
MOEDINGEN[®]

Hydraulische WERKZEUGE



Torque Wrench Pump Operating Manual



GXA-8.5

This operating manual includes operating procedures, warnings and precautions, and troubleshooting for the GXA-8.5 electric hydraulic pump. Please read this manual carefully before use, thoroughly understand its contents, and keep it properly.

Safety Instructions

Correct operation and regular inspection are required for the safe use of the electric hydraulic pump.

The hydraulic pump can only be used after reading and thoroughly understanding the safety instructions in this manual.

Precautions - To prevent direct economic losses or property damage.

Warning - To prevent personal injury.

Please strictly follow the above two items.

If an abnormal situation occurs during use, please turn off the power switch, unplug the power plug, and consult the manufacturer or authorized agent.

Note: All product image descriptions are subject to change due to product improvement and upgrade, without prior notice. The actual product shall prevail!

Warnings

1. When using this hydraulic pump, all personnel are prohibited from standing at the hydraulic oil outlet to prevent personal injury or property damage that may occur if hydraulic oil leaks accidentally. The hydraulic pump must be kept away from fire.
2. Before pressurizing, hoses and actuating elements or plugs should be installed to prevent personal injury caused by high-pressure hydraulic oil rushing out.
3. The maximum working pressure of this hydraulic pump is 70MPa. The pressure has been set to 70MPa at the factory, and it should never be adjusted above the set pressure.
4. If this hydraulic pump is used for other supporting equipment, the working pressure of the supporting equipment should be less than 70MPa, and the pressure should be adjusted to the working pressure of the supporting equipment. Otherwise, the supporting equipment may be damaged. The operation of adjusting the pressure regulating valve is shown in item five.
5. Consider safety first and cut off the power source before maintenance.
6. Turn off the button switch and open the hydraulic adjustment valve before connecting the power source.
7. Ensure grounding to avoid electric shock.
8. It is prohibited to start the hydraulic pump station without oil, which will cause equipment damage.
9. Do not modify this hydraulic pump. If modification is necessary, consult the manufacturer or authorized agent first. Modifications made without the manufacturer's written consent are not covered by the warranty.
10. Do not add hydraulic oil exceeding the available amount, otherwise the hydraulic oil in the storage tank will overflow and cause environmental and equipment pollution.
11. When connecting quick couplings, ensure complete engagement (Figure 1). Only in this way can the one-way valve inside the coupling be opened to ensure smooth oil flow. Otherwise, if the one-way valve inside the coupling cannot be opened after connection, the pump station will have pressure, but the wrench cannot operate, and the automatic relief valve on the rotating body of the wrench will open to relieve pressure, possibly causing damage to the quick coupling or wrench, or even causing personal injury.

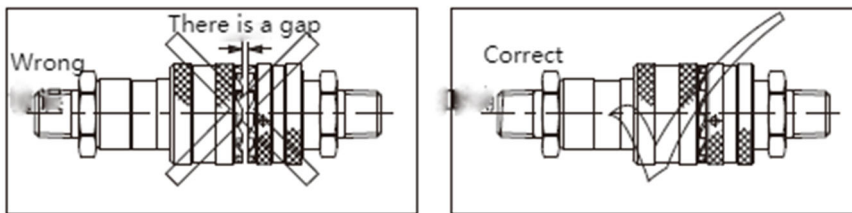


Figure (1)

At this time, the hydraulic pump power source must be cut off, all hose joints should be disassembled, and all quick couplings (including wrench couplings) should be checked to see if the one-way valve inside can be pressed by hand and has elasticity. If it cannot be pressed, use a hammer to tap the one-way valve inside the coupling (Figure 2) to release the pressure inside the coupling (hydraulic oil will spray out when tapping the one-way valve, please operate with caution and do not face the personnel!), until the steel ball inside the coupling can be pressed by hand, and then reconnect.

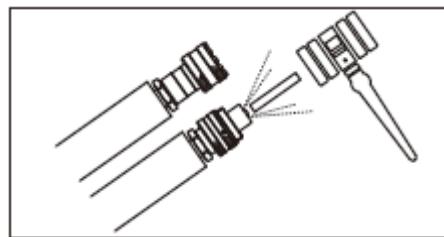


Figure (2)

12. The hydraulic pump station must be kept clean, especially the oil outlet and quick couplings. Unclean hydraulic oil is the main cause of hydraulic pump failure.
13. Keep away from the position where ultra-high pressure hydraulic oil may overflow: hydraulic oil may penetrate your hand, causing serious injury.
14. If hydraulic oil splashes into your eyes, immediately rinse with clean water for about 15 minutes, and then go to the hospital to clean your eyes.
15. Do not touch the hose under pressure; if hydraulic oil splashes out, it will cause serious injury.
16. Hydraulic hoses are consumable parts, which may have internal ruptures or pinholes even if there are no visible defects upon visual inspection. To ensure proper usage, hoses should be replaced regularly, and sharp bends should be avoided.

Note:

1. Use only the hydraulic oil specified by the manufacturer for hydraulic tools.
2. Used hydraulic oil must be disposed of according to pollution prevention regulations.

1. Overview of GXA-8.5 Torque Wrench Pump

1.1 The GXA-8.5 electric pump is a specialized hydraulic pump for torque wrenches. It is assembled in an integrated manner and consists of a power unit, an electrical unit, a control device, and other components. It is a complete and independent hydraulic device with high flow rate, small size, light weight, simple structure, easy operation, and high working pressure. The output pressure of the high-pressure outlet (A port) can be adjusted between 70-700 bar.

1.2 The hydraulic oil used for the electric hydraulic pump is 32# anti-wear hydraulic oil. Do not use hydraulic oil containing water or corrosive media for steel or aluminum.

1.3 The ambient temperature for using the electric hydraulic pump is -10 to 60°C. If low-temperature hydraulic oil is used, it can be used at -30°C.

1.4 The electric hydraulic pump is connected to the executing components via high-pressure hoses and fittings. To ensure work safety, use only original high-pressure hoses and fittings from the manufacturer. The maximum working pressure of the high-pressure hose for the GXA-8.5 electric hydraulic pump is 70MPa. When in use, select a pressure system that matches the pump.

1.5 Consult the manufacturer's engineer if using accessory hydraulic products with this pump.

1.6 Do not use the electric hydraulic pump near flames.

1.7 The maximum working pressure of the electric hydraulic pump is 70MPa. Do not adjust the pressure regulating valve arbitrarily during use to avoid equipment damage and personal injury caused by excessive pressure. If there are special requirements, consult the manufacturer's engineer.

1.8 Confirm that the voltage used for the GXA-8.5 electric hydraulic pump matches the voltage at the site of use.

1.9 Use the pump indoors as much as possible. If used outdoors, take rain prevention measures.

2. Overview of Components and Schematic Diagram

2.1 Overview of Components

(1) Oil pump protection frame: Installed on the oil storage tank, used to lift and protect the hydraulic pump station.

(2) Pressure gauge: Displays the working pressure of the hydraulic pump, with a range of 100 MPa.

(3) Quick connector (concave): Implements the function of hydraulic oil output. Port A is the high-pressure port with a built-in one-way valve. The teeth are locked to prevent loosening during the boosting, reducing, and pulsation processes, with an anti-loosening function.

(4) Quick connector (convex): Implements the function of hydraulic oil return. Port B is the high-pressure port with a built-in one-way valve. The teeth are locked to prevent loosening during the boosting, reducing, and pulsation processes, with an anti-loosening function.

(5) Oil level gauge: Observes the amount of hydraulic oil to ensure the optimal amount is used. When the hydraulic oil is lower than the 1/3 oil mark, pump station-specific hydraulic oil must be added, otherwise the pump station may be damaged.

(6) Oil tank: Stores the working hydraulic oil to ensure the normal operation of the system (with sufficient oil level), and provides the pressure carrier required by the system.

(7) Oil drain hole: G1/4" screw plug, used to discharge hydraulic oil from the oil storage tank (when replacing hydraulic oil).

(8) Electric control system: The electrical control part of the hydraulic pump, which controls the start, high-low pressure conversion, and stop of the hydraulic pump.

(9) Oil tank cover: Seals the oil tank and installs hydraulic pump components.

(10) Capacitor: Ensures the stability of the motor under different working conditions.

(11) Motor: Provides the power source (select an appropriate motor based on the voltage and frequency of the usage location, specific parameters can be found on the motor nameplate).

(12) Venting and oil filling hole: The channel for ventilation and hydraulic oil injection in the oil storage tank.

(13) Radiator: Cools the hydraulic oil inside the oil tank, ensuring optimal conditions when using the electric pump.

(14) Cooling fan: Cools the radiator.

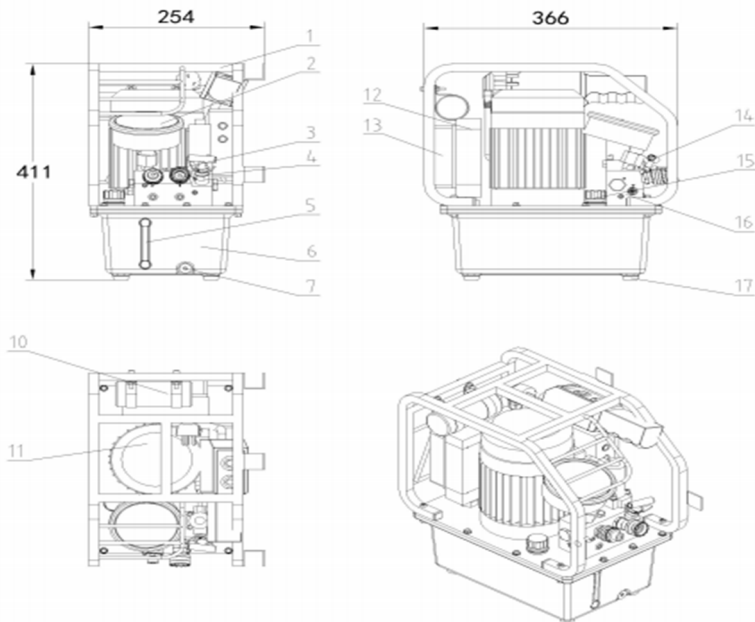
(15) Distributor: Implements the operation of the hydraulic pump on multiple parts.

(16) Pressure regulating valve (overflow valve): Adjusting this valve can set the working pressure of the hydraulic pump (the highest working pressure is already locked at the factory, and increasing the locked pressure is prohibited).

(17) Valve group: Connects various hydraulic control valves in the hydraulic system, implements hydraulic oil output, return control, and ensures normal operation of the system under the set pressure.

(18) Foot pad: Makes the hydraulic pump output more stable during use and ensures greater safety during transportation.

2.2 Assembly Schematic Diagram



3. Characteristics

3.1 The GXA-8.5 electric pump is a pump designed specifically for hydraulic wrenches, equipped with a two-position three-way solenoid valve and two hydraulic control directional valves. It features three-stage flow rate output, automatic adjustment, and provides two output pressures. The high-pressure output (port A) is equipped with a high-pressure control relief valve, and the low-pressure output (port B) is equipped with a low-pressure control relief valve (factory-set at 810MPa).

3.2 Maximum working pressure: 70MPa.

3.3 Flow rate: 8.5L/min at low pressure, 2L/min at medium pressure, and 0.8L/min at high pressure.

3.4 Motor: See motor nameplate for specifications.

3.5 During normal operation, the hydraulic oil temperature should be between 40-70°C (when the ambient temperature is below -10°C, use low-temperature hydraulic oil instead).

3.6 Oil tank specifications (tank model): Can hold up to 4L of oil.

3.7 Weight (excluding oil): 24kg.

3.8 Hydraulic oil: Use 32# anti-wear hydraulic oil.

No.	Name	No.	Name
1	Protective Cage	10	Capacitor
2	Pressure Gauge	11	Motor
3	Quick Connector (Concave)	12	Radiator
4	Quick Connector (Convex)	13	Cooling Fan
5	Liquid Level Gauge	14	Pressure Regulating Valve
6	Oil Tank	15	Ventilation and Oil Filling Port
7	Oil Drainage Port	16	Mesh Assembly
8	Electric Control Box	17	Foot Pad
9	Oil Tank Cover		

4. Maintenance and Inspection

4.1 Pre-use Inspection

4.11 Cut off the power and check if there is any looseness or poor connection in the power supply cable. If there is any looseness, tighten the affected area.

4.12 Check whether the motor is grounded and ensure that the motor is reliably grounded.

4.13 Check whether the voltage used by the electric hydraulic pump matches the voltage used on-site and whether the voltage is stable.

4.14 Check whether the oil level of the hydraulic oil has reached the specified value, and add oil in a timely manner if it is insufficient.

4.15 Check if there are any abnormalities during the tool's operation and pressurization when switching the directional control valve.

4.16 Check whether there is any oil leakage in the pipes and equipment. If such a situation occurs, identify the cause and deal with it.

4.2 Inspection during operation. If any abnormal conditions are found in the following items, stop the machine immediately to troubleshoot.

4.21 Whether there are any abnormal phenomena during the pressure boosting process.

4.22 Whether there is any oil leakage in the pipes and equipment.

4.23 Whether there is any abnormal noise, vibration, or odor from the motor during operation.

4.24 Whether the hydraulic oil temperature is too high.

4.3 Post-operation Inspection and Maintenance

4.31 The power must be cut off.

4.32 Check whether there is any oil leakage or other abnormal situations. If any abnormal situation occurs, identify the cause and deal with it.

4.33 Clean after use and tighten the dust cap on the quick connector.

4.4 The hydraulic oil should be replaced once a year in principle. If any of the following situations are found, replace the oil immediately.

4.41 When dust enters.

4.42 When there is an odor.

4.43 When water enters and the oil appears milky.

4.44 When the oil deteriorates and appears black-brown.

4.45 When the pressure fluctuation range is abnormal.

4.5 Hydraulic Oil Replacement Method

4.51 Open the venting and oil filling plug on the hydraulic pump.

4.52 Remove the screw from the oil drain on the side of the oil tank.

4.53 Clean the inside of the oil tank.

4.54 Install the oil drain screw, fill the oil tank with oil, and cover the oil filling plug.

Warning! If hydraulic oil splashes into your eyes, immediately rinse with clean water for at least 15 minutes, and then seek medical attention for treatment. If hydraulic oil splashes onto your skin, wash it with soap and water.

Warning! Waste hydraulic oil is industrial waste and should be disposed of by a company that is authorized to collect and treat industrial waste.

5. Operating Procedure

5.1 Preparation

5.1.1 Connect the high-pressure hose from the pump's high-pressure outlet (port A) to the hydraulic wrench's high-pressure inlet (port A), and connect the low-pressure outlet from the pump (port B) to the hydraulic wrench's low-pressure inlet (port R). When connecting, the quick-connect coupling on the hose should be inserted all the way and then tightened with a wrench.

5.1.2 Release the high-pressure adjustment valve.

5.2 Pressure Adjustment

5.2.1 Turn on the power, the red indicator light on the side of the electrical box will light up. Then press the self-locking button on the remote control switch to start the pump. At this time, the pump station's outlet B will output low pressure.

5.2.2 Hold down the self-reset button on the remote control switch and adjust the high-pressure adjustment valve on the pump until the oil pump pressure gauge pointer points to the desired pressure. Release the remote control switch button.



5.3 Usage

5.3.1 Hold down the self-reset button on the remote control switch, and the pump station will output high pressure, resulting in the wrench working. Release the self-reset button on the remote control switch, and the pump station's outlet B will output low pressure, causing the wrench to reset. Press the self-locking button or unloading button on the remote control switch to reset and stop the pump station.

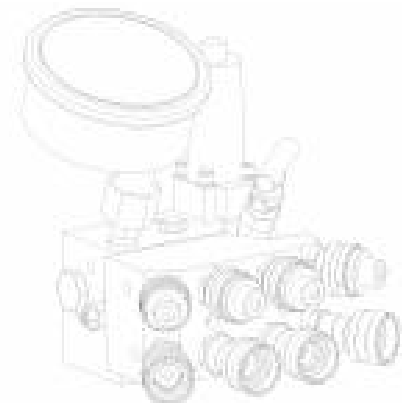
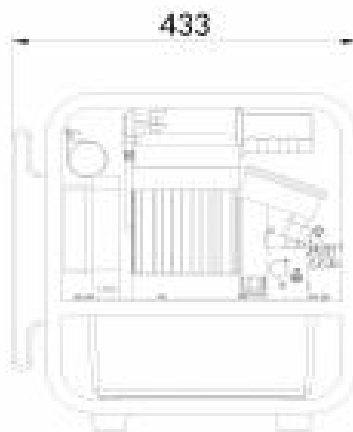
5.3.2 After the operation, press the self-reset button or unloading button to release the remaining pressure in the pipes and equipment. Then remove the high-pressure hose and tighten the dust cap. Disconnect the power, and the red indicator light on the side of the electrical box will turn off.

Note: When starting for the first time or after maintenance, the motor should be started several times until the high-pressure pump is emptied and oil is flowing normally before normal operation can begin.

Note: This electric pump can be equipped with optional accessories.

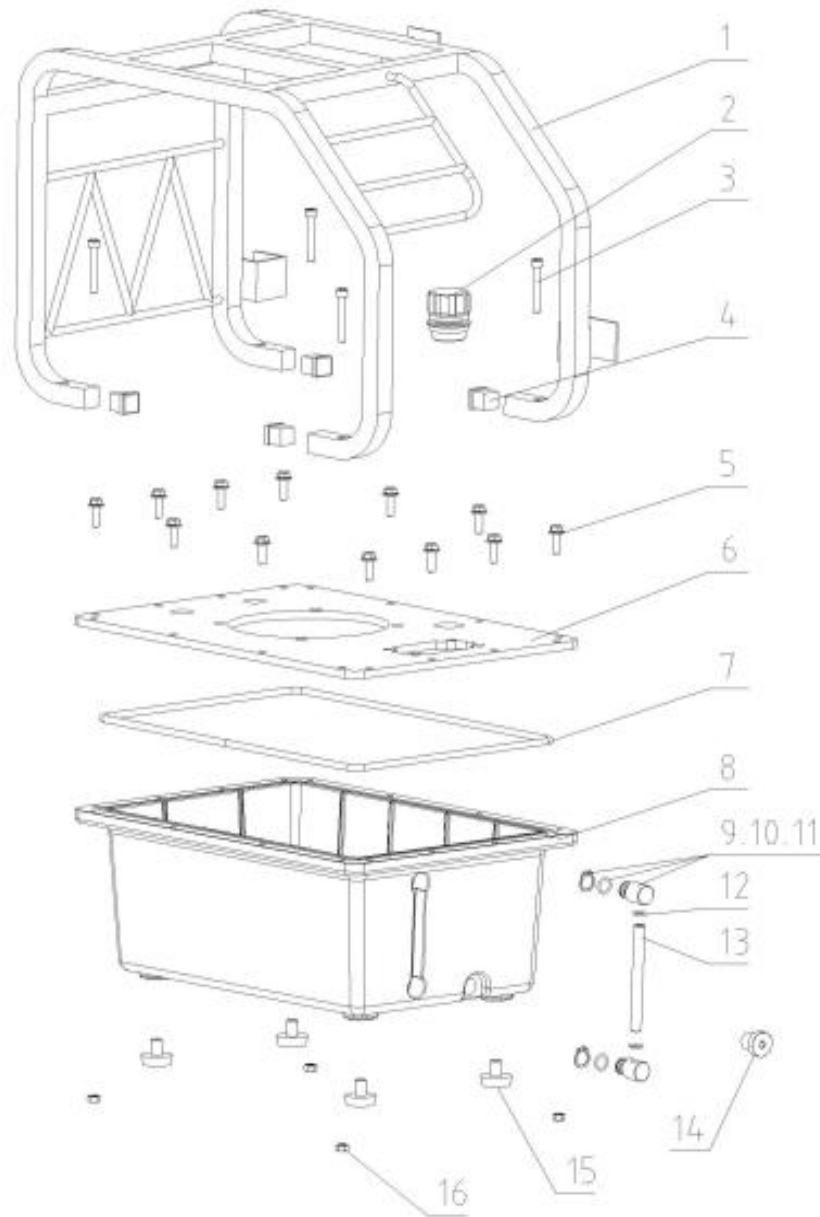
Complete Enclosed Handle Framework

Four Wrenches Synchronizer



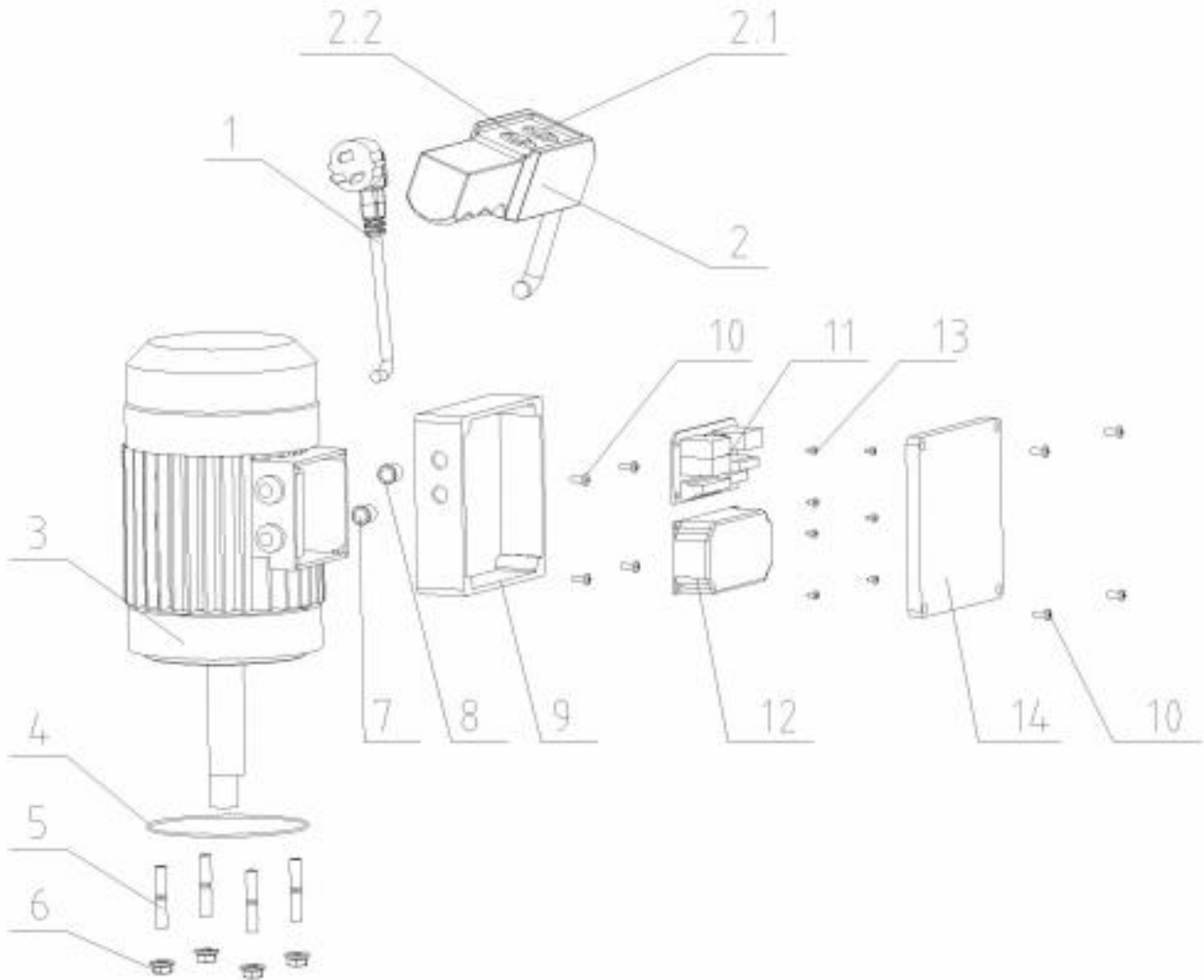
6. Exploded Views

6.1 Oil Tank Module Exploded View



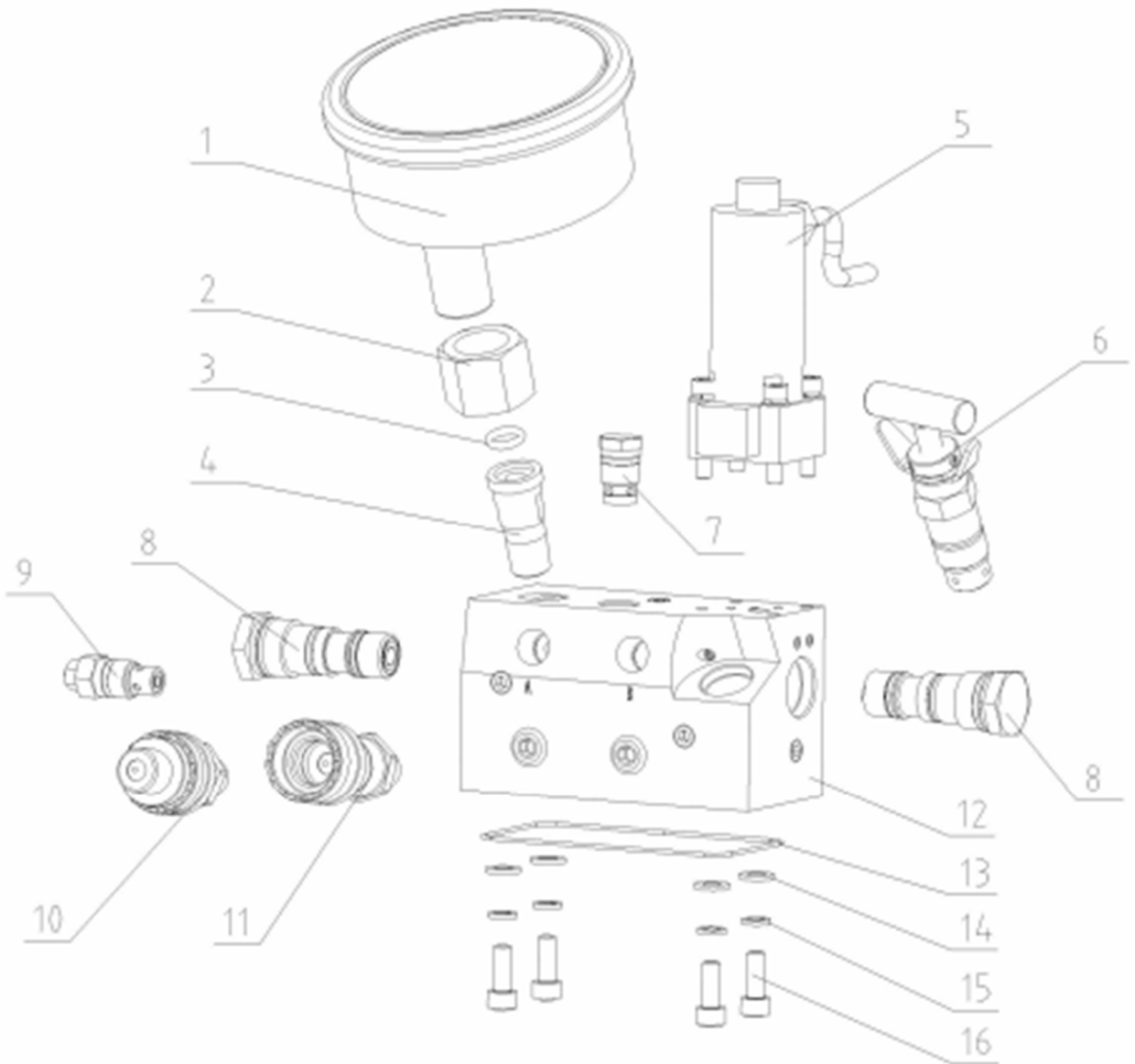
No.	Name	Quantity	No.	Name	Quantity
1	Protective Cage	1	9	Axial Retaining Ring 12	2
2	Vent Plug	1	10	O Ring 9.25x1.78	2
3	Hex Socket Screw M5X35	4	11	Oil Level Gauge Mounting Bracket	2
4	Square Pipe Plug 15	4	12	O Ring 8x1.3	2
5	Flange Face Screw M5X16	12	13	Oil Level Gauge	1
6	Oil Tank Cover	1	14	Screw Plug G1/4	1
7	Sealing Ring	1	15	Foot Pad	4
8	Oil Tank	1	16	Nut M5	4

6.2 Electrical Control Module Exploded View



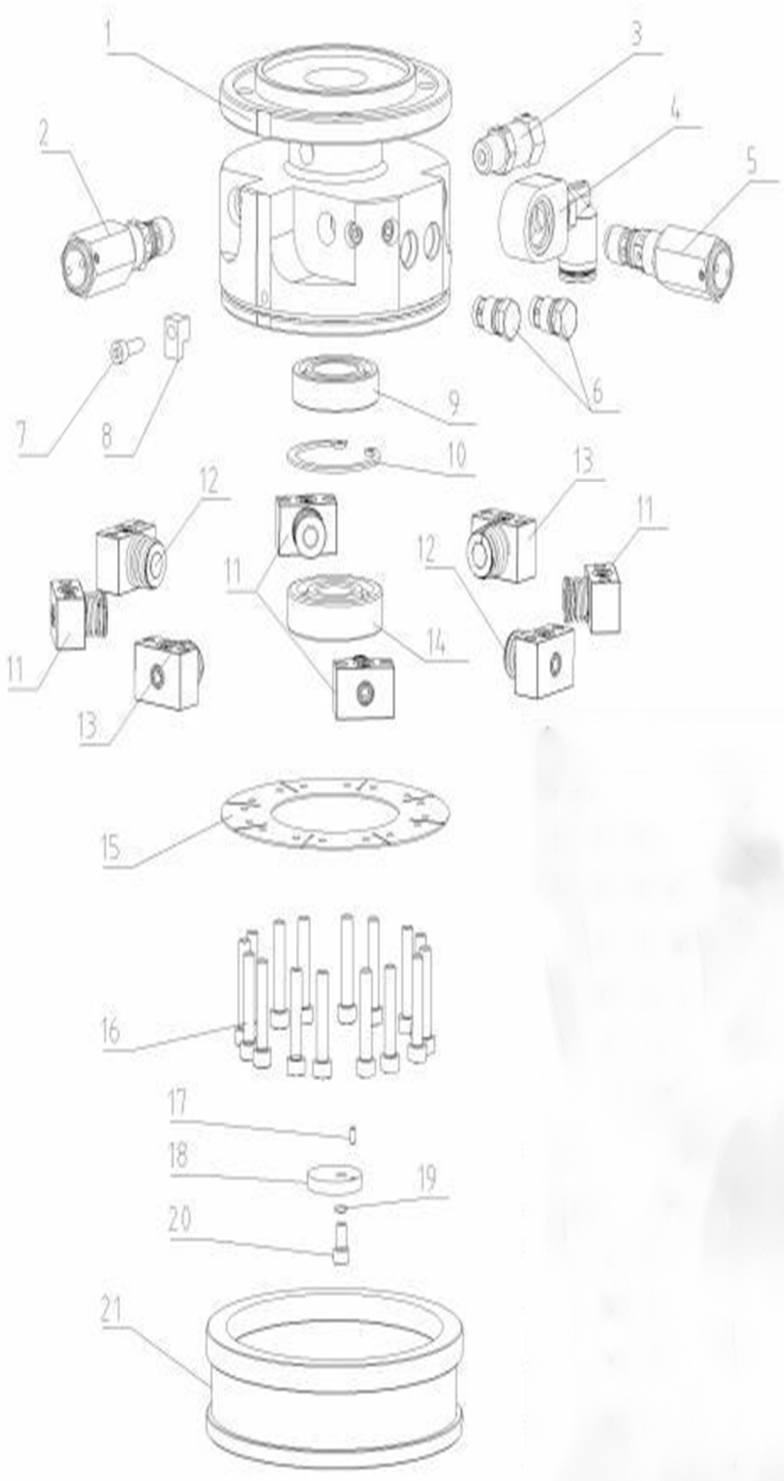
No.	Name	Quantity	No.	Name	Quantity
1	Power Cord	1	7	Working Indicator Light (Green)	1
2	Wired Control Handle Assembly	1	8	Working Indicator Light (Red)	1
2.1	Self-Locking Button	1	9	Electric Control Box Base	1
2.2	Self-Reset Button	1	10	Cross-Slot Pan Head Screw M4X10	8
3	Motor	1	11	Control Circuit Board	1
4	O Ring 85x1.8	1	12	Switching Power Supply	1
5	Double-End Stud M8X45	4	13	Self-Tapping Screw	7
6	Flange Face Nut M8	4	14	Electric Control Box Top Cover	1

6.3 Valve Group Module Exploded View



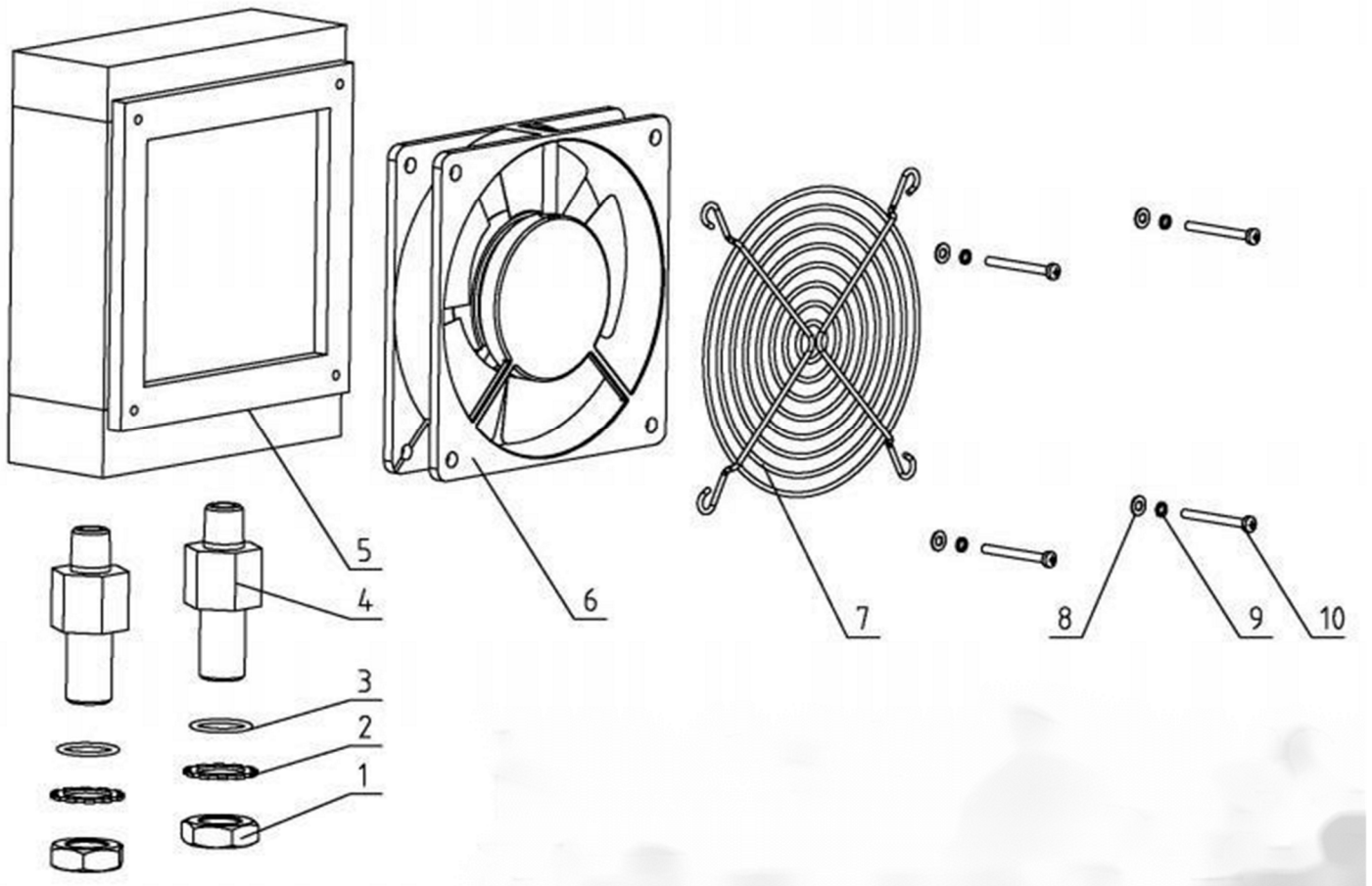
No.	Name	Quantity	No.	Name	Quantity
1	Axial Pressure Gauge	1	9	Low Pressure Regulating Valve	1
2	Pressure Gauge Adapter Nut G1/2	1	10	Convex Connector	1
3	O Ring 9.19X2.62	1	11	Concave Connector	1
4	Pressure Gauge Adapter Stem	1	12	Valve Assembly	1
5	Solenoid Valve (G3-0)	1	13	O Ring 85X18	1
6	High Pressure Regulating Valve	1	14	Flat Washer 6	4
7	Check Valve	1	15	Spring Washer 6	4
8	Pilot Directional Valve	2	16	Hex Socket Screw M6X16	4

6.4 Pump Body Module Exploded View



No.	Name	Quantity
1	Pump Body	1
2	Medium Pressure Relief Valve	1
3	Overpressure Valve	1
4	Flow Divider	1
5	Low Pressure Relief Valve	1
6	Check Valve	2
7	Hex Socket Screw M5X16	1
8	Filter Screen Pressure Plate	1
9	Deep Groove Ball Bearing 6005	1
10	Hole Retaining Ring 47	1
11	Plunger 12	4
12	Plunger 6	2
13	Plunger 7	2
14	Deep Groove Ball Bearing 6304	1
15	Connecting Plate	1
16	Hex Socket Screw M6X35	16
17	Cylindrical Pin 2.5X6	2
18	Shaft End Pressure Plate	1
19	Spring Washer 5	1
20	Hex Socket Screw M5X10	1
21	Filter Screen Cover	1

6.5 Cooler Module Exploded Vie

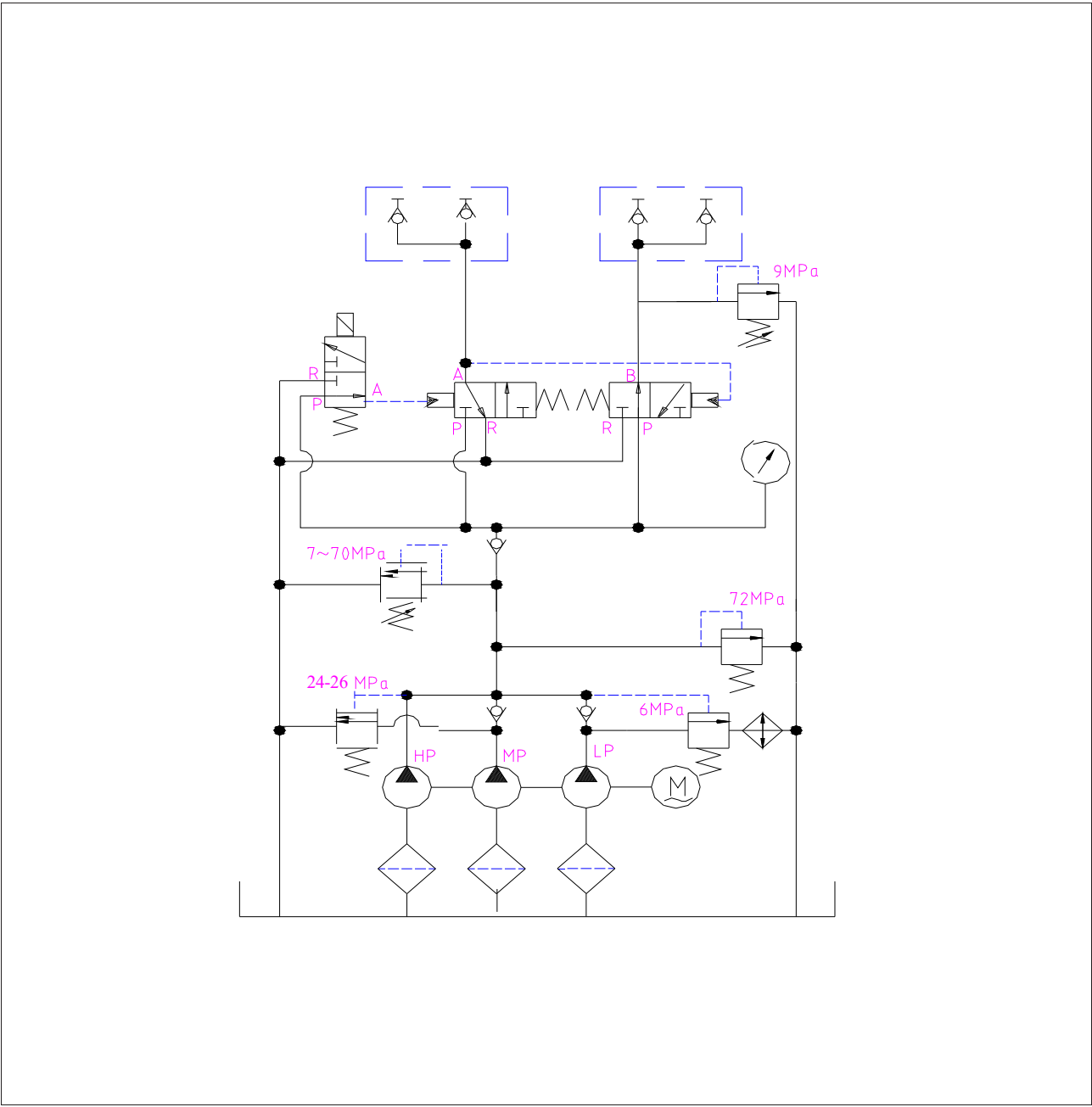


No.	Name	Quantity	No.	Name	Quantity
1	Hex Thin Nut M16*1.5	2	6	Fan	1
2	Multi-Tooth Washer	2	7	Fan Guard	1
3	O Ring 15.54*2.62	2	8	Flat Washer 3	4
4	Cooler Joint	2	9	Spring Washer 3	4
5	Cooler	1	10	Cross-Slot Pan Head Screw M3X35	4

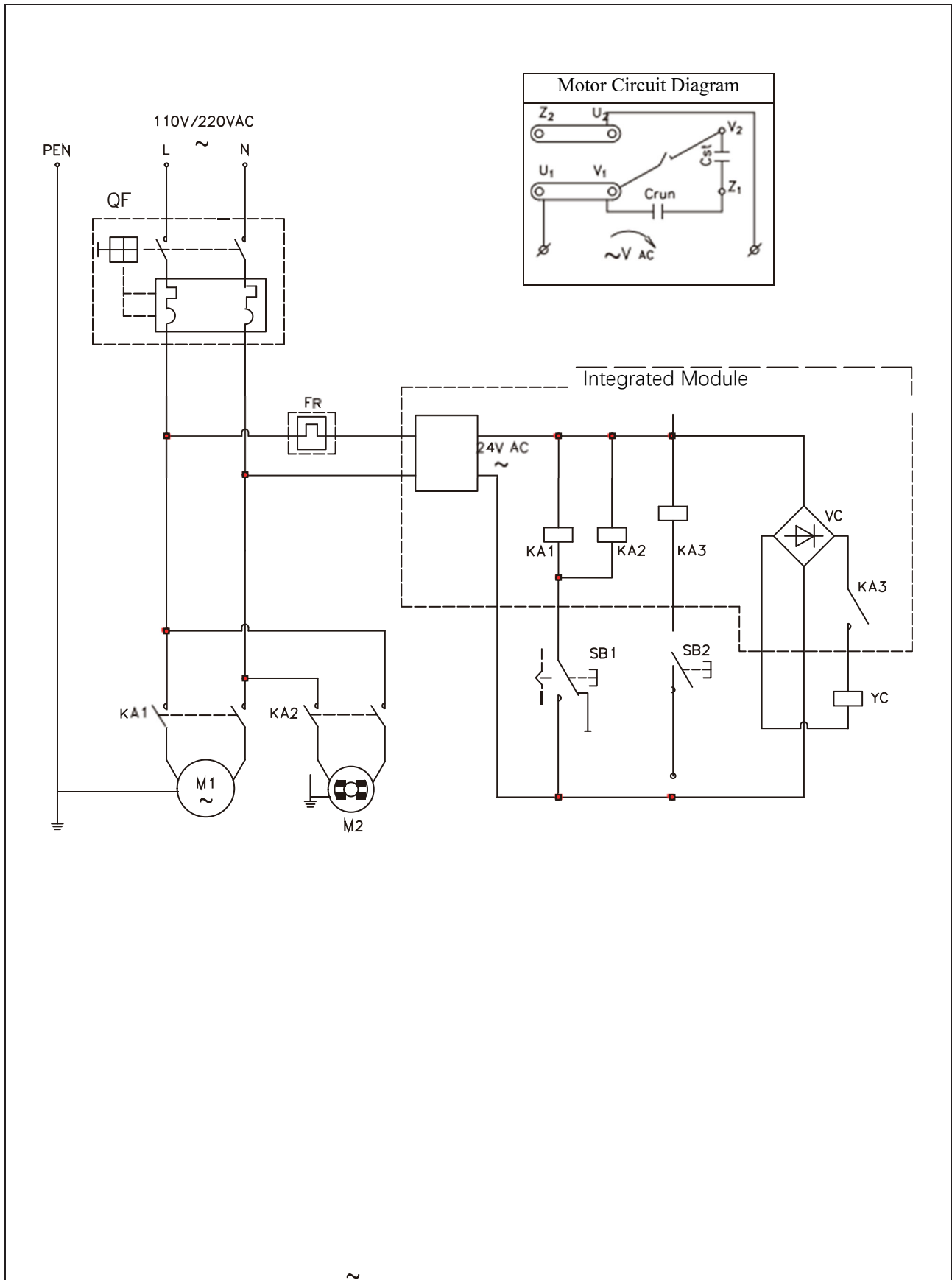
7. Troubleshooting

Fault Symptoms	Cause of Faults	Troubleshooting Methods
The pumping station cannot be started.	Power supply voltage does not match.	Verify if the power supply voltage meets the requirements of the pumping station.
	Power supply is not turned on.	Check the power supply, the socket, the distribution box, etc., and turn on the power supply.
There is no pressure in the pumping station.	Quick connector is not properly connected.	Disassemble and reinstall.
	No oil in the storage tank.	Add oil.
	Insufficient oil in the storage tank.	Add oil.
Oil leakage at the quick connector.	"O" ring on quick connector is worn.	Replace the quick connector.
Pumping station pressure cannot reach the rated pressure.	High-pressure relief valve is adjusted too low.	Test the pressure gauge and adjust the relief valve to the system's rated value.
	Water-oil mixture.	Change the oil.
	"O" ring at the end of the pilot directional valve is damaged.	Replace the "O" ring at the end of the pilot directional valve.
	Air suction.	Operate the system repeatedly to discharge air.
	Relief valve is worn.	Replace the relief valve.
	High-pressure relief valve is not tightened.	Tighten the high-pressure relief valve.
	"O" ring at the end of the high-pressure relief valve is damaged.	Replace the "O" ring at the end of the high-pressure relief valve.
Impurities in hydraulic oil.	Clean the pumping station valve block and replace the hydraulic oil.	
There is strong noise during operation of the pumping station.	Radial piston pump bearings are damaged.	Replace the bearings.
	Pistons are damaged.	Replace the pistons.
Pressure slowly drops during static pressure use.	Check all seals for failure.	Replace the seals.
Insufficient high-pressure flow.	Pistons or springs are broken.	Replace the pistons or springs.
	Local leakage.	Tighten the connector and replace the sealing ring.
	Oil pump sucks air due to low oil level.	Add hydraulic oil.
	High-pressure pump fails to fully discharge.	Operate the system several times before first use or after maintenance.
	Oil temperature is too low, causing difficulty in oil suction.	Control the oil temperature between -10°C and 60°C.
	Oil temperature is too high, resulting in pump damage due to decreased viscosity.	Replace the pump.
	Clogged filter screen.	Clean the filter screen.
Pressure fluctuation.	Impurities in the oil tank causing blockage of hydraulic components.	Clean the hydraulic components and replace the hydraulic oil.
	Poor sealing of one-way valve on the connecting block.	Replace.
	Air mixed in the hydraulic system.	Exhaust the air.

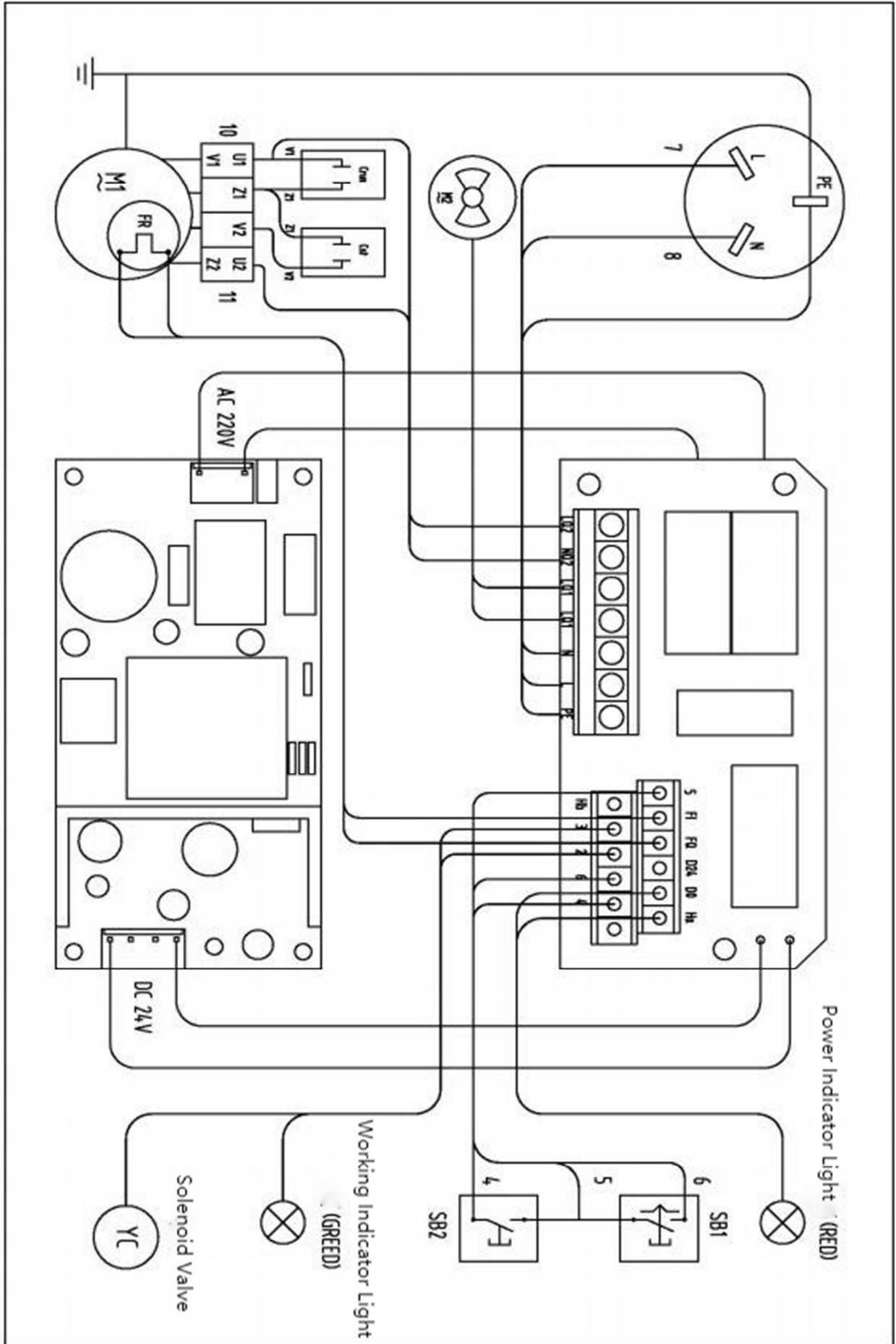
8. Hydraulic Schematic Diagram



9. Electrical Schematic Diagram



10. Electrical Interconnection Diagram



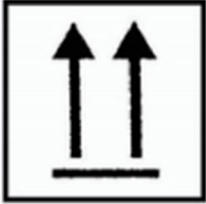
11. Noise and Transportation

11.1 Electric Pump Noise/Vibration Statement

Noise level during use: $\leq 70\text{db}$

11.2 Electric Pump Transportation Information

1. Handle with care during transportation.
2. During shipping, the product should be kept upright, as shown in the figure below.



3. The product can be moved using a hand-held or small cart, as shown in the figure below.



12. High-Pressure Hose Warning

12.1 Suitable for high-pressure hoses of MOEDINGEN JH series and similar grades.

12.2 The minimum bending radius is $R > 120\text{mm}$. A too small bending radius will seriously damage the high-pressure hose.

12.3 The operating pressure should be based on the markings on the outer circumference of the hose, and overpressure use is prohibited.

12.4 The hose should not be allowed to wrap around during operation. Otherwise, it will produce excessive back pressure and cause internal damage to the hose, resulting in premature failure.

12.5 Heavy objects must not be dropped or pressed onto the hose; severe impact may cause hose damage, which can lead to personal injury.

12.6 The hose must not be used to drag, pull, or lift heavy objects.

12.7 It is forbidden to use the hose in environments with overheating, flames, machine rolling, sharp tools, and chemical corrosion. When the hose is arranged in a channel, a cover plate must be installed.

After-sales Service

1. From the date of purchase of MOEDINGEN brand hydraulic tools, MOEDINGEN provides a twelve-month warranty period for users (subject to the contract).
2. Quality problems caused by materials or manufacturing defects during the warranty period will be replaced or repaired free of charge by MOEDINGEN.
3. Damage to the product caused by failure to comply with regulations, accidents, misuse, improper operation, unauthorized modification or repair, or failure to operate according to specifications is not covered by this warranty.