



**TC-420**

# **Table Top Vacuum Packaging Machine**

## **Operation Manual**

Version 6.9.1

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## **Explanation of Abbreviations**

(F) Front Seal

(LR) Left & Right Seal

(FS) Front Seal with two Hot heating band

(LRS) Left & Right Seal with two Hot heating band

# General

This owner's manual contains information relating to your Promax/ Promarks machine. It will provide you with basic information concerning both operation and maintenance of your new machine. Please read it carefully as failure to do so may result in bodily injury and / or damage to the equipment.

Please fill in the information below. You will find the information on the bill of lading and on the machines identification tag. You will need this information when ordering replacement parts or making technical inquiries.

Model # \_\_\_\_\_

Serial # \_\_\_\_\_

Ship Date: \_\_\_\_\_

Owner: \_\_\_\_\_

Location: \_\_\_\_\_

# 1. SAFETY

## 1.1 SAFETY RECOMENDATIONS

Unsafe practices or unauthorized modifications of machine could result in accidents or property damage.

For safe installation, operation, handling and maintenance, please strictly follow the simple safety rules stated below and take precautions. Failure to follow these safety rules and take necessary precautions can result in serious injury or death as well as cause damage to the equipment.

- 1) Never operate or service your Promax / Promarks machine until you have read this manual completely and understand it fully.
- 2) All adjustments and repairs must be carried out only by qualified technicians or maintenance personnel.
- 3) No service work should be attempted until the machine's power has been turned off. All proper lock out / tag out procedures should be followed.
- 4) Do not put tools, parts or other foreign objects on or into the machine.
- 5) Always keep the machine clean, lubricated and in good working condition.
- 6) To provide protection against the risk of electrical shock the power connection must be properly grounded at all times.
- 7) The machine should always be operated on a flat stable surface.
- 8) A certified electrician should be employed to install the permanent electrical connections for your new machine.

## 1.2 PERSONAL SAFETY

**Please read and understand this operation manual before using this equipment. Failure to follow the operating instructions may result in personal injury or damage to the machine.**

The following procedures and guidelines must be observed to avoid problems that can result in property damage, personal injury or death. If you have any questions regarding this information please contact Promax /Promarks, Inc. Service Department at (909) 481-3338.

### **Hazardous Voltage: DANGER**

Electrical power must be disconnected and locked out before servicing or cleaning of the machine. Do not remove any panels before power has been disconnected and locked out due to the risk of electric shock hazard.

### **Explosion Hazard: DANGER**

When utilizing the gas flush feature (optional) do not use any gas mixture with greater than 22% oxygen content.

### **Blade Hazard: WARNING**

If your machine is equipped with either a Perforating Knife System (optional) or a Precut Knife System (optional) then do not remove or install blades without wearing protective gloves. These blades are SHARP, use care when handling.

### **Signal words used in classifying potential hazards are defined as follows:**

**DANGER:** Indicates an imminently hazardous situation, which if not avoided, may result in death or serious injury.

**WARNING:** Indicates a potentially hazardous situation, which if not avoided, could result in serious injury.

**CAUTION:** Indicates a potentially hazardous situation, which, if not avoided, may result in minor to moderate injury. Caution also indicates actions that may cause property damage.

## **1.3 FOOD SAFETY**

While many Promax / Promarks machines are used in applications involving vacuum packaging and vacuum cooking, there are inherent risks associated with these techniques that can result in serious illness or death to the consumer of the food product. Therefore if you are using your machine for food applications, you must consult a qualified food technician or specialist in vacuum / modified atmosphere (M.A.P.) to review the safety of your application.

### **GAS FLUSH**

If your machine is equipped with gas flush (optional) and your application involves the use of gas flush to extend the shelf life of your product you must consult a qualified food technician or specialist to review your application and develop a suitable gas mixture for your package. Further you must perform quality control and gas analysis on your final M.A.P. package.

### **CLEANING**

Every environment and application is different; therefore Promax / Promarks cannot provide cleaning procedure instructions that will guarantee microbiological sanitation. Therefore Promax / Promarks recommends that the purchaser of these machines consult with a sanitation expert to review your procedures for cleaning the machine while operating in your environment and with your specific product to develop a robust cleaning schedule and methodology, followed by bacterial testing to ensure satisfactory cleaning is achieved.

## 2.INSTALLATION

### 2.1 UNPACKING

- Carefully remove the cardboard outer shell by cutting the retaining straps then removing the top and then the side panels.
- Inspect the machine carefully for any hidden shipping damage. Notify the shipping company right away if any damage is observed.
- Remove the machine from the wooden skid. This can be done by two people on the smaller table top machines. However an approved fork lift will be required for the larger SC and DC models. **Important note:** Refer to the Moving the Machine Section below.
- Wipe down the outside of the machine.

### 2.2 MOVING THE MACHINE

Promax chamber style vacuum packaging machines are available in three basic designs, TC (Table Top), SC (Free Standing Single Chamber) and DC (Double Chamber). Recommendations for the movement of all three types are listed below.

**TC Machines:** Some of the smallest TC units may be lifted off of their wooden skid and moved manually. However Promax recommends that moving even the smallest of their TC units should not be attempted by one person. The larger TC units should be lifted with the aid of a fork lift or other approved lifting aid. Prior to lifting with a forklift the forks should be adjusted to a width that provides the machine with stable support. The proper lifting point for TC machines is to place the forks so they come in contact with the units rubber feet located on the bottom of the machine.

**SC Machines:** All SC units should be lifted from their wooden skid and moved to the location where they will be used with an approved fork lift. Be sure to take note of the points listed below.

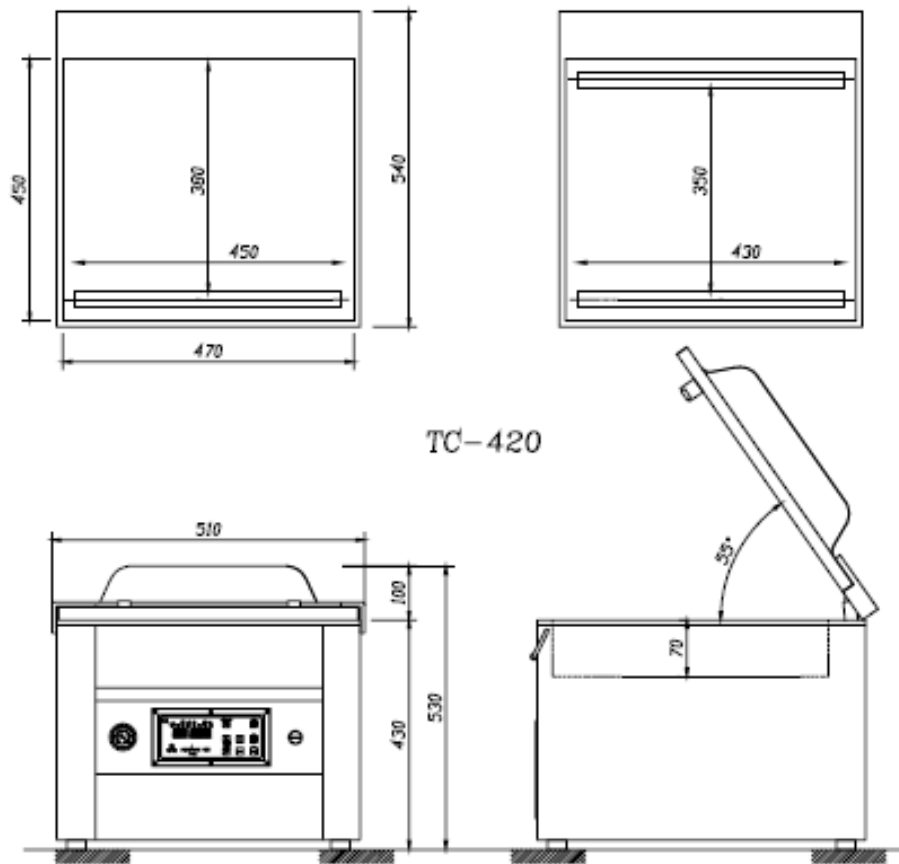
**DC Machines:** All DC units should be lifted from their wooden skid and moved to the location where they will be used with an approved fork lift. Be sure to take note of the points listed below.

**\* Make sure the fork lift forks are properly adjusted for width and use fork extensions if needed.**

**\* Make sure to ascertain the center of gravity and use identified lifting points.**



## 2.3 TC-420 SPECIFICATION



## 2.4 ENVIRONMENT REQUIREMENTS

The machine will be difficult to start if the air temperature is very low. This is caused by the increase in the vacuum pump's oil viscosity due to the low temperature. To prevent this, please set up machine according to the installation checklist described as below:

- Temperature: around 5 ~ 40°C
- Working elevation: between 0 ~ 1000 meters
- Relative humidity: 30 ~ 95% RH
- During operating, heat is generated by the vacuum pump and vacuum process, so a machine temperature of around 70 ~ 80°C is normal. The machine must have free air access for cooling.
- A minimum distance from walls, other machines, etc. should be maintained, at least 20 cm for each side of machine for providing adequate ventilation.

## 2.5 CHECK OIL LEVEL

Check the oil level only when the machine is not in operation and all vacuum built up in the chamber has been vented. Be aware that the oil may be very hot and avoid all contact.

### Checking the Oil Level

- \* Check the oil level on a daily basis
- \* When checking the oil level use the sight gauge shown in **figure 1 below**. The level should be between the arrows indicating Minimum and Maximum. If the level is below the minimum arrow add oil until the maximum arrow is reached.

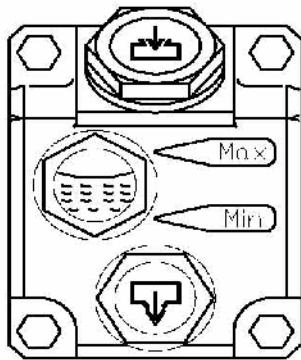


Figure 1

## 2.6 POWER CONNECTION

When preparing to install the machine's main power connection please refer to the electrical information on the serial number plate located on the machine's back panel. A certified electrician should be employed to complete this connection.

## 2.7 VACUUM PUMP ROTATION

If your machine operates on 3 phase power it is important to check the rotation of the vacuum pump. The pump should turn in the direction indicated in **Figure 2** below. If the pump turns in the wrong direction it will make a sound that is obviously wrong. Turn off the power immediately and change the position of two of the power wires and retest.

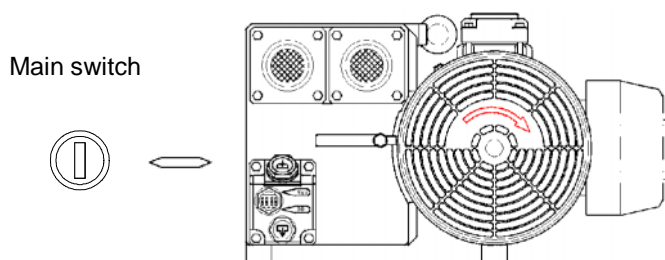


Figure 2

## 3. OPERATION

### 3.1 VACUUM SETTING GUIDLINES

Products	Vacuum time/Sec.	Storage life when stored at 2 ~ 6 °C/day
Fresh meat	30	10
Pork	30	10
Beef	30	30
Meat with liquid	15 ~ 30	14
Pasta	3 ~ 9	21
Sliced sausage	15	10
Cold cuts	9	10 ~ 21

### 3.2 BASIC OPERATING INSTRUCTIONS

Turn on the main switch and the LED display shows the operation menu, at this time, machine is ready to operate.

Place the product to be packaged in a vacuum pouch. Place the bag in chamber with the open end of bag across the sealing bar. (With a package that doesn't completely fill the chamber, place provided flat plates in the chamber to shorten vacuum time.)

Close the lid to start the cycle, the lid will open automatically when cycle is completed.

Take out the sealed product from vacuum chamber. You are ready to start the next cycle.

After all packaging is completed, please let the vacuum pump run for about 15 minutes, then turn off the main switch to shut down the machine.

### 3.3 OPTIONAL DEVICE

#### 3.3.1 GAS FLUSHING UNIT

Many various products can be treated with inert gas for extending their shelf life. This can be achieved by equipped with a gas flushing unit.

Place the open end of the vacuum packaging bag laying on sealing bar. To fill gas in package bag, insert the gas flushing nozzle into the open end of the bag. (Make sure that there are no tucking on bag, or will result in inferior sealing). Set LED control panel to "GAS" and set the gas flushing time about 3 seconds (the gas time is decided and depends on the size of vacuum packaging bag). Determine the best setting experimentally. The inert gas can be introduced from gas tank through a precise pressure regulator. The pressure should be approximate 3 bars.

The customer must prepare and use a suitable regulator with a range of 0 ~ 42 p.s.i., we also recommend to use a flexible hose available to be used for foods, its specification is 1/4 inch inner diameter and the length is 15 feet maximum.

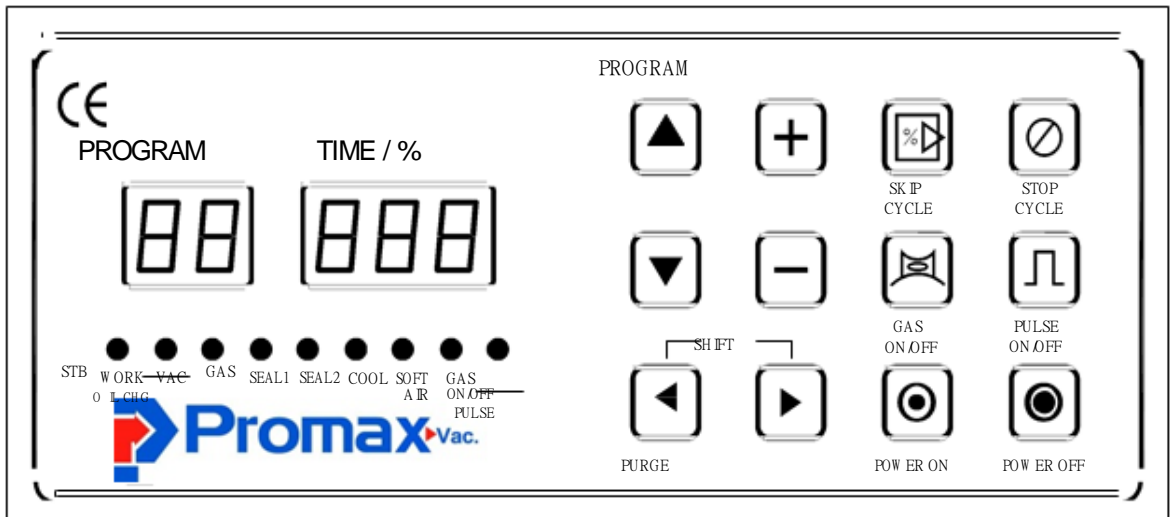
The maximum pressure of regulator is 42 p.s.i.

#### 3.3.2 HIGH PRESSURE SEALING




If the bag which you use is made of aluminum film or very thick film or the products must be cooked in boiled water over 120°C, then we suggest to equip the machine with an additional sealing pressure device to ensure the sealing in good condition and won't be pulled apart easily.

**NOTE : Please set air pressure between 1.0 ~1.5 kg/cm2.**

### 3.4 LED CONTROL PANEL FUNCTIONS



#### Basic Operation Instructions

- 1. Standby Mode :** After turning on the power of machine, at this time the operation panel is under **standby mode**, **STB** lamp lights up, other lamps all turn off, digital indicator is off, too.
- 2. Start Operation Panel :** After pressing **POWER ON**, the digital indicator shows software revision, then about 3 seconds later, enters into general operation mode, during this time the digital indicator shows the numeric values of program and **VAC** steps used last time, **STB** and **VAC** lamps light up.
- 3. Start Vacuum Packaging :** During this time, put package in the chamber, close the vacuum lid, then start proceeding **vacuum packaging mode**. Machine will accord to the steps of **VAC** 、 **GAS** 、 **SEAL1** 、 **SEAL2** 、 **COOL** 、 **SOFT** and so on to proceed packaging step by step. When finishing, cause will recover to normal air pressure, so the vacuum lid will open automatically.
- 4. Setting Parameters :** Under **general operation mode**, press either one of  or  for 3 seconds, at this time, figure 、 **VAC** lamps flash, enters into **setting mode**, then press the  buttons to select the items which required to be set, change numeric value with + - buttons, press either one of Program buttons, can store file and escape this mode.
- 5. Close Operation Panel :** Under **general operation mode**, press **POWER OFF** button, can turn off the operation panel, then only **STB** lamp will light up.

<p>Close Vacuum Lid (CLOSE)</p>	<p>Vacuum (VAC steps)</p>	<p>Gas Flushing (GAS steps)</p>	<p>Sealing 1 Heat (SEAL1 step) Sealing 2 Heat (SEAL2 steps)</p>	<p>Sealing Bar Cool (COOL steps)</p>	<p>Slow Speed Pressure Back (SOFT steps)</p>	<p>Open Vacuum Lid (OPEN)</p>	
<p><b>Steps</b></p>	<p>With vacuum percent \ vacuum percent &amp; extension seconds \ and use only time counted with seconds to control vacuum.</p>	<p>Flushing gas, with seconds to control.</p>	<p>According to the set seconds to heat sealing bars <b>1 &amp; 2</b> individually at the same time, stop heating separately, after all stop, enters next step.</p>	<p>The cooling time for sealing bars <b>1 &amp; 2</b>, prevents from overheat of sealing bars, cause packaging error.</p>	<p>Pulse recover general air pressure, to improve the outlook and quality of packed product.</p>		
<p><b>General Functions</b></p>	<p>With vacuum percent to control vacuum.</p>	<p>Press <b>GAS</b> button, starts gas flushing function.</p>	<p>Can set heating time for sealing bars <b>1 &amp; 2</b> separately.</p>		<p>Can set total time of steps and interval time.</p>		
	<p>When vacuum up to <b>100%</b>, use extension seconds to higher up vacuum percent.</p>	<p>Then press <b>PULSE</b> button, starts pulse gas flushing function.</p>					
	<p>Use only time to control vacuum counted by seconds.</p>	<p>Can set total pulse action time and gas flushing interval time.</p>					
<p><b>Advanced Functions</b></p>	<p><b>PURGE</b> function :</p> <p>Combine vacuum &amp; gas flushing two steps, acts synchronously, when press PURGE button, starts this function.</p> <p>Function <b>1</b> : Vacuum &amp; gas flushing exchange 5 times, the final ending action is gas flushing.</p> <p>Function <b>2</b> : Pre-vacuum <b>2</b> seconds to close vacuum lid, then gas flushing &amp; vacuum exchange <b>5</b> times, the final ending action is vacuum.</p>						
	<p><b>VAC</b> step pulse :</p> <p>To let this step not continuously, but pulse.</p>						

Restriction settings when vacuum percent can't up to **99%** :

Maybe have the factors of air leakage, or local's air pressure is high, or it's the high mountain area ... and so on, cause vacuum percent can't up to **99%**. Can set under-mentioned functions restrictedly

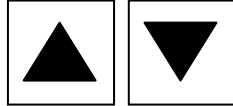
Function **1** : Cancel the setting of vacuum percent and vacuum extension seconds, user can only set with seconds.

Function **2** : Remain original status (**VAC** motor will keep running until up to vacuum percent, then skip to next step or user presses **SKIP** ...)

Function **3** : After up to the setting value of vacuum percent, continuously acts according to the set seconds.

## Buttons Instructions (General Mode)

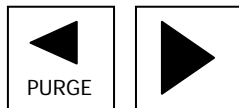
GROUP Selections :



May select **01 ~ 24 Groups** of setting values, under normal operating condition, can only review the setting value of **Group**, if make sure would like to use specified **Group** setting value, must press either one of these two buttons over **3 seconds**, at this time, the **Group** numbers will flash, then confirm to use this **Group** value.

Under normal operating condition, when review other **Group** setting value, once close the vacuum lid of vacuum packaging machine, will return to the original setting **Group** value.

STEP Selections :



Available for selecting the setting value for **VAC**、**GAS**、**SEAL 1**、**SEAL 2**、**COOL**、**SOFT AIR** and so on. Under general operation condition, can only review the setting value, can't revise, if would like to revise, please press either one of these two buttons over 3 seconds, at this time, the indicated numbers will start flashing, then can revise the setting parameters of individual section. After finishing the setting, then press **STEP** button, the above setting value will be stored immediately, if would like to quit this status, press **GROUP** button, then can escape.

**VAC** : Under the section of **VAC**, can set the values of operating completion conditions.

- (1) Required vacuum percent ( **0 ~ 99%** ).
- (2) Required vacuum percent **99%**, and the seconds for continuously vacuuming.
- (3) Vacuum time counted by seconds.

**GAS** : Set the total open time of **GAS** valve under **GAS ON** status.

**SEAL 1**、**SEAL 2** : The heating time for sealing bar 1 and sealing bar 2, **SEAL 1** and **SEAL 2** will start at the same time, then accords to individual setting time to finish action.

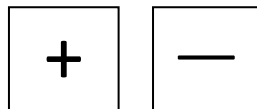
**COOL** : The cooling time for sealing bar, it's the set seconds for waiting **COOL** after **SEAL 1** and **SEAL 2** both have finished heating. This function is to prevent from constantly using the sealing bars

cause the temperature of heating band can't go down, lead to overheat during next operation and causes the sealing effect not good.

**SOFT** : Slow speed soft air time, the first stage is to set total soft air time, the second stage is to set pulse soft air acting time (**SOFT AIR ON**), the third stage is to set pulse soft air shut down time (**SOFT AIR OFF**), when the setting of **SOFT AIR OFF** is over 0.1 second, to match the setting of **SOFT AIR ON**, will start pulse soft air. Such as **SOFT AIR ON**

→ **SOFT AIR OFF**      **SOFT AIR ON**.....continuously exchange until the setting time of **SOFT AIR TOTAL** is up or vacuum lid opens.

Increase \ Decrease :



Under normal operating condition, these two buttons are ineffective. Only press **STEP** over 3 seconds later, ready to start setting parameters, then can use these two buttons to change parameters.

Among them, the setting of **VAC TOTAL** is much more special, in the **VAC** section, while setting parameters, the change order of parameters is :

Press **+** button, will increase the vacuum percent from **99**, then to be **+1 +2 +3 .....** the value means when vacuum percent up to 99% , the lasting seconds of continuously vacuuming.

Press **-** button, the change of figure will be **+2 +1 -1 -2 -3 .....**, the figures with **-** (minus) sign are the seconds for controlling vacuum percent.

Skip This Section :





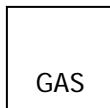
After close the vacuum lid, machine will start vacuum packaging procedure. During running procedure, can press this button to interrupt (skip) the current executing section, and continue the next packaging section. During under setting mode, press **SKIP** to change the figure value increased by **10** times to speed up the figure value setting.

**Stop All Sections** :



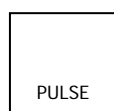
In proceeding vacuum packaging section, press this button will stop and end all the current sections immediately, and open vacuum lid.

**Gas Flushing** :



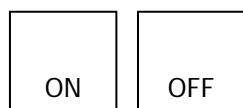
Under normal operating condition, this section won't be executed, that is the **GAS** lamp won't light up. When press this button, the **GAS** lamp lights up, and during the vacuum packaging flow, will execute this **GAS** section, if would like to cancel this section, before the vacuum lid closing, press this button again, the **GAS** lamp turns off, then this section will not be executed.

**Pulse Gas Flushing** :



When press **GAS** button, **GAS** lamp lights up, then when press this **PULSE** button, **GAS** lamp starts flashing, vacuum packaging flow goes to **GAS** section, will proceed pulse action according to the setting seconds of **GAS ON** and **GAS OFF** sections.

If would like to cancel this action, press this button again before the vacuum lid closing, **GAS** lamp recovers lightening up constantly, this function will not proceed in **GAS** section.



### **Start and Standby :**

When press the main power switch of vacuum packaging machine, **STB** lamp lights up, 5 digital figures don't light up, at this time is standby mode.

During standby mode, press **ON** button, then controller enters normal operation mode, at this time, except **STB** lamp lights up, the all 5 digital figures are indicated, too.

When in normal operation, press **OFF**, all digital figures turn off, at this time, system enters standby mode.

Except to press **OFF** button to enter standby mode, if not operate the controller over 10 minutes, system will enter standby mode automatically.

During standby, **VAC** motor will be set at **STOP**.

### **Setting Special Functions :**



**Advanced User Level :** Under general operation mode, press **STOP** button over **5** seconds, enter password **111**, thus enters advanced user level.

If press **STOP** button with shorter time, then system will back to normal mode.

### **Enter Password :**

Press「 up arrowhead 」 for centesimal digital; press「 + 」 for decimal digital; press「 **SKIP** 」for the unit digital; press the figure one time the value will increase 1, over 9, back to 0; confirm password by pressing「 **STOP** 」 button, if the password is incorrect, back to normal mode.

### **Instructions For Each Special Selection Item :**

(A) **Treatment When VAC % Can't Up To 99%** : Maybe have the factors of air leakage, or local's air pressure is high, or it's the high mountain area ... and so on, cause vacuum percent can't up to **99%**.

Setting values are :

**-1** : Cancel the settings of vacuum percent and vacuum percent extension seconds, user can only set with seconds. ( **-10 -25** ... etc.)

**0** : Remain original status (**VAC** motor will keep running, until up to vacuum percent, then skip to next step or user presses **SKIP** ...)

**0 Up** : After up to the setting value of vacuum percent, continuously acts according to the set seconds. For example, set vacuum percent to be **70**, after up to **70**, then continuously acts according to the set seconds.

#### 25PIN D Type Terminal Wiring Connection Instructions

PIN NO	FUNCTION		PIN NO	FUNCTION	
1	AC24V Input – For Internal		13	External DC24V Grounding	Rectificated
2	AC24V Input – For Internal		14	External DC24V Output	Rectificated
3	AC24V Input – For External		15	Sealing Bar 2 Heat Contact	Relay Contact
4	AC24V Input – For External		16	Pulse Soft Air Contact	Relay Contact
5	Air Inlet Valve	Relay Contact	17	×	
6	Sealing Press Bar Gas Flushing	Relay Contact	18	×	
7	Sealing Bar 1 Heat	Relay Contact	19	×	

8	External Special Gas Valve	Relay Contact	20	×	
9	Vacuum Valve	Relay Contact	21	Over Relay Input Same As 25	External Input
10	COM	Relay Contact	22	Internal Grounding	External Input
11	Internal Grounding	External Input	23	COM point	Relay Contact
12	Vacuum Lid Signal Input	External Input	24	Vacuum Motor Contact	Relay Contact
			25	Over Relay Input Same As 21	External Input

## 4. MAINTENANCE

### 4.1 Basic Maintenance

The following maintenance procedures should be followed no matter what model Promax/ Promarks machine you own.

#### 4.1.1 Daily Visual Inspection

Your machine should have the following items inspected daily. If this inspection is performed daily prior to the start of your days production you will find that your machine will always perform consistently, last longer and suffer less down time.

##### A. Teflon Covers

1. Clean if they have any foreign mater adhering to them
2. Look for any burned spots, cuts or tears. Replace if needed.

##### B. Vacuum Pump Oil

1. Check the oil level. Fill if below Minimum on the sight gauge. Refer to Page 7.
- 2 . Replace the oil after 500 hours of operating time.

##### C. Vacuum Chamber Lid Gasket

1. Check for general wear
2. Check for damage
3. Replace as needed.

**D. Pressure Bar Rubber:** On TC and some SC machines this is the rubber part found in the lid of your machine that meets with the seal bar when the machine is in operation. In other SC machines and in all DC machines this is the rubber part that is located on the chamber's base that meets with the seal bar when the machine is in operation.

1. Check for excessive wear.
2. Check for burnt spots, cuts and tears.
3. Replace as needed.

### **E. Vacuum Pump Motor Sound**

1. Listen for the smooth, normal sound of your vacuum pump.
2. If any abnormal sounds are detected **TURN OFF YOUR MACHINE RIGHT AWAY** and perform a trouble shooting procedure..

#### **4.1.2 Daily Cleaning**

**Important Note:** The following daily cleaning points are meant to help keep your machine in proper working order. They are in no way intended to provide the required level of sanitation needed for the packaging of food products. As noted earlier in this manual your company should consult with an expert in the sanitation field to design a robust sanitation routine when packaging food products.

1. Clean the seal bar's Teflon tape very carefully using a rag and a mild organic solvent. **DO NOT** directly wash down this area of the machine.
2. Clean the rubber pad in the seal pressure bar. Once again use a rag and a mild organic solvent. **DO NOT** directly wash down this area of the machine.
3. Wipe down the stainless steel housing using an approved stainless steel cleaner.
4. On machines with clear chamber lids or viewing windows clean them using a mild glass cleaner.
5. If your machine is an SC Series or a DC Series unit open the housing access door and visually check for oil or debris around the vacuum pump area. If you see anything that needs to be cleaned **DO NOT start cleaning until the machine is properly locked out and tagged out.**

## **4.2 Vacuum Pump Maintenance**

For detailed information concerning maintenance and repair of your machine's vacuum pump please refer to the manufactures operating manual that was packaged with your new machine.

## **4.3 Seal Bar Maintenance**

### **A. Replacing the Teflon Cover**

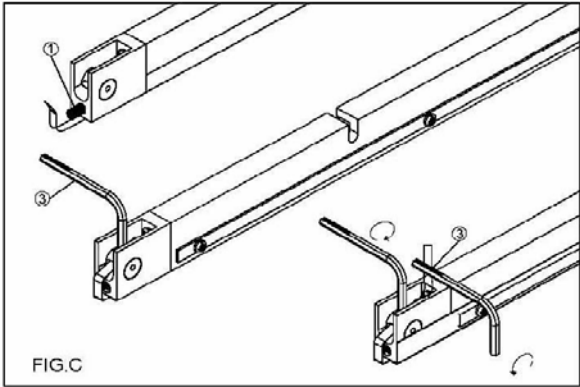
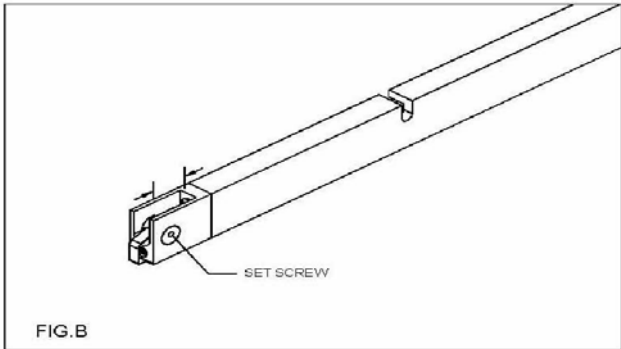
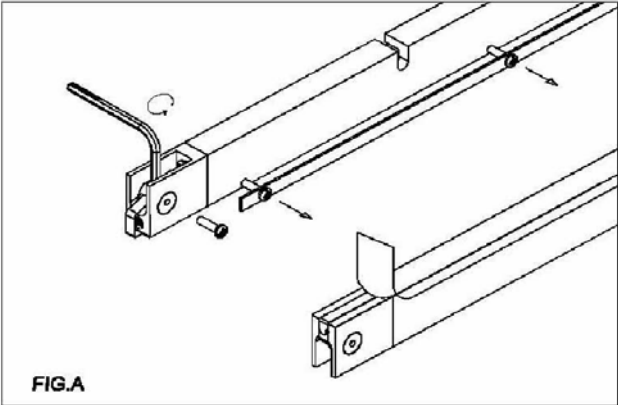
1. Remove the seal bars from your machine.
  - a. Seal bars are located in the chamber on all TC Series machines and some smaller SC Series machines.
  - b. Seal bars are located in the lid on larger SC Series machines and all DC Series machines.
2. Remove the screws that hold the Teflon holding strap in place. Refer to **Figure A on the next page.**
3. Remove the old Teflon cover.
4. Inspect the seal element.
  - a. Clean it off with lacquer thinner if needed.
  - b. Replace if broken or burnt badly. **Refer to the instructions under B below for replacement**
5. Install the new Teflon cover and reinstall the seal bars.

**B. Replacing the Seal Element**

- 1. Using a hex wrench loosen the screws holding the seal element and remove it
- 2. Install the new seal element. **Refer to Figures B & C on the next page.**

- a. Place the new element across the surface of the seal bar leave an excess of about 3/4" at each end.

- b. Make sure you put the tension spring back in place..



## 4.4 MAINTENANCE INTERVALS AND CHECK ITEMS

Maintenance Intervals/ Check items	Daily	Bimonthly	Quarterly	Yearly	Biyearly	3 ~ 5 years	Note
Keep the vacuum lid open after finished working and let vacuum pump running about 15 minutes.	X						
Check the oil level	X						
Check the sound of motor	X						
Oil come out from exhaust cover or not	X						
Bottom sealing bar working normally or not	X						
Clean the exhaust filter		X					
Change vacuum oil		X					
Replace exhaust filter				X			
Replace Teflon tape				X			As request
Replace sealing Silicone rubber				X			As request
Replace lid gasket rubber				X			As request
Replace pressure bag					X		As request
Replace vanes						X	

Above-mentioned maintenance intervals are scheduled basically for 8 working hours per day.

Recommended oil :

A. Grav. API	30.5
Pour Pt.	-15°C
Flash Pt.	225°C
Viscosity	32.05 CST@40°C
Color	Light Yellow
V.I.	100

## 5. TROUBLESHOOTING

### 5.1 Problems and Corrections

Problem and Corrections - Review installation procedure section to ensure the installation is correct. If correct, the troubleshooting chart below lists possible problems, causes, corrections, and reference guide.

<b>Problem</b>	<b>Cause</b>	<b>Correction</b>
Control panel is under normal function, but vacuum pump does not start.	The KM1, QM1, MCB1, MCB2 protectors are disconnected.	Check each part and turn on the switch, reconnect, if necessary.
Vacuum pump does not run.	The power supply is not corresponding with the power demand indicated on the back of machine.	Reconnect to correct power source.
Insufficient vacuum in chamber.	Low oil level in vacuum pump. Vacuum pump is rotating in wrong direction. Lid silicone rubber damaged.	Fill oil, if necessary. Stop machine immediately. Then alter the power connection and reconnect to correct ones. Replace.
Insufficient vacuum in bag. <b>Note :</b> Mostly insufficient vacuum in bag is due to leakage of bag, but not the fault of machine.	Bag is leaking. Sharp corners on wrapped product puncture the bag. Bag is too large.	Replace the bag. Replace the bag and use a thicker one. Replace with a smaller one.
Vacuum bag is easily pulled apart by hand.	Sealing time (temperature) is too short (low).	Adjust sealing time (temperature) to be longer (higher).
Sealing area has some burnt marks or bubbles appeared.	Sealing area stuffed with oil or meat juice or dirt. Sealing time (temperature) is too long (high).	Clean and remove them. Adjust sealing time (temperature) to be shorter (lower).
Lid does not open.	Vacuum valve is damaged.	Replace it.

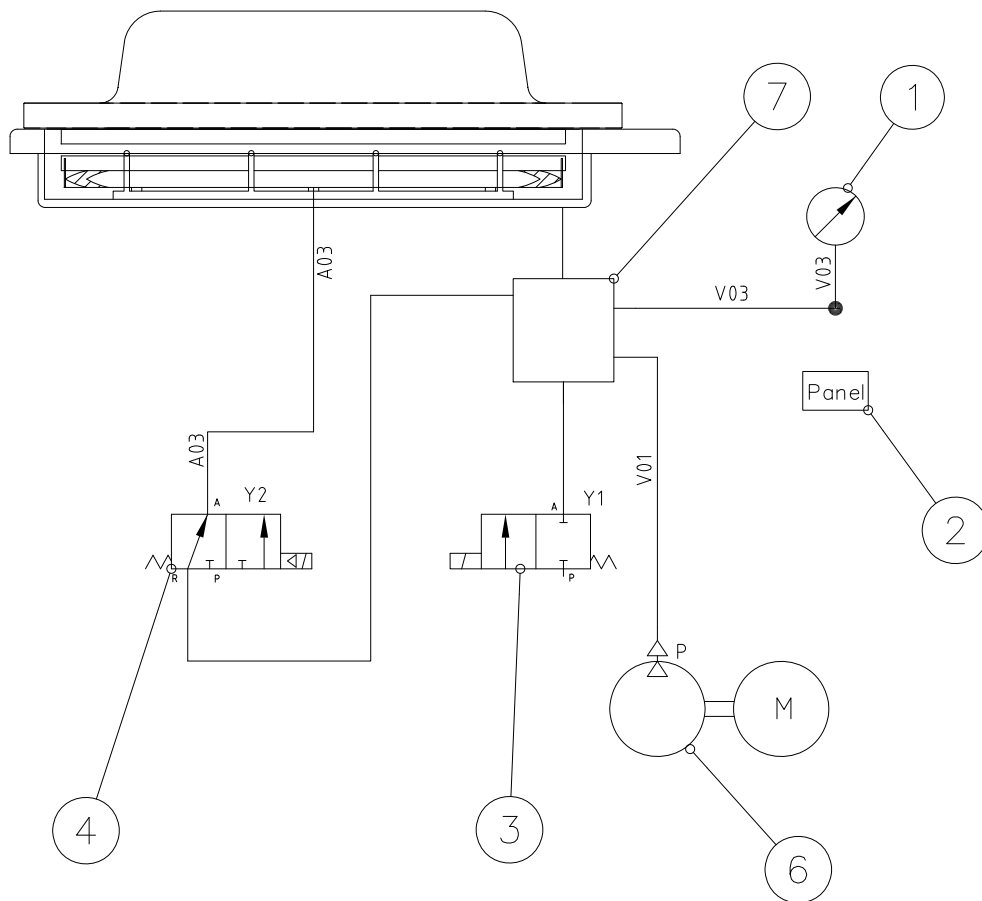


<b>Problem</b>	<b>Cause</b>	<b>Correction</b>
<p>No or improper sealing.  <b>NOTE :</b> Please do not adjust sealing longer than regular time, or it will reduce the life of Teflon tape and silicone rubber.</p>	<p>Insufficient pressure. Sealing transformer is damaged. Teflon tape or silicone rubber is damaged. Sealing time and cooling time are too short. Sealing pressure is too low. Heating element is loose. Heating element is broken.</p>	<p>Replace it. Tighten it. Pressure bar is damaged, replace it. Replace it. Replace it. Adjust to proper time. Replace the pressure bag.</p>
<p>Lid does not close.</p>	<p>Vacuum valve is damaged. Limit switch is disconnected or damaged.</p>	<p>Replace it. Reconnect or replace it.</p>

# 6 DRAWINGS

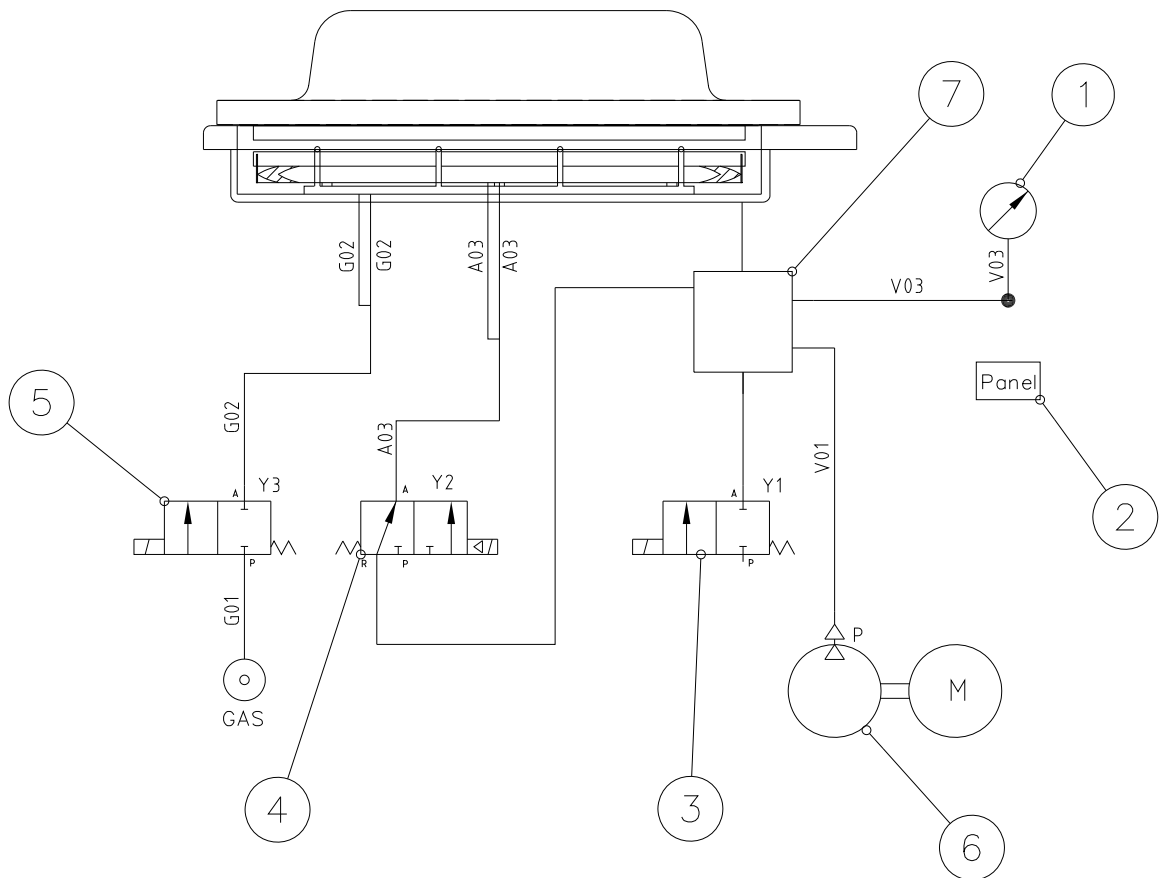
## 6.1 PNEUMATIC DIAGRAM (F)

NO	DESCR	QTY	NOTE
1	Vacuum gauge	1	
2	Control panel	1	
3	Ventilation valve	1	
4	Sealing valve	1	
5	Vacuum pump	1	
6	Distributing connector	1	

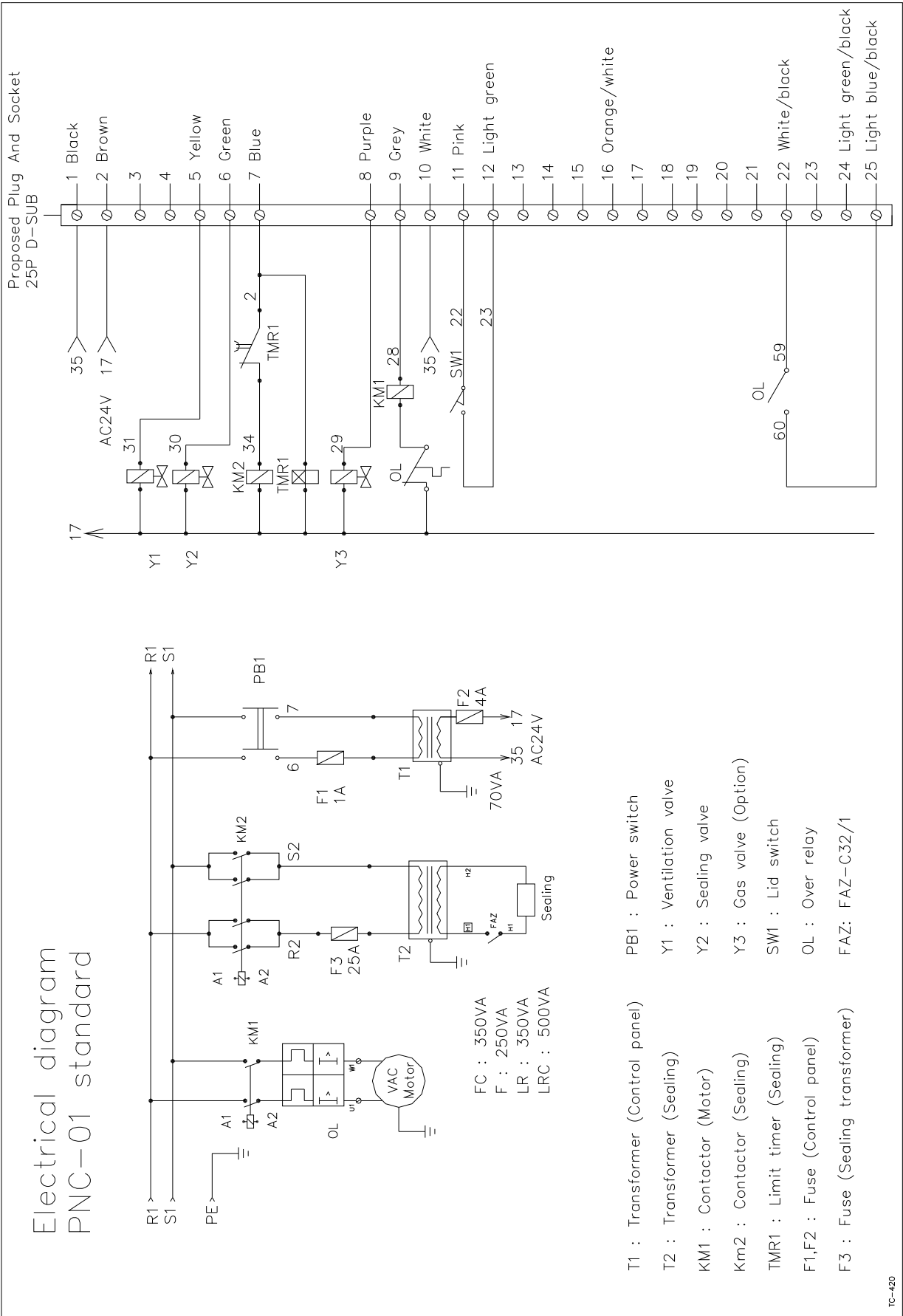


## 6.2 PNEUMATIC DIAGRAM (LR)

NO	DESCR	QTY	NOTE
1	Vacuum gauge	1	
2	Control panel	1	
3	Ventilation valve	1	
4	Sealing valve	1	
5	Gas valve	1	
6	Vacuum pump	1	
7	Distributing connector	1	

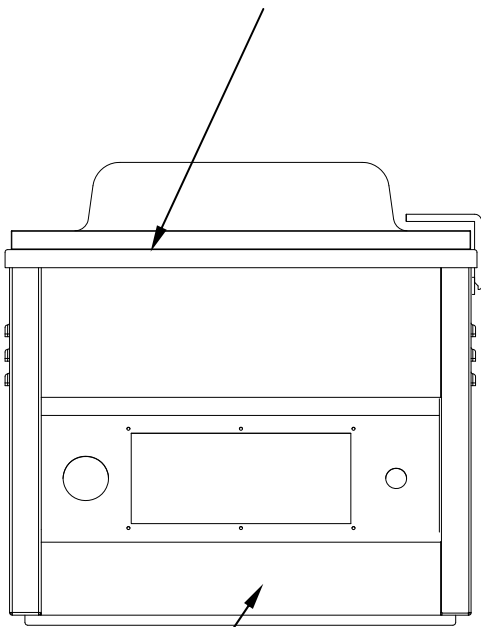


# 6.3 ELECTRICAL DIAGRAM



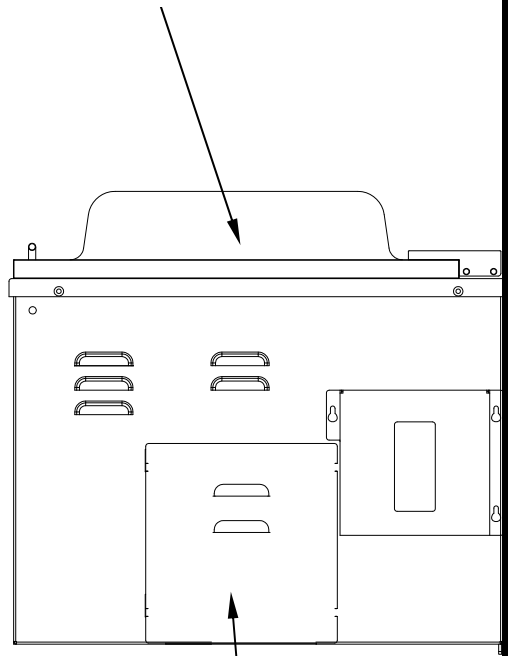
# 7. FABRICATION

**7.2 VACUUM CHAMBER**  
**7.3 SEALING BAR**



**7.1 BODY**

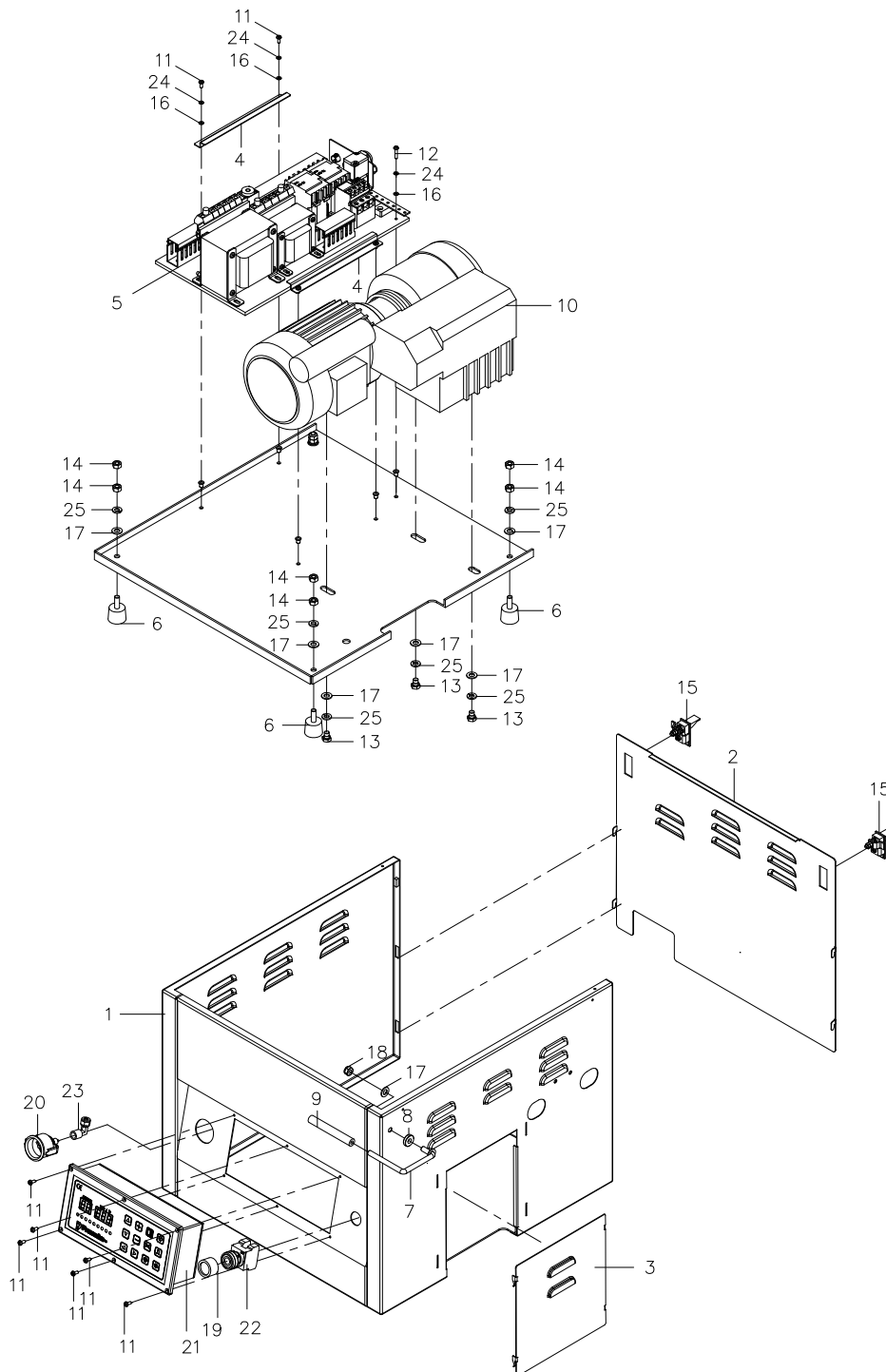
**7.4 LID DIAGRAM**



**7.5 ELECTRICAL BOX**

## 7.1 BODY

### Body Diagram

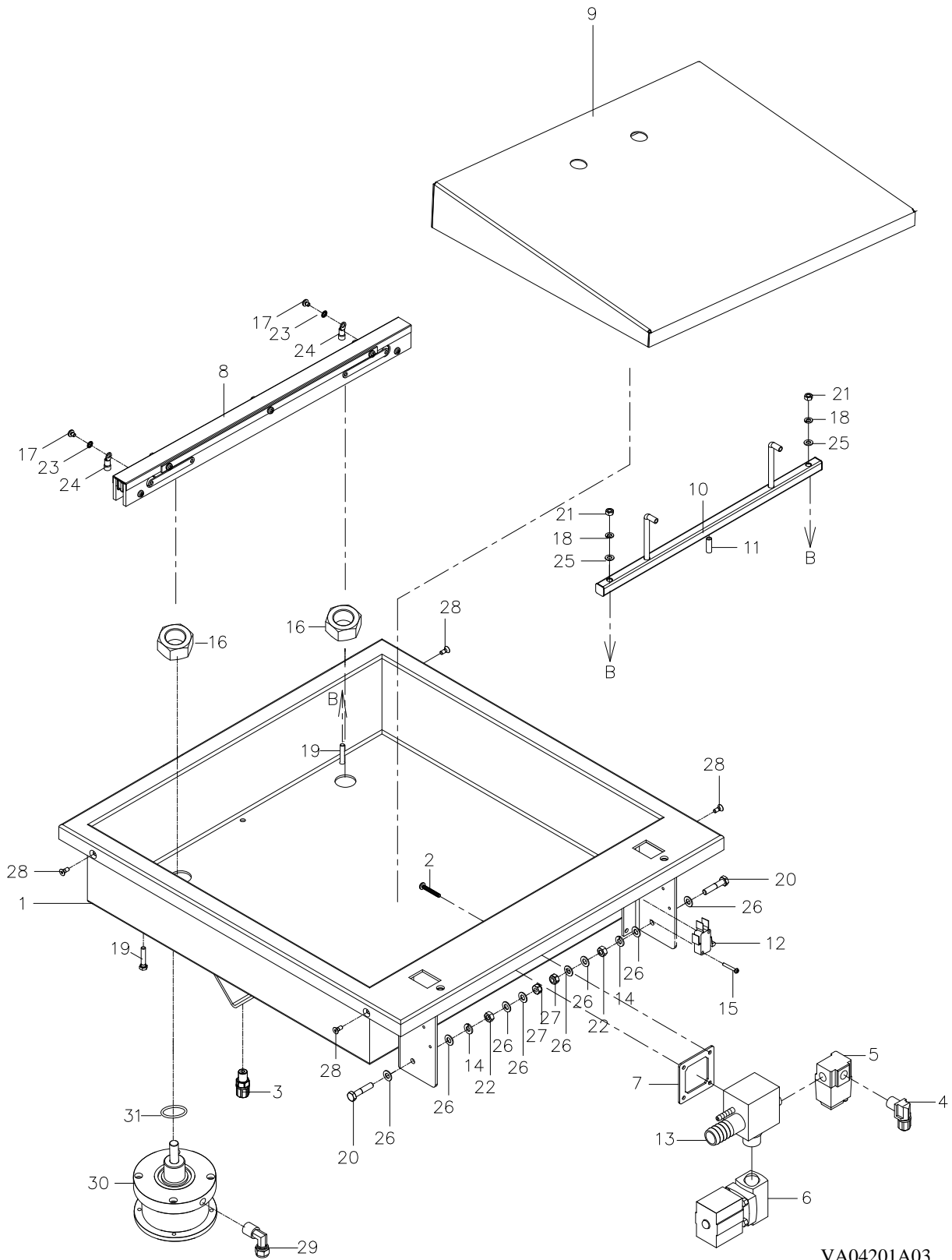


VA04101A01

NO.	PART NO.	DESCRIPTION	Q'TY	NOTE
1	VA04122000	Frame	1	
2	VA04102003	Back door	1	
3	VA04123000	Side plate	1	
4	VA04110001	PCB Mounting plate	2	
5	VA04111A00	PCB Assembly	1	
6	VA04120001	Vibration absorber foot	4	
7	VA04130001	Bolt	1	
8	VA04131000	Washer $\phi 20 \times 5L$	1	
9	VA04132000	CAP $\phi 13 \times \phi 6 \times 95L$	1	
10	TA0001112070	Vacuum pump	1	
11	2703307	Round head screw M4 x 10	10	
12	2703327	Round head screw M4 x 20	1	
13	2700415	Hex hd screw M8 x 16	3	
14	27070143	Hex Nut UNC5/16"	8	
15	2883340	Door Latch - R MS-733-2	2	
16	2705154	Washer M4	5	
17	2705152	Washer M8	8	
18	2707103A	Nylock nut M8	1	
19	28704940	Button guard	1	
20	29135560	Vacuum gauge 1-1/2 x 760mm	1	
21	2874045	Control Panel	1	
	2874042	Control Panel		
	2874043	Control Panel		
22	2870048	Round-Flat head button YW1B-A1E20G	1	
23	29090426	Copper PU adapter A-026-1 1/8PT x 5/16N 90°	1	
24	2705306	Split lock washer M4	5	
25	2705301	Split lock washer M8	7	

## 7.2.1 VACUUM CHAMBER DIAGRAM-F

### Vacuum Chamber Diagram

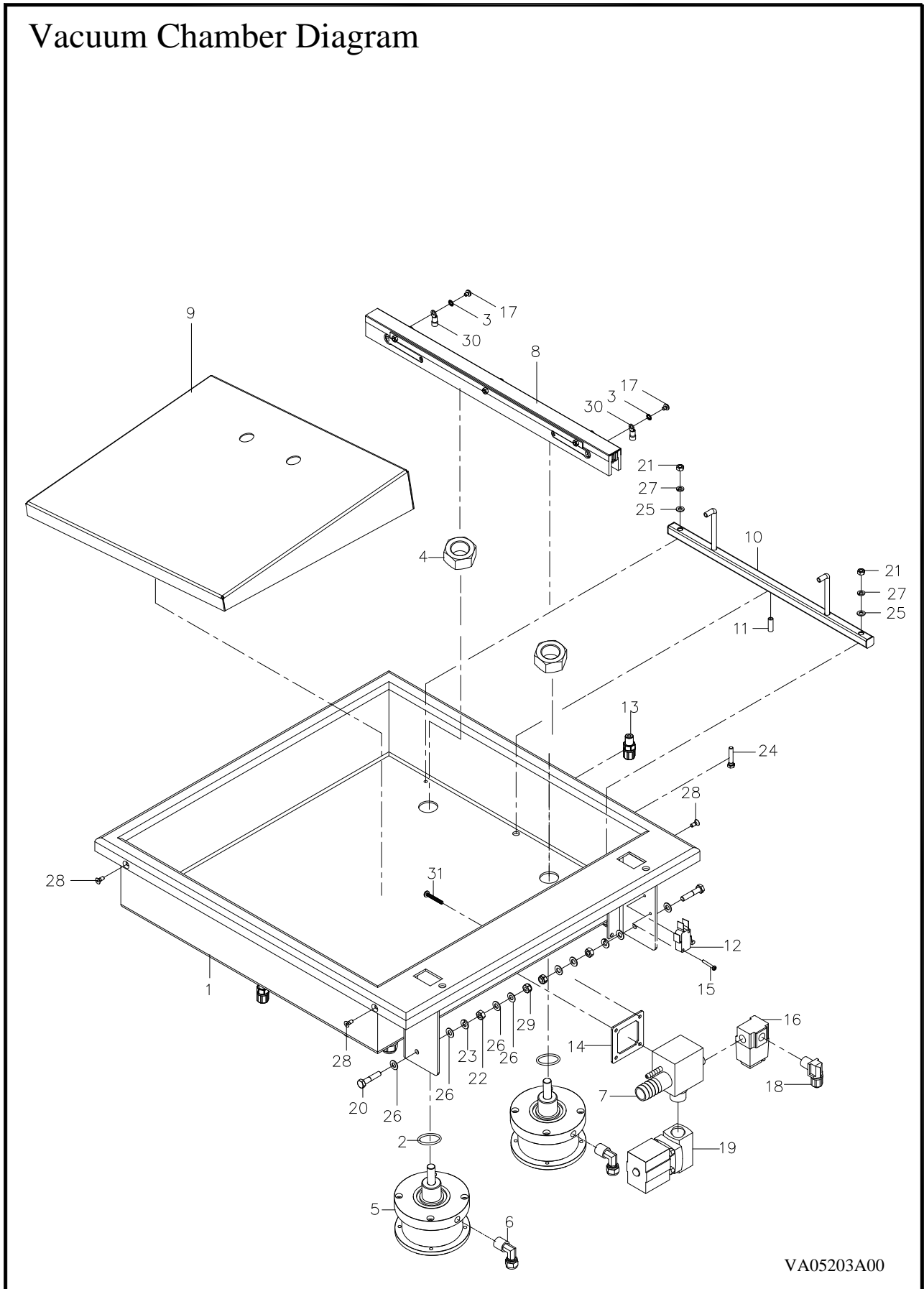


VA04201A03



NO.	PART NO.	DESCRIPTION	Q'TY	NOTE
1	VA04203000	Vacuum chamber	1	
2	2703327	Round head screw M4 x 20	4	
3	29090311	Copper PU adapter VSC-8 x 1/8"	1	
4	29090312	PU hose VSL-8 x 1/4"	1	
5	29118015	Solenoid valve SMC VT307-BG1-02 AC24V 50/60HZ	1	
6	29118090	Solenoid valve VX230-GZ1U AC24V	1	
7	VA04250010	Plate, distributing connector □50 x t2	1	
8	VA04220A03	Sealing bar - bottom ( F-S )	1	
9	VA04276000	Stainless steel slanted tray	1	
10	VA04412000	Gas nozzle tube 430x325x20	1	
11	VA04241000	Gas inner bushing φ6x1x18	1	
12	2841110	Limit switch	1	
13	VA04250000	Distributing connector 112 x 73.5 x 41	1	
14	2705302	Split lock washer M6	2	
15	2703323	Round head screw M3 x 20	2	
16	VA04908000	Vacuum nut	2	
17	2703304	Round head screw M4 x 6	2	
18	2705303	Split lock washer M5	6	
19	27004131	Hex head screw M5 x 25	2	
20	2700462	Hex head screw M6 x 30	2	
21	2707208	Hex nut M5	2	
22	2707204	Hex nutM6	2	
23	2705601	Split lock washer M4	2	
24	2840075	Terminal K.S. RVS3-5	2	
25	2705150	Washer M5	6	
26	2705151	Washer M6	8	
27	2707110	Hex lock nut M6	2	
28	2702090	Flat philip screw M4x10	4	
29	2909057	Fitting A-32 1/8x5/16	2	
30	VA04902A00	Vacuum cylinder	2	
31	27401641	O-ring P30	2	

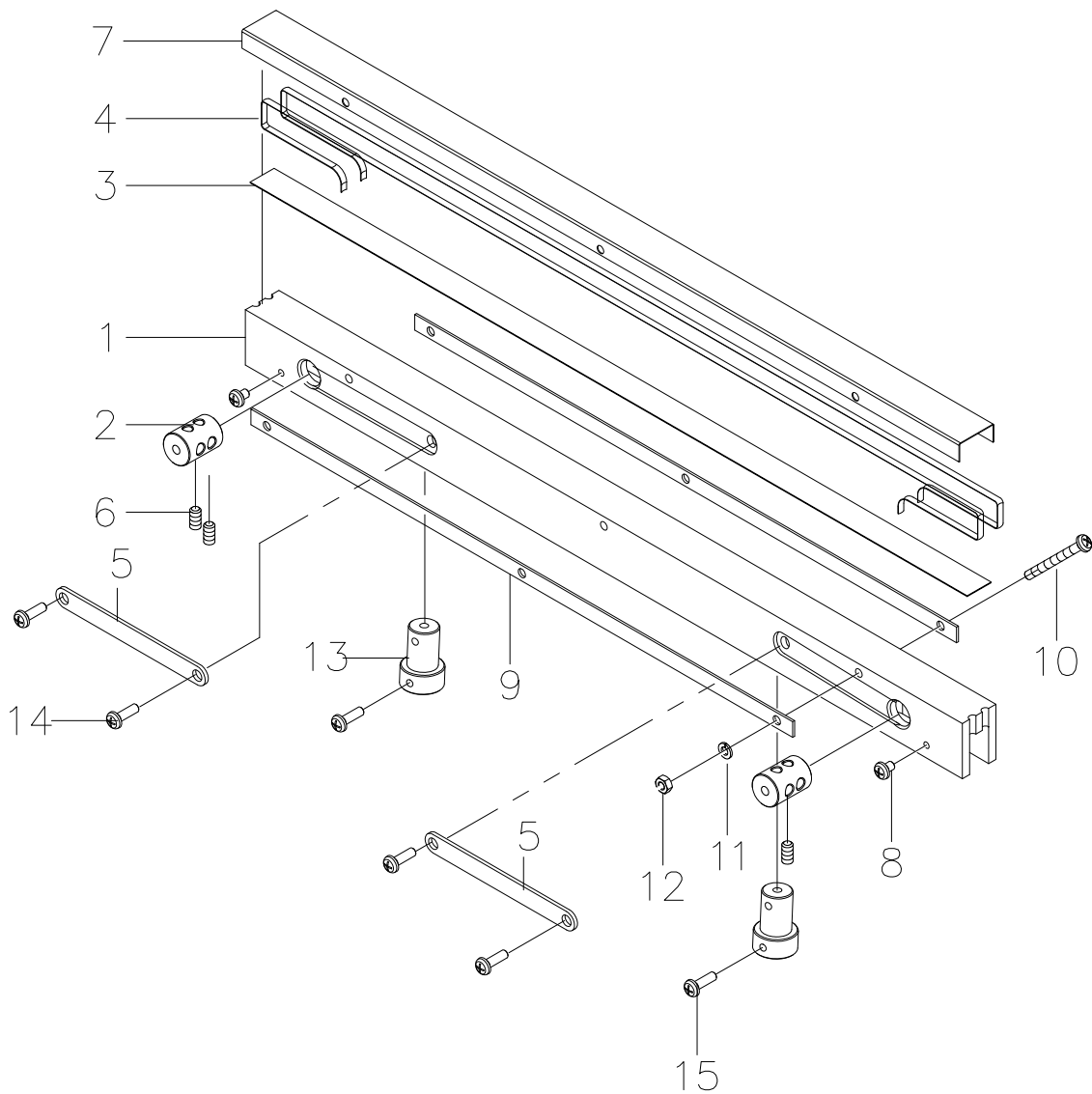
## 7.2.2 VACUUM CHAMBER DIAGRAM-LR



NO.	PART NO.	DESCRIPTION	Q'TY	NOTE
1	VA05203000	Vacuum chamber	1	
2	27401641	O-ring P30	4	
3	2705601	Split lock washer M4	4	
4	VA04908000	Vacuum NUT	4	
5	VA04902A00	Vacuum cylinder	4	
6	2909057	Fitting A-32 1/8x5/16	4	
7	VA04250000	Distributing connector 112 x 73.5 x 41	1	
8	VA05220A02	Sealing bar - bottom ( LR-S )	2	
9	VA05276000	Stainless steel slanted tray	1	
10	VA04412000	Gas nozzle tube 430x325x20	1	
11	VA04241000	Gas inner bushing $\varphi 6 \times 1 \times 18$	1	
12	2841110	Limit switch	1	
13	29090311	Copper PU adapter VSC-8x1/8	2	
14	VA04250010	Plate, distributing connector $\square 50 \times t2$	1	
15	2703323	Round head screw M3 x 20	2	
16	29118015	Solenoid valve VT307-BG1-02 AC24V	1	
17	2703304	Round head screw M4 x 6	4	
18	29090312	PU hose VSL-8 x1/4	1	
19	29118090	Solenoid valve VX230-GZ1U AC24V	1	
20	2700462	Hex head screw M6 x 30	2	
21	2707208	Hex nut M5	2	
22	2707204	Nut M6	2	
23	2705302	Split lock washer M6	2	
24	27004131	Hex head screw M5 x 25	4	
25	2705150	Washer M5	6	
26	2705151	Washer M6	8	
27	2705303	Split lock washer M5	6	
28	2702090	Flat philip screw M4x10	4	
29	2707110	Hex lock nut M6	2	
30	2840075	Terminal K.S. RVS3-5	4	
31	2703327	Round head screw M4x20	4	

### 7.3.1 SEALING BAR-STANDARD DIAGRAM-FS

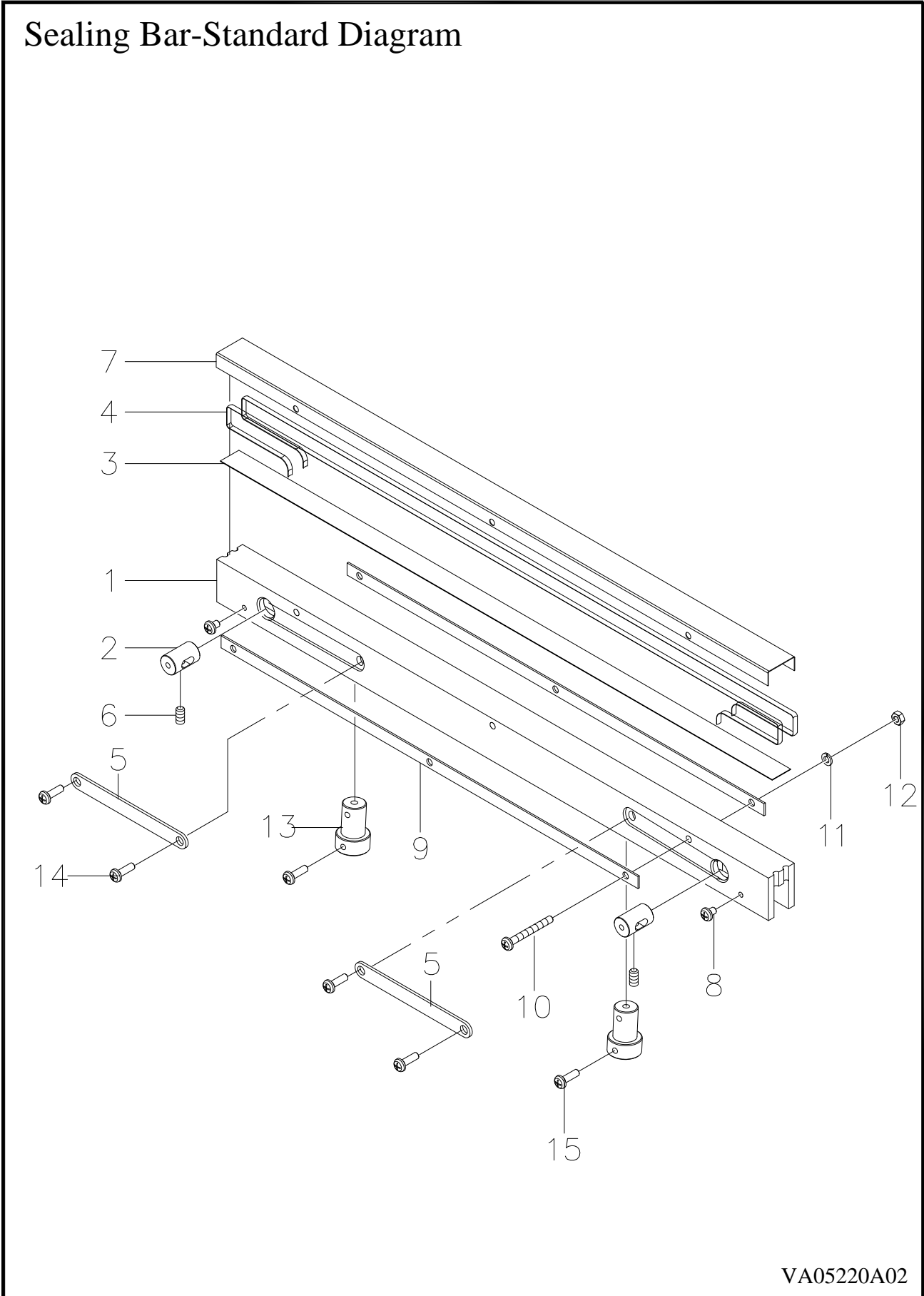
#### Sealing Bar-Standard Diagram



VA04220A00



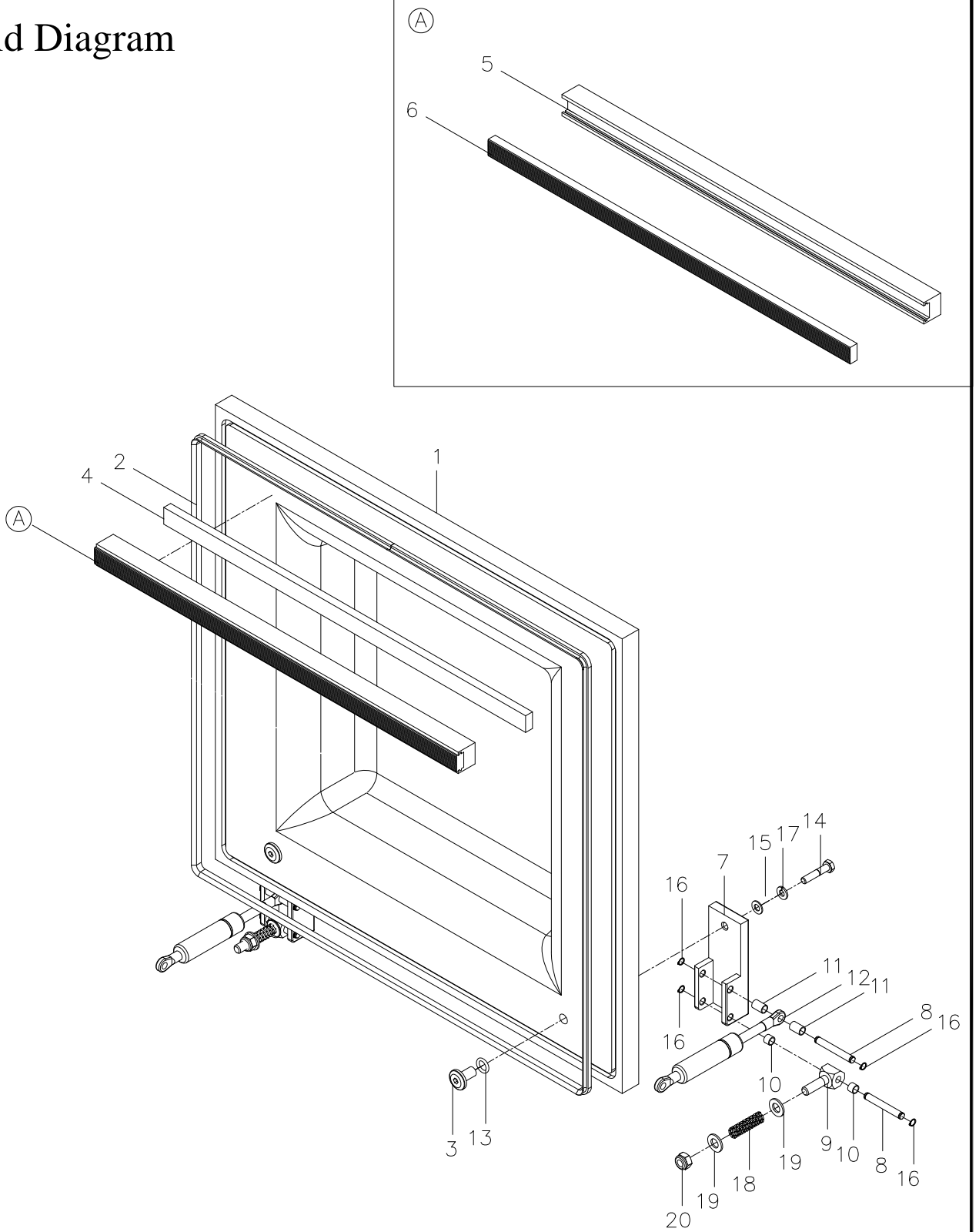
### 7.3.2 SEALING BAR-STANDARD DIAGRAM-LRS





# 7.4.1 LID DIAGRAM-F

## Lid Diagram

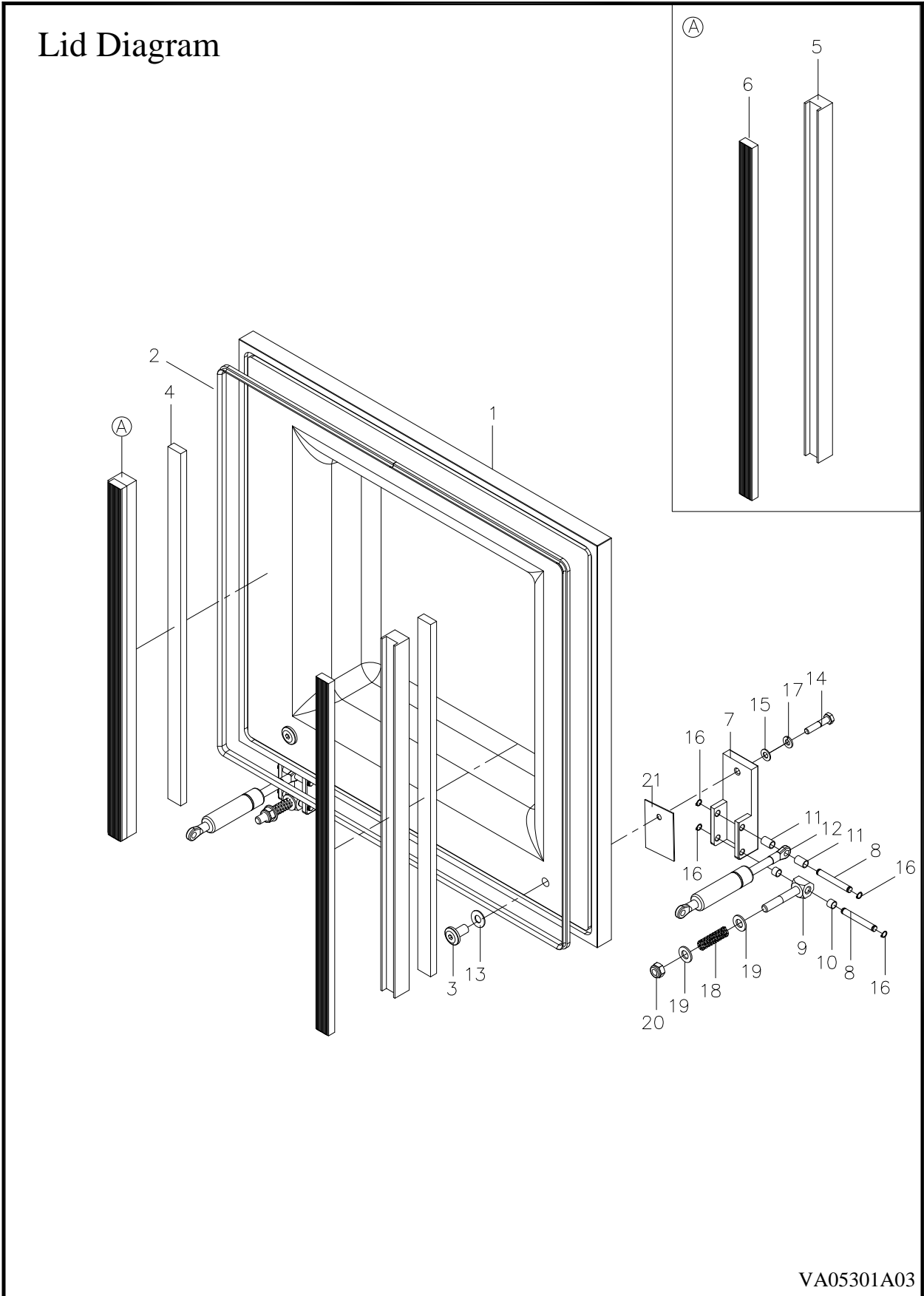


VA04301A03



<b>NO.</b>	<b>PART NO.</b>	<b>DESCRIPTION</b>	<b>Q'TY</b>	<b>NOTE</b>
1	VA04301005	Vacuum lid	1	
2	3114459	Lid gasket	1	
3	VA04303001	Binding post screw	2	
4	3200410	Tape	1	
5	VA04311003	Sealing bar - top	1	
6	3114463	Sealing silicone	1	
7	VA04320000	Lid Holder	2	
8	VA04321001	Hinge Pin	4	
9	VA04322002	Bolt(E) 5/8" x 5/8" x 62L	2	
10	VA04323001	Washer(E) $\phi 8$ x 6L	4	
11	VA04324001	Washer(E) $\phi 8$ x 12L	4	
12	VA04330002	Gas spring	2	
13	2740174	O-ring P10A	2	
14	2700462	Hex hd screw M6 x 30	2	
15	2705151	Washer M6	2	
16	27060141	Ring S6	8	
17	2705302	Split lock washer M6	2	
18	VA04325000	Pressure spring $\phi 10$ x $\phi 1.2$ x 36L	2	
19	2705152	Washer M8	4	
20	2707103A	Nylock nut M8	2	
A	VA04311A02	Cushion bar assembly	1	

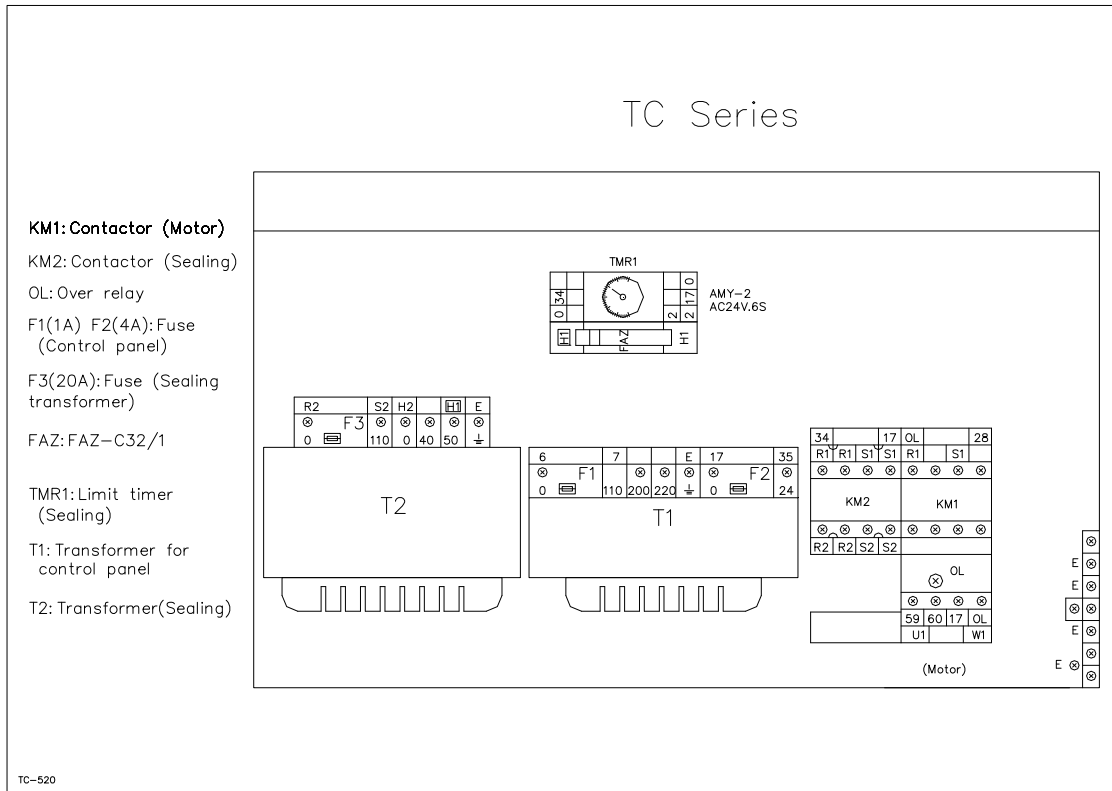
# 7.4.2 LID DIAGRAM-LR



VA05301A03

NO.	PART NO.	DESCRIPTION	Q'TY	NOTE
1	VA04301005	Vacuum lid	1	
2	3114459	Lid gasket	1	
3	VA04303001	Binding post screw	2	
4	3200410	Tape	1	
5	VA05311004	Sealing bar - top	2	
6	3114463	Sealing silicone	2	
7	VA04320000	LIid Holder	2	
8	VA04321001	Hinge Pin	4	
9	VA04322002	Bolt(E) 5/8" x 5/8" x 62L	2	
10	VA04323001	Washer(E) φ8 x 6L	4	
11	VA04324001	Washer(E) φ8 x 12L	4	
12	VA04330002	Gas spring	2	
13	2740174	O-ring P10A	2	
14	2700462	Hex hd screw M6 x 30	2	
15	2705151	Washer M6	2	
16	27060141	Ring S6	8	
17	2705302	Split lock washer M6	2	
18	VA04325000	Pressure spring φ10 x φ1.2 x 36L	2	
19	2705152	Washer M8	4	
20	2707103A	Nylock nut M8	2	
A	VA05311A02	Cushion bar assembly	1	

## 7.5 ELECTRICAL BOX(1Φ 110V 50/60HZ)



ITEM	PART NO.	DESCRIPTION	SPECIFICATION	Q'TY	NOTE
KM1	2810739	Contactor	3A1a CN-11-B5 (AC24V)	1	
KM2	2810744	Contactor	CN-10/4P-B5 (AC24V)	1	
OL	2811514	Overload Relay	RHN-10K (12.5~18A)	1	
F1	2890047	Fuse	20mm 0.5A	1	
F2	2890063	Fuse	20mm 4A	1	
F3	2890069	Fuse	20mm 25A	1	
FAZ	2801734	Breaker	FAZ-C32/1	1	
TMR1	2833328	Time Relay	ANLY AMY-2 6S (AC24V)	1	
	2833329	Socket Relay	PYF08A-E MY2	1	
T1	28960010	Transformer	TBSW-1I-70VA CE 0F-110-200-220V/0F-24V	1	
T2	28960050	Transformer	500VA 0F-110V/ 0-45V	1	