

GSC30D Mini Crawler Crane

Operations Manual



GLT Transglobal Machinery Inc.

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Dear Customer:

Thank you for choosing the **GLT LIFTS** GSC30D Mini Crawler Crane. To maximize operational efficiency, extend equipment service life, and ensure strict safety on the job site, it is **CRITICAL** that all operators thoroughly read and fully understand this manual before operating, adjusting, or maintaining the crane. Strict adherence to these protocols is mandatory to prevent operational hazards and severe injury.

To meet the needs of different users, our company will continuously improve and perfect the product structure and functions. If there are any discrepancies between the instruction manual and the actual structure or function of the crane, users should refer to the actual structure during maintenance and adjustments. No further notice will be given, so please be aware of this. For any questions, please contact the relevant department of our company directly. We also welcome user feedback for improvement. Our company will use this feedback to continuously improve and optimize the product structure, enhance performance, and better serve our users.

We welcome customers to purchase our products. Our company adheres to the principles of quality first, reputation first, and customer supremacy, and is dedicated to serving our customers.

Due to the limited experience of the editors, this manual may contain some errors and defects. We welcome valuable feedback from our customers. If there are any discrepancies between this manual and the actual product, please refer to the actual product.

Thanks!

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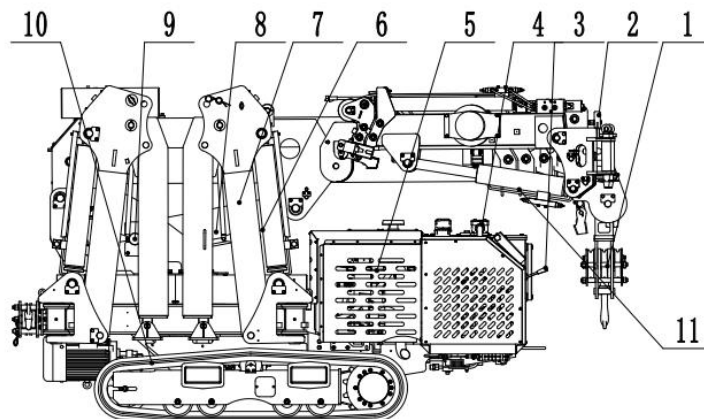
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I .Product Overview

1. Product Introduction

The **GLT LIFTS** GSC30D is a premium, hydraulically controlled compact crawler crane. Its advanced travel system, heavy-duty outriggers, and telescopic boom assembly are completely engineered utilizing SOLIDWORKS 3D software and CAE finite element analysis for optimized structural integrity. Featuring high maneuverability, a ultra-compact footprint, and stable, lightweight proportional control, this crane is purpose-built for restricted-access environments. It seamlessly replaces traditional manual lifting in confined substations, glass curtain wall installation, steel structure installation and industrial facilities, significantly boosting job site efficiency while reducing workplace safety hazards.

2. Product Structure diagram



Crane structure diagram

1.Hook 2. Telescopic Boom 3. Control Panel 4. Hydraulic system 5. Engine System 6. Outrigger hydraulic cylinder 7. Outriggers 8. Hydraulic cylinder for undulating movement 9. Hydraulic Winch 10. Rubber Track Chassis

II. Main technical parameters

1. Crane Specifications

Model		GSC30D Mini Crawler Crane		Power System	Model	3TNV74
Crane Capacity		6,500 lbs @ 4' 3"			Displacement (cc)	993 cc
Maximum Working Radius		27' 1"			Maximum Output Power	15.0 HP/2400 r/min
Max.Lifting Height (On ground)		30' 2"			Starting Method	electric start
Winch System	Hook Speed	Low speed: 17.4 FPM (4-Part Line)			Engine Type	Inline, three-cylinder, liquid-cooled
		High speed: 33.5 FPM (4-Part Line)				
	Wire Rope Diameter and Length	Φ 5/16" × 164'			Fuel Tank Capacity	3.70 gal
Telescopic System	Boom Type	U type automatic 5 section		Battery Capacity	12V 60Ah	
	Boom Length	29' 8"		Starting Operating	-5°C to 40°C	
ups and downs	Boom Angle	0-75 °		Electric Motor	Single-phase alternating current	3 HP (110V 60HZ)
Slewing System	Slewing Angle	360 ° continuous Slewing		Wireless Proportional Control	Model	TCS-C6X-Z
Outrigger	Outrigger form	Manual operation for the first section, automatic for the 2,3 section			Effective Operating range	328 ft
	Maximum Extended Dimensions	13' 1" × 13' 1"			Waterproofing Standards	IP-65
Traction system	Travel Method	Hydraulic motor drive			Hydraulic Oil Tank Capacity	10.6 gal
	Travel Speed	Low speed: 1.0 mph				
		High speed: 1.8 mph				
	Track	rubber				
	Gradability	20°				
Track Ground Pressure	7.40 psi					
Length x Width x Height		9' 10" × 31.5" × 5' 7"				
Total Weight		5,290 lbs				

2. Rated Total Lifting Capacity Table

9'14'2" boom		19'5" boom		24'7" boom		29'8" boom	
Working radius (ft)	Rated load (lbs)	Working radius (ft)	Rated load (lbs)	Working radius (ft)	Rated load (lbs)	Working radius (ft)	Rated load (lbs)
<4'3"	6,500 /3,968	<6'7"	4,299 /2,646	<8'2"	2,976 /1,764	≤9'8"	2,028 /1,168
4'11"	5,776 /3,792	8'2"	3,638 /1,764	9'8"	2,601 /1,168	11'5"	1,433 /882
6'7"	5,512 /2,646	9'8"	3,197 /1,168	11'5"	1,984 /882	13'1"	1,213 /728
8'2"	4,630 /1,764	11'5"	2,315 /904	13'1"	1,653 /728	14'9"	1,058 /617
9'8"	3,417 /1,146	13'1"	1,874 /728	14'9"	1,323 /617	16'5"	926 /507
11'5"	2,425 /926	14'9"	1,323 /617	16'5"	1,102 /507	18'1"	838 /397
11'11"	1,984 /772	16'5"	1,102 /507	18'1"	882 /397	19'8"	661 /353
		16'10"	992 /441	19'8"	772 /353	21'4"	551 /309
				21'4"	705 /331	23'0"	441 /220
				22'1"	661 /309	24'7"	397 /198
						26'3"	331 /176
						27'1"	331 /154

III. Installation and Adjustment

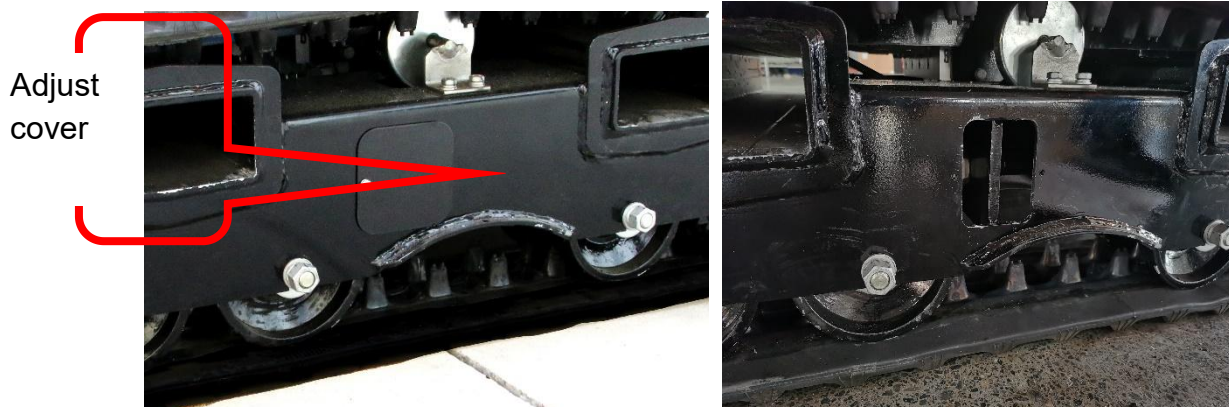
1. Throttle adjustment

The throttle is used to regulate engine speed. Turning it to the right will bring the engine to its maximum speed, while turning it to the left will reduce the engine speed.



2. Adjust the rubber tracks

Open the adjustment bolt cover on the outside of the frame, and adjust the bolts inside to adjust the tension of the rubber tracks, as shown in the picture below:



IV. Safe Use and Basic Operation

1. Safety Precautions

- (1) Crane operators must be professionally trained, familiar with crane operation methods, and hold a certificate to work. They must wear protective equipment before starting work.
- (2) Before operation, the crane's safety devices and lubrication points should be checked to ensure they are in good working order before operation.
- (3) Crane operators should only listen to one person's instructions. If multiple people are giving instructions, the operation should be stopped.
- (4) After the equipment is used up, the crane should be parked in the designated position, all control handles and buttons should be reset, and the power supply should be cut off.
- (5) At least two people must be present during operation, and both must wear safety helmets and take protective measures. During operation, it is strictly forbidden for anyone to stand under the boom.
- (6) If the crane makes an abnormal noise during operation, it should be stopped immediately for inspection. The fault should be eliminated in time, and the work can only continue when the whole machine is confirmed to be in normal condition.
- (7) You must concentrate during the operation and are not allowed to talk, smoke or do anything unrelated.
- (8) The crane must be kept clean and free of equipment, tools, flammable materials, explosive materials and dangerous goods.

2. Basic Operations

(1) Machine start-up and travel operation

After confirming that the hydraulic oil level is no less than 3/5 of the volume of the level and temperature gauge, start the machine.

Start the device

Before starting the device, please ensure that the key switch is in the middle position (refer to the diagram) and that there are no people or other obstacles in the direction of travel.

The equipment is equipped with two power systems, namely an engine system and an electric motor system, both of which can enable the operation of the equipment.

Engine System (Diesel):

The key switch has four positions. The normal off position is the "stop" position. In winter, if the engine is difficult to start, turn the key switch counter-clockwise to the "**preheat**" position and wait 10-15 seconds for the engine to start more easily. Turn the key switch clockwise to the "**on**" position and wait a few seconds for the machine to complete its electrical system check (fault indicator) before starting. If the engine still cannot start after 3 to 4 consecutive attempts (with intervals of more than half a minute), please check for faults.



Electric Motor System:

To convert to motor function, connect a single-phase 110V 60Hz industrial power supply to the industrial socket, turn the air switch to the **ON** position, then press the motor start button. Switch the key switch to the ON position to begin normal operation. After hoisting with the motor, press the stop button and **turn off the key switch** (to prevent battery drain). In case of emergency during operation, press the emergency stop button. After troubleshooting, turn the emergency stop button clockwise (to release the emergency stop), press the green start button, and restart to resume operation.



industrial
socket

Pre-Travel Checklist & Safety:

WARNING: Before the crane begins to travel, all four outriggers **Must** be fully retracted and secured, and the locking pins properly inserted; additionally, the telescopic boom must be in its stowed position. **TRAVELING WHILE UNDER LOAD IS STRICTLY PROHIBITED.** Failure to comply will result in machine instability or structural tipping. The crane offers two operating modes: **Remote Control** and **Manual**. Prior to operating the crane, the desired operating mode must be selected and confirmed. When operating in Remote Control mode, ensure that the silicone control panel is set to "Wireless" status, and verify that the wireless proportional controller is powered on and properly connected (successful connection can be confirmed by pressing the horn button on the remote). Only after these conditions are met may the equipment be operated remotely via the wireless controller.

Furthermore, while in Remote Control mode, it is strictly forbidden to attempt manual operation directly from the crane's control station.

The crane is strictly prohibited from traveling while under load.

In Manual mode, use the buttons on the silicone control panel to toggle the function selector (Boom / Travel / Outriggers) to the "Travel" position. The equipment's movement is controlled via the two control levers for the travel valves. When the equipment is in motion, ensure—to the greatest extent possible—that it travels at a steady speed along a path with a level surface and an unobstructed line of sight. Additionally, the equipment features a dual-speed travel capability; the travel speed can be switched between high and low settings by selecting the corresponding "High" or "Low" position on the speed selector toggle switch.



remote control mode, the equipment's travel function can be remotely controlled over a long distance. When selecting remote control operation, ensure that the remote control dial is in the "On" position and that the wireless proportional control is properly connected before operating the equipment. Switch the Travel/boom/outrigger three-speed switch dial on the wireless proportional control to the "Travel" position, and then use the left and right travel control joysticks to move the equipment. The travel speed can be selected using the high/low speed switch dial on the wireless proportional control.

When operating the equipment in remote control mode, it is strictly forbidden to manually operate the travel valve handle on the equipment.



Equipment forward or backward

Pushing both control levers of the travel valve upwards simultaneously will move the equipment forward; pushing both control levers downwards simultaneously will move the equipment backwards.

Equipment turning

The two travel control handles of the travel valve can be used to steer the equipment by stopping and pulling them. Pushing the left handle upward to the forward position and keeping the right handle in the stop position will turn the equipment right; keeping

the left handle in the stop position and keeping the right handle in the forward position will turn the equipment left.

The equipment stopped moving.

When both movement control handles are pulled to the middle stop position, the equipment stops moving.



(2) Operation of extending the outrigger

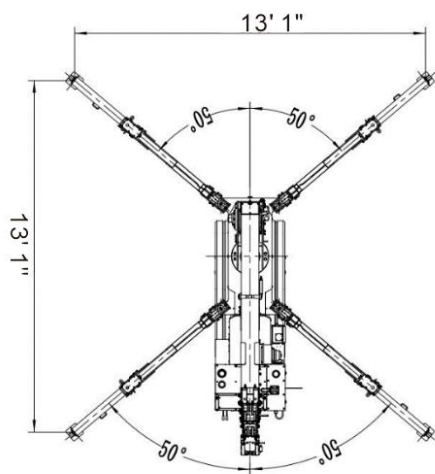
Confirm that the crane has come to a complete stop and that the boom is in the reset position; otherwise, the outriggers must not be operated.

In manual mode, switch the boom/travel/outrigger three-position selector knob to the "outrigger" position to manually operate the outriggers:

- ① The raising and lowering of the outriggers is controlled by the outrigger operating handle. The raising and lowering of the outriggers is controlled by moving the handle lever. (See the outrigger operating lever in the figure below; 1, 2, 3, and 4 correspond to NO.1, NO.2, NO.3, and NO.4.)

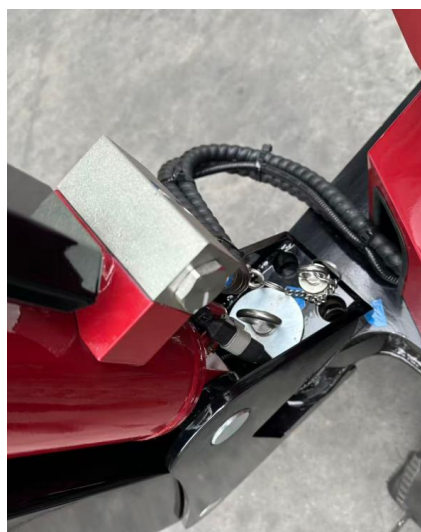


② Manually, pull out the inner pin 1 near the fuselage, rotate the outrigger to the most suitable angle, and then use pin 1 to fix the outrigger joint to the crane body. Open and fix the other three outriggers in the same way. (See the figure below: Maximum Angle Indicator Diagram)



Pin 1

Diagram of the maximum position of the outriggers





③ Manually pull out pin 2, select a suitable position, and fix the main leg and the support leg with pin 2. In the absence of obstacles, this maximum angle is generally selected (the support leg fixing pin 2 is installed at hole 1).



Hole 1, Hole 2, Pin 2

④ Adjust the outrigger adjustment lever and slowly extend the outriggers until you confirm that the outriggers are fully in contact with the ground and firmly fixed to the fuselage. The fuselage must be leveled according to the level gauge. The angle of each outrigger must be consistent.



(This illustration is for reference only and may differ from the actual product.)

⑤ After the outriggers are in place, (**once the outriggers are fully grounded, the proximity switch indicator light on the outrigger will turn green; if the indicator light on any outrigger is not lit, it means that the corresponding outrigger is not properly grounded**). During the outrigger placement process, the crane body must be adjusted according to the level indicator installed on the crane to ensure that the crane body is in a level state.



Note: Do not allow the outriggers to touch unstable surfaces such as buildings. Extend outriggers 1 and 4 first, then extend outriggers 2 and 3. Ensure the level is horizontal

and the machine is balanced. A distance of 4-inch between the ground and the tracks is ideal. Before operation, ensure all four outriggers are stable and all pins are properly inserted before lifting.

In remote control mode, the outriggers can be wirelessly controlled over a long distance using a remote control. When selecting remote control operation, ensure that the remote control knob on the equipment's control panel is in the "On" position and that the wireless proportional control is properly connected. Then, switch the boom/travel/outrigger three-speed switch knob on the wireless proportional control to the "Outrigger" position. The outrigger movement can then be controlled using the outrigger control joysticks on the remote control. Each of the four outrigger control joysticks on the wireless proportional control corresponds one-to-one with one of the four outriggers on the equipment. Manual operation of the valve group handles on the equipment is strictly prohibited in remote control mode.

(3) Lifting operation

In manual mode, before lifting operations, the boom / travel / outrigger three-speed switch knob on the equipment control panel must be switched to the "boom" position before manual operation of the boom can be performed .

When using a crane for hoisting operations, the following sequence must be strictly followed.

- ① **Boom elevation:** Operate the boom elevation handle to position the boom appropriately, and operate the boom elevation handle in the direction shown in the diagram.
- ② **Boom Slewing:** Operate the boom slewing handle to position the boom in the appropriate position, and operate the boom slewing handle in the direction shown in the diagram.
- ③ **Boom Extension/Retraction:** Operate the boom extension/retraction handle to position the boom appropriately. Extend/retract the handle in the direction shown in the diagram. Boom extension/retraction and hook raising/lowering should be coordinated; lower the hook first, then extend the boom to the appropriate position. **Boom extension/retraction is prohibited while lifting heavy loads!**
- ④ **Hook up and down:** Operate the hook up and down handle to position the load in the appropriate position. Operate the hook up and down handle in the up and down direction as shown in the diagram.



Note: ① Raise the boom to a certain angle, ensuring it does not touch any part of the machine or the operator. Then rotate and adjust the angle, extend and retract the boom, adjusting the boom and hook according to the load being lifted. **(Standing under the boom is strictly prohibited.)**

② The crane hook lifting can switch between high and low speeds. The high and low speeds of the hook can be switched by selecting the high and low speed gear in the high and low speed switching knob.

In remote control mode, the crane boom can be controlled wirelessly over a long distance using a remote control. When selecting remote control, ensure that the remote control knob on the equipment's control panel is in the "on" position and that the wireless proportional control is properly connected. Switch the boom/travel/outrigger three-speed switch knob on the remote control to the "boom" position. Only then can the boom movement be achieved by controlling the boom lever on the remote control. In remote control mode, it is strictly forbidden to manually operate the valve group handle on the equipment.

(4) Operation sequence for retracting the boom:

- ① Retract the hook ② Retract the boom ③ Rotate the boom ④ Lower the boom
- ⑤ Activate the hook retraction mode and retract the hook.

(5) Outrigger retraction sequence:

- ① After confirming that the boom has returned to its original position, **switch the boom/travel/outrigger three-speed switch knob to the "outrigger" position before you can manually operate the outriggers.**
- ② First, slightly retract legs 1 and 4 to ensure that the crane body tilts at a relatively small angle, and then retract legs 2 and 3 until the tracks are in full contact with the ground.
- ③ Adjust the hydraulic cylinder to retract the four outriggers to a certain angle (suitable for the retraction of the second outrigger section). First, retract the second outrigger section and insert pin 2.
- ④ Manually bring the outriggers close to the crane body, then gently adjust the hydraulic cylinders to slightly tighten the four outriggers. Then insert the pins to secure the outriggers.

3. Operational Supplements

(1) Use of wireless proportional control

1) When using the remote control, first turn on the power switch of the remote control (device control panel) and the power switch of the wireless proportional control. After the wireless proportional control is connected normally, operate the device using the buttons and joystick on the wireless proportional control.

2) **Starting and stopping the wireless proportional control:** Turn the emergency stop button clockwise (turn clockwise to return), then press and hold the start button to start the wireless proportional control. To turn off the wireless proportional control, press the emergency stop button on the right side of the remote control. (**Note:** Before starting the wireless proportional control, ensure that all knobs on the remote control are in the reset position, i.e., the boom/travel/outrigger switch knob is in the travel position, the throttle follow-up release/follow-up switch knob is in the follow-up position, the throttle knob is turned to the minimum position, the high/low speed switch knob is in the low speed position, and the joystick is in the neutral position.)

3) **Remote control functions:** ① Emergency stop button; ② LMI reset; ③ Traveling motion; ④ Outrigger motion; ⑤ Boom motion; ⑥ Equipment horn; ⑦ Throttle control; ⑧ Outrigger leveling motion; ⑨ Traveling and winch high/low speed switching; ⑩ Engine start/stop.

As shown in the image below:



Remote control start button

- The proportional handle controls the boom's slewing, undulation, extension, and hook movement, enabling stepless speed regulation and excellent micro-motion performance;
- Seamlessly switch between fast and slow speeds, allowing you to select the appropriate speed for different working conditions;
- Wireless operation distance of 328 ft , safe and reliable.

(2) Instructions for use of anti-rollover protection system and indicator lights

During hoisting operations, the four outrigger indicator lights are green under normal conditions. When the load is exceeded or any outrigger leaves the ground, the corresponding indicator light goes out, and a buzzer sounds. The protection device immediately outputs an overload control signal, which, in conjunction with the crane control circuit, limits the movement of the boom.

To clear the alarm, press and hold the reset button, then reduce the lifting torque until the alarm is completely cleared, and then release the reset button.

The operation must be performed in the safe direction.

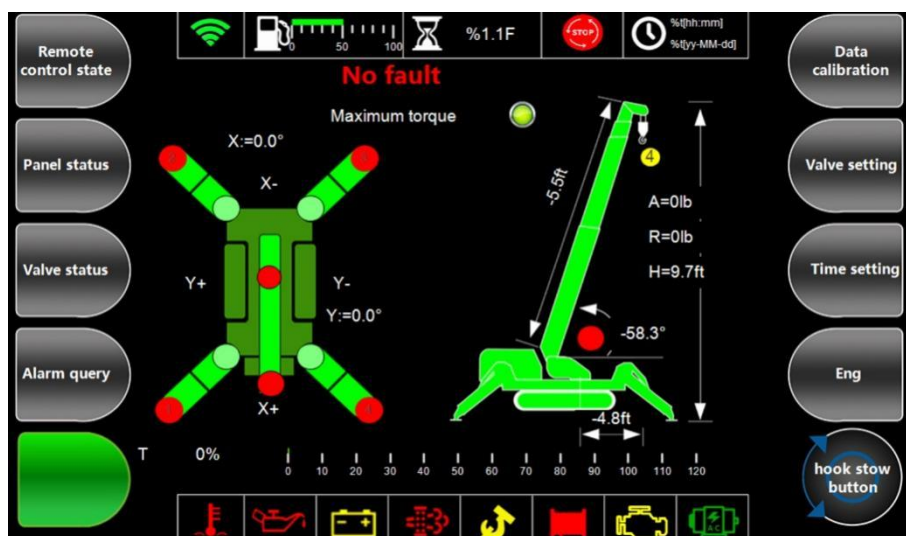
E101	Some outriggers are off the ground	When there is a heavy load, the hook can be lowered and the boom retracted. When there is no load, the boom can rotate and move up and down.	crane mode
E102	Crane body tilt	When there is a heavy load, the hook can be lowered and the boom retracted. When there is no load, the boom can rotate and move up and down.	crane mode
E103	Anti-Two-Block (A2B)	It can move: lowering heavy objects (the hook can be retracted in retracting mode).	crane mode
E104	Overweight alarm	The crane can move: retract the boom, raise the boom, and lower the load.	crane mode

E105	Wind speed alarm	Cranes will not move (all modes)	
E106	Temperature alarm	Cranes will not move (all modes)	
E107	All outriggers are off the ground	Cranes must not move (boom) when outriggers are off the ground (all outriggers are off the ground).	crane mode
E108	Over-discharge alarm	The hook can only be lowered.	crane mode
E109	Emergency stop mode	Cranes will not move (all modes)	
E110	boom not returned to position	The outrigger is not allowed to move (outrigger leg).	
E111	Low battery	Alarm, normal operation	
E112	Arm length alarm	In low torque mode, the arm extends to the maximum allowable arm length.	

(3) Load Moment Indicator (LMI) & Control System Instructions

1) Start the machine

The LMI display panel interface is shown in the figure below. It allows users to select functions such as rated capacity (weight), boom length, boom angle, system mute, and Language Selection (English / Alternate Languages).



When the crane boom is not connected to the main boom, the system defaults to the main boom interface. At this time, the data calibration interface is the main boom data calibration interface.

When the boom is connected to the main boom, you can enter boom mode toggling the "S7U" switch on the wireless remote control, or you can operate the boom using the silicone panel; the display interface will change according to the main boom or boom mode.

2) Weight Calibration (Load Sensor Adjustment)

On the main screen, press the "Data Calibration" button (or click the F6 button on the display screen), enter the password, and you will enter the torque and weight calibration interface. This interface allows you to set the weighing capacity and switch the magnification ratio. Clicking F6 again will take you to the rotation calibration and virtual wall interface.

Weighing setting: Prepare a weight of known weight. In the torque weighing calibration interface, select the "Target Weight (lbs)" button to enter the target weight interface. Adjust the target weight value to match the weight value of the weight. Click the setting button and then return to the weighing standard interface. In the empty hook state, click the "Zero" button on the lower right side of the target weight to zero the weight value. Then suspend the weight on the hook and operate the boom valve to raise the weight off the ground. The current weight value should be consistent with the target weight (a small error is allowed). Then click the "Set" button to adjust the weight value to complete the weight calibration.



3) Multiplier Adjustment:

On the weighing calibration interface, click the button to the right of "Multiplier" to enter the multiplier setting interface shown in the image below. Use the pop-up numeric keypad to input values to switch between 4x, 2x, and 1x multipliers.

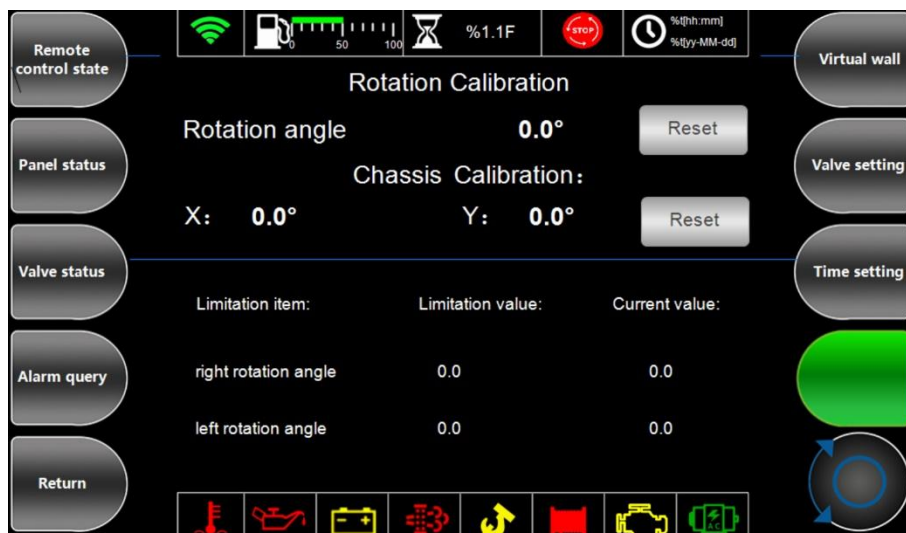
4) Boom Length Sensor Calibration

Enter the length calibration interface. Length calibration has two states. When the boom is fully retracted, click the "Zero" button. At this time, the current length is the minimum length. When the boom is fully extended, click the "Set" button. At this time, the length is the maximum length. The calibration is complete.



5) Boom Angle Sensor Calibration

Enter the angle calibration interface. Angle calibration has two states. When the boom is horizontal and at its lowest angle, click the "Zero" button. At this time, the current angle is 0° . When the boom is at its highest angle, click the "Set" button to complete the calibration. At this time, the current angle is 75° .



6) Rotational calibration:

The zeroing button corresponding to the slewing calibration can set the current slewing angle to zero degrees. The machine's default zero degree is the hoist angle. With the boom centered, and the slewing position sensor on the chassis detecting that the boom is centered, click the "Zero" button. The slewing calibration is complete, and

the slewing angle is now "0°".

7) Chassis leveling calibration (Tilt sensor zeroing)

This function is used when automatic leveling system is possible but the leveling result is not ideal. After adjusting the crane body to be level, click the "F6" button on the display screen, enter the password, and enter the slewing calibration interface. Click the "**zero**" button corresponding to the crane body calibration on the screen. At this time, the crane body will use the horizontal plane of this calibration result as the reference plane for the "**One-Key Automatic Outrigger Leveling**", and complete the crane body level calibration.

8) Reset function:

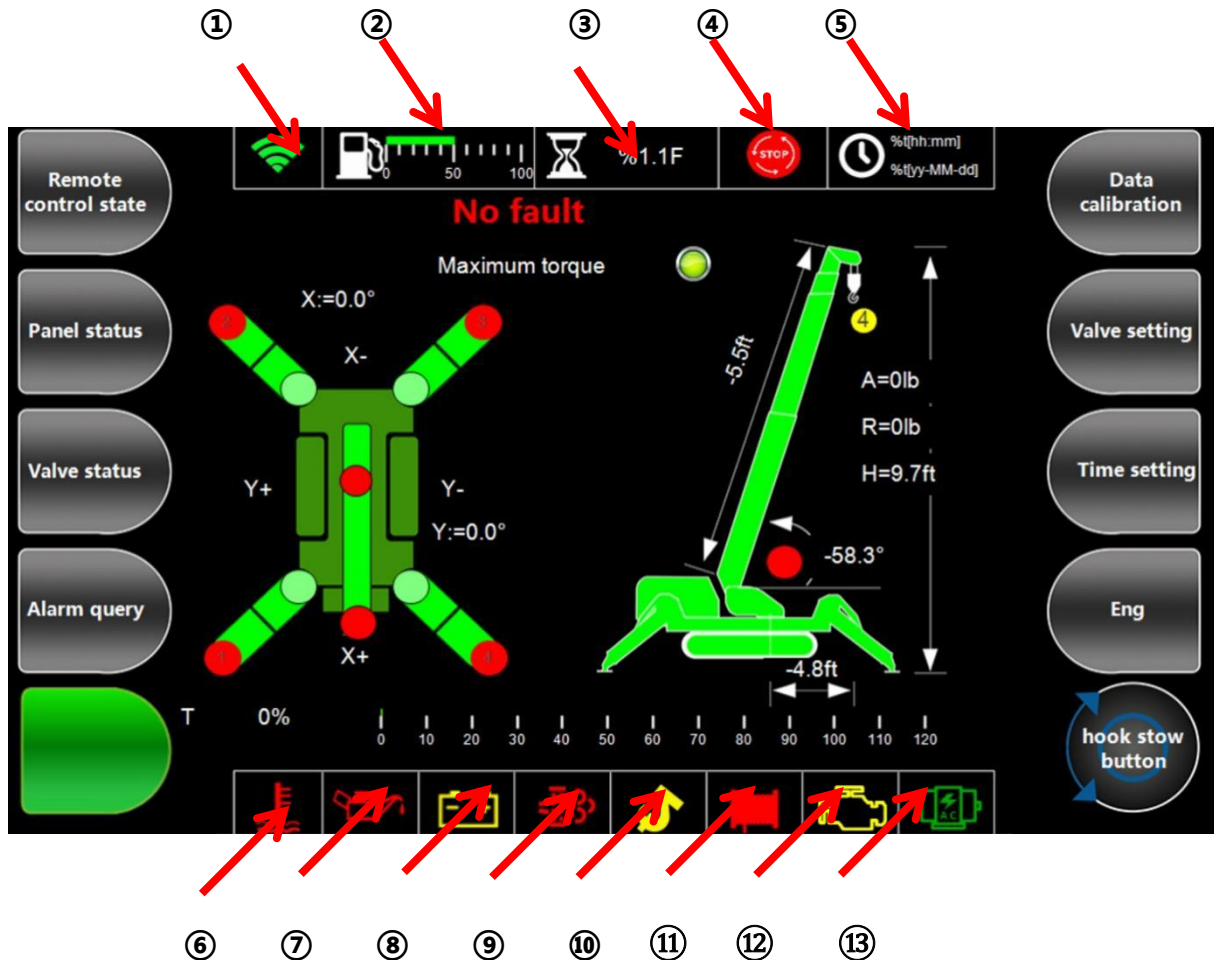
On the main screen, press the "Data Calibration" button (or click F6), enter the password, and gain access to the calibration menu. To override active lockouts or perform critical diagnostic operations, press and hold the physical reset button on the remote (or press and hold the F9 touch-key on the display screen) simultaneously while executing the crane hydraulic movements.

9) Language switching

Click the "English" button on the main interface to switch the display language to English. Click it again to cycle through alternate pre-installed languages (e.g., Russian, Spanish, etc., depending on factory specifications).

10) LMI home screen icons and indicators overview

The main operating interface displays the following status icons:



① Remote control mode icon (When the remote control mode switch is adjusted to remote control mode, the remote control mode icon will be displayed. At this time, you can turn on the remote control and use it. Try to avoid using the crane's proximity control terminal).

② Proportional display of diesel fuel level;

③ Timer;

④ Emergency stop icon (In remote control mode, press the remote emergency stop switch or the crane's proximity control emergency stop switch to display the emergency stop icon; in manual mode, press the crane's proximity control emergency stop switch to display the emergency stop icon).

⑤ Date display;

⑥ Water temperature alarm (the alarm will be displayed when the water temperature is

too high, otherwise the alarm will disappear);

⑦ Engine oil pressure alarm (the alarm will be displayed when the engine is not running; when the engine is running and the oil level is normal, the alarm will not be displayed; otherwise, the alarm will be displayed).

⑧ Engine charging failure (the alarm will be displayed when the engine is not working; the alarm will not be displayed when the engine is working and the charger is working normally; otherwise, the alarm will be displayed).

⑨ Battery power alarm (when the battery power is low, the battery needs to be charged in time).

⑩ Hook retraction mode (When the hook retraction mode is enabled and the hook is in over-winding state, the hook retraction diagram will be displayed);

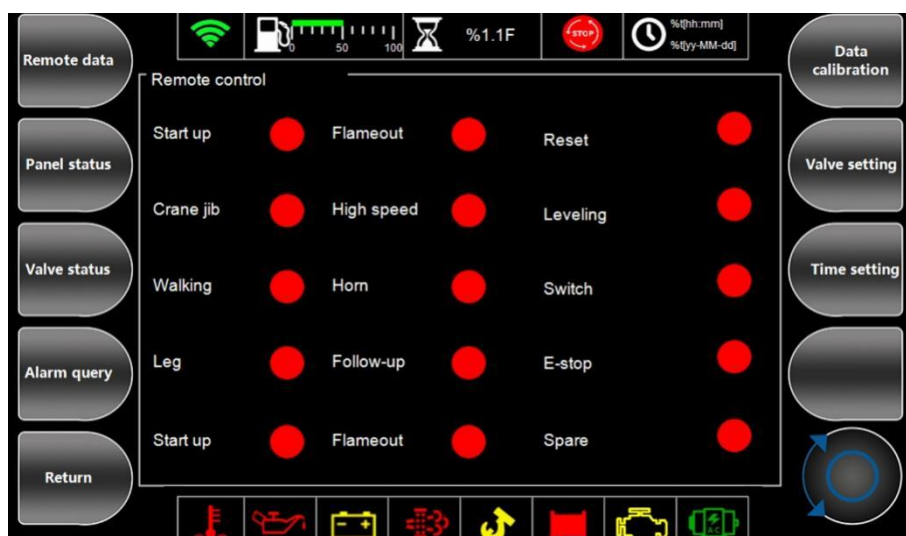
⑪ Three-turn alarm (When the wire rope wound on the winch has about three turns left, the winch alarm diagram will be displayed).

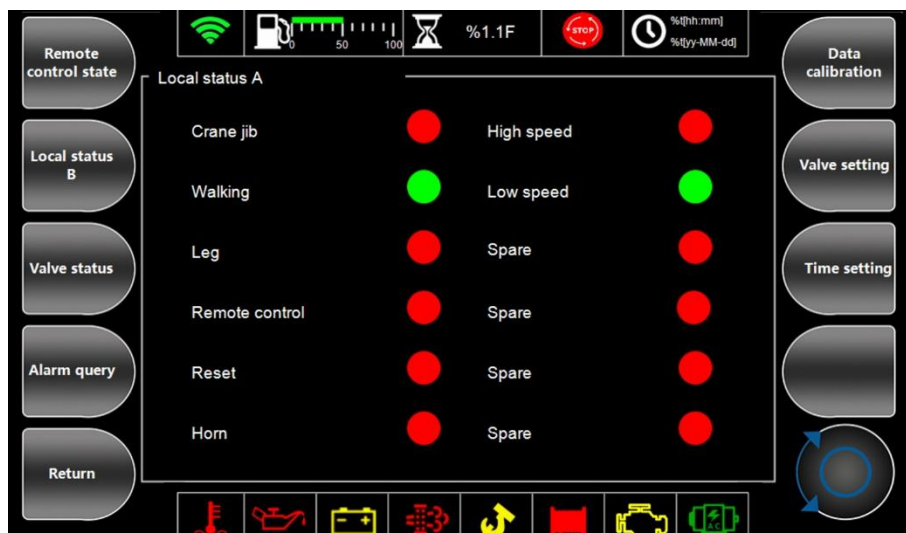
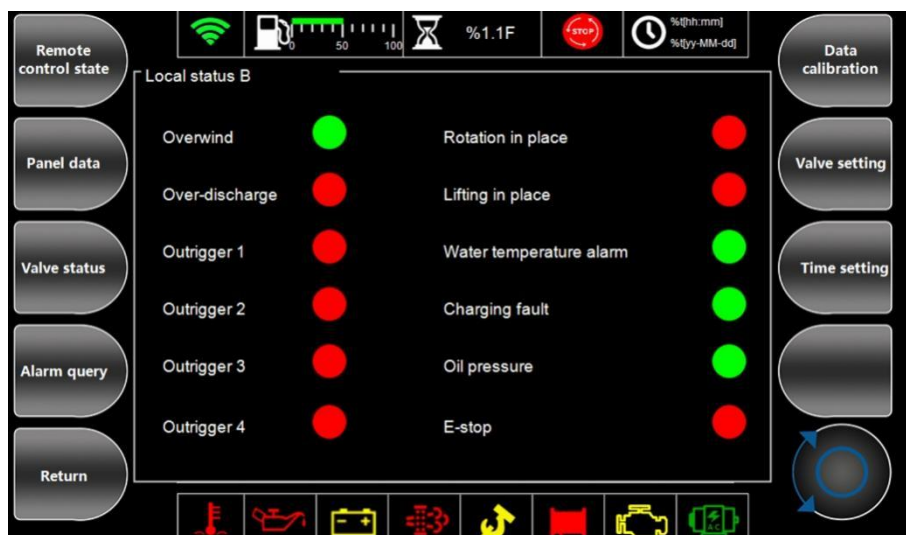
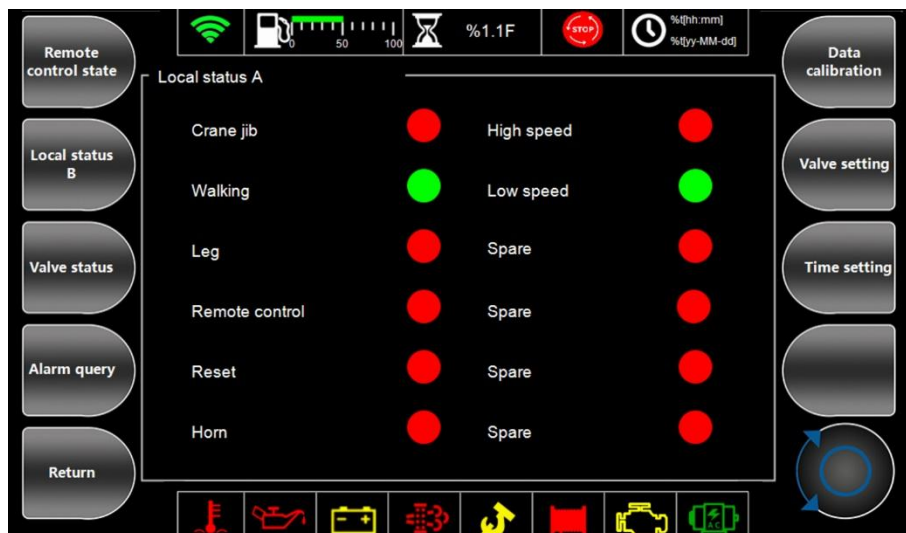
⑫ Engine started;

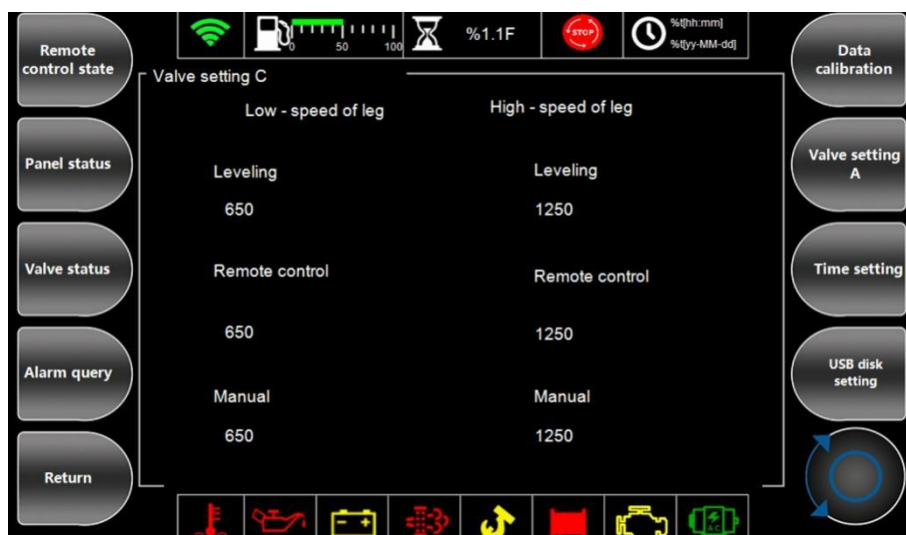
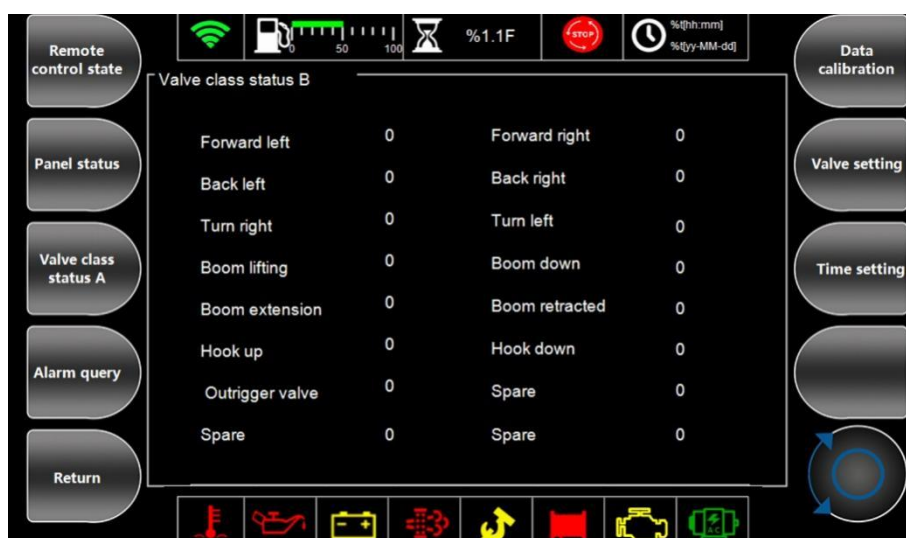
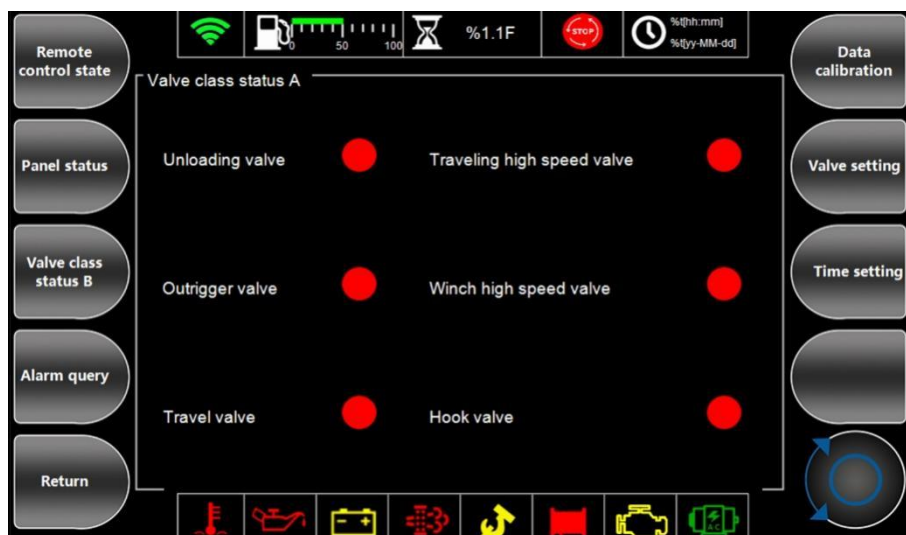
⑬ Motor starting status;

Note: When the above fault alarm occurs, please stop operating the equipment, check if the crane is indeed malfunctioning, and troubleshoot the problem before resuming equipment operation. (The above-mentioned crane proximity control refers to the crane's control panel cover.)

11) Other torque interfaces







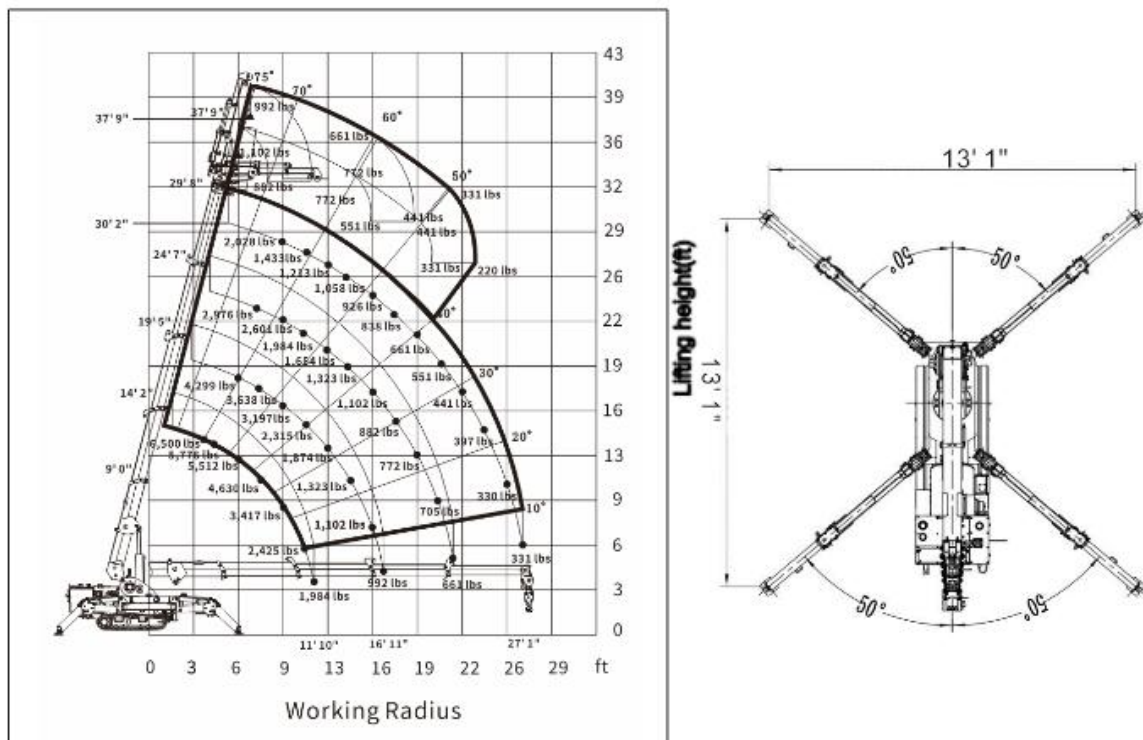


(4) When shutting down, be sure to turn off all control switches, otherwise the battery will be depleted. If the crane has not been used for more than a month, please charge the battery for 8 to 12 hours before the next use. Connect one end of the charging cable to an AC 220V power source and the other end to the battery charging port provided on the equipment to charge the battery.



(5) During lifting operations, the current lifting weight can be monitored in real time by observing the pressure-lifting weight gauge. Before lifting, the working radius can be adjusted appropriately based on the lifting weight gauge.

Working Range Diagram



Total rated load outriggers at Maximum positions /at any other positions.

9'14\"/>

(6) Leveling function

1. The crane is equipped with a leg leveling function, which can be achieved by using the joysticks and leveling buttons corresponding to the four legs on the remote control.
2. First, select the leg support mode using the mode selection dial on the

remote control.

3. First, use the outrigger joystick to place all four outriggers on the ground and confirm that all outrigger sensors are outputting signals and that the lights on the outriggers are lit.
4. First, use the four joysticks to adjust the crane to be about 10cm off the ground.
5. Press and hold the leveling button to level the crane. Once leveling is complete, the three-color indicator light will turn green.

(7) Description of the colors and status of the tri-color lights

7.1) travel mode:

Yellow light: You may proceed with the operation while traveling.

Red light: Emergency stop mode

7.2) Outrigger mode:

When the outriggers are not grounded, the tri-color lights and outrigger indicator lights are all off; when the outriggers are grounded, the outrigger indicator light is green, and the tri-color lights are still off; when all four outriggers of the equipment are grounded and the indicator lights are green, the tri-color lights change color according to the crane angle: $3^\circ \leq \text{crane angle}$, the tri-color lights are red.

If the crane body angle is between 0.8° and 3° , the tri-color indicator lights will illuminate yellow.

When the crane body angle is less than 0.8° , the three-color lights will turn green.

When the boom positioning indicator light turns red or yellow, the three-color light turns red and the buzzer sounds.

In emergency stop mode, the three-color indicator lights turn red and the buzzer sounds.

7.3) Crane boom mode:

Green light: Load rate $\leq 90\%$

Yellow light: $90\% < \text{load rate} \leq 100\%$

Red light: Load rate $> 100\%$, emergency stop, outriggers off the ground, hook over-winding.

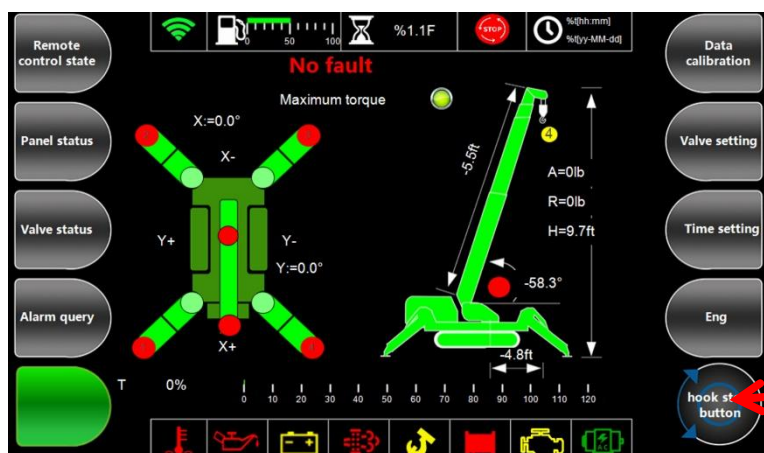
(8) Crane boom retraction operation

The equipment hook is equipped with a hook retraction mode for raising and lowering the hook. Before operating the boom for lifting operations, the hook retraction mode must be turned on using the hook retraction mode switch button on the equipment display screen. Then, start lowering the hook until it separates from the counterweight installed on the boom head, i.e., after the hook over-winding alarm is cleared, turn off the hook retraction mode before lifting operations can begin.

After the boom operation is completed, wait until the boom is fully retracted and

leveled (i.e., the boom is in the reset state), then continue to retract the hook until it contacts the counterweight installed on the boom head. After the hook over-winding alarm is activated, turn on the hook retraction mode switch button on the equipment display screen, and then continue to retract the hook until it is pressed tightly against the fifth boom section head. This completes the hook retraction operation, and then the outrigger operation can begin.

★ The one-click hook retraction function only works with one rope clip (with the rope end exposed by about 30mm). If there is more than one rope clip, the one-click hook retraction function cannot be used!



The hammer and the hook separate, over-wind alarm is released

Hook stow button

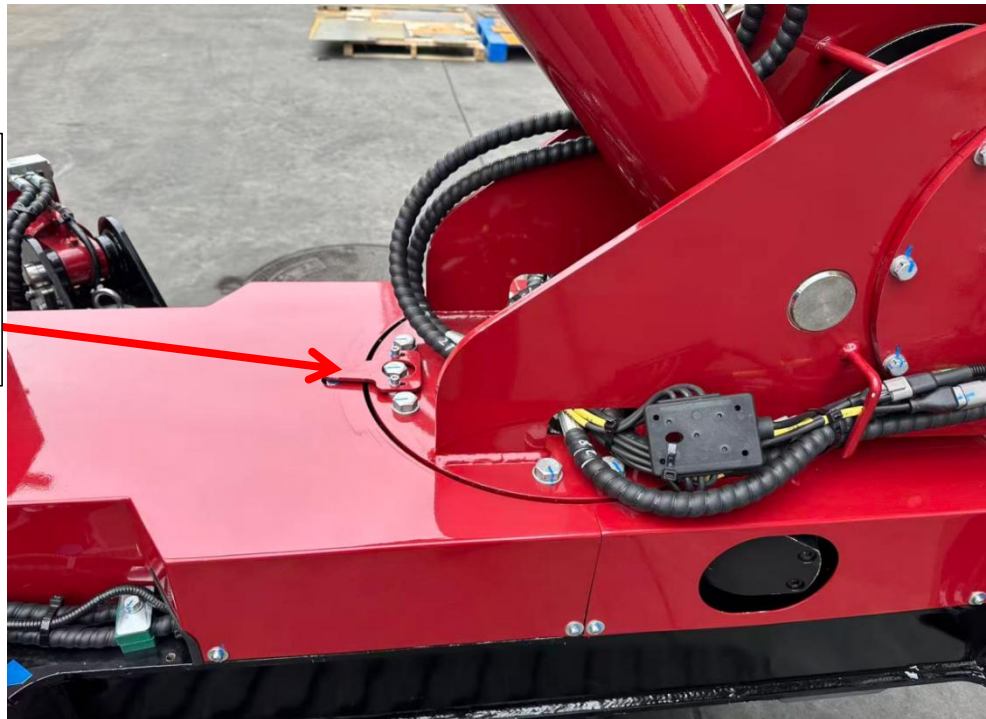
(9) Three-ring alarm device

The equipment hoist is equipped with a three-turn alarm device. When there are only about three turns of wire rope left on the hoist, the hoist will enter the alarm state. At this time, the boom will stop moving. You need to press the torque reset button and then wind more than three turns of wire rope on the hoist to deactivate the hoist alarm state.

(10) boom positioning detection device

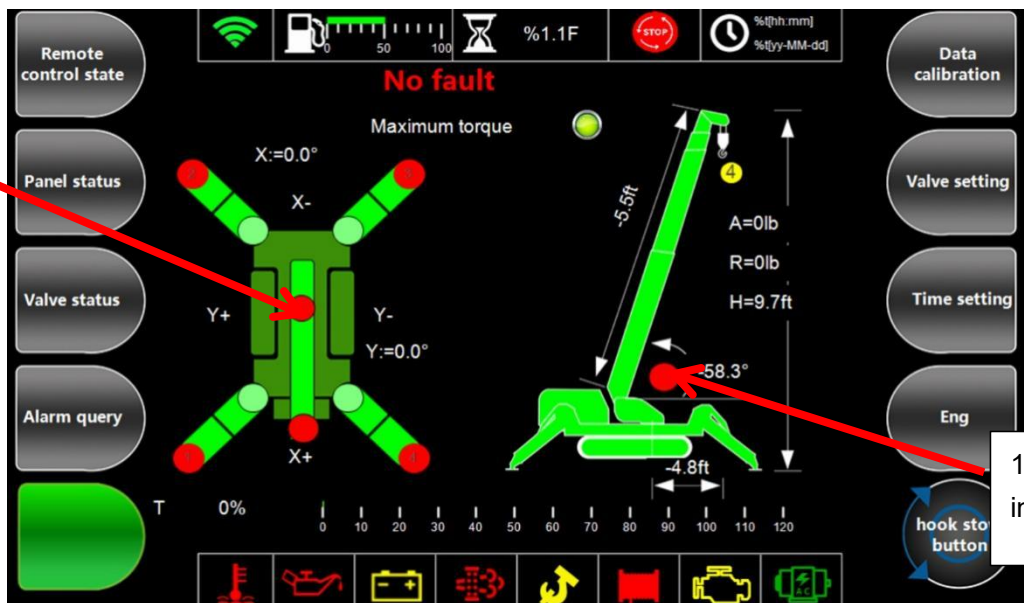
The equipment is equipped with a boom positioning detection device, which uses a proximity switch to detect the boom's rising and falling position and its rotating position. The detection position is shown in the figure below:

Boom
slewing in
place
detection



When the boom does not rise or rotate properly, i.e., when both position detection switches fail to detect it, the boom position indicator light will turn red.

Boom in
place
indicator



10° angle
indicator

When either the boom's undulation or slewing is in position, or only one of these two is detected as in position, the boom position indicator light will illuminate yellow.

When the boom's undulation and slewing positions are simultaneously detected, the boom position indicator light turns green.

Boom and outrigger interlock function: When the boom position detection indicator light is green, the outriggers can only be operated when switching from boom mode to outrigger mode; when the boom position detection indicator light is yellow or red, the outriggers cannot be operated when switching from boom mode to outrigger mode.

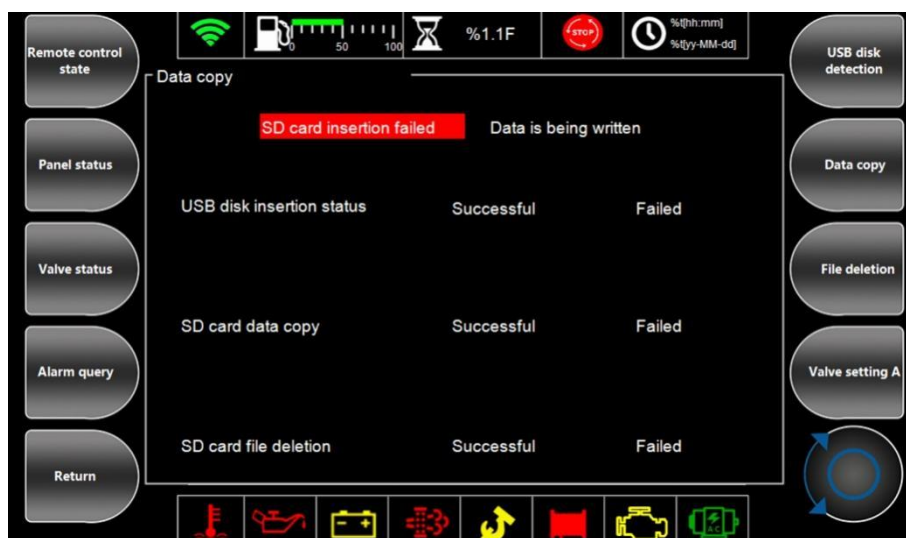
In an emergency, if the boom positioning indicator light turns yellow or red and the

outriggers need to be operated, first switch the equipment to outrigger mode, then press and hold the reset button before operating the outriggers.

When the boom angle is below 10°, the 10° warning indicator turns red, and the machine cannot lift heavy loads at this time; when the boom angle is above 10°, the 10° warning indicator turns green, and the machine can lift heavy loads normally at this time.

(11) Data recording function:

This function requires a USB flash drive for copying. The system will detect the USB flash drive upon insertion and begin copying data once detected. Simply click the "Copy Data" button to start the copying process. Note that the USB flash drive must be powered off before inserting or removing it.



Press F7 on the main interface, enter the password to enter the valve settings page, and press F9 to switch to the USB flash drive settings page.

USB flash drives must only be inserted or removed when the power is off. Inserting or removing them while the power is on risks damaging them.

When using a USB drive to upgrade the system, please wait until the progress bar reaches 100% and indicates completion before unplugging the USB drive.

Do not unplug or plug in the USB drive while data is being written to prevent file corruption.

USB flash drive test: Detects whether the USB flash drive has been inserted;

Data copy: Copy the controller data to the USB flash drive;

File deletion: Delete files on the SD card;

Data generated content: Date, Time , Working Duration , Engine Running Duration , Motor Running Duration , Fault Code , Mode , Main Boom Length , Main Boom Angle , Flying Boom Length , Flying Boom Angle , Working Height ,

Lifting Capacity , Current Weight , Wind Speed , Temperature , X-Axis Tilt , Y-Axis Tilt , Outrigger 1 Status, Outrigger 2 Status, Outrigger 3 Status , Outrigger 4 Status, Boom Not Retracted , Three-Turn Alarm , Overwind Alarm, Power Mode , Emergency Stop , Outrigger Running Duration , Travel Duration , Boom Elevation Duration , Reel Running Duration , Boom Extension/Retraction Duration

(12) Outrigger leveling function:

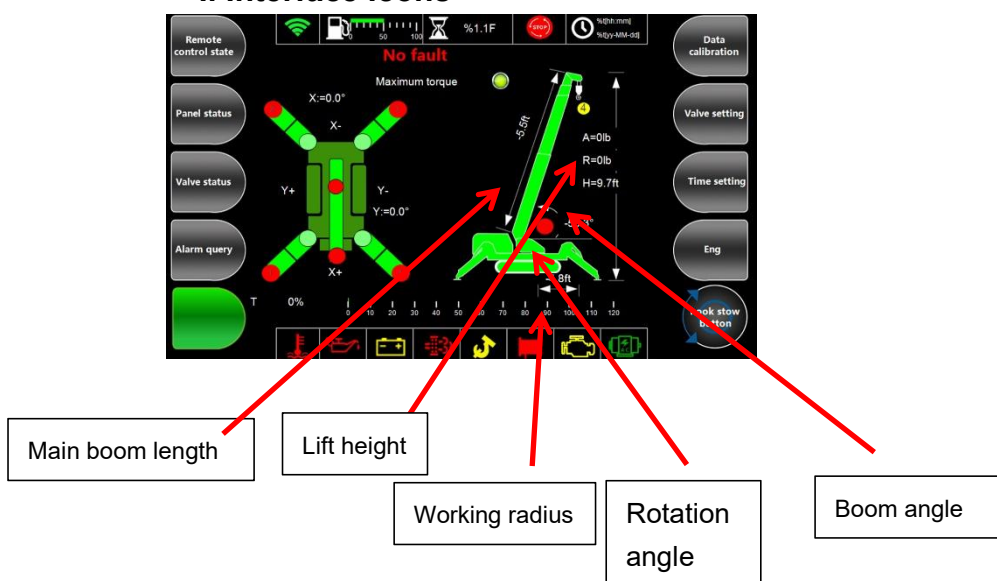
12.1) The device is equipped with a leg leveling function, which can be achieved by using the joysticks and leveling buttons corresponding to the four legs on the remote control.

12.2) First extend the inner legs of the four outriggers, then switch the outrigger mode on the remote control to the outer outrigger mode;

12.3) Press and hold the leveling button on the left side of the remote control. The hydraulic cylinders of the No. 2 and No. 3 outriggers of the equipment will gradually extend and ground to raise the equipment to a certain angle and then stop. Then the hydraulic cylinders of the No. 1 and No. 4 outriggers will gradually extend to level the crane body. After leveling is completed, the three-color light will turn green.

(14) Virtual Wall Function: This function is only available when operating with the remote control. When using this function, it is forbidden to operate the valve stem of the hydraulic valve!

I. Interface Icons

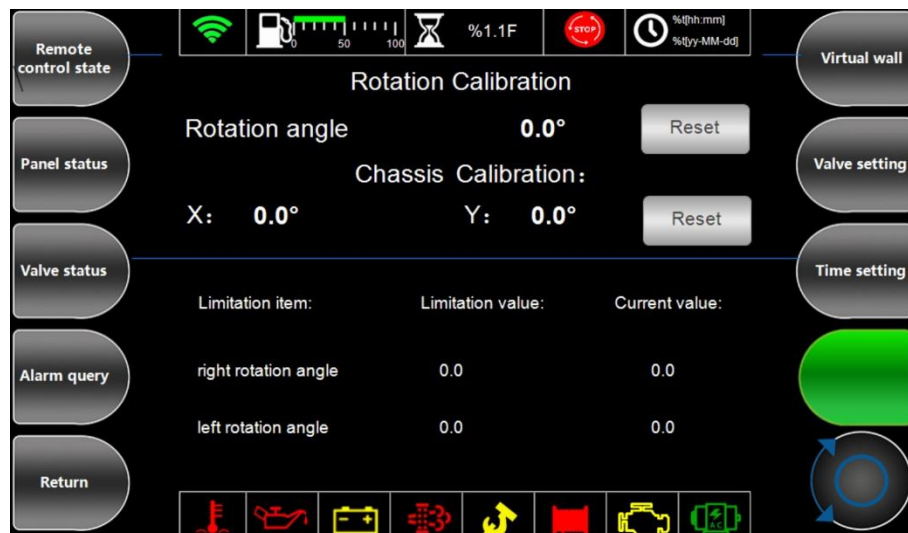


The main boom interface and boom page now include indicator arrows for limits such as maximum height, working radius, main boom length, boom length, main boom

angle, main boom angle, boom angle, boom angle, boom angle, etc. When a corresponding limit alarm is triggered, the corresponding arrow turns red; when the corresponding arrow is white or not displayed, the alarm condition has not been met.

II. Calibration Function and Virtual Wall Limitations

On the main screen, press F6, enter the password, and enter the data calibration page. Press F6 again to enter the data calibration interface as shown in the image below:

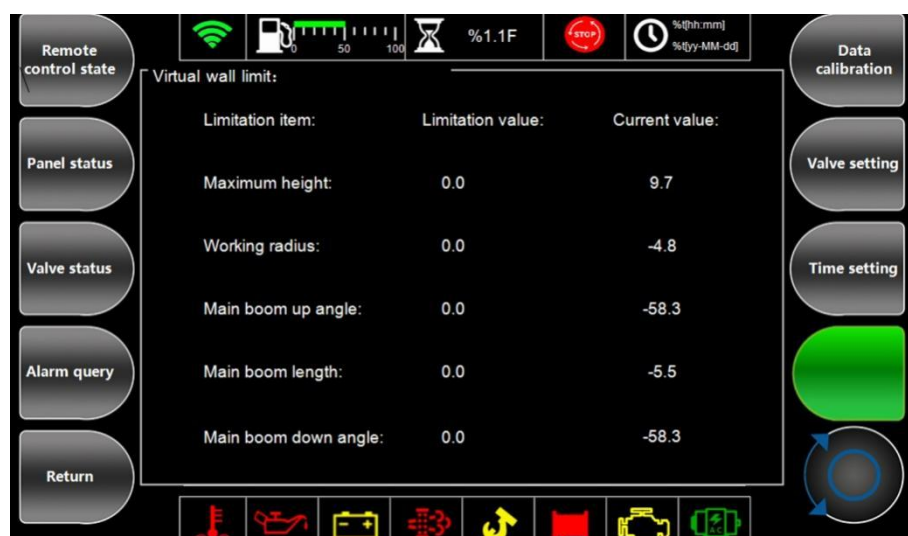


Slewing calibration: When the slewing position sensor detects that the slewing is in place, click the "zero" button for slewing calibration to set the slewing angle to 0°. At this time, the boom will rotate 360° in one revolution.

Crane Body Calibration (Vertical Calibration): This function is used in conjunction with the leveling function. It is used when the actual crane body angle deviation is large after one-click leveling. Position the crane in a suitable position, click the "Zero" button in the crane body calibration, and set the X and Y angles to 0°. Use the horizontal plane at this point as the leveling reference plane.

Right turn angle restrictions and left turn angle restrictions are for the Virtual Wall part of the content;

On the main screen, press F6, enter the password, and enter the data calibration page. Then, press F6 twice to switch to the virtual wall restriction page, as shown in the image below.



Restricted items: physical information of the machine

Limit values: Manually set the limit values for the corresponding machine information.

Current value: The actual value of the machine's physical information during operation.

Right turn angle, maximum height, operating radius, main boom length, boom length, main boom lift angle, boom lift angle;

When the current value is greater than or equal to the limit value, the alarm will be triggered: the machine will alarm, the color of the item will turn red, a red arrow will be visible on the display interface, and the machine will not be able to proceed in the direction of exceeding the limit value.

Left turn angle, main boom angle, boom angle

When the current value is less than or equal to the limit value, the alarm will sound, the machine will turn red, a red arrow will be visible on the display screen, and the machine will not be able to proceed in a direction that exceeds the limit value.

When the settings are: Main boom elevation angle = Main boom droop angle

The boom lifting angle equals the boom bending angle. The machine is alarming. Please adjust the setting.

(15) Installation and use of hydraulic boom

Extend the boom : First, remove pin #1, rotate the boom until it aligns with hole #3, and insert the pin. Remove pin #2, continue rotating the boom until it aligns with hole #4, and insert the pin into hole #4.

Retract the boom : The opposite of the above operation.

4. Safety Warning:

To ensure safe use of cranes, relevant safety warning signs should be affixed to

appropriate locations on the crane to remind users, raise their awareness, and prevent safety hazards caused by incorrect operation.