



HANGCHA

HANGCHA AERIAL PLATFORM EQUIPMENT CO.,LTD

Telehandlers Operation and Component Instruction

Model: T25-60XHYG

Contents/目录

- 1.Product introduction (产品介绍)
- 2.Electric System(电器系统)
- 3.Hydraulic System(液压系统)
- 4.Monitor Function(显示屏功能)

Edit by Bruce Chan

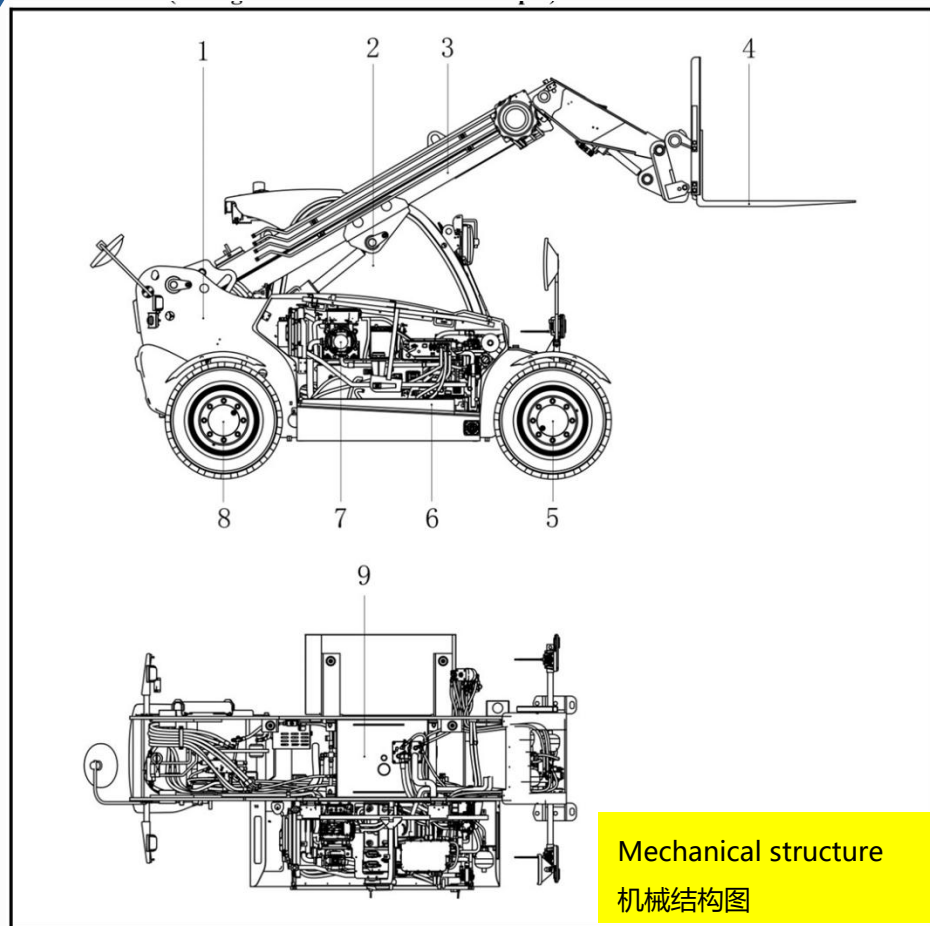


1.Product introduction(产品介绍)



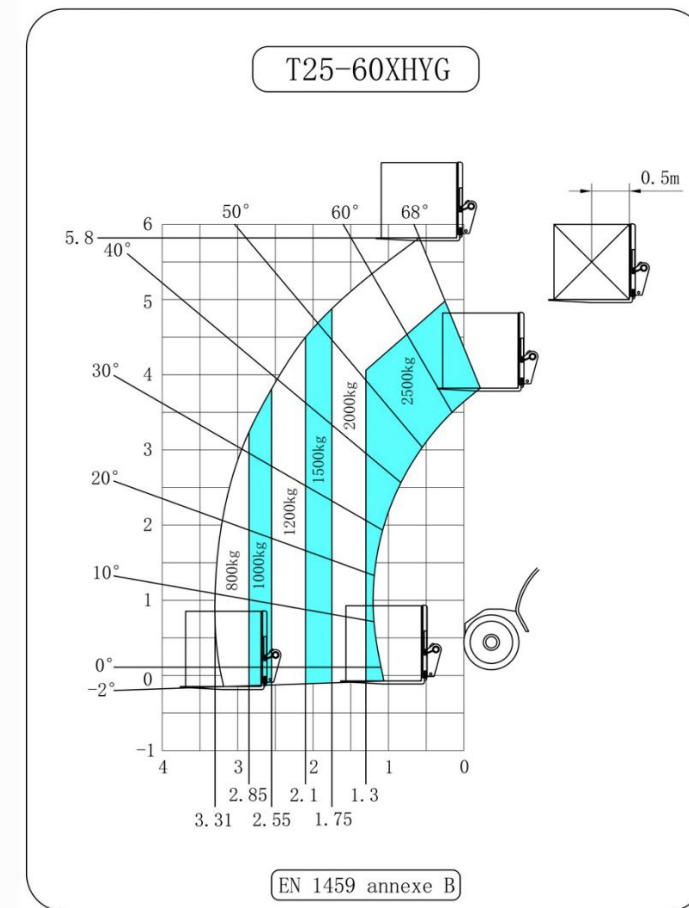
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1.) Structure & Scope / 结构 & 作业范围



NO.	Definition/名称	NO.	Definition/名称
1	Machine frame 车架	6	Lithium batteries assembly 锂电池及配件
2	Driving cab 驾驶室	7	Electric motor assembly 电动机及配件
3	Boom 臂架	8	Rear axle 后桥
4	Accessory(Fork) 属具(货叉)	9	Hydraulic oil tank 液压油箱
5	Front axle 前桥		

Scope of work diagram 作业范围图



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1.Product introduction(产品介绍)



2.) Machine parameter/ 整机参数

Performance parameter / 性能参数

Item /项目		Parameter / 参数	Item /项目	Parameter / 参数
Rated load / 额定载荷		2500 kg	Main boom lifting time / 主臂上升时间	11 s
Rated load center distance / 额定载荷中心距		500 mm	Main boom lowering time / 主臂下降时间	8 s
Weight / 整机重量		5500 kg	Telescopic boom extend time / 伸缩臂伸出时间	9 s
Max. working height / 最大工作高度		5.8 m	Telescopic boom retract time / 伸缩臂缩回时间	9 s
Max. horizontal extension / 最大水平延伸		3.4 m	Leveling cylinder extend time / 调平油缸伸出时间	4.5 s
Forward / 前进	First gear speed / 一档车速	9 km/h	Leveling cylinder retract time / 调平油缸缩回时间	4.5 s
	Second gear speed / 二档车速	18 km/h	Boom luffing angle / 臂架变幅角度	-2 ~ 68 °
	Third gear speed / 三档车速	24.5 km/h	Carriage tilt angle / 货叉架倾翻角度	-116 ~ 12 °
Backward / 后退	First gear speed / 一档车速	9 km/h	Min. turning radius / 最小转弯半径	3.3 m
	Second gear speed / 二档车速	18 km/h	Max. braking distance / 最大制动距离	3.4 m
	Third gear speed / 三档车速	24.5 km/h	Towing capacity / 牵引能力	35 kN
Driving type / 驱动模式		Four-wheel driving / 四轮驱动	Max. climbing ability (Unloaded) 理论最大爬坡能力(空载)	45%
Steering type / 转向模式		Four-wheel steering / 四轮转向		



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1.Product introduction(产品介绍)



2.) Machine parameter/ 整机参数

Dimension parameter & Refueling capacity / 尺寸参数 & 加油容量

Item / 项目	Parameter / 参数	Item / 项目	Parameter / 参数
Length / 整机长度	3950 mm	Wheelbase / 轴距	2300 mm
Width / 整机宽度	1820 mm	Front overhang distance / 前悬距	1000 mm
Height / 整机高度	2020 mm	Wheel-track / 轮距	1500 mm
Cab width / 驾驶室宽度	810 mm	Min. ground clearance / 最小离地间隙	260 mm
Front axle gear oil / 前桥齿轮油	6.1 L	Hydraulic oil / 液压油	60 L
Rear axle gear oil / 后桥齿轮油	6.1 L	Antifreeze / 防冻液	12 L
Transfer case gear oil / 分动箱齿轮油	1 L		



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1.Product introduction(产品介绍)



2.) Machine parameter/ 整机参数

Other parameter / 其它参数

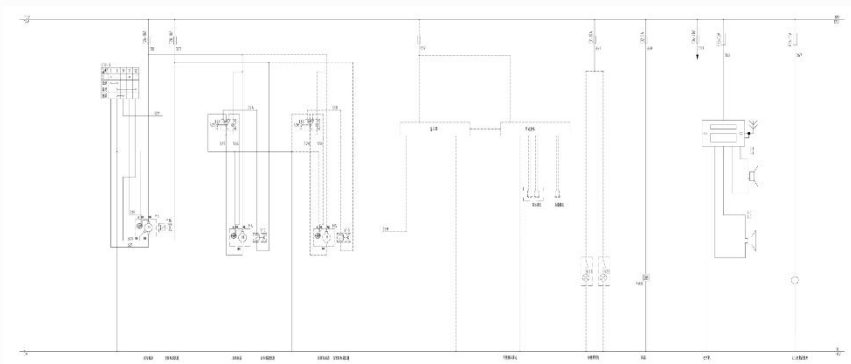
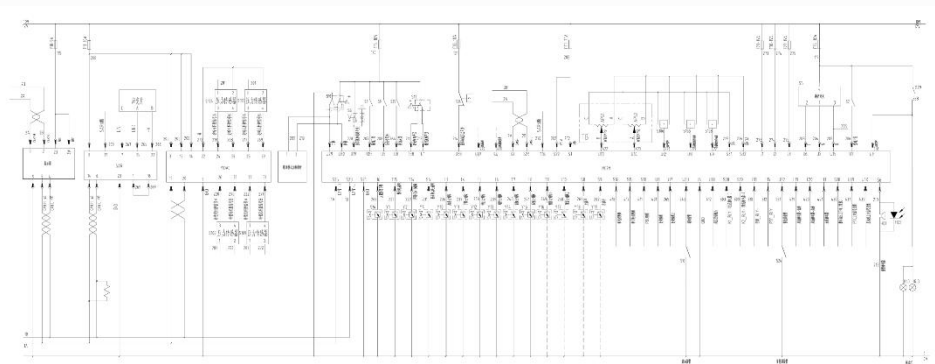
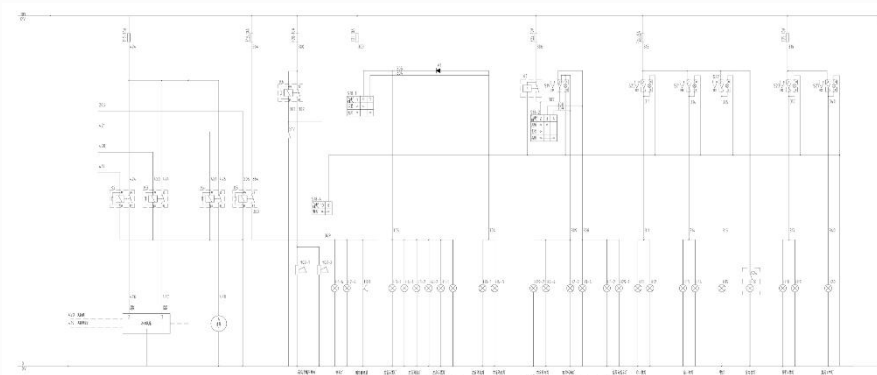
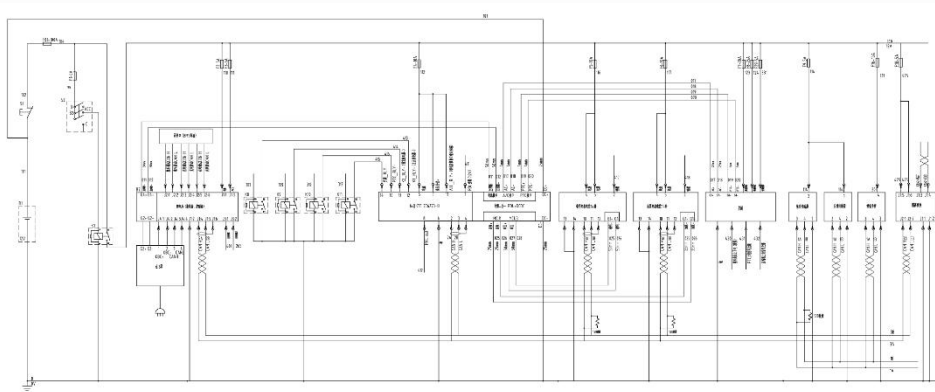
Wheel assembly / 车轮总成	
Tire type / 轮胎类型	Pneumatic Tire
Tire model / 轮胎型号	12-16.5-14PR
Inflation pressure / 充气压力	0.62 MPa
Transmission system / 传动系统	
Transfer case / 分动箱	Speed ratio / 速比: 2.74
Front axle / 前桥	Total speed ratio / 总速比: 18.48
	Braking form: Oil immersed multi disc hydraulic assisted braking 制动型式: 油浸多盘式液压辅助制动
Rear axle / 后桥	Total speed ratio / 总速比: 18.48
	Braking form: Oil immersed multi disc hydraulic assisted braking 制动型式: 油浸多盘式液压辅助制动

Hydraulic system / 液压系统		
Type / 型式		Load sensitivity / 负载敏感
Hydraulic system flow rate / 液压系统流量		75 L/min
Max. working pressure / 最大工作压力		24 MPa
Steer system pressure / 转向系统压力		17.5 MPa
Brake system pressure / 制动系统压力		5 MPa
Electrical system / 电器系统		
Lithium battery / 锂电池	Output voltage / 输出电压	310 V
	Capacity / 容量	150 Ah
	电量	46 kWh
Control system / 控制系统	Voltage / 电压	12 V
Battery / 蓄电池	Output voltage / 输出电压	12 V
	Capacity / 容量	90 Ah
Driving motor / 行走电机	Power / 功率	30 kW
Pump motor / 泵电机	Power / 功率	35 kW

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2.Electric System(电器系统)

1.) Electric principle/ 电气原理 how to recognize/ 原理图解析



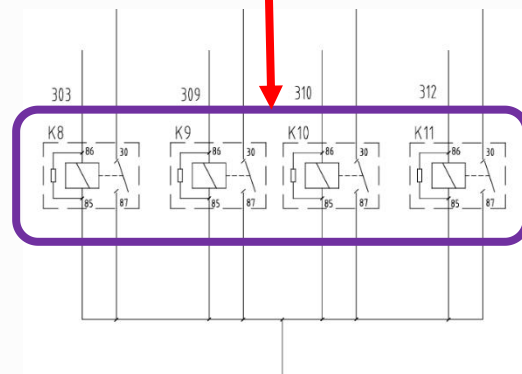
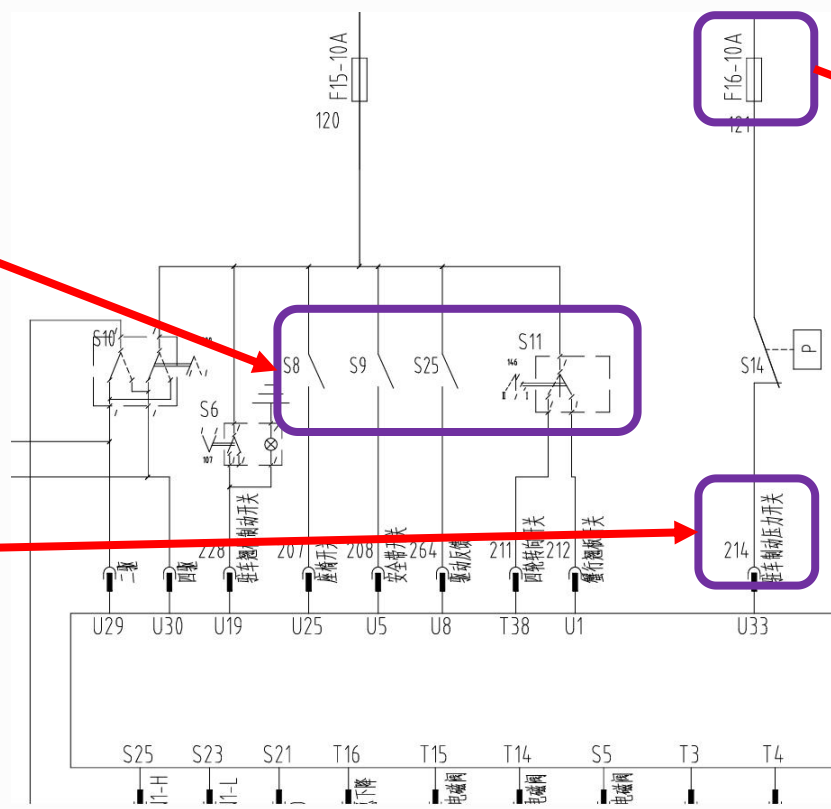
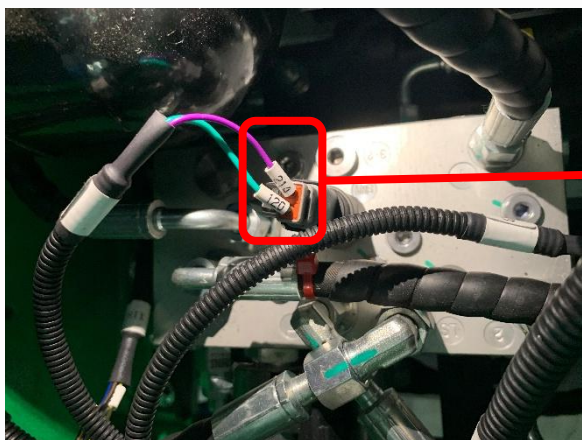
Electric schematic/电气原理图

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2.Electric System(电器系统)

1.) Electric principle/ 电气原理 how to recognize/ 原理图解析

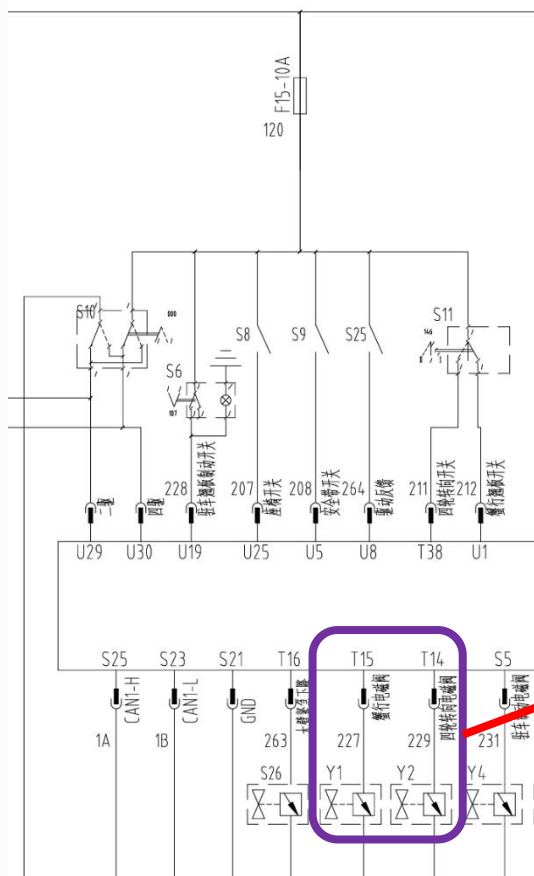
Code **S** means switch ; Code **F** means fuse ; Code **K** means relay ; **Number** means wire NO.
代码 **S** 表示开关 ; 代码 **F** 表示保险丝 ; 代码 **K** 表示继电器 ; **数字** 表示电线线号



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2.Electric System(电器系统)

1.) Electric principle/ 电气原理 how to recognize/ 原理图解析



Code **Y** means solenoid valve
代码 **Y** 表示电磁阀



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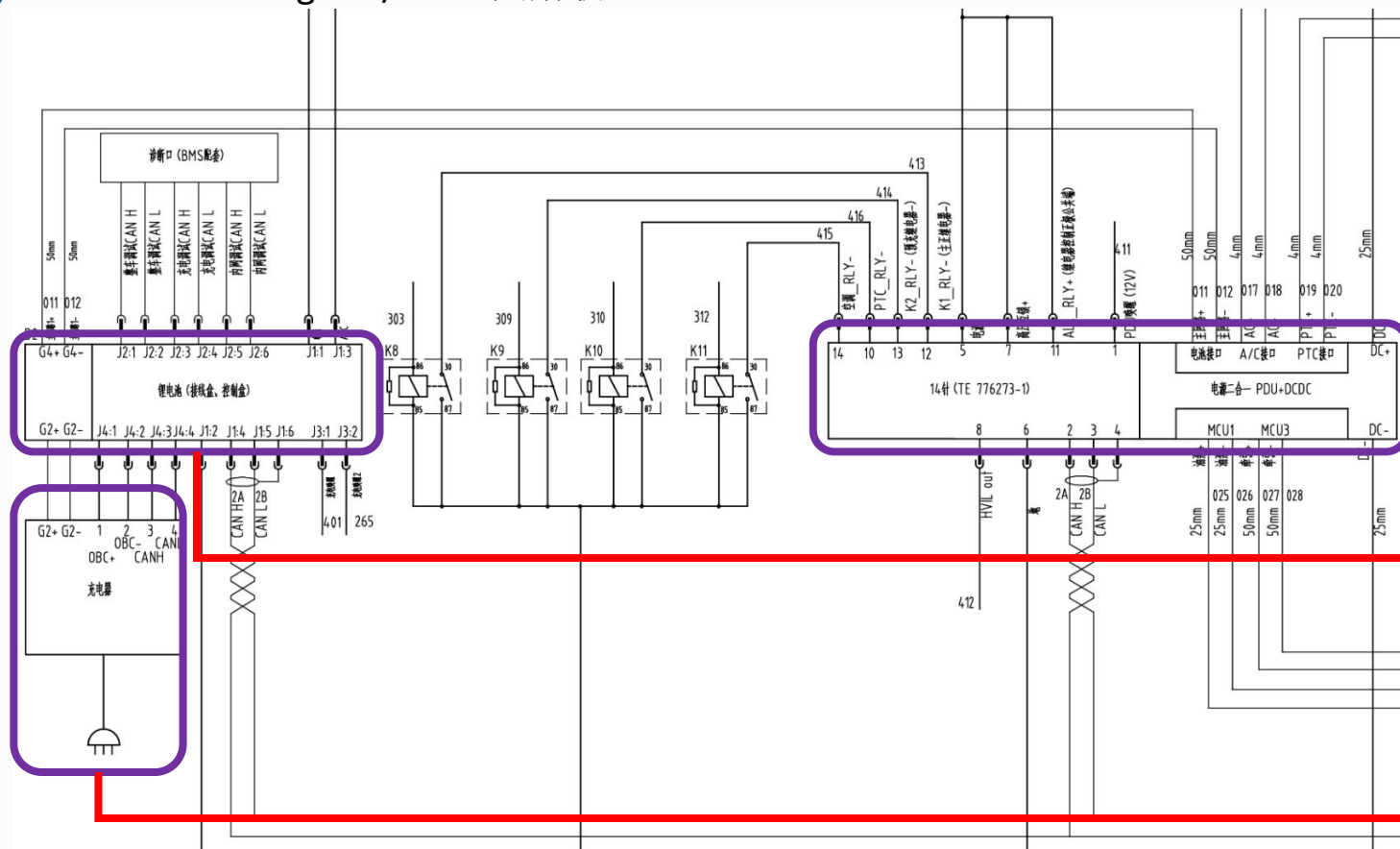
2.Electric System(电器系统)



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1.) Electric principle/ 电气原理

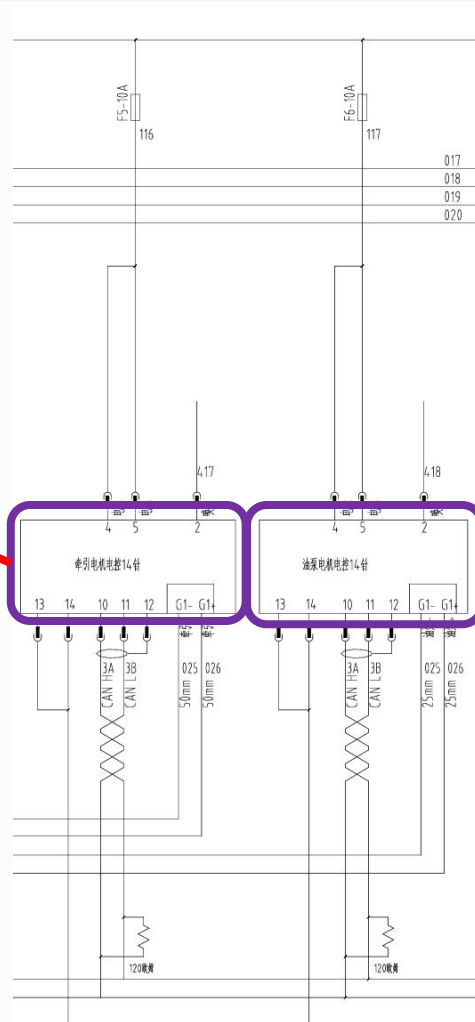
how to recognize/ 原理图解析



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2.Electric System(电器系统)

1.) Electric principle/ 电气原理 how to recognize/ 原理图解析



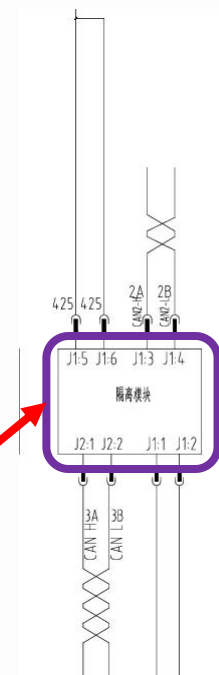
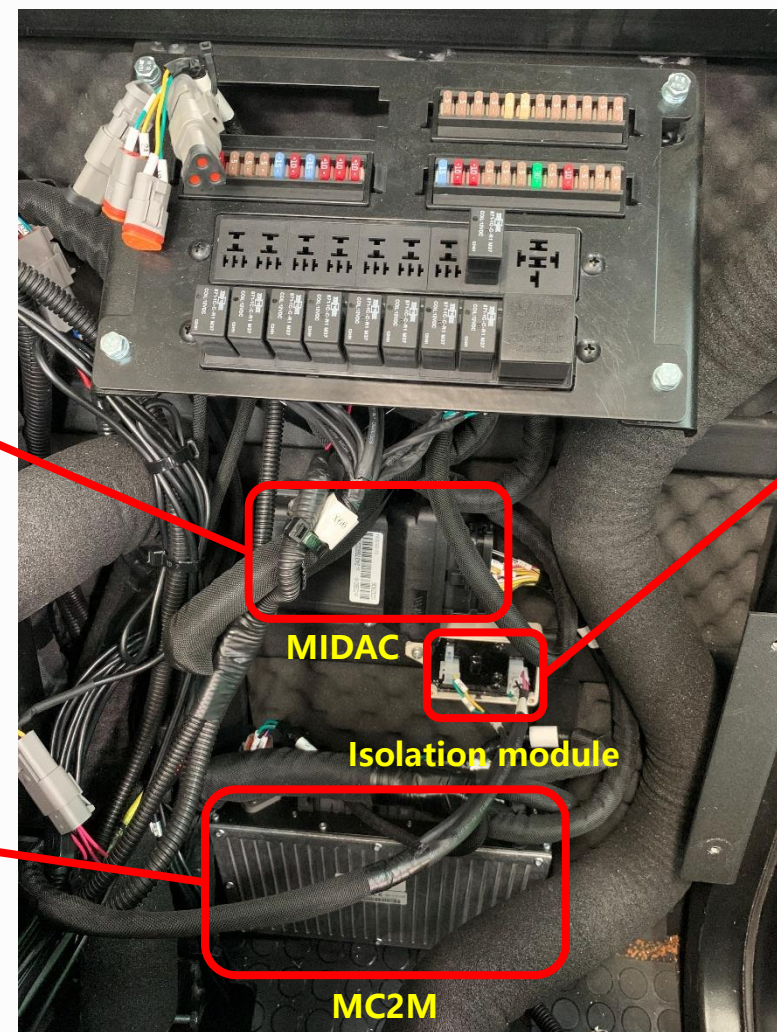
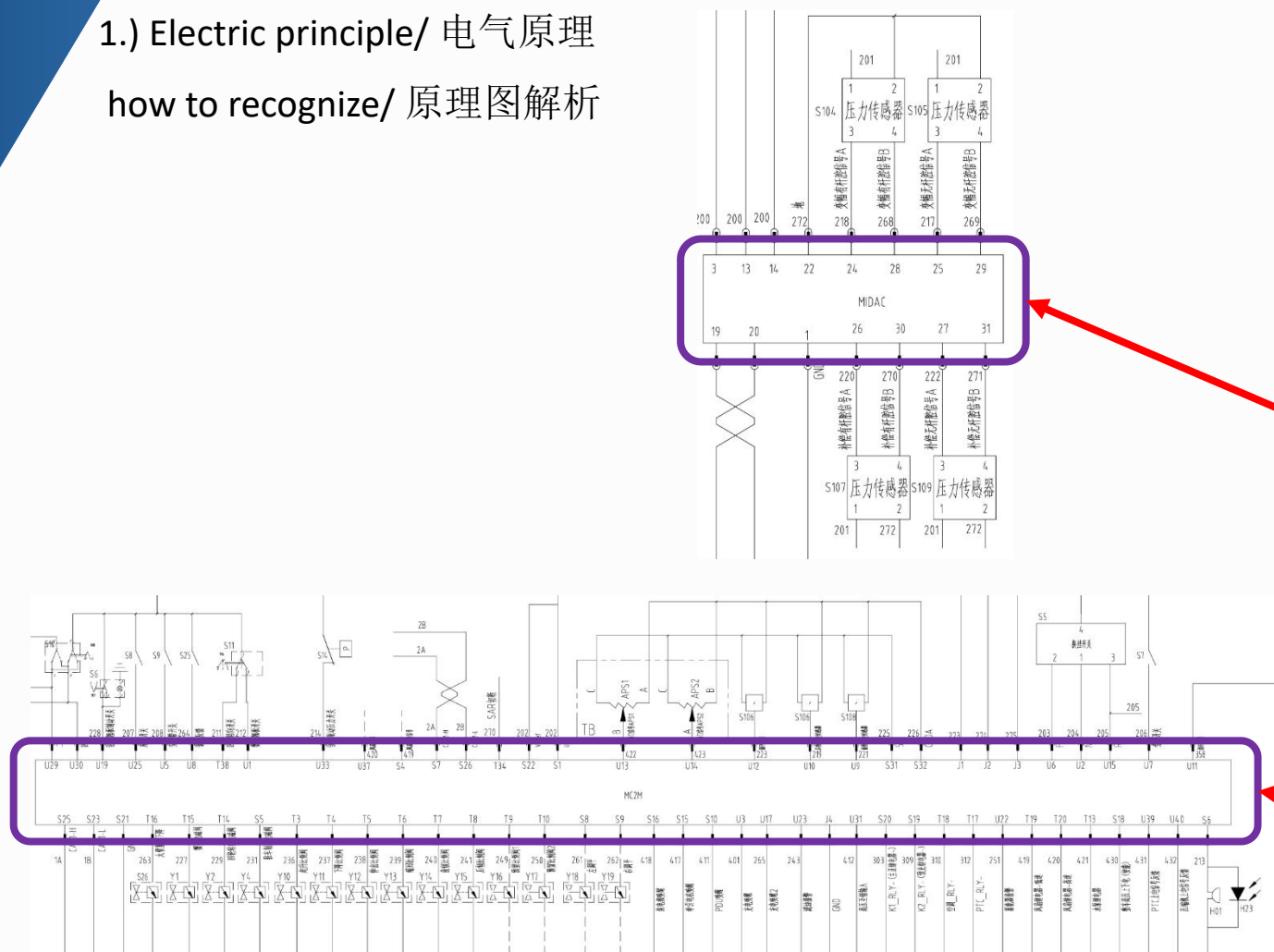
Traction electric motor controller
牵引电机控制器

Hydraulic oil pump electric motor controller
液压油泵电机控制器

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2.Electric System(电器系统)

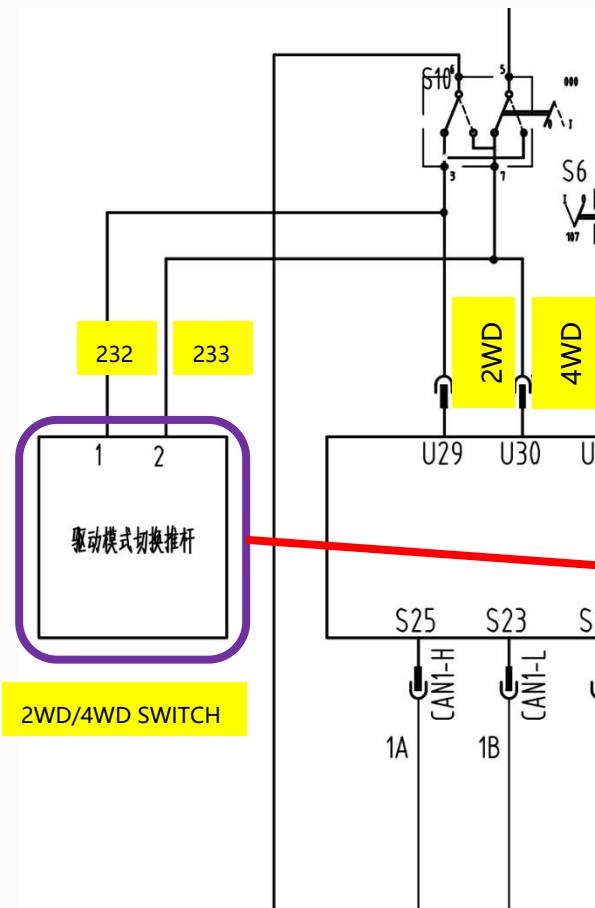
1.) Electric principle/ 电气原理 how to recognize/ 原理图解析



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1.) Electric principle/ 电气原理

how to recognize/ 原理图解析

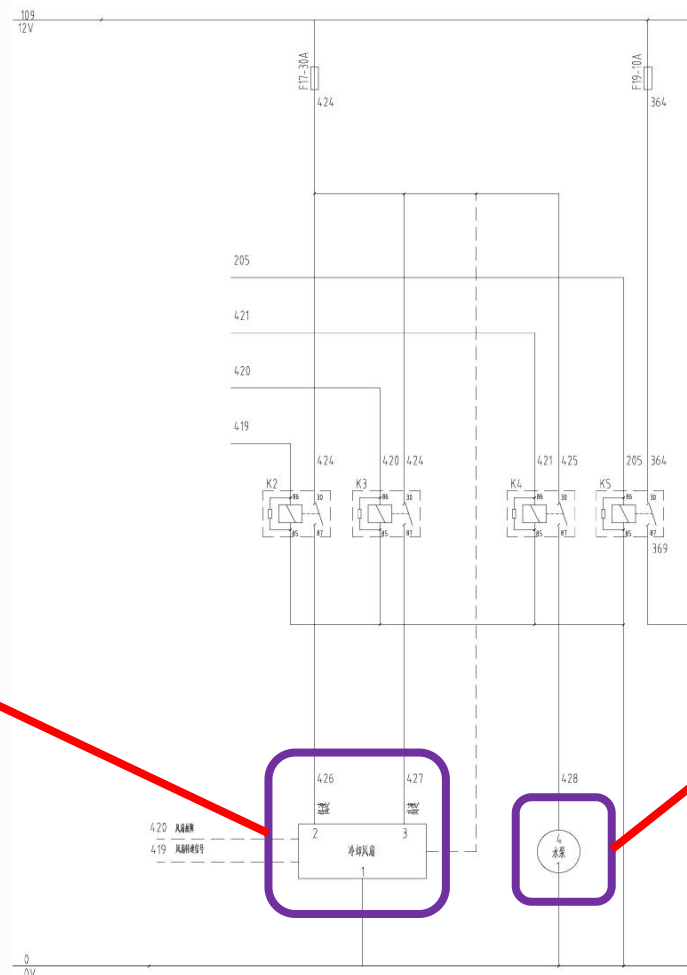


2.Electric System(电器系统)

1.) Electric principle/ 电气原理 how to recognize/ 原理图解析



Coolant fan
冷却风扇



Water pump
水泵

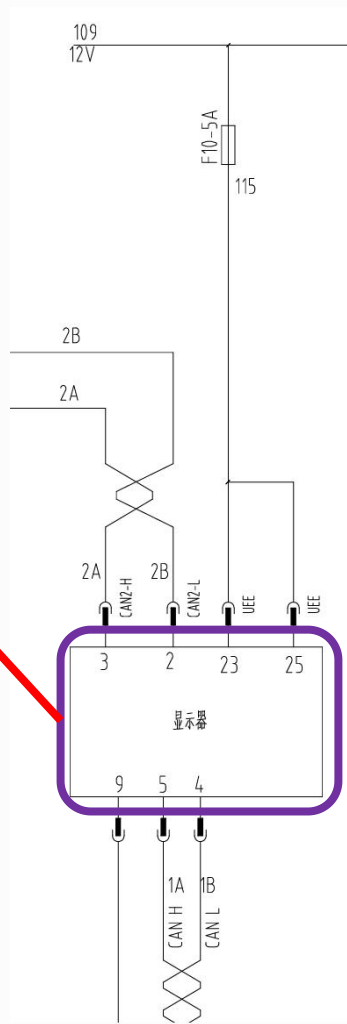


2.Electric System(电器系统)

1.) Electric principle/ 电气原理 how to recognize/ 原理图解析



Display
显示器



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2.Electric System(电器系统)

2.) Lithium Battery / 锂电池

Temperature characteristics of battery / 电池温度特性

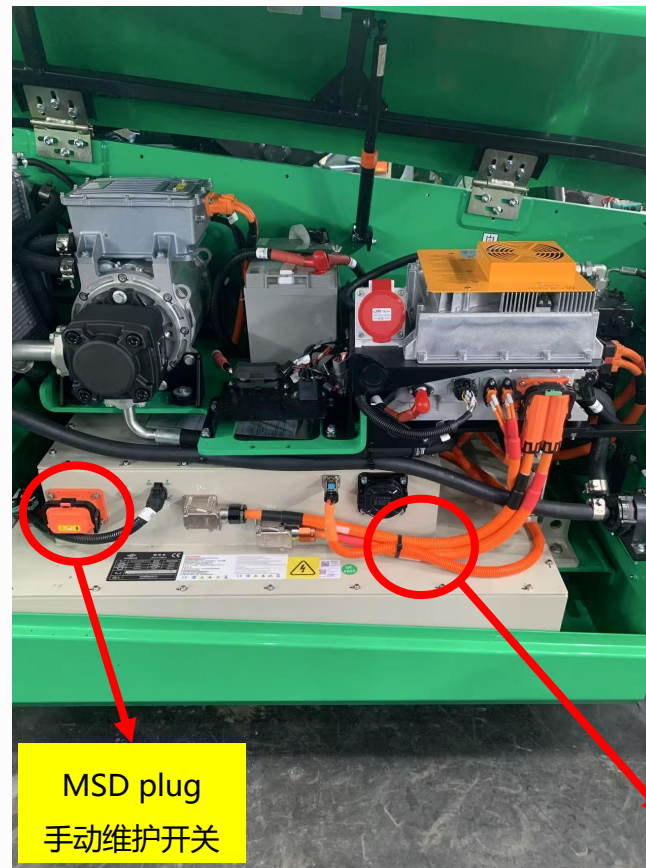
- Working environment temperature / 工作环境温度： $-25^{\circ}\text{C} \sim 55^{\circ}\text{C}$
- Permissible charging temperature / 允许充电温度： $0^{\circ}\text{C} \sim 55^{\circ}\text{C}$
- Permissible discharge temperature / 允许放电温度： $-28^{\circ}\text{C} \sim 55^{\circ}\text{C}$
- Storage environment temperature / 储存环境温度： $-28^{\circ}\text{C} \sim 55^{\circ}\text{C}$

When the temperature of the power is **below -30°C or above 65°C** , the power battery can not start charging. Only after preheating or cooling the power battery to a suitable temperature, the charging can be active.

当动力电池温度**低于 -30°C 或高于 65°C** 时，动力电池无法开始充电。只有将动力电池预热或冷却到适宜温度后，才可以充电。

Wear protective equipment and use insulated tools during disassembly/assembly processes; Before maintenance, **the MSD switch must be unplugged and wait for 15~20 minutes** to power off the high voltage system.

所有拆装过程中需要佩戴防护用具，并使用绝缘工具；维修前**必须先拔出MSD维修开关并等待15~20分钟**使高压系统断电。



MSD plug
手动维护开关

MSD: Manual Service Disconnect

Warning: The orange cable are all high voltage
注意事项：橙色电线皆为高压电



2.Electric System(电器系统)

3.) Hydraulic oil motor & Controller / 液压油泵电机及控制器



MCU: Motor Control Unit / 电机控制器



PMSM: Permanent Magnetic Synchronize Motor / 永磁同步电机

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2.Electric System(电器系统)

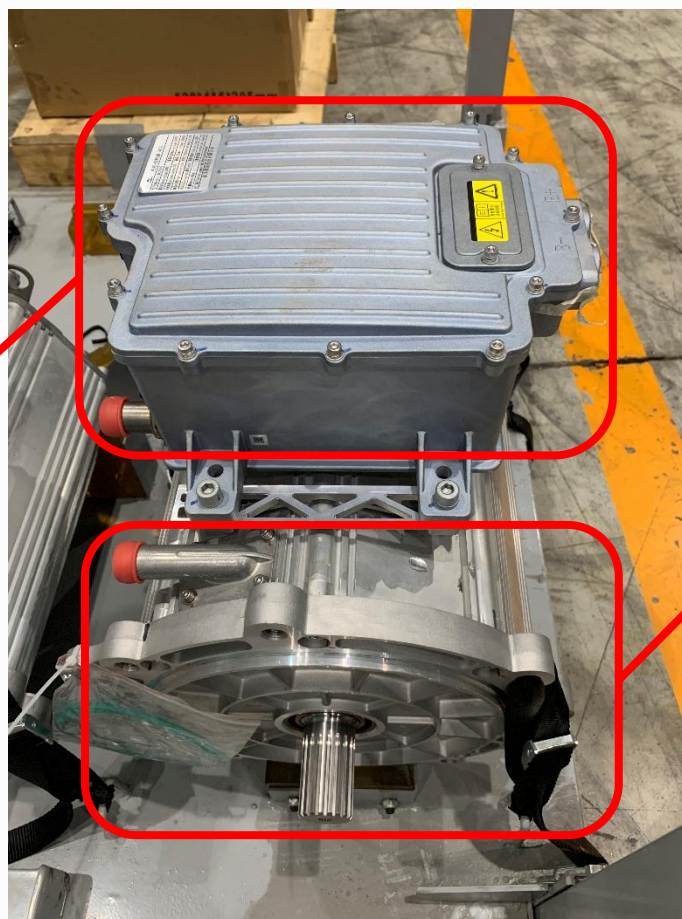


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4.) Traction motor & Controller / 液压油泵电机及控制器



MCU: Motor Control Unit / 电机控制器



PMSM: Permanent Magnetic Synchronize Motor / 永磁同步电机

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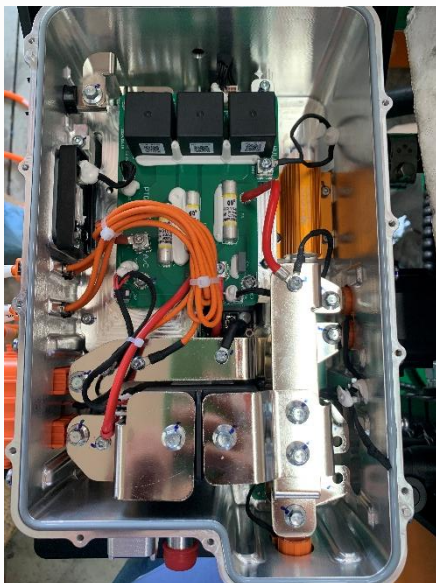
2.Electric System(电器系统)

5.) PDU+DCDC & Charger/ 车载电源 & 充电机

产品名称	车载电源二合一总成
产品型号	PSU0025-336-031
DCDC输出功率	额定2kW, 峰值2.4kW@6min
防护等级	IP67
产品编号	202410180020
制造厂商	杭叉集团股份有限公司



PDU+DCDC
车载电源二合一总成



PDU: Power Distribution Unit / 电源分配单元

DCDC: DC to DC converter / 直流变换器



OBC
充电器

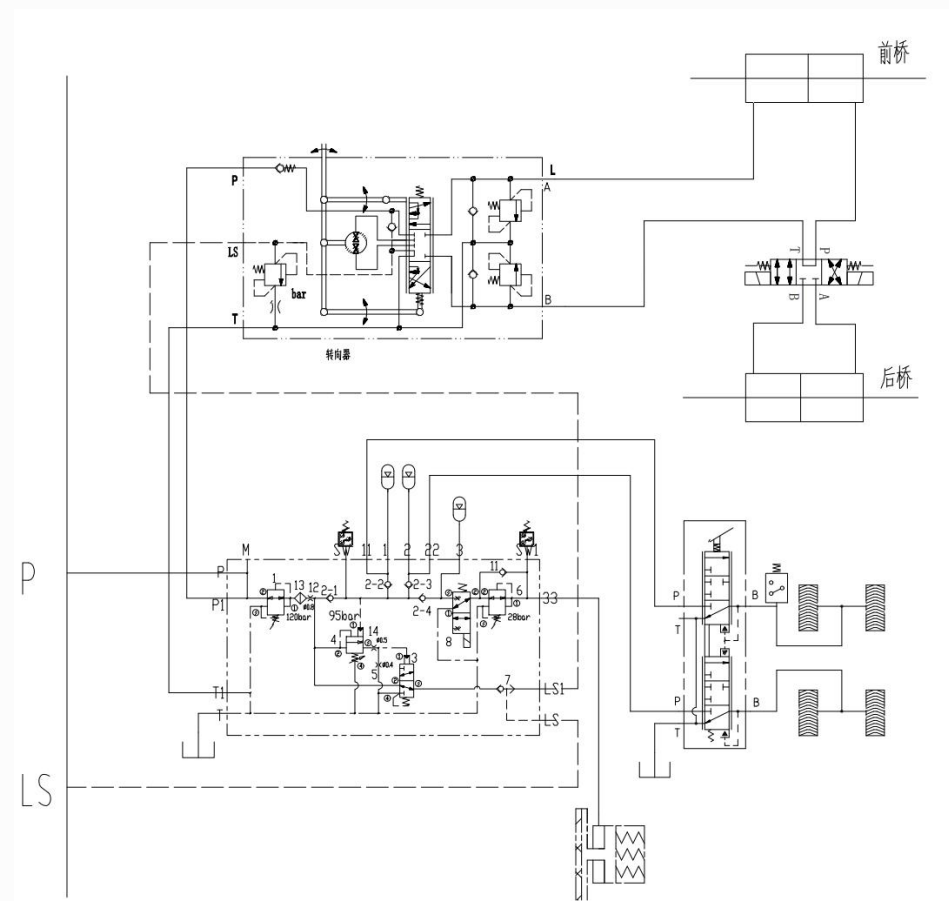
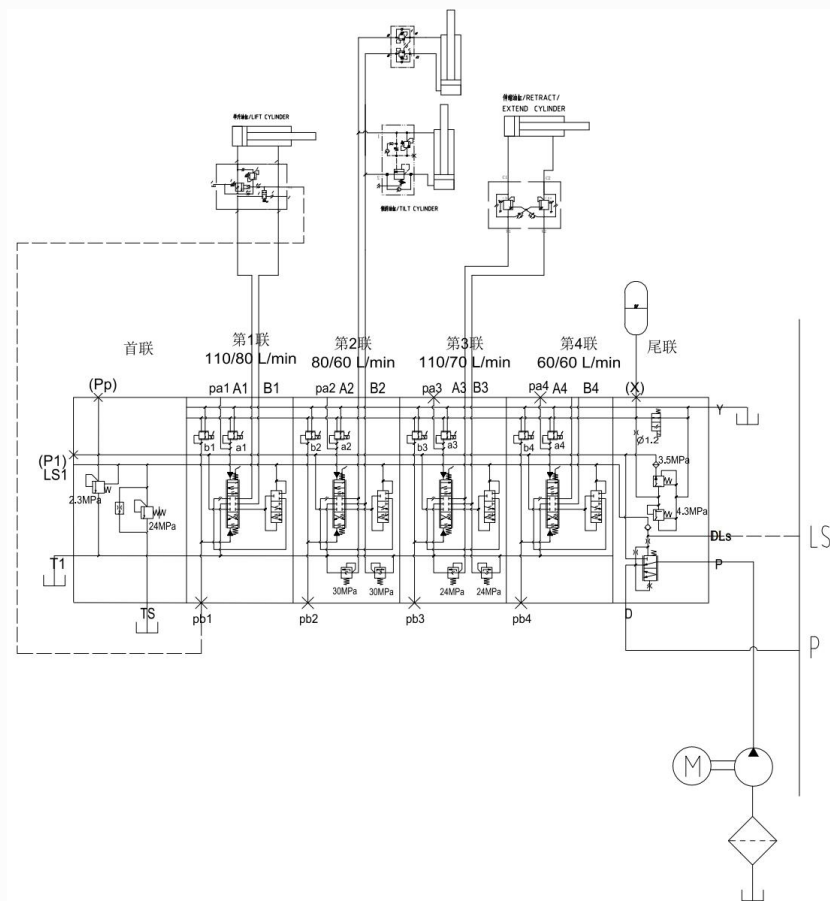
OBC: On Board Charger / 车载充电器



3. Hydraulic System(液压系统)

1.) Hydraulic principle/ 液压原理

how to recognize/ 原理图解析



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3.Hydraulic System(液压系统)



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1.) Hydraulic principle/ 液压原理

how to recognize/ 原理图解析

Y17 : Null / 预留

Y16 : Null / 预留

Y13 : Retract proportion valve / 缩回比例阀

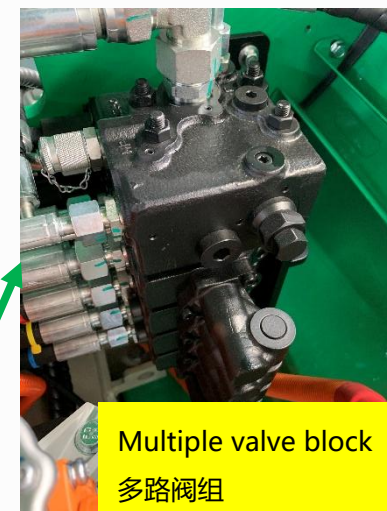
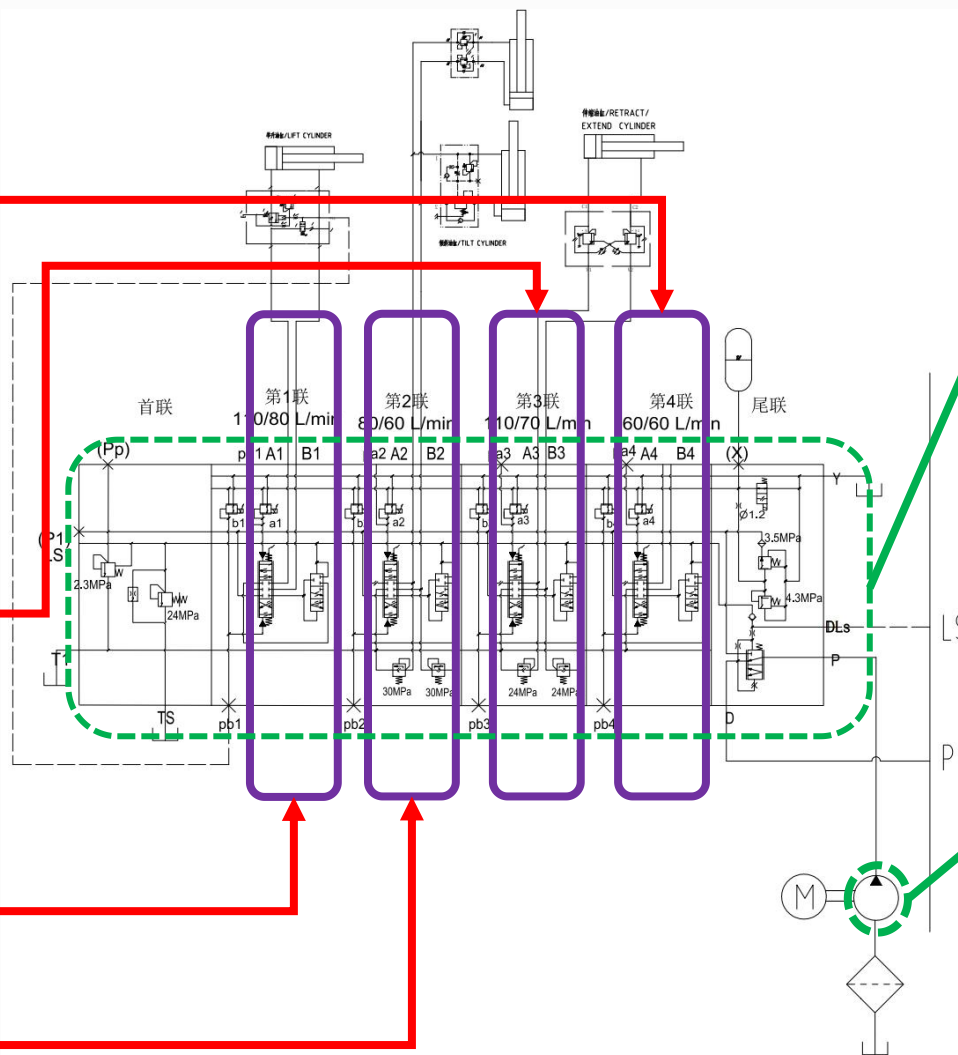
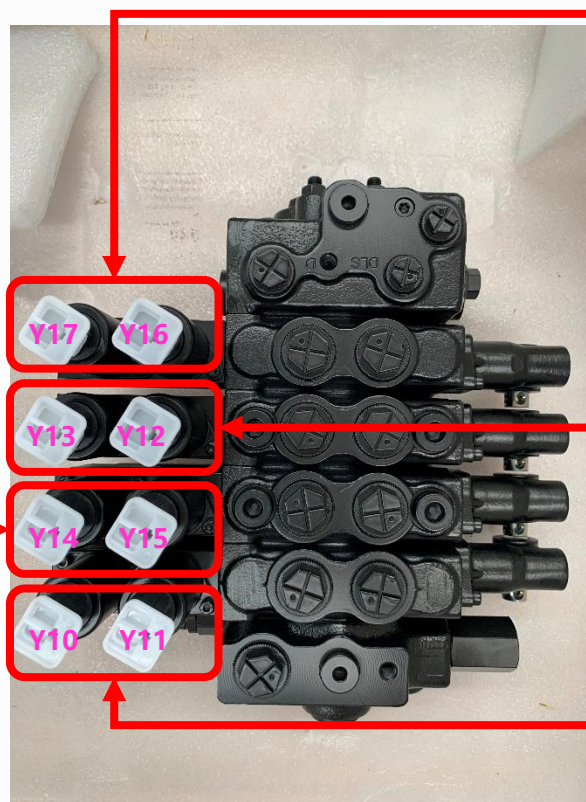
Y12 : Extend proportion valve / 伸出比例阀

Y14 : Tilt forward proportion valve / 前倾比例阀

Y15 : Tilt backward proportion valve / 后倾比例阀

Y10 : Upper proportion valve / 起升比例阀

Y11 : Lower proportion valve / 下降比例阀



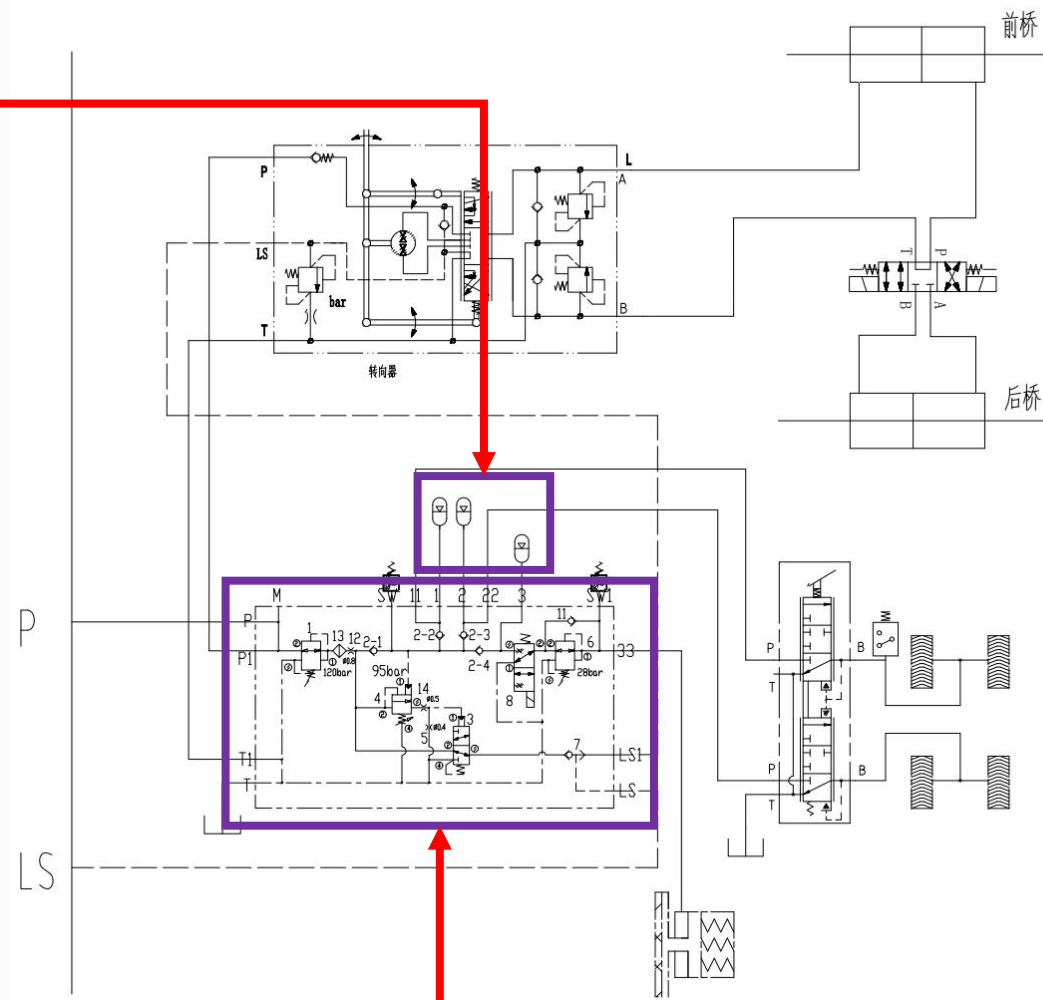
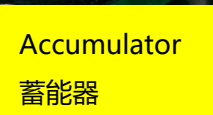
Multiple valve block
多路阀组



Hydraulic pump
液压油泵

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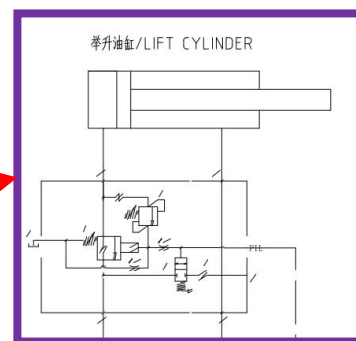
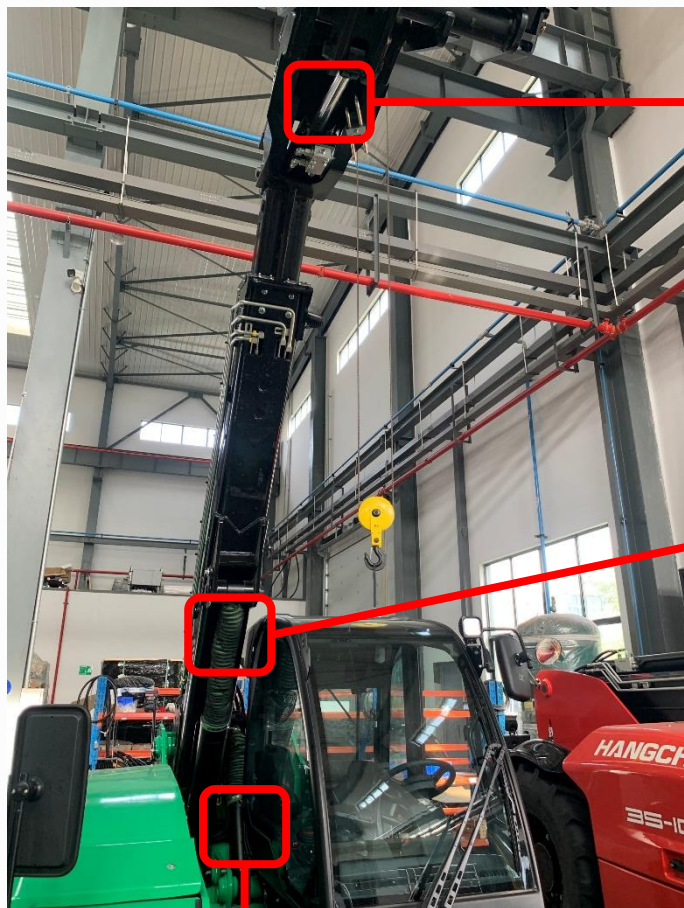
how to recognize/ 原理图解析



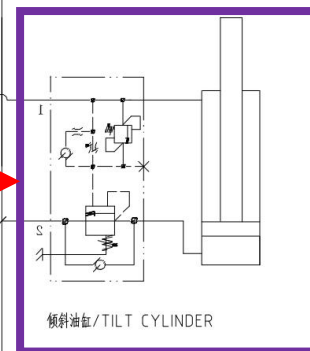
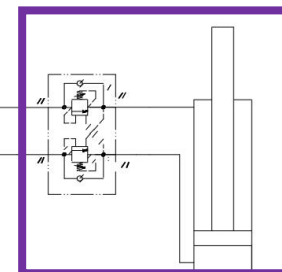
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3. Hydraulic System (液压系统)

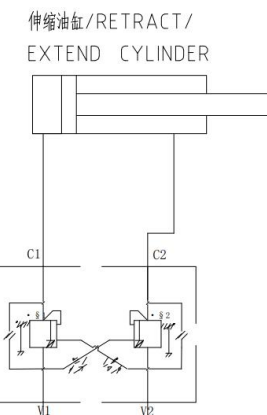
2.) Cylinder / 油缸



Luffing cylinder
举升油缸



Tilt cylinder
倾斜油缸

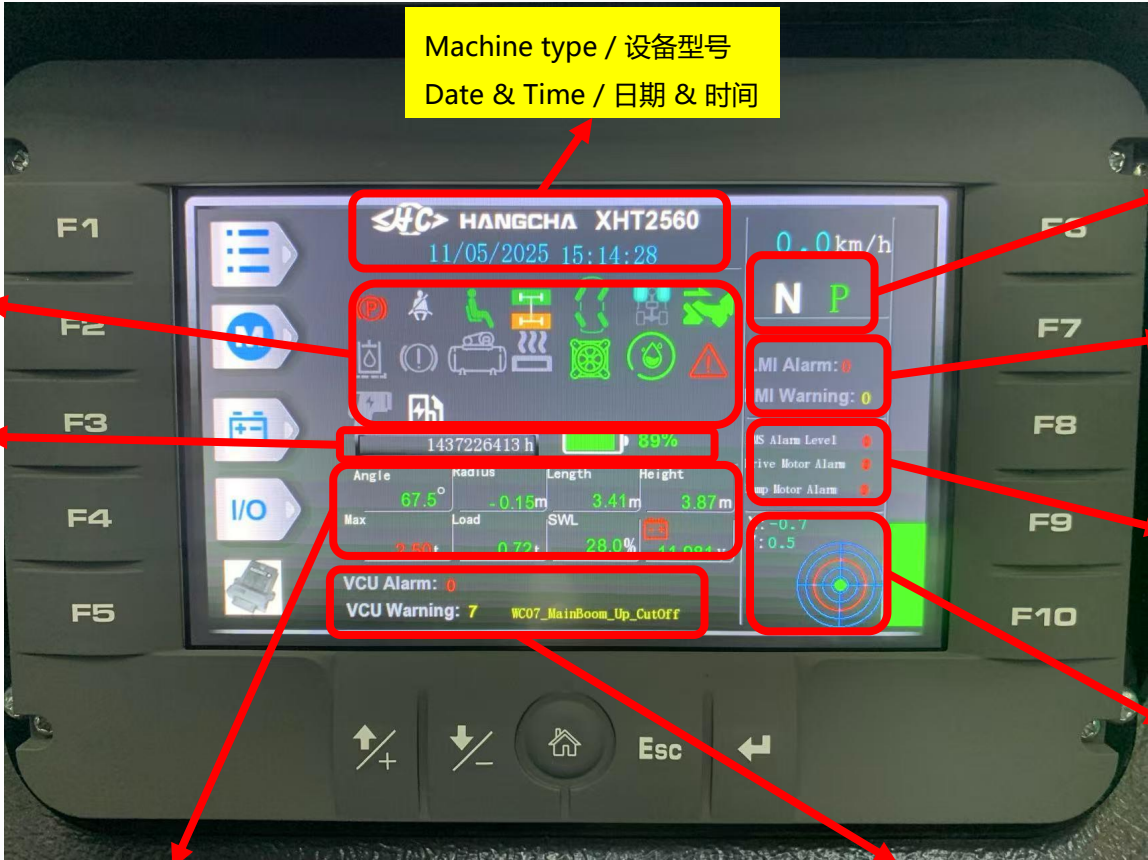


Telescope cylinder
伸缩油缸

4. Monitor Function (显示屏功能)



1.) Monitor interface/ 显示屏界面



Icons indicator / 符号显示区

Accumulated working time & Battery percentage
累计工作小时 & 电量

Machine driving status
车辆行走状态

LMI alarm & warning
力矩限制器故障和报警提示

BMS、Pump motor、Driving Motor alarm
BMS、泵电机、行走电机故障和报警提示

Machine chassis tilt angle
车辆底盘倾斜角度显示

LMI parameter
力矩限制器参数显示区

VCU alarm & warning
VCU故障和报警提示

F1	Enter the main menu interface 进入主菜单界面
F2	Enter the driving display interface 进入行走显示界面
F3	Enter the battery display interface 进入电池显示界面
F4	Enter the controller diagnostic interface 进入车辆控制器诊断界面
F6	Switch the driving speed mode: Slow mode(E);Normal mode(P);Fast mode(S) 切换车辆行驶速度: 慢档(E);常规档(P);快速档(F)
F5/F7/F8/F9/F10	Null / 无

4. Monitor Function (显示屏功能)



2.) Icon definition/ 图标介绍



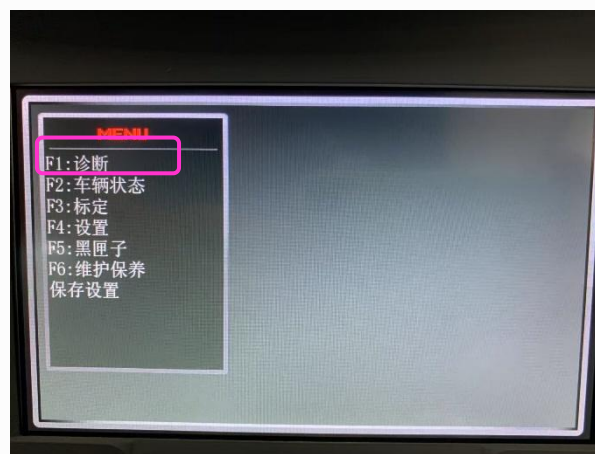
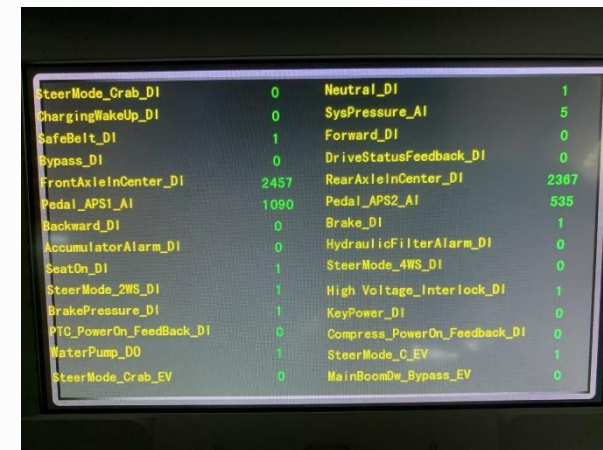
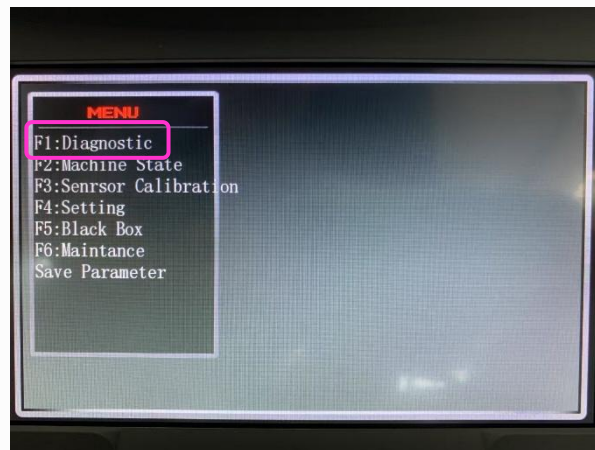
Icon / 图标	Item / 描述	Description / 说明
	Parking / 驻车状态	Red: on ; Grey: off / 红色：开启；灰色：关闭
	Seat belt / 安全带状态	Red: Non fasten ; Grey : fasten / 红色：未系；灰色：已系
	Person in seat / 座椅状态	Green : On ; Grey : Off / 绿色：有人；灰色：无人
	Front & Rear wheel alignment 前后轮对中	While the front & rear wheel aligned, the steering mode can be activated. 前后轮已对中，该状态下可切换车辆转向模式
	Steer mode / 转向模式	Front wheel steer / Crab steer / Front & Rear steer 前轮转向 / 蟹行转向 / 前后轮转向
	Two / Four wheel drive mode 两轮/四轮驱动模式	Only front wheel driving / All wheel driving 仅前轮驱动/四轮驱动
	Braking / 刹车状态	Green : Off ; Grey: on / 绿色：未踩刹车；灰色：已踩刹车
	Engine oil filter / 机油油滤故障	Red : Malfunction ; Grey: Normal / 红色：故障；灰色：正常
	Accumulator / 蓄能器故障	Red : Malfunction ; Grey: Normal / 红色：故障；灰色：正常
	Air compressor / 空压机	Green : On ; Grey: Off / 绿色：打开；灰色：关闭
	PTC / PTC状态	Green : On ; Grey: Off / 绿色：打开；灰色：关闭
	Cooling fan / 散热风扇	Green : On ; Grey: Off / 绿色：打开；灰色：关闭
	Water cooling system / 水冷系统	Green : On ; Grey: Off / 绿色：打开；灰色：关闭
	System fault / 系统故障	Red : Malfunction ; Grey: Normal / 红色：故障；灰色：正常
	Charging / 充电状态 Fast charge & Slow charge / 快充 & 慢充	Green : On ; Grey: Off / 绿色：打开；灰色：关闭

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4. Monitor Function (显示屏功能)

3.) Main MENU interface/ 主菜单界面

Diagnostic / 诊断

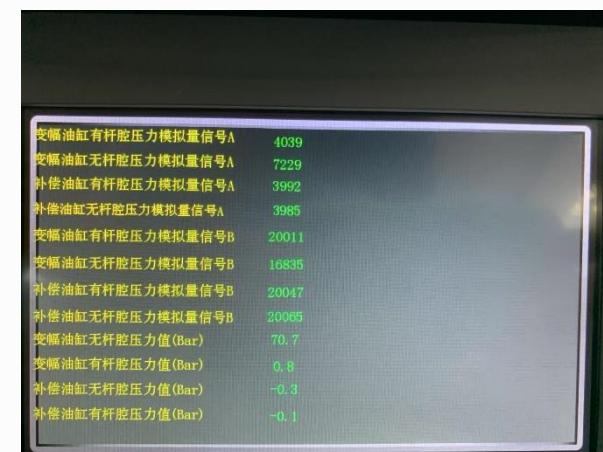
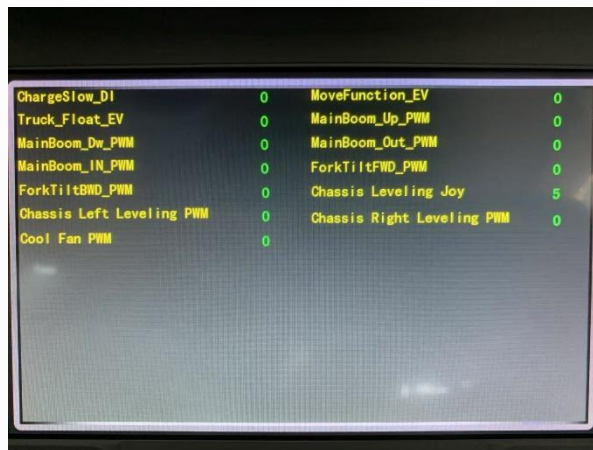


Service is our business!

4. Monitor Function (显示屏功能)

3.) Main MENU interface/ 主菜单界面

Diagnostic / 诊断

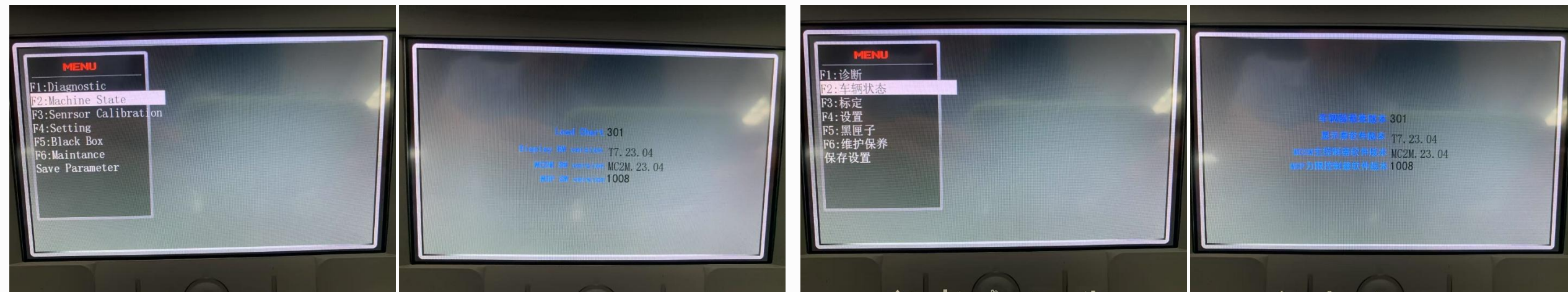


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4. Monitor Function (显示屏功能)

4.) Main MENU interface/ 主菜单界面

Machine State / 车辆状态

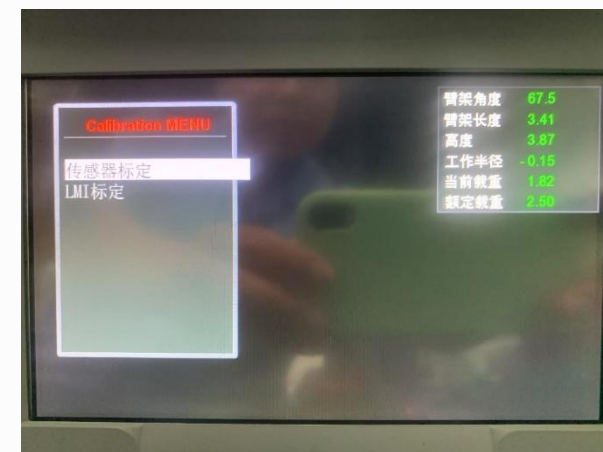
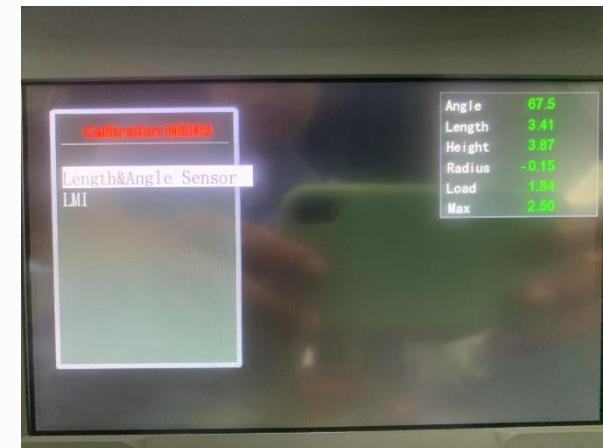
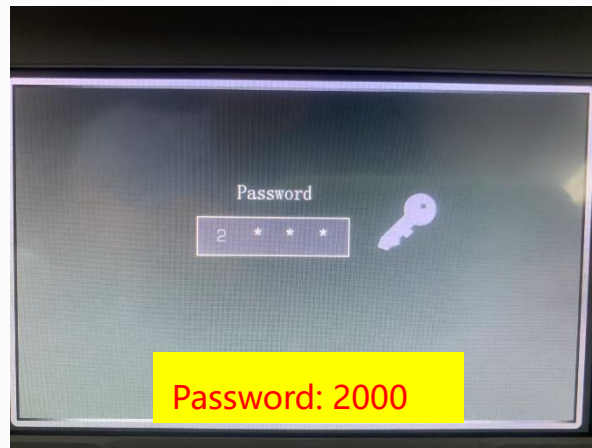
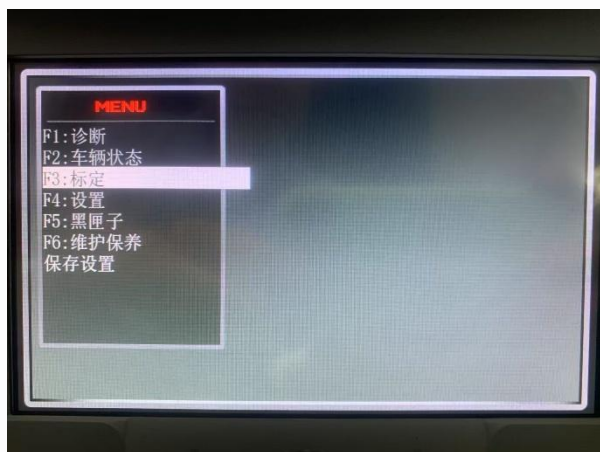
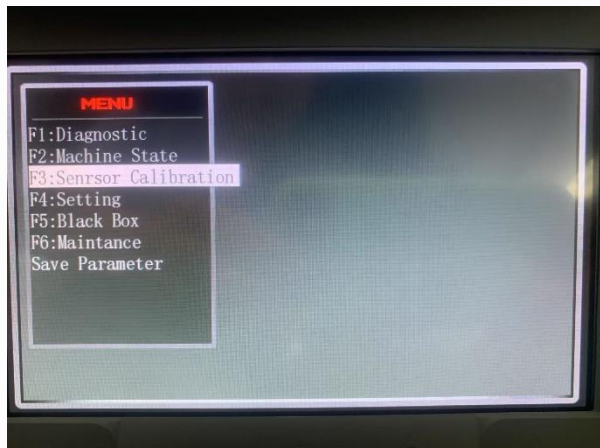


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4. Monitor Function (显示屏功能)

5.) Main MENU interface/ 主菜单界面

Sensor calibration / 标定

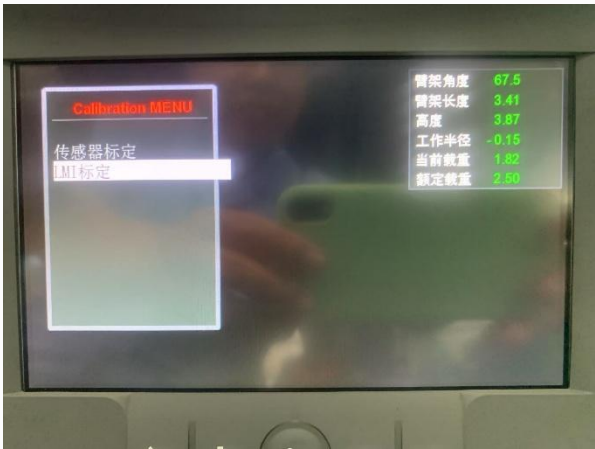


4. Monitor Function (显示屏功能)



5.) Main MENU interface/ 主菜单界面

Sensor calibration / 标定

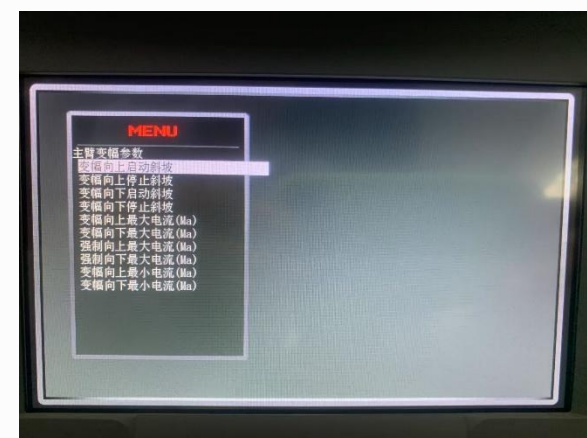
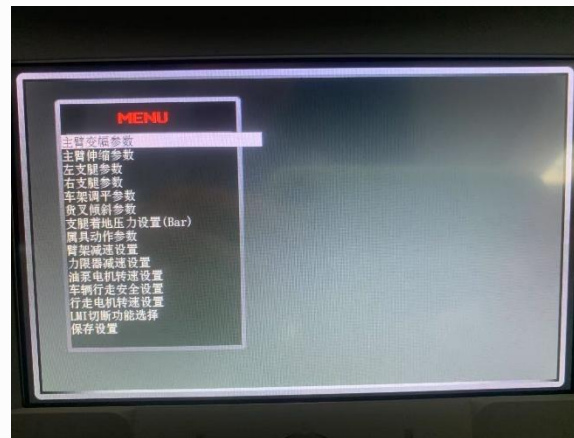
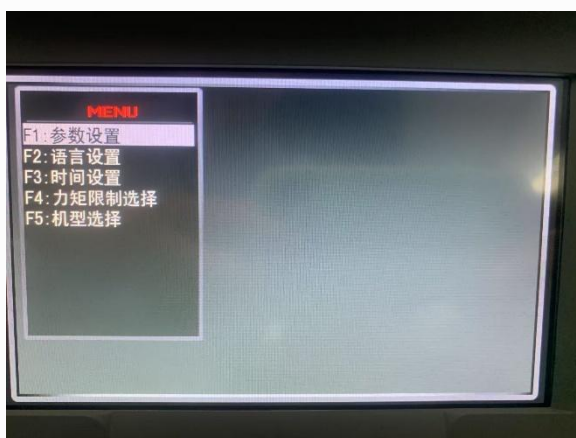
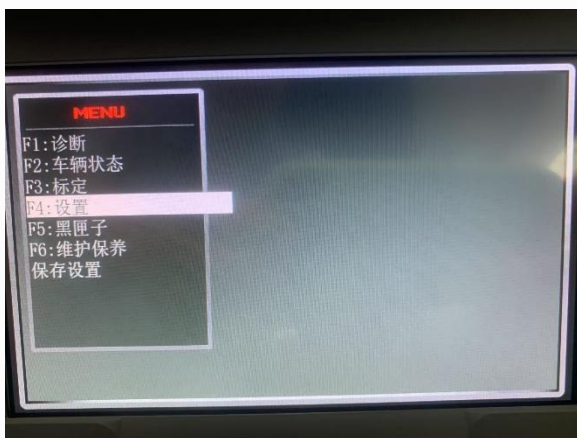
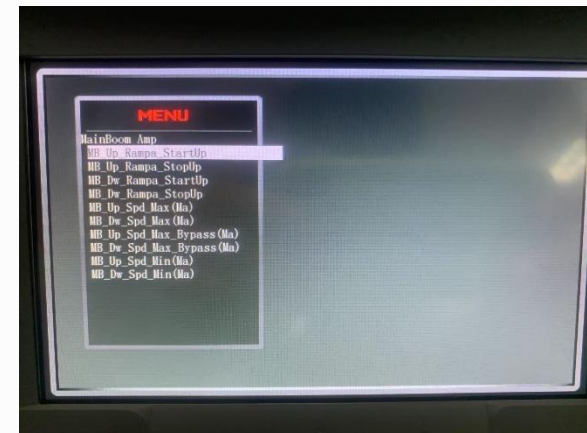
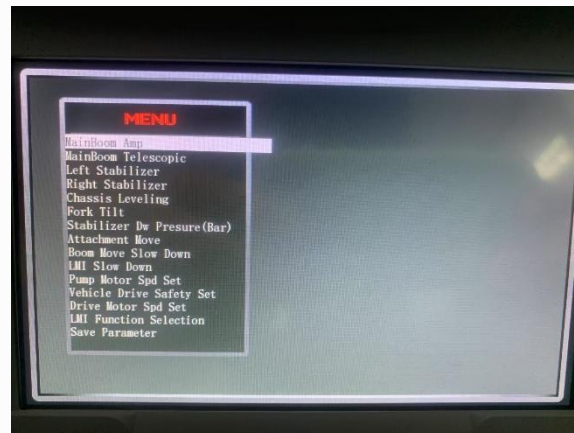
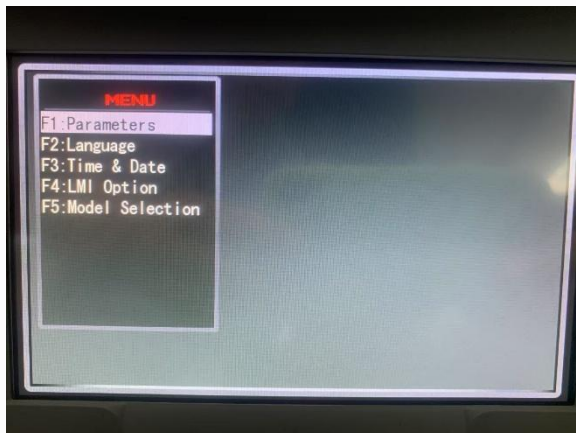
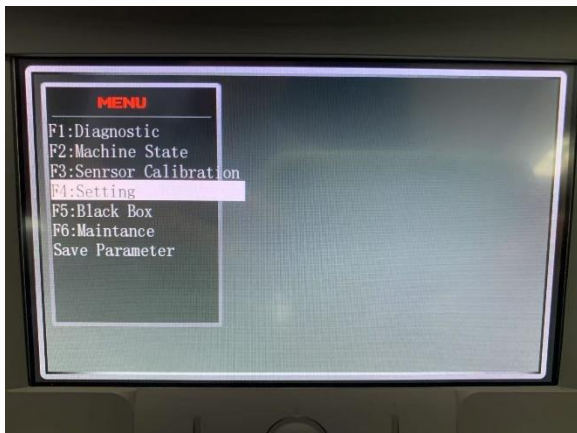


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4. Monitor Function (显示屏功能)

6.) Main MENU interface/ 主菜单界面

Setting / 设置

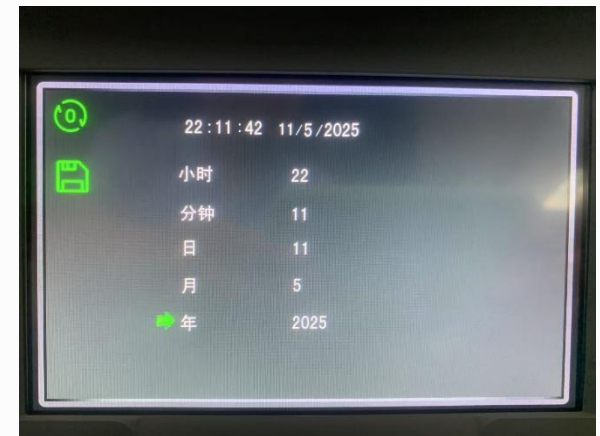
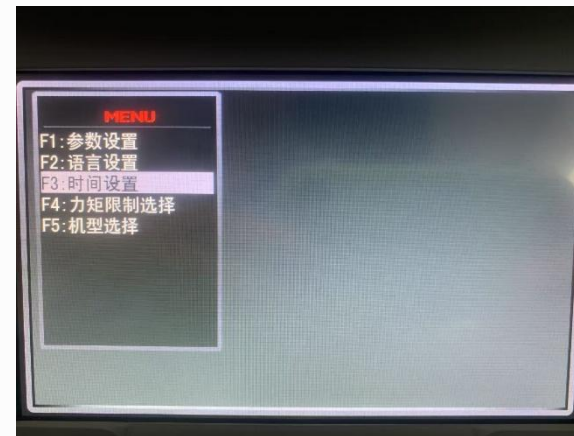
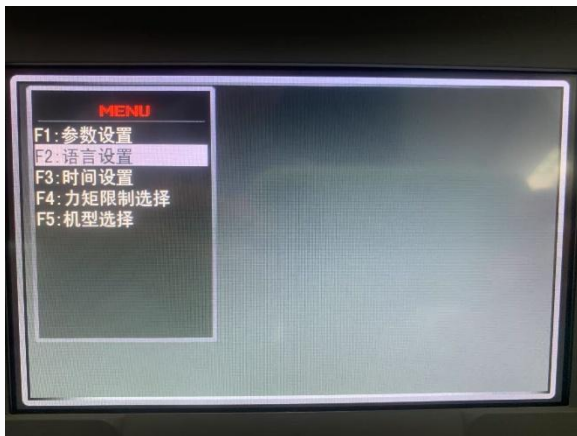
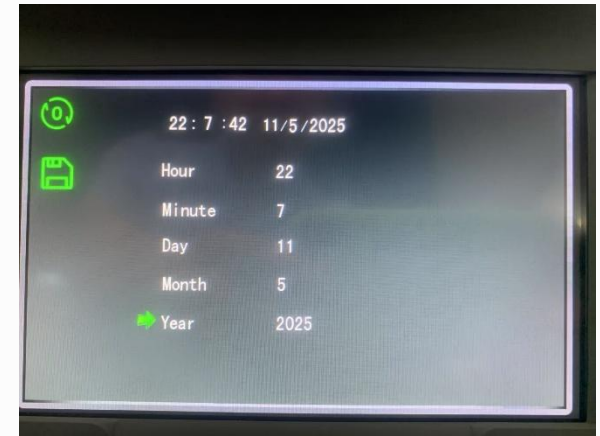
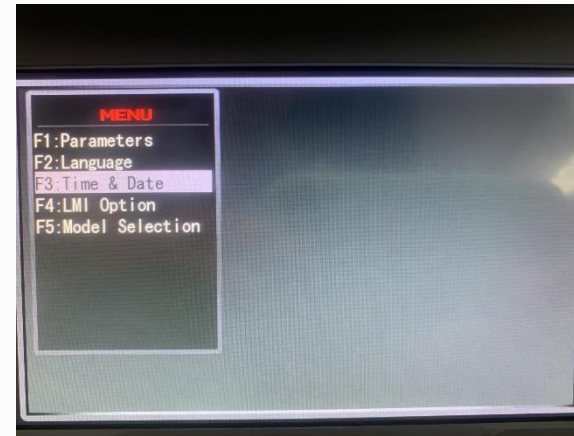
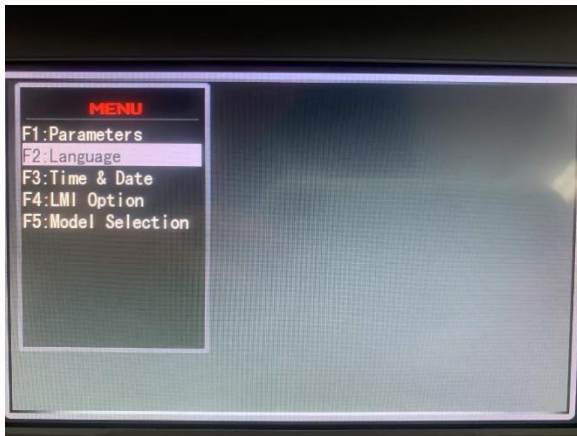


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4. Monitor Function (显示屏功能)

6.) Main MENU interface/ 主菜单界面

Setting / 设置



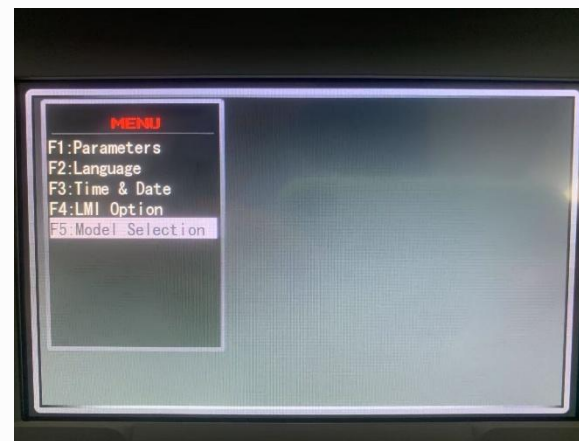
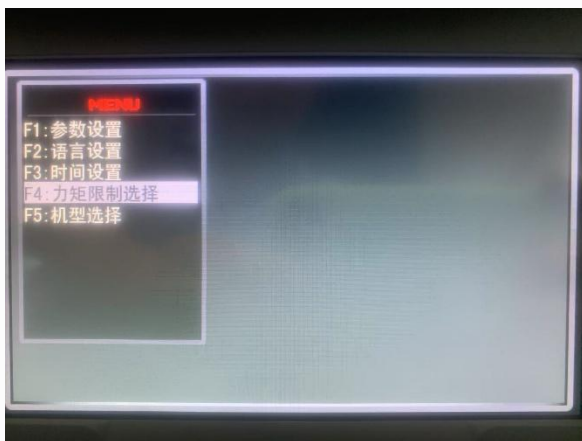
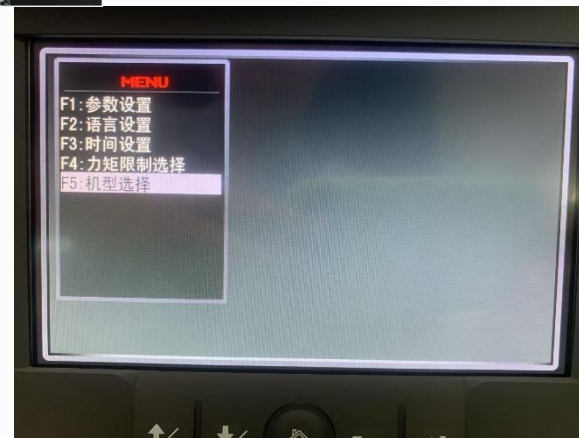
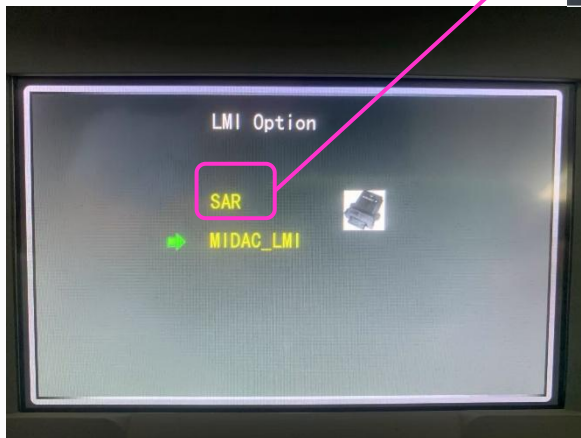
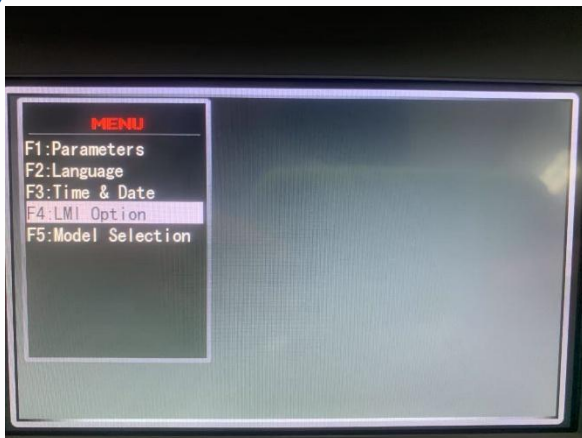
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4. Monitor Function (显示屏功能)

6.) Main MENU interface/ 主菜单界面

Setting / 设置

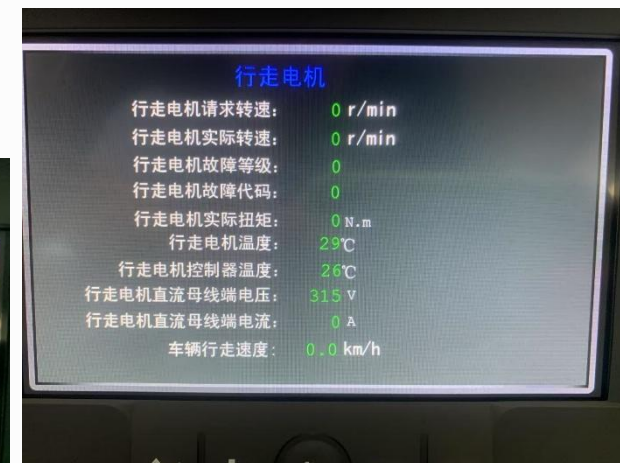
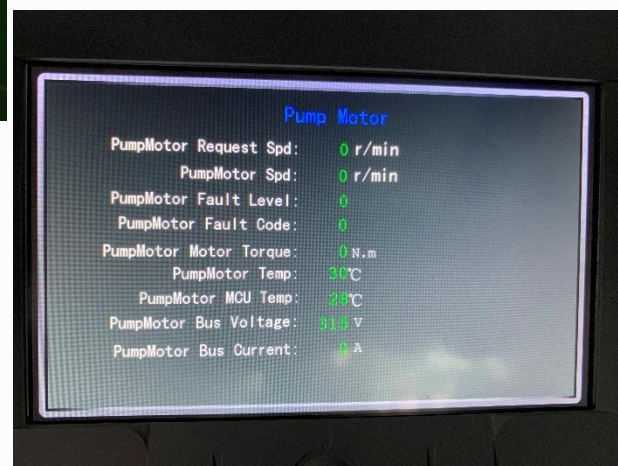
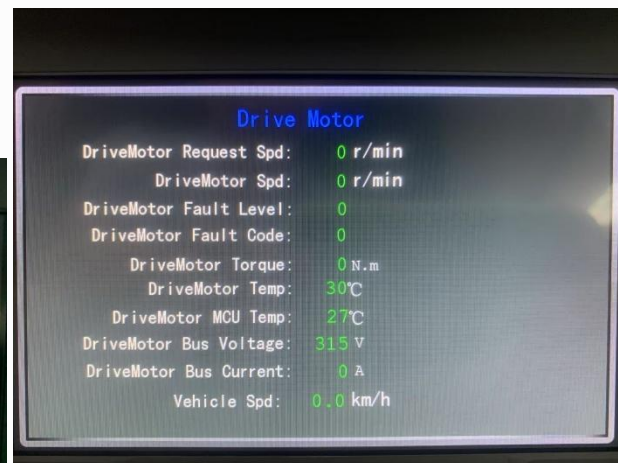
Tips: SAR (Longitudinal Stability Limit Device) function is optional
SAR(纵向稳定性限制装置) 功能为选配项



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4. Monitor Function (显示屏功能)

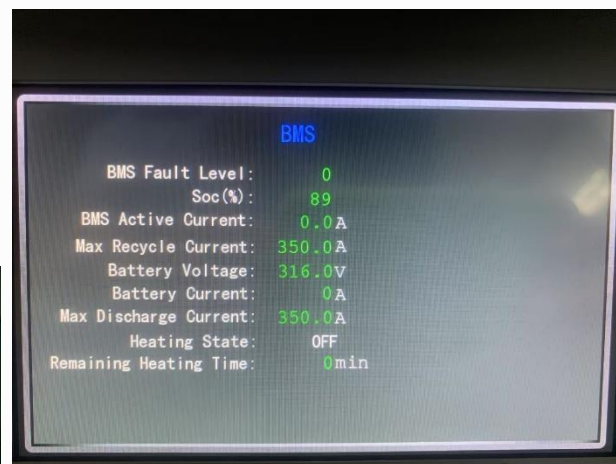
7.) Motor display interface/ 马达显示界面



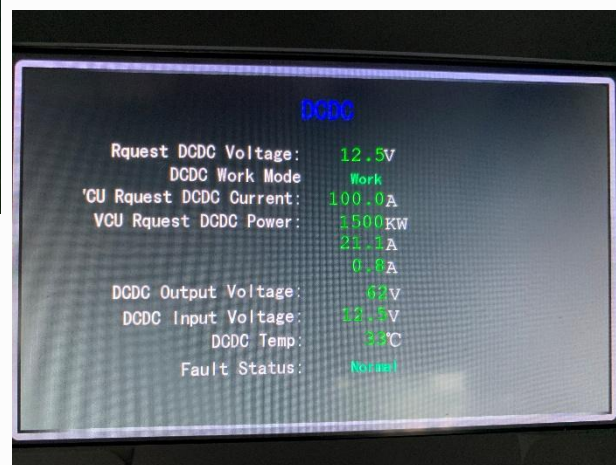
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4. Monitor Function (显示屏功能)

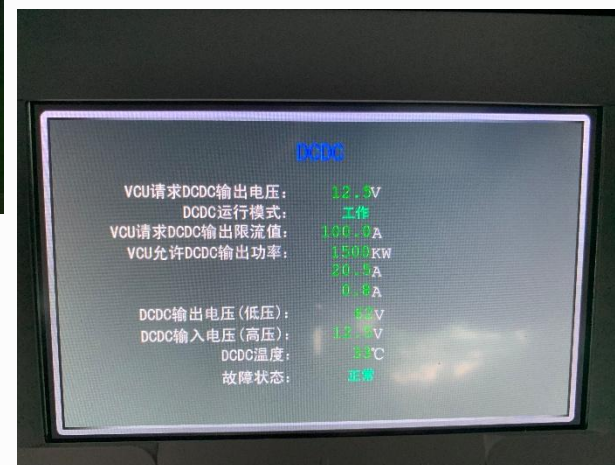
8.) Battery display interface/ 电池显示界面



BMS: Battery Management System
电池管理系统



SOC: System Of Charge / 荷电状态
SOH: System Of Health / 健康状态





HANGCHA

HANGCHA AERIAL PLATFORM EQUIPMENT

Option Lithium-ion Battery



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