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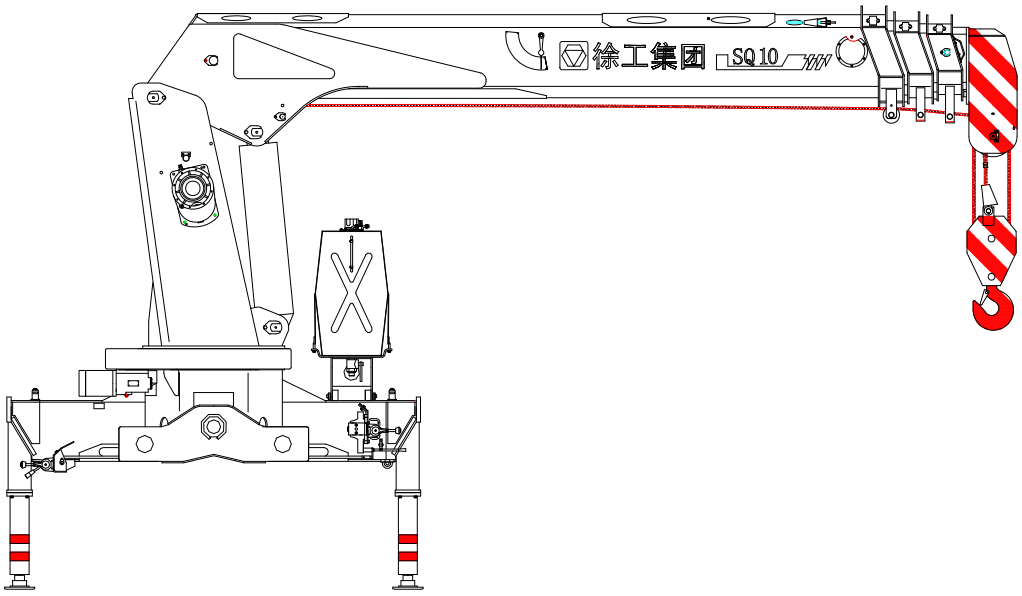

loader Crane

Model: SQ10SK3Q

Operation and Maintenance Manual

XCMG Xuzhou Truck-mounted Crane Co.,Ltd

! Caution : Read this manual carefully before operating, keep this manual in the cab for future reference

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Foreword

The series loader crane in the manual is designed and manufactured

by us, and the chassis connected which is made in china, the main series truck-mounted crane including telescopic type and knuckle type.

The product have two performance of lifting and carrying, with tightness structure, operational safety and easy to operating. It can be used in transporting, dock, storage, etc. and also can be used to loading and unloading goods, greatly saved labor force.

You should read the manual carefully to ensure that your safety and crane working reliably, truck-mounted crane driver, crane operator and crane maintenance man must be trained by related man and familiar with the truck and crane operating process.

You should comply with the operating and maintenance request for truck

for the useful life of the truck.

The operating and maintenance and note in the manual is for crane, you should refer to the truck operating manual if you want to operating and maintenance it.

Make sure that do not refit the machine or replace its parts with non-original without authorization and permission of manufacturer, and therefore manufacturer has no responsibility for the bad result arising from the reasons mentioned above!

All the specification, annex, operating and maintenance are subject to technical modification without notice.

Executive standard QC/T459-2004.

Copyright：XCMG Xuzhou Truck-mounted Crane Co., Ltd.
Printing date:2005.9
Address：No. 55 Tuolanshan road, Xuzhou economic development zone, Jiangsu Province
Post Code：221004

List of section:

This Manual comprises 8 sections. Each section is described as follows:

A General information：This section contains important general information intended to acquaint you with the machine, as well as data for the exact identification.

B Performance data and specification: This section contains all the technical characteristics of the crane in its standard set-up.

C Safety rules and devices： This section sets forth all the rules, introductions and information regarding both operator and machine safety.

D Operator: This section specifies the skills requirement and other attributes that the operator must possess.

E Description of controls and Instruments： This section explains and illustrates the various controls and instruments located on the machine.

F Operate instruments：This sections describes and illustrates the various machine movements.

G analysis & eliminate for general faults： This section contains the faults of eliminate.

H Maintenance：This section contains charts and tables covering crane maintenance jobs and schedules.

Customer information:
The manufacturer in the manual is XCMG Xuzhou Truck-mounted Crane Ltd

The operate instruments are designed by manufacturer.

NOTICE：You should notice the following points when check the machine.

1. The requirement of the manual description.
2. The specification, rated capacity and other information contained in the manual refer to the max capacity of the crane ,The capacity of crane will be reduced if the truck, ship, flat vehicle to be matched crane have not enough stability, the capacity of the crane will be reduced ,it should be defined again.
3. do not perform weld and tamper with electrical or hydraulic equipment and replace parts with anything but original spares and to remove protection guards and devices.
4. maintenance should be done as request and at the specified intervals.

Content:

A.00 General 6
A.01 Definition of glossary 6
A.02 Symbols 6
A.03 Crane type & meaning 6
A.04 Crane nameplate 6
A.05 Warning 7
A.06 Main parts name of the crane 7
B.00 Description of performance data 8
B.01 Working Data 8
B.02 Slewing base and active leg 9
B.03 Hydraulic system 9
B.04 Movement speed 9
B.05 Overall dimensions 10
B.06 Boom working range 10
B.07 Crane character graph 11
B.08 Theory chart of hydraulic system 12
B.09 Selecting of parts line of rope 12
C.00 Safety rules & device 12
C.01 Working condition 12
C.02 Environment condition 12
C.03 Requirement for rope use 13
C.04 General description of safety rules. 13
C.05 Safety devices 17
C.05.1 Lock device on fixed legs 17
C.05.2 Valves on hydraulic cylinders 17
C.05.3 Anti-rotation device 17
C.06 Forecast risk and unforecast risk area 18
D.00 Operator 18
D.01 Essential requirements 18
D.02 Duties and Responsibilities 19
D.03 Control stations 19
E.00 Control devices 19
E.01 Oil level indicator 19
E.02 Crane operation controls 19
E.02.1 Boom, column and lift machine control lever 20
E.02.2 Stabilizer control lever 21
F.00 Operating instruction 22
F.01 Notice before operating 22
F.02 Start-up operations 23
F.03 Stabilizing the crane 23
F.04 Opening the crane 23
F.05 Operating telescopic boom 25
F.06 Closing the crane 25

F.07 Maintenance the crane: 28
G.00 Analysis & eliminate for general faults 28
H.00 Maintenance 29
H.01 Notice before maintenance 29
H.02 Maintenance schedule 30
H.03 Crane maintenance 30
H.04 Checking the oil level in the tank 32
H.05 Replace the oil 32
H.06 Replacing the oil filter 32
H.07 Checking wear on sliding pads 32
H.08 Checking screw tightness 33
H.09 Operation and maintenance for lifting winch 33
H.09.1 Purpose and characters 33
H.09.2 Reasonable use and greasing 33
H.09.3 Safekeeping 33
H.09.4 Faults and eliminations 33
H.10 Operation and maintenance for rotation speed reducer 34
H.10.1 Purpose and character 34
H.10.2 Reasonable use and greasing 34
H.10.3 Safekeeping 35
H.10.4 Faults and eliminations 35
H.11 Character of hydraulic oil, grease and gear oil 35
H.12 Disassembly 35

A.00 General

A.01 Definition of glossary

Active safety: devices controlled by operator to ensure safety

Articulation point: articulated joint between two or more elements.

Active hook: attach the end of boom for lifting.

Hydraulic telescopic boom: cylinder operated telescopic the boom

Limit point: it can't be movement if exceed the point

Moment: product of load applied and its distance from slewing axis.

Operator: person who operate the crane

Nameplate of lifting graph: device for express the 90%-100% lift capacity of crane.

Working range: horizontal distance from center of hook to slewing center.

Passive safety: devices can't be controlled to ensure safety.

Power system: hydraulic drive system for perform crane movement.

Rated lift capacity: max lift weight at give distance.

Standard device: crane without optional attachment.

A.02 Symbols

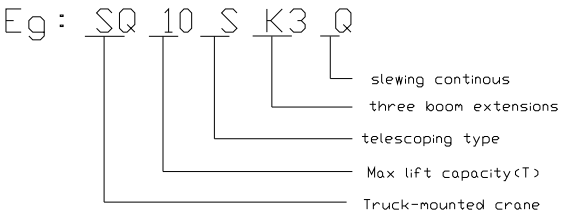
In this manual you will come across various symbols accompanied by a written message. The symbols are intended to alert you to specific situations which are described in the message, there are three main symbols as follows.

warning： Giving the operator information on methods or procedures that are either prohibited or recommended.

Danger: giving the operator information that the operator or person around are danger.

Notice: giving the operator information that danger for structure or goods.

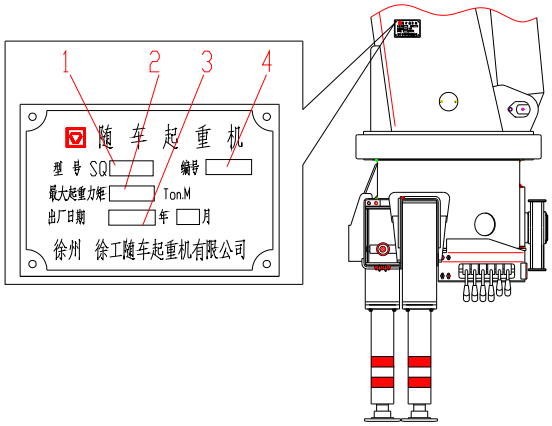
A.03 Crane type & meaning



A.04 Crane nameplate

Nameplate is located on the crane column and contains the follow details:

1.Crane type 2.max lifting moment 3.delivery date 4.delivery No



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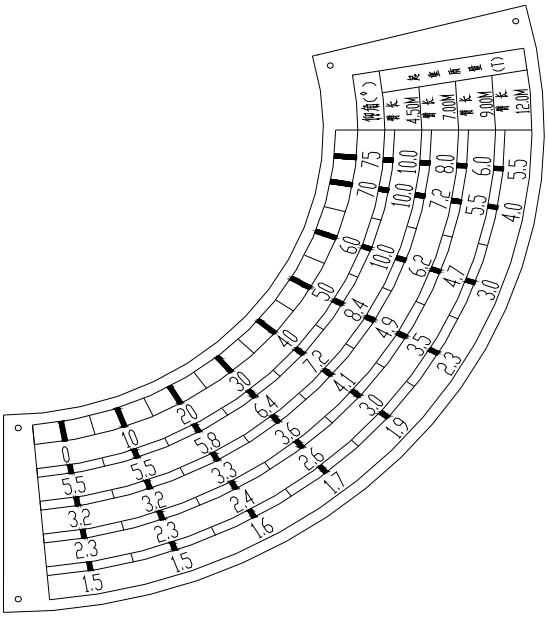
A.05 Warning

Notices as follows: Symbol board for danger(black letter on yellow background) do not suspended load, electrocution, waiting within the crane working range.

Do not stand under boom

indicator plate:

the plate indicated the max lift capacity of boom in the varies situation, the load lifted don't exceed the indicated value by the indicator.



A.06 Main parts name of the crane

1.hook group	2.telescopic boom（ tree）	3.base boom
4. telescopic cylinder	5. indicator	6. winch
7. derricking cylinder	8.column	9. slewing base
10. active leg	11. vertical leg cylinder	12. controls
13. slewing motor	14. slewing reducer	15. bracket
16. horizontal leg cylinder		

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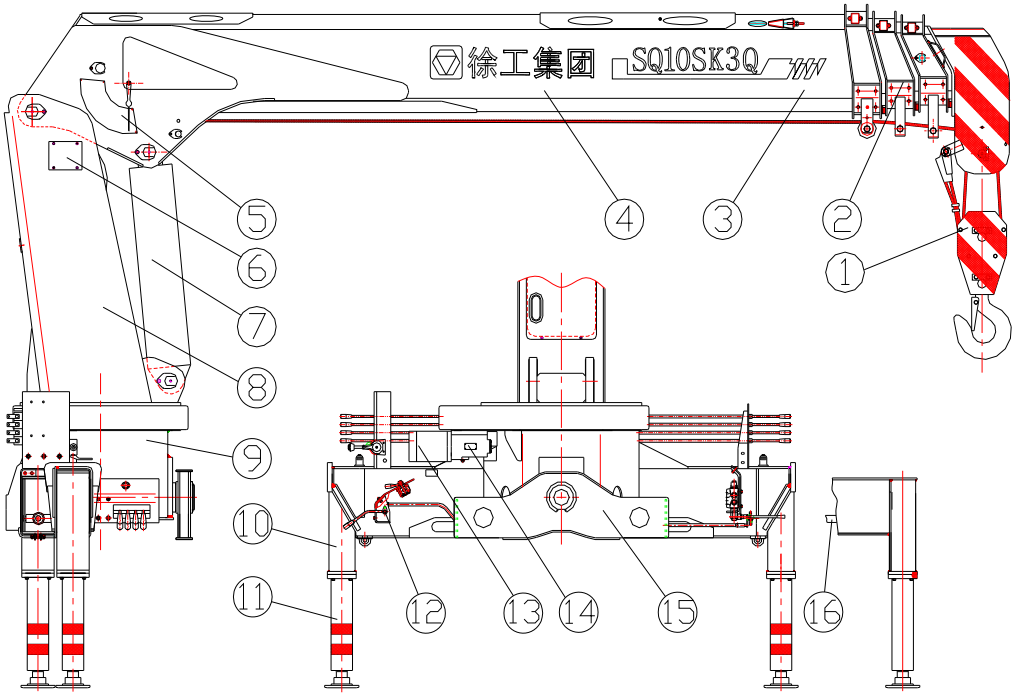


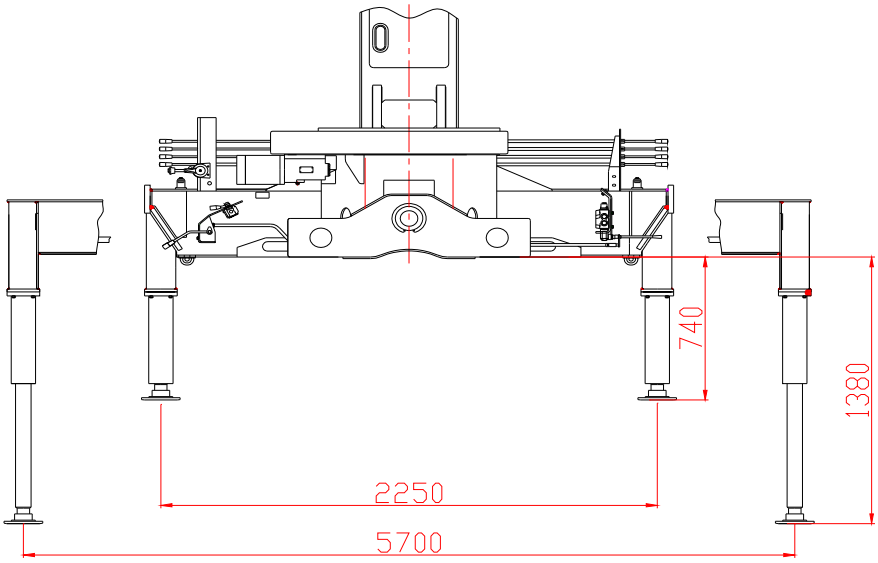
B.00 Description of performance data

B.01 Working Data

The technical data below were given when crane to be delivery

Sort	Item	Unit	SQ10SK3Q
Data	Max lift moment	T.m	25
	Min working range	m	2.5
	Max working range	m	12
	Max lift height	m	13.2
	Boom length	m	4.85～12.35
	Slewing angle	°	Slewing continous
	Derricking range	°	0～75°
	Max rated lift capacity	Kg	10000
	Installation space	m	1.2
	Rated pressure of hydraulic system	MPa	26
	Max flow of hydraulic system	L/min	63
	Crane weight	Kg	3800

B.02 Slewing base and active leg



B.03 Hydraulic system

Item	Unit	Value
Pump displacement	ml/r	63
System flow	l/min	63
Max working pressure	MPa	26
Power recommended	KW	28
Ambient oil temperature	^{O}C	-25 ^{O}C-+50 ^{O}C
Hydraulic pump ： piston pump recommended	Model: A2F63L2P3	（may meet the customer’ request ）
Hydraulic oil tank capacity	L	180

B.04 Movement speed

Sort	Item		Unit	Value
Working data	Boom telescoping speed	Extend at the whole route	s	39
		Retract at the whole route	s	16
	Boom derricking speed	Lifting boom at the route	s	31
		Dropping boom at the whole route	s	16
	Vertical leg cylinder telescoping speed	Extend at the whole route	s	13
		Retract at the whole route	s	4
	Horizontal leg cylinder telescoping speed	Extend at the whole route	s	10
		Retract at the whole route	s	7
	Slewing speed		r/min	≤3
	Slewing angle		°	Slewing continous
	Single rope lifting speed		m/min	35

remark： 1. The values given refer to crane movements without load on hook and to the rated displacement of the pump.

2. With regard to slewing, the time indicated refers to a rotation of 360^0 (one turn).

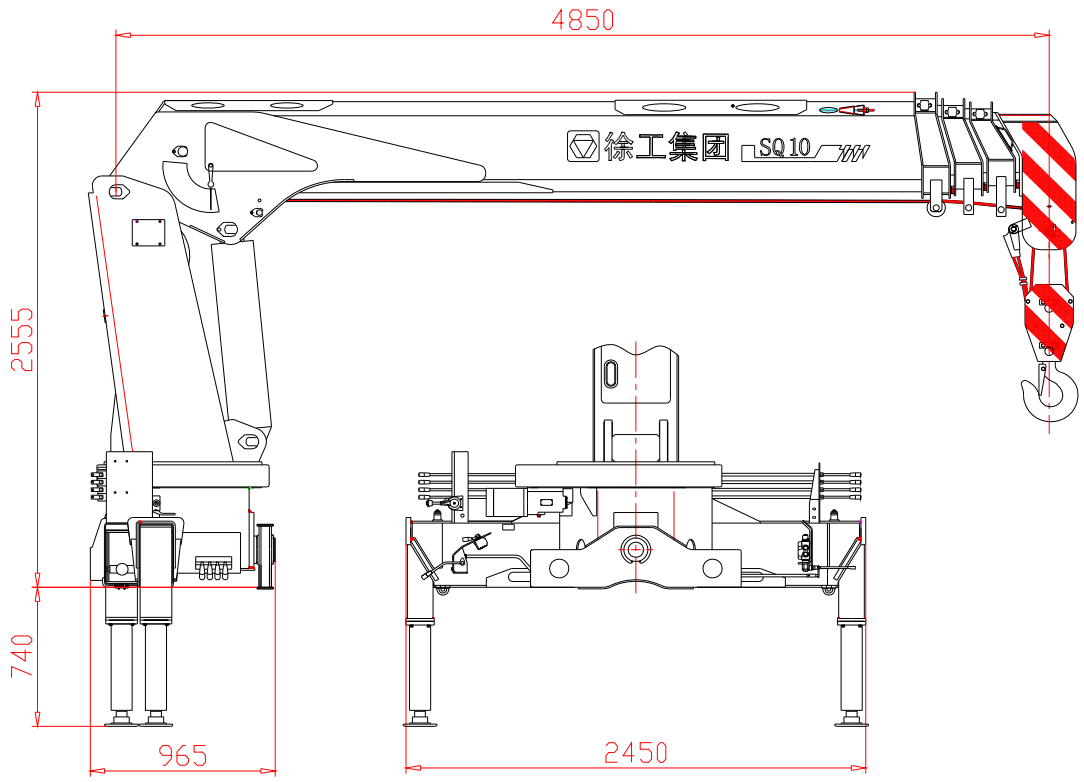
B.05 Overall dimensions

This page shows the min dimension of SQ10SK3Q crane with the boom retract completely

Notice: the combination of crane and chassis must be conform to the traffic & related rules

Remark： 1. The values given refer to crane movements without load on hook and to the rated displacement of the pump.

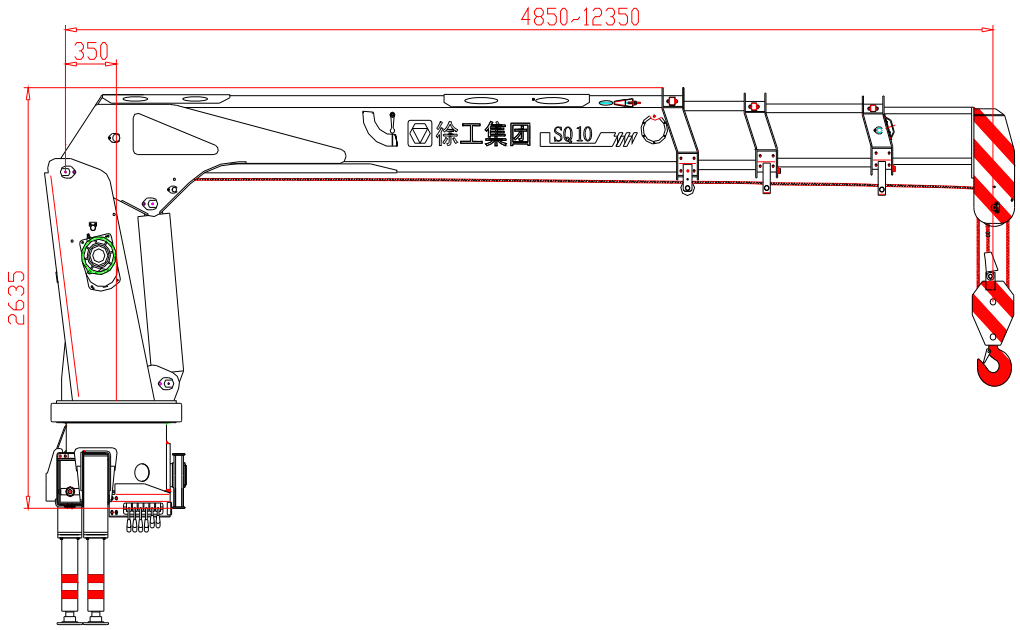
2. With regard to slewing, the time indicated refers to a rotation of 360^0 (one turn).



SQ10SK3Q Overall dimensions

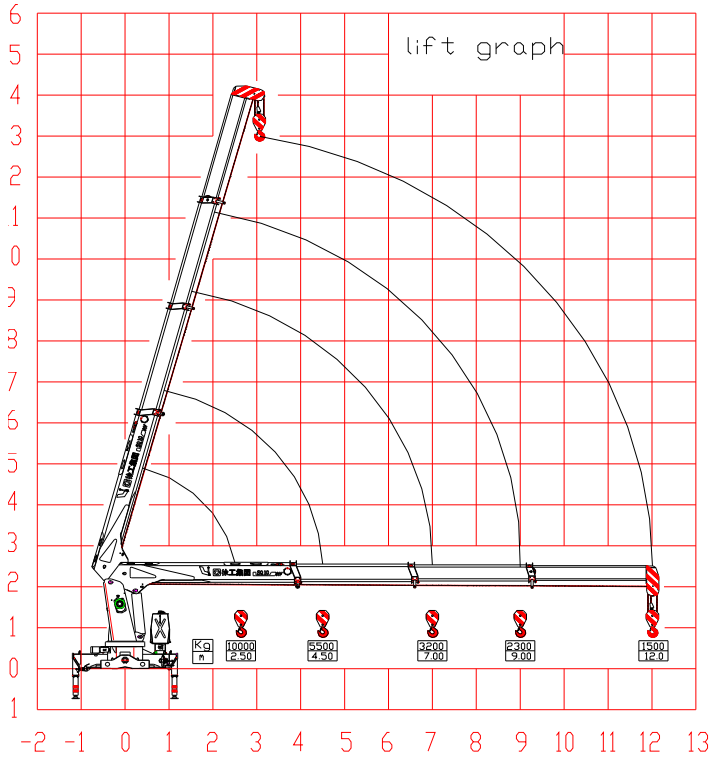
B.06 Boom working range

This page shows the dimensions of the crane with the boom extend/retract completely in their horizontal position.



B.07 Crane character graph

The below chart shows the rated load value of SQ10SK3Q



CAUTION:

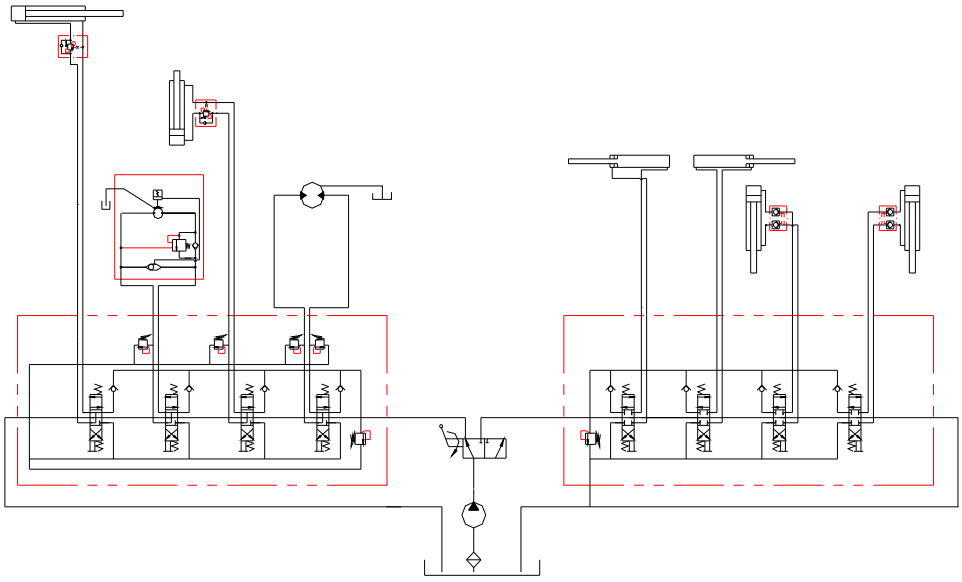
1.you can't lift the max rated load in the figure until the leg cylinder is supported on the firmly ground .the max rated load including hook, pulley （85Kg）and wire cable.

2.working radius refer to the boom actual radius with load.

3.The crane is operated within 180 degree when boom is in front of the truck, the load value in the figure will take twenty five percent off it.

4. the crane's performance characteristics will be down as a result of combination with a not entirely suitable vehicle, several values may not correspond to the data given below.

B.08 Theory chart of hydraulic system

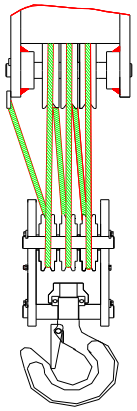


B.09 Selecting of parts line of rope

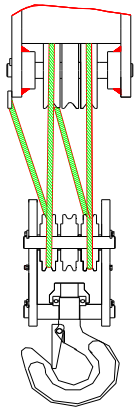
Note！When the truck crane working , the selecting of parts line of rope must obey the fundamental as follows:

1、The hoisting rope select four parts line when truck crane shipped ex-works. Because in that state, can satisfy the working condition above 4.85 metres and it can advance efficiency.

2、When the length of boom under 4.85 metres and the lifting weight hyper 7.5 tonnage ,the rope must be changed to six parts line.



six parts line



four parts line

C.00 Safety rules & device

C.01 Working condition

· Do not working under the power lines Unless keep the min distance of 5 m from it and other provisions apply in the area in which you are operating the crane .

·the ground of working must be hard and level ,the grade less than 1:20 and the surface not sink

C.02 Environment condition

Before using the crane, always assess the ambient conditions (wind, temperature, risk of lighting) in order to work in safety.

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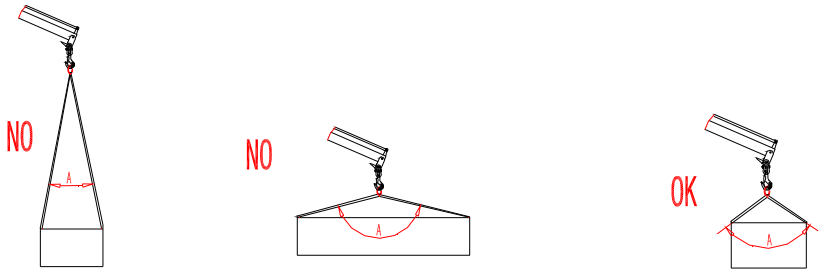
·don’t operate crane when it is raining or lighting or wind speed exceed 13.8m/s (grade 6).
·environment temperature: -25°C- +40°C

C.03 Requirement for rope use

The illustration is intended to the right way when use rope to fix weight. The Max angle A should be less than 120^0, or the rope may be broken by force. If the angle A is too small, the system working pressure may be too high when lifting load.



C.04 General description of safety rules.

·The operator must have a thorough understanding of the crane and must keep it in efficient condition. If in doubt, refer to the instruction manual.
·Only authorized personnel may use and operate the crane.
·Do not leave the control station with the load raised or the machine in operation.
· make sure unauthorized persons out of the crane’s operating area.
·do not operate 2 devices simultaneously with the load raised.

•Warning ！

Do not operate the machine in the area marked ‘ not allowed work area ’in the below figure, be sure to not operate the machine in the area marked‘bad stability work area ’in the below figure.

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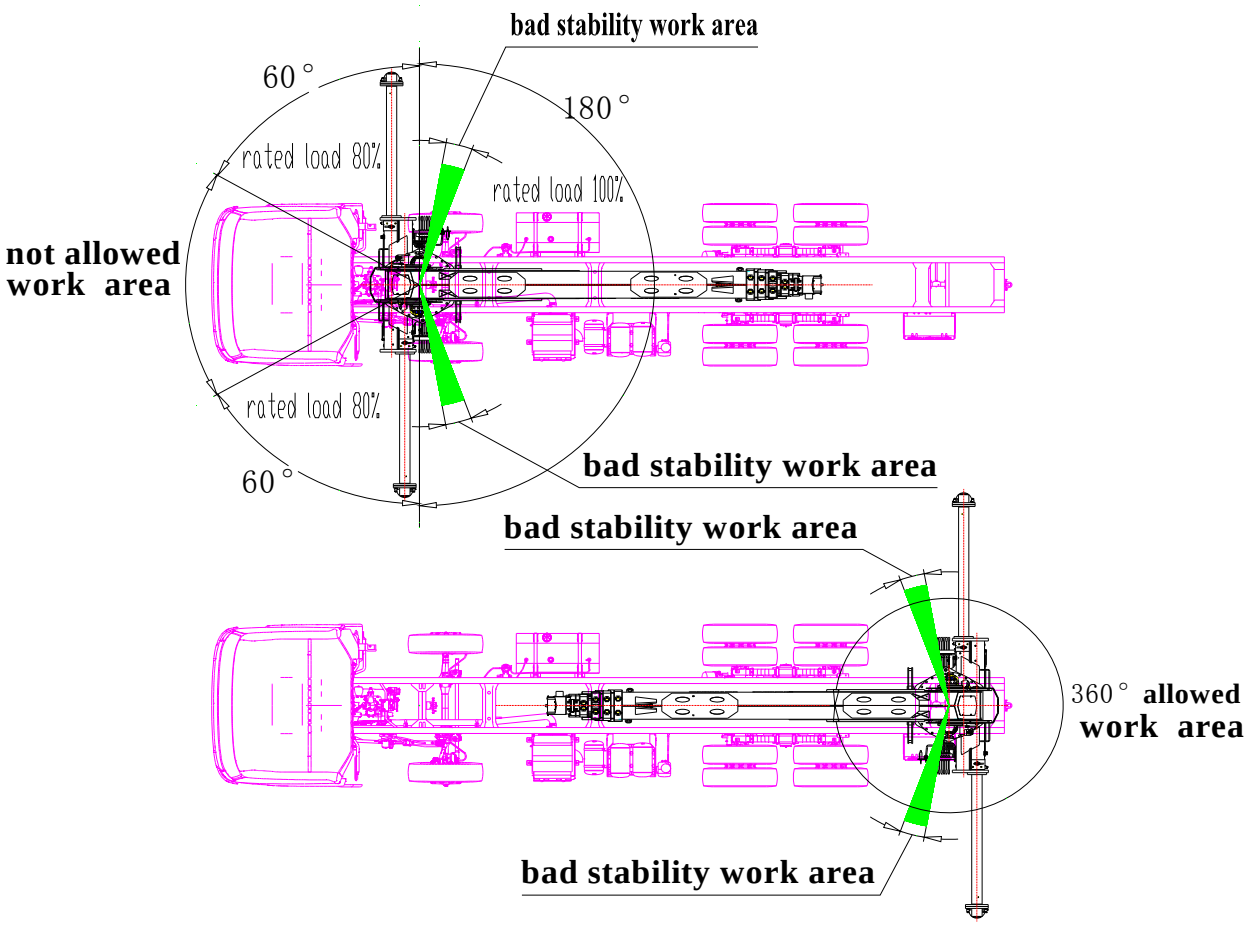
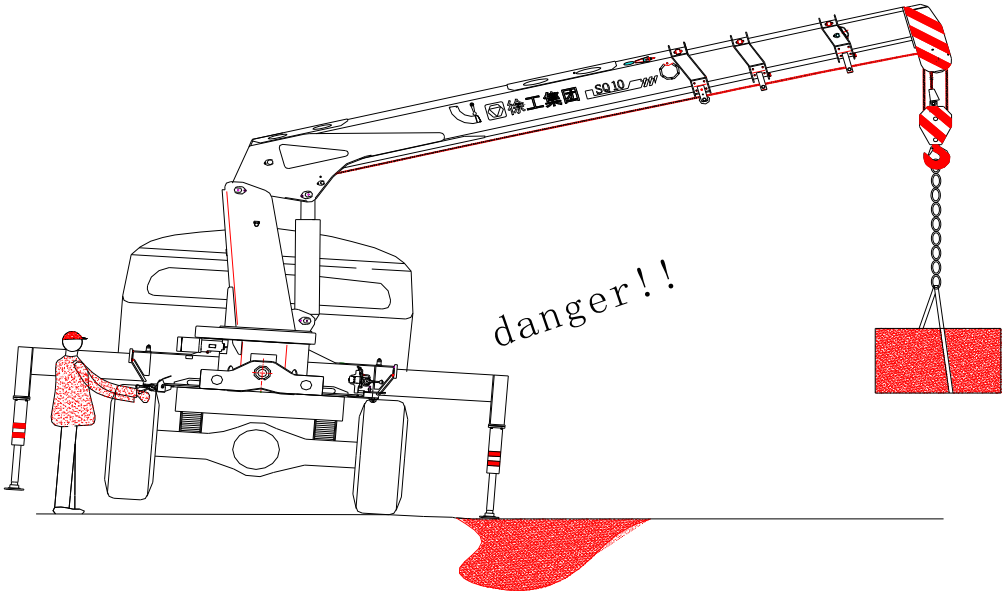


The crane must be stabilized on firm ground. When working on soft or yielding ground you must increase the load-bearing area by placing a stabilizer support plate between the base of the stabilizer leg and the ground in order to distribute the load sufficiently. Do not operate the crane close to ditches or on soft, yielding ground.



•You must know, at least approximately, the weight of the load you intend to lift, and the load not exceed the indicated value in figure.

•Use the controls on the same side as the load so as to ensure maximum visibility.

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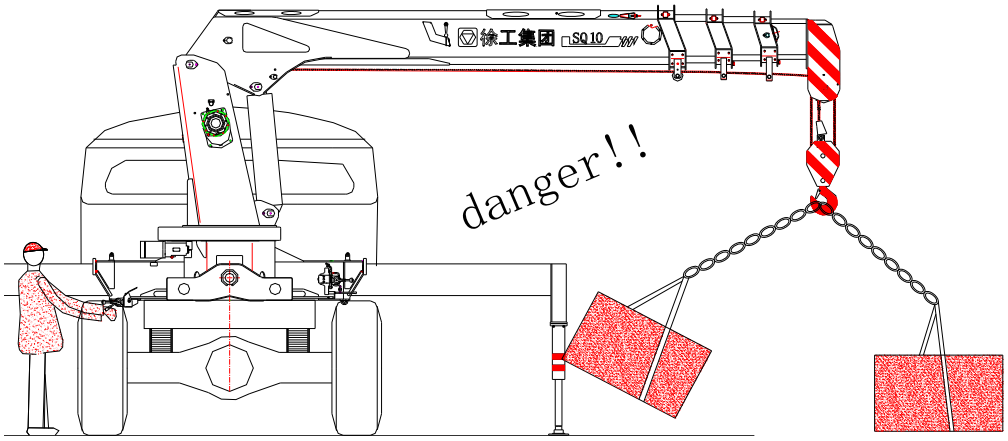
•do not stand under the load.

• do not hoist weight at a angle.

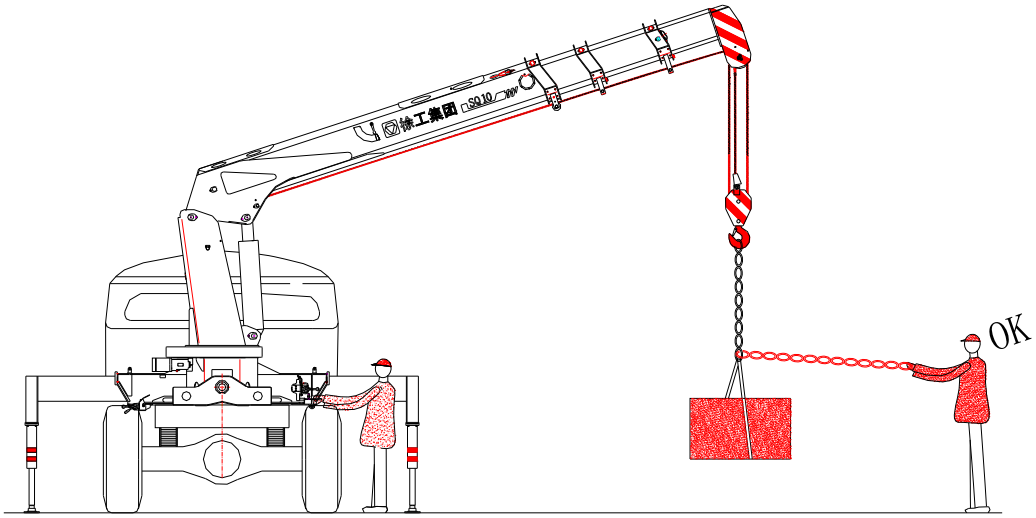
·don't push the load or push the load aslant, don't lifting the load imbedded in the ground or congealed on ground.

·make sure no barrier in the way of load when it is leave the ground exactly



·When the weight is equal to (or less than) the 2/3 of the max capacity at the working range, you can retract the telescoping boom but not extension .·When the weight is equal to (less than) the 2/3 of the max capacity at the max working range, you can extend or retract the boom

·Use ropes to guide the load at a distance and prevent it from swinging.



•Do not use the crane to lift persons.

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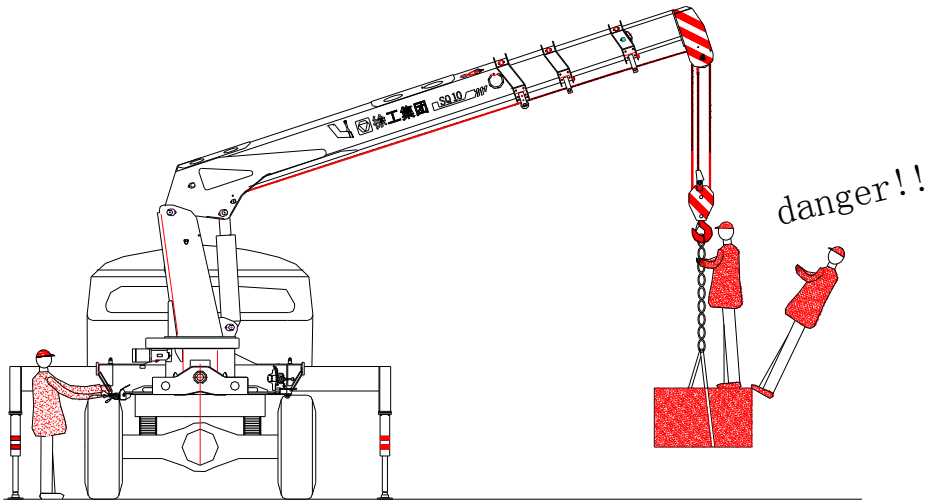
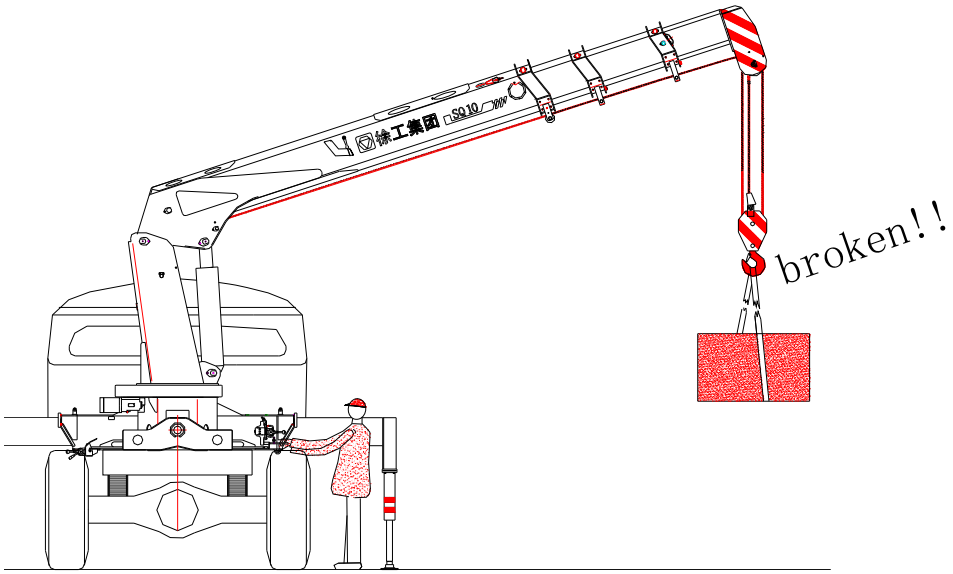
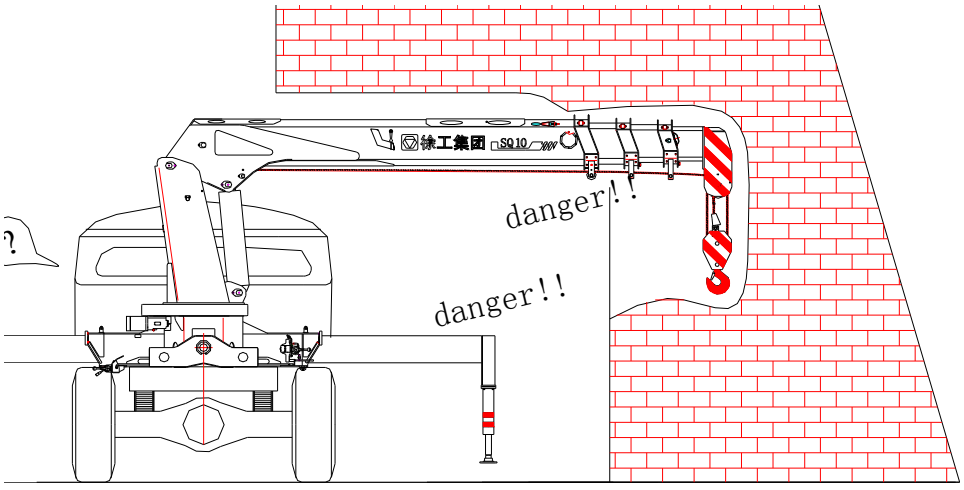


•Before starting a lifting operation, always check the condition of the lifting tackle(ropes, hooks, chains or straps).the goods should be fastened for safety.



•Before moving the vehicle, the crane must be retracted and locked completely.



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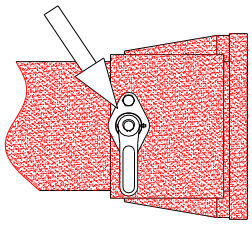
C.05 Safety devices

C.05.1 Lock device on fixed legs

This machines is fitted with a locks installed on the fixed leg on the right and left side of the crane.



lock the locking device when the truck is working or transporting, slewing the locking device 180°and pull the active leg out .

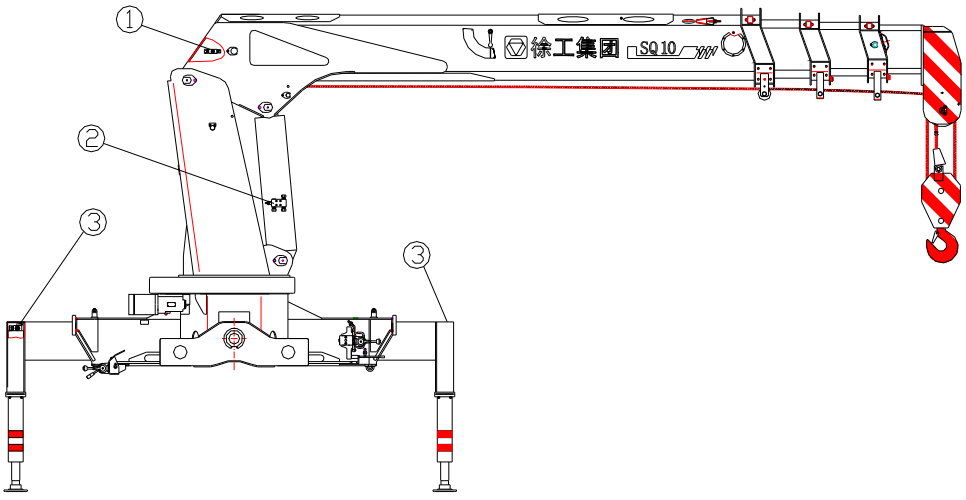
In the same way ,slewing it back 180°and retract the active leg ,set the locking lever inset the hole of active leg automatically .

C.05.2 Valves on hydraulic cylinders

These values hold the load in the position reached in the event of failure of the power circuit hoses, and in the absence of motive power caused by accidental operation of the control levers.

These valves are fitted on:

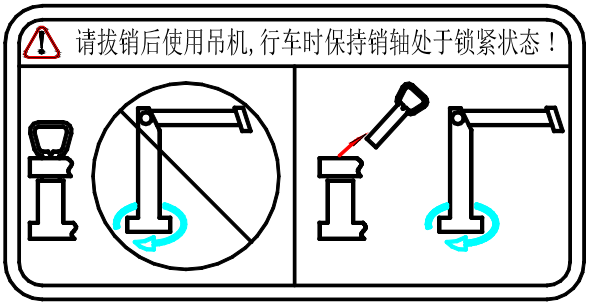
1. telescopic cylinder 2. derricking cylinder 3. vertical leg cylinder



C.05.3 Anti-rotation device

Several warning labels are affixed to your machine. Be sure to refer to the warning labels on the pin shaft bush side of base when operating your machine; be sure to pull out anti-rotation pin shaft before operation of the machine, and insert it in the pin shaft hole of base after work is finished.

In addition,keep pin shaft locked when travelling of the machine.



C.06 Forecast risk and unforecast risk area

forecast risk：signifies that element of risk which it was not possible to eliminate at the design stage and which is not protected by the safety devices.

Unforecast risk area：refers to any potentially hazardous point inside or close to the machine or in the crane's operating range.

The following may be sources of risk：

•The incorrect positioning of the machine in its work configuration in which dose not offer an easy escape route for the operator.

•Electrocution due to contact with overhead power lines or lightning.

·asphyxia was caused by close the exhaust long time.

·locking leg cylinder incorrectly(extend or retract fully)

D.00 Operator

D.01 Essential requirements

Any person using or operating the crane must be competent to do so and must satisfy the following requirements:

Physical

Good eyesight, hearing, coordination and the ability to perform safely all the tasks required to operate the crane. He must not be affected by disorders or disabilities and his faculties must not be impaired by the taking of drugs and/or alcohol.

Mental

Ability to understand and apply the rules, regulations and safety precautions. He must be alert and use his judgment to ensure his own safety and that of others .He must want to do the job correctly with mental condition.

Emotional

He must be calm, able to withstand stress and use his judgment to assess his physical and mental condition.

Training

He must have read, studied and understood this manual, as well as the charts and diagrams and the warning plates and notices. Prior to beginning any lifting operation with the crane, he must be familiar with the use of the controls and the associated movements, and must have carried out dry runs without any load applied.

He must have a license(if required by law).

Recommended clothing: Safety helmet, gloves, accident-prevention shoes, protective goggles.

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D.02 Duties and Responsibilities

Duties:

Reference is made here solely to the operator's duties connected with operation of the crane, ranging from activation of the power circuit and operation of the assembly/disassembly of the optional extras and maintenance work.

The operator must therefore be fully aware of the safety rules and devices and must also be familiar with the use of the operating controls and load harnessing techniques.

Responsibilities:

The operator is directly responsible for the operation and correct functioning of the crane, for its maintenance, for the load being handled and for every action he performs in the context of the duties referred to above.

D.03 Control stations

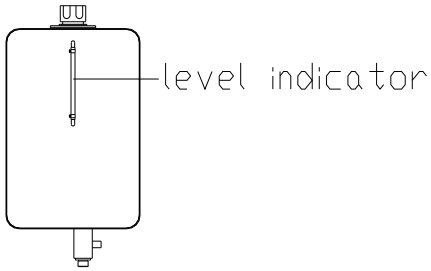
The two illustrations on this page show the positions(right and left side of the machine) which the operator must occupy when operating the crane.

CAUTION： Remember that you must ALWAYS use the controls on the same side as the load, adopting a natural and well-balances stance.

E.00 Control devices

E.01 Oil level indicator

The crane's oil tank is fitted with an optical level indicator for checking the amount of oil in the tank.

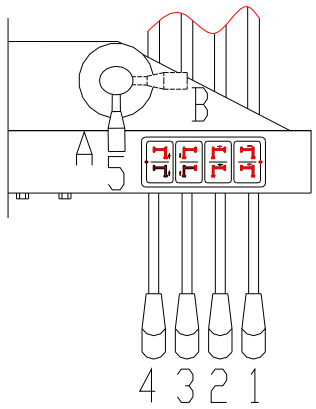


E.02 Crane operation controls

There is a rotary valve control lever 5 on the stabilizer controls

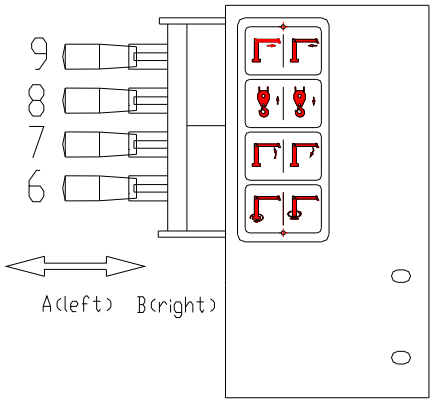
Shift the lever 5 to the position A to control the stabilizer (including lever 1,2,3 and 4)

Shift the lever 5 to the position B to control the column and boom and lift machine(including lever6,7,8 and 9)



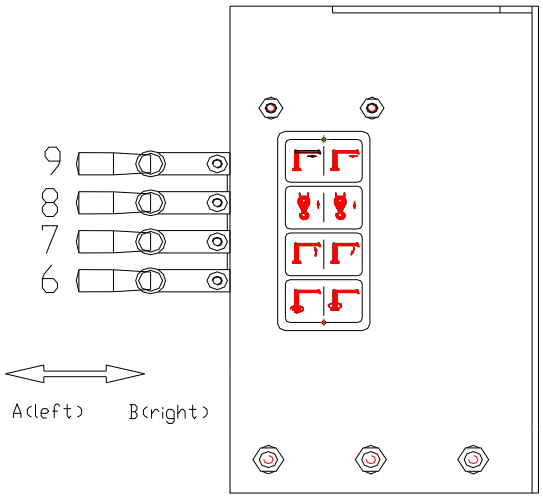
E.02.1 Boom, column and lift machine control lever

Crane control lever （left）



6.column control lever
Position A：slewing with clockwise
Position B：slewing with anticlockwise
7. **boom derricking control lever**
Position A： up
Position B： down
8.wire cable control lever
Position A： up
Position B： down
9.boom telescoping control lever
Position A： extend
Position B： retract

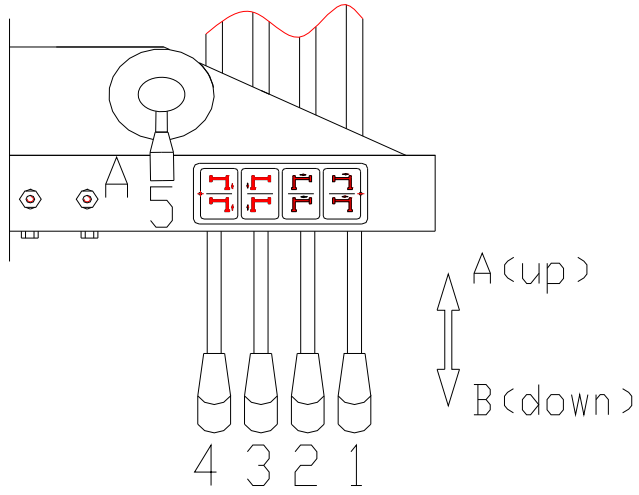
Crane control lever（right）



6.column control lever
Position A：slewing with clockwise
Position B：slewing with anticlockwise
7. **boom derricking control lever**
Position A： up
Position B： down
8.wire cable control lever
Position A： up
Position B： down
9.boom telescoping control lever
Position A： extend
Position B： retract

E.02.2 Stabilizer control lever

Crane control lever（left）



1—left horizontal cylinder control lever
Position A： extend
Position B： retract
2—right horizontal cylinder control lever

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Position A： extend
Position B： retract

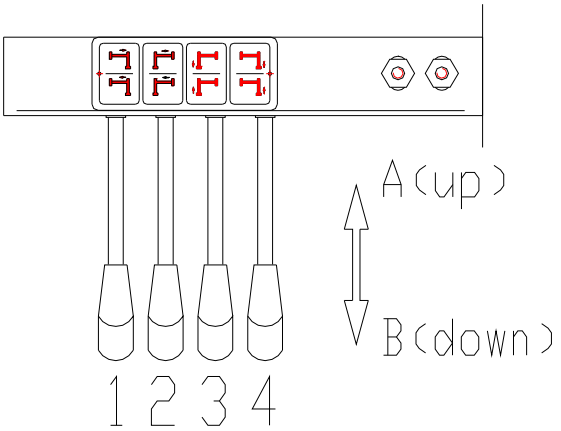
3—right vertical leg cylinder control lever

Position A： extend
Position B： retract

4—left vertical leg cylinder control lever

Position A： extend
Position B： retract

Crane control lever（right）



1—left horizontal cylinder control lever

Position A： extend
Position B： retract

2—right horizontal cylinder control lever

Position A： extend
Position B： retract

3—right vertical leg cylinder control lever

Position A： extend
Position B： retract

4—left vertical leg cylinder control lever

Position A： extend
Position B： retract

F.00 Operating instruction

F.01 Notice before operating

Danger： 1. Do not use the crane unless the stabilizer opened and correctly locked in place.
2. Before connect PTO, you should check if all levers are in their neutral position.
3.check the tank stop valve if is open before start the crane, the oil pump will be damaged if it not opened.

Warning： Before starting work with the crane, make sure you have enough fuel for the truck to avoid a forced stop during a manoeuvre and check that the battery is in good condition so that you can restart the truck if a forced stop occur.

Caution： Before using the crane, always check the function of safety devices on the machine are correct.

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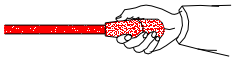
Do not hold the control levers as shown in the illustration marked “NO” since the possible activation of the rated capacity limiter would cause the lever return sharply to their neutral position.



F.02 Start-up operations

CAUTION： Make sure you have enough room to accommodate the complete opening of the stabilizer extensions and position the truck at an adequate distance to hook the load (consult the load chart).

Operating process: step the clutch and place the gearlever in neutral position. then start truck, push out the hand-valve from PTO if the pressure reached 0.5- 0.6Mpa, then leave the clutch footplate slowly, the PTO will be in working status.

F.03 Stabilizing the crane

CAUTION： Always keep the controls located on the same side as the load you intend to perform so as to ensure maximum visibility and operator safety.

Several operate steps as follows:

1.shift the selector valve to the leg position which on the indicator plate

2 open the lock device on active legs.(refer to the use of lock device in safety device)

3 shift the lever 1 and 2 in the direction indicated arrow A to extend left and right horizontal leg cylinder, then the active legs extended fully.

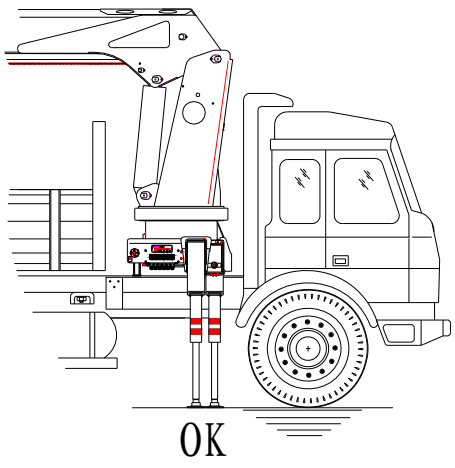
4.lock the active legs with locking device.

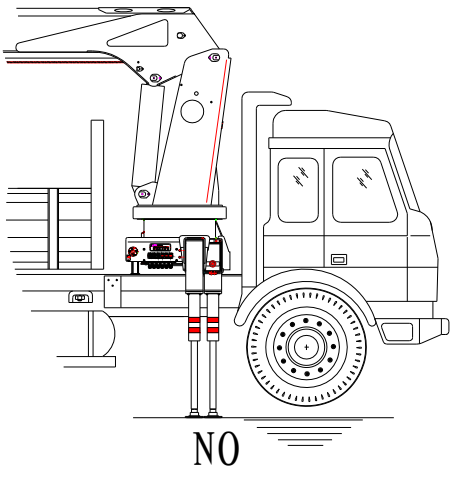
5.extend the vertical leg cylinder by shift the lever 3 and 4 in the direction indicated A.

6 Shift the selector valve lever to the crane position which on the indicator plate after support the crane.

7 open the crane

Notice :the truck wheels and leg cylinder should be kept contact with ground and extend the active leg fully.





F.04 Opening the crane

This chapter describes all the movements and the exact sequence of operations for the correct opening and use of the crane.

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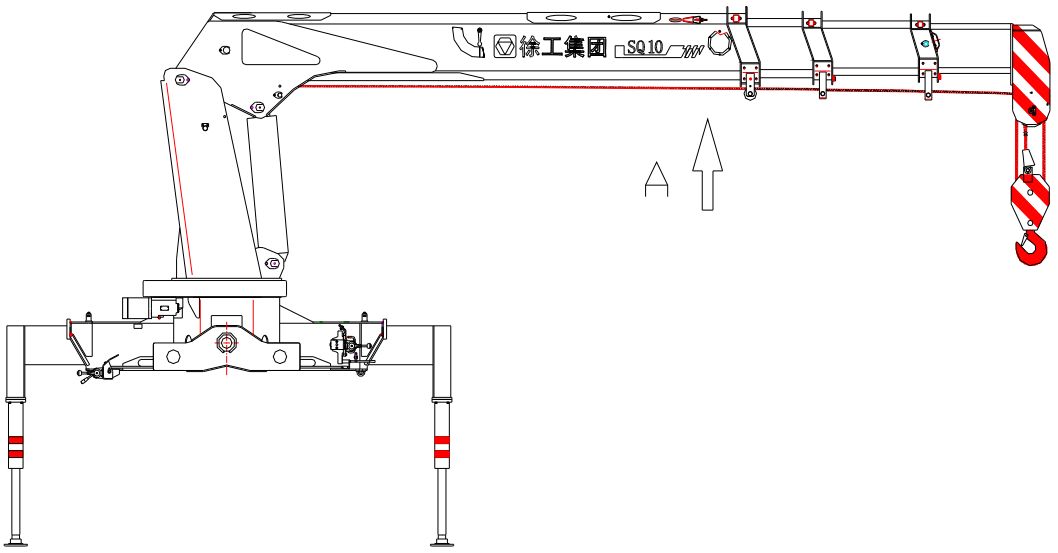
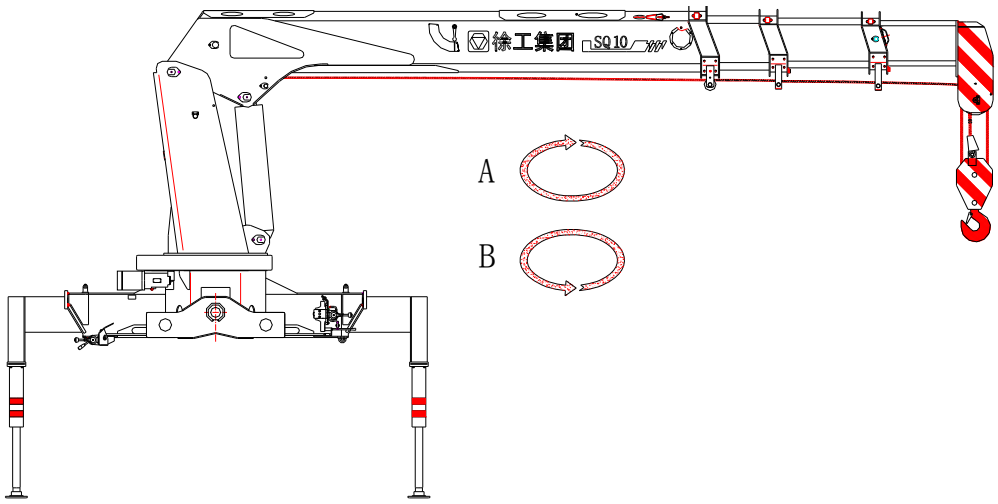
Lifting base boom: shift lever 7 in the direction indicated arrow A to lift boom, on the contrary, the boom will be down by shift it in the direction indicated arrow B.



Slewing the column clockwise by shift lever 6 in the direction indicated arrow A ,on the contrary, the column will be slewed for anti-clockwise by shift it in direction indicated arrow B.



lifting machine :lifting hook by shift lever 8 in the direction indicated arrow A, on the contrary, the hook will be down by shift it in the direction indicated arrow B.

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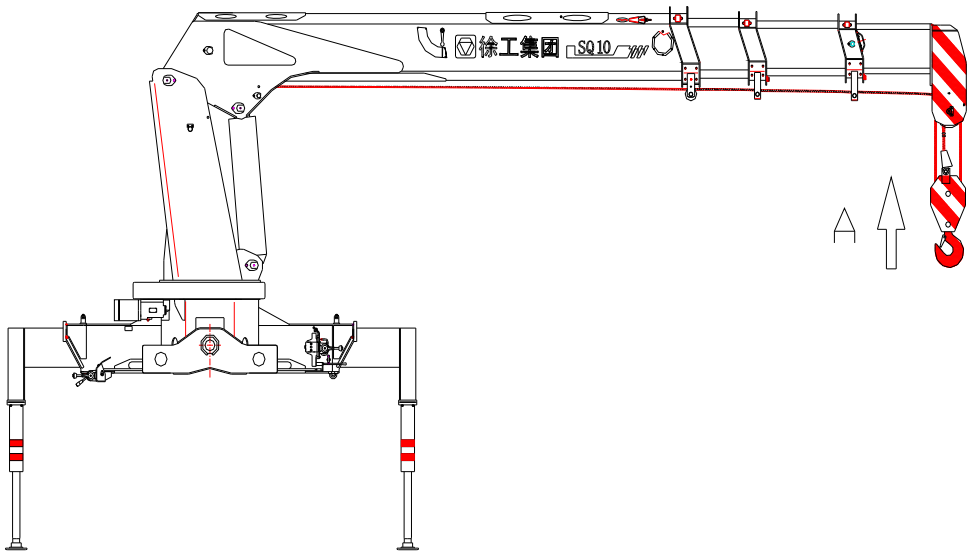


Note ： 1、at least left three circles wire cable on the scroll when you dropping the hook.

2、replace the wire cable when its worn layer reached the 40% of the wire cable diameter, or the wire cable become more thinner than before.

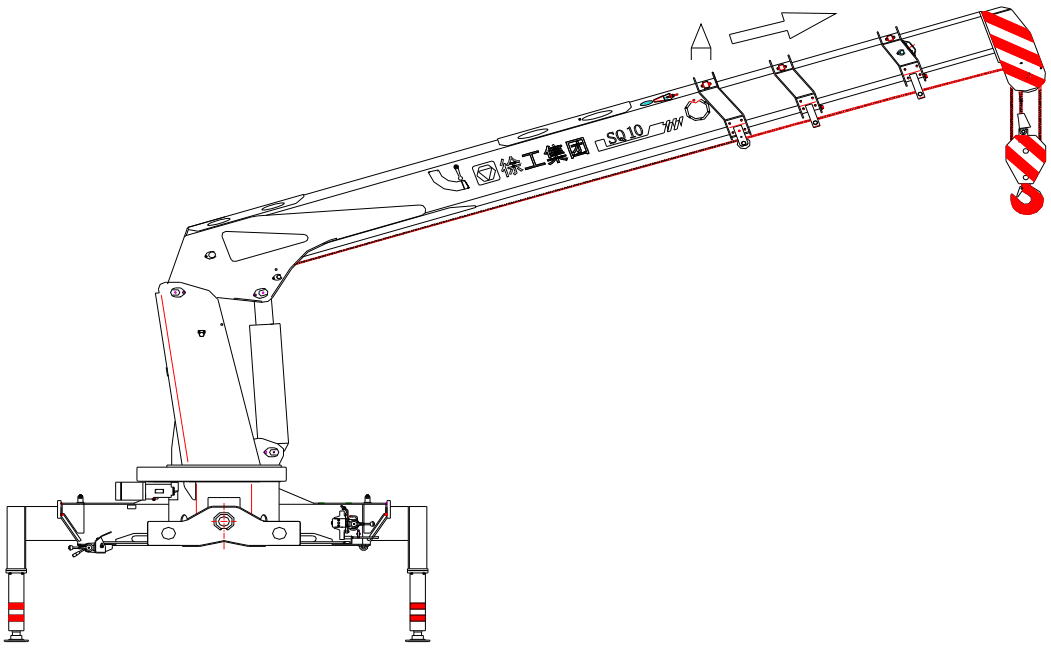
F.05 Operating telescopic boom

Shift the control lever 9 in the direction indicated by the arrow A to extend the boom. Before lifting the load, you must calculate its weight (it must be compatible with the weights indicated on the rated capacity plate) and work out the path of reach the required set-down point.

When setting down the load, perform the manoeuvres slowly, precisely and without swinging. Be careful not to run the load against parts of the crane or the truck.

To increase the crane's working life, Retracting the boom fully before swing it

When a load is on the hook, don't perform the manoeuvres start and stop abruptly, because this will bring out necessary stress for structure



To increase the slide pad's working life, avoid telescoping boom when a load is on the hook

F.06 Closing the crane

Closing the telescoping boom：

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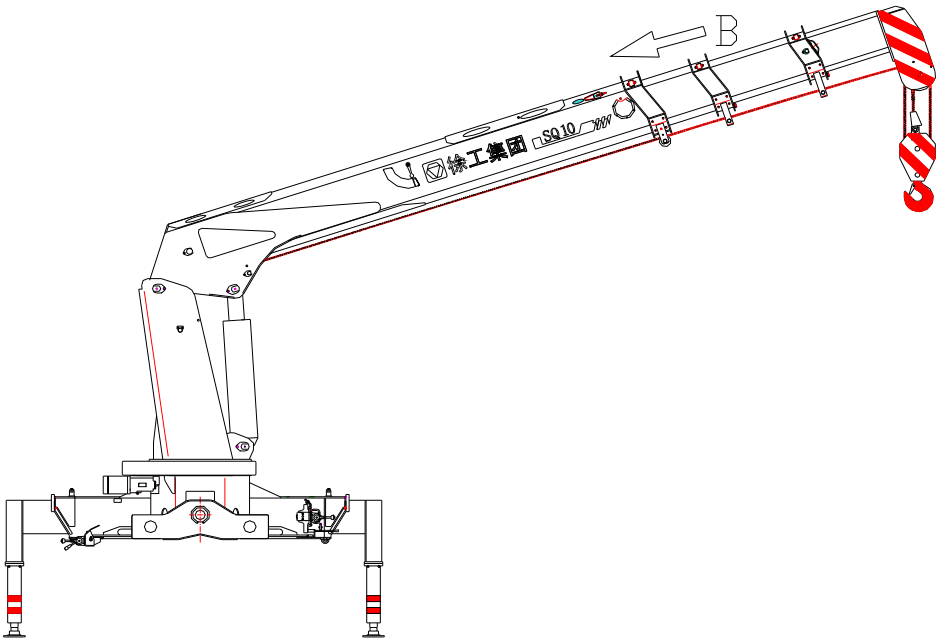
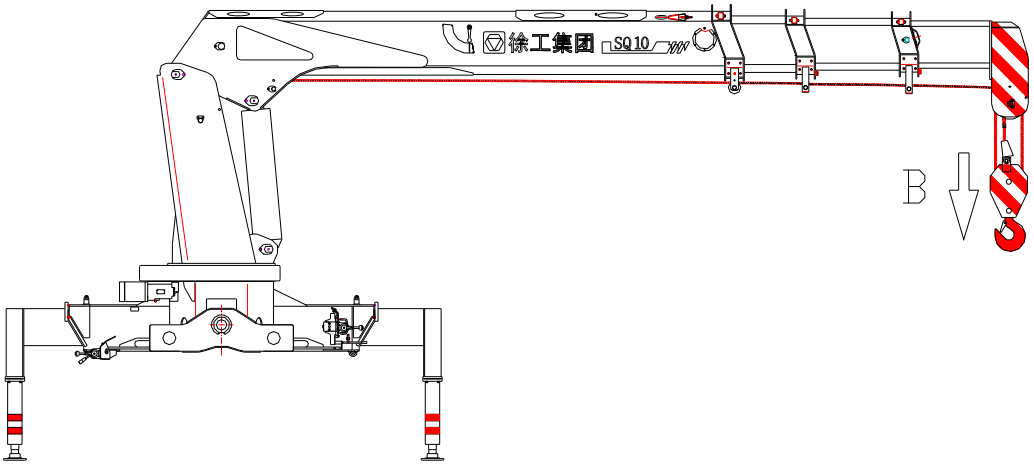
Shift the control lever 9 in the direction indicated arrow B to fully retract the boom extensions.

CAUTION： don't move the truck if the crane is not in its rest configuration.



lifting machine : dropping the hook by shift lever 8 in the direction indicated arrow B, on the contrary, the hook will be up by shift it in the direction indicated arrow A.



Slewing the column: slewing the column to set the boom in the body center.

Slewing the column clockwise by shift lever 6 in the direction indicated arrow A ,on the contrary, the column will be slewed for anti-clockwise by shift lever 6 in direction indicated by the arrow B.

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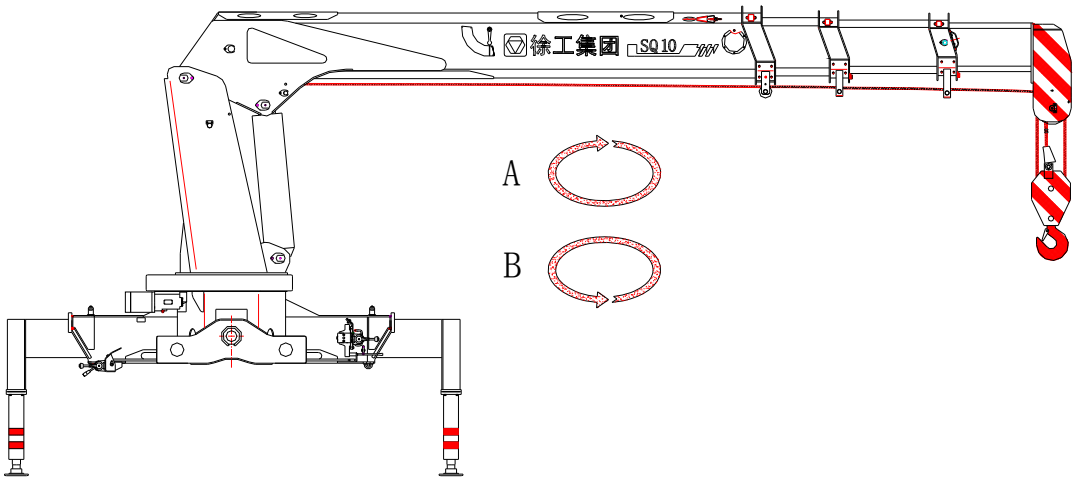
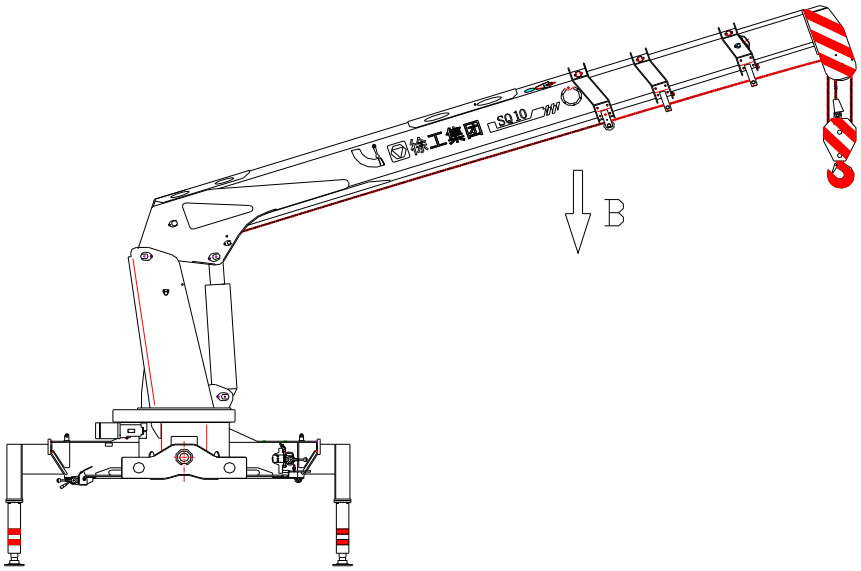


Closing the boom: shift the lever 7 in the direction indicated arrow A to lifting the boom, the boom will be down by shift it in the direction indicated arrow B



Notice :fastening the hook after closing boom to prevent it from swinging.

Closing leg cylinder

1. shift the selector valve to the leg position which on the indicator plate
2. open the lock device on the active leg
3. retract left and right vertical leg cylinder by shift the control lever 3 and 4 in the direction indicated arrow B
4. retract left and right horizontal leg cylinder by shift control lever 1 and 2 in the direction indicated arrow B
5. close the PTO

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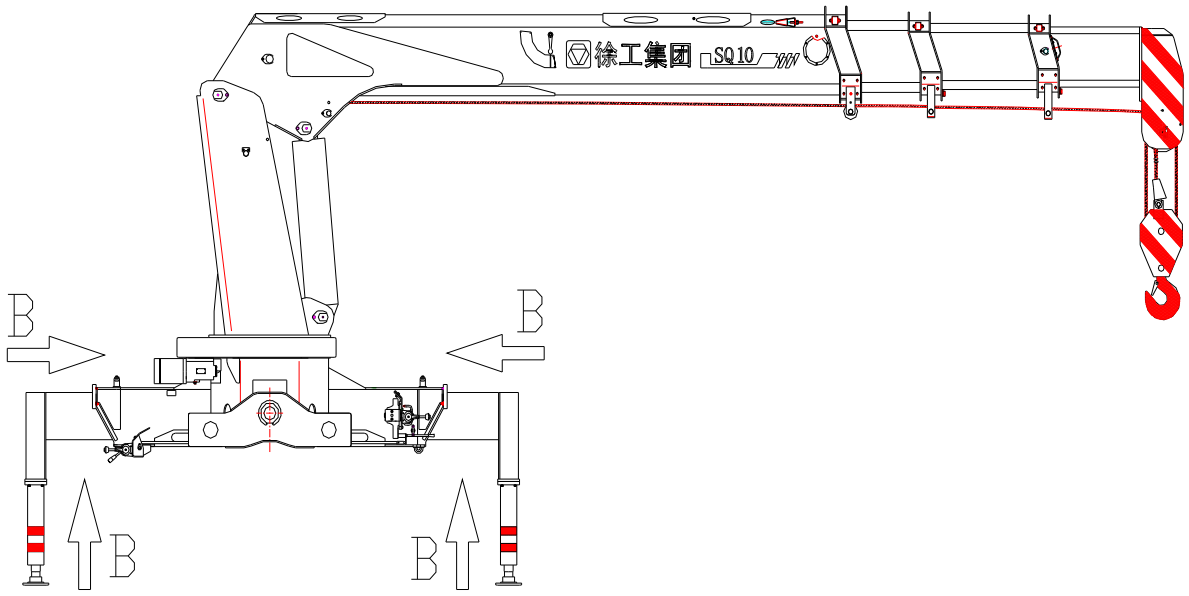

Notice: retract the leg completely

For retracting active leg, first retract the active leg several cm by opening the locking lever, then return locking it and retract the active leg fully, the locking device will be inset automatically.

WARNING: Always make sure that the active legs are fully retracted and check that the mechanical locks are engaged.

Notice: 1 divorced the hydraulic pump from PTO after the work is finished.

2 check the control levers whether returned or not, if not, return it to their neutral position.

F.07 Maintenance the crane:

The crane should be checked regularly , check parts especially check the function of the safety device if in well states.

1. All pipes & hoses should be in well condition, without any leak.
2. Oil level should be between the lowest & highest signed position.

G.00 Analysis & eliminate for general faults

faults	causation	eliminate
Vibrations in crane cylinder; boom extension jerk during initial maneuver。	1. some air in the hydraulic system 2. worn cylinder seals 3. dirt in the balance valve 4. without lubrication in boom	1. exhaust the air by movement 2. replace the cylinder seals 3. clean the balance valve 4. inject lubrication
Slowing down of all movements, even without load on hook.	1. Crushed or dented suction hose. 2. air suction	1. replace suction hose 2. tightness the joint of suction hose
Boom extension do not open in sequence.	1. Lack of lubrication 2. worn slide pads 3.Wrong boom extension valve settings	1. grease it 2. replace slide pads 3. adjust the valve

Crane does not lift rated capacity load.	1. inefficient pump 2. wrong relief valve settings 3. worn hydraulic pump seals	1. replace pump 2. adjust the valve 3. replace the pump seals
Boom down automatically with load raised	1. Worn piston rod seals of derricking cylinder 2. balance valve port were stopped or worn the recover spring.	1. replace cylinder seals 2. clean the balance valve and replace the spring
Crane can't slewing exactly	1. Exceed the max gradient of truck 2. something in the buffer valve 3. worn the backstop inside the gear pole 4. system without power	1. Recover the truck in accepted error 2. clean or replace the slewing buffer valve 3. replace the backstop 4. check the PTO connector
Joint or slewing parts sounds	Lack of lubrication	Greased it at specified intervals
Outrigger leg cylinder can't support the load	1. double-valve inefficient 2. worn the piston rod seals of leg cylinder	1.Clean or replace valve 2.replce seals
Cylinder leak oil	1. Worn the seals 2. worn the piston seal ring	replace seals
Noise and fluctuating of pressure are big, hydraulic valve outcry.	1. Suction hose or suction net are stopped 2. the glutinosity of oil is high 3. bad seal for suction port and air is sucked 4. the parts in the pump were worn 5. the system pressure is high	1. Remove the dirt 2. replace oil or warm it 3. replace seals and tightness bolt 4. replace or maintenance the inner parts 5. adjust the system pressure
Clearance jerk was shown when winch is lifting or falling.	1.The rope is twist or disorder on winch 2.worn the brake friction or friction area less than 80% 3.dirt inside the lift motor 4.pump supply oil not enough and system pressure small	1.The rope is twist or disorder on winch 2.worn the brake friction or friction area less than 80% 3.dirt inside the lift motor 4.pump supply oil not enough and system pressure small

H.00 Maintenance

H.01 Notice before maintenance

•The follows with* must be solved by manufacturer.

•Maintenance jobs must be performed with the truck engine off and the key operate switch disengaged.

•Before carry out work on the pressure lines, release the pressure first(with the truck engine off) by operating all the crane control levers in both direction.

•Keep all handles, footplates and services decks free of oil, grease and dirt to prevent slipping and falls.

•All the components are protected with paint or surface treatment against atmospheric agents.

•Nevertheless, we recommend you make periodic inspection to check that the protection treatment is in good condition or not, and treat it again if necessary.

•Before starting, make sure there are not tools, rag, and any other things on the movement parts.

H.02 Maintenance schedule

Maintenance per 50 hours
Check the leaks for system connections.
Check the leaks for cylinders
Check tightness of mounting bolts.
Maintenance every 450 hours or every 6 months.
Grease slewing unit of column.
Grease articulation points.
Grease telescoping boom.
Grease the piston rod out of cylinder.
Check the wear for sliding pads , replace it if wear.
Replace hydraulic oil filter and air breather filter.
Check the rope and replace it in time.
Maintenance every 900 hours or once a year.
Test hydraulic cylinders (*)
Check tightness of base screw.
Check hydraulic system settings and efficiency of safety devices. (*)
Check tightness of crane mounting bolts.
Check crane structure. (*)
Check/replace adjusting screws and sliding pads.
replace oil
If the crane remains idle more than 6 months, you should take some measure as follows:
Keep the body free of oil, grease and dirt.
Retract all the piston rod of cylinder completely
Grease movement parts
Keep the rope free of dust and grease it with ZG-S grease again.
Stopped in the ventilated storage, it should be covered by waterproof cloth.
Start it once time every month and idling the structure to check it in good condition.

H.03 Crane maintenance

Greasing articulate unit

The articulation points shown in the illustration must be lubricated at the specified intervals. Inject grease under pressure until it overflow between the elements involved, thereby replacing the old lubricant.

After greasing, perform several complete movements on all the articulation points and then add a little more grease.

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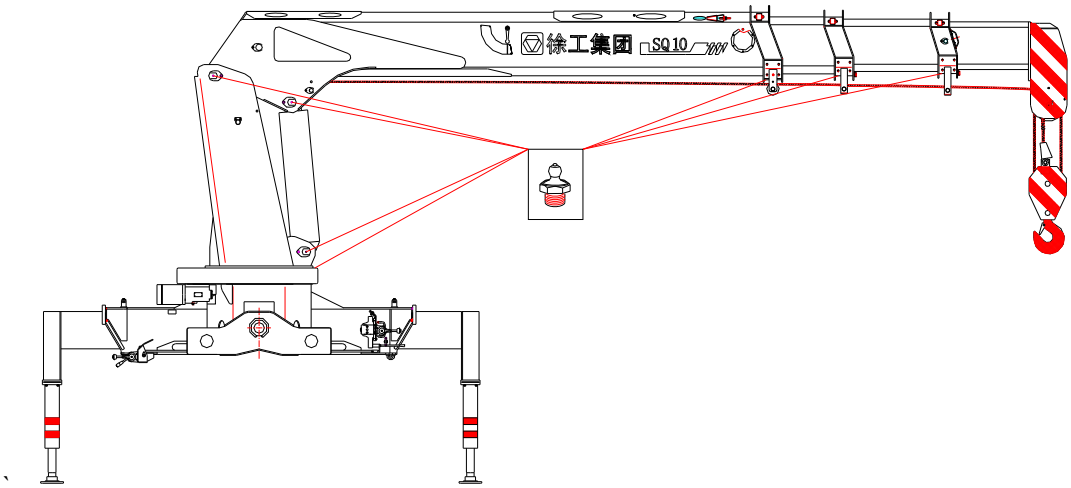
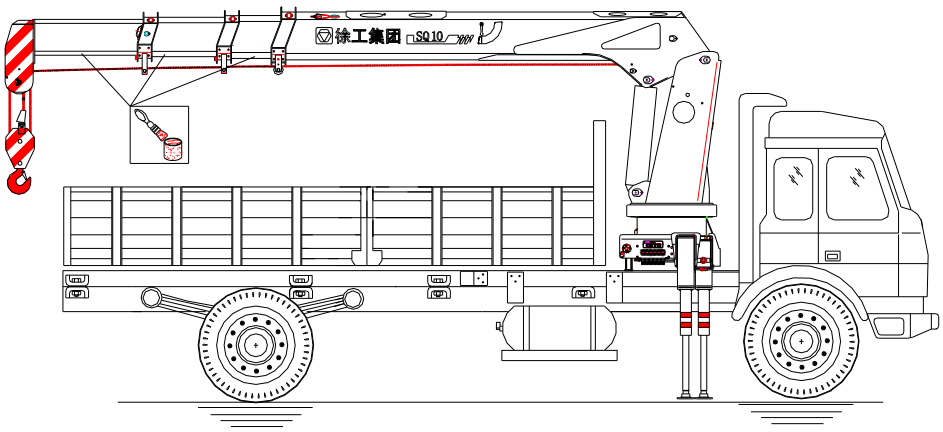


Greasing the boom telescoping

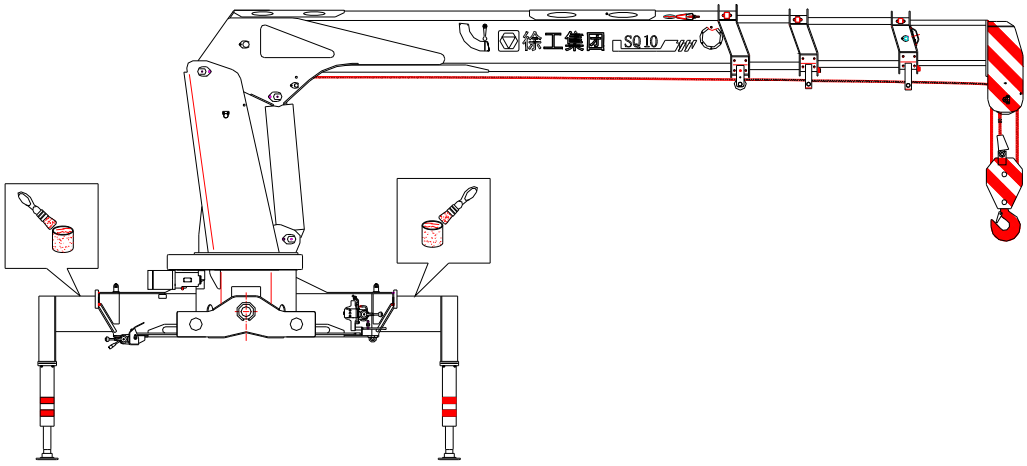
Configure the crane as shown in the illustration below and grease the out boom extensions.

You must scrape off the old grease with a plastic knife before spreading a new layer. Use a brush to spread a layer of grease over the entire surface of the boom extensions.



Greasing the active leg

Configure the crane as shown in the illustration and open the active leg, grease the surface of active leg with a brush.



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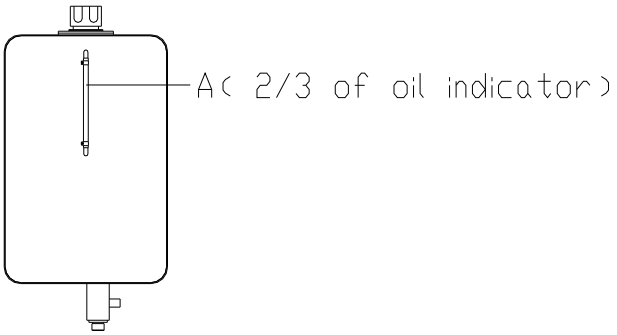
WARMING: Use grease with characteristics comparable to those specified in the lubrication chart in this Section.

H.04 Checking the oil level in the tank

When the crane at close status completely，check on the level indicator that the oil reaches the position marked “A” in the illustration.

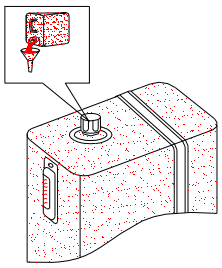
A: Maximum oil level



H.05 Replace the oil

configure the crane at close status completely, find a container big enough to fill the oil in the tank and place it under the tank, then open the plug in the bottom of the tank to exhaust the oil, recover the plug and make sure tightness.

CAUTION：Take suitable precautions to prevent the risk of burns due to contact with hot oil.



WARNING：Always use oil with the same characteristics as those specified in Section “H.11”.inject the fresh oil into the tank with filter cartridge and recover the tank top.

H.06 Replacing the oil filter

The filter must be replaced at the specified intervals and whenever the optical indicator shows that the filter is clogged.

CAUTION：Take suitable precautions to prevent the risk of burns due to contact with hot oil.

Open the filter cover, Replace the filter with one that has the same filtration mesh, clean it with a nitrate-based solvent, grease and check the position of seal between cover and filter body, then recover the filter cover

H.07 Checking wear on sliding pads

You must check the wear on the sliding pads between the boom extensions at the specified intervals.

Excessive wear on the pads may cause the friction among the metal parts, the

non-sequential opening of the boom extensions and/or excessive loose leading to misalignment the various extensions.

H.08 Checking screw tightness

Vibrations may cause the screws which securing the crane components to work loose. You must check the screw tightness below at the specified intervals

A-Bolt fastening plate screws **B**-Boom extension bolt nuts **C**-Screws and nuts on control levers **D**-Distributor support screws

H.09 Operation and maintenance for lifting winch

H.09.1 Purpose and characters

Lifting winch is used for fixing goods, therefore it is an absolutely necessary part for loader crane, is one of the most important basic organizations of the loader crane.

Lifting winch adopt the NGW planet gear in the design, has characteristics of high efficient , small volume , light weight , low voice, compact structure , steady running,big scope transfer power etc.

Brake friction slice: wet type friction slice to be placed inside the brake shell, the brake shell is installed on the front of organization , is convenient for replacement of friction slice.

H.09.2 Reasonable use and greasing

Do not use lifting winch to lift person!

Do not put the lifting winch in the place containing acid or alkaline etc corroded gas, make sure that the actual load does not exceed the rated load. To ensure safety, leave at least 3～6 winds of wire rope on the winch drum , and make sure that the wire rope is regularly wound on the winch drum, if you found disorderly-wound condition, be sure to arrange it again under the professional 's guidance.

The normal working temperature of lifting winch is : -20ºC～+80ºC, the ambient temperature is: -20ºC～+40ºC.

Using abrasion-resistant hydraulic oil, replace hydraulic oil at the regular intervals, replace the oil within 30 days after the organization is delivered, thereafter replace it every 3～6 months .

Lubricant oil:

In Summer	In Winter
L-HM46	L-HM32

H.09.3 Safekeeping

If you don’t use the lifting winch for a long time (above 3 months), be sure to drain oil from lifting winch, and leave it full of oil with lower acidic value， When storage, put it in dry place without odour of decaying ; To avoid quickening the ageing process, do not store it for long in the place where the temperature is too high or the temperature is under -20ºC，drain out the lower acidic value oil and add proper brand of oil when again using the machine.

H.09.4 Faults and eliminations

No.	Faults	Causation	Eliminations
1	drum doesn't work while start motor	improper installation of motor	check the joint between motor and speed reducer
		brake doesn't work	check brake system
		inside get trouble	contact our company
2	brake doesn't work	if the brake is equipped with adjusted bolts	screw four bolts with clockwise
		loop has remains of pressure	check hydraulic loop
		friction slice wore	replace friction slice
3	brake doesn't loose	store the brake for a long time	running brake by force
		brake without pressure	1.check outer joint for brake 2.replace seals
4	vibration and voice is big	improper installation of lifting winch	1.check installation bolt 2.installation surface is uneven, repair or replace it
		inside broke down	contact our company
5	organization overheat	lack oil	add oil
		the brake is not entirely to loosen	check brake，screw four bolts with anticlockwise，adjust pressure for brake.

H.10 Operation and maintenance for rotation speed reducer

H.10.1 Purpose and character

Rotation speed reducer is used for fixing goods and loader crane , therefore it is an absolutely necessary part for loader crane, is one of the most important basic organizations of the loader crane .

Rotation speed reducer consists of worm wheel and worm, the worm wheel of strength and friction-resistance is good, the worm adopt high quality alloy steel, has good strength and friction-resistance. Add ration of lubricant oil to the inside of equipment, do not need to perform special maintenance in addition to periodically replace lubricant oil.

H.10.2 Reasonable use and greasing

Before using the rotation speed reducer after the machine is installed, be sure to check the organization if comply with installation request.

Before using the rotation speed reducer, check loader crane and make sure that fixed pin of column has been pulled out. When travelling，to prevent speed reducer from impacting, make sure that the fixed pin is inserted.

Replace lubricating oil at the regular intervals, replace the oil within 15 days after rotation speed reducer is delivered, replace it every 3～6 months after that. pour lubricant oil until its level reach to the 2/3 of oil indicator.

Using L-CKE/P lubricant oil (worm and gear oil)

VG-460(winter)、VG-680(summer)

The normal working temperature of rotation speed reducer is : -20°C～+80°C, the ambient temperature is: -20°C～+40°C.

Make sure that the actual load does not exceed the rated load.

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H.10.3 Safekeeping

If you don't use the rotation speed reducer for a long time (above 3 months), When storage, put it in dry place without odour of decaying ; To avoid quickening the ageing process, do not store it for long in the place where the temperature is too high or the temperature is under -20° C.

H.10.4 Faults and eliminations

No.	Faults	Causation	Eliminations
1	Speed reducer doesn't work while start motor	improper installation of motor	check the joint between motor and speed reducer
		inside get trouble	contact our company
2	leak oil	oil cup get loose	tighten oil cup
		seals get failure	replace seals
3	vibration，shaft end shake， and voice is big	improper installation of rotation speed reducer	1. check installation bolt 2. installation surface is uneven, repair or replace it
		lack oil	add oil
		inside broke down	contact our company
4	organization overheat	lack oil	add oil

H.11 Character of hydraulic oil, grease and gear oil

You should think it is necessary to fitted with a device depend on the climate and working condition for cool the temperature or keep the hydraulic oil suitable.

The specified character of hydraulic oil:

Summer	winter
YC-N46	YC-N32

Grease :3# calcium-grease

Gear oil brand: HL-20 in summer HL-30 in winter (SY1103-77)

WARNING: make sure the fresh oil comparable to those in the hydraulic hose when you add or replace the oil for power line. it is forbidden to use the oil with molybdenum or sulfide. It may be damage the support structure.

H.12 Disassembly

Disassembly the crane should be done by contact with the manufacturer. It is forbidden to disassembly safety devices.

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Please well deal with the waste from the product for environment when you operating and maintenance truck-mounted crane.

When you operating, maintenance and repairing the product , you should classify, store and safe disposal of the waste well.

The bucket for collecting Solid waste (waste paper, waste metal) is made specially according to certain requirements, the wastes were recycled by recycle bin.

Danger waste: ① Collecting all sorts of waste oil with special bucket and marked ‘danger waste’ on the bucket, try to avoid leakage when collecting.

②Storage battery ： Conserve the waste battery in the specified area and make a sign marked ‘danger waste, after that they should be reclaimed by qualified unit.