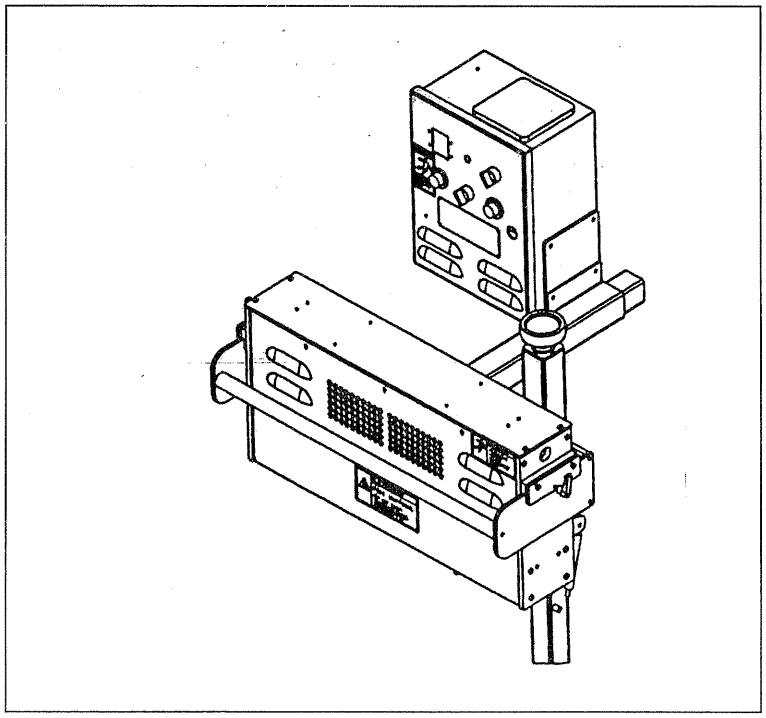
Kirk-Rudy, Inc

Instruction and Parts Manual KR881-1,-2,-3 HeatMate Dryer

Manual



Manufactured by Kirk-Rudy, Inc.

Before using this machine, all operators must study this manual to understand and follow the safety warnings and instructions. Keep these instructions with the machine for future reference. If you have any questions, contact your local Kirk-Rudy, Inc. Distributor.

10000-KR881 REV. 6 10/25/05

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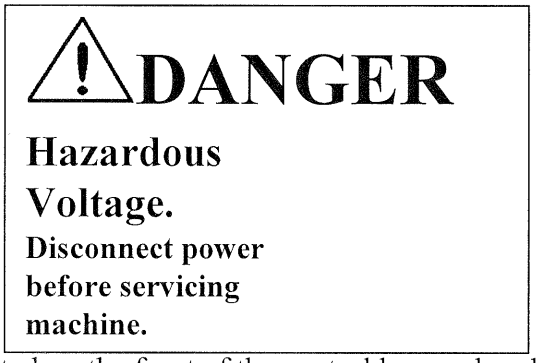
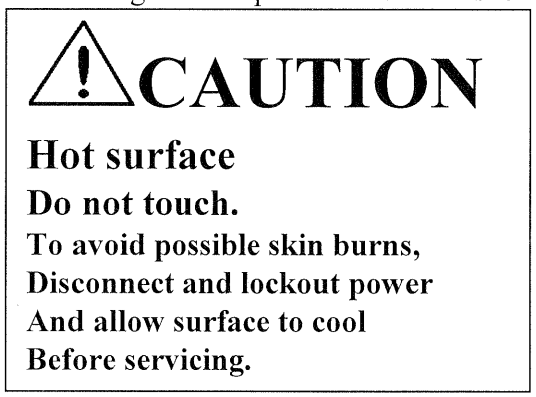
1.0 Important Safety Instructions

Intended Use Statement: The Kirk Rudy, Inc. HeatMate Dryer is designed to be horizontal mounted on a conveyor base that will accept high temperatures, to decrease the drying time of inkjet print. The dryer will use tubular quartz lamps and forced air to dry ink on product as it passes underneath the dryer. The dryer will have controls for manual heat intensity and controls to vary the lamp intensity based on tabletop belt speed. The usage of this product for other purposes may lead to an unsafe condition.

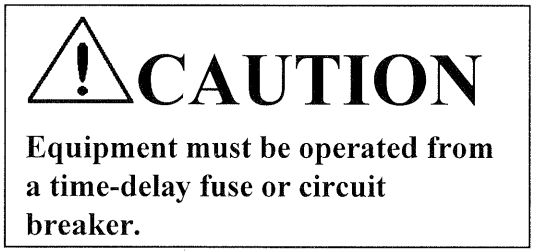
Machine Safety Labels



The above label is located on the front of the control box and on both of the side panels of the dryer box. This label is a warning that the power must be disconnected before any service work is performed.



The above label is located on both sides of the dryer box. This label is a caution that the lower portion of the side panels on this unit will get hot during normal usage and should never be touch until the unit has cooled.



The above label is located on the left topside of the control box. This label is a caution that the circuit protection for this unit must use a time-delay (slow-blow) fuse or circuit breaker.

Instruction and Parts Manual Warnings

SAVE THESE INSTRUCTIONS. Read all instructions before using this product.

WARNING

* NEVER OPERATE THE DRYER WITHOUT ALL GUARDS OR SAFETY DEVICES IN PLACE.

*ALWAYS DISCONNECT THE POWER SUPPLY BEFORE ANY MAINTENANCE OR SERVICE WORK.

*NEVER OPERATE DRYER WITHOUT A FIRE EXTINGUISHER NEARBY.

*NEVER OPERATE DRYER WITHOUT AN OPERATOR PRESENT.

*NEVER TOUCH BOTTOM SIDE OF DRYER OR LAMPS, UNTIL DRYER HAS COMPLETELY COOLED DOWN.

*220VAC WILL BE PRESENT INSIDE THE CONTROL BOX AND DRYER BOX WITH THE SELECTOR SWITCH IN ANY OF THE THREE POSITIONS INCLUDING "OFF" WITH CIRCUIT BREAKER IN THE ON POSITION.

* NEVER START THE DRYER WITHOUT FIRST CHECKING ALL PERSONNEL ARE CLEAR OF MOVING PARTS.

* KEEP FINGERS CLEAR OF ALL MOVING PARTS.

* NEVER REMOVE THE PRODUCT FROM UNDER THE DRYER WHILE MACHINE IS RUNNING.

* IT IS NOT RECOMMENDED THAT LOOSE CLOTHING, JEWELRY AND LONG HAIR BE WORN WHILE OPERATING THIS DRYER.

* ALWAYS USE AN EXPERIENCED ELECTRICIAN WHEN TROUBLE-SHOOTING ELECTRICAL PROBLEMS.

* CHANGES OR MODIFICATIONS TO THIS UNIT NOT EXPRESSLY APPROVED BY THE PARTY RESPONSIBLE FOR COMPLIANCE COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.

*FIRE HAZARD: ALWAYS MAINTAIN 1" OR MORE GAP BETWEEN DRYER BOTTOM AND PRODUCT SURFACE.

2.0 SPECIFICATIONS

MACHINE DATA

DRYER SPECIFICATIONS (see figure #1)

-Dimensions same for all HeatMate models-

	English Units	Metric Units
Length	29.63 in.	75.3cm
Width	4.88 in.	12.4cm
Height	12.19 in.	30.9cm
Control Cord Length	60 in.	152.4cm
Weight	34 lbs.	15.5kg

CONTROL BOX SPECIFICATIONS (see figure #2)

-Dimensions same for all HeatMate models-

	English Units	Metric Units
Length	10.38 in.	26.4cm
Width	6.69 in.	17.0cm
Height	13.63 in.	34.6cm
*Power Cord Length	114 in.	289.5cm
Weight	24 lbs.	10.9kg

TOTAL SHIPPING WEIGHT 70 lbs. 31.8kg

*Note: Main power socket-outlet for this equipment shall be installed near the equipment and shall be easily accessible. Equipment must be operated from a time-delay fuse or circuit breaker.

ELECTRICAL RATING OF PRODUCT

Model	Power Level	Power Required	Lamps Required	NEMA
KR881-1	3200-Watt	240 VAC, 30A, 60hz 1PH	(2) 1600-Watt	L630P
KR881-2	4800-Watt	240 VAC, 30A, 60hz, 1PH	(3) 1600-Watt	L630P
KR881-3	6000-Watt	240 VAC, 30A, 60hz, 1PH	(2) 3000-Watt	L630P

MACHINE BASE DRYER ENABLE INPUTS

The dryer control box can accept a 24VDC or 24VAC signal from the base with just a relay change. Dryer is shipped with 24VAC (part#202291) relay. 24VDC relay is part# 202276. See electrical schematic for correct relay to change.

DRYER TILT ENABLE -CONTACT CLOSURE

DUAL DRYER ENABLE -24VAC

SPEED FOLLOWING INPUT

0-10VDC, Signal Isolator Board
Optional 0-10 VDC, Tachometer 10 VDC/ 1000rpm

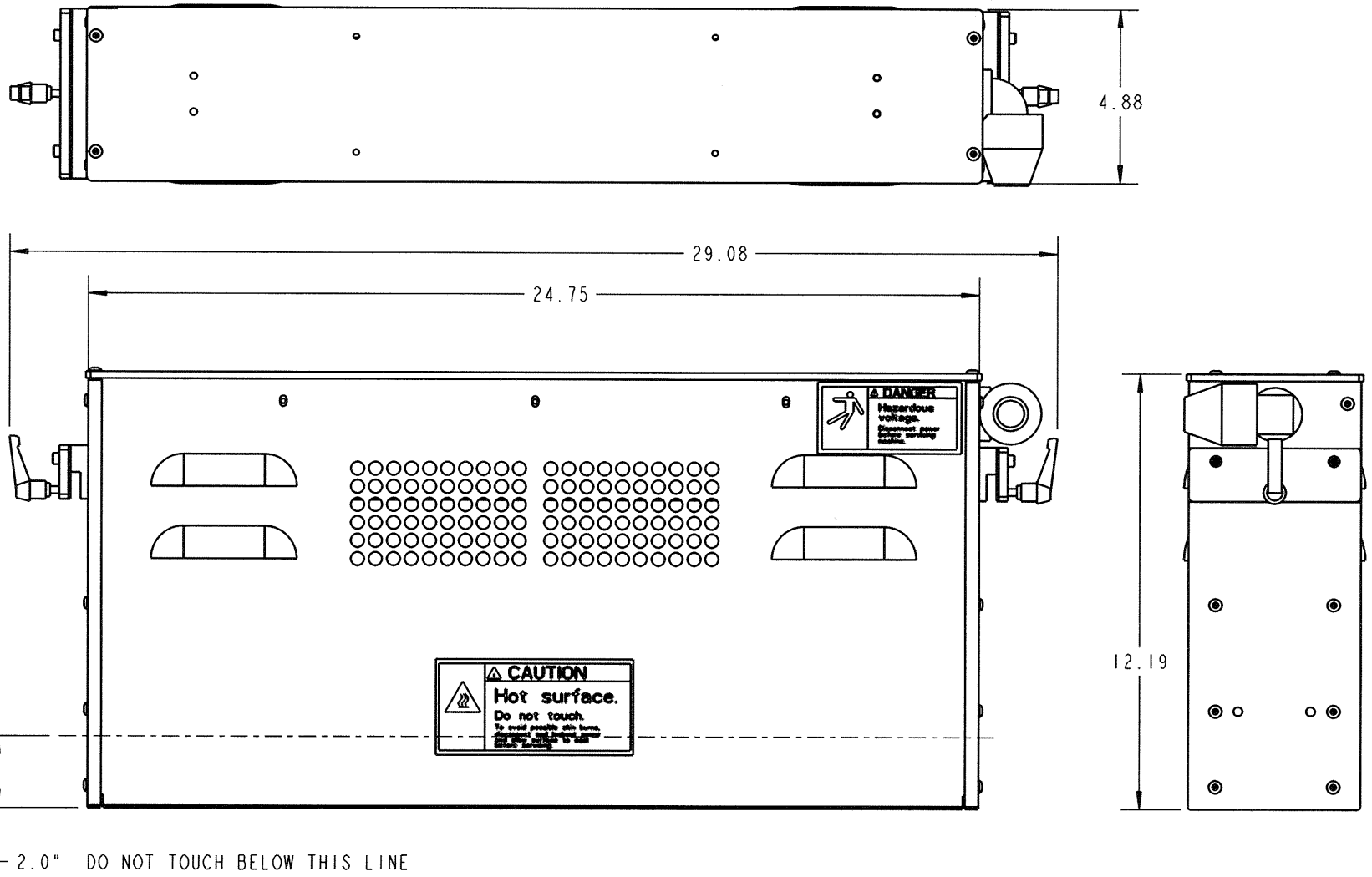


FIGURE #1
DRYER DIMENSIONS

drawing file 538705-01

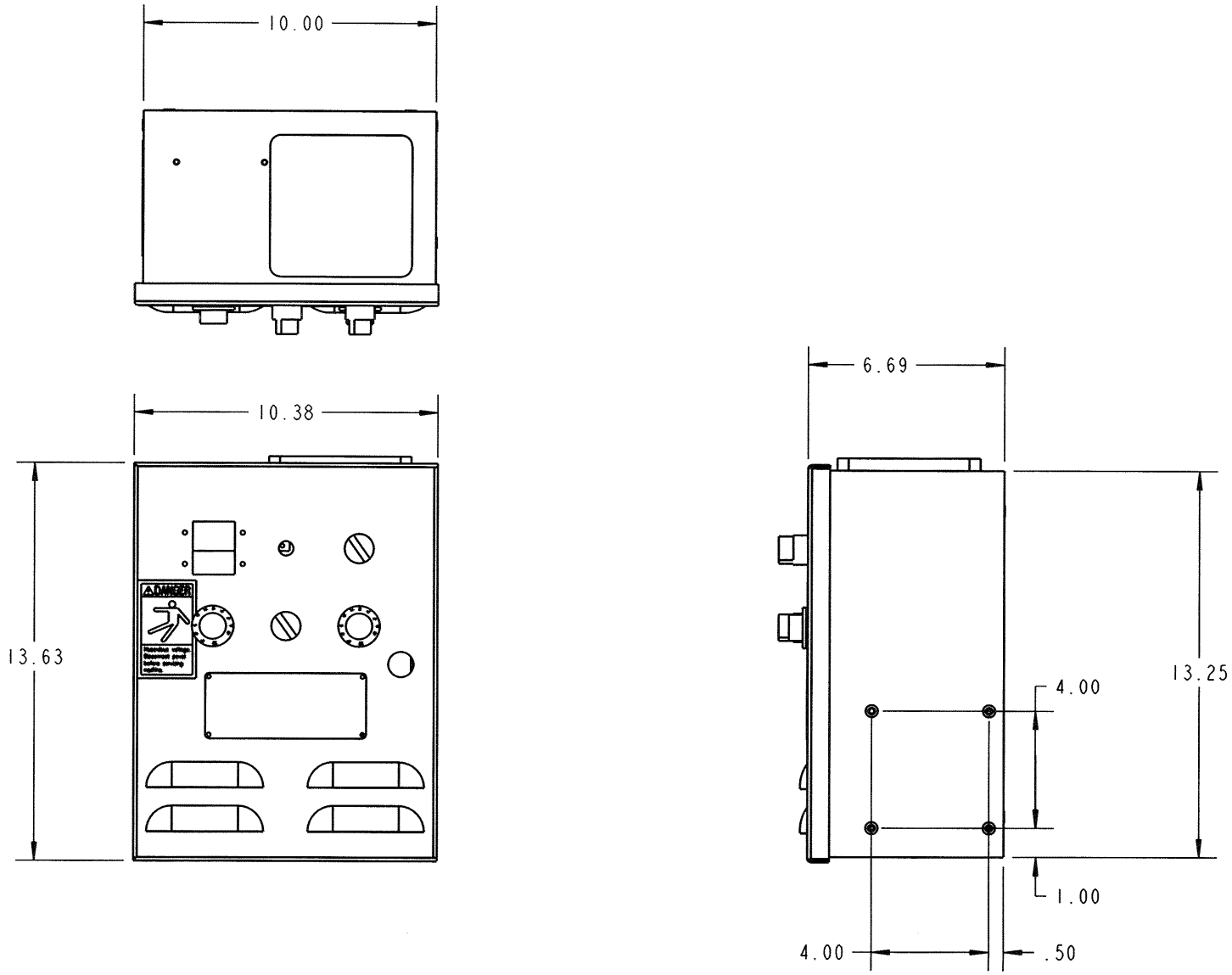


FIGURE #2
CONTROL BOX DIMENSIONS

drawing file 538722-01

3.0 SAFETY

WARNING

Read and follow all Safety Instructions in Section 1, Page 3 before proceeding.

The Kirk Rudy, Inc. HeatMate Dryer is designed for safe operation provided all safety precautions are followed in this manual.

3.1 ELECTRICAL SAFETY

WARNING

Always disconnect power supply before any maintenance or service work.

220VAC will be present inside the control box and dryer box with the selector switch in any of the three positions including "OFF".

220VAC will be present inside the control box with the circuit breaker in the off position.

3.2 FIRE SAFETY

The HeatMate Dryer is designed to produce large amounts of heat directed at the product to decrease product drying time. This can cause a fire hazard if product is stopped under the dryer. The lamps require several minutes to cool down, so it is possible to ignite paper product if it is left under the dryer.

WARNING

Never operate machine without fire extinguisher or operator present.

If the dryer is run in the manual mode, care must be taken if the conveyor speed is decreased. This may cause damage to the conveyor belts and/or cause a **FIRE HAZARD**. If the conveyor speed is decreased the lamp intensity should also be decreased. The automatic mode option allows the machine belt speed to automatically adjust lamp intensity. **If product jams or stops under dryer: 1. Stop machine base. This will turn lamps off and stop blower fan. 2. Tilt dryer back. 2. Remove product.**

WARNING

Hot Surfaces: Never touch bottom side of dryer or lamps, unless dryer has completely cooled down.

3.3 DRYER TEMPERATURES

Kirk Rudy, Inc. has designed the dryer box of the HeatMate to run as cool as possible, however the bottom side edges of the dryer box may get hot from the heat reflecting off the tabletop. **Caution: Do not touch the lower 2" side surfaces of dryer box (see figure #1).**

4.0 HEATMATE FEATURES

4.1 HEAT SOURCE

Lamps

The HeatMate Dryer uses tubular quartz tungsten lamps with a crossflow blower to produce heat for drying inkjet print. Two wattage lamps are available; the1600-Watt and the 3000-Watt. These different combinations will make the three different HeatMate Models, the 3200, 4800 and 6000-Watt. The dryer will mount two or three lamps depending on the heat width required by the ink pattern. Dryer selection, if possible, should be based on running lamps at 60-100% of their rated power for maximum life.

Blower

The crossflow blower cools the lamps to increase bulb life. This feature also aids in the drying process to evaporate ink. The HeatMate has a double wall design with airflow between the walls to remove heat from the outside surfaces of the dryer for operator safety.

4.2 LAMP CONTROLS

The HeatMate has two modes of operation, manual and automatic.

Manual Mode

The manual mode allows the operator to control the lamp intensity with the manual power knob on the electrical control box. This mode does not compensate for the speed of the base. The machine base dryer enable connections will stop the dryer and dryer blower if the tabletop belts are stopped or the dryer is tilted back.

Automatic Mode (Speed Control)

The automatic mode will vary the lamp intensity based on the tabletop belt speed. Two options are available to track belt speed. The first method uses a signal isolator board to produce a 0-10VDC signal based on an output from the motor control board. The second (optional) method uses a tachometer that is o-ring driven off the outfeed roller to vary the lamp intensity. The lamp intensity can be adjusted in relation to the belt speed with the auto range control knob. This allows the operator to set the dryer lamp intensity to vary linearly with multiple maximum belt speeds or to customize the way the lamp intensity varies.

4.3 DUAL DRYER

Two HeatMate Dryers can be used side by side to dry certain products. This requires two complete dryers and control boxes which mount on a Kirk Rudy, Inc. dryer stand. Machine base dryer enable and tilt enable connections will be made to the master control box. The second dryer enable will be controlled by the master dryer control box. Each dryer will have is own complete set of operating controls. If both dual dryers are to be used in the automatic mode a signal isolator cable adaptor (KR#209284) or tachometer cable adaptor (KR#209283) must be used to control both dryers. (See 5.4 for more information).

5.0 INSTALLATION

WARNING

Read and follow all Safety Instructions in Section 1, Page 3 before proceeding.

5.1 LAMP INSTALLATION

The following steps should be taken to install the lamps. **Disconnect power supply before installing lamps.**

WARNING

Always disconnect power supply before any maintenance or service work.

1. Disconnect power supply.
2. The dryer box should be removed from the shipping box and placed upside down to get easy access to lamps. The dryer should be in the position shown in figure #8.
3. Remove two #10-32 button head screws so the wire guard can be raised.
4. Raise wire guard 2.625" and install #10-32 screws into the holes shown on figure #8 labeled lamp replacement.
5. **Install lamps with the outside of the gold reflector oriented towards the stainless steel air diffuser (top of dryer as mounted on the machine).**
6. Tighten (just enough to compress lock washer) 8-32 nuts on end of each lamp.
7. Lower wire guard to the normal position. (reverse step 4).

5.2 SINGLE DRYER & CONTROL BOX (see figure #3)

Dryer Box

The single dryer box mechanical installation requires the use of bracket assembly #538721-01 to support the dryer. The telescopic tubing will be used to slide the dryer left/right (note: looking downstream). The bracket assembly should already be mounted to the dryer arm if a Kirk Rudy, Inc. complete machine has been ordered. If you are installing this unit on an existing dryer arm, perform the following steps. Start with step number three if your machine has the single dryer assembly #538721-01 already installed.

1. Assemble the single dryer bracket (assembly #538721-01).
2. Fasten the single dryer bracket assembly to the telescopic tubing plate with four ¼-20 bolts.
3. Position the dryer so the power/control cord is coming out of the left side of the dryer.
4. Lower the dryer between the aluminum plates and tighten the clamp screws.

Control Box Installation

The single control box is mounted to the dryer arm plate #534689-02 with plate #538734-01. Follow these steps to install the control box.

1. Plate (538734-01) should be fastened to the dryer arm plate #534689-02 with the two bottom holes, use #10-32 screws and nuts. **Note: If mounting control box to dryer**

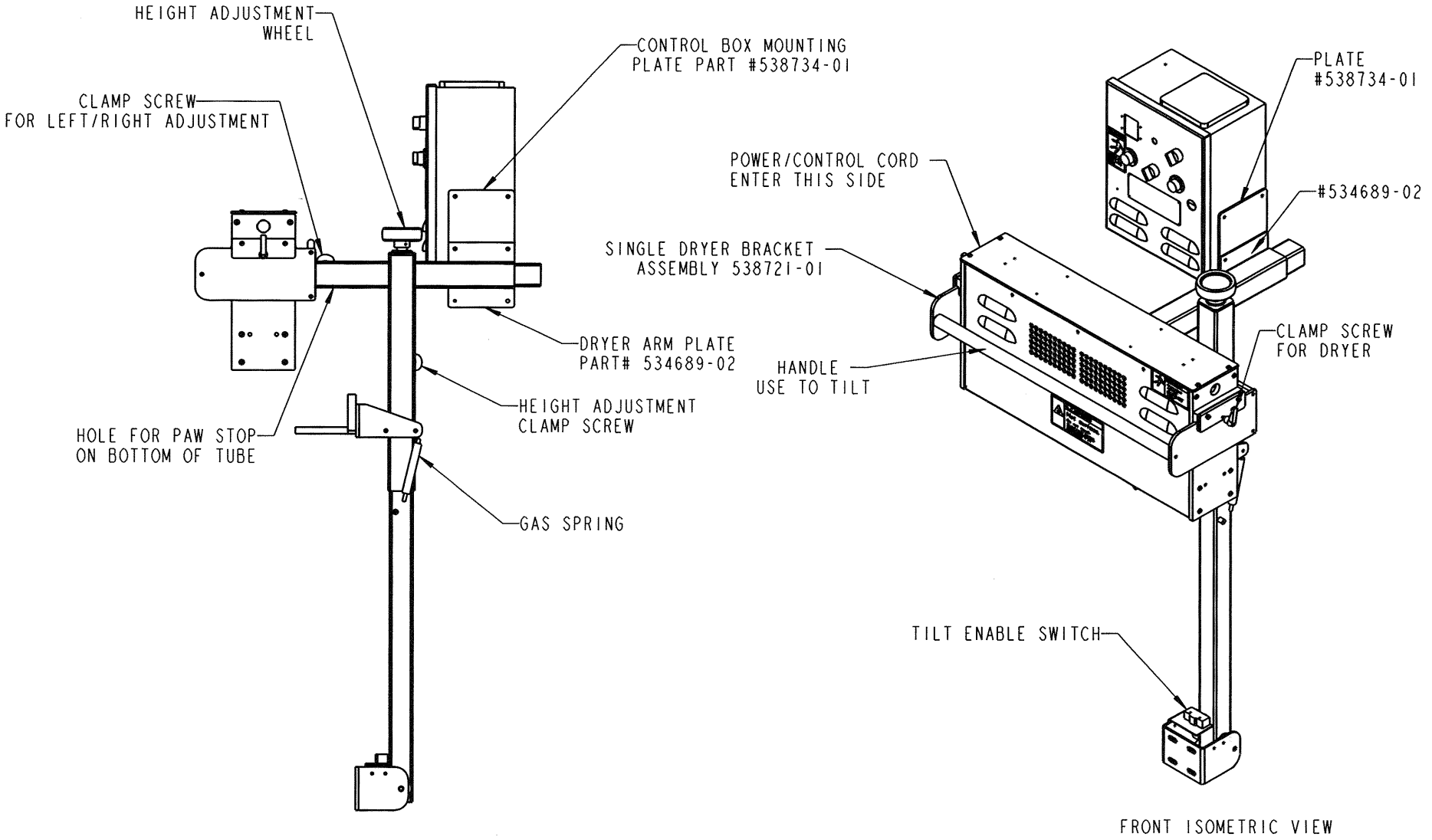


FIGURE #3
SINGLE DRYER SET UP

drawing file 533708-04

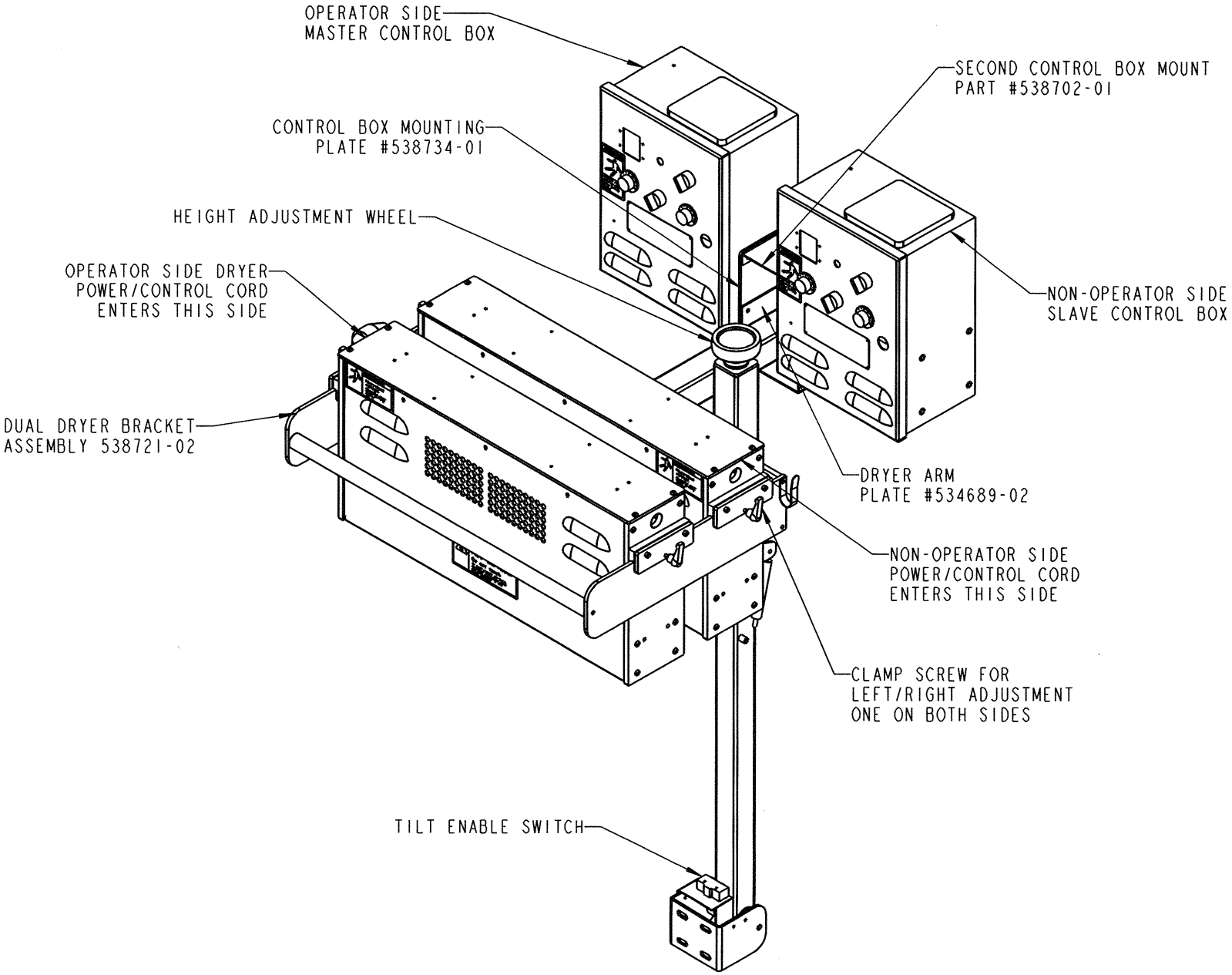


FIGURE #4
DUAL DRYER SET UP

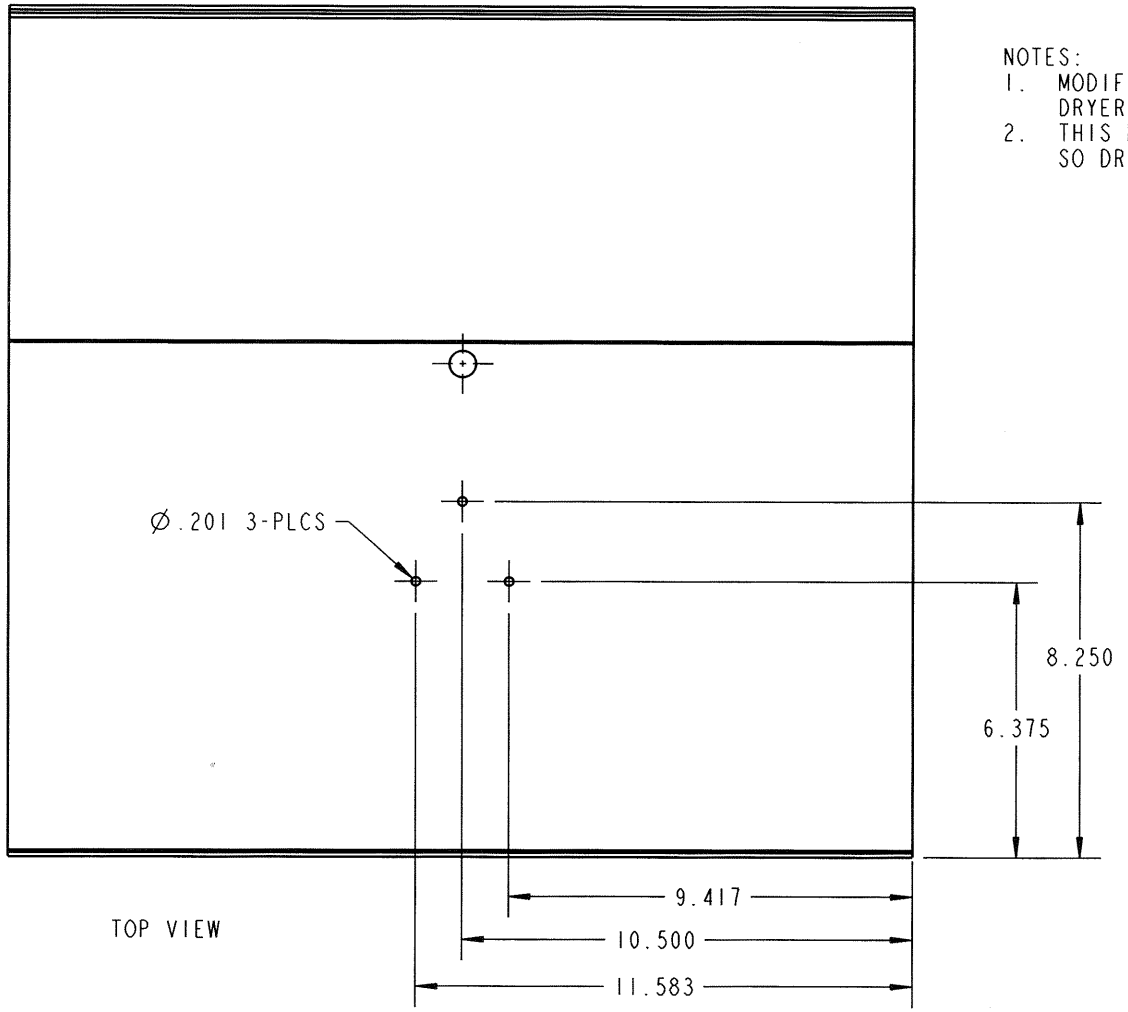
drawing file 533708-04

DRAWING #

532128-02

REV NO	DATE	DESCRIPTION	ECN NO	BY

NOTES:
1. MODIFICATION TO RETRO-FIT DRYER CONTROL BOX
2. THIS MODIFICATION MUST BE DONE SO DRYER CAN TILT BACK.



TOP VIEW

1	532155-02
REQ'D	WHERE USED

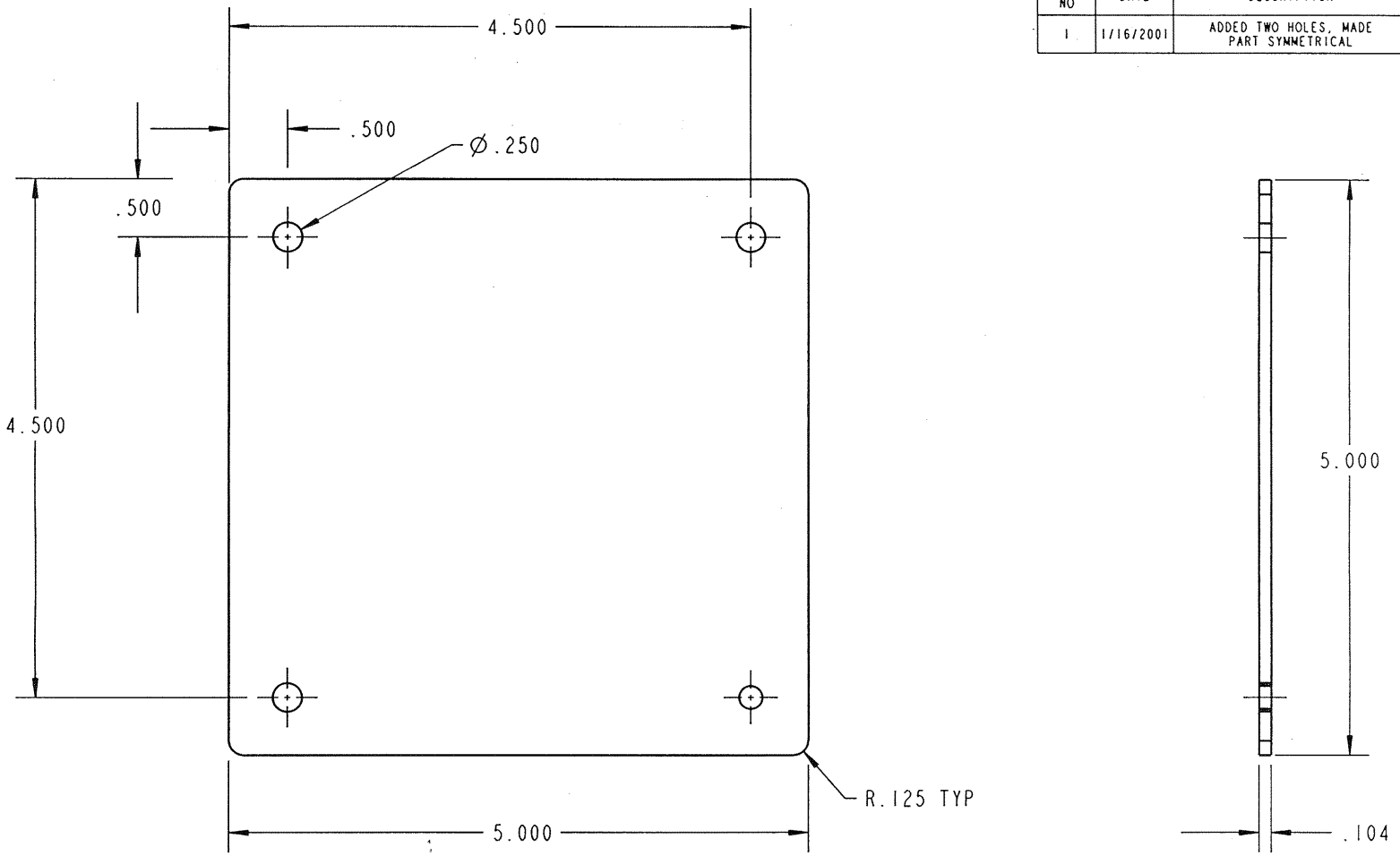
DRAWN BY: TJG	SCALE 0.250	DIMENSIONAL TOLERANCES UNLESS OTHERWISE NOTED (.XX .01; .XXX .005; ANG. .5)	MATERIAL: 12 GA CRS	THIRD ANGLE PROJECTION	PROPRIETARY AND CONFIDENTIAL NO PORTION OF THIS DRAWING MAY BE QUOTED OR REPRODUCED IN ANY FORM WITHOUT THE EXPRESS WRITTEN PERMISSION OF KIRK-RUDY, INC. KENNESAW, GA 30144 USA
CHECKED BY:	DATE 15-Mar-01	REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED	HEAT TREAT: NONE	MODEL: SP66500	TITLE: TRAY, KEYBOARD
TRACED BY:	MASTER	ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY	FINISH: PAINT	SHEET NO.: 2OF2	DRAWING # 532128-02

KIRK - RUDY, INC.
KENNESAW, GEORGIA

DRAWING #

534689-02

REV NO	DATE	DESCRIPTION	ECN NO	BY
1	1/16/2001	ADDED TWO HOLES, MADE PART SYMMETRICAL	6655	TJG



1	532739-02
REQ'D	WHERE USED

DRAWN BY: MY	SCALE 0.750	DIMENSIONAL TOLERANCES UNLESS OTHERWISE NOTED .XX: .01 .XXX: .005 ANG.: .5 REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY	MATERIAL: 12 GA CRS HEAT TREAT: NONE FINISH: NONE	THIRD ANGLE PROJECTION	PROPRIETARY AND CONFIDENTIAL NO PORTION OF THIS DRAWING MAY BE QUOTED OR REPRODUCED IN ANY FORM WITHOUT THE EXPRESS WRITTEN PERMISSION OF KIRK-RUDY, INC. KENNESAW, GA 30144 USA	KIRK - RUDY, INC. KENNESAW, GEORGIA
CHECKED BY:	DATE 11-Sep-98			MODEL: DRYER	TITLE: PLATE, CONTROL BOX MOUNTING	
TRACED BY:	MASTER M			SHEET NO.: 1OF1	DRAWING # 534689-02	

arm plate that has two holes, four additional holes will have to be drilled as per print #534689-02.

2. Mount the control box on the left side of plate #538734-01 use upper four holes and use 10-32 X 3/4" screws. **Caution: Do not use screws longer than 3/4".**
3. If retro-fitting dryer on existing 219B or 215B, the mounting holes for the keyboard tray must be moved, add three .201 holes as per print #532128-02. **Caution: Keyboard tray must be moved so dryer can tilt back.**

Single Electrical Controls Installation (see figure #6)

1. The machine base dryer enable cord should be plugged into the KR base. Note: Check the base and determine if it has a 24AC or 24DC enable circuit. Dryer is shipped with 24VAC (part#202291) relay. If KR base has 24VDC enable circuit change K3 relay in control box to 24VDC relay part# 202276.
2. The dryer tilt enable plug from the switch at the bottom of the dryer arm should be connected next. If dryer arm is not equipped with switch a 2-pin twist plug (part# 201510) with jumper must be install into this receptacle.
3. The main power socket-outlet for the control box should be installed near the equipment and should be easily accessible. Equipment must be operated from a time-delay fuse or circuit breaker.
4. See speed control section for signal isolator board or tachometer connections.

5.3 DUAL DRYERS & CONTROL BOXES (see figure #4)

Dual Dryer Boxes

The dual dryer mechanical installation requires the use of the bracket assembly #538721-02 to support the dryers. The telescopic tubing will remain fixed and the dryers will slide back and forth on the black anodized frame. The bracket assembly should already be mounted to the dryer arm if a Kirk Rudy, Inc. complete machine has been ordered. If you are installing this unit on an existing dryer arm perform the following steps. Start with step number three if your machine has the dual dryer bracket assembly #538721-02 already installed.

1. Assemble the dual dryer bracket (assembly # 538721-02)
2. Fasten the dual dyer bracket to the telescopic tubing plate with four ¼-20 bolts.
3. Push in telescopic tubing in as far as possible and lock down clamp screw.
4. Position the operator side dryer so the power/control cord is coming out of the left side of the dryer. Next, lower the dryer between the aluminum plates and tighten the clamp screws. Repeat process with non-operator side dryer except position power/control cord on right hand side. The 90-degree fitting on the control cord must be loosened so the fitting can be turn to point towards the rear of the machine. Tighten locknut on 90-degree fitting after it is oriented correctly. **Note: Operator side dryer must have power/control cord on left. Non-operator side dryer must have power/control cord on right. Dryer will overheat because blower intake will be covered if this is installed incorrectly.**

Dual Control Box Installation

The control box on the left will control the operator side dryer and it will be the master control box for the dual dryer setup. The right control box will control the non-operator side dryer and it will be the slave. Follow these steps to install the control boxes.

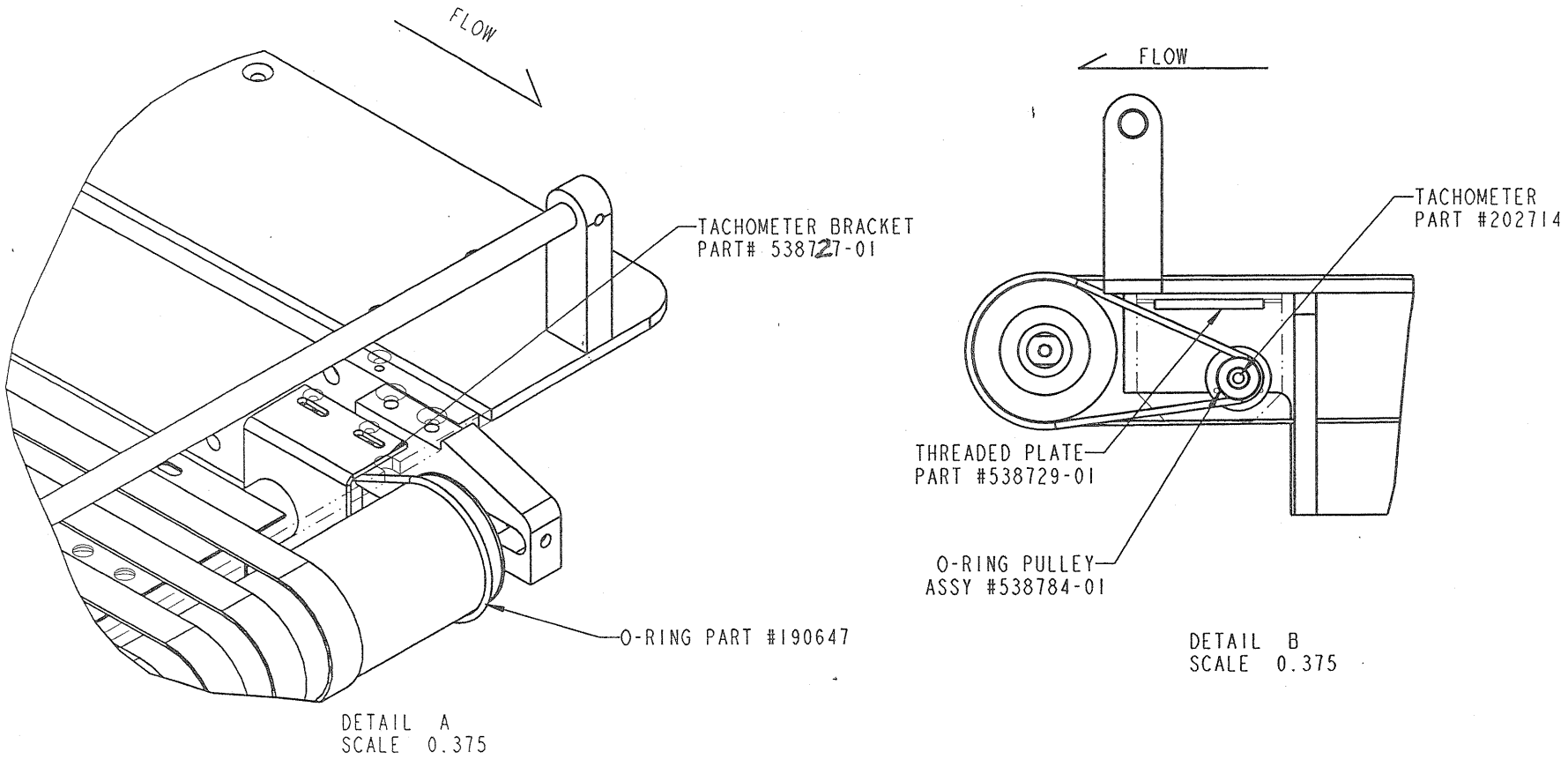


FIGURE #5
TACHOMETER INSTALLATION

drawing file 536479-02

1. Mount the master control box with bracket #538734-01 by using the two center holes (10-32 X 3/4" screws). **Caution: Do not use screws longer than 3/4".**
2. Mount the second control box bracket #538702-01, use 10-32 X 3/4" screws in the top and 10-32 nuts and screws in the bottom.
3. Mount the second control box on bracket #538702-01 using four 10-32 X 3/4" screws. **Caution: Do not use screws longer than 3/4".**

Dual Electrical Controls Installation (see figure #6)

1. The master dryer will control the stop circuit of the slave dryer by connecting the machine base dryer enable cord from the slave dryer into the dual dryer enable plug on the master dryer control box.
2. Install 2-pin twist plug (part# 201510) with jumper into the tilt enable socket of the slave control box.
3. Connect master box same as single dryer. (See section 5.2 single electrical control box installation)
4. The main power socket-outlet for the control box should be installed near the equipment and should be easily accessible. Equipment must be operated from a time-delay fuse or circuit breaker.
5. See speed control section for signal isolator board or tachometer connections.

5.4 SPEED CONTROL

Signal Isolator Board

The signal isolator board is used to provide a signal to the lamp controller so it can vary the lamp intensity as the belts change speed. If the Kirk Rudy, Inc. base has been wired for the signal isolator board, simply plug together the 4-pin male and female rectangular connectors. The plug will be located near the electrical power supply box (outfeed end) in the cabinet. The board will be set up to provide a 10VDC signal to the lamp controller at approximately 240fpm. If the Kirk Rudy, Inc. base has not been wired for the signal isolator board, see the electrical schematic to install the 4-pin female rectangular connector cord (KR#209285) to the tabletop drive motor armature. The signal from the motor control board should be a 0-90VDC signal. The signal isolator board has trim screws for adjusting voltage output. The voltage output from the signal isolator board should be 10VDC at approximately 240fpm. If dual dryers are being used, signal isolator board cord adaptor (KR#209284) will be used to split the signal.

Tachometer Optional (see figure #5)

The signal isolator board is the recommended way for speed following, but an optional tachometer can be used instead. The tachometer is used to provide a signal to the lamp controller so it can vary the lamp intensity as the belts change speed. The tachometer is driven off the outfeed roller of Kirk Rudy, Inc. base. The tachometer (part#202714) is mounted with bracket #538727-01 and threaded plate #538729-01. The outfeed roller must be removed so the o-ring (part#190647) can be slipped onto the roller. Next, the conveyor belt tension must be set correctly. Next, mount the tachometer with the brackets using 8-32 flat head screws. Finally, adjust o-ring belt tension and connect the tachometer plug (rectangular 3-pin female) to the HeatMate plug (rectangular 3-pin male). If dual dryers are being used, tachometer cord adaptor (KR#209283) will be used to split the signal.

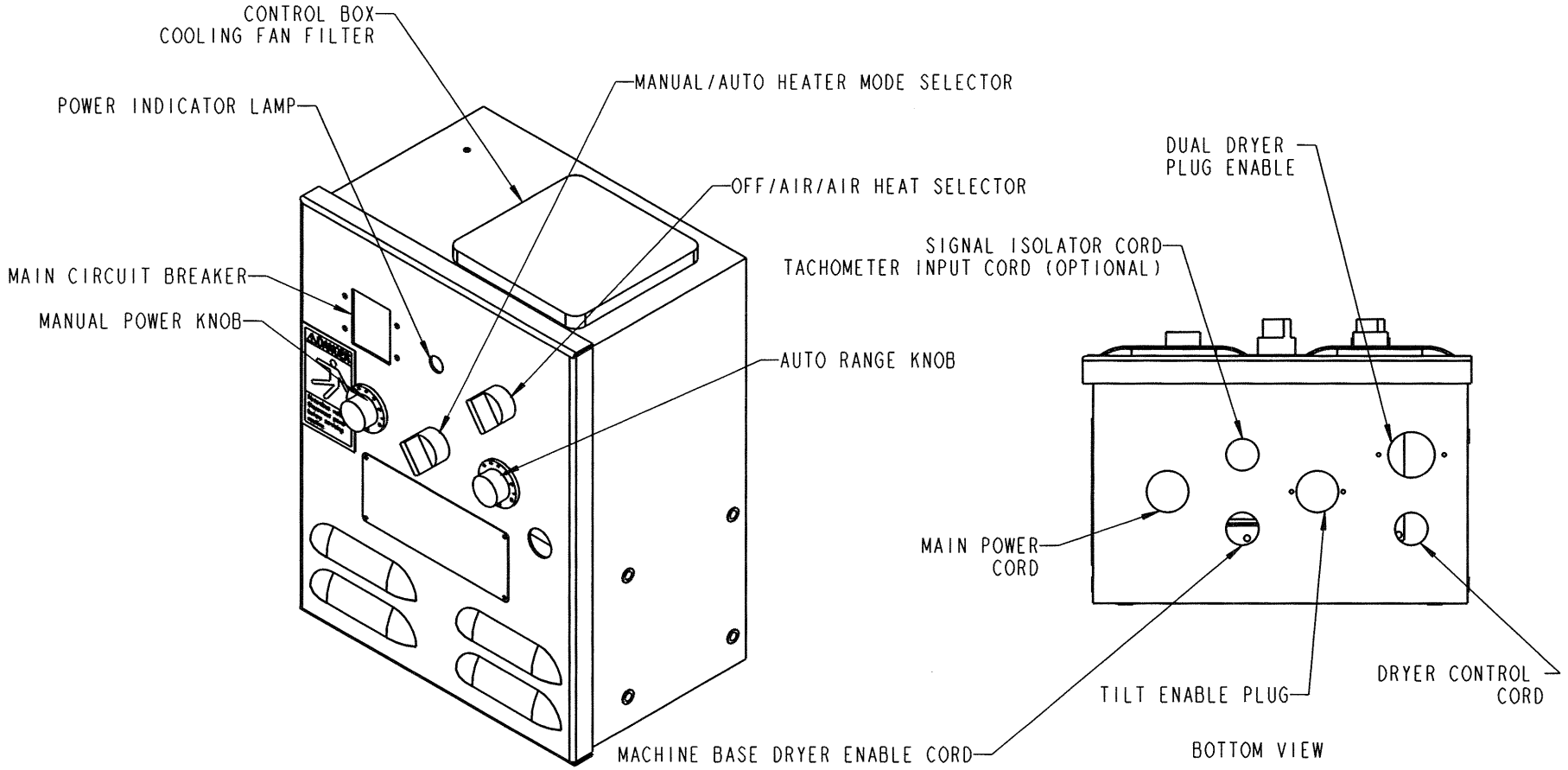


FIGURE #6
DRYER ELECTRICAL CONTROLS

drawing file 538722-01

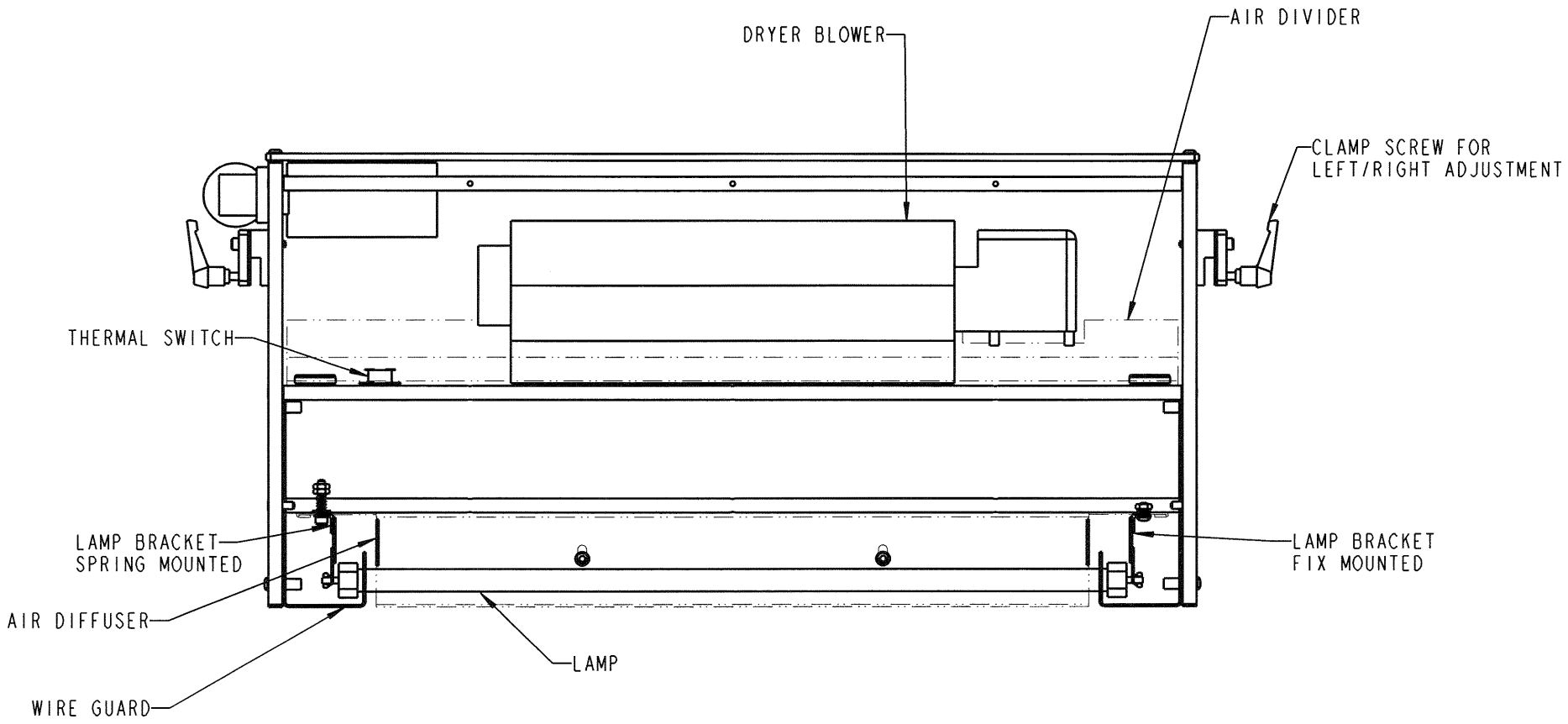


FIGURE #7
MECHANICAL COMPONENTS

drawing file 538705-01

6.0 OPERATING INSTRUCTIONS

WARNING

Read and follow all Safety Instructions in Section 1, Page 3 before proceeding.

6.1 DRYER ELECTRICAL CONTROLS

The following controls are located on the front side of the control box. (see figure #6 isometric view)

WARNING

Always disconnect power supply before and maintenance or service.

220VAC will be present inside the control box with circuit breaker in the off position.

Main Circuit Breaker: This switch disconnects power to dryer box.

Power Indicator Lamp: This lamp will turn on when the main circuit breaker is in the on position and it indicates the power is on.

WARNING

Always disconnect power supply before any maintenance or service.

220VAC will be present inside the control box and dryer box with the selector switch in any of the three positions including "OFF".

Off/Air/Air Heat Selector Switch: This selector has three positions. The "off" position will turn the blower and lamps off. The "air" position will turn the blower fan on. The "air heat" position will turn on the blower fan and the lamps. **Note: To extend bulb life shut dryer off with manual switch. Turn switch to "air" for 2-3 minutes to cool lamps then turn switch to "off".**

Manual/Auto Heater Mode Selector Switch: This two-position switch controls how the lamp intensity will be controlled. The manual position will make the manual power pot knob active to control the lamp intensity. The auto position will make the auto range pot knob active and allow the signal isolator board or base tachometer control lamp intensity.

Manual Power Knob: This rotary knob controls the lamp intensity in the manual mode.

Auto Range Knob: This rotary knob controls the lamp intensity in the automatic mode. This knob will have to be adjusted so the lamp intensity varies from zero belt speed up to the maximum operating belt speed.

6.2 DRYER ELECTRICAL INPUTS

The following inputs are located on the bottom side of the control box (see figure #6 bottom view).

Main Power Cord: Provides power to HeatMate Dryer. This will be 220VAC 30A single-phase plug on all models. The socket-outlet for the control box should be installed near the equipment and should be easily accessible.

Signal Isolator Board Input: The signal isolator input is a cord with a male 4-pin rectangular connector. This connection will receive a 0-90Vdc signal from the tabletop conveyor motor armature. The signal isolator board converts the 0-90Vdc from the motor armature to a 0-10Vdc signal for the lamp controller. If dual dryers are being used, signal isolator board cord adaptor (KR#209284) will be used to split the signal.

Optional Tachometer Input: The optional tachometer input is a cord with a male 3-pin rectangular connector. This connector will plug into the tachometer. If dual dryers are being used, tachometer cord adaptor (KR#209283) will be used to split the signal.

Machine Base Dryer Enable: The machine base dryer enable input is a cord with a male 3-pin twist round connector. This connector will plug into the conveyor base so the dryer turns on/off with the tabletop conveyor belts. The KR219 may be set up to stop the dryer if product is not detected, the tabletop belt will continue to run.

Tilt Enable: This 2-pin twist female plug will be connected to the switch located at the bottom of the vertical tubing that supports the dryer assembly. This switch will turn the lamps and dryer off if the dryer unit is tilted back.

Dual Dryer Enable: This 3-pin twist female plug will connect to the second dryer control box if dual drying is necessary. This will allow all stop circuits to control the second dryer.

Dryer Power/Control Cord: This conduit has several wires to supply power and control to the dryer.

Dryer Thermal Switch: (see figure #7) This automatic reset switch is located inside the dryer. This switch will turn the lamps and dryer blower off if the unit overheats. **Note: If this switch trips, the cause of the dryer box overheating should be corrected. Lamps and blower will automatically turn on after unit cools.** The most probably causes of dryer overheating are a failed blower, blocked blower, blocked dryer intake panel and mounting dual dryers incorrectly.

Optional Tachometer (see figure #5): The **optional** tachometer mounts to the outfeed tabletop and is driven by the outfeed roller. The tachometer is driven by an O-ring (part # 190647).

6.3 DRYER ARM "TILT AWAY"
***For conveying bases with KR "tilt away" dryer arms.**

Height Adjustment: (see figure #3 & #4) The height of the dryer can be adjusted using the wheel on the top of the dryer arm. First loosen the clamp screw on the vertical tube of the dryer arm. Next, turn the wheel clockwise to move the dryer down or counter clockwise to move the dryer up. Retighten clamp screw when dryer is at desired height.

Left/Right Adjustment Single Dryer: (see figure #3) The left/right (note: looking downstream) position of the dryer can be adjusted by loosening the clamp screw on the horizontal tube, continue to hold the clamp screw handle and slide the dryer in and out. Retighten clamp screw when dryer is at desired location.

Left/Right Adjustment Dual Dryer: (see figure #4) The left/right (note: looking downstream) position of the dryer can be adjusted, by loosing the clamp screw on each side of the dryer and sliding the dryer to the desired position. The dual dryer frame does not need to move. **Note: The dryer on the operator side of machine should have the dryer power/control cord on left side. The dryer on the non-operator side should have the dryer power/control cord on right side. This is done so the air intake side of the dryer is always on the outside if the dryers are ran close together.**

Clearing Jam Under Dryer: Use handle to push dryer arm back approximately 15 degrees. Dryer arm will remain back so jams can be cleared. **Note: This turns dryer lamps and blower off.** Pull on handle to position the dryer back over the conveyor for normal operation.

Horizontal Tube Removal: (see figure #3) The inside horizontal tube has a paw stop to prevent the dryer from being pulled out too far. The spring loaded paw will automatically stop the tube at the end of its stroke. The spring loaded paw automatically resets when the tubing is pushed in the opposite direction. To remove the horizontal tube follow these steps:

1. Remove dryer from dryer bracket.
2. Loosen horizontal clamp screw.
3. Slide tube out until the paw stops it.
4. Use allen wrench to push paw up and out of the hole located on the bottom of the larger horizontal tubing, at same time pull inside tubing out.

Tilt Enable Switch: (see figure #3) This switch disables the dryer when it is tilted back. It is located at the base pivot point of the vertical tubing.

6.4 DRYER MECHANICAL COMPONENTS (see figure #7)

Dryer Blower: The purpose of the blower is to cool lamps, dryer side panels and dry ink.

Air Divider: This has two purposes, mount the dryer blower fan and create high-pressure area below the dryer blower. The thermal switch will also mount to the top surface of the air divide to detect overheating.

Clamp Screw Left/Right Adjustment: The left/right position (note: looking downstream) of the dryer can be adjusted by loosing the clamp screw on each side of the dryer and sliding the dryer to the desired position (only needed for dual dryer usage). The dual dryer frame does not need to move. The left/right adjustment of single dryer will use the telescopic tubing. See left/right adjustment for single dryer in the Dryer Arm Section.

Fixed Lamp Bracket: This bracket is used to mount the lamp on the left side. Its position is fixed.

Spring Mounted Lamp Bracket: This bracket is used to mount the lamp on the right side. It has the ability to move for thermal expansion.

Air Diffuser: This sheet metal component is used to mount the lamp brackets and diffuse the air flowing to the lamps.

6.5 DRYER USAGE

The HeatMate Dryer is setup to provide the most even heating when the bottom of the dryer is 1" off the top surface of the product, however the dryer can be moved up for a greater drying area. If product does not dry with the HeatMate 1" from product, other actions must be taken to get complete drying.

WARNING

Fire Hazard: Always maintain 1"or more gap between dryer bottom and product surface.

Never operate machine without fire extinguisher or operator present.

Some of the actions to aid the drying of product are the following:

1. Decrease conveyor speed.
2. Decrease amount of ink used.
3. Change product type.
4. Increase dryer wattage.

Note: To extend bulb life shut dryer off with manual switch. Turn switch to "air" for 2-3 minutes to cool lamps then turn switch to "off".

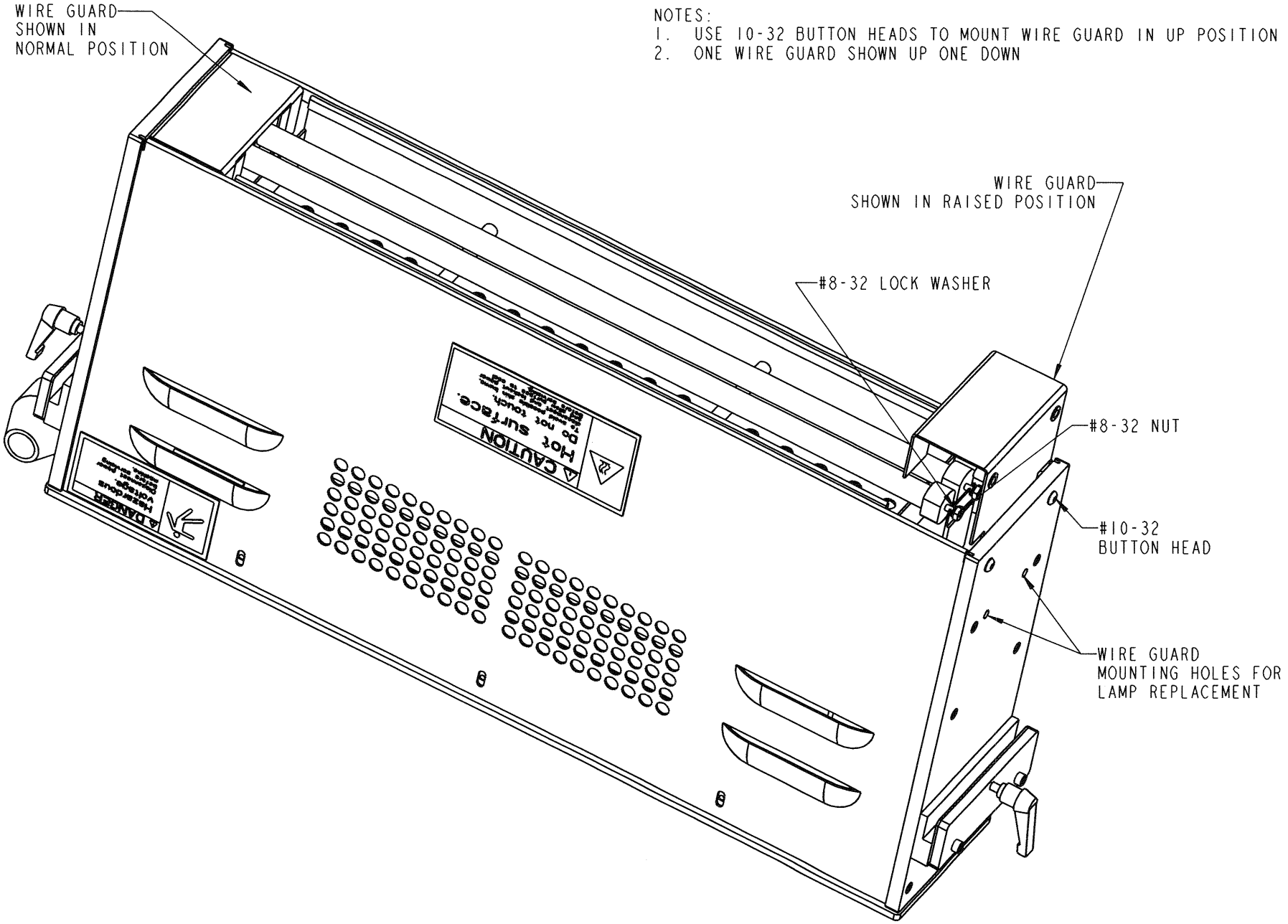


FIGURE #8
LAMP REPLACEMENT
TWO LAMP DRYER SHOWN

drawing file 538705-01

7.0 MAINTENANCE

WARNING

Read and follow all Safety Instructions in Section 1, Page 3 before proceeding.

7.1 LAMP REPLACEMENT (see figure #8)

The following steps should be taken to replace the lamps. **Disconnect power supply before changing lamps.**

WARNING

Always disconnect power supply before any maintenance or service work.

1. Disconnect power supply.
2. The dryer box should be removed from the dryer stand and placed upside down to get easy access to lamps. The dryer should be in the position shown in figure #8.
3. Remove two #10-32 button head screws so the wire guard can be raised.
4. Raise wire guard 2.625" and install #10-32 screws into the holes shown on figure #8 labeled lamp replacement.
5. Loosen #8-32 nuts and remove lamp.
6. **Install lamps with the outside of the gold reflector oriented towards the stainless steel air diffuser (top of dryer as mounted on the machine).** Tighten 8-32 nuts just enough to compress lock washer. Do not over tighten damage to lamp may result.
7. Reverse procedures 4-2 and test new lamps.

7.2 LAMP CLEANING

Lamps should be kept clean as possible for a safe and long life. Cleaning interval will vary depending on the product that is being run. Before cleaning lamps **disconnect power cord.**

WARNING

Always disconnect power supply before any maintenance or service work.

Never touch bottom side of dryer or lamps, until dryer has completely cooled down.

1. Disconnect power supply.
2. The dryer box should be removed from the dryer stand and placed upside down to get easy access to lamps.
3. Clean lamps with isopropyl alcohol and soft dry cloth. **Note: Do not use isopropyl alcohol on gold reflective surface.**
4. Replace dryer.

7.3 CONTROL BOX FAN FILTER (see figure #6)

The control box cooling fan uses a filter so only clean air enter the control box. Check this filter frequently and clean as need. The plastic frame that contains the filter snaps on and can be removed with a flat blade screwdriver. **Note: Failure to clean air filter may result in lamp controller failure.**

7.4 FUSES

WARNING

Always disconnect power supply before any maintenance or service work.

Fuse Specifications

The control box for the dryer has four replaceable fuses; see the following list for fuse specifications.

FUSE LABEL	TYPE OF FUSE/VOLTAGE/AMP RATING
F1A	FAST ACTING AGC / 250V/ 1A
F1B	FAST ACTING AGC / 250V/ 1A
F2	FAST ACTING AGC / 250V/ .5A
F3	SLO-BLOW MDL / 250V/ 1/16 A

Fuse Replacement Procedure

WARNING

Always disconnect power supply before any maintenance or service work.

1. Disconnect power.
2. Remove blown fuse. Remove by unscrewing or flipping up.
3. Replace (screw or flip down) fuse with correct type and amperage.
4. Close control box.
5. Connect power and test unit.

7.5 RECOMMENDED SPARE PARTS

PART#	DESCRIPTION
190234	LIGHT, RED INDICATOR (220VAC)
190949	LAMP, 1600W GLARE REDUCTION
190950	LAMP, 3000W GLARE REDUCTION
202291	RELAY, 24VAC
208016	FUSE, FAST ACTING, 0.5 amp. AGC 250V
208024	FUSE, FAST ACTING 1.0 amp. AGC 250V
208054-1	FUSE, SLO-BLOW, 1/16 amp. MDL 250V
208551-1	METAL OXIDE VARISTOR

8.0 PARTS LISTS AND DIAGRAMS

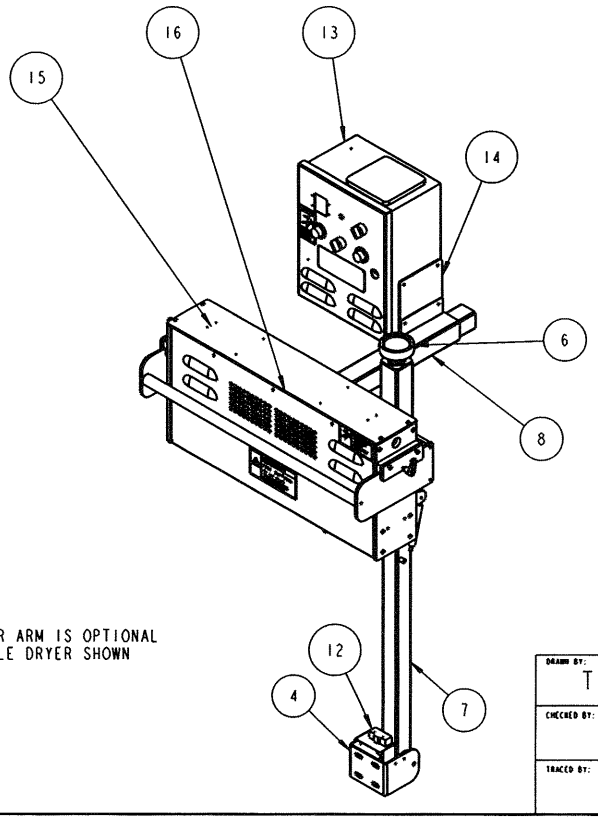
This section contains the entire mechanical bill of materials and assembly drawings.

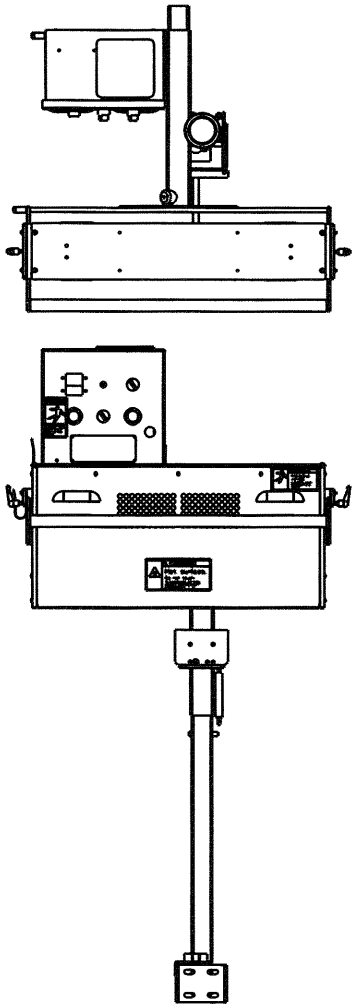
DRAWING #	DESCRIPTION
533708-04	ASSY, KR881 DRYER MOUNT
538792-01	ASSY, DRYER & MOUNTING
538705-01	ASSY, KR DRYER
538721-01	ASSY, SINGLE DRYER SUPPORT
538721-02	ASSY, DUAL DRYER SUPPORT
538722-01	ASSY, DRYER ELECT. CNTRL BOX

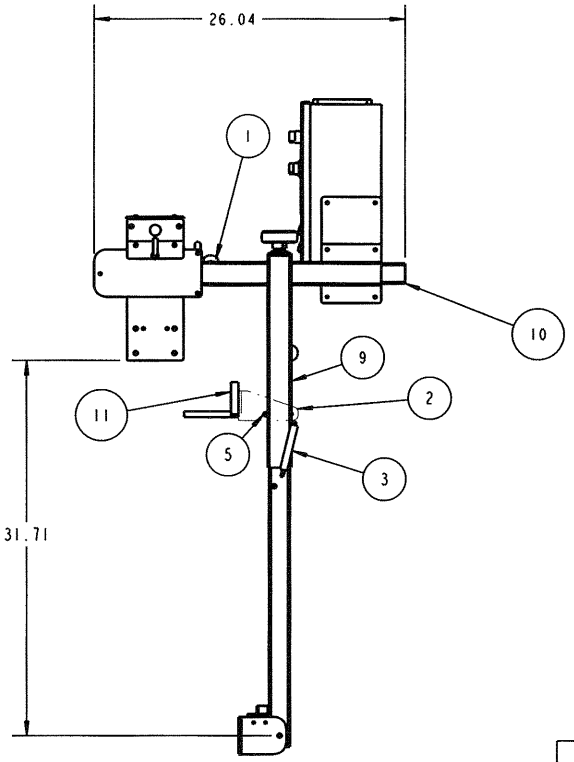
DRAWING #
533708-04

ITEM	QTY	PART #	DESCRIPTION
1	1	532129-01	BLOCK, LOCK DOWN
2	1	532452-01	BRACKET, GAS SHOCK
3	1	532453-01	GAS SHOCK LINKAGE
4	1	532466-01	ASSY, DRYER ARM PIVOT
5	1	532468-01	SHAFT, DRYER STOP
6	1	532736-01	ASSY, SCREW HOUSING
7	1	532738-01	WELD, TUBING DRYER STAND
8	1	532739-02	WELD, TUBING SLIDE
9	1	532741-01	TUBING, BASE
10	1	532744-02	WELD, TUBING IN/OUT ADJ.
11	1	533190-01	ASSY, STOPPER MOUNT BRACKET
12	1	533714-01	ASSY, SWITCH
13	1	538722-01	ASSY, DRYER ELECT. CNTRL BOX
14	1	538734-01	BRACKET, SINGLE DRYER MOUNT
15	1	538791-01	CLAMP, CONDUIT
16	1	538792-01	ASSY, DRYER & MOUNTING

REV NO	DATE	DESCRIPTION	ECN NO	BY







NOTE:
1. DRYER ARM IS OPTIONAL
2. SINGLE DRYER SHOWN

REQ'D	WHERE USED
1	2158

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CHECKED BY:	DATE 16-Jan-01		HEAT TREAT: NONE	MODEL: SP88100	TITLE: ASSY, KR881 DRYER MOUNT
TRACED BY:	MASTER		FINISH: NOTED	SHEET NO: 1OF5	DRAWING # 533708-04

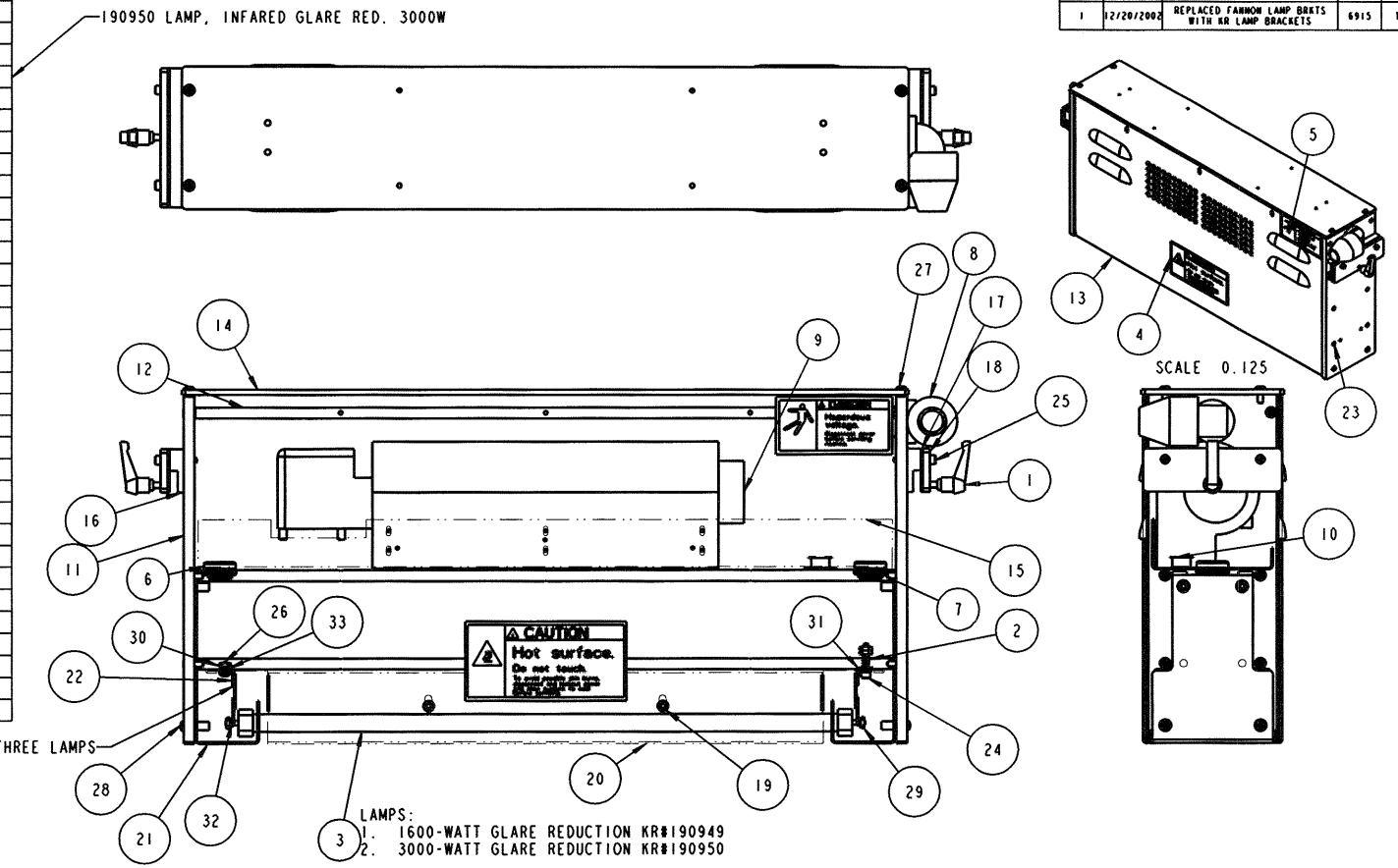
KIRK - RUDY, INC.
KENNESAW, GEORGIA

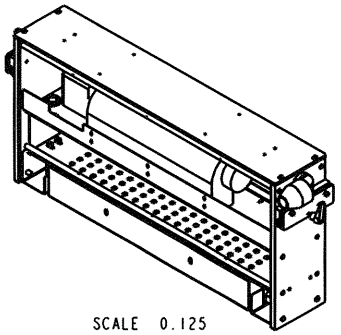
DRAWING #

538705-01

REV NO	DATE	DESCRIPTION	ECN NO	BY
1	12/20/2002	REPLACED FANNOW LAMP BRKTS WITH KR LAMP BRACKETS	6915	TJG

ITEM	QTY	PART #	DESCRIPTION
1	2	102147	HANDLE, RELEASE 1/4-20 X .50
2	2	102700	SPRING, COIL
3	2	190949	LAMP, INFRARED GLARE RED. 1600W
4	2	190953	LABEL, CAUTION HOT SURFACE
5	2	190968	LABEL, VOLTAGE LARGE
6	2	200315	BUSHING, PLASTIC 1/2 IN.
7	2	200332	NUT, STEEL 1/2 IN. CONDUIT
8	1	200363	CONNECTOR, 3/4 IN. 90 DEG.
9	1	208503-2	BLOWER, FAN AC CROSSFLOW
10	1	208515-5	SWITCH, THERMAL AUTOMATIC
11	2	538706-01	PLATE, DRYER ENCAP
12	6	538707-01	SHAFT, SPACER DRYER
13	2	538709-01	PANEL, DRYER SIDE
14	1	538712-01	PLATE, DRYER TOP
15	1	538714-01	PANEL, AIR DIVIDER
16	2	538716-01	BLOCK, SLIDE DRYER
17	2	538717-01	PLATE, SLIDE CLAMP
18	2	538718-01	PLATE, SLIDE LOCK
19	2	538732-01	SHAFT, SPACER HEAT REFLECTOR
20	1	538733-01	WLDMT, HEAT REFLECTOR
21	2	538785-01	ASSY, WIRE GUARD 2 LAMP
22	2	542762-01	ASSY, BRACKET 2-LAMP
23	12	CSDD265	SCREW, SHCS 10-32X.500
24	2	CSDD269	SCREW, SHCS 10-32X1.000
25	4	CSDD270	SCREW, SHCS 10-32X1.250
26	2	CSFF57	SCREW, BUTTON HEAD #10-32X.375
27	4	CSFF58	SCREW, BUTTON HEAD #10-32X.500
28	4	CSFF60	SCREW, BUTTON HEAD #10-32X.750
29	4	HMSN09	NUT, HEX #8-32
30	6	HMSN10	NUT, HEX #10-32
31	2	WA006	WASHER, FLAT #10
32	4	WHS006	WASHER, LOCK #8
33	2	WHS007	WASHER, LOCK #10





NOTES:
1. KR881-1 HEATMATE-3200-WATT SHOWN
2. KR881-3 HEATMATE-6000-WATT REQUIRES LAMP CHANGE ONLY
3. KR881-2 HEATMATE-4800-WATT REQUIRES THREE 1600-WATTS LAMPS, 542762-02 BRACKET TO REPLACE 542762-01 AND WIRE GUARD ASSEMBLY 538785-02 TO REPLACE 538785-01 WIRE GUARD.

QTY	SP81000
REQ'D	WHERE USED

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TRACED BY:	MASTER		FINISH: XXX	SHEET NO. 1OF 4	DRAWING #: 538705-01

KIRK - RUDY, INC.
KENNESAW, GEORGIA

DRAWING #
538792-01

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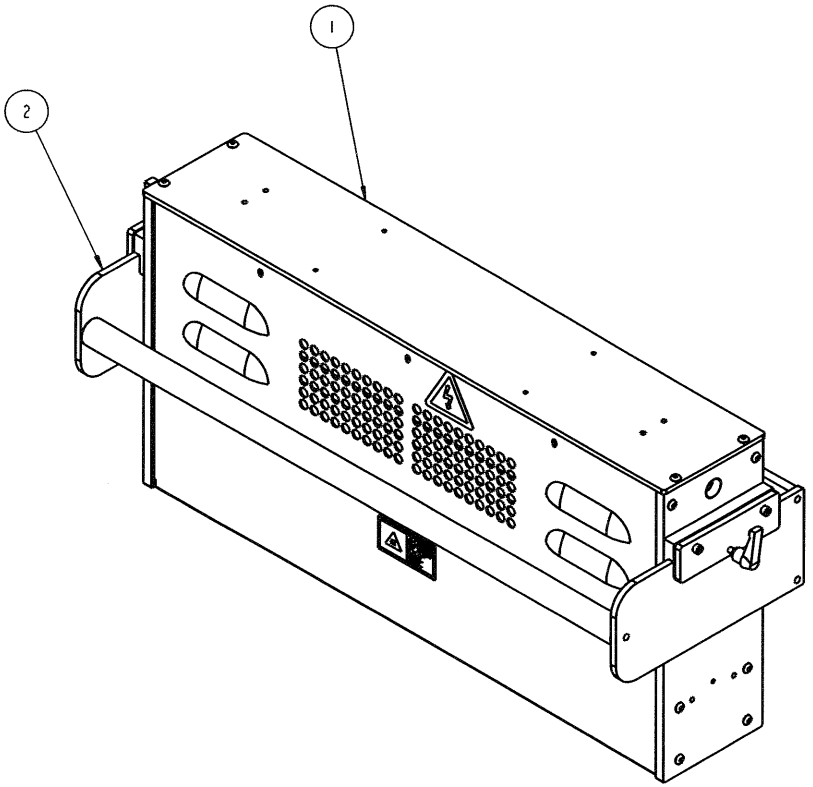
2	1	538721-01	ASSY, SINGLE DRYER SUPPORT



SINGLE DRYER

ITEM	QTY	PART #	DESCRIPTION
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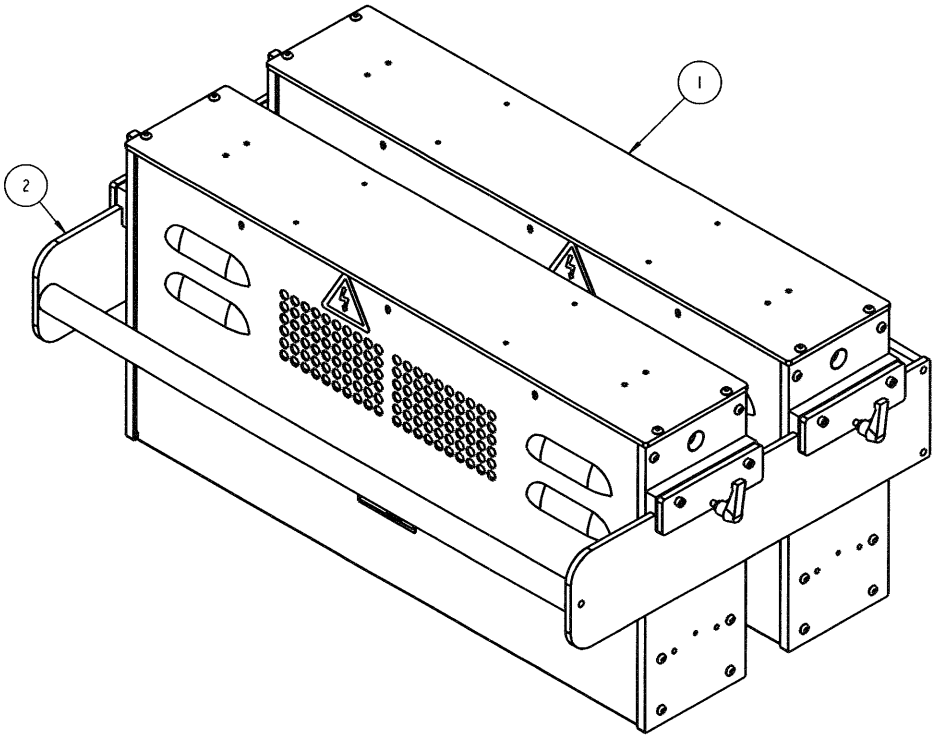
2	1	538721-02	ASSY, DUAL DRYER SUPPORT



DUAL DRYER

X	XXX
REQ'D	WHERE USED

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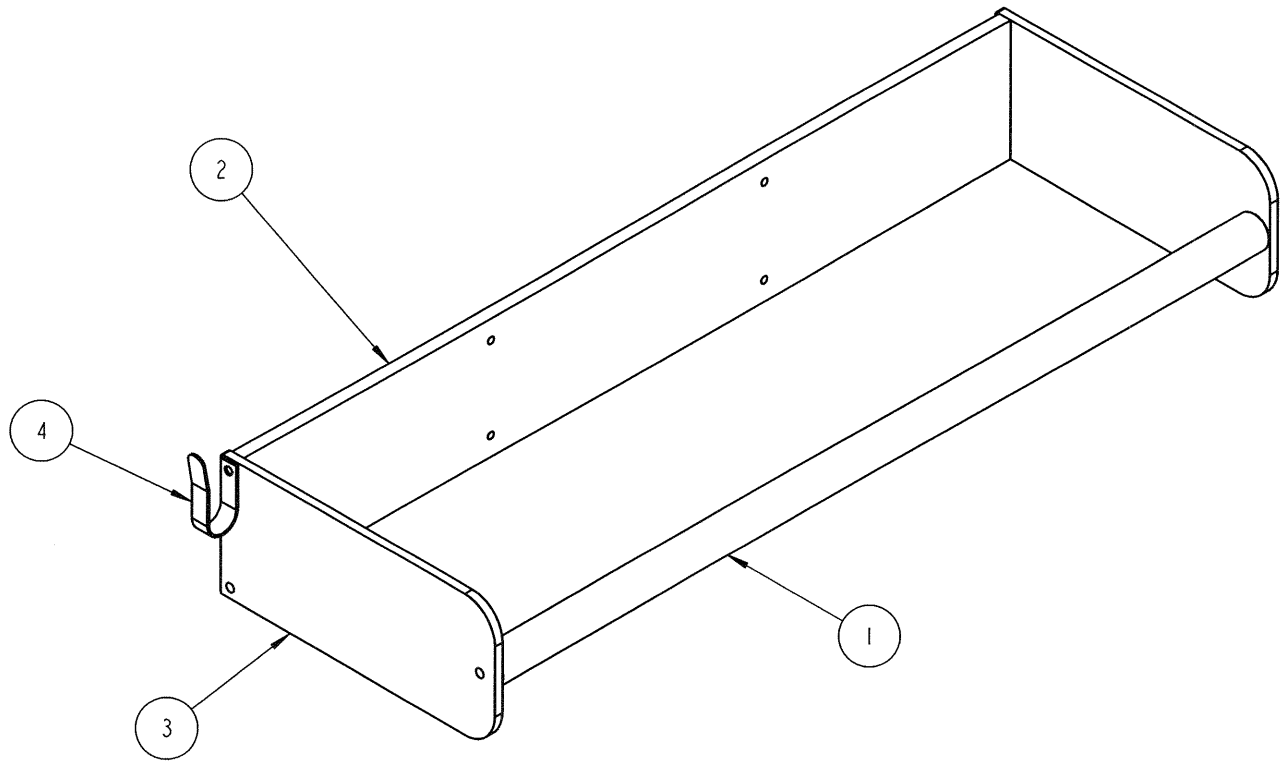
CHECKED BY:	DATE: 16-Jan-01		HEAT TREAT: XXX	MODEL: SP88100	TITLE: ASSY, DRYER & MOUNTING	
TRACED BY:	MASTER		FINISH: XXX	SHEET NO.: 1 OF 1	DRAWING #: 538792-01	

DRAWING #

538721-01

ITEM	QTY	PART #	DESCRIPTION
1	1	533712-02	SHAFT, DRYER HANDLE
2	1	538719-01	PLATE, DRYER SLIDE MOUNT
3	2	538720-01	PLATE, SINGLE DRYER SLIDE
4	1	538791-01	CLAMP, CONDUIT

REV NO	DATE	DESCRIPTION	ECN NO	BY



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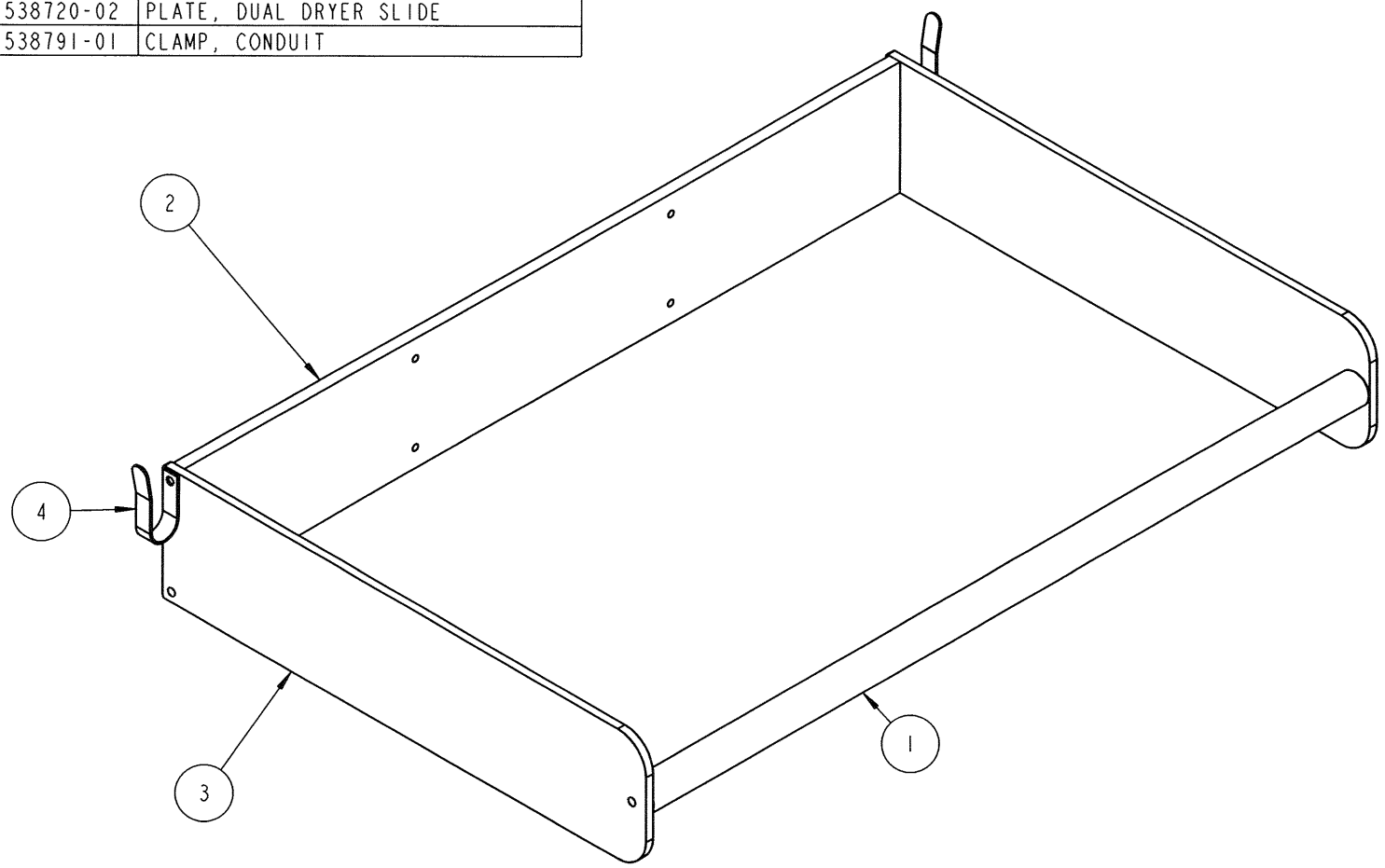
CHECKED BY:	DATE 15-Jan-01			MODEL: SP88100	TITLE: ASSY, SINGLE DRYER SUPPORT	
TRACED BY:	MASTER			SHEET NO.: 1OF1	DRAWING # 538721-01	

DRAWING #

538721-02

ITEM	QTY	PART #	DESCRIPTION
1	1	533712-02	SHAFT, DRYER HANDLE
2	1	538719-01	PLATE, DRYER SLIDE MOUNT
3	2	538720-02	PLATE, DUAL DRYER SLIDE
4	2	538791-01	CLAMP, CONDUIT

REV NO	DATE	DESCRIPTION	ECN NO	BY



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REQ'D	WHERE USED

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CHECKED BY:	DATE 15-Jan-01			MODEL: SP88100	TITLE: ASSY, DUAL DRYER SUPPORT
TRACED BY:	MASTER			SHEET NO.: 1OF1	DRAWING # 538721-02

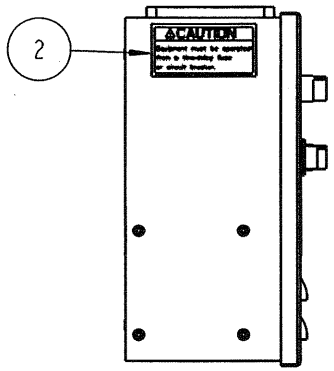
KIRK - RUDY, INC.
KENNESAW, GEORGIA

DRAWING #

538722-01

ITEM	QTY	PART #	DESCRIPTION
1	1	190788	LABEL, VOLTAGE WARNING LARGE
2	1	190969	LABEL, TIME-DELAY FUSE
3	1	208504	FILTER, FAN
4	1	208505	GUARD, FINGER
5	2	209016	KNOB, POT
6	1	190619-1	PLATE, NAME
7	1	201145-1	SELECTOR, 2 POSITIONS
8	1	201145-2	SELECTOR, 3 POSITIONS
9	1	208503-3	FAN, CONTROL BOX
10	1	208504-1	ASSY, FILTER/FINGER GUARD
11	1	538723-01	WLDMT, DRYER ELECT. CNTRL BOX
12	1	538726-01	SUBPANEL, DRYER CONTROL
13	1	538799-01	BRACKET, ISOLATOR BOARD

REV NO	DATE	DESCRIPTION	ECN NO	BY



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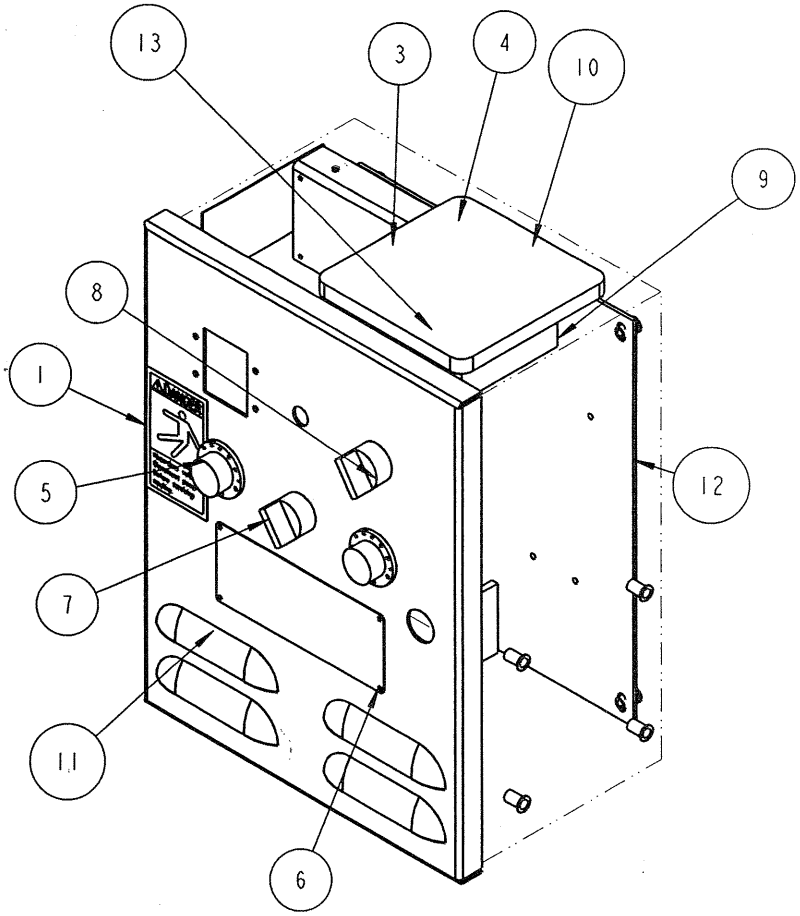

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REQ'D	WHERE USED

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CHECKED BY:	DATE 16-Jan-01	REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED	HEAT TREAT: NONE	MODEL: SP88100	TITLE: ASSY, DRYER ELECT. CNTRL BOX
TRACED BY:	MASTER m	ALL DIMENSIONS ARE FINISHED DIMENSIONS. DO NOT SCALE - WORK TO DIMENSIONS ONLY	FINISH: NOTED	SHEET NO.: 1OF3	DRAWING # 538722-01

KIRK - RUDY, INC.
KENNESAW, GEORGIA

9.0 ELECTRICAL SCHEMATICS AND PARTS

9.1 SCHEMATIC LIST

KR881-1,-2,-3 #200165 01 12

9.2 ELECTRICAL PARTS LIST

Part #	Qty	Description
190234	1	LIGHT, RED INDICATOR (220V)
542762-01	2	ASSY, BRACKET 2-LAMP
542762-02	2	ASSY, BRACKET 3-LAMP
190949	2	LAMP, 16" 1600W GLARE REDUCTION
190950	2	LAMP, 16" 3000W GLARE REDUCTION
200317	1	STRAIN, RELEIF
200365	1	CONDUIT., 3/4" FLEX 5'
200366	2	CONNECTOR, 3/4 STRAIGHT
200368	1	CONNECTOR, 3/4 90 DEGREE
200444	1	RECEPTACLE, 4 FEMALE PIN
201510	1	PLUG, 2 PIN TWIST LOCK
201512	1	2 PIN RECP, FEMALE
201514	1	3 PIN TWIST MALE
201514	1	PLUG, 3-PIN TWIST LOCK
201528	1	3 PIN RECP, FEM
202276	1	RELAYS 24 VDC
202291	3	RELAYS 24 VAC
202437	1	SIGNAL ISOLATOR BOARD
202714	1	TACHOMETER
202733-1	1	POWER CONTROLLER
203034	1	ISOLATION TRANSFORMER
203035	1	ISOLATION TRANSFORMER
203107	1	30 AMP CB
204315	2	10k POTS
208016	1	FUSE, .5 AGC
208024	2	FUSE, 1 AGC
208054-1	1	FUSE, 1/16 MDL
209016	2	POT KNOBS
209150	3	RELAY SOCKETS
209233	5	BLOCK, TERMINALS 10
209234	8	BLOCK, TERMINAL 16
209237	1	BLOCK, GROUND
209245	1	HOLDER, FUSE 24V
209246	2	HOLDER, FUSE 250V
209252	5	BLOCK, TERMINAL 5
209283	1	CABLE, ADAPTER TACH
209284	1	CABLE, ADAPTER SIG. BOARD
209542	15'	WIRE, 18/2 CORD
209544	6'	WIRE, 18/3 CORD
209548	28'	WIRE, 10 AWG BLACK
209554	9.5'	CORD SET, 3/10
2004398	1	PLUG, 4 MALE PIN
200321-1	2	CONNECTOR, STRAIN RELIEF
200327-1	1	CONNECTOR, STRAIN RELIEF
201130-1	2	N/O CONTACTS
201131-1	2	N/C CONTACTS
201145-1	1	2 POS. SEL. SWITCH
201145-2	1	3 POS. SEL. SWITCH
201505-1	1	PLUG, 30 AMP
208503-2	1	FAN, CROSSFLOW
208503-3	1	FAN, 3.1" SQUARE
208504-1	1	FAN GUARD/FILTER
208515-5	1	THERMO SWITCH
209511-3	8'	WIRE, 10 AWG GREEN

10.0 NOTES

11.0 WARRANTY AND SERVICE

WARRANTY

Warranty: Kirk-Rudy warrants to the original retail purchaser that this product is free from defects in the material and workmanship, and agrees to repair or replace, at Kirk-Rudy's option, any defective product within 90 days from the date of purchase. This warranty is not transferable. It covers damage resulting from defects in material or workmanship, and it does not cover conditions or malfunctions resulting from normal wear, neglect, abuse or accident. THIS WARRANTY IS IN LIEU OF ALL OTHER EXPRESSED WARRANTIES OR IMPLIED WARRANTY OF MERCHANTABLITIY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY IMPLIED WARRANTY ARISING OUT OF A COURSE OF DEALING, CUSTOM, OR USAGE OF TRADE.

Limitation of Remedies: If product is proven to be defective within the warranty period stated above, THE EXCLUSIVE REMEDY, AT KIRK_RUDY'S OPTION, SHALL BE TO REFUND THE PURCHASE PRICE OF OR TO REPAIR OR REPLACE THE DEFECTIVE PRODUCT, provided that the defective product is, at Kirk-Rudy's choice, returned immediately to Kirk-Rudy or authorized service representative designated by Kirk-Rudy, or made available at user's premises in a location suitable for servicing.

Limitation of Liability: Kirk-Rudy shall not otherwise be liable for any losses or damages, whether direct, indirect, special, incidental, or consequential, regardless of the legal or equitable theory asserted, including contract, negligence, warranty, or strict liability.

To obtain replacement parts and service, contact an Authorized Kirk-Rudy Dealer. Use Kirk-Rudy part numbers when ordering.

USE ONLY GENUINE REPLACEMENT PARTS

For Service or Replacement Parts Please Call:
Kirk-Rudy @ 770-427-4203

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