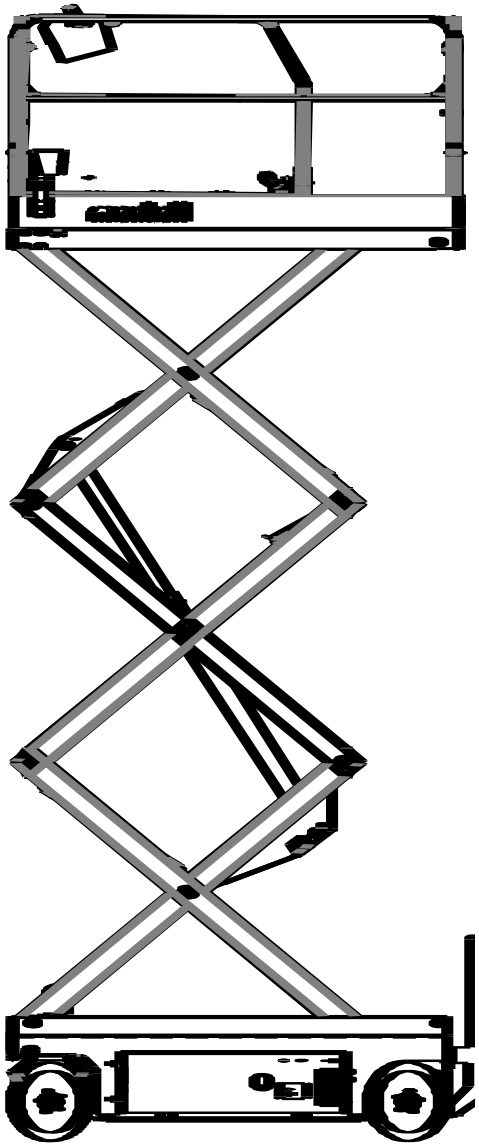
Instant UpRight

Self-propelled Scissor Lift MX & X series Service and Maintenance Manual



Note: The company's products are in continuous improvement. This manual is not subject to change unless major changes are made. In case of discrepancy, the object shall prevail.

Dear Clients:

Thank you for purchasing of this quality product!

Your new access equipment is the result of an innovative approach and the pursuit of quality. It has been designed to be functional, safe comfortable and durable with style and excellent operation features.

When your machine requires maintenance, only the spare parts must be used supplied by us in order to ensure reliability and suitability.

Before operating, please read this Service Manual thoroughly!

Table of content

Essentials

Thank you for choosing and using our machines. We firstly pay attention to the safety of users, which requires our joint efforts to achieve it. We believe that as a user and operator of the equipment, if you can comply with the following requirements, the use of equipment will be of great help:

1. Compliance with user rules, workplace rules and government rules.

2. Read, understand and comply with the instructions contained in this manual and other manuals accompanying the machine.

3. Perform good safety practices by convention.

4. Only trained / certified operators can run the machine under the guidance of experienced, knowledgeable supervisors.

Please contact us if there is content that is ambiguous in this manual or what you think should be added.

Web： www.instantupright.com

1. Safety Rules

Dangerous

Failure to follow the instructions and safety rules in this manual will result in death or serious injury.

The machine maintenance work shall not be carried out unless the following conditions are met:

☑ Maintenance for this machine has been trained and qualified.

☑ Read, understand and observe:

- Manufacturer's instructions and safety rules
- Employer safety rules and workplace regulations
- And applicable government regulations

☑ Equipped with the right tools to upgrade the equipment and the fit workshop.

1.1 Safety Rules

1.1.1Personnel Safety

Any person working on or around the machine, beware of all known dangerous operating safety hazards. Personnel safety and continuous safe operation of the machine should be the top priority.

Read each procedure carefully. The meanings of the symbols used in this manual and on the machine are as follows:

Safety warning signs - used to indicate potential personal injury. Observe all safety tips on the mark to avoid possible injury or death.

Indicates the emergency hazard condition, if not avoided, could result in death or serious injury.

Indicates the potential emergency hazard condition, if not avoided, could result in death or serious injury.

Indicates the potential emergency hazard condition, if not avoided, could result in minor or moderate personal injury.

Note Indicates the potential emergency hazard condition, if not avoided, could result in property damage.

If necessary, be sure to wear protective glasses and wear protective clothing.

Lifting or loading the load, when the parts are moving, the parts that are free to swing or are not fixed, may cause a risk of injury. Always put on qualified iron protective shoes while working.

Be sure to keep the workshop well ventilated and bright.

1.1.2 Work Place Safety

Be sure to keep the flame and lit cigarettes away from flammable substances such as battery gas and engine fuel. Place a qualified fire extinguisher in an easily accessible area.

Be sure to maintain all the tools and work areas for use. Keep the working surface clean and prevent debris from entering the machine parts.

Be sure that all forklifts, cranes and other lifting or supporting equipment have sufficient support strength and safety stability for the objects they lift. Use in good condition and have enough strength for chains and belts.

Be sure to ensure that disposable fasteners (ie, cotter and self-locking nuts) can not be reused. The second use of these components may result in failure.

Be sure to properly handle waste oil or other liquids. Use qualified containers. To ensure environmental safety.

2. Hydraulic Specifications

Function Pump	
Type: Gear pump	
Displacement Per rotation	4cc
Velocity at 3000rpm	12L/min
Functional Manifold	
System safety valve pressure	240bar
Raise safety valve pressure	190bar
Steering relief valve pressure	120bar
Steering flow regulator	3.5L/min

2.3 Hydraulic Joint Thread Torque

Metric O-ring flat seal torque, 74° metric torque

螺纹扭矩建议表 Recommended Thread Torque

公制O形圈平面密封扭矩、74° 公制扭矩

公制螺纹 Metric Thread

螺纹 THREAD	旋母扭矩 N.M NUT TORQUE
M12x1.5	10-20
M14x1.5	20-35
M16x1.5	25-40
M18x1.5	30-45
M20x1.5	35-50
M22x1.5	40-70
M24x1.5	40-70
M26x1.5	60-100
M30x2.0	80-120
M36x2.0	100-150
M42x2.0	150-220
M45x2.0	180-250
M52X2.0	200-300

英管螺纹 BSP Thread

螺纹 THREAD	旋母扭矩 N.M NUT TORQUE
G1/8"x28	11-12
G1/4"x19	25-28
G3/8"x19	41-48
G1/2"x14	72-82
G5/8"X14	96-110
G3/4"X14	124-137
G1"x11	151-165
G1.1/4"x11	192-206
G1.1/2"x11	261-275
G2"x11	343-357

美制 JIC 螺纹 JIC Thread

螺纹 THREAD	旋母扭矩 N.M NUT TORQUE
7/16"x20	15-16
1/2"x20	19-21
9/16"x18	24-28
3/4"x16	49-53
7/8"x14	77-85
1.1/16"x12	107-119
1.3/16"x12	127-140
1.5/16"x12	147-154
1.5/8"x12	172-181
1.7/8"x12	215-226
2.1/2"x12	332-350

美制 ORFS 螺纹 ORFS Thread

螺纹 THREAD	旋母扭矩 N.M NUT TORQUE
9/16"x18	14-16
11/16"x16	24-27
13/16"x16	43-47
1"x14	60-68
1.3/16"x12	90-95
1.7/16"x12	125-135
1.11/16"x12	170-190
2"x12	200-225

2.4 Hydraulic Hoses and Fittings Installation Procedures

1.Replace the "O" ring. When the seal leaks, the "O" ring must be replaced. The "O" ring can not be reused if the torque at the joint or hose connector exceeds the tightening force of the hand.

2.Apply a layer of oil to the "O" ring before installation.

3.Ensure that the cross-section seal "O" is fixed and positioned correctly.

4.Straighten the pipe and nut joint seal and tighten the nut by hand.

5.In accordance with the above table, tighten the nut and joints according to the established size of the corresponding torque.

6.Run all the functions of the machine and check the hose and fittings as well as the relevant parts to ensure no leakage.

2.5 Specification

SAE Fastener Torque Diagram SAE

Use this diagram only for reference unless otherwise noted in other places in this manual. *

Dimension	Screw thread	Class 5		Class 8		A574 High strength black oxidation bolts
		Lubricant	Dry	Lubricant	Dry	Lubricant

Torque Diagram of Metric Fasteners

Use this diagram only for reference unless otherwise noted in other places in this manual.

SAE 紧固件扭矩图

• 除非在本手册中的其他位置另标有注释，否则仅使用该图表作为参考 •

尺寸	螺纹	等级 5		等级 8		A574 高强度黑色氧化螺栓
		润滑	干燥	润滑	干燥	润滑
		Nm	Nm	Nm	Nm	Nm
1/4	20	9	11.3	12.4	15.8	14.7
	28	10.1	13.5	13.5	18	15.8
		润滑	干燥	润滑	干燥	润滑
		Nm	Nm	Nm	Nm	Nm
5/16	18	17.6	23	24	33.9	28.4
	24	19	25.7	27.1	36.6	32.5
3/8	16	31.2	42	44.7	59.6	51.5
	24	35.2	47.4	50.1	66.4	58.3
7/16	14	50.1	66.4	67.8	94.7	82.7
	20	55.5	74.5	81.3	108.4	92.1
1/2	13	77.3	101.6	108.4	149	126
	20	86.7	115	122	162	142
9/16	12	108.4	149	162	203	176
	18	122	162	176	230	189
5/8	11	149	203	217	284	244
	18	176	230	244	325	271
3/4	10	271	366	379	515	433
	16	298	406	420	569	474
7/8	9	433	583	610	827	691
	14	474	637	678	908	759
1	8	650	867	922	1233	1044
	12	718	962	1016	1342	1139
1 1/8	7	800	1071	1315	1749	1477
	12	908	1206	1464	1952	1654
1 1/4	7	1138	1518	1844	2467	2074
	12	1260	1681	2047	2725	2304
1 1/2	6	1979	2643	3213	4284	3620
	12	2223	2969	3620	4826	4067

公制紧固件扭矩图

• 除非在本手册中的其他位置另标有注释，否则仅使用该图表作为参考 •

尺寸 (mm)	4.6 级		8.8 级		10.9 级		12.9 级	
	润滑	干燥	润滑	干燥	润滑	干燥	润滑	干燥
	Nm	Nm	Nm	Nm	Nm	Nm	Nm	Nm
5	1.8	2.4	4.63	6.18	6.63	8.84	7.75	10.3
6	3.05	4.07	7.87	10.5	11.3	15	13.2	17.6
7	5.12	6.83	13.2	17.6	18.9	25.2	22.1	29.4
	润滑	干燥	润滑	干燥	润滑	干燥	润滑	干燥
	Nm	Nm	Nm	Nm	Nm	Nm	Nm	Nm
8	7.41	9.88	19.1	25.5	27.3	36.5	32	42.6
10	14.7	19.6	37.8	50.5	54.1	72.2	63.3	84.4
12	25.6	34.1	66	88	94.5	125	110	147
14	40.8	54.3	105	140	150	200	175	234
16	63.6	84.8	170	226	235	313	274	365
18	87.5	117	233	311	323	430	377	503
20	124	165	330	441	458	610	535	713
22	169	225	450	600	622	830	727	970
24	214	285	570	762	791	1055	925	1233

3. Regular Maintenance Procedures

Please obey:

☑ Maintenance and inspection should be carried out by maintenance training and qualified personnel for this machine.

☑ Perform maintenance inspections on the daily, quarterly, semi-annual, annual and every two years according to the maintenance inspection report.

Caution! Failure to implement the procedures specified may result in death, serious injury or substantial damage to the machine.

☑ Damaged or malfunctioning machines should be marked immediately and stop operation.
☑ Before operating the machine, you must repair all damage and malfunctions of the machine.
☑ Use only Instant UpRight approved replacement parts.
☑ For machines that are idle for more than 3 months, quarterly checks must be made.
☑ Unless otherwise specified, the machine shall carry out each maintenance procedure in the following configurations.

. Place the machine on a solid horizontal surface
. The platform is in the stowed position
. The key switch is in the OFF position and the key is unplugged
. The red "emergency stop" button for the ground and platform controllers is in the OFF position
. The wheel is in a locked state
. The machine has been disconnected from all external AC power sources

About this section

This section contains detailed procedures for each periodic maintenance check. Each program includes instructions, safety warnings and step-by-step instructions.

Symbol legend
Safety warning signs - Used to warn of potential danger of personal injury
Prompts an emergency hazard situation that, if not avoided, can result in death or serious injury
Prompts an emergency hazard situation that, if not avoided, could result in minor or moderate personal injury
Prompts a potentially hazardous situation that, if not avoided, could result in property damage
Tip After completing a series of steps, specific results may appear
Tip After completing a series of steps, the error results appears

3.1 Regular Maintenance Procedures

Maintenance Symbol Legend:
Note: This manual uses the following symbols to help express the relevant meaning in the instructions. When the maintenance program appears in front of one or more symbols, the meaning of the expression is as follows.

Indicates that the tool is required to execute this program.

Indicates that the execution of this program requires new parts.

Indicating that the engine needs to be in a cooling state.

Indicates that the engine needs to be in a heated state.

Indicates that this program requires the vendor service personnel to perform.

Pre-delivery preparation report

The pre-delivery preparation report contains a checklist of each type of periodic inspection. Copy the preparation report before delivery for inspection. Save the completed form as needed.

Maintenance schedule

According to the timetable, there are five types of maintenance checks that must be carried out. Daily, quarterly, every six months, every year and every two years. Periodic maintenance procedures section and maintenance inspection reports are divided into five subsections, A, B, C, D and E. Please follow the table below to determine the program combination for performing periodic checks.

Check	**Check table**
Every day or every 8 hours	A
Every quarter or every 250 hours	A+B
Every six months or every 500 hours	A+B+C
Every year or every 1000 hours	A+B+C+D
Every two years or every 2000 hours	A+B+C+D+E

Maintenance Check Report

The maintenance check report contains a list of check items for each type of periodic inspection.
Copy and maintain check reports for inspection, save the completed forms at least 4 years or save it in accordance with employers, workplaces and government regulations and requirements.

3.2 Basic principle

The implementation of "pre-delivery" is the responsibility of the dealer.

Perform "pre-delivery" before each delivery. The purpose of the inspection is to find out if there is a significant problem before the machine is put into use.

Damaged or changed machines should be prohibited. If any damage is found or is different from the factory status, the machine should be marked and stopped.

According to the manufacturer's regulations, only qualified service technicians can repair the machine.

In accordance with the requirements set out in the manufacturer's specifications and duties manual, periodic maintenance inspections should be performed by qualified service technicians.

3.3 Specification

Use the machine's operating manual.

"Pre-delivery preparation" consists of a pre-operation check, maintenance item, and functional test.

Use this form to record the results. After completing each part, mark the corresponding box. Follow the instructions in the operating instructions.

If any of the checks are marked as "N", the machine is deactivated, repaired and rechecked. After repair, mark the box marked "R".

Legend Y = Yes, has been completed N = No, can not finish R= R = has been repaired Note

Prepare before delivery	Y	N	R
Check before operation is complete			
The maintenance project is complete			
Functional testing is complete			

Model	
Series Number	
Date	
Machine owner	
Inspector (please write in block letters)	
Inspector signature	
Inspector duties	
Inspector’s office	

4. Maintenance Check Report

Model	
Serial number	
Date	
Machine owner	
Inspector (please write in block letters)	
Inspector signature	
Inspector duties	
Inspector's office	

Copy this report for use with each check.
Select the appropriate checklist according to the type of inspection.

Every day or every 8 hours Check:	A
Every quarter or every 250 hours Check:	A+B
Every six months or every 500 hours Check:	A+B+C
Every year or every 1000 hours Check:	A+B+C+D
Every two years or every 2000 hours Check:	A+B+C+D+E

After completing each inspection procedure, mark the corresponding box.
Use the step-by-step check program in this section to learn how to check.
If any of the inspections are marked as "N", the machine is marked and discontinued, repaired and important checked. After repair, mark the box with "R".

Legend Y = Yes, acceptable N = No, stop using

Check table A	Y	N	R
A-1 Check the operating manual and safety manual			
A-2 Check the logo and label			
A-3 Perform pre-operation check			
A-4 Perform a Functional test			
A-5 Check the hydraulic oil level			
A-6 Check the hydraulic oil leak			
A-7 Check the tire pressure			

Check Table B	Y	N	R
B-1 Check the battery			
B-2 Check the electrical wiring			
B-3 Check tire, wheel and groove nut torque			
B-4 Test emergency stop			
B-5 Test the key switch			
B-6 Test drive brakes			
B-7 Test drive speed - stowed position			
B-8 Test drive speed - raised position			
B-9 Check the electrical contactor			
B-10 Perform hydraulic oil analysis			
B-11 Check the oil level in the drive hub			
B-12 Replace the hydraulic tank return filter			
B-13 Be sure the brake structure is correct			

Check table C	Y	N	R
C-1 Test platform overload pressure sensor and platform height sensor (if equipped)			

Check table D	Y	N	R
D-1 Check the chassis slider and the platform slider			
D-2 Replace the hydraulic filter			
D-3 Replace the wheel oil			
D-4 Test function pump			

Check table E	Y	N	R
E-1 Test or replace hydraulic oil			
E-2 Apply grease to steering shaft and wheel bearings			

4.1 Check Table A program

A-1

4.1.1 Check the Operator Manual and Safety Manual

Keeping the Operator Manual l and safety manual in good condition is critical to safe operation of the machine. Each machine is equipped with manuals, which should be kept in the boxes provided on the platform. A blurred or handwritten defect will not provide the information needed for safe operation.

1.Check the box for storing the manual to ensure it exists and is in good condition.

2. Check the operating manual and safety manual to ensure that it exists and is completely stored in the storage bin of the platform.

3.Check each manual page to ensure that it is clearly written and in good condition.

4.After using the manual, return it to the storage bin.

If you need to change the manual, please contact Instant UpRight or authorized dealer.

A-2

4.1.2 Check the Logo and Label

For safe operation of the machine, it is necessary to keep all the safety and guidance signs and labels in good condition. The markings are used to alert the operator and the person concerned to the many hazards that may be present when using the machine. They also provide users with some operating and maintenance information. If the writing is blurred, it will not be possible to warn the staff of the need for a procedure or the risk of being present and may produce unsafe operating factors.

1. Refer to the label in the "Symbols" and use the list and description of the label to make sure that all labels and labels are in the appropriate position.

2.Check that all labels are clear and intact. Replace any damaged or blurred stickers immediately.

If you need to change the manual, please contact Instant UpRight or authorized dealer.

A-3

4.1.3Perform Pre-operation Check

Instant UpRight requires this procedure to be executed every 8 hours or a day, whichever comes first.

Completing the "pre-operation check" is essential for safe operation of the machine. The pre-operation check is the visual inspection of the operator before each shift. The purpose of the inspection is to find out if there is a significant problem with the machine before the operator performs the functional test. Pre-operation checks can also be used to determine if routine maintenance procedures are required.

The corresponding operating manual contains complete information about the execution of this procedure. Please refer to the "Operation Manual" on the machine.

A-4

4.1.4 Perform Functional Tests

Instant UpRight requires this procedure to be executed every 8 hours or a day, whichever comes first.

Completing the functional test is critical to safe operation of the machine. Functional tests are used to detect faults before starting to use the machine. Prohibit the use of faulty machines. If a fault is found, the machine must be marked and stopped.

The corresponding operating manual contains complete information about the execution of this procedure. Please refer to the "Operation Manual" on the machine.

A-5

4.1.5Check the Hydraulic Oil Level

Keeping the hydraulic oil at the right oil level is critical to the machine's work. If the hydraulic oil is in an unsuitable oil level, it will damage the hydraulic parts. Through routine inspections, the inspector can determine the change in the hydraulic oil level, which can indicate a problem with the hydraulic system.

Make sure that the arm is in the stowed position and then visually inspect the oil level gauge on the side of the hydraulic tank. Refuel as needed.

Result: The hydraulic oil level should be within 5 cm of the upper part of the oil level gauge.

A-6

4.1.6 Check the Hydraulic Oil Leak

Inspecting hydraulic oil leaks is critical to safe operation and to maintain good performance of the machine. Hidden leaks can cause dangerous conditions, reduce machine performance and damage to machine parts.

The risk of physical injury. Sprayed out of the hydraulic oil may penetrate and burn the skin.

1. Check whether there is any oil or oil residue on or off the following parts:

α Hydraulic tanks - filters, fittings, hoses, auxiliary power units, filters

αhydraulic oil filter, fittings, hoses, pumps, α parts pallet

α all the hydraulic cylinders

α All hydraulic manifolds

α scissor arms

α underneath the drive chassis

α ground area below the machine

A-7

4.1.7 Check the Tire Pressure


The risk of physical injury. Excessive tires may explode and may result in death or serious injury.

Dangerous of tipping. Do not use temporary leak tires to repair the product.

Warning! For machines with sponge rubber heart tires, this check is not required.

Caution! In order to maintain maximum stability, to optimize the operation of the machine and to reduce tire wear, it is essential to maintain the proper pressure in the pneumatic tire.

4.2 Check Table B program

B-1

4.2.1 Check the battery

Instant UpRight specifications require this procedure to be executed every 250 hours or quarterly, whichever comes first.

The battery condition is good for normal mechanical performance and safe operation. Improper electrolyte liquid and damaged cables and wiring may cause damage to parts and hazards.

Risk of electric shock / burn. Exposure to live circuits can result in death or serious injury. Remove all rings, watches and other accessories.

The risk of physical injury. Batteries contain acidic substances. Avoid overflow or contact with acidic substances in the battery. With hydrogenated sodium and water to neutralize the overflow of the battery acid.

1.Wear protective clothing and wear protective glasses.

2.Ensure that the wiring of the battery cable is not corroded.
Note: Adding a terminal protector and anti-corrosion sealant will help eliminate corrosion of the battery terminals and cables.

3.Models without maintenance-free or sealed battery: to ensure that the battery fixed firmly, the cable wiring fastening. Proceed to step 4. Model with maintenance-free or sealed battery: Make sure the battery is securely fastened and the cable is tightened. Proceed to step 12.

4.Allow the battery to fully charge and leave for at least 6 hours.

5.Remove the battery vent cover and check the specific gravity of each battery unit with a liquid hydrometer. Write down the results.

6.Check the ambient air temperature and adjust the specific gravity of each unit according to the following:

a. Increase the reading of each unit by 0.004 for each additional 5.5 ° C above 26.7 ° C.

b. Reduce the reading of each unit by 0.004 for each reduction of 5.5 ° C below 26.7 ° C.

Result: All battery cells show an adjusted specific gravity of 1.277 or higher. The battery is full. Proceed to step 11.

Result: One or more battery cells show a specific gravity of 1.217 or less. Proceed to step 8.

7.Make sure that the battery is balanced or fully charged and allowed to stand for at least 6 hours.

8.Remove the battery vent cover and check the specific gravity of each battery unit with a liquid hydrometer. Write down the results.

9. Check the ambient air temperature and adjust the specific gravity of each unit according to the following:

a. Increase the reading of each unit by 0.004 for each additional 5.5 ° C above 26.7 ° C.

b. Reduce the reading of each unit by 0.004 for each reduction of 5.5 ° C below 26.7 ° C.

Result: All battery cells show an adjusted specific gravity of 1.277 or higher. The battery is full. Proceed to step 13.

The difference between the different units in the specific gravity reading is greater than 0.1, or the specific gravity of one or more units is less than 1.177. Replace the battery.

10.Check the battery acid level. If necessary, add distilled water to 3mm below the bottom of the battery fill tube. Do not add too much.

11.Install the ventilation cover and neutralize any electrolyte that may overflow.

All models:

12.Check each battery pack and make sure the battery wiring is correct. Please refer to the battery wiring diagram on the machine.

13.Check the battery charger socket and lead wire insulation is damaged or excessive wear. Replace as needed.

14. Thoroughly clean the outer surface of the battery charger. If necessary, check and tighten all wiring on the charger.

15. Connect the battery charger to a properly grounded 115V or 230V single-phase AC power supply.

Result: After a brief delay, the transformer will be humming, indicating that the charger has begun to charge the battery.

Note: For best results, be sure to use a 14 AWG / 1.5mm three-phase heavy-duty wire with a ground extension cord that is as short as possible. Please refer to the battery charger operating instructions.

Note: If you have additional questions about the operation of the battery charger, please contact the Instant UpRight service department.

B-2

4.2.2 Check the Electrical Wiring

Instant UpRight specifications require this procedure to be executed every 250 hours or quarterly, whichever comes first.

Maintaining the electrical wiring is critical to safe operation and good machine performance. Failure to detect and replace burned, worn, corroded, or crushed wiring may result in unsafe operating conditions and damage to the parts.

Risk of electric shock / burn. Exposure to live circuits can result in death or serious injury. Remove all rings, watches and other accessories.

1.Check the ground bus below the chassis for damage or loss.

2.Check the following areas for wiring, burned, corroded, and loose.

3. Rear axle:
   Drive motor
   Limit switch

- Hydraulic box:
  Ground control inside
  End connection
  电 Motor Controller
  Battery charger

- Battery box:
  Battery
  Fuse box
- Machine:
  Center of drive chassis
  Connecting rod assembly
  Platform
  Platform control
  Harness connection

3.Check that all of the harness connectors are coated with an adequate insulating grease layer:

- Ground controller
- Platform controller
- Functional manifold
- Motor controller
- Limit switch
- Level sensor
- Steering sensor

B-3

4.2.3 Check Tire, Wheel and Groove Nut Torque

Instant UpRight specifications require this procedure to be executed every 250 hours or quarterly, whichever comes first.

Maintain tires and wheels to keep them in good condition, as well as suitable wheel fastener torque, is critical for safe operation and good machine performance. Damage to tires and / or wheels may cause the machine to tipping over. Failure to detect problems and repair in time may also cause damage to machine parts.

1.Check the tire surface and sidewall for incisions, cracks, perforations and abnormal wear.

2.Check the wheels for damage, bending and cracks.

3.Remove the slotted nut opening pin and check whether the torque of each groove nut is suitable.

CAUTION: When removing the groove nut or checking the groove nut torque, be sure to replace the cotter pin.

4.Check whether each lug bolt torque is appropriate.

5.Install a new cot and secure it.

B-4

4.2.4 Test Emergency Stop

Instant UpRight specifications require this procedure to be executed every 250 hours or quarterly, whichever comes first.

A functioning emergency stop system is very important for the safe operation of the machine. Incorrect operation "Emergency stop" button can not cut off the power and stop all functions of the machine, which will lead to dangerous situations.

NOTE: In the case of safety considerations, in addition to the red "emergency stop" button on the platform, you can also choose to operate the ground controller instead of the platform controller.

1.Turn the key switch to the ground controller and pull the red "emergency stop" button on the ground controller and platform controller to the ON position.

2.Push the red "emergency stop" button on the ground controller to the OFF position.
Result: All functions of the machine should not run.

3.Turn the key switch to the platform controller and pull the red "emergency stop" button on the ground controller and platform controller to the ON position.

4.Push the red "emergency stop" button on the platform controller to the OFF position.
Result: All functions of the machine should not run.

Note: Even if the key switch is turned to the platform controller, the ground controller's "emergency stop" button can also stop all machine work.

B-5

4.2.5 Test the Key Switch

Instant UpRight specifications require this procedure to be executed every 250 hours or quarterly, whichever comes first.

The key switch is working properly and function properly are critical to safe operation of the machine. The machine can be operated from the ground controller or the platform controller.The key switch is used to determine from which controller to activate. When the key switch can not activate the corresponding control panel, it will lead to dangerous operating conditions.

Note: Perform this test on the ground with a platform controller. Do not stand on the platform.

1.Pull the red "emergency stop" button on the ground controller and platform controller to the ON position.

2.Turn the key switch to the platform controller.

3.Use the ground controller to check the platform's up / down function.

- Result: The machine function should not run.

4.Turn the key switch to the ground controller.

5.Check the function of the machine by the platform controller.

6.Turn the key switch to the OFF position.

- Result: All functions will not run.

B-6

4.2.6 Test Drive Brakes

Instant UpRight specifications require this procedure to be executed every 250 hours or quarterly, whichever comes first.

The brake function is vital to safe operation of the machine. The drive brakes should run smoothly and without hysteresis and abnormal noise. When a single wheel brake that is released by electricity can not be fully operated, they seem to be working properly.

Note: This procedure is executed when the machine on the platform controller is on the ramp and the button is in the OFF position (the LED should be off) and the platform extension table is fully indented.

1.Mark the test line on the ground as a reference.

2.Turn the key switch to the platform controller and pull the red "emergency stop" button on the ground controller and platform controller to the ON position.

3.Press the drive function selection button.

4.Press and hold the function enable button on the joystick.

5.Select a point on the machine that is the point of contact between the tire and the ground as a visual reference point when the machine passes the test leads.

6.Before the test line reaches the machine in full speed drive. When the reference point on the machine passes through the test leads, release the function to enable the switch or joystick.

7.Measure the distance between the test leads and the machine reference points.

Note: On any slope where the machine can climb, the brakes must be able to stabilize it.

B-7

4.2.7 Test Drive Speed - Stowed Position

Instant UpRight specifications require this procedure to be executed every 250 hours or quarterly, whichever comes first.

The intact drive function is critical to safe operation of the machine. The drive function should respond quickly and smoothly under operator control. In the entire controllable range of the corresponding speed, the drive performance should also be no hysteresis and abnormal noise.

1.Mark two lines at a distance from the ground as the start and stop lines.

2.Turn the key switch to the platform controller and pull the red "emergency stop" button on the ground controller and platform controller to the ON position.

3.Press the drive function selection button.

4.Select a point on the machine, the point of contact between the tire and the ground, use as a visual reference point when the machine passes through the start and stop lines.

5.The machine is fully driven at the start line. When the reference point on the machine passes through the start line, starts counting.

6.Continue to maintain the full speed state, when the reference point on the machine through the stop line, write down the time.

B-8

4.2.8 Test Drive Speed - Raised Position

Instant UpRight specifications require this procedure to be executed every 250 hours or quarterly, whichever comes first.

The intact drive function is critical to safe operation of the machine. The drive function should respond quickly and smoothly under operator control. In the entire controllable range of the corresponding speed, the drive performance should also be no hysteresis and abnormal noise.

1. Mark two lines at a distance from the ground as the start and stop lines.

2. Turn the key switch to the platform controller and pull the red "emergency stop" button on the ground controller and platform controller to the ON position.

3.Press the drive function selection button.

4.Upgrade the platform by about 2 meters.

5.Select a point on the machine, the point of contact between the tire and the ground, as a visual reference point when the machine passes the start line and stops the line.

6.The machine is fully driven at the start line. When the reference point on the machine passes through the start line, starts counting.

7.Continue to keep the full speed state, when the reference point on the machine through the stop line, write down the time.

B-9

4.2.9 Check the Electrical Contactor

Instant UpRight specifications require this procedure to be executed every 250 hours or quarterly, whichever comes first.

Maintaining the electrical contactor in good condition is critical to safe operation of the machine. Failure to detect worn or damaged contactors in time may endanger working conditions and cause damage to parts.

1.Open the battery compartment cover.
2.Remove the contactor housing mounted on the top of the battery compartment cover.
3.Visual inspect the following aspects of each contactor contact point:

- Excessive burning
- Excessive bending
- Excessive pitting

Risk of electric shock / burn. Exposure to live circuits can result in death or serious injury. Remove all rings, watches and other accessories.

CAUTION: If any damage is found, replace the contactor.

B-10

4.2.10 Perform Hydraulic Oil Analysis

Instant UpRight specifications require this procedure to be executed every 250 hours or quarterly, whichever comes first.

Replacement or testing of hydraulic oil is essential to maintaining good performance and service life of the machine. Dirty hydraulic oil and blocked inlet filters are likely to cause machine performance degradation, such as continued use will cause damage to components. In a particularly dirty environment, the need for frequent replacement of hydraulic oil.

CAUTION: Before replacing the hydraulic oil, allow the hydraulic oil dealer to test the specific contamination of the oil to confirm the need for replacement.

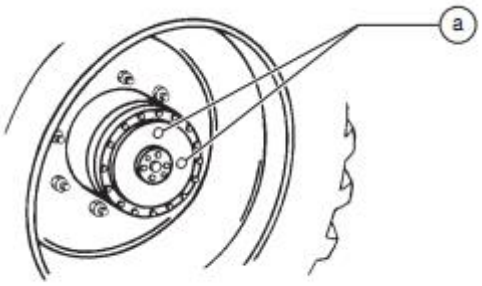
During the two-year inspection, if the hydraulic oil is still not replaced, the hydraulic oil is tested quarterly. When the test can not pass, replace the hydraulic oil.

B-11

4.2.11 Check the oil level in the drive hub

If you do not maintain the appropriate drive wheel oil level may lead to poor machine performance, continue to use can lead to damage to parts.

1.Select the drive hub to change the oil. Drive the machine to one of the two stoppers at the highest point.



a 驱动轮毂塞

2.Remove the plug at 90 ° position and check the oil level.
Result: The oil level should be flat with the bottom of the hole.

3.If necessary, unplug the top stopper and refuel until the oil level is flat with the bottom of the hole.

4.Apply a sealant to the pipe thread of the plug and install the stopper.

5.Repeat steps 1 and 4 for the other drive hub.

6.Check the torque of the drive hub mounting bolts.

B-12

4.2.12 Replace the Hydraulic Tank Return Filter

Replacing the hydraulic tank oil return filter is critical to maintaining the good performance and service life of the machine. A dirty or blocked filter may cause the machine to degrade and continue to cause damage to the component. In a particularly dirty environment, the need to constantly replace the filter.

The risk of physical injury. Be careful of hot oil. Exposure to hot water can cause severe burns.

When the engine is turned off, execute the program.

1. Place a suitable container under the hydraulic tank return filter.

2. Remove the filter with the oil filter wrench.

3. Apply a thin layer of new oil to the gasket of the new hydraulic filter.

4. Install the new filter and tighten it by hand. Remove any traces of spilled during installation.

B-13

4.2.13 Make Sure the Brake Structure is Correct

The brake structure is critical to safe operation and to maintain good machine performance. When the brakes can not be fully operated, the hydraulic brake and the hydraulic release of the individual wheels can be used to perform normal operation.

1.Check the separation cap of each drive hub to ensure that it is in use.
2.Make sure the free wheel is closed (homeopathic).
The free wheel is located on the drive pump.

The free wheel should always remain closed.

4.3 Check the Table C Program

C-1

4.3.1 Test platform overload pressure sensor and platform height sensor (if equipped)

Instant UpRight specification requires this procedure to be executed every 500 hours or every six months, whichever comes first, or when the machine can not lift the maximum rated load.

Periodic Test Platforms overload pressure sensors and platform height sensors are critical to the safe operation of the machine. Continuing to use a platform that does not work properly about overload pressure sensor or platform height sensor may cause the system to fail to detect the overload of the platform. The stability of the machine will be affected, which led to the machine overturned.
Note: Perform this procedure on a solid level without obstacle on the surface.

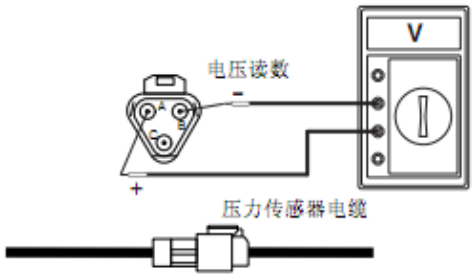
4.Turn the key switch to the ground controller and pull the red "emergency stop" button on the ground and platform controller to the ON position.
5.Raise the platform by about 4 meters.
6.Raise the safety arm and move it to the center of the shearing arm and rotate it down to the vertical position.
7.Lower the platform to the safety arm.
The risk of injury. When you lower the platform, keep your hands away from the safety arm.
8. Turn the key switch on the ground controller to the OFF position and push the red "emergency stop" button to the OFF position.

4.3.2 Overload Sensor

1.At the end of the lift cylinder, follow the pressure sensor cable down to find the end of the shear clip on the chassis table.

2.Insert the positive pole of the multimeter probe firmly into the cable rubber sleeve of the pressure sensor pin A. See the illustration below.

3.Insert the negative pole of the multimeter probe firmly into the rubber sleeve of the pressure sensor pin B. See below for illustrations.



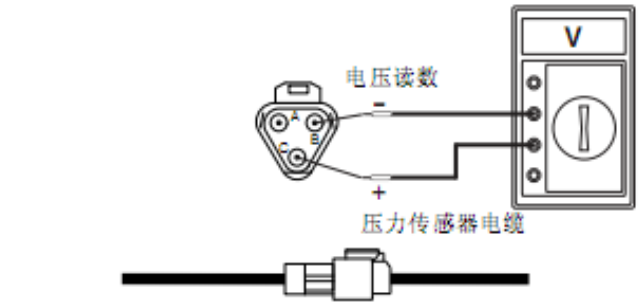
ECM 压力传感器线束

- Result: The pressure sensor has a voltage reading of 24V. The input voltage of the pressure sensor is normal. Proceed to step 9.

- Result: The pressure sensor has a voltage reading of 0V. The input voltage of the pressure sensor is not normal. Check if there is wiring harness in the power supply or ground circuit. Check the GC V sensor at V + output.

9.Insert the positive pole of the multimeter probe firmly into the cable rubber sleeve of the pressure sensor pin C. See below for illustrations.

10.Insert the negative pole of the multimeter probe firmly into the cable rubber sleeve of the pressure sensor pin B. See below for illustrations.



11.Turn the key switch to the ground controller and pull the red "emergency stop" button to the ON position.

12.Use the multimeter to measure the voltage readings at the pins C and B of the pressure sensor.

- Result: The pressure sensor has a voltage reading between 0.2CV and 6.25V. The pressure sensor is working properly.
- Result: The pressure sensor has a voltage reading between 0V and 0.2V or greater than 6.25V. The pressure sensor does not work properly. Replace the pressure sensor.

13.Turn the key switch on the ground controller to the OFF position and push the red "emergency stop" button to the OFF position.

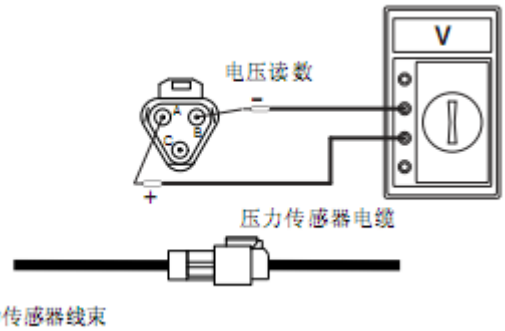
14. Remove the probe from the rubber sleeve of the pressure sensor cable.

4.3.3 Platform Height Sensor

15.In the platform height sensor assembly, locate the end of the platform height along the platform height sensor cable.

16.Insert the positive pole of the multimeter probe firmly into the cable rubber sleeve of the pressure sensor pin A. See the illustration below.

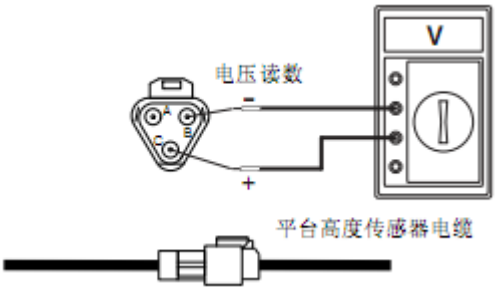
17.Insert the negative pole of the multimeter probe firmly into the cable rubber sleeve of the pressure sensor pin B. See the illustration below.



- Result: Voltage sensor voltage reading 24V. The height of the platform height sensor is normal. Proceed to step 18.
- Result: The pressure sensor has a voltage reading of 0V. The height of the platform sensor is not normal. Check if there is wiring harness open in the power supply or ground circuit. Check the GC V sensor at V + output.

18.Insert the positive pole of the multimeter probe firmly into the cable rubber sleeve of platform height sensor pin C. See below for illustrations.

19. Insert the negative pole of the multimeter probe firmly into the cable rubber sleeve of platform height sensor pin B. See below for illustrations.



20.Turn the key switch to the ground controller and pull the red "emergency stop" button to the ON position.

21.Use the multimeter to measure the voltage readings at the pins C and B of the pressure sensor.

- Result: The pressure sensor has a voltage reading between 1V and 4V. The platform height sensor is working properly.
- Result: The pressure sensor has a voltage reading of 0V or greater. The platform height sensor does not work properly. Replace the platform height sensor.

22.Turn the key switch on the ground controller to the OFF position and push the red "emergency stop" button to the OFF position.

23.Pull the probe out of the rubber sleeve of the platform height sensor cable.

24.Turn the key switch to the ground controller and pull the red "emergency stop" button to the ON position.

25.Raise the platform by about 30.5cm.

26.Return the safety arm to the stowed state.

27.Lower the platform to the stowed position.

28.Turn the key switch to the OFF position.

4.4 Check Table D program

D-1

4.4.1 Check the Chassis Slider and the Platform Slider 

Instant UpRight specifications require this procedure to be executed every 250 hours or quarterly, whichever comes first.

Keeping the slider in good condition is critical to safe operation of the machine. Continued use of worn sliders can damage parts and lead to unsafe working conditions.

1.Test the thickness of the chassis slider at the bottom of the machine's boom.

- Result: The measurement result is 68mm or higher. Proceed to step 2.
- Result: The measurement result is less than 68mm. Replace the chassis slider.

2.Test the thickness of the platform slider at the top of the boom of the machine.

- Result: Measure 71mm or higher. Proceed to Step 3.
- Result: The measurement result is less than 71mm. Replace the platform slider.

D-2

4.4.2 Replace the Hydraulic Filter

Instant UpRight specifications require this procedure to be executed every 250 hours or quarterly, whichever comes first.

Replacing the hydraulic tank oil return filter is critical to maintaining the good performance and service life of the machine. A dirty or blocked filter may cause poor machine performance and continued use may result in damage to the component. In a particularly dirty environment, you need to change the filter frequently.

The risk of physical injury. Be careful of hot oil. Exposure to hot water can cause severe burns.

1.Remove the filter with an oil filter wrench. Clean the contact area between the hydraulic oil filter and the filter.

The risk of physical injury. Sprayed out of the hydraulic oil may penetrate and burn the skin. Slowly release the hydraulic connection to gradually reduce the oil pressure. Do not spray or splash oil.

Note: The hydraulic filter is installed on the hydraulic tank.

2.Apply a thin layer of new oil to the gasket of the new hydraulic filter.

3.Install the new filter and tighten it by hand.

4.Use the permanent ink marker to write the date and number of hours displayed on the timer on the hydraulic filter.

5.Remove any oil spills that are spilled during the replacement process.

6.Turn the key switch to the ground controller and pull the red "emergency stop" button on the ground controller and platform controller to the ON position. Start the engine.

7.Raise the platform by about 1 meter.

8.Check the filter and related parts to ensure that there is no leakage.

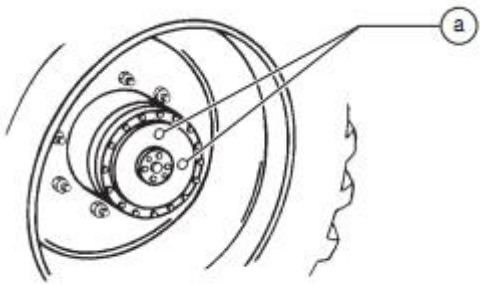
D-3

4.4.3 Replace the Wheel Oil

Note: The manufacturer-driven hub specification requires this one-time procedure to be executed 150 hours after the first use.

Replacement Drive the hub oil is critical to maintaining the machine's good performance and service life. If the wheel oil is not replaced after 150 hours of initial use, it may cause the machine to degrade and damage the parts if used continuously.

1.Select the drive hub to replace the oil. Drive the machine to one of the two stoppers at the lowest point.
2.Remove the two stoppers and drain the oil into the appropriate container.
3.Drive the machine to one of the two stoppers at the highest point.



a 驱动轮毂塞

4.Refuel the wheel until the oil level is flat with the bottom of the lowest plug.

5.Install the plug in the drive hub.

6.Repeat this procedure for other drive hubs.

D-4

4.4.4 Test Function Pump

Instant UpRight specification requires this procedure to be executed every 1000 hours or annually, whichever comes first.

Functional pump operation is normal for safe vibration operation and machine operation are essential.

NOTE: This procedure is executed on a rugged, horizontal surface and the platform is in stowed position, when the platform extension table is fully indented.

1.Lower the platform to the stowed position.

2.Turn the key switch to the ground controller and pull the red "emergency stop" button on the ground and platform controller to the ON position.

3.On the ground controller, record the time it takes to completely lift the platform.

- Result: The time taken to completely raise the platform is equal to or less than the time shown in the table below. The efficiency of the pump is good.

X2047	32s
X2647	45s
X3247	55s
X3947	61s
X4647	80s

Note: If the above time can not be reached, the machine must be marked and the machine must be stopped before repairing or replacing the function pump.

The dangerous of tipping. Failure to follow the instructions to repair or replace the function of the pump will affect the stability of the machine, and even lead to death or serious injury.

4.5 Check Table E program

E-1

4.5.1 Test or Replace Hydraulic Oil

Instant UpRight specifications require that this procedure be performed every 2,000 hours or every two years, whichever comes first.

Replacement or testing of hydraulic oil is essential to maintaining good performance and service life of the machine. Dirty hydraulic oil and blocked inlet filters are likely to cause machine performance degradation, such as continued use will cause damage to components. In a particularly dirty environment, the need for frequent replacement of hydraulic oil.

CAUTION: Before replacing the hydraulic oil, allow the hydraulic oil dealer to test the specific contamination of the oil to confirm the need for replacement.

During the two-year inspection, if the hydraulic oil is still not replaced, the hydraulic oil needs to be tested quarterly. When the test can not pass, replace the hydraulic oil.

CAUTION: When removing the hose assembly or connector, replace the O-ring (if equipped) with the connector and / or the hose end. During installation, the torque of all connections must be set according to the specifications.

1.Press the red "emergency stop" button into the OFF position.

2. Mark and disconnect the harness on the ground control box.

3.Remove the ground control box to locate the fastener and set it aside. Remove the ground control box.

4.Find the fuel tank cover. Remove the fuel tank cover to install the fasteners and remove the cover.

5.Prevent put the oil pan or other suitable container under the hydraulic tank.
6.Remove the drain plug from the hydraulic tank and drain the tank completely.

The risk of physical injury. Sprayed out of the hydraulic oil may penetrate and burn the skin. Slowly release the hydraulic connection to gradually reduce the oil pressure. Do not spray or splash oil.

7.Mark, disengage and plug the suction hose on the hydraulic tank. Cover the pipe joint.

8.Mark, disengage and plug the oil return hose on the oil return filter. Cover the filter connector.

9.Remove the oil return filter and filter components on the tank. Cover and plug the connector.

10.Loosen the tank in front of the tank. Place the straps aside.

11.Remove the hydraulic tank from the machine.

12.Remove the inlet filter and clean it with a neutral solvent or replace it.

13.Clean the inner surface of the hydraulic tank with a neutral solvent cleaning solution.

14.Install the drain plug on the thread with a thread sealant.

15.Install the inlet filter with threaded sealing material on the threads.

16.Install the hydraulic tank on the machine.

17.Tighten the tank with the tank retaining band. Do not be too tight

18.Install the suction tubing on the tank.

19.Install the oil return filter and filter assembly.
Note: Replace the oil return filter as needed.

20.Install the return hose on the oil return filter.

21.Add hydraulic oil to the tank until the oil level is within 5 cm of the upper part of the oil level gauge. Do not add too much.

22.Clear all traces of overflow. Properly handle hydraulic oil.

23.Run all the functions of the machine in a full cycle and check for leaks.

24.Check the oil level in the tank and add the hydraulic oil if necessary.

25.Install the fuel tank cover and install the fuel tank cover fasteners.

E-2

4.5.2 Apply Grease to Steering Shaft and Wheel Bearings

Instant UpRight specifications require that this procedure be performed every 2,000 hours or every two years, whichever comes first.

Maintenance of steering shafts and wheel bearings is essential to maintaining good machine performance and service life. Operation of wheel bearings Loose or worn machine may cause unsafe operating factors, such as continued use will cause damage to parts. Extremely wet or dirty conditions or regular steam cleaning and pressure cleaning of the machine require more frequent execution of this procedure.

1.Loosen the wheel lug nut. Do not remove them.
2.Lock the non-steering wheel and place the jack in the center of the steering shaft.
3.Lift the machine 15cm, and then place the pad under the drive chassis as support.
4.Remove the lug nut. Remove the tire and wheel assembly.
5.Try the horizontal and then move the wheel vertically to check the wear of the wheel bearings.

- Result: No lateral or longitudinal displacement. Proceed to step 10.
- Results: horizontal or vertical displacement. Proceed to step 6.

6. Remove the dust cover from the hub. Remove the slotted nuts.

7. Tighten the groove nut with a torque of 203 Nm to install the bearing.

8.Loosen the groove nut completely and re-tighten with 48 Nm of torque.

9. Try the horizontal and then move the wheel vertically to check the wheel bearing wear.

- Result: No lateral or longitudinal displacement. Proceed to step 11.
- Results: horizontal or vertical displacement. Continue with step 11 and replace the new wheel bearing.

Note: When replacing wheel bearings, both internal and external bearings must be replaced, including press-fit bearing rings.

10. Remove the dust cover from the hub. Remove the slotted nuts.

11. Remove the groove nut.

12.Pull the hub out of the spindle. Spindle washers, thrust washers and external bearings should be released from the hub.

13. Place the hub on a flat surface and gently pry out the bearing seal from the hub. Remove the rear bearing.

14. Fill the two bearings with a clean new grease.

15. Place a larger internal bearing into the rear of the hub.

16. Install the new bearing grease seal into the hub and press evenly until it flush.

17. Slide the hub onto the operating fork spindle.

Risk of damage to parts. Do not use excessive force may cause damage to the edge of the seal.

18. Place the external bearings in the hub.

19. Install the spindle washer, thrust washer and groove nut.

20.Tighten the groove nut with a torque of 203 Nm to mount the bearing.

21. Loosen the groove nut completely and re-tighten with 48 Nm of torque.

22. Install a new cotter pin. Bend the cotter pin to lock it in place.

NOTE: Always use a new cotter pin when installing the groove nut.

23. Install the dust cover.

5. Repair procedures

The repair program must be done by personnel trained and qualified by this machine.

Damaged or malfunctioning machines should be marked immediately and stop operation.

Repair all the damage and trouble before operating the machine.

Read, understand and follow the safety instructions and operating instructions in the operating instructions.

Be sure to have all the necessary tools and required parts for use.

Read each program in its entirety and strictly follow the instructions. Attempts to take shortcuts may cause risk factors.

If it is not otherwise specified, then each repair procedure can only be performed when the machine is in the following states:

- Place the machine on a solid horizontal surface
- The platform is in stowed position
- The key switch is in the OFF position and the key is unplugged
- The red "emergency stop" button for the ground and platform controllers is in the OFF position.
- The wheel is in locked status.

The machine has been disconnected from all external AC power supplies.

About this section

Most of the procedures in this section should be carried out by trained professional service personnel in well-equipped workplaces. When the fault is found, select the appropriate repair program.

Perform the disassembly procedure until exposed to the site to be repaired. Reassemble in the reverse order of the disassembly step.

Symbol Legend

Safety warning signs - used to warn of potential danger of personal injury. Observe all safety information after the mark to avoid possible injury or death.

Indicates that an emergency hazard condition, if not avoided, could result in death or serious injury.

Prompting a potentially dangerous situation, if not avoided, can result in death or serious injury.

Suggesting that a potentially dangerous situation, if not avoided, could result in minor or moderate personal injury.

Indicates a potentially hazardous situation that, if not avoided, could result in property damage.

Tips After completing a series of steps, specific results may appear.

Indicates that an error result occurs after completing a series of steps.

1-1

5.1.1 Remove the Platform

Controller Circuit Board Method

4.Push the red "emergency stop" button of the ground and platform controller into the OFF position.
5.Disconnect the platform controller from the control cable on the platform.
6.Remove the fasteners that secure the platform control box to the platform controller bracket.
7.Remove the fasteners that secure the bottom cover to the platform control box. Open the control box.
8.Unlock the strap of the fixed harness.
9.Disconnect the red and black lines from the alarm.
10.Carefully remove the alarm from the platform control box.
11.Carefully disconnect all harness connectors from the platform controller board.
Risk of electric shock / burn. Exposure to live circuits can result in death or serious injury. Remove all rings, watches and other accessories.

Risk of damage to parts. Electrostatic discharge (SED) can damage printed circuit board components. When operating on printed circuit boards, keep them in good contact with the metal parts that are always grounded on the machine, or use ground tapes.

1.Carefully remove the platform controller board fasteners.

2.Carefully remove the platform controller board from the platform control box.

3.Remove the transparent cap from the platform controller board and save it.

Circuit board fasteners torque specifications

Tighten by hand until the screws are in place < 0.6Nm

CAUTION: Before installing the circuit board, place the transparent cover removed in step 11 on the board button.

CAUTION: After installing the circuit board, check that the button is working properly. Excessive torque on circuit board fasteners can cause excessive torque. The circuit board fasteners do not make the buttons fit properly.

1-2

5.1.2 Method of Remove the Handle

1.Press the red "emergency stop" button on the ground and platform controller into the OFF position.

2.Disconnect the platform controller from the control cable on the platform.

3.Remove the fasteners that secure the platform control box to the platform controller bracket.

4.Remove the fasteners that secure the bottom cover to the platform control box. Open the control box.

5.Unlock the strap of the fixed harness.

6.Carefully disconnect the operating handle harness from the platform controller board.

Risk of electric shock / burn. Exposure to live circuits can result in death or serious injury. Remove all rings, watches and other accessories.

Risk of damage to parts. Electrostatic discharge (SED) can damage printed circuit board components. When operating on printed circuit boards, keep them in good contact with the metal parts that are always grounded on the machine, or use ground tapes.

7.Carefully remove the handle fasteners.

8.Carefully remove the operating handle from the platform control box.

Torque specifications

Operating handle fasteners 1Nm

1-3

5.1.3 Method of Remove the Platform to Control the Alarm

1.Press the red "emergency stop" button on the ground and platform controller into the OFF position.

2.Disconnect the platform controller from the control cable on the platform.

3.Remove the fasteners that secure the platform control box to the platform controller bracket.

4.Remove the fasteners that secure the bottom cover to the platform control box. Open the control box.

5.Disconnect the red and black lines from the alarm.

Risk of electric shock / burn. Exposure to live circuits can result in death or serious injury. Remove all rings, watches and other accessories.

Risk of damage to parts. Electrostatic discharge (SED) can damage printed circuit board components. When operating on printed circuit boards, keep them in good contact with the metal parts that are always grounded on the machine, or use ground tapes.

6.Carefully remove the alarm from the platform control box.

1-4

5.1.4 Method of remove the platform controller emergency stop button

1.Push the red "emergency stop" button of the ground and platform controller into the OFF position.

2.Disconnect the platform controller from the control cable on the platform.

3.Remove the fasteners that secure the platform control box to the platform controller bracket.

4.Remove the fasteners that secure the bottom cover to the platform control box. Open the control box.

5.Disconnect the white line from the "emergency stop" button base.

Risk of electric shock / burn. Exposure to live circuits can result in death or serious injury. Remove all rings, watches and other accessories.

Risk of damage to parts. Electrostatic discharge (SED) can damage printed circuit board components. When operating on printed circuit boards, keep them in good contact with the metal parts that are always grounded on the machine, or use ground tapes.

6.Carefully remove the "emergency stop" button base from the "emergency stop" button.

7.Carefully remove the retaining ring from the "emergency stop" button.

8.Carefully remove the "emergency stop" button from the platform control box.

5.2 Platform Components

2-1

5.2.1 Method of Remove the Platform

Warning! The risk of physical injury. The completion of this procedure requires special repair skills, lifting equipment and suitable workshops. Without these skills and tools, the execution of this procedure may result in death or serious injury and damage to important parts. Ask seller to repair.

Note: This procedure requires the use of the corresponding load-bearing air lifting equipment.

1.Unlock the strap that secures the platform power supply to the bottom of the platform.

Caution! Risk of damage to parts. Make sure that the platform power supply wiring is not cut off.

2.Remove the clip that secures the platform controller cable to the platform.

3.Disconnect the platform controller cable from the platform controller.

4.Remove the platform control box from the platform and set it aside.

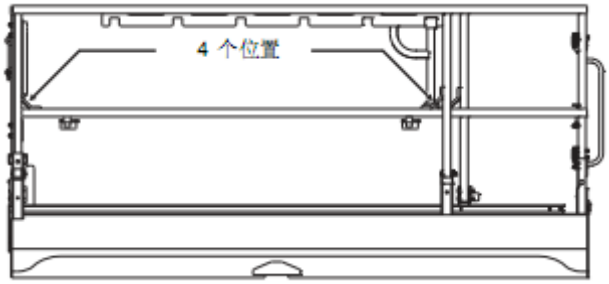
Caution! Risk of damage to parts. The platform controller wiring may be damaged when it is distorted or squeezed.

5.Remove the platform AC power socket cover. Mark and disconnect the wiring on the socket.

Warning! Risk of electric shock / burn. Exposure to live circuits can result in death or serious injury. Remove all rings, watches and other accessories.

Note: If your machine has an air tube option to the platform, you must disconnect the air tube from the platform before removing the air tube.

6.Connect the chain from the air lifting device to the four lifting points on the platform.



Warning! The risk of crushing. If the support is not correct, the platform will fall.

7.Remove the positioning fasteners of the platform pins on both sides of the platform bar.

8.Slide the platform bar from the fixed end on the other side of the platform so that the slider is moved to the platform rail slot, where the belt of the fixed platform bar is slowly raised to a certain height.

Carefully lift the platform away from the machine and place it on a device that can be used as a support.

Caution! Before removing the platform, note the mounting position of the wear pad on the platform so that they can be assembled in the correct position when assembled.

2-2

5.2.2 Method of Remove the Platform Extension

1.Lower the platform to the stowed position.

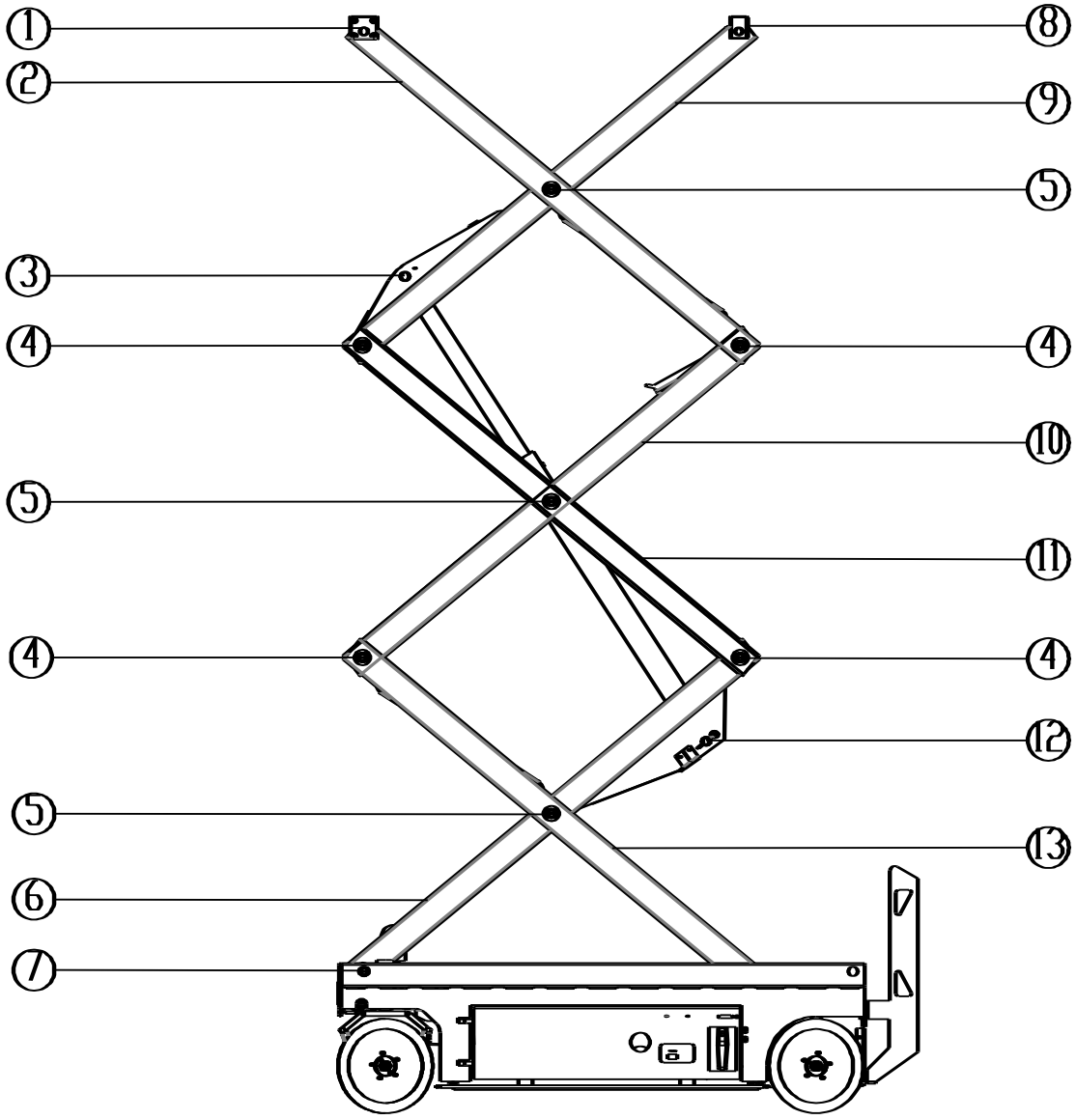
2.Use the belt to hang the platform extension.

3.Remove the captive screws as shown.

4.Slowly lift the extension platform and place it on a device that can be used as a support.

Warning! The risk of injury. Remove the platform from the machine fixed to the forklift, the platform extension will lose balance and fall.

Scissor arm parts (MX1930 for sample)



Steering End

1.Upper arm shaft block
2.80W outside upper arm
3.Cylinder upper seat pin
4.Arm long pin
5.Middle arm pin
6.Middle arm 4 assembly
7.Arm base pin

Non-steering End

8.Slider
9.80W inside upper arm
10.Middle arm 3 welding
11.Side arm
12.Arm seat pin
13.Scissor arm welding

3-1

5.2.3 Method of removing arm parts

The risk of physical injury. The completion of this procedure requires special repair skills, lifting equipment and suitable workshops. Without these skills and tools, the execution of this procedure may result in death or serious injury and damage to important parts. Ask seller to repair.
CAUTION: When removing the hose assembly or connector and re-installing it, you must replace the O-ring of the connector and / or hose and set the torque according to the specifications.

Note: This procedure requires the use of the corresponding load-bearing air lifting equipment and hanging chain.

1.Remove the platform. See Figure 2-11, Removing the Platform.
2.Remove the positioning fasteners that connect the ladders to the chassis. Remove the ladder and put it aside.
3.Remove the cable from the connecting rod assembly.
Caution! Risk of component damage.The cable may be damaged if it is twisted or squeezed.

4.Attach the belt to the lifting cylinder piston rod end with an appropriate support device. Do not apply pressure.

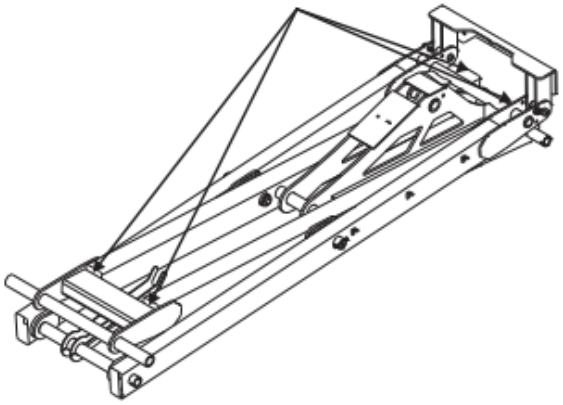
5.Remove the positioning fasteners on the pivot pin of the lift cylinder piston rod end.

6.Remove the pivot pin with a soft metal punch.

7.Lower the lift cylinder and remove the belt.

8.Connect the 4-hook chain to the end of the 80W inner shearing arm (# 9) using the air lifting device. Tension the chain, but do not apply lifting pressure.

Warning! The risk of injury. When removing the connecting rod assembly from the machine, if the support is improper, the connecting rod assembly will lose balance and fall.



9.Remove the positioning fasteners on the arm length pin (label # 4).

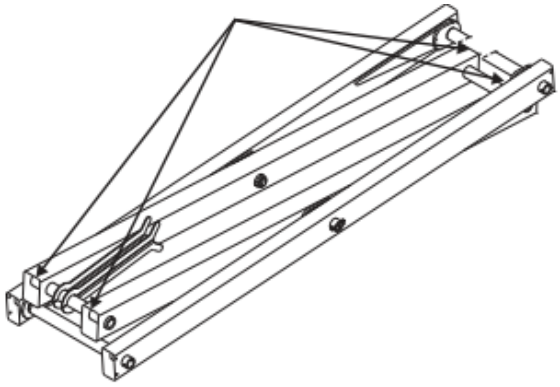
CAUTION: Do not remove the outer opening ring.

10.Use a soft metal punch to remove the pin and place it aside.

11.Carefully lift the connecting rod assembly away from the machine and place it on the device structure that can support it.

12.Use the air lifting device to connect the 4 hook chain to the end of the 3 arm (label # 10) in the shearing arm. Tension the chain, but do not apply lifting pressure.

Warning! The risk of injury. When removing the connecting rod assembly from the machine, if the support is improper, the connecting rod assembly will lose balance and fall.



13.Remove the positioning fasteners on the arm length pin (label # 4).

CAUTION: Do not remove the outer opening ring.

14.Use a soft metal punch to remove the pin and place it aside.

15.Carefully lift the connecting rod assembly away from the machine and place it on the device structure that can support it.

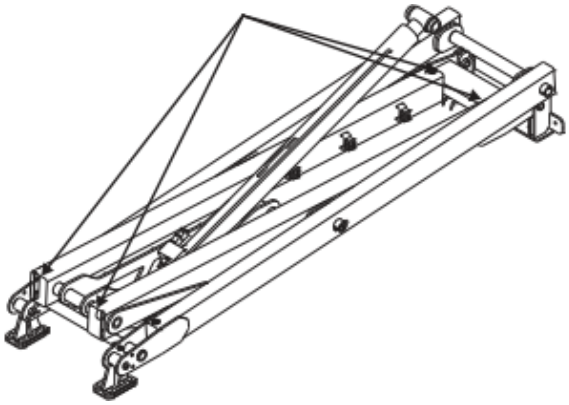
16.Mark and disconnect the harness on the lifting cylinder block.

17.Mark and disconnect the hydraulic hoses on the lifting hydraulic cylinder. Plug the hose and cover the joint with the cover.

18.Remove the hose clamp and hose from the trim arm 4 (label# 6).

19.Use the aerial lifting device to connect the 4 hook chain to the end of the 4 arm in the shearing arm. Tension the chain, but do not apply lifting pressure.

Warning! The risk of injury. When removing the connecting rod assembly from the machine, if the support is improper, the connecting rod assembly will lose balance and fall.



20.Carefully lift the connecting rod assembly away from the machine and place it on the device structure that can support it.

24.Remove the pin fasteners on the lower arm (label # 7).

CAUTION: Do not remove the outer opening ring.

25.Use a soft metal punch to remove the pin and place it aside.

26.Move the link mechanism toward the non-steering end of the machine until the chassis slider leaves the slide.

Carefully lift the connecting rod assembly away from the machine and place it on the device structure that can support it.

Separate Link Group:

1.Use the air lift device to connect the 4 hook chain to the inner shearing arm, middle shearing arm 3, and 4 at the end of the scissors arm 4 (# 9, # 10, # 6).

Warning! The risk of injury. When removing the connecting rod assembly from the machine, if the support is improper, the connecting rod assembly will lose balance and fall.

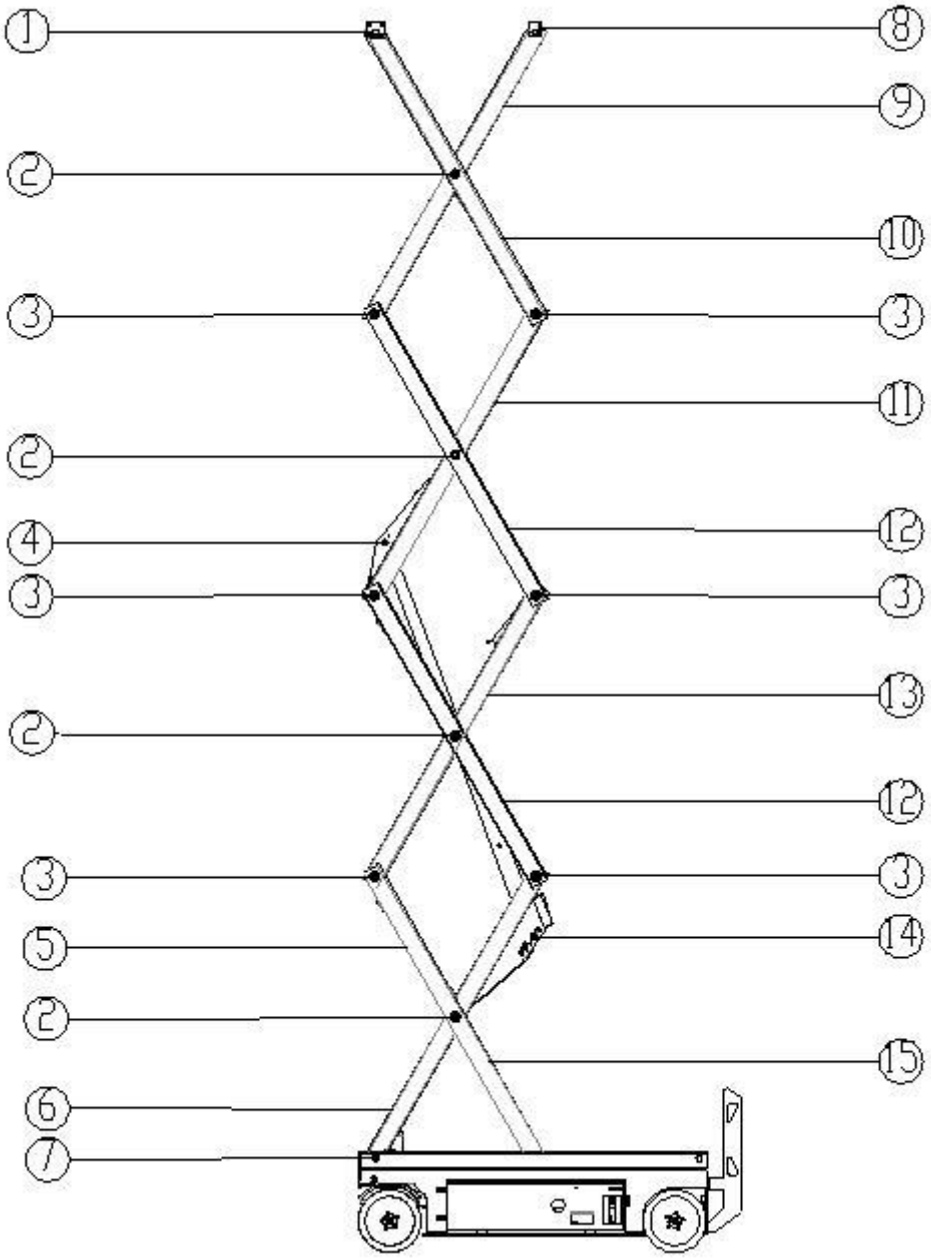
2.Remove the positioning fasteners on the pin (# 5) of the middle shearing arm.

CAUTION: Do not remove the outer opening ring.

3.Use a soft metal punch to remove the pin and place it aside.

4.Carefully lift the connecting rod assembly and separate it, and then place it on a device structure that can support it.

Scissor arm parts (X2632 for sample)



Steering end

1.Upper arm shaft block
2.middle arm pin
3.middle long pin
4.cylinder upper seat pin
5.base arm welding
6.middle arm 4 assembly
7.base arm pin
15.base arm welding

Non-steering end

8.slider
9.middle arm 1 assembly
10.upper arm assembly
11.middle arm 2 assembly
12.side arm
13.middle arm 3 welding
14.cylinder base seat pin

5.2.4Method of removing arm parts

Warning! The risk of physical injury. The completion of this procedure requires special repair skills, lifting equipment and suitable workshops. Without these skills and tools, the execution of this procedure may result in death or serious injury and damage to important parts. Ask seller to repair.

CAUTION: When removing the hose assembly or connector and re-installing it, you must replace the O-ring of the connector and / or hose and set the torque according to the specifications.

Note: This procedure requires the use of the corresponding load-bearing air lifting equipment and hanging chain.

1.Remove the platform. See Figure 2-11, Removing the Platform.

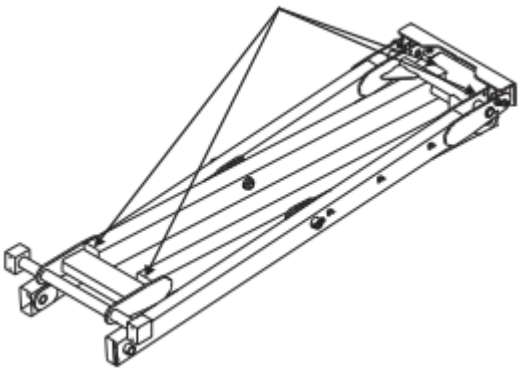
2.Remove the positioning fasteners that connect the ladders to the chassis. Remove the ladder and put it aside.

3.Remove the cable from the connecting rod assembly.

Caution! Risk of component damage.The cable may be damaged if it is twisted or squeezed.

4..Use the aerial lifting device to connect the 4 hook chain to the end of the trim arm 1 assembly (# 9). Tension the chain, but do not apply lifting pressure.

Warning! The risk of injury. When removing the connecting rod assembly from the machine, if the support is improper, the connecting rod assembly will lose balance and fall.



5.Remove the positioning fasteners on the arm length pin (label # 3).

CAUTION: Do not remove the outer opening ring.

6.Use a soft metal punch to remove the pin and place it aside.

7.Carefully lift the connecting rod assembly away from the machine and place it on the device structure that can support it.

8.Attach the belt to the lifting cylinder piston rod end with an appropriate support device. Do not apply pressure.

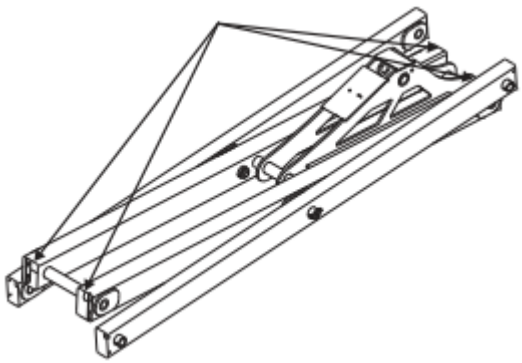
9.Remove the positioning fasteners on the lift cylinder piston rod end cylinder (label # 4).

10.Remove the cylinder catch pin (label# 4) with a soft metal punch.

11.Lift the hydraulic cylinder down and then remove the belt.

12.Use the aerial lift device to connect the 4 hook chain to the end of the 2 arm (label # 11) in the shearing arm. Tension the chain, but do not apply lifting pressure.

Warning! The risk of injury. When removing the connecting rod assembly from the machine, if the support is improper, the connecting rod assembly will lose balance and fall.



13. Remove the positioning fasteners on the arm length pin (label # 3).

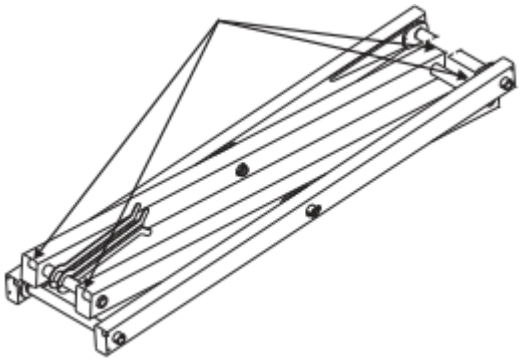
CAUTION: Do not remove the outer opening ring.

14.Use a soft metal punch to remove the pin and place it aside.

15.Carefully lift the connecting rod assembly away from the machine and place it on the device structure that can support it.

16.Use the air lifting device to connect the 4 hook chain to the end of the (# 13) middle shearing arm 3. Tension the chain, but do not apply lifting pressure.

Warning! The risk of injury. When removing the connecting rod assembly from the machine, if the support is improper, the connecting rod assembly will lose balance and fall.



17.Remove the positioning fasteners on the arm length pin (label # 3).

CAUTION: Do not remove the outer opening ring.

18.Use a soft metal punch to remove the pin and place it aside.

19.Carefully lift the connecting rod assembly away from the machine and place it on the device structure that can support it.

20.Mark and disconnect the harness on the lifting cylinder block.

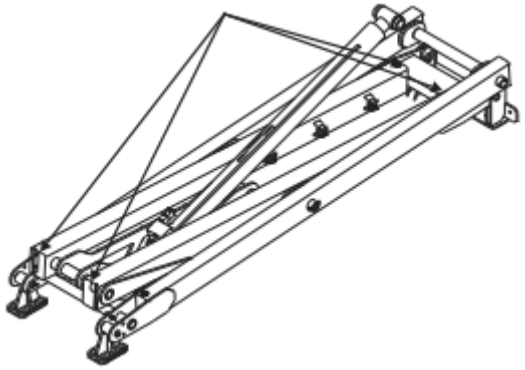
21.Mark and disconnect the hydraulic hoses on the lifting hydraulic cylinder. Plug the hose and cover the joint with the cover.

Warning! The risk of injury. When removing the connecting rod assembly from the machine, if the support is improper, the connecting rod assembly will lose balance and fall.

22.Remove the hose clamp and hose from the trim arm 4.

23.Connect the 4 hook chain to the end of the middle arm 4 (# 6) using an air lift device. Tension the chain, but do not apply lifting pressure.

Warning! The risk of injury. When removing the connecting rod assembly from the machine, if the support is improper, the connecting rod assembly will lose balance and fall.



24.Remove the positioning fasteners on the base arm (label # 7).

CAUTION: Do not remove the outer opening ring.

25.Use a soft metal punch to remove the pin and place it aside.

26.Move the link mechanism toward the non-steering end of the machine until the chassis slider leaves the slide.

27.Carefully lift the connecting rod assembly away from the machine and place it on the device structure that can support it.

5.2.5Replace the Method of the Pad

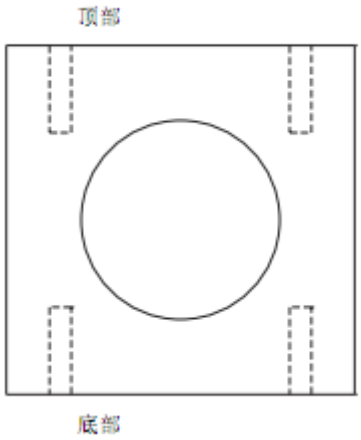
Platform Pad

1.Remove the platform. Please refer to the method of removing the platform.

2.Remove the platform slider and remove it.

3.Install the platform pad.

Note: When installing the platform, you must drill holes at the bottom and top of the platform pad.

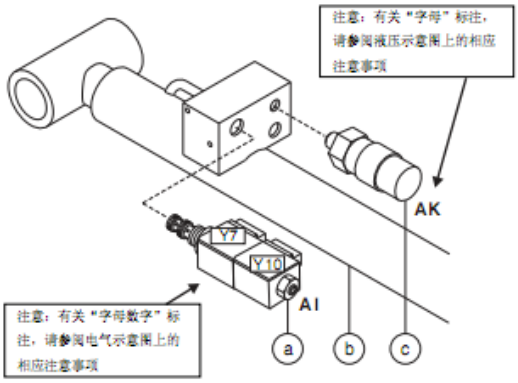


4.Install the platform.

3-4

5.2.6 Lifting cylinder

Lifting cylinders are single acting hydraulic cylinders. X2047, X2647 uses a lifting cylinder; and X3247, X3947 and X4647 are used two lifting cylinders. Each lift cylinder is equipped with a one-way valve to prevent the hydraulic cylinder from moving in the event of a hydraulic pipe failure.



a Platform lower solenoid valve
b Lifting Cylinder
c Pressure sensor

Method of lifting the hydraulic cylinder

X2047, X2647

Warning! The risk of physical injury. The completion of this procedure requires special repair skills, lifting equipment and suitable workshops. Failure to do so may result in death or serious injury and damage to important parts. It is strongly recommended to be repaired by the seller.

CAUTION: When removing the hose assembly or connector and reinstalling it, the O-ring on the connector and / or hose must be replaced and set the torque according to the specifications. Refer to Section 2 Hydraulic Hose and Connector Torque Specifications.

1.Remove the platform. Refer to 2-1 Method to Remove the Platform.

2.Remove the scissor arm. Refer to 3-1 for the removal of the scissor arm assembly.

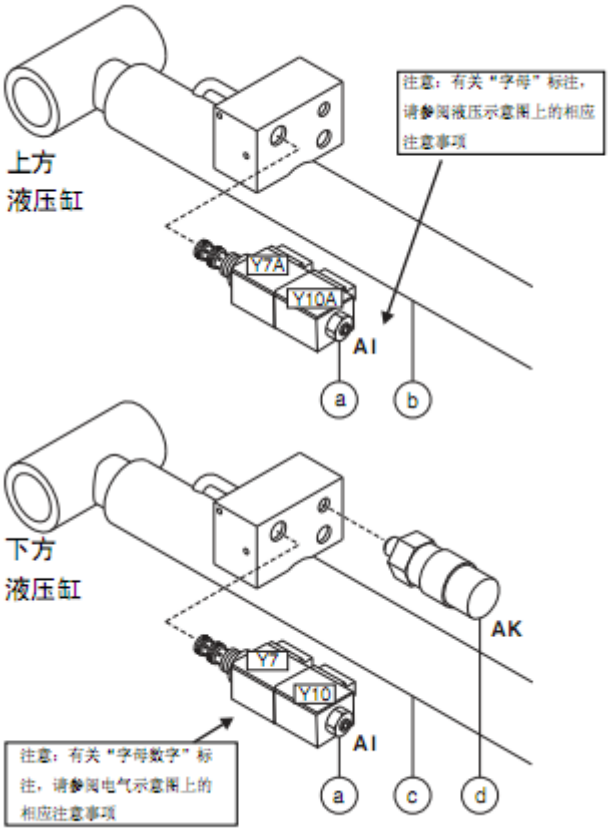
X3247, X3947 and X4647

Warning! Lifting cylinders are single acting hydraulic cylinders. X2047, X2647 uses a lifting cylinder; and X3247, X3947 and X4647 are used two lifting cylinders. Each lift cylinder is equipped with a one-way valve to prevent the hydraulic cylinder from moving in the event of a hydraulic pipe failure.

CAUTION: When removing the hose assembly or connector and reinstalling it, the O-ring on the connector and / or hose must be replaced and set the torque according to the specifications. Refer to Section 2 Hydraulic Hose and Connector Torque Specifications.

3.Remove the platform. Refer to 2-1 Method to Remove the Platform.

4.Remove the scissor arm. Refer to 3-1 for the removal of the scissor arm assembly.



a Platform lower solenoid valve
b Upper Lifting Cylinder
c Base Lifting Cylinder
d Pressure sensor

5.3 Chassis Parts

4-1

5.3.1 Hydraulic Pump

The hydraulic pump is a single stage gear pump.

CAUTION: When removing the hose assembly or connector and reinstalling it, you must replace the O-ring on the connector and / or hose and set the torque according to the specifications.

5.3.1.1 Method of Testing the Hydraulic Pump

1.Connect a pressure gauge with a measuring range from 0 to 350 bar to the test port on the function header.

2.Remove the platform controller from the platform and place the controller near the function tank of the machine tank side.

3.Turn the machine completely to the left or right side and remain stable. Write down the pressure reading on the pressure gauge.

5.3.1.2 Method of Removing the Hydraulic Pump Method

1.Mark, disconnect and plug the hydraulic hose on the pump. Cover the pump with the cover.

Caution! Risk of physical injury. Sprayed out of the hydraulic oil may penetrate and burn the skin. Slowly release the hydraulic connection to gradually reduce the oil pressure. Do not spray or splash oil.`

2.Remove the mounting bolts from the pump. Carefully remove the pump.

Caution! When replacing the hydraulic pump, it is important to adjust the lift speed and drive speed back to the original factory settings.

4-2

5.3.2 Hydraulic Tank

The main function of the hydraulic tank is to cool, clean and degrade the hydraulic oil during operation. It utilizes an internal inlet filter for the pump supply line and is equipped with an external return line filter.

5.3.2.1Method of Removing the Hydraulic Tank

Note! Risk of damage to parts. The work area and surface in which the program will be executed must be cleaned and there is no debris that may enter the hydraulic system and cause serious damage to the component. Recommended sales repairs.

CAUTION: When removing the hose assembly or connector and reinstalling it, the O-ring on the connector and / or hose must be replaced and set the torque according to the specifications.

1.Open the hydraulic tank side cover.

2.Remove the drain plug from the hydraulic tank and drain the oil from the tank thoroughly into the appropriate container.

Warning! Risk of physical injury. Sprayed out of the hydraulic oil may penetrate and burn the skin. Slowly release the hydraulic connection to gradually reduce the oil pressure. Do not spray or splash oil.

3.Mark and disconnect the harness on the ground control box.

4.Remove the ground control box from the machine and set it aside.

5.Mark and disconnect the hydraulic hose from the hydraulic tank and plug it in. Cover the terminals of the tank and return oil filter with a lid.

6.Loosen the mounting strap on the hydraulic tank. Pull the tank holder to the side.

CAUTION: Do not remove the fuel tank.

7.Remove the hydraulic tank from the machine.

Caution! Risk of damage to parts. Do not tighten the hydraulic tank belt mounting fasteners during installation.

CAUTION: Before installing, be sure to clean the hydraulic tank and check for cracks and other damage.

5.3.3Method of Removing the Steering Wheel Seat Assembly

1.Lock the non-steering wheel and place a jack in the center of the drive chassis of the machine's steering end.

2.Loosen the wheel lugs. Do not remove them.

3.Lifting machine about 5CM. Place the pad under the chassis as support.

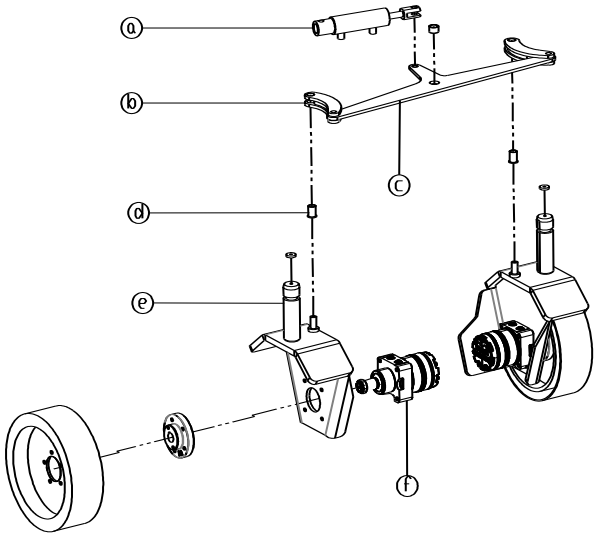
Warning! The risk of injury. If the support is improper, the chassis may fall.

4.Remove the wheel lugs. Remove the tire and wheel assembly.

5.Use a lifting device to support and secure the steering wheel assembly.

Right Steering Seat

1.Remove the positioning fasteners on the wheel seat arm b.



a. 140w Steering cylinder
b. Wheel seat arm
c. Steering connection plate
d. Steering seat plastic cover
e. Wheel seat right welding
f. Hydraulic motor

2.Remove the wheel seat arm.

3.Remove the right steering wheel assembly e from the machine.

Caution! The risk of injury. When the steering wheel assembly is removed from the machine, the steering wheel assembly may fall out of balance if it is not properly supported and is not secured with a suitable lifting device.

4.Repeat the above steps to remove the left steering wheel assembly.

4-4

5.3.4 Method of Removing the Motor

Caution! Risk of damage to parts. Only authorized dealers can perform motor repair operations.

Caution! Risk of damage to parts. The work area and surface in which the program will be executed must be cleaned and there is no debris that may enter the hydraulic system and cause serious damage to the component. Recommended sales repairs.

CAUTION: When removing the hose assembly or connector and reinstalling it, you must replace the O-ring on the connector and / or hose and set the torque according to the specifications.

1.Refer to Repair Agent 4-3 method of removing the fork assembly.

2.Remove the drive motor mounting fasteners. Remove the motor from the operating fork.

4-5

5.3.5 Method of Removing the Steering Cylinder

CAUTION: When removing the hose assembly or connector and reinstalling it, you must replace the O-ring on the connector and / or hose and set the torque according to the specifications.

1.Mark, disengage and plug the hydraulic hose on the steering cylinder. Cover the connector on the hydraulic cylinder with a lid.

Warning! Risk of physical injury. Sprayed out of the hydraulic oil may penetrate and burn the skin. Slowly release the hydraulic connection to gradually reduce the oil pressure. Do not spray or splash oil.

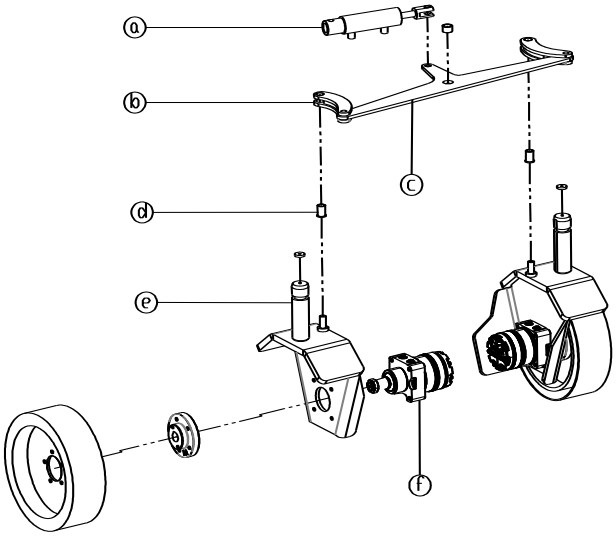
2.Refer to Repair Agent 4-3 method of removing the fork assembly.

3.Remove the steering cylinder from the steering wheel assembly.

4-6

5.3.6Method of Removing the Rod

1.Refer to Repair Procedure 4-3 for removing the steering wheel assembly.



a. 140w Steering cylinder
b. Wheel seat arm
c. Steering connection plate
d.Steering seat plastic cover
e. Wheel seat right welding
f. Hydraulic motor

2.Remove the tie rod c from the steering wheel seat assembly.

Obey:

The troubleshooting and repair process must be performed by trained and qualified personnel who have been trained in the machine.

Damaged or malfunctioning machines should be marked immediately and stop operation.

Before operating the machine, it must repair all its damage and malfunction.

Unless otherwise specified, the individual repair procedures can only be performed if the machine is in the following configuration:

- Place the machine on a solid horizontal surface
- The platform is in stowed position
- The key switch is in the OFF position and the key is pulled out
- The red "emergency stop" button for the ground and platform controllers is in the OFF position
- The wheel is in locked status
- The machine has been disconnected from all external AC power supplies

6. Fault Code

Before troubleshooting:

Read, understand and follow the safety instructions and operating instructions in the operating instructions.
Make sure that all necessary tools and test equipment are ready.
Pay attention to the following hazardous situations and comply with the prevailing workshop safety practices.

Danger! Risk of injury. When testing or replacing hydraulic components, always support and fix the components to prevent movement.

Caution! Risk of electric shock. Exposure to live circuits can result in death or serious injury. Remove all rings, watches and other accessories.

Caution! Risk of physical injury. Sprayed out of the hydraulic oil may penetrate and burn the skin. Slowly release the hydraulic connection to gradually reduce the oil pressure. Do not spray or spray oil.

Note! Perform all troubleshooting on a solid, flat ground.

Note! For some troubleshooting operations, two people are required for safety reasons.

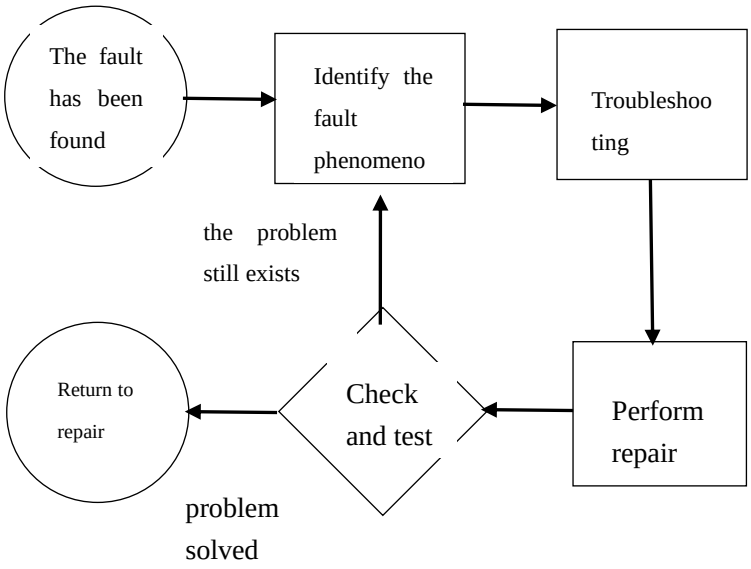
About this section

After finding the fault, use the flow chart in this section to help professional service personnel identify the cause of the malfunction. To operate in this section, you need to have basic hand tools and some test equipment - voltmeter, ohmmeter, pressure gauge.

The terminal positions referred to in this section can be found in the corresponding electrical and hydraulic diagrams provided in the diagram below.

Since a function may degrade in varying degrees, it may be difficult to choose a suitable flow chart. When the machine is in good condition, but the same speed or power can not use a function, please refer to the fault description of the closest flow chart.

General Maintenance Process



6.1 B system fault code

Code	Fault	Probable Reason	Problem Solution
01	Internal ECU failure	ECU content error, EEPROM is not programmed	Replace ECU
02	ECU / platform communication failure	Control cable error or platform control failure	Check the control cable or platform control
03	The configuration code is not defined	The machine configuration code is set incorrectly	Set the configuration code correctly
12	The on / off switch opens when the switch is started	Up / down switch error	Check up / down the toggle switch
18	Pothole protection switch failure	The pothole protection switch is wrong or there is an obstacle at the connection	Check the pothole switch or remove the obstacle
19	Trip switch error	Stroke switch line fault or trip switch line is open	Check the trip switch or check the line
31	Pressure sensor error	The pressure sensor is not installed or the line is faulty	Check the line or replace the sensor
32	Angle sensor error	The angle sensor is not installed or the line is faulty	Check the line or replace the sensor
42	Left turn switch error	Turn left micro switch fault	Check the left turn micro switch
43	Right turn switch error	Turn Right micro switch fault	Check the Right turn micro switch
46	Drive confirmation switch error	Drive confirmation switch failure	Check the travel confirmation switch
47	The platform handle is wrong	The handle is not centered	Correct or replace the handle
52	Forward coil error	Coil fault or coil circuit break	Check the coil or service line
53	Backward coil error	Coil fault or coil circuit break	Check the coil or service line
54	Platform up coil error	Coil fault or coil circuit break	Check the coil or service line
55	Platform down coil error	Coil fault or coil circuit break	Check the coil or service line
56	Turn right coil error	Coil fault or coil circuit break	Check the coil or service line
57	Turn left coil error	Coil fault or coil circuit break	Check the coil or service line
58	Brake coil error	Coil fault or coil circuit break	Check the coil or service line

59	Series / parallel coil error	Coil fault or coil circuit break	Check the coil or service line
60	ECU speed output hardware error	ECU internal hardware error	Replace ECU
82	Right brake coil error	Coil fault or coil circuit break	Check the coil or service line
83	Left brake coil error	Coil fault or coil circuit break	Check the coil or service line
68	Battery voltage is low	The battery is discharged	Charge
80	Ballast reaches the calibration of 80%	Pay attention to overload, do not add too much	Remind attention to load
90	Ballast reaches the calibration of 90%	Pay attention to overload, do not add too much	Remind attention to load
99	Ballast reaches the calibration of 99%	Pay attention to overload, do not add too much	Remind attention to load
LL	Machine tilted	Chassis tilt or angle switch failure	Reduce the tilt angle of the chassis
OL	Machine overload	Platform overload	Reduce the load

6.2 System noise and vibration

Fault	Description	Method to repair
Oil tank level	Low oil level causes cavitation in the tank	Add proper amount of clean oil
Oil is too high / pump oil vacuum	The air in the system reduces the efficiency of components and controls. Excessive noise, foam and overheating indicate that there may be air in the system	Find out where the air enters the system and repair the leak. Check that the inlet line is not restricted and the diameter is qualified
Cold oil	The cold oil is too viscous: the pump produces suction	Rotate the oil through the engine to the normal operating temperature
Pump suction vacuum	High oil absorption vacuum will cause excessive noise / produce cavitation	Check that the piping is not restricted and the path is qualified. Check the filter and its bypass valve
Coupling	Loose coupling will cause abnormal noise	Replace the loose coupling. Replace the pump spindle
Axis alignment	Eccentricity of shaft and coupler will lead to abnormal noise	Align the axes
Oil filling / system relief valve	Abnormal noise indicates that the valve may be viscous and there is contamination	Clean or replace the valve, check the pump

6.3 System Work Overheating

Fault	Description	Method to Repair
Oil tank level	The oil in the tank is insufficient to meet the cooling requirements of the system	Add proper amount of clean oil
Radiator (if installed)	The radiator is not sufficient to meet the cooling requirements of the system	Check the air flow and temperature through the radiator. Clean or repair the radiator if necessary
Radiator bypass valve	Partially opened radiator bypass valves will cause heat generation within the system	Make sure that the bypass valve is fully closed and fit properly with the valve seat. If necessary, to repair or replace it
SCR (system check valve / relief valve)	Partially open SCR valves or overflows are set too low for SCR valves to generate heat in the system	Make sure that the SCR valve is properly fitted to the valve seat and that the relief pressure is set correctly. Repair or replace if necessary.
Hydraulic oil filter	Blocked filters may cause insufficient cooling of the system	Check the hydraulic oil filter to determine if it can continue to work properly. Replace the filter if necessary
System load	Overload or extreme load cycles will cause pump and / or motor speed and pressure to exceed system design limits.	Make sure the machine works according to the designed parameters. Reduce the machine load if necessary

6.4 System Unresponsive

Fault	Description	Method to repair
Oil tank level	System circuit oil supply is insufficient	Add proper amount of clean oil
Input control signal (handle, current or pressure)	Pump receivie an error control signal . (MDC- handle is bound or have been broken, EDC- signal is incorrect or insufficient, HDC- damping hole control pipeline is blocked or error)	Make sure that the input signals received in both directions are correct
Pump control	The pump's control module or the control spool is damaged, will cause the control signal not be properly transmitted to the pump	To ensure that the pump control operation is correct and the control spool is not damaged or the use of time is too long, the spool should move in the cavity normally. If necessary, clean, repair or replace the pump's control module or control spool.
Bypass valve	A partially open bypass valve will cause the cross port to leak	Make sure the bypass valve is closed and set correctly. If necessary, clean, repair or replace the bypass valve.
SCR (system check valve / relief valve)	SCR valve one-way or two-way valve core movement blocked	Make sure the SCR valve is working properly. If necessary, repair or replace the valve.
Charge pressure (median)	Charge pump damage or charge relief valve set pressure is low, resulting in the charge pressure is too low.	Check the charge pump is damaged or not and that the charge relief valve is set correctly or not. If necessary, repair or replace the charge pump or oil relief valve.
Charge pressure (variable)	Internal leakage causes the system to fill the oil pressure too low	Repair or replace the components that cause leakage
Servo pressure	Lackage of pressure at both ends of the Servo piston	Check the servo pressure of ports M4 and M5 to determine that there is sufficient pressure differential. Make sure that the servo oil supply or drain path is smooth and that the size of each damper hole is correct and clean, clean or repair if necessary.
Charge pump	The charge pump is damaged or installed in the wrong direction	Make sure the charge pump is working properly and installed correctly. If necessary, repair or replace the charge pump.

6.5 The System can not Work in Both Directions

Fault	Description	Method to repair
Oil tank level	System circuit oil supply is insufficient	Add proper amount of clean oil
Displacement limiter	The displacement limiter is misaligned so that the servo piston is locked	Make sure the displacement limiter is set correctly
Input control signal (handle, current or pressure)	Pump receivie an error control signal . (MDC-handle is bound or have been broken, EDC-signal is incorrect or insufficient, HDC-damping hole control pipeline is blocked or error)	Make sure that the input signals received in both directions are correct. If necessary, adjust, clear, repair or replace the control module.
Hydraulic oil filter	Blocked filters may cause the system's oil supply to be insufficient	Check the hydraulic oil filter to determine if it can continue to work properly. Replace the filter if necessary.
Bypass valve	A partially open bypass valve (one or two) will cause the cross port to leak	Make sure the bypass valve is closed and properly engaged with the valve seat. If necessary, clean, repair or replace the bypass valve
Charge pressure (median)	The charge pressure is insufficient, so that the system circuit can not be provided enough oil	Check if the charge pump is damaged. Make sure the oil relief valve is set correctly. Repair or replace the charge pump if necessary.
Charge pressure (variable)	Internal leakage causes the system to fill the oil pressure too low	Repair or replace the components that cause leakage
Servo pressure	Lackage of pressure at both ends of the Servo piston	Check the servo pressure to ensure both ends of the differential pressure. Make sure that the servo supply and drain lines are smooth and that each damper is dimensioned and clean. If necessary, clean up or repair.
Charge pump	The charge pump is damaged or installed in the wrong direction	Make sure the charge pump is working properly and installed correctly. If necessary, repair or replace the charge pump.
SCR (system check valve / relief valve)	SCR valve failure or setting error	Make sure the SCR valve is set correctly. If necessary, repair or replace the valve.

6.6 A Certain Direction of the System can not Work

Fault	Description	Method to repair
Input control signal (handle, current or pressure)	Pump receivie an error control signal . (MDC- handle is bound or have been broken, EDC- signal is incorrect or insufficient, HDC- damping hole control pipeline is blocked or error)	Make sure that the input signals received in both directions are correct. If necessary, adjust, clear, repair or replace the control module.
Displacement limiter (if installed)	The displacement limiter may be adjusted incorrectly, causing the servo piston to move in one direction.	Make sure the displacement limiter is correct
SCR (system check valve / relief valve)	SCR valve failure or setting error	Make sure the SCR valve is working correctly. If necessary, repair or replace the valve.
Pump control	Damaged or deviated pump control will make the pump work only in one direction.	Make sure the pump control function is correct. Repair or replace the control module if necessary.
Servo pressure	One of the servo pistons is leaking or the oil supply line is clogged	Make sure the servo oil supply or drain path is smooth and the size of each damper hole is correct and clean. If necessary, clean up or repair.

6.7 It’s difficult to find the Median or there is no median

Fault	Description	Method to repair
Input control signal (handle, current or pressure)	Pump receive an error control signal. (MDC- handle is bound or have been broken, EDC- signal is incorrect or insufficient, HDC- damping hole control pipeline is blocked or error)	Make sure that the input signals received in both directions are correct. If necessary, adjust, clear, repair or replace the control module.
System pressure	There have pressure leakage on both side of the work circuit when there is no input control signal.	Re-adjust the pump Median. See page 24 for adjustment procedures
Servo pressure	There have pressure leakage on both sides of the servo piston when there is no input control signal.	Re-adjust the control Median. See page 25 to page 26 for adjustment procedures
PCP pressure (EDC only)	There have pressure leakage on both sides of the control valve spool when there is no input control signal.	Replace EDC

6.8 Electrical Fault Diagnosis

Fault	Description	Method to repair
The pump works only in one direction	Control coil failure (EDC)	Measure the coil resistance, its resistance value should be 14.20 ohms (24V) or 3.66 ohms (12V) at 20 degrees Celsius (70 degrees Fahrenheit). Replace the coil.
The pump does not work	The controller is not available with electric power	Restore power to the controller
Pump dose not work normally	Poor electrical contact with the pump	Disconnect, check the line, reconnect the wires
Filter bypass indicator switch	The switch may be damaged	Check / replace the switch. Measure the bypass port pressure to determine the appropriate flow. Determine the switch operation by measuring the resistance. Open: resistance greater than or equal to 510ohms; closed: resistance is less than or equal to 122ohms.

7. Schematic Diagram

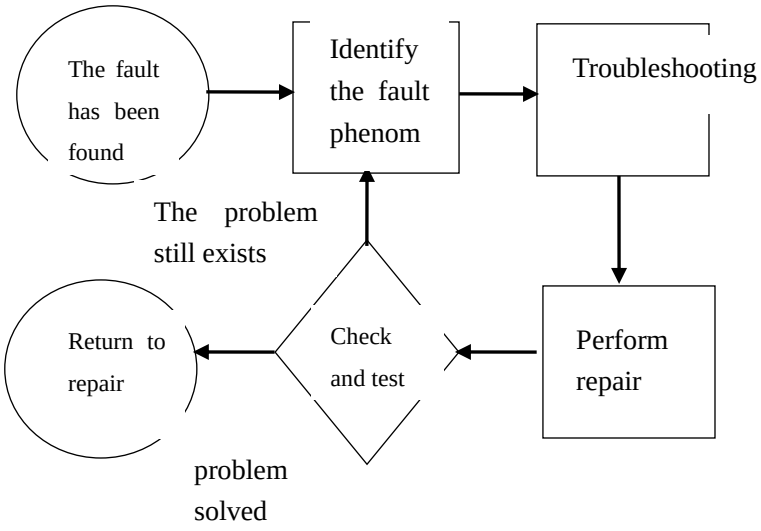
Obey:

The troubleshooting and repair process must be performed by trained and qualified personnel who have been trained in the machine.
Damaged or malfunctioning machines should be marked immediately and stop operation.
Before operating the machine, repair all the damage and trouble.

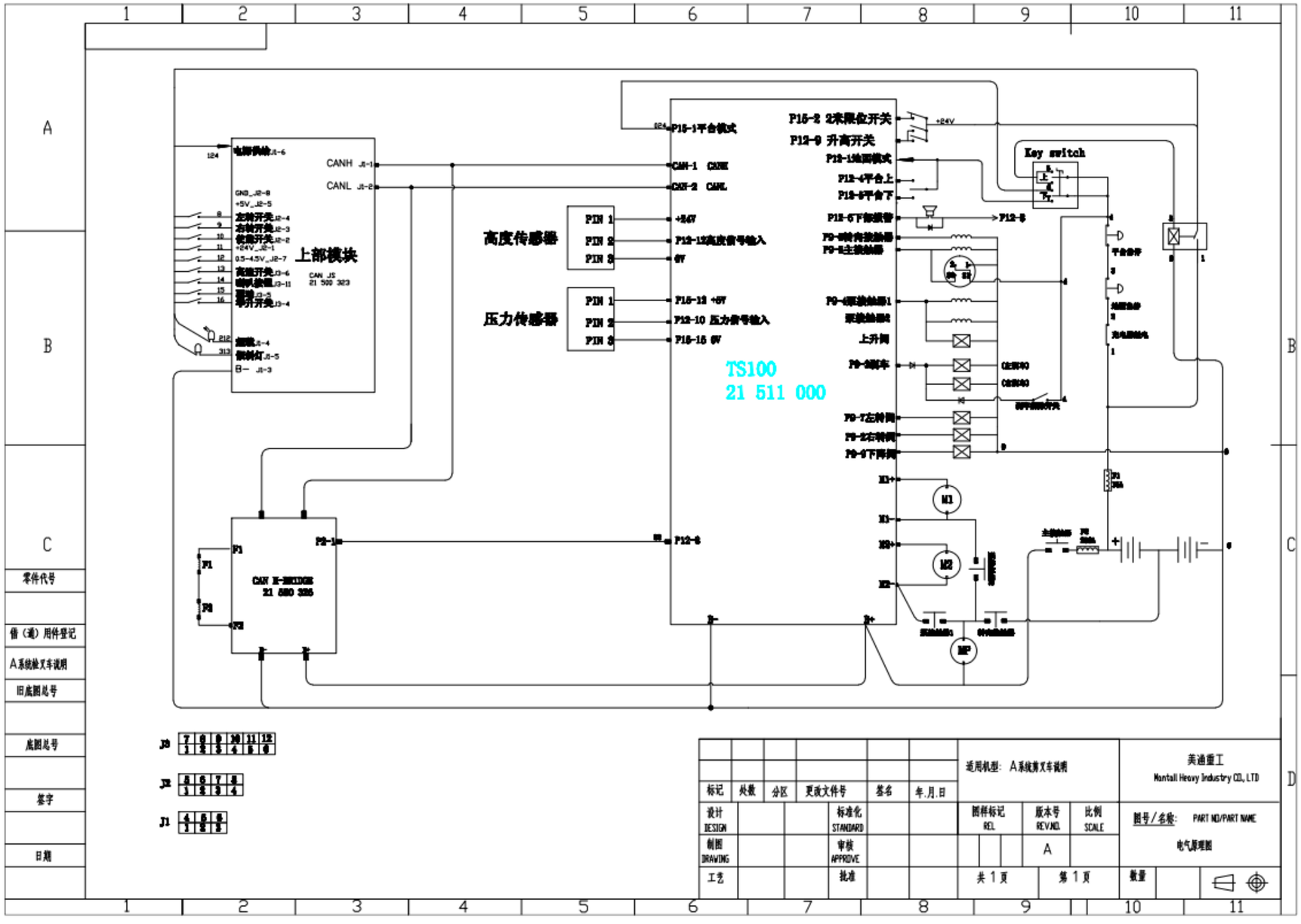
Before troubleshooting:

Read, understand and follow the safety instructions and operating instructions in the appropriate operating instructions.

Make sure that all necessary tools and test equipment are ready.



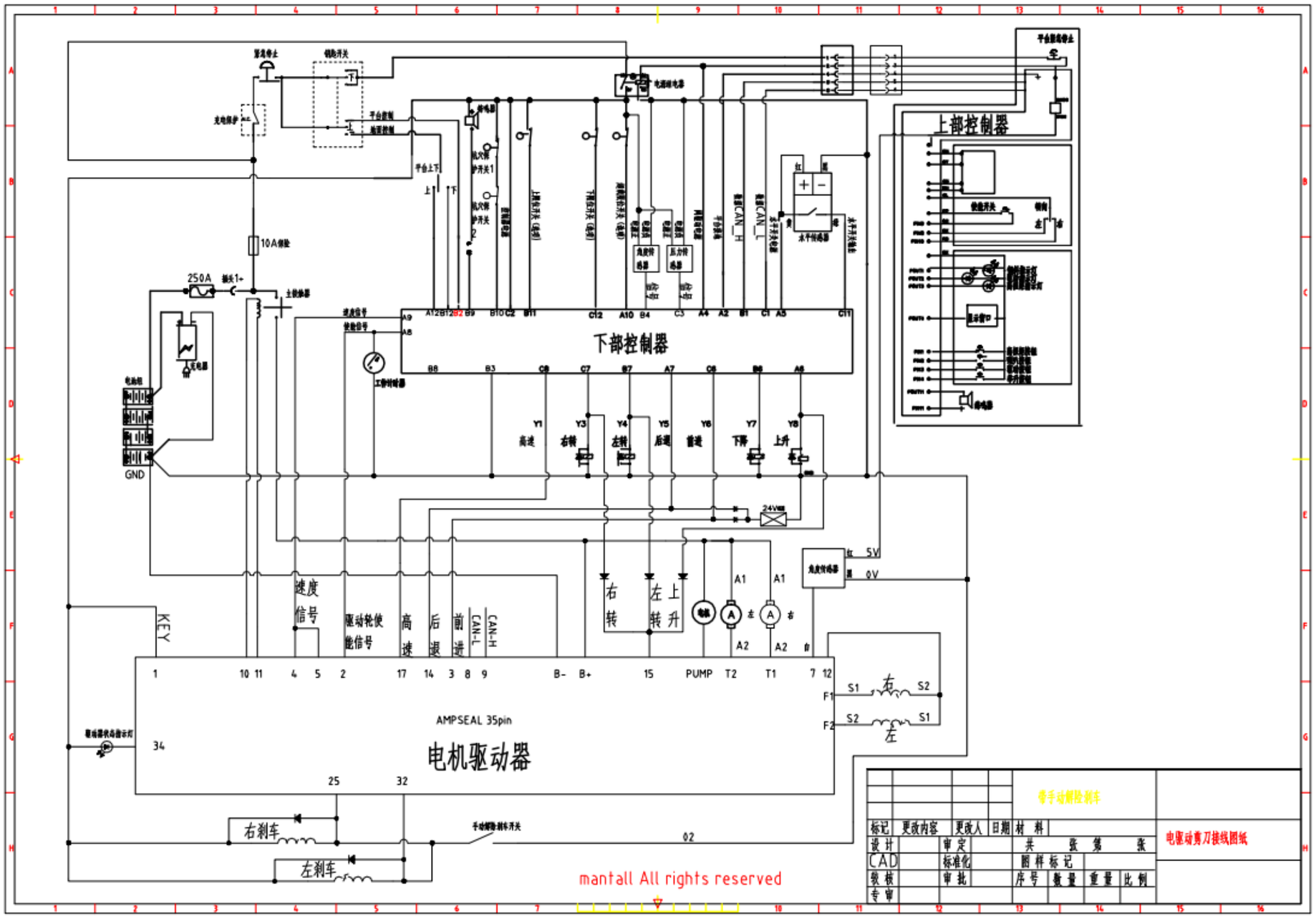
7.1Electrical diagram 7.1.1Electrical diagram of Electric drive A system



Pic.1 (Just reference)

Spare Parts Code
Borrow drawing register
A System Scissor Lift Explanation
Old Drawing Code
Drawing Code
Signature
Date
Joystick
Height Sensor
Overload Sensor
Mark
Design
Drawing
Technology
No.
Zone
Revised Documents
Standard
Audit
Approval
Signature
Date
Applicable models: A system scissors lift instructions
Pattern mark
Total 1 page
Version No.
Scale
Page 1
Pic. No./Name
Electric Diagram

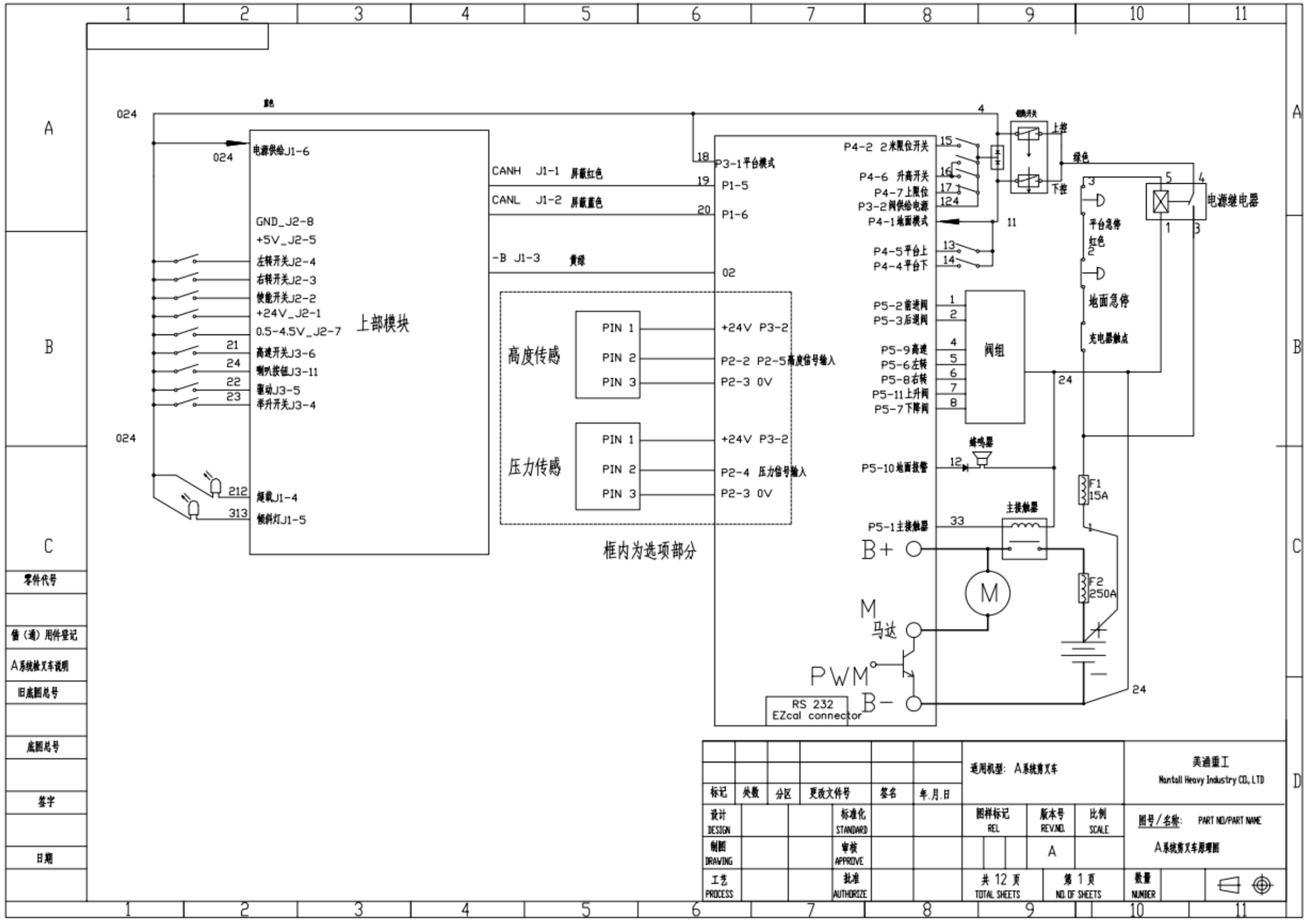
7.1.2 Electrical diagram of Electric drive B system



Pic.2

Speed
Signal
Driving Wheel
Enable Signal
High Speed
Back
Forward
Electric Drive Motor
Right Brake
Left Brake
Ground Control
High Speed
Turn Right
Turn Left
Backward
Forward
Lower Down
Lift
Turn Right
Turn Left
Lift
Joystick
Mark
Design
CAD
Double Check
Check Special
Change Content
Change person
Date
Confirmed
Standard
Confirm and Signature
Material
Total Pages
Drawing Mark
No.
Qty.
Weight
Scale
Electric Drive Scissor Lift Wiring

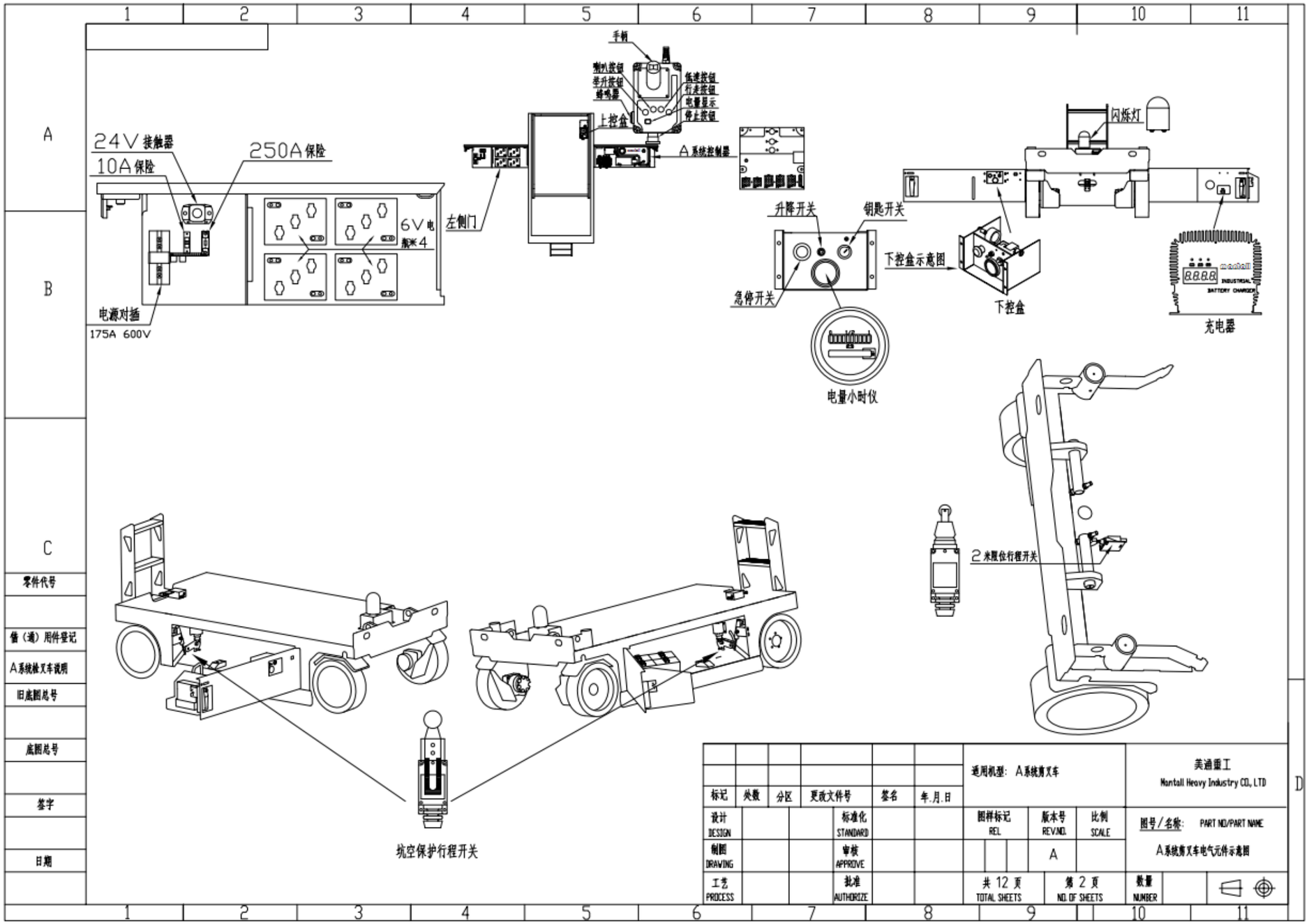
7.1.3 Electrical diagram of Hydraulic drive A system



Pic.3(Some same as Pic.1)
Power Supply
Turn Left Switch
Turn Right Switch
Enable Switch
Joystick
High Speed Switch
Horn button
Drive
Lift switch
Overload
Tilt Alarm
Shielding red
Shielding blue
Yellow Green
Height Sensor
Overload Sensor
Inside the box is the option section
Platform Mode
Height signal input
Pressure signal input
2m Stop
Lift Switch
Upper limit
Valve supply to power
Ground Control
Platform Up
Platform Down
Forward Valve
Backward Valve
High Speed
Turn Left
Turn Right
Up Valve
Down Valve
Ground Alarm
Main Contactor
Key Switch
Joystick
Green
Ground Control
Power relay

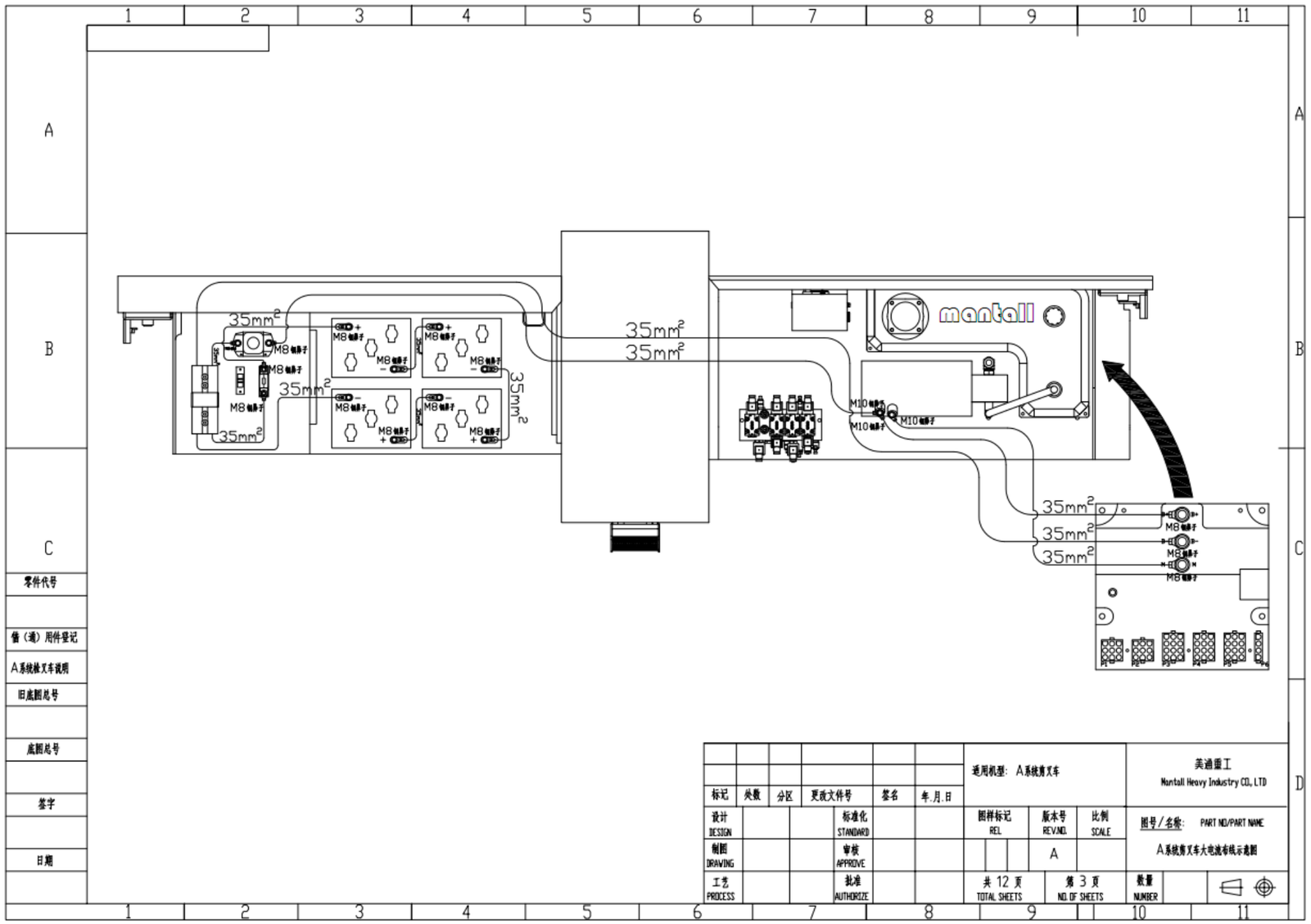
Platform Emergency Stop Button
Red Color
Ground Emergency Stop Button
Charger contactor
Valve Group
Horn
Main Contactor
Totally Page 12
A System Scissor Lift Diagram
Qty.

7.1.4 Illustration of electrical components of Hydraulic drive A system



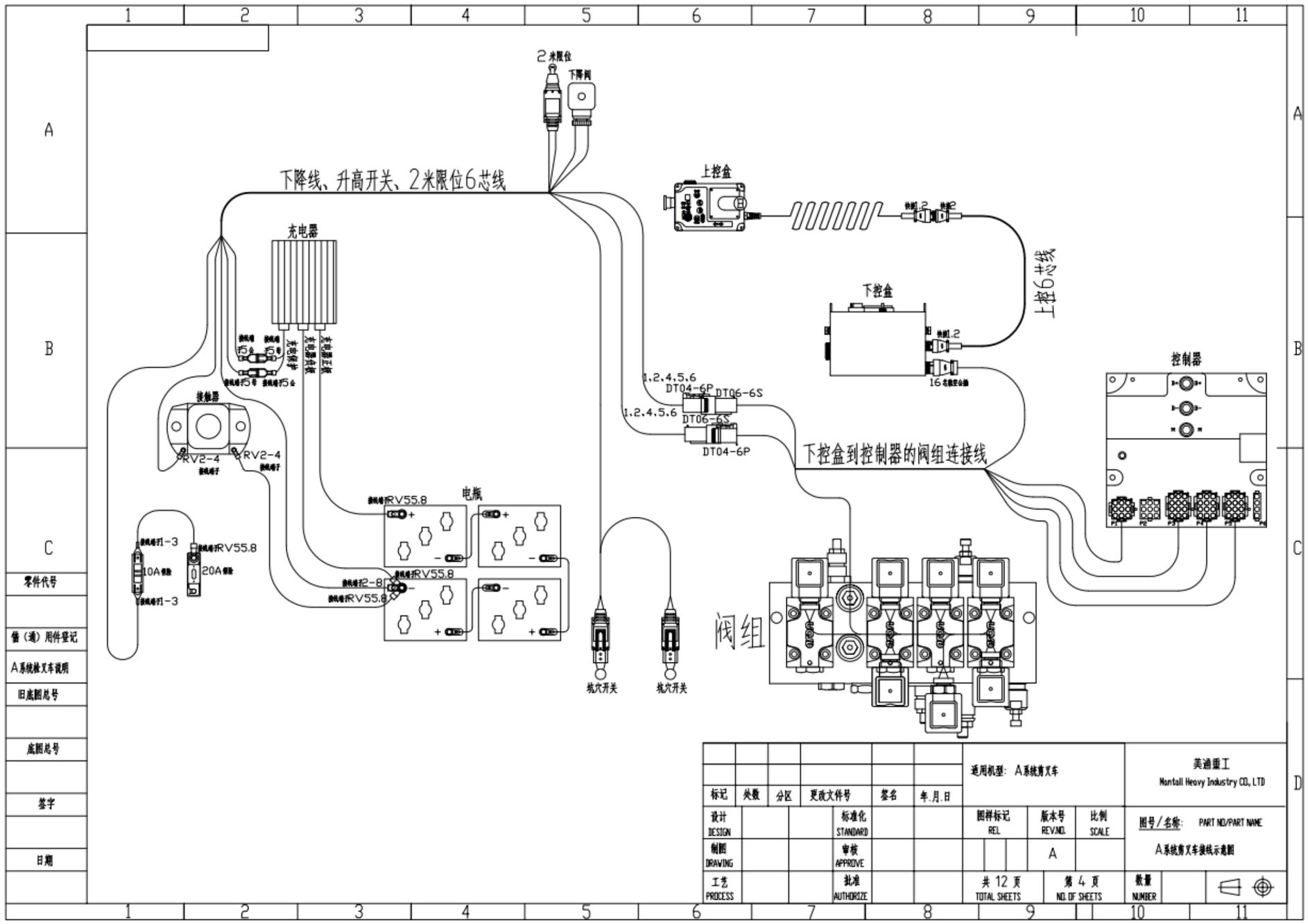
Pic.4(Some same as Pic.1)
Contactor
Insurance
White Line
Electric power plug
Left side door
Pothole guard limit switch
Joystick
Horn Button
Lift button
Beeper
Joystick
Low speed Button
Driving button
Battery Display
Stop button
A system controller
Flash
Up and down switch
Key switch
Emergency Stop Button
Ground control diagram
Ground Control
Charger
Hour Meter
2m stop limit switch
Page 12
The Second Page
A system Scissor Lift Electric Components Diagram
Qty.

7.1.5 High Current wiring diagram of Hydraulic drive A system



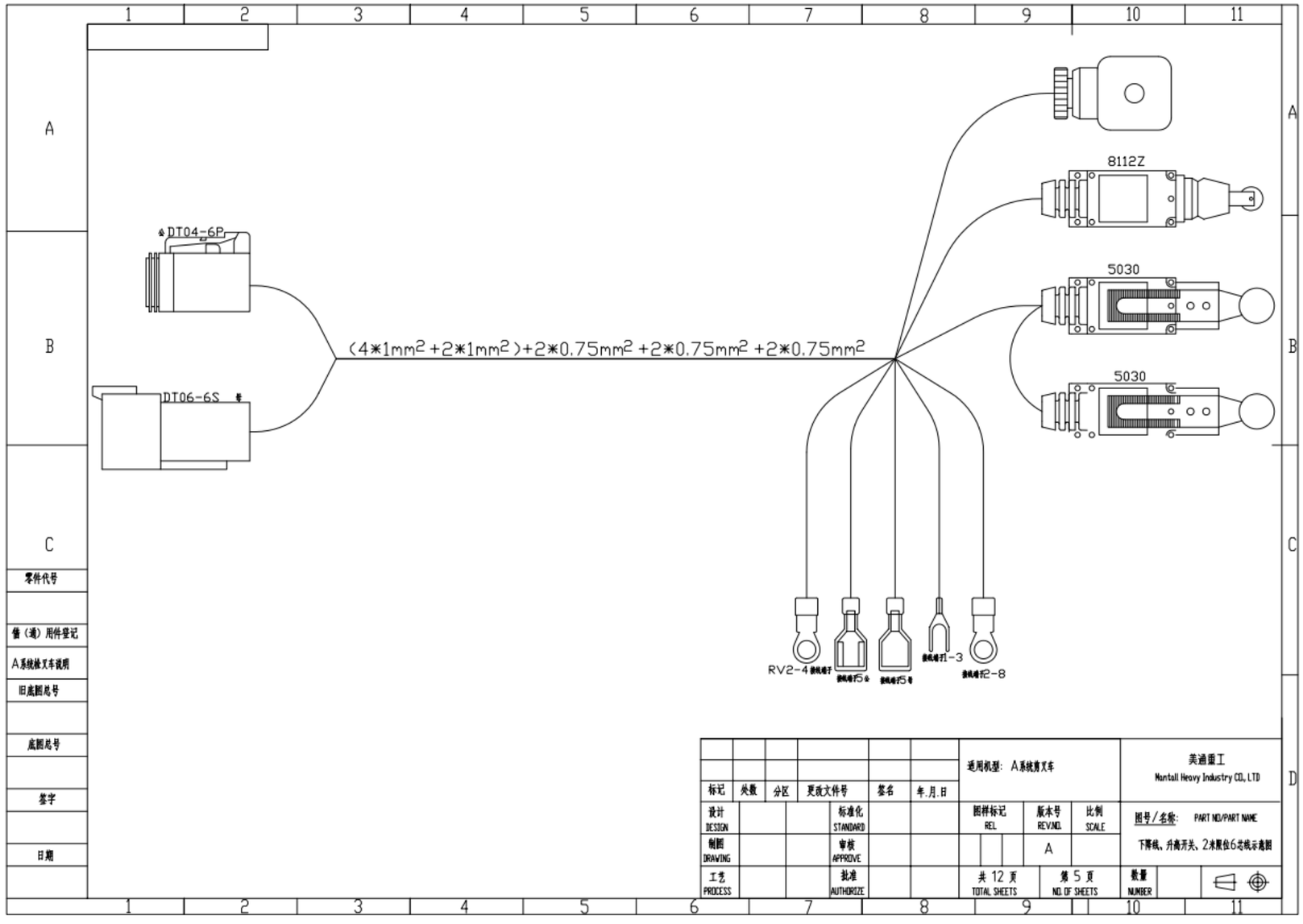
Pic.5(Some same as Pic.1)
Page 12
The Third Page
A System Scissor Lift Wiring Diagram
Qty.

7.1.6 Wiring diagram of Hydraulic drive A system



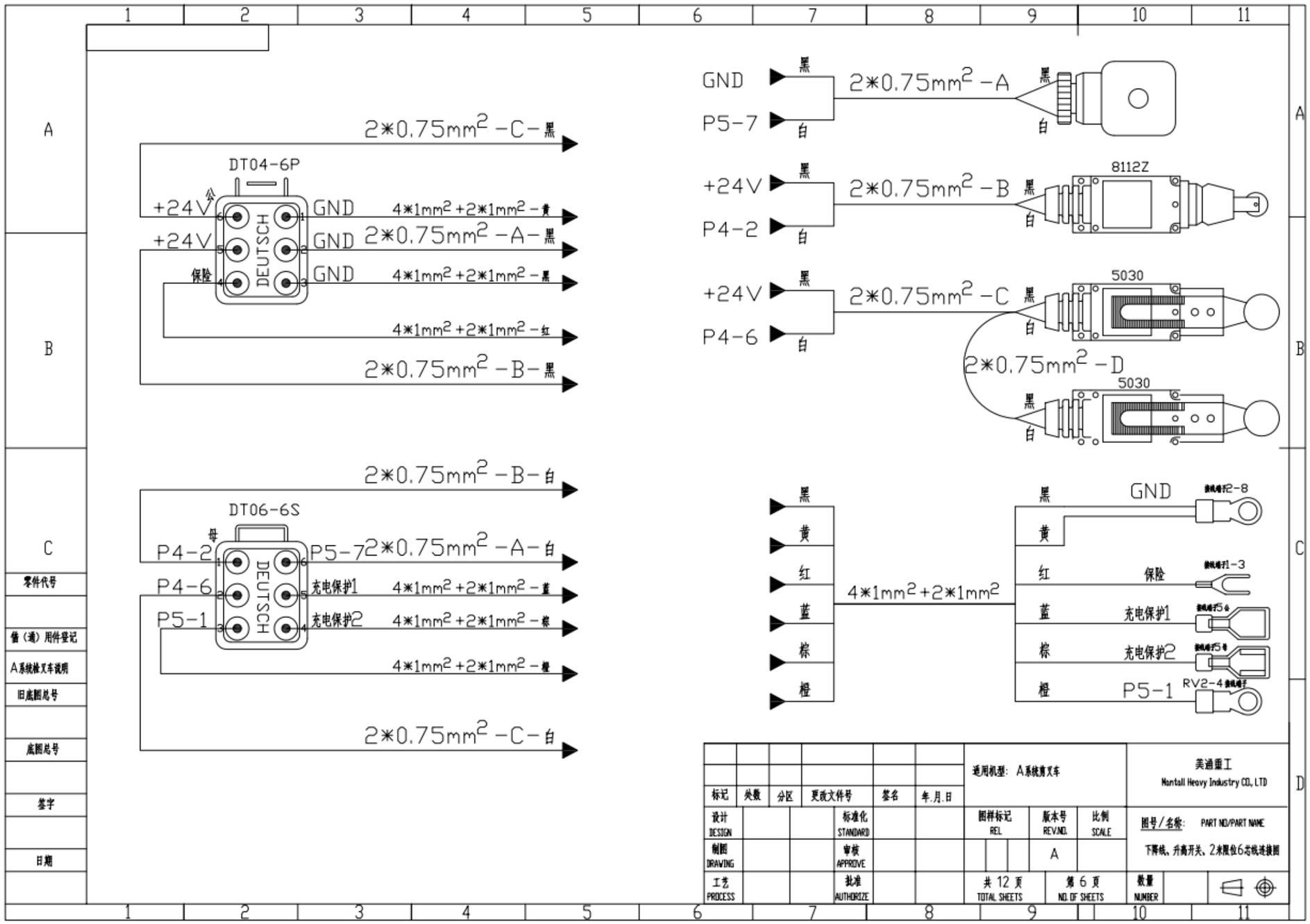
Pic.6(Some same as Pic.1)
2m stop
Lower down Valve
Lower down wire, lift switch, 2m stop wiring
Charger
Batteries
Joystick
Ground Control
Upper 6 core wiring
Controller
The wiring connected Ground control and Controller
Pothole guard switch
Pothole guard switch
Valve Group
Totally 12 pages
The fourth Page
A System Scissor Lift Wiring Diagram
Qty.

7.1.7Down line, raised switch, 2 m limit six core line diagram of Hydraulic drive A system



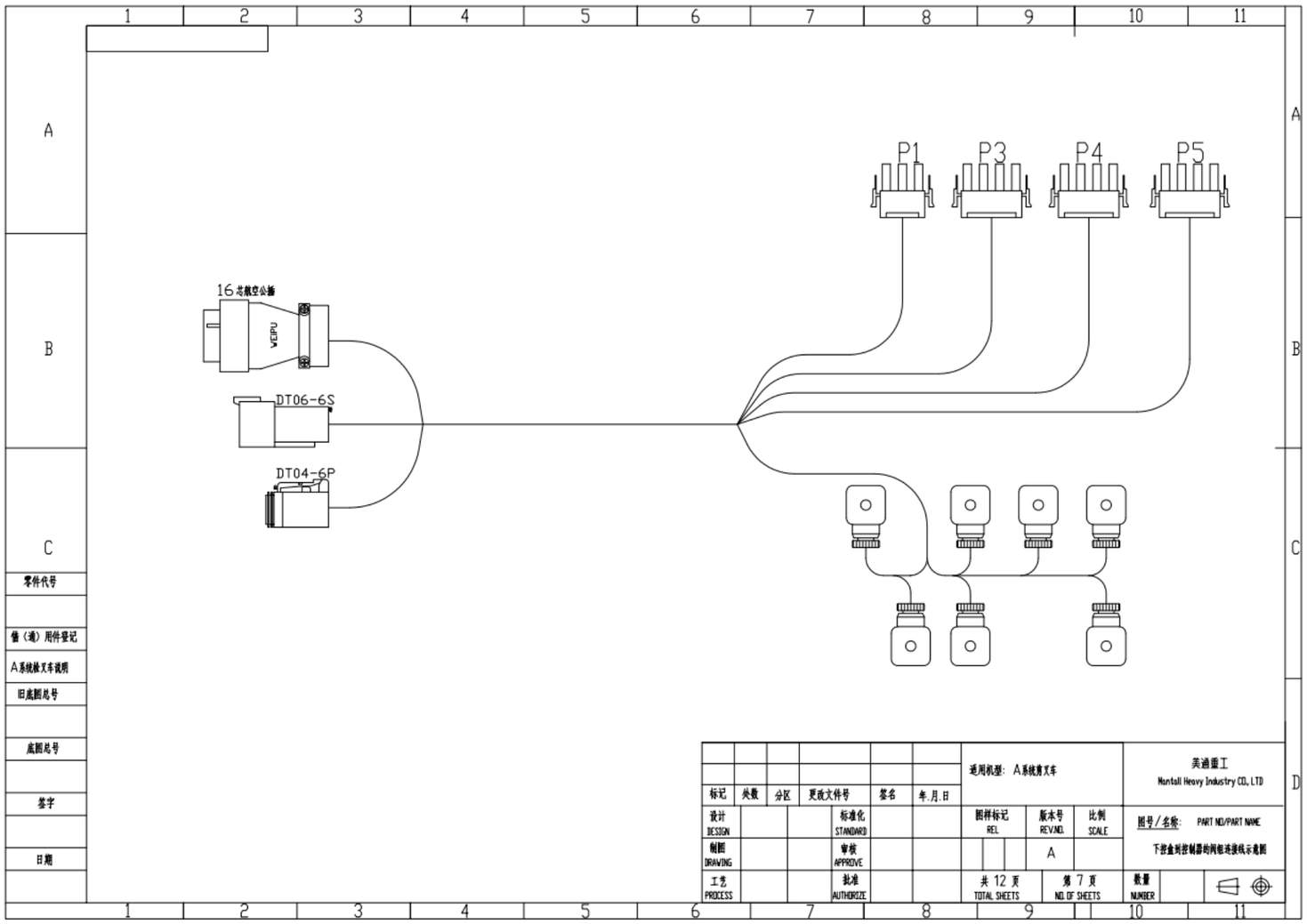
Pic.7(Some same as Pic.1)
Totally 12 pages
The fifth Page
Lower down wiring, up switch, and 2 m 6 core wiring diagram
Qty.

7.1.8 Down line, raised switch, 2 m limit six-wire connection diagram of Hydraulic drive A system



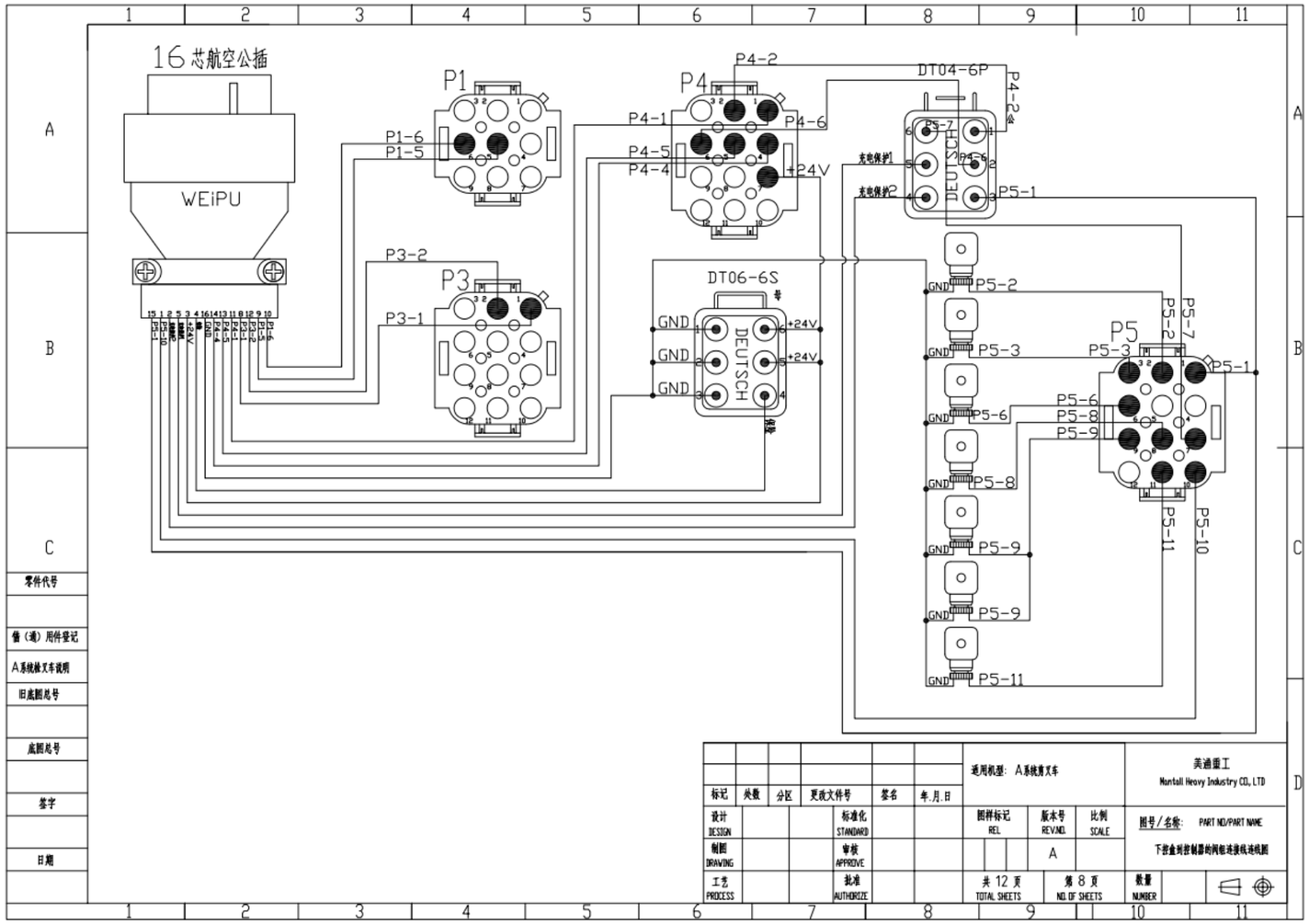
Pic.8(Some same as Pic.1)
Male Plug
Insurance
Female Plug
Charger Protection 1
Charger Protection 2
White
Black
White
Black
Yellow
Red
Blue
Brown
Orange
Insurance
Charger Protection 1
Charger Protection 2
Totally 12 Pages
The sixth Page
Lower down wiring, up switch, and 2 m 6 core wiring diagram
Qty.

7.1.9 Schematic diagram of valve group connection line of lower control box to controller of Hydraulic drive A system



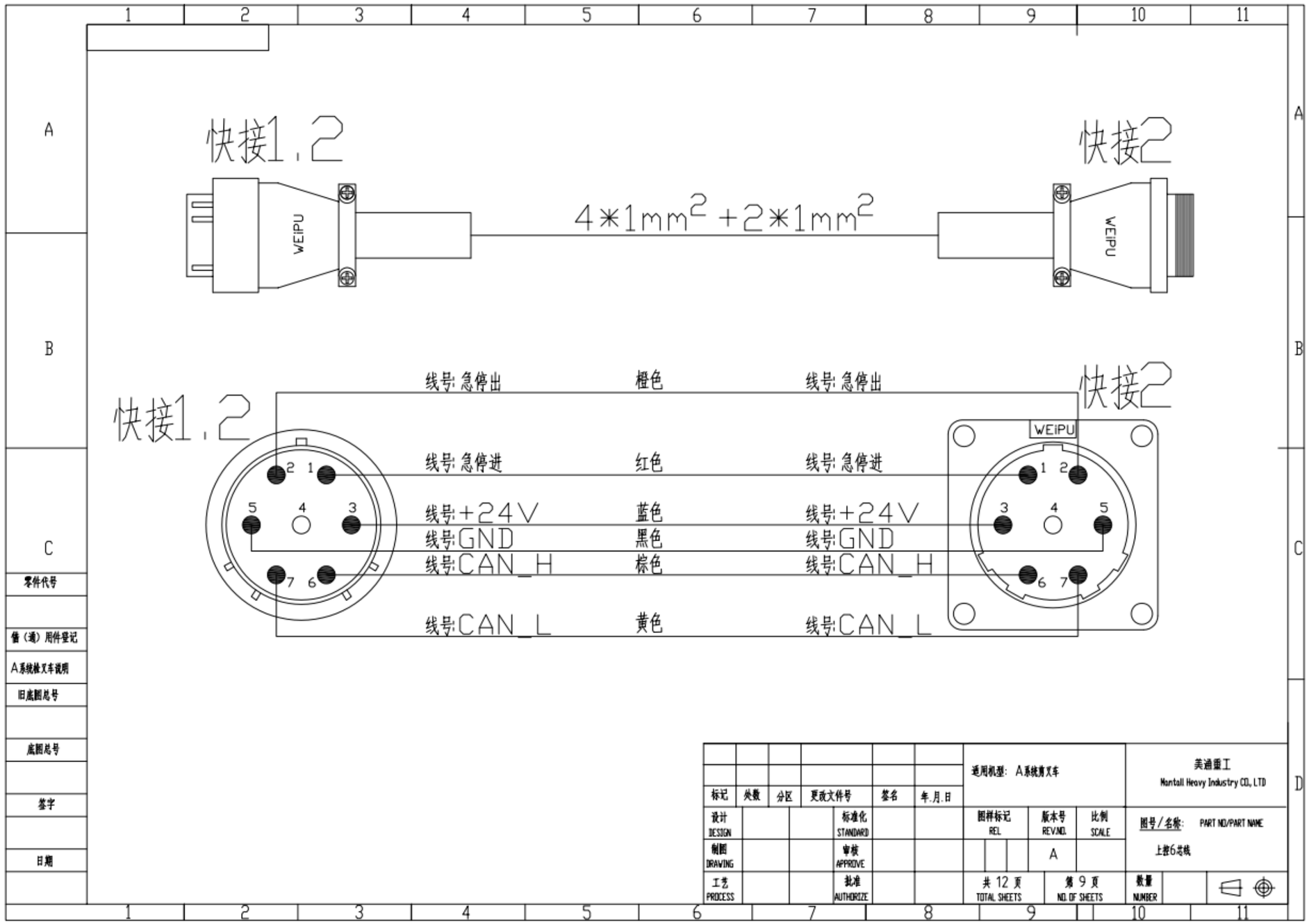
Pic.9(Some same as Pic.1)
16 core male plug
Totally 12 pages
The seventh Page
The wiring connected Ground control to controller
Qty.

7.1.10 Wiring diagram of the valve group connection line of the lower control box to the controller of Hydraulic drive A system



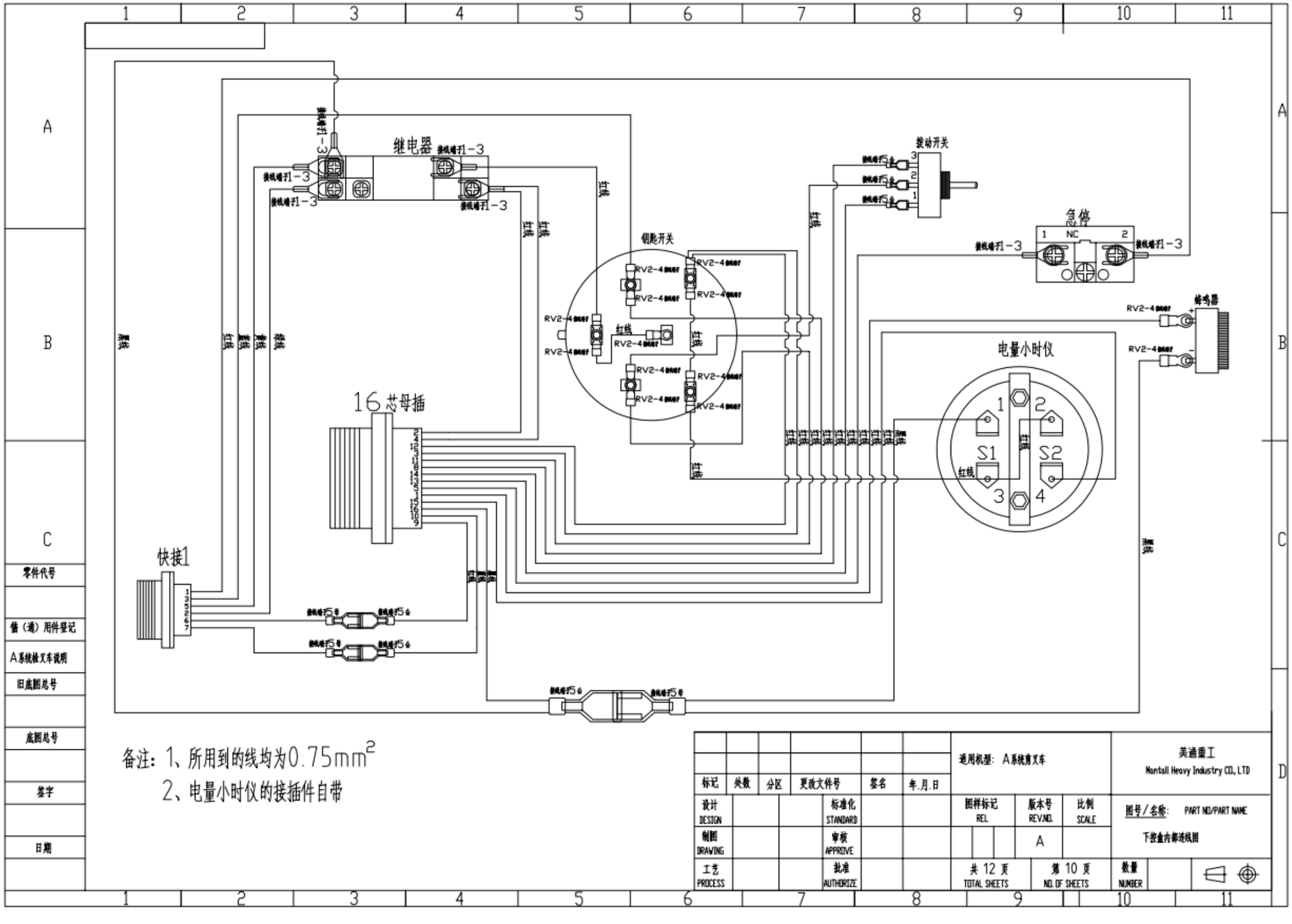
Pic.10(Some same as Pic.1)
16 core male plug
male plug
Female Plug
Charger Protection 1
Charger Protection 2
Insurance
Totally 12 pages
The Eighth Page
The Wiring Connected Ground Control and Valve of Controller
Qty.

7.1.11Upper control six core diagram of Hydraulic drive A system



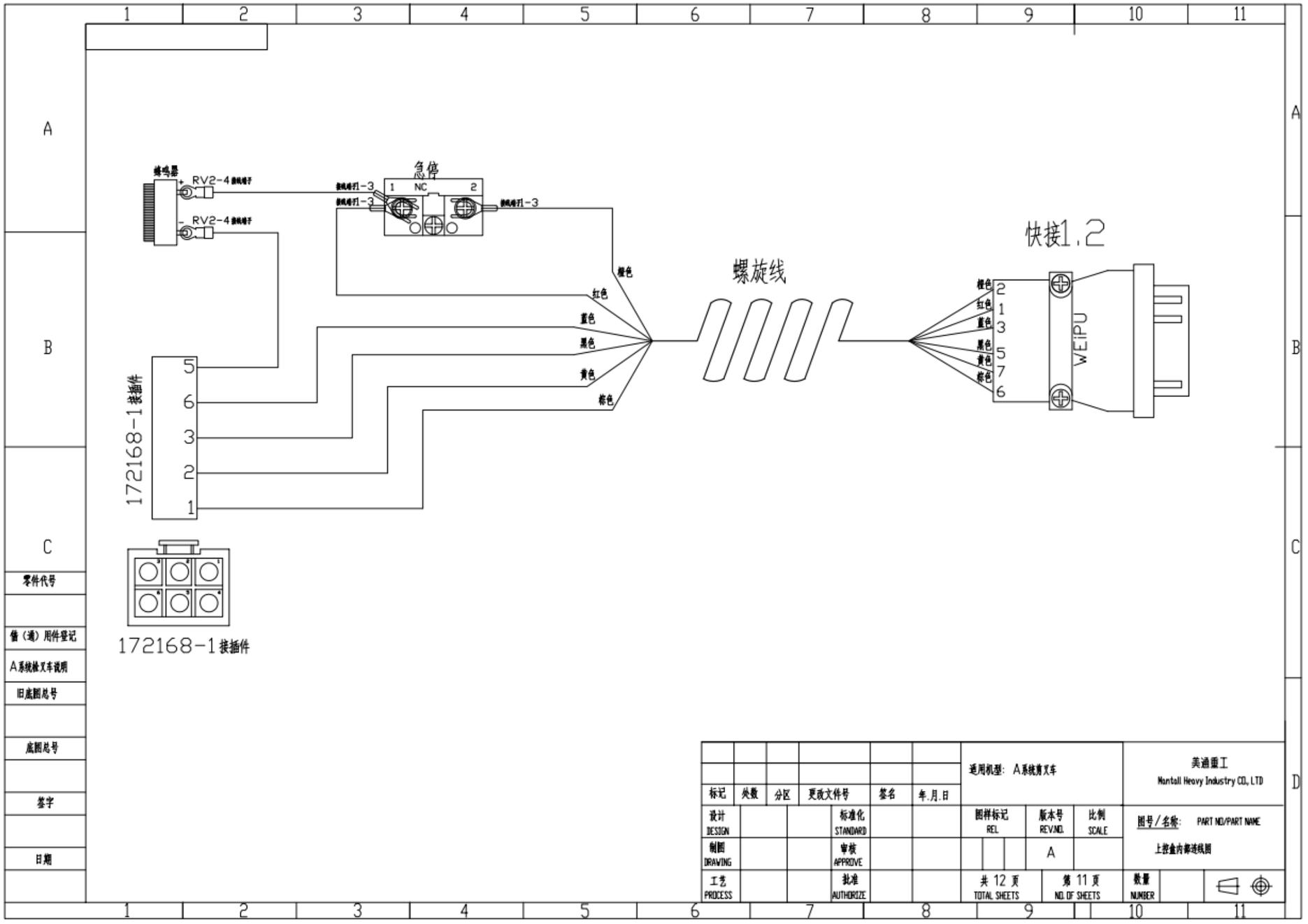
Pic.11(Some same as Pic.1)
Quick connect
Quick connect
Line No. Emergency output
Line No. Emergency input
Line No.
Orange
Red
Blue
Black
Brown
Yellow
Line No. Emergency output
Line No. Emergency input
Line No.
Quick connect 2
Quick connect 2
Totally 12 pages
The ninth Page
Upper 6 Core
Qty.

7.1.12 Base control box internal wiring diagram of Hydraulic drive A system



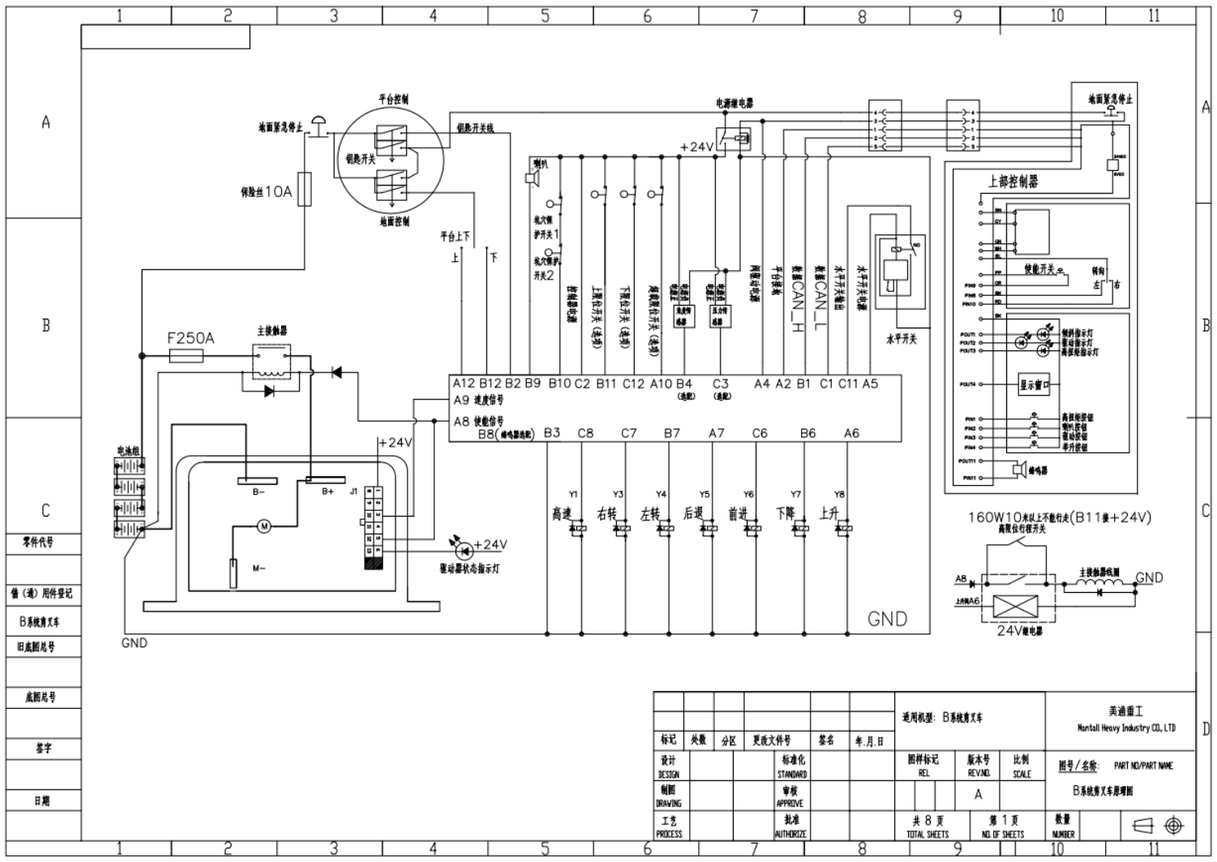
Pic.12(Some same as Pic.1)
Relay
Red Line
Red Line
Red Line
Key Switch
Red Line
Green Line
Yellow Line
Blue Line
Red Line
Black Line
16 Core Female Plug
Red Line
Fast Connect 1
Note: 1. The wiring is 0.75mm2
2. Hour meter connecting plug
Toggle Switch
Emergency Stop Button
Beeper
Hour Meter
Red Line
Red Line
Red Line
Red Line
Black Line
Black Line
Red Line
Totally 12 pages
The tenth page
The wiring of Ground Control
Qty.

7.1.13 Upper control box internal wiring diagram of Hydraulic drive A system



Pic.13(Some same as Pic.1)
Horn
Connect
Connect
Emergency Stop Button
Wiring
Fast Connect 1.2
Orange
Red
Blue
Black
Yellow
Brown
Totally 12 pages
The eleventh page
Joystick Wiring
Qty.

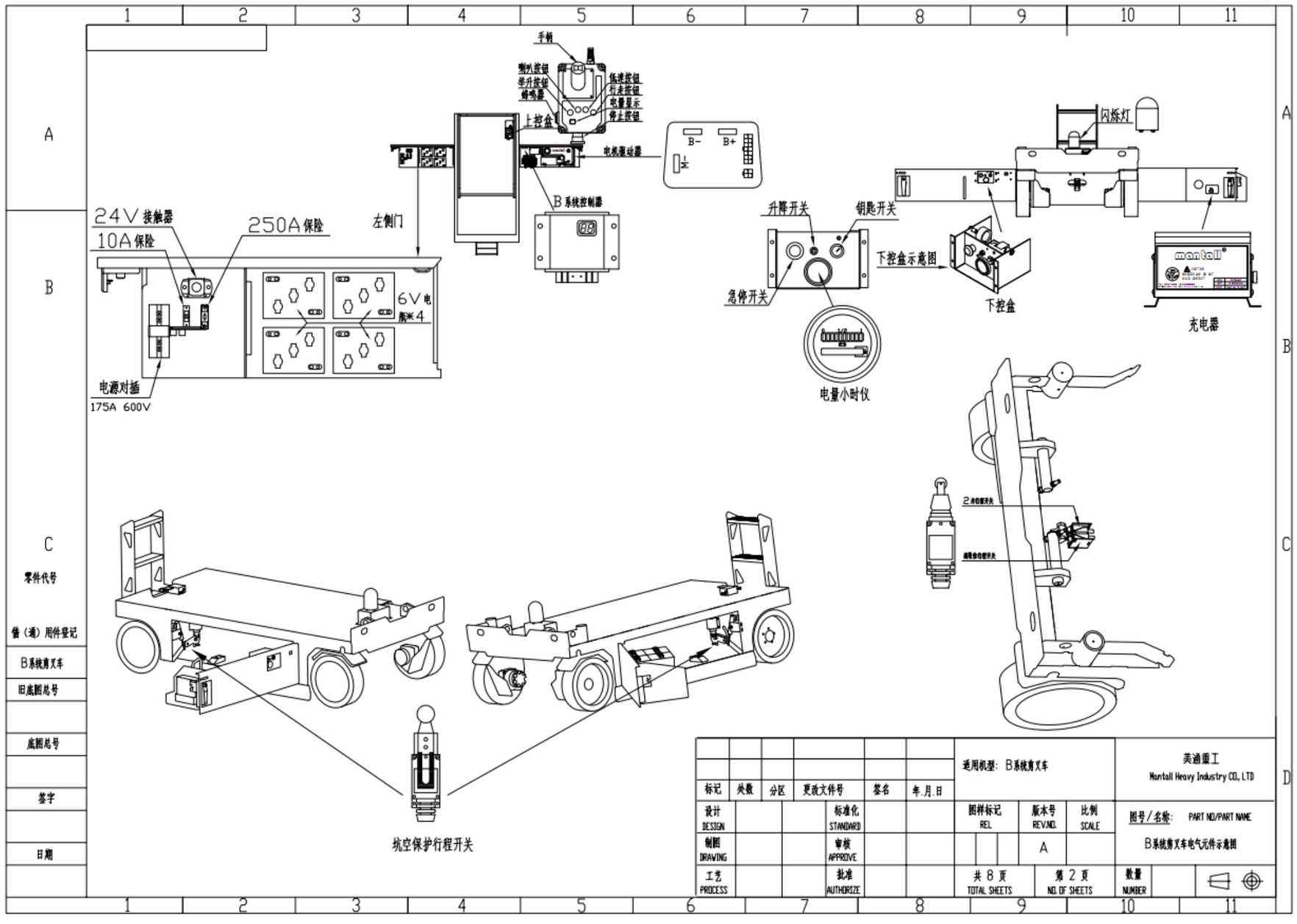
7.1.14 Electrical schematic of Hydraulic drive B system



Pic.14(Some same as Pic.1)
B System Scissor Lift
Platform Control
Ground Emergency Stop
Key Switch Wiring
Key Switch
Insurance
Ground Control
Platform UP/Down
Up
Down
Main Contactor
Batteries
Speed Signal
Enable Signal

Horn Option
Drive motor light indictor
Power Relay
Horn
Pothole Guard Switch 1
Pothole Guard Switch 1
Level switch
Level switch power
Level switch output
Data
Data
Platform Connecting to Ground
Valve Drive Power
Negative power
Positive Power
Overload Limit Switch (Option)
Down Limit Switch (Option)
Up Limit Switch (Option)
Control Power
Option
(Option)
(Option)
High Speed
(Option)
High Speed
Turn Right
Turn Left
Backward
Forward
Down
Up
Ground Emergency Stop
Upper Control
Enable Switch
Steering
Left
Right
Display
Beeper
X4647 can not drive above 10m
Height Limit Switch
Main Contactor Wiring
Electric
Totally 8 pages
The first page
B system Scissor Lift Diagram
Qty.

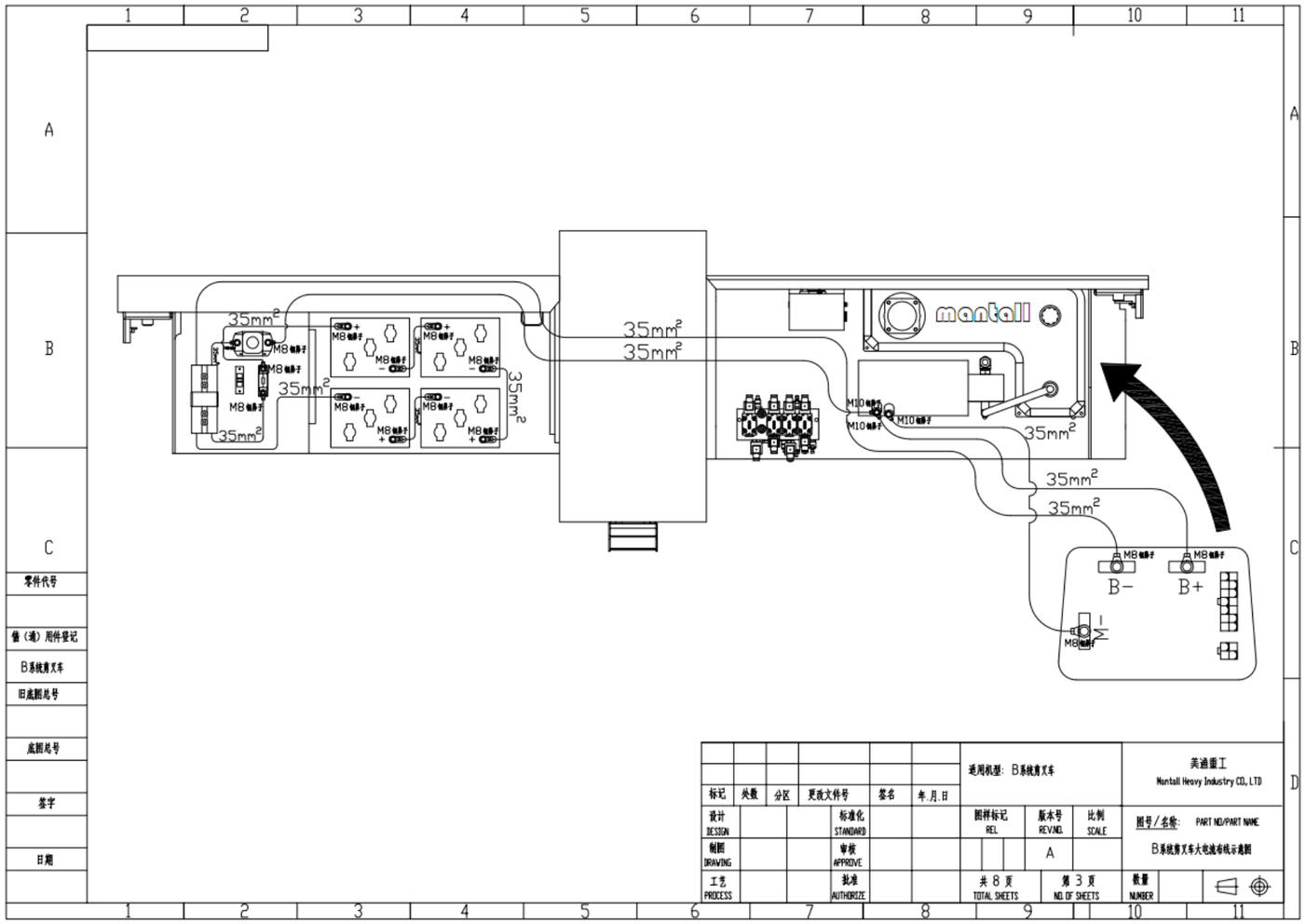
7.1.15 Illustration of electrical components of Hydraulic drive B system



Pic.15(Some same as Pic.1)

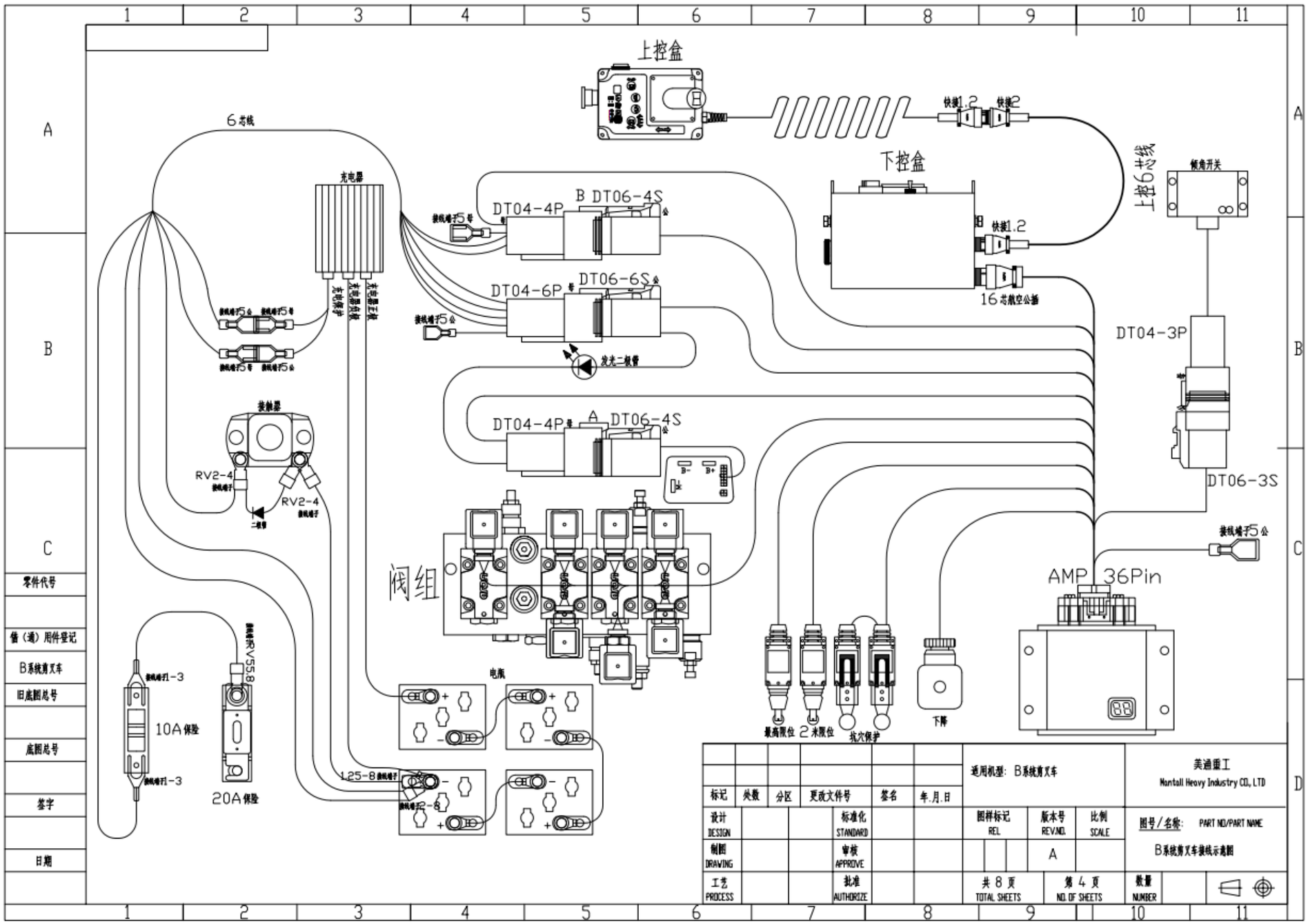
B System Scissor Lift
Contactor
Insurance
Insurance
Left Side Door
Power Plug
Joystick
Horn Button
Lift Button
Beeper
Joystick
Lower Speed Button
Drive Button
Battery Display
Stop Button
B system Electric Drive Motor
B System Controller (ECU)
Pothole Guard Limit Switch
Flash Light
Up Switch
Key Switch
Emergency Stop Button
Ground Control Diagram
Ground Control
Charger
Hour Meter
Totally 8 Pages
The second Page
B System Scissor Lift Electric Parts Diagram
Qty.

7.1.16 High current wiring diagram of Hydraulic drive B system



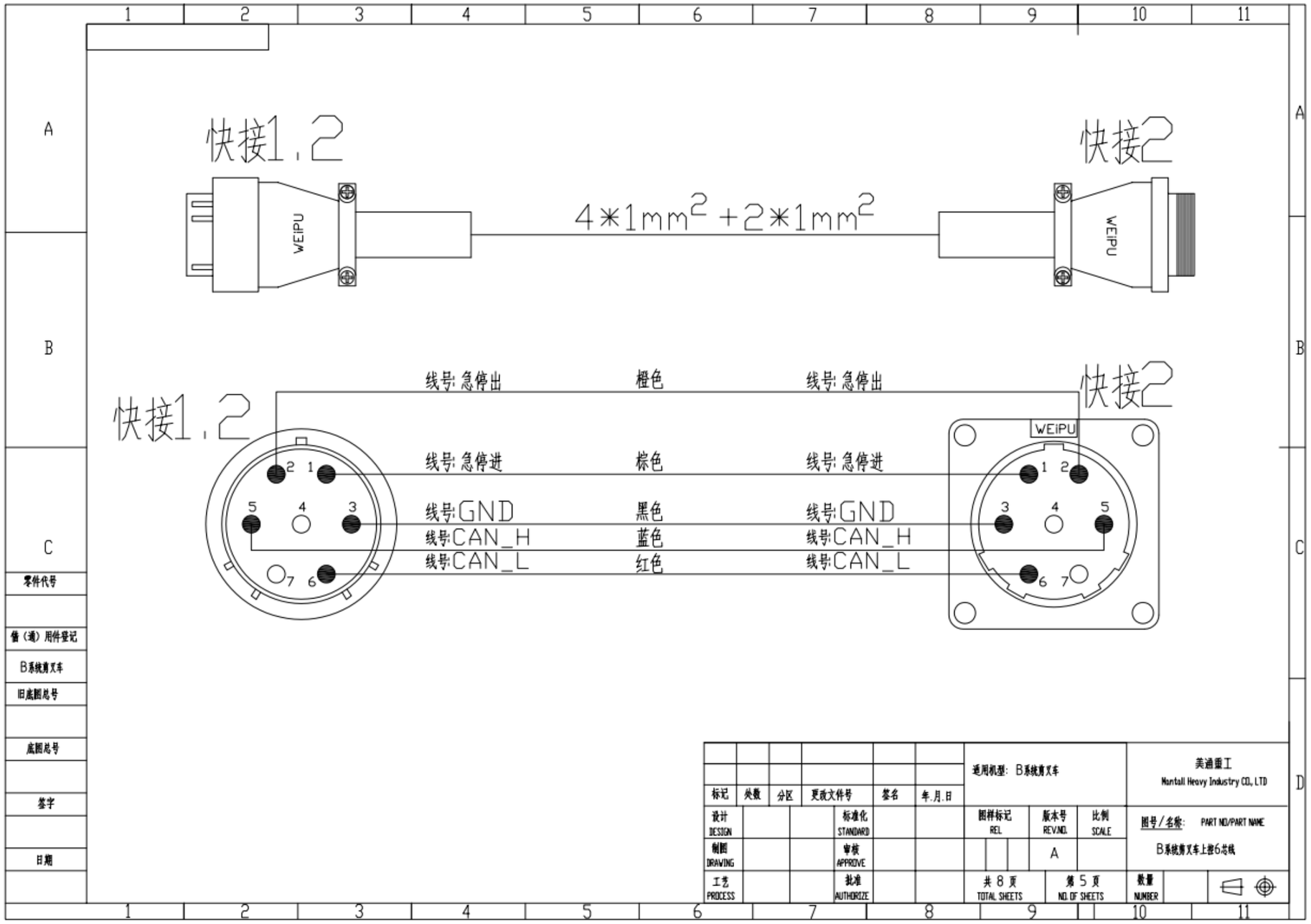
Pic.16(Some same as Pic.1)
B System Scissor Lift
Totally 8 pages
The third Page
B System Scissor Lift Electric Wiring Diagram
Qty.

7.1.17Wiring diagram of Hydraulic drive B system



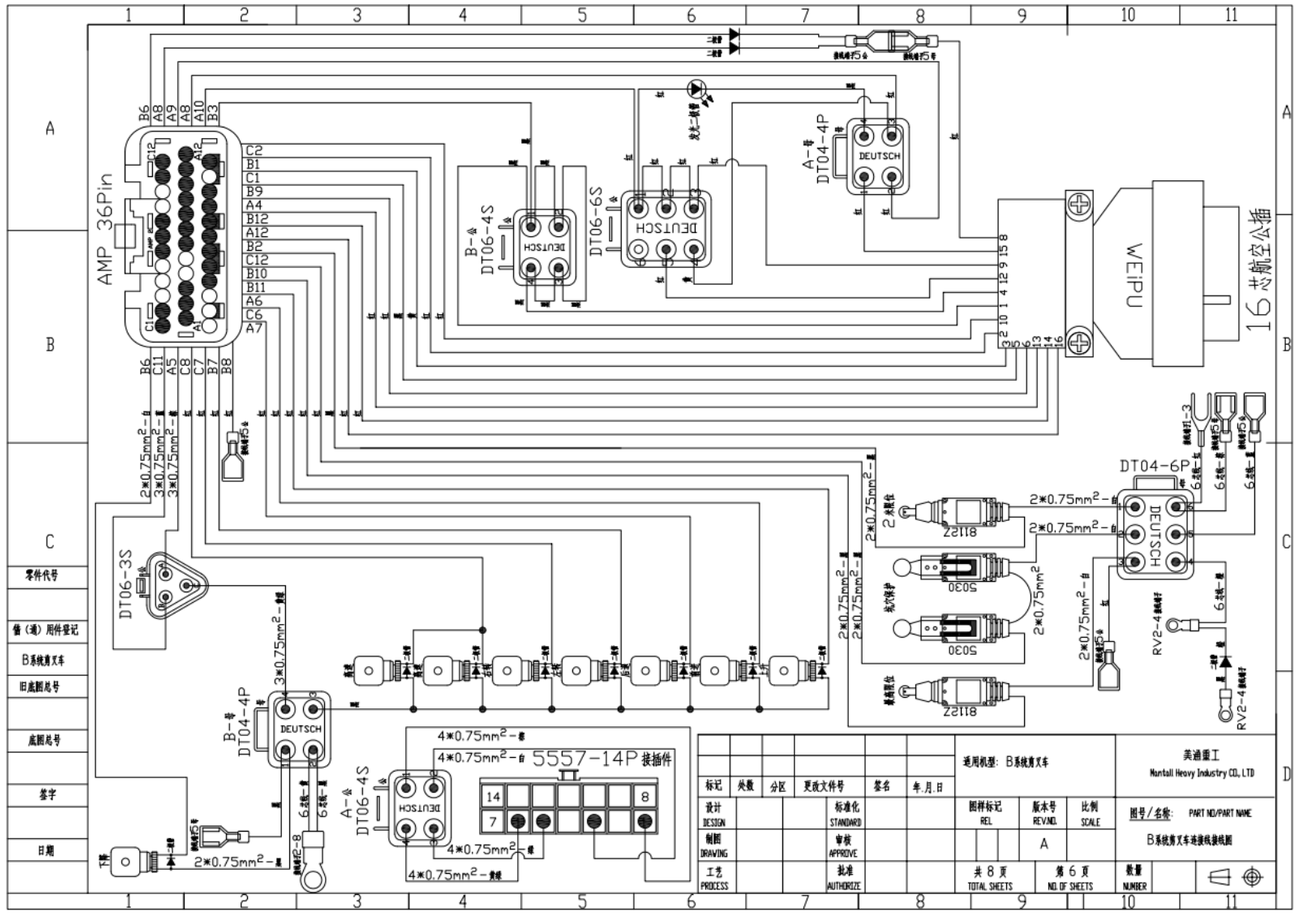
Pic.17(Some same as Pic.1)
B System Scissor Lift
6 Core wiring
Charger
Positive of Charger
Negative of Charger
Charger Protection
Contactor
Insurance
Insurance
Joystick
Male Plug
light-emitting diode
Valve Group
Batteries
Fast Connect 1.2
Fast Connect 2
Ground Control
Fast Connect 1.2
Joystick 6 Core wiring
Tilt Switch
16 Core Female Plug
Top Height Limit
2m stop
Pothole Guard
Down
Totally 8 pages
The Fourth Page
B System Scissor Lift Wiring
Qty.

7.1.18 Upper control six core diagram of Hydraulic drive B system



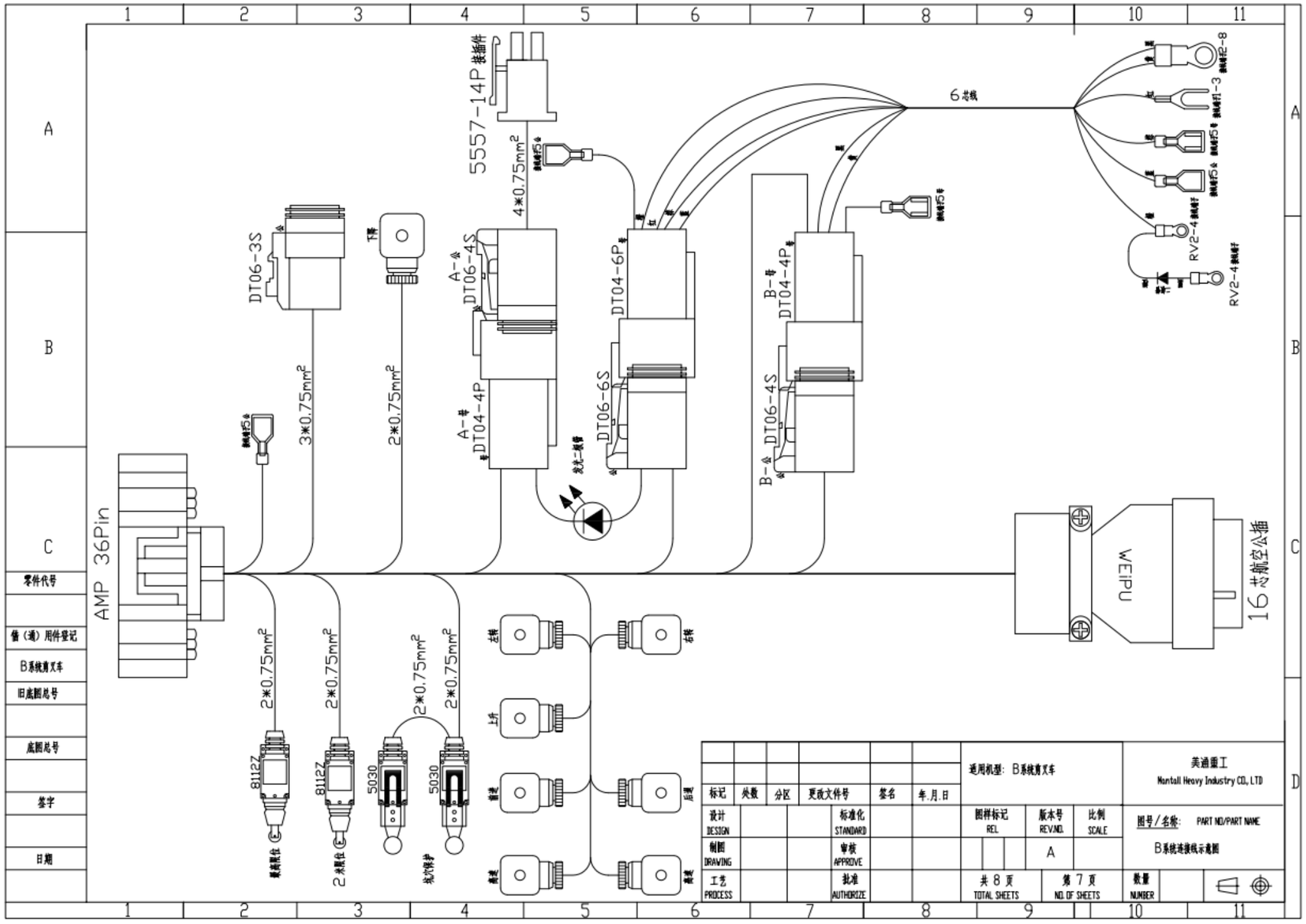
Pic.18(Some same as Pic.1)
B SYSTEM SCISSOR LIFT
Fast Connect 1.2
Fast Connect 1.2
Line No. Emergency Stop Output
Line No. Emergency Stop Input
Line No.:
Orange
Brown
Black
Blue
Red
Line No. Emergency Stop Output
Line No. Emergency Stop Input
Line No.:
Fast Connect 1.2
Fast Connect 1.2
Totally 8 pages
The fifth Page
B SYSTEM SCISSOR LIFT Joystick 6 core wiring
Qty.

7.1.19 Connection diagram of Hydraulic drive B system



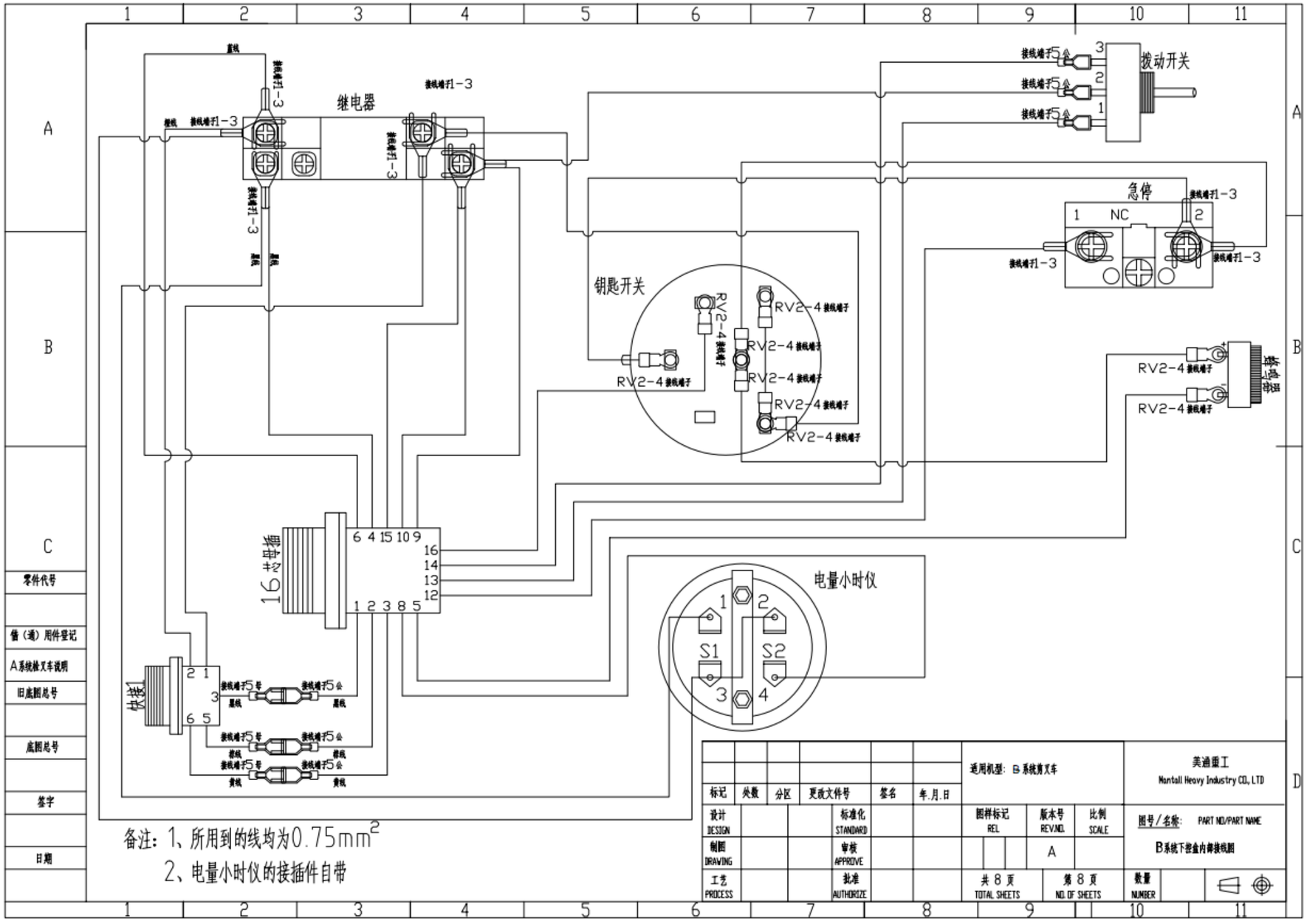
Pic.19(Some same as Pic.1)
B SYSTEM SCISSOR LIFT
Connecting
16 Core Male Plug
2m stop
Pothole Guard
Top Height Limit
Totally 8 pages
The sixth Page
B SYSTEM SCISSOR LIFT Wiring
Qty.

7.1.20 Schematic diagram of connection of Hydraulic drive B system



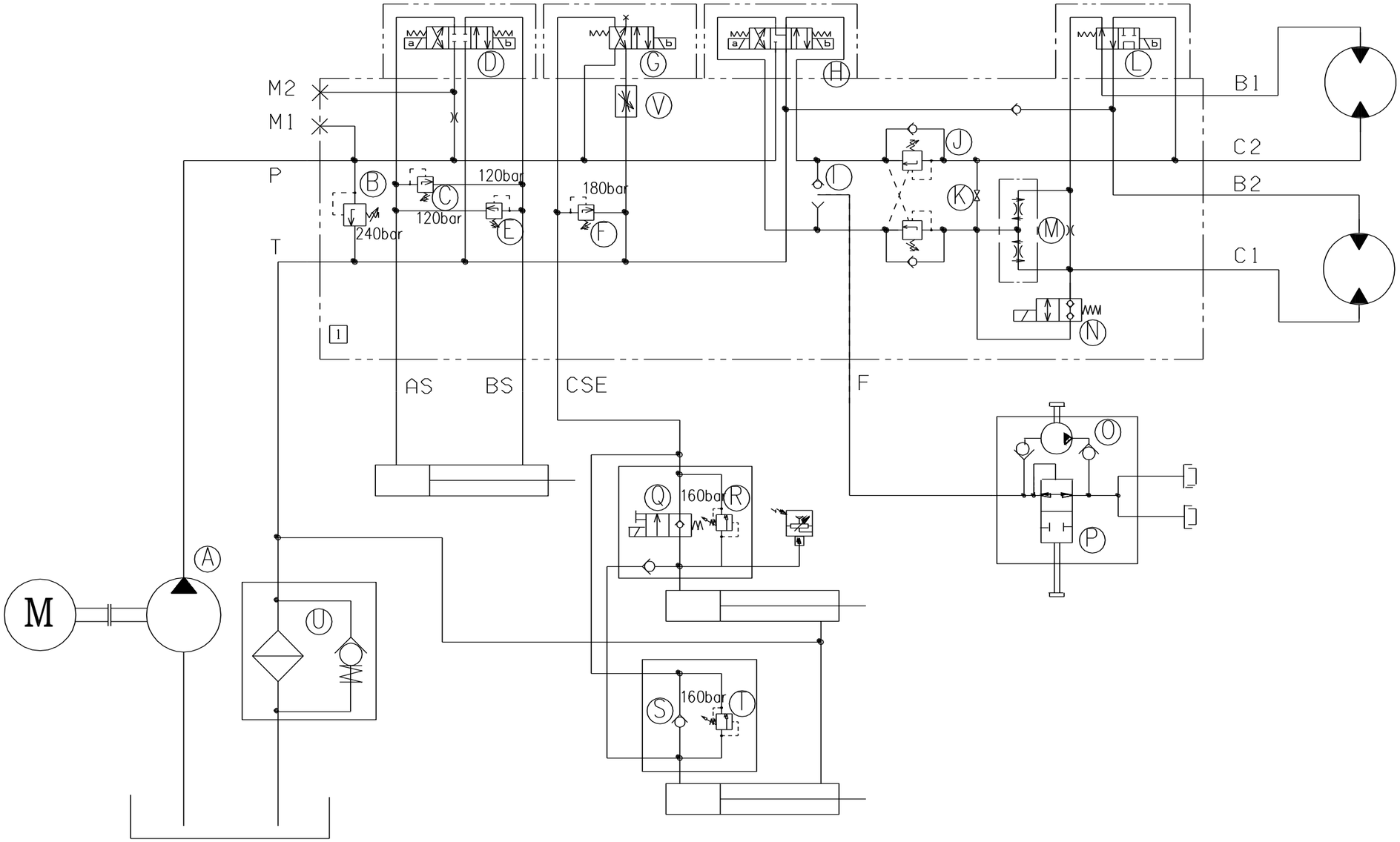
Pic.20(Some same as Pic.1)
B SYSTEM SCISSOR LIFT
Connect
light-emitting diode
Top Height Limit
2m Stop
Pothole Guard
High Speed
Forward
Up
Turn Left
High Speed
Backward
Turn Right
6 Core Wiring
16 Core Male Plug
Totally 8 pages
The Seventh Page
B System Wiring Diagram
Qty,

7.1.21 Base control panel internal wiring diagram of Hydraulic drive B system

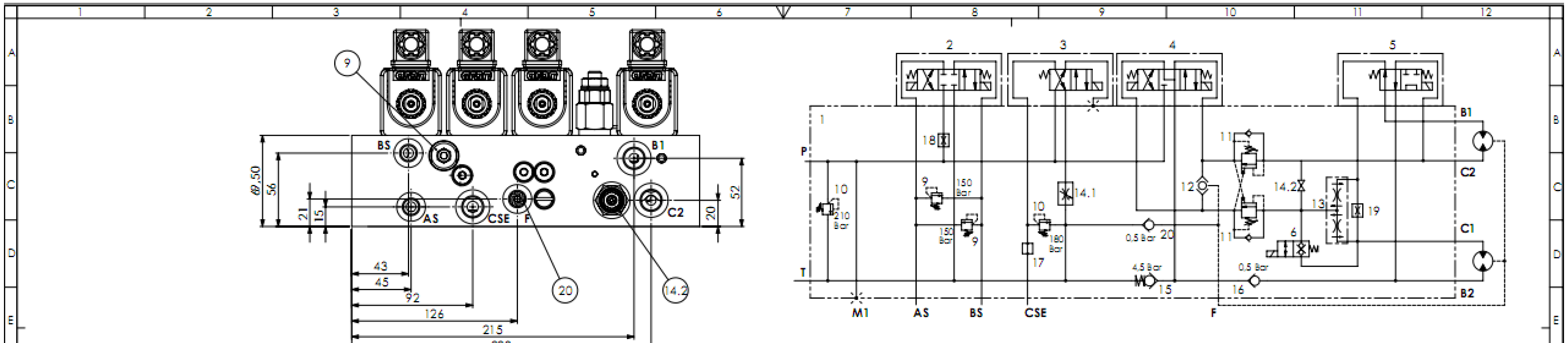


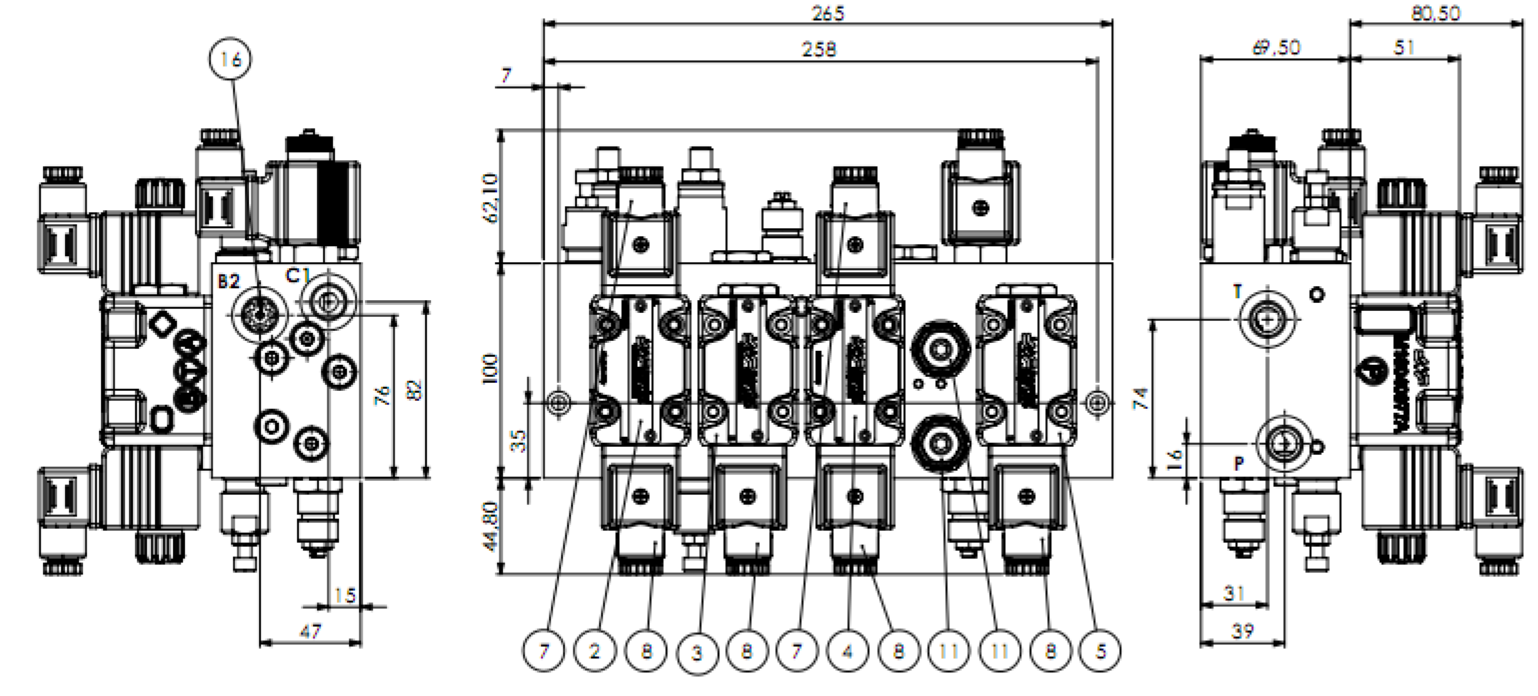
Pic.21(Some same as Pic.1)
A System Scissor Lift Explanation
Relay
16 Core Female Plug
Fast Connect 1
Note: 1. All the wiring is 0.75mm2
2. Hour meter has its own Connect
Key Switch
Hour Meter
Toggle Switch
Connecting wiring 5
Emergency Stop Button
Beeper
Totally 8 pages
The eighth Page
B System Ground control Wiring
Qty

7.2 Hydraulic schematic of MX1930, X2632



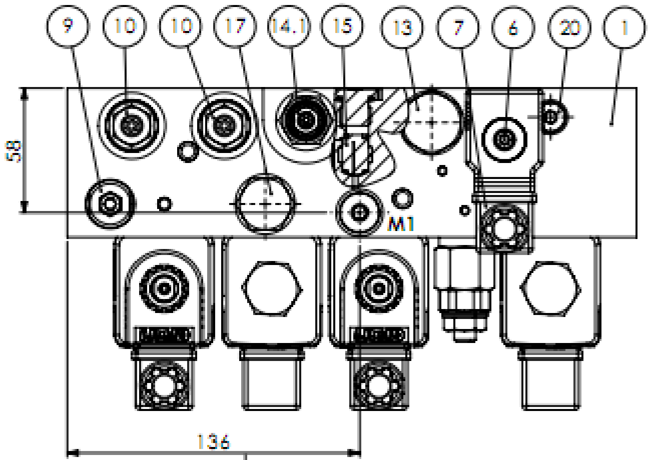
7.2.1 Hydraulic valve diagram of X Series





POS.	CODE	DESCRIPTION	Q.ty
1	M10700638	MANIFOLD TRACTION CONTROL	1
2	ADC3E01CMS11	SOLENOID VALVE	1
3	ADC3E16FMS11	SOLENOID VALVE	1
4	ADC3E03CMS11	SOLENOID VALVE	1
5	ADC3E44GMS11	SOLENOID VALVE	1
6	CRD0422NCAEM002	DIRECT OPERATED SOLENOID VALVE	1
7	V86050004	CONNECTOR TYPE 182.09.G	3
8	V86050002	CONNECTOR TYPE 182.09.N/(B)	4
9	CMP02C3001	RELIEF CARTRIDGE VALVE	2
10	CMP10C3002	RELIEF VALVE MAX 320bar	2
11	Z85D10002	OVERCENTER CARTRIDGE VALVE FPO25C 100÷350 bar	2
12	SH03002	SHUTTLE VALVE	1
13	V76550111	FLOW DIVIDER FPFD S10 C I	1
14	CSB04C0000	CARTRIDGE FLOW CONTROL VALVE 3/4"-16 UNF	2
15	V70052411	CHECK VALVE VU-LN G3/8" 4,5bar	1
16	VUI0600	CARTRIDGE CHECK VALVE 3/8	1
17	R78150099	PLUG "TC"	1
18	M89100015	SCREW M5X1X5 WITH Ø0.8 ORIFICE	1
19	M89100058	SCREW M8X1X8 WITH Ø0,5 ORIFICE	1
20	VUI0400	CHECK VALVE G1/4	1

Attacchi *Ports*	M1,M2,AS,BS,F = G1/4" P,T,CSE,B1,B2,C1,C2 = G3/8"
Materiale del corpo *Material of body*	Alluminio *Aluminium*
Pressione massima *Max. pressure*	210 Bar
Portata massima *Max. flow*	20 L/min.
Tipo di protezione *Type of protection*	IP65
Viscosità fluido *Fluid viscosity*	10 ÷ 500 mm²/s
Temperatura fluido *Fluid temperature*	-25°C ÷ 75°C
Temperatura ambiente *Ambient temperature*	-25°C ÷ 60°C
Livello max. di contaminazione *Max. contamination level*	Classe 10 secondo NAS 1638 con filtro ß ≥75 *Class 10 in accordance with NAS 1638 with filter ß >75*
Filtraggio *Filter*	25 µm



NOTA: ESEGUIRE LE TARATURE INDICATE A 20 l/min
TAPPARE M1 - M2 CON TAPPI CON BATTUTA
NOTE: SETTING VALVES AT 20 l/min
PORTS M1 - M2 CLOSED WITH DIN PLUG

Rev.	Modifiche / Changes	Firma / Sign.	Verif. / Ckd	Data / Date
02	POS. 14.1 ERA CSC04C0000 POS 14.1 WAS CSC04C0000	F.S.	B.M.	22/02/2017
01	ELIMINATO ATTACCO M2 - MODIFICATA POSIZIONE ATTACCO M1 REMOVED M2 PORT - MODIFIED POSITION OF M1 PORT	F.S.	B.M.	19/10/2016

Denominazione / Description: BLOCCO CONTROLLO TRAZIONE
Codice scheda prodotto / Project code: CG/16/019
Gruppo/Group: Cetop3
Scala/Scale: 1:2 — Data/Date: 04/10/2016
Disegnato/Drawn: S. Fasano
Verificato/Checked: M. Bartoli
Stabilimento/Plant: ARON — Marchio/Brand: ARON
Disegno n°/Drawing n°: P15112126 — Livello/Revision: 02
Drawing by SOLIDWORKS CAD system 3D — mm 100 — SIZE A2