



MODEL 660 AUTOMATIC FASTENING CENTER OPERATOR'S MANUAL



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Gripnail Corporation *An Employee Owned Company*

97 Dexter Road East Providence, Rhode Island 02914-2045 Tel: (800) 474-7624 Fax: (401) 438-8520

E-mail: gripnail@gripnail.com Website: www.gripnail.com

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INTRODUCTION

The Gripnail 660 automatic fastening center 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: 120 VAC/ 60 HZ/ 10 AMPS

PNEUMATIC: 80 PSI @ 1 CFM

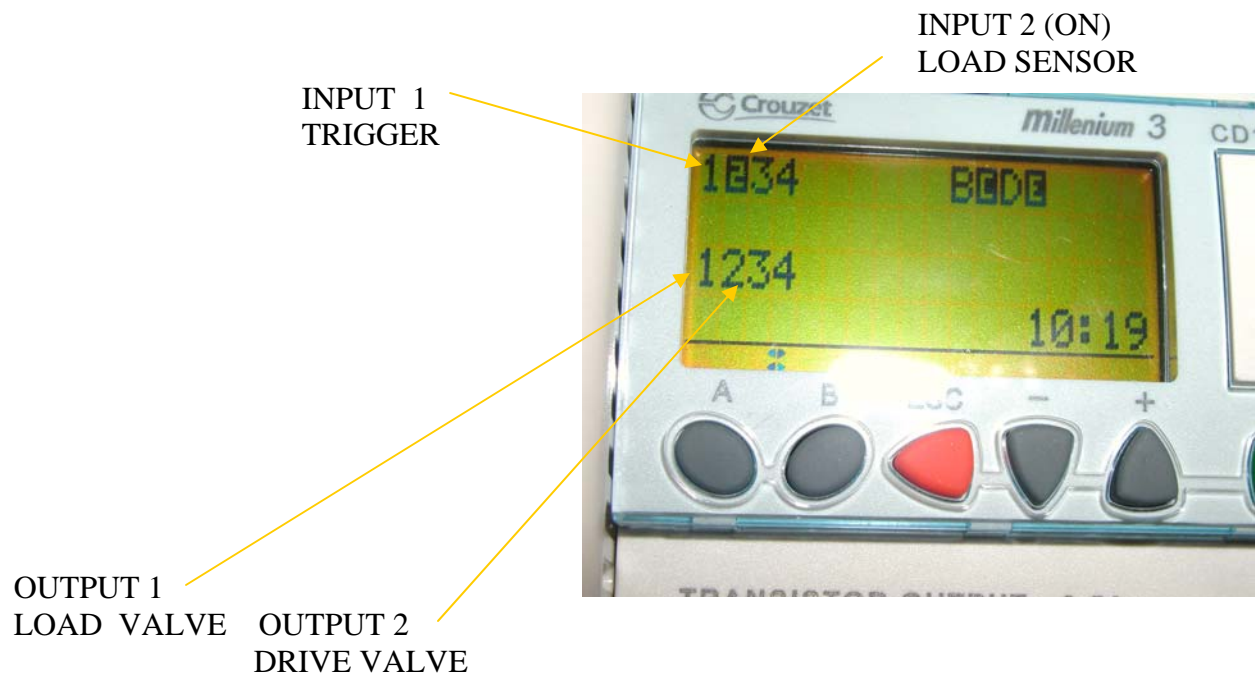
INSTALLATION INSTRUCTIONS

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.
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 and electricity. 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.

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) MUST be on.
2. Input 1 (Foot or Trigger) is activated momentarily or continuously held.
3. Output 2 (Drive) turns on.
4. Output 2 (Drive) turns off.
5. Output 1 (Load) turns on.
6. Input 2 (Load Sensor) turns off.
7. Output 1 (Load) turns off.
8. Input 2 (Load Sensor) turns on.
9. Input 1 (Foot or Trigger) must be off after Step 9 to restart the sequence

TROUBLESHOOTING

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

1. Check AC electrical power cord connection and ON switch. Page 13.
2. Is air connection and/or shop supply valve open?
3. Is the proximity sensor indicator lights ON? Page 11.
 - a. If it is not ON, check for loose cable connections or components.
 - b. If it is not ON, check 24 Volt DC power supply in control box. Page 12.
4. Check drive valve fuse #3.
5. Check internal connections in foot pedal and external cable condition. Page 16.

B. New fasteners do not load onto drive head.

1. Check the drive cylinder and magnetic driver. If either is discovered loose, readjust and tighten. See page 9.
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 power cord connection. Page 13
2. Check the position of the speed control setting.
3. Clean the output sensor on track and check fittings for tightness.
4. Examine 1/8" PVC tubing connection to air switch on control box. Page 13
5. Check the feeder bowl control fuse (3 amp) in position #2. Page 12

GRIPNAIL MODEL 660 AUTOMATIC FASTENING CENTER

DRIVE HEAD ASSEMBLY

DRIVE CYLINDER
P/N 44192
CYLINDER FOOT
BRACKET
P/N 40222

HEX BOLT 5/16"-18 x 2.5"
P/N 60413
5/16" FLAT WASHER
P/N 61109
ESN NUT 5/16"-18
P/N 62009

ELBOW
P/N 46211

DRIVE HEAD BRACKET
P/N 30733

SCREW 1/4"-20x 1-1/4"
P/N 60161

TUBING, 3/8"
P/N 48036

SCREW 5/16"-18 x 1"
P/N 60118
5/16" LOCK WASHER
P/N 61205

MALE CONNECTOR
P/N 46217

EXHAUST VALVE
P/N 44112

SCREW 1/4"-20 x 2.5"
P/N 60142

4" HEX STANDOFF
P/N 42467

1.5" HEX STANDOFF
P/N 42468

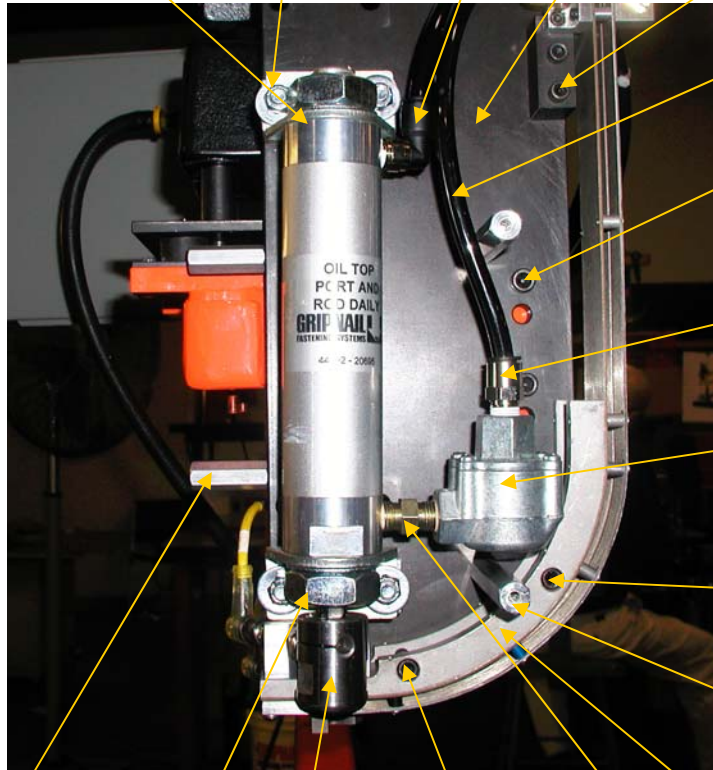
HEX JAM NUT 1"-14
P/N 62112
LOCK WASHER 1"
P/N 61304

SCREW 1/4"-20 X 2"
P/N 60112

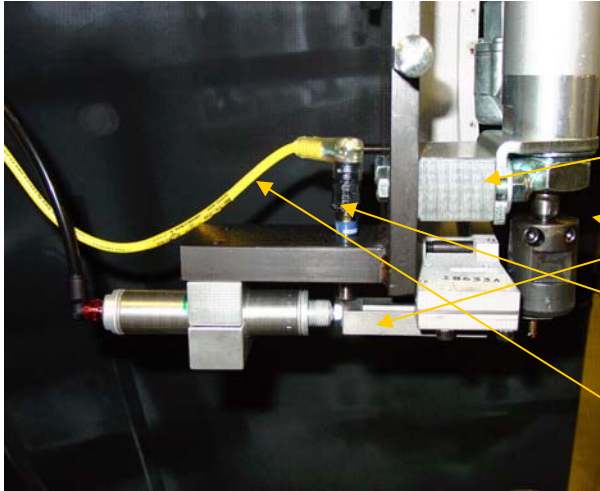
HEX NIPPLE, STEEL
P/N 46129

MAGNETIC DRIVER
P/N 30295
Supplied w/ two (2) #10-32 X 5/8"
P/N 60106

TRACK ASSEMBLY
P/N 20384



LOAD CYLINDER ASSEMBLY



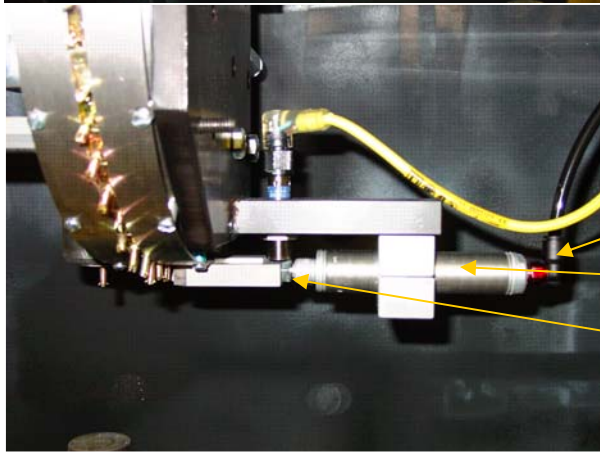
CYLINDER SPACER
BLOCK
P/N 31049

TRANSFER BLOCK
P/N 20364

FRONT GUARD
P/N 31038

PROXIMITY SENSOR
P/N 51268

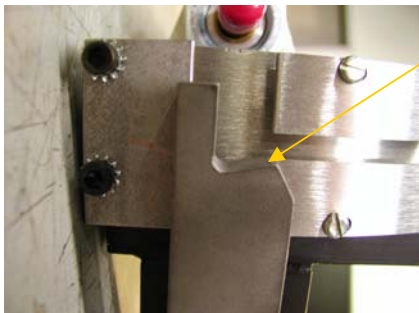
PROXIMITY SENSOR CABLE
P/N 51269



LOAD RESTRICTOR
FITTING ASSEMBLY
P/N 20385

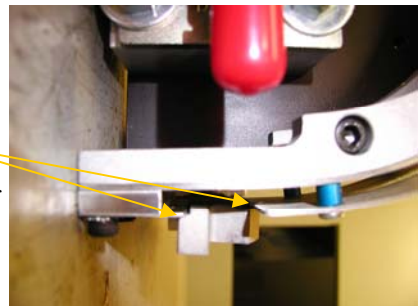
LOAD CYLINDER
P/N 44257

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



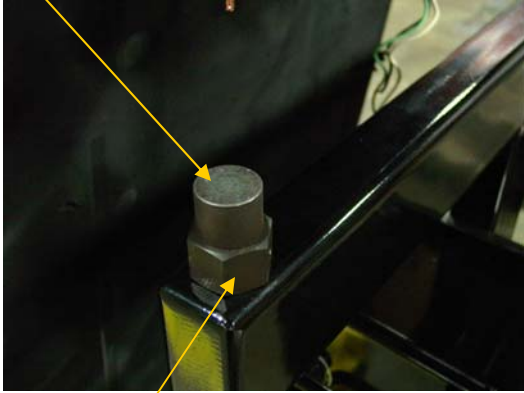
Position the Transfer Block so this point intrudes on the Pin path by approximately 1/32".

Rotate the Transfer Block to horizontal, to assure the top key section equally engages the bottom of the Track .



GRIPNAIL MODEL 660 AUTOMATIC FASTENING CENTER

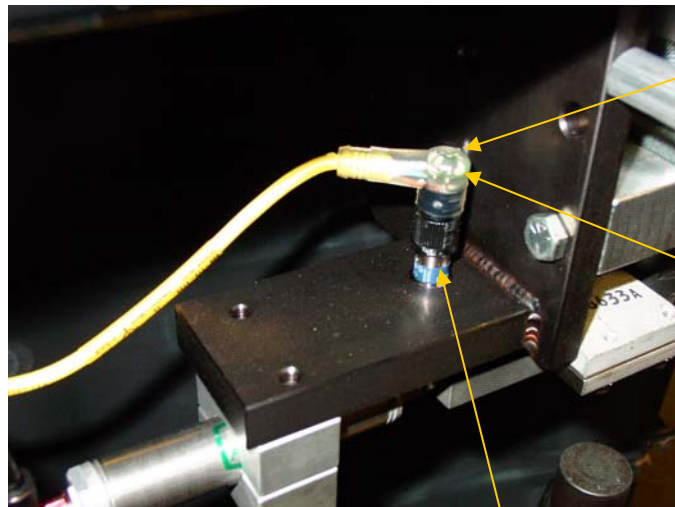
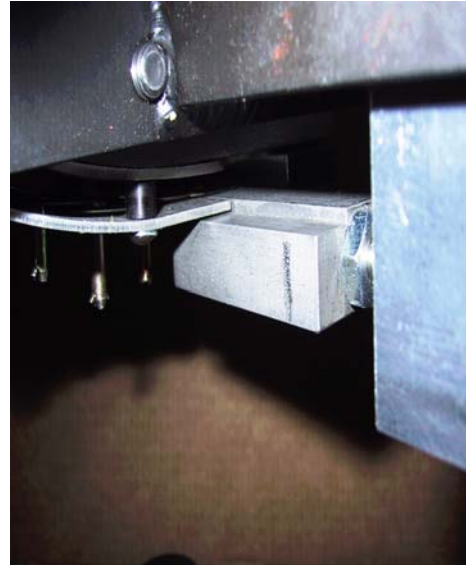
ANVIL 1-1/4" DIAMETER
P/N 30588



ANVIL MOUNT
P/N 31064

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 mis-adjustment or other service requirement.

The transfer block fits into the track for easy alignment.

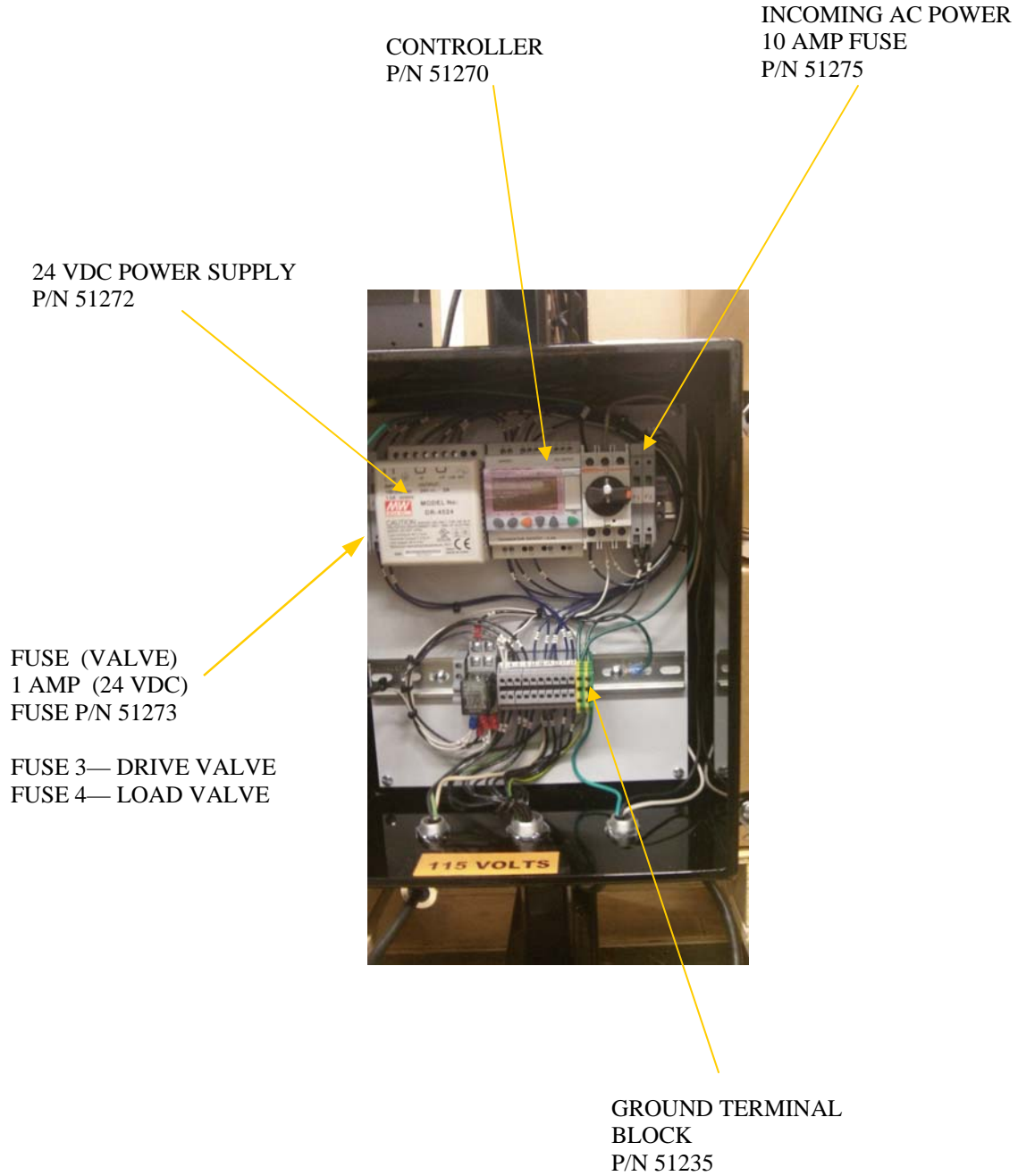


GREEN
LED

YELLOW
LED

LOAD RETURN
SENSOR

ELECTRICAL ASSEMBLY



CONTROL ENCLOSURE

Pictured below are the machine's electrical controls.

The ON/OFF disconnect switch controls power to the entire machine. The power cord plugs into a standard 115 volt AC, 15 amp outlet.

The feeder base controller knob is used to increase or decrease the bowl speed. The outlet beside the control knob accepts the feeder bowl plug.

VIBRATORY FEEDER
CONTROL
P/N 51224

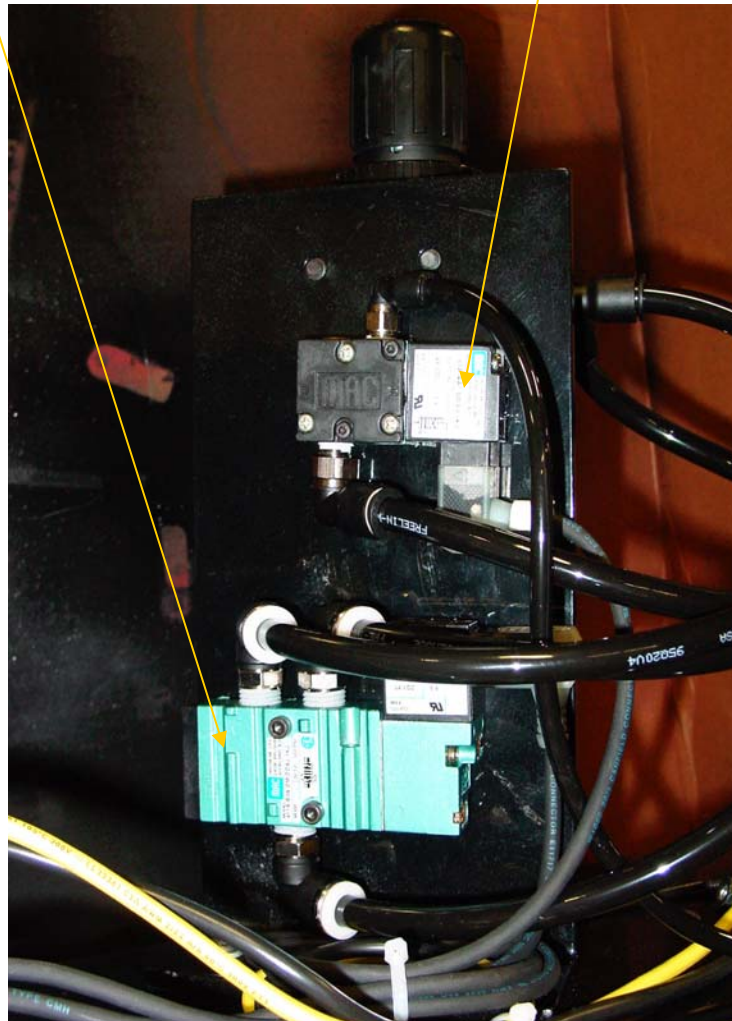


GRIPNAIL MODEL 660 AUTOMATIC FASTENING CENTER

DRIVE and LOAD VALVES

DRIVE VALVE
P/N 44240
CORD SET
P/N 51227
SHC SCREW #8-32 X 1"
P/N 60159

LOAD VALVE
P/N 44251
CORD SET
P/N 51227
SHC SCREW 5-40 X 1.25"
P/N 60169



PRESSURE REGULATOR

REGULATOR
GAGE
P/N 44120



BRACKET W/ NUT
P/N 42445

TEE FITTING
P/N 46262

Y FITTING
P/N46261

FILTER/ REGULATOR
P/N 40206

PRESSURE REGULATOR SETTING

The Pressure Regulator should be set between 40-80 PSI, depending on the sheet gauge, insulation and Gripnail size. Start with a pressure of 40 PSI. Drive and test several Gripnails. Increase the pressure by 5 PSI and repeat testing until optimum hold is achieved. The Load Cylinder flow control may need readjusting once the pressure is set.

Evidence of an under driven Gripnail will leave light opposing horseshoe marks on the sheet metal and the jaws of the Gripnail would not have closed. Evidence of an over driven Gripnail will close the jaws of the Gripnail to the point that a hole is left in the sheet metal when the Gripnail is pulled away from the sheet metal.

It may be helpful to create a chart for the operator, as a starting point, with the pressure setting for different combinations of sheet metal, insulation and Gripnails.

GRIPNAIL MODEL 660 AUTOMATIC FASTENING CENTER

FOOT PEDAL

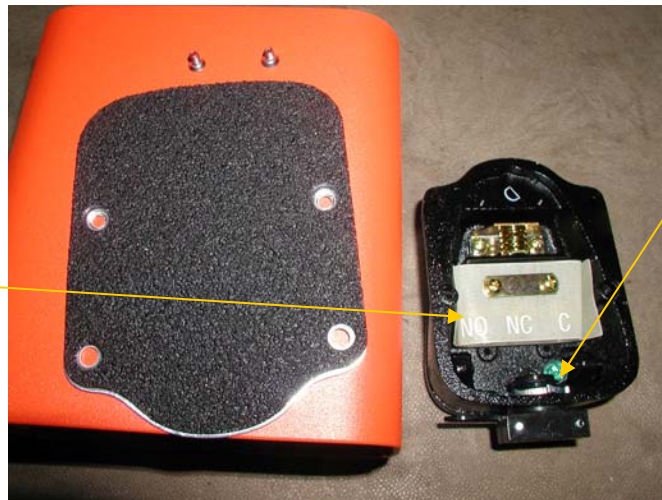
NOTE: RELEASE pedal completely after each cycle. Both air and electrical power must be on to operate foot pedal.

FOOT PEDAL
P/N 51264



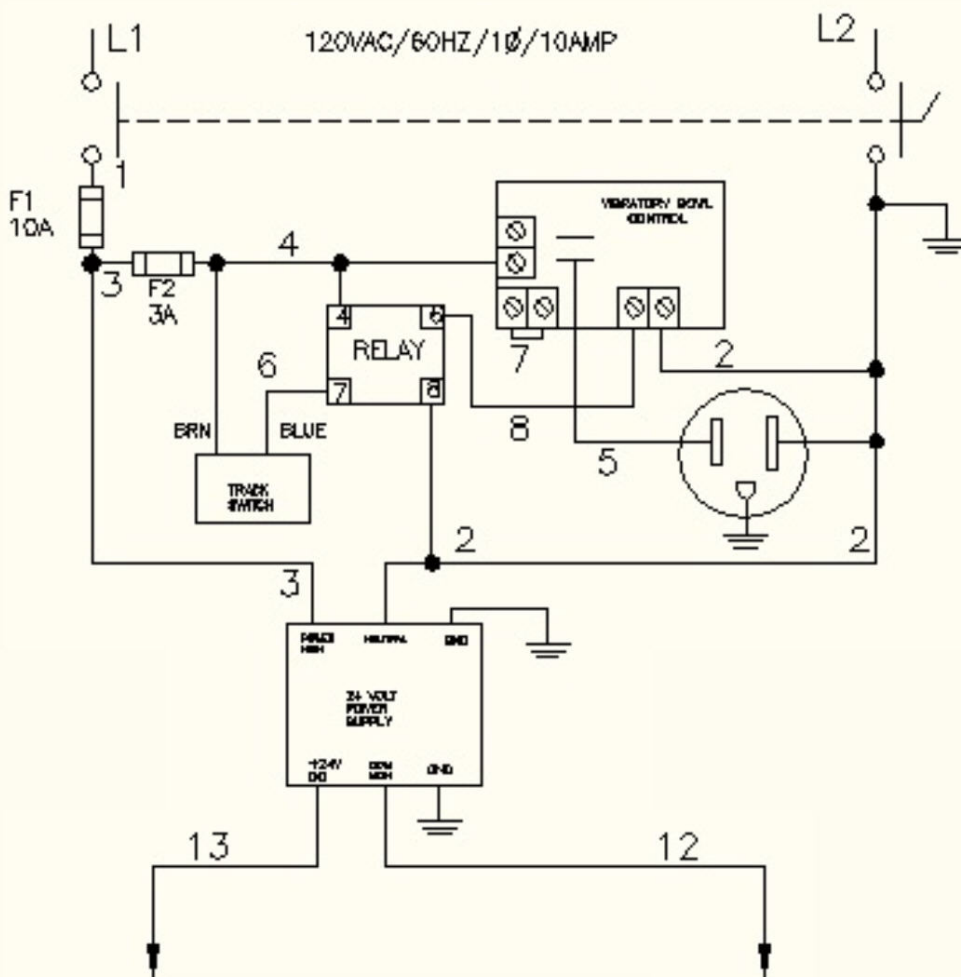
FOOT PEDAL INTERNAL CONNECTIONS
USE NORMALLY OPEN TERMINALS

TERMINAL
CONNECTIONS

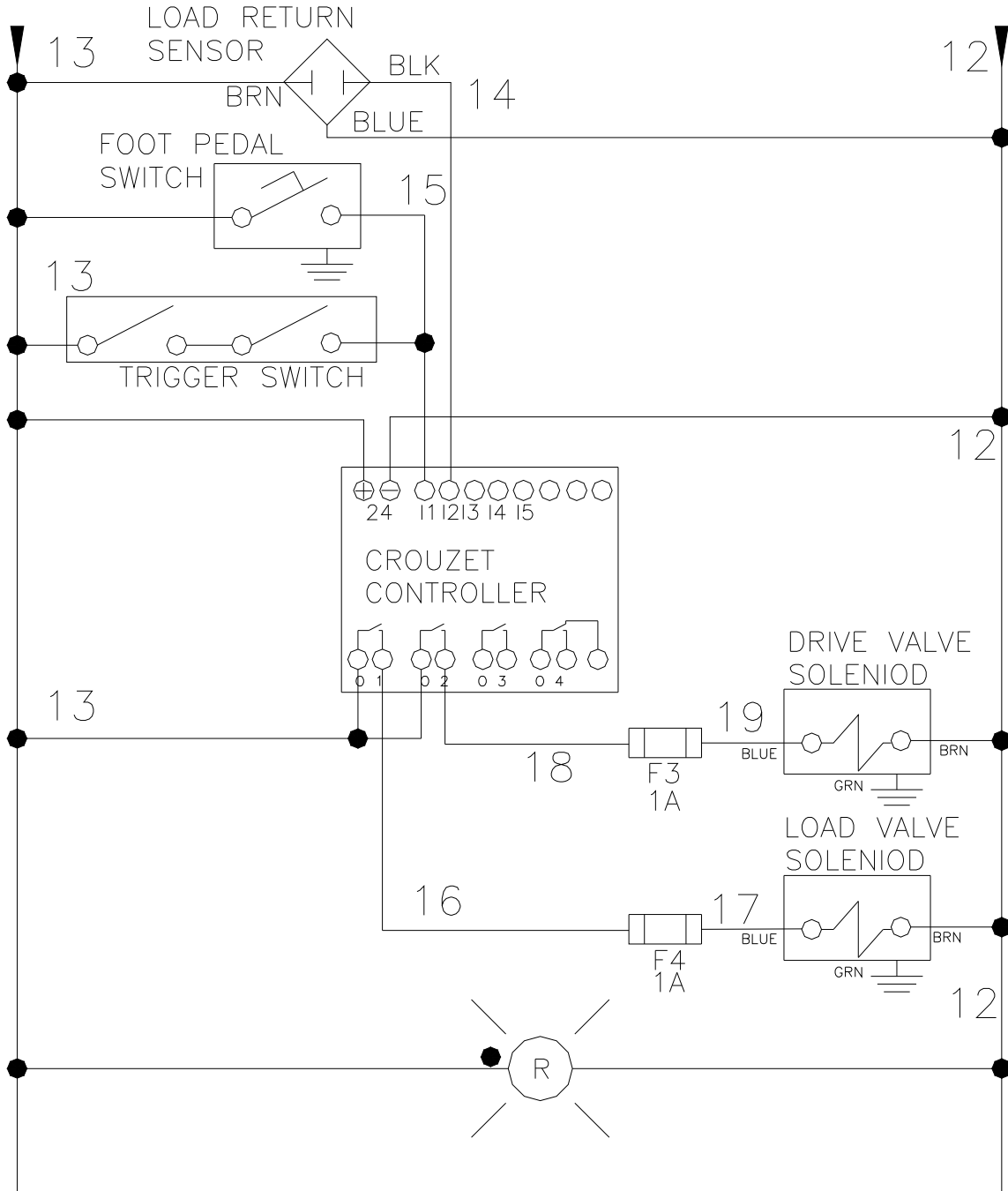


GROUND
WIRE

ELECTRICAL SCHEMATIC 115 VOLT AC

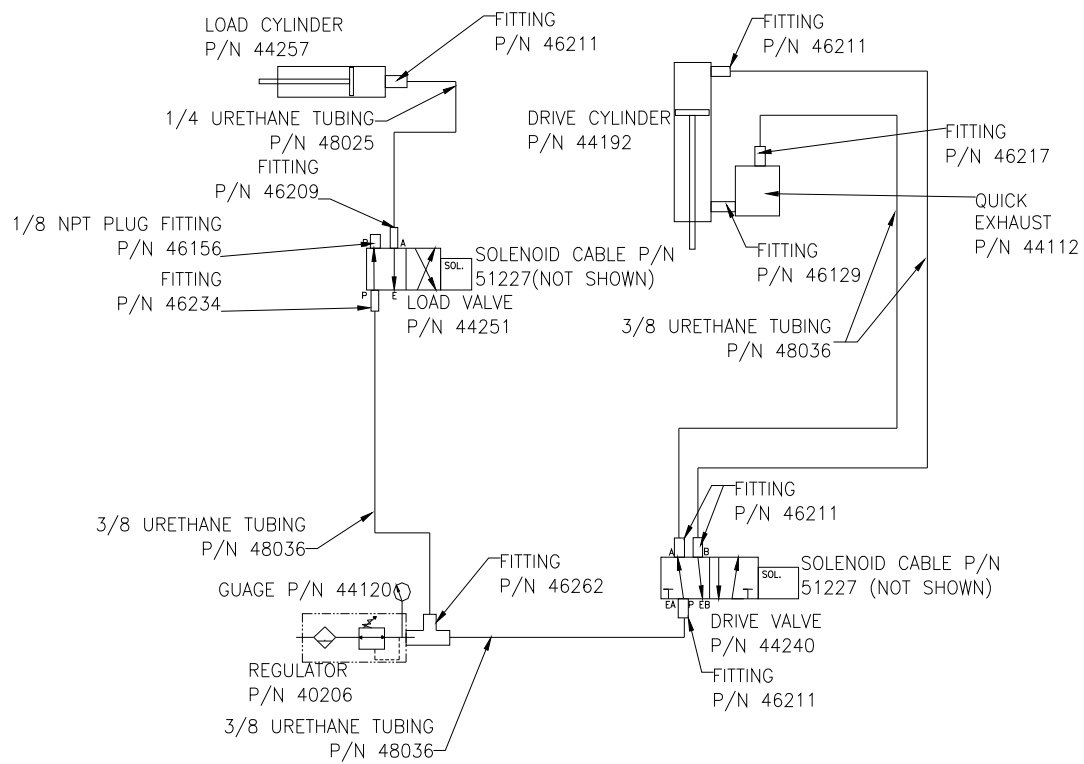


ELECTRICAL SCHEMATIC 24 VOLT DC



GRIPNAIL MODEL 660 AUTOMATIC FASTENING CENTER

PNEUMATIC DIAGRAM



GRIPNAIL MODEL 660 AUTOMATIC FASTENING CENTER

REPLACEMENT PARTS LIST

ITEM#	PART#	DESCRIPTION	QTY (EA OR FT)
1	31247	Load cylinder & sensor guard	1
2	31038	Front guard	1
3	31064	Anvil mount	1
4	30588	Anvil, 1-1/4" dia.	1
5	48036	Tubing, 3/8" urethane, black	10
6	31049	Cylinder spacer block	2
7	40222	Cylinder foot bracket	2
8	20384	Track assembly	1
9	44266	Drive cylinder	1
10	44257	Load cylinder	1
11	20364	Transfer block	1
12	46211	Elbow, 1/4npt x 3/8 tube	1
13	46217	Connector, male 1/4npt x 3/8 tube	1
14	30295	Magnetic driver	1
15	44112	Exhaust valve	1
16	46129	Nipple, hex 1/4npt	1
17	31015	Spacer, 1.375"	4
18	42361-2	Feeder base 60HZ	1
19	42361-5	Feeder base 50 HZ	1
20	40206	Filter/ Regulator 1/2 npt	1
21	44120	Gage, regulator 1/4 npt, 0-160 psi	1
22	46262	Tee, 3/8" tube (2) x 1/2 npt	1
23	42445	Bracket, wall, with nut	1
24	46211	Elbow, 1/4 npt x 3/8" tube	2
25	46217	Connector, male 1/4npt x 3/8" tube	1
26	46234	Elbow, 1/8 npt x 3/8" tube	1
27	44251	Valve, load	1
28	44240	Valve, drive	1
29	51227	Cord set, valve	2
30	51264	Foot pedal	1
31	51268	Proximity sensor	1
32	51269	Proximity sensor cable	1
33	51270	Crouzet controller	1
34	51272	Power supply—24 volts, 2.5 amps	1
35	51273	Fuse 1A, MDL-1	2
36	51275	Fuse 10A, MDL-10	1
37	51274	Fuse, 3A, MDL-3	1
38	51282-1	Control, feeder base	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
Website: 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

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