CLARK AIR SYSTEMS
*** SALES ORDER ***

Number : 36338 - Drop Shipment
Account: BELLA
Slm # : DAVE

Date: 11/29/2006
Page: 2062

Bill To:

BELLA DESIGN
301 WEST COMMERCIAL STREET
ATN: ACCOUNTS PAYABLE
EAST ROCHESTER, NY 14445

Ship To:

BELLA DESIGN
301 WEST COMMERCIAL STREET
ATN: LUCIEN CASARTELLI
EAST ROCHESTER, NY 14445

Description	Order Date	Customer PO Number	Shipping Instruction
PO# L.CASARTELLI	09/07/2006	L.CASARTELLI	TRUCK

Code	Quantity	UM	Description	Price	Amount
50003	1	EA	24' FULL DOWN DRAFT W/HEAT GSB_DD24HEAT W/BASEMENT, REAR MECHANICALS VFD SPEED DRIVE	$36,440.00	$36,440.00
50210	1	LOT	INSTALLATION OF BOOTH	$5,200.00	$5,200.00
50003	1	EA	8x10' MIX ROOM GSB_MIXR810 INCLUDES INSTALLATION	$6,050.00	$6,050.00
50210	1	LOT	VARIABLE FREQUENCY DRIVE SYSTEM WITH INVERTER DUTY MOTOR & DRIVE, TO BE ABLE TO BALANCE BOOTH WITH PUSH BUTTON OPERATION.	$2,140.00	$2,140.00

PAYMENT TERMS:
30% DEPOSIT - $13,365
60% UPON DELIVERY - $34101 - open payment
10% UPON COMPLETION PLUS
SALES TAX = $9493.20

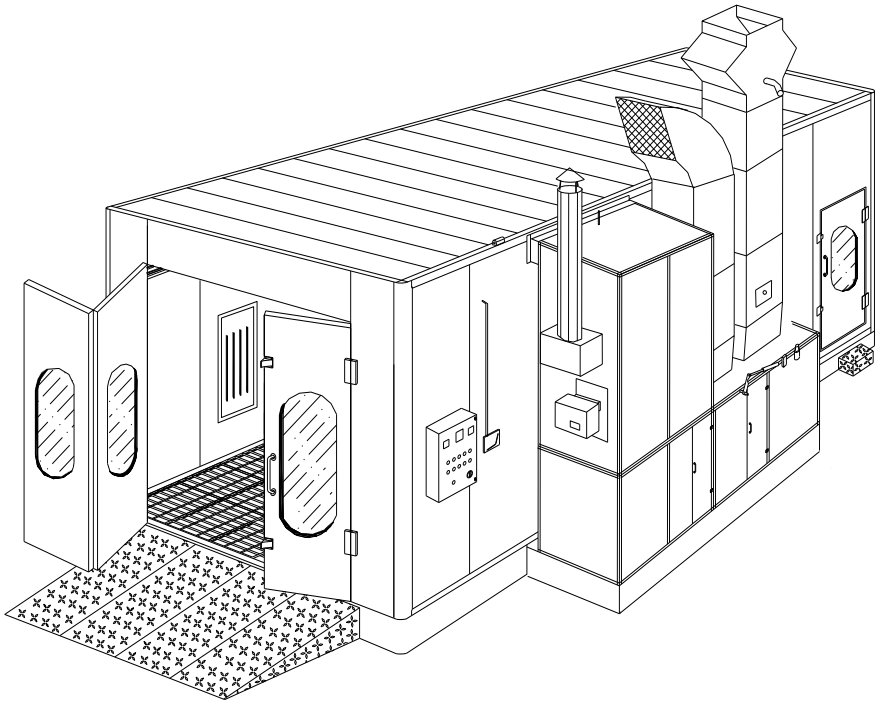
- Mix Room was added - this required additional deposit

Terms: SEE BELOW
Remit Payment to:
CLARK AIR SYSTEMS
645 Persons Street
East Aurora, NY 14052-2595

Disc. (0.000):	$0.00
Subtotal :	$49,830.00
Tax (MONROE C):	$4,219.20
Freight :	$2,910.00
Less Deposit :	$13,365.00
Amount Due :	$43,594.20

Magic-SPRAY ® **Booth**

Installation & Operation Manual



Please read the manual carefully before running the equipment!

1-888-719-3988

QUAD FINISHING INC.

110 S. Rosemead Blvd. #Q-2

Pasadena, CA 91107

Tel(626)666-5888 Fax(626)666-3998

&

Global Spray INC.

Important Safety Notes

1. No open fire inside the booth permitted while the booth is running.
2. The mask needed for the painters working inside the booth.
3. Make sure the equipment running normally before getting into the booth.
4. Authorized person needed to be on site while the booth running.
5. Don' t spray when the temperature is over 104℉.
6. 266℉ is the maximum Setting for the High limit temperature switch.
7. Don't open any of the doors during the booth running.
8. Shutting off the main power before the maintenance and the inspection to the booth.
9. Discard the used filters by codes required.
10. Don't modify kind of the flammable liquid to clean the booth.
11. Don't modify or change the structure of the booth without any authorization from the manufacture.
12. Strictly following the local and manufacture's safety regulation and codes to install and run the booth.
13. Please contact our local authorized representatives on time for any kind of the problems.

Notices:

1. Shield needed for the outside booth installation.
2. Following the safety instruction to install the booth.
3. Being careful about your tools and don't drop down them to hurt the people under you on your working site.
4. The installer needed to be trained and authorized.
5. Checking the appliances, i.e. the electrical wire, gas pipe, air pipe etc.
6. Keeping the booth clean
7. Making sure there's no flammable stuff inside the car before moving the car into the booth.
8. Taking off the connection of the car battery before the vehicle gets into the booth..
9. Fixing the car inside the booth.
10. Making sure grounding well.
11. Must be authorized people inside the booth.

Contents

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AK-SMF-24, AK-SMF-27

B-1-2: Direct fire system

AK-DDF-24, AK- DDf-27, AK-SDF-24, AK-SDF-27,

AK-SMF-24, AK-SMF-27

B-2: Control panel parts list

B-2-1: Indirect fire system

AK-DDF-24, AK-DDf-27, AK-SDF-24, AK-SDF-27,

AK-SMF-24, AK-SMF-27

B-2-2: Direct fire system

AK-DDF-24, AK-DDf-27, AK-SDF-24, AK-SDF-27,

AK-SMF-24, AK-SMF-27

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C-1: Blue prints

C-1-1: Indirect fire system

AK-DDF-24, AK-DDf-27, AK-SDF-24, AK-SDF-27,

AK-SMF-24, AK-SMF-27

C-1-2: Direct fire system

AK-DDF-24, AK-DDf-27, AK-SDF-24, AK-SDF-27,

AK-SMF-24, AK-SMF-27

C-2: Pit drawings

One-row pit drawings

AK-DDF-24, AK- DDf-27

Triple-row pit drawings

AK-DDF-24, AK- DDf-27

Whole base sit in ground pit drawings

AK-DDF-24, AK- DDf-27

C-3: Control panel drawings

C-3-1: Indirect fire system

AK-DDF-24, AK-DDf-27, AK-SDF-24, AK-SDF-27,

AK-SMF-24, AK-SMF-27

C-3-2: Direct fire system

AK-DDF-24, AK-DDf-27, AK-SDF-24, AK-SDF-27,

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D-1: Burner specs and instruction

Indirect fire burner

Direct fire burner

D-2: Temperature controller

Indirect fire burner temperature controller

Direct fire burner temperature controller

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E

E-1: Certificate for the Spray and baking booths

E-2: FAQs

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F

F-1: Prep Station

F-1-1: Single bay without heater

F-1-2: Single bay with heater

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F-1-4: Double with heater

F-2: Mixing Room

Installation Manual

Ⅰ.Sections Drawing and the descriptions for each part or section

Ⅱ.Tech Specs

Ⅲ. Working principles

Ⅳ.Pre-condition for the installation

Ⅴ.Raised Base installation

Ⅵ.Heating & Air make-up unit Installation

Ⅶ.Booth Cabin Installation

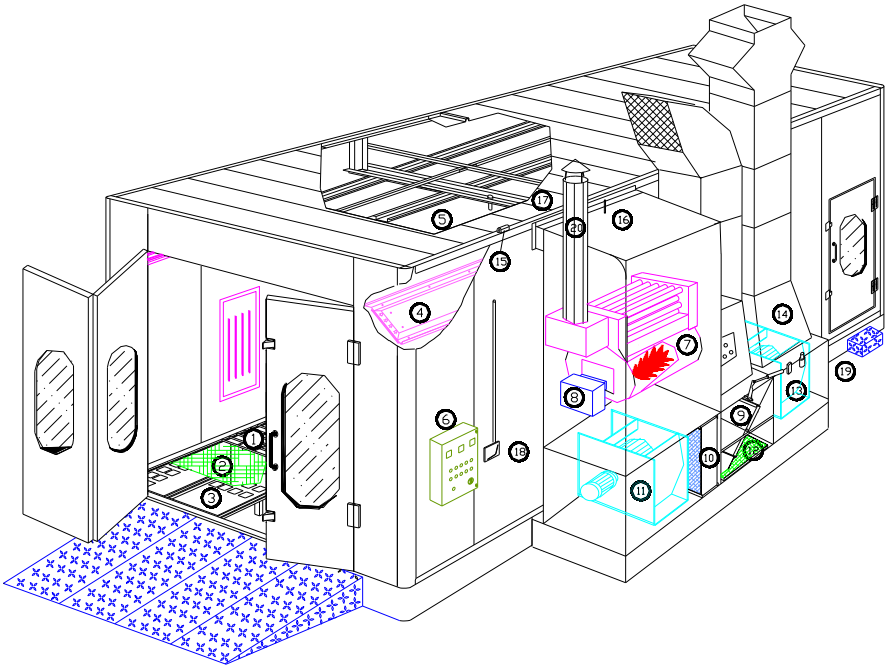
Ⅷ.Lighting Fixture Installation

Ⅸ.Hooking up the control panel & Other electrical Appliances

Ⅹ.Warning labels & Safety Appliances

XI.Final testing

I.Section Drawing and the descriptions for each part or section



1. Floor Grid
2. Floor Filters
3. Floor Filters Holding Panel
4. Lighting Fixture
5. Ceiling Filter
6. Control Panel
7. Heating Exchanger
8. Burner
9. Damper For Recirculation
10. Fresh Air Filter
11. Intake Fan
12. Exhausting Filter
13. Exhausting Fan
14. Damper on Exhausting Duct
15. High Temperature Limit Switch
16. Sensor of High Temperature Limit Switch
17. Sensor of Temperature Controller
18. Pressure Gauge
19. Air-solenoid switch

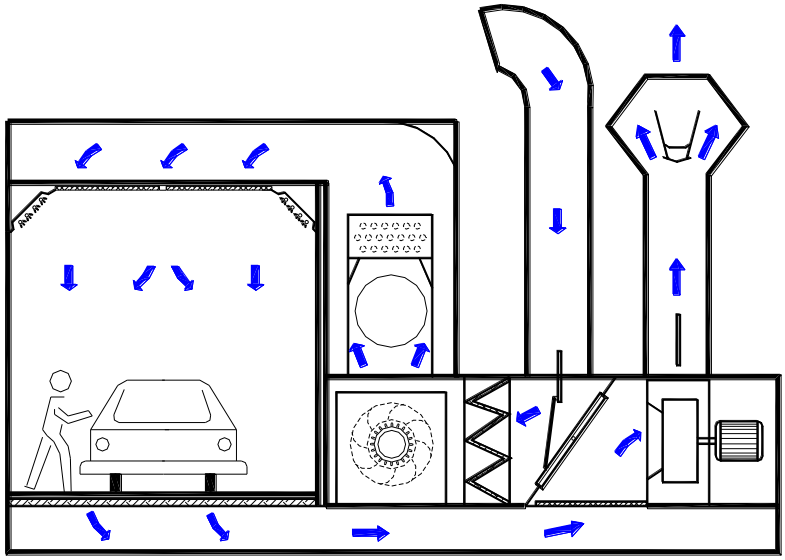
20. Chimney for the burner(for indirect fire burner)

Ⅱ. Tech Specs

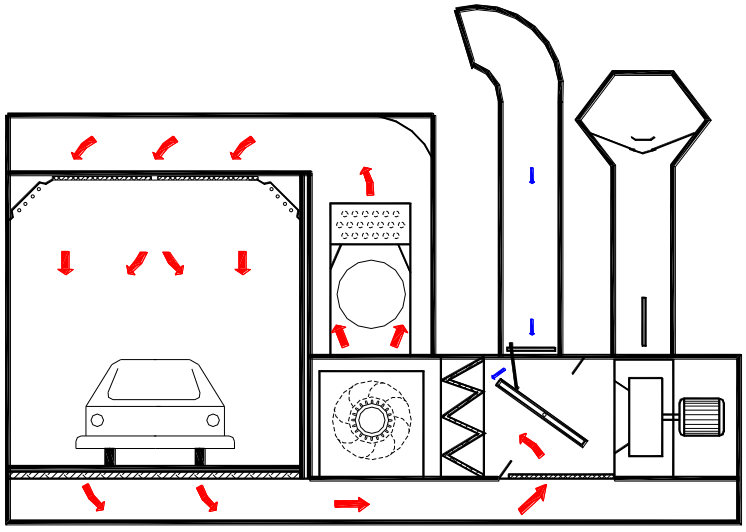
Model:AK-DDF-24 & AK-DDF-27 Indirect Fire Booth

Description	Specs	Notes
Wall Panels	Exterior & Interior Powder coated double wall insulated with rock wool or polystyrene	
Working Principle	Air Exchange through down draft	
OD Dimension	AK-DDF-24:23′4.5″L×13′6.4″W×11′H AK-DDF-27:27′4.9″L×13′6.4″W×11′H	
ID Dimension	AK-DDF-24:22′11.6″L×13′1.6″W×9′H AK-DDF-27:26′11.7″L×13′1.6″W×9′H	
Front Door	9′10.1″W×8′6″H(Clear)	
Side Door	2.6′W×6.9′H(Clear)	
CFM	147000	
Air Exchange Times	3.5times/min during spraying cycle	
Linear Air Flow	60 ft/min	
Max Air Pressure	0.8inch column water	
Min Air Pressure	0.08inch column water	
Noise	≤80db	
Power	3 Phases, 60HZ, 24HP, 65A	
Heating System Power	3 Phases, 60HZ, 24HP motors, 1/3HP burner motor	
Burner BTU	1.05 Million or 1.5 million (direct fire burner)	
Fuel	Natural Gas, Propane, Oil	
Main Power	3 phases + Ground + Neutral, 208V-280V, 60HZ	

Ⅲ. Working principles



spraying cycle



baking cycle

IV. Pre-condition for the installation

1. Main Power Requirements:

   A. Overloading Protection: 80-100A, 27HP
   B. 3 phases (cable: 6AWG) + Neutral(cable:10AWG) + Ground(cable:6AWG)
   C. 208-280Bvoltage, 60HZ
   D. Fuel: Natural Gas, Propane, Oil

E. Pressure required for Natural Gas: 7-14inch water column.
F. Diameter of the Gas Pipe: See burner MFG instruction.

2. Ducting work dimension:
   A. Intake Duct: 800mm×800mm
   B. Exhausting Duct: 800mm×800mm
   C. Chimney: 7.87″(double wall)

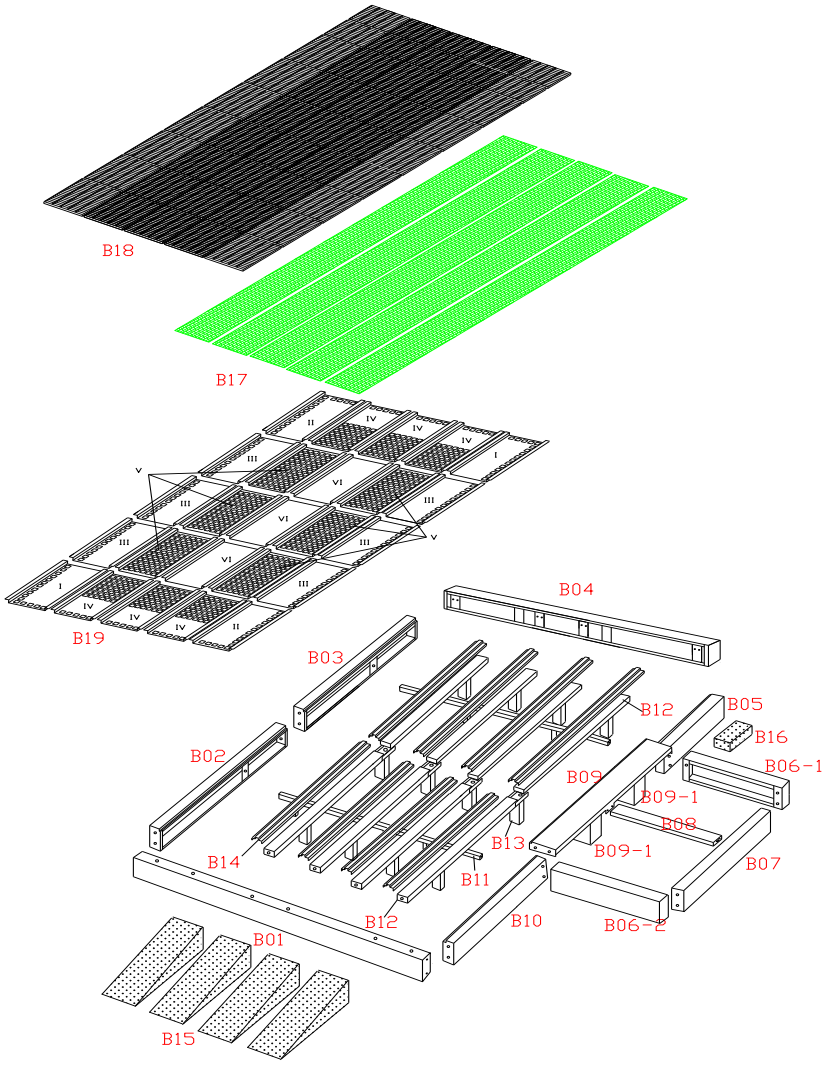
3. Site for the installation:

   Concrete Flat Floor is required. The thickness of the concrete should be over 7.87″.The load capacity of 2207 Lbs per square meter of the loading weight is required.

4. Space of the installation and the roof cutting should meet the booth size & ducts dimension and the local code requirements.
5. We recommend that the ducting works go straight through for the excellent airflow.

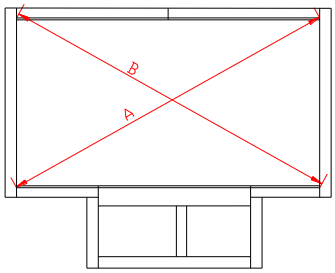
V. Raised Base installation

Assembly Drawing of the raised base.

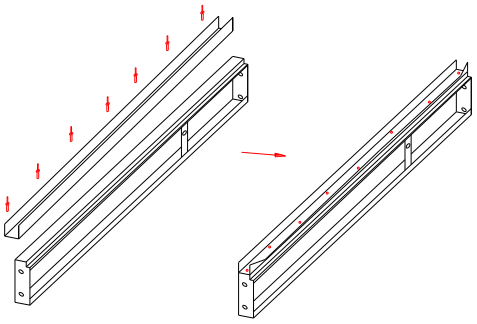

B18
B17
B19
B04
B03
B02
B12
B05
B16
B06-1
B09
B09-1
B08
B13
B09-1
B07
B14
B11
B12
B10
B06-2
B01
B15

Notes:

1. To make sure the base is level well.
2. To measure two cross corners, square the base and make them equal(A=B).

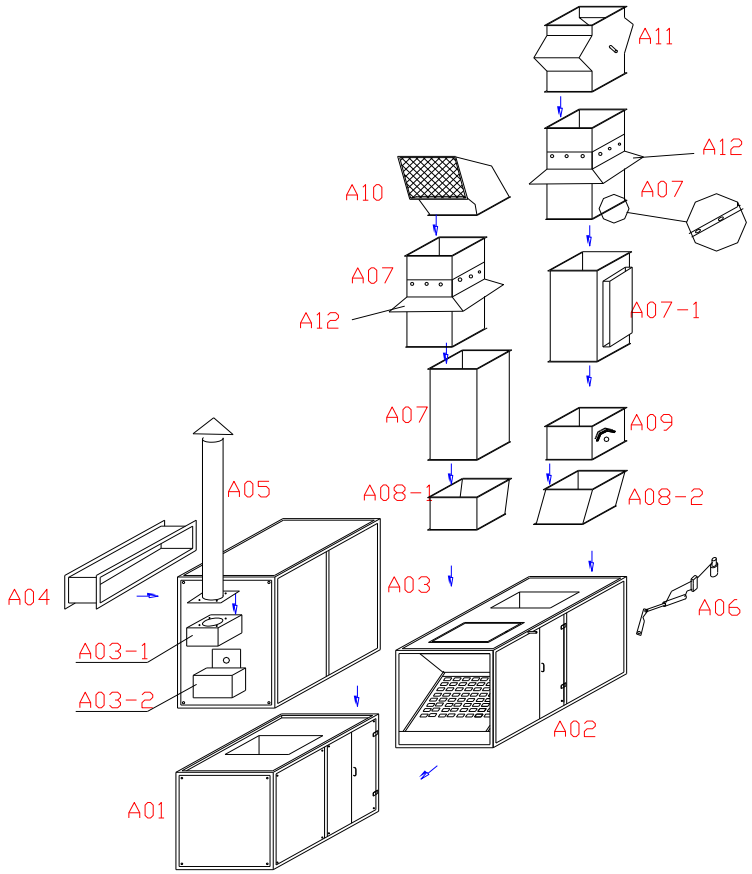


3. To rivet the U-channel on the base frame every 10” and keep the channel clean.



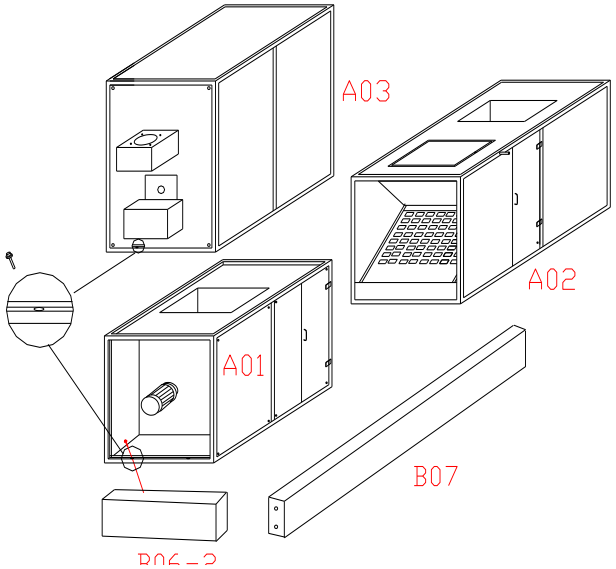
VI. Heating & Air make-up unit Installation

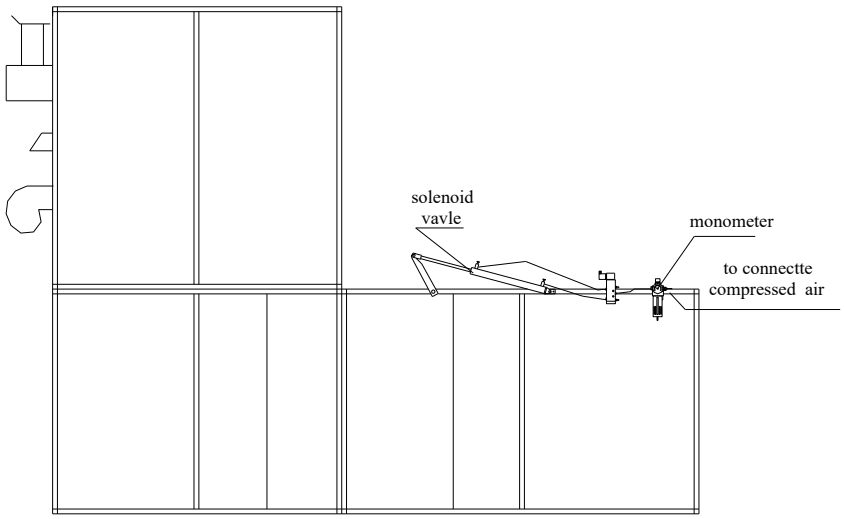
Assembly Drawing of Heating System and Air Make-Up Installation

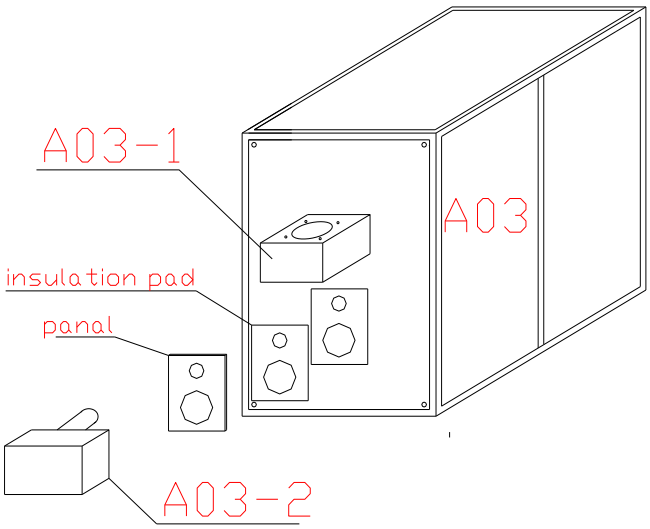


Notes:

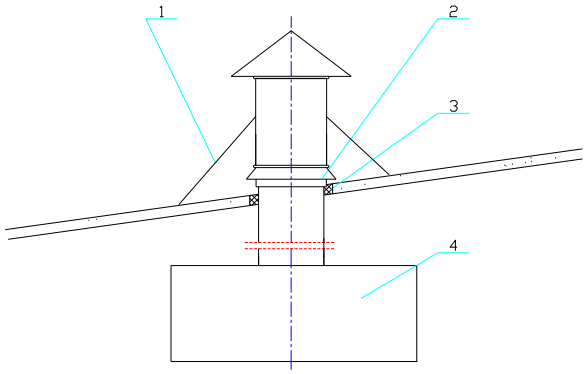
1. There are pre-screw holes on each part and make sure match each other and screw or bolt them tightly.







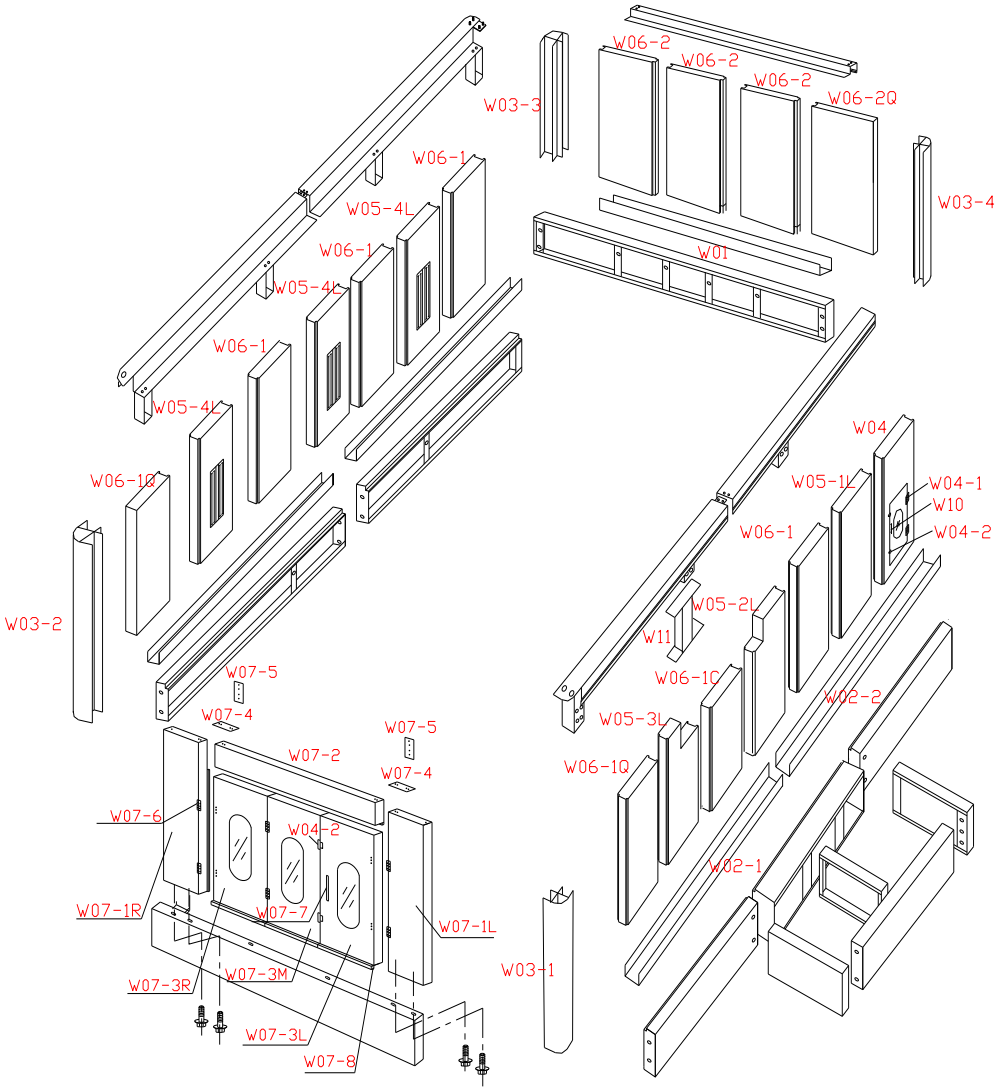
4. Make sure to have the wrap of the insulation materials and the flash around the chimney and the ducting works.



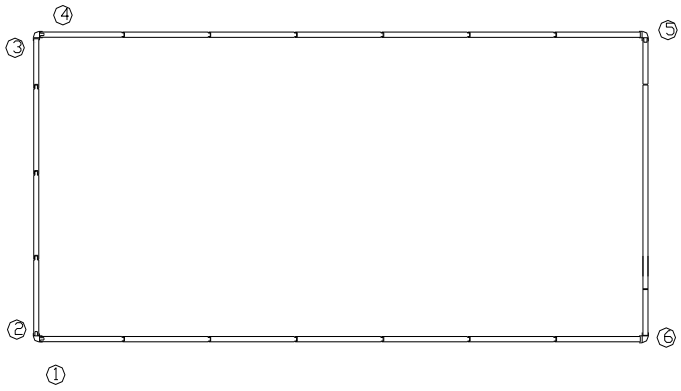
1.Fixing Rope 2.Flash
3.Insulation materials
4.Heating Exchager

VII. Booth Cabin Installation

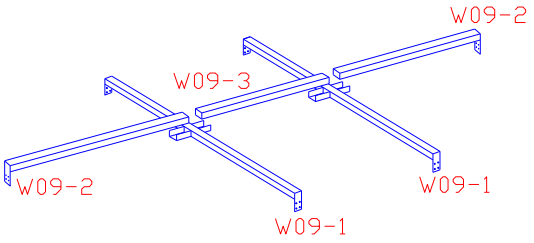
1. Assembly Drawing of the wall Panels.

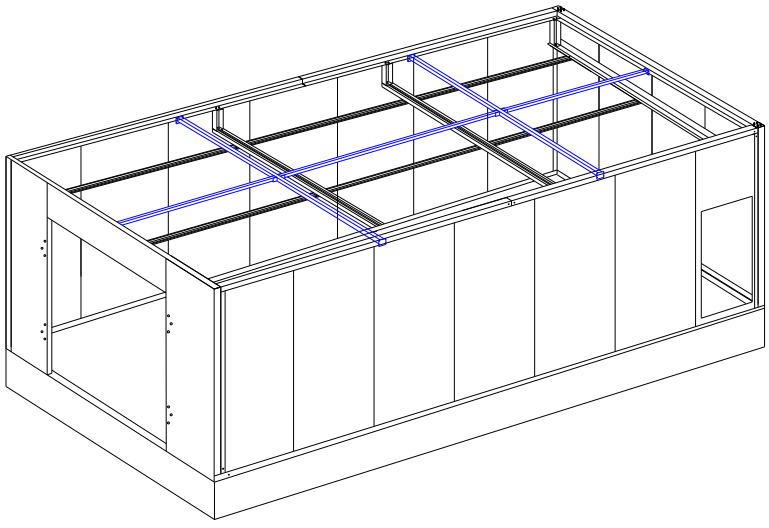


2. The steps to install the wall panels.

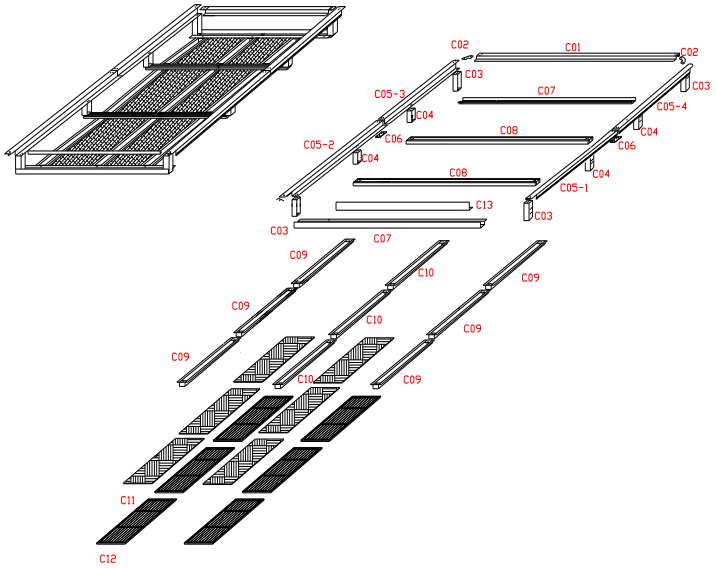


3. Assembly drawing of Roof beams to support roof panels.

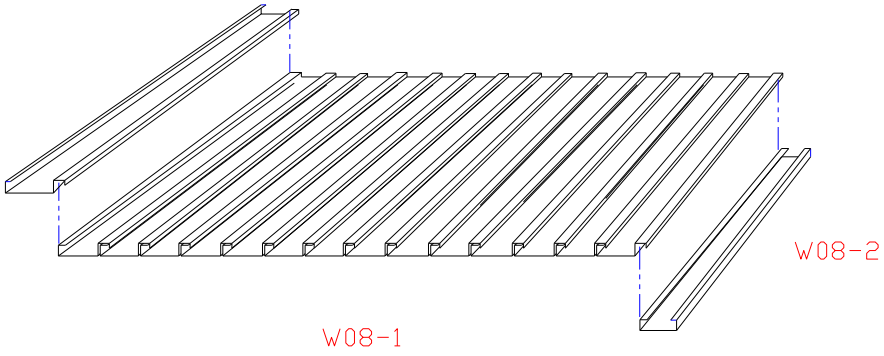




4. Ceiling Assembly Drawing



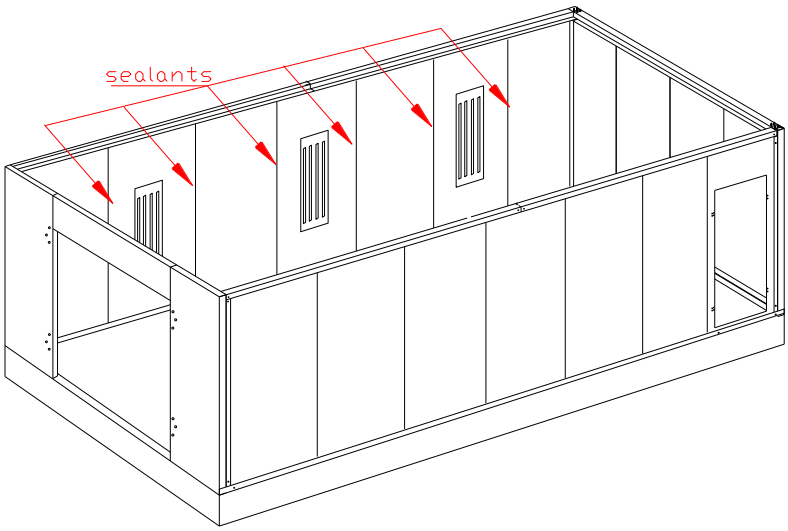
5. Roof Panels assembly drawing



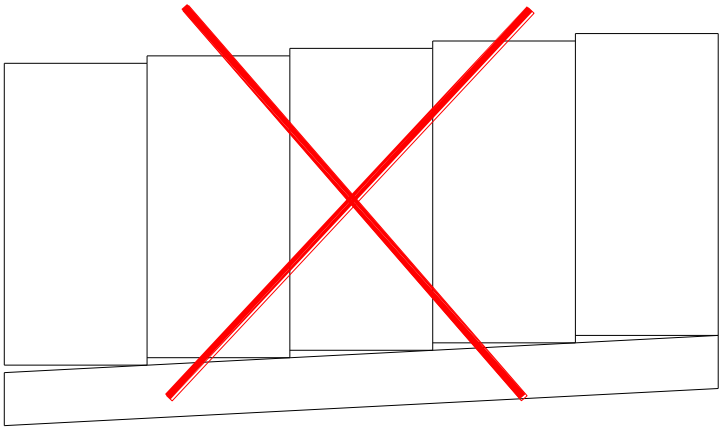
6. Side view of the roof panel assembly.

Notes:

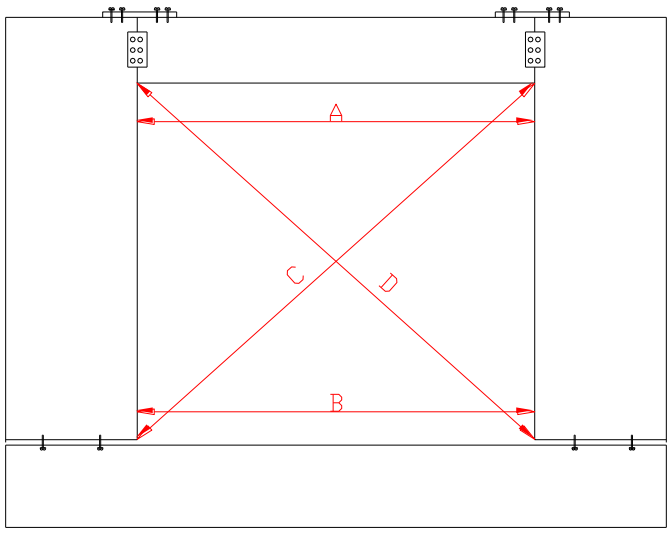
1. Sealants needed between each panel.



2. Both ends of the wall panels need to be level



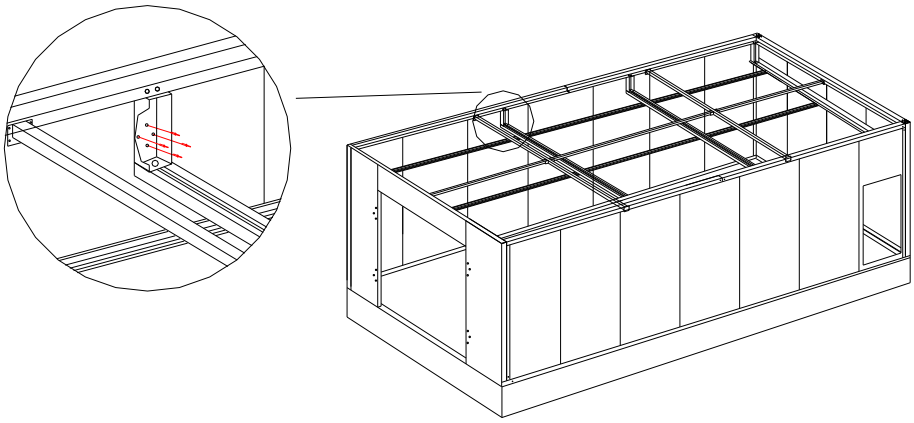
3. Both of the door frame panels and the door head panel should match, otherwise it will affect the doors' installation .



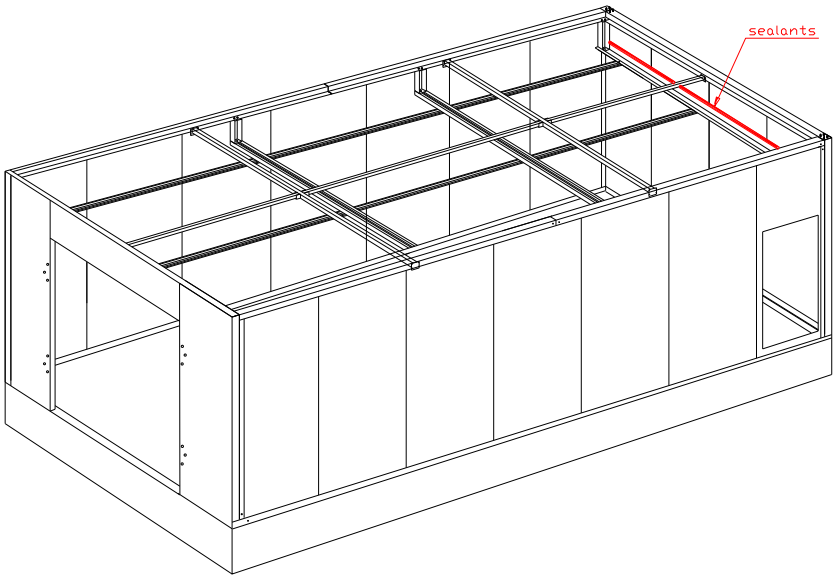
A = B C = D

4. Peeling off the protection film on the panels .

5. The hanger of the ceiling beams needs to be fixed either with rivet or screwed.



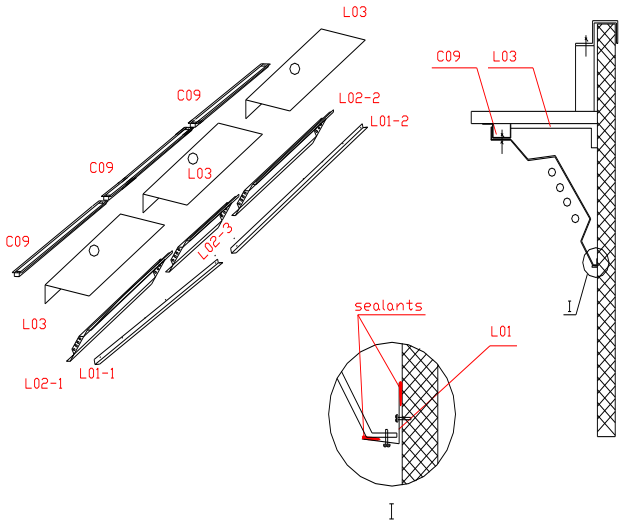
6. Sealants needed between ceiling cross beams and wall panels .



7. Be sure the side of the pre-screwed holes on the side longitude beam of the ceiling is far away the wall panels .
8. Make sure to screw the doors right.
9. Make sure the cabin square well and will be easy to install the lighting fixtures.

VIII. Lighting Fixture Installation

Assembly Drawing

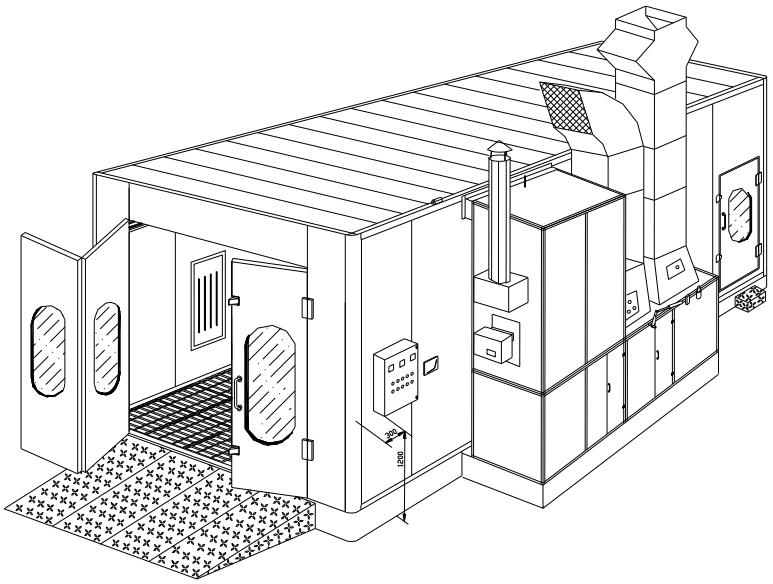


Notes:

1. Make sure the angle strip being on the right position.
2. Sealants needed.

IX. Hooking up the control panel & Other electrical Appliances

Assembly Drawing



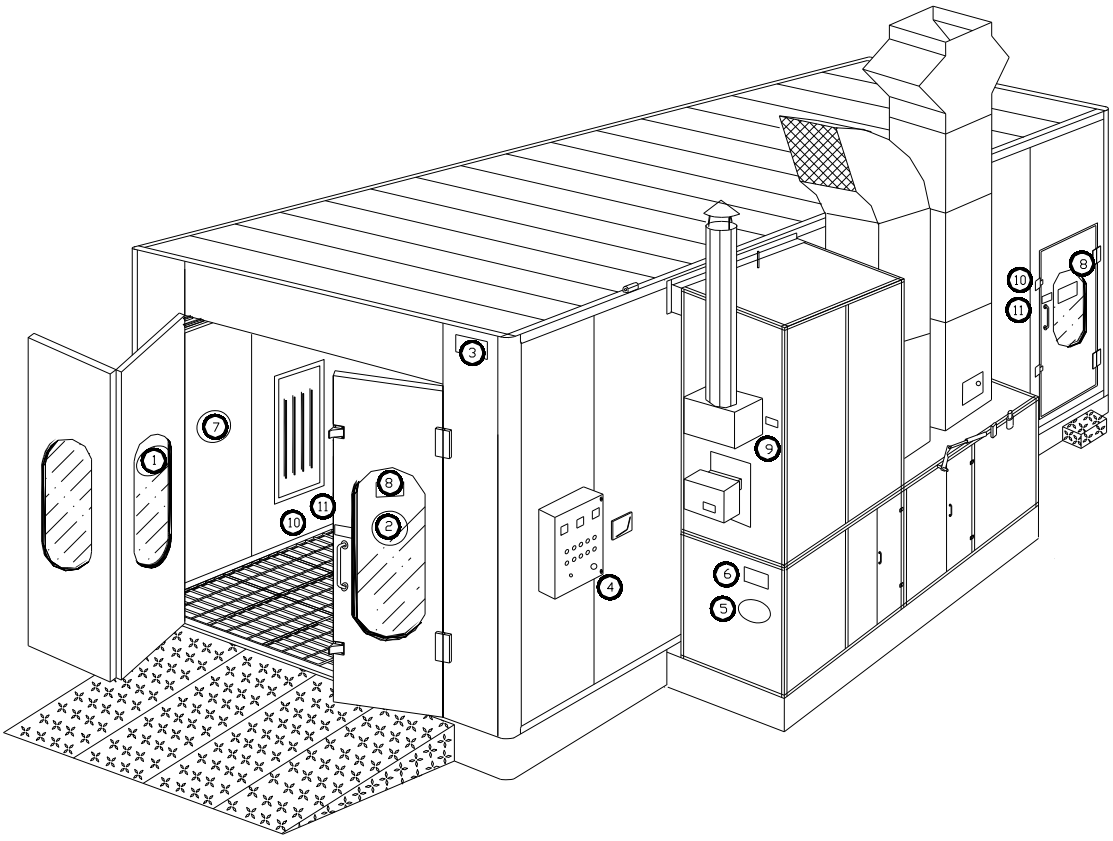
Notes:

1. Main power supply need to be 3phases, 208-280 voltage, 60HZ, with neutral and ground
2. The details' diagram coming with the control panel.
3. All of the wire andtheir running must meet the local codes.
4. Make sure the fans and motors rotating on right direction as showed on the fans.

5. The sensor of the temperature controller is mounted under the ceiling filter on the middle beam.
6. Lighting fixture, Fans and motors, Burner must be ground.
7. The control parel must be 3' away from the door.

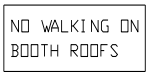
X. Warning labels & Safety Appliances

To place the labels



PULL Pull Door

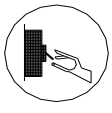
PUSH Push Door



No Walking on the Roof

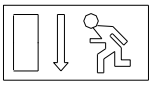
Dangerous/Electrical Power

Moving Parts



Shutting Off Power

No open flame



Emergency Exit

Dangerous/High Temperature

Protection Mask Required

No Smoking

Safety Appliances

1. For Heating System

A. Manual High Temperature Limit Switch: It will shut off the burner when the fans or the temperature controller fail to work, It's needed to be reset the switch after the shutting off.(1)

B. The bird screen covers the inlet of the intake duct. (2)

C. The insulation material is needed around the chimney between the roof and the chimney.

D. The Safe Valve is used for give out the over pressure inside the heating exchanger. (3)

2.For Booth Cabin:

A. Pressure Latchs on both main door and side door is used for give out over pressure inside the booth and for the emergency exit. (4)

B. Pressure Gauge is used for monitoring the pressure inside the booth (5)

3.Exhausting

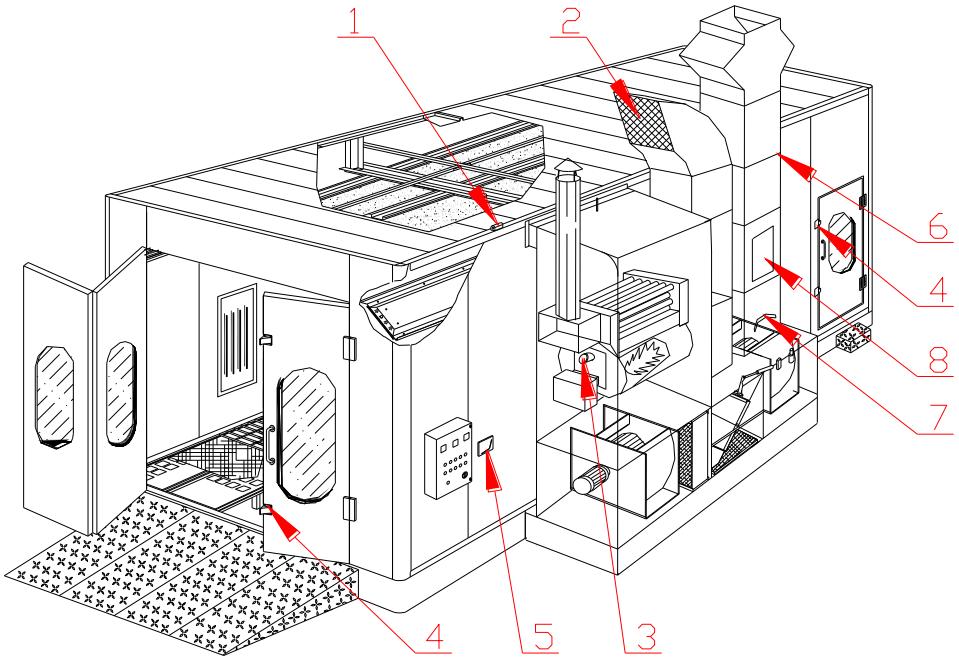
A. The sealant is needed between the connections of the ducts. (6)

B. The insulation material is needed around the exhausting duct between the roofs of the building .

C. The damper on the exhausting duct is used for adjusting the pressure inside the booth (7)

D. Clean window on the exhausting duct is used for clean the ducts. (8)

4.The local government and the codes require fire suppression system.



Xl. Final Testing and Operation

1.Before Final Testing

A. Clean both inside and outside of the booth

B. Clean the control panel and make sure all of the connections are correct and tight.

C. Make sure grounding well.

D. Make sure the gas pressure is 7-14 inch water column.

E. Make sure sealing well.

F. Make sure the rotating parts in good condition.

G. Tighting all of the connections.

H. All of the warning labels are put on. The booth

2.Running Testing

The authorized representatives of the factory test all of the working Procedure step by step and train the works for the end user.

Operation Manual

Operation

The operators need to be trained by the factory-authorized representative to operate the equipment. All of the appliances, i.e. gas, electricity, air and fir suppression etc. need to be checked out by the factory-authorized representative or local licensed professionals.

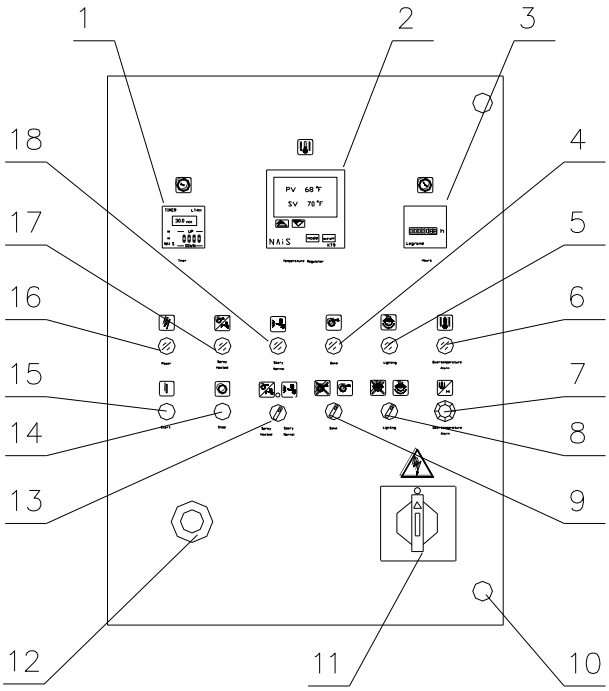
1.Before the operation

A. Operator dresses the dustless uniform
B. Cleaning the spray gun
C. Making sure gas or air no leakage
D. Checking the filters
E. Checking the control panel

2.Checking out the Vehicle being served painting & baking.

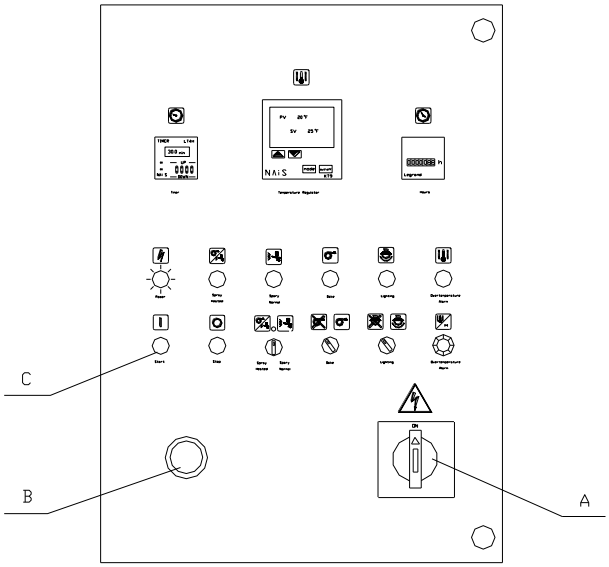
A. Cleaning the vehicle
B. All of the tools need to dustless

3.Control Panel Operation



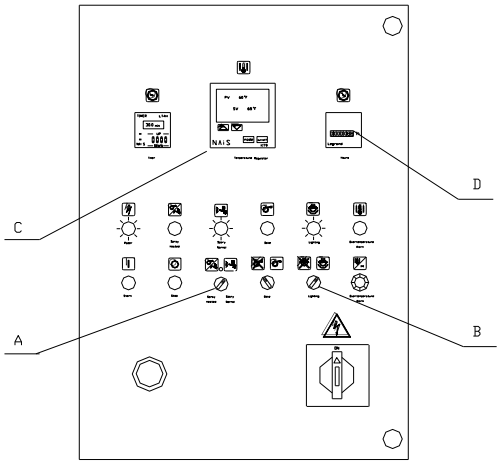
(1)Timer (2) Temperature Controller (3) Hours Timer (4) Baking Indicator (5) Lighting Indicator (6) Over High temperature indicator (7) Over high temperature Alarm (8) Lighting Switch (9) baking Switch (10) Lock (11) Power Switch(12) Emergency Shutting Off Switch (13) Normal Spray switch (15)Start Switch (16) Power Indicator (17)Spray indicator (18)Spray heated indicator.

4.Bofore operation



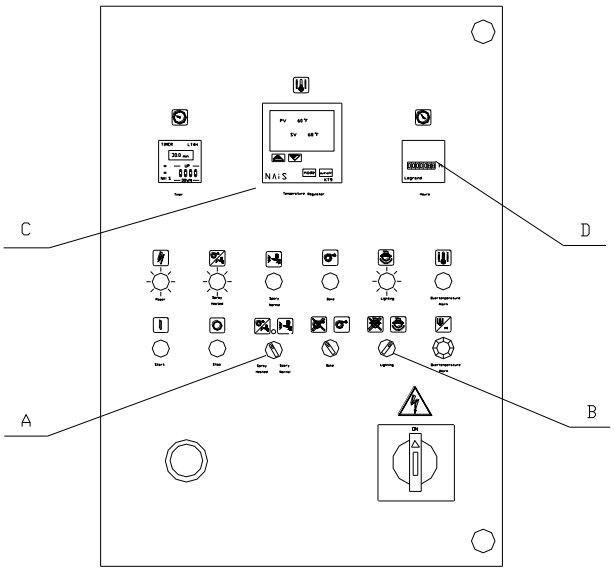
A. Turn clockwise on
B. Turn clockwise and pop-up
C. Press down the switch, power on.
D. Power Indicator is ON

5.Normal spray cycle



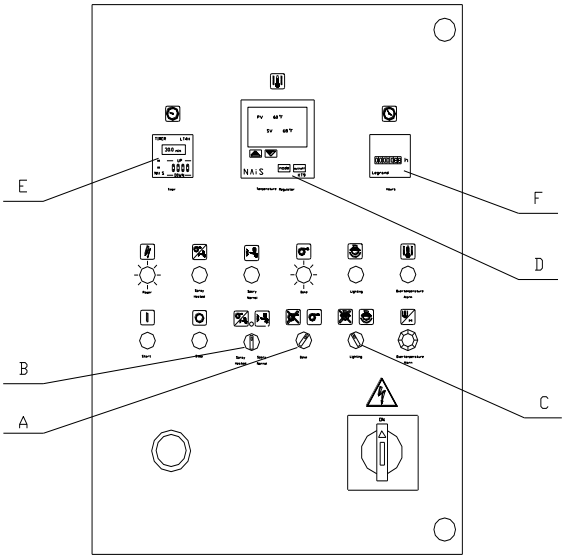
A. Turn clockwise to normal spray cycle
B. Turn clockwise to lighting fixture on
C. The temperature controller shows the environment temperature.
D. The hour timer works for counting the working time continuously.

6.Spray heated cycle: When the environment temperature is lower, it is needed.



A. Turn anti-clock wise to spray heated on position
B. Turn clockwise to lighting fixture on
C. To set up the temperature you want(See attached temperature controller instruction).
D. The hour timer works for counting the working time continuously.

7. Baking Cycle

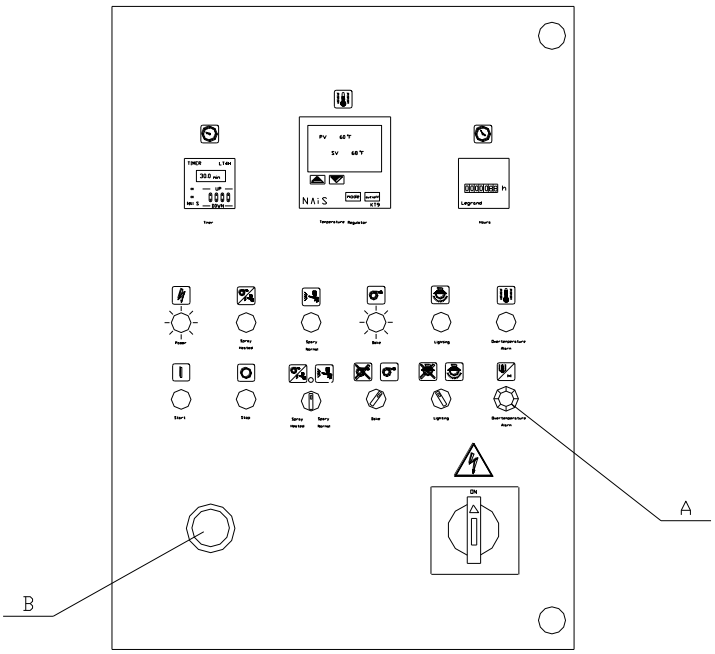


Purging 5-8 minutes after the spraying cycle and before the baking cycle.

A. Turn clockwise to the baking cycle
B. In central position
C. Turn anti-clockwise or not turning (automatic turning off during baking cycle)
D. Factory pre-set baking temperature at 140℉, or could be set up at any other temperature wanted.
E. Setting up the baking time.
F. The hour timer works for counting the working time continuously.

It takes 5-8 minutes for purging automatically (both intake & exhaust motors work), then takes baking cycle (both of exhaust and intake motor works). Both intake & exhaust motors work about 8 minutes automatically for cooling down the booth when the baking cycle ends.

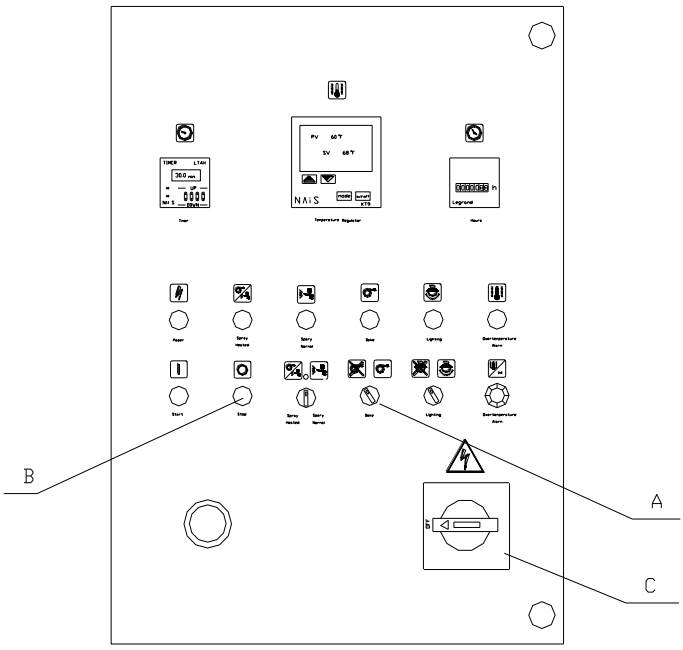
8.Alarming for over temperature



A. The over temperature alarm alarms and the indicator on when the temperature is over 230℉ pre-set.

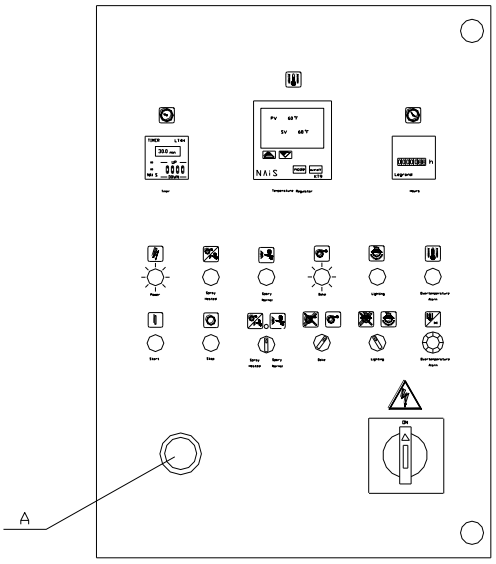
B. Press down the switch to shut off the power.

9.Ending



A. Turn the switch anti-clock wise
B. Press down the switch, the power indicator off.
C. Turn the switch anti-clockwise to OFF.

10. Emergency shutting off



A. Press down the switch when the emergency happens.

Maintenance

Warring!!!

A. Shutting off power while doing the maintenance
B. No vehicle inside the booth.
C. Please stop using the equipment when any unusual situation happens

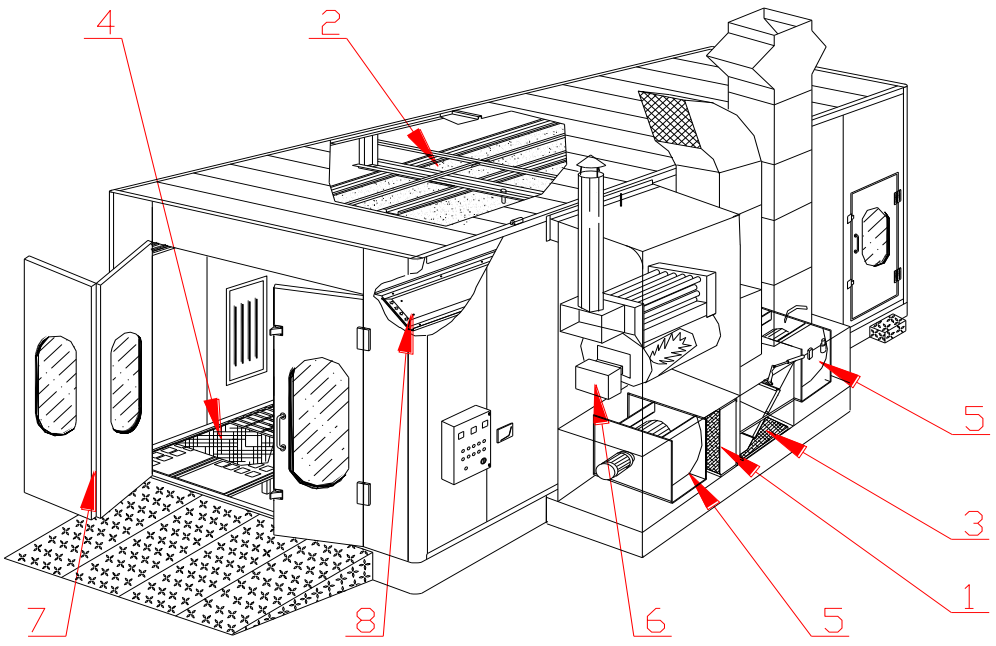
1. Filters Recommended maintenance

(1) Intake filters: one time per three months. (1)
(2) Ceiling filters: one time per 2 months. (2)
(3) Recirculation filters: one time per 3months (3)
(4) Floor filters: one time per month. (4)

2.Others Recommended maintenance

(1) Intake & Exhaust fans and motors: one time per 3 months.
Cleaning the fans and oil the bears.(5)
(2) Burner: one time per month
Checking all of the pipes and valves in case of the leakage.(6)
(3) Sealing gasket: one time per 6 month(7)
(4) Lighting fixtures: one time per 6 months.(8)
Cleaning and replacing the broken parts on time.
(5) Cleaning the base and the booth regularly.
(6) Checking the air pressure regularly.

3.Any necessary Maintenance required by codes .

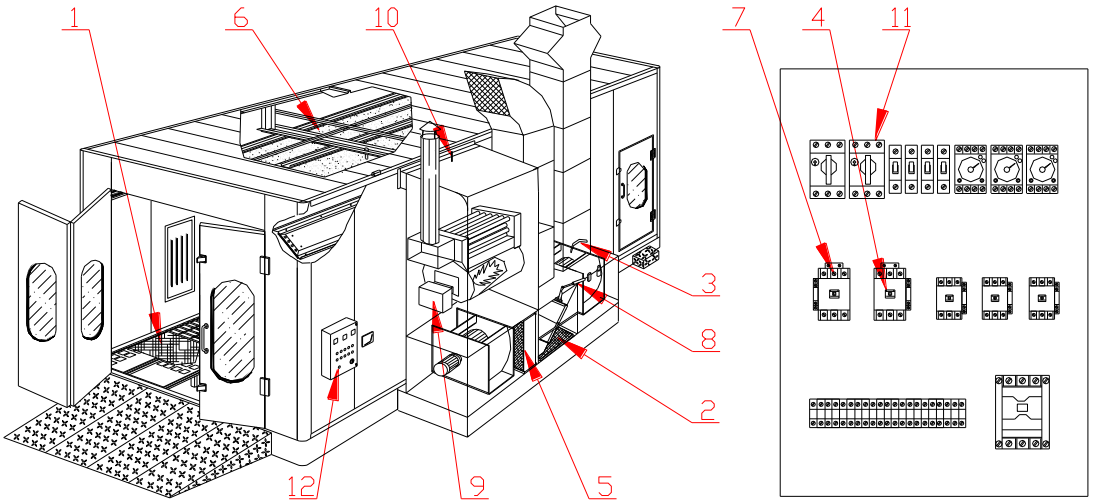


Trouble Shooting

Problems	Causes	Checking	Solutions
Too much Positive Pressure inside the booth during spraying cycle and baking cycle	Floor Filters Blocked	Taking off some of the floor filters to check (1)	Replace the floor filters
	Exhausting Filters Blocked	Take the filter out to check (2)	Replace the filters
	Exhausting Damper Closed	(3)	Fixing or adjusting the damper
	Exhausting Motor, Fan don't work	Checking the over load protector in the control panel (4)	Reset the protector
Negative pressure inside the booth during spraying cycle and baking cycle	Dirty Intake filters	Open the service door and run the booth to check (5)	Replace the filter
	Ceiling filters blocked	Check the filters (6)	Replace
	Intake motor & Fan don't work	Checking the over load protector in the control pane (7)	Reset the protector
	Bird cover of the air inlet blocked	Check	Clean or replace
The temperature rises slowly	Filters blocked	Take out the filters and run the booth to check (1,2,5,6)	Replace the filters
	Recirculation damper does not work	Check the Solenoid air switch working or not (8)	Fixing or replace
	Ceiling filters blocked	Checking under the spraying cycle(6)	Replace the filters
	Lower environment Temperature	Filters Blocked(1,2,5,6)	Replace filters or asking for the factory tech support
Burner fire out after the staring fire	Bad Flame sensor		Clean the sensor (Figure)
	Air bulb inside the burner gas pipe	Checking the burner(9)	Restart the burner
Can't start fire	No fuel	Checking the fuel source(9)	Restart the burner
	No enough air into burner	Checking and adjusting the burner air-inlet (9)	Restart the burner
	Too much dust on the air inlet of the burner	Checking the filters on the burner (9)	Restart the burner

	Pump's problem (Figure)	Checking the compressor (9)	Asking for the support from the burner MFG
Fire out during the baking cycle	Unusual higher temperature	Checking the compressor (10)	Reset the high temperature switch (Figure)
Can't start Spraying or Baking cycle	No power	Checking the power(11)	Hooking up the power
	Emergency switch still down	Checking the switch (12)	Reset the emergency switch
Alarm's alarming	High limit temperature setting wrong	Checking the setting point, reset the high limit switch	Make sure it's on the high limit point 170°F
	Baking temperature being set at too high point	Checking the baking temperature setting, reset the high limit switch	Usually, the baking temperature is around 140°F
	Sensor wire touch the heated air inlet to make the high temperature rising	Checking the wire and sensor condition, reset the high limit switch	Make sure the sensor and the wire is on the right position
The over loading protectors jump off	The electrical current rating is not correct	Checking the rate	Make sure the correct rate
	Being lack of one of the 3 phases	Checking the phases of the power supply	Make sure the phases match with the control panel
	The connection points loose or the conducting bad	Checking the connection points and the conducting condition	Make sure the connection tight and conducting in a good condition
Recirculation damper does not work, no recirculation	No enough air pressure	Check the air pressure gauge	Make sure the air pressure of the air supply is 4-6kg
	Air valve does not work	Check the air valve, press down the red button to close ; release the button to open	Make sure having the air supplying and the air valve working in a good condition
	Any air leakage	Checking all of the air pipe and the connection	To fixing the leakage
Motors don't work	Over load protector jumps off		
	Being lack of one of 3 phases		
	Electrical rating on the over load protectors not correct		
	Bad contactors		
	Connecting joint loose		
	Motors broken		

Lighting does not work	No power		
	Contactor of the lighting jump off		
	Switch broken		
	Ballasts broken or the bulb broken		
Burner does not work	PROTECTOR DOES NOT WORK		
	Setting the temperature on the temperature controller must be higher than the environmental temperature		
	The high and the low limit setting indicators show OUT or not		The indicators should be OUT
	Burner indicator lighting but the burner does not work	Checking the protector jump off or not	Reset the protector
No small flame, big flame, no flame	No natural gas supply	Check the gas supply	Supplying the gas
	No enough gas pressure	Check the pressure	Make the pressure to meet the requirement
Small flame but no big flame	Setting not on OUT on the temperature controller	Check the setting on the temperature	Resetting
	Ignition point problem	Check the ignition	Replace or fixing it
	Mai gas valve problem	Check the valve and the valve switch	Fixing and replace the switch or valve
	The connection wire of the main valve looses	Check the connection of the wire on the valve	Tighting the connection
Burner works but temperature not up	The burner air damper open too much, small flame, red flame		
	Recirculation damper does not work right	Check the damper	Make sure the damper works in a right way
	To make the maintenance of the burner(3 years), clean the valve, pipe, and the gas filters		



Model: AK-DDF-24 Parts List

No	Item Number	Description	Quantity
1	B01	Base	1
2	B02	Base	1
3	B03	Base	1
4	B04	Base	1
5	B05	Base	1
6	B06	Base	2
7	B07	Base	1
8	B08	Base	1
9	B09	Base	3
10	B10	Base	1
11	B11	Base Cross Beams	2
12	B12	Grid Support Beam	8
13	B13	Grid Support Beams	4
14	B14	Grid Channel	8
15	B15	Ramps	4
16	B16	Side door step	1
17	B17	Floor Filters	5
18	B18	Grid	35
19	B19	Floor filters holders	25
20	W01	Back base U Channel	1
21	W02	Side base U Channel	4
22	W03	Wall Corner Channel	4

23	W04	Side Door	1
No	Item Number	Description	Quantity
24	W04-1	Side Door hinges	2
25	W10	Side Door handle	2
26	W04-2	Pressure Latch	2
27	W05	Wall panel with side lighting	6
28	W06	Wall panels	11
29	W07	Main doors	1
30	W07-1R	Right Door Frame Panel	1
31	W07-1L	Left Door Frame panel	1
32	W07-2	Door head Panel	1
33	W07-3R	Right Panel of the Door	1
34	W07-3M	Middle Panel of the Door	1
35	W07-3L	Left Panel of the Door	1
36	W07-4	Door frame panel top Connection Part	2
37	W07-5	Door frame panel back Connection Part	2
38	W07-6	Door hinges	6
39	W04-2	Pressure latch	2
40	W07-7	Door Handles	2
41	W07-8	Door Gasket	8
42	W08	Roof Panels	14
43	W09	Supporting Beams for roof panels	5
44	W10	Door Inside Handles	2
45	W11	Supporting beam on heated air inlet	1
46	C01	U cover on top back wall	1
47	C02	Corn4er connection parts for the U-cover	4
48	C03	Beam 4hangers on the ends	4
49	C04	Beam hangers on the middle	4
50	C05	U-cover on top side wall	4
51	C06	Connection parts for U-cover	2
52	C07	Ceiling Ends Cross Beams	2
53	C08	Ceiling Middle Cross Beams	2
54	C09	Side Longitude Beams	6
55	C10	Middle Longitude beams	3
56	C11	Ceiling Filters	6
57	C12	Ceiling filters frame	6
58	C13	Angle Steels	1
59	L01	Angle Strip holder for hip lighting fixture	4
60	L02	Hip Lighting Fixture	6
61	L03	Cover panel with lighting Fixture	6
62	L04	Side Lighting fixtures	6
63	A01	Air intake unit	1
64	A01-1	Air intake motor & fan	1

65	A01-2	Fresh air filter holder	1
No	Item Number	Description	Quantity
66	A01-3	Fresh air filter	1
67	A01-4	Hinges on Intake service door	2
68	W10	Handle on Intake service door	1
69	A01-5	Ball latch on intake service door	2
70	A02	Exhaust Unit	1
71	A02-1	Exhaust motor & fan	1
72	A02-2	Exhaust filter holder	1
73	A02-3	Exhaust Filter	1
74	W10	Handle on Exhaust service door	1
75	A03	Heating unit	1
76	A03-1	Heating Exchanger	1
77	A03-2	Burner	1
78	A04	Heated air inlet duct	1
79	A05	Chimney	2
80	A06-1	Air cylinder	1
81	A06-2	Solenoid valve	1
82	A06-3	Filter vale	1
83	A06-4	Connection beam	1
84	A06-5	8mm quick connector	1
85	A07	Straight ducts	4
86	A08	Oblique ducts	2
87	A09	Exhaust duct with regulating valve	1
88	A10	Top angle intake duct	1
89	A11	Top exhaust duct with butterfly dampers	1
90	A12	Rain-proof board for	1
91	E01	Control Panel	1
92	E02	Pressure Gauge	1
93	E03	Pipe for the pressure gauge	1
94	E04	Temperature Sensor	1
95	E05	High temperature limit switch	1

Ⅳ.Warranty & Terms

ALL TERMS ARE SUBJECT TO CHANGE WITHOUT NOTICE

THIS IS A BINDING CONTRACT. All purchases are subject to the terms of this contract. (hereinafter "Company")is not obligated to accept any or all or all purchase orders of Buyer, and each order is subject to COMPANY'S approval in its sole discretion. All additional or conflicting terms presented in Buyer's purchase orders or other documentation or oral negotiations between the parties shall be deemed explicitly rejected by COMPANY and shall have no effect whatsoever.

PAYMENT. All goods are payable COD cashier's check immediately upon receipt, unless otherwise agreed in writing by company. If credit terms are granted, Buyer whose name appears on the front of this front of this invoice/contract agrees to pay all amounts on or before the due date without any offset or discount. For each returned check, COMPANY may also assess a fee of $30 or more. Buyer shall be responsible for a 1.5%per monthly interest charge. Company any change the price of its products or services with or without notice. Any mathematical or clerical error made by Company or its representatives does not constitute an offer and may be amended by Company provided that notification is given to the purchaser. Shipping charges levied may include actual shipping, insurance, and other handing charges.

DEFAULT. In the event of default by Buyer, including failure to pay or breach of this contract, COMPANY may, among any other remedies available in law or equity, terminate this contract, suspend delivery of any products or services, declare the entire amount due, and institute immediate legal action to enforce collection of outstanding amount plus interest, attorneys fees, compensatory, and incidental damages.

RETURNS, EXCHANGE, REFUND. All authorizations and claims for return, exchange, or damages (DOA) must be made within five (5)days of receipt of goods. Buyer must submit evidence of purchase date, COMPANY invoice number, description of goods including serial and model numbers, reason for return, exchange, or refund, and RMA Number. No return of merchandise will be accepted without first securing a Returned Merchandise Authorization ("RMA")Number provided by COMPANY. At its sole discretion, COMPANY may accept or deny Buyer's claim for return, exchange, or DOA. If accepted and if the goods have not been used and are in a resalable condition, all returns or exchanges will be subject to a fifteen percent (15%)restocking fee. All products returned must have the RMA number prominently displayed on the shipping label, and all original packaging, materials, manuals, and copy of invoice. Buyer shall be responsible for al freight (i.e., pre-paid). Company may refuse or reject returned merchandise for failure to follow the conditions set forth herein.

DELIVERY & RISK OF LOSS. Shipment of al products shall be FOB point of origin as determined by Company. All risk of loss shall pass to Buyer upon tender to common carrier, Buyer's agent or employee at COMPANY' warehouse or other point so designated by COMPANY. Buyer must report in writing all shortages or discrepancies to COMPANY within 24 hours of

receipt. Otherwise, Buyer shall be deemed to have accepted the goods in satisfactory manner as determined under the Uniform Commercial. Any shortage or damage during transit must be reported to the carrier immediately and COMPANY disclaims any and al liabilities in connection with such losses.

ISCLAMER OF WARRANTIES

COMPANY disclaims all warranties including implied warranties with respect to altered, repaired, or misused goods. COMPANY disclaims any and al warranties and representations other than those explicitly specified in this contract. Any warranties, if separately provided in writing, are extended only to the Buyer whose name is shown on this invoice/contract. All products are covered by manufacture's warranty, if applicable, and Company shall not be responsible for any such warranty services or claims. Warranties do not cover products damaged by accident, improper installation, misuse, weather conditions, lightning, power supply or source, fire, water, or any acts of nature or god, or products that are altered or repaired by anyone not authorized by COMPANY. Shall not be obligated to provide any warranty service or obligations unless Buyer has paid its purchases in full under this or any other COMPANY invoice.

Buyer has examined the goods or has refused to examine the goods as there are on implied warranties with regard to defects. Buyer stipulates that he/she is a merchant with respect to the kind of goods as there are no implied warranties with regard to defects. Buyer stipulates that he/she is a merchant with, respect to the king of goods sold by COMPANY. Buyer has tested the goods and Buyer has waived the right to examine or to test the goods. Buyer acknowledges that by accepting or receiving the goods or by signing this invoice, Buyer has fully examined the goods and that there are no warranties applicable to the goods delivered.

BUYER'S SOLE REMEDY SHALL BE REPAIR OR REPLACEMENT. IN NO EVENT SHALL COMPANY BE LIABLE FOR ANY LOSS OF USE, REVENRES, OR ANTICIPATORY PROFIT, OR FOR ANY DIRECT, INDIRECT OR CONSEQUENTIAL DAMAGES ARISING OUT OF OR CONNECTED WITH THE SALE, USE, OPERATION, OR INABILITY TO USE PRODUCTS PURCHASED FROM COMPANY INC. TO THE EXTENT PERMITTED BY LAW, COMPANY INC. MAKES NO OTHER REPRESENTATIONS OR WARRANTIES, WHETHER EXPRESSED OR IMPLIED, INCLUDING WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, AND ALL SUCH WARRANTIES ARE EXPRESSLY DISCLAIMED. IN NO EVENT SHALL COMPANY INC,'S LIABILTY EXCEED THE AMOUNT OF PARTICULAR DEFECTIVE PRODUCT CHARGED BY COMPANY.

INDEMNITY. Buyer shall defend and indemnify COMPANY against all damages, liability, claims, losses and expenses (including attorney's fees) arising out of , or resulting in any way from any defect in the products or services purchased hereunder or from any breach of terms and conditions hereunder by Buyer, its agents, employees or subcontractors.

GOVERNINGLAW. This contact shall be governed and construed in accordance with the laws of the state of California. Buyer agrees that competent courts in Los Angeles County, California shall have the exclusive jurisdiction over any legal action with respect to this contract. In the event of any dispute related to this contact, the prevailing party shall be entitled to reasonable attorneys' fee and costs.

COMPANY shall not be responsible for mathematical or clerical error to any offer invoice.
Barner

“Production” Burner Specification Sheet

Job Number	J008346-	Qty	0 Order Number	B004174	Line Number	1	
Customer	AUTEK Inc-	-B	Purchase Order 60049				
Job Name							
Burner Model		J30A-10PB					
Burner Mode of Operation		OO	Serial Number				
Code		ETL					
UL Label							
Heat Exchanger Make		Global Spray	Heat Exchanger Model		PAINTBOOTH		
Heat Exchanger Type		Other					
Combustion Chamber Pressure		0.0					
Job Site Altitude		2000					
Clearance Checked By		BM					
Gas High Fire Rate		1000 MBH					
Oil High Fire Rate		GPH	PSIG Pump				
Fuel Oil Grade							
UL Group-Gas		UL Group-Oil					
Gas Type		NAT					
High Fire Manifold Pressure**		2.63 IN. WC	Side Orifice Drill Size		13/16		
Gas Regulator Outlet Pressure		3.71 IN. WC					
Minimum Supply Pressure		4.78 IN. WC	Max Supply Pressure 14		IN. WC		
Wiring Diagram		G-15650-1					
Gas Piping Diagram		6202-2					
Oil Piping Diagram							
General Arrangement Drawing		Additional Drawings					
Additional Drawings		Additional Drawings					
Control Voltage	115V	Single Phase	60	HZ	Full Load Amps	6.0	
Blower Motor Voltage	115V	1 PH	60	HZ	Full Load Amps	5.6	
Oil Pump Motor Voltage		PH		HZ	Full Load Amps		
Compressor Motor Voltage		PH		HZ	Full Load Amps		
Minimum Circuit Ampacity		15.0					
Ignition System		GAS PIL OT SCANNER					
Blast Tube Part#		J20229	Blast Tube Flange Set		77/8		
Diffuser Blade Setting		Gas Inlet Location		SIDE			

Comments:
PREPIPED & PREWIRED GAS TRAIN APER STYLE B
FRESH AIR INTAKE & SLOTTED DAMPER AXLES REQ’D

**Approximate pressure for initial start-up. Final Pressure should be determined after checking actual flow with gas meter. Stack temperature, CO, CO2, O2, and firebox pressure will help in determining actual input when gas meter is not available for this unit.

All components have been designed and rated for the operating pressures specified, those

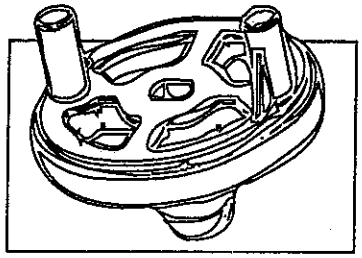
pressures.

Spray Booth picture and the diagram as below.

1. Floor Grid
2. Floor Filters
3. Floor Filters Holding Panel
4. Lighting Fixture
5. Ceiling Filter
6. Control Panel
7. Heating Exchanger
8. Burner
9. Damper For Recirculation
10. Fresh Air Filter
11. Intake Fan
12. Exhausting Filter
13. Exhausting Fan
14. Damper on Exhausting Dust
15. High Temperature Limit Switch
16. Sensor of High Temperature Limit Switch
17. Sensor of Temperature Controller
18. Pressure Gauge
19. Air-solenoid switch
20. Chimney for the burner

QUICK MIX 220

MODULAR MIXING MACHINE



Quick-Link®

WORLD-WIDE PATENTS

S Y S T E M

SERVICE MANUAL

4 1 1 0 8 0 U S A

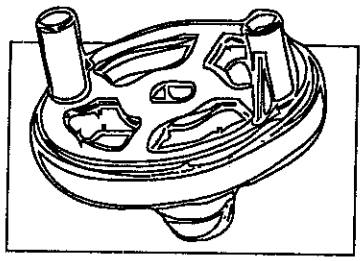
FILLON PICHON

CONTENTS

FILLON PICHON USA INC.
70 Commercial Way
East Providence, RI 02914
1-800-777-1583

FEATURES

- ❒ Fast and effortless removal and replacement of cans.
- ❒ Drive fork fully engages first time, every time- your assurance that all tints are being stirred.
- ❒ Can clamps eliminated.
- ❒ Clean-up is easy with the help of new alu/zinc shelf covers. Wipe shelves with a mild thinner.
- ❒ Positive drive transmission- paint stirred at constant speed.
- ❒ New technology shelf belts- no adjustments required.
- ❒ Quick-release powerheads prevent dented cans from being 'thrown'.
- ❒ New compact design gives easy access to 7 mix shelves.
- ❒ Built to ISO 9001 quality standards.

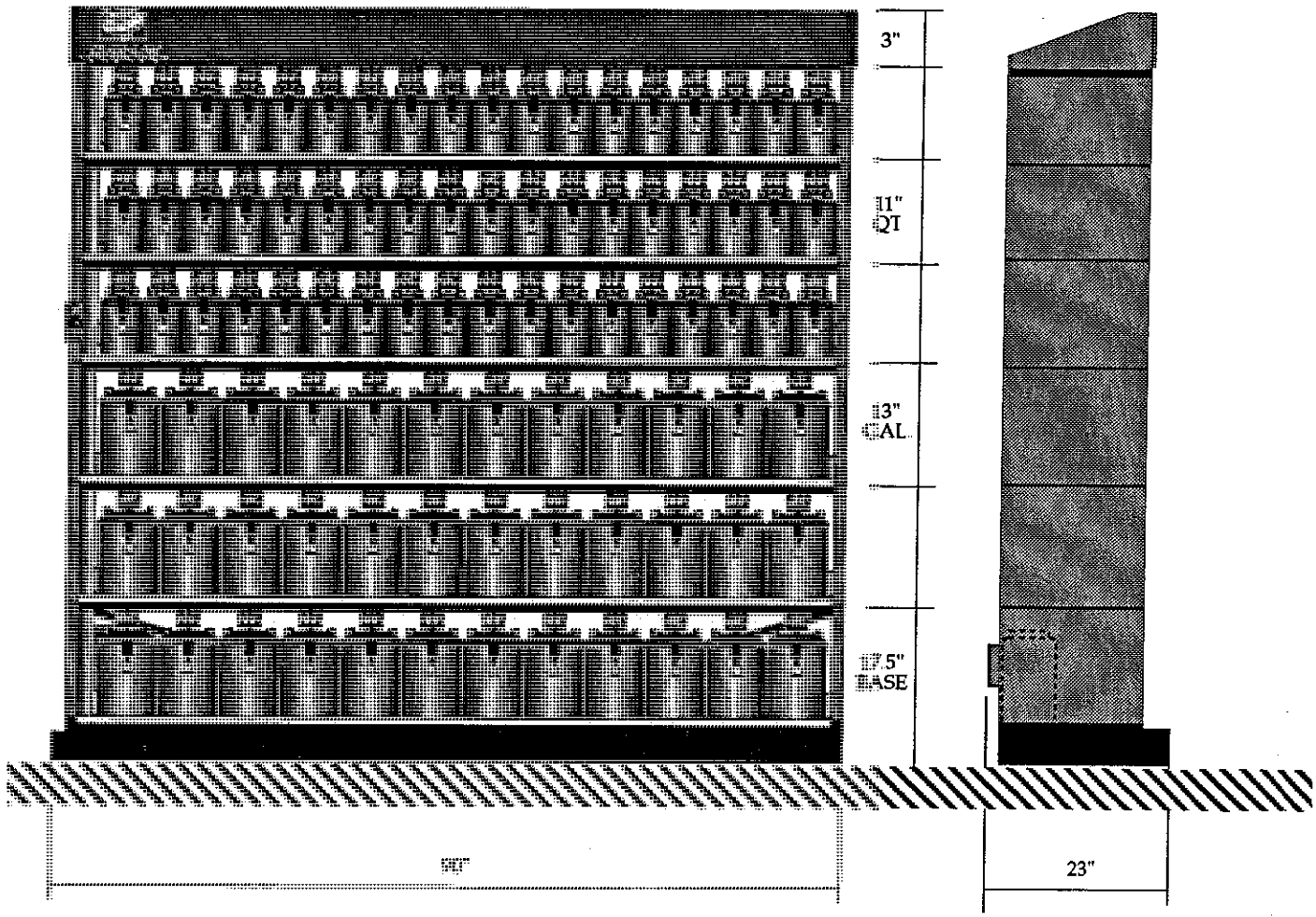


Quick-Link®
WORLD-WIDE PATENTS
SYSTEM

APPROVALS : The Mix-unit, motor, and controls, are designed for use in hazardous locations and are fully Approved in both USA (U.L) and in Canada (C S A).

If you have any questions concerning your equipment, please contact our Customer Service Department.
Monday-Friday 9:00-4:30 p.m. EST. 1-800-777-1583

DIMENSIONS



NOTE: : Above illustration represents only one of several possible configurations.

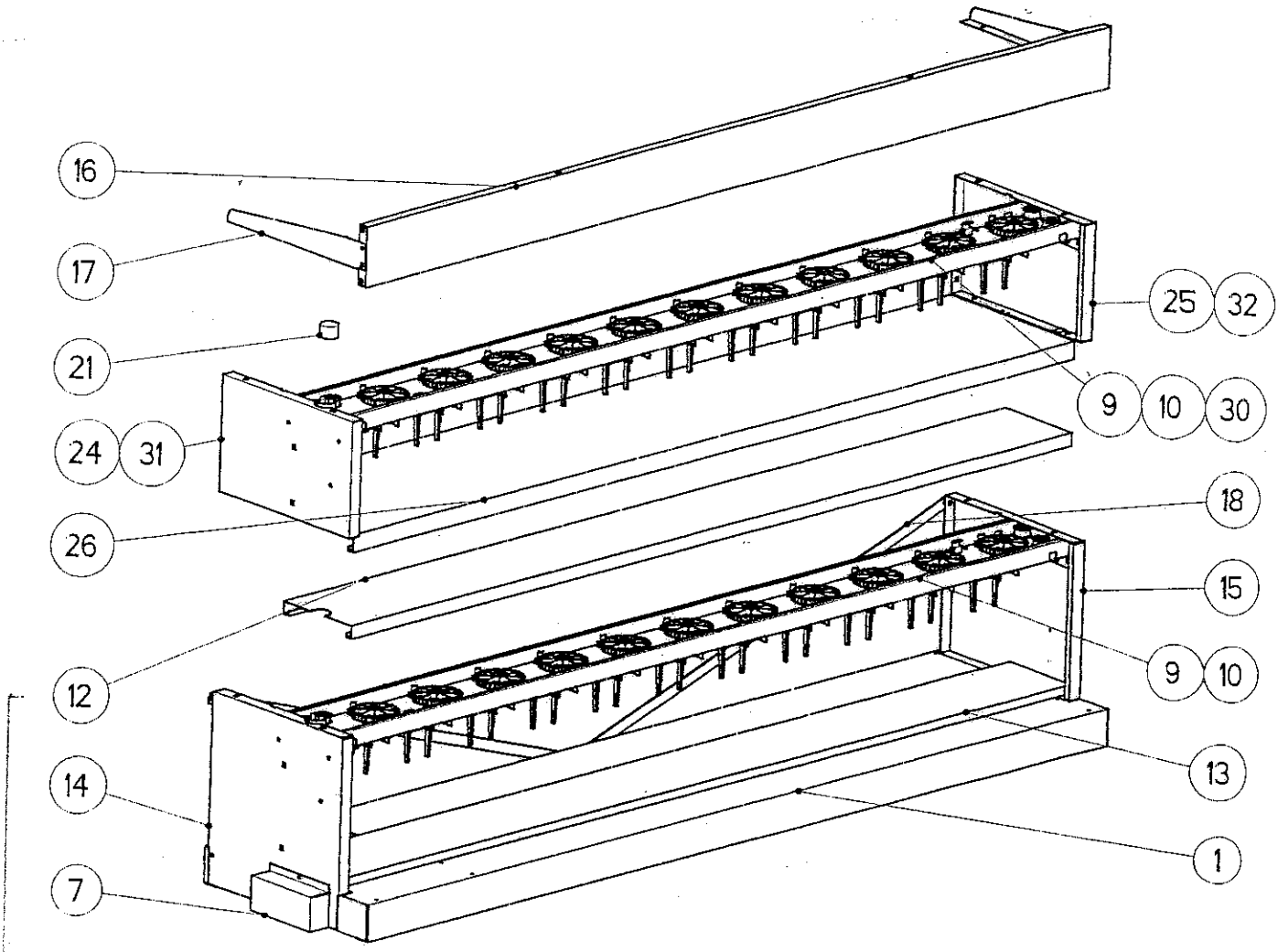


FIG. 1

PLEASE NOTE :
Top shelf cover is shipped attached to the base unit for transportation purposes
REMOVE before placing mix-shelves onto the base unit

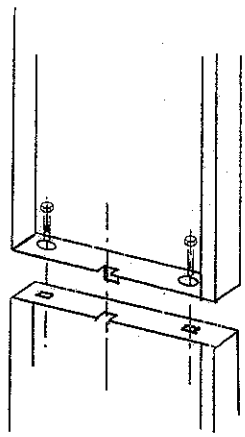
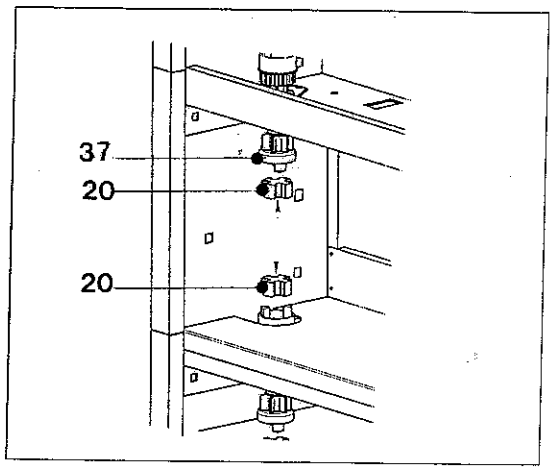


FIG. 2

3



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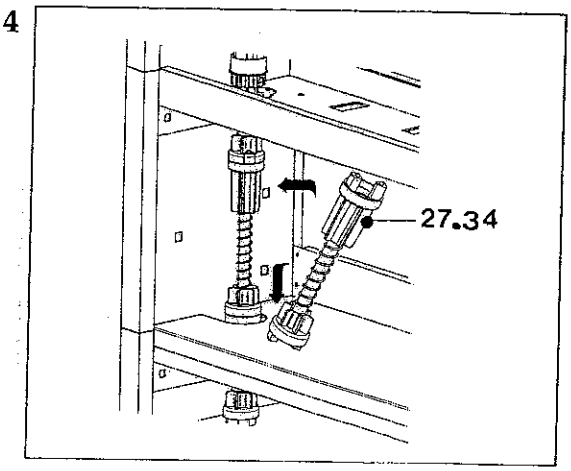

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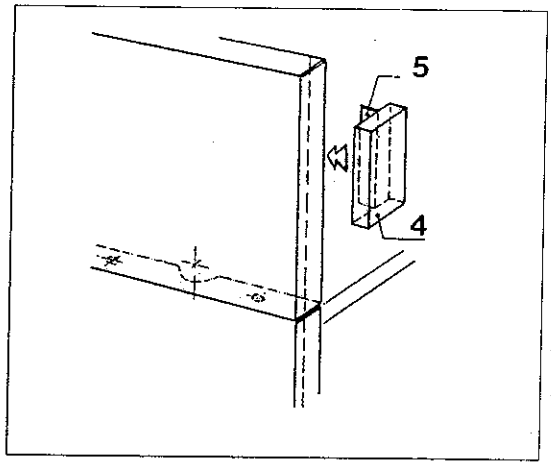

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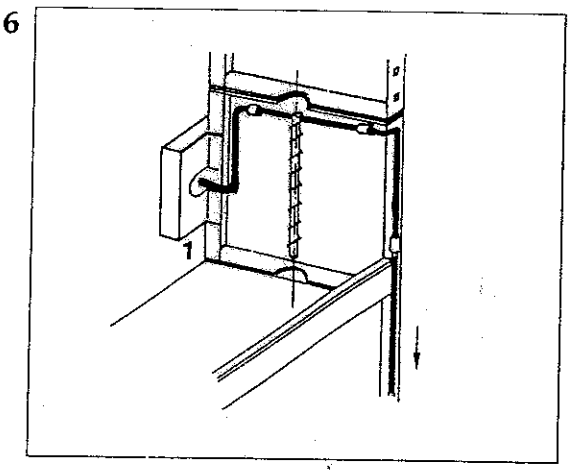

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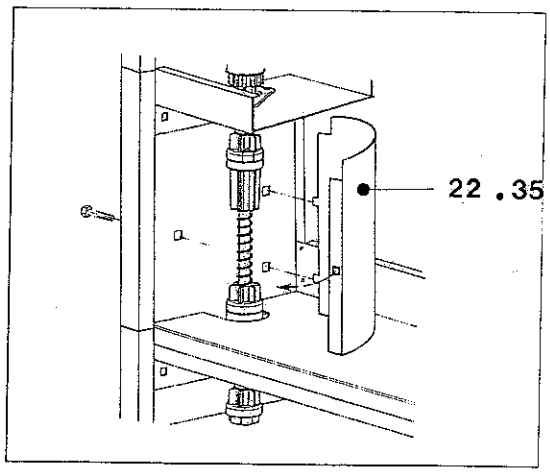


ASSEMBLY AND INSTALLATION

REFER TO DIAGRAMS ON PAGES 4 AND 5

The mix unit should not be installed in a damp place or close to any source of heat. Allow a two-foot clearance behind the machine during assembly for later electrical connections.

STEPS

1. Place the base near the site you wish to set-up the unit allowing a two-foot clearance behind the machine for electrical connections.
2. REMOVE and place aside the GRAY top-shelf cover which is shipped attached to the base unit. This will later be used to cover the belts and pulleys on the top mix-shelf.
3. Place and bolt shelves to desired configuration (figures 1 and 2).
4. Mount top cover on last mix-shelf (fig. 1).
5. Mount transmission shafts:
   a. Start from the bottom shelf, and mount the two cross-pieces, one on the lower drive sleeve, the other on the upper drive sleeve of each mix shelf (fig.3).
   b. Locate the lower drive shaft sleeve, and pull down the spring-loaded upper sleeve and engage it in the top cross piece (fig.4).

Tip: line up upper drive sleeve by rotating the fork of the drive block above it with a wrench.

6. Mount yellow safety cap over top drive block fork.
7. Mount the explosion-proof digital timer (see figs.5 and 6).
   Plug timer cable connector into the motor socket.
   Locate connector pins carefully, then push connector firmly home.
8. Insert tab at base of drive shaft covers into shelves and bolt into place (figure 7).
9. Using brackets provided, mount header panel to top mix-shelf. Note: header panel can be mounted in two positions.

Check to ensure all bolts are tight.

ELECTRICAL CONNECTIONS

Your mix unit is equipped with an explosion-proof 3/4 hp motor (115 V/230V - 60 Hz) which complies with UL and CSA standards (Class 1, Division I, Group D). For this reason, the motor must be installed by a QUALIFIED ELECTRICIAN ONLY.

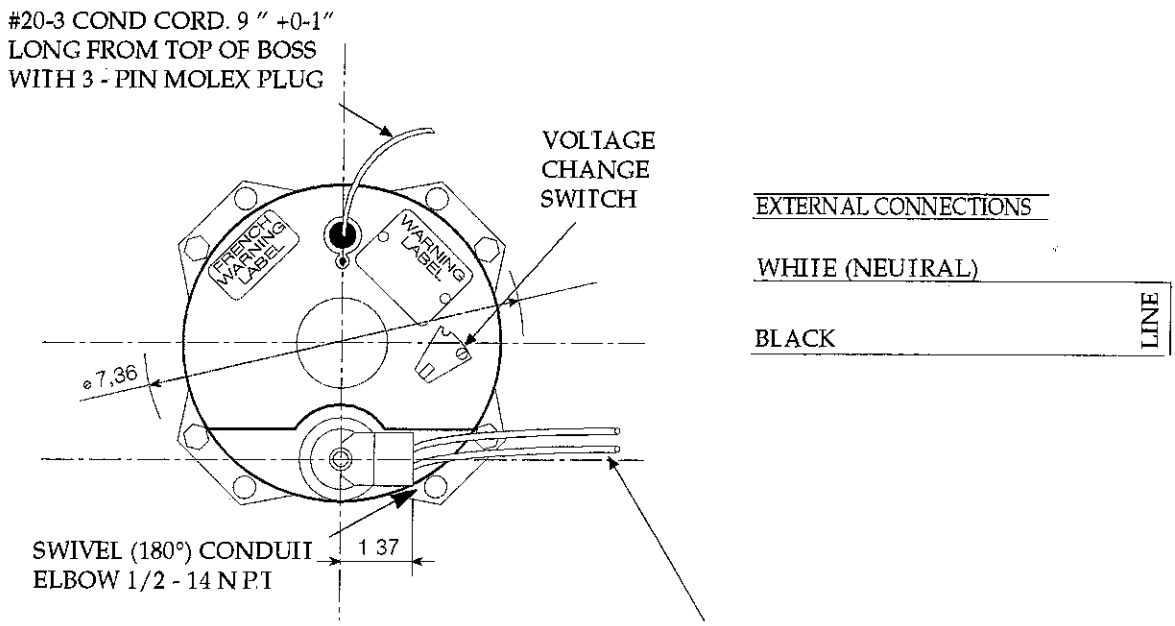
Installation should be in accordance with all Federal, State and local regulations.

The intrinsically safe digital timer is UL and CSA approved. (Class 1, Division I, Group D) for use in hazardous locations.

Motor Connection Information

This 3/4 hp motor can be connected for either low (115V) or high (230V) by first removing the screw from the Voltage Change Switch, turning the switch to the appropriate position and the replacing the screw. The motor is factory set at 115V. Full load current for this motor will be 9,4 amps on 115V and 4,7 amps for a 230V connection. Voltage tolerance is (+/-) 10 %.

The external connection diagram is as follows:



COMMISSIONING

Before first using your mix-unit, check that:

1. The operator has read and understood all caution markings and text on the mix-unit and in the service manual.
2. The power supply is compatible with the power consumption of the machine (11 amps).
3. The mains fuse/breaker is compatible with the power consumption of the machine (11 amps).
4. All drive shaft and mix-shelf covers are firmly in place.
5. All electrical connections are safely covered.
6. All nuts and bolts are tight. They may have worked loose in transport.
7. The unit is installed away from any source of heat (explosive vapors).
8. Do not use dented cans. Check manually that the agitator blades turn freely, before placing can in mix-unit.
9. The timer display should flash when power is applied. If it doesn't, verify that the cable is connected or if the cable is damaged. If damaged, **DO NOT ATTEMPT TO REPAIR OR REPLACE.** Call Fillon Pichon at 1-800-777-1583.

OPERATION

1. Make sure that agitator lids are firmly locked on cans before placing in mix-unit.
2. If possible, place small cans rather than large cans on higher mix-shelves for easier handling and greater safety. Do not over-extend to reach paint cans.
3. Paint cans may be safely placed in or removed from the mix-unit while the machine is turning.
4. Ensure all gates (fig.11) are in 'down' position before starting machine.
5. When the machine is started, the cans will turn slightly until the pouring spouts of the lids touch the gates. This is normal and quite safe.
6. All pulleys are equipped with a quick-release mechanism, which will be activated (clicking sound) if a paddle meets resistance from a dented can. The can should be changed at once. However, no damage will be caused if the machine continues to operate.
7. To access the rear storage space, lift gates forward into the 'up' position. **Pull gates down before operating the machine.**
8. Do not sit on the work surface.

DIGITAL TIMER

1. The digital timer is pre-set for 15 minutes of continuous operation. To commence operations simply press START.
2. To add or subtract agitation time, press STOP, then use the (-) or (+) buttons to adjust the minutes, then press START.
3. To stop the machine at any time during operations, press STOP.

ROUTINE MAINTENANCE

Caution: Before removing any protective covers, and prior to any maintenance or repair operations, make sure the unit is OFF (disconnect the unit if possible).

Your mix-unit will serve you longer, and risk of accidents will be reduced, if regular maintenance is carried out.

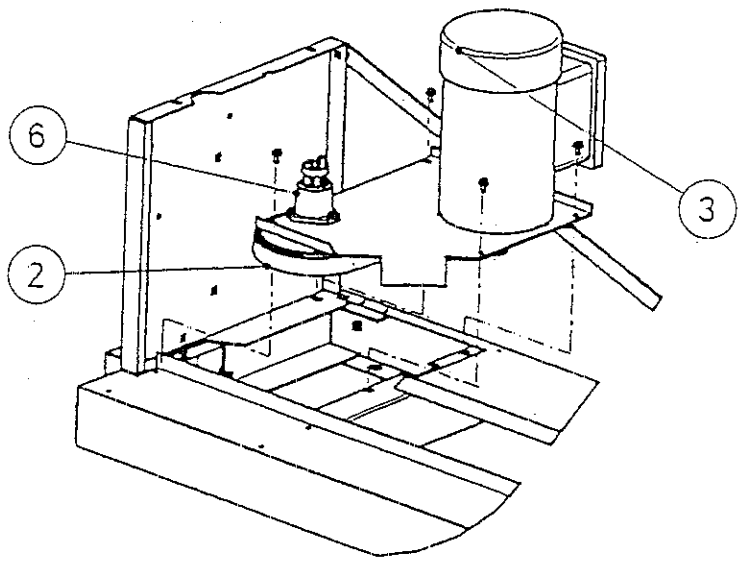
Daily: Remove any spilled paint from the mix-shelves. Dried paint spills make cans unstable and difficult to remove from the shelves. Use a standard non-abrasive thinner.

NEVER USE WATER TO WASH DOWN THE MIX-UNIT.

Monthly: Check condition and tension of the motor drive belt.

NO MOTOR BELT ADJUSTMENT

FIG.9



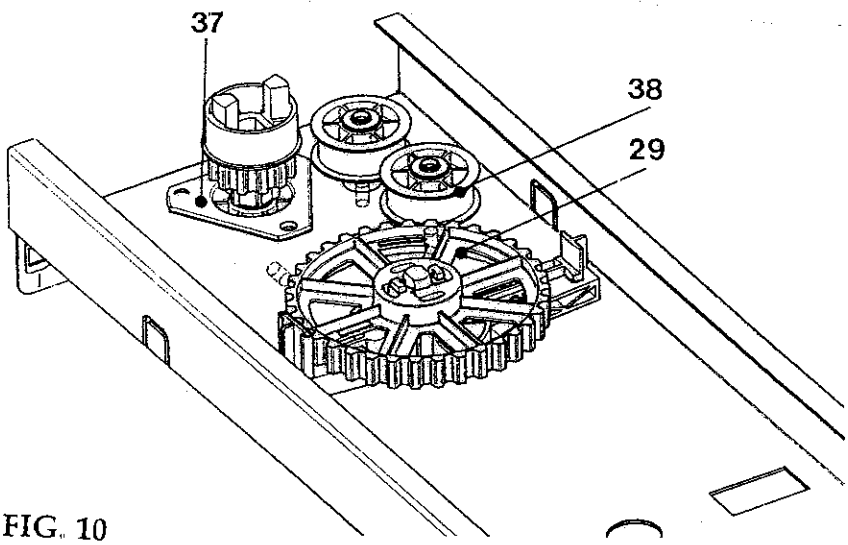
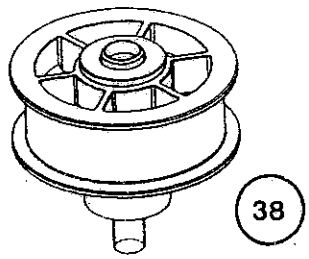
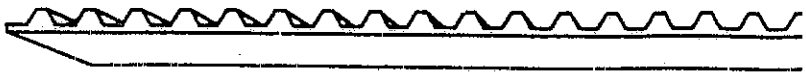


FIG. 10





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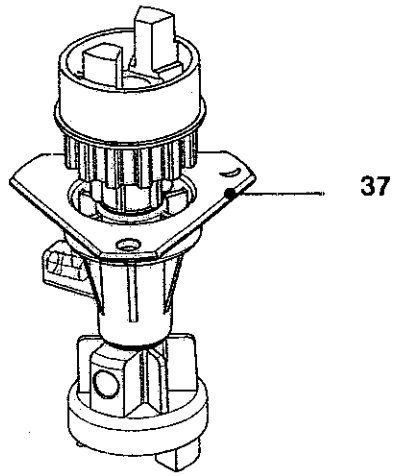

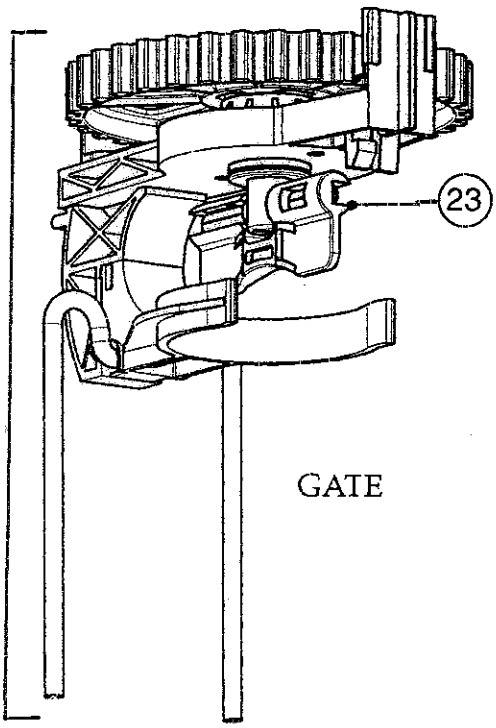

GATE

FIG. 11

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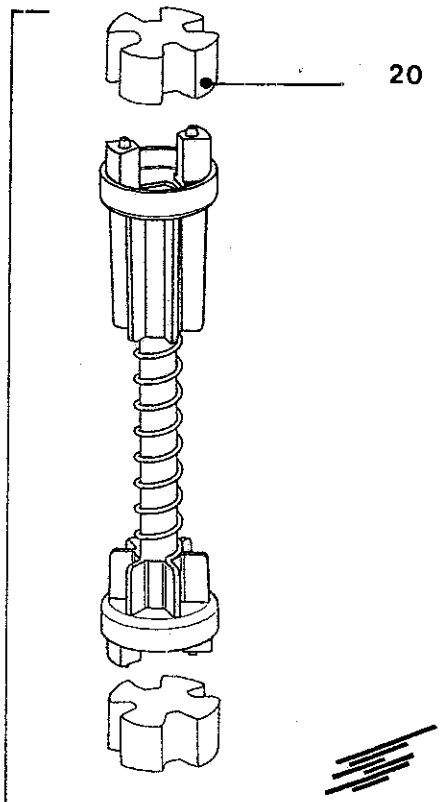


FIG. 12

PARTS LIST

A. BASE UNIT

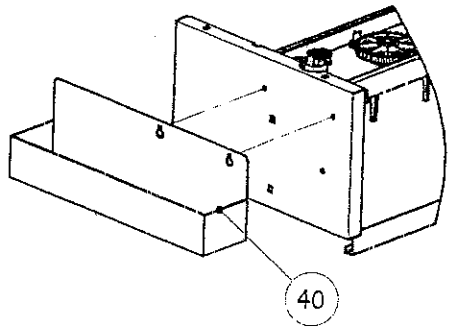
		PART
1	Base frame complete	15.108.03D
2	Motor belt (Poly. V)	03.01.105
3	3/4 HP Explosion-Proof Motor	E.09
23-3	Motor Pulley only (with self locking)	04.10.60D
4	XP Digital timer w/ cable	E.09.T
5	LCD Timer mounting bracket	24.111.00
6	Motor support plate, complete with driven pulley	20.65.00D
-	*Pulley drive block (complete)	08.115.10
7	Driven pulley housing	19.55.10
-	Tool kit	08.50.82
9	12-place mechanical stage, complete	12.114.10F
10	11-place mechanical stage, complete	12.113.10F
37	QL Drive block	08.96.00
12	Paint top shelf cover	13.12.01
13	Bottom shelf cover	13.26.27
14	Bottom shelf side panel (LH)	11.45.20D
15	Bottom shelf side panel (RH)	11.45.21D
16	Header plate	18.104.00
17	Header plate brackets (LH/RH)	18.104.01/02
18	Rear cross brace	25.33.00
19	Bottom shelf drive shaft, complete (shaft L=195 mm + spring + sleeve + cross pieces)	08.50.72
20	Cross-piece (only)	04.20.01
21	Yellow safety cap	03.09.15
22	Shaft cover (large cans)	19.09.302D
29	QL plastic assembly, complete	08.98.00D
23	Driving device with pin (only)	04.20.07D
38	Shelf belt roller	08.97.00
28	Shelf belt (4550 mm)	03.01.102

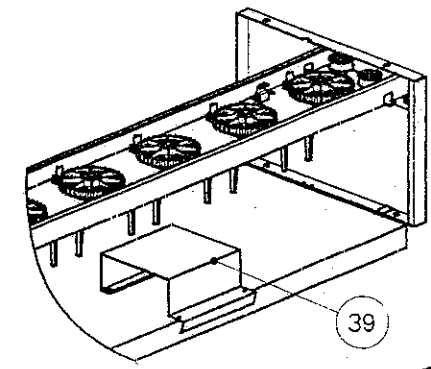
PARTS LIST

B. MIX-SHELF- LARGE CANS		PART
9	12-Place mechanical stage, complete	12.114.10F
10	11-place mechanical stage, complete	12.113.10F
23	Driving device with pin (only)	04.20.07D
24	Side panel (LH)	11.45.22D
25	Side panel (RH)	11.45.23D
26	Shelf cover, with end-tabs	13.32.10
27	Drive shaft QL(L195 mm) complete	08.50.72
22	Shaft cover (Large cans)	19.09.302D
28	Shelf belt (4550 mm)	03.01.102
29	QL plastic assembly, complete	08.98.00D
37	QL Drive block	08.96.00
38	Shelf belt roller	08.97.00

C. MIX-SHELF- SMALL CANS		PART
30	18-place mechanical stage, complete	12.115.10F
31	Side panel (LH)	11.45.24D
32	Side panel (RH)	11.45.25D
26	Shelf cover, with end-tabs	13.32.10
34	Drive shaft QL(130mm) complete	08.50.80
35	Shaft cover (Small cans)	19.09.305D
23	Driving device with pin (only)	04.20.07D
28	Shelf belt (4550 mm)	03.01.102
29	QL plastic assembly, complete	08.98.00D
37	QL Drive block	08.96.00
38	Shelf belt roller	08.97.00

D. OPTIONAL		PART
39	Magnetic quart platforms	21.06.05
40	Powder pearl tray	130.PPT.01





SUMMARY OF CAUTIONS

1. The mix-unit should be installed in a damp-free place, away from any source of heat.
2. Connection of the mix-unit, as well as any check, adjustment or repair of any electrical component (motor, connections etc.) should be carried out only by a FULLY QUALIFIED ELECTRICIAN. Installation must be in accordance with all Federal, State and local regulations and the unit must be fully grounded.
3. All electrical connections should be covered at all times.
4. Protective covers should always be in position. They are provided to protect you against any possible risk of injury.
5. Before removing protective covers, and prior to maintenance or repair operation, make sure the mains power is switched OFF (disconnect the unit if possible).
6. The upper mix-shelves should be reserved for smaller cans, which are lighter and thus easier to handle.
7. Do not use dented cans. Check manually that the agitator blades turn freely before placing cans in mix-unit.
8. Make sure the agitator lids are firmly secured before placing cans in the mix-unit or switching the unit on.
9. Do not over-extend when placing or removing cans from the mix-unit.
10. Never use water to wash down the mix-unit.
11. The mains fuse breaker must be compatible with the power consumption of the machine (11 amps).
12. Do not sit on the work surface.
13. Make sure all gates are in the down position before operating the machine.

The manufacturer cannot be held responsible for any accident resulting from non-compliance with the cautions contained in this manual or affixed to the mix-unit, nor in the case of a mix-unit modified without the prior knowledge and written consent of the manufacturer.

TROUBLE-SHOOTING CHART

PROBLEM	POSSIBLE CAUSE	SOLUTIONS
Motor will not turn.	No current. Timer not activated. Internal motor problem.	Check power supply 115V/60HZ. Activate timer. DO NOT OPEN MOTOR. Call Fillon at 800-777-1583.
Digital timer will not work.	No current.	Check power supply 115V/60HZ. Check connection of the cable. Check condition of the cable. If damaged, DO NOT ATTEMPT TO REPLACE. Call Fillon.
	Internal problem.	DO NOT OPEN, call Fillon.
No mix-shelf will turn.	Motor not turning. Worn, loose or slipped motor belt; or belt too tight. Loose motor pulley.	See above. If slipped, remount. If loose or too tight adjust tension. If worn, replace. Tighten pulley set-screw.
Individual mix-shelf won't turn.	Worn driving cross piece. Drive block seizes or heats up.	Replace cross piece. Change block.
Agitator paddle won't turn	Dent in can Broken drive fork. Lid badly seated on can.	Transfer paint to new can. Replace fork. Re-locate lid.

FILLON PICHON TOLL-FREE ASSISTANCE
1-800-777-1583.

WARRANTY

FILLON PICHON USA, INC. warrants its products to be free from defects in material and workmanship under normal use and service.

FILLON PICHON USA, INC. will replace or repair any part of its products which it determines is defective for a period of 18 months after shipment from our warehouse. Not included under the terms of the warranty are any parts which require replacement due to normal wear and tear (belts, fuses etc.).

All warranty claims should be made by contacting Fillon Pichon USA, Inc. Under no circumstances should the product (s) or any part thereof be returned to the factory for inspection, replacement or repair without the express written consent of Fillon Pichon USA, Inc.

This warranty is expressly in lieu of all other warranties and representations expressed or implied, and all other obligations and liabilities on the part of FILLON PICHON USA, INC.

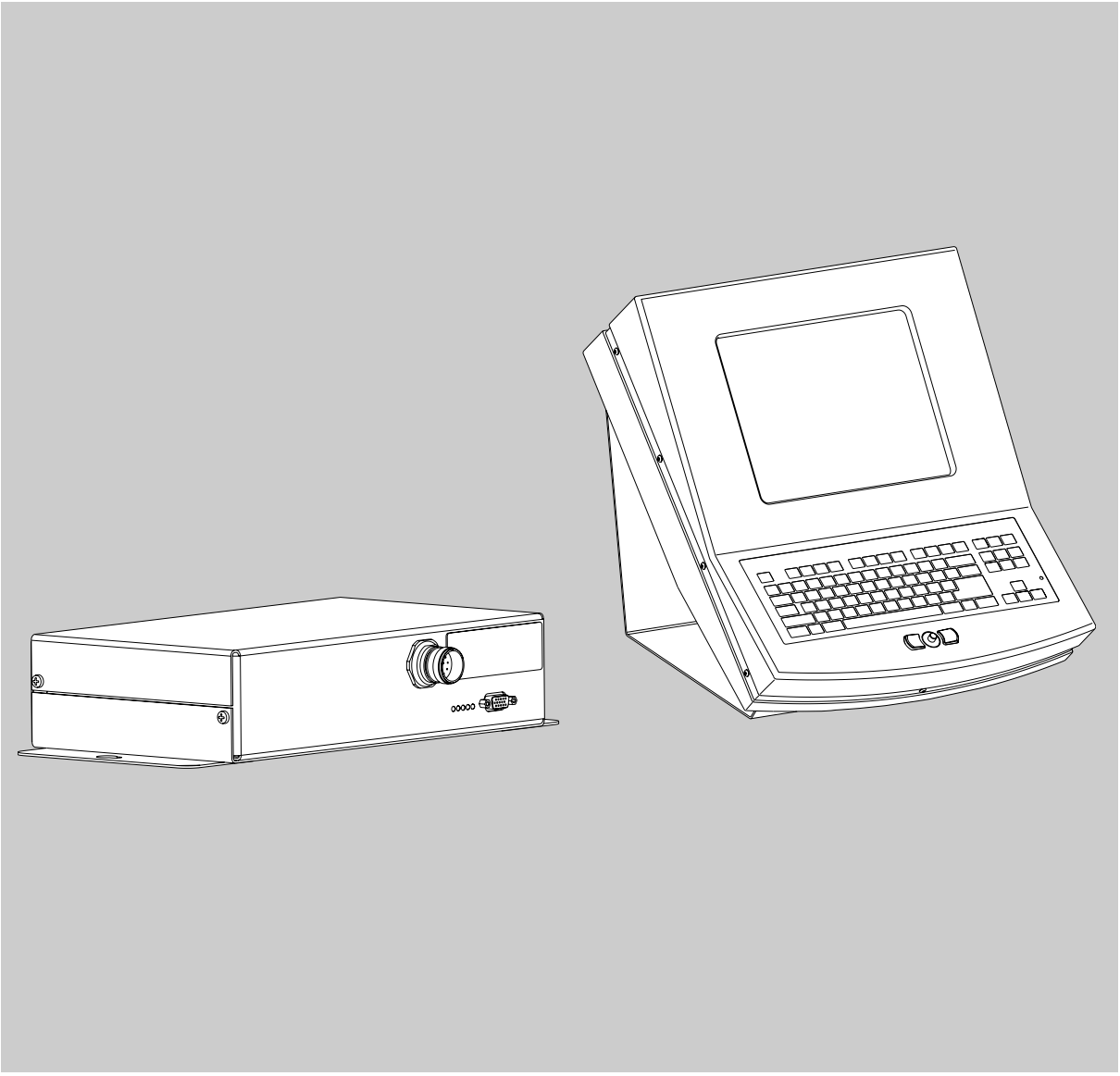
This warranty shall be valid for the warranty period, as long as the equipment has been properly installed or repaired by a fully qualified electrician or mechanic.
The warranty shall be void, if the equipment has been subjected to unauthorized modifications, misuse, neglect, accident or non-compliance with instructions in the service manual.

sartorius

Installation Instructions

Sartorius
TopMix

Model TM01-X
Electronic Paint-mixing Weighing System



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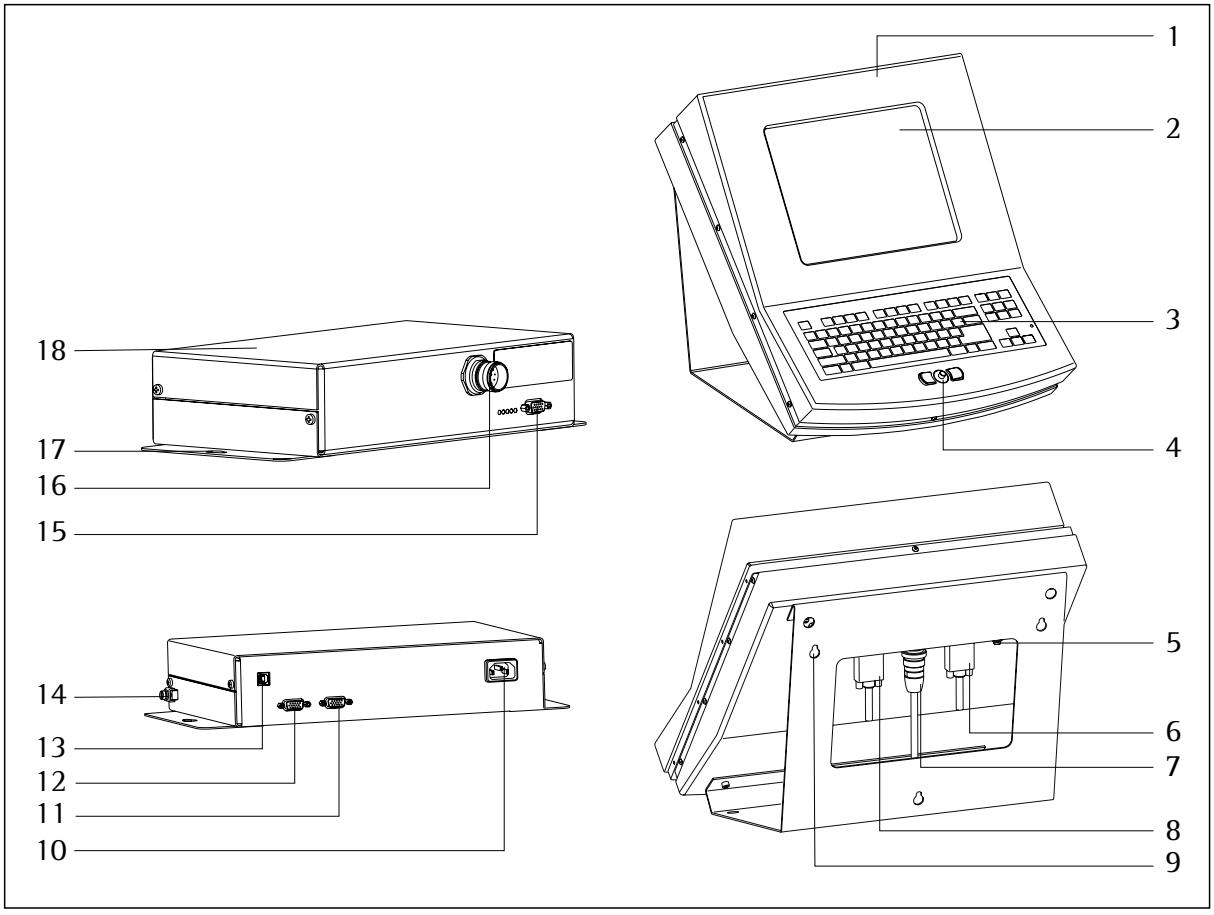
General View of the Equipment



1 Terminal/display and control unit (TM01-X)
2 LC-display (VGA)
3 QWERTY keypad
4 Mouse
5 Connector for equipotential bonding conductor
6 Scale connection (e.g., PMA)
7 Ex-link cable connection
Cable: YCC01-0038M20; length: 20 m
Connects the TopMix system to the Ex-link box
8 VGA monitor connection
Cable: YCC01-0037M20; length: 20 m
Connects the TopMix system to the Ex-link box
9 Bore holes (3 ×) for attaching the terminal retainer to the wall
10 Connector for the power cord; power supply: 90 to 264 VAC
11 Connector for monitor (VGA test monitor, 800x600 pixels) outside the hazardous area
12 Connector for the VGA video cable (YCC01-0039M3; length: 3 m). Connects the Ex-link box to a standard PC outside the hazardous area
13 USB port
14 Connector for equipotential bonding conductor
15 Connector for the VGA cable (YCC01-0037M20; length: 20 m). Connects the TopMix system to the Ex-link box
16 Connector for the Ex-link cable (YCC01-0038M20; length: 20 m). Connects the TopMix system to the Ex-link box
17 Bore holes (2 ×) on mounting bracket (wall installation device)
18 Ex-link box (YCO09-Z)

Contents

The following symbols are used in these instructions:

● indicates required steps

○ indicates steps required only under certain conditions

> describes what happens after you have performed a particular step

– indicates an item in a list

⚠ indicates a hazard
Make sure you observe the warning and safety information in its entirety during installation and operation, as well as while performing maintenance and repair work on the equipment. It is important that all personnel using the equipment understand this information and have access to it at all times.
This warning and safety information can be supplemented by the equipment operator. Make sure all operating personnel are informed of any additions to these instructions.

Intended Use

The Sartorius TopMix paint-mixing weighing system consists of the operator terminal/control panel (TM01-X, monitor and keypad) for installation in a hazardous area and the Ex-link box (YCO09-Z) for installation outside the hazardous area. These components are connected using two special cables which are included with the equipment supplied (cable length: 20 m). The TM01-X is approved for use within Zone 1 hazardous areas. An explosion-protected, intrinsically safe weighing instrument must be connected to the TM01-X unit.

A VGA video cable and USB cable are used to connect a computer located outside the hazardous area to the Ex-link box (YCO09-Z).

The weighing instrument connected to the TM01-X can be controlled through user software installed on the computer.

Process data can be viewed on the VGA monitor of the TM01-X at any time during the mixing process. An additional VGA test monitor (800x600 pixels) can be connected to the Ex-link box (YCO09-Z) outside the hazardous area.

Note:
Read the installation and operating instructions carefully before connecting the TopMix and putting it into operation.

Warnings and Safety Precautions

Legal Notices
This equipment meets the prescribed safety requirements. Improper use or handling, however, can result in damage and/or injury.
The manufacturer accepts no liability for damage or injury resulting from failure to observe these warnings and safety precautions.

- When you use electrical equipment in installations and under ambient conditions subject to higher safety standards, you must comply with the provisions as specified in the applicable regulations for installation in your country.

- The terminal and the Ex-link box (YCO09-Z) are not permitted for use in legal metrology, medical applications, hazardous areas or areas in which potentially explosive dusts are present.

- The intrinsically safe terminal and the Ex-link box (YCO09-Z) are manufactured in compliance with the valid harmonized European standards of CENELEC:
  EN 50014: 1997 A1+ A2
  EN 50020: 2004
  The TopMix can be operated with intrinsically safe Sartorius weighing instruments (e.g., PMA7500-X) in Zone 1 hazardous areas (see "Verification of Intrinsic Safety,"
  Drawing No. 35960-740-60 A4
  or 35960-740-61 A4)
- The industrial protection rating of the terminal and the Ex-link box (YCO09-Z) is IP40 in accordance with EN60529. Handle the equipment carefully in keeping with its IP rating. The place of use must be secured accordingly.

- The TopMix meets the requirements for electromagnetic compatibility (EMC). Avoid exposing the equipment to stronger interference than that specified in the applicable standards (see "Declaration of Conformity").

- The casing on all connecting cables, as well as the casing on wires inside the equipment housing, is made of PVC materials. Chemicals that corrode these materials must be kept away from these cables.
  All components of the TopMix (TM01-X) paint-mixing weighing system are restricted to an ambient operating temperature range of 0°C to 40°C (32°F to 104°F). Make sure the place of installation is adequately ventilated to prevent build-up of excessive heat.

⚠ Do not use electrical equipment out of doors. Prevent build-up of static electricity; e.g., on the dust cover or glass parts. Provide an adequate connection from the TM01-X terminal and the Ex-link box (YCO09-Z) to the equipotential bonding conductor.

- Use the dust cover supplied to protect the equipment from splashes of paint. Observe the cleaning instructions when cleaning the equipment.

- Have the equipment inspected at appropriate intervals for correct functioning and safety by a trained technician. Inspect the cables for damage regularly.
- Make sure operating personnel receive sufficient training to recognize faulty operating states and to introduce the required measures in such cases (for example, disconnecting the Ex-link box from power).

⚠ Proceed with extreme caution when using pre-wired connecting cables, as the pin assignments may not be compatible with Sartorius equipment.
Use only cables and cable lengths approved by Sartorius.

– The operator shall be solely responsible for any damage or injuries that occur when using cables not supplied by Sartorius.

⚠ The Ex-link box (YCO09-Z) may be opened only when it is disconnected from power, and only by trained technicians. If the equipment is not disconnected from power, touching conductive parts in the power supply wiring may be fatal.

⚠ Make sure the glass panel on the display cannot be damaged (for example, by falling objects) during installation and operation of the TM01-X terminal.
If the glass panel is damaged, the equipment must be disconnected from power immediately.

⚠ Repair work may be performed only by authorized service technicians who have been trained by Sartorius and who follow Sartorius' standard operating procedures. Use only Sartorius spare parts.
Always make sure the equipment is disconnected from power before performing any installation, cleaning, maintenance or repair work. If the equipment housing is opened by anyone other than persons authorized by Sartorius, this will result in forfeiture of all claims under the manufacturer's warranty.
If you need assistance, contact your Sartorius dealer or the Sartorius Service Center.

Zone 1 Hazardous Areas (Category 2 Equipment)

– The TopMix (TM01-X) is a Category 2 device in accordance with Council Directive 94/9/EC, approved for use in Zone 1 hazardous areas.
EC Type-Examination Certificate:
– KEMA 04ATEX1021X.
Explosion protection designation:
– EEx ib d[ib] IIB T4 and II 2 G

– The Ex-link box (YCO09-Z) with the designation:
– [EEx ib]IIB and II (2) G
according to EC Type-Examination Certificate No.
– KEMA 04ATEX1021X,
is suited for installation only as peripheral electrical equipment outside the hazardous area. It must be connected to a power supply of at least 90 V and no more than 264 V at a frequency of 48-62 Hz.

⚠ If you use the equipment in a Zone 1 hazardous area outside Germany, you must comply with the national electrical code and safety regulations applicable in your country. Ask your local Sartorius office or dealer for information on the legal regulations applicable in your country.

Getting Started

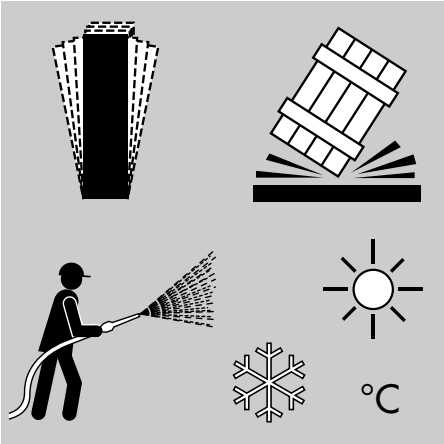
Unpacking the Equipment

- ● After unpacking the equipment, check it immediately for any visible sign of damage resulting from rough handling during shipment.
- ○ If any sign of damage is visible, refer to the section entitled “Safety Inspection” in the chapter entitled “Care and Maintenance.” It is a good idea to save the box and all parts of the packaging until you have successfully installed the equipment. Only the original packaging provides the best protection for shipment. Before packing the equipment for shipment, unplug all connected cables to prevent damage.

Equipment Supplied

The TopMix paint-mixing weighing system includes the following components:

- Terminal (TM01-X) with LC display and keypad for use in Zone 1 hazardous areas
- Ex-link box (YC009-Z) for use outside the hazardous area
- TopMix—Ex-link cable, part no. YCC01-0038M20, for connecting the terminal (TM01-X) to the Ex-link box. Cable length: 20 m.
- TopMix–VGA video cable, part no. YCC01-0037M20, for connecting the display and control unit to the Ex-link box. Cable length: 20 m.
- PC video cable, part no. YCC01-0039M3, for connecting a standard computer to the Ex-link box outside the hazardous area. Cable length: 3 m
- TopMix—PC USB cable, part no. YCC01-0040M3, for connecting a standard computer to the Ex-link box outside the hazardous area. Cable length: 3 m
- TopMix—PMA series cable, part no. YCC01-0041M3, for connecting a weighing instrument. Cable length: 3 m
- Dust cover, part no. YDC01TM, for the display and control unit
- Power cord for the Ex-link box
- Installation instructions (this manual)



Installation Instructions

To ensure fast and reliable results, avoid the following when choosing locations for setting up your terminal (TM01-X) and Ex-link box (YCO09-Z):

- Unstable or uneven surfaces
- Drafts
- Excessive moisture or chemical vapors
- Excessive heat (e.g., from a heater or exposure to direct sunlight). Do not install the equipment in a control cabinet or other poorly ventilated location. If you use multiple Ex-link boxes, do not stack them.
- Excessive vibration

Note:

Observe the warnings and safety precautions included in these instructions.

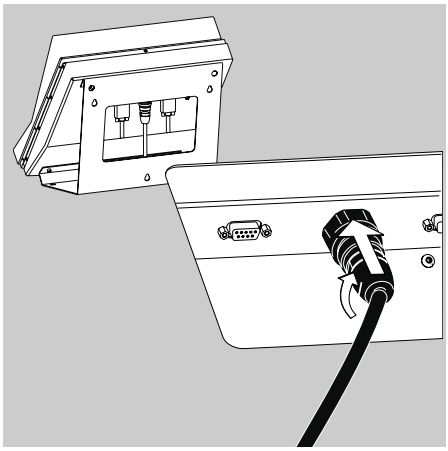
- Before putting the equipment into operation, make sure the power cord is properly connected. It is particularly important to make sure the protective grounding conductor is connected to the housing of the Ex-link box. All equipment must be connected to the equipotential bonding conductor by connecting the grounding cable (not included in delivery) to the grounding terminals on each device.
  The dimensions of the grounding cable are specified in national regulations for electrical installations. Installation must be performed by a trained technician in accordance with national regulations and acknowledged technological standards.
- Use only cabling and extensions approved by Sartorius, as these are made in accordance with the restrictions on permissible cable lengths imposed by both the capacitance and inductivity values (see the “Schedule to EC Type-Examination Certificate”) and the requirements for electromagnetic compatibility.
- Do not connect devices to the Ex-link box that are capable of subjecting the Ex-link box to peak voltages exceeding 375 V.

- Before putting the system into operation for the first time, make sure there is no hazard of explosion present at the place of installation of the Ex-link box.

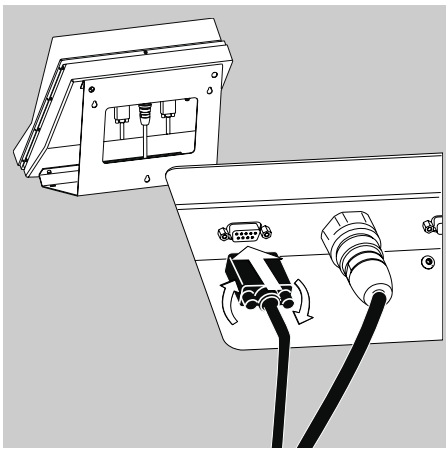
- If there is any indication that the equipment does not function properly (e.g., display remains blank, no display backlighting, etc.) due to damage during transport, disconnect the equipment from power and notify your nearest Sartorius Service Center.
  Before connecting or disconnecting data cables or control lines to or from the device, make sure all equipment is disconnected from power.
  The explosion-protected paint-mixing weighing system must be set up in accordance with acknowledged technological standards. These include the national laws and regulations applicable at the place of use.

- Before the paint-mixing system is operated in a hazardous area, it must be inspected either by a certified electrician or under the guidance and supervision of a certified electrician to make sure that the weighing system complies with the applicable regulations.

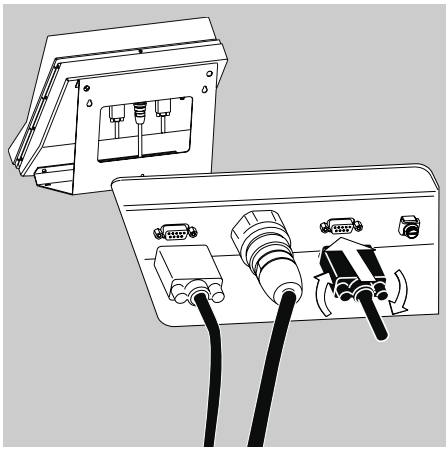
Installing the TopMix System



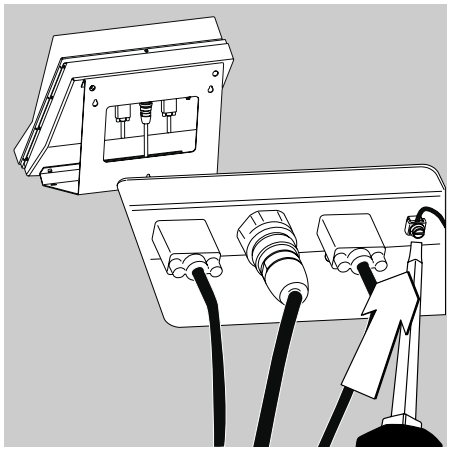
- Connect the TopMix—Ex-link cable (YCC01-0038M20; length: 20 m) to the terminal. Tighten the connector.



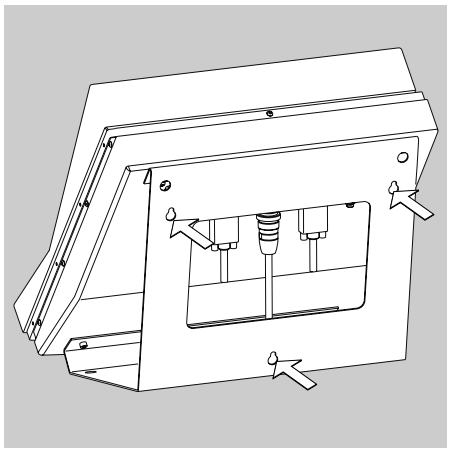
- Connect the TopMix—VGA video cable (YCC01-0037M20; length: 20 m) to the terminal. Tighten the fastening screws.



- Connect the weighing instrument (e.g., PMA scale) using the TopMix—PMA series cable (YCC01-0041M3). Tighten the fastening screws.

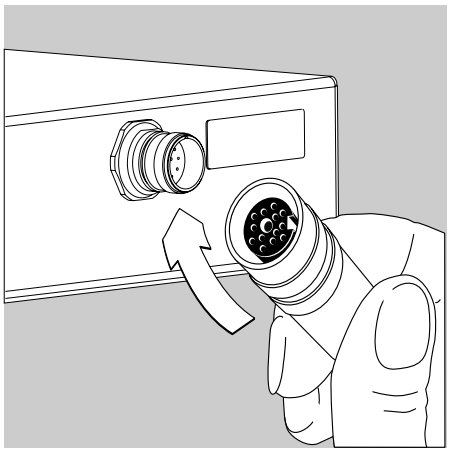


- Connect the equipotential bonding conductor. Use grounding cable (not included in delivery) to connect the grounding terminals on all devices to the equipotential bonding conductor of the power supply in use at the place of installation. The dimensions of the grounding cable are specified in national regulations for electrical installations. Installation must be performed by a trained technician in accordance with national regulations and acknowledged technological standards.

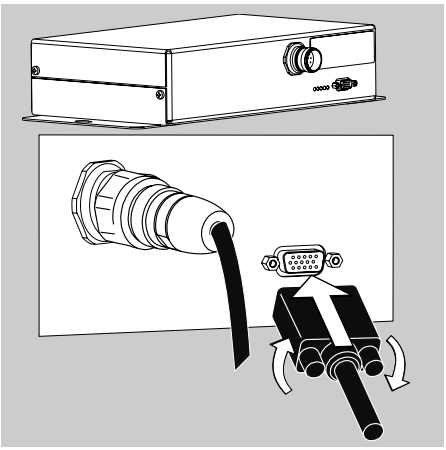


- The terminal (TM01-X) can be affixed to the wall using the bore holes indicated (see arrows) on the mounting bracket (wall installation device).

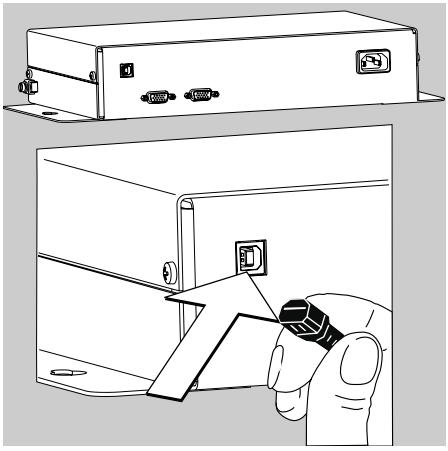
Installing the Ex-link Box (YCO09-Z)



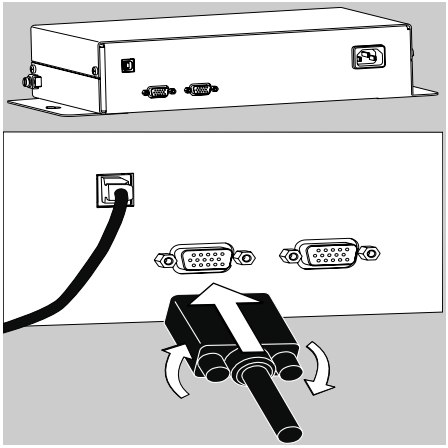
- Connect the TopMix–Ex-link cable (YCC01-0038M20; length: 20 m) to the Ex-link box (YCO09-Z) (Ex side).
  Tighten the connector.



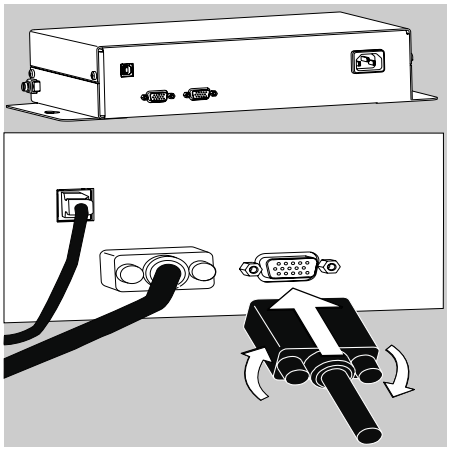
- Connect the TopMix—VGA video cable (YCC01-0037M20; length: 20 m) to the Ex-link box (YC009-Z) (Ex side).
  Tighten the fastening screws.



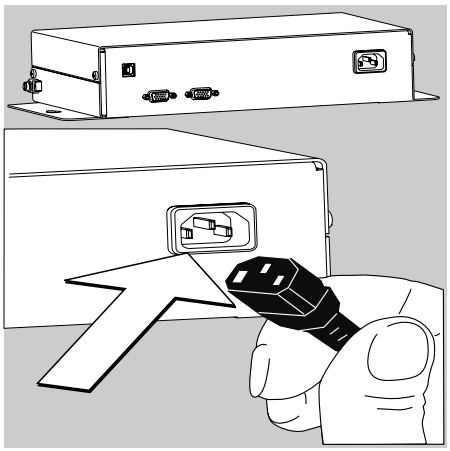
- USB port (see illustration):
  Connect the TopMix—PC USB cable (YCC01-0040M3; length: 3 m) for a standard computer to the Ex-link box outside the hazardous area (PC side).



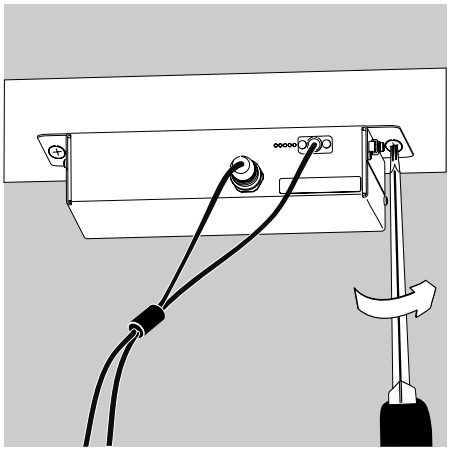
- Connect the PC video cable (YCC01-0039M3; length: 3 m) for a standard computer to the Ex-link box outside the hazardous area (PC side).
  Tighten the fastening screws.



- Monitor connection:
  VGA control monitor, 800x600 pixels, outside the hazardous area (PC side).
  Computer setting: high color (16-bit)



- Connect the equipment to power (PC side).
  Note:
  Observe the warnings and safety precautions included in these instructions.



Note:

- The Ex-link box (YCO09-Z) can be mounted on the wall or on the underside of the table or workbench.

Connecting the System to AC Power

The equipment is powered through the power cord supplied. The Ex-link box (YC009-Z) has a built-in AC adapter for operation with a power supply between 90 and 264 V and a frequency of 47 to 63 Hz. If the line voltage or frequency exceeds these limits, or if the plug on the cable does not match the standard used in your area, please contact your supplier for assistance.

⚠ The Ex-link box (YC009-Z) must be installed outside the hazardous area.

Observe the following when operating the TopMix (TM01-X) in a Zone 1 hazardous area:

– Make sure the currently valid regulations and guidelines for installing equipment in a Zone 1 area (in Germany, ElexV of 27 Feb 1980) are strictly observed.

Switching the TopMix On and Off

● The TopMix terminal (TM01-X) is switched on/off when the computer is switched on/off.

> The Ex-link box (YC009-Z) remains in standby mode when the computer is switched off.
The standby mode is indicated by the LED on the D-Sub connector.
When the computer is switched on, all five LEDs are lit. The terminal switches on when the video signal is detected.

● The backlighting of the weighing instrument display is activated when the supply voltage reaches the TopMix display and control unit.
Note:
The TopMix runs a self-test when the computer is switched on.

● Switch off the system when not in use.

Care and Maintenance

Service
Regular servicing by a Sartorius technician will ensure continuous correct functioning of your equipment. Sartorius offers service contracts with regular maintenance intervals ranging from 1 month to 2 years. The optimum maintenance interval depends on operating conditions and tolerance requirements.

Repairs
⚠ Defective equipment must be disconnected from power immediately. Repair work must be performed by authorized Sartorius service technicians using original spare parts. Repairs performed by untrained persons may result in considerable hazards for the user. If the equipment is still under warranty, send the entire system to the factory for repairs.

Safety Inspection
Safe operation of the device is no longer ensured when:
- there is visible damage to the device
- the device no longer functions properly
- the equipment has been stored for a relatively long period under unfavorable conditions
  In this case, notify your nearest Sartorius Service Center. Only service technicians who are authorized by Sartorius and who have access to the required maintenance manuals are allowed to perform maintenance and repair work on the equipment. Before shipping your TopMix to the factory for repairs:
- remove all paint residues
- disconnect all cables to prevent damage to the equipment
- enclose a description of the defect

Cleaning
⚠ Make sure no liquid enters the equipment housing.
Do not use aggressive cleaning agents.

⚠ Using jets of water or compressed air to clean the equipment is not permitted.

Cleaning Stainless Steel Surfaces
Clean all stainless steel parts regularly. Use a damp cloth or sponge to wipe down stainless steel parts. You can use any household cleaning agent that is suitable for use on stainless steel. Then wipe the equipment thoroughly to remove all residues. Afterwards, allow the equipment to dry. If desired, you can apply oil to the cleaned surfaces as additional protection.
Note:
Do not apply any cleaning agents to the manufacturer's ID label or printed labels.

Corrosive Environment
○ Remove all traces of corrosive substances on a regular basis.

Storage and Shipping Conditions
- Allowable storage temperature:
  -40 °C to +70 °C (-40° to +158°F)

Recycling
The packaging protects the equipment from damage during transport. After successful installation of the equipment, you should return this packaging for recycling. For information on recycling options, including recycling of used equipment, contact your municipal waste disposal center or local recycling depot.

Serial Number Coding
The month and year of manufacture are encoded in the serial number as follows:
Y M M x x x x x

Y	Year
1	2000–2006
2	2007–2013
3	2014–2020
4	2021–2027
5	2028–2034
6	2035–2041
7	2042–2048
8	2049-2055
9	2056-2062

The first digit represents a 7-year period (see the table above); the next 2 digits represent the month. Months are numbered consecutively over the entire 7-year period, starting at 13. Thus the number representing the month also indicates the specific year of manufacture.

2000	13-24
2001	25-26

...

Example:
113xxxxx → January 2000
The individual devices are numbered consecutively in the last 5 digits, starting from 00000 again at the beginning of each month.

CE Marking
The TopMix equipment complies with the following EC Directives and European Standards:
Council Directive 89/336/EEC
"Electromagnetic compatibility (EMC)"
Applicable European Standards:
Limitation of emissions:
In accordance with product standard EN 61326-1 Class B
(residential area)
Defined immunity to interference:
In acc. with product standard EN 61326-1
(industrial area)

Note:
The operator shall be responsible for any modifications to Sartorius equipment and must check and, if necessary, correct these modifications. On request, Sartorius will provide information on the minimum operating specifications (in accordance with the Standards listed above for defined immunity to interference).
73/23/EEC "Electrical equipment designed for use within certain voltage limits"
Applicable European Standards:
EN 60950
Safety of information technology equipment including electrical business equipment
EN 61010
Safety requirements for electrical equipment for measurement, control and laboratory use
Part 1: General requirements
If you use electrical equipment in installations and under ambient conditions subject to higher safety standards, you must comply with the provisions as specified in the applicable regulations for installation in your country.

Declaration of Conformity

to Council Directives 89/336/EEC , 73/23/EEC and 94/9/EEC

The electronic Ex- terminal with associated Ex- Link- converter TM01-X / YC009-Z

meets the requirements of the test standards listed below.

1. Electromagnetic Compatibility
1.1 Source for 89/336/EEC: EC Official Journal, No. 2003/C74/01

EN 61326-1 Electrical equipment for measurement, control and laboratory use
EMC requirements
Part 1: General requirements
Limitation of emissions: Industrial areas, Class A
Defined immunity to interference: Industrial areas, continuous unmonitored operation

2. Safety of Electrical Equipment
2.1 Source for 73/23/EEC: EC Official Journal, No. 2003/C60/01

EN 61010 Safety requirements for electrical equipment for measurement, control and laboratory use
Part 1: General requirements
EN 60950 Safety of information technology equipment

3. Equipment or protective systems or components intended for use in potentially explosive atmospheres and for use in presence of combustible dust
3.1 Source for 94/9/ EEC: EC Official Journal, No. 2003/C42/03

EN50014 General requirements
EN50018 Flameproof enclosure "d"
EN50020 Intrinsic safety "i"

3.2 Type Examination: KEMA/Arnheim (NL) (Notified Body, Reg. No. 0344)

KEMA 04ATEX1021 X

3.3 Production Quality Assessment Notification:
Certified by PTB/Braunschweig (Notified Body, Reg. No. 0102)

Notification No.: PTB 97ATEX Q021-1

Sartorius AG
37070 Goettingen, Germany
2004

i.V.

W. Obermann
(Senior Vice President, R&D
Electronics Engineering
Mechatronics Division)

i.V.

Dr. K. Klein
(Senior Vice President, R&D
Mechanical Engineering
Mechatronics Division)

Specifications

TopMix TM01-X with Ex-link box (YCO09-Z)		
Model		TM01-X
Allowable ambient operating temperature range	°C	+5 to +40 (41° to 104°F)
Housing dimensions (WxDxH): TopMix display and control unit Ex-link box	 mm mm	 420 x 444 x 396 375 x 175 x 73
Net weight: TopMix display and control unit, approx.	 kg	 16.5
Ex-link box, approx.	kg	3.2
AC power source	V	100 – 240V ~
Frequency	Hz	50 – 60
Power consumption (average)		VA 25
Designation [type of explosion protection] Terminal TM01-X Ex-link box YCO09-Z		 EEx ib d[ib] IIB T4 and II 2 G (KEMA 04ATEX1021X) [EEx ib] IIB II (2) G (KEMA 04ATEX1021X)
The terminal is suitable for use in hazardous areas (in accordance with Council Directive 94/9/EC) rated to	Zone 1 or 2	(Category 2 equipment)
IP protection		IP40

Accessories (Options)

Dust cover for display and control unit	YDC01TM

Declaration of Conformity

KEMA

(1) **EC-TYPE EXAMINATION CERTIFICATE**

(2) Equipment or protective system intended for use in potentially explosive atmospheres - Directive 94/9/EC

(3) EC-Type Examination Certificate Number: **KEMA 04ATEX1021 X**

(4) Equipment or protective system: **TopMix consisting of Ex-Link-Box type YCO09-Z and Control Panel type TM01-X**

(5) Manufacturer: **Sartorius AG**

(6) Address: **Weender Landstraße 94-108, 37075 Göttingen, Germany**

(7) This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

(8) KEMA Quality B.V., notified body number 0344 in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the directive.

The examination and test results are recorded in confidential report no. 202719c.

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 50014 : 1997 **EN 50018 : 2000** **EN 50020 : 2002**

(10) If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.

(11) This EC-Type Examination Certificate relates only to the design, examination and tests of the specified equipment or protective system according to the Directive 94/9/EC. Further requirements of the directive apply to the manufacturing process and supply of this equipment or protective system. These are not covered by this certificate.

(12) The marking of the equipment or protective system shall include the following:

II (2) G [EEx ib] IIB (Ex-Link-Box)
II 2 G EEx ib d[ib] IIB T4 (Control Panel)

Arnhem, 28 June 2004
KEMA Quality B.V.

C.G. van Es
Certification Manager

KEMA Quality B.V.

ACCREDITED BY THE DUTCH COUNCIL FOR ACCREDITATION

Page 1/1

KEMA

(13) **SCHEDULE**

(14) **to EC-Type Examination Certificate KEMA 04ATEX1021 X**

(15) **Description**

TopMix is a combination of Ex-Link-Box type YCO09-Z and Control Panel type TM01-X.

The Ex-Link-Box is for use outside the hazardous area only.
The Control Panel contains a display in type of explosion protection flameproof enclosure "d" and several integral intrinsically safe and associated intrinsically safe circuits.
The Control Panel is also provided with a connection to intrinsically safe Weighing Scales.

Ambient temperature range 0 °C ... +40 °C.

Electrical data

Ex-Link-Box YCO09-Z

Mains supply	100 ... 240 Vac, 50 ... 60 Hz, 70 W U_m = 253 Vac
VGA circuit ..... (BU4)	in type of explosion protection intrinsic safety EEx ib IIB, only for connection to Control Panel TM01-X. Maximum length of interconnecting cable: 100 m.
USB and Supply circuits .... (ST1/BU)	in type of explosion protection intrinsic safety EEx ib IIB, only for connection to Control Panel TM01-X via the belonging cable type YCC01-0038M20 with a maximum cable length of 100 m.

Control Panel TM01-X

VGA circuit ..... (BU/ST)	in type of explosion protection intrinsic safety EEx ib IIB, only for connection to Ex-Link-Box YCO09-Z. Maximum length of interconnecting cable: 100 m.
USB and Supply circuits ..... (ST/BU)	in type of explosion protection intrinsic safety EEx ib IIB, only for connection to Control Panel TM01-X via the belonging cable type YCC01-0038M20 with a maximum cable length of 100 m.
Weighing Scale circuits ..... (ST3/BU3)	in type of explosion protection intrinsic safety EEx ib IIB, with the following maximum values (per circuit):

U_o	=	12	V
I_o	=	32	mA
P_o	=	94	mW
C_o	=	9	µF
L_o	=	50	mH

and for connection to a certified intrinsically safe circuit, with the following maximum values (per circuit):

U_i	=	12,6	V
I_i	=	33	mA
P_i	=	103	mW
C_i	=	2	nF
L_i	=	0	mH

KEMA

(13) **SCHEDULE**

(14) **to EC-Type Examination Certificate KEMA 04ATEX1021 X**

Electrical data (continued)

The Weighing Scale circuits may also be connected to the following certified Weighing Scales, by means of an interconnecting cable with a maximum length of 30 m:

Type PMA7500.-X..W	(KEMA 98ATEX0609 X)
Type PMA7500.-X..AM	(KEMA 98ATEX0609 X)
Type PMA35.-X...	(KEMA 98ATEX0609 X)
Type PMW35.-X...	(KEMA 98ATEX0609 X)
Type IS.....-.X....	(KEMA 01ATEX1099 X)
Type FC.....-.X....	(KEMA 01ATEX1099 X)
Type FCA.....-.X....	(KEMA 01ATEX1099 X)
Type FCB.....-.X....	(KEMA 01ATEX1099 X)

Routine tests

Routine tests according to clause 16 of EN 50018 are not required for the display housing, since the type test has been made at a static pressure of four times the reference pressure.

(16) **Report**

KEMA No. 2027199.

(17) **Special conditions for safe use**

1. The Control Panel shall be installed in such a way that the risk for mechanical damage is low.

2. For ambient temperature range and electrical data, see (15).

(18) **Essential Health and Safety Requirements**

Covered by the standards listed at (9).

(19) **Test documentation**

		dated
Drawing No.	35960-000-45-A4 (2 sheets)	05.03.2004
	35960-300-45-A4	11.03.2004

FM Approvals

CERTIFICATE OF COMPLIANCE

HAZARDOUS (CLASSIFIED) LOCATION ELECTRICAL EQUIPMENT

This certificate is issued for the following equipment:

TopMix System
YCO09-Z EX-Link-Box / Supply – Interface
AIS/1/1/C D – 35960-000-07-A4
AIS/1/1/ [AEx ib] IIB –35960-000-07-A4

TM01-X Control Panel/ Display-Interface
IS-XP/AIS /1/1/C D T4 – 35960-000-07-A4
I/1/ [AEx ib] IIB T4 – 35960-000-07-A4
Maximum Entity Parameters: See control drawing 35960-000-07-A4

Equipment Ratings:

Intrinsically safe connections for Class I, Division 1, Groups C and D, Class I, Zone 1 Groups IIB hazardous locations in accordance with control drawing 35960-000-07-A4; Intrinsically safe; explosionproof with intrinsically safe connections for Class I, Division 1, Groups C and D; Class I, Zone 1 Groups IIB, temperature class T4 an ambient of 40°C in accordance with control drawing 35960-000-07-A4 hazardous (indoor) locations

Approved for:

SARTORIUS AG
WEENDER LANDSTRASSE 94-108
D-37070 GÖTTINGEN
GERMANY

FM Approvals

This certifies that the equipment described has been found to comply with the following FM Approval Standards and other documents:

Class 3600	1998
Class 3610	1999
Class 3810	1989
ANSI/NEMA 250	1991
Supplement 1	1995
Class 3615	1989
Class 3611	1999

Original Project ID: 3020982 FM Approval Granted: 8/9/04

Subsequent Revision Reports / Date FM Approval Amended

Report Number	Date	Report Number	Date

FM Global Technologies LLC

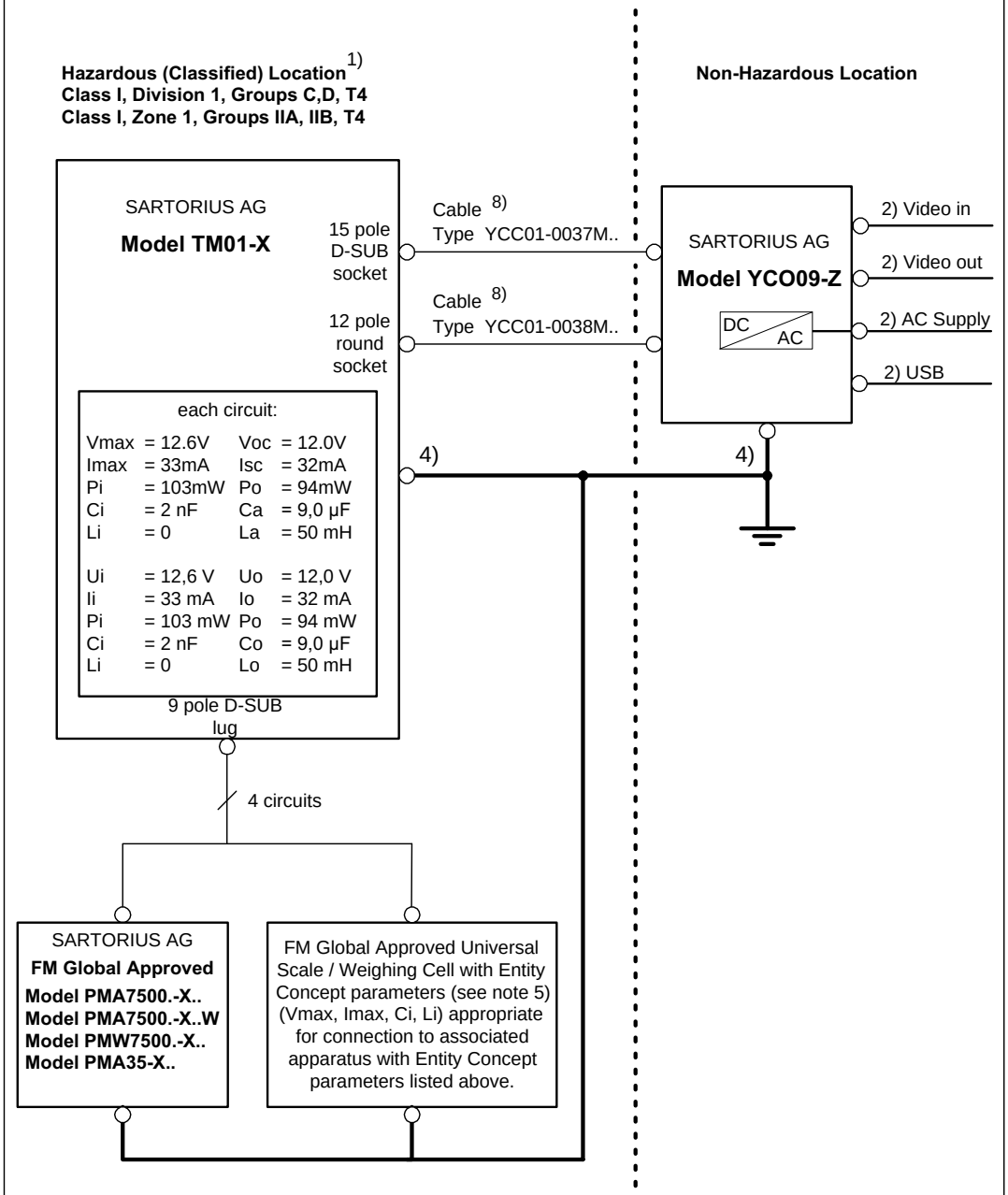
George A. Smith
Assistant Vice President

Date 8/9/04

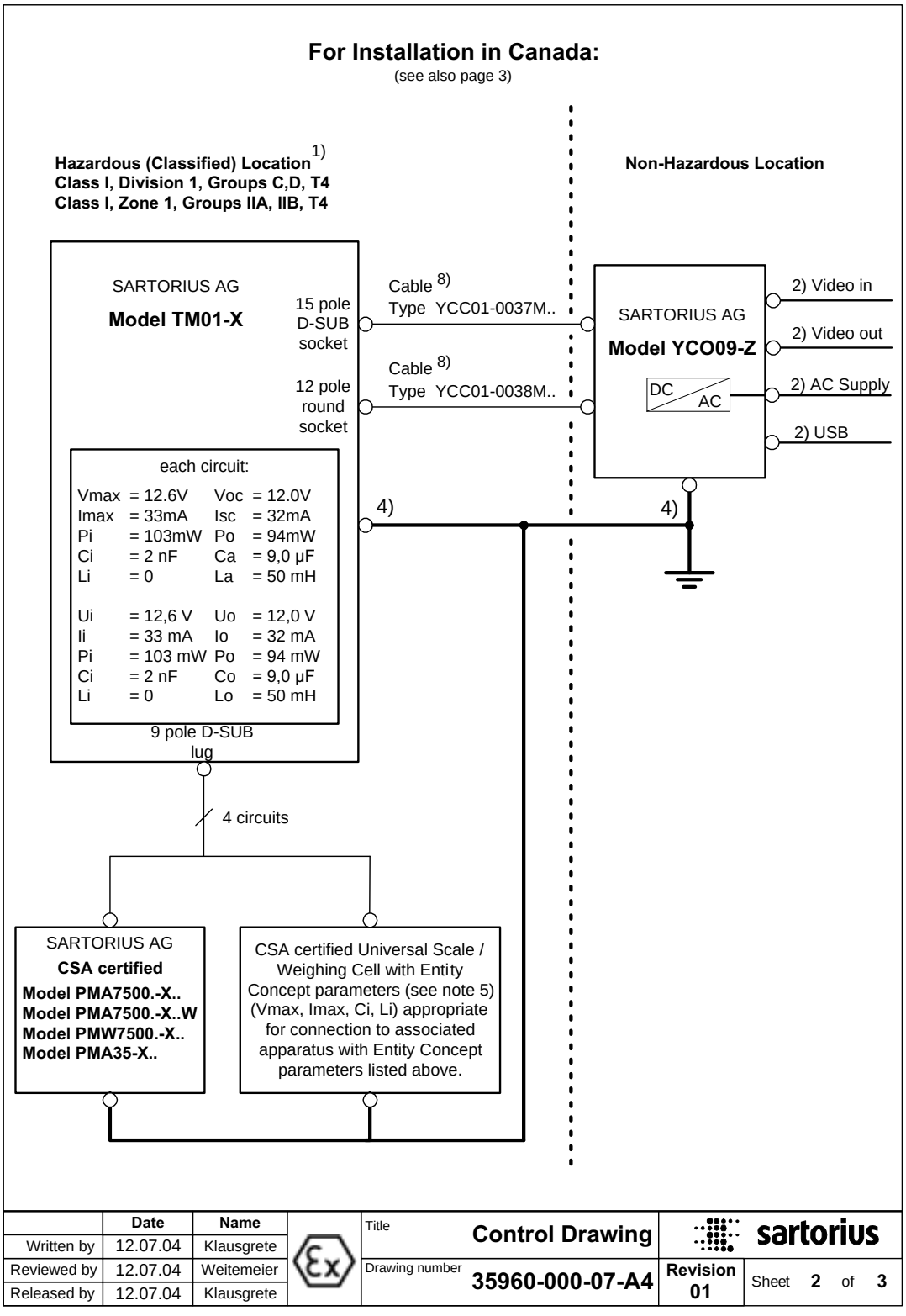
FM Approvals LLC

For Installation in the USA:

(see also page 3)



	Date	Name		Title	Control Drawing	sartorius	
Written by	12.07.04	Klausgrete					
Reviewed by	12.07.04	Weitemeier		Drawing number	35960-000-07-A4	Revision 01	Sheet 1 of 3
Released by	12.07.04	Klausgrete					



	Date	Name
Written by	12.07.04	Klausgrete
Reviewed by	12.07.04	Weitemeier
Released by	12.07.04	Klausgrete

Title: **Control Drawing**

Drawing number: **35960-000-07-A4**

Revision 01

Sheet **2** of **3**

For installation in the USA:

1) For **Class I, Division 1** installation: Not for esters and alkanes atmospheres!
   For **Class I, Zone 1** installation: No restrictions on gases of group IIA and IIB.
2) The Model YCO09-Z must not be connected to any device that uses or generates in excess of 250Vrms or 250Vdc.
3) The installation must be in accordance with the National Electrical Code ®, NFPA 70, Article 504 or 505 and ANSI / ISA-RP 12.6.
4) The apparatus must be connected to a suitable ground electrode per National Electrical Code ®, NFPA 70, Article 504 or 505. The resistance of the ground pad must be less than 1 ohm.
5) The Entity Concept allows interconnection of intrinsically safe apparatus with associated apparatus not specifically examined in combination as a system when the approved values of Voc, Isc and Po resp. Uo, Io, Po of the associated apparatus are less than or equal to Vmax, Imax and Pi resp. Ui, Ii, Pi of the intrinsically safe apparatus and the approved values of Ca and La resp. Co and Lo of the associated apparatus are greater than Ci and Li of the intrinsically safe apparatus plus all cable parameters.
6) **Ambient temperature** range: 0°C .... +40°C (+32°F .... + 104°F)
7) WARNING: SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY.
8) Maximum cable length: 100m (328 ft).

For installation in Canada:

1) For **Class I, Division 1** installation: Not for esters and alkanes atmospheres!
   For **Class I, Zone 1** installation: No restrictions on gases of group IIA and IIB.
2) The Model YCO09-Z must not be connected to any device that uses or generates in excess of 250Vrms or 250Vdc.
3) The installation must be in accordance with the Canadian Electrical Code ®, Section 18.
4) The apparatus must be connected to a suitable ground electrode per Canadian Electrical Code ®, Section 18. The resistance of the ground pad must be less than 1 ohm.
5) The Entity Concept allows interconnection of intrinsically safe apparatus with associated apparatus not specifically examined in combination as a system when the approved values of Voc, Isc and Po resp. Uo, Io, Po of the associated apparatus are less than or equal to Vmax, Imax and Pi resp. Ui, Ii, Pi of the intrinsically safe apparatus and the approved values of Ca and La resp. Co and Lo of the associated apparatus are greater than Ci and Li of the intrinsically safe apparatus plus all cable parameters.
6) **Ambient temperature** range: 0°C .... +40°C (+32°F .... + 104°F)
7) WARNING: SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY.
   AVERTISSMENT: LA SUBSTITUTION DE COMPOSANTS PEUT COMPOROMETTRE LA SECURITE INTRINSEQUE.
8) Maximum cable length: 100m (328 ft).
9) CSA certified equipment file No. LR 56628

	Date	Name		Title	Control Drawing	sartorius	
Written by	12.07.04	Klausgrete					
Reviewed by	12.07.04	Weitemeier		Drawing number	35960-000-07-A4	Revision 01	Sheet 3 of 3
Released by	12.07.04	Klausgrete					

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USER MANUAL

COMBO605/606 and COMBO655/656

COMBO605

UNI-RAM CORPORATION • ONTARIO • CANADA

Revision 2012-09

INTRODUCTION

Uni-ram holds many patents on designs used in its innovative products. Every machine is tested for compliance with Quality Assurance standards. Follow the instructions on preparation, use and operation to operate this machine safely and effectively. Ensure that this manual is readily available to the operator at all times. If you have any questions about the operation of this machine, contact:

North America: Uni-ram Technical Service
1-800-417- 9133
Other Continents: Contact Your Supplier

CAUTIONS AND WARNINGS

- The operator should wear protective clothing in accordance with local safety and environmental regulations, with a minimum of face goggles and gloves along with an apron and respirator if required.
- Always disconnect the power source before performing maintenance.
- DO NOT SMOKE OR USE THIS EQUIPMENT NEAR A POTENTIAL SOURCE OF IGNITION SUCH AS SPARKS OR AN OPEN FLAME. This unit must be located at least 6 feet (1.8 m) from all potential sources of ignition including electrical receptacles, switches, pilot lights, fixtures and contacts when installed in a non - hazardous locations.
- The ambient temperature must be between 5°C (41°F) to 35°C (95°F).
- DO NOT RECYCLE NITROCELLULOSE WHICH IS EXTREMELY VOLATILE. IT AUTOMATICALLY IGNITES AT 135°C TO 166°C (275°F TO 330°F). Do not install, operate or maintain this equipment where the auto ignition temperature of the solvent is lower than 250°C (482°F).
- Do not install, operate or maintain this equipment where the auto ignition temperature of the hazardous atmosphere(s) is lower than 250°C (482°F).
- Solvents that are recycled can be flammable. Establish and follow safe practices to store and handle solvents.
- Units must be installed by a qualified electrician and according to applicable laws.

FEATURES AND SPECIFICATIONS

This unit combines into one cabinet the functions of a Uni-ram UG6000E or UG60000EH Automatic Spray Gun Cleaner and Uni-ram URS500 (120V) Solvent Recycler. All Uni-ram Solvent Recyclers feature rapid-start direct electric heating of solvent and a short cool-down time due to high-efficiency condensers and air cooling with a motor driven fan.

RECYLER SPECIFICATIONS	
VOLTAGE(V)	120 (605&655) 240 (606&656)
CURRENT USAGE (A)	13.3
RECOMMENDED CIRCUIT AMPS	20
DISTILLATION TANK	ALUMINUM
DISTILLATION TANK CAPACITY	5 US GAL (20L)
CONSENSER AND FITTINGS	COPPER
LID GASKET	NEOPRENE

UNIT SHIP WEIGHT	260 / 118 (LB / KG)
UNIT SHIP SIZE (INCL SKIDS)	40 X 17 X 42”

GUN CLEANER SPECIFICATIONS	
TANK SIZE	20 X 17 X 14.25”
AUTOMATIC WASH	YES
AUTOMATIC AIR FLUSH	YES
AUTOMATIC SOLVENT RINSE	YES
AUTOMATIC FUME VENTING	YES
FUME VENT CONTROL	YES
HOSE CLEANING	COMBO655 / 656
MANUAL RINSE WITH BRUSH	YES
BRUSH FLOW CONTROL	YES
CHOICE - MANUAL WASH SOLVENT	YES
GUNS CLEANED	2
NO. OF JETS	14
RINSE PUMP (METERING)	100 cc

SAFETY FEATURES

- The Solvent Recycler component is certified under UL standard 2208 and CSA standards C22.2 No. 30 and No. 88 for use in non-hazardous locations as well as for use in hazardous locations Class 1, Division 1, Group D – T2C and Class 1, Division 2, Group D -T2C. The Gun Cleaner component (UG4000) is FM registered.
- Explosion proof construction (Recycler) and intrinsically safe electric circuitry.
- Computer controlled (Recycler) with many built-in safety programs including temperature control of all critical points including tank, condenser and fan motor.
- Self Diagnostic (Recycler) error messages are displayed on the Display Panel.
- Dual lid cover system (Recycler).
- Fume Vent (Gun Cleaner) for disposal of solvent fumes during gun cleaning.

PREPARATION AND SETUP

- Carefully inspect the shipping carton for any sign of transport damage.
- Carefully remove the unit from the shipping carton.
- Check the unit for damage. Report any transport damage immediately to the carrier and your vendor. Initiate a freight claim with the carrier. The manufacturer is not responsible for freight damage.
- A Liner Bag and Retainer Ring are already installed inside the distillation tank.
- Check the list of included parts. If any parts are missing, contact your supplier.
- Level the unit using the adjustable feet and install the two handles onto the front panel.
- Connect the ground wire at the back of the cabinet to an external grounded object.
- Attach a vent hose (not supplied) to the vent outlet on top of the machine. The duct system must not be under continuous vacuum. To stop or vary the rate of solvent venting from the tank upon opening, use the Vent Control Valve on the side of the unit.

LOCATION AND CONNECTION

This unit is certified for use in non-hazardous locations and hazardous locations
Class 1, Division 1 Group D and Class 1, Division 2, Group D.

• **Non-hazardous Location:**

If using a non-hazardous plug, the unit must be located outside of a hazardous location. In a non-hazardous location, we recommend that you use a receptacle located a minimum of 6 feet (185 cm) from the unit and a minimum of 30” (80 cm) from the floor. We also recommend that the unit be located at least 6 feet from any potential source of ignition such as electrical receptacles, switches, pilot lights, fixtures, contacts and similar equipment. To clarify the definition of an appropriate location, contact your local authority. This unit must be connected to the power supply only by a qualified electrician in accordance with the National Electrical Code.

• **Hazardous Location:**

In hazardous locations (Class 1, Division 1, Group D and Class 1, Division 2, Group D), the power cord must be connected to the main power supply by a qualified electrician, in accordance with the National Electrical Code. An explosion proof outlet (receptacle or hard wired) must also be used.

- Position the solvent recycler in a location so that there is at least 6 inches (15 cm) of space all around the unit. Ensure that the safety lid and door open fully and that a container for receiving the distilled solvent can be moved freely in and out of the cabinet. The unit must be in a location where people or equipment cannot disturb the cable or connection.
- To prevent a low voltage situation, do not use an extension cord. Connect the unit directly to a dedicated 15A branch circuit.
- Power Requirements:
  URS500/ URS500S/ series: 110/ 120 volts AC, 13.3 A
  URS600/ URS600S/ series: 220/ 240 volts AC, 6.7 A
- “READY (L)” and / or “READY (H)” LED Light on the Control Panel comes on when power is supplied to the unit.

INCLUDED PARTS

MANUAL	
LID GASKET	RECYCLER
LINER BAG, 2 SPARES	RECYCLER
TRIGGER CLAMP AND PLUG KIT (2)	GUN CLEANER
NOZZLE ADAPTORS (2 OPTIONAL, 1 INSTALLED) NOTE: ADAPTER #780-3530 IS INSTALLED FOR USE WITH DISPOSABLE CUP SYSTEM ONLY	GUN CLEANER

SOLVENT REQUIREMENTS (RECYCLER)

This unit recycles flammable solvents and combustible solvents. Flammable solvents include lacquer thinner, paint thinner, acetone and other paint diluents. Flammable Solvents have a flash point below 38.7°C (100°F). These solvents are commonly used in the industry as cleaning solvents or paint diluents.

Dirty solvent to be distilled must meet each requirement described below. The Material Safety Data Sheet (MSDS) provides data on the properties of the virgin solvent.

1) The BP (Boiling Point) of the dirty solvent must be less than 200°C (392°F). BP increases with greater contamination.
2) The auto-ignition temperature of the solvent to be distilled must be higher than 250°C (482°F) for safe operation. Do not recycle Nitrocellulose. The auto ignition temperature is 135°C (275°F).

Notes:

• Recycle recently contaminated solvent only. Standing solvent can become acidic over time.

• To avoid “FISH EYE” problems, do not recycle both paint dilutents and parts washer solvent in the same unit.

Waste Residue

The waste residue of some paints will remain moist after recycling due to the composition of the paint itself. A dry waste residue is not guaranteed.

DEFINITIONS

Flash Point: The lowest temperature at which the vapor of a solvent can be made to ignite momentarily in air.

Auto-ignition temperature (often referred to as “ignition temperature” or “ignition point”): the temperature at which solvent ignites by itself.

PAIL SETUP AND CONNECTIONS - COMBO655 and COMBO656

The unit comes with the pails installed and connected. If the pails need to be reconnected, use the picture on the next page as a guide. For safety, make sure the ground wires are connected.

1	RECYLER CLEAN SOLVENT - IN	7	SOLVENT TO MANUAL WASH BRUSH (NOT SHOWN)
2	RECYCLER SOLVENT TRANSFER TO GUN CLEANER	8	OVERFLOW TUBE
3	GUN CLEANER DIRTY SOLVENT TRANSFER TO RECYCLER	9	CLEAN SOLVENT TRANSFERRED FROM RECY-CLER
4	DIRTY SOLVENT FROM HOSE CLEANING	10	CLEAN SOLVENT FOR MANUAL SPIGOT
5	DIRTY SOLVENT FROM WASH TANK	11	RINSE PUMP WITH AIR SUPPLY AND GROUND WIRE
6	WASH SOLVENT PICKUP TUBE, AUTO WASH		

OPERATION

SPRAY GUN CLEANING

PRE - CLEAN

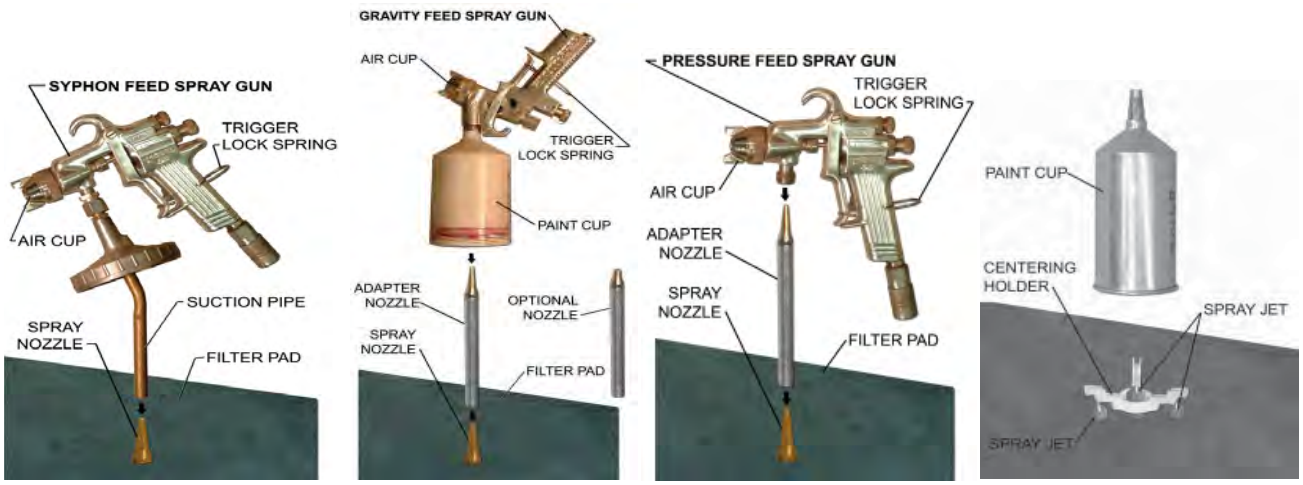
- Disconnect the spray gun from the air hose. Pour paint from the cup (when present) into a 5 gallon pail (not supplied).
- Rinse cup with solvent and pour into the same 5 gallon pail for later disposal or recycling.

CLEANING SPRAY GUNS AND CUPS

- Loosen the air cap of the spray gun two full turns.
- Lock the trigger in the open position with the Trigger Lock Spring.
- Plug air inlet of spray gun with cap to prevent solvent from entering passage. Caps are supplied in the accessory kit.
- Place spray guns facing corner jets. Placement depends on type of spray gun. See pictures below. Place cups onto the low spray jets and cup holders.
  Note re: Gravity Feed Spray Guns: Some customers prefer to clean the cup separate from the spray gun.
- Close the lid and turn the “Auto Wash Timer” knob clockwise to start cleaning. The cleaning cycle takes about 60 seconds
- Push and hold the “Air Rinse” button for about 3 second to air-rinse the guns.
- Push and hold the “Clean Rinse” button for about 5 seconds to rinse guns with clean solvent. This will send a pre-set amount of clean solvent (100 cc) through the jets. Wait 30 seconds for the Rinse Pump to fully recharge before repeating.
  The solvent flow per clean-rinse cycle is limited to 100 cc to minimize consumption. This quantity is usually sufficient to clean the inside passages of the spray guns.

USING THE MANUAL WASH and MANUAL RINSE FEATURES

- Open the lid and step on the foot left pedal. A dedicated pump delivers wash solvent through the brush.
- Open the lid and step on the right foot pedal. Clean solvent is delivered through the brush.
  Solvent flow through the rinse brush is limited to minimize clean solvent consumption.



HOSE CLEANING (COMBO655 and COMBO656)

- Models with this feature can be used to clean a paint feeder hose up to 100 feet (30 m) long. Connect the hose to the two fittings on the right side. Wash solvent travels from the SOLVENT OUTLET fitting through the hose to the SOLVENT RETURN fitting and then into the Wash Pail. Rotate the “Mode Selector” handle to the horizontal position and turn the Timer knob clockwise to start the automatic cleaning cycle.
- To air-rinse the hose, push and hold the “Air Rinse” button.
- To rinse the hose with clean solvent, push and hold the “RINSE CYCLE CONTROL” button for about 5 seconds. This will use about 100 cc of clean solvent. Wait 30 seconds for the Rinse Pump to fully recharge before repeating.
- Disconnect the hose.

FLOW CONTROLS (right side of unit)

Two control levers on the right side of the unit allow the rinse solvent flow and the Brush solvent flow to be adjusted as needed. A third lever allows the Fume Vent to be turned OFF or ON.

SOLVENT RECYCLNG

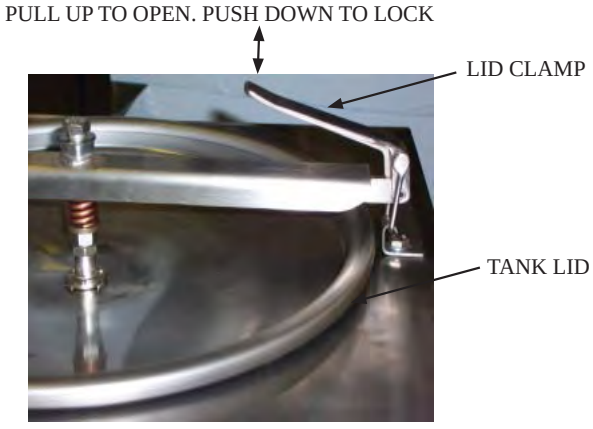
Wear protective clothing in accordance with local safety and environmental regulations. Use face goggles and gloves as a minimum. Use an apron and respirator if required.

The unit is a self-contained gun cleaning / solvent recycling system designed to recycle the solvent used for cleaning guns. The unit can be used at any time to recycle used solvent either on an ongoing basis for separate storage or to replace the clean solvent used up during gun cleaning. The gun cleaner can be used while the recycler is in operation.

Recycling becomes necessary when the WASH PAIL (middle) becomes full or when the LOW LEVEL INDICATOR gauge indicates that the solvent level in the CLEAN SOLVENT PAIL is too low. At that point, the guns will no longer be cleaned properly. The level of solvent in the WASH PAIL should be checked regularly, especially during heavy use as this pail may fill up before the level in the CLEAN RINSE pail drops to the point where the LOW LEVEL INDICATOR gauge indicates that the level is too low. NOTE: the gauge only indicates the level correctly when the RINSE CYCLE CONTROL button is pushed.

1) Open the Tank Lid and Safety Cover

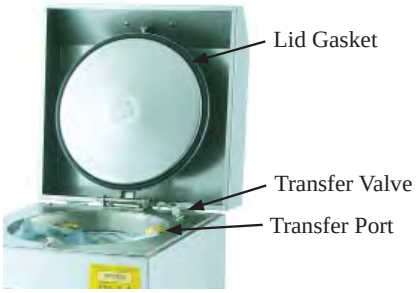
- Open the safety cover.
- Open the inner lid by releasing the Lid Clamp.
- Make sure that Tank is empty and that a Liner Bag is properly installed in the Tank.

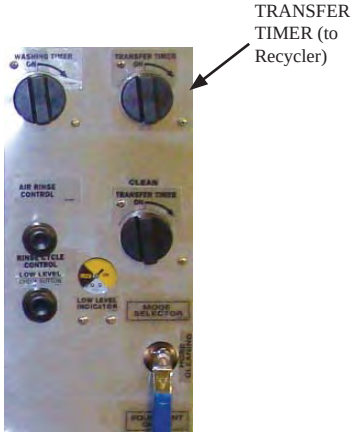


2) Transfer Solvent TO the Recycler Tank

Verify that the solvent to be recycled complies with the requirements described in the section, Solvent Requirements.

- Open the Transfer Valve by turning the handle counter-clockwise 90°.
- Turn the Transfer Timer knob clockwise fully. Dirty solvent will flow from the Transfer Port into the Liner Bag and stop when the timer runs out.
- Close the Transfer Valve by turning the handle clockwise 90°.
- Close the tank Lid, lock down the Lid Clamp and close the Safety Cover.





3) Change temperature set point, as required. If the Temperature Set Point is satisfactory, skip this section.

Conditions to consider before starting Setup:

Minimize Temperature Set Point
After recycling there will be a small amount of solvent, about 1/8 US gal (500 ml), remaining in the distillation tank due to condensation. Select the lowest Temperature Set Point that recycles the solvent to this level.

Estimate Boiling Point
Add 45°C (81°F) to the boiling point of the pure solvent as shown on the MSDS (Material Safety Data Sheet) or another reliable source.

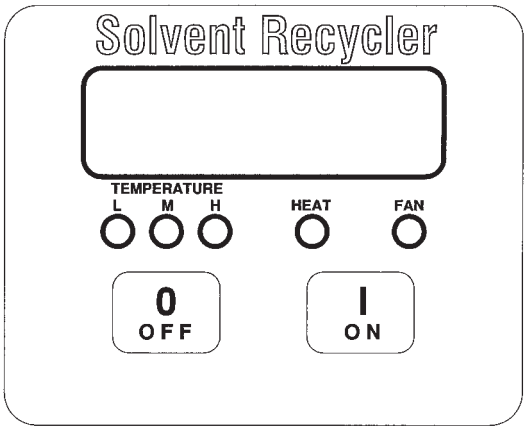
Recycle more often
The boiling point of the waste solvent mixture increases as it gets dirtier. To reduce the boiling point, recycle more often.

The display for the Control Panel is located at the top right corner of the base cabinet.
The LEDs for READY(L) and READY(H) on the control panel indicate the Temperature Set Point.

To Change the Temperature Set Point:
Make sure the “HEAT” and “FAN” lights are off. Press and hold the “OFF” button while pressing the “ON” button repeatedly to cycle through the 6 possible Set Points. If you go past the desired Set Point, continue to press the “ON” button until you cycle back to the missed Set Point.

TEMPERATURE SET POINTS	READY LIGHTS L	M	H
90°C (194°F)	*		
115°C (239°F)	*	*	
140°C (284°F)		*	
165°C (329°F)		*	*
190°C (374°F)			*
200°C (392°F)	*	*	*

The Temperature Set Point is pre-set at the factory to 200°C (392°F) - all 3 lights are on.



KEYPAD (CONTROL PANEL)

4) Start Recycling

Press “ON” button. Distillation starts, “HEAT” and “FAN” lights come on. If you want to stop recycling press “OFF”.

5) Finish Recycling CAUTION: DO NOT OPEN LID UNTIL COOLING IS COMPLETE

The clean recycled solvent is available for use when the heat lamp goes off. Recycling is complete and the the unit is ready for the next operation when “HEAT” and “FAN” lights are off.

6) Transfer Clean Solvent

a) For models without the Solvent Transfer System: remove the pail and replace with an empty one.

b) For models with the Solvent Transfer System: turn the Transfer Timer knob clockwise fully. The clean solvent will flow out of the Solvent Receiving Pail into either a free-standing, external container or the Clean Solvent Pail of a Spray Gun Cleaner. The transfer will stop whwn the timer runs out.

7) Remove Debris:

Remove the Retainer Ring.
Slowly pull the Liner Bag containing the debris out of the distillation tank in a way that the Liner Bag does not break.
Dispose of the debris in accordance with local regulations.

NOTE: If the bag sticks to the bottom of the tank, turn the recycler on for 5 minutes to loosen the bag from the bottom of the tank, then lift the bag out while the bag is warm.

8) Clean Distillation Tank and Lid Surface

Distillation Tank:

Wipe and dry tank with a cloth.
Remove any remaining debris from the Distillation Tank using if necessary, plastic or wooden tools. Do not clean with abrasive or hard metal instruments that can damage the tank. The warranty does not cover such damage.

Note: There will be about 1/8 Gal (500 ml) of solvent remaining in the Distillation Tank after recycling due to condensation. This solvent, If left in the tank, can cause corrosion. Dirt and debris left in the tank can prevent full heat from reaching the dirty solvent during recycling.

Caution: Acidic or chlorinated solvents typically cause corrosion on an aluminum tank. It appears as black pitting spots on the tank. Excessive pitting leads to an unsafe condition of holes in the walls of the tank and solvent leakage. Inspect your tank after each batch. If there is excessive pitting, call a Service Technician and replace the tank with a corrosive resistant, stainless steel one.

Lid Surface:

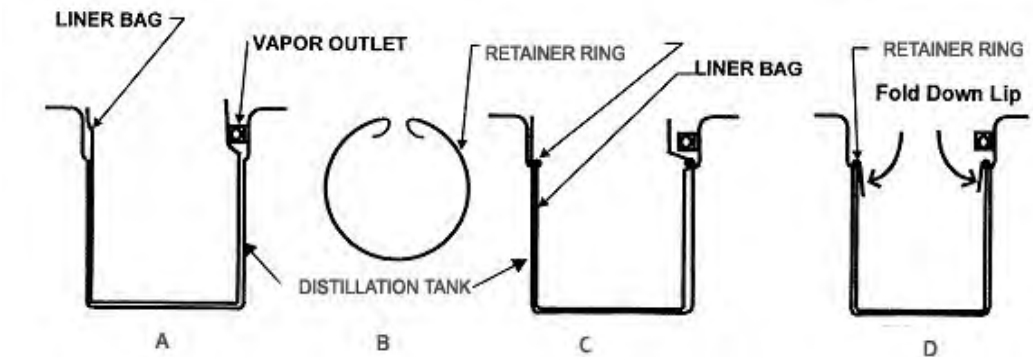
Use a cloth. Dry and clean the lid and the top of tank where the the Lid Gasket sits to extend the life of the Lid Gasket and prevent leakage. Avoid rotating the lid during cleaning. The lid gasket is a wear item.

9) Install new Liner Bag

Lift Recycler Safety Cover and Tank Lid fully; lids will stay in the open position.

a) Install the Liner Bag so that the bottom of the Bag sits flat on the bottom of the Distillation Tank as shown.
b) With thumb and index finger, squeeze the Retainer Ring and insert into inside of the Liner Bag. Let go and make sure it fits securely in the groove.
d) Fold the flap of the liner bag over the retainer ring.

Caution: Ensure that the bag material does not block the Vapor Outlet.



NOTE: This is a schematic drawing only; not all components are exactly as shown.

10) Inspect Lid Gasket, Remove and Replace if necessary as required

Inspect the Lid Gasket for shrinking, hardness and cuts. The Lid Gasket is a wear item as it is exposed to high temperature and solvent vapor during distillation. Damage to the lid gasket will cause solvent to leak.

To remove, open the Safety Cover and Tank Lid. Lift out the old gasket by hand and clean the cavity with a cloth. To Install, place the new gasket in the cavity, rub solvent or soapy water on the gasket to make insertion easier. Press the gasket firmly into the cavity all around.

Note: Keep a spare in stock. One extra is included with the unit.

11) Transfer Recycled Solvent back to the CLEAN RINSE PAIL.

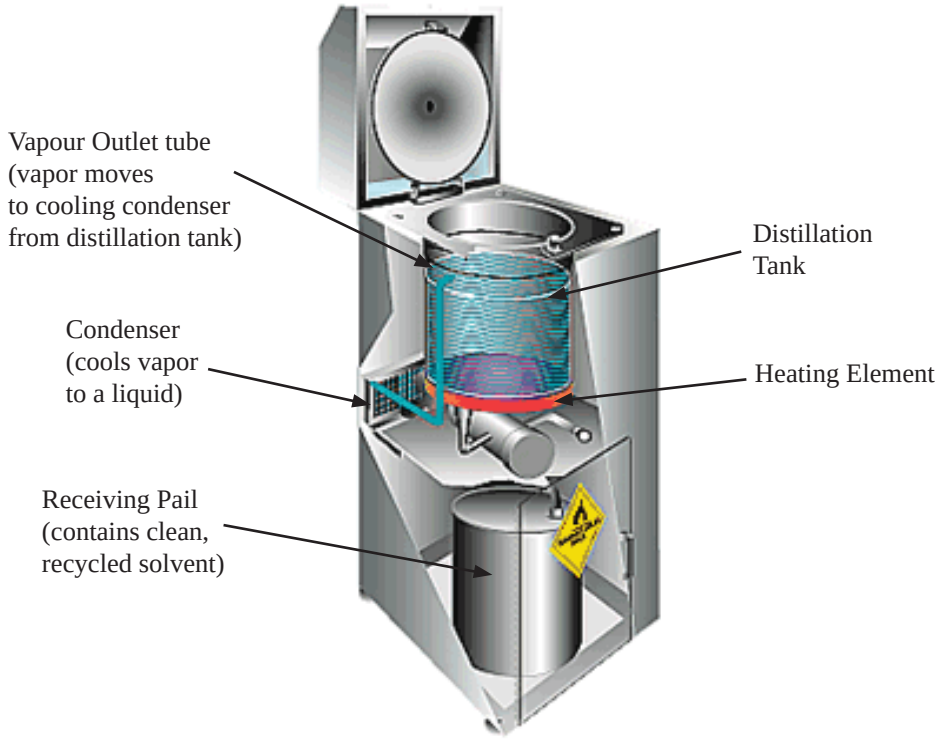
Turn the knob of the CLEAN TRANSFER TIMER (bottom right) fully.

CLEAN
TRANSFER
TIMER

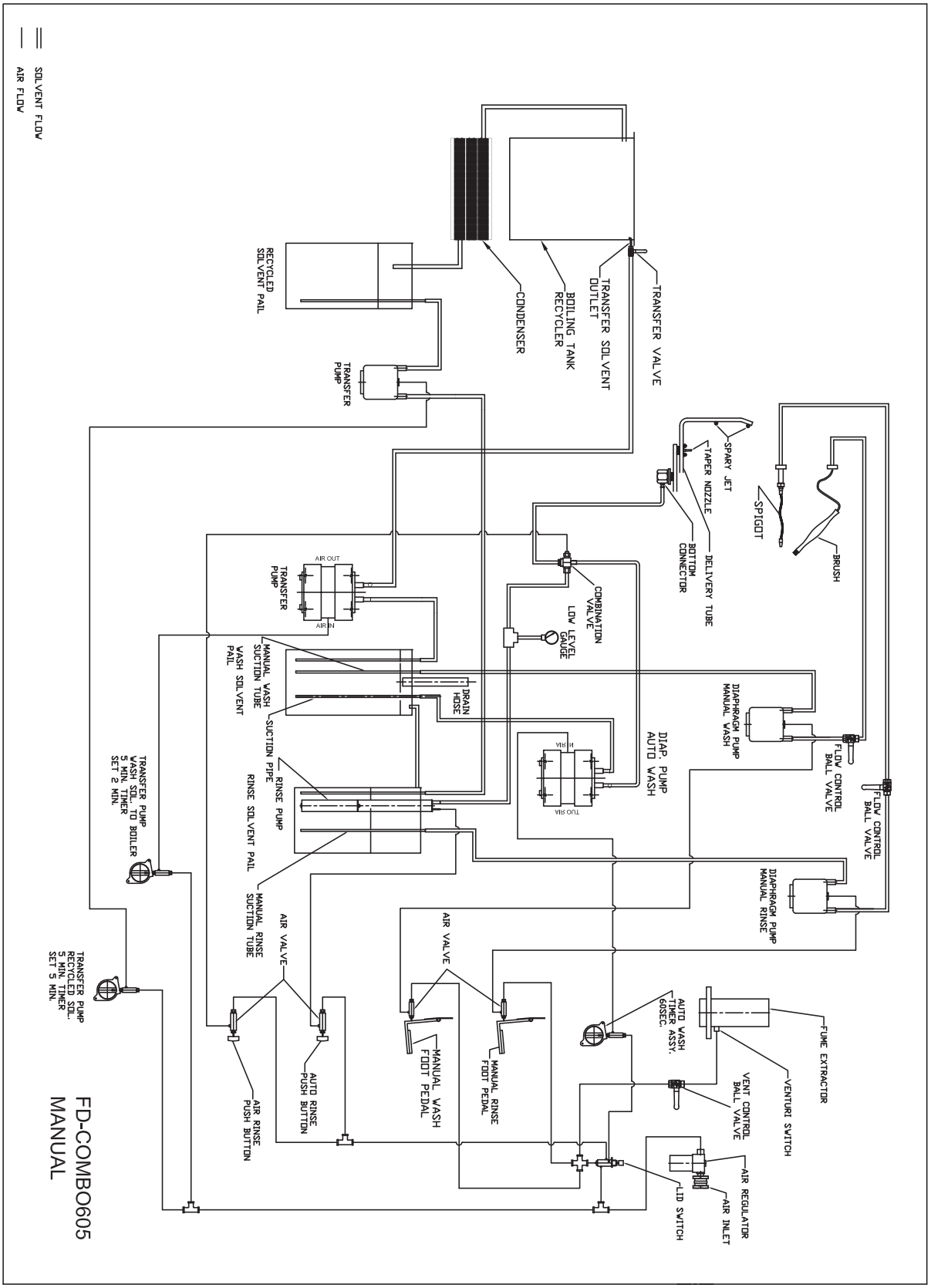
THEORY OF OPERATION - DISTILLATION PROCESS

Waste solvent consists of the original solvent plus liquid and solid materials picked up during use of the solvent. Recycling separates the original solvent from the waste materials. During the recycling process, the distillation tank fills with dirty solvent and the heating element heats the mixture. The solvent mixture boils and the vapour passes through a cooling condenser where purified, clean solvent, ready for use condenses out. Waste materials in the dirty solvent boil at a temperature substantially above the Temperature Set Point so they remain in the distillation tank for disposal.

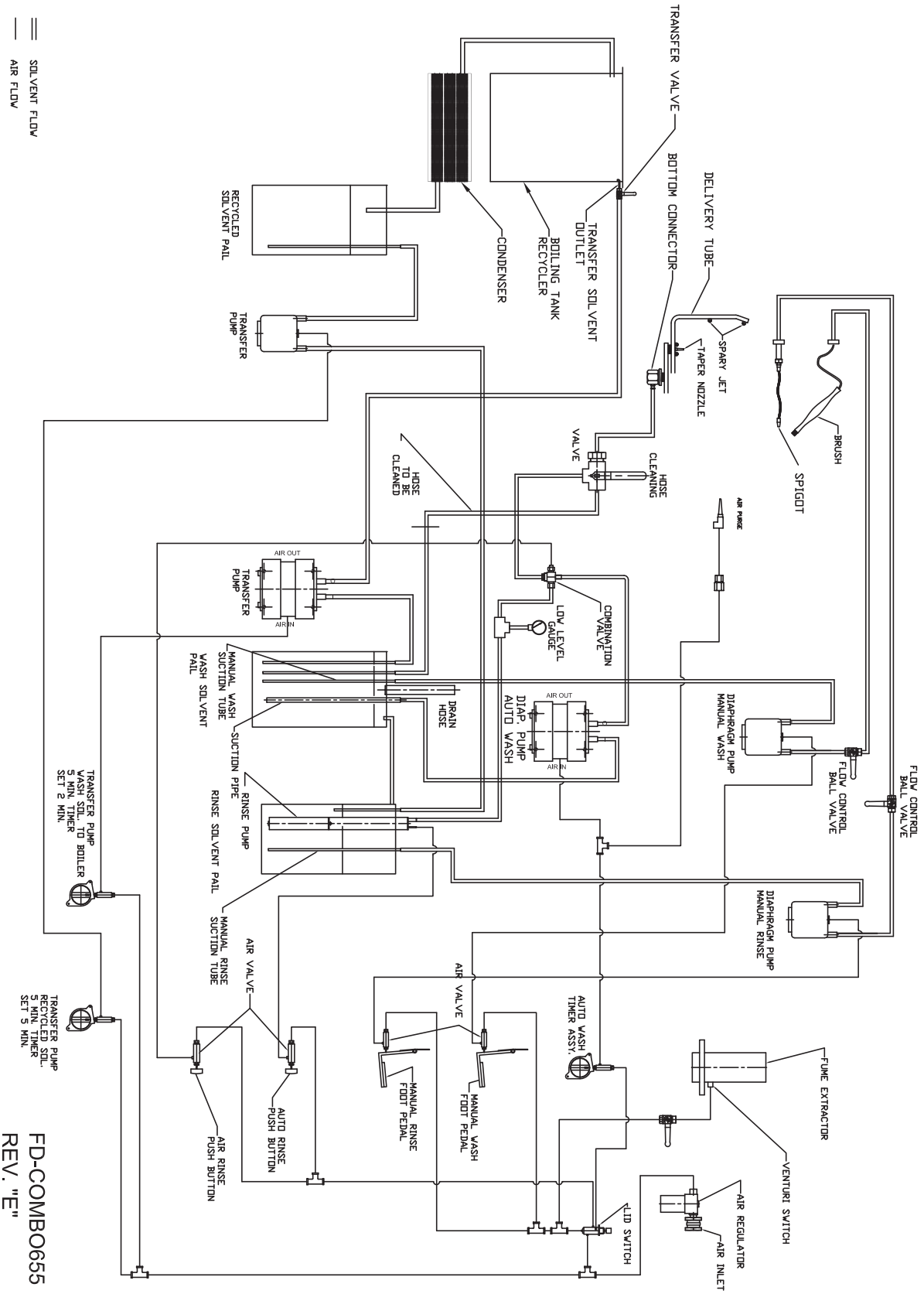
Solvent Recycling



FLOW DIAGRAM - COMBO605 / 606



FLOW DIAGRAM - COMBO655 / 656



TROUBLESHOOTING GUIDE

Carry out each action step until a solution is found. If the recommended actions do not solve the problem call Uni-ram Service in North America or contact a qualified Service Technician.

Caution: Disconnect the power supply before conducting maintenance or service.

PROBLEM	CAUSE	ACTION STEPS
Unit is plugged in, all the lights on the Panel are Off.	Power is not getting to the unit.	Reset breaker or replace fuse. If power is still not getting to the unit, call a Qualified Service Technician. Ensure that the unit is the only device on a circuit with sufficient capacity.
Unit is plugged in, “READY(L)” / “READY(H)” lights are On, Heat light fails to come on when “ON” button is pressed.	Power board or fuse not functioning.	Call Uni-ram Service
Recycled solvent is not clear	1) The solvent is reacting chemically.	1) Lower Termperature Set Point following Operating Procedure 4.
	2) The solvent flow path is dirty. One cause is overfilling the distillation tank.	2) To clean the path, follow Service Procedure 2 and then recycle 3 gal of clean solvent.
	3) Orange colour due to rust in receiving pail.	3) Place a jar under outlet tube and capture some solvent. If the solvent is clear, replace the pail with a non-corrosive one.
	4) Milky colour due to presence of water.	4) Eliminate source of water in solvent.
Dirty solvent remains in Distillation Tank after recycling Note: 1/8 Gal (500 ml) of recycled solvent is expected due to condensation.	1) Poor heat transfer due to dirt and debris left in the tank.	1) Clean the tank, replace the Liner Bag, recycle with pure solvent to test. If successfull, the problem is due to a dirty tank, debris left in the tank or the solvent is too contaminated. Adjust accordingly. Follow Operating Procedures closely. If the level of contamination is too high, recycle more often.
	2) Boiling point of solvent is above Temperature Set Point.	2) Raise the Temperature Set Point and repeat the recycling operation.The Temperature Set Point should be the BP of pure solvent (as determined from the MSDS or other source) plus 45°C (113°F) to allow for contamination. If the boiing point is above the maximum Temperature Set Point for your model (200°C), dirty solvent cannot be recycled in this unit.
Liner Bag sticks		Turn unit on for 5 mininutes and lift out bag while it is still warm.

PROBLEM	CAUSE	ACTION STEPS
Solvent vapor leaks from the Lid Gasket	1) Lid Gasket has excessive wear as indicated by cracks, shrinkage, hardness etc	1) Replace the Lid Gasket (See Operating Procedure 11).
	2) Solvent flow path is blocked.	2) Follow Service Procedure 2.
	3) Lid Tension not adequate	3) Follow Service Procedure 4.
	3) The Lid is not seated correctly.	3) Follow Service Procedure 5.
	4) The temperature SETPT too high, resulting in excessively high solvent vapour pressure	4) Reduce the Temperature Set Point and repeat the recycling operation. If successful, continue to recycle using the lower Temperature Set Point.
Sections on Bag are brown and thin due to High Temperature	1) Use of inferior low temperature bag.	1) Use new genuine Uni-ram high temperature Liner Bag and recycle.
	2) Temperature Set Point is too high.	2) Reduce the Temperature Set Point and repeat the recycling operation. If successful, continue to recycle using the lower Temperature Set Point.
The computer appears to be operating erratically.	The computer may require re-booting.	Disconnect the power supply for 30 seconds. Restore power and operate unit.
Residue (puck) in Tank is too wet.	1) Not enough heat to vapourize the solvent.	1) Raise the Temperature Set Point
	2) Residue cannot be dried completely due to its composition.	2) None.

ERROR CONDITION CODES

The computer constantly monitors the unit as it operates.
AN ERROR CONDITION IS INDICATED BY FLASHING "READY" LIGHTS.

NOTE: On later models of the URS500, due to a change in software, the heater light may flash during normal operation. For all error conditions except for an error code "22" condition, the Heater light would be off.

To determine the error type, count the flashes of READY (L) before READY (H) flashes, then count the number of flashes for READY (H). For example, two flashes from READY (L) and then one by READY (H) indicates error code 21. Look up the Error Code on the Chart below. Press the "OFF" button to stop the error code and press the "ON" button to resume operation after the error condition has been corrected. If the error persists, call for service.

ERROR CODE	Flashing LED Lights		Description	Action Required
	READY (L)	READY (H)		
11	1 TIME	1 TIME	Open circuit - defective tank thermocouple	Contact Uni-Ram Service
12	1 TIME	2 TIMES	Open circuit - defective condenser thermocouple	Contact Uni-Ram Service
13	1 TIME	3 TIMES	Computer malfunction	Replace computer circuit board
21	2 TIMES	1 TIME	Open Heater Circuit - defective component; heater element, thermostat, wire conductor, blown fuse. A defective thermostat or wire terminal is the most likely cause.	Contact Uni-Ram Service
22	2 TIMES	2 TIMES	Defective heater triac; Heater is still "ON"	Disconnect the power supply immediately. Contact Uni-Ram Service
23	2 TIMES	3 TIMES	Condenser is overheating or thermostat is faulty.	Clean dirty Condenser following Service Procedure 1. If Thermostat is faulty contact Uni-ram Service
24	2 TIMES	4 TIMES	If code 23 condition lasts over 10 minutes, this code will show and operation is terminated.	1) Clean dirty Condenser. See Service Procedure 1. 2) Position the unit to provide 6 inches (15cm) all around the unit. 3) Check Cooling Fan or Fan Motor.
31	3 TIMES	1 TIME	a) Boiling did not occur within 45 minutes. Tank is either empty or there is excessive debris in liner bag or tank is dirty.	a) Clean Distillation Tank following Operating Procedure 7, replace liner bag, following Operating Procedure 9.
			b) Set-up point is too low.	b) Increase temperature set point following Operating Procedure 4 and recycle with virgin solvent
			c) Boiling point of solvent is above maximim set point.	c) Solvent cannot be recycled.

ERROR CODE	Flashing LED Lights		Description	Action Required
	READY (L)	READY (H)		
32	3 TIMES	2 TIMES	Micro Controller has been reset due to power interruption or drop in voltage during the recycling operation.	Press “OFF” and then “ON” buttons to resume operation. Disconnect power at the source for about 30 seconds. Usually nothing is wrong with the unit.
33	3 TIMES	3 TIMES	a) Recycling did not finish in 6 hours due to power interruption or excessive debris in Liner Bag	a) Clean Distillation Tank following Operating Procedure 7, replace Liner Bag, following Operating Procedure 9,
			b) Temperature Set Point is too low for the solvent.	b) increase Temperature Set Point following Operating Procedure 4 and recycle with virgin solvent
			c) Boiling point of solvent is above maximim set point.	c) Solvent cannot be recycled.
34	3 TIMES	4 TIMES	Voltage deceased during heating.	Investigate and correct the condition that caused the low voltage: shared receptacle or circuit breaker, power cord with extension cord etc.

SERVICE PROCEDURES

1) CLEAN CONDENSER

Using a brush attachment, vacuum the condenser at the back of the unit.

2) CLEAR BLOCKED SOLVENT FLOW PATH

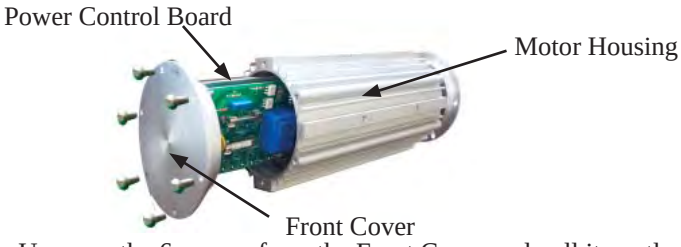
CAUTION: WEAR SAFETY GOGGLES.

A blockage in the solvent flow path (Vapour Outlet - Condenser - Solvent Outlet Tube) can cause solvent to leak. To determine the location of the blockage, first check the Solvent Outlet Tube and the Vapour Outlet Fitting for visible signs of blockage or damage. If the problem is not in either of these locations, the Condenser is problably blocked. To clear the condenser, pour some clean solvent into the Vapour Outlet and check if it comes out of the Solvent Outlet Tube. If the blockage persists, blow air at about 30 PSI (2 kg/cm2) into the Vapour Outlet. If the air comes out of the Solvent Outlet Tube, the blockage has been cleared. If not, call for service.

3) REPLACE FUSES

Fuses are located on the Power Control Board inside the Motor Housing.

- Disconnect power supply.
- Remove the Guard Screen by unscrewing two metal screws to get access to the Motor Housing



- Unscrew the 6 screws from the Front Cover and pull it gently from the motor housing to expose the fuses. Note: Care should be taken not to pull the Front Cover too far as some wires may disconnect.
- There are two fuses for the URS500 Type Solvent Recycler (COMBO605/655) and four fuses for the URS600 Type Solvent Recycler (COMBO606/656).

URS500 Type:
Fuses F1: 250 V 20.0 A 314 (Fast type) for Heater
Fuses F2: 250 V 2.0 A 312 (Slow type) for Fan Motor

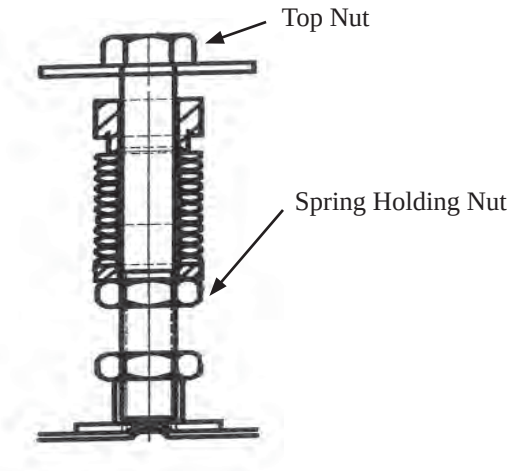
URS600 Type:
There are two each of F1 and F2 fuses.

- Remove the fuses from the board and, using a meter, test each one and replace as needed.
- Carefully push the Power Control Board back into the Motor Housing.
- Ensure that the wire to the computer board is secure.
- Re-install the Front Cover using all 6 screws..
- Install the Guard Screen using two metal screws.
- Close the Door and re-connect the power supply.

4) INCREASE LID TENSION (BY ADJUSTING SPRING BOLT)

CAUTION:

SHOULD BE DONE ONLY AS A LAST RESORT - FIRST CHECK FOR A WORN LID GASKET, A BLOCKAGE IN THE SOLVENT FLOW PATH , LOOSE HINGE OR CROSS BAR BOLTS OR A SET POINT THAT IS TOO HIGH FOR THE SOLVENT BEING RECYCLED.

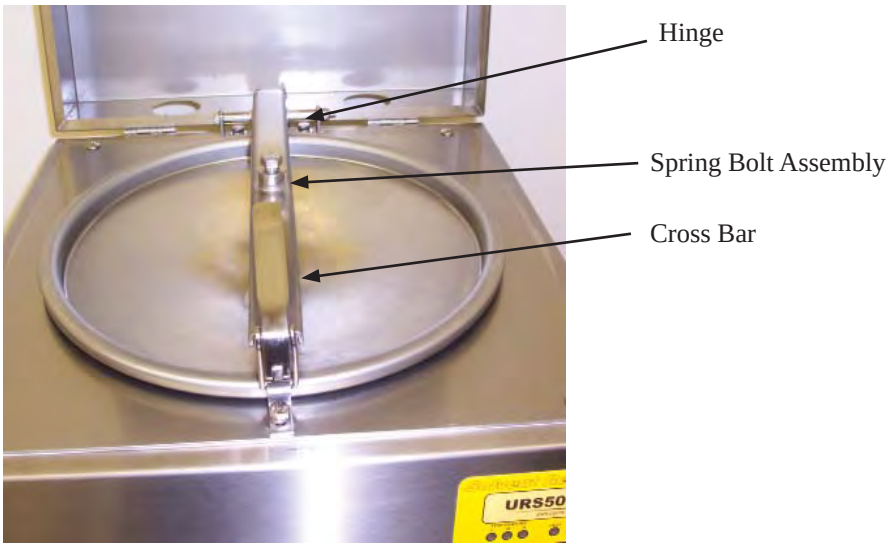


This procedure tightens the Lid by increasing the tension on the spring attached to the Lid Bar Spring Bolt Assembly. The Lid and Bolt Assembly is carefully designed as a Safety Pressure Relief system to prevent a dangerous build up of pressure inside the closed tank. Do not adjust the Spring Holding Nut by more than 2 full turns maximum. If 2 full turns do not solve the problem, call for service.

- While holding the top nut with a wrench, turn the nut below the spring no more than a 1/2 turn at a time. Turn in a counter- clockwise direction (as you look down on it).
- After each 1/2 turn, operate the unit normally and check for leaks.

5) REPOSITION LID and TIGHTEN HINGE AND CROSS BAR BOLTS

The Hinge bolts can loosen over time, causing the lid to shift off center. This can lead to an inadequate seal and leaking around the Gasket. Loosen the bolts, reposition the lid and re-tighten the bolts.



6) RECOMMENDED 6-MONTH MAINTENANCE

- Vacuum the condenser (see Service Procedure 1).
- Clean the solvent flow path by recycling 3 Gal of clean solvent.
- Inspect Distillation Tank for debris, pitting and/or other damage.
- Inspect Lid Gasket for wear or damage (see Operating Procedure 11).

REPLACEMENT PARTS

DESCRIPTION	PART NO.
Lid Gasket, Standard (Neoprene)	770-2150N
Liner Bag, Pkg of 10	LB900C-10
Trigger Clamp and Plug Kit, Pkg of 2	140-2340
Nozzle Adapter, Push On, Conventional Systems Only	110-430
Nozzle Adapter, Push On, Disposable and Conventional Systems	110-430PPS
Nozzle Adapter, Disposable Cup Systems Only	780-3530
Retainer Ring	770-9110

Full Product Warranty

These Uni-ram products have been engineered and manufactured to high performance standards. Each unit has been subjected to detailed factory testing before shipment.

This product comes with a one-year full warranty from the date of purchase. Uni-ram Corporation reserves the right to repair or replace the unit, free of charge, to the original purchaser if a part is found to be defective in material or workmanship as determined by factory service personnel. The items listed below under “Conditions of Warranty” as consumables are not covered.

Uni-ram reserves the right to direct the customer to ship the unit collect to the Uni-ram factory or to an approved Service Center for repair using the Uni-ram Return Goods Procedure or to repair the unit on-site. To prevent damage in transport, the purchaser must ship the unit in the original packaging or use alternate adequate packaging. All units must be shipped clean and free of solvent.

Conditions of Warranty:
As Uni-ram Corporation has no control over the working conditions or circumstances under which the purchaser stores, handles or uses the product, Uni-ram makes no warranty or claim, either expressed or implied with respect to this product’s fitness for any purpose or the result to be obtained from its use. This condition applies to the sale of all products and no representative or distributor of Uni-ram Corporation has the authority to waive or change these conditions.

This warranty applies only to the original purchaser and does not apply if the unit has been misused, overloaded, neglected, altered or used for any purpose other than those specified in the operating and installation instructions. Deterioration due to normal wear is not covered by this warranty. Damage due to accident, transportation, fire, floods or acts of God is also not covered. Units whose serial numbers have been altered or removed are not covered. The warranty is invalid if unauthorized abrasives are used in this unit. Unauthorized attempts at self-repair or alterations by the owner also invalidate this warranty. Interior or exterior finishes are not covered by this warranty.

Consumable Items are not covered by this warranty.

This warranty replaces all other warranties expressed or implied by statute or otherwise.

To make a claim, call Uni-ram Service at 1-800-417-9133 and quote the serial number of the unit.

USE ONLY GENUINE UNI-RAM LINER BAGS WHICH ARE 2 MIL THICK, LIGHT BLUE IN COLOUR WITH A 3/16” WELD.

THEY ARE SPECIALLY MANUFACTURED TO BE STRONG, HEAT RESISTANT AND CHEMICAL RESISTANT.

USE OF A NON-UNI-RAM LINER BAG MAY VOID THE WARRANTY.