Servie Manual

Moving Mast Walkie Reach Truck

EH15TH

warning

You must understand the operation instructions in this manual before using it.

Note:

Please check the last page of this document and the nameplate for all current product type identification.

Keep it for future use.

Table of Contents

1. Maintenance List

a. Overview of Main Components

Chart 1: Maintenance List

		Standard=● Cold Storage=#	Interval (month)			
			1	3	6	12
Chassis and Frame						
1	Check all Load-bearing Parts for Damage			•		
2	Check all bolt connections			•		
Drive Part						
3	Check transmission system for noise and leakage			•		

4	Check the oil content of the transmission system		•		
5	Replacement Oil			#	•
The Wheels					
6	Inspect for wear and tear		•		
7	Check the bearing in the wheel and make sure it fits tightly with the wheel a)		•		
Steering					
8	Check steering control motion		•		
Brake System					
9	Check Performance and Tuning	#	•		
10	Check the return function of the air spring for proper leakage and damage		•		
11	Check brake disc for wear		•		
12	Check brake connections and adjust if necessary		•		
Lifting Device					
13	Check performance, wear and adjustment		•		
14	Visually check whether the load wheel is jammed		•		
15	Check the fork tips and pallets for wear and tear	#	•		
Hydraulic System					
16	Performance check	#	•		
17	Check all connections for leaks and damage b)	#	•		
18	Check whether there is leakage and damage to the hydraulic cylinder, and whether the accessories are safe and reliable	#	•		
19	Check the oil quantity	#	•		
20	Replace the hydraulic oil and filter element c)			#	•
21	Check whether the pressure regulating valve is adjusted correctly			#	•
Electrical System					
22	Performance Check		•		
23	Check all cable connections for safety, reliability and damage		•		
24	Check that the amperes of the fuse are correct				
25	Check whether the switch and release CAM device is safe and reliable and functional		•		
26	Check the connector and replace worn parts if necessary				
27	Check that the warning device is functioning correctly	#	•		
The motor					
28	Check the wear of the carbon brush		•		

29	Check motor attachment for safety		•		
30	Clean the frame of the motor with a vacuum cleaner and check the wear of the commutator		#		
Battery					
31	Check acid density, capacity and battery voltage	#	•		
32	Check terminal safety device and grease suitability	#	•		
33	Clean the battery connectors and check their tightness	#	•		
34	Check the battery cable and replace it if necessary		•		
Lubricating Oil					
35	Grease the vehicle according to the lubricating schedule	#	•		
Comprehensive Measurement					
36	Check the grounding of the electrical system for errors				•
37	Check driving speed and braking distance				•
38	Check lifting and lowering speed				•
39	Check safety and closing devices		•		
Demonstration					
40	Test run under rated load		•		
41	After the above maintenance operation, the vehicle is proven to be reliable to personnel.	#	•		

a) Check the tightness of nuts on wheels after initial work of approximately 100 hrs; tighten it if necessary.

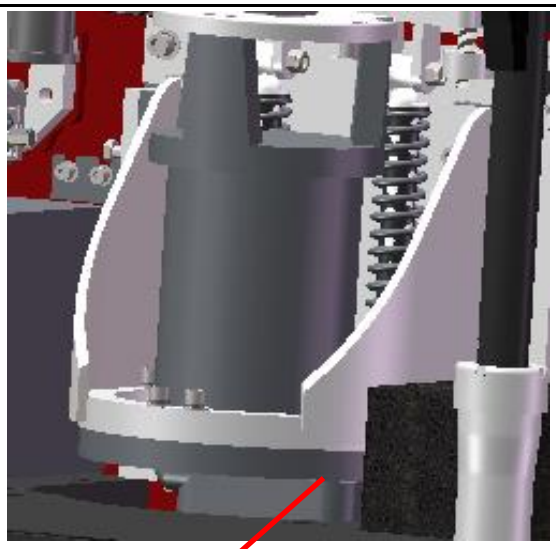
b) Check hydraulic system connections for leakage approximately 100 hrs after initial operation; Tighten it if necessary.

c) After the initial 500 hrs of work.

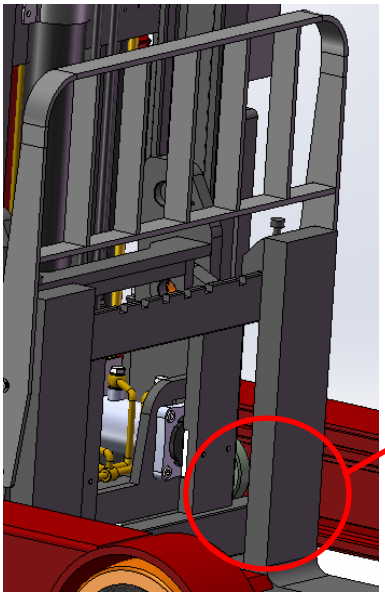
b. Lubrication Point

Lubricate marked points according to the maintenance list. The required size of grease is: DIN 51825 standard grease.

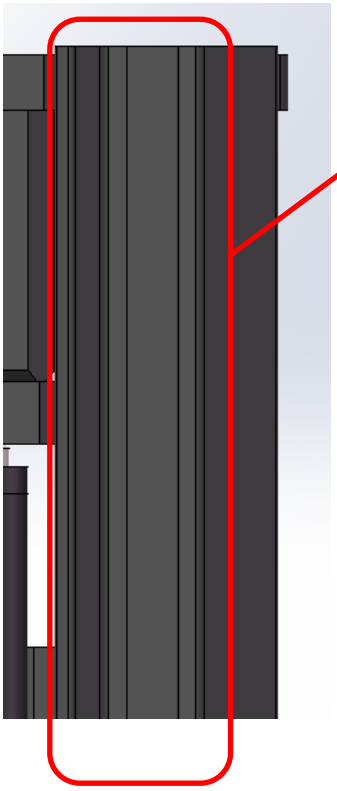
Pic 1:

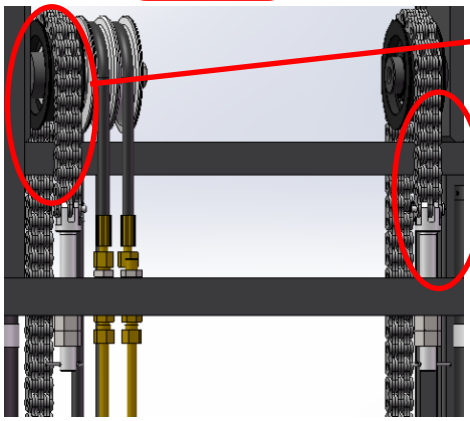


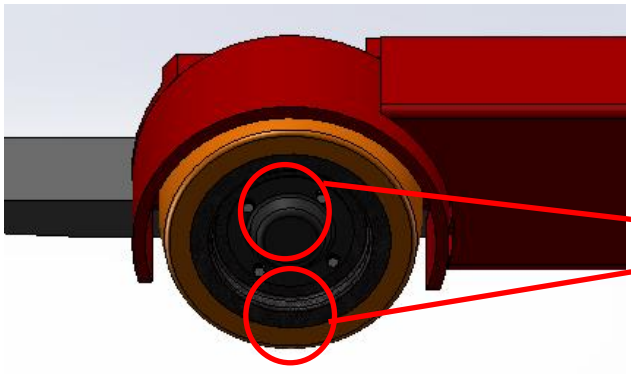
Drive Gear



Guide Rail Truck Foot







c. Check to Refill Hydraulic Oil

Hydraulic oil is recommended according to temperature:

The environment temperature	–5℃~25℃	>25℃
Brand#	HVLP 32，DIN 51524	HLP 46，DIN 51524
Viscosity	28.8-35.2	41.4 - 47

Oil	8 L

Waste materials such as waste oil, waste batteries or other materials must be treated and recycled in accordance with national regulations, and returned.
The oil level should not be lower than the minimum amount required to start the vehicle.
Fill up to refueling point if necessary.

d. Check Electric Fuses

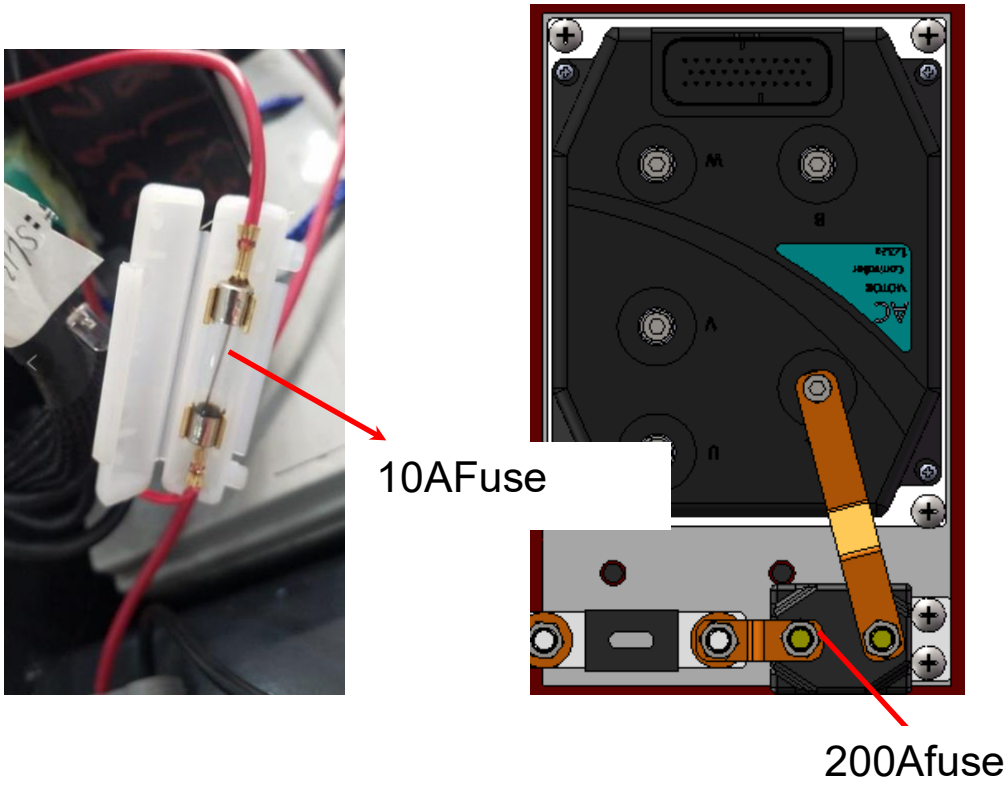


Chart 2:Fuse Specifications

	Spec
Fuse1	10A
Fuse01	200A

2. Failure Analysis
a. Common Fault Analysis

If the vehicle continues to malfunction, follow the instructions in chapter 6 of the manual.

Chart 3: Failure Analysis

Failure	Cause	Maintenance
Vehicles cannot move	The battery connector is not connected	Check the battery connector and connect it if necessary
	The electric lock switch is in position 0	The electric lock switch rotates to the right
	The emergency stop switch is not on	Turn on the emergency stop switch
	Battery running out	Check the charging status of the battery and recharge it if necessary
	The control handle is not in the drive range F	Turn control handle to drive range F
	Fuse damage	Check fuse
Cargo cannot be lifted	The vehicle is not running	Follow the procedure listed in the “Vehicle cannot Move” Fault
	Too little Hydraulic fluid	Check Hydraulic fluid
	Fuse damage	Check fuse
	The battery is only 20-30% full	Charge battery
	The lift microswitch is in bad contact or damaged	Check lift microswitch or replace
Goods cannot be lowered	Dirty oil clogs the control valve	Check the hydraulic oil and clean the control valve and replace the hydraulic oil if necessary
	The descent solenoid valve is not open or damaged	Check the drop solenoid or replace it
Can’t stop when lifting	The lifting microswitch is damaged	Cut off the power supply and replace the lifting microswitch
Only moving in one direction	Contact between micro switch and connecting cable is not good	Check the microswitch and connecting cable in the control handle
moves slowly	The battery is low, the electromagnetic brake is too tight, or the corresponding cable contact is not good	Check the battery level indicator, electromagnetic brake and corresponding cables
Sudden start	Controller damage	Replace controller
	The forward and backward control knob is not reset	To restore or replace

If the fault can not be rectified by any of the above procedures, please inform the manufacturer’s after sales service organization for specially trained technicians.

2.1 Preparatory work before repair

In order to prevent accidents that may occur during repair and maintenance operations, the following preparations must be completed:

— Safely park the vehicle.
— Press the emergency stop switch to remove the battery connector.

When the fork needs to be raised or the vehicle lifted before maintenance operations can be carried out, measures must be taken to prevent the fork or vehicle from tipping or slipping or falling suddenly. For the lifting of the vehicle, see the relevant section of transport and commissioning above.

2.2 Check the amount of hydraulic oil

— Prepare vehicles to be repaired and maintained.
— Open the cover of the electrical box.
— Check the amount of hydraulic oil in the tank.

When checking the oil level of hydraulic fluid, the fork and frame must be minimized.

2.3 Preparation work after maintenance and before use

Use the vehicle only after the following operations have been completed.

— Clean the vehicle
— Check whether the brake function is normal.
— Check whether the emergency stop switch works properly.
— Check whether the horn works properly.

b. Fault Code Display

1、Steering Fault Code

Code	The Fault Name	Possible Cause
12	Controller Overcurrent	1.Steering Motor Wiring Short 2.The controller fails
13	Current Sense Fault	1.Controller Failure
14	Precharge Fault	1.Controller Failure
15	Controller Severe Undertemp	1.The controller operates in ultra-low temperature environment 2.The temperature sensor is damaged
16	Controller Severe Overtemp	1. Vehicle overload 2.The controller runs in an ultra-high temperature environment 3.The controller is improperly fixed
17	Severe Undervoltage	1.The battery or battery cable connection is faulty 2.There are other large loads attached to the battery 3.The battery is dead or the model is different
18	Severe Overvoltage	1.In RegEN, the battery or battery cable resistance is too high 2.Battery cables are disconnected during RegEN. Procedure
21	Motor Temp Hot Cutback	1.Vehicle overload 2.The controller runs in an ultra-high temperature environment
22	Controller Overtemp	1.Vehicle overload 2.The controller runs in an ultra-high temperature environment 3.The controller is improperly fixed
23	Motor Polarity Fault	1.The motor polarity is reversed 2.Position feedback device has reversed polarity
24	5V Output Failure	1.5V output overload 2.Controller failure
31	Main Driver Fault	1.The internal relay coil is damaged 2.Internal relays drive open or short
32	Relay Welded	1.Internal relay adhesion 2.The controller fails
33	Relay Did Not Close	1.The internal relay received the pull-in command but failed to pull-in 2.Oxidation of internal relay patch
34	Hardware Fault	1.A hardware fault was detected 2.The motor voltage is out of range 3.The LLC communication is lost 4.The power tube is short-circuited
35	Fault Output Failed	1.The fault output cable is incorrectly connected 2.The controller fails
36	Motor Stalled	1.Motor blocked 2.The encoder of the steering motor fails or the cable is disconnected 3.Cables to the steering motor are disconnected 4.The parameters do not match the motor
37	Motor Open	1.Steering motor wiring open 2.The motor is incorrectly connected 3.The controller fails
38	Motor Short	1.Steering motor wiring short

41	Command Analog1 Out of Range	1.Analog command input 1(J1-6) is out of range 2.Low end of instruction (J1-14) out range (for resistance type) 3.The parameter settings are incorrect
42	Command Analog2 Out of Range	1.Analog command input 2(J1-13) is out of range 2.Analog quantities 1 and 2 fail to be cross-checked 3.The parameter settings are incorrect
43	Feedback Analog1 Out of Range	1.Analog feedback input 1(J1-11) is out of range 2.Parameter settings are incorrect
44	Feedback Analog2 Out of Range	1.Analog feedback input 2(J1-3) is out of range 2. J1-11 and J1-3 analog cross check failed 3.The parameter settings are incorrect
45	Parameter Change Fault	1.Parameter value changed, need to restart 2.Restore the parameters to default values
46	EEPROM Failure	1.The verification calculation of storage parameters is incorrect 2.The controller fails
47	Encoder Fault	1.The encoder data exceeds the allowable range 2.Open A or B phase of the orthogonal encoder 3.极 Polarity encoder phase B is open
53	Home Position Not Found	1.Home switch failure 2.Installation or cable connection error
62	Communication Fault	1.Communication lost between and walk
63	Communication Lost	1.The Rx(J1-8) cable is faulty 2.A handheld programmer is being used on the walking controller
71	Software Fault	1.Software failures 2.Controller failures
73	Following Error	1.Incorrect parameter setting 2.Position feedback device failure 3.Steering motor failure
75	Parameter Conflict	1.Parameter settings conflict with other parameters

2、Fault Code of The Walking Controller

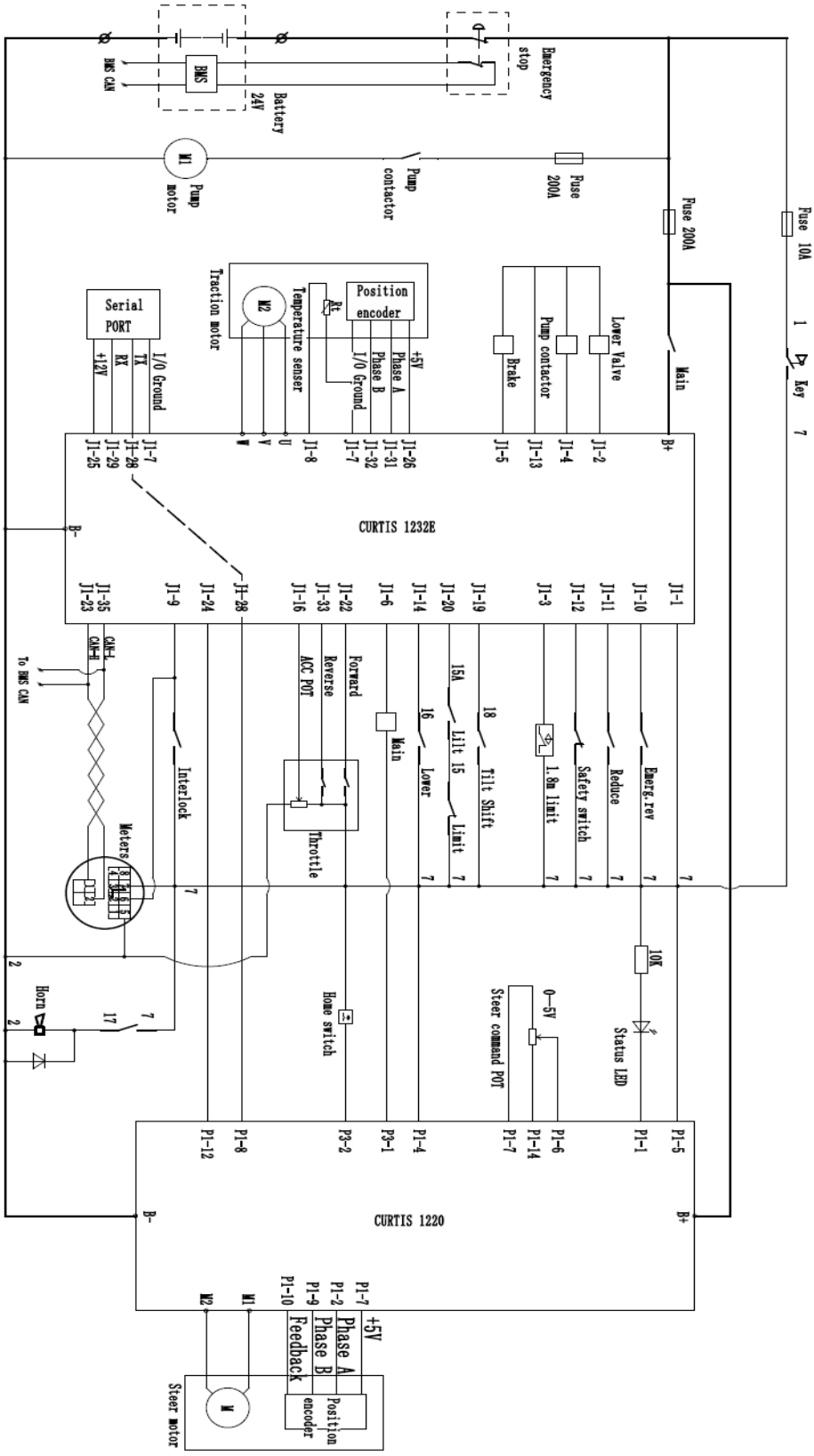
Code	Fault	Possible Cause
1	Controller Overcurrent	1, Motor external U, V, or W connection short circuit 2, Motor parameters do not match 3, Controller fault
2	Current Sensor Fault	1, Motor U, V, W through the stator on the car body short circuit, resulting in leakage 2, Controller fault
3	Precharge Failed	1, The positive end of the capacitor is connected with negative load, so that the capacitor can not be charged normally
4	Controller Severe Undertemp	1, The operating environment of the controller is too harsh
5	Controller Severe Overtemp	1, The operating environment of the controller is too harsh 2, Vehicle overload 3, The controller is incorrectly installed
6	Severe Undervoltage	1, Battery parameters are incorrectly set 2, Power consumption of non-controller system 3, The battery impedance is too large 4, The battery is disconnected 5, The fuse is disconnected, or the main contactor is not connected
7	Severe Overvoltage	1, Battery parameters are incorrectly set 2, The battery impedance is too high 3, Battery connection is disconnected during regenerative braking
8	Controller Undertemp Cutback	1、 The controller works under restricted conditions 2、 The controller working environment is harsh
9	Controller Overtemp Cutback	1, The controller works in a harsh environment 2, Vehicle overload 3, The controller is incorrectly installed
10	Undervoltage Cutback	1, Low battery 2, Battery parameters are incorrectly set 3, Non-controller system runs out of power 4, Excessive battery impedance 5, The battery is disconnected 6, Fudse is disconnected or main contactor is disconnected
11	Overvoltage Cutback	1, Regenerative braking process in regenerative system, the running current causes the battery voltage to rise 2, Battery parameters are incorrectly set 3, The battery impedance is too large 4, Battery connection is broken during regenerative braking
12	+5V Supply Failure	1, The impedance of the external load is too low
13	Digital Out 6 Failure	1, The impedance of the external load is too low
14	Digital Out 7 Overcurrent	1, The impedance of the external load is too low
15	Motor Temp Hot Cutback	1, The motor temperature reaches or exceeds the alarm temperature set by the program, resulting in reduced current output 2, The motor temperature parameters are incorrectly set 3, If the motor does not use a temperature sensor, program parameters “ Temp Compensation” and “Temp” cutback must be set to “OFF”

16	Motor Temp Sensor Fault	1, The motor temperature sensor is incorrectly connected 2, If the motor does not use a temperature sensor, the programming parameters are “Temp Compensation” and “Temp” cutback must be set to “OFF”
17	Coil 1 Driver Open/Short	1, Connect load open or short 2, The connection pin is defiled 3, Wrong wiring
18	Main Open/Short	1, Connect load open or short 2, The connection pin is defiled 3, Wrong wiring
19	Coil2 Driver Open/Short	1. Connect load open or short 2. The connection pin is dirty 3. Incorrect cables are connected
20	EMBrake Open/Short	1, Connect load open or short 2, The connection pin is dirty 3, Wrong wiring
21	Coil3 Driver Open/Short	1, Connect load open or short 2, The connection pin is dirty 3, Wrong wiring
22	Coil4 Driver Open/Short	1, Connect load open or short 2, The connection pin is dirty 3, Wrong wiring
23	PD Open/Short	1, Connect load open or short 2, The connection pin is dirty 3, Wrong wiring
24	Encoder Fault	1, Motor encoder failure 2, Wrong wiring
25	Motor Open	1, Motor open phase 2, Wrong wiring
26	Main Contactor Welded	1, Main contactor contact fusion 2, Motor U or V disconnected or missing phase 3, The circuit capacitor connected to the B+ terminal is charged
27	Main Contactor Did Not Close	1, The main contactor is not closed 2, The main contactor contact oxidation, melting or the connection status is unstable 3, The capacitor is charged by external devices 4, The fuse is disconnected
28	Throttle Wiper High	1, Accelerator potentiometer output voltage is over high
29	Throttle Wiper Low	1, Accelerator potentiometer output voltage is over low
30	Pot2 Wiper High	1, Potentionmeter 2 output voltage is too high
31	Pot2 Wiper Low	1, Potentionmeter 2 output voltage is too low
32	Pot Low Overcurrent	1, Potentionmeter impedance is too low
33	EEPROM Failure EEPROM	1, Failed to write to the EEPROM storage. This may be caused by VCL writing to EEPROM storage, or by CAN BUS, or by a parameter error programmed into the controller after the programmer parameters are adjusted
34	HPD/Sequencing Fault	1, Key start, interlock, orientation, and accelerator input sequence are incorrectly set 2, Wiring, switch key, interlock, direction, or accelerator input failure

35	Emer Rev HPD	1, The emergency reverse operation is over, but the accelerato, forward and reverse input and interlock have not been reset.
36	Parameter Change Fault	1, In order to ensure the safety of the vehicle, certain parameter changes must be reactivated after the key switch
38	VCL RunTime Error	1, The VCL code timed out
39	External Supply Out of Range	1, The 5V and 12V source currents are too large or too small 2, Checking Menu parameters are incorrect, for example, ExtSupply Max, Ext Named “Supply” Min”
40	OS General	1, Internal controller failure
41	PDO Timeout	1, The CAN PDO message receiving time exceeded the PDO time limit. Procedure
42	Stall Detected	1, Motor blocked 2, Motor encoder failure 3, Wrong wiring 4, Power supply of the input motor encoder is faulty
43	Motor Characterization Fault	1, In the motor matching process, the modern code comparison: 0=normal 1= The controller receives the encoder number, but the impulse quantity is undefined. Please handset Buy pulse value 2= Motor temperature sensor failure 3= High temperature reaction failure of motor 4= Motor overheating reaction failure 5= Low temperature reaction failure of motor 6= Low voltage response failure 7= High pressure reaction failure 8= The controller cannot detect the encoder message 9= Motor parameter setting exceeds the range
44	Motor Type Fault	1, The motor type parameter value is out of range
45	VCl/OS Mismatch	1, The VCL program in the controller does not match the OS program
46	EM Brake Failed to Set	1, The vehicle is still moving after the electromagnetic brake command is set 2, Electromagnetic brake force is too small
47	Encoder LOS (Limited Operating Strategy)	1, Due to motor blocking or encoder, the failure causes the restricted operating state to be the activation 2, Wrong wiring 3, Traffic jammed
48	Emer Rev Timeout	1, Due to EMR Timer expired, causes emergency reverse to be the activation 2, The emergency reverse switch is always in the On position
49	Illegal Model Number	1, The controller model cannot be identified 2, Hardware and software do not match each other 3, The controller is damaged
50	Dual Motor Parameter	The Enable parameter of dual motors is set to ON, and the control Mode selection parameter is not set to (Speed Mode Express) or 1(Speed Mode)

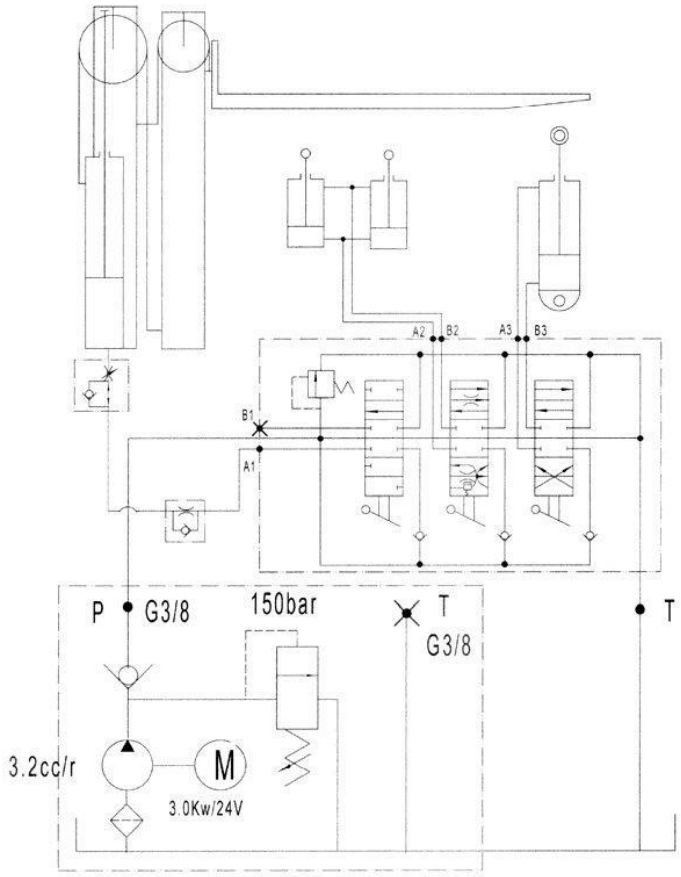
Wiring/Circuit Diagram

a、Electrical Schematic Diagram



Electrical schematic diagram (vertical AC with electric assist)

Hydraulic Schematic Diagram



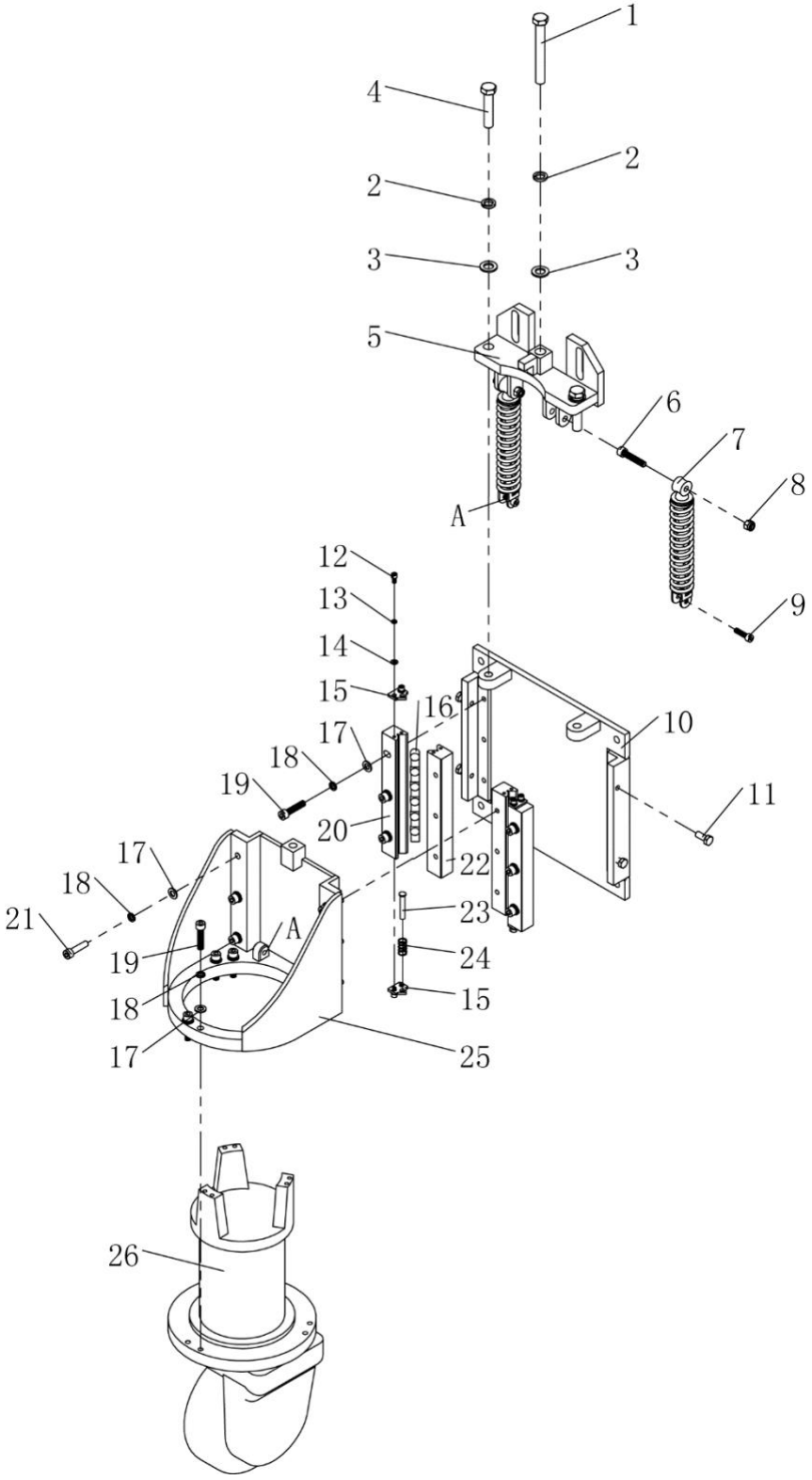
Hydraulic Schematic Diagram

Hydraulic Fluids Inspection

Appearance	smell	Condition	Result
Clear and non-discoloration	Good	Good	Safe to use
Color transparent	Good	Mix with other oils	Check viscosity, if qualified can continue to use
The color changes to milk like	Good	Mixed with air and water	Separate moisture or replace hydraulic oil
The color turns dark brown	Bad	Oxidation	Change hydraulic oil
The color is clear but there are small black spots	Good	Mix it with other particles	Filter then use

4、Disassembly of Main Parts

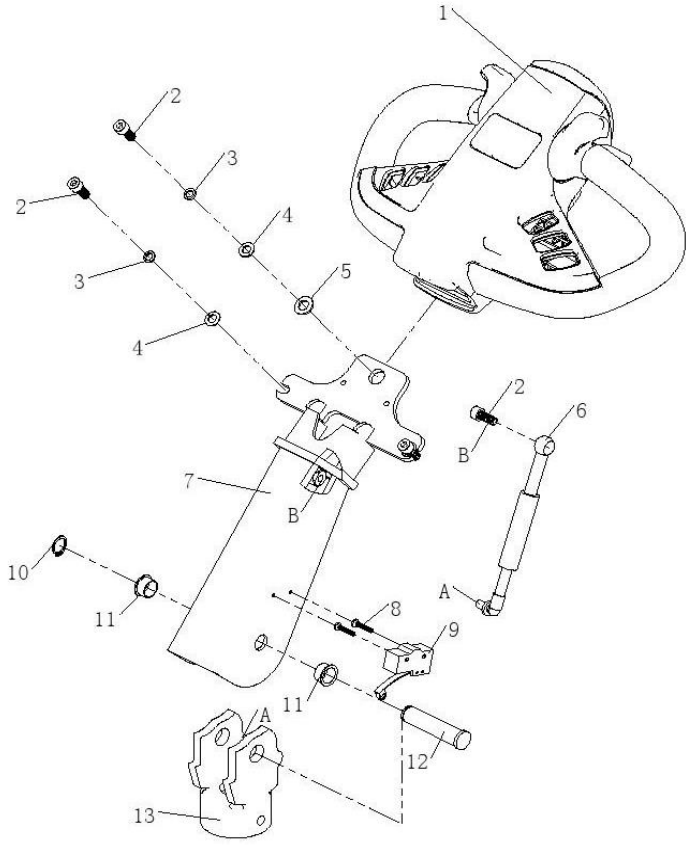
a、The Drive Assembly



Item		Part No	Description	Qty
1		GB/T 5780-2000	BoltM16×130	1
2		GB/T 93-1987	Spring Washer16×4.1	3
3		GB/T 95-2002	Flat Mat 16×3	3
4		GB/T 5781-2000	BoltM16×75	2
5		Q1545.01.04.01	Spring Bracket Fitting	1

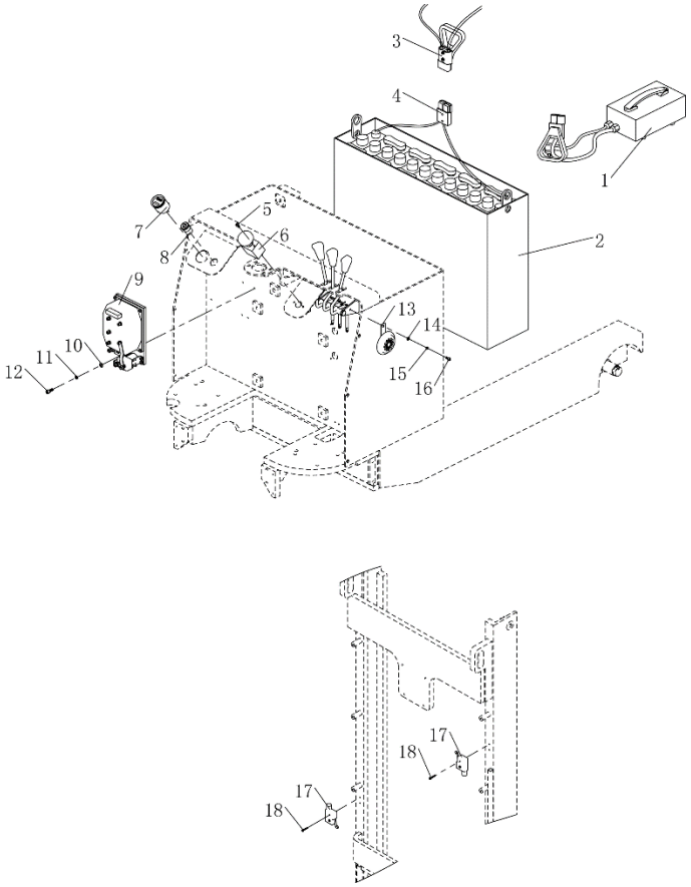
6		GB/T 70.1-2000	BoltM10×50	2
7			Q Rear Shock	2
8		GB/T 889.1-2000	NutM10	2
9		GB/T 70.1-2000	BoltM8×30	2
10		Q1545.01.04.03	Supporting Bracket	1
11		GB/T 5781-2000	BoltM10×25	4
12		GB/T 70.1-2000	BoltM6×12	8
13		GB/T 93-1987	Spring Washer6×1.6	8
14		GB/T 95-2002	Flat Mat6×1.6	8
15		Q1545.01.04-6	End cover	4
16		Q1545.01.04-7	Roller	26
17		GB/T 95-2002	Flat Mat10×2	18
18		GB/T 93-1987	Spring Washer10×2.6	18
19		GB/T 70.1-2000	BoltM10×40	12
20		Q1545.01.04-4	V Block	2
21		GB/T 70.1-2000	BoltM10×40	6
22		Q1545.01.04-5	V Block (inside)	2
23		Q1545.01.04-8	Spring Mandrel	2
24		Q1545.01.04-9	Spring	2
25		Q1545.01.04.02	Wheel Carrier	1
26		24V1.5KW	AC Drive AC 24V1.5KW	1

b.Operating Handle Assembly



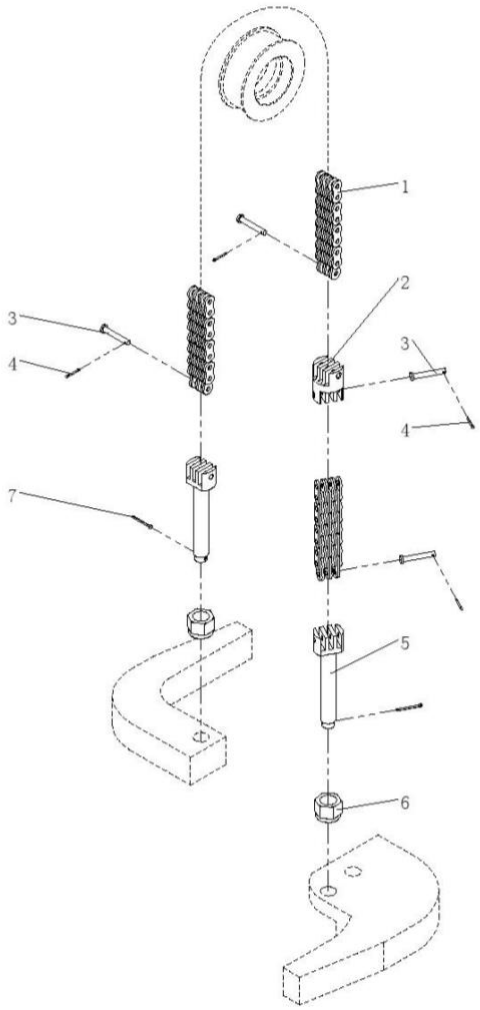
Item		Part No	Description	Qty
1		T606-2	DE Handle	1
2		GB/T 70.1-2000	BoltM8×20	4
3		GB/T 93-1987	Spring WashersΦ8	3
4		GB/T 95-2002	Flat MatΦ8	3
5		GB/T 95-2002	Flat MatΦ10	1
6		CL10.5.2.2/E	Air Spring (Handle)	1
7		Q1545.07.01.01	Handle Bar Welded	1
8		GB/T 818-2000	BoltM4×22	2
9		RZ-15DW2-83	Micro Switch	1
10		GB 894.1-86	Shaft with Elastic Retainer 17	1
11		CL10.5-1	Composite Sleeve with Shoulder	2
12		CL10.5-3	Hand Shaft	1
13		CL10.5-4/G	Handle Connector	1

c、Electrical Assembly



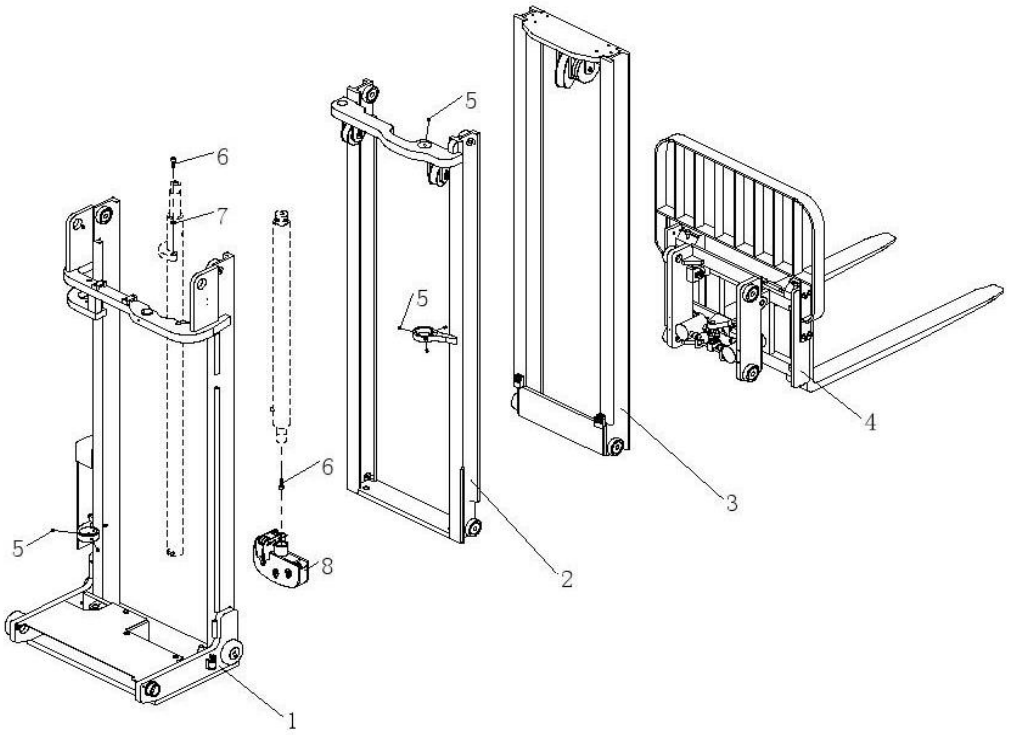
Item		Part No	Description	Qty
1		24V30A	Charger	1
2		Q1530B.01.02	Battery24V270Ah	1
3		175A-600V	Plug	1
4		175A-600V	Socket	1
5		GB/T 818-2000	BoltM6×16	2
6		ZDK31-250	Emergency Switch	1
7		DC24V	Battery Indicator	1
8		XP125	Electric Lock	1
9		DK1232-03	AC Electric (Q)	1
10		GB/T 95-2002	Flat Mat8×1.6	2
11		GB/T 93-1987	Spring Washers8×2.1	2
12		GB/T 70.1-2000	BoltM8×20	2
13		DC24/Φ125	Horn	1
14		GB/T 95-2002	Flat Mat6×1.6	1
15		GB/T 93-1987	Spring Washers6×1.6	1
16		GB/T 70.1-2000	BoltM6×12	1
17		RZ-15GW2S-B3	Micro Switch	2
18		GB/T 818-2000	BoltM4×25	2

d、The Chain Assembly



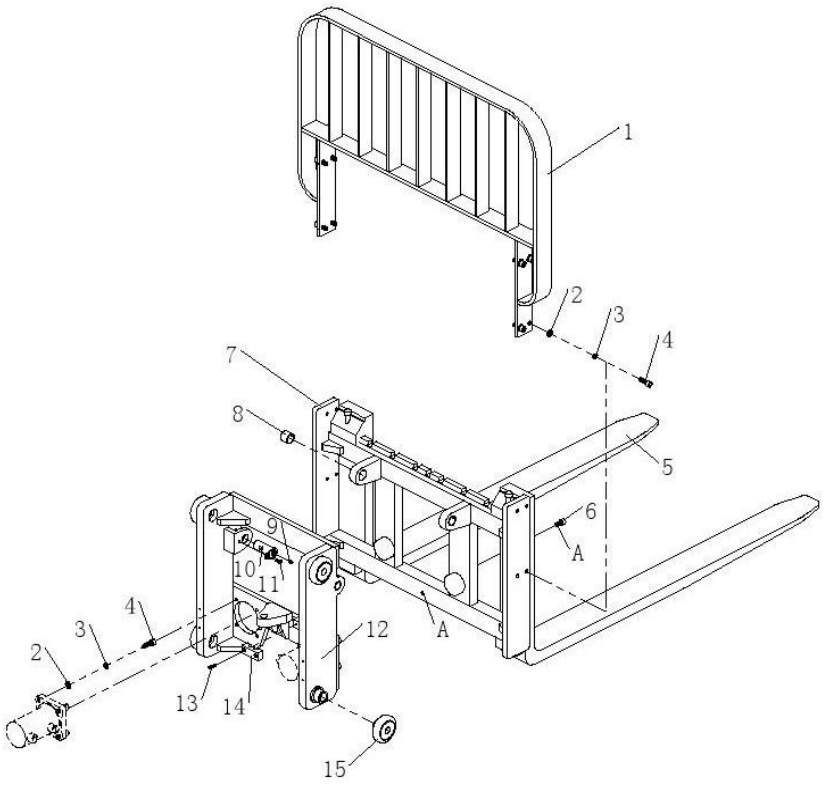
Item		Part No	Description	Qty
1		LH1066	Plate chain	3
2		Q1545.06-8	Chain joint	1
3		Q1545.06-10	The step pin	4
4		GB/T 91-2000	Cotter pin 2×16	4
5		Q1545.06-9	Chain bolt	2
6		GB/T 889.1-86	NutM18	2
7		GB/T 91-2000	Cotter pin2.5×25	2

e、The Door Frame Assembly



Item		Part No	Description	Qty
1		Q1545.06.09	External door frame assembly	1
2		Q1545.06.02	Middle gantry assembly	1
3		Q1545.06.03	Internal door frame assembly	1
4		Q1545.06.04	Slide frame body assembly	1
5		GB/T 77-2000	BoltM10×10	8
6		GB/T 70.1-2000	BoltM12×35	3
7		GB/T 93-1987	Spring washers 12×3.1	2
8		Q1545.06.05	Pulley assembly	1

f、Tray Rack Assembly



Item		Part No	Description	Qty
1		Q20GA-09.3.1	Carriage welded	1
2		CRA 78.3-12S	Composite roller	6
3		GB/T 5783	Bolt M8×20	2
4		GB/T 93	Spring washersΦ8	2
5		GB/T 95	Flat matΦ8	2
6		Q15GB-01.12	Inclined cylinder pin shaft welding	2
7		Q15GB-02.3.7	Composite set	2
8		Q1530B.02.05.03	Tilt cylinder	2
9		GB/T 93	Spring washersΦ10	12
10		GB/T 70.1	BoltM10×25	8
11		GB/T 70.3	BoltM8×25	4
12		Q15GB-02.3.9	Slider	2
13		Q20GA-02.3.2	Cargo fork support welded	1
14		GB/T 70.1	BoltM12×35	1
15		GB/T 70.1	BoltM10×20	6

5、Curtis Control Handset

Operation Precautions：

The attention function of the hand-held unit is to facilitate vehicle inspection and maintenance. It is not allowed to adjust the controller parameters without the approval of the vehicle manufacturer, so as to avoid vehicle and personal safety accidents.

The hand-held unit will automatically save the modification parameters, just need to close the key

switch, restart.

The CURTIS handheld unit can be connected in the event of a controller power or power failure

Vehicle fault reading process：

1. After connecting the handheld unit with the controller, open the key switch
2. From the menu list of CURTIS handheld units, find: Faults...
3. When the vehicle is running and the hand-held cursor flashes, there will be English fault content, which can be interpreted by referring to the fault code table

Vehicle Signal Detection：

1, After connecting the handheld unit with the controller, open the key switch
2, According to the menu list of CURTIS handheld units, find: Monitor.....
3, According to requirements, open the corresponding sub-item of the detection menu, run the vehicle, and observe the change of the hand-held value.

Curtis Handset Unit Menu Contents:

The Curtis 1313 handheld programmer is used to configure the Curtis electric control system. Through this programmer, you can adjust and save the set parameters, real-time monitoring of controller data and fault diagnosis

Warning: The control system can affect the vehicle's acceleration rate, deceleration rate, hydraulic system and braking. A dangerous situation can occur if the vehicle control system is not programmed correctly or exceeds safety. Only the vehicle manufacturer or an authorized service agent can program the control system

The programmer has two interfaces, one is used to communicate with the electric control, the other is used to communicate with the PC, the programmer has a battery box and a memory card slot

当编程器加载完控制器的信息后，编程器上会显示主菜单。

The programmer is powered on

The connection line of the handheld programmer can be connected to the controller by inserting the

programming port of the controller. After connecting the controller, the handheld programmer will be powered on automatically and the control information will be displayed on the programmer.

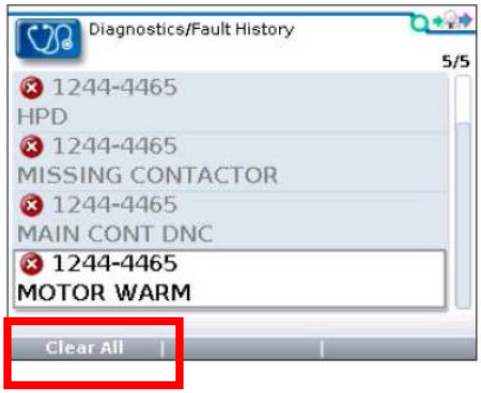
The menu structure

The main menu consists of nine sub-menus, and each sub-menu is displayed with a specific icon. Each item in the sub-menu is arranged by hierarchy.

Some menus contain only one item of information, but most menus contain more than one item of information, and open each item folder to access the next level of submenus. Expand the table through the grid option, enter a group of execution commands through the dialog box option, and return to the upper menu regardless of the interface by pressing the left direction button.
The names of all nine submenus are shown in bold on the main menu and below the icon. When entering the stepped menu, the name of the submenu or the path you are in is displayed at the top of the screen.

九大菜单

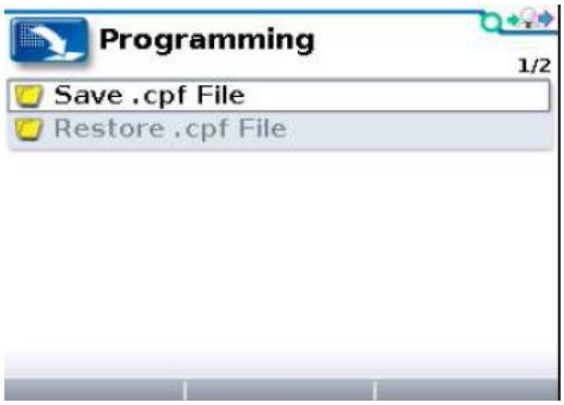
Fault Diagnosis menu
On the main menu, Select Diagnostics and press Select to access the Fault diagnosis menu. The Fault diagnosis menu contains Present Errors current faults and Fault History historical faults
Note: Sometimes a fault caused by a temporary event captured in the circuit is not a system fault. You can determine whether the fault exists by restarting the system and observing whether the fault disappears automatically.
The historical faults folder lists all faults encountered after the last historical fault is cleared. By clearing the fault content in the entire folder, you can record the historical faults again.



Clear All is used to Clear historical fault folders. A function key is highlighted only when there are historical failures in the historical failures folder and grayed out when there are no historical failures.

Programming menu

On the main menu, Select The Programming icon and press Select to access the menu. Save and restore parameter Settings files (.cpf files) through programming menus



Save.cpf File (Save.cpf File)

Use the save. CPF file function in the programming menu to back up the currently set parameters. You can save as many.cpf files as you want, and you need to name each.cpf file differently

Restore. CPF File (Restore.cpf File)

Restore. CPF File The. CPF File saved earlier can be used to replace the. CPF File of the current controller. When the data recovery is complete, a dialog box is displayed asking you to restart the system.