

GRIPNAIL MODEL 660R AUTOMATIC FASTENING CENTER

GRIPNAIL MODELS 660R/648R REBUILT AUTOMATIC FASTENING CENTER OPERATOR'S MANUAL



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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. Lubricate upper and lower drive cylinder ports daily.
4. Check for loose hardware and tighten as required.

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 660R AUTOMATIC FASTENING CENTER

DRIVE HEAD ASSEMBLY

DRIVE CYLINDER
P/N 44191
CYLINDER FOOT
BRACKET
P/N 44111

HEX BOLT 1/4"-20 x 2.5"
P/N 60142
1/4" FLAT WASHER
P/N 61102
ESN NUT 1/4"-20
P/N 62008

DRIVE HEAD BRACKET
P/N 30117

ELBOW
P/N 46211

SCREW 3/8"-16 x 1"
P/N 60109
3/8" LOCK WASHER
P/N 61201

TUBING, 3/8"
P/N 48036

MALE CONNECTOR
P/N 46217

EXHAUST VALVE
P/N 44112

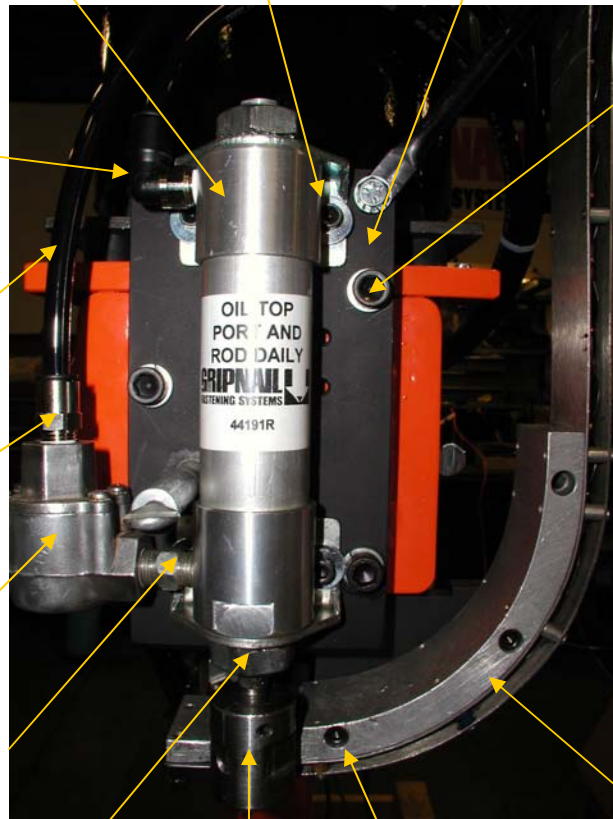
HEX NIPPLE, STEEL
P/N 46129

TRACK ASSEMBLY
P/N 20384

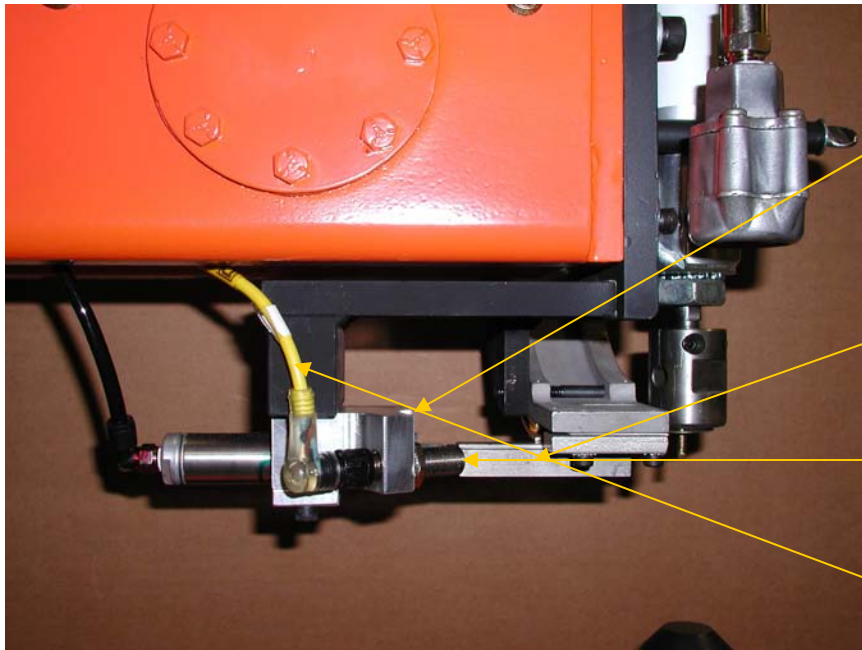
HEX JAM NUT 1"-14
P/N 62112
LOCK WASHER 1"
P/N 61304

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

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



LOAD CYLINDER ASSEMBLY



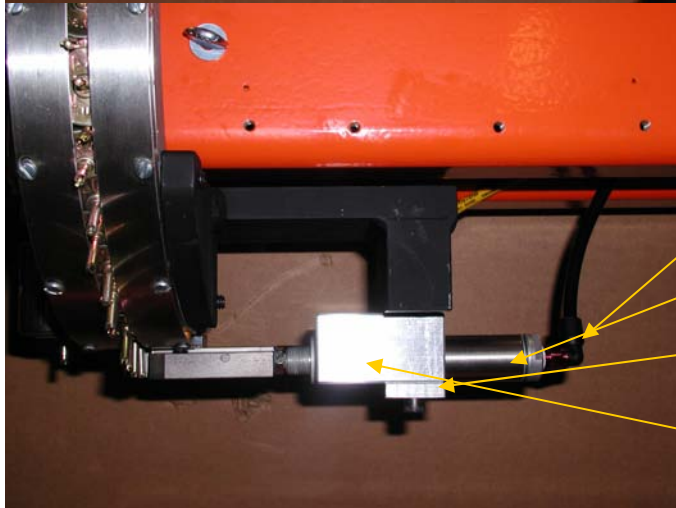
DRIVE SENSOR
BRACKET
P/N 31246

SCREW #10-32 x 1"
P/N 60116

TRANSFER BLOCK
P/N 20364

PROXIMITY SENSOR
P/N 51268

PROXIMITY SENSOR CABLE
P/N 51269

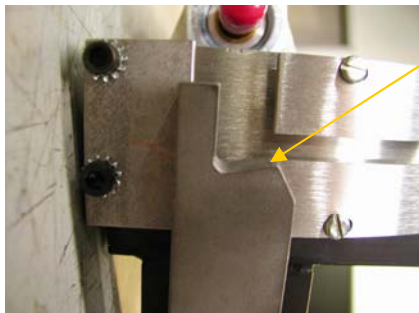


LOAD RESTRICTOR
FITTING ASSEMBLY
P/N 20385

LOAD CYLINDER
P/N 44257

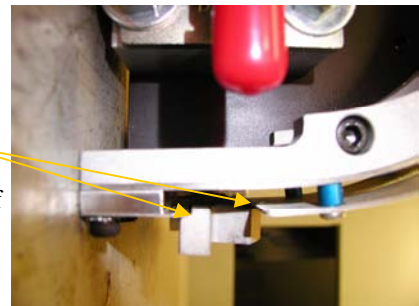
LOAD CYLINDER PLATE P/N 31245
SCREW SHCS 1/4"-20 x 2" P/N 60112
LOCKWASHER 1/4" P/N 61202

LOAD CYLINDER & SENSOR
BRACKET
P/N 31244



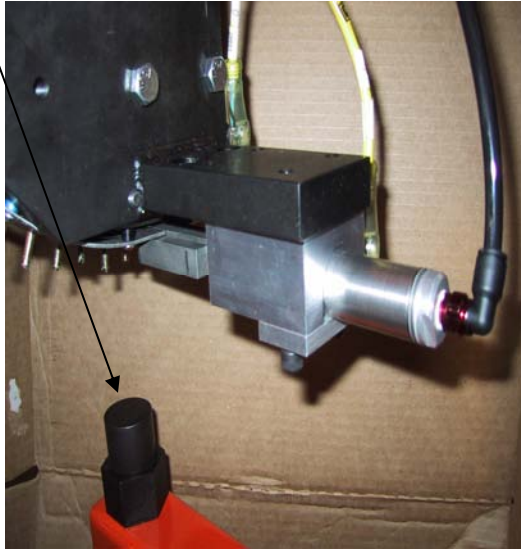
Position the Transfer Block so this point intrudes on the Pin path by approximately 1/32".

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

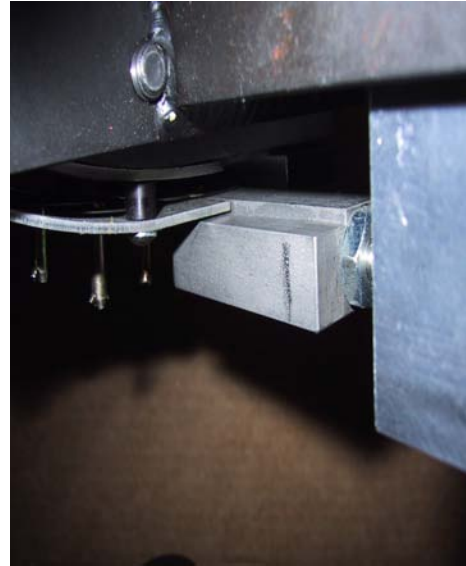


GRIPNAIL MODEL 660R AUTOMATIC FASTENING CENTER

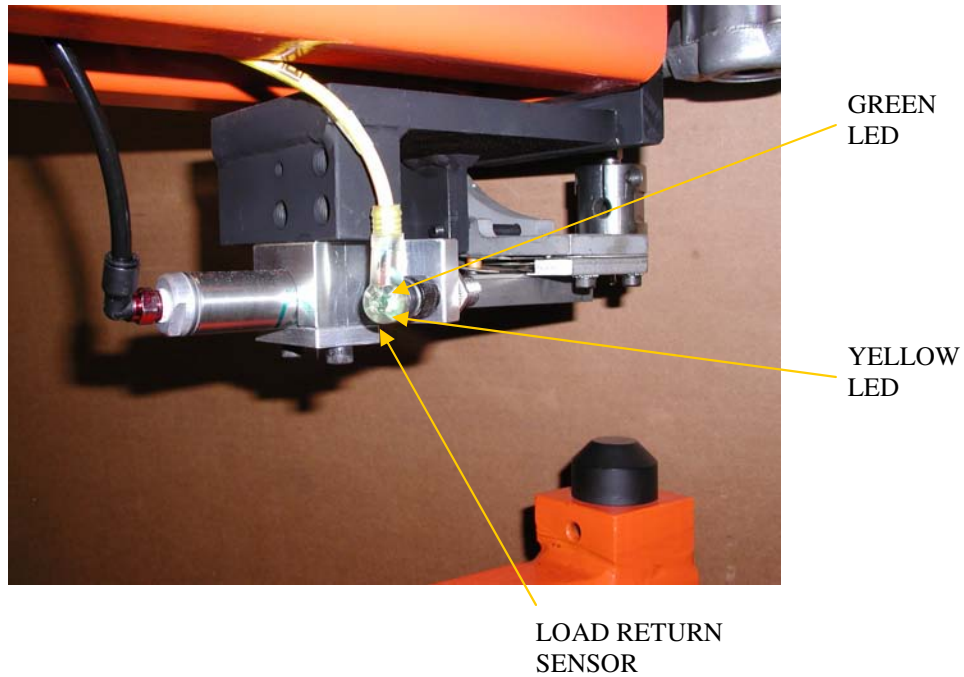
ANVIL 1-1/4" DIAMETER
P/N 30588



The transfer block fits into the track for easy alignment.



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.



ELECTRICAL ASSEMBLY

INCOMING AC POWER
10 AMP FUSE
P/N 51275

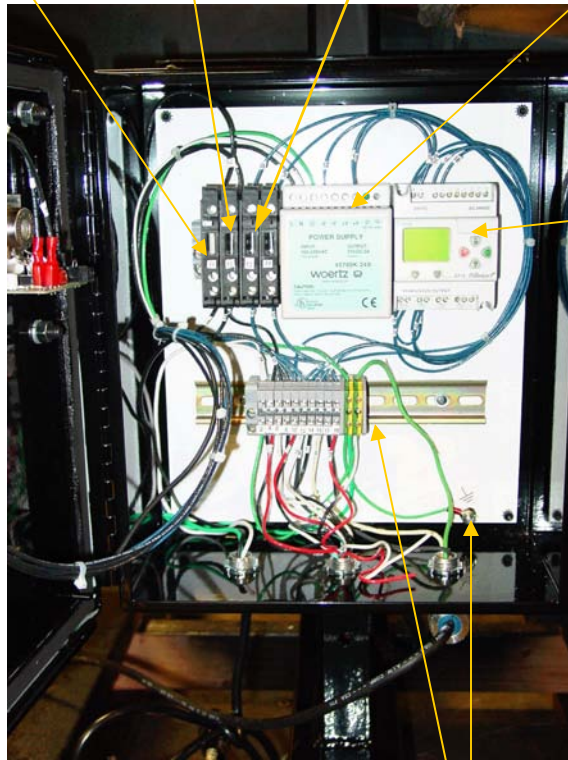
FEEDER BOWL CONTROL
3 AMP FUSE
FUSE P/N 51274

FUSE (VALVE)
1 AMP (24 VDC)
FUSE P/N 51273

FUSE 3— DRIVE VALVE
FUSE 4— LOAD VALVE

24 VDC POWER SUPPLY
P/N 51272

CONTROLLER
P/N 51270



GROUND TERMINAL
BLOCK
P/N 51235

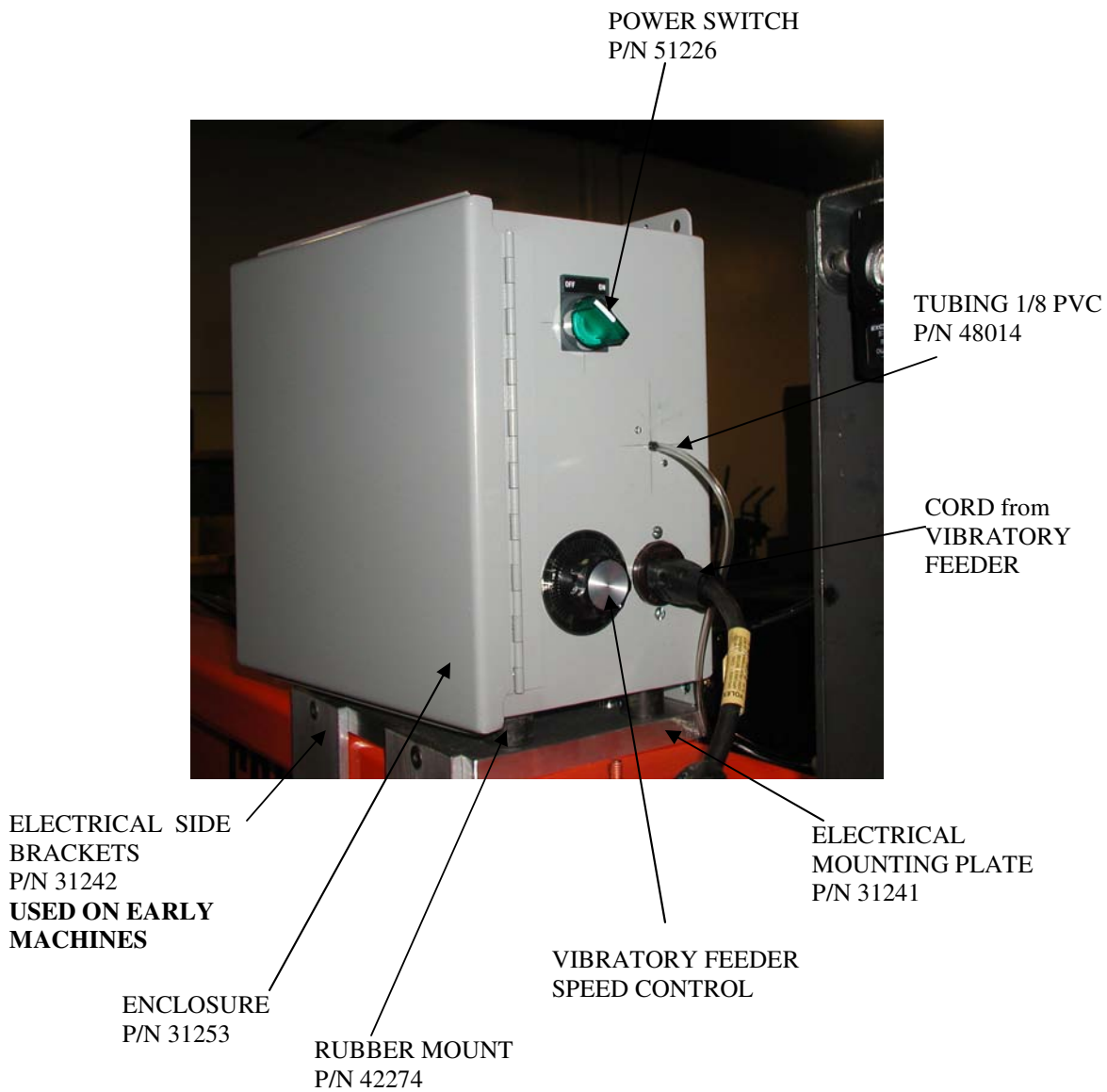
GRIPNAIL MODEL 660R AUTOMATIC FASTENING CENTER

Pictured below are the machine's electrical controls.

The ON/OFF switch utilizes an illuminated selector knob. 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.

The 1/8" PVC tubing is shown attached to the air switch. It connects the pressure signal from the track's output sensor. This signal activates the switch to turn ON the vibratory feeder when more fasteners are required.



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DRIVE and LOAD VALVES

ELBOW
3/8 TUBE x 1/4 NPT
P/N 46211

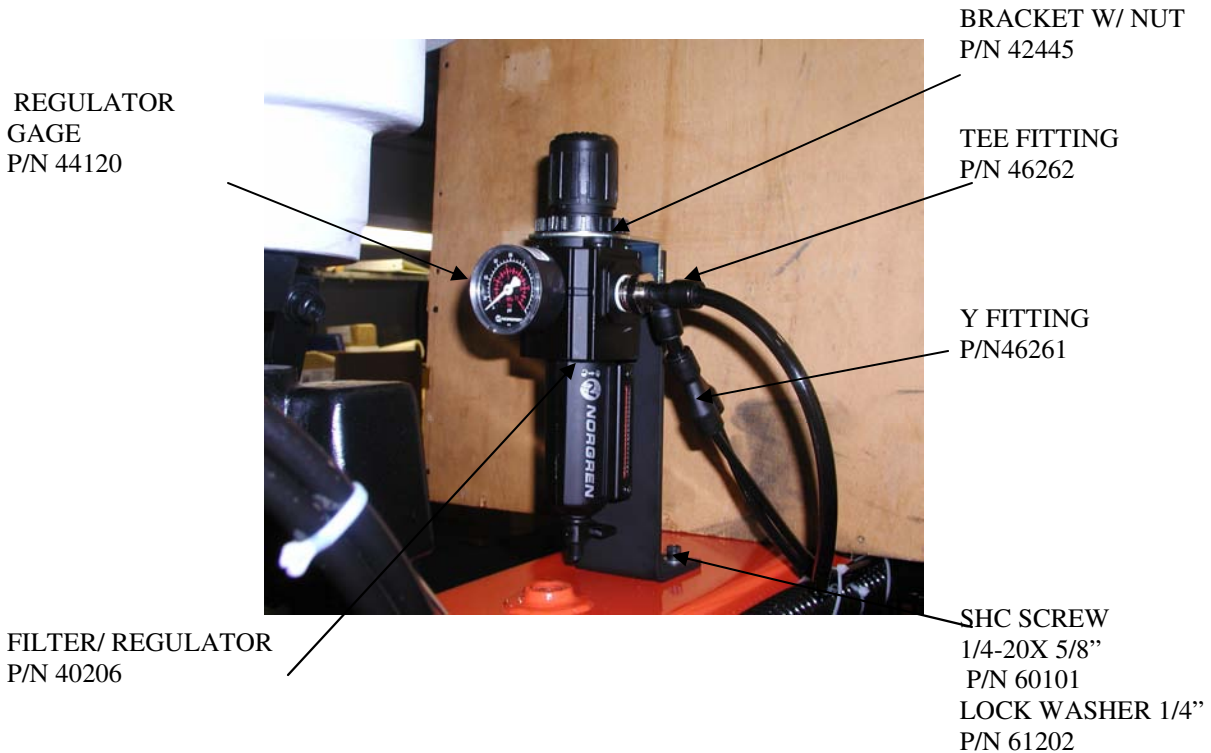
ELBOW
1/4 TUBE x 1/8 NPT
P/N 46209



DRIVE VALVE
P/N 44240
CORD SET
P/N 51227
SHC SCREW #8-32 X 1"
P/N 60159
NUT ESN #8-32
P/N 62014

LOAD VALVE
P/N 44251
CORD SET
P/N 51227
SHC SCREW 5-40 X 1.25"
P/N 60169
NUT ESN 5-40
P/N 62011

PRESSURE REGULATOR



PRESSURE REGULATOR SETTING

The Pressure Regulator should be set between 40-80 PSI, depending on 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 meet 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 pressure settings for the different combinations of sheet metal, insulation and Gripnails.

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FOOT PEDAL

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

CORD CONNECTOR
P/N 51279

FOOT PEDAL
P/N 51264



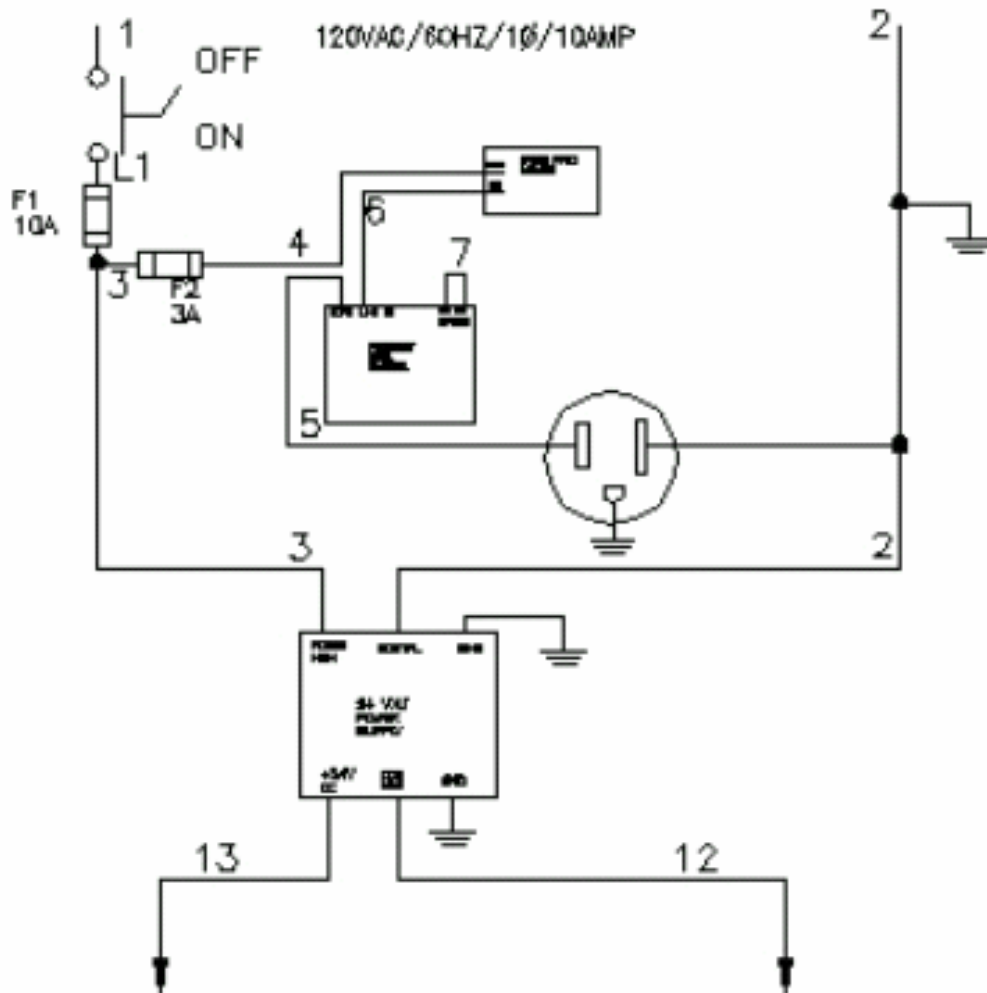
FOOT PEDAL INTERNAL CONNECTIONS
USE NORMALLY OPEN TERMINALS

GROUND
WIRE

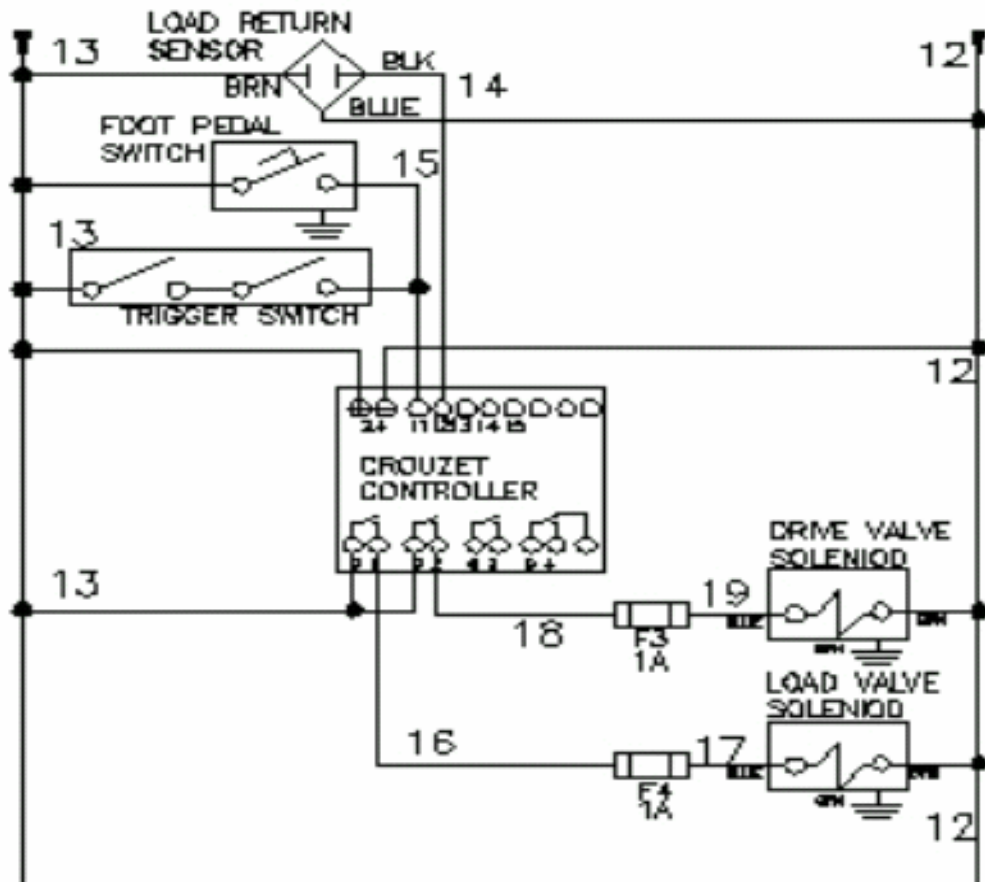
TERMINAL
CONNECTER
P/N 50093



ELECTRICAL SCHEMATIC 115 VOLT AC

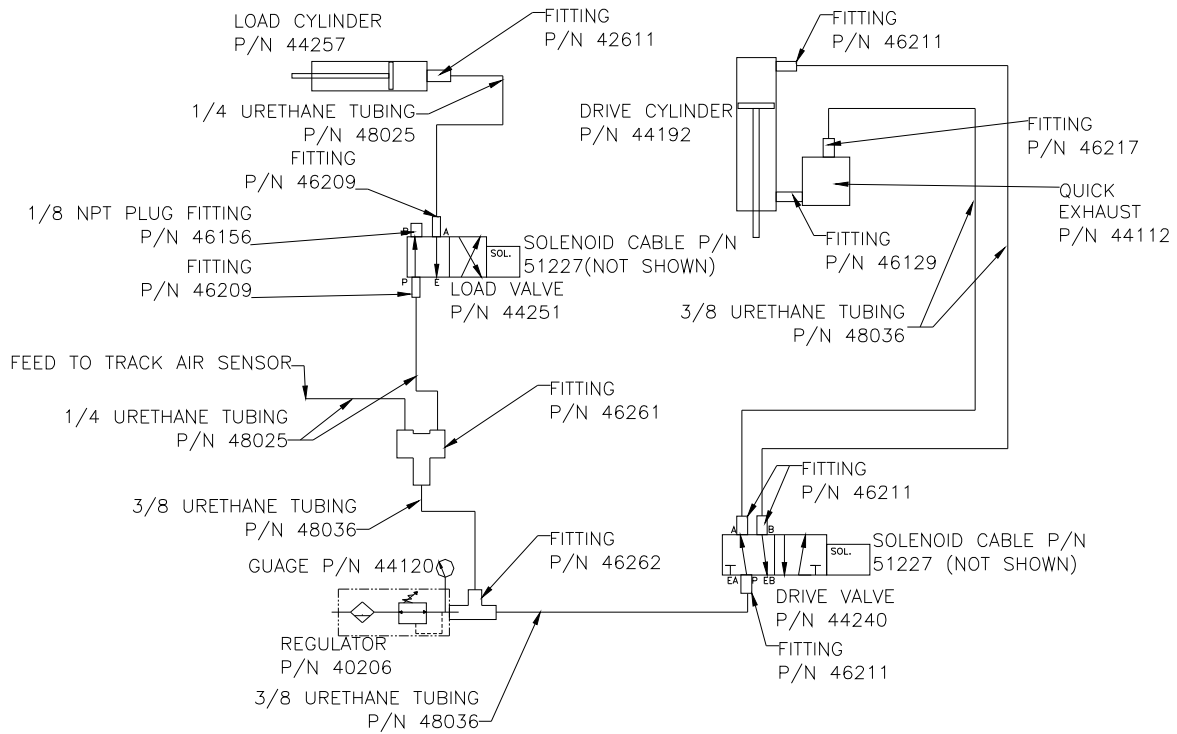


ELECTRICAL SCHEMATIC 24 VOLT DC



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PNEUMATIC DIAGRAM



GRIPNAIL MODEL 660R AUTOMATIC FASTENING CENTER

REPLACEMENT PARTS LIST

ITEM#	PART#	DESCRIPTION	QTY (EA OR FT)
1	30107	Load cylinder & sensor guard	1
2	62016	Nut, wing 1/4"-20	3
3	30134	Front guard	1
5	60203	Screw, socket set 1/4"-20 x 3/4"	4
6	30588	Anvil, 1-1/4" dia.	1
7	48025	Tubing, 1/4" urethane, black	10
8	48036	Tubing, 3/8" urethane, black	10
9	42274	Mount, rubber	4
10	62101	Nut, hex 1/4"-20	4
11	61402	Washer, 1/4" shakeproof	4
12	60030	Screw, flat head socket 1/4"-20 x 3/4"	4
13	62008	Nut, ESN 1/4"-20	2
14	61103	Washer, flat 3/8"	4
15	48014	HOSE PVC 1/8"	5
16	61102	Washer, flat 1/4"	1
17	46261	Y Fitting (1/4" Tube(2) x 3/8" Tube)	1
18	31249	Valve guard	1
19	44111	Cylinder foot bracket	2
20	20384	Track assembly	1
21	30117	Drive head bracket	1
22	60112	Screw, socket head cap 1/4"-20 x 2"	2

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REPLACEMENT PARTS LIST

ITEM #	PART #	DESCRIPTION	QTY (EA OR FT)
30	30112	Track Brace	1
31	44191	Drive cylinder	1
32	44257	Load cylinder	1
33	60118	Screw, socket head cap 5/16"-18 x 1"	4
34	60413	Bolt, hex 5/16"-18 X 2-1/2" gr 5	4
35	61102	Washer, flat 1/4"	6
36	61109	Washer, flat 5/16"	4
37	61205	Washer, lock 5/16" split	8
38	61304	Washer, shakeproof, 1"	2
39	62112	Nut, hex jam 1"-14	2
40	62009	Nut, esn 5/16"-18	4
41	20385	Load restrictor	1
42	20364	Transfer block	1
43	62202	Nut, jam 1/4"-28	1
44	31244	Load cylinder & sensor bracket	1
45	31245	Load cylinder plate	1
46	60112	Screw, socket head cap 1/4"-20 x 2"	2
47	61202	Washer, lock 1/4"	4
48	46211	Elbow, 1/4npt x 3/8 tube	1
49	46217	Connector, male 1/4npt x 3/8 tube	1
50	60701	Screw, Thumb, 1/4-20 x 1/2	1
51	20129	Standoff Assembly	1
52	30295	Magnetic driver	1
53	44112	Exhaust valve	1
54	61202	Washer, lock 1/4"	2
55	60116	Screw, socket head cap # 10-32 x 1"	2
56	60110	Screw, socket head cap 1/4"-20 X 1-1/2"	2
57	46129	Nipple, hex 1/4npt	1
58	31246	bracket, drive sensor	1
59	20140	Feeder bowl assembly	1
60	30901	Adapter plate	1

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REPLACEMENT PARTS LIST

ITEM #	PART #	DESCRIPTION	QTY (ea or ft)
61	31015	Spacer, 1.375"	4
62	42361-2	Feeder base, (dwg 42361-R4)	1
63	60153	Screw, socket head cap 5/16"-18 x 1-3/4"	1
64	60160	Screw, socket head cap 1/4"-20 X 2-1/4"	5
65	61103	Washer, flat 3/8"	1
66	61109	Washer, flat 5/16"	1
67	61202	Washer, lock 1/4"	4
68	60401	Screw, hex head #10-32 x 3/8"	2
69	61104	Washer, flat #10	2
70	61401	Washer, shakeproof #10	2
71	40206	Filter/ Regulator 1/2 npt	1
72	44120	Gage, regulator 1/4 npt, 0-160 psi	1
73	46262	Tee, 3/8" tube (2) x 1/2 npt	1
74	46167	Plug, hex socket 1/4 npt	1
75	31248	Bracket, regulator mounting	1
76	60101	Screw, socket head cap 1/4"-20 x 5/8"	4
77	61202	Washer, lock 1/4"	4
78	42445	Bracket, wall, with nut	1
79	20386	Electrical box with valve kit	
80	46211	Elbow, 1/4 npt x 3/8" tube	2
81	46217	Connector, male 1/4npt x 3/8" tube	1
82	46209	Elbow, 1/8 npt x 1/4" tube	1
83	46210	Connector, male 1/8 npt x 1/4" tube	1
84	44251	Valve, load	1
85	44240	Valve, drive	1
86	51227	Cord set, valve	2
87	60159	Screw, socket head cap # 8-32 x 1"	2
88	62014	Nut, ESN # 8-32	1
89	60169	Screw, socket head cap # 5-40 x 1-1/4"	2
90	62011	Nut, ESN # 5-40	1

GRIPNAIL MODEL 660R AUTOMATIC FASTENING CENTER

REPLACEMENT PARTS LIST

ITEM #	PART #	DESCRIPTION	QTY (EA OR FT)
91	50106	Wire, 18 gage, black	1
92	61403	Washer, shakeproof #8	4
93	51264	Foot pedal	1
94	51265	Base, selector switch - On/Off	1
95	51266	Switch, selector - On/Off	1
96	51267	Label, On/Off	1
97	51268	Proximity sensor	1
98	51269	Proximity sensor cable	1
99	51270	Crouzet controller	1
100	51272	Power supply—24 volts, 2.5 amps	1
101	51240	Fuse Holder , terminal block	4
102	51241	Fuse Holder, end section	2
103	51236	Terminal block	6
104	51235	Terminal block, ground	2
105	51238	Terminal block, end section	5
106	51237	Terminal block, end stop	5
107	50041	DIN rail	0.5
108	51273	Fuse 1A, MDL-1	2
109	51275	Fuse 10A, MDL-10	1
110	51274	Fuse, 3A, MDL-3	1
111	51276	Enclosure,electrical	1
112	51277	Panel	1
113	50303	Cord, electrical, with plug	1
114	60119	Screw, (air switch 50210)	2
115	62111	Nut, (air switch 50210)	2
116	50104	Wire, 16 ga, black	5
117	50111	Wire, 16 ga, green	2
118	51278	Jumper bar, terminal block	1
119	50407	Connector, SJO cord	4
120	50059	Lock nut, 1/2 conduit	4

GRIPNAIL MODEL 660R AUTOMATIC FASTENING CENTER

REPLACEMENT PARTS LIST

ITEM NUMBER	PART NUMBER	DESCRIPTION	QTY (EACH OR FEET)
121	51224	Control, feeder base	1
122	50210	Air switch	1
123	50096	Female disconnect, # 22-18 x .250", insulated	2
124	50302	Receptacle, 15A, 125V	1
125	50094	Fork terminal, 22-18 x # 8, insulated	3
126	51279	Connector, cord 3/4 K.O.	1
127	50103	Cord, 16/3 SJO	18
128	50090	Ring terminal, 16-14 x # 8, insulated	3
129	50127	Wire, 18 ga, blue	4
130	50097	Female disconnect, # 22-18 x .187", insulated	2
131	51145	Ring terminal, # 16-14 x 1/4", insulated	1
132	50093	Fork terminal, # 22-18 x # 6, insulated	3
133	60504	Screw, pan head, # 6-23 x 1/2"	4
134	46156	Plug, hex socket 1/8 npt	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
Gripnail Corporation**

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