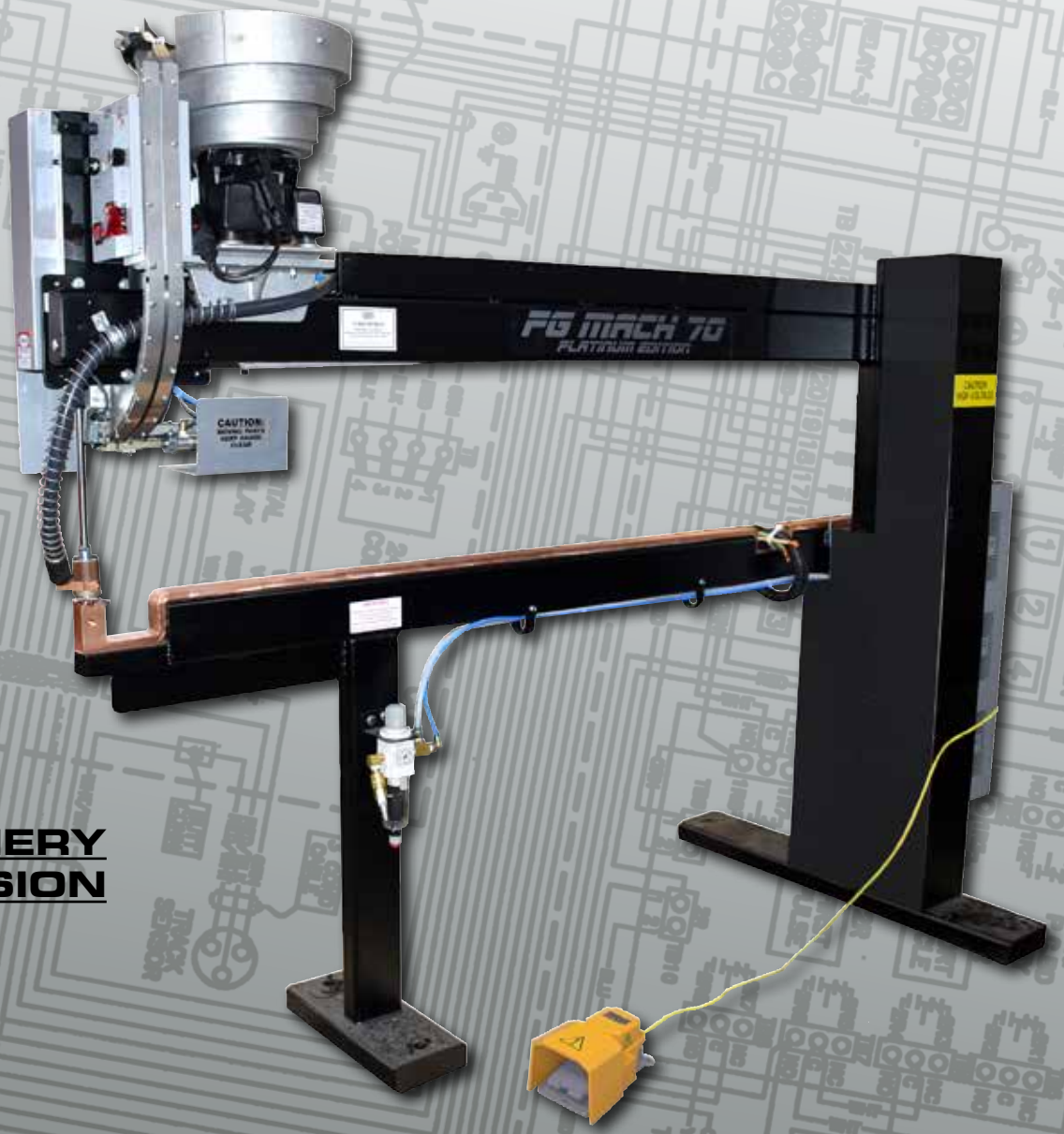
FG MACH 70
PLATINUM EDITION

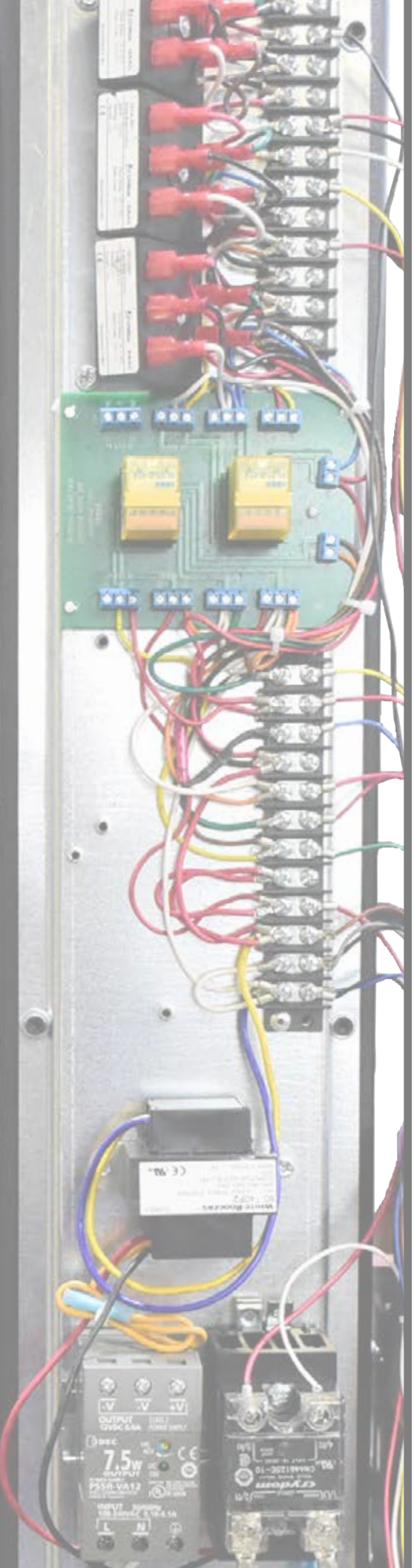
AUTOMATIC BULK FEED PINSPOTTER
ITEM # 27184



MACHINERY DIVISION

OWNER'S MANUAL

DURO DYNE®
MACHINERY DIVISION



INTRODUCTION

The FG Mach 70 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 Pinspotters are built. Proven solid state components are located for easy access. Duro Dyne continues this concept and brings the FG Mach 70 to a new level of reliability, serviceability and efficiency.

This Guide is designed to help you set up and operate your FG Mach 70 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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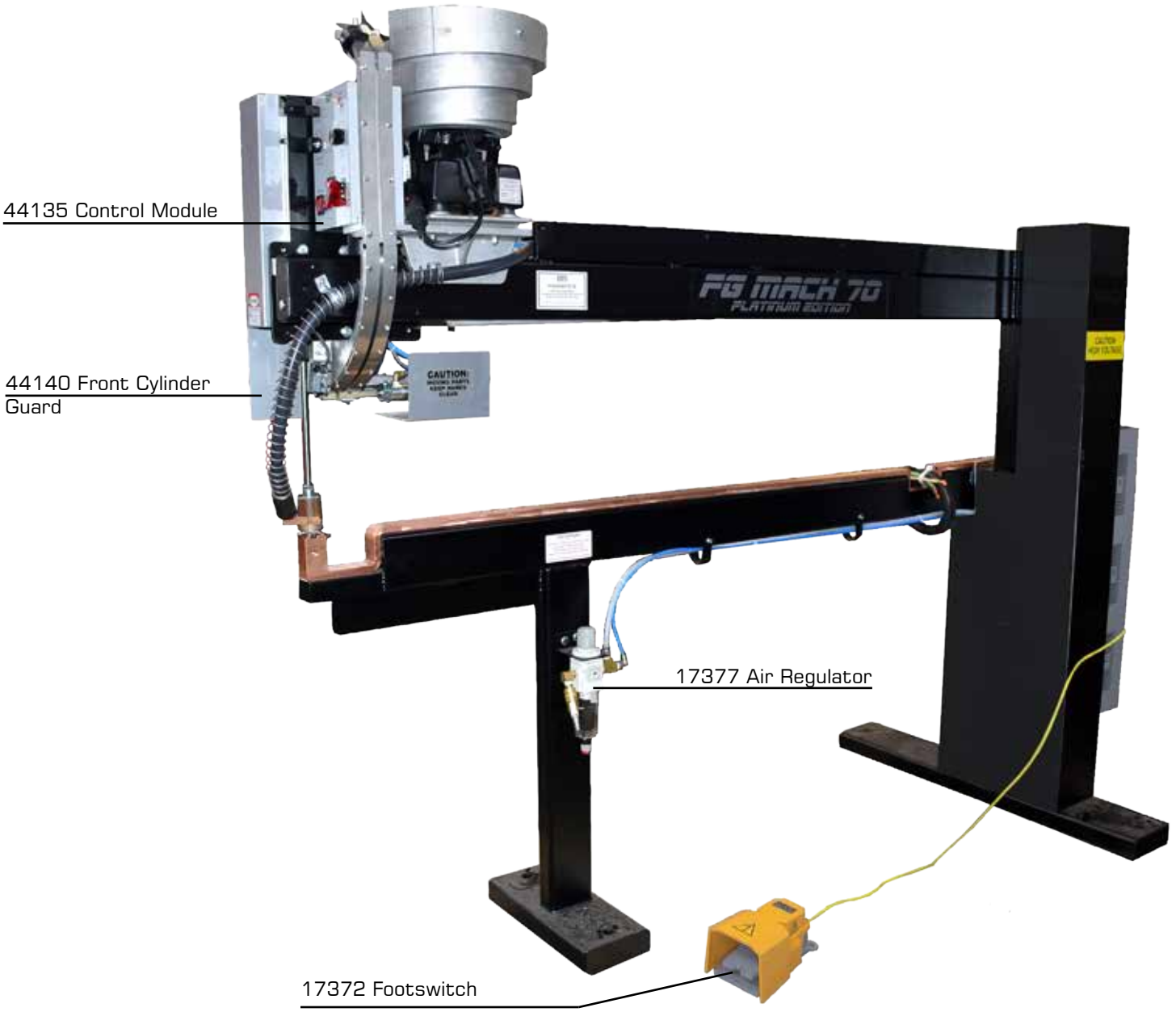
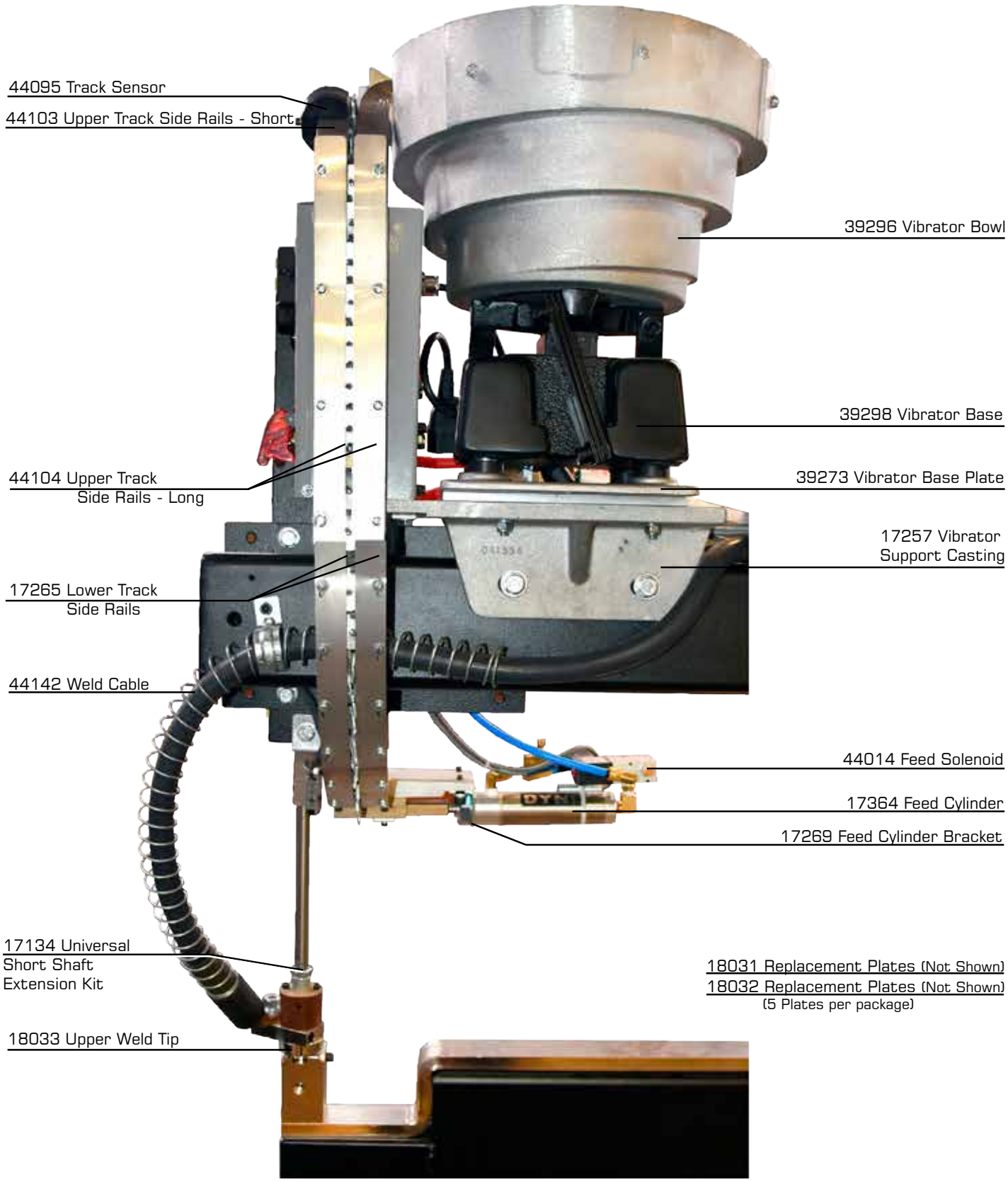
PARTS LOCATION

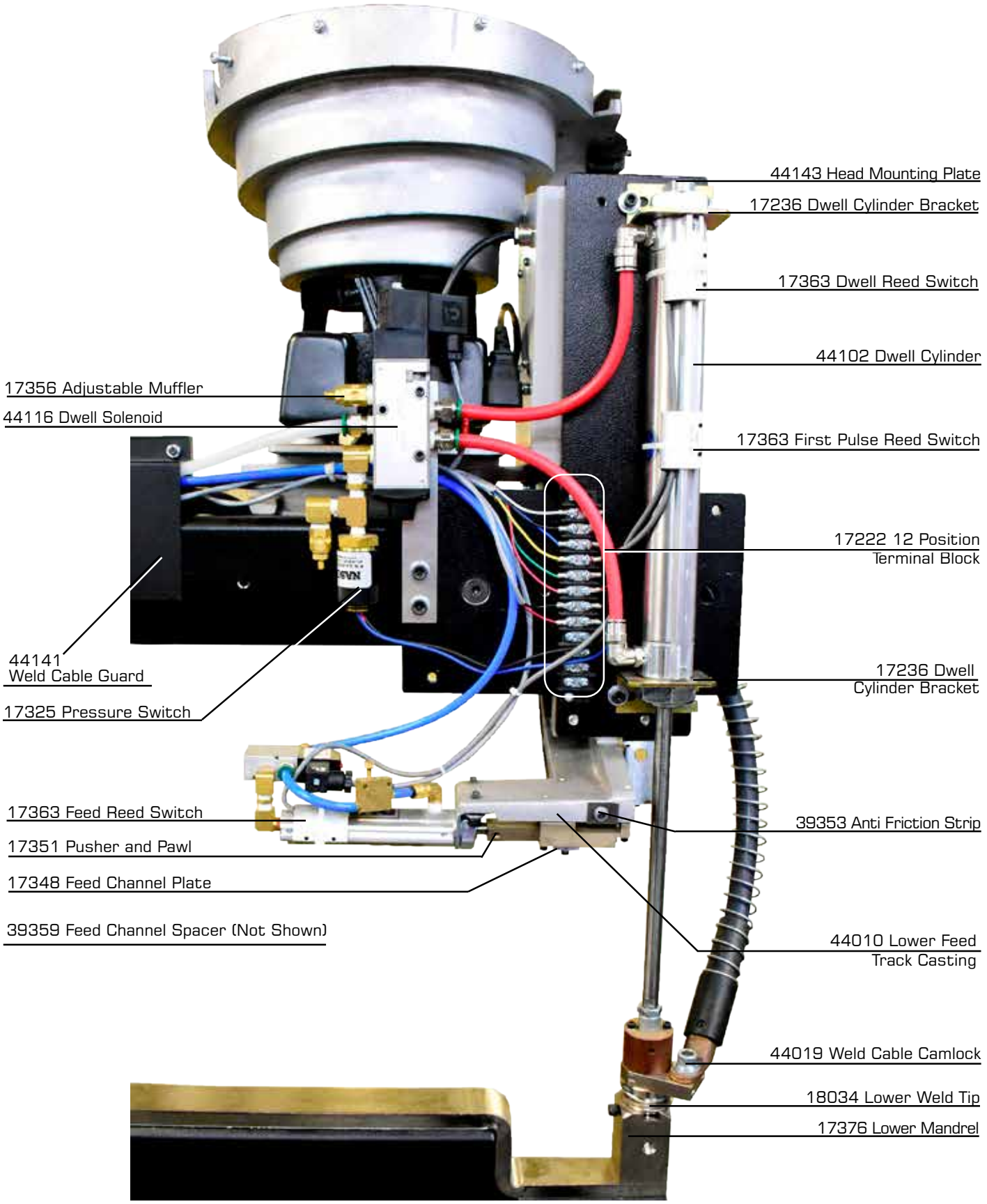


PARTS LOCATION



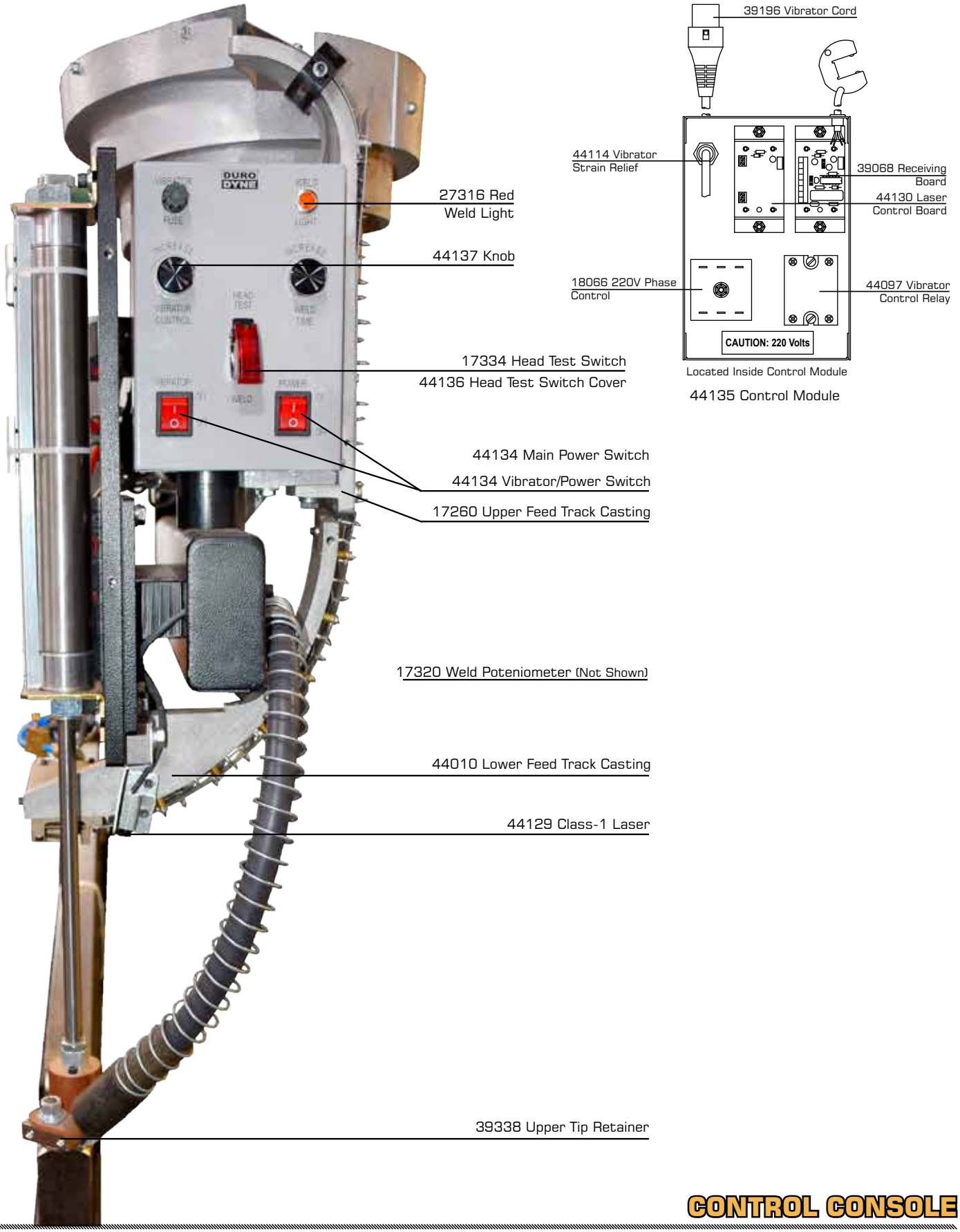
DWELL & FEED ASSEMBLY (1)

PARTS LOCATION



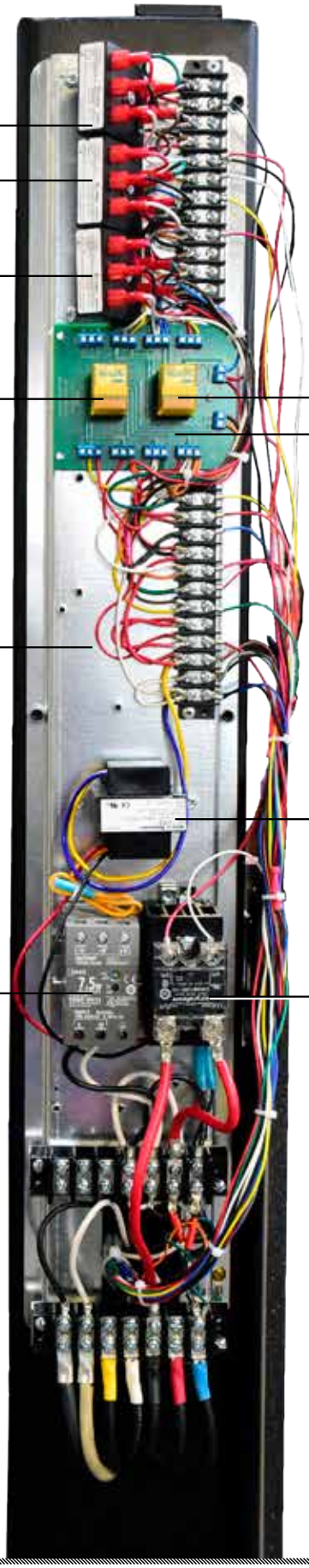
DWELL & FEED ASSEMBLY (2)

PARTS LOCATION



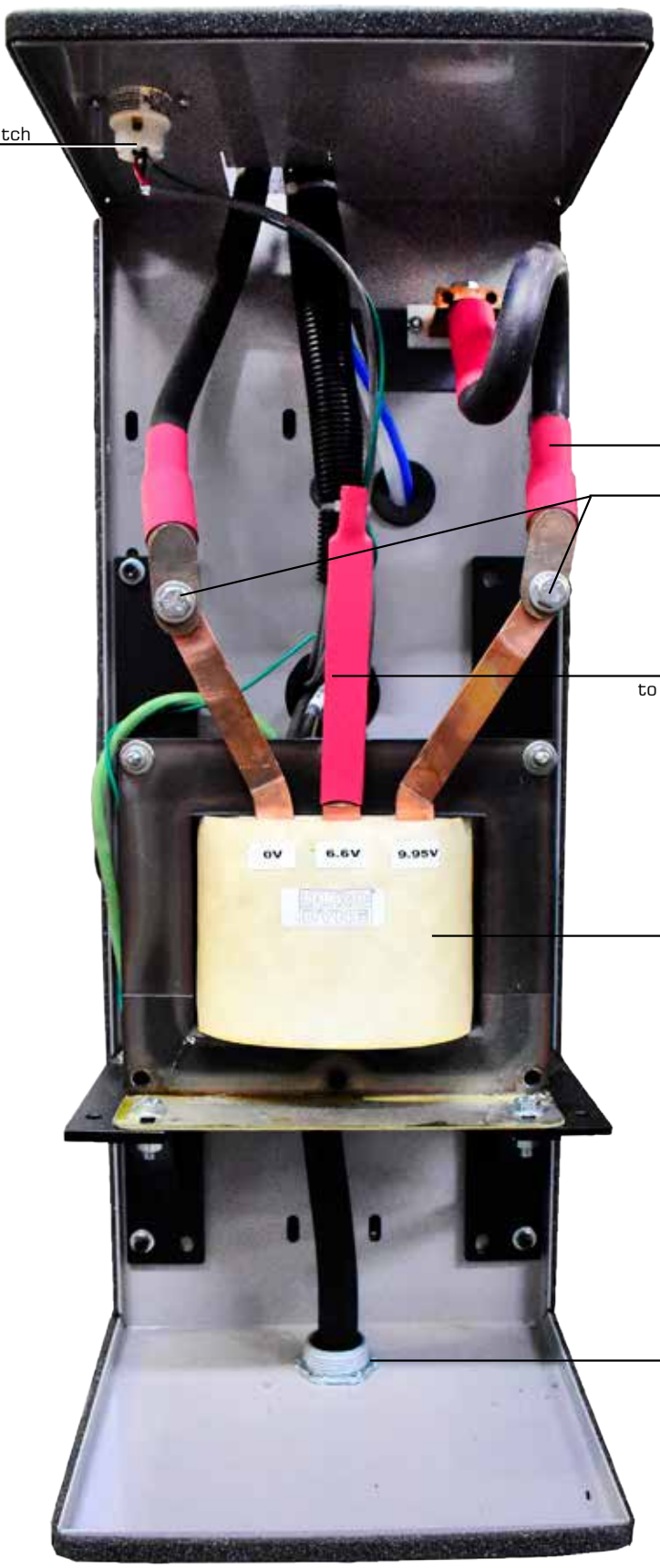
CONTROL CONSOLE

PARTS LOCATION



LEFT LEG CONSOLE

PARTS LOCATION



17327 Footswitch Receptacle

44139 Weld Cable - Short

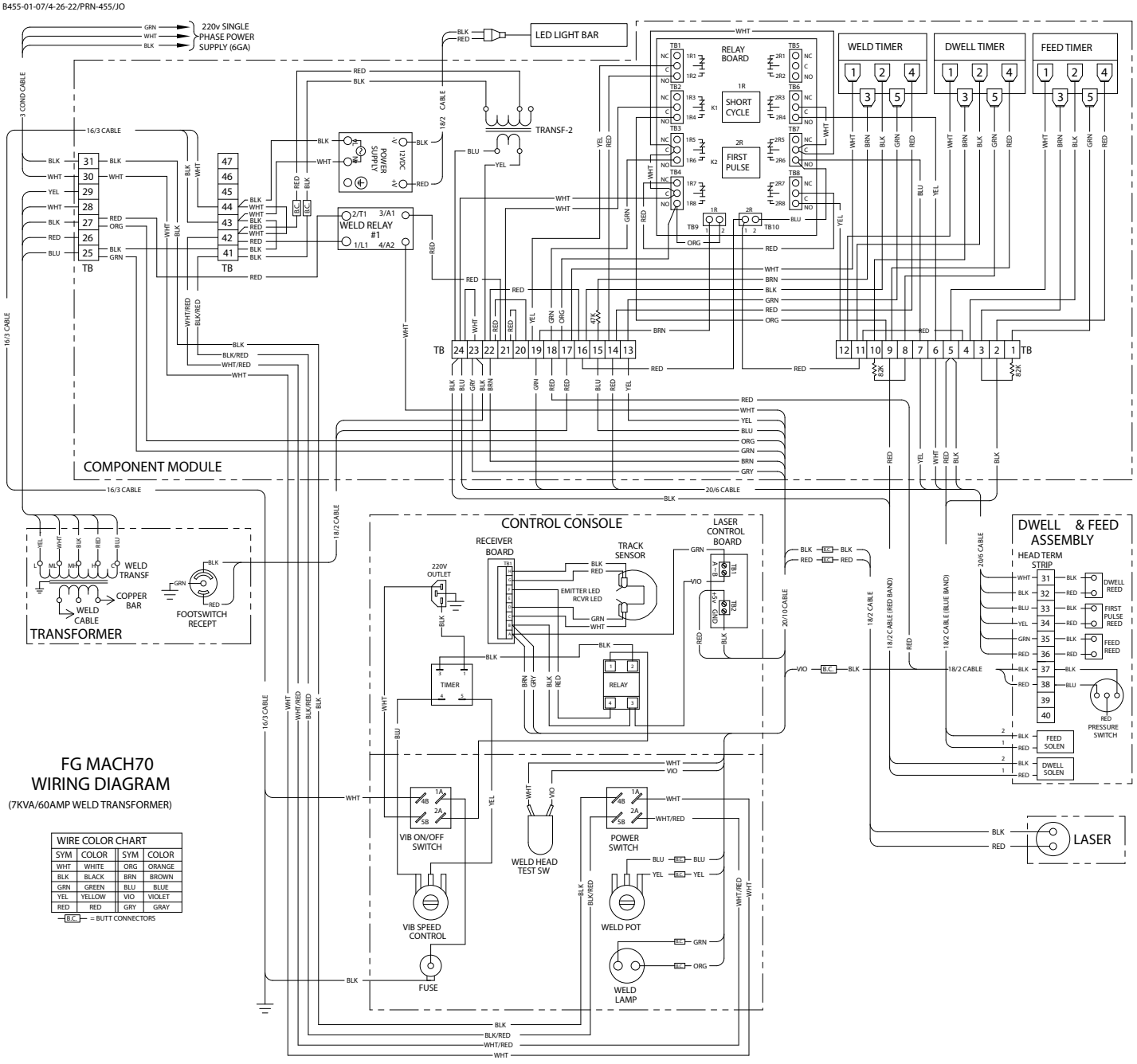
44019 Weld Cable Camlock

Red shrink wrapped tube to prevent accidental cross tapping

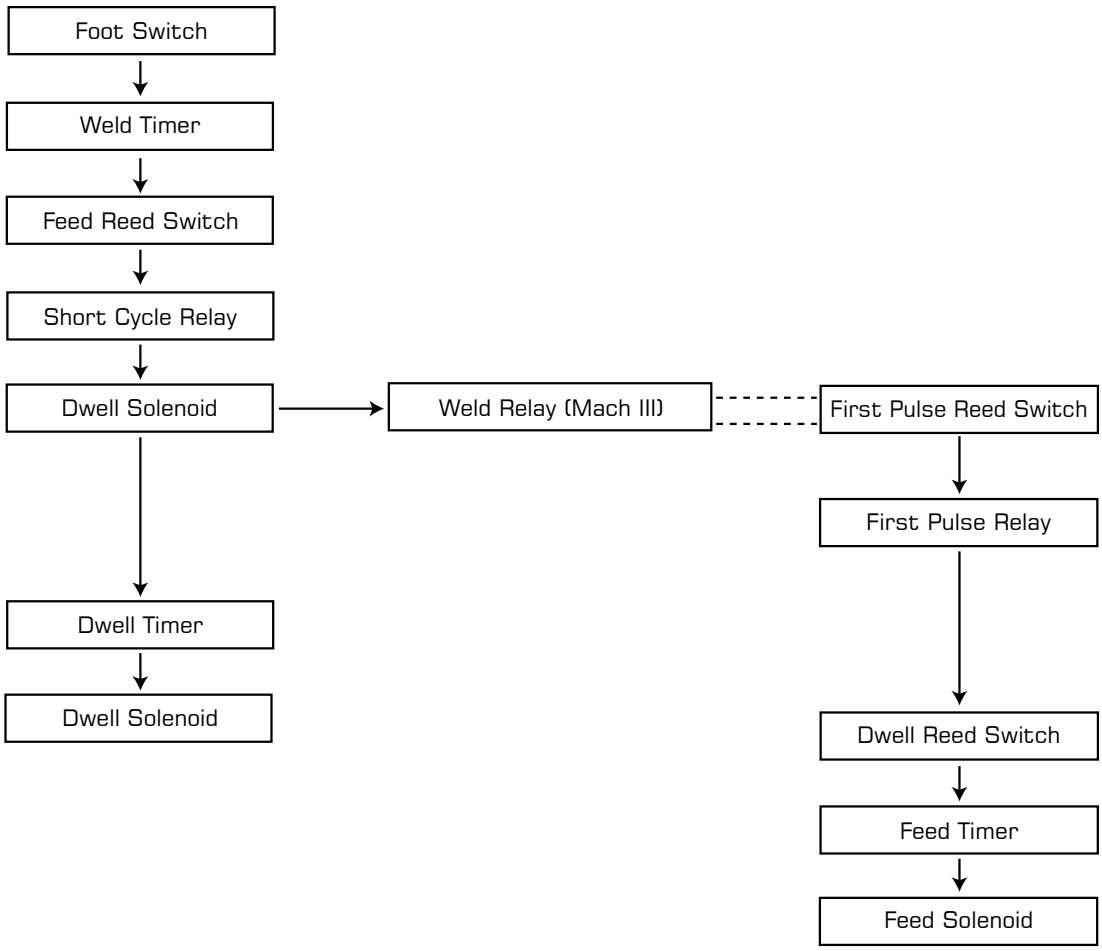
44101 Weld Transformer

9145 Line Cord w/ Strain Relief

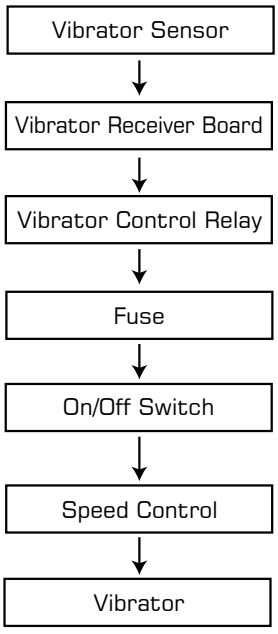
MACH III TRANSFORMER ENCLOSURE


B455-01-07/4-26-22/PRN-455/JO
220v SINGLE PHASE POWER SUPPLY (6GA)
LED LIGHT BAR
RELAY BOARD
WELD TIMER
DWELL TIMER
FEED TIMER
SHORT CYCLE
FIRST PULSE
TRANSF-2
WELD RELAY #1
POWER SUPPLY
COMPONENT MODULE
CONTROL CONSOLE
RECEIVER BOARD
TRACK SENSOR
LASER CONTROL BOARD
DWELL & FEED ASSEMBLY
HEAD TERM STRIP
DWELL REED
FIRST PULSE REED
FEED REED
PRESSURE SWITCH
FEED SOLEN
DWELL SOLEN
LASER
TRANSFORMER
WELD TRANSF
COPPER BAR
WELD CABLE
FOOTSWITCH RECEPT
220V OUTLET
EMITTER LED RCVR LED
TIMER
RELAY
VIB ON/OFF SWITCH
VIB SPEED CONTROL
FUSE
WELD HEAD TEST SW
POWER SWITCH
WELD POT
WELD LAMP
FG MACH70
WIRING DIAGRAM
(7KVA/60AMP WELD TRANSFORMER)
WIRE COLOR CHART
SYM COLOR SYM COLOR
WHT WHITE ORG ORANGE
BLK BLACK BRN BROWN
GRN GREEN BLU BLUE
YEL YELLOW VIO VIOLET
RED RED GRY GRAY
B.C. = BUTT CONNECTORS

OPERATION FLOW CHART FOR CONTROLS



OPERATION FLOW CHART FOR VIBRATOR



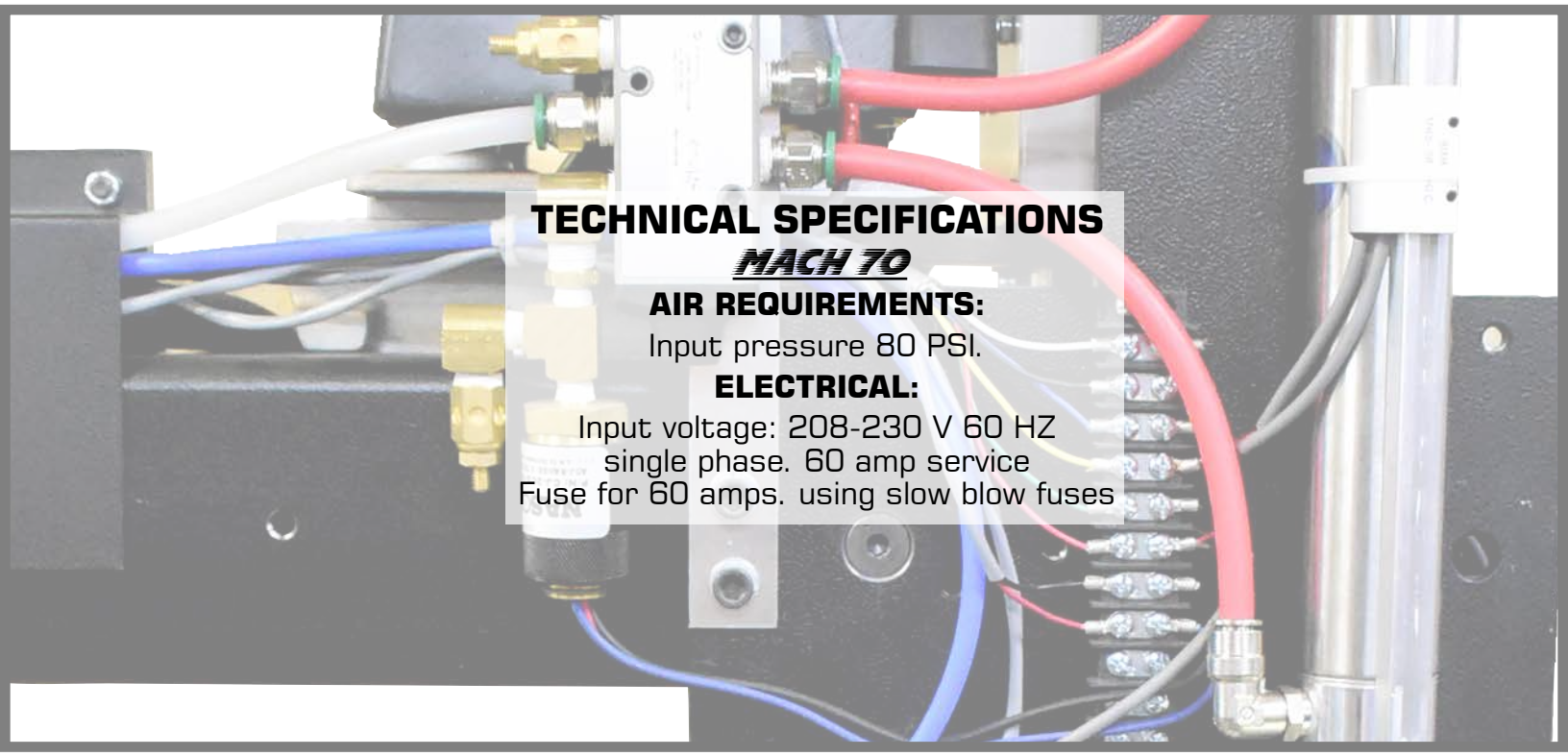
INSTALLATION INSTRUCTIONS

1) **For the Mach 70-**
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 70

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 70 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.

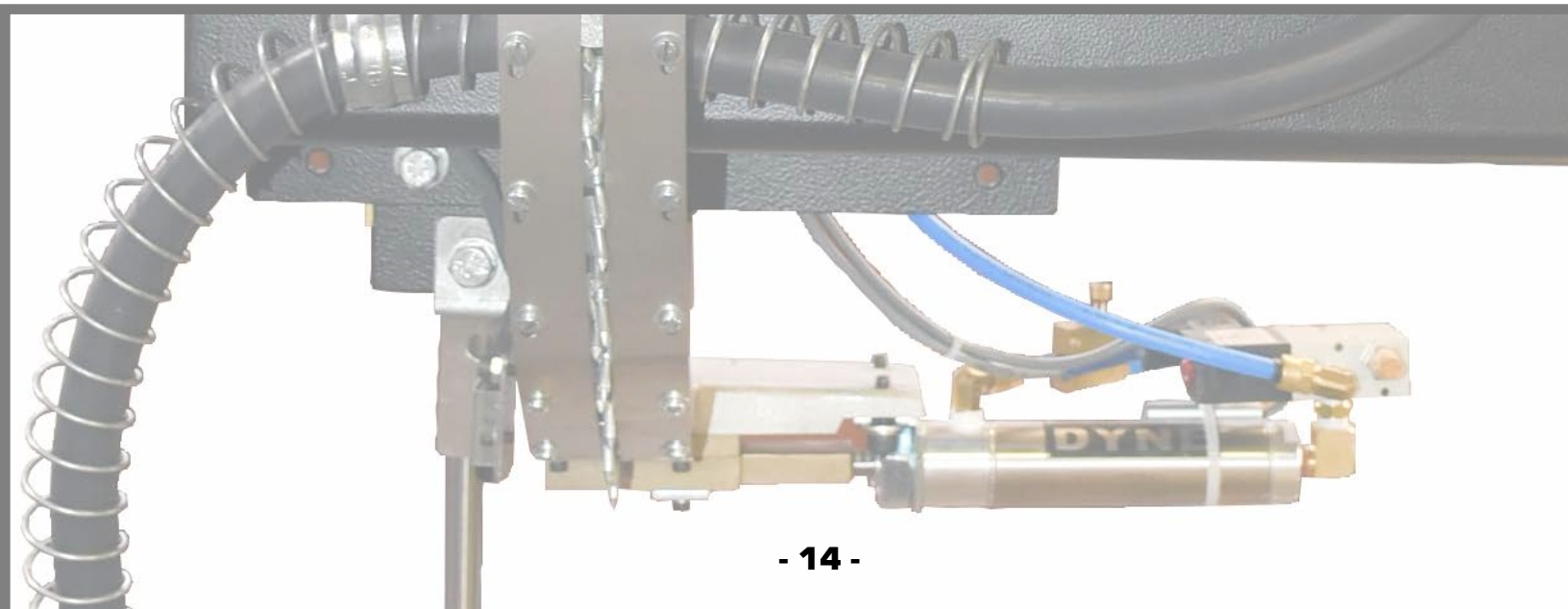
3) The Weld Timer is set properly.

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



NOTES

DURO DYNE®

Please Visit Our Website

www.durodyne.com

for the most up to date product information.

DURO DYNE®
MACHINERY DIVISION
7/3/2023
BI027413

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