ALTO-SHAAM®

COMBITHERM® COMBItouch®

TECHNICAL SERVICE MANUAL

How to Use this Technical Service Manual

This manual has been compiled as a complete resource for a technician working on Combitherm Electric Touch models. It includes necessary product information and drawings, along with helpful troubleshooting procedures.

Introduction gives a quick overview of the Combitherm Electric line to aid in model identification.

Sections A through E contain information applying to all Combitherm Electric Touch models:

- **CONTROL PANEL IDENTIFICATION** includes information on using the controllers and operating instructions. It is the same material supplied to the customer.
- **PREVENTIVE MAINTENANCE** includes procedures for cleaning, performing a generator flush and decalcifying. This information is also supplied to the customer.
- **SERVICE MODE AND ERROR CODES** explains the special programming available to you as a technician to view status, make adjustments and test functions on models equipped with Standard and Deluxe Controllers. Information is also included on the use of displayed error codes to resolve problems and on the functions that can be operated under fault conditions.
- **TROUBLESHOOTING TREES** are provided for the most common conditions you will be required to address.
- **COMBITHERM PARTS** has drawings and lists of available parts that are common to all electric models.

Sections F contains Wiring Diagrams that is specific to each model.

Navigation

Starting with the Main Table of Contents on the following page, you may click on any item that has a page number and quickly jump to the information you need. Note that you may Return to the Main Table of Contents from the bottom of any Section Contents page.

Printing

You may print the Current Page or any range of pages. Here's a tip: Because printers vary in their capacity to handle large drawings, make a test print of one of the Wiring Diagrams before printing the model's section.

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INTRODUCTION

MODEL NUMBERS

This manual covers the following CombiTouch electric models:

Steam Generator Models	Boiler-Free Models	Narrow Boiler-Free Models
6.10ES	6.10ESi	6.10ESiN
10.10ES	10.10ESi	10.10ESiN
7.14ES	7.14ESi	
10.18ES	10.18ESi	
12.20ES	20.20ESi	
20.20ES		

FEATURES AND OPTIONS

- Recessed Door is available on all models.
- Left-hand door is available on countertop models.
- Smoker Mode is available on select boiler-free models.

TOUCH CONTROL IDENTIFICATION

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INTRODUCTION

COMBITOUCH® CONTROL

The Combitherm CombiTouch control features a simple, graphics-based control panel that commands all the oven functions. Access up to 250 of your recipes that are identified by your own uploaded pictures. Manual cooking by time and temperature also are easily done with the CombiTouch control.

Intuitive interface - The Alto-Shaam CombiTouch offers a simple interface that commands all of the Combitherm's cooking functions. As the name implies, it is fully operable by touch.

Graphic controls - The highly visual graphic-based control overcomes language barriers while the simple, logical procedures ensure that correct steps are followed every time.

An excellent memory - Access up to 250 of your recipes that are identified by your own uploaded pictures. The Combitherm with CombiTouch also comes standard with more than 100 pre-programmed recipes and photos, covering most commonly prepared food items.

STEAM MODE

COMBINATION MODE

CONVECTION MODE

RETHERM MODE

Standard HACCP - The Combitherm with CombiTouch includes a standard downloadable HACCP function.

Six levels of Gold-n-Brown™ - Six precise and consistent browning levels are available with the CombiTouch. The exclusive Gold-n-Brown feature gives the operator the ability to achieve the ideal cooking environment for the ideal finish.

Superior baking - The new two-speed reversing fan provides excellent and consistent baking results. A moisture injection feature provides perfect sheen and crust on breads and pastry items.

Multi-shelf timers - Track cooking time of either 7 or 10 different food items (depending on oven size) in the same oven with multi-shelf timers. Time is tracked in minutes and seconds.

On-board diagnostics - The CombiTouch system includes on-board diagnostic functionality with results displayed right on the touch screen.

Reduced energy setting - CombiTouch features an interactive control display with reduced energy setting.

Powerful tool - The CombiTouch control plays an important part in our continuous improvement process. New features and abilities can be uploaded to your oven as they become available. Simply call our Service Department for assistance.

ECOSMART® TECHNOLOGY

The Alto-Shaam CombiTouch Combitherm combination oven/steamer employs Ecosmart operating efficiencies in the design and application of all operating and programming functions. Ecosmart operational characteristics include the use of a water barrier to close the oven compartment to the outside air. While maintaining a non-pressurized atmosphere, the primary purpose of the Ecosmart system is to prevent the steam and heat generated within the oven compartment from freely escaping to the outside.

The Ecosmart design displaces the air within the cooking compartment and achieves a higher level of steam saturation that offers quick-steaming at temperatures above 212°F (100°C).

This guide is provided as an operational aid with step-by-step instructions of the basic functions of the Combitherm oven, along with the many other additional features of the control.

START-UP PROCEDURES

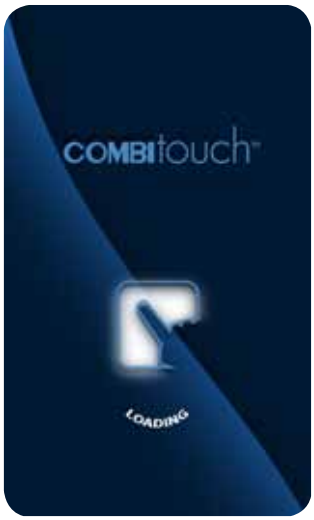


Illustration 1

Illustration 2

When the oven is powered on, the CombiTouch screen illuminates. "Loading" indicates that the software is booting up. The screen will also indicate what level of progress has been made as the software becomes fully operational. *(see illustrations 1 & 2 at left)*

Illustration 3

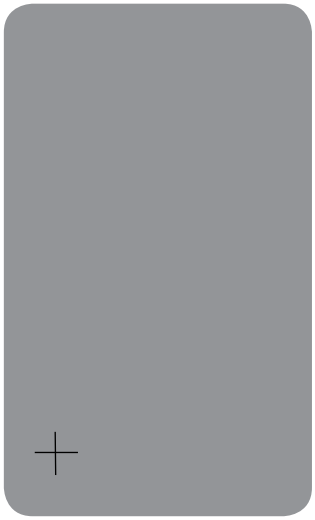


Illustration 4

If, for any reason, the oven is turned off or loses power during this start-up process, the operator will be prompted to calibrate the CombiTouch screen when the oven is next powered up. *(see illustration 3 at left)*

Return to Recipe Menu - Press the red arrow if the CombiTouch screen *does not* need to be calibrated.

Begin Calibration Process - Press the green check mark if the CombiTouch screen *does* need to be calibrated. The screen will switch to a grey background. *(see illustration 4 at left)* A crosshairs icon will appear. The operator should touch the center intersection. This prompt and required action will be repeated several times in different areas of the touchscreen. When complete, the operator will be returned to the recipe menu.

CONTROL PANEL IDENTIFICATION

RECIPE MENU

When the oven is powered on, the Recipe Menu is the first screen you will see. This allows quick access to begin the cooking process. As a first time user, you may want to personalize your CombiOven to reflect the settings you are most comfortable with.

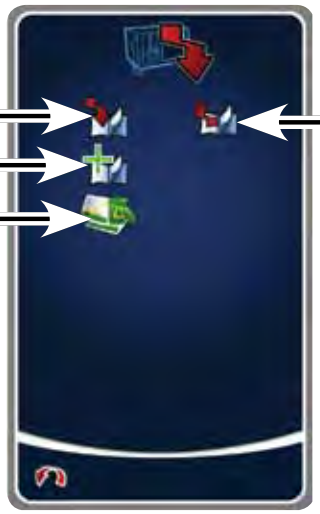
Return to Previous Screen - Press the red arrow to access the Main Menu screen.

MAIN MENU SCREEN

1 CLEANING MODE
2 DOWNLOAD/UPLOAD FILES
3 SETTINGS
4 SERVICE MODE (PASSWORD PROTECTED)

1. **Cleaning Mode**
   Four (4) cleaning levels are available: rinse, light, normal, and heavy-duty cleaning.
2. **Download/Upload Files**
   Download all preprogrammed recipes (factory default and user-programmed) and photos to a USB memory stick. *See below for more information.*
3. **Settings and HACCP Access**
   Change factory default settings. *See next page for more information.*
4. **Service Mode (password protected)**
   This mode is only available to qualified service technicians.

UPLOAD/DOWNLOAD SCREEN



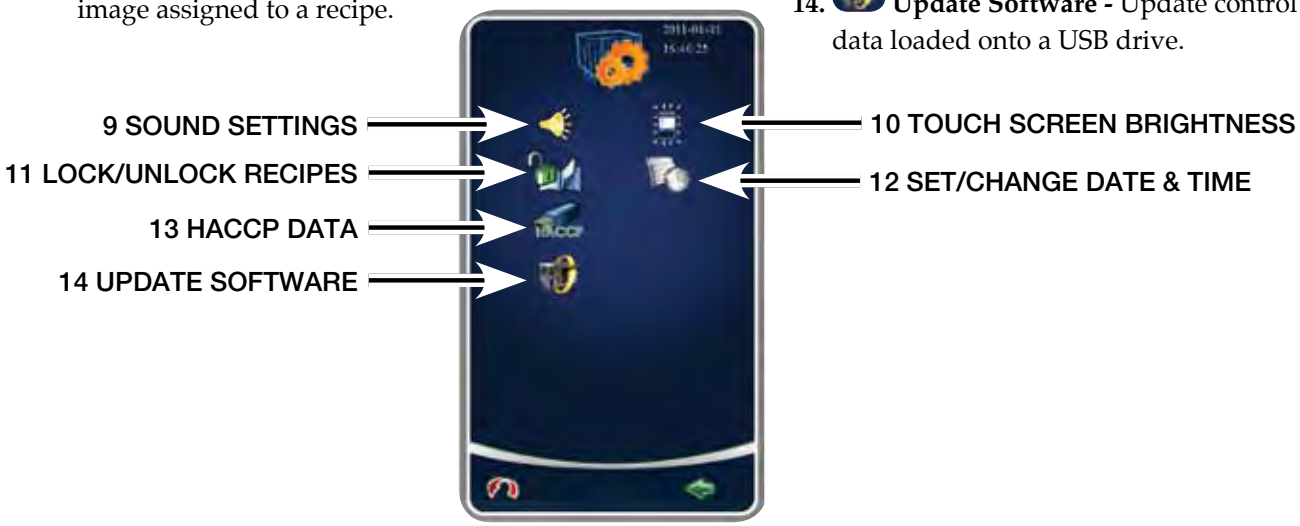
1 DOWNLOAD RECIPES
2 UPLOAD RECIPES
3 ADD ALL RECIPES
4 DELETE PHOTOS

1. **Download Recipes**
   Copy ***all*** recipes from USB memory stick to oven. This will replace and overwrite existing recipes.
2. **Upload Recipes**
   Copy ***all*** recipes from oven to USB memory stick.
3. **Add All Recipes**
   Copy ***all*** recipes from USB memory stick to the oven. This will add the recipes to the beginning of the existing recipe list.
4. **Delete Photos on Oven**
   Delete specific photo files used in the programmed recipes on oven

CONTROL PANEL IDENTIFICATION

SETTINGS SCREEN

1. **Fahrenheit or Celsius Function -** Choose temperature format. (SEE NOTES ON PAGE 7)
2. **Timer Format -** Display time as HOURS:MINUTES:SECONDS or HOURS:MINUTES.
3. **Multi-shelf Timer Number of Shelves -** Choose the default number shelves in the oven to be used by the multi-shelf timer.
4. **Multi-shelf Timer Update Style -** Left icon enables identical time setting for all shelves. Right icon enables individual shelf time settings for each shelf.
5. **Default Memo -** Left icon reverts time/temperature setting to factory defaults when switching modes. Right icon allows you to keep the last user setting.
6. **Display Settings -** Choose to display text or image assigned to a recipe.
7. **Return to Previous Screen -** Return to previous screen when finished adjusting settings.
8. **Forward to Next Screen -** Advance to next screen to review additional settings.
9. **Sound/Alarm Settings -** Change alarm sounds and volume.
10. **Touchscreen Brightness -** Adjust brightness of Touchscreen.
11. **Lock/Unlock Recipes -** Password protect preprogrammed recipes.
12. **Set/Change Date & Time -** Set or change oven time and date settings.
13. **HACCP Data -** Review data collected or download data to a USB drive.
14. **Update Software -** Update control software with data loaded onto a USB drive.



OPERATING INSTRUCTIONS

CONTROL PANEL IDENTIFICATION

CONTROL PANEL IDENTIFICATION

MAIN MENU ICONS

1. **Power ON key**
Activates power to the oven and automatically fills the steam generator equipped models with water that will heat to a stand-by mode temperature of 188°F (77°C).

2. **Steam Mode**
The oven will operate in the steam mode at a temperature range of 85°F to 250°F (30°C to 121°C).
   - Automatic steaming at 212°F (100°C) factory-set default.
   - Quick steaming between 213°F and 250°F (101°C and 121°C).
   - Low temperature steaming between 85°F and 211°F (29°C and 99°C).

3. **Combination Mode**
Selection key for cooking with a combination of steam and convection heat. Can be set between 212°F to 485°F (100°C and 252°C).

4. **Convection Mode**
Selection key for convection cooking without steam at a temperature range of 85°F to 485°F (29°C to 252°C).

5. **Retherm Mode**
Food rethermalization or reheating mode will operate with automatic steam injection at a temperature range of 245°F to 320°F (120°C to 160°C).

6. **Temperature**
Used to set the required cooking temperature, to recall the set cooking temperature, or to check the actual oven temperature.

7. **Time**
Used to set the required cooking time or recall the set cooking time.

8. **Core Temperature**
Used to set the required internal product temperature, to recall the internal product temperature set by the operator, or to display the current internal temperature of the product.

9. **Preheat Mode**
Preheats the oven cavity to a temperature set by user.

10. **Cool Down Mode**
Lowers temperature of the oven cavity at an accelerated pace to temperature set by user.

11. **Start/Stop**
Initiates all cooking mode functions and programmed procedures stored in memory. Stops an activated cooking mode or programmed procedure currently in progress.

AUXILIARY FUNCTION ICONS

12. **Reduced Power Mode**
Used to reduce kitchen power peaks and energy consumption.

13. **Gold-N-Brown Mode**
This indicator will illuminate when the browning function is set by the operator in a timed or programmed cooking cycle in any mode. Level 1 provides least amount of browning, level 6 the most.

14. **Smoking Mode (optional)**
This indicator will illuminate when the smoking function is set by the operator in a timer, probe or programmed cooking cycle in either convection mode or combination mode.

15. **Fan Speed**
This indicator will illuminate whenever the operator sets a reduced fan speed to protect products affected by high-velocity air movement.

16. **Return to Previous Menu**

17. **Cleaning Mode**
Four (4) cleaning levels are available: rinse, light, normal, and heavy-duty cleaning.

18. **Add Recipe**
Used to create, change, duplicate, and delete programmed menus.

19. **Find Recipe**
Access a menu list of all stored cooking programs.

20. **Multi-shelf Timer**
Use separate timers for one or more shelves in the oven compartment (only visible in time mode).

21. **Steam Injection (not shown on illustration)**
Press to add moisture in any cooking mode. Steam will inject into the cavity as long as the icon is touched.

22. **Delta-T Core Temperature (only visible in certain modes)** Cook by probe. Mode automatically adjusts cooking temperature in proportion to the internal temperature of the product.

OPERATING INSTRUCTIONS

COMBITOUCH FACTORY DEFAULT SETTINGS

COOKING MODE	OVEN TEMPERATURE	CORE TEMPERATURE	COOKING TIME
Steam	212°F (100°C)	160°F (70°C)	25 minutes
Combination Steam	350°F (175C)	160°F (70°C)	70 minutes
Convection	350°F (175°C)	160°F (70°C)	30 minutes
Retherm	275°F (135°C)	160°F (70°C)	5 minutes

CHANGE THE TEMPERATURE SCALE

1. **Press Oven Power switch ON.**
   The Recipe Menu screen will load.
2. **Press the red arrow key to access the Main Menu screen**.
3. **Press the Settings key**.
4. **Press Fahrenheit or Celsius key.**
   Choose temperature format you prefer.
5. **Press the red arrow key to access the Main Menu screen**.
6. **Press Oven Power switch OFF.**

IMPORTANT SAFETY PRECAUTIONS

NOTE: **Automatic steam venting is a standard safety feature built into all Combitherm oven models. This feature vents all steam from the oven compartment immediately before cooking time expires or set probe temperature is reached.**

This function is provided in all programmed and timed production when operating in any Steam, Combination, Convection, and Retherm cooking mode. Automatic steam venting does not function if the oven door is opened before time expires or when the oven has been set to continuous operation.

NOTE: **Use authorized combitherm oven cleaner only. unauthorized cleaning agents may discolor or harm interior surfaces of the oven. Read and understand label and material safety data sheet before using the oven cleaner.**

FOR OPERATOR SAFETY

NOTE AND OBSERVE ALL SAFETY PRECAUTIONS LOCATED THROUGHOUT THIS GUIDE

DANGER

AT NO TIME SHOULD THE INTERIOR OR EXTERIOR BE STEAM CLEANED, HOSED DOWN, OR FLOODED WITH WATER OR LIQUID SOLUTION OF ANY KIND. DO NOT USE WATER JET TO CLEAN.

SEVERE DAMAGE OR ELECTRICAL HAZARD COULD RESULT.

WARRANTY BECOMES VOID IF APPLIANCE IS FLOODED

CAUTION

METAL PARTS OF THIS EQUIPMENT BECOME EXTREMELY HOT WHEN IN OPERATION. TO AVOID BURNS, ALWAYS USE HAND PROTECTION WHEN OPERATING THIS APPLIANCE.

WARNING

DO NOT **HANDLE PANS CONTAINING LIQUID OR SEMILIQUID PRODUCTS POSITIONED ABOVE THE EYE LEVEL OF THE OPERATOR. SUCH PRODUCTS CAN SCALD AND CAUSE SERIOUS INJURY.**

WARNING

HOT STEAM CAUSES BURNS

ROTATE THE DOOR HANDLE TO THE FIRST OPEN ROTATION POSITION ONLY. WAIT UNTIL THE STEAM IS VENTED BEFORE FULLY OPENING THE DOOR.

CAUTION

DO NOT **USE THE ATTACHED HAND-HELD HOSE TO SPRAY ANYTHING OTHER THAN THE INTERIOR OF THE COMBITHERM OVEN COMPARTMENT.**

DO NOT **USE THE SPRAY HOSE ON THE SURFACE OF A HOT COOKING COMPARTMENT. ALLOW THE OVEN TO COOL TO A MINIMUM OF 150°F (66°C).**

HACCP ACCESS

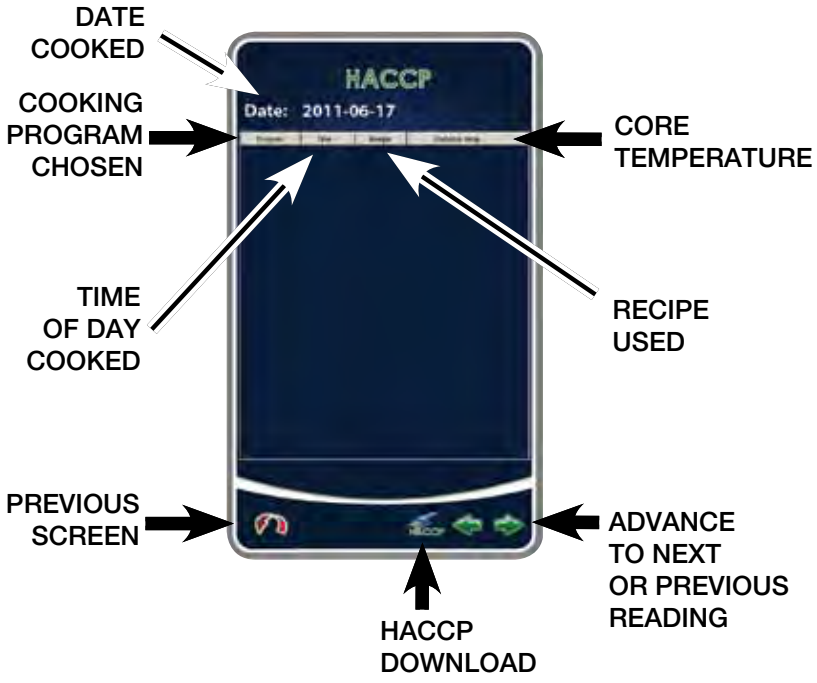
The CombiTouch Combitherm meets the requirements of established HACCP criteria by providing automated sampling, record keeping, set-point validation, recipe used, dates and time. Data is captured when Core Temperature Probe cooking method is chosen. This data is retained for the last 30 days. This information can be viewed on screen or downloaded to a USB drive and then copied to your computer. The file format is text (.txt).

NOTE: You access this information from the Settings Screen. *See illustrations on page 3 and 4 for navigation.*

CAUTION: The CombiOven USB port is not recommended for use with personal hand held devices.

1. To download the data collected, remove the cap of a USB port located on the left side of the oven and insert the USB flash drive. If the flash drive is not recognized by the Combitherm, a question mark will appear on screen. Try again with another flash drive device or call Alto-Shaam Service.
2. PRESS TO DOWNLOAD INFORMATION.
3. WAIT FOR THE ICON TO CHANGE FROM LOADING TO COMPLETE.
4. PRESS TO CONFIRM TRANSFER.
5. Remove the USB flash drive and replace the cap on the USB port located on the left side of the oven.

The download process will automatically create a folder on the USB flash drive titled “haccp”. Each text file contains cooking program specifics. *See illustration below.*




```
HACCP
Unit:                          00:30:D6:FF:28:63

Date:                          2011-01-09
Program:                       Steam

Start time:                    22:10:31
Stop time:                     22:14:37
Elapsed cook time:             00:04

Multi shelf timer:             no
Reduced energy:                no
Recipe active:                 no

Temperature unit:               °F

Cavity start temperature:      191
Cavity stop temperature:       217
Cavity temperature reached:    00:02

Core start temperature:        176
Core stop temperature:         215
Core temperature reached:      00:00

Door open count:               0
```

PREVENTIVE MAINTENANCE

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CLEANING & MAINTENANCE

The CombiTouch Combitherm offers four (4) cleaning levels: rinse, light, normal, and heavy-duty cleaning. CombiClean® tablets or Combitherm liquid spray cleaner may be used. Side racks, shelves and trolleys may remain inside oven during cleaning.

Note: *If a power outage were to occur during any of the cleaning cycles, the oven will begin a six (6) minute forced-rinse cycle.*

SELECT CLEANING MODE FROM ANY SCREEN.

NOTE: If oven is too hot to safely clean, an oven with red interior will appear on the screen and the cool down function is automatically activated. Allow oven to cool to 200°F (93°C) before cleaning.

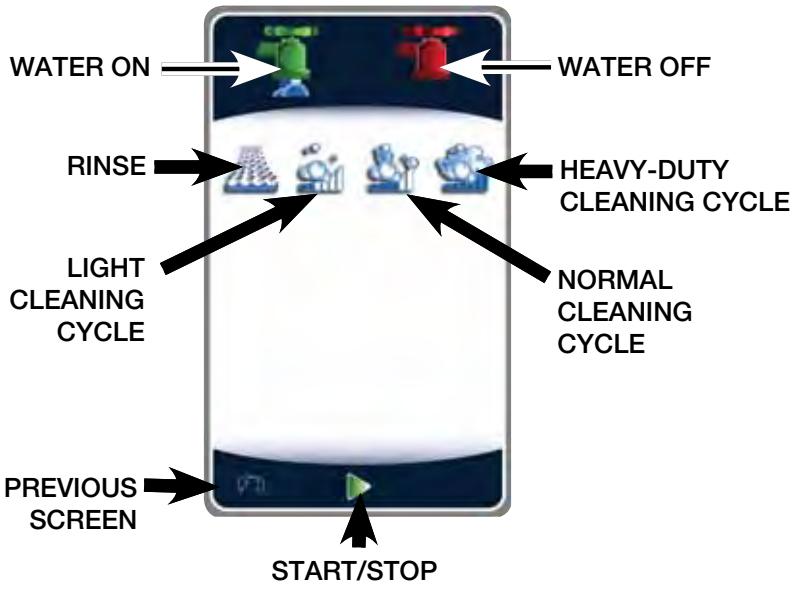
PRESS GREEN WATER ON ICON TO CONFIRM THAT WATER SUPPLY IS TURNED ON.

SELECT RINSE, LIGHT, NORMAL, OR HEAVY-DUTY CLEANING.

INSERT APPROPRIATE NUMBER OF COMBICLEAN TABLETS as directed by touchscreen or spray interior of oven with combitherm liquid spray cleaner. User may add one additional tablet in either normal or heavy duty modes for particularly dirty ovens.

PRESS THE GREEN START ARROW ICON TO BEGIN CLEANING.
Leave door slightly ajar when cleaning is finished.

CLEANING MODE MENU



COMBI CLEANER REQUIREMENT

The number of required CombiClean tabs is shown via an animation

CLEANING IN PROCESS

OVEN TOO HOT WARNING

Must allow oven to cool down before inserting CombiClean tabs or spraying with cleaner

PREVENTIVE MAINTENANCE

In addition to the routine cleaning and maintenance procedures, there are several additional steps to be taken for both sanitation and to keep the oven running efficiently. These additional safeguards will help prevent down time and costly repairs.

DO NOT DISPOSE OF GREASE, FAT, OR SOLID WASTE DOWN THE OVEN DRAIN.
Fats and solids will eventually coagulate in the drain system, causing blockage. Consequently, water will back-up into the condenser and interior oven compartment, resulting in an oven that is inoperable.

MAKE CERTAIN THE DRAIN SCREEN IS ALWAYS IN PLACE. REMOVE ANY SOLID WASTE MATERIAL FROM THE DRAIN SCREEN BEFORE IT ENTERS THE DRAIN SYSTEM.
The routine removal of solids from the drain screen will help prevent blockage.

USE THE AUTHORIZED COMBITHERM OVEN CLEANER ONLY.
The use of unauthorized cleaning agents may discolor or harm the interior surfaces of the oven.

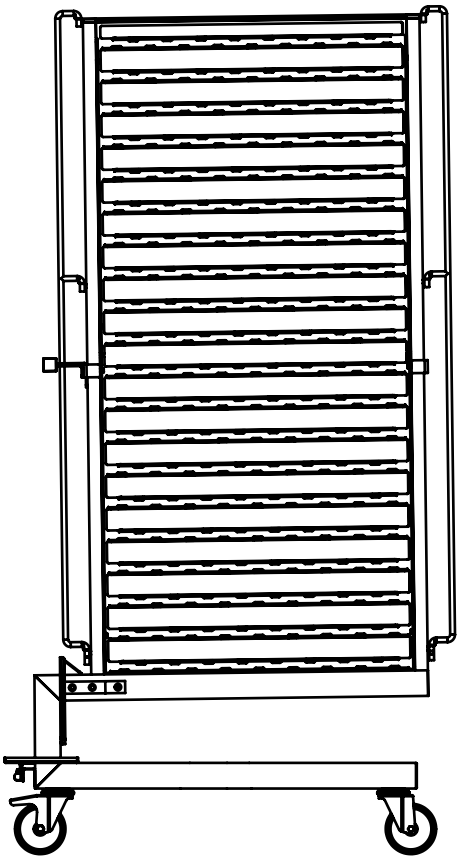
TO PROLONG THE LIFE OF THE DOOR GASKET, CLEAN THIS ITEM DAILY.
The acids and related compounds found in fat, particularly chicken fat, will weaken the composition of the gasket unless cleaned on a daily basis. Wipe with a hot, soapy cloth.

TO ADDITIONALLY PROTECT GASKET LIFE, ALLOW OVEN DOOR TO REMAIN SLIGHTLY OPEN AT THE END OF THE PRODUCTION DAY.
An open door will relieve the pressure on the door gasket.

ROUTINELY CLEAN DOOR HINGES.
Open oven door to relieve tension. Clean all parts of the hinge.

CLEAN PRONGS OF REMOVABLE PROBE DAILY.
To ensure accurate internal product temperature readings, the prongs on the removable probe must be cleaned daily.

ROLL-IN CART/FOOD TROLLEY CLEANING (ON EQUIPPED MODELS)



1. Remove food trolley to a cart wash area. Trolleys may be cleaned using any mild cleaning detergent and warm water.
2. Hand wipe all framing, slides, drip pan, and base. Thoroughly clean debris from the casters. A spray hose can be used for easier cart cleaning.
3. Remove detergent solution with warm water.
4. Wipe or spray with a sanitizing solution designed for use on metal and vinyl food contact surfaces.
5. Allow trolley to air dry.

As an alternative, trolleys can be cleaned while inside the oven. Allow the trolley to remain in the oven through the normal cleaning cycle, followed by steps 2 through 5 above.

CLEANING & MAINTENANCE

CLEANING AND PREVENTIVE MAINTENANCE

PROTECTING STAINLESS STEEL SURFACES

It is important to guard against corrosion in the care of stainless steel surfaces. Harsh, corrosive, or inappropriate chemicals can completely destroy the protective surface layer of stainless steel. Abrasive pads, steel wool, or metal implements will abrade surfaces causing damage to this protective coating and will eventually result in areas of corrosion. Even water, particularly hard water that contains high to moderate concentrations of chloride, will cause oxidation and pitting that result in rust and corrosion. In addition, many acidic foods spilled and left to remain on metal surfaces are contributing factors that will corrode surfaces.

Proper cleaning agents, materials, and methods are vital to maintaining the appearance and life of this appliance. Spilled foods should be removed and the area wiped as soon as possible but at the very least, a minimum of once a day. Always thoroughly rinse surfaces after using a cleaning agent and wipe standing water as quickly

CLEANING AGENTS

Use non-abrasive cleaning products designed for use on stainless steel surfaces. Cleaning agents must be chloride-free compounds and must not contain quaternary salts. Never use hydrochloric acid (muriatic acid) on stainless steel surfaces. Always use the proper cleaning agent at the manufacturer's recommended strength. Contact your local cleaning supplier for product recommendations.

CLEANING MATERIALS

The cleaning function can usually be accomplished with the proper cleaning agent and a soft, clean cloth. When more aggressive methods must be employed, use a non-abrasive scouring pad on difficult areas and make certain to scrub with the visible grain of surface metal to avoid surface scratches. Never use wire brushes, metal scouring pads, or scrapers to remove food residue.

⚠ CAUTION

TO PROTECT STAINLESS STEEL SURFACES, COMPLETELY AVOID THE USE OF ABRASIVE CLEANING COMPOUNDS, CHLORIDE BASED CLEANERS, OR CLEANERS CONTAINING QUATERNARY SALTS. NEVER USE HYDROCHLORIC ACID (MURIATIC ACID) ON STAINLESS STEEL. NEVER USE WIRE BRUSHES, METAL SCOURING PADS OR SCRAPERS.

CLEANING SCHEDULE

DAILY GASKET CLEANING

It is important to prolong the life of the oven gasket by cleaning on a daily basis. Routine cleaning will help protect the gasket from deterioration caused by acidic foods.

1. Allow the oven to cool, then wipe the gasket and crevices with clean cloth soaked in warm detergent solution.
2. Wipe the gasket and crevices with a cloth and clean rinse water.

Do not attempt to remove gasket or place in the dishwasher.

PROBE USAGE AND CLEANING

After each use of the **CORE TEMP** mode, wipe the probe tip with a clean paper towel to remove food debris. Follow by wiping the probe with a disposable alcohol pad. Return the probe to the proper door bracket position.

Probe Cleaning Procedures

1. Remove all food debris from probe between loads and at the end of each production shift. Wipe the entire probe, probe cable assembly, and probe holding bracket with a clean cloth and warm detergent solution.
2. Remove detergent by wiping the probe, cable, and bracket with a cloth and clean rinse water.
3. Wipe probe and probe bracket with disposable alcohol pad or sanitizing solution recommended for food contact surfaces.
4. Allow probe and cable to air dry in the probe holding bracket.
5. Wipe the probe with a disposable alcohol pad prior to inserting into a new food product.

DAILY OVEN CLEANING

To be performed at the end of the production day or between production shifts.

DAILY STEAM GENERATOR FLUSH

(Electric boiler equipped models only)
See next page for instructions

The steam generator must be flushed once a day when operating the oven on a regular basis. This procedure will prevent lime deposits and scale build-up from forming in the steam generator. A steam generator flush is automatically initiated during the cleaning function.

DAILY PRONG CLEANING

To ensure accurate internal product temperature readings, the prongs on the removable probe must be cleaned daily.

1. Remove all food debris from prongs at the end of each production shift. Wipe the entire prong casing, and between each prong with a clean cloth and warm detergent solution.
2. Remove detergent by wiping with a cloth and clean rinse water.
3. Allow to air dry before replacing detachable probe.

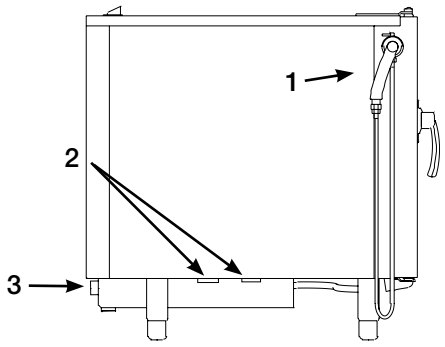
REGULAR DECALCIFICATION

(Electric boiler equipped models only)
Qualified service technician should see CombiTouch Technical Manual for instructions

It is important to decalcify the steam generator, particularly in areas with extremely hard water. In addition to the daily steam generator flush, this procedure should be performed once a month by a qualified service technician or more frequently depending on usage and water conditions.

MONTHLY CLEANING

1. Spray Head
2. Water Intake Filter
3. Drain Pipe



CLEANING & MAINTENANCE

COMBICLEAN CLEANING AGENTS

⚠ DANGER

RUBBER GLOVES MUST BE WORN WHEN USING COMBICLEAN TABLETS OR SPRAY OVEN CLEANER.

⚠ DANGER

PROTECTIVE EYE WEAR MUST BE WORN WHEN USING SPRAY OVEN CLEANER.

NOTE: Use authorized Combitherm cleaner only.

Unauthorized cleaning agents may discolor or harm interior surfaces of the oven. Read and understand label and material safety data sheet before using the oven cleaner.

CAUTION: **Causes eye, skin, and respiratory tract irritation. keep out of reach of children.**

PRECAUTIONS:

- Do not take internally.
- Avoid contact with eyes and skin.
- Use rubber gloves when using this product.
- Wash hands thoroughly after handling.
- Avoid mixing with strong, concentrated acids.

FIRST AID:

Skin: Flush with water. Remove contaminated clothing and do not re-wear until washed. If irritation persists see a physician.

Eyes: Flush with water for 15 minutes. See a physician immediately.

Inhalation: If difficulty in breathing occurs, leave area immediately and do not return until dust is settled. If irritation persists, see a physician.

Ingestion: Drink large quantities of milk or water. DO NOT INDUCE VOMITING. See a physician immediately.

PROTECTIVE PACKAGING OF TABLETS WILL BEGIN TO DISSOLVE ONTO SKIN IF HANDLED WITH DAMP OR WET HANDS.

AUTOMATIC STEAM GENERATOR FLUSH

Flushing the electric Combitherm steam generator on a daily basis helps prolong the life of the steam generator heating elements and reduces the need for service. The CombiTouch provides this feature as an automatic function once every 24 hours.

The steam generator flush is automatically activated when the oven is powered on if no cleaning program has run during the last 24 hours. An indicator icon will notify the user that flushing is in process. This function cannot be manually turned on or off and users cannot start a cooking sequence during the generator flush. Wait until the flush cycle is finished, then begin to use the oven as normal.

If the operator cleans the oven daily, it will not automatically flush as this is one of the functions of the cleaning cycles.

DECALCIFICATION - USING SCALEFREE™

ScaleFree™ Descaling Compound is an acid-based descaler combined with a proprietary chelating agent that is effective in dissolving and removing carbonate, lime-scale and iron-scale build-up caused by hard water. ScaleFree efficiently and effectively removes lime-scale build-up from combi ovens.

ScaleFree™ is a non-hazardous, Biodegradable Citrus Based Powder that when mixed with water becomes a powerful lime-scale remover.

DO NOT COOK IN ANY PROGRAM MODE WITH SCALEFREE™ IN THE SYSTEM.

Decalcification should be performed once a month in addition to the daily steam generator flush.

Note: *If a power outage were to occur during any of the cleaning cycles, the oven will begin a six (6) minute forced-rinse cycle.*

BOILER EQUIPPED MODELS: Using the batch mix instructions on the label, mix up 1 gallon of ScaleFree solution ***or*** one gallon of distilled white vinegar for counter top models and 3 gallons of distilled white vinegar for floor standing models.

Open oven door. Using ***hand protection for hot surfaces***, loosen the thumb screw(s) and swing Fan Guard Cover Plate toward the back of the oven to gain access to the Steam Exit Port.

Using a funnel inserted into the Steam Exit Port, slowly pour solution in to the Steam Generator until full. Continue with the next steps that are used for all models.

ON ALL MODELS:

SELECT CLEANING MODE FROM ANY SCREEN.

NOTE: If oven is too hot, an oven with red interior will appear on the screen and the cool down function is automatically activated. Allow oven to cool to 200°F (93°C) before cleaning.

PRESS GREEN WATER ON ICON TO CONFIRM THAT WATER SUPPLY IS TURNED ON.

SELECT HEAVY-DUTY CLEANING.

Lift the oven drain screen.
Pour one cup of ScaleFree granules down the oven drain.
Close oven door.

PRESS THE GREEN START ARROW ICON TO BEGIN CLEANING.
Open the oven door when cleaning cycle has finished.

Using ***hand protection for hot surfaces***, loosen the thumb screw(s) and swing Fan Guard Cover Plate toward the back of the oven. Using the hand-held hose, direct a stream of water directly into the Steam Exit Port several times. Close the swing-out Cover Plate. Lock the cover into place and tighten thumb screw(s).

Using the hand-held hose, direct a stream of water directly into the oven drain for a minute or more.

Press the ON/OFF power key to the OFF position.

When the oven has completely powered down, press the ON/OFF power key to the ON position. A new supply of fresh water will begin to flush through the system.

The unit is now ready to use. Leave door slightly ajar when decalcification / cleaning is finished.

OVEN TOO HOT WARNING

Must allow oven to cool down before inserting ScaleFree powder.

CLEANING IN PROCESS

SERVICE MODE AND ERROR CODES

Emergency Operation C-2

Emergency Operation Error Codes C-3

CombiTouch Error Codes C-4

CombiTouch Motor Control Error Codes C-8

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SERVICE MODE AND ERROR CODES

EMERGENCY OPERATION MODE

If the oven malfunctions, an error code will appear in the display. In the event of an error, the Combitherm may be operated on a limited basis. Error conditions under which continued operation is possible are indicated by "Yes" in the chart on the next page. To operate the oven in the event of an error code:

PRESS THE START ICON TO ACKNOWLEDGE THE ERROR.

The icons that begin to flash represent operational modes that are still usable.

SELECT ONE OF THE AVAILABLE COOKING MODES.

SET THE OVEN CONTROLS AS IF OPERATING UNDER NORMAL CIRCUMSTANCES.

Depending on the error code involved, oven function, such as temperature range, may be limited.

PRESS THE START ICON TO BEGIN THE COOKING.

PRESS THE STOP ICON WHEN THE TIMER EXPIRES.

The Combitherm will return to normal operation when the oven fault is corrected.

EMERGENCY OPERATION MODE (CONTINUED)

ERROR CODES

When the oven malfunctions, an error code will appear in the display.

PRESS THE START ICON TO ACKNOWLEDGE THE ERROR.

The icons that begin to flash represent operational modes that are still usable.
When the oven fault is corrected, the Combitherm will return to normal operation.

Error Code	Display Shows	Model		Mode			
		ES	ESG ESI	Steam	Combination	Convection	Retherm
E01	Low Water Boiler	Yes	No	No	No	To 365°F/185°C	No
E02	Control Temp High	Yes	Yes	No	No	No	No
E03	Fan Motor Error	Yes	Yes	No	No	No	No
E04	Fan Motor 2 Error	Yes	Yes	No	No	No	No
E11	Convection Temperature High	Yes	Yes	BOILER UNITS ONLY	No	No	No
E13	Boiler Temperature High	Yes	No	No	No	Yes	No
E15	Condenser Temperature High	Yes	Yes	No	No	To 356°F/180°C	No
E20	B11 Core Temperature Probe Single Point Fault - HACCP only	Yes	Yes	No	No	No	No
E21	N6 Cavity Probe Fault	Yes	Yes	BOILER UNITS ONLY	No	No	No
E22	B10 Core Temp Probe Fault	Yes	Yes	BY TIME ONLY	BY TIME ONLY	BY TIME ONLY	BY TIME ONLY
E23	B4 Boiler Probe Fault	Yes	No	No	No	No	No
E24	B5 Bypass Probe Fault	Yes	Yes	No	No	Yes	No
E25	B3 Condenser Probe Fault	Yes	Yes	Yes	No	To 356°F/180°C	No
E26	N8 Boiler Safety Temperature Probe Fault	Yes	No	No	No	No	No
E27	Boiler Element Temperature High	Yes	No	No	No	Yes	No
E34	Steam Generator Drain Pump Fault	Yes	No	No	No	No	No
E36	Steam Temperature High	Yes	No	No	No	Yes	No
E51	No Water in Boiler	Yes	No	No	No	Yes	No
E53	Fan Motor High Temperature	Yes	Yes	No	No	No	No
E54	Fan Motor 2 High Temperature	Yes	Yes	No	No	No	No
E55	Vent Not Open	Yes	Yes	Yes (NO BROWNING)	Yes (NO BROWNING)	Yes (NO BROWNING)	Yes (NO BROWNING)
E57	No Rinse Water	Yes	Yes	Yes	Yes	Yes	Yes
E93	Communication Error FROM Display Board	Yes	Yes	No	No	No	No
E94	Communication Error TO Display Board	Yes	Yes	No	No	No	No

SERVICE MODE AND ERROR CODES

CombiTouch ERROR CODES

This section is provided for the assistance of qualified technicians only and is not intended for use by untrained or unauthorized service personnel. If your Alto-Shaam® unit is not operating properly, check the following before calling your Authorized Alto-Shaam Service Agent:

☛ Check the power flow to the unit. Plug in outlet?

Do not attempt to repair or service the CombiOven beyond this point. Contact Alto-Shaam for the nearest authorized service agent. Repairs made by any other service agents without prior authorization by Alto-Shaam will void the warranty on the unit.

When the oven malfunctions, an error code will appear in the display.

PRESS THE START ICON TO ACKNOWLEDGE THE ERROR.

The icons that begin to flash represent operational modes that are still usable.
When the oven fault is corrected, the Combitherm will return to normal operation.

Error Code	Error Call Out in Display	Description of Error	Possible Cause
E01	Low Water Boiler	Low water level in boiler	— Water supply is shut off. — Low water pressure. — Generator drain cap missing or loose. — Generator drain pump is not sealing. — Generator drain pump elbow leaking. — Faulty or scaled water level probe. — Faulty or plugged dual solenoid valve assembly. — Wiring or connection issue. — No output to dual solenoid from relay board. — Relay board, high voltage is not operating.
E02	Control Temperature High	Relay board surface temperature too high	— Wiring or connection issue. — Cooling fan on Relay board assembly is not operating. — Cooling Fan on display board is not operating. — Main Cooling fan is not operating. — Cooling Fan on motor drive is not operating. — Unit is less than 20” from a heat producing source on its left hand side.
E03	Fan Motor Error	Fan motor does not work	— Exhaust hood is not operating properly. — Check LED flashes on the Motor Control. — **See Motor Control Error Code list**. — Connection Issue on Hall Effect sensor. — Fan whel is not operating. — Hall sensor does not detect motor rotation.
E04	Fan Motor 2 Error	Lower fan motor on 20•20 does not work	— Exhaust hood is not operating properly. — Check LED flashes on the Motor Control. — **See Motor Control Error Code list**. — Connection Issue on Hall Effect sensor. — Fan wheel is not operating. — Hall sensor does not detect motor rotation.
E11	Convection Temperature High	Excess oven temperature	Convection Mode & Combi Mode: — Convection Oven contactor(s) stuck closed. — N6 Oven Cavity Temperature probe defective. — N6 Cavity Probe connection problem. — Relay board, high voltage is not operating. — Wiring or connection issue. Combi Mode Only: — Insufficient water supply into oven for steam production.

(CONTINUED ON NEXT PAGE)

CombiTouch ERROR CODES

Error Code	Error Call Out in Display	Description of Error	Possible Cause
E13	Boiler Temperature High	Boiler temperature overheats	— Scale build up inside steam generator. — Scale build up on water level probe. — B4 Probe connection problem. — B4 probe faulty.
E15	Condensor Temperature High	Excess condensor temperature	— Untreated water supply line is shut off. — Untreated water supply line is connected to warm water. — B3 probe connection problem. — B3 probe is faulty. — Single solenoid valve Y2 obstructed or faulty. — Wiring or connection problem. — Relay board, high voltage is not operating.
E20	HACCP Only - B11 Core Temperature Probe Single Point Fault Error E20 is not shown in display. Instead a probe sign with "?" is shown as popup window. In case the customer cooks in time mode during first step and during second step switches to probe mode but has no probe in place, the error E20 will be shown in the error code list and HACCP list.	Single point core temperature probe defect or disconnected.	— Clean Probe Receptacle Pins with sand paper. — B11 Single Point Core Temperature probe with quick connect, defective. — B11 Single Point Core Temperature probe wires with quick connect, disconnected. — B11 Single Point Core Temperature probe receptacle, defective. — B11 Single Point Core Temperature probe receptacle wires disconnected.
E21	N6 Cavity Probe Fault	Cavity temperature probe defect or disconnected	— N6 Oven Cavity Temperature probe defective. — N6 Oven Cavity Temperature connection problem.
E22	B10 Core Temperature Probe Multipoint Fault	Multipoint core temperature probe defect or disconnected	— B10 Multipoint Core Temperature probe defective. — B10 Multipoint Core Temperature probe connection problem.
E23	B4 Boiler Probe Fault	Boiler temperature probe defect or disconnected	— B4 Boiler temperature probe defective. — B4 probe wires connection problem.
E24	B5 Bypass Probe Fault	Bypass steam temperature probe defect or disconnected	— B5 Bypass steam temperature probe defective. — B5 Bypass steam temperature connection problem.
E25	B3 Condensor Probe Fault	Condensor water temperature probe defect or disconnected	— B3 Condensor temperature probe defective. — B3 Condensor probe connection problem.
E26	N8 Boiler Safety Temperature Probe Fault	Steam generator heating element protection probe defect or disconnected	— N8 Boiler temperature probe defective. — N8 probe connection problem.
E27	Boiler Element Temperature High	Excess steam generator safety probe	— Scale build up inside steam generator. — Scale build up on water level probe. — Water level probe connection failure. — N8 boiler temperature probe defective. — N8 probe connection problem. — Steam element contactor(s) stuck closed. — Wiring or connection problem.

(CONTINUED ON NEXT PAGE)

SERVICE MODE AND ERROR CODES

CombiTouch ERROR CODES

Error Code	Error Call Out in Display	Description of Error	Possible Cause
E34	Steam Generator Drain Pump Fault	Water level in steam generator does not drop during cleaning program	— Scale build up inside the steam generator drain pump. — Scale build up inside the steam generator affecting water level probes. — Generator drain pump is faulty. — Connection issue at drain pump. — No output to pump from relay board.
E36	Steam Temperature High	Oven cavity temperature is too high when operating in a steam mode or cleaning program	— Water supply is shut off. — Low water pressure. — Wiring or connection issue. — Water injection pipe obstructed. — Water flow control valve plugged or defective. — Dual solenoid valve Y-1 obstructed or defective. — No output to solenoid valve form relay board.
E51	No Water In Boiler	Water inside steam generator does not reach low water level	— Water supply is shut off. — Low water pressure. — Generator drain cap missing or loose. — Generator drain pump is not sealing. — Generator drain pump elbow leaking. — Faulty or scaled water level probe. — Faulty or plugged dual solenoid valve assembly. — Wiring or connection issue. — No output to dual solenoid from relay board.
E53	Fan Motor High Temperature	Fan motor too hot	— Exhaust hood is not operating properly. — Check LED flashes on the Motor Control. — **See Motor Control Error Code list**. — Connection Issue on Hall Effect sensor. — Fan wheel is not operating. — Hall sensor does not detect motor rotation.
E54	Fan Motor 2 High Temperature	20•20 lower fan motor too hot	— Exhaust hood is not operating properly. — Check LED flashes on the Motor Control. — **See Motor Control Error Code list**. — Connection Issue on Hall Effect sensor. — Fan wheel is not operating. — Hall sensor does not detect motor rotation.
E55	Vent Not Open	Browning valve does not open	— Alignment issue between motor cam and vent motor safety switch (micro switch). — Fault vent valve (motor). — Fault vent valve safety switch (micro switch). — Wiring or connection problem.

(CONTINUED ON NEXT PAGE)

CombiTouch ERROR CODES

Error Code	Error Call Out in Display	Description of Error	Possible Cause
E57	No Rinse Water	During rinse no water flow is detected through solenoid valve	— Water supply is shut off. — Low water pressure. — Check wiring to all components mentioned below. — Flow switch is dirty or defective. — Dual water solenoid valve obstructed or faulty (Y3.) — Relay board, high voltage, defective.
E93	Communication Error, FROM Display Board	Communication error between display board and low voltage relay board	— Check ribbon cable connections mentioned below. — Ribbon cable defective. — Relay board, low voltage, connector defective. — Display board connector defective.
E94	Communication Error, TO Display Board	Communication error between display board and low voltage relay board	— Check ribbon cable connections mentioned below. — Ribbon cable defective. — Relay board, low voltage, connector defective. — Display board connector defective.
E98	RB is in Cesius and DB is in Fahrenheit	Conflict of unit configuration in the setup menu	— Relay board and Data board do not match, use setup menu to change format.
E99	RB is in Fahrenheit and DB is in Cesius	Conflict of unit configuration in the setup menu	— Relay board and Data board do not match, use setup menu to change format.

(SEE MOTOR CONTROL ERROR CHART ON NEXT PAGE)

SERVICE MODE AND ERROR CODES

CombiTouch MOTOR CONTROL ERROR CODES

Type of Error	Indication	Release of Error
Undervoltage	LED flashing sequence, with 1 flash per period.	Voltage of intermediate circuit is less than 250V
Overvoltage	LED flashing sequence, with 2 flashes per period.	Voltage of intermediate circuit exceeds 445V
Excess Temperature	LED flashing sequence, with 3 flashes per period.	Temperature sensor in the power unit is more than 93°C
Overcurrent	LED flashing sequence, with 4 flashes per period.	Blocked motor, detected by current peak monitoring from 900 rpm rotating field
Overcurrent	LED flashing sequence, with 5 flashes per period.	Intermediate circuit current exceeds 4.0A
Short-circuit	LED flashing sequence, with 6 flashes per period.	Release of interrupt at intermediate circuit current larger than 53A
Power on	LED flashing sequence, with 7 flashes per period.	Effective mains voltage does not correspond to jumper setting 115V/230V
Watchdog	LED flashing sequence, with 8 flashes per period.	Watchdog of the microcontroller released, program crash

TROUBLESHOOTING TREES

ES Units

Unit Dead — No Display and No Operation D-2
No Generator Fill D-3
No Steam Production D-4

ES/ESi Units

No Heat in Convection Mode D-5
No Convection Motor Operation D-6
Input Signal Table for Motor Drive D-7
E-3 / E-4 Fan Motor Error D-8
E-53 / D-54 Fan Motor Temperature Error D-9
E-35 / E-55 Venting Errors D-10

ESi Units

No Convection Heat Production D-11
No Smoke Production D-12

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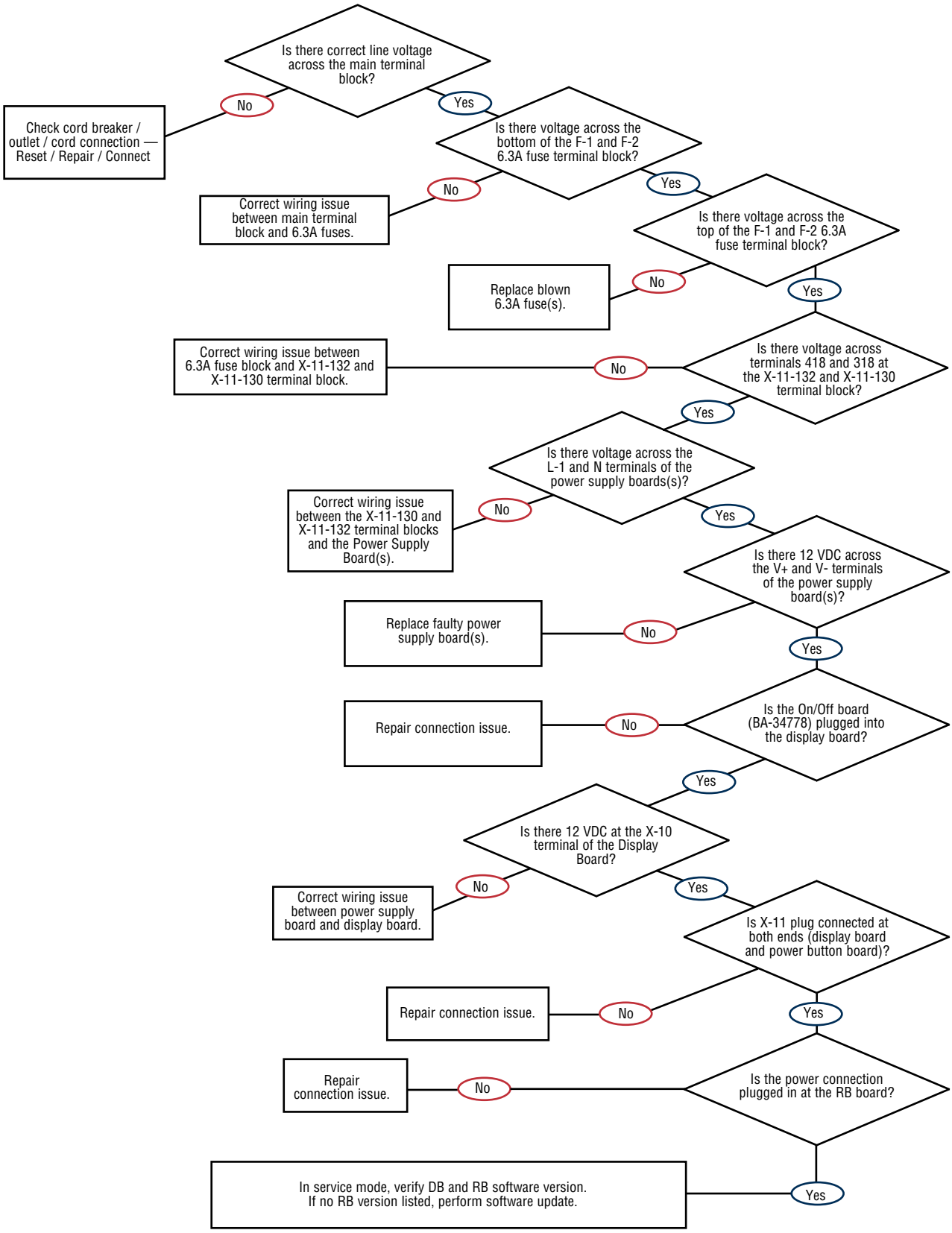
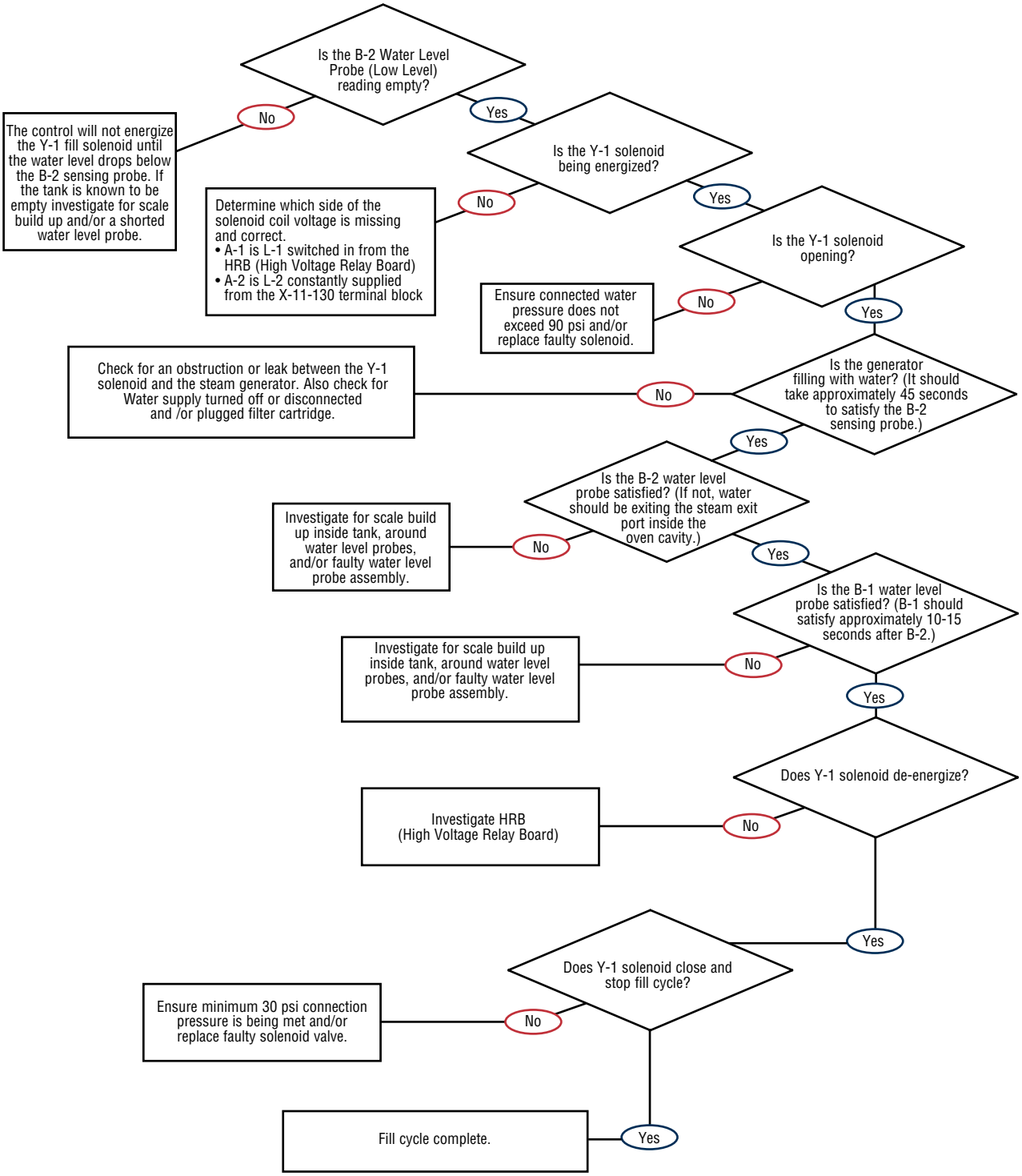
ES — Unit Dead — No Display and No Operation

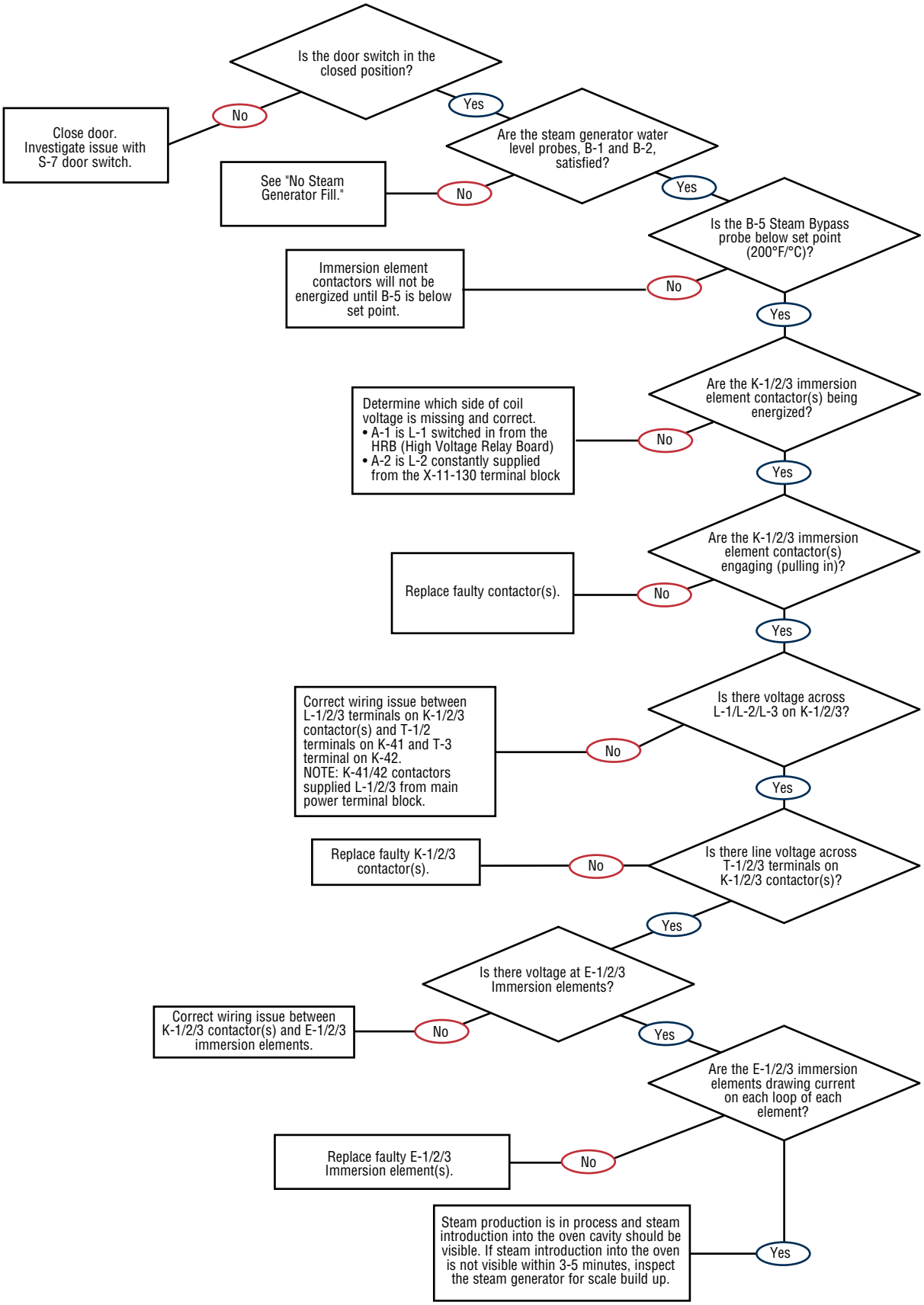


TROUBLESHOOTING TREES

ES — No Generator Fill

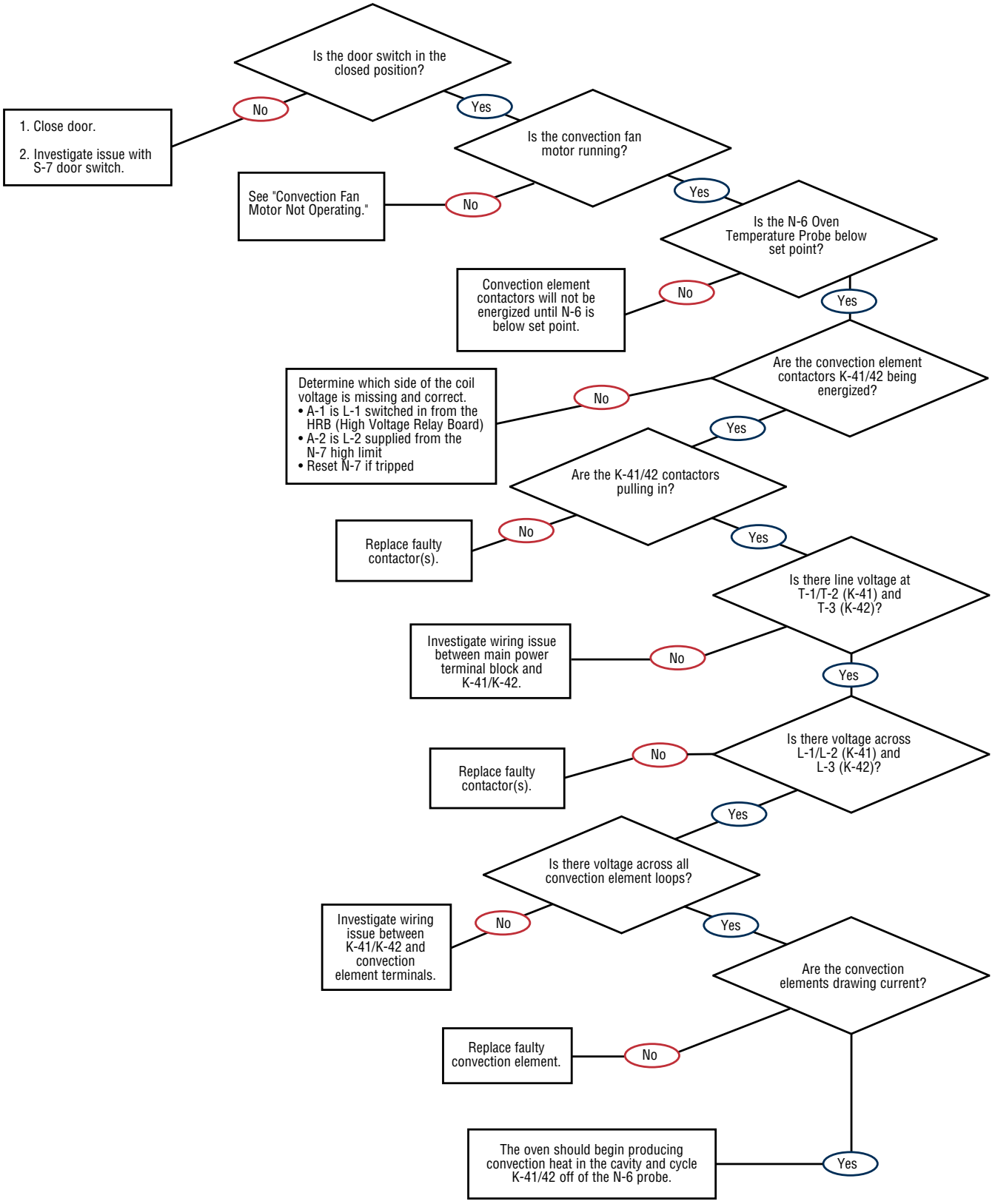


ES — No Steam Production

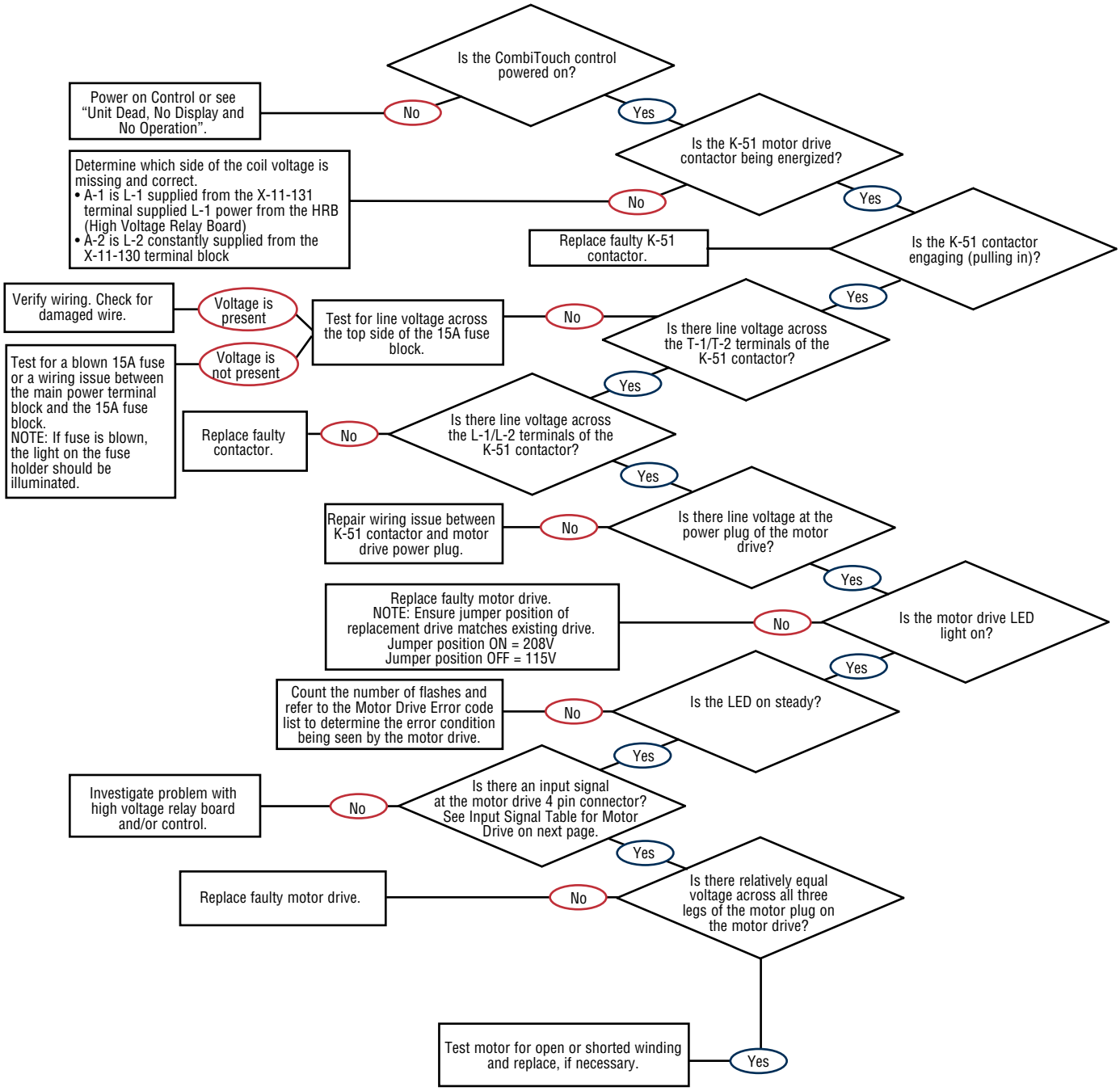


TROUBLESHOOTING TREES

ES/ESI — No Heat in Convection Mode



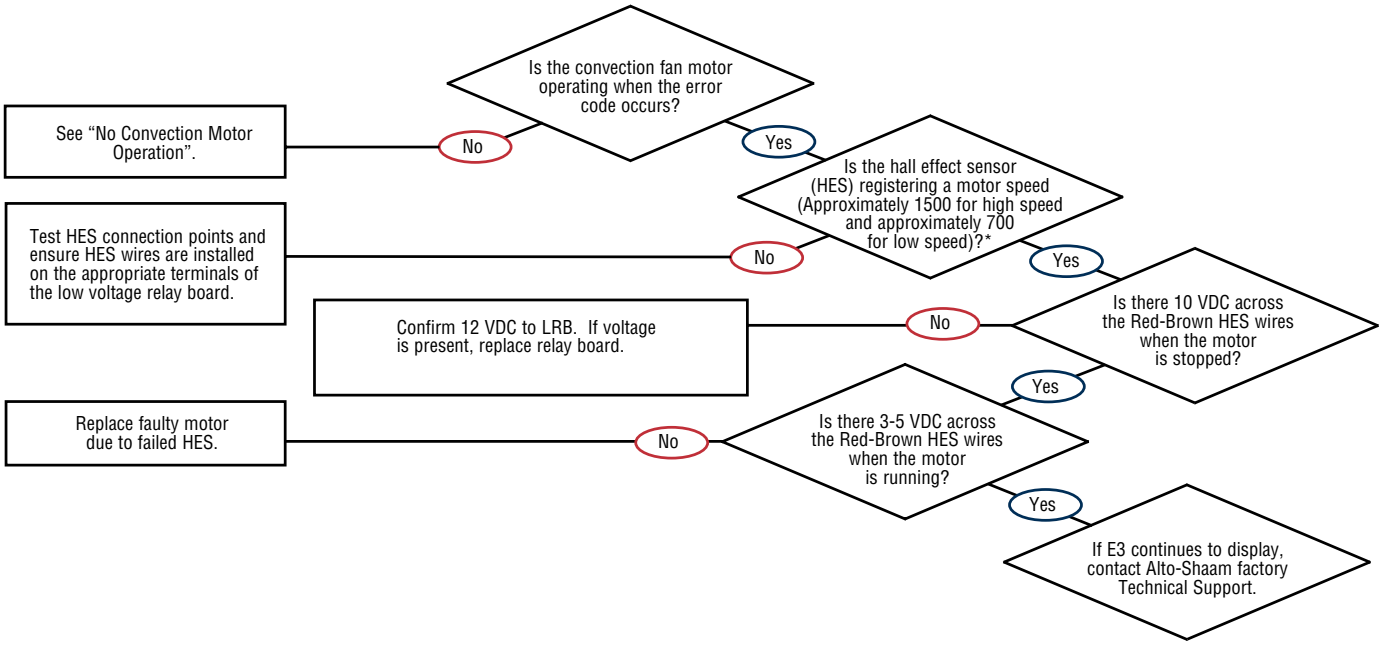
ES/ESI/ESG — No Convection Motor Operation



Input Signal Table for Motor Drive

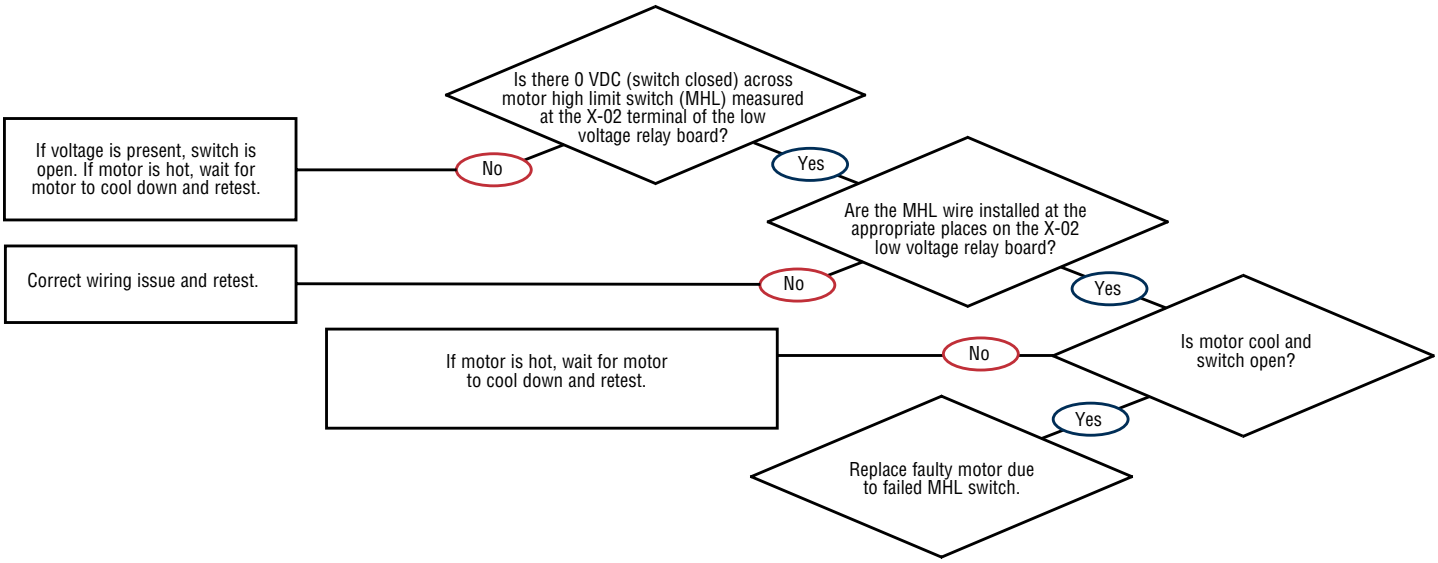
D2	D1	D0	Function
0	0	0	Motor stopped
0	0	1	Full rotation speed, direction of rotation: left
0	1	0	Full rotation speed, direction of rotation: right
0	1	1	Ramp stopped, i.e. remaining current rotation speed
1	0	1	Half rotation speed, direction of rotation: left
1	1	0	Half rotation speed, direction of rotation: right
1	0	0	Not defined, motor stopped
1	1	1	Not defined, motor stopped

ES/ESI/ESG — E-3/E-4 Fan Motor Error

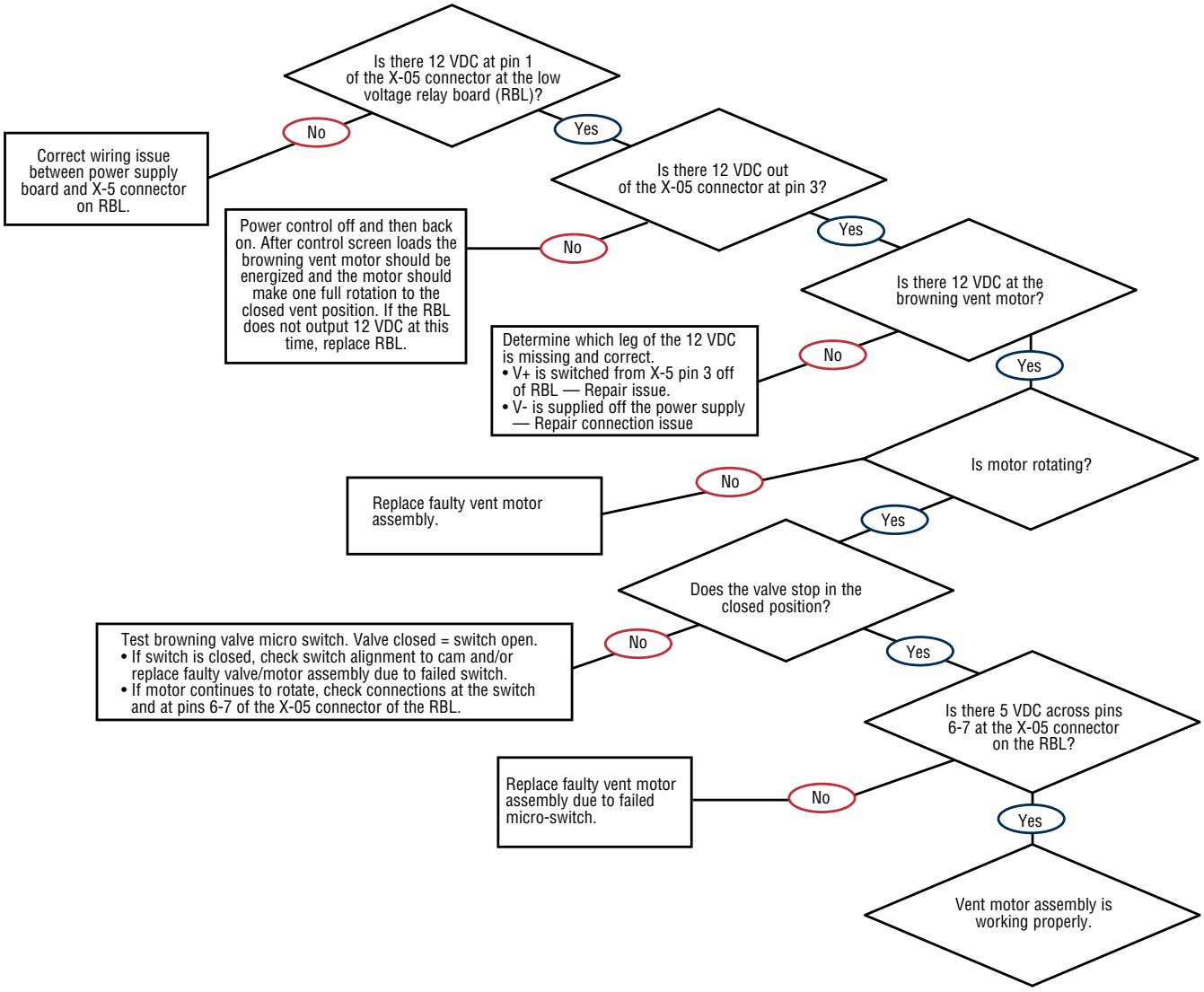


*Note: This can be seen in the service remote control. Test Clock Wise and Counter Clock Wise rotation as well as high and low speeds. The speeds should closely match.

ES/ESI/ESG — E-53/E-54 Fan Motor Temperature Error

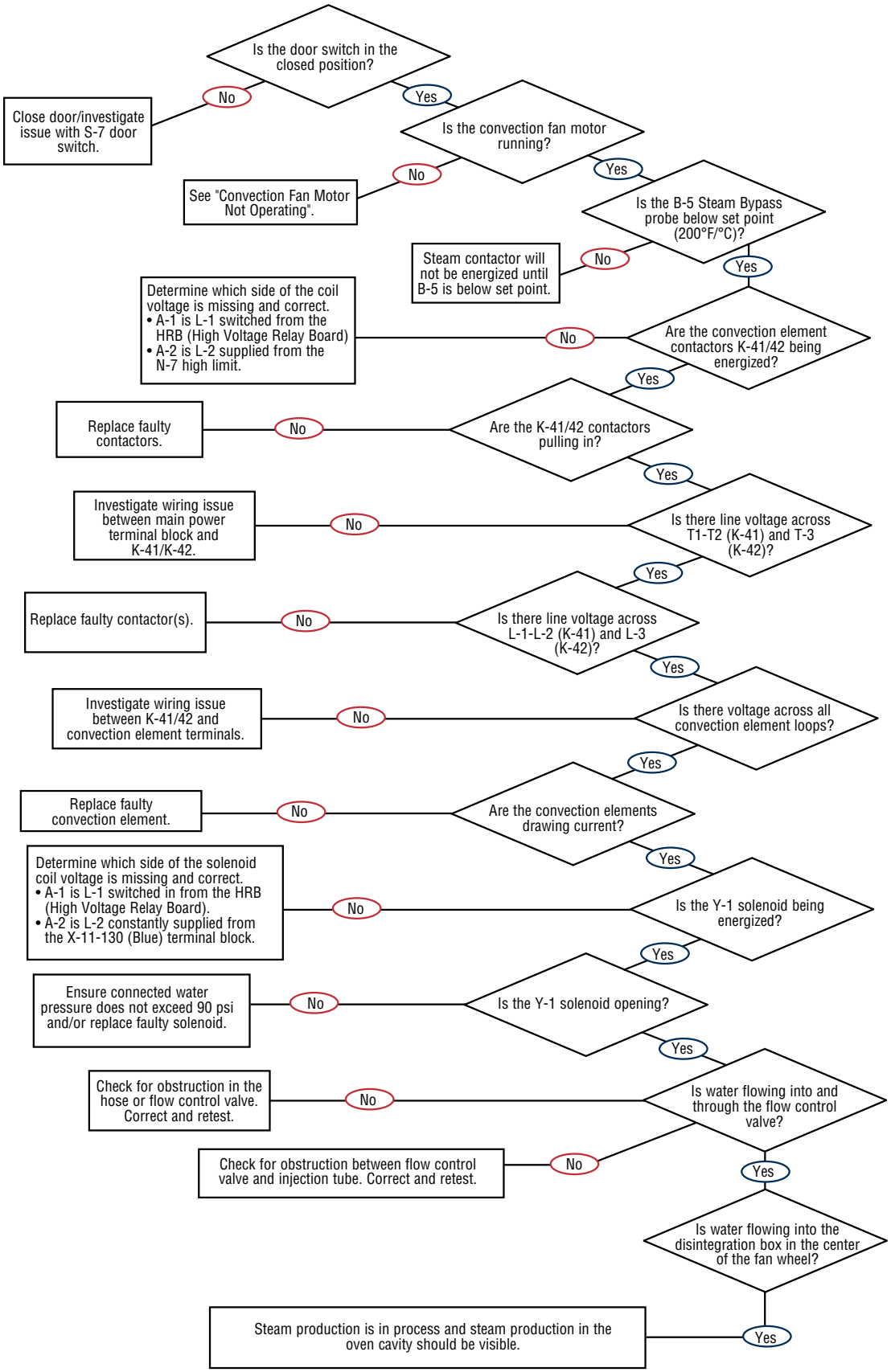


ES/ESI/ESG — E-35/E-55 Venting Errors

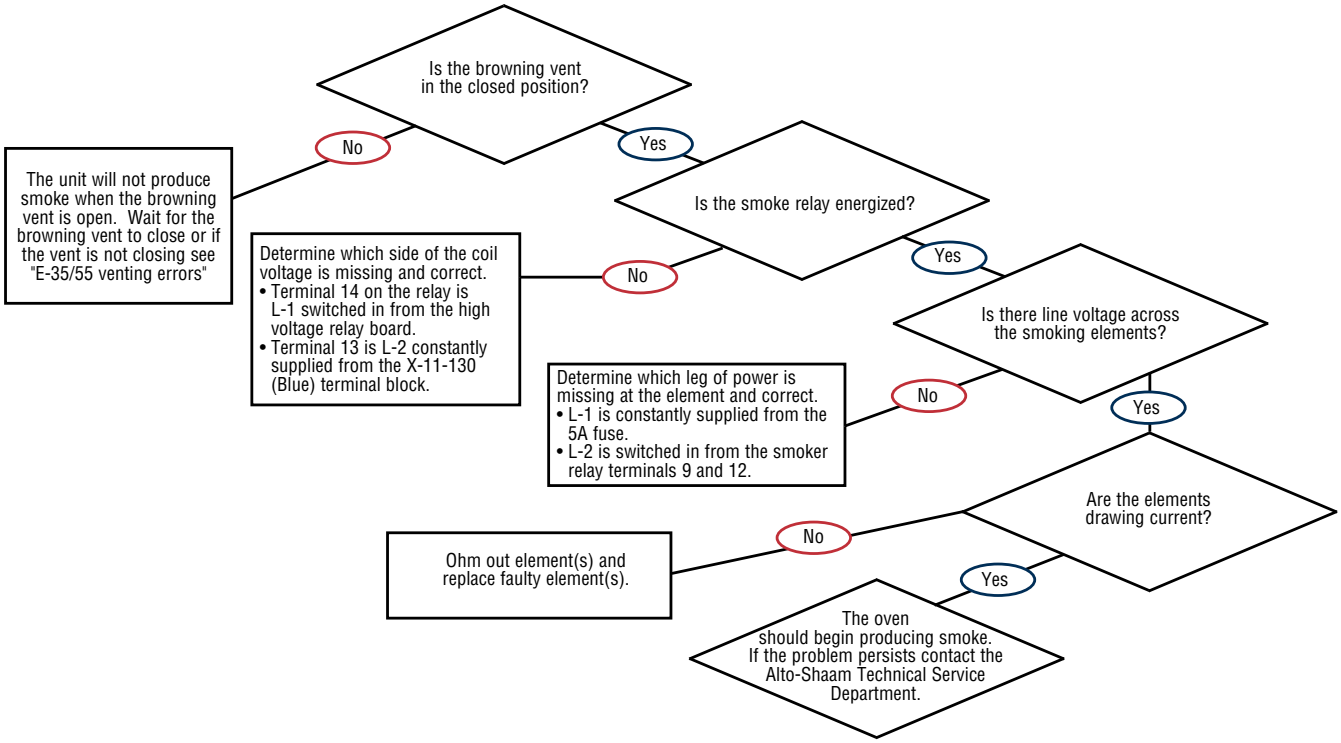


TROUBLESHOOTING TREES

ESI — No Convection Heat Production



ESI/ESG No Smoke Production



COMBITHERM PARTS

ES

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ESi & ESiN

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ES & ESi

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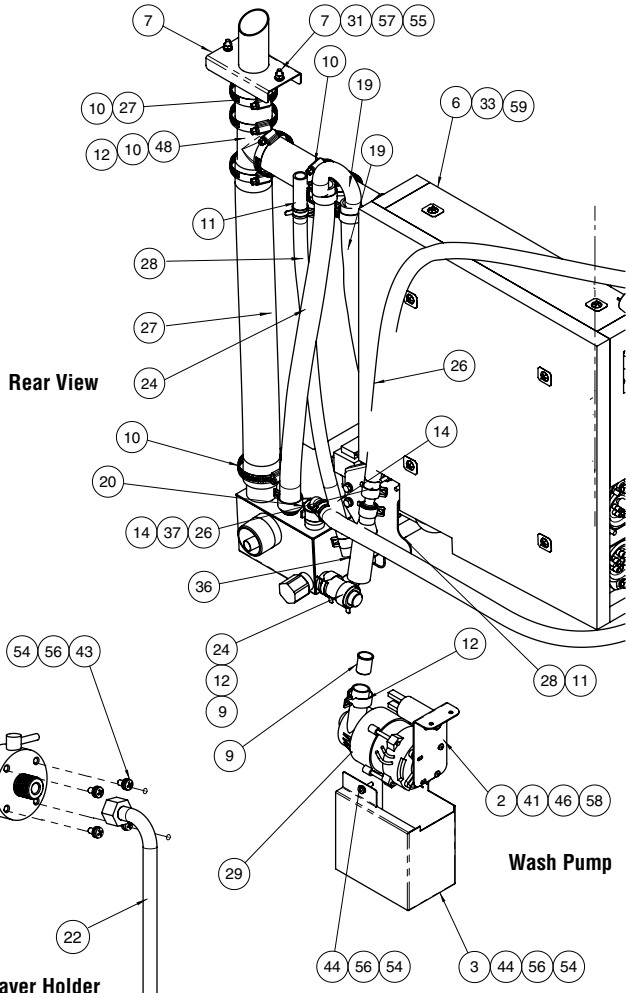
PARTS INFORMATION

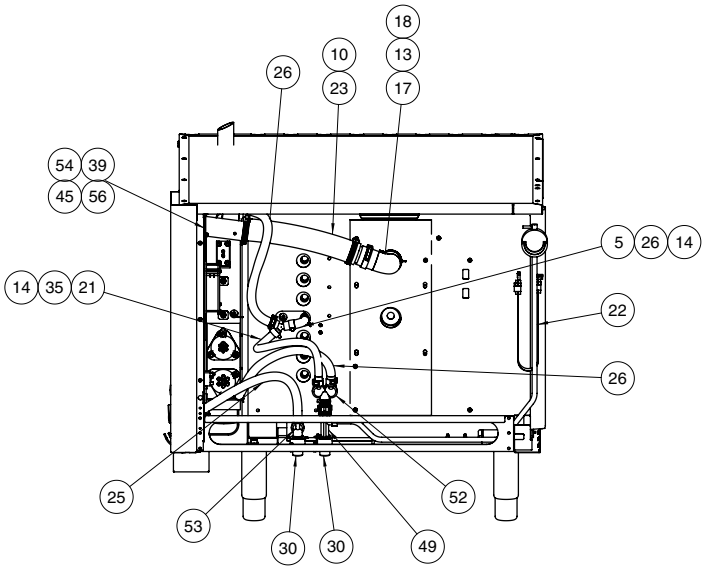
ES REAR & LEFT SIDE SERVICE PARTS



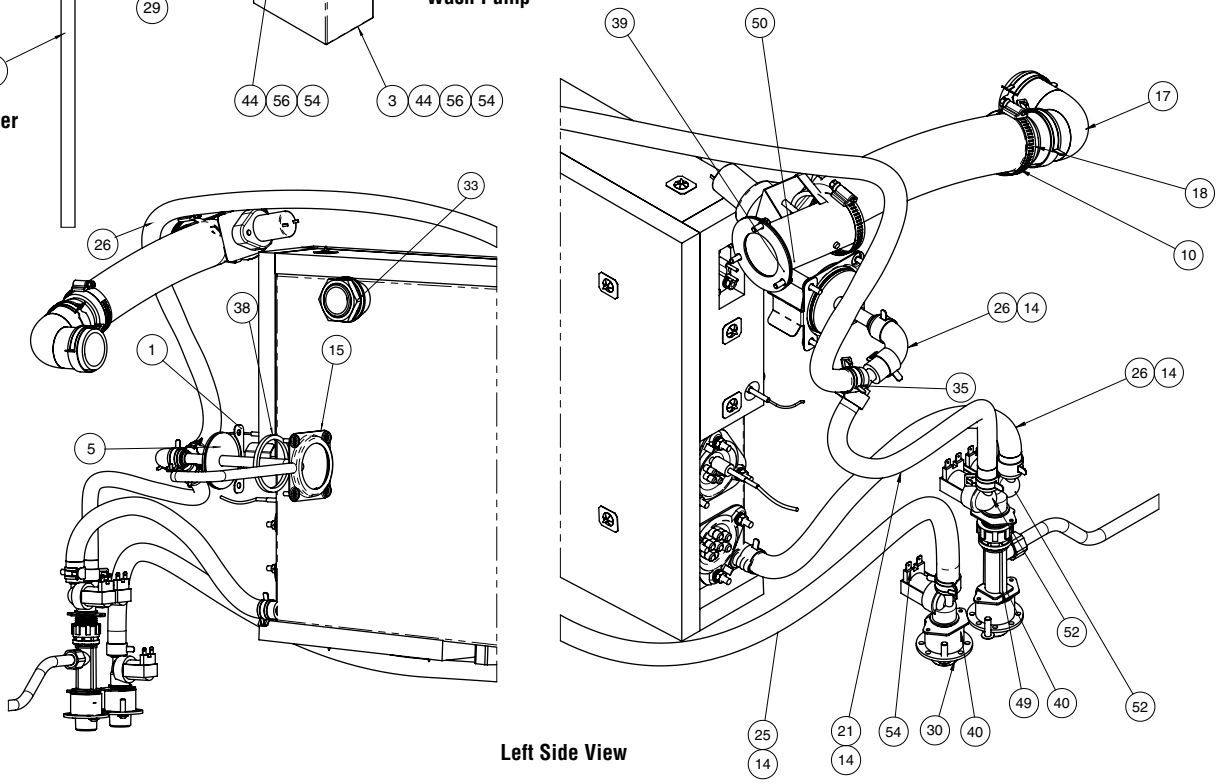
Rear View

Sprayer Holder Assembly

Wash Pump



Rear View



Left Side View

ES REAR & LEFT SIDE SERVICE PARTS

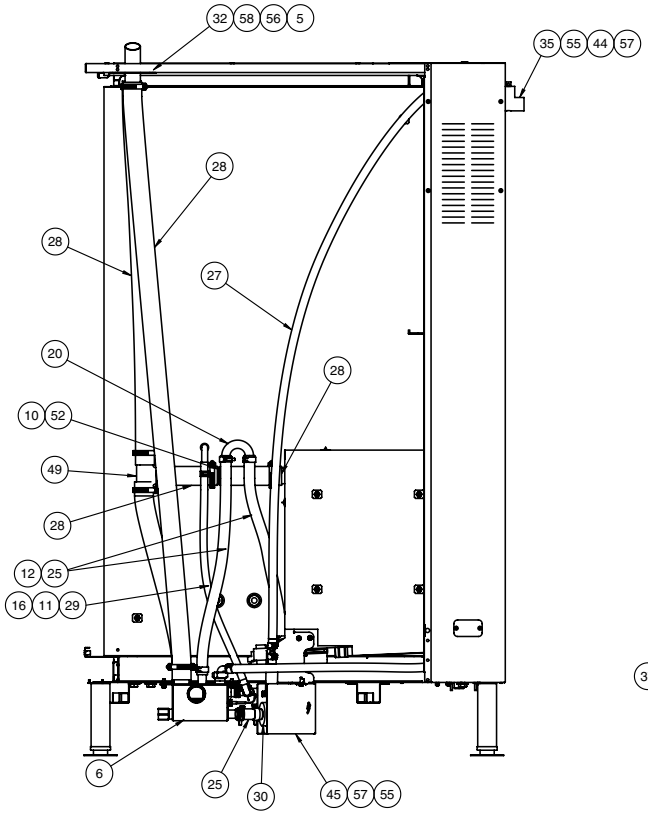
5011841

Item	Part	Description	Qty.	Item	Part	Description	Qty.
1	1009217	Guard-probe	1	31	NU-22291	Nut, M6, hex	2
2	1011363	Bracket, wash pump	1	32	NU-22292	Nut, M8, hex nut	1
3	1011364	Cover, wash pump	1	33	NU-22759	Hex nut 1-1/4"	1
4	1012302*	Cover, wash pump	1	34	PB-26960	Sprayer holder, valve	1
5	5006946	Injection tube weld/spot	1	35	PB-27838	Plumbing, nylon, 1/2" y fitting	1
6	5011646*	Steam generator kit, 6.10ES	1	36	PB-29289	Reducer, 7/8" x 1/2"	1
	5009560	Steam generator kit, 7.14ES, 10.10ES	1	37	PB-29489	Coupler, 1/2" to 1/2"	1
	5011651*	Steam generator kit, 10.18ES, 12.20ES	1	38	SA-23934	O-ring, seal injection tube	1
7	5011154	Vent pipe weld assembly	1	39	SA-26890	Seal, vent motor	1
8	5011699*	Cond tank assembly, 6.10ES, 7.14ES, 10.10ES	1	40	SA-28149	O-ring, seal	2
9	BG-29085	Bearing, flanged sleeve, 20mm	2	41	SC-22271	Screws, M4 phillips	2
10	CL-22234	Clamp, worm gear, 40-60, hose	10	42	SC-22281*	Screw, M5 x 16 flat head csink	4
11	CM-28145	Clamp, hose, 20mm	5	43	SC-22766	Screw, pan head phillips	4
12	CM-29037	Clamp, hose, 32mm	7	44	SC-22779	Screw, pan head phillips M5	1
13	CM-29039	Clamp, hose, 55mm	2	45	SC-22926	Screw, M5, no markings	3
14	CM-29301	Clamp, hose, 23mm	10	46	SC-25128	Screw, truss head M6	4
15	CV-23896	Bracket injector tube	1	47	SL-3836*	Sleeve, grommet edging	1
16	EB-22221	Elbow, steam bypass	1	48	TE-24257	Tee, copper 1-3/4" Od.	1
17	EB-27207	Elbow, 1-7/8"	1	49	TE-27204	Tee, shower hose	1
18	FT-27406	Coupling, w/o stop, 1.5"	1	50	VA-26838	Vent motor with switch	1
19	FT-28660	Return bend	1	51	VA-29262*	Valve, low pressure	1
20	HO-22116	Fitting, elbow, 90 deg.	1	52	VA-34045	Valve, double port, treated water	1
21	HO-22255	Hose, 1/2" flex, clear	1	53	VA-34300	Valve, single port, untreated water	1
22	HO-27203	Hose, hand shower connection	1	54	WS-22295	Washer, flat M5 s/s	8
23	HO-27891	Hose, 1 7/8" bulk	1	55	WS-22297	Washer, flat, M6	2
24	HO-27892	Hose, 7/8", bulk	1	56	WS-22301	Washer, M5 split lock	8
25	HO-22255	Hose, 1/2", High temp	1	57	WS-22302	Washer, M6 split lock	2
26	HO-28790	Hose, 1/2" Id, hi-temp silicon	1	58	WS-24396	Washer M8 s/s serrated bevel	1
27	HO-29435	Hose, 1-5/8", bulk	2	59	WS-25092	Conical, 2.126", s/s steam gen seal	1
28	HO-2957	Hose, translucent silicon	1	60	WS-25093	Conical, 1.772", s/s steam gen seal	1
29	MO-34636	Pump, wash system	1	61	BU-28391	Bushing membrane, low pressure	1
30	NP-27538	Valve holder assembly	2	62	BU-22204	Bushing, socket, membrane	1

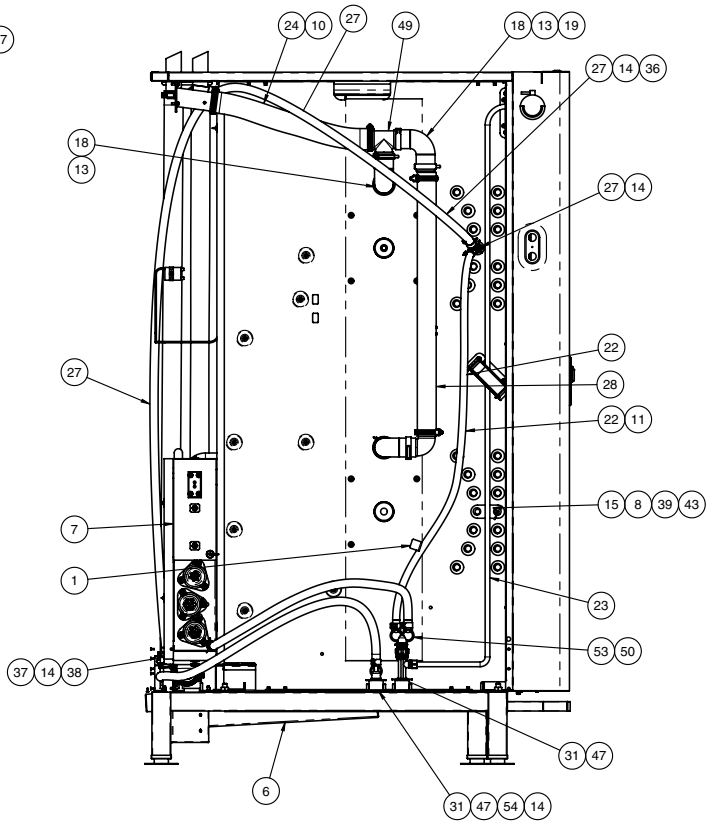
*NOT SHOWN

PARTS INFORMATION

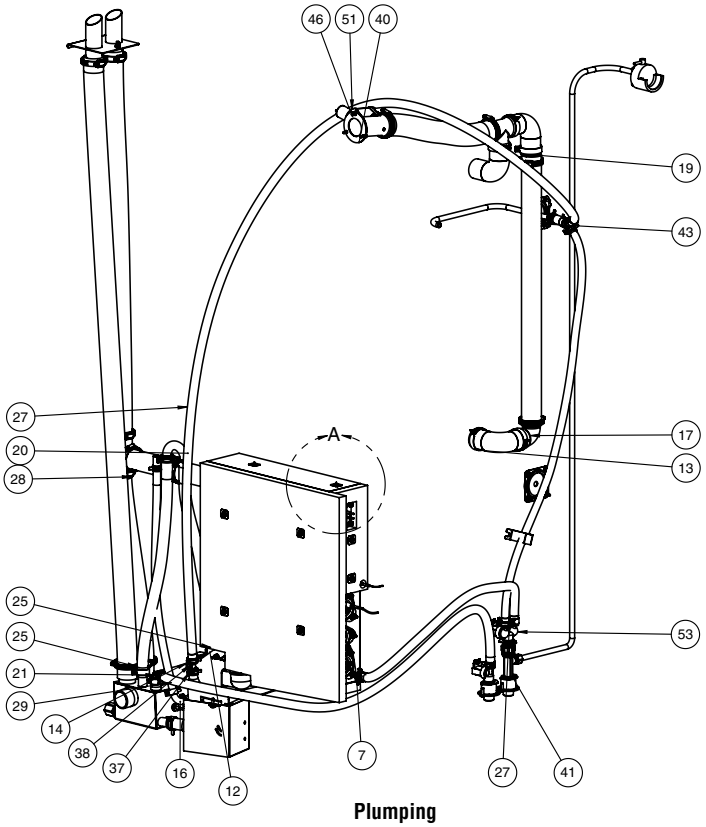
ES REAR & LEFT SIDE SERVICE PARTS — 20.20ES



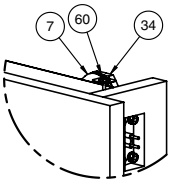
Rear View



Left Side View



Plumping



Detail A

ES REAR & LEFT SIDE SERVICE PARTS — 20.20ES

5011839

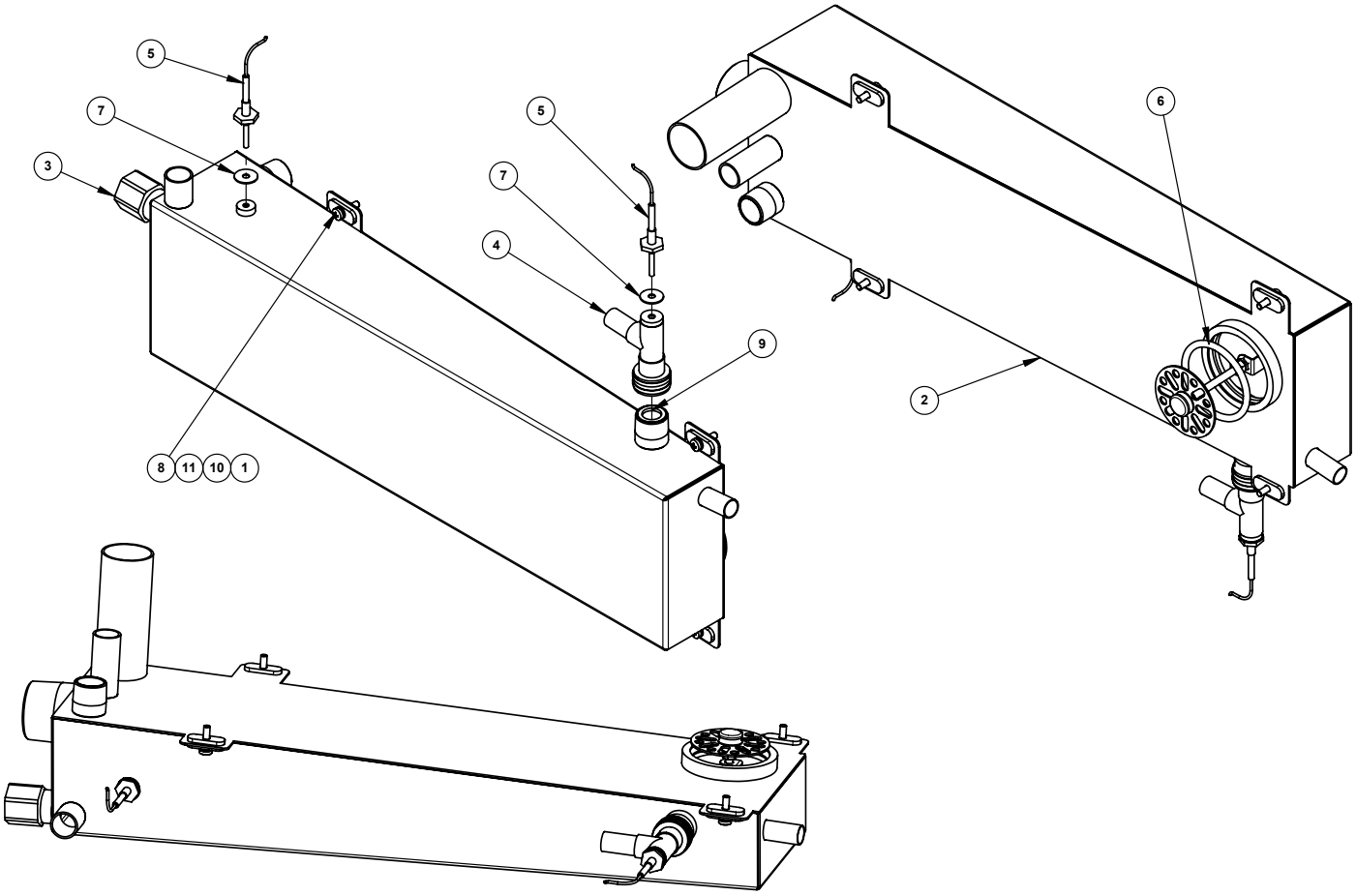
Item	Part	Description	Qty.	Item	Part	Description	Qty.
1	1008846	Bracket, hose guide	1	32	NU-22291	Nut, M6 hex	2
2	1009790*	Pump, bracket	1	33	NU-22292*	Nut, M8 hex	1
3	1012154*	Pump, bracket	1	34	NU-22759	Hex nut 1-1/4"	1
4	5005648	Injection tube weld/spot	1	35	PB-26960	Sprayer holder, vent	1
5	5006237	Double vent holder assembly	1	36	PB-27838	Plumbing, nylon, 1/2" y fitting	1
6	5009452	Condensor tank asb	1	37	PB-29289	Reducer, 7/8" x 1/2"	1
7	5011651	Steam Generator Kit, 20.20ES	1	38	PB-29489	Coupler, 1/2" to 1/2"	1
8	5012125	Plug, injection tube	1	39	SA-23934	O-ring, seal injection tube	2
9	BG-29085	Bearing, flanged sleeve, 20mm	2	40	SA-26890	Seal, vent motor	1
10	CL-22234	Clamp, worm gear, 40-60, hose	14	41	SA-28149	O-ring, seal	2
11	CM-28145	Clamp, hose, 20mm	6	42	SC-22271*	Screws, M4 phil	2
12	CM-29037	Clamp, hose, 32mm	7	43	SC-22281	Screw, M5 flat head csink	8
13	CM-29039	Clamp, hose, 55mm	5	44	SC-22766	Screw, pan head phillips	4
14	CM-29301	Clamp, hose, 23mm	9	45	SC-22779	Screw, M5, pan head phillips	2
15	CV-23896	Bracket, injection tube	2	46	SC-22926	Screw, M5 x 16, no markings	3
16	EB-22221	Elbow, steam bypass	1	47	SC-25128	Screw, truss head M6	4
17	EB-23949	Elbow, 1-1/2", 90 deg. Copper	1	48	SL-3836*	Sleeve, grommet edging	1
18	EB-27207	Elbow, 1-7/8"	3	49	TE-24257	Tee, 1-3/4" od. copper	2
19	FT-27406	Coupling, w/o stop, 1.5"	1	50	TE-27204	Tee, shower connection	1
20	FT-28660	Return bend	1	51	VA-26838	Vent motor with switch	1
21	HO-22116	Fitting, elbow, 90 deg.	1	52	VA-29262	Valve,low pressure	1
22	HO-22255	Hose, 1/2" flex, clear	1	53	VA-34045	Valve, double port, treated water	1
23	HO-27301	Hose, hand shower connection	1	54	VA-34300	Valve, single port, untreated water	1
24	HO-27891	Hose, 1 7/8" bulk	1	55	WS-22295	Washer, flat M5	9
25	HO-27892	Hose, 7/8" bulk	1	56	WS-22297	Washer, flat, M6	2
26	HO-22255	Hose, 1/2", High temp	1	57	WS-22301	Washer, M5 split lock	9
27	HO-28790	Hose, 1/2" hi-temp silicon	1	58	WS-22302	Washer, M6 split lock	2
28	HO-29435	Hose, 1-5/8" bulk	1	59	WS-24396	Washer M8 s/s serrated bevel	1
29	HO-2957	Hose, translucent silicon	1	60	WS-25092	Conical, 2.126", s/s steam gen seal	1
30	MO-34636	Pump, wash system	1	61	BU-28391	Bushing membrane, low pressure	1
31	NP-27538	Valve holder assembly	2	62	BU-22204	Bushing, socket, membrane	1

*NOT SHOWN

PARTS INFORMATION

ES CONDENSATION TANK (RIGHT-HAND, LEFT-HAND & RECESSED)

6•10ES, 10•10ES, 10•18ES, 12•20ES, & 20•20ES



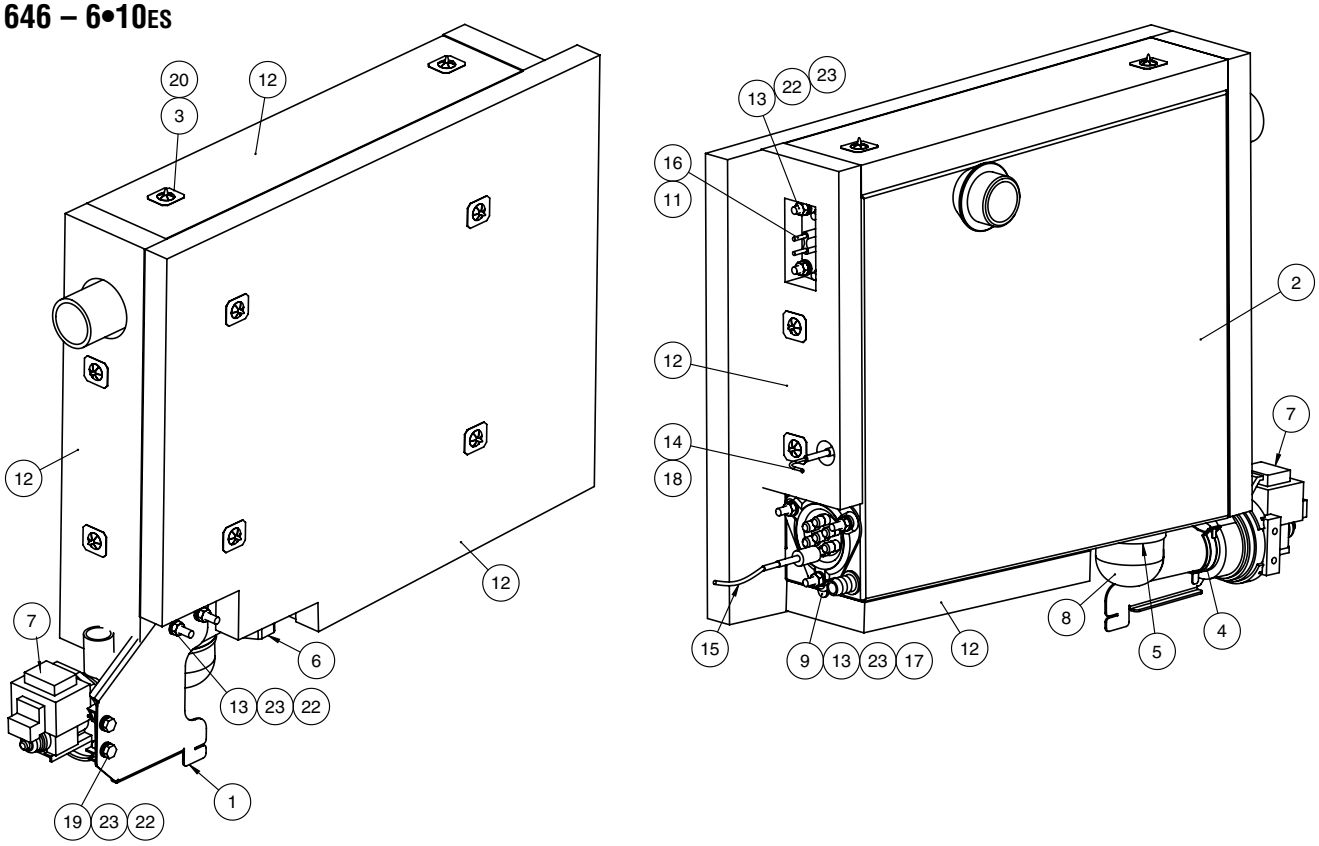
5010455

Item	Part	Description	Qty.
1	1005540	Condenser tank spacer	8
2	5008873	Condenser tank welding	1
3	CP-28016	Cap-3/4 npt	1
4	PB-26512	Measure probe	1
5	PR-33751	Thermocouple, 3050mm wire length	2
6	SA-22212	O-ring, red, seal	1
7	SA-25061	T-couple probe, seal	2
8	SC-22779	Screw, M5 pan head phillips	4
9	WS-22207	Seal, measure probe	1
10	WS-22295	Washer, flat M5 s/s	4
11	WS-22301	Washer, M5 split lock	4
12	CP-29358*	Cap (recessed only)	1
13	CM-28145*	Clamp (recessed only)	1

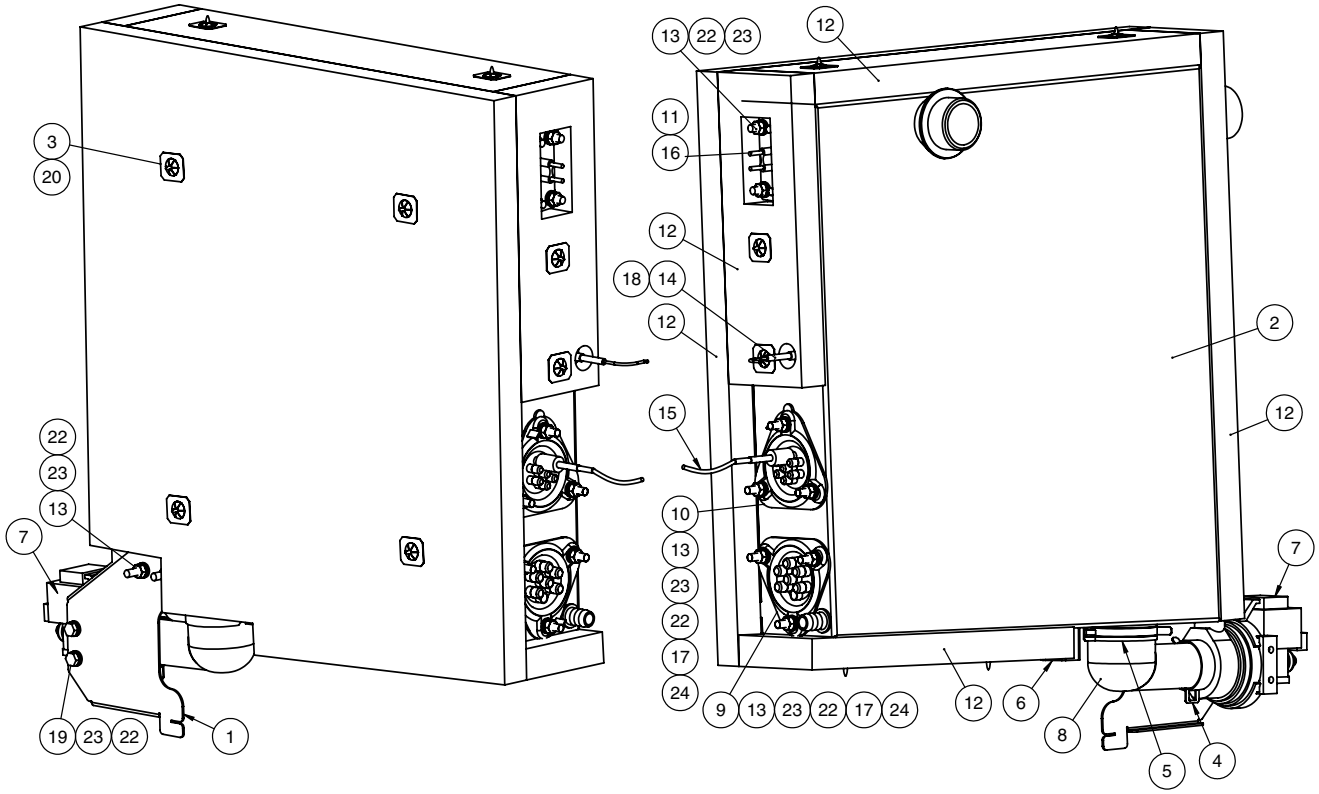
*NOT SHOWN

STEAM GENERATOR ASSEMBLY

5011646 – 6•10ES



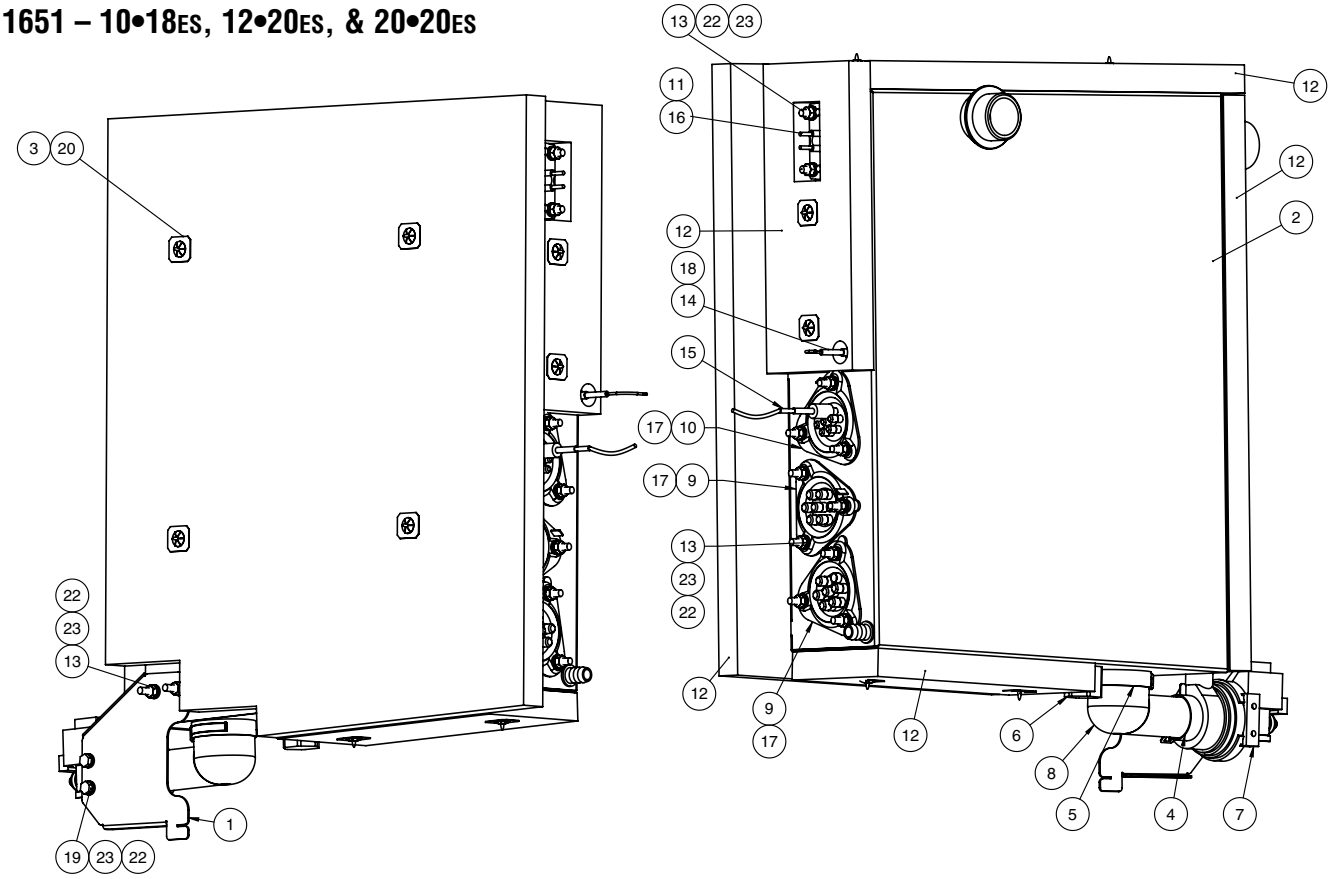
5009560 – 7•14ES & 10•10ES



PARTS INFORMATION

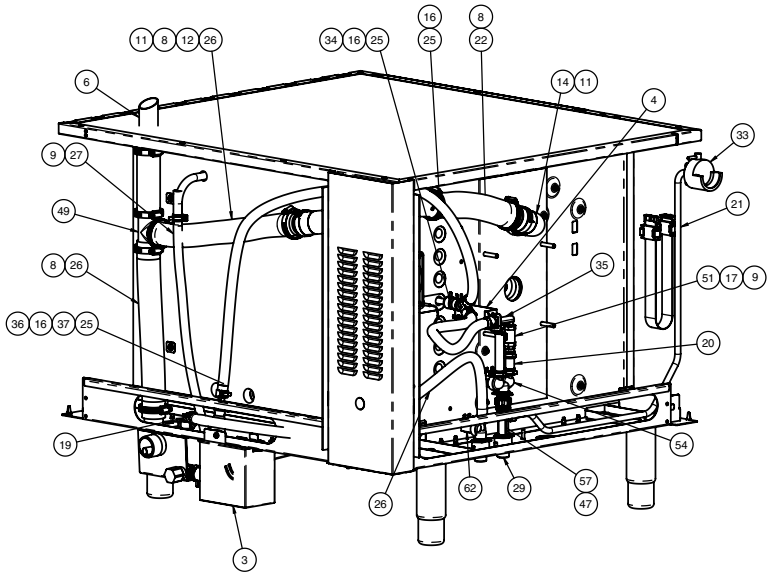
STEAM GENERATOR ASSEMBLY

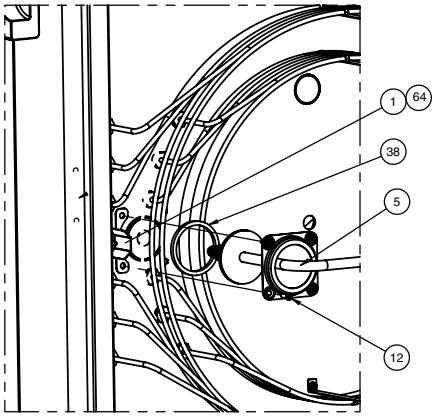
5011651 – 10•18ES, 12•20ES, & 20•20ES

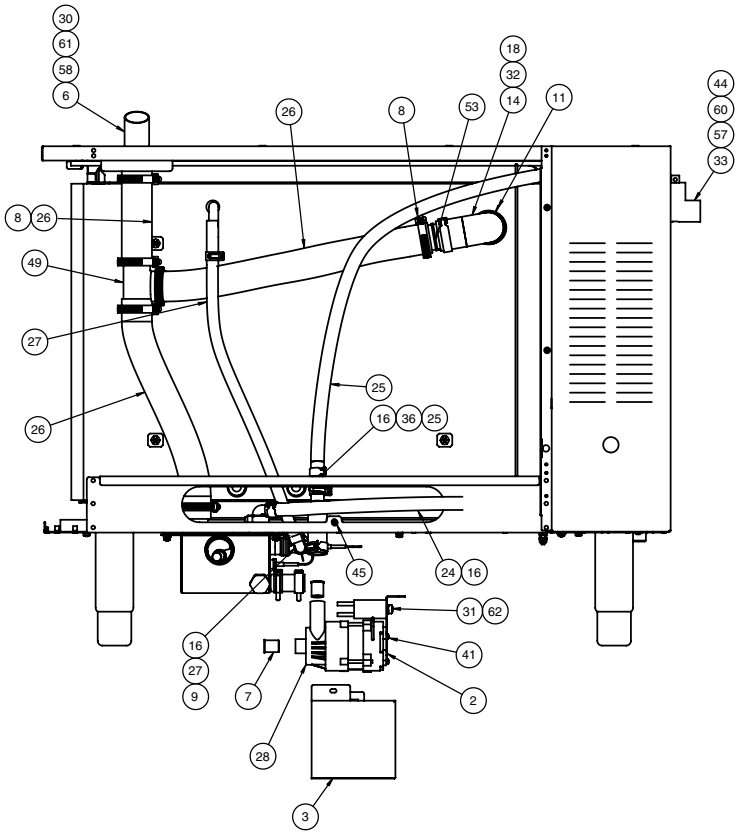


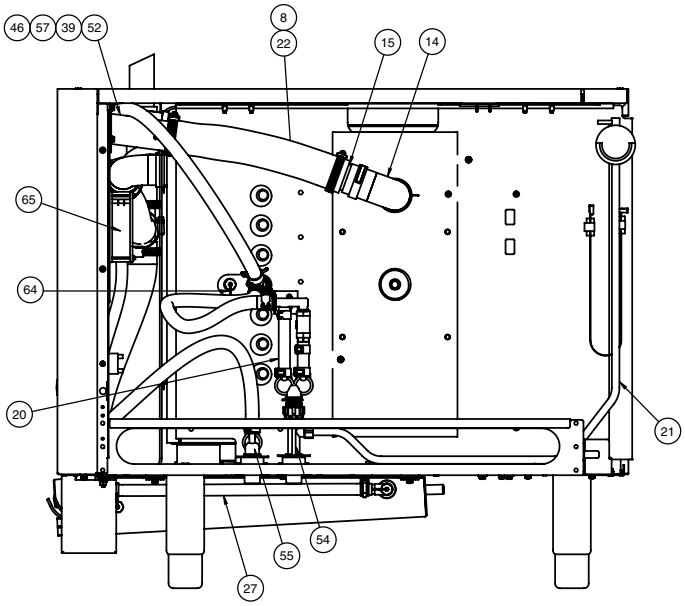
Item	Part	Description	Qty.	Item	Part	Description	Qty.
1	1011361	Bracket, pump, combiclean	1	12	IN-22265	Insulation	1
2	5011647	Boiler tank,spot-weld, 6.10ES	1	13	NU-22291	Nut, M6 hex	varies
	5009561	Boiler tank,spot-weld, 7.14ES, 10.10ES	1	14	PR-33724	Thermocouple, 1650mm wire length	1
	5011754	Boiler tank,spot-weld, 10.18ES, 12.20ES, 20.20ES	1	15	PR-33759	Temperature sensor	1
3	CL-22259	Insulation spike clip		16	PR-34902	Water level probe	1
4	CM-29038	Clamp, hose, 38mm	1	17	SA-23932	O-ring, seal steam element	3
5	CM-29039	Clamp, hose, 55mm	1	18	SA-25061	T-couple probe	1
6	CP-28016	Cap-3/4 npt	1	19	SC-22284	Screw, M6 hex head	2
7	DA-24973	Pump, steam generator, elbow	1	20	ST-22258	Insulation spike	12
8	EB-25106	Steam generator drain	1	21	TU-22256*	Tubing, wire sleeve	varies
9	EL-33411	Heater, immersion, 9kw, flanged	1	22	WS-22297	Washer, flat, M6	varies
10	EL-33412	Heater, immersion, 6kw, flanged	1	23	WS-22302	Washer, split lock, M6	varies
11	GS-29243	Gasket, water level, probe	1	24	ST-22278	Stud, M6 x 20mm	6

ESi & ESiN REAR & LEFT SIDE SERVICE PARTS









PARTS INFORMATION

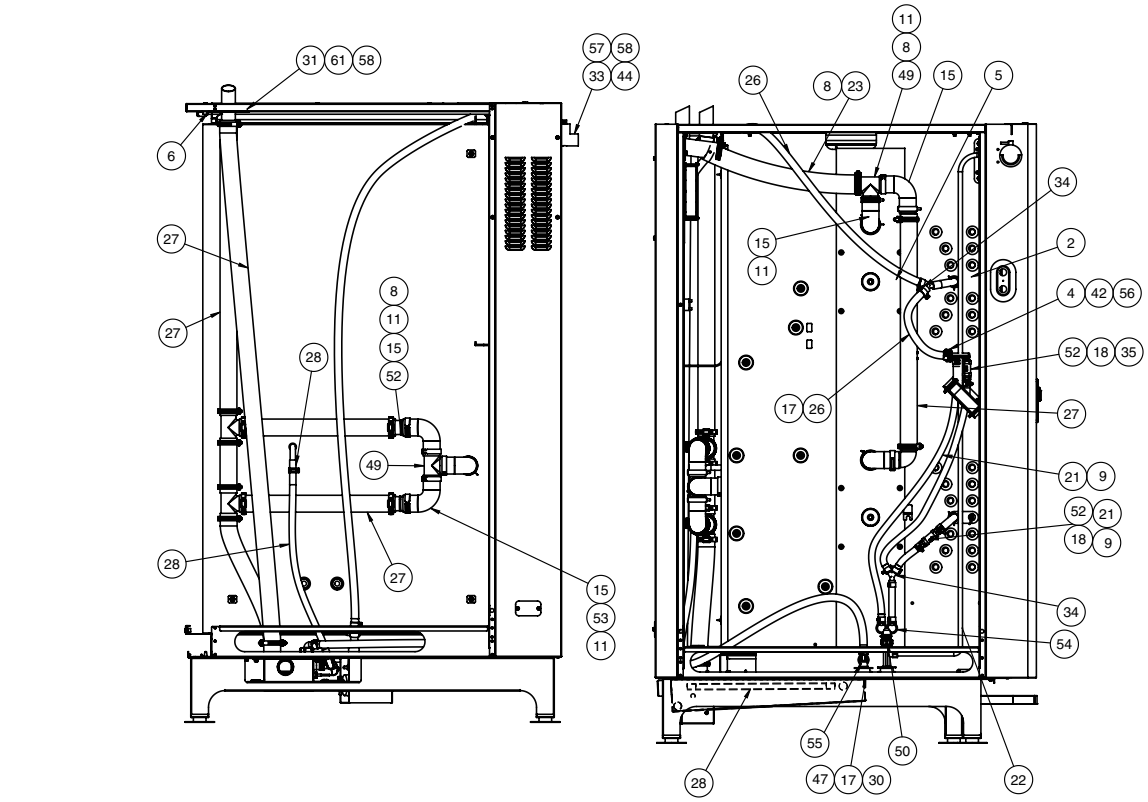
ESi & ESiN REAR & LEFT SIDE SERVICE PARTS

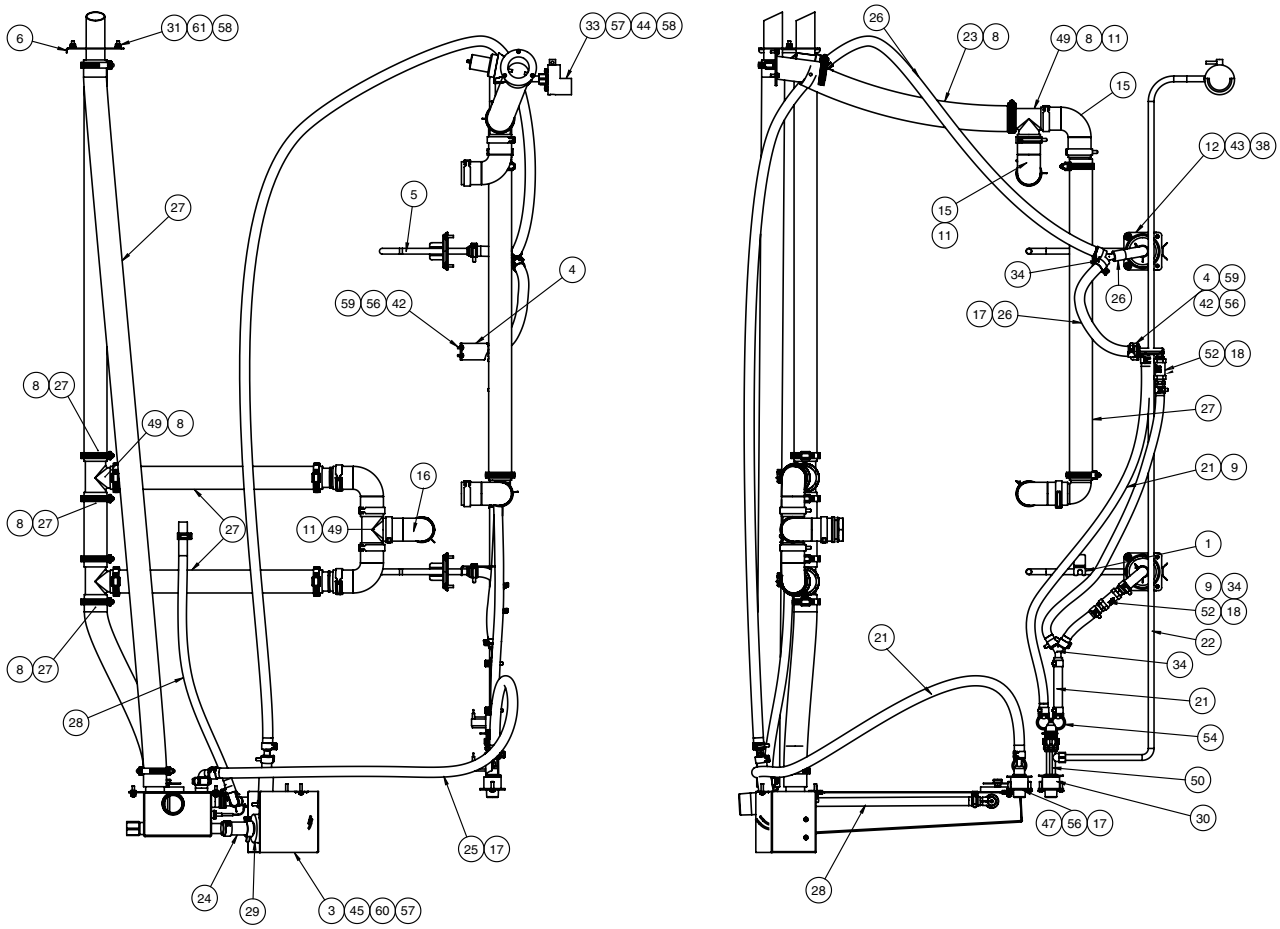
5011833

Item	Part	Description	Qty.	Item	Part	Description	Qty.
1	1009217	Guard-probe	1	34	PB-27838	Plumbing, nylon, 1/2" y	1
2	1011363	Bracket, wash pump	1	35	PB-29162	Manifold, injection tube	1
3	1011364	Cover, wash pump	1	36	PB-29289	Reducer, 7/8" x 1/2"	1
4	1011558	Bracket, mainifold	1	37	PB-29489	Coupler, 1/2" to 1/2"	1
5	5006946	Injection tube weld/spot	1	38	SA-23934	Injection tube, seal	1
6	5011154	Vent pipe weld assembly	1	39	SA-26890	Seal, vent motor	1
7	BG-29085	Bearing, flanged sleeve, 20mm	2	40	SA-28149	O-ring, seal valve holder	2
8	CL-22234	Clamp, worm gear, 40-60, hose	8	41	SC-22271	Screws,M4 phil	2
9	CM-28145	Clamp, hose, 20mm	8	42*	SC-22273	Screw, pan head phillips M4	2
10*	CM-29037	Clamp, hose, 32mm	3	43	SC-22281	Screw, M5 flat head	4
11	CM-29039	Clamp, hose, 55mm	4	44	SC-22766	Screw, pan head phillips	4
12*	CV-23896	0-ring, light coved corner	1	45	SC-22779	Screw, pan head phillips M5	3
13	EB-22221	Elbow, steam bypass	1	46	SC-22926	Screw, M5	3
14	EB-27207	Elbow, 1-7/8	2	47*	SC-25128	Screw, truss head M6	4
15	FT-27406	Coupling, w/o stop, 1.5"	1	48*	SL-3836	Sleeve, grommet edging	1
16	FT-28124	Clamp, hose, 24mm	9	49	TE-24257	Tee 1-3/4" Od. copper	1
17	FT-29124	Fitting, 1/2" barb to 3/8" npt adaptor	1	50	TE-27204	Tee, valve, sprayer	1
18	FT-29273	Fitting, low pressure,esi	1	51	VA-25549	Valve, 3/8", flow control, 0.13 Gpm	1
19	HO-22116	Fitting, elbow, 90 deg. with barb	1	52	VA-26838	Vent motor with switch	1
20	HO-22255	Hose, 1/2" flex, clear	1	53	VA-29262	Valve, low pressure	1
21	HO-27203	Hose, hand shower connection	1	54	VA-34045	Valve, double port, treated water	1
22	HO-27891	Hose, 1-7/8" bulk	1	55	VA-34300	Valve, single port, untreated water	1
23*	HO-27892	Hose, 7/8", bulk	1	56	WS-22294	Washer, flat M4	2
24	HO-22255	Hose, 1/2", High temp	1	57	WS-22295	Washer, flat M5	10
25	HO-28790	Hose, 1/2" hi-temp silicon	1	58	WS-22297	Washer, flat, M6	2
26	HO-29435	Hose, 1-5/8", bulk	1	59	WS-22300	Washer M4 split lock	2
27	HO-2957	Hose, translucent silicon, steam bypass	1	60	WS-22301	Washer, M5 split lock	10
28	MO-34636	Pump, wash system	1	61	WS-22302	Washer, M6 split lock	2
29	NP-27538	Valve holder assembly	2	62	WS-24396	Washer M8 serrated bevel	1
30	NU-22291	Nut, M6 hex	2	63*	WS-25092	Conical, 2.126", steam generator seal	1
31	NU-22292	Nut, M8 hex	1	64	PR-33274	Oven temp probe	1
32	NU-22759	Hex nut 1-1/4"	1	65	FA-3568	Cooling Fan	1
33	PB-26960	Sprayer holder, valve	1				

*NOT SHOWN

ESi REAR & LEFT SIDE SERVICE PARTS — 20.20ESi





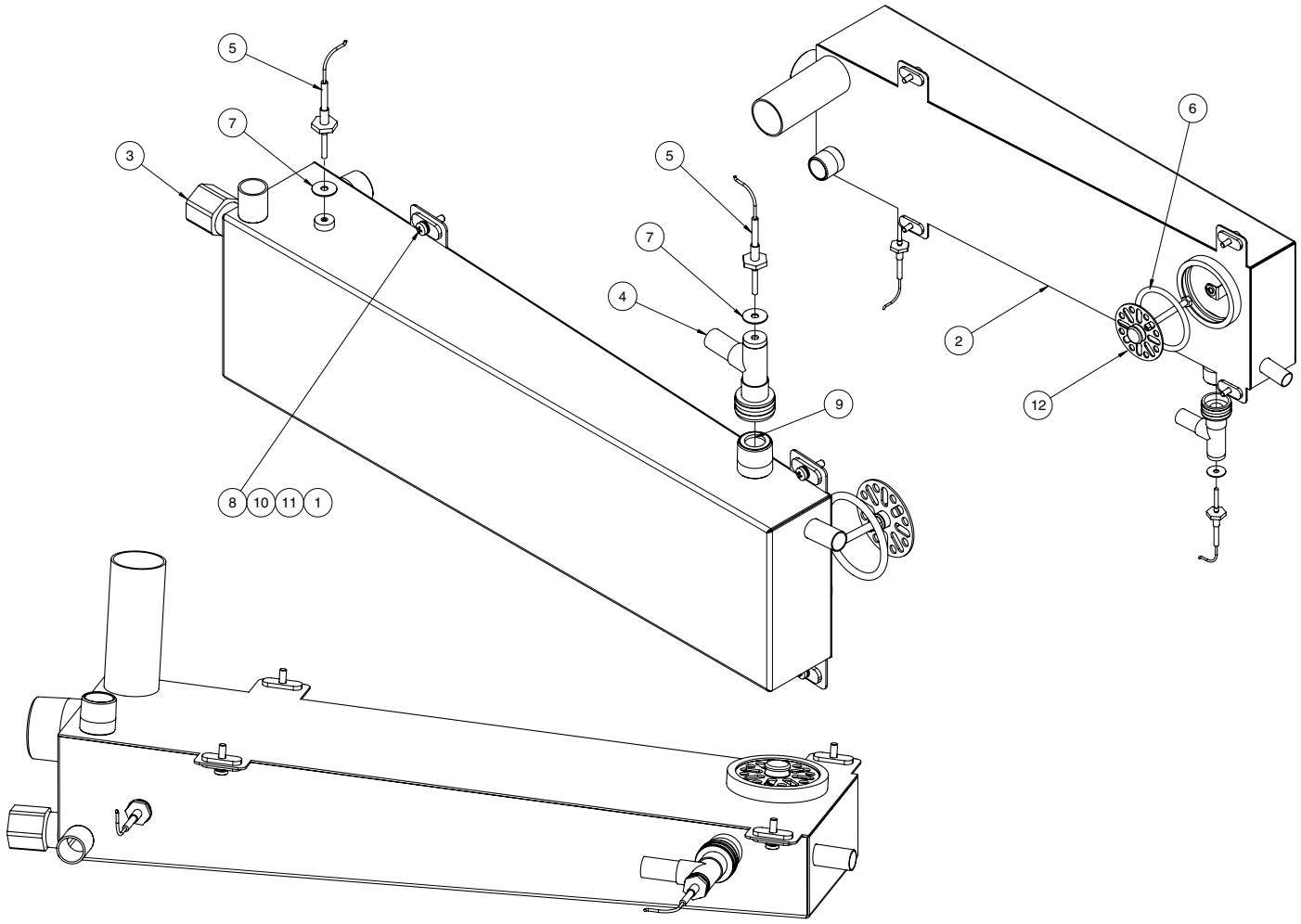
ESi REAR & LEFT SIDE SERVICE PARTS — 20.20ESi

5011838

Item	Part	Description	Qty.	Item	Part	Description	Qty.
1	1008846	Bracket, hose guide	1	34	PB-27838	Plumbing, nylon, 1/2" y	2
2	1009217*	Guard-probe	2	35	PB-29162	Manifold, injection tube	1
3	1009790	Pump, bracket	1	36	PB-29289	Reducer, 7/8" x 1/2"	1
4	1011557	Bracket, manifold	1	37	PB-29489	Coupler, 1/2" to 1/2"	1
5	5005648	Injection tube weld/spot	2	38	SA-23934*	O-ring, seal, injection tube	2
6	5006237	Double vent holder assembly	1	39	SA-26890	Seal, pressure valve	1
7	BG-29085*	Bearing, flanged sleeve, 20mm	2	40	SA-28149	O-ring, seal, valve holder	2
8	CL-22234	Clamp, worm gear, 40-60, hose	12	41	SC-22271*	Screws, M4 phillips	4
9	CM-28145	Clamp, hose, 20mm	12	42	SC-22273	Screw, M4, pan head phillips	2
10	CM-29037*	Clamp, hose, 32mm	3	43	SC-22281	Screw, M5 flat head	8
11	CM-29039	Clamp, hose, 55mm	8	44	SC-22766	Screw, pan head phillips	4
12	CV-23896	Cover, injection tube	2	45	SC-22779	Screw, M5, pan head phillips	2
13	EB-22221*	Elbow, steam bypass	1	46	SC-22926	Screw, M5, no markings	3
14	EB-23949	Elbow, 1-1/2" 90 deg copper	1	47	SC-25128	Screw, truss head M6	4
15	EB-27207	Elbow, 1-7/8"	4	48	SL-3836	Sleeve, grommet edging	1.7ft
16	FT-27406*	Coupling, w/o stop, 1.5"	1	49	TE-24257	Tee, 1-3/4" od. copper	2
17	FT-28124	Clamp, hose, 24mm	10	50	TE-27204	Tee, valve/sprayer	1
18	FT-29124	Fitting, 1/2" barb to 3/8" npt adaptor	3	51	VA-26838	Vent motor with switch	1
19	FT-29273*	Fitting,low pressure	1	52	VA-27837	Valve, 3/8", flow control, 0.35 Gpm	2
20	HO-22116*	Fitting, elbow, 90 deg.	1	53	VA-29262	Valve, low pressure	1
21	HO-22255	Hose, 1/2" flex, clear	1	54	VA-34045	Valve, double port, treated water	1
22	HO-27301	Hose, hand shower connection	1	55	VA-34300	Valve, single port, untreated water	1
23	HO-27891	Hose, 1-7/8" bulk	1	56	WS-22294	Washer, flat M4	4
24	HO-27892	Hose, 7/8", bulk	1	57	WS-22295	Washer, flat M5	9
25	HO-22255	Hose, 7/8", bulk	1	58	WS-22297	Washer, flat M6	2
26	HO-28790	Hose, 1/2" high-temp	1	59	WS-22300	Washer, M4 split lock	4
27	HO-29435	Hose, 1-5/8", bulk	1	60	WS-22301	Washer, M5 split lock	9
28	HO-2957	Hose, steam bypass	1	61	WS-22302	Washer, M6 split lock	2
29	MO-34636	Pump, wash system	1	62	WS-25092	Conical, 2.126", steam generator, seal	1
30	NP-27538	Valve holder assembly	2	63	FE-23822	Leg, adjustable	4
31	NU-22291	Nut, M6 hex	2	64	FA-3563	Fan, cooling	1
32	NU-22759	Nut, hex	1	65	PR-33724	Oven temperature probe	1
33	PB-26960	Sprayer holder, valve	1				

*NOT SHOWN

ESi CONDENSATION TANK (RIGHT-HAND, LEFT-HAND & RECESSED)



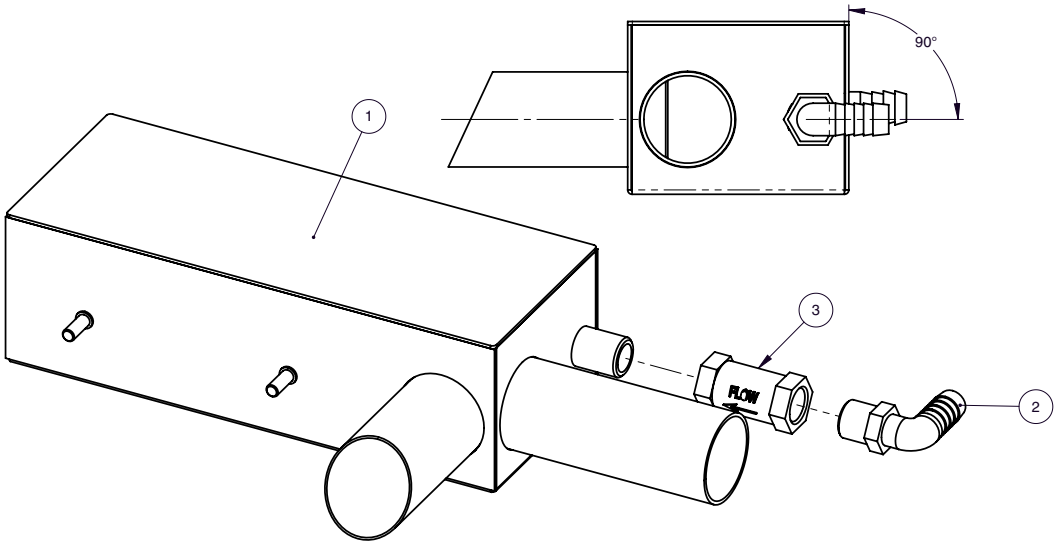
5011695

Item	Part	Description	Qty.
1	1005540	Condensor Tank Spacer	8
2	5011695	Condensor Tank Welding, 6.10ESi, 7.14ESi, 10.10ESi, 10.18ESi	1
	5009464	Condensor Tank Welding, 12.20ESi, 20.20ESi	1
3	CP-28016	Cap-3/4 NPT	1
4	PB-26512	Measure Probe	1
5	PR-33751	Thermocouple, 3050 mm Wire Length	2
6	SA-22212	O-Ring, Red, Silicone	1
7	SA-25061	T-Couple Probe, seal	2
8	SC-22779	Screw, Pan Head	4
9	WS-22207	Seal	1
10	WS-22295	Washer, Flat	4
11	WS-22301	Washer, Split Lock	4
12	5008964	Strainer weld	1

PARTS INFORMATION

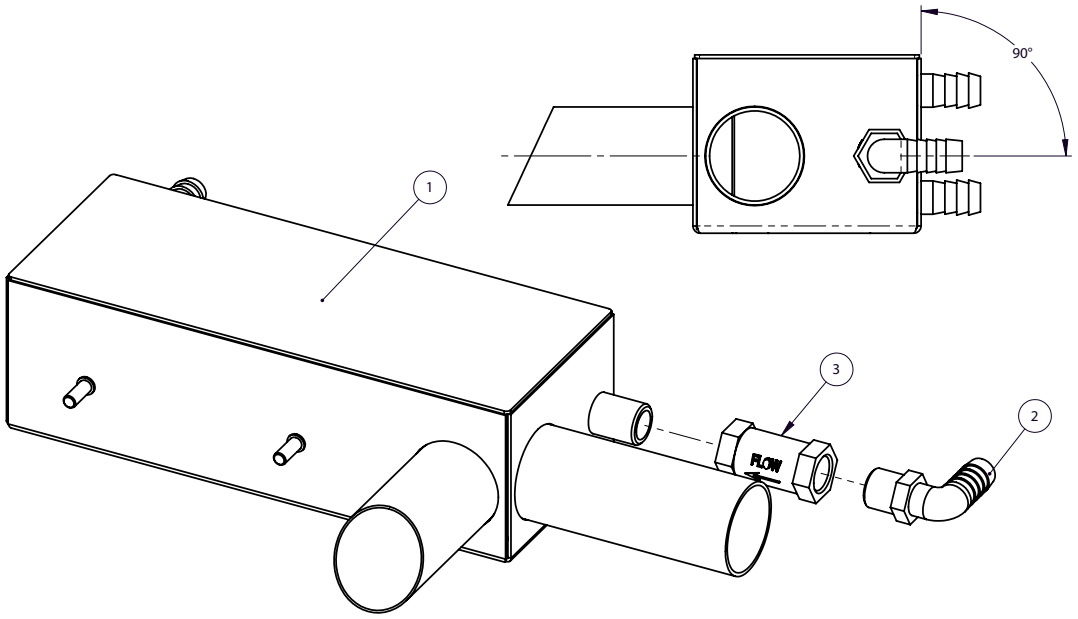
PRESSURE BOX ASSEMBLY (PRIOR TO 2/11)

5005010 – 6•10ESi, 6•10ESiN, 7•14ESi, 10•10ESi, 10•10ESiN, 10•18ESi, & 12•20ESi



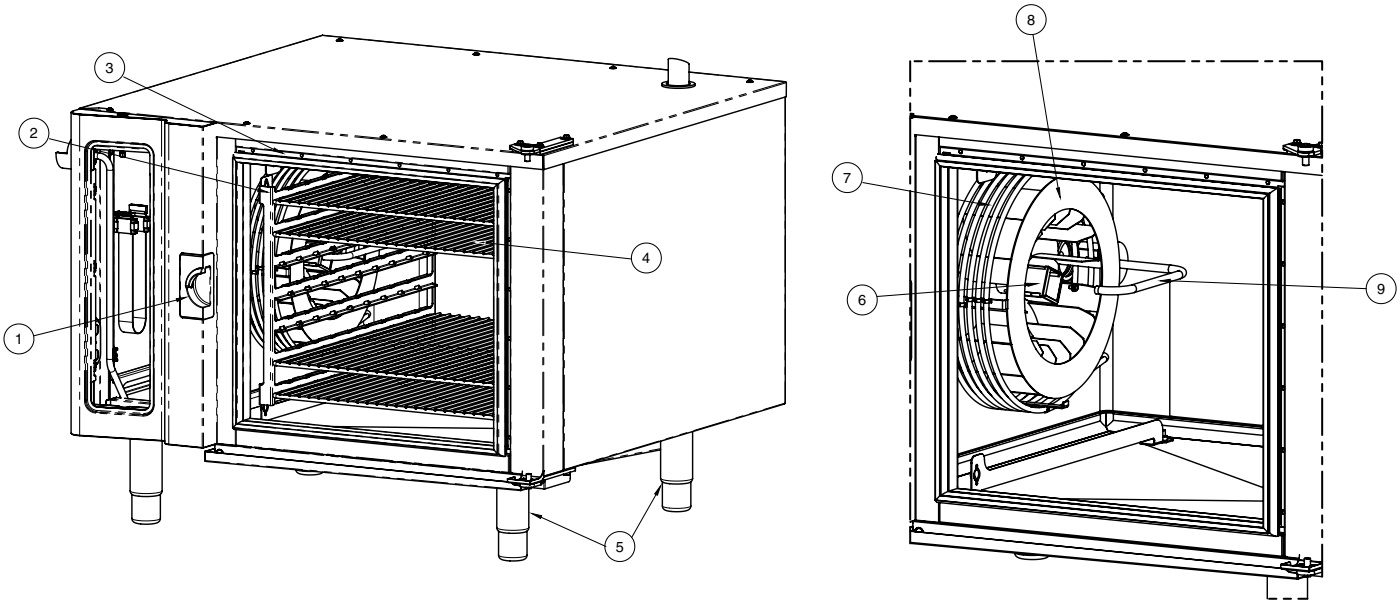
Item	Part	Description	Qty.
1	5005009	Pressure Box	1
2	EB-25551	Elbow, Nylon, 1/2" x 3/8"	1
3	VA-25549	Valve, 3/8", Flow Control, 0.12 GPM	1

5005010 – 20•20ESi



Item	Part	Description	Qty.
1	5008633	Pressure Box	1
2	EB-25551	Elbow, Nylon, 1/2" x 3/8"	1
3	VA-27837	Valve, 3/8", Flow Control, 0.35 GPM	1

ES & ESi FRONT VIEW/INTERIOR VIEW SERVICE PARTS



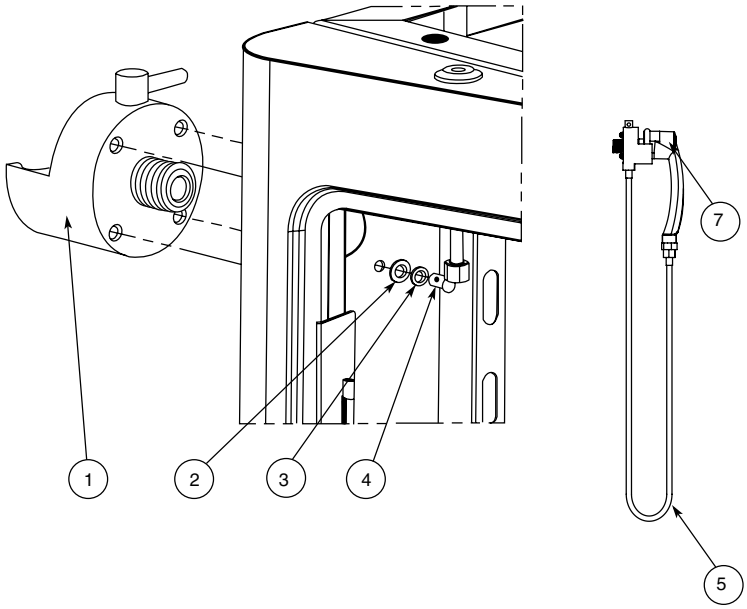
CombiClean = CC

Item	Part	Description	Qty.	Item	Part	Description	Qty.
1	LT-26968	Door latch	1	7	EL-3854*	Convection element, 6.10	1
2	1019976*	Side rack, left-hand 6.10ES (CC)	1		EL-3761	Convection element, 7.14, 10.10	1
	1012387*	Side rack, left-hand 6.10ES (CC 05/11)	1		EL-3979*	Convection element, 10.18	1
	1009976*	Side rack, left-hand 6.10ESi (CC)	1		EL-3853*	Convection element, 12.20	1
	1012387*	Side rack, left-hand 6.10ESi (CC 05/11)	1		EL-3853*	Convection element, 20.20	2
	1009722*	Side rack, left-hand 6.10ESiN (CC)	1	8	WH-26645	Wheel, fan, 355mm x 125mm dia, 6.10, 7.14, 10.10, 10.18	1
	1011985*	Side rack, left-hand 6.10ESiN (CC 05/11)	1		WH-26642*	Wheel, fan, 400mm x 115mm dia, 12.20, 20.20	1
	1009670	Side rack, left-hand 7.14ES & 7.14ESi (CC)	1	9	5005474*	Water injection tube, 6.10, 10.10	1
	1009978*	Side rack, left-hand 10.10ES & 10.10ESi (CC)	1		5009646	Water injection tube, 7.14, 6.10ESiN, 10.10ESiN	1
	1009812*	Side rack, left-hand 10.10ESiN (CC)	1		5005648*	Water injection tube, 10.18,12.20, 20.20	1
	1009936*	Side rack, left-hand 10.18ES & 10.18ESi (CC)	1	10	5009271*	Side rack, right-hand 6.10ES & 6.10ESi (CC)	1
3	GS-26639	Door gasket, 6.10ES, 6.10ESi, 7.14ES, 7.14ESi	1		5013794*	Side rack, right-hand 6.10ES & 6.10ESi (CC 05/11)	1
	GS-36638*	Door gasket, 10.10ES, 10.10ESi, 10.18ES, 10.18ESi	1		5009087*	Side rack, right-hand 6.10ESiN (CC)	1
	GS-26635*	Door gasket, 6.10ESiN	1		5013805*	Side rack, right-hand 6.10ESiN (CC 05/11)	1
	GS-26637*	Door gasket, 10.10ESiN	1		5008937*	Side rack, right-hand 7.14ES & 7.14ESi (CC)	1
	GS-26640*	Door gasket, 12.20ES, 12.20ESi	1		5009272*	Side rack, right-hand 10.10ES & 10.10ESi (CC)	1
	GS-26641*	Door gasket, 20.20ES, 20.20ESi	1		5009086*	Side rack, right-hand 10.10ESiN (CC)	1
4	SH-2903*	Shelves, 6.10ES, 6.10ESi, 6.10ESiN, 10.10ES, 10.10ESi, 10.10ESiN	1		1009936*	Side rack, right-hand 10.18ES & 10.18ESi (CC)	1
	SH-22584	Shelves, 7.14ES, 7.14ESi, 10.18ES, 10.18ESi	1	11	SW-3738*	Door switch	1
	SH-22473*	Shelves, 12.20ES, 12.20ESi, 20.20ES, 20.20ESi	1	12	CL-24089*	Directional panel fasten screw	1
5	LG-26897	Leg	1	13	WS-24090*	Lock clip for CL-24089	1
6	1001204	Disintegration Box	1	14	1006601*	Panel spacer	1
	SC-23737*	Screw, M5 Hex Head for Disintegration Box	1	15	SC-22753*	Stud, side rack mounting	1

*NOT SHOWN

PARTS INFORMATION

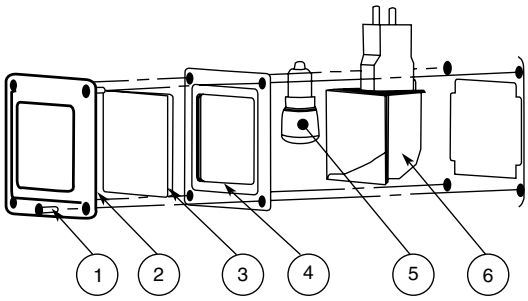
SPRAYER HOLDER ASSEMBLY



Item	Part	Description	Qty.
1	PB-26960	Hand Shower Holder	1
2	WS-22295	Flat Washer	4
3	WS-22301	Locking Washer	4
4	SC-22766	Philips Screw	4
5	HO-26964	Hand Shower Hose (6.10, 7.14, 10.20, 12.18)	1
	HO-26965	Hand Shower Hose (20.20)	1
6	WS-29074*	Hand Shower Hose Washer	1
7	5011315	Hand Shower Sprayer	1

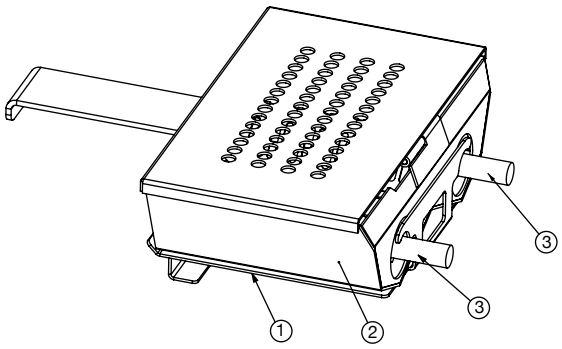
*NOT SHOWN

OVEN LIGHT



Item	Part	Description	Qty.
1	SC-23141	Screw	4
2	CV-26607	Oven Light Cover	1
3	GL-26608	Oven Light Glass	1
4	GS-26609	Oven Light Gasket	1
5	LP-34206	Light, 25W Bulb	1
6	LP-34161	Light, Snap-In receptacle	1

SMOKER CHIP TRAY ASSEMBLY

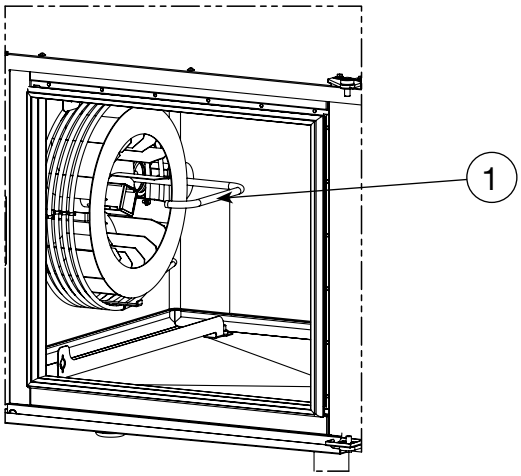


EFFECTIVE 10/2009

Item	Part	Description	Qty.
1	1010343	Smoker Box Holder	1
2	5005669	Chip Tray with Handle	1
3	EL-34554	Element, Smoker Heater, 208V/260W	2
4	1007141*	Smoke Tray Insert	2
5	CE-26277*	Cleaner Kit, Smoker	1

*NOT SHOWN

INNER TUBE & WASH NOZZLE

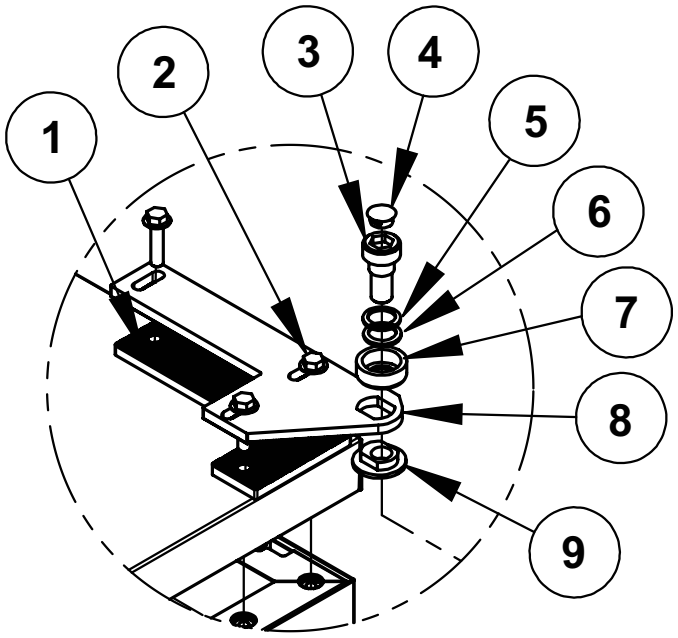


Item	Part	C Description	Qty.
1	5005474	Water Injection Tube, 6.10ES, 6.10ESi, 10.10ES, 10.10ESi	1
	5009646	Water Injection Tube, 7.14ES, 7.14ESi, 6.10ESiN, 10.10ESiN	1
	5005648	Water Injection Tube, 10.18ES, 10.18ESi, 12.20ES, 12.20ESi, 20.20ES, 20.20ESi	1
2	1001204*	Disintegration Box	1
3	SC-23737*	Screw, M5 Hex Head for Disintegration Box	1

*NOT SHOWN

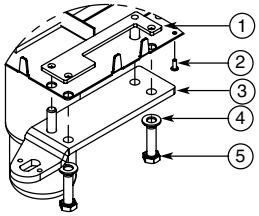
PARTS INFORMATION

TOP HINGE ASSEMBLY

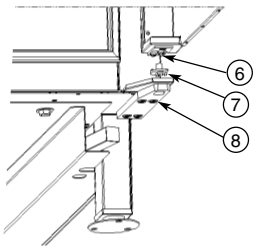


Item	Part	Description	Qty.
1	HG-28094	Hinge Ratchet, Part 2	1
2	SC-28891	Screw, Truss Head	3
3	SC-25102	Screw	1
4	PG-25132	Plug	1
5	WS-2294	Washer, Lock	1
6	WS-22094	Washer, Flat	1
7	WS-25127	Covering Washer	1
8	HG-28296	Hinge Ratchet, Part 1	1
9	WS-25124	Block Washer	1

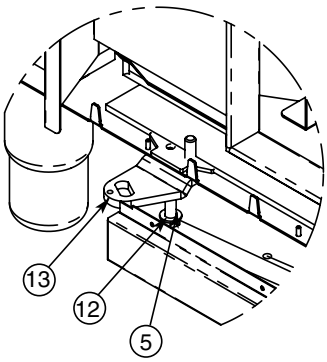
BOTTOM HINGE ASSEMBLY



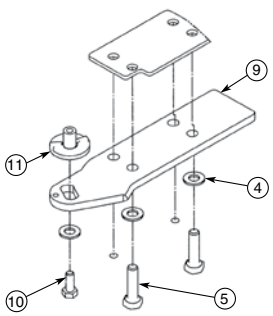
Right-Hand
6.10, 10.10, 7.14



Right-Hand
10.18, 12.20, 20.20



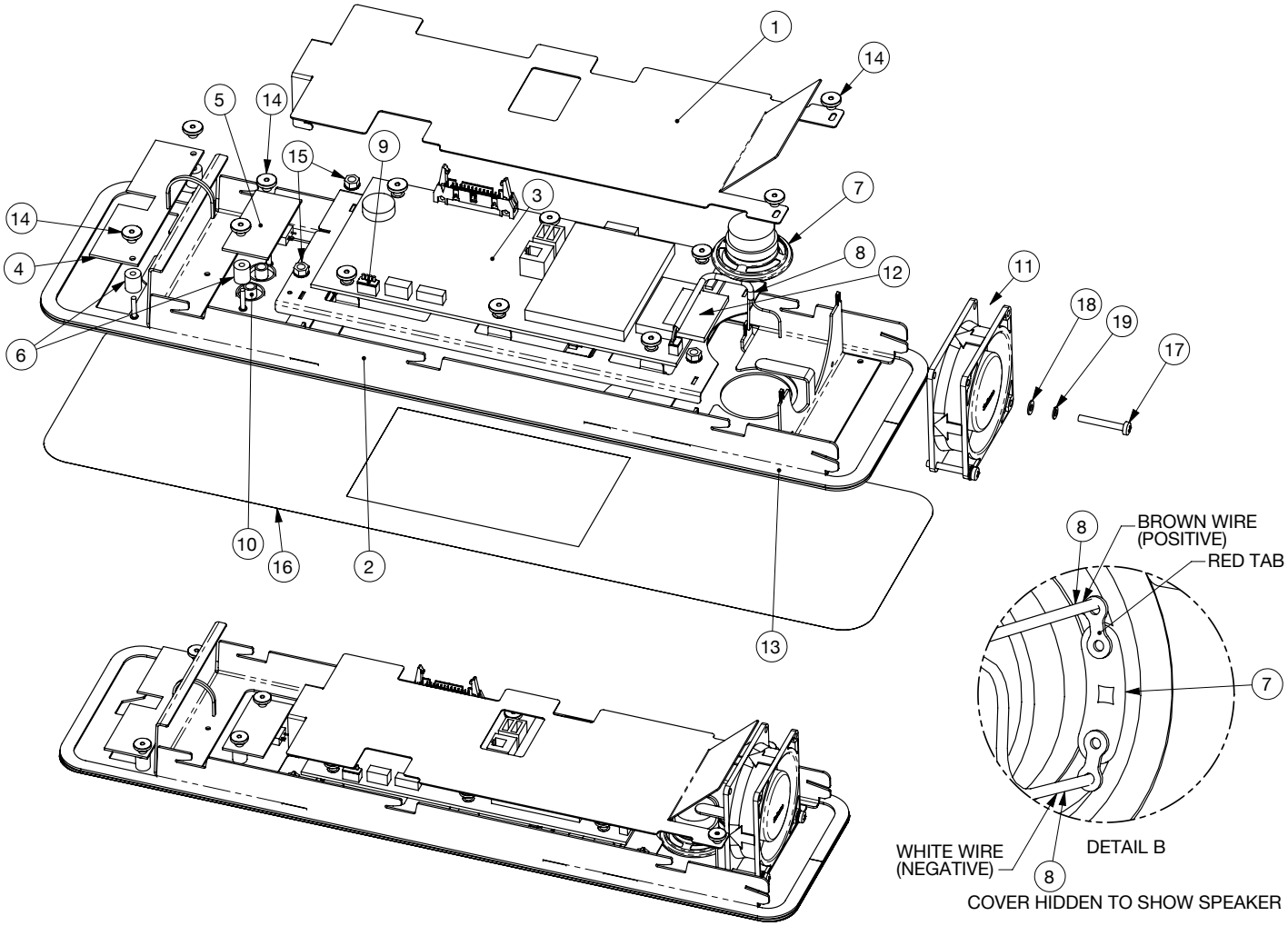
Left-Hand
6.10



Left-Hand
10.10, 7.14

Item	Part	Description	Qty.
1	HG-27684	Door Mounting Plate	1
2	RI-27108	Sealed Rivet	1
3	HG-28525	Lower Plate	1
4	WS-22298	Washer, M8, 18-8	4
5	SC-22279	Hex Head Screw, M8 x 30	4
6	HG-25079	Lower Plate	1
7	HG-25101	Lower Hinge Ratchet	1
8	HG-28524	Lower Hinge, R-H	1
9	HG-28155	Lower Hinge, L-H	1
10	SC-22284	Hex Head Screw, M6 x 16	1
11	HG-25101	Lower Hinge Ratchet	1
12	WS-22323	Washer	1
13	HG-26299	Lower Hinge	1

TOUCH CONTROL

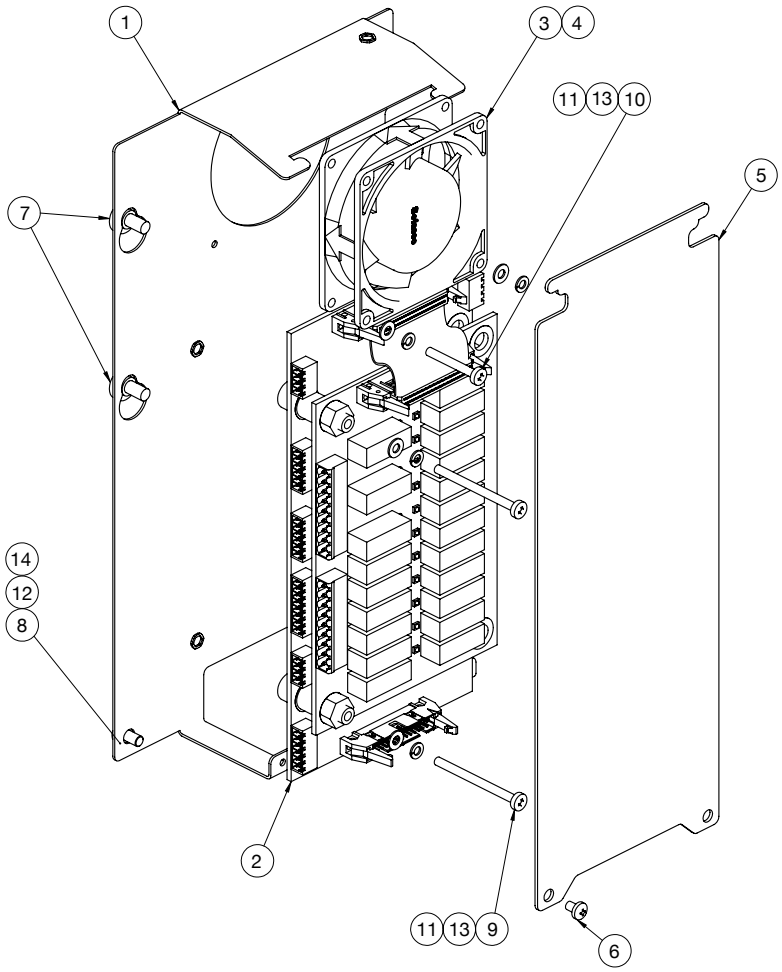


*NOT SHOWN

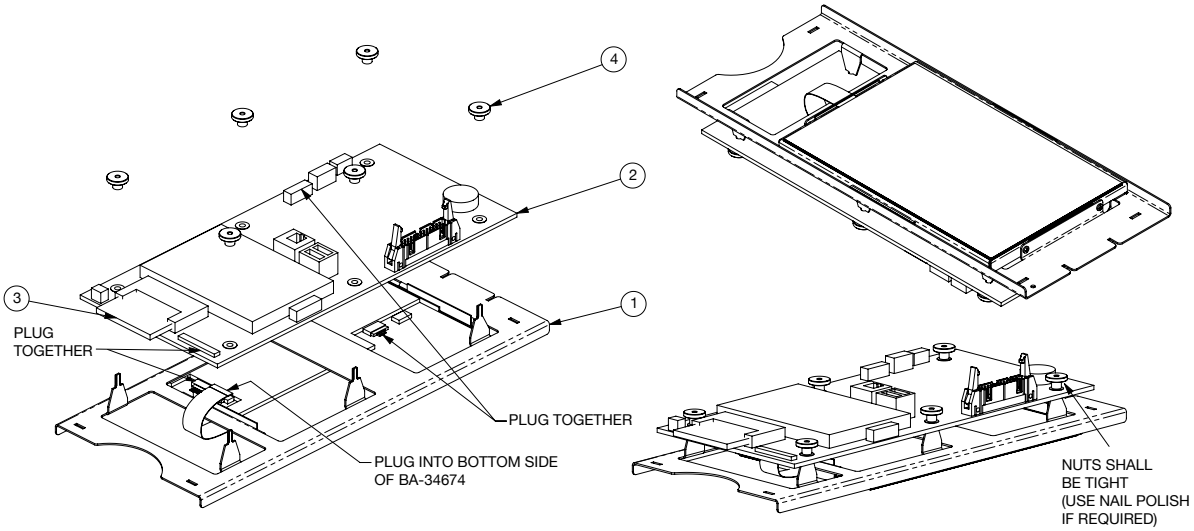
Item	Part	Control Panel Description (5010483)	Qty.	Item	Part	Control Panel Description (5010483)	Qty.
1	1011341	Cover, Display Board	1	12	BA-34922	Compact Flash	1
2	5010481	Frame, Control Panel	1	13	GS-23622	Gasket, Adhesive, 4.5'	1
3	5010482	Touch Screen Display & Board	1	14	NU-25095	Nut, Knurled M3	6
4	BA-33991	Board, Alto-Shaam Name	1	15	NU-27851	Nut, Hex 5mm with Star Washer	4
5	BA-34778	Board, ON/OFF, Touch Screen	1	16	PE-29004	Panel Overlay, Touch Screen	1
6	BU-25094	Bushing, Brass Spacer	4		5013883	Touch Screen Frame, Gasket and Overlay Kit	1
7	BZ-34675	Buzzer, Speaker, Rated 8 Ohm	1	17	SC-29276	Screw, M4	2
8	CB-34914	Cable, Speaker Board, Touch Screen	1	18	WS-22294	Washer, Flat M4	2
9	CB-34917	Cable, ON/OFF Board, Touch Screen	1	19	WS-22300	Washer, Split Lock M4	2
10	CP-25405	Cap, Diameter 15mm x 8.5mm	1	20*	CB-34033	Cable, Communication (counter-top models)	1
11	FA-34918	Fan, Cooling, 115V	1		CB-34842	Cable, Communication (floor standing models)	1
	FA-34919	Fan, Cooling, 230V	1	21*	SL-34493	Sleeve, for Communication Ribbon Cable	1
				22*	CB-35024	Ferrite, for Communication Ribbon Cable	2

PARTS INFORMATION

TOUCH CONTROL

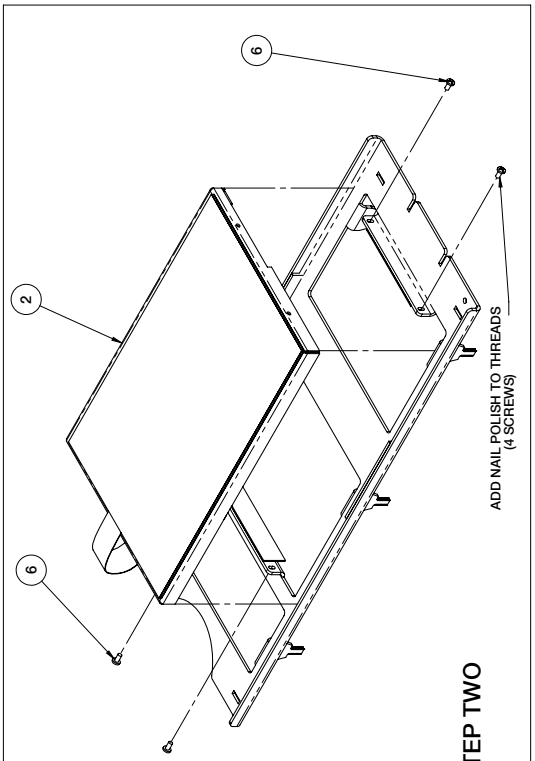


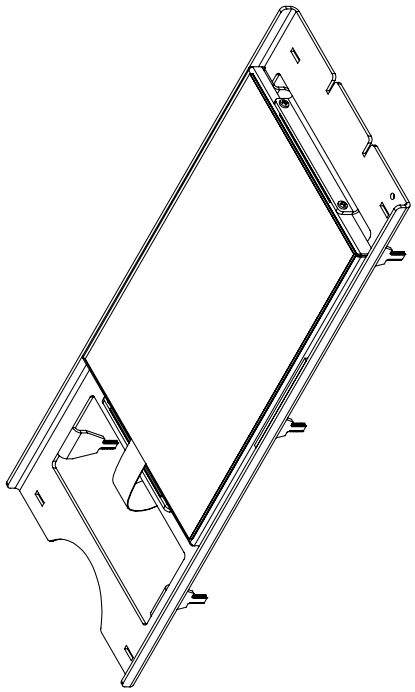
Item	Part	Control Panel Kit Description (5011831)	Qty.
1	5011995	Plate Assembly, Relay Board	1
2	BA-34670	Board, Touch Screen Relay	1
3	FA-34918	Fan, Cooling, 115V	1
4	FA-34919	Fan, Cooling, 230V (see arrow for #3)	1
5	GL-29267	Cover, Relay Board	1
6	SC-22271	Screw, Philips Head, M4	2
7	SC-22753	Screw, Round, Hanging Rack	2
8	SC-22766	Screw, Pan Head Philips	1
9	SC-29261	Screw, M4x50mm	4
10	SC-29276	Screw, M4x30mm	2
11	WS-22294	Washer, Flat M4	6
12	WS-22295	Washer, Flat M5	1
13	WS-22300	Washer, Split Lock M4	6
14	WS-22301	Washer, Split Lock M5	1



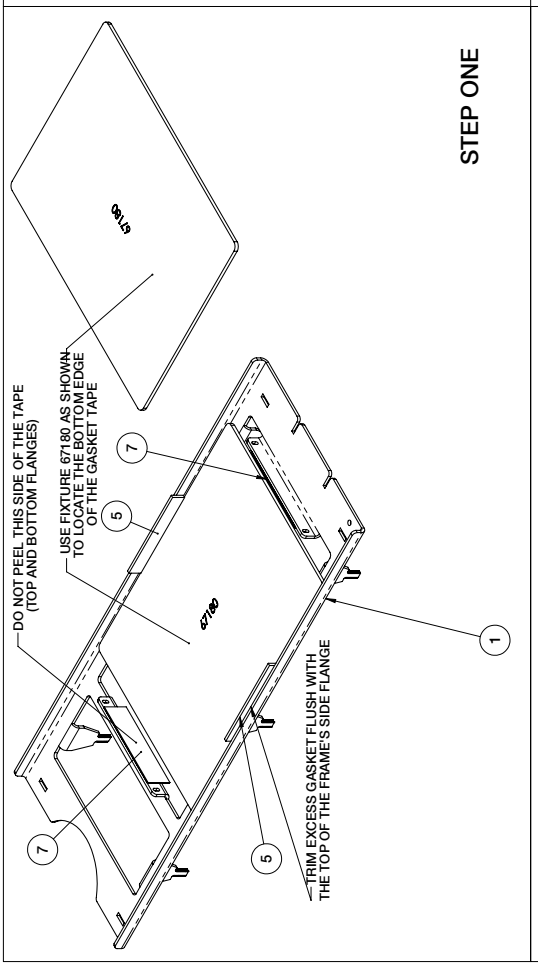
Item	Part	Control Panel Replacement Kit (5010482R) Includes:	Qty.
1	5013093	CombiTouch Screen Display Assembly	1
2	BA-34674	Board, Single Board Computer	1
3	BA-34922	Board, Compact Flash, 2GB	1
4	NU-25095	Nut, Knurled M3	6

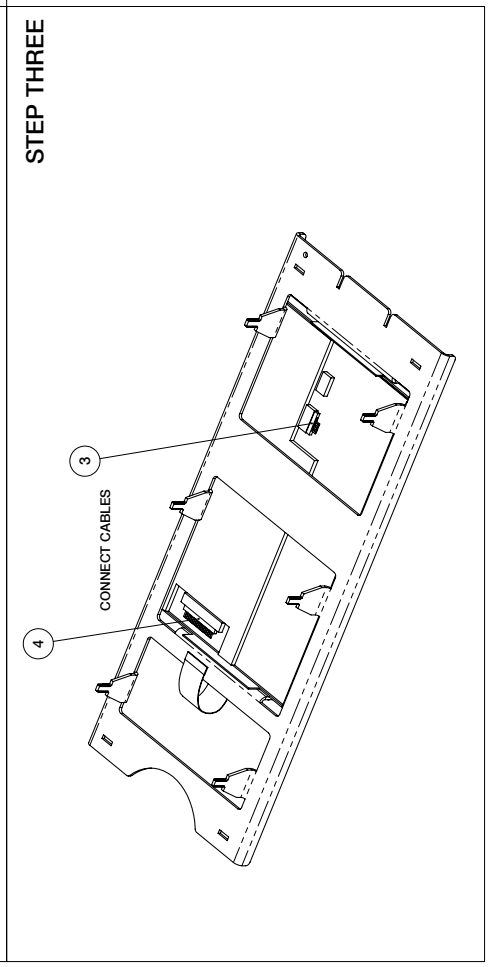
TOUCH CONTROL REPLACEMENT KIT & INSTRUCTIONS





Item	Part	Control Panel Preplacement Kit (5013093R) Includes:	Qty.
1	1010646	Mounting Bracket, Display Board	1
2	BA-34776	Board, Bonded Display and Touch Field Kit	1
3	CB-34915	Cable, Touch/Board	1
4	CB-34916	Cable, Display/Board	1
5	GS-23622	Gasket, Adhesive	2
6	SC-29283	Screw, DIN #7985	4
7	TA-24637	1/2" VHB Tape	2

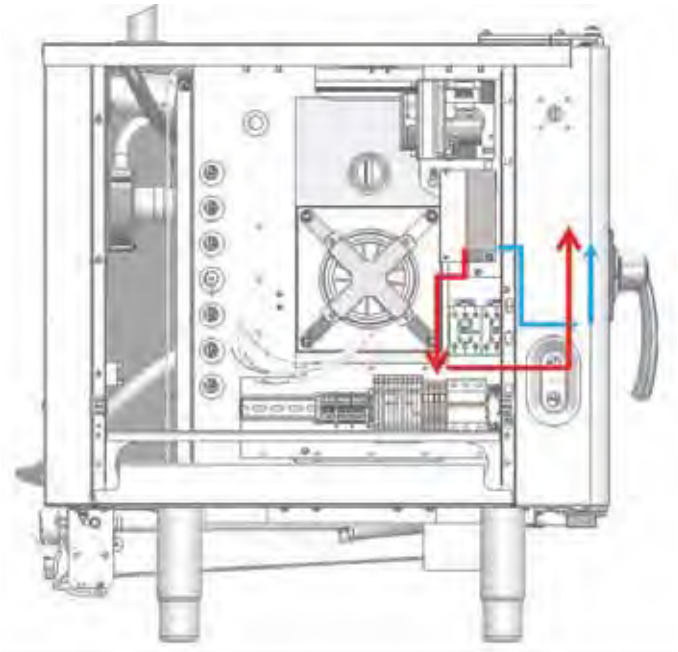




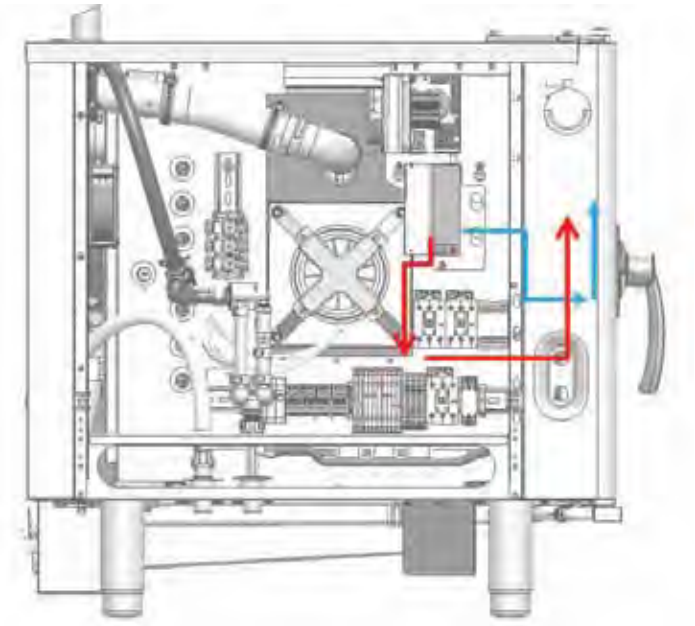
RIBBON CABLE ROUTING

Ribbon Cable
Power Cable

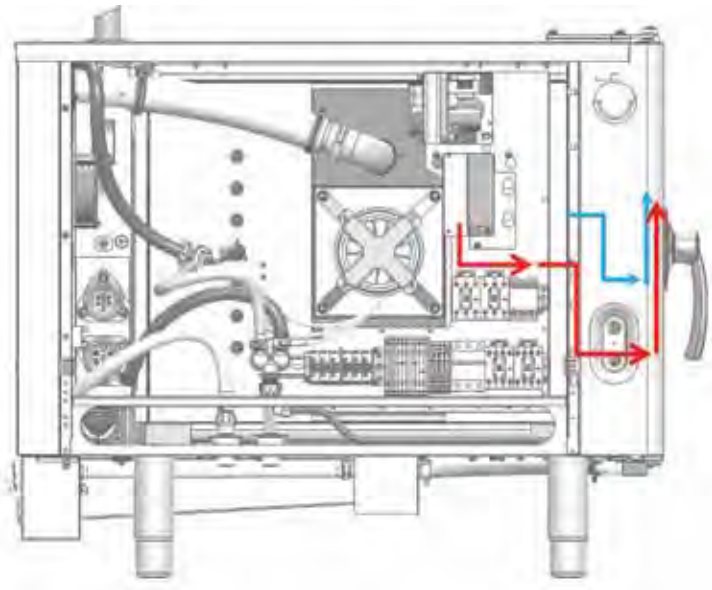
6•10ES/ESi



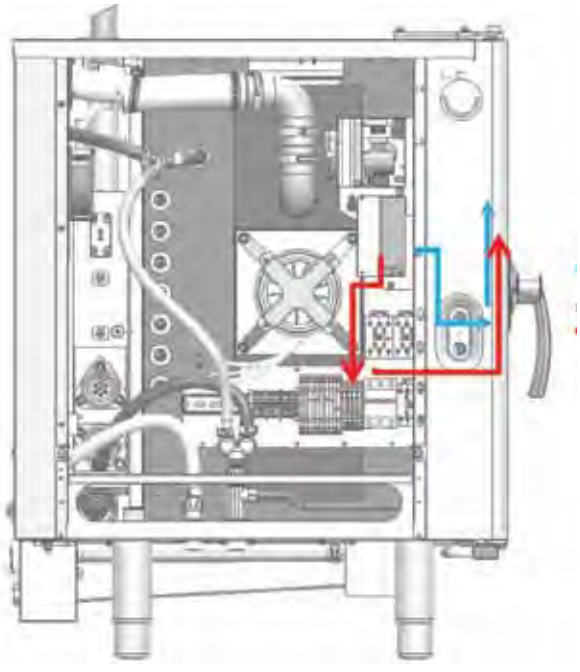
6•10ESiN



7•14ES/ESi



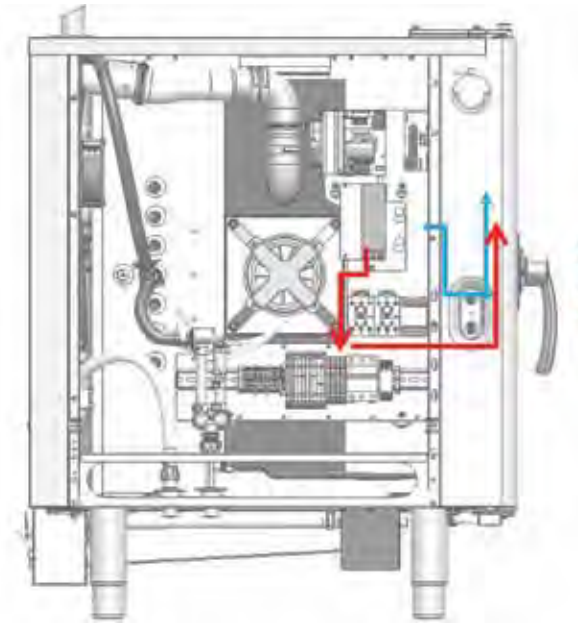
10•10ES/ESi



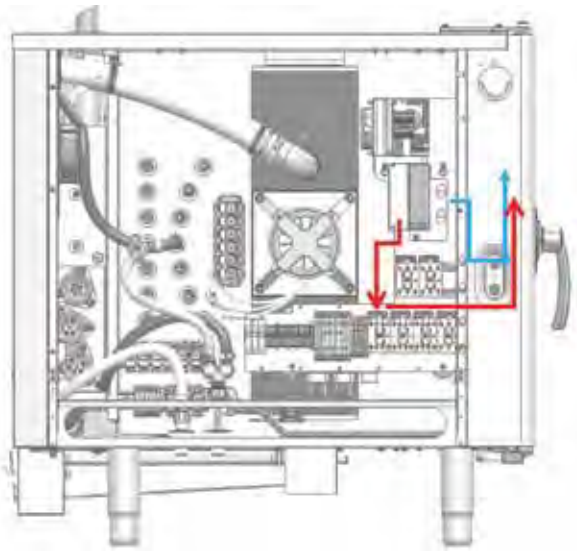
RIBBON CABLE ROUTING

Ribbon Cable
Power Cable

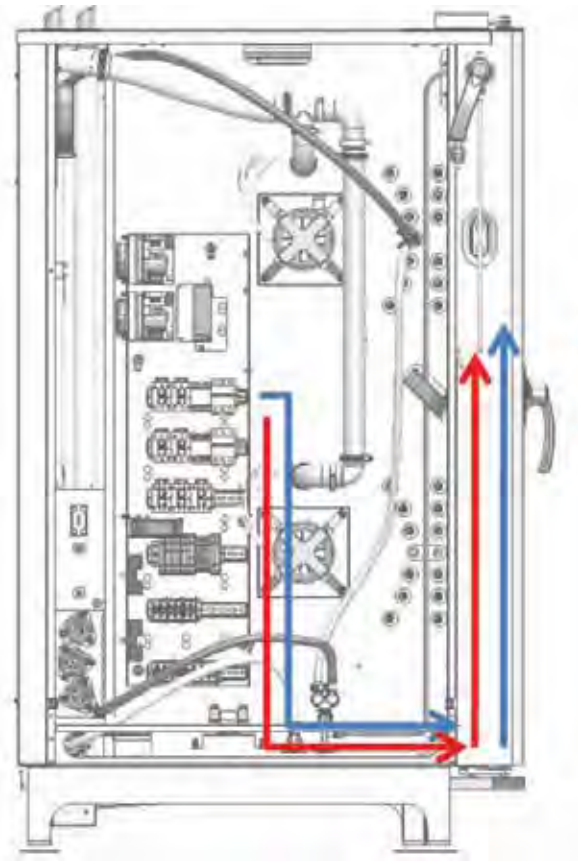
10•10ESiN



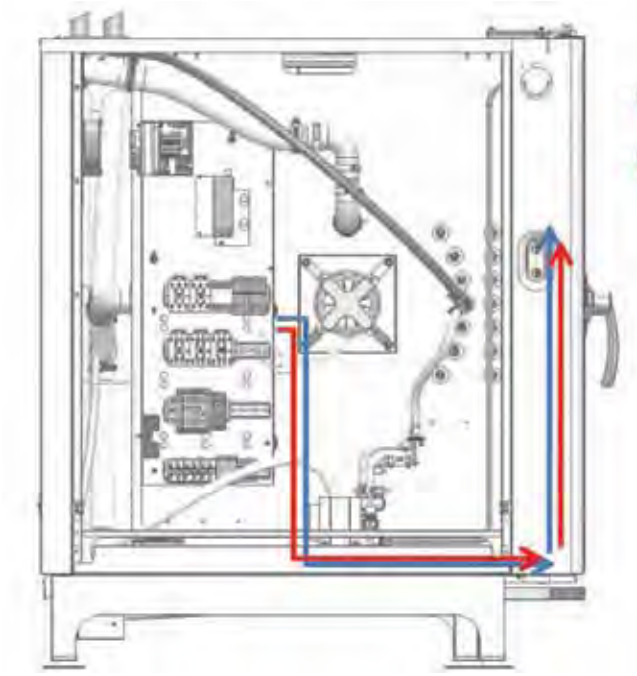
10•18ES



20•20ES/ESi

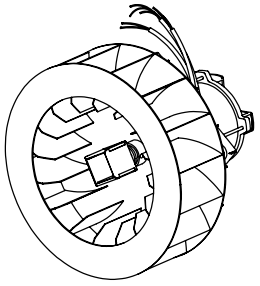


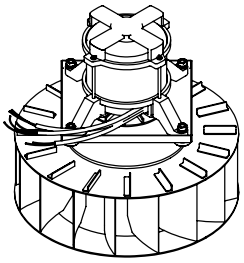
12•20ES/ESi

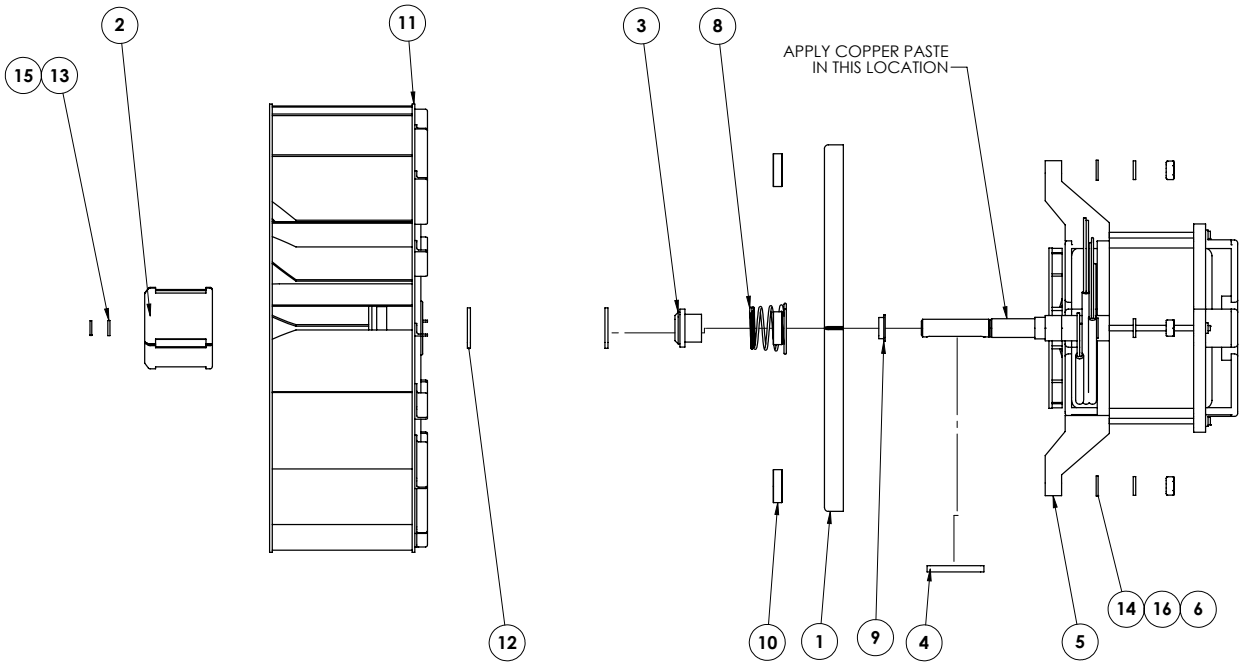


PARTS INFORATION

COMBITHERM MOTOR





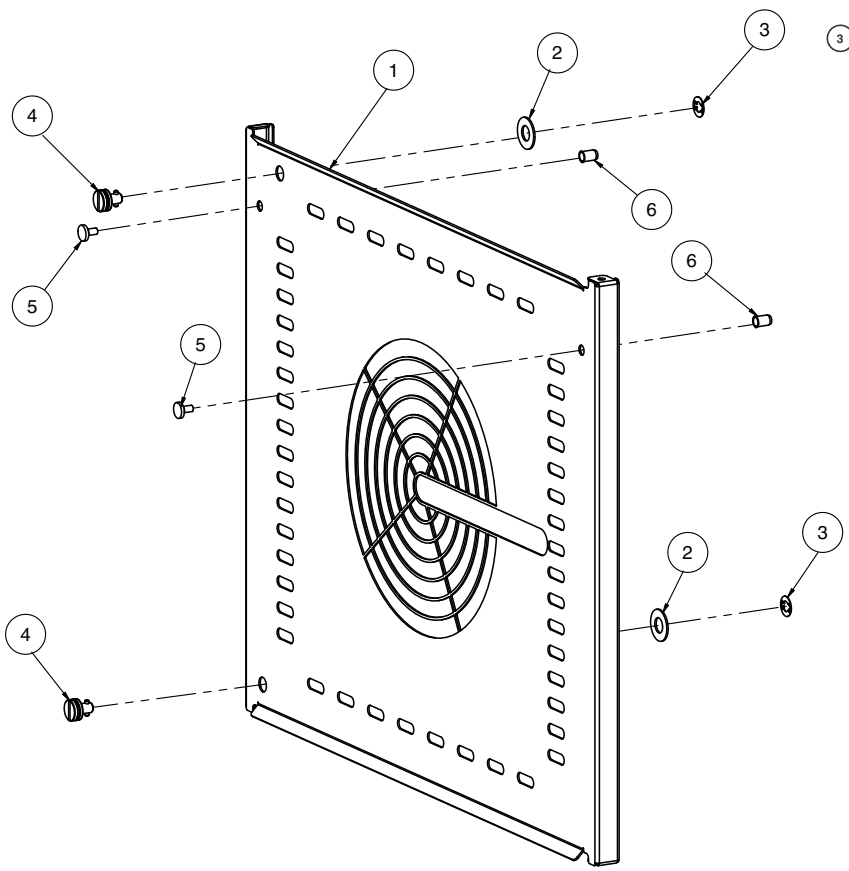


NOTE:
1- ASSEMBLY SEQUENCE: MOUNT THE FOLLOWING ITEMS TO THE MOTOR SHAFT IN THIS ORDER: PLACE MOTOR BAFFLE OVER SHAFT, MOUNT BRASS MOTOR SLEEVE USING MALLET PIPE, COAT BOTTOM PART OF SHAFT WITH COPPER PASTE. PLACE SPRING, THEN MOTOR SHAFT BUSHING, THEN SEALING WASHER, AND FINALLY PLACE KEY IN KEYWAY OF SHAFT.

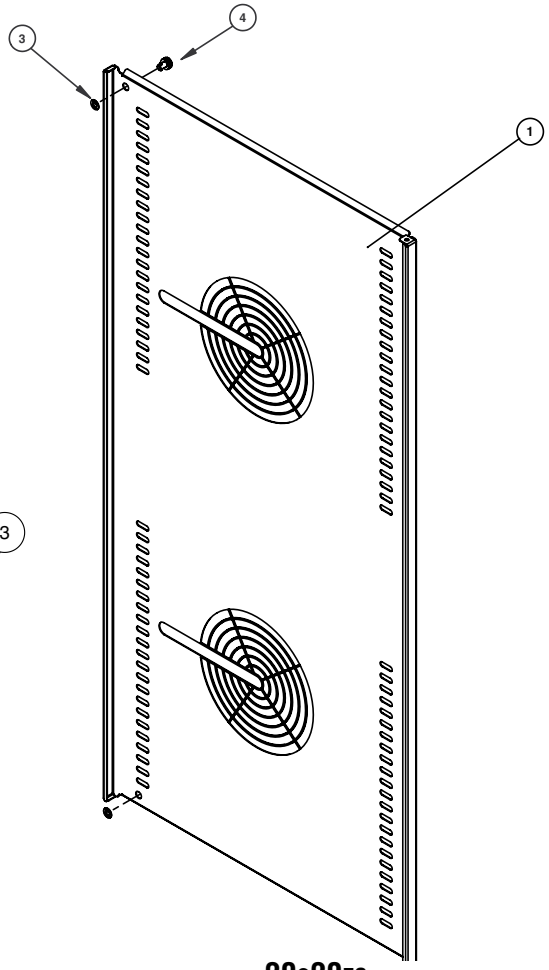
5011958 SHOWN

Item	Part	Description	Qty.	Item	Part	Description	Qty.
1	1000716	Motor Baffle	1	9	SL-22214	Motor, Defle, Phosphor Bronze	1
2	1001204	Disintegration Box	1	10	SP-27895	Spacer for Motor	4
3	BU-22213	Bushing, 30D, Motor Shaft	1	11	WH-26645	Wheel	1
4	MO-22191	Keyway, Motor	1	12	WS-22217	Motor Shaft Washer Seal	2
5	MO-34857	Reversible Motor	1	13	WS-22297	Washer, Flat	1
	5011958R	Reversible Motor Replacement Kit	1	14	WS-22298	Washer, M8	4
6	NU-22292	Nut, Hex	1	15	WS-22302	Washer, M6 Split Lock	1
7	SC-23737	Hex Head Cap Screw	4	16	WS-22303	Washer, M8 Split Lock	4
8	SD-23939	Spring	1				

ES DIRECTIONAL PANEL ASSEMBLY



6•10ES, 7•14ES, 10•10ES, 10•18ES, 12•20ES
5009329 (effective 03/11) shown

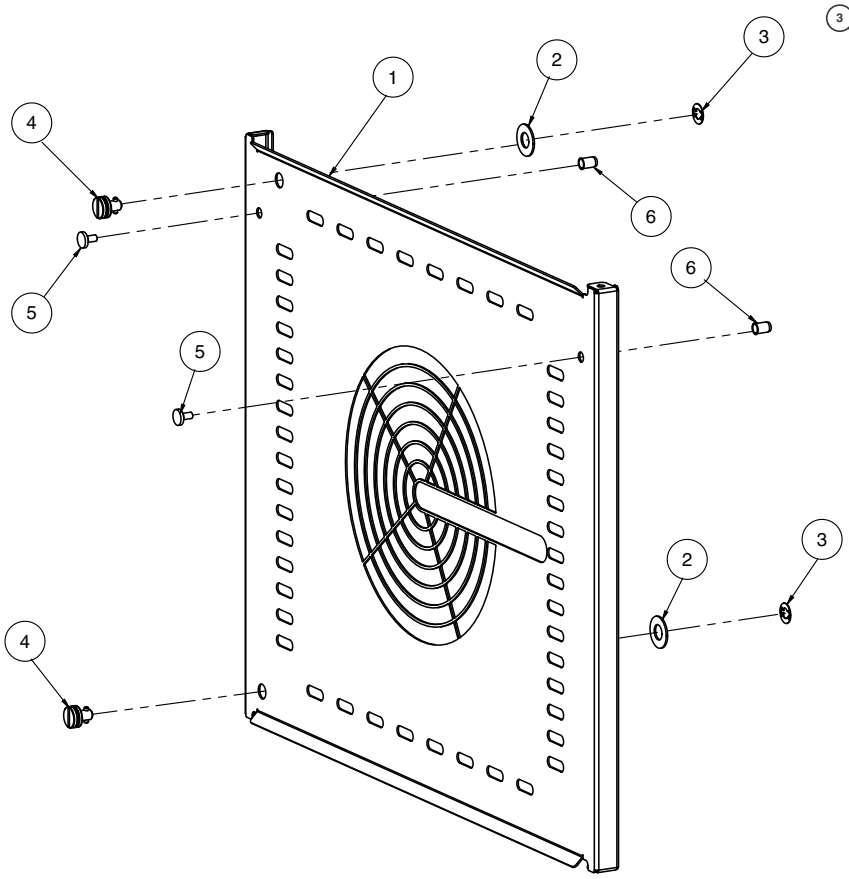


20•20ES
5009462 (effective 04/11) shown

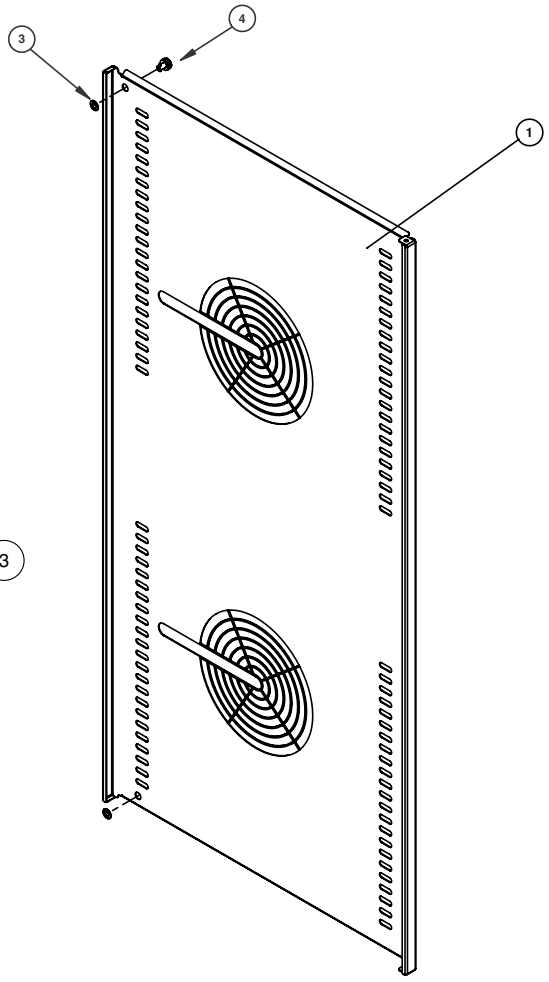
Item	Part	Description	Qty.
1	1009999	Directional Panel, 6.10ES	1
	1009908	Directional Panel, 7.14ES	1
	1009997	Directional Panel, 10.10ES	1
	1009924	Directional Panel, 10.18ES	1
	1010164	Directional Panel, 12.20ES	1
	1010094	Directional Panel, 20.20ES	1
2	1006601	16 GA Directional Panel Spacer	2
3	WS-24090	Holding (Lock Clip)	2
4	CL-24089	Clip, Lock, W/3 Washers	2
5	SC-22753	Screw, SS Round, Hanging Rack	2
6	NU-22770	Nut, Threaded Insert, M6	2

PARTS INFORMATION

ESi DIRECTIONAL PANEL ASSEMBLY



6•10ESi, 6•10ESiN, 7•14ESi,
10•10ESi, 10•10ESiN, 10•18ESi, 12•20ESi
5009329 (effective 03/11) shown



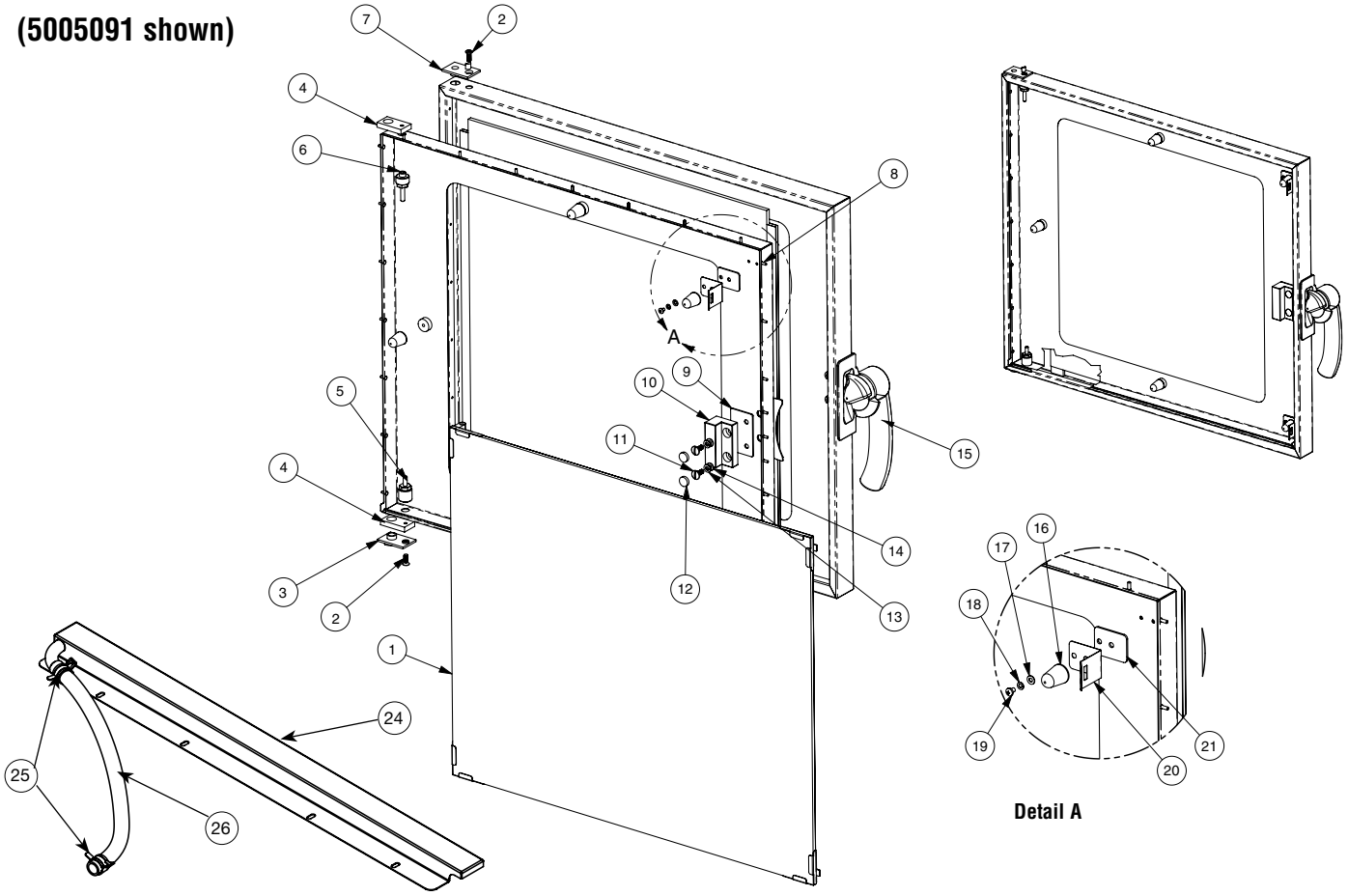
20•20ESi
5009462 (effective 04/11) shown

Item	Part	Description	Qty.
1	1009999	Directional Panel, 6.10ESi	1
	1009829	Directional Panel, 6.10ESiN	1
	1009909	Directional Panel, 7.14ESi	1
	1009997	Directional Panel, 10.10ESi	1
	1009828	Directional Panel, 10.10ESiN	1
	1009924	Directional Panel, 10.18ESi	1
	1010164	Directional Panel, 12.20ESi	1
	1010094	Directional Panel, 20.20ESi	1
2	1006601	16 GA Directional Panel Spacer	2
3	WS-24090	Holding (Lock Clip)	2
4	CL-24089	Clip, Lock, W/3 Washers	2
5	SC-22753	Screw, SS Round, Hanging Rack	2
6	NU-22770	Nut, Threaded Insert, M6	2

RIGHT-HAND DOOR ASSEMBLY (DUAL LATCH)

6•10ES, 6•10ESi, 6•10ESiN, 7•14ES, 7•14ESi, 10•10ES, 10•10ESi, 10•10ESiN, 10•18ES, & 10•18ESi

(5005091 shown)



Drip Tray

Detail A

Item	Part	Description	Qty.	Item	Part	Description	Qty.
1	5011208	Inner door, glass assembly, 6.10ES, 6.10ESi, 7.14ES, 7.14ESi	1	15	HD-26966	Handle, door, right	1
	5011427	Inner door, glass assembly, 10.10ES, 10.10ESi, 10.18ES, 10.18ESi	1	16	BM-25072	Bumper	5
	5011425	Inner door, glass assembly, 6.10ESiN	1	17	WS-22294	Washer, flat, M4	2
	5011426	Inner door, glass assembly, 10.10ESiN	1	18	WS-22300	Washer, M4 split lock	2
2	SC-22282	Screw, phillips oval	2	19	SC-22271	Screws, M4 phil	2
3	HG-25079	Hinge, upper ratchet	1	20	LT-29086	Inner door latch	2
4	HG-25078	Hinge, anchor	2	21	1011417	Spacer, inner door latch	2
5	PI-26974	Pin, lower	1	22	BM-27116*	Bumper, silicon for glass door	2
6	PI-26973	Pin, upper	1	23	GS-26639*	Door Gasket, 6.10ES, 6.10ESi, 7.14ES, 7.14ESi	1
7	HG-25077	Hinge, top stop	1		GS-36638*	Door Gasket, 10.10ES, 10.10ESi, 10.18ES, 10.18ESi	1
8	RI-27108	Rivet, sealed	22		GS-26635*	Door Gasket, 6.10ESiN	1
9	1009381	Door spacer	1		GS-26637*	Door Gasket, 10.10ESiN	1
10	SP-27212	Spacer, window latch	1	24	5008969	Drip tray assembly, 6.10ES, 6.10ESi, 7.14ES, 7.14ESi, 10.10ES, 10.10ESi, 10.18ES, 10.18ESi	1
11	SC-27125	Screw, truss head	2		5009011	Drip tray assembly, 6.10ESiN, 10.10ESiN	
12	PG-24789	Plug, 15mm	2	25	CM-28145	Clamp, hose	2
13	WS-22302	Washer, M6 split lock	2	26	HO-2957	Hose	1
14	WS-22297	Washer, flat, M6	2				

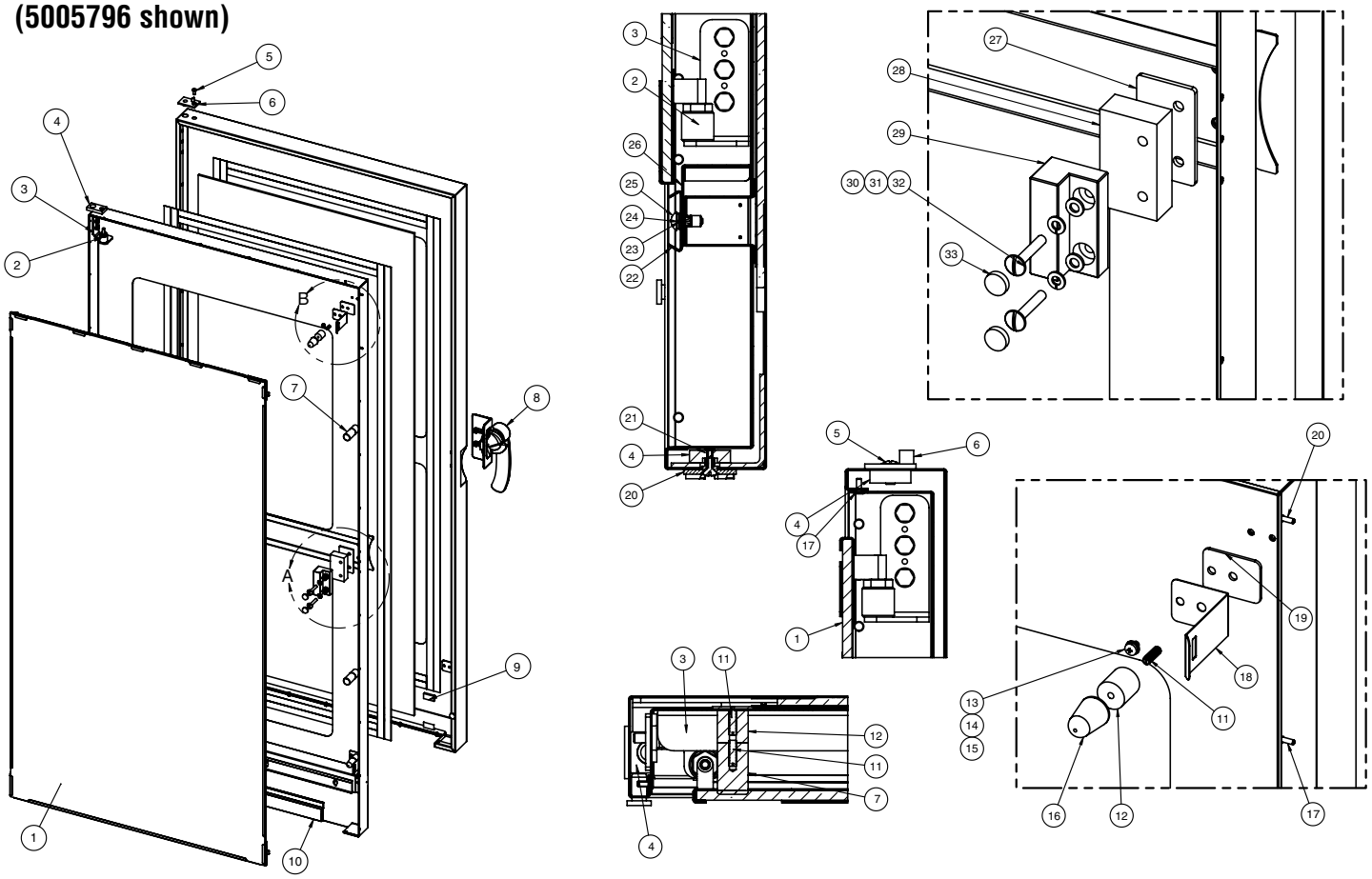
*NOT SHOWN

PARTS INFORMATION

RIGHT-HAND DOOR ASSEMBLY (DUAL LATCH)

12•20ES, 12•20ESi, 20•20ES, & 20•20ESi

(5005796 shown)

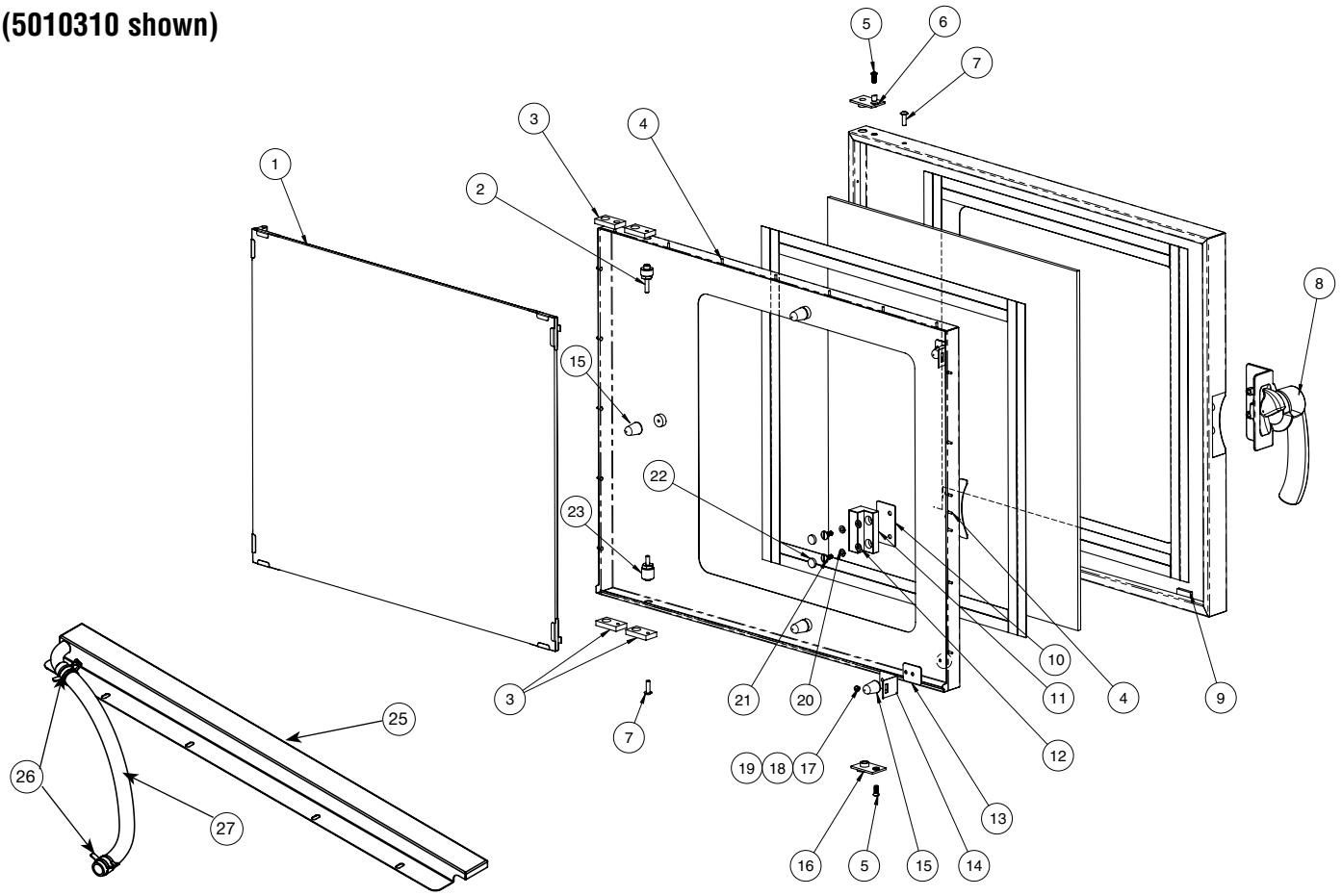


Item	Part	Description	Qty.	Item	Part	Description	Qty.
1	5011652	Inner door, glass assembly, 12.20ES, 12.20ESi	1	17	RI-27108	Rivet, sealed, 12.20ES, 12.20ESi	94
	5011653	Inner door, glass assembly, 20.20ES, 20.20ESi	1	18	LT-34777	Latch, inner door	3
2	PI-26974	Pin, lower	1	19	1011417	Spacer, latch, inner door	2
3	1007893	Hinge, lower glass holder	2	20	HG-25079	Hinge, upper ratchet	1
4	HG-25078	Hinge, anchor	2	21	SC-22282	Screw, phillip oval	1
5	SC-25085	Screw, M6 oval head	1	22	1010294	Sweep gasket holder	1
6	HG-25077	Hinge, top stop	1	23	WS-22295	Washer, Flat M5	4
7	BM-27146	Bumper stop/inner door	2	24	WS-22301	Washer, M5 split lock	4
8	HD-26966	Handle, door, right	1	25	SC-27109	Screw M5 truss head	4
9	BM-27116	Bumper, silicon for glass door	4	26	1010070	Backer support sweep gasket	1
10	GS-26640	Door gasket, 12.20ES, 12.20ESi	1	27	1009380	Spacer, 11 ga	1
	GS-26641	Door gasket, 20.20ES, 20.20ESi	1	28	SP-27682	Spacer, inner glass latch	3
11	SC-25091	Screw, M5,sltd set screw flat pt	2	29	SP-27212	Spacer, window latch	1
12	SP-27657	Spacer, glass, 20mm	3	30	WS-22297	Washer, flat, M6	8
13	SC-22271	Screws, M4 Phil	2	31	WS-22302	Washer, M6 split lock	2
14	WS-22300	Washer, M4 split lock	2	32	SC-29089	Screw, truss head, M6	2
15	WS-22294	Washer, flat M4	2	33	PG-24789	Plug, 15mm	2
16	BM-25072	Bumper	2				

RECESSED DOOR ASSEMBLY (DUAL LATCH)

6•10ES, 6•10ESi, 6•10ESiN, 7•14ES, 7•14ESi, 10•10ES, 10•10ESi, 10•10ESiN, 10•18ES, & 10•18ESi

(5010310 shown)



Drip Tray

Item	Part	Description	Qty.	Item	Part	Description	Qty.
1	5011208	Inner door, glass assembly, 6.10ES, 6.10ESi, 7.14ES, 7.14ESi	1	15	BM-25072	Bumper, rubber	5
	5011427	Inner door, glass assembly, 10.10ES, 10.10ESi, 10.18ES, 10.18ESi	1	16	HG-25079	Hinge, upper ratchet	1
	5011425	Inner door, glass assembly, 6.10ESiN, 10.10ESiN	1	17	WS-22300	Washer, M4 split lock	2
2	PI-26973	Pin, upper	1	18	SC-22271	Screws, M4 phil	2
3	HG-25078	Hinge, anchor	4	19	WS-22294	Washer, flat, M4	2
4	RI-27108	Rivet, sealed	19	20	WS-22302	Washer, M6 split lock	2
5	SC-22282	Screw, phillips oval	2	21	SC-25125	Screw, truss head, M6	2
6	HG-25077	Hinge, top stop	1	22	PG-24789	Plug 15mm	2
7	SC-25128	Screw, truss head, M6	2	23	PI-26974	Pin, lower	1
8	HD-26966	Handle, door, right	1	24	GS-26639*	Door Gasket, 6.10ES, 6.10ESi, 7.14ES, 7.14ESi	1
9	BM-27116	Bumper, silicon for glass door	2		GS-36638*	Door Gasket, 10.10ES, 10.10ESi, 10.18ES, 10.18ESi	1
10	1009381	Door spacer,14 ga	1		GS-26635*	Door Gasket, 6.10ESiN	1
11	SP-27212	Spacer, window latch	1		GS-26637*	Door Gasket, 10.10ESiN	1
12	WS-22297	Washer, flat, M6	2	25	5009736	Drip tray assembly	1
13	1011417	Spacer latch, inner door	2	26	CM-28145	Clamp, hose	2
14	LT-29086	Latch, inner door	2	27	HO-2957	Hose	1

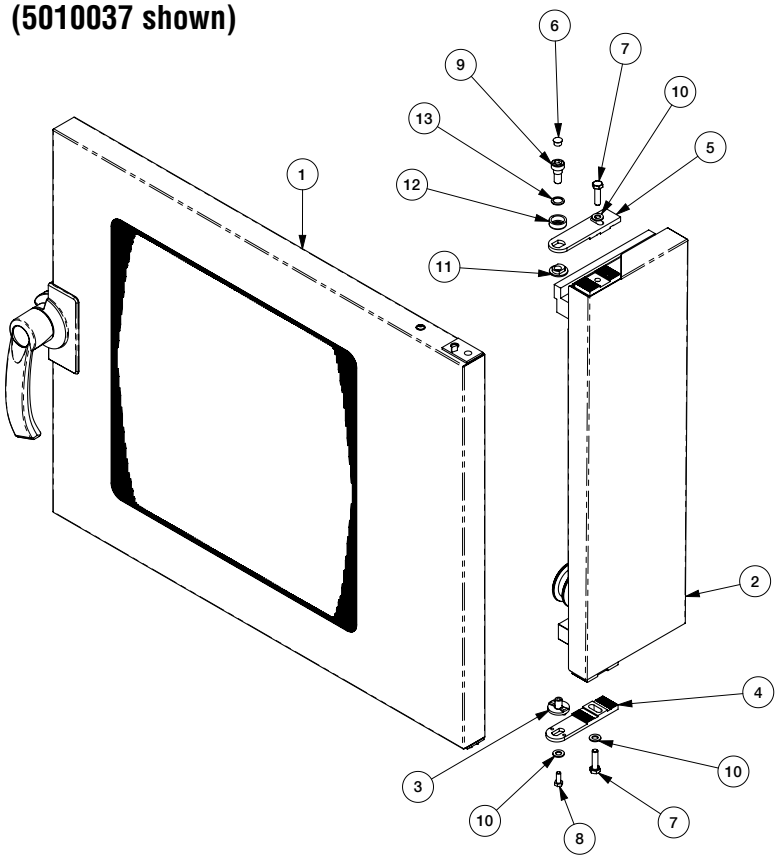
*NOT SHOWN

PARTS INFORMATION

RECESSED DOOR TROLLEY

6•10ES, 6•10ESi, 6•10ESiN, 7•14ES, 7•14ESi, 10•10ES, 10•10ESi, 10•10ESiN, 10•18ES, & 10•18ESi

(5010037 shown)



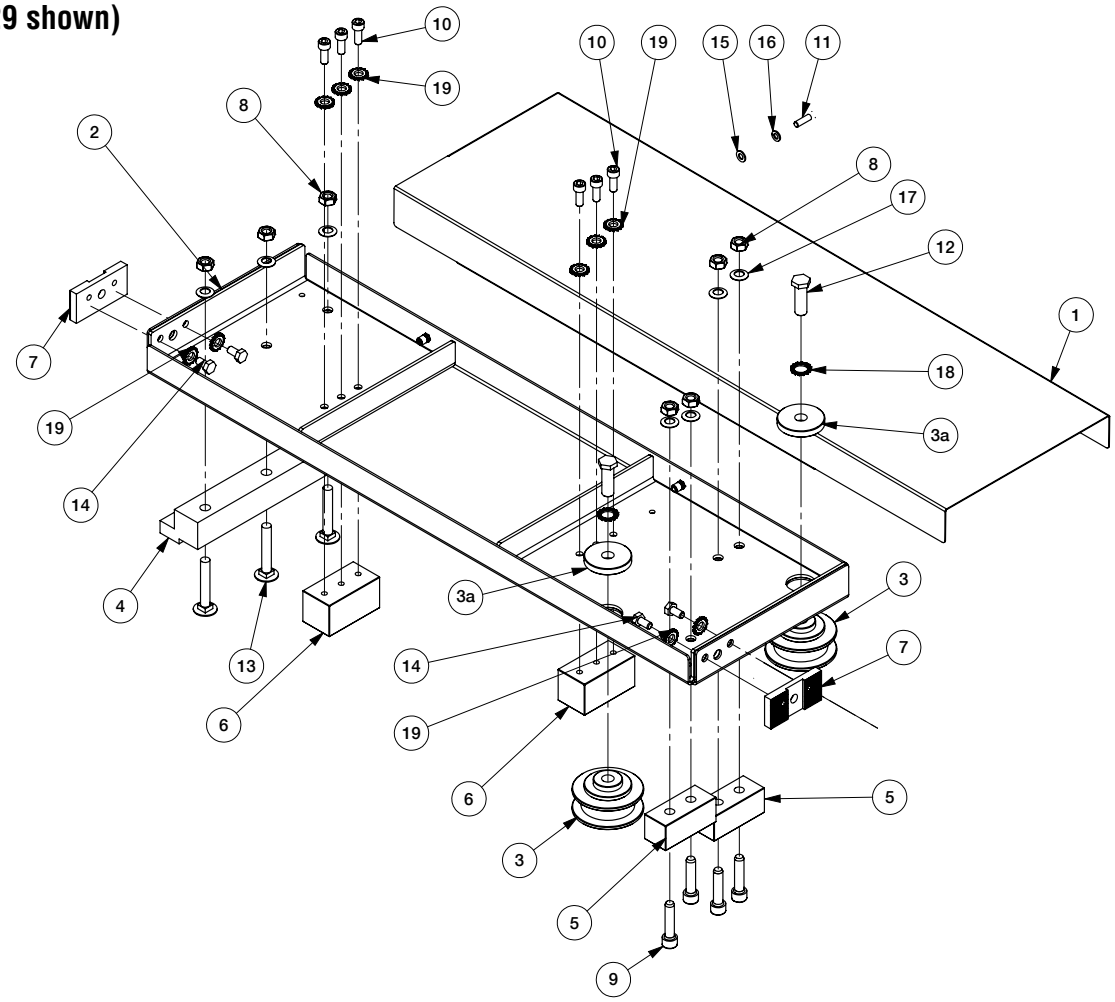
Item	Part	Description	Qty.
1	5010310	Recessed Door Assembly, 6.10es, 7.14es	1
	5010116	Recessed Door Assembly, 10.10es, 10.18es	1
	5010331	Recessed Door Assembly, 6.10esiN	1
	5010333	Recessed Door Assembly, 10.10esiN	1
2	5010329	Trolley Assembly, Recessed Door, 6.10es, 6.10esiN, 7.14es	1
	5009030	Trolley Assembly, Recessed Door, 10.10es, 10.10esiN, 10.18es	1
3	HG-25101	Hinge, Lower, Ratchet	1
4	HG-28040	Hinge, Recessed Door, Lower	1
5	HG-28041	Hinge, Recessed Door, Upper	1
6	PG-25460	Hole Plug, 13/32" Diameter	1
7	SC-22279	Screw, Hex Head, M8	2
8	SC-22284	Screw, Hex Head, M6	1
9	SC-25102	Screw, Axis, Upper Hinge	1
10	WS-22298	Washer, M8	3
11	WS-25124	Eccentric Washer	1
12	WS-25127	Covering Washer, for Hinge	1
13	WS-25478	Washer, Serrated	1
14	GS-26639*	Door Gasket, 6.10ES, 6.10ESi, 7.14ES, 7.14ESi	1
	GS-36638*	Door Gasket, 10.10ES, 10.10ESi, 10.18ES, 10.18ESi	1
	GS-26635*	Door Gasket, 6.10ESiN	1
	GS-26637*	Door Gasket, 10.10ESiN	1

*NOT SHOWN

RECESSED DOOR TROLLEY

6•10ES, 6•10ESi, 6•10ESiN, 7•14ES, 7•14ESi, 10•10ES, 10•10ESi, 10•10ESiN, 10•18ES, & 10•18ESi

(5010329 shown)

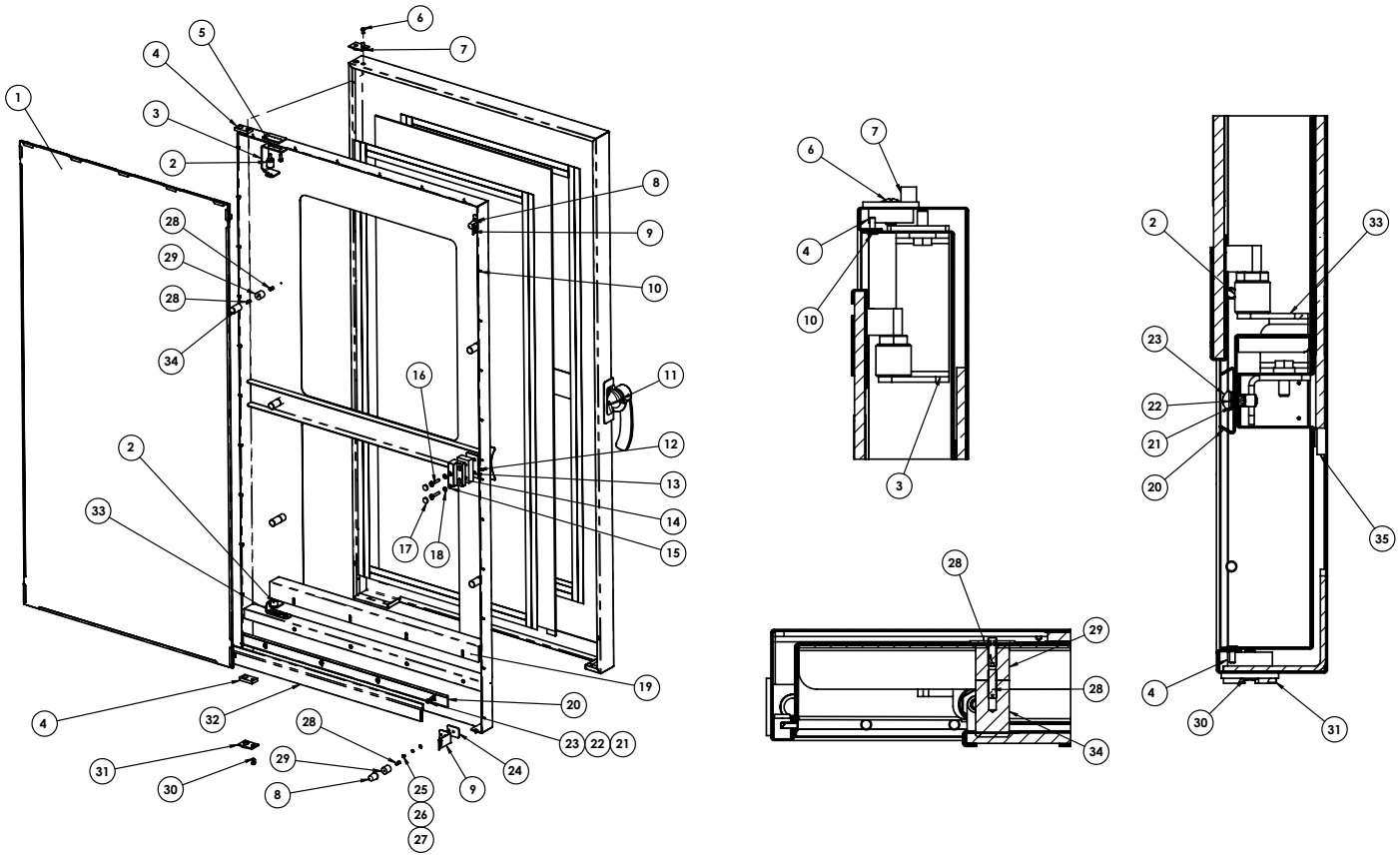


Item	Part	Description	Qty.
1	1010559	Cover, Trolley, 6.10es, 6.10esiN, 7.14es	1
	1009757	Cover, Trolley, 10.10es, 10.10esiN, 10.18es	1
2	5010330	Trolley, Spot Weld Assembly, 6.10es, 6.10esiN, 7.14es	1
	5009031	Trolley, Spot Weld Assembly, 10.10es, 10.10esiN, 10.18es	1
3	BG-28037	Bearing (includes Bearing Retainer)	2
3a		Bearing Retainer	2
4	BK-28042	Block, Guide, Long	1
5	BK-28043	Block, Guide, Short	2
6	BK-28084	Block Stop, Recessed Door	2
7	HG-28102	Hinge, Ratchet, Recessed Door	2
8	NU-22292	Nut, Hex, M8	7
9	SC-24388	Screw, SHC, M8	4
10	SC-24390	Screw, SHC, M6	6
11	SC-26060	Screw, Hex Head, M5	2
12	SC-28082	Screw, Hex Head, M10	2
13	SC-28088	Bolt, Carriage, M8	3
14	SC-28421	Screw, Hex Head, M6	4
15	WS-22295	Washer, Flat, M5	2
16	WS-22301	Washer, Split Lock, M5	2
17	WS-24396	Washer, Serrated Bevel, M8	7
18	WS-28083	Washer, Serrated Lock, M10	2
19	WS-28085	Washer, Serrated Lock, M6	10

PARTS INFORMATION

RECESSED DOOR ASSEMBLY (DUAL LATCH)

12•20ES, 12•20ESi, 20•20ES, & 20•20ESi
(5010102 shown)

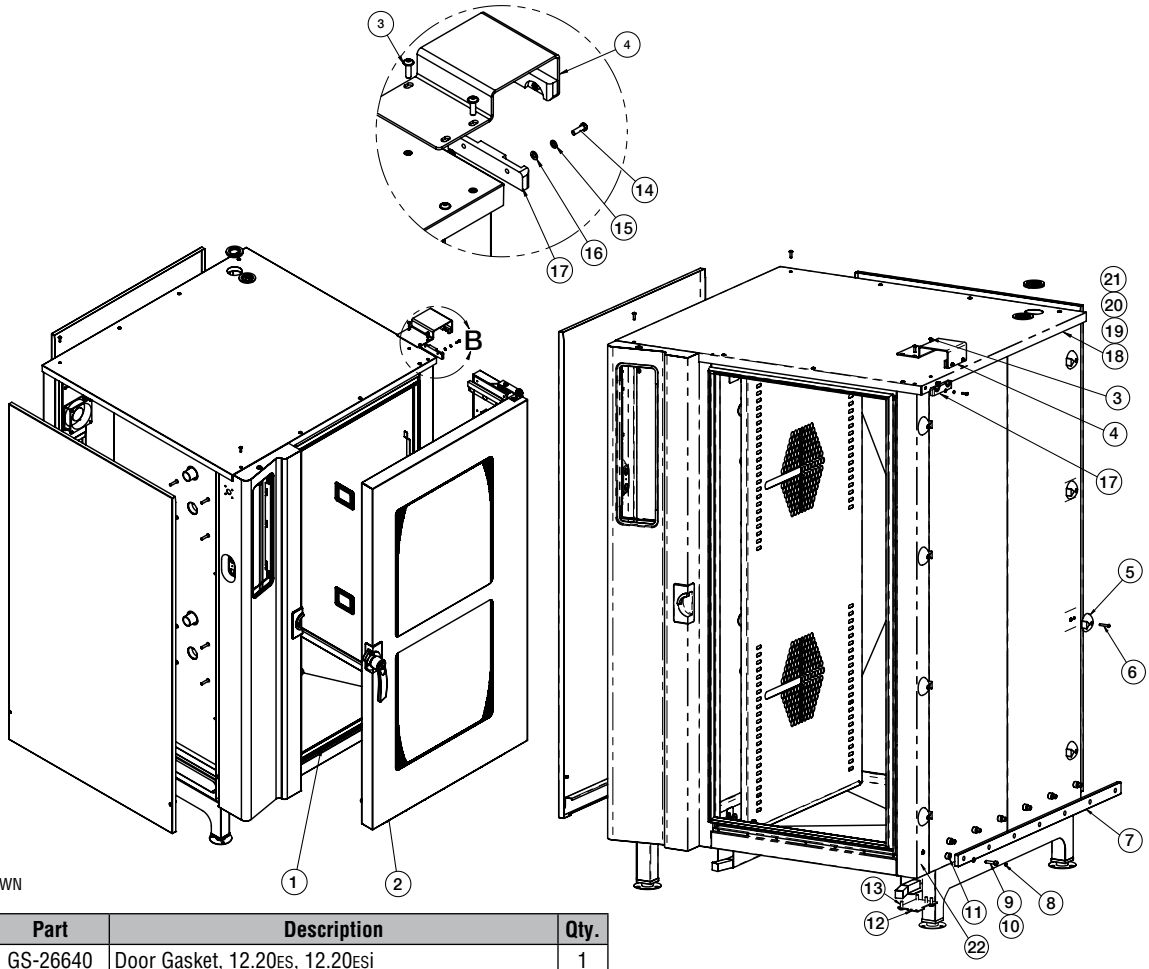


Item	Part	Description	Qty.	Item	Part	Description	Qty.
1	5010433*	Inner door, glass assembly, 12.20ES, 12.20ESi	1	20	1010294	Sweep gasket holder	1
	5011653	Inner door, glass assembly, 20.20ES, 20.20ESi	1	21	WS-22295	Washer, Flat M5	4
2	PI-26974	Pin, lower	1	22	WS-22301	Washer, M5 split lock	4
3	1010492	Hinge, upper, inner glass	1	23	SC-27109	M5 truss head screw	4
4	HG-25078	Hinge, anchor	4	24	1011417	Spacer latch, inner door	2
5	SC-22284	Screw, M6 hex head	6	25	SC-22271	Screws, M4 phillips	2
6	SC-25085	Screw, M6 oval head	1	26	WS-22300	Washer, M4 split lock	2
7	HG-25077	Hinge, top stop	1	27	WS-22294	Washer, flat, M4	2
8	BM-25072	Bumper, rubber	2	28	SC-25091	Screw, M5 sltd set screw flat	12
9	LT-34777	Latch, inner door	2	29	SP-27657	Spacer, glass, 20mm	7
10	RI-27108	Rivet, sealed	91	30	SC-22282	Screw, ph oval	2
11	HD-26966	Handle, door, right	1	31	HG-25079	Hinge, upper ratchet	1
12	1009380	Door spacer, 11 ga	1	32	GS-28592	Door gasket, 12.20ES, 12.20ESi	1
13	SP-27682	Spacer, inner glass latch	1		GS-28593	Door gasket, 20.20ES, 20.20ESi	1
14	SP-27212	Spacer, window latch	1	33	1009295	Hinge, lower glass holder	1
15	WS-22297	Washer, flat, M6	2	34	BM-27146	Bumper, stop/inner door	5
16	SC-29089	Screw, truss head, M6	2	35	SC-25085	M6 x 12, oval head	1
19	1010070	Backer support sweep gasket	1				

*NOT SHOWN

RECESSED DOOR TRACK (DUAL LATCH)

12•20ES, 12•20ESi, 20•20ES, & 20•20ESi (5011862 shown)



*NOT SHOWN

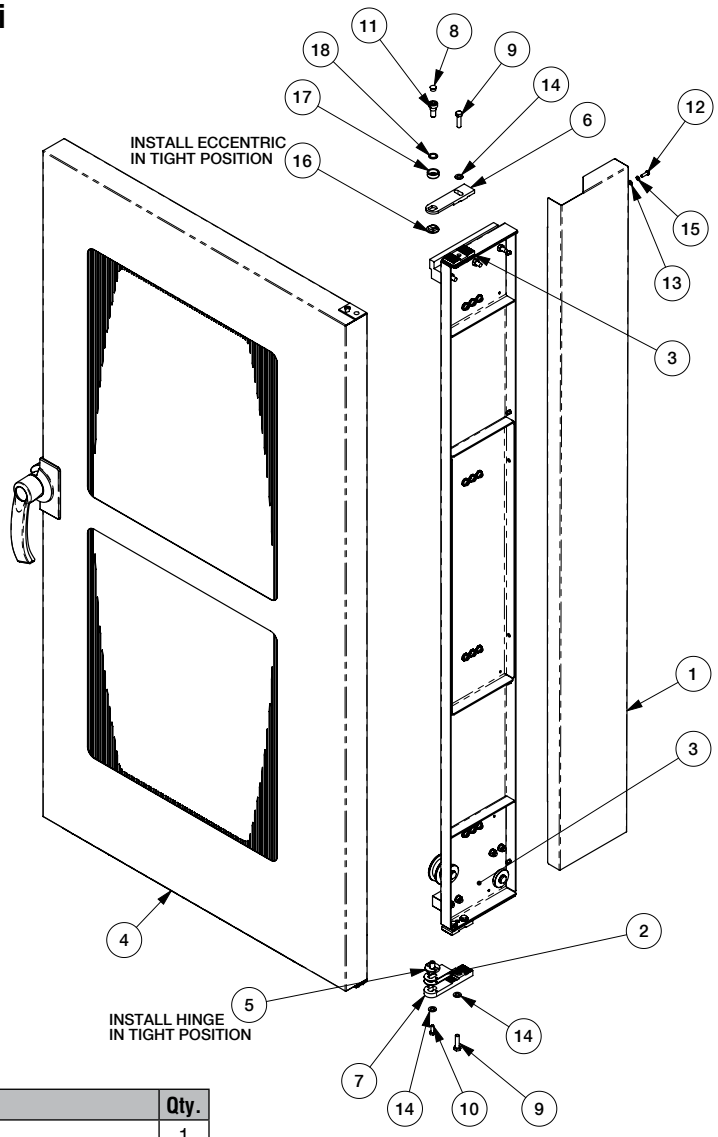
Item	Part	Description	Qty.
1	GS-26640	Door Gasket, 12.20ES, 12.20ESi	1
	GS-26641	Door Gasket, 20.20ES, 20.20ESi	1
2	5010041	Door-Trolley Complete Assembly, 20.20ES, 20.20ESi	1
	5010042	Door-Trolley Complete Assembly, 12.20ES, 12.20ESi	1
3	SC-25128	Screw, Truss Head, M6	10
4	5009954	Upper Door Guide	1
5	BK-27412	Block, Recessed Door, 20.20ES, 20.20ESi	8
	BK-27412	Block, Recessed Door, 12.20ES, 12.20ESi	4
6	SC-22283	Screw, Phillips Oval Head, M6	8
7	RA-28396	Rail, Bottom	1
8	PG-24384	Plug, Screw	7
9	SC-24388	Screw, SHC, M8	7
10	WS-24396	Washer, Serrated Bevel, M8	7
11	SP-28440	Rail Spacer	7
12	1011706	Plate, Hinge Mounting, Door	1
13	SC-29403	Screw, Truss Head, M8	4
14	SC-22926	Screw, Hex Head, M8	2
15	WS-22301	Washer, Split Lock, M5	2
16	WS-22295	Washer, Flat, M5	2
17	BK-28571	Block, Cart Guide, White Teflon	1
18*	5009316	Rail, Upper (LOCATED BENEATH TOP COVER)	1
19*	WS-22297	Washer, Flat, M6	7
20*	WS-22302	Washer, Split Lock, M6	7
21*	NU-22291	Nut, Hex Head, M6	7
22	5009320	Right Front Corner Assembly	1

PARTS INFORMATION

RECESSED DOOR ASSEMBLY (DUAL LATCH)

12•20ES, 12•20ESi, 20•20ES, & 20•20ESi

(5010041 shown)

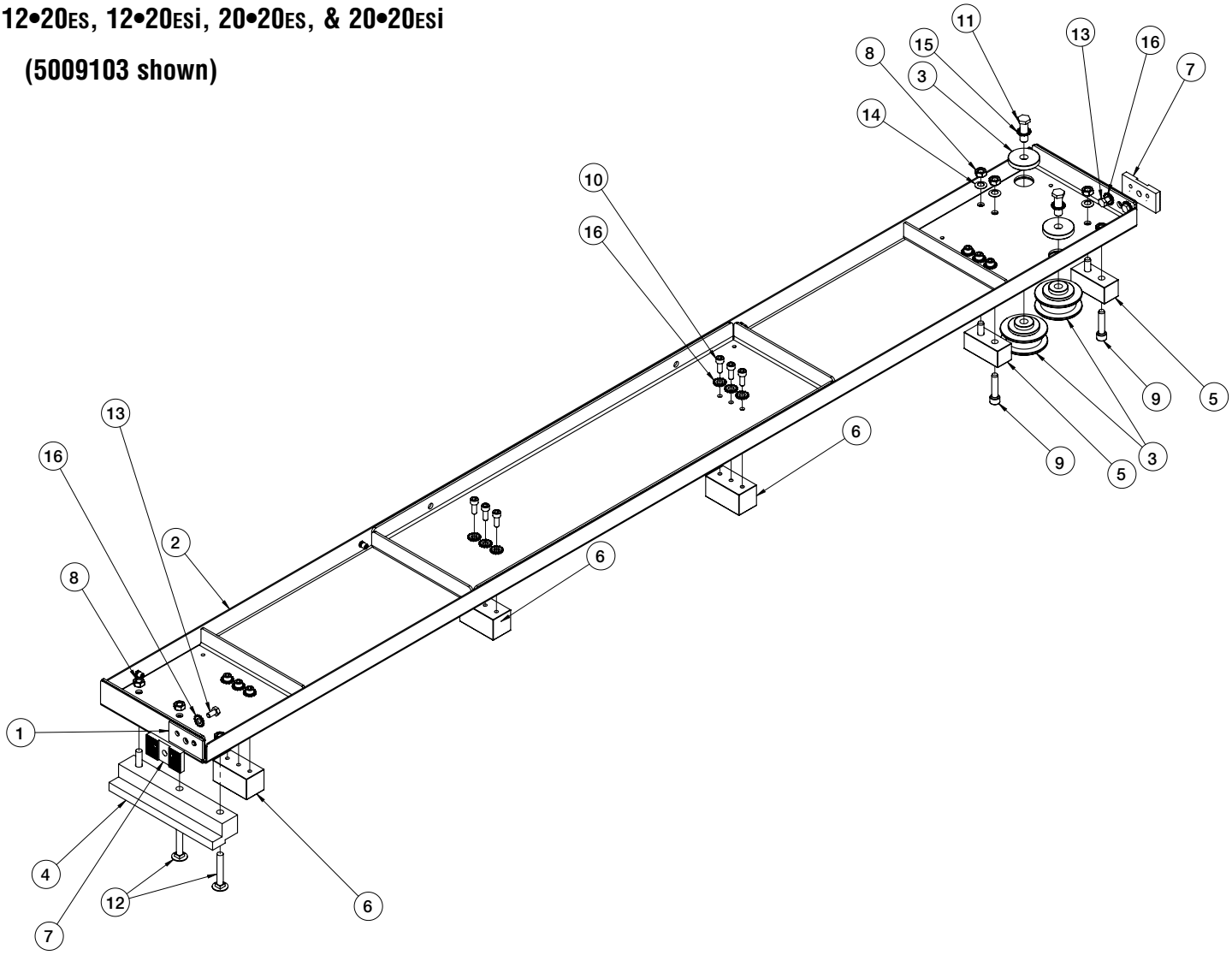


Item	Part	Description	Qty.
1	1009640	Cover, Door Trolley, 20.20ES, 20.20ESi	1
	1009500	Cover, Door Trolley, 12.20ES, 12.20ESi	1
2	1011367	Spacer, Lower Door Hinge	2
3	5009103	Trolley Assembly, 20.20ES, 20.20ESi	1
	5009126	Trolley Assembly, 12.20ES, 12.20ESi	1
4	5010102	Recessed Door Assembly, 20.20ES, 20.20ESi	1
	5010432	Recessed Door Assembly, 12.20ES, 12.20ESi	1
5	HG-25101	Hinge, Lower, Ratchet	1
6	HG-28041	Hinge, Recessed Door, Upper	1
7	HG-28411	Hinge, Recessed Door, Lower	1
8	PG-25460	Hole Plug, 13/32" Diameter	2
9	SC-22279	Screw, Hex Head, M8	1
10	SC-22284	Screw, Hex Head, M6	1
11	SC-25102	Upper Hinge Axis Screw	1
12	SC-26060	Screw, Hex Head, M5	4
13	WS-22295	Washer, Flat, M5	4
14	WS-22298	Washer, M8	3
15	WS-22301	Washer, Split Lock, M5	4
16	WS-25124	Washer, Eccentric	1
17	WS-25127	Covering Washer, for Hinge	1
18	WS-25478	Washer, Serrated	1

RECESSED DOOR TROLLEY ASSEMBLY

12•20ES, 12•20ESi, 20•20ES, & 20•20ESi

(5009103 shown)



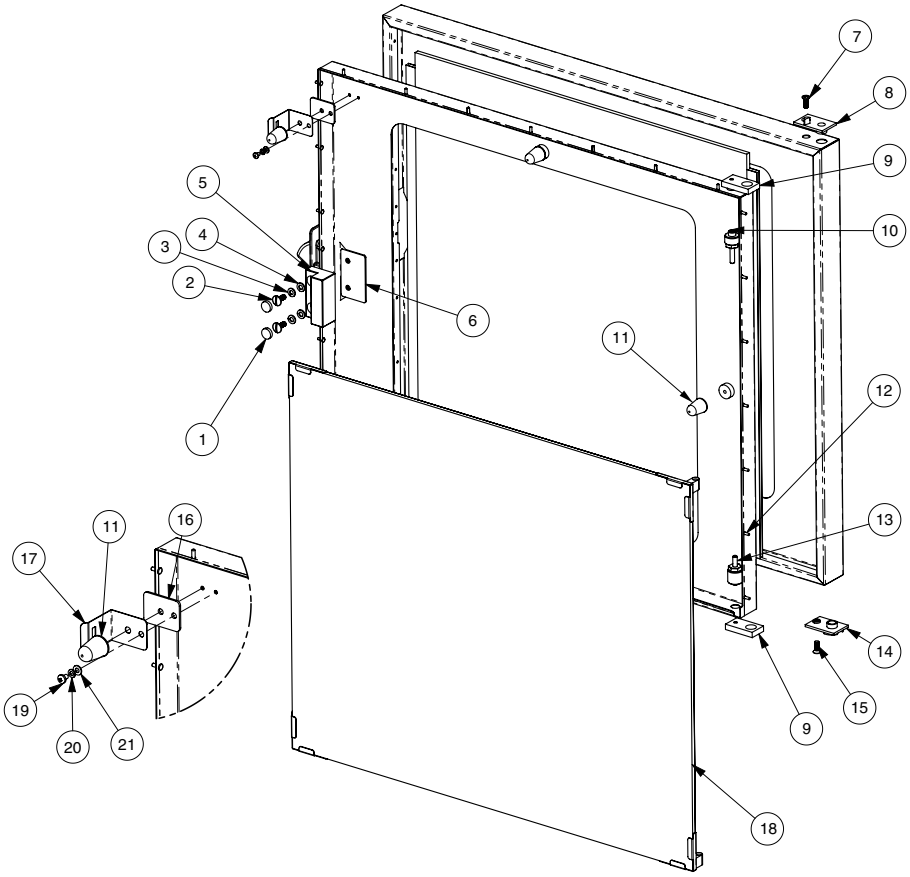
Item	Part	Description	Qty.
1	1009572	Spacer, Recessed Door	1
2	5009104	Trolley Spot Assembly, 20.20ES, 20.20ESi	1
	5009127	Trolley Spot Assembly, 12.20ES,12.20ESi	1
3	BG-28037	Bearing	2
4	BK-28042	Block, Guide, Long	1
5	BK-28043	Block, Guide, Short	2
6	BK-28084	Block Stop, Recessed Door	4
7	HG-28102	Hinge, Ratchet, Recessed Door	2
8	NU-22292	Nut, Hex, M8	7
9	SC-24388	Screw, SHC, M8	4
10	SC-24390	Screw, SHC, M6	12
11	SC-28082	Screw, Hex Head, M10	2
12	SC-28088	Bolt, Carriage, M8	3
13	SC-28421	Screw, Hex Head, M6	4
14	WS-24396	Washer, Serrated Bevel, M8	4
15	WS-28083	Washer, Serrated Lock, M10	2
16	WS-28085	Washer, Serrated Lock, M6	16

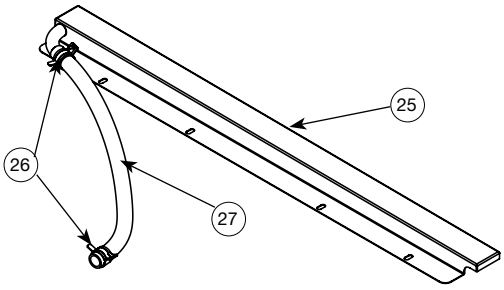
PARTS INFORMATION

LEFT-HAND DOOR ASSEMBLY (DUAL LATCH)

6•10ES, 6•10ESi, 6•10ESiN, 7•14ES, 7•14ESi, 10•10ES, 10•10ESi, 10•10ESiN, 10•18ES, & 10•18ESi

(5011118 shown)





Drip Tray

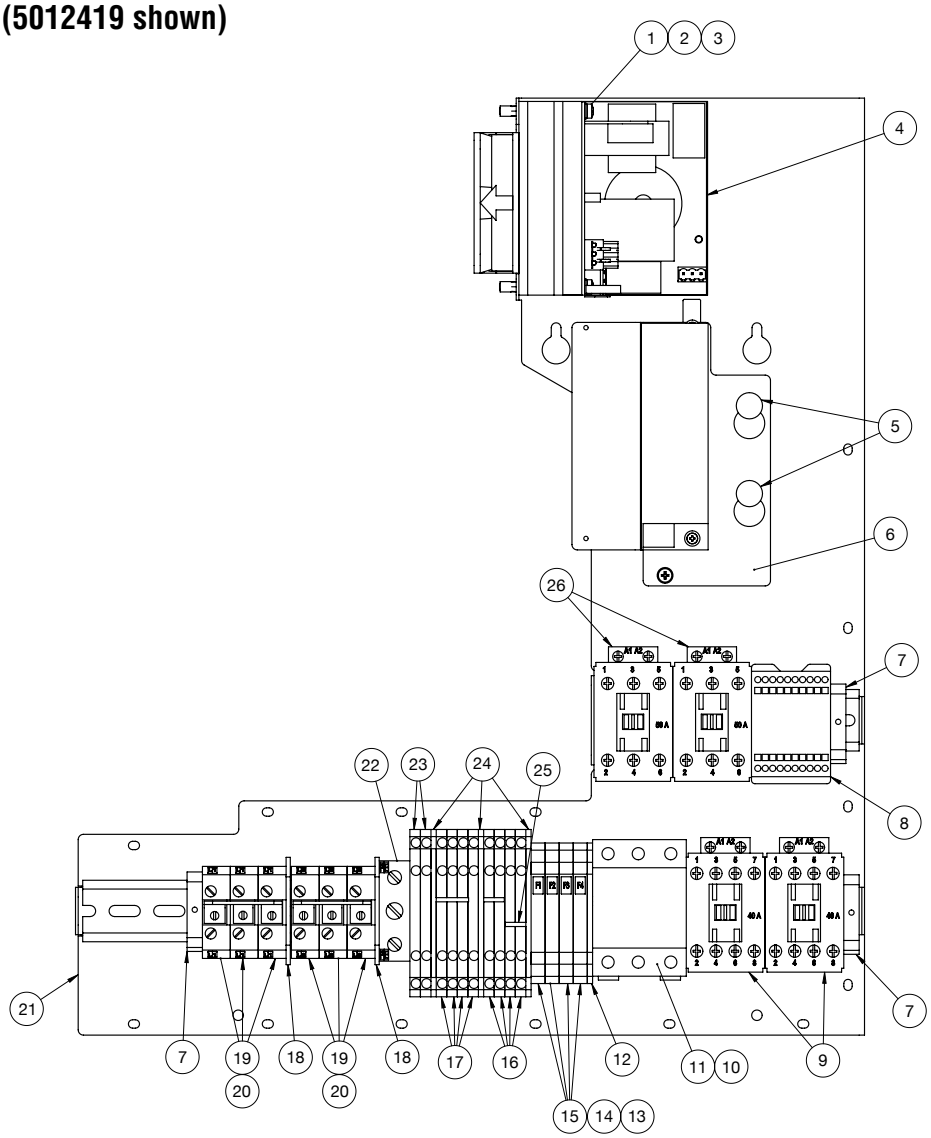
Item	Part	Description	Qty.	Item	Part	Description	Qty.
1	PG-24789	Plug, 15mm	2	18	5011208	Inner door, glass assembly, 6.10ES, 6.10ESi, 7.14ES, 7.14ESi	1
2	SC-27125	Screw, truss head M6	2		5011427	Inner door, glass assembly, 10.10ES, 10.10ESi, 10.18ES, 10.18ESi	1
3	WS-22302	Washer, M6 split lock	2		5011425	Inner door, glass assembly, 6.10ESiN	1
4	WS-22294	Washer, flat, M4	2		5011426	Inner door, glass assembly, 10.10ESiN	1
5	SP-27212	Spacer, window latch	1	19	SC-22271	Screws, M4 phil	2
6	1009381	Door spacer,14 ga	1	20	WS-22300	Washer, M4 split lock	2
7	SC-22282	Screw, phillps oval	2	21	WS-22294	Washer, flat M4	2
8	HG-25077	Hinge, top stop	1	22	HD-26967*	Handle, door, left	1
9	HG-25078	Hinge, anchor	2	23	BM-27116*	Bumper	2
10	PI-26973	Pin, upper	1	24	GS-26639*	Door Gasket, 6.10ES, 6.10ESi, 7.14ES, 7.14ESi	1
11	BM-25072	Bumper, rubber	5		GS-36638*	Door Gasket, 10.10ES, 10.10ESi, 10.18ES, 10.18ESi	1
12	RI-27108	Rivet, sealed	33		GS-26635*	Door Gasket, 6.10ESiN	1
13	PI-26974	Pin, lower	1		GS-26637*	Door Gasket, 10.10ESiN	1
14	HG-25079	Hinge, upper ratchet	1	25	5011323	Drip tray assembly, 6.10ES, 6.10ESi, 7.14ES, 7.14ESi, 10.10ES, 10.10ESi, 10.18ES, 10.18ESi	1
15	SC-22282	Screw phillps oval	2		5011552	Drip tray assembly, 6.10ESiN, 10.10ESiN	
16	1011417	Spacer latch, inner door	2	26	CM-28145	Clamp, hose	2
17	LT-29086	Latch, inner door	2	27	HO-2957	Hose	1

*NOT SHOWN

ELECTRICAL ASSEMBLY

6•10ES, 6•10ESi, 6•10ESiN, 7•14ES, 7•14ESi, 10•10ES, 10•10ESi, 10•10ESiN, 10•18ES, & 10•18ESi

(5012419 shown)



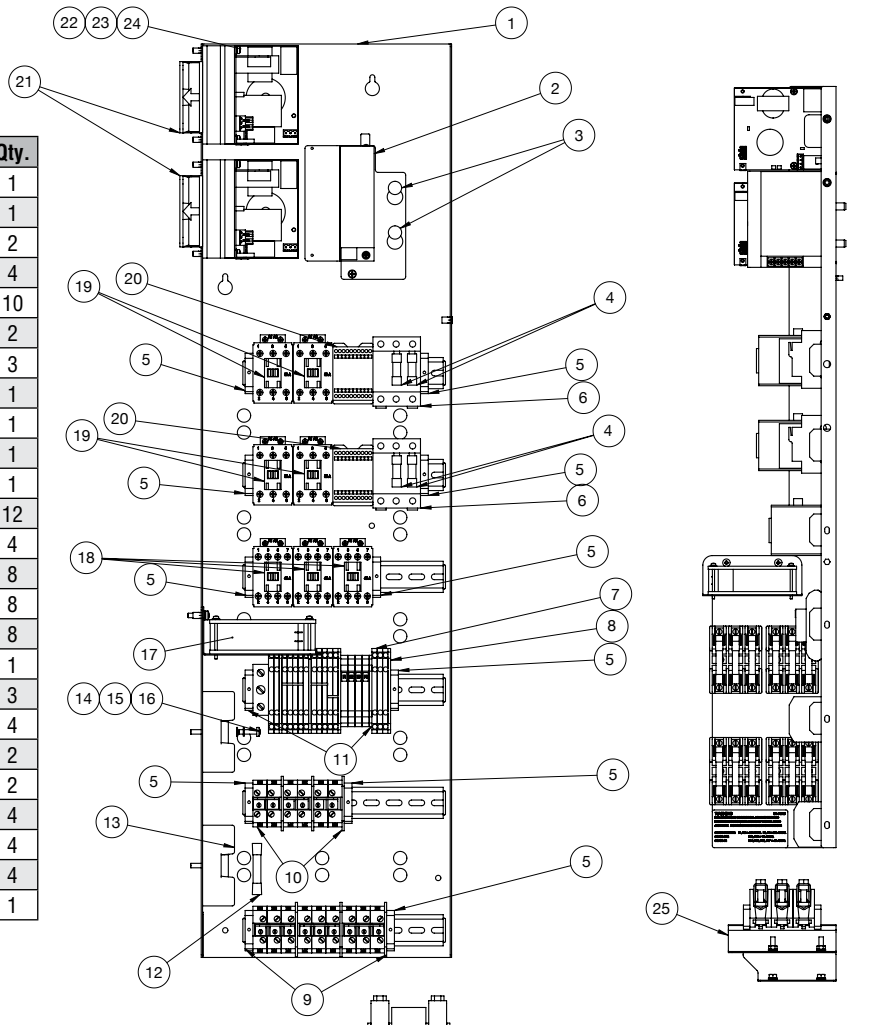
Item	Part	Description	Qty.
1	SC-29261	Screw, M4x50mm	2
2	WS-22300	Washer, Split Lock, M4	2
3	WS-22294	Washer, Flat, M4	2
4	BA-34676	Board, Reversible Motor	1
5	SC-22753	Screw, Round Shoulder, M6	2
6	BA-34508	Power Supply Assembly, Dual	1
7	TM-34305	Terminal, Screwless End	3
8	CN-34913	Contactor, 230V	1
9	CN-3654	Contactor, 40 Amp	2
10	FU-34772	Fuse, 15 Amp	2
11	FU-34770	Fuse Holder, 3 Bank	1
12	TM-34315	Terminal, End Plate	1
13	FU-33184	Fuse, Slo Blo, 2 Amp	4

Item	Part	Description	Qty.
14	FU-33452	Neozed, 6.3 Amp	4
15	TM-34311	Terminal, Fuse Holder, 8mm	4
16	TM-34307	Terminal, Spring, Orange, 6mm	4
17	TM-34308	Terminal, Blue, Spring, 6mm	4
18	TM-3786	Terminal, Wall, 35mm	2
19	TM-3780	Terminals, 35mm	6
20	TM-33064	Jumper Bar, 3 Pole, 33mm	2
21	5011619	Plate Weld Assembly, Electrical	1
22	TM-3782	Terminal, Ground, 35mm	1
23	TM-34306	Terminal, Ground, Spring, 6mm	2
24	TM-34309	Terminal, End Section, Spring	3
25	TM-34310	Jumper bar	2
26	CN-3731	Contactor, 50 Amp	2

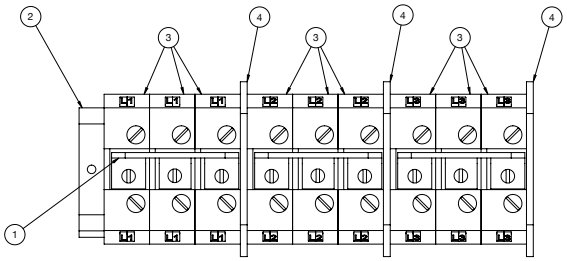
PARTS INFORMATION

ELECTRICAL ASSEMBLY

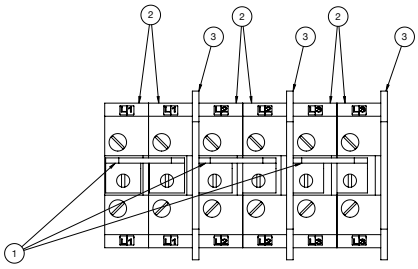
20•20ES, & 20•20ESi (5011965 shown)



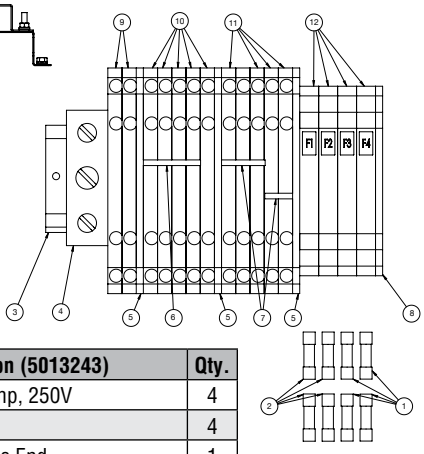
Item	Part	Description	Qty.
1	5011971	Plate Weld Assembly, Electrical Chassis	1
2	BA-34508	Power Supply Assembly, Dual	1
3	SC-22753	Screw, Round Shoulder, M6	2
4	FU-34772	Fuse, 15 Amp	4
5	TM-34305	Terminal, Screwless End	10
6	FU-34770	Fuse Holder, 3 Bank	2
7	TM-34308	Terminal, Blue, Spring, 6mm	3
8	TM-34309	Terminal, End Section, Spring	1
9	5011999	Din Rail Assembly, Screw TM, Long	1
10	5011998	Din Rail Assembly, Screw TM, Short	1
11	5013243	Din Rail Assembly, Spring Clamp	1
12	FU-33040	45A, Class G, 480V Time-Lag	12
13	FU-33039	60A, Class G, 3 Pol	4
14	WS-22295	Washer, Flat M5	8
15	WS-22301	Washer, Split Lock, M5	8
16	SC-22779	Screw, Phillips Pan Head, M5	8
17	FA-3568	Intake Fan Assembly	1
18	CN-3654	Contactor, 40 Amp	3
19	CN-3731	Contactor, 50 Amp	4
20	CN-34913	Contactor, 230V	2
21	BA-34676	Board, Reversible Motor	2
22	WS-22294	Washer, Flat, M4	4
23	WS-22300	Washer, Split Lock, M4	4
24	SC-29261	Screw, M4x50mm	4
25	5012022	Din Rail Assembly, 20.20es, 208-240V	1



Item	Part	Description (5011999)	Qty.
1	TM-33064	Jumper Bar, 3 Pole, 33mm SQ	3
2	TM-34305	Terminal, Screwless End	1
3	TM-3780	Terminals, 35mm	9
4	TM-3786	Terminal Wall, 35mm	3

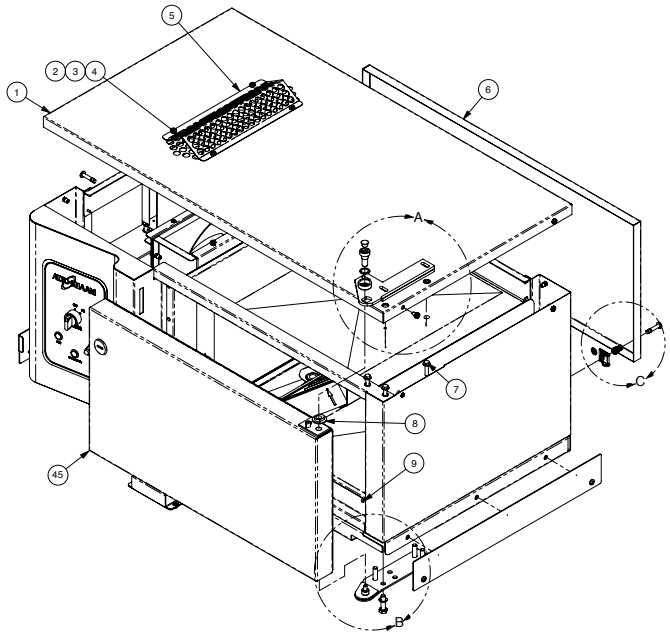


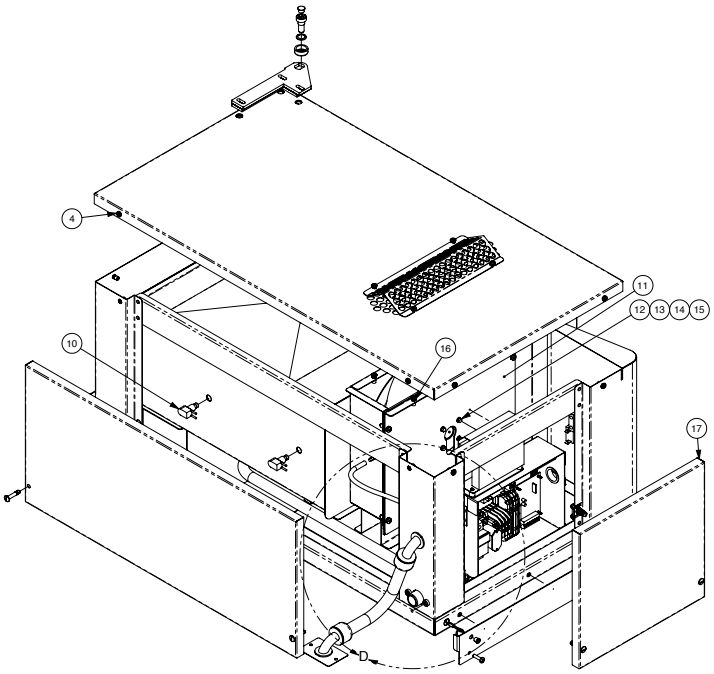
Item	Part	Description (5011998)	Qty.
1	TM-33837	Jumper Strip	3
2	TM-3780	Terminals, 35mm	6
3	TM-3786	Terminal Wall, 35mm	3

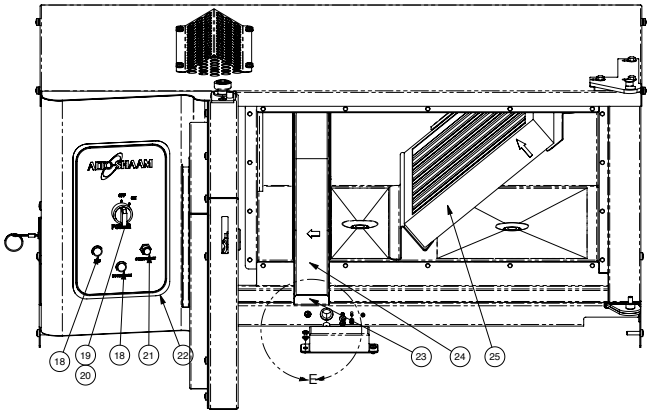


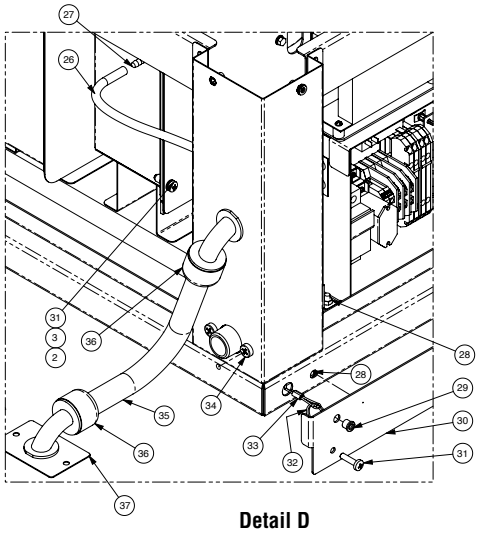
Item	Part	Description (5013243)	Qty.
1	FU-33184	Fuse, Slo Blo, 2 Amp, 250V	4
2	FU-33452	Neozed, 6.3 Amp	4
3	TM-34305	Terminal, Screwless End	1
4	TM-3782	Terminal Ground, 35mm	1
5	TM-34309	Terminal End Section, Spring	3
6	TM-34310	Jumper Bar	1
7	TM-34310	Jumper Bar	1
8	TM-34315	Terminal End Plate	1
9	TM-34306	Terminal Ground, Spring, 6mm	2
10	TM-34308	Terminal, Blue, Spring, 6mm	5
11	TM-34307	Terminal, Orange, Spring, 6mm	5
12	TM-34311	Terminal, Fuse Holder, 8mm	4

VENTLESS HOOD ASSEMBLY — VHES-5 (6•10ESiN & 10•10ESiN)

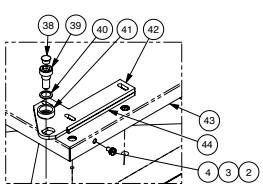




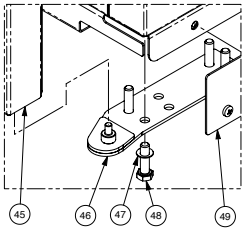




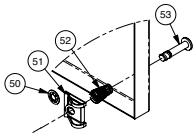
Detail D



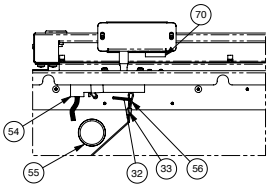
Detail A



Detail B



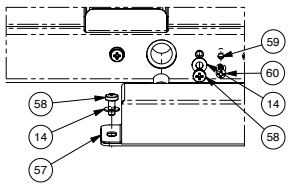
Detail C



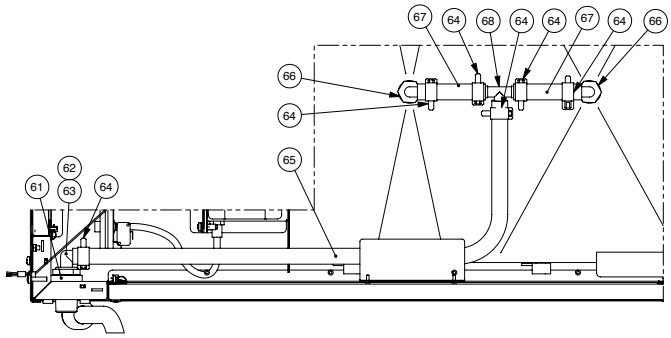
Bottom View

PARTS INFORMATION

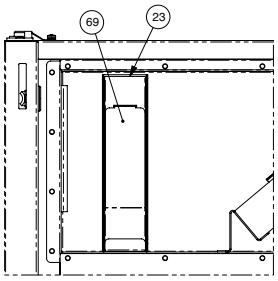
VENTLESS HOOD ASSEMBLY — VHES-5



Detail E



Back View - Plumbing



Filter & filter holder hidden to show filter flap

5010692

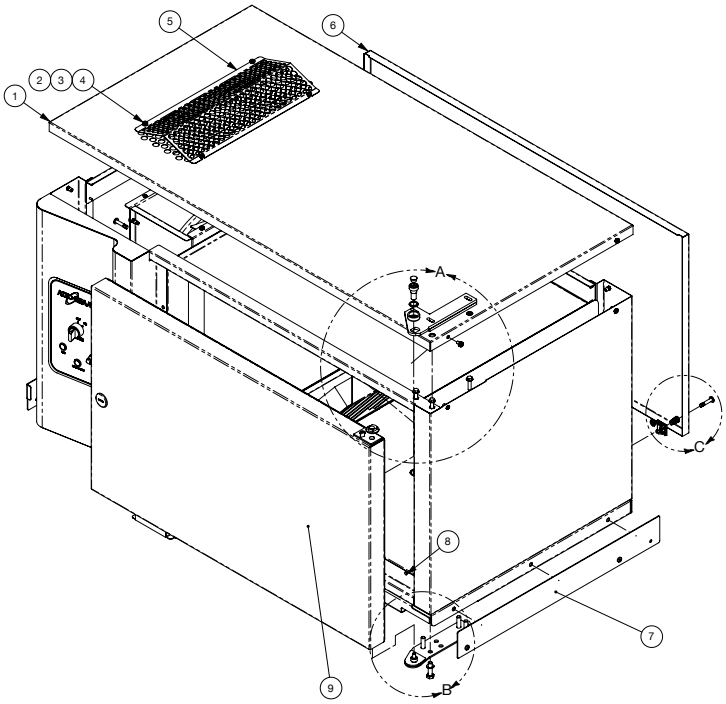
Item	Part	Description	Qty.
1	5010575	Outer cover assembly	1
2	WS-22295	Washer, flat M5	12
3	WS-22301	Washer, split lock M5	12
4	SC-22766	Screw, pan head phillips	10
5	1010982	Cover, exhaust	1
6	1010665	Rear cover	1
7	SC-28891	Screw, truss head M6	3
8	WS-25124	Eccentric washer	1
9	RI-27108	Rivet, sealed	18
10	SW-34903	Switch, filter safety	2
11	1010719	Motor panel	1
12	SC-23664	Screw, hex head trim M4	4
13	WS-22300	Washer, split lock M4	4
14	WS-22294	Washer, flat M4	8
15	GS-2019	Gasket, 1/2", panel, self adhesve, 3.75'	1
16	NU-23909	Nut, hex insert M5	4
17	1010668	Left cover	1
18	LI-3951	White pilot light 250V	2
19	SW-33101	Switch, power, main, red	1
20	SW-3683*	Switch, power, insert	1
21	SW-33495	Switch, push button reset	1
22	PE-27877	Overlay, panel, ventless hood	1
23	1010653	Filter frame	1
24	FI-24114	Filter, odor guard III	1
25	FI-24113	Filter, grease	1
26	TU-24183	Tubings, 3/16 I.D., 9"	1
27	FT-24182	Fitting, with hose barb panel	1
28	NU-22289	Nut, hex M5	10
29	BU-3009	Bushing, snap, 5/16"	1
30	5010555	Left side restr. assembly	1
31	SC-22779	Screw, phillips pan head, M5	8
32	PL-28413	Pull, key ring, 3/4" manual	2
33	CL-28849	Clip, crimp for 1/16" wire cable	2
34	SC-27325	Screw, M6	2
35	TU-33178	Conduit, flex, liquid, tight, 24"	1

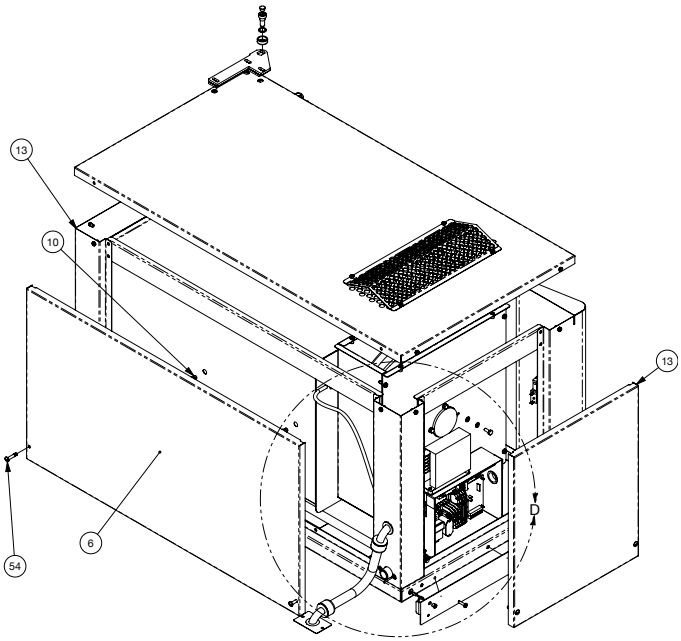
Item	Part	Description	Qty.
36	CR-33179	Connector flex nylon sweep	2
37	1007539	Level probe cover w/ hood	1
38	PG-25460	Plug, hole 13/32" Dia.	1
39	SC-25102	Upper hinge axis screw	1
40	WS-25478	Washer, serrated	1
41	WS-25127	Covering washer, for hinge	1
42	HG-28296	Hinge, rachet, part 1	1
43	5010575	Outer cover assembly	1
44	HG-28094	Hinge, ratchet part 2	1
45	5010545	Door assembly	1
46	5010943	Hinge, lower, spotweld	1
47	WS-24396	Washer, serrated bevel M8	4
48	SC-22279	Hex head screw, M8	4
49	5010472	Side restraint assembly	1
50	WS-22195	Washer, safety, steel	4
51	CL-22196	Clip, holding M6	4
52	SD-22194	Spring, safety M6	4
53	ST-22193	Stud, 1/4 turn M6	4
54	LK-34292	Lock, rahrbach, solenoid closer	1
	LK-34293	Lock, rahrbach, wire set	1
55	BU-3013	Bushing, snap,1-1/2"	1
56	1011021	Cable	1
57	5010647	Latch enclosure assembly	1
58	SC-22273	Screw, phillips pan head M4	4
59	LT-3738	Door, interlock switch	1
60	SC-22270	Screw, phillips pan head M3	2
61	NP-27538	Valve holder assembly	1
62	SA-28149	O-ring, seal	1
63	EB-28368	Elbow, nylon 3/4 npt x 1/2" barb	1
64	CM-28145	Clamp, hose, 20mm	6
65	HO-2957	Hose, vansil, 27"	1
66	EB-24100	Fitting, nylon, 1/2"	2
67	HO-2957	Hose, vansil, 3.25"	2
68	TE-23948	Tee, insert, nylon 1/2" dia	1
69	1010667	Filter flap	1
70	MA-3739	Door switch magnet	1

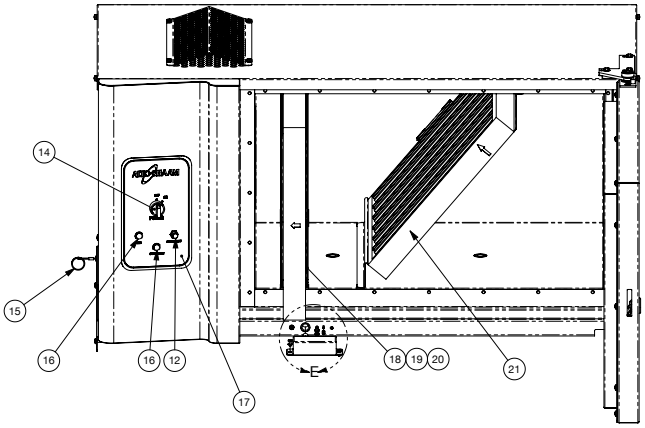
*NOT SHOWN

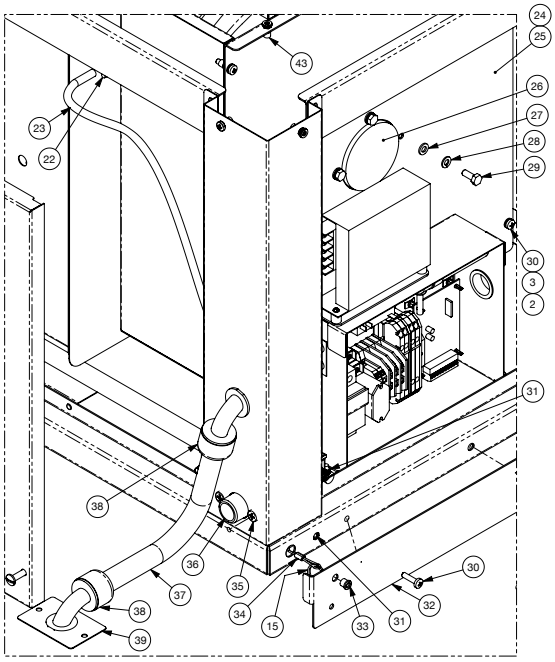
VENTLESS HOOD ASSEMBLY — VHES-10

(6•10ES, 6•10ESi, 7•14ES, 7•14ESi, 10•10ES, 10•10ESi, 10•18ES, & 10•18ESi)

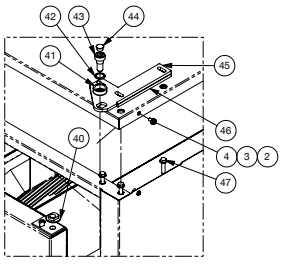




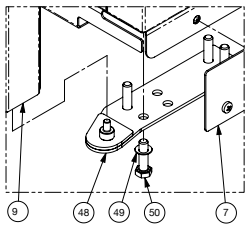




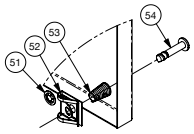
Detail D



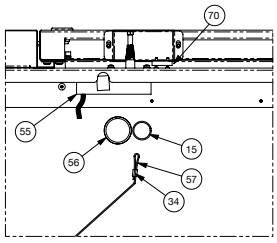
Detail A



Detail B



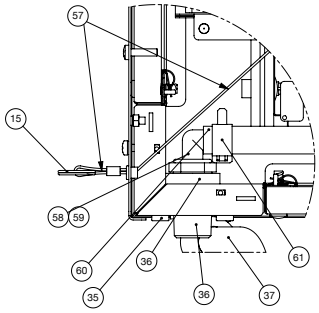
Detail C



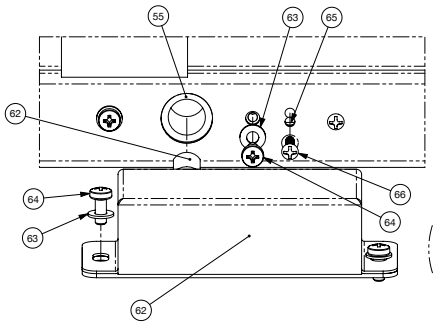
Bottom View

PARTS INFORMATION

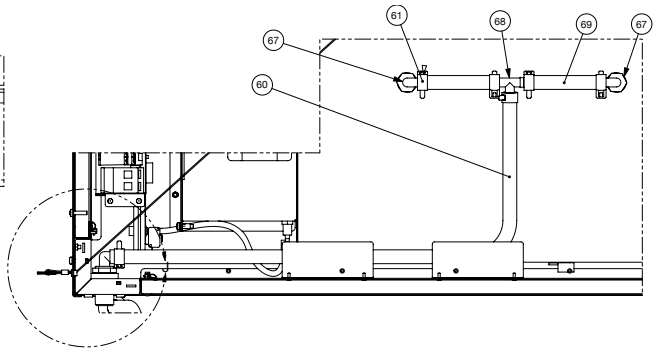
VENTLESS HOOD ASSEMBLY — VHES-10



Detail J



Detail E



Back View - Plumbing

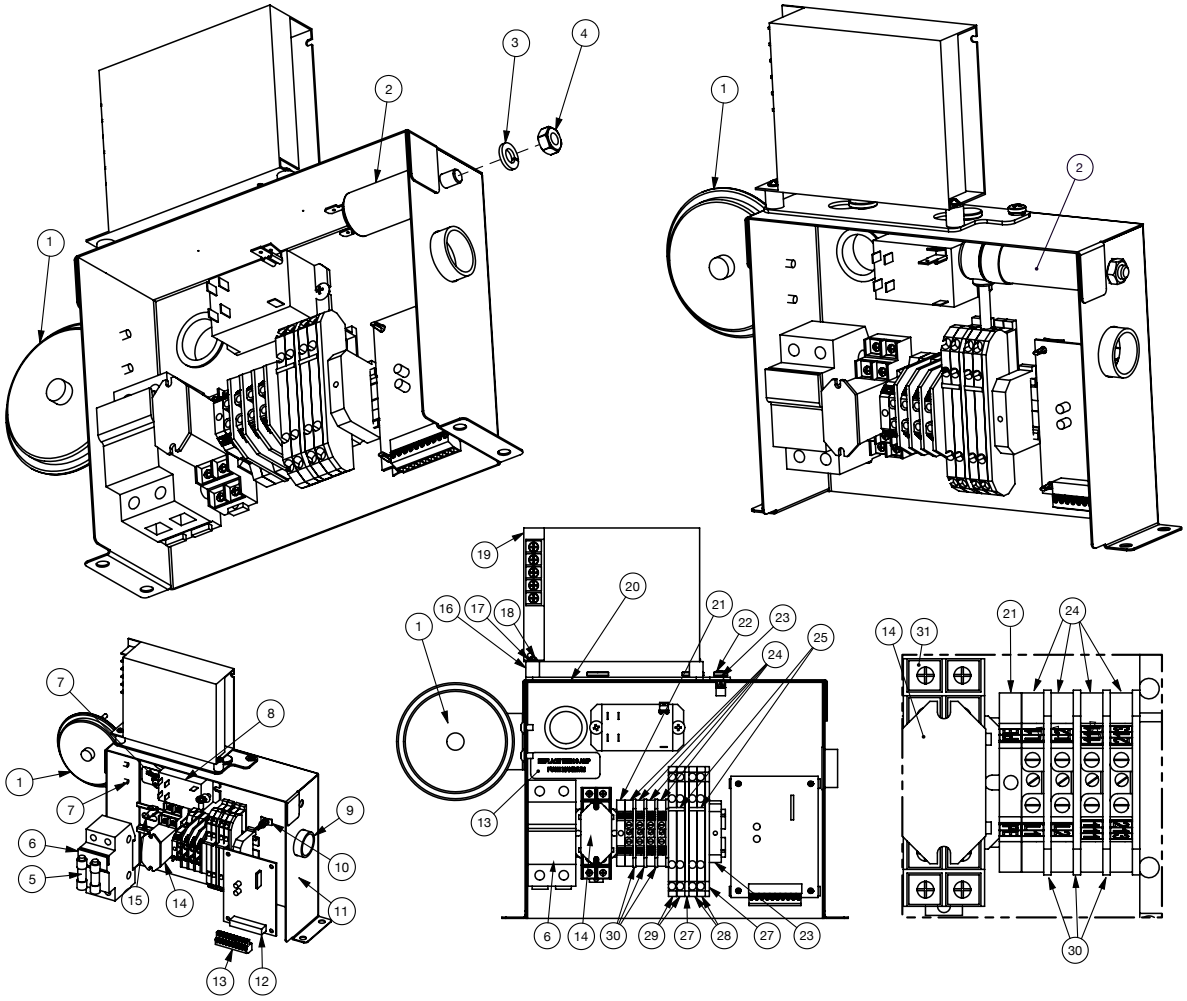
5011181

Item	Part	Description	Qty.
1	5011184	Outer cover assy	1
2	WS-22295	Washer, flat M5	12
3	WS-22301	Washer, split lock M5	16
4	SC-22766	Screw, pan head phillips	10
5	1011157	Cover exhaust	1
6	1011109	Rear cover	1
7	5011187	Side restraint assembly	1
8	RI-27108	Rivet, sealed	24
9	5011185	Door assembly	1
10	SW-34903	Switch, filter safety	2
11	SW-3683*	Switch, power, insert	1
12	SW-33495	Switch, push button reset	1
13	1011113	Left cover	1
14	SW-33101	Switch, power, main, red	1
15	PL-28413	Pull, key ring, 3/4" manual	2
16	LI-3951	White pilot light 250V	2
17	PE-27877	Overlay, panel, ventless hood	1
18	1007282	Filter frame	1
19	1010667	Filter flap	1
20	FI-24102	Filter, odor guard III	1
21	FI-23062	Filter, grease	1
22	FT-24182	Fitting, ct with hose barb panel	1
23	TU-24183	Tubing, 3/16 i.d. 12"	1
24	GS-2019	Gasket, 1/2", panel, self adhesive, 3.75'	1
25	1011112	Motor panel	1
26	FA-33252	Fan, 208-240V, VHes-10	1
27	WS-22297	Washer, flat M6	4
28	WS-22302	Washer, split lock M6	4
29	SC-22284	Screw, hex head M6	4
30	SC-22779	Screw, pan head phillips M5	8
31	NU-22289	Nut, hex M5	10
32	5011186	Left side restr. Assembly	1
33	BU-3009	Bushing, snap, 5/16"	1
34	CL-28849	Clip, crimp for 1/16" wire cable	2
35	SC-27325	Screw, M6	2

Item	Part	Description	Qty.
36	NP-27538	Valve holder assembly	1
37	TU-33178	Conduit, flex, liquid tight, 30"	1
38	CR-33179	Connector flex nylon sweep	2
39	1007539	Level probe cover w/ hood	1
40	WS-25124	Eccentric washer	1
41	WS-25127	Covering washer, for hinge	1
42	WS-25478	Washer, serrated	1
43	SC-25102	Upper hinge axis screw	1
44	PG-25460	Plug, Hole 13/32" Dia.	1
45	HG-28296	Hinge, rachet, part 1	1
46	HG-28094	Hinge, ratchet part 2	1
47	SC-28891	Screw, truss head M6	3
48	5010943	Hinge, lower, spotweld	1
49	WS-24396	Washer, serrated bevel M8	4
50	SC-22279	Screw, hex head M8	4
51	WS-22195	Washer, safety, steel	4
52	CL-22196	Clip, holding, M6	4
53	SD-22194	Spring, safety, M6	4
54	ST-22193	Stud, M6	4
55	LK-34292	Lock, rahrbach, solenoid closer	1
	LK-34293*	Lock, rahrbach, adaptor cable	1
56	BU-3013	Bushing, snap, 1-1/2"	1
57	1011021	Cable	1
58	EB-28368	Elbow, nylon 3/4 npt x 1/2" barb	1
59	SA-28149	O-ring, seal	2
60	HO-2957	Hose, vansil, 32"	1
61	CM-28145	Clamp, hose, 20mm	6
62	5010647	Latch enclosure assy	1
63	WS-22294	Washer, flat M4	4
64	SC-22273	Screw, pan head phillips M4	4
65	LT-3738	Door, interlock switch	1
66	SC-22270	Screw, head phillips M3	2
67	EB-24100	Fitting, nylon, 1/2"	2
68	TE-23948	Tee, insert, nylon 1/2" dia	1
69	HO-2957	Hose, vansil, 6"	2
70	MA-3739	Door magnet	1

*NOT SHOWN

VENTLESS HOOD ELECTRICAL ASSEMBLY — VHES-5 & VHES10



5011309, 5011310, 5010620

Item	Part	Description	Qty.
1	SW-33538	Pressure Switch	1
	5014278	Pressure Switch Service Kit	1
2	FA-34860	Capacitor, Fan, VHES-5	1
2	FA-33146	Capacitor, Fan, VHES-10	1
3	WS-22303	Washer, split lock M8	1
4	NU-22292	Nut, hex M8	1
5	FU-34938	Fuse, 3 amp for FU-34771 block	2
6	FU-34771	Fuse holder, 2 bank	1
7	SC-2459	Screw, phillips	4
8	RL-33493	Relay, power panel mount	1
9	BU-3378	1-1/8" Snap bushing	2
10	SP-33832	Spacer, lock mount panel	4
11	5010631	Control panel weld	1
12	BA-34476	Board, control, VHES CombiHood	1
13	CR-33717	Connector, 10 pin	1
14	RL-33930	Relay, power, spdt, 15a, 12v.Dc	1
15	CR-3849	Connector, dual spade, 1/4"	1
16	BU-25094	Bushing, brass, distance	2

Item	Part	Description	Qty.
17	WS-22299	Washer, split lock M3	2
18	SC-22270	Screw, phillips head M3	2
19	BA-34508	40 Watt power supply, 12v.Dc	1
20	1010610	Power supply mounting bracket	1
21	TM-3781	Terminal, ground	1
22	SC-22766	Screw, pan head phillips	1
23	WS-22301	Washer, split lock M5	1
24	TM-3778	Terminals, series, 4mm	4
25	TM-34310	Jumper bar	1
26	TM-34305	Terminal, screwless end	1
27	TM-34309	Terminal, end section, spring	2
28	TM-34308	Terminal, blue, spring, 6mm	2
29	TM-34307	Terminal, orange, spring, 6mm	2
30	TM-3783	Terminal, wall, 4mm	4
31	RL-34634	Universal mounting socket	1
32*	FA-24497	Fan, 208-240V, VHES-5	1
	FA-33252	Fan, 208-240V, VHES-10	1

*NOT SHOWN

WIRING DIAGRAMS

Always refer to the wire diagram(s) included with the unit for most current version.

208-240V, 60Hz, 1Ph

77326 – 6•10ES, 7•14ES, 10•10ES F-2
77328 – 6•10ESi, 6•10ESiN, 7•14ESi, 10•10ESi, 10•10ESiN F-5
77058 – VHES-5, VHES-10 . . . . . F-8

208-240V, 60Hz, 3Ph

77324 – 6•10ES, 7•14ES, 10•10ES F-10
77325 – 6•10ESi, 6•10ESiN, 7•14ESi, 10•10ESi, 10•10ESiN F-13
77346 – 10•18ES F-16
77364 – 10•18ESi F-20
77366 – 12•20ES F-23
77347 – 12•20ESi F-27
77336 – 20•20ES F-30
77339 – 20•20ESi F-35

380-415V, 50Hz, 3Ph

77386 – 6•10ES F-40
77329 – 6•10ESi, 6•10ESiN, 7•14ESi, 10•10ESi F-44
77330 – 7•14ES, 10•10ES F-47
77348 – 10•18ES F-51
77349 – 10•18ESi F-56
77373 – 12•20ES F-60
77374 – 12•20ESi F-65
77340 – 20•20ES F-69
77342 – 20•20ESi F-74

440-480V, 60Hz, 3Ph

77331 – 7•14ES, 10•10ES F-79
77327 – 7•14ESi, 10•10ESi, 10•10ESiN F-83
77351 – 10•18ES F-86
77350 – 10•18ESi F-90
77367 – 12•20ES F-93
77368 – 12•20ESi F-97
77337 – 20•20ES F-100
77343 – 20•20ESi F-105

NOTE: 6.10

REFERENCE CUT SHEET
5011788

6.10

	VOLTS	WATTS	AMPS
DESIGN	208 V	9100W	44.0A
	240 V	12000 W	50.0 A
UL	208-240V	9.1-12.0kW	44.0-50.0A

7.14/10.10

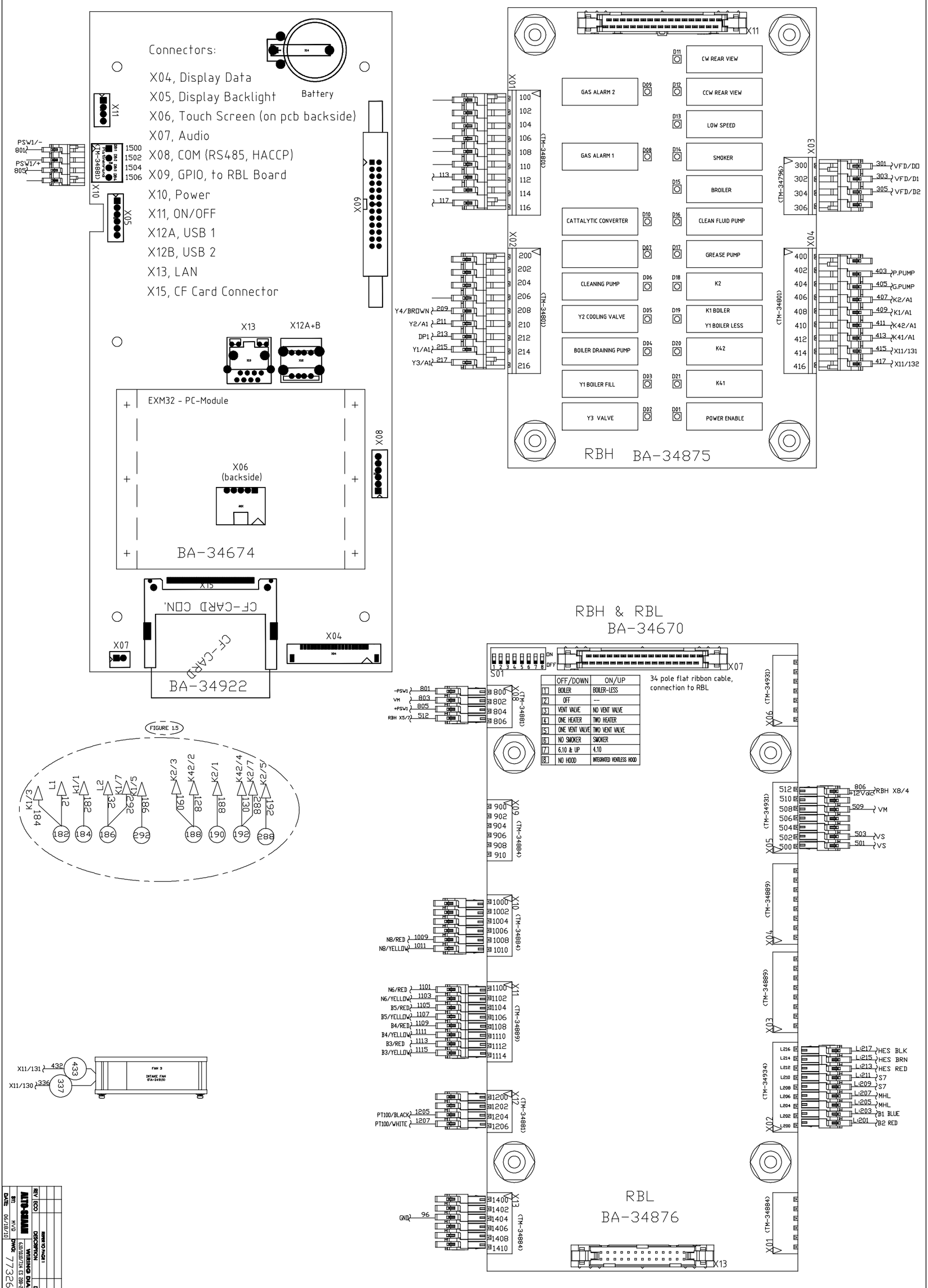
	VOLTS	WATTS	AMPS
DESIGN	208 V	14500 W	70.0A
	240 V	19000 W	79.2 A
UL	208-240V	14.5-19.0kW	70.0-79.2A

REV	ECO	DESCRIPTION	DATE	APP
9	6965		05/11/14	MVQ
8	6721		10/10/13	MVQ
7	6607		1/25/13	WG

ALTO-SHAAM — WIRING DIAGRAM — 6.10/10.10/7.14 ES 208-240 1PH TOUCH

BY: MVQ | DWG: 77326 | SHEET 1_DF_3

DATE: 06/18/10



	OFF/DOWN	ON/UP
1	BOILER	BOILER-LESS
2	OFF	---
3	VENT VALVE	NO VENT VALVE
4	ONE HEATER	TWO HEATER
5	ONE VENT VALVE	TWO VENT VALVE
6	NO SMOKER	SMOKER
7	6.10 & UP	4.10
8	NO HOOD	INTEGRATED VENTLESS HOOD

REV	ECO	DESCRIPTION	DATE	APP
		REVISED PER ECO 77326	06/18/10	RV.D

ALTO-SHAAM
DWG. 77326
SHEET 2 OF 3

L1

N

FU-34770 30A/600V 1V 5I5

FU-34772 30A/600V 1V 5I5

CN-34913

K51

GREEN

LINE

NEUTRAL

VFD BA-34676

MTR

K41

K42

E42

7.14/10.10 (EL-3761) 208V 13500W 240V 18000W

6.10 (EL-3854) 208V-8100W 240V-10800W

K1

K2

E1

E2

PROTECTION PROBE (PR-33759)

WATER TEMP PROBE (PR-33724)

NOTE: 6.10

10.10/7.14 USE BOTH SUB-ELEMENT EL-33412 208V 4700W 240V 6800W

6.10 SINGLE SUB-ELEMENT 208V=7500W 240V=10,700W [EL-334111

STEAM BYPASS PROBE (PR-33751)

COOLING WATER PROBE (PR-33751)

PR-34298 PRODUCT PROBE Receptical PR-34299

DVEN TEMP. PROBE (PR-33724)

FUSE HOLDER FU-34770 FU-35680

FUSE HOLDER FU-34311 FU-33452

PSW1 BA-36144 12VDC

X10 Watlow

X11/13: BANK OF 3 BLUE SPRING TERMINALS
B1: BLUE UPPER WATER LEVEL STEAM TANK
B2: RED LOWER WATER LEVEL STEAM TANK
B3: BLUE PROBE CONDENSATION TANK
B5: RED PROBE CONDENSATION TANK
PSW: 12Vdc POWER SUPPLY
S7: DOOR SWITCH
N7: SAFETY HIGH LIMIT
K41 & K42: CONTROL CONVECTION
DP1: BOILDER DRAIN PUMP
E1, E2, E3: H2O ELEMENT
E4: CONVECTION ELEMENT
SMK RLY: SMOKER RELAY
SMK EL: SMOKER ELEMENT
K51 & K52: MOTOR DRIVE CONTACTOR
VM: VENT MOTOR
VS: VENT SWITCH
FUSE VFD: FUSE CONTROL VFD
FUSE SMK: FUSE CONTROL SMOKER
VFD: VARIABLE FREQUENCY DRIVE
DB3& DB4: DISPLAY BOARD + DC INPUT
DB1& DB2: DISPLAY BOARD - DC INPUT

NOTE: DIP SWITCH SETTING
S01:OFF - ON
1:Boiler - Boilerless

RBH BA-34875

RBL BA-34876 Multi-Point Probe Optional

X01 (TM-34884) X02 (TM-34934) X05 (TM-34931) X06 (TM-34931) X08 (TM-34881) X09 (TM-34884) X10 (TM-34884) X11 (TM-34889) X12 (TM-34881) X14 (TM-34884)

DOOR SAFETY SWITCH

VENT MOTOR SW

220C MOTOR

WATER LEVEL PROBE (PR-34902)

2: PROBE TIP CONN'S (CR-3851)

DB BA-34674

Connectors:
X04, Display Data
X05, Display Backlight
X06, Touch Screen (on pcb backside)
X07, Audio
X08, COM IRS485, HACCP)
X09, GPIO, to RBL Board
X10, Power
X11, ON/OFF
X12A, USB 1
X12B, USB 2
X13, LAN
X15, CF Card Connector

Battery

EXPS2 - PC-Module

CF-CARD

		6.10 VOLTS	6.10 WATTS	6.10 AMPS	7.14/10.10 VOLTS	7.14/10.10 WATTS	7.14/10.10 AMPS
DESIGN		208 V	9100W	44.0A	208 V	14500 W	70.0A
DESIGN		240 V	12000 W	50.0 A	240 V	19000 W	79.2 A
UL		208-240V	9.1-12.0kW	44.0-50.0A	208-240V	14.5-19.0kW	70.0-79.2A

REV	ECO	DESCRIPTION	DATE	APP
		REFER TO PAGE 1		

ALTO-SHAAM

WIRING DIAGRAM

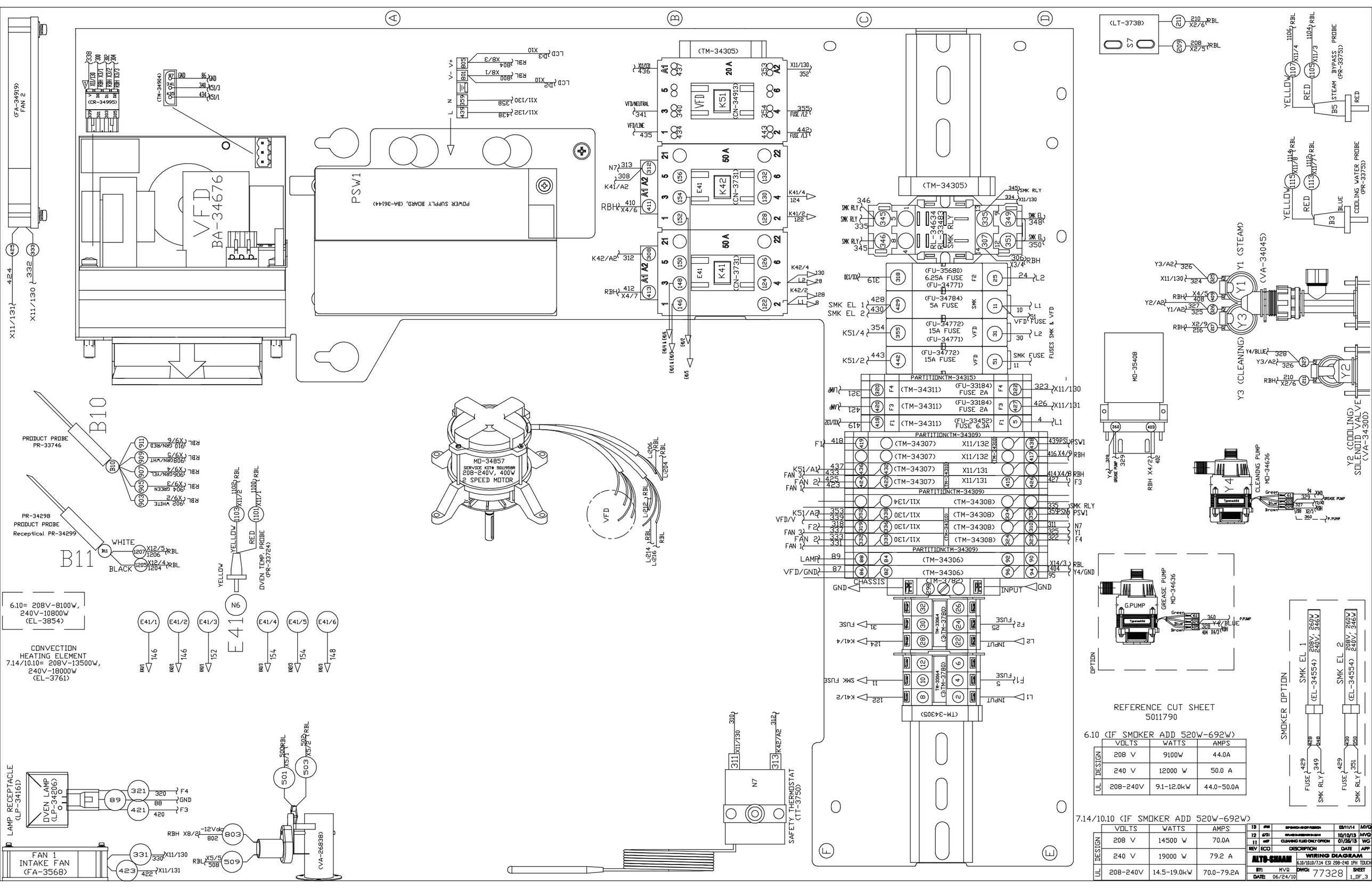
6.10/10.10/7.14 ES 208-240 1PH TOUCH

BY: MVQ

DATE: 06/18/10

DWG: 77326

SHEET 3_OF_3



REFERENCE CUT SHEET
5011790

6.10 (IF SMOKER ADD 520W-692W)

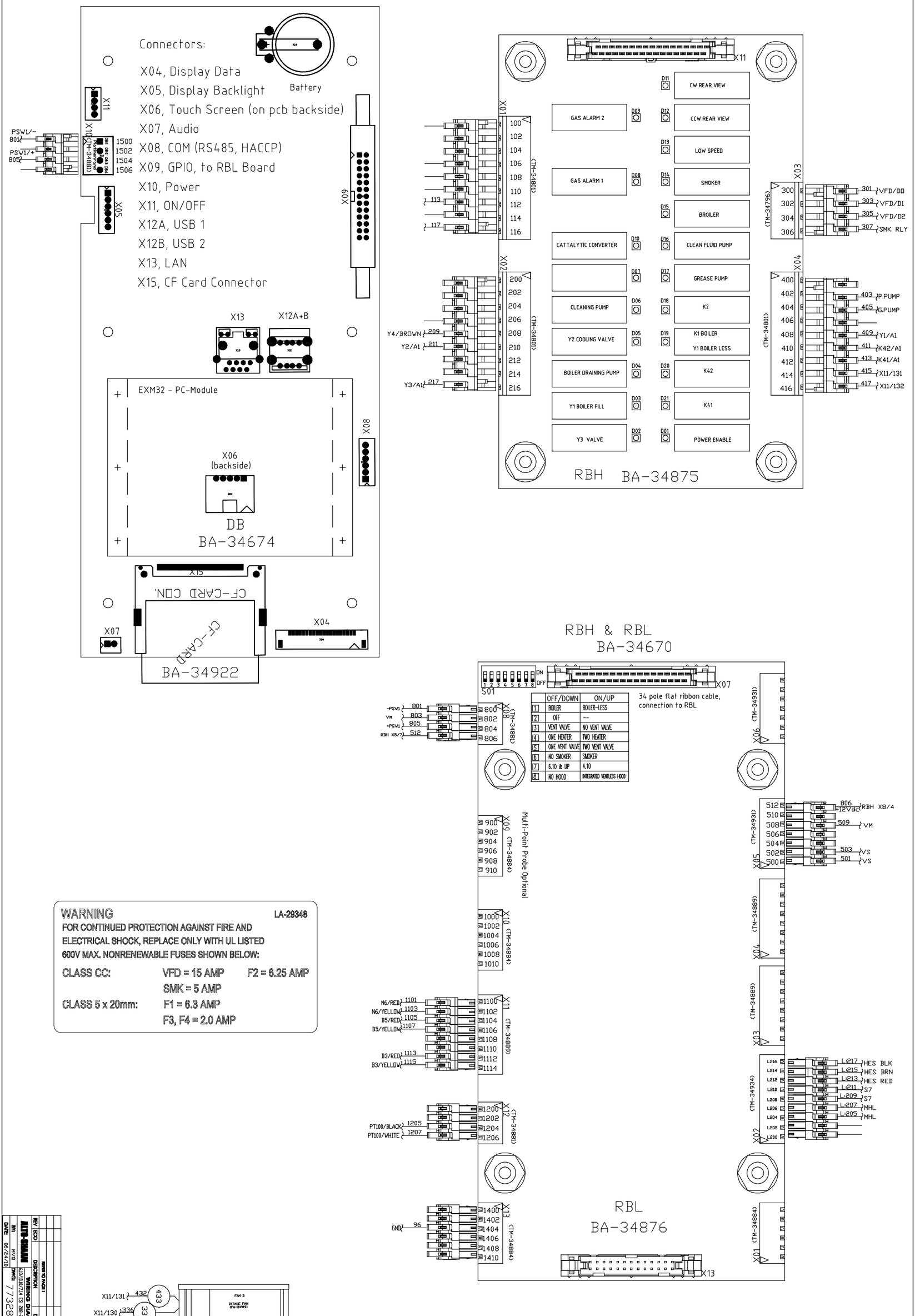
	VOLTS	WATTS	AMPS
DESIGN	208 V	9100W	44.0A
	240 V	12000 W	50.0 A
UL	208-240V	9.1-12.0kW	44.0-50.0A

7.14/10.10 (IF SMOKER ADD 520W-692W)

	VOLTS	WATTS	AMPS
DESIGN	208 V	14500 W	70.0A
	240 V	19000 W	79.2 A
UL	208-240V	14.5-19.0kW	70.0-79.2A

REV	ECO	DESCRIPTION	DATE	APP
13	#98	[illegible]	03/11/14	MVQ
12	6721	[illegible]	10/10/13	MVQ
11	687	CLEANING FLUID ONLY OPTION	01/25/13	WG

ALTO-SHAAM — WIRING DIAGRAM
6.10/10.10/7.14 ESI 208-240 1PH TOUCH
BY: MVQ DWG: 77328 SHEET 1_OF_3
DATE: 06/24/10



REV	ECO	DESCRIPTION	DATE	APP
		RELEASED TO PROD		

ALTO-SHAAM
BY: RVQ
DATE: 06/24/10
DWG#: 77328
SHEET 2_OF_3

L1
L2
L3
4
24
11
31
51
SW 1 FUSE
VR1 FUSE
VR2 FUSE
1- FU-34784
1- FU-34772
1- FU-34770
42
35
442
CN-34913
K51
1 3 5
2 4 6
GREEN
86
87
LINE
434
435
NEUTRAL
340
341
BA-34676
VFD
339
301
303
305
MTR
K41
K42
E41/1
E41/2
E41/3
E41/4
E41/5
E41/6
CT41
7.14/10.10
(EL-3761)
208V 13500W
240V 18000W
6.10
(EL-3854)
208V-8100W
240V-10800W
Connectors:
X04, Display Data
X05, Display Backlight
X06, Touch Screen (on pcb backside)
X07, Audio
X08, COM (RS485, HACCP)
X09, GPIO, to RBL Board
X10, Power
X11, ON/OFF
X12A, USB 1
X12B, USB 2
X13, LAN
X15, CF Card Connector
Battery
60X
80X
EM52 - PC-Module
DB
BA-34674
CF-CARD
CN1
X04
X05
X06
X07
X10
X11
X12A+B
X13
SK1/2 430
350 SK1/1
2- EL-34554
SMOKER
ELEMENTS
SMOKER OPTION
SK2/2 428
348 SK2/1
X10
FUSE HOLDER FU-34771
FU-35680
25
6.3A
F2
318
PSN
319
FUSE HOLDER FU-34311
FU-33452
5
6.3A
F1
418
419
417
PSL
439
PSW1
BA-36144
12VDC
359
805
SMOKER OPTION
RL-34633
RL-34634
345
346
347
348
349
351
RBH X3/4
306
354
X11/13
PRODUCT PROBE
PR-34299
Recptical PR-34298
WHITE
BLACK
RBL X12/5
RBL X12/4
1206
1204
B11
X11/4
X11/3
X11/2
X11/1
X11/8
X11/7
1106
1104
1107
1105
1102
1100
1103
1101
1114
1112
1115
1113
YELLOW
RED
BYPASS PROBE
(PR-33751)
STEAM
B5
OVEN TEMP. PROBE
(PR-33724)
N6
COOLING WATER PROBE
(PR-33751)
B3
X11/130- BANK OF 3 BLUE SPRING TERMINALS
B1- BLUE UPPER WATER LEVEL STEAM TANK
B2- BRED LOWER WATER LEVEL STEAM TANK
PSW- 12Vdc POWER SUPPLY
S7- DOOR SWITCH
N7- SAFETY HIGH LIMIT
K41 & K42- CONTROL CONVECTION
DP1- BOILDER DRAIN PUMP
E1, E2, E3- H2O ELEMENT
E4- CONVECTION ELEMENT
SMK RLY- SMOKER RELAY
SMK EL- SMOKER ELEMENT
K51 & K52- MOTOR DRIVE CONTACTOR
VM- VENT MOTOR
VS- VENT SWITCH
VFD- VARIABLE FREQUENCY DRIVE
DB3& DB4- DISPLAY BOARD + DC INPUT
DB1& DB2- DISPLAY BOARD - DC INPUT
RBH
BA-34875
X03
(TM-34796)
X04
X02
X01
(TM-34801)
416
414
412
410
408
406
404
402
400
306
304
302
300
200
202
204
206
208
210
212
214
216
100
102
104
106
108
110
112
114
116
437
436
K51
SMK RLY
353
K41
K42
Y1
Y2
Y3
Y2- VA-34300
Y3- VA-34045
CLEAN PUMP
MD-34636
GREASE PUMP
P.PUMP
MD-29776
MD-34636
426
415
427
420
12A
F3
313
312
SAFETY THERMOSTAT
308
311
N7
CAVITY LAMP
88
89
320
12A
F4
310
324
323
328
325
327
352
334
338
RBL BA-34876
Multi-Point Probe Optional
X01
(TM-34884)
X02
(TM-34934)
X05
(TM-34931)
X06
(TM-34931)
X08
(TM-34881)
X09
(TM-34884)
X10
(TM-34884)
X11
(TM-34889)
X12
(TM-34881)
X14
(TM-34884)
100
102
104
106
108
110
L200
L202
L204
L206
L208
L210
L212
L214
L216
500
502
504
506
508
510
512
600
602
604
606
608
610
612
800
802
804
806
900
902
904
906
908
910
1000
1002
1004
1006
1008
1010
1100
1102
1104
1106
1108
1110
1112
1114
1200
1202
1204
1206
1400
1402
1404
1406
1408
1410
DOOR SAFETY SWITCH
HL RED
HL BROWN
HL BLACK
VENT MOTOR SW
V20C MOTOR
M
1101
1103
1105
1107
1113
1115
1205
1207
96
N6/RED
N6/YELLOW
B5/RED
B5/YELLOW
B3/RED
B3/YELLOW
PT100/BLACK
PT100/WHITE
GND
6.10 (IF SMOKER ADD 520W)
7.14/10.10 (IFSMOKER ADD 520W)

		VOLTS	WATTS	AMPS
DESIGN		208 V	8600W	24.0A
		240 V	11300 W	27.0 A
UL		208-240V	8.6-11.3kW	24.0-27.0A

		VOLTS	WATTS	AMPS
DESIGN		208 V	14000 W	38.9A
		240 V	18500 W	44.6 A
UL		208-240V	14.0-18.5kW	38.9-44.6A

REV	ECO	DESCRIPTION	DATE	APP
		REFER TO PAGE 1		

ALTO-SHAAM
WIRING DIAGRAM
6.10/10.10/7.14 ESI 208-240 1PH TOUCH
BY: MVQ
DATE: 06/24/10
DWG: 77328
SHEET 3_DF_3

NOTE: SMART CLEAN

DISCONNECT WIRE FROM F2 (35) TO X11/130/3 (19)
MOVE WIRE FROM X11/130/4 BOTTOM (21) TO F2 (35)
380-415V CONNECT RED TO COMBITHERM F10/L1
EXCEPTION IF F10/L1 IS USED FOR SMOKER 380-415V,
CONNECT RED TO COMBITHER F10/L3

380-415V CONNECT BLUE TO COMBITHERM N
208-240V CONNECT POWER WIRES FROM HOOD TO F10/L1 AND F10/L2
(ALL VOLTAGES) CONNECT SWITCHED WIRE FROM HOOD TO X11/130/3 (19)
440-480V CONNECT RED POWER WIRES FROM HOOD TO X11/132/323
440-480V CONNECT BLUE POWER WIRES FROM HOOD TO X11/134/324

NOTE:TOUCH COMBI

--DISCONNECT WIRE FROM F2 TO X11
--208-240V CONNECT BLUE WIRE
FROM HOOD TO F2
--208-240V CONNECT RED WIRE
FROM HOOD TO X11/132 494 ABOVE 417
--440-480V CONNECT BLUE WIRE
FROM HOOD TO X11/134 392 BLUE TERMINAL
--440-480V CONNECT RED WIRE
FROM HOOD TO N INPUT TERMINAL 64 ABOVE 417
--380-415V CONNECT BLUE WIRE
FROM HOOD TO N INPUT TERMINAL 64
--380-415V CONNECT RED WIRE
FROM HOOD TO X11/132 494 ABOVE 417

COMBI UNIT GROUND

SEE NOTE

SEE NOTE

SMART CLEAN COMBI X11/130/3 (TERM 19)

TOUCH COMBI 380-480V F2, 208-240V X11/130/319

SAFETY SWITCH
(SW-35056)

SAFETY SWITCH
(SW-35056)

PRESSURE
SWITCH
(SW-5014331)

POWER SUPPLY 12VDC
(BA-36144)

VHES-10

FAN MOTOR
230V, 0.16KW, 1PH
(FA-33252)

NOTE:

VHES-5 CHANGES

FAN MOTOR
230V, 1PH
(FA-34497)
CAPACITOR 5µF 230V
(FA-34860)
ALSO: BLACK FAN WIRE TO (26)
BROWN FAN WIRE TO (22)
BLUE FAN WIRE TO (12)

GREEN
BLUE
BLACK
BROWN

POWER RELAY
DPST-NO
(RL-33493)

CAPACITOR 4µF 230V
(FA-33146)

RESET SWITCH
(SW-33495)

REAR VIEW

SIDE VIEW

RED
POWER SWITCH
(SV-33101)
W/INSERT
(SV-3683)

SOLENOID INDICATOR
LIGHT WHITE 230V
(LI-3951)

FAN INDICATOR
LIGHT WHITE 230V
(LI-3951)

DOOR SWITCH
(LT-3738)

SOLENOID 12VDC
(LK-34292)

HOOD CONTROL BOARD
(CC-36037)

SELECT SWITCH SETTING

10.18 NO JUMPER
7.14 DOORSW- TO SEL 2
6.10 DOORSW- TO SEL 1

SDL -
SDL +
IND LIGHT -
IND LIGHT +
SEL 1 *
SEL 2 *
DOOR SW -
DOOR SW +
V-
V+

X11

X10

RELAY SOCKET
(RL-34634)

RL2

RELAY
(RL-33930)

3A FUSE
(FU-34938)

3A FUSE
(FU-34938)

FUSE HOLDER(FU-34771)

F10/L1

F10/L2

GROUND TERM
(TM-3871)

(TM-3778)

PARTITION(TM-3783)

TERMINAL
(TM-34307)

PARTITION(TM-34309)

TERMINAL
(TM-34308)

END BLOCK (TM-34305)

CUTSHEET:

5011261

VHES-5 RATING

	VOLTS	WATTS	AMPS
DESIGN	208/240	100	0.5
AG	AG_V	AG_W	AG_A

NOTE: AG = AGENCY

VHES-10 RATING

	VOLTS	WATTS	AMPS
DESIGN	208/240	240	1.0
AG	AG_V	AG_W	AG_A

NOTE: AG = AGENCY

REPLACES WIRE DIAGRAM 77365

REV	BOD	DESCRIPTION	DATE	APP
15	ARP	REPLACES BA-36144 W/ BA-36144	11/14/13	MEP
14	ARP	CC-36037 TO CC-36037A	09/06/13	WG
13	ARP	ADD PAGES SLAGGER MODEL FORMAT	08/06/13	WG

VHES-5, -10, 1Ph, 208-240V, 50/60Hz

ALTO-SHAAM — WIRING DIAGRAM

DWG# 77058 — SHEET 1_OF_2

DR: MVD DATE: 7/28/09

LI 1 F10

4 / 3 TM-3778

3A-FUSE FU-34938

35

RED POWER SWITCH SW-33101

36 39 40 9 10 TM-3778 43 45 LEFT SAFTY SWITCH SW-35056 46 48 RIGHT SAFTY SWITCH SW-35056 14 TM-34307

12 13 TM-34307 49 W 5025 24 FAN LIGHT LI-3951 38

7 / 8 TM-3778

37

3A-FUSE FU-34938

L2 1 F11

NOTE: SMART CLEAN

DISCONNECT WIRE FROM F2 (35) TO X11/130/3 (19)
MOVE WIRE FROM X11/130/4 BOTTOM (21) TO F2 (35)
380-415V CONNECT RED TO COMBITHERM F10/L1
EXCEPTION: IF F10/L1 IS USED FOR SMOKER 380-415V,
CONNECT RED TO COMBITHER F10/L3

380-415V CONNECT BLUE TO COMBITHERM N
208-240V CONNECT POWER WIRES FROM HOOD TO F10/L1 AND F10/L2
(ALL VOLTAGES) CONNECT SWITCHED WIRE FROM HOOD TO X11/130/3 (19)
440-480V CONNECT RED POWER WIRES FROM HOOD TO X11/132/323
440-480V CONNECT BLUE POWER WIRES FROM HOOD TO X11/134/324

FAN MOTOR 230V,0.16KW,1PH FA-33252 FAN BROWN BLUE BLACK 26 TM-3778 22 21 CAPACITOR 4UF 230V FA-33146 30

BA-34508 POWER_SUPPLY_12VDC -L N +V -V +V 76 75 78 77

TM-34308

NOTE:TOUCH COMBI

--DISCONNECT WIRE FROM F2 TO X11
--208-240V CONNECT BLUE WIRE FROM HOOD TO F2
--208-240V CONNECT RED WIRE FROM HOOD TO X11/132 494 ABOVE 417
--440-480V CONNECT BLUE WIRE FROM HOOD TO X11/134 392 BLUE TERMINAL
--440-480V CONNECT RED WIRE FROM HOOD TO X11/132 494 ABOVE 417
--380-415V CONNECT BLUE WIRE FROM HOOD TO N INPUT TERMINAL 64
--380-415V CONNECT RED WIRE FROM HOOD TO X11/132 494 ABOVE 417

16 28

HOOD_CONTROL_BOARD CC-36037

V+ 10 99
V- 9 98
DOOR_SW+ 8 97
DOOR_SW- 7 96
SEL_2 6 95
SEL_1 5 94
IND_LIGHT+ 4 93
IND_LIGHT- 3 92
SOL+ 2 91
SOL- 1 90

TM-34307

DOOR SWITCH LT-3738 56 55

RL-34634 RELAY 1 A1 14 COIL 13 A2 87 88

SOL-12VDC LK-34292 50 53

RELAY 1 RL-34634 83 5 9 85

SOLENOID INDICATOR LI-3951 51 W 52

15 29

POWER RELAY RL-33493 A1 1 COIL 0 A2 68 67

PRESSURE SWITCH SW-5014331 64 63

RESET SWITCH SW-33495 80 79

65 21 24 66

38

POWER RELAY RL-33493 8 6 69 70

POWER RELAY RL-33493

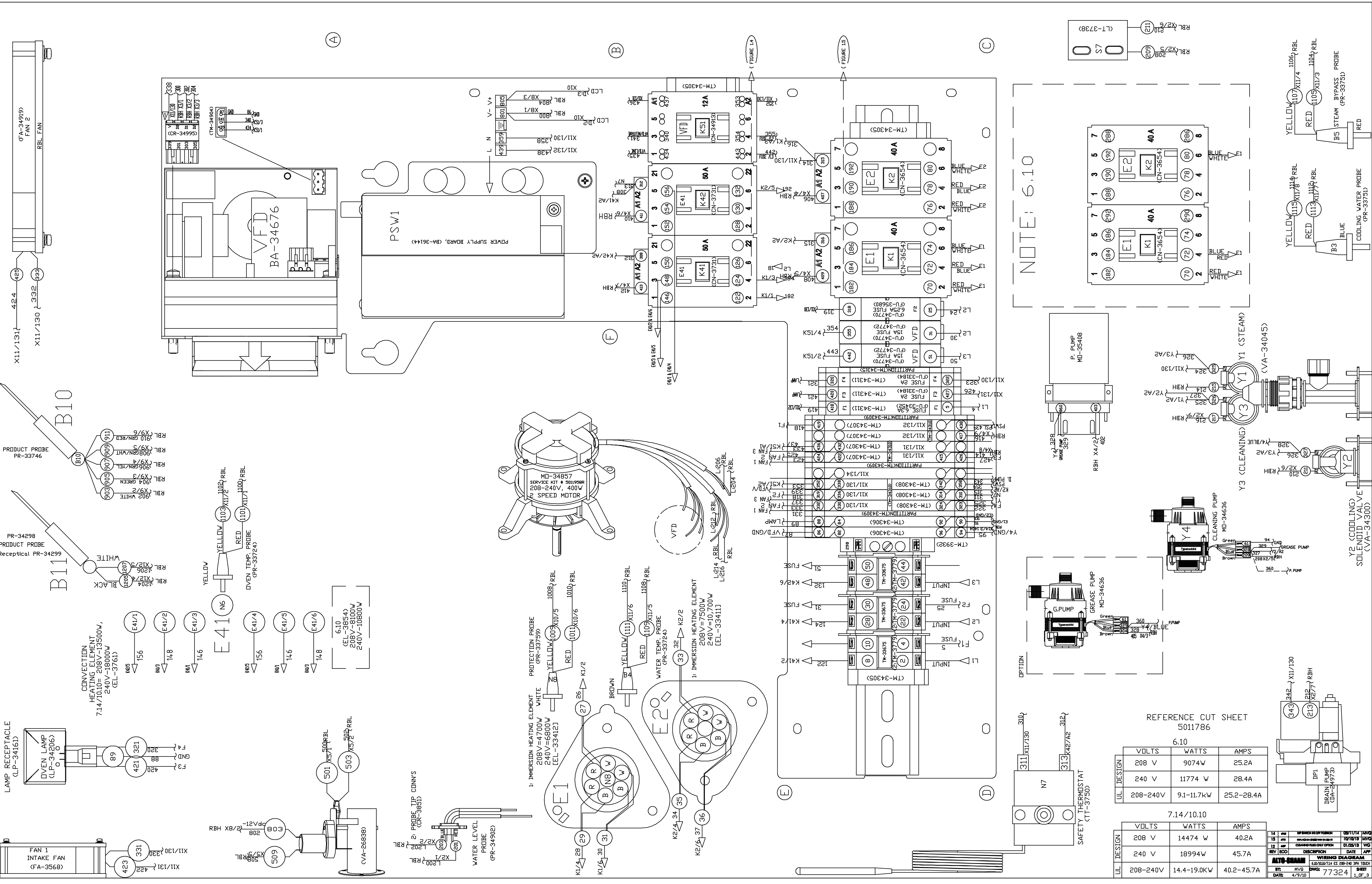
SMART CLEAN COMBI X11/130/3 (TERM 19)
TOUCH COMBI: 380-480V F2, 208-240V X11/130/319

REPLACES WIRE DIAGRAM 7736

REV	ECO	DESCRIPTION	DATE	A

ALTO-SHAAM WIRING DIAGRAM

BY: DWG: SHEET



REFERENCE CUT SHEET
5011786

6.10

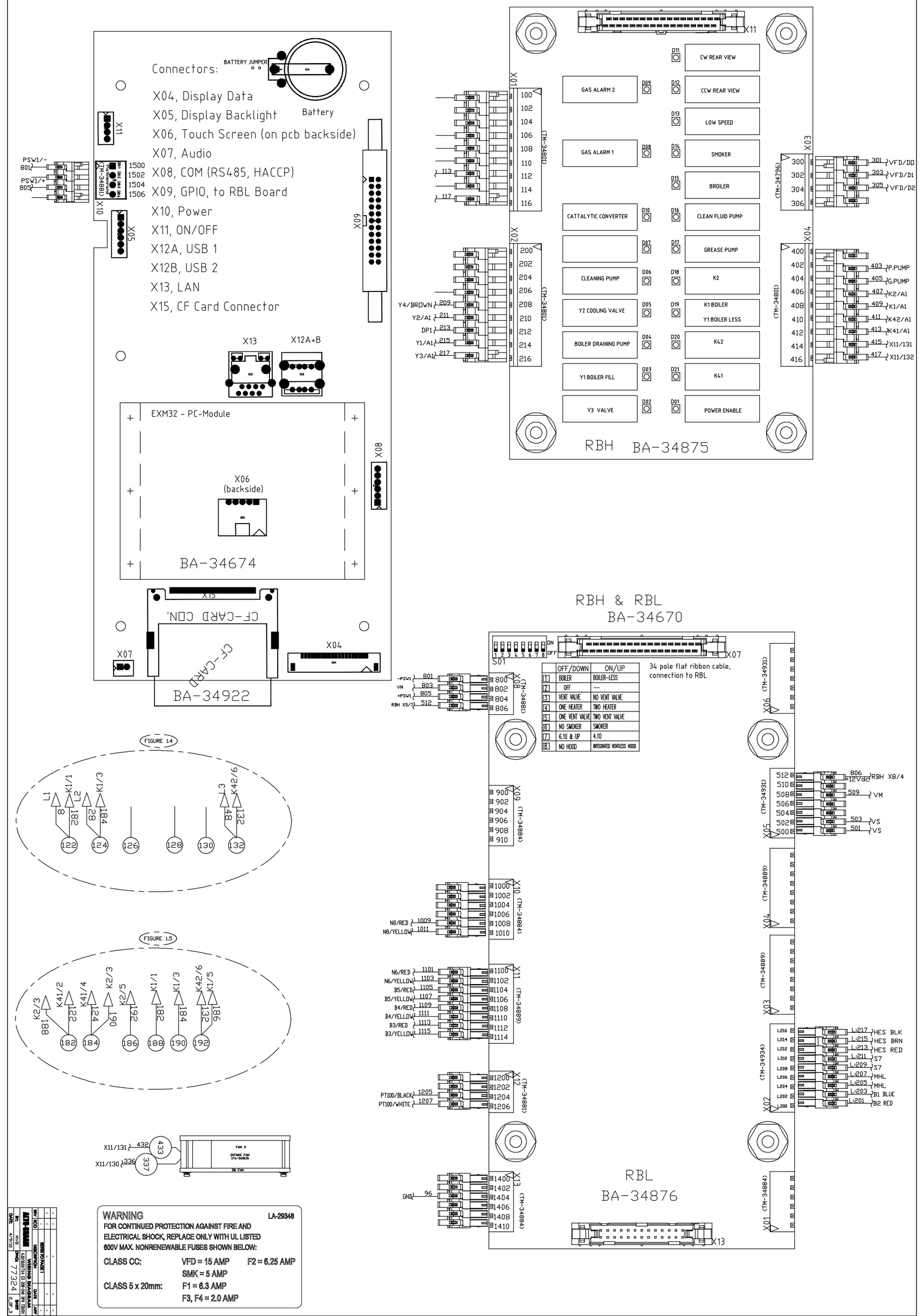
	VOLTS	WATTS	AMPS
UL DESIGN	208 V	9074W	25.2A
	240 V	11774 W	28.4A
	208-240V	9.1-11.7kW	25.2-28.4A

7.14/10.10

	VOLTS	WATTS	AMPS
UL DESIGN	208 V	14474 W	40.2A
	240 V	18994W	45.7A
	208-240V	14.4-19.0KW	40.2-45.7A

REV	ECO	DESCRIPTION	DATE	APP
14	[illegible]	DIP SWITCH #2 OFF POSITION	03/11/14	MVQ
13	[illegible]	REPLACE BA-[illegible] WITH BA-36144	10/10/13	MVQ
12	[illegible]	CLEANING FLUID ONLY OPTION	01/25/13	WG

ALTO-SHAAM
WIRING DIAGRAM
6.10/10.10/7.14 ES 208-240 3PH TOUCH
BY: MVQ
DATE: 4/9/10
DWG: 77324
SHEET 1_OF_3


Connectors:
X04, Display Data
X05, Display Backlight
X06, Touch Screen (on pcb backside)
X07, Audio
X08, COM (RS485, HACCP)
X09, GPIO, to RBL Board
X10, Power
X11, ON/OFF
X12A, USB 1
X12B, USB 2
X13, LAN
X15, CF Card Connector
BATTERY JUMPER
Battery
EXM32 - PC-Module
BA-34674
BA-34922
CF-CARD CON.
CF-CARD
RBH BA-34875
CW REAR VIEW
CCW REAR VIEW
LOW SPEED
SMOKER
BROILER
CLEAN FLUID PUMP
GREASE PUMP
K2
K1 BOILER
Y1 BOILER LESS
K42
K41
POWER ENABLE
GAS ALARM 2
GAS ALARM 1
CATTALYTIC CONVERTER
CLEANING PUMP
Y2 COOLING VALVE
BOILER DRAINING PUMP
Y1 BOILER FILL
Y3 VALVE
RBH & RBL
BA-34670
34 pole flat ribbon cable, connection to RBL
OFF/DOWN
ON/UP
BOILER
BOILER-LESS
VENT VALVE
NO VENT VALVE
ONE HEATER
TWO HEATER
ONE VENT VALVE
TWO VENT VALVE
NO SMOKER
SMOKER
6.10 & UP
4.10
NO HOOD
INTEGRATED VENTLESS HOOD
RBL BA-34876
FIGURE 1.4
FIGURE 1.5
WARNING
LA-29348
FOR CONTINUED PROTECTION AGAINST FIRE AND ELECTRICAL SHOCK, REPLACE ONLY WITH UL LISTED 600V MAX. NONRENEWABLE FUSES SHOWN BELOW:
CLASS CC:
VFD = 15 AMP
F2 = 6.25 AMP
SMK = 5 AMP
CLASS 5 x 20mm:
F1 = 6.3 AMP
F3, F4 = 2.0 AMP

L1
L2
L3

FU-34772
CN-34913
K51
GREEN
LINE
NEUTRAL
BA-34676 VFD
MTR
K41
K42
K1
K2
E42
E1
E2
PROTECTION PROBE (PR-33759)
WATER TEMP. PROBE (PR-33724)
NOTE: 6.10

7.14/10.10 (EL-3761) 208V 13500W 240V 18000W

6.10 (EL-3854) 208V-8100W 240V-10800W

DVEN TEMP. PROBE (PR-33724)

10.10/7.14 USE BOTH SUB-ELEMENT
EL-33412
208V 4700W
240V 6800W

6.10 SINGLE SUB-ELEMENT
208V=7500W
240V=10,700W
[EL-334111]

PR-34298
PRODUCT PROBE
Receptical PR-34299

STEAM BYPASS PROBE (PR-33751)

COOLING WATER PROBE (PR-33751)

FUSE HOLDER FU-34770
FU-35680
FUSE HOLDER FU-34311
FU-33452
PSV1 BA-36144 12VDC
X10 Watermond

X11/130 BANK OF 3 BLUE SPRING TERMINALS
B1: BLUE UPPER WATER LEVEL STEAM TANK
B2: RED LOWER WATER LEVEL STEAM TANK
B3: BLUE PROBE CONDENSATION TANK
B5: RED PROBE CONDENSATION TANK
PSV: 12VDC POWER SUPPLY
S7: DOOR SWITCH
N7: SAFETY HIGH LIMIT
K41 & K42: CONTROL CONVECTION
DP1: BOILDER DRAIN PUMP
E1, E2, E3: H2O ELEMENT
E4: CONVECTION ELEMENT
SMK RLY: SMOKER RELAY
SMK EL: SMOKER ELEMENT
K51 & K52: MOTOR DRIVE CONTACTOR
VM: VENT MOTOR
VS: VENT SWITCH
FUSE VFD: FUSE CONTROL VFD
FUSE SMK: FUSE CONTROL SMOKER
VFD: VARIABLE FREQUENCY DRIVE
DB3& DB4: DISPLAY BOARD + DC INPUT
DB1& DB2: DISPLAY BOARD - DC INPUT

RBH BA-34875
X04 (TM-34801)
X03 (TM-34796)
X02 (TM-34801)
X01 (TM-34801)
CAVITY LAMP
SAFETY THERMOSTAT
GREASE PUMP
P.PUMP MD-29776
MD-34636
MD-34636 PUMP
PUMP (DA-24973)
DP1
VA-34045
VA-34300

RBL BA-34876
Multi-Point Probe Optional
X01 (TM-34884)
X02 (TM-34934)
X05 (TM-34931)
X06 (TM-34931)
X08 (TM-34881)
X09 (TM-34884)
X10 (TM-34884)
X11 (TM-34889)
X12 (TM-34881)
X14 (TM-34884)
DOOR SAFETY SWITCH
HL RED
HL BROWN
HL BLACK
VENT MOTOR SW
120C MOTOR
2: PROBE TIP CONN'S (CR-3851)
WATER LEVEL PROBE (PR-34902)
PT100/BLACK
PT100/WHITE
GND

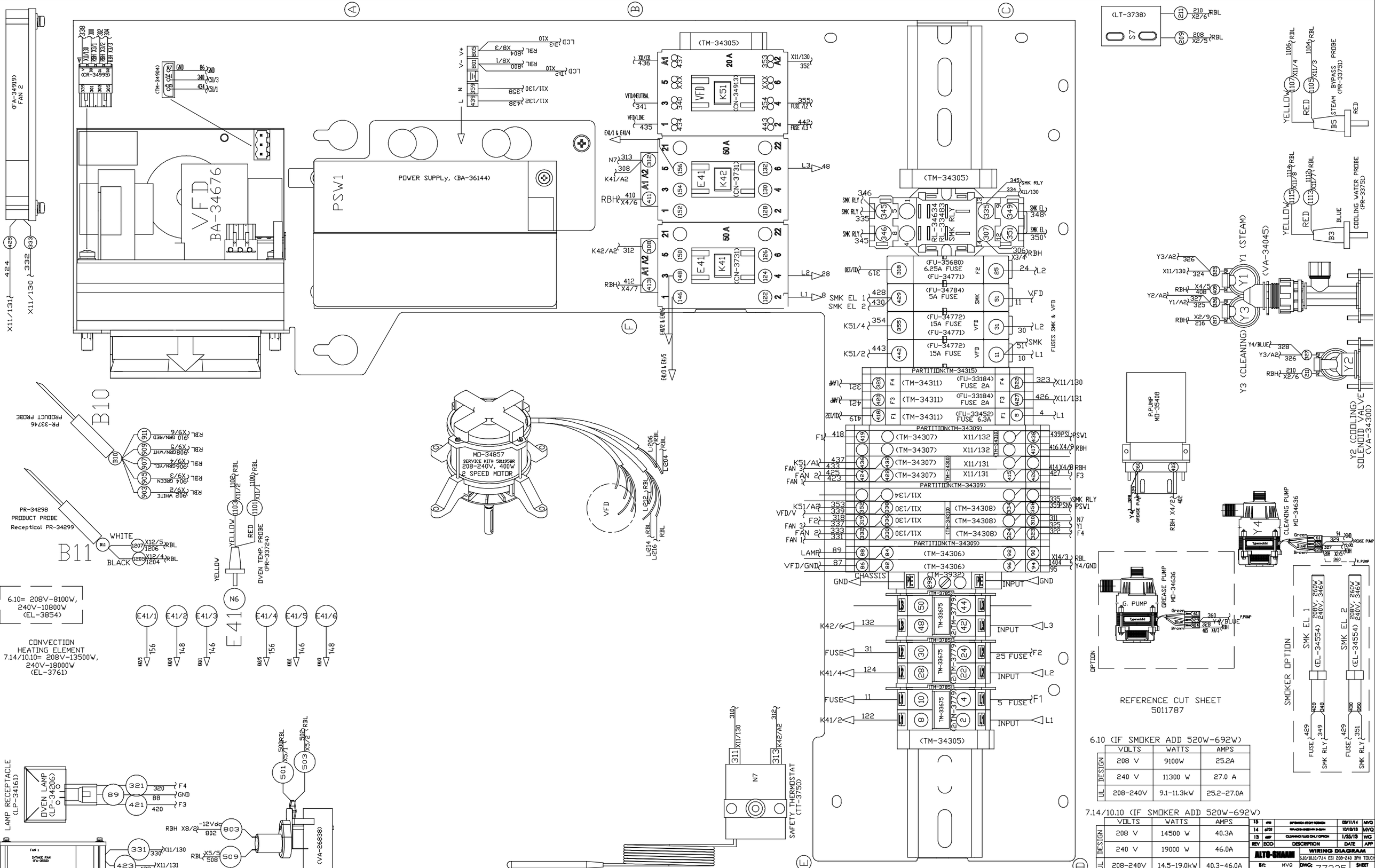
Connectors:
X04, Display Data
X05, Display Backlight
X06, Touch Screen (on pcb backside)
X07, Audio
X08, COM (RS485, HACCP)
X09, GPIO, to RBL Board
X10, Power
X11, ON/OFF
X12A, USB 1
X12B, USB 2
X13, LAN
X15, CF Card Connector
Battery
EXM32 - PC-Module
DB BA-34674
CF-CARD
CF-CARD CDN

		6.10 VOLTS	WATTS	AMPS		7.14/10.10 VOLTS	WATTS	AMPS
DESIGN		208 V	9074W	25.2A	DESIGN	208 V	14474 W	40.2A
		240 V	11774 W	28.4A		240 V	18994W	45.7A
UL		208-240V	9.1-11.7kW	25.2-28.4A	UL	208-240V	14.4-19.0KW	40.2-45.7A

REFER TO PAGE 1

REV	ECO	DESCRIPTION	DATE	APP

MTS-SMOKE
WIRING DIAGRAM
610/1633/714 ES 208-240 3PH TOUCH
BY: MVQ DWG#: 77324 SHEET: 3_OF_3
DATE: 4/9/10



	VOLTS	WATTS	AMPS
DESIGN	208 V	9100W	25.2A
	240 V	11300 W	27.0 A
UL	208-240V	9.1-11.3kW	25.2-27.0A

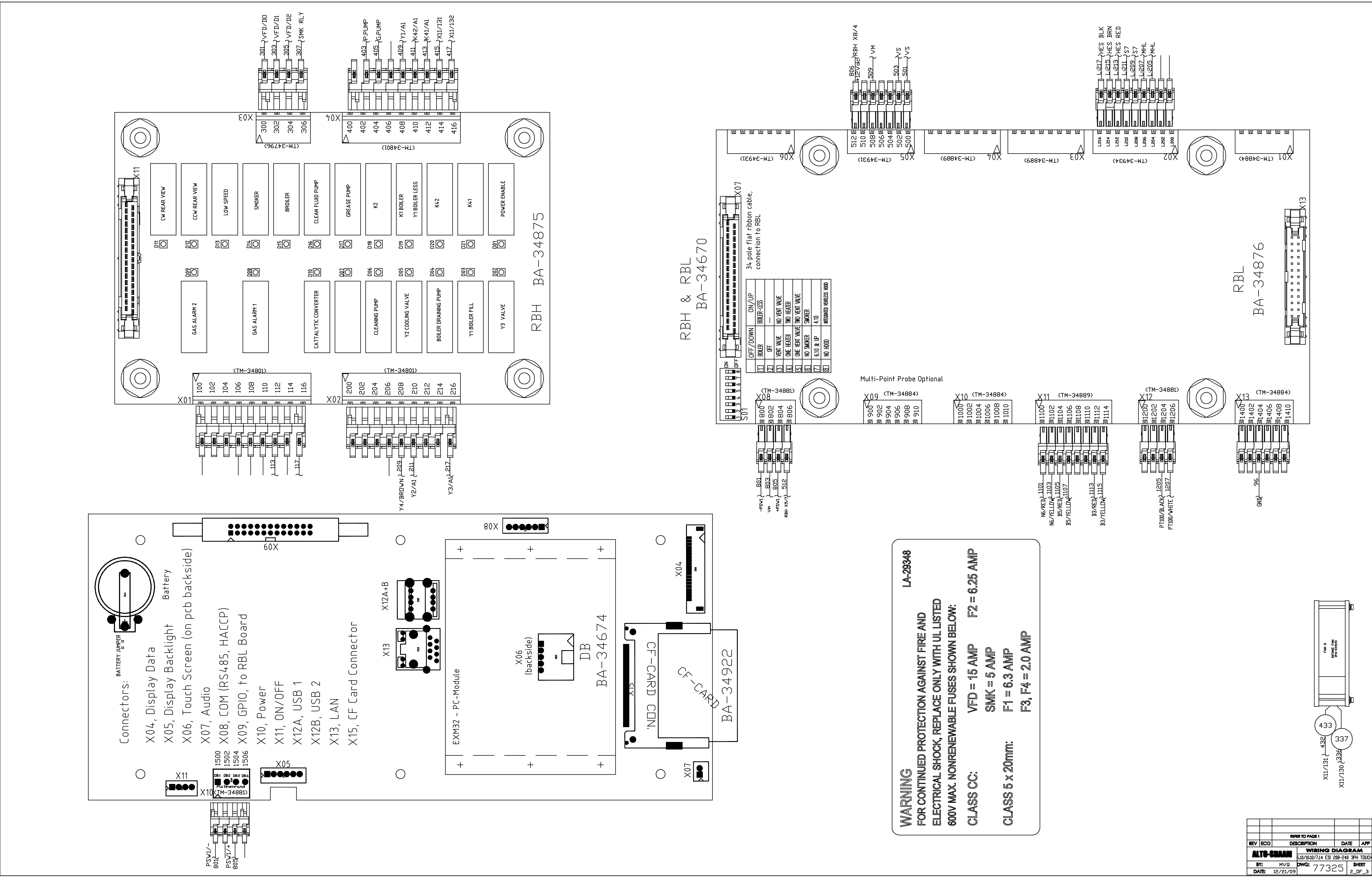
	VOLTS	WATTS	AMPS
DESIGN	208 V	14500 W	40.3A
	240 V	19000 W	46.0A
UL	208-240V	14.5-19.0kW	40.3-46.0A

REV	ECO	DESCRIPTION	DATE	APP
15	4118	ADD BRANCH HEATER POSITION	03/11/14	MVQ
14	4729	REVISED SHEET IN SMK	10/16/13	MVQ
13	4697	CLEANING FLUID ONLY OPTION	1/25/13	WG

ALTO-SHAAM — WIRING DIAGRAM — 610/1010/714 ESI 208-240 3PH TOUCH

BY: MVQ DWG: 77325 SHEET 1_OF_3

DATE: 12/21/09


RBH BA-34875
CW REAR VIEW
CCW REAR VIEW
LOW SPEED
SMOKER
BROILER
CLEAN FLUID PUMP
GREASE PUMP
K2
K1 BOILER Y1 BOILER LESS
K42
K41
POWER ENABLE
GAS ALARM 2
GAS ALARM 1
CATTALYTIC CONVERTER
CLEANING PUMP
Y2 COOLING VALVE
BOILER DRAINING PUMP
Y1 BOILER FILL
Y3 VALVE
VFD/D0
VFD/D1
VFD/D2
SMK RLY
P.PUMP
G.PUMP
Y1/A1
K42/A1
K41/A1
X11/131
X11/132
Y4/BROWN
Y2/A1
Y3/A1
RBH & RBL BA-34670
RBL BA-34876
34 pole flat ribbon cable, connection to RBL
Multi-Point Probe Optional
OFF/DOWN
ON/UP
BOILER
BOILER-LESS
VENT VALVE
NO VENT VALVE
ONE HEATER
TWO HEATER
ONE VENT VALVE
TWO VENT VALVE
NO SMOKER
SMOKER
6.10 & UP
4.10
NO HOOD
INTEGRATED VENTLESS HOOD
RBH X8/4
VM
VS
HES BLK
HES BRN
HES RED
S7
MHL
N6/RED
N6/YELLOW
B5/RED
B5/YELLOW
B3/RED
B3/YELLOW
PT100/BLACK
PT100/WHITE
GND
DB BA-34674
EXM32 - PC-Module
X06 (backside)
CF-CARD CON.
CF-CARD BA-34922
Battery
BATTERY JUMPER
Connectors:
X04, Display Data
X05, Display Backlight
X06, Touch Screen (on pcb backside)
X07, Audio
X08, COM (RS485, HACCP)
X09, GPIO, to RBL Board
X10, Power
X11, ON/OFF
X12A, USB 1
X12B, USB 2
X13, LAN
X15, CF Card Connector
PSW1/-
PSW1/+
LA-29348
WARNING
FOR CONTINUED PROTECTION AGAINST FIRE AND ELECTRICAL SHOCK, REPLACE ONLY WITH UL LISTED 600V MAX. NONRENEWABLE FUSES SHOWN BELOW:
CLASS CC: VFD = 15 AMP F2 = 6.25 AMP
SMK = 5 AMP
CLASS 5 x 20mm: F1 = 6.3 AMP
F3, F4 = 2.0 AMP
REFER TO PAGE 1
REV ECO DESCRIPTION DATE APP
ALTO-SHAAM
WIRING DIAGRAM
BY: MVQ
DATE: 12/21/09
DWG: 77325
SHEET 2 OF 3

L1
L2
L3
FU-34770
FU-34784
FU-34772
CN-34913
K51
GREEN
LINE
NEUTRAL
MTR
VFD
BA-34676
K41
K42
E41
E41/1
E41/2
E41/3
E41/4
E41/5
E41/6
7.14/10.10
(EL-3761)
208V 13500W
240V 18000W
6.10
(EL-3854)
208V-8100W
240V-10800W
Connectors:
X04, Display Data
X05, Display Backlight
X06, Touch Screen (on pcb backside)
X07, Audio
X08, COM (RS485, HACCP)
X09, GPIO, to RBL Board
X10, Power
X11, ON/OFF
X12A, USB 1
X12B, USB 2
X13, LAN
X15, CF Card Connector
Battery
60X
80X
X10A+B
X13
X04 (backside)
EM32 - PC-Module
DB
BA-34674
X04
CF-CARD CON
X15
CF-CARD
X07
X11
X10
X05
VM: VENT MOTOR
VS: VENT SWITCH
FUSE VFD: FUSE CONTROL VFD
FUSE SMK: FUSE CONTROL SMOKER
VFD: VARIABLE FREQUENCY DRIVE
DB3& DB4: DISPLAY BOARD + DC INPUT
DB1& DB2: DISPLAY BOARD - DC INPUT
SK1/2 430
350 SK1/1
EL-34554
SMOKER
ELEMENTS
SMOKER OPTION
SK2/2 428
348 SK2/1
X10
DB1 DB2 DB3 DB4
Thermocouple
FUSE HOLDER FU-34771
FU-35680
6.25A
F2
PSN
319
318
25
FUSE HOLDER FU-34311
FU-33452
6.3A
F1
PSL
418
419
417
439
5
PSV1
BA-36144
12VDC
359
805
SMOKER OPTION
RL-34633
RL-34634
RBH X3/4
X11/13
RBH
BA-34875
X03
X02
X01
X04
(TM-34801)
(TM-34796)
(TM-34934)
(TM-34931)
(TM-34881)
(TM-34884)
(TM-34889)
K51 436
SMK RLY
GREASE PUMP
MD-34636
P.PUMP
MD-29776
CLEAN PUMP
MD-34636
Y1: VA-34045
Y3: VA-34045
Y2: VA-34300
CAVITY LAMP
SAFETY THERMOSTAT
N7
F3
F4
DOOR SAFETY SWITCH
HL RED
HL BROWN
HL BLACK
VENT MOTOR SW
120DC MOTOR
RBL BA-34876
Multi-Point Probe Optional
X01
X02
X05
X06
X08
X09
X10
X11
X12
X14
B11
Reception PR-34298
PRODUCT PROBE
PR-34299
WHITE
BLACK
RBL 1206
RBL 1204
YELLOW
RED
RBL 1102
RBL 1100
DVEN TEMP PROBE
(PR-33724)
N6
RBL 1114
RBL 1112
COOLING WATER PROBE
(PR-33751)
B3
STEAM BYPASS PROBE
(PR-33751)
B5
X11: BANK OF 3 BLUE SPRING TERMINALS
B1: BLUE UPPER WATER LEVEL STEAM TANK
B2: RED LOWER WATER LEVEL STEAM TANK
B3: BLUE PROBE CONDENSATION TANK
B5: RED PROBE CONDENSATION TANK
PSW: 12Vdc POWER SUPPLY
S7: DOOR SWITCH
N7: SAFETY HIGH LIMIT
K41 & K42: CONTROL CONVECTION
DP1: BOILDER DRAIN PUMP
E1, E2, E3: H2O ELEMENT
E4: CONVECTION ELEMENT
SMK RLY: SMOKER RELAY
SMK EL: SMOKER ELEMENT
K51 & K52: MOTOR DRIVE CONTACTOR
NG/RED
NG/YELLOW
B5/RED
B5/YELLOW
B3/RED
B3/YELLOW
PT100/BLACK
PT100/WHITE
GND

6.10 (IF SMOKER ADD 520W)

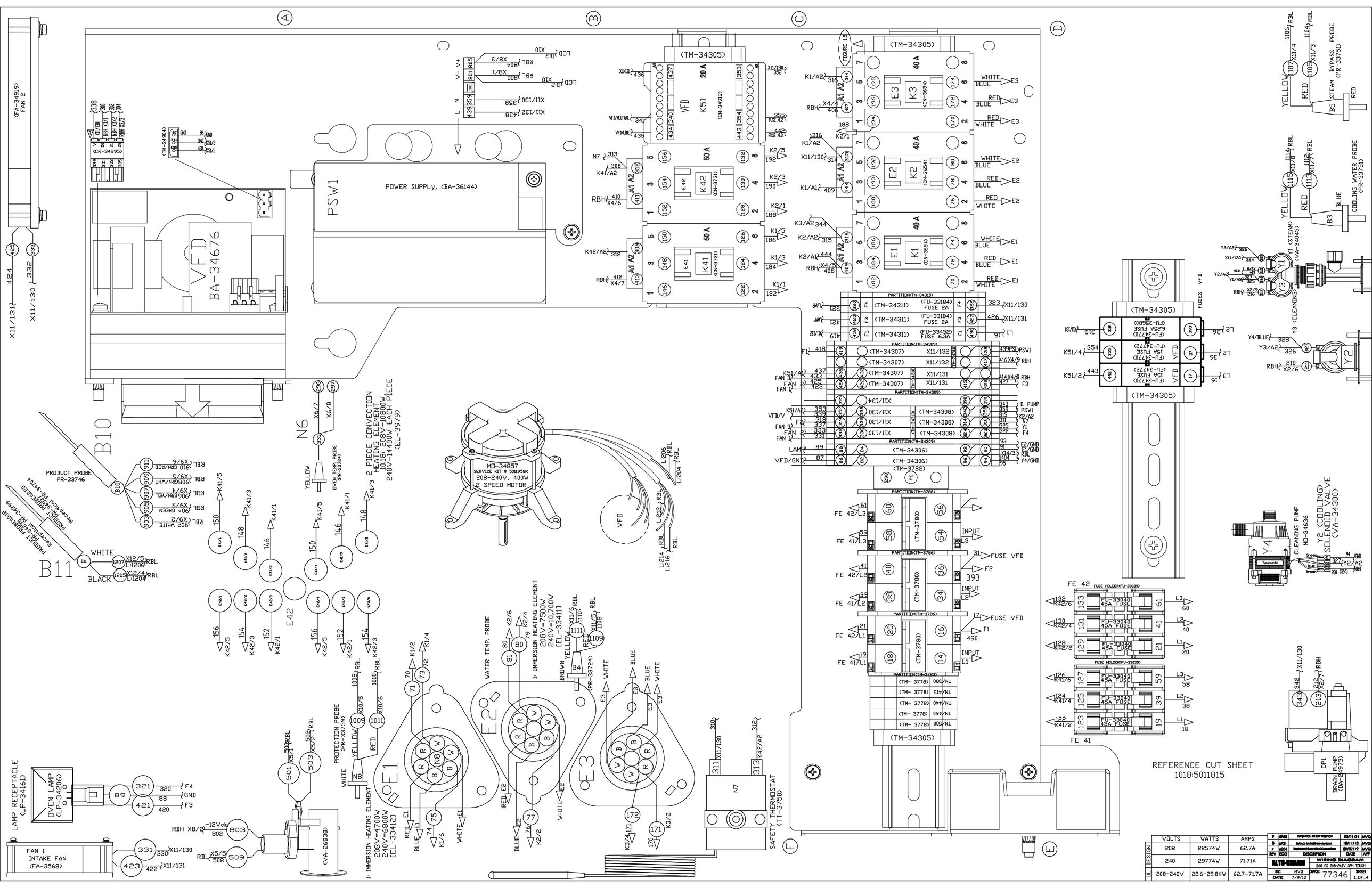
	VOLTS	WATTS	AMPS
DESIGN	208 V	8600W	24.0A
	240 V	11300 W	27.0 A
UL	208-240V	8.6-11.3kW	24.0-27.0A

7.14/10.10 (IFSMOKER ADD 520W)

	VOLTS	WATTS	AMPS
DESIGN	208 V	14000 W	38.9A
	240 V	18500 W	44.6 A
UL	208-240V	14.0-18.5kW	38.9-44.6A

REV	ECO	DESCRIPTION	DATE	APP
		REFER TO PAGE 1		

ALTO-SHAAM
WIRING DIAGRAM
6.10/10.10/7.14 ESI 208-240 3PH TOUCH
BY: MVQ
DATE: 12/21/09
DWG: 77325
SHEET 3_OF_3



UL DESIGN	VOLTS	WATTS	AMPS
	208	22574W	62.7A
	240	29774W	71.71A
	208-240V	22.6-29.8KW	62.7-71.7A

REV	ECO	DESCRIPTION	DATE	APP
9	6960	DIP SWITCH #5 ON POSITION	05/11/14	MVQ
8	6721	REPLACE TRANSFORMER	10/11/13	MVQ
7	6604	Replace K2 fuse with CC class fuse	09/27/12	MVQ

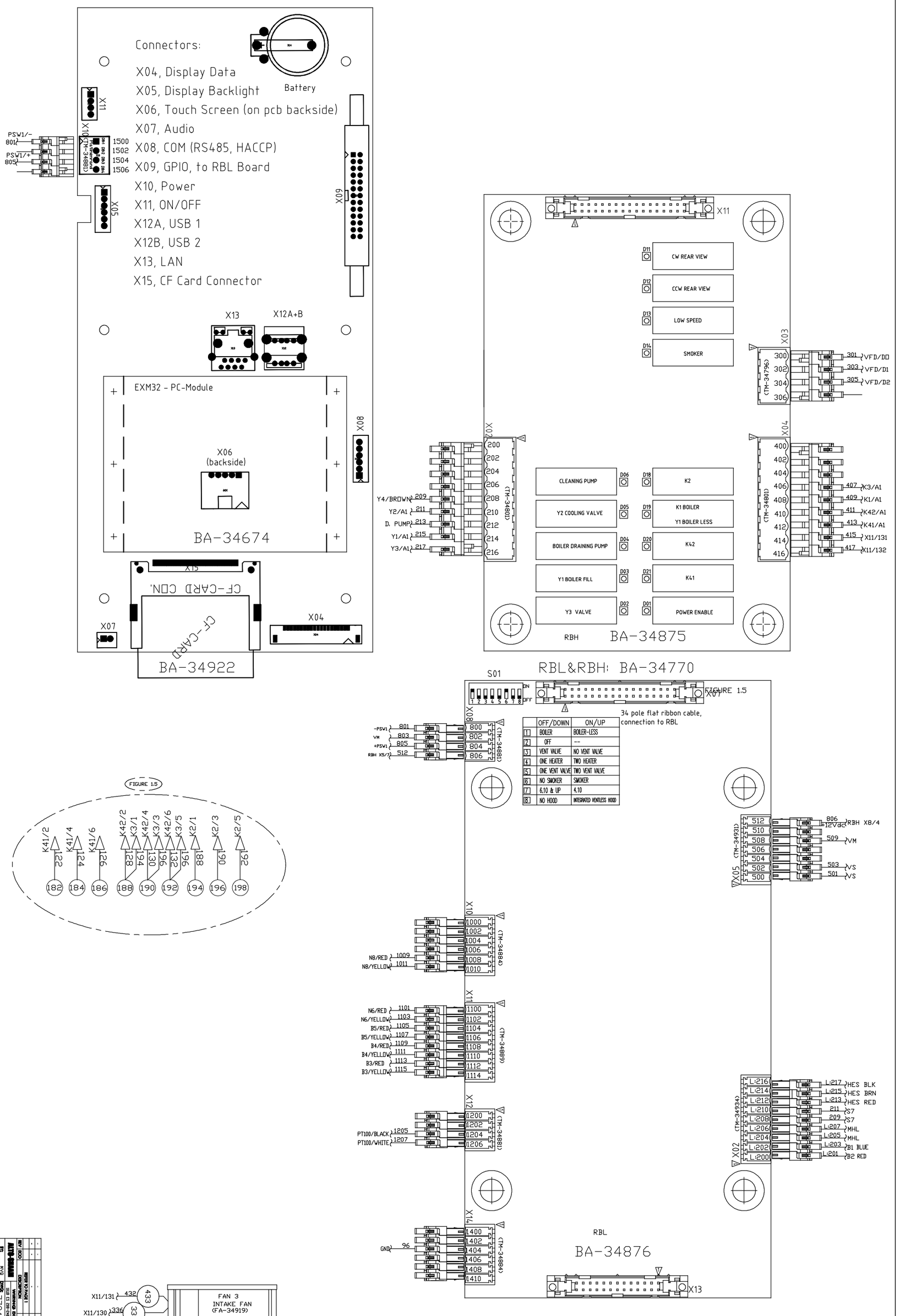
ALTO-SHAAM

WIRING DIAGRAM

1018 CS 208-240V 3PH TOUCH

BY: MVQ DWG: 77346 SHEET 1_DF_4

DATE: 7/9/10


Connectors:
X04, Display Data
X05, Display Backlight
X06, Touch Screen (on pcb backside)
X07, Audio
X08, COM (RS485, HACCP)
X09, GPIO, to RBL Board
X10, Power
X11, ON/OFF
X12A, USB 1
X12B, USB 2
X13, LAN
X15, CF Card Connector
Battery
EXM32 - PC-Module
BA-34674
BA-34922
CF-CARD CON.
CW REAR VIEW
CCW REAR VIEW
LOW SPEED
SMOKER
CLEANING PUMP
Y2 COOLING VALVE
BOILER DRAINING PUMP
Y1 BOILER FILL
Y3 VALVE
K2
K1 BOILER
Y1 BOILER LESS
K42
K41
POWER ENABLE
RBH
BA-34875
RBL&RBH: BA-34770
34 pole flat ribbon cable, connection to RBL
OFF/DOWN
ON/UP
BOILER
BOILER-LESS
OFF

VENT VALVE
NO VENT VALVE
ONE HEATER
TWO HEATER
ONE VENT VALVE
TWO VENT VALVE
NO SMOKER
SMOKER
6,10 & UP
4,10
NO HOOD
INTEGRATED VENTLESS HOOD
FIGURE 1.5
FAN 3
INTAKE FAN
(FA-34919)
RBL
BA-34876

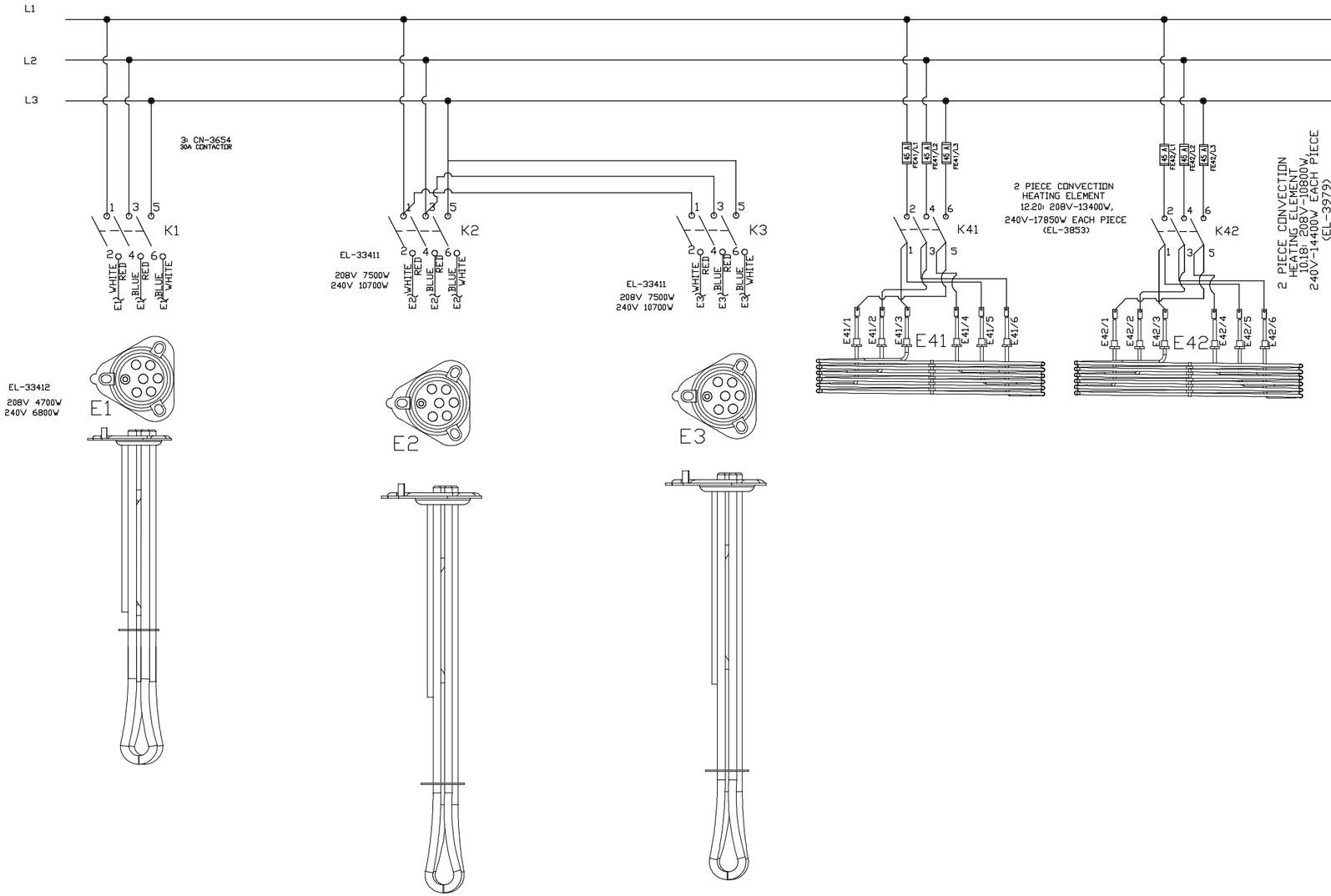
L1
L2
L3
392 390 395
17 37 51
FU-34772
FU-34770
442 359 498
GREEN
86 87
VFD BA-34676
339 301 303 305
MTR
LINE1
434 435
LINE2
340 341
12 4 6
K51
CN-34913 1 3 5
FUSE HOLDER FU-34770
FU-35680
393 6.3A F2 318
PSN 319
FUSE HOLDER FU-34311
FU-33452
490 6.3A F1 418 419
PSL 439
PSV1 BA-36144 12VDC
359 805
X10
DB1 DB2 DB3 DB4
417
437
(TM-34801) X04
416 414 412 410 408 406 404 402 400
K41 K42 K1 K3 K2
426 413 427 F3 420 CAVITY LAMP
313 312 N7 SAFETY THERMOSTAT 308 311
K51 436 353
88 89
F4 320 322 310 323 314 352
(TM-34796) X03
306 304 302 300
X02 (TM-34801)
200 202 204 206 208 PUMP 210 Y2 212 214 Y1 216
MD-34636 328 Y4 326 Y3 VA-34045 325 Y3 VA-34430 327 Y2 VA-34300
PUMP (DA-34973) DP1 342 324
X02 (TM-34934)
L200 L202 L204 L206 L208 L210 L212 L214 L216
DOOR SAFETY SWITCH
HL RED
HL BROWN
HL BLACK
X05 (TM-34931)
500 502 504 506 508 510 512
VENT MOTOR SW
12DC MOTOR
X08 (TM-34881)
800 802 804 806
RBL BA-34876
X10 (TM-34884)
1000 1002 1004 1006 1008 1010
S01:OFF - ON
1:Boiler - Boilerless
NOTE: DIP SWITCH SETTING
N8/RED 1009
N8/YELLOW 1011
X11 (TM-34889)
1100 1102 1104 1106 1108 1110 1112 1114
N6/RED 1101
N6/YELLOW 1103
B5/RED 1105
B5/YELLOW 1107
B4/RED 1109
B4/YELLOW 1111
B3/RED 1113
B3/YELLOW 1115
X12 (TM-34881)
1200 1202 1204 1206
PT100/WHITE 1205
PT100/BLACK 1207
X14 (TM-34884)
1400 1402 1404 1406 1408 1410
GND 96
B11 Receptical PR-34298
PRODUCT PROBE PR-34298
WHITE BLACK
RBL X12/3 1206 (207)
RBL X12/4 1204 (205)
N6 YELLOW RED
(103) X11/2 1102 RBL
(110) X11/1 1100 RBL
OVEN TEMP PROBE (PR-33724)

VM: VENT MOTOR
VS: VENT SWITCH
FUSE VFD: FUSE CONTROL VFD
FUSE SMK: FUSE CONTROL SMOKER
VFD: VARIABLE FREQUENCY DRIVE
DB3& DB4: DISPLAY BOARD + DC INPUT
DB1& DB2: DISPLAY BOARD - DC INPUT

X11/130: BANK OF 3 BLUE SPRING TERMINALS
B1: BLUE UPPER WATER LEVEL STEAM TANK
B2: RED LOWER WATER LEVEL STEAM TANK
B3: BLUE PROBE CONDENSATION TANK
B5: RED PROBE CONDENSATION TANK
PSW: 12Vdc POWER SUPPLY
S7: DOOR SWITCH
N7: SAFETY HIGH LIMIT
K41 & K42: CONTROL CONVECTION
DP1: BOILDER DRAIN PUMP
E1: E2: H2O ELEMENT
E4: CONVECTION ELEMENT
SMK RLY: SMOKER RELAY
SMK EL: SMOKER ELEMENT
K51 & K52: MOTOR DRIVE CONTACTOR

REV	ECO	DESCRIPTION	DATE	APP
		REFER TO PAGE 1		

ALTO-SHAAM — WIRING DIAGRAM
1018 ES 208-240V 3PH TOUCH
BY: MVG DWG# 77346 SHEET 3_1F_4
DATE: 7/9/10



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		REFER TO PAGE 1			-
REV	ECO	DESCRIPTION		DATE	APP

ALTO-SHAAM		WIRING DIAGRAM	
		1818 ES 208-240V 3PH TOUCH	
BY:	MVQ	DWG: 77346	SHEET
DATE:	7/9/10		4_OF_4

(FA-34919)
FAN 2

X11/131 424

X11/130 332

(CR-34995)

VFD
BA-34676

POWER SUPPLY, (BA-36144)

PSW1

(TM-34304)

V- V

L N

LCD

X11/130 358

X11/132 438

K51 20 A (CN-34933) VFD

FIGURE 11

FIGURE 12

K42 50 A (CN-37301) E42

K41 50 A (CN-37301) E41

N7 313 K41/A2 308

RBH 410 X4/6

K42/A2 312

RBH 412 X4/7

SMK RLY 346 345 335

RL-34634 RLY

RL-34633 SMK RLY

SMK EL 348 350

X3/4 RBH

PARTITION(TM-34315)

(TM-34311) (FU-33184) FUSE 2A F4 323 X11/130

(TM-34311) (FU-33184) FUSE 2A F3 426 X11/131

(TM-34311) (FU-33452) FUSE 6.3A F1 16 L1

PARTITION(TM-34309)

F1 418 (TM-34307) X11/132 439 PSW1

(TM-34307) X11/132 416 X4/9 RBH

K51/A1 437 (TM-34307) X11/131

FAN 3 433 FAN 2 425 FAN 1 423 (TM-34307) X11/131 414 X4/8 RBH 427 F3

PARTITION(TM-34309)

X11/134

VFD/V 353 K51/A2 339 X11/130 (TM-34308) 335 SMK RLY 813 PSW1

F2 337 X11/130 (TM-34308) 311 N7

FAN 3 333 FAN 2 331 X11/130 (TM-34308) 325 Y1 322 F4

PARTITION(TM-34309)

LAMP 89 (TM-34306) X14/3 RBL

VFD/GND 87 (TM-34306) 404 Y4/GND 95

(TM-3782)

PARTITION(TM-3786)

FE 42 L3 61 60 (TM-33837) (TM-3780) 56 54 INPUT L3

FE 41 L3 59 58

PARTITION(TM-3786)

FE 42 L2 41 40 38 (TM-33837) (TM-3780) 36 34 INPUT L2

FE 41 L2 39

PARTITION(TM-3786)

FE 42 L1 21 20 (TM-33837) (TM-3780) 16 14 INPUT L1

FE 41 L1 19 18

(TM-34305)

37 FUSE VFD F2 393

17 FUSE VFD F1 490

(TM-34305)

YELLOW 1107 RED 1105 B5 STEAM BYP

YELLOW 1115 X11/8 1114 RBL RED 1113 X11/7 1112 RBL B3

(TM-34305)

(TM-34305)

319 X11/130 6.25A FUSE (FU-35680) F2 396 L2 36

SMK EL 2 430 SMK EL 1 428 5.0A FUSE (FU-34784) SMK 57 L1 17 VFD FUSE

K51/4 354 15A FUSE (FU-34772) VFD 37 L2 36

K51/2 443 15A FUSE (FU-34771) VFD 17 L1 16 SMK FUSE

(TM-34305)

Y3/A2 326 X11/130 324 Y1 (STEAM) (VA-34045)

Y2/A2 RBH X4/5 408 Y1/A2 327 325 Y2 (CLEANING)

RBH X2/9 216

Y4/BLUE 328 Y3/A2 326 327

RBH 210 X2/6 211

Y4 CLEANING PUMP MD-34636

Y2 (COOLING) SOLENOID VALVE

PRODUCT PROBE 3 PRODUCT PROBE-10.18 RECEPTACLE PR-34299

PRODUCT PROBE PR-33746

B11 WHITE BLACK X12/5 1207 L1206 RBL X12/4 1205 L1204 RBL

X6/7 X6/8 N6 331 YELLOW DVEN TEMP. PROBE (PR-33724)

E41 150 148 146 150 146 148

E42 156 154 152 156 152 154

2 PIECE CONVECTION HEATING ELEMENT 10.18: 208V-10800W 240V-14400W EACH PIECE (EL-3979)

MD-34857 SERVICE KIT # 5011958R 208-240V, 400W 2 SPEED MOTOR

VFD

L1205 RBL L1204 RBL L1212 RBL L1214 RBL L1216 RBL

LAMP RECEPTACLE (LP-34161)

OVEN LAMP (LP-34206) 89 321 320 F4 88 GND 421 420 F3

FAN 1 INTAKE FAN (FA-3568) 331 330 X11/130 423 422 X11/131

RBH X8/2 802 -12Vdc 803 RBL X5/5 508 509

501 X5/1 500 RBL 503 X5/2 502 RBL (VA-26838)

311 X11/130 310 313 K42/A2 312 N7 SAFETY THERMOSTAT (TT-3750)

FE 42 FUSE HOLDER(FU-33039)

132 K42/6 133 FU-33040 45A FUSE 61 L3 60

130 K42/4 131 FU-33040 45A FUSE 41 L2 40

128 K42/2 129 FU-33040 45A FUSE 21 L1 20

FUSE HOLDER(FU-33039)

126 K41/6 127 FU-33040 45A FUSE 59 L3 58

124 K41/4 125 FU-33040 45A FUSE 39 L2 34

122 K41/2 123 FU-33040 45A FUSE 19 L1 18

FE 41

SMOKER OPTION

SMK EL 1 (EL-34554) 208V, 260W 240V, 346W

FUSE 428 348

SMK RLY 429 349

REFERENCE CUT SHEET 5011814

IF SMOKER ADD 520W-692W

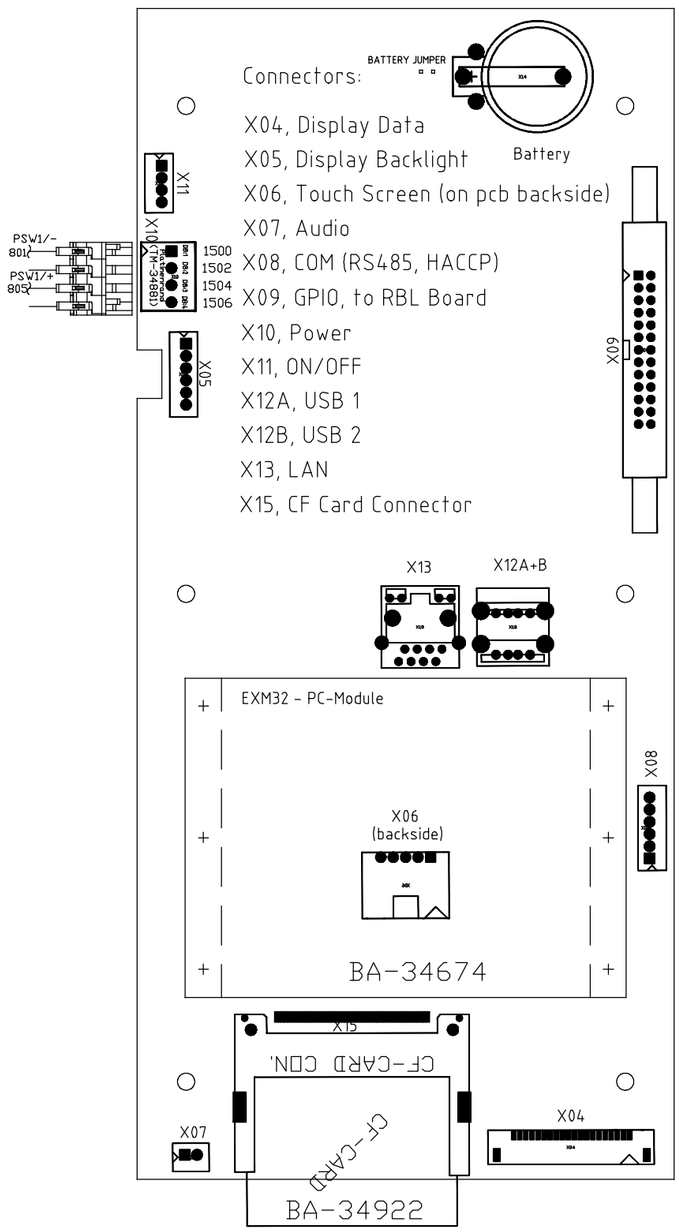
	VOLTS	WATTS	AMPS
DESIGN	208	22574W	62.7A
	240	29774W	71.71A
UL	208-240V	22.6-29.8KW	62.7-71.7A

REV	ECO	DESCRIPTION
11	4945	DIP SWITCH #5 OFF POSITION
10	4791	
9	4804	

ALTO-SHAAM WIRING 10.18 ESI 2E

BY: HVG DWG: 77

DATE: 7/13/10



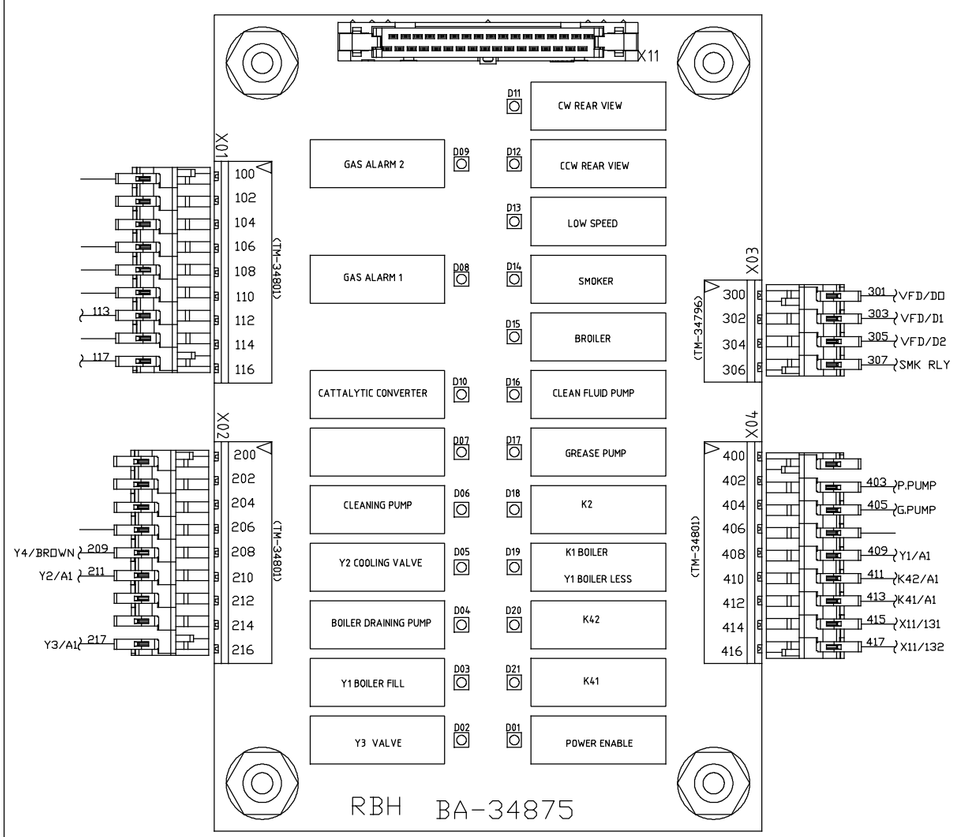


FIGURE 1.1

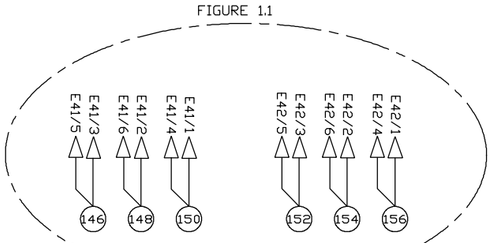
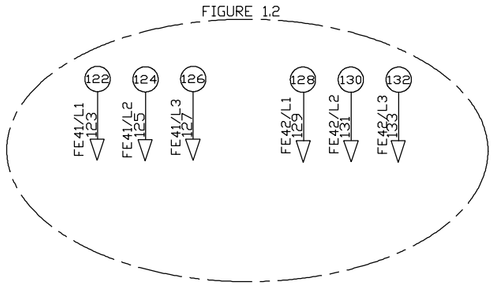


FIGURE 1.2

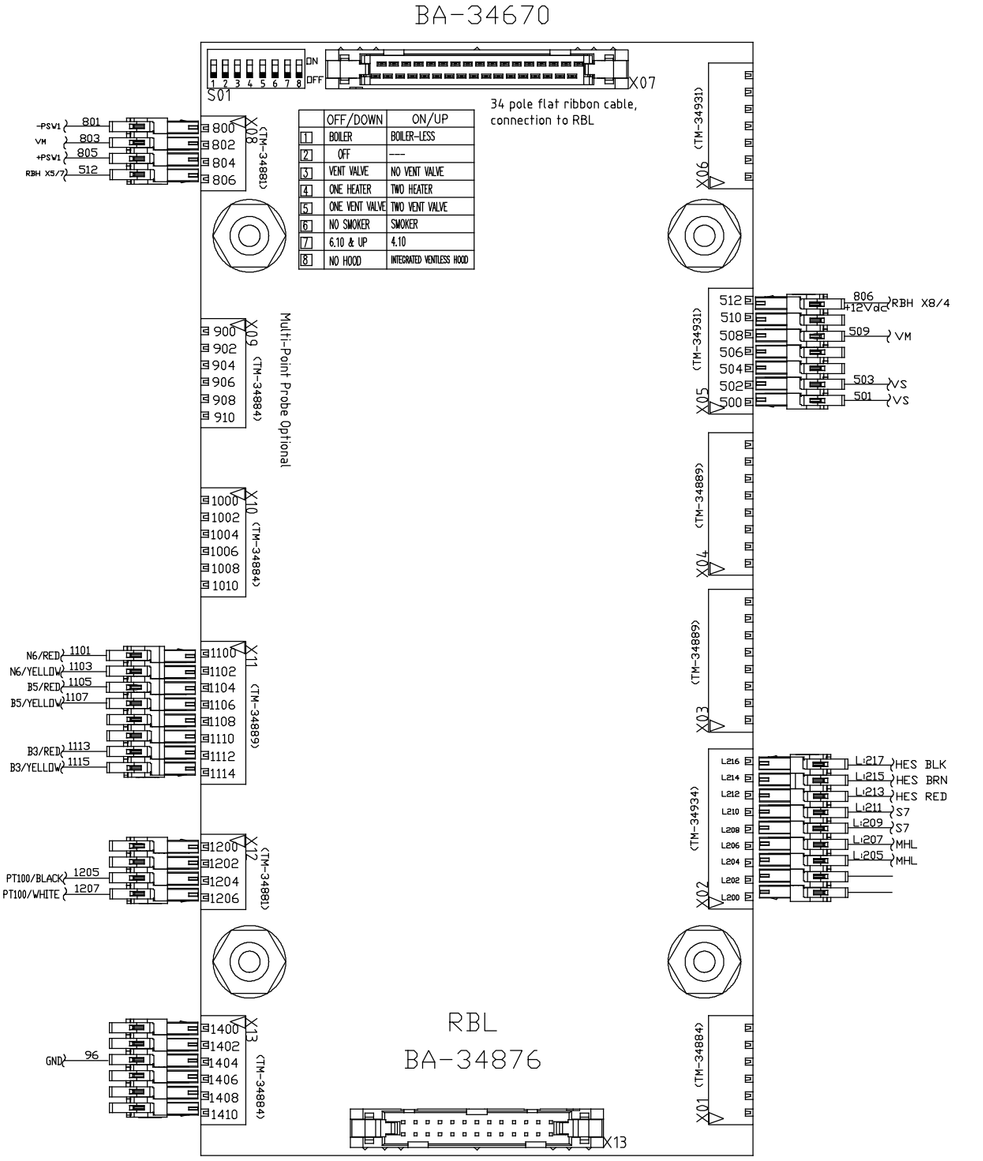


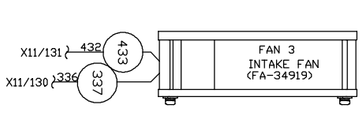
WARNING LA-29349

FOR CONTINUED PROTECTION AGAINST FIRE AND ELECTRICAL SHOCK, REPLACE ONLY WITH UL LISTED 600V MAX. NONRENEWABLE FUSES SHOWN BELOW:

CLASS CC:	VFD = 15 AMP F2 = 6.25 AMP
	SMK = 5 AMP
CLASS G:	F41, F42, F43, F44 = 45 AMP
CLASS 5 x 20mm:	F1 = 6.3 AMP
	F3, F4 = 2.0 AMP

RBH & RBL
BA-34670





REV	ECO	DESCRIPTION	DATE	APP	

DRAWN BY: JMK 7/19/20
CHECKED BY:
APPROVED BY:
DATE:
SIZE: B
DWG NO: 77364
REV:
SHEET 3 OF 3

L1
L2
L3
392 390 395
FU-34770
FU-34784
2; FU-34772
GREEN
86 87
BA-34676
VFD
339 301 303 305
MTR
LINE1
434 435
LINE2
340 341
K51
CN-34913
SK1 430 350 SK1
2; EL-34554
SMOKER
ELEMENTS
SMOKER OPTION
SK2 428 348 SK2
X10
DB1 DB2 DB3 DB4
FUSE HOLDER FU-34771
FU-35680
393 6.3A F2 318
PSN 319
FUSE HOLDER FU-34311
FU-33452
490 6.3A F1 418 419
PSL 439
PSV1
BA-36144
12VDC
417
SMOKER OPTION
RL-33483
RL-34634
345 346
R3H X3/4
306 307 335 347 349 351
X11/131
K41
K42
E41/1 E41/2 E41/3 E41/4 E41/5 E41/6
E41
2 PIECE CONVECTION
HEATING ELEMENT
12.2Ω 208V-13400W,
240V-17850W EACH PIECE
(EL-3853)
K42
E42/1 E42/2 E42/3 E42/4 E42/5 E42/6
E42
2 PIECE CONVECTION
HEATING ELEMENT
10.1Ω 208V-10800W,
240V-14400W EACH PIECE
(EL-3979)
VM: VENT MOTOR
VS: VENT SWITCH
FUSE VFD: FUSE CONTROL VFD
FUSE SMK: FUSE CONTROL SMOKER
VFD: VARIABLE FREQUENCY DRIVE
DB3& DB4: DISPLAY BOARD + DC INPUT
DB1& DB2: DISPLAY BOARD - DC INPUT
B11
Receptical PR-34298
PRODUCT PROBE
PR-34298
WHITE
BLACK
RBL X12/9 M206
RBL X12/4 M204
1102 RBL X11/2
1103
1101 RBL X11/1
1100
YELLOW
RED
N6
OVEN TEMP PROBE
(PR-33724)
X11/130: BANK OF 3 BLUE SPRING TERMINALS
B1: BLUE UPPER WATER LEVEL STEAM TANK
B2: RED LOWER WATER LEVEL STEAM TANK
B3: BLUE PROBE CONDENSATION TANK
B5: RED PROBE CONDENSATION TANK
PSV: 12V DC POWER SUPPLY
S7: DOOR SWITCH
N7: SAFETY HIGH LIMIT
K41 & K42: CONTROL CONVECTION
DP1: BOILER DRAIN PUMP
E1, E2, E3: H2O ELEMENT
E4: CONVECTION ELEMENT
SMK RLY: SMOKER RELAY
SMK EL: SMOKER ELEMENT CONTACTOR
K51 & K52: MOTOR DRIVE CONTACTOR
437
X03 (TM-34796)
X04 (TM-34801) 416 414 412 410 408 406 404 402 400
X02 (TM-34801) 200 202 204 206 208 210 212 214 216
X01 (TM-34801) 100 102 104 106 108 110 112 114 116
426 415 K42 413 K41 411 Y1 409 VA-34045
427 ZDA F3 420
313 V7 314 SAFETY THERMOSTAT 308
K51 436 353
SMK RLY 334
MD-34636 CLEAN PUMP 328
Y3 VA-34045 325
Y2 VA-34300 327
Y2 VA-34300
88 89
CAVITY LAMP
320 ZDA F4 322
310 323 324
352
RBL BA-34876
Multi-Point Probe Optional
X01 (TM-34884) 100 102 104 106 108 110
X02 (TM-34934) L200 L202 L204 L206 L208 L210 L212 L214 L216
DOOR SAFETY SWITCH
HL RED
HL BROWN
HL BLACK
X05 (TM-34931) 500 502 504 506 508 510 512
VENT MOTOR SW
120DC MOTOR
VM
X06 (TM-34931) 600 602 604 606 608 610 612
X08 (TM-34881) 800 802 804 806
X09 (TM-34884) 900 902 904 906 908 910
X10 (TM-34884) 1000 1002 1004 1006 1008 1010
X11 (TM-34889) 1100 1102 1104 1106 1108 1110 1112 1114
X12 (TM-34881) 1200 1202 1204 1206
X14 (TM-34884) 1400 1402 1404 1406 1408 1410
1101 N6/RED
1103 N6/YELLOW
1105 B5/RED
1107 B5/YELLOW
1113 B3/RED
1115 B3/YELLOW
1205 PT100/BLACK
1207 PT100/WHITE
96 GND

refer to page 1

REV	ECO	DESCRIPTION	DATE	APP

WIRING DIAGRAM
ALTO-SHAAM
1018 ESI 208-240V 3PH TOUCH
BY: MVQ DWG: 77364 SHEET 3_OF_3
DATE: 7/13/10

(FA-34919)
FAN 2

N6
X6/7
X6/8
296
297
331
YELLOW
OVEN TEMP. PROBE
(PR-33724)

E42/1 156
E42/2 154
E42/3 152
E42/4 156
E42/5 152
E42/6 154
E42
E41/1
E41/2
E41/3
E41/4
E41/5
E41/6
E41
150
148
146
150
146
148
K6/5
K6/3
K6/1
K6/4
K6/2
K6/6

2 PIECE CONVECTION
HEATING ELEMENT
12.20: 208V-13400W,
240V-17850W EACH PIECE
(EL-3853)

LAMP RECEPTACLE
(LP-34161)
TOP
OVEN LAMP
(LP-34160)
296
384
470
LAMP 1
LAMP 2

MO-34857
SERVICE KIT# 5011958R
208-240V, 400W
2 SPEED MOTOR
VFD
L206 RBL
L204 RBL
L212 RBL
L214 RBL
L216 RBL

LAMP RECEPTACLE
(LP-34161)
BOTTOM
OVEN LAMP
(LP-34160)
89
321
421
384
296
470
LAMP 2
F4
F3

(LT-3738)
S7
211
X2/6 RBL
209
X2/5 RBL

YELLOW 1106 X11/4 RBL
RED 1104 X11/3 RBL
B5 STEAM BYPASS PROBE
(PR-33751)
RED

YELLOW 1115 X11/8 RBL
RED 1113 X11/7 RBL
B3 COOLING WATER PROBE
(PR-33751)
BLUE

Ⓐ Ⓑ Ⓒ

X11/131 424 429
X11/130 332 339

X10 LCD 3
X8/3 RBL 804
X8/1 RBL 800
X10 LCD 2
V- V+
805
801
859
N
L
X11/130 358
X11/132 438

POWER SUPPLY, (BA-36144)
PSW1

238 X11/130
200 X11/31
202 X2/1
204 X2/3
(CR-34995)
GND 86
340 X51/3
434 X51/1
(TM-34994)

VFD
BA-34676

(TM-34305)
(FU-35680) 6.25A FUSE
(FU-34772) 15A FUSE
(FU-34772) 15A FUSE
(FU-34770)
VFD
K51 20 A (CN-34913)
K42 50 A (CN-34731)
K41 60 A (CN-34731)
K3 E3 40 A (CN-34654)
K2 E2 40 A (CN-34654)
K1 E1 40 A (CN-34654)
(FIGURE 15)
K71/A2 365
K1/A2 316
X11/130 352
X4/4 406
RBH 355
FUSE F2
FUSE F3
442
188
K2/1
K2/5 192
K1/A2 316
X11/130 314
K2/3 190
K2/1 188
K1/5 186
K3/A2 344
K2/A2 315
K1/3 184
K2/A1 444
K1/1 182
K1/A2 409
K1/A1 409
X4/5 408
RBH 410 X4/6
RBH 412 X4/7
K42/A2 312
N7 313
K41/A2 308
K51/4 354
K51/2 443
VFD/NEUTRAL 341
VFD/LINE 435
X11/130 436
X11/132 437
X11/132 319
36 L2
37 VFD
36 L2
37 VFD
16 L1
17 VFD

(TM-34305)
PARTITION(TM-34315)
(TM-34311) (FU-33184) FUSE 2A F4 323 X11/130
(TM-34311) (FU-33184) FUSE 2A F3 426 X11/131
(TM-34311) (FU-33452) FUSE 6.3A F1 16 L1
PARTITION(TM-34309)
(TM-34307) X11/132 439PSW1
(TM-34307) X11/132 416 X4/9 RBH
(TM-34307) X11/131
(TM-34307) X11/131 414 X4/8 RBH F3
PARTITION(TM-34309)
X11/134 343 D. PUMP PSW1
(TM-34308) X11/130 315 X2/A2
(TM-34308) X11/130 311 N7
(TM-34308) X11/130 322 Y1
(TM-34308) X11/130 F4
PARTITION(TM-34309)
LAMP 89
(TM-34306)
VFD/GND 87
(TM-34306)
F1 418
FAN 3 437
FAN 2 425
FAN 1 423
K51/A1 433
VFD/V1 353
F2 319
FAN 3 337
FAN 2 333
FAN 1 331
GND/23
GND/13
X14/3 RBL
X14/4 Y4/GND
F38
(TM-34305)

(TM-34305)
FE 42 L3 61 60
FE 41 L3 59 58
FE 42 L2 41 40
FE 41 L2 39 38
FE 42 L1 21 20
FE 41 L1 19 18
56 54 36 34 16 14
INPUT L3
INPUT L2
INPUT L1
37 FUSE VFD
393 Y2
17 FUSE VFD
F1 490

Y3/A2 326
X11/130 324
Y2/A2 327
Y1/A2 325
RBH 210 X2/6
X2/9 216
Y1 (STEAM) (VA-34045)
Y3 (CLEANING)
Y2 (COOLING) SOLENOID VALVE (VA-34300)
Y4/BLUE 328

CLEANING PUMP
MO-34636
Y4
Green
Yellow
Blue
Brown
94 X10
A2
RBH
327 Y2
208 X2/5

PRODUCT PROBE
PR-33746
B10
X9/6 911 RBL
X9/5 909 RBL
X9/4 907 RBL
X9/3 905 RBL
X9/2 903 RBL
910 GRN/RED
908 GRN/WHT
906 GRN/YEL
904 GREEN
902 WHITE
PRODUCT PROBE PR33746 12.20 RECEPTACLE PR-34704

B11
WHITE
BLACK
1207 X12/5 RBL 1206
1205 X12/4 RBL 1204

RBH X8/2 -12Vdc 802 803
RBL X5/5 508 509
500 RBL X5/1 501
502 RBL X5/2 503
(VA-26838)

FAN 1
INTAKE FAN
(FA-3568)
331 330 X11/130
423 422 X11/131

PROTECTION PROBE
(PR-33759)
WHITE N8
YELLOW 1009 X10/5 RBL
RED 1011 X10/6 RBL
1: IMMERSION HEATING ELEMENT
208V=4700W
240V=6800W
[EL-33412]
72 K1/4
74 K1/6
2: PROBE TIP CONN'S
(CR-3851)
WATER LEVEL PROBE
(PR-34902)
RBL X2/2 203 L202
RBL X2/1 201 L200
WATER TEMP. PROBE
K2/2 76
78 K2/4
80 K2/6
1: IMMERSION HEATING ELEMENT
208V=7500W
240V=10,700W
[EL-33411]
BROWN
B4
(PR-33724)
X11/6 RBL 1110 1111
X11/5 RBL 1108 1109
K3/2 170
172 K3/4
174 K3/6

FE 42
FUSE HOLDER(FU-33039)
FU-33040 45A FUSE
61 133 K42/6
41 131 K42/4
21 129 K42/2
59 127 K41/6
39 125 K41/4
19 123 K41/2
FE 41
310 X11/130
312 K42/A2
311 313 N7
SAFETY THERMOSTAT (TT-3750)

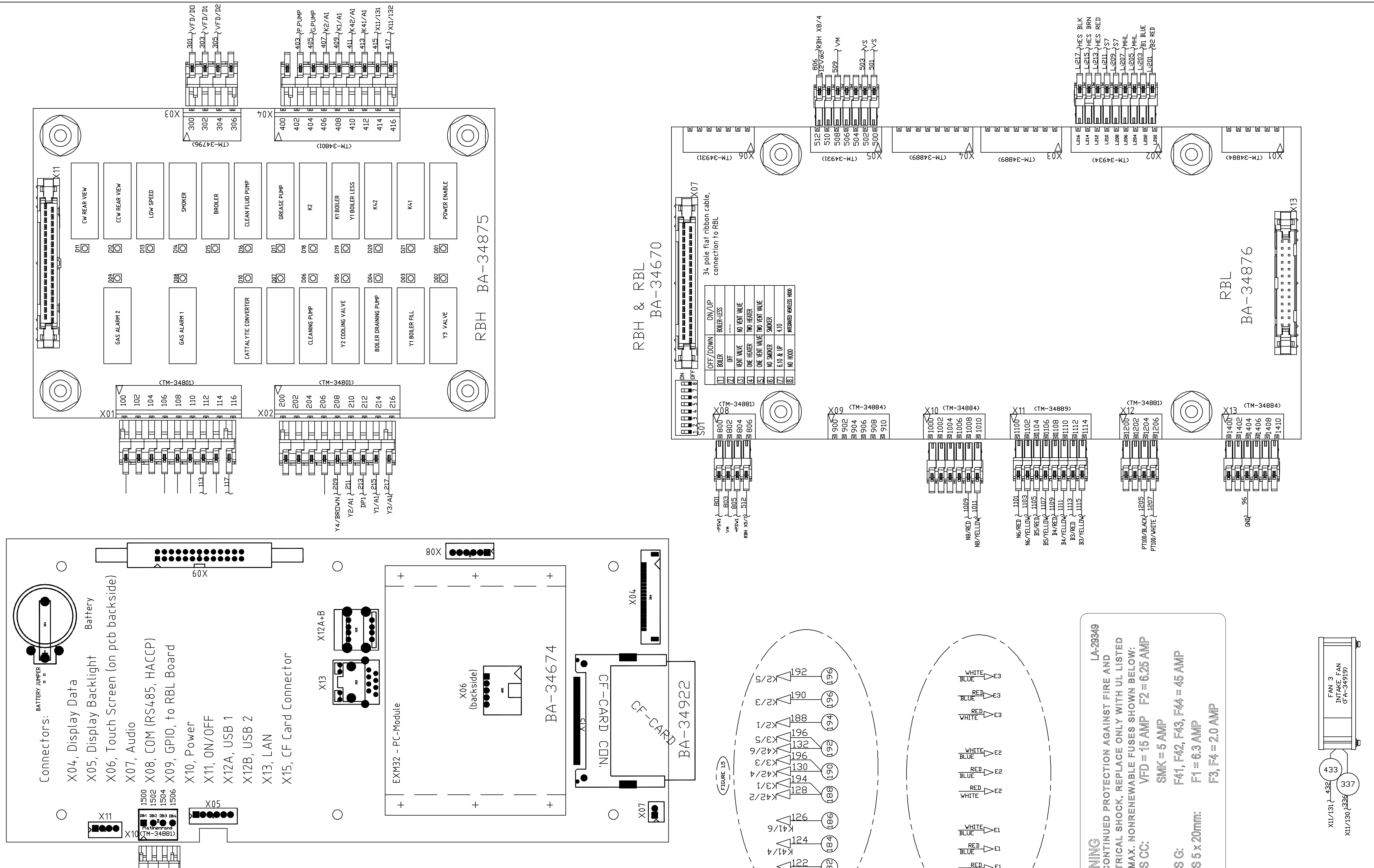
342 X11/130
213 X2/7 RBH
DP1
DRAIN PUMP (DA-24973)

REFERENCE CUT SHEET
12.20:5011808

UL DESIGN	VOLTS	WATTS	AMPS
	208	27.7KW	77.0
	240	36.6KW	88.3
	208-240V	27.7-36.6KW	77.0-88.3A

REV	ECO	DESCRIPTION	DATE	APP
9	6965	DIP SWITCH #5 OFF POSITION	09/11/14	MVQ
8	6791	REPLACED K3 ASSEMBLY WITH K2	10/11/13	MVQ
7	6584	Replaced TB Fuse with DC Glass Fuse	09/27/12	MVQ

ALTO-SHAAM
WIRING DIAGRAM
12.20 CS 208-240V 3PH TOUCH
BY: MVQ DWG: 77366 SHEET 1_OF_4
DATE: 7/28/10



REV	ECO	DESCRIPTION	DATE	APP
-	-	-	-	-
-	-	-	-	-
		REFER TO PAGE 1		-

ALTO-SHAAM

WIRING DIAGRAM

12.20 ES 208-240V 3PH TOUCH

BY: MVQ DWG: 77366 SHEET 2_OF_4

DATE: 7/28/10

L1
L2
L3
392 390 395
57 17 31 51
FU-34784
FU-34772
FU-34771
429 442 355 498
GREEN
86 87
LINE1
434 435
LINE2
340 341
K51
CN-34913 1 3 5
2 4 6
BA-34676
VFD
339 301 303 305
MTR
FUSE HOLDER FU-34770
FU-35680
393 318 319
F2
PSN
FUSE HOLDER FU-34311
FU-33452
490 418 419
F1
PSL
PSW1
BA-36144
12VDC
359 439 805
X10
DB1 DB2 DB3 DB4
Maintenance
437
X03 (TM-34796)
X04 (TM-34801)
X02 (TM-34801)
X01 (TM-34801)
416 414 412 410 408 406 404 402 400
306 304 302 300
200 202 204 206 208 210 212 214 216
100 102 104 106 108 110 112 114 116
K41 K42 K1 K3 K2
413 411 409 407 405
426 415 436
427 F3 420
313 312 308
353
88 89
CAVITY LAMP
320 F4 328
SAFETY THERMOSTAT
N7
311 310 323 314 352
MD-34636
328 326 325 327
PUMP
Y4 Y3 Y2 Y1
VA-34045
VA-34390
VA-34300
PUMP
(DA-24973)
DP1
342 324
B11
Reciprocal PR-34298
PRODUCT PROBE
PR-34298
WHITE
BLACK
RBL J204 (12&5) X12/4
RBL J206 (12&5) X12/5
N6
YELLOW 103 X11/2 1102 RBL
RED (101) X11/1 1001 RBL
OVEN TEMP. PROBE
(PR-33724)
X11/130: BANK OF 3 BLUE SPRING TERMINALS
B1: BLUE UPPER WATER LEVEL STEAM TANK
B2: RED LOWER WATER LEVEL STEAM TANK
B3: BLUE PROBE CONDENSATION TANK
B5: RED PROBE CONDENSATION TANK
PSW: 16VDC POWER SUPPLY
S7: DOOR SWITCH HIGH LIMIT
N7: SAFETY HIGH LIMIT
K41 & K42: CONTROL CONVECTION
DP1: BUILDER DRAIN PUMP
E1, E2, E3: H2O ELEMENT
E4: CONVECTION ELEMENT
SMK RLY: SMOKER RELAY
SMK EL: SMOKER ELEMENT
K51 & K52: MOTOR DRIVE CONTACTOR
VM: VENT MOTOR
VS: VENT SWITCH
FUSE VFD: FUSE CONTROL VFD
FUSE SMK: FUSE CONTROL SMOKER
VFD: VARIABLE FREQUENCY DRIVE
DB3& DB4: DISPLAY BOARD + DC INPUT
DB1& DB2: DISPLAY BOARD - DC INPUT
RBL BA-34876
Multi-Point Probe Optional
X01 (TM-34884) 100 102 104 106 108 110
X02 (TM-34934) L200 L202 L204 L206 L208 L210 L212 L214 L216
DOOR SAFETY SWITCH
HL RED
HL BROWN
HL BLACK
X05 (TM-34931) 500 502 504 506 508 510 512
VENT MOTOR SW
120C MOTOR
X06 (TM-34931) 600 602 604 606 608 610 612
X08 (TM-34881) 800 802 804 806
X09 (TM-34884) 900 902 904 906 908 910
X10 (TM-34884) 1000 1002 1004 1006 1008 1010
X11 (TM-34889) 1100 1102 1104 1106 1108 1110 1112 1114
X12 (TM-34881) 1200 1202 1204 1206
X14 (TM-34884) 1400 1402 1404 1406 1408 1410
2: PROBE TIP CONN'S
(CR-3851)
WATER LEVEL
PROBE
(PR-34902)
BLACK
RED
N8/RED 1009
N8/YELLOW 1011
N6/RED 1101
N6/YELLOW 1103
B5/RED 1105
B5/YELLOW 1107
B4/RED 1109
B4/YELLOW 1111
B3/RED 1113
B3/YELLOW 1115
PT100/BLACK 1205
PT100/WHITE 1207
GND 96

REV	ECO	DESCRIPTION	DATE	APP
		REFER TO PAGE 1		

ALTO-SHAAM — WIRING DIAGRAM
1220 ES 208-240V 3PH TOUCH
BY: MVQ DWG# 77366 SHEET 3_OF_4
DATE: 7/28/10

L1

L2

L3

3: CN-3654
30A CONTACTOR

K1

K2

K3

K41

K42

EL-33411
208V 7500W
240V 10700W

EL-33411
208V 7500W
240V 10700W

2 PIECE CONVECTION
HEATING ELEMENT
12.2Ω 208V-13400W,
240V-17850W EACH PIECE
(EL-3853)

2 PIECE CONVECTION
HEATING ELEMENT
10.1Ω 208V-10800W,
240V-14400W EACH PIECE
(EL-3979)

EL-33412
208V 4700W
240V 6800W

E1

E2

E3

E41

E42

-	-	-	-	-
-	-	-	-	-
		REFER TO PAGE 1		-
REV	ECO	DESCRIPTION	DATE	APP

ALTO-SHAAM

WIRING DIAGRAM
12.2I ES 208-240V 1PH TOUCH

BY: MVD
DATE: 7/28/10

DWG: 77366

SHEET
4_OF_4

(FA-34999)
FAN 2

425 424 X11/131

338 332 X11/130

N6
X6/7 296
X6/8 297
330
YELLOW
DVEN TEMP. PROBE
(PR-33724)

E42
K42/3 156
K42/2 154
K42/1 152
K42/4 156
K42/5 152
K42/6 154
E42/1
E42/2
E42/3
E42/4
E42/5
E42/6
E41/1
E41/2
E41/3
E41/4
E41/5
E41/6
K41/5 150
K41/3 148
K41/1 146
E41
K41/5 150
K41/3 148
K41/1 146
2 PIECE CONVECTION
HEATING ELEMENT
12.20: 208V-13400W,
240V-17850W EACH PIECE
(EL-3853)

LAMP RECEPTACLE
(LP-34161)
TOP
DVEN LAMP
(LA-34060)
296 384 LAMP 1
470 LAMP 1&2

MO-34857
SERVICE KIT# 5011958R
208-240V, 400W
2 SPEED MOTOR
VFD
L2106 RBL
L2104 RBL
L2112 RBL
L2214 RBL
L2216 RBL

LAMP RECEPTACLE
(LP-34161)
BOTTOM
DVEN LAMP
(LA-34060)
89 321 LAMP 2
421 LAMP 2
296 LAMP 2
384 LAMP 2
470 LAMP 2

(LT-3738)
S7
211 210 X2/6 RBL
209 208 X2/5 RBL

1106 RBL
X11/4 1107 YELLOW
1104 RBL
X11/3 1105 RED
B5 STEAM BYPASS PROBE
(PR-33751)
RED

1114 RBL
X11/8 1115 YELLOW
1112 RBL
X11/7 1113 RED
B3 BLUE
COOLING WATER PROBE
(PR-33751)

Y3/A2 326
X11/130 324
RBH X4/3 408
Y2/A2 327
Y1/A2 325
RBH X2/9 216
Y1 (STEAM)
(VA-34045)
Y3 (CLEANING)
Y2 (COOLING)
SOLENOID VALVE
(VA-34300)
Y4/BLUE 328
Y3/A2 326
RBH 210 X2/6

(A)
(B)
(C)
(D)
(E)
(F)

X11/131 424
X11/130 332
425
338

V- V+ 805 LCD D-
801 LCD D+
L N 359 X11/130 358
439 X11/132 438
POWER SUPPLY, (BA-36144)
PSW1
X10
RBL 804 X8/3
RBL 800 X8/1
X10
X11/130 358
X11/132 438
338 X11/130
200 X11/131
202 X2/7
204 X2/6
RBH
X3/3 339 301 303 305
(CR-34995)
(TM-34904)
87 GND 86 GND
85 340 X51/3
434 X51/1
VFD

(TM-34305)
(FU-35680)
6.25A FUSE
(FU-34771)
388 F2 393 36 L2
K51/1 319
SMK EL 2 430
SMK EL 1 428
(FU-34784)
5.0A FUSE
SMK 11 17 VFD FUSE
K51/4 354
(FU-34772)
XXA FUSE
(FU-34771)
355 VFD 37 36 L2
K51/2 443
(FU-34772)
XXA FUSE
442 VFD 17 16 L1
SMK FUSE
X11/13 436
437
20 A
353
X11/130 352
VFD/NEUTRAL 341
VFD/LINE 435
340
354
355
VFD
K51
(CN-34913)
355 FUSE A2
442 FUSE A1
N7 313
K41/A2 308
A1 A2 312 5 156 138 6
3 154 130 4
E42 K42 (CN-37331)
1 152 128 2
RBH 410 X4/6
A1 A2 309 5 150 126 6
3 148 124 4
E41 K41 (CN-37331)
K42/A2 312
RBH 412 X4/7
1 146 122 2
(TM-34305)

(TM-34305)
SMK RLY 345
X11/130 334
346
SMK RLY 335
SMK RLY 345
RL-34784
SMK RLY
335 R 349 SMK EL 348
346 C 307 351 SMK EL 350
SMK RLY 345 306 RBH
X3/4
PARTITION(TM-34315)
321 LAMP (TM-34311) (FU-33184) FUSE 2A 323 X11/130
421 LAMP (TM-34311) (FU-33184) FUSE 2A 426 X11/131
419 X11/132 (TM-34311) (FU-33452) FUSE 6.3A 16 L1
PARTITION(TM-34309)
F1 418 (TM-34307) X11/132 439 PSW1
(TM-34307) X11/132 416 X4/9 RBH
K51/A1 437
FAN 2 433 (TM-34307) X11/131 414 X4/8 RBH
FAN 2 425 (TM-34307) X11/131 427 F3
FAN 1 423
PARTITION(TM-34309)
X11/134 335 SMK RLY
VFD/V 351 X11/130 (TM-34308) 359 PSW1
K51/A2 353
F2 316 X11/130 (TM-34308) 311 N7
FAN 3 337 X11/130 (TM-34308) 325 Y1
FAN 2 333 X11/130 (TM-34308) 323 F4
FAN 1 331
PARTITION(TM-34309)
LAMP 89 (TM-34306) X14/3 RBL
VFD/GND 87 (TM-34306) 404 Y4/GND
95
(TM-34305)

(TM-34305)
FE 42 L3 61 60 56 L3
FE 41 L3 59 58 54 L3 INPUT
FE 42 L2 41 40 36 34 F2 37 FUSE VFD 390
FE 41 L2 39 38 INPUT
FE 42 L1 21 20 16 F1 17 FUSE VFD 490
FE 41 L1 19 18 14 L1 INPUT
(TM-34305)

SMOKER OPTION
SMK EL 1
(EL-34554) 208V, 260W
240V, 346V
FUSE 429 428 SMK EL2 430 348
SMK EL 2
(EL-34554) 208V, 260W
240V, 346V
SMK EL1 348 430 SMK RLY 351 350

FAN 1
INTAKE FAN
(FA-3568)
331 330 X11/130
423 422 X11/131

RBH X8/2 -12Vdc 802 803
RBL X5/5 508 509
(VA-26838)
501 500RBL X5/1
503 502RBL X5/2
PRODUCT PROBE
PR-33746
RECEPTACLE PR-34704
B11
WHITE 207 X12/5 1206 RBL
BLACK 205 X12/4 1204 RBL
B10
RBL X9/6 911 910 GRN/RED
RBL X9/5 909 908 GRN/WHT
RBL X9/4 907 906 GRN/YEL
RBL X9/3 905 904 GREEN
RBL X9/2 903 902 WHITE

FE 42 FUSE HOLDER (FU-33039)
132 K42/6 133 FU-33040 45A FUSE 61 L3 60
130 K42/4 131 FU-33040 45A FUSE 41 L2 40
128 K42/2 129 FU-33040 45A FUSE 21 L1 20
FUSE HOLDER(FU-33039)
126 K41/6 127 FU-33040 45A FUSE 59 L3 58
124 K41/4 125 FU-33040 45A FUSE 39 L2 34
122 K41/2 123 FU-33040 45A FUSE 19 L1 18
FE 41

310 X11/130
312 K42/A2
311
313
N7
SAFETY THERMOSTAT
(TT-3750)

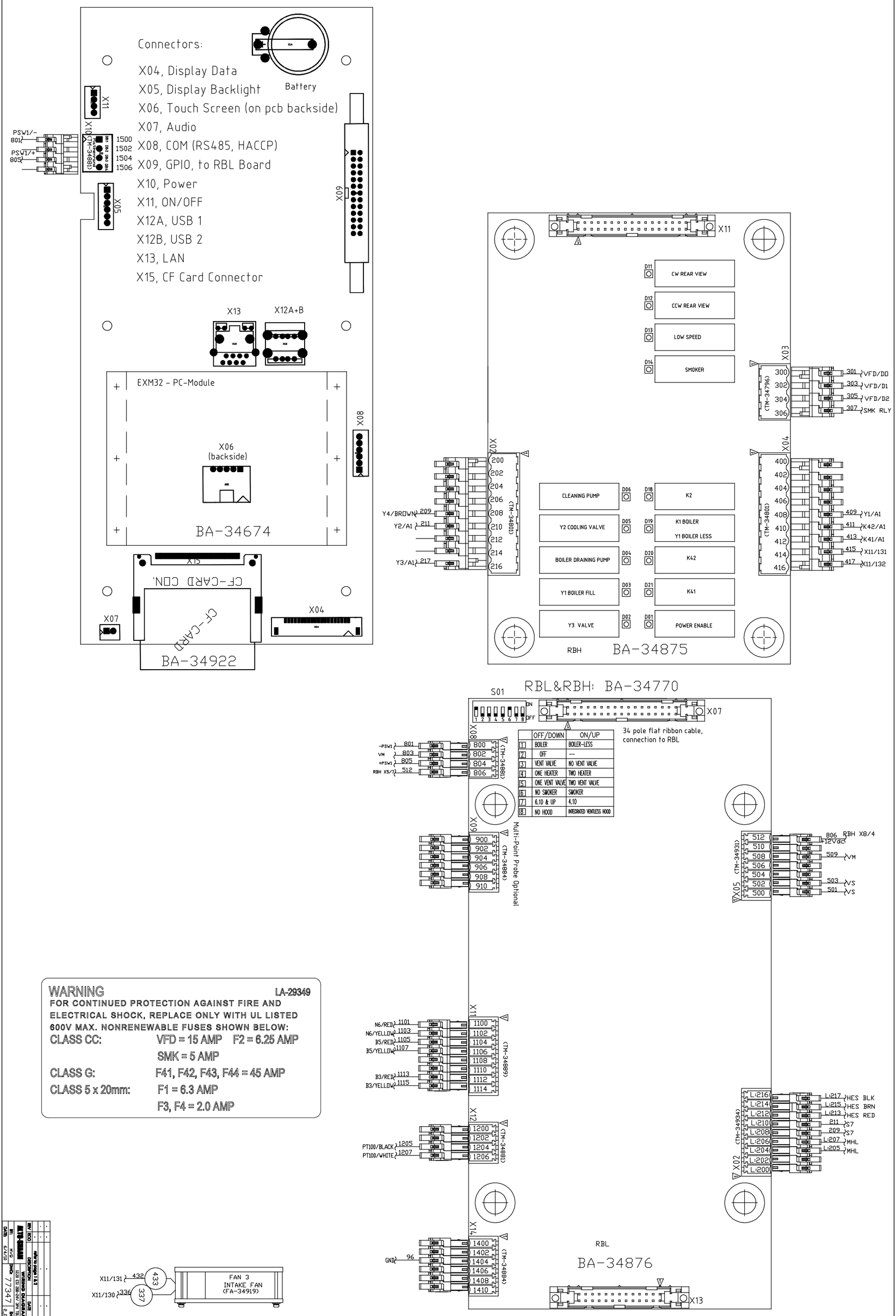
Y4
CLEANING PUMP
MO-34636
Green 94 GND
Blue 327 Y2 A2
Brown 208 X2/5 RBH

REFERENCE CUT SHEET
12.20:5011809
IF SMOKER ADD 520W-692W

	VOLTS	WATTS	AMPS
DESIGN	208	27.7KW	77.0
	240	36.6KW	88.3
UL	208-240V	27.7-36.6KW	77.0-88.3A

REV	ECO	DESCRIPTION	DATE	APP
11	###		03/17/14	MVQ
10	###		10/11/13	MVQ
9	###		09/27/12	MVQ

ALTO-SHAAM
WIRING DIAGRAM
1229 ESI 208-240V 3PH
BY: MVQ DWG# 77347 SHEET 1_OF_3
DATE: 6/4/10


Connectors:
X04, Display Data
X05, Display Backlight
X06, Touch Screen (on pcb backside)
X07, Audio
X08, COM (RS485, HACCP)
X09, GPIO, to RBL Board
X10, Power
X11, ON/OFF
X12A, USB 1
X12B, USB 2
X13, LAN
X15, CF Card Connector
Battery
PSW1/-
PSW1/+
EXM32 - PC-Module
X06
(backside)
BA-34674
CF-CARD CON.
CF-CARD
BA-34922
CW REAR VIEW
CCW REAR VIEW
LOW SPEED
SMOKER
CLEANING PUMP
Y2 COOLING VALVE
BOILER DRAINING PUMP
Y1 BOILER FILL
Y3 VALVE
K2
K1 BOILER
Y1 BOILER LESS
K42
K41
POWER ENABLE
RBH
BA-34875
RBL&RBH: BA-34770
S01
34 pole flat ribbon cable,
connection to RBL
OFF/DOWN
ON/UP
BOILER
BOILER-LESS
OFF

VENT VALVE
NO VENT VALVE
ONE HEATER
TWO HEATER
ONE VENT VALVE
TWO VENT VALVE
NO SMOKER
SMOKER
6.10 & UP
4.10
NO HOOD
INTEGRATED VENTLESS HOOD
Multi-Point Probe Optional
RBH X8/4
12Vdc
VM
VS
VS
HES BLK
HES BRN
HES RED
S7
S7
MHL
MHL
RBL
BA-34876
WARNING
LA-29349
FOR CONTINUED PROTECTION AGAINST FIRE AND ELECTRICAL SHOCK, REPLACE ONLY WITH UL LISTED 600V MAX. NONRENEWABLE FUSES SHOWN BELOW:
CLASS CC: VFD = 15 AMP F2 = 6.25 AMP
SMK = 5 AMP
CLASS G: F41, F42, F43, F44 = 45 AMP
CLASS 5 x 20mm: F1 = 6.3 AMP
F3, F4 = 2.0 AMP
FAN 3
INTAKE FAN
(FA-34919)

L1
L2
L3
392 390 395
57 17 37
SWK RE 15 A
VENT TIME 15 A
SWK RE
425 44 359
GREEN
86 87
LINE1
434 435
LINE2
340 341
K51
CN-34913 1 3 5
2 4 6
VFD BA-34676
339 301 303 305
MTR
SK1 430 350 SK1
2 EL-34554 SMOKER ELEMENTS
SMOKER OPTION
SK2 428 348 SK2
FUSE HOLDER FU-34771 FU-35680
393 6.3A F2 318
PSN 319
FUSE HOLDER FU-34311 FU-33452
490 6.3A F1 418 419
PSL 439
417
PSV1 BA-36144 12VDC
359 80 805
X10
DB1 DB2 DB3 DB4
Maintenance
SMOKER OPTION
RL-33483
RL-34634
RBL X2/4
345 346 8 5
307 335 9 4
306 349 351 3 1
X11/131
437
(TM-34801)
416 414 412 410 408 406 404 402 400 X04
(TM-34796)
306 304 302 300 X03
(TM-34801)
X02 200 202 204 206 208 210 212 214 216
426 415
427 10A F3
420 CAVITY LAMP
320 10A F4
322 323
N7 311
313 312
SAFETY THERMOSTAT
308
K41 K42
Y1 VA-34045
310 324
K51 436
SMK RLY
353 352 334
MD-34636 CLEAN PUMP
328 329
Y2 Y3 VA-34045
Y2 Y3 VA-34300
327 326
K5 A1 FE41/A1 FE41/2 FE41/3
2 4 6
K41
1 3 5
E41/1 E41/2 E41/3 E41
E41/4 E41/5 E41/6
2 PIECE CONVECTION HEATING ELEMENT 12.2Ω 208V-13400W, 240V-17850W EACH PIECE (EL-3853)
K5 A1 FE42/A1 FE42/2 FE42/3
K42
E42/1 E42/2 E42/3 E42
E42/4 E42/5 E42/6
2 PIECE CONVECTION HEATING ELEMENT 10.1Ω 208V-10800W, 240V-14400W EACH PIECE (EL-3979)
X02 (TM-34934)
L200 L202 L204 L206 L208 L210 L212 L214 L216
DOOR SAFETY SWITCH
HL RED
HL BROWN
HL BLACK
X05 (TM-34931)
500 502 504 506 508 510 512
VENT MOTOR SW.
120DC MOTOR
X08 (TM-34881)
800 802 804 806
Multi-Point Probe Optional
X09 (TM-34884)
900 902 904 906 908 910
X11 (TM-34889)
1100 1102 1104 1106 1108 1110 1112 1114
N6/RED 1101
N6/YELLOW 1103
BS/RED 1105
BS/YELLOW 1107
B3/RED 1113
B3/YELLOW 1115
X12 (TM-34881)
1200 1202 1204 1206
PT100/BLACK 1205
PT100/WHITE 1207
X14 (TM-34884)
1400 1402 1404 1406 1408 1410
96
B11
PROBE,PROBE,12.2Ω RECEPTACLE PK-34704
WHITE
BLACK
RBL X12/5 (103)
RBL X12/4 (102)
RBL X11/2 (101)
RBL X11/1 (100)
YELLOW
RED
N6
DVEN TEMP PROBE (PR-33724)

S01:OFF - ON
6 :No Smoker - Smoker
1 :Boiler - Boilerless
NOTE: DIP SWITCH SETTING

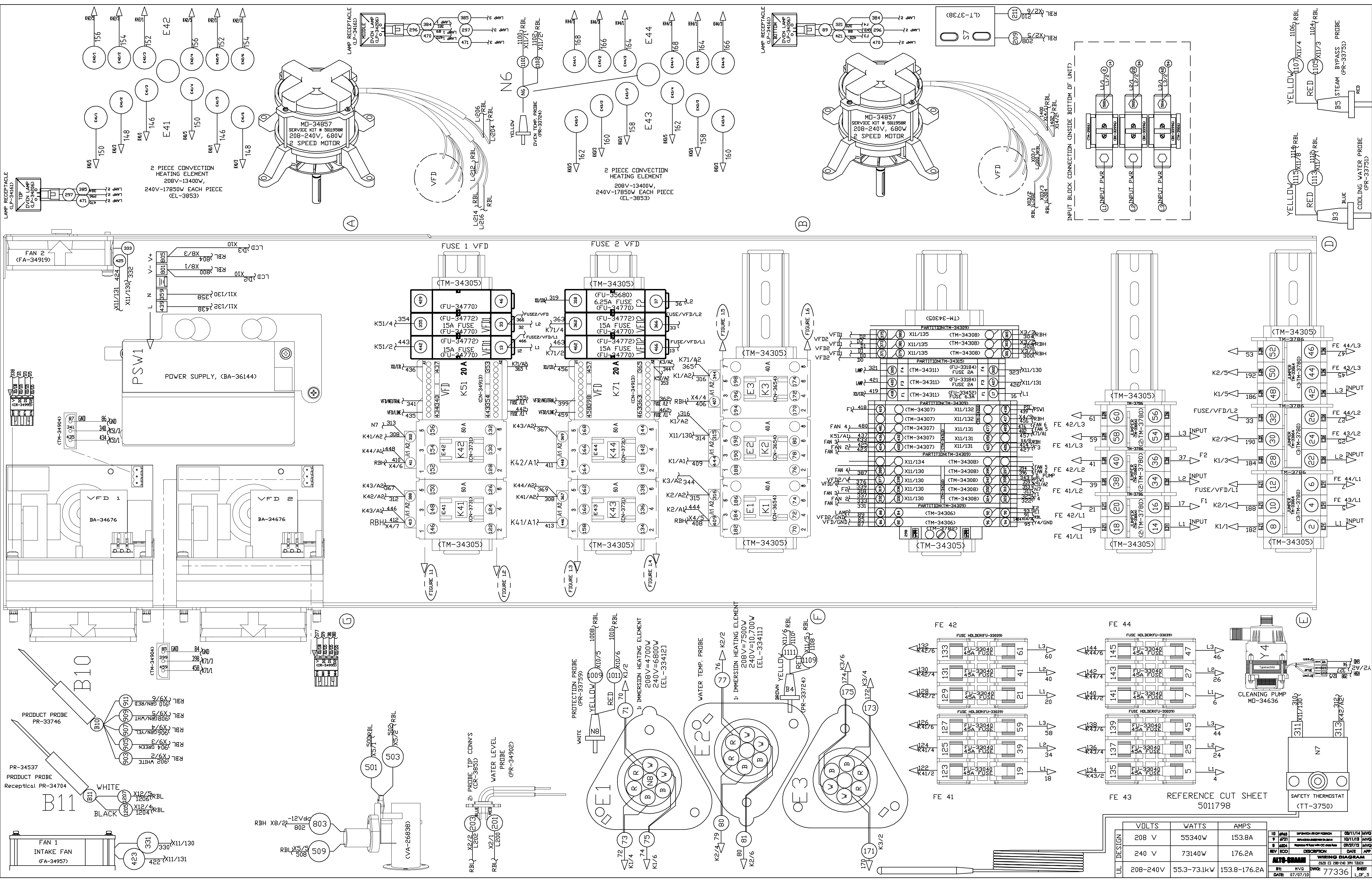
X11/130: BANK OF 3 BLUE SPRING TERMINALS
B1: BLUE UPPER WATER LEVEL STEAM TANK
B2: RED LOWER WATER LEVEL STEAM TANK
B3: BLUE PROBE CONDENSATION TANK
B5: RED PROBE CONDENSATION TANK
PSV: 12Vdc POWER SUPPLY
S7: DOOR SWITCH
N7: SAFETY HIGH LIMIT
K41 & K42: CONTROL CONVECTION
DP1: BOILDER DRAIN PUMP
E1, E2, E3: H2O ELEMENT
E4: CONVECTION ELEMENT
SMK: RLY, SMOKER RELAY
SMK EL: SMOKER ELEMENT
K51 & K52: MOTOR DRIVE CONTACTOR

VM: VENT MOTOR
VS: VENT SWITCH
VFD: FUSE CONTROL VFD
FUSE VFD: FUSE CONTROL VFD
FUSE SMK: FUSE CONTROL SMOKER
VFD: VARIABLE FREQUENCY DRIVE
DB3& DB4: DISPLAY BOARD + DC INPUT
DB1& DB2: DISPLAY BOARD - DC INPUT

refer to page 1 & 2

REV	ECO	DESCRIPTION	DATE	APP

ALTO-SHAAM
WIRING DIAGRAM
1220 ES1 208-240V 3PH TOUCH
BY: MVQ
DATE: 6/4/10
DWG: 77347
SHEET 3_OF_3

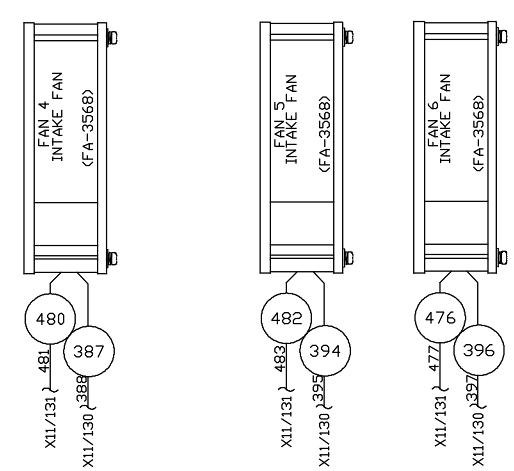


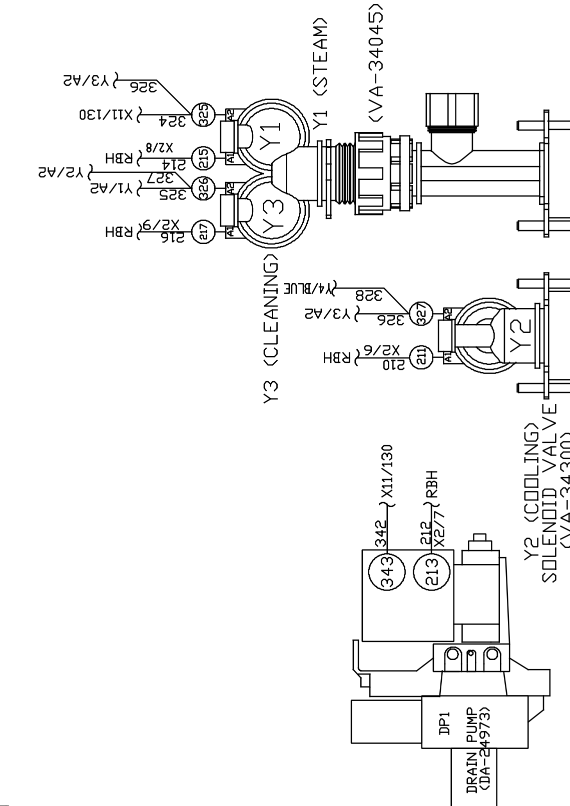
	VOLTS	WATTS	AMPS
DESIGN	208 V	55340W	153.8A
	240 V	73140W	176.2A
UL	208-240V	55.3-73.1kW	153.8-176.2A

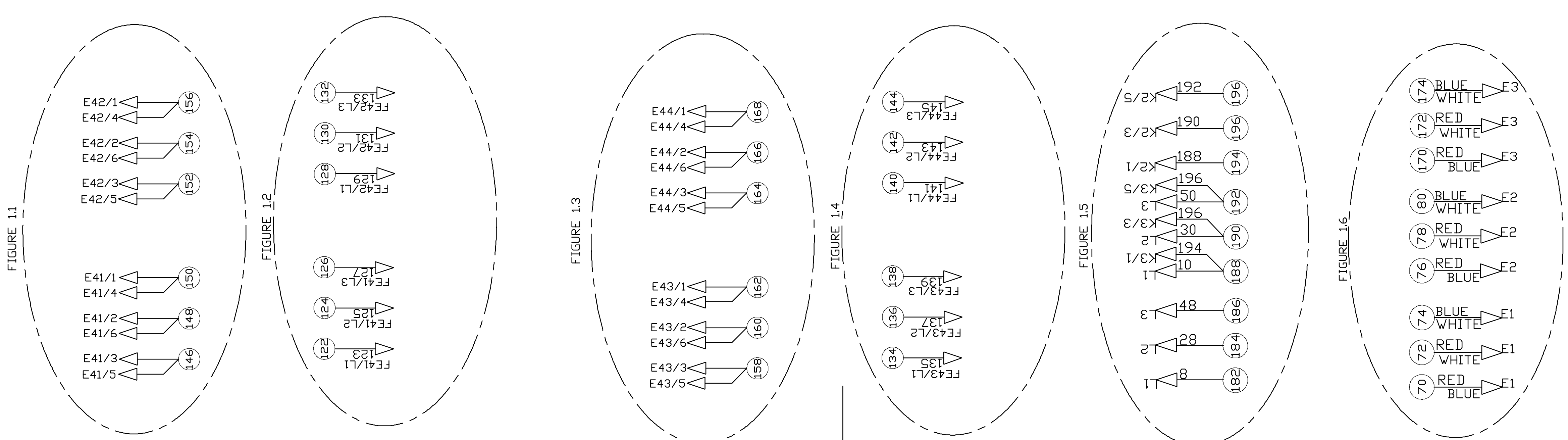
REV	ECO	DESCRIPTION	DATE	APP
10	6965	DIP SWITCH #2 OFF POSITION	03/11/14	MVQ
9	6721	REPLACE BA-36655 WITH BA-36144	10/11/13	MVQ
8	6504	Replace F2 fuse with CC class fuse	09/27/12	MVQ

ALTO-SHAAM
WIRING DIAGRAM
2020 ES 208-240 3PH TOUCH

BY: MVQ DWG: 77336 SHEET 1_OF_5
DATE: 07/07/10







WARNING LA-29349

FOR CONTINUED PROTECTION AGAINST FIRE AND ELECTRICAL SHOCK, REPLACE ONLY WITH UL LISTED 600V MAX. NONRENEWABLE FUSES SHOWN BELOW:

CLASS CC: VFD = 15 AMP F2 = 6.25 AMP

SMK = 5 AMP

CLASS G: F41, F42, F43, F44 = 45 AMP

CLASS 5 x 20mm: F1 = 6.3 AMP

F3, F4 = 2.0 AMP

REV	ECO	DESCRIPTION	DATE	APP
-	-	-	-	-
-	-	-	-	-
-	-	REFER TO PAGE 1	-	-

ALTO-SHAAM

WIRING DIAGRAM

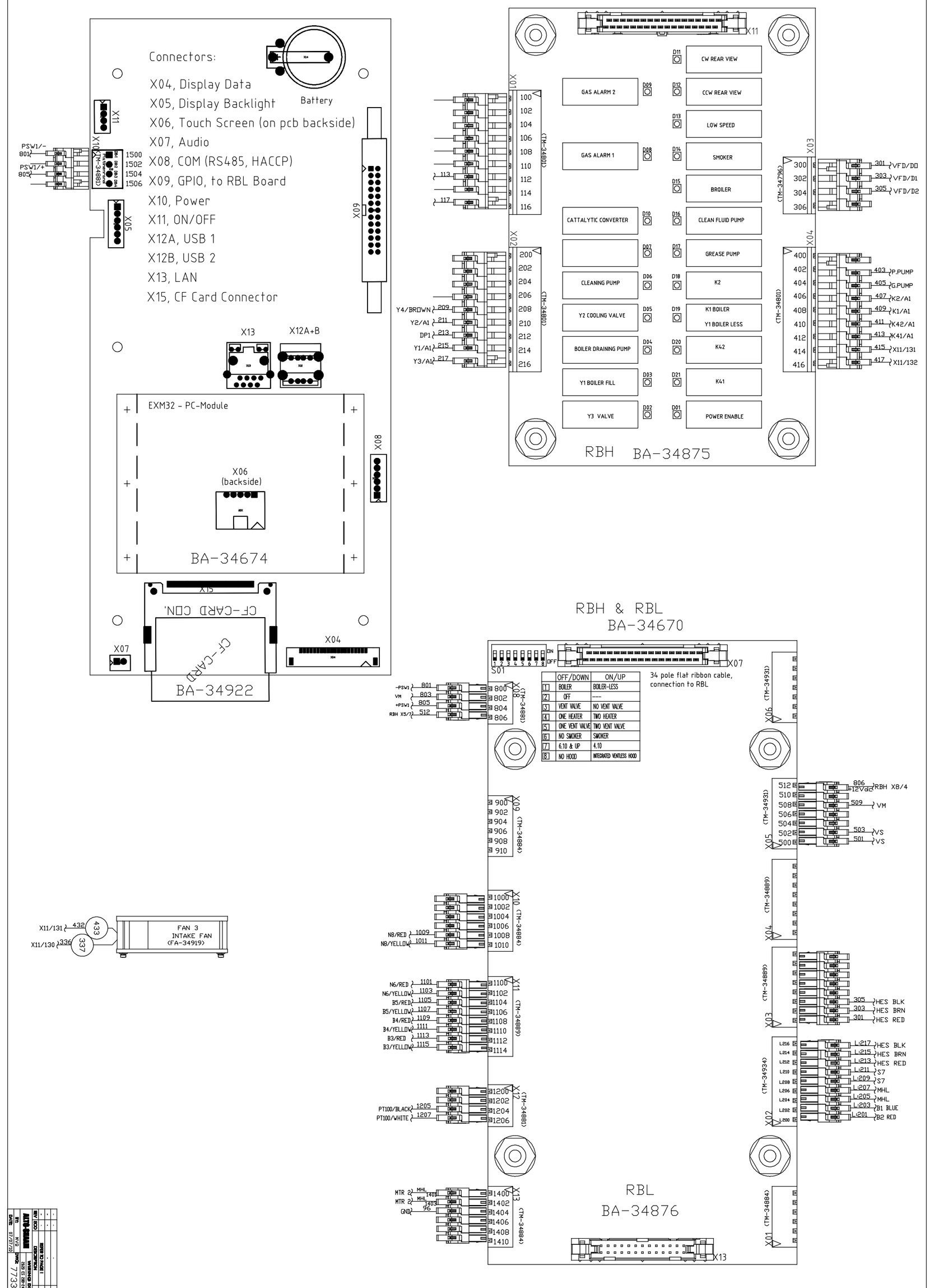
20.20 ES 208-240 3PH TOUCH

BY: MVQ

DATE: 07/07/10

DWG: 77336

SHEET 2_OF_5



	OFF/DOWN	ON/UP
1	BOILER	BOILER-LESS
2	OFF	----
3	VENT VALVE	NO VENT VALVE
4	ONE HEATER	TWO HEATER
5	ONE VENT VALVE	TWO VENT VALVE
6	NO SMOKER	SMOKER
7	6.10 & UP	4.10
8	NO HOOD	INTEGRATED VENTLESS HOOD

REV	ECO	DESCRIPTION	DATE	APP
-	-	-	-	-
-	-	-	-	-

WIRING DIAGRAM
SIZE: E SCALE: NONE
DRAWING NO. 77336
REV. 3
SHT. 5
DATE: 9/07/20

L1
L2
L3
12
32
46 FU-34784
FU-34770
2 FU-34772
VFD / FUSE
VFD / FUSE
VFD / FUSE
429
442
355
CN-34913
K51
366
466
462
362
FU-34770
2 FU-34772
BA-34676
VFD
339
370
372
374
GREEN
86
87
LINE
434
435
NEUTRAL
340
341
MTR1
MTR2
376
378
380
382
K71
FUSE HOLDER FU-34770
FU-35680
37
318
319
PSN
6.25A
F2
FUSE HOLDER FU-34311
FU-33452
17
418
419
6.3A
F1
417
PSL
PSW1
BA-35144
12VDC
359
381
X10
DB1 DB2 DB3 DB4
Flatinersand
338
371
373
375
377
383
381
379
301
303
305
456
436
X04
X03
X02
X01
(TM-34801)
(TM-34796)
(TM-34801)
(TM-34801)
416 414 412 410 408 406 404 402 400
306 304 302 300
200 202 204 206 208 210 212 214 216
100 102 104 106 108 110 112 114 116
415
426
427
420
CAVITY LAMP
CAVITY LAMP
K42
K41
K1
K2
K44
K45
K3
K43
K71
K51
457
437
365
309
344
315
88
89
320
322
323
311
N7
SAFETY THERMOSTAT
310
314
MD-34636
CLEAN PUMP
Y4
328
Y2
VA-34045
Y3
325
Y1
VA-34300
Y5
327
PUMP
(DA-24273)
DP1
342
324
X01 (TM-34884)
X02 (TM-34934)
X03 (TM-34889)
X05 (TM-34931)
X06 (TM-34931)
X08 (TM-34881)
X09 (TM-34884)
X10 (TM-34884)
X11 (TM-34889)
X12 (TM-34881)
X14 (TM-34884)
100 102 104 106 108 110
L200 L202 L204 L206 L208 L210 L212 L214 L216
300 302 304 306 308 310 312 314
500 502 504 506 508 510 512
600 602 604 606 608 610 612
800 802 804 806
900 902 904 906 908 910
1000 1002 1004 1006 1008 1010
1100 1102 1104 1106 1108 1110 1112 1114
1200 1202 1204 1206
1400 1402 1404 1406 1408 1410
DOOR SAFETY SWITCH
HL RED
HL BROWN
HL BLACK
HL RED
HL BROWN
HL BLACK
LIGHT MOTOR SW
120C MOTOR
M
PROBE TIP CONN'S
(CR-3651)
2
BLUE
RED
WATER LEVEL
PROBE
(PR-34902)
NO/RED 1009
NO/YELLOW 1011
N6/RED 1101
N6/YELLOW 1103
B5/RED 1105
B5/YELLOW 1107
B4/RED 1109
B4/YELLOW 1111
B3/RED 1113
B3/YELLOW 1115
PT100/BLACK 1205
PT100/WHITE 1207
GND
96
RBL BA-34876
Multi-Point Probe Optional
Connectors:
X04, Display Data
X05, Display Backlight
X06, Touch Screen (on pcb backside)
X07, Audio
X08, COM (RS485, HACCP)
X09, GPIO, to RBL Board
X10, Power
X11, ON/OFF
X12A, USB 1
X12B, USB 2
X13, LAN
X15, CF Card Connector
Battery
60X
80X
X12A+B
X13
X15
X04
X05
X06 (backside)
X07
X08
X09
X10
X11
X12
EXM32 - PC-Module
BA-34674
CF-CARD
CDC RBL-CF
Receptical PR-34704
PRODUCT PROBE
PR-34537
B11
WHITE
BLACK
RBL X12/5
RBL X12/4
X1206
X1204
1102 RBL X11/2
1100 RBL X11/1
1103
1101
YELLOW
RED
N6
OVEN TEMP. PROBE
(PR-33724)
REFER TO PAGE 1
REV ECO DESCRIPTION DATE APP
ALTO-SHAAM
WIRING DIAGRAM
2020 ES 202-240 3PH TOUCH
BY: MVQ
DWG: 77336
SHEET 4_OF_5
DATE: 07/07/10

X11/130: BANK OF 3 BLUE SPRING TERMINALS
B1: BLUE UPPER WATER LEVEL STEAM TANK
B2: BRED LOWER WATER LEVEL STEAM TANK
PSW: 12Vdc POWER SUPPLY
S7: DOOR SWITCH
N7: SAFETY HIGH LIMIT
K41 & K42: CONTROL CONVECTION
DP1: BOILDER DRAIN PUMP
E1, E2, E3: H2O ELEMENT
E4: CONVECTION ELEMENT
SMK RLY: SMOKER RELAY
SMK EL: SMOKER ELEMENT
K51 & K52: MOTOR DRIVE CONTACTOR

VM: VENT MOTOR
VS: VENT SWITCH
VFD: VARIABLE FREQUENCY DRIVE
DB3& DB4: DISPLAY BOARD + DC INPUT
DB1& DB2: DISPLAY BOARD - DC INPUT

REV	ECO	DESCRIPTION	DATE	APP
		REFER TO PAGE 1		

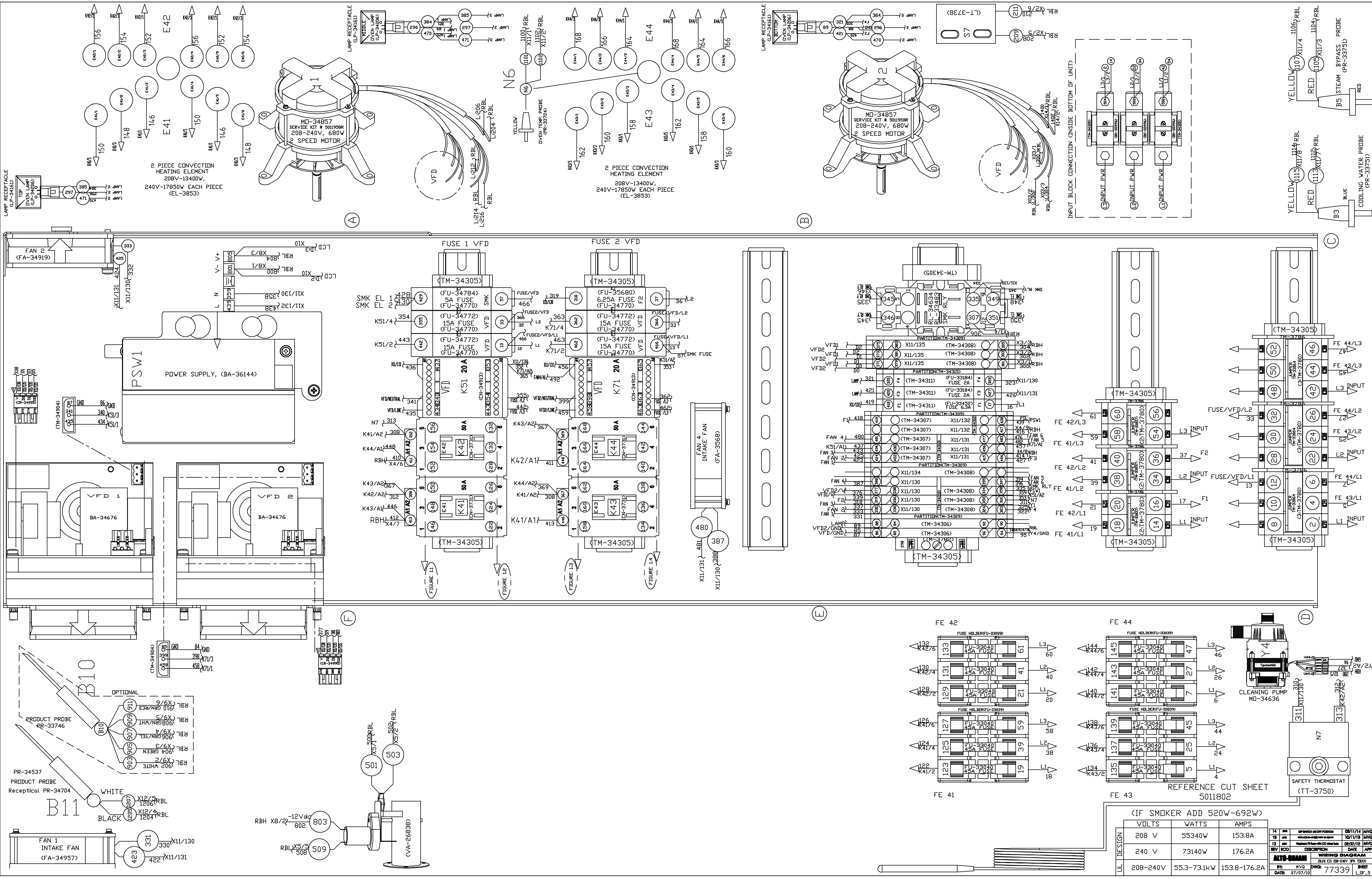
WIRING DIAGRAM
2020 ES 208-240 3PH TOUCH

ALTO-SHAAM

BY: MVQ
DATE: 07/07/10

DWG: 77336

SHEET 5_OF_5



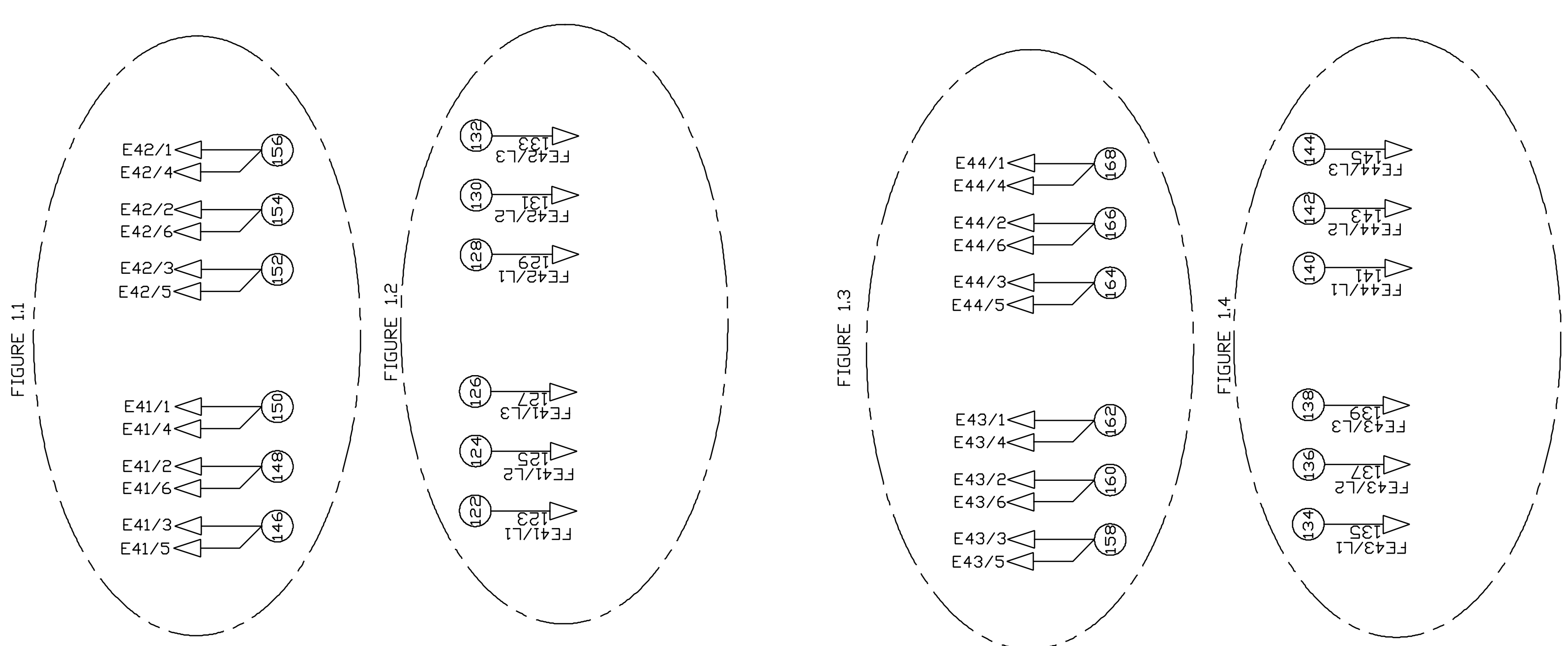
(IF SMOKER ADD 520W-692W)

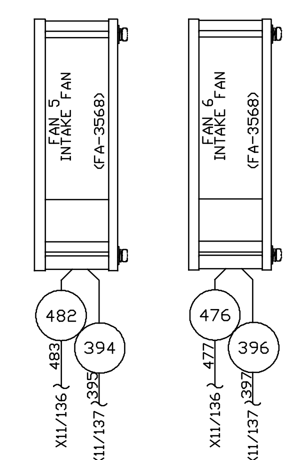
	VOLTS	WATTS	AMPS
DESIGN	208 V	55340W	153.8A
	240 V	73140W	176.2A
UL	208-240V	55.3-73.1kW	153.8-176.2A

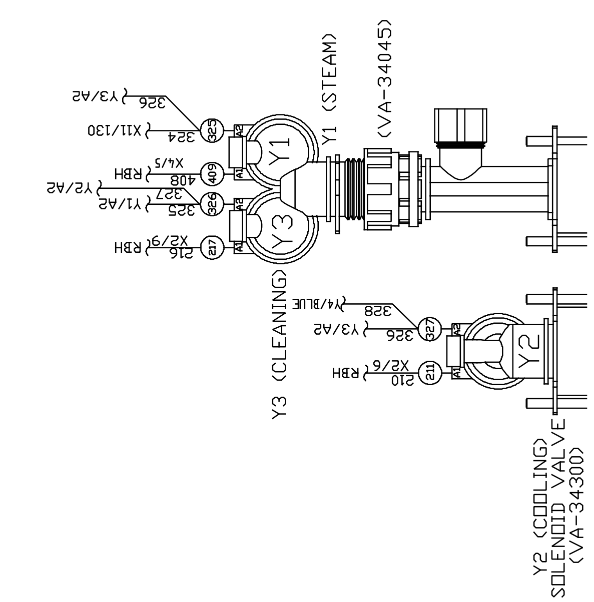
REV	ECO	DESCRIPTION	DATE	APP
14		DIP SWITCH #2 OFF POSITION	03/11/14	MVQ
13		REPLACE BA-36305 WITH BA-36144	10/11/13	MVQ
12		Replace F3 fuse with CC class fuse	09/27/12	MVQ

ALTO-SHAAM — WIRING DIAGRAM — 20.20 ESI 208-240V 3PH TOUCH

BY: MVQ DATE: 07/07/10 DWG: 77339 SHEET 1_OF_5

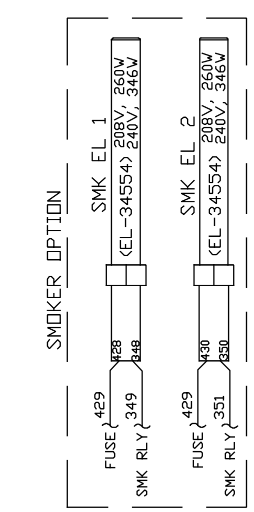






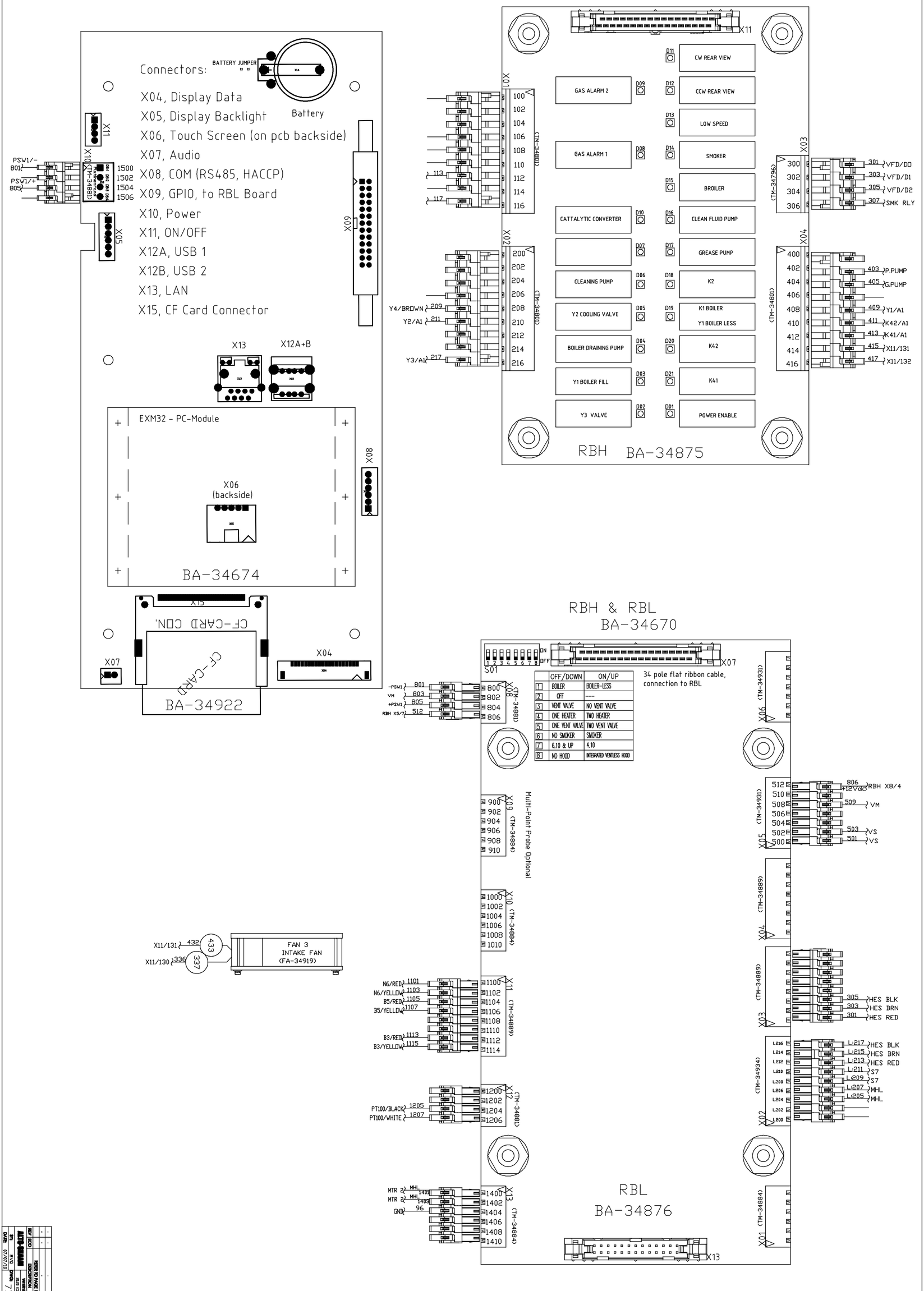
WARNING LA-34735
FOR CONTINUED PROTECTION AGAINST FIRE AND ELECTRICAL SHOCK, REPLACE ONLY WITH UL LISTED 600V MAX. NONRENEWABLE FUSES SHOWN BELOW:

CLASS 5x20mm: F1 = 6.3 AMPS. F3, F4 = 2.0 AMPS.
CLASS CC: F10, F11 = 15 AMPS; F2 = 6.25 AMPS
CLASS G: F14, F15, F16, F17 = 45 AMPS.



REV	ECO	DESCRIPTION	DATE	APP
-	-	-	-	-
-	-	-	-	-
		REFER TO PAGE 1		-

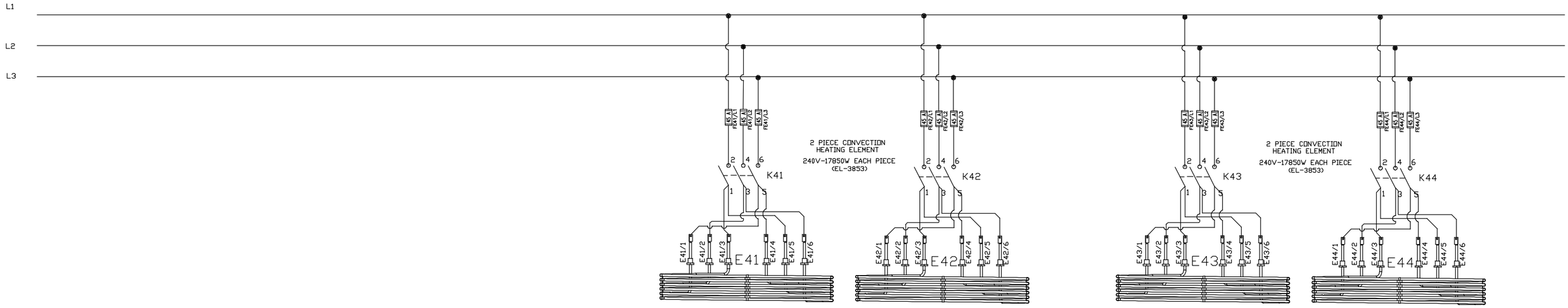
ALTO-SHAAM	WIRING DIAGRAM 20.20 ESi 208-240V 3PH TOUCH
BY: MVQ	DWG: 77339
DATE: 07/07/10	SHEET 2 OF 5



	OFF/DOWN	ON/UP
1	BOILER	BOILER-LESS
2	OFF	----
3	VENT VALVE	NO VENT VALVE
4	ONE HEATER	TWO HEATER
5	ONE VENT VALVE	TWO VENT VALVE
6	NO SMOKER	SMOKER
7	6.10 & UP	4.10
8	NO HOOD	INTEGRATED VENTLESS HOOD

REV	ECO	DESCRIPTION	DATE
APP		WIRING DIAGRAM	
MFG	77339	583 ED 09267 W 10	
DATE	9/07/01		SHT 5

L1
L2
L3
12
32
FU-34784
FU-34770
FU-34772
429
442
355
CN-34913
K51
366
466
462
362
2i FU-34772
LINE
434
435
NEUTRAL
340
341
GREEN
86
87
BA-34676
VFD
339
370
372
374
MTR1
MTR2
376
378
380
382
K71
SMOKER OPTION
RL-33469
RL-34634
SMK RLY
SK1/2
430
350
SK1/1
2i EL-34554
SMOKER
ELEMENTS
SK2/2
428
348
SK2/1
SMOKER OPTION
RBH X3/4
306
334
X11/13
338
371
373
375
377
383
381
379
301
303
305
FUSE HOLDER FU-34771
FU-35680
37
318
6.25A
F2
PSN
319
353
FUSE HOLDER FU-34311
FU-33452
17
418
6.3A
F1
419
417
PSL
432
PS-W14
14 WATT
12 VDC
85
86
X10
DB1 DB2 DB3 DB4
Ratiometric
456
436
X03
(TM-34796)
X04
(TM-34801)
X02
(TM-34801)
X01
(TM-34801)
416
414
412
410
408
406
404
402
400
306
304
302
300
200
202
204
206
208
210
212
214
216
100
102
104
106
108
110
112
114
116
415
426
427
428
K41
K42
K43
K44
Y1
K1
SMK RLY
CLEAN PUMP
MD-34636
Y4
Y2
Y3
VA-34045
VA-34300
CAVITY LAMP
SAFETY THERMOSTAT
N7
88
89
320
324
310
323
352
334
365
367
368
325
326
327
328
Connectors:
X04, Display Data
X05, Display Backlight
X06, Touch Screen (on pcb backside)
X07, Audio
X08, COM (RS485, HACCP)
X09, GPIO, to RBL Board
X10, Power
X11, ON/OFF
X12A, USB 1
X12B, USB 2
X13, LAN
X15, CF Card Connector
Battery
60X
80X
X28+8
X13
X04
X06
(backside)
BA-34674
EXM32 - PC-Module
CF-CARD
X07
X11
X05
X15
1102
X11/2
RBL
1100
X11/1
RBL
1103
1101
YELLOW
RED
N6
OVEN TEMP. PROBE
(PR-33724)
B11
Receptical PR-34704
PRODUCT PROBE
PR-34537
WHITE
BLACK
B11
(20)
(20)
RBL X12/3
RBL X12/4
1206
1204
X01
(TM-34884)
X02
(TM-34934)
X03
(TM-34889)
X05
(TM-34931)
X06
(TM-34931)
X08
(TM-34881)
X09
(TM-34884)
X10
(TM-34884)
X11
(TM-34889)
X12
(TM-34881)
X14
(TM-34884)
100
102
104
106
108
110
L200
L202
L204
L206
L208
L210
L212
L214
L216
300
302
304
306
308
310
312
314
500
502
504
506
508
510
512
600
602
604
606
608
610
612
800
802
804
806
900
902
904
906
908
910
1000
1002
1004
1006
1008
1010
1100
1102
1104
1106
1108
1110
1112
1114
1200
1202
1204
1206
1400
1402
1404
1406
1408
1410
DOOR SAFETY SWITCH
HL RED
HL BROWN
HL BLACK
VENT MOTOR SW
220C MOTOR
VM
1101
1103
1105
1107
1113
1115
1205
1207
96
N6/RED
N6/YELLOW
B5/RED
B5/YELLOW
B3/RED
B3/YELLOW
PT100/BLACK
PT100/WHITE
GND
RBL BA-34876
Multi-Point Probe Optional
REFER TO PAGE 1
REV ECO DESCRIPTION DATE APP
WIRING DIAGRAM
ALTO-SHAAM
2828 CSI 208-240V 3PH TOUCH
BY: MVQ
DATE: 07/07/10
DWG: 77339
SHEET 4_OF_5

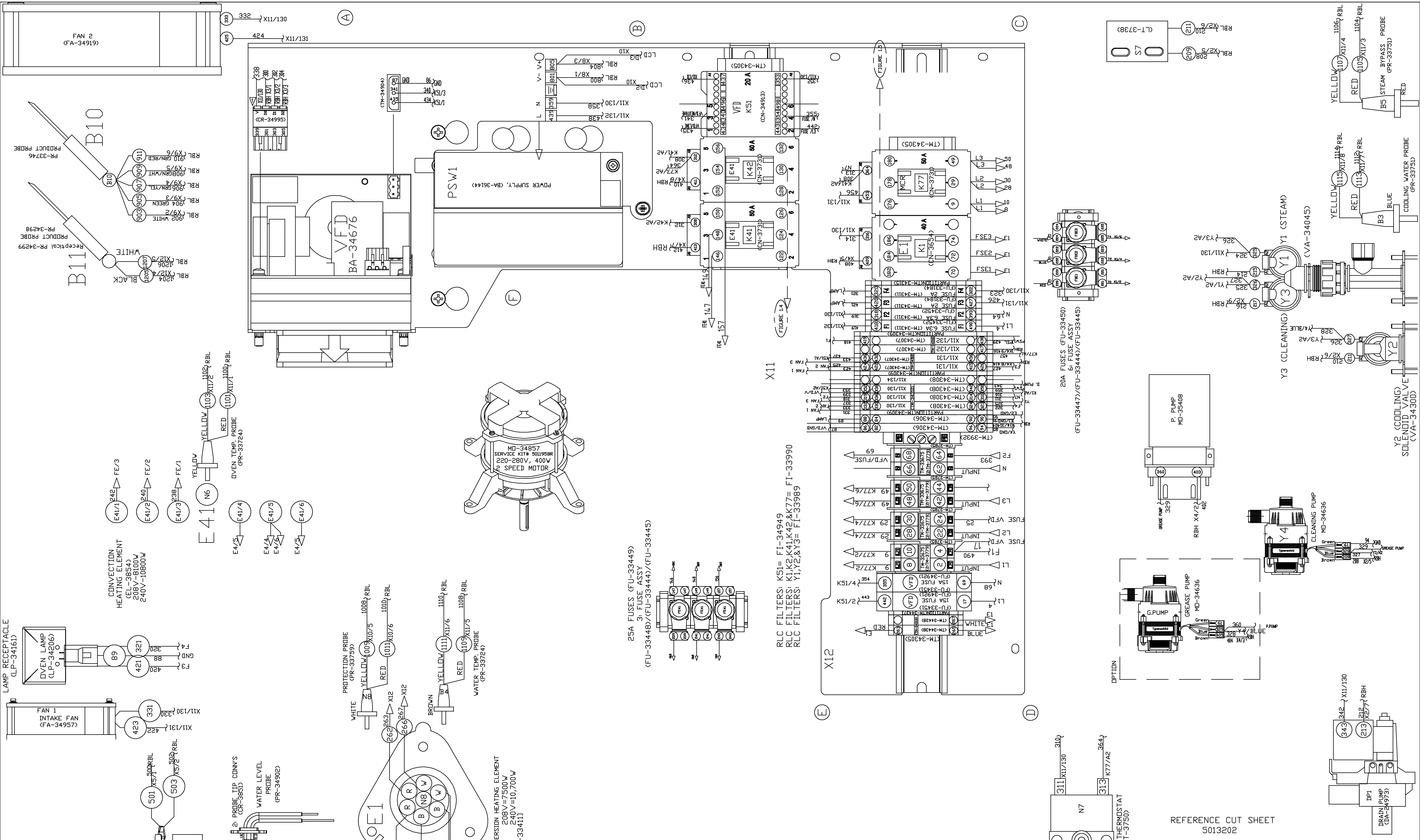


X11/130: BANK OF 3 BLUE SPRING TERMINALS
B1: BLUE UPPER WATER LEVEL STEAM TANK
B2: RED LOWER WATER LEVEL STEAM TANK
B3: BLUE PROBE CONDENSATION TANK
B5: RED PROBE CONDENSATION TANK
PSW: 12Vdc POWER SUPPLY
S7: DOOR SWITCH
N7: SAFETY HIGH LIMIT
K41 & K42: CONTROL CONVECTION
DP1: BOILER DRAIN PUMP
E1, E2, E3: H2O ELEMENT
E4: CONVECTION ELEMENT
SMK RLY: SMOKER RELAY
SMK EL: SMOKER ELEMENT
K51 & K52: MOTOR DRIVE CONTACTOR

VM: VENT MOTOR
VS: VENT SWITCH
FUSE VFD: FUSE CONTROL VFD
FUSE SMK: FUSE CONTROL SMOKER
VFD: VARIABLE FREQUENCY DRIVE
DB3& DB4: DISPLAY BOARD + DC INPUT
DB1& DB2: DISPLAY BOARD - DC INPUT

-	-	-	-	-
-	-	-	-	-
		REFER TO PAGE 1		
REV	ECO	DESCRIPTION	DATE	APP

ALTO-SHAAM — WIRING DIAGRAM
2SDS (S) 208-240V 3PH 1DOH
BY: MVD DATE: 07/07/10 DWG#: 77339 SHEET 5_OF_5

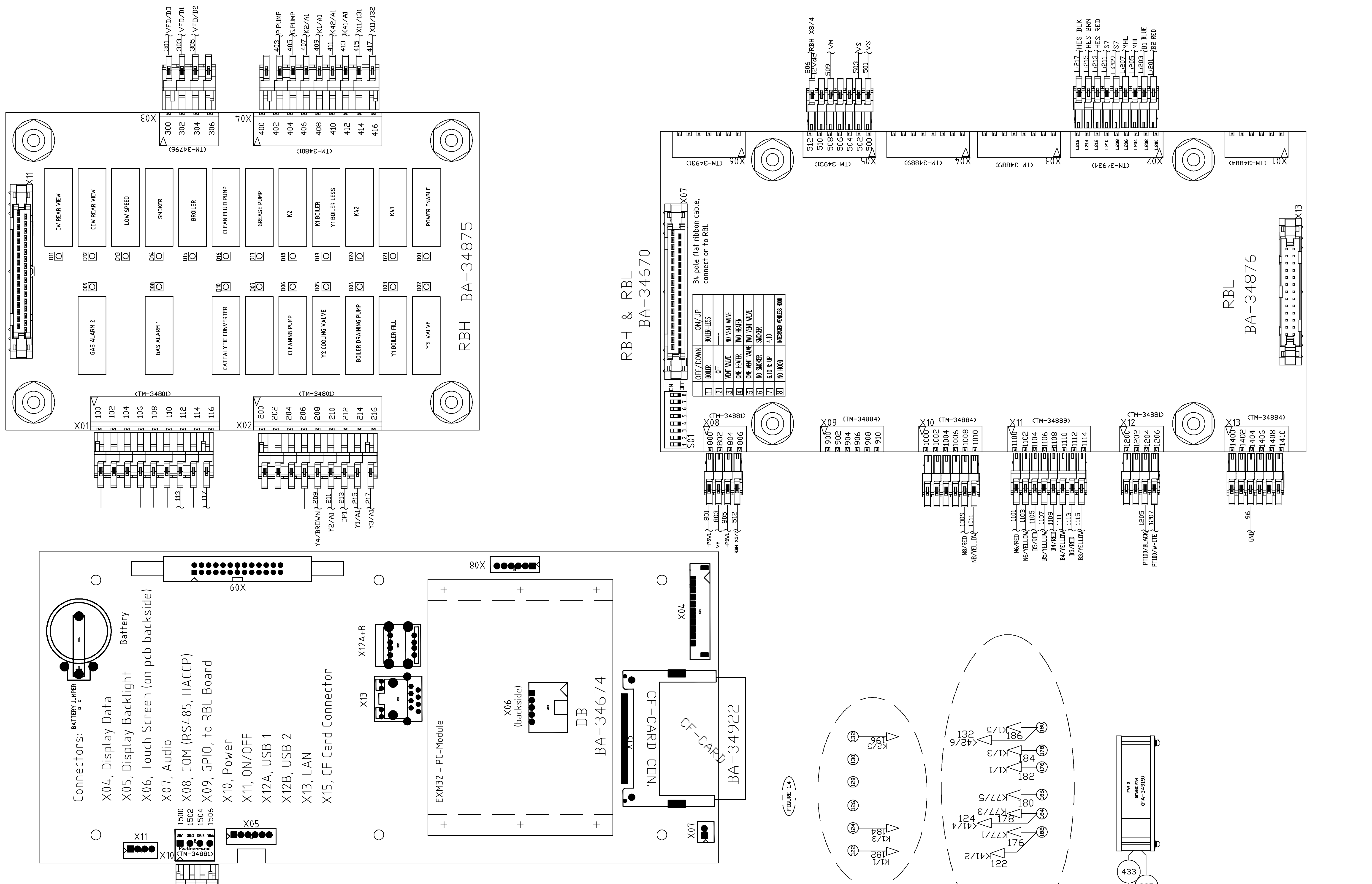


	VOLTS	WATTS	AMPS
DESIGN	380V	9000 W	14.0 A
DESIGN	415 V	11700 W	16.3 A
UL	380-415V	9.0-11.7KW	14.0-16.3A

REV	ECO	DESCRIPTION	DATE	APP
8	6965	DIP SWITCH #2 OFF POSITION	03/11/14	MVQ
7	6721		10/11/13	MVQ
6	6443	[illegible]	09/04/12	MVQ

ALTO-SHAAM — WIRING DIAGRAM — 6.10 ES 380-415V 3PH TOUCH

BY: MVQ DATE: 11/30/10 DWG: 77386 SHEET 1_OF_4



REV	ECO	DESCRIPTION	DATE	APP
		REFER TO SHEET 1		

ALTO-SHAAM		WIRING DIAGRAM 6.10 ES 380-415V 3PH TOUCH	
BY:	MVQ	DWG: 77386	SHEET 2_OF_4
DATE:	11/30/10		

L1
L2
L3
N

4
24
65
64
442
355
3: FU-34921
3: FU-33451
86
87
GREEN
BA-34676
VFD
339
301
303
305
MTR
LINE1
434
435
LINE2
340
341
K51
CN-34913
1
3
5
2
4
6

X10
DB1 DB2 DB3 DB4
Thermistors
393
318
319
PSN
F2
6.3A
2: FUSE HOLDER FU-34311
2: FU-33452
490
418
419
F1
417
439
PSV1
BA-36144
12VDC
359
805

437
318
313
N7
SAFETY THERMOSTAT
K77
464
311
456
415
426
312
K41
K42
K1
K51
436
427
F3
420
12A
313
88
89
CAVITY LAMP
320
F4
325
314
323
352
334
342
324
MD-34636
GREASE PUMP
MD-29776
P.PUMP
PUMP
(DA-24973)
DP1
Y4
Y2
Y1
Y3
VA-34045
VA-34300
VA-34300
326
328
325
327
329

X01 (TM-34884)
100 102 104 106 108 110
X02 (TM-34934)
L200 L202 L204 L206 L208 L210 L212 L214 L216
X05 (TM-34931)
500 502 504 506 508 510 512
X06 (TM-34931)
600 602 604 606 608 610 612
X08 (TM-34881)
800 802 804 806
X09 (TM-34884)
900 902 904 906 908 910
X10 (TM-34884)
1000 1002 1004 1006 1008 1010
X11 (TM-34889)
1100 1102 1104 1106 1108 1110 1112 1114
X12 (TM-34881)
1200 1202 1204 1206
X14 (TM-34884)
1400 1402 1404 406 408 1410
X03 (TM-34796)
306 304 302 300
X04 (TM-34801)
416 414 412 410 408 406 404 402 400
X02 (TM-34801)
200 202 204 206 208 210 212 214 216
X01 (TM-34801)
100 102 104 106 108 110 112 114 116

DOOR SAFETY SWITCH
HL RED
HL BROWN
HL BLACK
VENT MOTOR SW
12DC MOTOR
2: PROBE TIP CONN'S (CR-38511)
WATER LEVEL PROBE (PR-34902)
BLUE
RED

RBL BA-34876
Multi-Point Probe Optional

B11
Receptical PR-34299
PRODUCT PROBE PR-34298
WHITE
BLACK
RBL X12/5 1206
RBL X12/4 1204

PROTECTION PROBE (PR-33759)
1008 RBL
1010 RBL
YELLOW X10/5
RED X10/6
N8
B2

WATER TEMP. PROBE (PR-33724)
1110 RBL
1108 RBL
YELLOW X11/6
RED X11/5
B4

OVEN TEMP PROBE (PR-33724)
1102 RBL
1100 RBL
YELLOW X11/2
RED X11/1
N6

YELLOW 1106 RBL X11/4
RED 1104 RBL X11/3
B5 STEAM BYPASS PROBE (PR-33751)

YELLOW 1116 RBL X11/8
RED 1112 RBL X11/7
B3 COOLING WATER PROBE (PR-33751)

X11/130: BANK OF 3 BLUE SPRING TERMINALS
B1: BLUE UPPER WATER LEVEL STEAM TANK
B2: RED LOWER WATER LEVEL STEAM TANK
B3: BLUE PROBE CONDENSATION TANK
B5: RED PROBE CONDENSATION TANK
PSV: 12Vdc POWER SUPPLY
S7: DOOR SWITCH
N7: SAFETY HIGH LIMIT
K41 & K42: CONTROL CONVECTION
DP1: BOILDER DRAIN PUMP
E1, E2, E3: H2O ELEMENT
E4: CONVECTION ELEMENT
SMK RLY: SMOKER RELAY
SMK EL: SMOKER ELEMENT
K51 & K52: MOTOR DRIVE CONTACTOR

RLC FILTERS: Y1,Y2,&Y3= FI-33989
RLC FILTERS: K51,& K71= FI-34949
RLC FILTERS: K1,K2,K3,K41,K42,&K77= FI-33990
VM: VENT MOTOR
VS: VENT SWITCH
FUSE VFD: FUSE CONTROL VFD
FUSE SMK: FUSE CONTROL SMOKER
VFD: VARIABLE FREQUENCY DRIVE
DB3& DB4: DISPLAY BOARD + DC INPUT
DB1& DB2: DISPLAY BOARD - DC INPUT

N8/RED 1009
N8/YELLOW 1011
N6/RED 1101
N6/YELLOW 1103
B5/RED 1105
B5/YELLOW 1107
B4/RED 1109
B4/YELLOW 1111
B3/RED 1113
B3/YELLOW 1115
PT100/BLACK 1205
PT100/WHITE 1207
96
GND

REV	ECO	DESCRIPTION	DATE	APP
		REFER TO SHEET 1		

ALTO-SHAAM
WIRING DIAGRAM
610 ES 380-415V 3PH TOUCH

BY:	MVQ	DWG:	77386	SHEET
DATE:	11/30/10			3_OF_4

L1

L2

L3

3: CN-3654
30A CONTACTOR

1 3 5
K1
2 4 6

FSE1 FSE2 FSE3

RED E1

BLUE E1

WHITE E1

2 4 6
K77
1 3 5

2 4 6
K41
1 3 5

2 4 6
K42
1 3 5

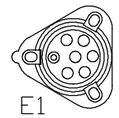
FE41 FE41 FE41

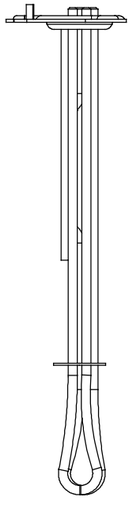
E41/1 E41/2 E41/3 E41 E41/4 E41/5 E41/6

6.10
(EL-3854)
208V-8100W
240V-10800W

EL-33411

208V 7500W
240V 10700W





		REFER TO SHEET 1			
REV	ECO	DESCRIPTION		DATE	APP
ALTO-SHAAM			WIRING DIAGRAM		
			6JD ES 380-415V 3PH TOUCH		
BY:	MVQ	DWG:	77386	SHEET	
DATE:	11/30/10			4_OF_4	

FAN 2
(FA-34919)

333 338 X11/130

425 424 X11/131

(TM-34304)
(CR-34995)

PSW1

PUWER SUPPLY BOARD, (BA-36144)

VFD
BA-34676

(TM-34305)

VFD K51 20 A (CN-34913)

50 A K42 E41 (CN-3731)

50 A K41 E41 (CN-3731)

K77/5 180

K77/3 178

K77/1 176

(TM-34305)

RL-34634 RLY

RL-34633 SMK

50 A MCR K77 (CN-3731)

L3 50 48

L2 30 28

L1 10 8

PARTITION(TM-34305)

F4	FUSE 2A (TM-34311) (FU-33184)	320	X11/130	323
F3	FUSE 2A (TM-34311) (FU-33184)	428	X11/131	426
F2	FUSE 6.3A (TM-34311) (FU-33452)	318	X11/130	319
F1	FUSE 6.3A (TM-34311) (FU-33452)	418	X11/132	419

PARTITION(TM-34309)

(TM-34307)	X11/132	418	F1
(TM-34307)	X11/132	420	F2
(TM-34307)	X11/131	422	F3
(TM-34307)	X11/131	423	FAN 2
		425	FAN 1

PARTITION(TM-34309)

(TM-34308)	X11/134	330	
(TM-34308)	X11/130	331	
(TM-34308)	X11/130	332	
(TM-34308)	X11/130	333	FAN 3
		322	FAN 2
		323	FAN 1

PARTITION(TM-34309)

(TM-34306)		89	LAMP
(TM-34306)		87	VFD/GND

(TM-3728)

TM-36575 (21TM-3779)	68	64	VFD/FUSE
	66	62	INPUT
TM-36575 (21TM-3779)	50	44	FUSE SMK
	48	42	INPUT
TM-36575 (21TM-3779)	30	24	FUSE VFD
	28	22	INPUT
TM-36575 (21TM-3779)	10	4	F1
	8	2	INPUT

(TM-34305)

SMK	428	46	SMK EL 1
	430		SMK EL 2
VFD	354	69	K51/4
VFD	443	17	K51/2

(FU-33451) 6.3A FUSE
(FU-33452) 15A FUSE
(FU-34921)

(LT-3738)

RBL X2/6 211
RBL X2/5 209

RBL 1106 X11/4 YELLOW 107
RBL 1104 X11/3 RED 105
B5 STEAM BYPASS PROBE (PR-33751) RED

RBL 1114 X11/8 YELLOW 115
RBL 1112 X11/7 RED 113
B3 COOLING WATER PROBE (PR-33751) BLUE

Y1 (STEAM) (VA-34045)
Y3 (CLEANING)
Y2 (COOLING) SOLENOID VALVE (VA-34300)

Y1	X11/130	324
	RBH X4/5	408
	Y1/A2	327
Y3	Y3/A2	326
	RBH X2/9	216
Y2	Y3/A2	326
	RBH X2/6	210

P.PUMP MD-35408

Y4 GREASE PUMP

RBH X4/2 402 329 403 360

Y4 CLEANING PUMP MD-34636

G.PUMP GREASE PUMP MD-34636

Green 61 94 X10 GREASE PUMP
Blue 63 329
Brown 65 327 Y2/A2
208 RBH 360 P.PUMP
360 Y4/BLUE
X4/3

OPTION

SMOKER OPTION

SMK EL 1 (EL-34554) 208V, 260V 240V, 346W
FUSE 428 429 348
SMK RLY 349

SMK EL 2 (EL-34554) 208V, 260V 240V, 346W
FUSE 430 429 350
SMK RLY 351

REFERENCE CUT SHEET
5011791

6.10 (IF SMOKER ADD 520W-692W)

		VOLTS	WATTS	AMPS
UL	DESIGN	380V	9000 W	14.0 A
		415 V	11700 W	16.3 A
		380-415V	9.0-11.7KW	14.0-16.3A

IF SMOKER ADD 520W-692W

		VOLTS	WATTS	AMPS
UL	DESIGN	380V	14400 W	22.0 A
		415 V	18900 W	26.3 A
		380-415V	14.4-18.9W	22.0-26.3A

REV	ECO	DESCRIPTION	DATE	APP
11	4118	DIP SWITCH ON/OFF POSITION	09/11/14	MVQ
13	4721	RELAYS ON SHEET#6 ON BOM	10/11/13	MVQ
12	4687	CLEANING FLAG ONLY OPTION	01/25/13	WG

ALTO-SHAAM — WIRING DIAGRAM
6.10/10.10/7.14 ESI 380-415V 3PH TOUCH

BY: MVQ DWG: 77329 SHEET 1_OF_3
DATE: 6/7/10

B10
PR-33746 PRODUCT PROBE
RBL X9/6 911
RBL X9/5 909 908 GRN/WHT
RBL X9/4 907 906 GRN/YEL
RBL X9/3 905 904 GREEN
RBL X9/2 903 902 WHITE

B11
PR-34298 PRODUCT PROBE
Receptical PR-34299
WHITE 380
RBL X12/5 (207) 1206
RBL X12/4 (209) 1204
BLACK

E41 N6
YELLOW 102 X11/2
RED 101 X11/1
DVEN TEMP. PROBE (PR-33724)

MD-34857
SERVICE KIT # 501958R
208-240V, 400W
2 SPEED MOTOR

L206 RBL
L204 RBL
L212 RBL
L214 RBL
L216 RBL
VFD

E41/1 242 FE/3
E41/2 240 FE/2
E41/3 238 FE/1
E41/4 E41/5 E41/6

E4/5
E4/4 E4/2
E4/5

CONVECTION HEATING ELEMENT
7.14/10.10= 208V-13500W, 240V-18000W (EL-3761)

6.10 (EL-38654) 208V-8100W 240V-10800W

LAMP RECEPTACLE (LP-34161)
OVEN LAMP (LP-34206)
89 321 320 F4
GND 88
421 420 F3

FAN 1 INTAKE FAN (FA-34957)
331 330 XII/130
423 422 XII/131

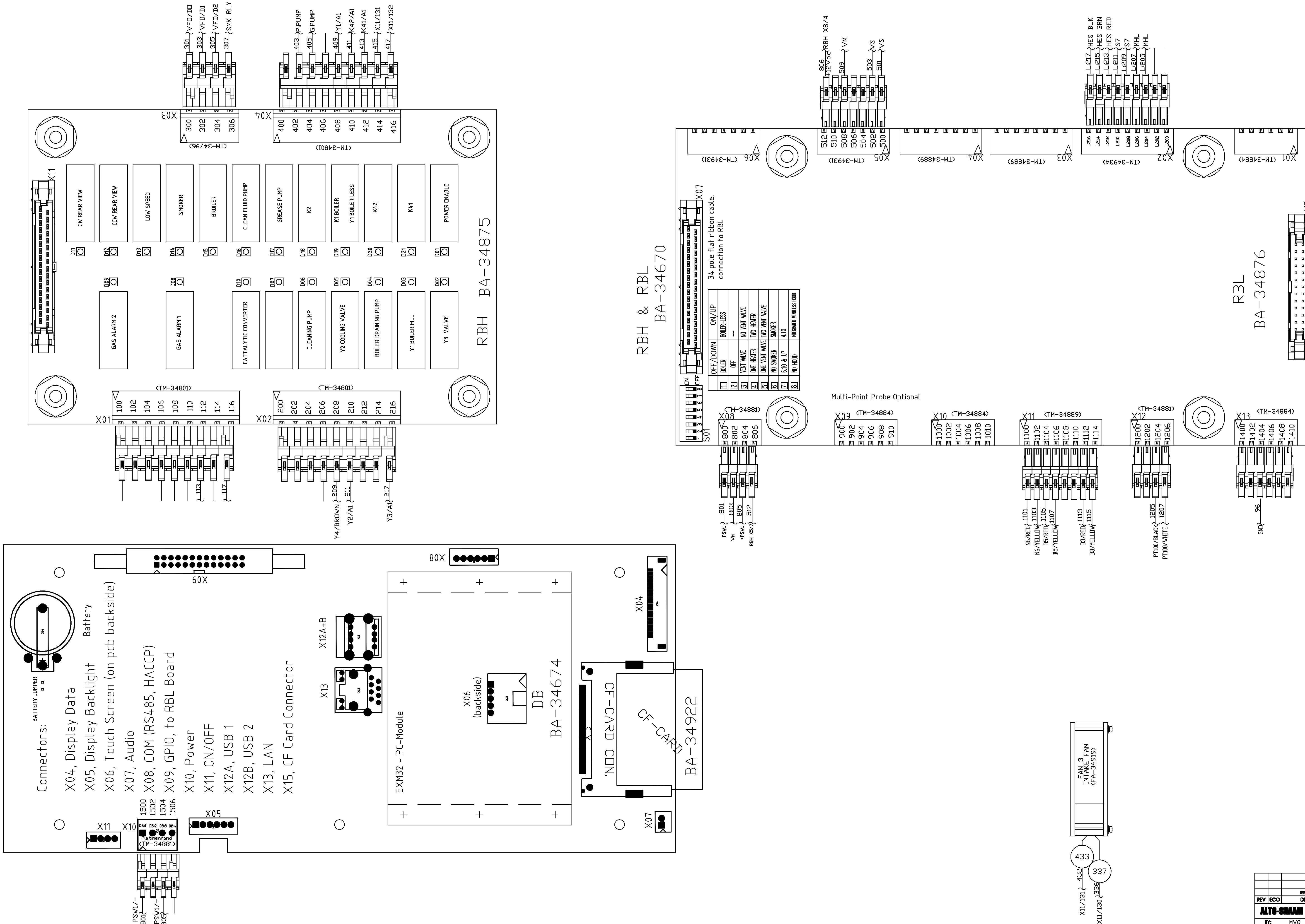
RBH X8/2 208 803 208V-12V
509 X5/3 RBL
501 500 RBL X5/1
503 500 RBL X5/2
(VA-26838)

25A FUSES (FU-33449)
3: FUSE ASSY
(FU-33448)/(FU-33444)/(FU-33445)
(TM-34305) FU4 FU5 FU6

RLC FILTERS: K51= FI-34949
RLC FILTERS: K41,K42,&K77= FI-33990
RLC FILTERS: Y1,Y2,&Y3= FI-33989

SAFETY THERMOSTAT (TT-3750) 311 XII/130 313 K77/A2 364
N7

F
E



REV	ECO	DESCRIPTION	DATE / APP
		REFER TO SHEET1	

ALTO-SHAAM — WIRING DIAGRAM
610/1010/714 ESI 380-415V 3PH TOUCH
BY: MVQ DWG: 77329 SHEET 2 OF 3
DATE: 6/7/10

L1
L2
L3
N

FU-33452
3: FU-34921
4: FUSE HOLDERFU-34772
SWK RE
VFD
SMK RLY
CONTROL
15A
68
44
65
64
4
46
17
69
429
442
355

GREEN
86
87
BA-34676
VFD
339
301
303
305
MTR

K77
K41
K42
2
4
6
1
3
5

FE41
E41/1
E41/2
E41/3
E41/4
E41/5
E41/6
E41

7.14/10.10
(EL-3761)
208V 13500W
240V 18000W

6.10
(EL-3854)
208V-8100W
240V-10800W

LINE2
LINE1
340
341
434
435
K51
CN-34913

SK1/2 430
350 SK1/1
2: EL-34554
SMOKER
ELEMENTS
SMOKER OPTION
SK2/2 428
348 SK2/1

X10
DB1 DB2 DB3 DB4
Ethernet and

25
318
PSN
319
F2
6.3A
2: FUSE HOLDER FU-34311
5: FU-33452
PSL
359
PSW1
BA-36144
12VDC
5
418
419
F1
6.3A
417
439
805

SMOKER OPTION
RL-34633
RL-34634
345
346
RBH X3/4
306
347
348
334
X11/13

RBH
BA-34875
(TM-34801)
(TM-34796)
(TM-34801)
(TM-34801)
X03
X04
X02
X01
416 414 412 410 408 406 404 402 400
306 304 302 300
200 202 204 206 208 210 212 214 216
100 102 104 106 108 110 112 114 116

437
436
K51
SMK RLY
353
426
415
427
F3
20A
420
89
88
320
F4
20A
322
310
323
324
352
334
338
K77
453
N7
456
311
CAVITY LAMP
SAFETY THERMOSTAT
308
312
313
K41
K42
A1
Y1
GREASE PUMP
MD-34636
P.PUMP
MD-29776
CLEAN PUMP
MD-34636
328
326
Y4
Y3
VA-34045
Y2
VA-34300
327
Y2
VA-34300

RBL BA-34876
Multi-Point Probe Optional
(TM-34884)
(TM-34934)
(TM-34931)
(TM-34931)
(TM-34881)
(TM-34884)
(TM-34884)
(TM-34889)
(TM-34881)
(TM-34884)
X01
X02
X05
X06
X08
X09
X10
X11
X12
X14
100 102 104 106 108 110
L200 L202 L204 L206 L208 L210 L212 L214 L216
500 502 504 506 508 510 512
600 602 604 606 608 610 612
800 802 804 806
900 902 904 906 908 910
1000 1002 1004 1006 1008 1010
1100 1102 1104 1106 1108 1110 1112 1114
1200 1202 1204 1206
1400 1402 1404 1406 1408 1410
DOOR SAFETY SWITCH
HL RED
HL BROWN
HL BLACK
LIGHT MOOR SW
120C MOTOR
M
1101 N6/RED
1103 N6/YELLOW
1105 B5/RED
1107 B5/YELLOW
1113 B3/RED
1115 B3/YELLOW
1205 PT100/BLACK
1207 PT100/WHITE
96 GND

Connectors:
X04, Display Data
X05, Display Backlight
X06, Touch Screen (on pcb backside)
X07, Audio
X08, COM (RS485, HACCP)
X09, GPIO, to RBL Board
X10, Power
X11, ON/OFF
X12A, USB 1
X12B, USB 2
X13, LAN
X15, CF Card Connector
Battery
60X
80X
X12A+B
X13
X04 (backside)
EX982 - PC-Module
DB
BA-34674
X04
CF-CARD
CN
X05
X07
X11
X10
CF-CARD

RBL 1106 X11/4
RBL 1104 X11/3
PROBE
BYPASS
(PR-33751)
YELLOW 107
RED 105
B5 STEAM

RBL 1102 X11/2
RBL 1100 X11/1
YELLOW 103
RED 110
N6
DVEN TEMP. PROBE
(PR-33724)

RBL 1114 X11/8
RBL 1112 X11/7
YELLOW 115
RED 113
B3
COOLING WATER PROBE
(PR-33751)

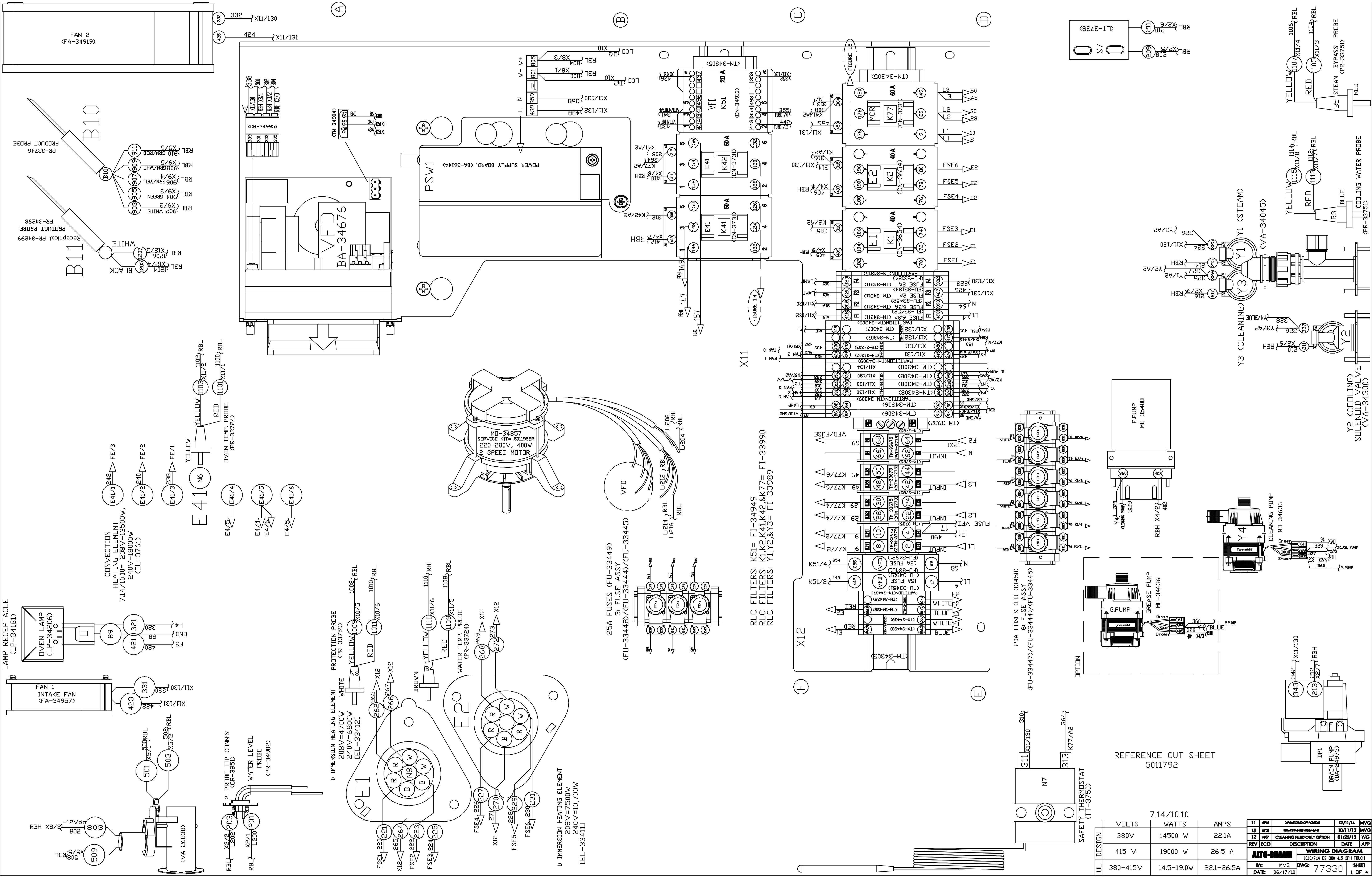
PRODUCT PROBE
PR-34299
Reception PR-34298
B11
WHITE 1211
BLACK 1209
RBL 1206 X12/6 1207
RBL 1204 X12/4 1205

X11/130: BANK OF 3 BLUE SPRING TERMINALS
B1: BLUE UPPER WATER LEVEL STEAM TANK
B2: RED LOWER WATER LEVEL STEAM TANK
B3: BLUE PROBE CONDENSATIION TANK
B5: RED PROBE CONDENSATIION TANK
PSW: 12VdC POWER SUPPLY
S7: DOOR SWITCH
S7: SAFETY HIGH LIMIT
K41 & K42: CONTROL CONVECTION
DP1: BUILDER DRAIN PUMP
E1, E2, E3: H2O ELEMENT
E4: CONVECTION ELEMENT
SMK RLY: SMOKER RELAY
SMK EL: SMOKER ELEMENT
K51 & K52: MOTOR DRIVE CONTACTOR

RLC FILTERS: Y1,Y2,&Y3= FI-33989
RLC FILTERS: K51,& K71= FI-34949
RLC FILTERS: K1,K2,K3,K41,K42,&K77= FI-33990
VM: VENT MOTOR
VS: VENT SWITCH
FUSE VFD: FUSE CONTROL VFD
FUSE SMK: FUSE CONTROL SMOKER
VFD: VARIABLE FREQUENCY DRIVE
DB3& DB4: DISPLAY BOARD + DC INPUT
DB1& DB2: DISPLAY BOARD - DC INPUT

REV	ECO	DESCRIPTION	DATE	APP
		REFER TO SHEET1		

ALTO-SHAAM
WIRING DIAGRAM
6.10/10.10/7.14 ESI 380-415V 3PH TOUCH
BY: MVQ
DATE: 6/7/10
DWG: 77329
SHEET 3_OF_3

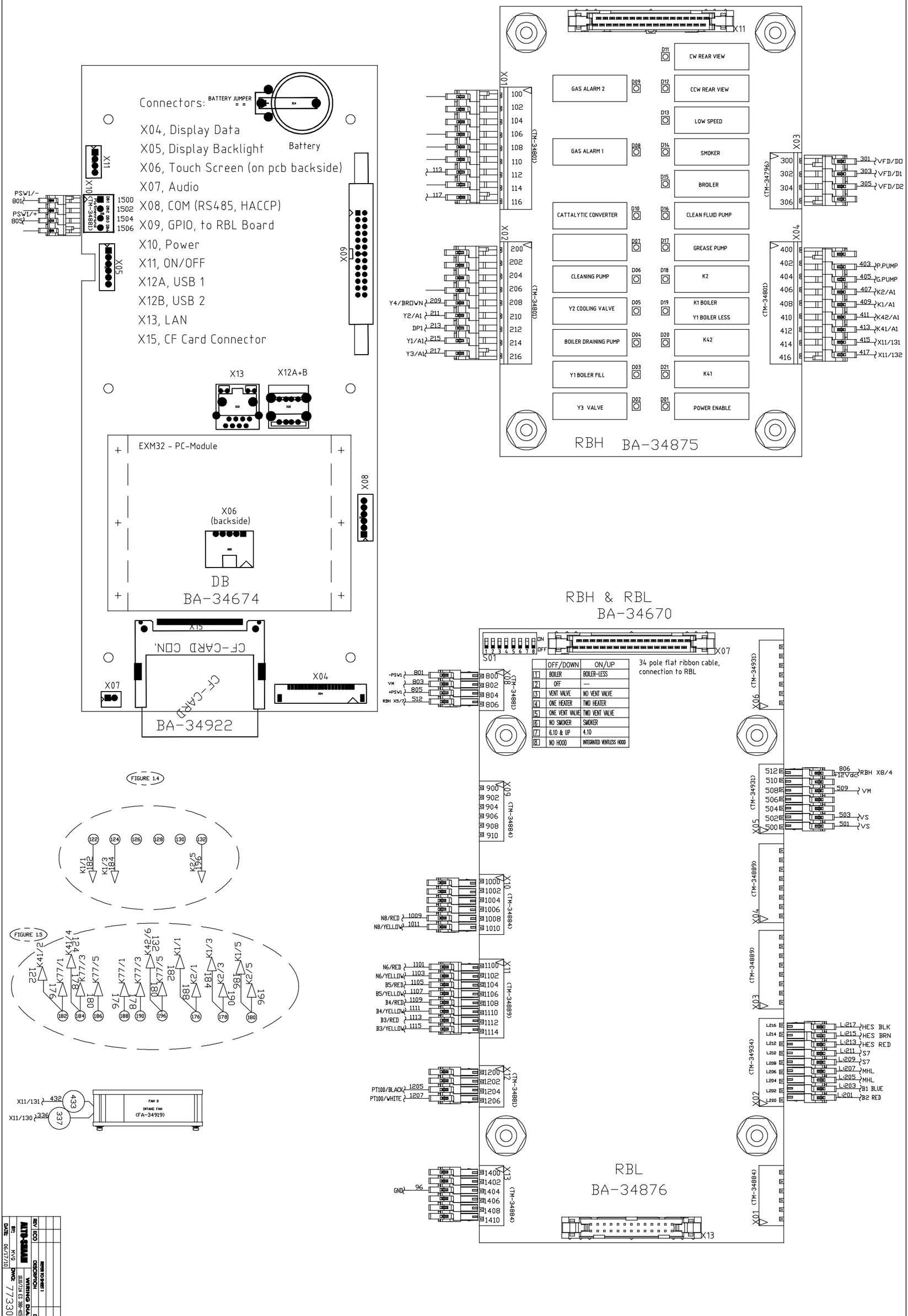


7.14/10.10

	VOLTS	WATTS	AMPS
DESIGN	380V	14500 W	22.1A
DESIGN	415 V	19000 W	26.5 A
UL	380-415V	14.5-19.0W	22.1-26.5A

REV	ECO	DESCRIPTION	DATE	APP
11	6965	DIP SWITCH #3 OFF POSITION	03/11/14	MVQ
13	6721	REPLACE BA-36033 WITH BA-36144	10/11/13	MVQ
12	6607	CLEANING FLUID ONLY OPTION	01/25/13	WG

ALTO-SHAAM
WIRING DIAGRAM
10.10/7.14 ES 380-415 3PH TOUCH
BY: MVQ
DATE: 06/17/10
DWG: 77330
SHEET 1_OF_4



	OFF/DOWN	ON/UP
1	BOILER	BOILER-LESS
2	OFF	---
3	VENT VALVE	NO VENT VALVE
4	ONE HEATER	TWO HEATER
5	ONE VENT VALVE	TWO VENT VALVE
6	NO SMOKER	SMOKER
7	6.10 & UP	4.10
8	NO HOOD	INTEGRATED VENTLESS HOOD

REV	ECO	DESCRIPTION	DATE	APP
		REVISED PER SHEET 1		

ALTO-SHAAM
DRAWING NO. 77330
DATE: 06/17/10
BY: KV.0
SHEET 2 OF 4

L1
L2
L3
N

4
68
44
64
65
17
69
SOL SW
SOL SW
442
355
2: FU-34921
2: FU-33451

86
87
GREEN
BA-34676
VFD
339
301
303
305
MTR

LINE1
434
435
LINE2
340
341

K51
CN-34913
2
4
6
1
3
5

X10
DB1 DB2 DB3 DB4
Antimicrobial

393
F2
6.3A
318
319
PSN
PSL
359
PSW1
BA-36144
12VDC
2: FUSE HOLDER FU-34311
2: FU-33452
490
F1
6.3A
418
419
417
439
805

X11
X10
X05
X12A+B
X13
X06 (backside)
X04
X07
DB
BA-34674
EX492 - PC-Module
CF-CARD
CF-CARD CONN.
60X
80X

Connectors:
X04, Display Data
X05, Display Backlight
X06, Touch Screen (on pcb backside)
X07, Audio
X08, COM (RS485, HACCP)
X09, GPIO, to RBL Board
X10, Power
X11, ON/OFF
X12A, USB 1
X12B, USB 2
X13, LAN
X15, CF Card Connector
Battery

N6
YELLOW
RED
1102
1103
X11/2
1101
X11/1
1100
OVEN TEMP. PROBE
(PR-33724)

1106
1107
X11/4
1104
X11/3
1105
YELLOW
RED
B5
STEAM BYPASS PROBE
(PR-33751)
RED

1114
1115
X11/8
1112
X11/7
1113
YELLOW
RED
B3
BLUE
COOLING WATER PROBE
(PR-33751)

PROTECTION PROBE
(PR-33759)
1008
1009
X10/5
1010
1011
X10/6
YELLOW
RED
N8

1110
1111
X11/6
1108
1109
X11/5
YELLOW
RED
B4
WATER TEMP. PROBE
(PR-33724)

B11
Receptical PR-34299
PRODUCT PROBE
PR-34298
WHITE
BLACK
1206
1207
X12/5
1204
1205
X12/4

X11/130: BANK OF 3 BLUE SPRING TERMINALS
B1: BLUE UPPER WATER LEVEL STEAM TANK
B2: RED LOWER WATER LEVEL STEAM TANK
B3: BLUE PROBE CONDENSATION TANK
B5: RED PROBE CONDENSATION TANK
RLC FILTERS: Y1,Y2,&Y3= FI-33989
RLC FILTERS: K51,& K71= FI-34949
RLC FILTERS: K1,K2,K3,K41,K42,&K77= FI-33990
VM: VENT MOTOR
VS: VENT SWITCH
FUSE VFD: FUSE CONTROL VFD
FUSE SMK: FUSE CONTROL SMOKER
VFD: VARIABLE FREQUENCY DRIVE
DB3& DB4: DISPLAY BOARD + DC INPUT
DB1& DB2: DISPLAY BOARD - DC INPUT

PSW: 12Vdc POWER SUPPLY
S2: DOOR SWITCH
N7: SAFETY HIGH LIMIT
K41 & K42: CONTROL CONVECTION
DP1: BOILER DRAIN PUMP
E1, E2, E3: H2O ELEMENT
E4: CONVECTION ELEMENT
SMK RLY: SMOKER RELAY
SMK EL: SMOKER ELEMENT
K51 & K71 MOTOR DRIVE CONTACTOR

437
(TM-34801)
416 414 412 410 408 406 404 402 400
X04
(TM-34796)
306 304 302 300
X03
(TM-34801)
200 202 204 206 208 210 212 214 216
X02
(TM-34801)
100 102 104 106 108 110 112 114 116
X01

415
426
K41
K42
K1
K2
K51
436
427
456
308
312
315
353
420
F3
6.3A
CAVITY LAMP
88
89
364
K77
311
N7
SAFETY THERMOSTAT
320
F4
6.3A
322
310
323
314
352
334
MD-34636
GREASE PUMP
P.PUMP
MD-29776
MD-34636
Y4
326
328
PUMP
Y2
Y3
Y1
VA-34045
VA-34300
VA-34300
325
327
PUMP
(DA-24973)
DP1
342
324
338

X01 (TM-34884)
100 102 104 106 108 110
X02 (TM-34934)
L200 L202 L204 L206 L208 L210 L212 L214 L216
DOOR SAFETY SWITCH
HL RED
HL BROWN
HL BLACK
X05 (TM-34931)
500 502 504 506 508 510 512
LIGHT MOTOR SW
120C MOTOR
X06 (TM-34931)
600 602 604 606 608 610 612
X08 (TM-34881)
800 802 804 806

RBL BA-34876
Multi-Point Probe Optional

X09 (TM-34884)
900 902 904 906 908 910
X10 (TM-34884)
1000 1002 1004 1006 1008 1010
X11 (TM-34889)
1100 1102 1104 1106 1108 1110 1112 1114
X12 (TM-34881)
1200 1202 1204 1206
X14 (TM-34884)
1400 1402 1404 1406 1408 1410

1009
1011
N8/RED
N8/YELLOW
1101
1103
1105
1107
1109
1111
1113
1115
N6/RED
N6/YELLOW
B5/RED
B5/YELLOW
B4/RED
B4/YELLOW
B3/RED
B3/YELLOW
1205
1207
PT100/BLACK
PT100/WHITE
96
GND

2: PROBE TIP CONN'S
(CR-3851)
WATER LEVEL
PROBE
(PR-34902)
BLUE
RED

REFER TO SHEET 1
REV | ECO | DESCRIPTION | DATE | APP

ALTO-SHAAM
WIRING DIAGRAM
1010/714 ES 380-415 3PH TOUCH
BY: MVQ
DATE: 06/17/10
DWG: 77330
SHEET 3_OF_4

L1

L2

L3

3: CN-3654
30A CONTACTOR

K1

K2

K77

K41

K42

FSE1 FSE2 FSE3

FSE4 FSE5 FSE6

FE41 FE41 FE41

(TM-3443B)

WHITE

BLUE

WHITE

BLUE

RED

RED

E1

E2

E41/1 E41/2 E41/3 E41/4 E41/5 E41/6

E41

RED E1

BLUE E1

WHITE E1

RED E2

BLUE E2

WHITE E2

7.14/10.10

7.14/10.10
(EL-3761)
208V 13500W
240V 18000W

EL-33412
208V 4700W
240V 6800W

E1

EL-33411
208V 7500W
240V 10700W

E2

		REFER TO SHEET 1		
REV	ECO	DESCRIPTION	DATE	APP

ALTO-SHAAM

WIRING DIAGRAM

10.10/7.14 ES 380-415 3PH TOUCH

BY: MVQ

DATE: 06/17/10

DWG: 77330

SHEET 4_OF_4

FAN 2
(FA-3568)

PSW1

POWER SUPPLY, (BA-36144)

VFD
BA-34676

(CR-34995)

(TM-34964)

VFD

K51 (CN-34913) 20 A

E4 K42 (CN-3731) 50 A

E4 K41 (CN-3731) 50 A

(TM-34305)

MCR K77 (CN-3731)

E3 K3 (CN-3654) 40 A

E2 K2 (CN-3654) 40 A

E1 K1 (CN-3654) 40 A

(TM-34305)

(LT-3738)

S7

Y1 (STEAM) (VA-34045)

Y3 (CLEANING)

Y2 (COOLING) SOLENOID VALVE (VA-34300)

B5 STEAM BYPASS PROBE (PR-33751)

B3 COOLING WATER PROBE (PR-33751)

RLC FILTERS: Y1,Y2,&Y3= FI-33989
RLC FILTERS: K51= FI-34949
RLC FILTERS: K1,K2,K3,K41,K42,&K77 = FI-33990

B10

B11

Receptical PR-34746
PRODUCT PROBE

Receptical PR-34299
PRODUCT PROBE 10.18

Receptical PR-34704
PRODUCT PROBE 12.20

Receptical PR-34537
PRODUCT PROBE 12.20

2 PIECE CONVECTION HEATING ELEMENT 10.18: 208V-10800W 240V-14400W EACH PIECE (EL-33979)

E41

E42

MD-34857
SERVICE KIT # 5011958R
208-240V, 400W
2 SPEED MOTOR

E20

E1

E3

1: IMMERSION HEATING ELEMENT 208V=4700W 240V=6800W (EL-33412)

1: IMMERSION HEATING ELEMENT 208V=7500W 240V=10,700W (EL-33411)

PROTECTION PROBE (PR-33759)

WATER LEVEL PROBE (PR-34902)

2: PROBE TIP CONN'S (CR-3851)

WATER TEMP. PROBE (PR-33724)

LAMP RECEPTACLE (LP-34161)

OVEN LAMP (LP-34206)

FAN 1
INTAKE FAN
(FA-34957)

(VA-26838)

(TM-3738)

INPUT

FUSEVFD

SAFETY THERMOSTAT (TT-3750)

N7

Y4 CLEANING PUMP MD-34636

DP1 DRAIN PUMP (DA-26973)

REFERENCE CUT SHEET
5011818

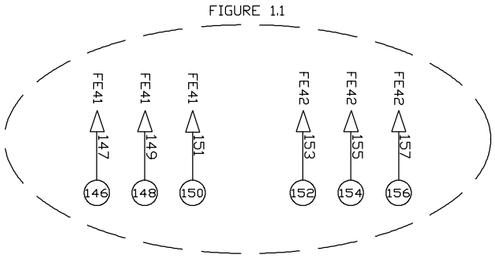
		VOLTS	WATTS	AMPS
UL	DESIGN	380V	22.0k W	33.5 A
		415 V	29.2k W	40.7 A
		380-415V	22.0-29.2KW	33.5-40.7A

REV	ECO	DESCRIPTION	DATE	APP
7	6965		05/11/14	MVQ
6	6721		10/11/13	MVQ
5	6443		9/18/12	MVQ

ALTO-SHAAM — WIRING DIAGRAM
10.18 ES 380-415V 3PH TOUCH

BY: MVQ | DWG: 77348 | SHEET 1_DF_5
DATE: 6/7/10

FIGURE 1.1



25A FUSES (FU-33449)
6: FUSE ASSY
(FU-33448)/(FU-33444)/(FU-33445)

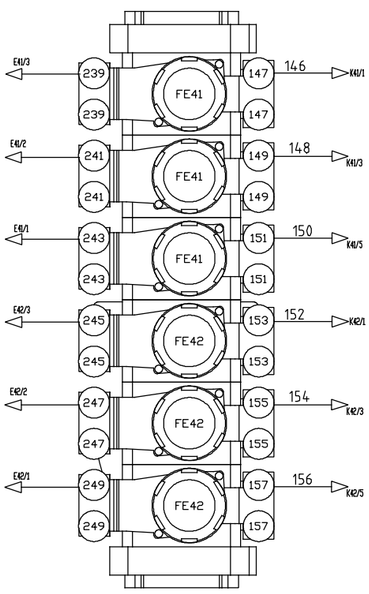
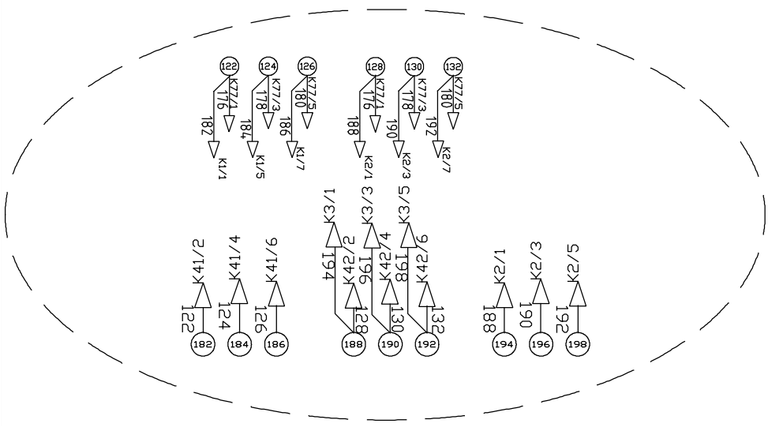
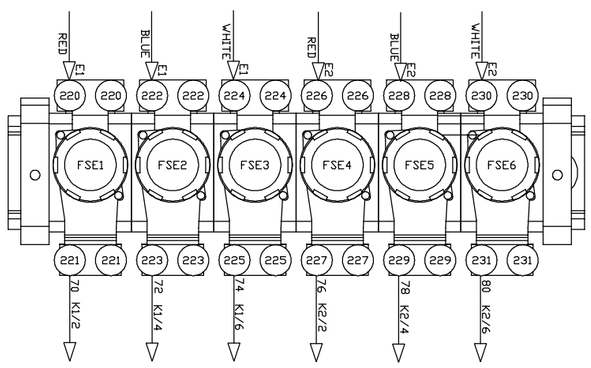
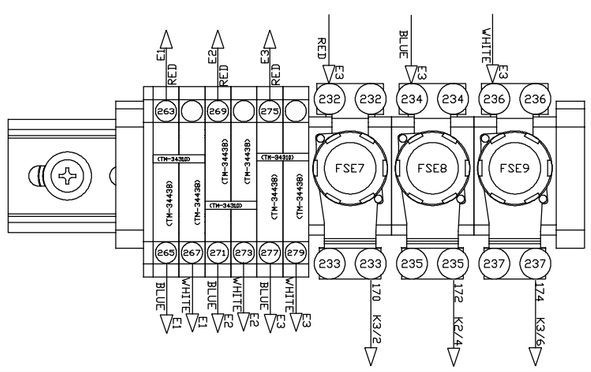


FIGURE 1.2





20A FUSES (FU-33450)
9: FUSE ASSY
(FU-33447)/(FU-33444)/(FU-33445)



REV	ECO	DESCRIPTION	DATE	APP

ATTO-SEMAN

www.te.com

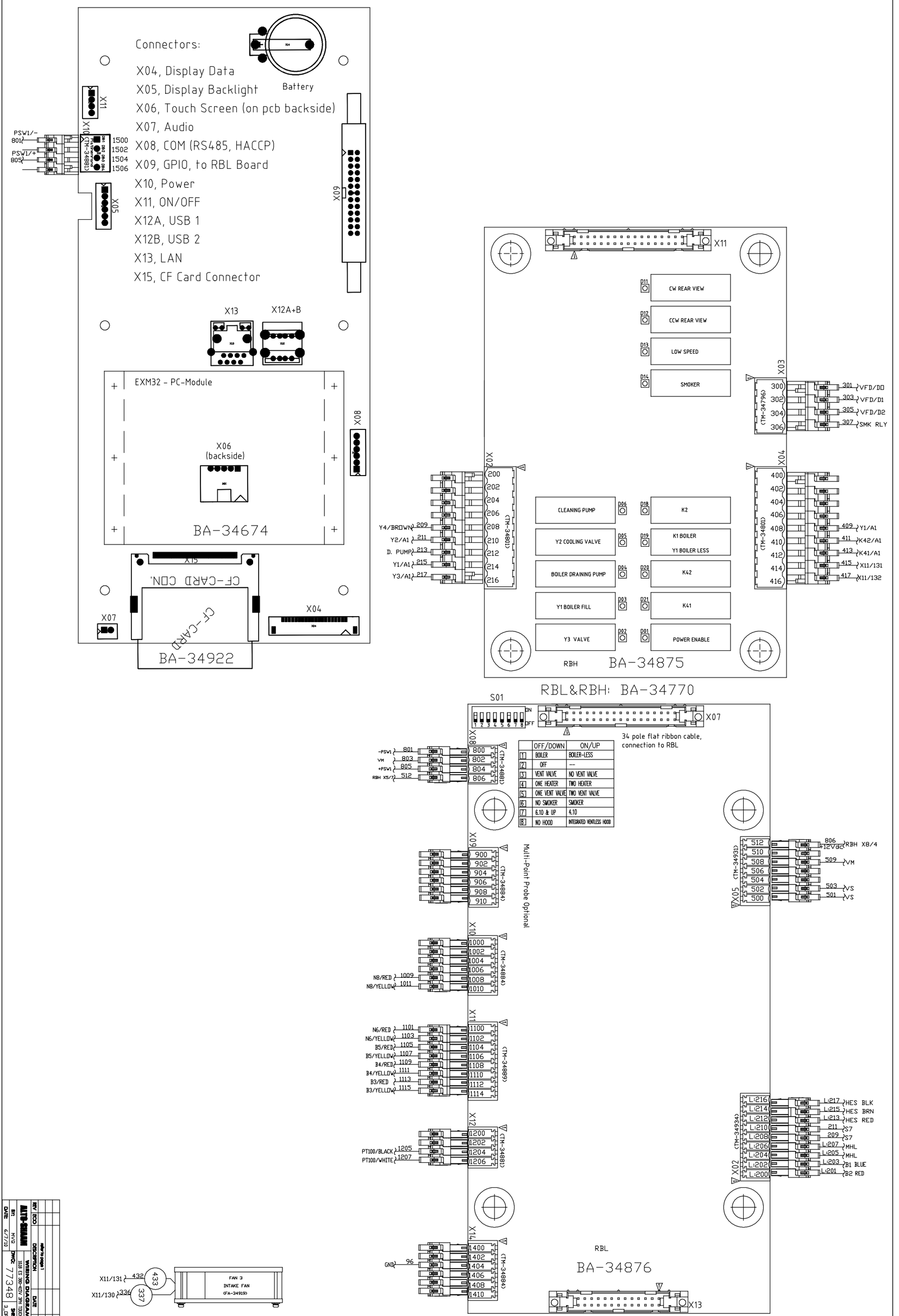
WIRING HARNESS ASSEMBLY

1838 ELECTRIC HEV PH MODEL

BY: RYO DATE: 6/7/10

DWG: 77348

SHEET 2 OF 5


Connectors:
X04, Display Data
X05, Display Backlight
X06, Touch Screen (on pcb backside)
X07, Audio
X08, COM (RS485, HACCP)
X09, GPIO, to RBL Board
X10, Power
X11, ON/OFF
X12A, USB 1
X12B, USB 2
X13, LAN
X15, CF Card Connector
Battery
X11
X10
X05
X09
X13
X12A+B
EXM32 - PC-Module
X08
X06
(backside)
BA-34674
X15
CF-CARD CON.
CF-CARD
X07
X04
BA-34922
PSW1/-
801
PSW1/+
805
1500
1502
1504
1506
CW REAR VIEW
CCW REAR VIEW
LOW SPEED
SMOKER
D11
D12
D13
D14
X03
(TM-34796)
300
301
302
303
304
305
306
307
VFD/D0
VFD/D1
VFD/D2
SMK RLY
X07
(TM-34801)
200
202
204
206
208
210
212
214
216
Y4/BROWN
209
Y2/A1
211
D. PUMP
213
Y1/A1
215
Y3/A1
217
CLEANING PUMP
Y2 COOLING VALVE
BOILER DRAINING PUMP
Y1 BOILER FILL
Y3 VALVE
D06
D05
D04
D03
D02
K2
K1 BOILER
Y1 BOILER LESS
K42
K41
POWER ENABLE
D18
D19
D20
D21
D01
X04
(TM-34801)
400
402
404
406
408
410
412
414
416
409
Y1/A1
411
K42/A1
413
K41/A1
415
X11/131
417
X11/132
RBH
BA-34875
RBL&RBH: BA-34770
S01
ON
OFF
1 2 3 4 5 6 7 8
X07
34 pole flat ribbon cable,
connection to RBL
OFF/DOWN
ON/UP
1 BOILER
BOILER-LESS
2 OFF
---
3 VENT VALVE
NO VENT VALVE
4 ONE HEATER
TWO HEATER
5 ONE VENT VALVE
TWO VENT VALVE
6 NO SMOKER
SMOKER
7 6.10 & UP
4.10
8 NO HOOD
INTEGRATED VENTLESS HOOD
X08
(TM-34881)
800
802
804
806
-PSW1
801
VM
803
+PSW1
805
RBH X5/7
512
X09
(TM-34884)
900
902
904
906
908
910
Multi-Point Probe Optional
X10
(TM-34884)
1000
1002
1004
1006
1008
1010
N8/RED
1009
N8/YELLOW
1011
X11
(TM-34889)
1100
1102
1104
1106
1108
1110
1112
1114
N6/RED
1101
N6/YELLOW
1103
B5/RED
1105
B5/YELLOW
1107
B4/RED
1109
B4/YELLOW
1111
B3/RED
1113
B3/YELLOW
1115
X12
(TM-34881)
1200
1202
1204
1206
PT100/BLACK
1205
PT100/WHITE
1207
X14
(TM-34884)
1400
1402
1404
1406
1408
1410
GND
96
X05
(TM-34931)
512
510
508
506
504
502
500
806
+12VDC
RBH X8/4
509
VM
503
VS
501
VS
X02
(TM-34934)
L:216
L:214
L:212
L:210
L:208
L:206
L:204
L:202
L:200
L:217
HES BLK
L:215
HES BRN
L:213
HES RED
211
S7
209
S7
L:207
MHL
L:205
MHL
L:203
B1 BLUE
L:201
B2 RED
RBL
BA-34876
X13
X11/131
432
433
X11/130
335
337
FAN 3
INTAKE FAN
(FA-34919)
REV
ECO
DESCRIPTION
DATE
APP
ALTO-SHAAM
MODEL: ES-35S-10EW, 208-240V, 3PH, 50/60H
DWG
77348
DATE
6/7/10
SHEET
3 OF 5

L1
L2
L3
N

64
65
4
17
69
FU1 5A
FU2 5A
2: FU-34921
2: FU-33451
442
355
86
87
GREEN
BA-34676
VFD
339
301
303
305
MTR
LINE1
434
435
LINE2
340
341
496
K51
12
4
6
1
3
5
CN-34913

X10
DB1 DB2 DB3 DB4
Maintenance
393
318
F2
6.3A
PSN
319
PSV1
BA-36144
12VDC
359
PSL
805
2: FUSE HOLDER FU-34311
2: FU-33452
490
418
F1
6.3A
419
417

437
(TM-34801)
X04
416
414
412
410
408
406
404
402
400
(TM-34796)
X03
306
304
302
300
(TM-34801)
X02
200
202
204
206
208
210
212
214
216
PUMP
Y2
VA-34045
Y1
VA-34300
Y3
VA-34300
MD-34636
Y4
326
325
327
328
PUMP
(DA-24573)
DP1
342
324
K51
436
353
352
426
415
427
F3
6.3A
420
CAVITY LAMP
456
K77
308
K41
411
K42
312
364
311
N7
SAFETY THERMOSTAT
310
320
F4
6.3A
322
323
88
89

(TM-34934)
X02
L200
L202
L204
L206
L208
L210
L212
L214
L216
DOOR SAFETY SWITCH
HL RED
HL BROWN
HL BLACK
(TM-34931)
X05
500
502
504
506
508
510
512
LOAD MOTOR SW
120C MOTOR
(TM-34881)
X08
800
802
804
806
2: PROBE TIP CONN'S
(CR-3851)
WATER LEVEL
PROBE
(PR-34902)
BLUE
RED

Multi-Point Probe Optional
RBL
BA-34876
(TM-34884)
X09
900
902
904
906
908
910
(TM-34884)
X10
1000
1002
1004
1006
1008
1010
1009
1011
N8/RED
N8/YELLOW
(TM-34884)
X10
1000
1002
1004
1006
1008
1010
(TM-34889)
X11
1100
1102
1104
1106
1108
1110
1112
1114
N6/RED
N6/YELLOW
B5/RED
B5/YELLOW
B4/RED
B4/YELLOW
B3/RED
B3/YELLOW
1101
1103
1105
1107
1109
1111
1113
1115
(TM-34881)
X12
1200
1202
1204
1206
PT100/BLACK
PT100/WHITE
1205
1207
(TM-34884)
X14
1400
1402
1404
1406
1408
1410
96
GND

S01:OFF - ON
1:Boiler - Boilerless
NOTE: DIP SWITCH SETTING

B11
Receptical PR-34298
PRODUCT PROBE
PR-34298
WHITE
BLACK
207
205
RBL (X12/5) 1206
RBL (X12/4) 1204

N6
YELLOW
RED
103
101
X11/2
X11/1
1102
1100
RBL
RBL
OVEN TEMP PROBE
(PR-33724)

X11/130: BANK OF 3 BLUE SPRING TERMINALS
B1: BLUE UPPER WATER LEVEL STEAM TANK
B2: RED LOWER WATER LEVEL STEAM TANK
B3: BLUE PROBE CONDENSATION TANK
B5: RED PROBE CONDENSATION TANK
PSW: 12Vdc POWER SUPPLY
S7: DOOR SWITCH
N7: SAFETY HIGH LIMIT
K41 & K42: CONTROL CONVECTION
DP1: BOILDER DRAIN PUMP
E1, E2, E3: H2O ELEMENT
E4: CONVECTION ELEMENT
SMK RLY: SMOKER RELAY
SMK EL: SMOKER ELEMENT
K51 & K52: MOTOR DRIVE CONTACTOR

K51: 2: FU-34921
2: FU-33451
RLC FILTERS: Y1,Y2,&Y3= FI-33989
RLC FILTERS: K51,& K71= FI-34949
RLC FILTERS: K1,K2,K3,K41,K42,&K77= FI-33990
VM: VENT MOTOR
VS: VENT SWITCH
FUSE VFD: FUSE CONTROL VFD
FUSE SMK: FUSE CONTROL SMOKER
VFD: VARIABLE FREQUENCY DRIVE
DB3& DB4: DISPLAY BOARD + DC INPUT
DB1& DB2: DISPLAY BOARD - DC INPUT

REV	ECO	DESCRIPTION	DATE	APP
		refer to page 1		

ALTO-SHAAM
WIRING DIAGRAM
1018 ES 380-415V 3PH TOUCH
BY: MVQ
DATE: 6/7/10
DWG: 77348
SHEET 4_OF_5

L1
L2
L3

3: CN-3654
30A CONTACTOR

K1
K2
K3
K77
K41
K42

FSE1 FSE2 FSE3
FSE4 FSE5 FSE6
FSE7 FSE8 FSE9
FE41 FE41 FE41
FE42 FE42 FE42

RED E1
BLUE E1
WHITE E1

EL-33411
208V 7500W
240V 10700W

RED E2
BLUE E2
WHITE E2

EL-33411
208V 7500W
240V 10700W

RED E3
BLUE E3
WHITE E3

E42/1 E42/2 E42/3 E42 E42/4 E42/5 E42/6

E42/1 E42/2 E42/3 E42 E42/4 E42/5 E42/6

2 PIECE CONVECTIION
HEATING ELEMENT
10.0kW 208V 7080W
240V 14400W EACH PIECE
(EL-39779)

EL-33412
208V 4700W
240V 6800W

E1

E2

E3

(TM-34438) (279) WHITE E3
RED E3 (TM-34438) (279) BLUE E3
(TM-34438) (273) WHITE E2
RED E2 (TM-34438) (269) BLUE E2
(TM-34438) (267) WHITE E1
RED E1 (TM-34438) (263) BLUE E1

refer to page 1

REV	ECO	DESCRIPTION	DATE	APP

ALTO-SHAAM
WIRING DIAGRAM
10.18 ES 380-415V 3PH TOUCH

BY:	MVQ	DWG:	77348	SHEET
DATE:	6/7/10			5_OF_5

FAN 2
(FA-34919)
333 332 X11/130
425 424 X11/131
A
B
C
D
(CR-34995)
(TM-34904)
GND 86 GND
340 XSL/3
434 XSL/1
VFD
BA-34676
PSW1
POWER SUPPLY, (BA-36144)
LCD X10 DI3 RBL X8/3 804 V+
LCD X10 DI2 RBL X8/1 800 V-
L 439 359 X11/130 358
N 438 X11/132 438
(TM-3430S)
VFD K51 20 A (CN-34913)
436 M/BK
435 W/BLU
441 Y/RED
442 BL/WHT
E4 50 A K42 (CN-3731)
E4 50 A K41 (CN-3731)
364 K77/A2
410 RBH X47/6
312 K42/A2
412 RBH X47/7
FIGURE 11
FIGURE 12
(TM-3430S)
RL-34634 SMK RLY
RL-33482 SMK RLY
345 346 307 351 339 349
SMK RLY 345 346 335 348 350
RBH X47/4
MCR K77 (CN-3731) 50 A
313 312/A2 364 456 X11/131 453 179 180 178 49 29 9
L3 50 48
L2 30 28
L1 10 8
PARTITION(TM-3435)
F4 6.3A FUSE (CU-33184) 320 321 L AMP
F3 FUSE 2A (TM-3431) (CU-33184) 420 421 L AMP
F2 FUSE 6.3A (TM-3431) (CU-33452) 318 319 X11/130
F1 FUSE 6.3A (TM-3431) (CU-33452) 418 419 X11/132
X11/130 323
X11/131 426
N 64
L1 4
PARTITION(TM-3430S)
(TM-3430Z) X11/132 438 PSW1 438
(TM-3430Y) X11/132 437 X47/6 RBH 436
(TM-3430Z) X11/131 433 RBH X47/8 414 FAN 3
(TM-3430Y) X11/131 432 FAN 2
(TM-3430Z) X11/131 425 FAN 1
PARTITION(TM-3430S)
(TM-3430B) X11/134
(TM-3430B) X11/130 329 LAMP
(TM-3430B) X11/130 318 FAN 3
(TM-3430B) X11/130 327 FAN 2
(TM-3430B) X11/130 323 FAN 1
PARTITION(TM-3430S)
(TM-3430G) 89 LAMP
(TM-3430G) 87 VFD/GND
(TM-3430G) 85 X47/5 RBH
(TM-3782)
298
TM-3786
(CN-33807) (CN-33808)
69 VFD N
393 F2
INPUT N
FUSE SMK 46
49 K77/6 L3
49 K77/6
29 K77/4 L2
29 K77/4
FUSE VFD 17
F1 490
9 K77/2 L1
9 K77/2
SMK EL 1 428 SMK 6.3A FUSE (CU-33452) 429 L3 44
SMK EL 2 430 (CU-33451)
K51/4 354 VFD 15A FUSE (CU-34921) 385 N 68
K51/2 442 VFD 15A FUSE (CU-34921) (CU-33451) 17 L1 4
RLC FILTERS Y1,Y2,&Y3= FI-33989
RLC FILTERS K51= FI-34949
RLC FILTERS K41,K42,&K77= FI-33990
(LT-3738)
S7
211 210 X2/6 RBL
209 208 X2/5 RBL
YELLOW 1106 X11/4 RBL
RED 1104 X11/3 RBL
STEAM BYPASS PROBE (PR-33751)
B5 RED
YELLOW 1115 X11/8 RBL
RED 1113 X11/7 RBL
COOLING WATER PROBE (PR-33751)
B3 BLUE
Y1 (STEAM)
Y3 (CLEANING)
(VA-34045)
326 Y3/A2
X11/130 324
X4/3 RBH 408
327 Y1/A2
325 Y2/A2
X2/9 RBH 216
Y2 (COOLING) SOLENOID VALVE (VA-34300)
Y4/BLUE 328
Y3/A2 226
X2/6 RBH 210
PR-33746 PRODUCT PROBE
B10
RBL X9/6 911 910 GRN/RED
RBL X9/5 909 908 GRN/WHT
RBL X9/4 907 906 GRN/YEL
RBL X9/3 905 904 GREEN
RBL X9/2 903 902 WHITE
B11
PR-34298 Receptical PR-34299 PRODUCT PROBE 10.18
PR-34537 PRODUCT PROBE 12.20 Receptical PR-34704
380 WHITE
207 1206 RBL X12/5
205 1204 RBL X12/4
BLACK
1102 X11/2 RBL
1100 X11/1 RBL
103 101 RED
YELLOW PROBE (PR-33724) OVEN TEMP
E41 N6
E42
243 241 239 FI
E4/1 E4/2 E4/3 E4/4 E4/5 E4/6
JUMPER
249 247 245 FI
2 PIECE CONVECTION HEATING ELEMENT 10.18: 208V-10800W, 240V-14400W EACH PIECE (EL-3979)
12.20= 208V-13400W, 240V-17850W EACH PIECE (EL-3853)
MD-34857
SERVICE KIT # 50119508R
208-240V, 400W
2 SPEED MOTOR
VFD
L206 RBL
L204 RBL
L212 RBL
L214 RBL
L216 RBL
LAMP RECEPTACLE (LP-34161)
OVEN LAMP (LP-34206)
89 88 GND
321 320 F4
421 420 F3
FAN 1
INTAKE FAN
(FA-34957)
423 422 XII/131
331 330 XII/130
RBH X8/2 -12Vdc 208
803
509 X5/5 RBL
501 X5/1 RBL 500
503 X5/2 RBL 502
(VA-26838)
311 X11/130 310
313 K77/A2 364
N7
SAFETY THERMOSTAT (TT-3750)
Y4
CLEANING PUMP MD-34636
Y2/A2 327
RBH X8/5 328
GND 329
SMOKER OPTION
SMK EL 1 (EL-34554) 208V, 260W 240V, 346W
SMK EL 2 (EL-34554) 208V, 260W 240V, 346W
FUSE 429 428
SMK RLY 349
FUSE 429 430
SMK RLY 351
REFERENCE CUT SHEET
5011819
10.18 (IF SMOKER ADD 520W-692W)

	VOLTS	WATTS	AMPS
DESIGN	380V	22.6k W	34.3 A
	415 V	29.8k W	41.5 A
UL	380-415V	22.6-29.8KW	34.3-41.5A

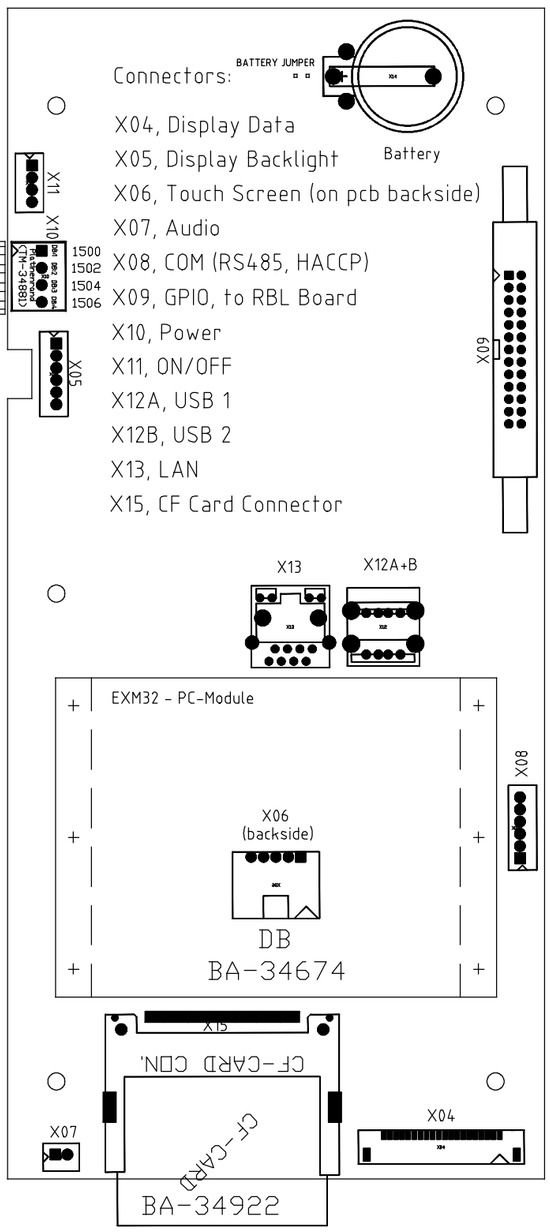
REV	ECO	DESCRIPTION	DATE	APP
10	dN45	DIP SWITCH STOP# POSITION	08/11/14	MVQ
9	4778	REPLACE SW WITH NEW PART#	10/11/13	MVQ
8	4488	UPDATE SMOKE dip switch setting	09/19/12	MVQ

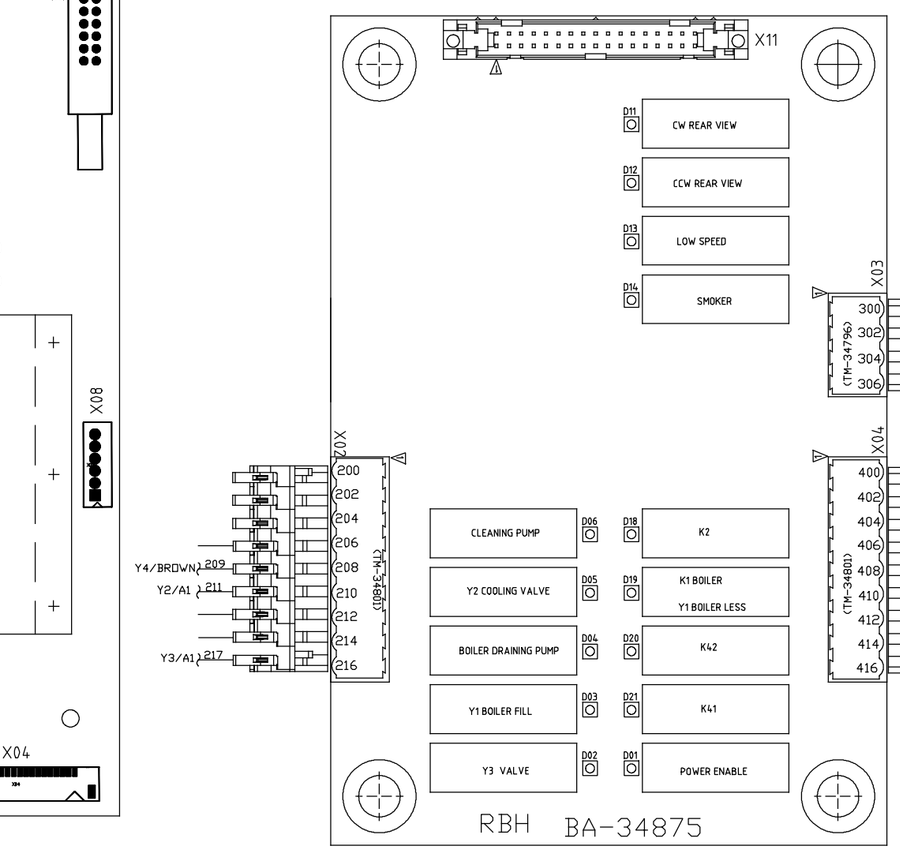
ALTO-SHAAM — WIRING DIAGRAM — 10.18 ES1 380-415V 3PH TOUCH
BY: MVQ — DWG: 77349 — SHEET: 1_OF_4
DATE: 6/7/10

refer to page 1

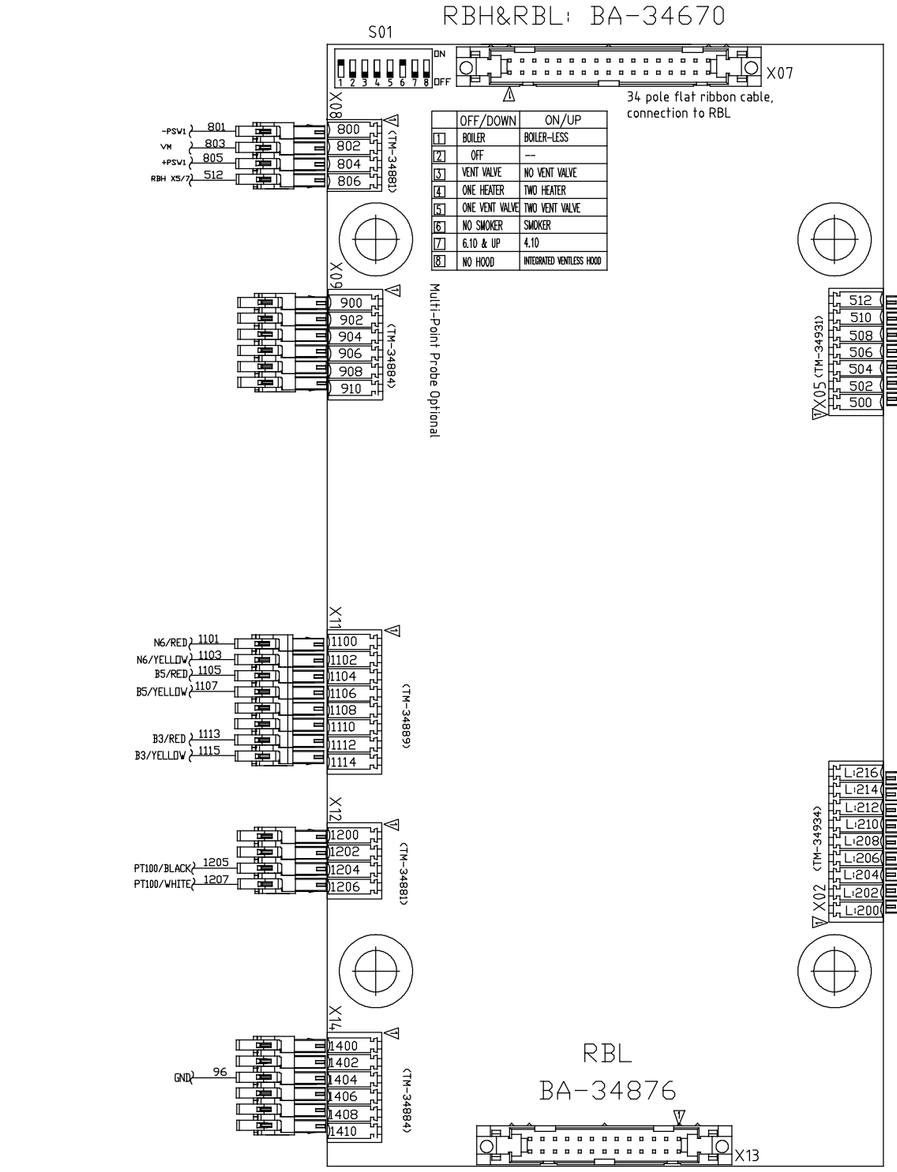
REV	ECO	DESCRIPTION	DATE	APP

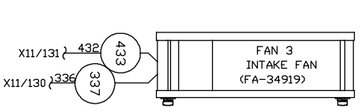
ALTO-SHAAM		WIRING DIAGRAM	
		1018 ESI 380-415V 3PH TOUCH	
BY:	MVQ	DWG: 77349	SHEET
DATE:	6/7/10		2_OF_4





RBH&RBL: BA-34670





REV	ECO	DESCRIPTION	DATE	APP
		Initial Release	6/7/10	

ALTO-SHAAM
BY: RVQ
DATE: 6/7/10
DWG: 77349
SHEET 3 OF 4

L1
L2
L3
N

FU-33452
2: FU-34921
3: FUSE HOLDERFU-33451
15 A
SMK RE
VFD FUSE
CONTROL FUSE
64
65
4
44
46
17
69
429
442
359

GREEN
86
87

BA-34676
VFD
339
301
303
305

MTR

LINE2
LINE1
340
341
434
435

K51
CN-34913
2
4
6
1
3
5

K77
2
4
6
1
3
5

K41
K42
2 PIECE CONVECTION
HEATING ELEMENT
1018: 208V-1080W
240V-1440W EACH PIECE
(EL-3979)

FE41
FE42
E42/1
E42/2
E42/3
E42/4
E42/5
E42/6
E42

SK1/2 430
350 SK1/1
2: EL-34554
SMOKER
ELEMENTS
SMOKER OPTION
SK2/2 428
348 SK2/1

X10
DB1 DB2 DB3 DB4
Antenna and

25
F2
6.3A
318
319
PSN
2: FUSE HOLDER FU-34311
5: FU-33452
5
F1
6.3A
418
419
417
PSL
PSV1
BA-36144
12VDC
359
439
805

SMOKER OPTION
RL-34633
RL-34634
345
346
RBH X3/4
306
347
335
349
331
X11/131

RBH
BA-34875

(TM-34801)
416
414
412
410
408
406
404
402
400
X04

(TM-34796)
306
304
302
300
X03

X02
(TM-34801)
200
202
204
206
208
210
212
214
216

437
426
415
427
F3
15A
420
CAVITY LAMP
K77
457
N7
456
313
SAFETY THERMOSTAT
308
311
K41
K42
A1
Y1
325
K51
436
353
SMK RLY
PUMP
Y2
Y3
VA-34045
MD-34636
328
Y2: VA-34300
Y3: VA-34300
327
88
89
322
F4
15A
320
310
323
324
352
334

RBL
BA-34876
Multi-Point Probe Optional

X02 (TM-34934)
L200
L202
L204
L206
L208
L210
L212
L214
L216
DOOR SAFETY SWITCH
HL RED
HL BROWN
HL BLACK

X05 (TM-34931)
500
502
504
506
508
510
512
VENT MOTOR SW
120DC MOTOR
M

X08 (TM-34881)
800
802
804
806

X09 (TM-34884)
900
902
904
906
908
910

X11 (TM-34889)
1100
1102
1104
1106
1108
1110
1112
1114
N6/RED
1101
N6/YELLOW
1103
B5/RED
1105
B5/YELLOW
1107

X12 (TM-34881)
1200
1202
1204
1206
B3/RED
1113
B3/YELLOW
1115

X14 (TM-34884)
1400
1402
1404
1406
1408
1410
PT100/BLACK
1205
PT100/WHITE
1207
96

S01
ON
OFF
1 2 3 4 5 6 7 8
S01:OFF - ON
6:No Smoker - Smoker
1:Boiler - Boilerless
NOTE: DIP SWITCH SETTING

B11
Receptical PR-34298
PRODUCT PROBE
PR-34299
WHITE
BLACK
RBL
X12/5
1205
RBL
X12/4
1204

RBL
1106
X11/4
1104
X11/3
YELLOW
RED
(107)
(105)
B5 STEAM BYPASS PROBE
(PR-33751)

YELLOW
1103
X11/2
1102
RBL
1100
X11/1
RED
(110)
N6
OVEN TEMP PROBE
(PR-33724)

YELLOW
1115
X11/8
1114
RBL
RED
1113
X11/7
1112
RBL
B3
COOLING WATER PROBE
(PR-33751)

Connectors:
X04, Display Data
X05, Display Backlight
X06, Touch Screen (on pcb backside)
X07, Audio
X08, COM (RS485, HACCP)
X09, GPIO, to RBL Board
X10, Power
X11, ON/OFF
X12A, USB 1
X12B, USB 2
X13, LAN
X15, CF Card Connector
Battery
60X
90X
X12A+B
X13
X06
(backside)
DB
BA-34674
EXM32 - PC-Module
X04
CF-CARD
CF CARD CONN.
X07
X11
X10
X05
15GB
15GA
15GC
15GD

RLC FILTERS: Y1,Y2,&Y3= FI-33989
RLC FILTERS: K51,& K71= FI-34949
RLC FILTERS: K1,K2,K3,K41,K42,&K77= FI-33990
VM: VENT MOTOR
VS: VENT SWITCH
FUSE VFD: FUSE CONTROL VFD
FUSE SMK: FUSE CONTROL SMOKER
VFD: VARIABLE FREQUENCY DRIVE
DB3& DB4: DISPLAY BOARD + DC INPUT
DB1& DB2: DISPLAY BOARD - DC INPUT

X11/130: BANK OF 3 BLUE SPRING TERMINALS
B1: BLUE UPPER WATER LEVEL STEAM TANK
B2: RED LOWER WATER LEVEL STEAM TANK
B3: BLUE PROBE CONDENSATION TANK
B5: RED PROBE CONDENSATION TANK
PSV: 12Vdc POWER SUPPLY
S7: DOOR SWITCH
N7: SAFETY HIGH LIMIT
K41 & K42: CONTROL CONVECTION
DP1: BUILDER DRAIN PUMP
E1, E2, E3: HCD ELEMENT
E4: CONVECTION ELEMENT
SMK RLY: SMOKER RELAY
SMK EL: SMOKER ELEMENT
K51 & K52: MOTOR DRIVE CONTACTOR

refer to page 1

REV	ECO	DESCRIPTION	DATE	APP

ALTO-SHAAM
WIRING DIAGRAM
1018 ES 380-415V 3PH TOUCH

BY:	MVQ	DWG:	77349	SHEET
DATE:	6/7/10			4_OF_4

(FA-34919)
FAN 2

N6
X6/7
X6/8
296
297
YELLOW
OVEN TEMP. PROBE
(PR-33724)

E41
243
241
239
JUMPER

E42
249
247
245
JUMPER

2 PIECE CONVECTION
HEATING ELEMENT

12.20= 208V-13400W,
240V-17850W EACH PIECE
(EL-3853)

MD-34857
SERVICE KIT # 501958R
208-240V, 400W
2 SPEED MOTOR
VFD
L206 RBL
L204 RBL
L212 RBL
L214 RBL
L216 RBL

B10
PRODUCT PROBE
PR-33746
911 X9/6 RBL 910 GRN/RED
909 X9/5 RBL 908GRN/WHT
907 X9/4 RBL 906GRN/YEL
905 X9/3 RBL 904 GREEN
903 X9/2 RBL 902 WHITE

B11
PRODUCT PROBE
PR-33746
B11 WHITE 1207 X12/5 L1206 RBL
BLACK 1205 X12/4 L1204 RBL

1106 X11/4 RBL
1104 X11/3 RBL
YELLOW 1107 X11/2
RED 1105 X11/1
B5 STEAM BYPASS PROBE (PR-33751)
RED

1116 X11/8 RBL
1114 X11/7 RBL
YELLOW 1115 X11/6
RED 1113 X11/5
B3 COOLING WATER PROBE (PR-33751)
BLUE

Y1 (STEAM)
(VA-34045)
Y3 (CLEANING)
Y2
Y3 (COOLING)
SOLENOID VALVE
(VA-34300)

Y4
CLEANING PUMP
MD-34636

RLC FILTERS: Y1,Y2,&Y3= FI-33989
RLC FILTERS: K51= FI-34949
RLC FILTERS: K1,K2,K41,K42,&K77= FI-33990

DP1
DRAIN PUMP
(DA-34973)

(A) (B) (C) (D) (E) (F)

425 424 X11/131
333 332 X11/130

PSW1
POWER SUPPLY, (BA-36144)
GND 96
X51/3 340
X51/1 424
V+ 805
V- 800
LCD J13 X10
LCD J12 X10
RBL 804 X8/3
RBL 800 X8/1
N 359 X11/130 338
L 439 X11/132 438

VFD
BA-34676

(CR-34995)
338 X11/130
300 X2/1
302 X2/2
304 X2/3
305
303
301

(TM-34305)
K51/4 354
K51/2 443
VFD (FU-33451) 15A FUSE
VFD (FU-34921) 15A FUSE
69 N
17 L1
X11/130 436
VFD/NEUTRAL 341
VFD/LINE 435
VFD 20 A
K51 (CN-34912)
355 FUSE A2
448 FUSE B1
N7 313
308 K41/A2
RBH 410 X4/6
K42/A2 312
RBH 412 X4/7
K42 (CN-3731)
K41 (CN-3731)
60 A
E42
E41
K1/A2 316
X11/130 437
X4/4 406
K3/A2 344
K2/A2 315
K2/A1 444
RBH 408 X4/5
K77 (CN-3854)
K3 (CN-3854)
K2 (CN-3854)
K1 (CN-3854)
40 A
E3
E2
E1
FIGURE 1.5
FIGURE 1.6
FIGURE 1.1
FIGURE 1.2

(TM-34305)
PARTITION(TM-34305)
(TM-34311) (FU-33184) FUSE 2A
(TM-34311) (FU-33184) FUSE 6.3A
(TM-34311) (FU-33452) FUSE 6.3A
(TM-34311) (FU-33452) FUSE 6.3A
F1 418
(TM-34307) X11/132
(TM-34307) X11/131
FAN 423
FAN 2 421
VFD/V 333
F2 337
FAN 2 331
FAN
LAMP 89
VFD/GND 87
(TM-34306)
X11/130 (TM-34308)
X11/131 (TM-34307)
X11/132 (TM-34307)
X11/134 (TM-34309)
439PSL PSW1
414 X4/8 RBH
335 PSN
359PSN PSW1
403 X4/4
95 Y4/GND
298 PE
L1 4
N 64
INPUT 393
FUSE/VFD 69
FUSEVFD F1 493
INPUT L3
INPUT L2
INPUT L1
TM-3786
(TM-33877) (TM-33880)

X11/130 382
X11/131 426
X11/130 319
X11/132 419
K51/A1 437
K51/A2 333
X11/131 425
X11/134 335
X11/130 318
X11/130 337
X11/130 333
X11/130 89
X11/130 87
K77/A1 454
K77/A2 364
RBH 427 (F3)
K77/2 49
K77/6 49
K77/4 62
K77/2 62
K77/6 6
K77/2 6

(CR-34995)
LAMP RECEPTACLE
(LP-34161)
OVEN LAMP
(LP-34206)
89 321 320 F4
421 88 GND
420 F3

FAN 1
INTAKE FAN
(FA-34957)
331 X11/130 330
423 X11/131 422

WATER LEVEL PROBE
(PR-34902)
2: PROBE TIP CONN'S
(CR-3651)
RBL 202 X2/2
RBL 200 X1/2
201
203
501 X5/1 500 RBL
503 X5/2 502 RBL
RBH X8/2 802 -12Vdc
803
RBL X5/5 508
509
(VA-26838)

PROTECTION PROBE
(PR-33739)
WHITE N8
YELLOW 1009 X10/5 RBL
RED 1010 X10/6 RBL
1: IMMERSION HEATING ELEMENT
208V=4700W
240V=6800W
[EL-33412]

E1
E2
E3
RED E1 263
BLUE E1 265
WHITE E1 267
RED E2 269
BLUE E2 271
WHITE E2 273
BLUE E3 275
RED E3
WHITE E3 279
FST/1 220
FST/3 224
FST/2 222
FST/4 226
FST/6 230
FST/5 228
FST/7 232
FST/8 234
221 225 223 227 231 229 233 235 237

1: IMMERSION HEATING ELEMENT
208V=7500W
240V=10,700W
[EL-33411]
BROWN YELLOW X11/6 RBL 1110
RED X11/5 RBL 1108
WATER PROBE
(PR-33724)
B4

N7
311 X11/130
313 K77/A2 364
SAFETY THERMOSTAT
(TT-3750)

X11/130 342
RBH X2/7 212
343 213
DP1
DRAIN PUMP
(DA-34973)

REFERENCE CUT SHEET
12.20ES: 5011810

	VOLTS	WATTS	AMPS
DESIGN	380	27.8KW	42.3A
	415	36.7KW	51.1A
UL	380-415V	27.8-36.7KW	42.3-51.1A

REV	ECO	DESCRIPTION	DATE	APP
7	6965	[illegible]	03/11/14	MVQ
6	6721	[illegible]	10/11/13	MVQ
5	6443	[illegible]	09/04/12	MVQ

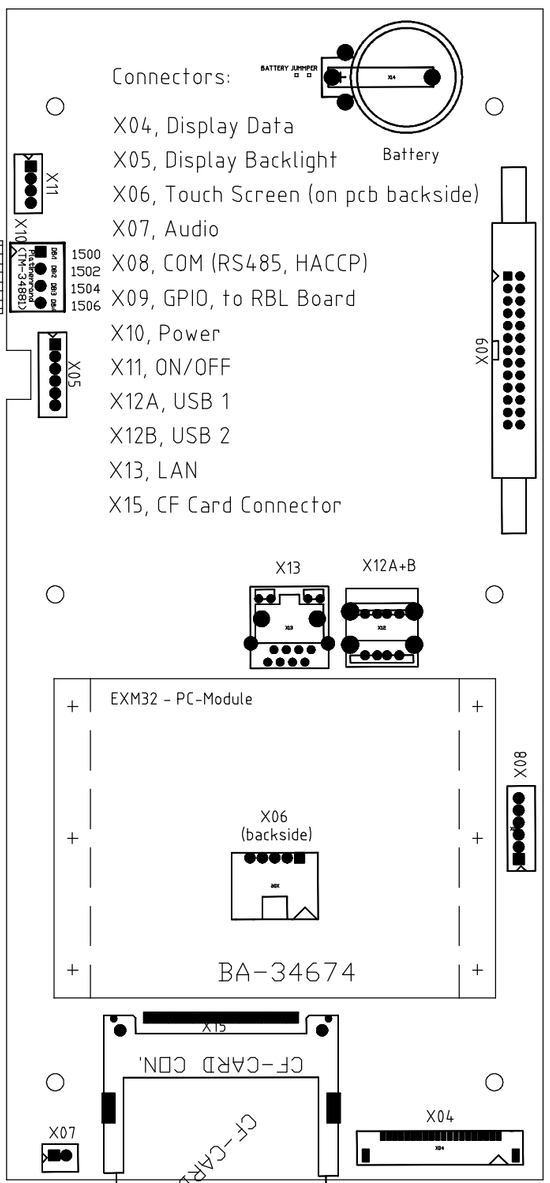
ALTO-SHAAM
WIRING DIAGRAM
12.20 ES 380-415V 3PH TOUCH
BY: MVQ
DATE: 9/27/10
DWG: 77373
SHEET 1_OF_5

25A FUSES (FU-33449)
6 FUSE ASSY
(FU-33448)/(FU-33446)/(FU-33445)

20A FUSES (FU-33450)
9 FUSE ASSY
(FU-33447)/(FU-33444)/(FU-33445)

-	-	-	-	-
-	-	-	-	-
		refer to page 1		-
REV	ECO	DESCRIPTION	DATE	APP

ALTO-SHAAM		WIRING DIAGRAM	
		1220 ES 380-415V 3PH TOUCH	
BY:	MVQ	DWG: 77373	SHEET 2_DF_5
DATE:	9/27/10		



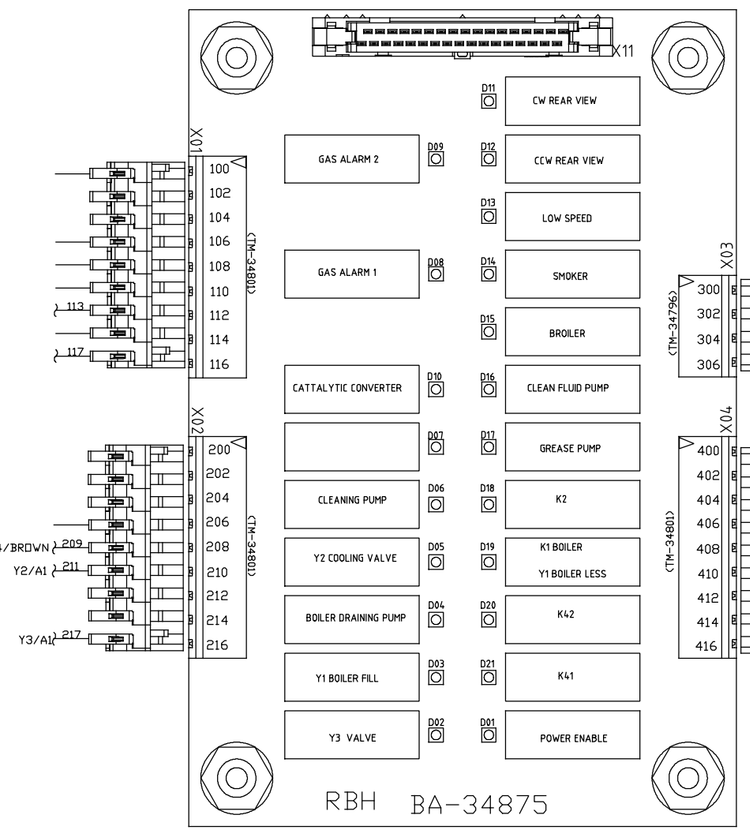


FIGURE 1.5

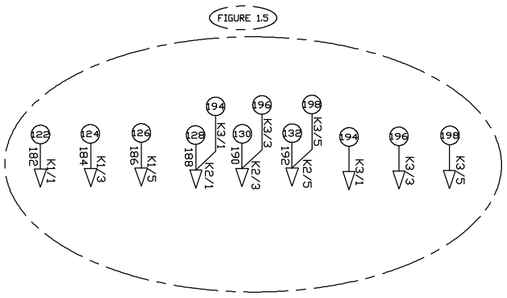
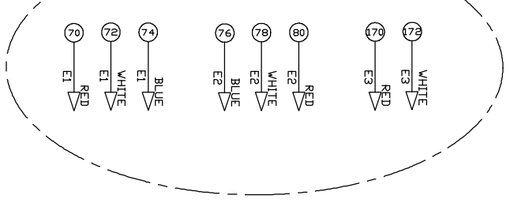
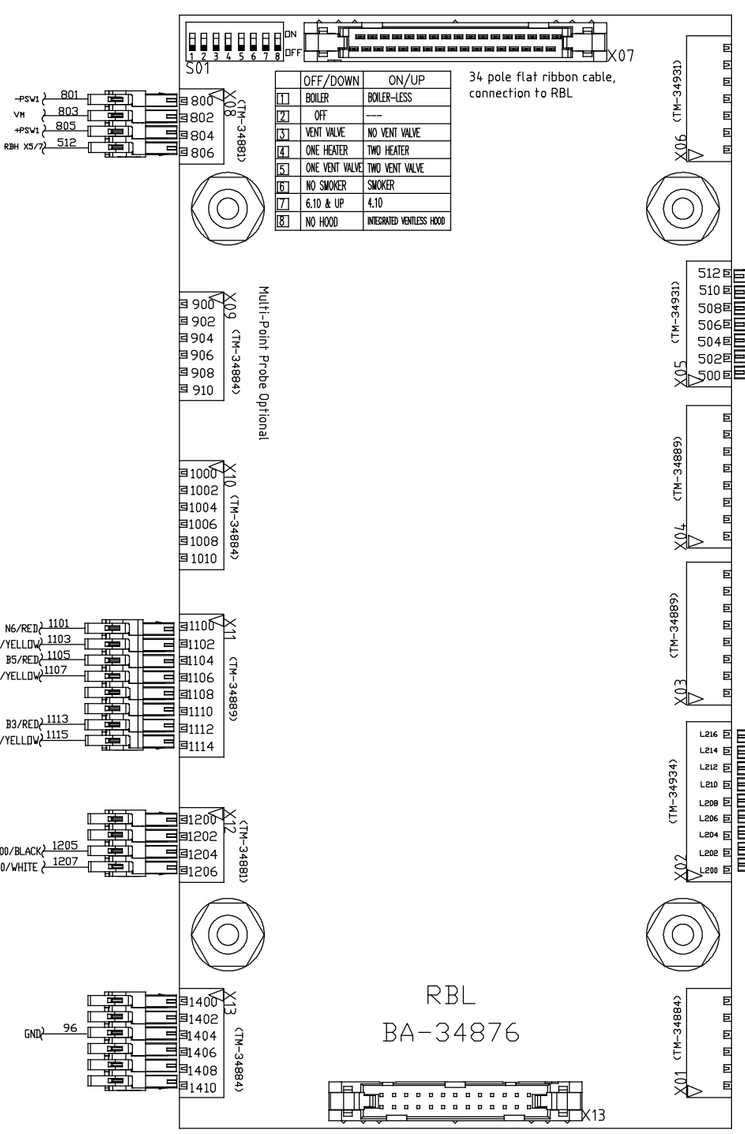
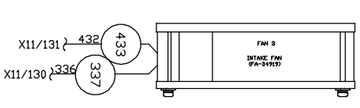


FIGURE 1.6



RBH & RBL
BA-34670





BY:	JKV0	REV	ECO	DESCRIPTION	DATE	APP
DATE:	9/27/10					
DWG:	77373			WIRING DIAGRAM		
SHEET	3_OF_5			120 E3 208-415V 3PH 100CH		

ALTO-SHAAM

L1
L2
L3
N

2: FUSE HOLDER FU-34311
2: FU-33452
3: FU-34921
3: FU-33451

GREEN
LINE1
LINE2
K51
CN-34913
VFD
BA-34927
MTR
X10
PSV1
BA-36144
12VDC
PSN
PSL
F1
F2
F3
F4
CAVITY LAMP
SAFETY THERMOSTAT
PUMP
MD-34636
PUMP
(DA-29973)
DP1
Y1 VA-34300
Y2 VA-34300
Y3 VA-34045

B11
Reception PR-34298
PRODUCT PROBE
PR-34298
WHITE
BLACK
RBL X204
RBL X206
X12/4
X12/5
(205)
(207)

N6
YELLOW
RED
(103)
(101)
X11/2
X11/1
RBL
RBL
OVEN TEMP. PROBE
(PR-33724)

RLC FILTERS: Y1,Y2,&Y3= FI-33989
RLC FILTERS: K51,& K71= FI-34949
RLC FILTERS: K1,K2,K3,K41,K42,&K77= FI-33990
VM: VENT MOTOR
VS: VENT SWITCH
FUSE VFD: FUSE CONTROL VFD
FUSE SMK: FUSE CONTROL SMOKER
VFD: VARIABLE FREQUENCY DRIVE
DB3&, DB4: DISPLAY BOARD + DC INPUT
DB1&, DB2: DISPLAY BOARD - DC INPUT

X11/130: BANK OF 3 BLUE SPRING TERMINALS
B1: BLUE UPPER WATER LEVEL STEAM TANK
B2: RED LOWER WATER LEVEL STEAM TANK
B3: BLUE PROBE CONDENSATION TANK
B5: RED PROBE CONDENSATION TANK
PSV: 12Vdc POWER SUPPLY
S7: DOOR SWITCH
N7: SAFETY HIGH LIMIT
K41 & K42: CONTROL CONVECTION
DP1: BOILDER DRAIN PUMP
E1, E2, E3: H2O ELEMENT
E4: CONVECTION ELEMENT
SMK RLY: SMOKER RELAY
SMK EL: SMOKER ELEMENT
K51 & K52: MOTOR DRIVE CONTACTOR

RBL BA-34876
Multi-Point Probe Optional

X01 (TM-34884)
X02 (TM-34934)
X05 (TM-34931)
X06 (TM-34931)
X08 (TM-34881)
X09 (TM-34884)
X10 (TM-34884)
(TM-34889)
X11
X12
(TM-34881)
X14 (TM-34884)
X03 (TM-34796)
X04
(TM-34801)

DOOR SAFETY SWITCH
HL RED
HL BROWN
HL BLACK
LIGHT MOTOR RUN
120VAC MOTOR
2: PROBE TIP CONN'S
(CR-36511)
WATER LEVEL
PROBE
(PR-34902)
N8/RED
N8/YELLOW
N6/RED
N6/YELLOW
B5/RED
B5/YELLOW
B4/RED
B4/YELLOW
B3/RED
B3/YELLOW
PT100/BLACK
PT100/WHITE
GND

REV	ECO	DESCRIPTION	DATE	APP
-	-	-	-	-
-	-	-	-	-
		refer to page 1		

ALTO-SHAAM
WIRING DIAGRAM
12.20 ES 380-415V 3PH TOUCH
BY: MVQ
DATE: 9/27/10
DWG: 77373
SHEET 4_DF_S

L1

L2

L3

2 4 6

1 3 5

K1

3↓ CN-3654
30A CONTACTOR

2 4 6

K2

1 3 5

2 4 6

K3

1 3 5

2 4 6

20A FUSES (FU-33450)
9↓ FUSE ASSY
(FU-33447)/(FU-33444)/(FU-33445)

FST1 FST2 FST3 FST4 FST5 FST6 FST7 FST8 FST9

RED E1
BLUE E1
WHITE E1

RED E2
BLUE E2
WHITE E2

RED E3
BLUE E3
WHITE E3

25A FUSES (FU-33449)
6↓ FUSE ASSY
(FU-33448)/(FU-33444)/(FU-33445)

2 4 6

K41

1 3 5

FE41 FE41 FE41

E42/1 E42/2 E42/3 E42 E42/4 E42/5 E42/6

2 4 6

K42

1 3 5

FE42 FE42 FE42

E42/1 E42/2 E42/3 E42 E42/4 E42/5 E42/6

12.20= 208V-13400W,
240V-17850W EACH PIECE
(EL-3853)

EL-33412
208V 4700W
240V 6800W

E1

EL-33411
208V 7500W
240V 10700W

E2

EL-33411
208V 7500W
240V 10700W

E3

CN-3450

(TM-3443B)

RED E3
RED E2
RED E1
WHITE E3
BLUE E3
WHITE E2
BLUE E2
WHITE E1
BLUE E1

-	-	-	-	-
-	-	-	-	-
		refer to page 1		-
REV	ECO	DESCRIPTION	DATE	APP

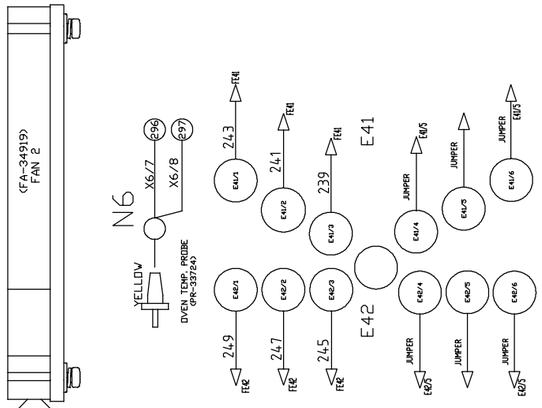
ALTO-SHAAM

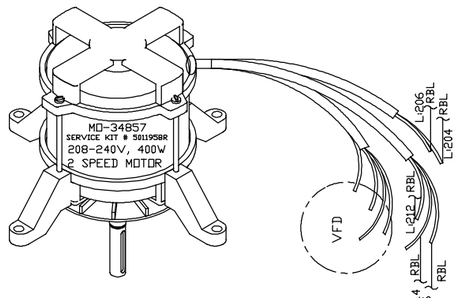
WIRING DIAGRAM
12.20 ES 380-415V 3PH TOUCH

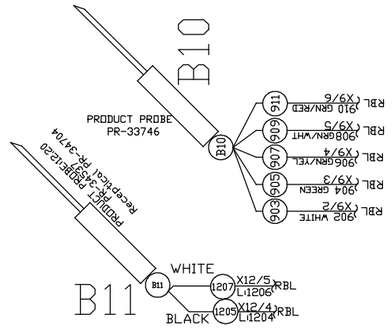
BY: MVQ
DATE: 9/27/10

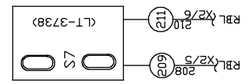
DWG: 77373

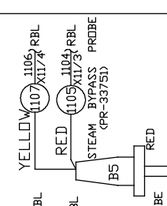
SHEET
5_OF_5

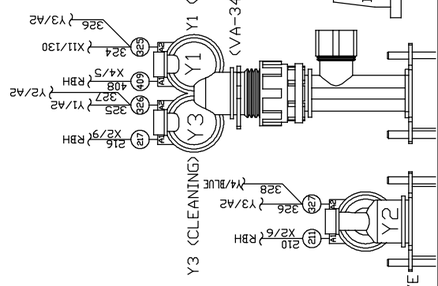


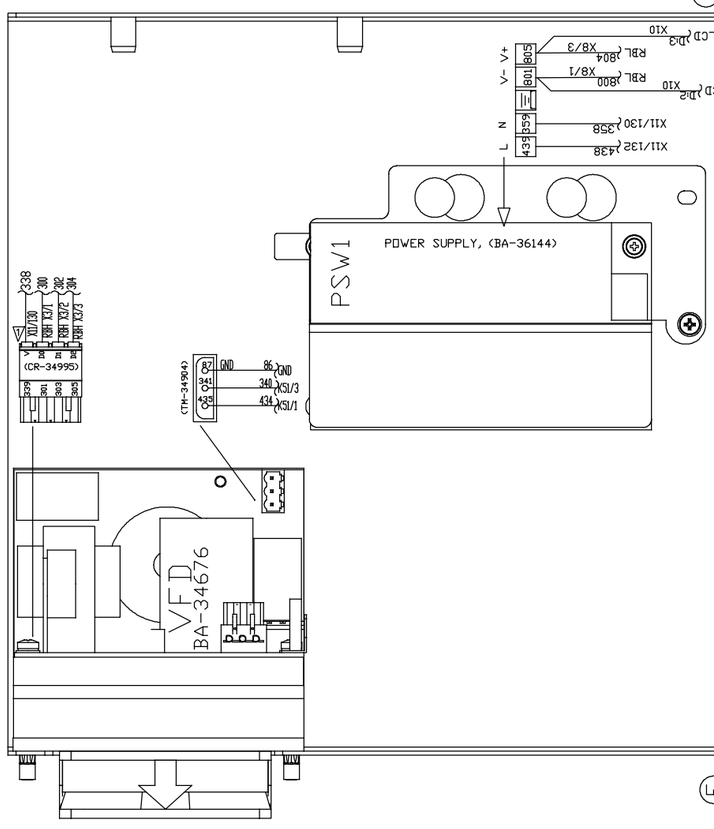


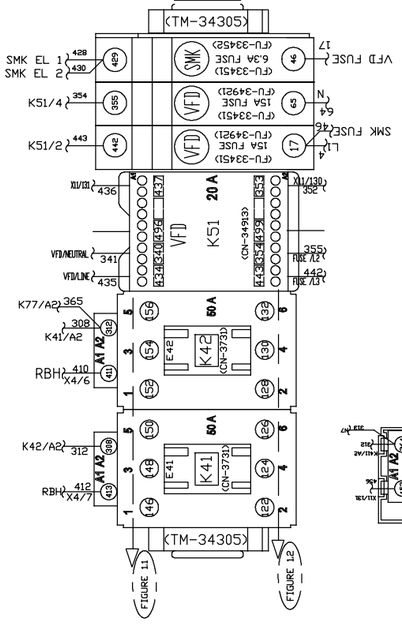


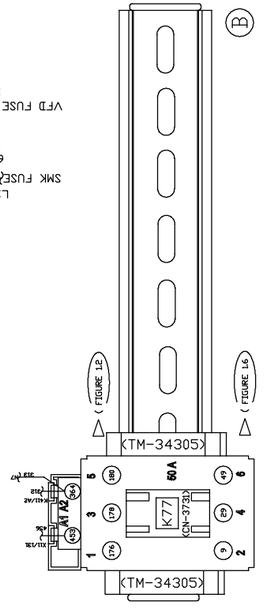


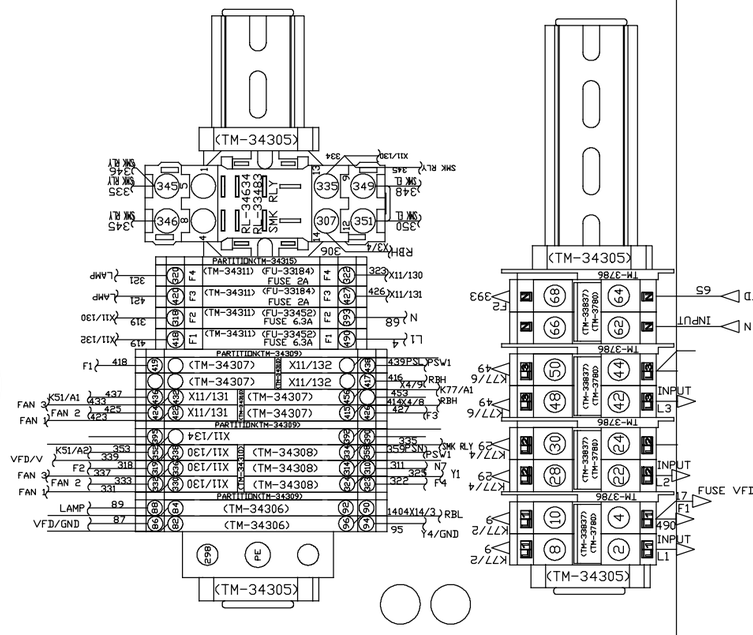


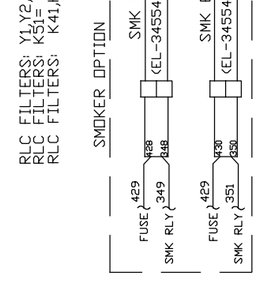


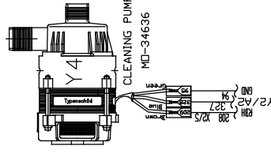


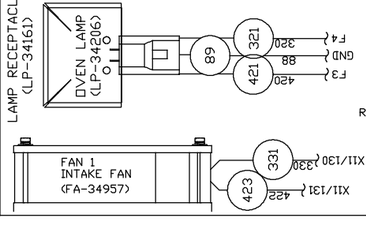


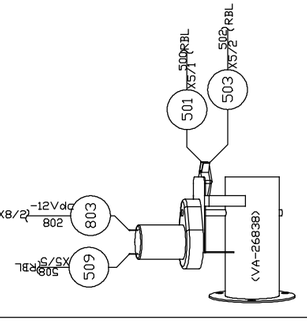


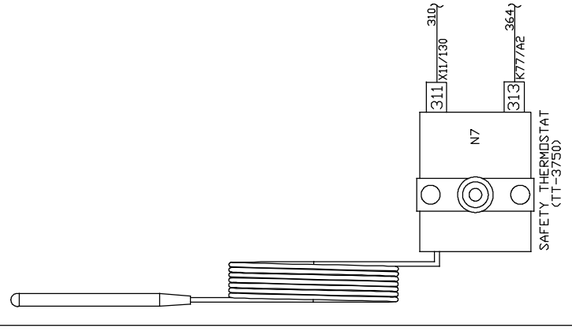












REFERENCE CUT SHEET
5011811

12.20 (IF SMOKER ADD 520W-692W)

	VOLTS	WATTS	AMPS
DESIGN	380V	27.8k W	42.3A
	415 V	36.7k W	51.1A
UL	380-415V	27.8-36.7KW	42.3-51.1A

REV	ECO	DESCRIPTION	DATE	APP
9	6965		03/11/14	MVQ
8	6721		10/11/13	MVQ
7	6449		09/04/12	MVQ

ALTO-SHAAM

WIRING DIAGRAM

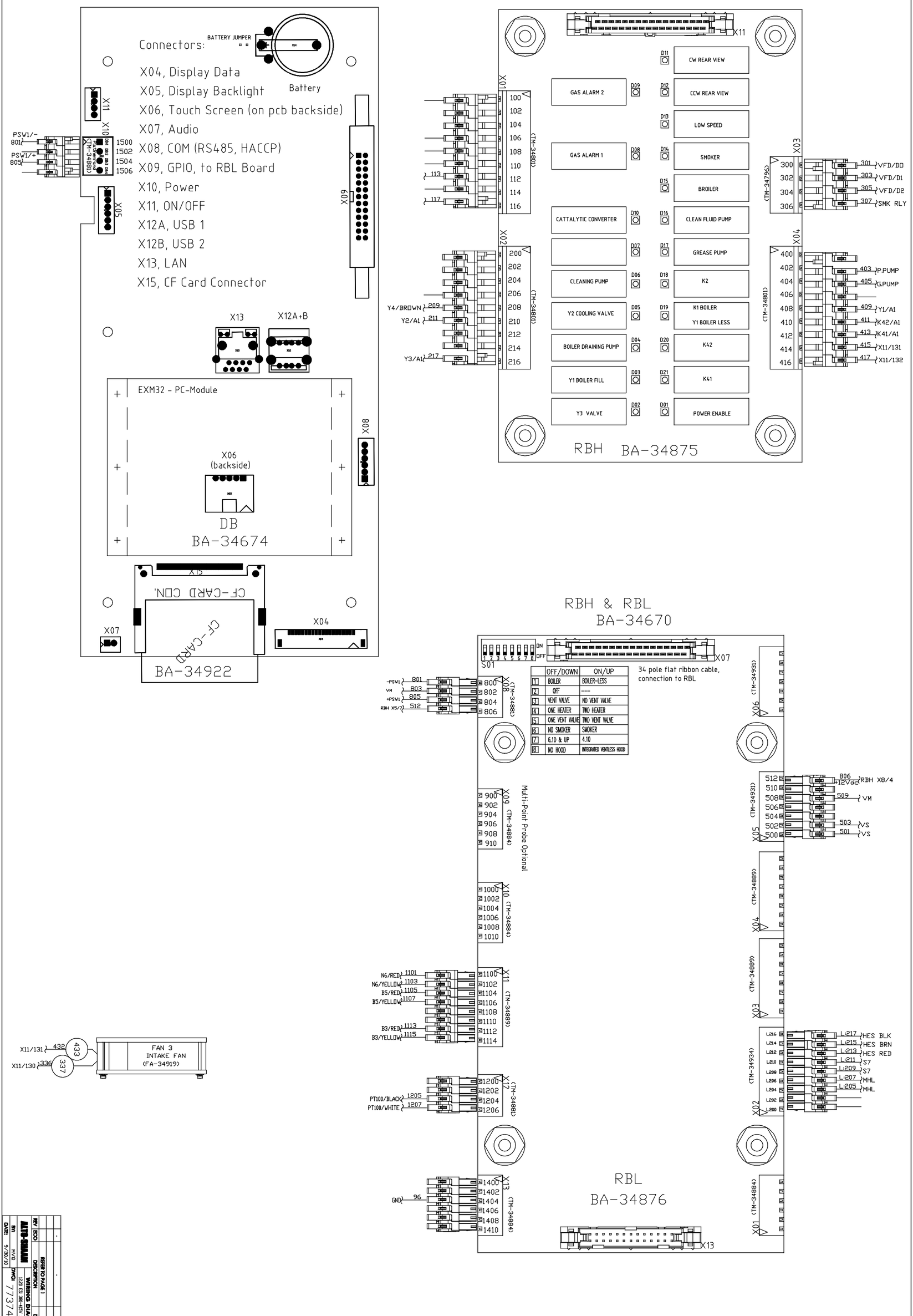
12.20 ES1 380-415V 3PH TOUCH

BY: MVQ DWG: 77374 SHEET 1_OF_4

DATE: 9/30/10

	-	-	-	
		REFER TO PAGE 1		
REV	ECO	DESCRIPTION	DATE	APP

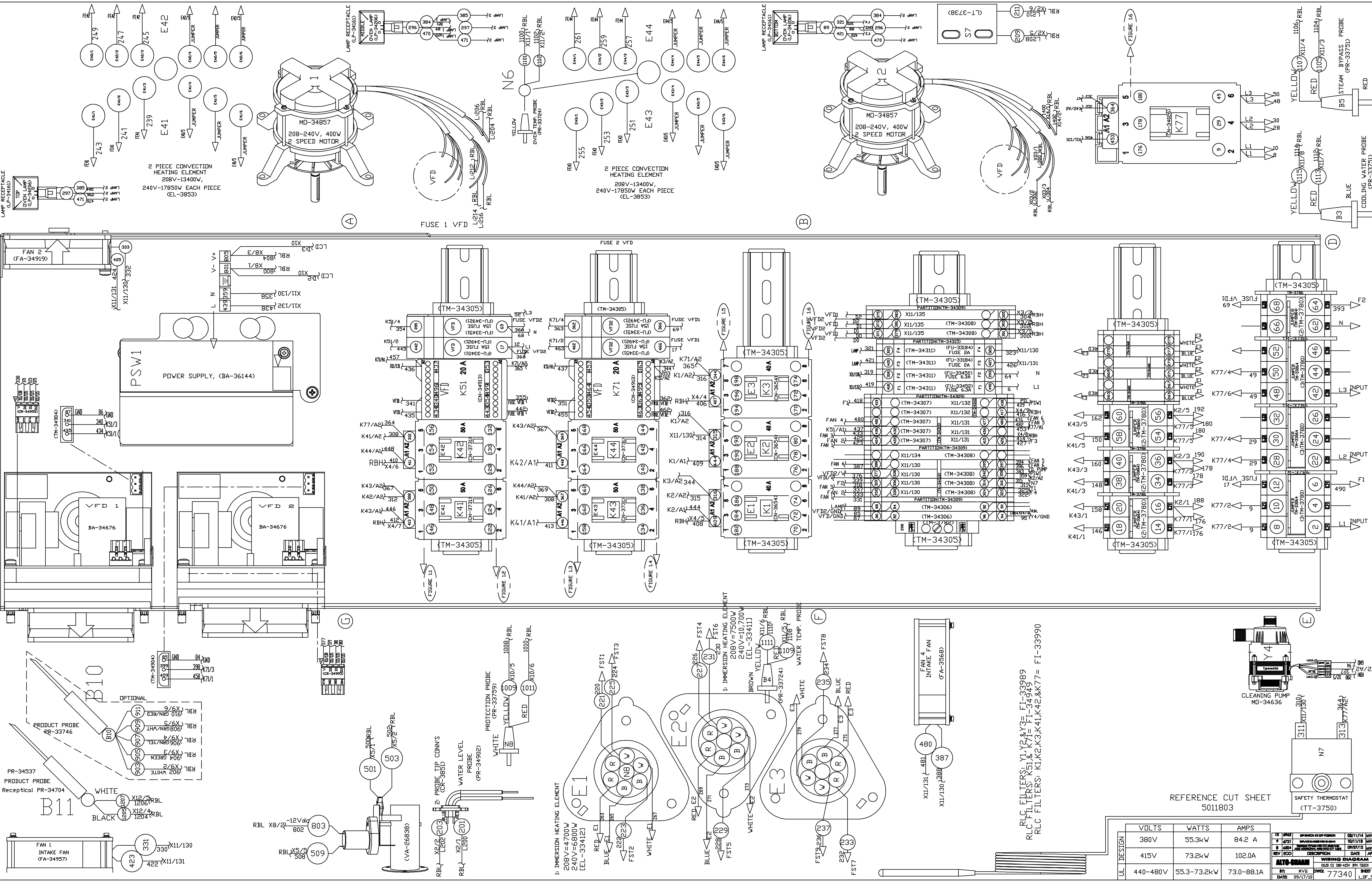
ALTO-SHAAM		WIRING DIAGRAM	
		1220 ES1 380-415V 3PH TOUCH	
BY:	MVQ	DWG: 77374	SHEET
DATE:	9/30/10		2_OF_4



REV	ECO	DESCRIPTION	DATE
		REFER TO PAGE 1	

ALTO-SHAAM
WAUKESHA, WI 53186
DRAWING BY: DOUG RAY
APP
DWG: 77374
DATE: 9/30/10
BY: RVQ
SHEET 3_OF_4

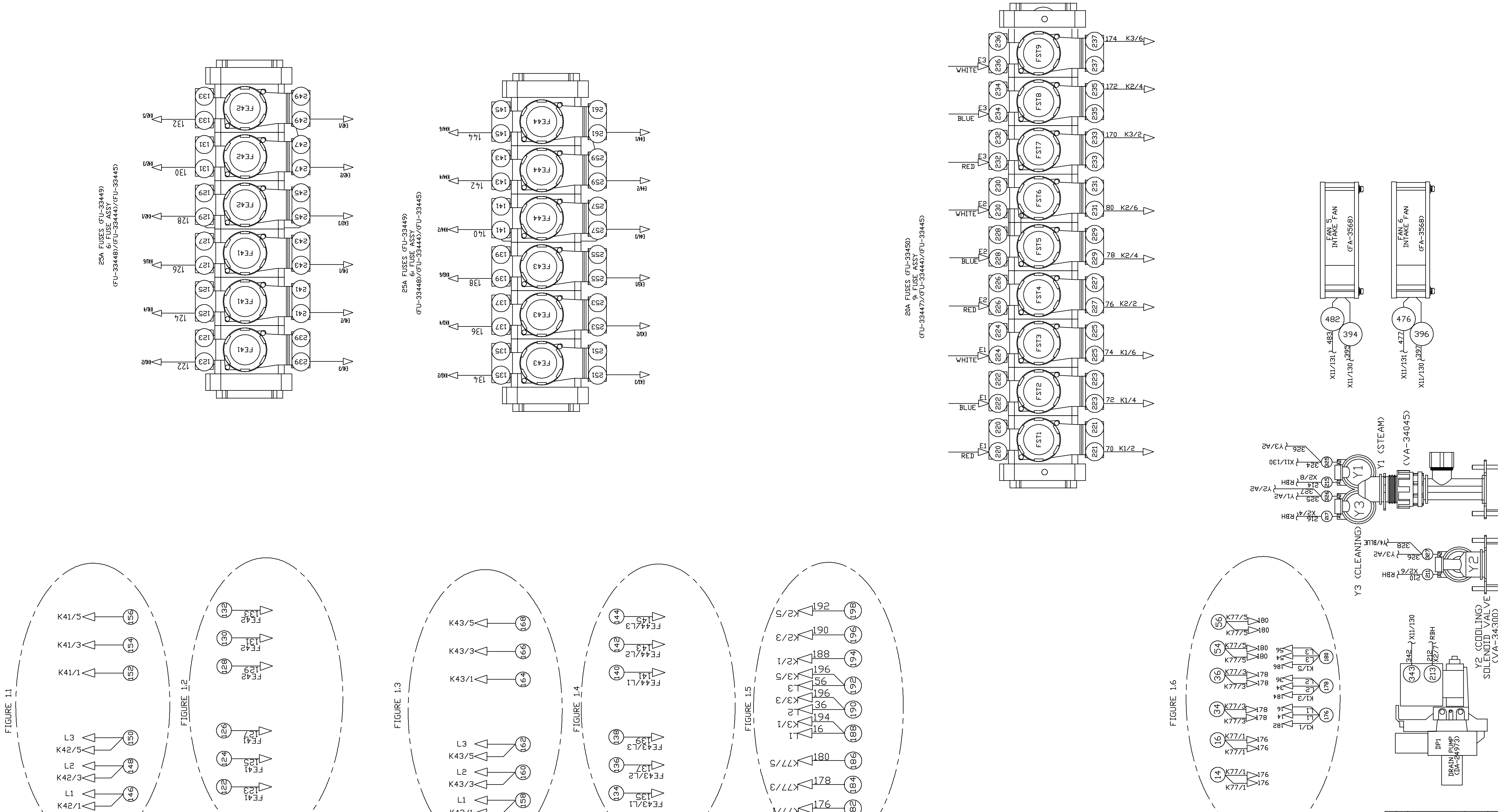
L1
L2
L3
N
64
68
4
46
65
SW2 FUSE
SW1 FUSE
1: FU-33452
2: FU-34921
3: FU-33451
429
442
359
GREEN
86
87
BA-34676
VFD
339
301
303
305
MTR
LINE2
LINE1
340
341
434
435
K51
CN-34913
1
3
5
2
4
6
SK1/2
430
350
SK1/1
2: EL-34554
SMOKER
ELEMENTS
SMOKER OPTION
SK2/2
428
348
SK2/1
X10
DB1 DB2 DB3 DB4
Rectifier and
393
F2
6.3A
318
319
PSN
PSV1
BA-36144
12VDC
PSL
2: FUSE HOLDER FU-34311
5: FU-33452
5
F1
418
419
417
439
805
SMOKER OPTION
RL-34634
345
346
RBH X3/4
306
347
348
X11/13
334
K77
K41
K42
E42
FE41
FE42
E42/1
E42/2
E42/3
E42/4
E42/5
E42/6
2 PIECE CONVECTION
HEATING ELEMENT
12.20= 208V-13400W,
240V-17850W EACH PIECE
(EL-3853)
Connectors:
X04, Display Data
X05, Display Backlight
X06, Touch Screen (on pcb backside)
X07, Audio
X08, COM (RS485, HACCP)
X09, GPIO, to RBL Board
X10, Power
X11, ON/OFF
X12A, USB 1
X12B, USB 2
X13, LAN
X15, CF Card Connector
Battery
60X
80X
X12A+B
X13
X06
(backside)
EXPRS-PC-Module
DB
BA-34674
X04
CF-CARD CON
CF-CARD
X03
X07
X11
X10
X05
1106
1104
RBL
X11/4
X11/3
YELLOW
RED
B5
STEAM BYPASS PROBE
(PR-33751)
1102
1100
X11/2
X11/1
1103
1101
N6
DVEN TEMP. PROBE
(PR-33724)
1114
1112
X11/8
X11/7
1115
1113
B3
COOLING WATER PROBE
(PR-33751)
RLC FILTERS: Y1,Y2,&Y3= FI-33989
RLC FILTERS: K51,& K71= FI-34949
RLC FILTERS: K1,K2,K3,K41,K42,&K77= FI-33990
VM: VENT MOTOR
VS: VENT SWITCH
FUSE VFD: FUSE CONTROL VFD
FUSE SMK: FUSE CONTROL SMOKER
VFD: VARIABLE FREQUENCY DRIVE
DB3& DB4: DISPLAY BOARD - DC INPUT
DB1& DB2: DISPLAY BOARD - DC INPUT
X11/130: BANK OF 3 BLUE SPRING TERMINALS
B1: BLUE UPPER WATER LEVEL STEAM TANK
B2: RED LOWER WATER LEVEL STEAM TANK
B3: BLUE PROBE CONDENSATION TANK
B5: RED PROBE CONDENSATION TANK
PSV: 12Vdc POWER SUPPLY
S7: DOOR SWITCH
N7: SAFETY HIGH LIMIT
K41 & K42: CONTROL CONVECTION
DP1: BOILER DRAIN PUMP
E1, E2, E3: H2O ELEMENT
E4: CONVECTION ELEMENT
SMK RLY: SMOKER RELAY
SMK EL: SMOKER ELEMENT
K51 & K52: MOTOR DRIVE CONTACTOR
PRODUCT PROBE
PR-34299
Receptical PR-34298
PRODUCT PROBE
PR-34299
B11
WHITE
BLACK
1205
1207
RBL
X12/5
X12/4
RBH
BA-34875
(TM-34801)
(TM-34796)
(TM-34934)
(TM-34931)
(TM-34881)
(TM-34889)
X01
X02
X03
X04
X05
X06
X08
X09
X10
X11
X12
X14
416
414
412
410
408
406
404
402
400
306
304
302
300
200
202
204
206
208
210
212
214
216
100
102
104
106
108
110
112
114
116
L200
L202
L204
L206
L208
L210
L212
L214
L216
500
502
504
506
508
510
512
600
602
604
606
608
610
612
800
802
804
806
900
902
904
906
908
910
1000
1002
1004
1006
1008
1010
1100
1102
1104
1106
1108
1110
1112
1114
1200
1202
1204
1206
400
402
404
406
408
410
437
436
456
426
413
427
420
F3
313
312
308
K41
K42
Y1
VA-34045
353
K51
SMK RLY
MD-34636
CLEAN PUMP
328
326
Y3
VA-34045
327
Y2
VA-34300
325
Y2
VA-34300
SAFETY THERMOSTAT
311
NZ
310
K77
314
CAVITY LAMP
88
89
320
F4
322
323
324
310
334
DOOR SAFETY SWITCH
HL RED
HL BROWN
HL BLACK
VENT MOTOR SW
120C MOTOR
M
RBL BA-34876
Multi-Point Probe Optional
1101
1103
1105
1107
1113
1115
1205
1207
96
N6/RED
N6/YELLOW
B5/RED
B5/YELLOW
B3/RED
B3/YELLOW
PT100/BLACK
PT100/WHITE
GND
REFER TO PAGE 1
REV
ECO
DESCRIPTION
DATE
APP
ALTO-SHAAM
WIRING DIAGRAM
1220 ES 380-415V 3PH TOUCH
BY: MVQ
DWG: 77374
SHEET 4_OF_4
DATE: 9/30/10



	VOLTS	WATTS	AMPS
DESIGN	380V	55.3kW	84.2 A
	415V	73.2kW	102.0A
UL	440-480V	55.3-73.2kW	73.0-88.1A

REV	ECO	DESCRIPTION	DATE	APP
10	6965	DIP SWITCH #2 OFF POSITION	03/11/14	MVQ
9	6721	REPLACE BA-34855 WITH BA-36144	10/11/13	MVQ
8	6504	Replace F2 fuse with CC class fuse ADD ADDITIONAL WIRE INTO K77 1/3/5	09/27/12	MVQ

ALTO-SHAAM
WIRING DIAGRAM
20.20 ES 380-415V 3PH TOUCH
BY: MVQ
DATE: 09/17/10
DWG: 77340
SHEET 1 OF 5



REV	ECO	DESCRIPTION	DATE	APP
-	-	-	-	-
-	-	-	-	-
0	-	refer to page 1		-

ALTO-SHAAM

WIRING DIAGRAM

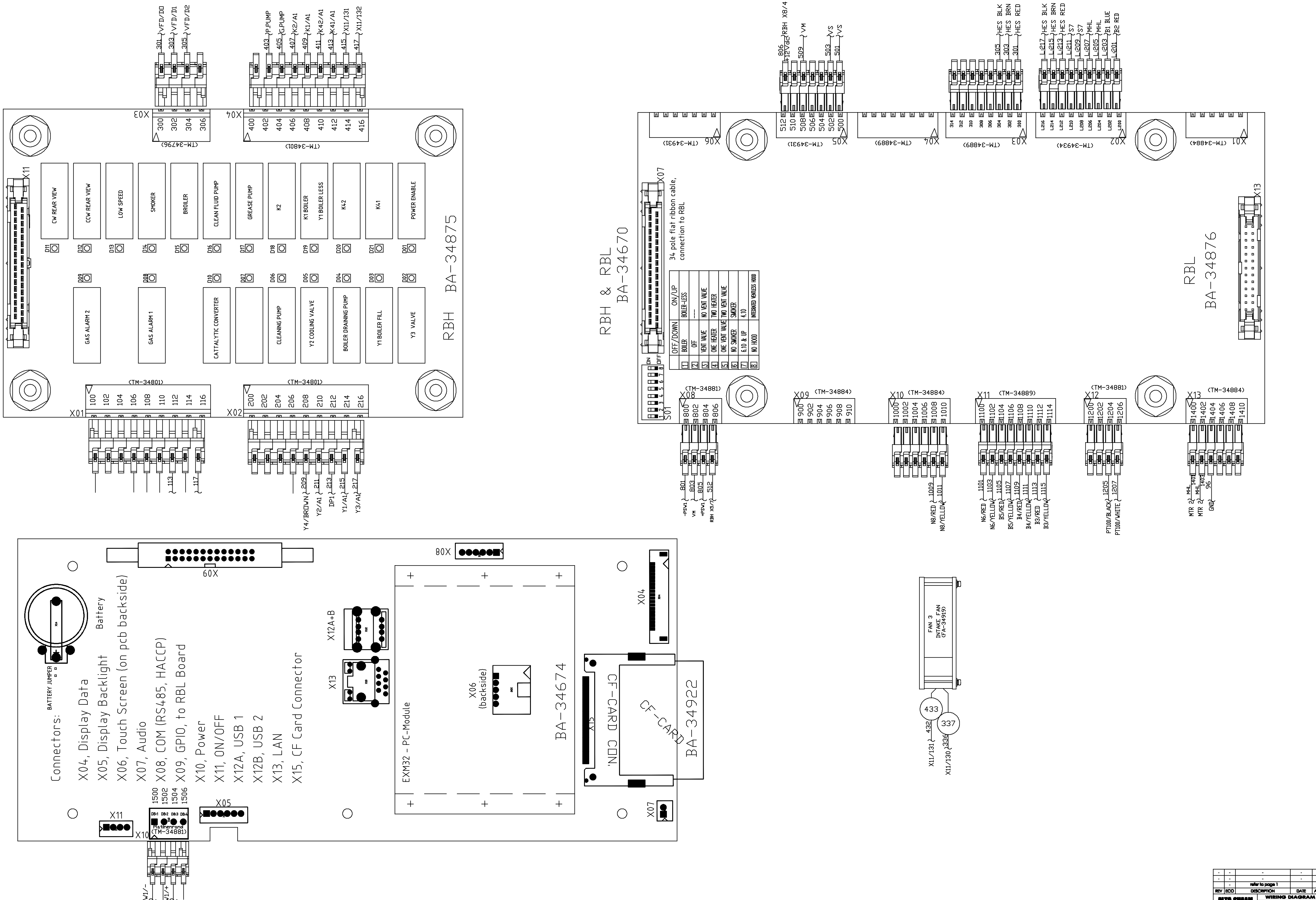
20.20 ES 380-415V 3PH TOUCH

BY: MVQ

DATE: 09/17/10

DWG: 77340

SHEET 2 OF 5



-	-	-	-	-
-	-	-	-	-
	-	refer to page 1		-
REV	ECO	DESCRIPTION	DATE	APP

ALTO-SHAAM	WIRING DIAGRAM
	20.20 ES 380-415V 3PH TOUCH
BY: MVQ	DWG: 77340
DATE: 09/17/10	SHEET 3_OF_5

L1
L2
L3
N

GREEN
LINE
LINE
LINE
LINE
LINE
2: FU-33451
2: FU-34921
2: FU-34921
2: FU-33451
CN-34913
K51
K71
BA-34676 VFD
MTR1
MTR2
2: FUSE HOLDER FU-34311
2: FU-33452
F1
F2
PSN
PSL
PCSW11 Rev V44 12VDC
X10
SAFETY THERMOSTAT
CAVITY LAMP
PUMP (DA-34973)
MD-34636
VA-34045
VA-34300
2: PROBE TIP CONN'S (CR-3851)
WATER LEVEL PROBE (PR-34902)
VENT MOTOR SW.
120VAC MOTOR
DOOR SAFETY SWITCH
HL RED
HL BROWN
HL BLACK

Connectors:
X04, Display Data
X05, Display Backlight
X06, Touch Screen (on pcb backside)
X07, Audio
X08, COM (RS485, HACCP)
X09, GPIO, to RBL Board
X10, Power
X11, ON/OFF
X12A, USB 1
X12B, USB 2
X13, LAN
X15, CF Card Connector
Battery
60X
80X
X12A+B
X13
X04
X06 (backside)
X03
CF-CARD
EXM32 - PC-Module
BA-34674
X11
X10
X05
X07

Receptical PR-34704
PRODUCT PROBE
PR-34537
B11
WHITE
BLACK
RBL (X12/3)
RBL (X12/4)
J304
J306
1102
X117/2
RBL
1100
X117/1
RBL
1103
1101
YELLOW
RED
N6
DIVEN TEMP. PROBE (PR-33724)

RBL BA-34876
Multi-Point Probe Optional

X01 (TM-34884): 100, 102, 104, 106, 108, 110
X02 (TM-34934): L200, L202, L204, L206, L208, L210, L212, L214, L216
X03 (TM-34889): 300, 302, 304, 306, 308, 310, 312, 314
X04 (TM-34801): 416, 414, 412, 410, 408, 406, 404, 402, 400
X03 (TM-34796): 306, 304, 302, 300
X02 (TM-34801): 200, 202, 204, 206, 208, 210, 212, 214, 216
X01 (TM-34801): 100, 102, 104, 106, 108, 110, 112, 114, 116
X05 (TM-34931): 500, 502, 504, 506, 508, 510, 512
X06 (TM-34931): 600, 602, 604, 606, 608, 610, 612
X08 (TM-34881): 800, 802, 804, 806
X09 (TM-34884): 900, 902, 904, 906, 908, 910
X10 (TM-34884): 1000, 1002, 1004, 1006, 1008, 1010
X11 (TM-34889): 1100, 1102, 1104, 1106, 1108, 1110, 1112, 1114
X12 (TM-34881): 1200, 1202, 1204, 1206
X14 (TM-34884): 1400, 1402, 1404, 1406, 1408, 1410

N8/RED 1009
N8/YELLOW 1011
N6/RED 1103
N6/YELLOW 1105
B5/RED 1107
B5/YELLOW 1109
B4/RED 1111
B4/YELLOW 1113
B3/RED 1115
B3/YELLOW
PT100/BLACK 1205
PT100/WHITE 1207
GND 96

REV	ECO	DESCRIPTION	DATE	APP
		refer to page 1		

ALTO-SHAAM
WIRING DIAGRAM
PLUS CS 36B-HSV 3PH TOUCH
BY: MVQ DWG: 77340 SHEET 4_OF_5
DATE: 09/17/10

L1

L2

L3

3; CN-3654
30A CONTACTOR

K1

K2

K3

20A FUSES (FU-33450)
9; FUSE ASSY
(FU-33447)/(FU-33444)/(FU-33445)

FST1 FST2 FST3 FST4 FST5 FST6 FST7 FST8 FST9

RED E1 BLUE E1 WHITE E1

RED E2 BLUE E2 WHITE E2

RED E3 BLUE E3 WHITE E3

25A FUSES (FU-33449)
6; FUSE ASSY
(FU-33448)/(FU-33444)/(FU-33445)

K41 K42

FE41 FE42

2 PIECE CONVECTION
HEATING ELEMENT
10.18; 208V-10800W,
240V-14400W EACH PIECE
(EL-3979)

E42/1 E42/2 E42/3 E42/4 E42/5 E42/6

E42

25A FUSES (FU-33449)
6; FUSE ASSY
(FU-33448)/(FU-33444)/(FU-33445)

K43 K44

FE43 FE44

2 PIECE CONVECTION
HEATING ELEMENT
10.18; 208V-10800W,
240V-14400W EACH PIECE
(EL-3979)

E43/1 E43/2 E43/3 E43/4 E43/5 E43/6

E43

E44/1 E44/2 E44/3 E44/4 E44/5 E44/6

E44

EL-33412
208V 4700W
240V 6800W

E1

EL-33411
208V 7500W
240V 10700W

E2

EL-33411
208V 7500W
240V 10700W

E3

CN-34980

RED E3 WHITE E3
RED E2 BLUE E2
RED E1 WHITE E1
BLUE E1

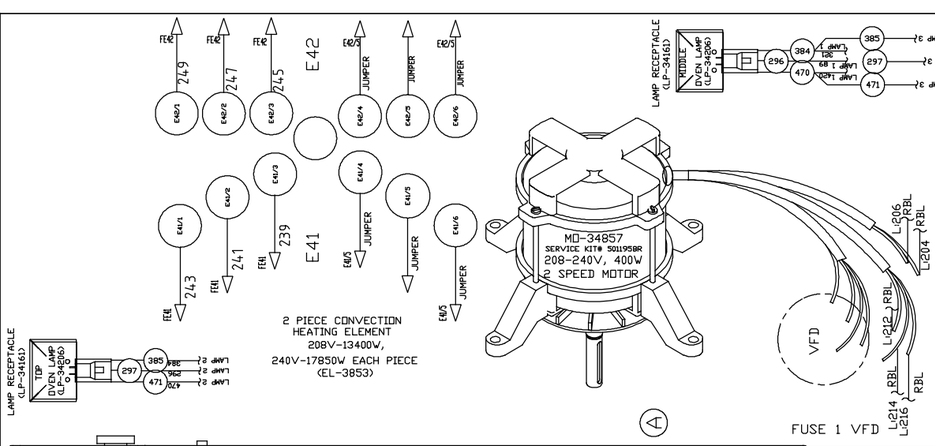
X11/130; BANK OF 3 BLUE SPRING TERMINALS
B1; BLUE UPPER WATER LEVEL STEAM TANK
B2; RED LOWER WATER LEVEL STEAM TANK
B3; BLUE PROBE CONDENSATION TANK
B5; RED PROBE CONDENSATION TANK
PSW; 12Vdc POWER SUPPLY
S7; DOOR SWITCH
N7; SAFETY HIGH LIMIT
K41 & K42; CONTROL CONVECTION
DP1; BOILDER DRAIN PUMP
E1, E2, E3; H2O ELEMENT
E4; CONVECTION ELEMENT
SMK RLY; SMOKER RELAY
SMK EL; SMOKER ELEMENT
K51 & K52; MOTOR DRIVE CONTACTOR

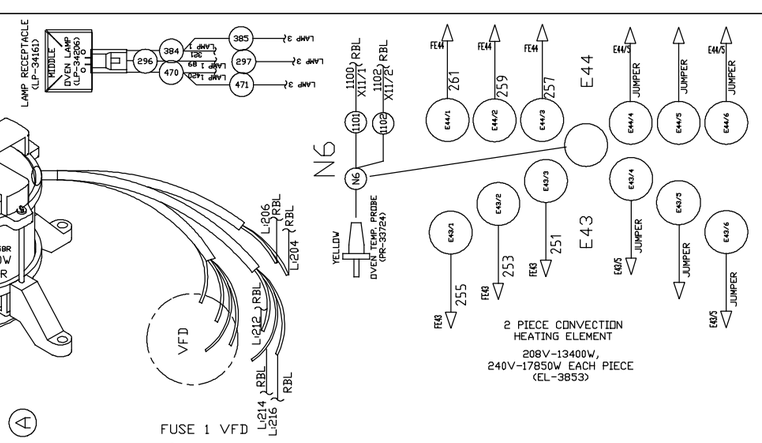
RLC FILTERS; Y1,Y2,&Y3= FI-33989
RLC FILTERS; K51,& K71= FI-34949
RLC FILTERS; K1,K2,K3,K41,K42,&K77= FI-33990
VM; VENT MOTOR
VS; VENT SWITCH
FUSE VFD; FUSE CONTROL VFD
FUSE SMK; FUSE CONTROL SMOKER
VFD; VARIABLE FREQUENCY DRIVE
DB3& DB4; DISPLAY BOARD + DC INPUT
DB1& DB2; DISPLAY BOARD - DC INPUT

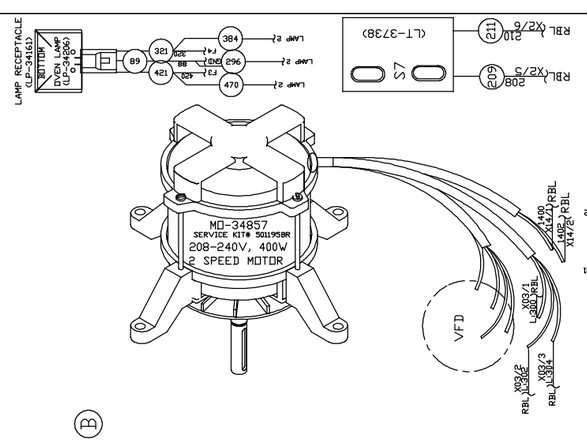
REV	ECO	DESCRIPTION	DATE	APP
-	-	-	-	-
-	-	-	-	-
-	-	refer to page 1		-

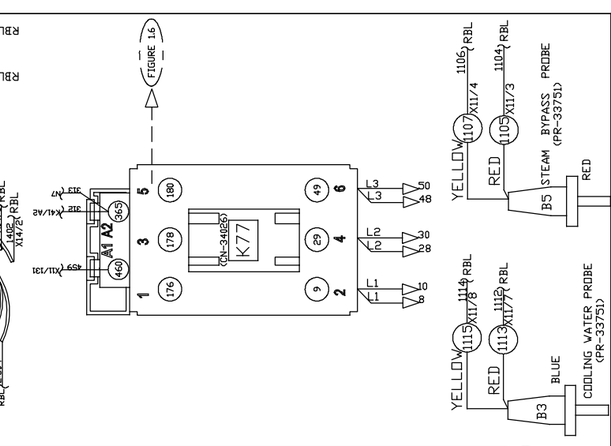
ALTO-SHAAM — WIRING DIAGRAM
2620 CS 208-415V 3PH TOUCH

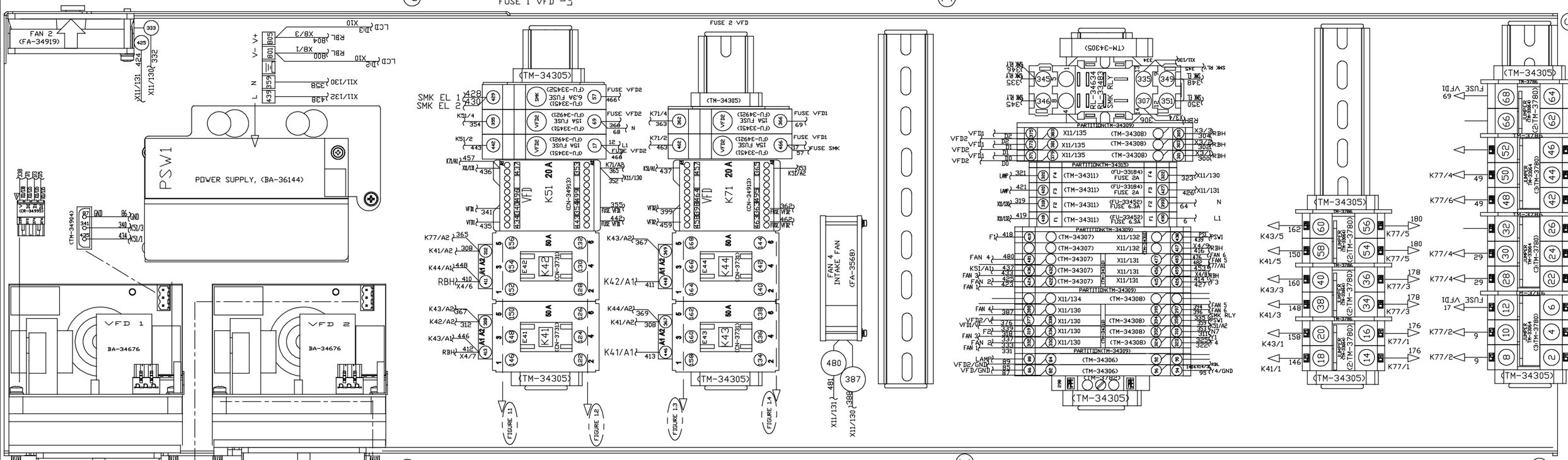
BY:	MVD	DWG:	77340	SHEET
DATE:	09/17/10			5_OF_5

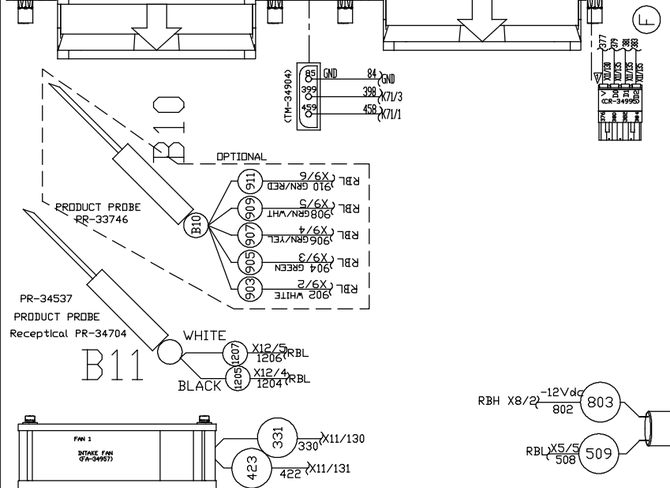


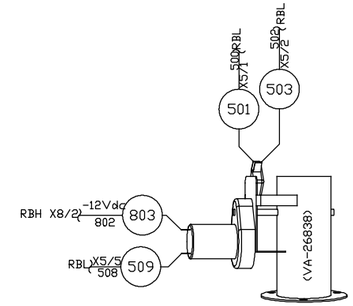


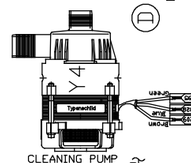


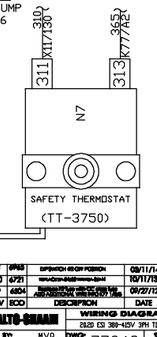












RLC FILTERS\ Y1,Y2,&Y3= FI-33989
RLC FILTERS\ K51,&K71= FI-34949
RLC FILTERS\ K41,K42,K43,K44&K77= FI-33990

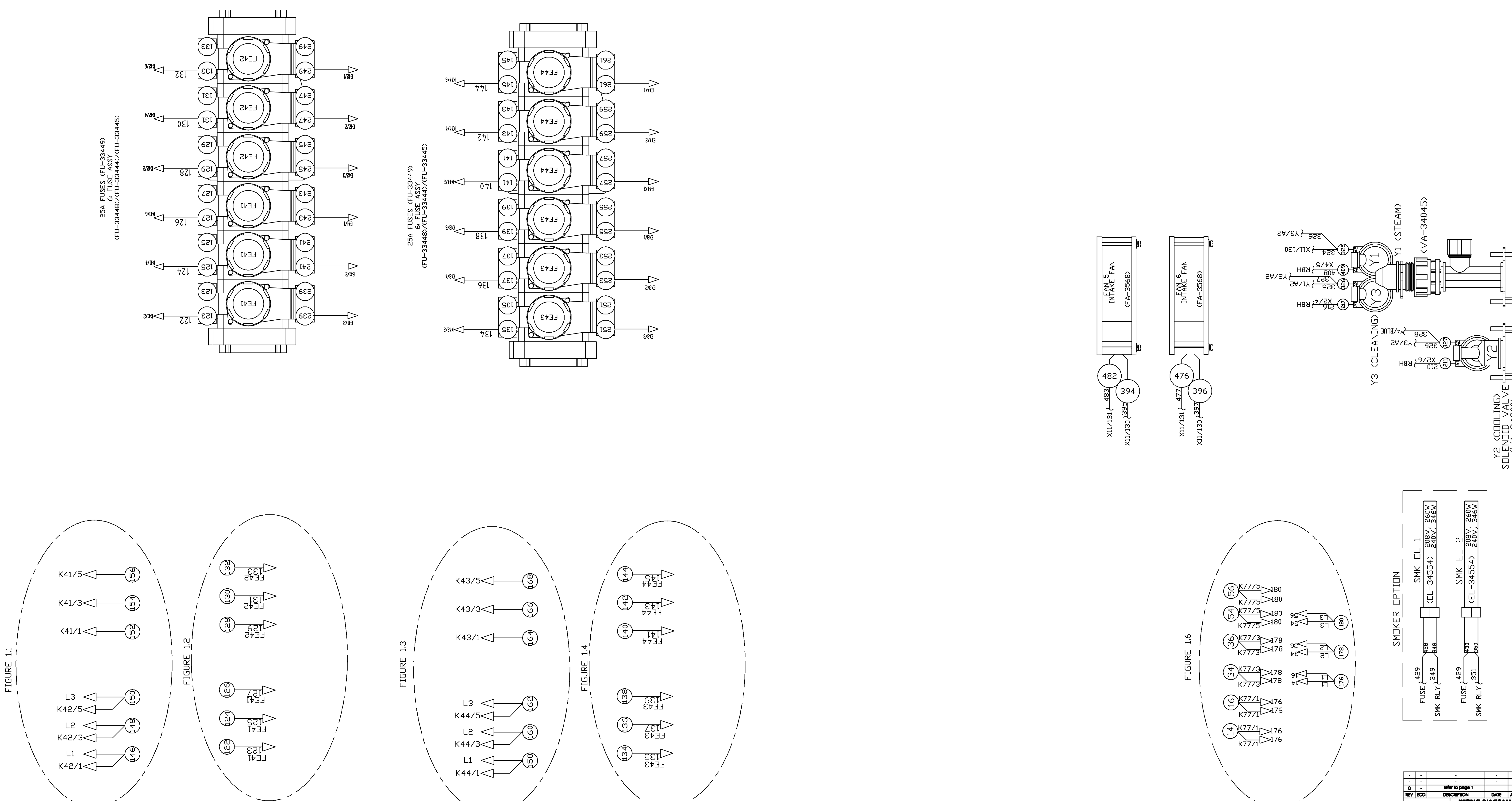
REFERENCE CUT SHEET
5011806
(IF SMOKER ADD 520W-692W)

		VOLTS	WATTS	AMPS
DESIGN		380V	55.3kW	84.2 A
		415V	73.2kW	102.0A
UL		440-480V	55.3-73.2kW	73.0-88.1A

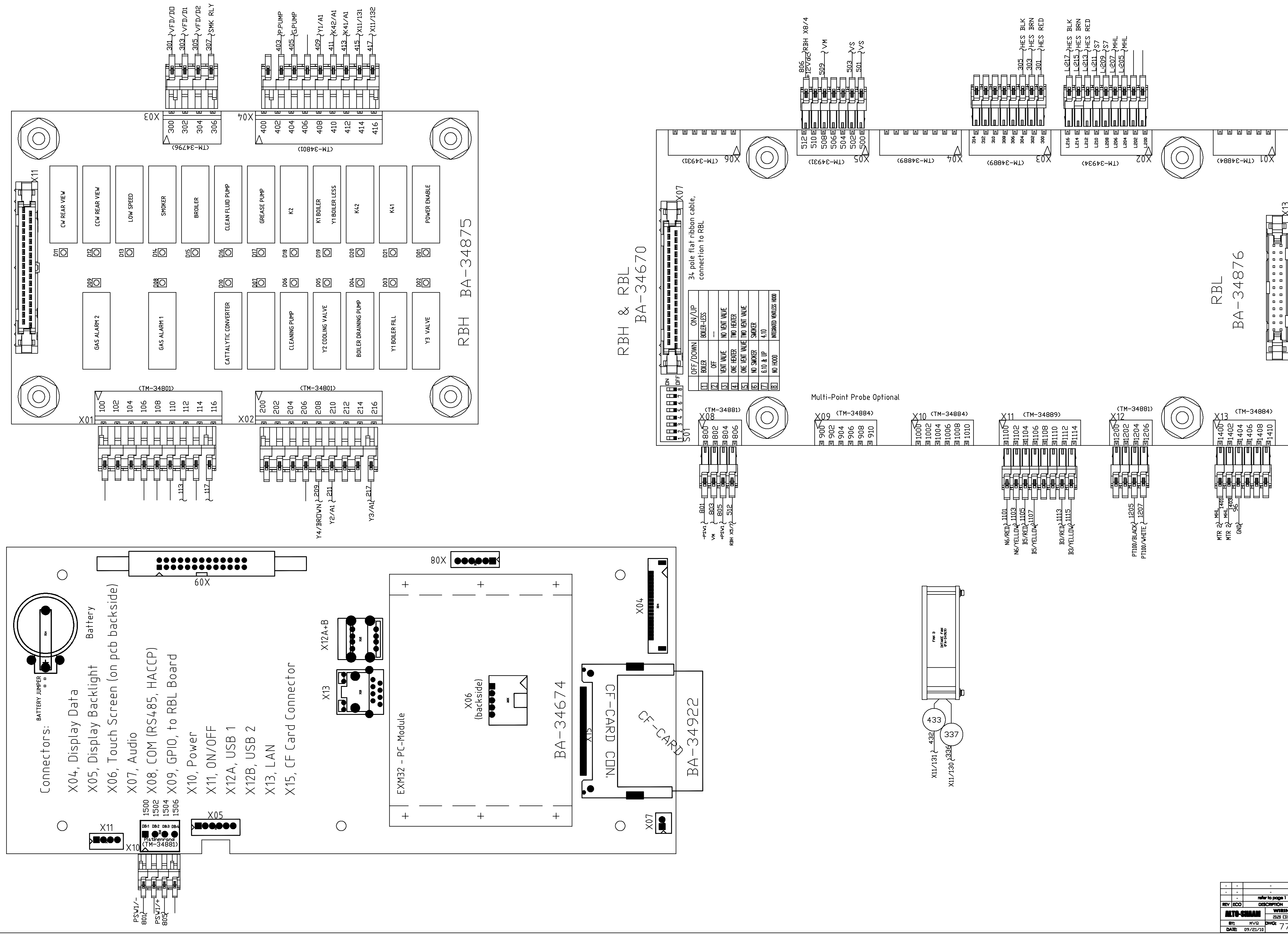
REV	ECO	DESCRIPTION	DATE	APP
TT	6965		08/11/14	MVG
10	6721		10/11/13	MVG
9	6604		09/07/12	MVG

ALTO-SHAAM — WIRING DIAGRAM — 2020 CSI 380-415V 3PH TOUCH

BY: MVG DATE: 09/21/10 DWG#: 77342 SHEET: 1_OF_5



-	-	-	-	-
-	-	refer to page 1	-	-
REV	ECO	DESCRIPTION	DATE	APP
ALTO-SHAAM		WIRING DIAGRAM		
		2020 ES 380-415V 3PH TOUCH		
BY:	HVG	DWG: 77342		SHEET 2_OF_5
DATE:	09/21/10			



REV	ECO	DESCRIPTION	DATE	APP
-	-	-	-	-
-	-	-	-	-
	-	refer to page 1		-

ALTO-SHAAM	WIRING DIAGRAM
	20.20 ESI 380-415V 3PH TOUCH
BY: MVQ	DWG: 77342
DATE: 09/21/10	SHEET 3_OF_5

L1
L2
L3
N

(FU-33452)
2: FU-33451
2: FU-34921
FUSE/SMK
FUSE/MTR
FUSE/MTR
CN-34913
K51
K71
2: FU-34921
2: FU-33451
GREEN
LINE
LINE
LINE
LINE
BA-34676 VFD
BA-34676 VFD
MTR1
MTR2
2: FUSE HOLDER FU-34311
2: FU-33452
F1 6.3A
F2 6.3A
PSN
PSL
PS-W11
Bx-V5V/12V/DC
X10
Platinum-Sand
SMOKER OPTION
RL-33483
RL-34634
SMK RLY
RBH X3/4
SK1/2 430
SK1/1
2: EL-34554
SMOKER
ELEMENTS
SK2/2 428
SK2/1
SMOKER OPTION
SAFETY THERMOSTAT
CAVITY LAMP
K41
K42
K44
K45
K1
K2
Y1
PUMP
Y2
Y3
Y4
MD-34636
VA-34045
VA-34300
VA-34300
X03 (TM-34796)
X04 (TM-34801)
X02 (TM-34801)
X01 (TM-34801)
X01 (TM-34884)
X02 (TM-34934)
X03 (TM-34889)
DOOR SAFETY SWITCH
HL RED
HL BROWN
HL BLACK
X05 (TM-34931)
VENT MOTOR SW
120C MOTOR
X06 (TM-34931)
X08 (TM-34881)
X09 (TM-34884)
X10 (TM-34884)
X11 (TM-34889)
X12 (TM-34881)
X14 (TM-34884)
RBL BA-34876
Multi-Point Probe Optional
N6/RED
N6/YELLOW
B5/RED
B5/YELLOW
B3/RED
B3/YELLOW
PT100/BLACK
PT100/WHITE
GND
60X
80X
Connectors:
X04, Display Data
X05, Display Backlight
X06, Touch Screen (on pcb backside)
X07, Audio
X08, COM (RS485, HACCP)
X09, GPIO, to RBL Board
X10, Power
X11, ON/OFF
X12A, USB 1
X12B, USB 2
X13, LAN
X15, CF Card Connector
Battery
EXM32 - PC-Module
BA-34674
CF-CARD
CF-CARD CON
X04
X05
X06 (backside)
X07
X10
X11
X12A+B
X13
X15
B11
Receptical PR-34704
PRODUCT PROBE
PR-34537
WHITE
BLACK
RBL (X12/5 1206)
RBL (X12/4 1204)
YELLOW
RED
N6
OVEN TEMP. PROBE
(PR-33724)
RBL (X11/2 1102)
RBL (X11/1 1100)
1103
1101

refer to page 1

REV	ECO	DESCRIPTION	DATE	APP

ALTO-SHAAM — WIRING DIAGRAM
2620 ES 380-415V 3PH TOUCH

BY:	MVD	DWG:	77342	SHEET
DATE:	09/21/10			4_OF_5

X11/130: BANK OF 3 BLUE SPRING TERMINALS
B1: BLUE UPPER WATER LEVEL STEAM TANK
B2: RED LOWER WATER LEVEL STEAM TANK
B3: BLUE PROBE CONDENSATION TANK
B5: RED PROBE CONDENSATION TANK
PSW: 12Vdc POWER SUPPLY
S7: DOOR SWITCH
N7: SAFETY HIGH LIMIT
K41 & K42: CONTROL CONVECTION
DP1: BOILDER DRAIN PUMP
E1, E2, E3: H2O ELEMENT
E4: CONVECTION ELEMENT
SMK RLY: SMOKER RELAY
SMK EL: SMOKER ELEMENT
K51 & K52: MOTOR DRIVE CONTACTOR

RLC FILTERS: Y1,Y2,&Y3= FI-33989
RLC FILTERS: K51,& K71= FI-34949
RLC FILTERS: K1,K2,K3,K41,K42,&K77= FI-33990
VM: VENT MOTOR
VS: VENT SWITCH
FUSE VFD: FUSE CONTROL VFD
FUSE SMK: FUSE CONTROL SMOKER
VFD: VARIABLE FREQUENCY DRIVE
DB3& DB4: DISPLAY BOARD + DC INPUT
DB1& DB2: DISPLAY BOARD - DC INPUT

refer to page 1

REV	ECO	DESCRIPTION	DATE	APP

ALTO-SHAAM — WIRING DIAGRAM
2020 CS 36-10SV 3PH TOUCH
BY: MVD
DATE: 09/21/10
DWG#: 77342
SHEET 5_OF_5

FAN 2
(FA-34919)

PSW1
POWER SUPPLY BOARD, (BA-36144)

VFD 1
BA-34927

TM-34948

(TM-34305)

12A
VFD
K51
(CN-34913)

50A
E41
K42
(CN-37312)

50A
E41
K41
(CN-37312)

40A
E2
K2
(CN-36547)

40A
E1
K1
(CN-36547)

45A FUSE (CFU-33040)
45A FUSE (CFU-33040)
(CFU-33039)

(CFU-34771) 6.25A FUSE (CFU-35680)
(CFU-34784) 5.0A FUSE
(CFU-34772) 15A FUSE
(CFU-34772) 15A FUSE
(CFU-34772) 15A FUSE

PARTITION(TM-34315)
(CFU-33184) FUSE 2A
(CFU-33184) FUSE 2A
(CFU-33185) FUSE 6.3A

PARTITION(TM-34309)
PARTITION(TM-34309)
PARTITION(TM-34309)

(TM-32921)
(TM-32785)
(TM-32785)
(TM-32785)

(LT-3738)
S7

320 VA
500/220V
50/60 HZ
(TN-33344)
X11/134
X10/220/1

P.PUMP
MD-35408

G.PUMP
GREASE PUMP
MD-34636

CLEANING PUMP
MD-34636

Y1 (STEAM)
Y1 (VA-34045)
Y3 (CLEANING)
Y2 (COOLING)
SOLENOID VALVE
(VA-34300)

YELLOW PROBE
(PR-33751)
STEAM BYPASS PROBE
(PR-33751)
COOLING WATER PROBE
(PR-33751)

B10
PRODUCT PROBE
PR-33746

B11
Receptical PR-34299
PRODUCT PROBE
PR-34298

DOOR SWITCH
(SW-34161)
(LP-34206)

FAN 1
INTAKE FAN
(FA-34957)

2 SPEED MOTOR
208-240V, 400W
SERVICE KIT# S01956R
MD-34857

DVEN TEMP. PROBE
(PR-33724)

CONVECTION
HEATING ELEMENT
7.14/10.10= 208V-135000W,
240V-18000W
(EL-37761)

1: IMMERSION HEATING ELEMENT
208V=4700W
240V=6800W
[EL-33412]

PROTECTION PROBE
(PR-33759)

1: IMMERSION HEATING ELEMENT
208V=7500W
240V=10,700W
[EL-33411]

WATER TEMP. PROBE
(PR-33724)

2: PROBE TIP CONN'S
(CR-3851)

WATER LEVEL
PROBE
(PR-34902)

TRANSFER PARTS TO ASSEMBLY

OPTION

SAFETY THERMOSTAT
(TT-3750)

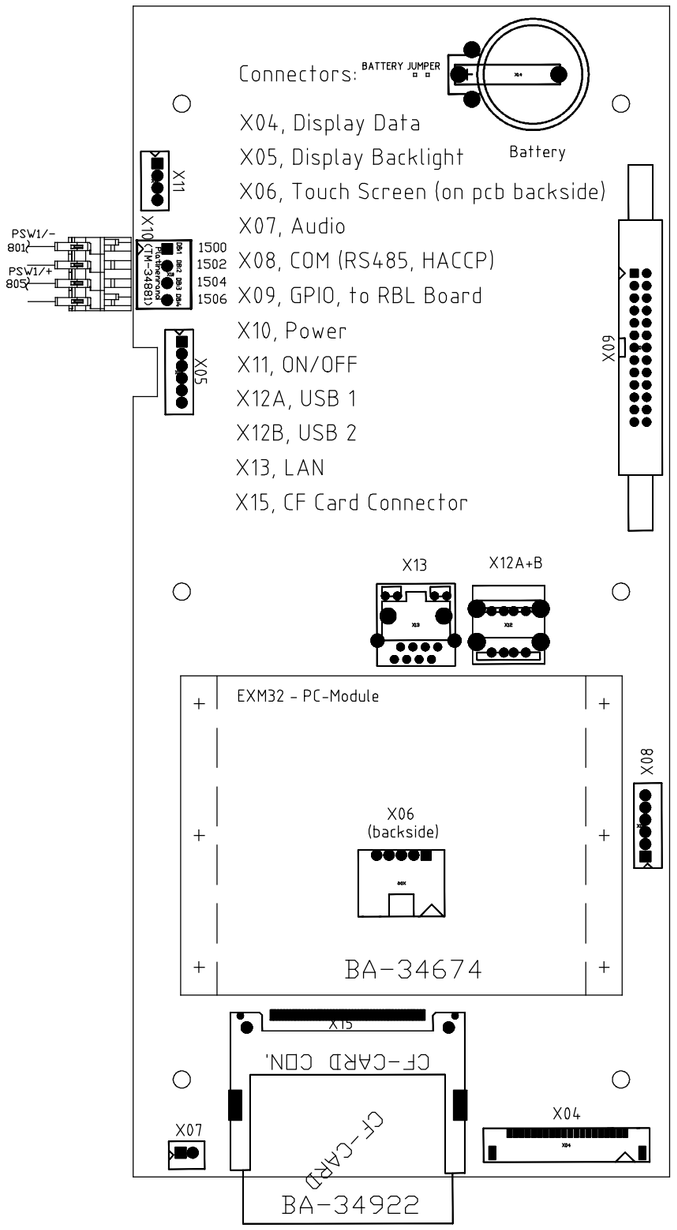
REFERENCE CUT SHEET
5011793

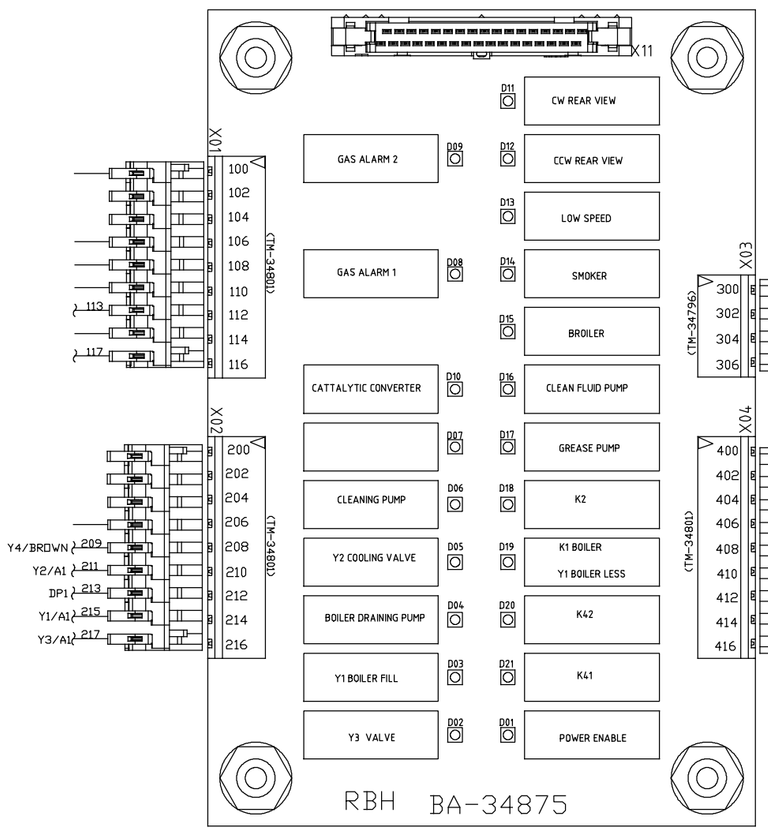
	VOLTS	WATTS	AMPS
DESIGN	440 V	14464W	19.0 A
	480 V	18964W	22.8A
UL	440-480V	14.4-19.0kW	19.0-22.8A

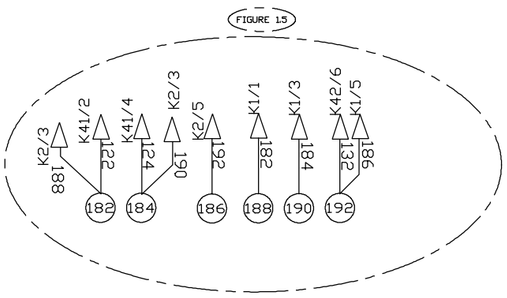
REV	ECO	DESCRIPTION	DATE	APP
11	6945	OPERATION AS OF 7/28/14	08/11/14	MVQ
10	6721	SPLICES IN ASSEMBLY	10/11/13	MVQ
9	6487	CLEANING FLUID ONLY OPTION	01/25/13	WG

ALTO-SHAAM
WIRING DIAGRAM
1010/714 ES 440-480V 3PH TOUCH

BY:	MVQ	DWG:	77331	SHEET
DATE	6/29/10			1_DF_4



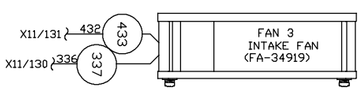




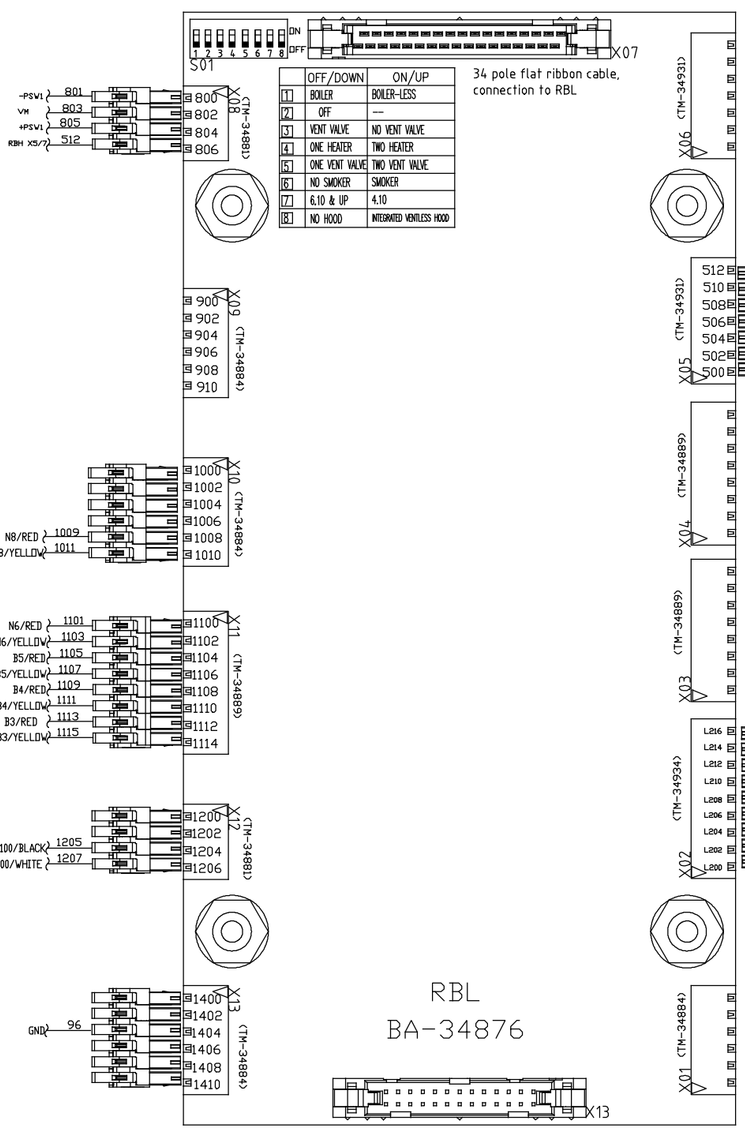
WARNING LA-29349

FOR CONTINUED PROTECTION AGAINST FIRE AND ELECTRICAL SHOCK, REPLACE ONLY WITH UL LISTED 600V MAX. NONRENEWABLE FUSES SHOWN BELOW:

CLASS CC:	VFD = 15 AMP F2 = 6.25 AMP
	SMK = 5 AMP
CLASS G:	F41, F42, F43, F44 = 45 AMP
CLASS 5 x 20mm:	F1 = 6.3 AMP
	F3, F4 = 2.0 AMP



RBH & RBL
BA-34670



REV	ECO	DESCRIPTION	DATE	APP
		REFER TO ECN		

ALTO-SHAAM
MODEL NO. RBH-10G, RBH-10GH
SERIAL NO. BEGINNING WITH 18
DWG. 77331
DATE: 6/29/10
BY: KVQ
SHEET 2 OF 4

L1
L2
L3
64
65
4
44
24
15 SMK RE
15 VFD FUSE
15 DIS FUSE
15 VFD / FUSE
45 15 DIS FUSE
FU-34921
FUSE HOLDERFU-34771
429
442
355
499
GREEN
86
87
BA-34927
VFD
339
301
303
305
MTR
LINE1
434
435
LINE2
340
341
496
497
K51
CN-34913
1
3
5
2
4
6
STEP DOWN TRANSFORMER
TN-33344
TN-220
FUSE HOLDER FU-34771
FU-35680
393
318
319
PSN
F2
6.3A
FUSE HOLDER FU-34311
FU-33452
490
418
419
PSL
F1
6.3A
417
PSV1
BA-36144
12VDC
359
439
805
X10
DB1 DB2 DB3 DB4
Multimeter and
437
(TM-34801)
416
414
412
410
408
406
404
402
400
X04
X03
(TM-34796)
306
304
302
300
X02
(TM-34801)
200
202
204
206
208
210
212
214
216
X01
(TM-34801)
100
102
104
106
108
110
112
114
116
K3 K41
K42
K1
K2
K51
426
415
436
427
420
F3
12A
CAVITY LAMP
88
89
320
F4
12A
322
323
310
N7
311
SAFETY THERMOSTAT
313
312
308
316
315
GREASE PUMP
MD-34636
P.PUMP
MD-29776
353
314
352
334
MD-34636
328
Y4
326
PUMP
(DA-24973)
DP1
342
324
PUMP
Y3
VA-34045
A1
A2
Y1
VA-34300
325
327
Y2
VA-34300
338
X01
(TM-34884)
100
102
104
106
108
110
X02
(TM-34934)
L200
L202
L204
L206
L208
L210
L212
L214
L216
DOOR SAFETY SWITCH
HL RED
HL BRWN
HL BLACK
X05
(TM-34931)
500
502
504
506
508
510
512
VENT MOTOR SW
120DC MOTOR
M
X06
(TM-34931)
600
602
604
606
608
610
612
X08
(TM-34881)
800
802
804
806
2: PROBE TIP CONN'S
(CR-3851)
WATER LEVEL
PROBE
(PR-34902)
BLUE
RED
RBL BA-34876
Multi-Point Probe Optional
X09
(TM-34884)
900
902
904
906
908
910
X10
(TM-34884)
1000
1002
1004
1006
1008
1010
X11
(TM-34889)
1100
1102
1104
1106
1108
1110
1112
1114
X12
(TM-34881)
1200
1202
1204
1206
X14
(TM-34884)
1400
1402
1404
1406
1408
1410
N8/RED
1009
N8/YELLOW
1011
N6/RED
1101
N6/YELLOW
1103
B5/RED
1105
B5/YELLOW
1107
B4/RED
1109
B4/YELLOW
1111
B3/RED
1113
B3/YELLOW
1115
PT100/BLACK
1205
PT100/WHITE
1207
GND
96
B11
Receptical PR-34299
PRODUCT PROBE
PR-34298
WHITE
BLACK
B1
1206
1207
1204
1205
PROTECTION PROBE
(PR-33759)
YELLOW
RED
Z8
1008
1010
X10/5
X10/6
B4
WATER TEMP. PROBE
(PR-33724)
1110
1108
X11/6
X11/5
N6
DVEN TEMP. PROBE
(PR-33724)
1102
1100
X11/2
X11/1
B5
STEAM BYPASS PROBE
(PR-33751)
1106
1104
X11/4
X11/3
B3
COOLING WATER PROBE
(PR-33751)
1114
1112
X11/8
X11/7
1115
1113
RLC FILTERS: Y1,Y2 &Y3= FI-33983
RLC FILTERS: K1,K2,K3,K41,K42,&K77= FI-34942
VM: VENT MOTOR
VS: VENT SWITCH
FUSE VFD: FUSE CONTROL VFD
FUSE SMK: FUSE CONTROL SMOKER
VFD: VARIABLE FREQUENCY DRIVE
DB3& DB4: DISPLAY BOARD + DC INPUT
DB1& DB2: DISPLAY BOARD - DC INPUT
X11/130: BANK OF 3 BLUE SPRING TERMINALS
B1: BLUE UPPER WATER LEVEL STEAM TANK
B2: RED LOWER WATER LEVEL STEAM TANK
B3: BLUE PROBE CONDENSATION TANK
B5: RED PROBE CONDENSATION TANK
PSV: 12V/dc POWER SUPPLY
S7: DOOR SWITCH
N7: SAFETY HIGH LIMIT
K41 & K42: CONTROL CONVECTION
DP1: BUILDER DRAIN PUMP
E1, E2, E3: H2O ELEMENT
E4: CONVECTION ELEMENT
SMK RLY: SMOKER RELAY
SMK EL: SMOKER ELEMENT
K51 & K52: MOTOR DRIVE CONTACTOR

REV	ECO	DESCRIPTION	DATE	APP
		REFER TO PG 1		

ALTO-SHAAM
WIRING DIAGRAM
1810/724 ES 440-480V 3PH TOUCH
BY: MVQ
DATE: 6/29/10
DWG: 77331
SHEET 3_OF_4

L1

L2

L3

3: CN-3654
30A CONTACTOR

K1

K2

EL-33411

208V 7500W
240V 10700W

RED
WHITE
BLUE

BLUE
WHITE
RED

EL-33412

208V 4700W
240V 6800W

E1

E2

E1
WHITE
E2
BLUE
E2
WHITE

RED
E1
BLUE
E1
RED
E2

65 A
FE41/1

65 A
FE41/2

65 A
FE40/3

2 PIECE CONVECTION
HEATING ELEMENT
208V-13500W,
240V-18000W
(EL-3761)

K41

K42

E41/1
E41/2
E41/3
E41
E41/4
E41/5
E41/6

-	-	-	-	-
		REFER TO PG 1		
REV	ECO	DESCRIPTION	DATE	APP

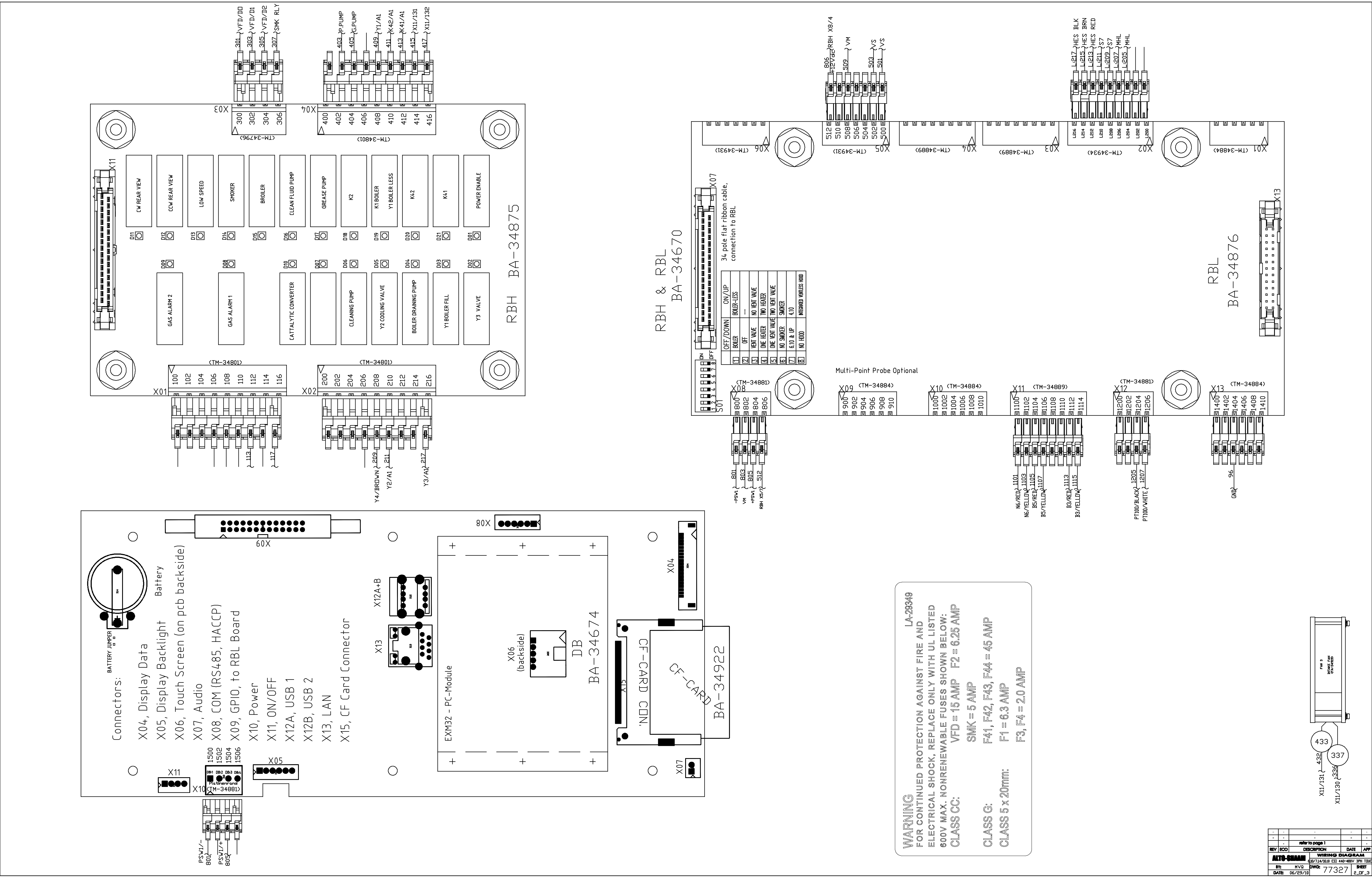
ALTO-SHAAM	WIRING DIAGRAM		
	1010/714 ES 440-480V 3PH TOUCH		
BY: MVQ	DWG: 77331	SHEET	
DATE: 6/29/10		4_OF_4	

FAN 2
(FA-34919)
332 X11/130
424 X11/131
GND 86 GND
496 X51/5
497
340 X51/3
341
434 X51/4
435
(TM-34932)
X11/130 338
RBH X3/1 300
RBH X3/2 302
RBH X3/3 304
339
301
303
305
PSW1
POWER SUPPLY BOARD, (BA-36144)
VFD 1
BA-34927
BLUE
BROWN
BLACK
TM-34948
(TM-34305)
12A
K51
(CN-34913)
VFD
50A
K42
(CN-3731)
K41
E41
K41/6 126
K42/6 132
F41 127
F41 125
F41 123
F42
F43
F44
(TM-34305)
346
SMK RLY
345
335
RL-34634
RL-33483
SMK RLY
SMK EL
350
X3/4
306 RBH
48
49
45A FUSE
(FU-33040)
(FU-33039)
28
29
41
9
(FU-35680)
6.25A FUSE
(FU-34771)
TN-480
SMK EL 1
428
5.0A FUSE
(FU-34784)
SMK
FUSE/VFD
45
VFD & SMK FUSE
K51/6 499
15A FUSE
(FU-34772)
VFD
45
51
44
L3
K51/4 354
355
31
X11/134
395
24
L2
K51/2 443
442
5
4
L1
PARTITION(TM-34315)
PARTITION(TM-34309)
PARTITION(TM-34307)
PARTITION(TM-34306)
(TM-3785)
(TM-3779)
TM-33675
(2)TM-3779
INPUT
(TM-34305)
(LT-3738)
211 X2/6 RBL
210
209 X2/5 RBL
208
MD-35408
320 VA
500/220V
50/60 HZ
(TN-33344)
X11/134
X10/220/1
FUSE-TN
Y4 328
CLEANING PUMP
RBH X4/2 402
YELLOW 1106 X11/4 RBL
RED 1104 X11/3 RBL
B5 STEAM BYPASS PROBE
(PR-33751)
RED
YELLOW 1114 X11/8 RBL
RED 1112 X11/7 RBL
B3 COOLING WATER PROBE
(PR-33751)
BLUE
Y1 (STEAM)
(VA-34045)
Y3 (CLEANING)
Y2 (COOLING)
SOLENOID VALVE
(VA-34300)
Y3/A2 326
X11/130 324
RBH X4/5 406
Y2/A2 327
Y1/A2 325
RBH X2/9 212
Y4/BLUE 328
Y3/A2 326
RBH 210 X2/6
B10
PR-33746
PRODUCT PROBE
RBL X9/6 911 GRN/RED
RBL X9/5 908 GRN/WHT
RBL X9/4 906 GRN/YEL
RBL X9/3 904 GREEN
RBL X9/2 902 WHITE
B11
PRODUCT PROBE
PR-34298
Receptical PR-34299
RBL X12/3 1206 WHITE
RBL X12/4 1204 BLACK
(MD-34857)
2 SPEED MOTOR
208-240V, 400W
SERVICE KIT# 501958R
YELLOW 1103 X11/2 1102 RBL
RED 1101 X11/1 1100 RBL
OVEN TEMP PROBE
(PR-33724)
N6
E41
E41/1 156
E41/2 148
E41/3 150
E41/4
E41/5
E41/6
6.10= 208V-8100W,
240V-10800W
(EL-38541)
CONVECTION
HEATING ELEMENT
7.14/10.10= 208V-13500W,
240V-18000W
(EL-37611)
LAMP RECEPTACLE
OVEN LAMP
(LP-34126)
89
321 320 F4
88 GND
421 420 F3
FAN 1
INTAKE FAN
(FA-34957)
331 X11/130
423 422 X11/131
RBH X8/2 208 803
509 X5/9 508 RBL
X5/1 500 RBL
X5/2 502 RBL
501
503
(VA-26838)
TRANSFER PARTS TO ASSEMBLY
(TM- 34305)
(TM- 3778)
TN/500
TN/460
TN/440
TN/415
TN/380
PARTITION(TM-3778)
N7
SAFETY THERMOSTAT
(TT-3750)
310 X11/130
311
312 E4
313 K42/A2
REFERENCE CUT SHEET
5011789
SMOKER OPTION
SMK EL 1
(EL-34554) 208V, 260W
240V, 346W
SMK EL 2
(EL-34554) 208V, 260W
240V, 346W
FUSE 429 430
SMK EL1 348 351
SMK EL2 428 348
SMK RLY 430 350
OPTION
G.PUMP
GREASE PUMP
MD-34636
Y4
CLEANING PUMP
MD-34636
Green 61
BLUE 62
Brown 63
94 X9B
329
327 72/A2
326 72/A1
RBH 125
360 P.PUMP
(IFSMOKER ADD 520W-692W)

	VOLTS	WATTS	AMPS
DESIGN	440 V	14464W	19.0 A
DESIGN	480 V	18964W	22.8A
UL	440-480V	14.4-19.0kW	19.0-22.8A

REV	ECO	DESCRIPTION	DATE	APP
10	6948	DRAWING SHOP VERSION	08/11/14	MVQ
12	6791	REPLACE BA-34928 WITH BA-36144	10/10/13	MVQ
11	6827	CLEANING PUMP ONLY OPTION	1/25/13	WG

ALTO-SHAAM
WIRING DIAGRAM
6.10/7.14/10.10 ESI 440-480V 3PH TOUCH
BY: MVQ
DATE: 6/29/10
DWG: 77327
SHEET 1_OF_3


RBH BA-34875
CW REAR VIEW
CCW REAR VIEW
LOW SPEED
SMOKER
BROILER
CLEAN FLUID PUMP
GREASE PUMP
K2
K1 BOILER Y1 BOILER LESS
K42
K41
POWER ENABLE
GAS ALARM 2
GAS ALARM 1
CATTALYTIC CONVERTER
CLEANING PUMP
Y2 COOLING VALVE
BOILER DRAINING PUMP
Y1 BOILER FILL
Y3 VALVE
RBH & RBL BA-34670
34 pole flat ribbon cable, connection to RBL
OFF/DOWN ON/UP
BOILER BOILER-LESS
OFF ---
VENT VALVE NO VENT VALVE
ONE HEATER TWO HEATER
ONE VENT VALVE TWO VENT VALVE
NO SMOKER SMOKER
6.10 & UP 4.10
NO HOOD INTEGRATED VENTLESS HOOD
Multi-Point Probe Optional
RBL BA-34876
Connectors:
X04, Display Data
X05, Display Backlight
X06, Touch Screen (on pcb backside)
X07, Audio
X08, COM (RS485, HACCP)
X09, GPIO, to RBL Board
X10, Power
X11, ON/OFF
X12A, USB 1
X12B, USB 2
X13, LAN
X15, CF Card Connector
Battery
BATTERY JUMPER
EXM32 - PC-Module
X06 (backside)
DB BA-34674
CF-CARD CON.
CF-CARD BA-34922
LA-29349
WARNING
FOR CONTINUED PROTECTION AGAINST FIRE AND
ELECTRICAL SHOCK, REPLACE ONLY WITH UL LISTED
600V MAX. NONRENEWABLE FUSES SHOWN BELOW:
CLASS CC: VFD = 15 AMP F2 = 6.25 AMP
SMK = 5 AMP
CLASS G: F41, F42, F43, F44 = 45 AMP
CLASS 5 x 20mm: F1 = 6.3 AMP
F3, F4 = 2.0 AMP
WIRING DIAGRAM
DATE: 06/29/10
DWG: 77327
SHEET 2 OF 3

L1
L2
L3
STEP DOWN TRANSFORMER TN-33344
TN-220
FU-34784
FU-34771
FU-34772
GREEN
VFD BA-34927
LINE1
LINE2
MTR
K51
CN-34913
SK1/2
SK1/1
SK2/2
SK2/1
2: EL-34554 SMOKER ELEMENTS
SMOKER OPTION
FUSE HOLDER FU-34771 FU-35680
FUSE HOLDER FU-34311 FU-33452
PSV1 BA-36144 12VDC
X10
SMOKER OPTION RL-34633 RL-34634
RBH X34
X11/13
2 PIECE CONVECTION HEATING ELEMENT 12.2Ω 208V-13400W, 240V-17850W EACH PIECE (EL-3853)
K41
K42
E41
6.10 (EL-3854) 208V-8100W 240V-10800W
B11
Receptical PR-34298
PRODUCT PROBE PR-34298
WHITE
BLACK
RBL (XI2/3)
RBL (XI2/4)
J206
J204
YELLOW
RED
RBL
X11/2
X11/1
DVEN TEMP. PROBE (PR-33724)
CAVITY LAMP
SAFETY THERMOSTAT
MD-34636
GREASE PUMP
P.PUMP
MD-29776
SMK RLY
CLEAN PUMP
VA-34045
VA-34300
VA-34300
(TM-34801)
(TM-34796)
(TM-34801)
(TM-34801)
X04
X03
X02
X01
RBL BA-34876
Multi-Point Probe Optional
(TM-34884)
(TM-34934)
(TM-34931)
(TM-34931)
(TM-34881)
(TM-34884)
(TM-34884)
(TM-34889)
(TM-34881)
(TM-34884)
X01
X02
X05
X06
X08
X09
X10
X11
X12
X14
DOOR SAFETY SWITCH
HL RED
HL BROWN
HL BLACK
LOW WATER SW
120VAC MOTOR
M6/RED
M6/YELLOW
B5/RED
B5/YELLOW
B4/RED
B4/YELLOW
B3/RED
B3/YELLOW
PT100/BLACK
PT100/WHITE
GND

X11/130: BANK OF 3 BLUE SPRING TERMINALS
B1: BLUE UPPER WATER LEVEL STEAM TANK
B2: RED LOWER WATER LEVEL STEAM TANK
B3: BLUE PROBE CONDENSATION TANK
B5: RED PROBE CONDENSATION TANK
PSV1: 12VDC POWER SUPPLY
S7: DOOR SWITCH
N7: SAFETY HIGH LIMIT
K41 & K42: CONTROL CONVECTION
DP1: BOILDER DRAIN PUMP
E1, E2, E3: H2O ELEMENT
E4: CONVECTION ELEMENT
SMK RLY: SMOKER RELAY
SMK EL: SMOKER ELEMENT
K51 & K52: MOTOR DRIVE CONTACTOR

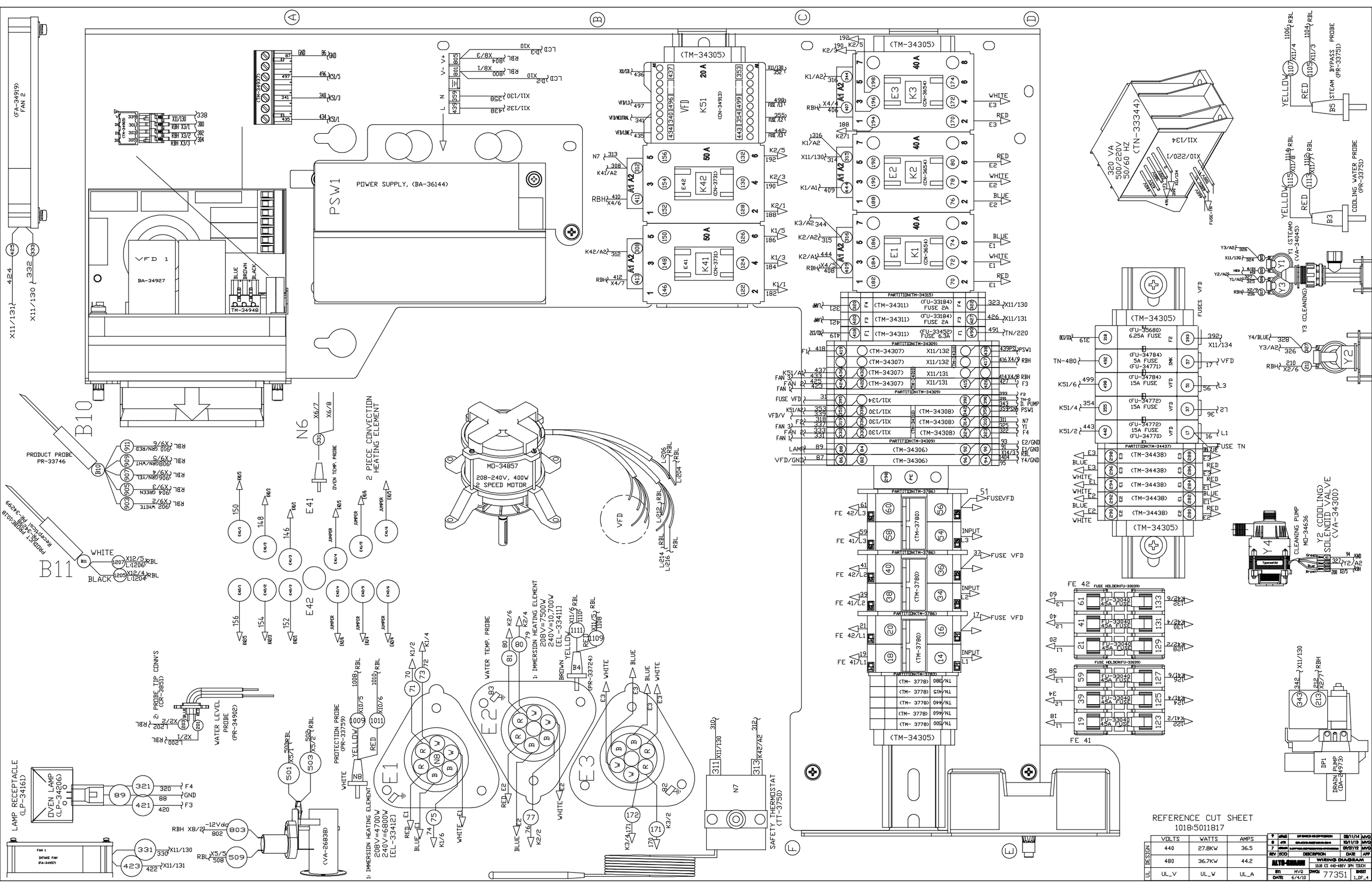
VM: VENT MOTOR
VS: VENT SWITCH
FUSE VFD: FUSE CONTROL VFD
FUSE SMK: FUSE CONTROL SMOKER
VFD: VARIABLE FREQUENCY DRIVE
DB3& DB4: DISPLAY BOARD + DC INPUT
DB1& DB2: DISPLAY BOARD - DC INPUT

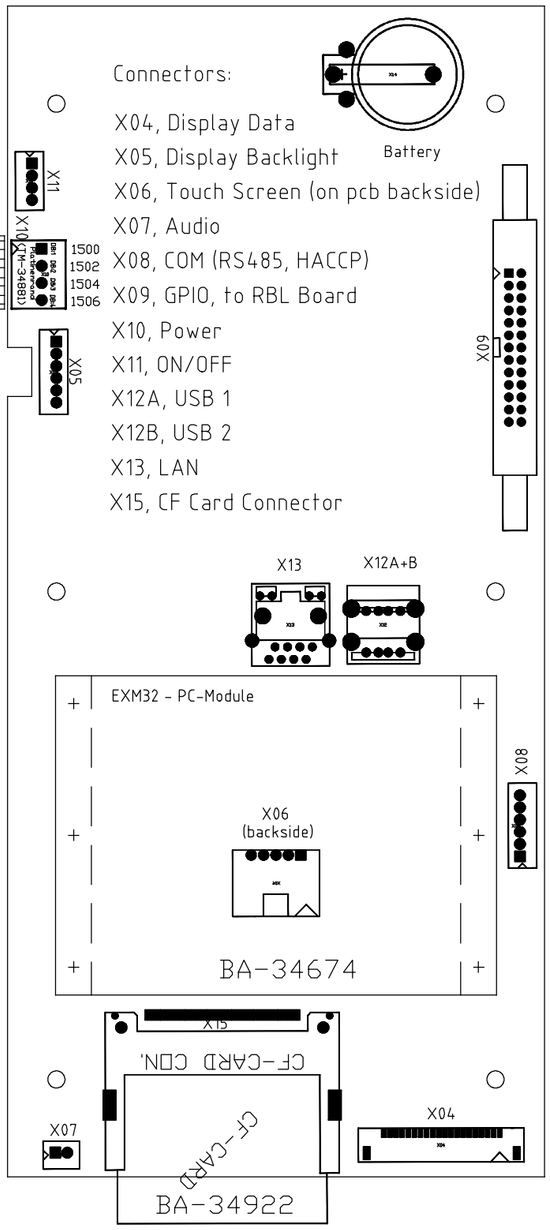
refer to page 1 — 4/9/10

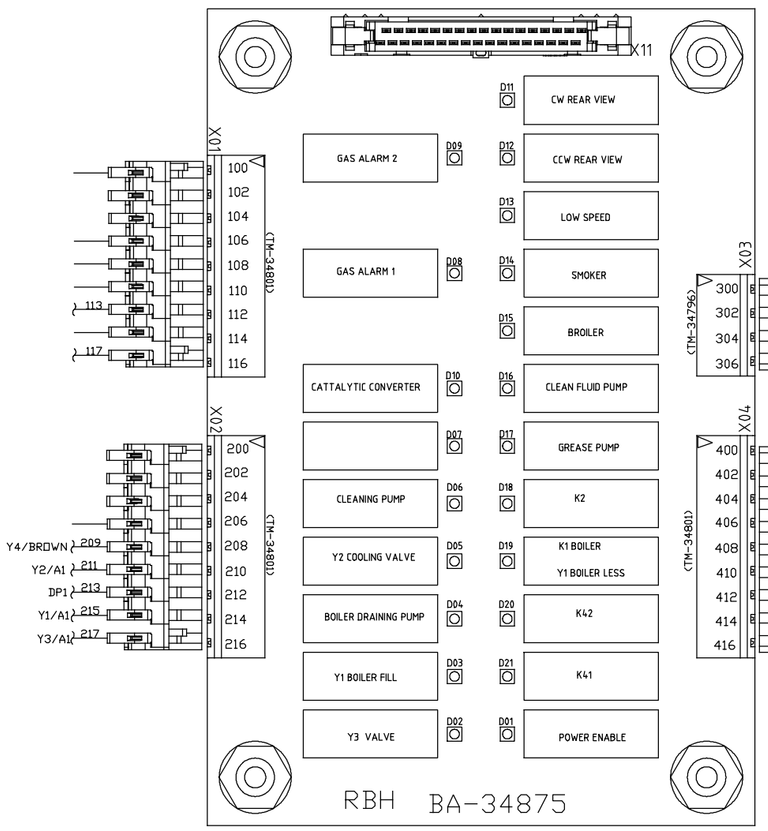
REV	ECO	DESCRIPTION	DATE	APP

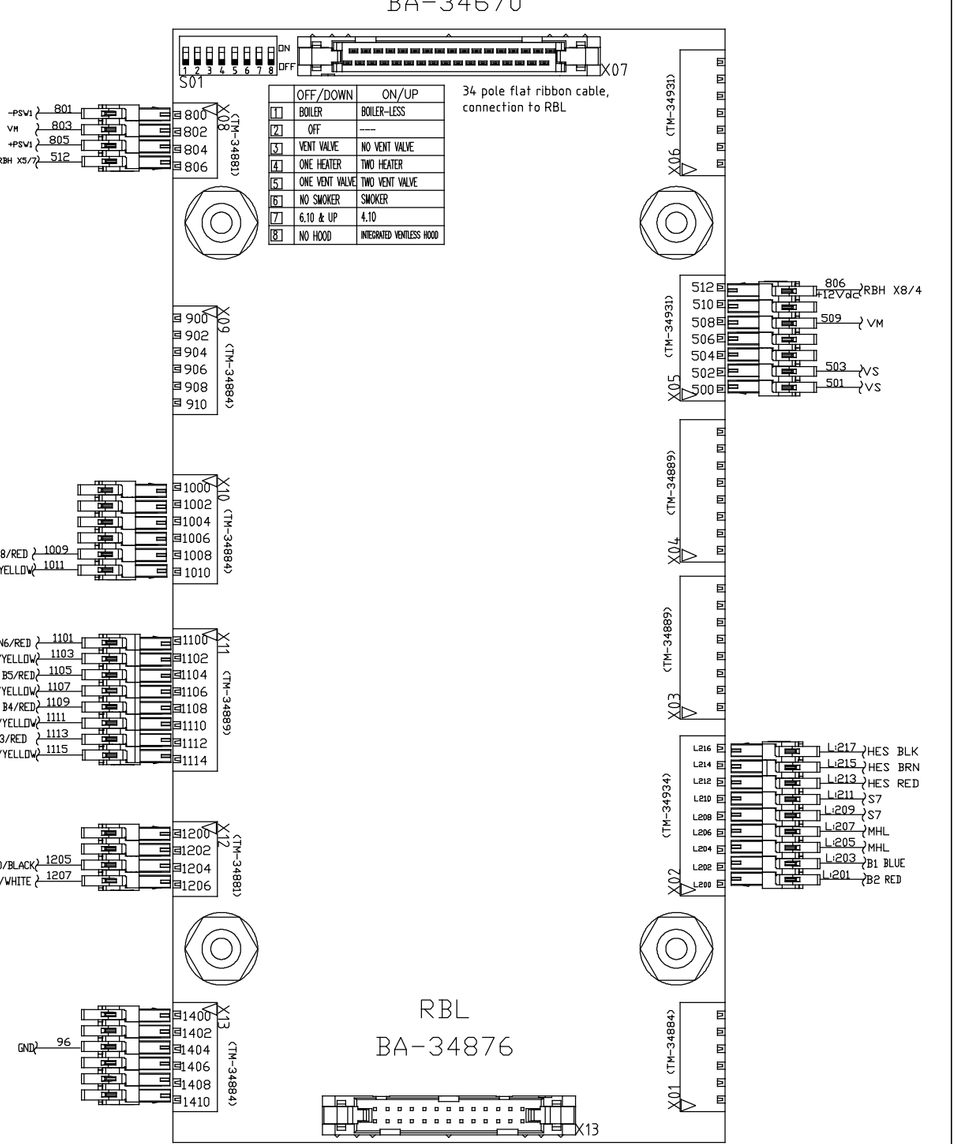
ALTO-SHAAM — WIRING DIAGRAM
208/240/480 3Ø 440-480V 3PH TOUCH

BY:	MVQ	DWG:	77327	SHEET
DATE:	6/29/10			3_OF_3


(FA-34919) FAN 2
PSW1
POWER SUPPLY, (BA-36144)
VFD 1
BA-34927
TM-34948
BLUE
BROWN
BLACK
(TM-34305)
VFD
K51
(CN-34913)
K42
(CN-3731)
K41
(CN-3731)
E42
E41
E1
E2
E3
K1
K2
K3
(CN-36541)
20 A
50 A
40 A
X11/130
X11/131
X11/132
X11/134
X10/220/1
320 VA
500/220V
50/60 HZ
(TM-33344)
FUSE-TN
B5 STEAM BYPASS PROBE (PR-33751)
B3 COOLING WATER PROBE (PR-33751)
Y1 (STEAM) (VA-34045)
Y3 (CLEANING)
Y2
Y4 CLEANING PUMP MD-34636
Y2 (COOLING) SOLENOID VALVE (VA-34300)
DP1
DRAIN PUMP (DA-34973)
FUSES VFD
FUSE TN
FUSEVFD
FUSE HOLDER(FU-33039)
FU-33040 45A FUSE
FU-35680 6.25A FUSE
FU-34784 5A FUSE (FU-34771)
FU-34784 15A FUSE
FU-34772 15A FUSE
FU-34772 15A FUSE (FU-34770)
FE 42
FE 41
B10 PRODUCT PROBE PR-33746
B11 RECEPTACLE PRODUCT PROBE PR-34329
DVEN TEMP. PROBE
2 PIECE CONVECTION HEATING ELEMENT
MD-34857
208-240V, 400W
2 SPEED MOTOR
LAMP RECEPTACLE (LP-34161)
OVEN LAMP (LP-34206)
FAN 1 INTAKE FAN (FA-34957)
(VA-26838)
2 PROBE TIP CONN'S (CR-3851)
WATER LEVEL PROBE (PR-34902)
PROTECTION PROBE (PR-33759)
1: IMMERSION HEATING ELEMENT 208V=4700W 240V=6800W [EL-33412]
WATER TEMP. PROBE
1: IMMERSION HEATING ELEMENT 208V=7500W 240V=10,700W [EL-33411]
(PR-33724)
SAFETY THERMOSTAT (TT-3750)
REFERENCE CUT SHEET
1018:5011817
VOLTS
WATTS
AMPS
440
27.8KW
36.5
480
36.7KW
44.2
UL_V
UL_W
UL_A
UL DESIGN
WIRING DIAGRAM
10.1B CE 440-480V 3PH TOUCH
ALTO-SHAAM
BY: MVQ
DWG: 77351
DATE: 6/4/10
SHEET 1_OF_4
REV ECO DESCRIPTION DATE APP
9 4845 DP SWITCH RE-CONFIGURATION 08/11/14 MVQ
8 478 SENSOR REFERENCE 10/11/13 MVQ
7 4800 SOFTWARE CONFIGURATION 09/27/12 MVQ



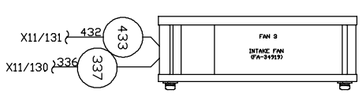




WARNING LA-29349

FOR CONTINUED PROTECTION AGAINST FIRE AND ELECTRICAL SHOCK, REPLACE ONLY WITH UL LISTED 600V MAX. NONRENEWABLE FUSES SHOWN BELOW:

CLASS CC:	VFD = 15 AMP F2 = 6.25 AMP
	SMK = 5 AMP
CLASS G:	F41, F42, F43, F44 = 45 AMP
CLASS 5 x 20mm:	F1 = 6.3 AMP
	F3, F4 = 2.0 AMP



REV	DCO	DESCRIPTION	
DWN	DATE	APP	DATE
DRAWING NO.			
77351			
SHT 3 OF 3			

L1
L2
L3
392 390 395
57 17 31 51
FU-34784
FU-34772
FU-34771
428 442 359 498
GREEN
86 87
VFD
BA-34927
339 301 303 305
MTR
LINE1
434 435
LINE2
340 341
496 497
K51
CN-34913
1 3 5
2 4 6
TN-220
FUSE HOLDER FU-34771
FU-35680
6.3A F2
393 318
PSN 319
FUSE HOLDER FU-34311
FU-33452
6.3A F1
490 418
419 417
PSL 439
PSV1
BA-36144
12VDC
359
805
X10
DB1 DB2 DB3 DB4
Maitenance
437
X03 (TM-34796)
X04 (TM-34801)
416 414 412 410 408 406 404 402 400
306 304 302 300
X02 (TM-34801)
200 202 204 206 208 210 212 214 216
X01 (TM-34801)
100 102 104 106 108 110 112 114 116
K41 K42
436
K51
SMK RLY
426 415
427 F3 420
313 312 308
CAVITY LAMP
88 89
N7
SAFETY THERMOSTAT
311
320 F4 322
310 323
MD-34636
PUMP
Y4
328
Y3 VA-34045
Y2
326
Y1
325
VA-34300
Y3
327
Y2 VA-34300
PUMP
(DA-24573)
DP1
342 324
552 334
B11
Receptical PR-34298
PRODUCT PROBE
PR-34298
WHITE
BLACK
811
RBL X12/3 1206
RBL X12/4 1204
207 205
(103) X11/2 1102 RBL
(101) X11/1 1100 RBL
YELLOW
RED
N6
OVEN TEMP PROBE
(PR-33724)
X01 (TM-34884)
100 102 104 106 108 110
X02 (TM-34934)
L200 L202 L204 L206 L208 L210 L212 L214 L216
DOOR SAFETY SWITCH
X05 (TM-34931)
500 502 504 506 508 510 512
VENT MOTOR SW
120C MOTOR
M
X06 (TM-34931)
600 602 604 606 608 610 612
X08 (TM-34881)
800 802 804 806
2: PROBE TIP CONN'S
(CR-3851)
WATER LEVEL
PROBE
(PR-34902)
BLUE
RED
RBL BA-34876
Multi-Point Probe Optional
X09 (TM-34884)
900 902 904 906 908 910
X10 (TM-34884)
1000 1002 1004 1006 1008 1010
X11 (TM-34889)
1100 1102 1104 1106 1108 1110 1112 1114
X12 (TM-34881)
1200 1202 1204 1206
X14 (TM-34884)
1400 1402 1404 1406 1408 1410
1002/RED
1001/YELLOW
N8/RED
N8/YELLOW
1101
1103
1105
1107
1109
1111
1113
1115
N6/RED
N6/YELLOW
B5/RED
B5/YELLOW
B4/RED
B4/YELLOW
B3/RED
B3/YELLOW
1205
1207
PT100/BLACK
PT100/WHITE
96
GND

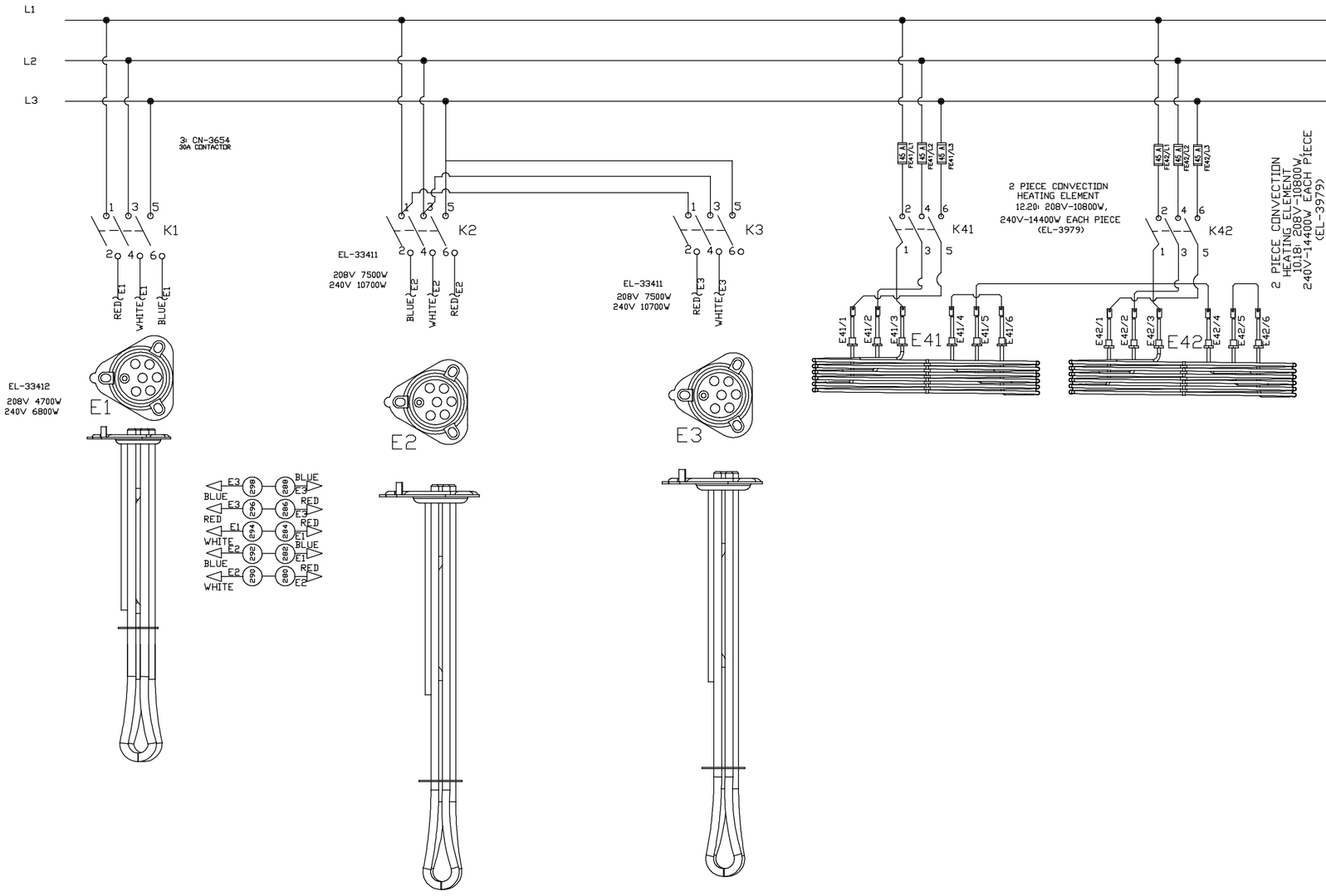
X11/130: BANK OF 3 BLUE SPRING TERMINALS
B1: BLUE UPPER WATER LEVEL STEAM TANK
B2: RED LOWER WATER LEVEL STEAM TANK
B3: BLUE PROBE CONDENSATION TANK
B5: RED PROBE CONDENSATION TANK
PSV: 12Vdc POWER SUPPLY
S7: DOOR SWITCH
N7: SAFETY HIGH LIMIT
K41 & K42: CONTROL CONVECTION
DP1: BOILER DRAIN PUMP
E1, E3: H2O ELEMENT
E4: CONVECTION ELEMENT
SMK RLY: SMOKER RELAY
SMK EL: SMOKER ELEMENT
K51 & K52: MOTOR DRIVE CONTACTOR

VM: VENT MOTOR
VS: VENT SWITCH
FUSE VFD: FUSE CONTROL VFD
FUSE SMK: FUSE CONTROL SMOKER
VFD: VARIABLE FREQUENCY DRIVE
DB3& DB4: DISPLAY BOARD + DC INPUT
DB1& DB2: DISPLAY BOARD - DC INPUT

refer to page 1

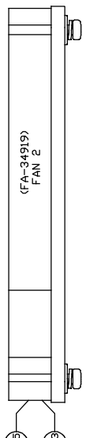
REV	ECO	DESCRIPTION	DATE	APP
-	-	-	-	-
-	-	-	-	-
-	-	refer to page 1	-	-
-	-	-	4/9/10	-

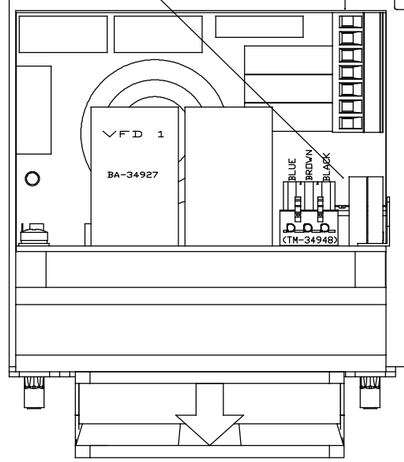
ALTO-SHAAM
WIRING DIAGRAM
1818 ES 440-480V 3PH TOUCH
STD: MVQ DWG: 77351 SHEET 3_1F_4
DWN: 6/4/10

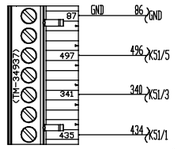


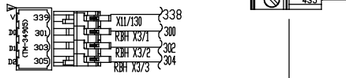
-	-	-	-	-
-	-	-	-	-
	-	refer to page 1		-
REV	ECO	DESCRIPTION	DATE	APP

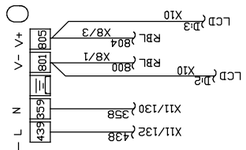
ALTO-SHAAM	WIRING DIAGRAM		
	1018 ES 440-480V 3PH TOUCH		
BY: MVO	DWG: 77351	SHEET	
DATE: 06/7/10		4_OF_4	

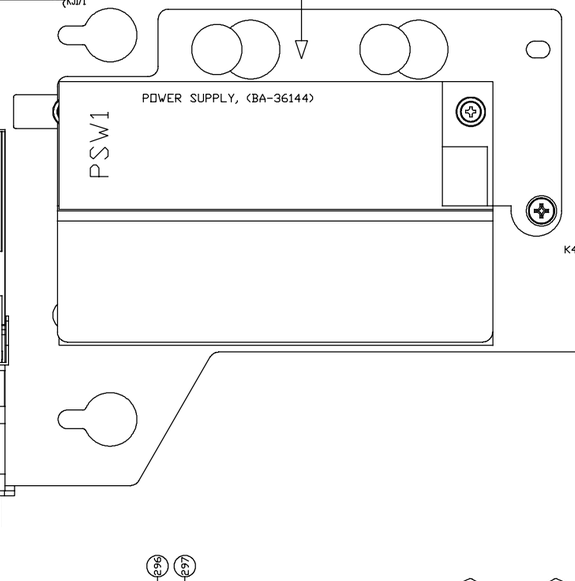


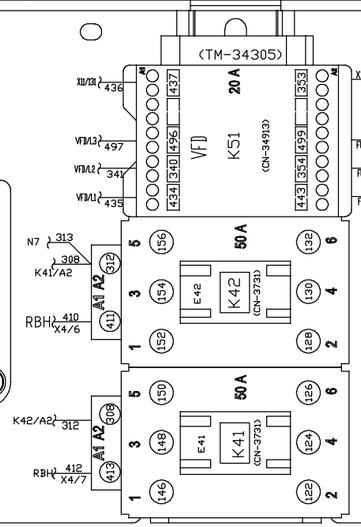


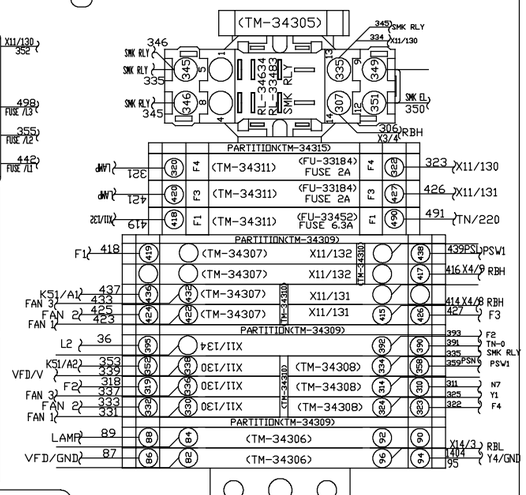


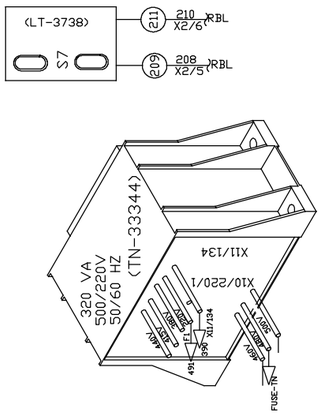


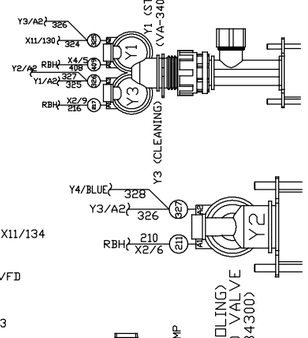


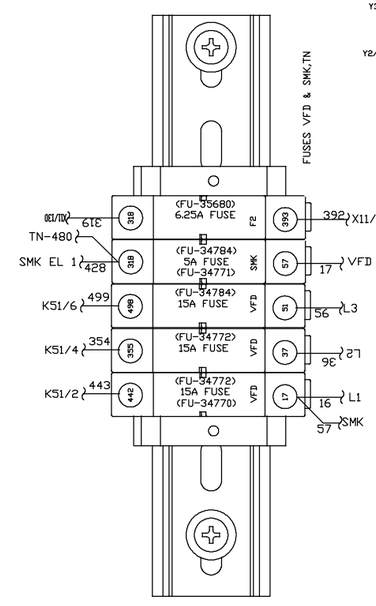


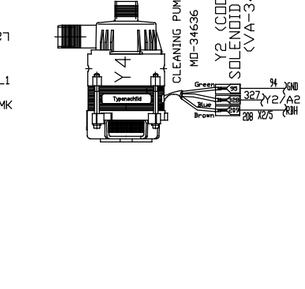


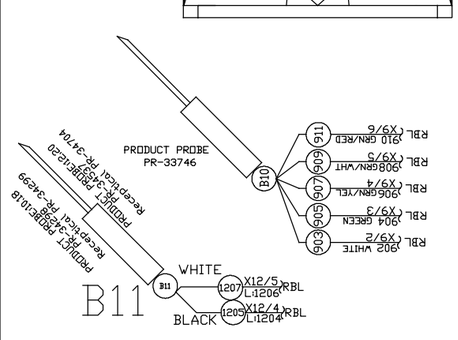


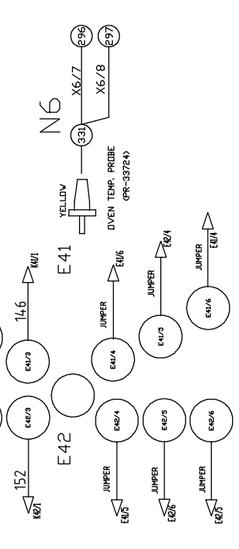


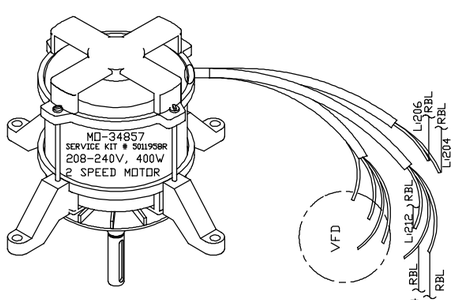




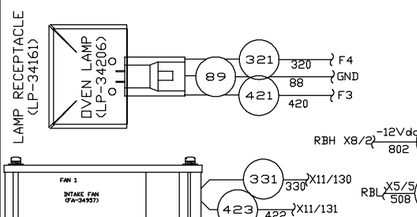


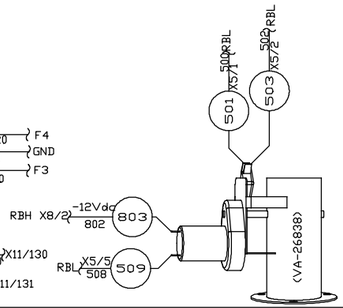


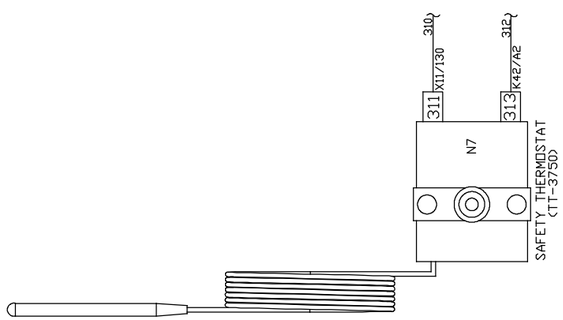


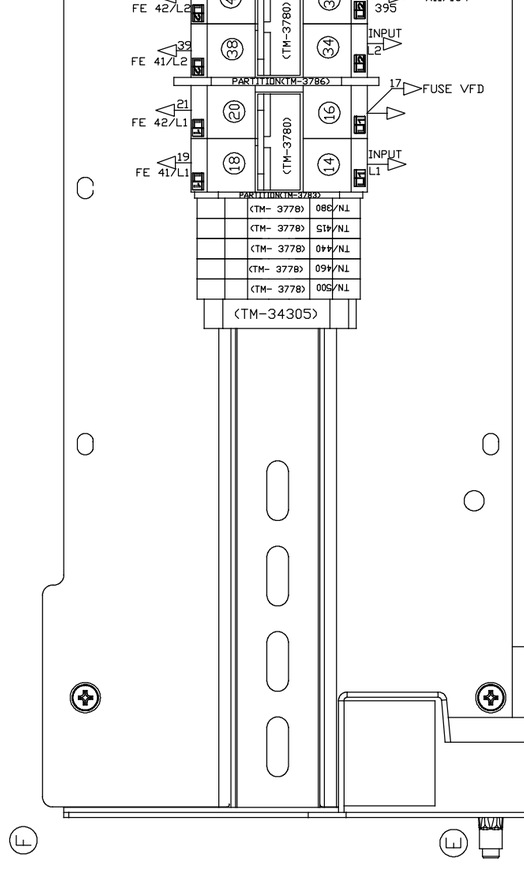


2 PIECE CONVECTION
HEATING ELEMENT
1018-208V-10800W
240V-14400W EACH PIECE
(EL-3979)









REFERENCE CUT SHEET
1018:5011816

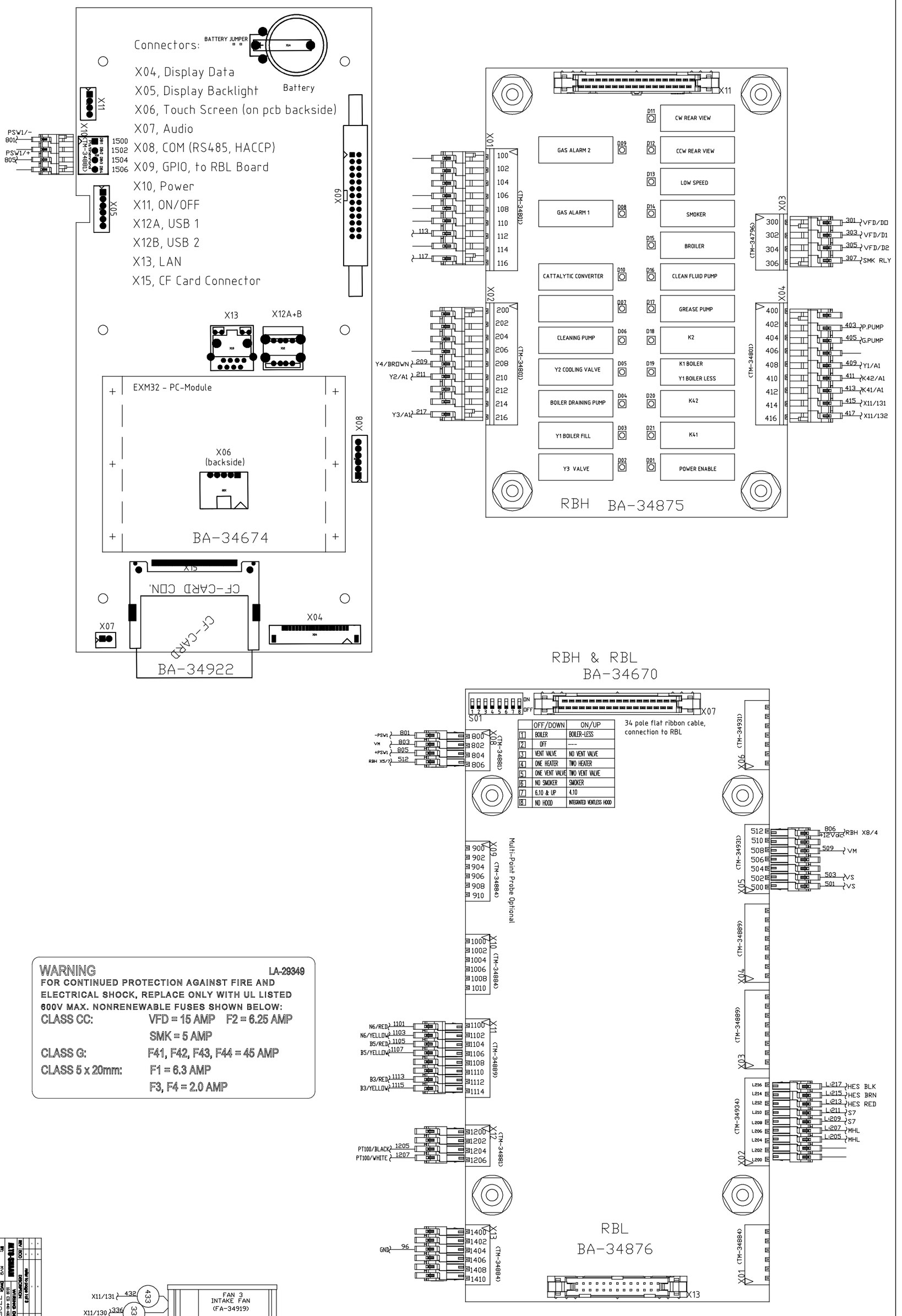
IF SMOKER ADD 520W-692W

UL DESIGN	VOLTS	WATTS	AMPS
	440	27.8KW	36.5A
	480	36.7KW	44.2A
	440-480V	27.8-36.7KW	36.5-44.2A

REV	ECO	DESCRIPTION	DATE	BY
9	6965	DESIGN MODIFICATION	08/11/14	MVQ
8	6911	REVISED PER MANUFACTURER	10/11/13	MVQ
7	6888	REVISIONS	09/30/13	MVQ

ALTO-SHAAM
WIRING DIAGRAM
1018 ES 440-480V 3PH TOUCH

BY: MVQ DWG: 77350 SHEET 1_OF_3
DATE 6/4/10


Connectors:
X04, Display Data
X05, Display Backlight
X06, Touch Screen (on pcb backside)
X07, Audio
X08, COM (RS485, HACCP)
X09, GPIO, to RBL Board
X10, Power
X11, ON/OFF
X12A, USB 1
X12B, USB 2
X13, LAN
X15, CF Card Connector
BATTERY JUMPER
Battery
PSW1/-
PSW1/+
801
805
1500
1502
1504
1506
X13
X12A+B
EXM32 - PC-Module
X06
(backside)
BA-34674
X15
CF-CARD CON.
CF-CARD
X07
X04
BA-34922
X11
CW REAR VIEW
CCW REAR VIEW
LOW SPEED
SMOKER
BROILER
CLEAN FLUID PUMP
GREASE PUMP
K2
K1 BOILER
Y1 BOILER LESS
K42
K41
POWER ENABLE
GAS ALARM 2
GAS ALARM 1
CATTALYTIC CONVERTER
CLEANING PUMP
Y2 COOLING VALVE
BOILER DRAINING PUMP
Y1 BOILER FILL
Y3 VALVE
D11
D12
D13
D14
D15
D16
D17
D18
D19
D20
D21
D01
D02
D03
D04
D05
D06
D07
D08
D09
D10
X01
X02
X03
X04
(TM-34880)
(TM-34796)
Y4/BROWN 209
Y2/A1 211
Y3/A1 217
113
117
VFD/D0
VFD/D1
VFD/D2
SMK RLY
P.PUMP
G.PUMP
Y1/A1
K42/A1
K41/A1
X11/131
X11/132
RBH BA-34875
RBH & RBL
BA-34670
S01
ON
OFF
X07
34 pole flat ribbon cable, connection to RBL
OFF/DOWN
ON/UP
[1] BOILER
BOILER-LESS
[2] OFF
---
[3] VENT VALVE
NO VENT VALVE
[4] ONE HEATER
TWO HEATER
[5] ONE VENT VALVE
TWO VENT VALVE
[6] NO SMOKER
SMOKER
[7] 6,10 & UP
4,10
[8] NO HOOD
INTEGRATED VENTLESS HOOD
-PSV1 801
VM 803
+PSV1 805
RBH X5/7 512
X08
(TM-34881)
X06
(TM-34931)
X09
(TM-34884)
Multi-Point Probe Optional
X10
(TM-34884)
X11
(TM-34889)
X12
(TM-34888)
X13
(TM-34884)
X05
(TM-34931)
X04
(TM-34889)
X03
(TM-34889)
X02
(TM-34934)
X01
(TM-34884)
806 +12VDC RBH X8/4
509 VM
503 VS
501 VS
L217 HES BLK
L215 HES BRN
L213 HES RED
L211 S7
L209 S7
L207 MHL
L205 MHL
N6/RED 1101
N6/YELLOW 1103
B5/RED 1105
B5/YELLOW 1107
B3/RED 1113
B3/YELLOW 1115
PT100/BLACK 1205
PT100/WHITE 1207
GND 96
RBL
BA-34876
WARNING
LA-29349
FOR CONTINUED PROTECTION AGAINST FIRE AND ELECTRICAL SHOCK, REPLACE ONLY WITH UL LISTED 600V MAX. NONRENEWABLE FUSES SHOWN BELOW:
CLASS CC: VFD = 15 AMP F2 = 6.25 AMP
SMK = 5 AMP
CLASS G: F41, F42, F43, F44 = 45 AMP
CLASS 5 x 20mm: F1 = 6.3 AMP
F3, F4 = 2.0 AMP
X11/131 432
X11/130 336
433
337
FAN 3
INTAKE FAN
(FA-34919)
77350
6/4/10

L1
L2
L3
STEP DOWN TRANSFORMER TN-33344
TN-220
FU-34784
FU-34771
FU-34772
GREEN
LINE1
LINE2
K51
CN-34913
VFD BA-34927
MTR
K41
K42
2 PIECE CONVECTION HEATING ELEMENT 12.2Ω 208V-10800W, 240V-14400W EACH PIECE (EL-3979)
E41
E42
SK1/2
SK1/1
SK2/2
SK2/1
2; EL-34554 SMOKER ELEMENTS
SMOKER OPTION
FUSE HOLDER FU-34771 FU-35680
FUSE HOLDER FU-34311 FU-33452
F2
F1
PSV1 BA-36144 12VDC
X10
SMOKER OPTION RL-34633 RL-34634
RBH X34
X11/13
B11 Receptical PR-34298 PRODUCT PROBE PR-34298
WHITE
BLACK
RBL X12/5 1206
RBL X12/4 1204
RBL X11/2 1102
RBL X11/1 1100
N6 YELLOW RED
OVEN TEMP. PROBE (PR-33724)
VM: VENT MOTOR
VS: VENT SWITCH
FUSE VFD: FUSE CONTROL VFD
FUSE SMK: FUSE CONTROL SMOKER
VFD: VARIABLE FREQUENCY DRIVE
DB3& DB4: DISPLAY BOARD + DC INPUT
DB1& DB2: DISPLAY BOARD - DC INPUT
X11/13: BANK OF 3 BLUE SPRING TERMINALS
B1: BLUE UPPER WATER LEVEL STEAM TANK
B2: RED LOWER WATER LEVEL STEAM TANK
B3: BLUE PROBE CONDENSATION TANK
B5: RED PROBE CONDENSATION TANK
PSV: 12V DC POWER SUPPLY
S7: DOOR SWITCH
N7: SAFETY HIGH LIMIT
K41 & K42: CONTROL CONVECTION
DP1: BOILER DRAIN PUMP
E1, E2, E3: H2O ELEMENT
E4: CONVECTION ELEMENT
SMK RLY: SMOKER RELAY
SMK EL: SMOKER ELEMENT
K51 & K52: MOTOR DRIVE CONTACTOR
CAVITY LAMP
SAFETY THERMOSTAT
CLEAN PUMP MD-34636
DOOR SAFETY SWITCH
HL RED
HL BROWN
HL BLACK
VENT MOTOR SW
12DC MOTOR
RBL BA-34876
Multi-Point Probe Optional
(TM-34884)
(TM-34934)
(TM-34931)
(TM-34881)
(TM-34889)
(TM-34796)
(TM-34801)
X01
X02
X03
X04
X05
X06
X08
X09
X10
X11
X12
X14
N6/RED
N6/YELLOW
B5/RED
B5/YELLOW
B3/RED
B3/YELLOW
PT100/BLACK
PT100/WHITE
GND
refer to page 1of 3
REV ECO DESCRIPTION DATE APP
ALTO-SHAAM WIRING DIAGRAM
1018 ES1 440-480V 3PH TOUCH
BY: MVQ DWG# 77350 SHEET 3_OF_3
DATE: 6/4/10

(FA-34919)
FAN 2

X11/131 424
X11/130 332

E41
E42
150
148
146
156
154
152
JUMPER
2 PIECE CONVECTION
HEATING ELEMENT
(EL-3979)
12/20 208V-1080W
240V-1440W EACH PIECE

N6
X6/7
X6/8
331
YELLOW
DVEN TEMP. PROBE
(PR-33724)

MD-34857
SERVICE KIT # 5011958R
208-240V, 400W
2 SPEED MOTOR
VFD
L1206 RBL
L1204 RBL
L1212 RBL
L1214 RBL
L1216 RBL

B10
PRODUCT PROBE
PR-33746
902 WHITE X9/2
904 GREEN X9/3
906 GRN/YEL X9/4
908 GRN/WHI X9/5
910 GRN/RED X9/6
RBL

B11
PRODUCT PROBE
PR-33746
RECEPTACLE
(RC-34704)
WHITE X12/5 L1206 RBL
BLACK X12/4 L1204 RBL

320 VA
500/220V
50/60 HZ
(TN-33344)
X11/134
X10/220/1
FUSE-10A
X11/3 1104 RBL
X11/4 1106 RBL
YELLOW 107
RED 105
B5 STEAM PROBE
(PR-33751)
X11/7 1112 RBL
X11/8 1114 RBL
YELLOW 115
RED 113
B3 COOLING WATER PROBE
(PR-33751)
BLUE

(A)
(B)
(C)
(D)
(E)
(F)

POWER SUPPLY, (BA-36144)
PSW1
GND 86
X51/5 496
X51/3 340
X51/1 424
X10 LCD J10-3 RBL X8/3 804
X10 LCD J10-1 RBL X8/1 800
V- V+
L N
X11/130 358
X11/132 438
435 341 497 87

VFD
BA-34927
TM-34048
P1 P2 P3

X11/130 338
RBH X3/1 300
RBH X3/2 302
RBH X3/3 304
339 301 303 305

(TM-34305)
(FU-34784) 5A FUSE (FU-34771)
FUSE VFD2 466
FUSE VFD 17
TN-480 480
K51/6 499
K51/4 354
K51/2 443
(FU-34772) 15A FUSE (FU-34771)
L3 56
X11/134 395
L2 30
L1 16
VFD 57 51 31 17
K51 20 A
VFD
(CDN-34913)
X11/130 352
498 FUSE A/3
355 FUSE A/2
442 FUSE A/1
436 VFD/13 497 VFD/NEUTRAL 341 VFD/LINE 435
N7 313
K41/A2 308
RBH 410 X4/6
K42/A2 312
RBH 412 X4/7
K42 (CDN-37371)
K41 (CDN-37371)
E42 E41
50 A
K1/A2 316
X11/130 314
K1/A1 409
K3/A2 344
K2/A2 315
K2/A1 444
RBH X4/5 408
K2 (CDN-36541)
K1 (CDN-36541)
E2 E1
40 A
(FIGURE 15)
(FIGURE 16)
(FU-34771)
(FU-35680) 6.25A FUSE
319 392 X11/134
K71/A2 365
K1/A2 316
RBH X4/4 406
K3 (CDN-36541)
E3
40 A

(TM-34305)
PARTITION(TM-34315)
(TM-34311) (FU-33184) FUSE 2A 323 X11/130
(TM-34311) (FU-33184) FUSE 2A 426 X11/131
(TM-34311) (FU-33452) FUSE 6.3A 491 TN/220
PARTITION(TM-34309)
(TM-34307) X11/132 439PSI PSW1
(TM-34307) X11/132 416 X4/9 RBH
X11/131 (TM-34307) 414 X4/8 RBH
X11/131 (TM-34307) 427 F3
X11/134 (TM-34308) 393 F2
X11/130 (TM-34308) 391 TN/0
X11/130 (TM-34308) 315 K2/A2
X11/X (TM-34308) 322 F4
PARTITION(TM-34309)
(TM-34306) 91 404 X14/3 RBL
(TM-34306) 95 Y4/GND
F1 418 K51/A1 437 FAN 3 433 FAN 2 425 FUSE VFD 31 K51/A2 353 VFD/V 339 FAN 3 337 FAN 2 333 FAN 89 LAMP 87 VFD/GND
439PSI PSW1
K47/9 RBH
F3
F2
TN/0 D. PUMP
K2/A2 Y1
F4
F2/GND
E1/GND
Y4/GND
PE
PARTITION(TM-34437)
(TM-3778) 380 TN/415
(TM-3778) 415 TN/440
(TM-3778) 440 TN/490
(TM-3778) 490 TN/500
(TM-34438)
BLUE E3 BLUE
RED E3 RED
WHITE E1 RED
BLUE E2 BLUE
WHITE E2 RED
PARTITION(TM-3786)
(TM-3780)
FE 42 L3 61 60
FE 41 L3 59 58
FE 42 L2 41 40
FE 41 L2 39 38
FE 42 L1 21 20
FE 41 L1 19 18
FUSEVFD 51
INPUT L3
FUSE VFD 31
INPUT L2
FUSE VFD 17
INPUT L1

Y3/A2 326
X11/130 324
Y2/A2 327 325
RBH X2/9 216
Y1 (STEAM) (VA-34045)
Y3 (CLEANING)
Y4/BLUE 328
Y3/A2 326
RBH 210 X276
Y2
Y4 (COOLING) SOLENOID VALVE (VA-34300)
CLEANING PUMP MD-34636
Tyeneshild
Green 94 GND
Blue 327 Y2/A2
Brown 208 X2/5 RBH

LAMP RECEPTACLE (LP-34161)
OVEN LAMP (LP-34206)
89 321 320 F4
421 88 GND
420 F3

FAN 1
INTAKE FAN
(FA-34957)
331 330 X11/130
423 422 X11/131

RBH X8/2 802 803 -12Vdc
RBL X5/5 509 508
(VA-26838)

PROBE TIP CONN'S (CR-3851)
2: WATER LEVEL PROBE (PR-34902)
X2/2 BLUE 203 RED 201 RBL
X2/1 200 RBL
501 X5/1 RBL
503 X5/2 500 RBL

PROTECTION PROBE (PR-33759)
YELLOW 1009 X10/5
RED 1011 X10/6
WHITE N8

IMMERSION HEATING ELEMENT
208V=4700W
240V=6800W
(EL-33412)
RED E1
BLUE E1
WHITE E1
74 K1/6
75
70 K1/2
71
73 K1/4
72

WATER TEMP. PROBE
80 K2/6
79 K2/4
81
1: IMMERSION HEATING ELEMENT
208V=7500W
240V=10,700W
(EL-33411)
YELLOW X11/6 1110 RBL
1111
RED X11/5 1108 RBL
1109
BRDWN
B4 (PR-33724)
WHITE
BLUE E3
BLUE E3
WHITE E3
RED E2
BLUE E2
WHITE E2
76 K2/2
77

E1
E2
E3

172
K3/4 171
171 K3/2
170

N7 310 X11/130 311
K42/A2 312 313
SAFETY THERMOSTAT (TT-3750)

FE 42 FUSE HOLDER(FU-33039)
FE 41 FUSE HOLDER(FU-33039)
FU-33040 45A FUSE
61 41 21 59 39 19
133 131 129 127 125 123
K42/6 K42/4 K42/2 K41/6 K41/4 K41/2
60 40 20 58 34 18
L3 L2 L1

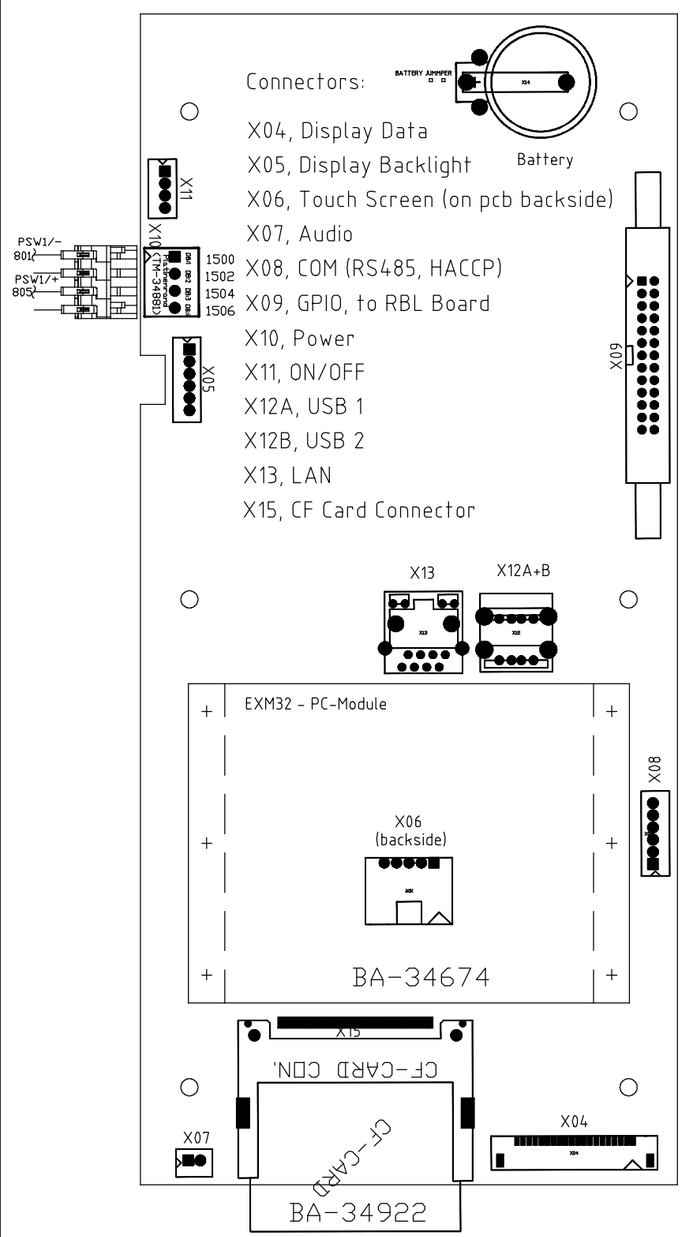
DP1
DRAIN PUMP (DA-34973)
343 X11/130
213 212 RBH X277

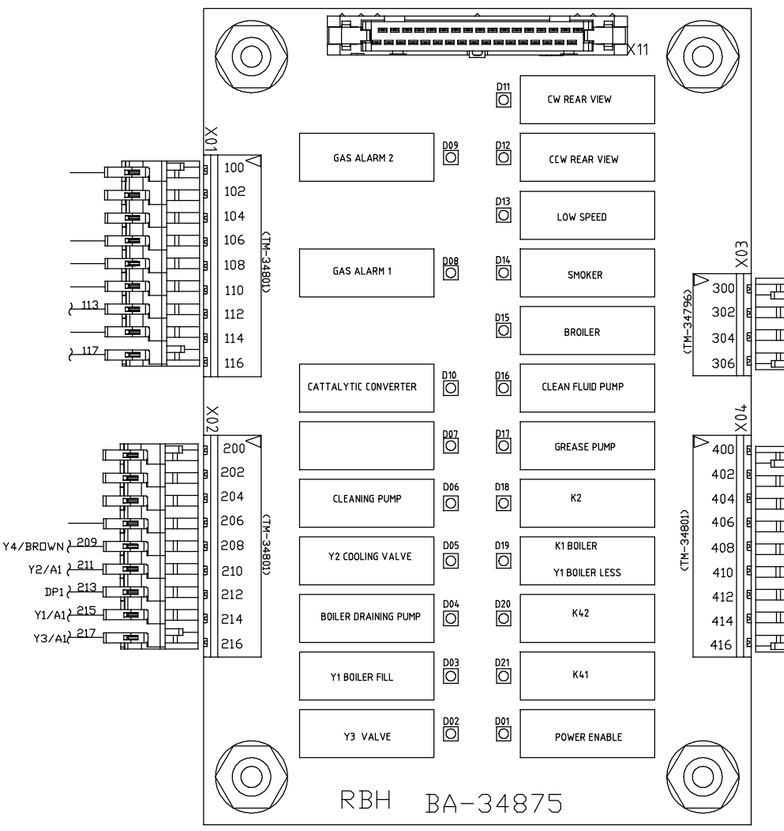
REFERENCE CUT SHEET
12.20:5012807

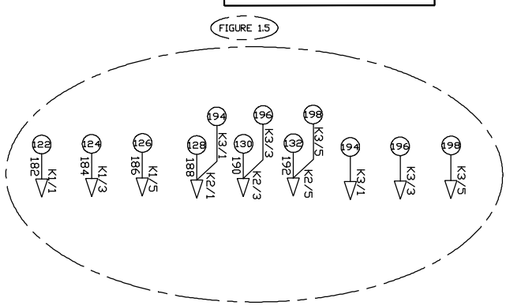
	VOLTS	WATTS	AMPS
DESIGN	440	27.8KW	36.5A
	480	36.7KW	44.2A
AL	440-480V	27.8-36.7KW	36.5-44.2A

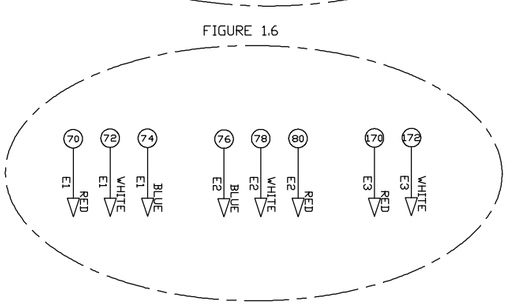
REV	ECO	DESCRIPTION	DATE	APP
7	6721		10/11/13	MVD
6			09/25/13	MVD
5	6045		09/05/11	MVD

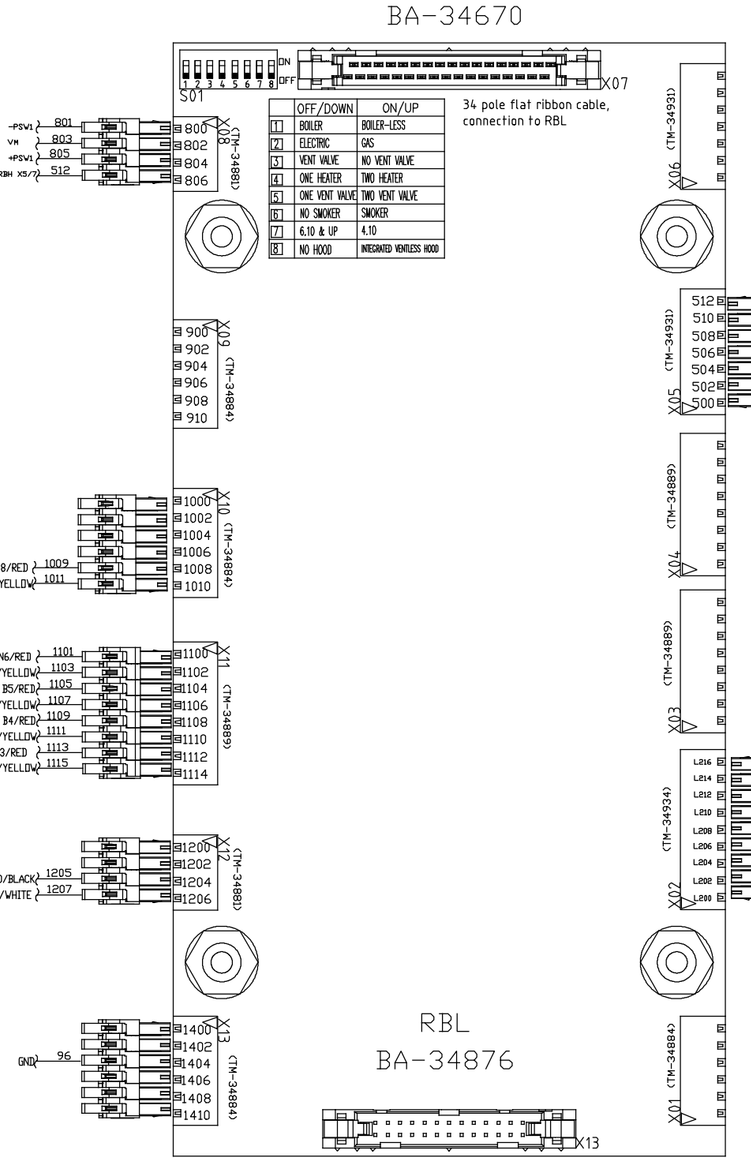
ALTO-SHAAM
WIRING DIAGRAM
12.20 ES 440-480V 3PH TOUCH
BY: MVD DWG: 77367 SHEET









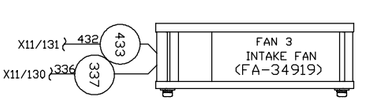


OFF/DOWN	ON/UP
1 BOILER	BOILER-LESS
2 ELECTRIC	GAS
3 VENT VALVE	NO VENT VALVE
4 ONE HEATER	TWO HEATER
5 ONE VENT VALVE	TWO VENT VALVE
6 NO SMOKER	SMOKER
7 6.10 & UP	4.10
8 NO HOOD	INTEGRATED VENTLESS HOOD

WARNING LA-29349

FOR CONTINUED PROTECTION AGAINST FIRE AND ELECTRICAL SHOCK, REPLACE ONLY WITH UL LISTED 600V MAX. NONRENEWABLE FUSES SHOWN BELOW:

CLASS CC:	VFD = 15 AMP F2 = 6.25 AMP
	SMK = 5 AMP
CLASS G:	F41, F42, F43, F44 = 45 AMP
CLASS 5 x 20mm:	F1 = 6.3 AMP
	F3, F4 = 2.0 AMP



REV	ECO	DESCRIPTION	DATE	APP
1		WIRING DIAGRAM		

77367

L1
L2
L3
392 390 395
FU-34784
FU-34772
FU-34771
57 17 31 51
498 442 359 429
GREEN
86 87
VFD
BA-34927
339 301 303 305
MTR
LINE1
434 435
LINE2
340 341
496 497
K51
CN-34913
TN-220
FUSE HOLDER FU-34770
FU-35680
393 318
F2 6.3A
FUSE HOLDER FU-34311
FU-33452
418 419
F1 6.3A
490 417
PSN
PSL
319 359
PSW1
BA-36144
12VDC
439 805
X10
DB1 DB2 DB3 DB4
Machine Gnd
437
X03 (TM-34796)
X02 (TM-34801)
X01 (TM-34801)
X04 (TM-34801)
306 304 302 300
200 202 204 206 208 210 212 214 216
100 102 104 106 108 110 112 114 116
416 414 412 410 408 406 404 402 400
426 415
K41 K42
413 411
K51 436
309
427
F3 6.3A
420
CAVITY LAMP
89
88
NZ
313 312
SAFETY THERMOSTAT
308
Y1
Y1 VA-34045
320
F4 6.3A
322
310 311
323
324
MD-34636
PUMP
Y2
Y3 VA-34045
Y1
Y2 VA-34300
Y3
Y2 VA-34300
328 326 325 327
PUMP
(DA-249731)
DP1
342 324
X01 (TM-34884)
X02 (TM-34934)
X05 (TM-34931)
X06 (TM-34931)
X08 (TM-34881)
100 102 104 106 108 110
L200 L202 L204 L206 L208 L210 L212 L214 L216
500 502 504 506 508 510 512
600 602 604 606 608 610 612
800 802 804 806
DOOR SAFETY SWITCH
HL RED
HL BROWN
HL BLACK
VENT MOTOR SW
120C MOTOR
2- PROBE TIP CONN'S
(CR-3851)
WATER LEVEL
PROBE
(PR-34902)
BLUE
RED
RBL BA-34876
Multi-Point Probe Optional
X09 (TM-34884)
X10 (TM-34884)
X11 (TM-34889)
X12 (TM-34881)
X14 (TM-34884)
900 902 904 906 908 910
1000 1002 1004 1006 1008 1010
1100 1102 1104 1106 1108 1110 1112 1114
1200 1202 1204 1206
1400 1402 1404 1406 1408 1410
N8/RED 1009
N8/YELLOW 1011
N6/RED 1101
N6/YELLOW 1103
B5/RED 1105
B5/YELLOW 1107
B4/RED 1109
B4/YELLOW 1111
B3/RED 1113
B3/YELLOW 1115
PT100/BLACK 1205
PT100/WHITE 1207
GND 96
B11
Receptical PR-34298
PRODUCT PROBE
PR-34298
WHITE
BLACK
RBL (X12/3)
RBL (X12/4)
1204
1206
(X12/2)
(X12/1)
RBL
RBL
1102
1100
(X11/2)
(X11/1)
YELLOW
RED
N6
(103)
(101)
DVEN TEMP. PROBE
(PR-33724)

X11/130: BANK OF 3 BLUE SPRING TERMINALS
B1: BLUE UPPER WATER LEVEL STEAM TANK
B2: RED LOWER WATER LEVEL STEAM TANK
B3: BLUE PROBE CONDENSATION TANK
B5: RED PROBE CONDENSATION TANK
PSW1: 12VDC POWER SUPPLY
S7: DOOR SWITCH
N7: SAFETY HIGH LIMIT
K41 & K42: CONTROL CONVECTION
DP1: BOILDER DRAIN PUMP
E1, E2, E3: H2O ELEMENT
E4: CONVECTION ELEMENT
SMK RLY: SMOKER RELAY
SMK EL: SMOKER ELEMENT
K51 & K52: MOTOR DRIVE CONTACTOR

VM: VENT MOTOR
VS: VENT SWITCH
FUSE VFD: FUSE CONTROL VFD
FUSE SMK: FUSE CONTROL SMOKER
VFD: VARIABLE FREQUENCY DRIVE
DB3& DB4: DISPLAY BOARD + DC INPUT
DB1& DB2: DISPLAY BOARD - DC INPUT

refer to page 1

REV	ECO	DESCRIPTION	DATE	APP

ALTO-SHAAM
WIRING DIAGRAM
1200 ES 440-480V 3PH TOUCH
BY: MVQ
DATE: 8/24/10
DWG: 77367
SHEET 3_OF_3

L1

L2

L3

3₀ CN-3654
30A CONTACTOR

K1

K2

K3

EL-33411
208V 7500W
240V 10700W

EL-33411
208V 7500W
240V 10700W

K41

K42

2 PIECE CONVECTION
HEATING ELEMENT
12.2Ø 208V-10800W,
240V-14400W EACH PIECE
(EL-3979)

2 PIECE CONVECTION
HEATING ELEMENT
10.18Ø 208V-10800W,
240V-14400W EACH PIECE
(EL-3979)

E41

E42

EL-33412
208V 4700W
240V 6800W

E1

E2

E3

-	-	-	-	-
-	-	-	-	-
	-	refer to page 1		-
REV	ECO	DESCRIPTION	DATE	APP

ALTO-SHAAM		WIRING DIAGRAM	
		12.20 ES 440-480V 3PH TOUCH	
BY:	MVQ	DWG: 77367	SHEET 4_OF_4
DATE:	8/28/10		

(FA-34919)
FAN 2

X11/131 424
X11/130 332
425
333

E41
E42
150 148 146
156 154 152
K01/5 K01/3 K01/1
K02/1 K02/3 K02/5
JUMPER
E41/1 E41/2 E41/3 E41/4 E41/5 E41/6
E42/1 E42/2 E42/3 E42/4 E42/5 E42/6

2 PIECE CONVECTION
HEATING ELEMENT
1220 208V 10800W
240V-14400W EACH PIECE
(EL-3979)

N6
YELLOW 103 X11/2
RED 101 X11/1
102 RBL
100 RBL
OVEN TEMP. PROBE
(PR-33724)

MD-34857
SERVICE KIT # 5011958R
208-240V, 400W
2 SPEED MOTOR
VFD
L206 RBL
L204 RBL
L212 RBL
L214 RBL
L216 RBL

(A)

B10
PRODUCT PROBE
PR-33746
PRODUCT PROBE
RECEPTACLE
(PR-33704)
X9/6 910 GRN/RED RBL 911
X9/5 908 GRN/WHT RBL 909
X9/4 906 GRN/YEL RBL 907
X9/3 904 GREEN RBL 905
X9/2 902 WHITE RBL 903
B11
WHITE 1207 X12/5 L1206 RBL
BLACK 1209 X12/4 L1204 RBL

(LT-3738)
S7
211 210 X2/6 RBL
209 208 X2/5 RBL

(C)
320 VA
500/220V
50/60 HZ
(TN-33344)
X10/220/1
X11/134
FUSE-VFD
YELLOW 1106 X11/4 RBL
RED 1105 X11/3 RBL
B5 STEAM BYPASS PROBE
(PR-33751)
YELLOW 1114 X11/8 RBL
RED 1113 X11/7 RBL
BLUE
B3 COOLING WATER PROBE
(PR-33751)

(TM-34937)
GND 86 GND
497 496 K51/5
341 340 K51/3
435 434 K51/1
LCD J10
V- V+ 805 X8/3 RBL 804
801 X8/1 RBL 800
L N 859 X11/130 358
439 X11/132 438

PSW1
POWER SUPPLY, (BA-36144)

(TM-34305)
6.25A FUSE (FU-34770) 392 X11/134
(FU-34784) 5A FUSE (FU-34770) SMK TN 57 VFD
(FU-34772) 15A FUSE (FU-34770) VFD 51 56 L3
(FU-34772) 15A FUSE (FU-34771) VFD 31 395 X11/134
VFD 31 36 L2
VFD 17 57 SMK
16 L1
FUSES
K51/6 499
K51/4 354
K51/2 443
X11/130 436 437 X11/130 352
VFD/L3 497 498 FUSE /L3
VFD/NEUTRAL 341 355 FUSE /L2
VFD/LINE 435 442 FUSE /L1
K51 20 A
(CN-34913)
N7 313 308 K41/A2
RBH 410 X4/6
K42/A2 312
RBH 412 X4/7
50 A
K42 (CN-37321)
K41 (CN-37321)
E42
E41
(TM-34305)

(TM-34305)
SMK RLY 346 335 SMK RLY 335 SMK RLY 345
345 SMK RLY 334 X11/130
RLY-34637 RLY-33483 SMK RLY
306 RBH X3/4
321 LAMP 421 LAMP
(TM-34311) (FU-33184) FUSE 2A 323 X11/130
(TM-34311) (FU-33184) FUSE 2A 426 X11/131
X11/132 419 (TM-34311) (FU-33452) FUSE 6.3A 491 TN/220
F1 418 (TM-34307) X11/132 439 PSW1
(TM-34307) X11/132 416 RBH X4/8
K51/A1 437 X11/131 (TM-34307) 414 X4/8 RBH
FAN 434 FAN 2 423 X11/131 (TM-34307) 427 (F3)
PARTITION(TM-34309)
VFD FUSE 31 X11/134 393 (F2)
K51/A2 353 X11/130 (TM-34308) 313 PSW1
VFD/V 338 X11/130 (TM-34308) 311 N7 Y1
F2 318 X11/130 (TM-34308) 325 (F4)
FAN 237 FAN 2 331 X11/130 (TM-34308) 322 (F4)
PARTITION(TM-34309)
LAMP 89 (TM-34306) 1404 X14/3 RBL
VFD/GND 87 (TM-34306) 95 Y4/GND
(TM-3782)
(TM-34305)

(TM-34305)
PARTITION(TM-3786)
(TM- 3778) 080/NL
(TM- 3778) 415/NL
(TM- 3778) 440/NL
(TM- 3778) 460/NL
(TM- 3778) 005/NL
PARTITION(TM-3786)
FE 42/L3 61 60 56 FUSEVFD 51
FE 41/L3 59 58 54 INPUT 3
PARTITION(TM-3786)
FE 42/L2 41 40 36 FUSE VFD 31
FE 41/L2 39 38 34 INPUT 2
PARTITION(TM-3786)
FE 42/L1 21 20 16 FUSE VFD 17
FE 41/L1 19 18 14 INPUT 1
(TM-3780)
(TM-34305)

Y3/A2 326 X11/130 324 Y1 (STEAM) (VA-34045)
Y2/A2 RBH 409 X4/5 327
Y1/A2 325 X2/9 216 RBH
Y4/BLUE 328
Y3/A2 326
RBH 210 X2/6
Y3 (CLEANING)
Y2

Y4 CLEANING PUMP MD-34636
Y2 (COOLING) SOLENOID VALVE (VA-34300)
94 X10
327 Y2/A2
218 X2/5 RBH

SMOKER OPTION
SMK EL 1 (EL-34554) 208V, 260W 240V, 346W
SMK EL 2 (EL-34554) 208V, 260W 240V, 346W
FUSE 429 428 430 448
SMK EL1 348 430
SMK EL2 350 432
SMK RLY 351 350

(B)
(D)
(E)
(F)

FE 42
FUSE HOLDER(FU-33039)
132 K42/6 133 FU-33040 45A FUSE 61 L3 60
130 K42/4 131 FU-33040 45A FUSE 41 L2 40
128 K42/2 129 FU-33040 45A FUSE 21 L1 20
FUSE HOLDER(FU-33039)
126 K41/6 127 FU-33040 45A FUSE 59 L3 58
124 K41/4 125 FU-33040 45A FUSE 39 L2 38
122 K41/2 123 FU-33040 45A FUSE 19 L1 18
FE 41

310 X11/130
312 K42/A2
311 313
N7
SAFETY THERMOSTAT (TT-3750)

LAMP RECEPTACLE (LP-34161)
OVEN LAMP (LP-34206)
89 321 320 F4
88 GND
421 420 F3

FAN 1
INTAKE FAN
(FA-34957)
331 330 X11/130
423 422 X11/131

RBH X8/2 -12Vdc 802 803
RBL X5/5 508 509
501 X5/1 RBL 500
503 X5/2 RBL 502
(VA-26838)

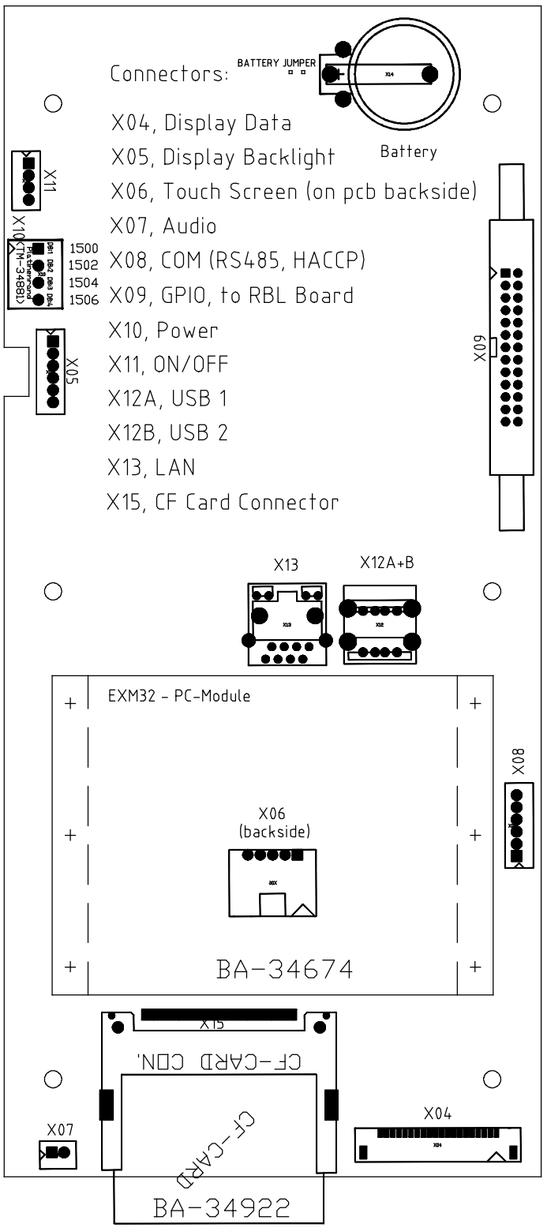
REFERENCE CUT SHEET
1220\5012808

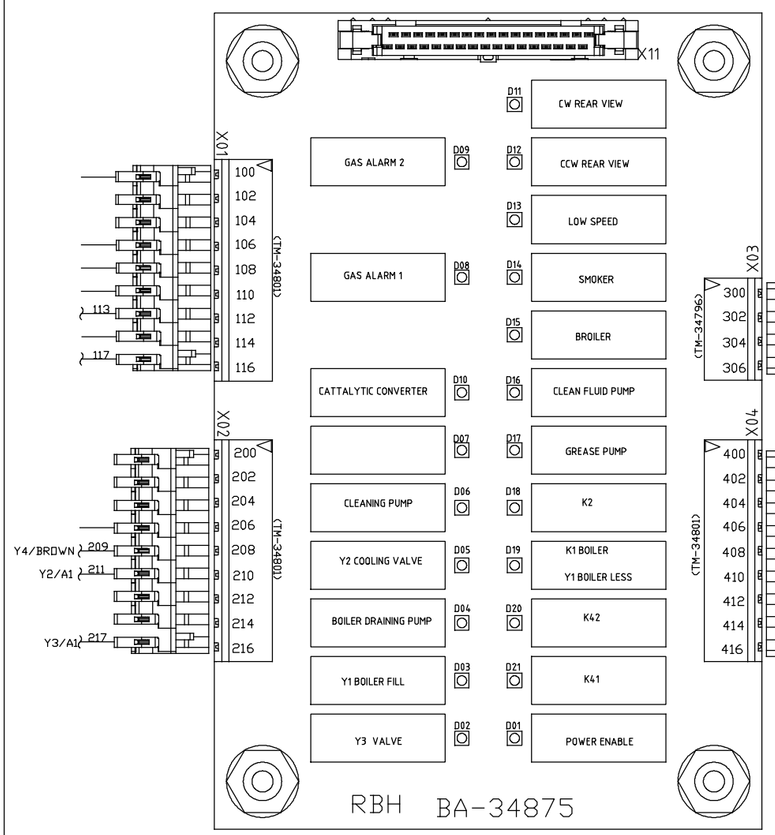
IF SMOKER ADD 520W-692W

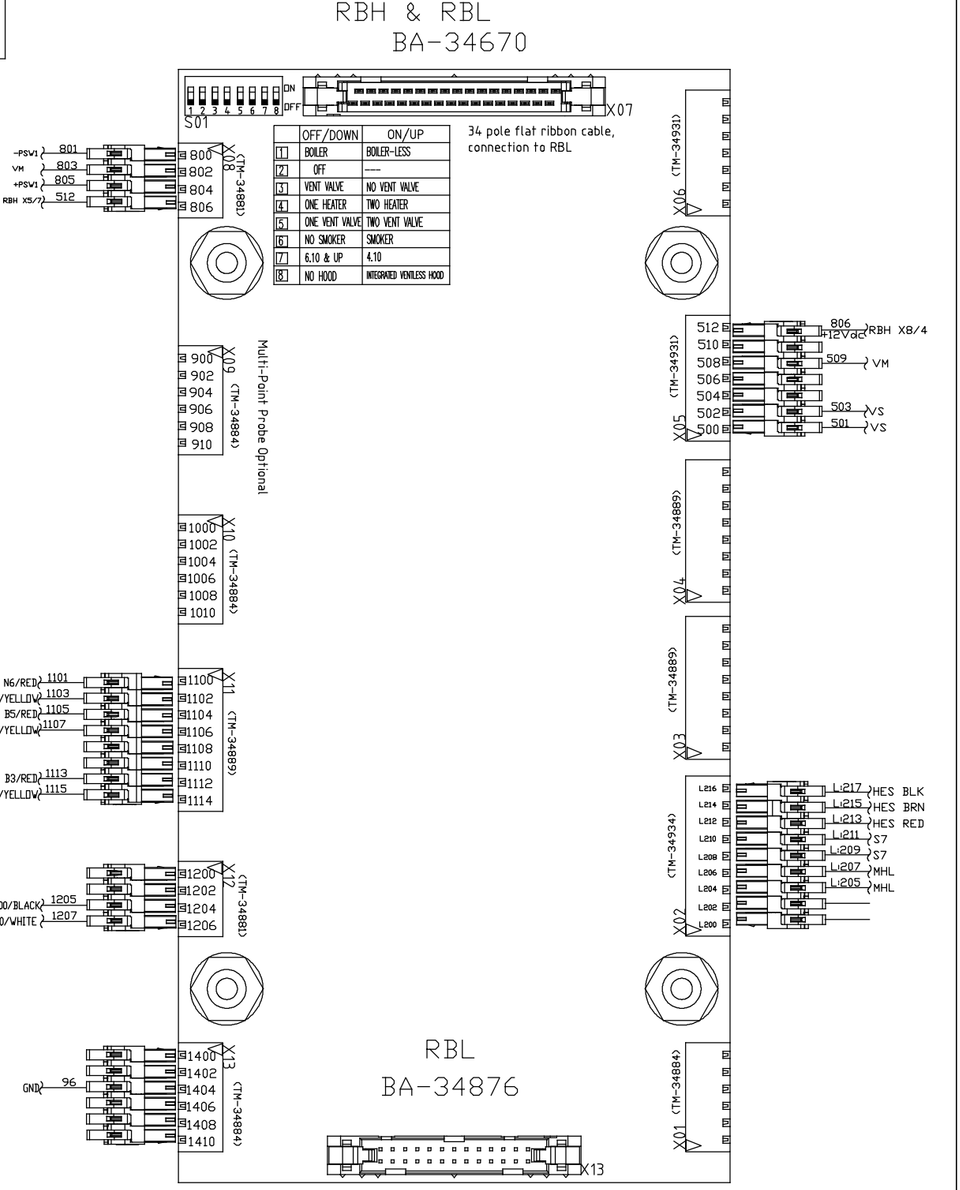
	VOLTS	WATTS	AMPS
DESIGN	440	27.8KW	36.5A
	480	36.7KW	44.2A
UL	440-480V	27.8-36.7KW	36.5-44.2A

REV	ECO	DESCRIPTION	DATE	APP
8	dP45	REPAIRED K5-CR POSITION	03/11/14	MVQ
7	dP41	REPLACED K-5403999-A-5404	10/11/13	MVQ
6	dP39	ADDING TB-5019B-WH-BK PAGE	01/22/13	MVQ

WIRING DIAGRAM
ALTO-SHAAM
1229 ES 440-480V 3PH TDWH
BY: MVQ DWG# 77368 SHEET 1_OF_3
DATE: 9/09/10



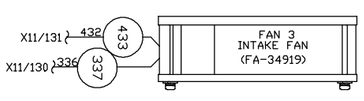




WARNING LA-29349

FOR CONTINUED PROTECTION AGAINST FIRE AND ELECTRICAL SHOCK, REPLACE ONLY WITH UL LISTED 600V MAX. NONRENEWABLE FUSES SHOWN BELOW:

CLASS CC:	VFD = 15 AMP F2 = 6.25 AMP
	SMK = 5 AMP
CLASS G:	F41, F42, F43, F44 = 45 AMP
CLASS 5 x 20mm:	F1 = 6.3 AMP
	F3, F4 = 2.0 AMP



REV	ECO	DESCRIPTION	DATE	APP

WIRING DIAGRAM
DWG 77368 REV
DATE 9/29/10
SHT 3 OF 3

L1
L2
L3
STEP DOWN TRANSFORMER TN-33344
TN-220
FU-34784
FU-34772
FU-34771
GREEN
LINE1
LINE2
K51
CN-34913
VFD BA-34927
MTR
K41
K42
2 PIECE CONVECTION HEATING ELEMENT 12.2Ω 208V-10800W, 240V-14400W EACH PIECE (EL-3979)
E41
E42
SK1/2
SK1/1
SK2/2
SK2/1
2: EL-34554 SMOKER ELEMENTS
SMOKER OPTION
FUSE HOLDER FU-34771 FU-35680
FUSE HOLDER FU-34311 FU-33452
F1
F2
PSV1 BA-36144 12VDC
X10
SMOKER OPTION RL-34634
RBH X24
X11/13
B11 Receptical PR-34298 PRODUCT PROBE PR-34298
WHITE
BLACK
RBL X12/3
RBL X12/4
DVEN TEMP. PROBE (PR-33724)
YELLOW
RED
RBL X11/2
RBL X11/1
VM: VENT MOTOR
VS: VENT SWITCH
FUSE VFD: FUSE CONTROL VFD
FUSE SMK: FUSE CONTROL SMOKER
VFD: VARIABLE FREQUENCY DRIVE
DB3& DB4: DISPLAY BOARD + DC INPUT
DB1& DB2: DISPLAY BOARD - DC INPUT
X11/130: BANK OF 3 BLUE SPRING TERMINALS
B1: BLUE UPPER WATER LEVEL STEAM TANK
B2: RED LOWER WATER LEVEL STEAM TANK
B3: BLUE PROBE CONDENSATION TANK
B5: RED PROBE CONDENSATION TANK
PSV: 12Vdc POWER SUPPLY
S7: DOOR SWITCH
N7: SAFETY HIGH LIMIT
K41 & K42: CONTROL CONVECTION
DP1: BOILDER DRAIN PUMP
EL, E2, E3: H2O ELEMENT
E4: CONVECTION ELEMENT
SMK RLY: SMOKER RELAY
SMK EL: SMOKER ELEMENT
KS1 & KS2: MOTOR DRIVE CONTACTOR
CAVITY LAMP
SAFETY THERMOSTAT
CLEAN PUMP
MD-34636
VA-34045
VA-34300
DOOR SAFETY SWITCH
VENT MOTOR SW
12DC MOTOR
RBL BA-34876
Multi-Point Probe Optional
(TM-34884)
(TM-34934)
(TM-34931)
(TM-34881)
(TM-34889)
(TM-34801)
(TM-34796)
HL_RED
HL_BROWN
HL_BLACK
PT100/BLACK
PT100/WHITE
GND

refer to page 1

REV	ECO	DESCRIPTION	DATE	APP

ALTO-SHAAM — WIRING DIAGRAM — 12.20 ESI 440-480V 3PH TOUCH

BY:	MVQ	DWG#	77368	SHEET
DATE:	9/09/16			3_OF_3

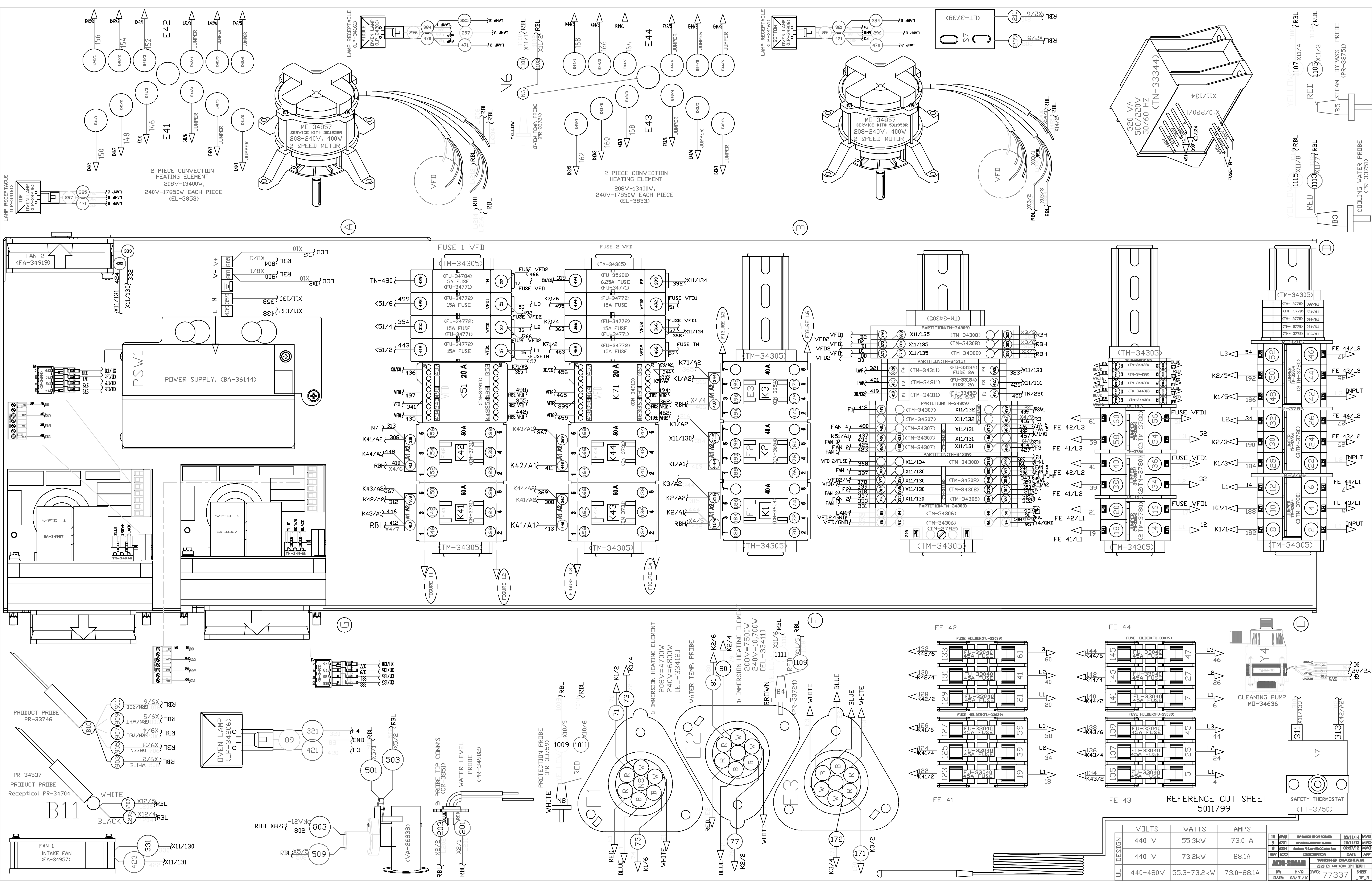

2 PIECE CONVECTION HEATING ELEMENT
208V-13400W,
240V-17850W EACH PIECE
(EL-3853)
E41
E42
E43
E44
N6
OVEN TEMP. PROBE (PR-33724)
YELLOW
LAMP RECEPTACLE (LP-34161)
TOP OVEN LAMP (LP-34206)
MIDDLE OVEN LAMP (LP-34206)
BOTTOM OVEN LAMP (LP-34206)
MO-34857
SERVICE KIT# 5011958R
208-240V, 400W
2 SPEED MOTOR
VFD
S7
(LT-3738)
320 VA
500/220V
50/60 HZ
(TN-33344)
STEAM BYPASS PROBE (PR-33751)
COOLING WATER PROBE (PR-33751)
B5
B3
RED
FAN 2 (FA-34919)
PSW1
POWER SUPPLY, (BA-36144)
FUSE 1 VFD
FUSE 2 VFD
(TM-34305)
K51
K71
K42
K44
K41
K43
K3
K2
K1
FIGURE 1.1
FIGURE 1.2
FIGURE 1.3
FIGURE 1.4
FIGURE 1.5
FIGURE 1.6
VFD 1
BA-34927
TM-34948
PRODUCT PROBE PR-33746
PR-34537
PRODUCT PROBE
Receptical PR-34704
B10
B11
WHITE
BLACK
FAN 1
INTAKE FAN
(FA-34957)
OVEN LAMP (LP-34206)
2: PROBE TIP CONN'S (CR-3851)
WATER LEVEL PROBE (PR-34902)
(VA-26838)
PROTECTION PROBE (PR-33759)
N8
1: IMMERSION HEATING ELEMENT
208V=4700W
240V=6800W
[EL-33412]
WATER TEMP. PROBE
1: IMMERSION HEATING ELEMENT
208V=7500W
240V=10,700W
[EL-33411]
B4
(PR-33724)
E1
E2
E3
FE 42
FE 41
FE 44
FE 43
FUSE HOLDER(FU-33039)
FU-33040
45A FUSE
CLEANING PUMP
MO-34636
Y4
N7
SAFETY THERMOSTAT
(TT-3750)
REFERENCE CUT SHEET
5011799
VOLTS | WATTS | AMPS
DESIGN 440 V | 55.3kW | 73.0 A
440 V | 73.2kW | 88.1A
UL 440-480V | 55.3-73.2kW | 73.0-88.1A
10 | 6965 | DIPSWITCH #2 OFF POSITION | 03/11/14 | MVQ
9 | 6721 | REPLACE BA-34938 WITH BA-36144 | 10/11/13 | MVQ
8 | 6504 | Replace F3 fuse with CC class fuse | 09/27/12 | MVQ
REV | ECO | DESCRIPTION | DATE | APP
ALTO-SHAAM
WIRING DIAGRAM
20.20 ES 440-480V 3PH TOUCH
BY: MVQ
DATE: 03/31/10
DWG: 77337
SHEET 1_OF_5

FIGURE 1.1

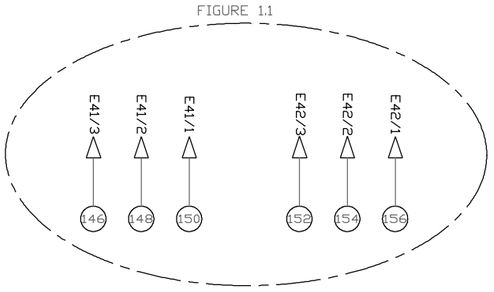


FIGURE 1.2

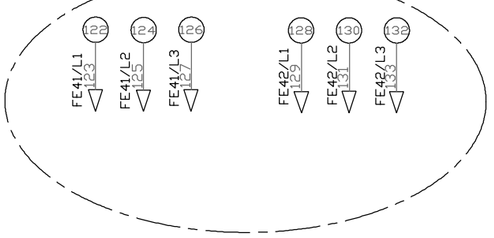


FIGURE 1.3

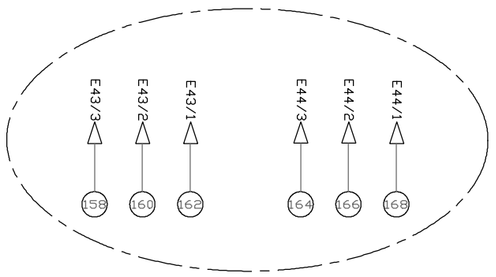


FIGURE 1.4

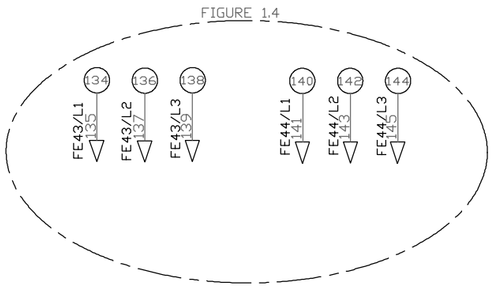


FIGURE 1.5

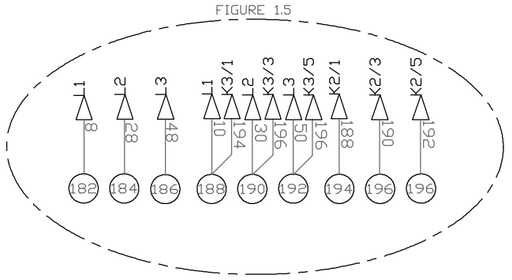
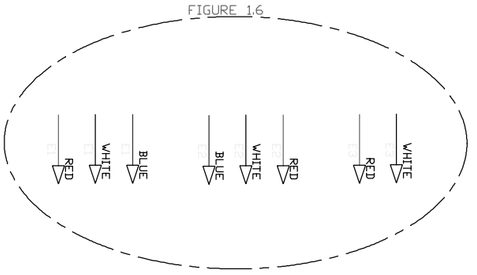


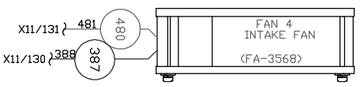
FIGURE 1.6

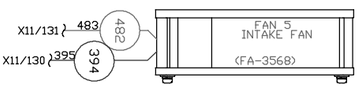


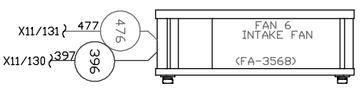
WARNING LA-29349

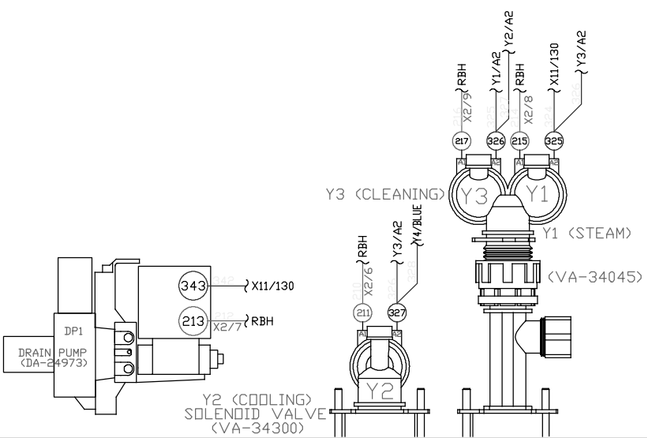
FOR CONTINUED PROTECTION AGAINST FIRE AND ELECTRICAL SHOCK, REPLACE ONLY WITH UL LISTED 600V MAX. NONRENEWABLE FUSES SHOWN BELOW:

CLASS CC:	VFD = 15 AMP F2 = 6.25 AMP
	SMK = 5 AMP
CLASS G:	F41, F42, F43, F44 = 45 AMP
CLASS 5 x 20mm:	F1 = 6.3 AMP
	F3, F4 = 2.0 AMP

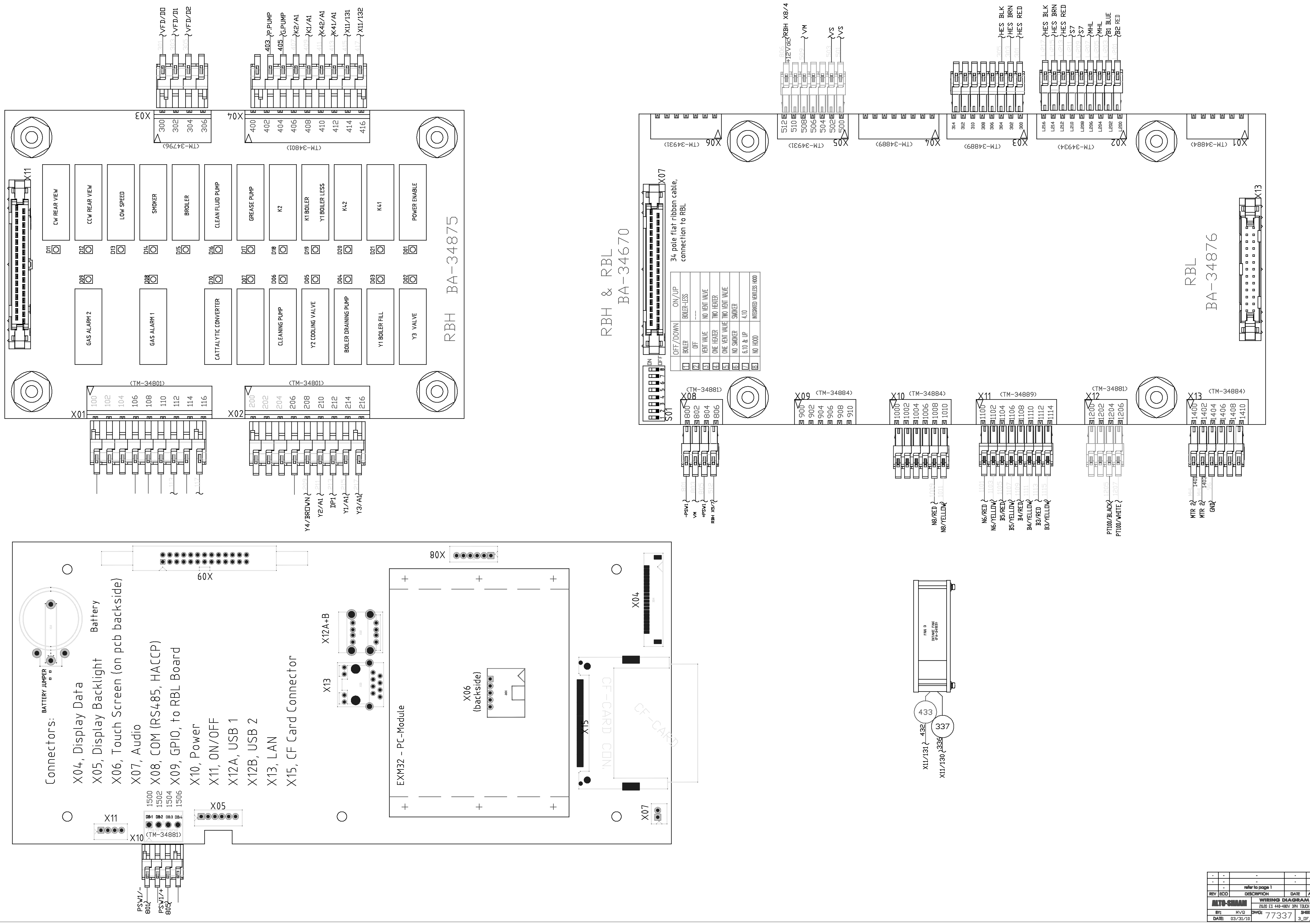








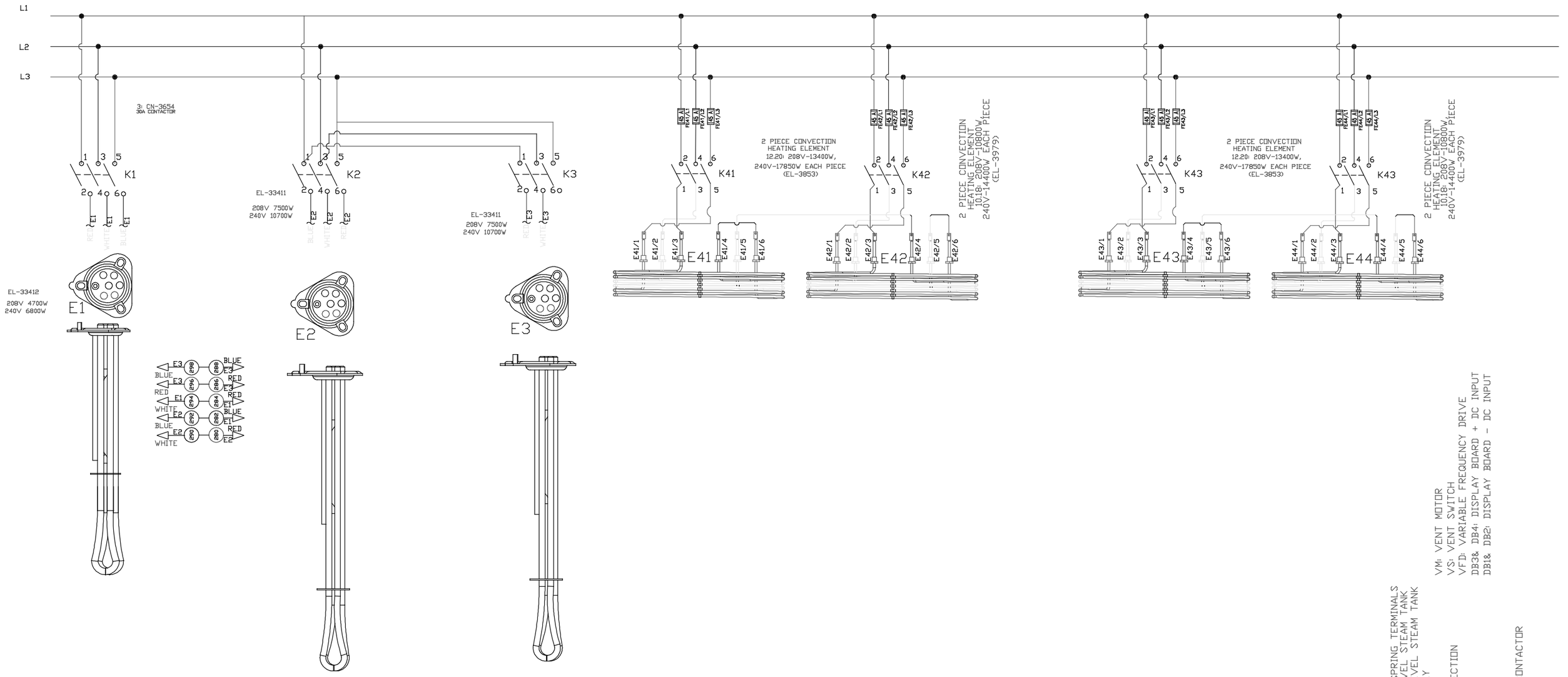
DATE	03/30/01				
BY	WWW				
DRAWING	7733	WIRING DIAGRAM	DATE	APP	
SHT	2 OF 5				



REV	ECO	DESCRIPTION	DATE	APP
-	-	-	-	-
-	-	-	-	-
	-	refer to page 1		-

ALTO-SHAAM	WIRING DIAGRAM 20.20 ES 440-480V 3PH TOUCH
BY: MVQ DATE: 03/31/10	DWG: 77337 — SHEET 3_OF_5

L1
L2
L3
TN-480
TN-220
368
FU-34784
FU-34772
FU-34771
FU-34770
CN-34913
K51
K71
GREEN
LINE
MTR1
MTR2
BA-34927 VFD
FUSE HOLDER FU-34771
FU-35680
FUSE HOLDER FU-34311
FU-33452
PSN
PSL
PSW1
12VDC
X10
F1
F2
CAVITY LAMP
SAFETY THERMOSTAT
PUMP
MD-34636
PUMP (DA-25973)
Y1 VA-34045
Y2 VA-34300
DOOR SAFETY SWITCH
HL RED
HL BROWN
HL BLACK
2L PROBE TIP CONN'S (CR-3851)
WATER LEVEL PROBE (PR-34902)
VENT MOTOR SW.
120C MOTOR
RBL BA-34876
Multi-Point Probe Optional
Connectors:
X04, Display Data
X05, Display Backlight
X06, Touch Screen (on pcb backside)
X07, Audio
X08 COM (RS485, HACCP)
X09 GPIO, to RBL Board
X10, Power
X11, ON/OFF
X12A, USB 1
X12B, USB 2
X13, LAN
X15, CF Card Connector
EXM2 - PC Module
BA-34674
Battery
Backside)
Recaptical PR-34704
PRODUCT PROBE
PR-34537
B11
WHITE
BLACK
RBL 1206
RBL 1204
YELLOW
RED
N6
1102
1103
1101
1100
DVEN TEMP. PROBE (PR-33724)
X01 (TM-34884)
X02 (TM-34934)
X03 (TM-34889)
X05 (TM-34931)
X06 (TM-34931)
X08 (TM-34881)
X09 (TM-34884)
X10 (TM-34884)
X11 (TM-34889)
X12 (TM-34881)
X14 (TM-34884)
X04 (TM-34801)
X03 (TM-34796)
X02 (TM-34801)
X01 (TM-34801)
N8/RED
N8/YELLOW
N6/RED
N6/YELLOW
B5/RED
B5/YELLOW
B4/RED
B4/YELLOW
B3/RED
B3/YELLOW
PT100/BLACK
PT100/WHITE
GND
refer to page 1
REV ECO DESCRIPTION DATE APP
ALTO-SHAAM
WIRING DIAGRAM
2620 ES 440-480V 3PH TOUCH
BY: MVD
DATE: 03/31/10
DWG#: 77337
SHEET 4_OF_5

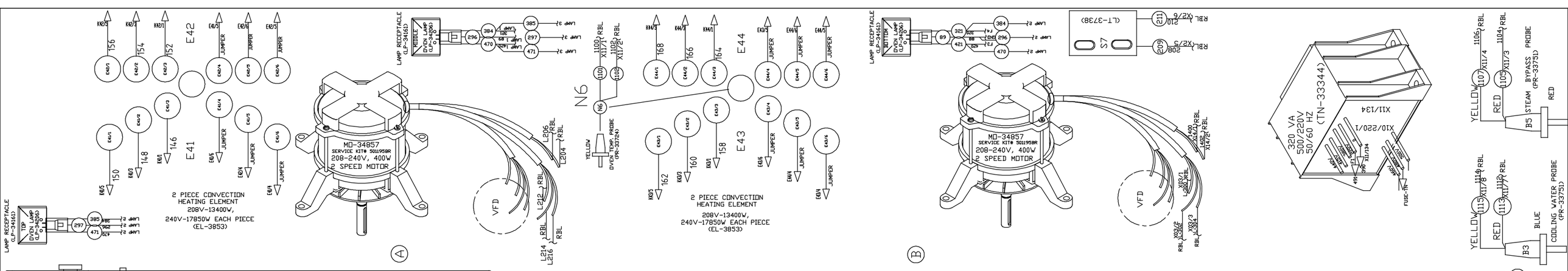


X11/130: BANK OF 3 BLUE SPRING TERMINALS
B1: BLUE UPPER WATER LEVEL STEAM TANK
B2: BRED LOWER WATER LEVEL STEAM TANK
PSW: 12Vdc POWER SUPPLY
S7: DOOR SWITCH
N7: SAFETY HIGH LIMIT
K41 & K42: CONTROL CONVECTION
DP1: BOILDER DRAIN PUMP
E1, E2, E3: H2O ELEMENT
E4: CONVECTION ELEMENT
SMK RLY: SMOKER RELAY
SMK EL: SMOKER ELEMENT
K51 & K52: MOTOR DRIVE CONTACTOR

VM: VENT MOTOR
VS: VENT SWITCH
VFD: VARIABLE FREQUENCY DRIVE
DB3& DB4: DISPLAY BOARD + DC INPUT
DB1& DB2: DISPLAY BOARD - DC INPUT

REV	ECO	DESCRIPTION	DATE	APP
-	-	-	-	-
-	-	refer to page 1		-

ALTO-SHAAM — WIRING DIAGRAM
2528 ES 48-480V 3PH TOUCH
BY: MVD — DWG#: 77337 — SHEET: 5_OF_5
DATE: 03/31/10



	VOLTS	WATTS	AMPS
DESIGN	440 V	55.3kW	73.0 A
DESIGN	480 V	73.2kW	88.1A
UL	440-480V	55.3-73.2kW	73.0-88.1A

REV	ECO	DESCRIPTION	DATE	APP
11	6965		05/11/14	MVQ
10	6721		10/11/13	MVQ
9	6188		09/07/13	MVQ

ALTO-SHAAM — WIRING DIAGRAM — 2021 CSI 440-480V 3PH TOUCH

BY: MVQ DWG#: 77343 SHEET: 1_OF_5 DATE: 03/31/10

FIGURE 1.1

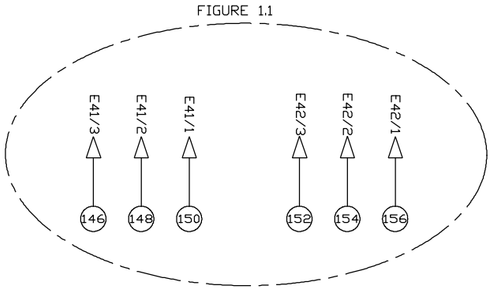


FIGURE 1.2

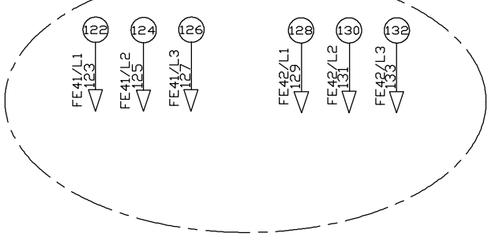


FIGURE 1.3

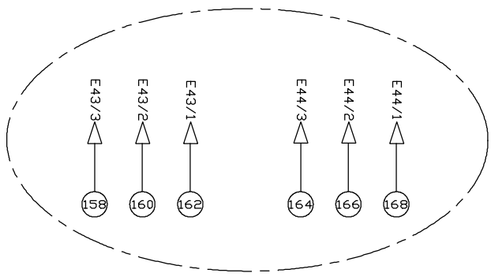
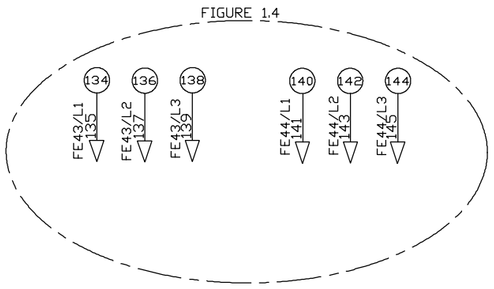
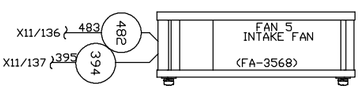
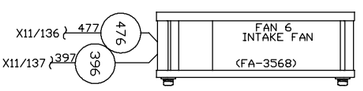


FIGURE 1.4



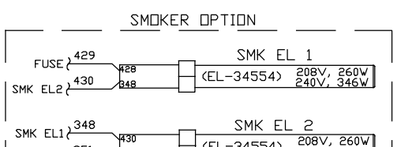


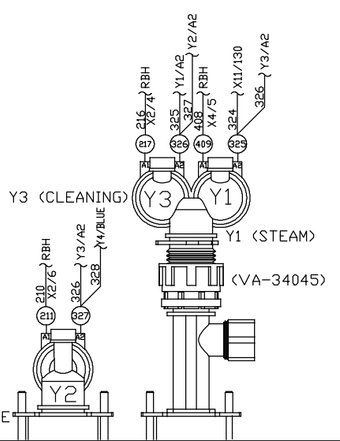


WARNING LA-29349

FOR CONTINUED PROTECTION AGAINST FIRE AND ELECTRICAL SHOCK, REPLACE ONLY WITH UL LISTED 600V MAX. NONRENEWABLE FUSES SHOWN BELOW:

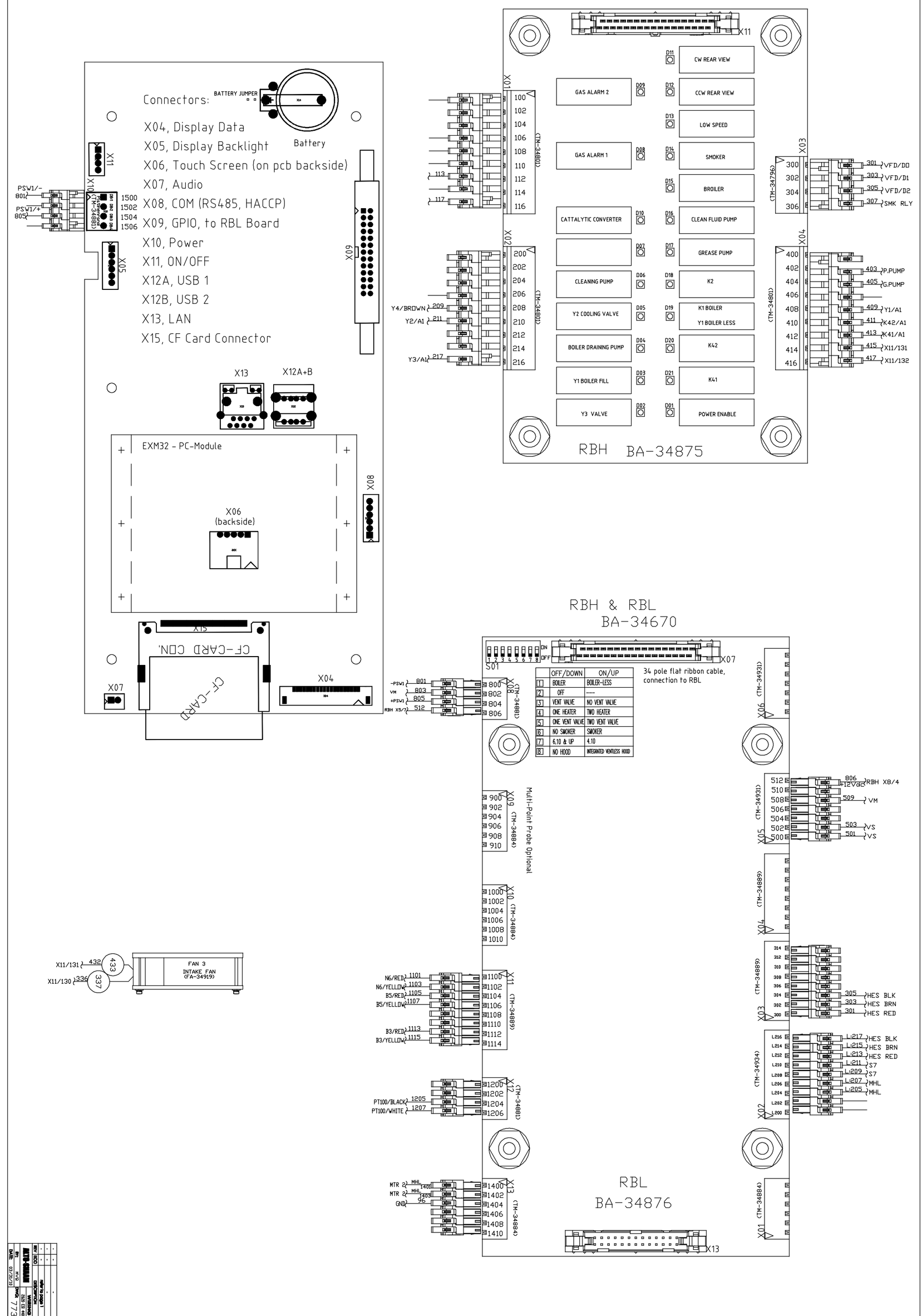
CLASS CC:	VFD = 15 AMP F2 = 6.25 AMP
	SMK = 5 AMP
CLASS G:	F41, F42, F43, F44 = 45 AMP
CLASS 5 x 20mm:	F1 = 6.3 AMP
	F3, F4 = 2.0 AMP





				REV	
				CCO	
				DESCRIPTION	
				DATE	
				APP	

DATE	03/25/20
SMK	77343
SHT	1 OF 5

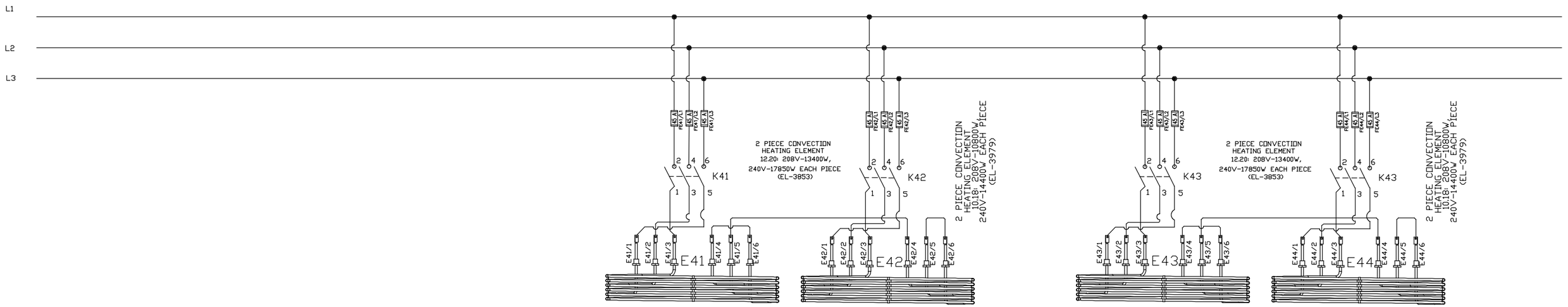


	OFF/DOWN	ON/UP
1	BOILER	BOILER-LESS
2	OFF	---
3	VENT VALVE	NO VENT VALVE
4	ONE HEATER	TWO HEATER
5	ONE VENT VALVE	TWO VENT VALVE
6	NO SMOKER	SMOKER
7	6.10 & UP	4.10
8	NO HOOD	INTEGRATED VENTLESS HOOD

REV	ECO	DESCRIPTION	DATE	APP

WIRING DIAGRAM
RBH 24-48" W TOUCH
SIZE: D
DWG NO: 77343
REV: 3
DATE: 03/25/21
SHT: 1 OF 1

L1
L2
L3
TN-480
TN-220
395
FU-34784
FU-34772
FU-34771
FU-34770
CN-34913
K51
K71
GREEN
LINE
BA-34927 VFD
MTR1
MTR2
FUSE HOLDER FU-34770
FU-35680
FUSE HOLDER FU-34311
FU-33452
F1
F2
PSN
PSL
PSW14 Bel-Art 12VDC
X10
CAVITY LAMP
SAFETY THERMOSTAT
N7
K41
K42
K43
K44
Y1
MD-34636 CLEAN PUMP
Y4
Y3: VA-34045
Y2: VA-34300
X01 (TM-34884)
X02 (TM-34934)
X03 (TM-34889)
X04 (TM-34801)
X03 (TM-34796)
X02 (TM-34801)
X01 (TM-34801)
DOOR SAFETY SWITCH
HL RED
HL BROWN
HL BLACK
VENT MOTOR SW.
120DC MOTOR
X05 (TM-34931)
X06 (TM-34931)
X08 (TM-34881)
X09 (TM-34884)
X10 (TM-34884)
X11 (TM-34889)
X12 (TM-34881)
X14 (TM-34884)
RBL BA-34876
Multi-Point Probe Optional
Connectors:
X04, Display Data
X05, Display Backlight
X06, Touch Screen (on pcb backside)
X07, Audio
X08, COM (RS485, HACCP)
X09, GPIO, to RBL Board
X10, Power
X11, ON/OFF
X12A, USB 1
X12B, USB 2
X13, LAN
X15, CF Card Connector
Battery
60X
80X
X12A+B
X13
X04
X15
X16 (backside)
X17
X11
X10
X05
EXM32 - PC-Module
BA-34674
CF-CARD
CF-CARD CON.
Receptical PR-34704
PRODUCT PROBE
PR-34537
B11
WHITE
BLACK
RBL X12/5
RBL X12/4
X206
X204
N6
YELLOW
RED
1102 RBL X17/2
1100 RBL X17/1
1103
1101
DIVEN TEMP. PROBE
(PR-33724)
refer to page 1
REV ECO DESCRIPTION DATE APP
ALTO-SHAAM
WIRING DIAGRAM
1923 ESI 440-480V 3PH TOUCH
BY: MVQ
DWG#: 77343
SHEET: 4_OF_5
DATE: 03/31/10



X11/130: BANK OF 3 BLUE SPRING TERMINALS
B1: BLUE UPPER WATER LEVEL STEAM TANK
B2: RED LOWER WATER LEVEL STEAM TANK
B3: BLUE PROBE CONDENSATION TANK
B5: RED PROBE CONDENSATION TANK
PSV: 12Vdc POWER SUPPLY
S7: DOOR SWITCH
S7: SAFETY HIGH LIMIT
K41 & K42: CONTROL CONVECTION
DP1: BUILDER DRAIN PUMP
E1, E2, E3: H2O ELEMENT
E4: CONVECTION ELEMENT
SMK RLY: SMOKER RELAY
SMK EL: SMOKER ELEMENT
K51 & K52: MOTOR DRIVE CONTACTOR

VM: VENT MOTOR
VS: VENT SWITCH
FUSE VFD: FUSE CONTROL VFD
FUSE SMK: FUSE CONTROL SMOKER
VFD: VARIABLE FREQUENCY DRIVE
DB3& DB4: DISPLAY BOARD + DC INPUT
DB1& DB2: DISPLAY BOARD - DC INPUT

-	-	-	-	-	-
-	-	-	-	-	-
	-	refer to page 1			-
REV	ECO	DESCRIPTION		DATE	APP

ALTO-SHAAM — WIRING DIAGRAM
DSR DH 44-48W SPH TOUCH
BY: MVQ
DATE: 03/31/10
DWG#: 77343
SHEET: 5_OF_5

W164 N9221 Water Street • P.O. Box 450 • Menomonee Falls, Wisconsin 53052-0450 • U.S.A.
PHONE: (262)251-3800 (800)558-8744 U.S.A./CANADA • FAX: (262)251-7067 (800)329-8744 U.S.A. • www.alto-shaam.com

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