

Operating Instructions:

Contents	Page No.
1. Layout Drawings Key	41
2. Safety Instructions	42
3. General Description	42
4. Unpacking and Installation	43
5. Initial Start - Up Procedure	44
6. Daily Start - Up Procedure	45
7. Daily Shut - Down Procedure	45
8. Filter Bag Replacement	45
9. Routine Circulator Maintenance	46
10. Routine Alcomixer Maintenance	46
11. Fill Level Diagram	47

1. Layout Drawings Key:

A	Alcohol Percentage Control Knob.	13	Fuses.
B	Balance Lamp.	14	Return Pipes.
C	Mains Power On/Off.	15	Flow Pipe.
		16	Power Cable.
1	Control Panel.	17	On/Off Valve.
2	Pump.	18	Drain Pipe.
3	Solenoid Valve.	19	Thermostat.
4	Alcohol Filter.	20	Air Circulation Vents
5	Sensing Cap.		for Condensing Unit.
6	Alcomixer Tower.	21	Tank Overflow Pipe.
7	Refrigeration Coil.	22	Alcohol Feed Pipe.
8	Alcohol Container.	23	Funnel.
9	Air Intake for Condensing Unit.	24	Hydrometer.
10	Filter Bag.	25	Eraser.
11	Condensing Unit.	26	Water Supply Control Valve.
12	Venturi.		

2. Safety Instructions:

Basic safety instructions

The MG Electric ECO unit is a circulation system that provides a clean, cooled and controlled supply of fount solution to the dampening system of a printing press.

The unit may be controlled and operated only by personnel trained for this purpose. Initial installation of the unit is performed by the authorised service agent.

The user shall heed the national safety and accident prevention regulations.

Use for purposes other than that intended and noncompliance with the safety regulations and accident regulations will endanger

- your life
- your health
- machinery and equipment

Important safety instructions

- Make sure that the main power switch is turned off and that there is no voltage applied to the unit before you open the cabinet or the unit housing.
- If it is necessary to repair the unit while it is connected to the mains supply, please pay attention to general safety precautions.
- Never exchange components while the unit is connected to the mains supply.
- The combination of water and electricity is lethal. Ensure that hands are thoroughly dried before any work is carried out on the unit.

Refrigeration handling instructions

- The relevant national accident prevention regulations for refrigeration equipment are applicable.
- If faults occur directly in the refrigerant cycle, call in a competent specialist should repairs be necessary.
- A leak test is necessary if the refrigeration equipment has been modified or if it has been out of operation for more than two years.

Alcohol handling instructions



- Observe the regulations governing the handling of inflammable liquids.
- Make sure there are no ignition sources anywhere near alcohol containers.
- Alcohol must not flow into areas where ignition sources may be expected.
- Immediately dilute spillage or overflowing alcohol with enough water and wipe it off.

Fount solution handling instructions

- Fount mix is harmful. Avoid any contact with eyes or skin. In the event of any accident immediately flood the affected area with copious amounts of water.

3. General Description:

The MG Electric circulation system is supplied as an easy to install package whose function is to help the printer achieve a higher print quality constantly throughout any printing period.

The addition of alcohol to water decreases the surface tension, resulting in less water being held on the press roller system, thus giving much less dot gain through emulsification. This gives benefits in drying time, handling time and in the effects of water on the paper.

To maintain the enhanced print quality the Alcomixer system controls the alcohol level to within a 1% tolerance whilst the refrigeration unit holds the temperature within a 2°C band allowing the alcohol through the roller train to evaporate at a constant rate.

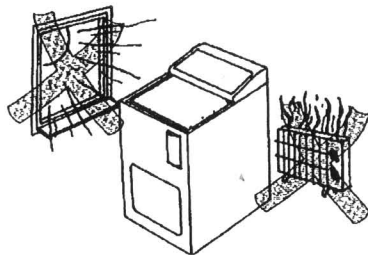
The pH level can be controlled by dosing proprietary fount/etch solutions supplied to the circulator either by hand or by using an MG Electric Ecomixer system (or similar system) which delivers water and fount at a preset percentage.

Pressure supply to, and suction return from the dampening pan is achieved using a suction venturi system for which both pressure and suction are adjustable. The venturi is fitted with a recirculation filter to maintain water condition. Correct adjustment of the system reduces any tendency to produce foam.

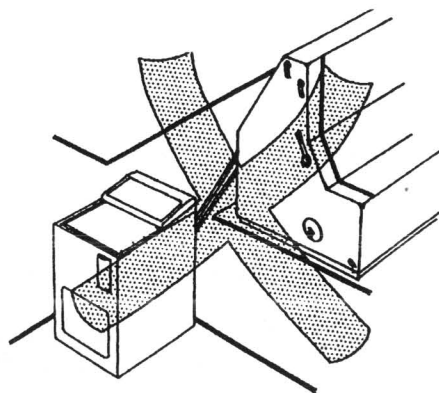
An in-line filter is fitted in the alcohol pick-up line to ensure that any dirt or particles in the alcohol are trapped prior to entering the Alcomixer, thus preventing a more serious fault.

4. Unpacking and Installation:

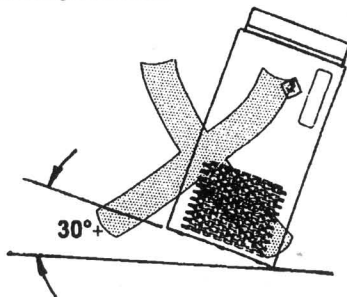
The first step of the circulator installation is to decide upon its location. It should be placed on a reasonably flat floor to prevent the unit rocking, in a position convenient for the electrical supply and away from heat sources i.e. radiators and direct sunlight from large windows.



Its position should be such that it is not endangered by the movement of pallets or workpieces, or such that it would cause difficulty to the printer in operating the machine. Finally, it should be conveniently placed to allow the tubing connections between the MG Electric unit and print machine to not obstruct the printer, and to also not pass heat sources.



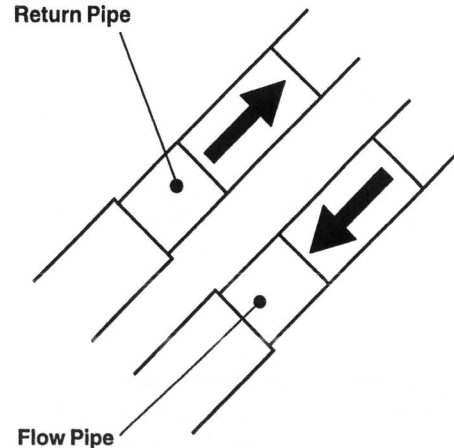
Unpack the unit from its box, taking care not to tilt the unit through more than 30° to prevent damage to the refrigeration unit



Open the lid and check that all parts, according to the diagram at the front of this booklet, are enclosed and undamaged. The unit should be checked for any visible signs of damage in transit.

Connect the circulator supply and return pipes to the press pipework using the fittings supplied. The direction of flow is marked adjacent to the circulator fittings.

Return Pipe



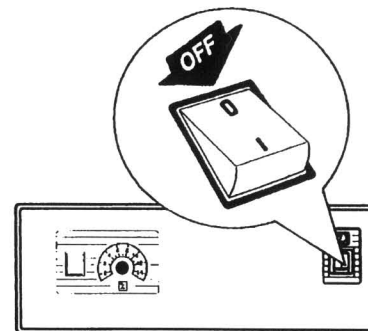
Flow Pipe

4. Unpacking and Installation :

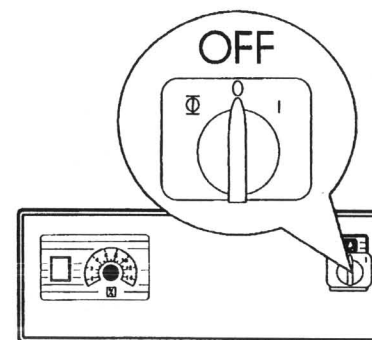
Ensure the circulator is switched off before making any electrical connections.

Do not attempt to switch the circulator on until the Initial Start-Up Procedure has been started.

Eco 15/25



Eco 50/80



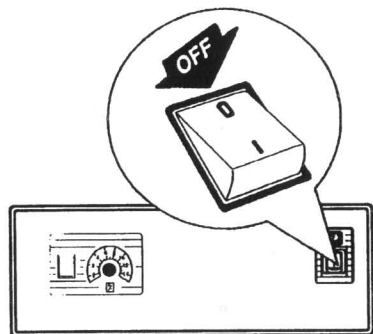
- The unit must be connected to the electrical supply either by using a suitable electrical plug or by wiring into a wall or panel mounted fused isolator.
- Internal fuses are fitted to the circulators control panel but external fuses of 10A should be used.
- The unit must be earthed and connected using cable with a conductor cross sectional area of 1.5mm² minimum.

Note:

It is strongly recommended to fit a residual current detector or an earth leakage trip, dependant on local directives, as close to the source of power as possible, thus protecting the MG Electric unit and the cable running to it.

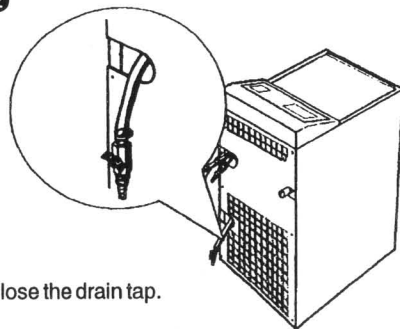
5. Initial Start - Up Procedure:

1



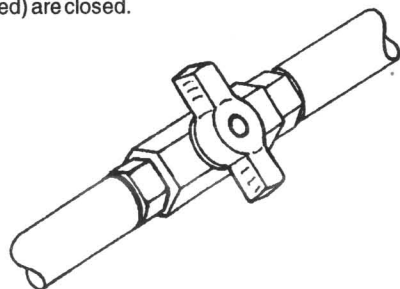
Ensure the power supply to the circulator is switched off.

2

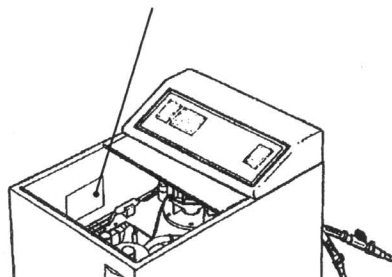


Close the drain tap.

3 Ensure that the press connection pipe valves (if fitted) are closed.



4 Fill the tank with a premixed fount solution containing 8% alcohol to the level indicated by the label on the inside front wall of the cabinet:



ECO 50, 80

After filling the tank with the premixed solution, connect a water supply to the automatic water level control.

Caution! The tank has an overflow fitting to prevent overfilling

5 ECO 15, 25

Remove the alcohol container cap and fill with alcohol using the funnel.

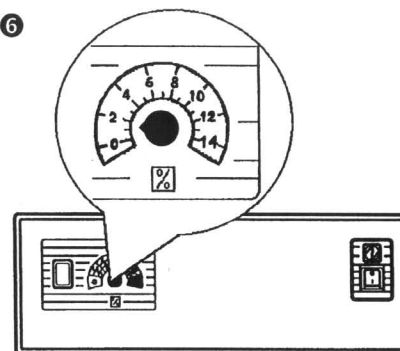
ECO 50, 80

Place the alcohol pick up tube into a suitable alcohol container.

We recommend the use of Isopropyl Alcohol, indicated in the Technical Specification.

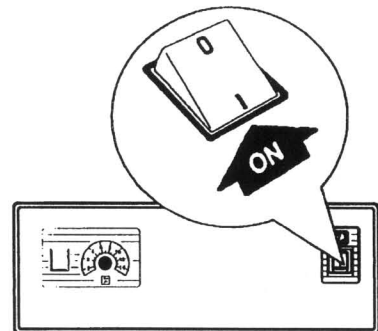


6



Ensure that the Alcomixer percentage control knob is set to zero.

7



Switch on the circulator. The pump and refrigeration system will start.

8 Check for suction at the dampening pan drain on the press. If no suction is felt, refer to the fault finding section.

9 Open the press connection pipe valves and regulate the flow to the dampening pans, ensuring that the flow to the pans is not more than the suction can cope with.

10 Once the water has reached the correct running temperature, set the Alcomixer percentage control knob to the desired amount.

Note: If a decreased value is required, the alcohol must be given time to evaporate off.

11 Allow the system to stabilise at the new set value.

12 It is possible to adjust the alcohol level to account for local variations. Refer to the Alcomixer Adjustment Section in the Maintenance manual.

Note: Should the alcohol container become fully drained of alcohol, a rapid production of foam will occur in the circulator tank. To rectify, immediately set the Alcomixer percentage control knob to zero, refill the alcohol container, and reset the required percentage.

6. Daily Start - Up Procedure:

❶ Check the water level in the tank, and add as required to the level indicated on the label.

❷ Check the level of alcohol in the container and refill (Eco 15/25).

Danger: Alcohol is highly flammable
Handle with extreme caution

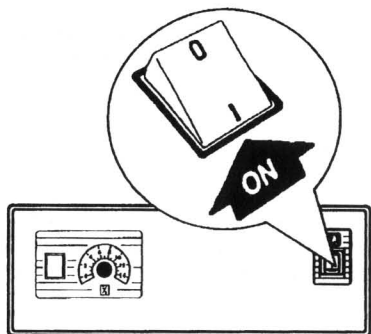


❸ Check that the on/off valve to the press is open.



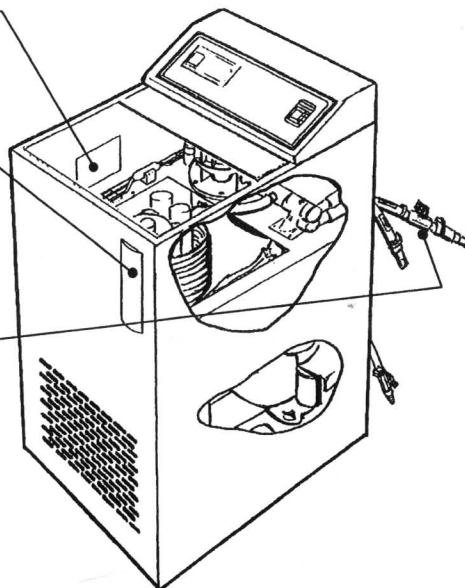
Warning: Operating the press without an adequate water supply can cause severe damage to the dampening roller system.

❹ Switch on the circulator, (with the Alcomixer set to zero).



❺ When the circulator has reached the running temperature, set the Alcomixer to the desired percentage.

Note: The Alcomixer is less accurate when not at running temperature. When switching it on allow a period of time for the system to re-balance.



During the work period:

The following must be checked at regular intervals while the circulator is running:

Check the water level in the tank and refill as necessary. Check the level of alcohol in the container and refill as necessary.

7. Daily Shut - Down Procedure:

❶ Close the on/off valve and allow the water to be drawn back into the circulator until the return pipe is clear.

❷ Switch off the circulator power switch.

❸ Reopen the on/off valve.

8. Filter Bag Replacement:



Disconnect the unit from the mains supply before carrying out any maintenance work.

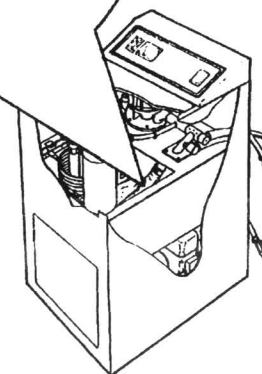
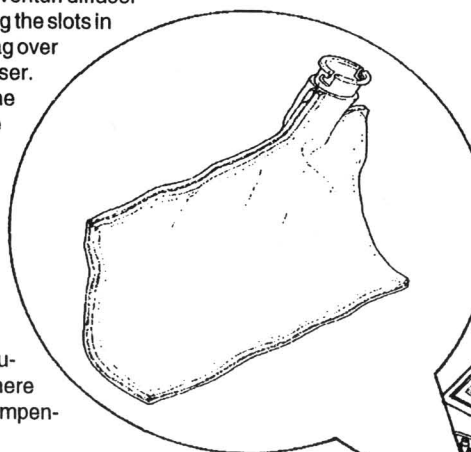
❶ Switch off the circulator and open the lid.

❷ Take hold of the filter bag neck, twist clockwise viewed from above and pull the filter off the venturi diffuser. Note the orientation of the filter when it is removed.

❸ Check that the o-ring seal on the neck of the diffuser is tight and in position in the groove.

❹ Position the new filter bag in the correct orientation below the venturi diffuser and push up, engaging the slots in the neck of the filter bag over the pins on the diffuser. Twist the neck of the filter bag anticlockwise when viewed from above to lock it in place on the diffuser. Ensure that the o-ring seal has not been displaced from its groove.

❺ Switch on the circulator and check that there is still suction at the dampening pan.



9. Routine Circulator Maintenance:

Note: Prior to maintenance or changing of the fuses, the unit must be isolated from the mains supply by either unplugging or switching off a suitable isolator.

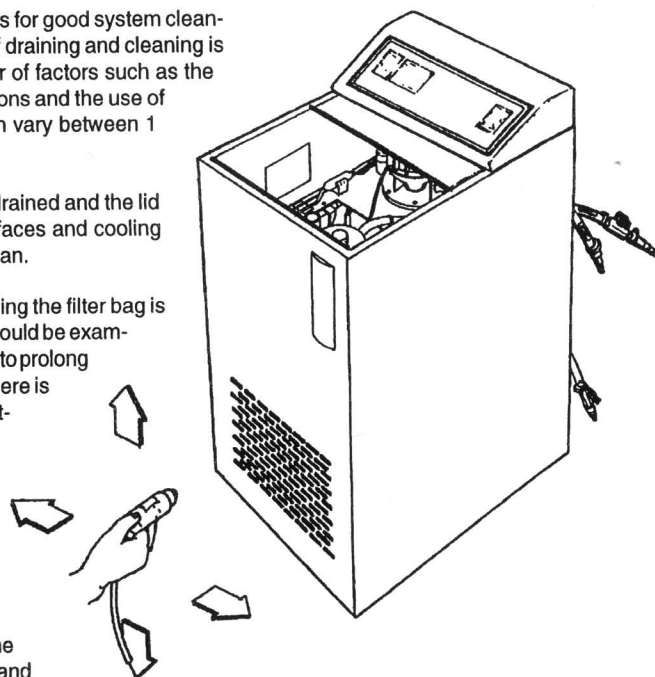
The circulator has been designed to require the minimum amount of maintenance.

The major requirement is for good system cleanliness. The frequency of draining and cleaning is dependant on a number of factors such as the types of ink, fount solutions and the use of spray powders, and can vary between 1 and 6 weeks.

The system should be drained and the lid removed. The tank surfaces and cooling coil should be wiped clean.

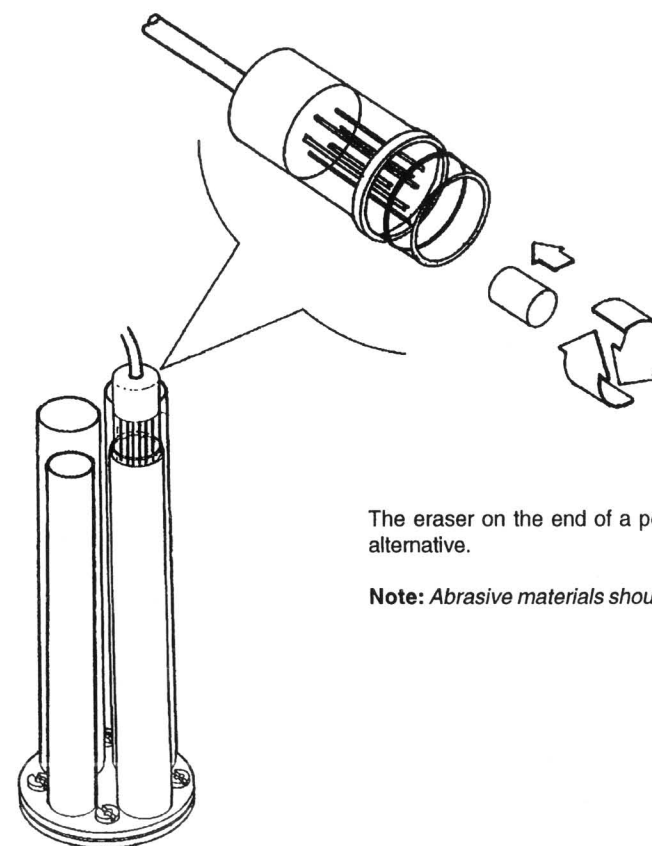
The frequency of changing the filter bag is also variable and this should be examined regularly. Do not try to prolong the life of the filters as there is a risk of blockage resulting in dampening pan overflows. The filter bag should be changed when it begins to inflate due to the water pressure. A blocked filter bag may also produce foam in the circulator tank. The filters are disposable and cannot be cleaned.

The cooling fan and the fridge condenser air intake should be examined for blockage and blown out with compressed air. Take care not to distort the metal fins.



10. Routine Alcomixer Maintenance:

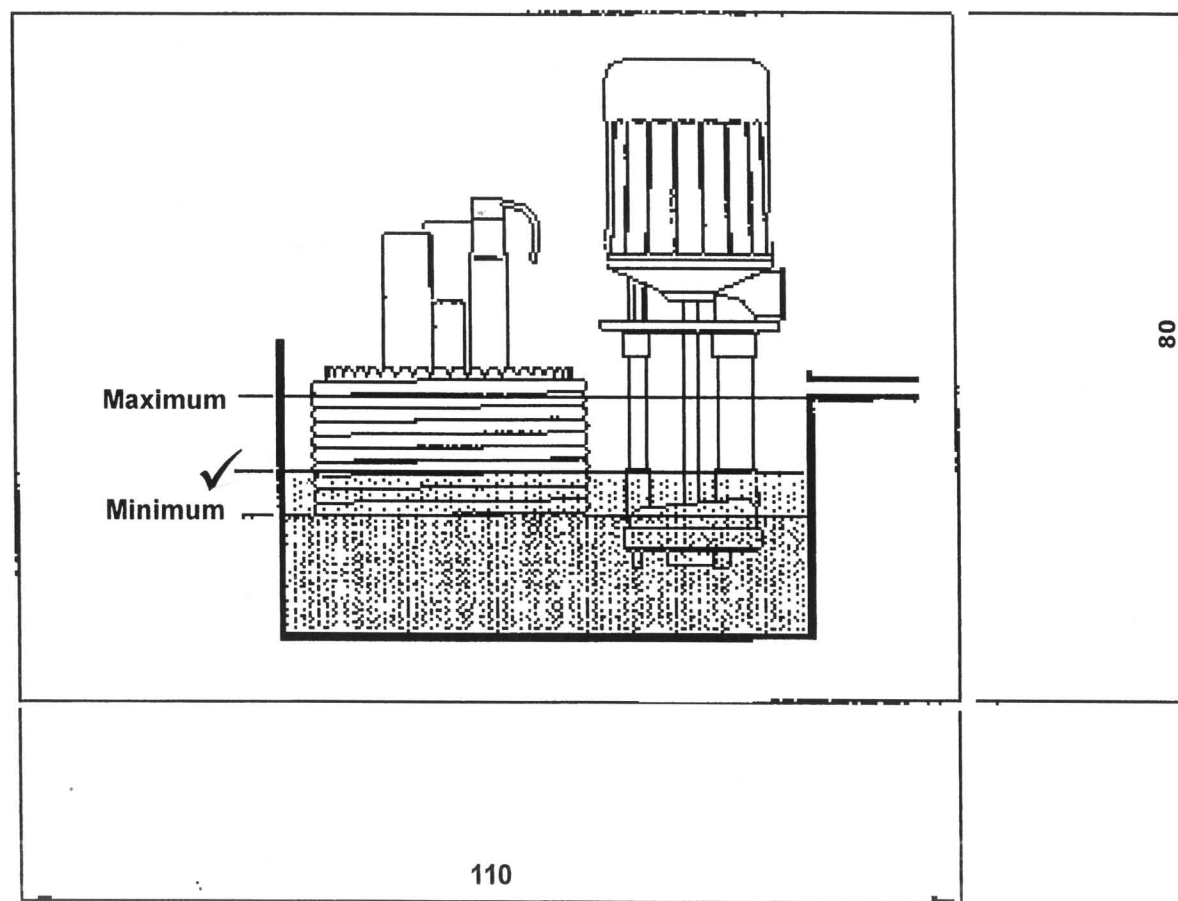
The Alcomixer alcohol metering system is largely maintenance free. When the Alcomixer is functioning correctly, all that is required is periodic cleaning of the gold needles inside the sensor cap. Clasp the tower body assembly firmly with one hand, and gently twist off the sensor cap with the other hand. A small eraser is supplied with the unit and this should be pushed onto the sensor needles and rotated.



The eraser on the end of a pencil is a suitable alternative.

Note: Abrasive materials should not be used.

11. Fill Level Diagram:



Maintenance Instructions:

Contents	Page No.
1. Safety Instructions	107-108
2. Troubleshooting:	
(a) Pump	108
(b) Pump, Eco15	109
(c) Pump, Eco25, 50, 80	109
(d) Cooling	110
(e) Venturi	111
(f) Foaming	111
(g) Flooding	111
(h) Condensation	111
3. Thermostatic Re - adjustment	112
4. Circulation Schematic Diagram	112
5. Removal of Cooling Coil and Condensing Unit	113-114
6. Alcomixer Troubleshooting	115
7. Recommended Spare Parts	116
8. Technical Specification:	
(a) Eco15	117
(b) Eco25	117
(c) Eco50	118
(d) Eco80	118

1. Safety Instructions:

Basic safety instructions

The MG Electric ECO unit is a circulation system that provides a clean, cooled and controlled supply of fount solution to the dampening system of a printing press.

The unit may be controlled and operated only by personnel trained for this purpose. Initial installation of the unit is performed by the authorised service agent.

The user shall heed the national safety and accident prevention regulations.

Use for purposes other than that intended and non-compliance with the safety regulations and accident regulations will endanger

- your life
- your health
- machinery and equipment

Important safety instructions

- Make sure that the main power switch is turned off and that there is no voltage applied to the unit before you open the cabinet or the unit housing.
- If it is necessary to repair the unit while it is connected to the mains supply, please pay attention to general safety precautions.
- Never exchange components while the unit is connected to the mains supply.
- The combination of water and electricity is lethal. Ensure that hands are thoroughly dried before any work is carried out on the unit.

Refrigeration handling instructions

- The relevant national accident prevention regulations for refrigeration equipment are applicable.
- If faults occur directly in the refrigerant cycle, call in a competent specialist should repairs be necessary.
- A leak test is necessary if the refrigeration equipment has been modified or if it has been out of operation for more than two years.

Alcohol handling instructions



- Observe the regulations governing the handling of inflammable liquids.
- Make sure there are no ignition sources anywhere near alcohol containers.
- Alcohol must not flow into areas where ignition sources may be expected.
- Immediately dilute spillage or overflowing alcohol with enough water and wipe it off.

Fount solution handling instructions

- Fount mix is harmful. Avoid any contact with eyes or skin. In the event of any accident immediately flood the affected area with copious amounts of water.

1. Safety Instructions:

Electrical connection details

WARNING!
THIS APPLIANCE MUST BE EARTHED.



The wires in the mains lead are coloured in accordance with the following code:


ECO 15, 25, 50

Brown:	Live	(L1)
Blue:	Neutral	(L2)
Green/Yellow:	Earth	(PE)

ECO 80

Brown:	Live	(L1)
Black:	Live	(L2)
Black:	Live	(L3)
Green/Yellow:	Earth	(PE)

As the colours of the wires in the mains lead of this appliance may not correspond with the coloured marking identifying the terminals in your plug, proceed as follows:

The wire which is coloured green/yellow must be connected to the terminal which is marked E, or the earth symbol , or coloured green, or green / yellow. The wire which is coloured blue must be connected to the terminal which is marked with the letter L2, or is coloured black. The wire which is coloured brown must be connected to the terminal which is marked with the letter L1, or is coloured red. For the ECO 80 only the wires which are coloured black must be connected to the terminals marked L2 & L3. Changing of the mains lead should be entrusted to a qualified engineer.

2. Troubleshooting (a) Pump:

Generally, the pump is not user serviceable.

Loss of pressure

❶ The impellor cover at the base of the pump can be removed by turning it through approximately 90° anticlockwise (viewed from below). Examine the impellor and housing for any blockage. When replacing the impellor cover, take care that the o-ring is intact and correctly positioned.

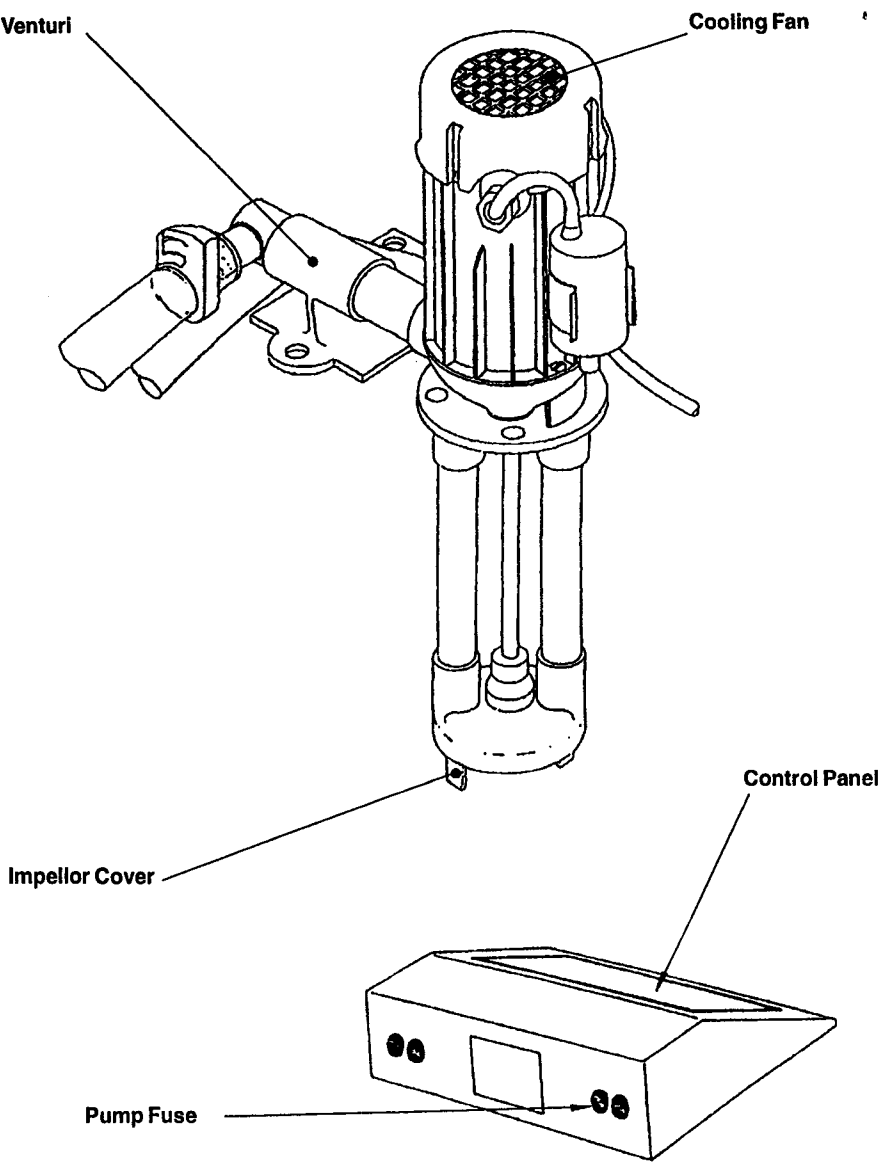
❷ Check the cooling fan on top of the pump is not obstructed (this will probably be accompanied by noise).

Pump has stopped

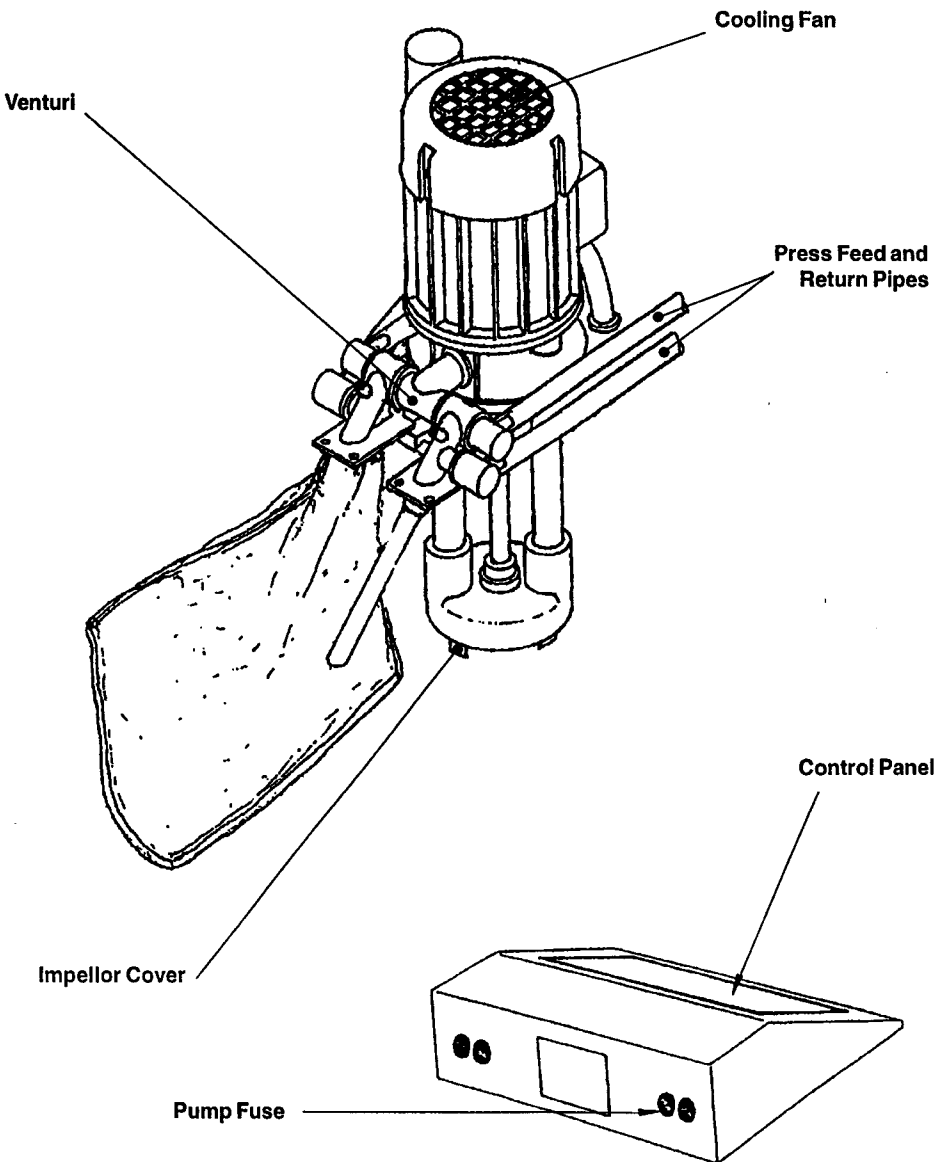
❶ Isolate the unit from the mains and check the pump fuse.

❷ Check that the fan on top of the pump has not been prevented from rotating.

Troubleshooting (b) Pump ECO15:



Troubleshooting (c) Pump ECO25,50,80:



Troubleshooting (d) Cooling:

Compressor and fan runs but system does not cool:

① This may be due to a loss of refrigerant gas in the fridge system. This will require either the replacement of the condenser assembly or recharging by a refrigeration engineer.

② The condenser may be blocked, preventing flow of air through the unit. This should be blown out with a compressed air line.

Fan runs but the compressor does not:

① This may be due to a faulty capacitor and/or start relay located in the fridge terminal box. Both parts should be replaced.

② The compressor may be seized or defective. This will require replacement by a refrigeration engineer. The compressor is fitted with an internal high temperature cutout and current overload. These may trip in the event of an internal fault or especially high loading.

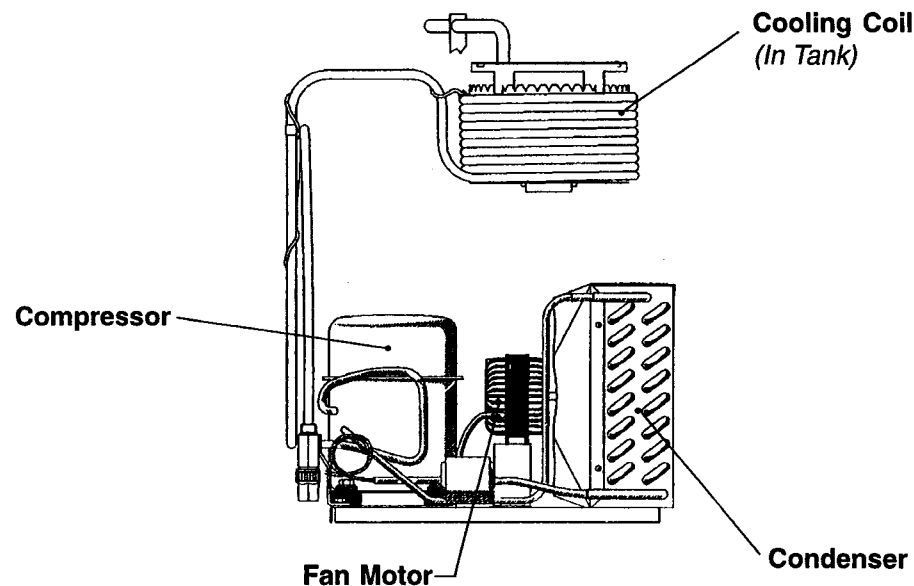
Compressor and fan do not run:

① The thermostat may be damaged. This should be checked by a qualified electrician by linking together the live and neutral terminals inside the thermostat. If the fridge now runs, the thermostat should be replaced.

Caution: Do not continue to run the fridge in this condition as freezing may occur.

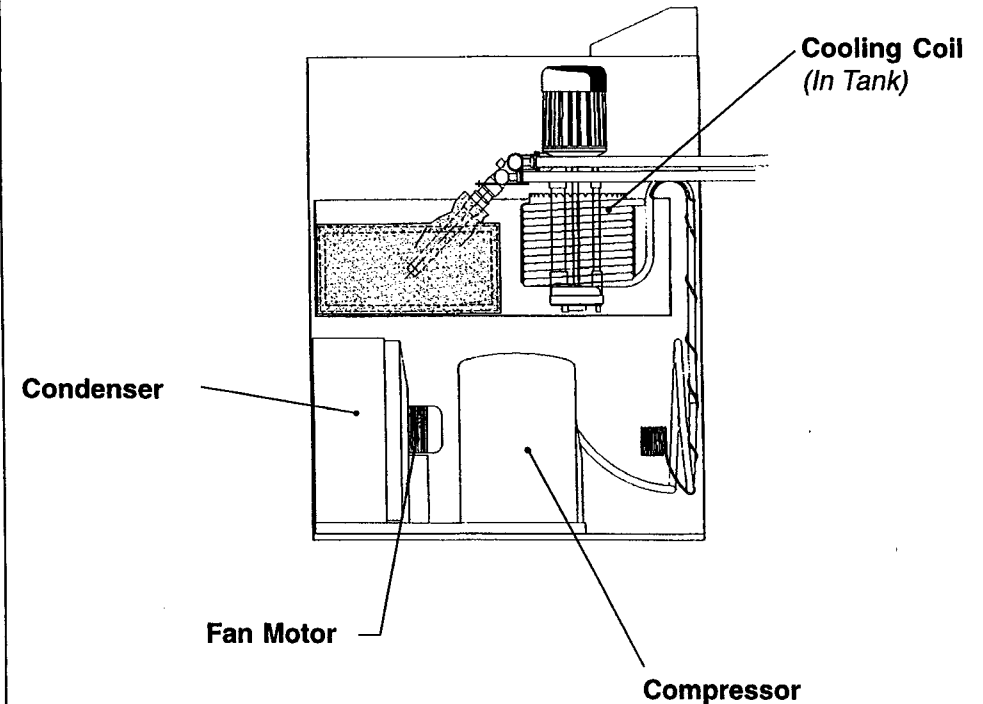


ECO15, 25



Troubleshooting (d) Cooling:

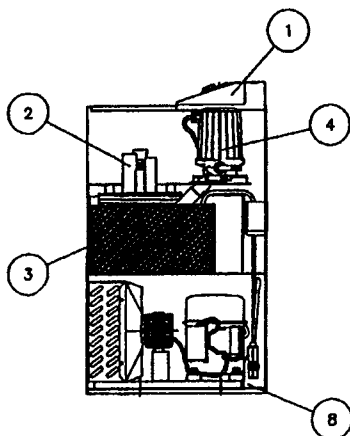
ECO50, 80



5. Removal of Cooling Coil and Condensing Unit:

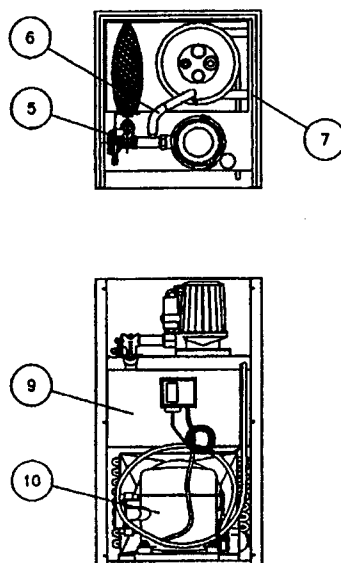
ECO15,25

- ❶ Disconnect the circulator from the electrical supply.
- ❷ Remove the rear panel.
- ❸ Remove the 2 screws retaining the control panel (1) from underneath the console at the rear.
- ❹ Disconnect the condensing unit power cable from the inside of the control panel.
- ❺ Remove the control panel (1) from its normal position and place to the side of the unit.
- ❻ Remove the Alcomiser tower (2) from the centre of the coil.
- ❼ Remove the filter bag (3) from the venturi.
- ❽ Remove the pump (4) from its location after removing its 4 retaining screws.
- ❾ Remove the venturi (5) from its location after removing its 3 retaining screws.



- ❿ Remove the hose (6) from the coil.
- ⓫ Remove the 2 retaining screws (7) supporting the coil.
- ⓬ Remove the retaining bracket (8) holding down the condensing unit

It is not possible to remove the coil without the tank and condensing unit. With the coil laying freely in the tank withdraw the tank (9) and the condensing unit (10) through the rear of the circulator. It may be necessary to move the tank from side to side as it is withdrawn. Ensure that the pipework is not damaged.



5. Removal of Cooling Coil and Condensing Unit:

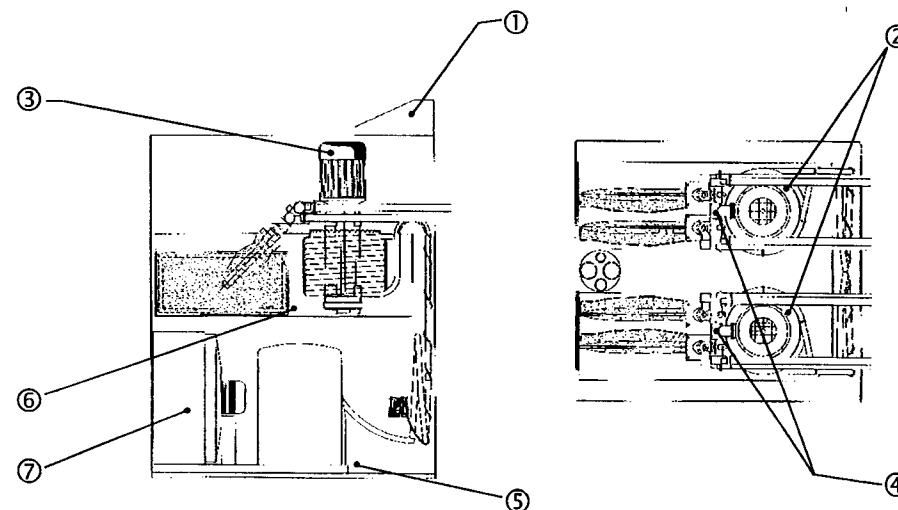
ECO50,80

- ❶ Disconnect the circulator from the electrical supply.
- ❷ Remove the rear panel.
- ❸ Slide the control panel backwards about 25mm to release it.
- ❹ Remove the control panel base and disconnect the condensing unit power cable from the inside of the control panel.
- ❺ Remove the control panel (1) from its normal position and place to the side of the unit.

- ❻ Undo the pump plate (2) by removing the four screws.
- ❼ Lift the pump plate, including pump (3) and venturi (4) free.
- ❽ Remove the retaining bracket (5) holding down the condensing unit.

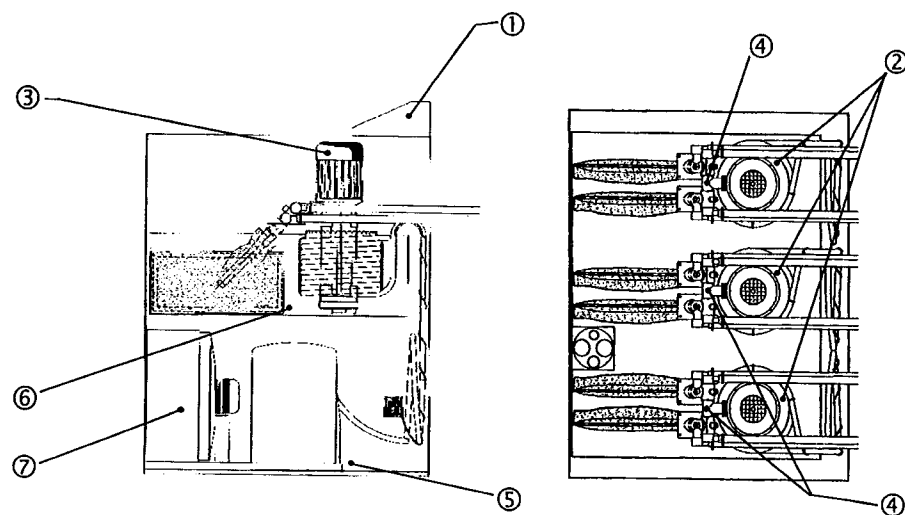
It is not possible to remove the coil without the tank and condensing unit. With the coil laying freely in the tank withdraw the tank (6) and the condensing unit (7) through the rear of the circulator. It may be necessary to move the tank from side to side as it is withdrawn. Ensure that the pipework is not damaged.

ECO50



5. Removal of Cooling Coil and Condensing Unit:

ECO80



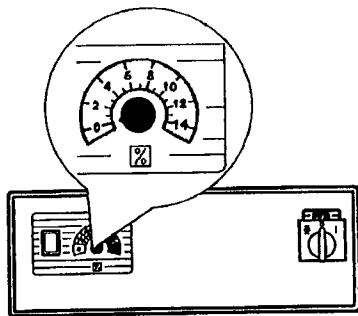
6. Alcomixer Troubleshooting:

Should the Alcomixer malfunction, and the alcohol percentage fall or rise, a number of simple tasks must be carried out.



Disconnect the unit from the mains supply before carrying out any maintenance work.

① When the sensor cap is lifted from the tower, and lowered into the water, a corresponding click of the solenoid valve positioned at the rear of the unit should be heard as the solenoid valve opens and closes. This process ascertains if the control circuit is functioning correctly.



② Whilst the circulator is running, and the sensor cap has been removed, solution should be flowing over the top of all tubes in the Alcomixer tower except the one which holds the sensor cap. With a finger placed over the thinnest tube, water should flow over the sensor cap tube. If not, there may be a blockage either at the base of the tower or at the sample tube.

③ To clean the Alcomixer tower base, switch off the circulator, withdraw the tower, by removing the four screws and separate the base cover plate and gasket. Check the 'Z' shaped grooves within the base are clear of blockages and that all ports are clear. Inspect the gasket for damage. Re-assemble the tower and return to its position.

④ Check for suction by immersing the sensor cap in water. Suction should be observed as alcohol moves along the yellow tube. If not, move to the rear of the unit and disconnect the yellow alcohol tube at the various points where it is connected to the solenoid valve and the copper in-line filter, and check again for suction or for alcohol flowing from the tube.

**Danger: Alcohol is highly flammable.
Handle with extreme caution**



⑤ Loss of suction at the side connection of the Alcomixer elbow will be due to a blockage within the elbow and Alcomixer nozzle.

Alcomixer Adjustment

Due to variations in local conditions, it may be necessary to adjust the Alcomixer so that the alcohol percentage in the tank corresponds to the switch setting. This operation should only be done as a last resort, as the system is very sensitive and carefully set at the factory.

Adjustment should be carried out with the circulator switched on and alcohol in the reservoir.

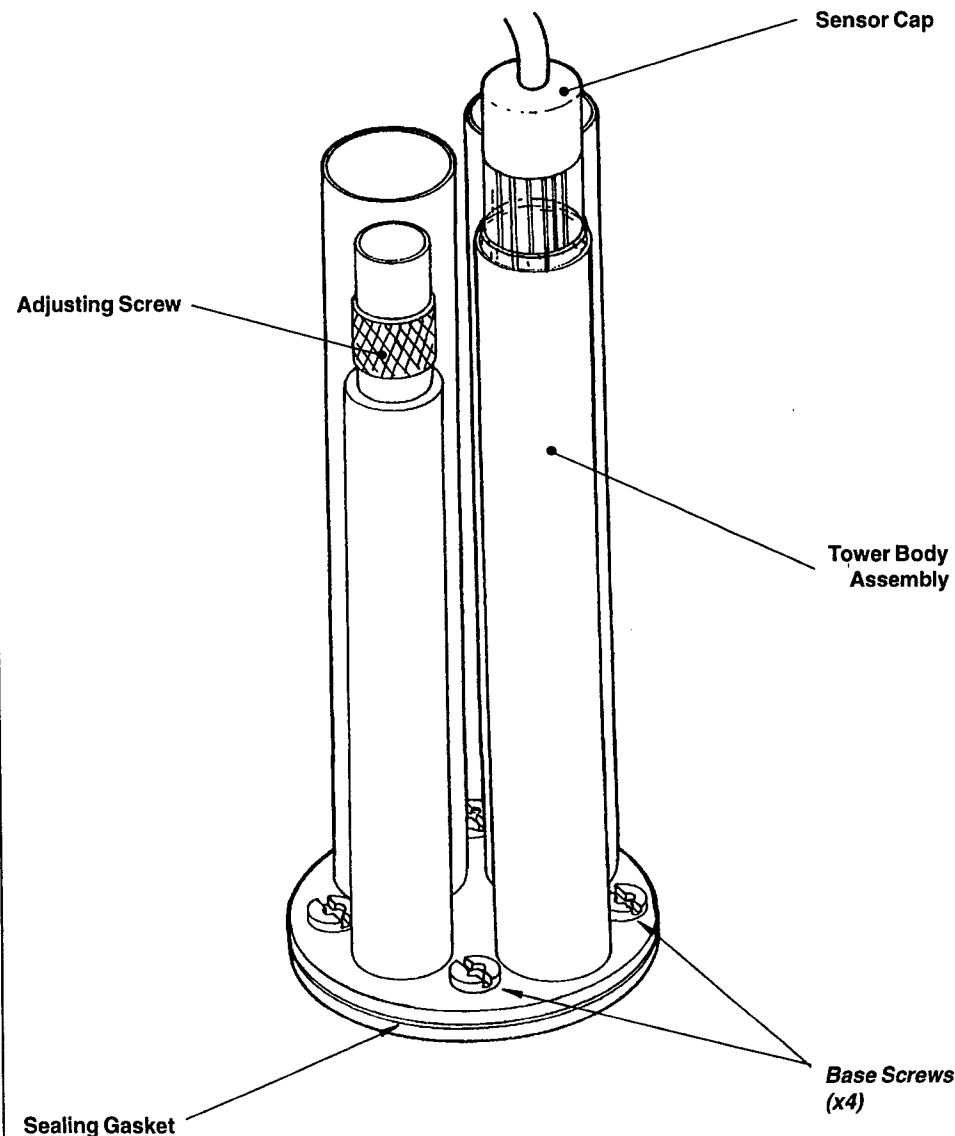
Set the control knob to the desired alcohol level. A balance lamp is provided which shows when alcohol is required (Lamp Off) or when no alcohol addition is required (Lamp On).

To re-balance the system turn the adjusting screw clockwise to decrease the alcohol content or anticlockwise to increase, half a turn will change the alcohol level by approx. 1%. For accuracy care should be taken not to touch the top of the fluid on the adjusting column.

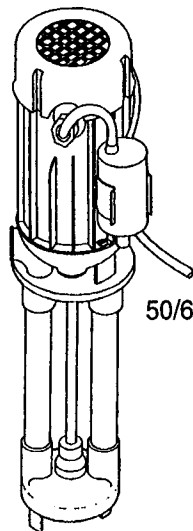
Note: If the alcohol level is being reduced then time must be given for the alcohol to evaporate off.

*If the fault persists, contact the MG Electric Technical Services Department for further advice.
Tel. (01206) 842244*

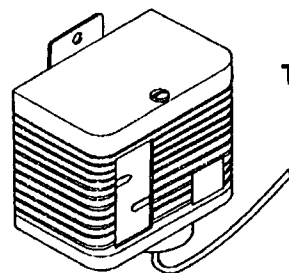
6. Alcomixer Troubleshooting:



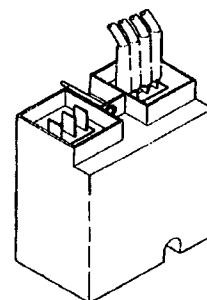
7. Recommended Spare Parts:



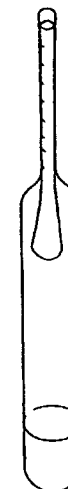
Circulation Pump
Ref: 50/60Hz: DQ7/1/F/220



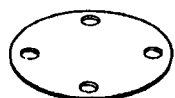
Thermostat.
Ref: 3039



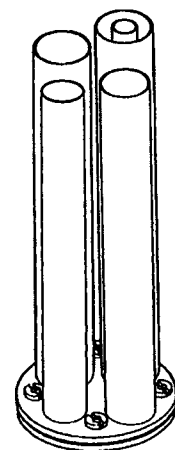
Alcomixer Controller
Ref: 3091



Hydrometer
Ref: 3162



Gasket
Ref: 4401

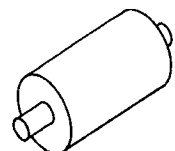


Alcomixer Tower Assembly
Ref: 4427

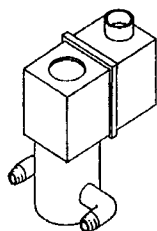


Sensing Cap
Ref: 8517

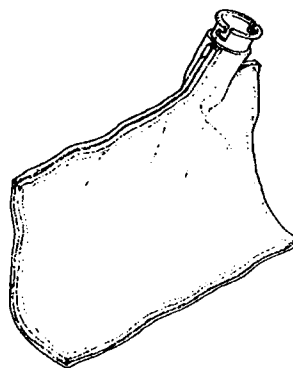
Ref: 7643 Fuse F2A H415V 32mm quick acting
Ref: 5696 Fuse T10A H250V 32mm slow blow



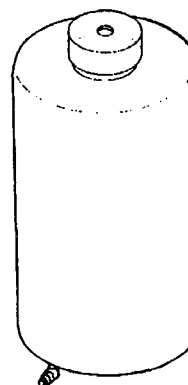
Alcohol Filter
Ref: 3345



Solenoid Valve
Ref: 3092


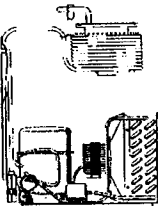
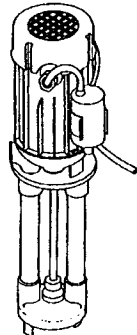
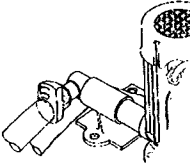



Filter Bag
Ref: 7341


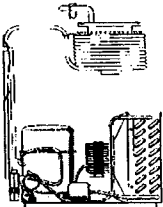
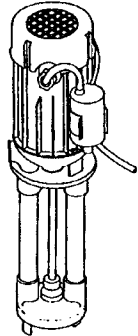
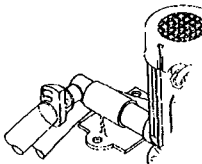



Alcohol Bottle
Ref: 7806

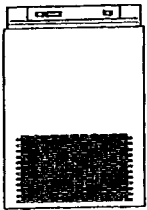
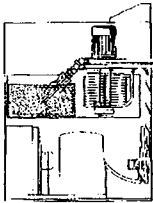
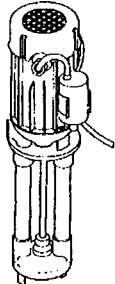
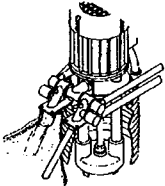
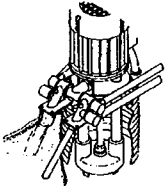

8. Technical Specification (a) Eco15:

	General: Protection: Supply: Running Current: Fuse Rating - General: Pump: Alcomixer:	50Hz Splashproof 200V ±10% 1pH 5.8A T10A T3.15A F2A	60Hz Splashproof 200V ±10% 1pH 5.8A T10A T3.15A F2A
	Cooling System: Rating: Supply: Running Current: Starting Current: Factory set temperature:	0.5kW 200V ±10%, 1pH 3.9A 18.3A 9°C ± 1°C	0.5kW 200V ±10%, 1pH 3.9A 18.3A 9°C ± 1°C
	Pump: Protection: Supply: Running Current: Rotational Speed:	Splashproof 200V ±10%, 1pH 1.2A 2780 rev/min.	Splashproof 200V ±10%, 1pH 1.2A 3400 rev/min.
Connecting Lead: 1.5mm² 3 core 4m long:		- Live L1 - Brown - Neutral N - Blue - Earth PE - Green/Yellow	
	Venturi System: Flow connection: Suction connection: Suction rate: Factory set suction:	5/8" Hose Connection 1/2" Hose Connection 120 to 300mmHg Vacuum 120mmHg Vacuum	
	Alcohol: Type: Formula: Flashpoint:	Isopropyl Alcohol $(CH_3)_2CHOH$ 12°C	

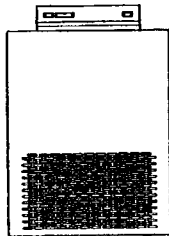
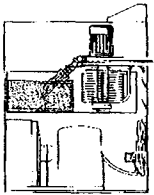
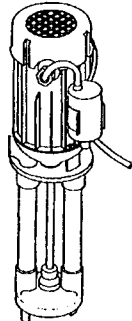
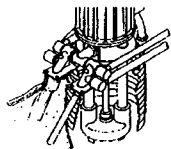
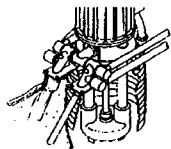

8. Technical Specification (b) Eco25:

	General: Protection: Supply: Running Current: Fuse Rating - General: Pump: Alcomixer:	50Hz Splashproof 200V ±10% 1pH 8.1A T10A T3.15A F2A	60Hz Splashproof 200V ±10% 1pH 8.1A T10A T3.15A F2A
	Cooling System: Rating: Supply: Running Current: Starting Current: Factory set temperature:	1kW 200V ±10%, 1pH 6.1A 25A 9°C ± 1°C	1kW 200V ±10%, 1pH 8.1A 25A 9°C ± 1°C
	Pump: Protection: Supply: Running Current: Rotational Speed:	Splashproof 200V ±10%, 1pH 1.2A 2780 rev/min.	Splashproof 200V ±10%, 1pH 1.2A 3400 rev/min.
Connecting Lead: 1.5mm² 3 core 4m long:		- Live L1 - Brown - Neutral N - Blue - Earth PE - Green/Yellow	
	Venturi System: Flow connection: Suction connection: Suction rate: Factory set suction:	5/8" Hose Connection 1/2" Hose Connection 120 to 300mmHg Vacuum 120mmHg Vacuum	
	Alcohol: Type: Formula: Flashpoint:	Isopropyl Alcohol $(CH_3)_2CHOH$ 12°C	

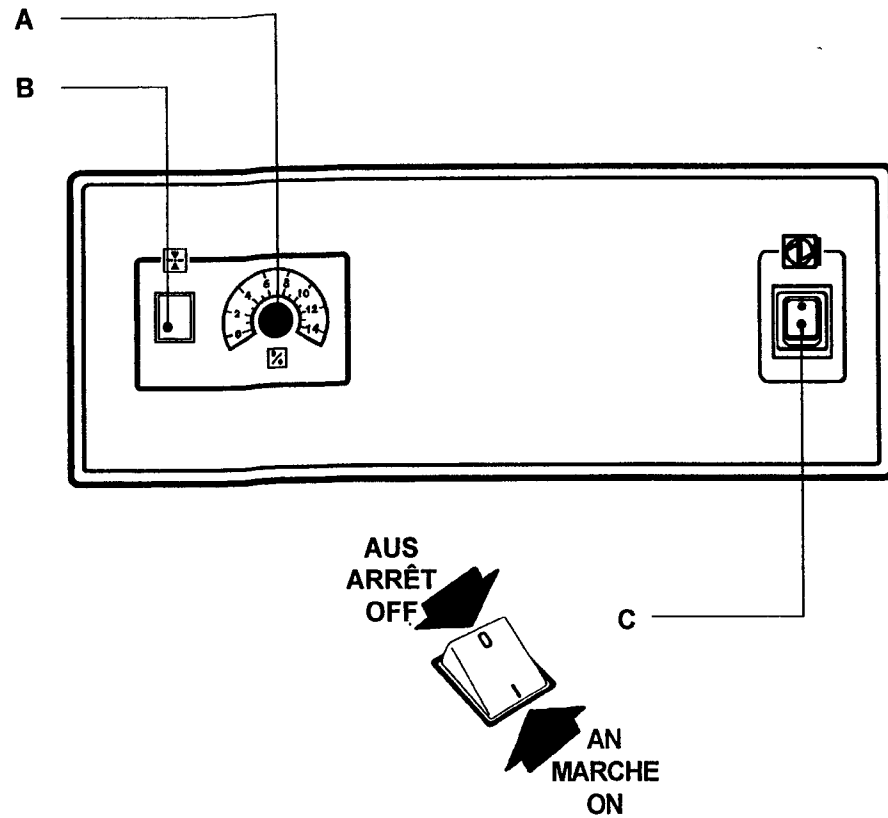
8. Technical Specification (a) Eco50:

	General:	50Hz	60Hz
	Protection: Supply: Running Current: Fuse Rating - General: Pump: Alcomixer:	Splashproof 200V ±10% 1ph 14.8A T15A T3.15A F2A	Splashproof 200V ±10% 1ph 14.8A T15A T3.15A F2A
	Cooling System:		
	Rating: Supply: Running Current: Starting Current: Factory set temperature:	2kW 200V ±10%, 1ph 11.1A 52A 9°C ± 1°C	2kW 200V ±10%, 1ph 11.1A 52A 9°C ± 1°C
	Pump:		
	Protection: Supply: Running Current: Rotational Speed:	Splashproof 200V ±10%, 1ph 1.2A 2780 rev/min.	Splashproof 200V ±10%, 1ph 1.2A 3400 rev/min.
	Connecting Lead:		
	1.5mm ² 3 core 4m long:	- Live L1 - Brown - Neutral N - Blue - Earth PE - Green/Yellow	
	Venturi System:		
	Flow connection: Suction connection: Suction rate: Factory set suction:	½" Hose Connection ¾" Hose Connection 120 to 300mmHg Vacuum 120mmHg Vacuum	
	Alcohol:		
	Type: Formula: Flashpoint:	Isopropyl Alcohol (CH ₃) ₂ CHOH 12°C	

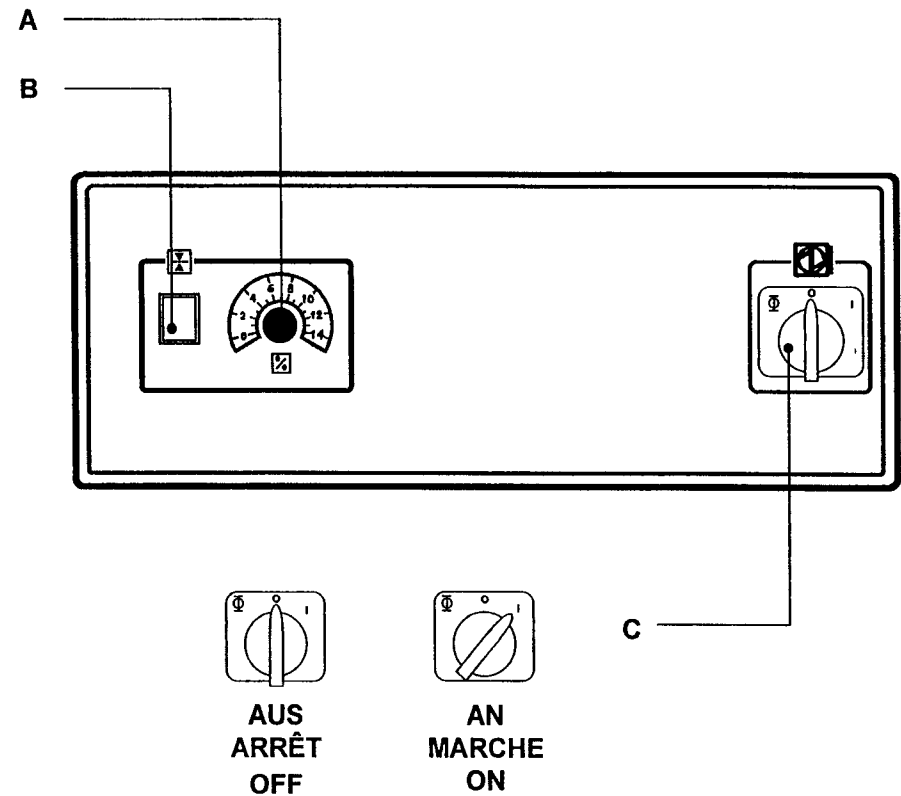
8. Technical Specification (d) Eco80:

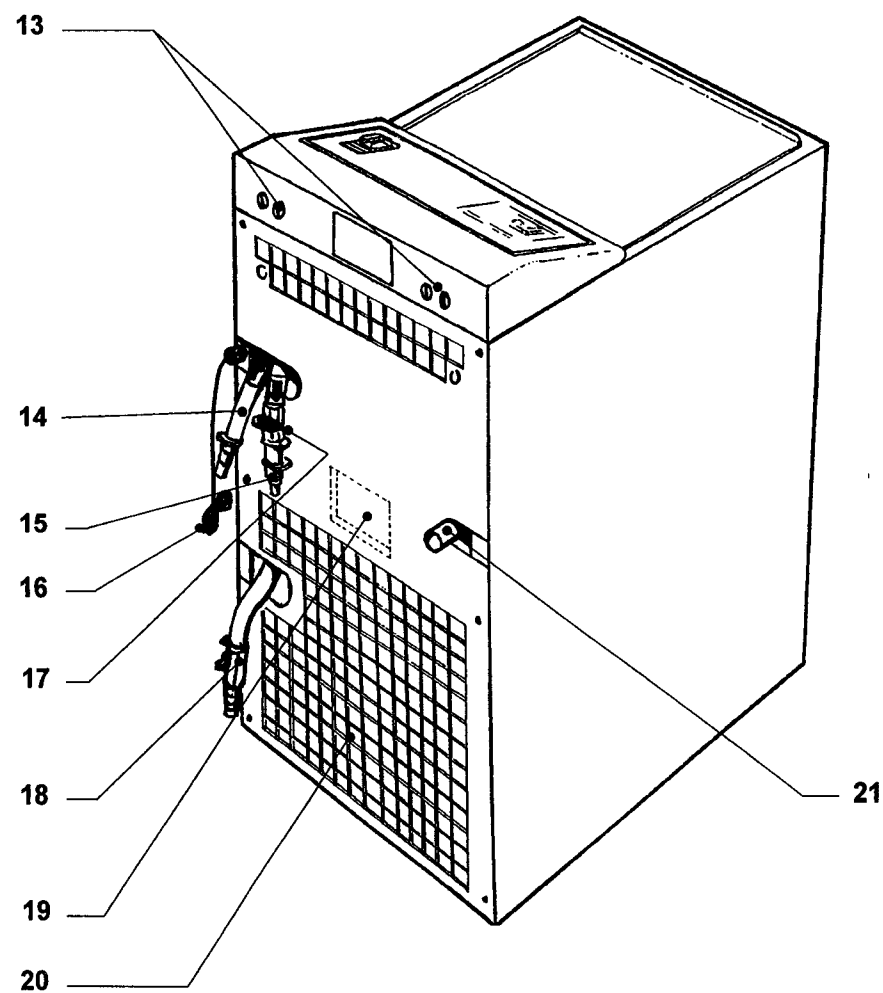
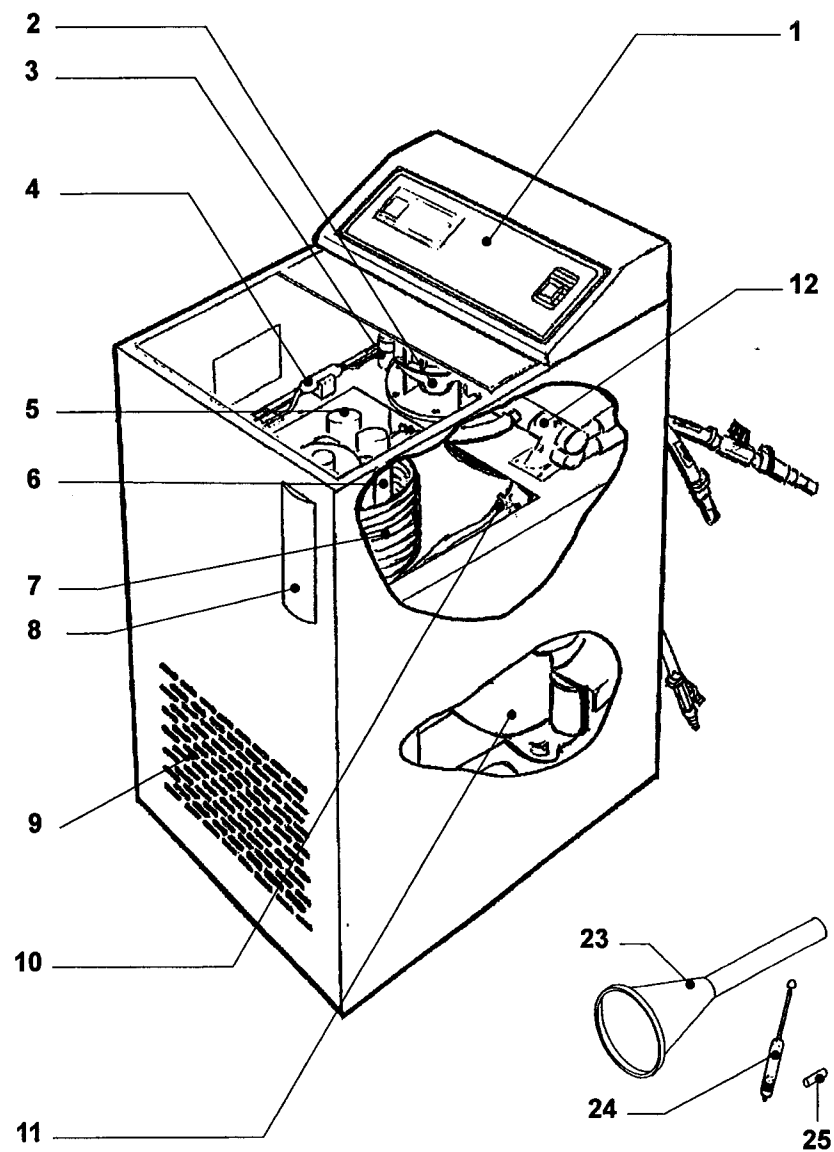
	General:	50Hz	60Hz
	Protection: Supply: Running Current: Fuse Rating - General: Pump: Control: Fridge:	Splashproof 340 - 460V 3 pH 6.7A T10A T3.15A F0.15A 4.5A (overload)	Splashproof 408 - 552V 3 pH 6.9A T10A T3.15A F0.15A 4.5A (overload)
	Cooling System:		
	Rating: Supply: Running Current: Starting Current: Factory set temperature:	4kW 340 - 460V 3 pH 4A 25A 9°C ± 1°C	4kW 408 - 552V 3 pH 4.4A 26A 9°C ± 1°C
	Pump:		
	Protection: Supply: Running Current: Rotational Speed:	Splashproof 380 - 460V 3pH 2.1A (0.65A ea) 2760 rev/min.	Splashproof 408 - 552V 3pH 2.1A (0.6A ea) 3300 rev/min.
	Connecting Lead:		
	1.0mm ² 4 core 4m long:	- Black L1 - Black L2 - Brown L3 - Green/Yellow PE	
	Venturi System:		
	Flow connection: Suction connection: Suction rate: Factory set suction:	½" Hose Connection ¾" Hose Connection 120 to 300mmHg Vacuum 120mmHg Vacuum	
	Alcohol:		
	Type: Formula: Flashpoint:	Isopropyl Alcohol (CH ₃) ₂ CHOH 12°C	

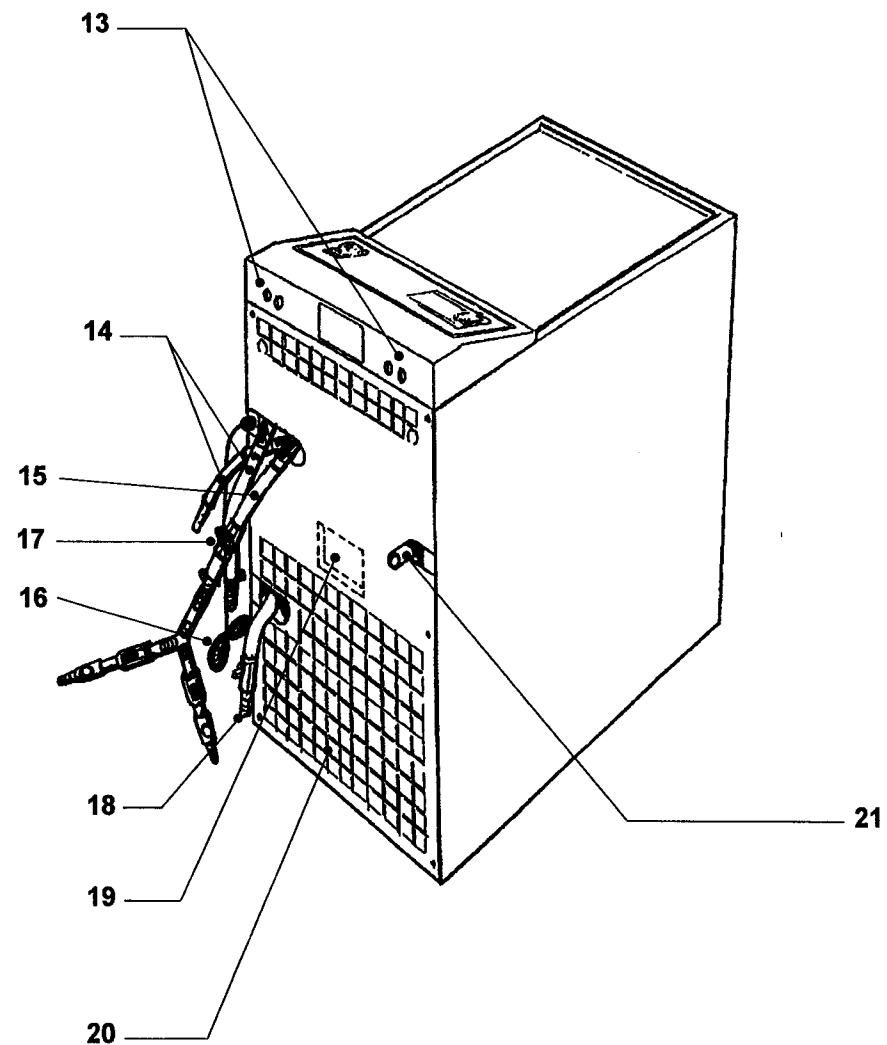
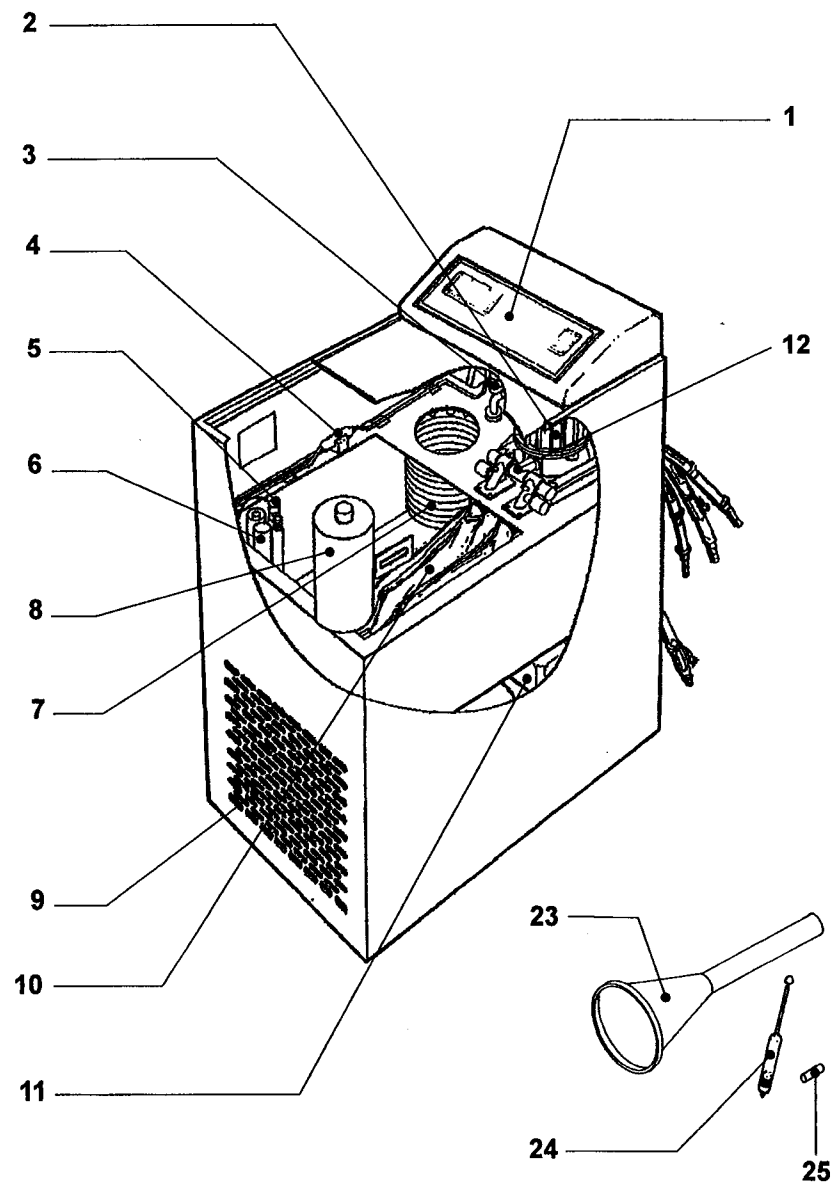
Eco 15/25

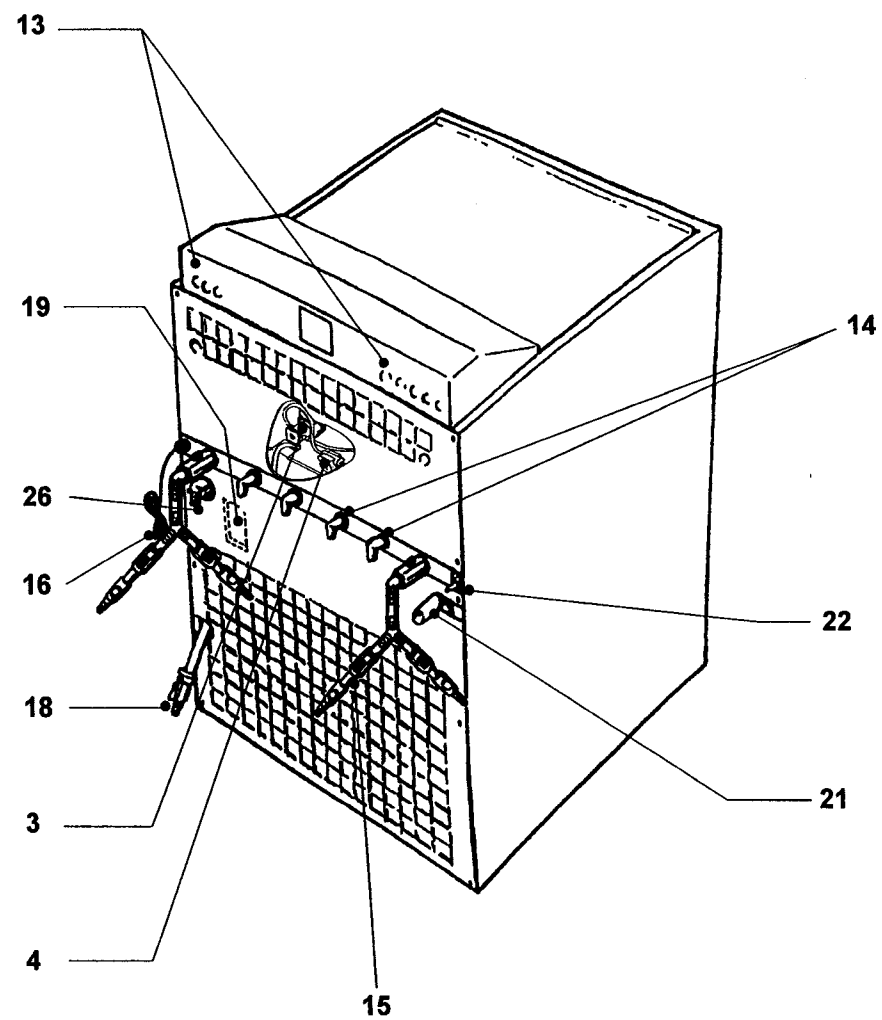


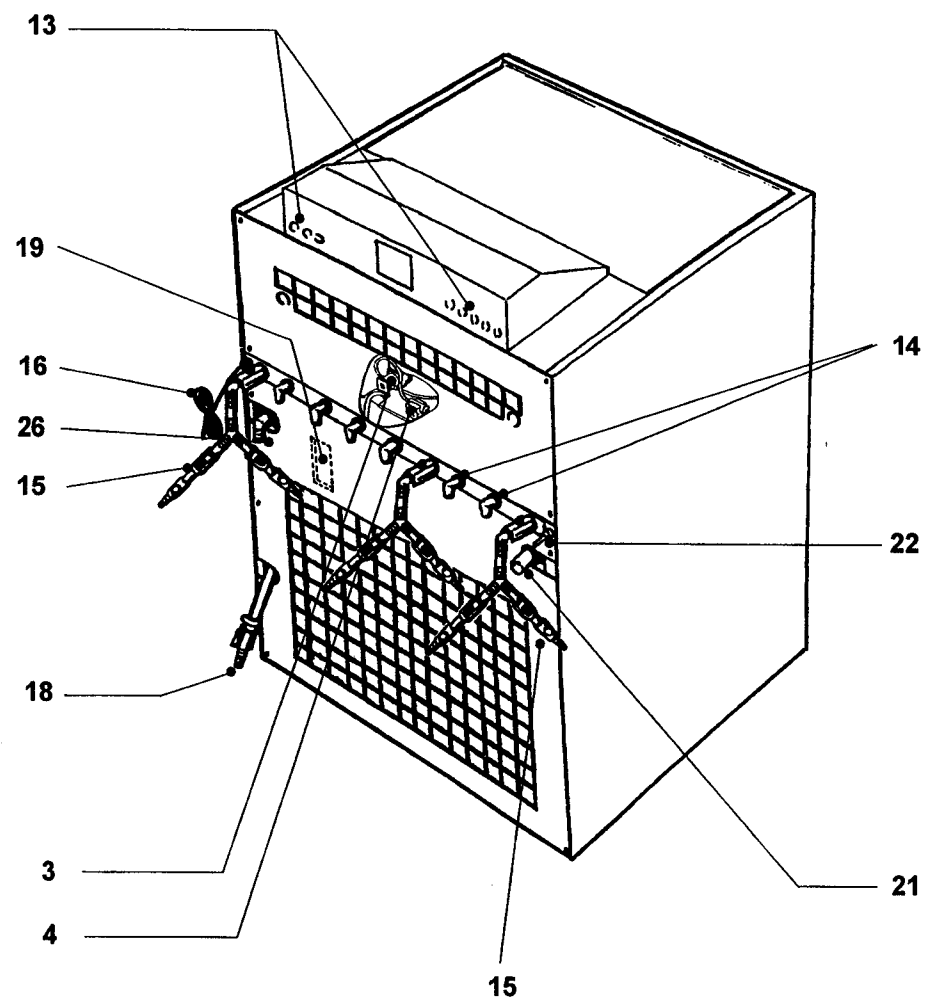
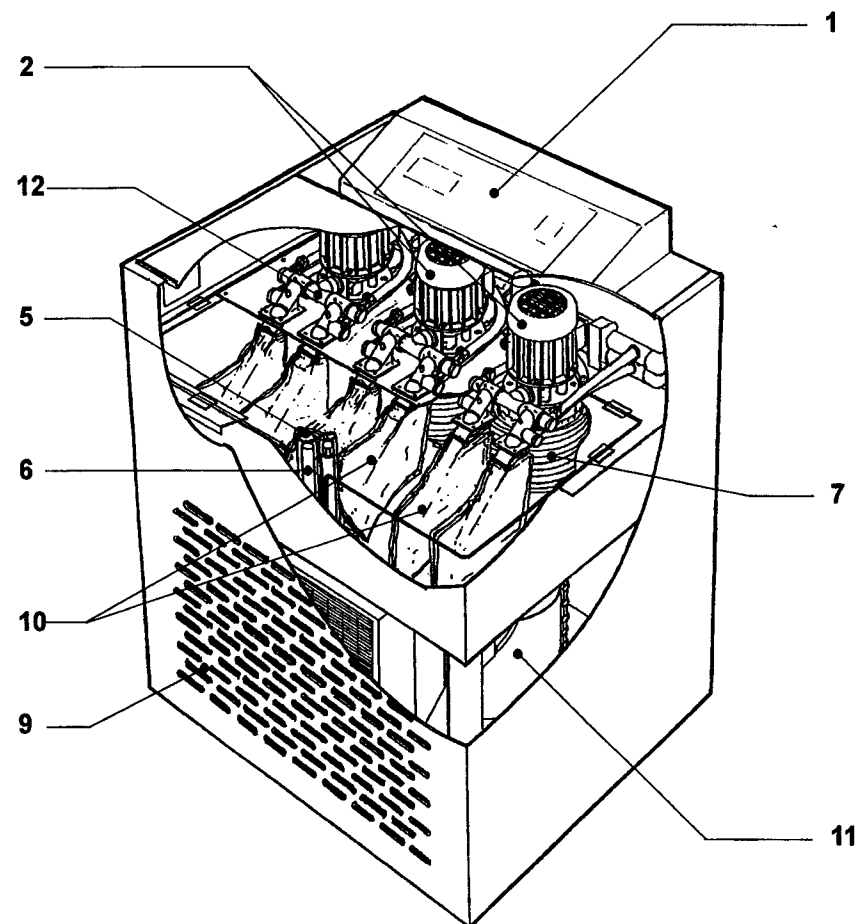
Eco 50/80



Eco15:





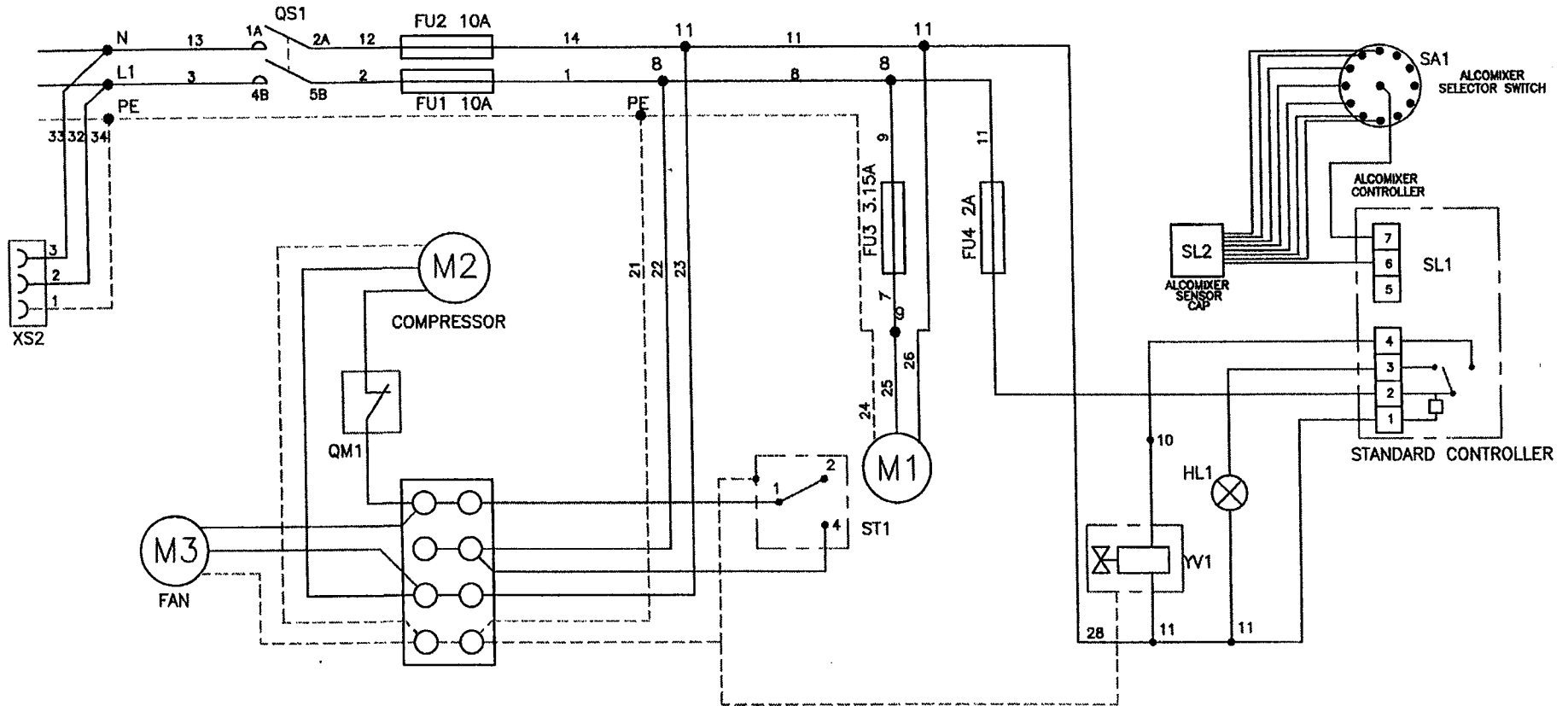


Verdrahtungs- und Layoutschlüssel:
Légende du Câblage et de l'installation:
Wiring Layouts Key:
配線図記号

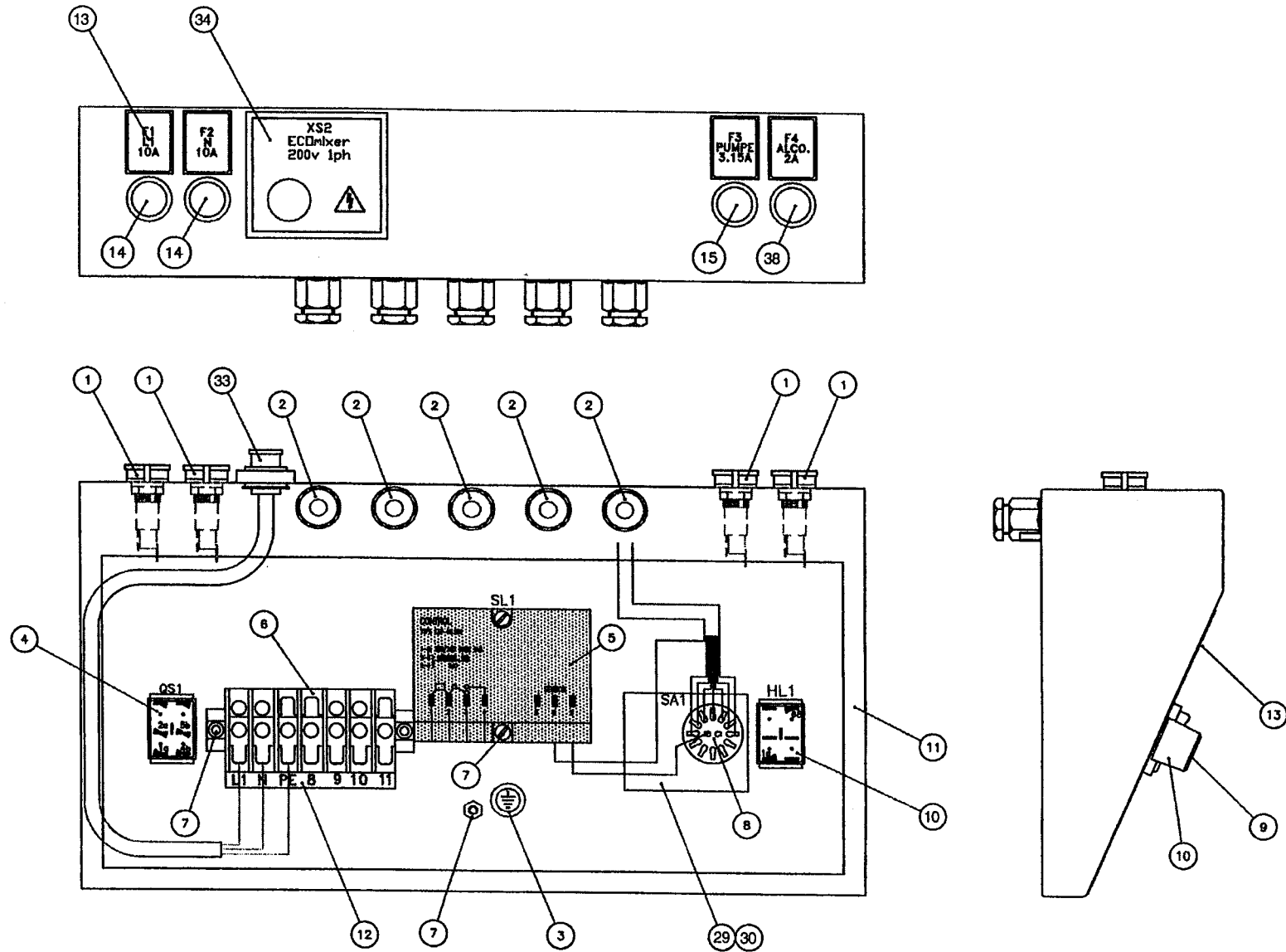
	DEUTSCH	FRANÇAIS	ENGLISH	日本語
FU1-FU8	Sicherung	Fusibles	Fuses	ヒューズ
1	Sicherungshalter	Porte Fusible	Fuse Holder	ヒューズホルダー
2	Kabeldurchgang	Presse - Étoupe	Cable Gland	ケーブルパッキン押さえ
3	Kennzeichen "Erde"	Etiquette de Masse	Earth Label	アースラベル
4	Hauptschalter	Interrupteur Alimentation	Switch - Main Power	主電源スイッチ
5	Kontrolle	Contrôleur	Controller	コントローラー
6	Terminal Block	Borne de Jonction	Terminal Block	ターミナルブロック
7	Mutter - M4, Unterlegscheibe 4mm Edelstahl Rostfrei	Ecrou M4 Acier Rondelle 4mm Acier, Inox	Nut - M4 Stainless Steel Washer ø4 Stainless Steel	ナット-M 4 ステンレス座金4mmス テンレス
8	Alcomixer "Ausgleich" Schalter	Interrupteur - Alimentation de L'Alcomixer	Switch Assembly - Alcomixer Balance	スイッチアセンブリー-アルコミキ サーバランス
9	Knauf und Kappe - Schwarz	Bouton et Capsule - Noir	Knob and Cap - Black	握り及びキャップ-黒
10	"Ausgleich" - Lampe	Lampe de Equilibre de l'Alcomixer	Balance Lamp	バランスランプ
11	Kontroll - Panel	Panneau de Contrôle	Control Panel	コントロールパネル
12	Klammer	Attache	Clip	クリップ
13	Etikett	Etiquette	Fascia label	鼻隠しラベル
14	Sicherung - 10A	Fusible - 10A	Fuse - 10A	ヒューズ-10A
15	Sicherung - 3.15A	Fusible - 3.15A	Fuse - 3.15A	ヒューズ-3.15A
16	Sicherung - 0.15A	Fusible - 0.15A	Fuse - 0.15A	ヒューズ-0.15A
17	Schaltergehäuse	Enveloppe	Switch Cover	スイッチカバー
18	Halterungen M4x20 LG P/PH SS	Fixations - M4x20 LG P/PH SS	Fasteners - M4x20 LG P/PH SS	締結装置-M4x20 LG P/PH SS
19	Hilfsschutz	Contacteur Auxiliaire	Contacteur Relay	接触器リレー
20	Überlastungsschutz	Protection Contre Les Surcharges	Overload protection	過負荷防止
21	Erdungsblock	Bloc de Mise à la Terre	Earth Block	アースブロック
22	Kabelbinden	Liens de Câble	Cable Ties	ケーブル連絡
23	Identificazion - Etikett	Etiquette d'Identification	Identification Labels	同定ラベル
24	Dreiweg - Anschlußblock	Bloc de Fonction À 3 Voies	3 Way Terminal Block	3方向ターミナルブロック
25	Leitungsbrücke	Cavalier	Jumper Link	ジャンパ中継
26	Endenplatte	Plaque de Bout	End plate	端板
27	Schraube M4x12	Vis - M4x12	Screw - M4x12 Long	スクリュー-M4x12長さ
28	Transformator - 400V 50Hz Transformator - 440V 60Hz	Transformateur - 400V 50Hz Transformateur - 440V 60Hz	Transformer - 400V 50Hz Transformer - 440V 60Hz	変圧器-400V 50Hz変圧器-400V 60Hz
29	Gummitülle	Oeillet Obturateur	Blanking Grommet	グロメット
30	Klebstreifen - Doppelseiten	Ruban Adhésif - Double Côtés	Adhesive Tape - Double Sided	両面接着テープ
31	Schraube - M4x12 Long Btn Hd.	Vis - M4 Long Btn hd.	Screw - M4x12 Long Btn Hd.	スクリュー-M4x12 Long Btn Hd.
32	Klammer	Attache	Clip	クリップ

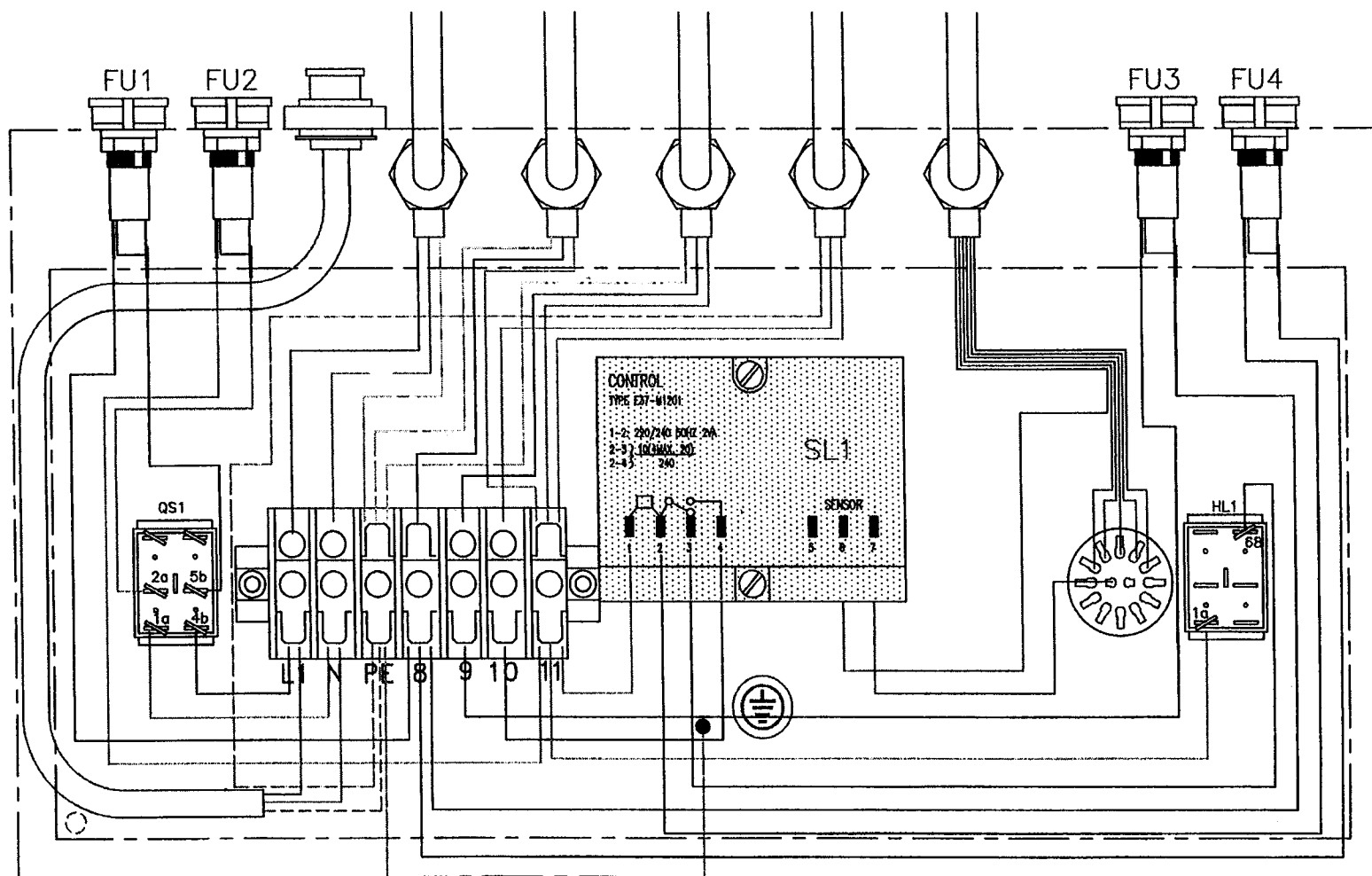
Verdrahtungs- und Layoutschlüssel:
Légende du Câblage et de l'installation:
Wiring Layouts Key:
配線図記号

	DEUTSCH	FRANÇAIS	ENGLISH	日本語
33	Ecomixer-Steckbuchsenbaugruppe	Assemblage de prises de l'Ecomixer	Ecomixer Socket Assembly	エコミキサーコンセント組み立て
34	Warnschild	Etiquette d'avertissement	Warning Label	警告ラベル
35	Gummitülle	Oeillet Obturateur	Blanking Grommet	グロメット
36	Halteklammer	Etrier de Retenue	Retaining Clip	止めクリップ
37	Sicherung - 15A	Fusible - 15A	Fuse - 15A	ヒューズ - 15A
38	Sicherung - 2A	Fusible - 2A	Fuse 2A	ヒューズ 2A
39	Schraube	Vis - M4x12 Btn Skt Hd.	Screw - M4x12 Btn Dkt Hd.	スクリュー - M4x12 Btn Dkt Hd.
EX1	Stromversorgung Ein	Entrée Secteur	Mains Power In	主電源入
EX2	Kühleinheit	Réfrigérateur	Refrigeration Unit	冷却装置
EX3	Umwälzpumpe	Pompe de Circulation	Circulation Pump	循環ポンプ
EX4	Alkohol - Magnetventil	Electro - Valve d'Alcool	Alcohol Solenoid Valve	アルコールソレノイドバルブ
EX5	Sensor - Kappe	Bouchon de Détection	Sensor Cap	感知キャップ
EX6	Thermostat	Thermostat	Thermostat	サーモスタット
QS1	Hauptanschluß - Schalter	Interrupteur d'Alimentation	Main Power Switch	主電源スイッチ
SA1	Auswählen - Schalter	Bouton de Sélecteur	Selector Switch	セレクトクスイッチ
SL1	Kontrolle	Contrôleur	Controller	コントローラー
SL2	Sensor - Kappe	Bouchon de Détection	Sensor Cap	感知キャップ
HL1	Alcomixer "Ausgleich" - Lampe	Lampe de Equilibre de l'Alcomixer	Balance Lamp	バランスランプ
YV1	Alkohol Magnetventil	Electro - Valve d'Alcool	Solenoid Valve	ソレノイドバルブ
ST1	Thermostat	Thermostat	Thermostat	サーモスタット
QM1	Thermische Überlastung	Surcharge Thermique	Thermal Overload	熱過負荷
FR1	Kompressor - Überlastschutz	Surcharge de Compresseur	Compressor Overload	コンプレッサ過負荷
TC1	Steuerkreis - Transformer	Transformateur du Circuit de Commande	Control Circuit Transformer	コントロール回路変圧器
TC2	Steuerkreis - Transformer	Transformateur du Circuit de Commande	Control Circuit Transformer	コントロール回路変圧器
XS2	Ecomixer-Steckbuchsenbaugruppe	Assemblage de prises de l'Ecomixer	Ecomixer Socket Assembly	エコミキサーコンセント組み立て
KM1	Kompressor - Schütz	Contacteur du Compresseur	Compressor Contactor	コンプレッサ接触器
M1	Pumpe	Pompe	Pump	ポンプ
M2	Pumpe Eco50, 80	Pompe Eco50, 80	Pump Eco50, 80	ポンプ Eco50, 80
M2	Kompressor Eco15, 25	Compresseur Eco15, 25	Compressor Eco15, 25	コンプレッサ Eco15, 25
M3	Ventilator Eco15, 25	Ventilateur Eco15, 25	Cooling Fan Eco 15, 25	冷却ファン Eco15, 25
M3	Kompressor Eco50	Compresseur Eco50	Compressor Eco50	コンプレッサ Eco50
M3	Pumpe Eco80	Pompe Eco80	Pump Eco80	ポンプ Eco80
M4	Ventilator	Ventilateur	Cooling Fan	冷却ファン
M4	Kompressor Eco80	Compresseur Eco80	Compressor Eco80	コンプレッサ Eco80
M5	Ventilator	Ventilateur	Cooling Fan	冷却ファン

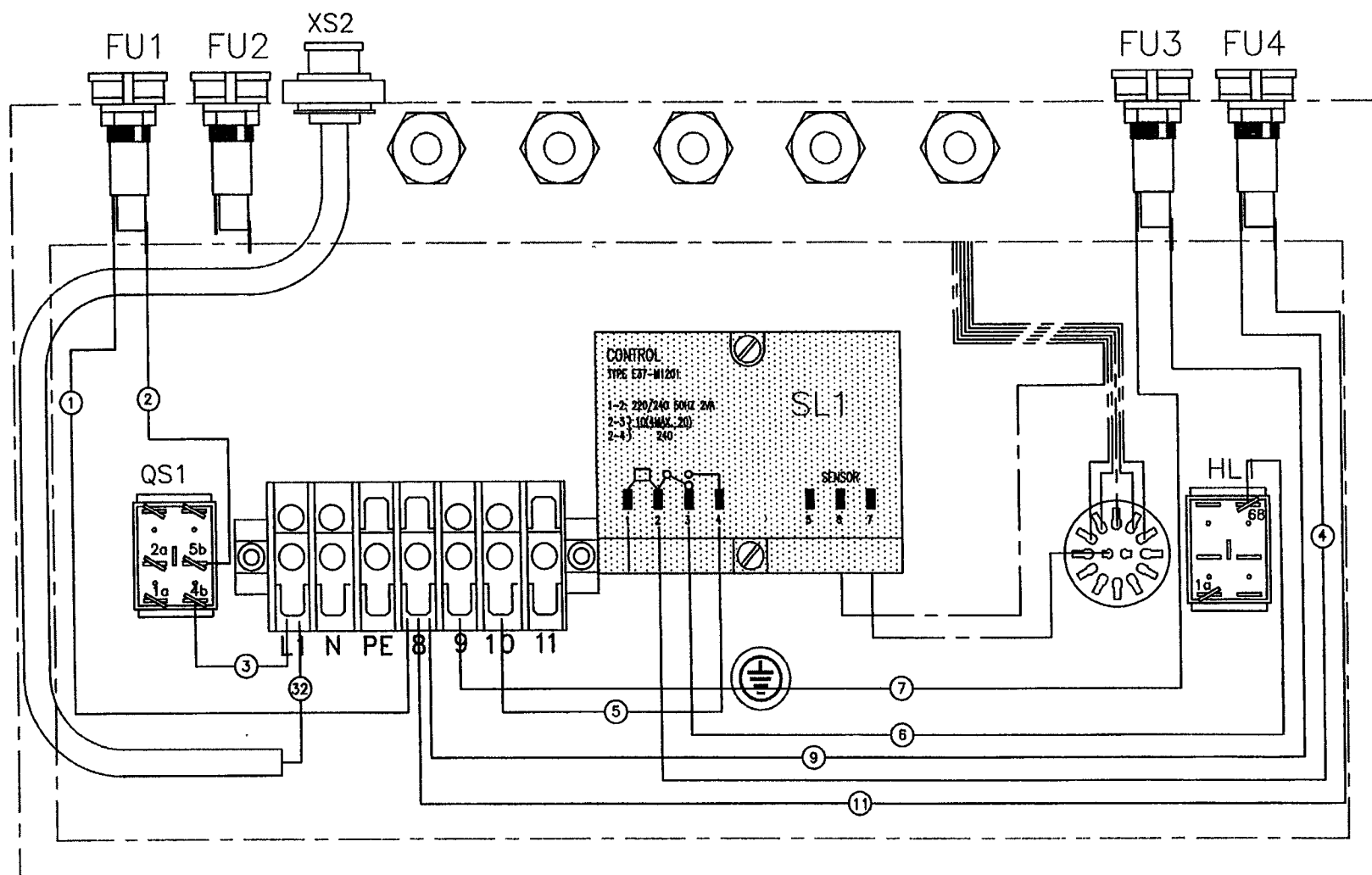


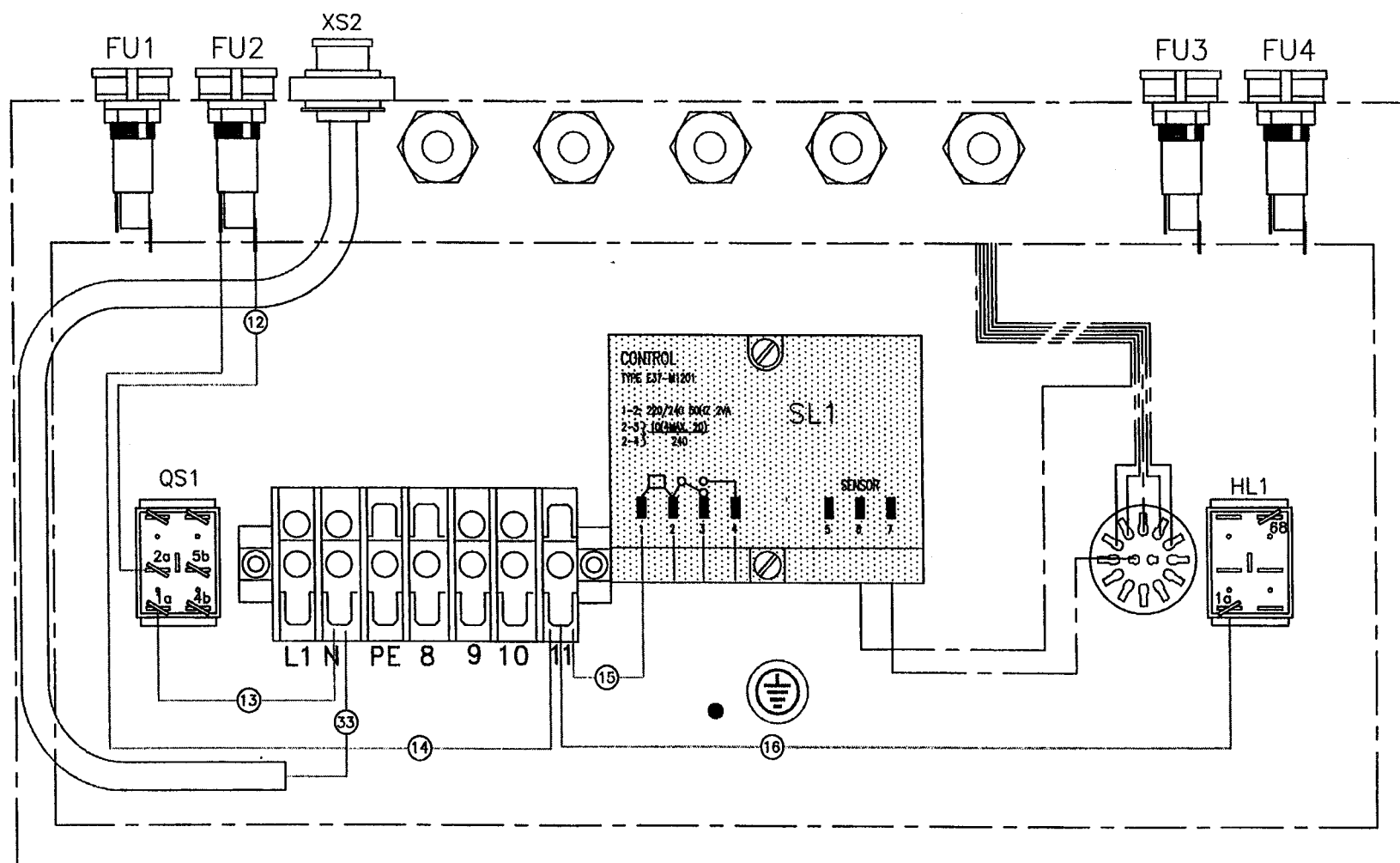
Panel - Layout Eco15\25:
Schéma de Disposition du Panneau:
Panel Layout Diagram:
パネルレイアウト図



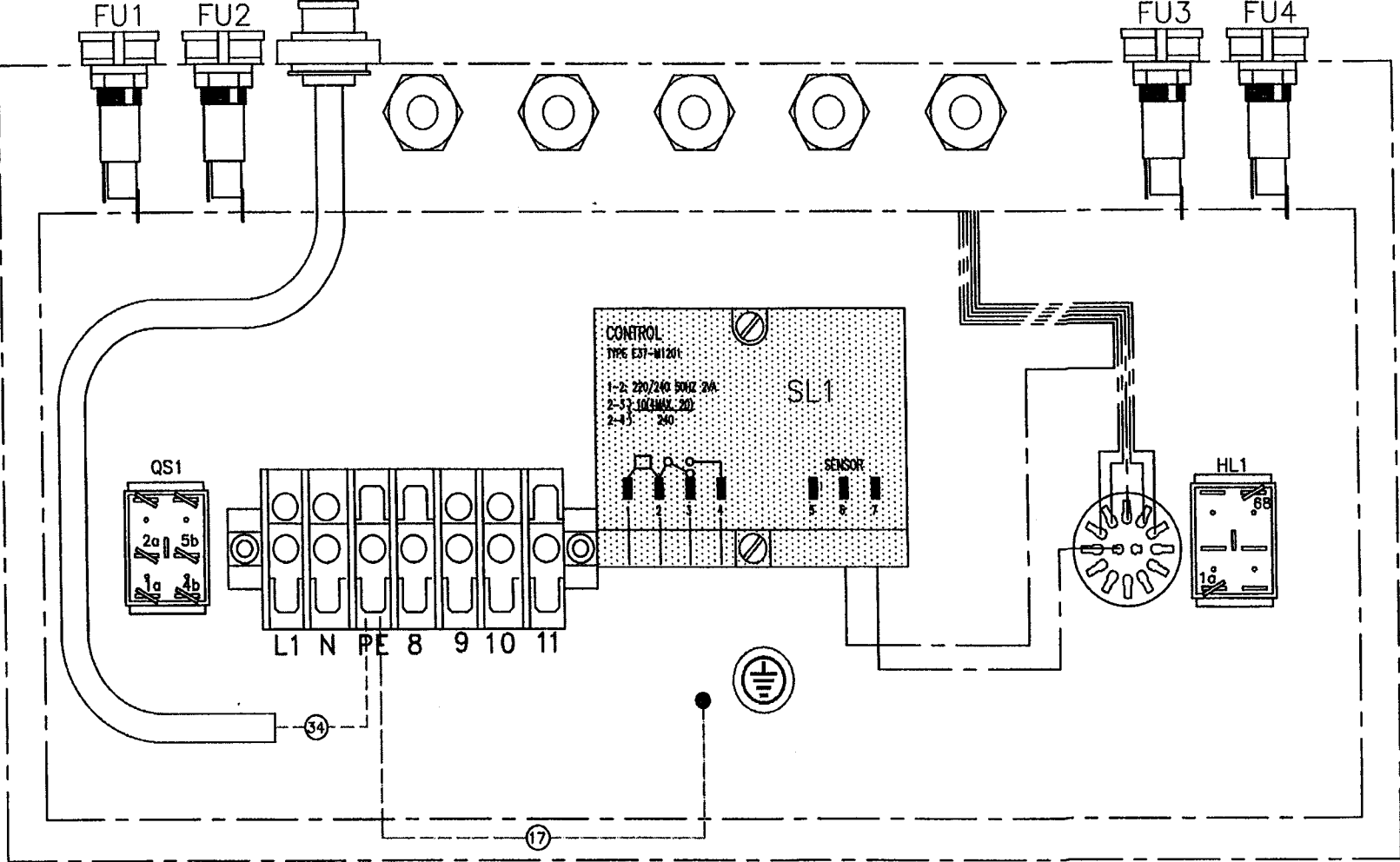


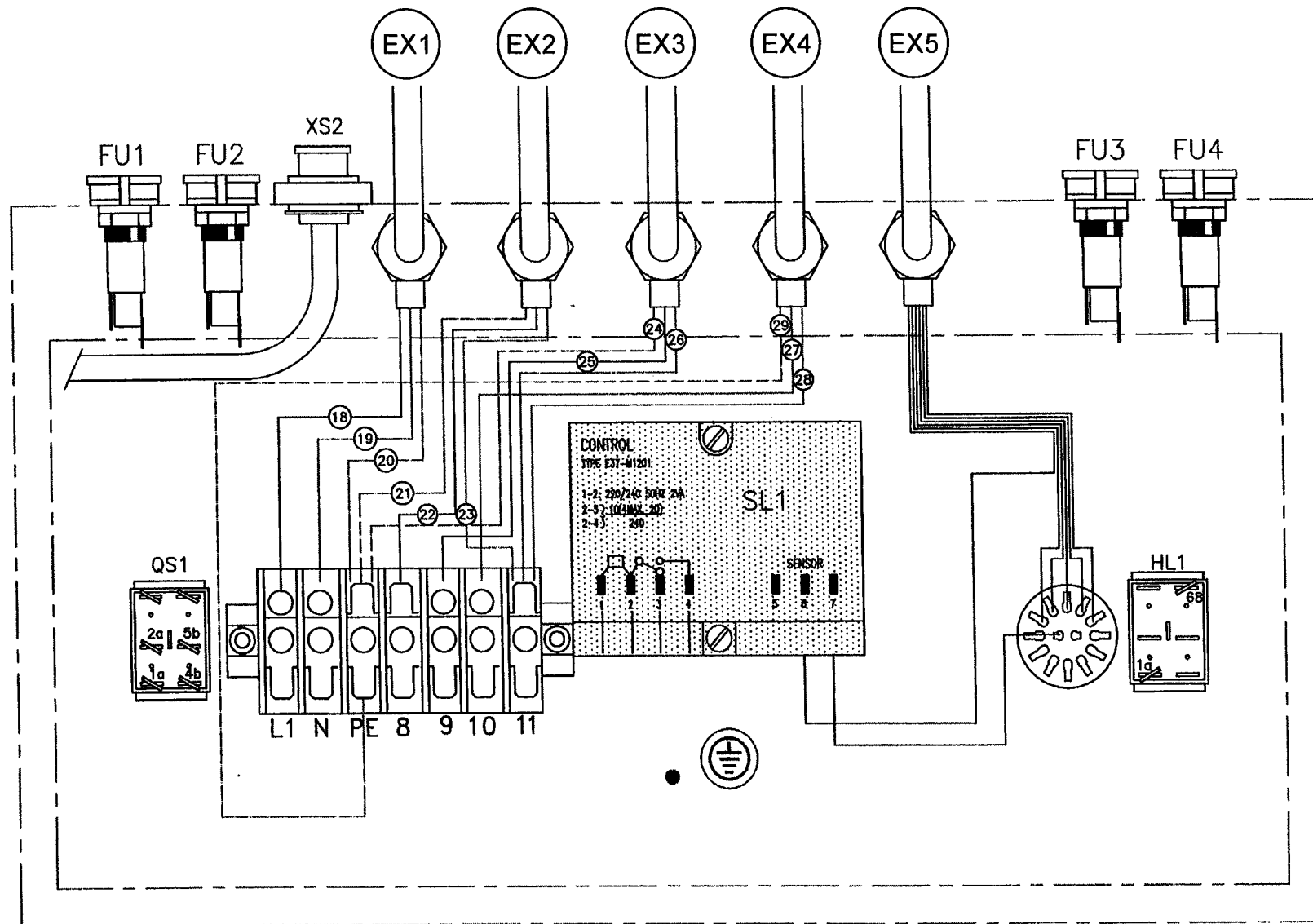
Stromlaufplan Eco15\25:
Circuit de Secteur:
Power Circuit:
電力回路

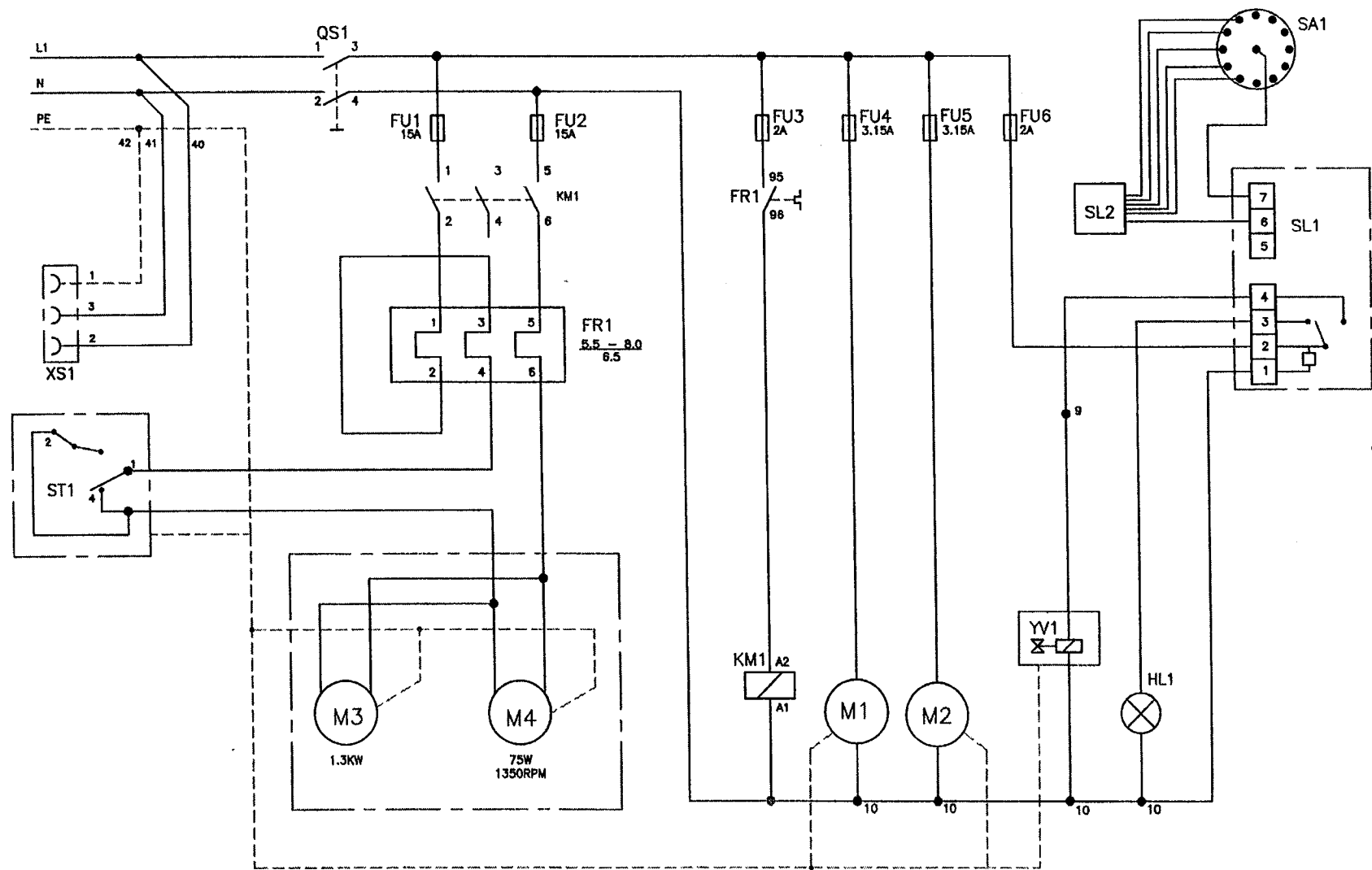




Schutzleiter (Erde) Eco15\25:
Circuit de Terre:
Earth Circuit:
アース回路

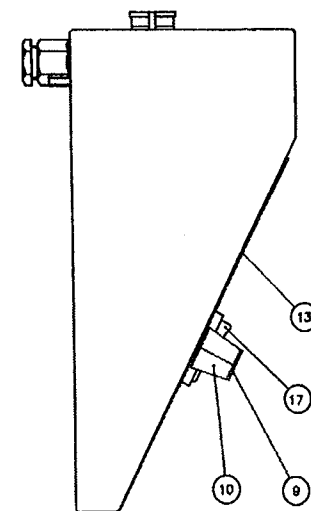
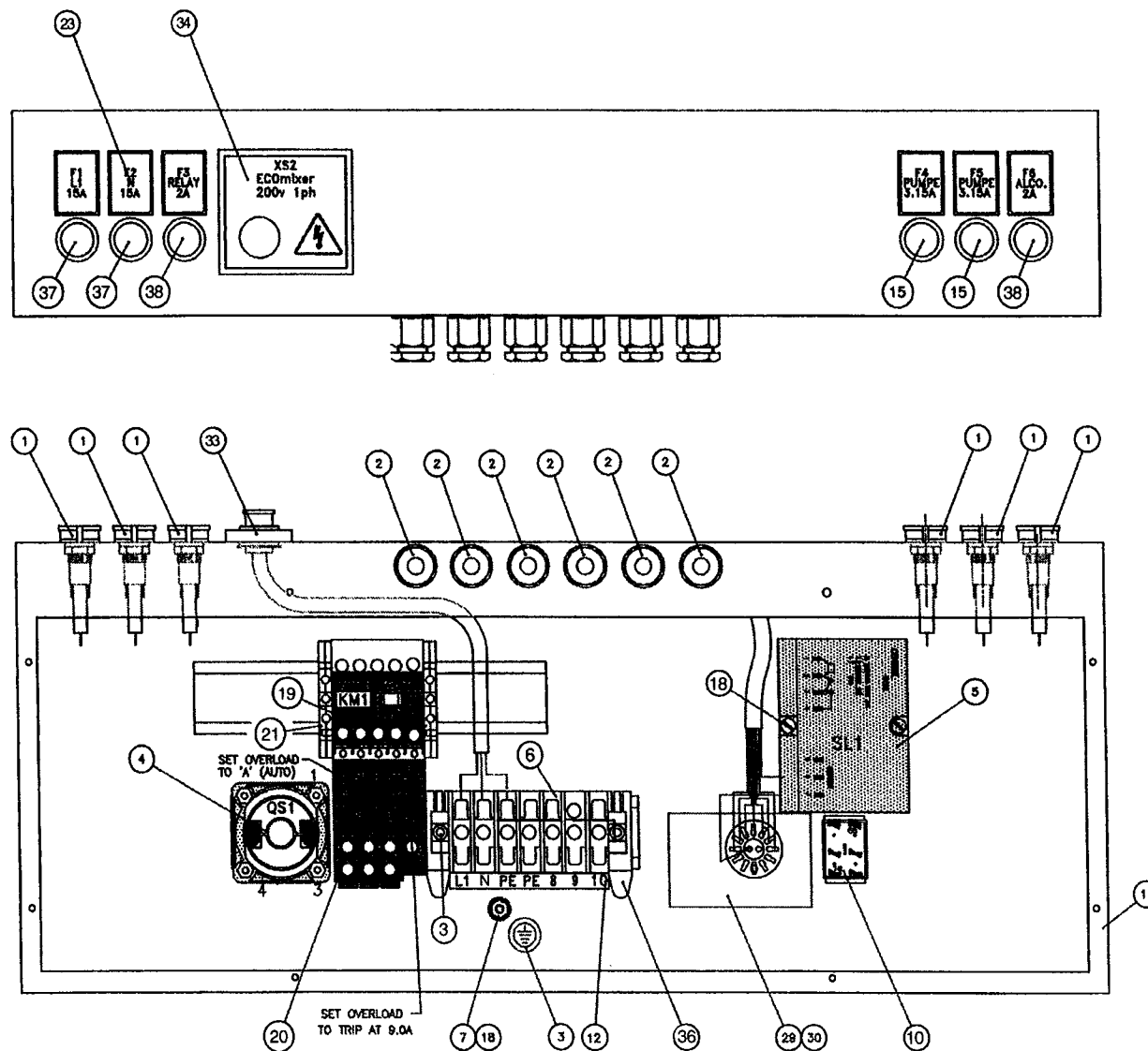




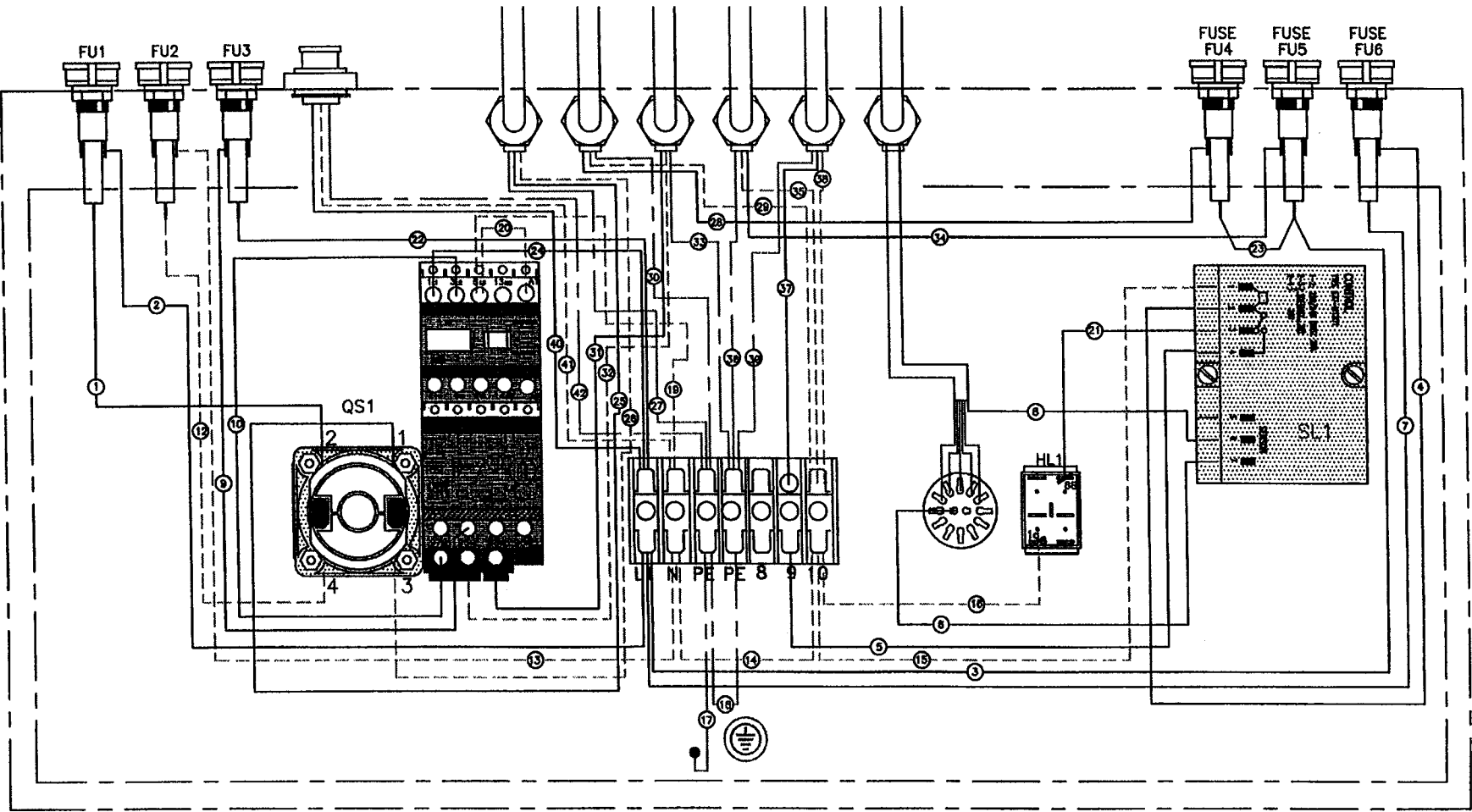


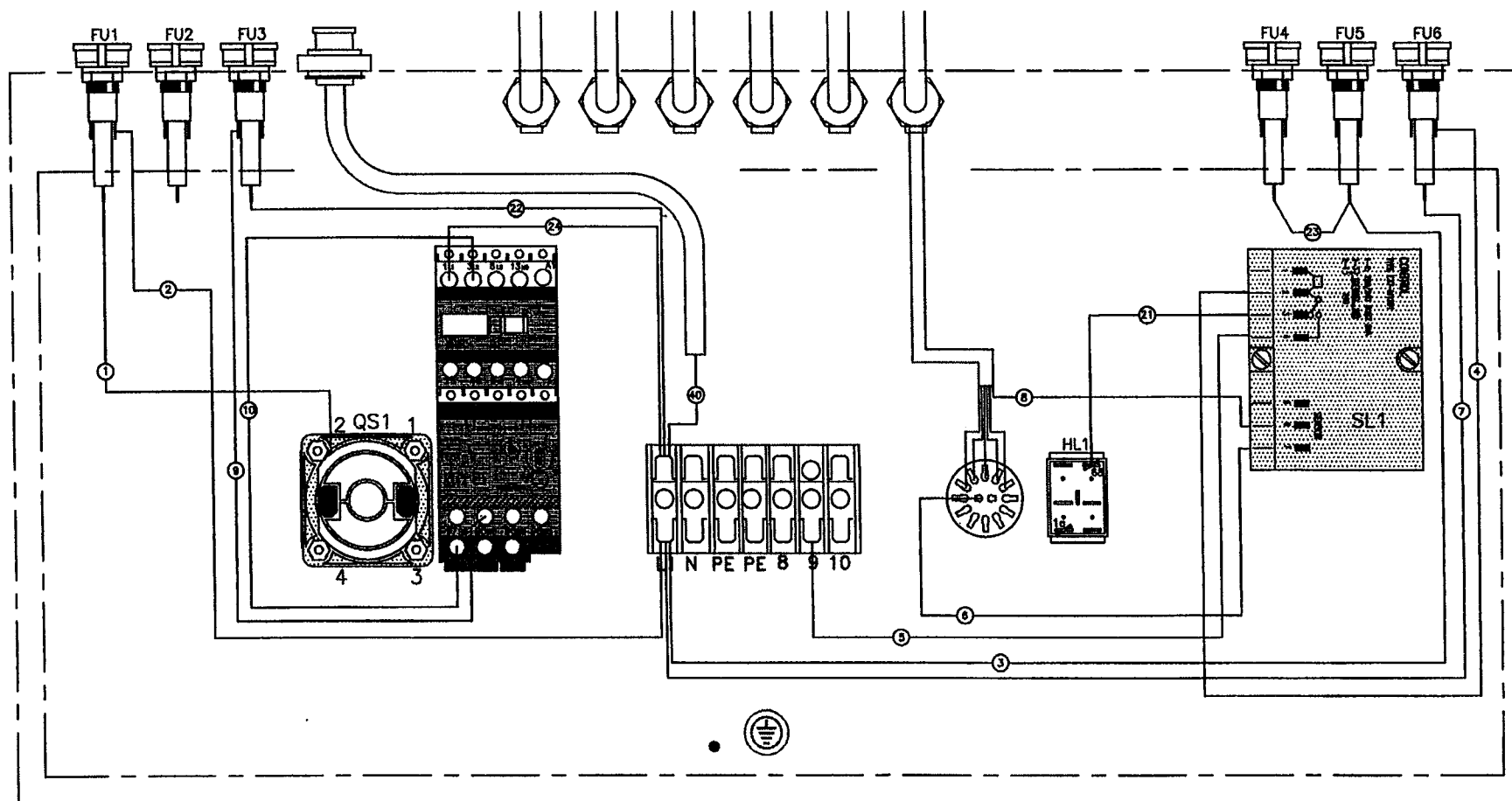
Panel - Layout Eco50:
Schéma de Disposition du Panneau:
Panel Layout Diagram:
 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

XVI

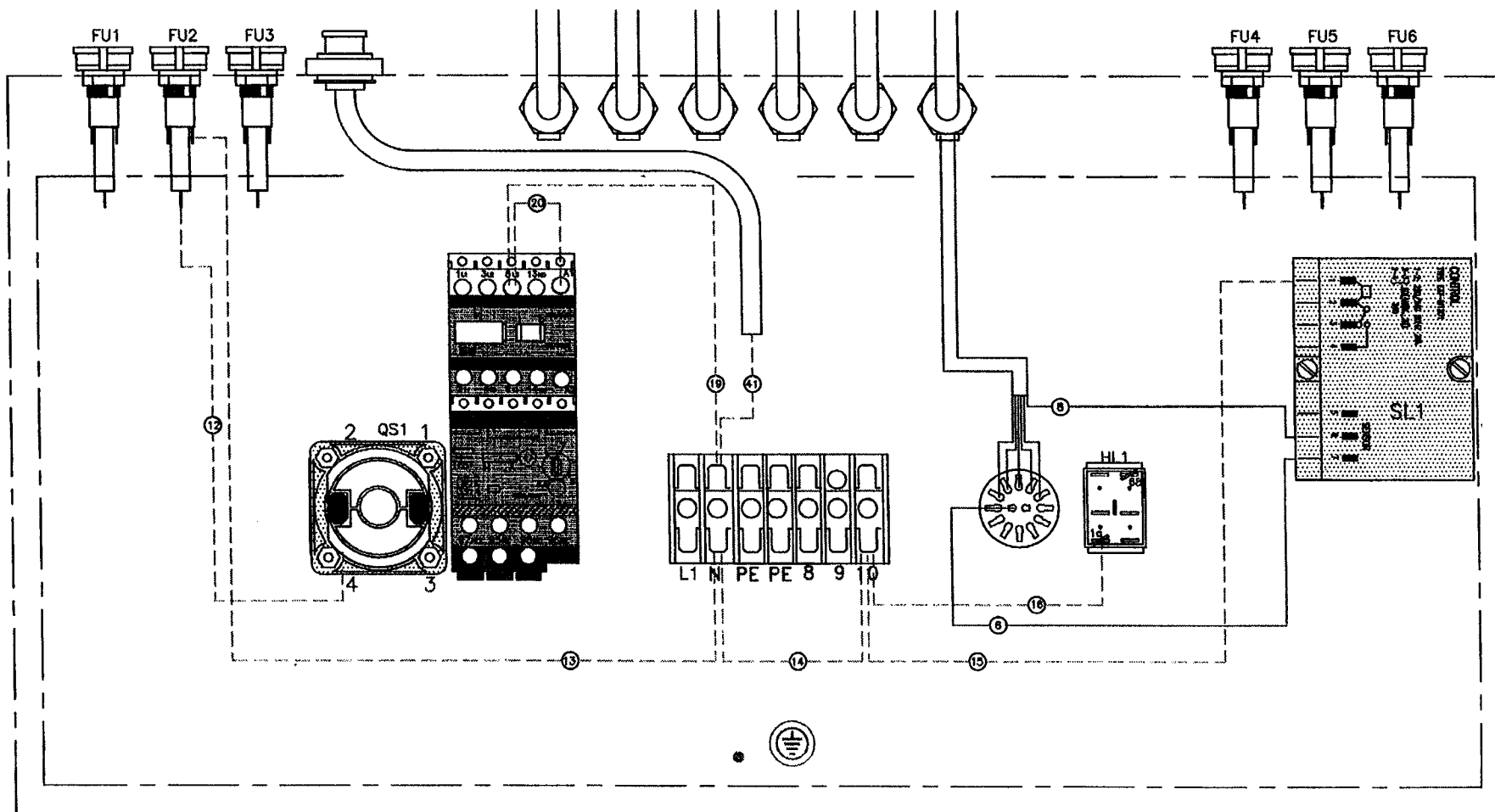


Verdrahtungsplan ECO50:
Pose des Câbles:
Wiring Layout:



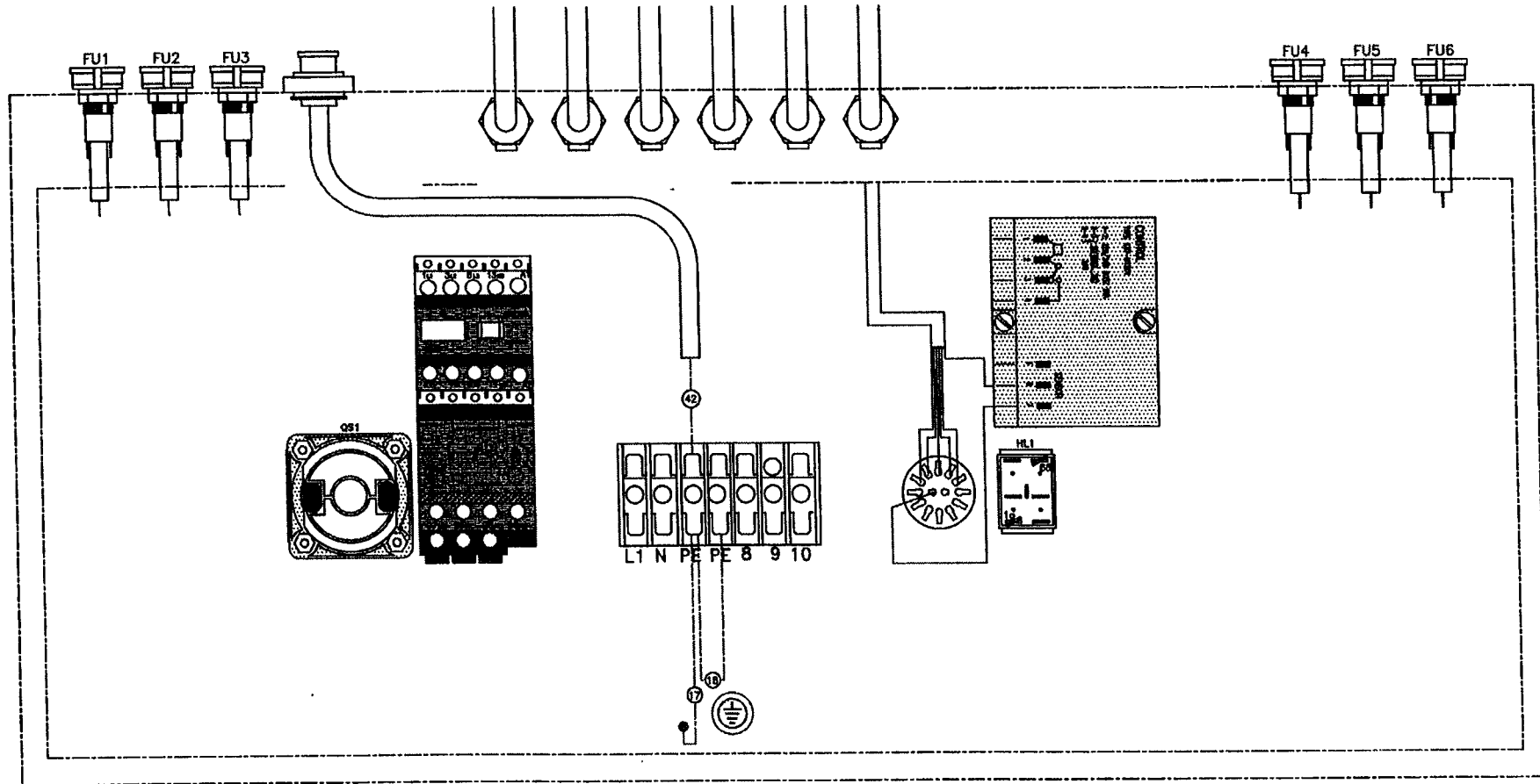


Nulleiter Eco50:
Circuit Neutre:
Neutral Circuit:
 Æ Æ Æ - Æ Æ Æ 20 10



Schutzleiter (Erde) Eco50:
Circuit de Terre:
Earth Circuit:
☐ 1/4" 16 10

XX

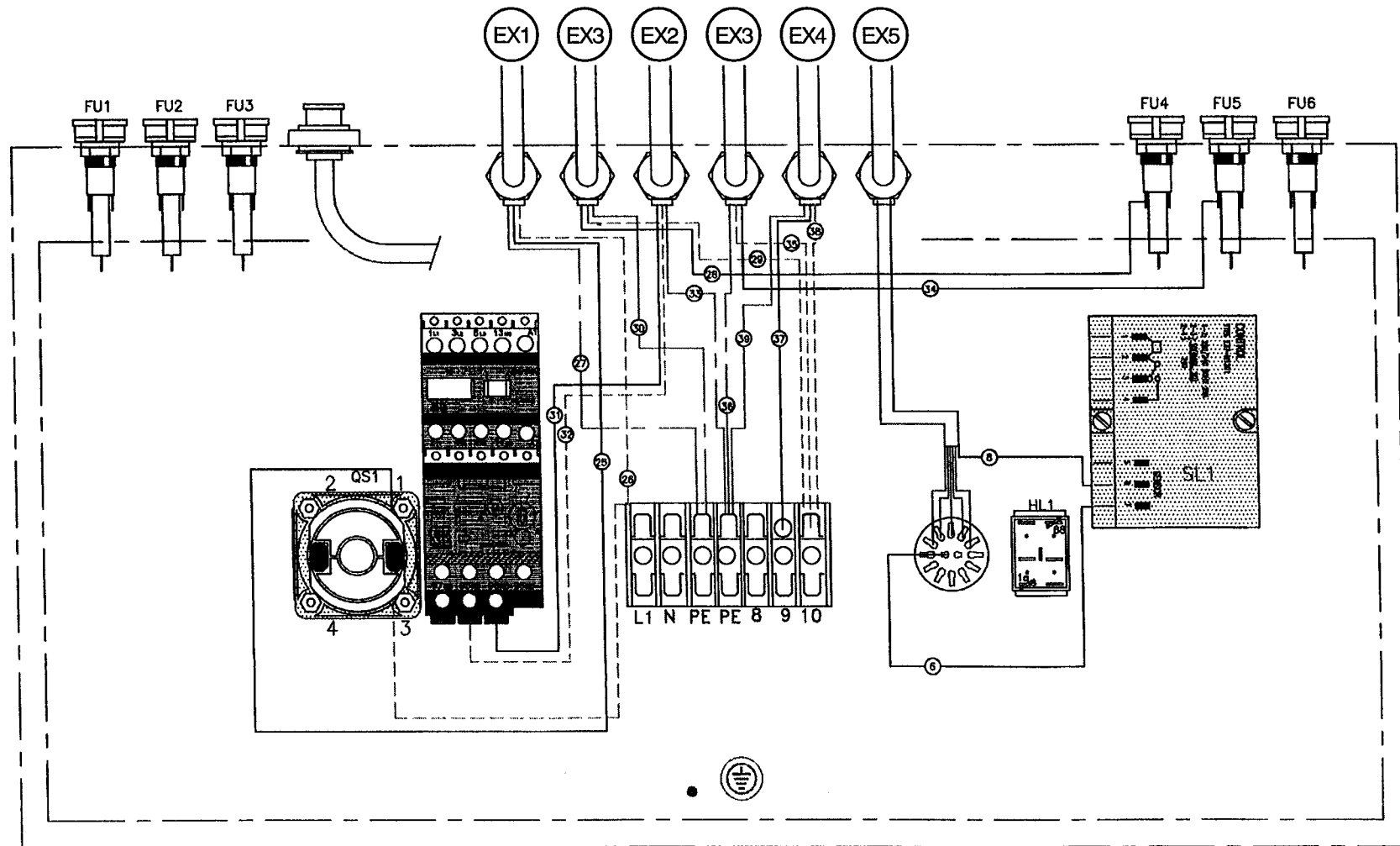


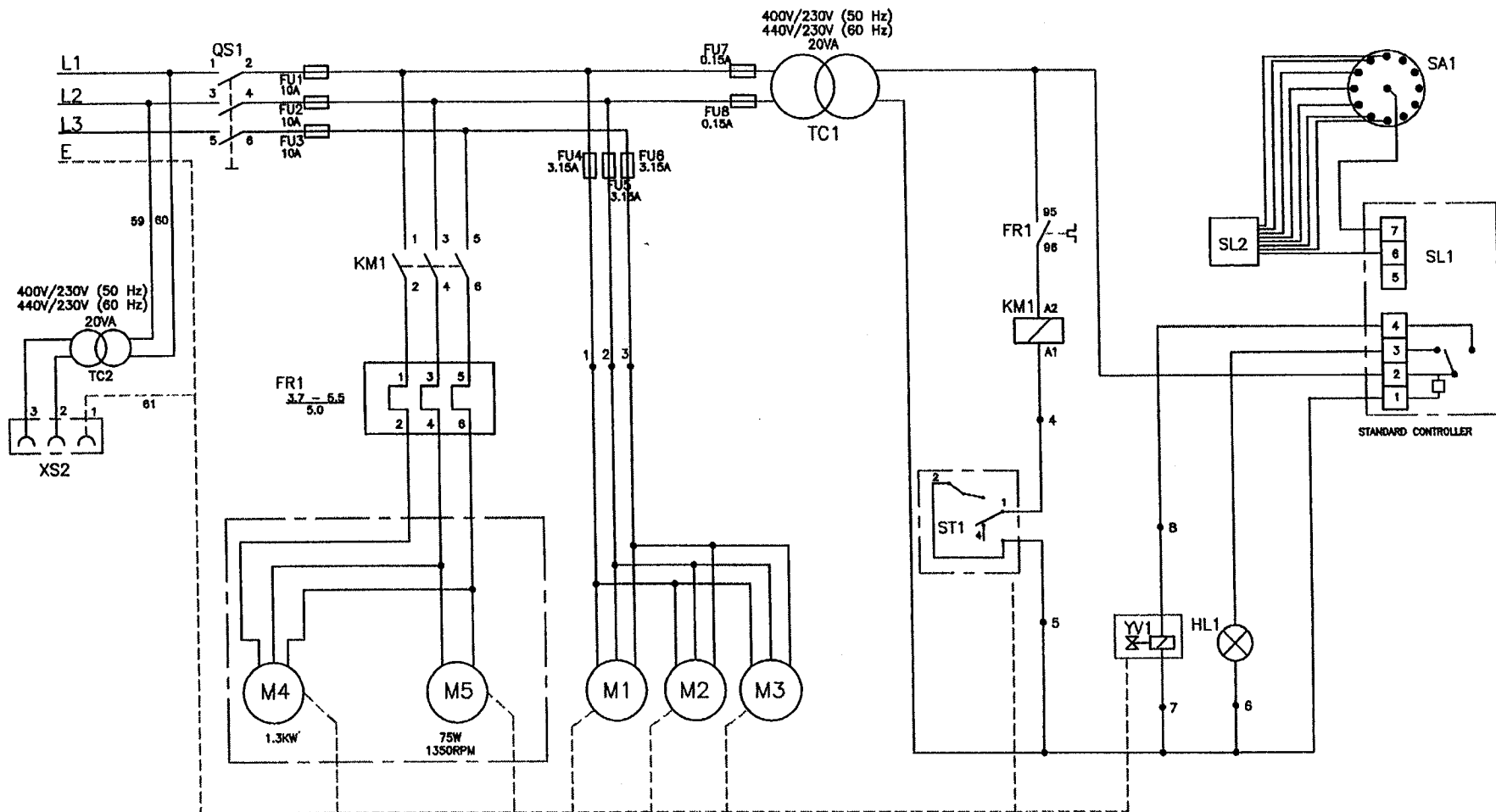
Externe Anschlüsse Eco50:

Raccords Externes:

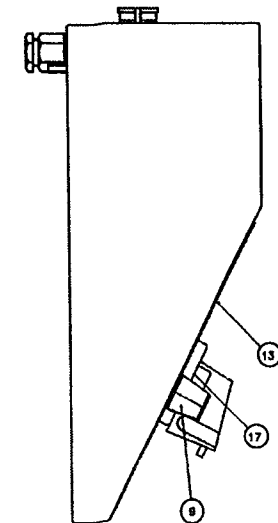
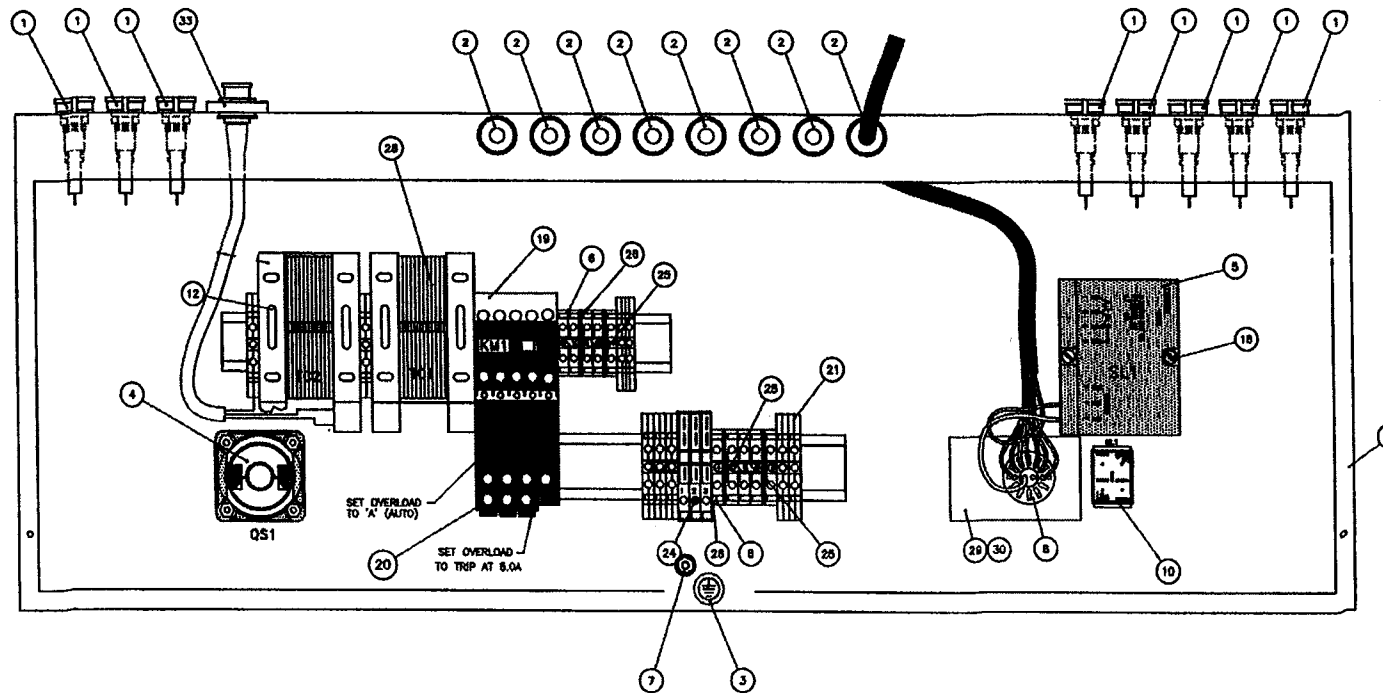
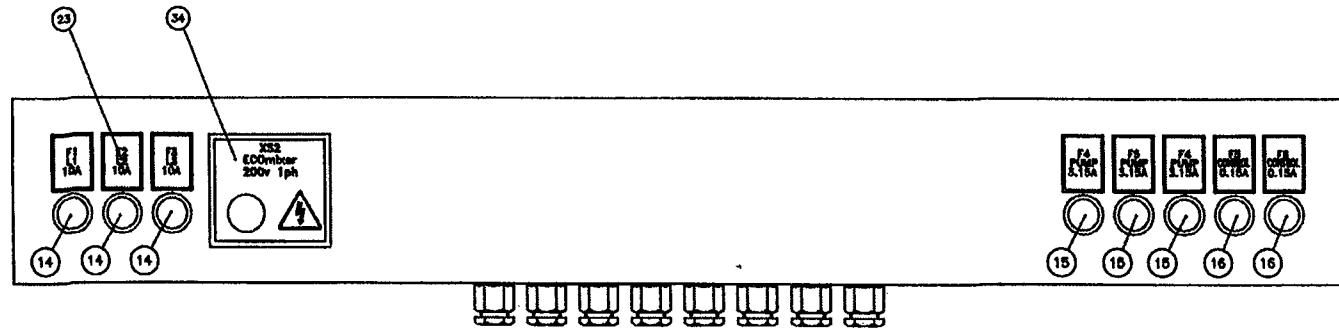
External Connections:

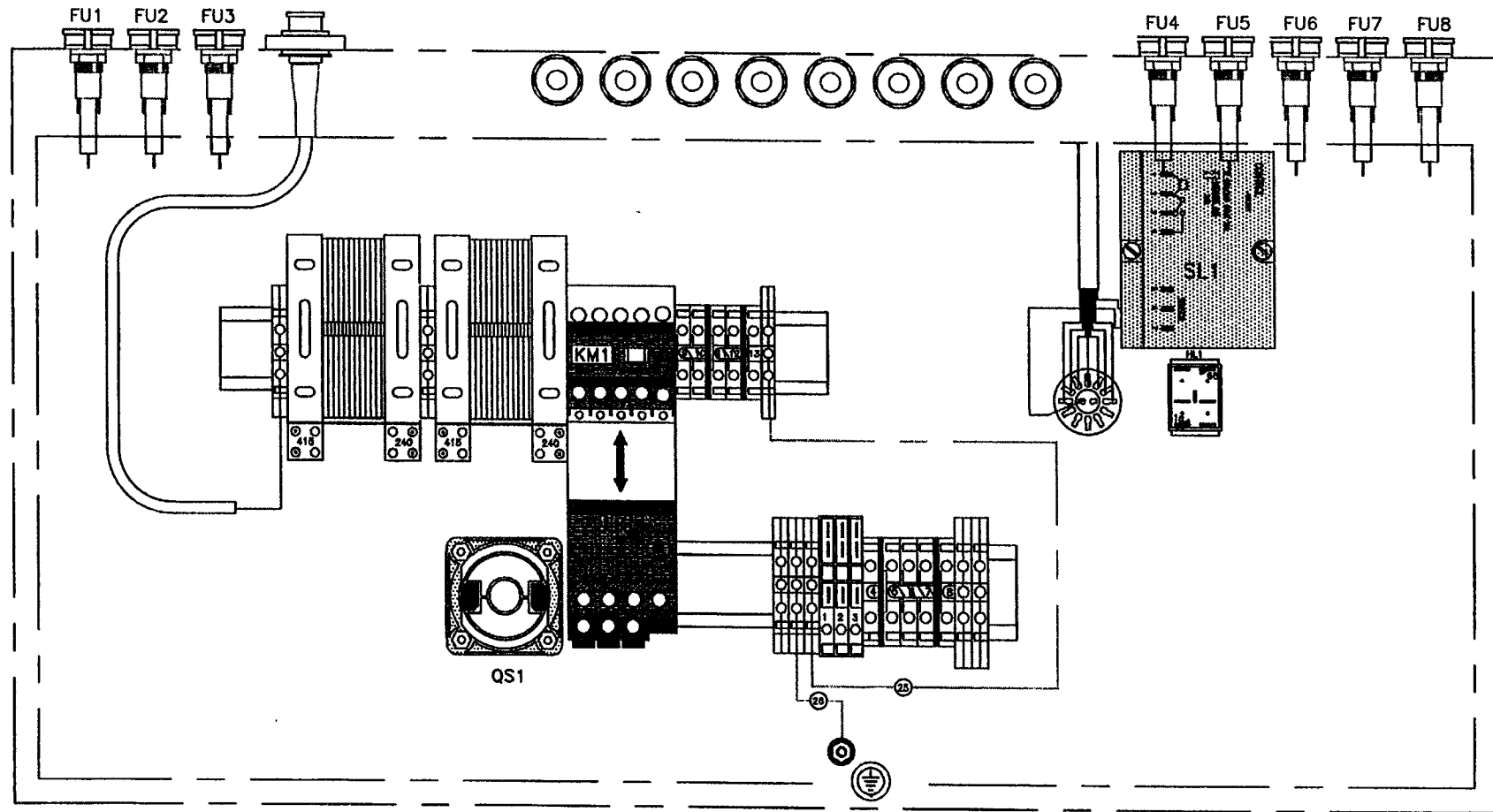
30 66 AU A3



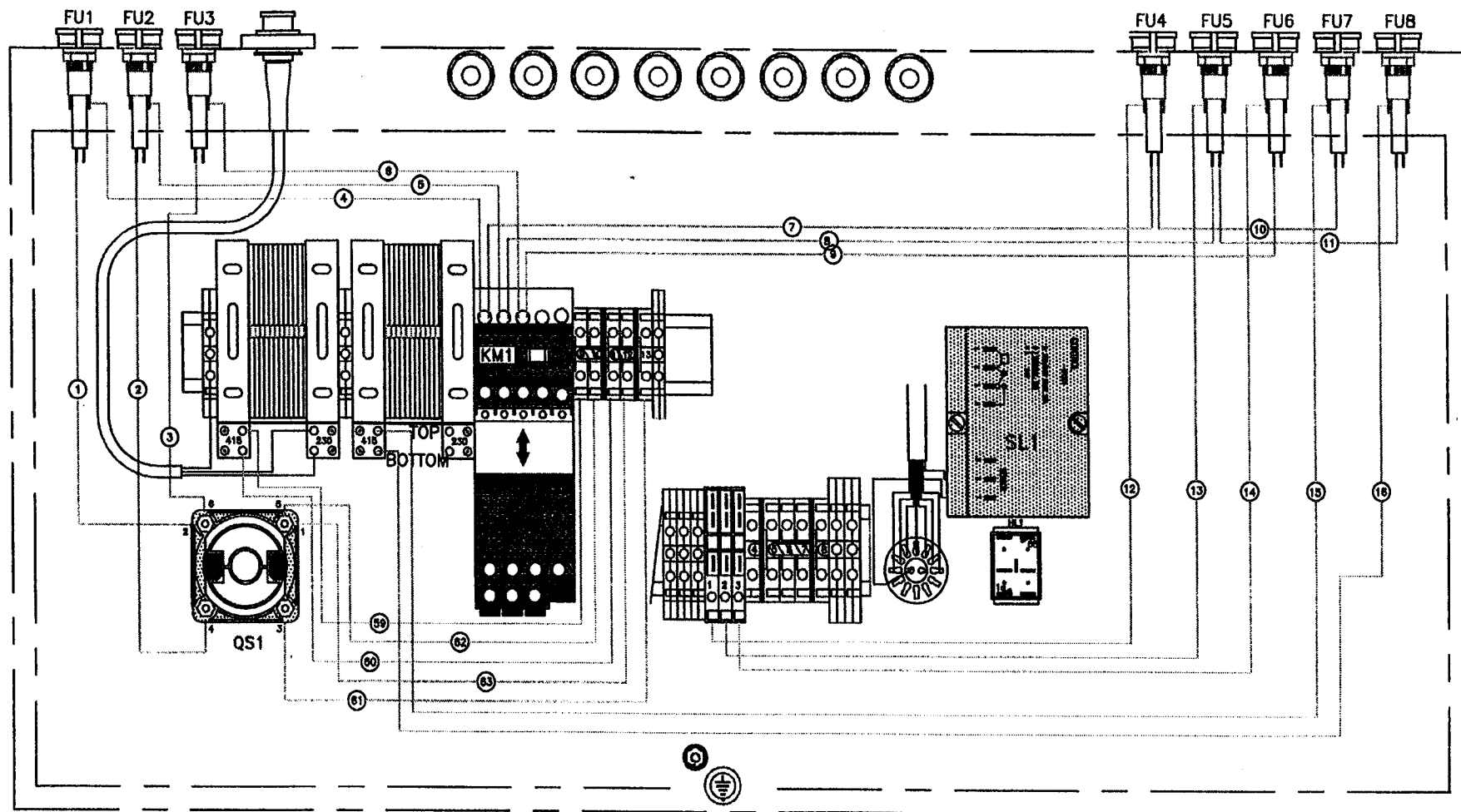


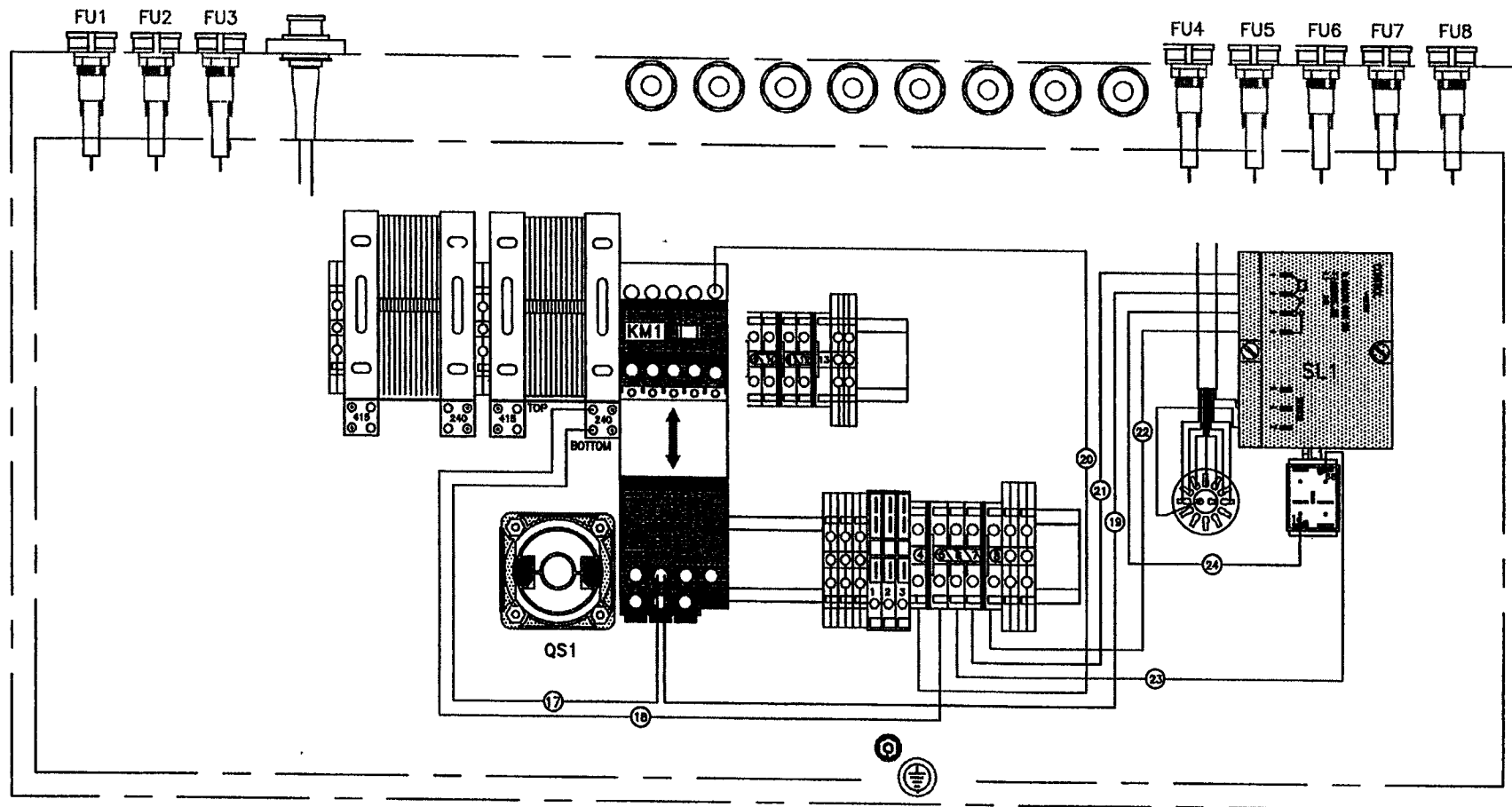
Panel - Layout Eco80:
Schéma de Disposition du Panneau:
Panel Layout Diagram:
 23 24 23 24 23 24 23 24





Stromlaufplan Eco80:
Circuit de Secteur:
Power Circuit:
電力回路





MGE

Worldwide

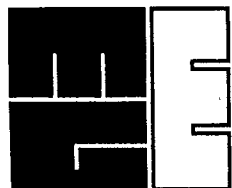
ECO 15

ECO 25

ECO 50

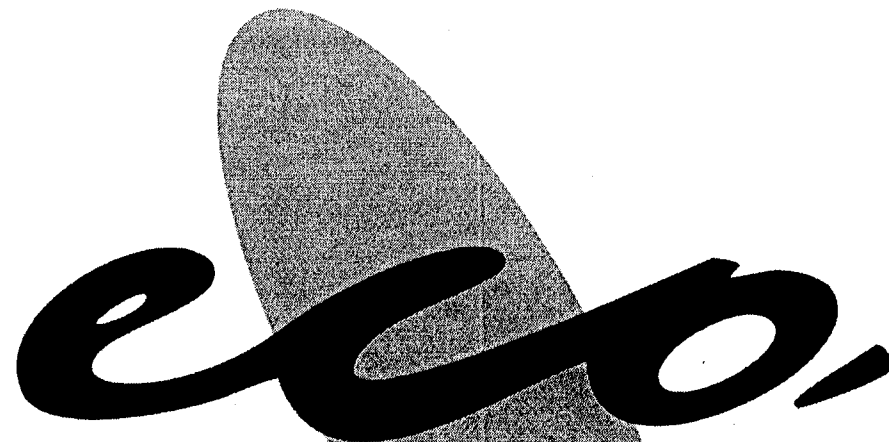
ECO 80

ALCOMIXER EDITION



MG Electric (Colchester) Limited

Wyncolls Road, Colchester, Essex CO4 4HT, United Kingdom. Tel: +44 (0)1206 842244 Fax: +44 (0)1206 845849 E-mail: sales@mgelectric.co.uk www.mgelectric.co.uk



Kühl - und Zirkulationssysteme
Systèmes de Refroidissement et de Circulation
Cooling and Circulation Systems
冷却及び循環システム



Certificate No. Fm 15051
BS EN ISO 9001