



AMERI-CAN
MACHINERY LTD.

TPW - 20

TWO POINT WELDER



OPERATION AND MAINTENANCE MANUAL

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1 TO OUR CUSTOMERS

1.1 CONGRATULATIONS FOR YOUR CHOICE

Your machine has been built with the most advanced technological system; this with the design strength is prerogative of precision and reliability.

The correct use and the adequate maintenance will maintain unchanged its functional and safety features, ensuring high-level performances.



The customer has the responsibility to make sure that if this document undergoes changes by the Manufacturer, only the updated versions of the Manual are actually present at the point of use.



THE OFFICIAL LANGUAGE CHOSEN BY THE MANUFACTURER IS THE ITALIAN LANGUAGE

No responsibility is assumed for translations in other languages that do not conform to the original meaning.

1.2 EXPLANATION

This manual is divided in three different sections:

- Commissioning: must be carried only by service and maintenance staff, after a careful reading of this manual.
- Use: must be carried out only by people who received adequate instructions by the service staff or a local representative.
- Maintenance: must be carried out only by the service and maintenance staff, adequately learned by the technicians or a local representative.

Damages due to the failure of following what written in the manual, or procedure conflicting with it, CANNOT BE ASCRIBED TO US.

Some maintenance and reparation interventions can prejudice the functional and/or safety features: these operations are deliberately omitted in this manual. The operations of maintenance, calibration, regulation, reparation that are not contemplated in this manual **must be carried out** by authorized personnel, or by a local representative.



The term QUALIFIED PERSONNEL covers personnel who as a result of education and professional experience has been expressly authorized to perform the installation, use and maintenance of the machine.

2.2.1 TO WHOM IT IS ADDRESSED

This manual is addressed to the user, to the leaders in charge of the shift, installation, operation, monitoring, maintenance and final dismantling of the machine.

2.2.2 PURPOSE OF THE MANUAL

The manual explains the proper use of the equipment, as required by the design assumptions and the specifications. It provides instructions for moving, proper and safe installation, adjustment and use; provides information to address maintenance, it facilitates ordering spare parts.

2.2.3 USE RESTRICTIONS

This manual is valid for the machine code into it expressly referred; the information cannot be applied to other models of different series. All necessary information will be obtained from this manual without acquiring data from similar manuals of similar equipment or of other manufacturers.

TO OUR CUSTOMERS

2.2.4 SAFETY SIGNS

In order to draw attention in the manual some pictograms appear that will be divided as follows:



PROHIBITION



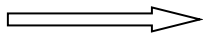
CAUTION



INFORMATION



**RESERVED TO
QUALIFIED PERSONELL**



DETAILS INDICATIONS

WARNING	Regarding features or technical requirements that, usually, must precede the operation.
ATTENTION	Regarding all the working and maintenance phases, must be observed scrupulously to avoid damages to person or to the machine.
DANGER	Usually used with the term that define the kind of the injury: ex. "Crashing danger"
DANGEROUS AREA	Define an area inside or near the machine where a person is exposed to risk.





Drawings, tables and pictures are not numbered singly.

Wire diagrams and layouts are not numbered with separately.



2.2.5 SAFETY SIGNS

The signs should be applied in areas where they are easily visible and legible by anyone who approaches and at a point such that the person can react promptly to take the necessary action to avoid the danger. The rule provides that the safety pictograms are regularly checked and cleaned to ensure good readability at a safe distance.

SIGNS RELATED TO HAZARDS

SIGN	DESCRIPTION
	Chips projection
	Electrical power
	Danger of crushing hands
	Moving mechanical parts

SIGNS RELATED TO PROHIBITIONS

SIGN	DESCRIPTION
	Do not remove the safety devices
	Prohibited to repair / grease during motion

SIGNS RELATED TO OBLIGATIONS

SIGN	DESCRIPTION
	Must wear safety glasses.
	Must wear protective gloves.
	Must wear ear protectors
	It is compulsory to wear protective shoes

2.2.6 COMPLIANCE WITH THE LAWS

Together with the rules of this manual the laws specific to the prevention of accidents at work must be respected by the customer.

2.2.7 MANUAL CONSERVATION

The manual is considered an integral part of the machine and must be kept in good condition until its final disposal. The manual should be kept in a protected, dry place, away from direct sunlight and should always be available and available for consultation in the workplace.

2.2.8 HOW TO ASK ANOTHER COPY OF THE MANUAL

In case of damage to the original, a copy can be requested at the expense of the applicant directly to the manufacturer.

2.2.9 INFORMATIONS TO THE USER

1. This manual reflects the state of the art at the time of commercialization of the machine.
2. The manufacturer reserves the right to change products and manuals, without any obligation to update preceding products or manuals.
3. The characteristics of the materials can be changed at any time in the light of technological change without notice.
4. On the sale of the unit please inform the manufacturer, the address of the new owner so the transmission of any additions to the manual.
5. For further information or clarification you can contact the Service Department

The manufacturer is relieved from any possible liability in the event that the machine will be:

- 1) Used improperly
- 2) Used by not qualified personell
- 3) Used against what written in the present manual
- 4) Used againt the current Laws and Legislation
- 5) Used with a wrong main power supply
- 6) Used exceeding its performance limits
- 7) Subject to excessive mechanical stresses

The user is committed to ensure that:

- 1) All work related to transportation, connection, operation, maintenance and repairs are performed by qualified personnel
- 2) Qualified means (according to IEC 364) personnel that for training, education, experience, as knowledge of standards, legislation, safety measures and conditions of use and service, is able to carry out any necessary steps avoiding any possible danger and / or damage.
- 3) These people have all the instructions and information necessary, including any local legislation, and that they adhere to these to carry out any operation
- 4) Any operation on machines and equipment also indirectly is forbidden to unqualified personnel

5) Must be repeated during installation, with additional security measures, any local or special requirements and / or at least all of the conditions of prevention not acquitted

2.2.10 MARKING DATA AND DELIVERY CHECKS

Make sure that the equipment for signs of damage and that the delivery is complete. In case of damage contact the insurance company or the supplier. If the supply does not conform to the order, contact the supplier immediately. Each item of equipment is a plate.

2.2.11 IDENTIFICATION PLATE AND CE MARKING

Each machine is identified by a CE plate on which are reported in indelible way the reference data of the same. The position of the plate on the machine can vary from machine to machine.

For any communication with the manufacturer or service always refer to this reference.



2.2.12 DECLARATIONS

The machine is made in accordance with the relevant and applicable EU directives at the time of its release on the market.

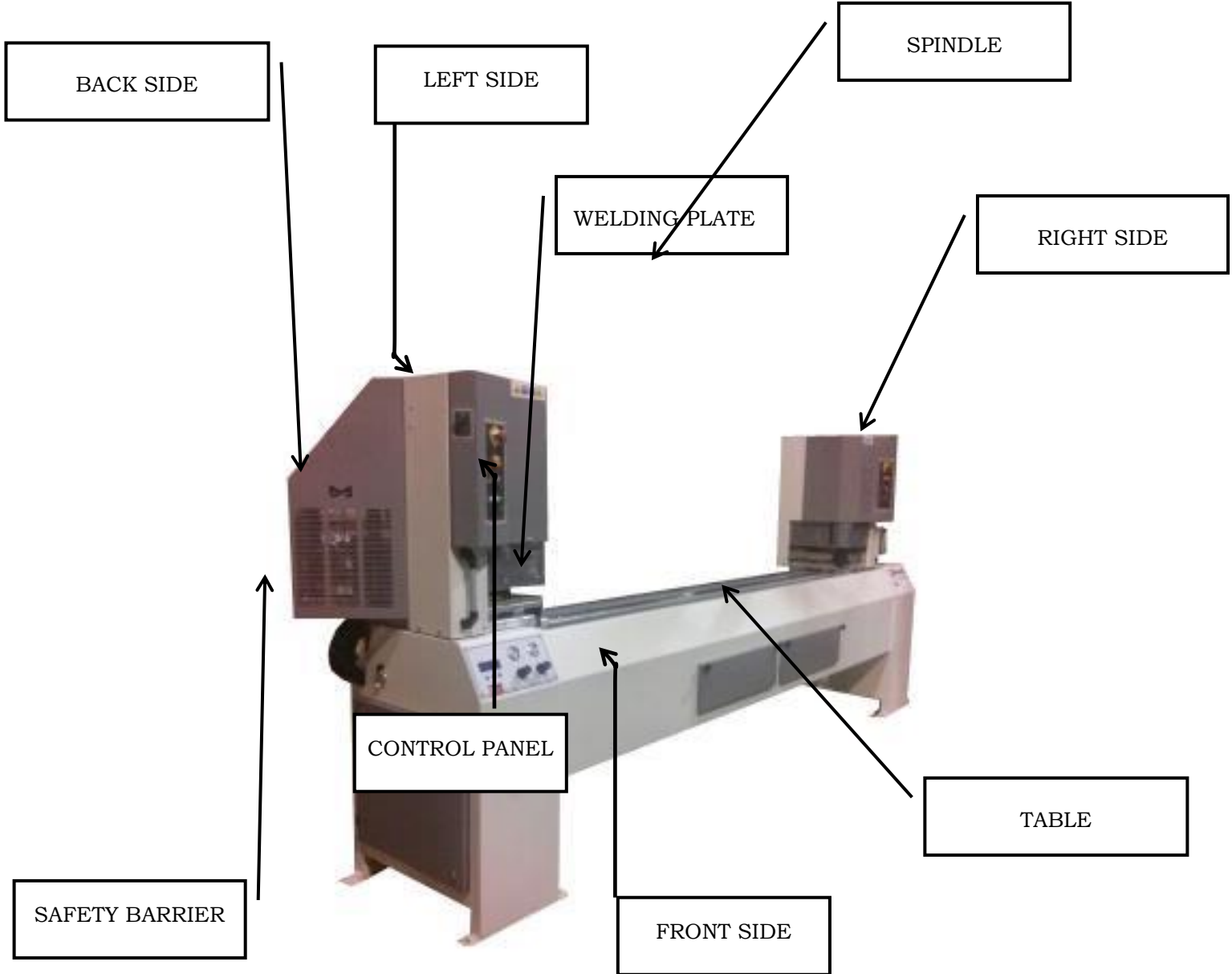
REGULATION	Title
UNI EN ISO 12100	Machinery Safety - General Design Principles - Risk Assessment and Risk Reduction
UNI EN ISO 13857	Safety of machinery safety distances to prevent the reaching of dangerous areas with the upper limbs
UNI EN 349	Machinery safety- minimum spaces to avoid crushing body parts.
UNI EN 547 parte 1 e parte 2	Safety of machinery
UNI EN ISO 6385	Ergonomic principles in designing work systems
CEI EN 60204-1	Safety of machinery - Electrical equipment of machines
UNI EN ISO 13850	Safety of machinery - Emergency stop - Design principles.
UNI EN 953	Safety of machinery - Repairs - General requirements for the design and construction of fixed and mobile repairs
UNI EN 1037	Machinery safety - Prevention of unexpected start-up
UNI EN ISO 13849	Safety of machinery - Part of safety-related control systems - Part 1: General principles for design.
UNI EN ISO 4414	Pneumatics - General rules and safety requirements for systems and their components.
UNI 4598	Machine tools. Graphic signs
UNI 7543 parte 1	Colors and safety signs. General requirements
UNI 7543 parte 3	Colors and safety signs. Notifications

TO OUR CUSTOMERS

PROHIBITION OF COMMISSIONING

The machine cannot be put into service, after constructive changes or additions of other components not covered by the ordinary and extraordinary maintenance without having again to comply with the requirements of the Directive 2006/42 / EC and of the applicable EC Directives.

TO OUR CUSTOMERS



2.3 MACHINE PACKAGING

The standard packaging of the machine provides:

- Machine accessories in a carton.
- Keys, this manual and possible other documents inside the electric cabinet.

The machine, with all the accessories, is shrink wrapped.

If requested, the machine can be packed in a wooden box.

3 PREPARATION

3.2 LIFT AND HANDLING

The lift of the machine for the transport, loading and unloading, is contemplated for the use of a forklift. For this purpose on the frontal side of the machine are placed appropriate locations for the forks of the forklift.

The machine rests on 4 adjustable feet, that allow the passing of the forklift.

Before starting with the lift operations, it is necessary to be sure that the forklift capacity is greater than the machine weight and the forks long enough to support correctly its weight.

In the following table the weights of the various models are written:

	Effective length of the basement (in meters)
Length (mm)	4000
Weight (Kg)	1200

Forks min. length: 1.000 mm

Forks min. distance: 800 mm

3.3 ADVICES FOR THE WORKING PLACE

Suitable choice of the place of work of the machine is very important in order to obtain a good quality of production and proper functioning of the machine itself.

The choice of the workplace must take into account, the overall dimensions of the machine and the movement of the material to be processed, both incoming and outgoing. The positioning to walls, or overall fixed dimensions in general, should be made, considering that it must be possible an easy access to all sides of the machine for normal operation of cleaning or maintenance.

The machine does not need foundations; however, it is appropriate that the bearing surface is sufficiently rigid and able to withstand localized pressures (in correspondence with the support feet) higher than 5 kg/cm² (corresponding to a concentrated load of 400 kg). If not it is necessary to increase bearing surface of the feet by means of steel plates, of round or square shape, with a thickness of at least 1/200 of the surface.

(Example: plate 200x200 mm, minimum thickness 20 mm ⇒ contact pressure 1 Kg/cm²).

GENERAL SAFETY WARNINGS

The machinery has been designed to be used from only one operator that must position himself in front of the machine where is possible to reach easily all machine commands including the emergency commands. Moreover the operator must have the complete control of the work cycle.

The operator must immediately stop the operations in progress if for every reason the blade does not go down in the rest position or if any anomaly is noted.

The operator must stop the operations in progress if other people approach the machine.

LIGHTING

Must be provided adequate lighting, natural or artificial in accordance with ISO 8995-89 on lighting at the workplace.

GROUNDUNG SYSTEM

Must be performed at CEI 64-8.

INTENDED USE

The cutting machine is adequate to cut light aluminium profiles using appropriate blades.

NOISINESS

average sound vacuum pressure: 71,0 dba

average sound pressure at work: 86,4 dba

vacuum sound pressure: 87,0 dbwa

sound pressure at work: 101,0 dbwa

vacuum lop user place: 81,0 dba

lop user place at work: 97,0 dba

maximum sound pressure level in the user place 119,0db

It is advised the use of individual safety protection devices against noise in the case of prolonged use of the machine.

PREPARATION

PACKING

The machine is supplied with a shrink-wrapping.

LEVELLING

The machine has to be levelled transversely and longitudinally.

OPERATING TEMPERATURE

From 10 °C to 40 °C.

CLEANING

The machine should be cleaned with detergents, non-acids or non-aggressive to paints, we recommend specific industrial products.

Do not use acids, gasoline, paint thinner, turpentine or petroleum.

Use gloves and suitable clothing.

SAFETY DEVICES

Pressure switch of minimum pressure, if the pressure is not sufficient the blade will not start.

Valve of low and high pressure: when closing the clamps the pressure is about 2.5 bar only when pressing the two buttons and the work cycle begins then takes over a pressure of about 7 bar, to prevent crushing even if slight of the hands.

One way valves on the clamps: if the pressure is missing the clamps will remain closed and the profile locked.

Command cycle with two hands: you have to press both buttons simultaneously to start the cutting phase, with two-hand safety valve. The working cycle is interrupted releasing one of the two buttons.

Fixed protective casing.

Blade casing with protective strips of plastic against-intrusion. Replace them immediately if they get weared.

At the rear of the turntable were applied two mechanical stops that prevent direct the plane in positions that may cause the meeting of the blade with the iron structure.

RESIDUAL RISKS

Despite the barriers and safety devices, the machine has the residual risks caused by improper use of the machine or unpredictable situations. These risks are reported with safety signs.

Please be aware that in the electric panel even with main switch off there is electricity.

The pneumatic circuit even if disconnected remains under pressure. If in case of malfunction the blade does not come down, do not put your hands near to the work area until the blade is fully back and stopped. The operator must use precautions and individual devices according to the current legislation: glasses, gloves, headsets and all that is necessary according to the residual risk analysis in the workplace.

The operator must necessarily turn off and lock the main switch and unplug the machine from the air by venting the pressure from the air system if:

-must clean or remove protective casing to make any type of operations, he must wait the time required for the stopping of the blades and their return to the rest position.

-to carry out maintenance work in the machine working areas.

-to carry on whatever operation in correspondence of the machine blade.

-to carry on whatever adjustment operation on the machine.

The machine is equipped with safety devices: it is prohibited any alteration, modification or partial removal of these devices.

Check at the beginning of each work shift their presence and efficiency, otherwise alert immediately the responsible person.

The use of compressed air to clean or to blow up the chips must be carried on only with adequate eyes protection (glass).

The electrical equipments can cause accidents.

PREPARATION

The work areas should not be approached with the hands, being present in the machine components with sharp or high pressures and movements unwary can cause injury.

For every reason do not let unauthorized personnel to operate on the machine.

Do not wear jewels, unfastened, loose-fitting and dangling clothes that could catch in the moving parts.

It is advised the use of suitable clothing, safety shoes, safety glass, face masks.

Do not start the machine if there is any anomaly.

The working area must be always clean and dry.

During the assembly and disassembly of casing or other parts, do not align any holes with your fingers but with appropriate tools as there may be danger of crushing.

It is advised the use of suitable clothing, safety shoes, safety glass, face masks.

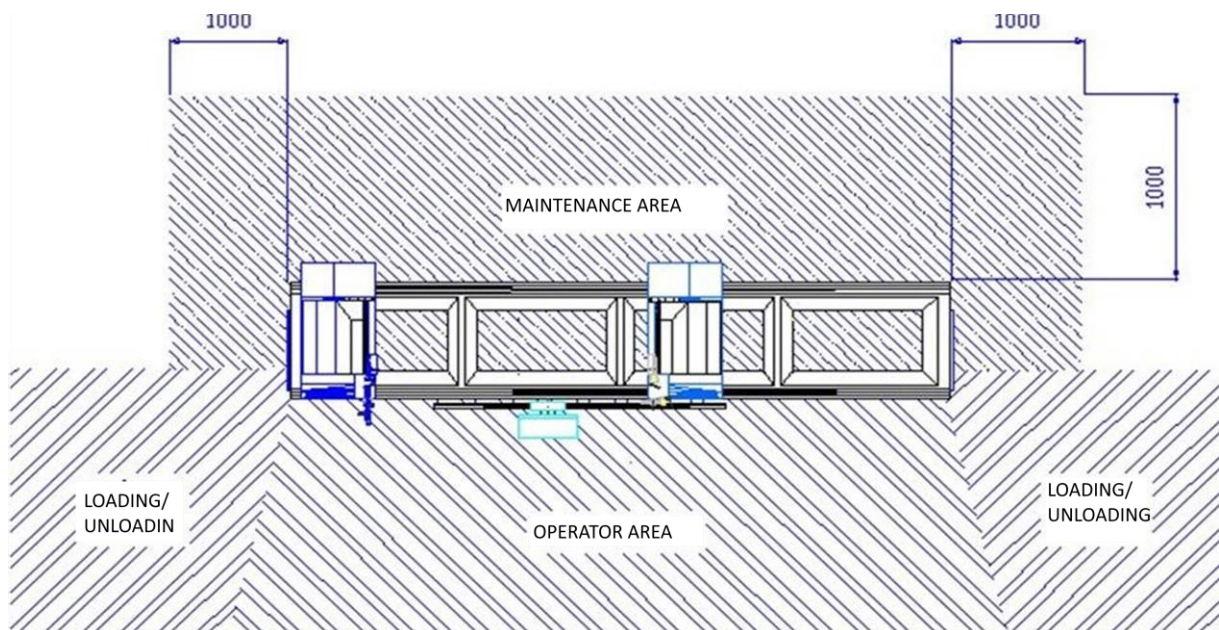
Do not start the machine if there is any anomaly.

During the assembly and disassembly of casing or other parts, do not align any holes with your fingers but with appropriate tools as there may be danger of crushing.

The safe area is the area indicated as **operator area**, in the rear area indicated as **maintenance area** must not stay anyone, particularly if you do not equip the machine with a chips and fumes extractor, as there is a filler pipe from which chips and fumes can be expelled. It is therefore necessary to provide optionally a bag or a suitable container for the collection of any chips.

It is forbidden to insert objects, tools or body parts inside the filler pipe for the suction of the chips: this action can cause damage to people and/or property.

The lateral area indicated as **load area** must be used only for the eventual loading and unloading of profiles, only when the machine is off.



PREPARATION

3.3.1 MORE ADVISES FOR THE WORKING PLACE:

- Absence of vibrations.
- Uniform heating or cooling of the machine to avoid localized deformation: it is not recommended, therefore, the installation of the machine in a place where sunlight or air currents, cold or hot, from one side only could invest it.
- Absence of dust in the environment.
- Operating temperature as constant as possible and in any event not less than 10°C (50° F) and not more than 35° C (95° F).
- Humidity of air not exceeding 80%
- Proper natural or artificial lighting.



The machine is not suitable for use in areas with explosive atmosphere, corrosive, with excessive amount of dust.

3.4 SEPARATED PARTS ASSEMBLY

3.3.1 UNPACKING

Place the machine following the instructions in the previous paragraph.

Without the polyethylene cover, cut the straps that secure the boxes of accessories to the guide of the machine.

3.4.1 CONSOLLE

If the console is disassembled, place the console nearby the machine and connect the connector to the electric cabinet. Turn on the machine and check carefully the machine functioning.

3.3.3 SCREENS

After placing the machine, we recommend the removal of protective films scratchproof only when you finish these operations.

The cleaning of the same should be done only with water and soap or cleaning products for domestic glass.

3.5 CONNECCTION TO ELECTRIC POWER

3.4.1 PNEUMATIC PARTS

The pneumatic supply of the machine is provided on the right side. The connection must be made at the entrance of the general shut-off valve, by means of rigid or flexible tubes such that, in the quantity required, allowing a pressure of at least 7 bar to the machine.

The machine is equipped with a filter with condensation separator and does not need air totally dehydrated, however, it is appropriate that the plant is made in order to limit the direct input of water and impurities.

If the connection between the machine and the distribution system of compressed air is carried out with flexible tubing it is appropriate to include an isolation valve also on the side of connection to a rigid plant.

ATTENTION: CRUSHING DANGER. When starting the pneumatic supply some unexpected movements will take place, for example, the lifting of protective screens and turning heads: before opening the compressed air supply, make sure there are not people in the immediate vicinity of the machine.



The machine control system pressure is made with the pressure regulator control knob: clockwise to increase and counterclockwise to decrease. The lowering of pressure takes place through the adjustment relieving of the regulator and, therefore, it is advisable to flow over the predetermined value, wait a few seconds for the stabilization and then go up slowly.

The adjustment the pneumatic system lubrication can be carried out on the lubricator on the side of the regulator: the operation must be done after completing all the tasks in this chapter. Dose adjustment for the fall of a drop of oil (transparent upper cylinder) every 4-6 complete cycles.

PREPARATION

3.4.2 ELECTRIC PARTS

The electrical supply of the machine is provided on the left side. The machine comes with a power cable 3 poles + ground (4x2.5 mm²) of 5 meters, with no plug.

Under the current regulations, the connection to the electrical line must be performed by qualified personnel.

The machine, unless the customer's particular requirements, comes ready to run on 380 volts - 50 Hz three-phase.



ATTENTION: if a chips belt conveyor is installed on the machine, once the connection to the electrical line and a suitable grounding are made it is necessary to verify the correct motor rotation: looking at the machine from the front side, the chips belt conveyor must turn clockwise.

3.6 SAFETY PROTECTIONS

The machine complies with European standards of safety prevention and protection of the operator. It is however necessary that access to certain areas of the machine, in particular the rear side, is protected against accidental intrusion by third parties, during normal operation. The access should be allowed and easy for cleaning and maintenance, when the machine is stopped, by the assigned personnel.

3.7 PRELIMINARY CLEANING

The machine, before being packed for shipment, is sprayed with protective antioxidant chemicals that must be removed before starting the machine.

Before proceeding make sure the switch is turned off.

Cleaning can be done with common detergents, non-acidic or non-aggressive to the paint: we recommend the specific products (according to the law) of industrial use or, without those, the normal household detergents. Use gloves and clothing suitable for the use of products used for cleaning.

Particular attention should be given to the longitudinal slide rails, which must also be cleaned under the moving head, moving it manually. After cleaning and complete removal of all traces of protective and detergents, grease them lightly wiping from top to bottom with a cloth soaked with oil. Move the mobile head repeatedly checking that gaskets do not tend to get stuck or topple over.

Do not use acids, gasoline or petroleum derivatives, solvents, trichloroethylene and similar.

The cleaning of protective screens, control panel, pressure gauge and, in general, of all the plastic parts must be made only with water and soap or inert detergent.

3.8

LEVELING

The machine sits on the floor with adjustable feet which allow the horizontal leveling of that. The leveling must not necessarily be made with sophisticated tools not being necessary to make it perfectly horizontal, but rather a good support that does not lead to torsional stresses to the basement. It is sufficient a level, at least 50 cm long and in good condition.

GENERAL DESCRIPTION

4 GENERAL DESCRIPTION

4.2 MACHINE



4.3 MACHINE INTRODUCTION

This machining center is designed for machining aluminum and light-steel profiles for the construction of fixtures, for building construction and architecture, or similar where it is necessary for high productivity, ease of use reliability, robustness and limited maintenance.

The main features of the machine, predetermined at the design stage and made in the construction phase, are the following

- High dimensional and geometric stability.
- Low maintenance costs.
- Ergonomics work.
- Ease of maintenance.
- Full access to all its components.
- High machining capacity.
- Easy to learn.
- High accuracy.
- Adaptability to the needs of the customer and operator

4.4

WORKING AREA

The working area of the machining center has been designed to achieve the following characteristics:

- Wide visibility of the whole machine and of hazardous areas for third persons during the processing phases.
- Fall of the waste inside the basement, removable tanks for collection.
- Free fall of the chips, or, by external vacuum cleaners, conveying to the intake manifold.
- Good view of the working zones, with maximum security protection from flying chips, scraps and / or fragments

4.5 WARNINGS FOR THE OPERATOR

- The machine is designed for use by a single operator.
- In case of accidental approach by third persons, and in presence of potential source of danger, stop ongoing operations through the emergency stop buttons.
- The operator must ensure that the refrigerant liquid which is introduced using the tanks is non-toxic and UNDER THE LAW.

The operator has the duty to turn off the main switch before:

- Move away from the machine.
- Proceed with cleaning and / or removal of the waste-holding tanks.
- Make adjustments involving the opening of fixed guards.
- Intrude, in case of maintenance, in the areas of motion of the machine.

The operator has the duty of turning on the emergency switch before:

- Record the position of clamps.
- Perform any operation in correspondence with the heads.
- Place the stops for special angles.



The use of products / materials other than those specified by the manufacturer, which can cause damage and danger to the operator and / or those close to the machine, is considered incorrect and improper.

RESIDUAL RISKS

1. In any case, the operator must not carry out operations near the without making sure that the spindle itself is in still position and stopped;
2. In case of failure, the protection could stay open while working: stop the machine and call for service. Always avoid approaching the tool without first making sure that it has stopped.
3. During the movement of the mobile carriage, the operator must carefully check that nobody is in the working area or around the machine.
4. It is forbidden to remove the safety devices.

GENERAL DESCRIPTION

The machine has low noise levels. Where the processing, because of the very nature of the material being processed, will cause discomfort to the operator, the operator, in the absence of barriers or other noise reduction systems, must wear the soundproof headphones.

The machine is equipped with devices set for the protection and safety of the operator. It is prohibited the tampering, removal or modification even partial of such devices and protection.

Acoustic emission values:

- The weighted level A of sound pressure in the workplace is 73.9 dB(A);
- The maximum weighted value C of instantaneous sound pressure in the workplace is 92 dB;
- The weighted sound power level A emitted by the machine is 84.1 dB.

After installing the machinery, the employer will be required to make a risk assessment of the noisiness as required by the legislation.

4.6

WARNINGS FOR THE MAINTENANCE

The maintenance staff of the machine must:

- Perform the proper operations ensuring that the movements of the machine cannot be a source of danger to third persons. It is necessary to immediately stop the ongoing operations whenever a third person is approaching parts moving or whose movement can be done by automated cycle.
- Verify that the liquid refrigerant which is introduced using the tanks is non-toxic and UNDER THE LAW.
- Turn off the main switch before:
 - Get away from the machine.
 - Remove casing and/or fixed protections.
 - Intrude, in any case, in the areas of motion of the machine.
- Perform the maintenance operations as stated in the relevant chapter.

The maintenance staff must not:

- Perform any modifications.
- Tamper, remove or modify even partially devices and safety guards.

4.7

MACHINE'S MOVEMENTS

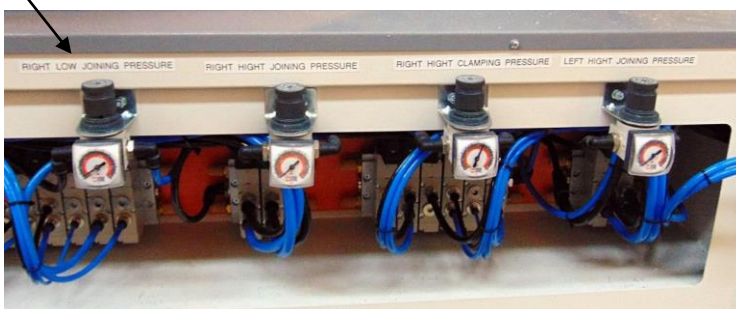
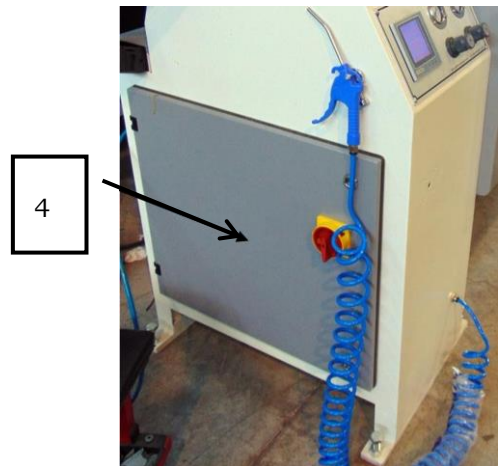
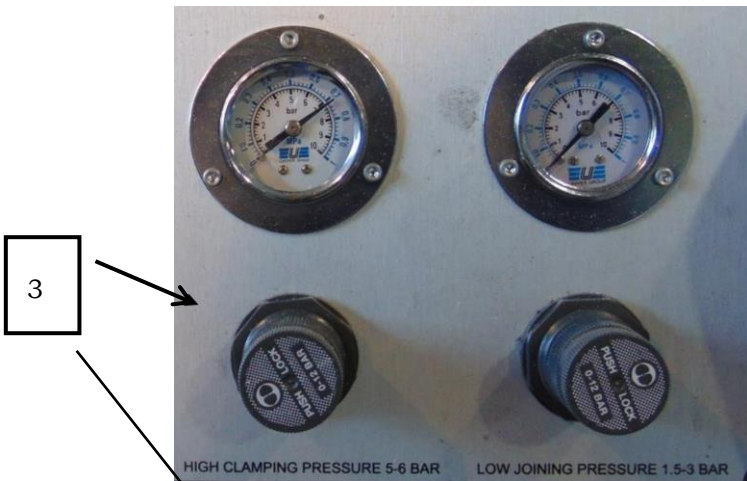
The main movements of the machine are:

- Opening / closing clamps
- Opening / closing protection screens
- Head movements
- Welding plates heating

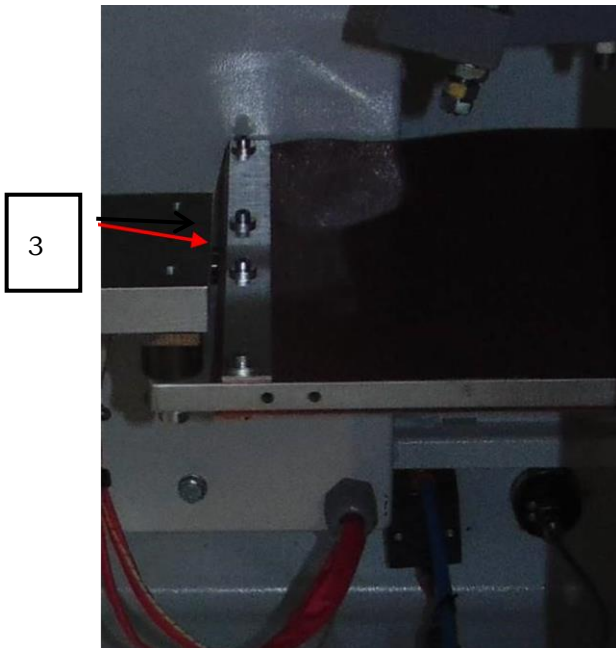
GENERAL DESCRIPTION

4.8.1 DISPLAY AND BUTTONS

The machine is equipped with a touchscreen display panel (1) with indication of the function of the individual buttons. On both welding heads, there is the presence of the emergency button and the machine start buttons (2). There are knobs for adjusting the pressure of the pressers and the holder plate (3). Also there is the main circuit switch (4).



GENERAL DESCRIPTION

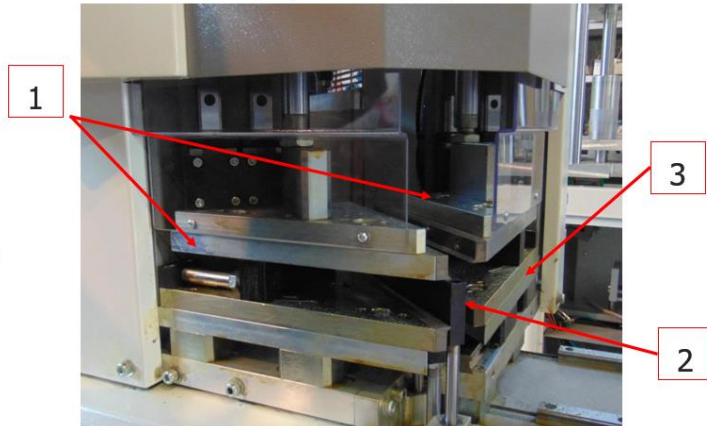


By disassembling the rear panel, it is possible to access the welding plate of the welding machine (5)

GENERAL DESCRIPTION

4.8.2 MOVING PARTS

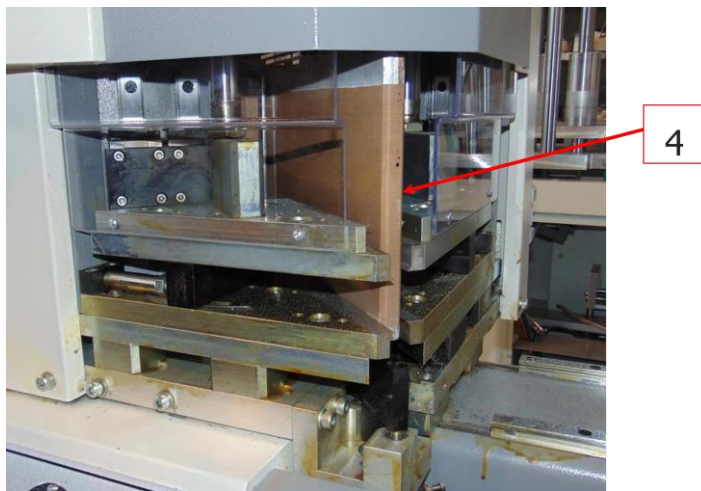
The machine is equipped with a series of pneumatic operated moving parts.



1. Clamps used to hold the piece during the welding phase;

2. Centering device used to center two profiles;

3. Movable plate brings near the profile after the heating phase;



4. Welding plate.



Danger of crushing hands



Moving mechanical parts

4.8.3 BUTTONS

There are a number of buttons on both welding heads:

1. Emergency stop
2. Start button "START"
3. Lock button "CLAMP"
4. Enable button to press together with the start button (two-handed command)
5. Brake (present only on the moving head)
6. Handle for moving and positioning the moving head

4.8 INSTALLATION

After powering the machine electrically and pneumatically, perform a thorough visual inspection of the entire machine and make sure there are no objects left inadvertently over it, people or materials that may be bulky for normal operation.

Verify that all machine safety is enabled, and if necessary restore, in particular:

-Emergency stop unlocked.

-Security guard.

Then it is possible to operate the machine.

Adjust the pressure of the clamps and the movable plates of both welding heads.

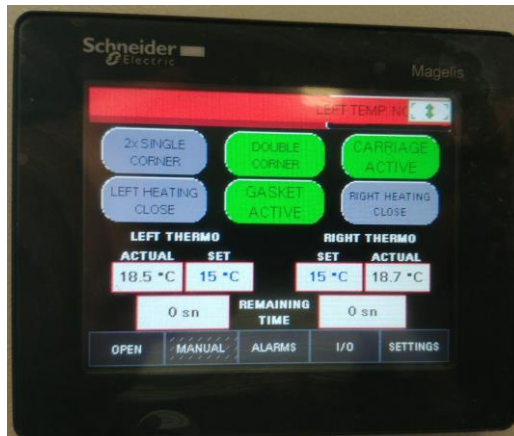
Activate the machine by pressing the Start button

4.9 SETTING UP THE WELDING PARAMETERS

After starting the machine, select the language:



In this page it is possible to select a welding cycle and set the welding temperature for each welding plate:



MAINTENANCE

Select SETTINGS on the bottom-right corner:



In this page it is possible to set:

- temperature tolerance;
- pressing and resistance timer;
- melting and welding timer;
- pressure change timer;
- discharge timer.

4.10 WELDING CYCLE

To perform the welding operation, after setting the welding parameters and positioning the right welding head in the correct position by locking it with the brake, proceed as follows:

- Press the start button together with the enable key to activate the machine and lower the positioner.
- Place the pieces to be welded.
- Block the pieces by pressing the clamp button. This operation must be repeated on both welding heads. If the button is released during the descent, the clamp will go up. This is used in case of error in positioning the profile or in case of hazardous situations such as clothing. If the clamp is already locked in the working position, you can press the clamp button again to unlock the workpiece.
- Press the start button, together with the enable key, to proceed with the automatic welding operation. This operation, as well as the lowering of the square, can be activated indifferently by the buttons on the left or right head.
- After the welding cycle is completed, the clamps will open automatically.
- After removing the piece, you can start with a new welding cycle

4.11 WARNINGS

- Welding reduces the length of the profiles from 3 to 5 mm. Perform test samples and determine how long profiles need to be cut.
- Care must be taken to mount the fixtures and their correct positioning is one of the factors that most affect the welding result. The manufacturer does not provide fixtures but can provide a set of fixture attacks.
- Do not weld profiles with room temperature below 18-20 ° C.
- Make sure that the covering of the heating plate is clean and smooth; replace it if it is damaged.
- The temperature of the heating plate must be constant throughout the surface; it is advisable to periodically check it with a precision thermometer ensuring that the measured temperature coincides with the set temperature.
- It is extremely important to have accurate cutting angles of the profiles to be welded; Incorrect cutting will undermine the welding result.
- For all non-coated profiles, the welding groove is 2 mm; this value ensures the best weld sealing;
- For coated profiles, the weld groove is 0.2 mm; this curb allows you to reduce the line of subsequent cleaning.
- Testing must be performed to determine the different welding parameters; set the heating plate thermoregulator to 240 ° C and make a welding cycle. After reviewing the result if the profile at breakage test will have little resistance rise the temperature. Lower the temperature if the welding curb is yellowed.

5 MAINTENANCE



WARNING: only personnel trained for the purpose must perform all maintenance operations.

All operations on the machine should be carried out only after disconnecting the electric power and the pneumatic supply from the machine.

5.1 WHAT TO DO IF:

6.2.1 THE CLAMPS DO NOT OPEN

If at the clamps do not open with the normal command, open the pneumatic cabinet and check the solenoid valve. If the valve is working, check the Input/ Output from the machine software.

5.1.2 THE POWER BUTTON DOES NOT LIGHT



If when pressing the enable button, the button does not turn on and the machine is not working, make sure the switch is plugged in and that the machine is correctly powered.

Check the contacts and the connection of the emergency switch (red mushroom head pushbutton on the console control).

Check the contacts and connections of the general enable button.

Check the pressure in the network and / or air leaks in the system (at least 6 bar are necessary).

Check operation and wiring of the pressure switch within pneumatic cabinet.

MAINTENANCE

6 COMMON PROBLEMS



PROBLEMS	CAUSE	SOLUTION
MACHINE DOES NOT WORK	Main switch off	Turn on the main switch
THE MACHINE STOPS WHILE WORKING	There is one missing phase	Check the phases
	Thermal overcurrent	Find and remove the cause
	Not enough lubrication	Check the lubrication
ABNORMAL WEAR OF THE PNEUMATIC PARTS	No pneumatic lubricant in the plant	Refill the lubricant
	Unpurified compressed air	Replace filter
	Water in the plant	Check and fix drain points

6.1 ORDINARY MAINTENANCE



WARNING: All the maintenance operations must be carried out by personnel trained for the purpose.

Before performing any maintenance and / or repair, you must isolate the machine from the electric power supply and pneumatic power supply

6.1.2 GENERAL PRESCRIPTIONS

Maintenance includes regularly scheduled inspections, checks and interventions to prevent interruptions and breakdowns, to keep under systematic control the state of machine lubrication and the condition of wearing parts.

Such operations, although simple, must be performed by qualified personnel.

The machine has been designed to minimize routine maintenance, it is the operator judge the state and its suitability for use.

It is recommended, however, to arrest and to intervene with maintenance every time you hear an operation is not optimal, this will always have maximum efficiency.

Always use the necessary safety protection and clothing.

Visually check the conditions of the individual parts of the machine, making sure that there are no defects caused by failures or deformation.

For all maintenance that does not require voltage it is necessary to turn off the machine by sectioning the power from the main switch, locking it, with a suitable padlock, in a position "O" (OFF).

Check and try once a month the proper functioning and operation of the Emergency Stops of the electrical panel.

In case of malfunction entrust the search of the failure only a to service technician or contact the Service Department of the manufacturer of the electrical panel.

Check the grounding according to CEI EN 60207-1 p. 18.2.2 regulation.

MAINTENANCE

6.1.3 SCHEDULED MAINTENANCE PROGRAM

<i>Type of work</i>	<i>Frequency</i>
Cleaning the work area	Daily
Check oil level of the lubricator	Daily
Check emergency stops	Monthly
Lubrication of the carriage bearings of the mobile head	Monthly
Visual inspection of the Pneumatic hoses	Monthly
Pneumatic valves operation checks	Every 6 months (qualified personnel is required)

6.2 SERVICE

The network of services is developed nationally and internationally.

For specific problems, please contact the following numbers:



TEL.: 905-542-2055

WARNING: 

When you decide not to use this machine, because hopelessly outdated or fails, take the unit out of service by making it inoperative and free of danger. Disconnect the machine from the power supply, disconnect the air ducts, disassemble tools and all parts added. Close them inside enclosures securely closed. Seal the machine in a rugged packaging, and dispose of operating in accordance with current regulations addressing the local organizations responsible for such operations.

6.3 WARRANTY

The MEPAL ITALY ensures that the machine purchased, before being delivered to the buyer has been tested successfully. The warranty is 12 months and refers to the quality of the material and the lack of construction defects. In case of replacement of defective parts the customer is required to bear the costs of transport and between-packaging.

Damage due to tampering, falls, improper use of the machine are not covered.

It is recalled that modification interventions made by the user, without the express written consent of the manufacturer will void the warranty and relieves the manufacturer from any liability for damages caused by defective product.

This is particularly true when these changes are made on security devices, degrading their effectiveness. The same considerations apply when using non-original spare parts or other than those explicitly specified by the manufacturer as "safety devices".

We recommend, therefore, our customers to contact our Customer Service, before making the above work on the machine.

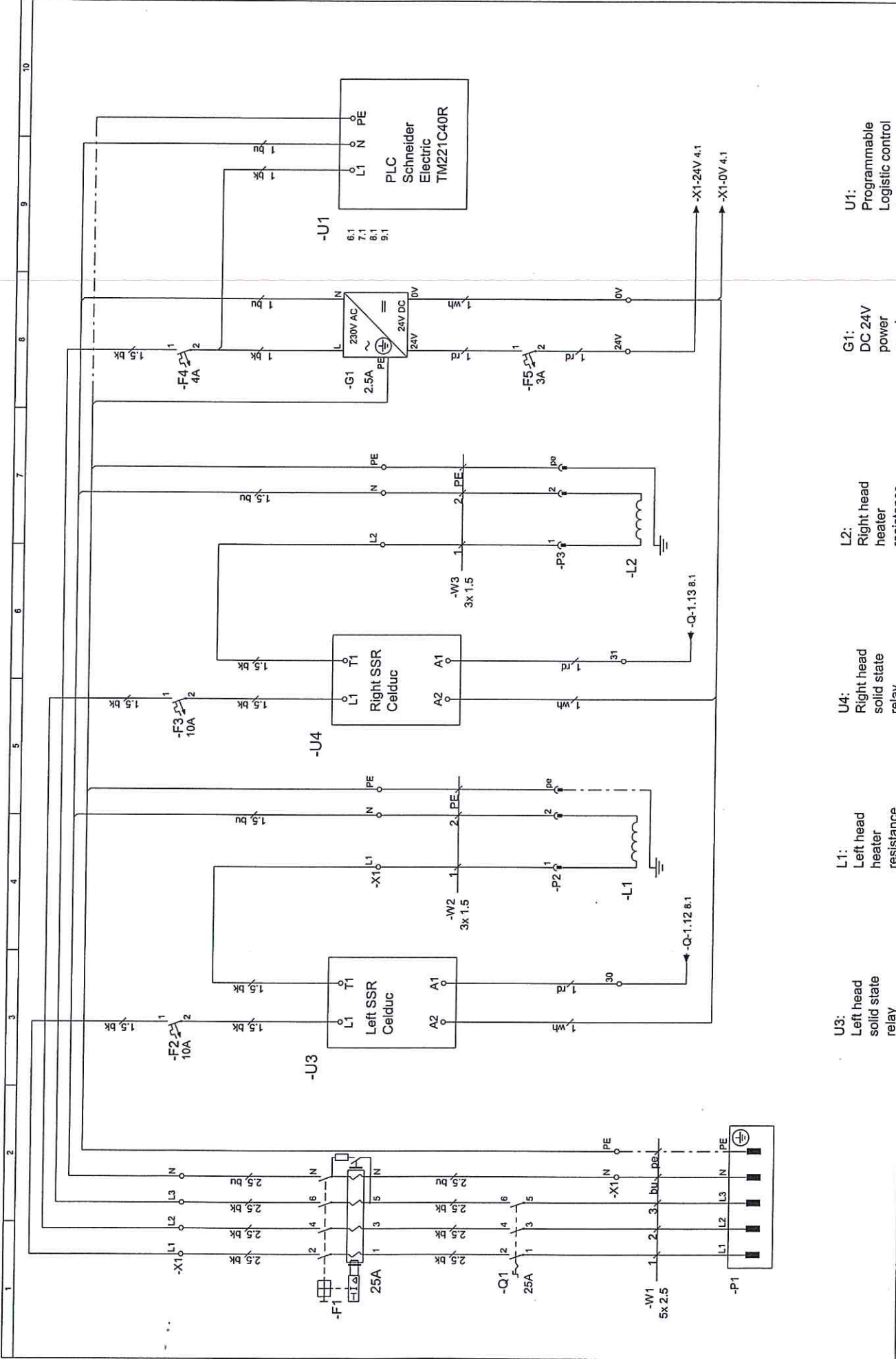
Defects clearly and visibly present for the delivery of the product (cosmetic defects on visible parts, cracks, dents, malfunctions, missing parts etc.) Must be immediately reported to the company.

The guarantee does not apply if failure to comply with conditions of payment set of purchase. When servicing expenses, related to parts not covered by the warranty and other costs, they will be paid directly to the technician, who will issue a service card.

For such expenses will follow an invoice and will cost reported in the current price list.

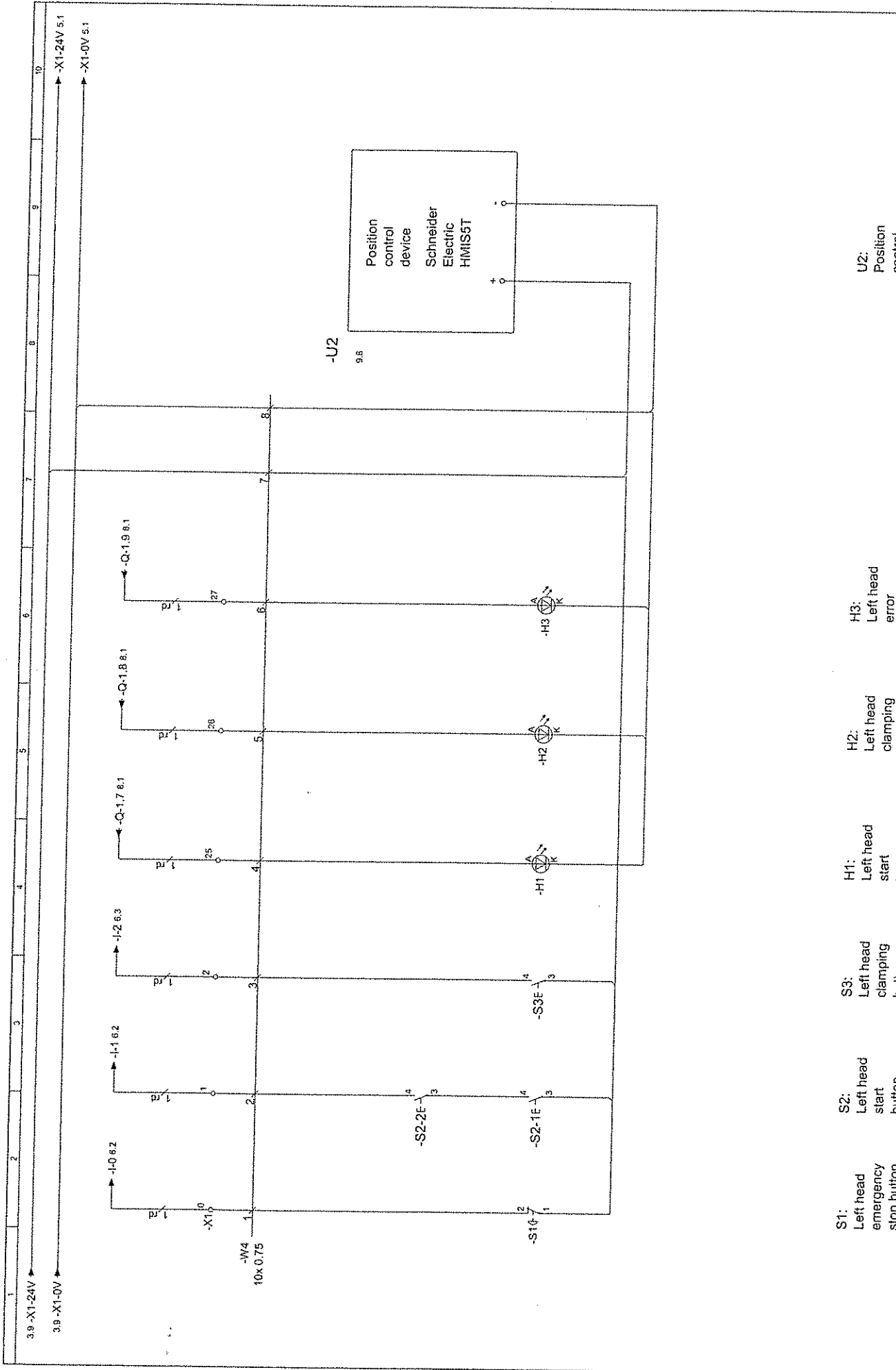
ELECTRICAL & PNEUMATICS

1	2	3	4	5	6	7	8	9	10
Table of contents									
Plant	Location	Page	Page designation	Drawing number	Supplementary field				
=AP1	+ST1	1	Cover page	241 01 001					
=AP1	+ST1	2	Table of content	241 01 002					
=AP1	+ST1	3	Power circuit connections	241 01 003					
=AP1	+ST1	4	Left head command circuit connections	241 01 004					
=AP1	+ST1	5	Right head command circuit connections	241 01 005					
=AP1	+ST1	6	PLC input circuit connections	241 01 006					
=AP1	+ST1	7	PLC output circuit connections -1	241 01 007					
=AP1	+ST1	8	PLC output circuit connections -2	241 01 008					
=AP1	+ST1	9	Ethercat and thermocouple circuit connections	241 01 009					
=AP1	+ST2	10	Left head pneumatic circuit connections - 1	241 02 001					
=AP1	+ST2	11	Left head pneumatic circuit connections - 2	241 02 002					
=AP1	+ST2	12	Right head pneumatic circuit connections - 1	241 02 003					
=AP1	+ST2	13	Right head pneumatic circuit connections - 2	241 02 004					
=AP1	+ST3	14	Electrical cabinet layout	241 03 001					
=AP1	+ST3	15	Cable and information lists	241 03 002					
=AP1	+ST3	16	Electrical cabinet terminal block map (X1) - 1	241 03 003					
=AP1	+ST3	17	Electrical cabinet terminal block map (X1) - 2	241 03 004					
=AP1	+ST3	18	All control circuit connections list - 1	241 03 005					
=AP1	+ST3	19	All control circuit connections list - 2	241 03 006					
=AP1	+ST3	20	Lists of input and output connected	241 03 007					



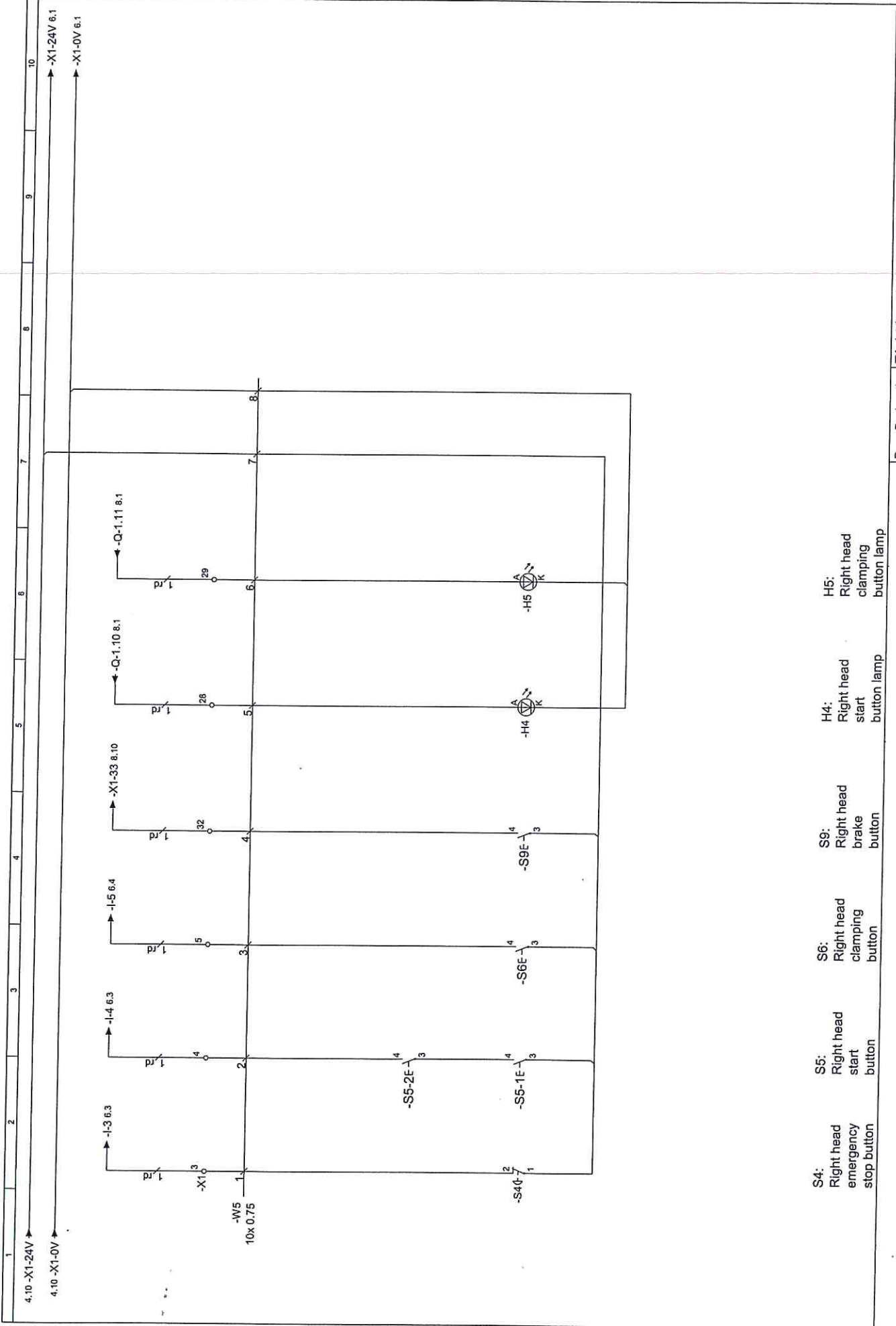
Page Designation			
Drawing Number	Plant	Location	Page Number
241 01 003	-AP1	+ST1	3
Revision Number	Language	ENGLISH	Total Page
			20

Power circuit connections	
U1:	Programmable Logic control device
G1:	DC 24V power supply
L1:	Left head heater resistance
L2:	Right head heater resistance
U3:	Left head solid state relay
U4:	Right head solid state relay



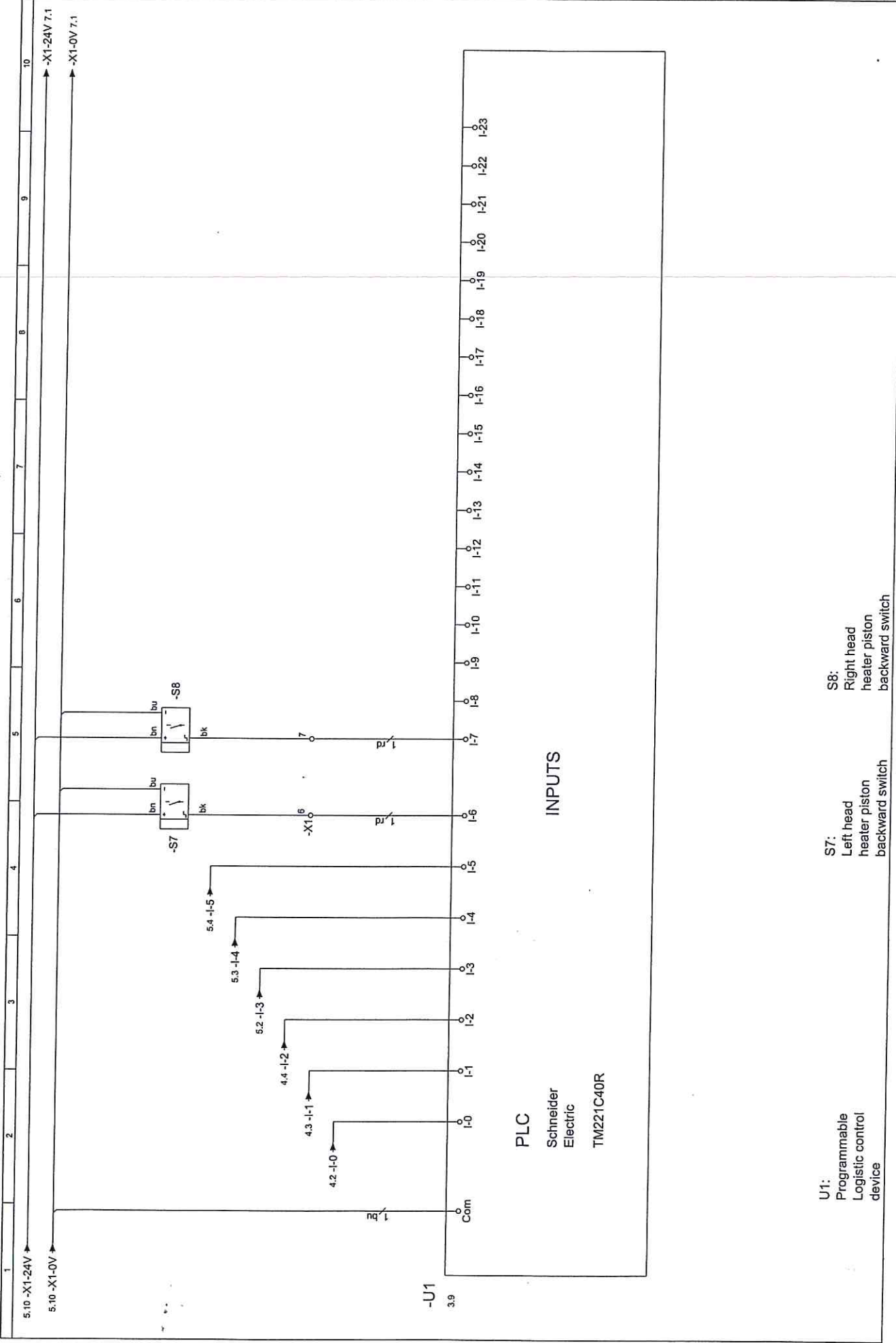
- S1: Left head emergency stop button
- S2: Left head start button
- S3: Left head clamping button
- H1: Left head start button lamp
- H2: Left head clamping button lamp
- H3: Left head error lamp
- U2: Position control device

Page Designation: Left head command circuit connections			
Drawing Number	Plant	Location	+ST1 Page Number
241 01 004			4
Revision Number	Language	ENGLISH	Total Page
			20

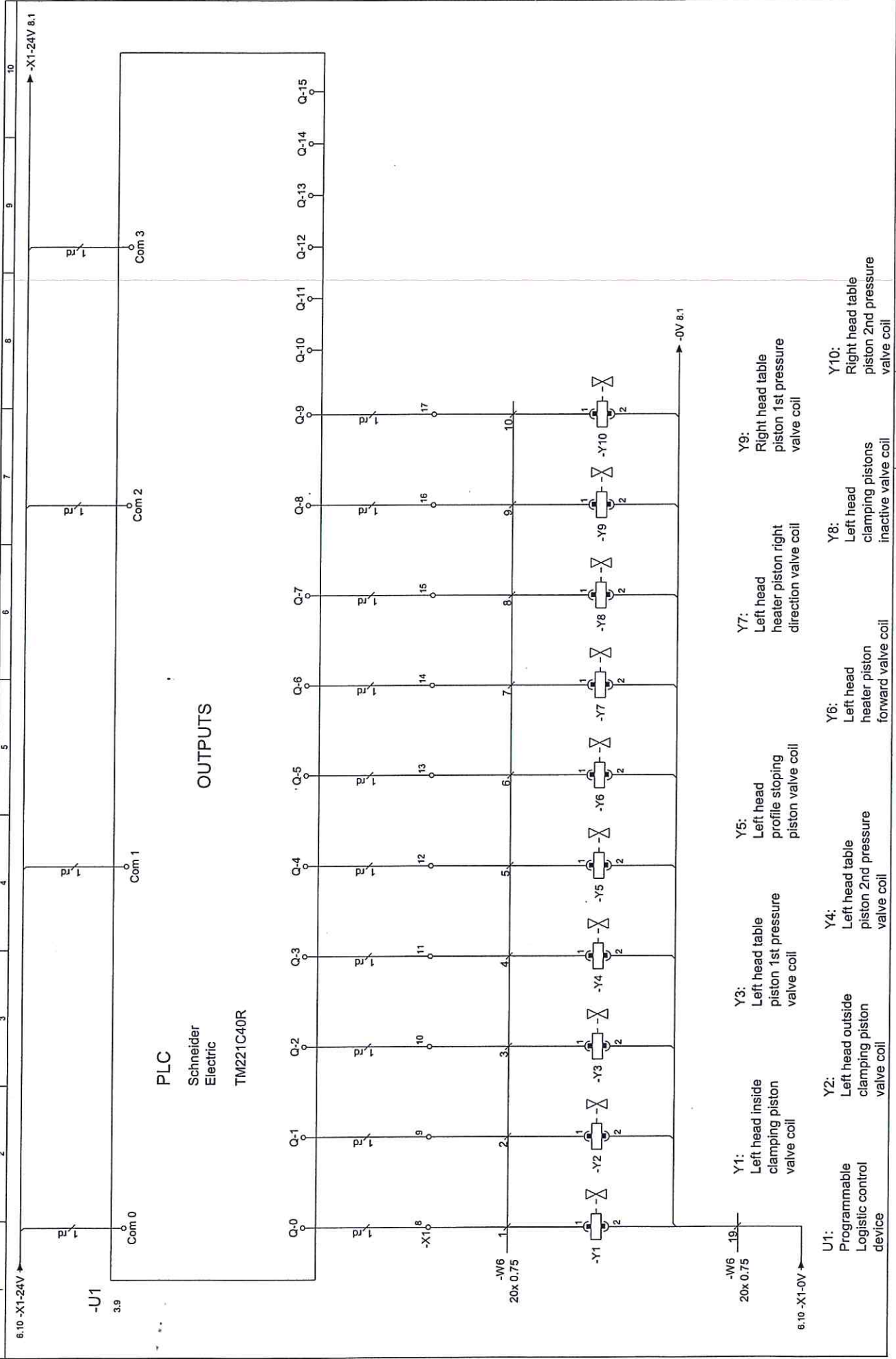


- S4: Right head emergency stop button
- S5: Right head start button
- S6: Right head clamping button
- S9: Right head brake button
- H4: Right head start button lamp
- H5: Right head clamping button lamp

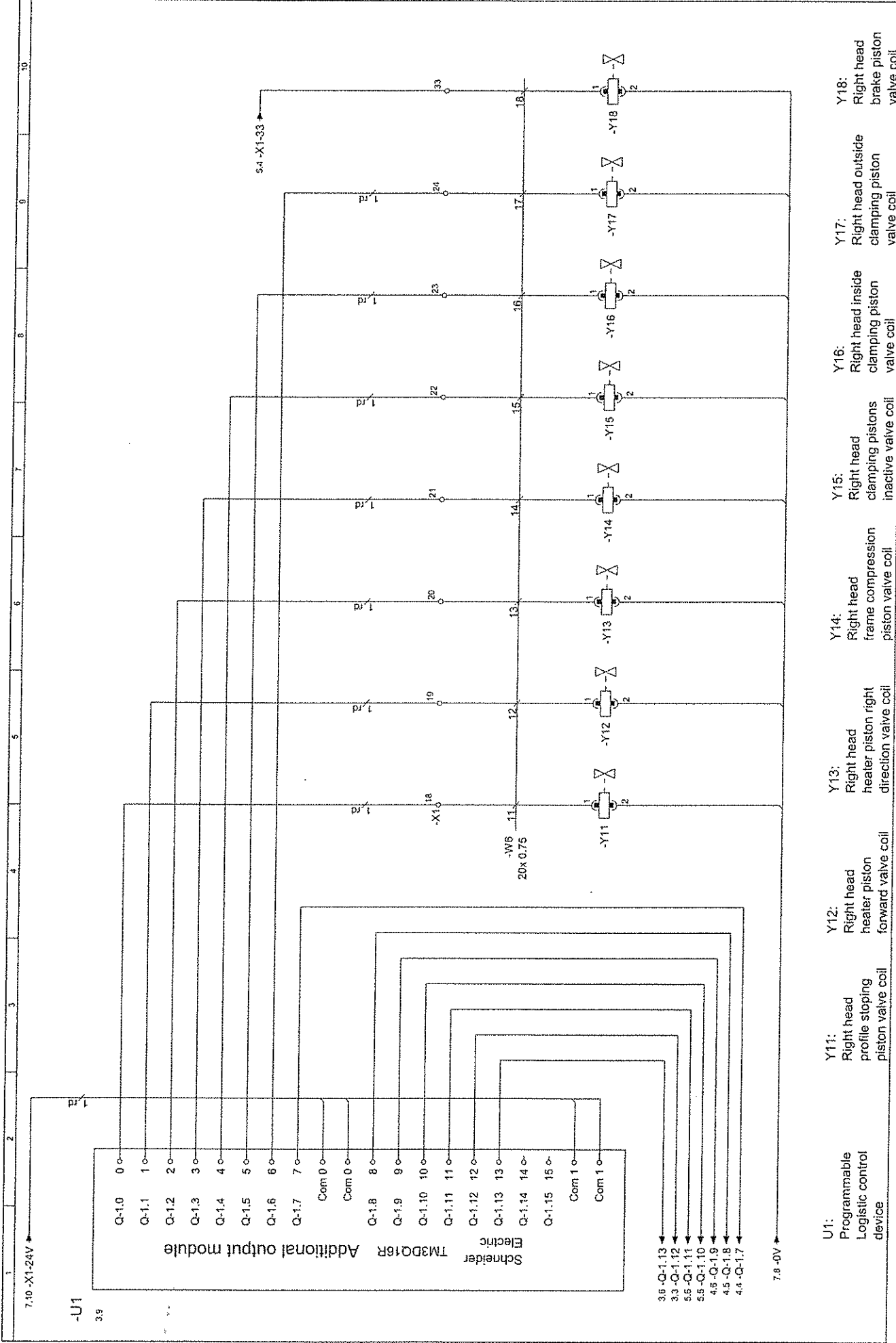
Page Designation		Right head command circuit connections	
Drawing Number	241 01 005	Plant	=AP1
Revision Number		Location	ENGLISH
		Language	
		Page Number	5
		Total Page	20



Page Designation			
Drawing Number	Plant	Location	+ST1
241 01 006	=AP1		
Revision Number	Language	ENGLISH	
PLC input circuit connections			Page Number
			6
			Total Page
			20

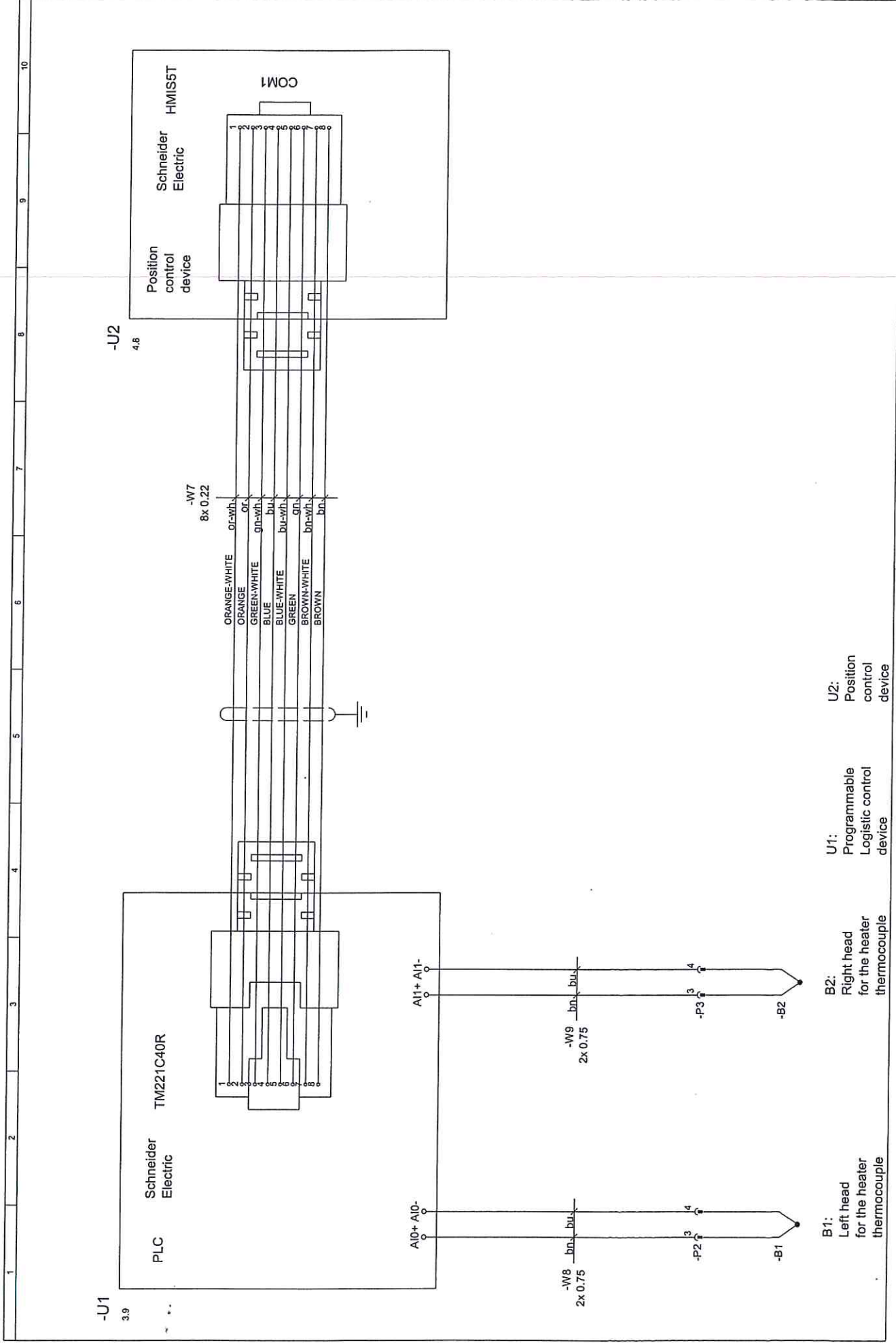


PLC output circuit connections -1			
Page Designation	Plant	Location	Page Number
Drawing Number	=AP1	+ST1	7
Revision Number	Language	ENGLISH	Total Page
			20

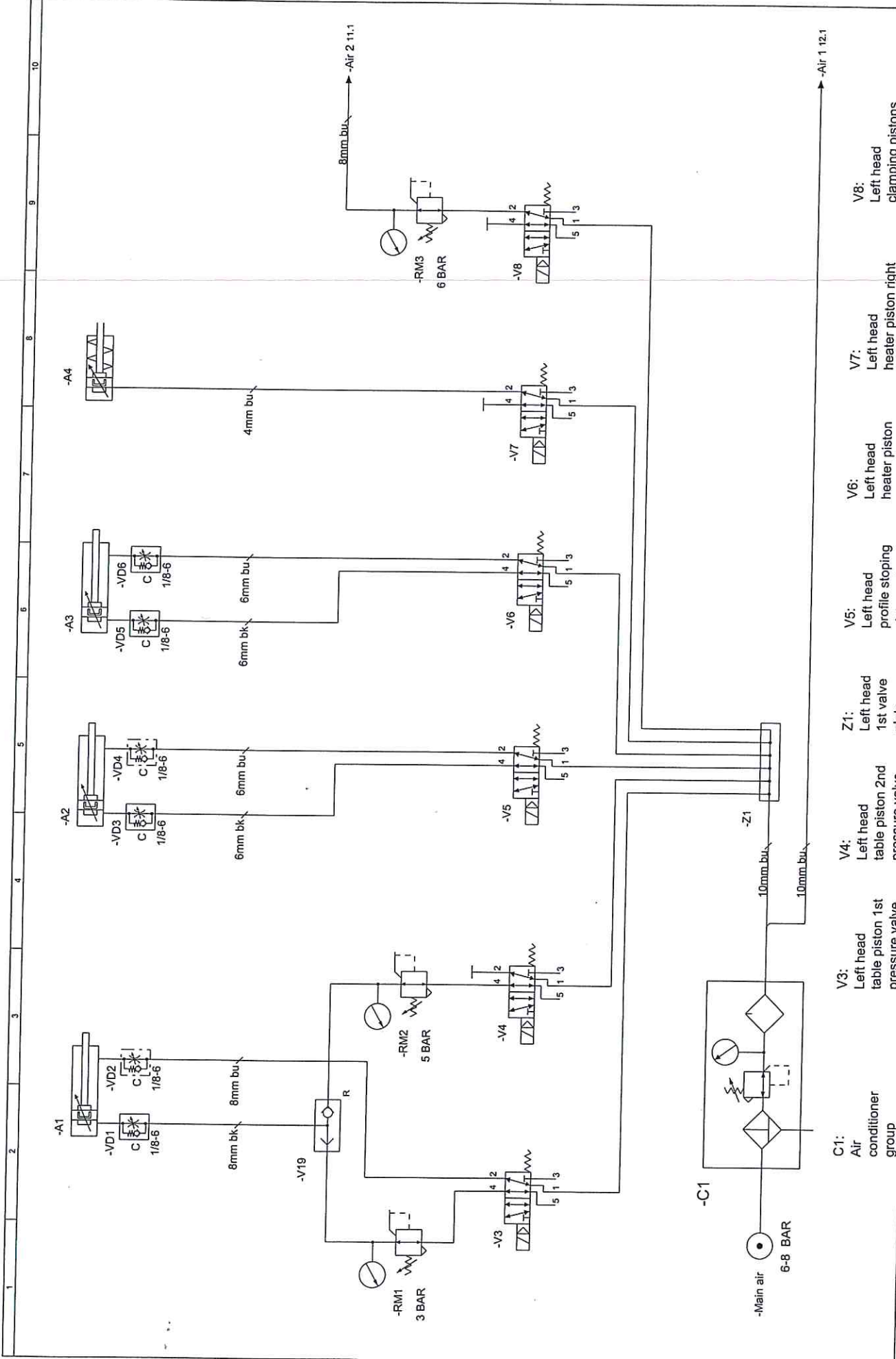


Page Designation	PLC output circuit connections -2
Drawing Number	241 01 008
Plant	=AP1
Location	=ST1
Page Number	8
Revision Number	
Language	ENGLISH
Total Page	20

- U1: Programmable Logistic control device
- Y11: Right head profile stopping piston valve coil
- Y12: Right head heater piston forward valve coil
- Y13: Right head heater piston right direction valve coil
- Y14: Right head frame compression piston valve coil
- Y15: Right head clamping pistons inactive valve coil
- Y16: Right head inside clamping piston valve coil
- Y17: Right head outside clamping piston valve coil
- Y18: Right head brake piston valve coil

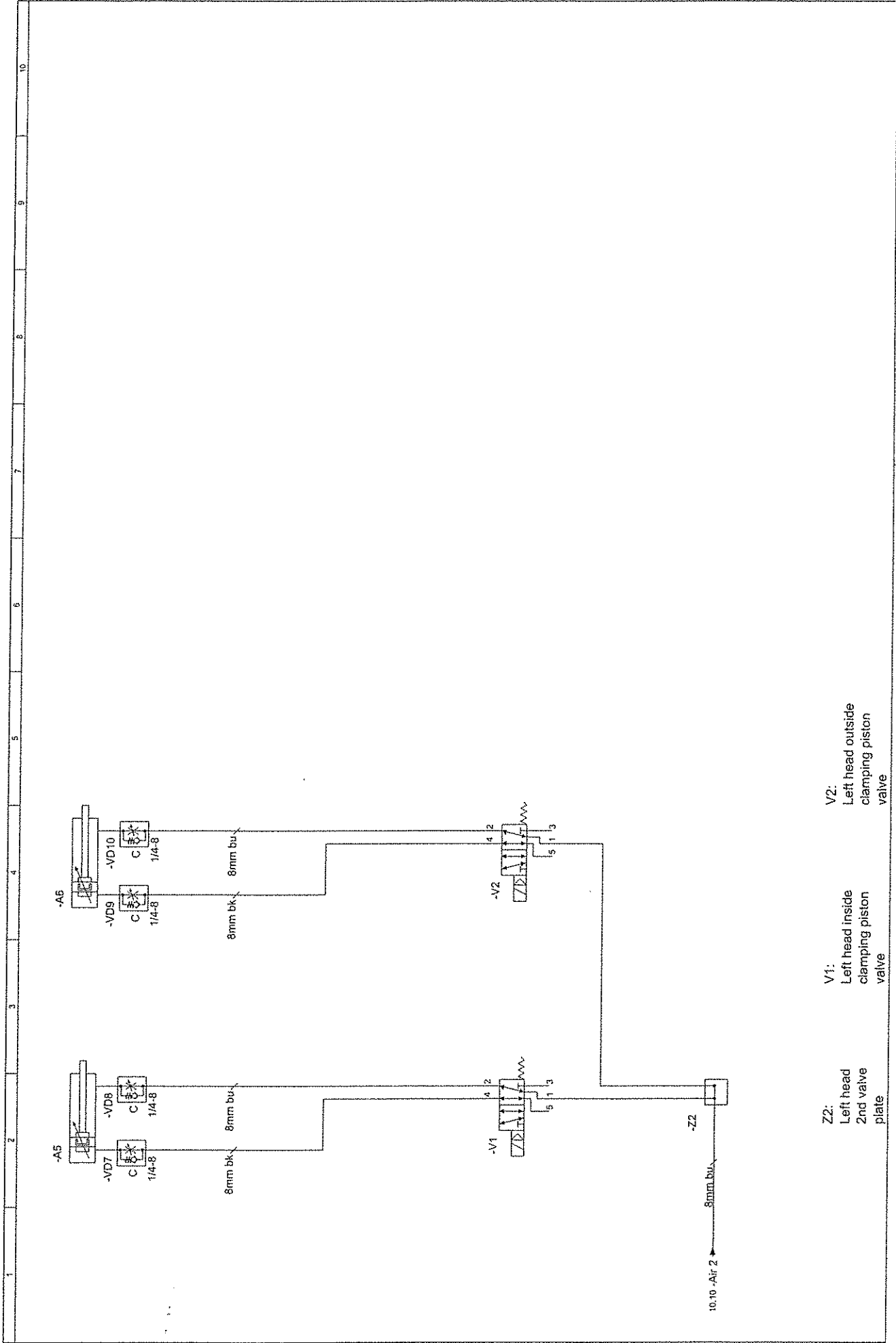


Page Designation				Ethernet and thermocouple circuit connections			
Drawing Number	Plant	Location	+ST1	Page Number			
Revision Number	Language	ENGLISH	Total Page	20			



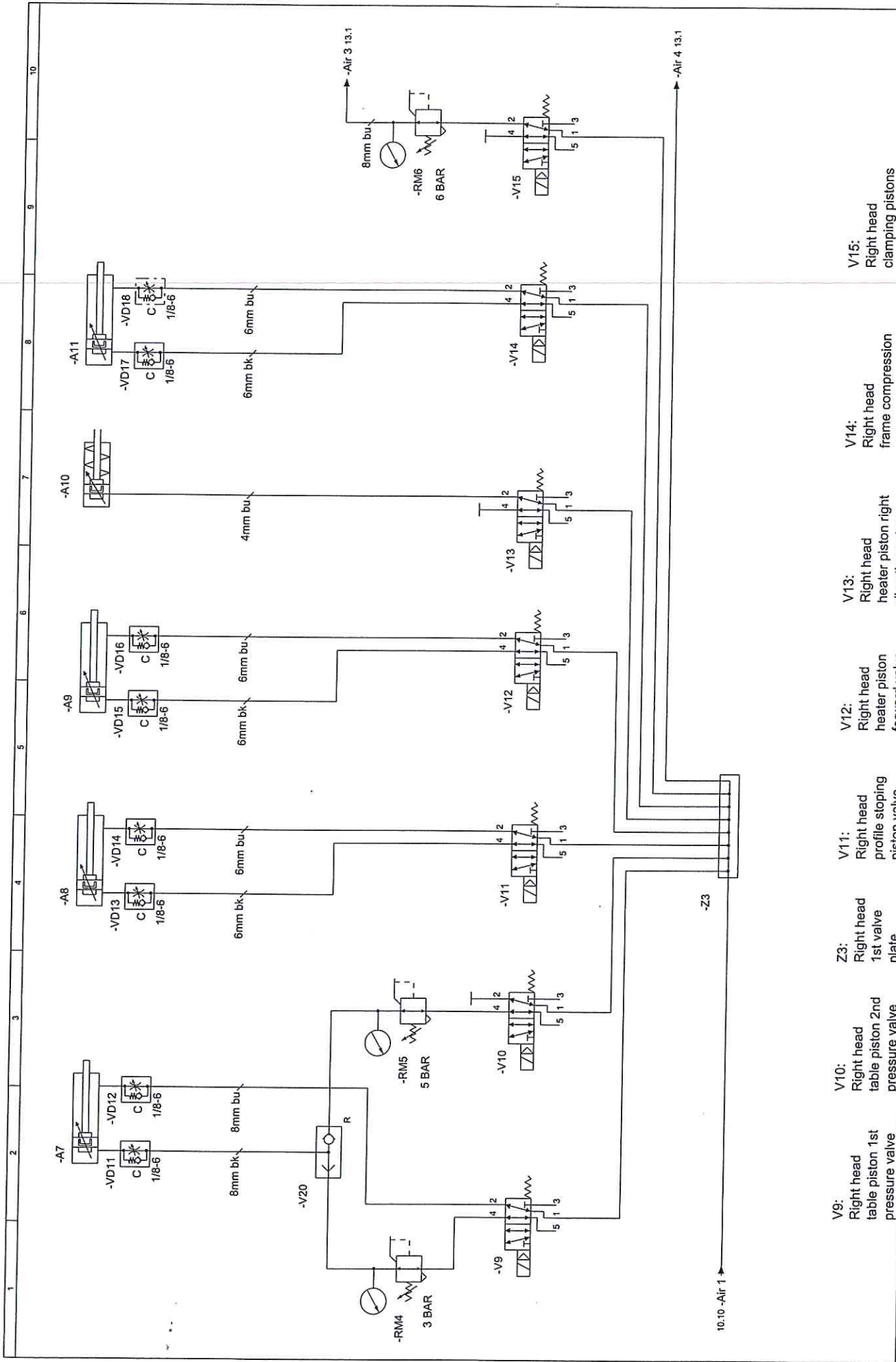
Page Designation	Left head pneumatic circuit connections - 1
Drawing Number	241 02 001
Revision Number	
Plant	=AP1
Location	+ST2
Language	ENGLISH
Page Number	10
Total Page	20

- V3: Left head table piston 1st pressure valve
- V4: Left head table piston 2nd pressure valve
- Z1: Left head 1st valve plate
- V5: Left head profile stopping piston valve
- V6: Left head heater piston forward valve
- V7: Left head heater piston direction valve
- V8: Left head clamping pistons inactive valve



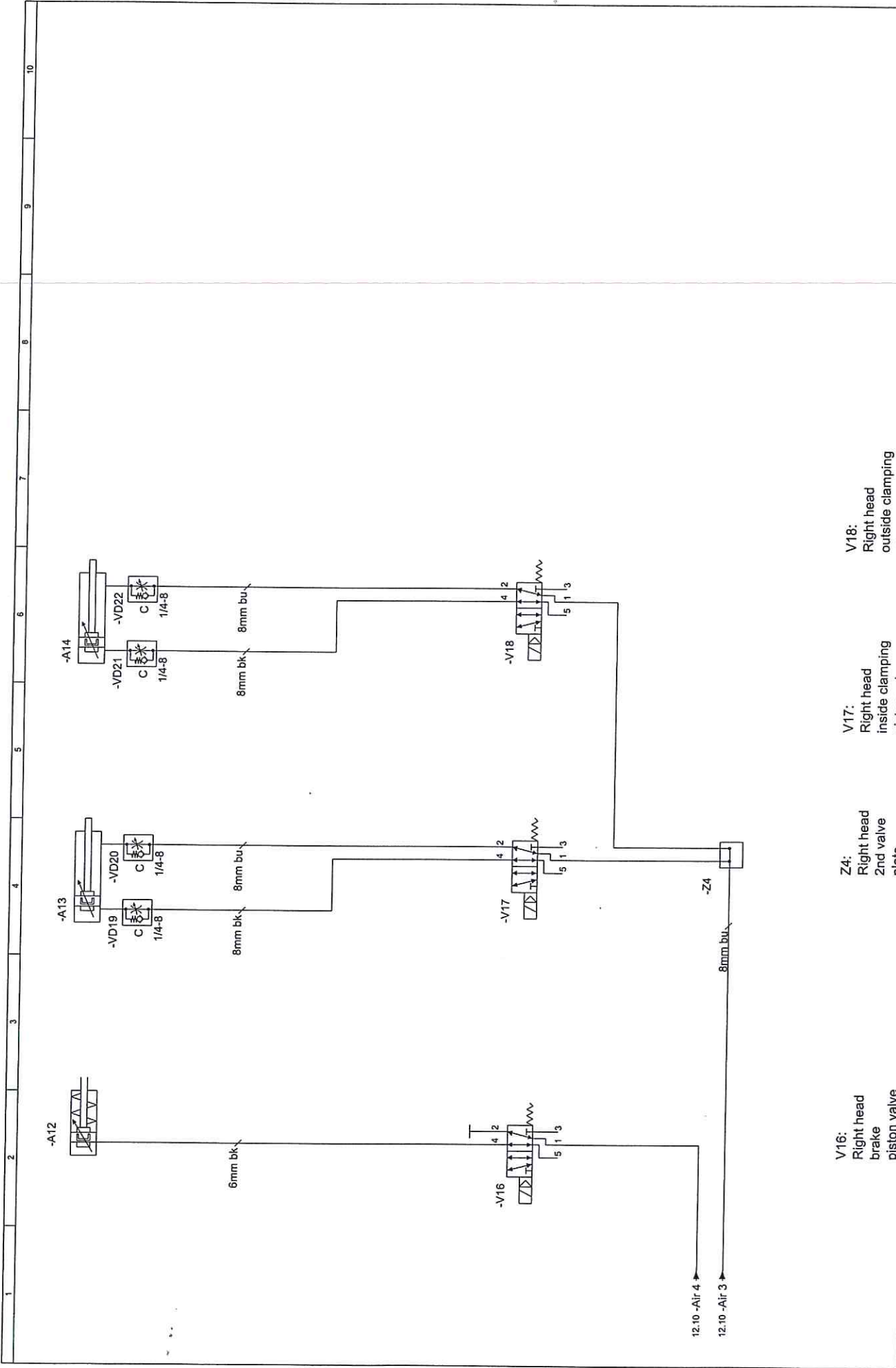
- ZZ: Left head 2nd valve plate
- V1: Left head inside clamping piston valve
- V2: Left head outside clamping piston valve

Page Designation		Left head pneumatic circuit connections - 2					
Drawing Number	241 02 002	Plant	=AP1	Location	+STZ	Page Number	11
Revision Number		Language	ENGLISH	Total Page			20



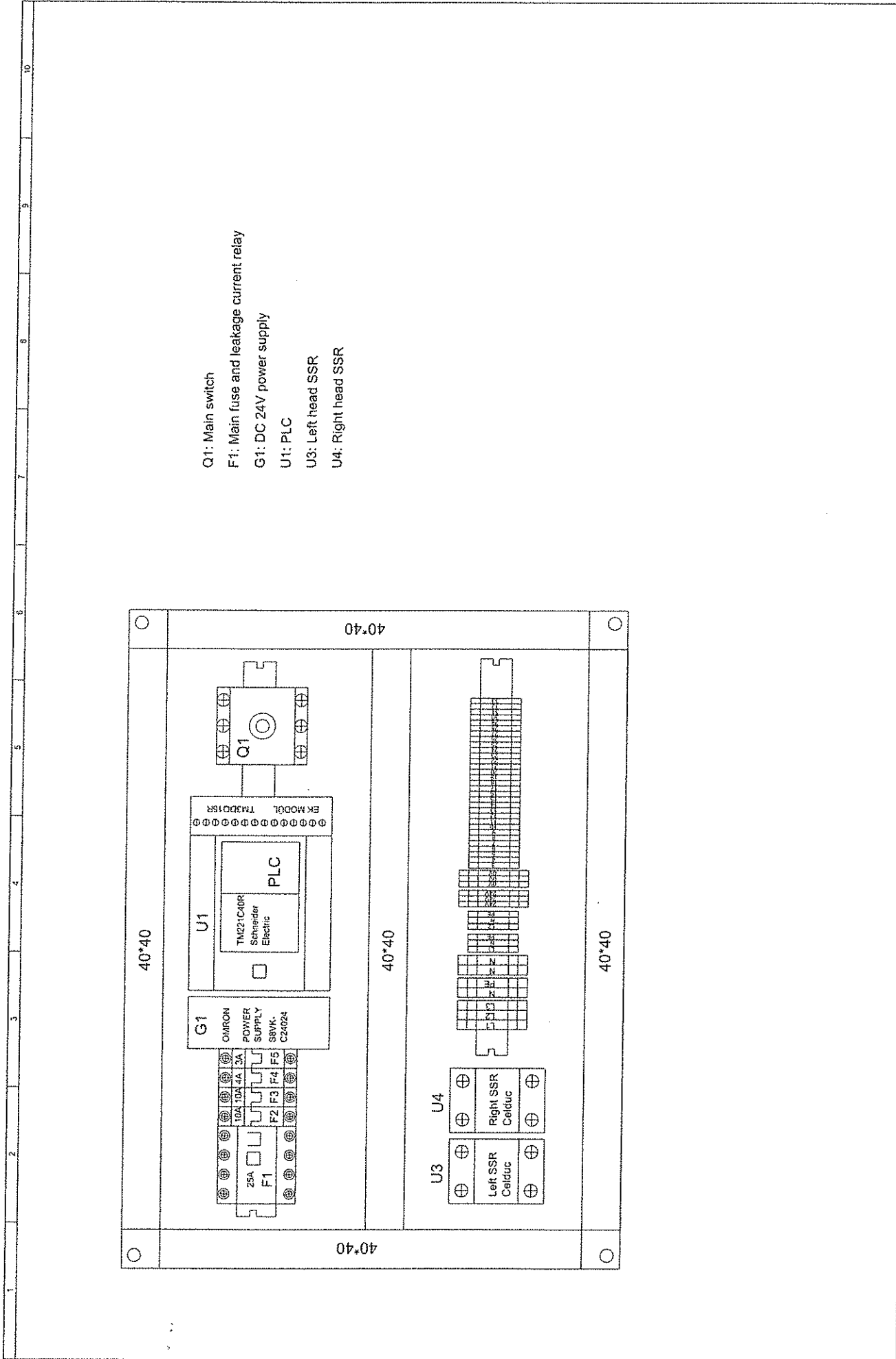
Page Designation Right head pneumatic circuit connections - 1			
Drawing Number	Plant	Location	Page Number
241 02 003	=AP1	+ST2	12
Revision Number	Language	Total Page	
	ENGLISH	20	

- V9: Right head table piston 1st pressure valve
- V10: Right head table piston 2nd pressure valve
- Z3: Right head 1st valve plate
- V11: Right head profile stopping piston valve
- V12: Right head heater piston forward valve
- V13: Right head heater piston right direction valve
- V14: Right head frame compression piston valve
- V15: Right head clamping pistons inactive valve



- V16: Right head brake piston valve
- Z4: Right head 2nd valve plate
- V17: Right head inside clamping piston valve
- V18: Right head outside clamping piston valve

Page Designation			
Drawing Number	Plant	Location	+ST2
241 02 004	=AP1	ENGLISH	
Revision Number	Language	Page Number	Total Page
		13	20



- Q1: Main switch
- F1: Main fuse and leakage current relay
- G1: DC 24V power supply
- U1: PLC
- U3: Left head SSR
- U4: Right head SSR

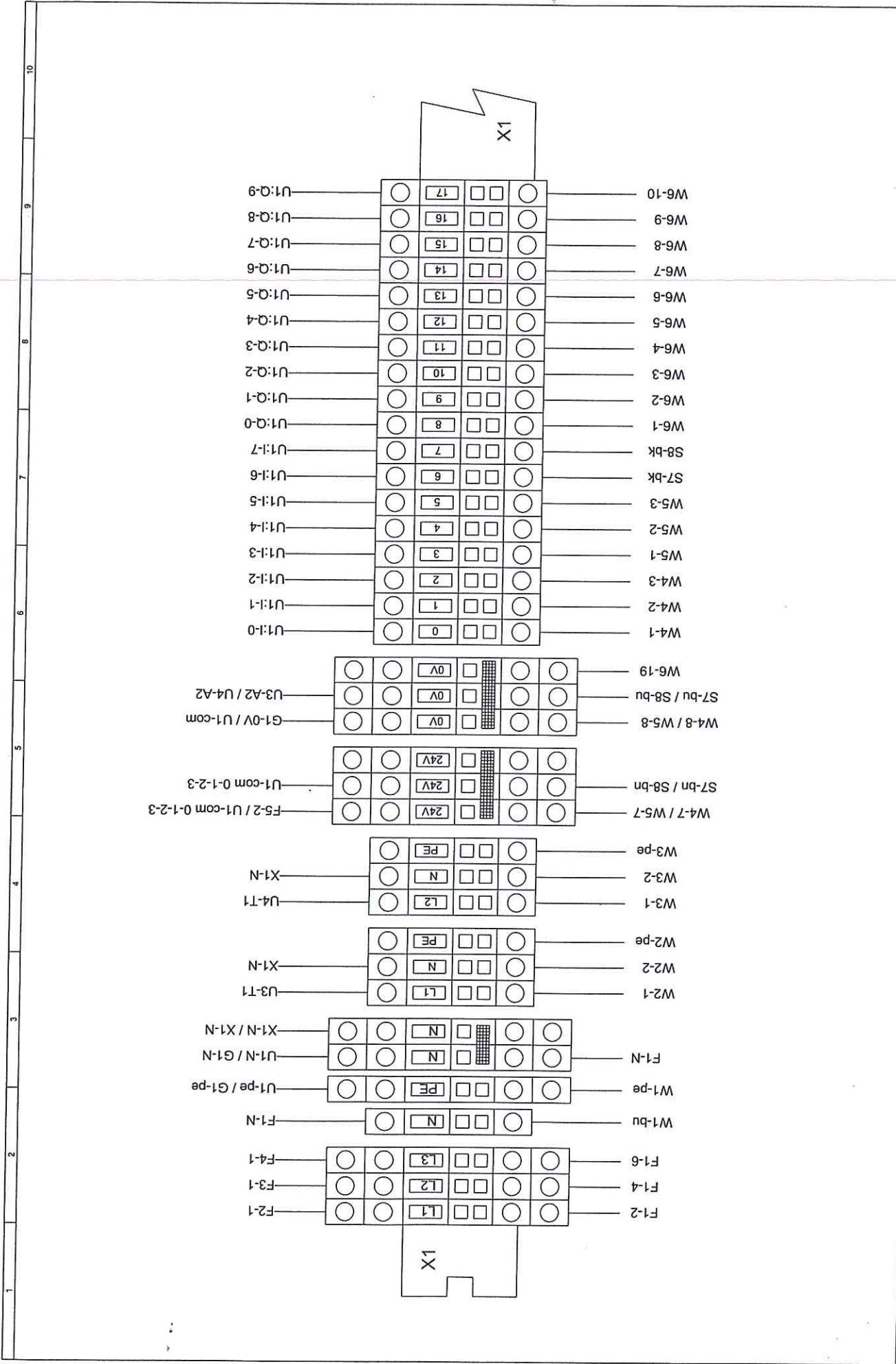
Page Designation		Electrical cabinet layout	
Drawing Number	241 03 001	Plant	-AP1
Revision Number		Location	+ST3
		Language	ENGLISH
		Page Number	14
		Total Page	20

USED CABLES AND LENGTHS

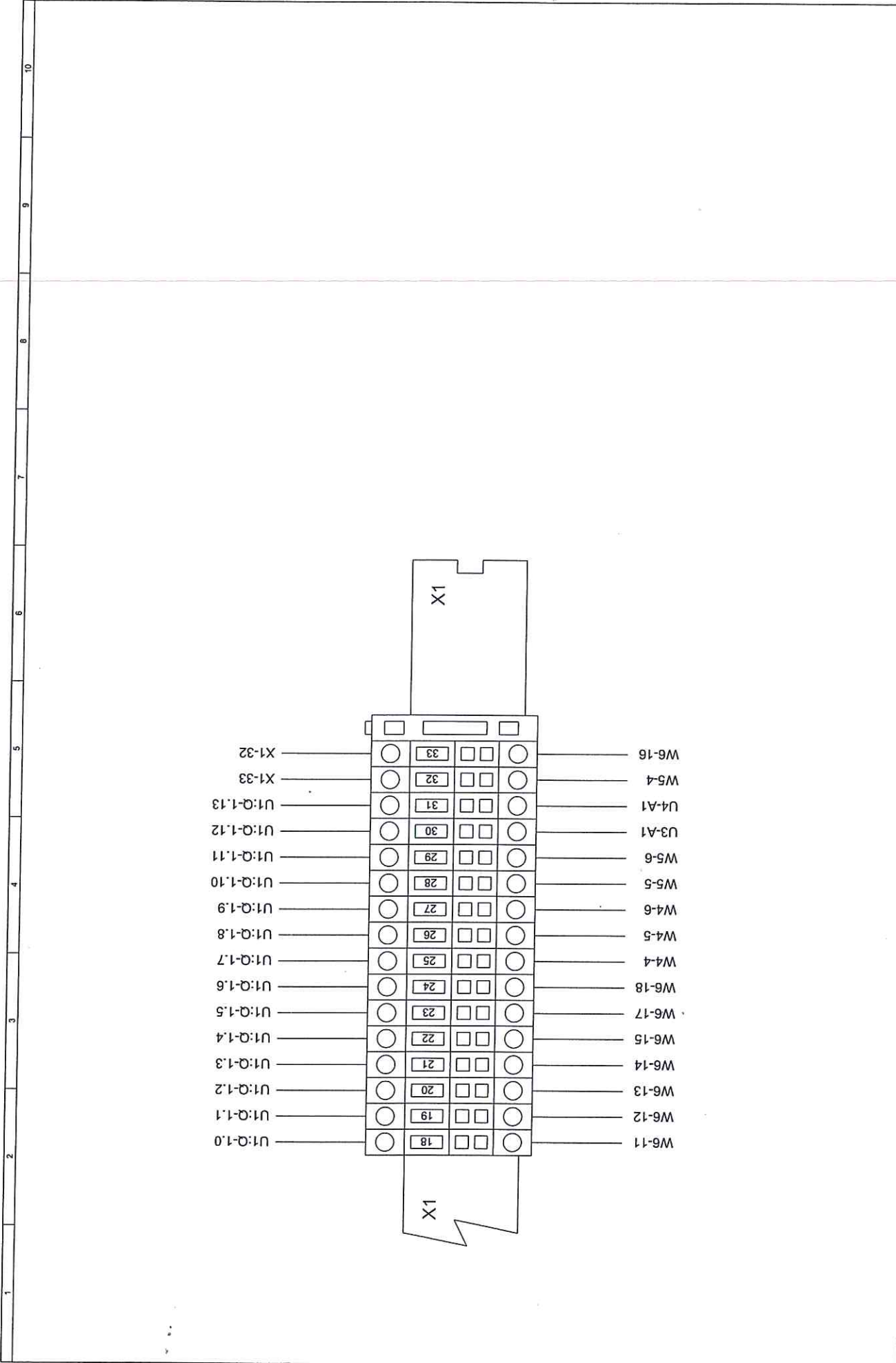
CABLE NO	EXPLANATIONS	CROSS-SECTION	LENGTH	DESTINATION	DESTINATION 2
W1	Main power cable	5*2.5mm	7000mm	P1	Q1
W2	Left head heater resistance cable	3*1.5mm	2000mm	X1	P2
W3	Right head heater resistance cable	3*1.5mm	6000mm	X1	P3
W4	Left head command cable	10*0.75mm	3000mm	X1	Left head buttons
W5	Right head command cable	10*0.75mm	7000mm	X1	Right head buttons
W6	Valve group command cable	20*0.75mm	2000mm	X1	Valve group
W7	Ethercat cable	8*0.22mm	3000mm	U1	U2
W8	Left head for the heater thermocouple cable	2*0.75mm	2000mm	U1	P2
W9	Right head for the heater thermocouple cable	2*0.75mm	6000mm	U1	P3

TERMINAL GROUPS AND CONNECTION POINTS	
NAME	EXPLANATIONS
X1	Electrical cabinet terminal block
P1	Machine energy plug
P2	Connection socket for the left head heater resistance
P3	Connection socket for the right head heater resistance

DISCLOSURES OF ABBREVIATIONS	
NAME	EXPLANATIONS
Q	Main switch
F	Auto fuse
U	Device box
W	Cable
K	Contact / Relay / Coil
Y	Valve coil
S	Sensor / Switch
X	Terminal group
P	Plug / Socket
G	Power supply
M	Motor
E	Lamp
ENC	Linear encoder
C	Conditioner
V	Valve
Z	Valve plate
A	Piston
RM	Regulator and Manometer
VD	Air flow control valve
bk	Black
bn	Brown
og	Orange
ye	Yellow
bu	Blue
d-bu	Dark blue
wh	White
rd	Red
gn	Green
pn	Pink
ye-gn	Yellow-green



Page Designation	Electrical cabinet terminal block map (X1) - 1		
Drawing Number	Plant	Location	+ST3
Revision Number	241 03 003		
	Language	ENGLISH	
	Page Number	16	Total Page
		20	



Page Designation		Electrical cabinet terminal block map (X1) - 2	
Drawing Number	Plant	Location	+ST3
241 03 004	=AP1		
Revision Number	Language	Page Number	Total Page
	ENGLISH	17	20

CONTROL CIRCUIT CONNECTIONS LIST - 1								
NAME	CONNECTION LOCATION - 1	1st CABLE INFORMATION	CONNECTION LOCATION - 2	2nd CABLE INFORMATION	CONNECTION LOCATION - 3	3rd CABLE INFORMATION	CONNECTION LOCATION - 4	EXPLANATIONS
S1	U1:I-0	0.75mm red	X1-0	W4-1	S1-2			Left head emergency stop button
S2	U1:I-1	0.75mm red	X1-1	W4-2	S2-4			Left head start button
S3	U1:I-2	0.75mm red	X1-2	W4-3	S3-4			Left head clamping button
S4	U1:I-3	0.75mm red	X1-3	W5-1	S4-2			Right head emergency stop button
S5	U1:I-4	0.75mm red	X1-4	W5-2	S5-4			Right head start button
S6	U1:I-5	0.75mm red	X1-5	W5-3	S6-4			Right head clamping button
S7	U1:I-6	0.75mm red	X1-6	3*0.34mm-bk	S7-bk			Left head heater piston backward switch
S8	U1:I-7	0.75mm red	X1-7	3*0.34mm-bk	S8-bk			Right head heater piston backward switch
Y1	U1:Q-0	0.75mm red	X1-8	W6-1	Y1-1			Left head inside clamping piston valve coil
Y2	U1:Q-1	0.75mm red	X1-9	W6-2	Y2-1			Left head outside clamping piston valve coil
Y3	U1:Q-2	0.75mm red	X1-10	W6-3	Y3-1			Left head table piston 1st pressure valve coil
Y4	U1:Q-3	0.75mm red	X1-11	W6-4	Y4-1			Left head table piston 2nd pressure valve coil
Y5	U1:Q-4	0.75mm red	X1-12	W6-5	Y5-1			Left head profile stoping piston valve coil
Y6	U1:Q-5	0.75mm red	X1-13	W6-6	Y6-1			Left head heater piston forward valve coil
Y7	U1:Q-6	0.75mm red	X1-14	W6-7	Y7-1			Left head heater piston right direction valve coil
Y8	U1:Q-7	0.75mm red	X1-15	W6-8	Y8-1			Left head clamping pistons inactive valve coil
Y9	U1:Q-8	0.75mm red	X1-16	W6-9	Y9-1			Right head table piston 1st pressure valve coil
Y10	U1:Q-9	0.75mm red	X1-17	W6-10	Y10-1			Right head table piston 2nd pressure valve coil
Y11	U1:Q-1.0	0.75mm red	X1-18	W6-11	Y11-1			Right head profile stoping piston valve coil
Y12	U1:Q-1.1	0.75mm red	X1-19	W6-12	Y12-1			Right head heater piston forward valve coil
Y13	U1:Q-1.2	0.75mm red	X1-20	W6-13	Y13-1			Right head heater piston right direction valve coil
Y14	U1:Q-1.3	0.75mm red	X1-21	W6-14	Y14-1			Right head frame compression piston valve coil
Y15	U1:Q-1.4	0.75mm red	X1-22	W6-15	Y15-1			Right head clamping pistons inactive valve coil
Y16	U1:Q-1.5	0.75mm red	X1-23	W6-16	Y16-1			Right head inside clamping piston valve coil
Y17	U1:Q-1.6	0.75mm red	X1-24	W6-17	Y17-1			Right head outside clamping piston valve coil
H1	U1:Q-1.7	0.75mm red	X1-25	W4-4	H1-A			Left head start button lamp
H2	U1:Q-1.8	0.75mm red	X1-26	W4-5	H2-A			Left head clamping button lamp
H3	U1:Q-1.9	0.75mm red	X1-27	W4-6	H3-A			Left head error lamp
H4	U1:Q-1.10	0.75mm red	X1-28	W5-5	H4-A			Right head start button lamp
H5	U1:Q-1.11	0.75mm red	X1-29	W5-6	H5-A			Right head clamping button lamp

CONTROL CIRCUIT CONNECTIONS LIST - 2								
NAME	CONNECTION LOCATION - 1	1st CABLE INFORMATION	CONNECTION LOCATION - 2	2nd CABLE INFORMATION	CONNECTION LOCATION - 3	3rd CABLE INFORMATION	CONNECTION LOCATION - 4	EXPLANATIONS
U3	U1:Q-1.12	0.75mm red	X1-30	0.75mm red	U3-A1			Left head solid state relay
U4	U1:Q-1.13	0.75mm red	X1-31	0.75mm red	U4-A1			Right head solid state relay
S9	X1-33	0.75mm red	X1-32	W5-4	S9-4			Right head brake button
Y18	X1-32	0.75mm red	X1-33	W6-18	Y18-1			Right head brake piston valve coil

1		2		3		4		5		6		7		8		9		10	
INPUTS										OUTPUTS									
Input no	Modul no	Connect no	Name	Explanations	Output no	Modul no	Connect no	Name	Explanations										
I-0.0	I-0	X1-0	S1	Left head emergency stop button	Q-0.0	Q-0	X1-8	Y1	Left head inside clamping piston valve coil										
I-0.1	I-1	X1-1	S2	Left head start button	Q-0.1	Q-1	X1-9	Y2	Left head outside clamping piston valve coil										
I-0.2	I-2	X1-2	S3	Left head clamping button	Q-0.2	Q-2	X1-10	Y3	Left head table piston 1st pressure valve coil										
I-0.3	I-3	X1-3	S4	Right head emergency stop button	Q-0.3	Q-3	X1-11	Y4	Left head table piston 2nd pressure valve coil										
I-0.4	I-4	X1-4	S5	Right head start button	Q-0.4	Q-4	X1-12	Y5	Left head profile stoping piston valve coil										
I-0.5	I-5	X1-5	S6	Right head clamping button	Q-0.5	Q-5	X1-13	Y6	Left head heater piston forward valve coil										
I-0.6	I-6	X1-6	S7	Left head heater piston backward switch	Q-0.6	Q-6	X1-14	Y7	Left head heater piston right direction valve coil										
I-0.7	I-7	X1-7	S8	Right head heater piston backward switch	Q-0.7	Q-7	X1-15	Y8	Left head clamping pistons inactive valve coil										
I-0.8	I-8				Q-0.8	Q-8	X1-16	Y9	Right head table piston 1st pressure valve coil										
I-0.9	I-9				Q-0.9	Q-9	X1-17	Y10	Right head table piston 2nd pressure valve coil										
I-0.10	I-10				Q-0.10	Q-10													
I-0.11	I-11				Q-0.11	Q-11													
I-0.12	I-12				Q-0.12	Q-12													
I-0.13	I-13				Q-0.13	Q-13													
I-0.14	I-14				Q-0.14	Q-14													
I-0.15	I-15				Q-0.15	Q-15													
I-0.16	I-16				Q-1.0	0	X1-18	Y11	Right head profile stoping piston valve coil										
I-0.17	I-17				Q-1.1	1	X1-19	Y12	Right head heater piston forward valve coil										
I-0.18	I-18				Q-1.2	2	X1-20	Y13	Right head heater piston right direction valve coil										
I-0.19	I-19				Q-1.3	3	X1-21	Y14	Right head frame compression piston valve coil										
I-0.20	I-20				Q-1.4	4	X1-22	Y15	Right head clamping pistons inactive valve coil										
I-0.21	I-21				Q-1.5	5	X1-23	Y16	Right head inside clamping piston valve coil										
I-0.22	I-22				Q-1.6	6	X1-24	Y17	Right head outside clamping piston valve coil										
I-0.23	I-23				Q-1.7	7	X1-25	H1	Left head start button lamp										
					Q-1.8	8	X1-26	H2	Left head clamping button lamp										
					Q-1.9	9	X1-27	H3	Left head error lamp										
					Q-1.10	10	X1-28	H4	Right head start button lamp										
					Q-1.11	11	X1-29	H5	Right head clamping button lamp										
					Q-1.12	12	X1-30	U3	Left head solid state relay										
					Q-1.13	13	X1-31	U4	Right head solid state relay										
					Q-1.14	14													
					Q-1.15	15													