VANSE

Instruction Manual

VANSE

Daily Pre-startup Check

Before starting the machine, please check the following:

☐ Visually inspect the head to confirm if there is any wear or friction on the rubber hose, as well as any hydraulic leakage

☐ Check if the auger can be manually rotated (is the bearing of the auger stuck?)

☐ Check all rod bolts on the vibrator components (may loosen due to high frequency)

☐ Replace/re tighten any loose or missing bolts (use screw locking agent on all bolts)

☐ Check the oil level

☐ Check fuel level

☐ Check the air filter

☐ Check the hydraulic oil level

☐ Check battery condition

☐ Check the condition of the hydraulic cooler fins

☐ Check for any obstacles in the engine cooling intake and exhaust ports

☐ Check if there is any leakage in the hydraulic pump and related hoses/accessories

☐ Check if there is any leakage in the hydraulic oil filter and related hoses/accessories

☐ Check tire condition and tire pressure

☐ Check the circuit breaker

☐ Ensure that all protective and safety stickers are in the correct positions

☐ Check that the laser/electronic equipment is functioning properly

Contents

Statement

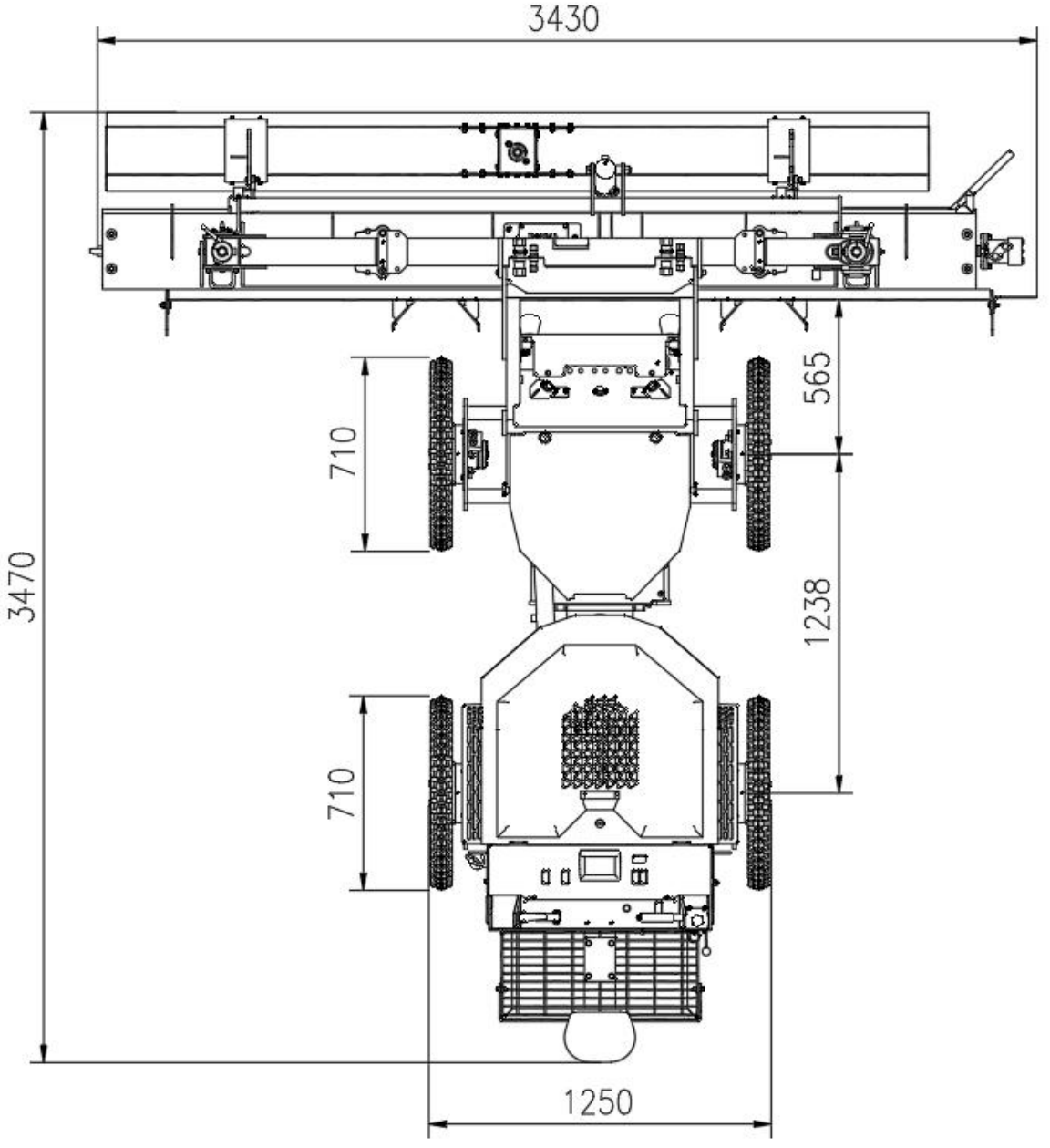
For the performance of our machines and the benefit of our customers, our company's machines will continue to be iterated and updated. Some contents in the manual may differ from the latest products without prior notice.

Due to different language habits in different countries, errors are inevitable in the translated text.

The operator should use the machine under the constraints of local laws and regulations.

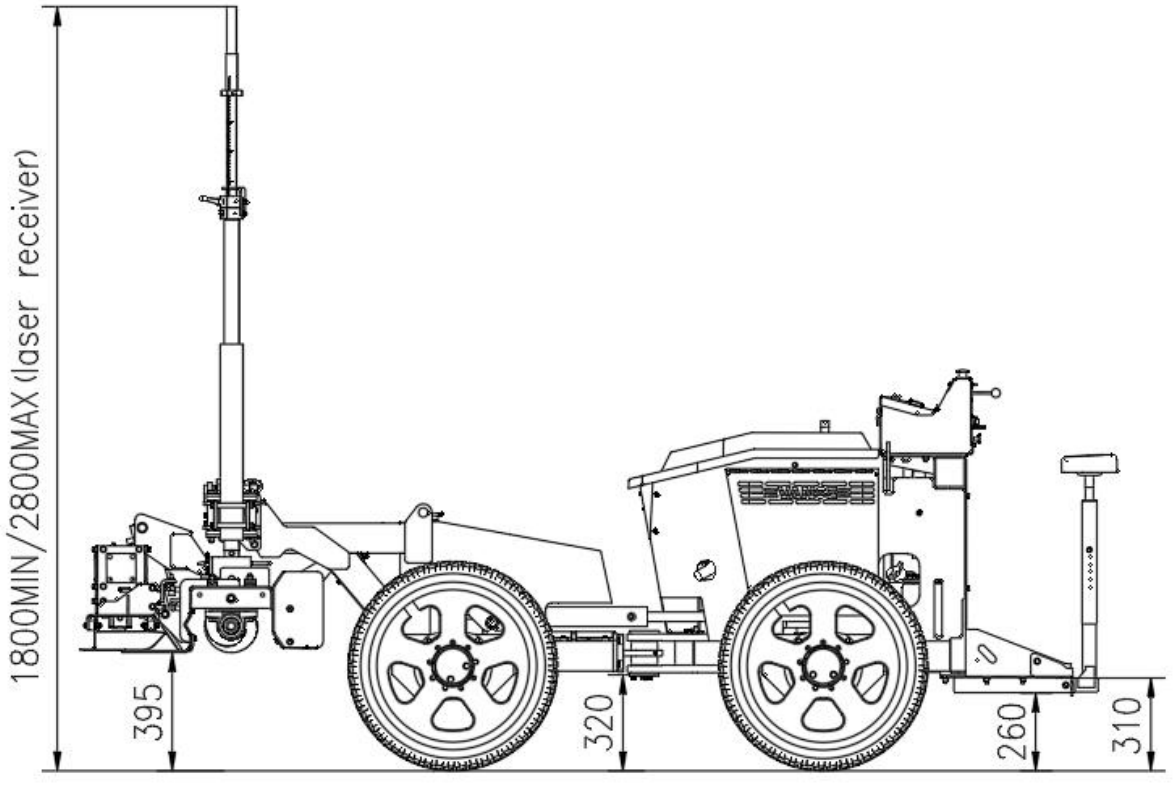
Speedcrete CP Ltd reserves the final interpretation right of this manual.

Appearance size -3 meters laser leveling head

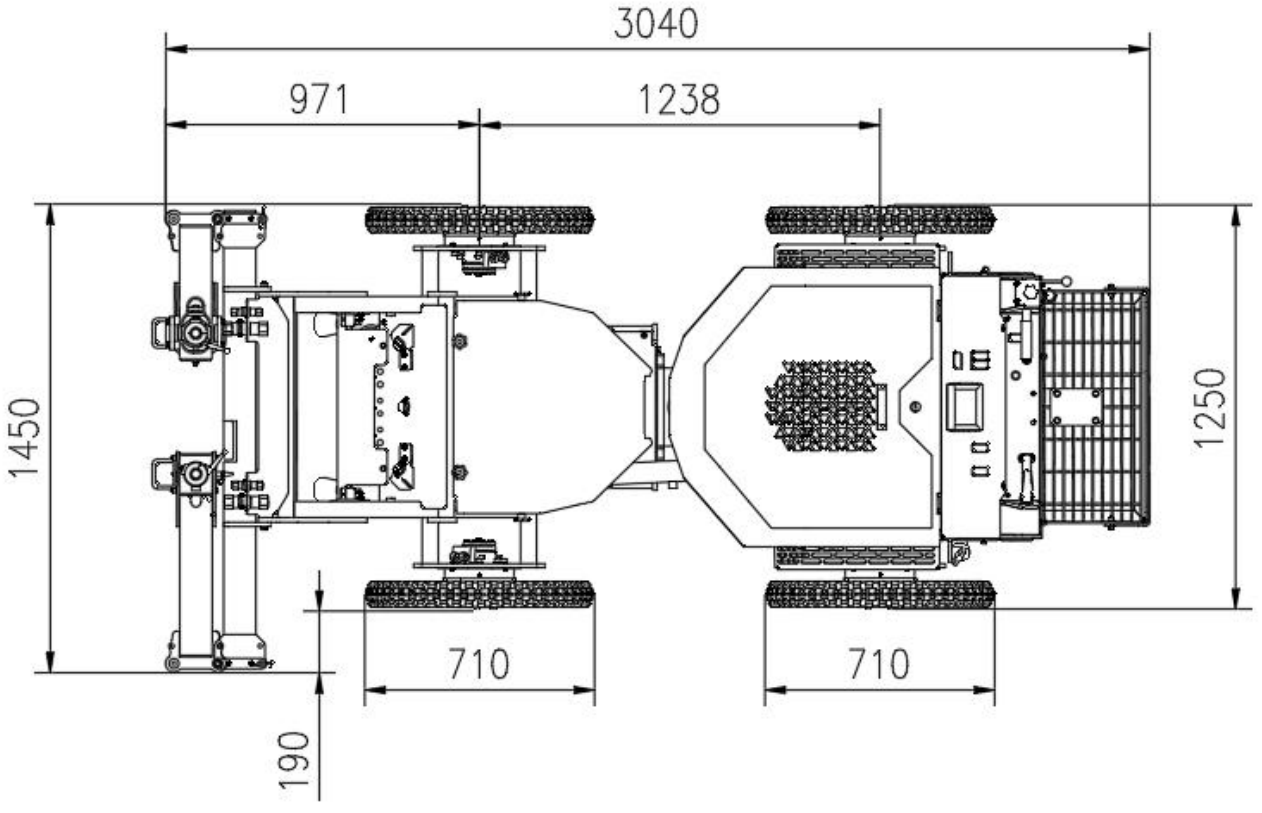


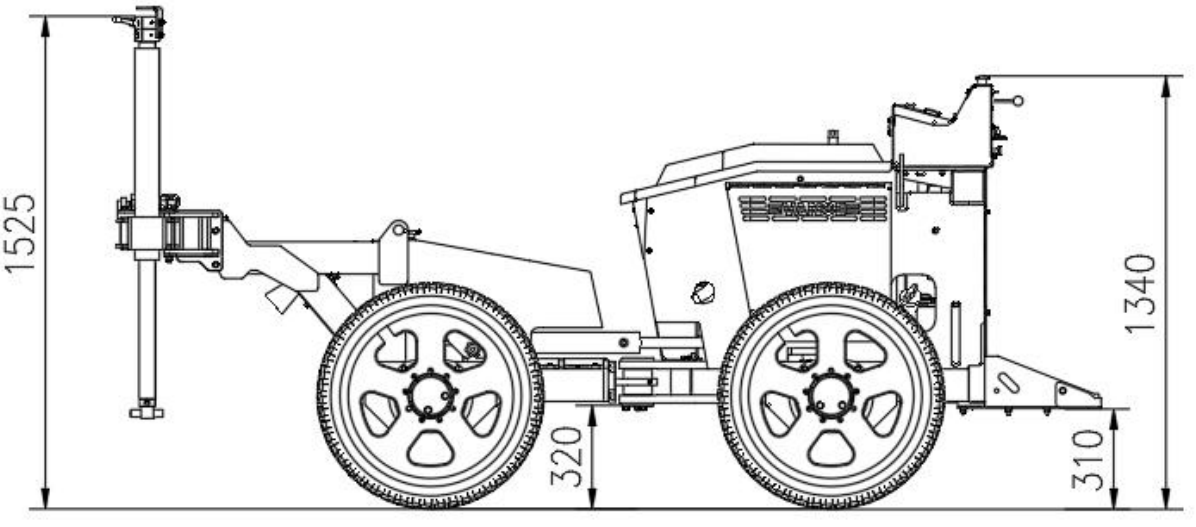
Overall size

Overall size

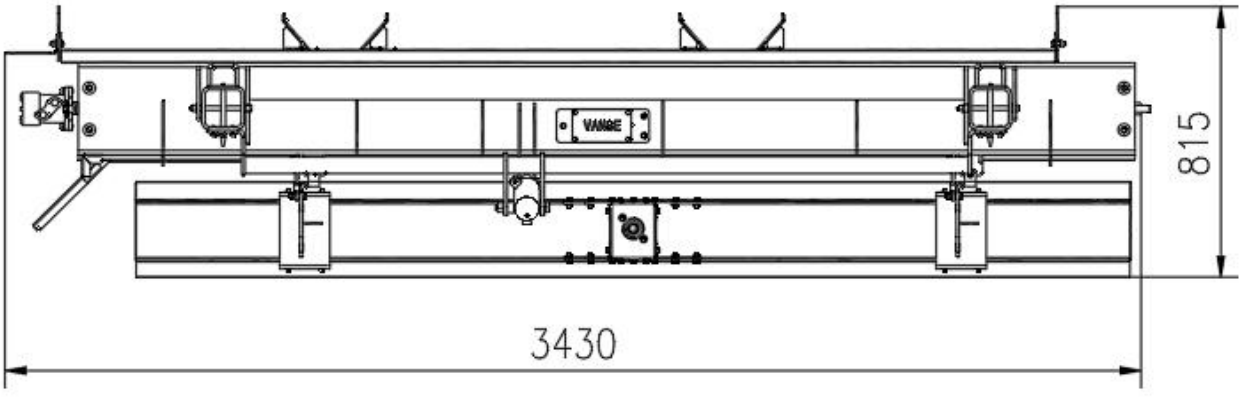


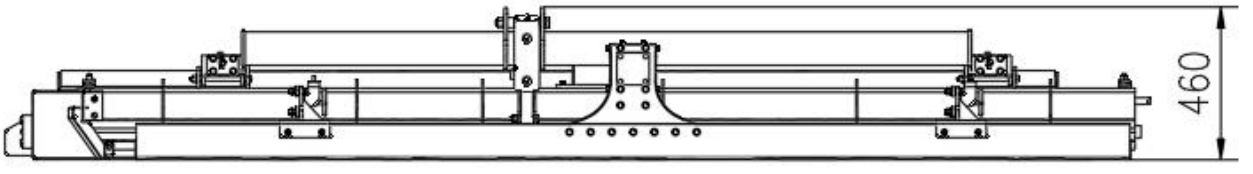
Body packing size





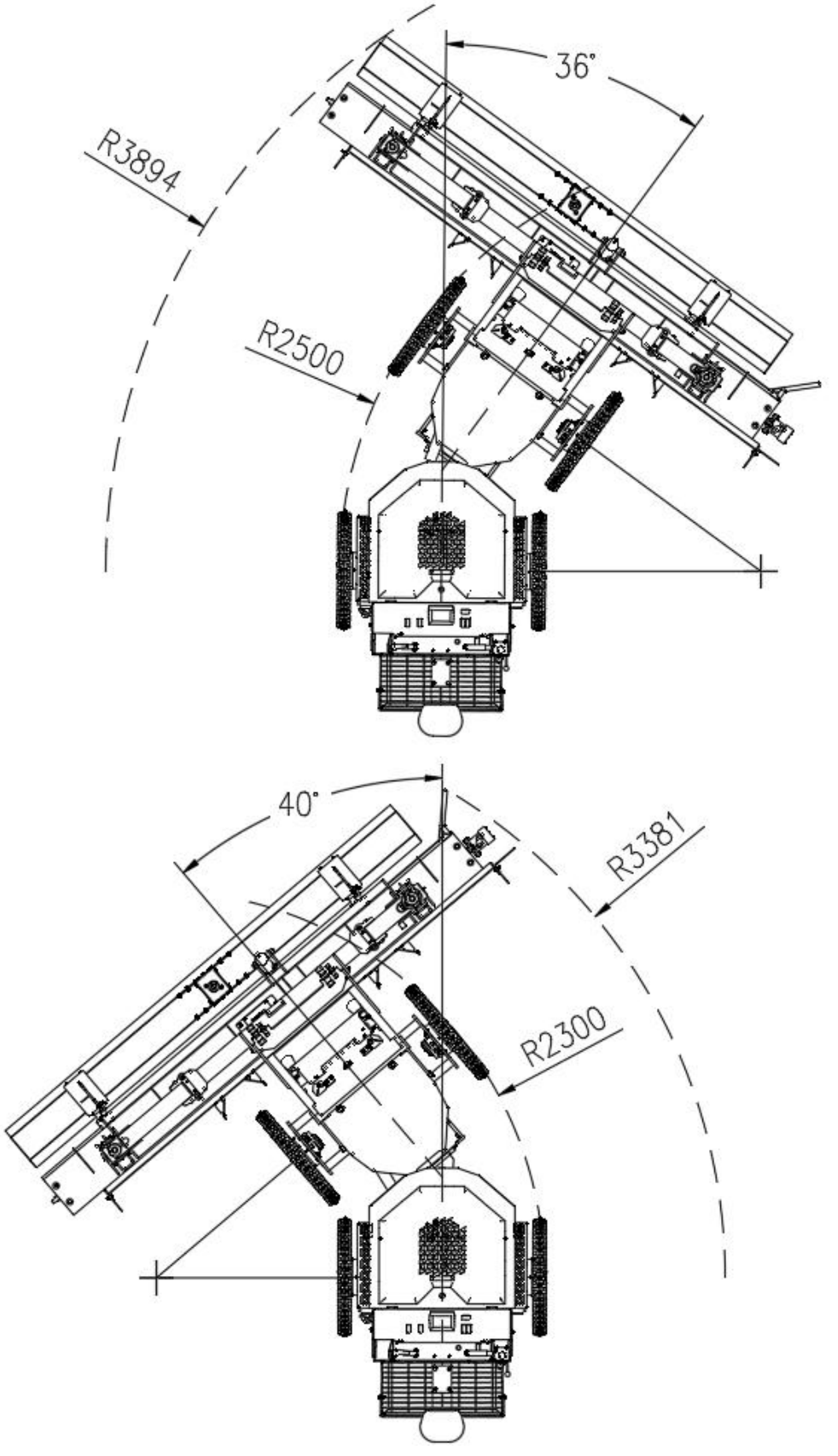
Working head packing size





Note: The optional transport wheel height for the work head is 650mm

Turning angle and radius



WS940C Specifications

Overview		
Product type	Type	WS940C
	Classification	Self driving (vehicle type) construction machinery
	Product Name	Four wheel concrete laser leveling machine
Engine	Type	HONDA GX690
	Style	Petrol, air-cooled 4-stroke, dual cylinder
	Power	18.4Kw
	Lubricating oil(L)	1.9
	Fuel tank volume(L)	19
Leveling system	Working head	Fixed type
	Leveling width (mm)	3000
	Paving method	Auger paving
	Auger	Power low-speed high torque cycloidal hydraulic motor
	Vibration system control method	Hydraulic vibration
	Excitation force N	200-900
	Vibration frequency（HZ）	50-60
Laser system	Laser system control mode	Micro computer laser scanning
	Laser system control effect	Flat, sloping, 3D
Walking system	Drive	Reducer+motor
	Wheel	Pneumatic tire
	Speed（Km/h）	4.5
	Minimum turning radius（mm）	2300(Attached diagram)
	Steering angle	Left40° Right36°(Attached diagram)
	Swing angle	±8°
Operation method	Seat	Yes
	Forward/Backward	Handle control
	Steering	Handle control
	Working mode	Leveling/rough scraping
	Other functions	Soft landing, data monitoring, parameter adjustment, fault diagnosis
Size and weight	External dimensions（mm）	3470×3430×1525 (Attached diagram)
	Packing size	Body 3040×1450×1525，Head 3030×815×460 (Attached diagram)
	Weight（Kg）	835

Specifications

Power unit	
Type	**Gasoline**
Model	HONDA GX690
Category	4-stroke with 2 cylinders, air-cooled
Horsepower	25HP(18.4 kW)@3600 rpm
Fuel	Petrol, with a minimum octane rating of 87
Start-up	Electric start
Battery/Electrical Appliances	12V DC and 360 watt AC generator (26 amps)
Control	Manual throttle and damper with electric opening and closing

Powertrain - Drive System	
Propulsion system	Hydraulic drive motor, gear ratio 5.33 for each tire
Propulsion control	Proportional control lever and valve drive hydraulic motor
Tires - Standard	21 inch (30.5 cm) pneumatic motorcycle tires
Tires - Standard	80/100x21 inch (30.5 cm) motorcycle tires with strong grip tread
Tires - Optional	21 inch solid tires
Tires - 0ptional	26*9-14 tires with strong grip tread
Brake	Parking brake, wet disc - device in front wheel drive motor

Hydraulic system	
Hydraulic pump	Load sensitive plunger pump
Rated flow	18gpm(68.13 lpm)@3600rpm
System pressure	21 MPa(3045 psi)
Filtration system	10 micron box top loop filter
Hydraulic fluid	# 46 Wear-resistant Hydraulic fluid,16 L (4.3 gal)
Valve group type	Pressure compensated flow control cartridge valve
Hydraulic oil cooler	Radiator with DC fan

Function	
Walking	Hydraulic motor, reducer 5.33:1
Lift control, rotary motor	Laser control of the working head by lifting the cylinder
Lifting cylinder	Cylinder diameter 50mm, rod 35mm, stroke 405mm(16 inches) hydraulic cylinder
Turning	Cylinder diameter 50mm, stroke 263mm(10 inches), proportional control hydraulic cylinder

Specifications

Fluid capacity	
	HONDA GX690
Engine oil	1.9 L (64 oz)
Fuel tank	19L(5 gal)
Hydraulic oil	16L(4.2 gal)

Scale Overview	
Total width	3.43 meters (135 inches) **[3 meters head]**, 1.25 meters (49-1/2 inches) wheels (standard tires) 2.93 meters (112 inches) **[2.5 meters head]**, 1.25 meters (49-1/2 inches) wheels (standard tires) **[optional]**
Total length	3.47 meters (136 inches) including seats, 3.25 meters (128 inches) excluding seats
Lifting oil cylinder	Excluding receiver rod, 1.52 meters (60 inches)
Turning	0.31 meters (12-1/4 inches) from the bottom edge of the border
Head cleaning	0.395 meters (14-3/4 inches)
Floor thickness	0.25 meters (10 inches)
Mechanical weight	Paired with a 3-meter work head, the weight is 835 kilograms (1841 pounds) (HONDA GX690)

VANSE

Paint details

Paint

Colour	Paint color code	Material	Remarks
Signal white	RAL9003	Paint or plastic powder	
Coal gray	RAL7016	Paint or plastic powder	
Black	Pure black	Paint or plastic powder	

To the operator

This manual mainly introduces the structure, performance, driving operation, maintenance, transportation and storage of WS940C laser leveling machine, and provides comprehensive and detailed explanations. It provides basic knowledge for management and operators to use the above equipment efficiently, economically, and in good condition.

The rules and guidelines in the manual help you use the machine safely and effectively. When operating and maintaining, it is necessary to read and follow the precautions in this manual to avoid accidents and serious injuries that may occur due to improper operation and maintenance.

Due to the continuous updates and iterations of the product, there may be slight discrepancies between the content of this manual and the actual device. No further notice will be given, and we apologize for any inconvenience caused.

WARNING

Before starting operation and maintenance, operators and maintenance personnel must pay attention to the following matters:

- Before carrying out operations or maintenance, it is essential to read and understand this manual thoroughly.
- Please read the safety notices and safety labels attached to the machine in this manual and fully understand them.
- This manual should be stored in a designated storage location and should be read regularly.
- If this manual is lost or damaged and cannot be read, please contact our company immediately.

If you want to sell or rent the machine, please hand over this manual along with the machine to a new user.

Safety signs and language

To help you use the laser leveling machine safely, this manual and this locomotive are affixed with safety precautions signs to provide instructions on potential dangerous situations and methods to avoid such dangerous situations.

The following identification terms indicate potential hazards that may cause personal injury or damage. In this manual and on the machine label, the following identification terms are used to indicate the potential level of danger.

If not avoided, the consequences of danger will lead to death or serious injury.

If not avoided, the potential dangerous consequences may lead to death or serious injury.

If not avoided, the potential dangerous consequences may lead to lower or moderate degrees of harm.

Security

Emergency preparedness conditions

The construction site needs to prepare first aid kits and fire extinguishers. And the venue can receive emergency assistance from hospitals, fire departments, and other institutions.

Wearing protective clothing

Wear tightly fitting clothing and safety equipment suitable for work. Long term exposure to noise may cause hearing damage or loss. Operators and users of rakes must wear appropriate hearing protection devices, such as earmuffs or earplugs. And concentrate on operating the machine safely.

Safely handle fuel

Fuel is very flammable. Do not refuel your machine while smoking, approaching open flames or sparks. Stop the engine and cool down for at least 10 minutes before refueling. Refueling outdoors. By keeping your machine free of any spilled fuel, avoid a fire. Use a funnel to refuel.

Working in a well ventilated area

The exhaust gas emitted by the engine can cause illness or death. If it is necessary to operate your machine in a closed area, use an extended exhaust pipe to remove waste from the area. Do not operate the engine for extended periods of time in enclosed buildings.

Battery charging precautions

(Please refer to the battery charging instructions page)

Avoid high-pressure fluids

The fluid sprayed under pressure can penetrate the skin and cause injury. Reduce pressure before disconnecting hydraulic or other pipelines. Lock all interfaces before increasing pressure. If an accident occurs, please see a doctor immediately. Any fluid injected into the skin can be removed surgically within a few hours, otherwise it may cause bodily harm.

Do not look directly at the laser beam

Set the laser emitter at a height of 2.2 meters (7 feet) above the reference height.

Properly handle waste

When draining fluids such as engine oil, fuel, coolant, filters, and batteries, use leak proof containers. Do not use food or beverage containers as this may mislead people into drinking them. Do not dispose of waste on the ground, in the sewer, or in any water source.

Precautions during welding

If it is necessary to weld on the assembled machinery:

1) Remove the battery connection cable from the battery.
2) If the welding position is close to the battery, move the battery to a safe place.
3) Connect the welder's grounding clip as close to the welding area as possible.

To avoid electrical short circuits, please turn off the engine stop switch when the machinery is unattended.

Do not cross safety equipment devices

If there are any safety devices, such as engine stop buttons or operator in position switches, that are damaged or malfunctioning, repair or replace them before operating the machinery.

Before consulting with professionals, do not place machinery on any platform!

Before placing this machine on the platform, consult with professionals to ensure that the platform has the necessary conditions to support this machine.

Machine cleaning instructions

The machine control panel and other areas marked as not to be sprayed with water should not be exposed to rain or washed with a high-pressure water gun.

Turn off the engine stop switch

When working on the electronic system, please make sure to turn off the engine stop switch.

Using appropriate tools

When repairing WS940C, be sure to use appropriate tools and be extra careful when replacing precision components.

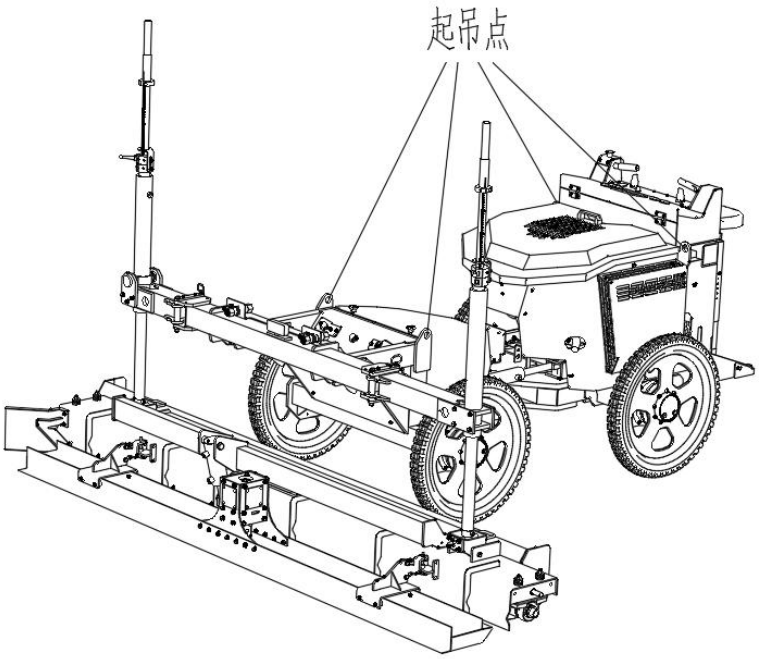
Lifting and moving machinery

WS940C can be moved using the provided lifting points.

Warning: Before using S-940 on any construction site, consult a professional.

1.)Turn off the machinery.
2.)Turn off all power sources.
3.)Use a lifting device that can carry more than 1000 kilograms.
-Hooked lifting ring
-Hanging straps with hooks
-Hooked cable loop

4.)Hook the lifting points on the frame
5.)Slowly lift the machine and constantly observe the lifting situation There must be no personnel below the lifting machine.



Volume

In general leveling situations, the noise level in the operating site does not exceed 107dBa.

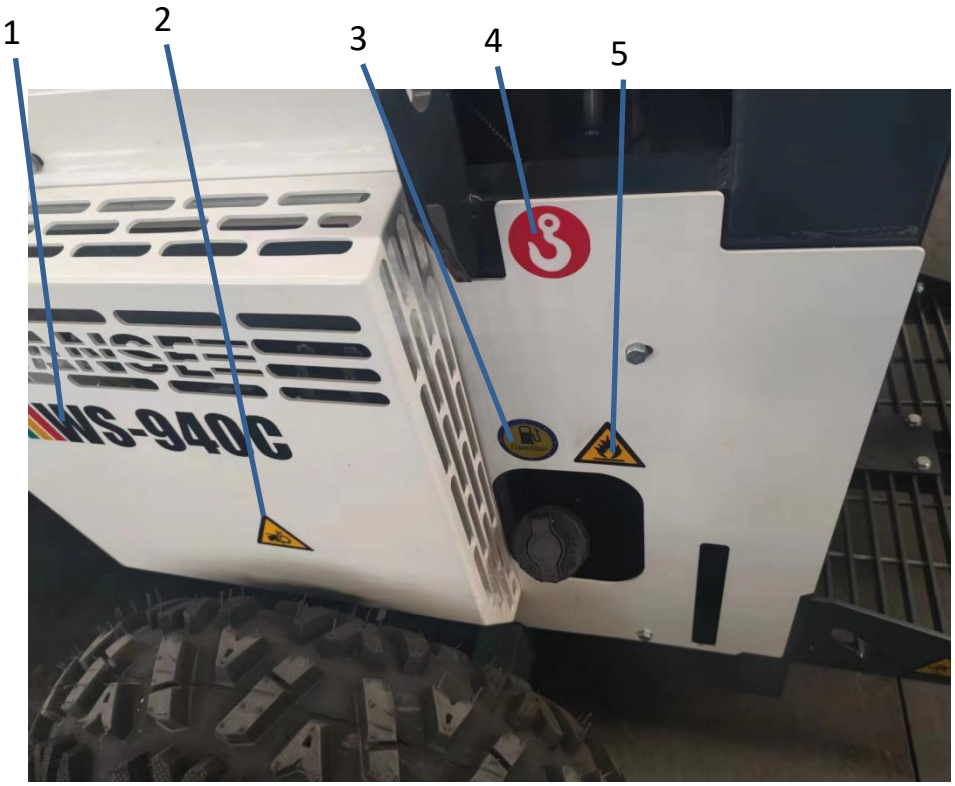
Attention: Environmental conditions, traffic, nearby obstacles, or ambient temperature may affect noise levels.

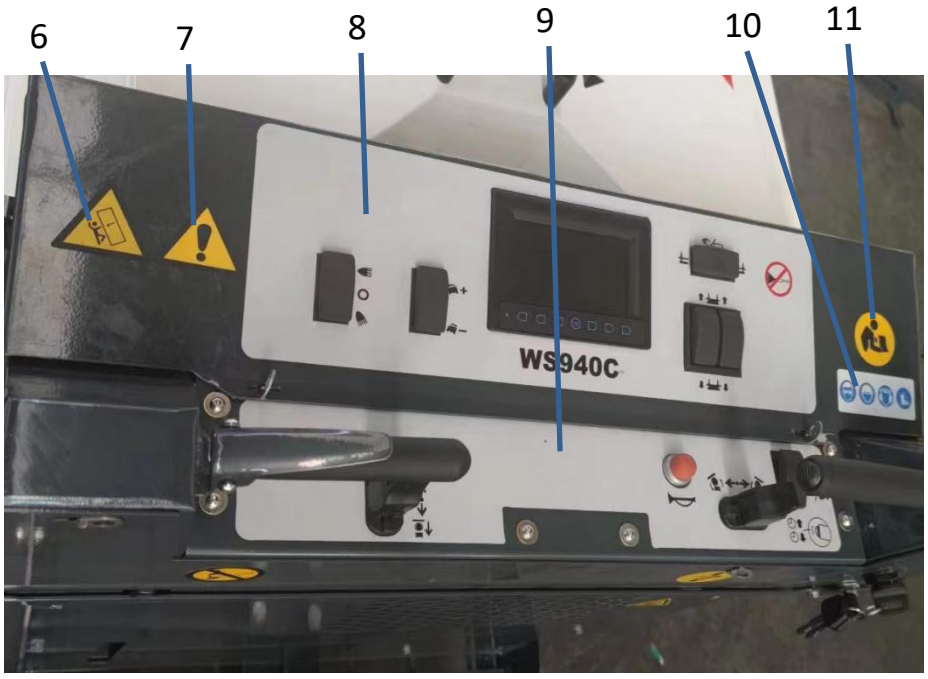
Vibration level

1. The vibration level in the operator's hand shall not exceed 2.5m/s ^ 2.
2. The vibration level on the operator's feet shall not exceed 0.5m/s ^ 2.

Attention: The vibration data was measured at room temperature and when the fuel meets the standard, and the actual situation may vary.

Location of safety signs

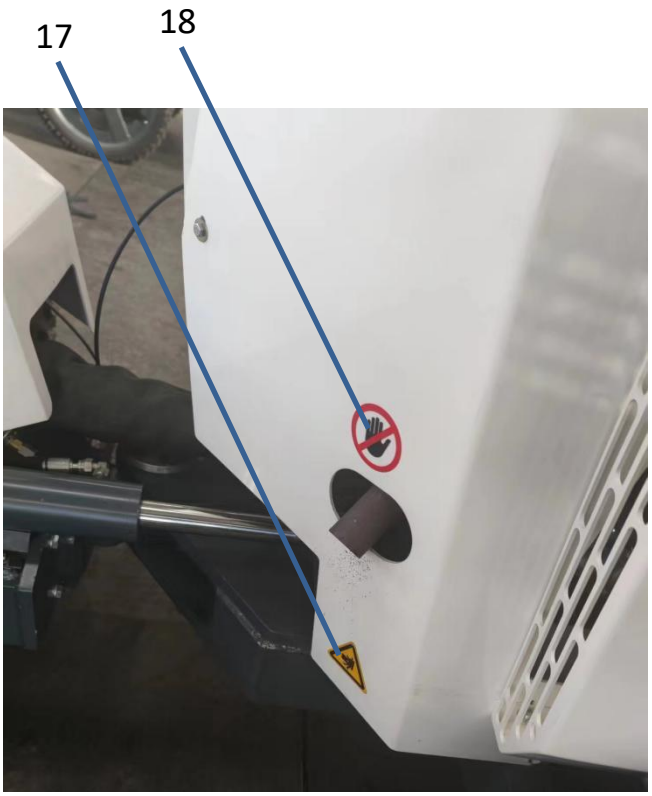




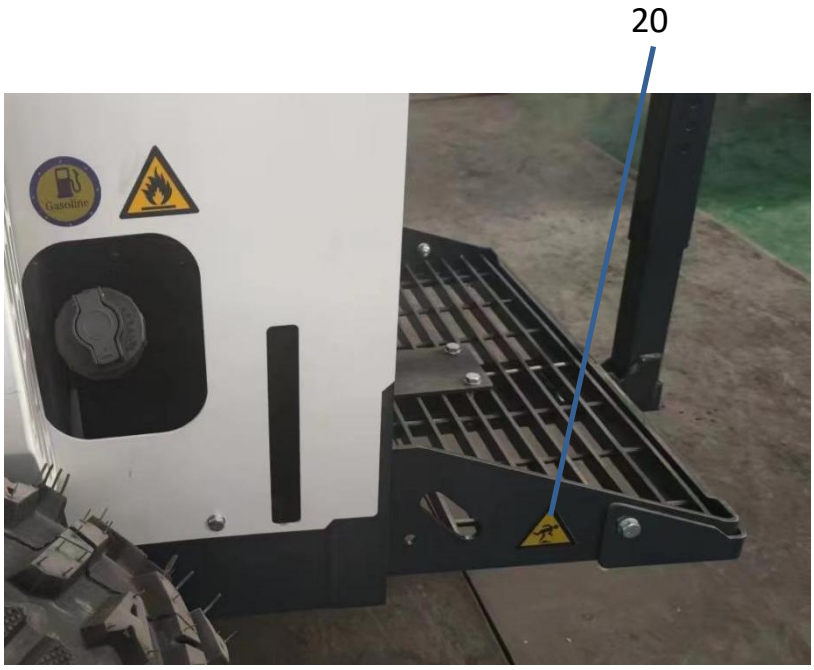

12
13
14
15
WS940C

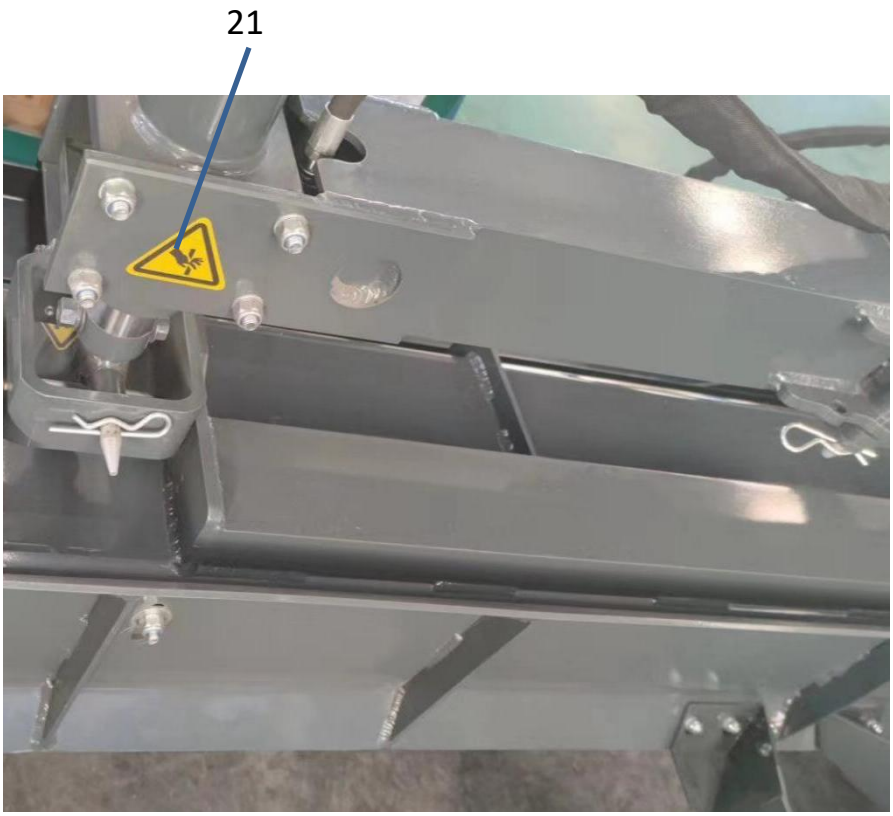

16
4
1
2
107 dB
WS-940C

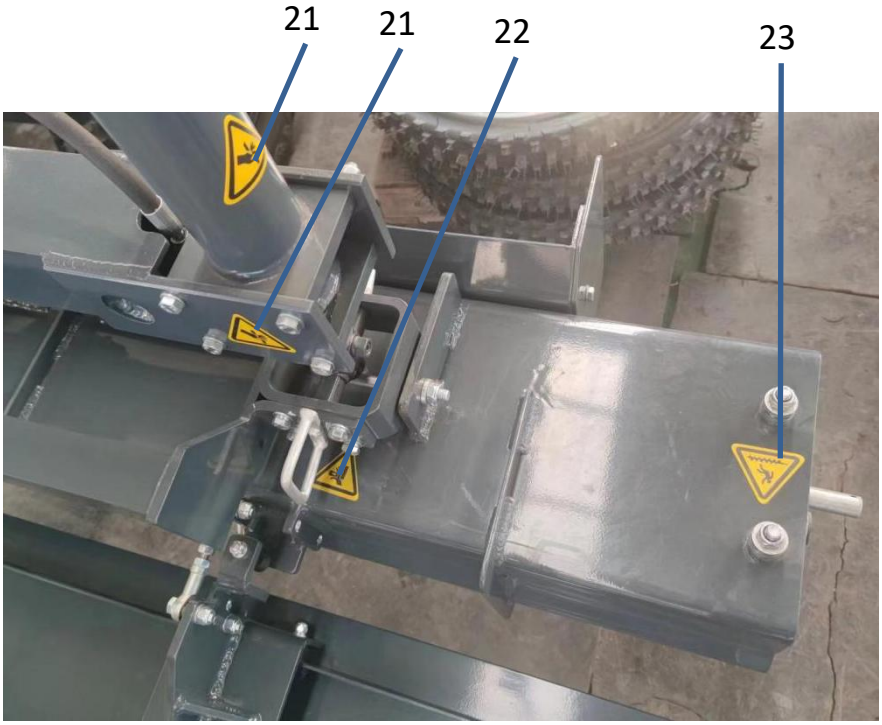

17
18

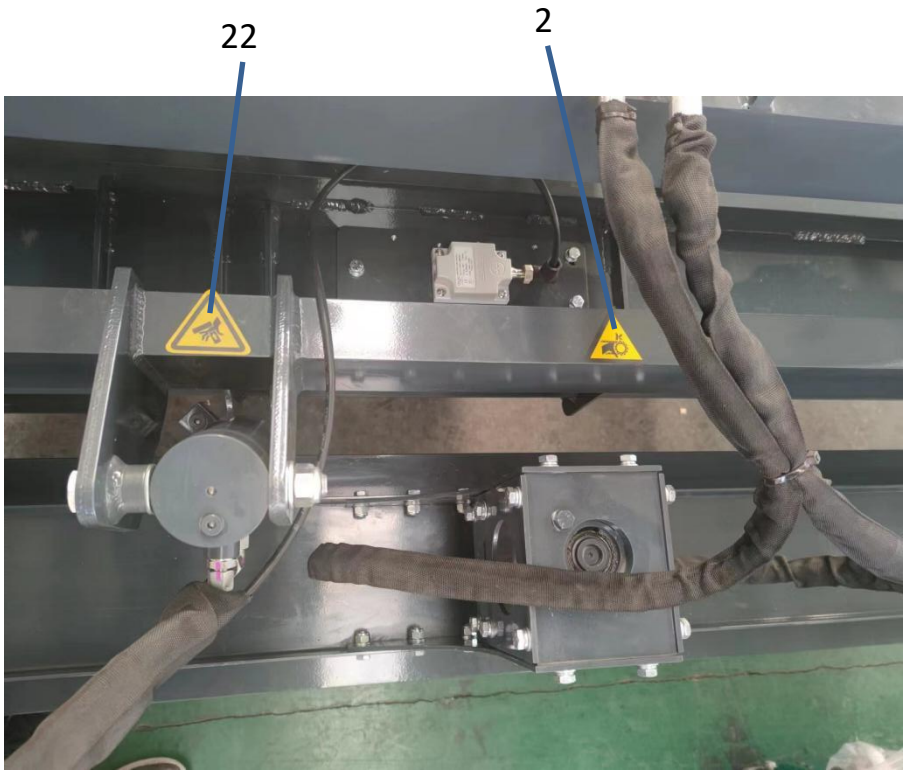

17
18

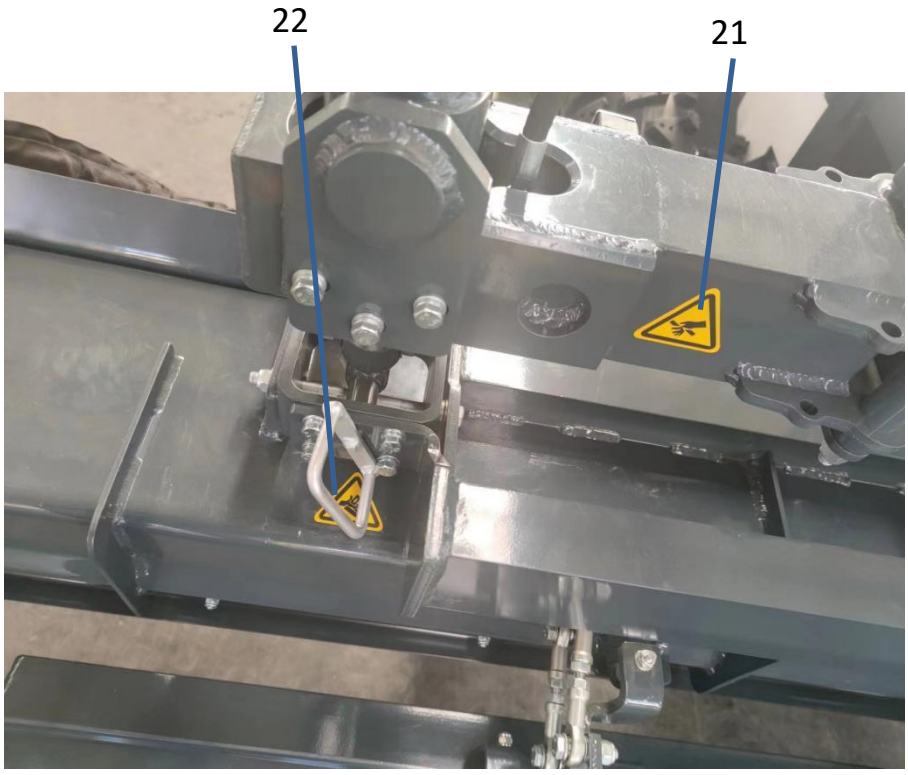

1
19
4
VANSE


20
Gasoline


21

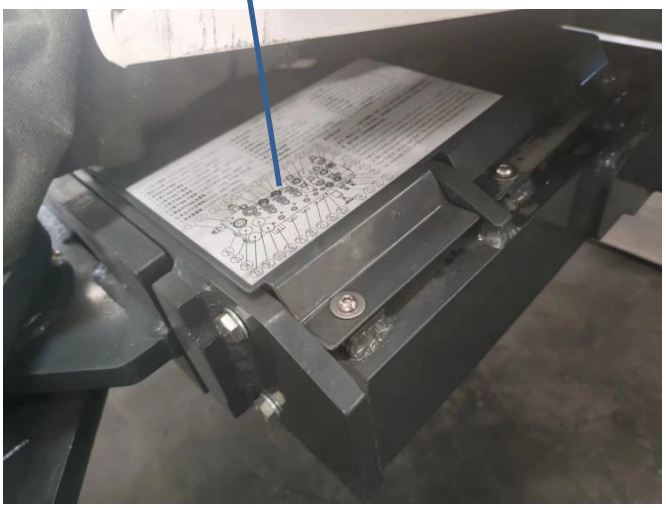

21
21
22
23


22
2

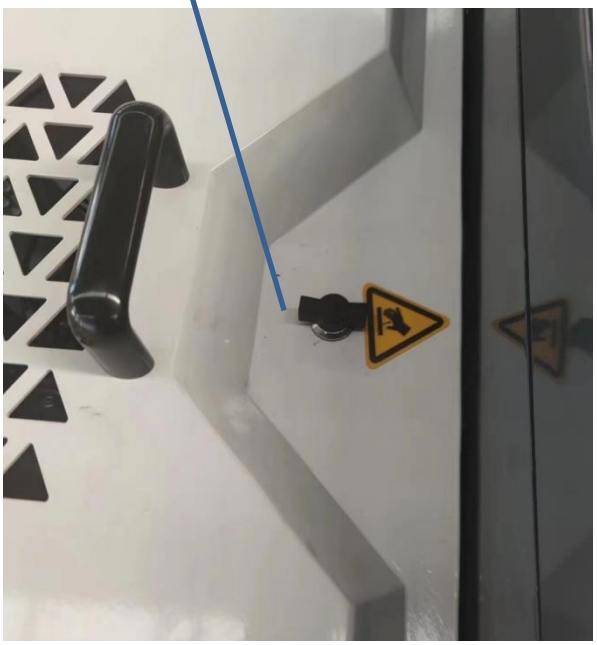

22
21

24

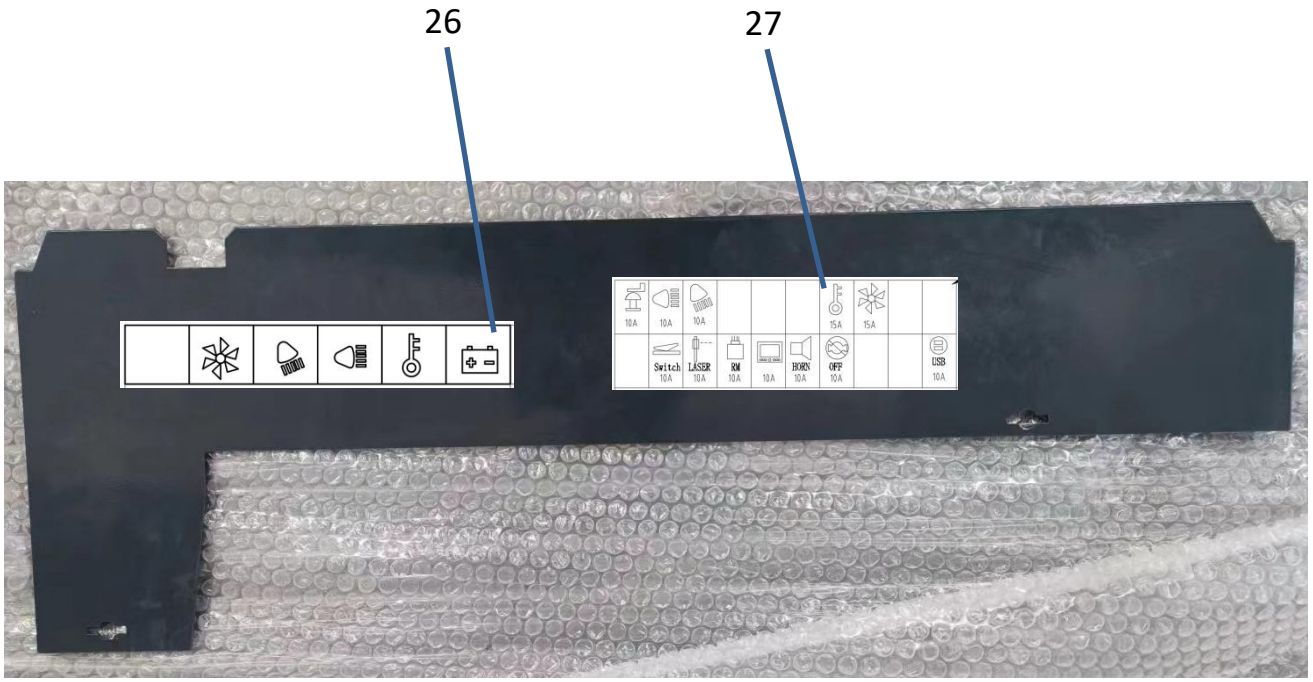
25



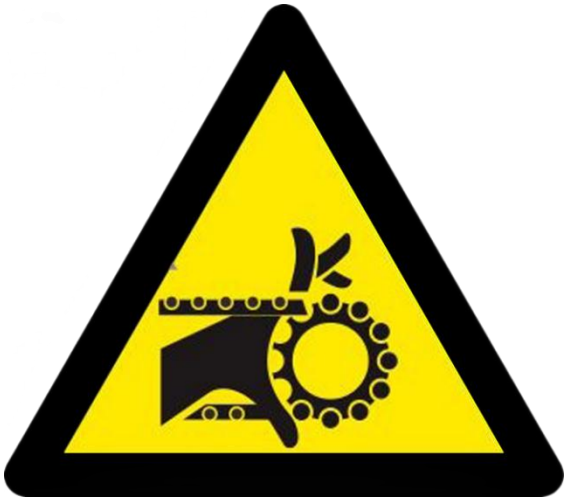
14



14


26
27
10A
10A
10A
15A
15A
Switch
10A
LASER
10A
RM
10A
10A
HORN
10A
OFF
10A
USB
10A

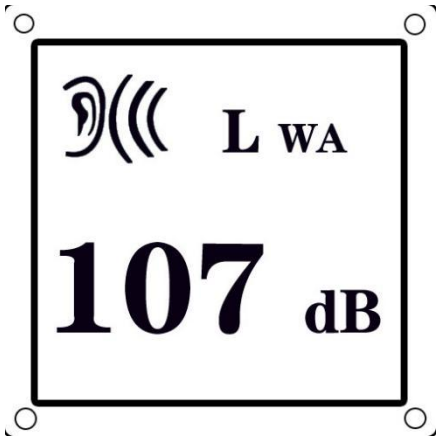
List of Safety Signs

1	WS940C-90-10001-1	WS940C model label	3
2		Be careful when rotating the gripper	2
3		Add gasoline	1

4		Lifting position	4
5		No fireworks	1
6		Dump with care	1
7		Ordinary hazard signs	1

8	WS940C-90-10002-1	Before operating the label	1
9	WS940C-90-10002-2	After operating the label	1
10		Reminder to wear labor protection equipment neatly	1
11		Read the instruction manual	1

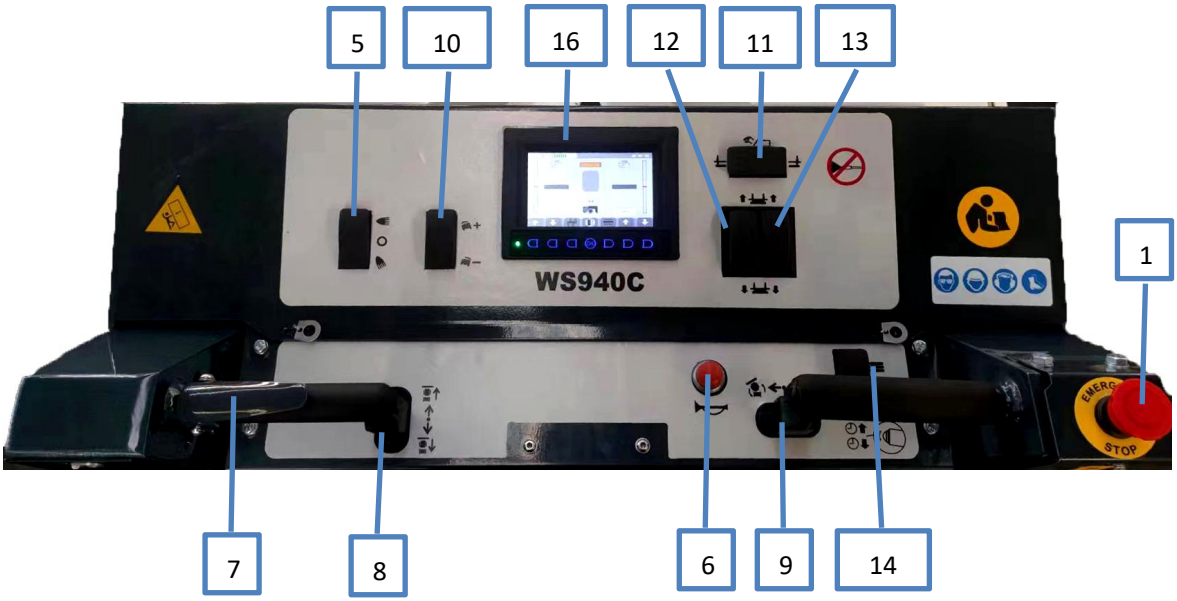
12		No burning	1
13		Door opening and closing signs	1
14		Be careful of high temperatures or splashing injuries	1
15		Throttle size indicator	1

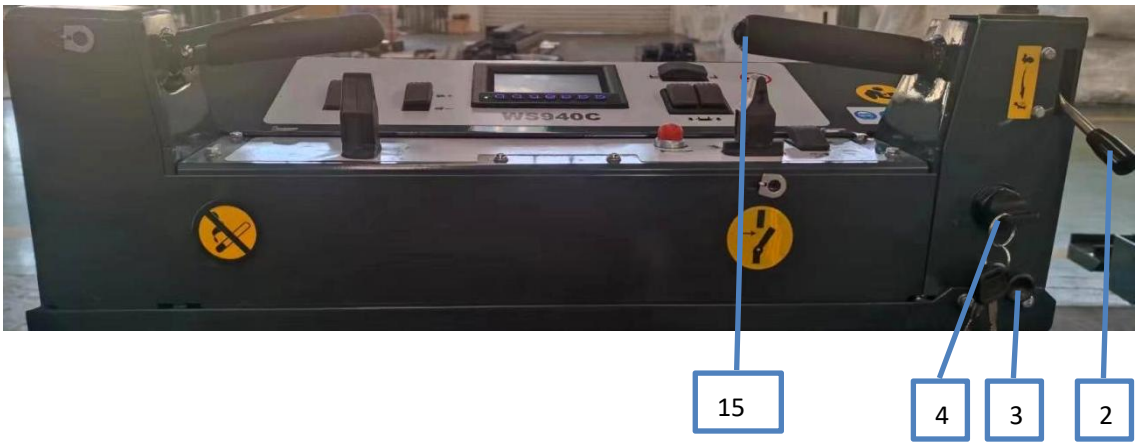
16		Noise identification	1
17		Be careful of squeezing people	2
18		Do not touch	2
19	WS940C-90-10001-2	Vanse label	2

20		Prevent tripping	2
21		Be careful of injuring your hands	2
22		Be careful of pinching hands	3
23		Be careful the auger and injuring others	2

24	WS940C-90-10001-3	Vanse with red stripe label	1
25	WS940C-90-10003-1	Valve group function indicator label	1
26	WS940C-90-10003-2	Relay indicator sticker	1
27	WS940C-90-10003-3	Insurance instruction labels	1

WS940C Operation control





Operation control

Item	Control name	Function
1	Engine stop switch	Turn clockwise to start the engine. Pressing this control button will turn off the engine and electrical appliances, and it can serve as an "emergency cut-off switch" during operation.
2	Engine choke	When moving the engine in a cooled state, please pull out the throttle wire handle. If the engine is hot or running, the throttle wire handle should be pushed inward.
3	Engine throttle control	● Pushing down on the engine throttle control will decrease the engine speed. ● Pulling upwards will increase the speed of the engine. ● During leveling operations, the throttle is usually pushed to the front, allowing the engine to run at the fastest speed.
4	Ignition	The engine has an electronic engine torque. After pushing the engine stop switch upwards, turn the ignition key clockwise to start the engine.
5	Lighting	● The work light on the crossbeam of the work head allows the operator to see the area in front of the machinery while driving on the construction site. ● In low light conditions, the work light under the machine allows the operator to see the concrete material on the leveling machine head and the rotating winch in low light conditions.
6	Trumpet	As a warning device.
7	Operator position switch	● Prevent accidental touch of function switches. ● When the machine is started, all actions are initially turned off before pressing this switch. ● This switch must be pressed in order to start pushing or manipulating the direction.
8	Travel drive speed/ direction control	This joystick controls the speed and direction of walking. Pushing the joystick forward will cause the machinery to move forward. Pulling the joystick backwards will cause the machinery to reverse. The farther the joystick moves, the faster the mechanical walking speed. During leveling operations, pushing in the opposite direction will lower the nose and shift the SLS from a soft landing position to general control.
9	Turning	This joystick controls the speed and direction of the steering. Pushing the joystick to the right will cause the machinery to advance to the right. Pushing the joystick to the left will cause the machinery to advance to the left. The farther the joystick moves, the faster the mechanical steering speed.
10	SLS +/-	Manually move the SLS in the positive or negative direction.

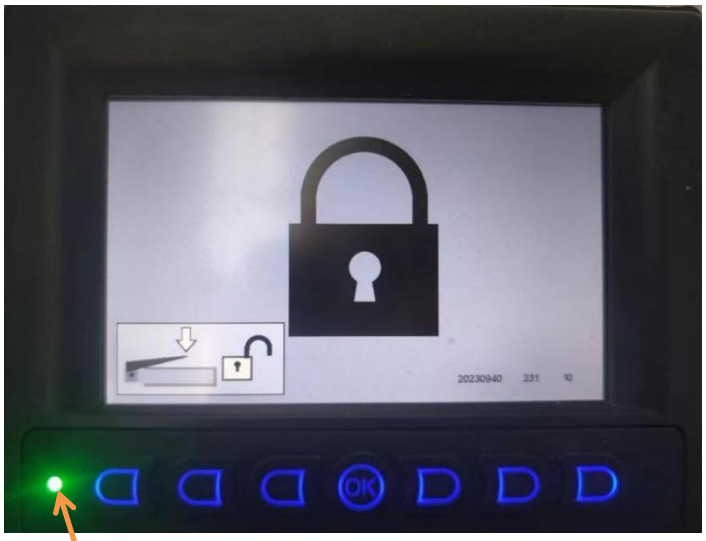
11	Automatic/manual lifting (left&right)	Changing from left/right to automatic or manual mode will not make any adjustments to the lifting and SLS in manual mode. In automatic mode, the lifting and lowering will be adjusted to the correct position based on the judgment of the laser receiver and the height of the laser beam.
12-13	Ascend/Descent (Left/Right)	Whether in automatic or manual mode, these switches can rise or fall up and down. These switches will replace the control in automatic mode.
14	Quick Pass(Quick leveling/rough scraping), adjusting the height and gear of rough scraping	● Press and hold the timer down switch for one second to activate Quick Pass. ● **Rough scraping gear adjustment**: This switch moves the lifting set point to effectively lift or lower the leveling machine head for quick operation through the Quick Pass coarse scraping height gear deviation setting. ● The height settings of the three switch positions can be adjusted from the display screen. ● When Quick Pass is working, the icon will be displayed on the display screen. ● If in leveling mode, at positions II and III, the spiral drill and vibrator will be deactivated; At position I, the spiral drill will be stopped and the vibrator will operate, allowing the spiral drill to perform leveling operations without being removed. ● If in leveling mode, the leveling machine head will tilt to the QP tilt offset angle. (**Note**: In order to achieve better leveling and compaction of concrete, the rough scraping height and QP inclination may need to be adjusted according to factors such as concrete mix ratio and slump.) ● Press the timed up switch to turn off Quick Pass
15	Timed rise and fall	● Press and release the switch to turn on the timer and lower it. ● Descend the rise and fall in a timed manner, or until the receiver receives the laser. The duration can be adjusted within the display screen. ● The lifting control has changed from inactive automatic mode to automatic mode. ● In automatic leveling mode, the work head will stop at the position where the soft landing is "kept above the slope" until the operator starts pushing the machinery in reverse. ● If in automatic leveling mode, the SLS will change to the soft landing position. These settings can be adjusted from the display. ● Timed fall can be canceled by pressing the timed ascent, automatic/manual ascent/descent, ascent/descent, or by turning off the operator's position switch. ● Turn the switch up and release it to start timed rise. ● Raise and fall according to the set time for timed rise. When pressed

		again, the timer will reset and continue to rise the working head. The duration can be adjusted within the display screen. Automatic mode for changing from lifting to inactive state. ● In the inactive automatic mode, even if the receiver receives the laser, the machine head will not automatically control. ● If in leveling mode, turn off Quick Pass, spiral drill, and vibrator. ● If in leveling mode, the SLS will tilt backwards (negatively), giving more space for the nose to operate. ● Timed rise can be canceled by pressing the timed fall button, pressing the automatic/manual rise button, pressing the rise/fall button, or by opening/rough scraping when the operator is in position.
16	Display screen	Please refer to the operating instructions section of this manual.
17	Ignition switch panel	Please refer to the operating instructions section of this manual.

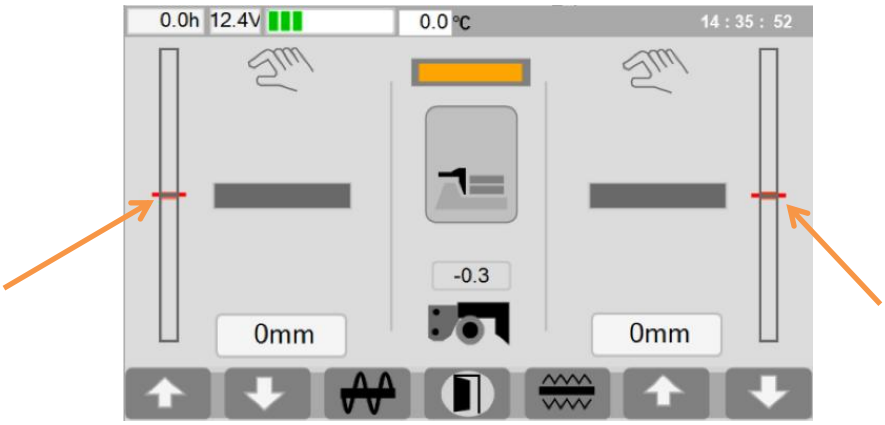
Display screen function description

1. Meaning of indicator lights and symbol identification

1.1Indicator light



Green LED indicator light: The display screen is working normally.
LED indicator light red: In automatic mode, laser signal is lost.



1.2 Symbol identification meaning

Red bars on both sides of the display screen indicate:

Red, receiver CAN data error,

Green, automatic/manual status on both sides,

Off: Automatically level to off,

On: Automatic leveling is turned on, and the lifting control is set to automatic mode,

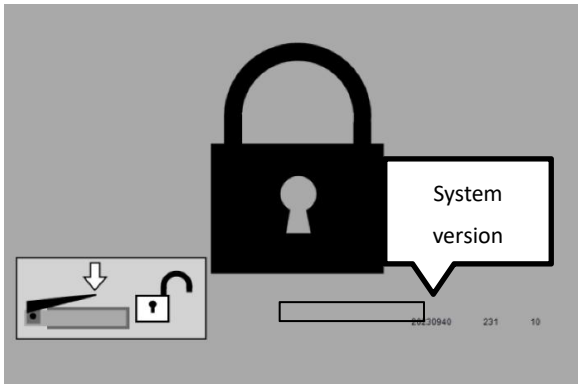
Flashing: Automatic leveling is enabled, and the lifting control is set to an inactive automatic mode.

Flash: Automatic leveling on, coarse scraping on.

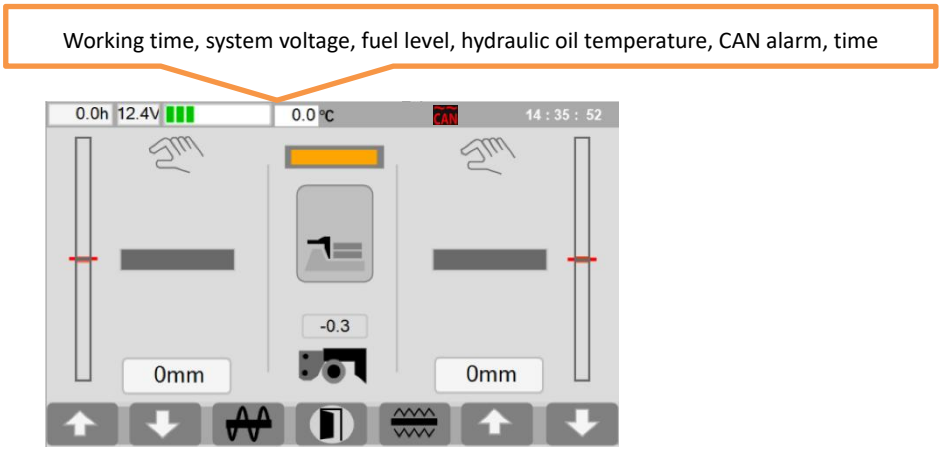
Yellow, horizontal slope leveling open. (There must be a laser receiver signal on one side)

2.Start page

To start the page, press the button to touch the left armrest【Driver Position Switch】. Unlock the system and enter the "main page"



3. Home page:



 Laser manual, corresponding to left and right sides.

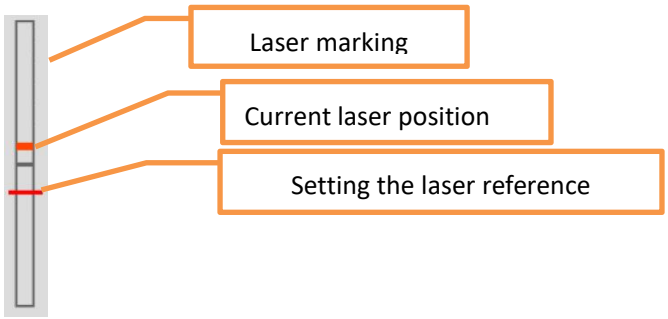
 Laser automatic marking, corresponding to the left and right sides.

Flashing means laser waiting state. After the delay is pressed, the icon flashes, and then press the button to go down to activate the laser automatic state. Or you can enter the laser automatic state by pressing the left and right automatic buttons.

 Automatic start state of cross slope.

 Cross slope closed state.

Note: When the laser signal on one side is lost during automatic operation, the slope detection sensor will be activated to ensure that the working head is level.




The up and down arrows adjust the laser reference.

Displays the laser reference offset height.


Laser action display, the upper arrow indicates the rising valve output, the lower arrow indicates the falling valve output. The number of arrows represents the output current. The middle turns green, indicating that the laser is in the middle position, and flashing at the same time indicates that the laser signal is lost.


When the delay button is pressed, it will stay for 1 second longer, the rough scraping function will be activated, and the rough scraping mark will be displayed. The horizontal bar represents the rough scraping gear. By switching the rough scraping switch, the vibration function will be activated in the first gear, and the vibration will not be activated in other gears. At this time, the laser will stay at the corresponding set rough scraping height. The height of each gear can be adjusted in the setting menu.

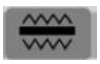
Working head front and back angle. Displays the current working head front and back upward angle.


Auger button, and displays the auger working status at the same time.

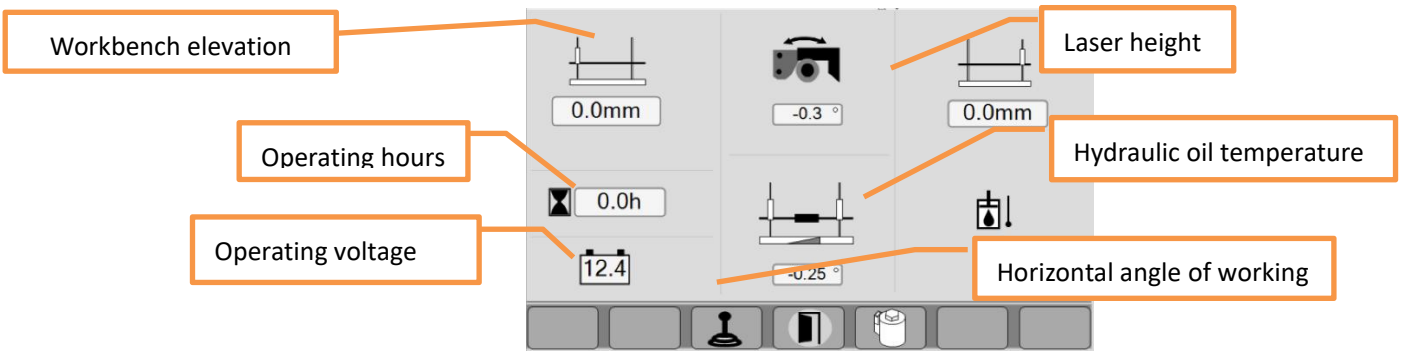
Working status:


The auger starts rotating clockwise.

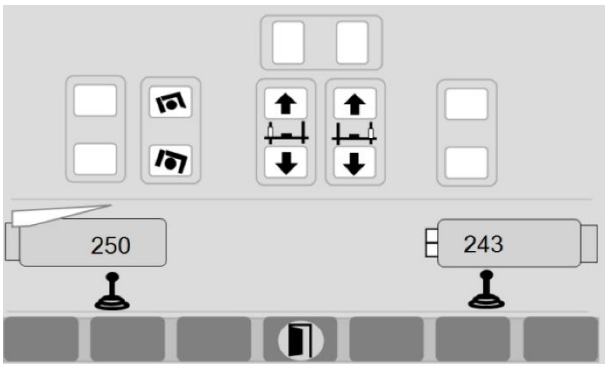

The auger starts to rotate counterclockwise.


Vibrator button, which also displays the oscillator working status.

4.Monitoring Page



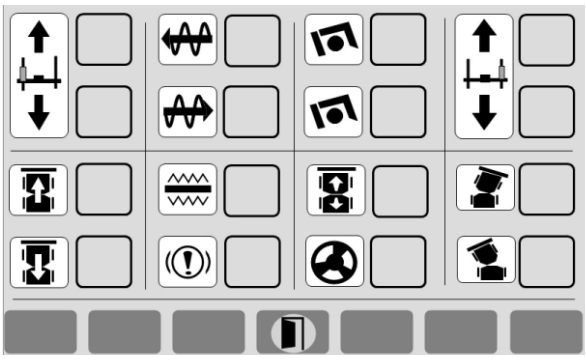
 Enter the panel switch detection button



Display the switch signal of the corresponding position of the panel. Press the corresponding switch or handle, and the corresponding position will change state. It is convenient to detect the working state of the switch and handle.

 Exit button.

 Enter the output status monitoring page (monitoring page, press this button to enter the output monitoring page)



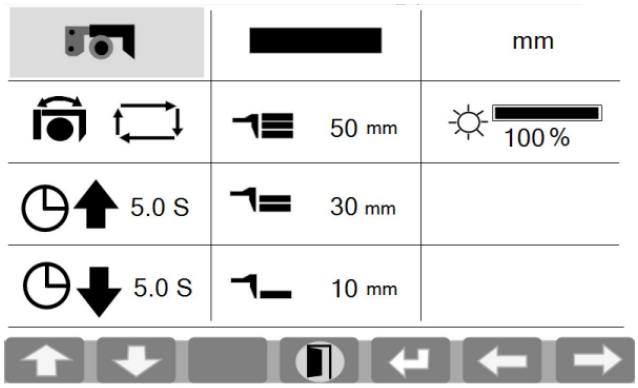
Displays the current output status. If the box is empty, it means that the corresponding function has no output.

 This status indicates that the corresponding function is working normally.

 This status indicates that the corresponding function currently has output, the status is abnormal, and the line is short-circuited or open-circuited.

 Go to next menu or exit current menu

5.Setting menu



Work mode switching:

Leveling mode, rough scraping mode

Tilt automatic manual:

Automatic / manual

Delay one-key time setting:

Set the time for the timed rise so that the work head can rise completely. By setting the appropriate time, the lifting cylinder can quickly withdraw from the paving without being too high from the bottom.

Delay one-key down time setting:

Set the timer to lower the work head so that it does not hit the ground in manual mode.

Automatic slope switch:

Plane construction:

Turn on the column shielding protection (when the single-side laser is blocked by the column, the construction can be completed by the cross slope function)

Slope construction:

Disable pillar shielding protection

Three-level height setting for rough scraping:

- Rake Mode

0 to 38 mm
0 to 11/2 inches

- Leveling mode
  0 to 25 mm

Two-level height setting for rough scraping:

Rake Mode
0 to 25 mm
Leveling mode
0 to 12 mm

One-level height setting for rough scraping:

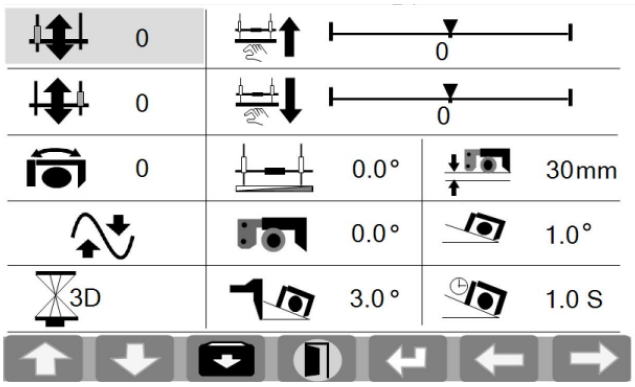
Rake Mode
25 to 12 mm
Leveling mode
12 to 6 mm

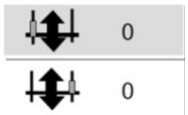
Display backlight settings:

Backlight brightness adjustment

6.Secondary menu

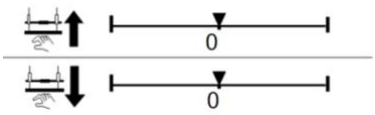
(In the settings menu, press the 2 and 6 buttons at the same time to enter the settings secondary menu)





Left and right laser starting current adjustment.

Tilt action start current adjustment.



The manual laser speed is the same as the up, down, left and right offset adjustment.

Cross slope reference compensation.

Tilt zero compensation.

Coarse scraping inclination angle setting.

Soft landing height setting.

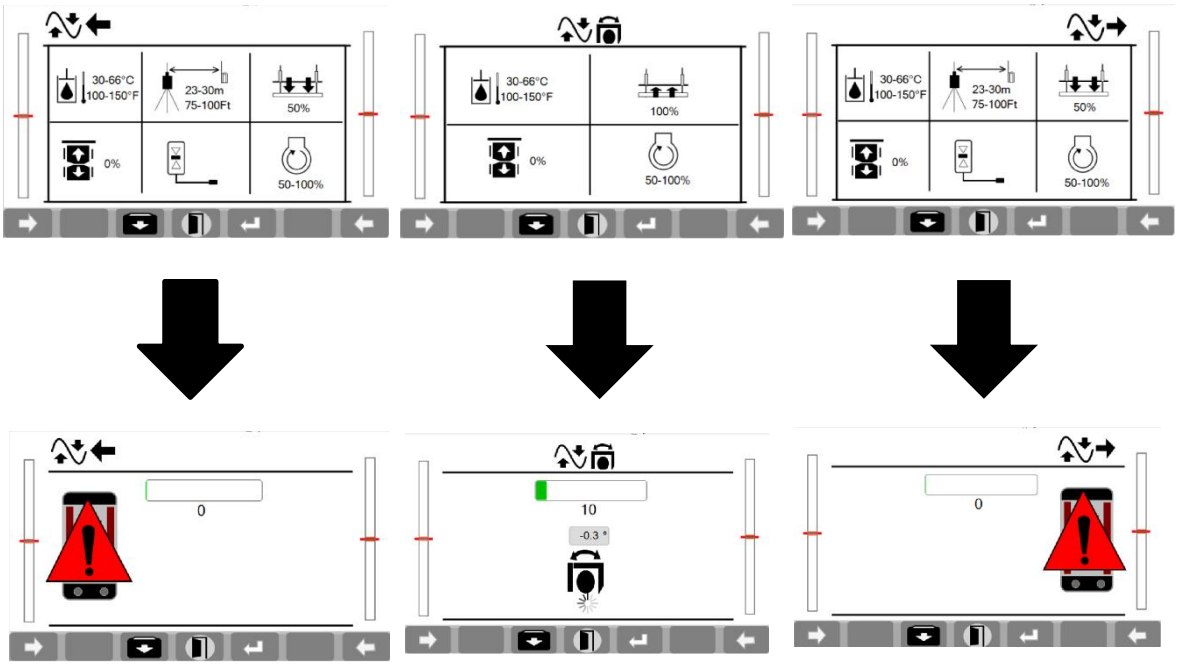
Soft landing tilt height setting.

Setting the time for the inclination reference point to return to zero.

Enter automatic calibration (solenoid valve calibration)

Left laser automatic calibration (solenoid valve calibration) page. Inclination automatic calibration page. Right laser automatic.

or switch the calibration item and follow the prompt page to meet the required conditions.Then press enter the automatic calibration page, start calibration and restore the set starting current.



After entering the calibration page, enter the calibration state at 10%, the starting current calibration is completed at 25%, the maximum current calibration is completed at 50%, the starting current calibration is completed at 75%, and the maximum current calibration is completed at 100%. After completion, press the key to save the parameters.

Machine start

Check before start

Before moving the machine back, please check the following items:

1. Check the engine oil level.

2. Check the fuel level.

3. Check the air filter.

4. Check the hydraulic oil level.

5. Check battery status.

6. Check the condition of the hydraulic cooler fins. If there is dirt stuck to the fins, it will block the air circulation and reduce the heat dissipation effect.

7. Check the engine fan cooling air inlet and exhaust vents for any obstructions.

8. Check the hydraulic oil tank, pump, motor, valve group and related hoses and accessories for leaks.

9. Check the hydraulic oil filter and related hoses and accessories for leaks.

10. Check tire condition and air pressure.

11. Check the fuse.

12. Make sure all guards and safety stickers are in their correct places.

13. Verify that the laser/electronic equipment is functioning properly.

Refer to the engine manual for engine starting and stopping, operating, safety and maintenance instructions.

 **Notice！** Do not start the machine if the hydraulic oil temperature is below -13° F (-25° C). Damage to the hydraulic pump may occur.

1. Turn the engine's emergency stop switch (#1) clockwise or pull it up.

2. If the engine is cold, pull out the damper cable (#2). If you are restarting a hot engine, push the damper cable back.

3. Move the throttle control handle (#4) about 1/3 from the slow position to the fast position.

4. Turn the key (#3) clockwise to start, then release. Do not operate the electronic start button for more than 5 seconds. Let the engine run at low RPM until the engine becomes warm.

1、5. The ideal performance temperature of hydraulic oil should be 80° F (27° C) but should reach at least 50° F (10° C) before leveling operations can begin. In order to warm up the hydraulic pressure, please preheat the machine before construction.

Machine used in high altitude areas

If our laser leveling machine is used at an altitude of more than 1,000 meters, it should be used under the guidance of local professionals and be careful to use high-grade gasoline and engine oil. Please consult Shandong Vanse Company or HONDA agent for details.

Loading/unloading machine process

Trailer Transport/Ramp Specifications

Minimum load rating is 2000 lbs (907 kg)

Load the complete machine

Set the trailer's parking brake and block the trailer's wheels. Lower the drive ramp and make sure it is securely mounted.

Slowly drive the machine onto the trailer.

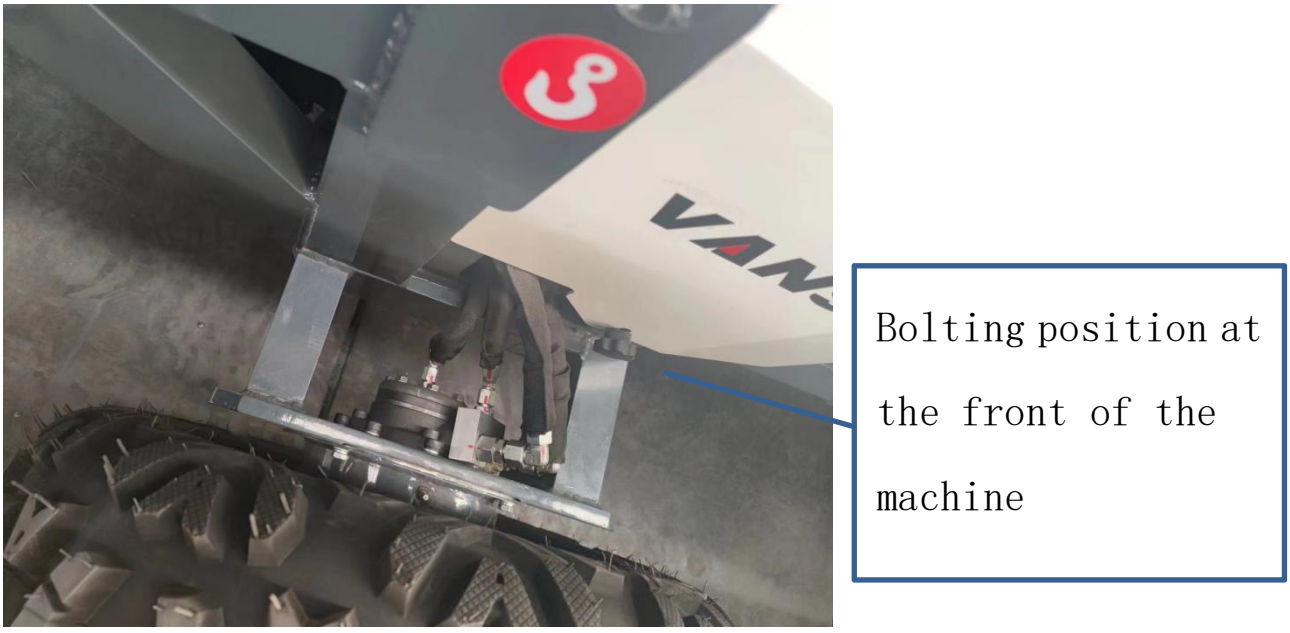
Secure the machine in the bolted position by using nylon straps and tighten the straps.

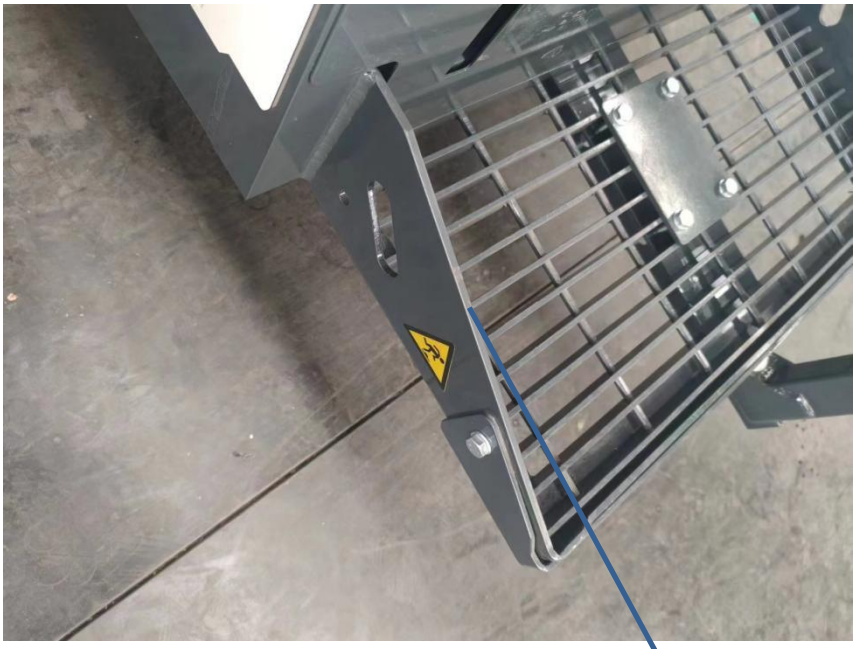
In most cases it is necessary to remove the machine head before loading. To remove the machine head, use the lift-lower switch to lower the machine head to just above the ground. Remove the B-shaped pin and pin connecting the machine head and the lifting cylinder. Use the lift switch to raise the cylinder. Disconnect the quick-change joints between the leveling machine head and the mechanical hydraulic center.

Once the nose is mechanically removed, it should also be secured to the trailer with nylon straps. Note: Tightening the straps too tight may damage the machine head.

Unload the complete machine

The unloading process is the opposite of the loading process. Before unloading, make sure the trailer is set to the parking brake and that the trailer wheels are blocked.





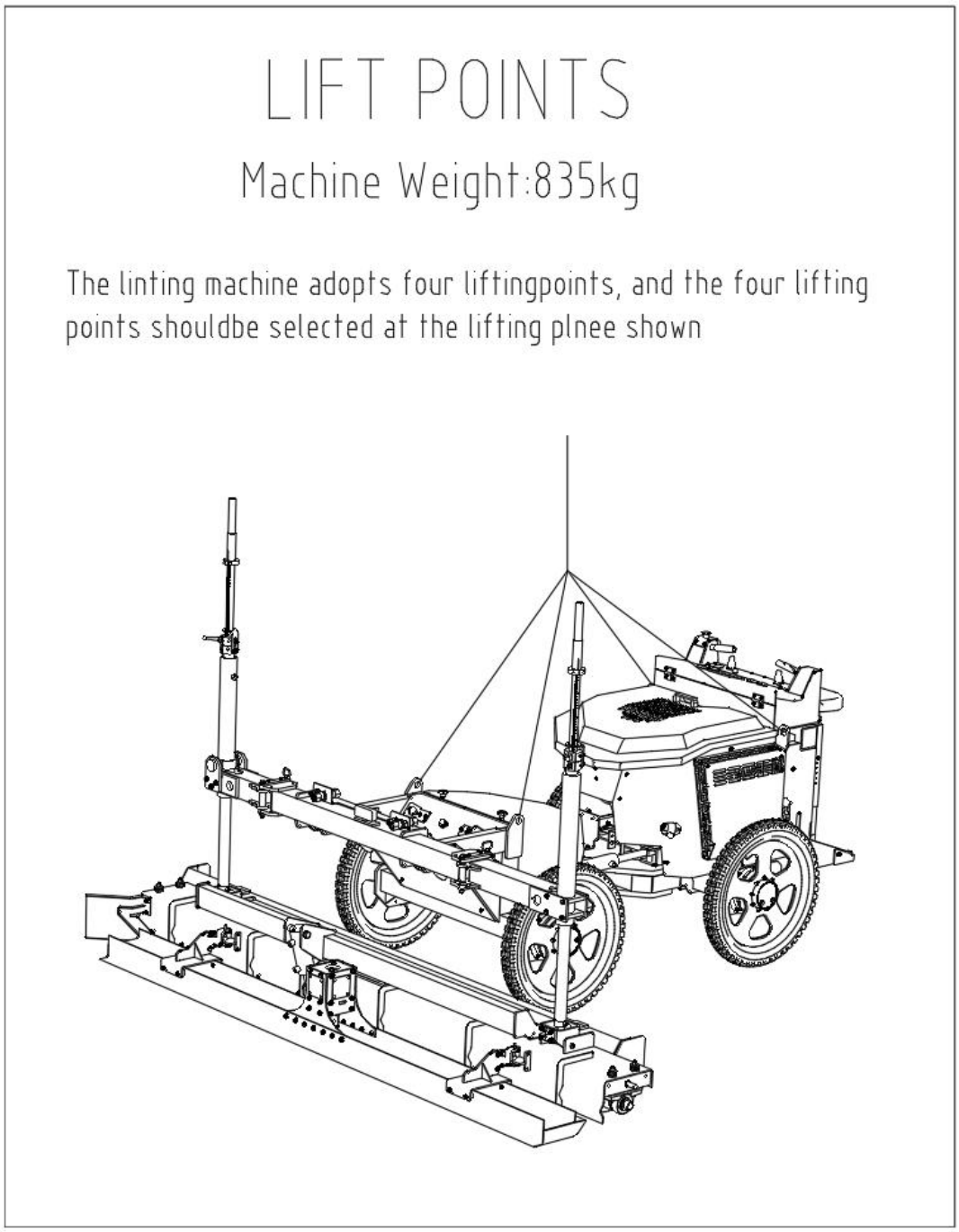
Bolting position at the rear of the machine

Lifting & Moving Machinery

Lifting points

All four lifting points must be used when lifting the machine.
When lifting machinery:
1. Turn off the engine.
2. Turn off all power supplies.
3. Vanse recommends that you use the optional lifting device, or a lifting device with a load rating of more than 2,000 pounds.
-Four ringed chain links
- 4 slings with hooks
- 4 cable loops with hooks
4. Hook the front and rear lifting holes.
5. Lift the machine slowly and check the lock before lifting it to the top of your head.

Hoisting machine instructions:



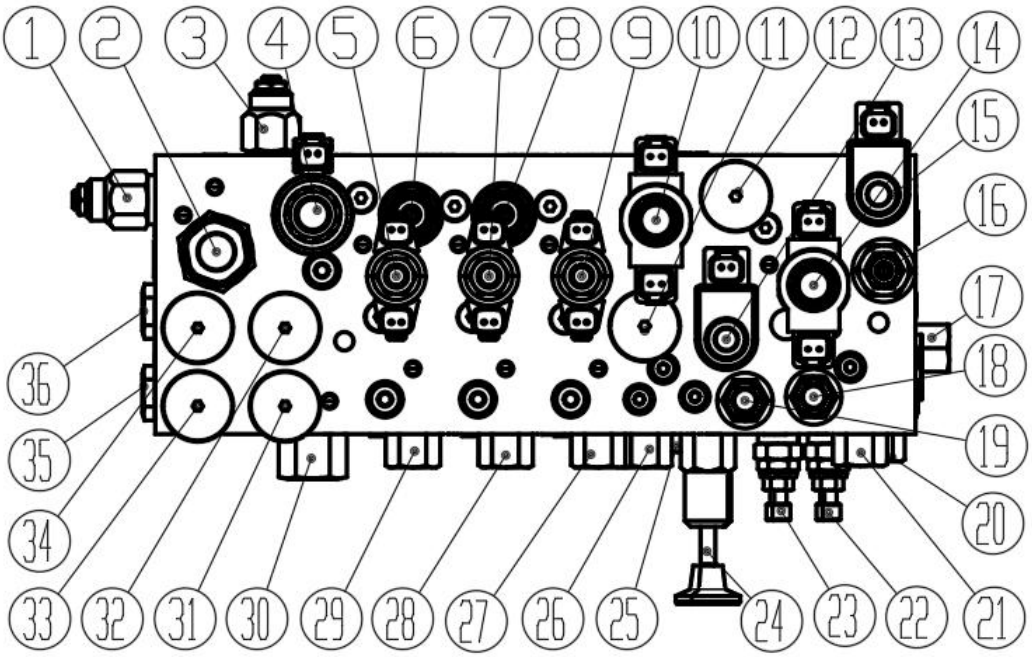
Note: Before using the machine at any construction site, please consult Shandong Vanse Company engineers or related professionals.

Manual brake release system

Manual brake release is used to manually move machinery when an engine or hydraulic system error occurs. The hydraulic pressure exerted by this small hand pump overcomes the spring brake at the front of the machine.

NOTE: This function should only be used when the engine is stopped and the machine is on the ground.

Manual brake release process:



拖车操作说明：

将31、32、33、34拖车旁通阀（常闭）逆时针旋转至最大，将12.制动释放控制阀（常开）顺时针关闭，手动反复推24.制动解除手动打压泵直至轮子可转动，即可拖车作业。拖车结束上述控制阀需恢复原位。

Trailer operation instructions:

Turn the bypass valve (normally closed) of the 31, 32, 33, and 34 trailers counterclockwise to its maximum, close the 12. brake release control valve (normally open) clockwise, and manually repeatedly push the 24. brake release manual pressure pump until the wheels can rotate, then the trailer can be operated. The control valve mentioned above needs to be restored to its original position after the trailer ends.

Note: Valve group function description

WS940C主阀组 WORKING VALVES

1、3.行走平衡阀 COUNTERBALANCE，Propeller
2.推进方向阀 PROPEL DIRECTIONAL
4.推进速度控制阀 PROPEL SPEED CONTROL
5.左提升油缸控制阀 ELEV.CONTROL, LEFT
6.左提升油缸平衡阀 COUNTERBALANCE，LEFT ELEV.
7.右提升油缸控制阀 ELEV.CONTROL, RIGHT
8.右提升油缸平衡阀 COUNTERBALANCE，RIGHT ELEV.
9.倾角找平油缸流量阀 SELF LEVEL FLOW VALVE
10.绞龙方向控制阀AUGER DIRECTIONAL
11.绞龙流量阀 AUGER FLOW CONTROL
12.制动释放控制阀 CONTROL VALVE BRAKE RELEASE
13.转向流量阀 STEERING FLOW VALVE
14.转向阀 STEERING VALVE
15.振动阀VIBRATOR CONTROL
16.振动流量阀VIBRATOR FLOW CONTROL
17.油冷却先导阀 PILOTSPOOL,OIL COOLING
18.转向溢流阀 STEERING RELIEF
19.提升、倾角溢流阀 SCREEN,BRAKE RELIEF
20.冷却流量控制阀 FLOW CONTROL，OIL COOLING
21.转向补偿阀 PERSSURE COMPENSATOR，STEERING
22、23.转向平衡阀 COUNTERBALANCE，STEERING
24.制动解除手动打压泵 HAND PUMP,MANUAL BRAKE RELEASE
25.LS节流孔 FLOW CONTROLAND SCREEN.LS BLEED DOWN
26.绞龙补偿阀 PERSSURE COMPENSATOR，AUGER
27.倾角补偿阀 PERSSURE COMPENSATOR，SCREEN
28.右提升补偿阀 PERSSURE COMPENSATOR，RIGHT ELEV.
29.左提升补偿阀 PERSSURE COMPENSATOR，LEFT ELEV.
30.行走补偿阀 PERSSURE COMPENSATOR，PROPEL
31、32、33、34拖车旁通阀 TRAILING VALVE
35、36.行走分流集流阀 PROPEL FLOW DIVIDER

Laser control system operation theory

The Vanse laser control system contains a display screen, controller, two laser receivers, and a dual-axis angle sensor. A laser transmitter is also required.

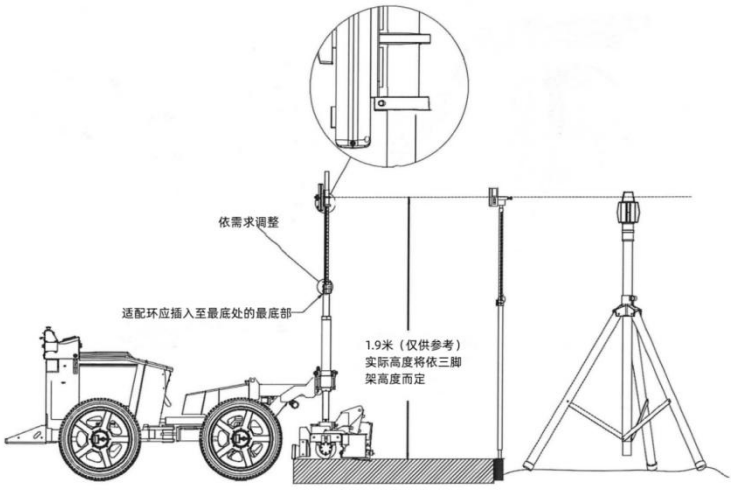
Controllers are the heart of the laser control system. They receive information from sensors (laser receivers) to make level and angle decisions. They drive hydraulic lift and automatic leveling system (SIS) valves based on level and angle information.

The beam emitted by the laser transmitter rotates 360° to establish a constant level reference for the construction area. The laser receiver is placed on the poles of the two leveling cylinders of the mechanical leveling head. A fixed distance between the leveling head and the laser beam establishes a surface level for the construction area. The laser receiver detects the rise and fall of the laser beam and continuously transmits level information to the controller.

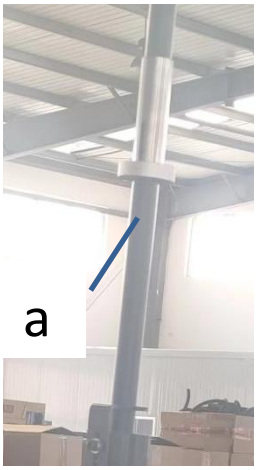
If the laser beam shines above the laser receiver set point, the leveling head will be below the finish level and a correction signal to raise the leveling head will be sent to the hydraulic valve. If the laser beam strikes below the laser receiver set point, the leveling head will be above the finish level and a correction signal to lower the leveling head will be sent to the hydraulic valve.

The inclination sensor will provide slope data to the controller SLS and cross slope control based on the above conditions. SLS slope data is used to automatically maintain the relationship between lift cylinder lift and tilt cylinder lift. When either laser receiver fails to receive the laser beam, the cross slope data is used to control the leveling head lift.

Laser system quick elevation setting



1. Set the transmitter at the required height.
2. Install the handheld receiver onto the handheld pole.
3. Place the hand-held pole on the precast concrete floor datum, making sure to keep the hand-held pole vertical.
4. Stretch or lower the height of the hand-held pole so that the hand-held receiver can receive the laser signal from the transmitter, confirm that the laser signal is level, and lock the hand-held receiver there.



5. Record the height indicated by the hand-held pole.

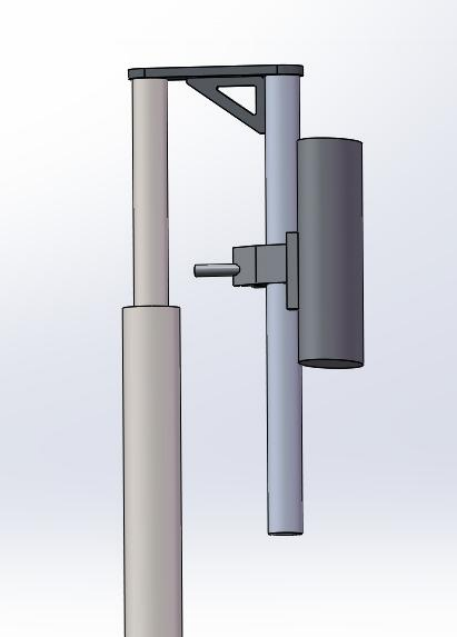
Note: The height of the receiver adjustment sleeve (a on the right) should be adjusted regularly to make the scale consistent with the actual height. To compensate for the wear height of the working head.

6. Install the laser receiver on the receiver pole on the upper part of the lifting cylinder on both sides of the leveling head, and connect the spiral signal cable.
7. Start the machine and control the lifting and lowering of the leveling machine head so that the lower part of the machine head auger is flush with the precast concrete floor.
8. The height of the laser receiver will be adjusted until the receiver displays a horizontal line .
9. Level out a short channel and check the height on both sides.
10. Adjust the height as needed by slowly moving the set point on the display level.

WS940C Optional low space/basement dedicated receiver pole

We have receiver poles specially designed for low spaces/basements, which can ensure that the machine can perform paving operations in a space of a certain height.

Note: For details of specific parts, please see delivery accessories.



WS940C Leveling operation

1. With the lift control set to automatic mode, move the material from the front to the rear of the paving surface.

2. To lower the working head, press the timer to lower. To raise the working head, press Timer Raise. Please refer to the monitor introduction page to adjust the amount of time the work head will rise or fall.

3. The new paving surface should overlap the previous paving surface by approximately 0.3 meters.

4. When you start leveling the next paving surface, press the timed descent switch, and the machine head will descend according to the set time, or until the laser receives the laser beam. When the receiver receives the laser signal, the working head will automatically descend and stop at the soft landing height.

5. Move backward to completely lower the working head to the set height. Soft landing will automatically rotate the work head to reduce the impact of the vibrator on the surface connection marks of the concrete.

6. If there is too much material to move effectively, use the Quick Pass (quick scraping/coarse scraping) function to automatically raise the set point on the level. Scrape off excess concrete, then turn off Quick Pass (quick scrape/coarse scrape) and resume construction at normal height.

Laser leveling head setup instructions

1. It is very important to correctly set the leveling machine head, because this will greatly affect the performance of the machine, and will also affect the quality and appearance of the concrete. Daily inspection/adjustment of the leveling head is extremely important. Before using the machine, please make any adjustments in the following order. Before checking or adjusting the leveling machine head, please check/adjust the self-leveling system first. After adjusting the self-leveling system, please re-check/readjust the leveling head.

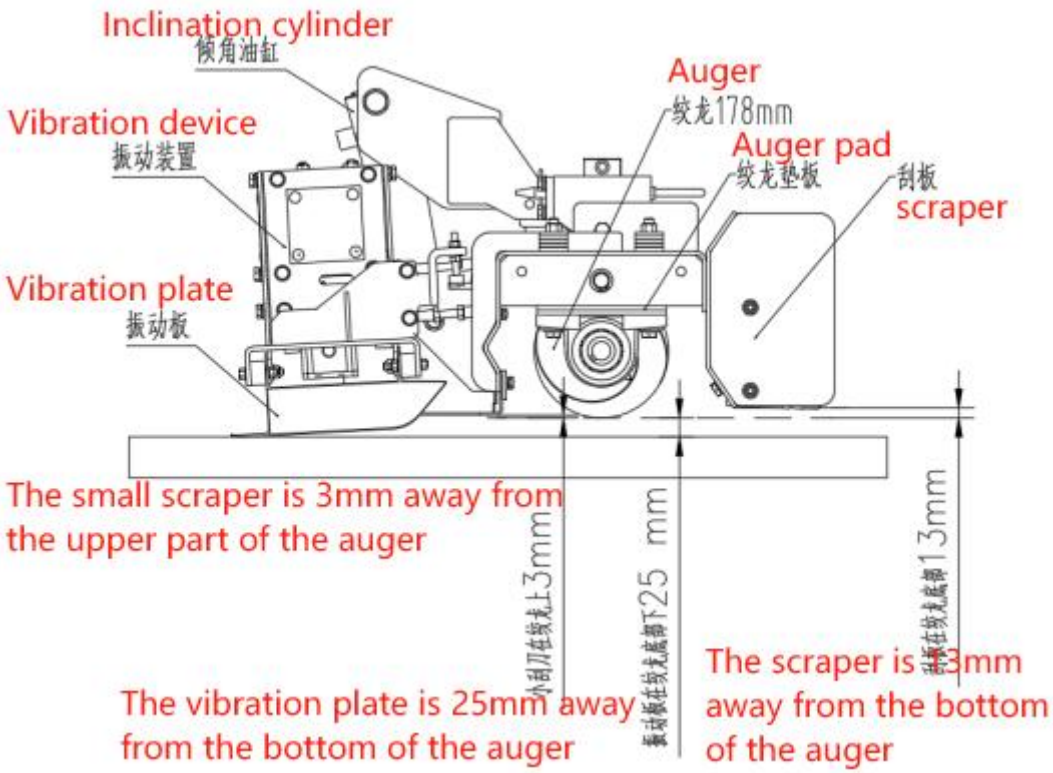
When the leveling head is properly set, the work head will remove excess concrete to within 13-38 mm (1/2 in. - 1-1/2 in.) of the finished grade (depending on the set in the concrete Depending on the size of the body), the auger can impact the remaining cement to a finished grade, while the vibrating plate can vibrate the concrete.

Tools required:

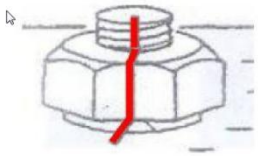
Level 1 meter tape measure

Auger gasket, dead wrench set and socket

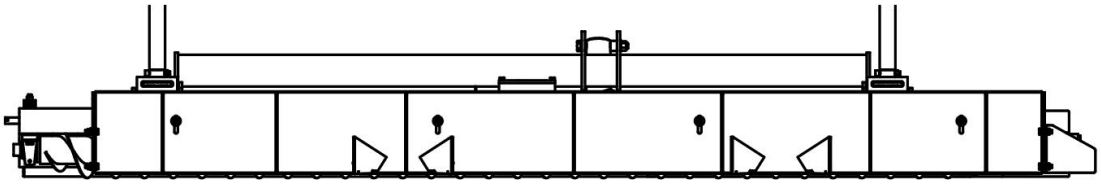
Adjustment diagram:



2. Mark the bolts with a paint pen after tightening them.



For example, when tightening the bolts connecting the scraper and the reaming bracket, the sequence should start symmetrically from the middle. After tightening, ensure that the scraper is parallel to the ground.



3. After installation, the auger must rotate flexibly and smoothly. It cannot be half-turn tight or half-turn loose. It must have good static balance.

4. When installing the bearing, the assembly surface should be cleaned with clean gasoline, kerosene, toluene or xylene and other solutions, and dried with a clean rag.

5. Press the left and right leveling buttons and check whether the left and right leveling cylinders lift smoothly and are in place.

6. Press the tilt cylinder button of the work head to check whether the front and rear tilt of the work head is smooth and in place.

7. Turn on the auger switch. The auger should rotate smoothly without any abnormal noise. Adjust the auger speed to 200±10r/min (when the hydraulic oil temperature is around 30°).

Laser leveling head setup instructions

1.Preparation

1.1 Start the machine and allow the hydraulic oil to reach an operating temperature of 20° C. Allow the machine to continue operating while the machine head is being set.

1.2 Place the machine on a flat, stable surface.

1.3 If necessary, purge air from the self-leveling cylinder. The process is as follows.

1.3.1 Remove the screws and copper sleeve of the tilt leveling cylinder (SLS cylinder) from the machine head (Picture 1).

1.3.2 Rotate the cylinder, place it in a horizontal direction, and manually rotate the cylinder to remove air bubbles (Picture2 and 3).

1.3.3 Reposition the inclination leveling cylinder on the machine head.

Note: Rotate the screw plug 1-2 turns counterclockwise. Do not rotate it too much. Start the machine, manually operate the leveling button, and repeatedly extend and contract the cylinder 5 times. If a small amount of oil emerges, the gas in the cylinder can be eliminated faster (use a container to collect the spilled hydraulic oil, and please comply with local pollutant management regulations when discarding.)

Picture 1

Picture 2

Picture 3

Picture 4

3. Angle sensor setting process

2.1 Angle sensor calibration

(This must be done before SLS and cross slope calibration compensation). Calibration of the angle sensor is important for proper performance of SLS and slope control. If the angle sensor is not properly calibrated, changes in lift will affect the SLS, and changes in the angle of the SLS will affect lift. This step must be repeated each time the angle sensor is adjusted.

2.1.1 Lower the left lift as far as possible and raise the right lift as high as possible.

2.1.2 Go to the display diagnostic screen and write down (note down) the SLS value (do not lean on or stand on the machine while recording the value).

2.1.3 Raise the left lift as high as possible and lower the right lift as low as possible.

2.1.4 Go to the display diagnostic screen and compare this SLS value with the previous value (do not rely on the

or standing on machinery). If the difference in values is not within 0.2 degrees, adjust/rotate the angle sensor bracket to distribute the difference evenly between the two values. Repeat the above process until the difference in values is within 0.2 degrees.

2.2 SLS zero compensation

Note: Angle sensor calibration should be performed first, if it is consistent, no compensation is required.

SLS zero compensation allows the control program system to compensate for the mechanical deviation between the angle sensor display value and the work head. The precisely compensated SLS allows the control program system to accurately control the angles between the vibrator, auger, and scraper.

NOTE: This step must be repeated each time the angle sensor is adjusted.

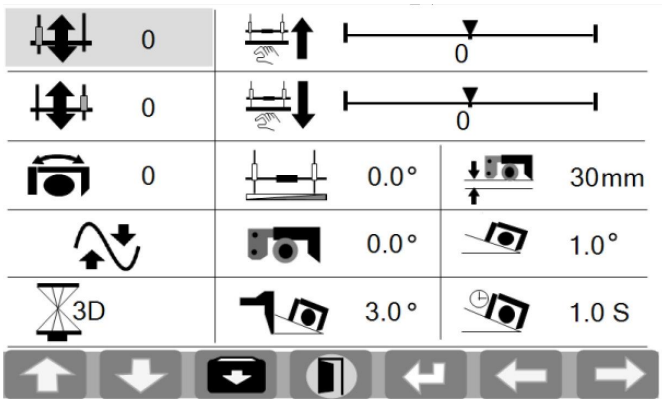
2.2.1 Set SLS and left and right lifting to manual mode.

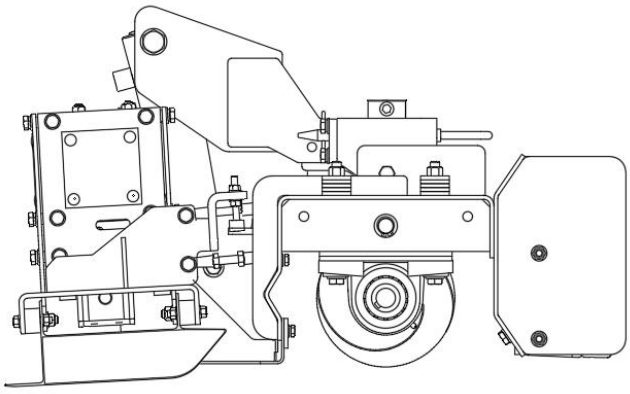
2.2.2 Place a level above the auger housing in the front-to-back direction, and manually adjust the SLS rocker switch until the auger support beam becomes vertical. At this time, record the SLS inclination angle displayed on the display.

2.2.3 Access the secondary menu in the display (press and hold the 2 and 6 keys simultaneously) and set the SLS zero compensation to the displayed SLS tilt angle, press the enter key to confirm.

2.2.4 Exit the secondary menu and use a level to check the SLS.

Note: When "zero compensation" is used for SLS and cross slope, after completing the "zero compensation" process, the angle displayed in the secondary menu will be changed to the compensation value.





2.3 Cross slope zero compensation (perform tilt sensor calibration first)

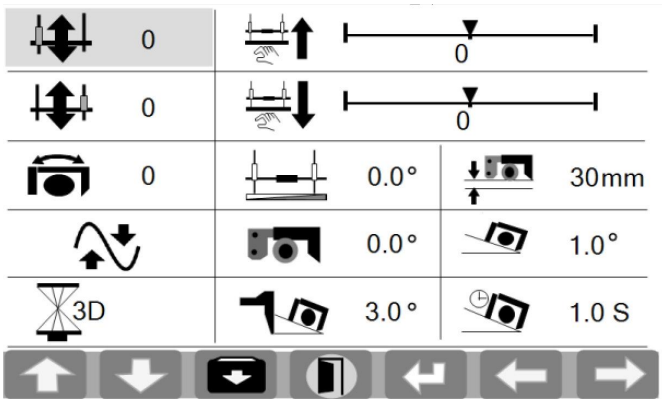
Cross-slope zeroing allows the control system to handle mechanical misalignments across the work head and between the angle sensors. After the cross slope zero position is compensated, column shielding protection and 3-D cross slope control can be performed more accurately. This step must be repeated each time the angle sensor or auger auger shim is adjusted.

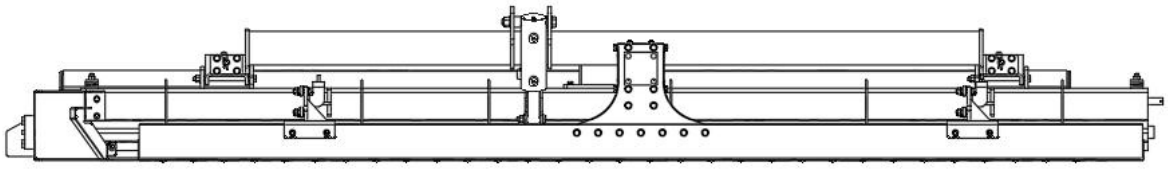
2.3.1 Place a level under the auger auger and adjust the lift until the auger is level.

2.3.2 Observe the inclination value on the display screen and record it.

2.3.3 Enter the corresponding value for cross slope zero compensation in the secondary menu on the display screen.

Note: When zero-compensating SLS and cross-slope, after completing the zero-position compensation process, the angle displayed on the cross-slope in the secondary menu will be changed to the compensation value.





3.Auger

3.1 Auger auger inspection

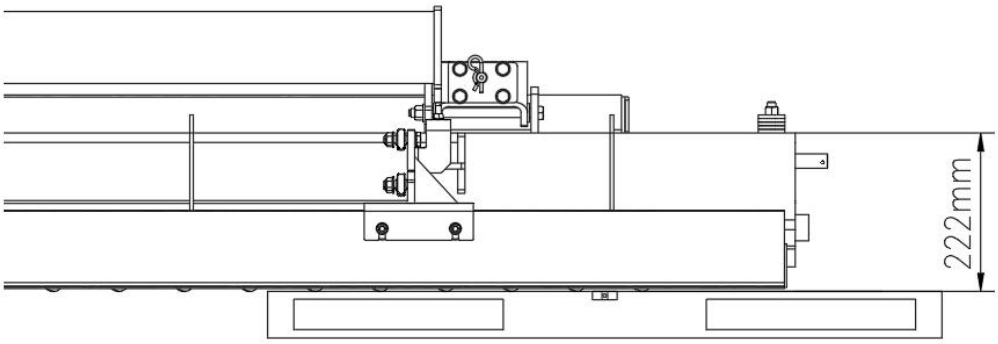
3.1.1 Visually inspect the auger auger. Look for damaged decking or pooled concrete. Clean, repair or replace auger as needed.

3.1.2 Check the height of the auger blade. If it is less than 28mm, replace the auger.

3.1.3 Use a sling or other string to check the straightness of the auger. Stretch the string straight under the auger so that it is just over the edge of the blade. Turn the auger by hand and check that the distance between all blades and the rope is not more than 2 mm. If the auger is bent, repair or replace it.

3.1.4 Measure the baffles on the left and right sides of the auger auger. If the right side of the auger wears more than 3mm, remove the auger, reverse the end, and reassemble.

3.2 The dimensions of all machine head settings are calculated based on the bottom of the auger auger. It is important to maintain a distance of 222 mm between the bottom of the auger and the top of the auger support beam.



3.2.1 Place a level on the bottom edge of the auger baffle, align it with the axis of the auger, and extend it beyond the end of the working head. But make sure that most of the level is within the blades of the auger.

3.2.2 Measure the distance from the top of the auger support beam to the level. This height should be 222mm (within 3mm error). If not, add or remove auger spacers from the auger auger bearing until the height is 222 mm (within an error of 3 mm). Repeat this process on the other side of the auger.

Note: If auger shims are added or removed, the cross slope needs to be zeroed.

4.Vibrator slip adjustment

4.1 Place the SLS in manual control mode.
Using SLS± control, the manual handpiece is adjusted to the same height.
Then visually confirm whether the lifting cylinder is perpendicular to the auger auger support beam and whether the cross slope direction of the machine head is at the same height.

Note: The horizontal marking bubble must be in the center of the row to reduce errors.

4.2 The vibrator has a rubber anti-slip device, which can prevent the vibrator from slipping too much when the machine head is lifted.

4.3 Place a 1-meter level on pole 4 and the rear edge of the vibrator.

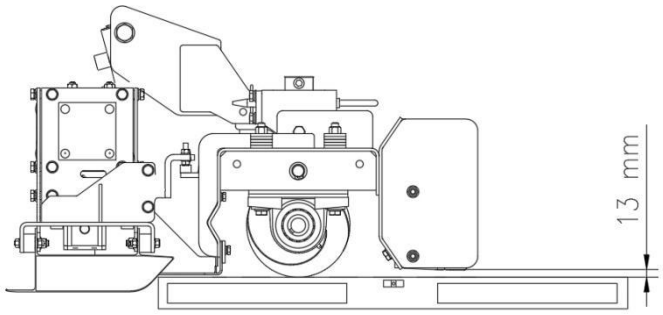
4.4 The lowest point of the vibrator should be 25 mm ± 3 mm below the bottom of the auger.

4.5 Adjust the vertical anti-skid device if necessary.

4.5.1 Loosen the lock nut on the rubber anti-slip device, adjust the anti-slip device, tighten the lock nut, and recheck the extent of the vibrator's downward movement.

4.6 Repeat the above operation on the other side of the working head.

5.Scraper height adjustment



5.1 Place the SLS in manual control mode. Use SLS± control to manually adjust the machine head level. By confirming whether the lifting cylinder is perpendicular to the auger support beam, confirm whether the machine heads are at the same height.

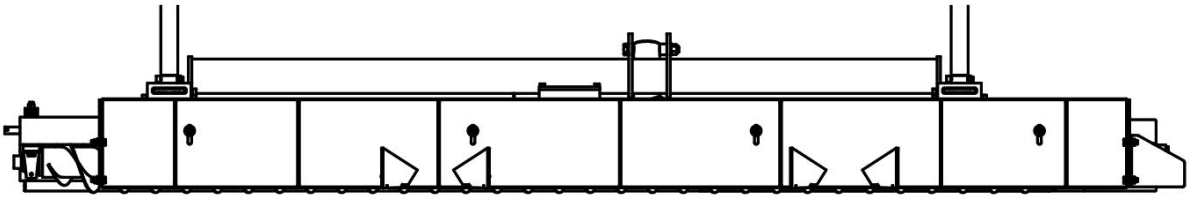
Note: The horizontal marking bubble must be in the center of the row to reduce errors.

5.2 Place a long level directly under the auger auger below the end bolt point of the working head auger housing.

5.3 Check that the distance between the bottom edge of the scraper and the bottom of the auger auger is 13 mm ± 2 mm.

5.4 If the dimensions do not match, the height of the scraper should be adjusted.

5.4.1 Loosen the bolts securing the auger support beam.



5.4.2 After reaching 13 mm above the auger height, re-tighten the scraper bolts.

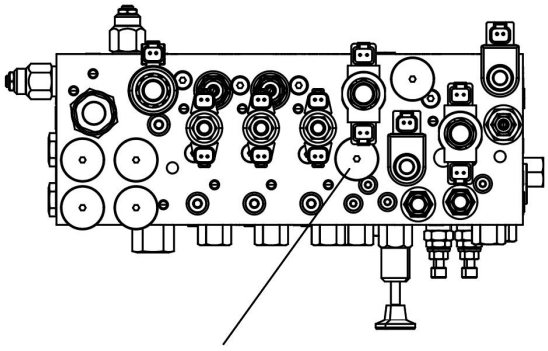
Side note: The scraper will be set higher on low slump concrete or large pieces of concrete than on high slump or small pieces of concrete. Please adjust appropriately according to the specific situation.

6.Spiral speed setting

6.1 Place a piece of reflective tape on the end of the auger tube.

6.2 Back-moving auger and vibrator.

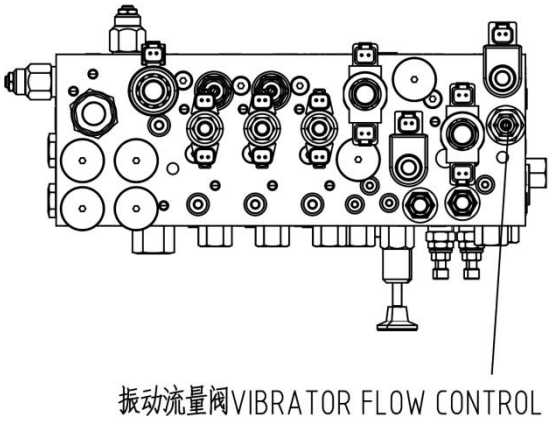
6.3 Use a tachometer to measure the screw speed. The speed should be 200 r.p.m (±4r.p.m.)



6.4 The speed can be adjusted by activating the valve on the hydraulic diverter. Turning the valve counterclockwise increases the spiral speed, turning it clockwise slows it down.

7.Vibrator drive speed setting

7.1 Place a piece of reflective tape on the eccentric mass or shaft of the vibrator.
7.2 Back-action auger and vibrator.
7.3 Use a tachometer to measure the screw speed. Speed should be 3200 rpm (±50 rpm)



7.4 The speed can be adjusted according to the valve on the rotary hydraulic diverter. Turning the valve counterclockwise increases the spiral speed, turning it clockwise slows it down.

Cylindrical protection

What is cylindrical protection?

Cylindrical protection is a function that automatically helps maintain the slope when the laser receiver is blocked and cannot receive the beam (cylinder blocker). A function that automatically helps maintain slope.

How does it work?

When the laser receiver is blocked (no data), the controller checks the slope angle sensor data. If the angle of the work head is correct and the unobstructed side is adjusted, the same adjustment will be made on the blocked side. If the angle of the work head is wrong, the controller will adjust the slope of the blocked side until the angle is correct.

What is the difference between flat mode and bevel mode?

In flat bottom mode, the cylindrical guard will always control the cross slope zero angle (0 degrees) •

In slope mode, the cylindrical guard will control the cross slope zero angle (0 degrees) during timed descent, but when leveling the channel, it will try to maintain the current angle of the working head when the laser receiver is blocked.

What should the operator pay attention to so that the cylinder guard can be used effectively?

Try not to swerve. If you must turn, do it slowly and avoid sudden lateral movements. Cross-slope angle sensing data is affected by side-to-side movement and affects slope. This is very important in bevel mode because the cylinder guard will try to maintain the working head at the current angle when the cylinder is blocked. Steering can cause the captured angle to be too high or too low, which will result in the wrong working head angle.

Perform cross slope zero compensation. During cylinder protection, the angle sensor controls the zero angle of the working head to the cross slope. If the zero compensation angle is incorrect, the slope will also be incorrect. When leveling a plane, checking whether the cross slope zero compensation angle is 0 degrees is a good way to check whether the zero compensation is correct. When the slope of the concrete is satisfactory and the leveling operation is ready to begin, this can be checked on the slope. Allows the work head to automatically adjust the slope when both laser receivers are within the laser beam. To access the display diagnostic screen, when the nose is on slope; the cross slope value should be 0 degrees (+1/-0.1 degrees). The closer the value is to 0, the more accurate the cylindrical protection will be. If the value is not within +1/-0.1 degrees, the cross slope zero compensation process should be performed.

Cleaning process

1. Switch the automatic leveling mode to manual mode and fully raise both sides of the machine head.
2. Turn off the engine and turn off all function switches.
3. Remove the laser receiver and receiver cable.
4. Use pressure washing to remove concrete. Do not flush the console. Please be careful when cleaning the console and electronic components. Direct high-pressure flushing of electronic components may cause mechanical damage or failure.
5. For mechanical lubrication, please refer to the maintenance instructions section of this manual.

Receiver LED indicator

Different configuration receiver LED indication:

Trimble Receiver Height LED Indication:

No signal	Receiver is too high	Receiver zero	Receiver is too low
Flash slowly	Flash quickly	Always on	Flash quickly

MOBA Receiver Height LED Indication:

No signal	Receiver is too high	Receiver zero	Receiver is too low
No indication	Arrow pointing down	Horizontal line	Arrow pointing up

Leica Receiver Height LED Indication:

MLS720	MLS820	LED	**Descriptive**
		Top flashes very slowly	Laser loss
		Top fast	Well above datum elevation
		Top medium fast	Above datum elevation
		Middle fast	Reference Elevation
		Bottom and center fast	Below datum elevation
		Bottom fast	Far below datum elevation
		Bottom flickers very slowly	Loss of laser

Troubleshooting - leveling conditions that may affect the laser control system

1) The laser control system is designed to operate at a distance of 1.5 to 90 meters. Receivers may not receive laser strikes at distances less than 1.5 meters. Beyond 90 meters, accuracy decreases.

2)The following information may cause interference with the laser transmitter as well as the receiver:

a) Fog .
b) Dust.
c) Diesel exhaust.
d) Unevenly heated air.
e) Wind or other factors interfering with the build when using a cylindrical splint may cause the receiver to cause vibration. Use a tripod mounted transmitter.
f) Heavy equipment can cause ground vibration sufficient to affect the transmitter. Discontinue use of heavy equipment or remove the transmitter.
g) Wind may cause the transmitter to vibrate. Suspend weights in the center of the tripod, or build windbreaks to block the wind.

3) Fluorescent lights may cause a solid red severe signal. Possible solutions:
a) Turn off the light source.
b) Install a protective barrier over the receiver.

4) Low battery power in the transmitter may cause:
a) A weak and unstable signal.
b) Inability to transmit the signal too far away.

5) Reflections from surfaces of substances such as glass or galvanized steel at the same height as the transmitter can result in an unstable high or low signal.
Solution:
a) Place material that will not reflect on surfaces that will reflect at the height of the transmitter.
b) Tape up the side of the receiver that receives the reflected signal.
c) Place a non-reflective barrier between the emitter and the source of reflection.
d) Tape up the window on the side of the emitter that has a reflective source.

6) Strobe/rotating lights may cause erratic signals. Turn off or cover the light source.

Construction process

1. Check before ignition

Note: To develop the habit of pre-starting inspection, never rash, sloppy engagement, which is conducive to human and machine safety. Please check the machine one by one according to the daily WS940C pre-start check items.

Focus on the inspection place:

1.1.1 Check the oil circuit: make a tour around the vehicle to see if there are oil leaks and abnormalities. Pay special attention to the sealing condition of the high pressure hose connector, hydraulic cylinder, work valve, steering gear and oil diffuser. If leaks and other abnormalities are found, they should be repaired.

1.1.2 Check the bolts and nuts: check the tightness of the bolts and nuts in the parts that are prone to loosening, and tighten them as soon as they are found. Especially pay attention to check the air filter, especially rim bolts, working head bolts.

1.1.3 Check the electric circuit: whether the electric wire is damaged, short-circuited and whether the terminal is loose.

1.1.4 Check the oil level of the engine oil: when the engine is stopped, take out the dipstick and check the oil level. When the engine is idling, you should first determine whether the engine oil pressure gauge is in the normal range, and then take out the dipstick to see the oil level. If you need to add oil, open the oil filler port and add it. The type of oil to be used depends on the ambient temperature, refer to the attached table "Fuel and Lubricant Usage". When checking the oil level, park the vehicle on a level surface. Do not raise the oil level above the "H" mark when adding oil.

1.1.5 Adding Fuel: Start the switch and turn on the power to check the fuel gauge, and add fuel appropriately according to the fuel level gauge.

2. Preparation before startup

2.1 Laser transmitter placement:

Select a suitable relatively flat ground with relatively few obstacles in the plane, place the tripod on a solid and stable position, and adjust the height of the tripod platform ($\geqslant$ 1.8m). Make the horizontal bubble on the top platform within the black circle of the horizontal mirror. Fix the transmitter on the platform of the tripod and press the on/off key to turn on the transmitter. (Note: After a few seconds of starting, the emitter will automatically level itself and then the laser will turn on automatically when finished (approx. 30S). Set the zero point of the handheld receiver according to the required elevation of the ground concrete.

2.2 Digital Receiver Installation:

The digital receiver is mounted on top of the bracket at the upper end of the two lifting cylinders adjust the appropriate height tighten the bolts.

2.3 Work head preparation:

Before construction in the working head can be coated with waste machine oil, concrete should not stick to the working head, easy to clean.

2. Starting method and steps

3.1 3.1 Check the rocker switches:

Visually check that each operating button cock is in the start position.

3.2 Ignition starting equipment:

Turn the starter key clockwise to the start position, when the engine is started, release the starter key and it will automatically return to the (on) position. If the engine does not start, restart it after an interval of 2 minutes and leave the key in the "start" position for no more than 15 seconds. If you run out of fuel, add enough fuel before starting the engine, then fill the fuel filter cartridge with fuel and exhaust the air in the fuel system before starting the engine.

3.3 Inspection after engine start:

After starting the engine, the following checks should be made: pull the throttle switch and idle the engine at medium speed for approximately 5 minutes.

Do not run the engine at idle or high speed for more than 20 minutes. If engine idling is required, apply some load or increase engine speed to the medium range from time to time. Check for normal exhaust color and any unusual noises or vibrations. Avoid sudden acceleration until the engine has warmed up.

4. Vehicle driving construction

4.1 Vehicle traveling:

Vehicle walking: after starting the engine, forward or backward toggle the left handle that is to realize the vehicle forward or backward walking.

Vehicle turning: to the left or right toggle the right thumb handle that is to realize the vehicle to the left or right to turn to, the larger the toggle angle the faster the steering speed.

Note: Always keep the handle clean and repair it if damaged.

4.2 Vehicle construction operations:

- After setting the laser elevation and commissioning the whole machine, drive into the concrete construction site.
- After arriving at the designated construction site, carry out the leveling operation in accordance with the "Leveling Operation", paying attention to the slow and even speed.

4.3 Precautions for vehicle operation

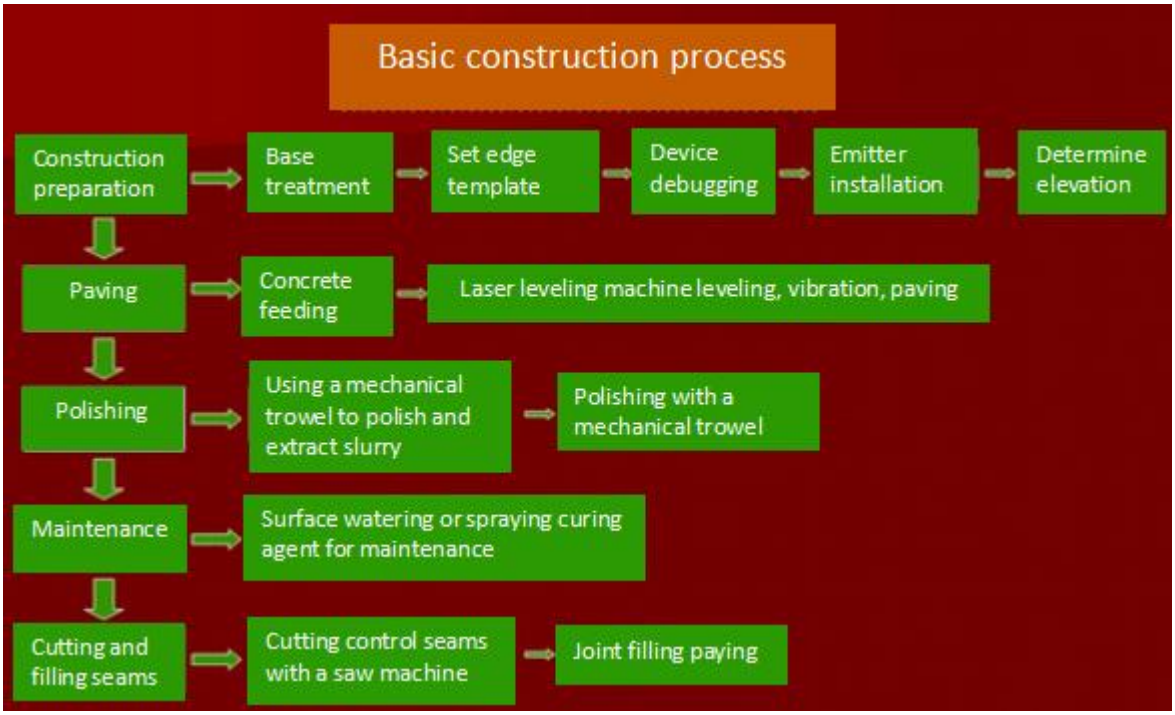
- Laser transmitter setup: the laser transmitter should be set up in the best position without objects blocking the beam; the tripod should be set up in a stable and sturdy way, and the screws and clips of the tripod should be tightened; there should not be large vibration sources in the surrounding; set up the direction of concrete paving and the direction of leveling in a reasonable way, and determine a reasonable travel route for the construction of the machine, so as to avoid the blind zone of leveling.

During the construction of the laser leveling machine, the leveling process of one concrete (the one being leveled under the effective leveling width of the leveling machine) shall not be interrupted in the middle.

- When temporarily stopping the leveling process, the vibration motor must be turned off, not turned on, so that the machine stays on the concrete surface.
- When leveling the next concrete surface, the vibrating plate should cover the previous leveled floor in a length of 300~400mm.
- The leveling concrete should not be too thick, as it may cause the construction effect to deteriorate.
- If there are objects interfering with the signal at the construction site (e.g. plant glass and other reflective interferences), the operator should use paper or other light-blocking materials to block the

signal area emitted by the transmitting light source, for details, please refer to the "Troubleshooting - Leveling operation conditions that may affect the laser control system".

4.4 Basic Construction Process



Preparatory work

1. After the grass-roots level is processed, debug the laser leveling machine, make the fixed reference level according to the original level point; lay the plastic film, tie the reinforcing steel net (according to the design needs), support the side mold; set up the laser transmitter, and introduce the elevation of the floor into the laser leveling machine according to the original level point.

2. Conveying concrete: use commercial concrete and transport it to the construction site by concrete truck.

3. Elevation checking: use handheld receiver to check the floor elevation, introduce the elevation into the laser leveling machine, and adjust the reference point (±0.00) on the leveling machine.

● Concrete paving: within the effective construction range of the leveling head of the laser leveling machine, the concrete will be leveled manually to a height of 1-2 ㎝ higher than the elevation of the floor (the specific height depends on the slump of the concrete), and then the concrete laser leveling machine will complete the vibration, compaction, and leveling work at one time.

● Smoothing and finishing: when the concrete after pouring reaches the initial condensation, it will be smoothed by the grinding machine, and then it will be manually finished by power trowel

● Conservation: After the end of concrete smoothing, no heavy objects should be moved on the floor for at least 7 days, and it should be kept in a moist state of conservation, sprayed with curing agent for conservation (according to the design needs), in order to achieve a good conservation effect, the surface should be covered to isolate the concrete from the outside, and in the period of curing, it is strictly prohibited to go on the people when the strength of concrete of the surface layer has not reached the requirements.

● Cutting joints: Cutting joints should be carried out according to the design requirements after the surface treatment of the floor is finished, that is to say, to ensure that it will be carried out before the final setting of the concrete, and the spacing, width and depth of the cutting joints should satisfy the requirements of the design and construction specifications and standards.

● Others: Caulk the joints and protect them until the concrete reaches strength before use.

4.5 Construction

According to the regional planning of the construction site, the commercial mixer or pump truck dumps the concrete in sequence, and the concrete is evenly and smoothly paved on the foundation, with the paving width exceeding the vibrating plate by about half a meter and the length within 25 meters. The initial spreading is carried out by the paving personnel;

Initial measurement by the surveyor with a hand-held receiver at a height of +5 mm or so, to be able to leave an even residual surface thickness (adjustments are made to the initial spreading according to the concrete's degree of collapse);

After the machine is started, raise the vibrating plate, adjust the traveling speed and direction, and enter the working state. The machine body reaches the designated place to lower the vibration plate, open the automatic, when the receiver shows green light, adjust the speed and open the backward walking. (Pay attention to the construction direction and adjust it in time)

● During the construction of the machine, the replenishment worker should make up for the concrete in a timely manner with less and more raking.

● The leveled ground should be measured by the surveyor to ensure the accuracy. (Note that after leveling 3-10 meters, test whether it is standard or not, and make selective adjustments.)

● After construction, protective measures (cordon, felt) should be added to the ground to prevent damage to the ground.

● After construction, you need to place the machine in a suitable position, the machine body to maintain balance, scraper should be higher than the vibration plate, clean the machine (power output plug do not get into the water, pay attention to safety).

Gradient adjustment

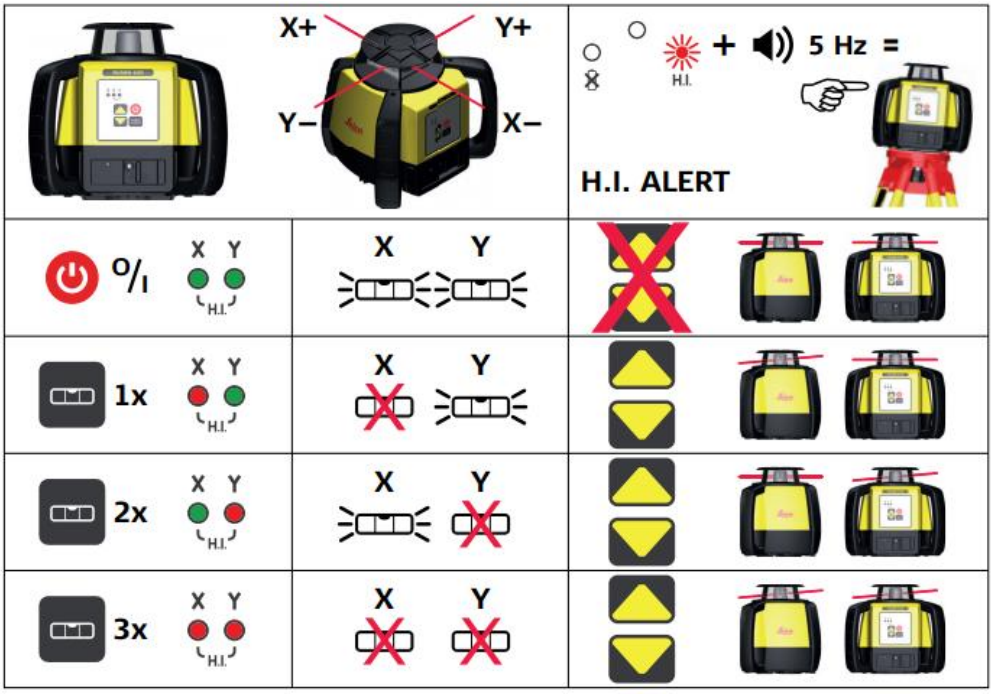
The manual mode will be activated after turning on the manual mode. In manual mode, automatic leveling will be turned off. The following options are available:

● Change the X-axis to manual mode;

● Change the Y-axis to manual mode;

● Change all to manual mode.

After restarting the laser, the laser is in automatic mode.



Laser component installation and commissioning schematic 01

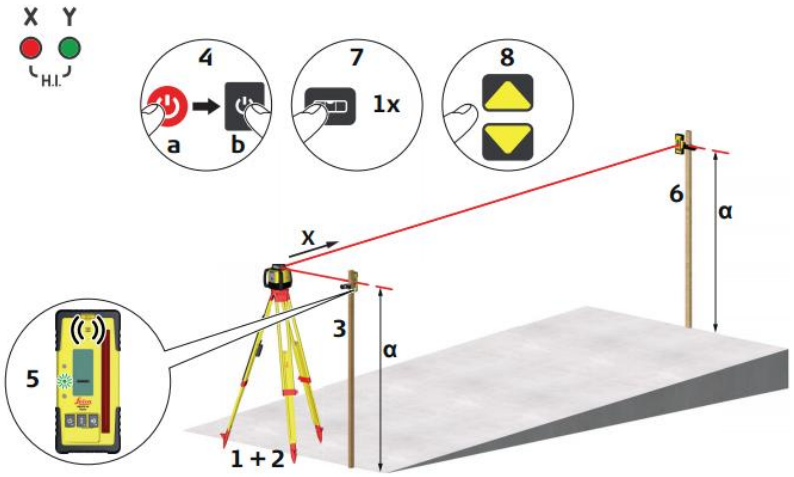
After powering up, press the Auto/Manual Mode button to change the X-axis to manual mode. The X-axis and Y-axis of the marker are on top of the laser transmitter.

1. The X-axis is not automatically leveled and the slope needs to be adjusted by pressing the arrow buttons up and down on the laser;
2. This X-axis LED is red;
3. The Y-axis can continue to level automatically and the Y-axis LED will blink green until leveled;

When the X-axis is in manual mode, the slope of the X-axis can be adjusted;

3. Steps

- 1. Put the laser transmitter on the side of the highest (lowest) horizontal line, coinciding with the center axis of the laser transmitter;
- 2. The laser must be placed correctly, the keyboard side can face the low point (high point), turn on the transmitter;
- 3. Install the small receiver, put the small receiver to the position where the high point (low point) and the transmitter are close to each other, set the receiver to zero;
- 4. Use the small receiver to set the leveler;
- 5. Then put the small receiver to the low point, adjust the laser transmitter, press the angle key, x lights up red, y lights up green, press the upper key to adjust [always press (press and hold) or tap to fine-tune (tap)]. Set the small receiver to zero;
- 6. Then measure the four corners of the site location are zero, (it is possible that the transmitter is not placed correctly, the four corners of the height will be biased, you can fine-tune the laser transmitter.



Schematic diagram of laser element installation and commissioning02

4.6 Quality control and precautions in the construction process

Laying lines and leveling at the edge of the wall (column): Since the laser leveling machine at the edge of the wall can't touch it, it is necessary to manually level the 40 cm range along the edge of the wall (formwork), so it is necessary to lay a line to serve as a reference for manual leveling.

- Support the formwork (steel formwork is recommended) along the range of the day's pouring, reserve holes for the transmission rod, and control the elevation of the formwork to avoid large deviations in flatness at the joints of different bins.
- Set templates or sheets along the periphery of walls, equipment foundations, columns, etc. (thickness and position according to design requirements), and leave separation joints to avoid cracking of the concrete floor.
- Feeding: Concrete conveying speed should be ensured at a certain amount and at a uniform rate, with less stopping intervals in between to prevent cold joints and affect the progress of the project. The slump and initial setting time of concrete delivered to the site each time must be consistent. The slump of concrete should be controlled at 14~16 cm and the initial setting time should be controlled at about 3 hours.

Note: Certain contents of this quality control are only for reference, and the actual construction should be made according to the design requirements of the floor and the characteristics of the construction site.

5.Parking

Parking according to the following steps

5.1 Inspection items when parking

- Park the laser leveler on a level surface.
- Securely lock the parking brake to ensure that the laser leveler cannot move.
- Set the direction.
- Lower the leveling head to the ground, the lower part of which can be covered with a used tire or a softer mat.
- Turn the key switch to the OFF position.

- Remove the starter switch key and leave the laser leveler.

5.2 Parking the laser leveler in a safe place

- Park the laser leveler in the specified position.
- Park the laser leveler on a firm surface.
- Never park near emergency exits, ladderways, fire extinguishers or other safety equipment. Park the laser leveler where it will not obstruct pedestrians or other vehicles.
- Never park the laser leveler near flammable materials.
- If you have to park on a slope, in addition to the normal parking procedure, place pads under the tires so that the laser leveler cannot move.

5.3 Do not use a malfunctioning laser leveler

- Remove the key of the defective laser leveler and hang a tag on the driver's seat to prevent the laser leveler from being used.

If the laser leveler malfunctions while working, disengage the machine parking brake, tow the machine out of the concrete area, and park it where pedestrians or vehicles will not pass by.

Lubrication and maintenance planning

Maintenance Program Maintenance is carried out when the specified number of months, or the number of working hours, is reached. number of months, or the number of hours worked, maintenance is performed, whichever is whichever comes first.	Maintenance interval	Reference Page	**oily**
Checking the fuel oil level	Each use		
Check engine oil level	per use	Engine Manuals	EO
Check hydraulic oil level	Per use	Repair Instructions	HYDO
Check air filter	Each use	Engine manuals	
Check wheel nut tightness	Each use		
Check churn auger (laser leveler head)	Every time	Laser leveling head settings	
Lubricate after high-pressure rinsing	Every time		MPG
Lubricate drive motor and reducer	Every time	Maintenance Instructions	MPG
Check drive wheel hubs	Monthly		MPG
Lubricate articulated swing hose structure	Every 3 months		
Clean hydraulic oil cooler fins	Every 3 months	Repair Instructions	
Check electrical wiring	Every 6 months		
Replace 4 connecting rod bolts	Every 250 hours		
Check hydraulic hoses	Per year		
Check hydraulic oil cooler hoses	per year	Repair Instructions	
Replace hydraulic oil filter (return line)	per year	Maintenance	

		instructions	
Replace hydraulic oil in tank	Every 2 years	Repair instructions	HYDO

Lubrication and maintenance planning

petrol engines

Maintenance Program Maintenance is carried out when the specified number of months, or the number of working hours, is reached. number of months, or the number of hours of work, maintenance is performed, whichever is whichever comes first.	Maintenance interval	Reference Page	Lubricating
Clean the air filter	Every 50 hours	Engine Manuals	
Clean spark plugs	Every 50 hours	Engine Manuals	
Change engine oil	Every 100 hours (first 20 hours)	Engine manuals	EO
Change fuel filter	Every 100 hours (first 20 hours)	Engine manuals	
Change oil filter	Every 200 hours (first 20 hours)	Engine manuals	
Replace air filter	Every 200 hours	Engine manuals	
Clean/re-adjust spark plugs	Every 200 hours	Engine manuals	
Check engine base (oil pan)	Every 500 hours	Engine manuals	
Replace spark plugs	Every 500 hours	Engine manuals	
Clean and adjust carburetor	Every 500 hours	Engine manuals	

Clean/re-adjust valve clearances	Every 500 hours	Engine manuals	
Replace fuel lines	Every 1000 hours or every 2 years	Engine manuals	

Note:

EO - Engine Crankcase Oil
HYDO - Hydraulic Fluid
MPG- Multi-purpose lubricant
OGL- Open Gear Lubricant

Maintenance instructions

Clean the external fins of the hydraulic oil cooler core

If air is obstructed in its passage through the hydraulic oil cooler, the temperature of the hydraulic oil will increase, which may result in a shorter life cycle of the hydraulic pump. Clean the hydraulic oil cooler daily to avoid concrete dust buildup and hardening. If the hydraulic oil cooler becomes clogged due to lack of cleaning, it will eventually need to be replaced. Flush with compressed air or high pressure before the dusty material hardens on the radiator.

Check hydraulic oil cooler hoses

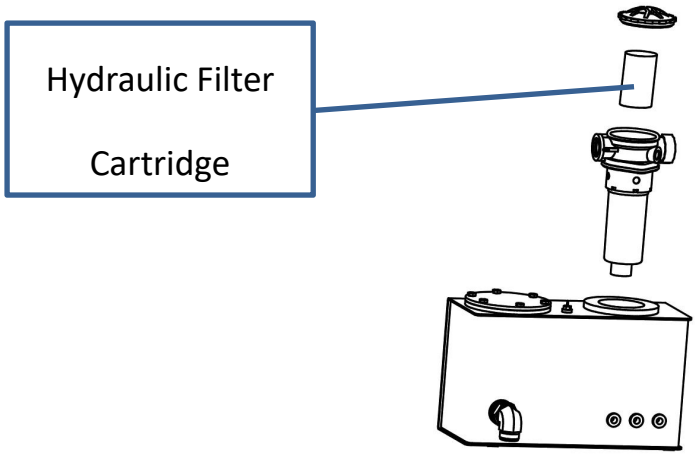
Periodically check the cooling system hoses for leaks or damage. Replace old hoses with new ones.

Checking the hydraulic oil level

Check the hydraulic fluid level by looking into the transparent hydraulic tank. Compare the level with the "full" line on the front of the hydraulic tank. Check the oil level while the machine is parked on a level surface and check the general operating temperature of the oil. Maintain the oil level at the correct level by adding hydraulic oil as required.

Hydraulic oil filter element

Replace the hydraulic oil filter in the return line as instructed below. With the machine off, remove the top of the filter housing and replace the filter element. Do not allow any dust or debris to enter the hydraulic oil tank.



Maintenance instructions

Changing the Hydraulic Fluid

Refer to the graphic on the previous page.

Every so often, hydraulic oil needs to be changed to avoid harming system components. As oils age and as special chemical additives are added to them, they become resistant to corrosion, break down and become less effective. Therefore, it is important to replace the oil as often as possible with new oil at regular intervals. It is impractical to replace all the oils in the system because they can become lodged in various parts of the system.

To change the hydraulic oil:

1) Flush the machinery with water pressure. Pay particular attention to cleaning the top of the hydraulic tank within reach of the hydraulic reservoir. The top of the tank should be clean enough so that no dirt can fall into the tank when the hydraulic oil filter components are removed.

2) Drain the hydraulic fluid from the tank by opening the return port at the bottom of the tank. Drain the old oil into the drain pan, which must have a capacity at least equal to that of the reservoir (12.5 liters) .

3) Once all the oil has been drained from the tank, it is advisable to remove and inspect the hydraulic oil filter assembly and clean the inside of the tank .

4) Remove the hydraulic oil filter assembly by removing the hexagonal bolts from the bottom plate of the hydraulic oil filter assembly .

5) The filter element is located underneath the hydraulic oil filter assembly.

6) After removing the hydraulic oil filter assembly, the interior of the hydraulic tank can be inspected and cleaned. After cleaning, replace the hydraulic oil filter assembly and cap gasket in the appropriate locations.

7) Replace the fittings on the return port and refill the hydraulic tank to the correct level with new hydraulic fluid.

Lubricating point

Drive hub

1. Rotate the drive hub so that hole #1 is at the bottom and hole #2 is at 9 o'clock.

2.Remove the oil plug from hole #2.

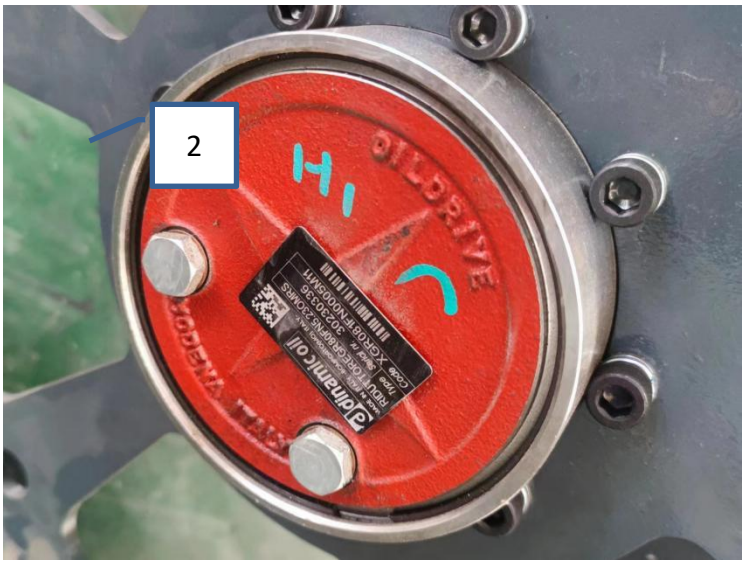
3. Slowly inject lubricant through hole #2 with a syringe until oil spills out of hole #2.

4.Plug the oil plug up the #2 hole. Start the machinery and drive for about a minute after filling is complete.

5.Re-remove the oil plug from hole #2 and repeat step 3.

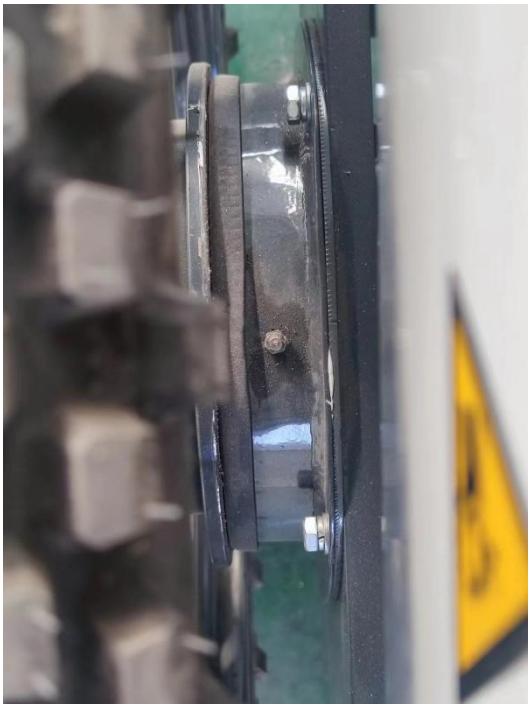
6.Plug the oil plug into hole #2 and the fill is complete.

7. Check the lubrication level once a month.



Drive motor caps

After each use, grease the grease nipples of each drive motor cover until grease spills from the seams.



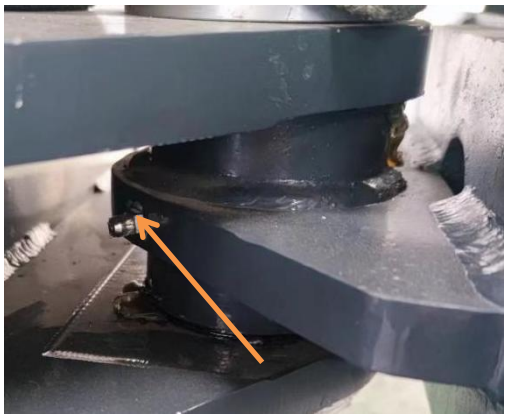
Lubricating point

Swing hose at hitch

2 fittings at the rear of the machine - lubricated every 3 months

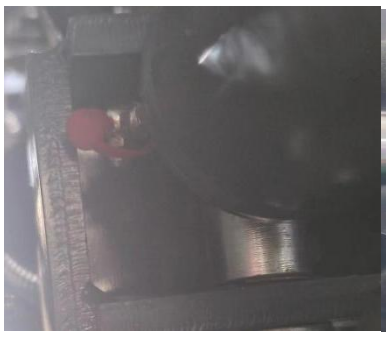
Front and rear frame articulation

Front frame to rear frame joint, lubricate once a month



Steering cylinder

Lubricate the front and rear joint bearings on the steering cylinder once a month.



Churn auger bearings

There is an auger bearing on each side of the laser leveling head auger, which needs to be lubricated after each pressure wash.

Lubricating point

Vibrator bearings

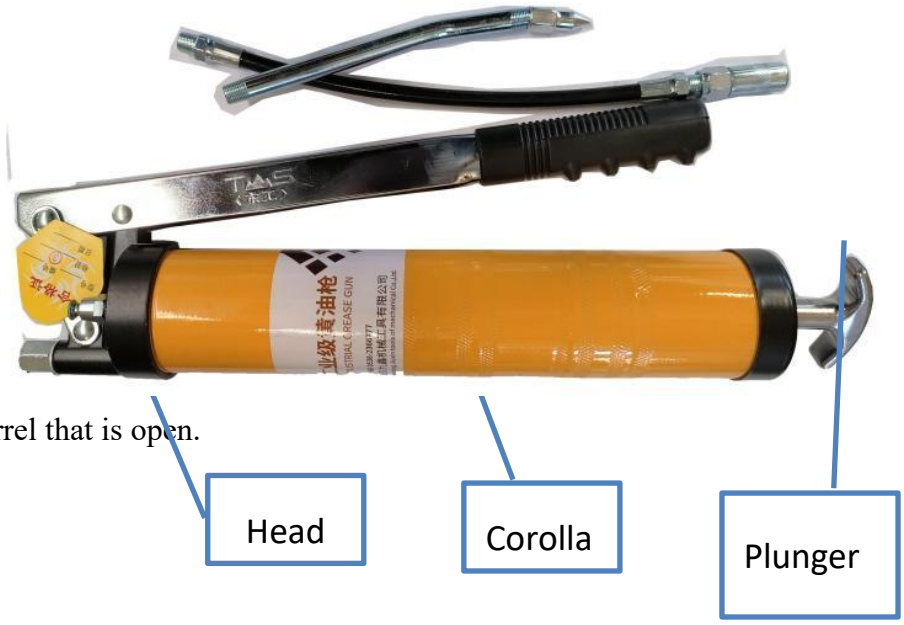
2 vibrator bearings.

Need to be lubricated after each pressure flush.

Handheld grease gun bulk filling instructions

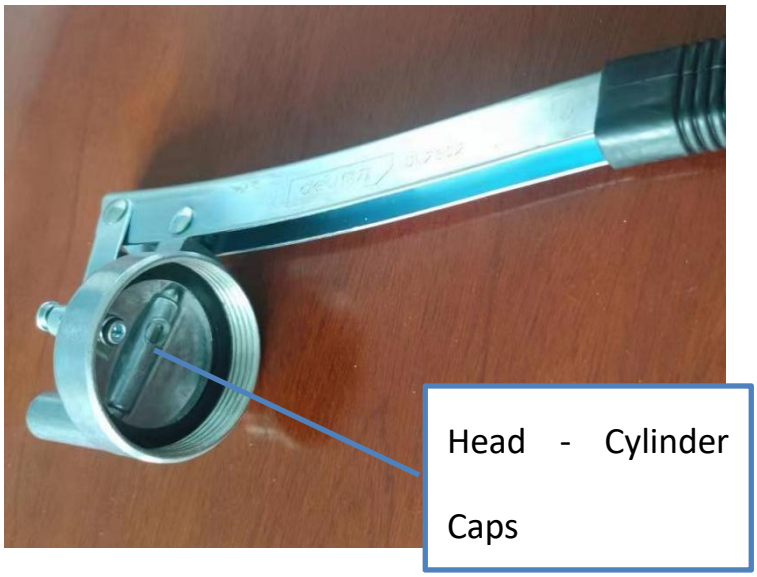
1. Tighten the plunger by pulling it all the way out into the side groove.

2. Unscrew the tube from the head
NOTE:If the head-cartridge cap comes off, reinsert it.
3. Loosen plunger and push in completely.
4. Lubricate the portion of the barrel that is open.



5. Pull the plunger completely out and lubricate the barrel.

6. Lock the barrel into the head section.



Battery Charging Recommendations

Cycle Application: Limit initial current to 8.4 amps. Charge until (while charging) battery voltage reaches 14.7 volts 6800F (200C). Maintain at 14.7 volts until current drops to approximately 280mA. The battery is fully charged in these cases and should be disconnected from the charger or switched to "float" voltage.

Float" or "Standby" Maintenance: The same battery is regularly maintained at 13.5 to 13.8 volts. When maintained at this voltage, the battery will find its own current level and maintain itself in a fully charged state.

Note: Batteries need to be recharged after a long period of time If exposed to higher temperatures, the time interval will be shorter.

Operating speed and pressure

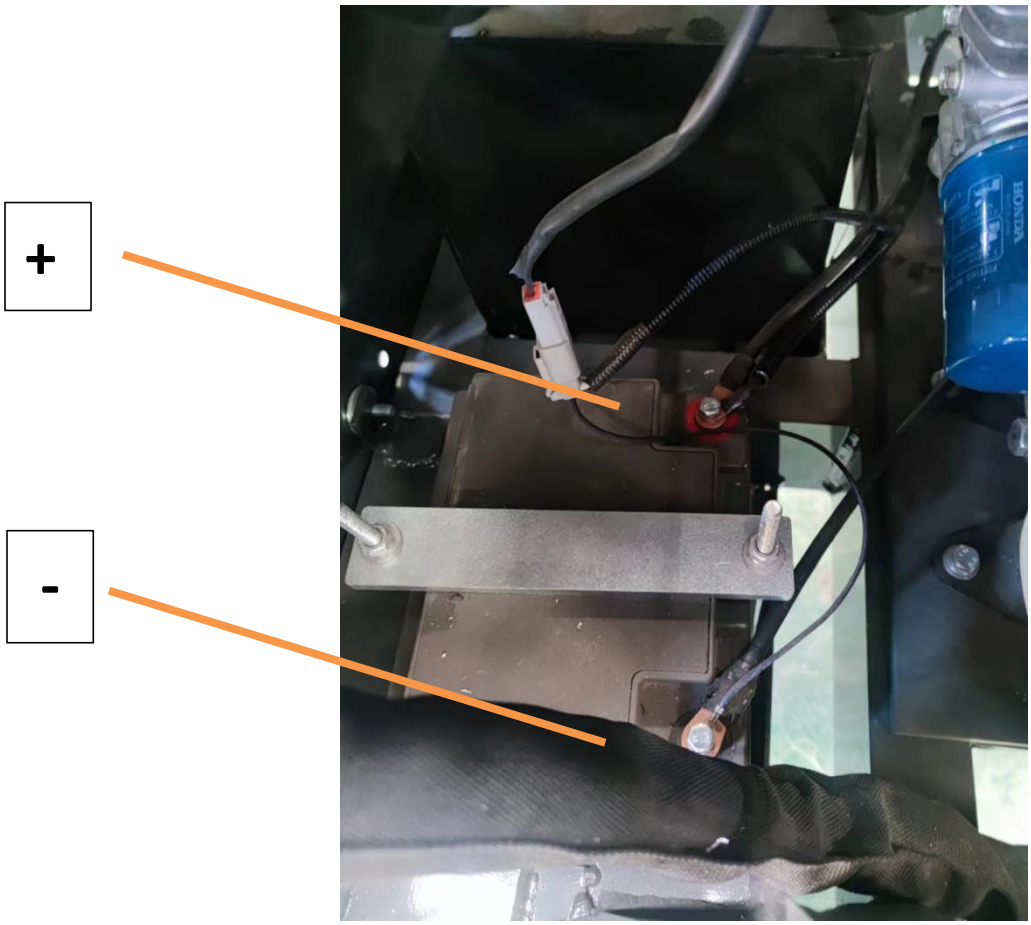
Full engine speed is 3600 RPM and the operating temperature of the hydraulic fluid is 90-176° F (32-80° C).

Front and rear travel pressure	Forward/reverse horizontal drive 1400 Psi (9653 kPa)
Front and rear travel speed	2.8 mph (4.51 km） Forward / Backward
Maximum steering pressure	1350 psi (9308 kPa)
Propulsion speed (from stop to stop)	4 s
Maximum system pressure	3000 psi (20684 kPa)
Standby pressure	450 psi (2150 kPa)

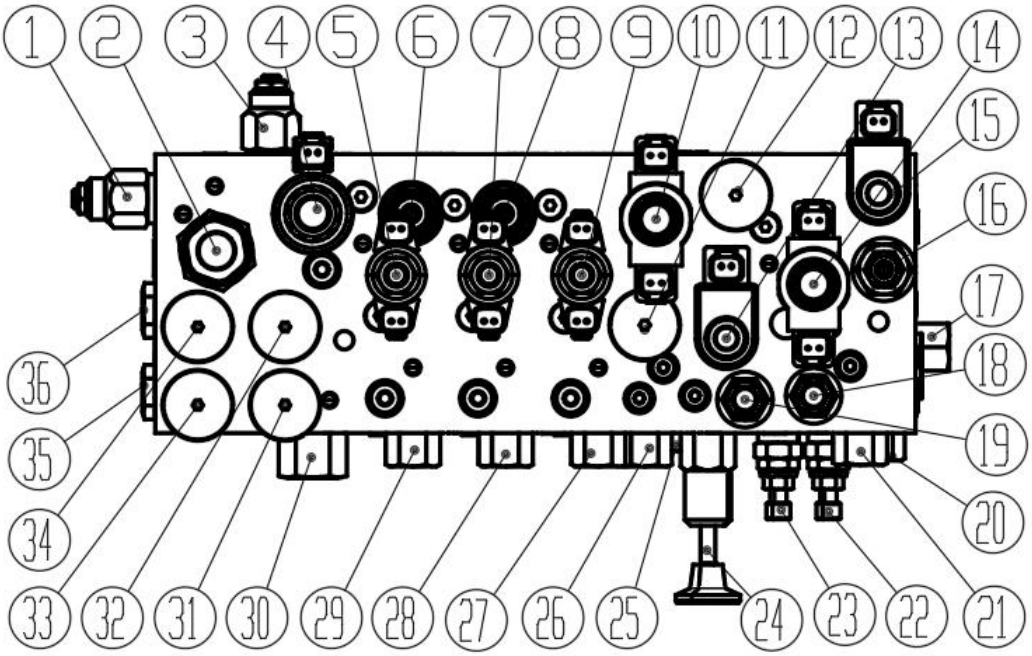
Borrowing power to start the engine when the battery is dead

Place a charged battery next to the machine, open the cover, and locate the random battery terminal .

1. Connect the positive wire to the positive terminal of the supplied battery terminal.
2. Connect the opposite end of the positive wire to the positive terminal of the charged battery.
3. Connect the negative wire to the negative terminal of a charged battery.
4. Connect the opposite end of the negative wire to the engine block .
5. Start the engine with the key switch.
6. Remove the borrowed wire by reversing the process.



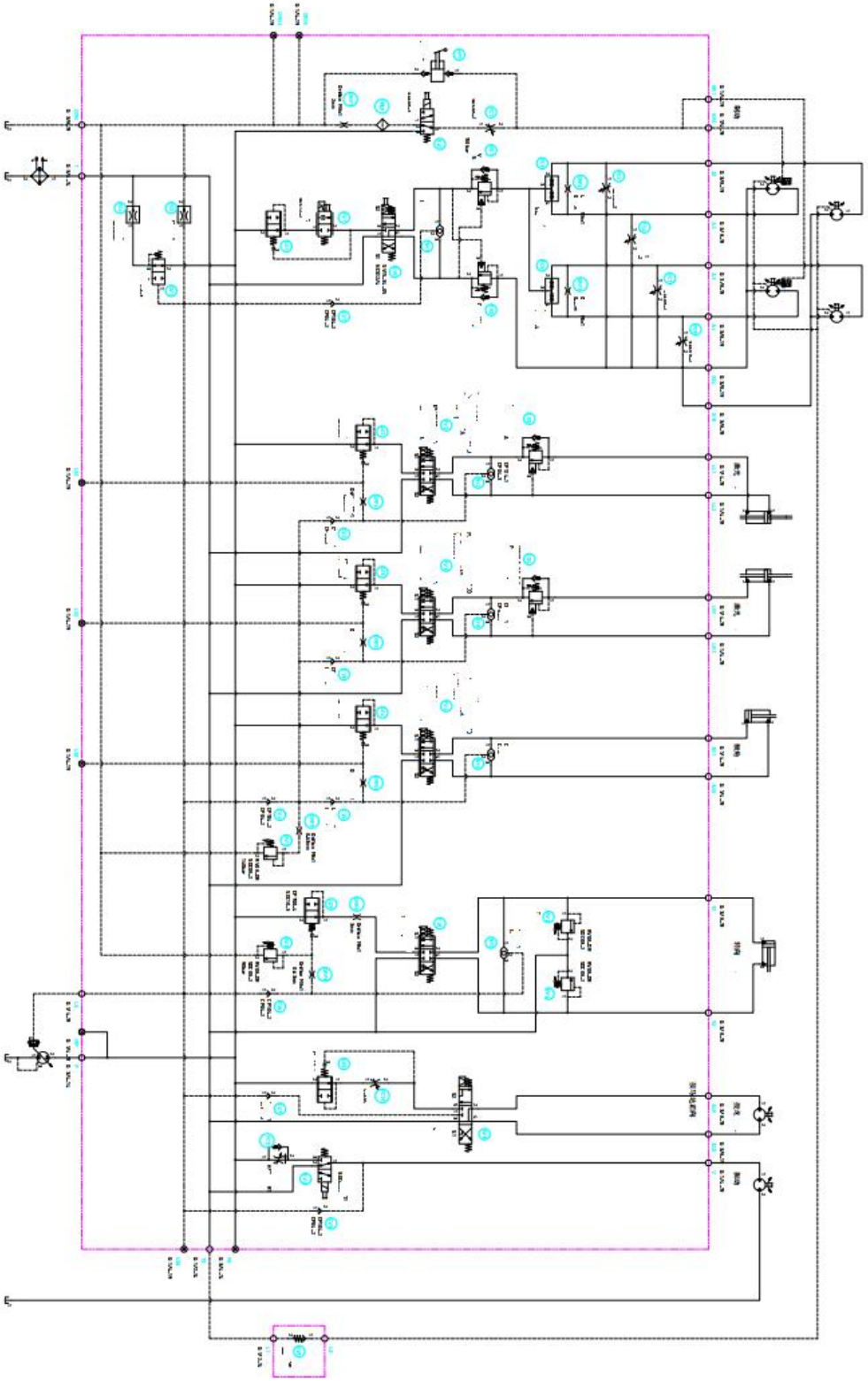
Hydraulic diverter port



WS940C主阀组 WORKING VALVES

1、3.行走平衡阀 COUNTERBALANCE，Propeller
2.推进方向阀 PROPEL DIRECTIONAL
4.推进速度控制阀 PROPEL SPEED CONTROL
5.左提升油缸控制阀 ELEV.CONTROL, LEFT
6.左提升油缸平衡阀 COUNTERBALANCE，LEFT ELEV.
7.右提升油缸控制阀 ELEV.CONTROL, RIGHT
8.右提升油缸平衡阀 COUNTERBALANCE，RIGHT ELEV.
9.倾角找平油缸流量阀 SELF LEVEL FLOW VALVE
10.绞龙方向控制阀AUGER DIRECTIONAL
11.绞龙流量阀 AUGER FLOW CONTROL
12.制动释放控制阀 CONTROL VALVE BRAKE RELEASE
13.转向流量阀 STEERING FLOW VALVE
14.转向阀 STEERING VALVE
15.振动阀VIBRATOR CONTROL
16.振动流量阀VIBRATOR FLOW CONTROL
17.油冷却先导阀 PILOTSPOOL,OIL COOLING
18.转向溢流阀 STEERING RELIEF
19.提升、倾角溢流阀 SCREEN,BRAKE RELIEF
20.冷却流量控制阀 FLOW CONTROL，OIL COOLING
21.转向补偿阀 PERSSURE COMPENSATOR，STEERING
22、23.转向平衡阀 COUNTERBALANCE，STEERING
24.制动解除手动打压泵 HAND PUMP,MANUAL BRAKE RELEASE
25.LS节流孔 FLOW CONTROLAND SCREEN.LS BLEED DOWN
26.绞龙补偿阀 PERSSURE COMPENSATOR，AUGER
27.倾角补偿阀 PERSSURE COMPENSATOR，SCREEN
28.右提升补偿阀 PERSSURE COMPENSATOR，RIGHT ELEV.
29.左提升补偿阀 PERSSURE COMPENSATOR，LEFT ELEV.
30.行走补偿阀 PERSSURE COMPENSATOR，PROPEL
31、32、33、34.拖车旁通阀 TRAILING VALVE
35、36.行走分流集流阀 PROPEL FLOW DIVIDER

Hydraulic diagram



Troubleshooting hydraulic system problems

The most common problems with hydraulic systems are created by dirt and debris entering the system. It is important to keep your hydraulic system clean.
is very important and following these simple maintenance habits can prevent unnecessary downtime:

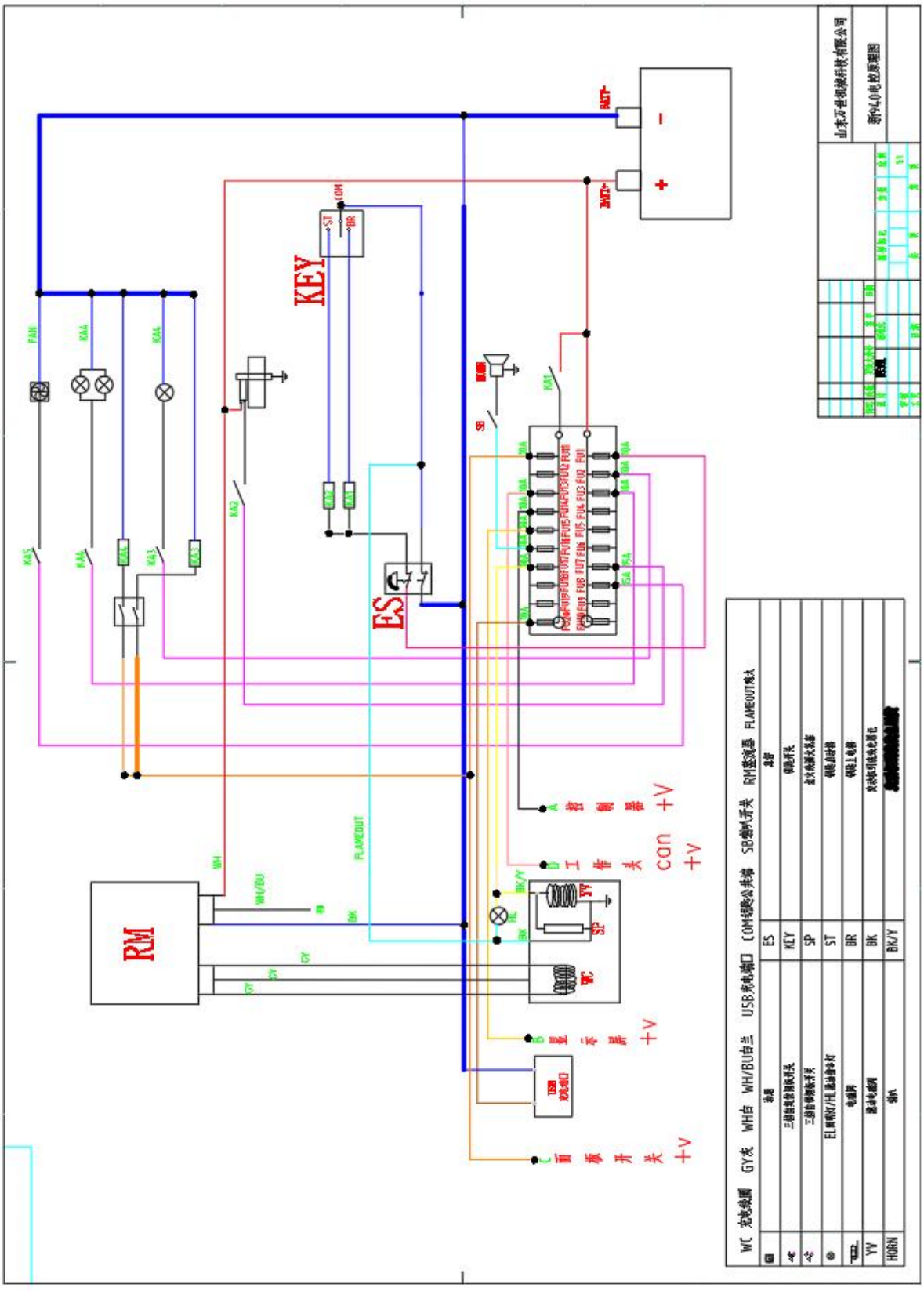
1) Replace the hydraulic system filter element with an appropriate replacement element as instructed in the Maintenance section of this manual.

2) If it is necessary to work on the hydraulic system, such as replacing damaged hoses or other parts of the system, special attention needs to be paid to blocking the damaged connections with caps as well as plugs to keep dirt from falling into the system; caps and plugs made of plastic or stainless steel are recommended. Before removing the hose from the unit, clean the area where the hose fitting is located (use a cleaning agent to spray it and then wipe it dry).

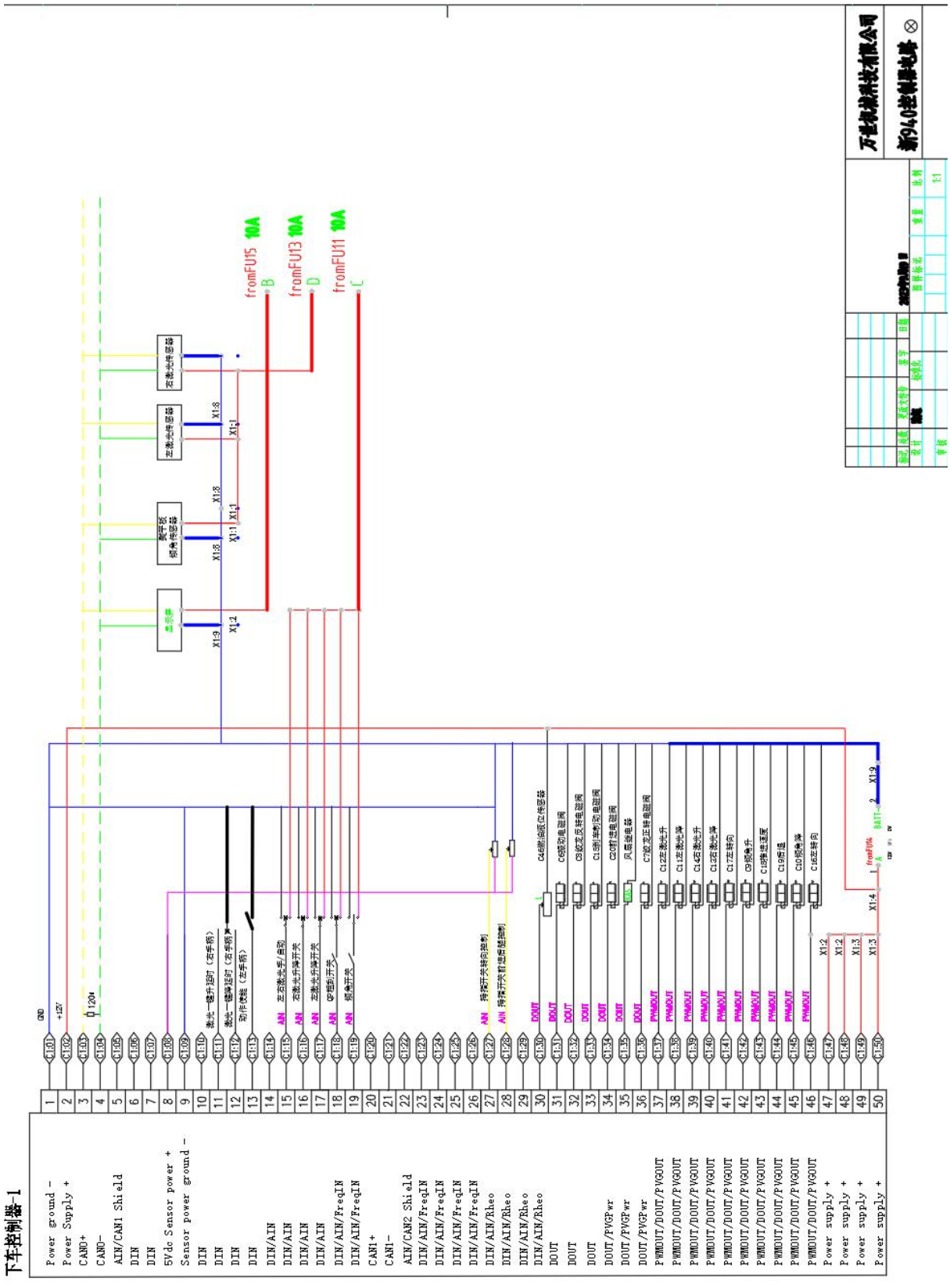
3) Clean new hose parts completely before installing the hose. Blowing in compressed air works well. After cleaning, insert the end of the new hose until the unit is complete.
4) Verify that any oil added to the system is clean. Ideally, any oil added to the system should pass through a filter before being poured into the hydraulic tank. Make sure that any funnels or containers that come into contact with the fluid are thoroughly cleaned before use.

Notes:
In general, hydraulic system problems caused by dust can be detected in the following ways:
A function fails to operate in one or both directions. In this case, it is most likely due to dust affecting the loading solenoid circuitry in the function that would otherwise allow hydraulic fluid to pass through the actuator (cylinder or motor). If, after removing and plugging the actuator wires, the pressure throughout the system rises when you unplug the control valve, then the problem may be within the solenoid valve. If, after removing and plugging the actuator wires, you are still unable to obtain system-wide pressure, then the problem may be dust affecting the load-sensitive hydraulic system. The most likely place for this to occur is in the spool valves located in each hydraulic manifold.

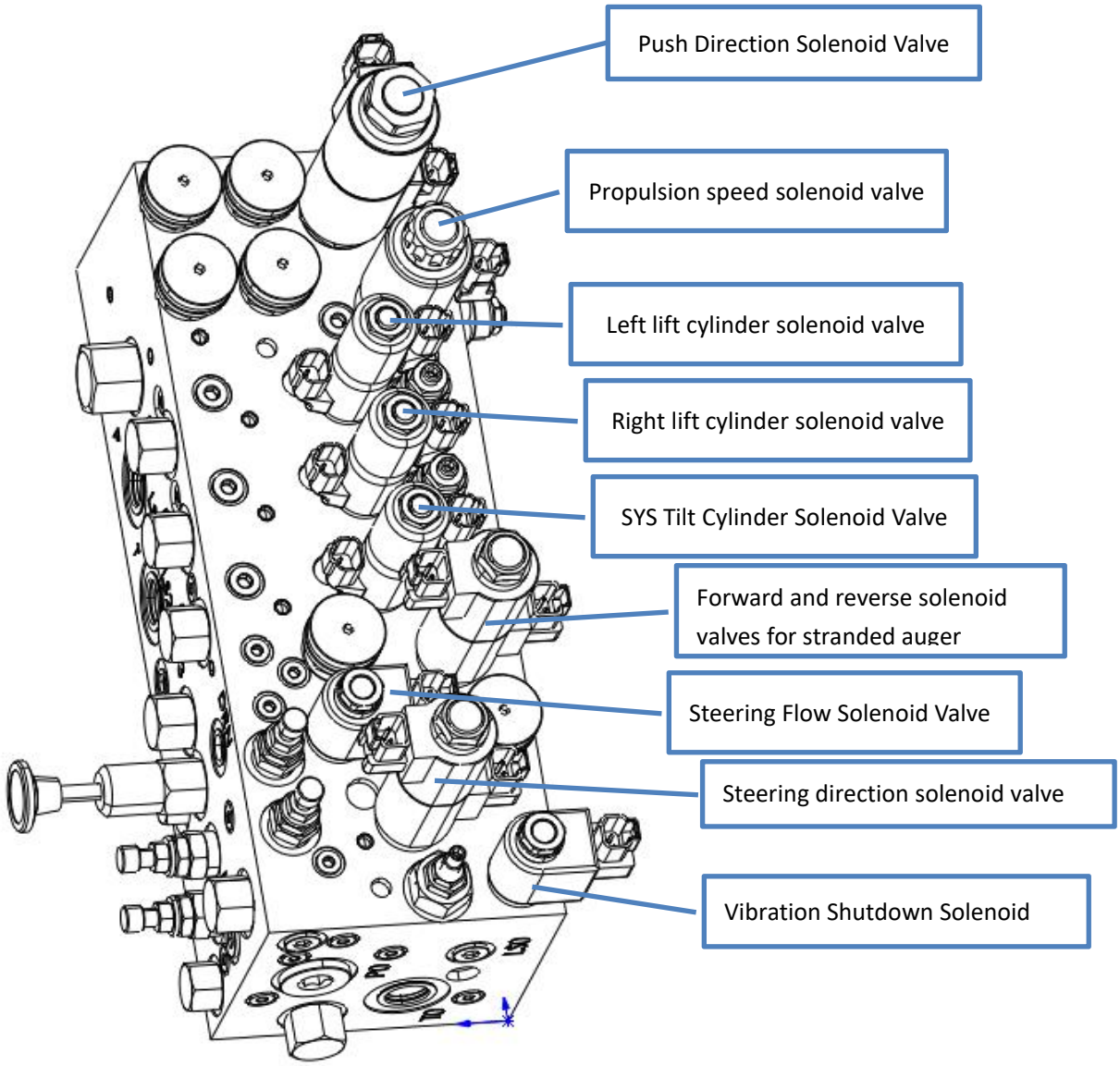
Electrical schematic diagram



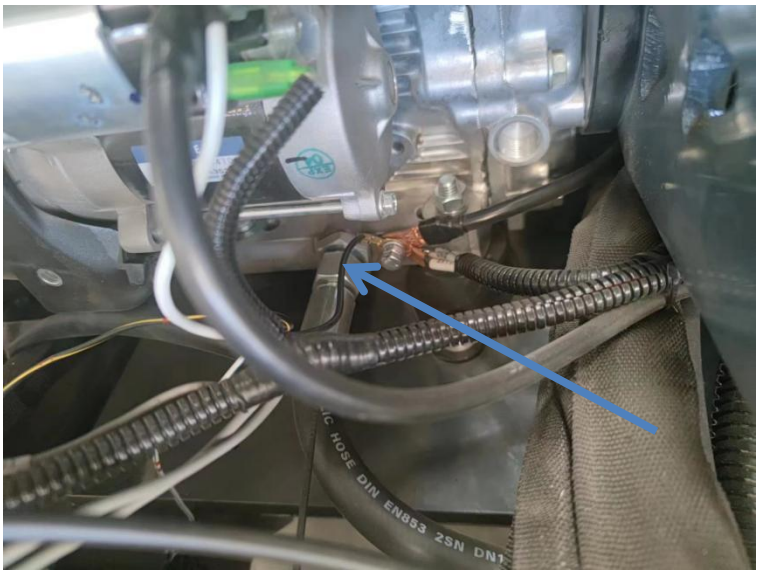
Electrical schematic diagram

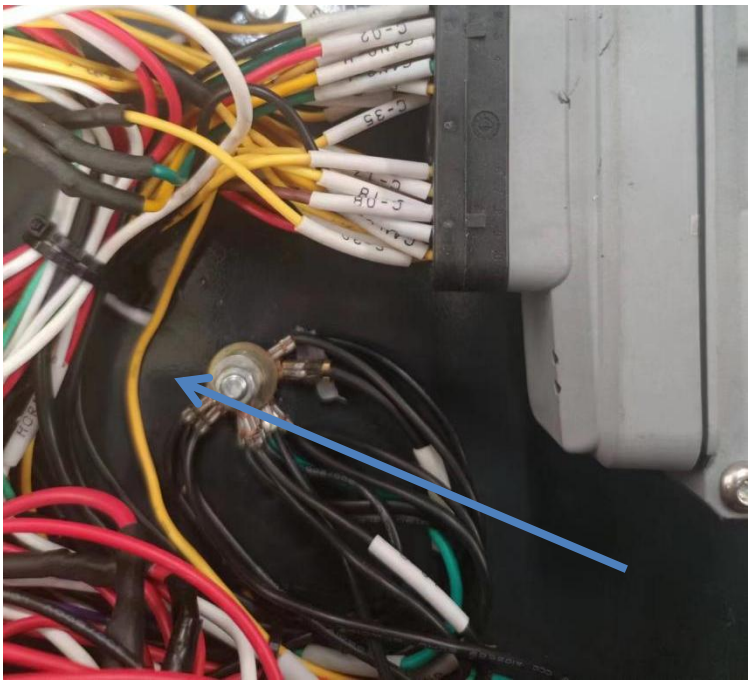


Hydraulic diverter connection port



Ground wire location





Accessories list of WS940C

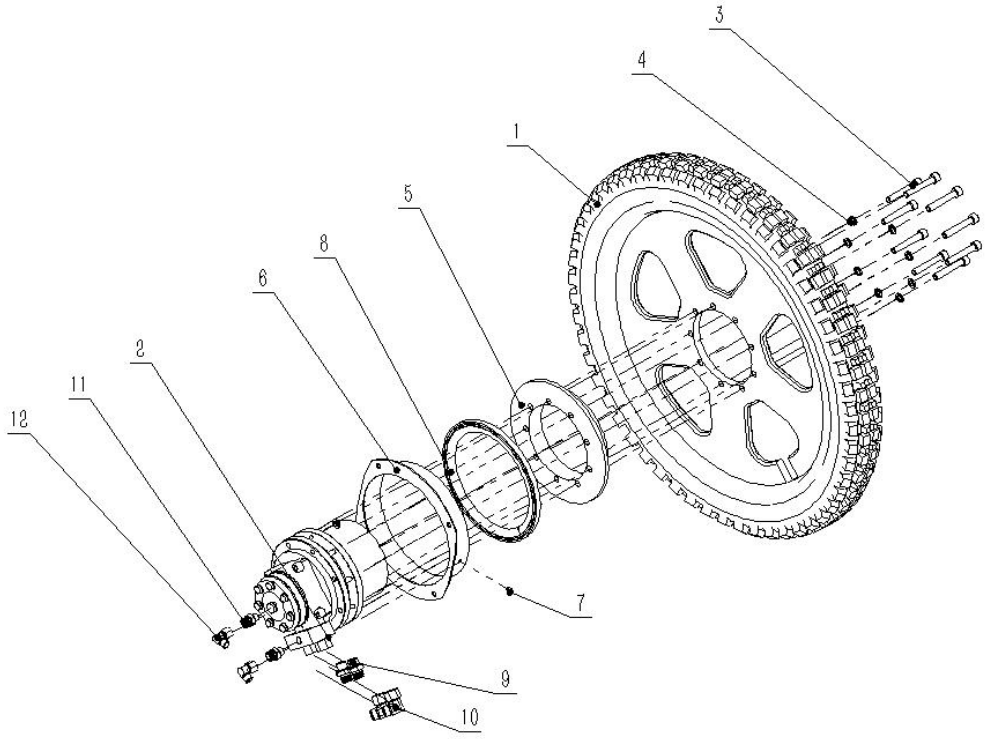
No	Material code	Name	Specification	Quantity
0		Transmitter+Receiver+Connecting cable	According to the order	1
1	0215010028	Wide tire	WZ740-18-02000	4
2	0206050036	Hydraulic motor (940C vibration)	X1M1861BBBF	1
3	09WS940C9001001	Fixed plate for lifting oil cylinder	WS940C-90-01001	1
4	09WS940C9001100	Auger packing box bracket welding	WS940C-90-01100	1
5	0215020011	Rubber single wheel for 6-inch casters replacement	150x15x52	4
6	035050001	Rope steel ball quick release pin	12x90	2
7	03302010008	Flat washer	GB/T97.1-16	2
8	03501030012	B-type pin	3.75*75	2
9	08WS940C8005011	Auger gasket (T6-14 pieces T2-6 pieces)	WS940C-80-05011	20
10	0212050046	M8X15 double head screw damper	WS550-80-02008	2
11	0212050045	Rubber shock absorber M8X60	WS550-80-02007	8
12	0203020021	Skeleton oil seal	TC 27*34*4	1
13	0204020020	Sealmaster bearing	s-5205-m32	1
14	0204020021	Sealmaster diamond bearing	SFT-12 4 分之 3 寸	1
15	9906010088	WS940C Wooden box of body	940CMX-00	1
16	9906010089	WS940C Wooden box of head	WS940C	1
17	9999030018	Toolbox	Stanley 23 inches	1
18	0212040003	Tripod	SE-30W	1
19	9905020084	10 fully polished double open end wrenches	SATA08010	1
20	9905020085	9-piece set with extended inner hexagon	SATA09107	1
21	9905020086	12-piece set with extended imperial	SATA09108	1

		hexagon socket		
22	9905020087	Extended medium hole flower wrench T25	SATA84508	1
23	9905020088	Extended medium hole flower wrench T27	SATA84509	1
24	9905020089	Adjustable wrench 12	SATA47205	1
25	9905020090	Flat screwdriver 6 * 150	SATA62213	1
26	9905020091	Cross screwdriver 2 * 150	SATA62313	1
27	9905020092	Small cross screwdriver 0 * 200	SATA62305	1
28	9905020094	Manual grease gun 400cc	SATA97202	1
29	9905020093	Manual grease gun hose 450mm	SATA97213	1
30	9905020095	SATA steel tape measure 5M	SATA91314a	1
31	9999990097	Flashlight		1
32	0288990001	Receiver black box	AX15B9	1
33	0217010002	Clean machine	S20（2 轮专用）	1
34	9905020008	Hand pliers	GB6295（8"）	1
35	9905020010	Chain pliers	25Y4-91-00001	1
36	9905020011	Hand hammer	1500g	1
37	9905080014	Leveling ruler	1M	1
38	9905020033	Spark plug wrench	Spark plug wrench for 940C	1
39	0214990002	Spark plug	11447	2
40	0403040005	One-piece spiral coil(940C is equipped with Trimble plug)	Shielded spiral outer diameter 36 long 630-straight line outer diameter 9 long 180-4x1²	2
41	0401060100	Carlingrocker switch	464-11061-012	2
42	0401060097	Three-speed self-resetting rocker switch - base	CV8B2S00B-00000-000	1
43	0401060098	Three-speed self-locking rocker switch-base	CV6B2S00B-00000-000	1
44	0401080022	Relay base	PC792A-1C-C-12S-RN-X	2
45	0401080023	Relay base	SC792-1	1
46	0404100004	Fuse	10A	4
47	0404100005	Fuse	15A	2

48	0207990003	Straight-through pressure oil cup	JB/T 7940.1-1995（M10*1）	2
49	0207990002	Straight-through pressure oil cup	JB/T 7940.1-1995（M8*1）	2
50	0207990001	Straight-through pressure oil cup	JB/T 7940.1-1995（M6*1）	2
51	0207990009	90 degree stainless steel oil cup	M6*1	1
52	0207990008	90 degree stainless steel oil cup	M8*1	2
53	9999030007	Hand held pole	3.15M	1
54	09S22E8000015C	Handlever flange seat	S22E-80-00015C	1
55	09S22E8000016C	Handlever base	S22E-80-00016C	1
56	09360MINI9102000	Connecting tube of small digital receiver	360MINI-91-02000	1
57	6625D293B00000	Transmitter bracket combination	25D2-93B-00000	1
58	0401990013	Non-contact tachometer	DT-2234C	1
59	9905080060	Multimeter	UT890D	1
60		Tire pump		1
61		Tire pressure gauge		1
62		Euphroe		6

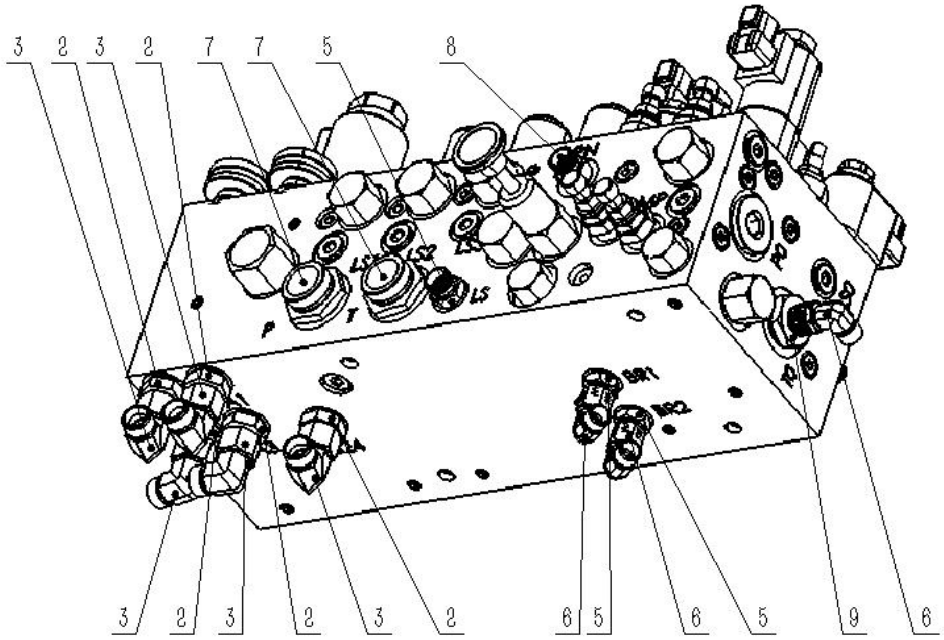
Overview of partially shipped accessories

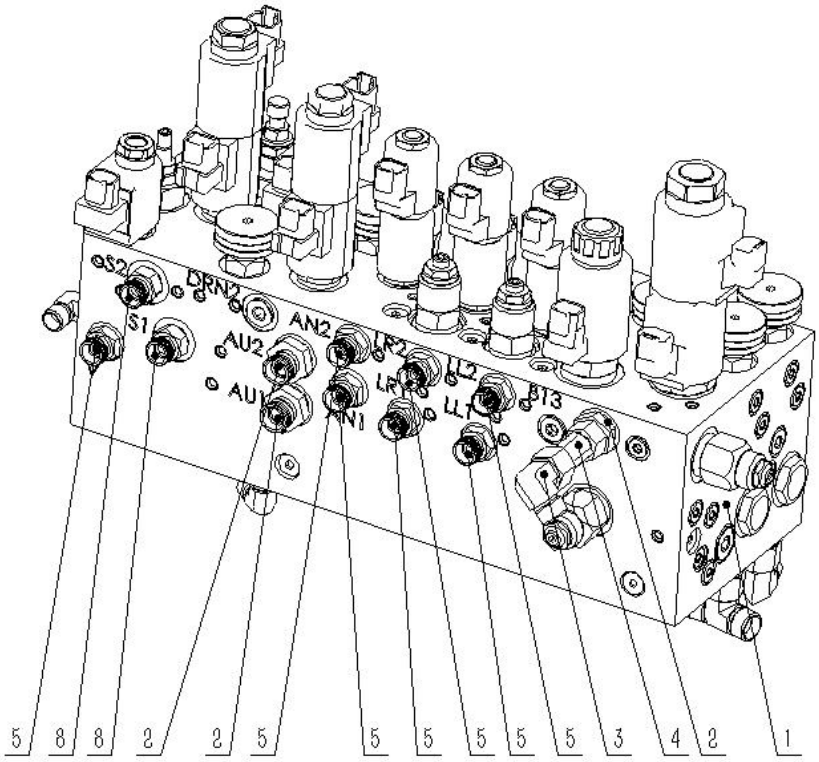
Parts manual for WS940C



No.	Code Name	Name	Quantity
1	215010030	Narrow tire WS550-01-03100	1
2	DI17709-01	Hydraulic motor assembly of reducer (with brake）	1
3	GB／T70．1-2000	Hexagonal cylindrical head screw M10×65-12.9 grade	9
4	WS550-01-03001	Stainless steel washer	9
5	WS940C-01-03001	Travel reducer cushion cover	1
6	WS940C-01-03200	Travel reducer seal cover	1
7	JB／T7940．1-1995	Straight-through pressure oil cup6	1
8	Side UO seal	14X22 Length:700	1
9		1CG-18-06(G3/8-M18)Card pipe joint	2
10	2C9-18W	(M18)Bite type transition joint	2
11	1CG-14-04	(M14-G1/4)Bite type joint	2
12	2C9-14W	(M14)Bite type transition joint	2

Parts manual for WS940C

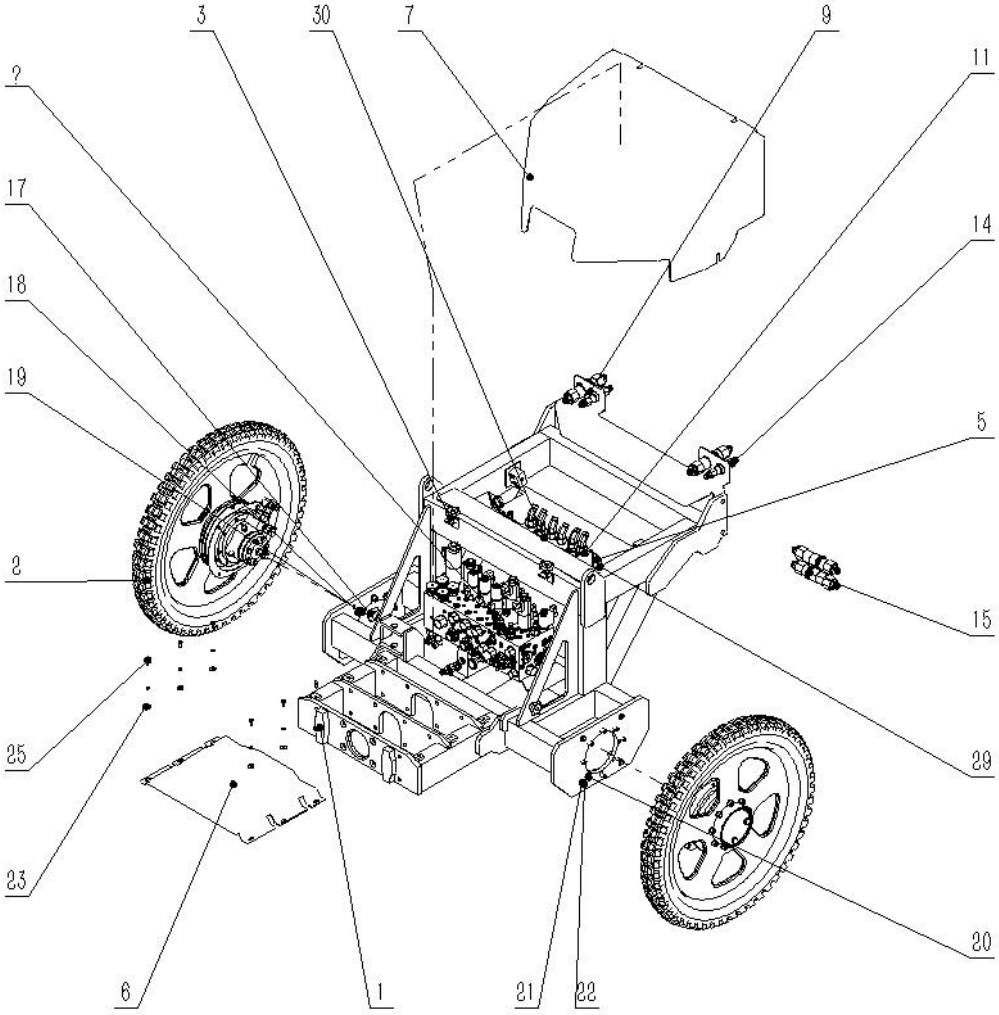




Parts manual for WS940C

No.	Code Name	Name	Quantity
1	206041087	Main valve group（940C）	1
2	1CG-18-06(G3/8-M18)	Card pipe joint	8
3	2C9-18W	(M18)Bite type transition joint	6
4	CC-18W	Bite type tee joint	1
5	1CG-14-04	(M14-G1/4)Bite type joint	10
6	2C9-14W	(M14)Bite type transition joint	3
7	1CG-18-08	(M18-G1/2Flat)Card pipe joint	2
8	1CG-14-06WD	(M14-G3/8Flat)Card pipe joint	3
9	1CG-14-08(G1-2-M14)	Card pipe joint	1

Parts manual for WS940C

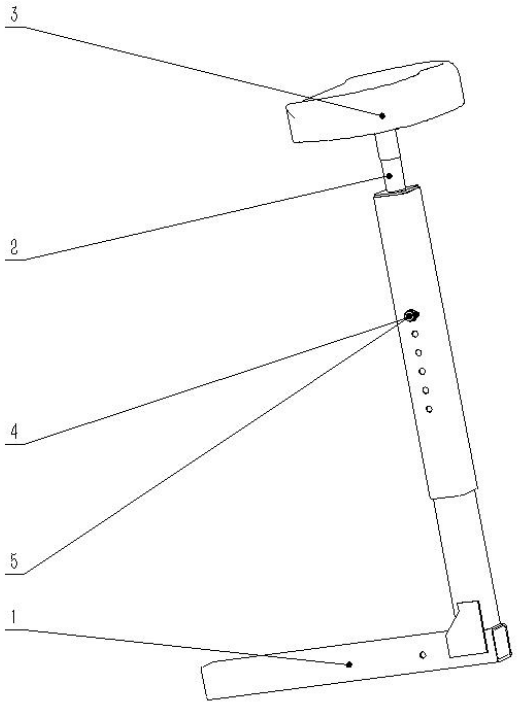


Parts manual for WS940C

No.	Code Name	Name	Quantity
1	WS940C-01-01100	Front frame welded assembly	1
2	WS940C-01-03000	Drive wheel assembly	2
3	M8	Galvanized spring clip nut	7
4	WS940C-01-01001	Front cover plate	1
5	WS940C-01-01200	Laser plug fixing plate	2
6	WS940C-01-01003	Hinged cover plate	1
7	WS940C-01-02100	Front frame cover	1
8	WS940C	Main valve group fitting assembly	1
9	WS940C-01-01004	Quick joint fixing plate	1
10	206041088	Check valve group 11319306_P1	1
11	401090041	Four core aviation plug WS24-SDZG	3
12	GB894．2-86	Circlip for shaft type B 26	4
13	GB894．2-86	Circlip for shaft type B 30	4
14	209020346	DNP flat head hydraulic quick joint DN06-1_4	2
15	209020347	DNP flat head hydraulic quick joint DN13-1_2	4
16	5w	Circular LED light	2
17	208020040	spline end handle bolt M8X40	4
18	GB／T97．1-2002	Flat washer class A 10×2	20
19	GB／T93-1987	Standard elastic washer(assembly)10×2．6	20
20	GB／T70．1-2000	Hexagonal cylindrical head screw M10×35-12.9	16
21	GB／T93-1987	Standard elastic washer(assembly) 8×2．1	14
22	GB／T5783-2000	Hexagon head bolts-full thread M8×20	12
23	GB／T	96.1-2002 Large gasket Class A 6	6
24	GB／T93-1987	Standard elastic washer(assembly)6×1．6	6

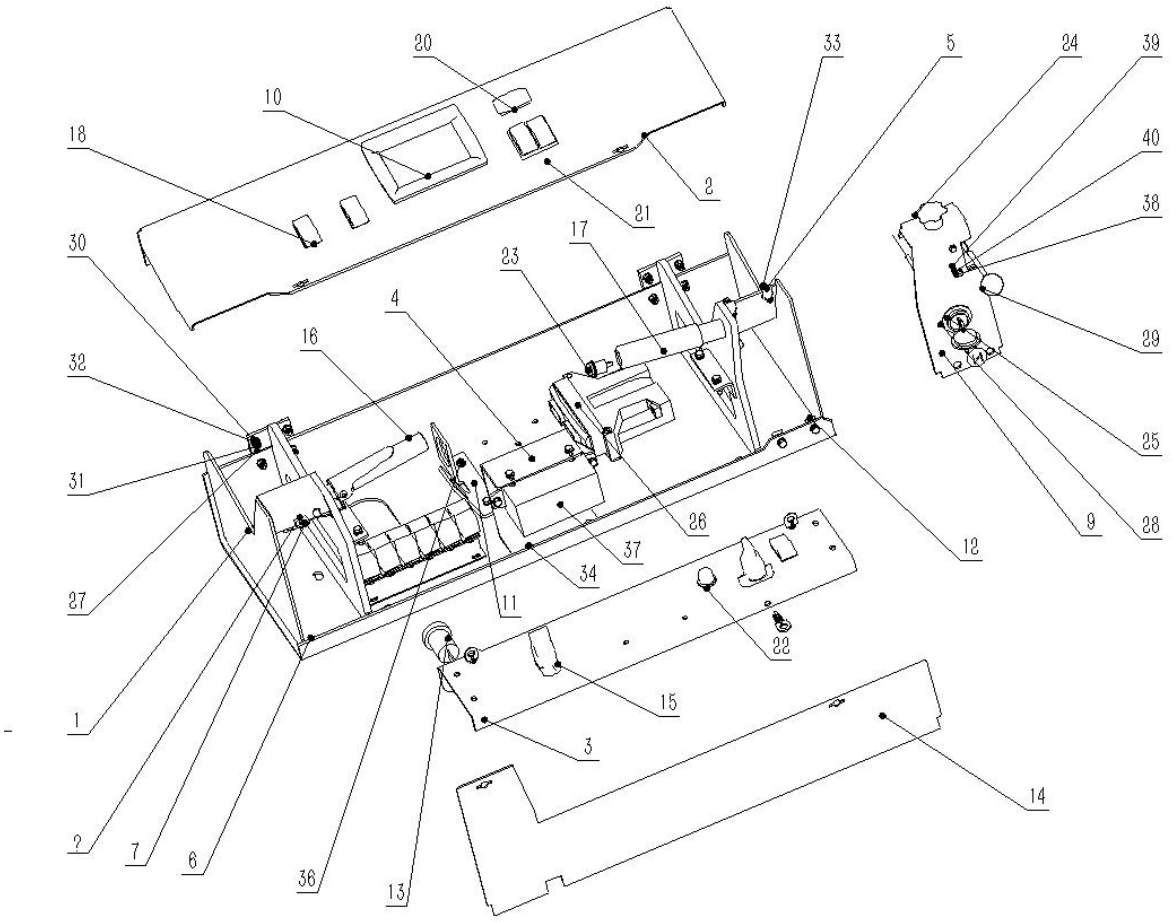
25	GB／T5783-2000	Hexagon head bolts-full thread M6×16	6
26	GB／T5783-2000	Hexagon head bolts-full thread M10×25	4
27	GB／T97．1-2002	Flat washer class A 8×1．6	2
28	GB／T95-2002	Flat washer class C 8×1．6	4
29	M8X25	Spring flat pad+M8 spring nut assembly	6
30	M4X20	Spring flat pad+M4 Nut assembly	4
31	GB／T5782-2000	Hexagonal head bolt class A and class BM6×60	2
32	GB／T889．1-2000	Torque type hexagon nuts (with non-metallic insert),style 1 M6	2
33	401070008	Horn DL-124	1
34	208030018	Double hole 16 black pipe clamp	2
35	6C-14	Straight through board card sleeve joint	4
36	GB／T95-2002	Flat washer class C 10×2	6
37	GB／T 97.1-2002	Flat washer class A (18)	4
38	6C-18LN	Straight through plate joint	3
39	2C4-18-22W	(M18-M22 Inner)Bite type transition joint	3
40	2C4-18-22W	(M18-M22 Inner)Bite type transition joint	3
41	1CG-14-04	(M14-G1/4)Bite type joint	4
42	1CG-18-08	(M18-G1/2 Flat)Card pipe joint	6
43	1CG-14-08(G1-2-M14)	Card pipe joint	4
44	2C9-14W	(M14)Bite type transition joint	1
45	CC-14W	M14 Bite type tee joint	2

Parts manual for WS940C



No.	Code Name	Name	Quantity
1	WS550-02-02100	Car seat movable welding	1
2	WS550-02-02200	Welding of car seat installation shaft	1
3	WS550-02-02001	Car seat	1
4	GB／T97．1-2002	Flat washer class A 8×1．6	2
5	GB／T5782-2000	Hexagonal head bolt class A and class B M8×65	1
6	GB／T6184-2000	All metal torque type hexagon nuts ,style 1 M8	1

Parts manual for WS940C

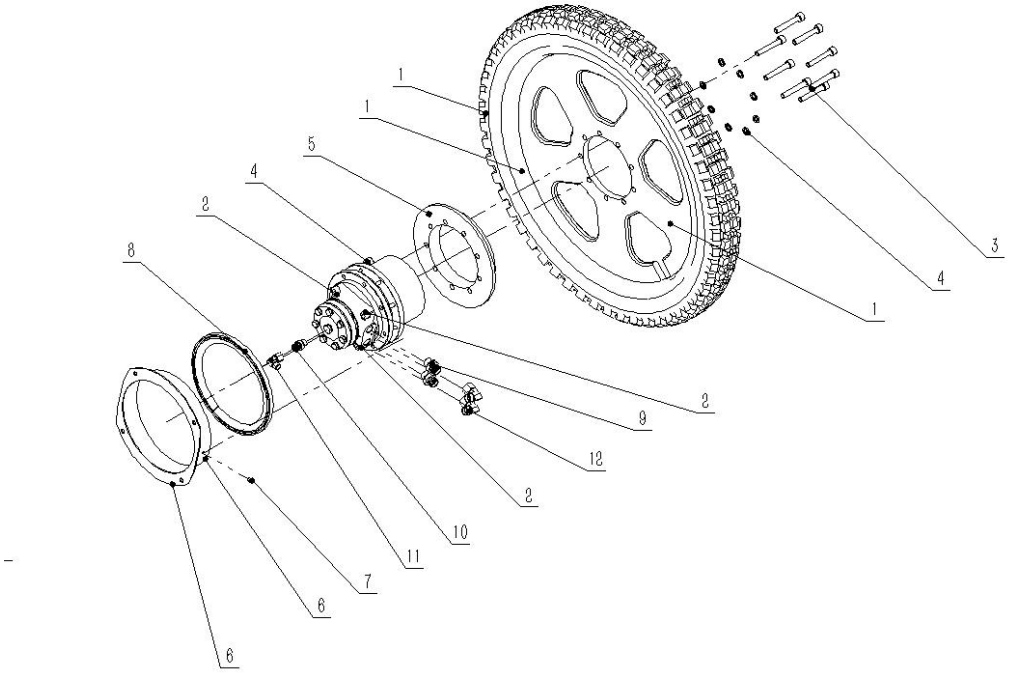


No.	Code Name	Name	Quantity
1	WS940C-02-03100	Welding assembly for console box	1
2	WS940C-02-03001	Console cover	1
3	WS940C-02-03002	Console back cover	1
4	WS940C-02-03004	Fuse box bracket	1
5	M8	Galvanized spring clip nut	2
6	Self-adhesive felt pad	22x3（Commonly used on chair legs）	3
7	WS940C-02-03200	Welding assembly of safety lock handle	1
8	OMRON waterproof micro switch OMRON	D2VW-01L2-1MS(0.1A 125VAC 0.1A 30VDC)	1
9	WS940C-02-03003	Right cover of the control panel	1
10	5-inch display	Jia cheng	1
11	WS940C-02-03005	Fixed plate for large and small plugs	1

12	M6	Galvanized spring clip nut	4
13	Dual USB access socket with cover CJC-26A2	The brand MARINCO uses Changjiang instead	1
14	WS940C-02-03006	Console back cover	1
15	P+G Thumb switch	0-5V	2
16	WS940C-02-03009	Seal the rubber cover with frosted sand on one side 22x28x 120	1
17	WS940C-02-03010	Seal the rubber cover with frosted sand on one side 28x33x 120	1
18	0401060100+0401060098+0 401060091	Carlingrocker switch+Three-speed self-locking base+VC2-01 connector	2
19	W940C-07-06000	Spring tongue lock fitting assembly	4
20	0401060100+0401060097+0 401060091	Carlingrocker switch+Three-speed self-resetting base+VC2-01connector	4
21	401060039	Carlingrocker switch Border 4	1
22	9245	Kolhersi horn switch(1)	1
23	Three-speed self-resetting circular switch	11_16-28UN	1
24	emergency stop switch	ABB Dual circuit normally closed CE4P-10R-02	1
25	Damper line	M10 length:1530	1
26	Danfoss controller	MC024	1
27	Plastic damping hinge	HYE6-501-B	2
28	1111-78A	Keyswitch	1
29	Throttle cable	Wire saddle 1350 steel wire1450	1
30	GB／T 95-2002	Flat washer class C 6	41
31	GB／T5782-2000	hexagonal head bolt class A and class B M6×25	18
32	GB／T889．1-2000	Torque type hexagon nuts (with non-metallic insert),style 1 M6	18
33	GB／T93-1987	Standard elastic washer(assembly) 6×1．6	6
34	GB／T5783-2000	Hexagon head bolts-full	2

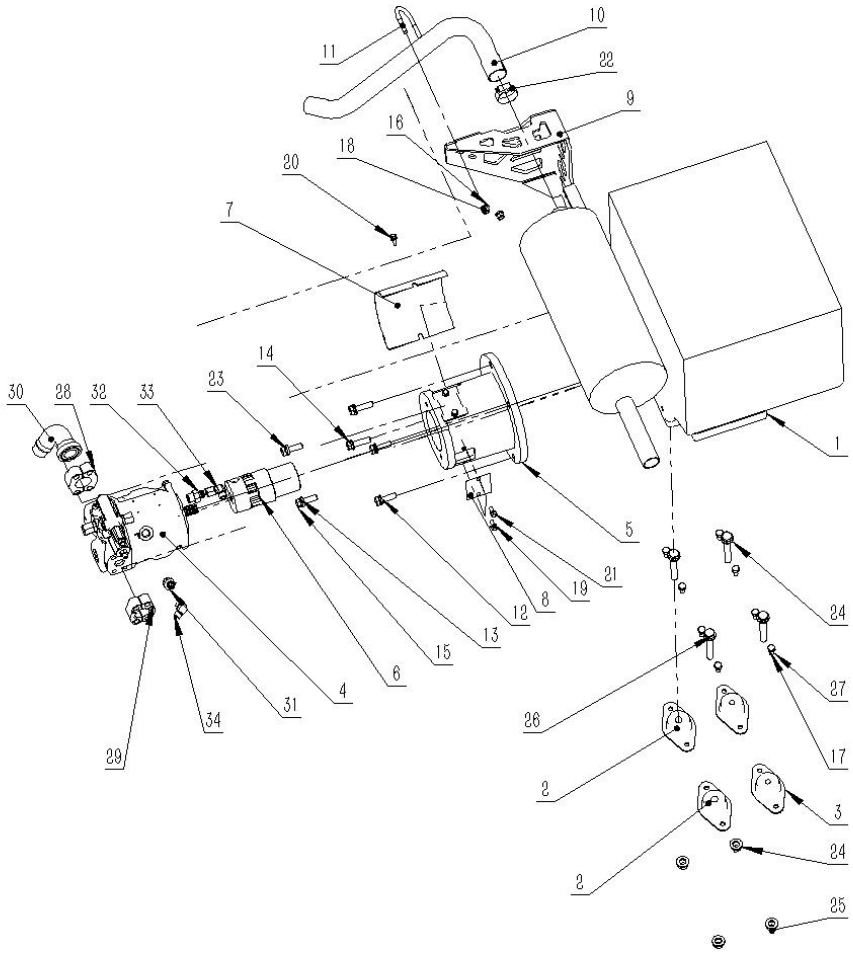
		thread M6×16	
35	GB／T41-2000	Hexagon nut style 1 class C M6	2
36	GB／T5783-2000	Hexagon head bolts-full thread M6×20	4
37	404100022	20-way fuse box BX2203	1
38	GB／T 95-2002	Flat washer class C 5	4
39	GB／T5783-2000	Hexagon head bolts-full thread M5×20	2
40	GB／T889．1-2000	Torque type hexagon nuts (with non-metallic insert),style 1 M5	2
41	GB／T70．2-2000	Internal hexagonal flat round head screw M6×20	2
42	GB／T819．1-2000	Cross recessed countersunk head screw M3×25	2
43	0401080023Relay Socket+0401080022relay	Fitting assembly	1
44	WS940C-02-03011	Relay Bracket	1

Parts manual for WS940C



No.	Code Name	Name	Quantity
1	215010030	Narrow tire WS550-01-03100	1
2	DI17709	Reducer motor assembly (front wheel with brake)	1
3	GB／T70．1-2000	Hexagonal cylindrical head screw M10×65-12.9 class	9
4	WS550-01-03001	Stainless steel washer	9
5	WS940C-01-03001	Travel reducer cushion cover	1
6	WS940C-01-03200	Travel reducer seal cover	1
7	JB／T7940．1-1995	Straight-through pressure oil cup6	1
8	Side UO seal	14X22 Length:700	1
9	1CG-18-06(G3/8-M18)	Card pipe joint	2
10	1CG-14-04	(M14-G1/4)Bite type joint	1
11	2C9-14W	(M14)Bite type transition joint	1
12	2C9-18W	(M18)Bite type transition joint	2

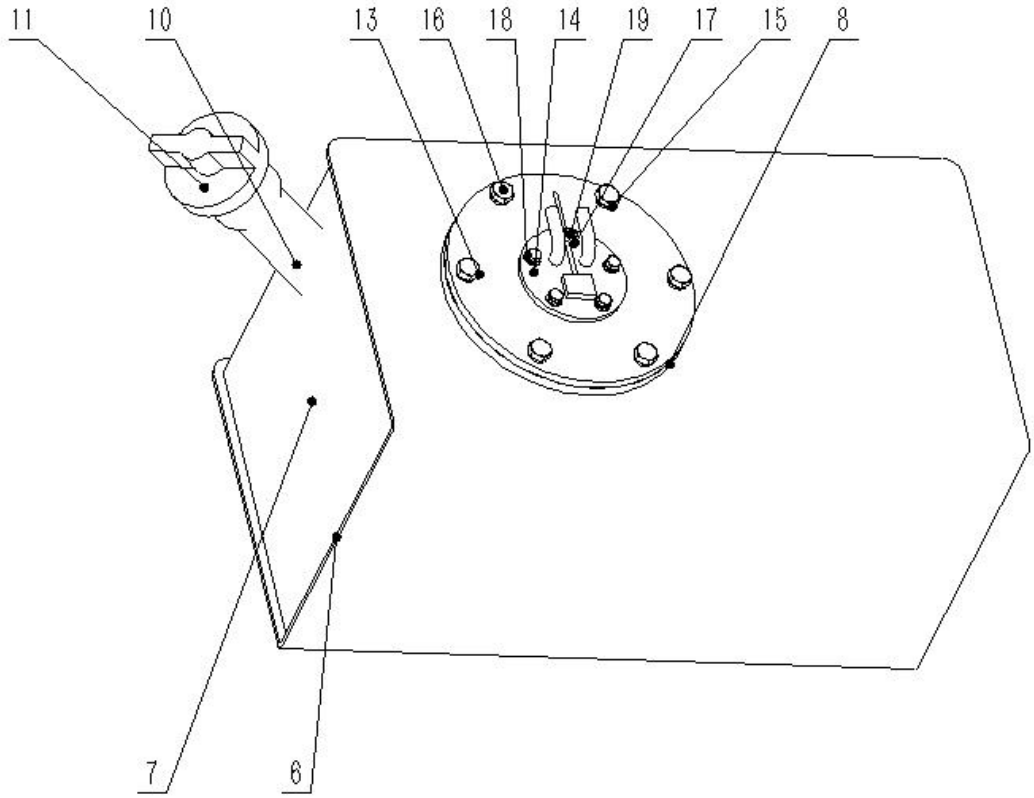
Parts manual for WS940C



No.	Code Name	Name	Quantity
1	GX690	Engine	1
2	GX690	shock-absorbing pad of engine	2
3	XEDL-750-1152	Shock-absorbing pad 52 degrees	2
4	Hydraulic pump	Rexroth R902548942_step_a	1
5	WS940C-04-01200	Oil pump support (with S940B-02-02-01 casting)	1
6	WS940C-04-01100	XL3 Star shaped coupling	1
7	WS940C-04-01002	Pump mounting seat guard plate	1
8	WS940C-04-01003	Pump mounting seat small guard plate	2
9	WS940C-04-01004	exhaust pipe supports	1
10	WS940C-04-01005	Smoke exhaust pipe	1
11	U-BOLT	M8-33	1
12	GB／T95-2002	Flat washer class C 10×2	4
13	GB／T93-1987	Standard elastic washer(assembly)	6

		10×2．6	
14	GB／T5783-2000	Hexagon head bolts-full thread M10×40	2
15	GB／T5783-2000	Hexagon head bolts-full thread M10×35	4
16	GB／T95-2002	Flat washer class C 8×1．6	2
17	GB／T93-1987	Standard elastic washer(assembly) 8×2．1	10
18	GB／T6184-2000	All metal torque type hexagon nuts ,style 1 M8	2
19	GB／T 95-2002	Flat washer class C 6	6
20	GB／T93-1987	Standard elastic washer(assembly) 6×1．6	6
21	GB／T5783-2000	Hexagon head bolts-full thread M6×16	6
22	inner bore 38	U-shaped hoop for smoke exhaust pipe	1
23	D10	Self made enlarged washer 10	2
24	GB／T97．1-2002	Flat washer class A 12×2．5	8
25	GB／T6184-2000	All metal torque type hexagon nuts ,style 1 M12	4
26	GB／T5782-2000	Hexagonal head bolt class A and class B M12×80	4
27	GB／T5783-2000	Hexagon head bolts-full thread M8×16	8
28	FL-16	Split flange clamp FL-16	1
29	Split flange clamp	[FL-12]	1
30	87391-16-16	Flanged joint	1
31	1CH-16	(M16)Card pipe joint	1
32	1CH-14	(M14)Card pipe joint	1
33	2C9-14W	(M14)Bite type transition joint	1
34	2C9-16W	(M16)Bite type transition joint	1

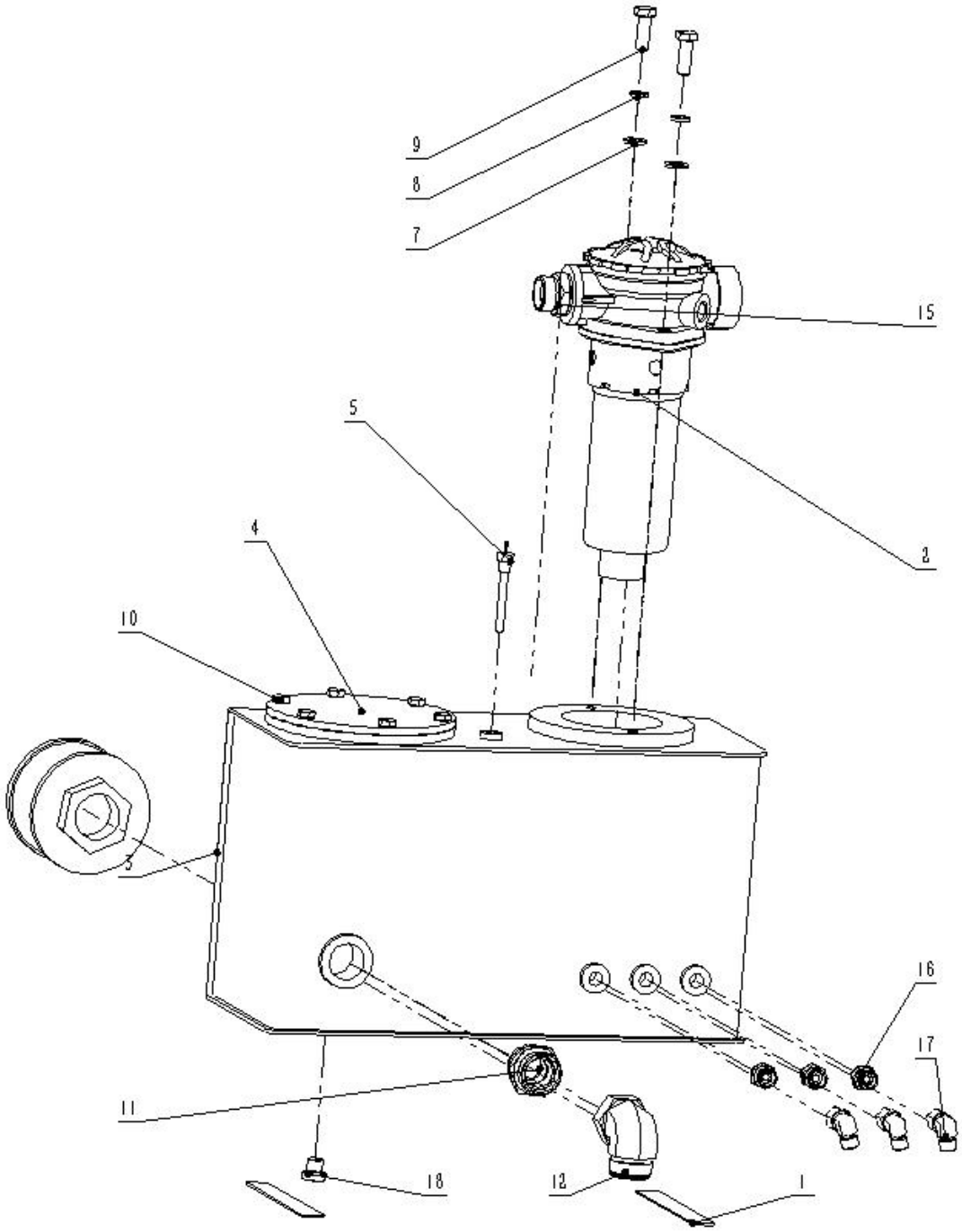
Parts manual for WS940C



No.	Code Name	Name	Quantity
1	WS550-04-30001	Fuel tank	1
2	M6	Inlay nuts	8
3	According to the oil temperature sensor	Thread bushing	1
4	3^8-5^8	Screw sleeve	1
5	200X20X2	Fuel tank back adhesive Velcro	2
6	WS550-04-03101	Fuel tank outer bending plate	1
7	WS550-04-03102	Bending plate inside fuel tank	1
8	WS550-04-03104	Cleaning hole flange	1
9	WS550-04-02104	Oil drain port	1
10	360MINI-04-01006	Refueling port	1
11	With lock and sealing cover	Fuel tank cap	1
12	O-ring	3.1x120	1
13	WS550-04-03004	Fuel tank cleaning port cover	1
14	Length:230 voltage:0.5-4.5	Oil temperature gauge with suction pipe 8 mm	1

15	GB／T93-1987	Standard elastic washer(assembly) 8×2.1	6
16	GB／T5783-2000	Hexagon head bolts-full thread M8×16	6
17	GB／T 95-2002	Flat washer class C 5	5
18	GB／T93-1987	Standard elastic washer(assembly) 5×1．3	5
19	GB／T5783-2000	Hexagon head bolts-full thread M5×16	5

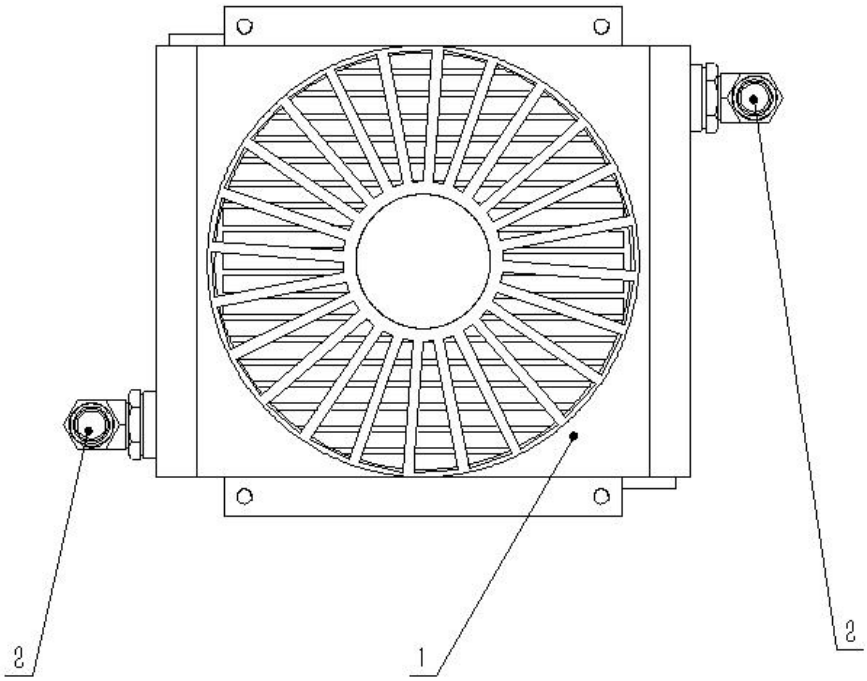
Parts manual for WS940C



No.	Code Name	Name	Quantity
1	WS550-04-02003	Hydraulic oil tank back adhesive Velcro153-20-2	2
2	TL799E	Return oil filter 160L	1
3	WS940C-62-02100	Hydraulic tank welding	1

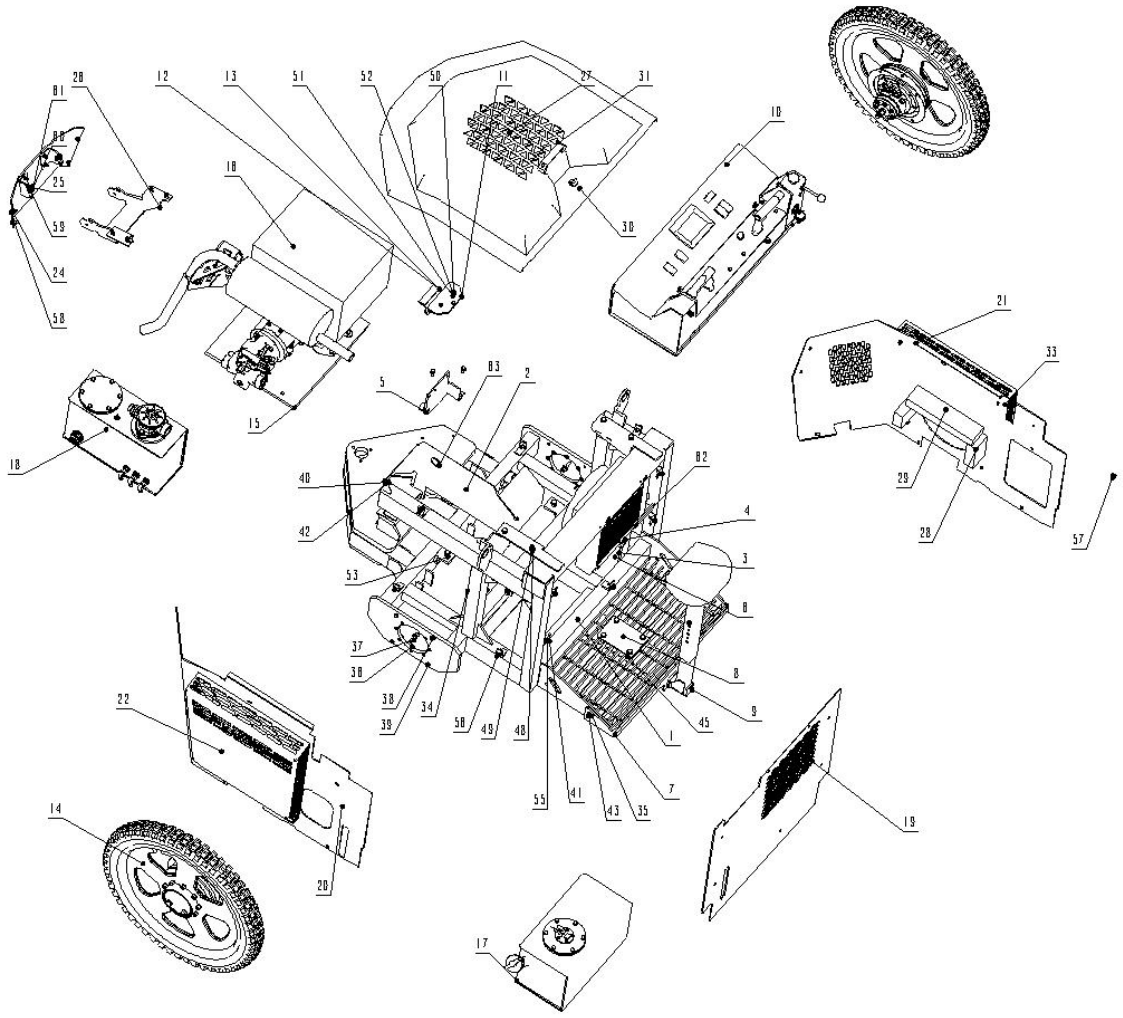
4	WS550-04-02004	Cleaning cover	1
5	0-10K ohm	Oil temperature sensor- 30degrees 7.5K ohm 80degree 2Kohm	1
6	YB-M42X1.5	Dawn circular oil marker	1
7	GB／T95-2002	Flat washer class C 10×2	2
8	GB／T93-1987	Standard elastic washer(assembly)10×2．6	2
9	GB／T5783-2000	Hexagon head bolts-full thread M10×30	2
10	GB／T5783-2000	Hexagon head bolts-full thread M8×16	6
11	1CG-36-16	British pipe thread O-ring sealing column end	1
12	2C9-36-RN	External thread and internal thread swivel adapter with 90° bend	1
13	XU-160—*XJ	Oil suction filter	1
14	O-ring	3.1x120	1
15	1CO-30-16	(M30- 1.5/16X12UNF)Bite type transition joint	1
16	1CG-14-04	(M14-G1/4)Bite type joint	3
17	2C9-14W	(M14)Bite type transition joint	3
18	4BN-04WD	(G1/4X19)Internal hexagonal plug	1

Parts manual for WS940C



No.	Code Name	Name	Quantity
1	WS940C-62-03000	Hydraulic oil radiator assembly	1
2	1CG9-30-16	90° bent pipe thread adjustable end joint	2

Parts manual for WS940C

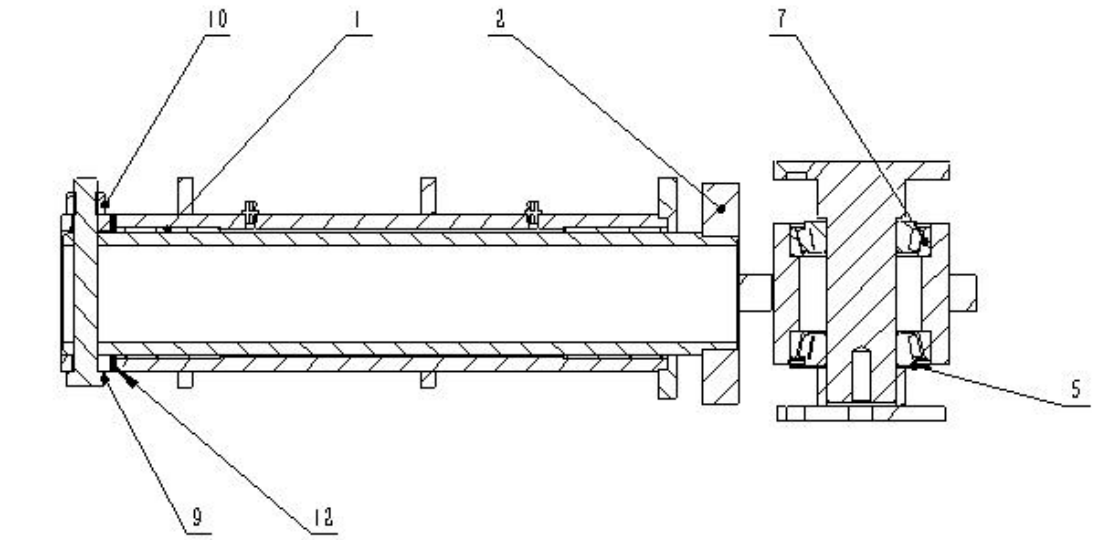


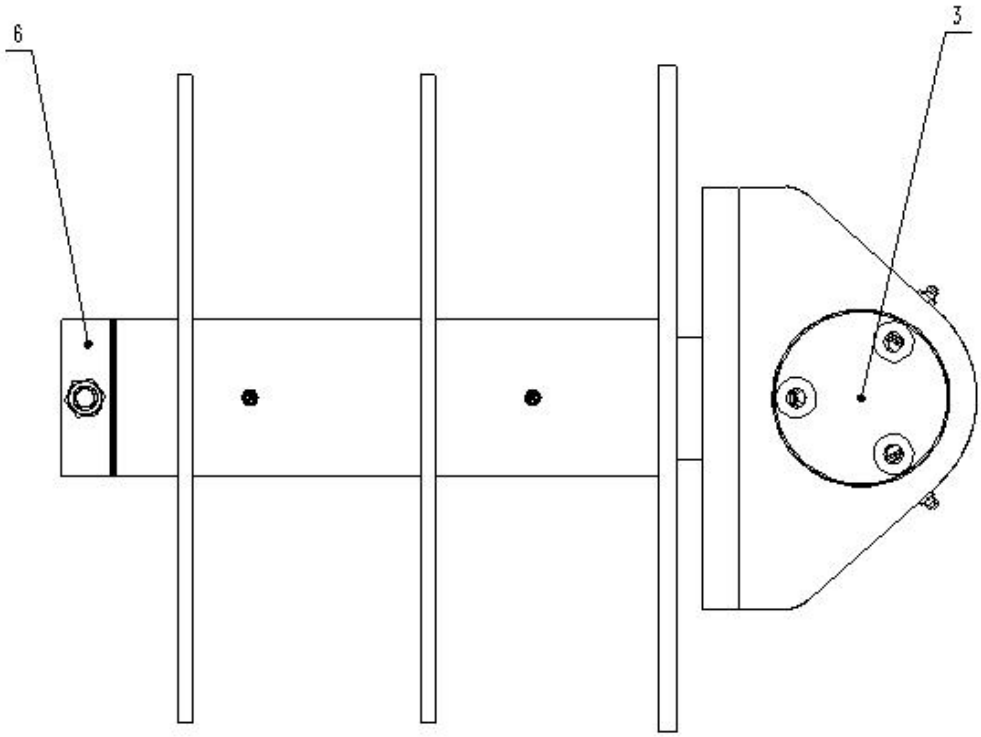
No.	Code	Name	Quantity
1	WS940C-02-01100	Rear frame welded assembly	1
2	WS940C-02-01001	Hydraulic tank separator	1
3	WS940C-02-01002	Battery hook	2
4	WS940C-02-01003	Battery platen	1
5	WS940C-02-01004	Rectifier mounting plate	1
6	Leoch valve-regulated battery	12V38AH	1
7	WS940C-02-02100	Seat mounting frame welded	1
8	WS940C-02-02001	Upper mounting plate of seat bracket	1
9	WS550-02-02000	Seat fitting assembly	1
10	WS940C-02-03000	Cosole fitting assembly	1
11	WS940C-02-03007	Positive charging port mounting plate	1
12	WS940C-02-03008	Upper shield support plate	1
13	Upper and lower coated foam cotton	Trim size 95x28	1

	pad self-adhesive thick 3		
14	WS940C-02-04000	Rear drive wheel assembly	2
15	WS940C-04-01001	Upper shield support plate engine mounting plate	1
16	WS940C-04-01000	Engine assembly	1
17	WS550-04-03000	Fuel tank assembly	1
18	WS940C-62-02000	Hydraulic tank assembly	1
19	WS940C-02-01005	Rear frame rear shield plate	1
20	WS940C-02-05001	Rear frame left guard	1
21	Upper and lower coated foam cotton pad self-adhesive thick3	Trim size 385x20	2
22	WS940C-02-05002	Rear frame left heat shield	1
23	WS940C-02-05100	Battery side cover welded	1
24	WS940C-02-05005	Rear frame front cover	1
25	WS940C-02-05006	Rear frame front cover mounting plate	2
26	WS940C-02-05007	Rear frame upper cover mounting plate	1
27	WS940C-02-05200	Rear frame guard	1
28	Self-adhesive black sponge	130x40x75-130x40 is self-adhesive side	2
29	Self-adhesive black sponge	300x40x75-300x40 is self-adhesive side	1
30	Electric cabinet box swivel lock	HTAN MS715-2	1
31	HTAN LS522-120	Enhanced handle	1
32	WS940C-02-05003	Rear frame right guard	1
33	WS940C-02-05004	Rear frame right heat shield	1
34	CJTD-L22	Projection lamp	1
35	GB／T97．1-2002	Flat washer class A 10×2	40
36	GB／T93-1987	Standard elastic washer (Assembly) 10×2．6	18
37	GB／T70．1-2000	Hexagon socket cap screws M10×35-12.9	16
38	GB／T93-1987	Standard elastic washer (Assembly) 8×2．1	16
39	GB／T5783-2000	Hexagon head bolt with full thread M8×20	8
40	GB／T95-2002	Flat washer class C 8×1．6	17
41	GB／T5783-2000	Hexagon head bolt with full thread M8×25	13
42	GB／T6184-2000	Type 1 all metal hexagon lock nut M8	8
43	GB／T5783-2000	Hexagon head bolt with full thread M10×35	2
44	GB／T6184-2000	Type 1 all metal hexagon lock nut M10	16
45	GB／T5782-2000	Hexagon head bolts class A and B M10×65	5
46	GB／T5783-2000	Hexagon head bolt with full thread M10×40	1
47	W940C-07-06000	Spring latch fitting assembly	1

48	GB／T95-2002	Flat washer class C 10×2	8
49	GB／T5783-2000	Hexagon head bolt with full thread M10×30	4
50	GB／T 95-2002	Flat washer class C 6	10
51	GB／T5782-2000	Hexagon head bolts class A and B M6×25	5
52	GB／T889.1-2000	Type 1 non-metal insert hexagon lock nut M6	5
53	GB／T5782-2000	Hexagon head bolts class A and B M10×45	4
54	M8	Galvanized spring nut	4
55	GB／T97．1-2002	Flat washer class A 8×1．6	4
56	M8X25	Elastic flat washer +M8 Elastic nut assembly	8
57	M6X20	Elastic flat washer +M6 Nut assembly	7
58	M6X25	Elastic flat washer +M6 Nut assembly	8
59	M6X30	Elastic flat washer +M6 Nut assembly	6
60	GB／T	96.1-2002 Large washer class A 6	4
61	GB／T 955-1987	Wave elastic washer 6	2
62	WS940C-62-03000	Hydraulic oil loose joint fitting assembly	1
63	6C-18LN	Straight through the plate joint	1
64	GB／T 97.1-2002	Flat washer class A (18)	2
65	BC-18	Middle end internal thread tee	1
66	6C-14	Straight through the plate sleeve connector	1
67	BC-14	Middle end internal thread tee	1

Parts manual for WS940C

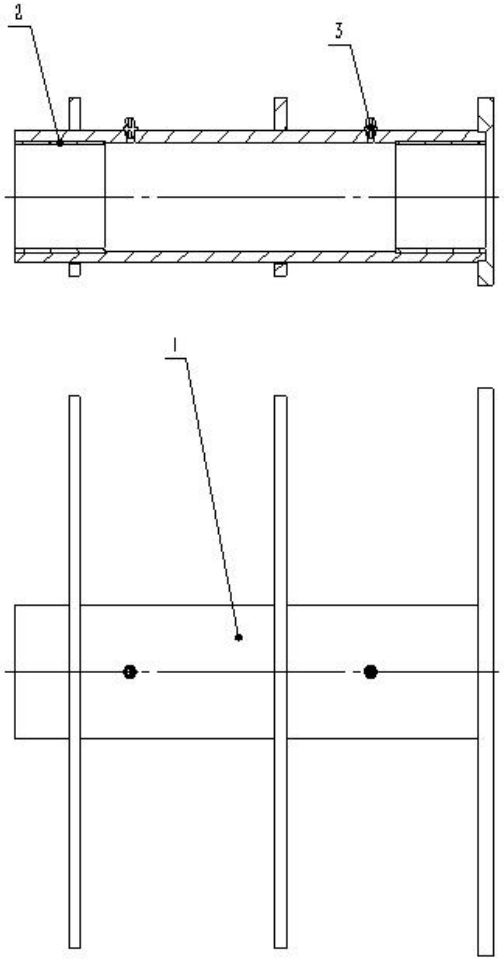




No.	Code	Name	Quantity
1	WS940C-03-01100	Hinged sleeve assembly	1
2	WS940C-03-01200	Welded assembly for hinged shaft	1
3	WS940C-03-01300	Frame articulation shaft	1
4	WS940C-03-01001	Frame hinge shaft plug plate	1
5	WS940C-03-01002	Hinged shaft backing plate	1
6	WS940C-03-01003	Pin bush	1
7	GB/T 297-94	taper roller bearing	2

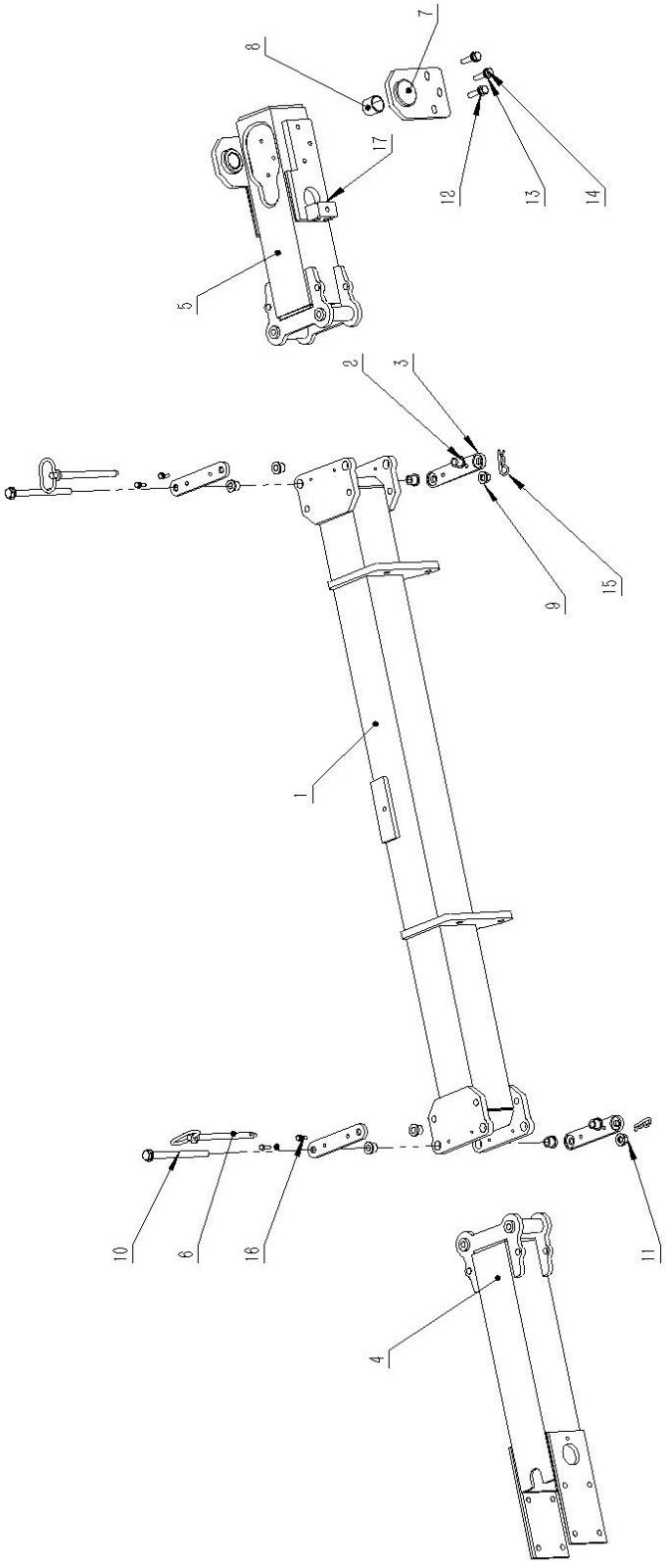
8	WS940C-03-01004	Cushion cover	1
9	GB／T 5782-2000	hexagon-head bolt Grade A and Grade B (M14)×110	1
10	GB／T6184-2000	Type 1 all-metal hexagon lock nut(M14)	1
11	JB／T 7940.1-1995	Straight through pressure filling cup M8×1	2
12	WS940C-03-01002	Hinged shaft backing plate	3

Parts manual for WS940C



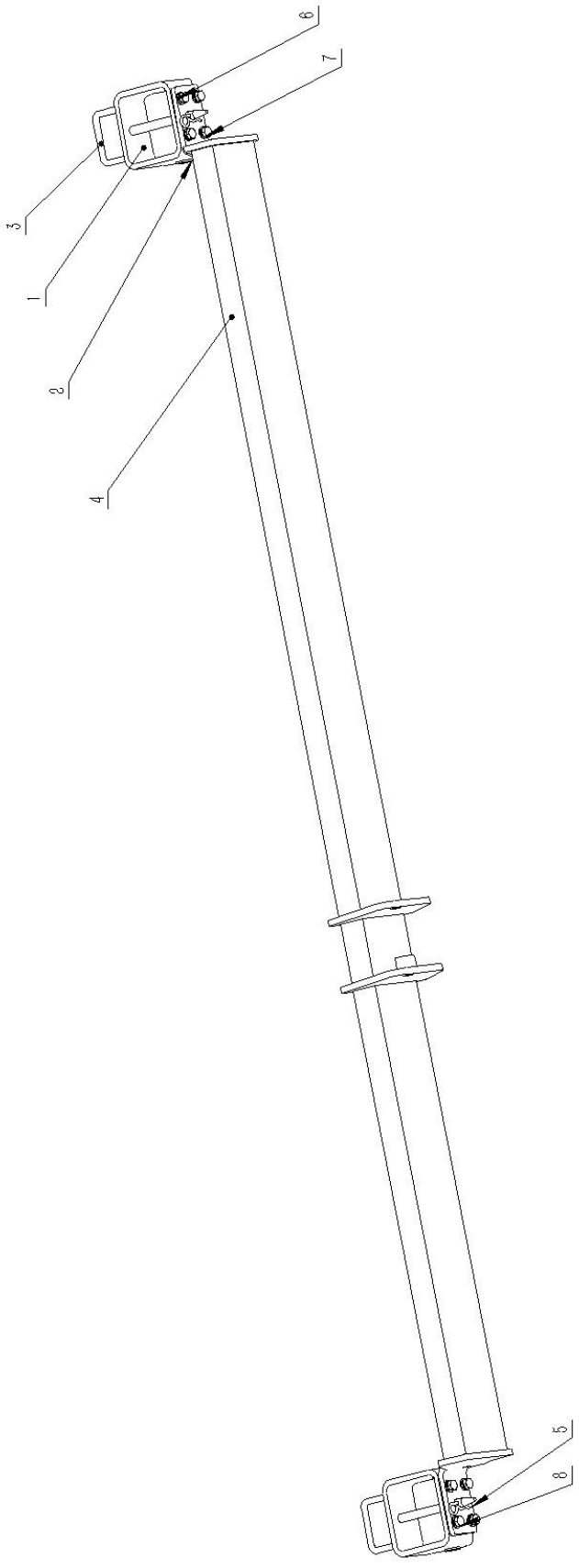
No.	Code	Name	Quantity
1	WS940C-03-01100	Welded assembly for hinged jacket	1
2	WS550-03-01007	Plastic plain bearing GSM-7075-60	2
3	JB／T7940．1-1995	Straight through pressure filling cup 6	2

Parts manual for WS940C



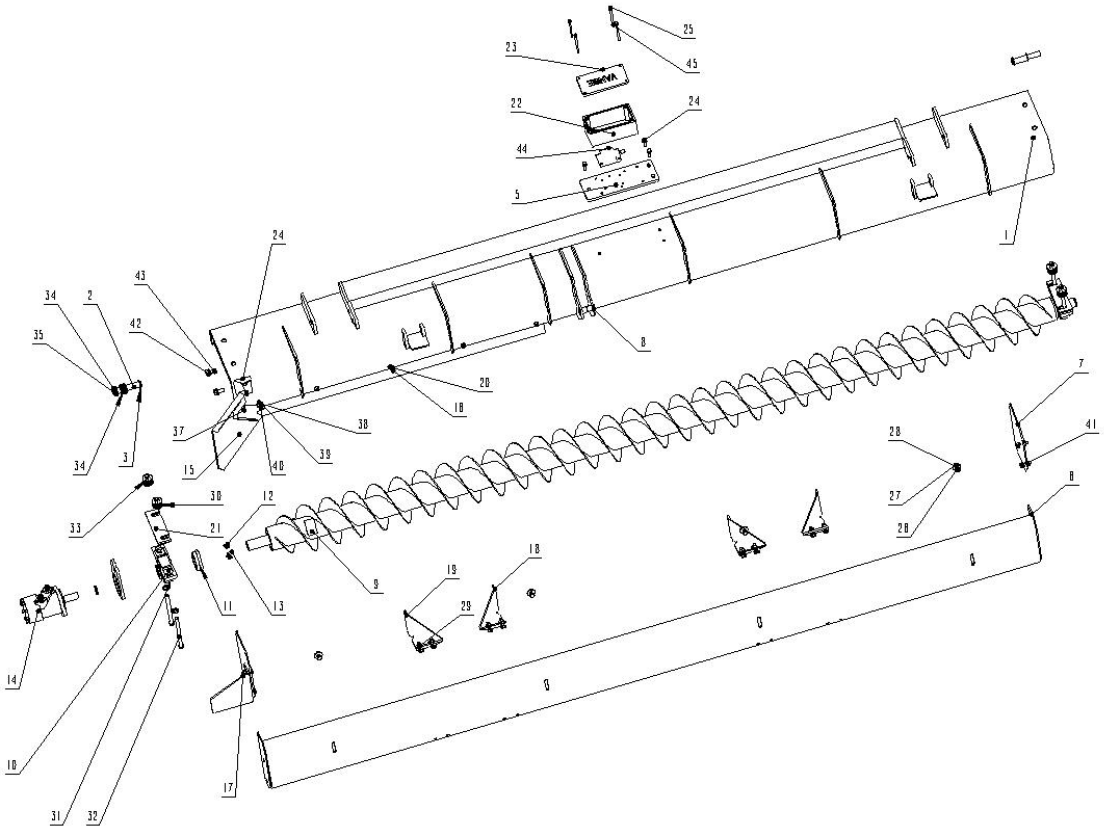
No.	Code	Name	Quantity
1	208030018	Double hole 16 black tube clamp	1
2	M6X20	Elastic flat washer assembly	4
3	B-pin	[BX-20]	2
4	GB／T5783-2000	Hexagon head bolt with full thread M10×40	6
5	GB／T93-1987	Standard elastic washer (Assembly) 10×2．6	6
6	GB／T97．1-2002	Flat washer Class A 10×2	6
7	GB／T6184-2000	Standard elastic washer Type 1 all-metal hexagon lock nut M12	2
8	GB／T5782-2000	Hexagon head bolt class A and B M12×165	2
9	GB／T97．1-2002	Flat washer class A 12×2．5	4
10	Self-lubricating composite bearing	(SF-1)30-34-30	2
11	WS940C-80-01400	Right lift cylinder connection plate welded	2
12	WS940C-80-01500	Handle pin assembly	2
13	WS940C-80-01300	Right beam welded assembly	1
14	WS940C-80-01200	Left beam welded assembly	1
15	WS940C-80-01001	Ear plate	4
16	Copper sleeve with platform	12-18 Length 14Shaft shoulder 24 length 3	8
17	WS940C-80-01100	Middle beam welding assembly	1

Parts manual for WS940C



No.	Code	Name	Quantity
1	GB／T5783-2000	Hexagon head bolt with full thread M10×25	8
2	GB／T93-1987	Standard elastic washer (Assembly)10×2．6	8
3	GB／T97．1-2002	Flat washer Class A 10×2	8
4	B-pin	[BX-20]	2
5	WS940C-80-04100	Tilt cylinder bracket welded assembly	1
6	WS940C-80-04200	Connect the rack pin welded assembly	2
7	Internal diameter 13External diameter 20 length 12 Shaft shoulder 26 Length 3	Copper sleeve with border	4
8	WS940C-80-04001	Working head connection frame	2

Parts manual for WS940C

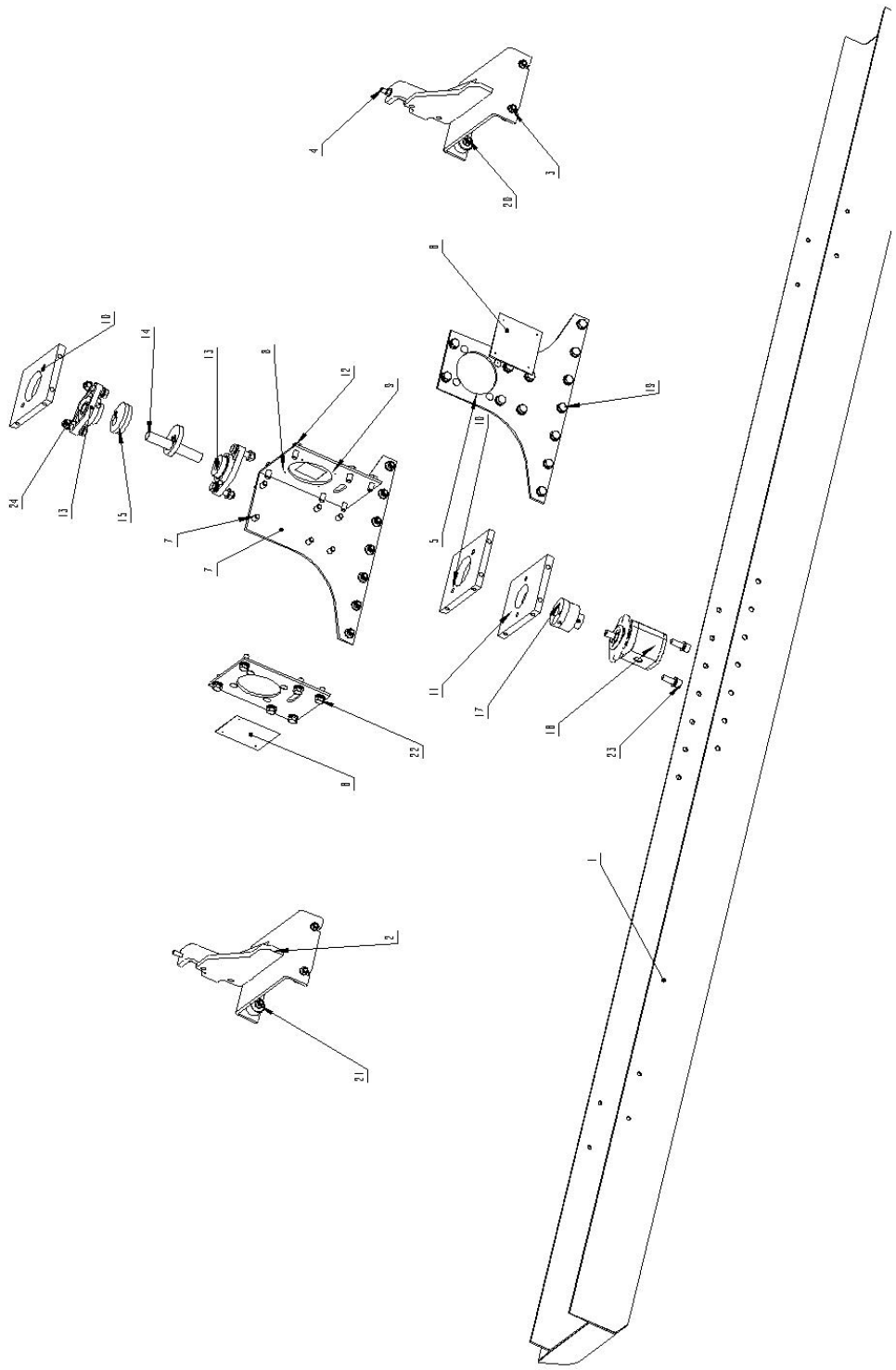


No.	Code	Name	Quantity
1	WS940C-80-05100	Welding assembly for auger shield	1
2	WS940C-80-05001	Motor stationary shaft	2
3	WS940C-80-05002	Retaining ring gasket	4
4	GB 894.2-86	Elastic retainer B for shaft	4
5	WS940C-80-05003	Angle fixed plate	1
6	WS940C-80-05200	Scraper welding assembly	1
7	WS940C-80-05004	Scraper side plate	2
8	Internal diameter 13External diameter 20 Length 26 Step26 Length 3	Copper sleeve with border	2
9	WS940C-80-05300	Auger welding assembly	1
10	204020020	Sealmaster bearing s-5205-m32	2
11	WS940C-80-05005	Sealing sleeve	2
12	Wire diameter 05-External diameter6-length 15	Compression spring	8
13	GB／T 879.2-2000	Elastic cylindrical pin,straight	2

		groove,light-weight 5×20	
14	WS940C-80-05006	Auger motor fitting assembly	1
15	WS940C-80-05400	Auger motor front baffle plate welding	1
16	WS940C-80-05007	Motor side small scraper	1
17	WS940C-80-05008	Right bending plate of scraper	1
18	WS940C-80-05009	Left scraper of wheel groove	2
19	Mirror direction WS940C-80-05009	left scraper of wheel groove	2
20	WS940C-80-05010	Small scraper pad	1
21	WS940C-80-05011	Auger pad	4
22	WS940C-80-05012	Tilt sensor protective housing	1
23	WS940C-80-05013	Upper cover of tilt sensor protective	1
24	M8X30	Bolt washer assembly	10
25	GB／T 95-2002	Flat washer Class C 6	4
26	GB／T5783-2000	Hexagon head bolt with full thread M10×25	4
27	GB／T 96.2-2002	Large gasket Class C 10	4
28	GB／T6184-2000	Type 1 all metal hexagon lock nut M10	4
29	M10x30	Bolt spring flat washer + nut assembly	8
30	GB／T 96.2-2002	Large gasket Class C 12	20
31	GB／T97．1-2002	Flat washer Class A 12×2．5	6
32	GB／T5782-2000	Hexagon head bolts class A and B M12×150	4
33	GB／T6184-2000	Type 1 all metal hexagon lock nut M12	4
34	GB／T 97.1-2002	Flat washer Class A 20	9
35	B-pin	[BX-25]	1
36	GB／T97．1-2002	Flat washer Class A 8×1．6	7
37	GB／T6184-2000	Type 1 all metal hexagon lock nut M8	7
38	GB／T93-1987	Standard elastic washer (assembly) 8×2．1	1
39	GB／T5783-2000	Hexagon head bolt with full thread M8×35	1
40	GB／T 96.1-2002	Large gasket Class A 8	1
41	M10x35	Bolt spring flat washer + nut assembly	4
42	GB／T93-1987	Standard elastic washer	2

		(Assembly) 12×3．1	
43	GB／T5783-2000	Hexagon head bolt with full thread M12×30	2
44	Tilt sensor	Tilt sensor	1
45	GB/T 5780-2000	Hexagon head bolts Class C	4

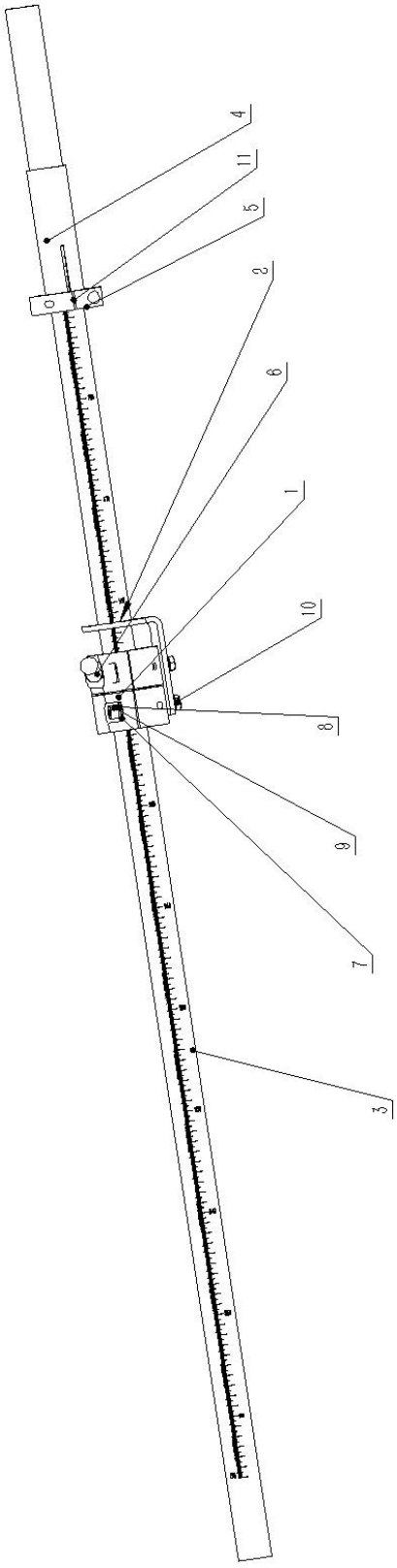
Parts manual for WS940C



No.	Code	Name	Quantity
1	WS940C-80-06100	Vibration plate welding	1
2	WS550-80-02100	Vibration plate joint welding	2
3	WS550-80-02008	M8X15 Double stud shock absorber	8

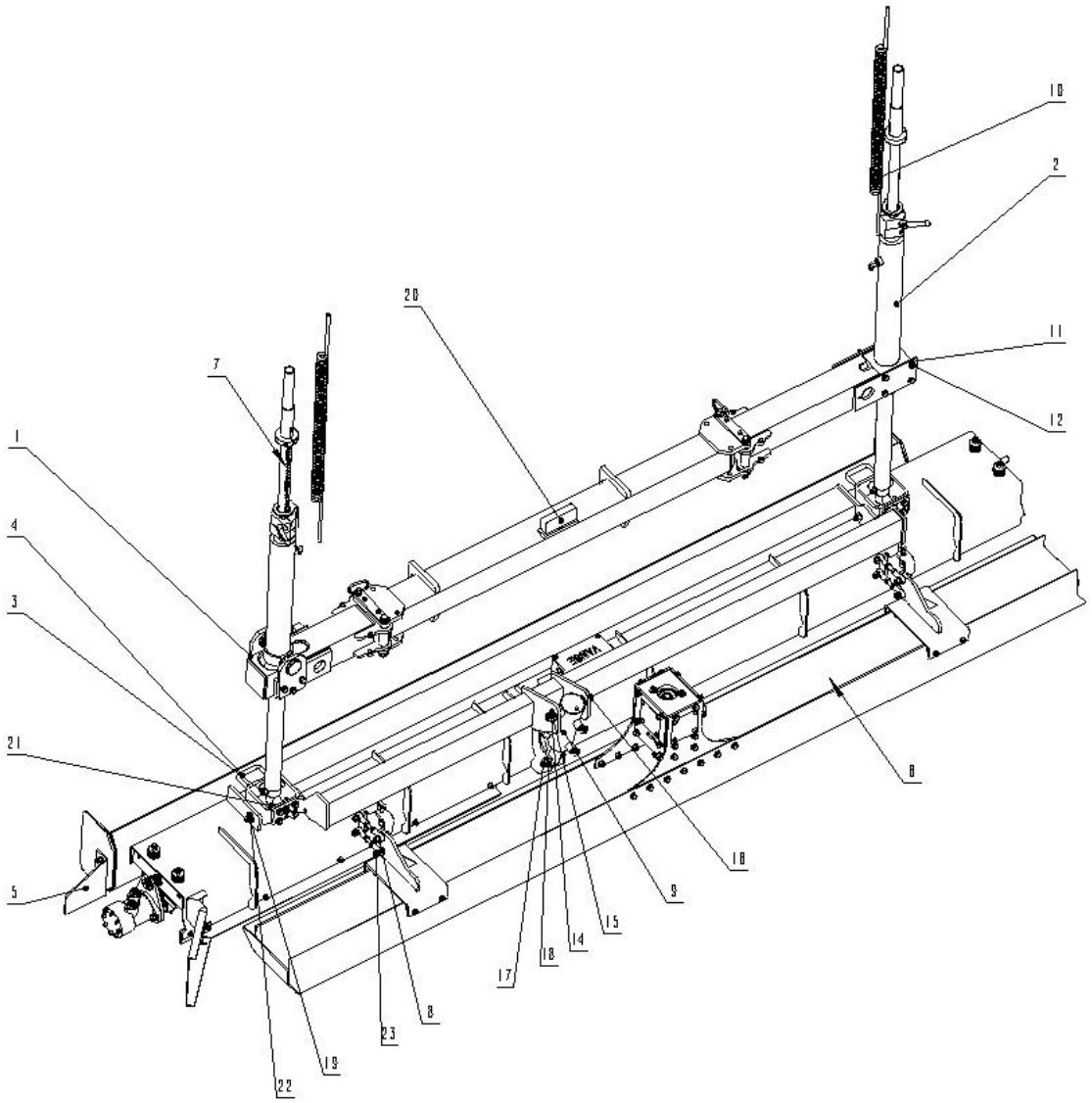
4	WS550-80-02007	Rubber shock a bsorber M8X60	2
5	WS940C-80-06004	Vibrating motor front riser	1
6	WS940C-80-06005	Vibration motor front riser protective cloth	3
7	WS940C-80-06006	Vibrate motor rear riser	1
8	Diameter 15	Stainless steel button	6
9	Diameter 16 Block	Rivet	6
10	WS940C-80-06007	Vibrating device upper plate	2
11	WS940C-80-06008	Vibrating motor mounting plate	1
12	WS940C-80-06009	Vibrating motor side panel	2
13	204020021	Sealmaster diamond bearing 3/4 inch	2
14	WS940C-80-06300	Vibrating shaft welding	1
15	WS940C-80-06400	Movable eccentric block welding	1
16	Vivoil vibrating motor	XV-1M-1.7	1
17	WS940C-80-06400	SIZE1 Rubber elastic coupling	1
18	Wire diameter 2-external diameter 23-lengthe 15	Compression spring	1
19	M10x25	Bolt spring flat washer + nut assembly	14
20	GB／T95-2002	Flat washer Class C 8×1．6	19
21	GB／T6184-2000	Type 1 all metal hexagon lock nut M8	19
22	M10x25	Bolt spring flat washer	24
23	M10x30	Inner bolt spring flat washer	2
24	M10x45	Bolt spring flat washer + nut assembly	4

Parts manual for WS940C



No.	Code	Name	Quantity
1	WS940C-80-07001	Receiving rod connection sleeve	1
2	WS940C-80-07002	Calibration loop	1
3	WS940C-80-07003	Receiver rod	1
4	WS940C-80-07004	Sliding sleeve	1
5	38X70X18	Aluminum alloy open mouth fixed ring	1
6	M8x40	Handle bolt	1
7	GB／T97．1-2002	Flat washer class A 8×1．6	2
8	GB／T93-1987	Standard elastic washer (Assembly) 8×2．1	1
9	GB／T70．1-2000	Hexagon socket cap screws M8×35	1
10	M8X20	Spring flat pad assembly	2
11	GB／T70．1-2000	Hexagon socket cap screws M8×20	1

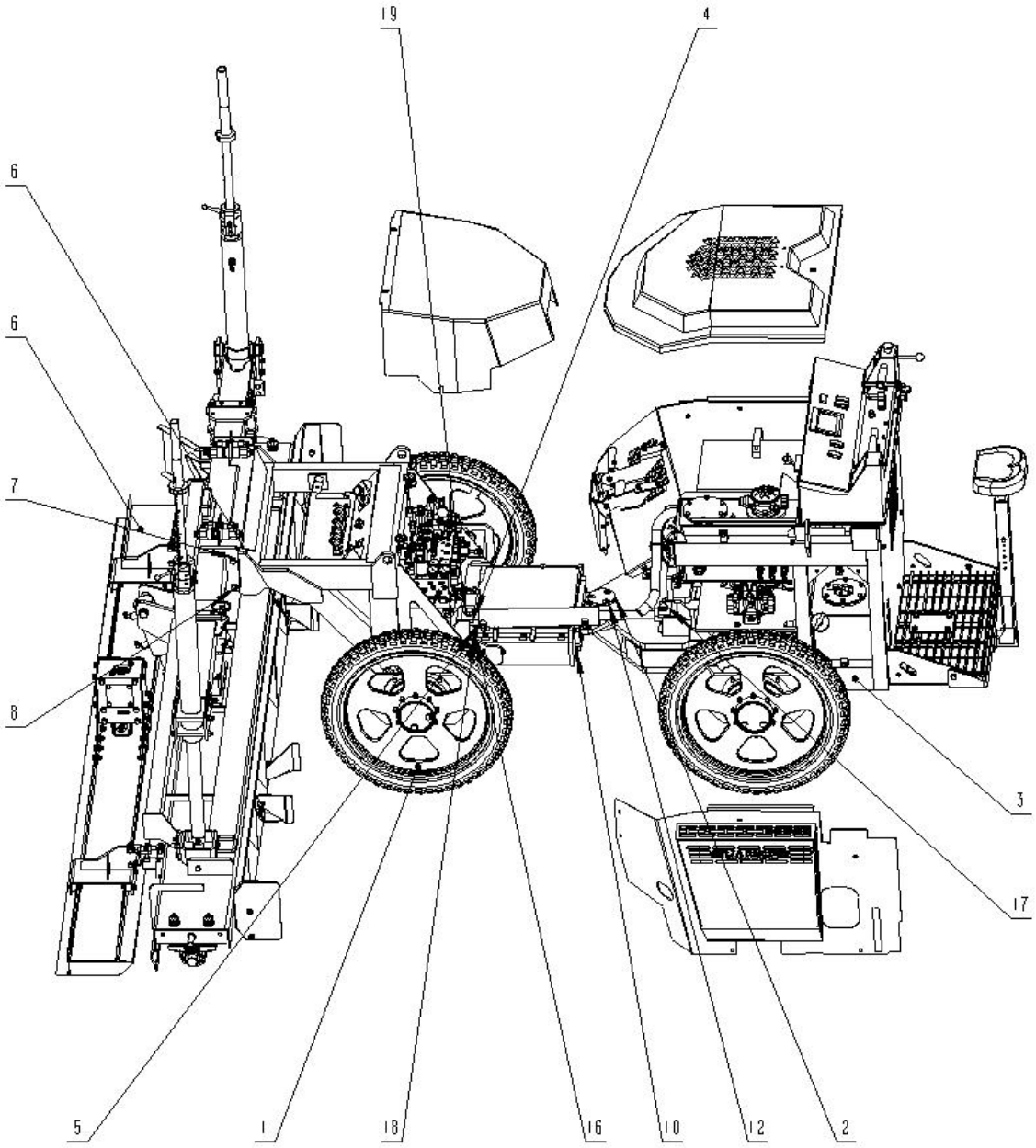
Parts manual for WS940C



No.	Code	Name	Quantity
1	WS940C-80-01000	Beam assembly	1
2	WS940C-80-02000	Left lift cylinder	1
3	WS940C-80-03000	Right lift cylinder Initial 235 Route405	1
4	WS940C-80-04000	Working head connecting frame assembly	1
5	WS940C-80-05000	Auger shield fitting assembly	1
6	WS940C-80-06000	Vibration plate fitting assembly	1
7	WS940C-80-07000	Receiver rod fitting assembly	2
8	WS940C-80-09000	Vibrating beam connecting rod assembly	4

9	WS940C-80-08000	Tilt cylinder Initial 213 Route90	1
10	Screw outside diameter 36 Length 630-Straight outside diameter 9 length 180-4x1 Flat tape shield	Black helix	2
11	GB／T97．1-2002	Flat washer Class A 10×2	8
12	GB／T5782-2000	Hexagon head bolts class A and B M10×140	4
13	GB／T6184-2000	Type 1 all metal hexagon lock nut M10	4
14	GB／T 97.1-2002	Flat washer Class A (18)	3
15	GB／T 6184-2000	Type 1 all metal hexagon lock nut (M18)	1
16	GB／T5782-2000	Hexagon head bolts class A and B (M18)×150	1
17	GB／T 27-1988	Hexagon head reaming bolts - class A and B M12×80	1
18	GB／T 95-2002	Flat washer Class C 12	1
19	GB／T6184-2000	Type 1 all metal hexagon lock nut M12	3
20	10W	Long strip LED lights	1
21	GB／T 27-1988	Hexagon head reaming bolts - class A and BM12×180	2
22	GB／T97．1-2002	Flat washer Class A 12×2.5	2
23	M10x45	Bolt spring flat washer + nut assembly	8
24	1CH9-14	90°Bend metric external thread to adjustable column end	6
25	1CG-18-08	(M18-G1/2 Flat)Stuck joint	1
26	1CB-14-06WD(G3/8 Flat-M14)	Stuck joint	1

Parts manual for WS940C



No.	Code	Name	Quantity
1	WS940C-01-00000	Front frame assembly assembly	1
2	WS940C-03-01000	Frame hinged assembly assembly	1
3	WS940C-02-00000	Rear frame fitting assembly	1
4	WS940C-03-04000	Steering cylinder	1
5	WS940C-03-03001	Cylinder back gasket	2
6	WS940C-80-00000	Working head fitting assembly	1
7	GB／T97．1-2002	Flat washer Class A 12×2．5	9
8	GB／T5782-2000	Hexagon head bolts class A and B	4

		M12×50	
9	GB／T6184-2000	Type 1 all metal hexagon lock nut M12	4
10	M10x40	Bolt spring flat washer + nut assembly	20
11	M10x40	Hexagon countersunk bolt spring washer + nut set assembly	4
12	GB／T70．3-2000	hexagon socket countersunk head screw M10×30	3
13	M10x30	Bolt spring flat washer	3
14	GB／T93-1987	Standard elastic washer(Assembly)12×3．1	1
15	GB／T5783-2000	Hexagon head bolt with full thread M12×30	1
16	GB／T 97.1-2002	Flat washer Class A (18)	4
17	GB／T27-1988	Hexagon head reaming bolt for hole making Class A and Class B (M18)×140	1
18	GB／T 6184-2000	Type 1 all metal hexagon lock nut (M18)	2
19	GB／T27-1988	Hexagon head reaming bolt for hole making Class A and Class B(M18)×110	1
20	1CH9-14	90°Bend metric external thread to adjustable column end	2