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LIST OF SPARE PART.

I. USAGE AND FEATURES

C-5IIB blowing machine is suitable to produce many different shaped bottles from PET, PC and PP perform, It can blow every shape mineral, beverage and other kind bottle, adopts insert pre-heater to heat the perform, add its clamping unit equipped with double bend rod to ensure the mould is not moved even on high air pressure. the air system is divided pneumatic action and bottle blowing, and with two large volume air receiving tank(24), (25), in order to provide high pressure to blowing integrity bottle, also equipped with muffler (20) and oil pump (18), in order to reduce noise, and friction. The machine can be operated in manual mode and semi-auto mode, the machine is small, low cost, easy and safe to operate.

II. WORKING PRINCIPLES AND MAIN STRUCTURE

1. Working principles

The machine consists of two parts: The blowing unit and revolving pre-heater, operation is according to two stages. Firstly PET performs are heated by the pre-heater until it becomes soft and elastic, then put into the blowing mould and been blown to designed shape, the perform is treated by stretching and blowing, increase its hardness and transparency.

2. Main structure

A. Mould clamping part

This part consists of mould-clamping electromagnetic valve, middle-fixed-position plate, fore-mould-plate, back fixed-position plate, mould-clamping cylinder, and bearing sliding frame. In operation magnetic valve induces air to push the cylinder piston. Which drives the bearing sliding frame making the moving mould-plate move back and forth, opening and clamping the mould.

B. Stretching and blowing unit

It consists of stretching cylinder, stretching bar, sealing cylinder, stretching electromagnetic valve, blowing electromagnetic valve, and compressed air system. At work stretching electromagnetic valve releases air to push the cylinder piston and make stretching bar sealing cylinder drop on the clamping perform. Sealing cylinder seals the mouth of the perform, the stretching bar pushes the elastic perform longitudinally, meanwhile high-pressure blowing valve blows the perform through sealing cylinder.

C. Pre-heater

Temperature controller board consists 6 section of voltage controller and 1 section of temperature device to control 6 section of heating lamp, the voltage can be adjusted according to requirement of processing.

D. Electrical part and air circuit.

Electrical box face equipped with 3 voltage metre and 3 temperature controller device to control temperature of 1-3 heating zone

3 time delay seriously control time of clamping, blowing and delay blowing, can select manual mode or automatic mode, its detail please look its electric diagram and air circuit diagram.

Note: If adopt microcomputer controller, please look its manual book mode.

III. Main technical data

1. Power consumption:	3KW/220V/380V
Excluding air compressor	
2. Clamping force:	100KN
3. Stretching rod stroke:	360mm
4. Moving mould-plate stroke:	200mm
5. Maximum thickness of mould:	160-240MM
6. Maximum width of mould:	380mm
7. Diameter of stretching rod:	φ 12mm
8. Max. bottle diameter:	180mm
9. Max. bottle height:	340mm
10. Max bottle volume:	5L
11. Working air pressure:	0.8Mpa
12. Blowing air pressure:	0.8-1.5Mpa

VI. Operation

1. Blowing-mould installation

First, install half of the mould (the part without bottle) on the fore plate (4) with four pairs of clip and bolts. The top side of the mould, should parallel with the top side of the fore plate. The mould should be horizontally on the canter of the fore plate. Tighten the four bolts. Then put the other half of the blowing mould on to the already

position–fixed half. Turn on then machine and clamp the moulds tight, fasten the latter half of the mould with fore pairs of clip and bolts on the middle plate. Adjust the adjusting bolt on the back plat (5) to get the mould–clamping connecting rod at horizontal line.

2.Stretching rods adjusting

Stretching rods (1) should be upright and the same central line with each blowing mould cavity. The rods must extend for the same length, and reach firmly to the centre of the bottom of each mould cavity. In the meantime the sealing cylinders (2) and sealing rings at the upper part of the stretching rods should be positioned well to seal the mouths. During adjustment the adjusting bolts at the upper ends of the stretching rods and the adjusting bolts at the back of the sealing cylinders could be adjusted to reset the stretching rods lengthwise and to left/right. In case the connects the vertical cylinder (14) to the machine frame, after the whole adjustment is completed fasten this bolt.

3.Blowing–mould Installation

Turn on power of pre–heater and main blowing machine, and connect air compressor, select position in manual mode, and do action of clamping, stretching, blowing step by step, inspect every action is in gear or not, and then install the mould, adjust stretching bar and main blowing machine, when the machine's working is OK, select automatic mode, when press start key (29) on front moving plate of the blowing machine the blowing machine do every action automatically. Equipped with emergency key (28) on the front moving plate (4), can stop the machine is depended on fact situation, the product counter (26) can count piece of product, also equipped with pressure metre of blowing (21) and pressure metre of action (22) on upper of the blowing machine.

4. 6 heating zone's temperature can be adjusted are depended on the perform, when blow perform firstly should test it in pre–heat and get voltage of each section, when test running the blowing machine put few pieces perform to blow for testing . the perform is not shown white and elastic feeling when take out it from pre–heater, thus can blow it. After blowing the bottle is smooth of hardness and softness, till reach requirement of standard, and then register specification of every section's voltage for future's reference, is due to kind of preform is different and local weather is different also, so difficult to supply serious data to the client, only depend on fact operating to get detail specification.

V. MAINTENANCE AND TROUBLE SHOOTING

1. Maintenance

Most faults of the machine are caused by less maintenance and/or lack of routine checking. Good maintenance is very important in prolonging the life of the machine and avoiding accidents. Major maintenance includes:

- A. Often drain the water divider.
- B. Ensure the oil atomizer never lack of #20 machine oil.
- C. Check the stroke-switch regularly.
- D. Keep the machine clean, which will prevent damage of the electrical

components.

2. Trouble shooting

a. Problem: Mould clamping does not work.

Possible reason: Electric magnetic Valve power off circuit.

Resolving method: Check circuit and starting switch.

Possible reason: Air pressure is too low

Resolving method: Increase air pressure of cylinder.

Possible reason: Air cylinder sealing ring leaks.

Resolving method: Change a new ring.

b. Problem: No stretching action or stretches too slow.

Possible reason: Air pressure is not sufficient.

Resolving method: Increase air pressure.

Possible reason: Air cylinder leak.

Resolving method: Change new sealing ring for the cylinder.

c. Problem: No blowing action

Possible reason: No power to high pressure blowing valve.

Resolving method: Check circuit and blowing valve.

Possible reason: Air pipe or connection loose.

Resolving method: Adjust or change the air pipe.

VI. BASIC TECHNICS & REQUIREMENT OF BLOWING

We provide no precise constant tetchiness, data due to the fact that preforms have different weights and wall thickness, the barrels are of different shapes and the work site temperatures are also various. We recommend our clients to discover the optimal technical data in actual processing.

However we provide the following information:

Pre-heating: pre-heating plays a vital role in the bottle quality. The performs are suitable for blowing when they are out of the pre-heater, and the perform should be softness and elastic feeling from top to bottom, (No whitening).

However, we suggest you keep your patience since you have to adjust the heating voltage, according to the bottle shape so as to get the suitable time, in which the

temperature of each section could soften the performs (about 10 mints). When you are successful, keep a record of the respective voltage of each section for future references.

A complete blowing cycle includes Mould Clamping, Stretching, Slight Blowing, Blowing and Opening, every action's setting should be according to fact situation.

1. Clamping time

The clamping time is for the complete procedure of each action, i.e. including the delay blowing time, slight-blowing and blowing time, The generally setting time is 4-8 seconds.

2. Delay blowing time

To ensure a suitable proportion between vertical and horizontal stretching so as to improve the bottle quality, a delay in blowing is necessary. The delay time depends on the perform length and the bottle shape. If a too long delay occurs, the lines on the upper part of the bottle could work improperly or feels too thin. If a too short delay occurs, the bottle could break.

3. Slight blowing time

The slight blowing time depends on the bottle shape, when the neck part of bottle is more thinner wanted, slight blow longer, in the contrary-shorter. Generally time setting between 0.2-0.5 seconds, the pressure at 0.3-0.8Mpa.

4. Blowing time

The blowing depends on the bottle capacity. For bottles with volume less than 1kg, the time setting is around 2 seconds. The blowing time increases with the bottle volume.

5. How to decide the suitable temperature for blowing

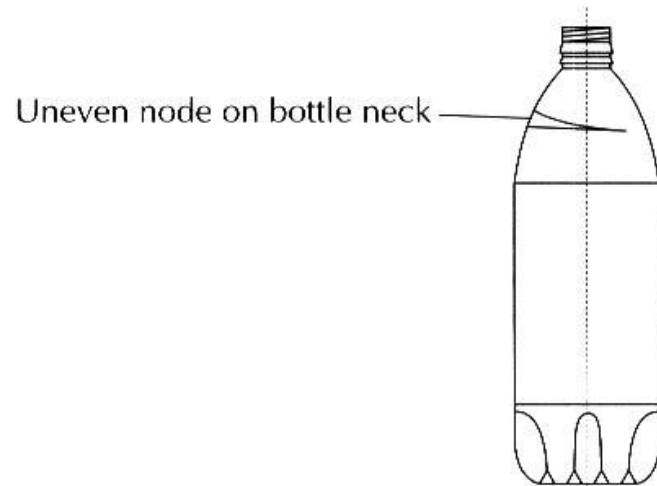
Open voltage of every section heating zone, keep oven of pre-heater on warm-up situation, till the temperature reached setting's, put one group of perform in it, herein the performs are heated in heating oven, revolved one cycle in it and came out from the heating oven, feels elastic when touch it by hand and without white on it, thus prove the preform's temperature have already reached requirement of blowing, feels hard when touch it by hand, prove the Perform's temperature still not reach requirement of blowing, bottle will be broken after blowing, so should do suitable adjustment for temperature, till reach best temperature and time rate.

6. How to handle abnormal bottles

There are usually 4 kinds of influences on the bottles from the stretching, blowing temperature and time:

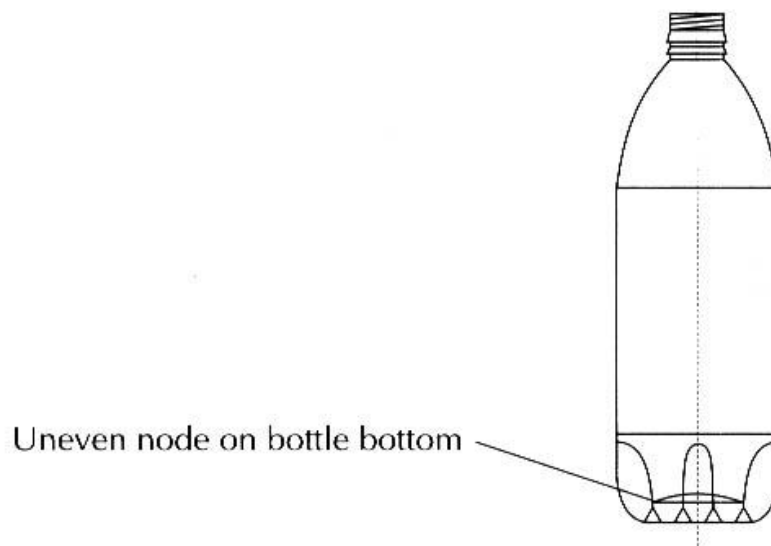
- (1)、Uneven node on bottle neck

Resolution: Increase the voltage of the infrared light of the first section. Let the preforms come out with suitable soft feeling, meanwhile decrease the delay blowing time.



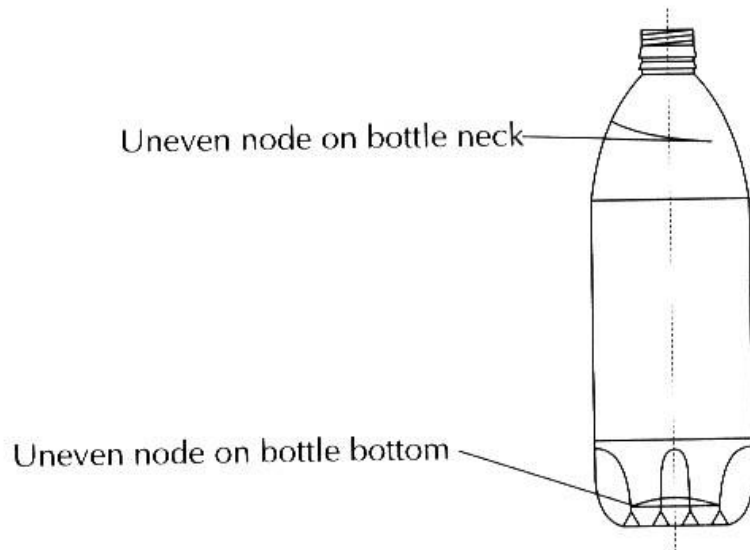
(2) Uneven node on bottle bottom

Resolution: Increase the voltage of the 8th and 9th section, Let the performs come out with suitable soft feeling, (no whitening), meanwhile, decrease the delay blowing time till the said phenomenon disappear.



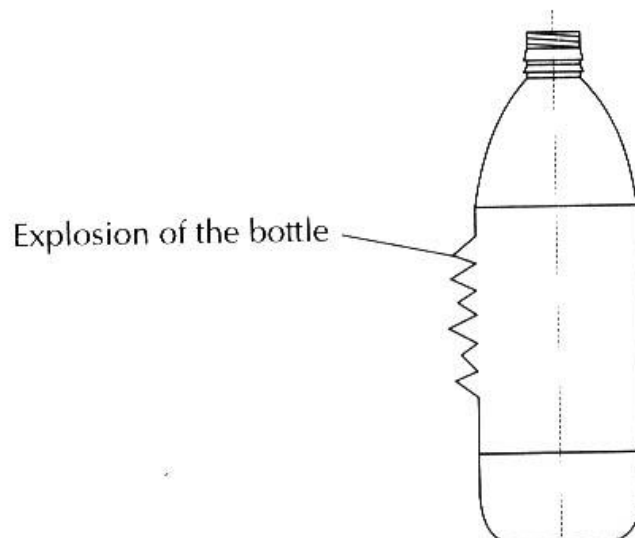
(3) A combination of the above two problems

Resolution: Increase the voltage of the infrared lights on both the neck and bottom, and decrease the voltage of the mid-positioned infrared lights. Be sure the whole performs come out with suitable soft feeling (no whitening) and decrease the delay time in a proper way.



(4) Explosion of the bottle at the initial stage

Resolution: This phenomenon means the whole body of perform does not get the needed temperature, so the whole heating zone needs higher temperature. Just increase the infrared voltage properly from the 1st to 9th section.

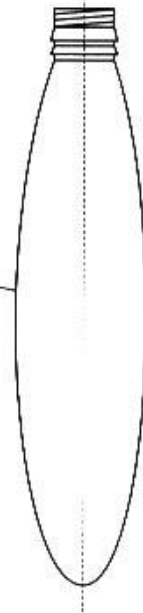


(5) The bottle is elongated but not properly shaped.

Malfunction analysis:

- a. The high-pressure valve is not open.
- b. The blowing time setting is too short.
- c. The blowing pressure is too low.
- d. The general temperature of performs are not high enough.

The preform is not blown to the proper shape



(6) Selecting Preforms

Don't mix different models of performs. We suggest you blow them by each model. Different models need different temperatures, In addition, the injection machines vary in their models and injection pressures. All of these elements influence the density of the performs and that's why we suggest you separate them, so as to guarantee the successful rate of your products.

PARAMETER OF REVOLVING PRE-HEATER FOR REFERENCE

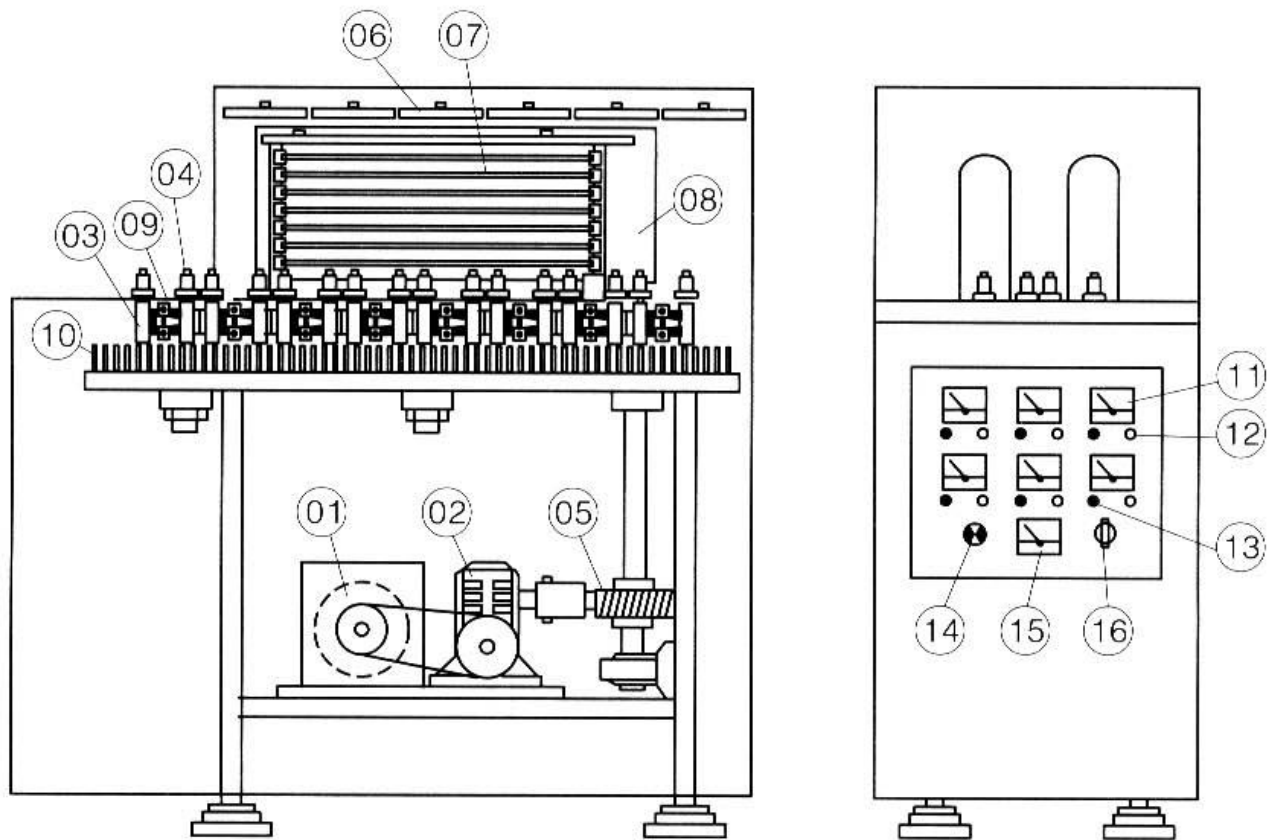
	VOLTAGE	SECTION NO.1-2	SECTION NO.3-4	SECTION NO.5-6
REFERENCE PARAMETERS OF REVOTARY HEATING DEVICE	(V)	130V-160V	100V-130V	60V-90V
	ELECTRIC CURRENT:8A~10A			
	VOLTAGE REGULATOR:50V~65V			
TIMING OF MOVEMENT	MOULD CLAMPING TIME:5~9.9 SECOND			
	BLOWING TIME:3~4 SECOND			
	BLOWING DELAY TIME:0.5~0.7 SECOND			

Note: The Control Of Each Time Between Each Movement, Is Very Important For The Quality. Apart From This Data To Your Reference, The Customs Must Have To Perfect Technological Data.

SEALING RING

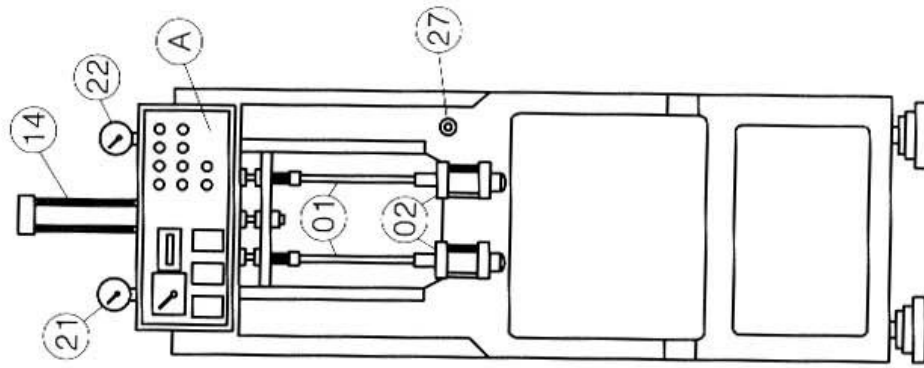
ITEM NUMBER	NAME	NUMBER & SIGN	SPECIFICATIONS	UNITS
01	SEALING CYLINDER	O	Φ65X3.1 2PCS	mm
		V	Φ20X8 2PCS	
		V	Φ63X8 2PCS	
		V	Φ34X8 2PCS	
02	STRETCHING CYLINDER	O	Φ55X3.1 2PCS	mm
		V	Φ50X8 2PCS	
		V	Φ34X8 1PCS	
03	MOULD CLAMPING CYLINDER	O	Φ85X3.1 2PCS	mm
		V	Φ80X12 2PCS	
		V	Φ34X8 1PCS	

INDEX OF DRAWING

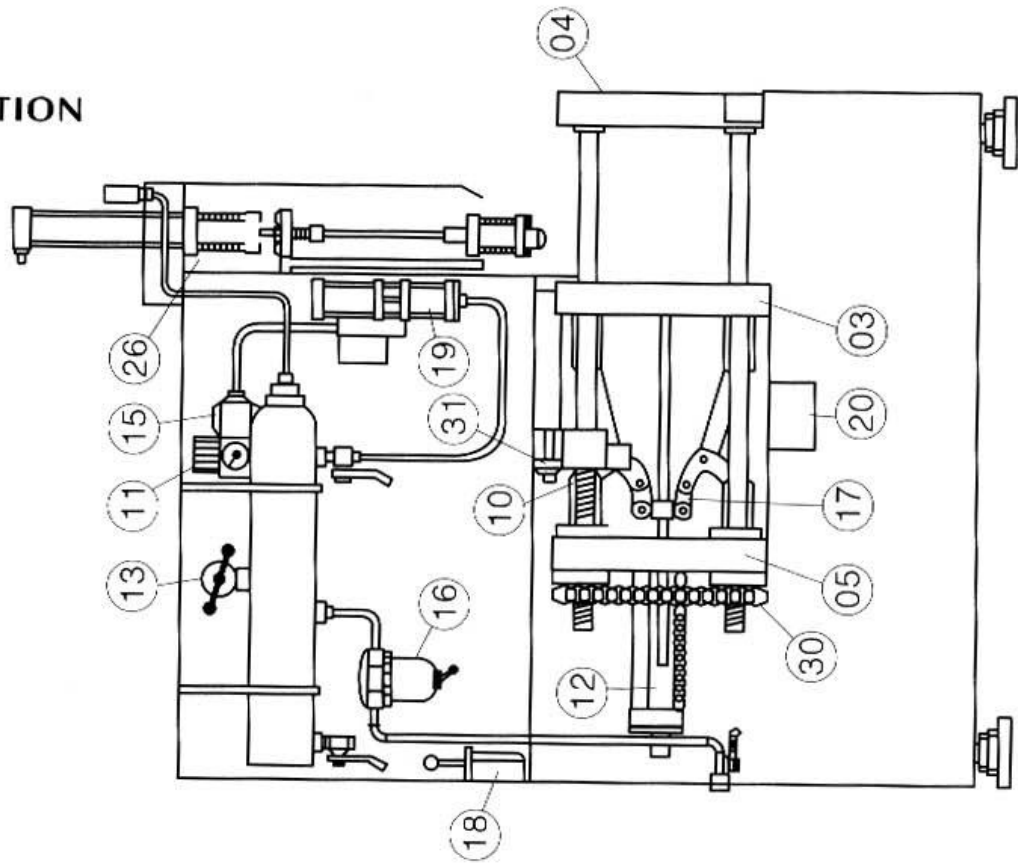


NUMBER	NAME	NUMBER	NAME
01	VARYING-SPEED MOTOR	09	UPPER CHAIN
02	TUBING GEAR BOX	10	LOWER CHAIN
03	REVOLVING TUBE HOLDER	11	VOLTAGE METER
04	PLASTIC PIPE PLUG	12	VOLTAGE SWITCH
05	LOWER CHAIN-DRIVEN GEAR	13	ADJUSTING VOLTAGE KNOB
06	INFRARED REFLECTING PLATE OF UPPER LID	14	POWER INDICATION
07	SILICA HEATING TUBE	15	CURRENT METER
08	SIDE INFRARED REFLECTING PLATE	16	POWER SWITCH

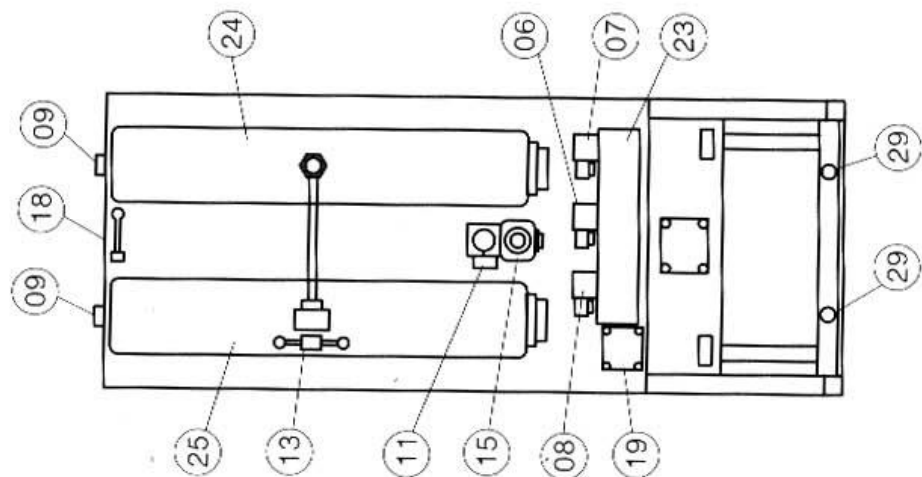
FRONT ELEVATION



SIDE ELEVATION



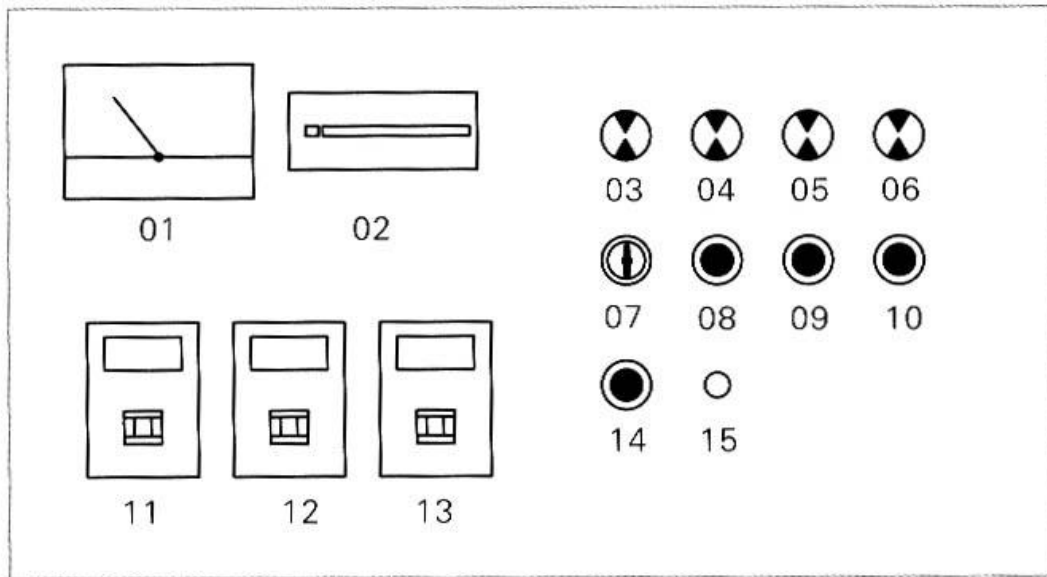
PLATFORM



SECTIONAL VIEW INDEX OF DRAWING

SEQUENCE NUMBER	NAME	SEQUENCE NUMBER	NAME
01	STRETCHING BAR	17	MACHE-MICAL TOGGLE CONNECTING ROD
02	SEALING CYLINDER	18	OIL PUMP
03	FIXED MIDDLE MOULD-PLATE	19	CYLINDER
04	FORE MOVING MOULD-PLATE	20	SILENCER
05	FIXED BAKE MOULD-PLATE	21	BLOWING RESSURE
06	CLAMPING ELECTROMAGNETIC VALVE	22	WORKING PRESSURE
07	BLOWING ELECTROMAGNETIC VALVE	23	VALVE
08	STRETCHING ELECTROMAGNETIC VALVE	24	LOW PRESSURE STORAGE TANK
09	COMPRESSED ARE INLET	25	HIGH PRESSURE STORAGE TANK
10	STROKESWITCH	26	CONNCETING SCREW
11	LOW PRESSURE REDUCER VALVE	27	EMERGENCY STOP
12	CLAMPING CYLINDER	28	
13	HIGH PRESSURE REDUCER VALVE	29	STARTING SWITCH
14	STRETCHING CYLINDER	30	MOULD ADJUSTING SCREW
15	OIL MIST DEVICE	31	TRETCHING ADJUSTING
16	WATER DIVIDER	A	BOX FACE

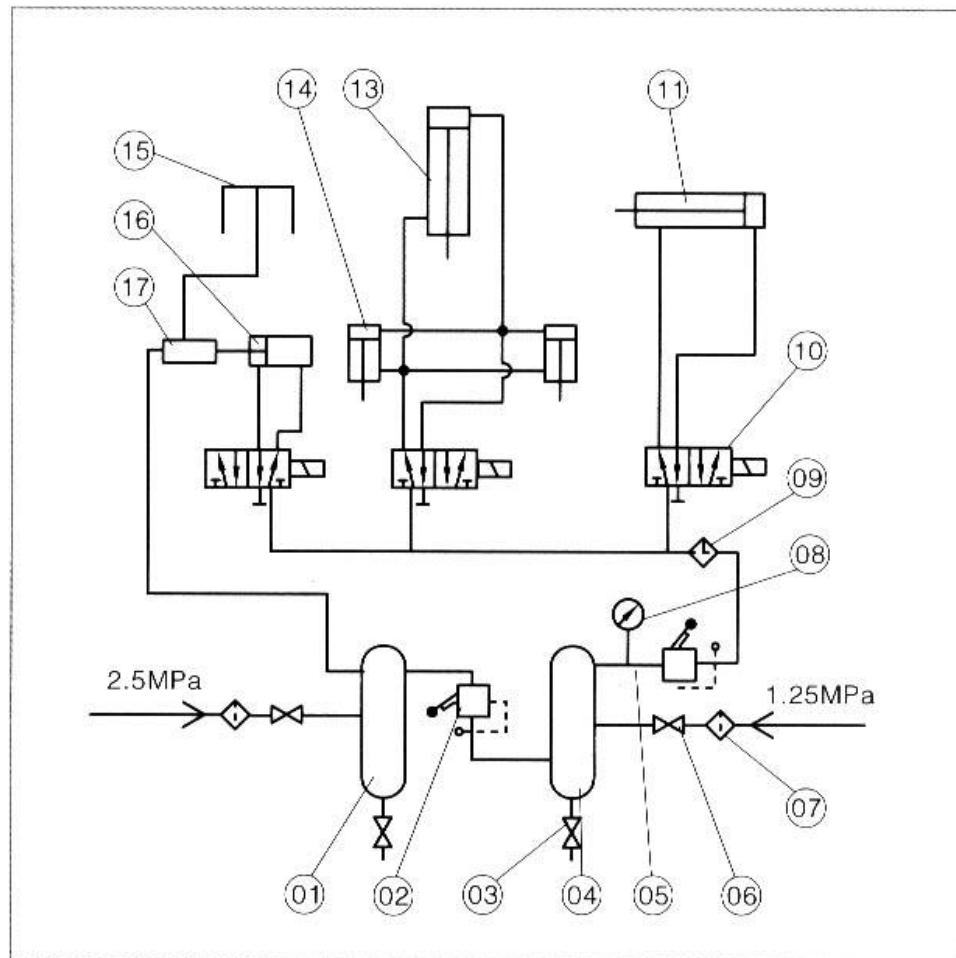
DIAGRAM OF SWITCH BOX FACE PLATE



INDEX OF DRAWING

NUMBER	NAME	NUMBER	NAME
01	CURRENT	09	START STRETCHING
02	COUNTER	10	START BLOWING
03	POWER SOURCE INDICATOR	11	MOULD CLOSING TIME
04	MOULD CLOSING	12	STRETCHING TIME
05	STRETCHING	13	BLOWING TIME
06	BLOWING	14	
07	POWER SOURCE	15	SELECTION SWITCH
08	START MOULD CLOSING		

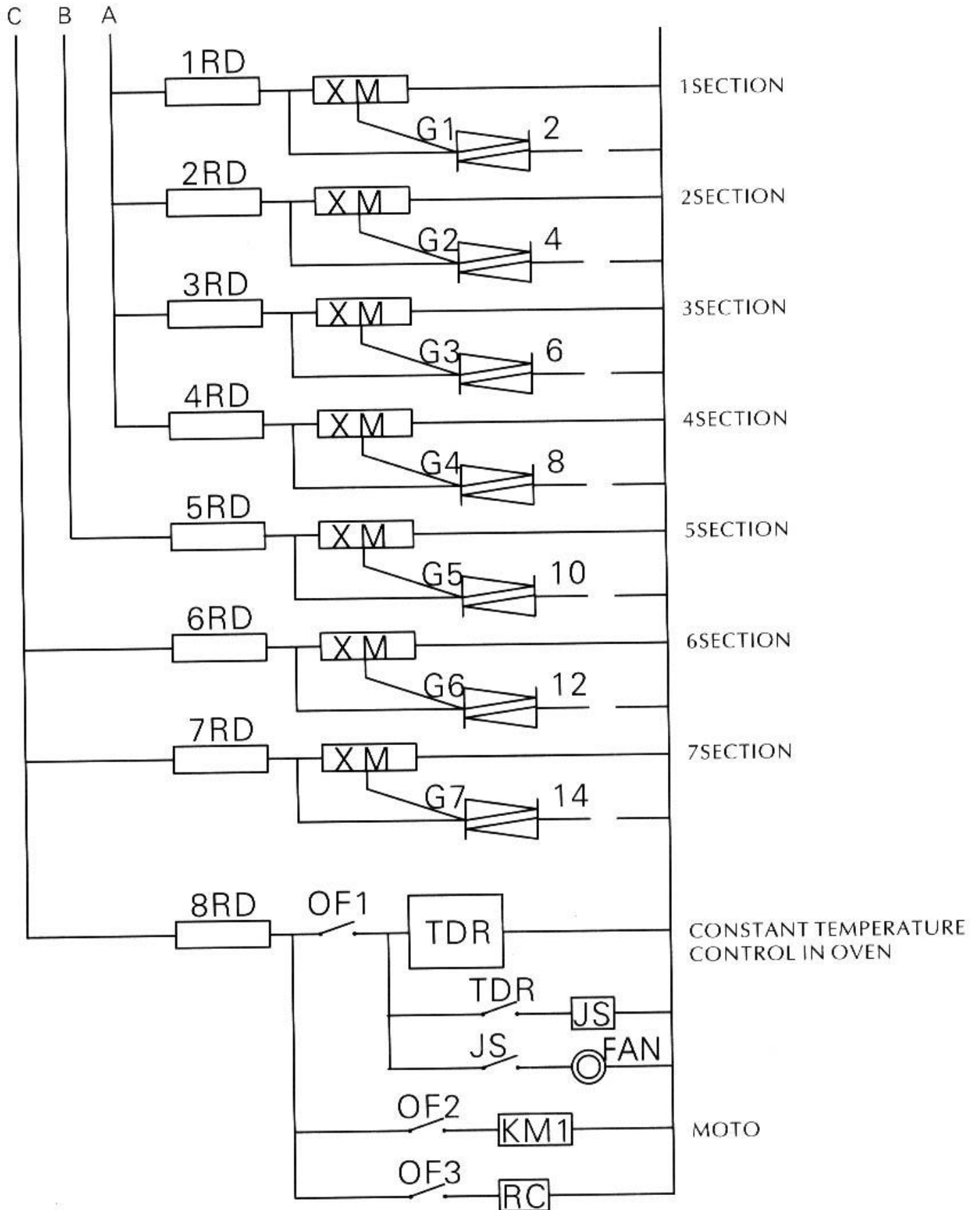
DIAGRAM OF AIR & HYDRAULIC SYSTEM



INDEX OF DRAWING

NUMBER	NAME	NUMBER	NAME		
01	HIGH PRESSURE STORAGE TANK	1	10	BI-POSITION FOUR WAY ELECTROMAGNETIC VALVE	3
02	HIGH PRESSURE REDUCER VALVE	1	11	OPEN-CLOSE MOULD CYLINDER 1	
03	ADEQUATE WATER VALVE	2			
04	LOW PRESSURE STORAGE TANK	1	13	STRETCHING CYLINDER	1
05	PRESSURE ADJUSTING VALVE	1	14	BLOWING CYLINDER	2
06	VALVE	2	15	BLOWING MOUTH	2
07	WATER DIVIDER	2	16	BLOWING VALVE CYLINDER	1
08	PRESSURE INDICATION	3	17	BLOWING VALVE	1
09	OIL PAST DEVICE	1			

DRAWING OF CIRCUIT



SPECIFICATION LIST OF PARTS

ITEM NUMBER	NUMBER AND SIGN	NAME AND SPECIFICATIONS	REMARKS
01		BLOWING CYLINDER	
02		STRETCHING CYLINDER	INNER DIR
03		CLAMPING AIR CYLINDER	
04	396	OIL MIST DEVICE	G1/2"
05	395	PRESSURE REDUCER	G1/2"
06	394	WATER DIVIDER	G1/2"
07	QLI-8	SINGLE DIRECTION THROTTLE VALVE	G1/4"
08	Q24DH-8	BI-POSITION FOUR WAY ELECTROMAGNETIC VALVE	220V/G1/4"
09	JD-L8	BI-POSITION THREE WAY ELECTROMAGNETIC VALVE	220V/G1/4"

SERIES AND SIZE OF ELECTRICAL PARTS

ITEM NUMBER	NUMBER AND SIGN	NAME	SPECIFICATIONS
01	RC	FUSE	RL-8A
02	HK	CIRCUIT BREAKER	35A
03		INDICATION LAMP	XDB-220V
04	QA	PRESS BUTTON	LA19-11
05	K	WAVE BAND SWITCH	LAY3
06	JS	TIME RELAY	BJSS20-48AMS
07	EJ	AUXILIARY RELAY	HH52P.AC220V
08	X	STROKE SWITCH	LX19-121
09	BCK	SILICON CONTROLLED TESTIFIED	RTA41 700B
10	V	METRE OF VOLTAGE	69L9-V
11	A	METRE OF CURRENT	69L9-A

MANUAL BOOK OF MICROCOMPUTER CONTROLLER

BFC-30A-C model controller equipped with big quantity of integrate circuit, and with microcomputer which includes eight section of digital tube, this controller is provided with high reliability, easy to wire connecting, small dimension, easy to operate, and keep date for long time but no need battery, this controller also has manual operating, automatic operating, time setting and product counting etc.

Turn on the controller its initial stages is manual control, total cycle time is indicated on digital tube, herein press 3 keys on controlled zone, they control clamping valve, stretching valve and blowing valve (for clamping valve with lock), 3 indicator lights on right corner of the controller show situation of 3 valves, on condition of manual situation press A/M key turn to automatic situation, meanwhile press start switch, the controller automatically do compete cycle for blowing according to setting. Whether on manual position or automatic position, so as press SET key, the controller will turn to time setting position, but action of manual or automatic are not affected.

On setting position, press STEP + or STEP-, select program of time which need to change, light tube will be moved on right or left in pane of time setting, after confirm program of time which need to change press DATA + key or DATA-key, its data will be increase 1 or reduce 1, when press DATA + key or DATA- key more 1 second, its corresponding time data will be changed continually, do like that more time till reach the requirement, and then press ESC key come back from time setting position.

Press A/M key, switch MANUAL/AUTOMATIC, CLEAR key's function is that make product to be zero, EST key's function is replacement, MODEL key's function is that select 1 cavity mould or 2cavity mould.

Otherwise the controller equipped with indicator light of input and output, turn on switch of stroke or key, its corresponding indicator light on left down corner will be shine, valve work, its corresponding indicator light on right upper corner will be shine.

TIME SETTING ON THE COMPUTER

ITEM	DESCRIPTION	RANGE OF TIME SETTING
1	TIME OF CLAMPING	0.00S~99.9S
2	TIME OF DELAY BLOWING	0.00S~99.9S
3	TIME OF SLIGHT BLOWING	0.00S~99.9S
4	TIME OF BLOWING	0.00S~99.9S

BOTHFIT CONTROL

5V

24V

RUN



TIME **COUNTER** **COUNTER**

START
STOP
MOULD FIT
SPARE

TIME SET

STEP+	STEP-	SET
DATA+	DATA-	
MODEL	CLEAR	ESC

SEMI AUTO	SHUT	S BLOWING	SPARE 1
MANUAL	STRETCH	BLOWING	SPARE 2

SETTING TIME SELECT

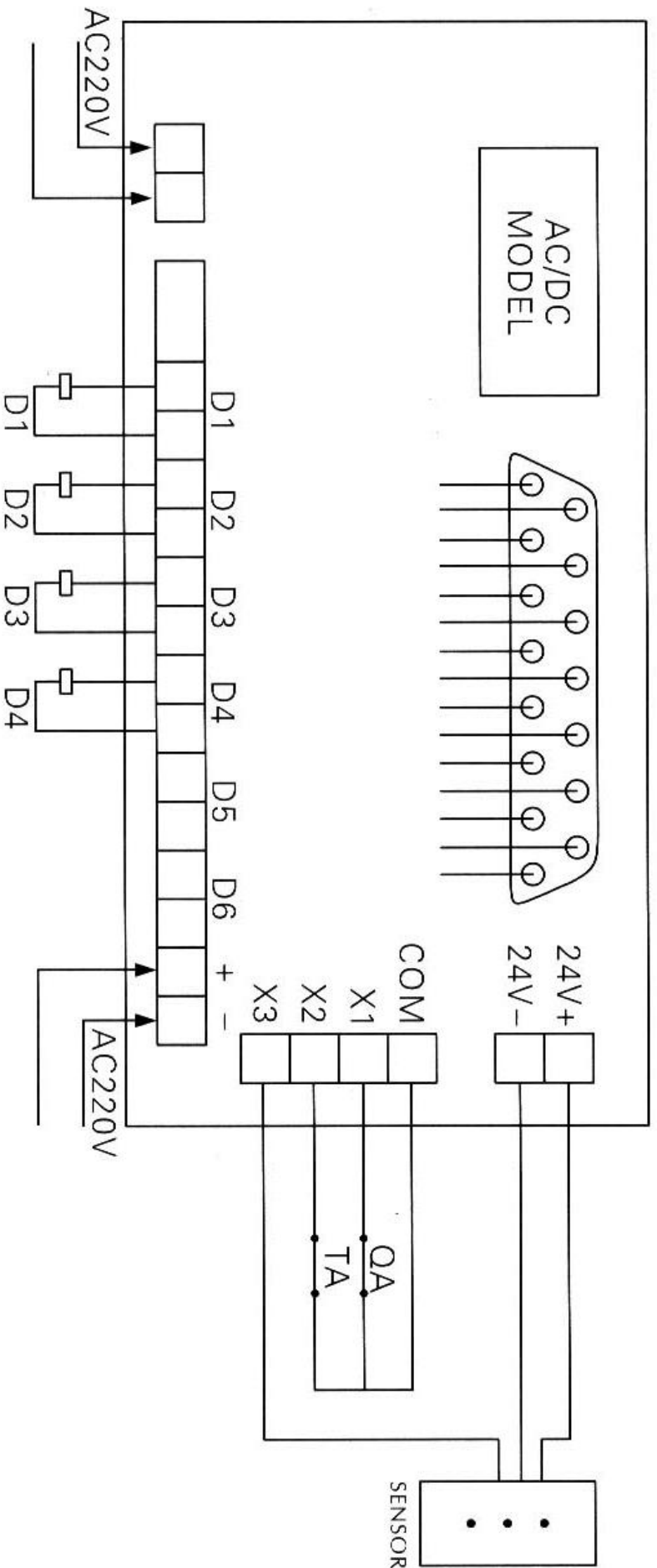
CLOSE MOULD	DELAY	S BLOWING	BLOWING	SPARE 1
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MANUAL

SHUT	F1
STRETCH	F2
BLOWING	F3

R/M
T/C
RST

MIRCO-COMPUTER'S DIRCUIT DIAGRAM



INDEX

Number	NAME
D1	CLAMPING VALVE
D2	STRETCHING VALVE
D3	LIGHT BLOWING VALVE
D4	BLOWING LIGHT
QA	START
TA	STOP
SENSOR	CLAMPING POSTION SWITCH