

Service & Parts Manual

Convotherm Combination Oven-Steamer

MODELS: Electric 20.20



OES-20.20



OEB-20.20



Enodis

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FOR THE INSTALLER

FOR YOUR SAFETY

Do not store or use gasoline or other flammable vapors or liquids in the vicinity of this or any other appliance.

WARNING

Improper installation, adjustment, alteration, service or maintenance can cause property damage, injury or death. Read the installation, operating and maintenance instructions thoroughly before installing or servicing this equipment.

WARNING

Disconnect power at the main external power switch before servicing or repairing a Combi. Failure to disconnect power can result in death, injury, and property damage.

ALL SERVICE MUST BE PERFORMED BY A QUALIFIED CLEVELAND RANGE AUTHORIZED TECHNICIAN.

WARNING

Do not connect the Combi Oven-Steamer drain connection to any drain material that cannot sustain 140° Fahrenheit. Using drain material that cannot withstand 140° Fahrenheit can result in injury, equipment damage, and property damage.

This Installation Manual is a part of your new Combi Oven-Steamer. You must keep and maintain it for the entire life span of your Combi and pass it on to the next owner of the Combi.

KEEP THIS MANUAL FOR REFERENCE

This manual may be subject to new technical developments, modifications, and unforeseen errors.

DO NOT OPERATE OR ATTEMPT TO OPERATE THIS APPLIANCE OR ANY ACCESSORIES WITHOUT READING COMPLETELY AND FULLY UNDERSTANDING THIS MANUAL

For caster equipped Combis: Per separate instructions, connect the strain relief (restraining device) and complete any remaining installation procedures BEFORE starting the Combi.

Convotherm by Cleveland Combi Oven-Steamers are intended for other than household use.

Cleveland STATEMENT OF POLICIES

LIMITED WARRANTY

CLEVELAND RANGE products are warranted to the original purchaser to be free from defects in materials and workmanship under normal use and service for the standard warranty period of one year from date of installation or 18 months from date of shipment, whichever ever comes first.

CLEVELAND RANGE agrees to repair or replace, at its option, f.o.b. factory, any part which proves to be defective due to defects in material or workmanship during the warranty period, providing the equipment has been unaltered, and has been PROPERLY INSTALLED, MAINTAINED, AND OPERATED IN ACCORDANCE WITH THE CLEVELAND RANGE OWNER'S MANUAL.

CLEVELAND RANGE agrees to pay any FACTORY AUTHORIZED EQUIPMENT SERVICE AGENCY (within the continental United States, and Hawaii) for reasonable labor required to repair or replace, at our option, f.o.b. factory, any part which proves to be defective due to defects in material or workmanship, during the labor warranty period. This warranty includes travel time not to exceed two hours and mileage not to exceed 50 miles (100 miles round-trip), BUT DOES NOT INCLUDE POST START-UP, TIGHTENING LOOSE FITTINGS, MINOR ADJUSTMENTS, MAINTENANCE, CLEANING OR DESCALING.

The standard labor warranty allows factory payment of reasonable labor required to repair or replace such defective parts. Cleveland Range will not reimburse the expense of labor required for the repair or replacement of parts after the standard warranty period, unless an Extended Labor Warranty Contract has been purchased to cover the equipment for the balance of the warranty period from the date of equipment installation, start-up, or demonstration.

PROPER INSTALLATION IS THE RESPONSIBILITY OF THE DEALER, THE OWNER-USER, OR INSTALLING CONTRACTOR, AND IS NOT COVERED BY THIS WARRANTY. Many local codes exist, and it is the responsibility of the owner and installer to comply with these codes. Cleveland Range equipment is built to comply with applicable standards for manufacturers, including UL, ANSI, NSF, ASME/Ntl. Bd., CSA, and others.

BOILER (Steam Generator) MAINTENANCE IS THE RESPONSIBILITY OF THE OWNER-USER AND IS NOT COVERED BY THIS WARRANTY. The use of good quality feed water is the responsibility of the Owner-User (see Water Quality Recommendations below). THE USE OF POOR QUALITY FEED WATER WILL VOID EQUIPMENT WARRANTIES. Boiler maintenance supplies, including boiler hand hole gaskets, are not warranted beyond the first 90 days after the date the equipment is placed into service. Preventive maintenance records must be available showing descaling per applicable Cleveland Operator Manual for Boiler Proration Program considerations.

WATER QUALITY RECOMMENDATIONS

TOTAL DISSOLVED SOLIDS	less than	60 parts per million
TOTAL ALKALINITY	less than	20 parts per million
SILICA	less than	13 parts per million
CHLORIDE	less than	30 parts per million
pH FACTOR	greater than	7.5

The foregoing shall constitute the sole and exclusive remedy of original purchaser and the full liability of Cleveland Range for any breach of warranty. THE FOREGOING IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, WHETHER WRITTEN, ORAL, OR IMPLIED, INCLUDING ANY WARRANTY OF PERFORMANCE, MERCHANTABILITY, OR FITNESS FOR PURPOSE, AND SUPERSEDES AND EXCLUDES ANY ORAL WARRANTIES OR REPRESENTATIONS, OR WRITTEN WARRANTIES OR REPRESENTATIONS, NOT EXPRESSLY DESIGNATED IN WRITING AS A "WARRANTY" OR "GUARANTEE" OF CLEVELAND RANGE MADE OR IMPLIED IN ANY MANUAL, LITERATURE, ADVERTISING BROCHURE OR OTHER MATERIALS.

CLEVELAND RANGE'S liability on any claim of any kind, including negligence, with respect to the goods or services covered hereunder, shall in no case exceed the price of the goods or services, or part thereof, which gives rise to the claim. IN NO EVENT SHALL CLEVELAND RANGE BE LIABLE FOR SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, OR ANY DAMAGES IN THE NATURE OF PENALTIES.

GENERAL INFORMATION ABOUT COMBIS

A. PRODUCT INFORMATION

Cleveland Range, LLC assigns two product identification numbers to each Combi: a model number and a serial number. The model number identifies the product characteristics. The serial number identifies the individual unit.

1. Model Number

- a. This manual covers installation of the OEB and OES model electric powered Combis.
- b. Model Number Key: "O" stands for the Combi series Oven, "E" or "G" designates Electric or Gas, "B" designates Steam Generator, and "S" designates Boilerless. The first number designates the number of shelves in the oven rack. The second number is either ".10" for 12" X 20" steam table pans or ".20" for 18" X 26" full size sheet pans. For further information, contact your Convotherm by Cleveland sales representative or Cleveland Range.

2. Serial Number and Equipment Record

During manufacture, Combis are assigned individual serial numbers. Please provide the following information when you contact Cleveland Range or a qualified Cleveland Range authorized service representative:

Serial Number _____
(Write the Serial Number of your Combi here.)

Model Number _____
(Write the Model Number of your Combi here.)

3. Product Information Plate

The Product Information Plate on the left side of the unit lists the model, serial number, electric, and wiring requirements of the steamer. Figure 1-1 illustrates a typical Product Information Plate.

Enodis®		CLEVELAND RANGE, LLC				
		CLEVELAND, OHIO				
Model No.	6.20 OEB	Serial No.	WC 62092-05F-01			
VOLTS	PH	WIRES	HZ	MAXIMUM FULL LOAD AMPS	MINIMUM SUPPLY A.W.G.	
208	3	3	60	45.5	6	
240	3	3	60	51.8	6	
<p>CAUTION: FOR SUPPLY CONNECTION USE ONLY COPPER WIRE OF THE GAUGE NOTED ABOVE SUITABLE FOR AT LEAST 90 °C (194 °F) ATTENTION: POUR L'ALIMENTATION UTILISEZ DES FILS DE CUIVRE DE CALIBRE TEL QUE MENTIONNÉ CI-HAUT ET SUFFISANT POUR AU MOINS 90 °C (194 °F)</p>						
COMMERCIAL COOKING APPLIANCE					111530 A	

Figure 1-1
Typical Product Information Plate

INSTALLATION INSTRUCTIONS

A. GENERAL

This equipment should be installed only by qualified, professional plumbers, pipe fitters, and electricians.

1. The installation of this Combi must conform with:
 - a. The National Electrical Code, ANSI/NFPA 70 (latest edition), or the Canadian Electrical Code, CSA C22.2 as applicable.
 - b. The Food Service Sanitation Manual of the Food and Drug Administration (FDA).
 - c. All applicable national, state, and local laws, codes, and regulations.
2. This equipment is to be installed to comply with the applicable federal, state, or local plumbing codes.
3. Installation instructions must be read in their entirety before starting installation of a Combi.
4. Install the Combi according to the policies and procedures outlined in this manual.

DANGER

Improper installation, adjustment, alteration, service, or maintenance of a Combi, or installation of a damaged Combi can result in DEATH, INJURY, EQUIPMENT DAMAGE, and void the warranty.

NEVER install damaged Combis.

ALWAYS have qualified Cleveland Range authorized personnel install and service Combis.

5. Inspect the Combi for shipping damage.
 - a. Check carton and packing for shipping damage.
 - b. Note any damage on the shipping paperwork as soon as the carton arrives.
 - c. Unpack the Combi and check for shipping damage.
 - d. If the Combi is damaged or damage is suspected:
 - 1) Inform your dealer at once.
 - 2) Inform Cleveland Range in writing within 3 days.
 - 3) Submit a Damage Claim to the shipper.

B. INSTALLATION OF THE COMBI – General Instructions

General Instructions:

1. Select the Combi's operating location.
2. Complete the water, drain, and electric lines before positioning and leveling the Combi.
3. Position and level the Combi.
4. Connect the utility lines after positioning and leveling the Combi.
5. Call Cleveland Range at 216-481-4900 for the Free Start-Up Program's Performance Checkout.
6. After Setup and Performance Checkout, the Combi should provide years of reliable operation.

DANGER

**Improper lifting can result in DEATH, INJURY, AND EQUIPMENT DAMAGE.
Use enough workers with training and experience lifting heavy equipment to place
Combis on supporting surfaces, and lift and handle Combis and accessories.**

DANGER

**Operating an out of level Combi can cause DEATH, INJURY, and EQUIPMENT DAMAGE.
Combis must be level both front-to-back and side-to-side in all installations.
NEVER operate an out of level Combi.
If a Combi is suspected to be out of level, shut it down at once and call you qualified
Cleveland Range authorized service agency at once.**

C. SPECIAL INSTRUCTIONS FOR CASTER EQUIPPED COMBI STANDS AND COMBIS

1. Read all instructions before beginning installation.
2. Level the floor if needed.
3. **NOTE:** Combis on caster-equipped stands have less adjustment for level than adjustable foot equipped stands.
4. The front wheels of caster-equipped stands and Combis have locks. Check the caster locks for function and position before installation.
5. Follow the separate instructions included with the Stand, Stacking Kit, or Caster Kit.
6. Make sure the Stand, Stacking Kit, or Caster Kit matches the Combi(s).
7. Use only genuine Cleveland Range Stands, Stacking Kits, Caster Kits, and replacement parts.
8. Use of Stands, Stacking Kits, Caster Kits, and replacement parts other than genuine Cleveland Range Stands, Stacking Kits, and Caster Kits and replacement parts can result in injury and / or catastrophic equipment failure, and voids the Warranty.
9. The appliance must be secured to building structure, to prevent any strain on the utility connections, and to help reduce the risk of electric shock.
10. The strain relief (restraining device) must be installed to limit the movement of the appliance without depending on the water and electric connectors or their associated piping (water or electric). See separate instructions for attachment location and other details.
11. Connect the strain relief (restraining device) BEFORE starting the Combi
12. If the strain relief (restraining device) must be disconnected, it must be reconnected after the Combi has been returned to its originally installed position BEFORE restarting the Combi.
13. Prepare the installation location as described in the Combi Installation Manual.
14. The Combi shall be installed using flexible conduit.
15. Mechanically secure the flexible conduit to the Combi's electrical access hole.



COMBI OVEN-STEAMER



Featuring the
"Advanced Closed System +3"

ELECTRIC HEATED – with Steam Generator**Cooking Modes:**

- Hot Air
- Retherm
- "Delta T" slow cooking
- Steam
- "Cook & Hold"
- "Crisp & Tasty"
- Combi

Cleveland Standard Features:

- "Advanced closed system" with "Crisp & Tasty" de-moisturizing feature
- Efficient heating system for hot air and steam generator saves energy and provides fast heat up times
- Fully insulated steam generator and cooking compartment for maximum energy savings
- Polished cooking compartment with covered corners for easy cleaning
- Six (6) 12" x 20" wire shelves
- Hinged fan guard and hinged removable pan racks
- Two (2) speed auto reversing convection fan for even heat distribution
- Space saving, easy to close "**Disappearing Door**"
- Door latch with safety vent position and wear-free door switch
- Vented, double glass door with integrated door stop
- Trolley with self draining condensate drip pan
- Easy to change, press-fit door seal
- Oven light with shock resistant safety glass
- Multipoint core temperature probe
- Easy to use electronic controls for all operational functions
- Self diagnostic system with full text message display
- Easy to understand menu icons with bright graphics display
- User friendly selector dial
- Exclusive "**Smart Key**" for selecting option settings
- Digital controls for temperature, time and core probe settings
- Eight (8) "**Press & Go**" one step, recipe start buttons
- Cook book library for up to 250 stored recipe programs, each recipe capable of 20 steps
- RS 232 connection for controlling one unit with a PC (personal computer)
- Memory module automatically saves unit settings and recipes
- Manual program override feature for operational settings
- Smooth action hand shower for compartment cleaning

Electric Steam Generator

- Built-in automatic rinse system
- Automatic fill and water level control
- Automatic generator drain

MODEL: OEB-20.10

CAPACITY: Twenty (20) – 12" by 20" by 2 1/2" steam table pans

ITEM NUMBER _____

JOB NAME / NUMBER _____

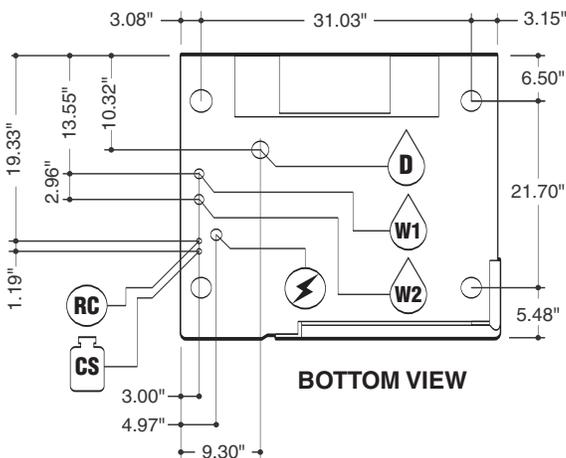
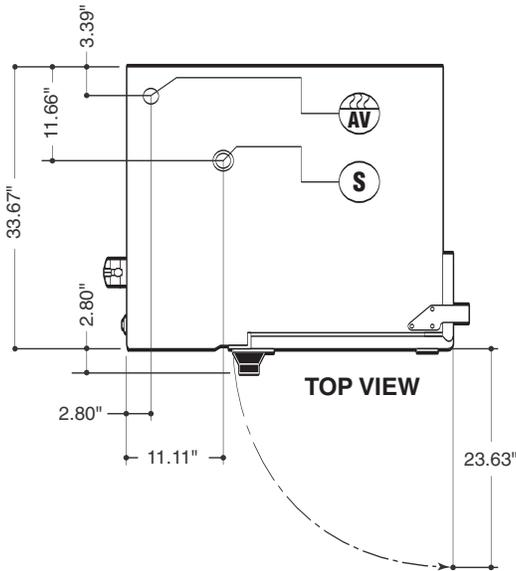
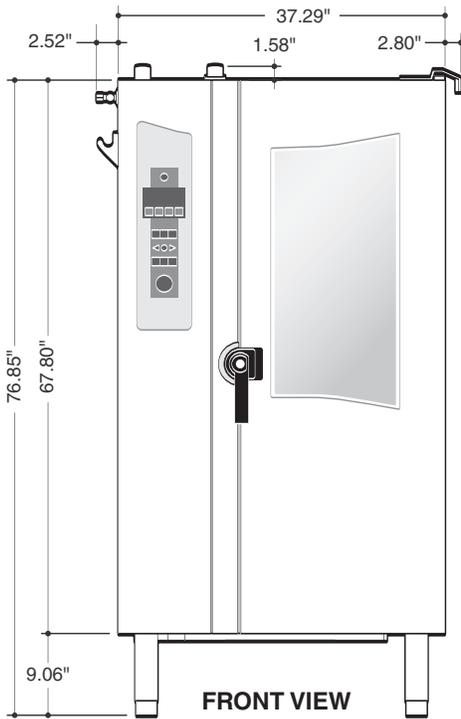
**Short Form Specifications**

Shall be Cleveland Model: OEB-20.10 Combination Convection Oven / Steamer with simple to operate electronic programmable controls for Hot Air, Convection Steam, and Combination cooking modes, "**Cook & Hold**" and "**Delta T**" slow-cooking capabilities, "**Advanced Closed System**" with "**Crisp & Tasty**" de-moisturizing feature. Multiple cooking stage programs, stored recipe library, multipoint core temperature probe, "**Press & Go**", one-step recipe start buttons, "**Smart Key**" for selecting option settings, Two (2) speed auto reversing convection fan. Electric steam generator with automatic drain. "**Disappearing Door**". Capacity for twenty (20) 12" x 20" x 2 1/2" pans.

Options and Accessories

- ConvoClean automatic compartment washing system
- PC-HACCP software for establishing "HACCP controls" and automatic documentation of the cooking process
- Lockable cover over operating controls for prison installations
- USB or RS 485 connection for networking and controlling up to 32 units with a personal computer
- Pan rack with trolley
- Plate rack with trolley for banquet operations
- Thermal cover for plate or pan rack
- ConvoClean compartment cleaning solution
- ConvoCare concentrate for compartment rinse cycle
- "Dissolve" generator descaling solution
- Chicken Grill Rack
- 12" x 20" Wire Baskets for frying products
- Additional 12" x 20" Wire Shelves
- Pre-heat bridge

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The "Advanced Closed System" offers the following advantages:

- Saves energy
- Automatic moisture level adjustment
- Low heat and steam emission to the kitchen
- Automatically regulated steam injection
- Enables immediate change into the steam mode
- "Crisp & Tasty" demisterizing function

Model: OEB-20.10

Pan Capacity [Unit has 20 slide rails at 2.64" (67mm) apart]:

- 20 (12" x 20" x 2 1/2") steam table pans
- 20 (12" x 20" x 1") steam table pans
- 20 (13" x 20") half size wire racks
- 20 (13" x 18") half size sheet pans
- 20 (12" x 20") frying baskets - (no wire racks needed)

For Banquet Operations: Optional Plate Rack holds 61 plates

Unit Dimensions: Width - 42.61", Depth - 36.47", Height - 78.43"

Shipping Dimensions: Width - 49", Depth - 42", Height - 86"
(including packaging)

Shipping Weight: 750 Lbs (including trolley)

Required Clearances: Rear - 2", Left Side - 4", Right Side - 2 1/2"

- Allow for sufficient distance if a "high heat source" (i.e. Broiler) is located next to the unit.
- Allow for sufficient clearance on left side for service access (contact the factory service department for recommendations).
- Installation must comply with all local fire and health codes.

Agency Approvals: UL, UL - Sanitation (NSF Standards)



Electrical Requirements:	208/3/60	240/3/60	440/3/60	480/3/60
Total Connected Load:	32.8 KW	43.1 KW	36.9 KW	43.9 KW
Hot Air:	29.4 KW	39.2 KW	32.9 KW	39.2 KW
Steam Generator:	23.1 KW	30.7 KW	25.8 KW	30.7 KW
Amps per Phase:	91	103.6	48.4	52.8

Do not connect to a G.F.I. outlet

Water Connections: Cold Water (drinking water quality)
Flow Pressure: 30 - 60 PSI
Water Inlets: 3/4" GHT-F (Female Garden Hose Connection)



Treated Water for Steam Generator



Untreated Water for Condenser and Hand Shower



Drain Connection: 2" Tube

Venting: Exhaust Hood required



Air Vent



*Connection for Cleaning Solution



*Connection for Rinse Cycle



Low Pressure Safety Valve

*Available as an option

NOTES:

Cleveland Range reserves right of design improvement or modification, as warranted.
Many regional, state and local codes exist and it is the responsibility of the owner and installer to comply with the codes.
Cleveland Range equipment is built to comply with applicable standards for manufacturers.



COMBI OVEN-STEAMER



Featuring the
"Advanced Closed System +3"

ELECTRIC HEATED – Boilerless**Cooking Modes:**

- Hot Air
- Retherm
- "Delta T" slow cooking
- Steam
- "Cook & Hold"
- "Crisp & Tasty"
- Combi

Cleveland Standard Features:

- "Advanced closed system" with "Crisp & Tasty" de-moisturizing feature
- Efficient heating system saves energy and provides fast heat up times
- Fully insulated cooking compartment for maximum energy savings
- Polished cooking compartment with coved corners for easy cleaning
- Six (6) 26" x 20" wire shelves
- Hinged fan guard and hinged removable pan racks
- Two (2) speed auto reversing convection fan for even heat distribution
- Space saving, easy to close "Disappearing Door"
- Door latch with safety vent position and wear-free door switch
- Vented, double glass door with integrated door stop
- Trolley with self draining condensate drip pan
- Easy to change, press-fit door seal
- Oven light with shock resistant safety glass
- Multipoint core temperature probe
- Easy to use electronic controls for all operational functions
- Self diagnostic system with full text message display
- Easy to understand menu icons with bright graphics display
- User friendly selector dial
- Exclusive "Smart Key" for selecting option settings
- Digital controls for temperature, time and core probe settings
- Eight (8) "Press & Go" one step, recipe start buttons
- Cook book library for up to 250 stored recipe programs, each recipe capable of 20 steps
- RS 232 connection for controlling one unit with a PC (personal computer)
- Memory module automatically saves unit settings and recipes
- Manual program override feature for operational settings
- Smooth action hand shower for compartment cleaning
- Injection system for steam

Options and Accessories

- ConvoClean automatic compartment washing system
- PC-HACCP software for establishing "HACCP controls" and automatic documentation of the cooking process
- Universal pan-rack system to hold full size sheet pans without the use of wire shelves

MODEL: OES-20.20

CAPACITY: Twenty (20) – 18" by 26" full size sheet pans or
Forty (40) – 12" by 20" by 2 1/2" steam table pans

ITEM NUMBER _____

JOB NAME / NUMBER _____

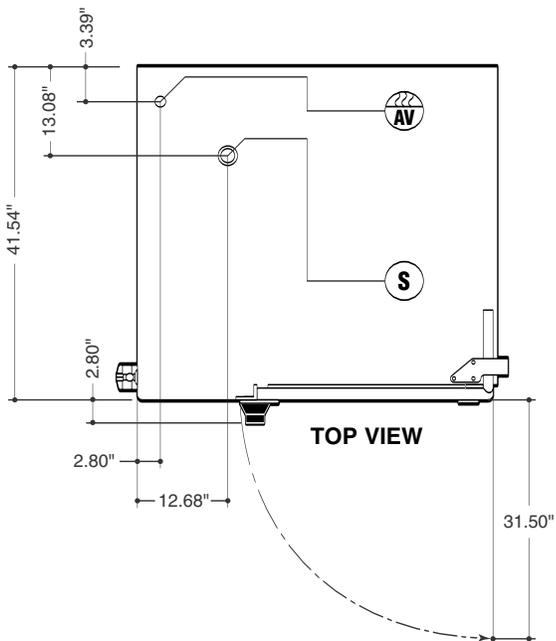
**Short Form Specifications**

Shall be Cleveland Model: OES-20.20 Combination Convection Oven / Steamer with simple to operate electronic programmable controls for Hot Air, Convection Steam, and Combination cooking modes, "Cook & Hold" and "Delta T" slow-cooking capabilities, "Advanced Closed System" with "Crisp & Tasty" de-moisturizing feature. Multiple cooking stage programs, stored recipe library, multipoint core temperature probe, "Press & Go", one-step recipe start buttons, "Smart Key" for selecting option settings, two (2) speed auto reversing convection fan, boilerless. "Disappearing Door". Capacity for forty (20) 18" x 26" full size sheet pans, or forty (40) 12" x 20" x 2 1/2" pans.

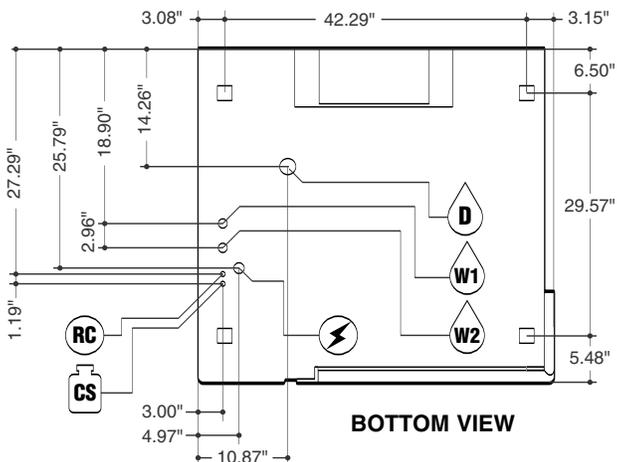
- Lockable cover over operating controls for prison installations
- USB or RS 485 connection for networking and controlling up to 32 units with a personal computer
- Pan rack with trolley
- Plate rack with trolley for banquet operations
- Thermal cover for plate or pan rack
- ConvoClean compartment cleaning solution
- ConvoCare concentrate for compartment rinse cycle
- "Dissolve" generator descaling solution
- Chicken Grill Rack
- 12" x 20" Wire Baskets for frying products
- Additional 26" x 20" Wire Shelves
- Pre-heat bridge



FRONT VIEW



TOP VIEW



BOTTOM VIEW

NOTES:

Cleveland Range reserves right of design improvement or modification, as warranted.
 Many regional, state and local codes exist and it is the responsibility of the owner and installer to comply with the codes.
 Cleveland Range equipment is built to comply with applicable standards for manufacturers.

The "Advanced Closed System" offers the following advantages:

- Saves energy
- Automatic moisture level adjustment
- Low heat and steam emission to the kitchen
- Automatically regulated steam injection
- Enables immediate change into the steam mode
- "Crisp & Tasty" demisterizing function

Model: OES-20.20

Pan Capacity [Unit (trolley) has 20 slide rails at 2.64" (67mm) apart]:

- 20 (20" x 26") full size wire racks
- 20 (18" x 26") full size sheet pans - **on wire racks**
- 40 (13" x 18") half size sheet pans - **on wire racks**
- 40 (12" x 20" x 2 1/2") steam table pans
- 40 (12" x 20" x 1") steam table pans
- 40 (12" x 20") frying baskets - **(no wire racks needed)**

For Banquet Operations: Optional Plate Rack holds 122 plates

Unit Dimensions: Width - 53.83", Depth - 44.34", Height - 78.43"

Shipping Dimensions: Width - 60", Depth - 50", Height - 86"
 (including packaging)

Shipping Weight: 970 Lbs (including trolley)

Required Clearances: Rear - 2", Left Side - 4", Right Side - 2 1/2"

- Allow for sufficient distance if a "high heat source" (i.e. Broiler) is located next to the unit.
- Allow for sufficient clearance on left side for service access (contact the factory service department for recommendations).
- Installation must comply with all local fire and health codes.

Agency Approvals: UL, UL - Sanitation (NSF Standards)

	208/3/60	240/3/60	440/3/60	480/3/60
Total Connected Load:	55.7 KW	73.4 KW	62.8 KW	74.8 KW
Hot Air:	51.5 KW	68.6 KW	57.6 KW	68.6 KW
Amps per Phase:	154.6	176.6	82.5	90

Do not connect to a G.F.I. outlet

Water Connections: Cold Water (drinking water quality)
 Flow Pressure: 30 - 60 PSI
 Water Inlets: 3/4" GHT-F (Female Garden Hose Connection)



Treated Water for Steam Production



Untreated Water for Condenser and Hand Shower



Drain Connection: 2" Tube

Venting: Exhaust Hood required



Air Vent



***Connection for Cleaning Solution**



***Connection for Rinse Cycle**



Low Pressure Safety Valve

*Available as an option

CONTROL PANEL BASIC OPERATION

A. QUICK START GUIDE

ALWAYS PRE-HEAT THE OVEN CHAMBER!

1. Switch on with key (1).
2. Select cooking mode with keys (2-5).
3. Press key (6) to start.

OR

1. Press key (18) and rotate Selector Dial (23) to set oven temperature.
2. Press key (19) and rotate Selector Dial (23) to set cooking time.

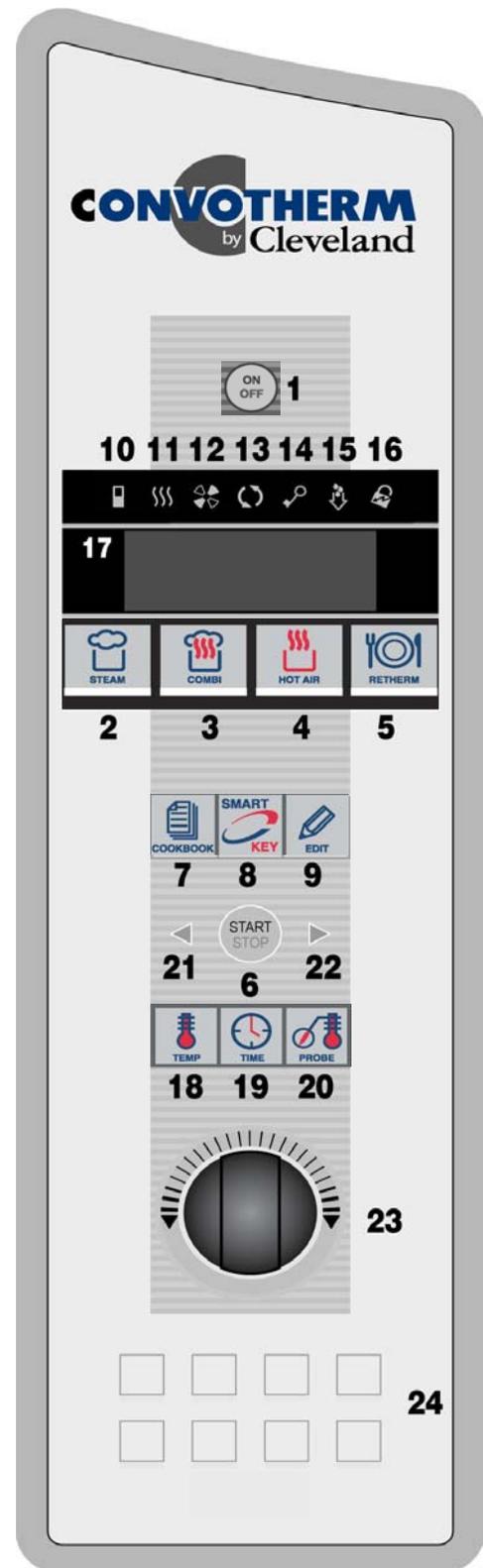
OR

1. Press key (20) and rotate Selector Dial (23) to set core temperature.

ALL

1. Press key (6) to start the Combi.
2. To change the settings while cooking: press keys (18) OR (19) OR (20) and adjust the settings with the Selector Dial (23).
3. When the buzzer sounds press key (6) or open the door.

NOTES: See “CONTROL PANEL DETAIL VIEW” in Chapter 4, Section B for detailed descriptions of control panel functions.



**Figure 4-1a
Control Panel**

B. CONTROL PANEL DETAIL VIEW

Note: Item numbers correspond to numbers on the control panels in Figure 4-1b

1. ON/OFF

When the Combi is turned ON:

- Self-diagnosis is performed.
- Oven light turns on.
- Steam generator fills and heats (OEB and OGB models).

Cooking Modes

2. Steam

- Oven temperature is continuously variable between 86°F and 248°F.

3. Combi Hot Air and Steam

- Oven temperature is continuously variable between 212°F and 482°F.

4. Hot Air

- Oven temperature is continuously variable between 86°F and 482°F.

5. Retherm

- Oven temperature is continuously variable between 248°F and 320°F.

6. Start/Stop

- Start cooking modes and recipes.
- Stop the cooking activity.
- Escape or Exit Smart Key functions

Programming / Help

7. Cookbook

- Call up, exit cookbook.
- View a list of stored recipes in the display.

8. Smart Key

- Set Extra Functions.
- Set-Up the Combi.
- Enter Sub-Menus.

9. Edit

- Create, change, copy, and delete recipes.

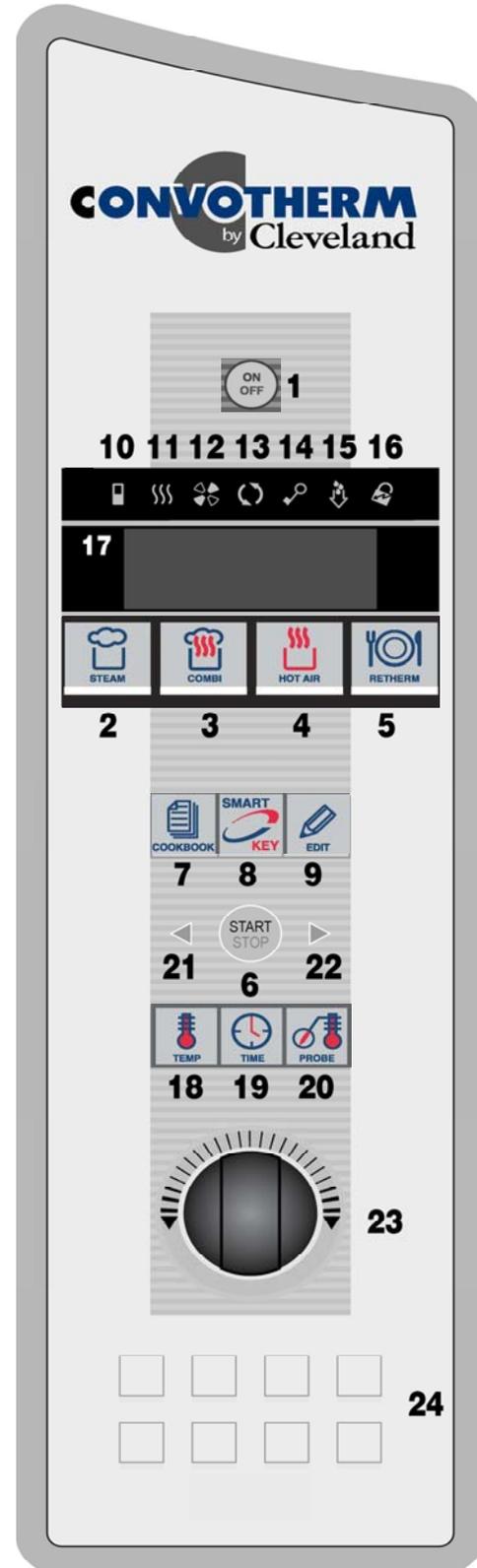


Figure 4-1b
Control Panel

Function Indicators

- Light up when function or activity is engaged:

10. Reduced Power

11. Burner or Electric Heating ON

12. Reduced Fan Speed

13. Cooking Mode Engaged

14. Button Lock

15. Crisp & Tasty Engaged

16. Program Protection

17. Display

- **Display in normal mode:**
 - Date.
 - Time.
 - Oven Temperature.
 - Cooking Time
 - Core Probe Temperature.
- **Display in programming mode:**
 - Clear text.
 - Memory.
 - Symbols.

Settings

18. Oven Temperature

- Set the nominal oven temperature.
- View the actual or nominal oven temperature.

19. Cooking Time

- Set the cooking time from 1 minute to 9 hours, 59 minutes using the Selector Dial.
- Set Continuous Mode
 1. At 9:59 or 0:01, release the Selector Dial.
 2. Turn the Selector Dial again to the left or right.
- See the actual or nominal cooking time.
- See elapsed cooking time when using Core Temperature mode.

20. Core Temperature

- Set the nominal core temperature.
- See the actual or nominal core temperature.
- See the actual core temperature during cooking time mode.

21 & 22. Scroll Left and Scroll Right

- Page / Scroll one step forward or back in programming mode.

23. Selector Dial

- Set: Oven temperature, cooking time, core temperature, recipe name, recipe number.
- Select Smart Key functions, editing functions and recipes in the cookbook.

24. Press & Go Keys

- Start saved recipes with one key.
- LED below key lights up when corresponding recipe is started.

Notes:

- **Magnetic door switch**

If the oven door is opened during operation, the magnetic door switch automatically interrupts the recipe. The timer stops. After closing the oven door, the Combi automatically continues the recipe. If the oven door is opened when the buzzer sounds at the end of a recipe, it automatically switches off.
- Operate controls with hands only!

AT THE END OF THE DAY OR SHIFT

A. Cleaning the Oven Chamber

 CAUTION
Clean the oven chamber at least once per day or more frequently as needed Failure to clean the Combi properly and regularly can cause equipment damage. Damage caused by improper cleaning will invalidate the Warranty!

1. Cleaning – General

- a. Regular cleaning of the Combi after use, inside and out, helps guarantee many years of satisfaction from your Combi.
- b. Clean and maintain the Combi ONLY when the Combi is cold.
- c. Use the hand shower only inside the oven chamber.
- d. Clean the outside the Combi by hand.
- e. Never use the hand shower, hose, pressure washer or similar device on the outside of the Combi.
- f. NEVER spray anything on or into the air intakes or outlets of the Combi.
- g. Do NOT use hoses, pressure washers, high-pressure cleaners, or water jets to clean inside the Combi oven chamber.
- h. Do NOT spray water into a hot oven chamber.
- i. Use only genuine Convotherm by Cleveland and Cleveland Range cleaning and descaling products. Follow the instructions and heed and obey the warnings on the labels. Other products can cause injury, present health hazards, and damage the Combi.
- j. Never use irritant, acidic, highly alkaline cleaners, high-alcohol, chlorine, chlorinated, or abrasive cleaning agents, scrapers, or abrasive materials to clean the Combi.
- k. Poor water quality can cause discoloration inside the oven chamber. Remove these discolorations with CONVOCare. Spray CONVOCare on the affected surfaces in a COLD oven chamber, wait 10 minutes, wipe off with a soft cloth or sponge, and begin cleaning as usual.
- l. Damage caused as a result of improper cleaning voids the warranty.

2. Semi-Automatic and Automatic Cleaning - General

- a. If the oven chamber is very heavily soiled, additional manual cleaning may be necessary.
- b. Depending on the level of soiling of the oven chamber, the engaging frames and grills may be left in the oven during the automatic cleaning process.
- c. Do NOT interrupt the semi-automatic or automatic cleaning process.

 **WARNING**

When working with cleaning agents, nozzle rinsing fluid and spray bottles: Wear suitable clothing, protective gloves and protective goggles to help protect from splashes and spills. Failure to do so can result in chemical burns on skin and in eyes.

 **WARNING**

Read, understand, and heed and obey all instructions and safety information found on cleaning agent labels, Material Safety Data Sheets, and related documents and sources. Failure to do so can result in death, injury, and equipment damage.

3. Manual Cleaning of the Oven Chamber

- a. Clean the Combi daily to prevent discoloration and corrosion of the stainless steel.
 - 1) Avoid scratching the oven chamber or engaging frame.**
 - 2) Scratches can collect soil and / or allow corrosion to begin.
 - 3) Do NOT use harsh or abrasive cleaning agents, scouring pads, or scrapers.
- b. Clean the fan guard and the fan area behind the fan guard at the same time.
 - 1) Release the quick-action locks on the oven racks and fan guard.
 - 2) Pivot the oven racks and fan guard out into the oven chamber.
 - 3) After cleaning, push the oven racks and fan guard closed and fix them in place with the quick-action locks.

 **CAUTION**

Do NOT use U-Shaped racks that are bent or otherwise damaged in any way. Pans and accessories placed in damaged racks can tip and spill, causing burns, injuries and/or equipment damage

- 4) Make sure that the U-Shaped racks do not become bent; otherwise grills, racks, containers and accessories will no longer be safely supported. If U-Shaped racks become bent then remove the Combi from service and contact your qualified Cleveland Range authorized service representative at once.
- c. Clean the interior of the of the double glass doors daily.
 - 1) Release the quick-action locks on the door glass.
 - 2) Clean the glass with a non-abrasive cleaner and a soft cloth.
 - 3) Do not use harsh or abrasive cleaning agents, scouring pads, or scrapers because they will damage the glass.
- d. Regular cleaning of the hygienic plug-in gasket (door gasket) increases service life.
 - 1) Wait for the gasket to cool.
 - 2) Clean the gasket with mild, scent free dish detergent and a soft cloth.
 - 3) Do not use harsh or abrasive agents, scouring pads or scrapers because they will damage the gasket.
 - 4) Air dry the gasket.

- e. Clean the Bypass Measuring Aperture. (Opening in the oven chamber on the left-hand side, slightly below the door latch. See diagram.)

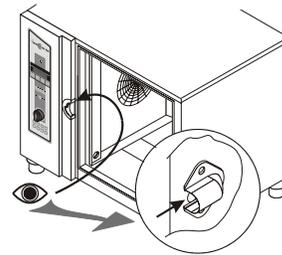
- 1) Spray with CONVOClean.
- 2) Rinse clean with the hand shower.

- f. Remove and clean the drain cover.

- 1) Clean food residue and drippings from the tray and drain in the oven chamber.
- 2) Spray on original CONVOClean oven chamber cleaner and allow it to take effect.
- 3) Rinse thoroughly with the hand shower.

- g. Clean the drain and make sure that it is not blocked.

- h. Clean the demoinsturizing tray (trough shaped area under the drain cover).



Bypass



Drain Cover and Drain

- i. Clean the door drip tray, appliance drip trays and accessory drip trays.

NOTES:

- If a white deposit forms inside the oven chamber, the water treatment system is not correctly set, or the addition of a water treatment system is required. To remove this deposit, use vinegar and a soft cloth.
- Ask your qualified Cleveland Range authorized service representative about adding or setting a water treatment system.



B. Semi-Automatic Cleaning of the Oven Chamber

NOTE: Do NOT press the Start/Stop key while using the Semi-automatic Cleaning process. This stops the cleaning process.

WARNING

The Semi-Automatic Cleaning process is designed to be started when the oven chamber temperature is at or below 158°F. Death, injury, and equipment damage can result from starting the Semi-Automatic Cleaning process when the oven chamber is above 158°F.

1. Before starting the Semi-Automatic Cleaning process, make sure the oven chamber is below 158°F by stopping all processes and pressing the Temperature key twice to view the actual temperature.
 - a. If the oven chamber is above 158°F then open the Combi door and wait 15 minutes.
 - b. Check the oven temperature again.
 - 1) If the oven temperature is at or below 158°F then go to Step 2.
 - 2) If the oven temperature is still above 158°F then wait 15 more minutes and check the oven chamber temperature. Repeat this step as needed until the oven chamber temperature is at or below 158°F and then go to Step 2.
2. See separate instruction sheet P/N 260AYM, "One-Hand Sprayer with Telescoping Wand," for safety information, detailed instructions for using the sprayer, P/N 111598, and other information.
3. Always wear appropriate protective clothing and equipment when using this Sprayer, including protective gloves and goggles.
4. Close and latch the Combi door.
5. If the Combi is OFF, turn it ON.
6. Press the Smart Key. Various options appear in the display.
7. Use the Selector Dial to select "Cleaning" .
8. Confirm by pressing the Smart Key.
9. Confirm "Yes" with the Smart Key. The semi-automatic cleaning process starts.
10. Semi-automatic cleaning uses cooking modes to assist the cleaning process. The display shows the nominal values for the cooking modes.
 - a. The first step is Hot Air mode at 158°F for 10 minutes, followed by a Signal Tone.
11. After the first Signal Tone, open the oven door, and follow instruction sheet in P/N 260AYM to spray the oven chamber, drain, grills, plates etc. with original Convotherm by Cleveland CONVOClean.
12. Close and latch the Combi door and allow the CONVOClean to take effect. The Semi-Automatic Cleaning mode continues to run.
 - a. The second step is Steam mode at 86°F for 10 minutes, followed by a Signal Tone.
13. After the second Signal Tone, clean behind the fan guard and the fan area.
 - a. Release the quick-action locks on the oven racks and fan guard.
 - b. Swing the oven racks and fan guard into the oven chamber.
 - c. After cleaning, swing the oven racks and fan guard closed and fix it in place with the quick-action locks.
14. Close and latch the Combi door. The Semi-Automatic Cleaning mode continues automatically.

- a. The third step is Steam mode at 86°F for 1 minute. No action is needed.
 - b. The fourth step is Steam at 212°F for 10 minutes, followed by a Signal Tone.
15. Turn OFF the Combi when the Signal Tone sounds.
 16. Use the hand shower to rinse thoroughly the oven chamber, accessories, and behind the fan guard.
 17. In the case of severe staining or soiling, repeat the cleaning process.
 18. After use or after cleaning, leave the Combi door open.



C. CONVOClean Automatic Cleaning System (optional):

NOTES:

- Do NOT interrupt the automatic cleaning process. Interrupting and restarting the Automatic Cleaning System with the ON/OFF key may start a 6 minute forced rinsing of the oven chamber to remove any CONVOClean and CONVOCare residue when the ON/OFF key is turned back ON. The Signal Tone sounds at the end of the forced rinsing cycle and the Combi is ON.
- Do not open the Combi door during the automatic cleaning process, unless the instruction "Open the door" and "close the door," appears in the display.
- Pre-clean manually to save water and CONVOClean by selecting a lower cleaning setting.
- If the security questions are not answered within 5 seconds, the Combi resets itself to the query level and will not start.
- If the message "No cleaner pressure" appears, check that there is enough CONVOClean and/or CONVOCare in the correct containers. Refill them if necessary (red hose for CONVOClean, and blue or white hose for CONVOCare).

CAUTION

Always make sure the cleaning agent containers are correctly connected to the Combi

CONVOClean => RED

CONVOCare => BLUE or WHITE

- A. See P/N 260AZA, "Instructions for CONVOClean System Start-up Kit," for hose attachment, solution mixing, and other information.
- B. The CONVOClean Automatic Cleaning Process
1. The oven chamber **must be cold** before starting this process. If the oven chamber is still hot, the error message, "oven temp too hi / please wait" appears in the display. If this error message appears, open the Combi door, wait 15 minutes and then try to start the automatic cleaning process. Repeat as needed.
 2. Before starting, remove large pieces food or cooking residue from the oven chamber to help prevent the drain from becoming blocked.
 3. Check the level of Convotherm by Cleveland CONVOClean and CONVOCare.
 - a. The containers **must** be full.
 - b. The suction pipes **must** be located in the fluid.
 - c. The hoses must be properly attached to the Combi.
 4. Press the Smart Key. Various options appear in the display.
 5. Use the Selector Dial to select "CONVOClean system" .
 6. Confirm by pressing the Smart Key.
 7. PRESS the Temperature key and select the cleaning level (1-4) with the Selector Dial. Approximate run times are listed to help plan use of the CONVOClean system. Times may vary by +/- 15 minutes.

1	"Light Soiling"	55 minutes.
2	"Medium Soiling"	1 hour and 30 minutes.

3	“Strong Soiling”	2 hours.
4	‘Strong Soiling – Shining+’	2 hours and 45 minutes.

8. Press the Smart Key.
9. “Food inside oven?” appears in the display.
10. If the oven is empty, then answer “No.”
11. Confirm by pressing the Smart Key.
12. “Start auto-cleaning?” appears in the display.
13. Answer “Yes.”
14. Confirm by pressing the Smart Key.
15. The CONVOClean system starts.
16. The instruction “open the door” appears in the display to check the function of the magnetic door switch.
17. Open the Combi door.
18. The instruction “close the door,” appears in the display to check the function of the magnetic door switch.
19. Close the door.
20. The self test “water supply open?” appears in the display. If the water supply is on (open), then the self test question disappears from the display.
 - a. If “water supply open?” does not disappear from the display, or “not enough water” appears in the display, then check the water supply.
 - b. The CONVOClean system resumes running after the water supply is restored.
21. “Cleaning in progress” appears in the display and the CONVOClean process runs.
22. The Signal Tone sounds at the end of the CONVOClean cycle and “end of cleaning” appears in the display.
23. Press the Start/Stop key to stop the Signal Tone and end the CONVOClean process.
24. The Combi is ON and ready to use.
25. After use or after cleaning, leave the Combi door open.

DESCALE STEAM GENERATOR

A. GENERAL INFORMATION

1. Steam generators should be descaled at least once a month, depending on scale buildup. If you have serious steam generator scale buildup, a water treatment system should be installed for the steamer. If this is not possible, the frequency of descaling should be increased.
2. Cleveland Range, recommends the use of ***DISSOLVE*[®] Descaler Solution, Cleveland Range Part Number 106174**. No other system of steamer descaling should be used.
3. **NOTE:** Part No. 106174 is the Part No. for a case (6 1-gallon containers) of *DISSOLVE*[®] descaler.
4. THESE INSTRUCTIONS ARE FOR USE WITH *DISSOLVE*[®] DESCALER SOLUTION Cleveland Range Part Number 106174 ONLY.
5. **Health Hazard Data, Effects of Overexposure** – This product may cause a burning sensation to eyes or skin.
6. **Emergency and First Aid Procedures** - In case of eye contact, immediately flush eyes with plenty of water. If irritation persists, seek medical attention. In case of skin contact: wash with soap and water. If inhaled, remove to fresh air. If burning persists, call a physician. If swallowed, drink 1 or 2 glasses of water and call a physician.
7. **Spill or Leak Procedures** – Rinse with plenty of water to dilute. Sodium carbonate or calcium carbonate may be used to soak up liquid. Spent material is considered non-hazardous and may be disposed of in a sewer system with water flush.

WARNING

The liquid solution in Cleveland Range Descaler Solution Part No. 106174, “*DISSOLVE*[®] Descaler Solution,” can be harmful if not handled properly.

Follow these basic safety rules for handling and using this product to help prevent death or injury:

- Wear protective clothing when mixing or applying chemical cleaners.
- Wear rubber gloves, and OSHA approved eye protection when descaling to help avoid injury.
- Avoid breathing fumes. If liquid comes in contact with skin, wash with soap and water.
- If chemical contacts eyes, flush with water. If irritation persists, seek medical attention
- If chemical is swallowed or ingested, drink 1 or 2 glasses of water and call a physician.

Failure to do so can result in death or injury.

CAUTION

Use ONLY the *DISSOLVE*[®] Descaler method using Part No. 106174 to descale the Combi.

Read, understand, and follow both the descaling procedure instructions and warnings, and the instructions and warnings on the *DISSOLVE*[®] label and MSDS.

Injury, equipment damage, and property damage can result from using other descaling systems and/or failing to follow the descaling procedure and *DISSOLVE*[®] instructions and warnings.

! DANGER

**Do NOT heat the Combi during descaling.
Death, injury, equipment and property damage can result.**

! WARNING

This procedure is slightly different depending on the model being descaled. This entire procedure should be read and fully understand as it applies to the model being descaled, before beginning the actual descaling operation.

B. GENERAL SAFETY FOR DESCALING

1. Always wear suitable protective clothing including appropriate gloves, and eye protection.
2. Read, understand, heed and obey and obey and obey, and follow all directions on the descaler label, MSDS, and related documents
3. Never operate the Combi when descaler has been applied or while descaling.
4. Descale only when the Combi is cold.
5. Immediately wipe up any leaked or spilled descaling fluid.

C. COMBI ATMOSPHERIC STEAM GENERATOR DESCALING PROCEDURE

(For *DISSOLVE*® Descaler Solution Part No. 106174)

This procedure takes approximately 3 hours to complete.

Do NOT heat the Combi during descaling.

1. Turn ON the Combi at the Control Power Service Disconnect switch located below the hand shower.
 2. Turn ON the Combi with the ON/OFF key.
 3. Open the door to the cooking compartment.
 4. Run a manual steam generator rinse cycle.
To Empty and Rinse the Steam Generator:
 - a. Press the Smart Key.
 - b. Select “Manual Steam Generator Rinse” with the Selector Dial.
 - c. Confirm “Yes” with the Smart Key.
 - d. Steam generator rinses and begins to refill to operating level.
 4. Remove the cap from the descale port located at the top of the Combi (See Figure 6-1).
 5. **While the steam generator is filling with water, use a funnel (NOT INCLUDED) to add 3/4 gallon of *DISSOLVE*® descaler solution into the descaling port of 20.20 Combis, and 1/2 gallon for all other models**



**Figure 6-1
Descaling Port
Located at Right Rear of the Combi**

- While adding liquid to the steam generator through the descaler inlets, pour slowly to avoid overflow.
 - Wipe up any spills at once to avoid etching.
6. After the automatic fill cycle has ended, turn OFF the Combi with the ON/OFF key, and at the Control Power Service Disconnect switch located below the hand shower. See Figure 6-2.
 7. Add cold tap water through the descale port until descaling solution enters the cooking compartment through the steam port or until the descaling port overflows (water required varies depending on the Model).
 - Wipe up any spills and overflows.
 8. Let the Descaler work for 1 hour.
 9. Turn the Combi ON at the Control Power Service Disconnect switch located below the hand shower. See Figure 6-2.
 10. Turn ON the Combi with the ON/OFF key.
 11. Run a manual steam generator rinse cycle (Step 4).
 12. After the automatic fill cycle has ended, turn OFF the Combi with ON/OFF key, and at the Control Power Service Disconnect switch located below the hand shower. See Figure 6-2.
 13. Add water through the descale port until water enters the cooking compartment through the steam port or until the descaling port overflows (water required varies depending on the Model) to rinse descaler from the area above the normal water fill level.
 14. Replace the descale port cap.
 15. Turn the Combi ON at the Control Power Service Disconnect switch located below the hand shower. See Figure 6-2.
 16. Turn ON the Combi with the ON/OFF key.
 17. After the Automatic Fill ends, run a manual steam generator rinse cycle (See Step 4).
 18. Run Combi mode for 30 minutes at 212° F with Crisp & Tasty function.
 19. Close the cooking compartment door.
 - a. Press Combi key.
 - b. Press Temperature key.
 - c. Set temperature with Selector Dial to 212° F.
 - d. Press Time key.
 - e. Set time with the Selector Dial for 30 minutes.
 - f. Press Smart Key Various options appear in the display.
 - g. Select “Crisp & Tasty” with the Selector Dial.
 - h. Select the Crisp & Tasty level to “high demoisturizing – continuous” with the Selector Dial.
 - i. Confirm “Yes” with Smart Key.
 - j. The Crisp & Tasty icon  appears in the display.
 - k. Press the Start/Stop key to start.
 - l. Signal Tone sounds and steaming stops after 30 minutes.
 - m. Press the Start/Stop key to end the Signal Tone.
 20. Run a manual steam generator rinse cycle. (See Step 4) This is the final rinse. The Combi is now ready for normal operation.

2020 ELECTRIC GENERATOR W CLEANING

Washer Arm C2611068

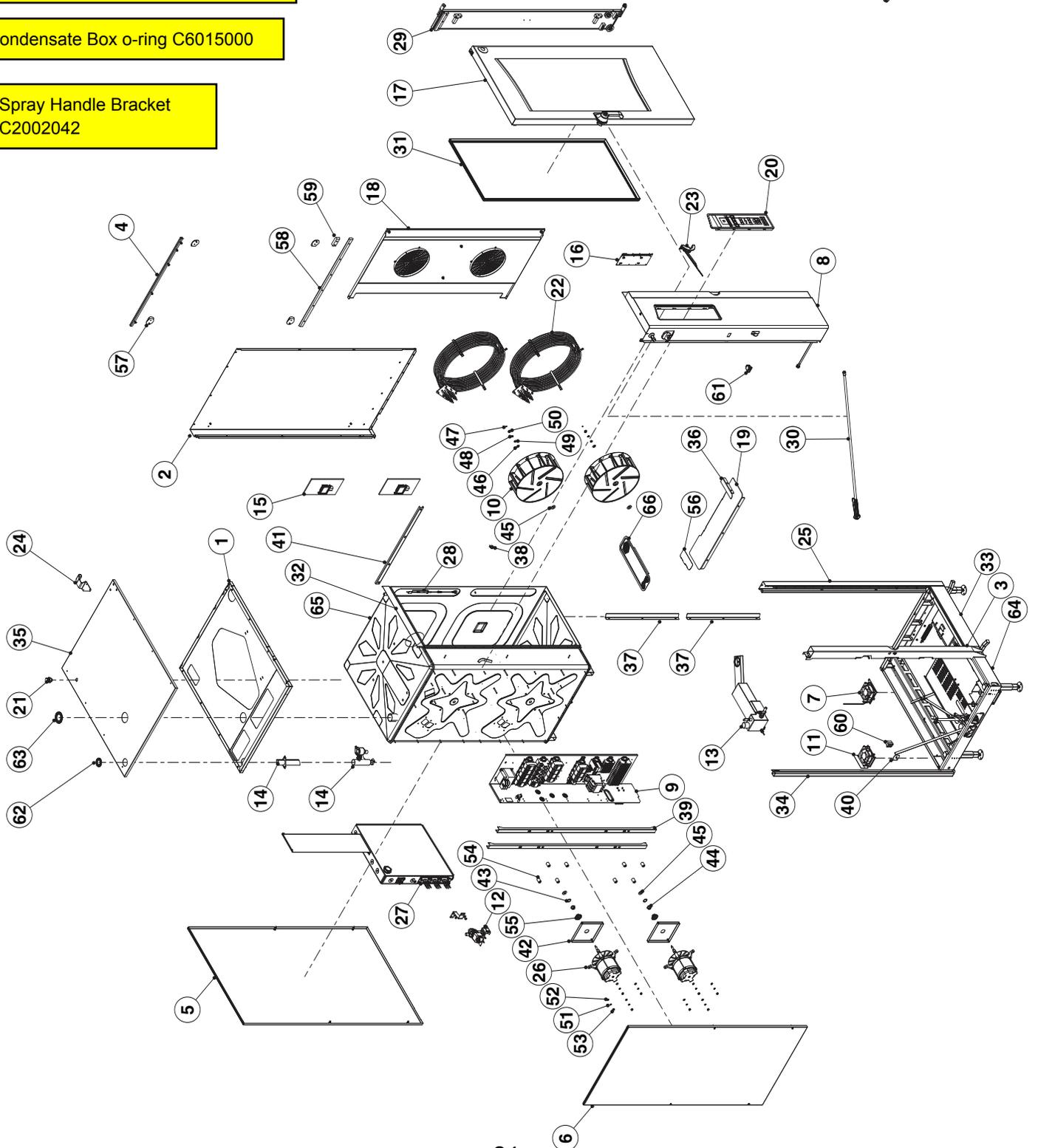
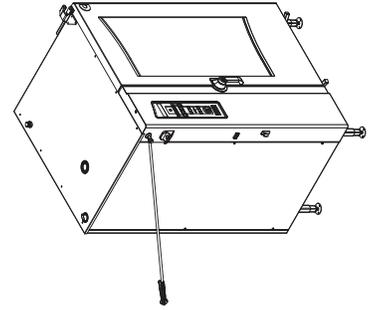
Light Gasket C6015020

Lamp C5005045

Condensate Box o-ring C6015000

Spray Handle Bracket
C2002042

Spray Handle Shut Off Valve
C6014003



2020 ELECTRIC GENERATOR W CLEANING

ITEM	QTY	PART NO.	DESCRIPTION
1	1	C2114828	ASSEMBLY/WELDMENT, TOP, INTERMEDIATE, 12.20/20.20
2	1	C2115487	ASSEMBLY, PANEL, RIGHT SIDE, 20.20
3	1	C2114721	WELDMENT, REINFORCEMENT, DOOR LATCH, 20.10/20.20
4	1	C2114690	ASSEMBLY, SLIDE BAR, DISAPPEARING DOOR, X.20
5	1	C2114747	ASSEMBLY, PANEL, REAR, ELECTRIC & GAS INJECTOR, 20.20
6	1	C2114787	ASSEMBLY, PANEL, LEFT SIDE, 20.20
7	1	C2216090	FAN, AIR INLET BOX ASSEMBLY
8	1	C2115447	ASSEMBLY, CORNER, FRONT LEFT, 20.20
9	1	3005021	ASSEMBLY, COMPONENT PANEL, 480V OEB 20.20
10	2	C6010003	WHEEL, BLOWER, 405mm OD X 150mm WIDE, TYPE 304 SST, 20.20 COMBI
11	1	C2115394	ASSEMBLY, COOLING FAN,
12	1	C23142471	PUMP ASSEMBLY, OEB 20.20
13	1	C2012107	ASSEMBLY, CONDENSER, FLOOR UNIT
14	1	C21142875	ASSY, AIR OUTLET 20.20 GEN.
15	2	C2614841	CAVITY LIGHT,
16	1	C2614266	ASSEMBLY, CONTROLLER
17	1	C2514356	ASSEMBLY, DOOR, 20.20
18	1	C2214147	ASSEMBLY, INTAKE PLATE STEAM GENERATOR 20.20 3
19	1	C2214138	WELDMENT, AIR GUIDE, FAN SPACE, 20.20, ELEC
20	1	C2114296	ASSY, CONTROL PANEL, STEAM GEN, WITH PICTO
21	1	109641	PORT ASSY, DESCALER
22	2	C50170171	ASSEMBLY, TUBULAR HEATING ELEMENT 2X15.75 KW
23	1	C2216070	ASSEMBLED, BLOCK
24	1	C2614750	ASSEMBLY, GUIDE CLIP, VST, FLOOR MODEL
25	1	C2115493	ASSEMBLY, CORNER, FRONT, RIGHT, 20.20
26	2	C50180031	MOTOR W/STUD, 380-480V 60HZ, 380-415V 50HZ, 3-PHASE, 4/8 POLE, 0.9KW, ELECT. COMBI
27	1	C2314210	ASSEMBLY, GEN, ELECTRIC, 20.20
28	1	C26142631	ASSEMBLY, CORE TEMPERATURE SENSOR, 20.20
29	1	C26148301	FINAL ASSEMBLY, DISAPPEARING DOOR, X.20
30	1	C22160803	ASSEMBLY, HAND SHOWER
31	1	C7011007	DOOR SEAL, 20.20
32	1	C2114732	FACEPLATE, UPPER X.20
33	1	C2114730	FACEPLATE, LOWER, 12.20/20.20
34	1	C2114636	CORNER, WELDED, REAR LEFT 20.10/20.20
35	1	C2114704	PANEL, TOP, ELECTRIC, GENERATOR, 12.20/20.20
36	1	C2216465	AIR GUIDE, LEFT, EXHAUST
37	2	C2216467	PLATE, AIR GUIDE, FLOW
38	1	C2016009	COVER, BYPASS
39	2	C2614735	MOTOR STIFFENER, 20.10/20.20
40	1	C2114798	BRACKET, HIGH LIMIT, STEAM GENERATOR,
41	1	C2216797	STIFFENER, INNER CAVITY, RIGHT SIDE 20.20
42	2	C2114140	MOTOR MOUNTING PLATE
43	2	C6015210	SHIM, WEARING MOTOR SHAFT SEAL
44	2	C6015206	BUSHING, LABYRINTH
45	4	C6015021	SEALING RING, MOTOR SHAFT, VITON, COMBI
46	2	111544	WASHER, BELLEVILLE, M10, SMOOTH, TYPE 301 SST, 10.21mm ID X 24mm OD X 1.85mm THICK
47	2	111543	RING, RETAINING, EXTERNAL, 1/4", STAINLESS STEEL, WALDES #5100-25H
48	2	111542	WASHER, BELLEVILLE, M8, SERRATED BOTH SIDES, SST, 8.4mm ID X 13mm OD X 0.8mm THICK
49	2	111541	NUT, HEX, LEFT-HAND, M8 X 1.25 (DIN 934L), STAINLESS STEEL
50	2	111540	NUT, HEX, M10 X 1.5 (DIN 934), STAINLESS STEEL
51	8	C8006060	SCHNORR LOCK WASHER
52	8	C8005050	WASHER, 8.4 A2 DIN 125
53	8	C8004057	NUT, HEX, M8 A4
54	8	C6015213	SPACER, MOTOR 1.299 (FAN DISTANCE 2.008in)
55	2	C6015050	SPRING, MOTOR SHAFT SEAL
56	1	C2216466	AIR GUIDE, RIGHT, EXHAUST
57	4	C6012011	DOORSTOPPER VA VST
58	1	C2017000	SAFETY RAIL, VST, X.20
59	1	C6012009	GUIDE STRIP, LOWER VST
60	1	C5001041	SAFETY TEMPERATURE LIMITER, 340°C
61	1	19993	SWITCH, ROCKER, DPDT, ON/OFF 15A, 125V
62	1	C6005048	DIAPHRAGM GROMMET ø 60 mm (DG 48) P2
63	1	C6005427	DIAPHRAGM GROMMET ø 83 (DG60) FOR VAC. REG. VALVE
64	1	C21145294	ASSY, OUTER BASE, ELEC, 20.20
65	1	C2215098	INNER HOUSING, ELEC, GEN, 20.20, REI, KTM
66	1	C2216796	ASSEMBLY, COVER, DEHUMIDIFYING GUTTER

C6012001

2020 ELECTRIC INJ W CLEANING

Washer Arm C2611068

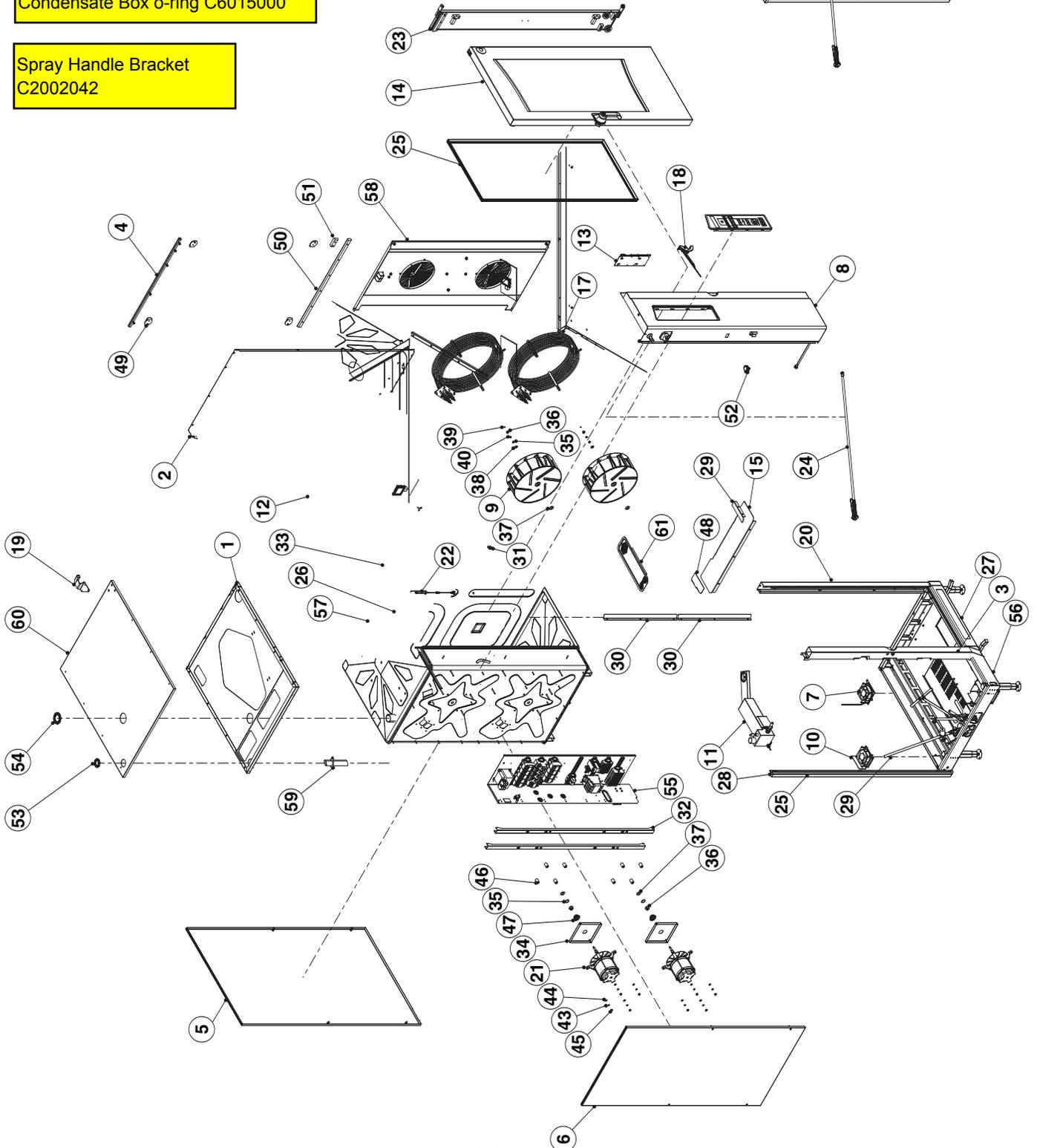
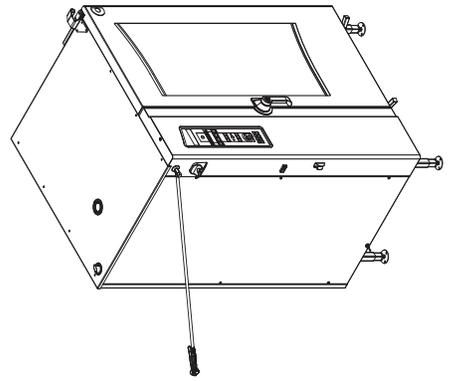
Light Gasket C6015020

Lamp C5005045

Condensate Box o-ring C6015000

Spray Handle Bracket C2002042

Spray Handle Shut Off Valve C6014003

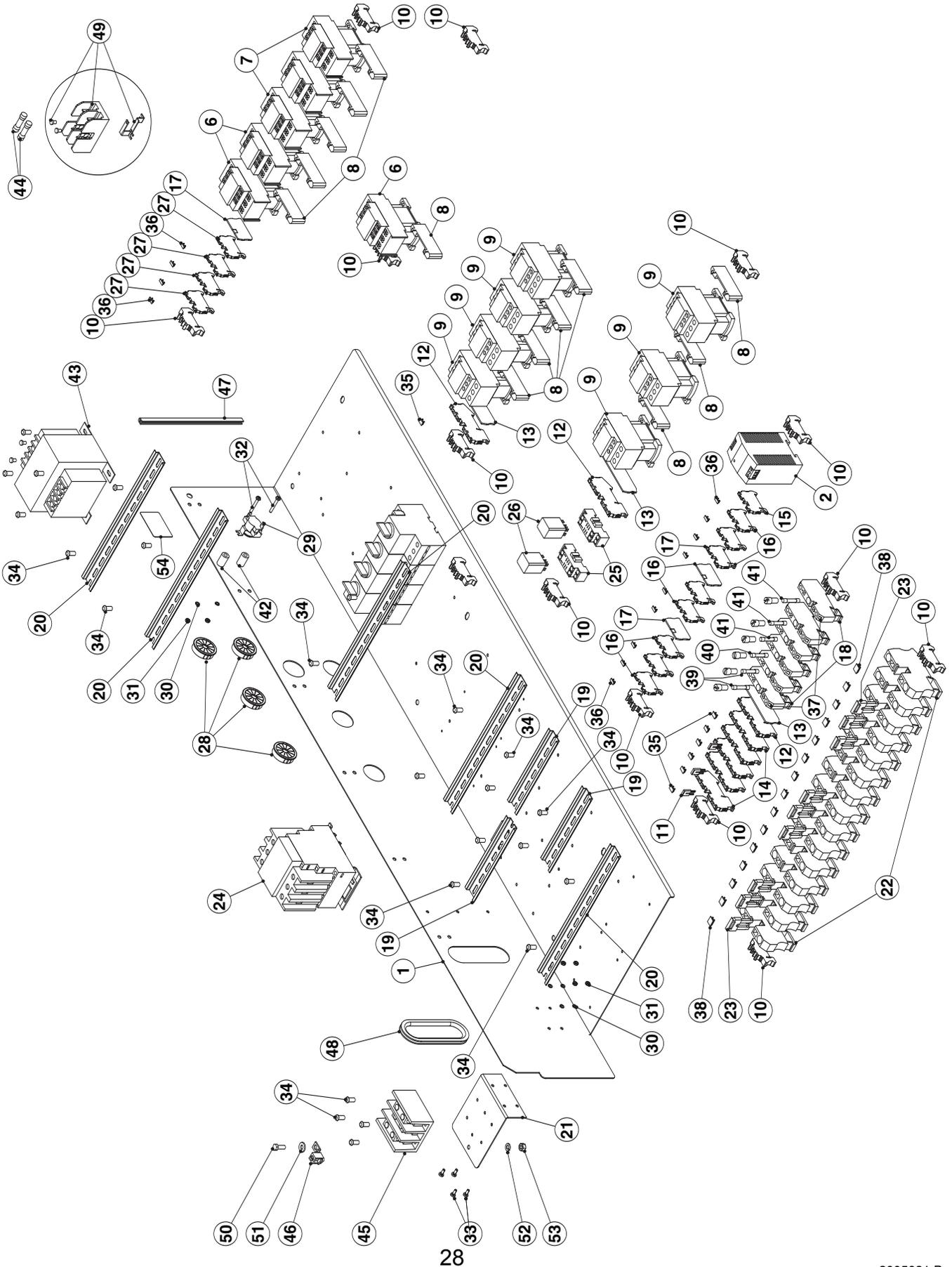


2020 ELECTRIC INJ W CLEANING

ITEM	QTY	PART NO.	DESCRIPTION
1	1	C2114828	ASSEMBLY/WELDMENT, TOP, INTERMEDIATE, 12.20/20.20
2	1	C2115487	ASSEMBLY, PANEL, RIGHT SIDE, 20.20
3	1	C2114721	WELDMENT, REINFORCEMENT, DOOR LATCH, 20.10/20.20
4	1	C2114690	ASSEMBLY, SLIDE BAR, DISAPPEARING DOOR, X.20
5	1	C2114747	ASSEMBLY, PANEL, REAR, ELECTRIC & GAS INJECTOR, 20.20
6	1	C2114787	ASSEMBLY, PANEL, LEFT SIDE, 20.20
7	1	C2216090	FAN, AIR INLET BOX ASSEMBLY
8	1	C2115447	ASSEMBLY, CORNER, FRONT LEFT, 20.20
9	2	C6010003	WHEEL, BLOWER, 405mm OD X 150mm WIDE, TYPE 304 SST, 20.20 COMBI
10	1	C2115394	ASSEMBLY, COOLING FAN
11	1	C2012107	ASSEMBLY, CONDENSER, FLOOR UNIT
12	2	C2614841	CAVITY LIGHT
13	1	C2614266	ASSEMBLY, CONTROLLER
14	1	C2514356	ASSEMBLY, DOOR, 20.20
15	1	C2214138	WELDMENT, AIR GUIDE, FAN SPACE, 20.20, ELEC
16	1	C2114296-3	ASSY, CONTROL PANEL, SPRITZER, WITH PICTO
17	2	C50170171	ASSEMBLY,TUBULAR HEATING ELEMENT 2X15.75 KW
C6012001	1	C2216070	ASSEMBLED, BLOCK
19	1	C2614750	ASSEMBLY, GUIDE CLIP, VST, FLOOR MODEL
20	1	C2115493	ASSEMBLY, CORNER, FRONT, RIGHT, 20.20
21	2	C50180031	MOTOR W/STUD, 380-480V 60HZ, 380-415V 50HZ, 3-PHASE, 4/8 POLE, 0.9KW, ELECT. COMBI
22	1	C26142631	ASSEMBLY, CORE TEMPERATURE SENSOR, 20.20
23	1	C26148301	FINAL ASSEMBLY, DISAPPEARING DOOR, X.20
24	1	C22160803	ASSEMBLY, HAND SHOWER
25	1	C7011007	DOOR SEAL, 20.20
26	1	C2114732	FACEPLATE, UPPER X.20
27	1	C2114730	FACEPLATE, LOWER, 12.20/20.20
28	1	C2114636	CORNER, WELDED, REAR LEFT 20.10/20.20
29	1	C2216465	AIR GUIDE, LEFT, EXHAUST
30	2	C2216467	PLATE, AIR GUIDE, FLOW
31	1	C2016009	COVER, BYPASS
32	2	C2614735	MOTOR STIFFENER, 20.10/20.20
33	1	C2216797	STIFFENER, INNER CAVITY, RIGHT SIDE 20.20
34	2	C2114140	MOTOR MOUNTING PLATE
35	2	C6015210	SHIM, WEARING MOTOR SHAFT SEAL
36	2	C6015206	BUSHING, LABYRINTH
37	4	C6015021	SEALING RING, MOTOR SHAFT, VITON, COMBI
38	2	111544	WASHER, BELLEVILLE, M10, SMOOTH, TYPE 301 SST, 10.21mm ID X 24mm OD X 1.85mm THICK
39	2	111543	RING, RETAINING, EXTERNAL, 1/4", STAINLESS STEEL, WALDES #5100-25H
40	2	111542	WASHER, BELLEVILLE, M8, SERRATED BOTH SIDES, SST, 8.4mm ID X 13mm OD X 0.8mm THICK
41	2	111541	NUT, HEX, LEFT-HAND, M8 X 1.25 (DIN 934L), STAINLESS STEEL
42	2	111540	NUT, HEX, M10 X 1.5 (DIN 934), STAINLESS STEEL
43	8	C8006060	SCHNORR LOCK WASHER
44	8	C8005050	WASHER, 8.4 A2 DIN 125
45	8	C8004057	NUT, HEX, M8 A4
46	8	C6015213	SPACER, MOTOR 1.299 (FAN DISTANCE 2.008in)
47	2	C6015050	SPRING, MOTOR SHAFT SEAL
48	1	C2216466	AIR GUIDE, RIGHT, EXHAUST
49	4	C6012011	DOORSTOPPER VA VST
50	1	C2017000	SAFETY RAIL, VST, X.20
51	1	C6012009	GUIDE STRIP, LOWER VST
52	1	19993	SWITCH,ROCKER, DPDT, ON/OFF 15A, 125V
53	1	C6005048	DIAPHRAGM GROMMET ø 60 mm (DG 48)
54	1	C6005427	DIAPHRAGM GROMMET ø 83 (DG60) FOR VAC. REG. VALVE
55	1	3005031	ASSEMBLY, COMPONENT PANEL, OES 20.20 480V
56	1	C21145295	ASSY, BASE, ELEC, 20.20, W/CLEANING
57	1	C2215097	INNER HOUSING, ELEC, INJ, 20.20, REI, KTM
58	1	C2214157	ASSEMBLY, INTAKE PLATE IN 20.20
59	1	C2114292	AIR OUTLET CONECTING PIECE 20.20 GEN. 6.20/10.10/20.20 INJ.
60	1	111665	PANEL, TOP, ELECTRIC, INJECTOR, 12.20/20.20
61	1	C2216796	ASSEMBLY, COVER, DEHUMIDIFYING GUTTER

COMPONENT PANEL ASSEMBLY, 480V

OEB 20.20 MODELS



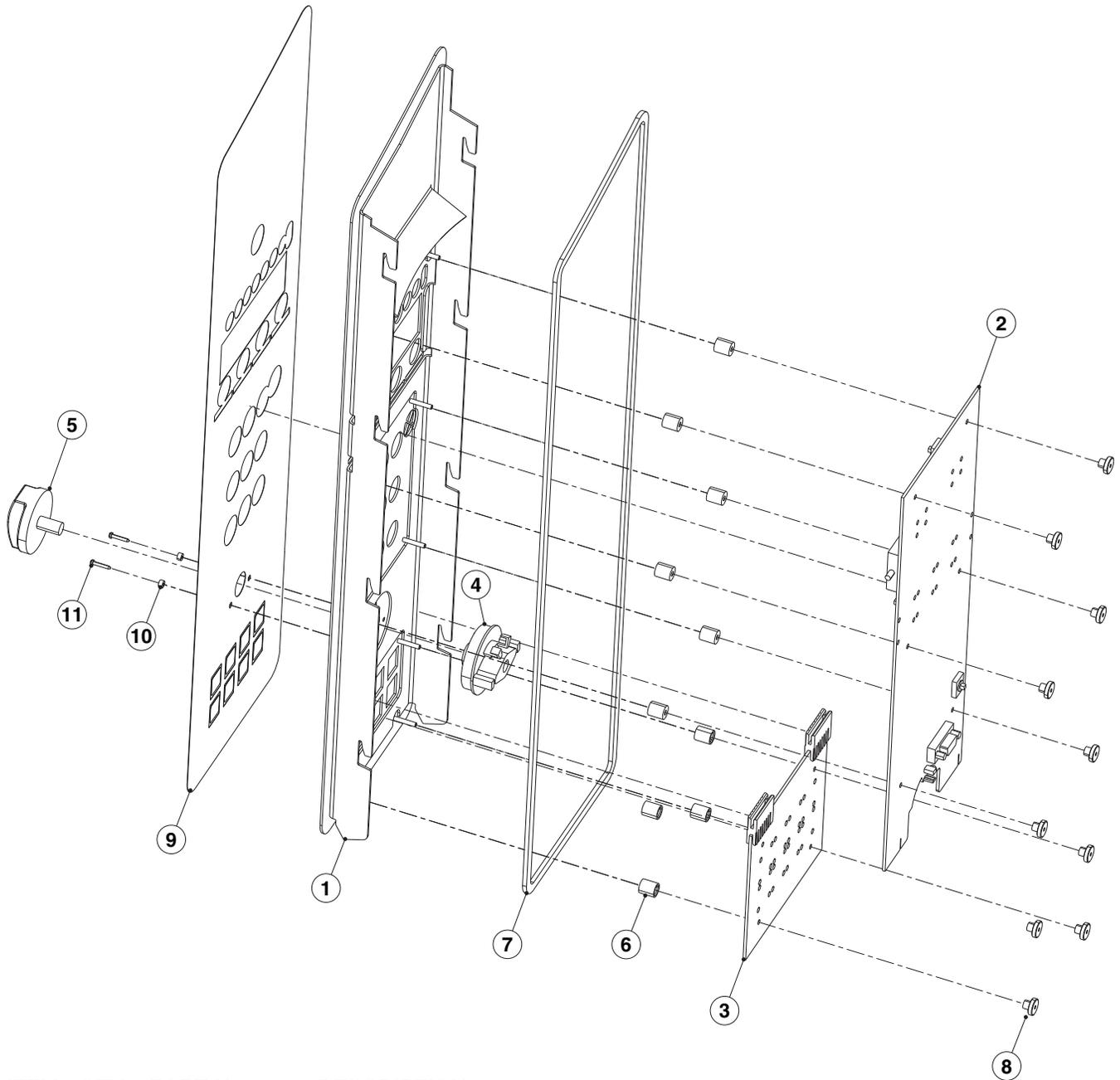
COMPONENT PANEL ASSEMBLY, 480V

OEB 20.20 MODELS

ITEM	QTY	PART NO.	DESCRIPTION
1	1	C5115405	PLATE, ELECTRICAL MOUNTING 20.20
2	1	300350	POWER SUPPLY (12V)
6	3	C4011000	CONTACTOR, 25A SPRING LOADED TERMINAL
7	3	C4011001	CONTACTOR, 32A SPRING LOADED
8	13	C4011004	RC FILTER, CONTACTOR
9	7	C4011013	CONTACTOR, 50A SCREW TERMINAL
10	14	C4014000	SNAP-ON END BRACKET
11	3	C4014001	JUMPER, 2 PIN
12	3	C4014006	TERMINAL BLOCK, CONDUCTOR, SPRING-LOADED
13	3	C4014011	COVER, FOUR-WIRE
14	5	C4014013	TERMINAL BLOCK, SPRING- LOADED, FOUR-WIRE
15	1	C4014029	TERMINAL BLOCK, SPRING-LOADED, 1.5MM-BLUE
16	8	C4014030	TERMINAL BLOCK, SPRING LOADED, 1.5MM2
17	3	C4014031	COVER 2.5 MM2
18	6	C4014037	DINRAIL MOUNTED FUSEHOLDER (6.3X32)
19	3	111636	DIN RAIL 6.5"
20	5	111634	DIN RAIL 11.5"
21	1	C5116111	BRACKET, MOUNTING TERMINAL BLOCK
22	15	C4014017	TERMINAL BLOCK, SPRING CAGE, 35 MM2
23	9	C4014052	JUMPER, 2-PIN, 35MM
24	1	C4011008	CONTACTOR, IEC, AC COIL 230/240 VOLT, 125 AMP
25	2	300473	RELAY SOCKET
26	2	300470	RELAY, DPDT
27	4	C4014027	TERMINAL BLOCK, SPRING-LOADED
28	4	111751	BUSHING, UNIVERSAL, 1.5DIA HOLE, HEYCO#2213, SNAP-IN UL
29	1	300454	THERMOSTAT (62C)
30	6	111606	M4 LOCK WASHER
31	6	111605	M4 NUT
32	2	111607	SCREW, FILISTER HD, M4 X 30
33	4	C8001024	SCREW, FILISTER HD, M4x10 DIN 7985
34	24	106123	SCREW, 10-32 X 1/2, TORX/ PAN HD, THRD FORMING, ZN
35	7	C4014044	LABEL, BLANK, TERMINAL BLOCK, ZB6
36	13	C4014033	LABEL BLANK, TERMINAL BLOCK, ZB4
37	12	C4014039	LABEL BLANK, TERMINAL BLOCK, ZBF6
38	15	C4014042	LABEL BLANK, TERMINAL BLOCK, ZB10
39	2	300416	FUSE MDA-2
40	1	300418	FUSE MDA-1
41	3	300444	FUSE MDA-25
42	2	19555	SPACER, 1/4" I.D. X 1/2 O.D.
43	1	300520	TRANSFORMER, CONTROL, 480V
44	2	109380	FUSE, 3.5 AMP
45	1	02193	TERMINAL BLOCK HEAVY DUTY
46	1	12331	LUG, GROUND, SOLDERLESS
47	1	C700106608000	EDGE GUARD 8.00" LONG
48	1	C700106611500	EDGE GUARD 11.500" LONG
49	1	300526	FUSE BLOCK KIT
50	1	19170	SCREW, HEX HD, 1/4-20x5/8, SST
51	1	23116	WASHER, FLAT, .281 ID x .625 OD x .065 THK, SST
52	1	23105	WASHER, LOCK, 1/4", SST
53	1	14618	NUT, HEX, 1/4-20, STAINLESS STEEL
54	1	109986	LABEL, FUSE SIZE, 5 AMPS
76	2	300539	MOTOR STARTER, 1.6 - 2.5 AMP
77	4	300537	AUXILLIARY CONTACT
78	2	300538	MOTOR STARTER, .63 - 1 AMP
79	1	300428	RC FILTER, CONTACTOR

ASSEMBLY, CONTROL PANEL, WITH PICTO

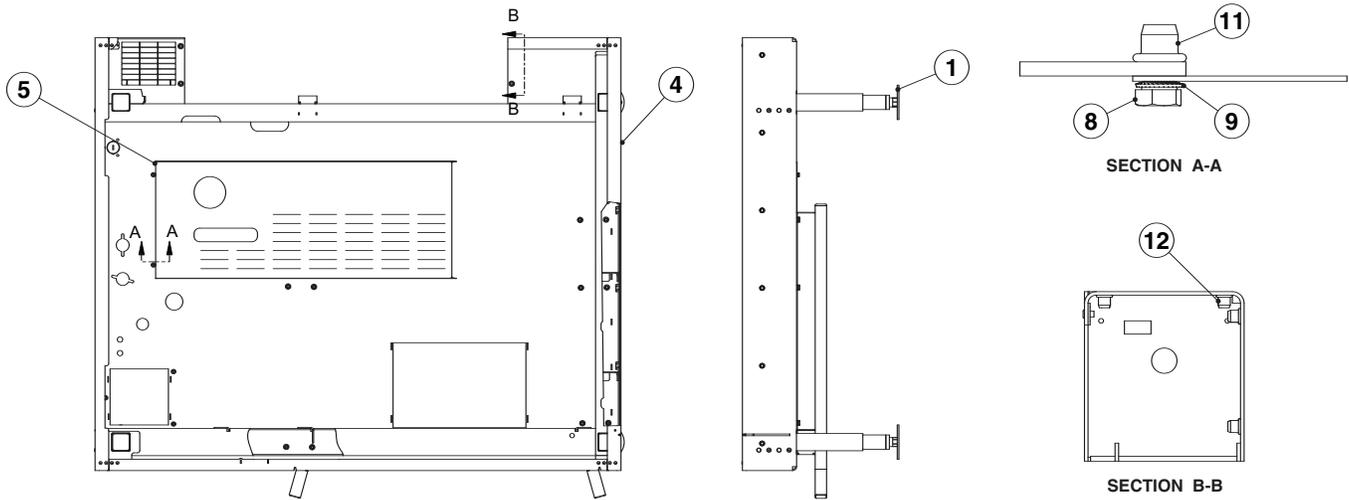
ALL MODELS



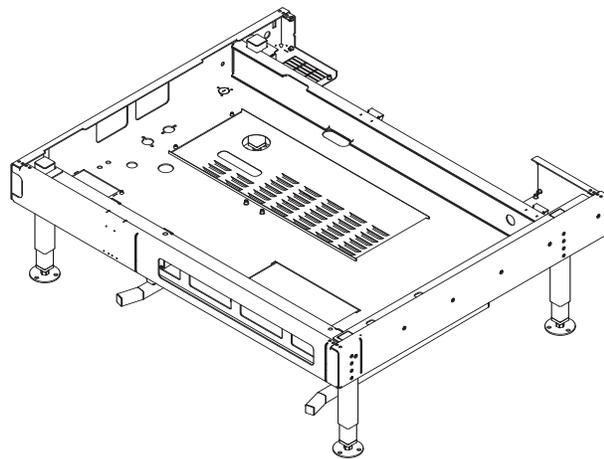
ITEM	QTY	PART NO.	DESCRIPTION
1	1	C2114297	WELDMENT, CONTROL PANEL
2	1	C5019101	CONTROLLER, 5010 OPERATING MODULE
3	1	C5019105	CONTROLLER, 5010 PICTOMODULE PICTO
4	1	C5009313	LATCH ROCKER
5	1	C5009314	KNOB, SELECTOR, COMBI
6	10	C8009030	SPACER, CONTROL PANEL
7	1	C7011010	GASKET, FRONT PLATE
8	10	C6005254	NUT, KNURLED
9	1	111588	LABEL, CONTROL PANEL, STEAM GEN, WITH PICTO
	1	111590	LABEL, CONTROL PANEL, SPRITZER, WITH PICTO
10	2	C6005270	SPACER, CONTROL KNOB STOP
11	2	C8007013	SLOTTED PAN-HEAD TAPPING SCREW 2.2 X 13
12	1	300533	CABLE, CONNECTING, CONTROL (NOT SHOWN)

ASSEMBLY, OUTER BASE

OGB 20.20 MODELS



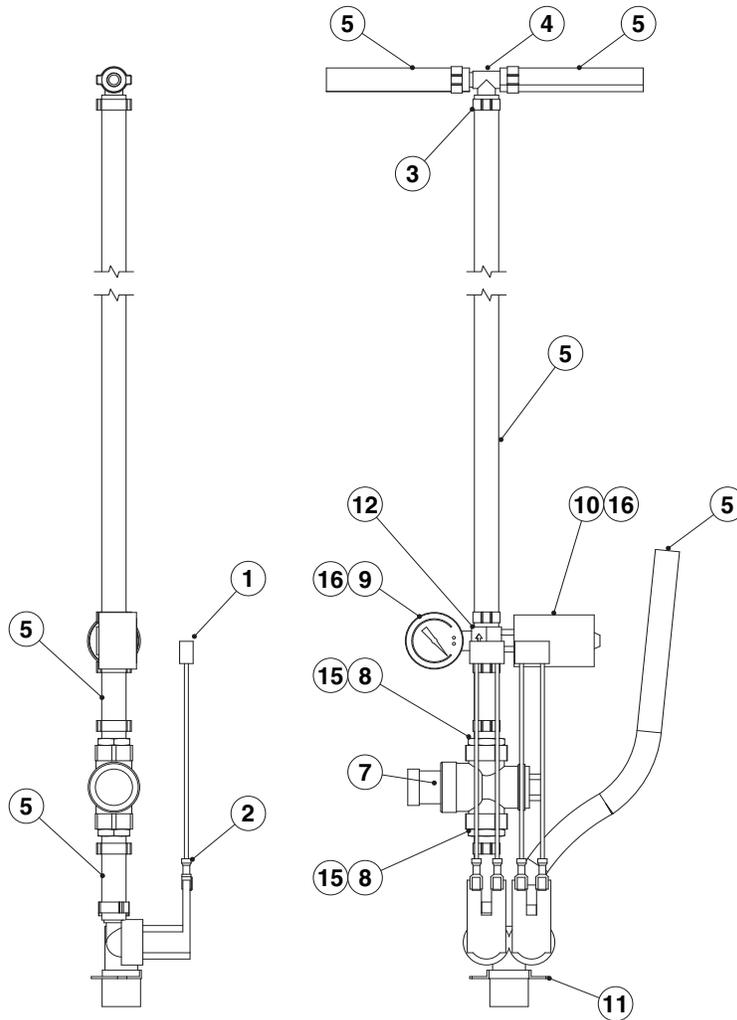
Agent Pump C5008011
Pressure switch C5009055



ITEM	QTY	PART NO.	DESCRIPTION
1	4	100413	FOOT ASS'Y, ADJUSTABLE (FOR 1.250 SQ. TUBING), ANCHORABLE TIEDOWN
2	1	C2115476	WELDMENT, GUIDE RAIL, RIGHT, 12.20/20.20
3	1	C2115477	WELDMENT, GUIDE RAIL, LEFT, 12.20/20.20
4	1	C2115393	WELDMENT, BASE, GAS GENERATOR, 12.20/20.20
5	1	C2114627	COVER, BOTTOM, ACCESS, CONDENSER
6	10	C8006057	SCHNORR LOCK WASHER
7	10	C8003043	HEXAGON BOLT M6x16
8	2	C8003035	HEXAGON BOLT M5X10
9	2	C8006058	SCHNORR LOCK WASHER
10	2	111519	PLUG, 1" SQUARE, RIBBED, BLACK POLYETHYLENE, FITS ID 0.844" - 0.924"
11	7	C8008094	BLIND RIVET NUT M5 A2 HEXAGON
12	22	C8008089	BLIND RIVET NUT M6 A2 HEXAGON

ASSEMBLY, WATER VALVE

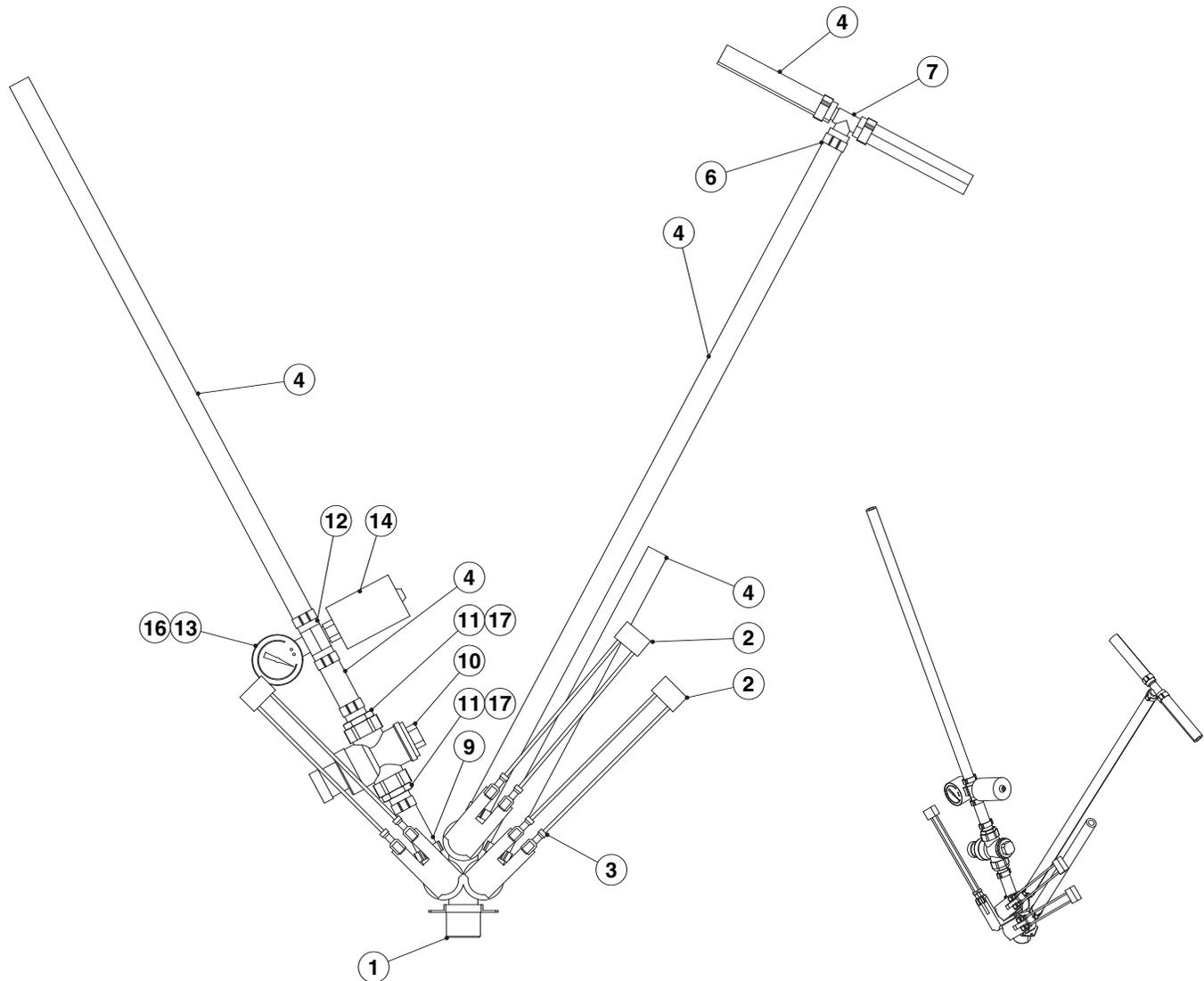
OES 20.20 MODELS



ITEM	QTY	PART NO.	DESCRIPTION
1	2	300407	FILTER, ELECTRICAL
2	4	300509	TERMINAL, 18-22 AWG PIGGY BACK
3	9	111647	CLAMP, OETIKER, S/S, 19/32"
4	1	111646	TEE, BRASS, 3/8" BRASS
5	6	111498	HOSE, SILICONE, 3/8" ID (SPECIFY LENGTH)
7	1	C5001085	PRESSURE REGULATING VALVE OD GAS
8	2	C6015401	BARB, 1/2 R X 3/8 HOSE
9	1	C6006140	GAUGE, 60 PSI BOTTOM MOUNT
10	1	C5009063	PUSH BUTTON SWITCH, INJ, (CHANGE-OVER CONTACT)
11	1	300457	VALVE ASSY. 2 WAY 240VAC
12	1	C6015234	CROSS, 3/8 HOSE BARB
15	A/R	111651	SEALANT, LOCTITE, WHITE, DRI-SEAL 513
16	A/R	00946	TAPE, TEFLON, 1/2"

ASSEMBLY, WATER VALVE

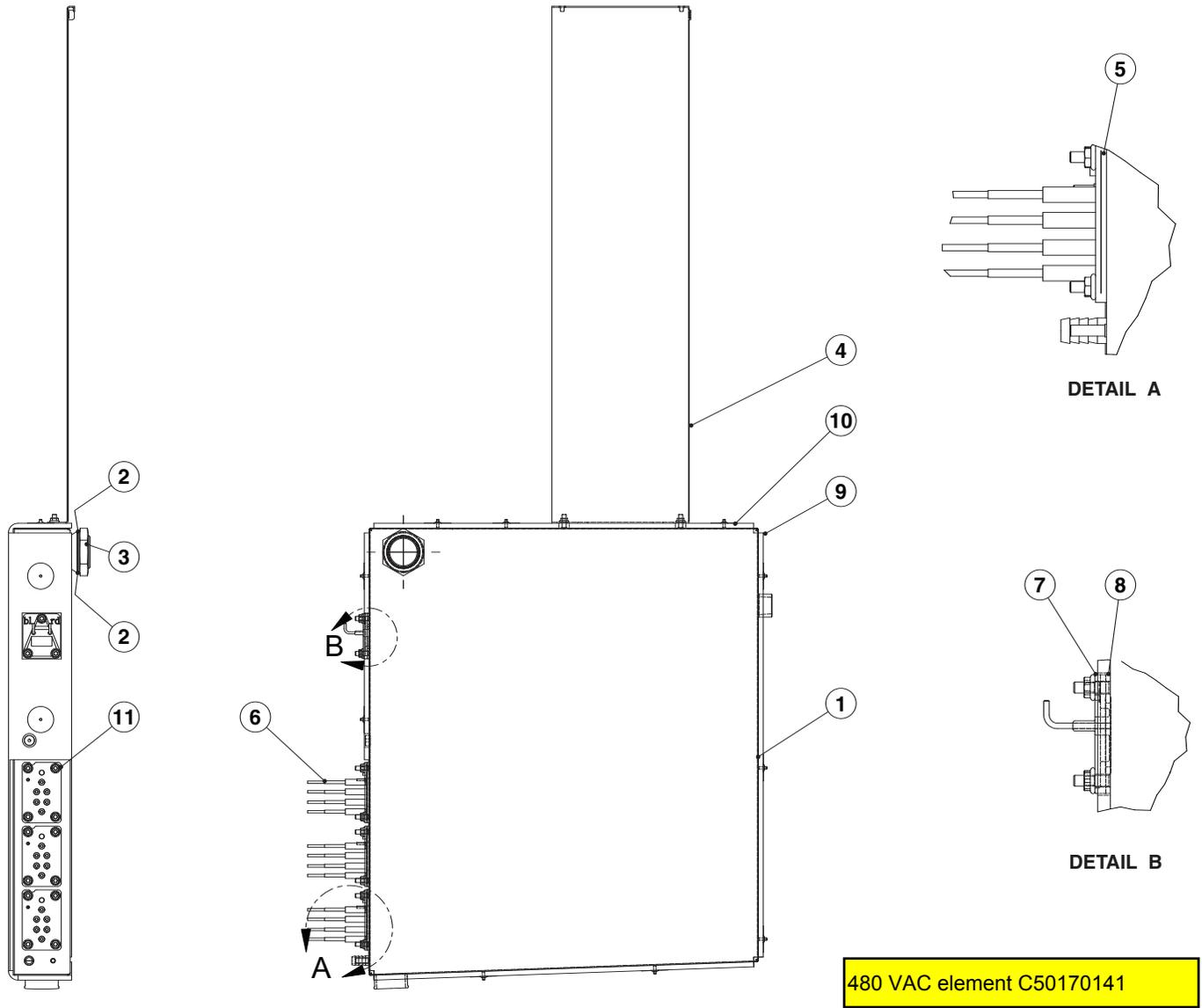
OEB 20.20 MODELS



ITEM	QTY	PART NO.	DESCRIPTION
1	1	300453	VALVE ASSEMBLY, 3WAY 240VAC
2	3	300407	FILTER, ELECTRICAL
3	6	300509	TERMINAL, 18-22 AWG PIGGY BACK
4	7	111498	HOSE, SILICONE, 3/8" ID (SPECIFY LENGTH)
6	10	111647	CLAMP, OETIKER, S/S, 19/32"
7	1	111646	TEE, BRASS, 3/8" BRASS
10	1	C5001085	PRESSURE REGULATING VALVE OD GAS
11	2	C6015401	BARB, 1/2 R X 3/8 HOSE
12	1	C6015232	CONNECTION NOZZLE 0.6MM 6.20/10.10/10.20
13	1	C6006140	GAUGE, 60 PSI BOTTOM MOUNT
14	1	C5009063	PUSH BUTTON SWITCH, INJ, (CHANGE-OVER CONTACT)
16	A/R	00945	TAPE, TEFLON, 1/2"
17	A/R	111651	SEALANT, LOCTITE, WHITE, DRISEAL, 513

ASSEMBLY, STEAM GENERATOR, ELECTRIC, HEATER SELECTION

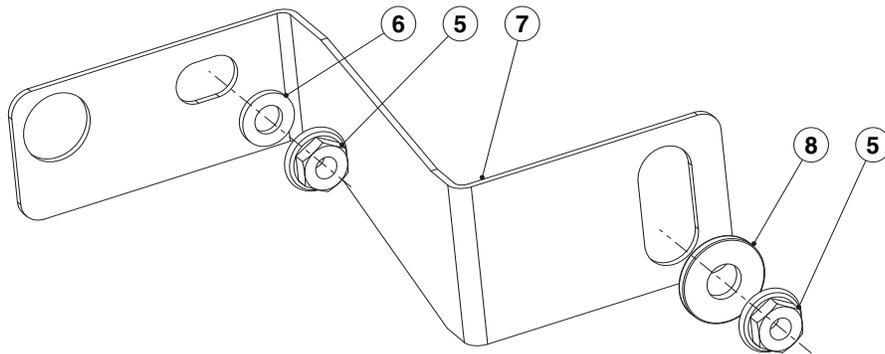
OEB-20.20 MODELS



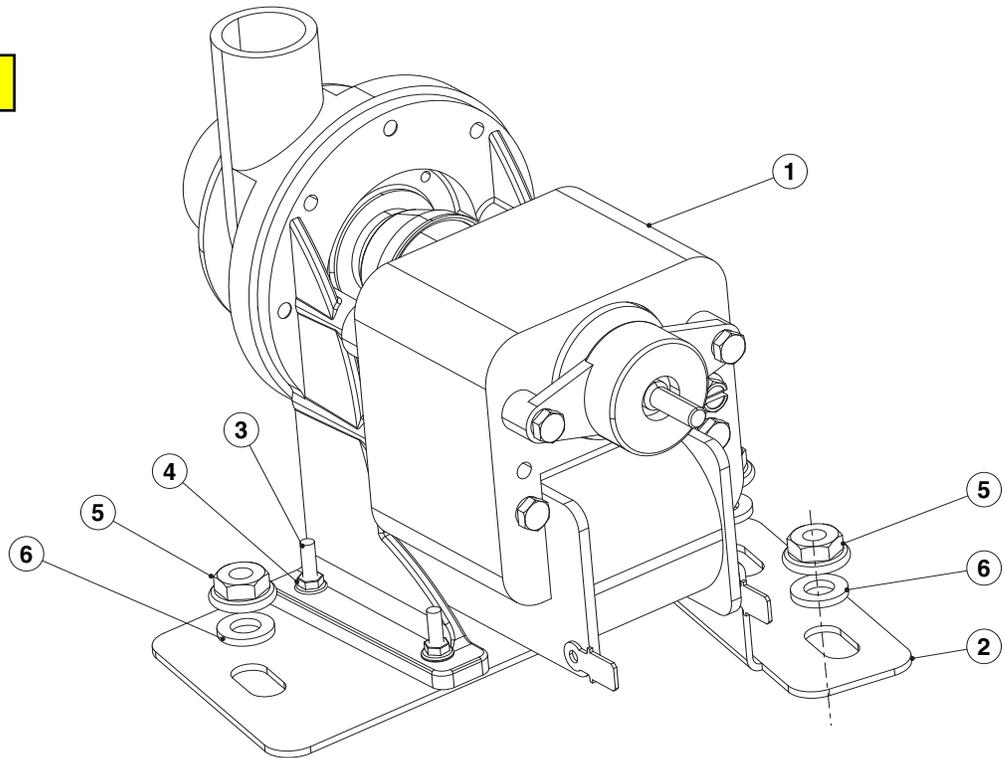
ITEM	QTY	PART NO.	DESCRIPTION
1	1	C2314219	WELDMENT, STEAM GEN, ELEC, 20.20
2	2	C6015022	FLAT GASKET 60 x 48.5 x 2 FOR STEAM GENERATOR
3	1	C6015207	HEXAGON NUT G 1 1/2" FOR STEAM GENERATOR
4	1	C2314244	SUSPENSION, STEAM GEN, 20.10/20.20
5	3	C6015023	FLAT GASKET FOR IMMERSION HEATER
6	3	C5017014	ASSEMBLY, IMMERSION HEATER, 13.2 kW, 230 V
7	1	C5019003	ASSEMBLY, DOUBLE LEVEL PROBE
8	1	C6015040	FLAT GASKET FOR DOUBLE-LEVEL PROBE
9	1	C7013157	INSULATION, GEN, ELEC, OUTER, 20.20
10	10	101953	CLIP, INSULATION RETAINER, 1-1/2, .105 HOLE, GALV.
11	17	C8017011	NUT, FLANGE, HEX

PUMP, STEAM GENERATOR

OEB 20.20 MODELS



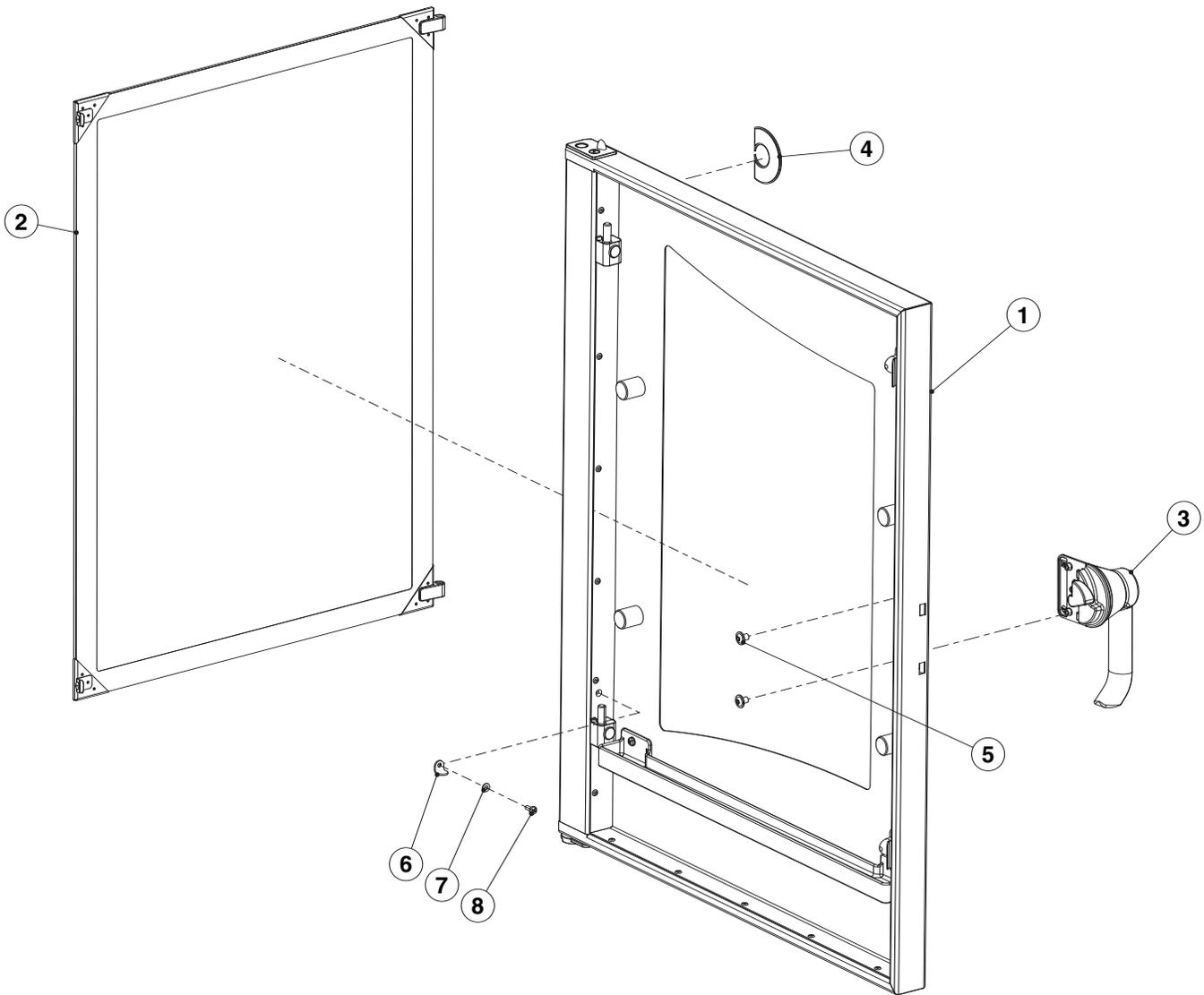
Drain Elbow C6015101



ITEM	QTY	PART NO.	DESCRIPTION
1	1	300507	DRAIN PUMP, 230 V
2	1	111676	BRACKET,PUMP MTG,OEB 20.20
3	4	111633	SCREW, HEX HD, M3 x 16, SST, FULLY THREADED
4	4	C8017008	NUT, LOCKING, SERRATED
5	5	C8017011	NUT, FLANGE, HEX
6	4	C8005040	WASHER, FLAT, 6.4 A2, DIN 125
7	1	111675	BRACKET, Z, GEN, ELEC, 20.20
8	1	102513	WASHER FLAT 0.312 I.D. X 0.750 O.D. X .080 THK, S/S

DOOR COMPLETE

20.20 MODELS



Complete Door C2514356

Cross Gasket C7001077

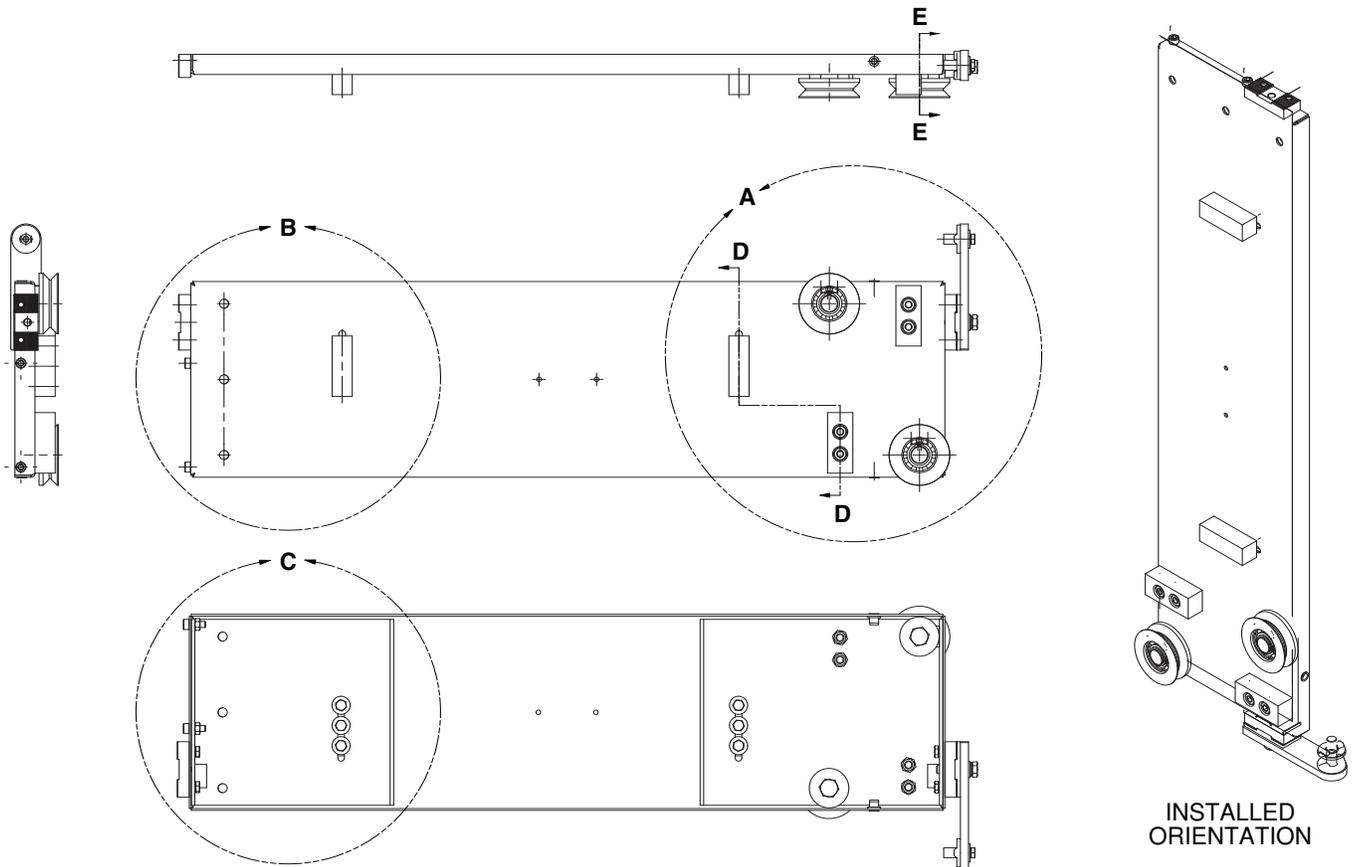
Spring clip C6015248

ITEM	QTY	PART NO.	DESCRIPTION
1	1	C2514363	ASSEMBLY, OUTER DOOR, 20.20
2	1	C2514394	ASSEMBLY, INNER DOOR, 20.20
3	1	C6012000	DOOR HANDLE, LOCKING
4	1	C6009016	PLASTIC LETTER "C" RED
5	2	C8015000	MLF SCREW M6X8
6	1	C2514430	UNHINGING SAFEGUARD, DOOR
7	1	C8001024	SCREW, FILISTER HD, M4x10 DIN 7985
8	1	C8005021	WASHER, 4.3, DIN 125
9	A/R	C7004012	LOCTITE 243 (NOT SHOWN)
10	A/R	C7003087	GREASE FRONT DOORS OD

SLIDING PLATE, COMPLETE

ALL 6.20, 10.10 MODELS & 20.20 MODELS

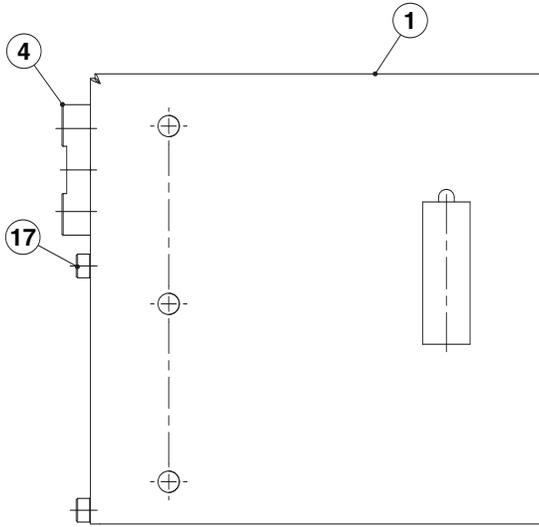
Upper Hinge C2013006



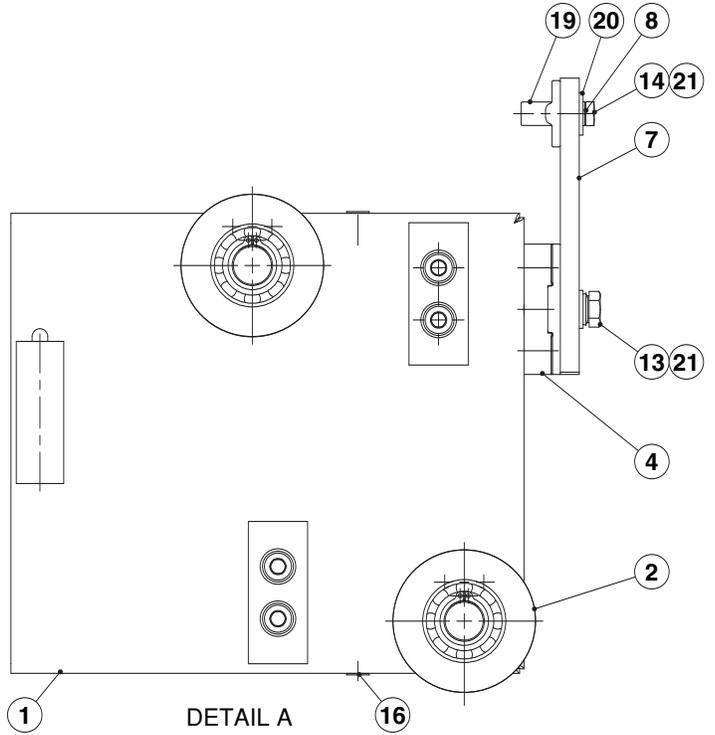
ITEM	QTY	PART NO.	DESCRIPTION
1	1	C2614806	CARRIAGE PLATE, WELDED, 6.20
		C2614807	CARRIAGE PLATE, WELDED, 10.10 & 10.20
		C2614809	CARRIAGE PLATE, WELDED, 20.10 & 20.20
2	2	C6012002	ASSEMBLED, GUIDE ROLLER RST CPL
3	2	C6012005	DISC \varnothing 39 x 6 RST
4	2	C2014008	LOCKING BLOCK, CARRIAGE PLATE
5	2	C6015226	LOCKING BLOCK RST
6	2	C6012006	DOOR STOP, RST
7	1	C2013004	HINGE, LOWER, WELDMENT, DOOR
8	11	C8006057	SCHNORR LOCK WASHER
9	2	C8006063	SCHNORR-LOCK WASHER
10	5	C8006060	SCHNORR LOCK WASHER
11	4	C8004057	NUT, HEX
12	1	C8005050	WASHER, 8.4 A2 DIN 125
13	1	C8003058	HEXAGON BOLT, M8 X 35
14	11	C8003043	HEXAGON BOLT M6x16
15	4	C8013002	FILLISTER HEAD SCREW DIN 912 - M8X25
16	2	C8008095	BLIND RIVET NUT M6 ROUND
17	2	C8001073	HEXAGON SOCKET SCREW M6x16
18	2	C8004040	HEXAGON NUT
19	1	C2014004	LOCKING PLATE, CARRIAGE, LOWER PART
20	7	C8005041	WASHER 6.4 A2 DIN 9021
21	A/R	C7004014	LOCTITE 638
22	2	C8003066	BOLT, HEX HD, M10x30, 6.20, 10.10 & 10.20
		C8013000	BOLT, HEX HD, M10x25, 20.10 & 20.20

SLIDING PLATE, COMPLETE

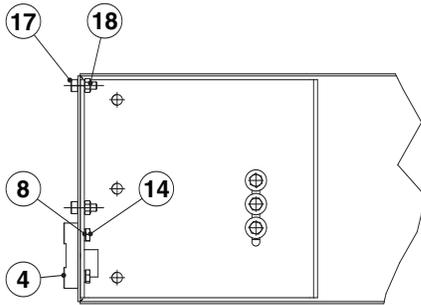
ALL 6.20, 10.10 MODELS & 20.20 MODELS



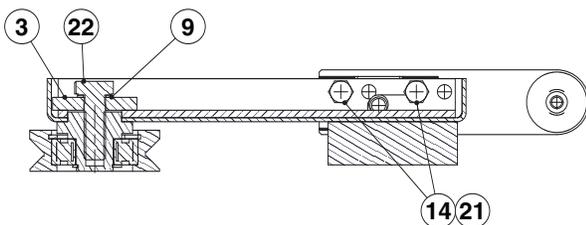
DETAIL B



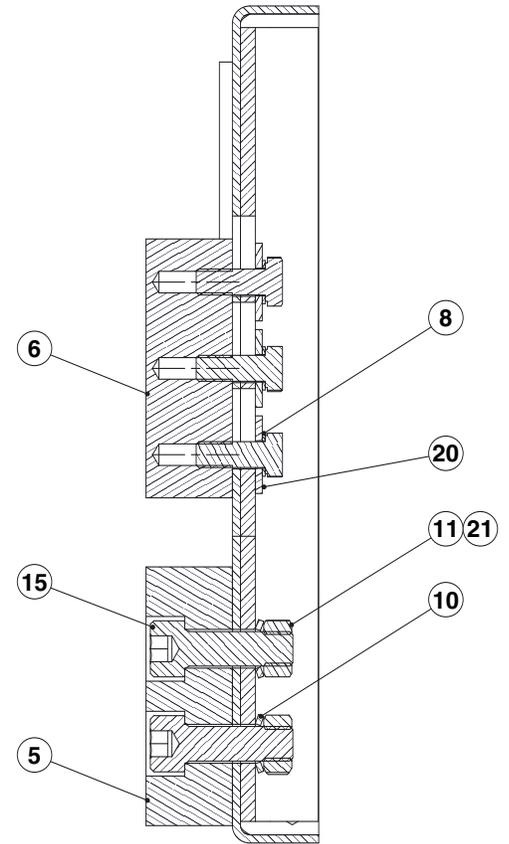
DETAIL A



DETAIL C



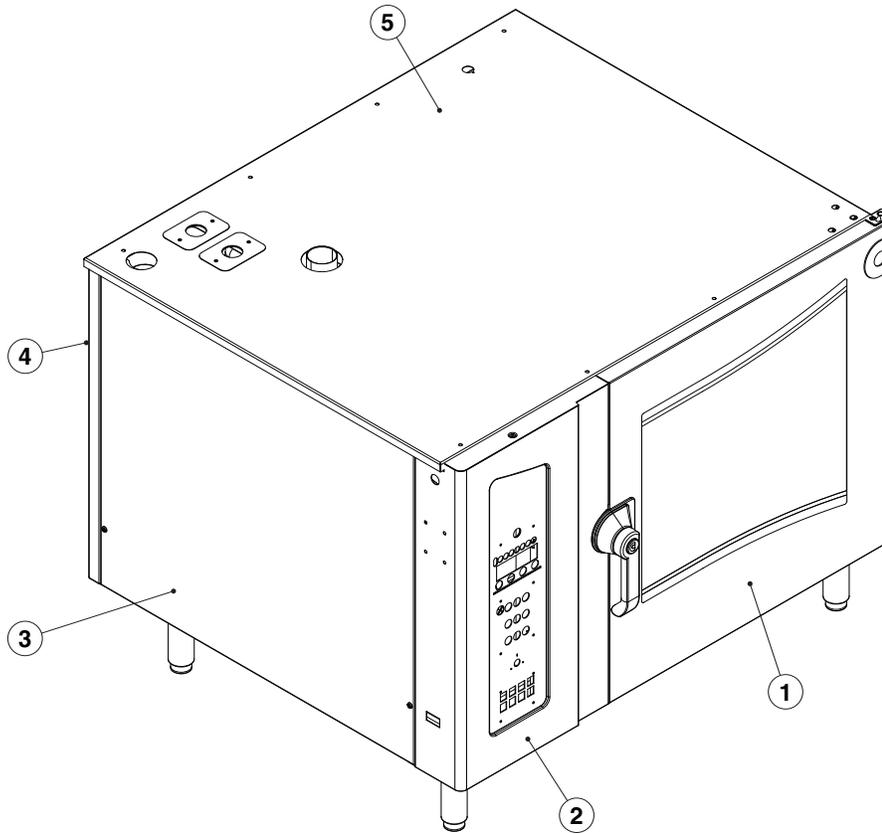
SECTION E-E



SECTION D-D

EXTERIOR SHEETING

ALL 20.20 MODELS



ITEM	QTY	PART NO.	DESCRIPTION
1	1	C2514356	DOOR, 20.20, COMPLETE
2	1	C2114657	WELDMENT, CORNER, FRONT LEFT, 20.20
3	1	C2114787	PANEL ASSY, LEFT, OGB 20.20, OGS 20.20, OEB 20.20, OES 20.20
4	1	C2114767	PANEL ASSY, REAR, OGB 20.20
-	1	C2114747	PANEL ASSY, REAR, OGS 20.20, OEB 20.20, OES 20.20
5	1	C2115467	PANEL, TOP, OGB 20.20
-	1	C2115457	PANEL, TOP, OGS 20.20
-	1	C2114704	PANEL, TOP, OEB 20.20
-	1	111665	PANEL, TOP, OES 20.20

CLEVELAND RANGE OEB 20.20 SEQUENCE OF OPERATIONS

When using these instructions refer to the OEB 20.20 wiring schematic.

- 1 When incoming power (220 VAC) is connected to the combi, 220 VAC is sent to
 - a The contacts 2,4 and 6 of the Safety Contactor (KO)
 - b The terminals 2 and 3 of the Control Power Switch (S1)
- 2 When the Control Power Switch (S1) is turned on (closed)
 - a The red light on the switch is energized.
 - b Incoming power (220 VAC) is sent through the 2A fuse (F1.1) to
 - The 12 vdc power supply (G1)
 - ◊ 12vdc is sent to terminals 3 and 4 of the connector X10 on the Control Board (A10)
 - Terminal 1 of connector X12 on the Control Board (A10)
 - Terminal 10 of connector X13 on the Control Board (A10)
 - The return of the Supply is sent to terminal 7 of connector X13 on the Control Board (A10)
 - c With 220 VAC to the Control Board (A10) The Operation Board (A11) is energized
 - An alarm will sound for one second
 - All the LED's and the display will energize one at a time.
 - "STARTING" will be displayed for 3 seconds
 - "please wait" will be displayed
 - The international model number will be displayed
 - The time and date will be displayed and this will continue until the on/off switch is depressed.
- 3 When the ON/OFF is depressed with the combi in the steam mode
 - a After a date change (the first time the combi is turned on) the display will ask "Generator Flush?". If no answer is given in 10 seconds or a yes is indicated the flush will begin.
 - 220 VAC is sent from terminal 1 of connector X13 on the Control Board (A10) to the Generator Pump (M4).
 - As the water level drops below the probes the fill solenoid (Y3) will energize. This rocking of the water will help flush scale from the generator.
 - Then the pumps will be energized again
 - When the condensate box is heated to 140 degrees F at the B3probe, 220 VAC is sent from terminal 5 of connector X12 to the condenser valve (Y1) until the temperature drops.,
 - b The display will show the set temperature and set time when the flush cycle is complete.
 - c The Control Board (A10) will check the water level by looking for a ground at terminals 1 and 2 on connector X15. These are connected to the high and low probes (B1) in the steam generator.

- If the ground is not found 220 VAC is sent from terminal 7 on connector X12 on the Control Board (A10) to the fill solenoid (Y3)
 - The fill solenoid opens and the generator is filled until both probes are grounded.
 - ◊ If the top probe becomes ungrounded for more that 5 seconds the fill solenoid (Y3) will energize.
 - ◊ If the bottom probe becomes ungrounded the combi will fill immediately and the combi will not heat
- d When the terminal 2 on connector X15 is grounded
- 220 VAC is sent from terminal 4 of connector X12 on the Control Board (A10) through the normally closed auxiliary contacts of K4 to the coil of Contactor K1 until the steam generator get to 190 degrees F (probe B4).
 - ◊ The contactor K1 closes and 220 VAC is sent to the 9.4 KW element (E1)
 - ◊ The normally closed auxiliary contact of K1 opens preventing the Hot Air Contactor K4 from energizing
 - 220 VAC is sent from terminal 8 of connector X11 on the Control Board (A10) through the normally closed auxiliary contacts of K44 to the coil of Contactor K2 until the steam generator get to 190 degrees F (probe B4).
 - ◊ The contactor K2 closes and 220 VAC is sent to the 6.27 KW element (E2)
 - ◊ The normally closed auxiliary contact of K2 opens preventing the Hot Air Contactor K4 from energizing
- 4 With the combi in the steam mode with time on the timer, the door closed and the start switch is depressed
- a The front display will include a lighted bar under the steam symbol
- When the heat circuit is energized the heat symbol will be energized
 - The cooking mode symbol will be energized.
 - The time display will invert and begin to count down.
- b The fan circuit is energized
- **NOTE:** If the temperature is less than 212 degrees F than fan will be pulsed on for 2 seconds every 60 seconds after the cabinet set temp (B6).
 - If the combi fan is in the normal setting 220 VAC is sent from terminal 5 on connector X11 through the normally closed auxiliary contacts of contactor K57 to the coils of contactors K55 and K56
 - ◊ The K55 and K56 contactors close sending 220 VAC through the Q56 overload to the motor and the motor turns at a high speed.
 - ◊ The normally closed auxiliary contacts of both K55 and K56 open preventing the K57 contactor from energizing.
 - If the combi fan is in the reduced setting 220 VAC is sent from terminal 6 on connector X11 through the normally closed auxiliary contacts of contactors K55 and K56 to the coil of contactor K57
 - ◊ The K57 contactor closes Sending 220 VAC through the Q57 thermal overload to the motor and the motor turns at a reduced speed.
 - ◊ The normally closed auxiliary contacts of K57 open preventing the K55 and K56 contactors from energizing.

- For the first 2 minutes 220 VAC is sent from terminal 4 on connector X11 through the normally closed auxiliary contacts of contactor K5 to the K50 contactor coil
 - ◊ K50 contactor closes and the motor turns CW
 - ◊ The normally closed auxiliary contacts on K50 open preventing the K5 contactor from energizing.
 - For 15 seconds the motor is de-energized and allowed to coast.
 - For the next 2 minutes 220 VAC is sent from terminal 3 on connector X11 through the normally closed auxiliary contacts of contactor K50 to the K5 contactor coil
 - ◊ K5 contactor closes and the motor turns CCW
 - ◊ The normally closed auxiliary contacts on K5 open preventing the K50 contactor from energizing.
 - **NOTE:** If the door switch (S7) opens by the door opening, then the fan circuit is de-energized. Then the motor will be pulsed in the opposite direction to “break” the fan. This is to stop the fan quicker for the operator.
- c The steam generator circuit is energized
- 220 VAC is sent from terminal 4 of connector X12 on the Control Board (A10) through the normally closed auxiliary contacts of K4 to the coil of Contactor K1 until the cabinet reaches the set temperature and the bypass probe (B5) senses 162 degrees F.
 - ◊ The contactor K1 closes and 220 VAC is sent to the 9.4 KW element (E1)
 - ◊ The normally closed auxiliary contact of K1 opens preventing the Hot Air Contactor K4 from energizing
 - 220 VAC is sent from terminal 8 of connector X11 on the Control Board (A10) through the normally closed auxiliary contacts of K44 to the coil of Contactor K2 until the cabinet reaches the set temperature and the bypass probe (B5) senses 162 degrees F.
 - ◊ The contactor K2 closes and 220 VAC is sent to the 6.27 KW element (E2)
 - ◊ The normally closed auxiliary contact of K2 opens preventing the Hot Air Contactor K4 from energizing
 - ◊ If the reduced power option is chosen then the K2 Contactor is not energized.
 - When the compartment temp is reached, the steam heat circuit is controlled by the B4 probe in the bypass tube.
 - **NOTE:** If the set temperature is above 212 degrees F the hot air circuit will be energized (after the by pass probe is satisfied) until the compartment setting is reached. The steam circuit always takes precedence.
- d When the condensate box is heated to 140 degrees F at the B3probe, 220 VAC is sent from terminal 5 of connector X12 to the condenser valve (Y1) until the temperature drops.
- e When the timer counts to 0 or the core temp probe (B10) reaches the set amount the cycle ends and the steam generator reverts to the standby temperature of 190-degree F.

- 5 With the combi in the Hot Air mode with time on the timer, the door closed and the start switch is depressed
 - a The front display will include a lighted bar under the Hot Air symbol
 - When the heat circuit is energized the heat symbol will be energized
 - The cooking mode symbol will be energized.
 - The time display will invert and begin to count down.
 - b The fan circuit is energized
 - **NOTE:** If the temperature is less than 212 degrees F than fan will be pulsed on for 2 seconds every 60 seconds after the cabinet set temp (B6)
 - If the combi fan is in the normal setting 220 VAC is sent from terminal 5 on connector X11 through the normally closed auxiliary contacts of contactor K57 to the coils of contactors K55 and K56
 - ◇ The K55 and K56 contactors close sending 220 VAC through the Q56 overload to the motor and the motor turns at a high speed.
 - ◇ The normally closed auxiliary contacts of both K55 and K56 open preventing the K57 contactor from energizing.
 - If the combi fan is in the reduced setting 220 VAC is sent from terminal 6 on connector X11 through the normally closed auxiliary contacts of contactors K55 and K56 to the coil of contactor K57
 - ◇ The K57 contactor closes Sending 220 VAC through the Q57 thermal overload to the motor and the motor turns at a reduced speed.
 - ◇ The normally closed auxiliary contacts of K57 open preventing the K55 and K56 contactors from energizing.
 - For the first 2 minutes 220 VAC is sent from terminal 4 on connector X11 through the normally closed auxiliary contacts of contactor K5 to the K50 contactor coil
 - ◇ K50 contactor closes and the motor turns CW
 - ◇ The normally closed auxiliary contacts on K50 open preventing the K5 contactor from energizing.
 - For 15 seconds the motor is de-energized and allowed to coast.
 - For the next 2 minutes 220 VAC is sent from terminal 3 on connector X11 through the normally closed auxiliary contacts of contactor K50 to the K5 contactor coil
 - ◇ K5 contactor closes and the motor turns CCW
 - ◇ The normally closed auxiliary contacts on K5 open preventing the K50 contactor from energizing.
 - **NOTE:** If the door switch (S7) opens by the door opening, then the fan circuit is de-energized. Then the motor will be pulsed in the opposite direction to “break” the fan. This is to stop the fan quicker for the operator.
 - c The hot air heat circuit is energized
 - 220 VAC is sent from terminal 3 of connector X12 on the Control Board (A10) through the normally closed auxiliary contacts of K2 and K1 to the coil of Contactor K4 until the cabinet reaches the set temperature.
 - ◇ The contactor K4 closes and to legs of the 220 VAC is sent to the 18 KW element (E4)

- ◇ The normally closed auxiliary contact of K4 opens preventing the Steam Contactor K1 from energizing
 - 220 VAC is sent from terminal 7 of connector X11 on the Control Board (A10) to the coil of Contactor K44 until the cabinet reaches the set temperature.
 - ◇ The contactor K44 closes and the third leg of 220 VAC is sent to the 18 KW element (E4)
 - ◇ If the reduced power option is chosen then the K44 Contactor is not energized.
 - d When the condensate box is heated to 140 degrees F at the B3probe, 220 VAC is sent from terminal 5 of connector X12 to the condenser valve (Y1) until the temperature drops.
 - e If the “Crisp and Tasty” mode is selected
 - 220 VAC is sent from terminal 6 of connector X12 on the Control Board (A10) to the Dehumidification Valve (Y2) to pull the humidity out of the cabinet down the drain.
 - ◇ In the light and medium modes (one and two drops in the display) the Y2 valve will be energized until the bypass probe (B5) is satisfied.
 - ◇ In the full mode (3 drops in the display) the Y2 valve will be energized continuously.
 - f When the timer counts to 0 or the core temp probe (B10) reaches the set amount the cycle ends and the steam generator reverts to the standby temperature of 190-degree F.
- 6 With the combi in the Combi mode with time on the timer, the door closed and the start switch is depressed
- a The front display will include a lighted bar under the combi symbol
 - When the heat circuit is energized the heat symbol will be energized
 - The cooking mode symbol will be energized.
 - The time display will invert and begin to count down.
 - b The fan circuit is energized
 - If the combi fan is in the normal setting 220 VAC is sent from terminal 5 on connector X11 through the normally closed auxiliary contacts of contactor K57 to the coils of contactors K55 and K56
 - ◇ The K55 and K56 contactors close sending 220 VAC through the Q56 overload to the motor and the motor turns at a high speed.
 - ◇ The normally closed auxiliary contacts of both K55 and K56 open preventing the K57 contactor from energizing.
 - If the combi fan is in the reduced setting 220 VAC is sent from terminal 6 on connector X11 through the normally closed auxiliary contacts of contactors K55 and K56 to the coil of contactor K57
 - ◇ The K57 contactor closes Sending 220 VAC through the Q57 thermal overload to the motor and the motor turns at a reduced speed.
 - ◇ The normally closed auxiliary contacts of K57 open preventing the K55 and K56 contactors from energizing.

- For the first 2 minutes 220 VAC is sent from terminal 4 on connector X11 through the normally closed auxiliary contacts of contactor K5 to the K50 contactor coil
 - ◊ K50 contactor closes and the motor turns CW
 - ◊ The normally closed auxiliary contacts on K50 open preventing the K5 contactor from energizing.
 - For 15 seconds the motor is de-energized and allowed to coast.
 - For the next 2 minutes 220 VAC is sent from terminal 3 on connector X11 through the normally closed auxiliary contacts of contactor K50 to the K5 contactor coil
 - ◊ K5 contactor closes and the motor turns CCW
 - ◊ The normally closed auxiliary contacts on K5 open preventing the K50 contactor from energizing.
 - **NOTE:** If the door switch (S7) opens by the door opening, then the fan circuit is de-energized. Then the motor will be pulsed in the opposite direction to “break” the fan. This is to stop the fan quicker for the operator.
- c The steam generator circuit is energized. Steam production takes precedence in the combi mode.
- 220 VAC is sent from terminal 4 of connector X12 on the Control Board (A10) through the normally closed auxiliary contacts of K4 to the coil of Contactor K1 until the bypass probe (B5) senses 162 degrees F.
 - ◊ The contactor K1 closes and 220 VAC is sent to the 9.4 KW element (E1)
 - ◊ The normally closed auxiliary contact of K1 opens preventing the Hot Air Contactor K4 from energizing
 - 220 VAC is sent from terminal 8 of connector X11 on the Control Board (A10) through the normally closed auxiliary contacts of K44 to the coil of Contactor K2 until the bypass probe (B5) senses 162 degrees F.
 - ◊ The contactor K2 closes and 220 VAC is sent to the 6.27 KW element (E2)
 - ◊ The normally closed auxiliary contact of K2 opens preventing the Hot Air Contactor K4 from energizing
 - ◊ If the reduced power option is chosen then the K2 Contactor is not energized.
- d After the bypass probe (B5) is satisfied then the hot air heat circuit is energized to increase the cabinet temperature to the setting.
- 220 VAC is sent from terminal 3 of connector X12 on the Control Board (A10) through the normally closed auxiliary contacts of K2 and K1 to the coil of Contactor K4 until the cabinet reaches the set temperature.
 - ◊ The contactor K4 closes and to legs of the 220 VAC is sent to the 18 KW element (E4)
 - ◊ The normally closed auxiliary contact of K4 opens preventing the Steam Contactor K1 from energizing
 - 220 VAC is sent from terminal 7 of connector X11 on the Control Board (A10) to the coil of Contactor K44 until the cabinet reaches the set temperature.

- ◇ The contactor K44 closes and the third leg of 220 VAC is sent to the 18 KW element (E4)
 - ◇ If the reduced power option is chosen then the K44 Contactor is not energized.
 - e When the condensate box is heated to 140 degrees F at the B3probe, 220 VAC is sent from terminal 5 of connector X12 to the condenser valve (Y1) until the temperature drops.
 - f If the “Crisp and Tasty” mode is selected
 - 220 VAC is sent from terminal 6 of connector X12 on the Control Board (A10) to the Dehumidification Valve (Y2) to pull the humidity out of the cabinet down the drain.
 - ◇ In the light and medium modes (one and two drops in the display) the Y2 valve will be energized until the bypass probe (B5) is satisfied.
 - ◇ In the full mode (3 drops in the display) the Y2 valve will be energized continuously.
 - g When the timer counts to 0 or the core temp probe (B10) reaches the set amount the cycle ends and the steam generator reverts to the standby temperature of 190-degree F.
- 7 With the combi in the Rethermalization mode with time on the timer, the door closed and the start switch is depressed
 - a The front display will include a lighted bar under the Rethermalization symbol
 - When the heat circuit is energized the heat symbol will be energized
 - The cooking mode symbol will be energized.
 - The time display will invert and begin to count down.
 - b The fan circuit is energized
 - If the combi fan is in the normal setting 220 VAC is sent from terminal 5 on connector X11 through the normally closed auxiliary contacts of contactor K57 to the coils of contactors K55 and K56
 - ◇ The K55 and K56 contactors close sending 220 VAC through the Q56 overload to the motor and the motor turns at a high speed.
 - ◇ The normally closed auxiliary contacts of both K55 and K56 open preventing the K57 contactor from energizing.
 - If the combi fan is in the reduced setting 220 VAC is sent from terminal 6 on connector X11 through the normally closed auxiliary contacts of contactors K55 and K56 to the coil of contactor K57
 - ◇ The K57 contactor closes Sending 220 VAC through the Q57 thermal overload to the motor and the motor turns at a reduced speed.
 - ◇ The normally closed auxiliary contacts of K57 open preventing the K55 and K56 contactors from energizing.
 - For the first 2 minutes 220 VAC is sent from terminal 4 on connector X11 through the normally closed auxiliary contacts of contactor K5 to the K50 contactor coil
 - ◇ K50 contactor closes and the motor turns CW
 - ◇ The normally closed auxiliary contacts on K50 open preventing the K5 contactor from energizing.

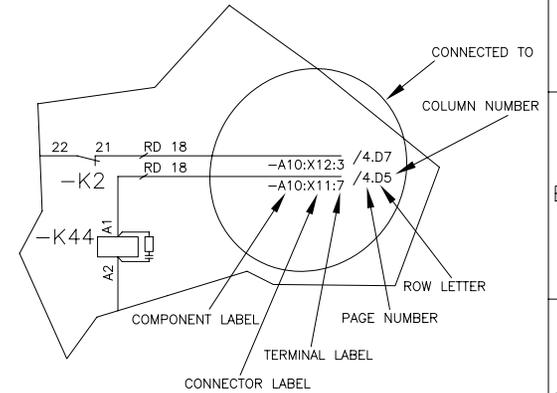
- For 15 seconds the motor is de-energized and allowed to coast.
 - For the next 2 minutes 220 VAC is sent from terminal 3 on connector X11 through the normally closed auxiliary contacts of contactor K50 to the K5 contactor coil
 - ◊ K5 contactor closes and the motor turns CCW
 - ◊ The normally closed auxiliary contacts on K5 open preventing the K50 contactor from energizing.
 - **NOTE:** If the door switch (S7) opens by the door opening, then the fan circuit is de-energized. Then the motor will be pulsed in the opposite direction to “break” the fan. This is to stop the fan quicker for the operator.
- c The steam generator circuit is energized. Steam production takes precedence in the Rethermalization mode.
- 220 VAC is sent from terminal 4 of connector X12 on the Control Board (A10) through the normally closed auxiliary contacts of K4 to the coil of Contactor K1 until the bypass probe (B5) senses 68 degrees F.
 - ◊ The contactor K1 closes and 220 VAC is sent to the 9.4 KW element (E1)
 - ◊ The normally closed auxiliary contact of K1 opens preventing the Hot Air Contactor K4 from energizing
 - 220 VAC is sent from terminal 8 of connector X11 on the Control Board (A10) through the normally closed auxiliary contacts of K44 to the coil of Contactor K2 until the bypass probe (B5) senses 68 degrees F.
 - ◊ The contactor K2 closes and 220 VAC is sent to the 6.27 KW element (E2)
 - ◊ The normally closed auxiliary contact of K2 opens preventing the Hot Air Contactor K4 from energizing
 - ◊ If the reduced power option is chosen then the K2 Contactor is not energized.
- d After the bypass probe (B5) is satisfied then the hot air heat circuit is energized to increase the cabinet temperature to the setting.
- 220 VAC is sent from terminal 3 of connector X12 on the Control Board (A10) through the normally closed auxiliary contacts of K2 and K1 to the coil of Contactor K4 until the cabinet reaches the set temperature.
 - ◊ The contactor K4 closes and two legs of the 220 VAC is sent to the 18 KW element (E4)
 - ◊ The normally closed auxiliary contact of K4 opens preventing the Steam Contactor K1 from energizing
 - 220 VAC is sent from terminal 7 of connector X11 on the Control Board (A10) to the coil of Contactor K44 until the cabinet reaches the set temperature.
 - ◊ The contactor K44 closes and the third leg of 220 VAC is sent to the 18 KW element (E4)
 - ◊ If the reduced power option is chosen then the K44 Contactor is not energized.

- e When the condensate box is heated to 140 degrees F at the B3probe, 220 VAC is sent from terminal 5 of connector X12 to the condenser valve (Y1) until the temperature drops.
- f When the timer counts to 0 or the core temp probe (B10) reaches the set amount the cycle ends and the steam generator reverts to the standby temperature of 190-degree F.

PARTS LIST

LABEL	DESCRIPTION	PART_NO.	LOCATION	LABEL	DESCRIPTION	PART_NO.	LOCATION
-A10	CONTROL BOARD (SM 5010)	C5019100	6	-K41	CONTACTOR, 50A (HOT AIR)	C4011013	3.E2
-A11	OPERATION BOARD (BM 5010)	C5019101	6	-K42	FILTER (RC)	C4011004	
-A12	PICTO MODULE (OPTION)	C5019105	6.B1	-K50	CONTACTOR, 50A (HOT AIR)	C4011013	3.E3
-A13	I.D. MODULE	C5019102	6.D4		FILTER (RC)	C4011004	
-B1	WATER LEVEL PROBE	C5019003	6.A4	-K55.1	CONTACTOR, 25A (FAN LEFT)	C4011000	4.E5
-B3	CONDENSOR PROBE	C5016007	6.A4		FILTER (RC)	C4011004	
-B4	STEAM GEN PROBE	C5016007	6.A3	-K55.2	CONTACTOR, 25A (FAN FAST)	C4011000	4.E5
-B5	BYPASS PROBE	C5016007	6.A4		FILTER (RC)	C4011004	
-B6	OVEN PROBE	C5016006	6.A4	-K56	CONTACTOR, 25A (FAN FAST)	C4011000	4.E7
-B7.1	OVEN HI-TEMP THERMOSTAT	C5001041	3.D8		FILTER (RC)	C4011004	
-B7.2	GEN. HI-TEMP THERMOSTAT	1089952	3.B8	-K57	CONTACTOR, 25A (FAN FAST)	C4011000	4.E6
-B8	GEN. HI-TEMP PROBE	C5016004	6.A3		FILTER (RC)	C4011004	
-B10	CORE TEMP. PROBE (KTM CTC)	C5013001	6.A4	-K61	CONTACTOR, 25A (FAN SLOW)	C4011000	4.E7
-B11	ELEC. BOX THERMOSTAT (62°C)	300454	4.B4		FILTER (RC)	C4011004	
-E1	GEN. HEATING ELEMENT, 12.54KW	C5017014	2.C3	-K62	CONTACTOR, 50A (HOT AIR)	C4011013	3.E5
-E2	GEN. HEATING ELEMENT, 12.54KW	C5017014	2.C4		FILTER (RC)	C4011004	
-E3	GEN HEATING ELEMENT, 12.54KW	C5017014	2.C6		CONTACTOR, 50A (HOT AIR)	C4011013	3.E6
-E41	OVEN HEATING ELEMENT, 15.75KW	C5017017	3.C2		FILTER (RC)	C4011004	
-E42	OVEN HEATING ELEMENT, 15.75KW E41 (OUTER) E42 (INNER)		3.C3	-M1,-M2	MOTOR, CONVECTION FAN	C5018005	5.E3, 5.E7
-E61	OVEN HEATING ELEMENT, 15.75KW	C5017017	3.C5	-M3.1,-M3.2	COOLING FAN	C5018023	6.E1, 6.E1
-E62	OVEN HEATING ELEMENT, 15.75KW E61 (OUTER) E62 (INNER)		3.C6	-M4	PUMP, GEN., 230VAC	300507	6.E6
-F1.1,-F1.2	FUSE, 2A	300416	4.A3,2.D2	-Q56.1,-Q56.2	MOTOR STARTER, 4-6.3A	300425	5.D4,5.D6
-F2.1	FUSE, 1A	300418	6.E3		AUX. CONTACTS	300477	
-F10	FUSE, 25A	300444	5.B2	-Q57.1,Q57.2	MOTOR STARTER, 1.6-2.5A	300426	5.C2,5C6
-F11,-F12,-F13	FUSE, CUBE, 50A	300475	2.B3,2.B4,2.B5		AUX. CONTACTS	300477	
	SOCKET, FUSE	300476		-S1	SWITCH, CONTROL POWER	300358	4.A2
-F14,-F15,-F16,-F17	FUSE, CUBE, 60A	300475	3.B2,3.B3,3.B5,3.B6	-S2	PRESSURE SWITCH	C5009055	6.A5
	SOCKET, FUSE	300476		-S7	DOOR SWITCH	C5003075	6.A6
-G1	POWER SUPPLY, 12VDC	300350	4.C2	-W1	CABLE, 9 PIN COM.	300533	6.C3
-H5.1,H5.2	OVEN LAMP, 230VAC	C5005045	6.E3,6.E2	-Y1	VALVE, CONDENSER, 240VAC NOISE FILTER (RC)	300362	6.E3
-K0	CONTACTOR, 250A (SAFETY)	C4011009	3.E8	-Y10	VALVE ASSY, 2 WAY, 240VAC(W/O CLEANING OPTION)	300457	6.E4
	FILTER (RC)	300428			-Y2 VALVE, DEHUMID.	-	6.E4
-K1	CONTACTOR, 32A (STEAM)	C4011001	2.E3		-Y3 VALVE, GEN. FILL	-	6.E5
	FILTER (RC)	C4011004			NOISE FILTER (RC)	300407	6.E
-K2	CONTACTOR, 32A (STEAM)	C4011001	2.E4		VALVE ASSY, 3 WAY, 240VAC(CLEANING OPTION)	300453	6.E4
	FILTER (RC)	C4011004			-Y2 VALVE, DEHUMID.	-	6.E4
-K3	CONTACTOR, 32A (STEAM)	C4011001	2.E5		-Y3 VALVE, GEN. FILL	-	6.E5
	FILTER (RC)	C4011004			-Y21 VALVE, CLEAN/RINSE	-	6.E6
-K5	CONTACTOR, 25A (FAN LEFT)	C4011000	4.D4	-Y20	PUMP, RINSING AGENT, 230VAC(CLEANING OPTION)	C5008011	6.E7
	FILTER (RC)	C4011004		-Y22	PUMP, CLEANING AGENT, 230VAC(CLEANING OPTION)	C5008011	6.E8
-K10,-K11	RELAY, DPDT 240VAC	300470	4.B5	-Y23	PUMP, CLEANING AGENT, 230VAC(CLEANING OPTION)	C5008011	6.E8
	SOCKET, RELAY	300473					

CONNECTION NUMBERING EXAMPLE



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TITLE
WIRING DIAGRAM
OEB 20.20

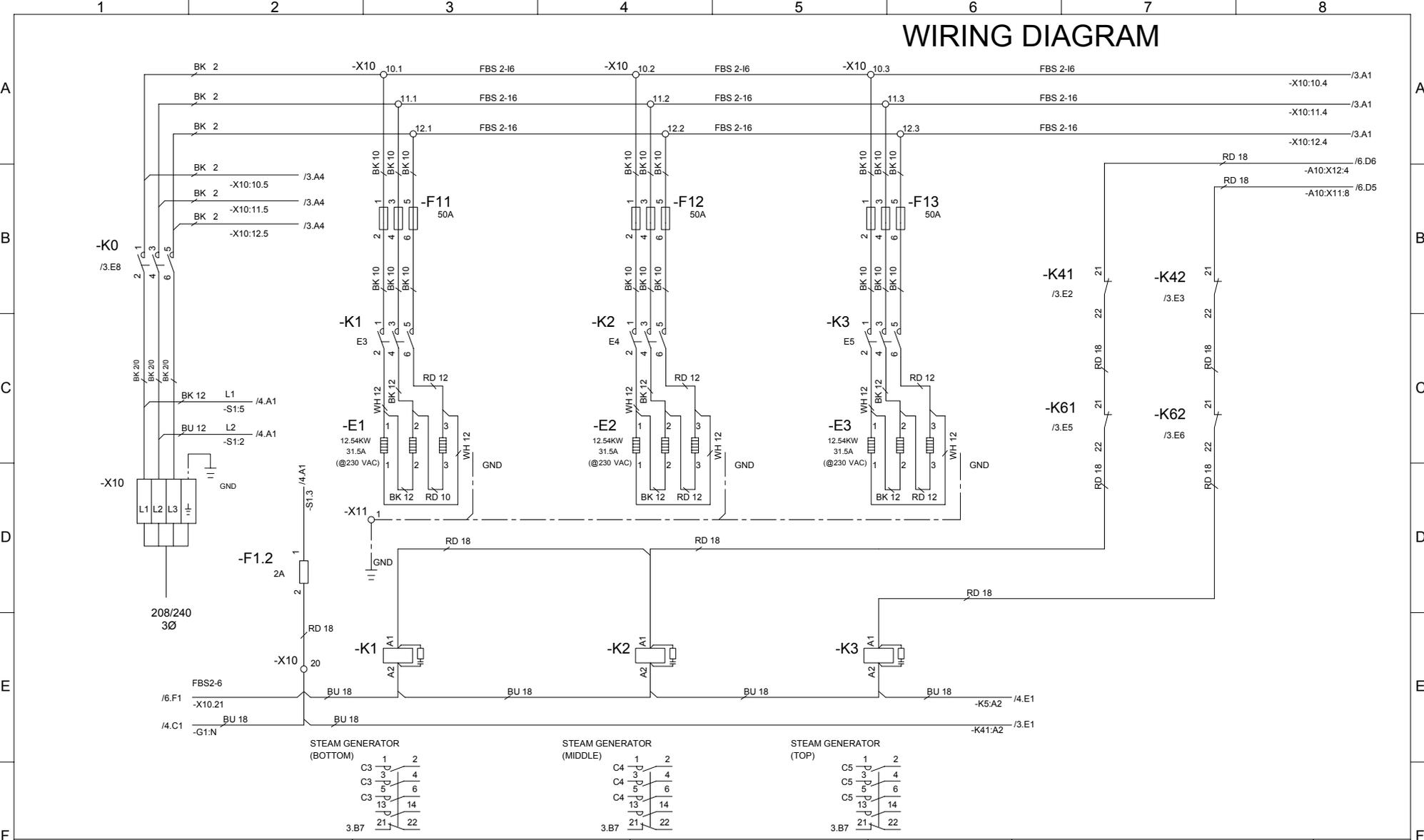
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DRAWN BY: **DRL**
DATE: 11-21-05

DRAWING NO.: 300495
SIZE: **B**
SHEET 1 OF 8

REV
A

WIRING DIAGRAM



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DRL

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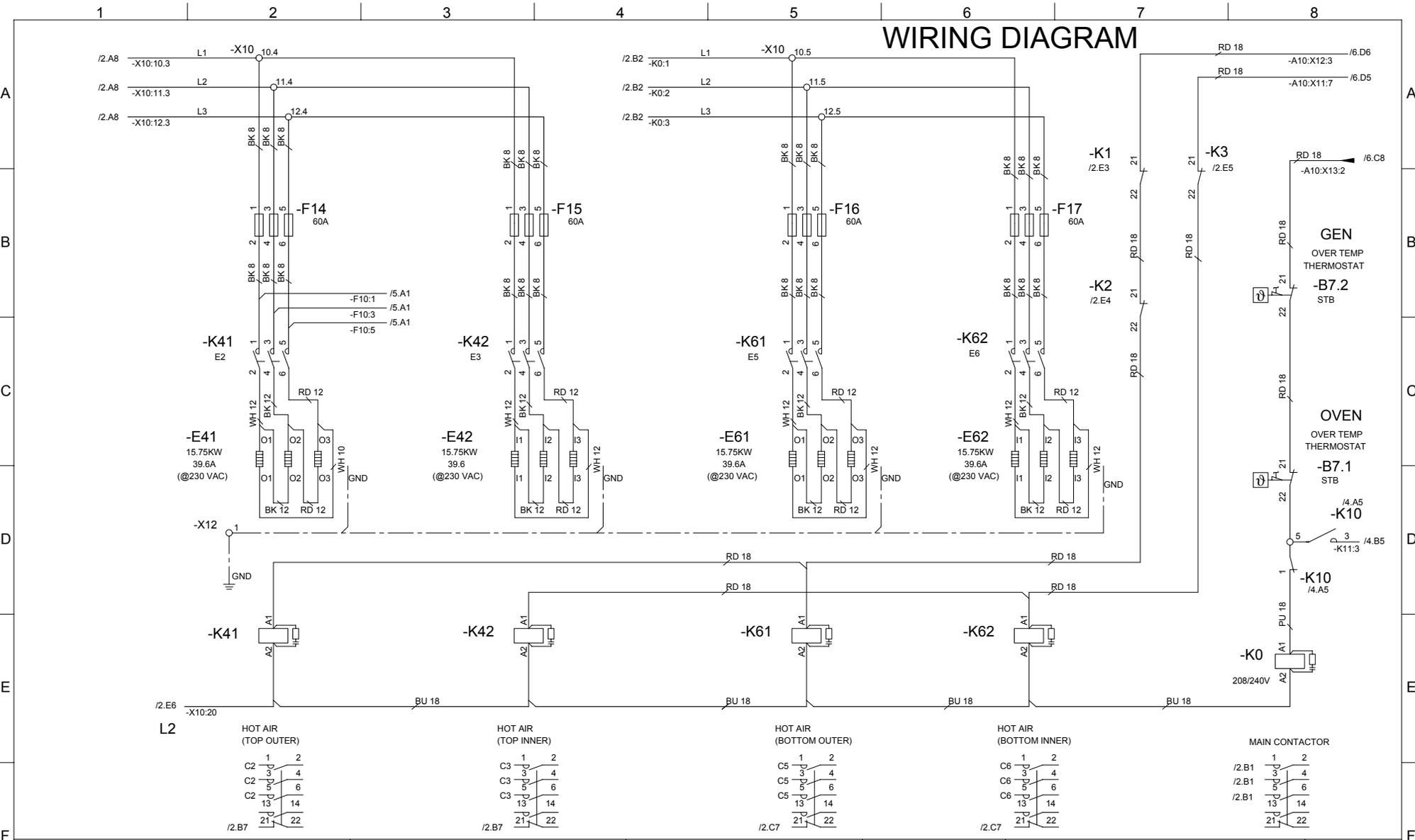
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SIZE
B

SHEET 2 OF 8

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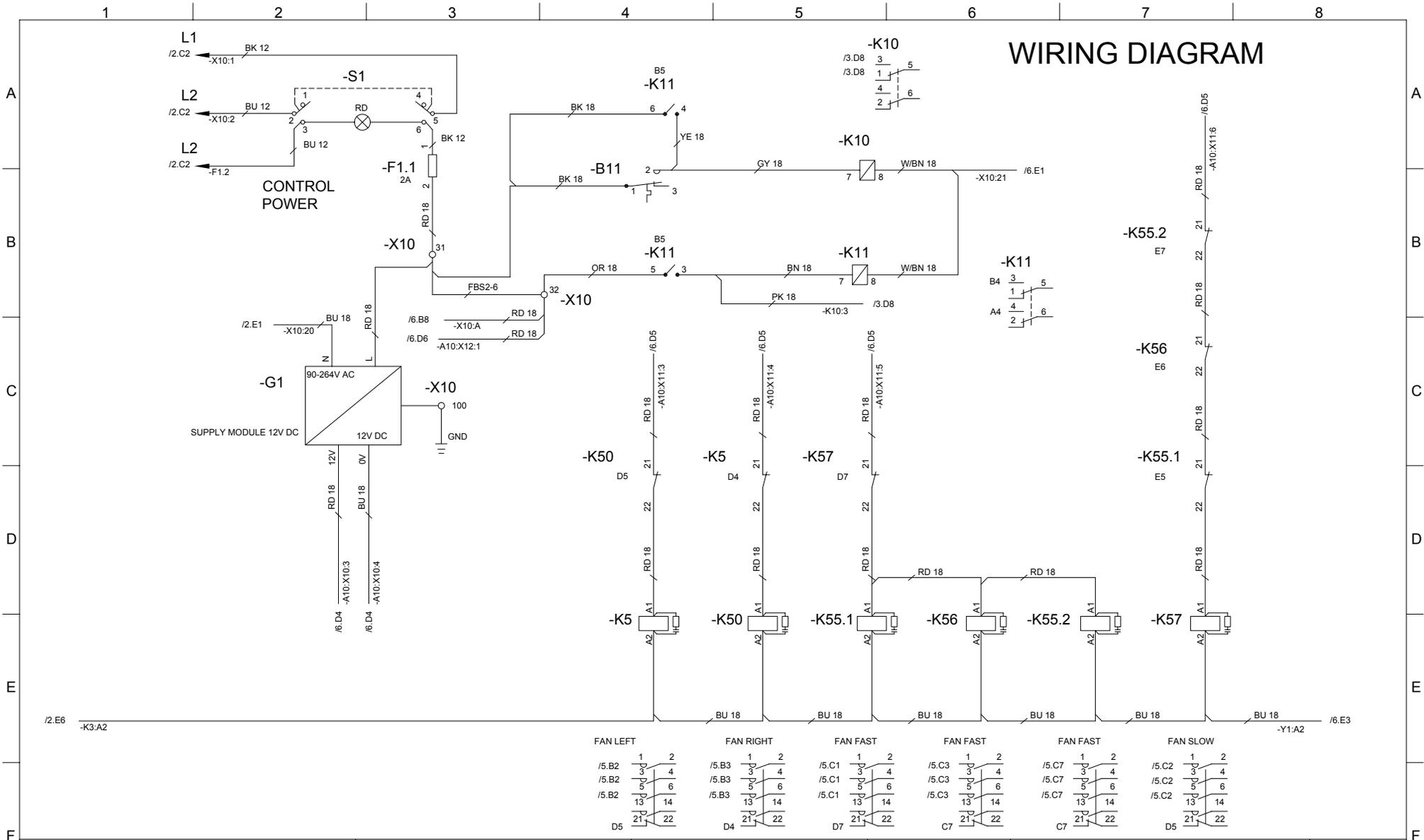
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 OEB 20.20

VOLTAGE: 3Ø 208-240
 WATTAGE: -
 CURRENT: 154.6-176.6A

DRAWN BY
 DRL
 DATE
 11-21-05

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 300495
 SIZE
 B
 SHEET 3 OF 8

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WIRING DIAGRAM
OEB 20.20

VOLTAGE: 3Ø 208-240
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DRL

DATE
11-21-05

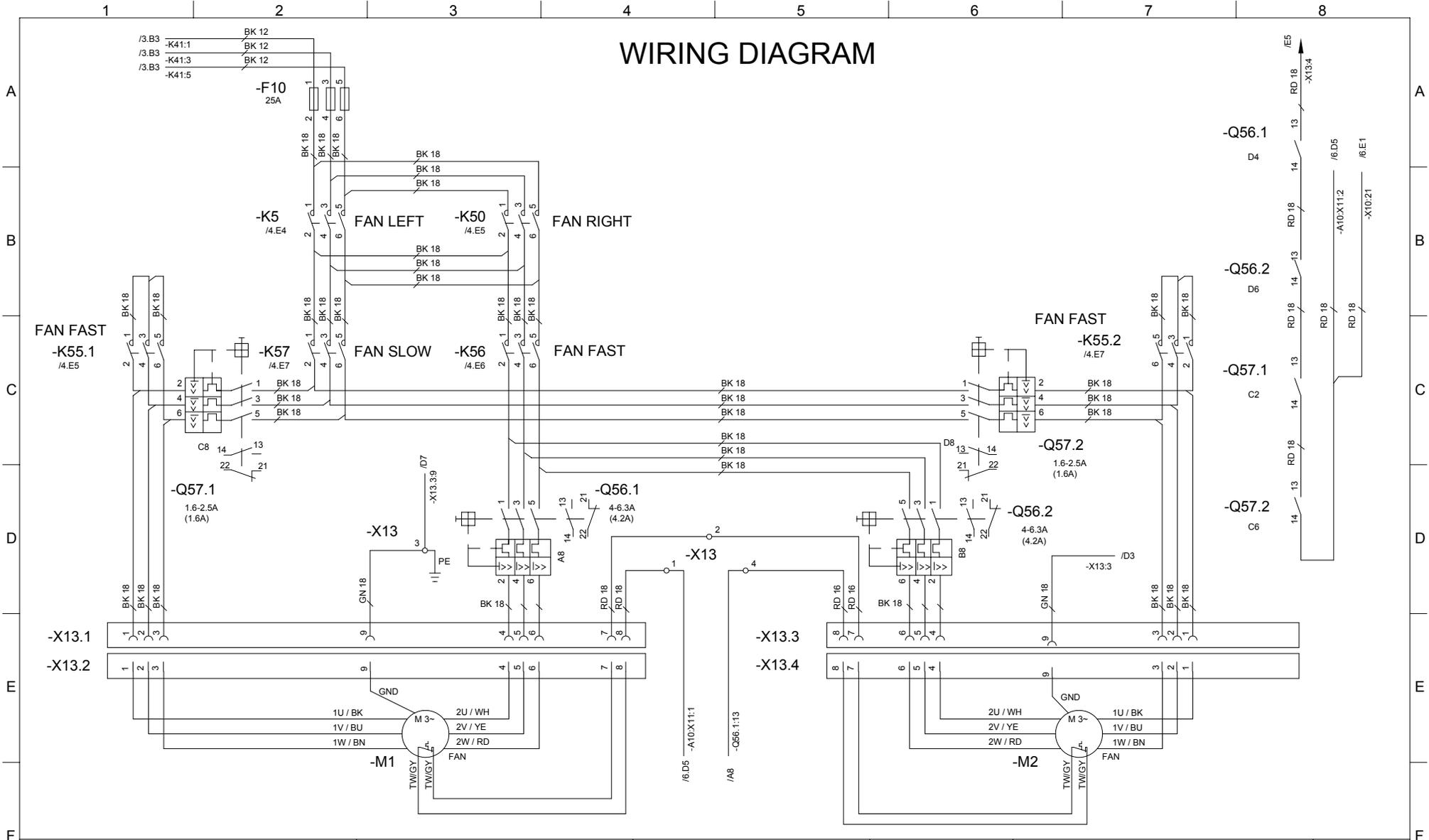
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SIZE
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SHEET 4 OF 8

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WIRING DIAGRAM



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WIRING DIAGRAM
OEB 20.20

VOLTAGE: 3Ø-208-240
WATTAGE: -
CURRENT: 154.6-176.6A

DRAWN BY
DRL

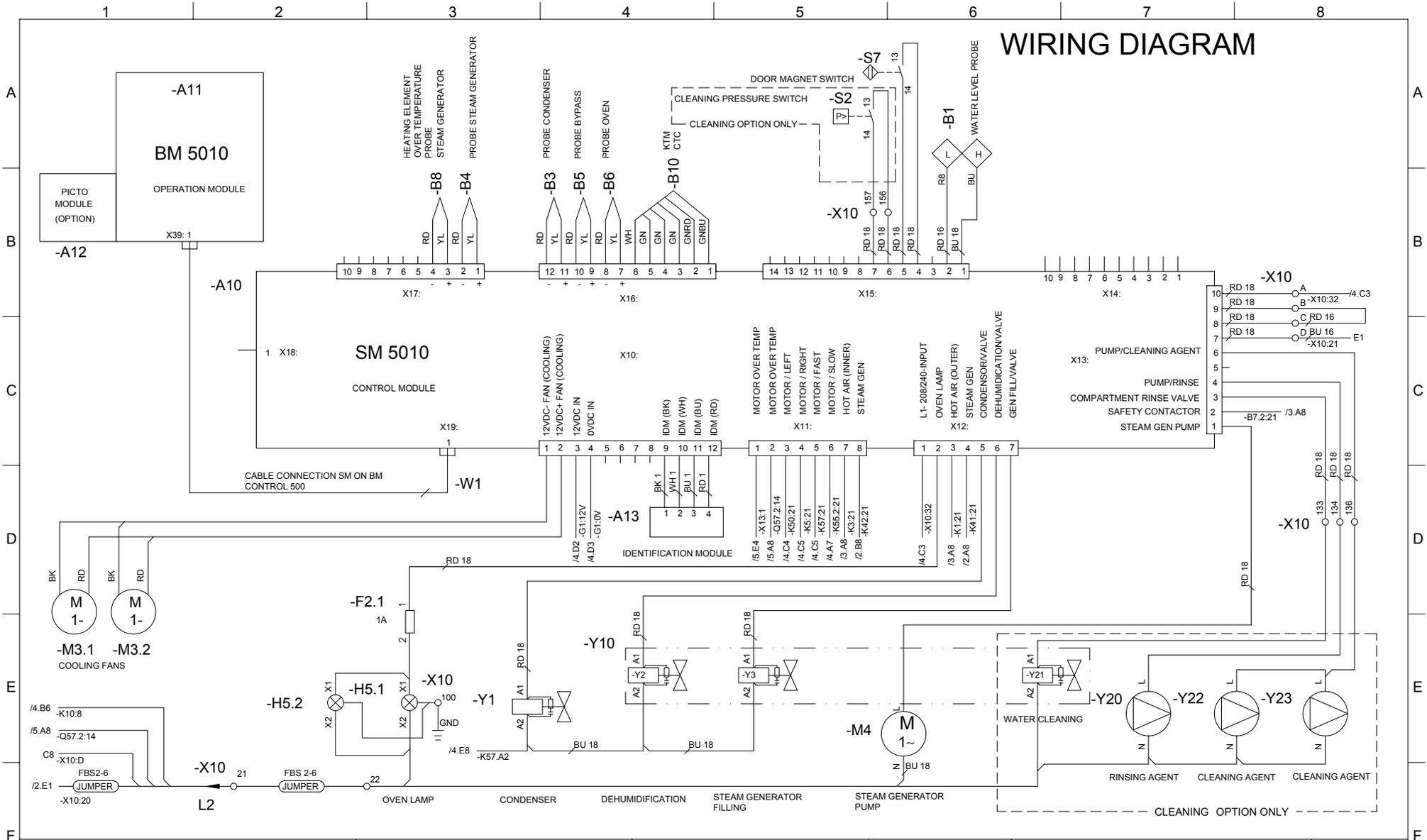
DATE
11-21-05

DRAWING NO.
300495

SIZE
B SHEET 5 OF 8

REV
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WIRING DIAGRAM



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CLEVELAND RANGE, LLC
1333 East 179th St., Cleveland, Ohio 44110-2574

TITLE

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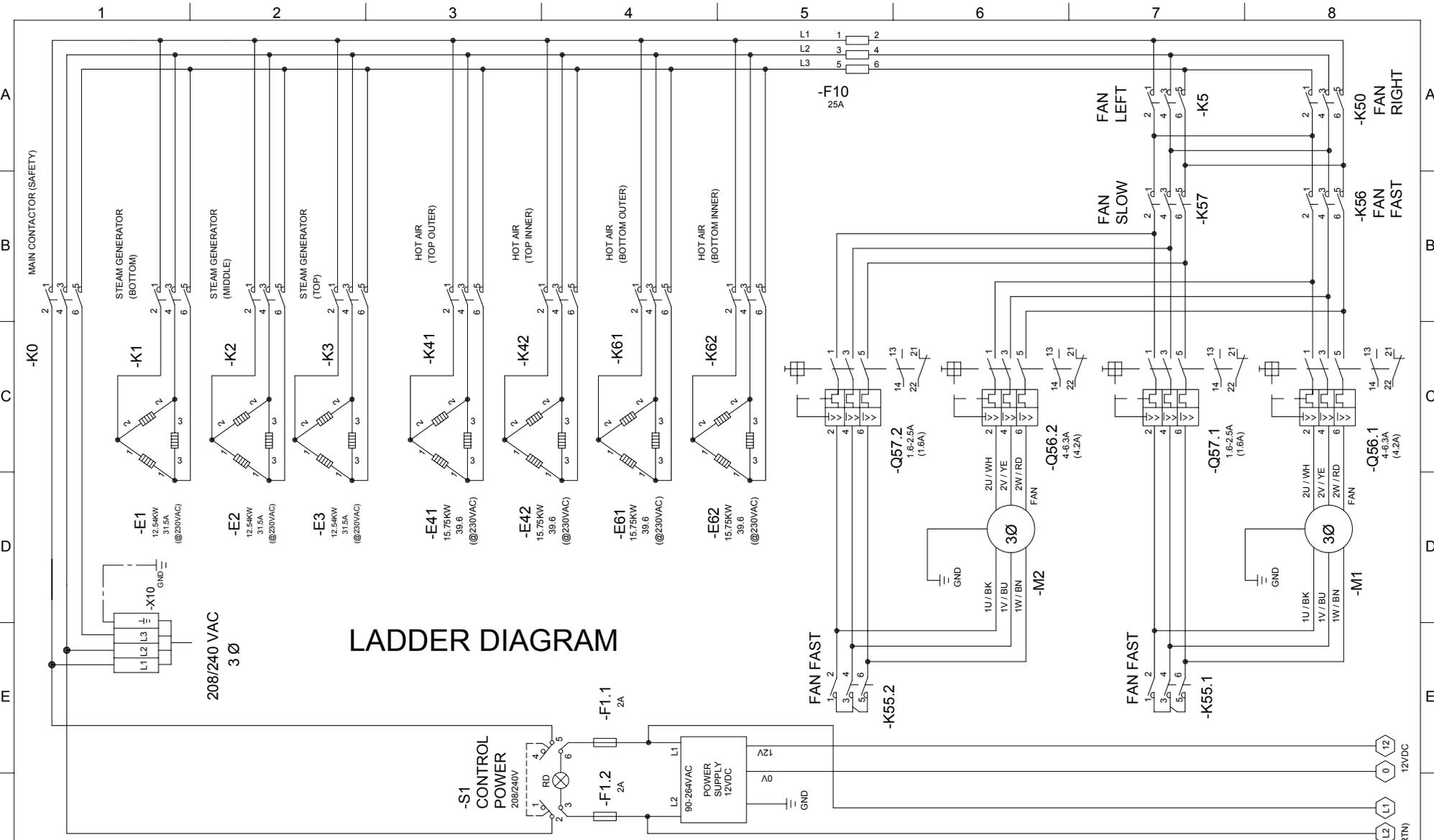
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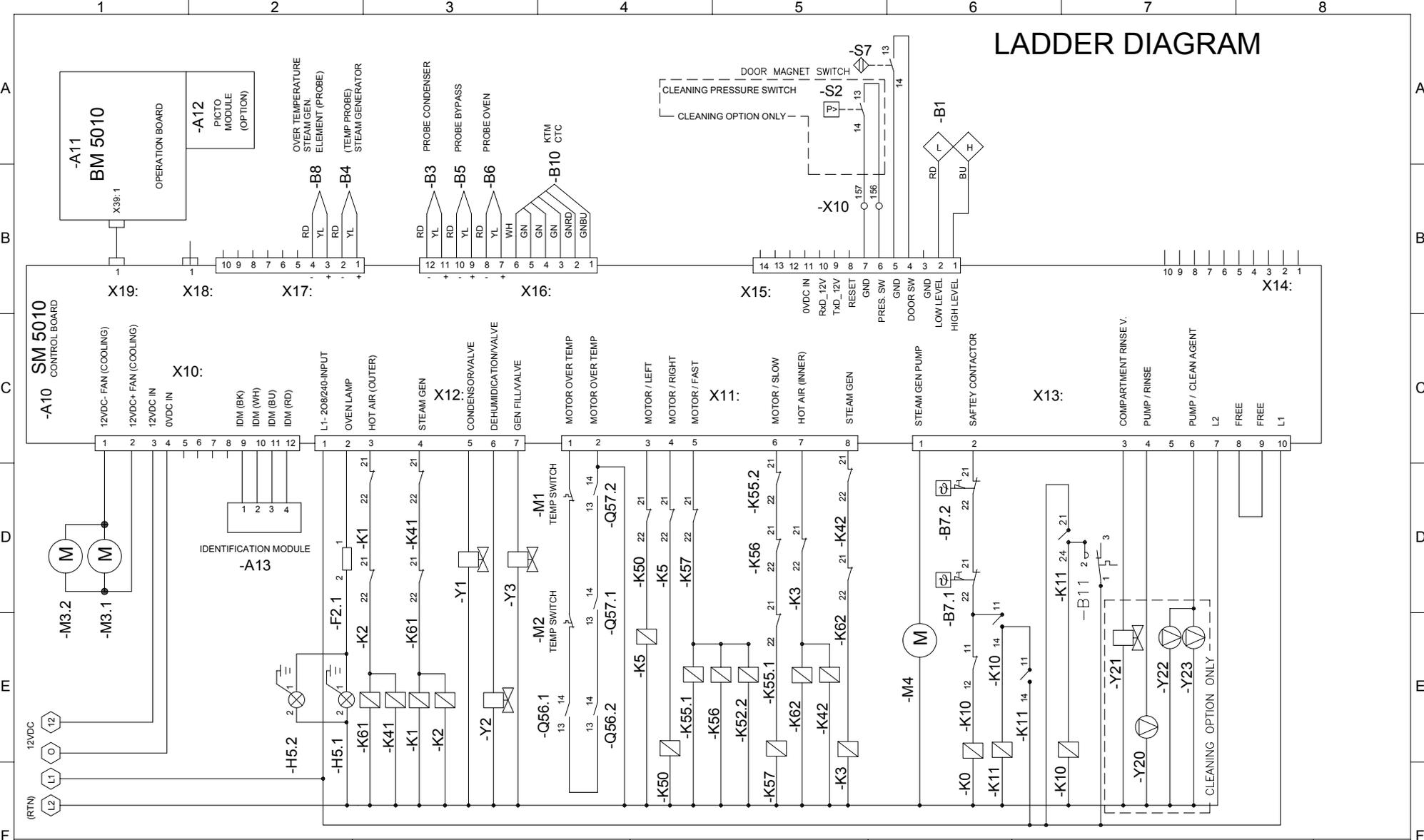
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SHEET 7 OF 8

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LADDER DIAGRAM



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CLEVELAND RANGE OES 20.20 SEQUENCE OF OPERATIONS

When using these instructions refer to the OES 20.20 wiring schematic.

- 1 When incoming power (220 VAC) is connected to the combi, 220 VAC is sent to
 - a The contacts 2,4 and 6 of the Safety Contactor (KO)
 - b The terminals 2 and 5 of the Control Power Switch (S1)
- 2 When the Control Power Switch (S1) is turned on (closed)
 - a The red light on the switch is energized.
 - b Incoming power (220 VAC) is sent through the 2A fuses (F1.1 and F1.2) to
 - The 12 vdc power supply (G1)
 - ◇ 12vdc is sent to terminals 3 and 4 of the connector X10 on the Control Board (A10)
 - Terminal 1 of connector X12 on the Control Board (A10)
 - Terminal 10 of connector X13 on the Control Board (A10)
 - The return of the Supply is sent to terminal 7 of connector X13 on the Control Board (A10)
 - c With 220 VAC to the Control Board (A10) The Operation Board (A11) is energized
 - An alarm will sound for one second
 - All the LED's and the display will energize one at a time.
 - "STARTING" will be displayed for 3 seconds
 - "please wait" will be displayed
 - The international model number will be displayed
 - The time and date will be displayed and this will continue until the on/off switch is depressed.
- 3 When the ON/OFF is depressed with the combi in the steam mode with time on the timer, the door closed and the start switch is depressed
 - a The front display will include a lighted bar under the steam symbol
 - When the heat circuit is energized the heat symbol will be energized
 - The cooking mode symbol will be energized.
 - The time display will invert and begin to count down.
 - b The fan circuit is energized
 - If the combi fan is in the normal setting 220 VAC is sent from terminal 5 on connector X11 through the normally closed auxiliary contacts of contactor K57 to the coils of contactor K56 and contactors K55.1 for the upper motor and K55.2 for the lower motor
 - ◇ The K56 contactor closes sending 220 VAC through the Q56.1 overload to the motors.
 - ◇ The K55.1 contactor closes completing the high speed circuit to the upper motor and the upper motor turns at a high speed.
 - ◇ The K55.2 contactor closes completing the high speed circuit to the lower motor and the lower motor turns at a high speed

- ◇ The normally closed auxiliary contacts of K55.1, K55.2 and K56 open preventing the K57 contactor from energizing.
- If the combi fan is in the reduced setting 220 VAC is sent from terminal 6 on connector X11 through the normally closed auxiliary contacts of contactors K55.1, K55.2 and K56 to the coil of contactor K57
 - ◇ The K57 contactor closes
 - (a) 220 VAC is sent through the Q57.1 thermal overload to the motor and the upper motor turns at a reduced speed.
 - (b) 220 VAC is sent through the Q57.2 thermal overload to the motor and the lower motor turns at a reduced speed.
 - ◇ The normally closed auxiliary contacts of K57 open preventing the K55 and K56 contactors from energizing.
- For the first 2 minutes 220 VAC is sent from terminal 4 on connector X11 through the normally closed auxiliary contacts of contactor K5 to the K50 contactor coil
 - ◇ K50 contactor closes and the motor turns CW
 - ◇ The normally closed auxiliary contacts on K50 open preventing the K5 contactor from energizing.
- For 15 seconds the motor is de-energized and allowed to coast.
- For the next 2 minutes 220 VAC is sent from terminal 3 on connector X11 through the normally closed auxiliary contacts of contactor K50 to the K5 contactor coil
 - ◇ K5 contactor closes and the motor turns CCW
 - ◇ The normally closed auxiliary contacts on K5 open preventing the K50 contactor from energizing.
- **NOTE:** If the door switch (S7) opens by the door opening, then the fan circuit is de-energized. Then the motor will be pulsed in the opposite direction to “break” the fan. This is to stop the fan quicker for the operator.
- c The hot air heat circuit is energized
 - 220 VAC is sent from terminal 3 of connector X12 on the Control Board (A10) to the coil of Contactors K41 and K61 until the cabinet reaches the set temperature as sensed at probe B6.
 - ◇ The Contactors K41 and K61 close and the 220 VAC is sent to the outer elements (E41 and E61)
 - 220 VAC is sent from terminal 7 of connector X11 on the Control Board (A10) to the coil of Contactors K42 and K62 until the cabinet reaches the set temperature as sensed at probe B6.
 - ◇ The Contactors K42 and K62 close and 220 VAC is sent to the inner elements (E42 and E62)
 - ◇ If the reduced power option is chosen then Contactors K42 and K62 are not energized.
- d The steam circuit is energized
 - 220 VAC is sent from terminal 4 of connector X12 on the Control Board (A10) to the coil of the Y3 solenoid allowing water to be thrown against the element until the bypass probe (B5) senses 183 degrees F.

- e When the condensate box is heated to 140 degrees F at the B3 probe, 220 VAC is sent from terminal 5 of connector X12 to the condenser valve (Y1) until the temperature drops.
 - f When the timer counts to 0 or the core temp probe (B10) reaches the set amount the cycle ends.
- 4 With the combi in the Hot Air mode with time on the timer, the door closed and the start switch is depressed
- a The front display will include a lighted bar under the Hot Air symbol
 - When the heat circuit is energized the heat symbol will be energized
 - The cooking mode symbol will be energized.
 - The time display will invert and begin to count down.
 - b The fan circuit is energized
 - **NOTE:** If the temperature is less than 212 degrees F than fan will be pulsed on for 2 seconds every 60 seconds after the cabinet set temp (B6)
 - If the combi fan is in the normal setting 220 VAC is sent from terminal 5 on connector X11 through the normally closed auxiliary contacts of contactor K57 to the coils of contactor K56 and contactors K55.1 for the upper motor and K55.2 for the lower motor
 - ◇ The K56 contactor closes sending 220 VAC through the Q56.1 overload to the motors.
 - ◇ The K55.1 contactor closes completing the high speed circuit to the upper motor and the upper motor turns at a high speed.
 - ◇ The K55.2 contactor closes completing the high speed circuit to the lower motor and the lower motor turns at a high speed
 - ◇ The normally closed auxiliary contacts of K55.1, K55.2 and K56 open preventing the K57 contactor from energizing.
 - If the combi fan is in the reduced setting 220 VAC is sent from terminal 6 on connector X11 through the normally closed auxiliary contacts of contactors K55.1, K55.2 and K56 to the coil of contactor K57
 - ◇ The K57 contactor closes
 - (a) 220 VAC is sent through the Q57.1 thermal overload to the motor and the upper motor turns at a reduced speed.
 - (b) 220 VAC is sent through the Q57.2 thermal overload to the motor and the lower motor turns at a reduced speed.
 - ◇ The normally closed auxiliary contacts of K57 open preventing the K55 and K56 contactors from energizing.
 - For the first 2 minutes 220 VAC is sent from terminal 4 on connector X11 through the normally closed auxiliary contacts of contactor K5 to the K50 contactor coil
 - ◇ K50 contactor closes and the motor turns CW
 - ◇ The normally closed auxiliary contacts on K50 open preventing the K5 contactor from energizing.
 - For 15 seconds the motor is de-energized and allowed to coast.

- For the next 2 minutes 220 VAC is sent from terminal 3 on connector X11 through the normally closed auxiliary contacts of contactor K50 to the K5 contactor coil
 - ◊ K5 contactor closes and the motor turns CCW
 - ◊ The normally closed auxiliary contacts on K5 open preventing the K50 contactor from energizing.
 - **NOTE:** If the door switch (S7) opens by the door opening, then the fan circuit is de-energized. Then the motor will be pulsed in the opposite direction to “break” the fan. This is to stop the fan quicker for the operator.
- c The hot air heat circuit is energized
- 220 VAC is sent from terminal 3 of connector X12 on the Control Board (A10) to the coil of Contactors K41 and K61 until the cabinet reaches the set temperature as sensed at probe B6.
 - ◊ The Contactors K41 and K61 close and the 220 VAC is sent to the outer elements (E41 and E61)
 - 220 VAC is sent from terminal 7 of connector X11 on the Control Board (A10) to the coil of Contactors K42 and K62 until the cabinet reaches the set temperature as sensed at probe B6.
 - ◊ The Contactors K42 and K62 close and 220 VAC is sent to the inner elements (E42 and E62)
 - ◊ If the reduced power option is chosen then Contactors K42 and K62 are not energized.
- d When the condensate box is heated to 140 degrees F at the B3 probe, 220 VAC is sent from terminal 5 of connector X12 to the condenser valve (Y1) until the temperature drops.
- e If the “Crisp and Tasty” mode is selected
- 220 VAC is sent from terminal 6 of connector X12 on the Control Board (A10) to the Dehumidification Valve (Y2) to pull the humidity out of the cabinet down the drain.
 - ◊ In the light and medium modes (one and two drops in the display) the Y2 valve will be energized until the bypass probe (B5) is satisfied.
 - ◊ In the full mode (3 drops in the display) the Y2 valve will be energized continuously.
- f When the timer counts to 0 or the core temp probe (B10) reaches the set amount the cycle ends
- 5 With the combi in the Combi mode with time on the timer, the door closed and the start switch is depressed
- a The front display will include a lighted bar under the combi symbol
- When the heat circuit is energized the heat symbol will be energized
 - The cooking mode symbol will be energized.
 - The time display will invert and begin to count down.
- b The fan circuit is energized
- If the combi fan is in the normal setting 220 VAC is sent from terminal 5 on connector X11 through the normally closed auxiliary contacts of contactor

K57 to the coils of contactor K56 and contactors K55.1 for the upper motor and K55.2 for the lower motor

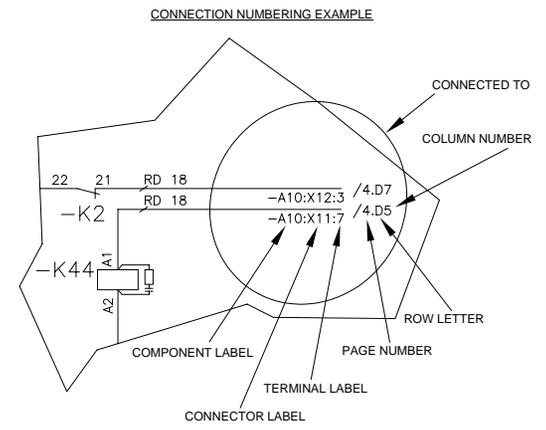
- ◇ The K56 contactor closes sending 220 VAC through the Q56.1 overload to the motors.
 - ◇ The K55.1 contactor closes completing the high speed circuit to the upper motor and the upper motor turns at a high speed.
 - ◇ The K55.2 contactor closes completing the high speed circuit to the lower motor and the lower motor turns at a high speed
 - ◇ The normally closed auxiliary contacts of K55.1, K55.2 and K56 open preventing the K57 contactor from energizing.
 - If the combi fan is in the reduced setting 220 VAC is sent from terminal 6 on connector X11 through the normally closed auxiliary contacts of contactors K55.1, K55.2 and K56 to the coil of contactor K57
 - ◇ The K57 contactor closes
 - (a) 220 VAC is sent through the Q57.1 thermal overload to the motor and the upper motor turns at a reduced speed.
 - (b) 220 VAC is sent through the Q57.2 thermal overload to the motor and the lower motor turns at a reduced speed.
 - ◇ The normally closed auxiliary contacts of K57 open preventing the K55 and K56 contactors from energizing.
 - For the first 2 minutes 220 VAC is sent from terminal 4 on connector X11 through the normally closed auxiliary contacts of contactor K5 to the K50 contactor coil
 - ◇ K50 contactor closes and the motor turns CW
 - ◇ The normally closed auxiliary contacts on K50 open preventing the K5 contactor from energizing.
 - For 15 seconds the motor is de-energized and allowed to coast.
 - For the next 2 minutes 220 VAC is sent from terminal 3 on connector X11 through the normally closed auxiliary contacts of contactor K50 to the K5 contactor coil
 - ◇ K5 contactor closes and the motor turns CCW
 - ◇ The normally closed auxiliary contacts on K5 open preventing the K50 contactor from energizing.
 - **NOTE:** If the door switch (S7) opens by the door opening, then the fan circuit is de-energized. Then the motor will be pulsed in the opposite direction to “break” the fan. This is to stop the fan quicker for the operator.
- c The hot air heat circuit is energized
- 220 VAC is sent from terminal 3 of connector X12 on the Control Board (A10) to the coil of Contactors K41 and K61 until the cabinet reaches the set temperature as sensed at probe B6.
 - ◇ The Contactors K41 and K61 close and the 220 VAC is sent to the outer elements (E41 and E61)
 - 220 VAC is sent from terminal 7 of connector X11 on the Control Board (A10) to the coil of Contactors K42 and K62 until the cabinet reaches the set temperature as sensed at probe B6.

- ◇ The Contactors K42 and K62 close and 220 VAC is sent to the inner elements (E42 and E62)
- ◇ If the reduced power option is chosen then Contactors K42 and K62 are not energized.
- d The steam circuit is energized
 - 220 VAC is sent from terminal 4 of connector X12 on the Control Board (A10) to the coil of the Y3 solenoid allowing water to be thrown against the element until the bypass probe (B5) senses 183 degrees F.
- e When the condensate box is heated to 140 degrees F at the B3 probe, 220 VAC is sent from terminal 5 of connector X12 to the condenser valve (Y1) until the temperature drops.
- f When the timer counts to 0 or the core temp probe (B10) reaches the set amount the cycle ends.
- g If the “Crisp and Tasty” mode is selected
 - 220 VAC is sent from terminal 6 of connector X12 on the Control Board (A10) to the Dehumidification Valve (Y2) to pull the humidity out of the cabinet down the drain.
 - ◇ In the light and medium modes (one and two drops in the display) the Y2 valve will be energized until the bypass probe (B5) is satisfied.
 - ◇ In the full mode (3 drops in the display) the Y2 valve will be energized continuously.
- h When the timer counts to 0 or the core temp probe (B10) reaches the set amount the cycle ends.
- 6 With the combi in the Rethermalization mode with time on the timer, the door closed and the start switch is depressed
 - a The front display will include a lighted bar under the Rethermalization symbol
 - When the heat circuit is energized the heat symbol will be energized
 - The cooking mode symbol will be energized.
 - The time display will invert and begin to count down.
 - b The fan circuit is energized
 - If the combi fan is in the normal setting 220 VAC is sent from terminal 5 on connector X11 through the normally closed auxiliary contacts of contactor K57 to the coils of contactor K56 and contactors K55.1 for the upper motor and K55.2 for the lower motor
 - ◇ The K56 contactor closes sending 220 VAC through the Q56.1 overload to the motors.
 - ◇ The K55.1 contactor closes completing the high speed circuit to the upper motor and the upper motor turns at a high speed.
 - ◇ The K55.2 contactor closes completing the high speed circuit to the lower motor and the lower motor turns at a high speed
 - ◇ The normally closed auxiliary contacts of K55.1, K55.2 and K56 open preventing the K57 contactor from energizing.
 - If the combi fan is in the reduced setting 220 VAC is sent from terminal 6 on connector X11 through the normally closed auxiliary contacts of contactors K55.1, K55.2 and K56 to the coil of contactor K57

- ◇ The K57 contactor closes
 - (a) 220 VAC is sent through the Q57.1 thermal overload to the motor and the upper motor turns at a reduced speed.
 - (b) 220 VAC is sent through the Q57.2 thermal overload to the motor and the lower motor turns at a reduced speed.
- ◇ The normally closed auxiliary contacts of K57 open preventing the K55 and K56 contactors from energizing.
- For the first 2 minutes 220 VAC is sent from terminal 4 on connector X11 through the normally closed auxiliary contacts of contactor K5 to the K50 contactor coil
 - ◇ K50 contactor closes and the motor turns CW
 - ◇ The normally closed auxiliary contacts on K50 open preventing the K5 contactor from energizing.
- For 15 seconds the motor is de-energized and allowed to coast.
- For the next 2 minutes 220 VAC is sent from terminal 3 on connector X11 through the normally closed auxiliary contacts of contactor K50 to the K5 contactor coil
 - ◇ K5 contactor closes and the motor turns CCW
 - ◇ The normally closed auxiliary contacts on K5 open preventing the K50 contactor from energizing.
- **NOTE:** If the door switch (S7) opens by the door opening, then the fan circuit is de-energized. Then the motor will be pulsed in the opposite direction to “break” the fan. This is to stop the fan quicker for the operator.
- c The hot air heat circuit is energized
 - 220 VAC is sent from terminal 3 of connector X12 on the Control Board (A10) to the coil of Contactors K41 and K61 until the cabinet reaches the set temperature as sensed at probe B6.
 - ◇ The Contactors K41 and K61 close and the 220 VAC is sent to the outer elements (E41 and E61)
 - 220 VAC is sent from terminal 7 of connector X11 on the Control Board (A10) to the coil of Contactors K42 and K62 until the cabinet reaches the set temperature as sensed at probe B6.
 - ◇ The Contactors K42 and K62 close and 220 VAC is sent to the inner elements (E42 and E62)
 - ◇ If the reduced power option is chosen then Contactors K42 and K62 are not energized.
- d The steam circuit is energized.
 - 220 VAC is sent from terminal 4 of connector X12 on the Control Board (A10) to the coil of the Y3 solenoid allowing water to be thrown against the element until the bypass probe (B5) senses 154 degrees F.
- e When the condensate box is heated to 140 degrees F at the B3probe, 220 VAC is sent from terminal 5 of connector X12 to the condenser valve (Y1) until the temperature drops.

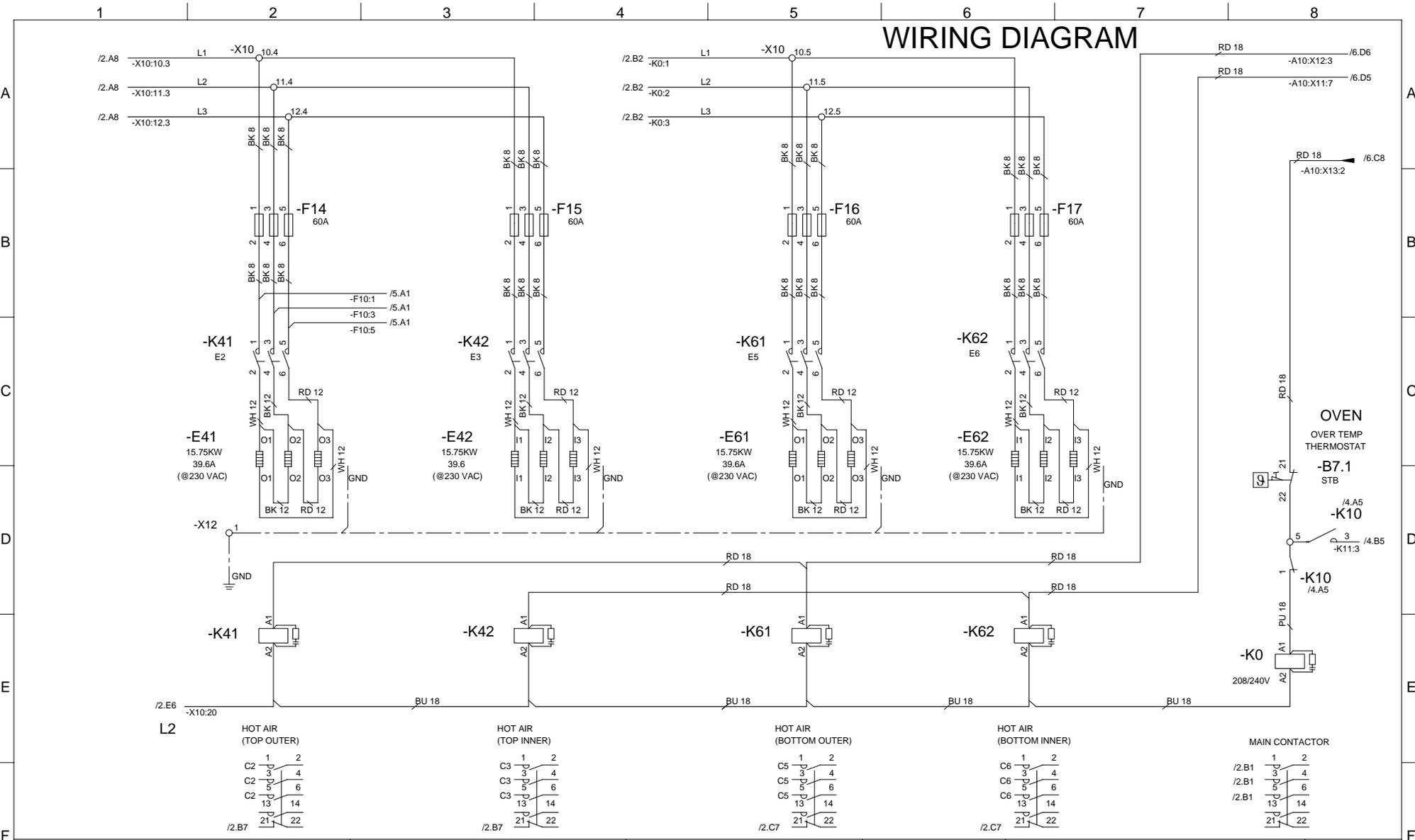
- f When the timer counts to 0 or the core temp probe (B10) reaches the set amount the cycle ends and the steam generator reverts to the standby temperature of 190-degree F.

PARTS LIST								
LABEL	DESCRIPTION	PART NO.	LOCATION	LABEL	DESCRIPTION	PART NO.	LOCATION	
-A10	CONTROL BOARD (SM 5010)	C5019100	6	-K41	CONTACTOR, 50A (HOT AIR)	C4011013	3.E2	
-A11	OPERATION BOARD (BM 5010)	C5019101	6		FILTER (RC)	C4011004		
-A12	PICTO MODULE (OPTION)	C5019105	6.B1	-K42	CONTACTOR, 50A (HOT AIR)	C4011013	3.E3	
-A13	I.D. MODULE	C5019102	6.D4		FILTER (RC)	C4011004		
-B3	CONDENSOR PROBE	C5016007	6.A4	-K50	CONTACTOR, 25A (FAN LEFT)	C4011000	4.E5	
-B5	BYPASS PROBE	C5016007	6.A4		FILTER (RC)	C4011004		
-B6	OVEN PROBE	C5016006	6.A4	-K55.1	CONTACTOR, 25A (FAN FAST)	C4011000	4.E5	
-B7.1	OVEN HI-TEMP THERMOSTAT	C5001041	3.D8		FILTER (RC)	C4011004		
-B10	CORE TEMP. PROBE (KTM CTC)	C5013001	6.A4	-K55.2	CONTACTOR, 25A (FAN FAST)	C4011000	4.E7	
-B11	ELEC. BOX THERMOSTAT (62°C)	300454	4.B4		FILTER (RC)	C4011004		
-E41	OVEN HEATING ELEMENT, 15.75KW	C5017017	3.C2	-K56	CONTACTOR, 25A (FAN FAST)	C4011000	4.E6	
-E42	OVEN HEATING ELEMENT, 15.75KW		3.C3		FILTER (RC)	C4011004		
	E41 (OUTER) E42 (INNER)			-K57	CONTACTOR, 25A (FAN SLOW)	C4011000	4.E7	
-E61	OVEN HEATING ELEMENT, 15.75KW	C5017017	3.C5		FILTER (RC)	C4011004		
-E62	OVEN HEATING ELEMENT, 15.75KW		3.C6		-K61	CONTACTOR, 50A (HOT AIR)	C4011013	3.E5
	E61 (OUTER) E62 (INNER)				FILTER (RC)	C4011004		
-F1.1,-F1.2	FUSE, 2A	300416	4.A3,2.D2	-K62	CONTACTOR, 50A (HOT AIR)	C4011013	3.E6	
-F2.1	FUSE, 1A	300418	6.E3		FILTER (RC)	C4011004		
-F10	FUSE, 25A	300444	5.B2	-M1,-M2	MOTOR, CONVECTION FAN	C5018005	5.E3, 5.E7	
	FUSE, CUBE, 60A	300475	3.B2,3.B3,3.B5,3.B6	-M3.1,-M3.2	COOLING FAN	C5018023	6.E1, 6.E1	
-F14,-F15,-F16,-F17	SOCKET, FUSE	300476		-Q56.1,-Q56.2	MOTOR STARTER, 4-6.3A	300425	5.D4,5.D6	
-G1	POWER SUPPLY, 12VDC	300350	4.C2		AUX. CONTACTS	300477		
-H5.1,H5.2	OVEN LAMP, 230VAC	C5005045	6.E3,6.E2	-Q57.1,Q57.2	MOTOR STARTER, 1.6-2.5A	300426	5.C2,5C6	
-K0	CONTACTOR, 250A (SAFETY)	C4011009	3.E8		AUX. CONTACTS	300477		
	FILTER (RC)	300428		-S1	SWITCH, CONTROL POWER	300358	4.A2	
-K5	CONTACTOR, 25A (FAN LEFT)	C4011000	4.D4	-S2	PRESSURE SWITCH (PUMP)	C5009055	6.A5	
	FILTER (RC)	C4011004		-S3	PRESSURE SWITCH (INJECTION)	C5009063	6.A6	
-K10,-K11	RELAY, DPDT 240VAC	300470	4.B5	-S7	DOOR SWITCH	C5003075	6.A6	
	SOCKET, RELAY	300473		-W1	CABLE, 9 PIN COM.	300533	6.C3	
				-Y1	VALVE, CONDENSER, 240VAC	300362	6.E3	
					NOISE FILTER (RC)	300407	6.E3	
				-Y10	VALVE ASSY, 2 WAY, 240VAC(W/O CLEANING OPTION)	300457	6.E4	
					-Y2 VALVE, DEHUMID.	-	6.E4	
					-Y3 VALVE, GEN. FILL	-	6.E5	
					-Y20	NOISE FILTER (RC)	300407	6.E
					-Y22	VALVE ASSY, 3 WAY, 240VAC(CLEANING OPTION)	300453	6.E4
					-Y2	VALVE, DEHUMID.	-	6.E4
					-Y3	VALVE, GEN. FILL	-	6.E5
					-Y21	VALVE, CLEAN/RINSE	-	6.E6
					NOISE FILTER (RC)	300407	6.E	
					PUMP, RINSING AGENT, 230VAC(CLEANING OPTION)	C5008011	6.E7	
					PUMP, CLEANING AGENT, 230VAC(CLEANING OPTION)	C5008011	6.E8	
					PUMP, CLEANING AGENT, 230VAC(CLEANING OPTION)	C5008011	6.E8	



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			DATE 1-6-06	SIZE B	SHEET 1 OF 8

WIRING DIAGRAM



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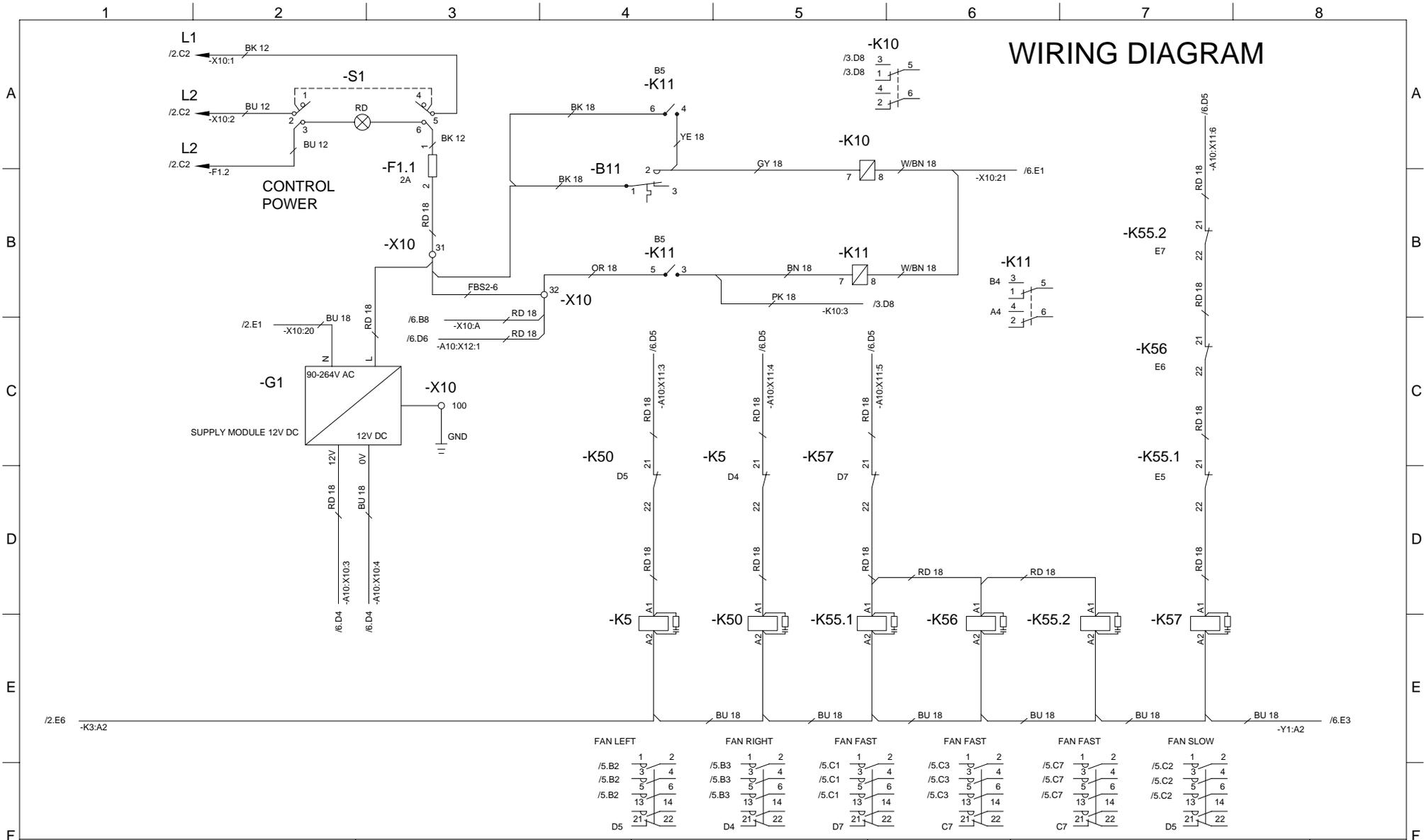
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DATE
1-6-06

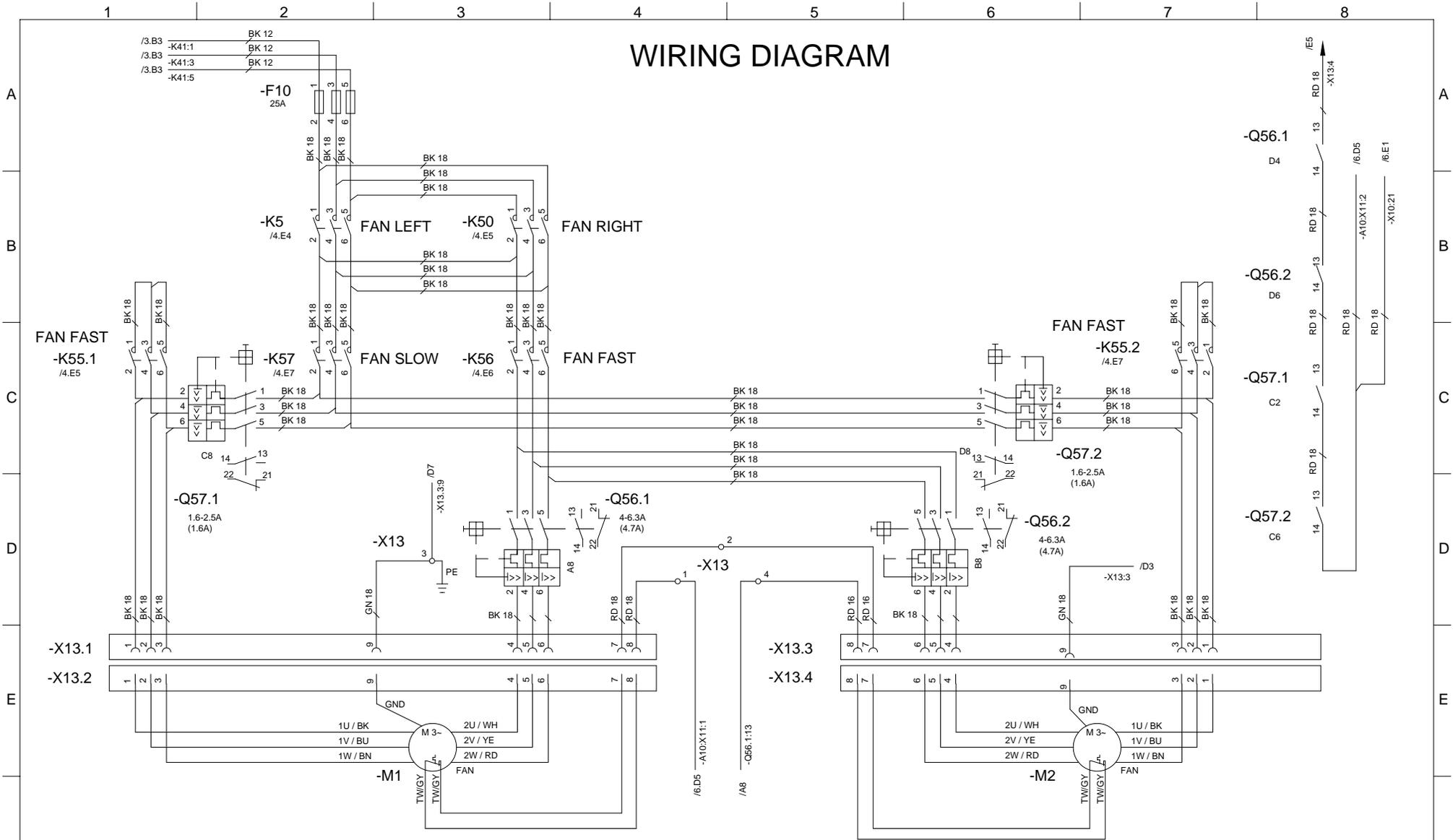
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300496

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SHEET 4 OF 8

REV
B

WIRING DIAGRAM



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TITLE

WIRING DIAGRAM
OES 20.20

VOLTAGE: 3Ø-208-240
WATTAGE: -
CURRENT: 154.6-176.6A

DRAWN BY

DRL

DATE

1-6-06

DRAWING NO.

300496

SIZE

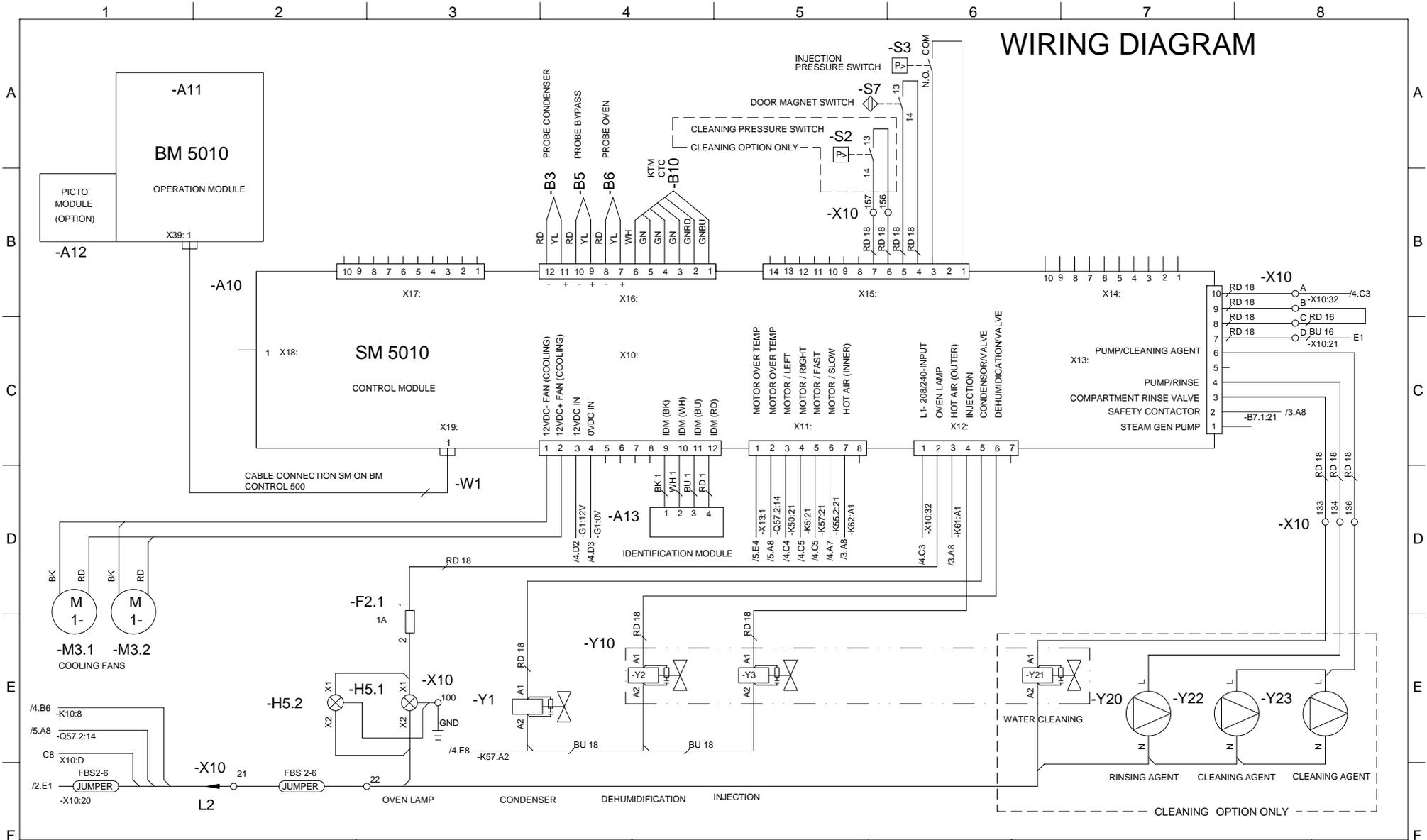
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SHEET 5 OF 8

REV

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WIRING DIAGRAM



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TITLE

WIRING DIAGRAM
OES 20.20

VOLTAGE: 3Ø 208-240
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DRAWING NO.

300496

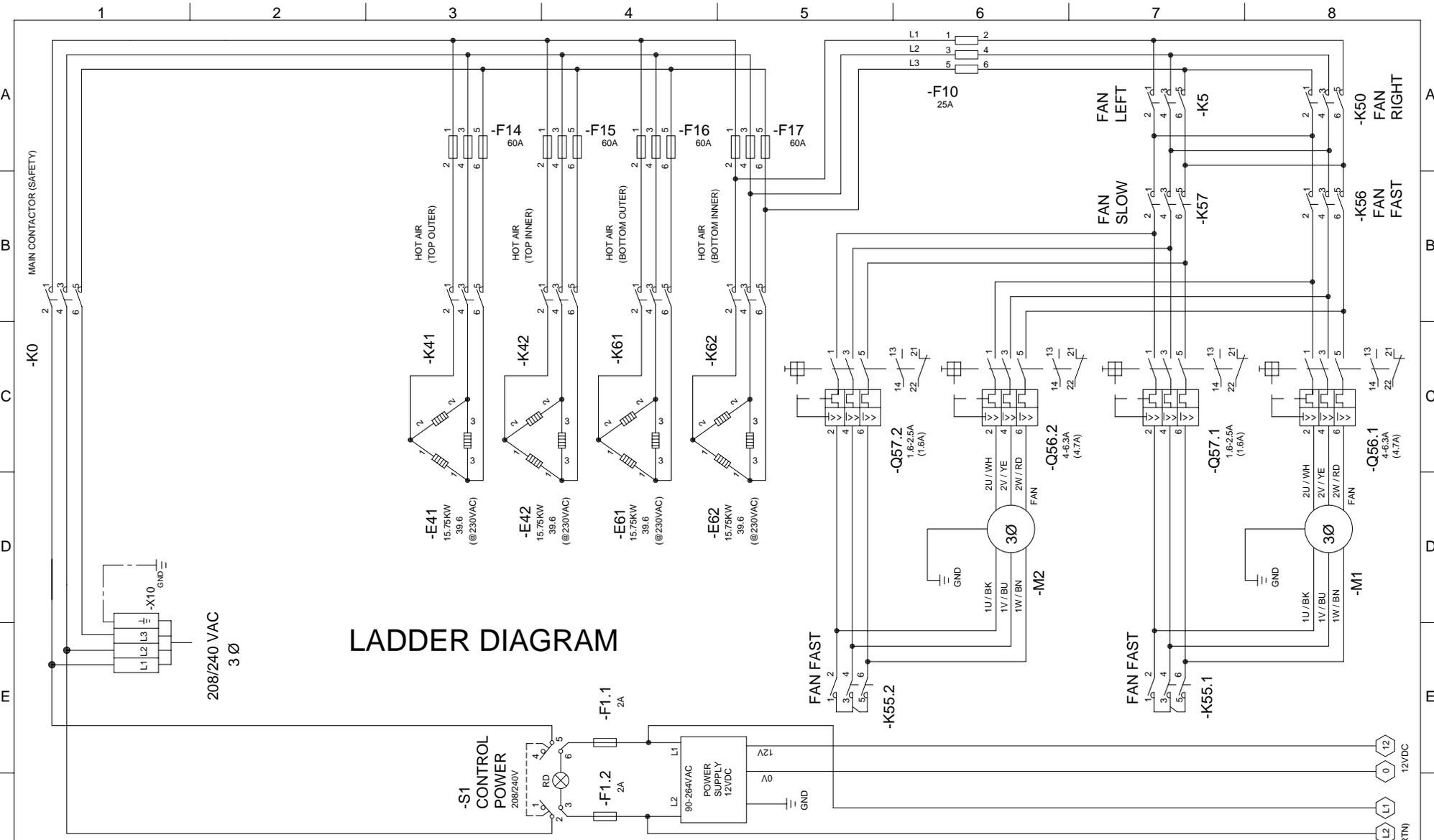
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SHEET 6 OF 8

REV

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LADDER DIAGRAM

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TITLE
WIRING DIAGRAM
OES 20.20

VOLTAGE: 3Ø 208-240
WATTAGE: -
CURRENT: 154.6-176.6A

DRAWN BY
DRL

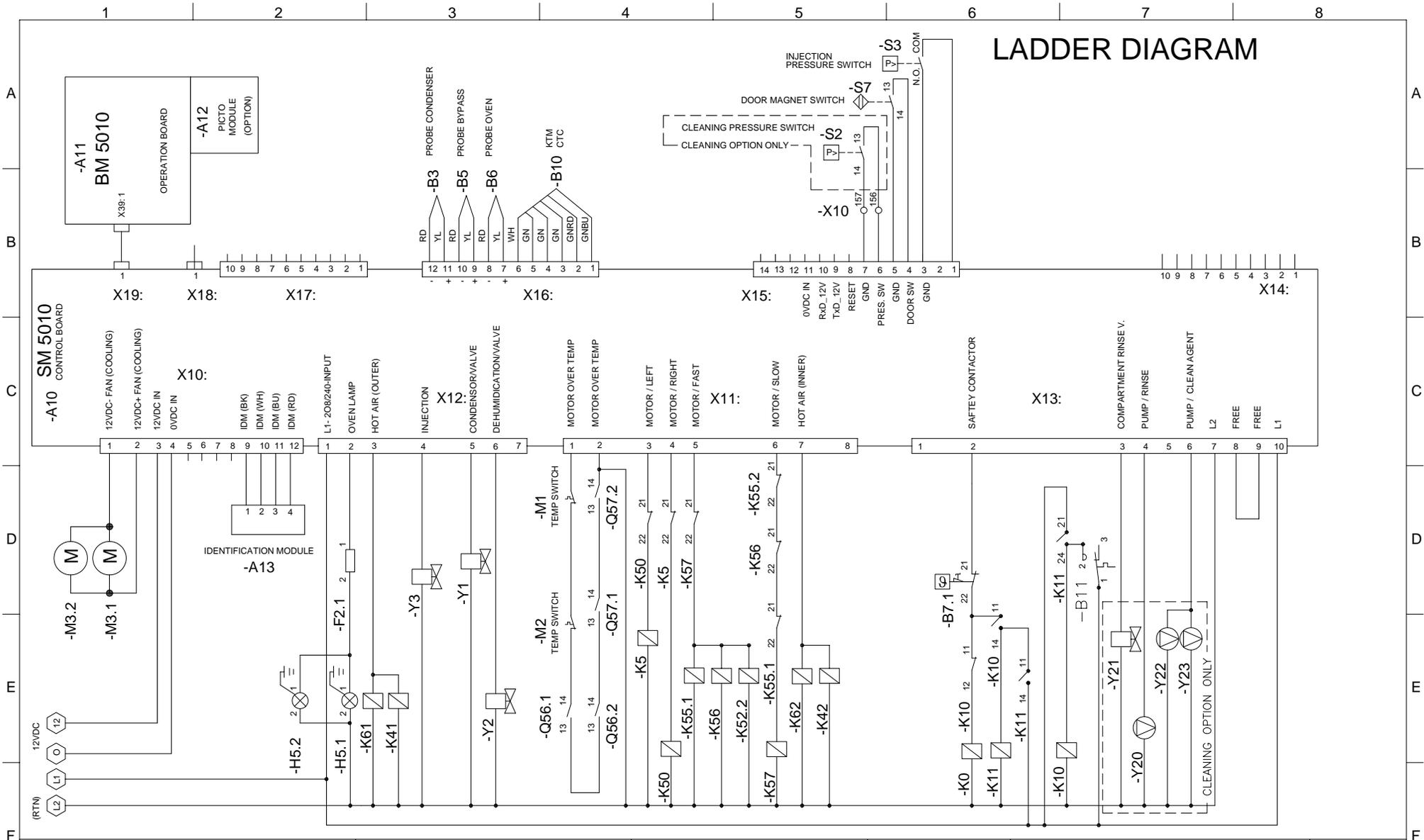
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SHEET 7 OF 8

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TITLE
WIRING DIAGRAM
OES 20.20

VOLTAGE: 3Ø 208-240
WATTAGE: -
CURRENT: 154.6-176.6A

DRAWN BY
DRL
DATE
1-6-06

DRAWING NO.
300496
SIZE
B
SHEET 8 OF 8

REV
B