

# IA-1 INDUCTION ANNEALER

## OPERATORS MANUAL



**MADE IN THE U.S.A.**

**WM** **W** RIGHT **M**ACHINE

# IA-1 INDUCTION ANNEALER

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# IA-1 INDUCTION ANNEALER

## LIMITED WARRANTY

*This machine is warranted against defects in workmanship and materials under normal use and proper maintenance, for one year, after date of purchase from WRIGHT MACHINE TOOL CO. Any part which is determined to be defective, and is returned to WRIGHT MACHINE TOOL CO. (shipping costs prepaid) will be repaired or replaced, at the option of WRIGHT MACHINE TOOL CO.*

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# IA-1 INDUCTION ANNEALER

## GENERAL SAFETY RULES

**Failure to follow the Safety Rules and other basic precautions, may result in serious injury.**

**Always use eye protection:** When operating this machine, eye protection should be worn. Also face or dust mask if operation is dusty. Use adequate ventilation.

**Use ear protection:** If operation is creating excessive noise.

**Disconnect power:** To machine when NOT in use.

**Keep clear:** Of pinch points when machine is running.

**Saws are sharp:** Wear appropriate personal protective equipment when handling saw blades.

**Hot metal and sparks:** Can cause burns. Wear correct eye, ear, and body protection. Allow equipment and work to cool before handling.

**Dress properly:** Do not wear loose clothing or jewelry. Nonskid foot wear is recommended. Wear protective hair covering to contain long hair.

**Avoid dangerous environments:** Don't use in wet location. Keep work area well lit. Do not use this machine in the presence of flammable liquid or gases.

**Keep children away:** Do not let VISITORS contact this machine.

**Keep work area clean:** Cluttered areas invite accidents.

**Never stand on this machine:** Serious injury could occur if the machine is tipped.

**No Magnetic Devices Near the Operator Interface :** The GOT1000 touch panel contains internal circuitry along with an LCD Display that is sensitive to high magnetic fields. There must be a minimum distance of 2 meters from any magnetic device and the GOT1000 touch panel.



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## GENERAL SAFETY RULES (CONTINUED)

**All electrical covers:** Must be in place before applying electrical power to this machine. Electrical service must be locked out prior to removing any electrical covers or machine guards. Access to electrical components must be restricted to trained personnel only to avoid possible electrical shock.

**Voltage greater:** Than specified on name plate can result in serious injury to user.

### **WARNING!**

**Magnetic fields from high currents can affect pacemaker operation. Wearers should consult with their doctor before going near this welding machine.**

Due to the nature of weld operation, a noncombustible floor is required. Saw dust and other flammable materials must be kept at a safe distance from this machine.

Follow safety precautions for the coolant and material being welded. This information is available on the Safety Data sheet for each of these products.



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## SAFETY

- Never carry out annealing operations on metal pieces that have been in contact with toxic combustible products; such pieces must be carefully cleaned before undergoing any annealing operations.
- Maximum care should be taken to avoid incandescent metals coming into contact with combustible materials.
- Ensure that there is adequate fire-fighting equipment sufficiently close to the working area.
- All combustible materials must be removed from the working area and placed at a safe distance.
- During the generating phase do not allow limbs or other parts of the body bearing metal to come near the annealing coil. The minimum safety distances of 20" inches must be maintained during generator activation.

## MAINTENANCE WARNINGS

- Do not wash the device with liquid detergents or chemical substances. Any cleaning should be done using a lightly-damp non-abrasive cloth.
- Before any maintenance, cleaning or movement, the device should be first disconnected from all sources of power.

## RESIDUAL RISKS

- In particular, direct or indirect contact with the annealing inductor must be prevented, and the following minimum safety distances must be maintained during generator activation: 2" inches for metal objects and parts of the body. Risk of burns may occur at distances less than the above limit.

**STRONG MAGNETIC FIELDS** can affect pacemakers. Wearers of pacemakers, cardiac defibrillators and other life supports shall not operate in proximity of the annealer. Wearers should consult their doctor before operating.



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## SPECIFICATIONS

STANDARD VOLTAGE:	230 Volt, 1 Phase, 30 AMP, 60 HZ
OPTIONAL VOLTAGE:	None
SHIPPING WEIGHT:	300 lbs / 136 kg
CRATE SIZE:	L 48" X W 52" X H 64"
AIR REQUIREMENTS:	None
STANDARD SAW SIZE:	10"-34"/ 254mm-864mm



# IA-1 INDUCTION ANNEALER

## FEATURES

The Wright Machine Tool "IA-1" accurately anneals stellite tipped circular saws. Heavy duty construction increases accuracy, productivity, and machine life. Machine control is handled by an advanced computer "PLC". Indexing accuracy is accomplished through the use of a precision optical encoder and an 1/8HP variable speed gear motor. The Annealing unit is a compact device that is manufactured using solid-state technology and each has an embedded microprocessor. This guarantees stable power output as well as optimum operating frequency. The microprocessor also performs monitoring and diagnostic functions to inform the user of device status. The "IA-1" can anneal saws ranging from 10" to 34".

The "IA-1" features include\*:

- Electric Linear Actuated Saw Lift
- Automatic Shut Off when saw is finished
- 1/8 HP Industrial Gear Motor With Rotary Encoder
- Advanced Operator Touch Panel
- Exclusive self teach Mode
- Advanced PLC
- Constant, repeatable power generation via microprocessor control

## Notice

GA-2 product and the information in this user guide are the proprietary property of Wright Machine Tool Co. or its licensors and may not be copied, disclosed, or used for any purpose not expressly authorized by the user thereof.

Wright Machine Tool Co. is constantly seeking ways to improve its entire product line of machinery, and therefor reserves the right to change this manual and hardware mentioned therein at any time without notice.

**SAFETY FIRST!**





# IA-1 INDUCTION ANNEALER

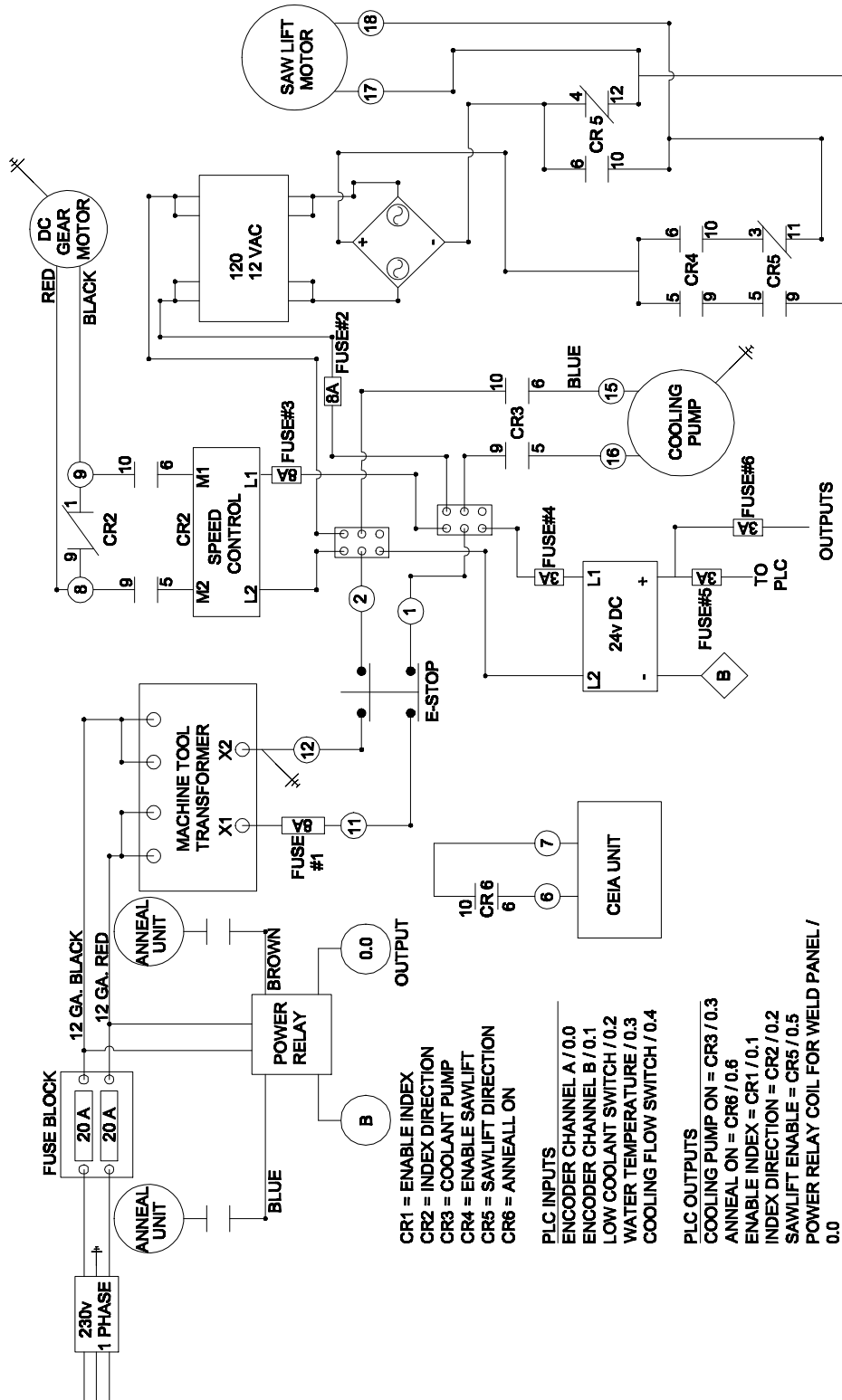
## SET UP INSTRUCTIONS

- 1) With the saw guide assembly set to it's highest point and the Anneal head tipped out of the way load saw blade onto the proper centering devise.
- 2) On the touch screen push "Position Saw" and adjust the saw up or down using the arrows until the saw tip is located between 1/4" and 1/2" above bolt head on inside bearing guide.
- 3) Adjust Anneal head over tooth so that the radius on the coil lines up with the weld area. Left and right arrow keys on the touch screen can be used for fine adjustment of the saw rotation. Once the saw is in place press "BACK TO MAIN".
- 4) Drop the front saw guide assembly against the saw.
- 5) Select the number of teeth for your saw by pressing the box in front of the "Number of Teeth" on the touch screen. After a value has been entered press enter.
- 6) Select Anneal time by pressing the box in front of "Anneal Time" on the touch screen. After a value has been entered press enter.
- 7) Select Anneal power by pressing the up and down arrows on the Annealing unit below the control panel. 50% is a suggested starting place.
- 8) Set Speed control knob to 10 or less. This setting can change the index position. For best results select a position and do not re-adjust!
- 9) Manual set up will allow the operator to check the index setting by pressing the index button and looking at the position of the tooth in relation with the Anneal coil.
- 10) Pressing the Anneal button and holding it until desired Temperature is reached will set a new value in the Anneal time. This feature is called "Teach to Anneal".
- 11) Auto will start the cycle process. Stop will stop the cycle process.



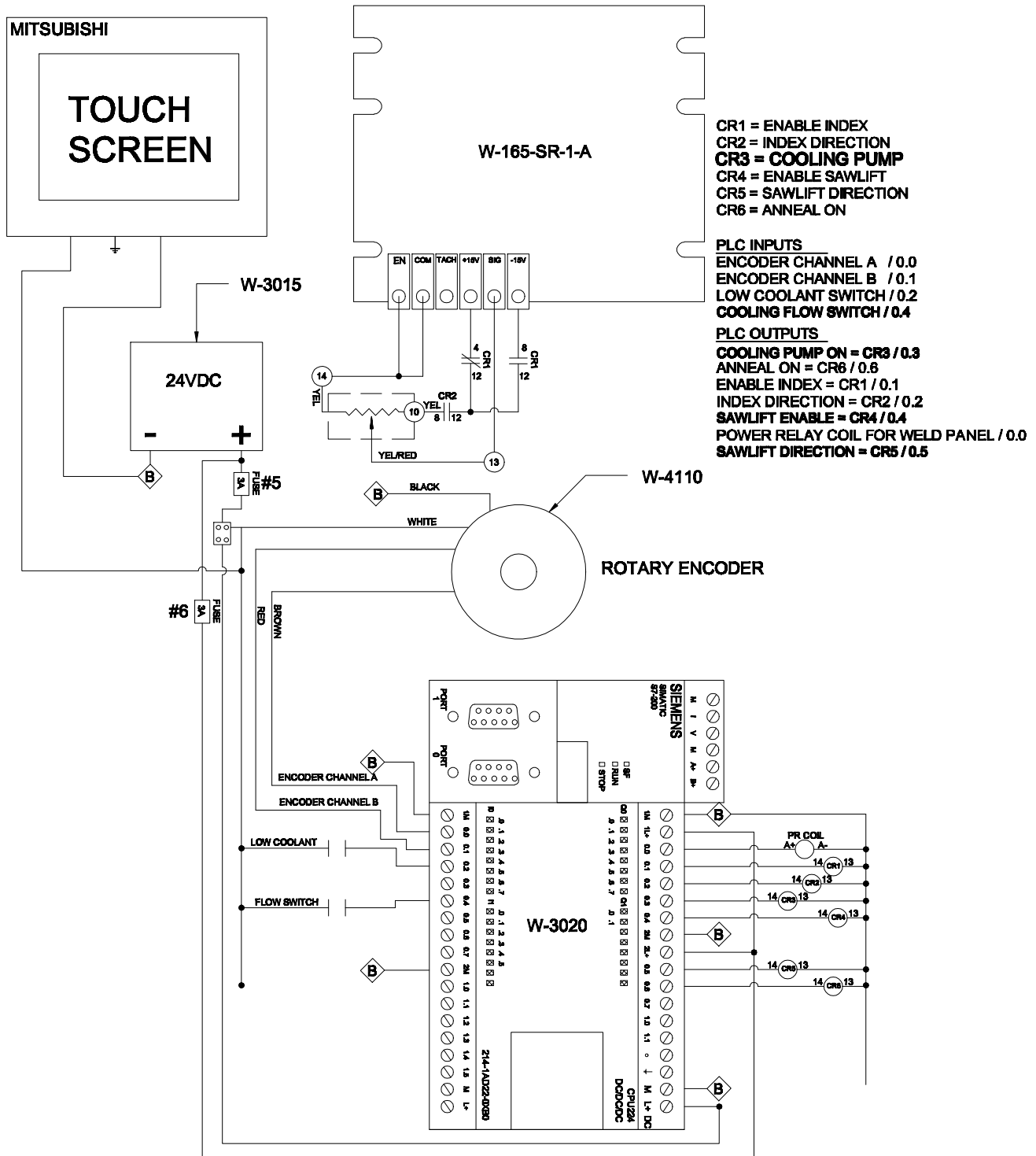
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## ELECTRICAL SCHEMATIC



# IA-1 INDUCTION ANNEALER

## ELECTRICAL



# IA-1 INDUCTION ANNEALER

## ELECTRICAL

### I/O PLC WIRING

#### INPUTS

0.0 = ENCODER CHANNEL A  
0.1 = ENCODER CHANNEL B  
0.2 = LOW COOLANT LEVEL SWITCH  
0.3 =  
0.4 = FLOW SWITCH  
0.5 =  
0.6 =  
0.7 =  
1.0 =  
1.1 =  
1.2 =  
1.3 =  
1.4 =  
1.5 =

#### OUTPUTS

0.0 = POWER RELAY COIL FOR ANNEAL UNIT  
0.1 = CR1 / ENABLE INDEX (COIL)  
0.2 = CR2 / DIRECTION (COIL)  
0.3 = CR3 / COOLANT PUMP (COIL)  
0.4 = CR4 / ENABLE SAWLIFT (COIL)  
0.5 = CR5 / DIRECTION SAWLIFT (COIL)  
0.6 = CR6 / ANNEAL ON (COIL)  
0.7 =  
1.0 =



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## ANNEALER MAINTENANCE

### DISPLAY MESSAGES

#### Machine in stand-by

When working normally, with the generator in stand-by, the Annealer display shows which head of the two has been selected and which was the power programmed for the head.



Head 1 selected,  
delivered power = 99%

#### Self-diagnosis messages

In case of failure, the display shows a message referred to the problem; for decoding this message and solving the problem, please see fault codes listed below.



Self diagnosis message A1:  
water temperature to high

DISPLAY	FAULT	CAUSE	POSSIBLE INTERVENTION
<b>A1</b>	Water temperature too high. The display give the temperature of the cooling water, alternating to the self diagnosis message.	Malfunction of the cooling unit	Check the temperature of cooling water that have to be less than 50° (intervention threshold = 65°C)
<b>A2</b>	Tuning failure		Contact Wright Machine Tool
<b>A3</b>	Absence of water cooling	The flow of cooling water has stopped	Check for water in the cooling unit. Check the presence of blocking-up in the generator inlets and outlets.
<b>A4</b>	Short circuit of lead wire	Short circuit in the inductor Small dimensions of the inductor	Check the absence of short circuit of lead in wires Increase coil dimensions
<b>A5</b>	Decrease coil size	Too big dimensions of the inductor	Decrease coil dimensions. Decrease at the maximum the distance between the rims of the head. Diminish the length (centimeter by centimeter). The reduction of length of the head spouts must be carried out <b>only in the event that the shape of the coil cannot be changed for the type of processing in progress and when the distance between the lead-in wires has been checked.</b>
<b>A6</b>	Power circuit failure	Possible break down of an internal component	Contact Wright Machine Tool



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## ANNEALER MAINTENANCE

DISPLAY	FAULT	CAUSE	POSSIBLE INTERVENTION
<b>A7</b>	Disconnected head	Disconnected head	Check the connections between the heads and the electronic unit.
<b>A10</b>	Line voltage too low		Insert (between the mains and the heater) a transformer with an input voltage equal to that available on the line and an output voltage 220V~
<b>A11</b>	Line voltage too high		
<b>A12</b>	Slave unit not available	The slave unit is not connected correctly, is turned off, or signals a self diagnosis message (A-1 or A-3)	Check and, if necessary, reset the presence of the three power supply phases and the correct ignition of the three generator units. In the event that either one or both of the SLAVE units presents a self diagnosis message (A-1 or A-3), carry out the related tests as indicated in this table. Check and, if necessary, reset the connection of the CO11 serial cables between the generator units.
	Communication failure	The SLAVE unit is not correctly receiving data from the MAIN UNIT.	Check and, if necessary, reset the presence of the three power supply phases and the correct ignition of the three generator units. Check and, if necessary, reset the connection of the CO11 serial cables between the generator units.
<b>T0</b>	Duty cycle too high (only on Spectacle Frames line Models)	Continuous activation of the generator or insufficient pause among consecutive working cycles.	Start the generator up in an intermittent way.

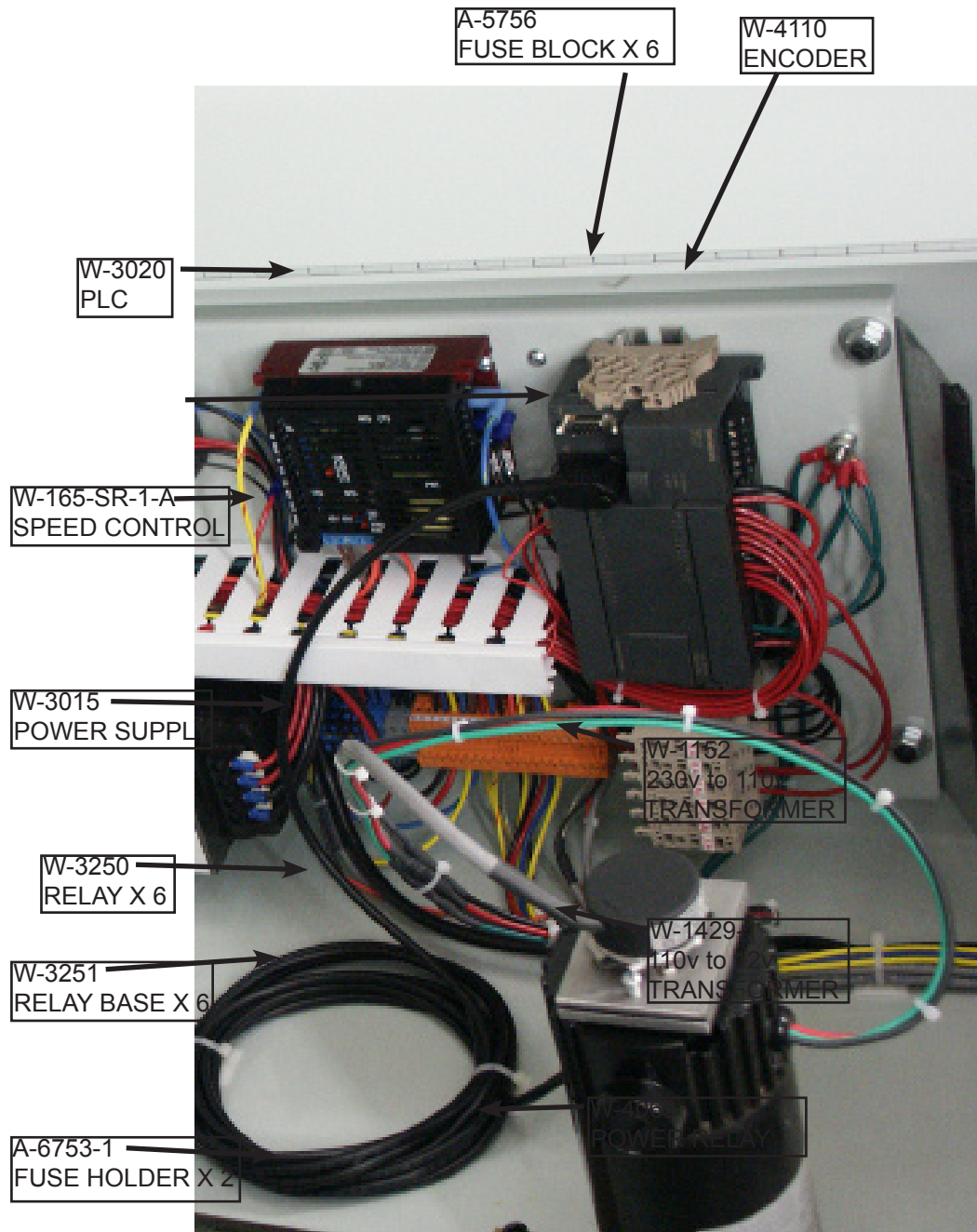


**W** RIGHT

**M**ACHINE

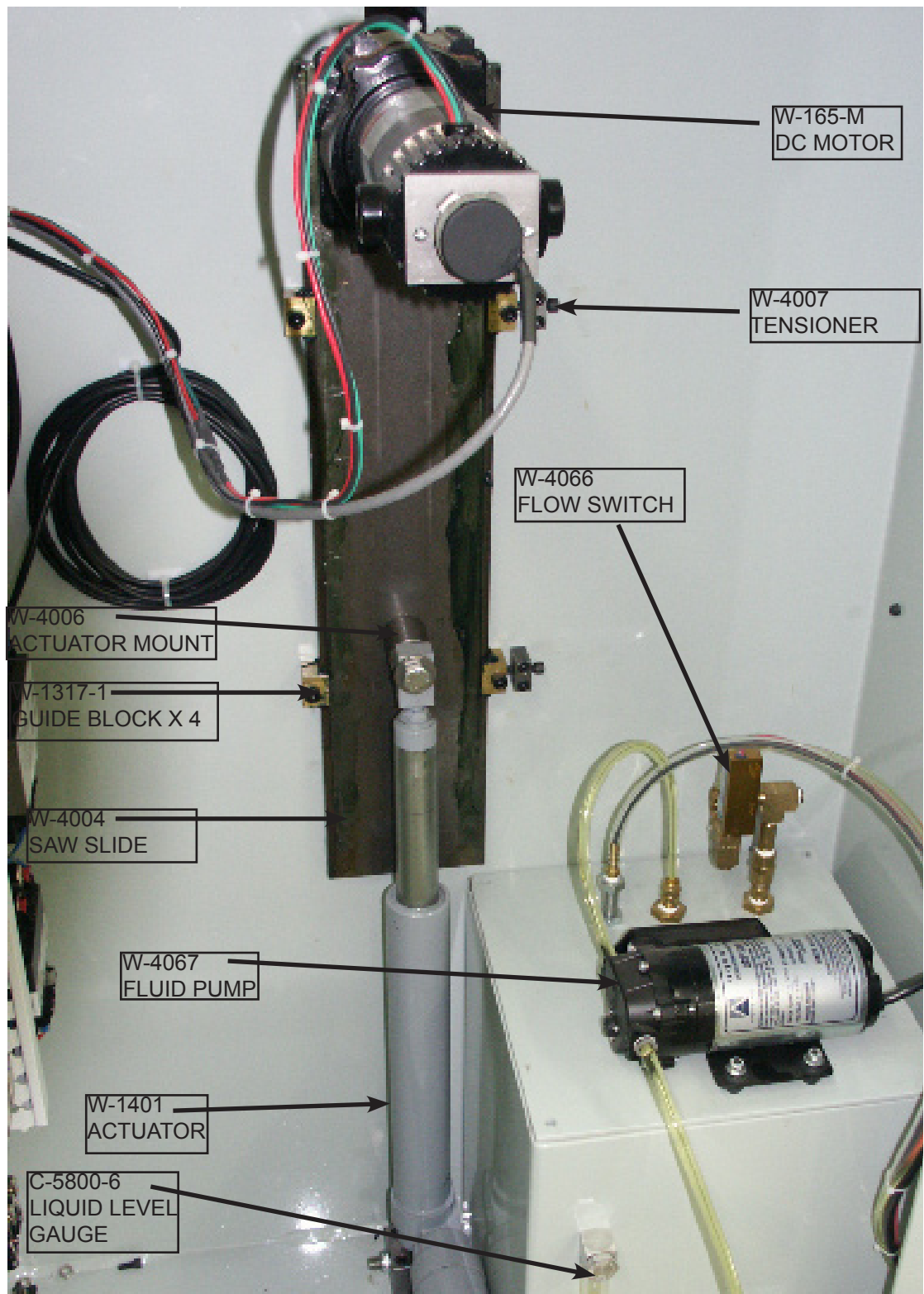
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## ELECTRICAL PANEL



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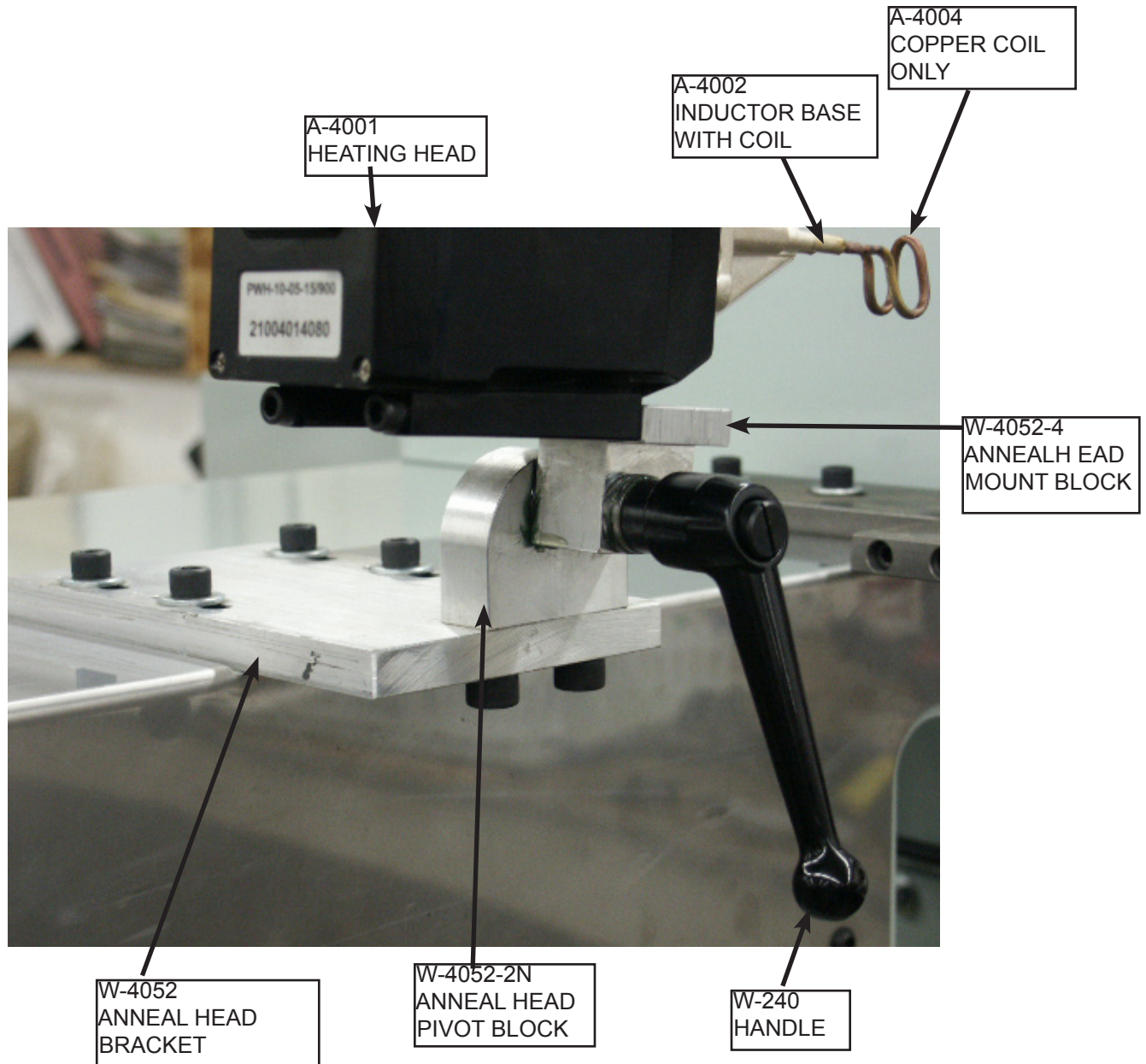
## SAW LIFT AND COOLANT TANK

**WM****W** RIGHT**M**ACHINE



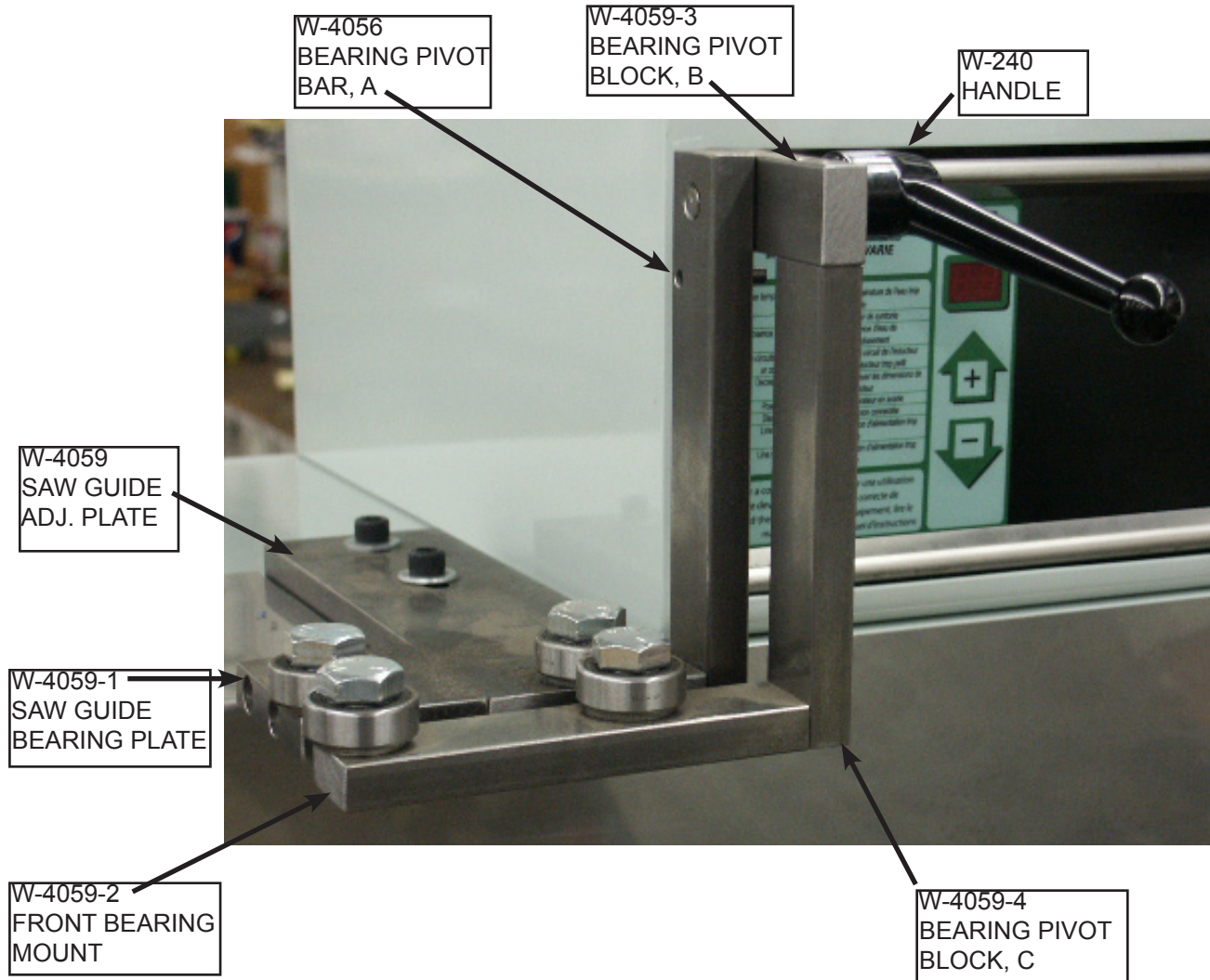
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## ANNEAL HEAD



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## SAW GUIDE ASSEMBLY



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## CONTROL PANEL



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