User Manual

VFE-6C
SIX-CUP FLAT EDGER

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LAW

ALL CONTRACT AND OTHER CLAIMS (WHETHER BASED ON CONTRACT, TORT, EQUITY, TREATY, OR CODE) WITH RESPECT TO THE PRODUCTS SOLD AND ALL CLAIMS WITH RESPECT TO THE OPERATION AND USE OF THE PRODUCTS SHALL BE GOVERNED BY, AND CONSTRUED IN ACCORDANCE WITH THE LAWS OF THE STATE OF ILLINOIS, USA. THE SALES CONTRACT SHALL NOT BE GOVERNED BY THE UNITED NATIONS CONVENTION ON CONTRACTS FOR THE INTERNATIONAL SALES OF GOODS.

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C.R. Laurence Co., Inc.
Glass Machinery Division
5501 West Ogden Avenue, Cicero, IL 60804, U.S.A.

PREFIX

We suggest to carefully follow the instructions in this manual and to regularly follow procedures of maintenance, which will allow you to obtain a higher degree of reliability, safety and durability of the product.

- This manual contains several advises and precautions for safety. We urge you to read them carefully.
  In this way you will avoid danger, injuries and eventual damage to the machine.
- Exclusively trained personnel must do maintenance and repairs.

INDEX

1.) TECHNICAL FEATURES

1.1) Machine dimensions

Width	:	5639 mm (222”)
Depth	:	1371 mm (54”)
Total height	:	2591 mm (102”)
Conveyor height		749 mm (29.5”)
Weight	:	1814Kg (4000 lbs)

1.2) Electrical and pneumatic requirements

Voltage	:	3-Phase/230Volts +/- 5%
Frequency	:	60 Hz +/- 5%
Auxiliary service voltage	:	24 Volts/60Hz.
Compressed air supply	:	6 Bars (87 psi).
Installed power	:	15.5 kW +/- 10%

1.3) Machine performance description

Workable thickness	:	3 - 19 mm (1/8” – 3/4”)
Working speed	:	0 - 3 m/min (0-120 inch min)
Adjustable edge removal	:	0 - 2.5 mm (0 – 0.098”)
Coolant system	:	Closed circuit

2.) SAFETY RULES

The machine is provided with all devices of protection both mechanical (chain guard, shelters, etc.) and electrical (sensors, stops, etc.) in order to avoid any contact with moving parts by the operator.

It is absolutely prohibited for anyone to alter or remove any safety devices mentioned above with the power on!!
Any kind of verification, control, cleaning, maintenance, change or substitution of parts must be done with the power off and the main disconnect locked out. (see section 9)

The manufacturer declines any and every responsibility for lack of following safety rules and of injury prevention described below. He moreover declines every responsibility of damages caused by an improper use of the equipment or changes made without authorization. It is also necessary for personal safety that no one beside the operator remains in proximity of the equipment when in use.

2.1) General safety rules

When operating electric equipment, it is necessary to adopt the appropriate safety precautions to minimize the risk of electrical shock or injuries. Before operating the machine, read the manual carefully and memorize the following safety rules and save this booklet for future reference:

- Keep the work area clean and orderly, as unorganized work areas encourage accidents.
- Before starting, verify the condition of the machine. Check the standard operation and for broken and or damaged parts. Replace all broken or damaged parts by a competent and authorized service person.
- All repairs performed by unauthorized service personnel will void the warranty and will constitute operating the equipment in an unsafe manner leading to potential danger.
- It is absolutely prohibited to let children, outsiders, untrained, or people in poor health to touch or use this equipment.
- Verify that the electrical power source conforms to the electrical specifications before operating this machine.
- When installing the electrical power source, make sure that the machine is properly grounded.
- Check the outlet to be appropriate and compatible with the automatic protection switch in the machine.
- The extension cord if used must have a grounded receptacle, plug and cable as per code.
- Never stop the machine by disconnecting the power.
- Check periodically the condition of the cable and replace it should it become cut or frayed. This work is to be performed only by qualified personnel.
- Do not allow any personnel to come in contact with this cable.
- Do not ignore these advices. Such an act will constitute an unsafe use of this equipment and will create a potential danger.
- Personnel authorized by the manufacturer must make repairs.
- The manufacturer is available for immediate technical assistance to insure optimum performance and the maximum production of the machine.

3.) SHIPPING, MOVEMENT AND STORAGE

Specialized and competent personnel must perform all shipping operations of the machine.

3.1) Machine shipping and crating

The crated machine is easily transportable by forklift with a minimum capacity of (2) tons l.

In the act of moving be very careful to avoid bumping or dropping the machine or causing excessive vibration to avoid damaging components.

3.2) Packing and unpacking

After unpacking, make sure of the condition of the machine while checking to see if there is any visible damage.

If in doubt, do not use the machine and call the manufacturer's customer's service.

3.3) Storage until installation

It is okay to store the machine in its original container providing that it is not stored in a place of high humidity.

In the case of a long or extended idle period or a period of nonuse after the machine has been used, it is necessary to disconnect the power source and provide protection to the machine with a plastic cover to avoid dust. Grease all parts that can be damaged by oxidation or moisture.

4.) INSTALLATION AND CONNECTIONS

4.1) Environmental working conditions.

The machine can work at temperatures between 41 and 113 degrees Fahrenheit.

4.2) Space requirements

Make sure that the clearance provided around the machine is sufficient to be able to open all doors completely and to perform all operations of maintenance.

4.3) Machine installation requirements.

Before placing the machine in its final location, proceed with the following checklist:

- ✓ Check the ability of the floor to support the weight of the machine and its accessories.
- ✓ Check the lighting around the machine. It should be free from shaded areas, inconvenient high beams and or stroboscopic lights that could create dangerous conditions.
- ✓ Check the condition of the machine for damage as a result of transportation.
- ✓ Check to see that all feet of the machine are uniformly positioned on the floor.

After the machine has been placed in its working position, it must be correctly leveled using the adjustable feet.

4.4) Electrical connection

Work performed on electrical parts, electrical safety of this equipment is assured only when it is correctly connected and properly grounded as per federal, state, and local codes concerning the same.

It is mandatory to verify these basic safety requirements and when in doubt, ask for a check of the electrical circuit by professionally trained personnel.

The manufacturer is not responsible for damages caused by an improperly connected machine.

WARNING: Interruption capacity of main circuit breaker: < 6 kA
Verify that the short circuit capacity of the supply is compatible
With the main circuit breaker.

4.5) Pneumatic connection

Compressed air is required and must be connected to the FRL (filter, regulator and lubricator) on the outside of the machine.

A shut off valve should be placed ahead of the FRL.

After pressurizing the pneumatic circuit, set the air pressure on the pressure gauge of the regulator to 6 bars which is approximately 90-psi minimum. Adjust the knob on the regulator to achieve the above value.

5.) EQUIPMENT DESCRIPTION

There are four spindles equipped with:

- 1st diamond grinding wheel – 150 mm dia. (M1)
- 2nd diamond grinding wheel – 150 mm dia. (M2)
- 3rd grinding wheel for rear arris – 130 mm dia. (M3)
- 4th grinding wheel for front arris – 130 mm dia. (M4)
- 5th polishing wheel for flat edge – 150 mm dia. (M5)
- 6th cerium polish for flat edge – 150 mm dia. (M6)

The diamond grinding wheel spindle M1 has a locknut and a knurled knob (see enclosed drawing **MMD** on annex 4). One complete turn of the knob #38 on the drawing **MMD** will raise or lower the grinding wheel by **2 mm** or approximately .**080"**. This knob has 40 grades; each grade is equal to variation of height of **.002"**.

The spindles for the arris edges and the flat polishing wheels work pneumatically, and are controlled electronically to engage and disengage the operation of the electro valves relative to every wheel.

6.) MAIN ASSEMBLIES

1) Hand wheel to regulate glass removal
2) Dial indicator for reading of quantity to be removed
3) Adjustable feet to level the machine
4) Knurled knob for diamond grinding wheel adjustment
5) Diamond grinding wheel motors M1 and M2 (manual adjust)
6) Arris grinding wheel motors M3 and M4
7) Polish wheel motors M5 and M6
8) Pneumatic cylinder
9) FRL group (filter, regulator and lubricator)
10) Base
11) Conveyor motor to advance glass
12) Anchors to lift and move the machine
13) Support structure
14) Control panel (see annex. #1)

7.) OPERATION CYCLE: COMMANDS AND FUNCTIONS

The machine operator is advised to do the following:

Warning: Always make sure the pump is ON, before you run glass. Otherwise a major damage could be caused to the machine.

SIX CUP MACHINE WHEELS ARRANGEMENT			
WHEELS	**GRIT**	**TYPE**	**PART#**
POS #1	100	FLAT EDGE CUP (DIAMOND O.D. 150mm)	39942000
POS #2	240	FLAT EDGE CUP (DIAMOND O.D. 150mm)	39942003
POS #3	150	*ARRIS 130mm (GREEN STONE)	39892400
POS #4	150	*ARRIS 130mm (GREEN STONE)	39892400
POS #5	10S40	POLISH (150mm)	39942403
POS #6	CERIUM	CE02 X3000/ X5000 (150mm)	39942402

*** NOTE: 130mm Arris Wheels MUST be no higher than 32mm to allow glass clearance.**

The adjustment of the amount of glass to be removed is located under the infeed glass conveyor side and is changed by operating the hand wheel as seen on the decimal dial indicator. **NOTE THAT MAXIMUM MATERIAL REMOVAL IS 0.098" (3/32")**

For optimum machine output, it is recommended to use these settings.

WHEELS #3, #4, #5, #6 SETTING				
GLASS THICKNESS	mm	4 TO 8	8 TO 12	12 TO 20
	inches	1/8 TO 5/16	5/16 TO 1/2	1/2 TO 3/4
SPINDLE 3 & 4 AIR CYLINDER PRESSURE	bars	2	2	2
	psi	29	29	29
SPINDLE 5, 6 AIR CYLINDER PRESSURE	bars	3.5	3.5 TO 4.5	4.5 TO 5
	psi	51	51 TO 66	66 TO 73
CONVEYOR SPEED	m/mn	1.4 TO 1.8	1.3 TO 1.6	0.5 TO 0.8
	ft/mn	4.6 TO 5.9	4.26 TO 5.25	1.64 TO 2.62

NOTES:
1- ONLY METRIC CONVEYOR SPEED CAN BE ENTERED INTO CONTROL PANEL
2-MINIMUM PRESSURE ON ALL CYLINDERS SHOULD BE 2 BARS (29 PSI)
3- LOWER PRESSURE ON M5 & M6 WHEN POLISHING SMALL TAIL STOCK

7.1) Wheel replacement procedure

When replacing grinding or polish wheels, insert spindle-locking wrench over the flats on the spindle hub. Place 30mm box wrench or 8mm Allen wrench on the spindle locking screw, hold firm and rotate the spindle clockwise. This will loosen locking screw. Reverse hub rotation to tighten locking screw.

In the event you must replace the diamond grinding, proceed as follows:

- Lower the diamond-grinding wheel via the knurled knob as far as possible while leaving the locknut in its previous position.
- Remove the old wheel as mentioned above
- Install the new wheel
- Turn water on
- Turn motor M1 on if you working on spindle 1
- Adjust conveyor speed to minimum level
- Load a piece of glass into the machine
- Set the conveyor direction switch to forward
- Press the conveyor start button
- Wait until glass passes the grinding wheel, and set the conveyor direction switch to reverse
- Remove glass and measure the amount of glass removed
- Raise the knurled knob until the desired amount of glass is removed and retighten locknut
- Gradually increase the glass conveyor speed to its desired level

In the event of glass breakage, press the emergency stop button

- Decrease speed control setting and remove the glass from the machine by reversing the glass travel direction.
- Correct the problem causing the breakage and resume operation.

7.2) Necessary spacing between glass pieces

- Leave 1 inch or less between glass pieces of same thickness
- **Leave a minimum of 8 inches in between glass pieces of different thickness**, because that is the necessary distance for arris and polish spindle to retract and engage.

7.3) Operation

Switch on main circuit breaker located on the LEFT SIDE of the control cabinet. Then switch on ON/OFF power switch. Operating touch panel interface lights on. Edger is ready at manual or auto modes.

Manual Operation: (Switch MANUAL/AUTO to Manual position)

- Press F5 at touch panel to start/stop water pump
- Press F1 at touch panel to start/stop MOTOR #1
- Press F2 at touch panel to start/stop MOTOR #2
- Press F3 at touch panel to start/stop MOTOR #3
- Press F4 at touch panel to start/stop MOTOR #4
- Press F5 at touch panel to stop or start MOTOR #5
- Press F6 at touch panel to stop or start MOTOR #6
- Switch CONVEYOR FORWARD / REVERSE to required conveying direction

- Press START/STOP to start or stop conveyor transmission (Hold for 2 seconds)
- Press RESET button to stop edger
- Press EMERGENCY button to stop edger and to cut off control power

Automatic Operation: (Switch MANUAL/AUTO to Auto position)

- Press F2 at touch panel to stop or start MOTOR #2
- Press F3 at touch panel to stop or start MOTOR #3
- Press F4 at touch panel to stop or start MOTOR #4
- Press F5 at touch panel to stop or start MOTOR #5
- Press F6 at touch panel to stop or start MOTOR #6
- Switch CONVEYOR FORWARD / REVERSE to required conveyor direction
- Press START/STOP button (Hold for 2 seconds), water pump, selected motors and conveyor start up
- Press START/STOP to start or stop conveyor
- Press RESET button to stop edger
- Press EMERGENCY button to stop edger and to cut off control power

8.) MACHINE CIRCUITS

8.1) Electric circuit

- Schematic and components annex #2
- Control panel annex #1

8.2) Electrical specification

A) General electrical characteristics

▪ Machine voltage	:	3 phase/220 volts +/-10%
▪ Frequency of operation	:	60 Hz +/-5%
▪ Auxiliary service voltage	:	24 volts/60 Hz
▪ Pneumatic service voltage	:	24 volts/60 Hz

B) Motors

▪ Motor M1	:	2 pole/220 volts/60 Hz/2.2 kw
▪ Motor M2	:	2 pole/220 volts/60 Hz/2.2 kw
▪ Motor M3	:	2 pole/220 volts/60 Hz/1..5 kw
▪ Motor M4	:	2 pole/220 volts/60 Hz/1.5 kw
▪ Motor M5	:	2 pole/220 volts/60 Hz/1.5 kw
▪ Motor M6	:	2 pole/220 volts/60 Hz/1.5 kw
▪ Pump motor	:	2 pole/220 volts/60 Hz/0.25 kw
▪ Conveyor motor	:	4 pole/380 volts/60 Hz/1.5 kw
		Complete with 160:1 reducer

8.3) Pneumatic arrangement

- Pneumatic circuit outline Annex #3

8.4) Control Panel (Annex #1)

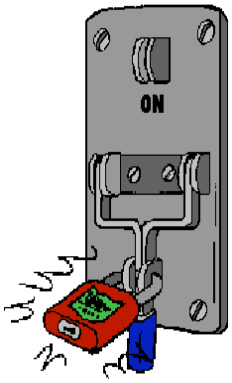
- MOTORS 1 ~ 6:Spindle Motor Current Ammeter
- F920 Touch Panel Operator Interface:
  - Manual mode: Operate spindles manually
  - Auto mode: Select those spindles which required automatic operation, set up polishing parameters
- : Motor overload indicator lamp
- : Water pump operating indicator lamp
- SPEED: Conveying speed potentiometer used to adjust glass traveling speed
- CONVEYOR: Transmission operating indicator lamp
- CONVEYOR FORWARD / REVERSE: Transmission direction switch
- POWER: Turn on or off 24V control power
- RESET: Reset button
- START/STOP: Start machine and conveyor start/stop button at automatic mode. Conveyor start/stop button at manual mode
- MANUAL/AUTO: Selection of manual/auto modes of edger
- REAR ARRIS: Cylinder regulating valve and pressure gauge of rear arris
- FRONT ARRIS: Cylinder regulating valve and pressure gauge of front arris
- EDGE POLISH: Cylinder regulating valve and pressure gauge of flat edge polish
- MAIN POWER SWITCH: Located on console side

9.) MAINTENANCE

WARNING!

Any kind of verification, cleaning, maintenance, replacement and substitution of parts must be performed with the power off and the main disconnect locked out. (see section 2)

OSHA 29 CFR 1910.147 standard requires the placement of a lockout on energy stored equipment in a manner that will render them safe to work on and prevent the inadvertent start up of such equipment, in accordance with an established procedure, and ensure that the energy-isolating device and the equipment being controlled cannot be operated, while it is being serviced or maintained, until the lockout device is removed.



9-1.) Preventive maintenance

- When switching the machine on, check the air pressure. It must be at or above 6 bars / 90psi.
- It is necessary to keep the machine clean from glass grindings regularly to prevent premature wear.
- It is also necessary to keep the machine inside of the spindle tub clean from broken glass to prevent damage to the water delivery system.
- It is necessary to continually check the condition of the grinding and polishing wheels and replace them as required.
- Every 40 hours of operation drain the condensation from the FRL group. Replenish oil reservoir with a good grade of Air Tool Oil (Mobil Almo 525 or equivalent). P/N 299-0148-0
- Every 200 hours of operation lubricate all of the ball bearing units with a NLGI #2 wheel bearing grease.

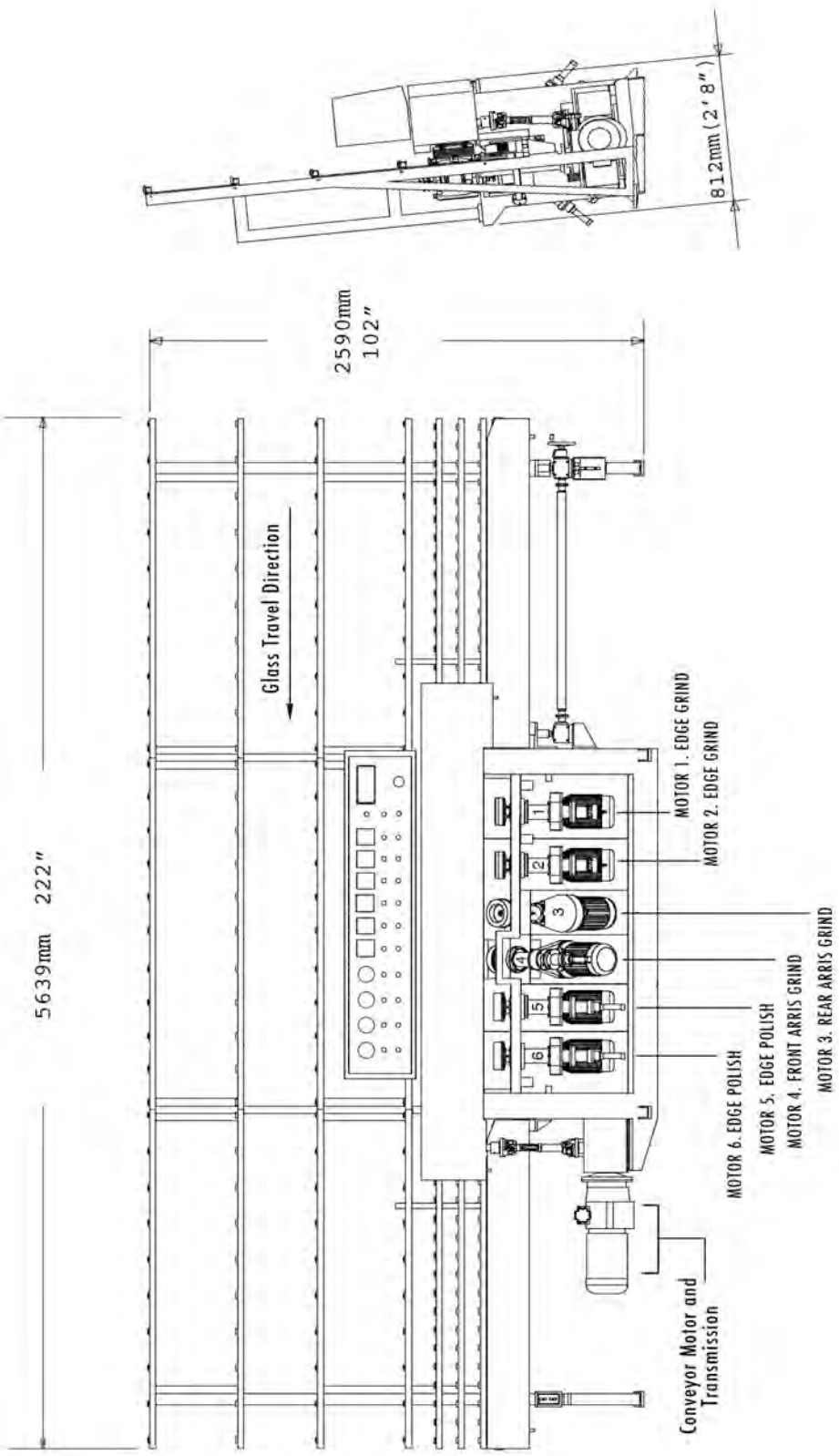
10.) TROUBLE SHOOTING SOLUTIONS

PROBLEM	CAUSE	SOLUTION
Motors will not Starting	Burnt fuse	Replace
	Thermal Trip	Reset
	Electrical interruption	Verify
No pneumatic movement	Not enough air pressure	Verify pressure At 6 bars / 90 psi. Minimum
	Solenoid valve broken or defective	Check and replace
Water pump not working	Burnt fuse	Replace
	Thermal Trip	Reset
	Electrical interruption	Verify

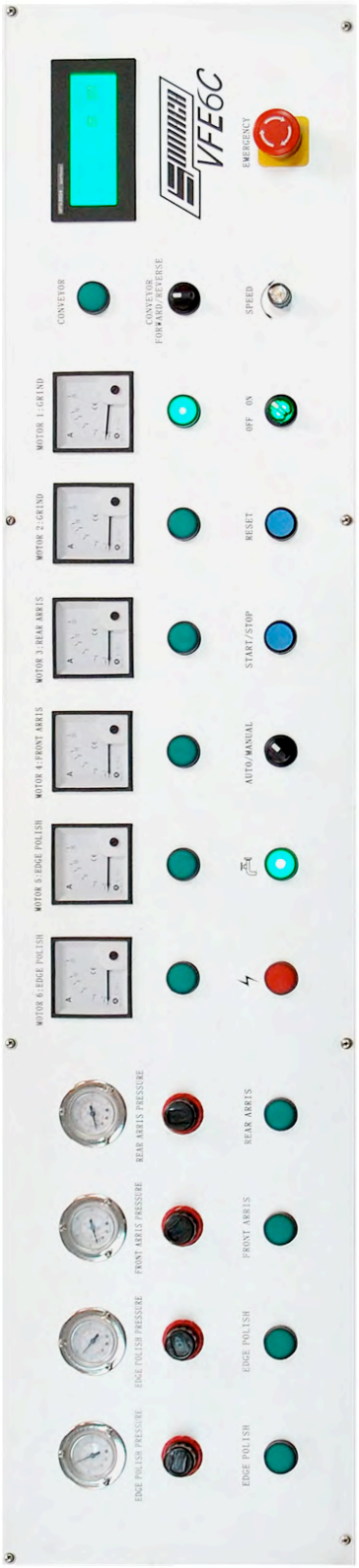
11.) ANNEXES

- Main Assembly Annex#0
- Control panel Annex #1
- Electrical circuit outline Annex #2
- Pneumatic circuit outline Annex #3
- Programming the Interface Controller Annex #4
- Installation and Set-Up Annex #5
- Spindle Rotation and Wheel Selection Annex #6

ANNEX 0

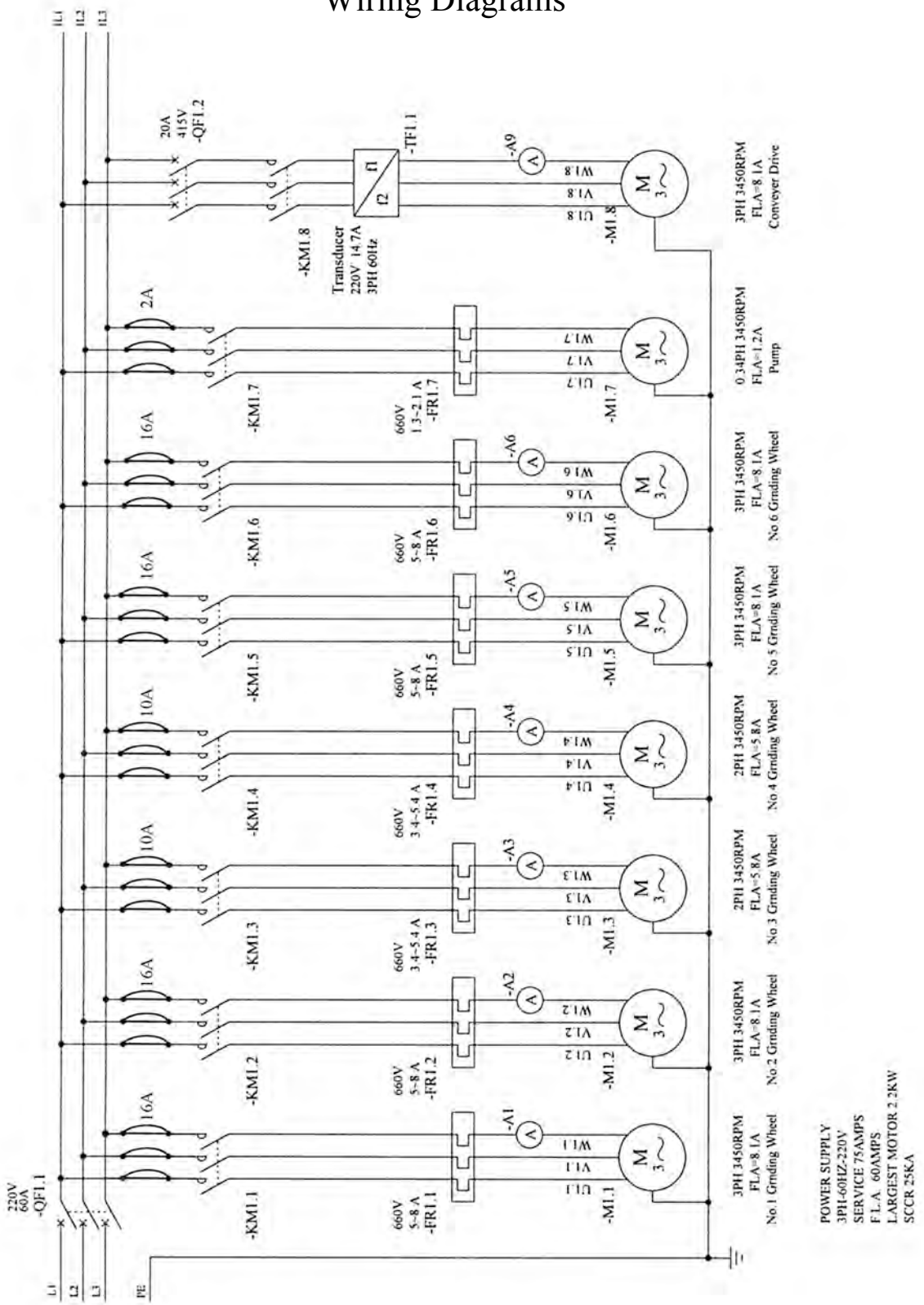

812mm(2'8")
2590mm
102"
5639mm 222"
Glass Travel Direction
MOTOR 1. EDGE GRIND
MOTOR 2. EDGE GRIND
MOTOR 3. REAR ARRIS GRIND
MOTOR 4. FRONT ARRIS GRIND
MOTOR 5. EDGE POLISH
MOTOR 6. EDGE POLISH
Conveyor Motor and Transmission

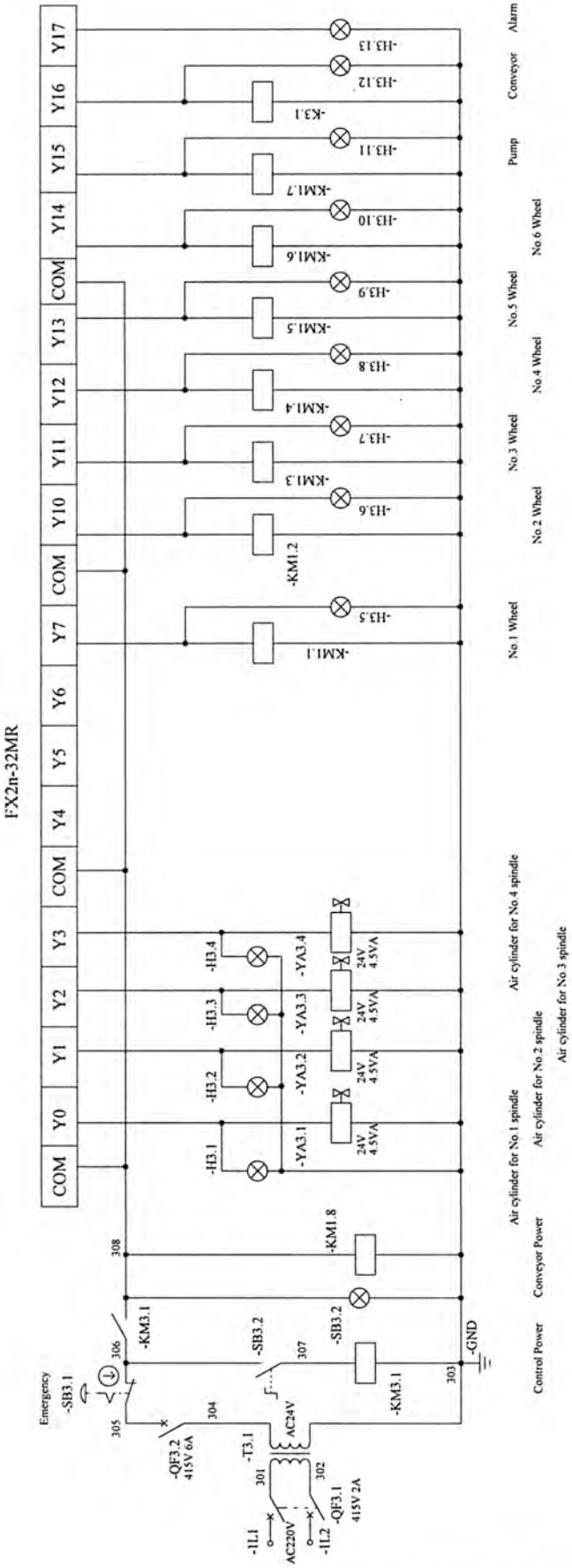
ANNEX 1

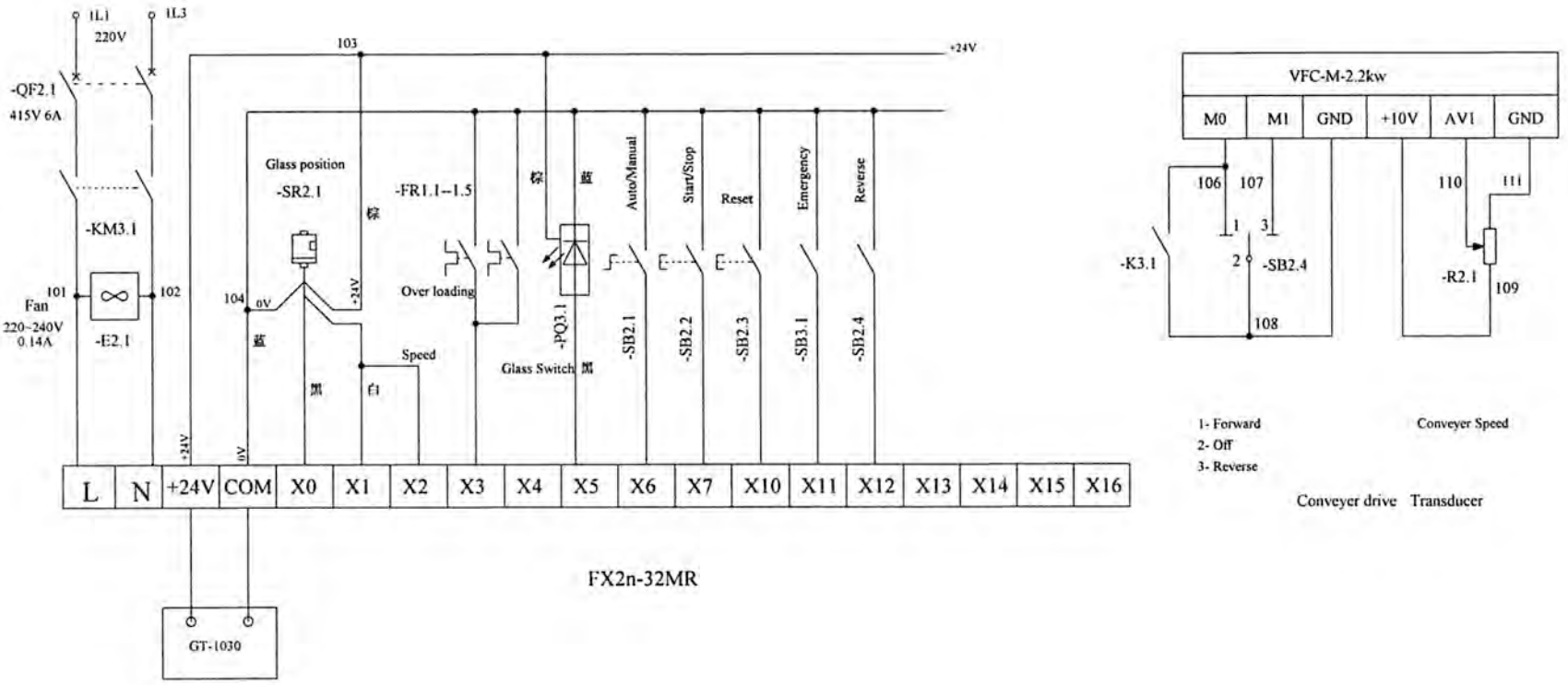

VFE6C
EMERGENCY
CONVEYOR
CONVEYOR FORWARD/REVERSE
SPEED
MOTOR 1-GRIND
MOTOR 2-GRIND
MOTOR 3-REAR ARRIS
MOTOR 4-FRONT ARRIS
MOTOR 5-EDGE POLISH
MOTOR 6-EDGE POLISH
OFF ON
RESET
START/STOP
AUTO/MANUAL
REAR ARRIS PRESSURE
FRONT ARRIS PRESSURE
EDGE POLISH PRESSURE
EDGE POLISH PRESSURE
REAR ARRIS
FRONT ARRIS
EDGE POLISH
EDGE POLISH

ANNEX 2

Wiring Diagrams

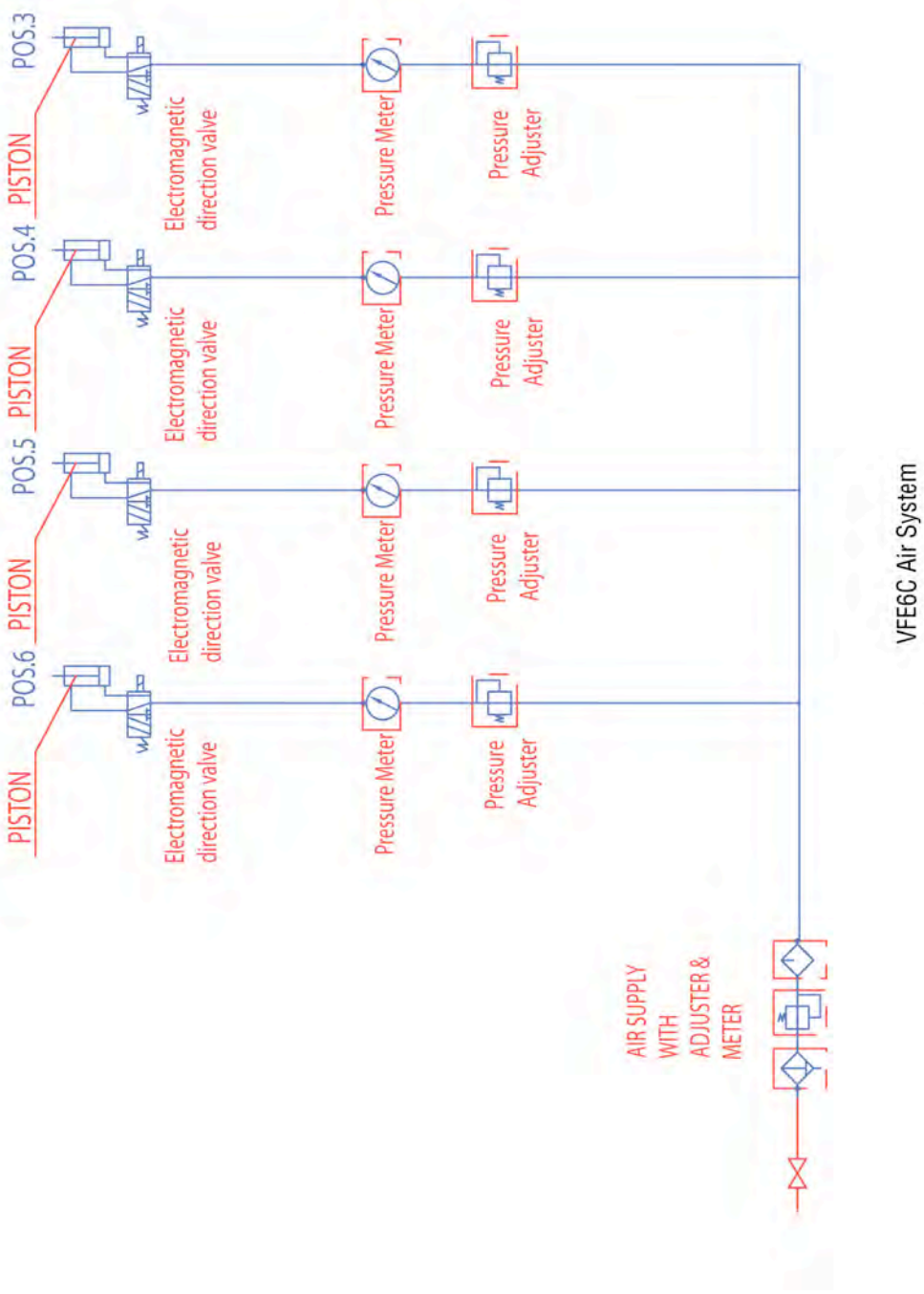



FX2n-32MR
COM Y0 Y1 Y2 Y3 COM Y4 Y5 Y6 Y7 COM Y10 Y11 Y12 Y13 COM Y14 Y15 Y16 Y17
-H3.13
-H3.12
-K3.1
-H3.11
-KM1.7
-H3.10
-KM1.6
-H3.9
-KM1.5
-H3.8
-KM1.4
-H3.7
-KM1.3
-H3.6
-KM1.2
-H3.5
-KM1.1
Alarm
Conveyor
Pump
No 6 Wheel
No.5 Wheel
No 4 Wheel
No 3 Wheel
No 2 Wheel
No 1 Wheel
Air cylinder for No 4 spindle
Air cylinder for No 3 spindle
Air cylinder for No 2 spindle
Air cylinder for No 1 spindle
-H3.4
-H3.3
-H3.2
-H3.1
-YA3.4
-YA3.3
-YA3.2
-YA3.1
24V 4.5VA
-KM1.8
-KM3.1
-SB3.2
-SB3.2
-KM3.1
-GND
Control Power
Conveyor Power
Emergency
-SB3.1
-QF3.2 415V 6A
-T3.1
AC24V
-QF3.1 415V 2A
-1L1
AC220V
-1L2
305
306
304
308
307
303
301
302


1L1
220V
1L3
-QF2.1
415V 6A
-KM3.1
101
Fan
220~240V
0.14A
-E2.1
102
103
+24V
104
0V
-24V
Glass position
-SR2.1
-FR1.1--1.5
Over loading
Speed
f1
-PQ3.1
Glass Switch
Auto/Manual
Start/Stop
Reset
Emergency
Reverse
-SB2.1
-SB2.2
-SB2.3
-SB3.1
-SB2.4
L
N
+24V
COM
X0
X1
X2
X3
X4
X5
X6
X7
X10
X11
X12
X13
X14
X15
X16
GT-1030
FX2n-32MR
VFC-M-2.2kw
M0
M1
GND
+10V
AVI
GND
106
107
110
111
-K3.1
-SB2.4
-R2.1
108
109
1- Forward
2- Off
3- Reverse
Conveyer Speed
Conveyer drive Transducer

ANNEX 3

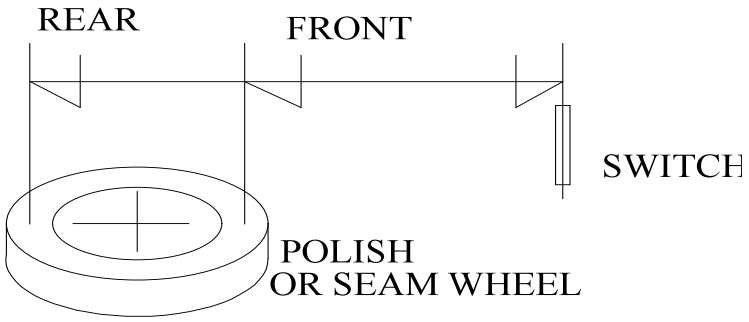
Pneumatic Diagram



ANNEX 4
Programming the Interface Controller

Caution: Parameters have been factory set. Changes to these settings without consulting supplier may void warranty.

The parameter change is to get the wheels to engage the glass at the proper point of the wheel. This point is in the middle of the face on the front side of the wheel, and leaves the wheel in the middle of the rear face. This is done by changing the timing or count on the interface for the position you want to change.
The count starts at the glass switch and runs to the #2 wheel front side then leaves at the rear side. It still counts as it goes to the #3, and #4, so the numbers keep getting larger as the glass runs thru. As it counts from 0 to the #2 wheel you have 600 counts to engage the wheel and 615 to disengage the wheel on the #2.
If your number is larger the glass will travel farther away from the switch before the wheel will engage the glass, and if you make the number smaller the wheel would engage sooner on the glass.



The procedure for making program or parameter changes of the distance settings from the glass switch are as follows:

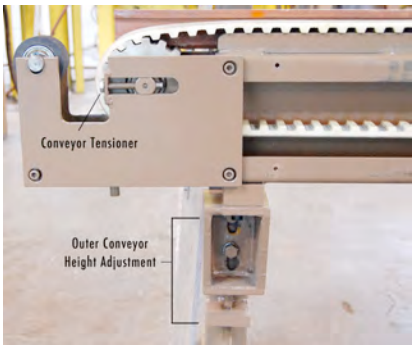
1. Switch Conveyor FORWARD/REVERSE switch into the CENTER position.
2. Switch MANUAL/AUTO switch into the AUTO position.
3. In the display you will push F6 this key will take you the parameter settings.
4. Press SET and the cursor (under line) will appear under the #4 first number.
5. Use the arrow key to select the parameter you wish to change.
6. After you select the parameter just enter the new parameter and press ENT this will then enter it into memory.
7. If you want to change another parameter repeat step four (4) five (5) and six (6).
8. When you are finished press F6 this will return you back to the run mode.

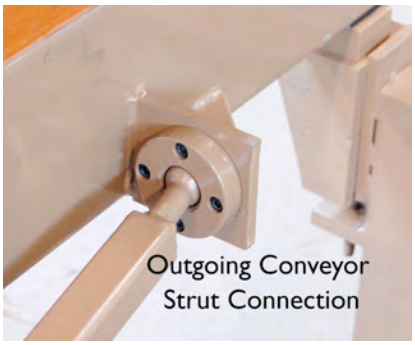
VFE-6C PROGRAMMING PARAMETERS		
SPINDLE	FRONT	REAR
M3		
M4		
M5		
M6		

ANNEX 5
Installation and Setup

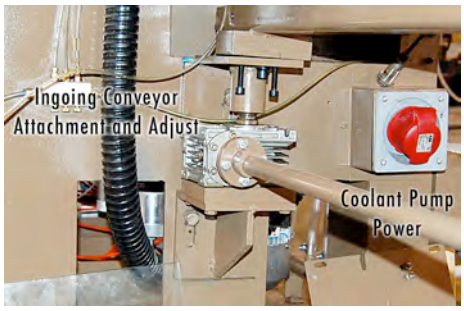
VFE6C Installation guide lines

1. Find a proper location for the machine.
2. Install leveling adjustment screws and leveling pads.
3. Level base machine from left to right.
4. Adjust base for a 5 deg backward tilt.
5. Install the ingoing conveyor with rack pillar.
6. Install the outgoing conveyor with rack pillar.
7. Install ingoing conveyor belt.
8. Adjust belt tension. (1” of play in the center)
9. Install outgoing conveyor belt.
10. Adjust belt tension. (1” of play in the center)
11. Install both middle pillars on to base.
12. Level ingoing and outing conveyor and align conveyor with base.
13. Install all roller tracks to rack pillar and middle pillar.
14. Position the coolant tank behind the machine
15. Install coolant pump. Place discharge hoses on opposite side of tank.
16. Attach all coolant hoses to pump and return hoses using hose clamps.
17. Check the wheels. (130mm wheels must be 32mm high or LESS)
18. Check all wheel coolant hose for proper position.
19. Install electrical power per village code.
20. Check all power legs and ground for proper voltage.
    (Leg to leg and leg to ground)
21. Turn on main power switch, at the end of the control panel.
22. Turn on power switch on, on the control panel.
23. Check to see the PLC turns on properly.
24. All motors show up on the PLC display.
25. Turn auto/manual switch to manual.





26. Turn on the pump buy pressing on the PLC display first and then #1 grind motor.
27. Check motor rotation. (See Illustration, pg. 25)
28. Watch the grind motor AMP meter that it is not running high AMP's.
29. Check all motors the same way.
30. Install air. Adjust main regulator knob for 90psi. (6 bar)
31. Adjust all arris air pressure knob to read 30psi. (2 bar)
32. Adjust polish air pressure knob to read 40psi. (2.75 bar)



33. Check arris and polish wheels work pneumatically. Using the manual position switch on the solenoid valve.
34. Check conveyor runs forward and reverse.
35. Check to see that when you turn the conveyor speed control the conveyor speeds up and slows down.
36. Place a piece of glass on the ingoing conveyor.
37. Put the auto/manual switch in the manual position.
38. Start the pump and #1 and #2 motors.
39. Place the forward/reverse switch in the forward position.
40. Push the start/stop button to start the conveyor.
41. Let glass go to the first grind wheel.
42. Push the start/stop button.

43. Put the forward/reverse switch in the reverse position.
44. Push the start/stop button.
45. Look to see how much the first grind wheel removed. (Use a depth gage)
46. First grind should be about .020 inch. (Lead side of the wheel should be about .015 and the trail about .005 inch.
47. Repeat 37 to 44 over the second grind wheel.
48. The second grind wheel should be about .010 inch. (Lead should be about .005 and the trail .005)
49. Remove air form machine.
50. Turn auto/manual switch to auto.
51. Place a piece of glass on the ingoing conveyor.
52. Place the forward/reverse in the forward position.
53. Push the start/stop button.

54. Everything will start in order. Starting with the pump, #1, #2, #3, and so on until everything has started up.

55. Glass will start running into the machine.

56. Watch the control panel and the lights on the arris and the polish light up when the glass comes over the wheel and goes out when the wheel passes in order.

57. Place a piece of glass on the conveyor.

58. Set the auto/manual switch to manual.

59. Start up the pump, #1, #2, and #3 motors

60. Put the conveyor forward/reverse in the forward position.

61. Start conveyor.

62. When the glass gets over the arris wheel engage the arris wheel using the manual position switch on the solenoid valve. Let the wheel hit then release.

63. Look at the arris wheel pattern. Both sides of the wheel should hit the glass evenly.

64. Repeat step 59 to 63 adding a motor each time until all arris wheels are done.

65. Repeat step 59 to 63 for the two (2) polish wheels.

66. The pattern should be the same both edges of the wheel should hit evenly.

67. Run a long piece of glass about 18X36 and stop the glass as it comes on the outgoing conveyor.

68. Adjust the outgoing conveyor height so the glass is just above the conveyor belt. (.005” or .1mm)

69. Level outgoing conveyor.

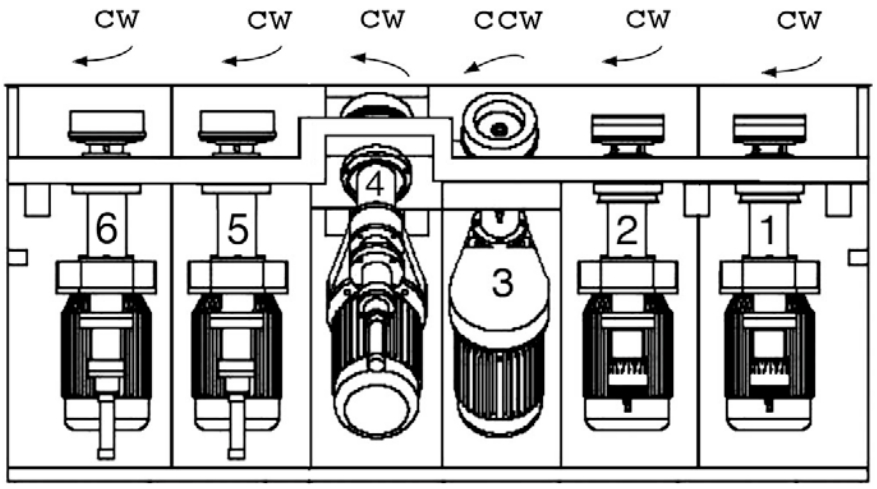
ANNEX 6

Spindle Direction and Rotation / Wheel Selection and Sizing

Wheel Arrangement w/Part Nos.

*NOTE: All 130mm Arris wheels MUST be no higher then 32mm to allow glass clearance

39942402	39945403	39892400	39892400	39960100	39942002
150mm	150mm	130mm*	130mm*	150mm	150mm
CERIUM	10S40	150	150	230	140/170



CUP WHEEL ROTATION

VIEWED FROM ABOVE

Only the rear Arris Wheels rotate counter clockwise

Glass Travel Direction