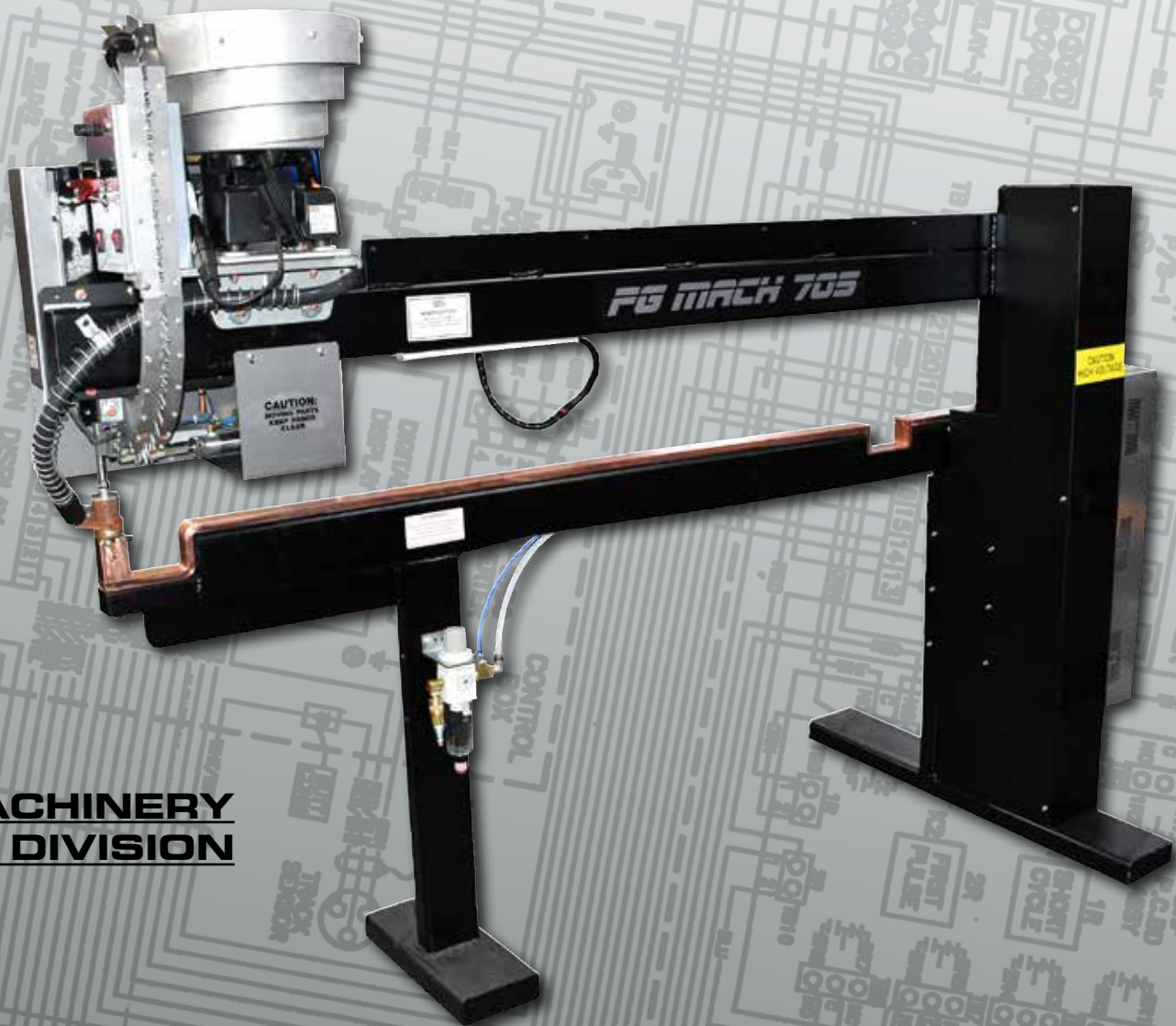


FG MACH 705

**AUTOMATIC BULK
FEED PINSPOTTER
ITEM # 27188**

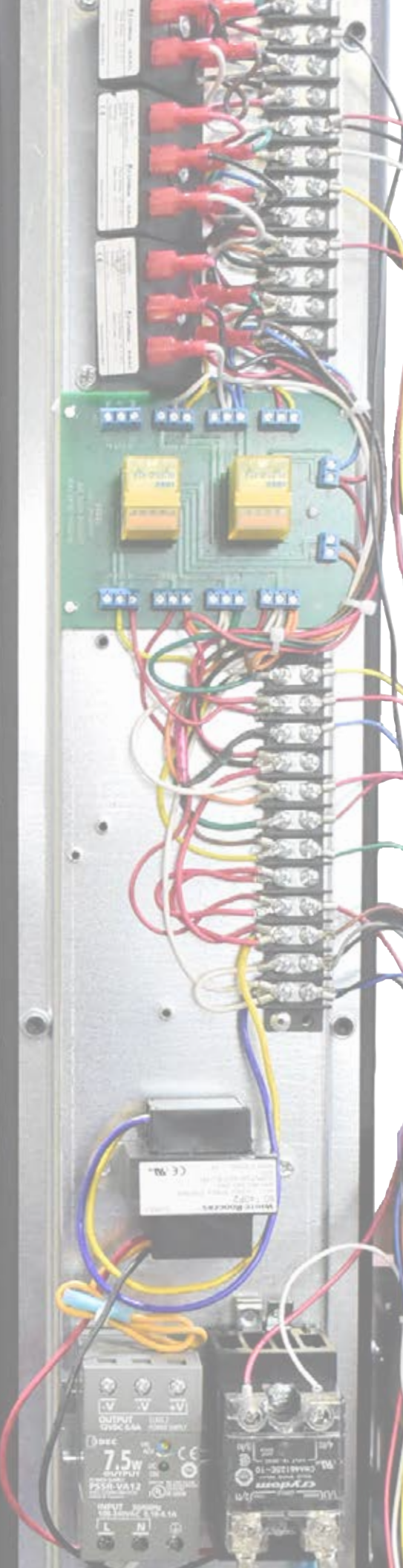


**MACHINERY
DIVISION**

**OWNER'S
MANUAL**

**DURO
DYNE**

**MACHINERY
DIVISION**



INTRODUCTION

The FG Mach 705 Pinspotter was designed utilizing the best current technology to provide greater insulation fastening power and reliability. The inherent minimal material handling combined with the utilization of welded fasteners will insure your shop of a cost efficient, quality product.

Trouble free service is the foundation on which all Duro Dyne Pin-spotters are built. Proven solid state components are located for easy access. Duro Dyne continues this concept and brings the FG Mach 705 to a new level of reliability, serviceability and efficiency.

This Guide is designed to help you set up and operate your FG Mach 705 at peak performance for years to come.

IMPORTANT

Always follow manufacturer's recommendations for proper safety and handling procedures for all materials used in conjunction with this machine as outlined in Manufacturer's Safety Data Sheet (MSDS) for each product.

LIMITED WARRANTY

Duro Dyne Machinery is manufactured by skilled mechanics, utilizing the latest production techniques. Each unit has been rigorously tested prior to packaging and shipment in order to ensure trouble-free operation.

Your Duro Dyne machine has a two year warranty against defects in material. Any component found to be defective will be repaired or replaced (at the manufacturer's discretion) at no cost if the faulty component is returned freight prepaid to the nearest Duro Dyne Service Department. The warranty does not apply to expendable parts or repairs or service due to improper maintenance or operation procedures.

Duro Dyne products have been engineered to maximize operator safety. Unauthorized modification of this product will void the warranty.

All warranty claims must be accompanied by a serial number, date of purchase and the name and address of the distributor it was purchased from.

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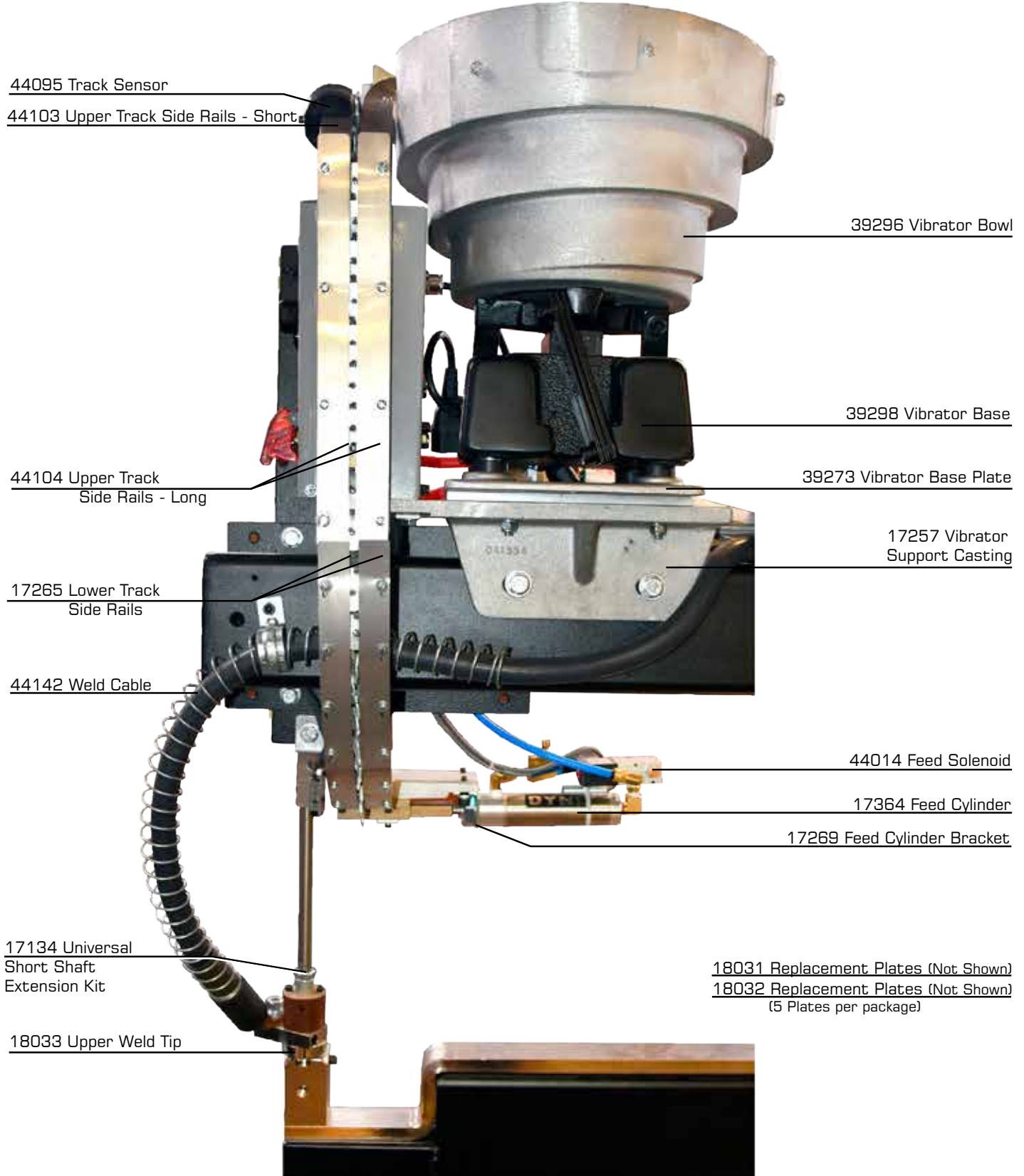
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PARTS LOCATION



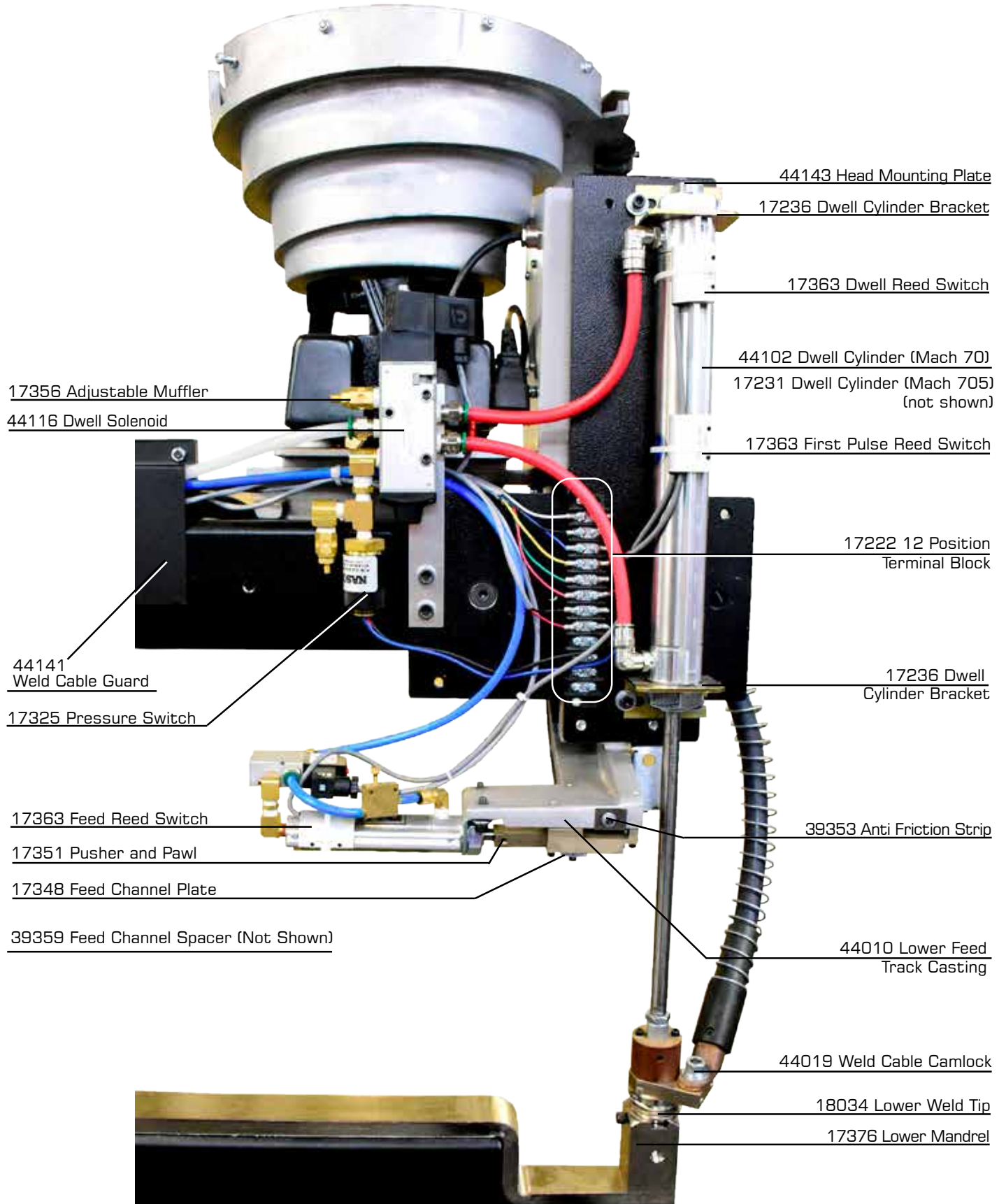
FRAME ASSEMBLY

PARTS LOCATION



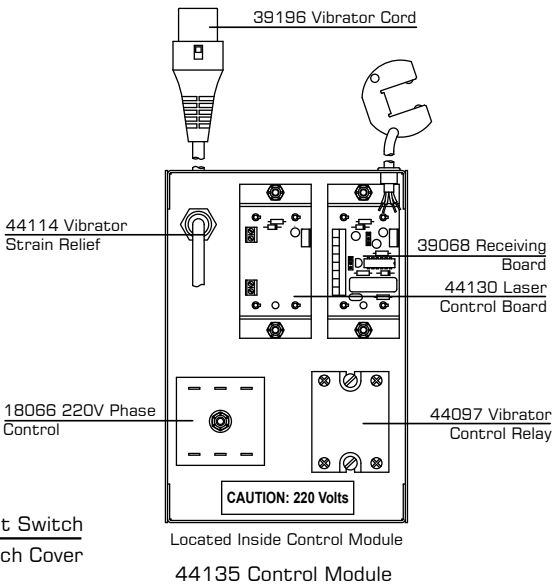
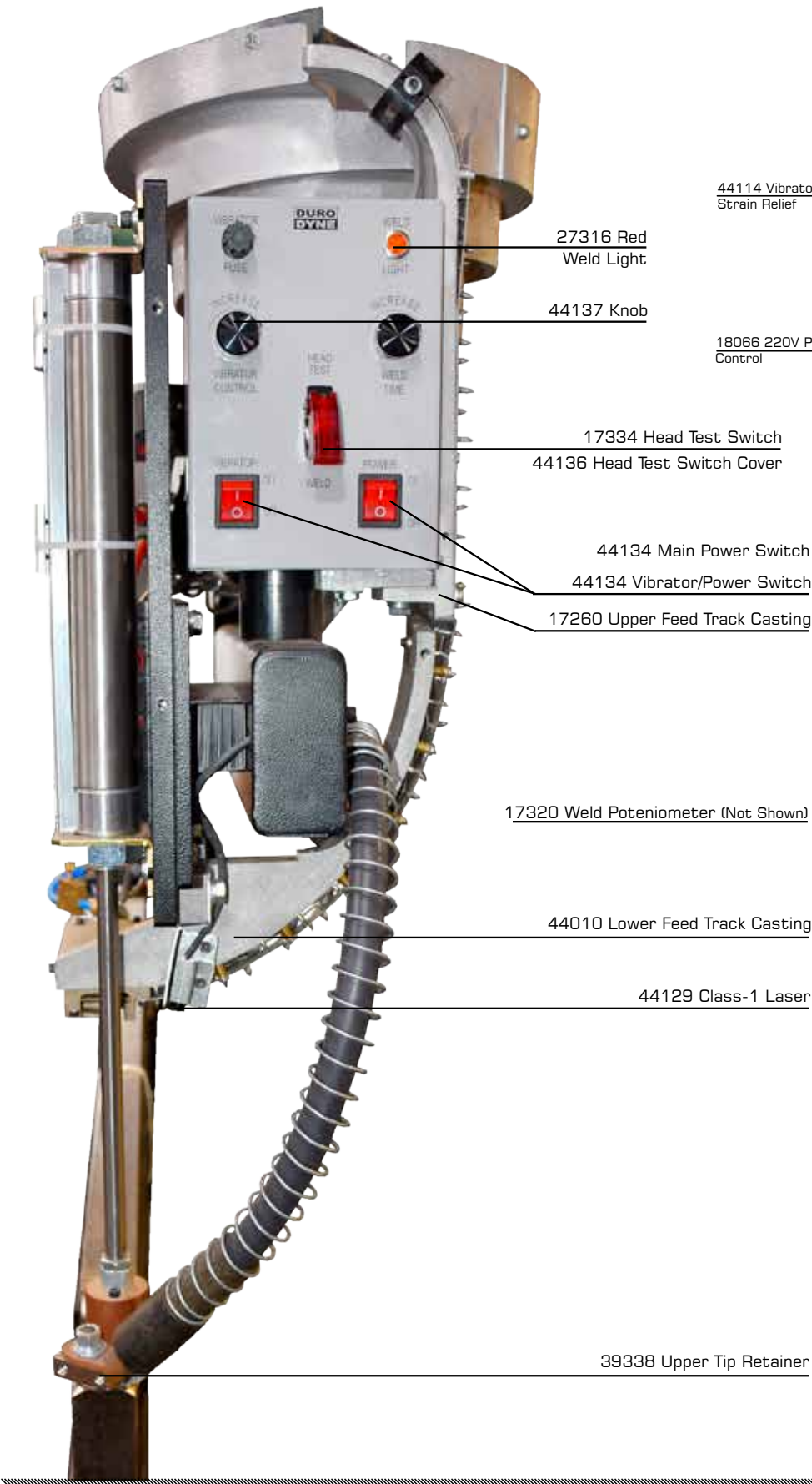
DWELL & FEED ASSEMBLY (1)

PARTS LOCATION



DWELL & FEED ASSEMBLY (2)

PARTS LOCATION



CONTROL CONSOLE

PARTS LOCATION

17319 Feed Timer

17319 Weld Timer

17319 Dwell Timer

17323 Short Cycle Relay

17323 First Pulse Relay

44051 Relay Board

44138 Component Chassis

44091 24V Multi-Tap
Transformer

44052 12 Volt DC
Power Supply

44096 Solid State Relay

LEFT LEG CONSOLE

PARTS LOCATION

17327 Footswitch
Receptacle

44139 Weld Cable - Short

44019 Weld Cable Camlock

Red shrink wrapped tube
to prevent accidental cross tapping

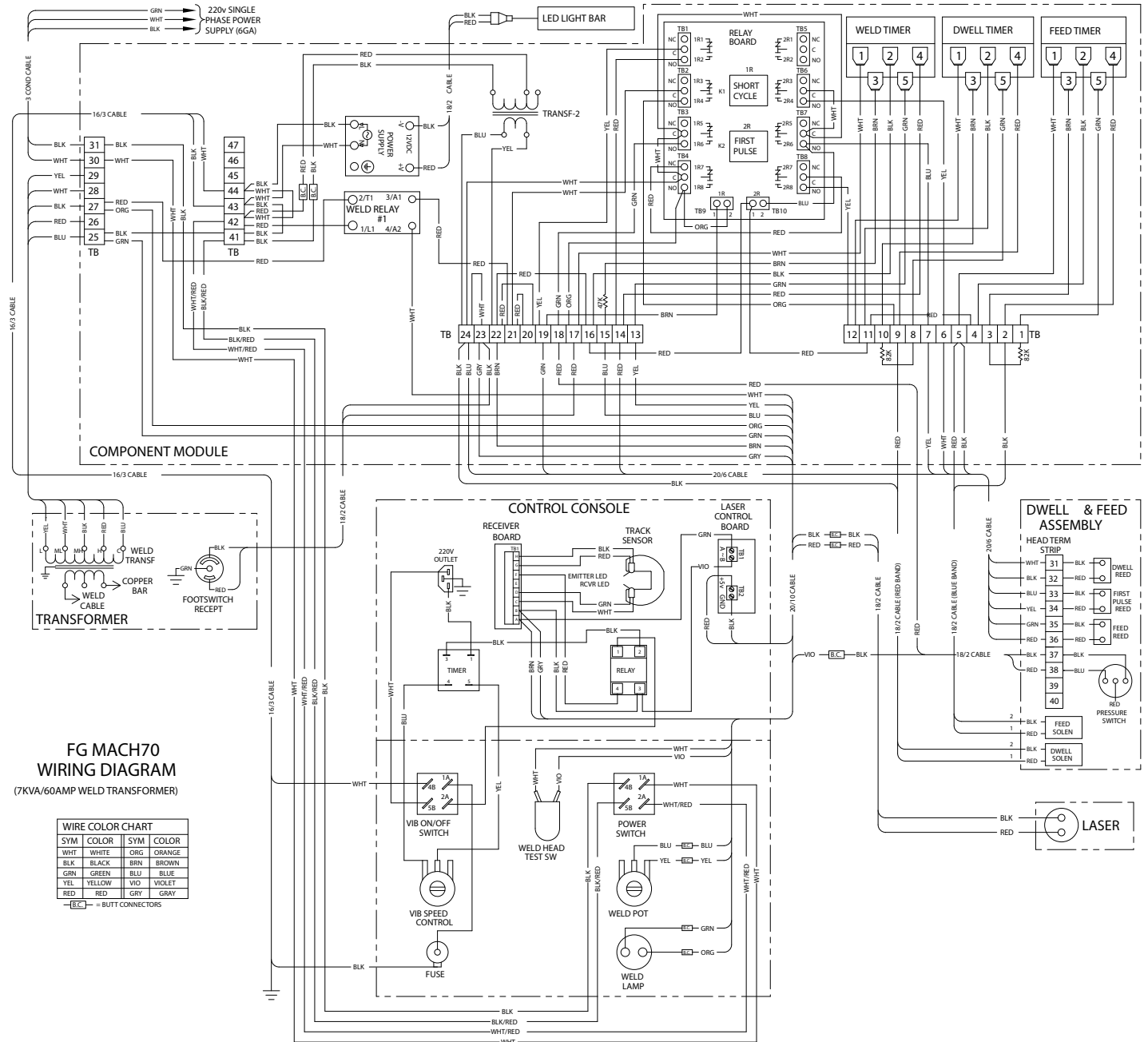
44101 Weld Transformer

9145 Line Cord w/
Strain Relief

MACH III TRANSFORMER ENCLOSURE

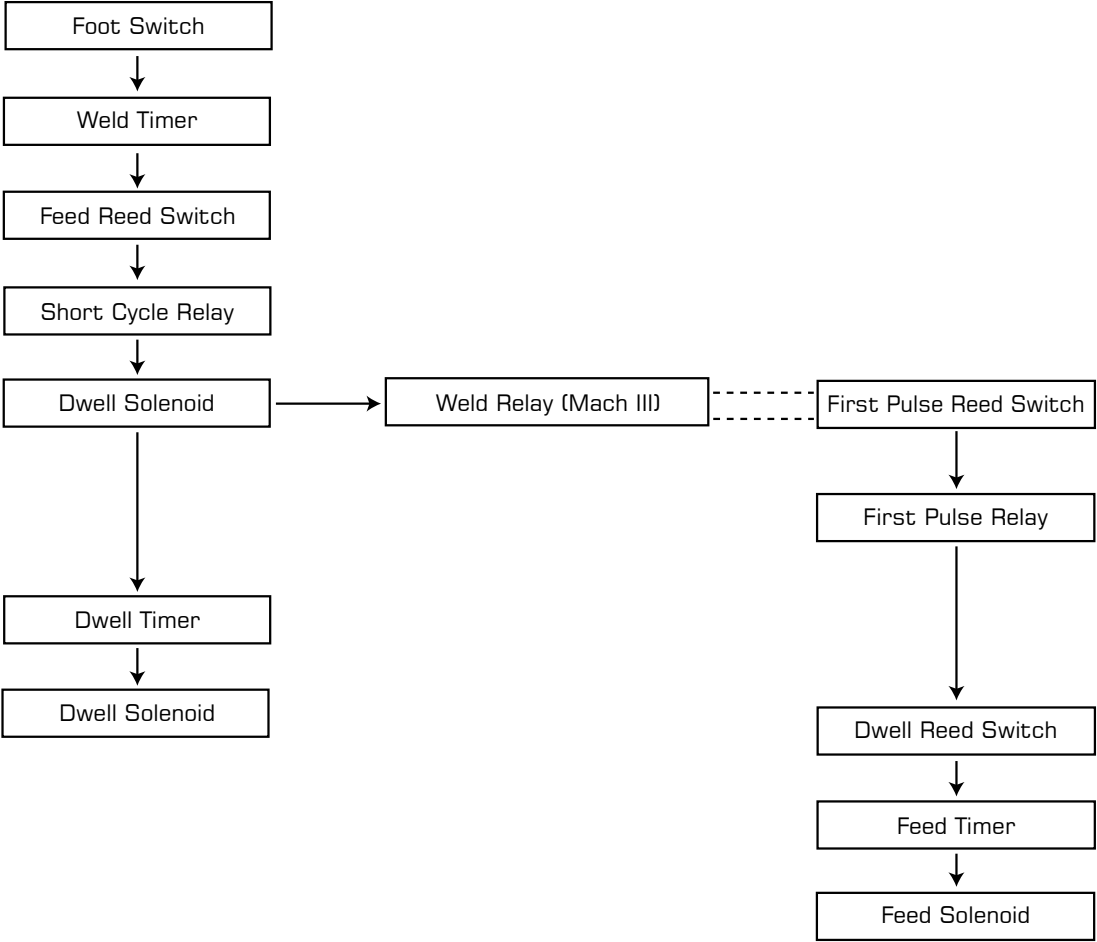
WIRING DIAGRAM

B455-01-07/4-26-22/PRN-455/JO

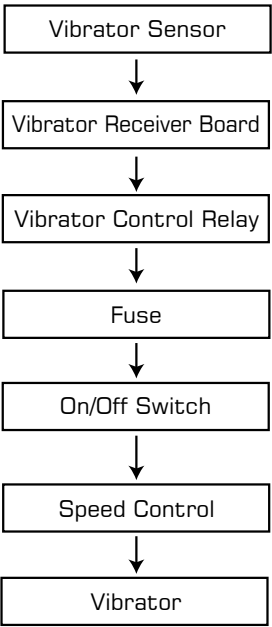


FG MACH 70

OPERATION FLOW CHART FOR CONTROLS



OPERATION FLOW CHART FOR VIBRATOR

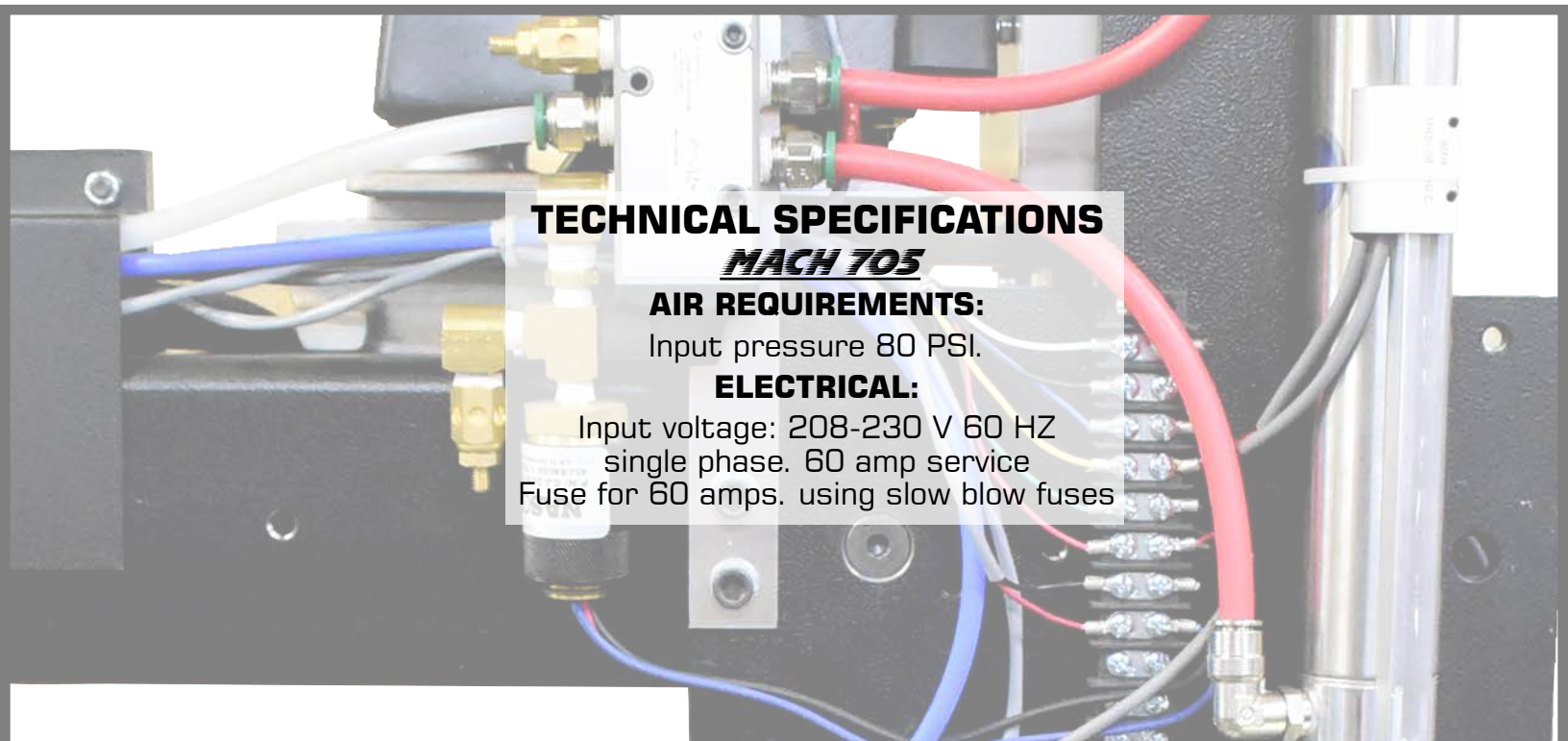


INSTALLATION INSTRUCTIONS

1) For the Mach 705-

Connect the Power Pack to a source of 208-230 V 60 Amp. power. This service should be connected to a 60 amp disconnect box fitted with 60 amp slow blow fuses. The Power supply line to the Power Pack pigtail should be #6 (or heavier) wire to minimize voltage losses. The black and white wires are the power, the green is ground. Select the closest match to the Power Supply (either 208V or 240V) at the Incoming Voltage Selector Switch in the Component Module.

- 2) Attach the Footswitch to the Footswitch Receptacle on the rear of the Power Pack.
- 3) Connect the air line to the Regulator. Adjust the regulator pressure to 80-85 PSI.
- 4) Plug the Vibrator Line Cord into the socket on the rear of the Control Console.



TECHNICAL SPECIFICATIONS

MACH 705

AIR REQUIREMENTS:

Input pressure 80 PSI.

ELECTRICAL:

Input voltage: 208-230 V 60 HZ
single phase. 60 amp service
Fuse for 60 amps. using slow blow fuses

OPERATION

Mach 705 INITIAL ADJUSTMENTS

- 1) Turn the power switch to "ON".
- 2) Turn the vibrator switch to "ON".
- 3) Add the weld pins to the hopper (Vibrator Bowl).
- 4) Adjust the vibrator speed so that the weld pins climb the spiral track inside the vibrator bowl without vibrating off.
- 5) When the weld pins fill the track up to the Vibrator Sensor, the vibrator automatically shuts off.
- 6) Flip the HEAD TEST switch to the "WELD" position.

STARTING OPERATION

- 1) Never actuate the unit without metal over the mandrel. For maximum weld quality, the metal should be in flat contact with the mandrel. An adjacent table or roller on which the sheet metal rests must be either exactly flush with, or slightly below, the top of the mandrel.

- 2) The WELD TIME knob controls the weld quality of the pinspotter. It is recommended that an initial setting right in the middle be used and then adjust up or down accordingly in reference to the quality of welds.

Weld time is the length of time the welding transformers are on. A fraction of a second is generally all the time needed for a quality weld. Unnecessary weld time not only wastes energy but can also burn up the pins. (If the pins glow red up to the washer, the weld time is set too high.) Always set the weld timer to the minimum time required for a "good" weld.

- 3) Before beginning production, always "pre-test" with smaller pieces of the same gauge sheet metal thickness and liner density you intend to use in the final production. The different densities and the thicknesses of the liner may require adjustments of the weld timer setting. For example: heavier gauge steel, thicker liner, higher density liner and/or longer clip pins may require longer weld time. To make sure, always pre-test any adjustment before you begin "final production." However, only change the weld timer settings when a change in the materials results in inefficient welding or a poor quality weld.

NOTES:

1. The Feed Reed Switch is a safety that will not allow the machine to operate if the feed cylinder is not fully retracted. The Feed Reed Switch is located on the Feed Cylinder. To check that the Feed Reed Switch is positioned properly, loosen the set screws and put an Ohm meter on terminals 35 and 36 exhaust. Slide the Feed Reed Switch back and forth until continuity is indicated, then tighten the set screws.
2. Check that the Air Regulator is set for 80 psi. Mounted on the Dwell Solenoid are two Adjustable Mufflers. The top one adjust the speed of the cylinder moving down and the bottom one adjust the speed up. These mufflers can become restricted or loose. If the machine is sluggish or starts slamming down, adjust these mufflers accordingly.
3. The First Pulse Reed Switch is located in the middle of the Dwell cylinder.
4. To check that the Dwell Reed Switch is positioned properly, loosen the set screws and put an Ohm meter on terminals 31 and 32. Slide the Dwell Reed Switch up and down until continuity is indicated, then tighten the set screws.
5. Mounted on the Feed Cylinder is a Feed Speed Control. The Feed Speed Control adjusts how fast the Pusher With Pawl assembly moves in and out. If adjusted too fast the pins may be tossed past the tip. If adjusted too slow the pins will not be placed on the tip.

MAINTENANCE

- 1) To prolong the weld tip life and improve the weld quality, it is imperative that the weld tips always be kept clean. For best results, use a solvent to remove any built-up adhesive; a wire brush to remove any galvanizing deposits; and a fine emory cloth to smooth the tip surfaces.
- 2) When the lower weld tip becomes worn in one area, loosen the locking cap screw and rotate the point of wear away from the point of contact. If this cannot be done because the lower weld tip is too badly pitted, replace the lower weld tip plate. Loosen set screw in weld tip shaft. remove 2 slotted screws. Assemble new weld plate in reverse order. Additional lower weld tip plates can be ordered from your local distributor.
- 3) Depending on usage and maintenance, the upper welding tip plate will have to be periodically replaced. The replacement weld tip plates can be ordered from your local distributor. To replace the upper weld tip, loosen the locking cap screw and remove the weld tip. To replace the plate remove the three (3) brass screws. Discard the screws and attach the new plate to the tip using the three brass screws supplied. Be sure to align the angled section of the plate so it faces the feed mechanism. Then lock the tip in place. Cycle the machine to check the feeding.
- 4) If the feeding is erratic, re-adjust the upper weld tip height by loosening the lock nut and then turning the dwell cylinder shaft clockwise to raise the tip; counter-clockwise to lower the tip. Lock the tip in position with the locking nut.

SERVICING

A SIMPLIFIED STEP-BY-STEP PROCEDURE

Duro Dyne has called upon its many years of pinspotting experience in designing the FG Mach 70. Your unit has been rigorously factory tested and inspected to provide many years of dependable service.

WHAT TO DO BEFORE YOU BEGIN TROUBLESHOOTING:

CONSULT THE MANUAL.

Most of the functional problems that occur are due to an oversight in the set-up, operational or normal maintenance procedures. Therefore, you should re-check all "Set Up", "Initial Adjustment", "Operation" and "Maintenance" procedures.

INSPECT THE UNIT

If the problem still persists, the next step is careful visual inspection. Turn off the electricity - that is, disconnect your Pinspotter from its power supply and carefully check the control box for loose, broken or disconnected wires. Also check the air circuit for leaky air connections or cut hoses.

HOW TO IDENTIFY WELD QUALITY PROBLEMS

By weld we mean that the Power Pack is energized, sending a pulse of electricity through the weld pin, causing it to begin to fuse to the sheet metal. To properly troubleshoot the weld quality problems, you must first pinpoint the symptom by test welding the clip pins to bare sheet metal. The symptom will then show up in one of four categories:

- 1) The pins weld to bare metal but not on lined work.
- 2) The pins weld to bare metal but can easily be removed.
- 3) Pins weld to bare metal but remain on the weld tip as it retracts.
- 4) The pins do not weld at all.

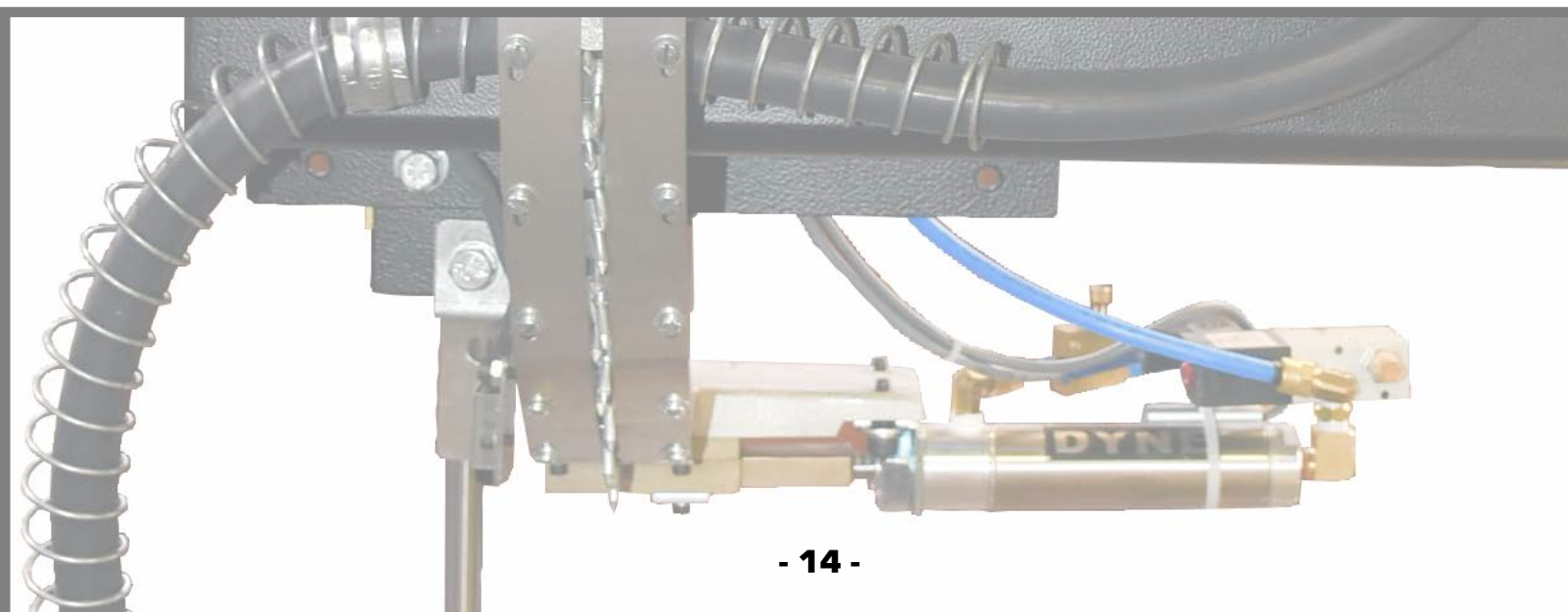
Before troubleshooting, always check:

- 1) Air pressure for a minimum of 80 PSI during usage of unit.
- 2) The input Voltage for a minimum of 208V and a maximum of 230V.
- 3) The Weld Timer is set properly.
- 4) The Upper and the Lower Weld tips for extreme wear.

For assistance, please call Duro Dyne Technical Service Department at 1-800-899-3876 between the hours of 7AM - 6PM EST.

PARTS LIST

09145	Line Cord w/ Strain Relief	39273	Vibrator Base Plate
17084	Air hose 3/8" natural	39296	Vibrator Bowl Assembly
17134	Universal Short Shaft Extension Kit	39298	220V Vibrator with cord
17198	Track casting spacers and screws	39338	Upper tip retainer
17222	12-Pos Term Block		
17231	Dwell Cylinder - FG Mach 705	39353	Anti-friction strip
17236	Dwell Cylinder Bracket	39359	Feed channel spacer
17257	Vibrator support casting	40102	Air hose 3/8" blue
17260	Upper feed track casting	40105	Air hose 1/4" yellow
17265	Lower track side rails	40106	Air hose 1/4" blue
17266	Feed channel	44010	Lower track casting
17269	Feed cylinder bracket	44014	Feed solenoid
17288	Footswitch plug	44019	Weld cable camlock
17319	Dwell timer	44022	Lower ground bar
17319	Feed timer	44051	Relay Board
17319	Weld timer	44052	12 volt DC power supply
17320	Weld Potentiometer	44091	24V Multi-Tap Transformer
17323	Short cycle relay	44095	Track Sensor
17323	First pulse relay	44096	Solid State Relay
17325	Pressure switch	44097	Vibrator Control Relay
17327	Footswitch receptacle	44101	220V 7KVA MCI Transformer
17334	Head Test Switch	44102	Dwell Cylinder - FG Mach 70
17348	Feed channel plate	44103	Upper Track Side Rail - Short
17351	Pusher and pawl	44104	Upper Track Side Rail - Long
17356	Adjustable muffler	44114	Vibrator Strain Relief
17363	Dwell reed switch	44116	Dwell Solenoid Assembly
17363	First pulse reed switch	44129	Class-1 Laser
17363	Feed reed switch	44130	Laser /Control PC Board
17364	Feed cylinder	44131	Laser/Control PC Board Kit
17372	Footswitch	44135	Mach70 Control Module
17376	Lower mandrel	44141	FG70 Weld Cable Guard
17377	Air regulator	44142	FG70 Front Weld Cable
18031	Upper weld tip plates - (5/pkg)	44143	FG70 Head Mounting Plate
18032	Lower weld tip plates - (5/pkg)	44134	Main Power/Vibrator Switch
18033	Upper weld tip	44135	Control Module
18034	Lower weld tip	44136	Head Test Switch Cover
18066	200V Phase Control	44137	Potentiometer Knob
27316	Red Weld Light	44138	Component Chassis
39068	Receiver Board	44139	Weld Cable - Short
39196	220V Vibrator Female Cord	44140	Front Cylinder Chassis



NOTES





Please Visit Our Website
www.durodyne.com

for the most up to date product information.



MACHINERY DIVISION

7/15/2026

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