XD-9006A
GA-SWC-HB
04/09/2012

Simple. Smart.

XLT Gas Oven & AVI Hood Parts & Service Manual

CAUTION

This appliance is for professional use by qualified personnel. This appliance must be installed by qualified persons in accordance with the regulations in force. This appliance must be installed with sufficient ventilation to prevent the occurrence of unacceptable concentrations of substances harmful to health in the room in which it is installed. This appliance needs an unobstructed flow of fresh air for satisfactory operation & must be installed in a suitably ventilated room in accordance with current regulations. This appliance should be serviced by qualified personnel at least every 12 months or sooner if heavy use is expected.

Electronic copies of this manual, Technical Specifications, Installation & Operation Manual, Architectural Drawings, & a list of International Authorized Distributors are available at: www.xltovens.com

For use with the following XLT Gas Oven Versions:		For use with the following AVI Gas Hood Versions:	
Standard (S)	C	Standard (S)	B
World (W)	C	World (W)	B

0359

2000887

XLT Ovens
PO Box 9090
Wichita, Kansas 67277
US: 888-443-2751 FAX: 316-943-2769 INTL: 316-943-2751 WEB: www.xltovens.com

WARNING & SAFETY INFORMATION

SAFETY DEPENDS ON YOU

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

- Post in a prominent location instructions to be followed in the event you smell gas. This information can be obtained by consulting your local gas supplier.

WARNING

FOR YOUR SAFETY

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

- In the event a gas odor is detected, shut off the gas at the main shutoff valve immediately. Contact your local Gas Company or supplier.
- Do not restrict the flow of combustion and/or ventilation air to the unit. Provide adequate clearance for operating, cleaning, & maintaining the unit & adequate clearance for operating the gas shutoff valve when the unit is in the installed position.
- Keep the area free & clear of combustible material. DO NOT SPRAY AEROSOLS IN THE VICINITY OF THIS APPLIANCE WHILE IT IS IN OPERATION.
- Ovens are certified for installation on combustible floors.
- Electrical schematics are located inside the control box of the oven & and in this manual. Disconnect input power to the unit before performing any maintenance.
- This unit requires a ventilation hood. The installation must conform to local codes.
- This unit may be operated with either natural gas or LP fuel as designated on the nameplate label located on the side of the unit.
- This unit must be operated by the same voltage, phase, & frequency of electrical power as designated on the nameplate label located on the side of the unit.
- Minimum clearances must be maintained from combustible & non-combustible construction materials.
- Follow all local codes when installing this unit.
- Follow all local codes to electrically ground the unit.
- Appliance is not to be cleaned with high pressure water.
- XLT ovens are certified for use in stacks of up to three (3) units of XLT products. Integration of other manufacturer's products into an oven stack is not recommended, & will void any warranties. XLT Ovens assumes no liability for mixed product applications.
- Failure to call XLT Customer Service at 1-888-443-2751 prior to contacting a repair company voids any & all warranties.
- PLEASE RETAIN THIS MANUAL FOR FUTURE REFERENCE.

XLT Ovens has spent millions of dollars designing and testing our products as well as developing Installation & Operation Manuals. These manuals are the most complete and easiest to understand in the industry. However, they are worthless if they are not followed.

We have witnessed store operators and building owners lose many thousands of dollars in lost revenue due to incorrect installations. We highly recommend you follow all instructions given in this manual as well as follow best practices in plumbing, electrical, and HVAC building codes.

Definitions & Symbols

A safety instruction (message) includes a "Safety Alert Symbol" & a signal word or phrase such as **WARNING** or **CAUTION**. Each signal word has the following meaning:

HIGH VOLTAGE

This symbol indicates high voltage. It calls your attention to items or operations that could be dangerous to you & other persons operating this equipment. Read the message & follow the instructions carefully.

WARNING

Indicates a potentially hazardous situation that, if not avoided, can result in serious injury or death.

CAUTION

Indicates a potentially hazardous situation, that if not avoided, can result in minor to moderate injury or serious damage to the product. The situation described in the CAUTION may, if not avoided, lead to serious results. Important safety measures are described in CAUTION (as well as WARNING), so be sure to observe them.

NOTE

Notes indicates an area or subject of special merit, emphasizing either the product's capability or common errors in operation or maintenance.

TIP

Tips give a special instruction that can save time or provide other benefits while installing or using the product. The tip calls attention to an idea that may not be obvious to first-time users of the product.

4 WARRANTY - US & Canada

XLT warrants gas ovens manufactured after April 1, 2009 utilizing quietFIRE™ burners and all electric ovens manufactured after April 1, 2011 to be free from any defect in material and workmanship under normal use for five (5) years from the date of original purchase by the end user, and further warrants main fan blades, conveyor shafts, and conveyor bearings for ten (10) years. XLT further warrants all ovens to be free from rust for ten (10) years from the date the equipment is originally purchased. XLT warrants AVI hoods to be free from any defect in material and workmanship under normal use for two (2) years from the date of original purchase by the end user. In the event of a part failure, XLT will furnish a replacement part and pay for all labor associated with the replacement of the part if, upon inspection, XLT determines that the part is defective. This warranty is extended to the original end user purchaser and is not transferable without prior written consent of XLT. Damages are limited to the original purchase price.

DUTIES OF THE OWNER:

- The owner must inspect the equipment and crates at time of receipt. Damage during shipment is to be immediately reported to the carrier and also to XLT.
- The equipment must be installed and operated in accordance with the written instructions furnished with the unit.
- This warranty shall not excuse the owner from properly maintaining the equipment in accordance with the written instructions furnished with the unit.
- A copy of the "Initial Start-Up Checklist" must be filled out and returned to XLT Ovens and the Authorized Distributor when the unit is initially installed, and/or when the unit is removed and installed in another location.
- The gas, electric, and HVAC utilities must be connected to the oven and installed by locally licensed contractors.
- Failure to contact XLT Ovens prior to contacting a repair company for warranty work voids any and all warranties.

WHAT IS NOT COVERED:

The following items are not covered by this warranty:

- Freight damage
- Any part that becomes defective because of utility services (power surges, high or low voltages, high or low gas pressure or volume, contaminated fuel, or improper utility connections)
- Conveyor belts
- Filters
- Exhaust Fans
- Light Bulbs
- Normal maintenance or adjustments
- This warranty shall not apply if the equipment or any part is damaged as a result of accident, casualty, alteration, misuse, abuse, improper cleaning, improper installation, improper operation, natural disasters, or man-made disasters.

CLAIMS HANDLED AS FOLLOWS:

Should any such defect be discovered, XLT must be notified. Upon notification, XLT will arrange for necessary repairs to be made by an authorized service agent. Denial of services upon the arrival of an authorized service agent will release XLT of any and all warranty obligations.

XLT warrants gas ovens manufactured after January 1, 2011 utilizing quietFIRE™ burners and all electric ovens manufactured after April 1, 2011 to be free from any defect in material and workmanship under normal use for two (2) years from the date of original purchase by the end user. XLT warrants AVI hoods to be free from any defect in material and workmanship under normal use for one (1) year from the date of original purchase by the end user. In the event of a part failure, XLT will furnish a replacement part to the Authorized Dealer if, upon inspection, XLT determines that the part is defective. The Authorized Dealer will pay for all labor associated with the replacement of the part. This warranty is extended to the original end user purchaser and is not transferable without prior written consent of XLT. Damages are limited to the original purchase price.

DUTIES OF THE OWNER:

- The owner must inspect the equipment and crates at time of receipt. Damage during shipment is to be immediately reported to the carrier and also to XLT.
- The equipment must be installed and operated in accordance with the written instructions furnished with the unit.
- This warranty shall not excuse the owner from properly maintaining the equipment in accordance with the written instructions furnished with the unit.
- A copy of the "Initial Start-Up Checklist" must be filled out and returned to XLT Ovens and the Authorized Dealer when the unit is initially installed, and/or when the unit is removed and installed in another location.
- The gas, electric, and HVAC utilities must be connected to the oven and installed by locally licensed contractors.
- Failure to contact the Authorized Dealer prior to contacting a repair company for warranty work voids any and all warranties.

WHAT IS NOT COVERED:

The following items are not covered by this warranty:

- Freight damage
- Any part that becomes defective because of utility services (power surges, high or low voltages, high or low gas pressure or volume, contaminated fuel, or improper utility connections)
- Conveyor belts
- Filters
- Exhaust Fans
- Light Bulbs
- Normal maintenance or adjustments
- This warranty shall not apply if the equipment or any part is damaged as a result of accident, casualty, alteration, misuse, abuse, improper cleaning, improper installation, improper operation, natural disasters, or man-made disasters.

CLAIMS HANDLED AS FOLLOWS:

Should any such defect be discovered, the Authorized Dealer must be notified. Upon notification, the Authorized Dealer will arrange for necessary repairs to be made by an authorized service agent. The Authorized Dealer will notify XLT Ovens of all discovered defects.

6 GENERAL

This manual, which contains an illustrated parts breakdown, has been prepared as an aid in understanding how the unit operates, how to diagnose problems, and order parts for the equipment. All of the parts, listed in the parts breakdown, are manufactured with the same precision as the original equipment.

XLT parts and service providers are available worldwide. There are authorized service providers located in the principle cities of the United States. There are also authorized Distributors located throughout the world.

The Theory of Operation section describes how the unit operates. An understanding of normal operation will greatly aid diagnosis and troubleshooting. The Troubleshooting section asks simple yes or no questions. The next question or statement entirely depends upon the previous answer. It will lead to the solution of a problem in the most efficient way. The illustrated parts section identifies the various sub-assemblies and detailed parts which make up the equipment, as well as the part number. An explanation of how to order parts is included.

This manual is designed to supplement the Installation & Operation Manual provided with the unit when new. Please refer to it for descriptions, dimensions, weights, electrical requirements, maintenance schedules, and certifications.

XLT Ovens wants you to be totally satisfied with every aspect of owning & using your oven & hood. Your feedback, both positive & negative, is very important to us as it helps us understand how to improve our products & our company. Our goal is to provide you with equipment that we can be proud to build & you can be proud to own.

To receive technical support for the oven or hood you purchased, XLT has qualified customer service personnel that can provide assistance on any type of XLT oven or hood equipment problem you may experience. Customer Service is available 24/7/365 at 888-443-2751 or visit www.xltovens.com.

WARNING Repairs of all electric appliances & ventilation exhaust hoods should only be performed by a qualified professional who has read & understands these instructions & is familiar with proper safety precautions. Read this manual thoroughly before installing or servicing this equipment.

Save this Manual

This document is the property of the owner of this equipment.

XLT Ovens reserves the right to make changes in design & specifications, and/or make additions to or improvements to its product without imposing any obligations upon itself to install them in products previously manufactured.

All Right Hand & Left Hand designations in this manual are from the point of view as if standing directly in front of the glass sandwich door.

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For maintenance procedures, please refer to the XLT Installation & Operation Manual.

Revision History Table

Revision	Comments	Date
A	New Release	04/09/2012

8 GAS OVEN THEORY OF OPERATION

When the Main Switch (S1) is turned on;

1. The Oven Fan Motor (M1) located in the Back Wall will run.
2. The Fan (M3) located on the Control Panel will run.
3. The Temperature Control (TC) should display both the actual and set-point temperatures.
4. The Conveyor Control (CC) should display the belt time.
5. The burner will ignite.
6. The conveyor belt should move.

The first part of the Theory of Operation explains how electrical power is delivered to the oven and initial sequences when the main operator switch is turned on. The remainder of the Theory of Operation section explains the function of components in alphabetical order. These components are also listed on the schematic.

- Line voltage for Standard Ovens is assumed to be 120 VAC, 60 Hz.
- Line voltage for World & Australian Ovens is assumed to be 230 VAC, 50 Hz.

Power originates at the electrical connection on the wall. Line voltage is then carried into the oven through the power cord to the Terminal Strip (TS). The Neutral line is connected to the TS, and several jumpers are used to bridge along the TS to make connection points for multiple neutral lines from all components inside of the control box and Main Fan motor. Line 1 is also connected to the TS. From there, wires connect to Terminal T11 on the Cool Down Timer (R1), the High Limit Switch (S3, World & Australian only), through the Main Circuit Breaker (CB1), then to the Main Switch (S1). Unless the outlet on the wall has no power, the circuit just described has power at all times.

When S1 is turned on, line voltage will be carried thru the switch simultaneously to four locations via two parallel circuits:

- Terminal T6 of the Cool Down Timer (R1)
- Terminal T5 of the Temperature Control (TC), via a Circuit Breaker (CB5)
- Combustion Blower Motor (M4) via CB5 (Australia only)

And:

- Transformer (XFMR)
- Power Supply (PS)

BC - The Burner Control (BC) is powered by 24 VAC from the Transformer (XFMR). Incoming power will be interrupted by the Temperature Control (TC) when the actual temperature rises above the Maximum Operating Temperature (see Specification Sheet). When the BC receives power, it initiates a pre-purge lighting sequence. A red LED will blink once after about 2-3 seconds to give notification that the lighting sequence has started. After about 30 seconds, two events occur; 1) a high-voltage electrical signal will be sent to the Flame Sensor/Spark Igniter (FS/SI) from the Spark Terminal, and 2) a 24 VAC signal will be generated across Terminals V1 & V2. The high voltage jumps across a gap in the FS/SI creating a spark that can be heard, although the BC only produces this spark for four (4) seconds. One end of the Rectifier Plug is connected to Terminals V1 & V2 through a Circuit Breaker (CB6). The Rectifier Plug rectifies the 24 VAC to 24 VDC. The other end of the Rectifier Plug is connected to Terminals 1 & 4 of the Main Valve (V1-V2). The V1-V2 valve will open, allowing fuel to flow into the burner. When the two simultaneous events occur, fuel flow and spark, ignition should occur. When flame is sensed by the FS/SI, a DC current is sent to Terminal S1 of the BC. The BC uses this DC current to prove ignition. A minimum of .7 µA is required to maintain operation. If the Burner lights, the LED will not flash. If the Burner fails to light, the LED will flash three (3) times, repeatedly, and the BC will not attempt to re-light.

CAP - The Capacitor is physically mounted inside the Control Box but wired to the externally mounted Main Motor. The Main Motor is a permanent split capacitor (PSC) motor. PSC means a capacitor motor in which the starting capacitor and the auxiliary winding remain in the circuit for both starting and running.

CB - Circuit Breakers are used to protect electrical components. The current value is printed on the front of all breakers. If a CB is tripped, eliminate the cause and press the front to reset.

CC - The Conveyor Control is supplied 24 VDC by the Power Supply (PS) via a Circuit Breaker (CB3 & CB4, optional) to Terminals #4 & 5. The belt time is displayed, and is user-adjusted by pressing and holding the up or down arrow button switches. See the Specification Sheet for minimum and maximum belt times. The motor speed is calculated based on the time that is entered. This time is translated to a RPM on the motor shaft depending on the size of the oven, the diameter of the sprocket, and the gear ratio of the gearbox. Once the motor is running, hall sensor inputs are fed back into the driver to determine the speed the motor is currently running at. This input goes into a PID algorithm to adjust the PWM output to control the speed to match the target speed that was calculated first. This PWM is adjusting the average voltage that the motor phases are seeing. As the average voltage goes up, the motor will speed up. As the average voltage drops, the motor speed will also drop. The maximum speed is based on a continuous 18-24V being supplied to the motor. The phasing of the controller is dependent on the hall sensor signals that are being returned. The controller reads the hall sensor position and from there knows which phase of the motor receives the 18-24V signal, which phase of the motor is the return and which phase of the motor is left open. As the motor spins, the hall sensors change, which dictate which phases are energized.

FS/SI - The Flame Sensor/Spark Igniter consists of a copper-clad metal mounting plate, a ground electrode, and two additional electrodes encapsulated in ceramic insulators. One of the insulated electrodes has a 1/4" male spade welded to it while the other insulated electrode has a 3/16" male spade welded to it. The rod with the 1/4" spade connects to the Spark Terminal on the Burner Control (BC) via a spark wire. The end of this rod is positioned near the ground electrode in such a way so as to create a small gap. When the high-voltage signal from the BC reaches the gap, it is forced to jump the gap resulting in a spark.

Flame has the unique ability to rectify AC voltage and current into DC voltage and current. The electrode with the 3/16" spade is positioned in such a way so that the electrode is inside the flame envelope. A wire connects this electrode to Terminal S1 on the BC. A green ground wire is attached to the copper-clad mounting plate, and connected to chassis ground inside the control box. When flame is present, a DC current flow is detected by the BC. The amount of current flow is determined by the position of the flame sensor and the size of the flame. The minimum current flow to maintain operation is .7 µA.

M1 – The Main Motor is a Permanent Split Capacitor (PSC), single phase, capacitor run motor and has an internal centrifugal switch (S2). The motor is dual voltage and reversible. The voltage to power the motor comes from the Cool Down Timer (R1), and the motor will continue to operate for approximately 30 minutes after the main switch is turned off. There are no user serviceable parts in the motor, and the bearings are permanently lubricated.

M2 - The Conveyor Motor (M2) is a brushless 24 VDC gear motor. The motor receives current from the Conveyor Control (CC) through three (3) wires; 1) A black or "W" phase, 2) a white or "V" phase, and 3) a red or "U" phase. They carry between 18 to 24 VDC. Each wire is energized by the Conveyor Control (CC) in sequence to provide power to the individual stator coils which, in turn, provide motor rotation.

To determine the rotors position and send this position to the controller, three (3) Hall Effect switches are utilized. They read the rotational information from a disc mounted on the rotor assembly. This information is transmitted to the CC by three (3) wires; 1) an orange "U" phase pole signal output, 2) a green "V" phase pole signal output, and 3) a green/white "W" phase pole signal output. These are located in a plug that inserts into the CC. There are two (2) additional wires in this plug; 1) a purple wire which is supply voltage for the pole sensor, and 2) a gray wire that is ground.

The CC, using an internal logic circuit, energizes the stator coils to provide proper rotation and sets the energization (phase) timing to obtain the desired belt speed set on the controller. The motor drives an integral gear box that reduces the motor output speed to give the correct travel time to the conveyor belt. The integral gear box is sealed and permanently lubricated with grease. The ratio is 1/200.

M3 - The Flow Path Pressure Generating (FPPG) fan supplies combustion air for the Burner. It is wired in parallel with M1 and will continue to operate for 30 minutes after S1 is turned off. A filter is provided to ensure clean air.

M4 - (Australia ovens only) - The Burner Blower Motor is a dual-voltage, shaded pole motor that supplies air for combustion. A Centrifugal Switch (S4) is physically mounted internally to prove rotation.

PS - The Power Supply rectifies line voltage to 24 VDC, and supplies power to the Conveyor Control (CC). A 4 amp fuse is used to provide over current protection, which is mounted on the PS itself. There are no other fuses used anywhere else.

PU - The Pick-Up is physically mounted within the Conveyor Motor (M2) and utilizes hall effect technology integral to the M2 to monitor the rotation speed. The hall effect signal is transmitted to the CC, which converts it into linear travel speed of the conveyor.

R1 - R1 is a 30-minute off delay relay which functions as a cool down timer. Applying power to T6 activates the relay, which sends a voltage signal out from T9. When power is removed from T6, voltage continues from T9 for 30 minutes. T9 supplies voltage to the Main Fan Motor (M1) through a Circuit Breaker (CB2), and also supplies voltage to the FPPG (M3) Fan. M1 and M3 are the only components that will continue to operate for 30 minutes after S1 is turned off. The off delay relay is a safety feature to allow the oven to cool down to room temperature, and to eliminate heat stress on the components of the oven.

R2 - Proving Relay (Australia ovens only) - The proving relay is a safety device to ensure that the Temperature Control (TC), Signal Conditioner (SC), and the Burner Control (BC) do NOT have 24 VAC until the Burner Blower Motor (M4) is spinning at full speed. The proving relay proves that there is no M4 rotation. Once M4 achieves full RPM, R2 works in conjunction with the Centrifugal Switch (S4) to prove that there is fan rotation.

24 VAC is supplied by the XFMR to terminal 6 on R2. At this point in time, this serves no function. An additional wire connects terminal 6 with the common switch contact of S4. When the motor is at rest, 24 VAC is carried through NC switch contacts in S4 to terminal 9 on R2. At this point in time, this also serves no function. Another wire connects terminal 9 to terminal A to activate the relay coil. When the coil in R2 is activated, the relays switch state. When that happens, then 24 VAC is carried from terminal 6 to terminal 9, which supplies power to terminal A in order to keep the coil energized. These events occur in a very short amount of time.

When M4 achieves full RPM, S4 will change state. Voltage will then be applied to terminal 4 of R2. Since R2 is energized, terminal 4 is connected to terminal 7, which supplies 24 VAC to TC, SC, & BC.

If the main switch is cycled, the XFMR will disable and not supply the proving relay voltage and the proving relay will go back to NC. Before reactivating R2, M4 must come to a complete stop or S4 will not go back to NC to reactivate proving relay.

RP – The Rectifier Plug has an integrated full-wave bridge rectifier circuit. It converts 24 VAC from the Burner Control (BC) into 22 VDC that is sent to the Multi-Valve (V1-V2).

S1 - The Main Switch is a SPST normally open switch, mounted on the front of the Control Box. Activating this switch applies voltage to Terminal T6 of the Cool-Down Timer (R1) and to the primary side of the Transformer (XFMR). When used with the optional AVI Hood System, a remote switch mounted in the front of the AVI Hood replaces it.

S2 - This Switch is a SPDT centrifugal switch physically mounted inside the Main Motor (M1). When M1 comes up to full speed, S2 closes and sends a 24 VAC signal to the Temperature Control (TC) and the Signal Conditioner (SC). It functions as a safety feature to prevent burner operation if the M1 fails to rotate.

S3 - High Limit Switch (World & Australia ovens only). This is a bi-metal, NC, SPST switch physically mounted in the side panel of the Bake Chamber. It's purpose is to provide fail safe operation. If the temperature of S3 exceeds 600°F, it opens and interrupts line voltage to all components except the Main Motor (M1).

S4 - (Australia ovens only) The Centrifugal Switch is SPST switch physically mounted inside the Burner Blower Motor (M4) to prove rotation.

SC - The Signal Conditioner is powered by 24 VAC from the Transformer (XFMR) via the Main Motor Centrifugal Switch (S2) and the Temperature Control (TC) on terminals 1 & 2. Incoming power will be interrupted by the Temperature Control (TC) when the actual temperature rises above the Maximum Operating Temperature (see Specification Sheet). The function of the SC is to convert a 4-20 mA signal from the TC (Temperature Control) to a 45-250 mA signal and then applies that signal to the Moduplus valve. This in turn modulates the valve to allow an appropriate amount of fuel to control temperature.

T/C - The thermocouple is a type K. It consists of two different conductors that produce a voltage proportional to a temperature difference between either end of the pair of conductors. The T/C is connected to Terminals 9 & 10 of the TC (Temperature Control). The milli-volt signal is used to display the actual temperature.

TC - The Temperature Control (TC) has line voltage applied to terminal T5, and neutral voltage applied to terminal T4. There are two displays; one for actual temperature and one for set-point temperature. Actual temperature is determined by the Thermo-Couple (T/C), connected to terminals 9 & 10, with T9 being the negative terminal and T10 being the positive terminal. The user determines the set-point temperature by pressing and holding the <UP> or <DOWN> arrow button switches. The TC sends a 4-20 mA (milli-amp) signal to the Signal Conditioner (SC) depending upon the relationship between actual temperature and set-point temperature. An alarm relay exists between terminals 1 & 2. Incoming power will be interrupted by the Temperature Control (TC) when the actual temperature rises above the Maximum Operating Temperature (see Specification Sheet). The voltage being interrupted is 24 VAC from the Transformer (XFMR) to the Signal Conditioner (SC) and Burner Control (BC) combined. The Maximum Operating Temperature is set at the factory and cannot be field adjusted.

V1-V2 & V3- The Multi-Valve assembly has three (3) Gas Valves. The Main Valves (V1-V2) operate in series, and are wired in series via the Rectifier Plug. The Rectifier Plug rectifies 24 VAC from the Burner Control (BC) to 22 VDC. V1-V2 are solenoid valves and are open continuously during burner operation, regardless of either actual or set-point temperature values. V3 is a modulating valve, and is controlled by a variable electrical signal from the Signal Conditioner (SC). There are two (2) fuel pressure testing ports; one for incoming pressure, and one for both high-bias and low-bias pressure. The upper port is used for incoming pressure, while the lower port is used for high- and low-bias pressure. There are two (2) hex adjusting nuts; an 8mm nut for adjusting high-bias pressure, and a 5mm nut for adjusting low-bias pressure.

XFMR- The Transformer steps down line voltage to 24 VAC. It supplies power to the Signal Conditioner (SC), Burner Control (BC), and the Centrifugal Switch (S2). One terminal on the secondary side is connected to chassis ground by a green wire. The XFMR is ON whenever the Main Switch (S1) is on, and is independent of the Cool Down Timer (R1). Note: The XFMR is equipped with an integrated circuit breaker for standalone protection.

14 HOOD THEORY OF OPERATION

When any one of, or all of, the Hood Operator Switches (S2, S3, & S4) are turned on;

1. The Exhaust Fan Motor (M1) located on the roof will run.
2. The Variable Frequency Drive (VFD) will display a set value. The values are preset from the factory and can be referenced in the I&O manual.
3. The ovens associated with the corresponding switches will turn on.

The first part of the Theory of Operation explains how electrical power is delivered to the hood and initial sequences when the main operator switch is turned on. The remainder of the Theory of Operation section explains the function of components in alphabetical order. These components are also listed on the schematic.

- Line voltage for Standard Hoods is assumed to be 208/240 VAC, 60 Hz. (1) Phase
- Line voltage for World & Australian Hoods is assumed to be 230 VAC, 50 Hz. (1) Phase

Power for the hood originates at building's electrical service panel. Two (2) circuits are required; 1) is a three phase circuit for VFD/Fan circuit, and 2) is a single phase circuit for lights and relays. The single phase circuit consist of a line and a neutral, and connects to the Terminal Strip (TS). A wire connects the TS to Switch 1 (S1-SPST-NO), which operates the lighting circuit, and also to Switch 5 (S5-SPST-NC), which is used to manually override the Variable Frequency Drive (VFD) in case of failure. The three phase circuit also connects to the TS, and wires connect the VFD through Relay 7 (R7-3PDT) and a Circuit Breaker (CB). The single phase and three phase circuits just described should have power at all times. The green run indicator directly above the programming indicator is illuminated when the controller is in the run mode. The controller is put in run mode by pressing the green run button.

Power for ovens are routed through the hood to Switches 2, 3, & 4 (S2, S3, S4, all DPDT-NO) via a Switch Relocation Cord (SRC). When XLT Ovens are installed with an AVI Hood, the SRC effectively eliminates the Main Switch located on the oven and transfers control to the DPDT switches on the hood.

When the contacts of S1 are closed, single phase voltage will be carried thru the switch to the light bulbs.

When the contacts of S2, S3, or S4 are closed, the 1st set of contacts perform the exact same function as S1 does on the oven. In addition, they allow current to flow through coils located in Relay 1, 2, or 3 (R1, R2, R3, all SPST NO) which closes the Relay contacts to provide a signal out to Make Up Air (MUA) dampers located in Roof Top Units (RTU).

The 2nd set of contacts will connect terminal P24 of the VFD to either terminal 1, 2, or 3, which will initiate operation of the VFD.

CB - Circuit Breakers are used to protect electrical components. If a CB is tripped, eliminate the cause and press the front to reset.

CS - The Current Sensor is a device that detects electrical current in a wire, and then generates a signal proportional to it. It drives an LED indicator lamp (L3) to indicate that the VFD is drawing current and operating. A minimum of 1.5 AAC is required.

L1 & L2 - These are standard incandescent light bulbs, and should illuminate when the contacts of S1 are closed.

L3 – This is a green LED indicator that is driven by the CS to indicate that the VFD is drawing current and operating.

M1 – The Exhaust Fan Motor is a 3-phase, direct drive motor. In normal operation, it is powered by the VFD through R6, and it's RPM will vary as the frequency from the VFD varies. In Manual Mode, it is powered with line voltage and frequency by R7 and R5, and will run full speed. There are no user serviceable parts in the motor, and the bearings are permanently lubricated.

PLUG 1, 2, & 3 – These are circular electrical plugs on one end of the Switch Relocation Cord (SRC). The Plugs connect to Receptacles 1, 2, & 3 on the bottom of the Hood Control Box. The other end of the SRC plugs into the oven wire harness, and eliminates the operator switch supplied in the oven. Conversely, when the operator switch on the hood is turned off, the corresponding oven is turned off as well.

R1, R2, & R3 – These are SPDT relays, which are electrically operated switches. They use an electromagnet to operate a switching mechanism. When the contacts of S2, S3, or S4 are closed, current flows through a coil in the relays, causing the contacts in the relay to close. This will complete a circuit in the Dampers in the Roof Top Units (RTU).

R4 - This is a SPDT relay, which is an electrically operated switch. They use an electromagnet to operate a switching mechanism. R4 is activated by fire alarm switch located in fire suppression cabinet. When this NO switch is activated, voltage from P24 of VFD connects to terminal 4 of VFD. This signals the VFD to advance the exhaust fan to full speed (60 HZ)

R5, R6, & R7 – These are 3PDT relays, which are electrically operated switches. They use an electromagnet to operate a switching mechanism. R7 is used all of the time, regardless of whether the unit is in normal operating mode or in manual mode. R5 & R6 are only used in manual mode.

R8 - This is a 3PDT relay **(Standard Ovens)** It is also a DPDT for **(World Ovens)**, which is an electrically operated switch. They use an electromagnet to operate a switching mechanism. R8 is activated by fire alarm switch located in fire suppression cabinet. When this NO switch is activated, it then opens R8 disrupting the voltage to REC1-REC3.

REC 4, 5, & 6 - These are circular electrical receptacles mounted on the bottom of the Hood Control Box. They connect to the SRC and also to S2, S3, & S4. See PLUG 1, 2, & 3.

S1 - This SPST (NO) switch is located on the front of the hood and controls the lights.

S2, 3, & 4 - These DPST (NO) switches are located on the front of the hood and control the ovens, as well as initiating and sequencing the operation of the VFD and damper circuits.

Line voltage is continuously applied to pin 1 of REC 4, 5, & 6, which is connected by a wire to a contact in S2, 3, & 4. This is shown on the schematic as the lower RH connection point of S2, 3, & 4. When the switch contacts are closed, shown on the lower LH connection point on the schematic, power is applied to pin 2 of the receptacles, as well as terminal B of R1, 2, & 3. Wires also connect terminal B and pin 4 of the receptacles. In essence, S2, 3, & 4 replace the switches on the ovens, and also energize the coils of R1, 2, & 3, which closes the relay contacts and send a signal to dampers in RTU's.

The other set of contacts, shown as the upper set on the schematic, connect terminal 24 of the VFD and terminals 3, 2, & 1 respectively. The VFD generates it's own 24 VDC signal voltage, and the switches serve as inputs to the VFD. The VFD outputs user-selected frequencies depending upon the combination of switches that are closed.

S5 & S6 - These are keyed SPST switches that are used for manual mode operation in case of VFD failure. S5 is NO (OFF) and S6 is NO (OFF). When S5 is OFF, the key cannot be removed. It can only be removed when the switch is turned ON. The same key is used to operate S6, and can only be inserted or removed when S6 is OFF.

Incoming line voltage is applied to terminals 7, 8, & 9 on R7. In normal mode, the voltage is connected to terminals 1, 2, & 3, which feed the VFD. When the contacts of S5 are closed, in manual mode, the incoming line voltage is connected to terminals 4, 5, & 6, causing the voltage to be diverted away from the VFD and sent to terminals 7, 8, & 9 of R5. S5 is also connected to R6, and when the contacts of S5 are closed, the switch contacts of R6 change state, resulting in the complete isolation of the VFD on both the input and output sides.

At this point in time, there should be no voltage supplied to either the VFD or M1.

The key is then removed from S5 and inserted into S6. When the contacts of S6 are closed, the contacts of R5 change state and incoming power and frequency is applied to M1 via the TS.

TS - this is a terminal strip, which serves as a connection point for wires.

VFD - The Variable Frequency Drive (VFD) converts the AC supply voltage to DC and then converts the DC to s suitable three-phase frequency source for M1. Incoming power connects to terminals L1, L2, & L3. M1 connects to terminals U, V, & W through R6 & TS1. The VFD generates it's own 24 VDC control voltage on terminal P24. S2, S3, & S4 serve as user-controlled inputs and connect terminals 1, 2, & 3 to terminal P24. User inputs include a <RUN> and <STOP/RESET> button switch, as well as <UP> and <DOWN> arrow button switches. A complete manual can be found at www.xltovens.com.

Mechanical Function

If your oven does not function properly, please verify the following conditions:

1. Verify that the power cord to the oven is connected and/or plugged in if equipped with a plug and receptacle.
2. Check to see that the circuit breakers in the building electrical service panel have not been tripped or turned off.
3. Check all circuit breakers on the oven control panel to ensure they have not been tripped.
4. Gas line size and pressure must be adequate to support total BTU requirements with all appliances in store turned ***on***. Refer to the "Oven Gas Requirements" section of this manual.
5. Check the quick-disconnect on the gas hose to verify that it is fully and completely engaged.
6. Check the Manual gas valve to verify that it is turned on completely. The handle on the valve should be parallel with the gas piping when the valve is turned on, and the handle will be perpendicular with the gas piping when the valve is turned off. Also remember that anytime the gas hose has been disconnected it will take time to purge the air from the gas train.
7. Check to see that the oven is fully assembled. All of the fingers must be properly installed. Incorrect or incomplete finger placement can cause a "windy" condition that can cause the burner not to light.

If your oven still does not function properly, XLT has qualified customer service personnel that can provide assistance on any type of XLT oven problem you may experience. Customer Service is available 24/7/365 at 888-443-2751, or visit www.xltovens.com. An interactive troubleshooting guide is available on the website.

18 HOOD TROUBLESHOOTING

Before troubleshooting the hood:

1. Make sure that the RUN lamp and POWER lamp are lit.
2. Check to see that the breaker in the service panel is not tripped.
3. Check to see that the breaker on the hood electrical box is not tripped.
4. Make sure the Switch Relocation Cords (SRC) are properly installed to the oven(s).
5. Check to see that the grease filters are clean & installed properly.
6. Check to see if the exhaust fan is rotating in the correct rotation. (applies to new installations)

In the occurrence that the VFD controller has an ERROR Code displaying. Follow these steps to clear them.

Error Codes:

- E01-E04 Inverter output was short circuited
- E05 motor overload is detected by electronic thermal function.
- E07 DC bus voltage exceeds a threshold
- E09 DC bus voltage is below a threshold
- E14 Ground fault detected between controller output and motor.

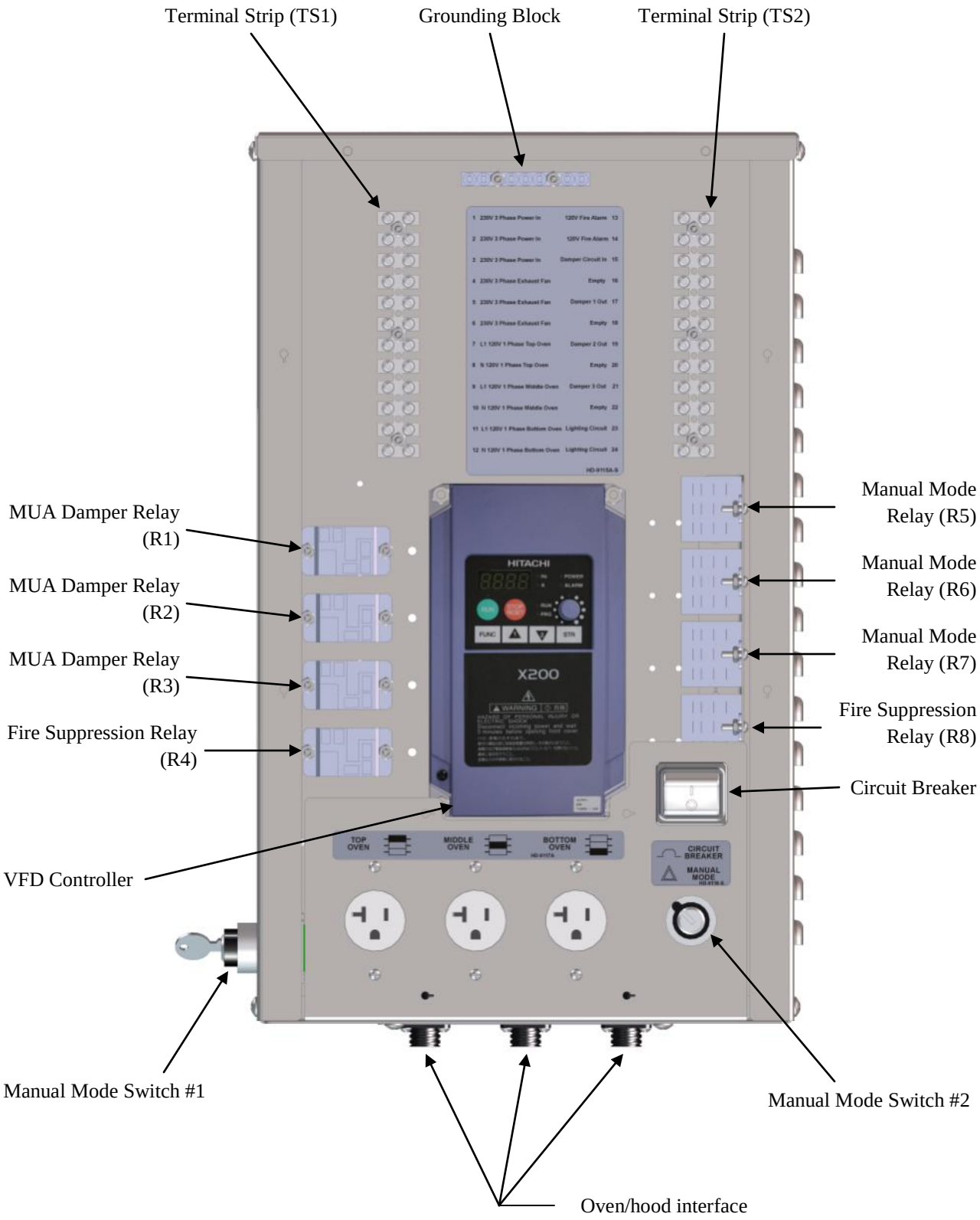
Error Code Reset:

Check VFD display for error code and record it.
Clear error by pressing the <Stop Reset> button.
Press the <Run> button to activate exhaust fan.
Normal operation resumes with no error codes.
If error codes return press the <Stop/Reset> key and call XLT service.

If the corrective actions listed above do not correct the problem, then XLT has qualified customer service personnel that can provide assistance on any type of XLT Oven or AVI Hood problem you may experience. Customer Service is available at 888-443-2751 24/7/365, or visit www.xltovens.com. The website offers an interactive troubleshooting guide that can further assist in diagnosing problems.

For repairs or maintenance of the fire suppression system and components, contact the local Ansul dealer or XLT for assistance.

VFD Control Box - Standard



VFD Control Box (Cover removed)

Conveyor Control Programming Procedure

Read the entire instruction before programming.

Configuration Key Functions

< L > = Behind the <L> in XLT is a hidden button. This is used along with the up and down button to access the programming mode. Use this after each step to advance to the next parameter when programming.

△ UP = Increases the setting of the selected parameter.

▽ Down = Decrease the setting of the selected parameter.

1. Enter Programming Mode/ Program the bake length
   - Press the <L> button and both <UP> and <DOWN> button simultaneously to enter programming mode. (You will be in bake length programming mode)
   - 0055 will appear on screen, this is already set from factory
   - Press the <UP> button until the desired belt length is displayed for your application. Belt lengths will read as follows:

     1832 = 0032
     1855 = 0055
     2440 = 0040
     3240 = 0040
     3255 = 0055
     3270 = 0070
     3855 = 0055
     3870 = 0070
3. Program the Total Reduction Value
   - Press the <UP> button until the desired settings is reached. All ovens = 300.
4. Set Speed Trimming Value
   - Press the <DOWN> button until the display shows 0000.
5. Set Fast Bake Limit
   - Press the <UP> button until the display shows 1:30.
6. Set Slow Bake Limit
   - Press the <UP> button until the display shows 17:00.
7. Set Conveyor Motor Rotation
   - Press the <UP> OR <DOWN> buttons until the display shows 1 for right-to-left direction, or 2 for left-to-right belt direction.
8. Save and Exit Programming Mode
   - Press the <L> button two times to save and exit Programming Mode.
9. 1:30 run time will appear
   - Press and hold the <UP> or <DOWN> buttons until desired run time appears.

Temperature Control Programming Procedure

Read the entire instruction before programming.

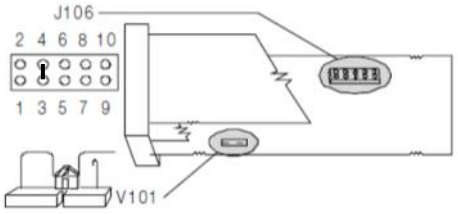


Figure 1.

Configuration Key Functions

<FUNC> = The new setting of the selected parameter is stored and the display advances to the next parameter. This is required between each parameter.

△ = Increases the setting of the selected parameter.

▽ = Decrease the setting of the selected parameter.

1. Open V101 switch for Basic/advanced Configurations (Figure 1)
   - Turn main switch to the off position
   - Remove instrument from its case (By pulling from the front)
   - Open Switch V101
   - Verify that jumper J106, is configured as shown.
   - Re-insert the instrument back in its case.
   - Turn main switch to the on position
2. Basic Configurations
   - Using the configuration keys scroll thru parameter codes changing them to match (Figure 2)
   - After P17 _._._._. Will appear
   - Using the configuration keys scroll to 262 and press <FUNC> to enter into Advanced Configurations.
3. Advanced Configurations Procedure
   - Using the configuration keys scroll thru parameter codes Changing them to match (Figure 3)
4. Close V101 switch after Basic/Advanced Configuration (Figure 1)
   - Remove instrument from its case
   - Close Switch V101
   - Re-insert the instrument back in its case.
5. Operating Parameters Procedure (Figure 4)
   - On the first pass thru change nnn to 3111 to unlock the advanced configuration
   - Scroll thru the parameter codes again and change the nnn to 5 this locks the advanced configuration
   - Scroll thru the parameter codes again and verify nnn is ON

Ser1	OFF
P1	5˚C/22˚F
P3	0
P4	315˚C/600˚F
P5	reU
P6	4-20
P9	AL1.P
P10	H.A.
P11	nonE
P16	0
P17	SFtA

Figure 2

P18	norL
P19	norL
P24	reU
P25	OFF
P28	0
P29	0n
P30	0
P34	OFF
P36	tn.30
P37	0
P39	n0FL
P41	P.I.d.
P42	10.0
P43	Fn.SP
P44	0

Figure 3

SP	260°C/500°F
SP2	0
nnn	3111/OFF
AL1	315°C/600°F
HSA1	0.1
Pb	5.0
ti	5.00
td	0.00
1P	30.0
rL	204°C/400°F
rH	310˚C/590°F
Grd1	InF
Grd2	InF
OLH	100.00
toL	InF
rnP	InF

Figure 4

Multi-Valve Adjustment Procedure

Check Incoming Pressure:

- Loosen screw 1 full turn counter clockwise (Figure 1)
- Hook up Manometer to this test port
- Turn main switch to the on position
- Document incoming pressure on startup checklist. (If new installation)

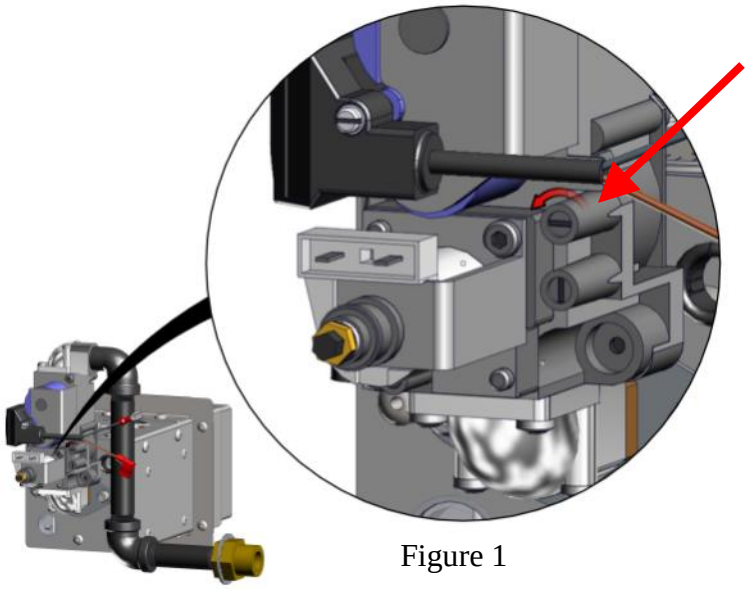


Figure 1

- Turn Main switch to the off position
- Disconnect Manometer
- Tighten screw clockwise until snug (Figure 2)

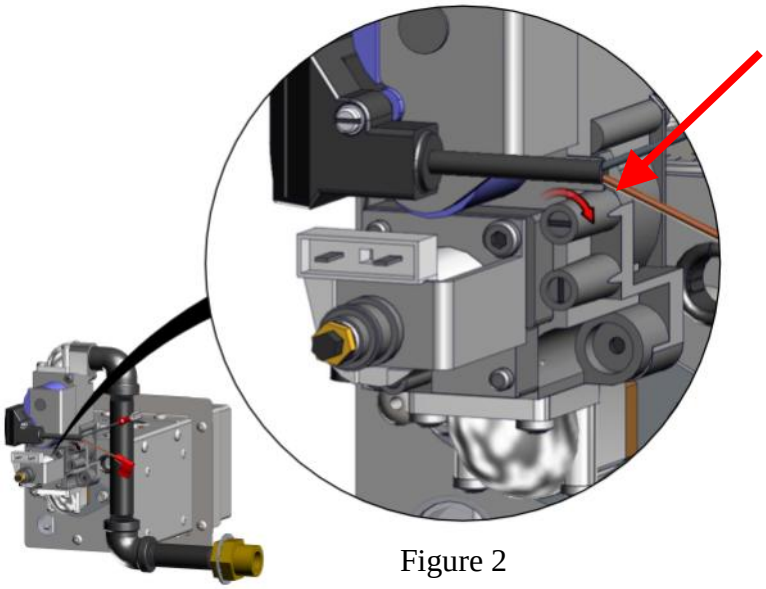


Figure 2

Multi-Valve Adjustment Procedure

Hook up Manometer:

- Loosen screw 1 full turn counter-clockwise (Figure 3)
- Hook up Manometer to this test port
- Turn main switch to the on position

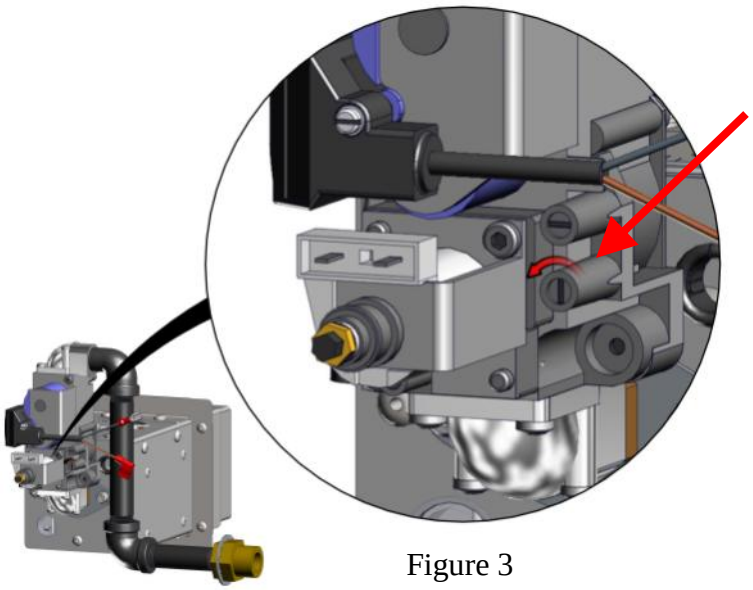


Figure 3

Check High Bias Pressure:

- Turn main switch to the on position
- After 30 seconds of pre-purge the oven will light
- Using a 8mm socket turn the High Flame Bias screw (Figure 4) until desired setting is achieved. Use chart on next page (Figure 5) for correct valve settings.

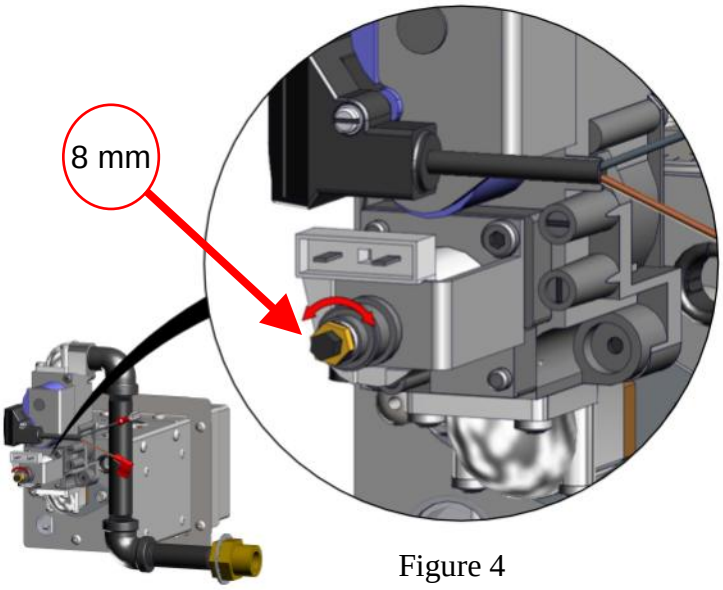


Figure 4

Multi-Valve Adjustment Procedure

All Oven Models	Natural Gas			LP Gas		
	W/C	mbar	kPa	W/C	mbar	kPa
High Flame Bias	3.5	8.75	0.875	10	25	2.5
Low Flame Bias	0.2	0.49	0.049	0.2	0.49	0.049

Figure 5

Check Low Bias Pressure:

- Pull one of the two blue wires going into the modulating valve. (This simulates a temperature drop and allows the oven to run at low flame bias)
- (NOTE if the flame goes out turn the 5mm screw clockwise 1 turn to increase low flame bias)
- Wait 30 seconds and the oven will re-light.
- Using a 5mm socket turn the Low Flame Bias screw (Figure 6) until desired setting is achieved. Use (Figure 5) for correct valve settings.

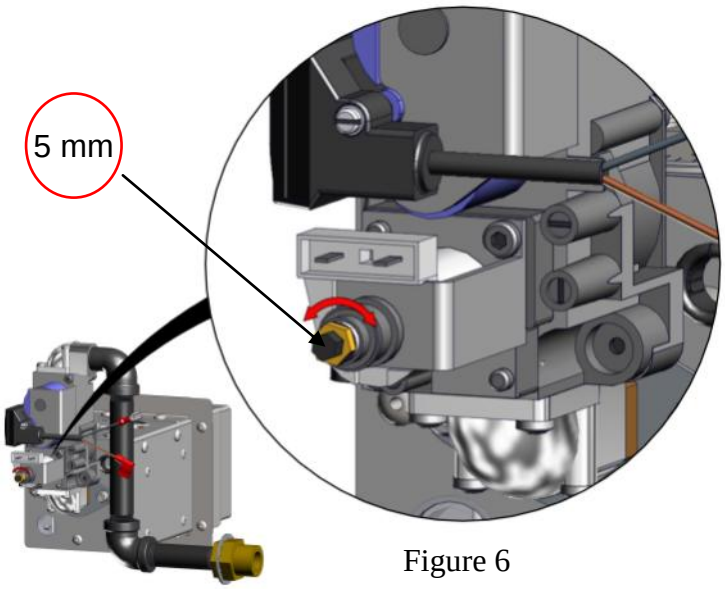


Figure 6

Multi-Valve Adjustment Procedure

Remove the Manometer :

- Turn main switch to the off position
- Remove the manometer and re tighten the screw (Figure 7)
- (Note: Do not over tighten the screw only snug is needed)

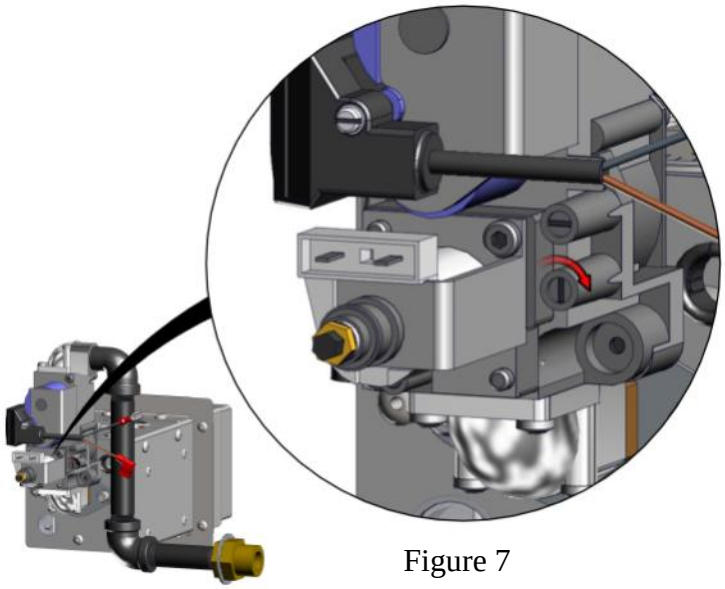
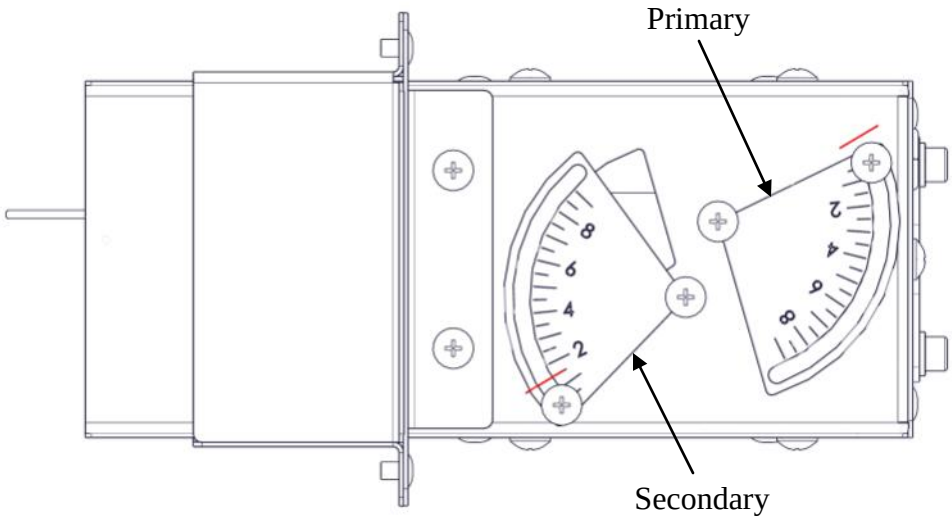


Figure 7

Air Shutter Settings



Burner Shutter Settings		
All Oven Models	**Natural Gas**	**LP Gas**
Primary	Closed	Closed
Secondary	1.5	1.5

Hitachi X200 Restoring Factory Defaults

Access program parameters by pressing the <FUNC> key one time and using the up and down arrow keys to navigate to the appropriate parameter press the <FUNC> key again to make adjustments to that parameter by using the up and down arrows. To store the new settings press the <STR> button one time.

B031 = 01
B084 = 01

After pressing the <STR> key Press and hold the <FUNC> down arrow key and <Stop/Reset> key all at the same time. Release the keys all at once and the country code should appear in the display (USA). Hitachi's factory settings are now restored.

A001 = 01
A003 – USA = 60 Hz. World = 50 Hz.
A082 = Supply voltage at location 200, 215, or 230 choose appropriate voltage.
A093 = 3000
A094 = 01
A096 = 10
B002 = 25
C001 = 02
C002 = 03
C003 = 04
C004 = 05
C014 = 00
F001 = See Figure 1
H004 = 4
B031 = 03

Put controller into monitor mode by pressing the <FUNC> and holding until d001 appears on the display release and then press the <FUNC> one time. The display should show 0.0.

Put the controller in Run mode by pressing the <RUN> key one time. The Run indicator light located next to the speed control knob should illuminate.

Test run the motor by turning on one of the oven/hood switches located on the face of the hood.

Complete VFD manual available at www.xltovens.com

	VFD Controller Settings					
	Switches On			1832, 1855 & 2440	3240, 3255 & 3270	3855 & 3870
	Top	Middle	Bottom			
Single	X			20 Hz	25 Hz	30Hz
Double	X			20 Hz	25 Hz	30Hz
			X	35 Hz	40 Hz	45 Hz
	X		X	35 Hz	40 Hz	45 Hz
Triple	X			20 Hz	25 Hz	30Hz
		X		30 Hz	35 Hz	40 Hz
			X	40 Hz	45 Hz	50 Hz
	X	X		30 Hz	35 Hz	40 Hz
	X		X	40 Hz	45 Hz	50 Hz
		X	X	40 Hz	45 Hz	50 Hz
	X	X	X	45 Hz	50 Hz	55 Hz
Fire Suppression				60 Hz		

Figure 1

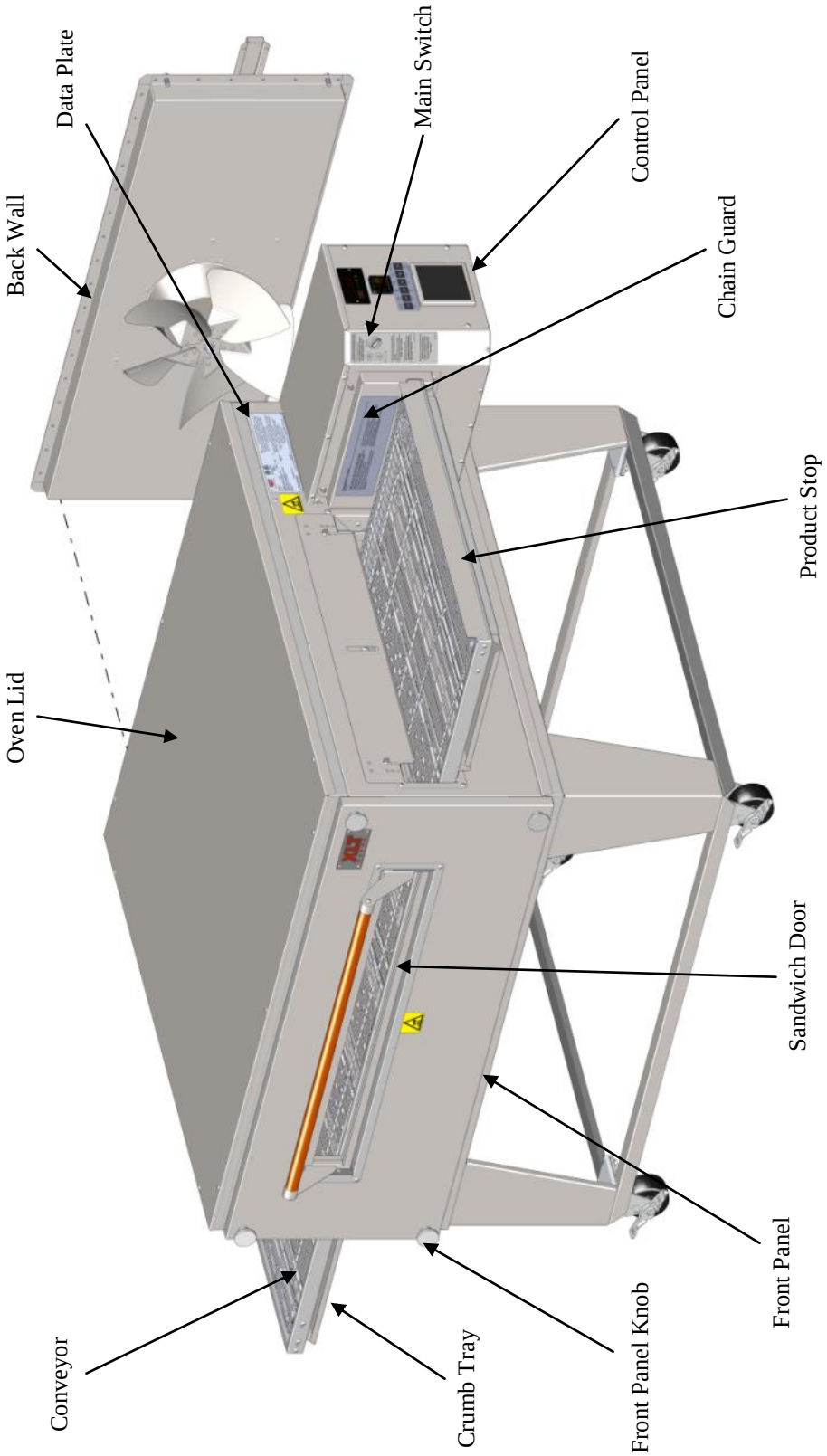
For operation instructions of manual mode see the I&O Manual at www.xltovens.com

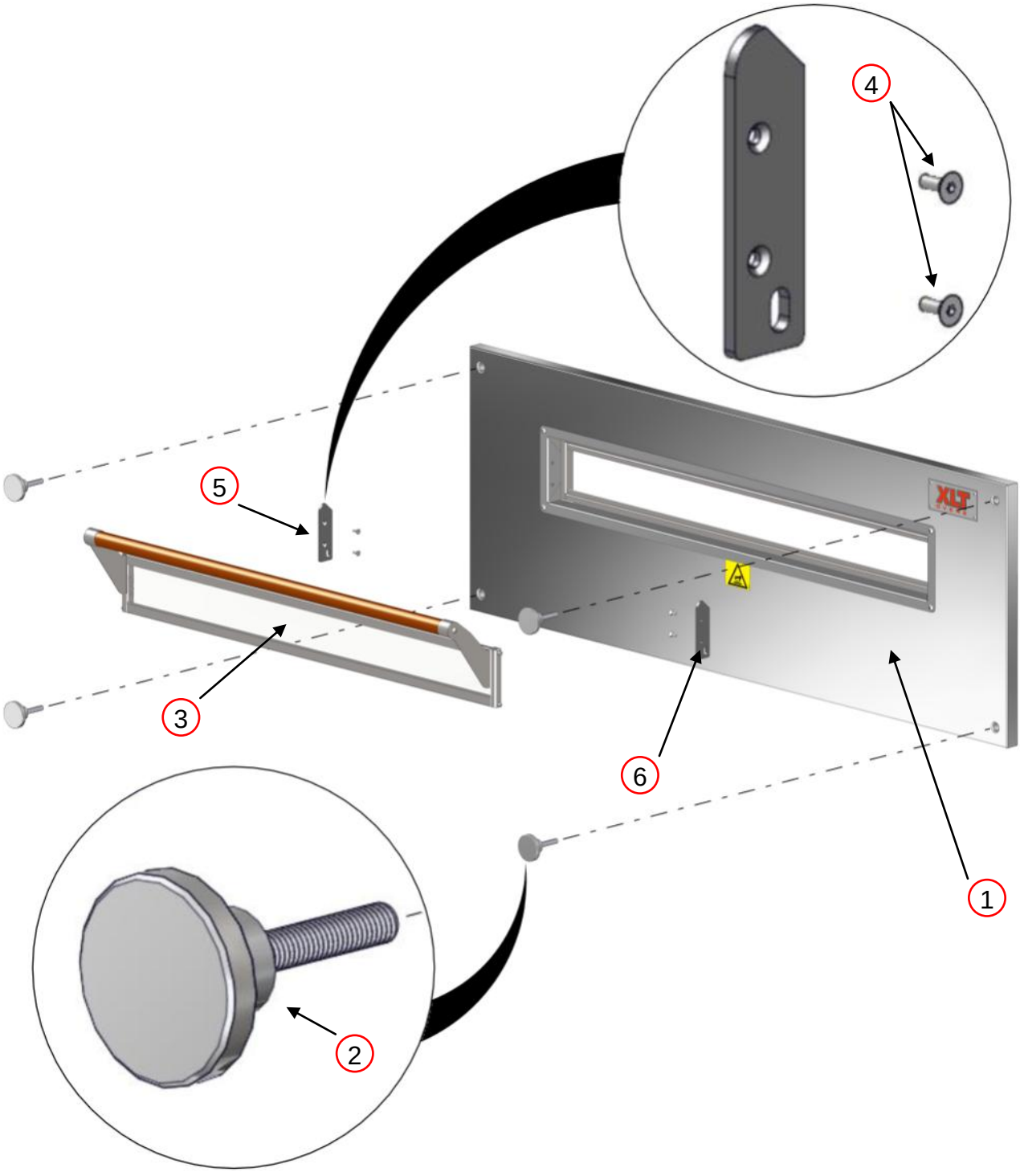
How to order Parts

Have all information ready when calling XLT. Below is a list of information that is required for all orders. At the bottom of the BOM on the following parts overview pages are additional requirements needed depending on your parts order.

Oven/Hood information required:

- Model #
- Serial #
- Manufacture Date
- Phone #
- Contact name
- Bill to
- Ship to
- Credit card information

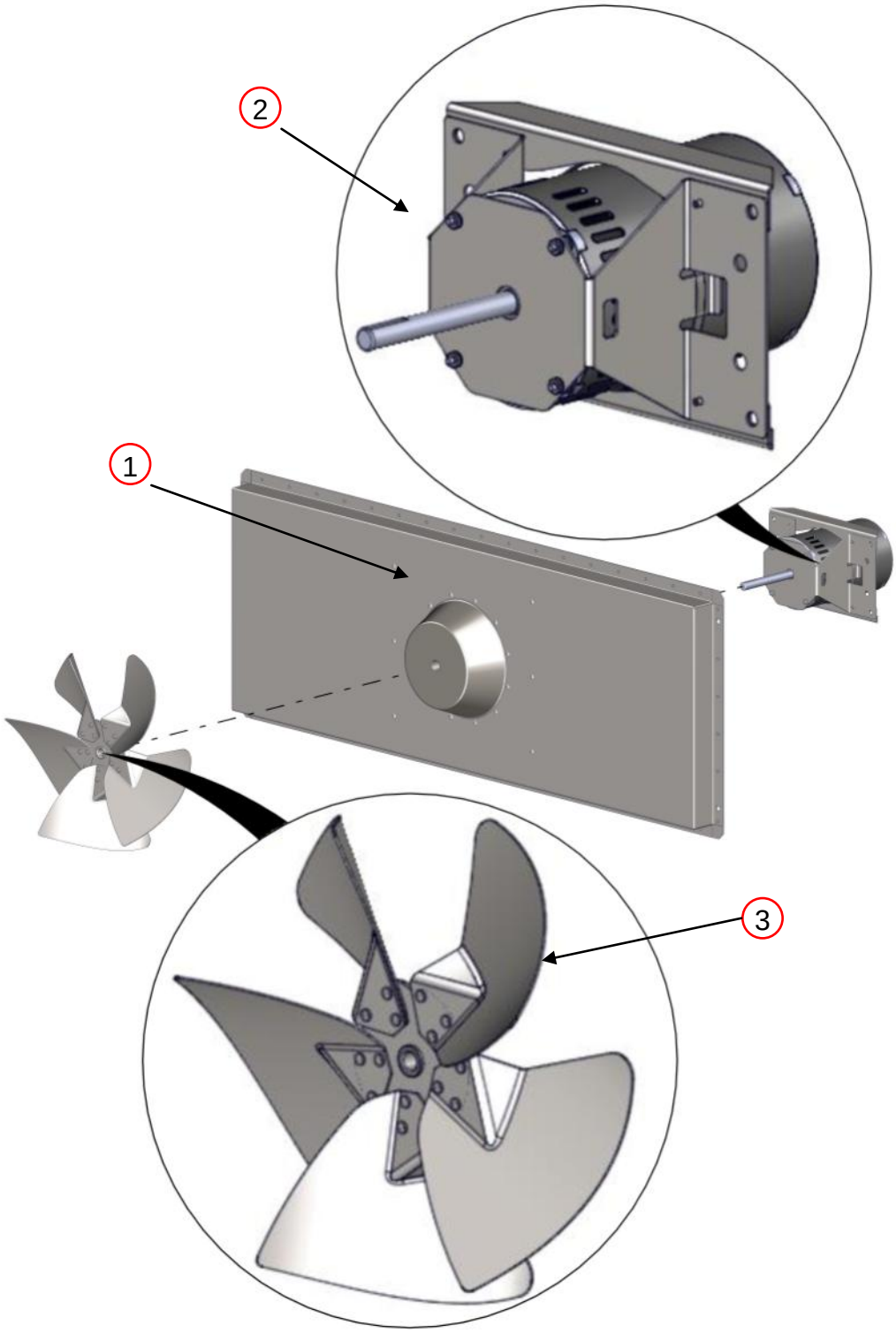

Data Plate
Main Switch
Control Panel
Back Wall
Chain Guard
Product Stop
Oven Lid
Sandwich Door
Front Panel
Conveyor
Crumb Tray
Front Panel Knob


4
5
3
6
1
2

FRONT PANEL			
ITEM	**QTY**	**PART NUMBER**	**DESCRIPTION**
1	1	XA 6500	Front Panel Assembly
2	4	XA 6505	Front Panel Knob
3	1	XA 6600	Sandwich Door
4	4	XF 126-2	Screw 10-24
5	1	XM 6703	Door Retainer Left
6	1	XM 6704	Door Retainer Right

Front Panel information required:

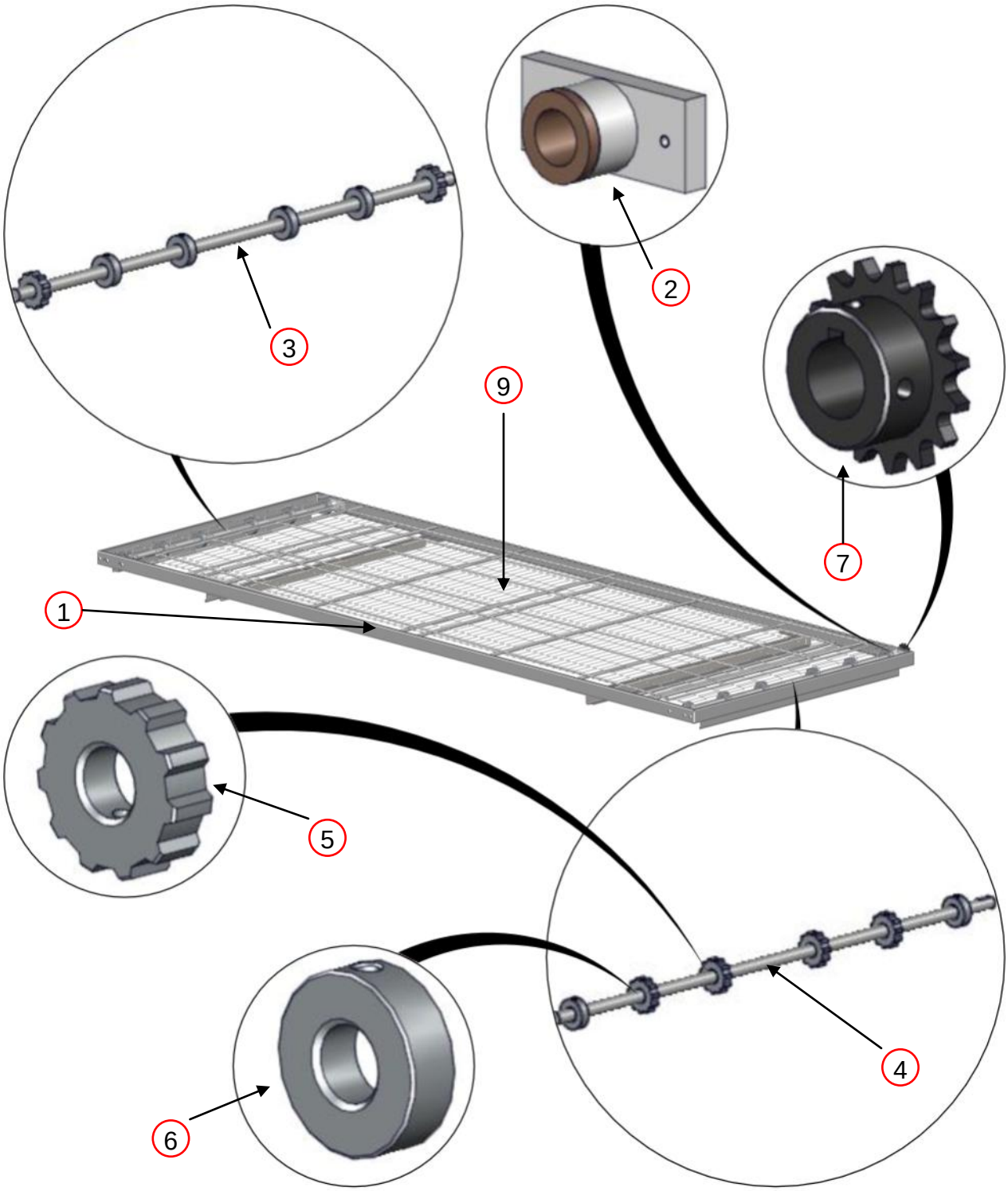
- Size of Oven
- Short or Long Window
- Stainless or Wood Handle
- 3” or 5” Window Opening


2
1
3

BACK WALL			
ITEM	**QTY**	**PART NUMBER**	**DESCRIPTION**
1	1	XA 50	Back Wall Assembly
2	1	XA 5009	Fan Motor w/ Mount
3	1	XA 5200	Fan Blade

Back Wall information required:

- Size of Oven
- Voltage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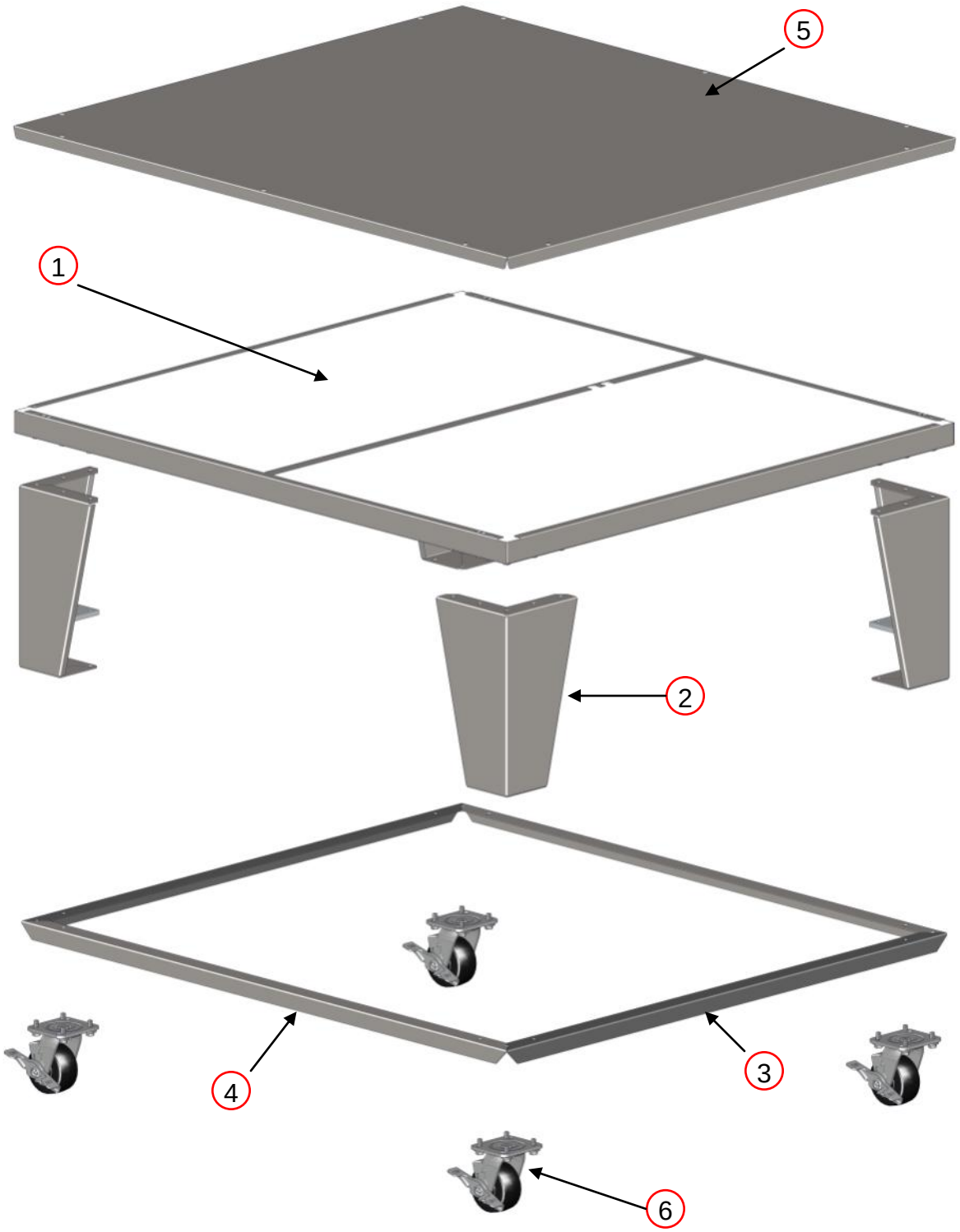
7
9

CONVEYOR			
ITEM	**QTY**	**PART NUMBER**	**DESCRIPTION**
1	1	XA 7000	Conveyor Assembly
2	4	XA 7200	Conveyor Bearing Assembly
3	1	XM 7301	Conveyor Shaft Idle
4	1	XM 7302	Conveyor Shaft Drive
5	6	XM 7403	Conveyor Roll Notched
6	6	XM 7404	Conveyor Roll Plain
7	1	XP 9503	Conveyor Sprocket Driven 15
8	1	XP 9504	Conveyor Drive Chain
9	1	XP 9506	Conveyor Belt

Conveyor information required:

- Split Belt or Standard Belt
- Which part is required and how many?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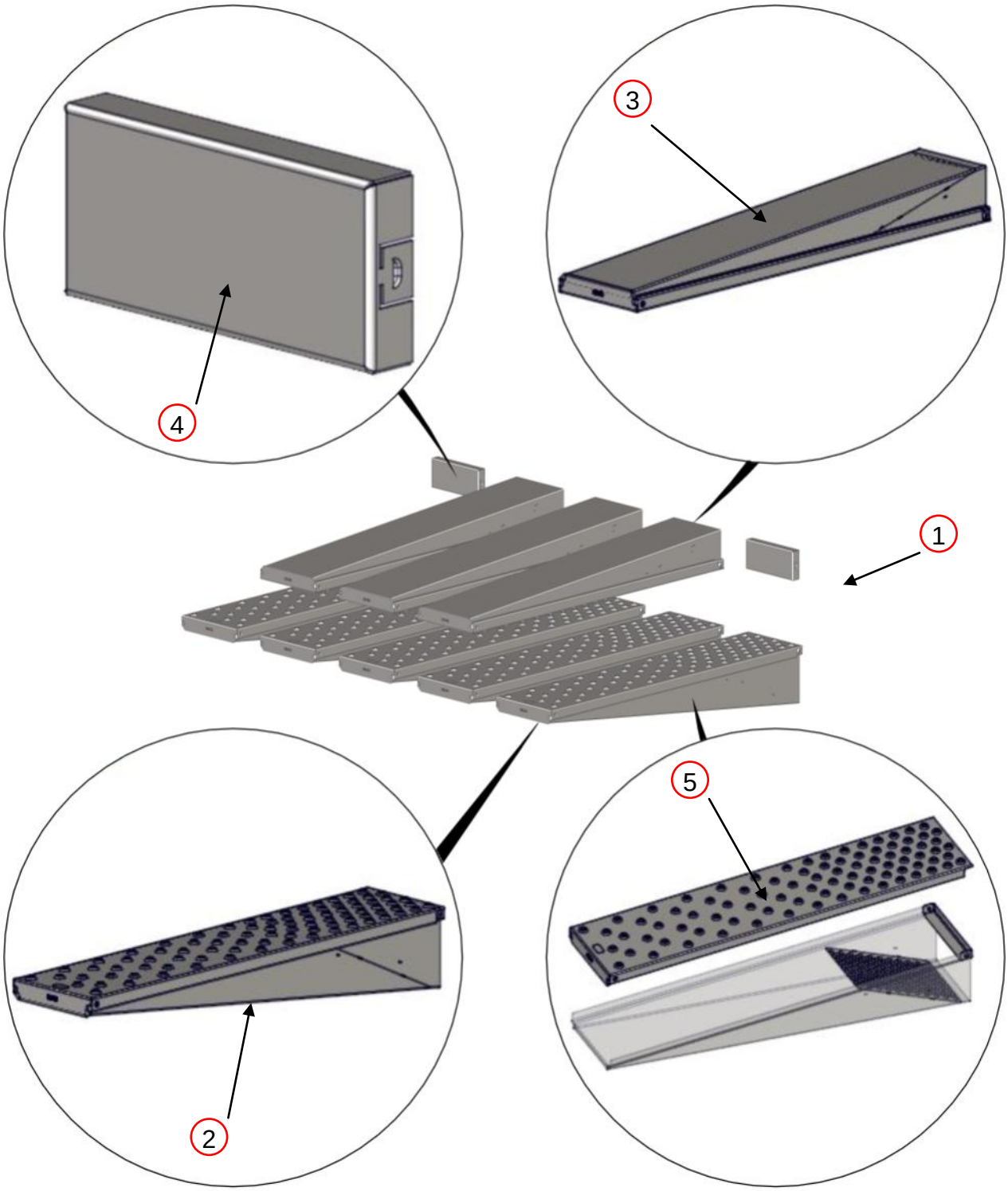
4
3
6

BASE			
ITEM	**QTY**	**PART NUMBER**	**DESCRIPTION**
1	1	XA 1000	Base Assembly
2	4	XM 1003	Base Leg
3	2	XM 1006	Side Leg Angle
4	2	XM 1007	Front/Back Leg Angle
5	1	XM 1010	Oven Lid
6	4	XP 1004	Caster

Base information required:

- Size of Oven
- Single, Double, or Triple Stack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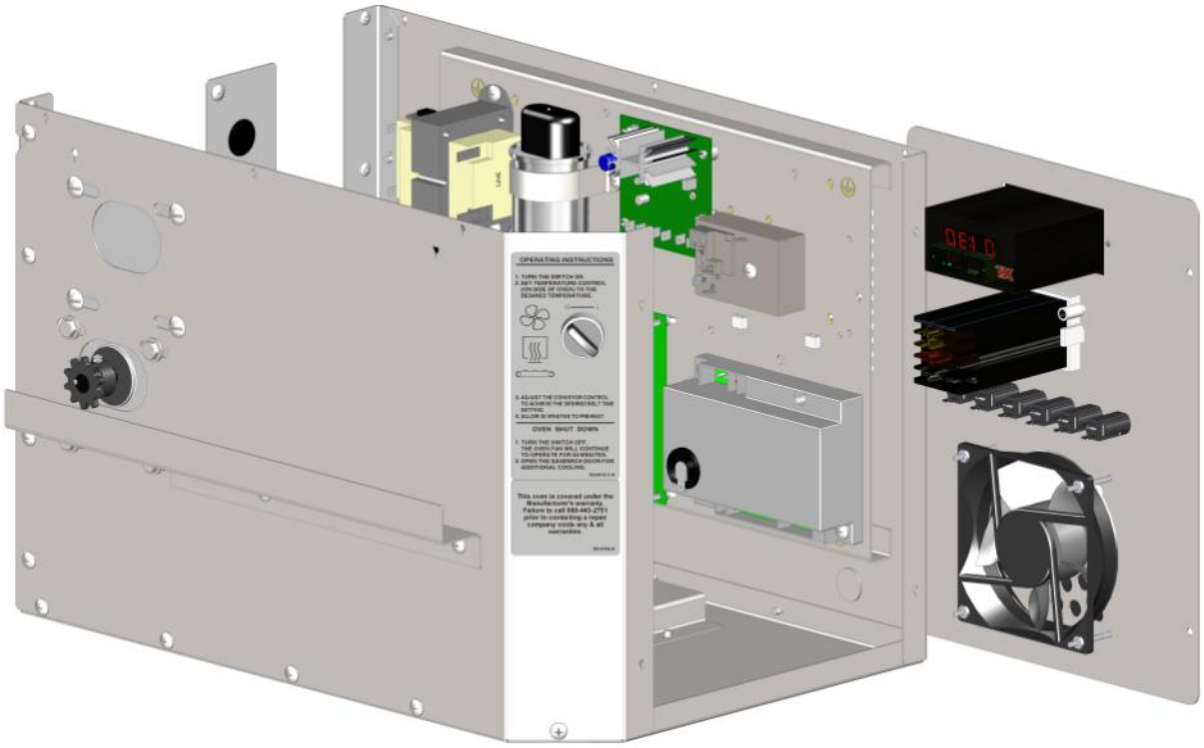
5

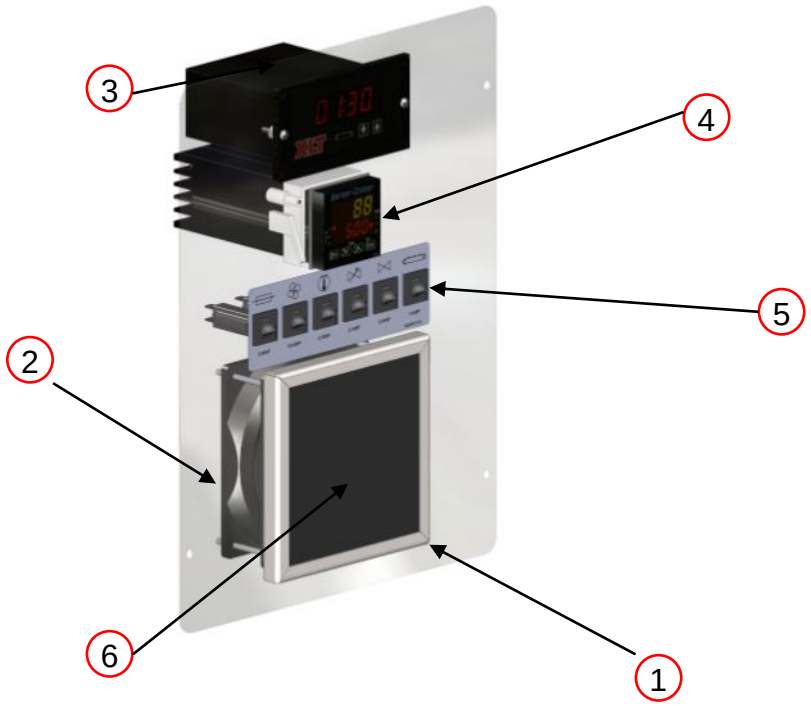
FINGERS			
ITEM	**QTY**	**PART NUMBER**	**DESCRIPTION**
1	1	XA 8Xxxxx	Finger Group Assembly
2	4	XA 8001-B	Finger Body Bottom
3	4	XA 8001-T	Finger Body Top
4	2	XM 8009	Finger Block Off Plate
5	1	XM 8xxx	Finger Outer Plate

Finger information required:

- Size of Oven
- Customer name
- Part number on front of finger outer



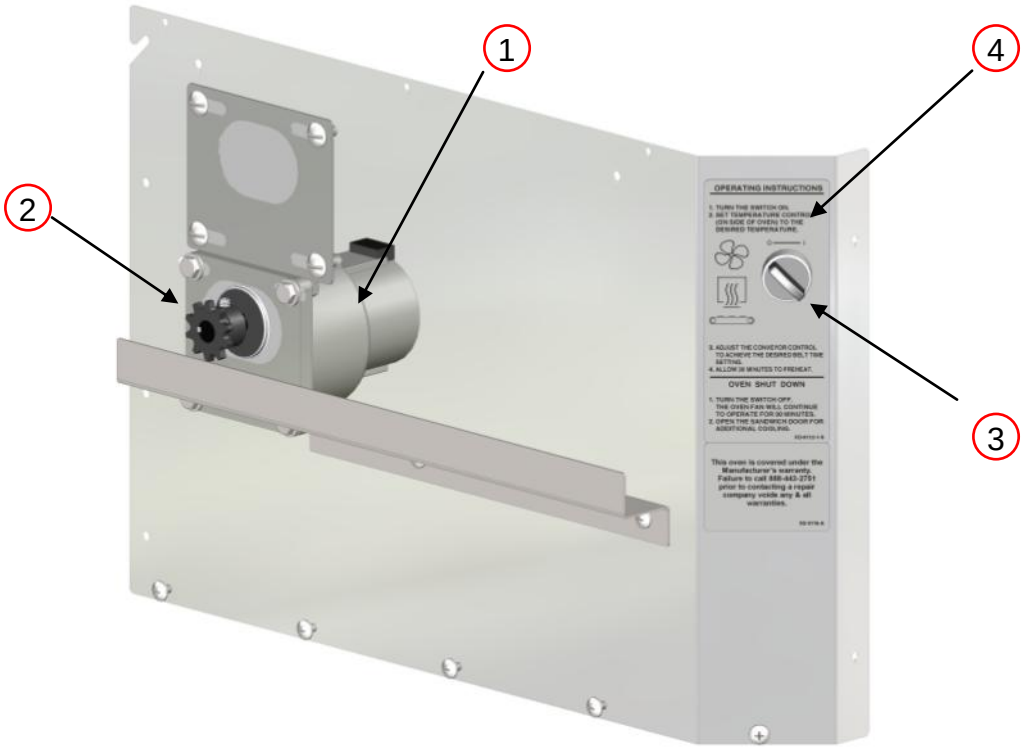
Service Position



CONTROL PANEL			
ITEM	**QTY**	**PART NUMBER**	**DESCRIPTION**
1	1.00	XM 4520-GA	Fan Guard / Filter Holder
2	1.00	XP 4501-S	FPPG Fan Standard M2
3	1.00	XP 4507-24-A	Conveyor Speed Control 24VDC
4	1.00	XP 4508	Temperature Control GAS
5	1.00	XP 4515-CB-15A	15 Amp Circuit Breaker
6	1.00	XP 4520-GA	Fan Filter

Control Panel information required:

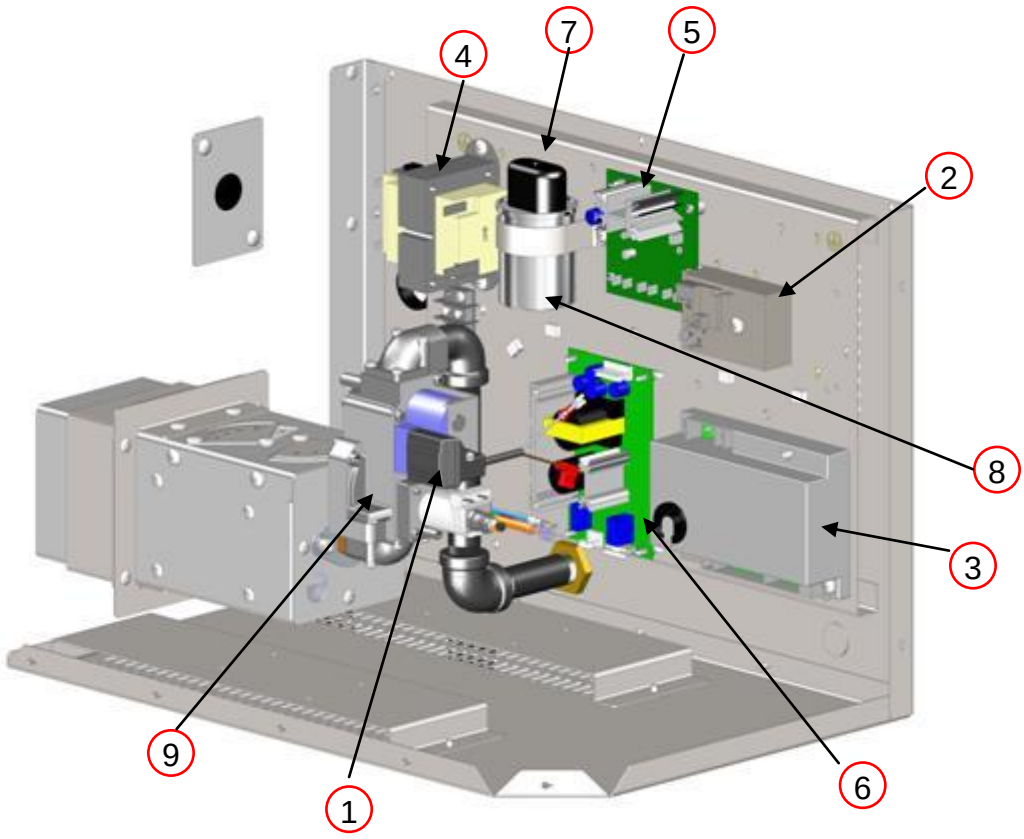
- Size of Oven
- Voltage
- What amp circuit breaker you need



CONTROL BOX FRONT			
ITEM	**QTY**	**PART NUMBER**	**DESCRIPTION**
1	1.00	XA 4117-12.5 RPM STD	Conv Motor Assy 12.5 RPM STD
2	1.00	XP 4155	Sprocket Conveyor Drive 10T
3	1.00	XP 4101A	Switch Operator
4	1.00	XP 4102A	Contact Block 1 Pole w/Mount

Control Box Front information required:

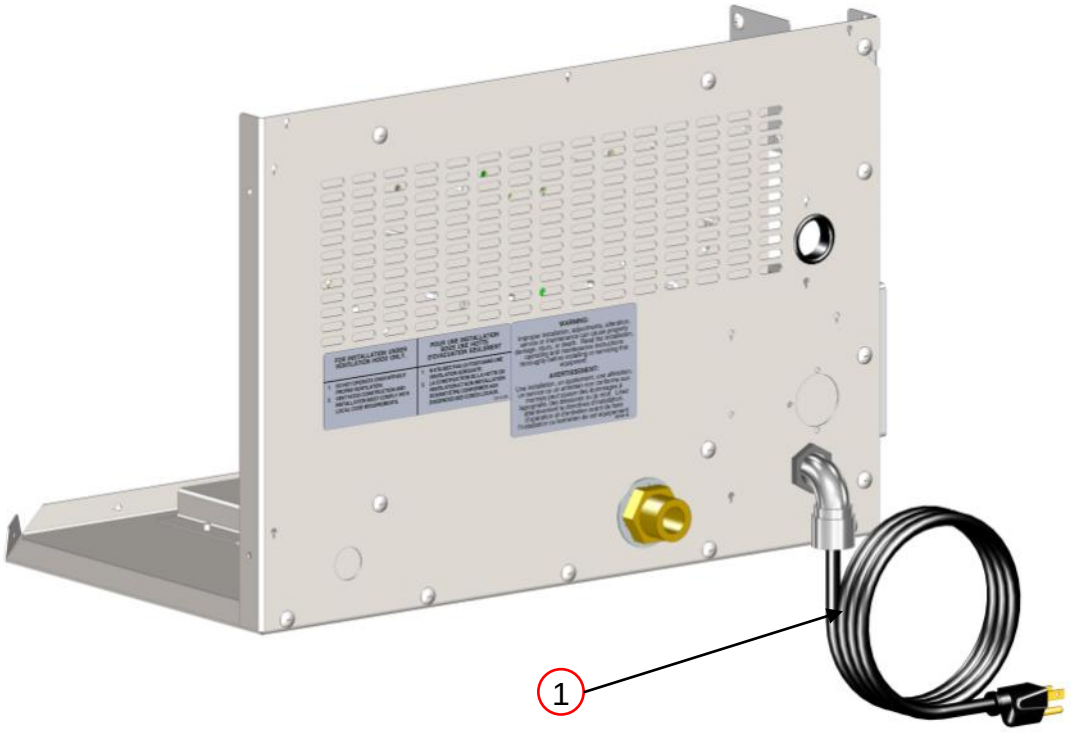
•Size of Oven



CONTROL BOX BACK			
ITEM	**QTY**	**PART NUMBER**	**DESCRIPTION**
1	1.00	XA 4235	Rectifier Plug Assy
2	1.00	XP 4704	Cool Down Timer 120/230 Volt R1
3	1.00	XP 4705-DI	Ignition Control DI RO & SQ
4	1.00	XP 4706	Transformer 24V 60VA
5	1.00	XP 4710-DI	Signal Conditioner Elan
6	1.00	XP 4716	Power Supply PS
7	1.00	XP 5012	Capacitor Boot
8	1.00	XP 5014-30	Capacitor Baldor 3/4 HP 30uF
9	1.00	XP 4207-DI	Multi-Valve V1 & V2
10	1.00	XP 4509	Thermocouple Type K 48 (60 for xx70 LH)
11	1.00	XP 4713	High Limit Switch S3

Control Box Back information required:

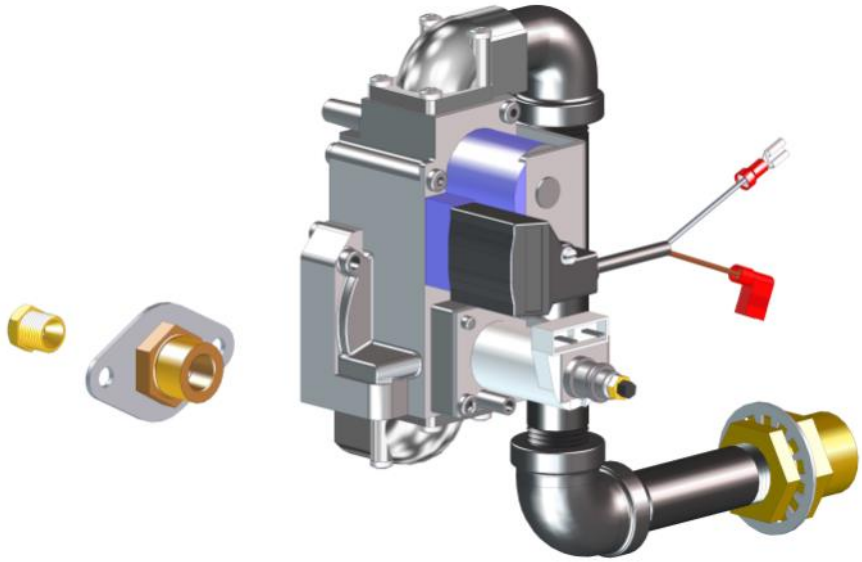
- Size of Oven
- Voltage

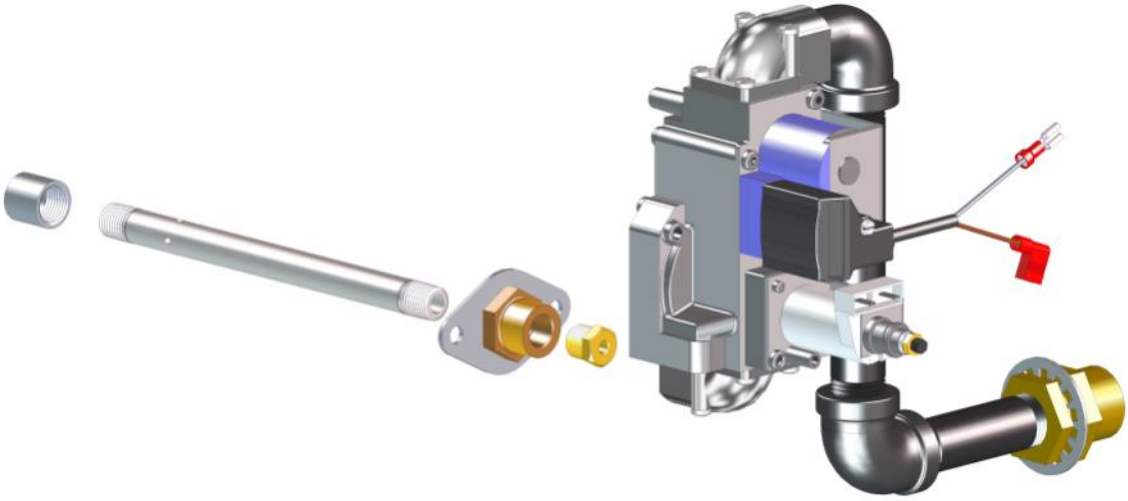


ITEM	QTY	PART NUMBER	DESCRIPTION
1	1.00	XA 9301	Power Cord Assembly

Control Box Rear information required:

- Size of Oven
- Voltage





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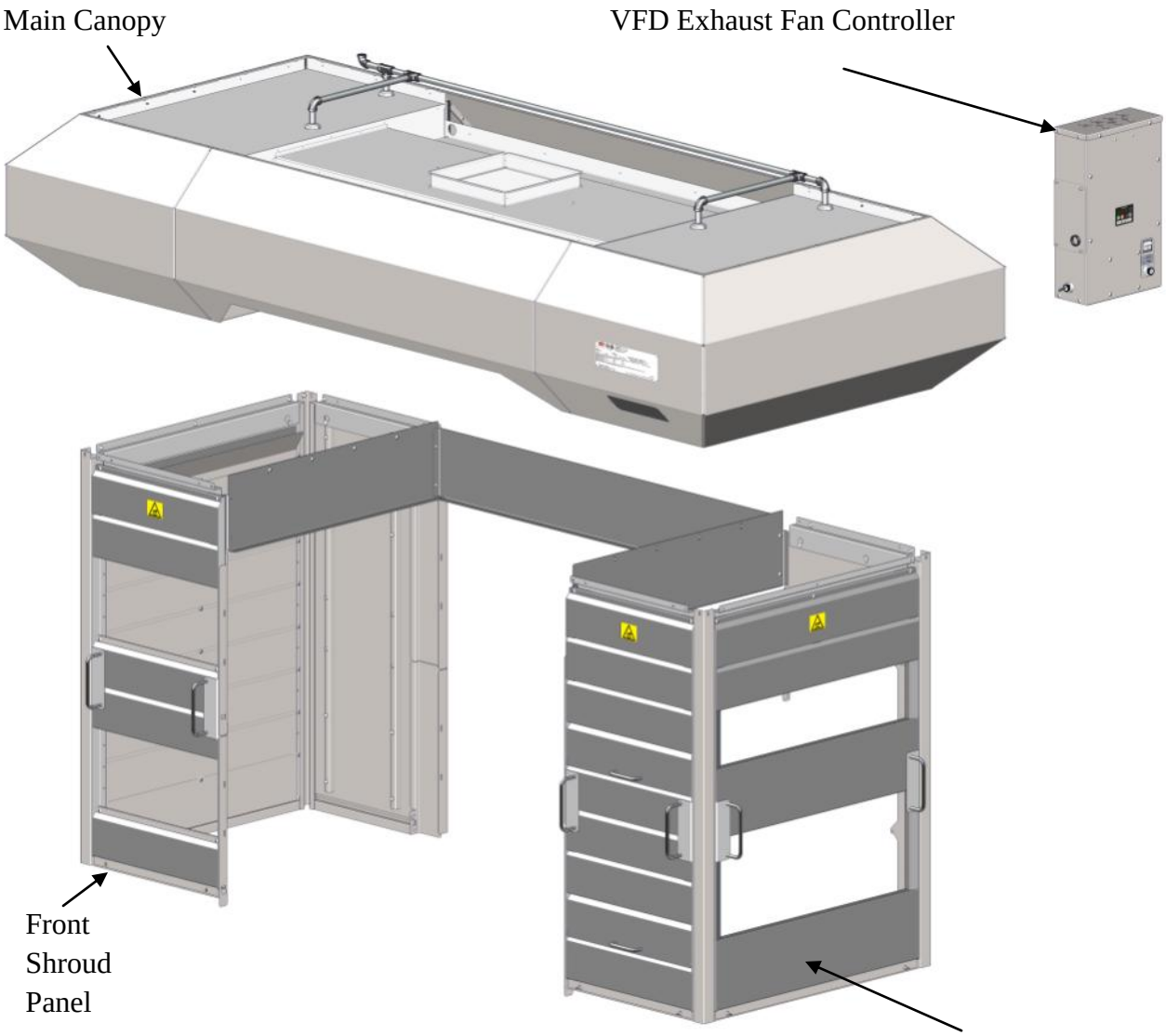
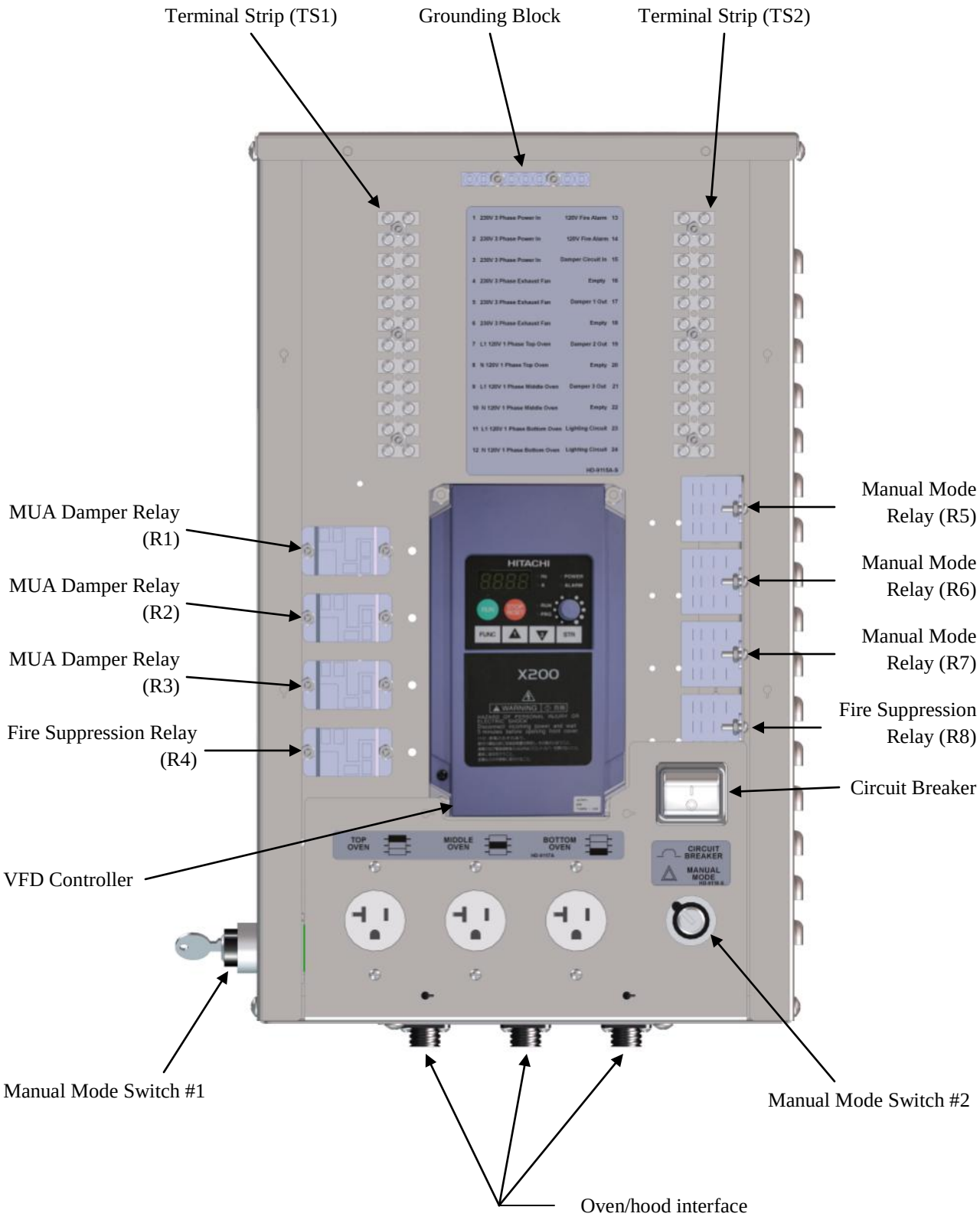

Main Canopy
VFD Exhaust Fan Controller
Front Shroud Panel
End Shroud Panel (size specific)

VFD Control Box - Standard



VFD Control Box (Cover removed)

VFD			
ITEM	**QTY**	**PART NUMBER**	**DESCRIPTION**
1	4.00	XP 4102A	Contact Block 1 Pole w/Mount
2	1.00	HP-2051	VFD Hitachi X200-007NFU
3	3.00	HP-2054	Receptacle Single 125VAC 20A
4	4.00	HP-2055A-S	Relay 11 Pin Flange Mount
5	4.00	HP-2056A	W9A Minature Power Relay
6	2.00	HP-2057-12	Terminal Block 12 POS
7	1.00	HP-2060-S	Circuit Breaker Exhaust Fan
8	1.00	HP-2061	Current Sensing Light
9	1.00	XP 4101A-KLH	Keyed Switch Operator LH
10	1.00	XP 4101A-KRH	Keyed Switch Operator RH
11	2.00	XP 4102A	Contact Block 1 Pole w/Mount

VFD Control Box Back information required:

- Size of Oven
- Voltage

OVEN ACCESSORIES

PN	Description
XA 9521-18	Conveyor Shelf
XA 9521-24	Conveyor Shelf
XA 9521-32	Conveyor Shelf
XA 9521-38	Conveyor Shelf

PN	Description
XA 9400-xx32-2	Fire Suppression Kit, Double Stack
XA 9400-xx40-2	Fire Suppression Kit, Double Stack
XA 9400-xx55-2	Fire Suppression Kit, Double Stack
XA 9400-xx70-2	Fire Suppression Kit, Double Stack

Single & Triple Stack kits available. Contact factory for details.

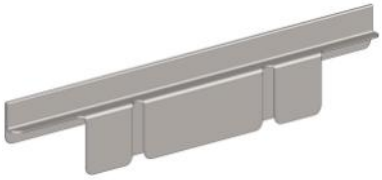
PN	Description
XM-1041-1832	Base Shelf, 1 Piece
XM-1041-3240	Base Shelf, 1 Piece
XM-1041-3255	Base Shelf, 1 Piece
XM-1041-3270	Base Shelf, 1 Piece

2 Piece Shelves available. Contact factory for details.

PN	Description
XP 0401-48	Gas Hose, 48"
XP 0401-60	Gas Hose, 60"
XP 0401-72	Gas Hose, 72"

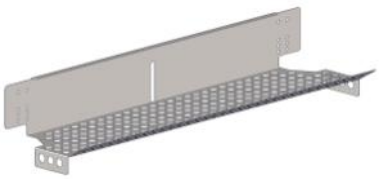
XA 9110	Gas Supply Manifold

PN	Description
XA 0407	Restraint Kit



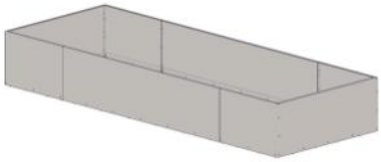
PN	Description
XM 9522	Conveyor Back Stop

PN	Description
XM 9524	Bubble Popper Holder



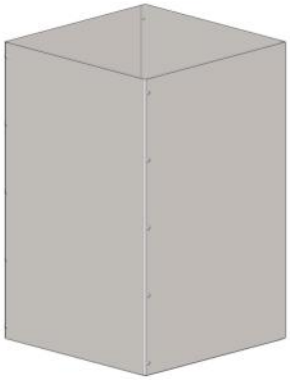
PN	Description
XM 9514-32	Conveyor Guard

Additional options available, contact factory.

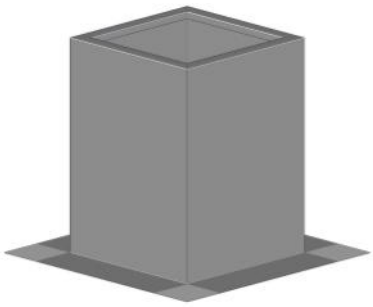


PN	Description
HA 4000-3255	Hood Valance Assy
HA 4000-3270	Hood Valance Assy

Other sizes available. Contact factory for details.



PN	Description
HA 4001-A	Duct Cover Assy
HA 4001-C	Duct Cover Assy
HA 4001-E	Duct Cover Assy



PN	Description
HP 1047	Roof Curb

PN	Description
HP 1046-ROOF	Roof Fan

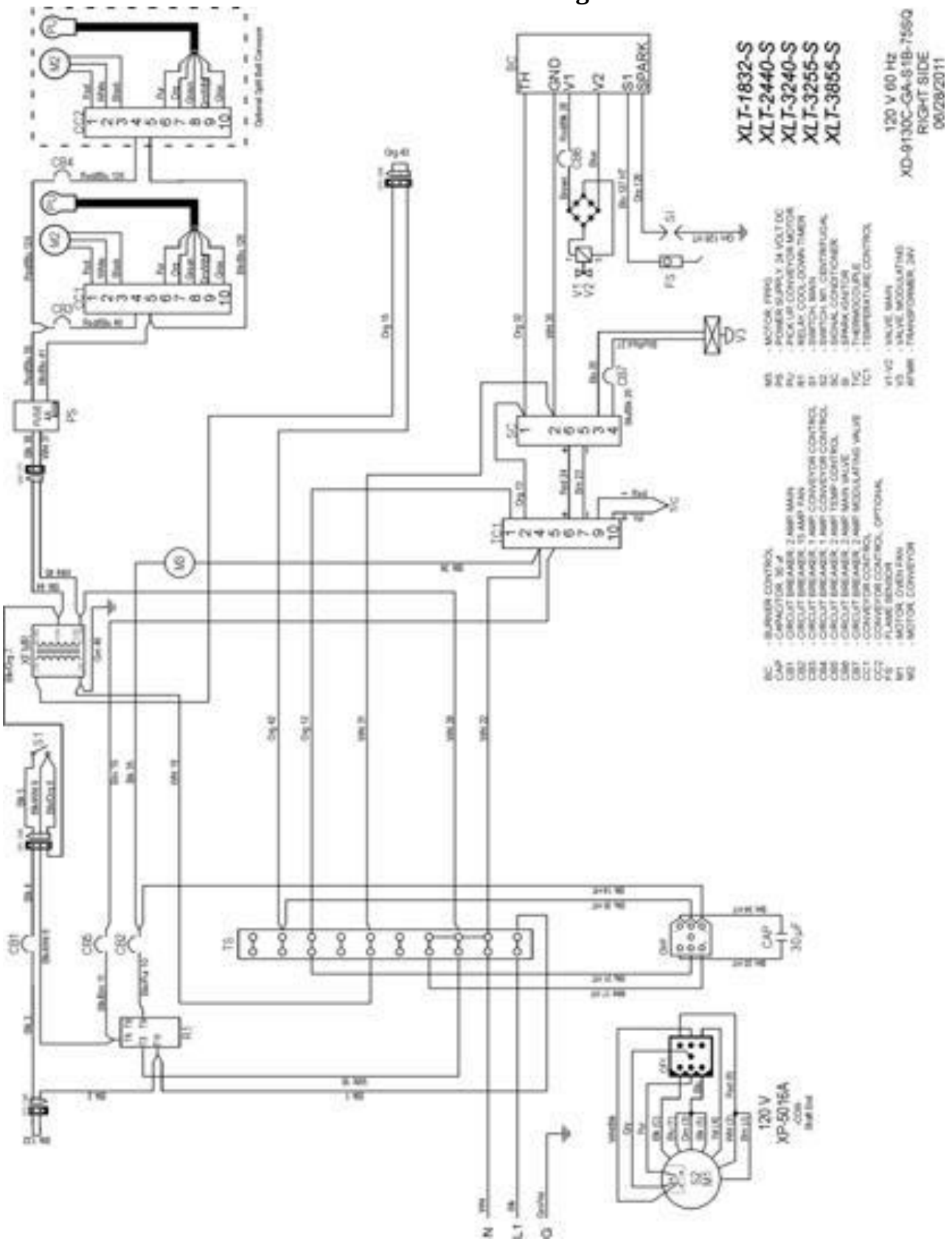
PN	Description
XS 0300	Lifting Jacks, PAIR

PN	Description
XS 0306-1832	Lifting Plates, PAIR
XS 0306-2440	Lifting Plates, PAIR
XS 0306-32xx	Lifting Plates, PAIR
XS 0306-3870	Lifting Plates, PAIR

PN	Description
XS 0310	Lifting Pipe

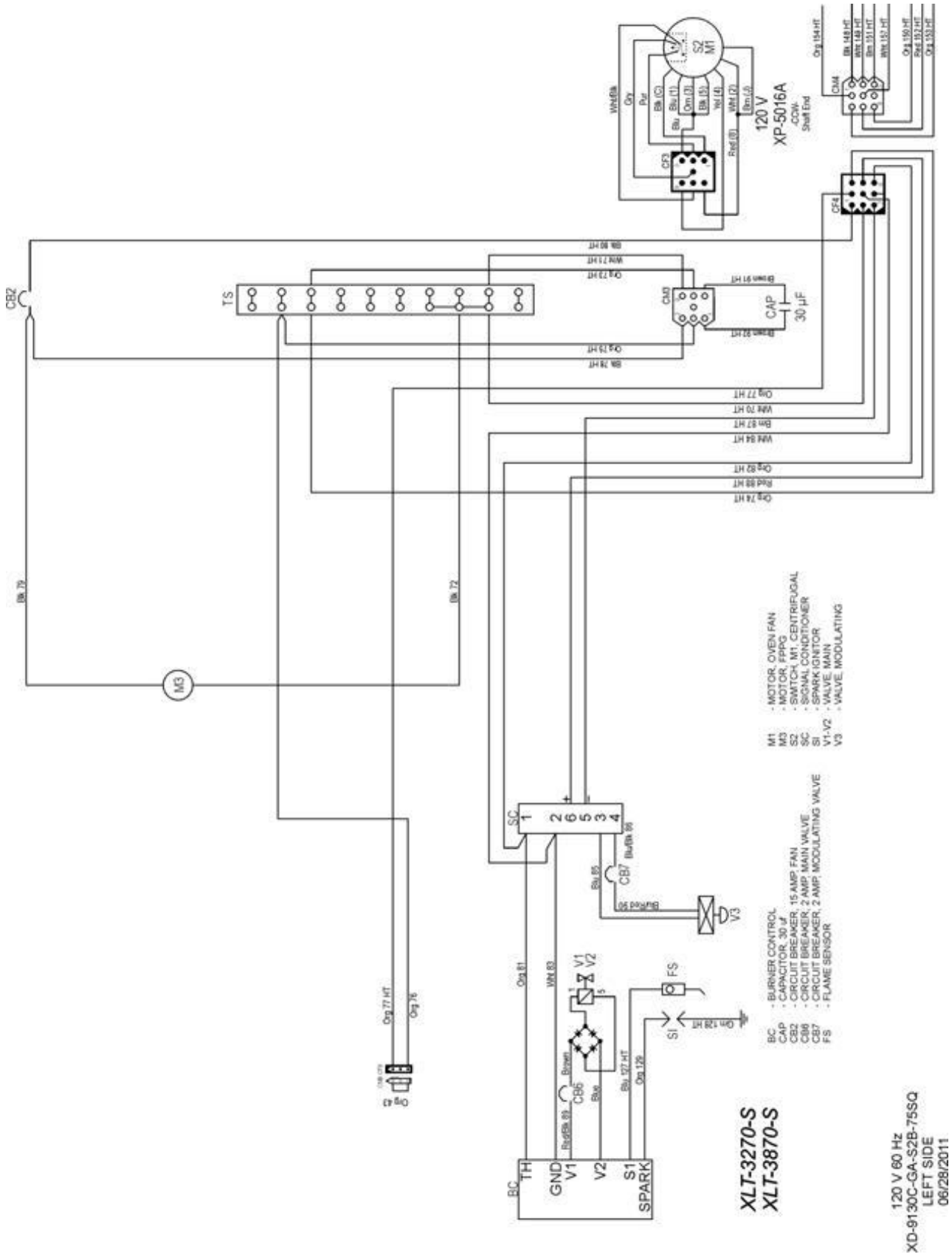
PN	Description
XS 0200	Cart Assy w/Straps

1832-3855 Standard Single Box

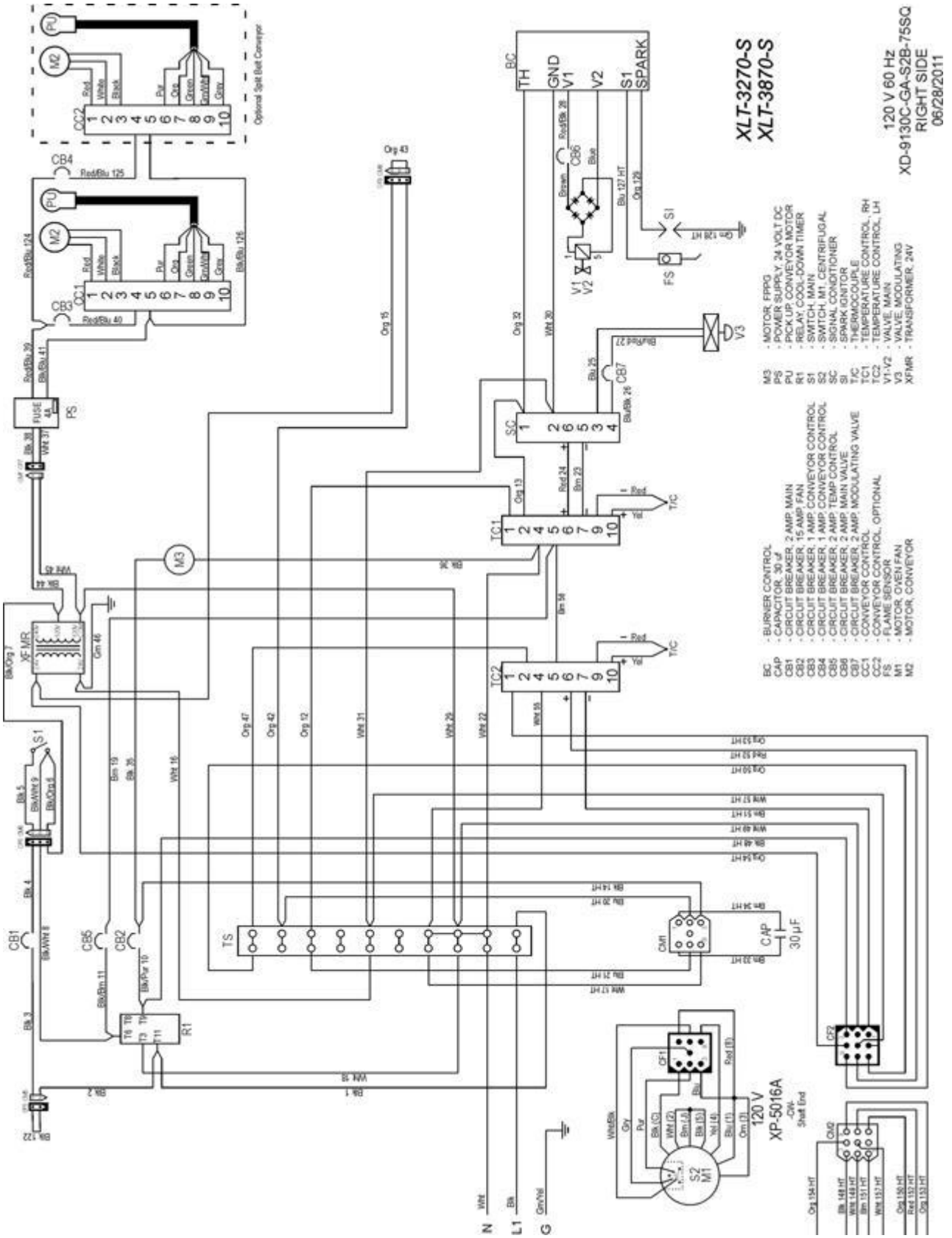


OVEN SCHEMATIC - STANDARD

3270-3870 Standard Dual Box LH

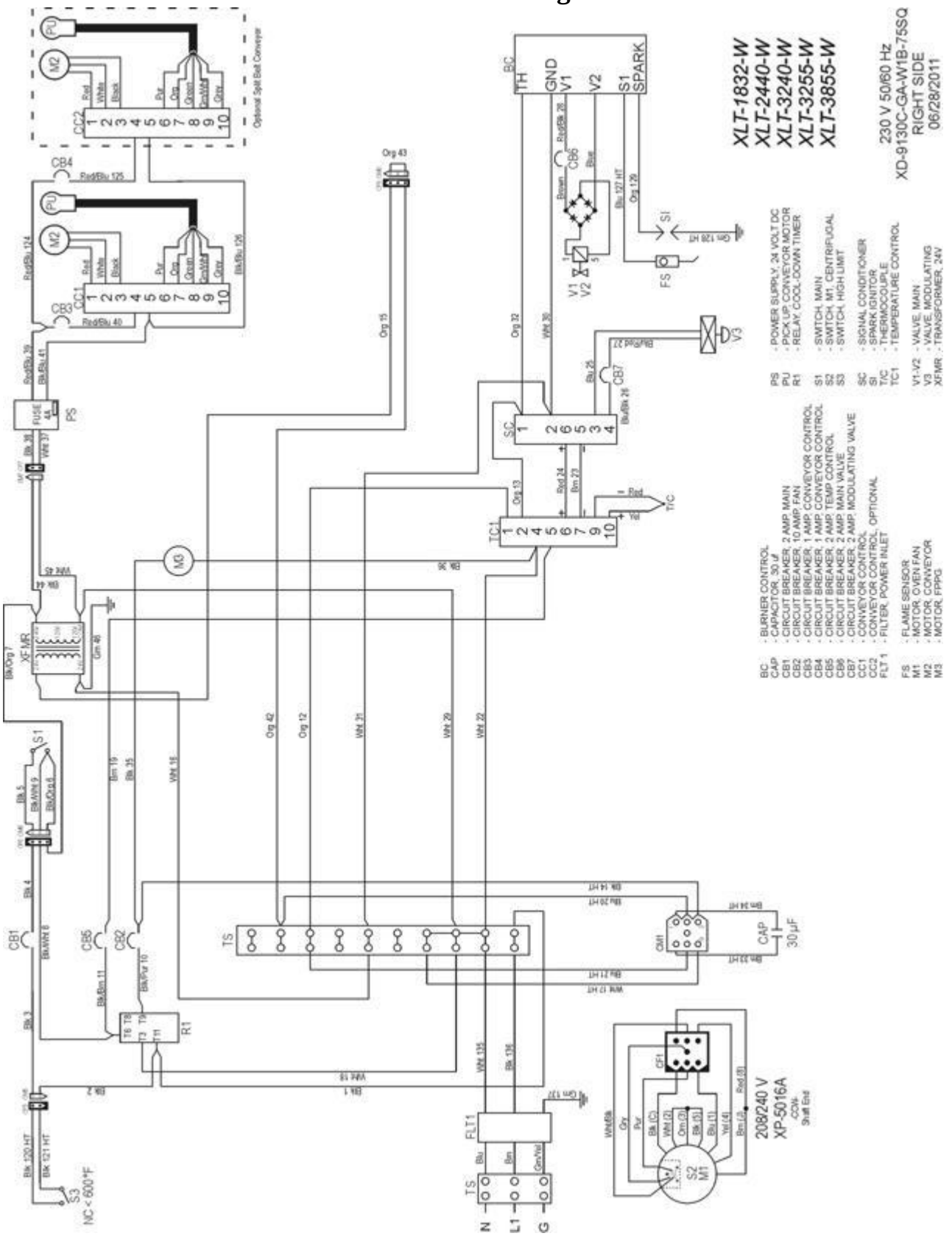


3270-3870 Standard Dual Box LH

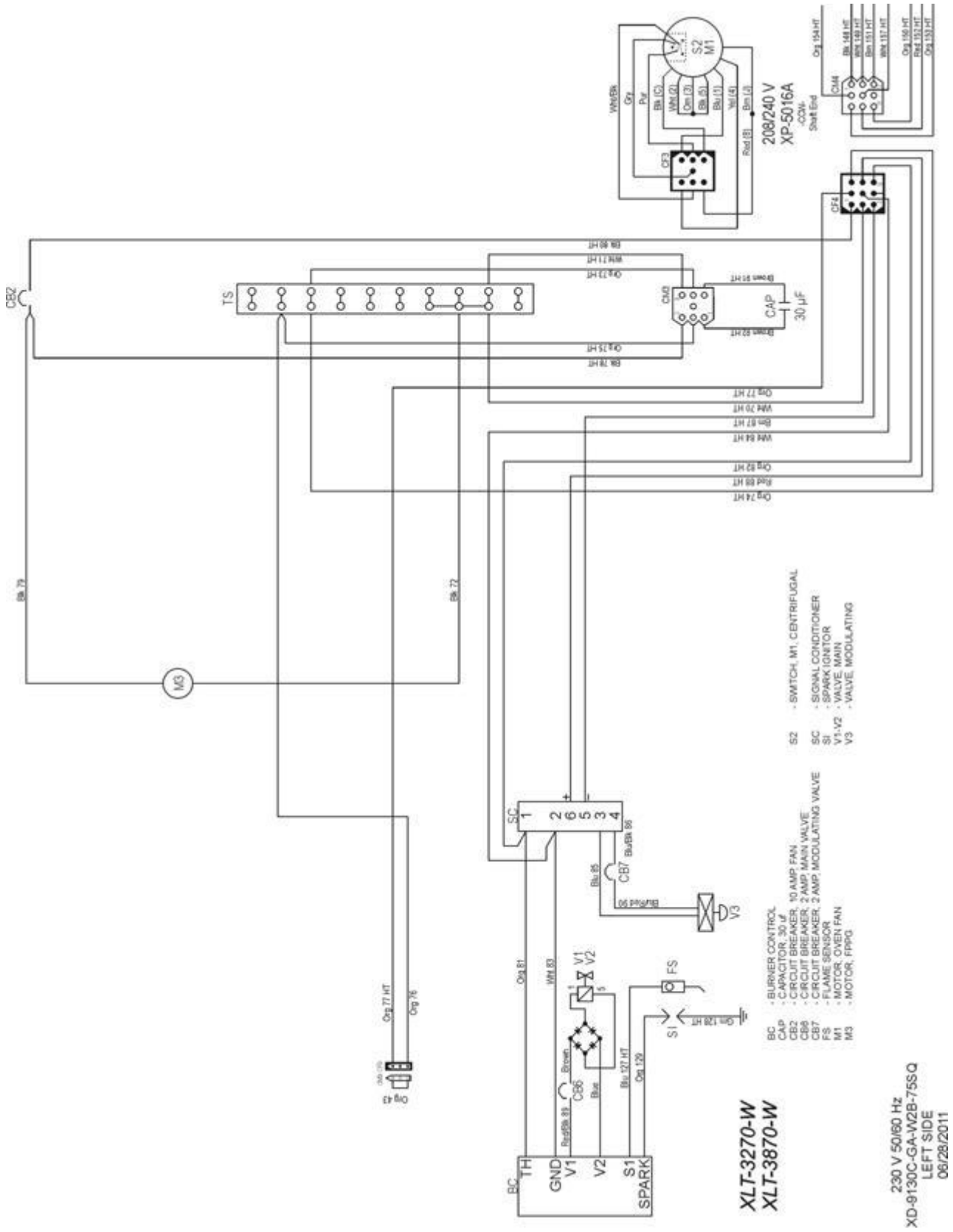


OVEN SCHEMATIC - STANDARD

1832-3855 World Single Box

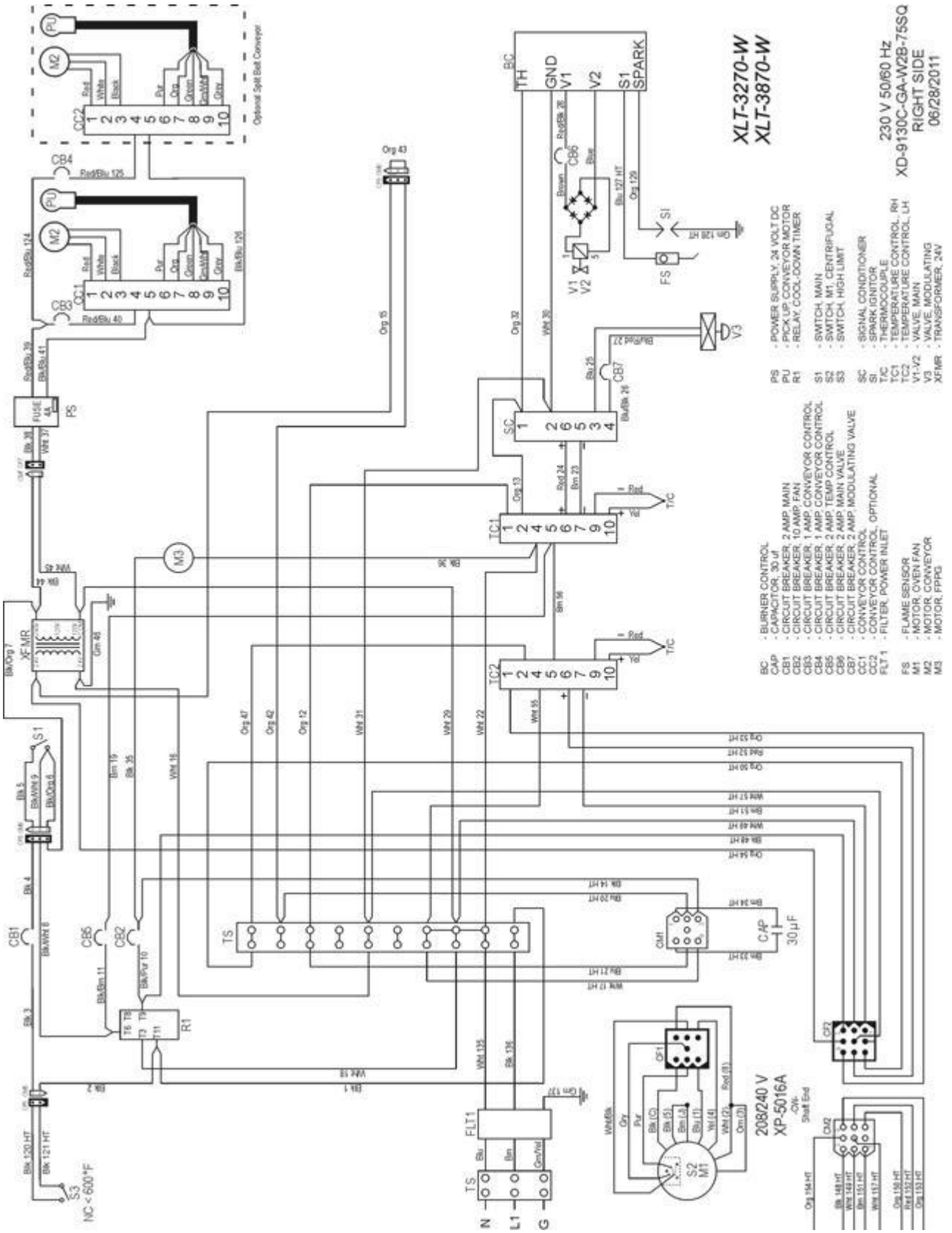


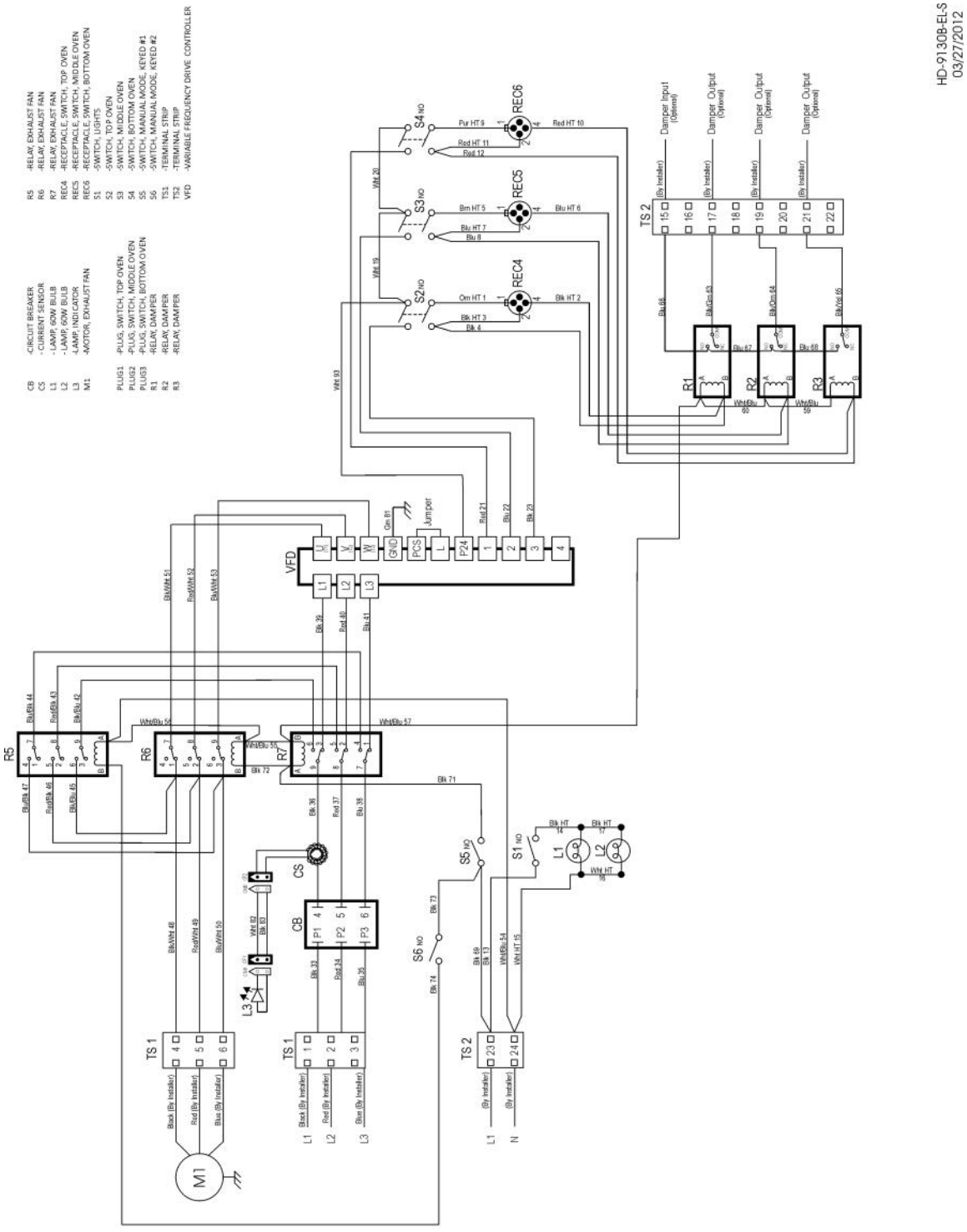
3270-3870 World Dual Box LH



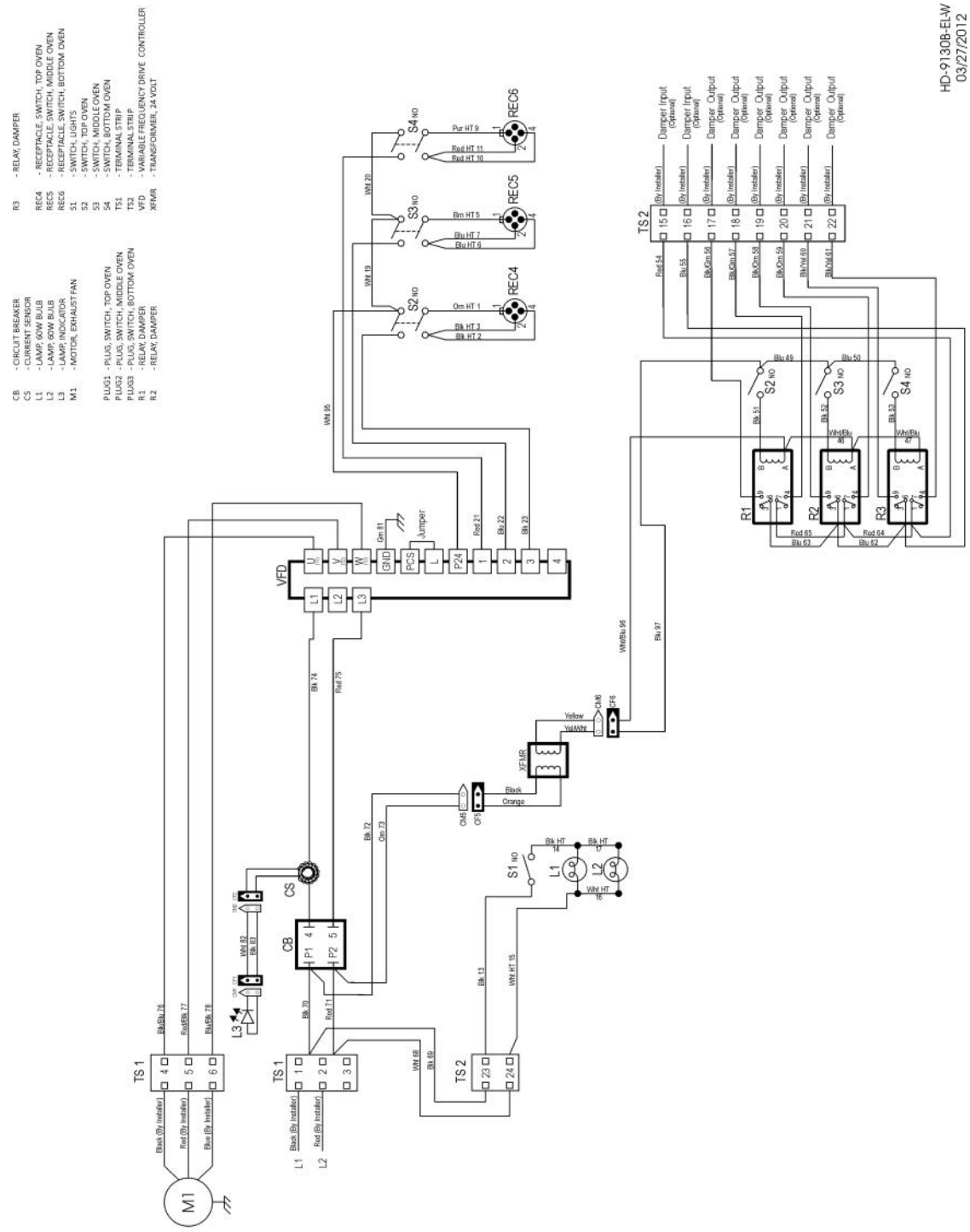
OVEN SCHEMATIC - WORLD

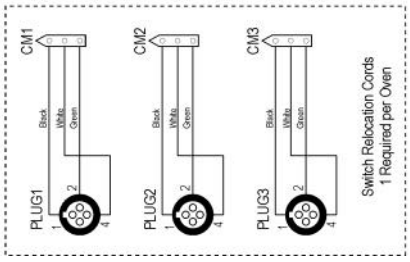
3270-3870 World Dual Box RH

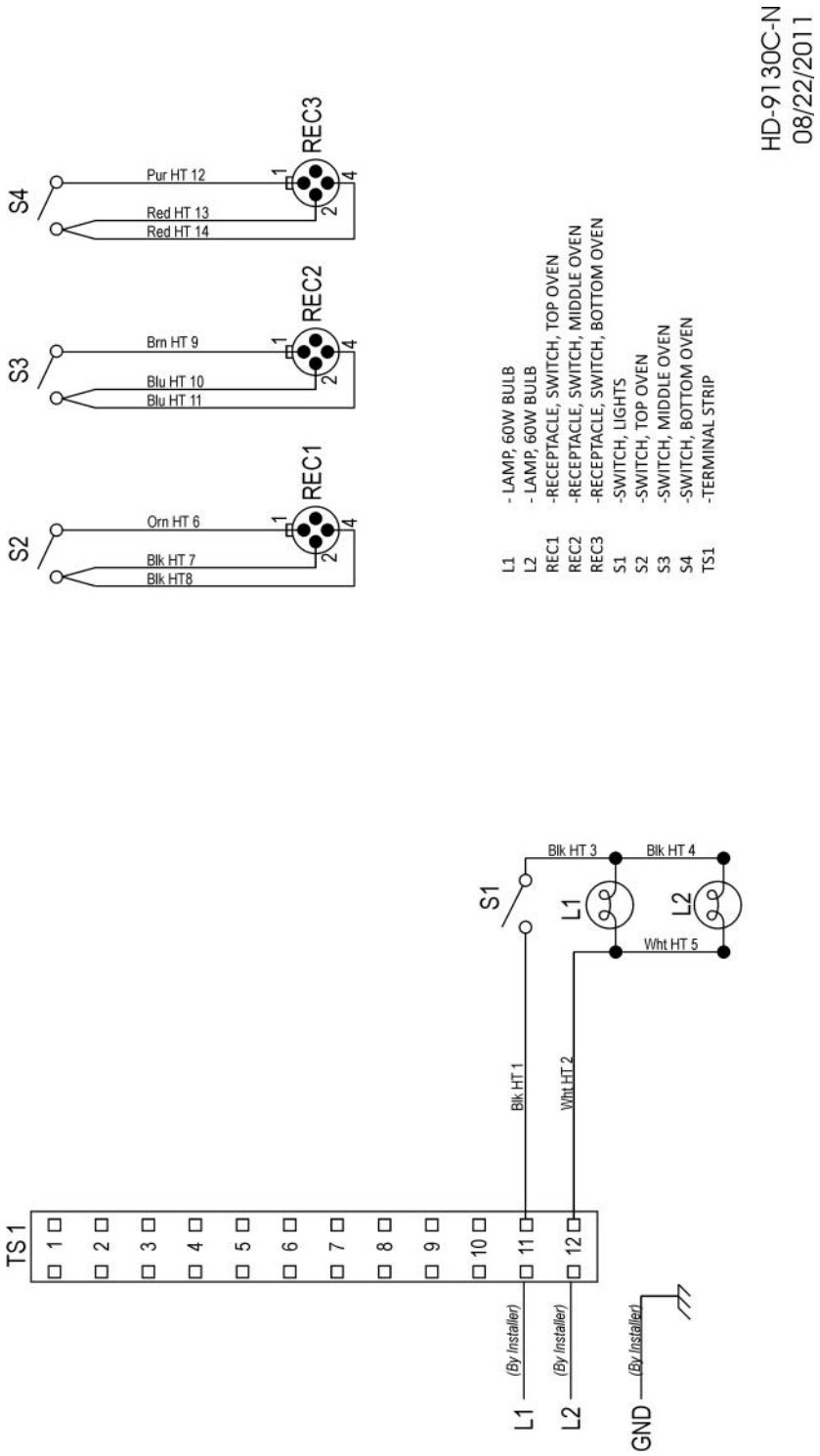



HD-91308-EL-S
03/27/2012
CB -CIRCUIT BREAKER
CS - CURRENT SENSOR
L1 - LAMP, 60W BULB
L2 - LAMP, 60W BULB
L3 -LAMP, INDICATOR
M1 -MOTOR, EXHAUST FAN
PLUG1 -PLUG, SWITCH, TOP OVEN
PLUG2 -PLUG, SWITCH, MIDDLE OVEN
PLUG3 -PLUG, SWITCH, BOTTOM OVEN
R1 -RELAY, DAMPER
R2 -RELAY, DAMPER
R3 -RELAY, DAMPER
R5 -RELAY, EXHAUST FAN
R6 -RELAY, EXHAUST FAN
R7 -RELAY, EXHAUST FAN
REC4 -RECEPTACLE, SWITCH, TOP OVEN
REC5 -RECEPTACLE, SWITCH, MIDDLE OVEN
REC6 -RECEPTACLE, SWITCH, BOTTOM OVEN
S1 -SWITCH, LIGHTS
S2 -SWITCH, TOP OVEN
S3 -SWITCH, MIDDLE OVEN
S4 -SWITCH, BOTTOM OVEN
S5 -SWITCH, MANUAL MODE, KEYED #1
S6 -SWITCH, MANUAL MODE, KEYED #2
TS1 -TERMINAL STRIP
TS2 -TERMINAL STRIP
VFD -VARIABLE FREQUENCY DRIVE CONTROLLER
S4 NO
S3 NO
S2 NO
REC6
REC5
REC4
Pur HT 9
Red HT 11
Red 12
Red HT 10
Brn HT 5
Blu HT 7
Blu 8
Blu HT 6
Org HT 1
Blk HT 3
Blk 4
Blk HT 2
Wht 20
Wht 19
Wht 93
TS 2
Damper Input (Optional)
Damper Output (Optional)
(By Installer)
R1
R2
R3
Blu 66
Blu 67
Blu 68
Blk/Org 63
Blk/Org 64
Blk/Wht 65
Wht/Blu 60
Wht/Blu 59
VFD
L1
L2
L3
GND
PCS
L
P24
Jumper
Grn 81
Red 21
Blu 22
Blk 23
Blk/Wht 51
Red/Wht 52
Blk/Wht 53
Blk 39
Red 40
Blu 41
R5
R6
R7
Blu/Blk 44
Red/Blk 43
Blk/Blu 42
Wht/Blu 56
Wht/Blu 55
Wht/Blu 57
Blu/Blk 47
Red/Blk 46
Blk/Blu 45
Blk 72
Blk 71
CS
CB
P1
P2
P3
Blk 36
Red 37
Blu 38
Wht 82
Blk 83
Blk 33
Red 34
Blu 35
L3
TS 1
Black (By Installer)
Red (By Installer)
Blue (By Installer)
M1
S5 NO
S1 NO
S6 NO
L1
L2
Blk HT 14
Blk HT 17
Wht HT 16
Blk 73
Blk 74
Blk 89
Blk 13
Wht/Blu 54
Wht HT 15
TS 2
L1
N
Blk/Wht 49
Red/Wht 50
Blu/Wht 48
CM1
CM2
CM3
Black
White
Green
PLUG1
PLUG2
PLUG3
Switch Relocation Cords
1 Required per Oven

HOOD SCHEMATIC - WORLD w/VFD






HD-9130C-N
08/22/2011
S4
Pur HT 12
Red HT 13
Red HT 14
REC3
S3
Brn HT 9
Blu HT 10
Blu HT 11
REC2
S2
Org HT 6
Blk HT 7
Blk HT8
REC1
L1 - LAMP, 60W BULB
L2 - LAMP, 60W BULB
REC1 -RECEPTACLE, SWITCH, TOP OVEN
REC2 -RECEPTACLE, SWITCH, MIDDLE OVEN
REC3 -RECEPTACLE, SWITCH, BOTTOM OVEN
S1 -SWITCH, LIGHTS
S2 -SWITCH, TOP OVEN
S3 -SWITCH, MIDDLE OVEN
S4 -SWITCH, BOTTOM OVEN
TS1 -TERMINAL STRIP
S1
Blk HT 3
Blk HT 4
L1
L2
Wht HT 5
Blk HT 1
Wht HT 2
TS 1
1 2 3 4 5 6 7 8 9 10 11 12
(By Installer)
(By Installer)
(By Installer)
L1
L2
GND

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