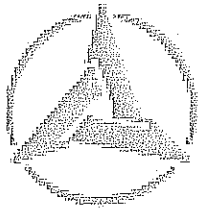
SCC500D Hydraulic Crawler Crane Operation Manual

SCC500D-O&M



Shanghai SANY Scientific Co. Ltd.

May, 2007

Preface

Dear Customers:

Thanks for choosing SCC series of hydraulic crawler crane made by Shanghai SANY Scientific Co. Ltd.. We shall go all lengths to present you "**First-class product, First-class quality, First-class service**".

SCC500D hydraulic crawler crane is a full hydraulic crawler crane with independent intellectual property, developed by SANY Corporation by adopting latest foreign technique and combining Chinese national condition. To familiarize you with the structure, characteristics, performance and parameters of SCC500D hydraulic crawler crane thoroughly and systematically, we provide you a complete set of accompanying documents including this operation manual.

To ensure proper function of the machine, exert its best capability, lengthen its service life and also secure your and others' safety, **please read the operation manual, maintenance manual and other accompanying documents carefully and thoroughly before you start using it, and please do operation according to these documents.**

Thanks again for your trust! We will develop and perfect our products based on the credo of "**All goes for customer, all comes from innovation**". No notice will be given if changes happen to the design and parameters during this period! Any problem, please feel free to contact us!

Shanghai SANY Scientific Co. Ltd.

SCC500D Hydraulic Crawler Crane Operation Specification

Dear customers:

This crane is for installation and loading&unloading by hook block. Use for work conditions such as bucket grab, scraper pulling, heavy tamping and electromagnetic lifter is strictly forbidden.

Crane's work level:A3

Work level of the mechanisms: Hoisting M4, Luffing M4, Swing M3, Travel M2

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I. Safe operation rules

1. Designed installation function and level of the crane

According to ISO4301-2 specification, the crane falls into work level of A1, with circling working times as 63000. The levels of main work mechanisms are as following:

Hoisting mechanism: M3 Usage level T4 (total running hours within the assumed service life being 3200 hours);

Load-up condition being L1-light (the mechanism is usually under light load, and occasionally under maximum load)

Luffing mechanism: M2 Usage level T3 (total running hours within the assumed service life being 1600 hours);

Load-up condition being L1-light (the mechanism is usually under light load, and occasionally under maximum load)

Swing mechanism: M2 Usage level T3 (total running hours within the assumed service life being 1600 hours);

Load-up condition being L1-light (the mechanism is usually under light load, and occasionally under maximum load)

Travel mechanism: M1 Usage level T2 (total running hours within the assumed service life being 800 hours);

Load-up condition being L1-light (the mechanism is usually under light load, and occasionally under maximum load)

——All key components of the crane is designed and produced for normal hoisting and loading&unloading tasks. More demanding operation condition is certain to shorten the machine's service life.

——Operation conditions and usage types other than hoisting and loading&unloading should get the manufacturer's permission in advance. These operations usually weaken the crane's lifting capability.

——The crane operator shoulders the liability to check the crane periodically according to applicable national and international regulations, so as to find out whether certain key components are reaching design period. Please refer to "Crane

check" section of the maintenance manual.

2. Work conditions

Temperature and humidity: under usual conditions, the highest and lowest temperature only occur in a few days of the year. Then the allowable temperature for the crane to work is from -25℃ to 40℃.

Relatively high or low humidity is applicable to its operation.

Altitude: the crane runs properly under the altitude of 100m.

Particular conditions: Additional facilities and special facilities are necessary to be aspplied for continuous work under corrosive environment (such as port, chemical industrial park, steel factory, etc) and with relatively high air humidity.

Frequent change of the filter is required **if the enviroment is very dusty.**

It cannot be used in flammable and explosive environment.

Near the driver's seat of the crane's cab of upperworks, the below noise is likely to occur:

---without load, the maximum rotation numbers of the engine being 2000 circles/minute, <85db (A)

3. Examples of conditions and situations where the crane is forbidden to use

Improper use of the machine might lead to:

——Deadly injury.

——Severe damage to the machine and its performance!

——Invalidate quality guarantee.

The below improper manipulations are forbidden:

- Change the machine's struture without the producer's written approval and impact safe operation;
- Any working pattern that jeopardizes safey;
- Tear and loosen the fastened load with the hook block or the swing mechanism;
- Hoist the load on the ground with the luffing winch;

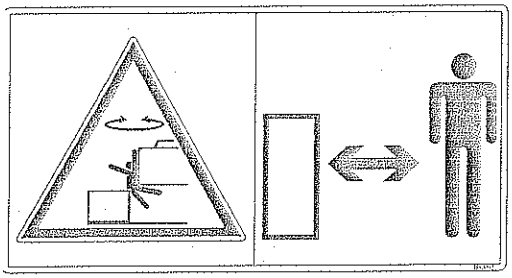
- Drag the load along the ground;
- While manipulating the crane:

  --The stipulated safety device is not set to a proper mode;

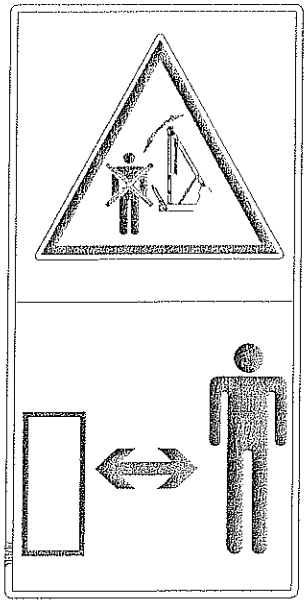
  --Improper rated load table is used;
- Installing spare parts or using resources without the producer's approval;
- Slope the crane;
- Carry person on the turn table or by employee transportation vehicle! (Hang on the hook block or sit on the load) this is very likely to cause severe personal injury. Under this condition, the person being carried has no way to manipulate the crane's action or avoid the danger of bumping and falling. In this case, a minor mistake might lead to deadly disaster.
- Test drive or work at dangerous explosive area, including areas with air containing little or temporary explosion danger.

4. Scutcheon Introduction

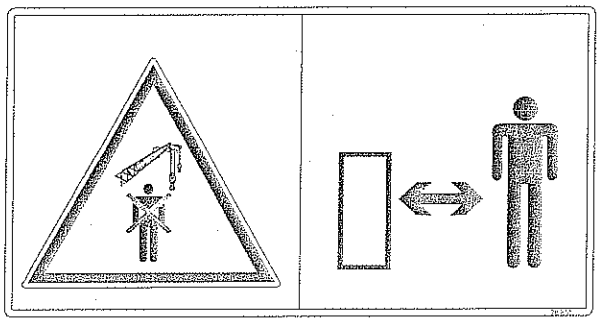
4.1 Nobody is allowed to stand within the swing radius



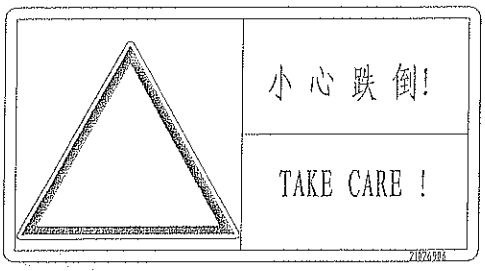
4.2 Nobody is allowed to stand under the A-frame



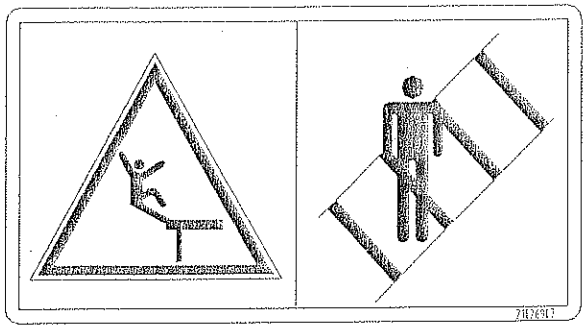
4.3 Nobody is allowed to stand under the boom



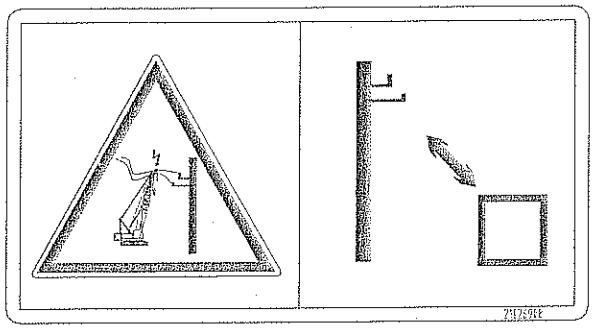
4.4 Don't tumble



4.5 Prevent falling



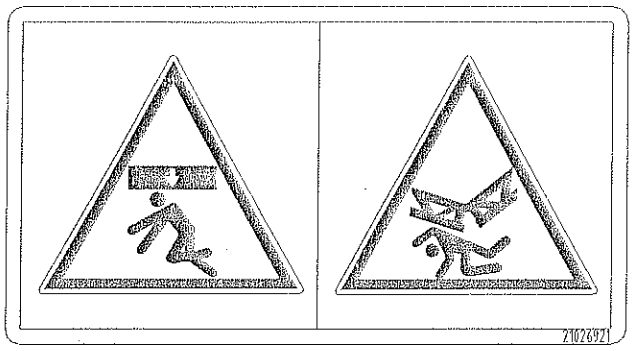
4.6 Keep far away from high voltage wire



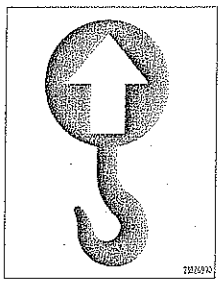
4.7 Caution: Hot

4.8 Don't twist your hands

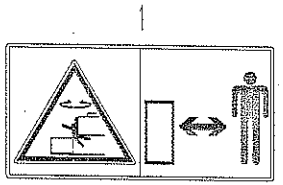
4.9 Dangerous to disassembling boom



4.10 Mark of lifting start position



5. Illustration diagram of warning marks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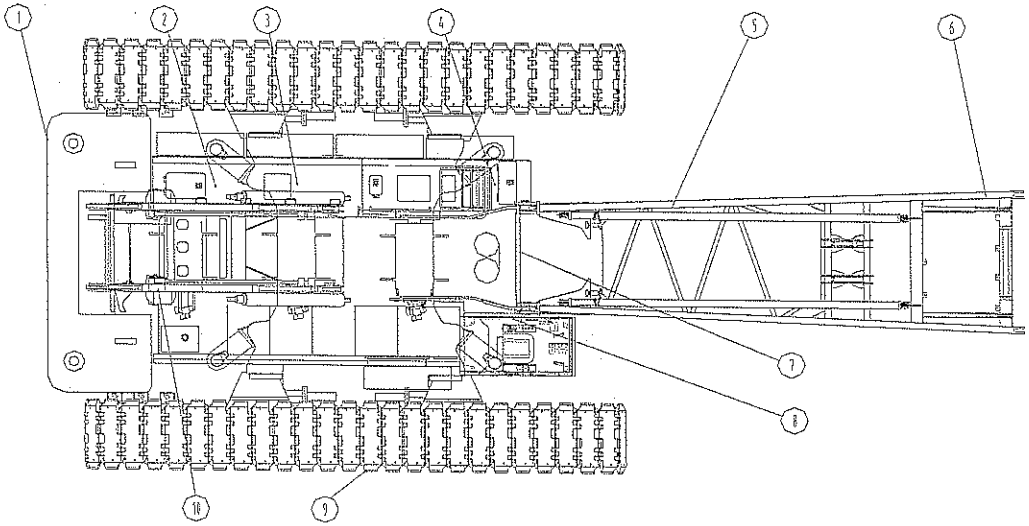
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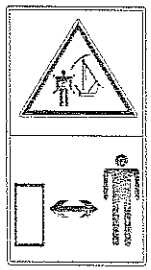
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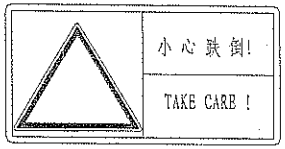
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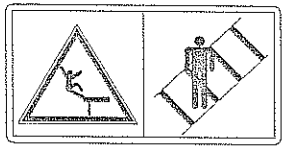
小心跌倒!
TAKE CARE !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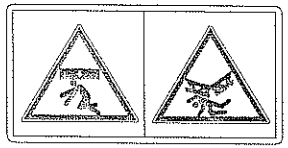
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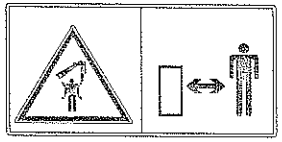
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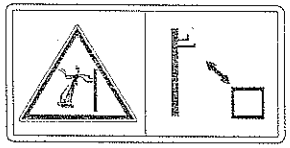
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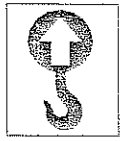
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6. Driver's duty

--The driver must focus on the operation of the crane and doesn't be involved in any distracting activities.

--The driver is reponsible for all operations under his control. If not sure about the safety of certain operation, he should negotiate with the task supervisor before lifting the load.

--If a warning mark is placed on the start control console, the driver cannot start the engine until ***the one who lays the mark*** has taken it away.

--Before starting the engine, the driver should confirm the below things:

a: Finish all daily check and maintenance items.

b: All controllers have been shut off. All brakes and lock devices have been started or connected.

c: All other staff have left the crane.

--The driver is responsible for the safe running of the crane. If not, please stop immediately.

--Report every abnormal case affecting the crane's safe running to the direct manager.

--After taking over the duty, the driver should first of all test all controllers and limit devices. If any problem is found, sovle the problem firstly, and then start working.

WARNING: *Supporting devices installed on the crane such as load moment limiter, boom angle indicator, anti-overwind device, gradienter (if installed), composite meters and other warning devices, only render assistance to the driver. They cannot take the place of or degrade the requirements for the driver. The driver must possess the necessary knowledge, experience and judgment ability, so as to guarantee safe operation of the crane.*

The load lifted by the crane should not exceed the rated value stated in the rated load table.

--If the load or the designated signaler is not in sight or within the communication area, the driver shouldn't move the crane.

--The driver must understand and operate according to the signals sent by the instructor or the designated signaler. If a signaler or lifting assistant is not necessary, the driver himeself can do the lifting. **When stop signal is sent by anybody at any time, the driver should obey likewise.**

--The driver must confirm the load table in use conforms to the correct diagram of the crane's

configuration status(including boom length, winding pattern of the steel rope, balance weight, etc).

--The driver must confirm the below items:

a: All accessories have been correctly assembled and connected to the crane.

b: Balance weight (including supporting balance weight) is in place and the weight is correct. **It should not exceed the regulated maximum balance weight.**

--If the driver somehow has to leave the cab, whatever it is, he should finish the below operations before leaving:

a: Stop the crane and put the upperworks to a position that won't hinder the operation of other equipments.

b: Land the load to the ground.

c: Descend the boom to the cushion block on the ground. Otherwise, be sure to fix the boom so as to prevent it from being moved by wind or other external force.

d: Shut off all control devices.

e: Start all drum brakes and pawls.

f: Stop the engine (If the driver only leaves for a few minutes, he can also press the operation cancelling button).

--If the driver needs to operate the crane at night, make sure there is sufficient lighting so as to guarantee safe operation. Both load lifting and landing zones should be sufficiently illuminated.

--If the weather is bad, and the driver's eyesight is affected by darkness, fog, rain, and etc and he cannot see the load or the signaler clearly, then he shouldn't run the crane.

--Gale might topple over the crane, or tip or damage the boom and other accessories. The driver and the qualified staff in charge of the lifting task should lessen the crane's rated value, slow down the operation speed or combine these two ways to compensate for the wind force's influence on the load and the boom. If there is no separate regulation in the load table or the operation manual, the driver should stop the crane under wind force in the follow conditions:

a: If the forward swing of the load caused by the wind exceeds the allowable operation radius, or its sideward swing exceeds the boom's hinge pin at any side, the driver should land the load on the ground and start the drum brake.

b: If the wind's speed exceeds 13.8m/s, land all loads on the ground and start the drum brake,

then descend the boom to the cushion block on the ground or take other fastening measures, after that start swing and travel brakes and other lock devices.

--While assembling or disassembling the boom, jib or mast on the ground, use cushion block to fasten them firmly to prevent their components from falling down. While dismantling connecting pins or bolts, workers must not walk under the boom, jib or mast.

--While extending or withdrawing the ground jacks, the driver or the signaler should be able to see every ground jack.

--To avoid accidents at the beginning, the choice of proper **operation site** is very important.

Choose operation site according to the following:

- The operation of the crane should be limited within a small **radius**;
- No barrier within the required work area;
- The ground of the site should be able to bear the estimated ground pressure.

DANGER: The most important requirement for the crane's safe operation lies in solid ground, which can stand the estimated ground pressure.

Static load allowable to the ground

Soil type	kg/cm^2
A) Soil, not man-made	0 — 1
B) Natural soil without obvious destruction	
1. Silt, turf, swampland	0
2. Nonslabby, sufficiently solid soil: high-quality suitable sands; a tier of sandy gravel	 5 2.0
3. Slabby soil: Fertile; Punky; Tight Semi-solid; Firm.	 0 4 0.0 1.0 4.0
4. Rocks with small cracks, solid, not wind abrased and at advantageous location: In tight and solid stratum 1; Hard or column stratum.	 15 30

C) Artificial solid ground	
1. Asphalt road;	5 — 15
2. Concrete concrete B I; concrete B II.	50 — 250 350 — 550

7. Crane Operation Description

Prior to operation

---Before starting operation, get to know the site and surrounding environment! Work environment includes barriers within the traveling area, ground load capacity and necessary safety prevention measures to seal off the operation site and traveling area.

--To run the crane, make sure there is no barrier in the crane, the load and the load's traveling route.

--Take necessary steps to make sure the crane work under safe conditions.

--Don't run the crane until all safety protection devices are installed and functioning properly.

Take note that only when the ground is with enough load capacity can the crane be run.

--On every day, or when the crane is scarcely used, before installing and running or (driving) the machine, check the conditions of the brake, manipulative handle, warning device, limit switch, anti-overload device, anti-overwind device and see if they are functioning; Check if steel rope is wore, corroded or broken; Check the oil mass of the hydaulic oil tank; Check the oil mass of the fuel tank and draining condition; Check the oil mass of the engine; Check the water volume of the water tank and whether there is leakage; Check whether the bolts and nuts of key components are loose.

--Before starting operation (or driving the crane), make sure nobody enters the dangerous region. If necessary, send out warning signal (sound the horn before starting the crane)

---Before operation, check whether the communication between the driver and the lifting worker is smooth.

--Before operation, check all actions of the crane and make sure it functions properly.

--Within the scope of the regulations and rules, staff should wear protective suits and devices (such as safe harness, protective suits, goggles, masks, etc)!

Do remember that protective devices are not 100% efficient! Helmet can protect you from small falling objects but is powerless against falling load! Therefore, keep alert and enforce sense of safety all the time!

--Before starting the crane, make sure all supporting facilities are in safe position.

--Know the weight of the load.

--Choose suitable boom length and rope threading methods according to specific load conditions.

--Choose spreader according to the load weight, accessory type and inclination angle.

--Only hook block provided by the crane producer can be used.

During operation

--While starting the engine and doing actions, the driver should send out warning signal (sound the horn).

--After warning signal is sent, if somebody is still staying at the dangerous region, stop operation immediately!

--Before lifting the load, make sure the hook block is vertical over the gravity center of the load.

--During the crane's operation, tipping and draging the load is forbidden!

--Carrying people using the spreader is forbidden!

--During the operation, keep a close eye on the load all the time. If no additional load is added, observe the boom's top and also the swing radius of the balance weight!

--Take note to avoid bump between the load or hook block and the crane's components. For example, lower hoisting steel rope while descending the boom. If this is not done, the load might hit the end sheave of the boom or the jib.

--If emergency occurs and the operation halts, the driver should do the below operations:

1、 Try to land the hanging load on the ground, if it cannot be done automatically, use auxiliary devices to lay the load on the ground;

2、 Start all brakes and lock devices

3、 Shut off all controlling devices

--Observe the drum closely and don't make the steel rope wind the drum reversely.

--When wind is strong, be careful in operation. If condition permits, use short jib section. Stop

working if wind speed is 13.8m/s (equal to force 6).

--For main body with two pieces of balance weight, forward grade climbing and crawler withdrawal are forbidden.

-- Allow to travel with 70% of the rated load under the below conditions: solid ground, within 1°sloping, the terrain clearance not exceeding 0.5m, the booms at the front. Under particular conditions, direct travel with 100% of the rated load is allowed.

Don't travel with load on soft ground,or sloping ground over 1° or with jibs.

Thunder

--If the weather is bad or storm is coming, try to descend the crane and be away from it.

--If the above actions are not possible, descend the hook block and unwrap the load, shut off the engine and be away from the crane.

--If you have no time to take the above actions, you had better stay in the cab.

During storm, the driver shouldn't approach the crane or stay nearby.

Warn other people near the crane.

If you are afraid the crane might be damaged by thunder, mainly check the electronic devices, especially the following:

--Load limit device; if any damage is found, error message will display on the display screen.

--Limit switch; see if it is functioning.

--Have a look at the exterior of the equipments and cylinders to see whether they are damaged. Extend and withdraw the relevant cylinder again and again to see if internal leakage is caused by damage of seal.

--Try winch to check if ball bearing and roller bearing are damaged.

--Rotate the swing device slowly and listen if there is any abnormal noise, especially in the roll tray supporting the swing.

After operation

When you leave the crane, pay attention to the below items:

--The load must be removed or put on the ground.

--Shut off the engine. All controlling handles should be set to "OFF" or "LOCK"!

--Shut off the heating system.

--Lock the door of the cab to prevent unauthorized person from using the crane.

--If the crane is seated on a sloping ground, use the swing braking and fasten the crawler.

--If the crane is not used for a long time, take allowable wind speed into consideration. Make sure the upperworks and booms are at proper position. That is to say, in case of storm, let the storm impose force on rear part of the crane. Meanwhile, take care of thunder shock.

Several cranes lift a heavy object together (this operation is not advisable)

If several cranes are to lift a heavy object together, the drivers or agents should settle down the work procedures in advance, assign a supervisor and then do the task.

The most important requirement for this operation is a thorough plan, including the follow points:

* Know the weight and center of gravity of the load
* Avoid accidents during elevation according to the shape of the load
* The lifting capability of other cranes should be similar
* While planning, take into consideration dynamic load caused by external environment (for instance, wind) during lifting and landing.

Danger usually happens when several cranes descend the load together. The load-lowering speed of all cranes should be the same as much as possible, otherwise the crane at low speed faces the danger of overload.

Use enough safety factor for each crane and don't use the full rated load value in the rated load capacity table.

When not sure about the accuracy of the data (for example, the load's actual weight and the position of the center of gravity), increase the safety factor accordingly.

Lubrication Cautions

Ordinary safety description:

--Carry out adjustment and maintenance work on stated date according to the regulations and

replace components as planned.

--During lubrication and maintenance, unauthorized people are forbidded to approach the crane!

--Spare parts must meet the producer's technical specifications. Therefore, only original spare parts can be used!

--Only professional staff can do maintenance and settings. This rule also applies to electric system, hydraulic system, engine and brake system. **Maintenance and component replacement by layman may not conform to the producer's stipulation!**

Before lubrication

--Inform the operator and assign a supervisor!

--Shut off the diesel engine! Only keep it running when it is needed for lubrication and maintenance.

--Stop and locate all facilities in this way: put them on the ground (make sure the ground has enough load capacity) or take similar steps to prevent movement (for example, use chock to fasten the crawler board)!

--Make sure unauthorized staff cannot start the crane (lock the door of the cab) and set pre-caution board.

--Clean the crane before starting maintenance work. Remove the lubricating oil, fuel or any additives at the joints and ratcheting. Don't use erosive detergent! Use non-fibric cleaning cloth!

--Before using water or steam injection (high pressure detergent) or any other detergent, cover or wrap any opening that might be unfavourabley affected by water, steam or detergent (consider from the aspect of safety and function exertion) (such as the electric apparatus cabinet).

--After cleaning, remove the cover or the binding belt and make sure no water is in these places! Check all fuel circuits, engine oil circuits and hydraulic oil circuits and see whether there is leakage, whether the joints are loose, whether there is crack or damage! Any faults found, please repair or replace immediately.

During lubrication

--Lubrication and maintenance work requires proper space and supporting equipments.

--While replacing a component or a large assemling component, put it on a stable supporting

lifting device to avoid any risk or damage.

--Only lifting device that functions well and has sufficient load capacity can be used!

--Don't stand, walk or work under hanging heavy load.

--Check and test the electric apparatus of the crane periodically. Repair or replace loose joints and cables on fire immediately.

Maintenance work should be done to the electrical system by eligible electricians or well trained staffs under eligible electrician's supervision according to electrical technical regulations.

--Only original fuse with stated current intensity can be used! If something is wrong with the power supply, shut down the crane immdediately.

--Check all tubes and joints of the hydraulic system to see whether there is leakage or recognizable external damage. If yes, repair or replace at once.

Lubrication or maintenance of the hydraulic equipments can only be done by experienced professionals specialized in this field (the system must reduce pressure)!

--Ask experienced staff to add load and send signals to the crane driver! The supervisor must be within the driver's view or can shout at or communicate with the driver.

--Leave no tool on the equipment after finishing the work. Falling or protuberant tools are dangerous to human life and body!

At the first use of the crane after maintenance or repairment, check the maintained or repaired parts before starting work!

During assembling/disassembling and transportation of the crane's components

--The operation manual describes the standard and normal assembling procedure.

--Disassembling the equipments should be exactly at the reverse order of the assembling (unless otherwise specified).

--In any case, untrained staff is not allowed to install or dismantle the crane.

--Incorrect installation might endanger people's life.

--For fear of the danger of slip, trip or tumble, people shouldn't stand nearby the boom, the equipment or its components. All installation work should be done with the help of supporting facilities (such as ladder, the crane' platform, scaffold, supporting crane, etc).

Exception is only allowed when the site permits. In this case, other safety measures should be taken.

--***Normal installation*** needs assistant crane and spreader (steel rope) to transfer all components and then have them connected to the main machine safely (assisstant crane is not necessary for parts with self-disassembly function).

--Before installation, if the staff needs to approach the hanging load, the balance weight, the middle boom, the boom base, the boom tip or the jib, the load should be put on the ground, underprop or other facilities with enough load capacity.

Note: Staff near the hanging load is in the danger of being struck or pressed by swinging heavy object.

--During assembling or at any other time, nobody should stand or walk under the load object or the crane's components being installed, especially when the load or the components are not well connected.

--The components or load objects to be installed should be firmly connected to the correct components which have already been installed and fixed. Then the connection is finished.

--When installation goes on with the heavy object hanging in the air, or installation is not completed, or the engine, the assistant crane is running, keep a certain safe distance from the position likely to incur extrusion or cutting, especially between the upperworks and the crane's underpan, near the cylinder, or on the boom and the jib.

--Follow the outside to inside order while installing the boom, the jib and the connecting pin.

--Only after all connecting pins (bolt) of the component have been knocked in can it be fastened by lockpin.

--While dismantling the boom or other components, don't pull out the connecting pin until all single components and the center of gravity axis of the overall component is on sound support. Before taking out the connecting pin, the supervisor on the site should take measures to avoid the occurrence of accidents caused by loosing of these components.

--Think over the pulling pin task and make sure nobody stands within the boom and the jib for the sake of extrusion. Think of and take proper measures to prevent pins from flying out, steel

rope from loosing or any components from falling.

--Don't leave any tool after finishing the work. Facts show that tools falling or flying out from the crane are very dangerous.

--While installing the balance weight, please obey the below rules because the tipping of the machine or the falling of the balance weight might incur death or injury:

1. Put the machine on a flat and solid ground and lock the swing brakingpin.
2. Prohibit people from going under the balance weight.
3. Use the assistant crane to hold the balance weight before it is perfectly fixed.
4. Extend the crawlers at two sides.

--While releasing the steel rope: If it is released improperly, it might cause disorder, twisting, bending or unreeling. This will distinctly shorten the service life of the steel rope. Unexpected accidents might happen.

--While releasing the steel rope, pull out the steel rope while rotating the wooden core or the steel rope. Please refer to "Steel Rope" part for detailed description on releasing the steel rope.

--Cautions on winding steel rope: when winding steel rope, in the "S" shape or more loosely, it will cause early damage or break. This may result in unexpected accidents. Please closely observe the below rules:

1. Don't make the steel rope twist into "S" shape;
2. Wind the steel rope tightly;

The tensile force of winding the steel rope is 2-3% of its shear load.

Cautions on assembling and disassembling the trailer

If the crane is not properly assembled and disassembled or fastening measures are not sufficient, the trailer might fall over, the crane's main body and other components might fall over, drop off or bump. These all can incur human injury. Therefore, strictly observe the below rules during assembling and disassembling:

1. Do the work on flat and solid ground;
2. Choose proper trailer fitting the weight of the crane's components;
3. The trailer should have brakes and brakes should be placed before the tires;
4. Lock all mechanisms completely;

5. Lock all doors and windows;

6. To avoid movement during transportation, use steel rope or iron chain to fasten the key components firmly on the trailer.

II. Main technical parameters and specifications and dimensions

Table 2.1 Performance parameters of the whole machine

Technical index	Unit	Value
Length of the boom	m	13～52
Luffing angle of the boom	°	30～78
Rope speed of main winch hoisting and descending	m/min	0～73&0～131
Rope speed of aux. winch hoisting and descending	m/min	0～73&0～131
Rope speed of boom ascending	m/min	75
Rope speed of boom descending	m/min	75
Swing speed above the platform (idle load)	r/min	2.71
Travel speed	km/h	0～1.3
Grade climbing capability (with basic boom, cab facing backward)	%	40
Rated output power of the engine	kw/r/min	127/2000
Mass of the whole machine (with basic boom and 50t hook block)	t	49
Ground pressure of crawler	MPa	0.061
Mass of balance weight	t	17.1

2.1 Rated load

(1) Please see table 2.2 for rated load of SCC500D (without jib)

Description:

① The rated load values of table 2.2 are under the condition of flat solid ground, the heavy object being ascended slowly and stably and not traveling. The rated load is always within 78% of the overturn load.

② The rated load counts in the mass of the hook block. Actual lifting load should deduct from the rated load value of table 2.2 the weight of all spreaders including the hook block (mass of 50t hook block is 478kg, that of 15t is 282kg, and that of 30t is 370kg).

③ When jib or extension jib is being installed, rated load counts in the mass of the main and aux. hook block and the values listed in the below table. Actual hoisting load of the

30	5.00	9.8m×5.00t	29.0m×2.90t	29.0m×3.85t	2.75	2.55	2.60	2.15
32	5.00	5.00	9.2m×5.00t		31.8m×2.50t	2.50	2.50	2.10
34	5.00	5.00	5.00			32.6m×2.50t	2.30	2.05

Main Boom 25m								
Length of Jib（m）	6.1		9.15		12.2		15.25	
Included Angle of Jib / Radius（m）	10°	30°	10°	30°	10°	30°	10°	30°
8	8.6m×5.00t		9.8m×5.00t		10.9m×4.00t			
10	5.00	10.4m×5.00t	5.00		4.00			
12	5.00	5.00	5.00	12.5m×4.65t	4.00		12.1m×3.65t	
14	5.00	5.00	5.00	4.40	4.00	14.5m×3.65t	3.20	
16	5.00	16.5m×5.00t	5.00	4.15	3.85	3.50	16.5m×3.20t	16.6m×3.05t
18	19.3m×5.00t	4.80	19.5m×5.00t	3.90	3.75	3.35	3.15	2.95
20	4.70	20.6m×4.55t	4.80	3.70	3.65	3.20	3.05	2.80
22	4.10	4.15	4.20	3.55	3.50	3.05	2.95	2.65
24	3.65	3.65	3.70	3.40	3.30	2.90	2.90	2.55
26	3.25	3.25	3.30	3.30	2.95	2.80	2.80	2.40
28	2.90	2.90	2.95	3.00	2.65	2.70	2.70	2.30
30	28.7m×2.80t	29.1m×2.75t	26.50	2.70	2.40	31.4m×2.60t	2.65	2.20
32			31.6m×2.45t	2.40	2.20	2.40	2.45	2.20
34						2.25	2.20	2.10

Main Boom 28m								
Length of Jib（m）	6.1		9.15		12.2		15.25	
Included Angle of Jib / Radius（m）	10°	30°	10°	30°	10°	30°	10°	30°
8	9.3m×5.00t							
10	5.00	11.1m×5.00t	10.4m×5.00t		11.6m×4.00t			
12	5.00	5.00	5.00	13.1m×4.65t	4.00		12.7m×5.20t	
14	5.00	5.00	5.00	4.50	4.00	15.1m×3.05t	3.20	
16	5.00	17.7m×5.00t	5.00	4.25	4.00	3.60	16.8m×3.20t	17.2m×3.05t
18	19.0m×5.00t	19.8m×4.75t	19.2m×5.00t	4.05	3.85	3.45	3.15	3.00
20	4.60	4.70	4.70	3.85	3.75	3.30	3.05	2.85
22	4.00	4.10	4.10	3.70	3.65	3.15	2.95	2.75
24	3.50	3.60	3.60	24.8m×3.50t	3.50	3.00	2.90	2.60
26	3.10	3.15	3.20	3.25	3.20	2.85	2.80	2.50
28	2.75	2.80	2.85	2.90	2.85	2.75	2.70	2.40
30	2.45	2.50	2.55	2.60	2.55	2.65	2.60	2.30
32	9.3m×5.00t							
34	5.00	11.1m×5.00t	10.4m×5.00t		11.6m×4.00t			

Main Boom 31m								
Length of Jib（m）	6.1		9.15		12.2		15.25	
/Included Angle of Jib / Radius（m）	10°	30°	10°	30°	10°	30°	10°	30°
8	9.9m×5.00t							
10	5.00	11.7m×5.00t	11.0m×5.00t					
12	5.00	5.00	5.00	13.7m×4.65t	12.2m×4.00t		13.3m×3.20t	

14	5.00	5.00	5.00	4.60	4.00		3.20	
16	5.00	5.00	5.00	4.35	4.00	3.65	16.8m×3.20t	
18	18.8m×5.00t	19.0m×5.00t	19.0m×5.00t	4.15	3.85	3.50	3.15	3.05
20	4.50	4.65	4.65	3.95	3.75	3.35	3.05	2.95
22	3.95	4.00	4.00	23.6m×3.70t	3.65	3.20	2.95	2.80
24	3.45	3.50	3.50	3.60	3.50	3.10	2.90	2.65
26	3.05	3.10	3.10	3.20	3.15	2.95	2.80	2.55
28	2.70	2.75	2.75	2.85	2.85	2.85	2.75	2.45
30	2.40	2.45	2.45	2.55	2.50	2.60	2.50	2.35
32	2.15	2.20	2.20	2.25	2.25	2.30	2.25	2.25
34	33.9m×1.90t	1.95	1.95	2.00	2.00	2.10	2.05	2.15

Main Boom 34m								
Length of Jib（m）	6.1		9.15		12.2		15.25	
Included Angle of Jib / Radius（m）	10°	30°	10°	30°	10°	30°	10°	30°
8								
10	10.5m×5.00t		11.7m×5.00t					
12	5.00	12.3m×5.00t	5.00		12.8m×4.00t		13.9m×3.20t	
14	5.00	5.00	5.00	14.4m×4.60t	4.00		3.20	
16	5.00	5.00	5.00	4.45	4.00	16.4m×3.65t	16.8m×3.20t	
18	18.6m×5.00t	18.8m×5.00t	18.8m×5.00t	4.25	3.85	3.55	3.15	18.4m×3.05t
20	4.45	4.60	4.55	4.05	3.75	3.40	3.05	2.90
22	3.75	3.95	3.95	23.0m×3.80t	3.65	3.30	2.95	2.80
24	3.40	3.45	3.45	3.55	3.50	3.10	2.90	2.70
26	2.95	3.05	3.05	3.15	3.05	27.7m×2.90t	2.80	2.60
28	2.60	2.65	2.70	2.80	2.70	2.85	2.75	2.50

30	2.30	2.35	2.40	2.45	2.40	2.55	2.45	2.45
32	2.05	2.05	2.10	2.20	2.15	2.25	2.20	2.30
34	1.80	1.85		1.95	1.90	2.00	1.95	2.05

Main Boom 37m								
Length of Jib（m）	6.1		9.15		12.2		15.25	
Included Angle of Jib / Radius（m）	10°	30°	10°	30°	10°	30°	10°	30°
8								
10	11.1m×5.00t							
12	5.00	12.9m×5.00t	12.3m×5.00t		13.4m×4.00t			
14	5.00	5.00	5.00	15.0m×4.60t	4.00		14.6m×3.20t	
16	5.00	5.00	5.00	4.50	4.00	17.0m×3.65t	16.8m×3.20t	
18	18.4m×5.00t	18.6m×5.00t	18.6m×5.00t	4.30	3.85	3.60	3.15	19.1m×3.05t
20	4.40	4.50	4.45	4.15	3.75	3.45	3.05	2.95
22	3.80	3.90	3.85	4.00	3.65	3.30	2.95	2.85
24	3.30	3.40	3.35	3.50	3.40	3.20	2.90	2.75
26	2.85	2.95	2.95	3.10	3.00	26.6m×3.05t	2.80	2.65
28	2.50	2.60	2.60	2.70	2.60	2.80	2.65	2.60
30	2.20	2.30	2.30	2.40	2.30	2.45	2.35	2.50
32	1.90	2.00	2.00	2.10	2.05	2.20	2.10	2.20
34	1.65	1.75	1.75	1.85	1.80	1.90	1.85	2.00

Main Boom 40m								
Length of Jib（m）	6.1		9.15		12.2		15.25	
Included Angle of Jib / Radius（m）	10°	30°	10°	30°	10°	30°	10°	30°

8								
10	11.8m×5.00t							
12	5.00	13.6m×5.00t	12.9m×5.00t					
14	5.00	5.00	5.00	15.6m×4.60t	14.8m×4.00t		15.2m×3.20t	
16	5.00	5.00	5.00	4.55	4.00		16.8m×3.20t	
18	18.1m×5.00t	18.5m×5.00t	18.4m×5.00t	4.35	3.85	3.65	3.15	19.7m×3.05t
20	4.30	4.45	4.30	21.6m×4.10t	3.75	3.50	3.05	3.00
22	3.70	3.80	3.75	3.95	3.65	3.40	2.95	2.90
24	3.20	3.30	3.25	3.45	3.30	25.4m×3.20t	2.90	2.80
26	2.75	2.85	2.85	3.00	2.90	3.10	2.80	2.70
28	2.40	2.45	2.45	2.60	2.55	2.70	2.60	2.60
30	2.10	2.15	2.15	2.30	2.20	2.40	2.25	2.45
32	1.80	1.85	1.85	2.00	1.90	2.10	1.95	2.20
34	1.55	1.60	1.60	1.70	1.65	1.80	1.70	1.90

Main Boom 43m

Length of Jib（m）	6.1		9.15		12.2		15.25	
Included Angle of Jib	10°	30°	10°	30°	10°	30°	10°	30°
Radius（m）								
8								
10								
12	12.4m×5.00t		13.5m×5.00t					
14	5.00	14.2m×5.00t	5.00		14.7m×4.00t		15.8m×3.20t	
16	5.00	5.00	5.00	16.2m×4.60t	4.00		16.8m×3.20t	
18	5.00	18.4m×5.00t	18.3m×5.00t	4.45	3.85	19.3m×3.65t	3.15	
20	4.25	4.40	4.30	21.2m×4.20t	3.75	3.60	3.05	20.3m×3.05t
22	3.65	3.75	3.70	3.95	3.65	3.45	2.95	2.95
24	3.15	3.25	3.20	3.40	3.20	24.8m×3.30t	2.90	2.85

26	2.70	2.80	2.80	2.95	2.80	3.00	2.80	2.75
28	2.35	2.40	2.40	2.55	2.45	2.65	2.50	2.70
30	2.00	2.10	2.10	2.25	2.10	2.30	2.15	2.40
32	1.70	1.80	1.80	1.95	1.80	2.00	1.85	2.10
34	1.45	1.50	1.55	1.65	1.55	1.70	1.60	1.90

2.2 Operation scope

(1) Hoisting height curve with jib

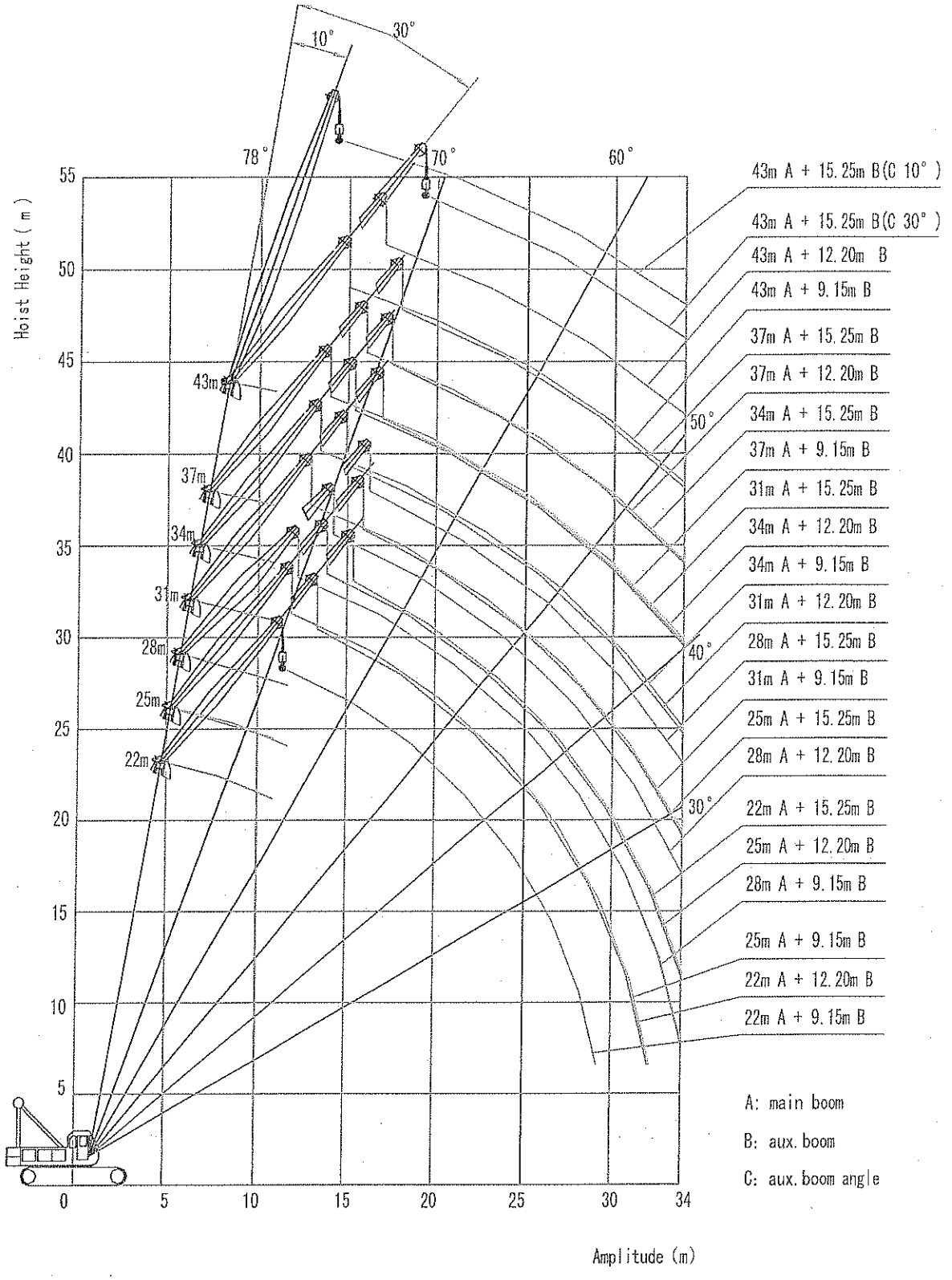


Figure 2-1 Hoisting height curve with jib

(2) Hoisting height curve of SCC500D hydraulic crawler crane （without jib）

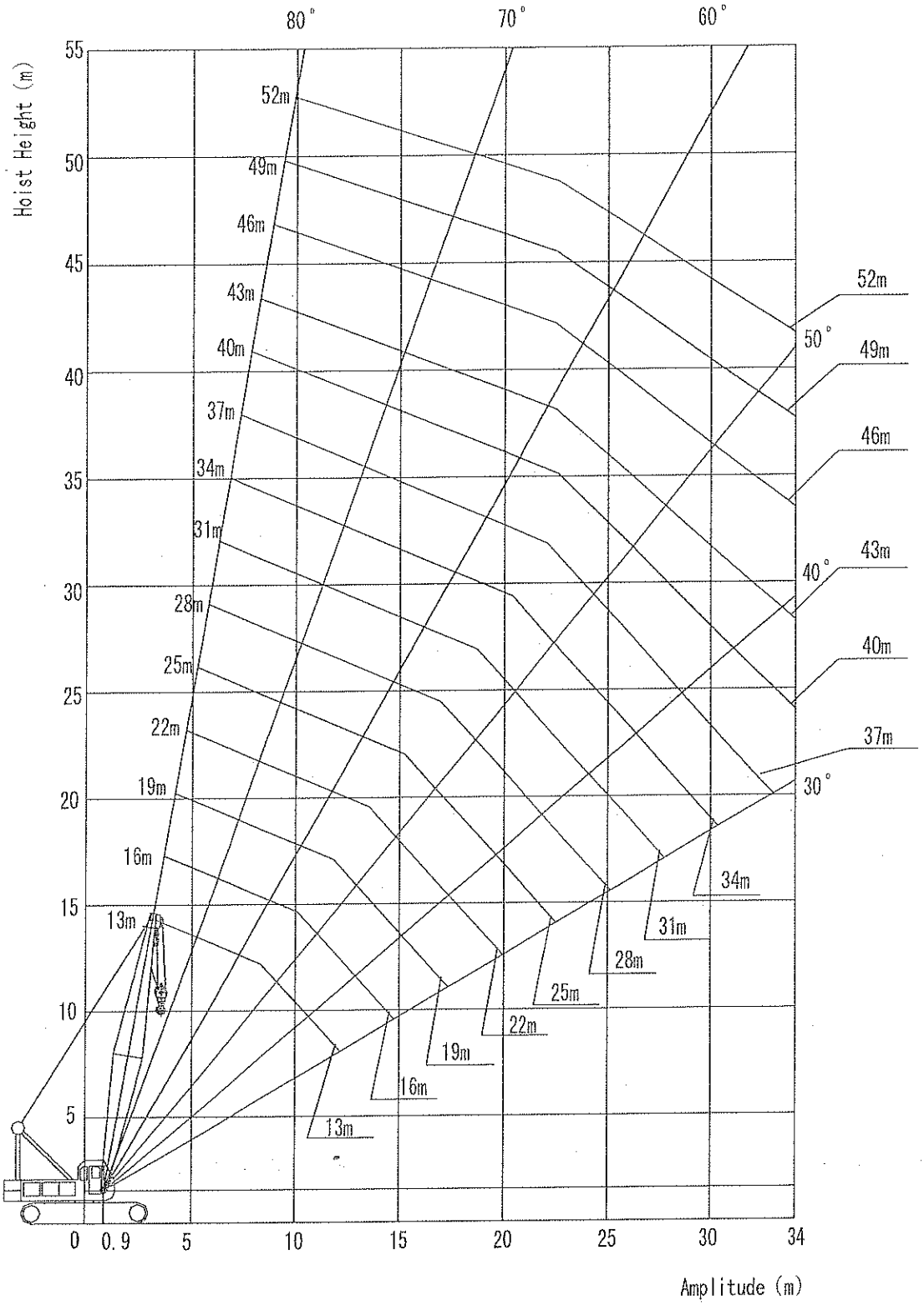


Figure 2-2 Hoisting height curve without jib

(3) Hoisting scope curve of SCC500D hydraulic crawler crane （without jib）

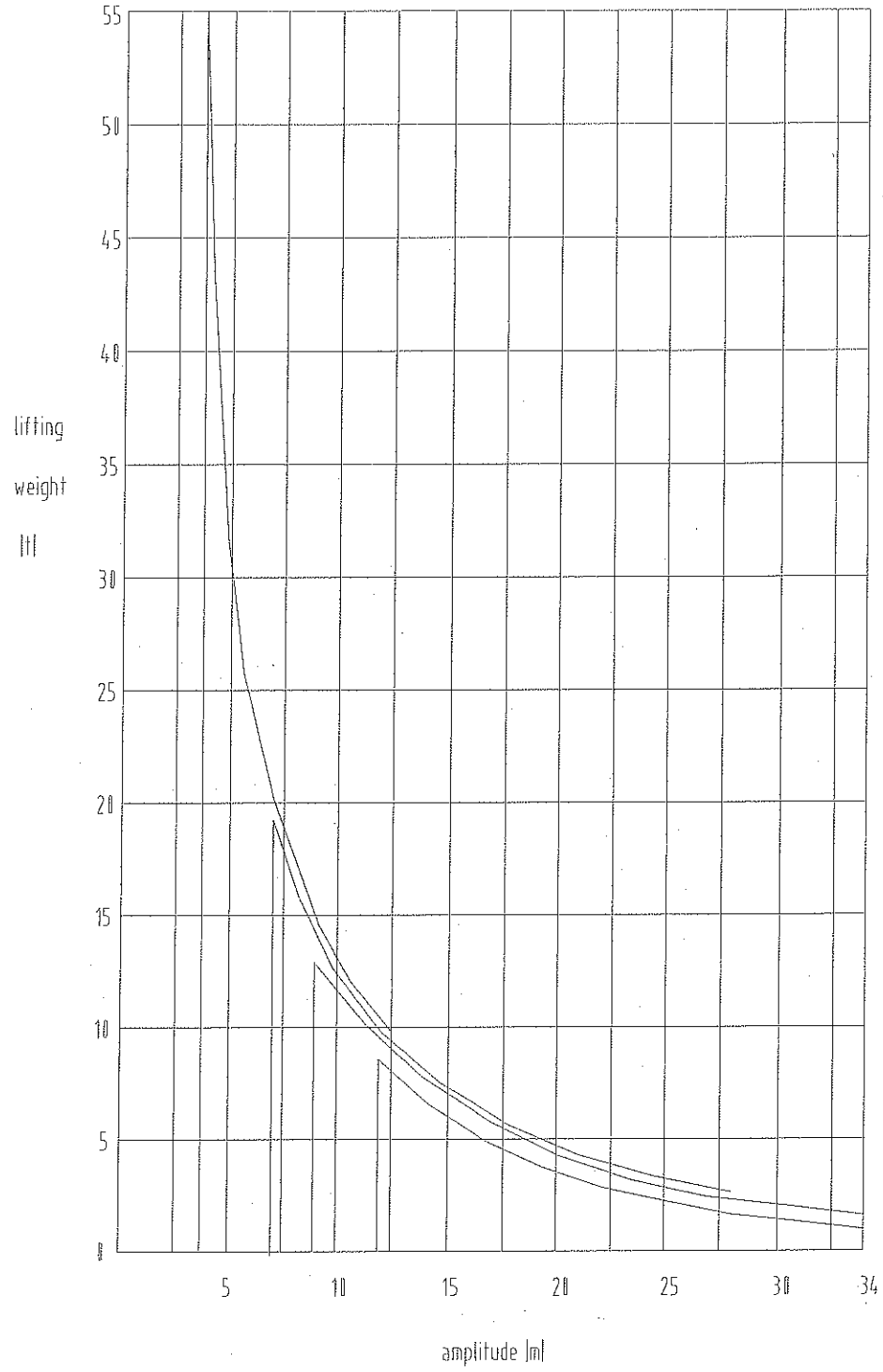


Figure 2-3 Hoisting scope curve

2.3 Specification and dimension

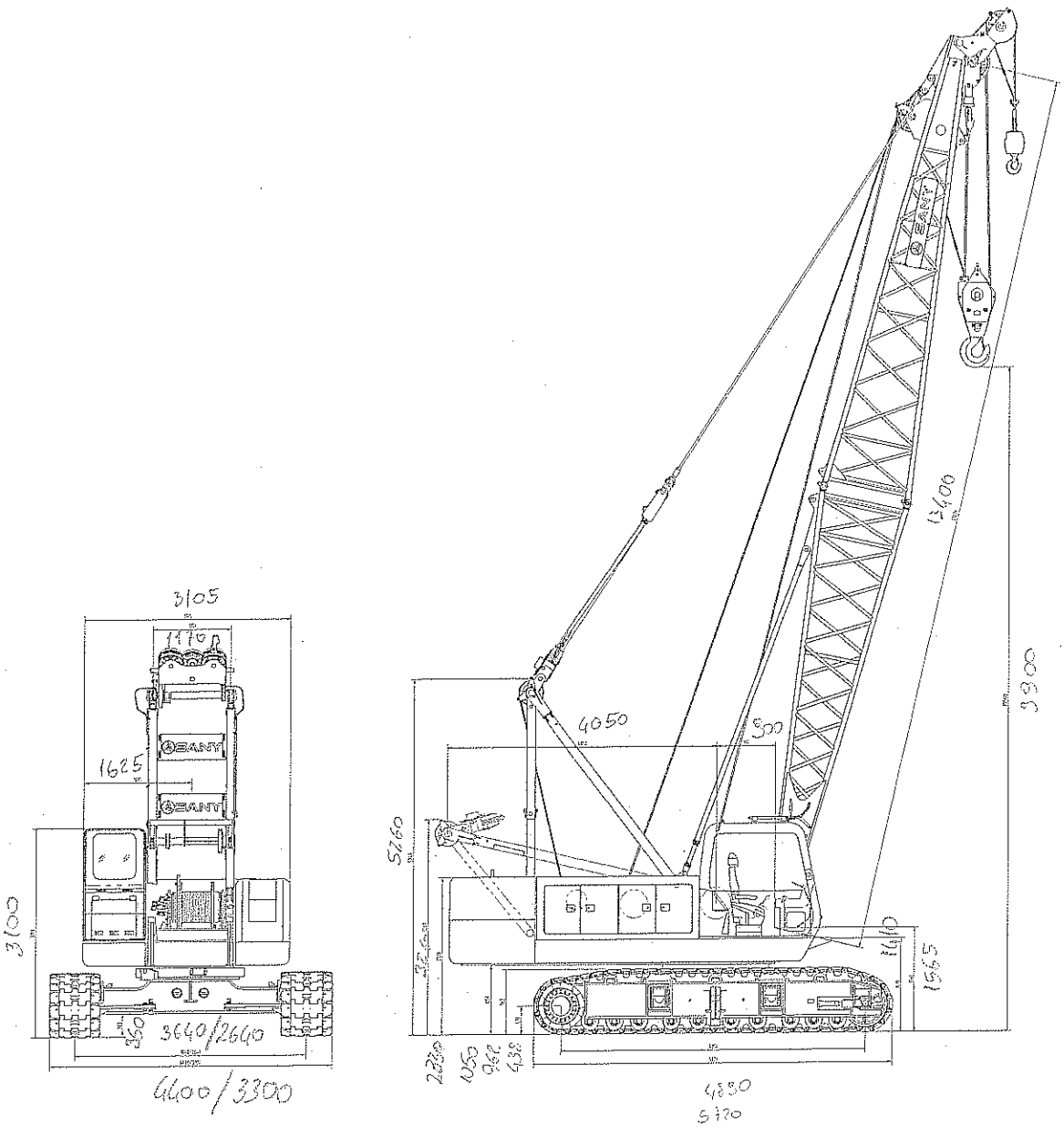


Figure 2-4 Main external dimensions of SCC500D Hydraulic Crawler Crane

III. Operation description

3.1 Cautions on machine operation

(1) The first 50~100 running hours of a new machine is the stage of running-in. During this

period, avoid bumping the engine during its work.

(2) Take note whether there is abnormal phenomena existing in the engine, the hydraulic system and the working facilities.

(3)While the crane is working, all actions prohibit direct shift between high and low speed.

3.2 Check prior to operation

- Check whether the anti-overwind device of the hook block and the 78° caging device of the boom are at normal status. Check if the pin shaft at the boom's root is oiling.
- Check whether steel rope is wore, corroded or broken.
- Check the meters, alarm light and other control devices in the cab. See whether brakes and various lock devices are functioning.
- Check the oil mass of the hydaulic oil tank. Check the oil mass of the fuel tank and draining. Check the oil mass of the engine. Check the water volume of the water tank and whether there is leakage.
- Check whether the bolts and nuts of key components are loose.

3.3 Configuration of manipulative handle, meters and buttons

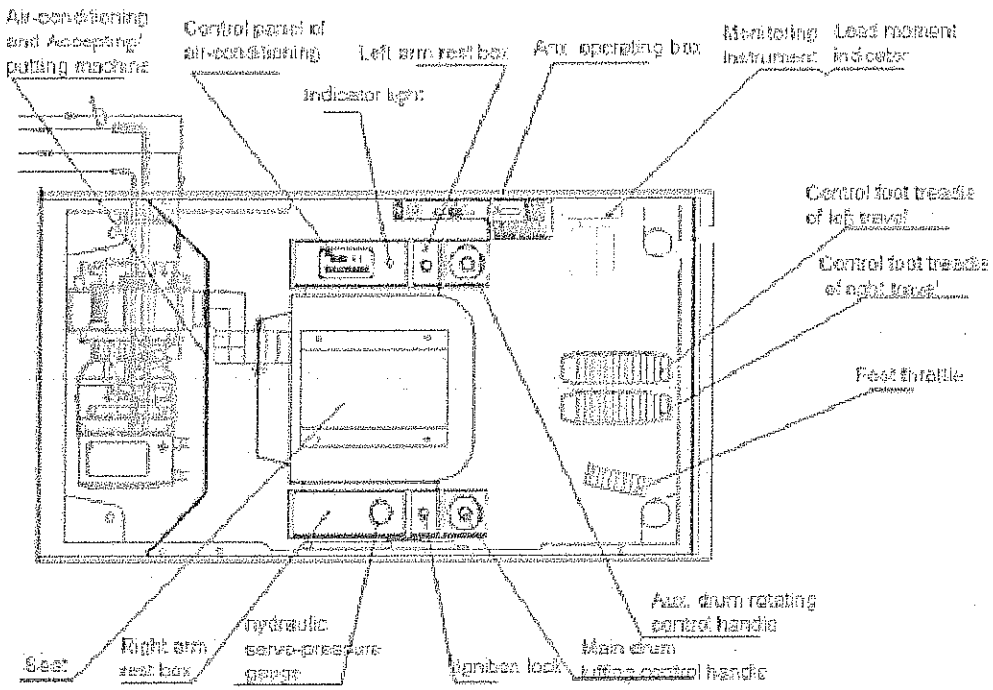


Figure 3-1 Layout of the cab

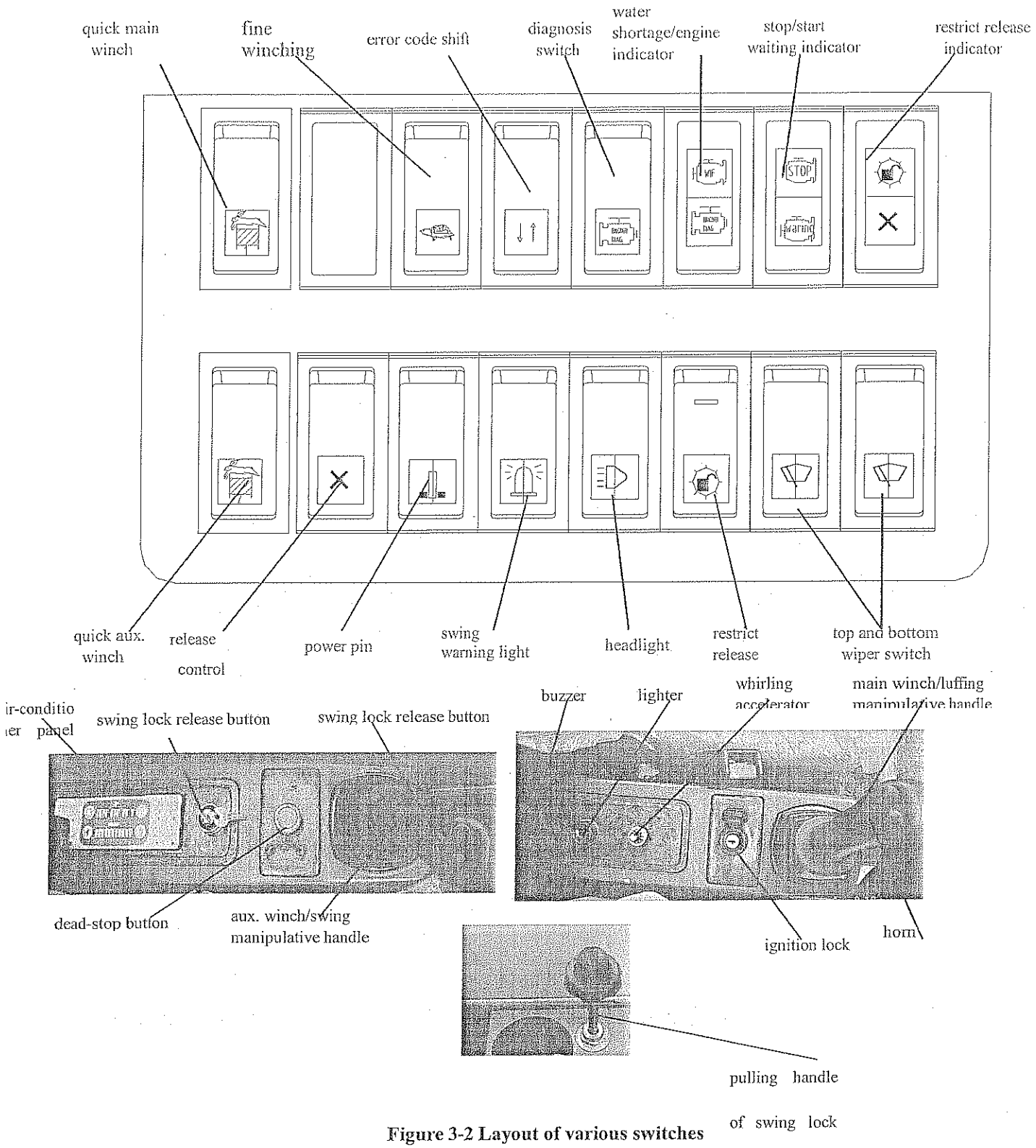


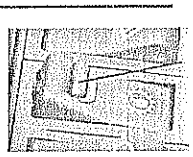
Figure 3-2 Layout of various switches

Table 3-1Functional description of rocker switches

Name of rocker switch	When the graphic side of the switch turns up（OFF）	When the side without graphic turns up(ON)
Switch of top and bottom wiper	Wipers don't move	Wipers move
Release restrict	When the boom angle changes within 30-78 , anti-overwind devices of all hook blocks take effect	Changes of boom angle are not restricted （mainly used during lifting); none of the anti-overwind device of hook block is effective. The same indicator light on "release indicator" switch is on.
Headlight	Off	On
Swing warning light	Back warning light of the crane is off	Warning light blinks
Release control	Servo-control effective	None of the pilot handles and pedal valves is effective. The same indicator light on "release indicator" switch is on.
Quick main winch	Main winch at low speed level	Main winch at high speed level
Quick aux. winch	Aux. winch at low speed level	Aux. winch at high speed level
Fine winching	Main winch, aux. winch and luffing run at normal speed	Main winch, aux. winch and luffing run at low speed
Release swing braking	Lock the brake, the upperworks cannot slide or turn freely	Release the brake, the upperworks can slide or turn freely
Error code shift	(connect the engine's data wire to PC)	PC monitor displays error code of next page
Diagnosis	(connect the engine's data line to	PC monitor displays error code

switch	PC)	

Warning: Restrict release and power pin switches have self-lock functionality. When shifting between the two positions, press and hold the self-lock device on rocker switch, then it can turn on or off.



self-lock device

Handle name	ON	OFF
Rotating accelerator	The engine increases rotation speed (clockwise rotating)	The engine lowers rotation speed (anti-clockwise rotating)
Dead-stop button	The engine stops due to oil cut-off (press down)	The engine runs normally
Pulling handle of swing brake pin	Pull up the brake pin (upward), swing	The brake pin falls down (downward), cannot swing

Warning: Dead-stop button is only used in emergency. Don't use it under normal situation.

When the machine hasn't been used for a long time or strong electric current is to pass through (for instance, in the case of welding), turn the master switch to OFF position to cut off the way circuit. ("Master switch" is located outside the electric cabinet at the front of the engine.)

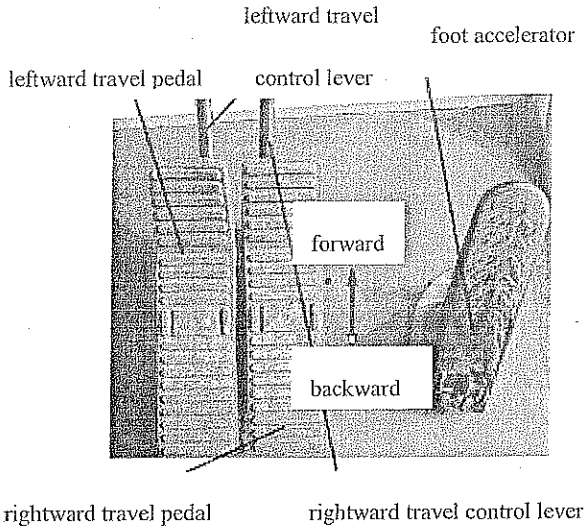


Figure 3-3 Travel control pedal and foot accelerator

3.4 Operate the engine

(1) Engine operation mechanism:

The position of hand accelerator is shown as figure 3-2 and foot accelerator as figure 3-4.

OFF——the engine is off

ON——the engine is working

ST——the engine is starting

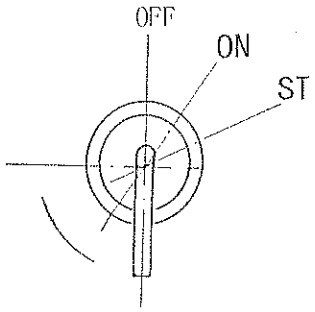


Figure 3-4 start switch

(2) Start the engine:

① While the engine is starting, set all control lever and control handle of main winch luffing and aux. winch swing to meso position. All switches and handles are off.

② Turn on ignition lock, sound the horn (horn button position is shown in figure 3-2, one on left and right handle respectively) to inform the surrounding people, and then set the control lever of the engine's accelerator to medium speed level.

③ Turn ignition lock to ST and start the engine. After the engine is started, immediately set the accelerator to idle speed, and release the ignition lock to let it go back to ON automatically, i.e., working status.

④ If the engine fails to start after igniting for three continuous times, check the fuel supply system. No smoke discharged during start means no fuel is transmitted.

⑤ In order not to damage the starter, each attempt to start the engine should not last more than 15 seconds, and there should be a 2-minute or above interval between two attempts.

⑥ Within 15 seconds after the engine is started, electronic monitor should display the oil pressure of the engine. When the engine is cold started, increase its speed gradually so as to lubricate the axletree thoroughly and stabilize the oil pressure.

⑦ Before doing task with load, run the engine at idle speed for 3-5 minutes. It shouldn't be too long; otherwise it shall damage the engine.

(3) Stop the engine

Run the engine with no load for 5 minutes and then turn off the ignition lock.

3.5 Operate main hoisting mechanism

3.5.1 Main winch ascending and descending

Main winch operation is shown as figure 3-6. Before operation, release the lock on the main drum. If it is locked tightly and cannot release, move the control handle of main winch and luffing a little and lift the main winch a little bit, then the pawl can release.

When main winch/luffing control handle on the right grab box is at meso position, brake the main drum; when the handle moves forward, the main hook block descends; when it moves backward, the main hook block ascends.

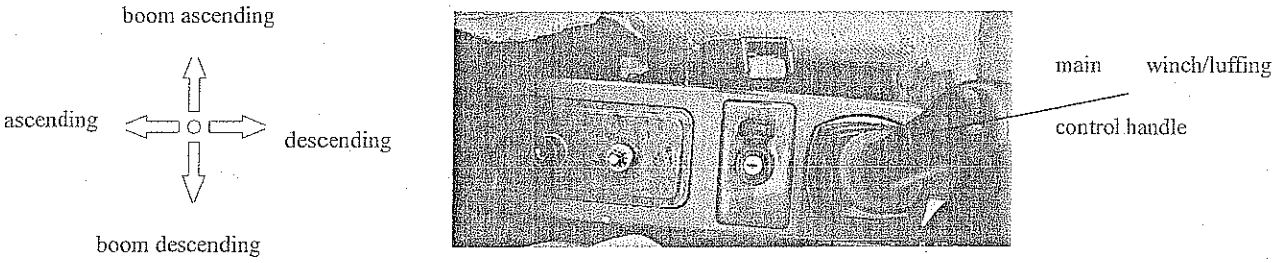


Figure 3-5

Warning: Don't do ascending and descending action hastily! Keep it slow while starting and ending the main winch luffing control handle, to avoid huge inertial strike.

3.6 Boom luffing operation

Before ascending and descending the boom, release the lock on the luffing drum. If it is locked tightly and cannot release, move the control handle of main winch and luffing a little and lift the boom a little bit, then the pawl can release.

Figure 3-5 displays the position of main winch luffing control handle under different work conditions. When it is at meso position, brake the luffing drum; when the handle moves towards the seat, the boom ascends and the boom dip angle increases; when it moves reversely, the boom descends and the dip angle lessens.

Warning: (1) Don't do luffing action hastily. Keep it slow while starting and ending the main winch luffing control handle, to avoid huge inertial strike.

(2) If the crane is not to be used for a long time, check whether the pawls are at good position and able to lock the ratchet.

3.7 Swing action and stop

3.7.1 Swing action

Before doing swing, sound the horn (horn buttons are on left and right control handle) to notify, turn on the warning light on aux. control box (Figure 3-2), then the button is bright. Make sure the power pin rocker switch is on. Pull up the swing braking pin handle, then press and hold "Swing braking contact button" on the swing handle to complete swing action.

This crane has the function of free sliding and turning, which means when the aux. winch swing control handle is at meso position, the upperworks is not braking and can slide and turn freely. When the center of gravity of the heavy load is not on the same plane as the center of the boom due to misjudgment, with this function, the upperworks can be put to the right position automatically, so that the heavy load won't sway after being lifted.

The Swing braking release button on the left grab box controls the free sliding and turning function. When the switch is ON (see Figure 3-2), it can slide and turn freely; when it is OFF, it cannot, and the upperworks is locked if the bottom aux. winch swing control handle is at meso position.

Figure 3-6 displays the position of aux. winch swing control handle under different work conditions. When the handle is pulled towards the seat, the turn table rotates clockwise; when it is pushed at the reverse direction, the turn table rotates anti-clockwise. After finishing swing, shut off warning light button on the aux. control box and set Swing braking release to OFF status.

3.7.2 Stop swing

When free sliding and turning function is not activated, and aux. winch swing control

handle is at meso position, the upperworks is locked.

When free sliding and turning function is activated, and aux. winch swing control handle is at meso position, the upperworks cannot be locked. Due to excessive extent of handle operation, uneven ground or huge wind load, it may happen that the upperworks cannot stop rotating even the handle is at meso position. Under this circumstance, turn the handle at the reverse direction a little bit (the extent depends on your experience) and stop the upperworks by reverse oil pressure, so as to avoid strike.

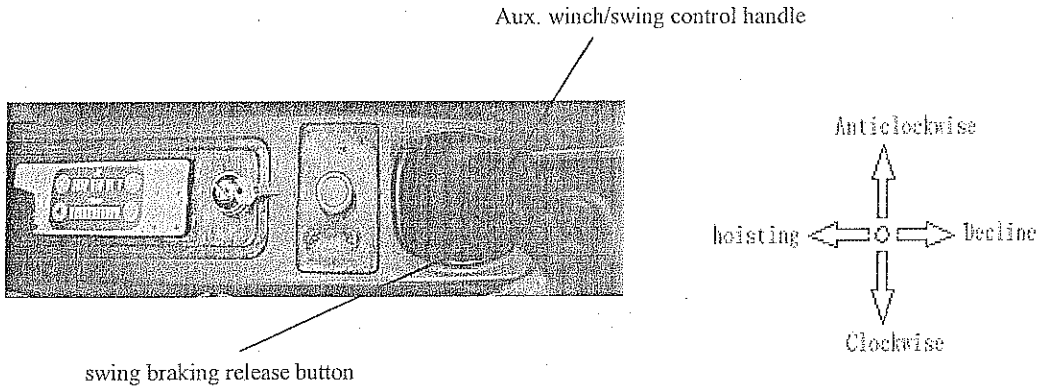


Figure 3-6

Warning: 1. In the case of sloping ground, strong wind, long time no use or transportation of the machine, set power pin switch to OFF and aim it at stopping slot (see 3.13 for details).

2. Before doing swing action, make sure power pin switch is at ON, otherwise it may do harm to power pin and be unable to release swing braking.

3. Don't do swing action hastily. Keep it slow while starting and ending the aux. winch swing control handle, to avoid huge inertial strike.

3.8 Aux. hoisting

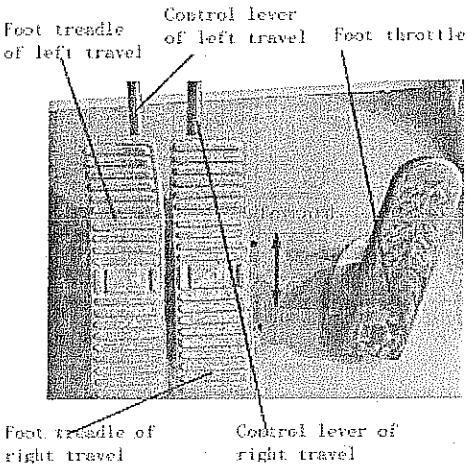
Aux. hoisting operation is shown as figure 3-6. When aux. winch swing control handle is at meso position, the aux. winch brake is enabled; when it is pushed forward, aux. hook block descends; when it is pushed backward, aux. hook block ascends.

Warning: (1) Don't do aux. hoisting action hastily. Keep it slow while starting and ending the aux. winch swing control handle, to avoid huge inertial strike.

(2) Don't do main and aux. hoisting at the same time.

3.9 Travel

Left travel control lever drives the left crawler and the right one drives the right crawler (see Figure 3-7). When the crane moves forward or backward, manipulate the left and right control levers at the same time. While turning the crane, move one crawler, or let onecrawler move forward and the other backward.



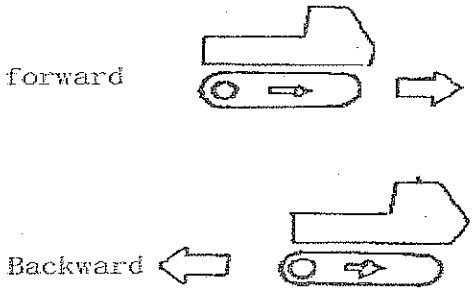


Figure 3-7

Warning: (1) Don't turn the crane hastily. Keep it slow while starting and ending the travel control handle, to avoid huge inertial strike.

(2) During long-distance travel, put the travel motor at back and make the engine run at medium speed。

3.10 Extend and withdraw the crawler

To fulfill the needs of both doing task and transportation, the crawler frame of the main body of this crawler crane can extend and withdraw.

Warning: Don't extend or withdraw the crawler frame with balance weight and boom installed, which might lead to overturn!

(1) Seat the main machine on a solid and flat ground, keep the machine horizontal, and turn the turn table to the side of the crawler (see Figure3-8)。

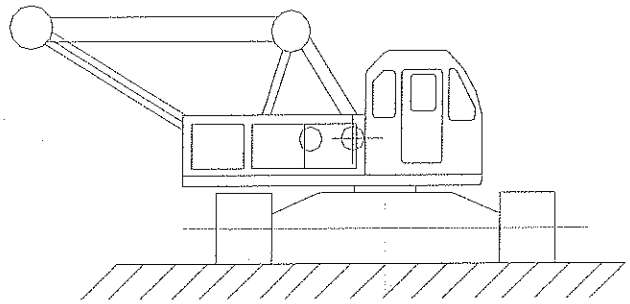


Figure 3-8

(2) Before extending and withdrawing the crawler, uninstall the canted tie plate (at 4) used to adjust the gap between crawler frame and the base.

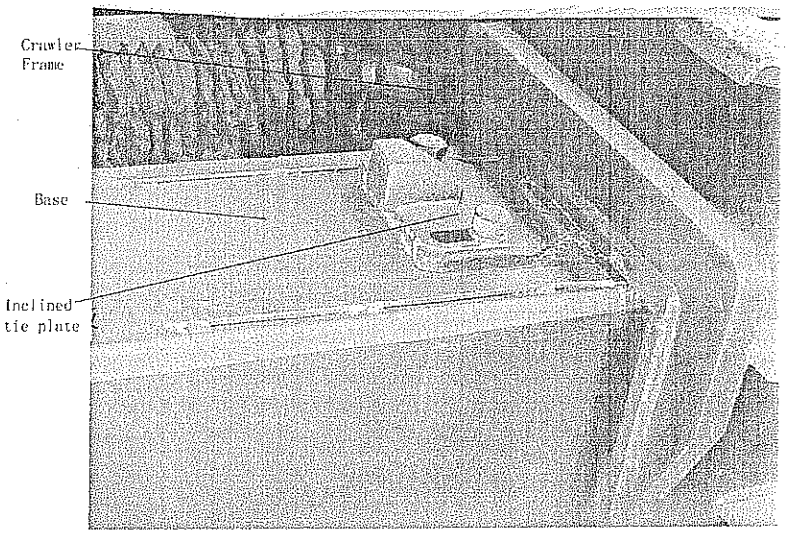


Figure 3-9

(3) When extending the crawler frame, spin out the extension girder and connect the fixed pins (four) of it, then pull out the extending and withdrawing shift control lever and four fixed locks:

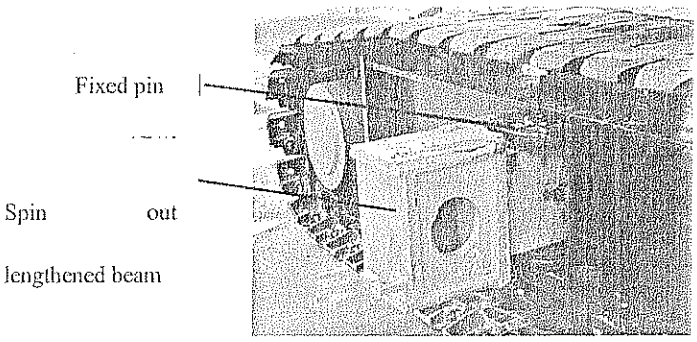
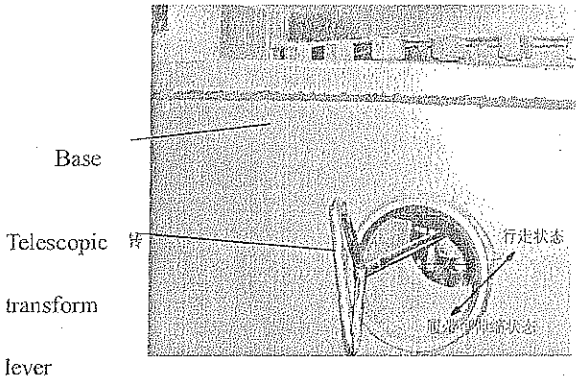


Figure3-10



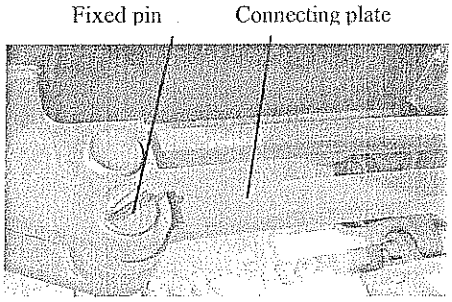


Figure3-11

① Push forward the left travel control lever, extend the right crawler frame to a proper position, lock the pin and then turn the left travel control lever back to meso position.

② Turn the turn table by 180°, push forward the left travel control lever, extend the left crawler frame to a proper position, lock the pin and then turn the left travel control lever to meso position.

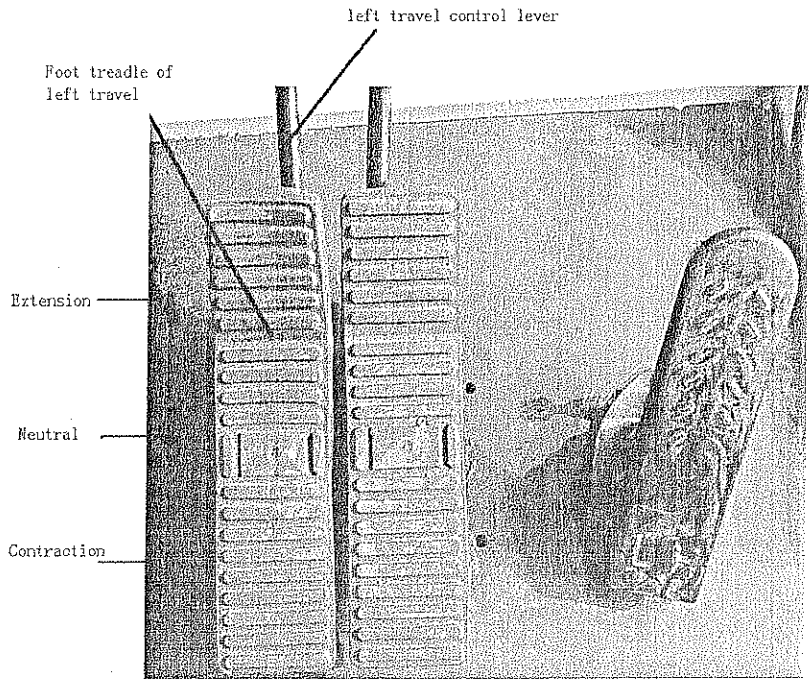


Figure3-12

③ Fix the canted tie plate with bolts and leave a minimum of 2-3mm gap between the crawler frame and the plate.

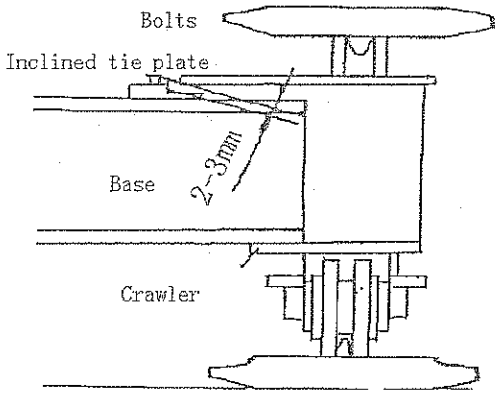


Figure3-13

④ Finally, check whether fixed pins are inserted well. Then extension is completed.

(4) When withdrawing the crawler frame, uninstall the canted tie plate between the crawler frame and the base, pull out the extending and withdrawing shift control lever and four locks:

① Drag the left travel control lever backward, withdraw the right crawler frame, lock the pin and then turn the left travel control lever back to meso position.

② Turn the turn table by 180°, drag backward the left travel control lever, withdraw the left crawler frame, lock the pin and then turn the left travel control lever to meso position.

③ Press the extending and withdrawing shift control lever back to its original position and check if lock pins are inserted well.

④ Uninstall the fixed pins of the extension girder and put them somewhere safe. Spin in the extension girder and fasten the otic placode.

⑤ Keep well the canted tie plate taken out after withdrawal.

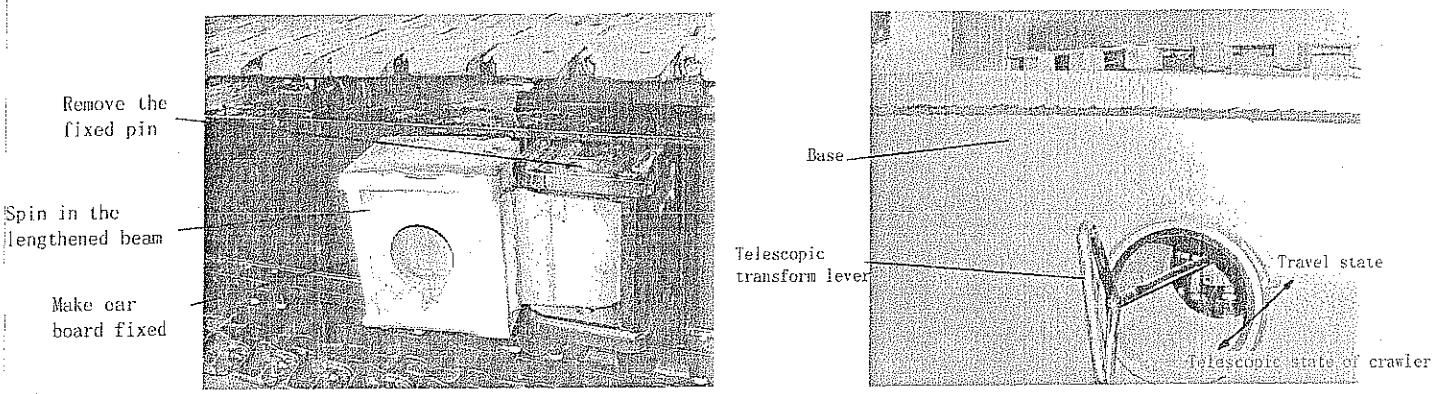


Figure3-14

Warning:

While the crane is in the course of operation, crawler extending and withdrawing operation is forbidden.

3.11 Brake and lock hoisting drum

When main winch luffing control handle is at meso position, the main drum is locked. When it is not, the main drum is released and can ascend or descend the hook block.

To secure safety during long-time travel with load, maintenance and transportation, this crane is equipped with pawls for locking the drums. Hydraulic valve controls pawl cylinder of main winch. When main winch luffing control handle takes any action, pressure oil

controls the movement of the hydraulic valve, oil enters the main winch pawl cylinder and the pawl opens; when main winch luffing control handle is at meso position, there is no pressure oil in main winch pawl cylinder, pawl locks the ratchet wheel and the drum cannot move.

3.12 Brake and lock luffing drum

When main winch luffing control handle is at meso position, the luffing drum is locked. When it is not, the luffing drum is released and can ascend or descend the boom.

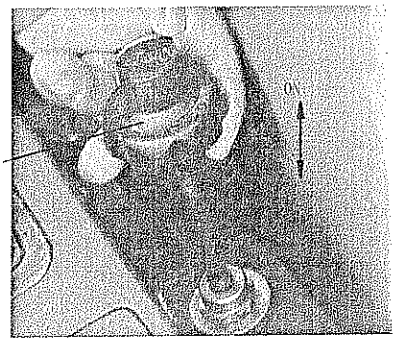
To secure safety during long-time travel with load, maintenance and transportation, this crane is equipped with pawls for locking the drums. Hydraulic valve controls luffing pawl cylinder. When main winch luffing control handle takes any action, pressure oil controls the movement of the hydraulic valve, oil enters the luffing pawl cylinder and the pawl opens; when main winch luffing control handle is at meso position, there is no pressure oil in luffing pawl cylinder, pawl locks the ratchet wheel and the drum cannot move.

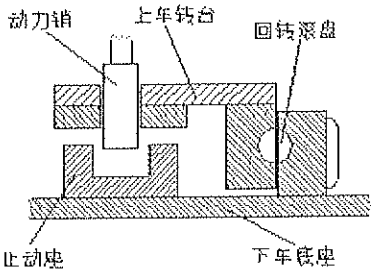
Warning: Operators must check whether pawl lock device has locked the drum before ending their work.

3.13 Brake and lock swing

When free sliding and turning function is not activated, and aux. winch swing control handle is at meso position, swing brake is on braking (i.e., permanent close brake). When free sliding and turning function is used, and the handle is at meso position, the upperworks is not on braking.

After finishing work, during transportation, or when the crane stops on a sloping ground or traveling with hanging load, in order to fasten upper swing, lock device is provided. It is realized by the swing brake pulling handle on the control panel: turn the upperworks, aim the power pin at the opening slot on the stopping seat, and then press down the swing brake pulling handle with force.





3.14 Travel brake

Travel brake is automatic brake. When travel control lever is at meso position, the brake is enabled. When the engine stops, there is no servo-pressure. Even the control lever is at other positions, the brake is still on.

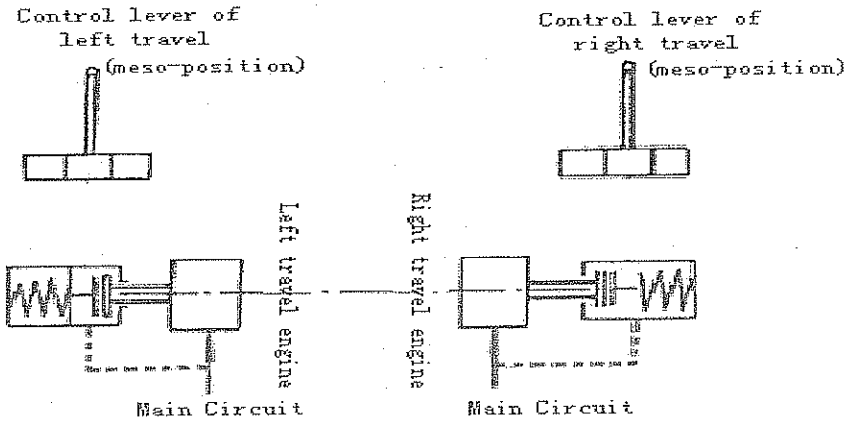


Figure3-15

Warning:

When the crane stops on a slope, and the driver needs to leave the cab, chocks must be added to the crawler.

3.15 Cautions on boom operation

(1) When having the crane ascend the boom, descend the boom or swing with heavy load, Do go slowly.

(2) When extension jib or jib is used, keep the boom facing forward and the travel motor at

back, then ascend and descend the boom.

(3) When ascending horizontally 52m main boom or 43m main boom plus 15.25m jib, do keep the boom facing the front and the travel motor at back. Before ascending the boom, release the lock devices. Press the lock release button on the right grab box and set it to ON. Set it to OFF after finishing boom ascending. Release the lock before descending the boom to a horizontal position and set the switch to ON. Set it to OFF after finishing boom descending.

(4) When ascending horizontally 52m main boom or 43m main boom plus 15.25m jib, put 5~6 blocks under the crawler in the front of the machine with boom frame installed, about 70mm wide and high. Then move the crane and climb on the wood board about 100mm (see the below figure). After that, place two or three battens at the front of the crawler boards at two sides, vertical to the above mentioned block. Move the crane forward about 50mm. Stop moving and start boom ascending. Boom descending steps are the same as above.

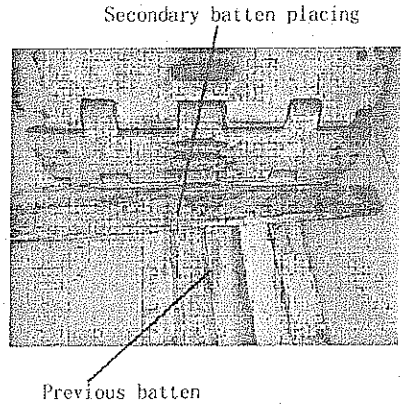


Figure3-16

(5) When doing task with jib, rated total load of the master hook block is to be deducted by the below values according to the jib length, i.e., the actual hanging weight should exclude the below values and the weight of master and aux. hooks.

Jib length(m)	6.10	9.15	12.2	15.25
Deduct	700	850	1000	1150

(kg)				

It is dangerous for the boom to approach electric wire, therefore, the distance between the boom and electric wire should be over the below values:

Electric wire voltage (KV)	<1	1-35	≥60
Minimum distance (m)	1.5	3	0.01(V-50)+3

During actual operation, the distance between boom and electric wire can be determined by the number of electromagnetic bottles on the wire (see the below table).

number of electromagnetic bottles	17~24	10~14	5~8	2~4
distance between boom and electric wire (m)	7	5	4	3

3.16 Cautions on ascending and descending 52m main boom

1. Connect base jib section and the longest boom: ① firstly connect the two top pins, and the two bottom pins for luffing. ② Uninstall luffing sheave group support from base jib section and connect it to the pulling rope of the main boom.

   Warning: Do in reverse order exactly while disconnecting. No omission or change is allowed. In other words, firstly, uninstall luffing sheave group support from the puling rope of the main boom, connect it to the base jib section, and then uninstall the two bottom pins at the base jib section. After laying the main boom on the ground, dismantle the two top pins.

2. Safety check:

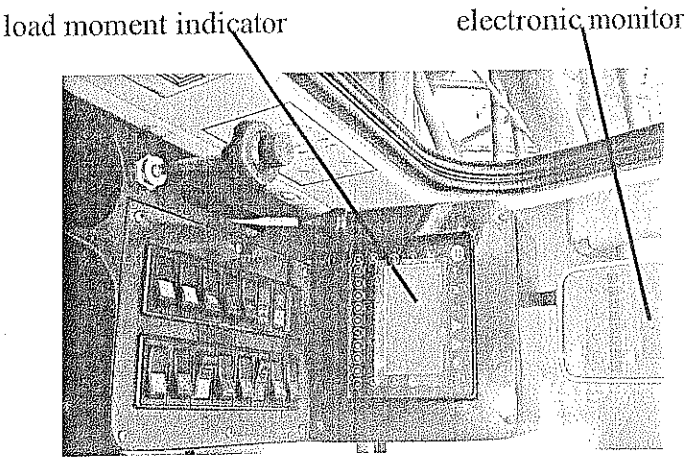
   ① Weld condition of the boom's joints. ② whether there is bending, crack, partly concaves in the main rod and the ventro-rod. ③whether pin shaft has complete cotter pin (main boom and pulling rope)。④ whether yoke plate has weld or knock defects. ⑤whether the capel and aluminum cover of the guy rope have defects, crack or horn mouth; whether the guy rope is squashed, with filament breakage, bent or loose. ⑥no sundries is allowed on the main boom (tool, wood plate, spare parts, etc) . ⑦ check A-frame. ⑧ Check luffing and hoisting.

3. The hook block can only leave the ground after boom ascends over 30° (before boom ascending, hoisting rope should leave enough length).
4. The driving wheel is at the back.
5. Directive wheel should be pressed on the 50-80mm high blocks vertically piled (ensure positive angle of the main body).
6. At first boom ascending, put it down immediately after leaving the ground. （eliminate possible asymmetry caused by fitting the main body in with the main boom）
7. At second time, stop at horizontal place. Check the stability of the arrester, the boom and the whole machine. Then put it down.
8. At third time, do it stably and at even speed，surpass 30°for each time and no pause in between.
9. When boom descending is less than 30°, the hook block should lay on the ground and no pause is allowed in between. Lock release switch should be set to ON during boom ascending and descending and to OFF after that.
10. To prevent accidents, two tires should be put on the ground under the joints of the top jib section and the 9m jib.
11. Nobody is allowed to stand around the boom.
12. Watch out wind direction and force.

65°-70°boom angle is preferred for 52m boom travel condition.

3.17 Work with safety equipments

Safety equipments of this crane include: load moment indicator, boom angle limit device, hook block anti-overwind device and other arresters and lock devices. Load moment indicator and anti-overwind devices can send alarm when the crane is at dangerous status and automatically stop hoisting and luffing actions to relieve the danger.



3.17.1 Anti-overload device——load moment indicator

The function of load moment indicator is shown in the below figure: when the crane is working normally, load moment indicator can automatically detect the mass of the lifting load and the current angle of the boom and display its rated load and actual load, work radius, and the boom's current angle.

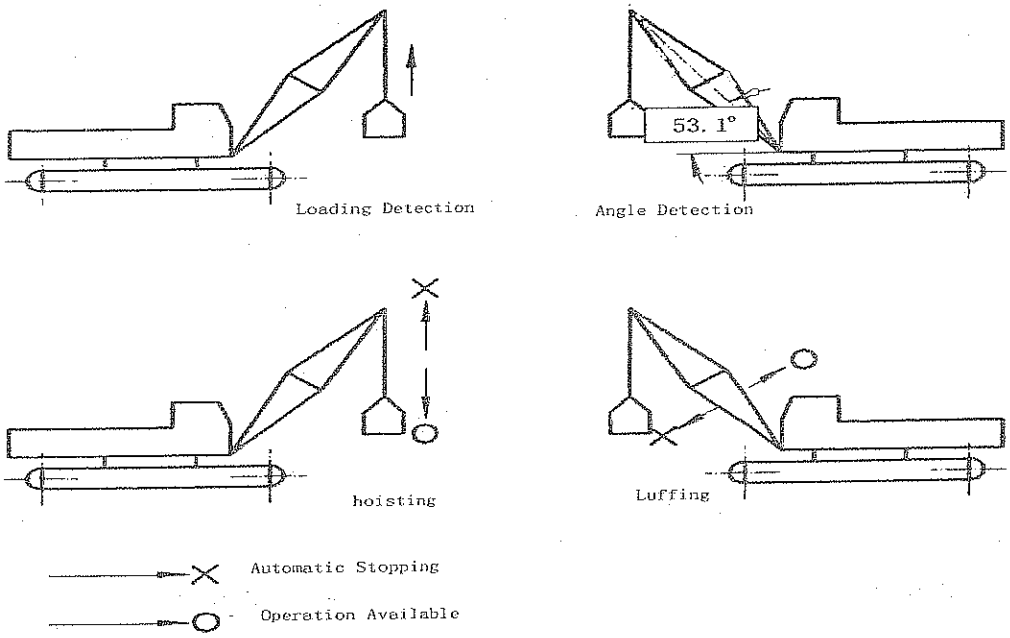


Figure3-17

when the actual load is under 90% of the rated load, "Normal" light is on; when it reaches 90%, "90%" light is on and buzzer on load moment indicator starts buzzing intermittently to send pre-alarm; when it reaches 100%, "100%" light is on, and buzzer on

load moment indicator starts buzzing intermittently and quickly to send alarm; when it reaches "105%", "105%" light is on and buzzer on load moment indicator starts buzzing continuously to send alarm. It automatically stops after steps are taken to the electric apparatus, and work radius of hoisting and the boom is increased.

Warning: When ground is not solid or flat, and actual load is above 90% of the rated lifting load, swing operation is dangerous and forbidden!

Please refer to *Load moment indicator operation manual* for detailed description.

3.17.2 Hook block anti-overwind device

As shown in the below figure: when the hook block is at natural idle status, the micro-switch is electrified. When it is lifted to certain height, the heavy bob is elevated, then micro-switch is reset by spring, the switch joint parts, control relay makes the buzzer on the aux. control board alarm. Meanwhile, control electro-magnetic valve is electrified; oil circuit of electro-magnetic valve is cut off, followed by cut-off of outlet oil circuit of the control valve. Thus, the hook block has to stop hoisting action automatically and can only do descending operation. In this way, hook block overwind is prevented. During normal work, the micro-switch at the top of the boom is connected. The table below shows the distance between the heavy bob and the micro-switch.

Type of Working Equipment	L size
Main boom	≥3.0mm
jib	≥2.5mm

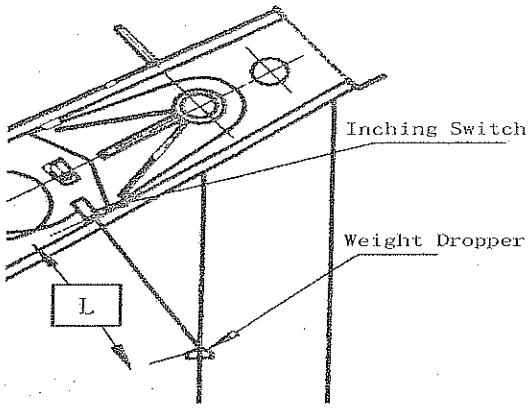


Figure3-18

3.17.3 Boom caging device

Boom caging device is show in the below figure. When the boom's elevation angle is less than 78° , the micro-switch installed at the boom's root is connected. Then boom's

luffing action is normal.

When the elevation angle exceeds 78° , the micro-switch at the boom's root takes action, breaking the contacting point, activating the control relay, electrifying the buzzer and the electro-magnetic valve. Then the buzzer sends alarm, the electro-magnetic valve cuts off the outlet oil circuit of the luffing control valve, and the boom automatically stops. At this time, no matter how you turn the luffing control handle, the boom won't start. This attains the goal of safety protection. However, the boom can descend under this circumstance. If the device doesn't meet the above requirements, adjust it to the required status.

When the boom descending angle is less than 30° , operation is restricted, to prevent the crane from doing lifting work under small angle. This protective functionality is automatically controlled by load moment indicator. When you want to land the boom to the ground for disassembling or adjusting the length, press the lock release switch on the aux. control box and set it to ON. Because the switch is not automatically reset, load moment indicator and hook block anti-overwind safety control function is also cancelled. Therefore, don't keep the lock release switch under release status for a long time. Set lock release switch to OFF to recover normal work safe condition.

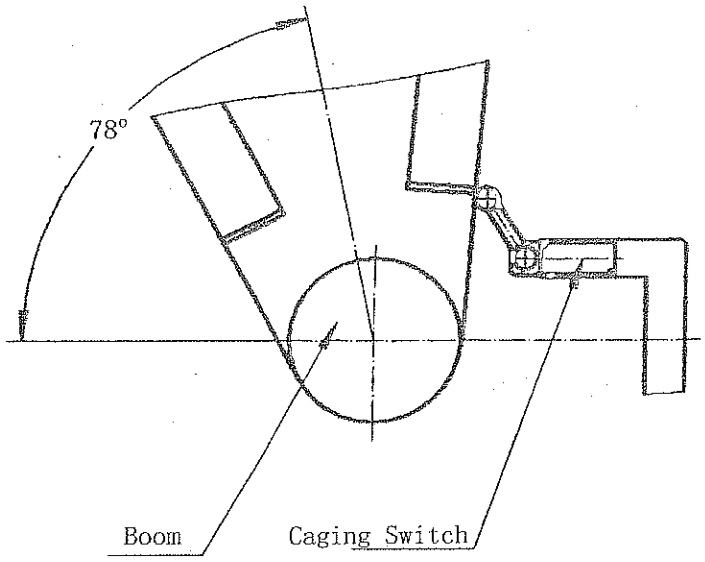


Figure3-19

Warning: ① Before running the crane, please make sure the above devices can

work properly.

② While installing the crane, set lock release switch to release status.

③ During normal work, load release switch cannot be set to ON.

3.17.4 Cancel operation

If the driver needs to leave the cab for a short period and doesn't want to shut off the engine, operation cancel switch can be used to cancel the operation to inactivate all control handles, so as to avoid touching the control handles when taking on and off the car and cause mal-operation.

The operation cancel button on the aux. control box is on permanent OFF status. When it is set to ON, the hydraulic system automatically cuts off servo-pressure (coming oil from the servo-pump goes back to the tank), and then all control handles are useless.

Warning: During normal work, cancel switch should not be set to ON. Don't do it except for particular conditions!

3.18 Intelligent and humanized design

This crane is furnished with intelligent devices such as electronic monitor, which can monitor the engine's rotation speed, oil pressure, water temperature, hydraulic oil temperature and engine's work status, battery voltage, the engine's total running hours, switch status of overwind alarm and wiper, work light and head light switches, etc.

Please see *Electronic monitor operation manual* for introduction of display status and use of the switches.

This crane is equipped with air-conditioner to give the driver a comfortable work environment. The temperature in the cab can be modulated according to season and temperature change. Air-conditioner control panel is on the left grab box. Please see *Air-conditioner operation manual* for descriptions of temperature and wind speed control.

Facilitate fueling: electric oiler, located beside the engine, can be used to fuel the engine.

Prevent fire: to prevent fire accidents, the crane is equipped with extinguisher, kept in the cab.

IV. Boom assembling and disassembling

4.1 Basic boom assembling

(1) Lift the boom base to the position horizontally connected to the main body (without balance weight), move the main body slowly and fit the pin hole at the root of the boom base into the main body, insert the pin and fix it with lock pin.

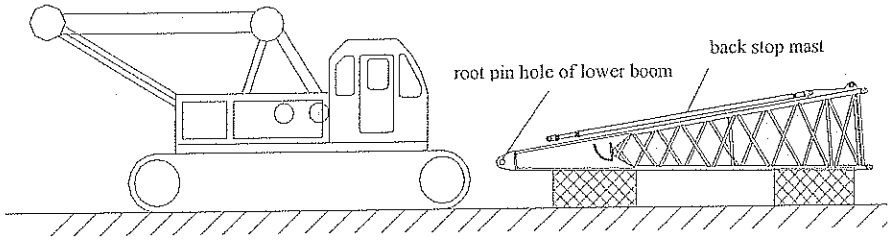


Figure4-1

(2) Lift the boom tip to the position horizontally connected to the boom base and move slowly to fit the pin holes of the two basic booms, insert the pin and fix it with lock pin.

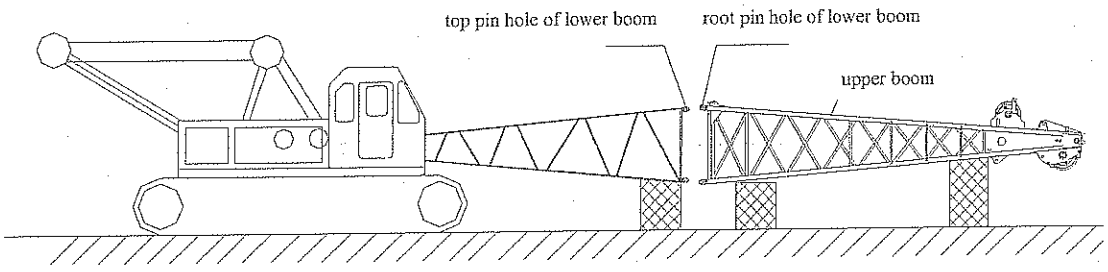


Figure4-2

(3) Connect the luffing sheave group to boom tip with 6.35m boom guy rope. Uninstall the two pin shafts at the middle of A-frame. Wind the luffing steel rope slowly. Ascend A-frame, install the two pin shafts to the middle part and tighten the steel rope. Install the sway rod to the otic placode at the front support of A-frame. Then lift the boom slowly at low rotation speed.

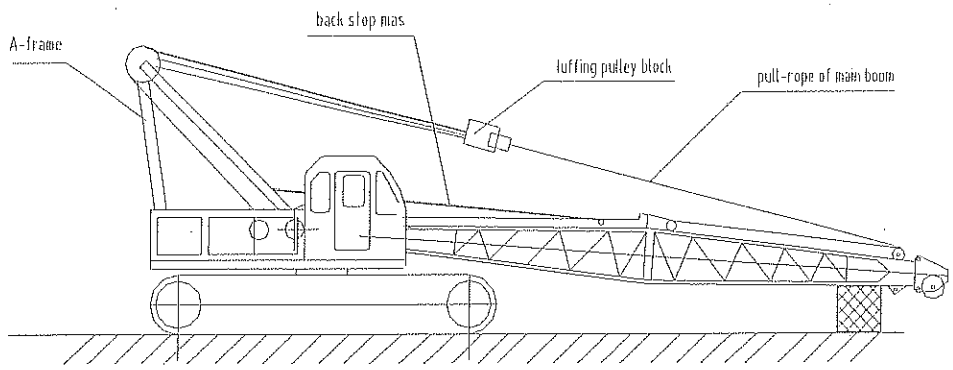


Figure4-3

(4) After the boom is installed, install upper and bottom balance weight.

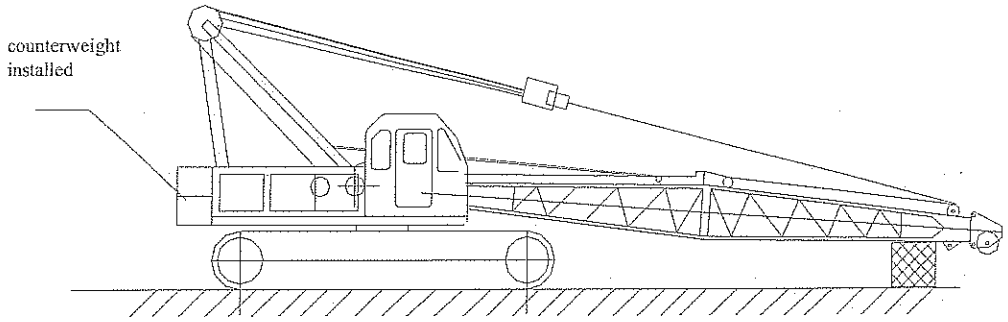


Figure4-4

4.2 Basic boom disassembling

(1) When disassembling the basic boom, the work site should be flat or made flat with tie plate. Firstly, uninstall the upper and bottom balance weight. Then lower the A-frame. Make the crane face the normal travel direction, i.e., the boom is located at the side of crawler driving wheel. In this case, the crane is under disassembling status.

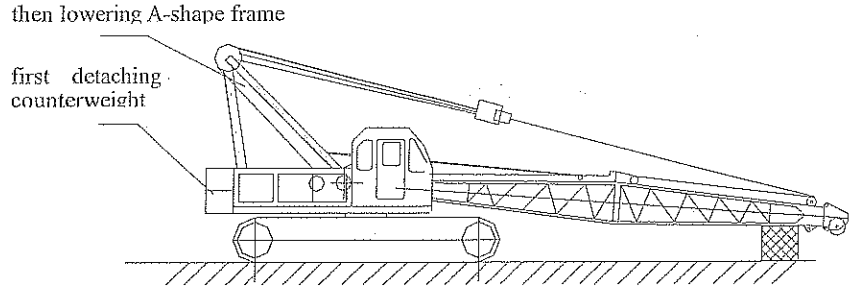


Figure 4-5

(2) Loosen the luffing steel rope, connect the luffing sheave group to the otic placode of

the boom base, and then fix it with pins.

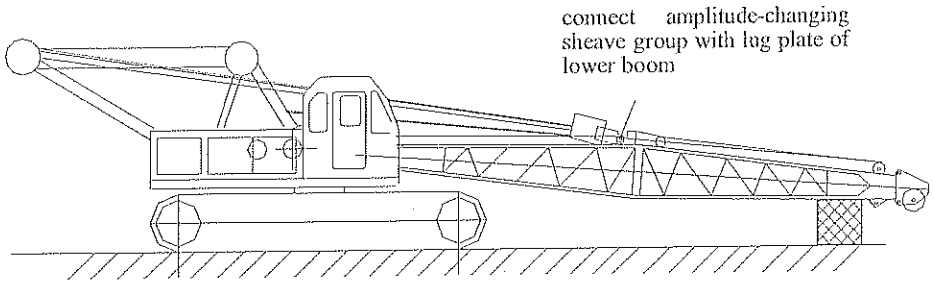


Figure4-6

(3) Disassemble the guy rope of the main boom and the lead of the anti-overwind device. Lay jack horse under the boom base. Uninstall the connecting pin at the bottom firstly and then the connecting pin shaft at the top. Then boom tip disassembling is done.

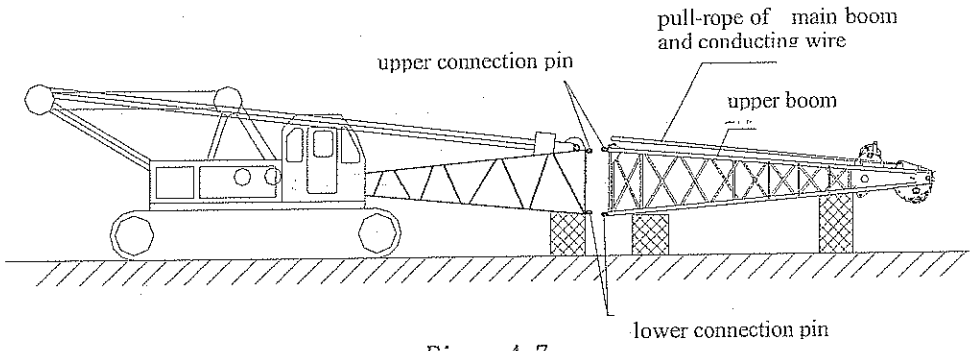


Figure4-7

4.3 Middle boom and jib assembling

(1) Firstly, assemble middle jib sections of proper length to form a boom set and also connect main boom guy rope of the same length. Bring the boom base to the boom set and fit the upper and bottom connecting pin holes. Then insert the connecting pin. Connect the two pin shafts at top firstly and then the other two at the bottom. Finally, use fixed pin to fix it.

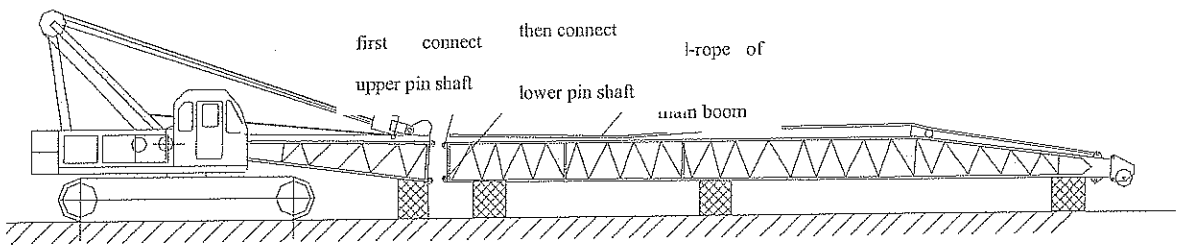


Figure 4-8

(2) Connect luffing sheave group to main boom guy rope. Luff downwards, to put the luffing sheave group on the boom completely. Dismantle the two connecting pins between the luffing sheave group and the boom base and set them apart. Note: don't make the boom leave the ground before this process is completed, otherwise it may damage the boom!

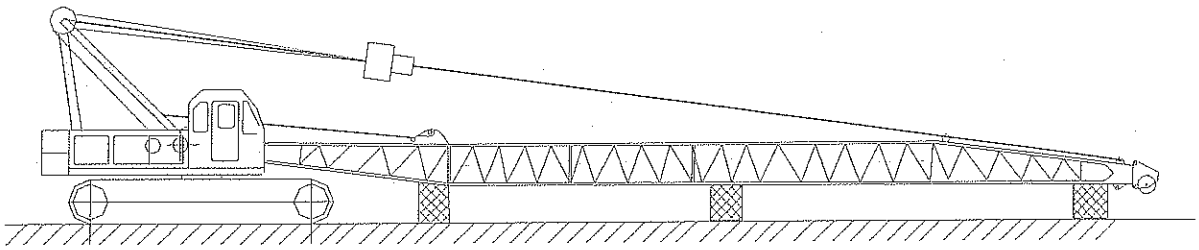


Figure4-8

(3) To install jib, firstly put the jib and mast on sleeper, whose length is at best if it is horizontal to the joint of the jib and the main boom. Connect the jib at proper length to form a boom set and connect jib guy rope of proper length.

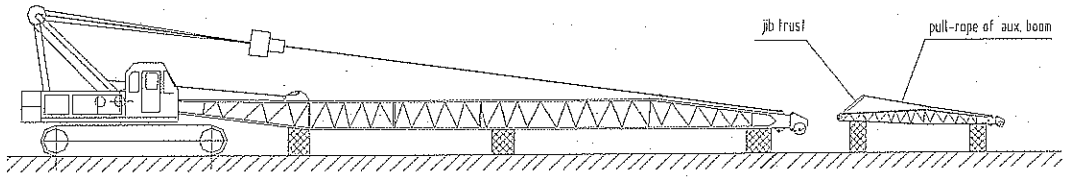


Figure4-9

(4) Move the jib group close to the main body of the main boom (including balance weight and boom of proper length). Use pin shaft to connect boom tip and jib. Then thread the jib guy rope through the jib mast and connect it to the bracket at the top of the main boom. Finally install the jib hoisting steel rope, hook block anti-overwind device, load moment indicator and heavy bob.

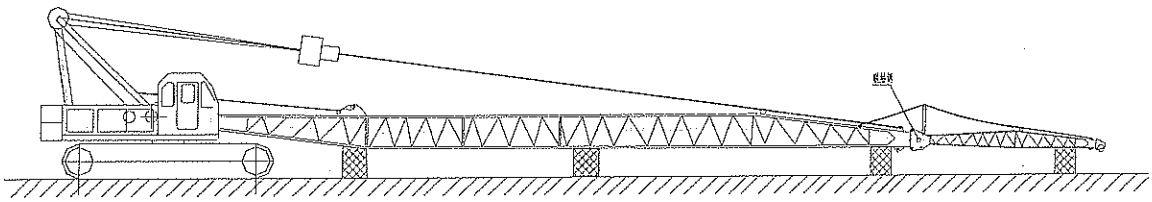


Figure 4-10

(5) After the above steps are finished, lift the boom, and make the jib leave the ground. Check whether the safe turning angle of the jib is 10°or 30°. Otherwise, land the boom, and modify the length of the tightening steel rope to guarantee its angle.

V. Composition of the main boom and the jib

5.1 Composition of the main boom

The basic boom of the crane is 13m (boom base 6.5m and boom tip 6.5m). There are 3m, 6m and 9m middle jib sections. Please follow the correct connecting process illustrated in this chapter. The length of the main boom is from that of the basic boom (13m) to the maximum length (52m). Use middle jib sections to lengthen the boom freely. Standard production jib sections include: basic boom 13m (boom base 6.5m and boom tip 6.5m), 3mX1, 6mX3 and 9mX2. Its composition is as following:

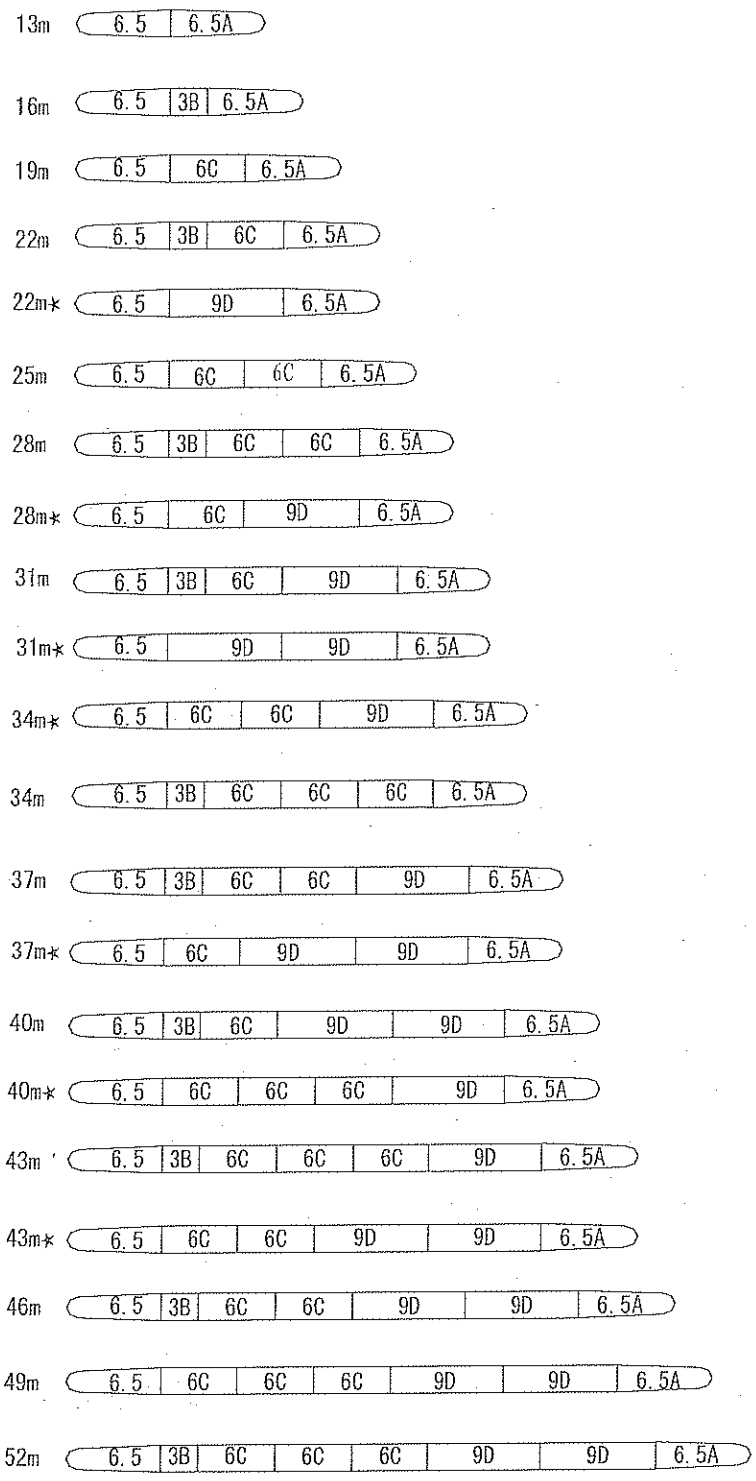


Figure5-1 Connecting ways of main boom without jib and main guy rope

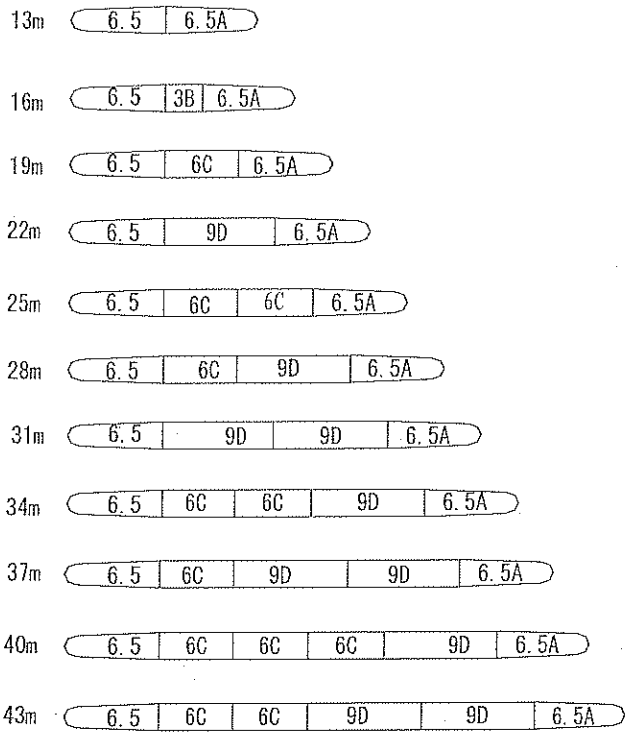


Figure5-2 **Connecting ways of main boom with jib and main guy rope**

Note: (1)Combinations marked as ◆ in the above figure are optimum combinations.

(2) Combination of main boom with jib can also choose from 13m~43m in figure 5-1.

Length of main guy rope:

Serial No. in the figure	A	B	C	D
Steel rope length(m)	6.35	3.0	6.0	9.0

5.2 Jib composition

The jibs of this crane can be installed to main boom of 22, 25, 28, 31, 37, 40 and 43m. The basic boom of the jib is 6.1m. There are three middle jibs, each 3.05m. Jibs that can be combined are 6.10, 9.15, 12.20 and 15.25 m long.

5.3 Installation position of the aux. guy rope

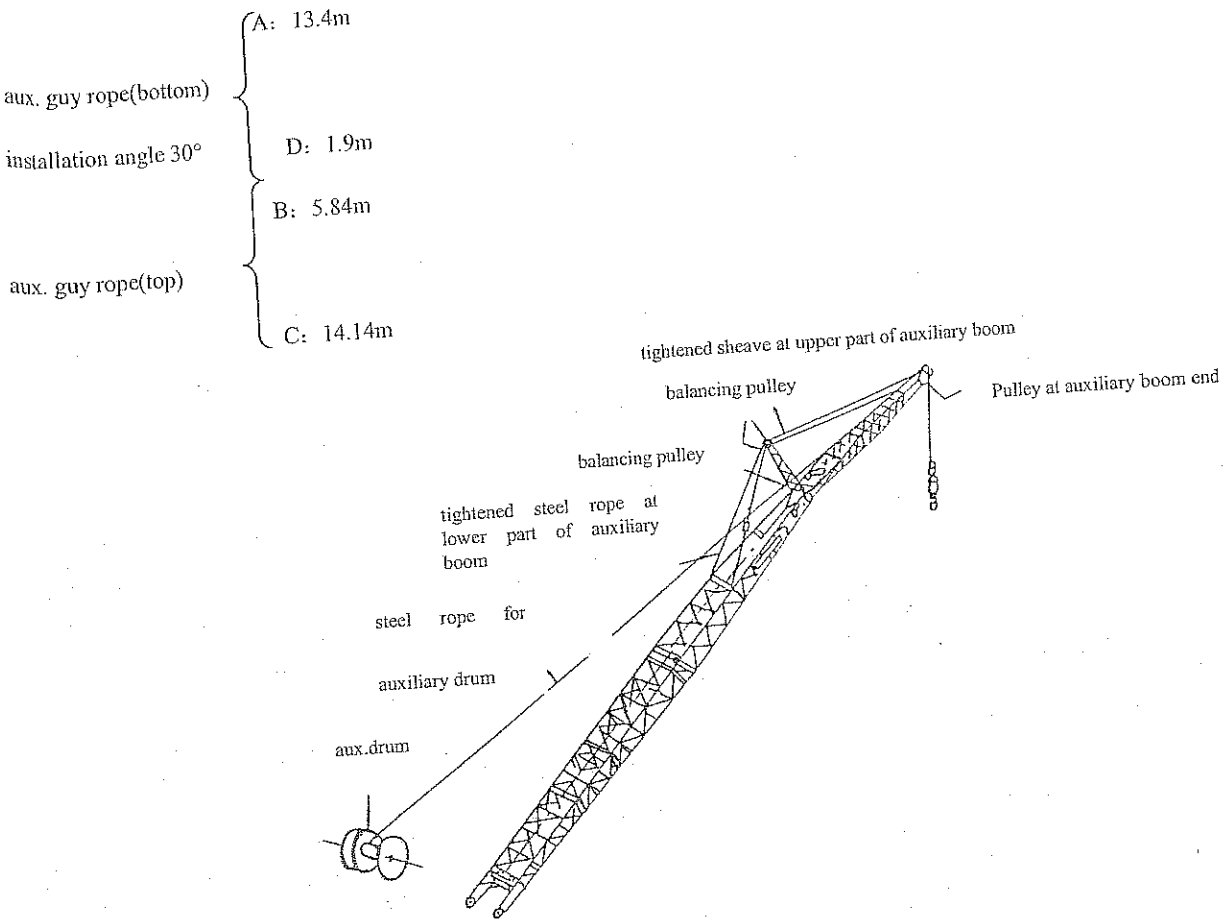


Figure5-3 The installation diagram of the auxiliary pull-rope

Table 5.1 Installation of aux. guy rope

	Aux. guy rope (top)	Aux. guy rope (bottom)	
Jib installation angle	10° and 30°	10°	30°
6.10	C	A	A+D
9.15	B+C	A	A+D
12.20	B+C+B	A	A+D
15.25	B+C+B+B	A	A+D

Note: it is steel rope going through balance sheave.

Warning:

1. If aux. guy rope is installed wrong, and jib installation angle exceeds the stated value, it may cause overload and damage the jib. Thus it should be correctly installed.

2. When installing extension jib, please use main boom less than 49m long, otherwise, it may cause overload and danger!

3. When extension jib is used, please deduct from the values of the rated load table the mass of the extension jib, the hook block and the spreaders, altogether about 350kg.

VI. Ascend and descend A-frame

A-frame of this crane is extendable. During task, A-frame should be elevated. During transportation or while passing electric wires, A-frame can be lowered.

Warning:

① If doing operation with A-frame lowered, it may damage the luffing steel rope and main guy rope and incur accidents. Therefore, never do task with A-frame lowered.

② When the boom length exceeds 19m, don't lower A-frame even while going under electric wire or pipe.

6.1 Descend A-frame

(1) Descend the boom and lay it on sleeper.

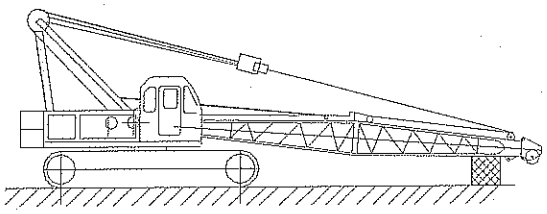


Figure 6-1

(2) Keep the engine at low rotation speed, loosen the luffing steel rope and pull out the pin at A.

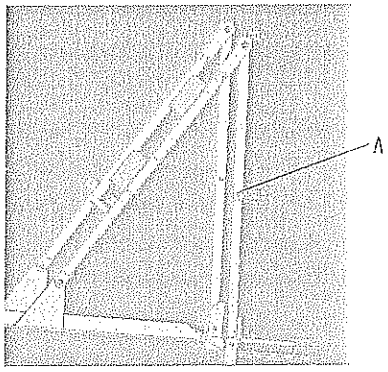


Figure 6-2

Warning: Don't loosen the luffing steel rope excessively, otherwise, after the pin is pulled out, the upper part of A-frame might drop rapidly and cause damage!

(3) Loosen the steel rope gradually and let the upper part of A-frame drop slowly under the force of self-weight, until it reaches the bottom.

(4) Inset pin into the hole at B.

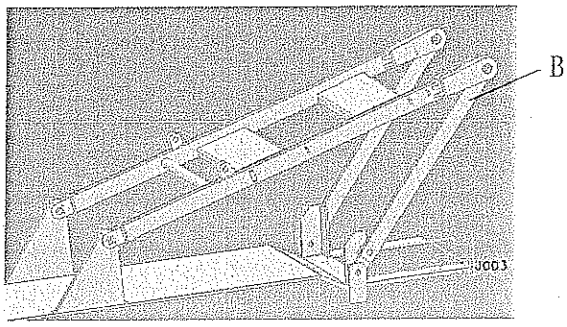


Figure 6-3

6.2 Ascend A-frame

(1) Lay the boom on a sleeper.

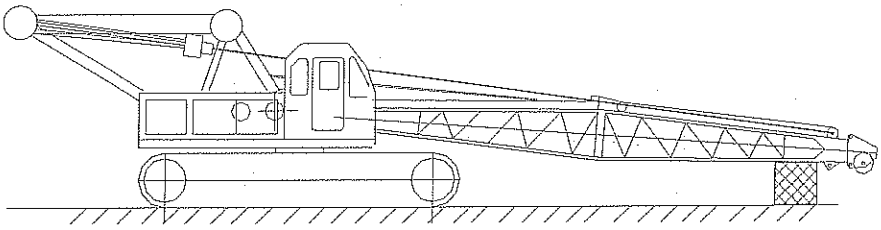


Figure 6-4

(2) Pull out the pin at B(see figure 6-3）.

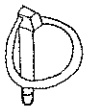
(3) Keep the engine run at low speed and lift the luffing steel rope of the boom gradually. Meanwhile, A-frame also rises until reaching the top point.

(4) Insert pin into the hole at A (see Figure 6-2). Then A-frame is ascended.

6.3 Cautions on ascending and descending A-frame

- A-frame ascending and descending operation can only be conducted with boom tip installed. If it is done without boom tip, other supporting lifting equipments must be used. It is forbidden to lift A-frame using boom while A-frame is locked. It may damage the boom.
- Don't knock with force when installing and uninstalling pins at A and B. A mild vibration on the luffing steel rope can insert in or take out the pins easily. After pin is inserted, it must be stabilized with fixed pin.

pin



locking pin

VII. Steel rope

7.1 Composition of steel rope

Composition of steel rope is defined by number of strands and the thread forming a strand. For example, 6×29 steel rope means six strands, each strand with 29 threads. The steel rope heart can be made of hemp or steel. Hemp-hearted steel rope is more common, but steel-hearted steel rope of high-intensity is more frequently used in construction machinery.

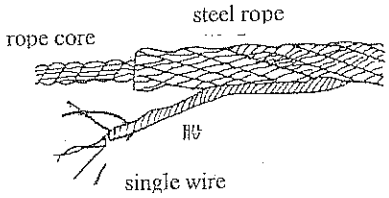


Figure7-1 Steel rope composition

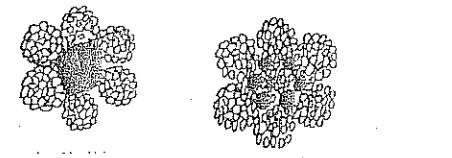


Figure7-2 rope heart

7.2 Unwrap steel rope

Follow the correct methods as illustrated below while unwrapping the steel rope. If it is done in a wrong way, it may cause loose twist or torsion force and shorten the rope's service life. Therefore, please pay enough attention.

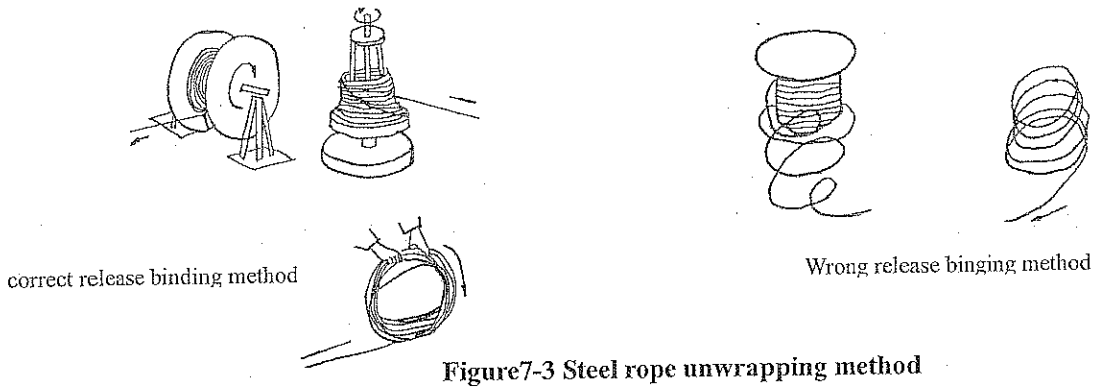


Figure7-3 Steel rope unwrapping method

7.3 Install steel rope to the drum

Follow the below steps while installing steel rope to the drum:

(1) Wind the steel rope around the drum. Don't let the end of the steel rope stick out too long of the outlet of the drum's rope cover.

(2) When winding the steel rope around the drum, be sure to clear the gap between steel ropes with hammer or crowbar to make it arrange evenly and orderly.

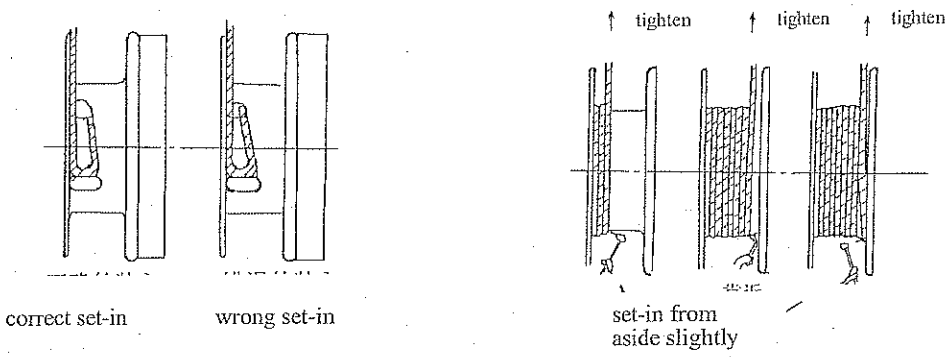


Figure7-4 the way to wind the steel rope around the drum

(3) When starting a new winding layer, don't leave a big gap between the steel rope and the edge of the drum.

(4) While winding the steel rope, pull it with force, tightening it and winding it.

(5) Never wind the steel rope disorderly, which is one of the reasons for early break of the steel rope.

(6) After a new steel rope is used for some time, wind it again, otherwise it may mess up.

(7) When inserting steel rope into the rope cover, do as indicated in figure 7-5, and fix the steel rope with rope clamp.

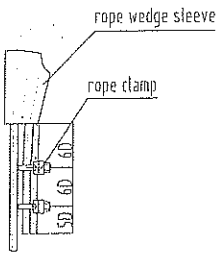


Figure7-5

7.4 Change steel rope

The life of steel rope differs from the running condition of the machine, therefore, check the steel rope periodically. Don't use it if a rope has defects. Examine the dynamic load steel rope for lifting and the static load steel rope for the boom strictly. If not, breaking steel rope will incur severe disaster. The change time of the steel rope depends on the condition of break, abrasion, erosion and etc. In any of the below cases, the rope cannot be used any more:

(1) Between the length of lay of the steel rope, over 10% of threads (excluding filling threads) are broken.

(2) The decrease of the diameter exceeds 7% of the nominal diameter.

(3) Kink.

(4) Severe loose and erosion.

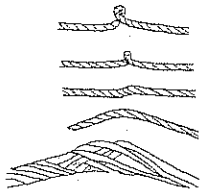


Figure7-6

Moreover, huge vibrating load is imposed on the suspending steel rope, therefore, pay special attention to single thread break due to weariness. Though the check and replacement period is decided by the above conditions, operation conditions differ, and sometimes it is difficult to see the inside broken thread. Replace steel rope after it is used for 2000 hours.

7.5 Steel rope write-off inspection standards

(1) If the number of broken threads amounts to the values in table 7.1, the steel rope should report as worthless.

Table 7.1 number of broken threads for steel rope write-off (GB6067-85)

	Number of broken threads in one section		
	Steel rope structure (GB1102-74)		
Number of	Steel rope 6W(19)	Steel rope 6× (19)	Steel rope 6× (37)

broken threads / Safety coefficient	Regular lay	Lang lay	Regular lay	Lang lay
Less than 6	12	6	22	11
6-7	14	7	26	13
More than 7	16	8	30	15

Note: ① The number in the above table refers to thin steel thread. One thick steel thread equals to 1.6 thin ones.

② A section refers to the axial distance of each strand of steel rope winding one circle.

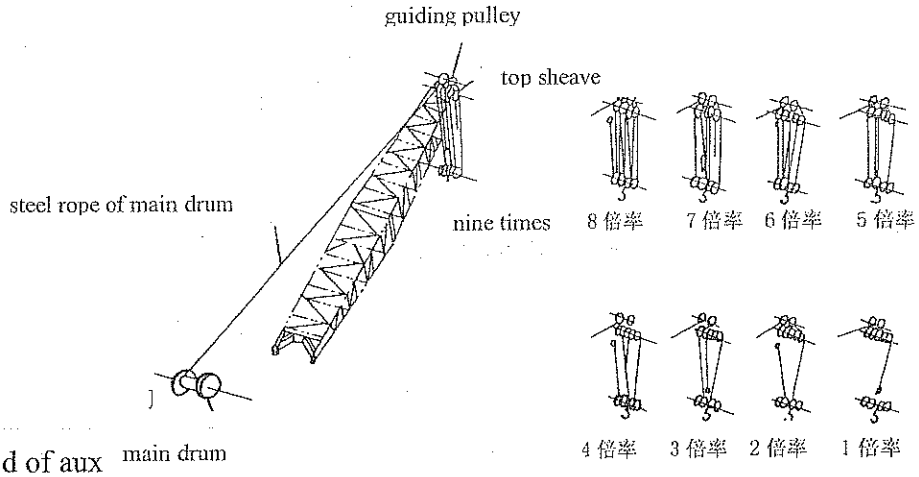
(2) When steel rope is with erosion or abrasion, the numbers in table 7.1 should be depreciated according to table 7.2 and write-off is done according to the results.

Table 7.2 Depreciation coefficient						
Erosion and abrasion percentage at the steel rope surface %	10	15	20	25	30-40	>40
Depreciation coefficient %	85	75	70	60	50	0

(3) Write-off number of broken threads for carrying hot metal or dangerous goods is half of that of ordinary one, counting in depreciation for surface abrasion.

7.6 Steel rope wind method

(1) Wind method of main drum hoisting steel rope:



(2) Wind method of aux main drum

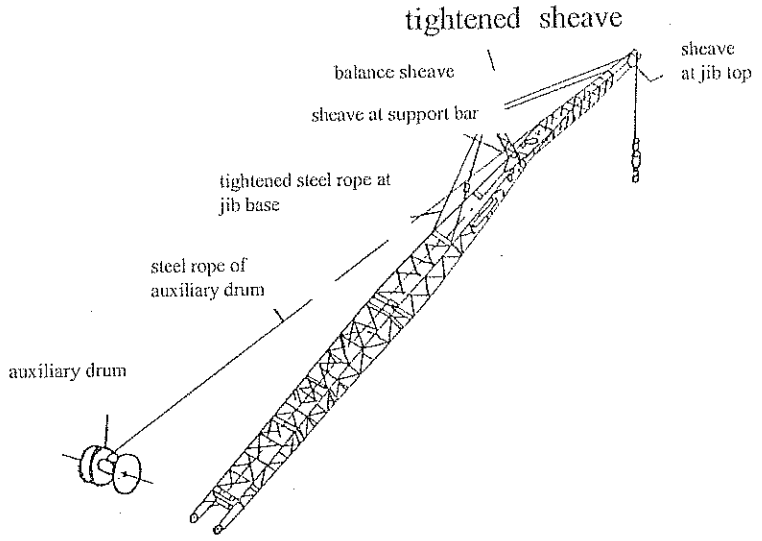


Figure7-8 wind method of steel rope with jib

(3) Wind method of luffing steel rope:

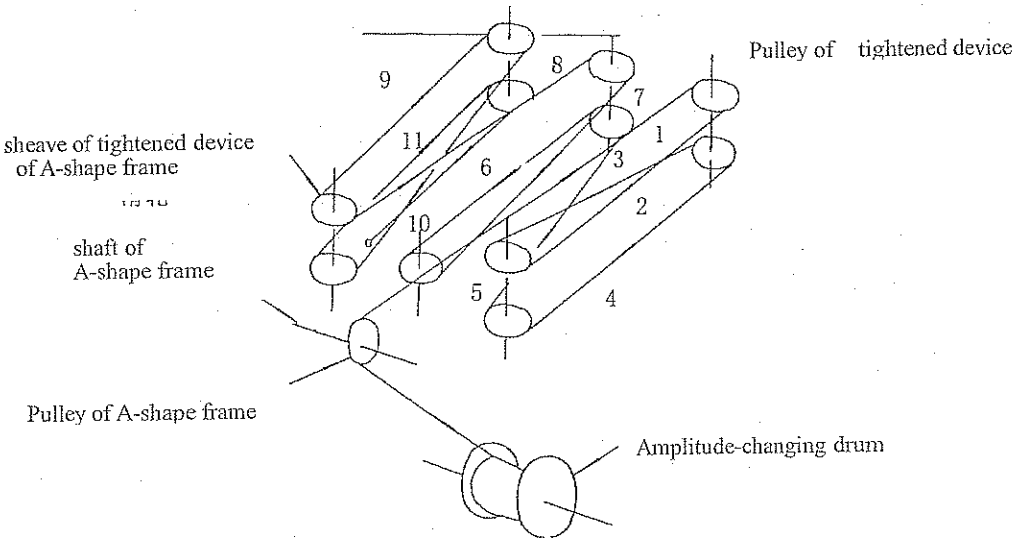


Figure7-9 wind method of luffing steel rope

7.7 Choose steel rope specification

Do according to table 7.3 and 7.4.

The steel rope specification and length in the above table indicates the stated exworks value. When changing steel rope, do according to table 7.4.

The length in the table 7.4 is for the minimum work range and when the hook block is 1m above the ground. When underground hoist travel is needed, the length of the steel rope

should also take the depth of the hoist into consideration.

Table 7.3 Steel rope specification

Use mechanism	Steel rope specs	Diameter (mm)	Length(m)
Hoisting (main hook)	20NAT6×29FI+IWR1870	20	171
Hoisting (aux. hook)	20NAT6×29FI+IWR1870	20	121
Luffing	16NAT6×29FI+IWR1870	16	142

Note: The strength level of the steel rope should not be below 1870Mpa.

Table 7.4 Crane steel rope length

Unit: m

	Multiplying power of the steel rope								
Main boom (m)	9	8	7	6	5	4	3	2	1
13 (main hook)	154	139	125	109	94	79	64	49	33
16 (main hook)	170	154	138	121	105	89	72	56	39
19 (main hook)	—	—	170	150	129	108	87	66	45
22 (main hook)	—	—	—	168	144	120	96	72	48
25 (main hook /aux. hook)	—	—	—	—	165	138	111	84	57/85
28 (main hook / aux. hook)	—	—	—	—	170	143	116	89	62/88
31 (main hook / aux. hook)	—	—	—	—	—	168	135	102	69/97
34 (main hook / aux. hook)	—	—	—	—	—	—	147	111	75/103
37 (main hook / aux. hook)	—	—	—	—	—	—	159	120	81/109
40 (main hook / aux. hook)	—	—	—	—	—	—	170	128	87/115
43 (main hook / aux. hook)	—	—	—	—	—	—	—	138	93/120

46（main hook）	—	—	—	—	—	—	—	147	99
49（main hook）	—	—	—	—	—	—	—	157	105
52（main hook）	—	—	—	—	—	—	—	164	111

VIII. The structure and the hydraulic electric system

8.1 The structure

The main structure of the crane includes operation equipments, turn table, travel device, locomotive equipment and hydraulic system. Figure 8-1 shows the structural diagram of SCC500D.

8.2 The hydraulic system

This crane adopts full hydraulic driving, flow capacity proportional control, gross power control, with micro-movement function, and quick and slow levels for main and aux. winch. (Please see maintenance manual for the principle diagram.)

8.3 The electric system

The electric voltage of the whole crane is DC24V, comprised of two storage batteries in series. It is mainly used for starting the engine, electric control circuits and lighting equipments. The electric generator charges the storage battery and supplies power to electric equipments. The crane's circuit adopts single-way pattern. The power source is in negative ground mode. Please refer to the air-conditioner operation manual for the details about air-conditioner operation. (Please see maintenance manual for the principle diagram.)

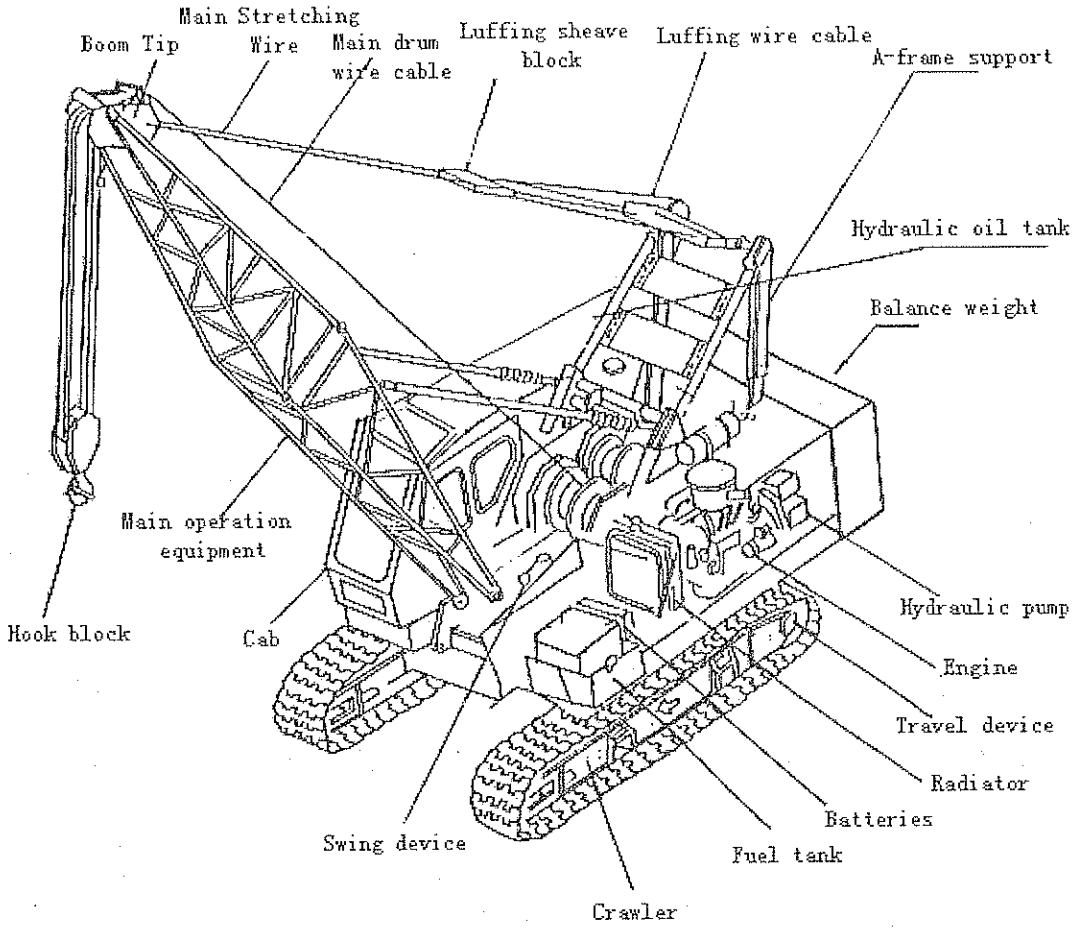


Figure8-1-1 System structure diagram

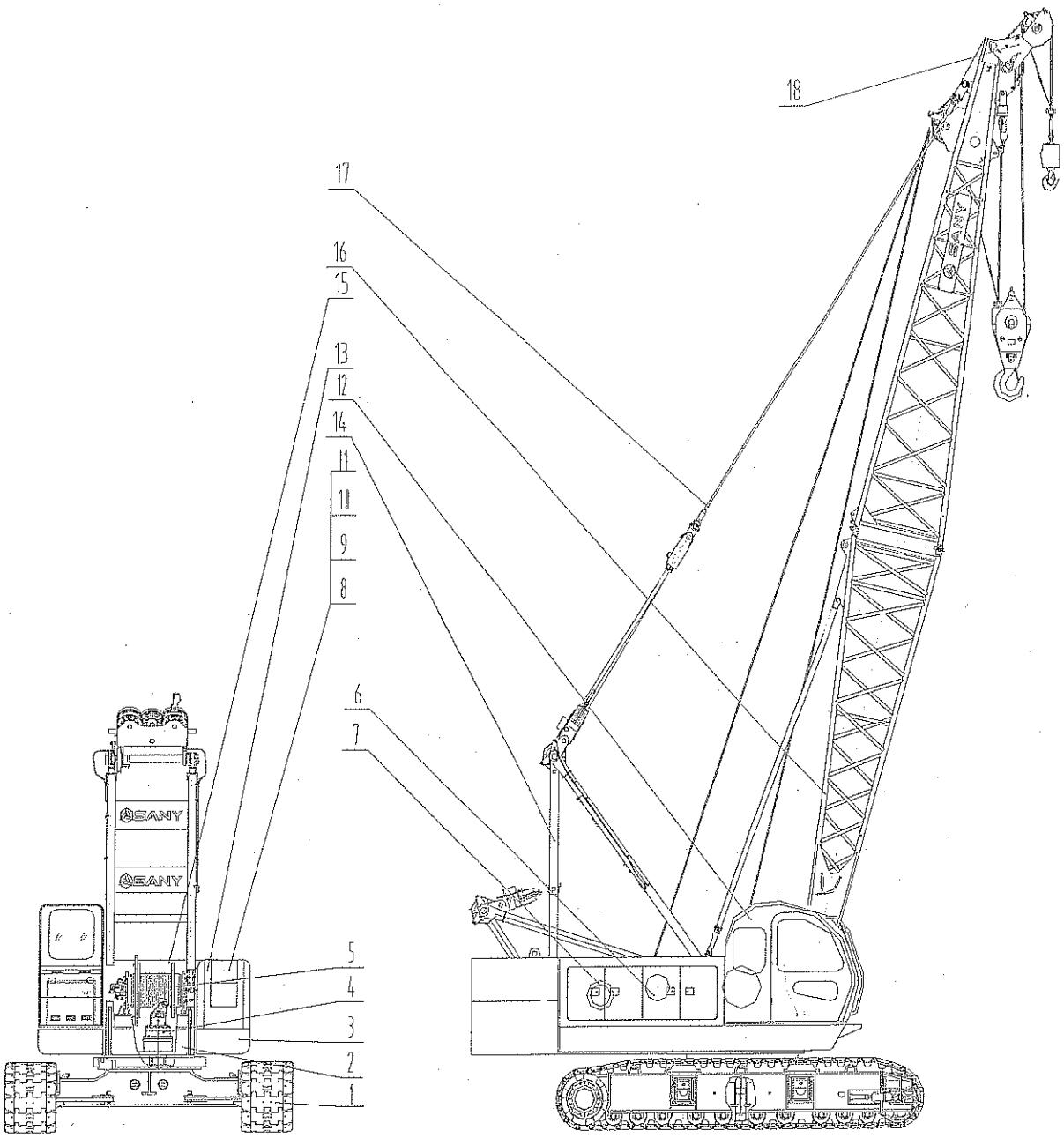


Figure8-1-2 System structure diagram

Serial NO.	Name and Figure No.	Serial No.	Name and Figure No.
1	Crawler travel device QUY55-1000 0000 12	10	Servo-system QUY50-3600 0000 14
2	Platform QUY50-1200 0000 13	11	Electric equipment QUY50-4000 0000 14

3	Locomotive equipment QUY50-1500 0000 11	12	Cab Q80-4700 0000 12
4	Swing mechanism QUY50-1800 0000 13	13	Machine cover QUY50-4900 0000 31
5	Master hoisting mechanism QUY50-2100 0000 14	14	A-frame QUY50-5100 0000 10
6	Aux. hoisting mechanism QUY50-2100 0000 14	15	Balance weight QUY50-5300 0000 10
7	Luffing mechanism QUY50-2700 0000 13	16	Main operation equipment QUY50-5500 0000 01
8	Main hydraulic system QUY50-3000 0000 14	17	Main boom guy rope device QUY50-5800 0000 00
9	Travel hydraulic system QUY55-3400 0000 10	18	Extension jib QUY50-6100 0000 00

IX. Transportation and Lifting

9.1 Trailer transportation

(1) Cautions on trailer transportation:

① Observe regulations of the vehicle administration department when the crane travels on road.

② Check the height of the barriers on the way on spot.

③ During transportation, withdraw the crawler and lower the A-frame to the lowest position.

④ When using trailer to carry the crane, 20° sloping bedplate can be used. Back the crane onto the trailer (i.e., driving wheel at the front, cab at the back). Meanwhile, enable swing braking device and wrap it with steel rope.

⑤ After the machine is put onto the trailer, enable swing braking device and install chock at the front and back of the crawlers, so that it cannot move forward or backward. Then wrap it with steel rope.

(2) Objects used in loading the crane:

180mm block, 3.5m long, four pieces uses as the main girder of the slopping bedplate.

300mm block, 0.5m long, six pieces uses for middle support of the sloping bedplate.

(3) Grade climbing during transportation: keep the boom angle below 30° when with boom. During forward grade climbing, the cab is at the front; during backward grade climbing, the

cab is at the back. The maximum obliquity of grade climbing is 20°, as shown in Figure 9-1.

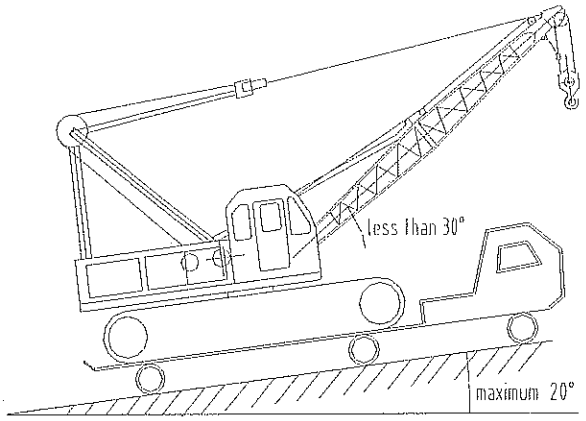


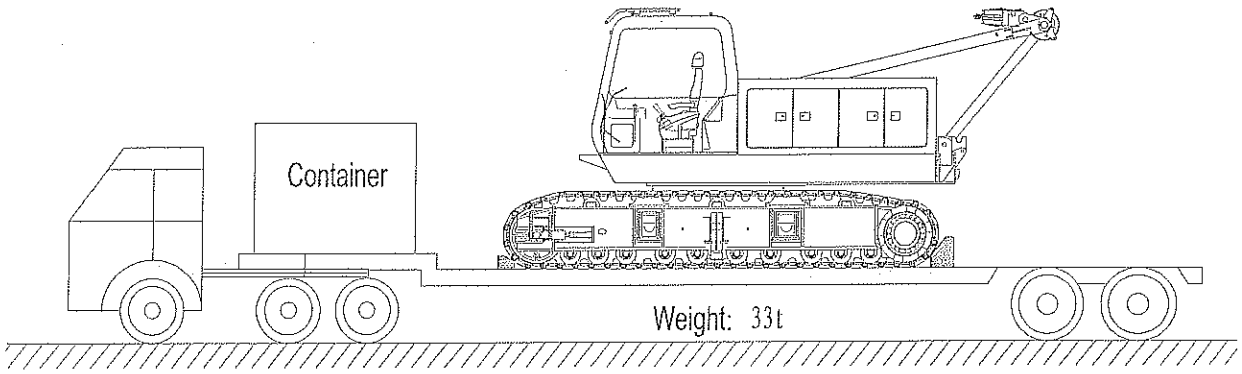
Figure 9-1

9.2 Outlook and dimensions of disassembled parts transportation

When transportation is done separately, the below parts can be dismantled: boom and balance weight.

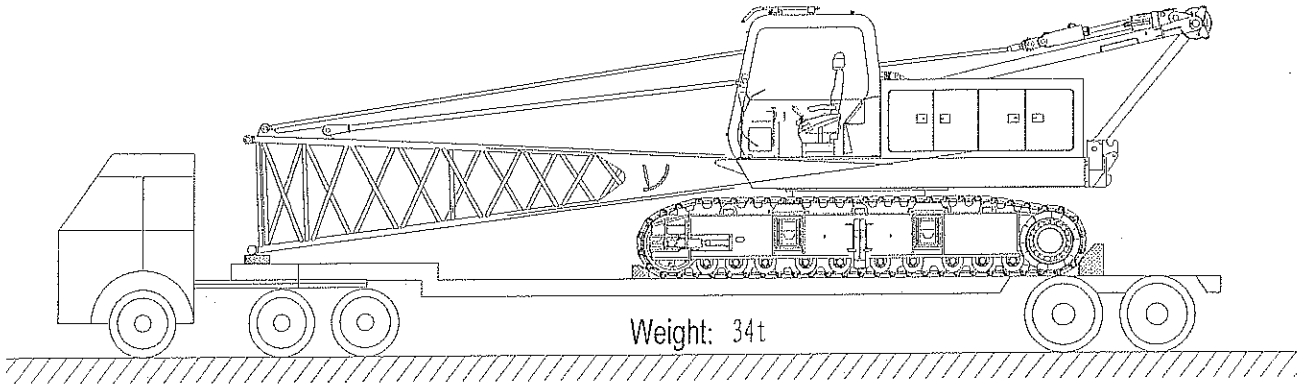
9.3 SCC500 transportation status diagram

The main body and the accessories are packed together. Lay blocks under the two ends of the crawler, lower the A-frame to the utmost and fix the luffing upper sheave group to A-frame. Luffing steel rope is not uninstalled.

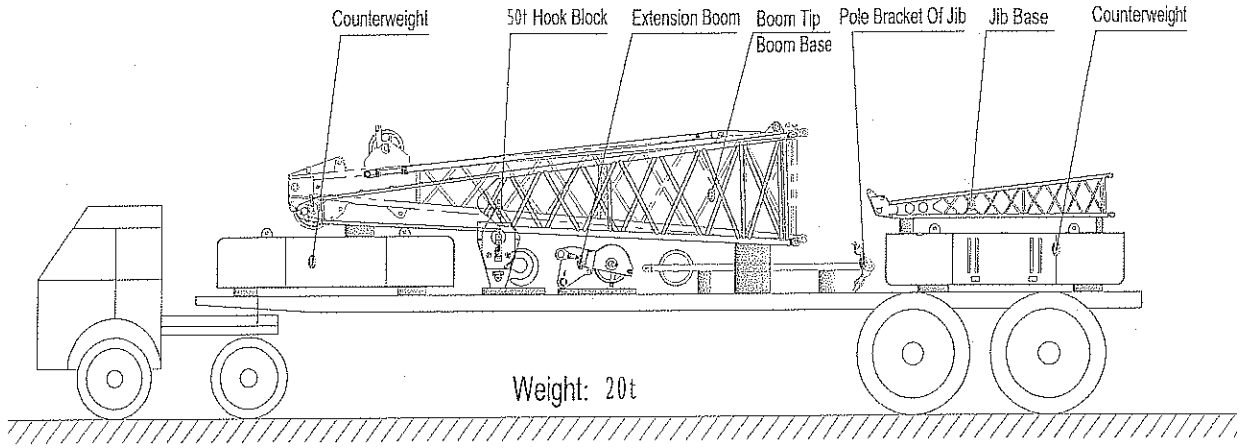


Lay down the boom base totally if the main machine is with boom base and put blocks

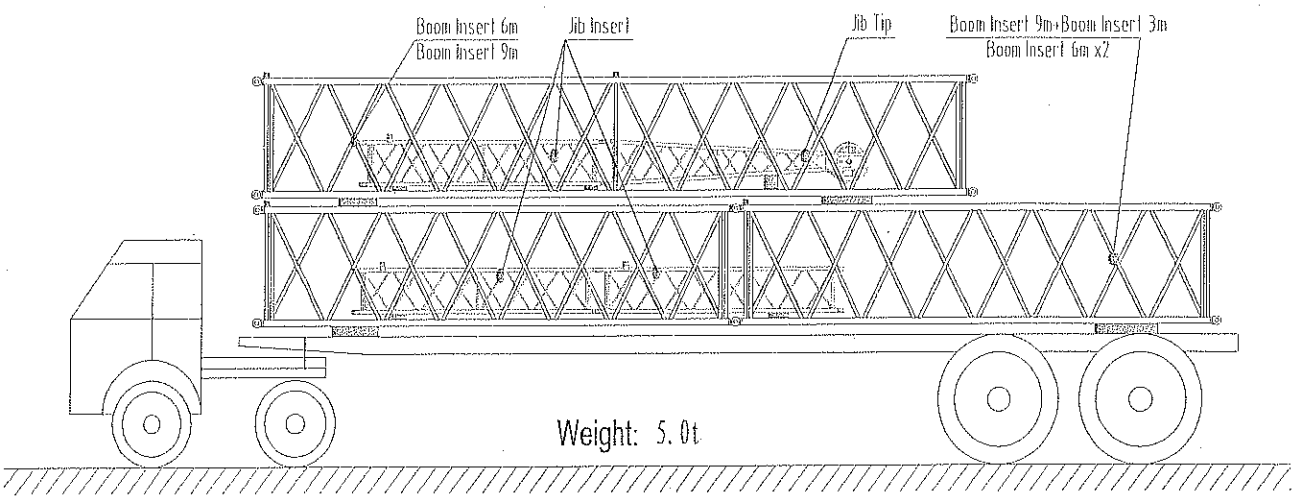
under the end of the boom base.

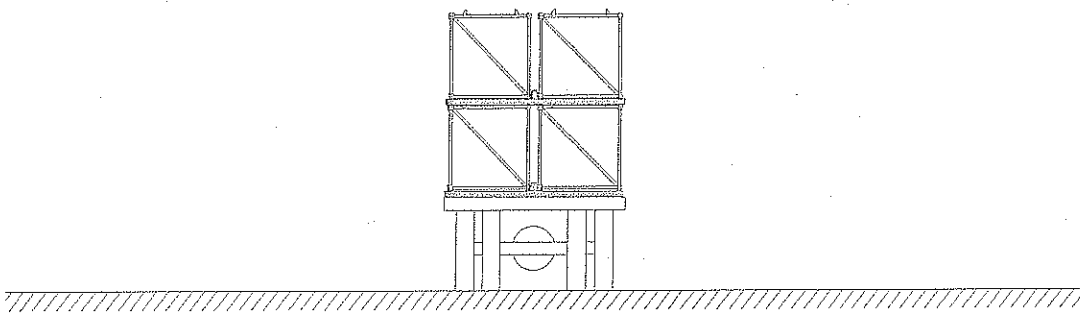


During transportation, fasten well the boom base, boom tip, hook block, balance weight, extension jib, support frame and jib base. They should not contact each other.



Connect 9m boom with 3m boom. Connect two 6m booms. Put them at the bottom layer. At the top layer, put one 9m boom and one 6m boom side by side. Put the jib in the truss at the bottom layer. Fasten the booms during transportation and they shouldn't contact each other. Don't pile heavy objects on the boom, so as not to damage the ventro-pipe.





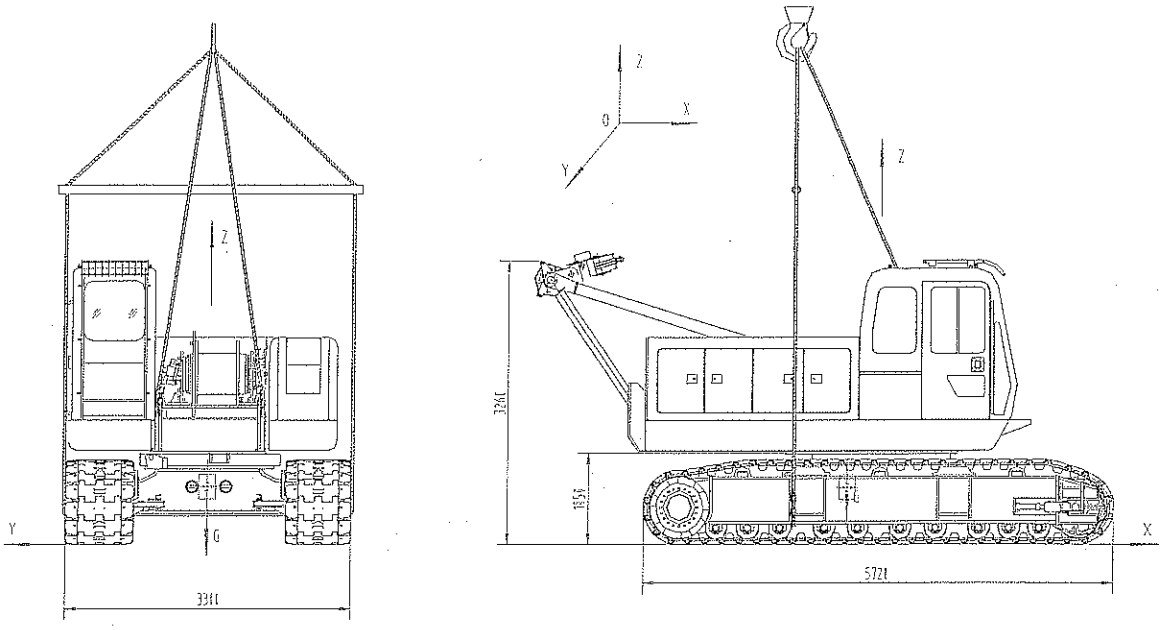
Note: (1) The mass of the main machine of SCC500D hydraulic crawler crane is 29t (excluding balance weight and boom).

(2) For transportation, 40t (12.5m long and 1m high) flat bed truck is required. Dismantle the machine according to the diagram and load the parts to the truck. Wrap and fasten the machine using 8 steel rope (Φ6) and fasten the loose parts with chock block before transportation.

(3) Conduct anti-erosion processing for the surface of exposed machined parts and seal the pull rod of the A-frame with plastic cloth and wood board.

(4) The transportation can only pass level-3 over-limit tunnel.

9.4 Lifting diagram



要求

1.吊装时钢绳不允许接触机棚，起钢绳时装角处垫好以免损坏钢绳。
2.本体机重：29000kg
3.重心坐标值：X=-398mm
Y=25mm
Z=954mm
如图所示
4.起吊位置如图所示。
5.本标牌图幅大小为A4幅面（297X210）

Hoisting Requirement

1.Don't make the ropes touch the covers when hoisting and put some soft things at the acuti-edges under the ropes to prevent the damagement of ropes
2.Mass of the body：29000kg
3.Barycenter：X=-398mm
Y=25mm
Z=954mm
4.Places of hosting (Figure).
5.The size of the scutcheon :A4（297X210）

Figure9-3 Lifting diagram

Steel rope cannot touch the machine tent. Pillow the edges properly while hanging the steel rope so as not to damage the steel rope.

Weight of the main machine：G=29000kg

Coordinate values of the center：（398，25，954）

Table 9.1 Mass and dimensions of dismantling transportation

Component name		Mass(kg)	Length (mm)	Width (mm)	Height (mm)	Remark
Main body	Main machine	29000	5720	3300	3260	Excluding balance weight
	Balance weight (bottom)	9000	3120	1340	635(excluding otic placode)	
	Balance weight (top)	8100	3120	1340	625(excluding otic placode)	
Hosting equipments	Boom base	1003	6650	1400	1540	
	Boom tip	970	6880	1400	1400	
	Main winch steel rope	288	171m			
	Luffing steel rope	162	142m			
	Aux. winch steel rope	203	121m			
	3m middle boom	305	3100	1400	1400	
	6m middle boom	575	6100	1400	1400	
	9m middle boom	845	9100	1400	1400	
	Jib base	100	3350	600	550	
	Jib tip	120	3250	700	550	
	Middle jib	76	3110	600	550	
	Jib support	119	3200	550	560	
	50t hook block	478	1527	570	392	
	30t hook block	370	1546	570	340	Optional
	15t hook block	282	1495	570	311	
	5t hook block	171	772	298	298	

crane is the result of table 2.2 value deducted by the mass of the below table and that of the main and aux. hook blocks. Operation is not possible if the output value is less than 0.8t.

Jib length (m)	6.10	9.15	12.20	15.25	Extension jib
Deducted mass (t)	0.70	0.85	1.00	1.15	0.20

④ Boom of 22m~43m long can install jib.

⑤ Crawler frame must be extended when the crane is hoisting load.

⑥ The relationship between the maximum value of multiplying power of the steel rope and rated load and the mass of hook block is as shown in table 2.3.

⑦ Please see table 2.4 for rated load of SCC500D crane with jib.

Table 2.2 Rated load of SCC500D boom Unit: t

Extent (m)	Boom length (m)													
	13	16	19	22	25	28	31	34	37	40	43	46	49	52
3.7	55													
4	49.45	47.3												
4.5	41.03	40.04	38.5											
5	34.2	34.1	33.66	31.9										
5.5	29.45	29.37	29.21	29.04	27.5									
6	25.8	25.74	25.55	25.47	25.3	24.2								
7	20.58	20.57	20.35	20.33	20.26	20.13	19.8							
8	17.05	17.04	16.83	16.77	16.73	16.62	16.55	16.33	16.06					
9	14.52	14.5	14.41	14.21	14.18	14.07	13.92	13.71	13.55	13.33	13.15			
10	12.65	12.54	12.43	12.27	12.24	12.13	12.1	11.86	11.65	11.45	11.28	11.03	10.93	
12	9.9	9.8	9.79	9.53	9.5	9.46	9.41	9.15	8.97	8.77	8.62	8.43	8.36	8.28
14		8.07	8.03	7.95	7.68	7.67	7.57	7.33	7.15	6.96	6.84	6.64	6.52	6.48
16			6.75	6.63	6.38	6.35	6.25	6.02	5.86	5.67	5.55	5.36	5.43	5.19
18				5.63	5.38	5.35	5.25	5.03	4.88	4.7	4.58	4.4	4.28	4.2
20				4.85	4.58	4.57	4.47	4.26	4.13	3.95	3.82	3.65	3.53	3.44
22					3.95	3.94	3.85	3.63	3.52	3.33	3.23	3.04	2.93	2.82
24						3.43	3.33	3.14	3.01	2.83	2.72	2.54	2.43	2.32
26							2.9	2.71	2.59	2.42	2.3	2.13	1.87	1.90
28								2.36	2.23	2.06	1.96	1.78	1.67	1.55
30								2.05	1.93	1.77	1.65	1.47	1.38	1.24
32									1.66	1.49	1.38	1.22	1.12	0.97
34										1.26	1.16	1.00	0.89	0.74

Note: (1) The values in the above table exclude additional load such as wind load, inertial load and strike load. When wind speed exceeds force six, stop working.