

# **POWER PINNER 7005 OPERATOR'S MANUAL**



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## **INTRODUCTION**

The Gripnail 7005 automatic pin welding machine was designed to require minimum maintenance. It has evolved from the previous models; taking all of the best features and addressing the customers' issue of adjustments and maintenance. This model uses a proximity sensor to detect the transfer block location. The sensor is connected to quick disconnect cables that indicate the sensor's operating state. This feature saves valuable time if troubleshooting is necessary. All hose connections between valves and cylinders use push-fit type fittings. These fittings save maintenance time if lubrication or replacement is required on any item.

## **OPERATOR SAFETY**

Proper safety precautions must be observed with any piece of equipment. This section contains several guidelines designed to ensure operator safety. Follow these directions at all times.

**REMEMBER—SAFETY FIRST!**

## **FIVE SAFETY RULES**

1. **DO NOT OPERATE** this machine without all covers and guards in place.
2. **DISCONNECT** all electrical power and compressed air sources before servicing.  
Follow OSHA standard 1910.147 "CONTROL of HAZARDOUS ENERGY (LOCKOUT/TAGOUT)"
3. **TROUBLESHOOTING** should be done by qualified personnel only.
4. **THE OPERATOR** should always wear the personal protective equipment as outlined by his/her employer, such as eye and ear protection, to avoid injury.
5. **MAINTAIN** the equipment in good operating condition.

## SYSTEM REQUIREMENTS

ELECTRICAL: 190, 208, 230 VAC/60 HZ/1Ø  
31.0, 28.4, 25.5 AMPS  
(Recommend using a 50 Amp, slow blow Disconnect)

PNEUMATIC: 40-55 PSI @ 1 CFM

## INSTALLATION INSTRUCTIONS

1. Place machine on a hard, flat, level surface. If the surface is irregular and shimming is required, use steel (sheet metal) to make shims. Normal vibratory parts feeder operation requires the machine to be stable and solidly supported. **DO NOT USE** cardboard, plywood, particle board, other composite wood products or soft materials as shim stock.
2. Place bowl feeder on machine into spaces provided, noting location of bowl exit. Wire the bowl feeder to Wires 2, 5 & GND located in the Junction Box on the top of the machine. (See Figure 1)
3. Ensure a 1/8 inch clearance gap exists between the feeder bowl exit and the entrance to the track assembly.
4. Attach the 1/4 inch wing nut and washer to the 2-1/2 inch screw to retain the lower guard.
5. Install the front guard using the four (4) 1/4 inch truss head screws provided.
6. Connect air. Safety Note: Quick disconnect air fittings are recommended. *ALWAYS* install the *free flowing* MALE connector onto the machine. This will permit immediate exhausting of air from the machine when disconnected from the shop supply.
7. Connect electricity to the disconnect switch located inside the Electrical Enclosure on the door. (See Figure 2) Measure the voltage at the customer supplied fused disconnect. Set the jumper on the terminal strip (190, 208 or 230) to match the incoming voltage.

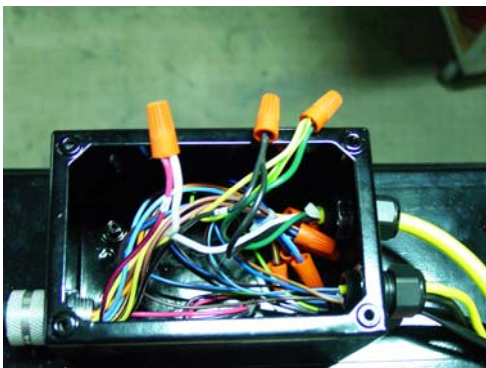


Figure 1

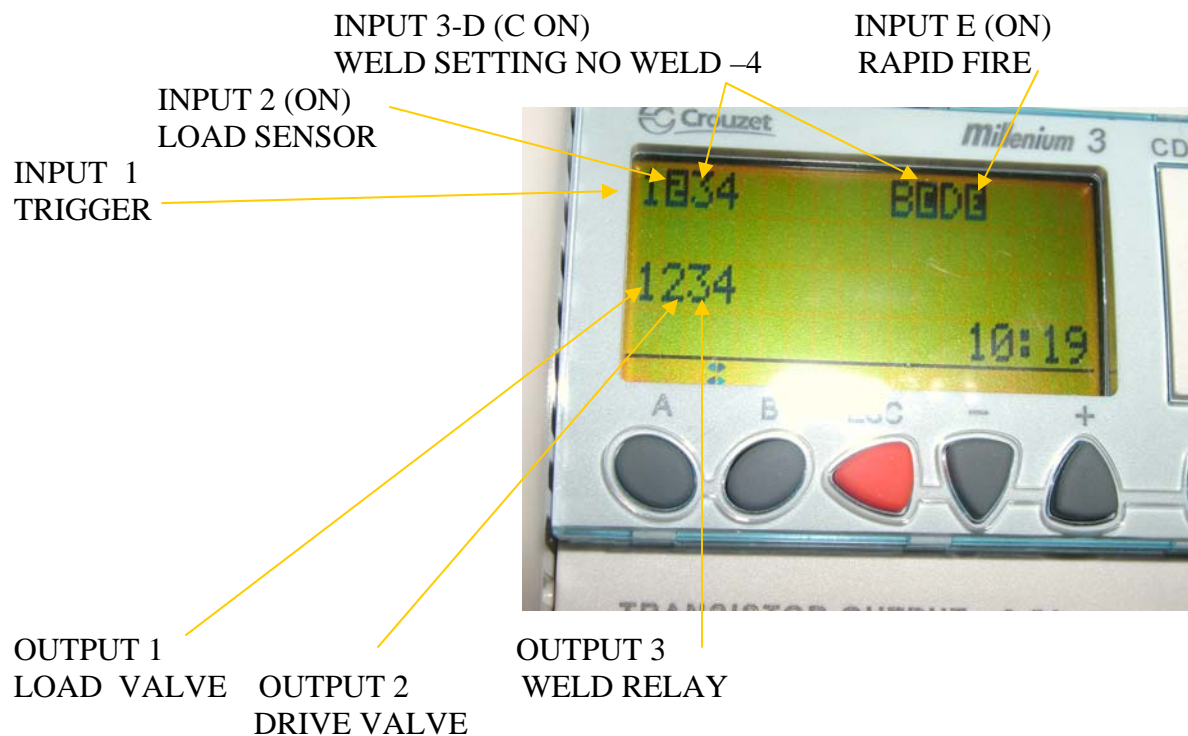


Figure 2

## MAINTENANCE

1. DRAIN water from filter/regulator assembly DAILY.
2. REMOVE accumulated fiberglass and adhesive buildup from the magnetic driver and track daily or as required.
3. Check for loose hardware and tighten as required.

## PLC INPUTS & OUTPUTS



## SEQUENCE OF OPERATION

1. Input 2 (Load Sensor) AND Input 3 OR 4 OR B OR C OR D MUST be on.
2. Input 1 (Foot or Trigger) is activated momentarily or continuously held.
3. Output 2 (Drive) turns on.
4. Output 3 (Weld Relay) turns on and stays on based on the time setting from Input 3-D.
5. Output 3 (Weld Relay) turns off.
6. Output 2 (Drive) turns off.
7. Output 1 (Load) turns on.
8. Input 2 (Load Sensor) turns off.
9. Output 1 (Load) turns off.
10. Input 2 (Load Sensor) turns on.
11. Input 1 (Foot or Trigger) must be off after Step 9 to restart the sequence (if RAPID FIRE off).

## **TROUBLESHOOTING**

### **A. Drive head doesn't operate after foot pedal is depressed.**

1. Check incoming power connection and ON switch. Page 12.
2. Is air connection and/or shop supply valve open?
3. Is the load proximity sensor indicator lights ON? Page 10.
  - a. If not ON, check for loose cable connections or components.
  - b. If not ON, check 24 Volt DC power supply in control box. Page 11.
4. Check drive valve fuse #3.
5. Is the foot pedal input light (I1) and drive valve output light (O2) ON when the foot pedal is depressed. Page 11.
6. Check internal connections in foot pedal and external cable condition. Page 15.

### **B. New weld pins do not load onto drive head.**

1. Check the drive cylinder and magnetic driver. If either is discovered loose, readjust and tighten. See page 8.
2. Check load valve fuse #4.
3. Turn OFF all power and air, then manually check load cylinder for binding.

### **C. Vibratory feeder bowl doesn't operate.**

1. Check the position of the speed control setting.
2. Check the sensor on track.
3. Check the feeder bowl control fuse (3 amp). Page 11.

### **D. Improper weld.**

1. Adjust weld setting. Page 12.
2. Clean upper and lower weld tips.
3. Check the weld transformer is set on the correct taps to match incoming voltage.

## WELD SETTING ADJUSTMENTS

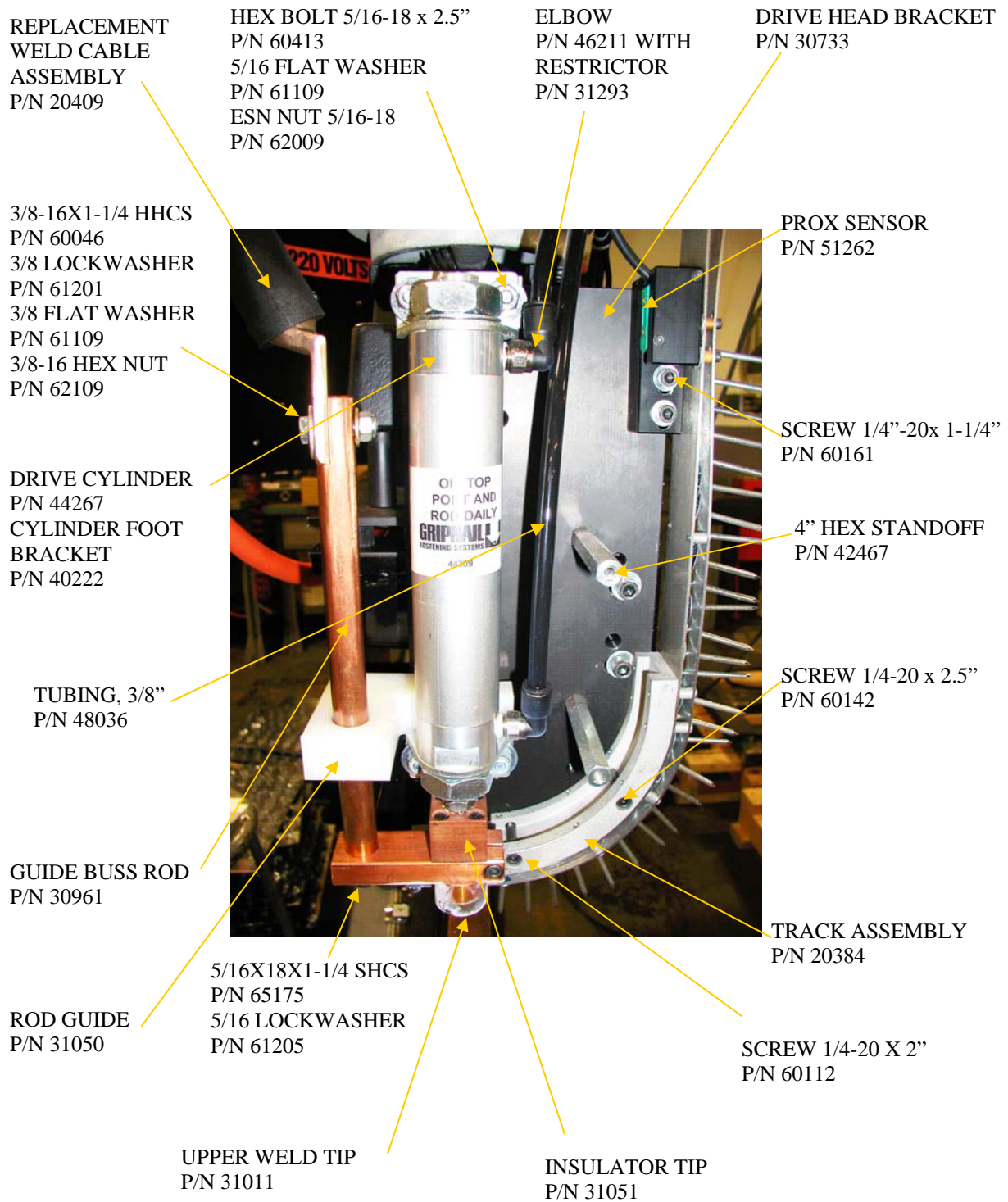
1. With the power "ON", set the WELD SETTING switch to correspond to the pin being fastened. (Note: These setting are reference starting points only.)

PIN	SETTING
57	1
107	1-2
127	2
137	2-3
157	3
207	4

2. Place the sheet metal flat on the lower electrode and press the foot pedal.
3. Make several test welds to insure uniform and proper welds.
4. The WELD SETTING switch also has a NO WELD position. This disables the weld circuit to test functions of the rest of the machine cycle.

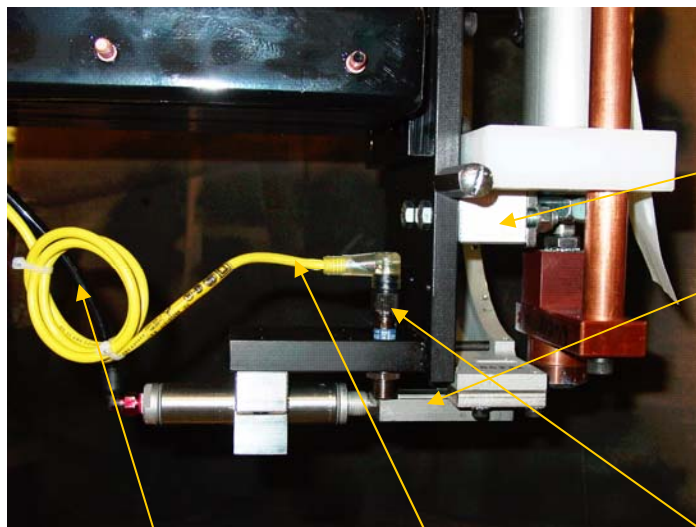
## GRIPNAIL MODEL 7005 AUTOMATIC PIN WELDER

### DRIVE HEAD ASSEMBLY





## LOAD CYLINDER ASSEMBLY



CYLINDER SPACER  
BLOCK  
P/N 31049

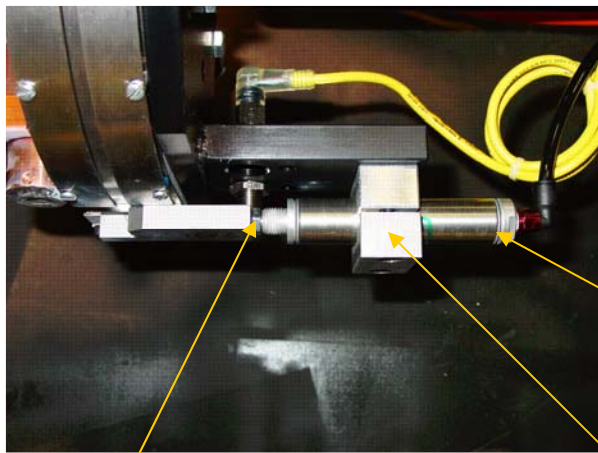
TRANSFER BLOCK  
P/N 20364

FRONT GUARD  
P/N 31038  
NOT SHOWN

1/4" TUBE  
P/N 48025

PROXIMITY SENSOR CABLE  
P/N 51269

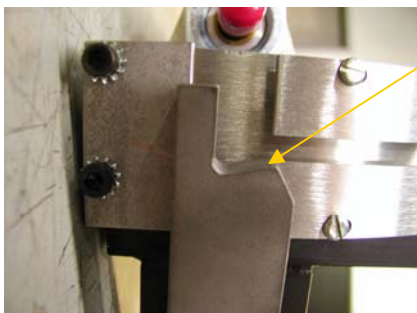
PROXIMITY SENSOR  
P/N 51268



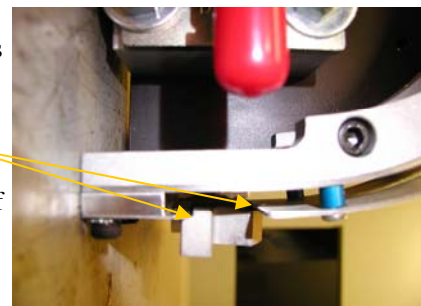
LOAD CYLINDER  
P/N 44257

JAM NUT 1/4"-28  
P/N 62202

LOAD CYLINDER PLATE P/N 30126

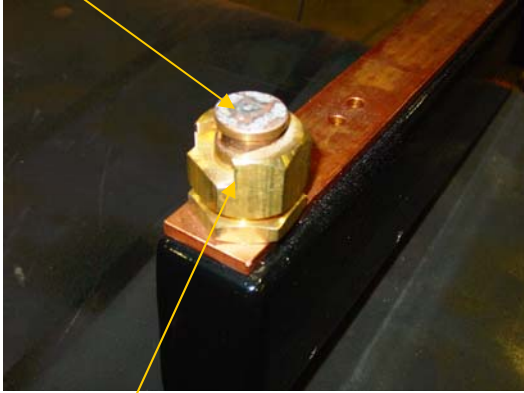


Position the Transfer Block so this point intrudes on the Pin path by approximately 1/32".  
Rotate the Transfer Block to horizontal, to assure the top key section equally engages the bottom of the Track .

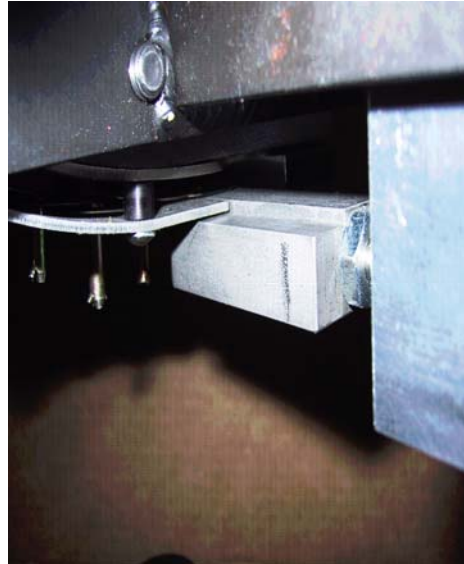


## GRIPNAIL MODEL 7005 AUTOMATIC PIN WELDER

LOWER WELD TIP  
P/N 31032

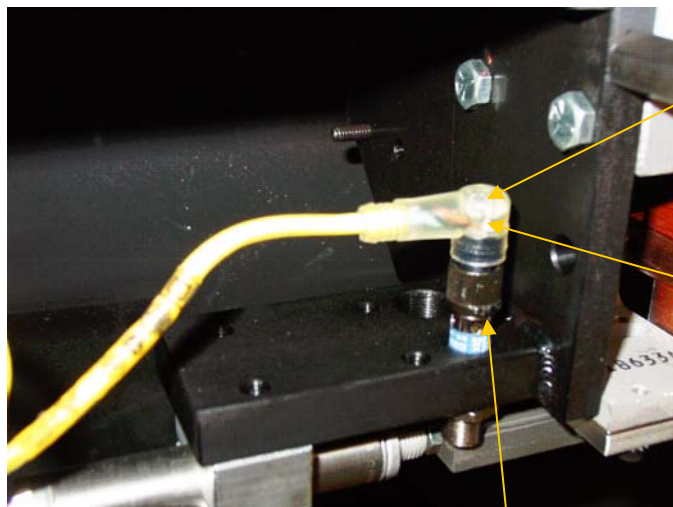


The transfer block fits into the track for easy alignment.



ELECTRODE  
NUT  
P/N 31278

The sensor cables, shown below, contain two (2) light emitting diodes (LED's). The GREEN indicates the power is ON. The YELLOW indicates the sensor is activated by its target. This will help troubleshooting in the event a miss adjustment or other service requirement.



GREEN  
LED

YELLOW  
LED

LOAD RETURN  
SENSOR

## ELECTRICAL ASSEMBLY

IMAIN POWER  
35 A MP FUSES  
P/N 51299  
FUSE 1&2

REPLACEMENT  
POWER CABLE  
ASSEMBLY  
P/N 20415

REPLACEMENT  
GROUND CABLE  
ASSEMBLY  
P/N 20418

WELD RELAY  
P/N 51301

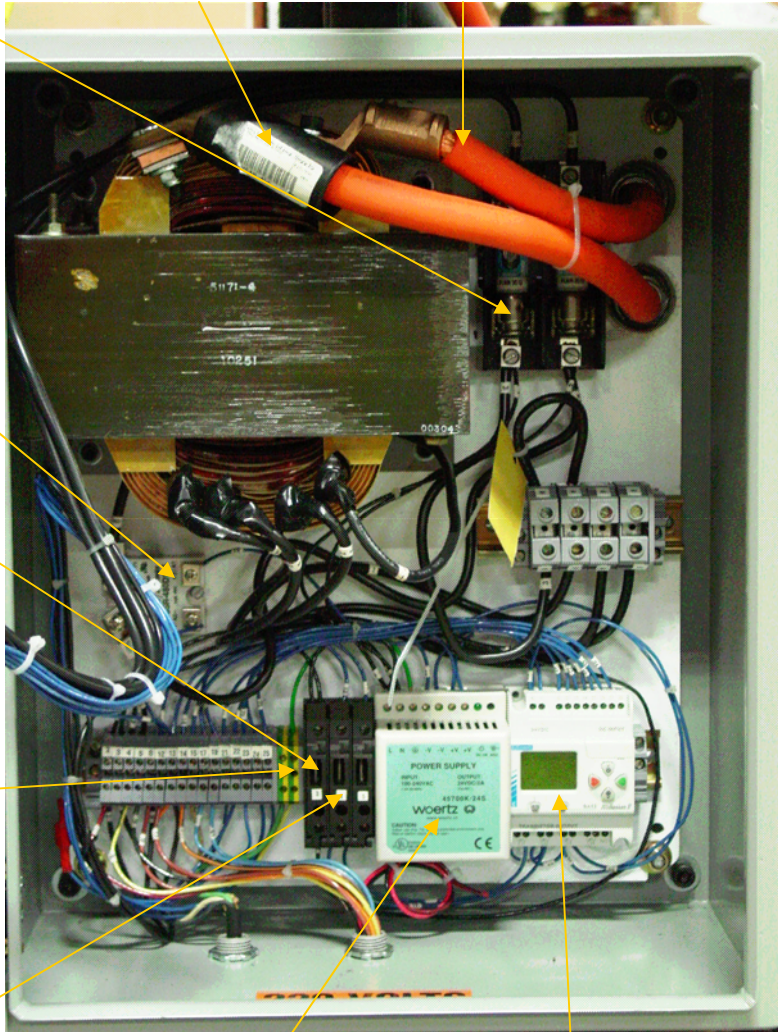
FEEDER BOWL CONTROL  
3 AMP FUSE  
P/N 51274  
FUSE 3

GROUND TERMINAL  
BLOCK  
P/N 51235

VALVES  
1 AMP FUSE  
P/N 51273  
FUSE 4— DRIVE VALVE  
FUSE 5— LOAD VALVE

24 VDC POWER SUPPLY  
P/N 51272

CONTROLLER  
P/N 51270



## GRIPNAIL MODEL 7005 AUTOMATIC PIN WELDER

Pictured below are the machine's electrical controls.

The vibratory feeder speed control is used to optimism the bowl feed rate.

The digital volt meter monitors the incoming voltage.

The weld setting switch is adjusted based on weld pin and gauge.

The main disconnect switch applies power to the machine, and also provides a means for LO/TO for the electrical power.

VIBRATORY FEEDER  
SPEED CONTROL  
P/N 51282-2

DIGITAL VOLT METER  
P/N 51293

REPLACEMENT  
WELD SETTING  
SWITCH  
P/N 20421

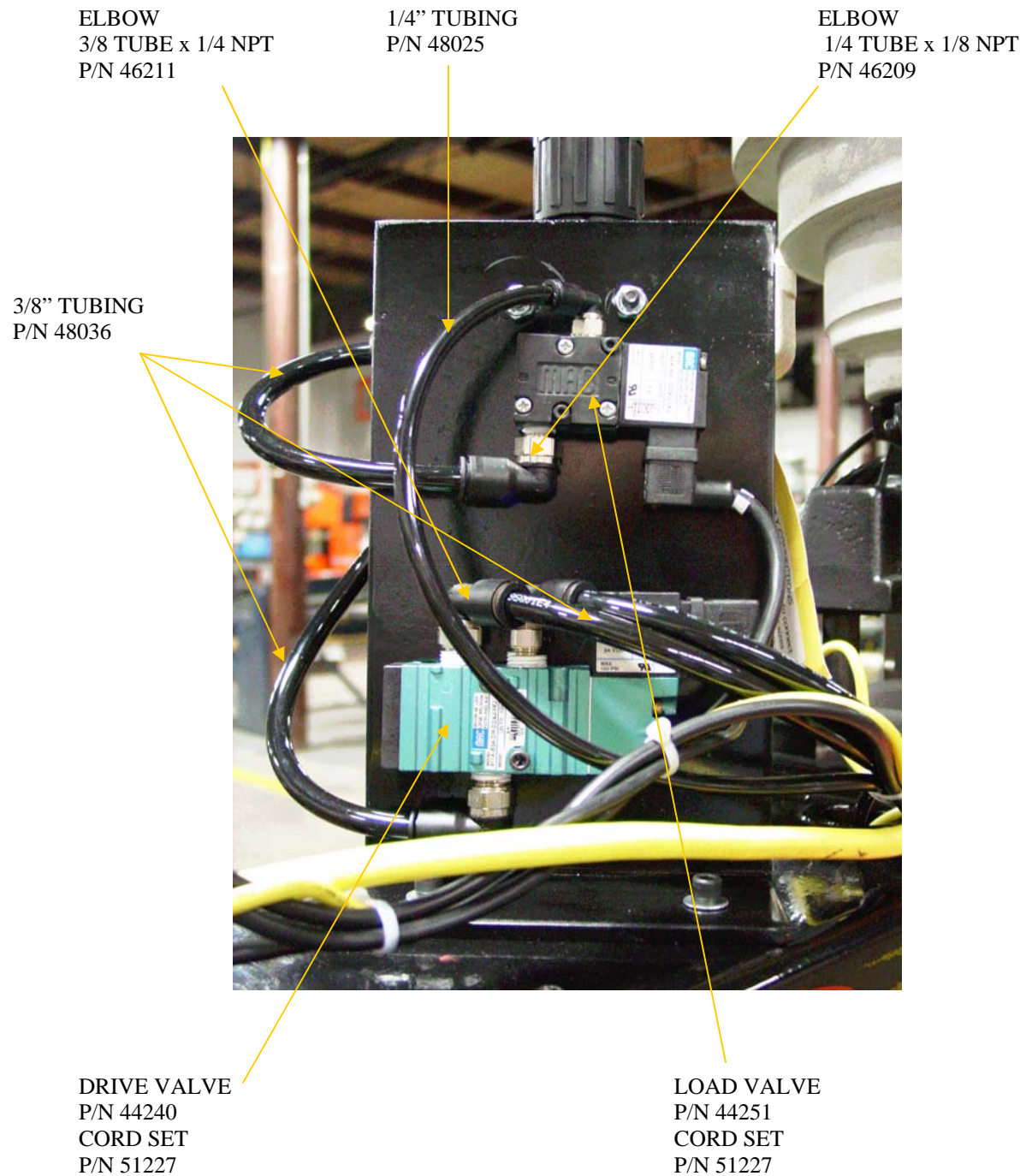
MAIN DISCONNECT  
SWITCH  
P/N 51297





GRIPNAIL MODEL 7005 AUTOMATIC PIN WELDER

**DRIVE and LOAD VALVES**



## PRESSURE REGULATOR

REGULATOR  
GAGE  
P/N 44120

BRACKET W/ NUT  
P/N 42445

TEE FITTING  
P/N 46262



FILTER/ REGULATOR  
P/N 40206

## GRIPNAIL MODEL 7005 AUTOMATIC PIN WELDER

### FOOT PEDAL

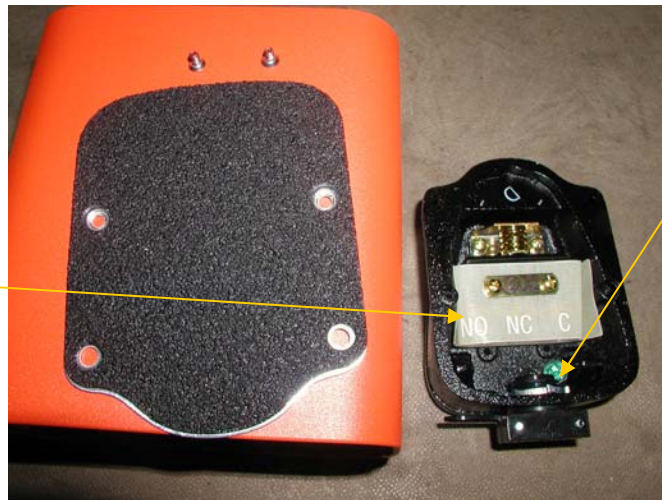
NOTE: RELEASE pedal completely after each cycle. Both air and electrical power must be on to operate foot pedal.

FOOT PEDAL  
P/N 51264



FOOT PEDAL INTERNAL CONNECTIONS  
USE NORMALLY OPEN TERMINALS

TERMINAL  
CONNECTIONS

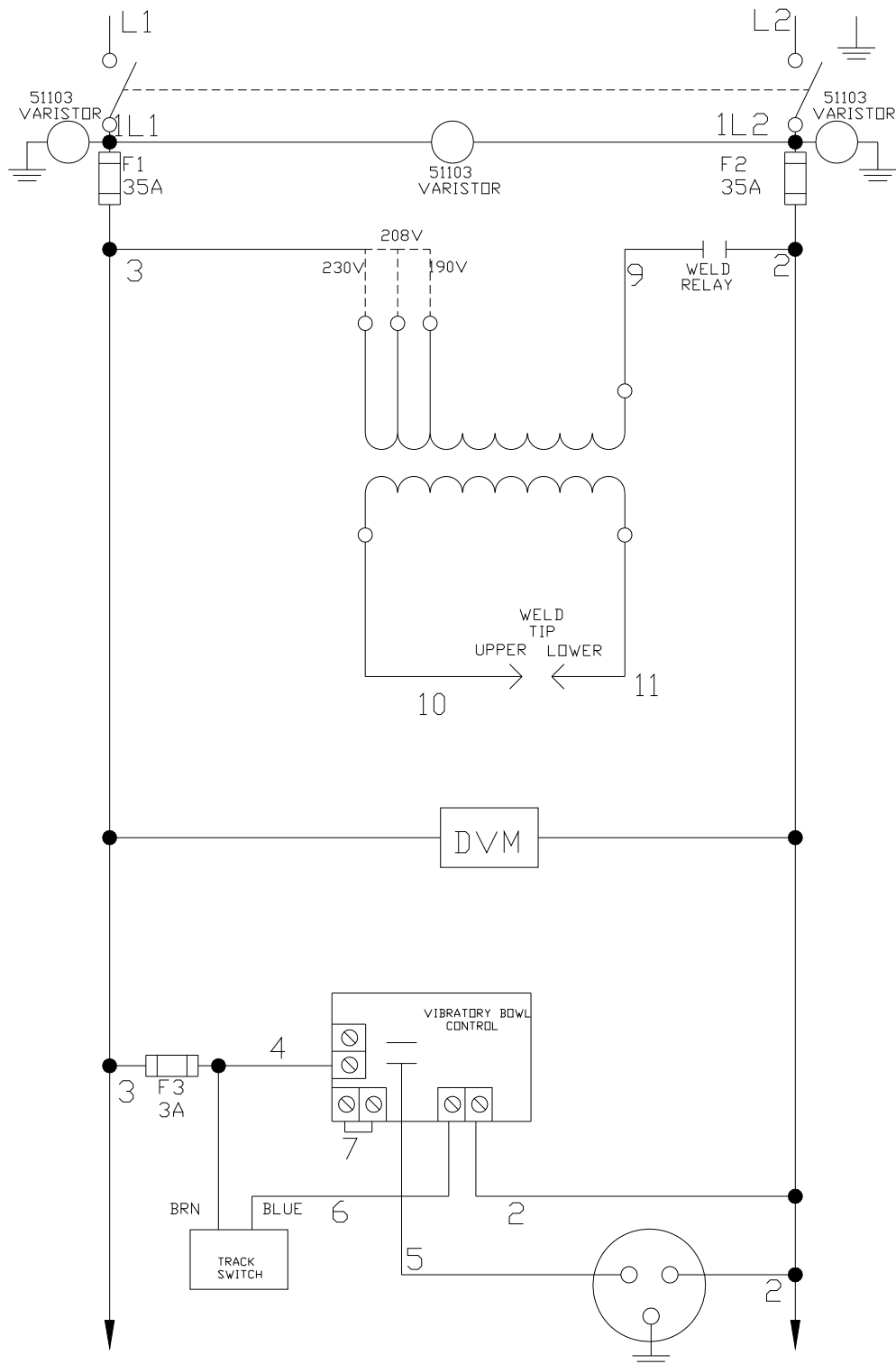


GROUND  
WIRE

# GRIPNAIL MODEL 7005 AUTOMATIC PIN WELDER

## ELECTRICAL SCHEMATIC

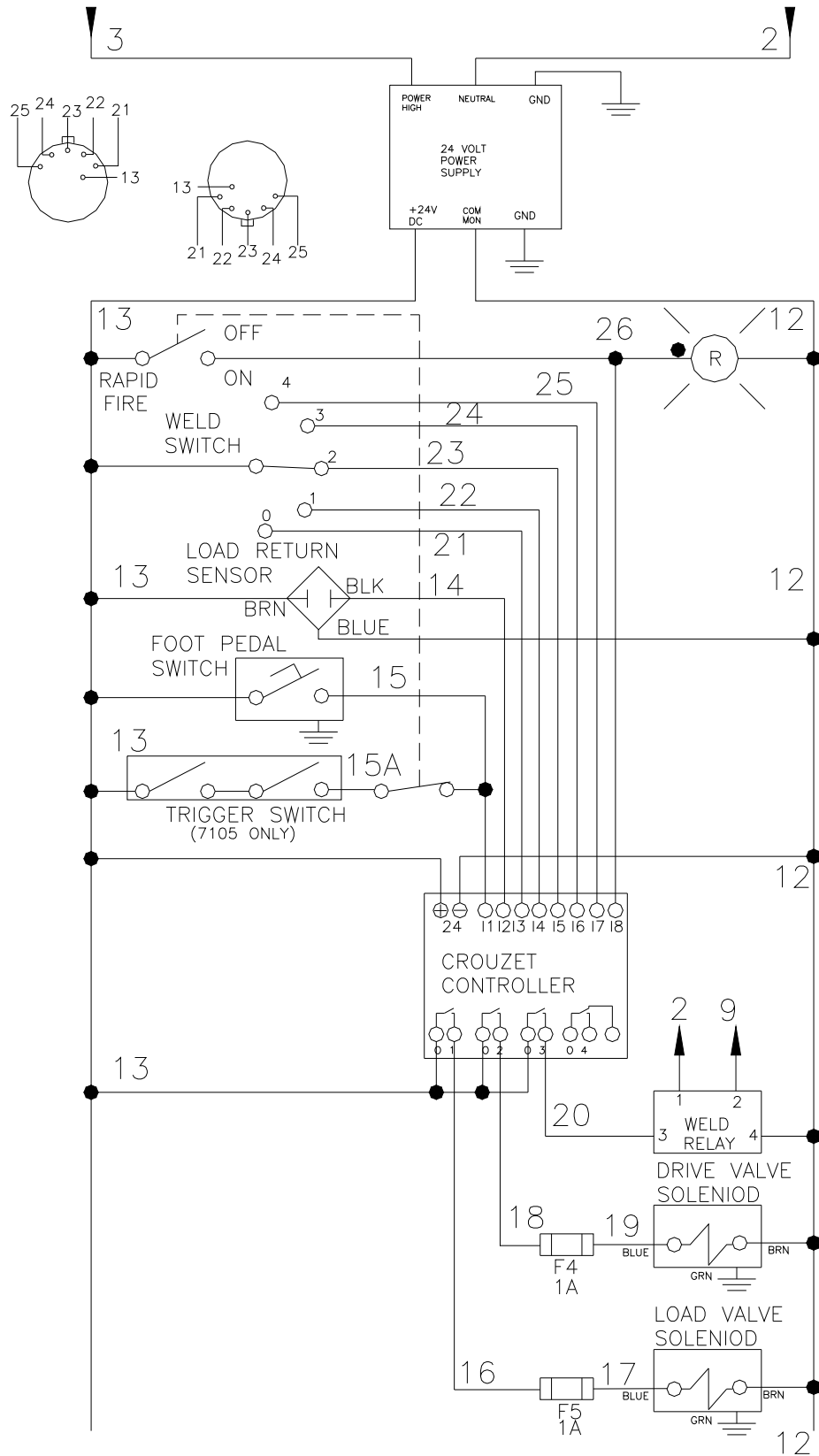
190/208/230VAC-60HZ-1Ø-31.0/28.4/25.5AMP





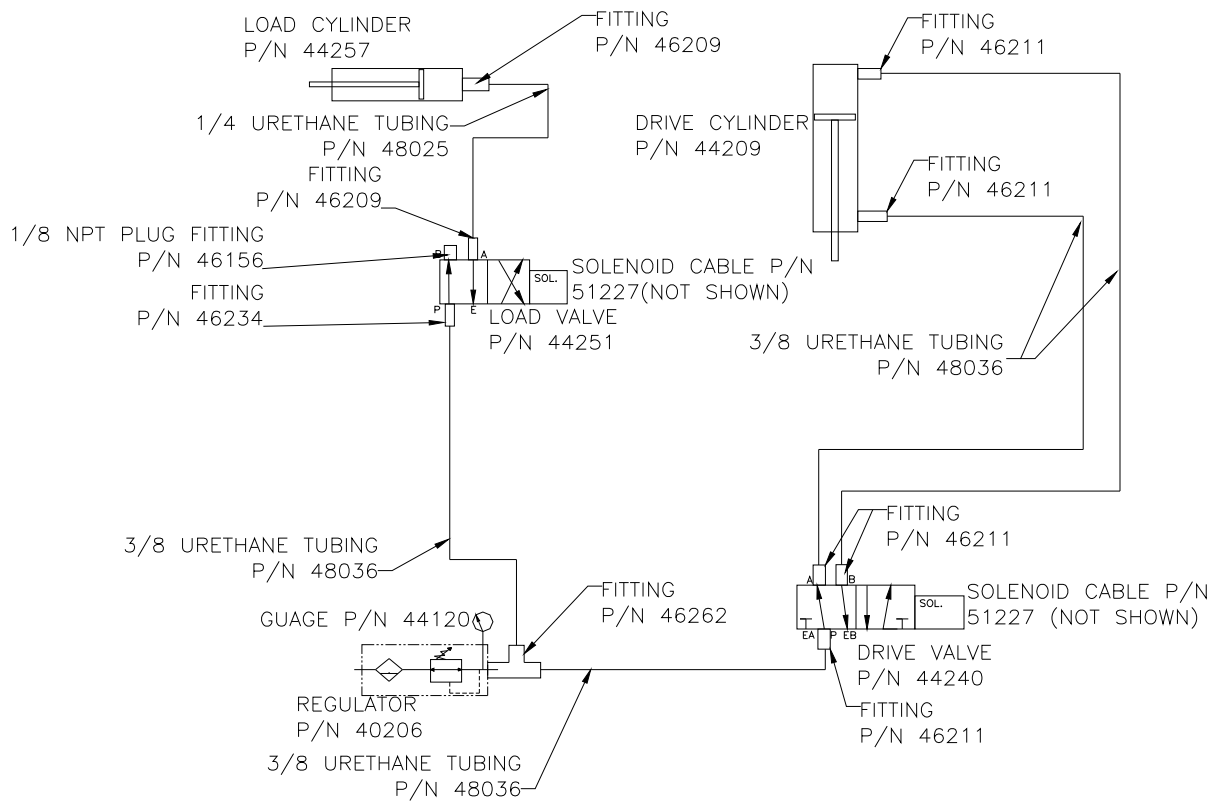
# GRIPNAIL MODEL 7005 AUTOMATIC PIN WELDER

## ELECTRICAL SCHEMATIC



# GRIPNAIL MODEL 7005 AUTOMATIC PIN WELDER

## PNEUMATIC DIAGRAM



GRIPNAIL MODEL 7005 AUTOMATIC PIN WELDER

**REPLACEMENT PARTS LIST**

<b>ITEM#</b>	<b>PART#</b>	<b>DESCRIPTION</b>	<b>QTY (EA OR FT)</b>
1	31247	Load cylinder & sensor guard	1
2	62016	Nut, wing 1/4"-20	3
3	31038	Front guard	1
4	31278	Electrode nut	1
5	31032	Lower Weld Tip	1
6	31011	Upper Weld Tip	1
7	48025	Tubing, 1/4" urethane, black	10
8	48036	Tubing, 3/8" urethane, black	10
9	20384	Track assembly	1
10	44267	Drive cylinder	1
11	44257	Load cylinder	1
12	20364	Transfer block	1
13	46211	Elbow, 1/4npt x 3/8 tube	5
14	20277	Feeder bowl assembly	1
15	42361-7	Feeder base 60 HZ	1
16	42361-6	Feeder base 50 HZ	1
17	40206	Filter/ Regulator 1/2 npt	1
18	44120	Gage, regulator 1/4 npt, 0-160 psi	1
19	46262	Tee, 3/8" tube (2) x 1/2 npt	1
20	42445	Bracket, wall, with nut	1
21	46209	Elbow, 1/8 npt x 1/4" tube	1
22	44251	Valve, load	1
23	44240	Valve, drive	1
24	51227	Cord set, valve	2
25	51264	Foot pedal	1
26	51268	Proximity sensor	1
27	51269	Proximity sensor cable	1
28	51270	Crouzet controller	1
29	51272	Power supply—24 volts, 2.5 amps	1
30	51282-2	Control, feeder base	1
31	51273	Fuse 1A, MDL-1	2
32	51299	Fuse 35A, FRN-R-35A	2
33	51274	Fuse, 3A, MDL-3	1
34	50103	Cord, 16/3 SJO	7
35	51301	Weld relay	1
36	20409	Replacement Weld Cable Assembly	1
37	20415	Replacement Weld Power Cable Assembly	1
38	20418	Replacement Weld Ground Cable Assembly	1
39	20421	Replacement Weld Setting Switch Ass'y	1

## SERVICE POLICY

Proper operation of your machine is a top priority with the Gripnail Corporation. We will assist you to the best of our abilities to see it is kept in peak operating condition.

In many cases, service needs can be made simply by calling Gripnail Customer Service Department. If it becomes necessary for a service technician to visit your plant, we can make the arrangements.

All Gripnail machines are covered under a one year New Machine Warranty (see Warranty next page). Replacement parts covered by the warranty are supplied free of charge, provided the original parts are returned to Gripnail and do not show signs of abuse.

At the end of the new machine warranty period, the buyer has the option of purchasing a Limited Extended Parts Warranty. This warranty covers specified machine parts only. Call Gripnail for full details.

All warranties on Gripnail machines are good only if Gripnail fasteners are used. If it is determined that fasteners other than those manufactured by Gripnail have been used, the warranty is voided. At Gripnail, we believe in servicing what we sell for the lifetime of the equipment. If you are having difficulty with your machine or if you have any questions regarding service and warranty policy, please call, fax, or write:

**Gripnail Customer Service Department**  
**Gripnail Corporation**  
97 Dexter Road  
East Providence, Rhode Island 02914  
Phone: (800) 474-7624  
(401) 431-1791  
Fax (401) 438-8520  
Email: [gripnail@gripnail.com](mailto:gripnail@gripnail.com)  
Website: [www.gripnail.com](http://www.gripnail.com)

## WARRANTY

All Gripnail Fastening Equipment is thoroughly inspected and tested before leaving the factory. Gripnail Corporation warrants its equipment to be free from defects in workmanship and materials under normal and proper use for a period of one (1) year from date of sale to original end purchaser.

The warranty does not apply when repairs or attempted repairs have been made by persons other than Gripnail Corporation's authorized service personnel, or where it is determined by our service personnel that the equipment has been subjected to misuse, negligence or accident. If it is determined that any fasteners other than those manufactured by Gripnail have been used in this machine or tool, the warranty is terminated.

This warranty is not effective unless equipment is properly registered with the factory through the use of warranty information card prior to use. Gripnail Corporation shall not be liable for contingent damages or delays caused by defective materials or any other means beyond our control.

**Gripnail Customer Service Department**

**Gripnail Corporation**

97 Dexter Road

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