20	GB/T93-87				4

3.8 RIGHT-REAR OUTRIGGER



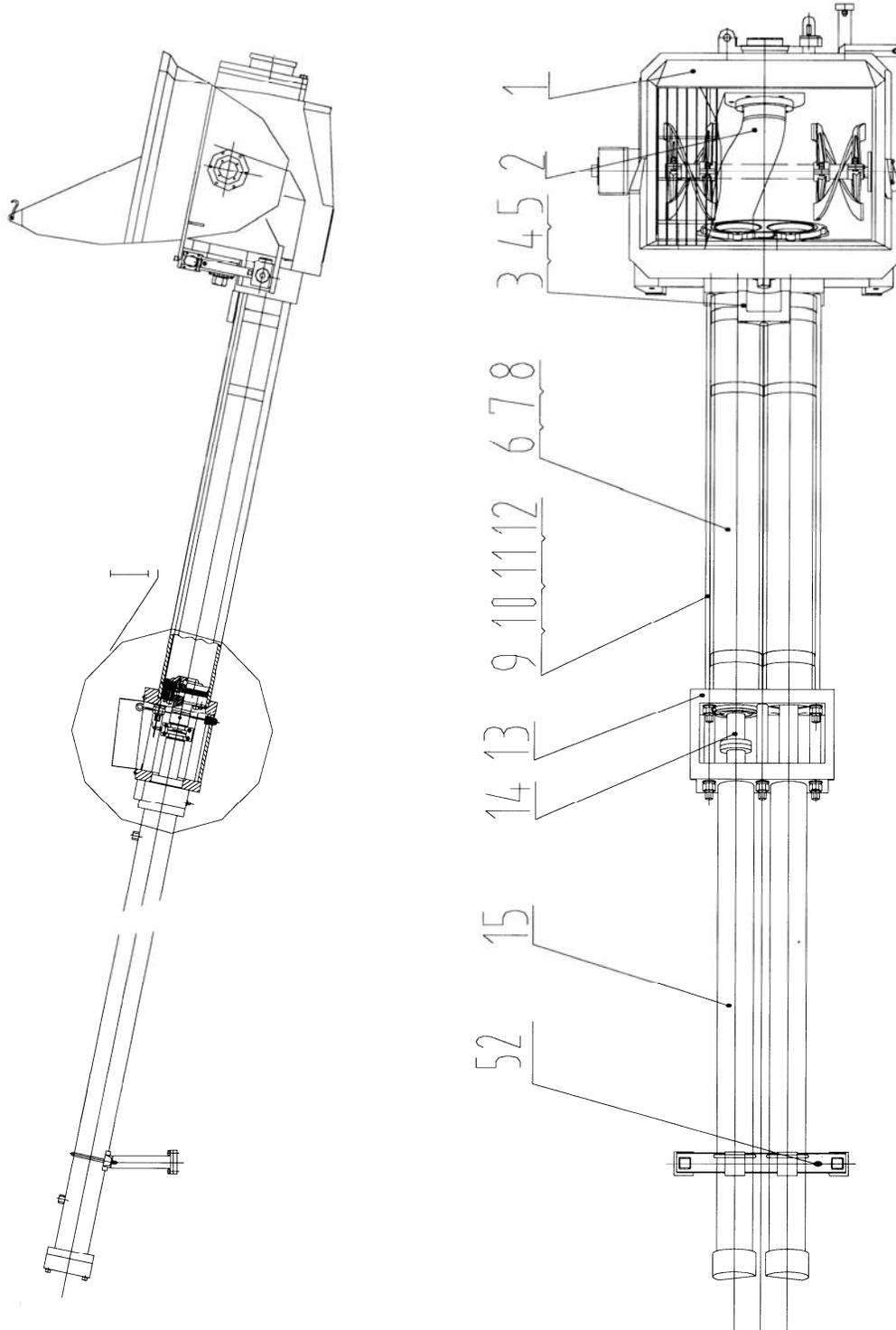


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No.	Name	Code	Material	Parent	Weight	Quantity
1	Pedestal	BC48.2.5.1				2
2	Outrigger arm	BC48.2.5.2				1
3	Bolt M8×30	GB70-85				2
4	Washer 8	GB93-87				2
5	Cover	BC48.2.5.3				1
6	Bolt M8×40	GB77-85				2
7	Nut M8	GB41-86				2
8	Shaft	BC42.2.4-5				1
9	Bolt M10×30	GB5783-86				1
10	Right outrigger cylinder	BC42.2.4.4				1
11	Internal support	BC42.2.4.6				1
12	Outrigger support	BC42.2.4.7				1
13	Pin	BC42.2.4-6				1
14	Ring,snap ring	BC42.2.4-7				1
15	Cotter pin8×60	GB91-86				1

CHAPTER 4 PUMPING SYSTEM

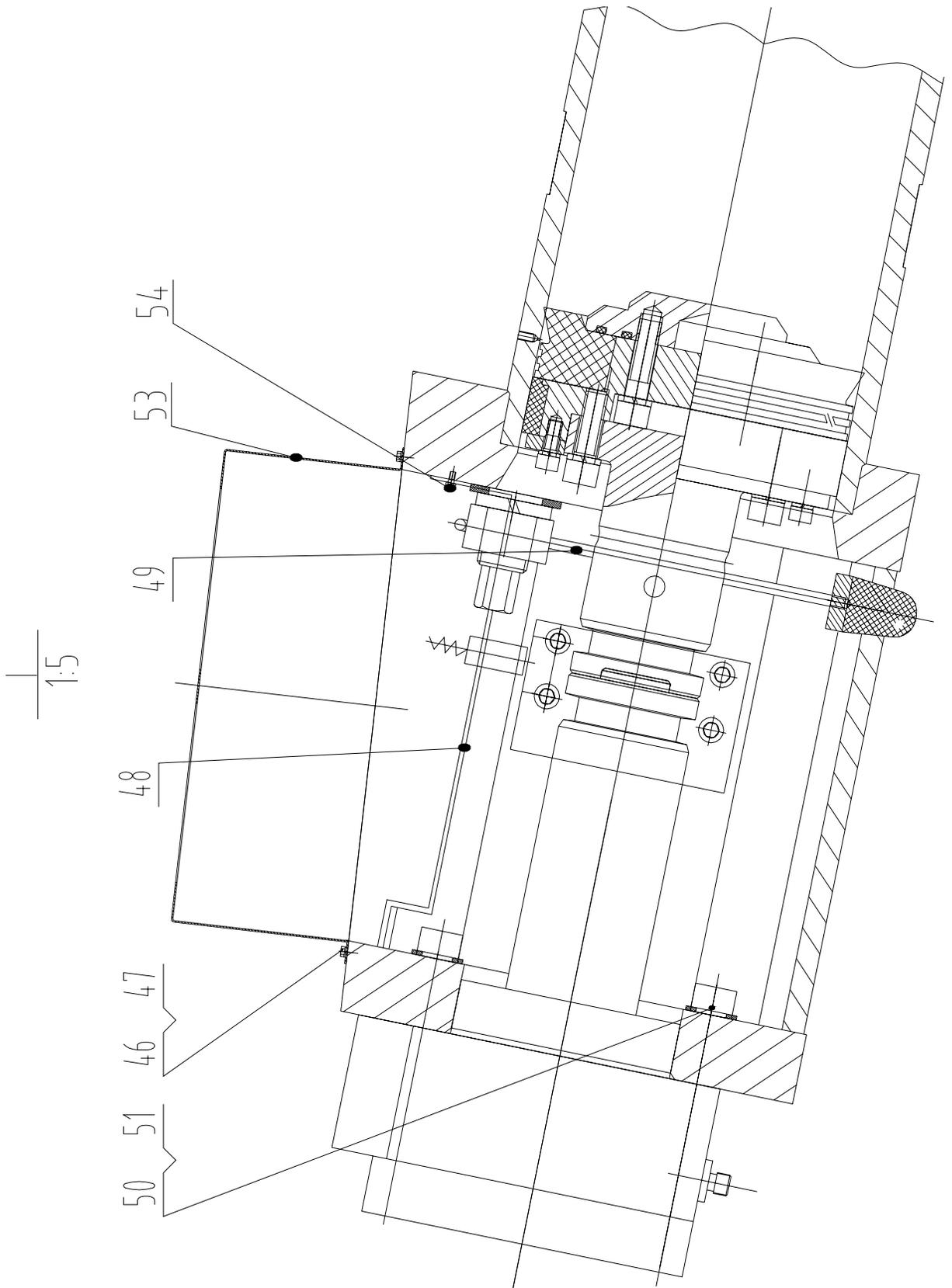




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No.	Name	Code	Material	Parent	Weight	Quantity
1	Hopper assembly	BC37.3.1				1
2	S tube assembly	BC37.3.2				1
3	Tie bar base	BC37.3-1				1
4	Washer 20	GB93-87				3
5	Bolt M20×145	GB80-75				3
6	O-RING Φ243×7	GB3452.1-82				2
7	Concrete cylinder	BC37.3-2				2
8	Tie bar	BC37.3-3				6
9	Transition shield	BC37.3-4				2
10	Nut M36	GB6170-86				6
11	Washer 36	GB97.1-86				6
12	Washer 36	GB93-87				6
13	Water tank	BC37.3.3				1
14	Concrete piston	BC37.3.4				2
15	Driver cylinder	BC37.3.5				2
52	Support of drive cylinder	BC37.3.24				1



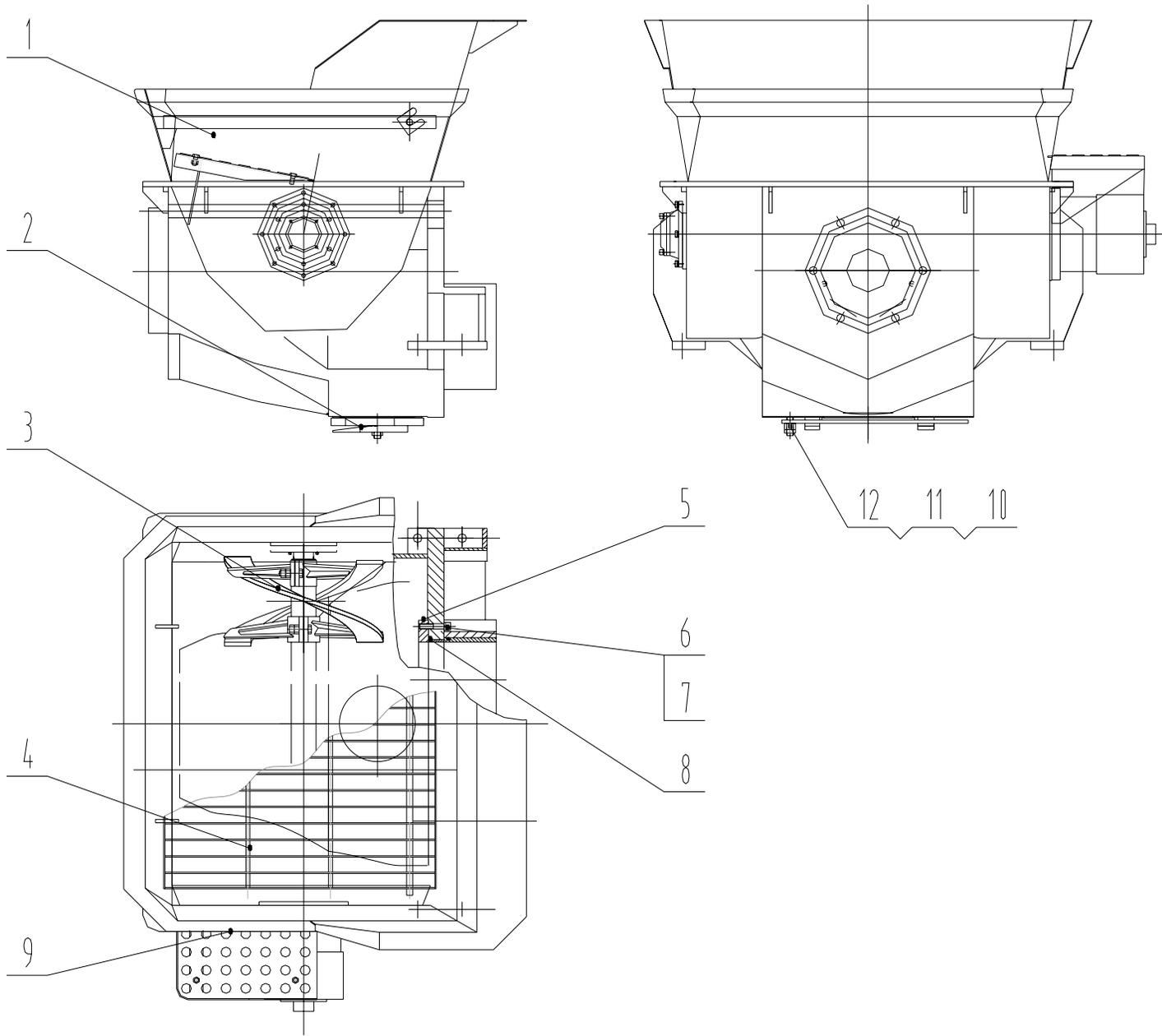


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46	Bolt M8×12	GB5781-86				4
47	Washer 8	GB93-87				4
48	Bracket of proximity switch	BC37.3.26				2
49	Plug of water box	BC37.3.23				2
50	Bolt M22×185	GB70-85				18
51	Washer 22	GB95-85				18
53	Cover of water box	BC37.3-12				1
54	Bolt M8×16	GB5781-86				4

4.1 HOPPER ASSEMBLY



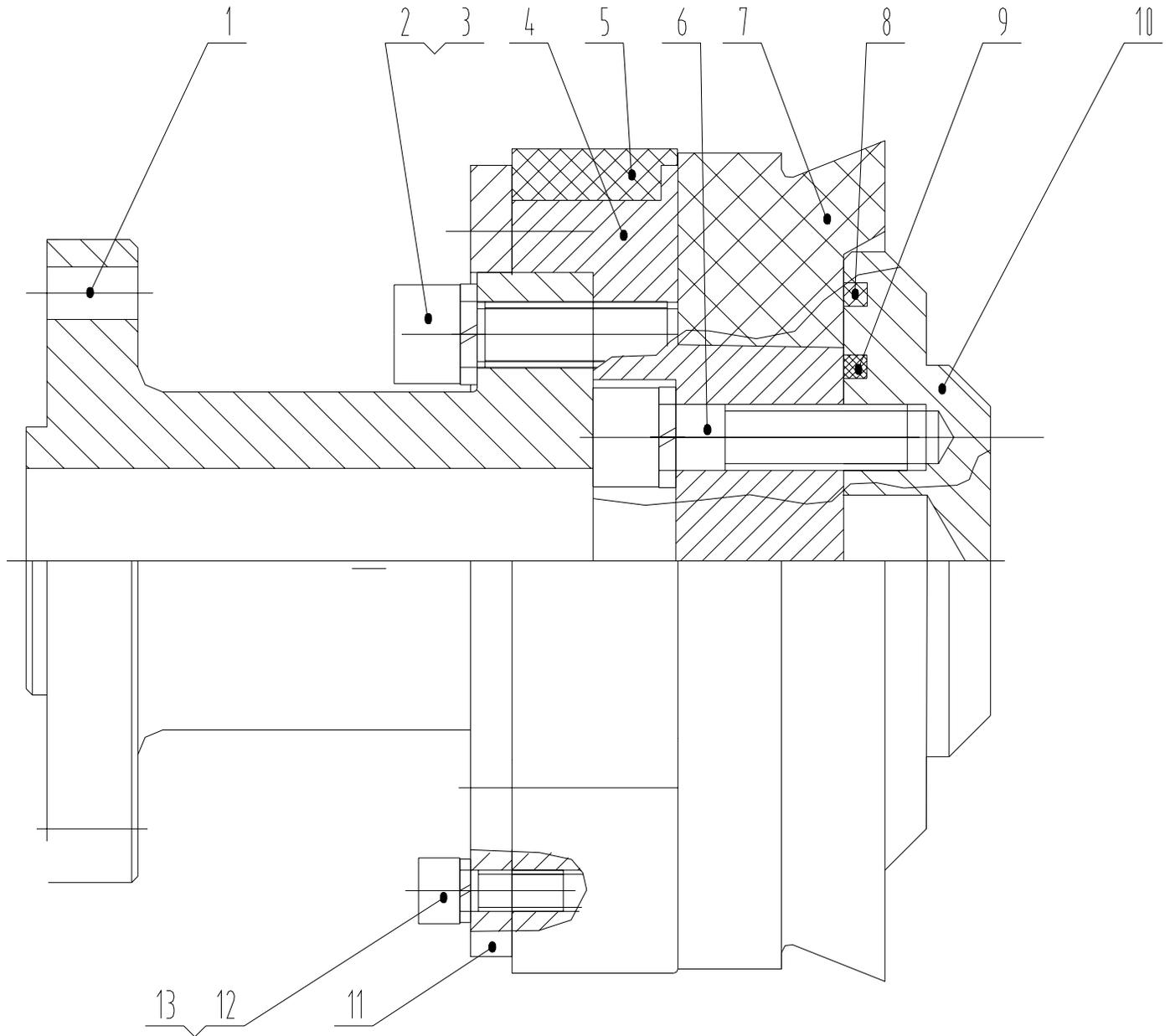


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No.	Name	Code	Material	Parent	Weight	Quantity
1	Hopper weldment	BC37.3.1.1				1
2	Hopper door	60S1816.3.4-2				1
3	Agitator	BC37.3.1.5				1
4	Hopper grate	BC37.3.1.2				1
5	Wear plate	BC37.3.1-1				1
6	Bolt M16×75	GB70-85				6
7	Washer 16	GB93-87				6
8	O ring seal,bearing seal 243×5.3	GB3452.1-82				2
9	Step	BC37.3.1.4				1
10	Stud	60S1816.3.4-4				1
11	M20	GB6170-86				1
12	M20	GB6184-86				1

4.2 CONCRETE PISTON



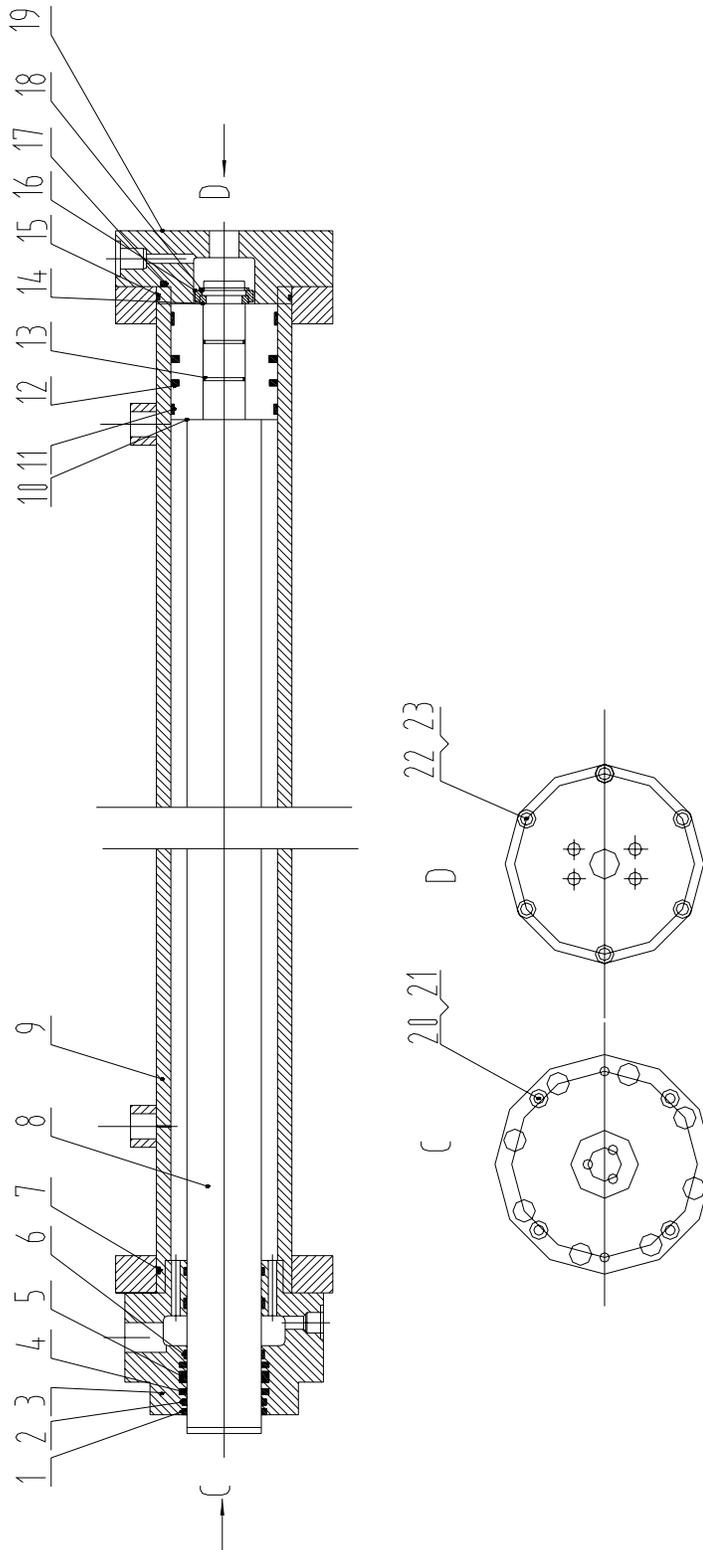


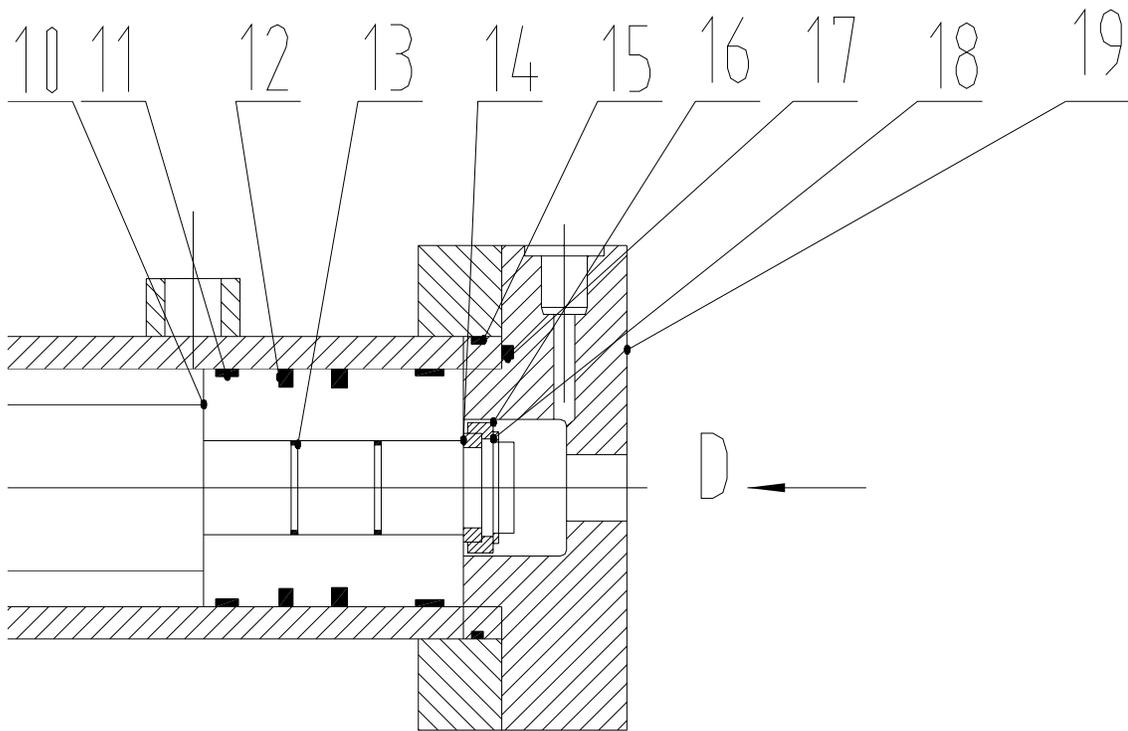
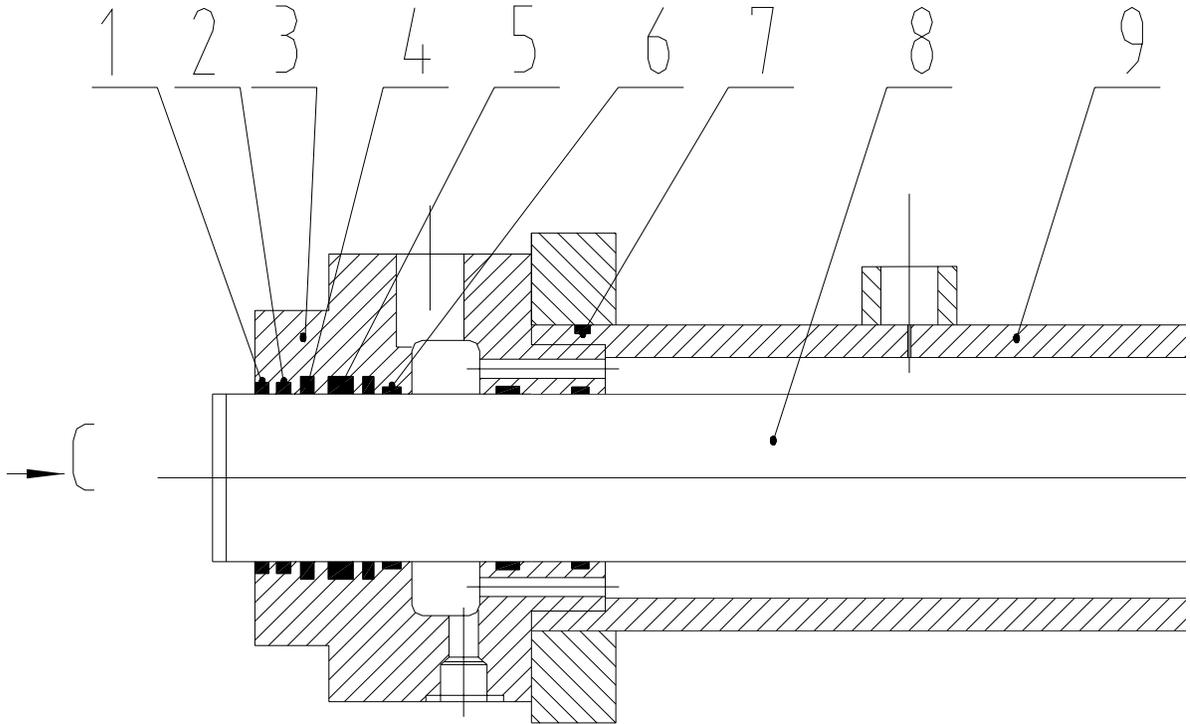
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No.	Name	Code	Material	Parent	Weight	Quantity
1	rod,connecting rod	60S1816.5.1-1	45			1
2	bolt m16×50	GB70-85	8.8			4
3	washer 16	GB93-87	65Mn			8
4	piston body	60S1816.5.1-2	45			1
5	ring,guide ring	60S1816.5.1-3				1
6	bolt m16×60	GB70-85	8.8			4
7	seal,concrete seal	60S1816.5.1-4	polyurethane			1
8	o-ring 100×5.7	GB1235-76	rubber			1
9	o-ring 135×5.7	GB1235-76	rubber			1
10	plate,hold-down plate	60S1816.5.1-5	45			1
11	plate	60S1816.5.1-6	Q235-A			1
12	bolt m10×25	GB70-85	8.8			4
13	washer 10	GB93-87	65Mn			4

4.3 DRIVE CYLINDER





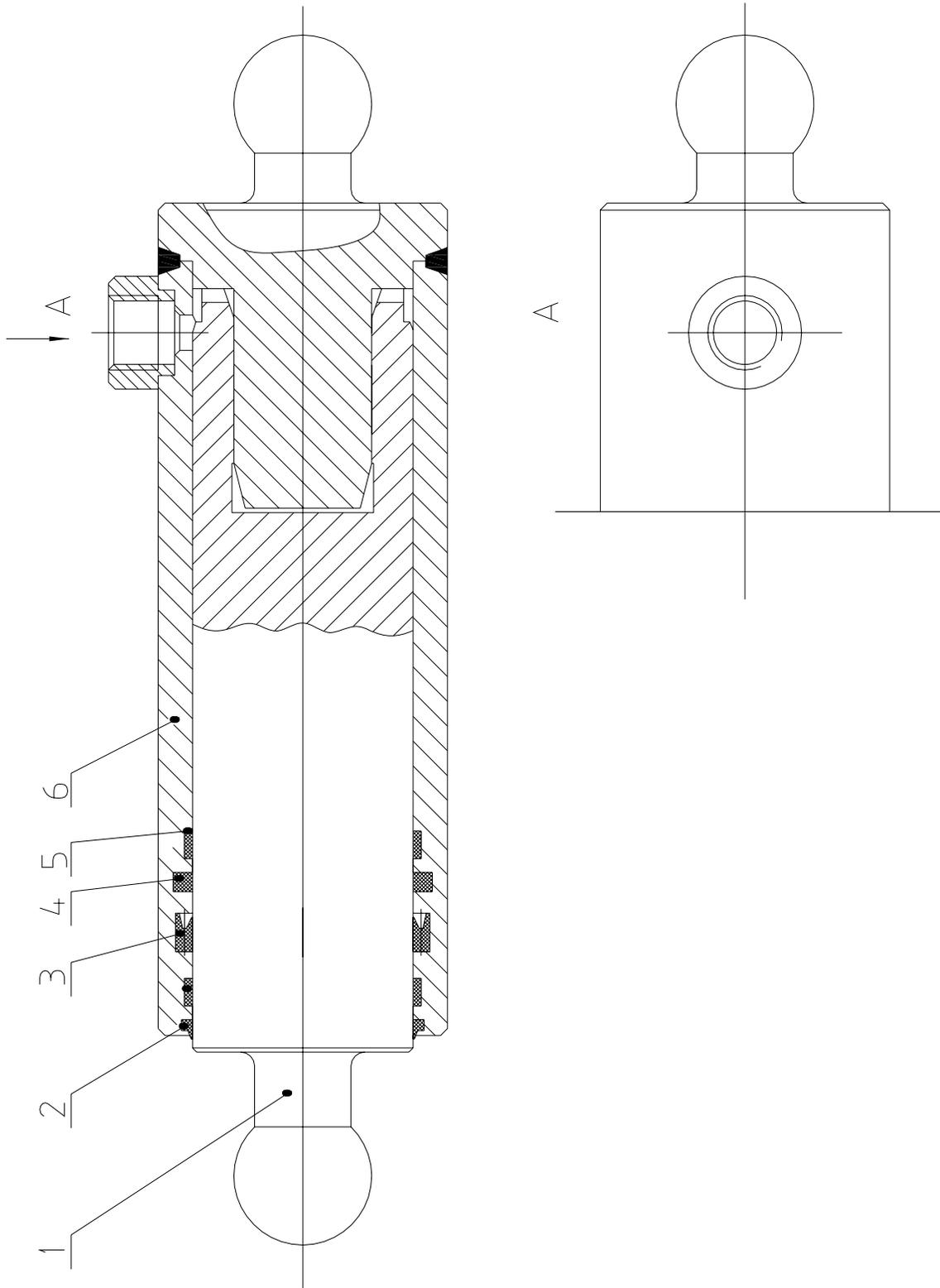


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No.	Name	Code	Material	Parent	Weight	Quantity
1	Ring,snap ring 90	GB895.1-86				1
2	AM Anti-dust ring	AM8009 A5053				1
3	Gland	BC48.00-4303				1
4	OD rod,piston rod seal	OD 0800 052 00171 D				2
5	BS rod,piston rod seal	BS 8095 P5008				1
6	Ring,guide ring	FR 8010 Q5029				3
7	O-RING	GB1235-76-125×3.1				2
8	Rod,piston rod	BC48.00-4308				1
9	Cylinder body	BC48.00-4309				1
10	Piston	BC48.00-4310				1
11	Ring,guide ring	FR 8009 Q5029				2
12	OK piston seal	OK 0115 00701				2
13	O-RING	GB1235-76-66×3.1				2
14	Ring,key ring for shaft	BC48.00-4314				1
15	O-RING	GB1235-76-115×3.1				1
16	Ring,key ring cap	BC48.00-4316				1
17	O-RING	GB1235-76-130×3.1				1
18	Ring,snap ring	GB94.1-86-65				1
19	Cylinder body	BC48.00-4319				3
20	Bolt	GB70-85-M10×100-8.8				4
21	Washer	GB93-87-10				4
22	Bolt	GB70-85-M24×65-8.8				6
23	Washer	GB93-87-24				6

4.8 SHIFT CYLINDER



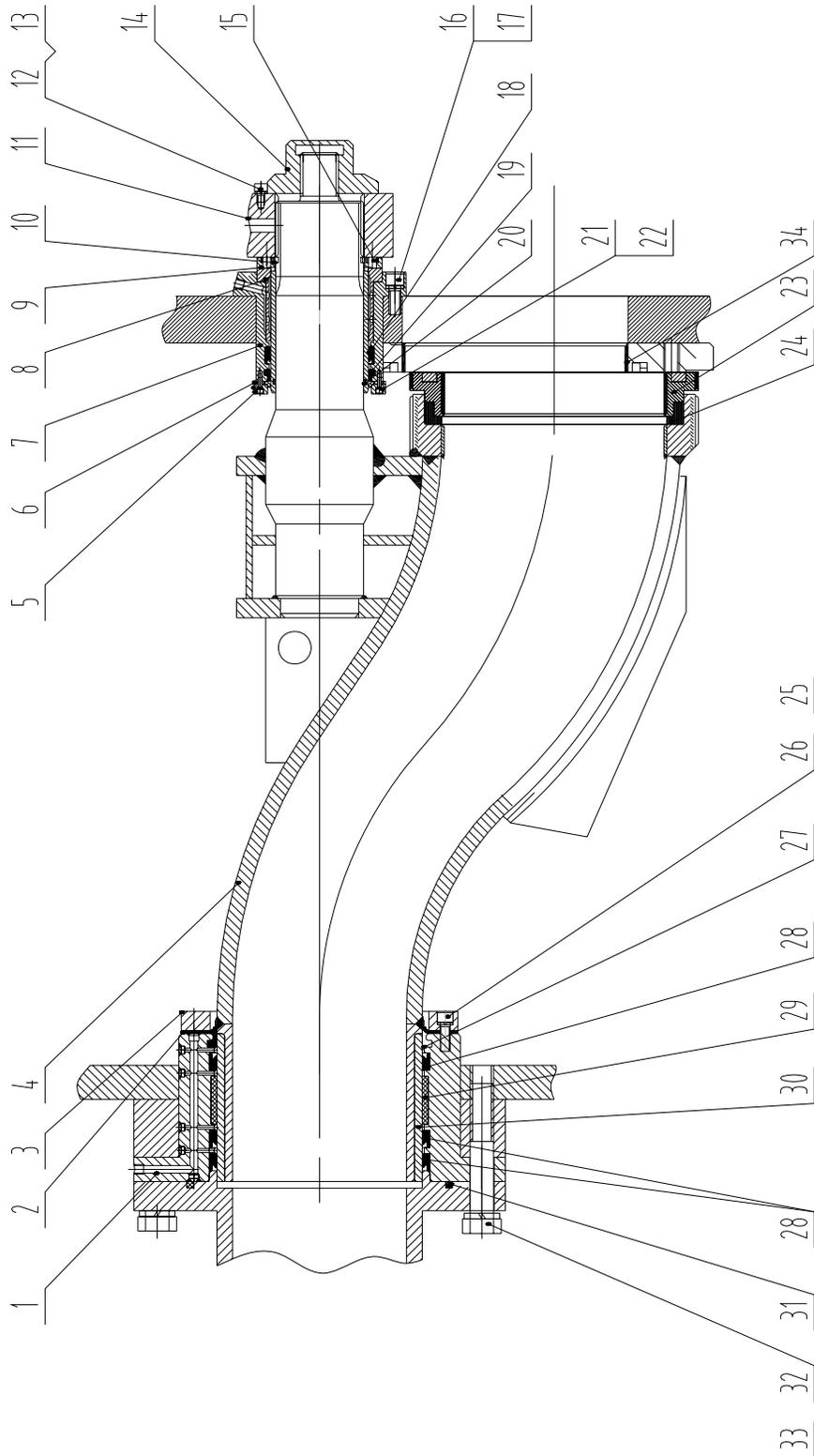


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No.	Name	Code	Material	Parent	Weight	Quantity
1	Rod,piston rod	0-1				1
2	AY anti-dust ring d80	AY 8030 P5008				1
3	BS seal,bearing seal d80	BS 8095 P5008				1
4	PTEE OD rod seal d80	OD 0800 052 00171				1
5	FR ring,guide ring	FR 8010 Q5029				2
6	Cylinder assembly	0-01				1

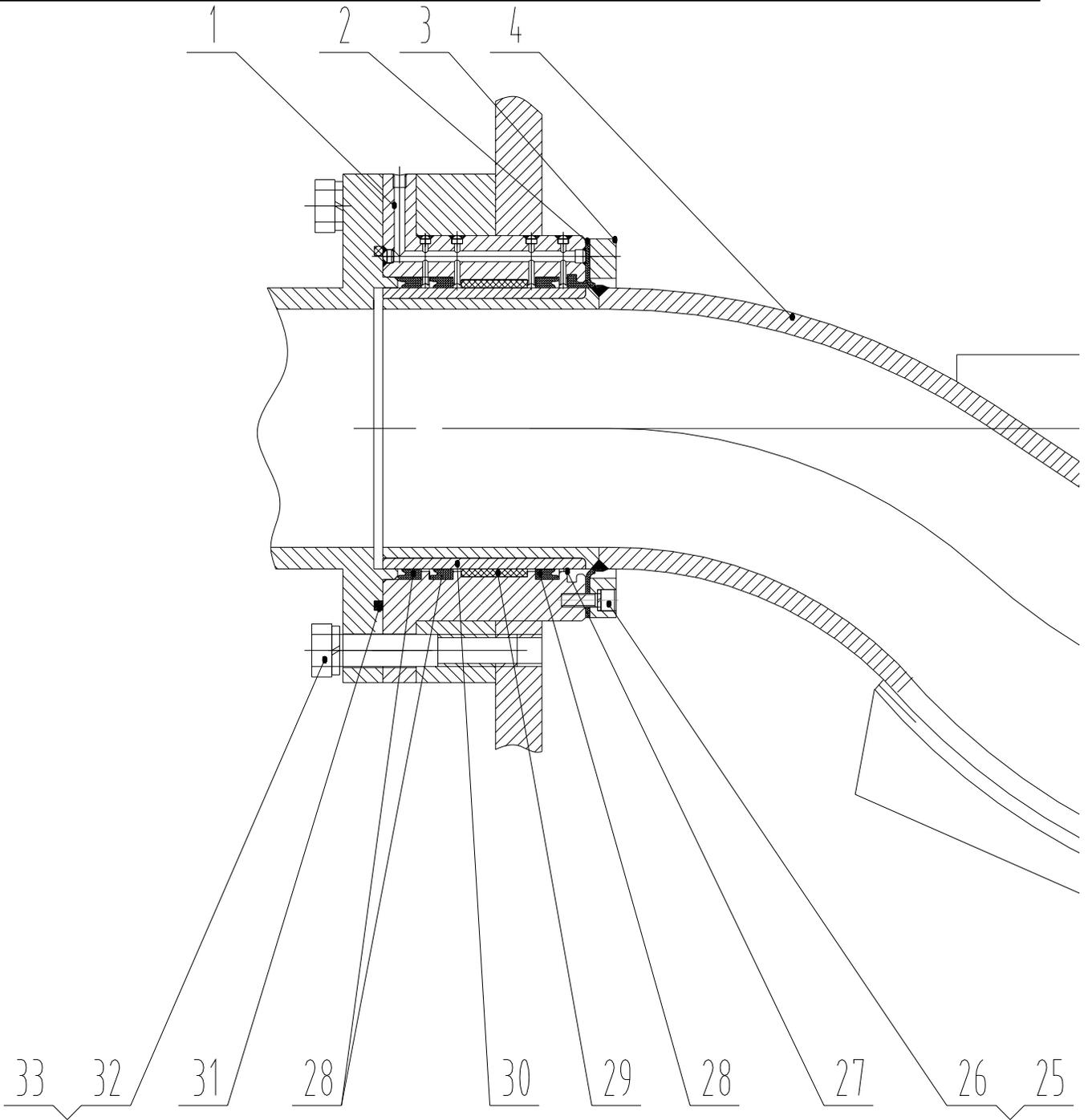
4.9 S TUBE ASSEMBLY





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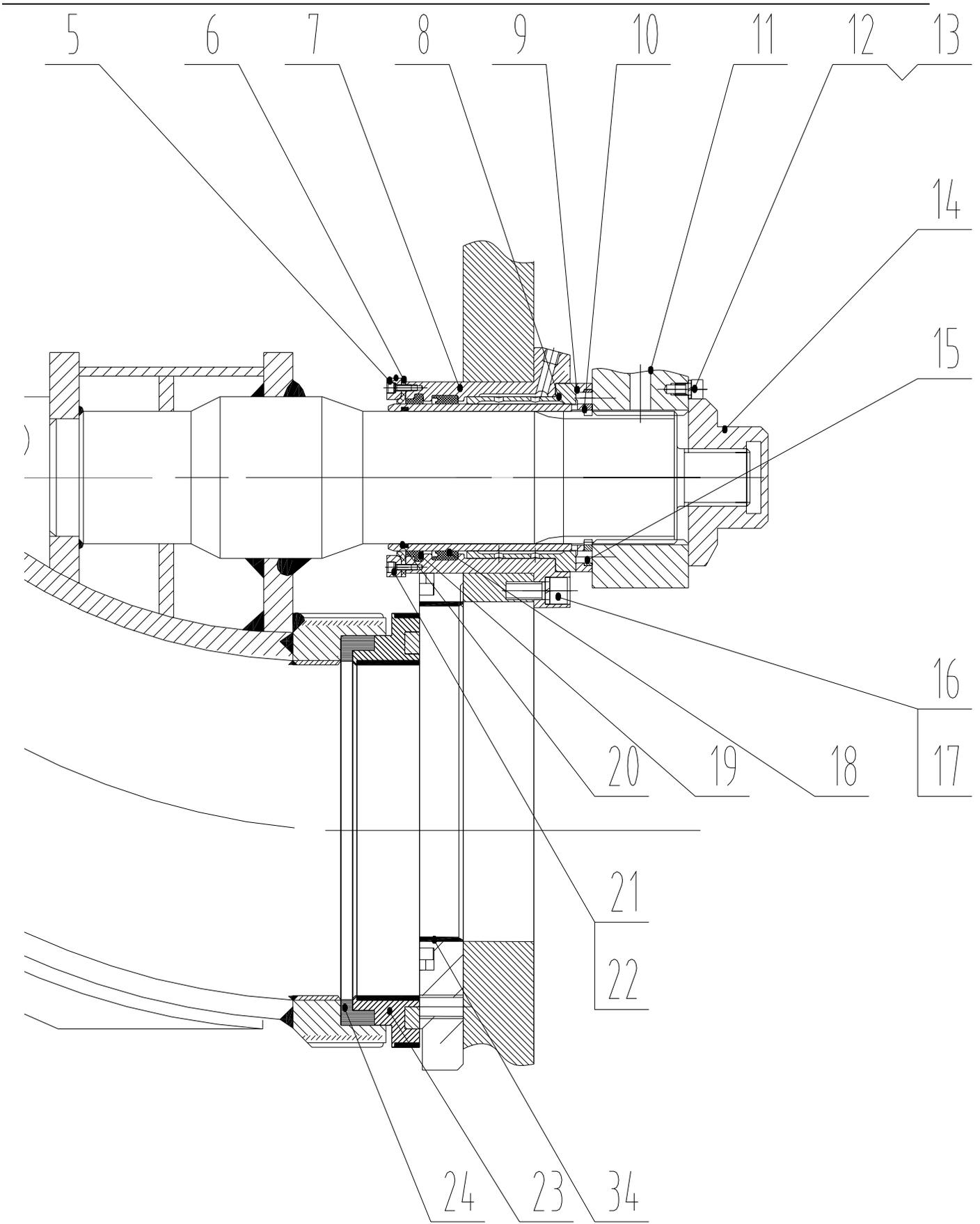
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No.	Name	Code	Material	Parent	Weight	Quantity
1	Big bearing seat	60S1816.1.2.2				1
2	Anti-dust rubber pad	60S1816.1.2-1				1
3	Hold-down plate	60S1816.1.2-2				1
4	S tube weldment assembly	BC37.3.2.1				1
5	Hold-down plate	60S1816.1.2-3				1
6	Anti-dust rubber pad	60S1816.1.2-4				1
7	Small bearing seat	60S1816.1.2-15				1
8	Bearing	60S1816.1.2-5				1
9	End barrel bushing	60S1816.1.2-6				1
10	Internal spline gear	60S1816.1.2-7				1
11	Swinging arm	60S1816.1.2-8				1
12	Bolt M8×16	GB70-85				1
13	Washer 8	GB93-87				1
14	Nut of special shape	60S1816.1.2-9				1
15	Alignment pin	60S1816.1.2-10				1
16	Bolt M12×30	GB70-85				6
17	Washer 12	GB93-87				6
18	Seal C1A015N3571	BC48.00-4918				1
19	Anti-dust ring A5A018N3587	BC48.00-4919				1
20	O-ring, Parker precision : 88.49×3.53	XBC39.00-010				1
21	Bolt M4×12	GB70-85				6
22	Washer 4	GB93-87				6
23	Cutting ring	BC37.3.2-11				1
24	Rubber spring	BC37.3.2-12				1
25	Bolt M10×30	GB70-85				6
26	Washer 10	GB93-87				6
27	Anti-dust ring J210	XBC39.00-006				
28	Seal YXd210	XBC39.00-007				
29	Nylon bearing	60S1816.1.2-13				1
30	Abrasion shield	60S1816.1.2-14				1
31	"O" seal,bearing seal: 258×7	GB3452.1-82				1

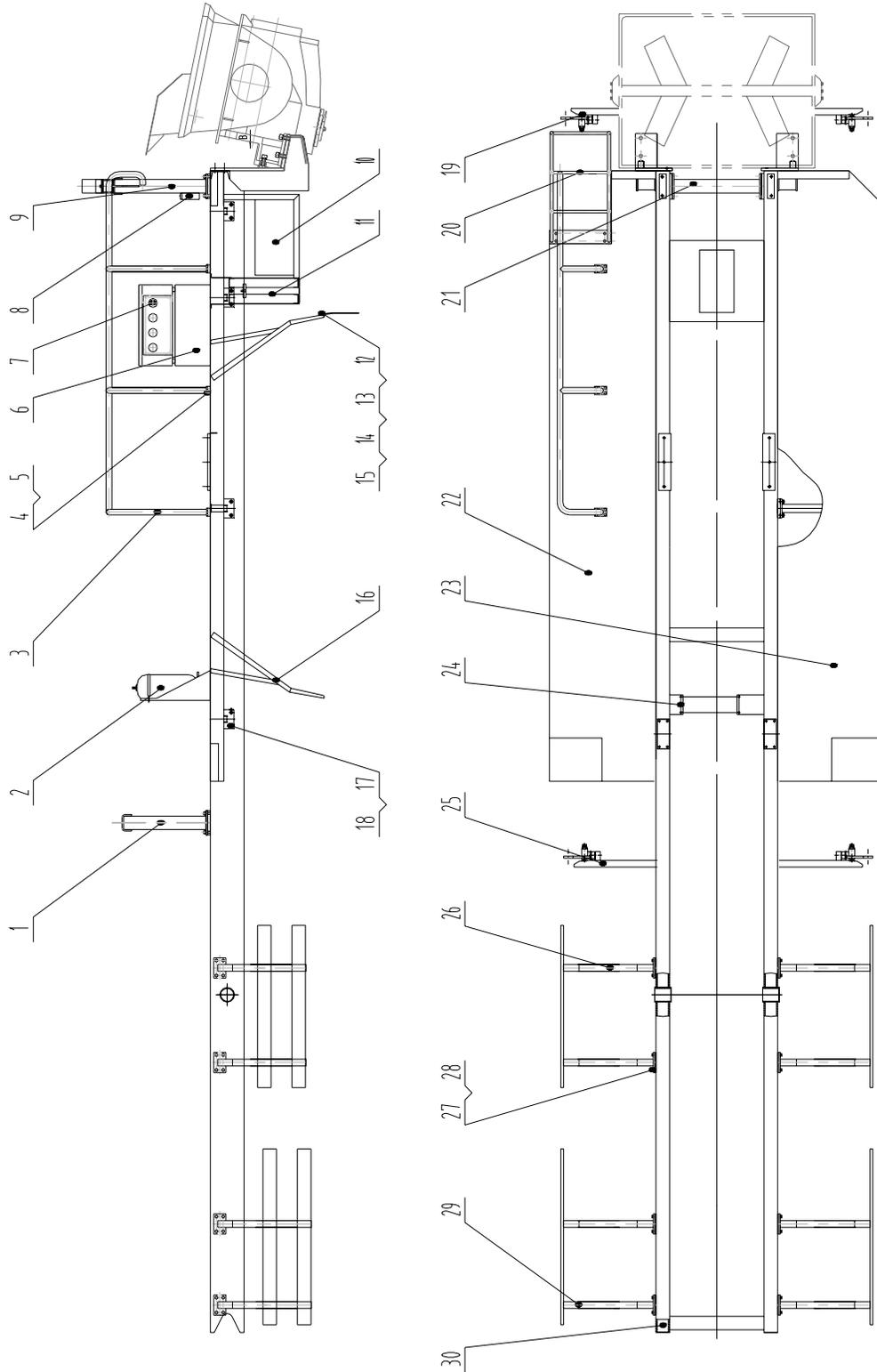


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32	Bolt M24×150	GB70-85				6
33	Washer 24	GB93-87				6
34	Wear plate	BC37.3.2-13				1

CHAPTER 5 SUB-FRAME ASSEMBLY



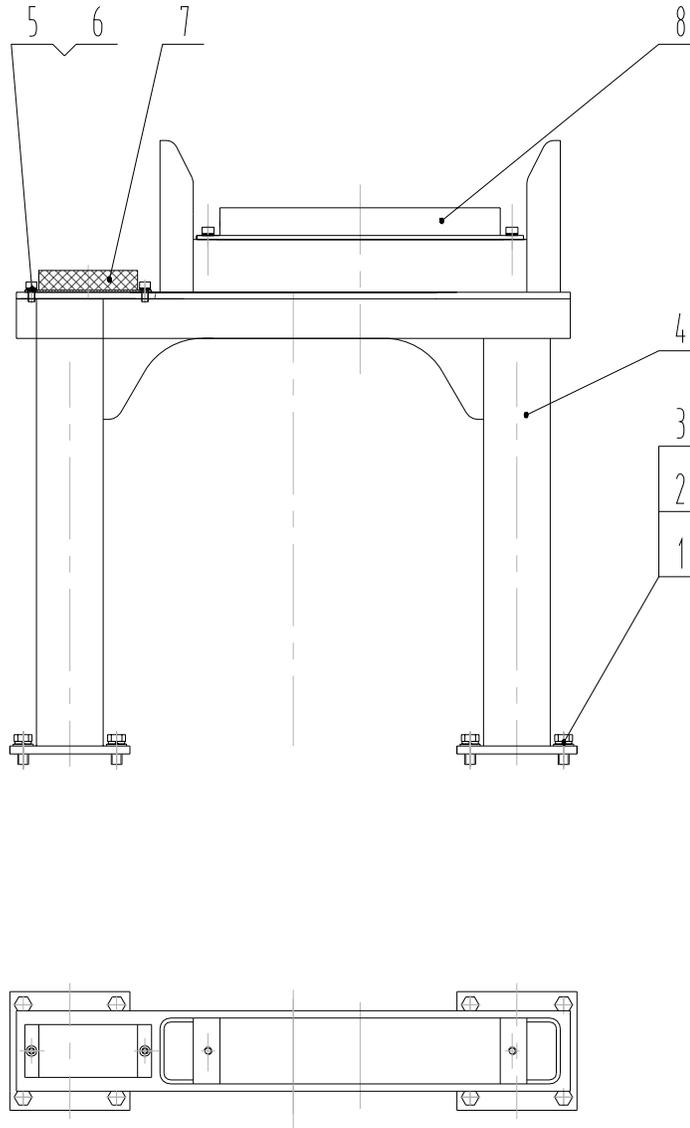


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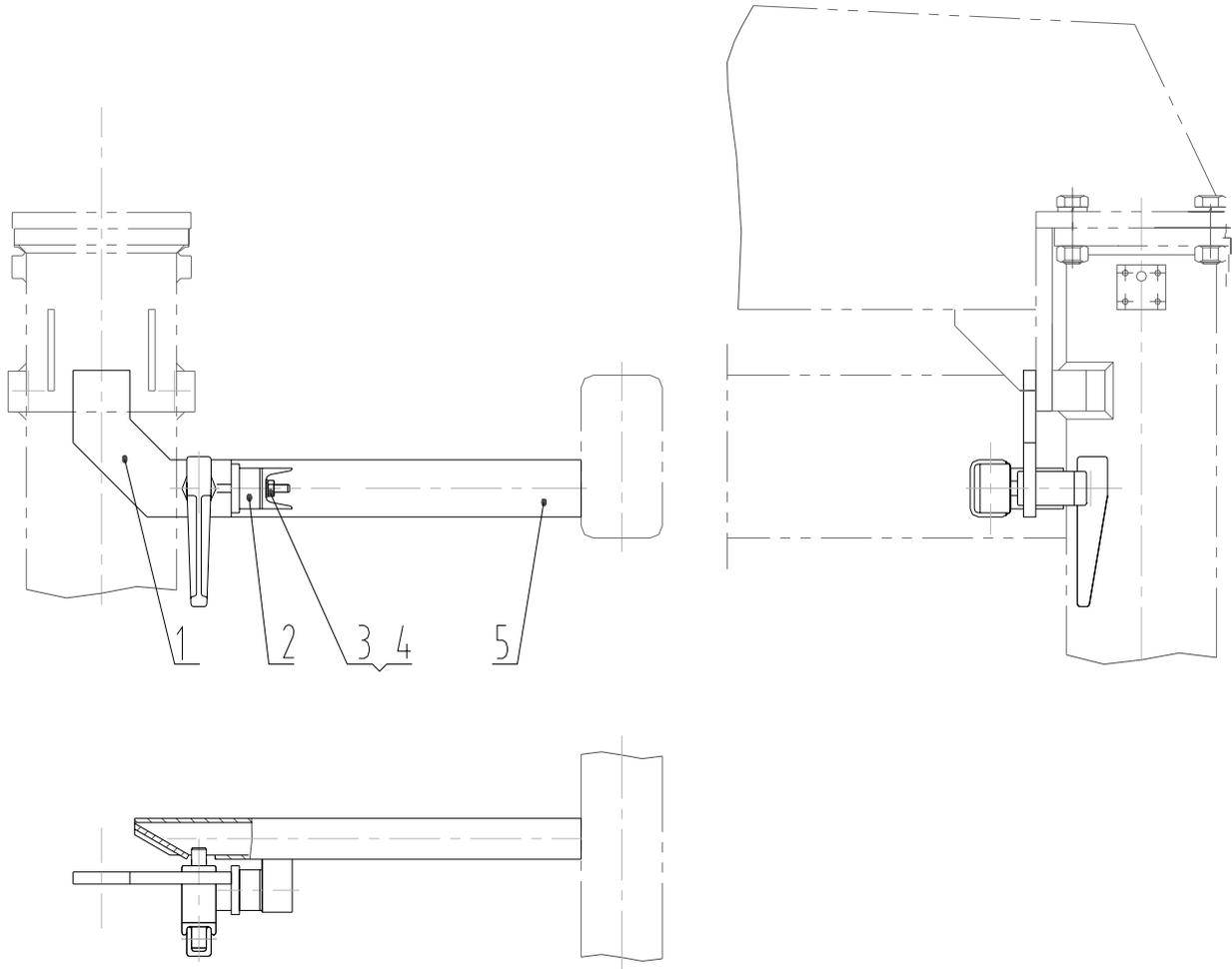
No.	Name	Code	Material	Parent	Weight	Quantity
1	Sub-support	BC48.00-5001				1
2	Pipe, support pipe, accumulator	BC48.00-5002				1
3	Guardrail	BC48.4.11				1
4	Bolt M12×25	GB5780-86				12
5	Grower washer 12	GB93-87				12
6	Base of electrical box	BC48.00-5006				1
7	Electrical box	BC48.4.8				1
8	Lubricating grease box	BC48.00-5008				1
9	Boom rest	BC48.4.14				1
10	Toolbox	BC48.00-5010				1
11	Plate, base plate frame of outrigger	BC48.00-5011				2
12	Rubber mudflap 600×380×3	BC48.00-5012				2
13	Hold-down plate	BC48.00-5013				2
14	Bolt M8×20	GB5780-864				8
15	Washer M8	GB93-87				8
16	Wheel fender	BC48.00-5016				4
17	Bolt M16×35	GB5780-86				32
18	Washer M16	GB93-87				32
19	Lock of rear outrigger	BC48.00-5019				2
20	Ladder	BC48.4.15				1
21	Connecting rod	BC48.00-5021				1
22	Right walking platform	BC48.4.3.2				1
23	Left walking platform	BC48.4.3.1				1
24	Gearbox	BC48.00-5024				1
25	Lock of front outrigger	BC48.00-5025				2
26	Side guardrail □	BC48.4.7				2
27	Bolt 10×20	GB5780-86				32
28	Washer 10	GB93-87				32
29	Side guardrail □	BC48.00-5029				2
30	Frame	BC48.4.1				1

5.1 BOOM REST



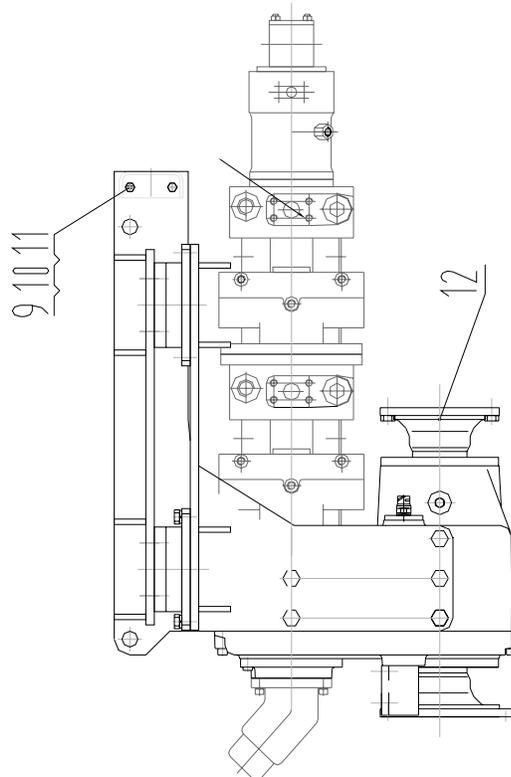
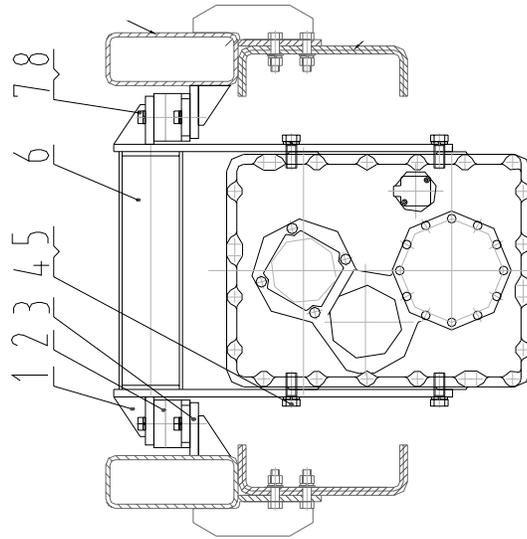
No.	Name	Code	Material	Parent	Weight	Quantity
1	Bolt M16×35	GB5783-86				4
2	Washer 16	GB93-87				8
3	Washer 16	GB97.1-85				8
4	Boom rest frame	BC48.4.14.1				1
5	Washer 12	GB93-87				4
6	Bolt M12×20	GB5783-86				4
7	Bumper pad	BC42.1.7.1.1				1
8	Bumper pad	BC48.4.14.2				1

5.2 LOCK OF REAR OUTRIGGER



No.	Name	Code	Material	Parent	Weight	Quantity
1	Rear hanging base	BC37D.4.5.1				1
2	Bumper pad	WAI 103494				1
3	Nut M10	GB6170-86				1
4	Washer 10	GB93-87				1
5	Rear lock	BC37D.4.5.2				1

5.4 GEARBOX ASSEMBLY





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No.	Name	Code	Material	Parent	Weight	Quantity
1	Bracket, gearbox pto	BC42.5.2.1				2
2	Sock reducing pad	SH-500				4
3	Bracket, frame pto	BC42.5.2.2				2
4	Bolt M20×50	GB/T1228-91				10
5	Washer 20	GB/T1228-91				10
6	Brace	BC42.5.2.3				1
7	Bolt M16×35	GB5783-86				16
8	Washer 16	GB93-87				16
9	Bolt M10×30	GB5783-86				4
10	Washer 10	GB93-87				4
11	Nut M10	GB6170-86				4
12	Gearbox	BC48.00-5412				1



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No.	Name	Code	Material	Parent	Weight	Quantity
1	Straight connector thread	BCY48.00-6101		BC48.6.1		11
2	Hose	BCY48.00-6102		BC48.6.1		2
3	Tee connector	BCY48.00-6103		BC48.6.1		2
4	Hose	BCY48.00-6104		BC48.6.1		2
5	Tee connector	BCY48.00-6105		BC48.6.1		3
6	Straight connector thread	BCY48.00-6106		BC48.6.1		2
7	Hose	BCY48.00-6107		BC48.6.1		1
8	Straight connector thread	BCY48.00-6108		BC48.6.1		2
9	Union elbow	BCY48.00-6109		BC48.6.1		2
10	Hose	BCY48.00-6110		BC48.6.1		1
11	Hose	BCY48.00-6111		BC48.6.1		1
12	Oil absorption joint	BCY48.00-6112		BC48.6.1		2
13	Split flange	BCY48.00-6113		BC48.6.1		16
14	Hose	BCY48.00-6114		BC48.6.1		2
15	Tee block	BCY48.00-6115		BC48.6.1		2
16	Straight connector thread	BCY48.00-6116		BC48.6.1		3
17	Hose	BCY48.00-6117		BC48.6.1		1
18	Straight connector thread	BCY48.00-6118		BC48.6.1		1
19	Fluid gathering block	XBCY39.00-6119		BC48.6.1		1
20	Straight connector thread	BCY48.00-6120		BC48.6.1		1
21	Hose	BCY48.00-6121		BC48.6.1		1
22	Flange component joint	BCY48.00-6122		BC48.6.1		2
23	Hose	BCY48.00-6123		BC48.6.1		1
24	Oil return block	BCY48.00-6125		BC48.6.1		2
25	Hinged joint					
26	Hose	BCY48.00-6126		BC48.6.1		1
27	Flange FS20	XBCY39.00-6127		BC48.6.1		1
28	Bulkhead	XBCY39.00-6128		BC48.6.1		2
29	Hose	BCY48.00-6129		BC48.6.1		1
30	Hose	BCY48.00-6130		BC48.6.1		1
31	Transtage	BCY48.00-6131		BC48.6.1		4

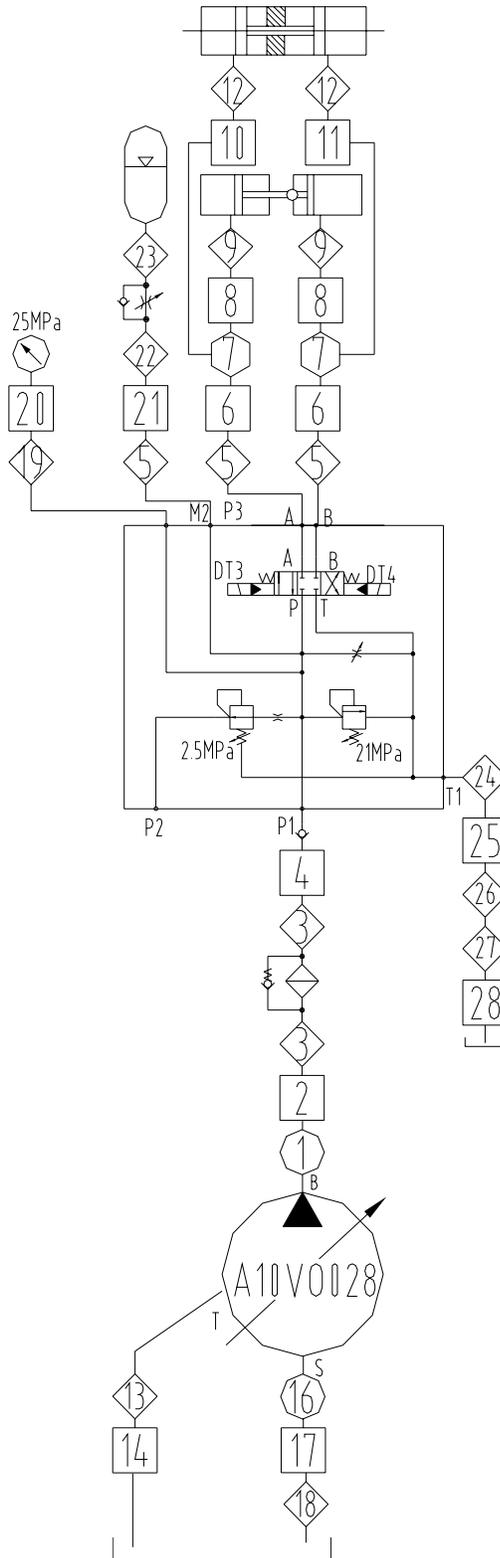


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32	Hose	BCY48.00-6132		BC48.6.1		2
33	Hose	BCY48.00-6133		BC48.6.1		2
34	Hose	BCY48.00-6134		BC48.6.1		1
35	Straight connector	thread BCY48.00-6135		BC48.6.1		5
36	Straight connector	thread BCY48.00-6136		BC48.6.1		1
37	Straight connector	thread BCY48.00-6137		BC48.6.1		2
38	Hose	BCY48.00-6138		BC48.6.1		1
39	Hose	BCY48.00-6139		BC48.6.1		1
40	Hose	BCY48.00-6140		BC48.6.1		1
41	Straight connector	thread BCY48.00-6141		BC48.6.1		1
42	Pressure-testing tube	BCY48.00-6142		BC48.6.1		2
43	Component of flange joint	BCY48.00-6143		BC48.6.1		2
44	Hose	BCY48.00-6144		BC48.6.1		2
45	Straight connector	thread BCY48.00-6145		BC48.6.1		1
46	Hose	BCY48.00-6146		BC48.6.1		1
47	Straight connector	thread BCY48.00-6147		BC48.6.1		1
48	Hose	BCY48.00-6148		BC48.6.1		1

6.2 SHIFTING SYSTEM



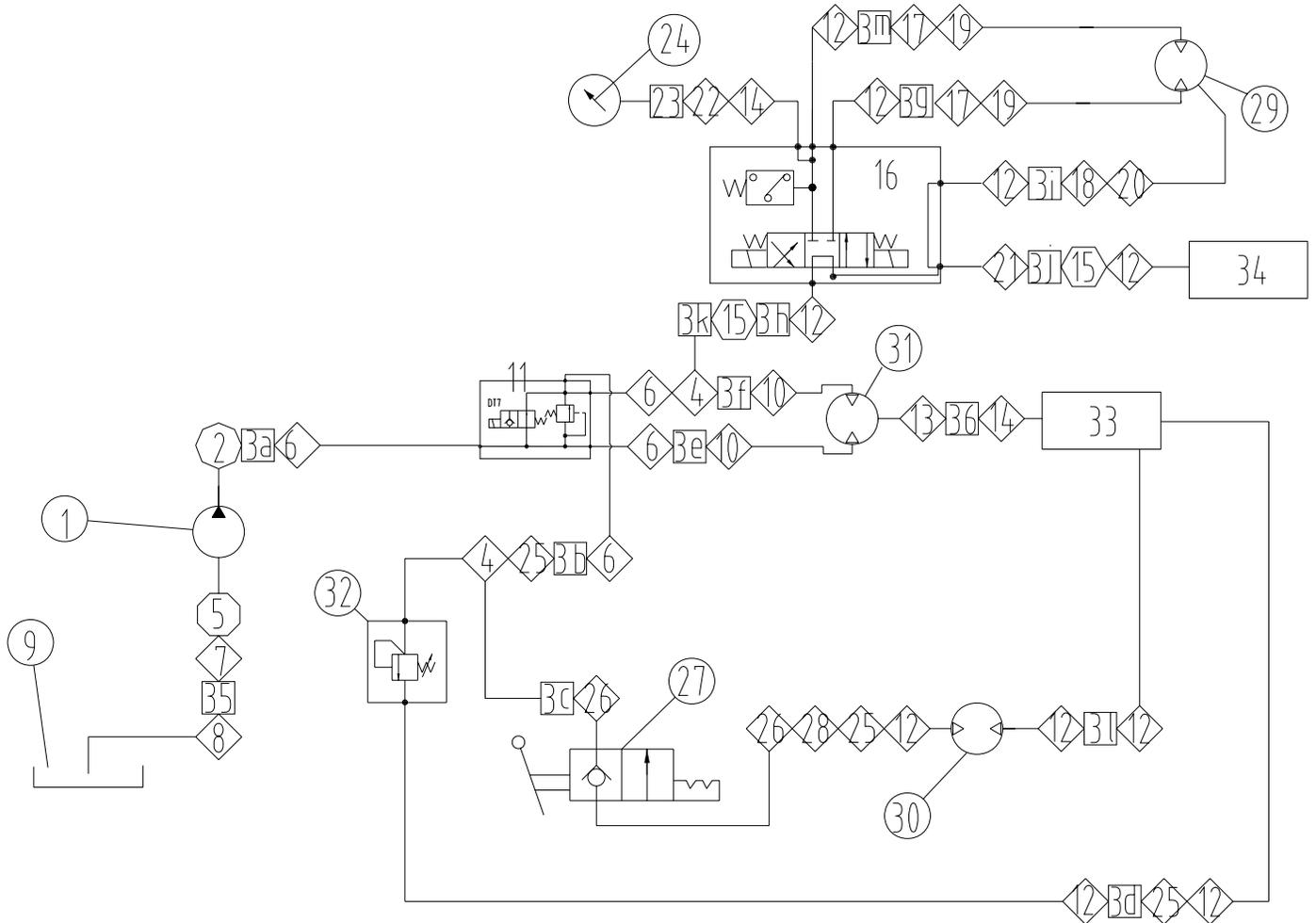


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No.	Name	Code	Material	Parent	Weight	Quantity
1	Split flange	XBCY39.00-6201		XBC39.6.2		2
2	Hose	BCY48.00-6202		XBC39.6.2		1
3	Straight thread connector	BCY48.00-6203		XBC39.6.2		2
4	Hose	BCY48.00-6204		XBC39.6.2		1
5	Straight thread connector	BCY48.00-6205		XBC39.6.2		2
6	Hose	BCY48.00-6206		XBC39.6.2		2
7	Steel pipe	BCY48.00-6207		XBC39.6.2		2
8	Hose	BCY48.00-6208		XBC39.6.2		2
9	Joint	BCY48.00-6209		XBC39.6.2		2
10	Hose	BCY48.00-6210		XBC39.6.2		1
11	Hose	BCY48.00-6211		XBC39.6.2		1
12	Straight thread connector	BCY48.00-6212		XBC39.6.2		2
13	Straight thread connector	BCY48.00-6213		XBC39.6.2		1
14	Hose	BCY48.00-6214		XBC39.6.2		1
15	Oil return block					
16	Flange joint FL20/L42	XBCY39.00-6216		XBC39.6.2		1
17	Hose	BCY48.00-6217		XBC39.6.2		1
18	Straight thread connector	BCY48.00-6218		XBC39.6.2		1
19	Straight thread connector	BCY48.00-6219		XBC39.6.2		1
20	Pressure-testing tube	BCY48.00-6220		XBC39.6.2		1
21	Hose	BCY48.00-6221		XBC39.6.2		1
22	Straight thread connector	BCY48.00-6221		XBC39.6.2		1
23	Joint M60/S30	XBCY39.00-6223		XBC39.6.2		1
24	Straight thread connector	BCY48.00-6223		XBC39.6.2		1
25	Hose	BCY48.00-6225		XBC39.6.2		1
26	Joint of changeable diameter	BCY48.00-6226		XBC39.6.2		1
27	Bulkhead union elbow	BCY48.00-6227		XBC39.6.2		1
28	Hose	BCY48.00-6228		XBC39.6.2		1

6.3 AGITATOR SYSTEM





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No.	Name	Code	Material	Parent	Weight	Quantity
1	Gear pump	G		BC48.6.3		1
2	Quare flange	GF35LK-L15-250K		BC48.6.3		1
3a	Hose	BCY48.00-6303		BC48.6.3		1
3b	Hose	BCY48.00-6304		BC48.6.3		1
3c	Hose	BCY48.00-6305		BC48.6.3		1
3d	Hose	BCY48.00-6306		BC48.6.3		1
3e	Hose	BCY48.00-6307		BC48.6.3		1
3f	Hose	BCY48.00-6308		BC48.6.3		1
3g	Hose	BCY48.00-6309		BC48.6.3		1
3h	Hose	BCY48.00-6310		BC48.6.3		1
3i	Hose	BCY48.00-6311		BC48.6.3		1
3j	Hose	BCY48.00-6312		BC48.6.3		1
3k	Hose	BCY48.00-6313		BC48.6.3		1
3l	Hose	BCY48.00-6314		BC48.6.3		1
3m	Hose	BCY48.00-6315		BC48.6.3		1
4	Tee	XVDDKO15-L		BC48.6.3		2
5	Square flange	GF40LK-L28-100K		BC48.6.3		1
6	Joint	BCY48.00-6318		BC48.6.3		4
7	Union elbow	BCY48.00-6319		BC48.6.3		1
8	Joint	BCY48.00-6320		BC48.6.3		1
9	Cylinder	BCY48.00-6321		BC48.6.3		1
10	Joint	BCY48.00-6322		BC48.6.3		3
11	Cooling valve block	XBCY39.00-6311		BC48.6.3		1
12	Joint	BCY48.00-6324		BC48.6.3		11
13	Joint	BCY48.00-6325		BC48.6.3		1
14	Joint	BCY48.00-6326		BC48.6.3		2
15	Steel pipe	BCY48.00-6327		BC48.6.3		2
16	Agitation valve block	XBCY39.00-63		BC48.6.3		1
17	Joint	BCY48.00-6329		BC48.6.3		2
18	Joint	BCY48.00-6330		BC48.6.3		1
19	Combination pad	33		BC48.6.3		2
20	Combination pad	16		BC48.6.3		1
21	Joint	BCY48.00-6333		BC48.6.3		1
22	Pressure-testing joint	BCY48.00-6334		BC48.6.3		1
23	Pressure-testing hose	BCY48.00-6335		BC48.6.3		1
24	Pressure gauge	BCY48.00-6336		BC48.6.3		1
25	Union elbow	BCY48.00-6337		BC48.6.3		2
26	Joint	BCY48.00-6338		BC48.6.3		2

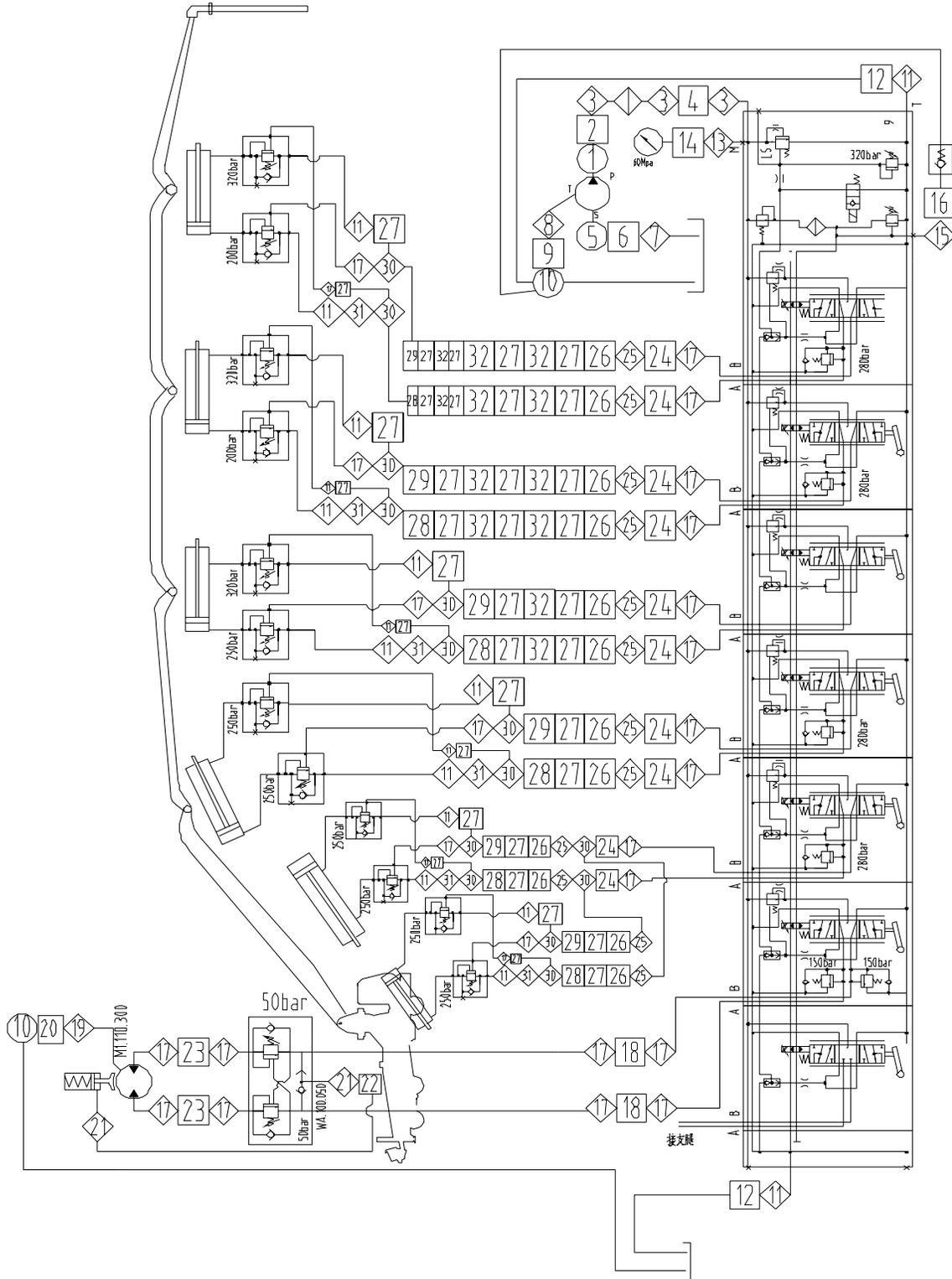


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27	Ball valve	XBCY39.00-6327		BC48.6.3		1
28	Movable straight tee	BCY48.00-6340		BC48.6.3		1
29	Agitator motor	XBCY39.00-6329		BC48.6.3		1
30	Water motor	XBCY39.00-6330		BC48.6.3		1
31	Radiator motor	XBCY39.00-6331		BC48.6.3		1
32	Overflow valve block	XBCY39.00-6332		BC48.6.3		1
33	Return flow block	BCY48.00-6345		BC48.6.3		1
34	Fluid gathering block	XBCY39.00-6334		BC48.6.3		1
35	Hose	BCY48.00-6347		BC48.6.3		1
36	Hose	BCY48.00-6348		BC48.6.3		1

6.4 BOOM SYSTEM





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No.	Name	Code	Material	Parent	Weight	Quantity
1	Split flange	BCY48.00-6401		BC48.6.4		2
2	Hose	BCY48.00-6402		BC48.6.4		1
3	Straight thread connector	BCY48.00-6403		BC48.6.4		3
4	Hose	BCY48.00-6404		BC48.6.4		1
5	Flange joint	BCY48.00-6405		BC48.6.4		1
6	hose	BCY48.00-6406		BC48.6.4		1
7	straight thread connector	BCY48.00-6407		BC48.6.4		1
8	straight thread connector	BCY48.00-6408		BC48.6.4		1
9	hose	BCY48.00-6409		BC48.6.4		1
10	Boom oil tank	BCY48.00-6410		BC48.6.4		1
11	Straight thread connector	BCY48.00-6411		BC48.6.4		13
12	Hose	BCY48.00-6412		BC48.6.4		1
13	Pressure-testing joint	BCY48.00-6413		BC48.6.4		1
14	Pressure-testing tube	BCY48.00-6414		BC48.6.4		1
15	Straight thread connector	BCY48.00-6415		BC48.6.4		1
16	Hose	BCY48.00-6416		BC48.6.4		1
17	Straight thread connector	BCY48.00-6417		BC48.6.4		26
18	Hose	BCY48.00-6418		BC48.6.4		2
19	Straight thread connector	BCY48.00-6419		BC48.6.4		1
20	Hose	BCY48.00-6420		BC48.6.4		1
21	Straight thread connector	BCY48.00-6421		BC48.6.4		2
22	Hose	BCY48.00-6422		BC48.6.4		1
23	Hose	BCY48.00-6423		BC48.6.4		2
24	Hose	BCY48.00-6424		BC48.6.4		10
25	Neighboring straight thread connector	BCY48.00-6425		BC48.6.4		12
26	Hose	BCY48.00-6426		BC48.6.4		10
27	Steel pipe	BCY48.00-6427		BC48.6.4		54
28	Hose	BCY48.00-6428		BC48.6.4		6
29	Hose	BCY48.00-6429		BC48.6.4		6

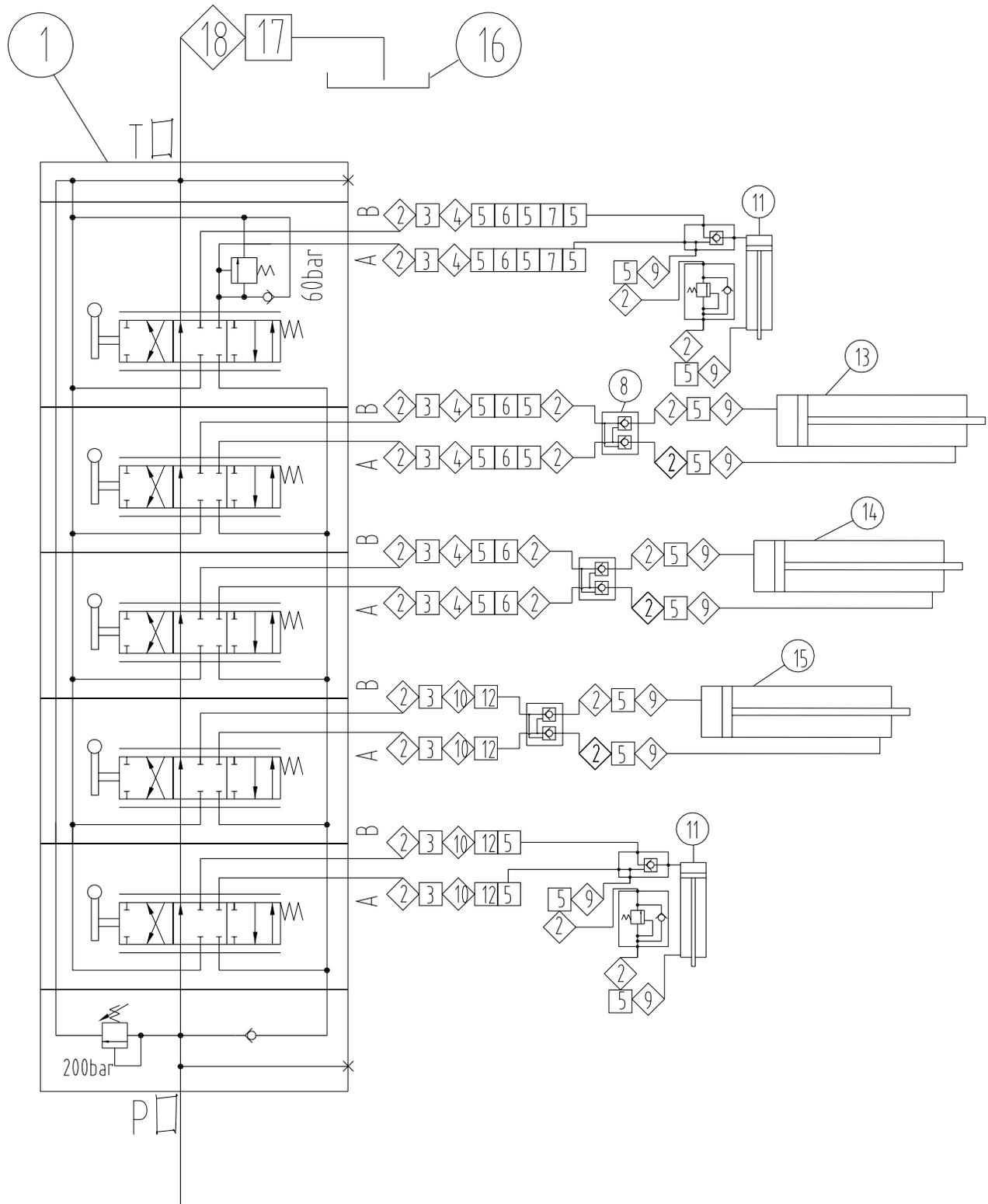


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30	Tee connector	BCY48.00-6430		BC48.6.4		12
31	Union elbow	BCY48.00-6431		BC48.6.4		6
32	Hose	BCY48.00-6432		BC48.6.4		12

6.5 MOVEMENT OF OUTRIGGER





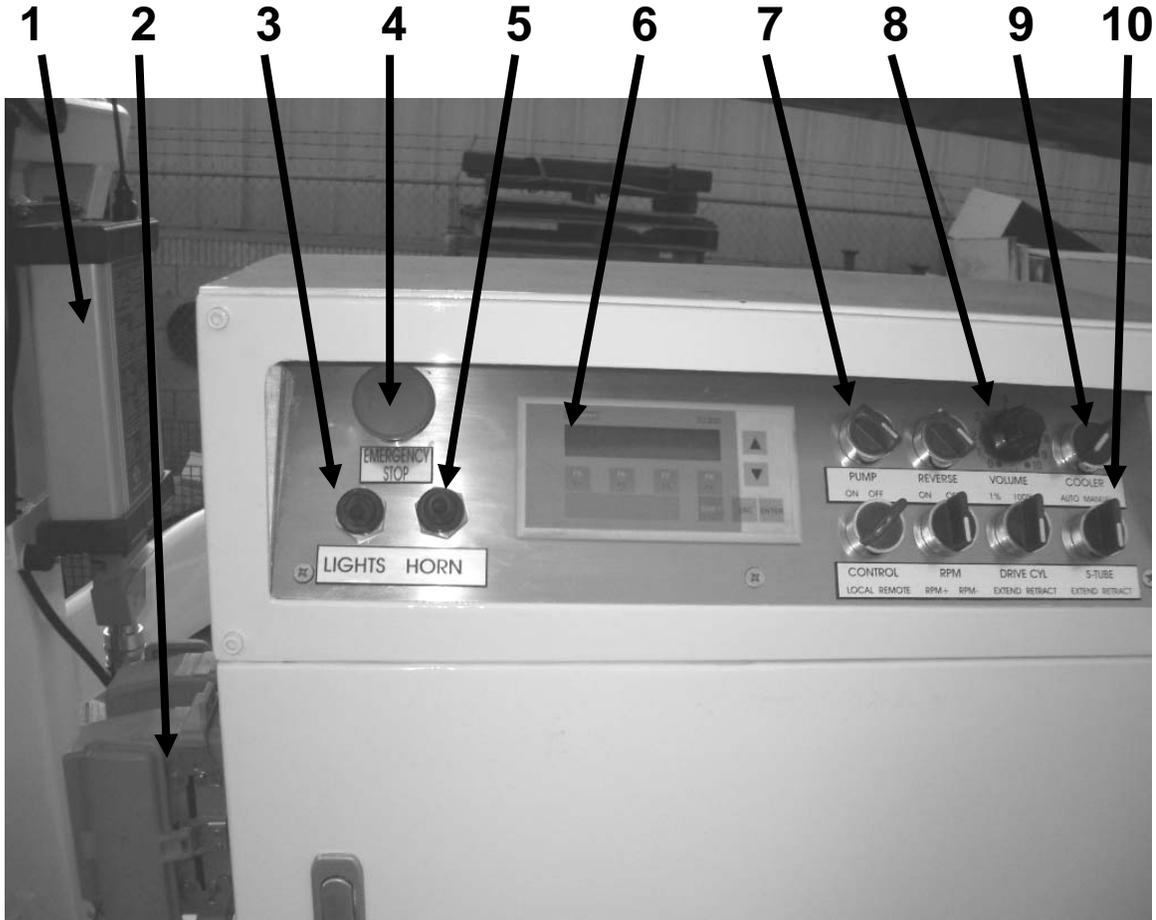
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No.	Name	Code	Material	Parent	Weight	Quantity
1	Outrigger control valve	BCY48.00-6501		BC48.6.5		2
2	Joint	BCY48.00-6502		BC48.6.5		36
3	Hose	BCY48.00-6503		BC48.6.5		20
4	Joint	BCY48.00-6504		BC48.6.5		12
5	Steel pipe	BCY48.00-6505		BC48.6.5		52
6	Hose	BCY48.00-6506		BC48.6.5		12
7	Hose	BCY48.00-6507		BC48.6.5		4
8	Hydraulic lock	BCY48.00-6508		BC48.6.5		6
9	Hinged joint	BCY48.00-6509		BC48.6.5		20
10	12 neighboring joint	BCY48.00-6510		BC48.6.5		8
11	Jack cylinder	BCY48.00-6511		BC48.6.5		4
12	Hose	BCY48.00-6512		BC48.6.5		8
13	Extend cylinder of front outrigger	BCY48.00-6513		BC48.6.5		2
14	Swingout cylinder of front outrigger	BCY48.00-6514		BC48.6.5		2
15	Swingout cylinder of rear outrigger	BCY48.00-6515		BC48.6.5		2
16	Boom oil tank	BCY48.00-6516		BC48.6.5		1
17	Hose	BCY48.00-6517		BC48.6.5		2
18	Joint	BCY48.00-6518		BC48.6.5		2

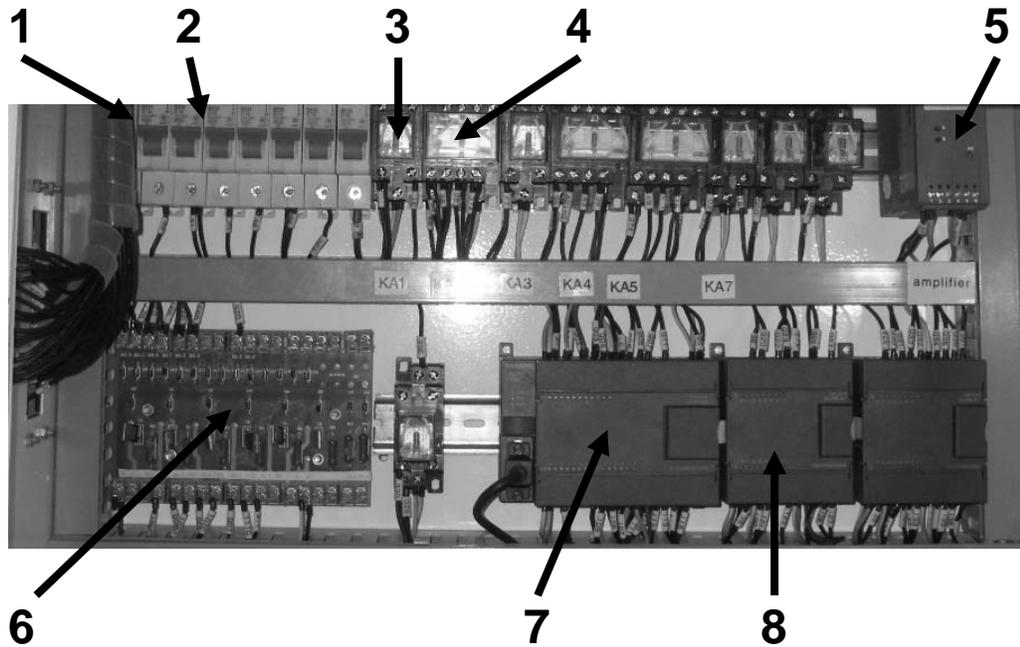
CHAPTER 7 ELECTRICAL CONTROL SYSTEM

7.1 CONTROL SYSTEM



No.	Description	Part Number	Material	Parent	Weight	Quantity
1	receiver,radio receiver	FST719		XBC39.7		1
2	plug	ACJ3X-16A/24		XBC39.7		2
3	switch,toggle	201		XBC39.7		1
4	emergency stop button	ZB2BS54C		XBC39.7		1
5	switch,momentary toggle	212		XBC39.7		1
6	display,text display	TD200		XBC39.7		1
7	switch,2 position knob	ZB2BD3C		XBC39.7		3
8	potentiometer	2-2K		XBC39.7		1
9	switch,2 position knob	ZB2BD2C		XBC39.7		1
10	switch,3 position knob	ZB2BD5C		XBC39.7		3

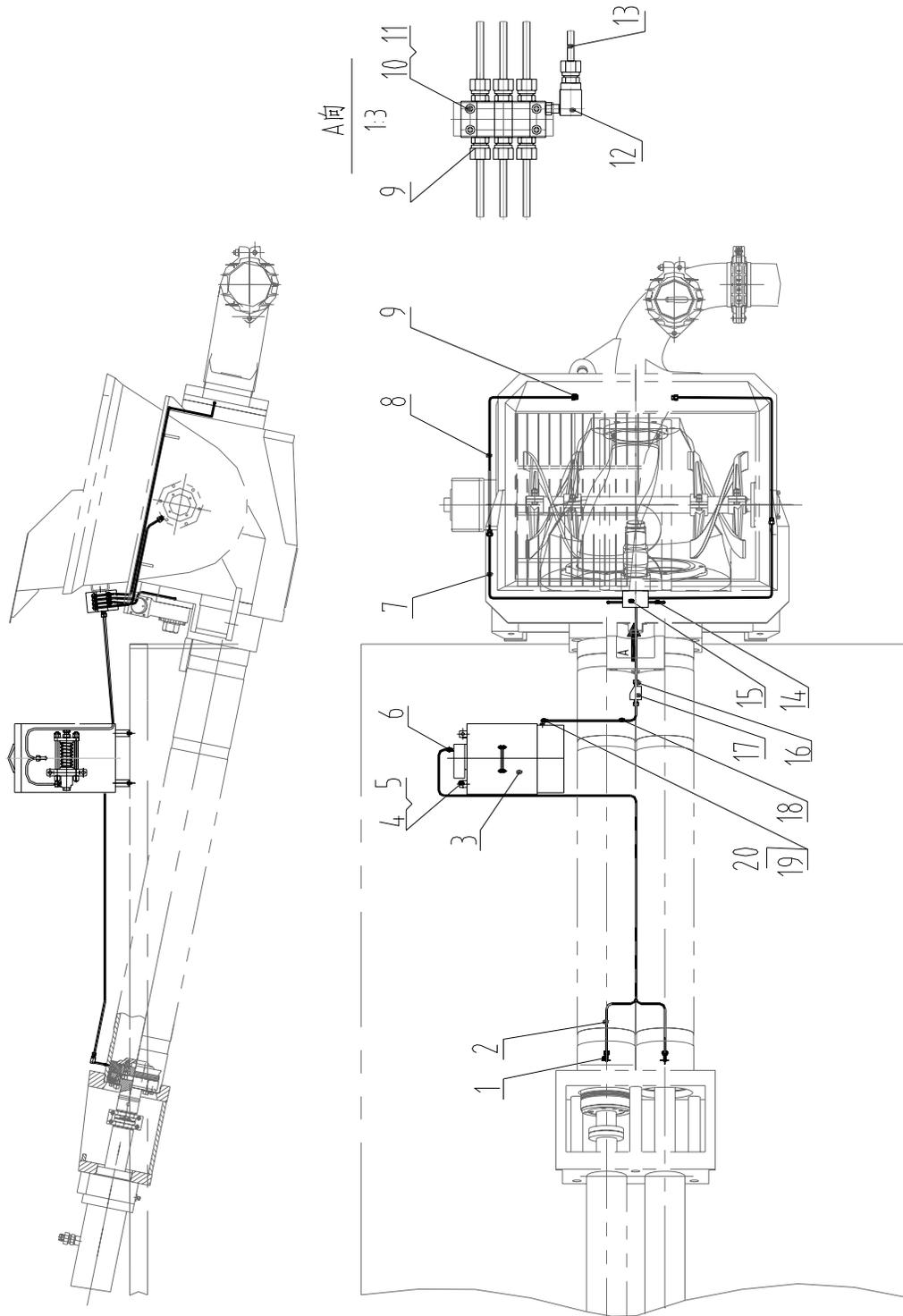
7.2 CONTROL BOX



No.	Description	Part Number	Material	Parent	Weight	Quantity
1	breaker,circuit breaker	BKNIP/16A		XBC39.7		1
2	breaker,circuit breaker	BKNIP/10A		XBC39.7		7
3	relay	LY2NJ24V		XBC39.7		5
4	relay	LY4NJ24V		XBC39.7		2
5	amplifier	VT11015-11UB24V		XBC39.7		1
6	board,amplifier board	BC37/42		XBC39.7		1
7	PLC	CPU224		XBC39.7		1
8	module,expansion module	EM223		XBC39.7		2

CHAPTER 8 LUBRICATION SYSTEM

8.1 LUBRICATION OF PUMPING SYSTEM





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No.	Name	Code	Material	Parent	Weight	Quantity
1	Union elbow Z1/8	22646T				2
2	Copper tube $\phi 6 \times 1$ -	BC37.8-1				2
3	Lubrication assembly	HA5923800A				1
4	Bolt M8 \times 15	GB5781-86				4
5	Washer 8	GB93-87				4
6	Union elbow Z1/8	22646T				2
7	Copper tube $\phi 6 \times 1$ -	BC37.8-2				2
8	Copper tube $\phi 6 \times 1$ -	BC37.8-3				2
9	Straight thread connector component	22587-1T				6
10	Bolt M6 \times 65	GB70-85				4
11	Washer 6	GB93-87				4
12	Union elbow component M10 \times 1	22646-1T				1
13	Copper tube $\phi 6 \times 1$ -	BC37.8-4				1
14	Copper tube $\phi 6 \times 1$ -	BC37.8-5				2
15	Increment-type distributor	28835-37-022				1
16	Straight thread connector component	25732T				2
17	Oil and grease filter	28985-2				1
18	Copper tube $\phi 6 \times 1$ -	BC37.8-6				1
19	Transtage	BC37.8-7				1
20	Union elbow component M10 \times 1	22646-1T				1



**MODEL *ST48R5* TRUCK MOUNTED
CONCRETE BOOM PUMP
SERVICE BULLETIN**

***ST48R5*
SRVBT**

PAGE 01

AS WE MAKE IMPROVEMENTS TO THE **REED** TRUCK MOUNTED
CONCRETE BOOM PUMP MODEL ***ST48R5***,
WE LIKE TO SUPPLY YOU, THE CUSTOMER, WITH
UPDATED INFORMATION WHICH APPLIES TO YOUR PUMP.

THIS SECTION IS PROVIDED AS A PLACE TO STORE
SERVICE BULLETINS AS YOU RECEIVE THEM
FROM **REED LLC**.

REVISION:



**MODEL ST48R5 TRUCK MOUNTED
CONCRETE BOOM PUMP
SERVICE BULLETIN**

**ST48R5
SRVBT**

PAGE 02

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BULLETIN NO: SB 001
DATE: FEBRUARY 5, 1998
TO: ALL **REED** DEALERS
SUBJECT: **REED WARRANTY PROGRAM**

Each **REED** Concrete Placing Trailer Pump, Truck Mounted Boom Pump and Dry-mix Spraying Gun, undergoes before delivery a thorough Quality Assurance inspection, a performance check and final testing. However, even with these precautions the possibility exists that after delivery, for some reason, a component may fail.

This is the reason for warranty. If this should happen to one of your machines during the first 12 months or 1000 pumping hours after delivery, there is a good chance the failed component could be replaced under warranty.

REED has updated and formalized its **WARRANTY PROGRAM** and this bulletin is issued to make all dealers aware of the program.

Enclosed is a supply of our new **WARRANTY CLAIM** forms. From this point on, all warranty claims must be submitted on these forms. Also, please find a description of the program, coverage and how to make a claim and its submission. We suggest you give this some careful attention. Briefly some noteworthy items are:

- Do not return any failed part unless requested by **REED**.
- Purchase the replacement part through normal channels from **REED**. Submit your claim noting the invoice number of the replacement part. Upon approval of the claim, a credit will be issued.
- Every effort will be made to process claim within 2 weeks from receipt except for those occasions where the part is to be returned.

Should questions arise during your review, please do not hesitate to contact us.

We appreciate the opportunity to be of service.

Sincerely,



Mike Wickstrom
Service Manage

WARRANTY PROGRAM POLICY

REED Concrete Placing Equipment MODEL **ST48R5** is designed and engineered to perform as stated on published specifications. Only quality materials and workmanship are used in the manufacture of these products. As a back up for the product manufactured by **REED**, a guarantee against defects in design and workmanship of components is provided for each machine.

The **REED** guarantee/warranty states, in general, that **REED** will replace free of charge any components found to be defective within the time frame of the warranty period. There are exceptions to some components which are not the responsibility of **REED**. These are noted elsewhere.

A formal printed policy is available and depicts in more detail the warranty and description. However, for your ready reference the following is offered:

A. WARRANTY PERIOD

- ALL CONCRETE PLACING MACHINES

The warranty period is for twelve (12) months from date of delivery to initial user or 1000 pumping hours whichever comes first.

- NEW PARTS WARRANTY

For parts sold through the **REED** Parts Department the warranty is ninety (90) days from invoice ship date.

- REPLACEMENT WARRANTY PARTS

Replacement parts provided under the terms of the machine warranty are for the warranty period applicable to the unit in which they were installed as if such parts were original components of the machine.

B. WARRANTY COVERAGE

- DEFECTIVE PARTS

Unless otherwise authorized the replacement part **MUST** be **PURCHASED** from **REED**. Once warranty claim is received and approved, **REED** will provide credit to the dealer/user for their cost of the replacement part as invoiced by **REED**.

- LABOR

No labor time and related compensation will be provided by **REED** to dealers/users or others to perform work under this warranty policy.

- TRAVEL TIME

No travel time, mileage or other expenses will be compensated by **REED** to dealers/users or others to perform work under this warranty policy.

- FREIGHT, IMPORT DOCUMENTATION, CUSTOM DUTY

Any expense incurred for freight, import duty and documentation will not be reimbursed by **REED** in association with this warranty policy.

C. EXCLUSIONS

- CHASSIS AND RELATED COMPONENTS (TRUCK MOUNTED UNITS)

The warranty for the chassis is handled by the chassis manufacturer and their dealer network. Prior to putting the truck in service it is suggested you contact the nearest manufacturer dealership.

- ENGINE - TRAILER UNITS

The engine warranty is handled by the engine manufacturer and their dealer network. The terms and conditions of their warranty will apply. Contact the local engine dealer for specifics on warranty of the engine.

- NORMAL WEAR

This pertains to items that have failed as a result of normal wear and tear to the product including but not limited to material cylinder and hydraulic cylinder piston components, delivery systems, pins, chains, bushings, seals, concrete pump wear parts, brakes, filter elements, fluids and tires.

- DAMAGES

Caused by transport of equipment or parts, improper set-up or installation, operator error, improper operation or storage, environmental conditions, accidents, improper mechanical techniques employed by anyone or any other cause other than a structural defect in materials or workmanship.

- MAINTENANCE

Caused by failure to perform any scheduled maintenance or routine maintenance as specified in technical manual on any structural or mechanical component.

- MODIFICATIONS

Any non-authorized changes or modifications of any kind to the product. Any modification must be authorized and approved in writing by **REED** Engineering Department.

- ABUSE

Any accidental or intentional abuse of product including but not limited to neglect, loading beyond capacity or any operation of the equipment beyond the limits set forth by **REED** documentation and as depicted in the appropriate technical manual.

D. SUBMISSION OF CLAIM BY DEALER/USER

Should a component failure be encountered during the warranty period and should it fall within the guidelines of the **REED WARRANTY POLICY** the following procedure is to be followed to claim warranty:

1. REPLACEMENT PART

- Obtain the replacement part by ordering it from the **REED PARTS DEPT.** through normal channels. You will be **INVOICED** for the part.
- If the part has been previously ordered from **REED** and is in your replacement stock inventory you may choose to use that part.

2. COMPLETE THE CLAIM FORM

REED has supplied you with a pre-numbered Warranty Claim Form which consists of four (4) parts. This and only this form is **ACCEPTABLE**. **DUPLICATE** copies of the form are **NOT ACCEPTABLE**. If you do not have the proper form, contact the **REED** Service Department. They will send you a supply.

The following instructions are offered for completing the **WARRANTY CLAIM FORM**. Refer to sample of form. Circled numbers on form correspond to items below. **FILL IN:**

1. Date your claim is written
2. Distributor name and address
3. End user name and address
4. Model number of unit affected
5. Serial number of unit affected
6. Date unit was first placed in service
7. Hours (from hour-meter) of operation at time of failure
8. Date when failure occurred
9. Date when unit was repaired
10. Return Authorization number as received from **REED** Service Department. This will only apply when failed component is requested to be returned by **REED**.
11. Date when failed part is shipped back to **REED**
12. List **REED** part number, description of part, quantity and price of part.
13. List **REED** invoice number sent you when replacement part was purchased
14. Briefly describe failure and how it occurred
15. Dealers signature and date

The claim form **MUST BE COMPLETELY FILLED OUT**. Claims lacking specific, accurate information will be returned **UNPROCESSED**. If additional room is needed to describe the failure or to list the parts used, attach a separate sheet and identify those sheets with the **SAME WARRANTY CLAIM NUMBER**.

3. SUBMITTING TO *REED*

When all appropriate data has been entered on the claim and signed, proceed as follows:

- Remove copies of form marked “**DEALER**” (yellow) and “**RETURN AUTHORIZATION**” (green). The Dealer copy is for your records and the Return Authorization copy is to be retained in the event **REED** requests the return of the part.
- Mail the “**REED**” copy (white) and “**ACCOUNTING**” copy (pink) along with any back-up data such as a copy of the replacement part **INVOICE** to **REED**. **DO NOT FAX COMPLETED FORM** and send only **FORM ORIGINALS**.

E. RETURN OF FAILED COMPONENT

Depending on the type of part and circumstance surrounding the component failure, the possibility exists that **REED** may request that the failed part be returned to them for investigation and evaluation purposes or to apply for warranty from the manufacturer of the part.

- Upon receipt of your warranty claim and before claim is approved, **REED** will inform you in writing if the part is to be returned. On this correspondence a **RETURN AUTHORIZATION** number will be given to you.
- This number is to be written in the appropriate area on the **RETURN AUTHORIZATION** copy (green) of the warranty form. Include this copy as part of your packing slip. Also write the number on a tag and attach to the part.
- Parts requested to be returned must be shipped back to **REED** within 30 days from issuing of the **RA** number. Failure to do so will cause warranty claim to be **DENIED**.
- Returned parts are to be properly packaged and shipped freight **PREPAID**.
- Any parts received by **REED** without the **PROPER RA** number will be shipped back at **DEALER/USER EXPENSE**.
- If claim is approved and no request to return parts from **REED** has been made, then parts can be discarded.

