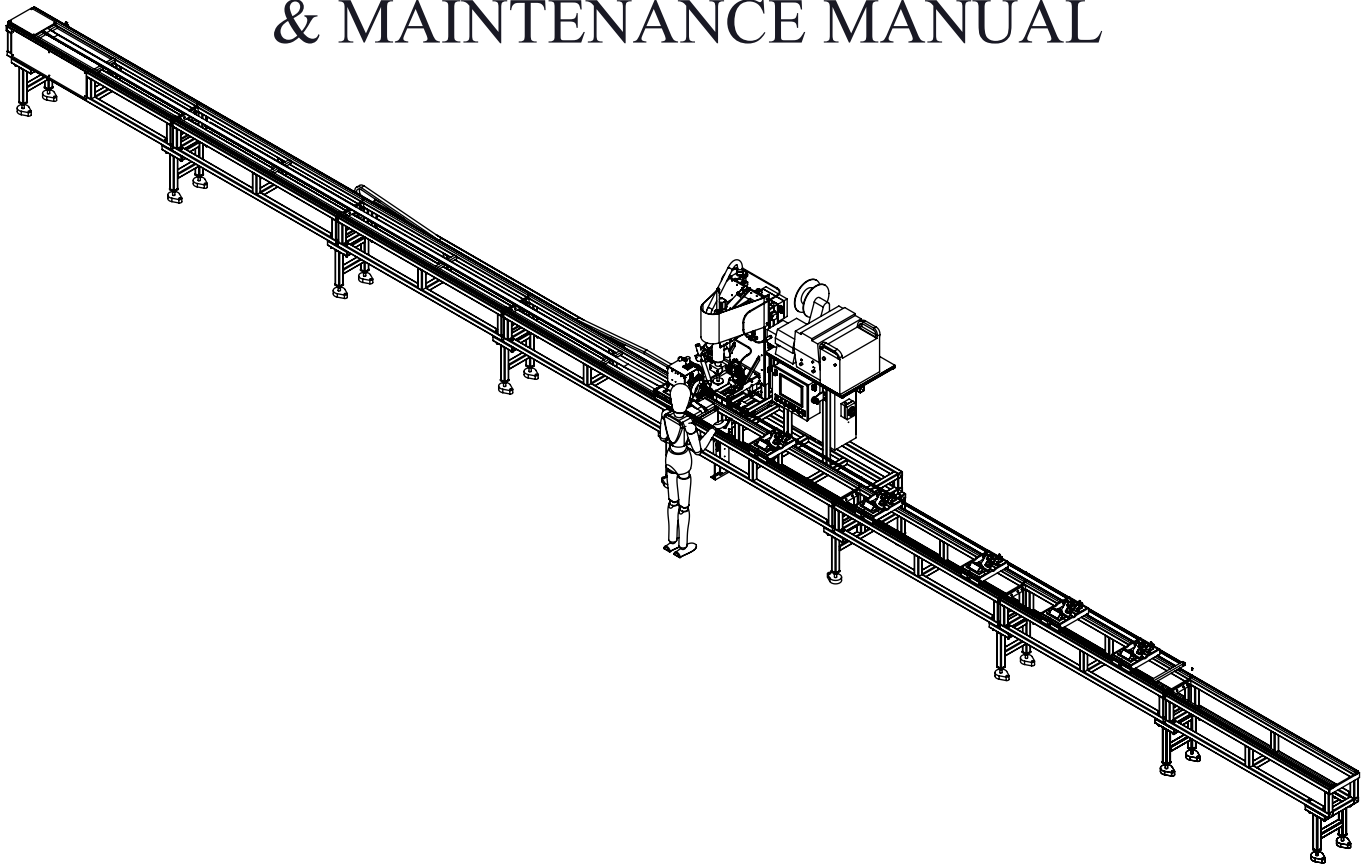


UNIVERSAL WELDER

INSTALLATION, OPERATION & MAINTENANCE MANUAL



North Alabama Pipe
A Division of Anvil International
Innovators Of Pipe Fabrication Equipment

Cover Sheet of 97

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Description

The "Universal Welder" system will weld 1/2" to 2-1/2" fittings on 1-1/4" to 8" pipe. It will be programmed to weld Anvil fittings, grooved outlets and two other brands of the customer's choice. Outlets may be welded within 6-1/2" from the start of the pipe and 3" from the end.

Cycle time to cut the hole, remove the coupon, place the outlet on the pipe, and weld the outlet to the pipe is from 32 seconds, for 1/2" outlets, to 55 seconds, for a 2-1/2" outlet. With the time required to move and position the pipe, we would expect from 300 welds per shift for mixed size outlets at various locations to 450 per shift for small outlets at repetitive locations. This will be dependent on the operator and the customer's pipe handling system.

Caution:

Read and understand all safety precautions contained in this manual before operating the machine. Failure to do so may result in personal injury.

Note: North Alabama Pipe continuously endeavors to improve our products; your equipment may not completely match the contents of this manual. This manual is accurate at the time of publication. North Alabama Pipe will not accept liability for any inaccuracies or omissions.






Table of Contents





DESCRIPTION	3	BACK PLATE ASSEMBLY (DRAWING)	54
CAUTION:	3	BACK PLATE ASSEMBLY (PARTS LIST)	55
TABLE OF CONTENTS.....	4	RISE & FALL UPPER/WEAVE ASSEMBLY (DRAWING)	56
ISO SAFETY SYMBOLS – DEFINITIONS.....	5	RISE & FALL UPPER/WEAVE ASSEMBLY (PARTS LIST)	57
ISO SAFETY SYMBOLS – LOCATION	7	RISE & FALL LOWER ASSEMBLY (DRAWING).....	58
INSTALLATION	8	RISE & FALL LOWER ASSEMBLY (PARTS LIST)	59
UNIVERSAL WELDER SHIPMENT CHECK LIST	8	WELDER ARM ASSEMBLY (DRAWING)	60
REQUIRED WORKSHOP POWER AND AIR SUPPLIES:	8	WELDER ARM ASSEMBLY (PARTS LIST)	61
DEFAULT WELDER (MILLER XMT 304) SETTINGS	9	ARM ASSEMBLY (PLASMA SIDE) (DRAWING).....	62
DEFAULT WIRE FEEDER (MILLER PSS-XMT-304) SETTINGS.....	9	ARM ASSEMBLY (PLASMA SIDE) (PARTS LIST)	63
DEFAULT PLASMA (HYPERTHERM POWERMAX45) SETTINGS.....	9	COUPON COLLECTOR ASSEMBLY (DRAWING)	64
ASSEMBLY INSTRUCTIONS:.....	10	COUPON COLLECTOR ASSEMBLY (PARTS LIST)	65
OPERATION	19	ARM ASSEMBLY (WELD SIDE) (DRAWING)	66
INITIAL DAILY CHECKS	19	ARM ASSEMBLY (WELD SIDE) (PARTS LIST)	67
ROUTINE START PROCEDURE.....	19	ROTATION ASSEMBLY (DRAWING)	68
ROUTINE OPERATION	20	ROTATION ASSEMBLY (PARTS LIST)	69
<i>Job Setup</i>	20	BACK STAND ASSEMBLY (DRAWING)	70
<i>Manual Data Entry</i>	22	BACK STAND ASSEMBLY (PARTS LIST)	71
<i>Attaching The Outlet(s)</i>	26	WIRE FEEDER, WELDER POWER & PLASMA UNIT ASSEMBLY (DRAWING)	72
<i>Barcode Data Entry</i>	28	WIRE FEEDER, WELDER POWER & PLASMA UNIT ASSEMBLY (PARTS LIST)	73
MAINTENANCE SCREENS	28	JUNCTION BOX ASSEMBLY (DRAWING)	74
ROUTINE SHUTDOWN PROCEDURE.....	32	JUNCTION BOX ASSEMBLY (PARTS LIST)	75
RECOMMENDED MAINTENANCE	32	BACK PLATE GROUNDING CABLE & AIR FILTER (DRAWING)	76
PARTS LIST	33	BACK PLATE GROUNDING CABLE & AIR FILTER (PARTS LIST)	77
UNIVERSAL WELDER MAIN ASSEMBLY (DRAWING)	34	TOUCH PANEL ASSEMBLY (DRAWING)	78
UNIVERSAL WELDER MAIN ASSEMBLY (PARTS LIST)	35	TOUCH PANEL ASSEMBLY (PARTS LIST)	79
APC UNIVERSAL (DRAWING)	36	CONTROL CABINET (DRAWING)	80
APC UNIVERSAL (PARTS LIST)	37	CONTROL CABINET (PARTS LIST)	81
UNIVERSAL WELDER MAIN FRAME ASSEMBLY (DRAWING).....	38	CONTROL CABINET BACK PLATE ASSEMBLY (DRAWING)	82
UNIVERSAL WELDER MAIN FRAME ASSEMBLY (PARTS LIST).....	39	CONTROL CABINET BACK PLATE ASSEMBLY (PARTS LIST)	83
QUICK CHUCK ASSEMBLY (DRAWING).....	40	CENTER LIFT ASSEMBLY (DRAWING).....	84
QUICK CHUCK ASSEMBLY (PARTS LIST)	41	CENTER LIFT ASSEMBLY (PARTS LIST).....	85
AIR CHUCK (DRAWING)	42	PIPE CAR ASSEMBLY (DRAWING)	86
AIR CHUCK (PARTS LIST)	43	PIPE CAR ASSEMBLY (PARTS LIST)	87
INDEX CHUCK HOUSING ASSEMBLY (DRAWING).....	44	PIPE CAR END RAIL ASSEMBLY (DRAWING).....	88
INDEX CHUCK HOUSING ASSEMBLY (PARTS LIST)	45	PIPE CAR END RAIL ASSEMBLY (PARTS LIST)	89
INDEX CHUCK ROTATION ASSEMBLY (DRAWING)	46	WELD WIRE CONDUIT AND LINER (DRAWING)	90
INDEX CHUCK ROTATION ASSEMBLY (PARTS LIST)	47	WELD WIRE CONDUIT AND LINER (PARTS LIST)	91
CHUCK CAR ASSEMBLY (DRAWING).....	48	HOME SWITCH ASSEMBLY (DRAWING)	92
CHUCK CAR ASSEMBLY (PARTS LIST).....	49	HOME SWITCH ASSEMBLY (PARTS LIST)	93
CHUCK GROUND ASSEMBLY (DRAWING)	50	ELECTRICAL SCHEMATICS.....	94
CHUCK GROUND ASSEMBLY (PARTS LIST)	51	SHEET 1: OPERATOR INTERFACE	94
BACK PLATE & STAND/WEAVE ASSEMBLY (DRAWING)	52	SHEET 2: CONTROL CABINET	95
BACK PLATE & STAND/WEAVE ASSEMBLY (PARTS LIST).....	53	SHEET 3: JUNCTION BOX AND SWITCHES	96
		CONTACT INFORMATION.....	97



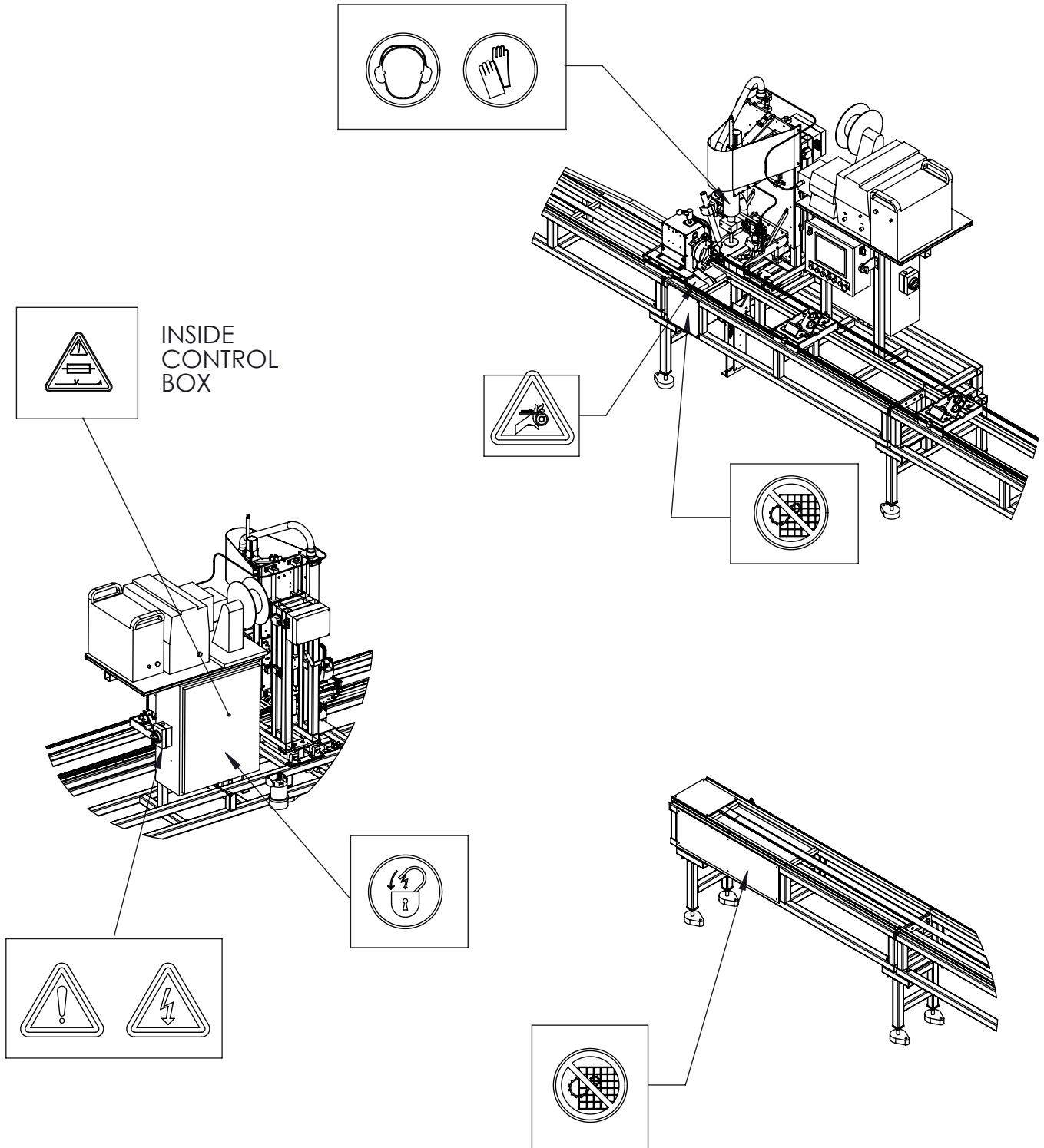
ISO Safety Symbols – Definitions

	<p style="text-align: center;"><u>CAUTION – GENERAL</u></p> <p>DO NOT OPERATE MACHINE UNTIL INSTRUCTION MANUAL HAS BEEN READ.</p> <p>USE FORKLIFT OR MANUAL LIFT TO MOVE MACHINE SECTIONS INTO PLACE DURING ASSEMBLY.</p> <p>THERE IS A RISK OF PERSONAL INJURY IF ATTEMPTED TO LIFT OR MOVE BY HAND.</p> <p>BE SURE MACHINE IS CONNECTED TO BUILDING SAFETY GROUND.</p> <p>BE SURE TO DISCONNECT THE POWER BEFORE PERFORMING MACHINE MAINTENANCE.</p> <p>DO NOT OPERATE MACHINE WITH GUARDS REMOVED.</p> <p>DO NOT OPERATE MACHINE IN A MANNER FOR WHICH IT WAS NOT INTENDED.</p>
	<p style="text-align: center;"><u>CAUTION - ELECTRICAL</u></p> <p>HIGH VOLTAGES PRESENT INSIDE THE CONTROL CABINET, WELDER POWER UNIT AND PLASMA POWER UNIT.</p> <p>TO REDUCE THE RISK OF ELECTRICAL SHOCK, DO NOT ATTEMPT TO OPEN THESE ENCLOSURES.</p> <p>REFER SERVICING TO QUALIFIED SERVICE PERSONNEL ONLY.</p>
	<p style="text-align: center;"><u>CAUTION - MOVING PARTS</u></p> <p>MOVING PARTS CONTAINED BEHIND GUARDS.</p> <p>DO NOT TOUCH MOVING PARTS.</p> <p>SEVERE PINCHING AND/OR DISMEMBERMENT MAY OCCUR.</p>



	<p style="text-align: center;"><u>CAUTION - EAR PROTECTION</u></p> <p>DO NOT OPERATE MACHINE WITHOUT PROPER HEARING PROTECTION.</p> <p>THE MEASURED NOISE LEVEL EXCEEDS THE 80 dB(A) THRESHOLD AT THE WELD HEAD.</p>
	<p style="text-align: center;"><u>CAUTION – GLOVES</u></p> <p>GLOVES MUST BE WORN AT ALL TIMES WHILE OPERATING THIS MACHINE.</p> <p>FAILURE TO WEAR GLOVES COULD RESULT IN PERSONAL INJURY.</p>
	<p style="text-align: center;"><u>CAUTION - DO NOT REMOVE GUARDS</u></p> <p>MOVING PARTS CONTAINED BEHIND GUARDS.</p> <p>DO NOT OPERATE MACHINE WITH GUARDS REMOVED.</p>
	<p style="text-align: center;"><u>MANDATORY</u></p> <p>THE MACHINE MUST BE LOCKED OUT BEFORE PROCEEDING.</p>

ISO SAFETY SYMBOLS - LOCATION



Installation

Universal Welder Shipment Check List

- Crate 1
 - Mid Frame Section incl. Rotation Head and Index Chuck
 - 2x Mid Frame Section Legs
 - Box #1
 - Wire Feeder
 - White APC Belt
 - Weld Gas Flow Meter
 - Pipe Car End Bar
 - Box of “Welder Fasteners”
 - Box of “Spare Parts”
 - Setup Tools
 - Plunger Shaft
 - Pipe Car Thumb Screws and Rail Connectors
 - Centering Device and Air Cylinder
- Crate 2
 - 4x Left Frame Sections
 - 3x Right Frame Sections
 - 7x Regular Frame Section Legs
 - Plasma Unit
 - Welder Unit
 - 5x Pipe Cars
 - Pipe Car Rails

Required Workshop Power and Air Supplies:

Control Panel: 220VAC, 15 Amp, 1 Phase

Welder: Either 230VAC, 50 Amp, 3 Phase or 460VAC, 30 Amp, 3 Phase (Check order specification)

Plasma: 208-240VAC, 40 Amp, 1 Phase

Shop Air: 120 psi (1/4” NPT Female)

[Welding Gas: 90/10 Argon/CO₂ Mix]



Default Welder (Miller XMT 304) Settings

NOTE: THESE DEFAULT SETTINGS ARE INTENDED AS A GUIDE FOR THE USER TO GET THEIR UNIVERSAL WELDER GOING. EACH MACHINE MAY REQUIRE CHANGES TO ONE OR ALL OF THESE SETTINGS FOR DIFFERENT PIPE MATERIAL, COATINGS, SCHEDULE, WELD WIRE, ETC.

Inductance Control @ 50, Mode @ MIG, V/A Control @ Remote

Default Wire Feeder (Miller PSS-XMT-304) Settings

NOTE: THESE DEFAULT SETTINGS ARE INTENDED AS A GUIDE FOR THE USER TO GET THEIR UNIVERSAL WELDER GOING. EACH MACHINE MAY REQUIRE CHANGES TO ONE OR ALL OF THESE SETTINGS FOR DIFFERENT PIPE MATERIAL, COATINGS, SCHEDULE, WELD WIRE, ETC.

Default Power Source – XMT 304

Pre Flow – 0 Seconds

Run In – Auto

Start – 35.0V, 0.03 Seconds, 150 IPM (3.8 Metric)

Weld – 24.0V, 500 IPM (12.7 Metric)

Crater – 25.0V, 0.03 Seconds, 200 IPM (5.1 metric)

Burnback – 25.0V, 0.03 Seconds

Post Flow – 3.0 Seconds

Default Plasma (Hypertherm Powermax45) Settings

NOTE: THESE DEFAULT SETTINGS ARE INTENDED AS A GUIDE FOR THE USER TO GET THEIR UNIVERSAL WELDER GOING. EACH MACHINE MAY REQUIRE CHANGES TO ONE OR ALL OF THESE SETTINGS FOR DIFFERENT PIPE MATERIAL, COATINGS, SCHEDULE, WELD WIRE, ETC.

Plate Metal Cutting, Airflow at mid-range when in Gas Test Mode, 45 Amps



Assembly Instructions:

"Caution" Mid Section assembly is very heavy. Do Not Lift By Hand!

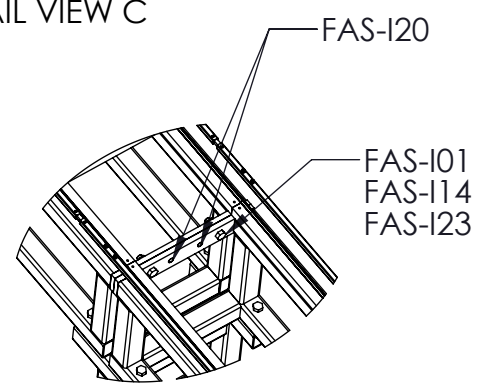
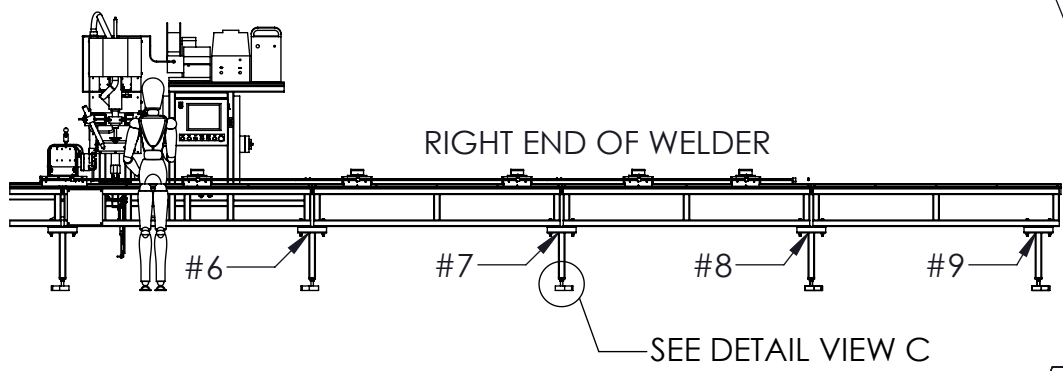
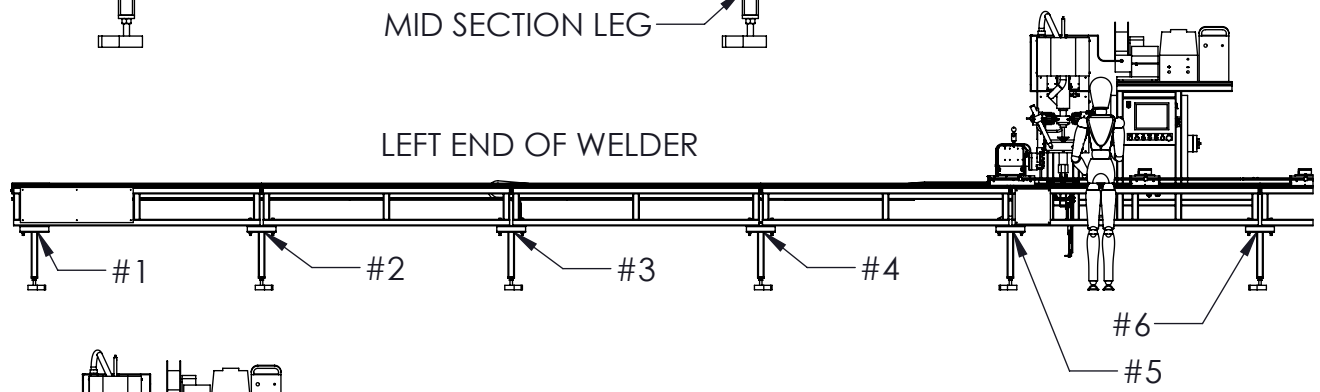
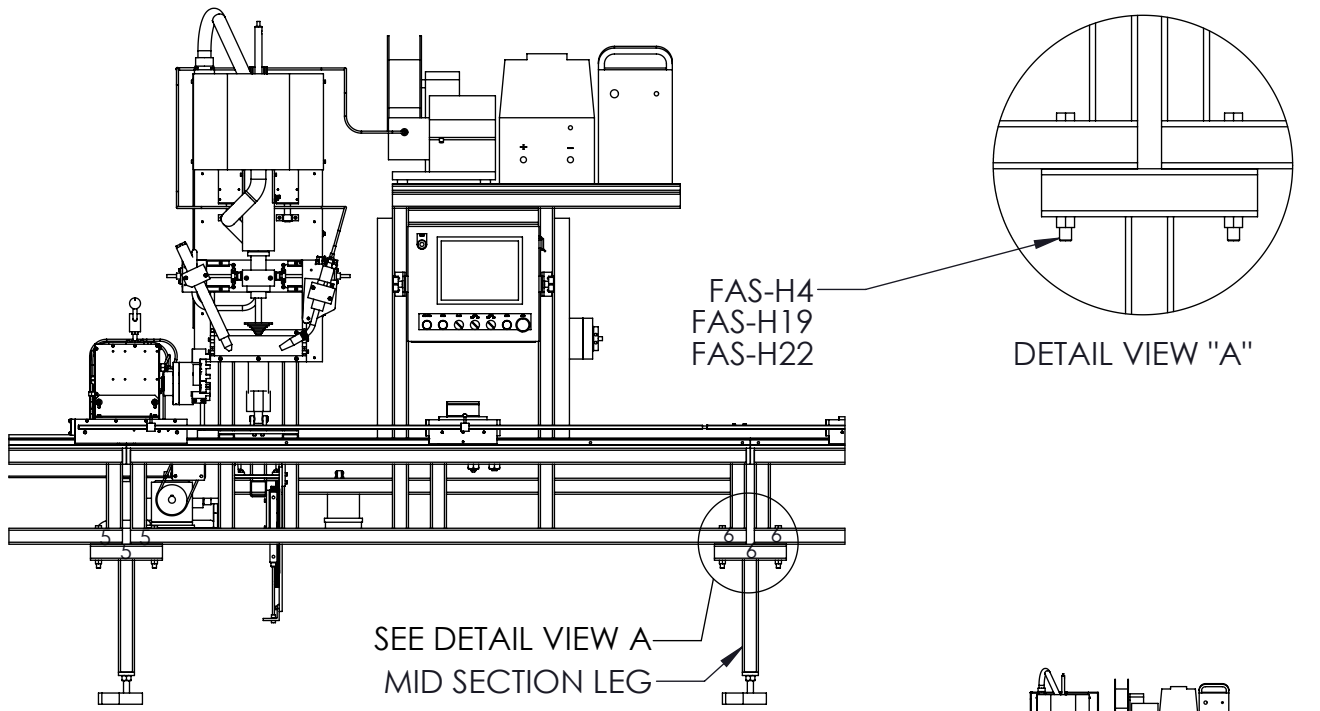
Remove Welder Mid Section Legs from shipping pallet and place on floor in area Welder is to be located.

Remove Welder Mid Section assembly with a fork lift and place on legs. Mid Section Frame and Legs are marked as shown for proper assembly. Insert 3/8-16 x 5" lg. HHCS (FAS-H4) with flat washer (FAS-H22) and hex nut (FAS-H19) thru holes in frame and legs as shown in Detail View "A". Do not tighten bolts at this time.

Start with left end of welder. Locate legs #4 thru #1 to the left as shown in top view. Frame sections are numbered to correspond with the legs. Insert 3/8-16 x 5" lg. HHCS (FAS-H4) with Flat Washer (FAS-H22) and 3/8-16 Hex nut (FAS-H19) thru frames and legs. Do not tighten at this time. 1/2" x 1" lg. Dowel Pins are used to align frame sections to each other, inserted into 2 holes in frame as shown in Detail View "B". Use 1/2-13 x 1-1/2" lg. HHCS (FAS-I1) with Lock Washer (FAS-I23) and Hex Nut (FAS-I14) to bolt sections together. Continue the sequence for the right end of the welder as shown above.

All bolts can be tightened at this time. With all frames and legs assembled, frame must be level and straight within 1/8" (3mm) end to end. Level welder by loosening 3/4" Hex Nut on Leveling Foot as shown in Detail View "C". Rotate Leveling Stud to raise or lower welder section. When Welder is level, tighten all 3/4" Hex Nuts on Leveling Feet.





The Index Chuck Assembly is shipped strapped to the Mid Section Frame. Remove the Index Chuck Assembly, and place on the frame to the left of the Back Plate Assembly (on welders that measure to the left). Align the "V" Wheels on the Index Chuck Assembly to the "V" Rails mounted on the Welder frame, See Detail View "D". Install Belt around the Drive Head and End Idler Pulleys, and attach Belt (PLY-308) to Index Chuck Assembly with the Belt Attachment Plate (WMP-1135) and 5/16-18 x 3/4" lg. FHSCS (FAS-G13) as shown in Detail View "E". Belt must lay flat in Belt Trays on frame.

Tighten belt by loosening 3/8-16 X 1" lg. HHCS (FAS-H1), and tighten the 3/8-16 X 1-1/2" lg. HHCS (FAS-H31). With the Index Chuck closest to the welding station, you should be able to lift the belt approx. 1" - 1-1/4" (25mm-32mm) off the Belt Tray in the middle of the belt. Check the distance between the Rear Frame Plate and the Belt Adjustment Assembly, this distance must be equal from side to side. When the belt is tight, tighten the 3/8-16 X 1" lg. HHCS (FAS-H1).

Cables and Cat Track are rolled up and laying on the Mid Section Frame. Mount the Cat Track end with the 3 airlines to the Index Chuck Mounting Angle, and mount the other end to the Bottom Cat Track tray using #10-24 x 1/2" lg. BHSCS (FAS-E02 Qty. 4) as shown above. Route the Cable to the End Overtravel Switch along the side of the Welder frame on top of the Bottom Track Tray Support Angles. Mount the Overtravel Switch with #10-24 x 5/8" lg. BHSCS (FAS-E03 Qty. 2) as shown. Attach the Flexible Conduit to the existing wire tie mounts located on the frame with wire ties included in the Shipping Bolt Package. Mount the Home Switch using 1/4-20 x 3/4" lg. SHCS (FAS-F24 Qty. 2) with 1/4" Lock Washer (FAS-F40 Qty. 2) as shown in Top view.

Install the airlines by passing them through the cable grommet on the side of the Index Chuck as shown. Each airline is marked as shown in Detail View "F". Match the airline with the connection fitting on the Index Chuck. Push the airlines all the way in until it bottoms out in the fitting, then pull on the airline to make sure it is locked in place. Should an airline need to be removed, push in on the tubing and press the release ring on the fitting and pull the tube out, as shown in detail View "G".



END IDLER PULLEY. TOP END GUARD
REMOVED FOR CLARITY. SEE ENLARGED
VIEW OF END IDLER PULLEY.

"V" WHEEL

"V" RAIL

BELT
TRAY

ENLARGED VIEW OF
IDLER PULLEY

PLY-308

WMP-1135
FAS-G13

DETAIL VIEW "E"

ENLARGED VIEW OF
HEAD IDLER PULLEY

FAS-H01
FAS-H22

BELT ADJUSTMENT ASSEMBLY

FAS-H31
FAS-H22

REAR FRAME PLATE

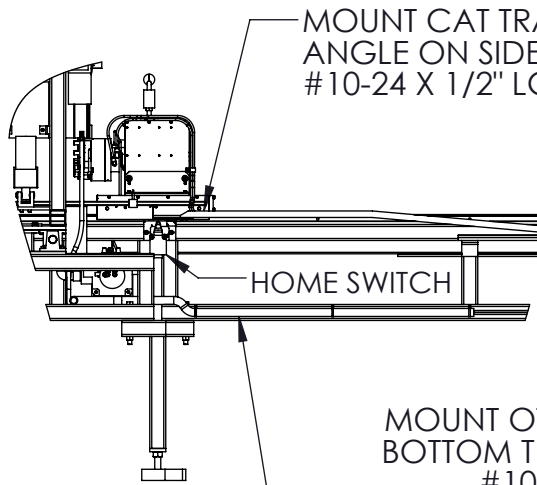
DISTANCE EQUAL
SIDE TO SIDE

VIEW IS RE-ORIENTED TO SHOW DETAIL



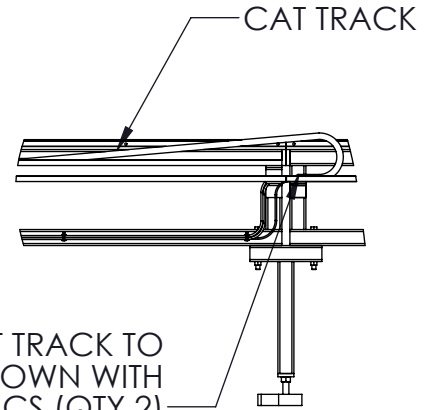
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Sheet #13 of 97



MOUNT CAT TRACK TO TOP OF MOUNTING ANGLE ON SIDE OF INDEX CHUCK WITH #10-24 X 1/2" LG. BHSCS (QTY 2)

HOME SWITCH



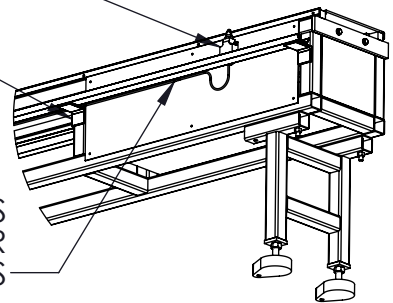
CAT TRACK

MOUNT OTHER END OF CAT TRACK TO BOTTOM TRACK TRAY AS SHOWN WITH #10-24 X 1/2" LG. BHSCS (QTY 2)

1" FLEXIBLE CONDUIT WITH 3 - ϕ 1/4" AIR LINES AND 1 MULTICONDUCTOR WIRE FOR END OVERTRAVEL SWITCH. MOUNT TO FRAME WITH WIRE TIES USING WIRE TIE MOUNTS LOCATED ON FRAME

END OVERTRAVEL SWITCH

BOTTOM CAT TRACK TRAY SUPPORT ANGLE



END OVERTRAVEL SWITCH CABLE IS ROUTED ALONG SIDE OF WELDER ON TOP OF BOTTOM CAT TRACK TRAY SUPPORT ANGLES

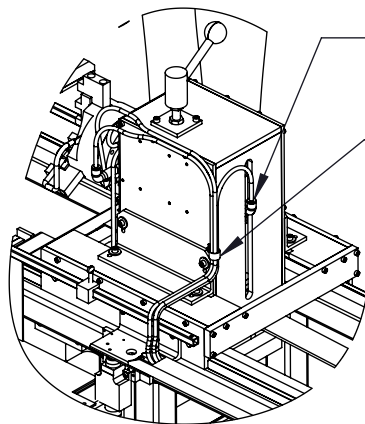


CONNECTION #1

CONNECTION #2

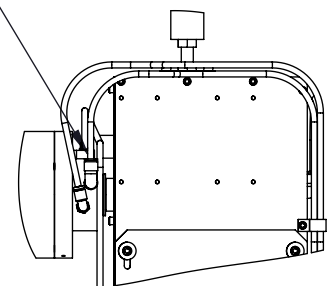
CONNECTION #3

INDEX CHUCK JAW ACTUATOR AIRLINE CONNECTION #3

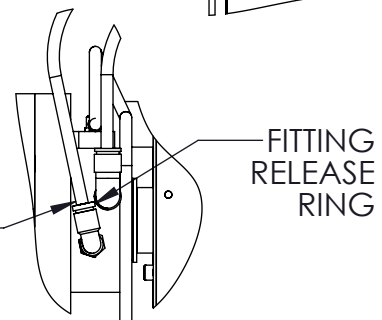


INDEX CHUCK ROTATION LOCK CYLINDER CONNECTION #1

CABLE GROMMET



INDEX CHUCK JAW ACTUATOR AIRLINE CONNECTION #2



FITTING RELEASE RING

DETAIL VIEW "G"



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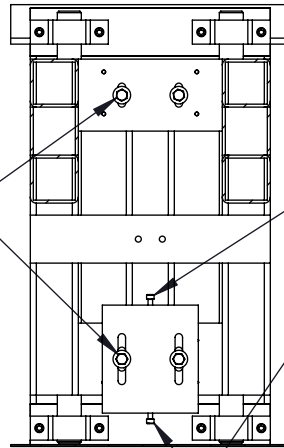
The Center Device Assembly is partially disassembled for shipment. The Lower Slide is assembled by aligning the "V" Rails to the "V" Wheels and pushing up on the Slide. Hold the Slide in position and connect the Lift Cylinder as shown. Insert the Cylinder Rod End Adapter into the "T" slot in the bottom angle and connect the airlines to the Lift Cylinder.

To adjust the Center Device Assembly:

If the Center Device Assembly needs to move toward the front of the welder, loosen the 1/4-20 HHCS (Qty 4) and Screw #2 as shown above in View "B" above. Tighten Screw #1 to move the Assembly. If the Center Device needs to move towards the rear of the welder, reverse the above. Tighten all the screws after adjustments are made.

Mount the Wire Feeder, Welder Unit and Plasma Unit as shown on top of the Welder stand. Connect all cables as noted. Make sure all cable routings do not interfere with movement of the Welder. Secure all cables as needed and make sure all connections are tight. See Sheet #14 for rear view of welder.





BACK PLATE ARMS
AND MID SECTION FRAME
REMOVED FOR CLARITY

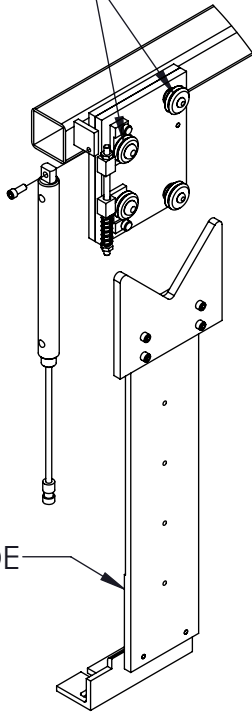
1/4-20
HHCS (4)

SCREW #2
(#10-24 SHCS)

SCREW #1
(#10-24 SHCS)

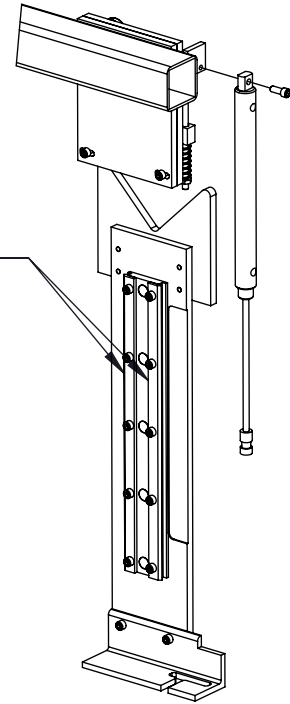
VIEW B
TOP VIEW OF CENTER
DEVICE MOUNTING

"V" WHEELS



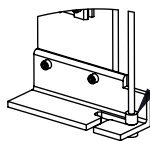
LOWER SLIDE

CENTER DEVICE
ASSEMBLY



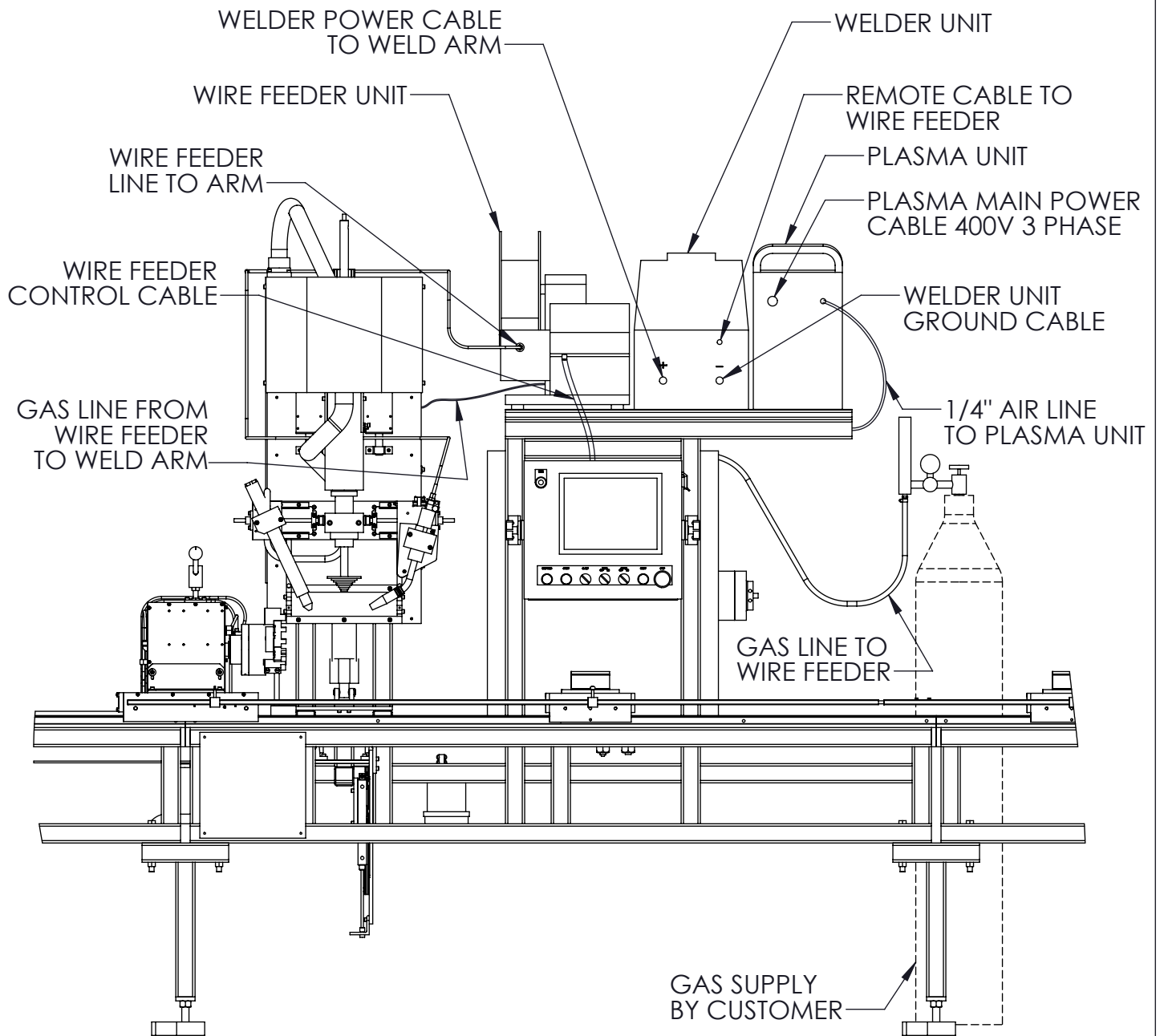
"V" RAILS

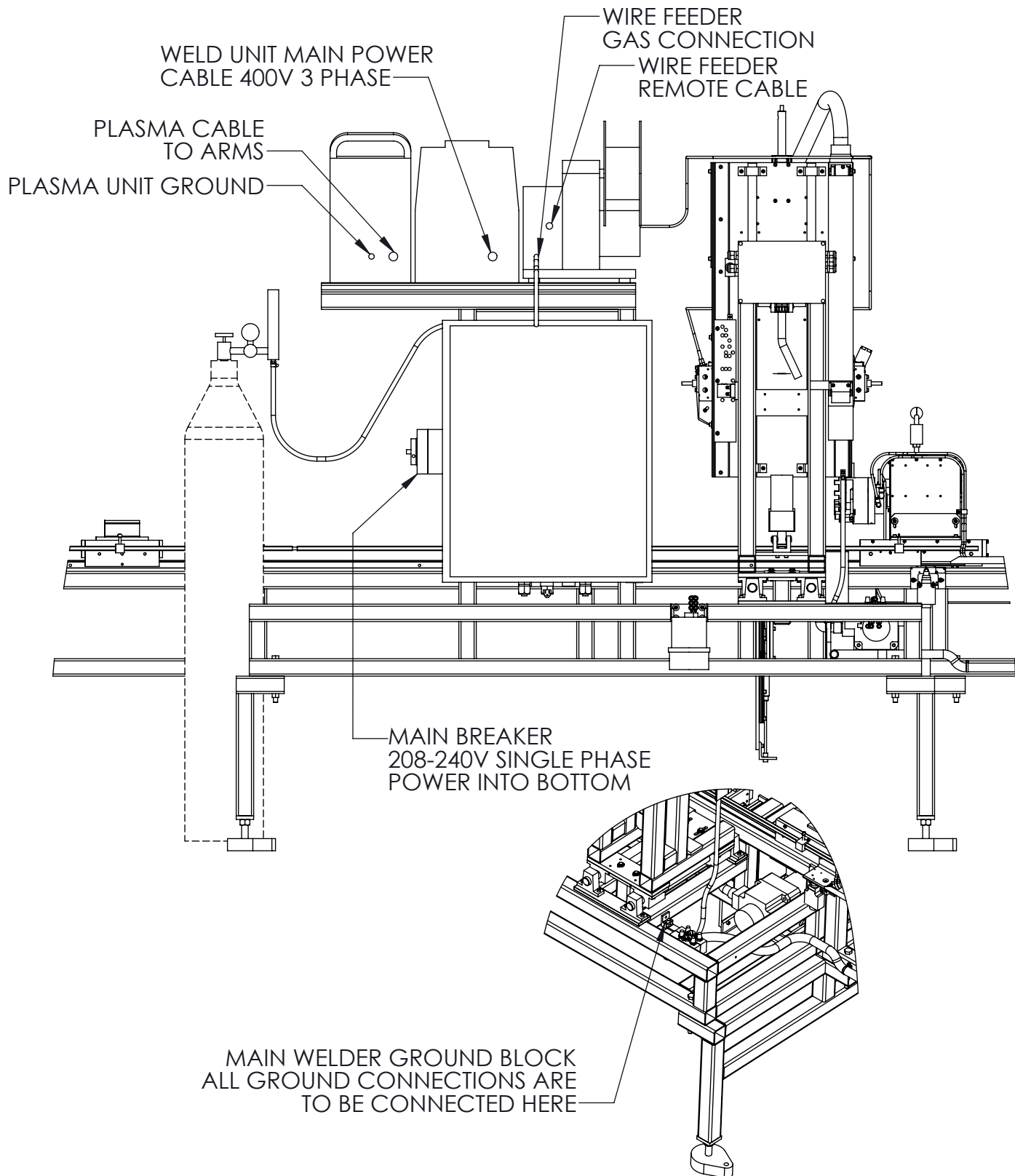
REVERSE VIEW OF CENTER
DEVICE ASSEMBLY



CYLINDER ROD ADAPTER
FITS INTO "T" SLOT
AS SHOWN







Note:

1. See Sheet #13 for assembly instructions
2. Some Items not shown for clarity.



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Operation

NOTE: In these instructions, the term “button” refers to an area on the touchscreen where touching it will trigger a control system action. The term “switch” refers to one of the mechanically triggered switches underneath the touchscreen.

Initial Daily Checks

Check the air supply.

Check the welding gas supply.

Routine Start Procedure

Turn the main disconnect switch to “On”.

Turn on the welder. The wire feeder is normally powered through the welder.

Turn on the plasma unit.

Check the welding gas is set to 45 SCFM flowrate.

Allow the control system to boot up. A blue bar shows the progress to the booted condition.

At the “North Alabama Pipe” startup screen, press the “STOP” switch and then hold the “RESET” switch until the rotation head has raised completely and the “Problem” light is extinguished.

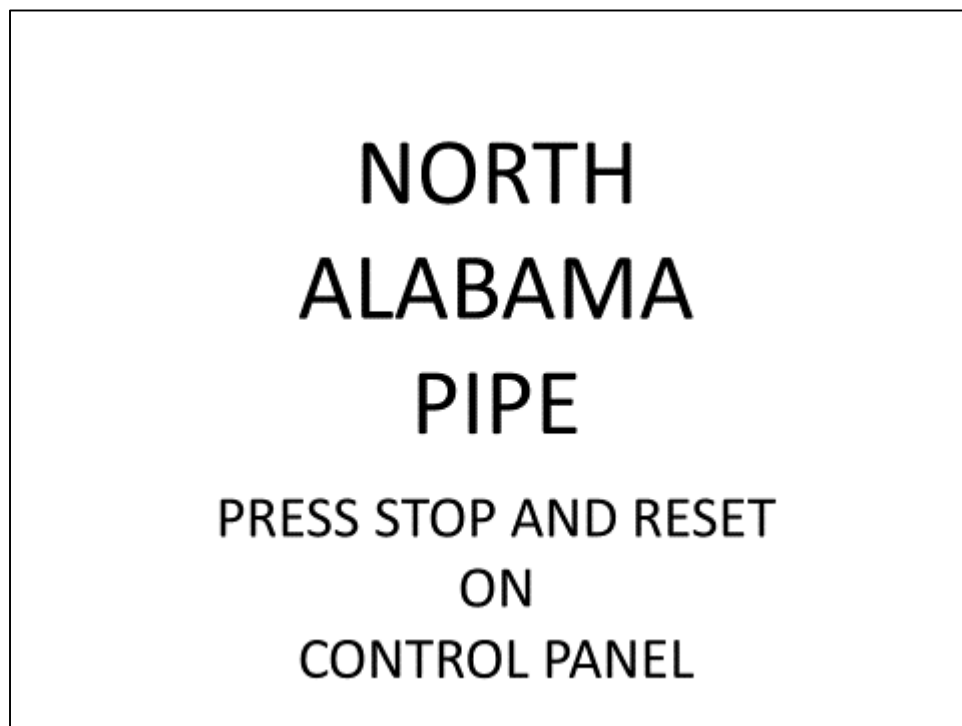


Figure 1: Universal Welder Startup Screen

At the “Set Home Screen”, press the “Press To Set Home” button to initiate the homing sequence. Once the homing sequence is complete, the “Setup Screen” will be displayed.



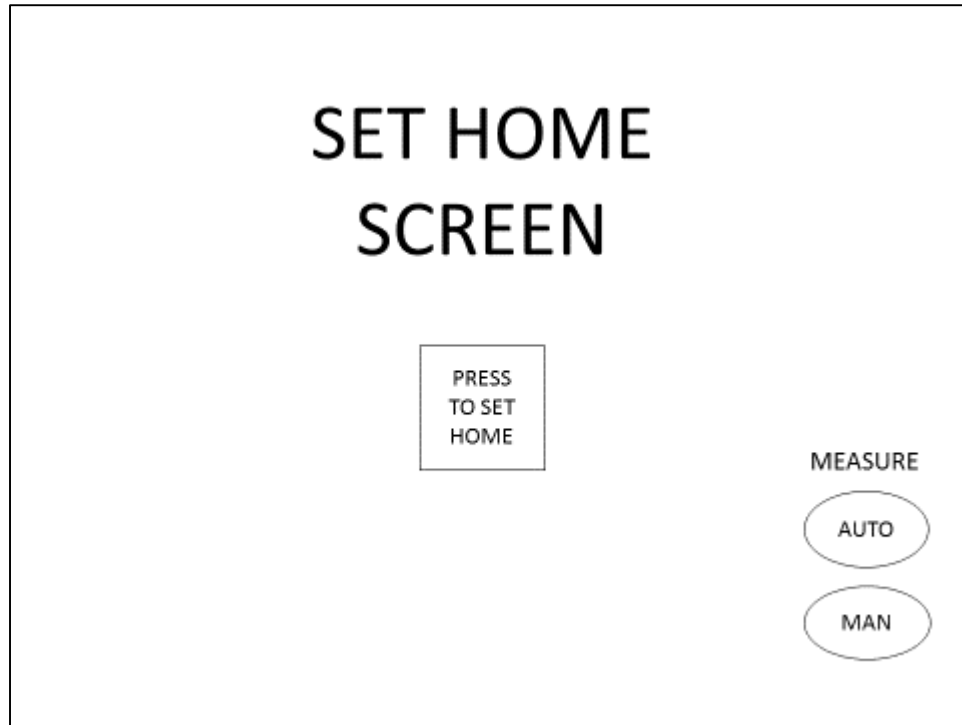


Figure 2: Set Home Screen

Routine Operation

Note: At any time, pressing the “Stop” switch will cause the universal welder control system to stop. Depending on the operation that the machine was doing when the “Stop” switch was pressed will determine what action will be needed to get the machine back to operation.

Job Setup

The “Setup Screen” allows the pipe parameters to be setup for the piece of pipe that will be worked on. These settings will remain constant for all the operations on this piece of pipe.

Outlet Manufacturer can be one of four options. Merit is the default.

Pipe Schedule can be Schedule 10 or Schedule 40. Schedule 10 is the default.

Weld Holes Only allows the option to only plasma cut holes (i.e. not weld an outlet onto the pipe afterwards). The default is to weld on an outlet.

The Measure option has a default of “Auto” to automatically measure the position of the outlet based on the data entered on the screen. Manual will allow the operator to measure the position of the outlet.

Range allows the operator to set a height that the machine will raise the rotation head to, between operations. If a large number of outlets are being attached to, for example, 2” pipe, then the 2” setting minimizes the time lost in raising and lowering the rotation head above the pipe. The default is set to 8” and provides the safest operation – see below.



NOTE: if the Range setting is set too low (e.g. set at 2” while working on 8” pipe) there is a risk of the rotation head impacting an outlet or the pipe during operation transitions.

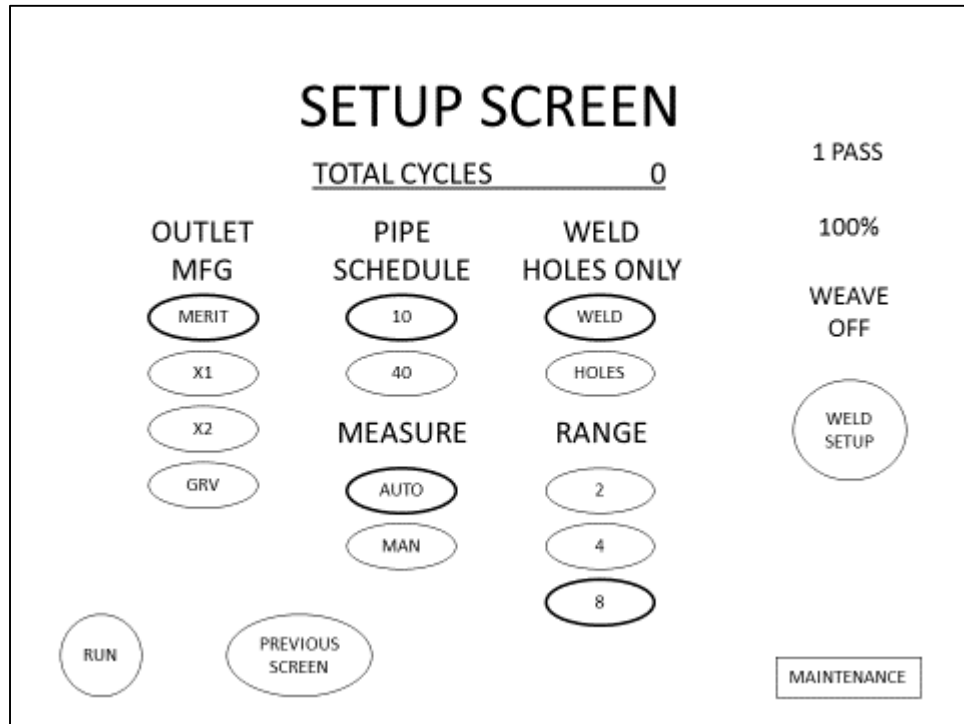


Figure 3: Setup Screen

Pressing the “Run” button will take you to the “Data Entry” screen.



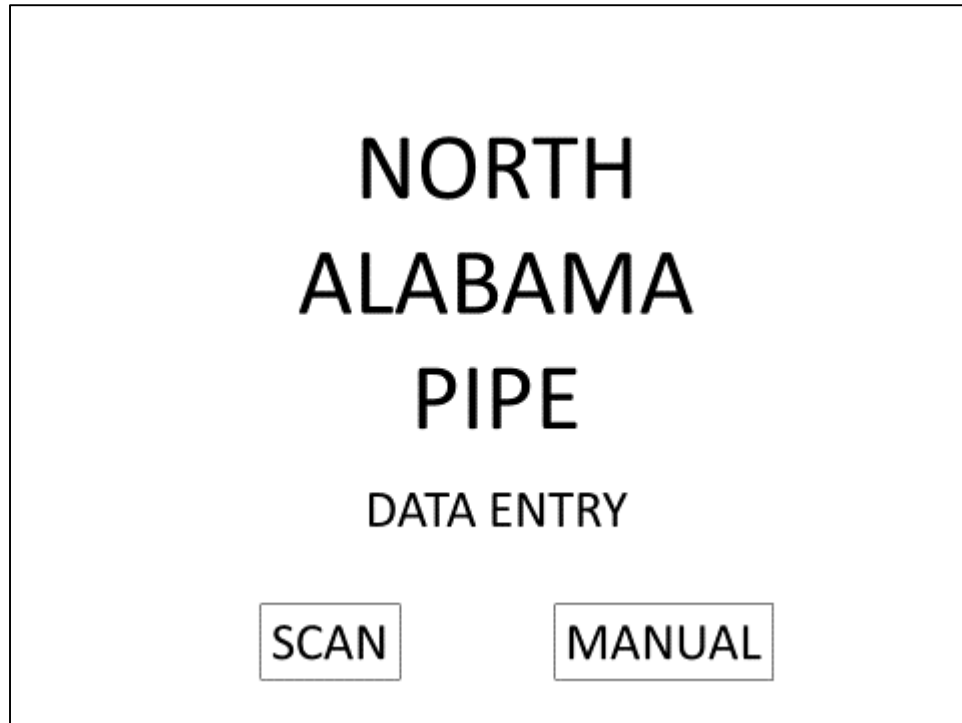


Figure 4: Data Entry Screen

Manual Data Entry

Pressing the “Manual” button will take you to the “Edit/Select Positions 1-5” screen where you can enter the details of the position, type and orientation of each operation. When each data field is selected, a smaller pop-up window will appear where the relevant data can be entered. Once each piece of data has been entered, the screen will advance to the next data field where the next piece of data can be entered. If more than 5 operations are required on this piece of pipe, press the “Edit 6-10” button to go to the “Edit/Select Positions 6-10” screen. Follow the same routine on this screen as on the “Edit/Select Positions 1-5” screen.



EDIT/SELECT POSITIONS 1-5

POSITION #	FEET	INCHES	1/4 s	OUTLET SIZE	OUTLET TYPE	LOCATION
1	0	0			POL	
2	0	0			POL	
3	0	0			POL	
4	0	0			POL	
5	0	0			POL	

Edit Position Data or
Press Position# to Run

SET UP
EDIT 6-10
RE-SCAN

Figure 5: Edit/Select Positions 1-5 Screen

EDIT/SELECT POSITIONS 1-5

POSITION #	FEET	INCHES	1/4 s	OUTLET SIZE	OUTLET TYPE	LOCATION
1	0	7	8	9	CANCEL	
2	0	4	5	6	CLR	
3	0	1	2	3	DEL	
4	0	0		ENT		
5	0	0		ENT		

Edit Position Data or
Press Position# to Run

SET UP
EDIT 6-10
RE-SCAN

Figure 6: Enter Feet PopUp Screen



EDIT/SELECT POSITIONS 1-5

POSITION #	FEET	INCHES	1/4 s	OUTLET SIZE	OUTLET TYPE	LOCATION
1	3	0	7	8	9	CANCEL
2	0	0	4	5	6	CLR
3	0	0	1	2	3	DEL
4	0	0	0		ENT	
5	0	0				

Edit Position Data or Press Position# to Run

Figure 7: Enter Inches PopUp Screen

EDIT/SELECT POSITIONS 1-5

POSITION #	FEET	INCHES	1/4 s	OUTLET SIZE	OUTLET TYPE	LOCATION
1	3	0		1/4	CANCEL	
2	0	0		1/2	CLR	
3	0	0		3/4	DEL	
4	0	0		0	ENT	
5	0	0				

Edit Position Data or Press Position# to Run

Figure 8: Enter Quarters Of An Inch PopUp Screen

EDIT/SELECT POSITIONS 1-5

POSITION #	FEET	INCHES	1/4 s		OUTLET SIZE	OUTLET TYPE	LOCATION
1	3	0	<u>POL & GRV</u>			<u>MEC-T</u>	
2	0	0	1/2"	1 1/2"		1"	1 3/4"
3	0	0	3/4"	2"		1 1/4"	2"
4	0	0	1"	2 1/2"		1 1/2"	2 1/2"
5	0	0	1 1/4"	3"		2 3/4"	
			4"				
Edit Position Data or Press Position# to Run			S		DEL	CANCEL	ENT

Figure 9: Enter Outlet Size PopUp Screen

EDIT/SELECT POSITIONS 1-5

POSITION #	FEET	INCHES	1/4 s	OUTLET SIZE	OUTLET TYPE	LOCATION
1	3	0	3/4"	1"	POL	
2	0				POL	
3	0				POL	
4	0				POL	
5	0				POL	

POL	CANCEL
GRV	CLR
N/S	ENT

SET UP
EDIT 6-10
RE-SCAN

Edit Position Data or
Press Position# to Run

Figure 10: Enter Outlet Type PopUp Screen



EDIT/SELECT POSITIONS 1-5						
POSITION #	FEET	INCHES	1/4 s	OUTLET SIZE	OUTLET TYPE	LOCATION
1	3	0	3/4	1	POL	UP
2	0	0	UP		CANCEL	
3	0	0	DN		CLR	
4	0	0	RT			
5	0	0	LT			
Edit Position Data or Press Position# to Run			SET U	ENT		

Figure 11: Enter Location PopUp Screen

Pressing the “Set Up” button will take you back to the “Setup Screen”. Once you have checked and made necessary changes, pressing the “Previous Screen” button (on the “Setup Screen”) will return you to the “Edit/Select Position 1-5” screen.

Attaching The Outlet(s)

Once all the data is entered for the piece of pipe, press the green Position “1” button and the “Position #1” screen will be displayed. Confirm the data is correct for the first position, position the pipe on the Universal Welder (adjust the height of the Index Chuck, de-energize the “Clamp” switch to engage with the Index Chuck and position the pipe cars to support the pipe) and press the “Move” button. This will move the pipe to the first position.



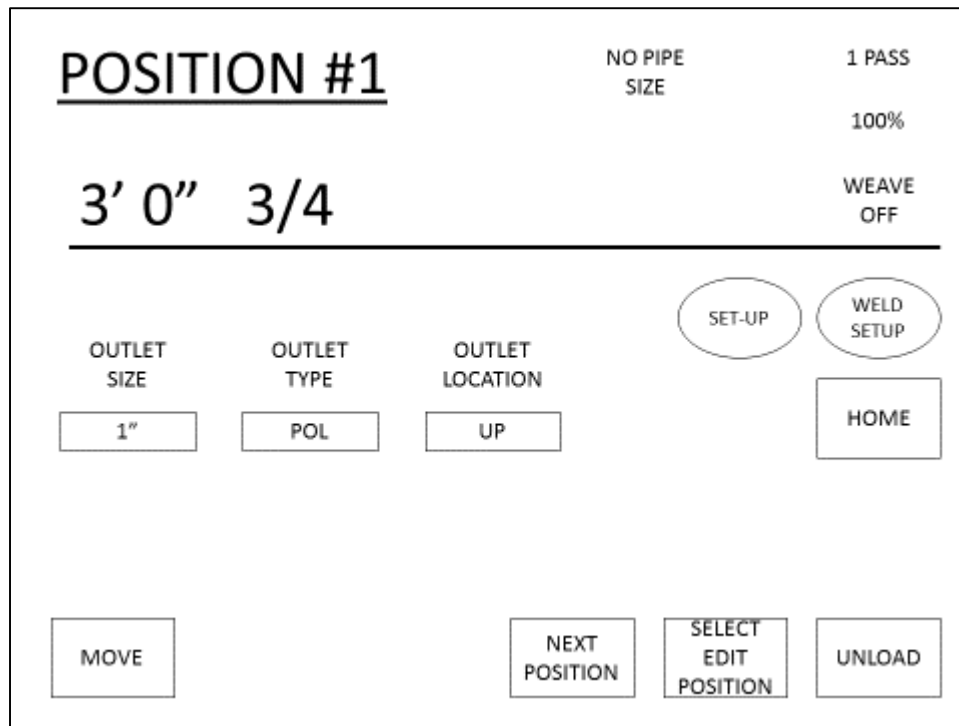


Figure 12: Position #1 Screen

Pressing the “Set Up” button will take you back to the “Setup Screen”. Once you have checked and made necessary changes, pressing the “Previous Screen” button (on the “Setup Screen”) will return you to the Position #1” screen.

Pressing the “Start Cycle” switch will raise the centering device, lower the rotation head onto the pipe and set the plasma torch to the correct position. Vertical pressure may need to be applied to the pipe to insure the pipe remains centered until the rotation head is fully lowered. Lower the coupon collector to engage with the top of the pipe.

Pressing the “Start” switch will energize the plasma torch to cut the hole in the pipe. When the plasma torch has completed its cut, raise the coupon collector out of the way of the outlet position and remove the coupon. Insert the correct outlet onto the pipe and lower the stepped outlet plunger onto the outlet to hold the outlet in place during the weld operation.

Pressing the “Start” switch again will energize the weld torch and complete the weld operation. Once the weld is complete, the rotation head will raise clear of the outlet.

Pressing the “Next Position” button will change the screen to show the data for the next position.

Pressing “Move” will position the pipe at the next position. Ensure that all the pipe cars are positioned suitably for the pipe and all the attached outlets.

Continue to press the “Next Position” and “Move” buttons and “Start Cycle” and “Start” switches until all operations are complete, for this piece of pipe.



Pressing the “Unload” button will move the pipe to the unload position (with the Index Chuck at the left end of the machine) and operating the “Clamp” switch will release the pipe from the Index Chuck and allow the completed pipe to be removed from the Universal Welder.

Pressing the “Home” button will return the Index Chuck to the “Home” position ready for the next piece of pipe to be loaded and worked on.

Barcode Data Entry

Pressing the “Scan” button will take you to the “Barcode Input” screen where you can enter the details of the position, type and orientation of each operation by scanning a barcode. The barcode includes sufficient data for 5 positions. Once the barcode data has been scanned, and appears in the scanned data box, press either the “Send Scanned Data To Positions 1-5” or the “Send Scanned Data To Positions 6-10” button. Once the barcode(s) have been scanned and sent to their relevant positions, press the “Run/Edit Positions” button to go to the “Edit/Select Positions 105” screen.

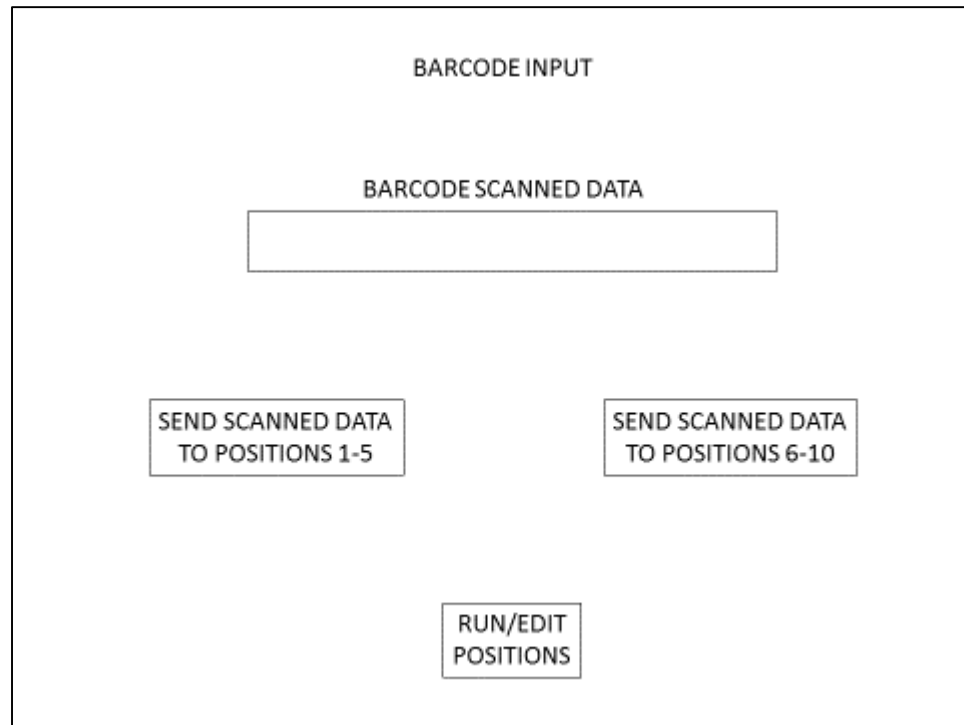


Figure 13: Barcode Input Screen

Maintenance Screens

At the “Setup Screen”, pressing the “Maintenance” button will take you to the “Parameter Maintenance” screen. A password may be required to enter the “Parameter Maintenance” screen.



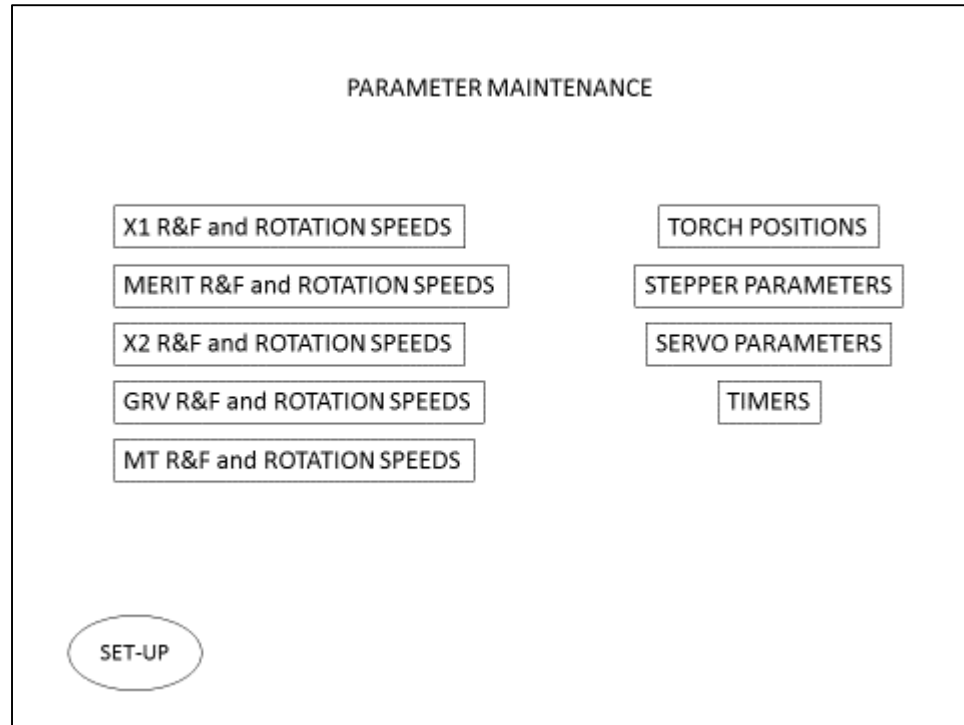


Figure 14: Parameter Maintenance Screen

Pressing any of the on-screen buttons will take you to data tables where you can set the relevant data. Pressing the “Set-Up” button will return you to the “Setup Screen”.

In any of the Parameter screens, touching the value to be changed will pop-up a window allowing you to enter a new data value. Pressing “ENT” will enter the new value and return you to the parameter table screen. Pressing the “Cancel” button will return you to the parameter table screen without making any change to the value.



1/2" X1 RISE & FALL and ROTATION SPEEDS

PIPE SIZE	R&F #1	R&F #2	PLASMA ROT. SCH 10	PLASMA ROT. SCH 40	WELD ROT. #1	WELD ROT. #2	WELD ROT. #3	WELD ROT. #4
1 1/4"	960	16	12800	6400	3200	3200	3200	1600
1 1/2"	850	16	12800	6400	3200	3200	3200	1600
2"	665	16	12800	6400	3200	3200	3200	1600
2 1/2"	554	16	12800	6400	3200	3200	3200	1600
3"	443	16	12800	6400	3200	3200	3200	1600
4"	302	16	12800	6400	3200	3200	3200	1600
5"	295	16	12800	6400	3200	3200	3200	1600
6"	222	16	8533	4267	3200	3200	3200	1600
8"	148	16	6400	3657	3200	3200	3200	1600

NEXT
MAINTENANCE

Figure 15: 1/2" X1 Rise & Fall and Rotation Speeds Screen

TORCH POSITIONS

OUTLET SIZE	X1 PLASMA	X1 WELD	MERIT PLASMA	MERIT WELD	X2 PLASMA	X2 WELD	GRV PLASMA	GRV WELD	MT HOLES
1/2"	12904	7407	12904	7407	12988	7487			
3/4"	12599	6909	12599	6909	12599	6945			
1"	12159	6630	12159	6630	12160	6450			12250
1 1/4"	11395	5960	11395	5960	11600	5750	11600	6243	11750
1 1/2"	11250	5618	11250	5618	11000	5250	11350	5841	11250
1 3/4"									10750
2"	10450	4850	10450	4850	10100	4070	10400	4900	10250
2 1/2"	9600	3425	9600	3425	9075	3100	9600	3911	9250
2 3/4"									8750
3"							8200	2550	7250
4"							6450	600	

PREVIOUS SCREEN
MAINTENANCE

Figure 16: Torch Positions Screen



TIMERS	
DELAY BEFORE WELD ARC	5
DELAY BEFORE 1ST WELD ROT.	7
DELAY BEFORE 2ND WELD ROT.	7
DELAY BEFORE 3RD WELD ROT.	7
DELAY END WELD ARC	5
DELAY PLASMA SCH 10	10
DELAY PLASMA SCH 40	15

PREVIOUS SCREEN MAINTENANCE

Figure 17: Timers Screen

Pressing the “Weld Setup” button will take you to the “Weld Setup Screen”. Once you have checked and made necessary changes, pressing the “Previous Screen” button (on the “Weld Setup Screen”) will return you to the “Position #1” screen.

WELD SETUP SCREEN		
	WELD PROCESS	WELD SPEED
	SINGLE PASS	100%
		90%
	3 PASS	80%
		75%
		50%
PREVIOUS SCREEN	3 PASS SET UP	WEAVE SET UP

Figure 18: Weld Setup Screen

Routine Shutdown Procedure

Turn the main disconnect switch to “Off”.

Turn off the welder and the plasma unit.

Turn off the welding gas, at the cylinder.

Recommended Maintenance

Regular Spare Parts Listing

ORIGINAL SUPPLY QUANTITY	DESCRIPTION	PART NUMBER
1	SHIELD (MACHINE)	TCH-220713
4	PIPE NOZZLES	TCH-220718
5	ELECTRODES	TCH-220669
1	SWIRL RING	TCH-220670
1	WELD TORCH M6 SPRAY HOLDER	TCH-142-0007
5	WELD TORCH BINZEL TIPS	TCH-140-0169
1	WELD TORCH BINZEL NOZZLE	TCH-145-0139
1	WELD TORCH BINZEL DIFFUSER	TCH-018-0004
1	BINZEL TIP WRENCH	
3	3 AMP FUSE	PLC-216
1	DFTR PMX 45 DEFLECTOR SHIELD	TCH-220717



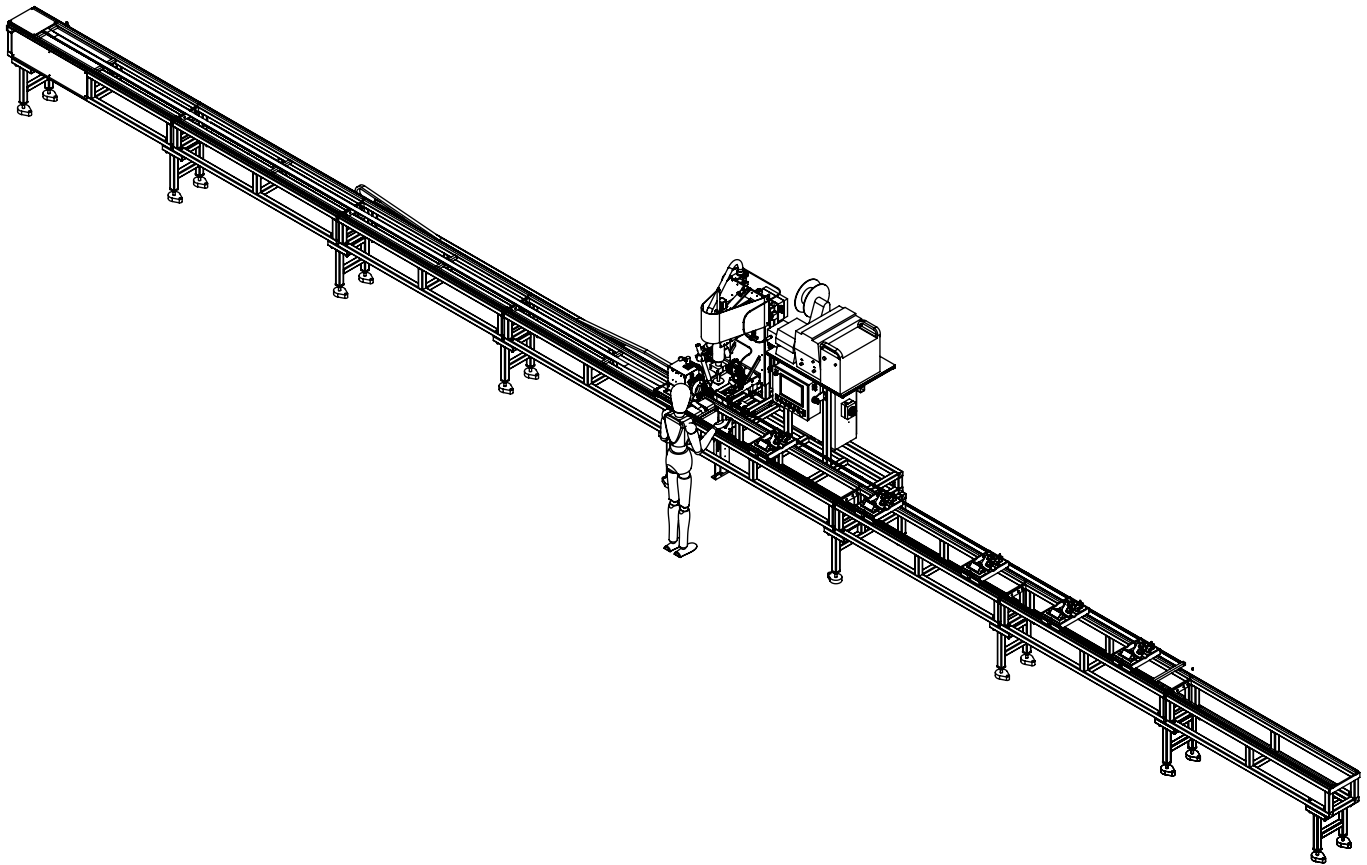
North Alabama Pipe

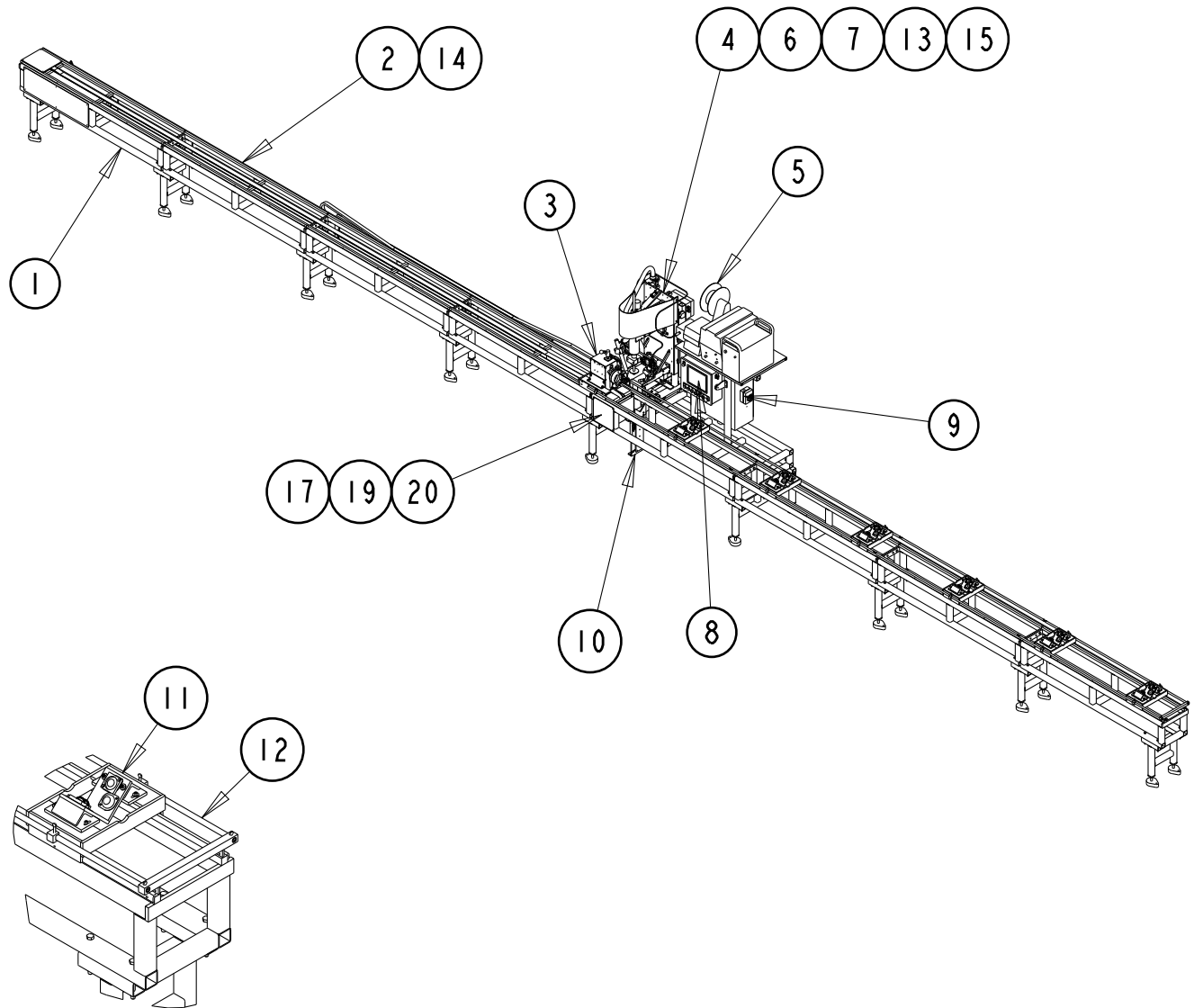
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UNIVERSAL WELDER

PARTS LIST





- (16) (17) (18) (19) (20) (21) (22) (23) (24) (25) (26)

ITEMS NOT SHOWN

REVISION "A" 7/29/13
SEE UWA BOM SHEET FOR REVISION.

UNIVERSAL WELDER MAIN ASSEMBLY



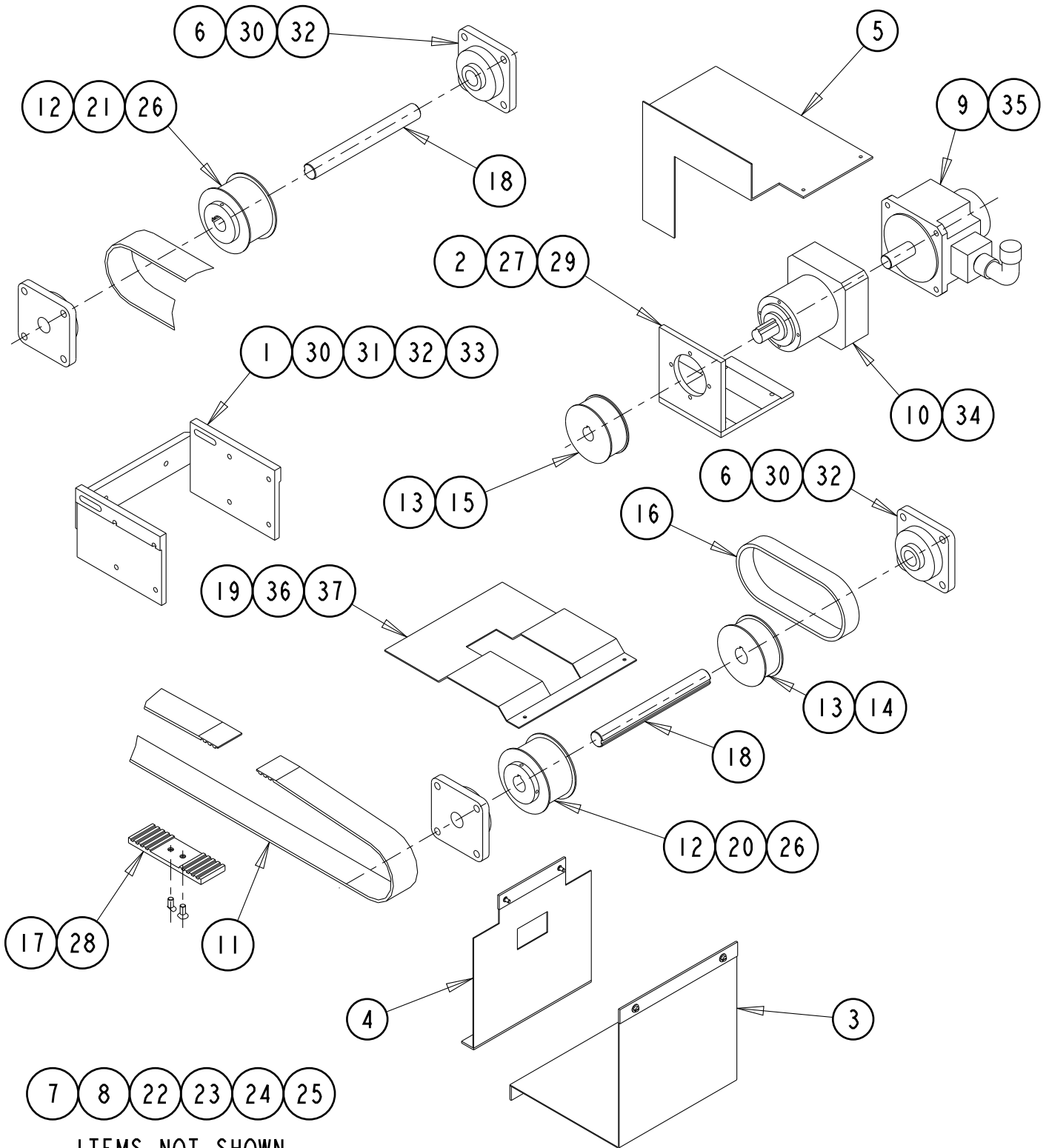
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UWA
Sheet #20

UNIVERSAL WELDER MAIN ASSEMBLY PARTS LIST

ITEM	PART NUMBER	QTY	DESCRIPTION
1	WAS-APC	1	APC UNIVERSAL
2	WAS-MAIN FRAME	1	UNIVERSAL WELDER MAIN FRAME ASSEMBLY
3	WAS-QUICKCHUCK ASSY	1	QUICK CHUCK ASSEMBLY
4	WAS-BACKPLATE STAND ASSY	1	BACKPLATE AND STAND ASSEMBLY
5	WAS-UNIVERSAL POWER ASY	1	UNIVERSAL WELDER WIRE FEEDER WELDER POWER AND PLASMA UNIT ASSEMBLY
6	WAS-JUNCTION BOX	1	JUNCTION BOX ASSEMBLY
7	WAS-UNIVERSAL BACKPLATE GRNDASY	1	BACK PLATE GROUNDING CABLE AND AIR FILTER ASSEMBLY
8	WAS-PUSHBUTTON BX	1	PUSH BUTTON BOX ASSEMBLY
9	WAS-CNTRL CABINET	1	CONTROL CABINET ASSEMBLY
10	WAS-CENTERLIFT	1	UNIVERSAL CENTER DEVICE
11	WAS-PIPECAR	5	PIPE CAR ASSEMBLY
12	WAS-PIPE END RAIL	1	END RAIL ASSEMBLY
13	WAS-WELDWIRE ASSY	1	WELD WIRE & CONDUIT LINER ASSEMBLY
14	WAS-HOMESWITCH ASSY	1	HOME SWITCH ASSEMBLY
15	WAS-SHIPMENT PK	1	UW BOLT SHIPMENT PKG
16	WAS-ANGLE GAUGE	1	ANGLE GAUGE
17	WAS-SPARE PARTS	1	WELDER SPARE PARTS
18	WAS-FASTENERS	1	WELDER FASTENERS
19	WAS-CE STICKERS	1	CE SAFETY STICKERS
20	FAS-F23	4	1/4-20 X 1/2" LG. SHCS
21	FAS-F24	6	1/4-20 X 3/4" LG. SHCS
22	FAS-F38	4	Ø 1/4" FLAT WASHER
23	MSC-512	1	SERIAL PLATE
24	WMP-1001	1	TORCH CENTER GAUGE
25	WMP-1569	1	TORCH GAUGE
26	WMP-1814	1	HOLE LEVEL GAUGE

REVISION "A" 7/27/13
 ADDED ITEMS #16 THRU #26.



7 8 22 23 24 25

ITEMS NOT SHOWN

REVISIONS SEE BOM SHEET
 REVISION "D" 7/30/13
 REVISION "E" 9/18/13

APC UNIVERSAL



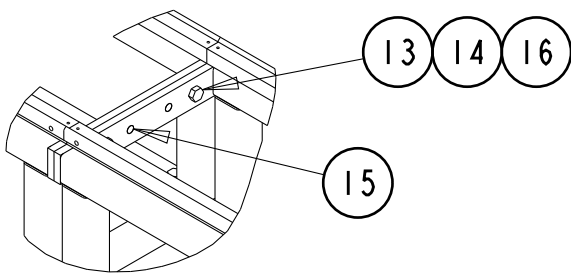
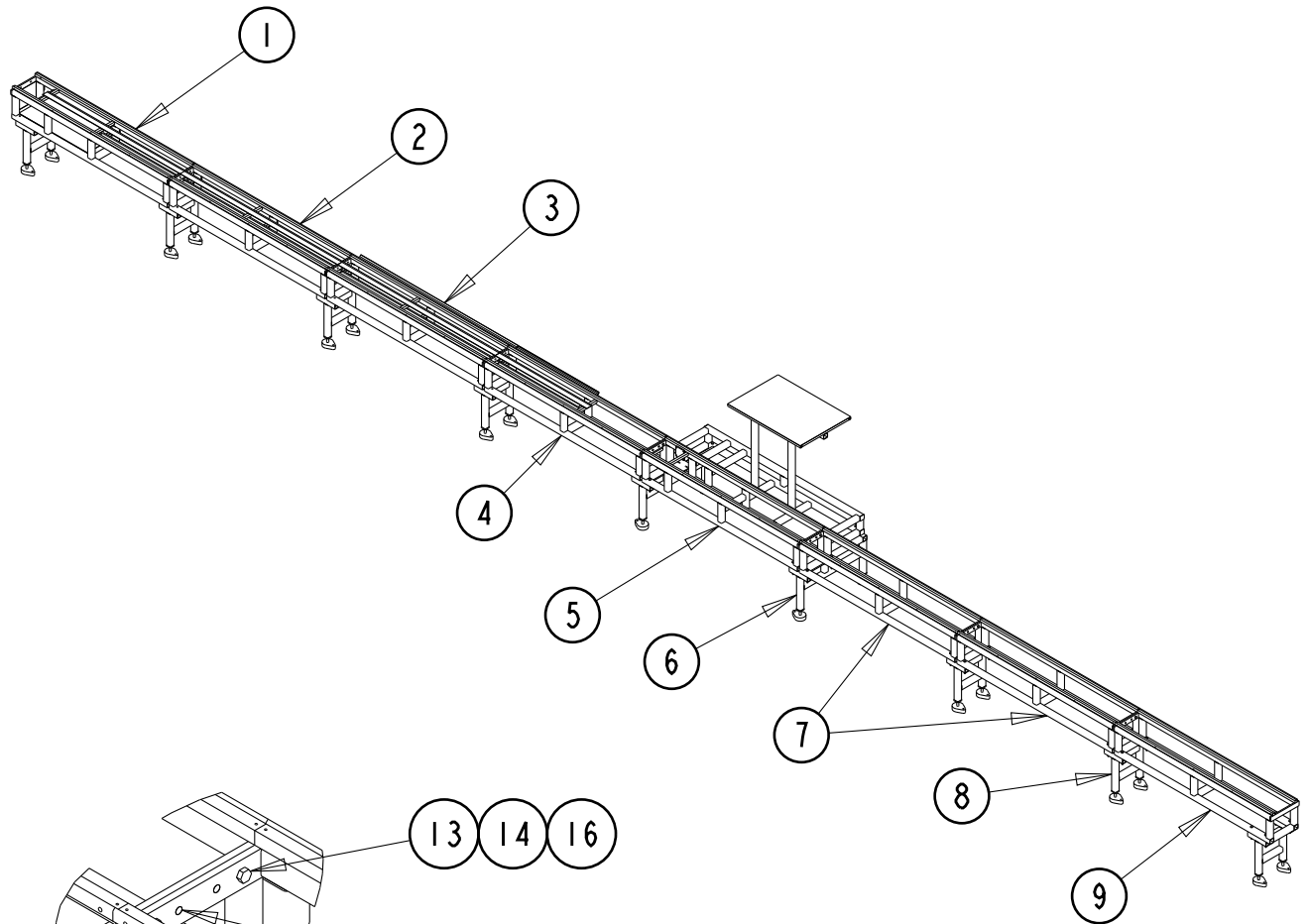
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WAS-APC
 Sheet #22

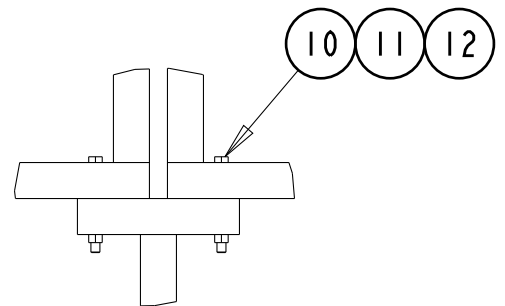
APC UNIVERSAL PARTS LIST

ITEM	PART NUMBER	QTY	DESCRIPTION
1	WAS-APC-01	1	BELT TAKE-UP WELDMENT
2	WAS-APC-02	1	MOTOR MOUNT WELDMENT
3	WAS-APC-03	1	APC INSIDE RIGHT GUARD
4	WAS-APC-04	1	APC INSIDE LEFT GUARD
5	WAS-APC-05	1	MOTOR GUARD
6	BRG-914	4	FLANGE BEARING
7	EPP-0325	1	OMRON ENCODER CABLE
8	EPP-0326	1	OMRON MOTOR CABLE
9	MTR-118	1	OMRON AC SERVO MOTOR
10	MTR-119	1	SERVO MOTOR GEAR BOX
11	PLY-308	1	DRIVE BELT 54 Ft. LG.
12	PLY-320	2	ALUMINUM PULLEY
13	PLY-523	2	STEEL PULLEY
14	PLY-524	1	∅ 1" TAPER LOCK BUSHING
15	PLY-525	1	∅ 22mm TAPER LOCK BUSHING
16	PLY-526	1	BELT
17	WMP-1135	1	BELT ATTACHMENT PLATE
18	WMP-1509A	2	∅ 1" SHAFT X 8-3/4" LG.
19	WMP-1533A	1	BELT SHIELD
20	WMP-1807	2	1/4 X 4-1/2" LG. KEY STOCK
21	WMP-1808	1	1/4 X 3" LG. KEY STOCK
22	WMP-1825A	1	END BELT SHIELD
23	WPP-06	1	APC FRONT GUARD
24	WMP-1831	2	APC SIDE GUARD
25	FAS-D16	14	#8 FLAT WASHER
26	FAS-F17	4	1/4-20 X 1/2" LG. SHSS
27	FAS-G04	4	5-16-18 X 1" LG. HHCS
28	FAS-G13	2	5/16-18 X 3/4" LG. FHSCS
29	FAS-G21	4	∅ 5/16" FLAT WASHER
30	FAS-H01	18	3/8-16 X 1" LG. HHCS
31	FAS-H22	4	∅ 3/8" FLAT WASHER
32	FAS-H23	18	∅ 3/8" LOCK WASHER
33	FAS-H31	2	3/8-16 X 1-1/2" LG. HHCS
34	FAS-M05	4	M6-1.0 X 20 mm LG. SHCS
35	FAS-M08	4	M8-1.2 X 25mm LG. SHCS
36	FAS-K03	14	#10-24 X 1/2" LG. CAPTIVE SCREW
37	FAS-SPRING #9	14	EXTERNAL RETAINING RING

REVISION "D" 7/30/13 - ADDED NEW GUARDS & FASTENERS PER SAFTEY REQUIREMENTS.
 REVISION "E" 9/18/13 - UPDATED B.O.M.




TYPICAL FRAME SECTION JOINT



TYPICAL LEG TO FRAME JOINT

REVISION "C" 7/30/13
SEE BOM SHEET

UNIVERSAL WELDER MAIN FRAME ASSEMBLY

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WAS-MAIN FRAME
Sheet #24

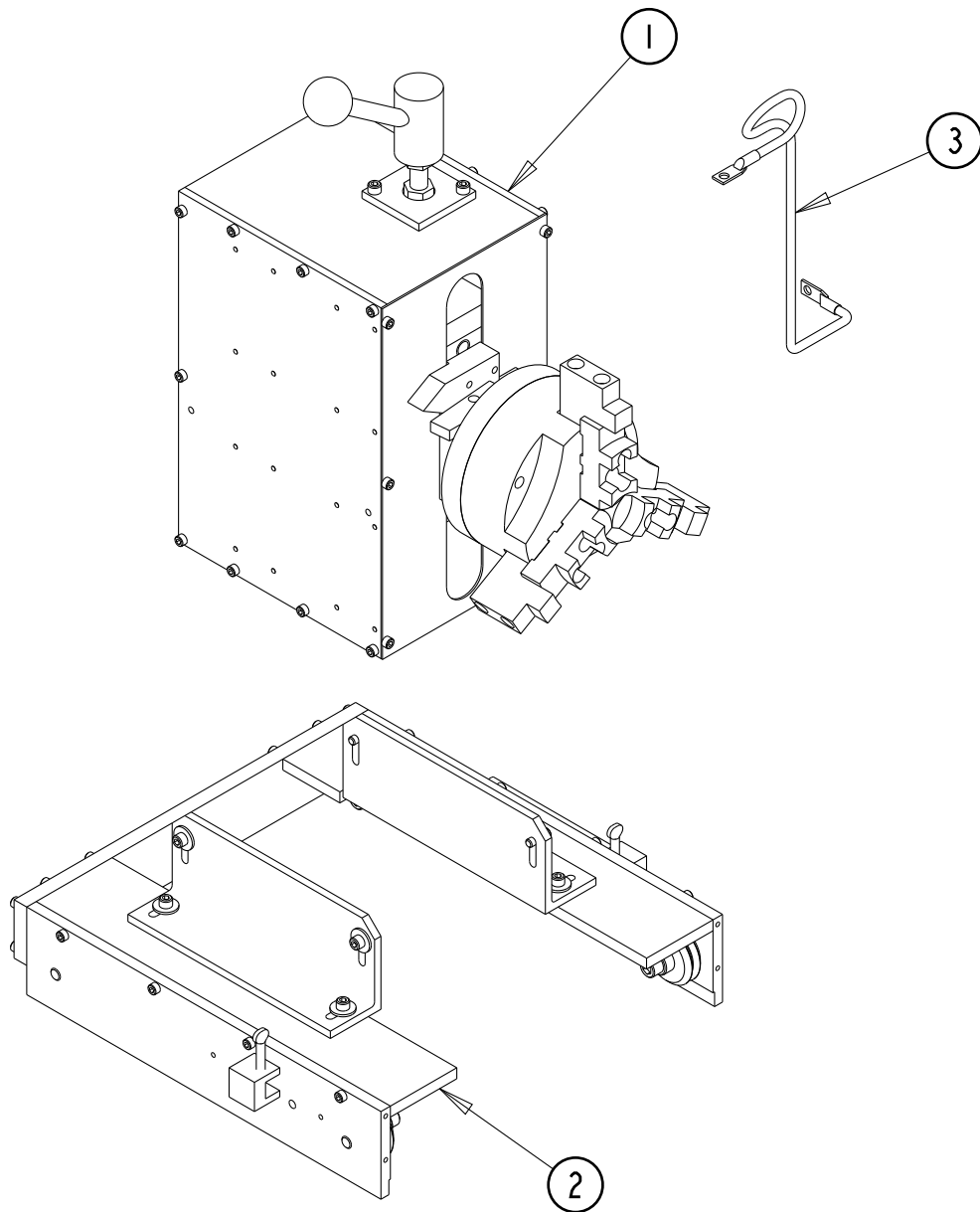
UNIVERSAL WELDER MAIN FRAME ASSEMBLY PARTS LIST

ITEM	PART NUMBER	QTY	DESCRIPTION
1	WAS-MAIN FRAME 02	1	APC END FRAME WELDMNT
2	WAS-MAIN FRAME 03	1	FRAME BASIC LH #1 WELDMNT
3	WAS-MAIN FRAME 04	1	FRAME BASIC LH #2 WELDMNT
4	WAS-MAIN FRAME 05	1	FRAME BASIC LH #3 WELDMNT
5	WAS-MAIN FRAME 06	1	MIDSECTION WELDMNT
6	WAS-MAIN FRAME 07	1LH\1RH	MIDSECTION SUPPORT LEG WELDMNT
7	WAS-MAIN FRAME 08	2	FRAME BASIC WELDMNT
8	WAS-MAIN FRAME 09	8	FRAME SUPPORT LEG WELDMNT
9	WAS-MAIN FRAME 10	1	END FRAME WELDMNT
THE ITEMS BELOW ARE INCLUDED IN THE UW SHIPMENT PKG ASSEMBLY PART No. 20-WAS-SHIPMENT PK REF. DRAWING #20-WELDER			
10	FAS-H04	42	3/8-16 X 5" LG. HHCS
11	FAS-H19	42	3/8-16 HEX NUT
12	FAS-H22	84	Ø 3/8" FLAT WASHER
13	FAS-101	14	1/2-13 X 1-1/2" LG. HHCS
14	FAS-114	18	1/2-13 HEX NUT
15	FAS-120	14	Ø 1/2" X 1" LG. DOWEL PIN
16	FAS-123	14	Ø 1/2" LOCK WASHER

REVISION "A" 3/29/11 REMOVED ITEM #1 WAS MAIN FRAME 01 APC FRAME WELDMNT.

REVISION "B" 10/3/12 REMOVED ITEMS, FAS-F23, FAS-F38, FAS-13, AND FAS-121.

REVISION "C" 7/30/13 RENUMBERED ALL ITEMS.



QUICK CHUCK ASSEMBLY

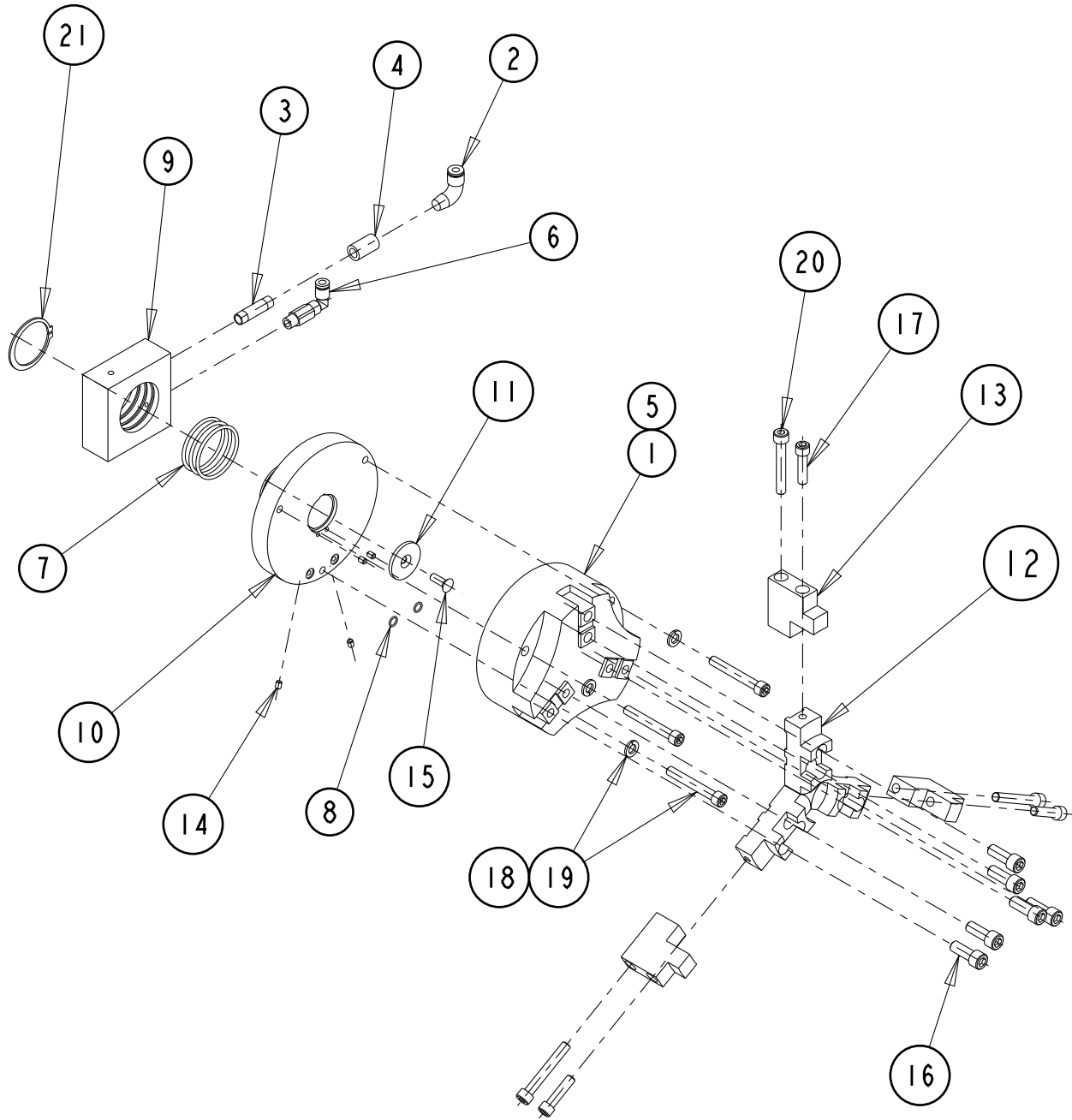


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WAS-QUICKCHUCK ASSY
Sheet #26

QUICK CHUCK ASSEMBLY PARTS LIST

ITEM	PART NUMBER	QTY	DESCRIPTION
1	WAS-AIRCHUCK	1	WELDER AIRCHUCK ASSEMBLY
2	WAS-CHUCK CAR ASY	1	CHUCK CAR ASSEMBLY
3	WAS-CHUCK GRDASY	1	CHUCK GROUND ASSEMBLY



REVISION "A"
SEE 20-CAS-AIRCHUCK BOM SHEET.

AIR CHUCK ASSEMBLY



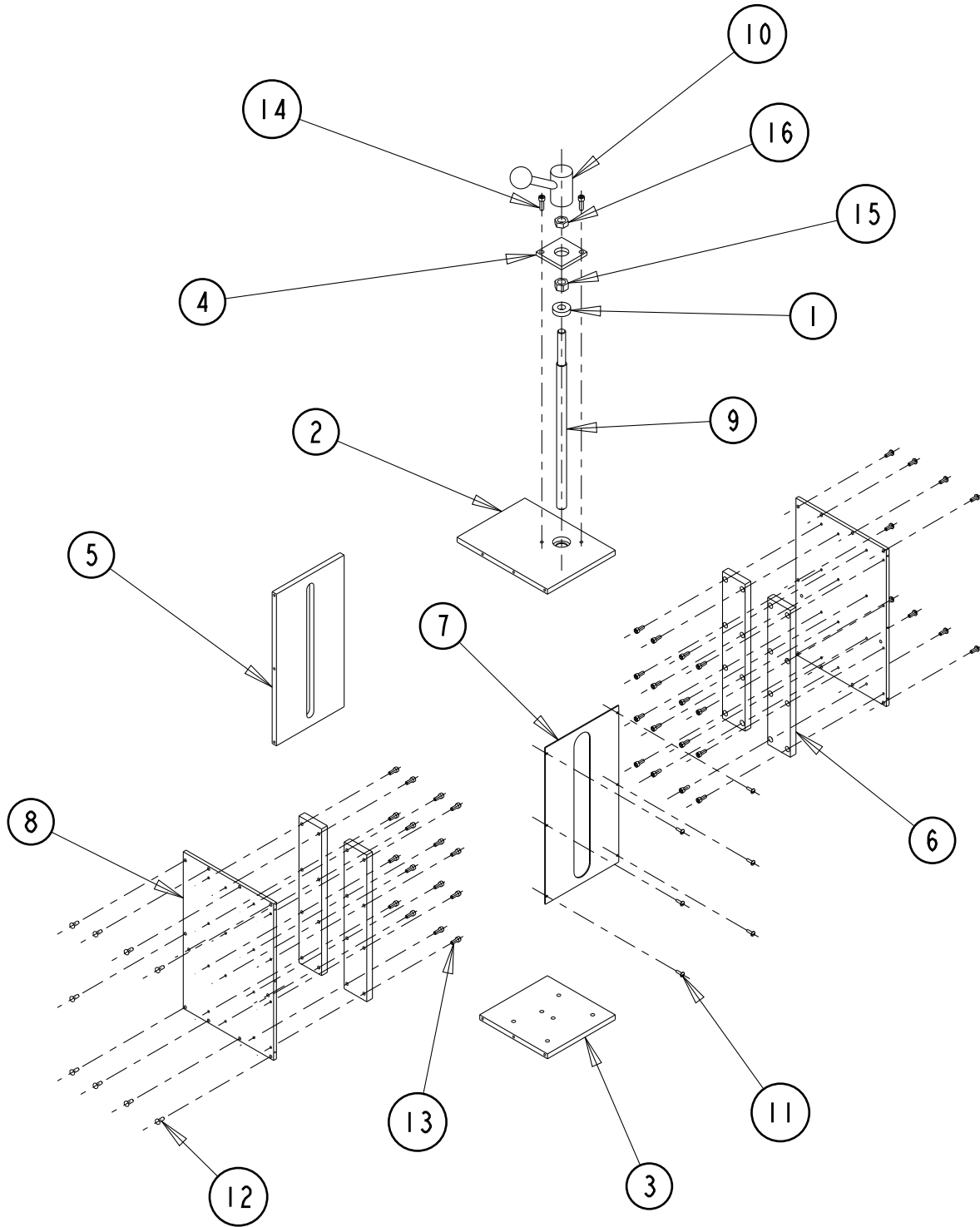
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CAS-AIRCHUCK
Sheet 28

AIR CHUCK PARTS LIST

ITEM	PART NUMBER	QTY	DESCRIPTION
1	AIR-400	1	AIR CHUCK
2	AIR-417	1	1/4T X 1/8P MALE ELBOW
3	AIR-432	1	1/8 1-1/2" LG PIPE NIPPLE
4	AIR-434	1	1/8" PIPE COUPLING
5	AIR-445	2	1/8 NPT FLUSH PLUG
6	AIR-548	1	1/4T X 1/8P LONG MALE ELBOW
7	BRG-942	3	O'RING
8	BRG-948	2	O'RING
9	CMP-2010	1	AIR TRANSFER BLOCK
10	CMP-2012	1	BACK PLATE
11	CMP-2013	1	MOUNT WASHER
12	CMP-2056	3	CHUCK JAW
13	CMP-2057	3	JAW EXTENSION
14	FAS-E27	4	#10-24 X 1/4" LG. SHSS
15	FAS-F5	1	1/4-20 X 3/4" LG. FHSCS
16	FAS-G10	6	5/16-18 X 3/4" LG. SHCS
17	FAS-G12	3	5/16-18 X 1-1/4" LG. SHCS
18	FAS-G22	3	5/16 LOCK WASHER
19	FAS-G26	3	5/16-18 X 2-1/4" LG. SHCS
20	FAS-M4	3	8mm X 55mm LG. SHCS
21	FAS-SPRING #6	1	SNAP RING #6 EXTERNAL

REVISION "A" 11/27/12 - LKG REVISED PER NEW AIR VALVES.



CHUCK HOUSING ASSEMBLY

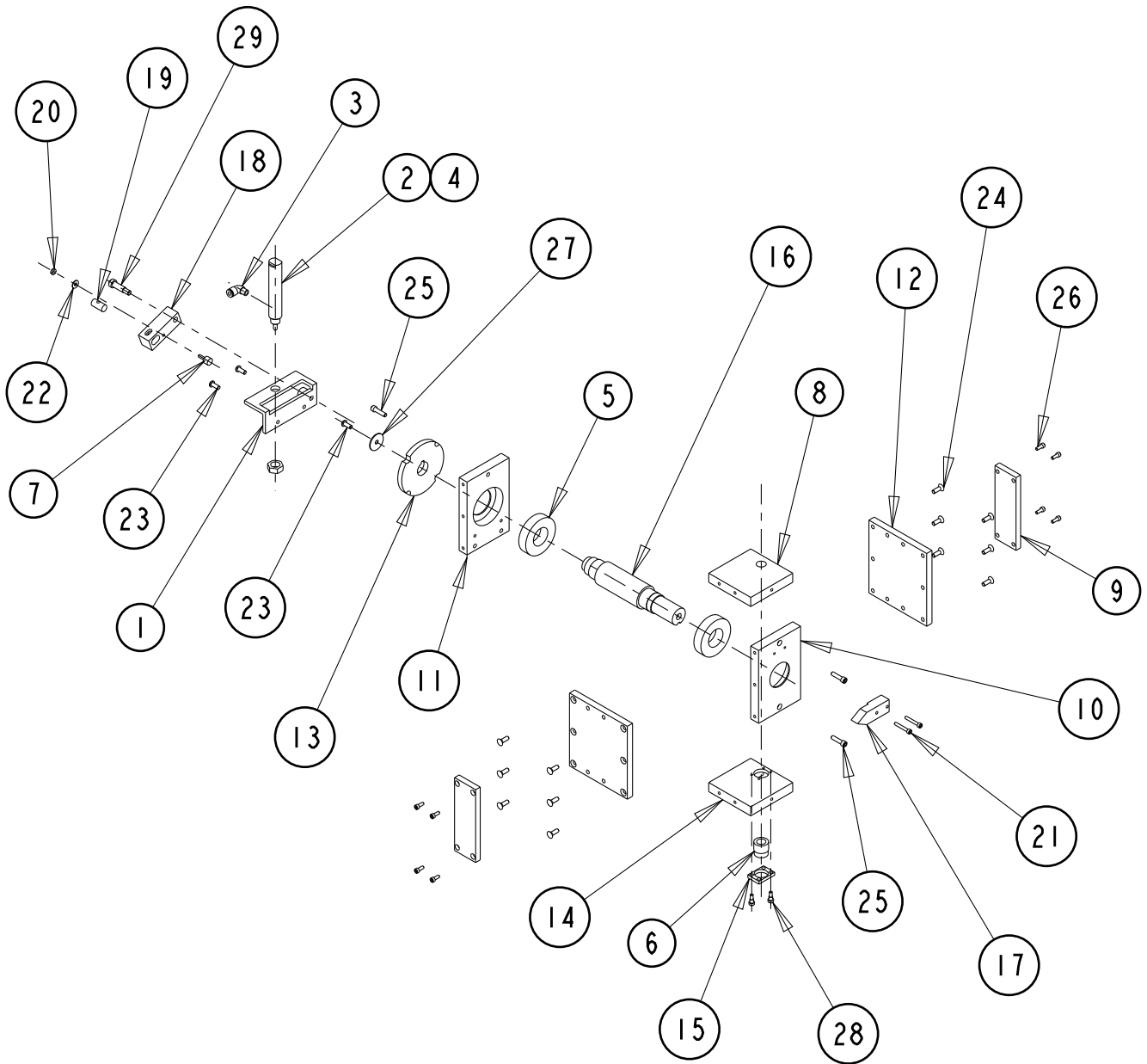


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CAS-CHUCK HS ASY
 Sheet #30

INDEX CHUCK HOUSING ASSEMBLY PARTS LIST

ITEM	PART NUMBER	QTY	DESCRIPTION
1	BRG-907	1	BEARING
2	CMP-2011	1	TOP OUTSIDE PLATE
3	CMP-2014	1	BOTTOM OUTSIDE PLATE
4	CMP-2017	1	BEARING PLATE
5	CMP-2018	1	REAR OUTSIDE PLATE
6	CMP-2027	4	NYLON GUIDE STRIPS
7	CMP-2029	1	FRONT PLATE
8	CMP-2031	2	SIDE OUTSIDE PLATE
9	CMP-2513	1	ADJUSTMENT SCREW
10	MSC-534	1	ADJUSTMENT HANDLE
11	FAS-C06	6	#6-32 X 1/6" LG. RD. HD. MACH. SCREW
12	FAS-E02	18	#10-24 X 1/2" LG. B.H.S.H.C.S.
13	FAS-E16	32	#10-24 X 1/2" LG. S.H.C.S.
14	FAS-F23	2	1/4-20 X 1/2" LG. S.H.C.S.
15	FAS-113	1	1/2-13 NYLOCK LOCKNUT
16	FAS-114	1	1/2-13 HEX NUT



SEE CAS-CHUCK-ROT ASY BOM FOR
 REVISION "A" 2/16/10
 REVISION "B" 6/15/10
 REVISION "C" 7/6/10
 REVISION "D" 9/1/11
 REVISION "E" 9/24/13

INDEX CHUCK ROTATION ASSEMBLY



North Alabama Pipe
 A Division of Anvil International
 Innovators Of Pipe Fabrication Equipment

CAS-CHUCK-ROT-ASY
 Sheet #32

INDEX CHUCK ROTATION ASSEMBLY PARTS LIST

ITEM	PART NUMBER	QTY	DESCRIPTION
1	CAS-CYL MNT ANGLE	1	CYLINDER MOUNT ANGLE ASSEMBLY
2	AIR-410	1	AIR CYLINDER
3	AIR-417	1	1/4 X 1/8 M ELBOW
4	AIR-445	1	1/8" NPT FLUSH PLUG
5	BRG-911	2	BEARING
6	BRG-941	1	BRASS ACME NUT
7	BRG-1020	1	CAM ROLLER McMASTER CARR #6461K41
8	CMP-2016	1	TOP INSIDE PLATE
9	CMP-2028	2	NYLON SLIDE STRIP
10	CMP-2033A	1	FRONT INSIDE PLATE
11	CMP-2033B	1	BACK INSIDE PLATE
12	CMP-2035	2	SIDE INSIDE PLATE
13	CMP-2103A	1	ROTATION LOCK PLATE
14	CMP-2106	1	BOTTOM PLATE
15	CMP-2107	1	ACME NUT MOUNT PLATE
16	CMP-2504	1	ROTATION SHAFT
17	CMP-2514	1	PIPE SIZE ARROW
18	CMP-2516	1	CYLINDER LOCK BAR
19	CMP-2518	1	CYLINDER NUT
20	FAS-E24	1	#10-32 HEX NUT
21	FAS-E29	2	#10-24 X 1-1/4" LG. SHCS
22	FAS-E31	1	#10 STAR WASHER
23	FAS-F1	3	1/4-20 X 5/8" LG. BHSCS
24	FAS-F5	12	1/4-20 X 3/4" LG. FHSCS
25	FAS-F25	5	1/4-20 X 1" LG. SHCS
26	FAS-F26	8	1/4-20 X 1-1/4" LG. SHCS
27	FAS-F39	1	Ø 1/4" FENDER WASHER
28	FAS-F45	2	Ø 1/4" X 1/4" LG. SHOULDER SCREW
29	FAS-H30	1	Ø 3/8 X 1" LG. SHSB

REVISION "A" 2/16/10 - REMOVED CMP-2024, CMP-2105, CMP-2502, FAS-E29 & FAS-H6
 ADDED CMP-2516, 2517, 2518, BRG-1020, FAS-E24, E30 AND H30.

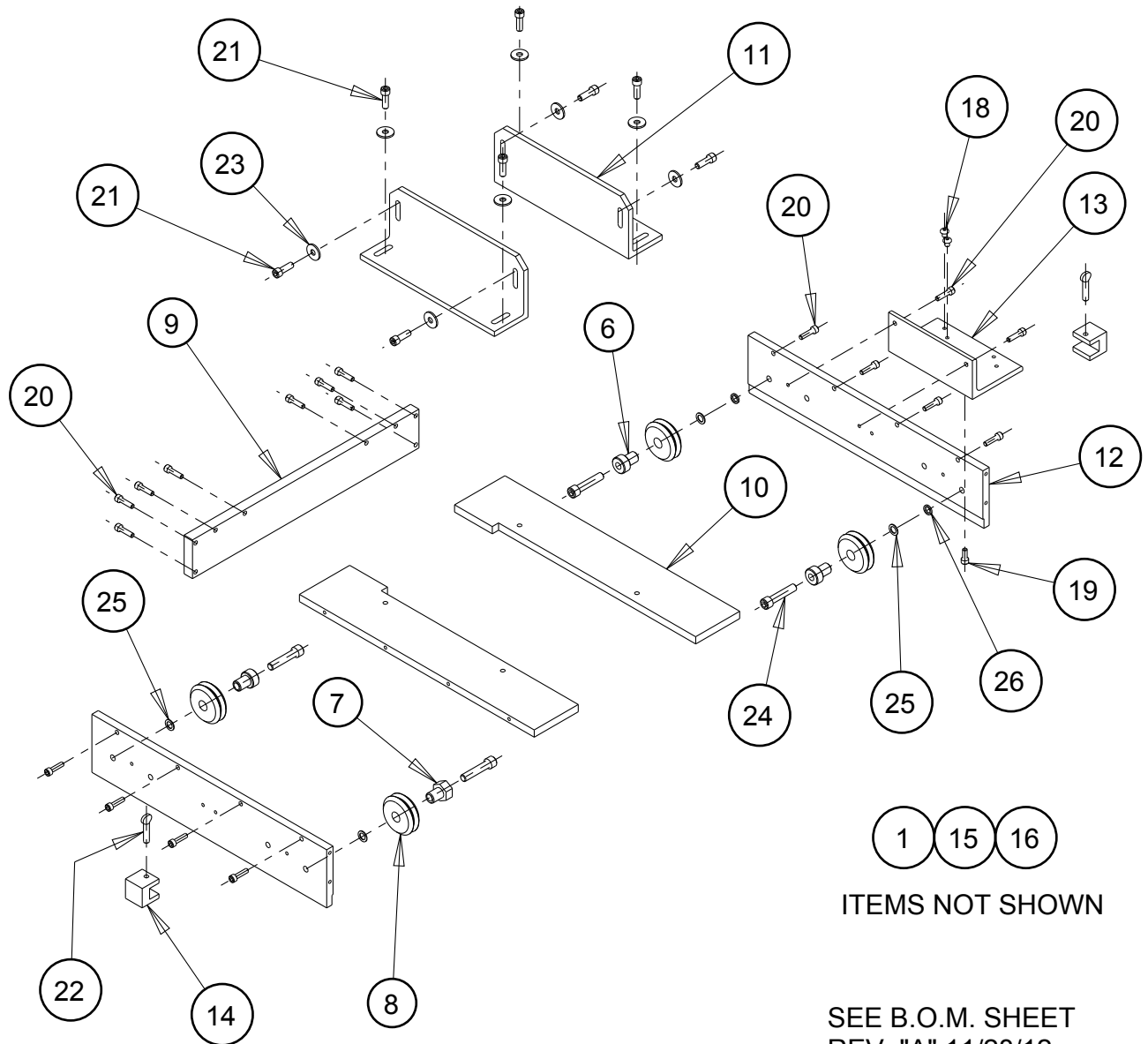
REVISION "B" 6/28/10 - REMOVED CMP-2020 AND CMP-2517. CHANGED PART NUMBER
 CMP-2103 TO CMP-2103-A, AND ADDED 20-CAS-CYL MNT ANGLE.

REVISION "C" 7/6/10 - CHANGED FAS-E30 #10 FLAT WASHER TO FAS-E31 #10 STAR WASHER.

REVISION "D" 9/1/11 - CHANGED QTY ON FAS-F25 FROM 5 TO 13.

REVISION "E" 9/24/13 - REVISED BOM, ADDED ITEM NUMBERS, UPDATED FASTENERS.

REVISION "F" 12/3/13 - ITEM #3 WAS 20-AIR-418 - NOW 20-AIR-417.



SEE B.O.M. SHEET
 REV. "A" 11/28/12
 REV. "B" 11/22/13
 REV. "C" 08/31/15

CHUCK CAR ASSEMBLY



North Alabama Pipe
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WAS-CHUCK CAR ASY
 Sheet #34

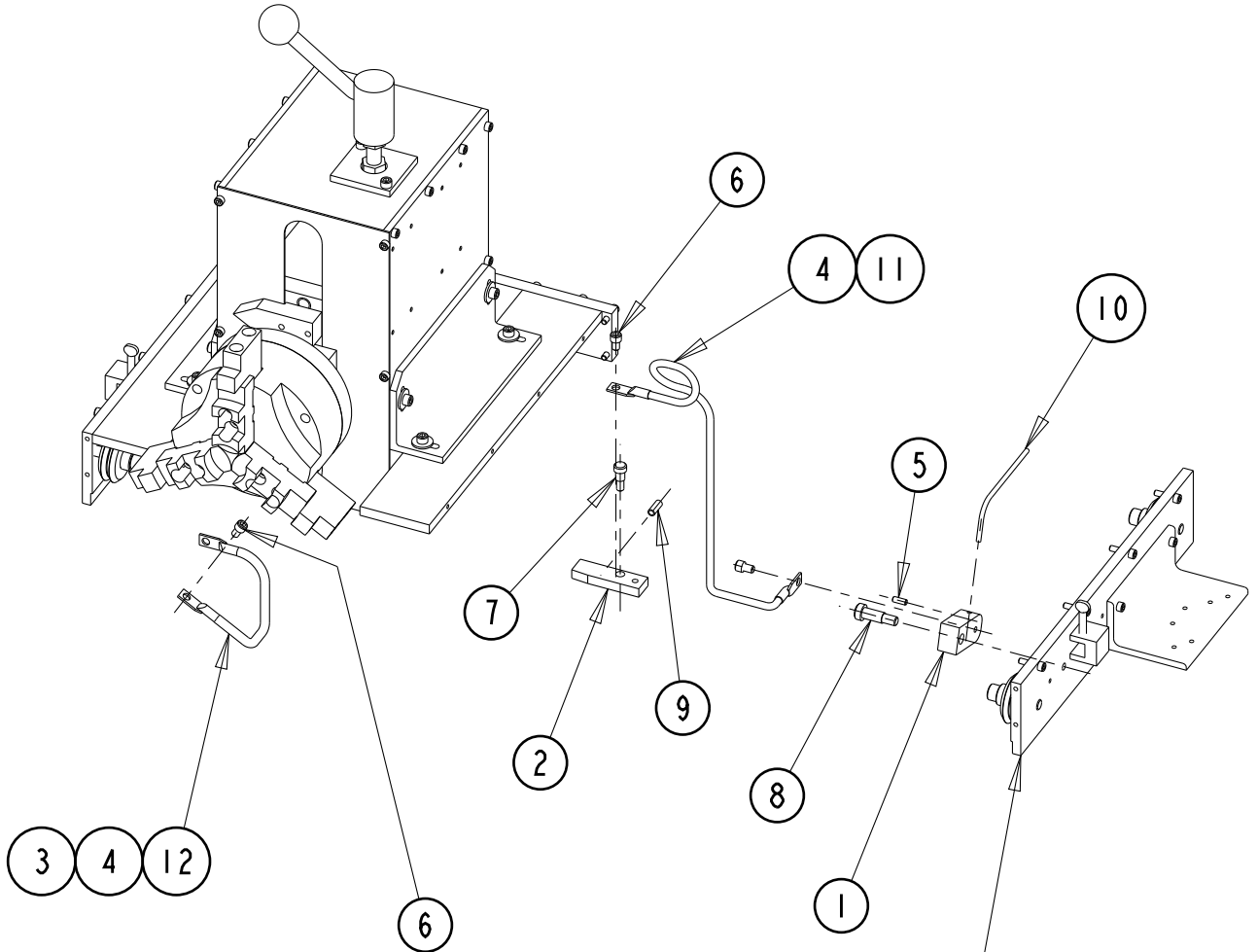
CHUCK CAR PARTS LIST

ITEM	PART NUMBER	QTY	DESCRIPTION
1	AIR-403	100 Ft.	1/4" AIRLINE
6	BRG-930	3	BUSHING
7	BRG-931	1	ADJUSTABLE BUSHING
8	BRG-935	4	W3 V WHEEL
9	CMP-2050	1	BACK PLATE
10	CMP-2051	2	TOP PLATE
11	CMP-2055	2	SIDE ANGLE
12	CMP-2101	2	SIDE PLATE
13	CMP-2104A	1	VALVE MOUNT ANGLE
14	WMP-1155	2	RAIL CLIP
15	EPP-0321	8 Ft.	1/4" HELI-TUBE
16	EPP-0343	1	5/8" LOOP STRAP
18	FAS-E01	2	#10-24 X 1/2" LG. BHSCS
19	FAS-E16	1	#10-24 X 1/2" LG. SHCS
20	FAS-E18	18	#10-24 X 3/4" LG. S.H.C.S.
21	FAS-F24	8	1/4-20 X 3/4" LG. S.H.C.S.
22	FAS-F30	2	1/4-20 X 1" LG. THUMB SCREW
23	FAS-F38	8	∅ 1/4" FLAT WASHER
24	FAS-G14	4	5/16-24 X 1-1/2" LG. S.H.C.S.
25	FAS-SHIM #2	4	.020 X ∅ .312 I.D.
26	FAS-SHIM #5	2	.062 X ∅ .312 I.D.

REVISION "A" 11/28/12 REVISED PER NEW AIR VALVES.

REVISION "B" 11/22/13 REMOVED ITEMS 2,3,4,5, & 17.

REVISION "C" 08/31/15 ITEM #24 WAS 3/8-24 NOW 5/16-24.



LOCATE, DRILL AND TAP
FOR 1/4-20 SHCS IN JAW
AT ASSEMBLY.

SIDE PLATE MOVED
FOR CLARITY

CHUCK GROUND ASSEMBLY



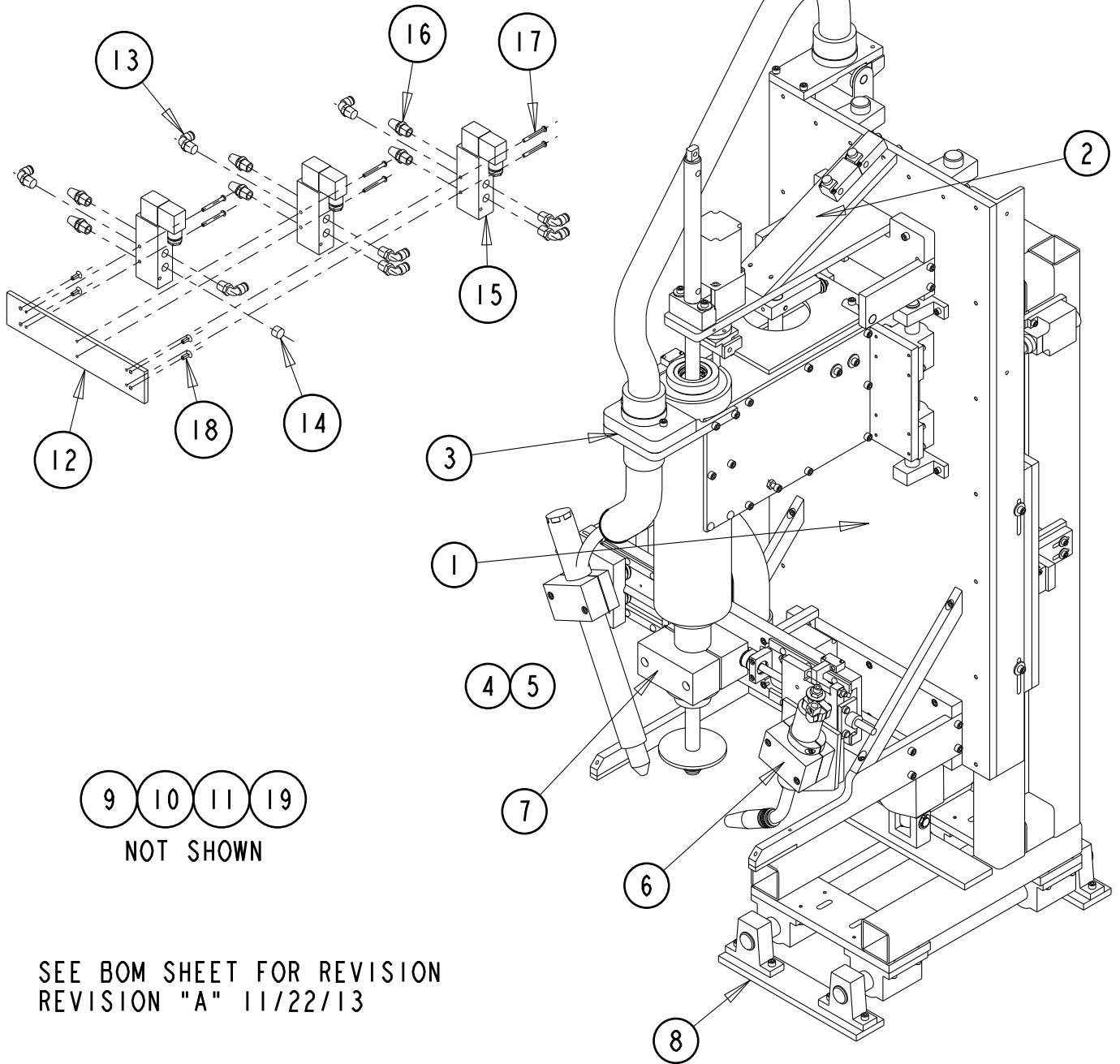
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WAS-CHUCK GRDASY
Sheet #36

QUICK CHUCK GROUND ASSEMBLY PARTS LIST

ITEM	PART NUMBER	QTY	DESCRIPTION
1	CMP-2052	1	INDEX CAR TRACK WIPER
2	CMP-2515	1	GROUND BAR
3	EPP-0163	1	GROUND LUG 5/16"
4	EPP-0260	3	GROUND LUG 1/4"
5	FAS-E27	1	#10-24 X 1/4" LG. SHSS
6	FAS-F23	3	1/4-20 X 1/2" LG. SHCS
7	FAS-G28	1	∅ 5/16 X 3/8" LG. SHOULDER SCREW
8	FAS-H05	1	∅ 3/8 SHOULDER BOLT X 3/4" LG.
9	MSC-535	1	COMPRESSION SPRING
10	MSC-545	1	LINER X 6" LG.
11	WIR-799	18"	#4 GROUND CABLE
12	WIR-849	6"	#4 GROUND CABLE

LOCATE ITEM #12 VALVE MOUNT PLATE TO
 BACK SIDE OF BACKSTAND. LOCATE, DRILL
 & TAP FOR #10-24 FHSCS TYP. 4 PLACES.
 LOCATE PILOT HOLES FOR THE OUTSIDE
 VALVE MOUNTING HOLES IN BACKSTAND
 REFERENCE $\varnothing 1/4"$ HOLES.



9 10 11 19
 NOT SHOWN

SEE BOM SHEET FOR REVISION
 REVISION "A" 11/22/13

BACK PLATE & STAND/WEAVE ASSEMBLY



North Alabama Pipe
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WAS-BKPLT STAND/WEAVE ASSY
 Sheet #38

BACK PLATE AND STAND ASSEMBLY PARTS LIST

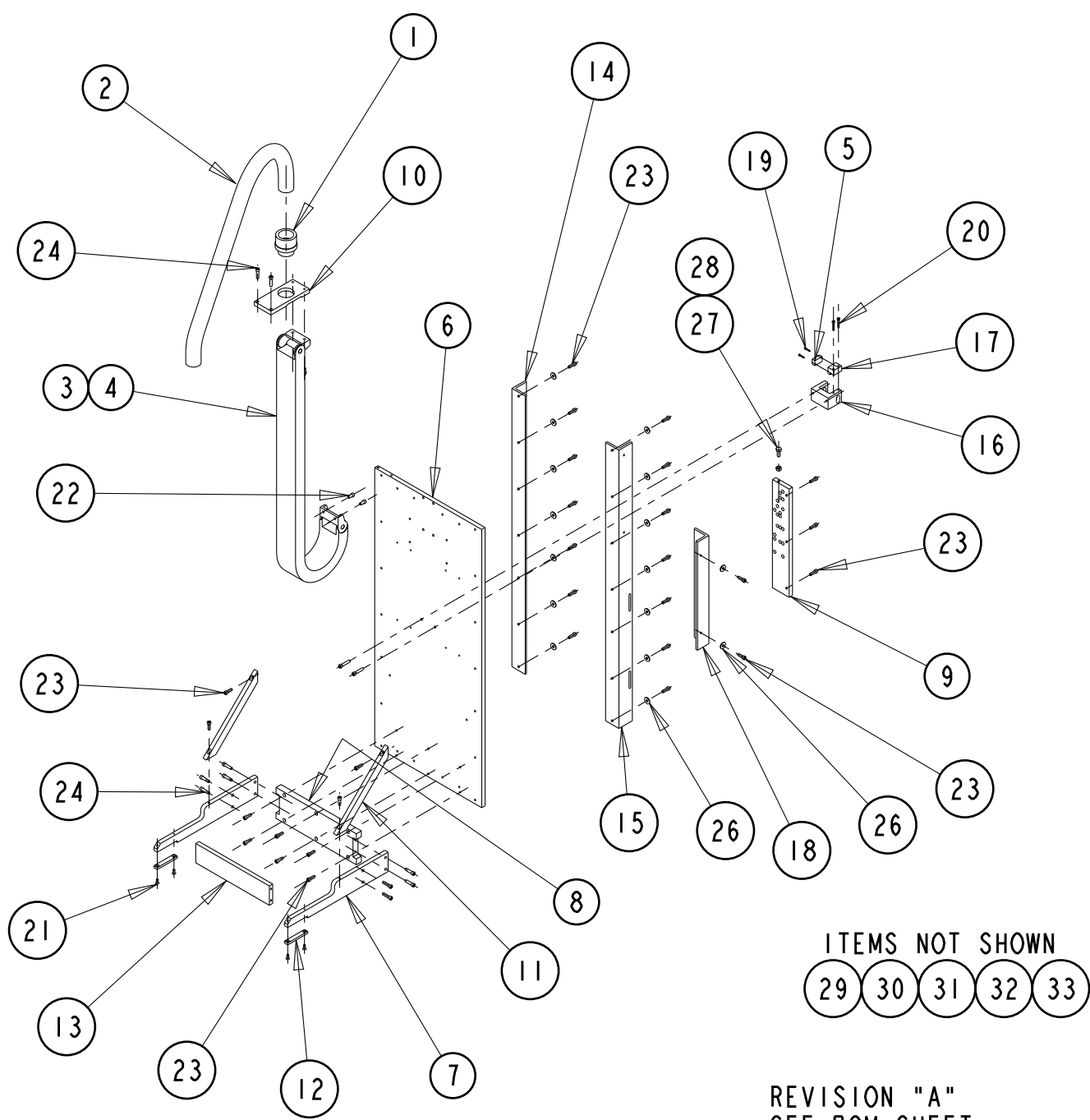
ITEM	PART NUMBER	QTY	DESCRIPTION
1	WAS-BACKPLATE	1	BACKPLATE ASSEMBLY
2	WAS-RFUPPER/WEAVE	1	RISE AND FALL UPPER/WEAVE ASSEMBLY
3	WAS-RFLOWER	1	RISE AND FALL LOWER ASSEMBLY
4	WAS-ARM	1	WELDER ARM ASSEMBLY
5	WAS-ARMLAZ	1	PLASMA SIDE
6	WAS-ARMWELD	1	WELD SIDE ARM ASSEMBLY
7	WAS-ROTATION	1	ROTATION ASSEMBLY
8	WAS-BACKSTAND	1	BACKSTAND ASSEMBLY
9	BLK-625	1	WELDER HOOD
10	FAS-K03	4	#10-24 X 1/2" LG. CAPTIVE SCREW
11	FAS-SPRING #9	4	EXTERNAL RETAINING RING
12	WMP-1832	1	VALVE MOUNT PLATE
13	AIR-416	8	1/4T X 1/4NPT 90° ELBOW
14	AIR-446	1	1/4 NPT FLUSH PLUG
15	AIR-541	3	DIRECTIONAL CONTROL VALVE
16	AIR-546	6	1/4 NPT AIR SILENCER
17	FAS-D08	6	#8-32 X 1-1/2" LG. RSLMS
18	FAS-E06	4	#10-24 X 1/2" LG. FHSCS
19	FAS-D16	4	#8 FLAT WASHER

REVISION "A" 11/22/13.

ITEM #10 WAS FAS-F23, 1/4-20 X 1/2" LG. SHCS,

ITEM #11 WAS FAS-F38, ϕ 1/4" FLAT WASHER

ADDED ITEMS 12 THRU 19.



ITEMS NOT SHOWN
 (29) (30) (31) (32) (33)

REVISION "A"
 SEE BOM SHEET.

BACK PLATE ASSEMBLY



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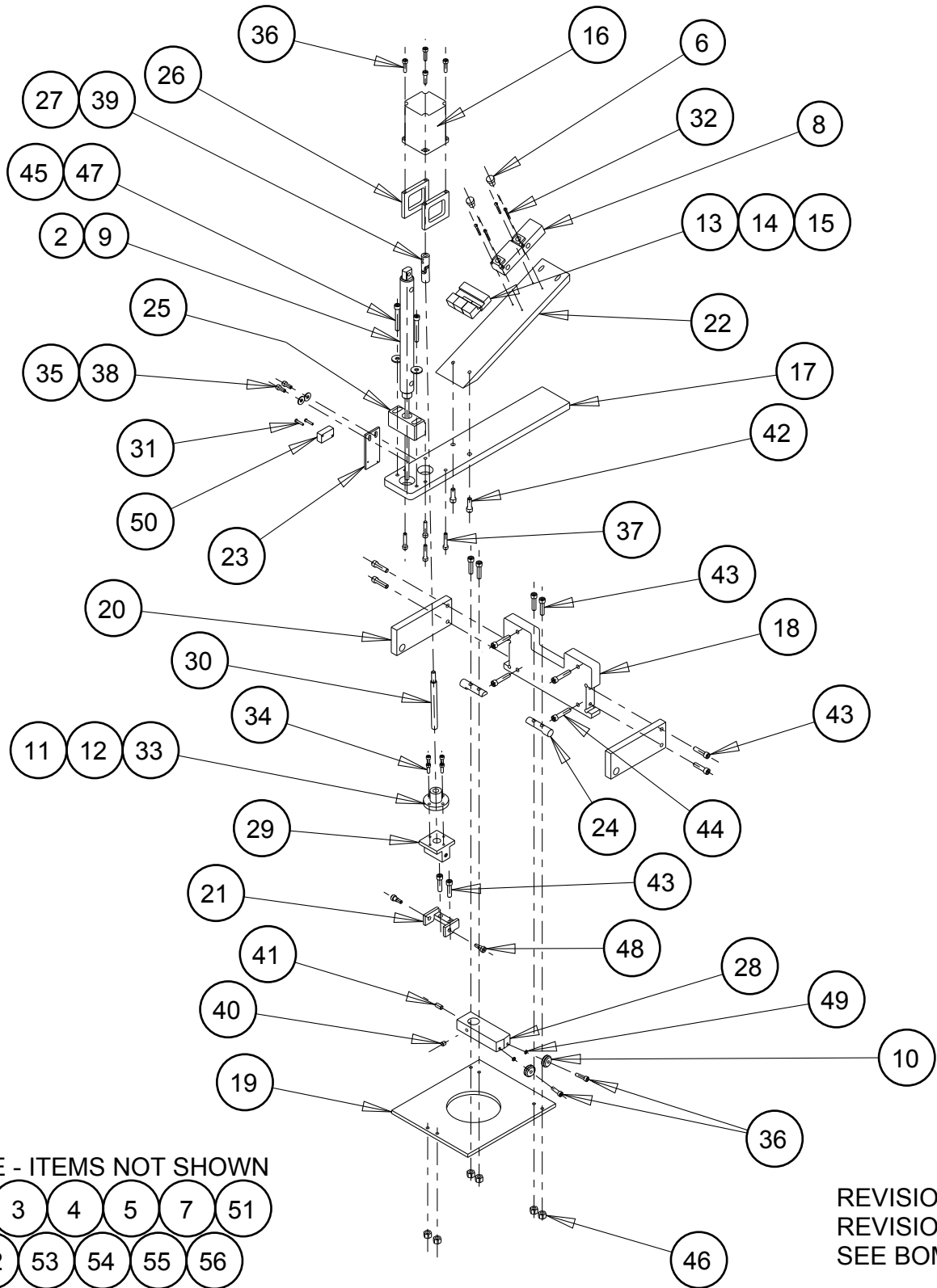
WAS-BACKPLATE
 Sheet #40

BACK PLATE ASSEMBLY PARTS LIST

ITEM	PART NUMBER	QTY	DESCRIPTION
1	EPP-0189	1	FLEX HOSE CONNECTOR
2	EPP-0191	38"	FLEX HOSE (BLACK)
3	EPP-0193	55"	LARGE FLEX TRACK
4	EPP-0194	1	LARGE TRACK BRACKET SET
5	SWT-0024	1	FROG PROX SWITCH
6	WMP-1067	1	BACK PLATE
7	WMP-1070	2	WELDER ARM
8	WMP-1072	1	ARM MOUNT PLATE
9	WMP-1102	1	PIPE SIZE PLATE
10	WMP-1105	1	FLEX HOSE MOUNT
11	WMP-1513	2	ARM BRACE
12	WMP-1514	2	ARM PAD
13	WMP-1515	1	ARM PLATE
14	WMP-1516	1	LEFT STIFFENER ANGLE
15	WMP-1517	1	RIGHT STIFFENER ANGLE
16	WMP-1519	1	UPPER ACTUATOR MOUNT
17	WMP-1520	1	SWITCH MOUNT
18	WMP-1523	1	PIPE SIZE PLATE MOUNT
19	FAS-B03	2	#4-40 X 5/8" LG. RSLMS
20	FAS-D11	2	#8-32 X 1" LG. SHCS
21	FAS-E06	4	#10-24 X 1/2" LG. FHSCS
22	FAS-F23	3	1/4-20 X 1/2" LG. SHCS
23	FAS-F24	18	1/4-20 X 3/4" LG. SHCS
24	FAS-F25	18	1/4-20 X 1" LG. SHCS
26	FAS-F38	19	Ø 1/4" FLAT WASHER
27	FAS-G04	1	5/16-18 X 1" LG. HHCS
28	FAS-G19	1	5/18-18 HEX NUT
29	EPP-0154	2	8 CABLE TIE (TY242M TY-RAP)
30	EPP-0156	2	TIE WRAP MOUNT .75
31	EPP-0277	1	TIE WRAP MOUNTING PLATE
32	FAS-C03	1	#6-32 X 3/8" LG. FHSCS
33	FAS-F05	4	1/4-20 X 3/4" LG. FHSCS

REVISION "A" 9/24/13 - ADDED ITEMS #29-#33, REMOVED ITEM #25.
 ITEM #19 WAS 20-FAS-B1, ITEM #27 WAS 20-FAS-G3, ITEM #23 QTY WAS 20,
 ITEM #24 QTY WAS 11, ITEM #26 QTY WAS 17.

WAS-BACKPLATE BOM
 Sheet #41



NOTE - ITEMS NOT SHOWN

- | | | | | | |
|----|----|----|----|----|----|
| 1 | 3 | 4 | 5 | 7 | 51 |
| 52 | 53 | 54 | 55 | 56 | |

REVISION "A"
 REVISION "B"
 SEE BOM SHEET

RISE & FALL UPPER/WEAVE ASSEMBLY



North Alabama Pipe
 A Division of Anvil International
 Innovators Of Pipe Fabrication Equipment

WAS-RFUPPER/WEAVE
 Sheet #42

RISE & FALL UPPER/WEAVE ASSEMBLY PARTS LIST

ITEM	PART NUMBER	QTY	DESCRIPTION
1	AIR-403	2Ft.	1/4" AIRLINE
2	AIR-411	1	AIR CYLINDER 3/4 X 6
3	AIR-412	2	FLOW CONTROL VALVE
4	AIR-414	2	1/4 X 1/8 M CONNECTOR
5	AIR-417	2	1/4 X 1/8 M ELBOW
6	AIR-419	2	MUFFLER
7	AIR-422	1	1/4" TEE
8	AIR-436	2	AIR VALVE 24VDC
9	AIR-459	1	AIR CYL PROX SWITCH
10	BRG-936	2	W1 V WHEEL
11	BRG-979	1	BALLNUT
12	BRG-980	1	BALLNUT FLANGE
13	EPP-0167	1	3 PIN MALE N/LOCK
14	EPP-0168	2	4 PIN MALE N/LOCK
15	EPP-0169	1	11 PIN FEMALE N/LOCK
16	MTR-117	1	STEPPER MOTOR
17	WMP-1061	1	CYLINDER SUPPORT PLATE
18	WMP-1077	1	WOBBLE PLATE SUPPORT
19	WMP-1098	1	WOBBLE PLATE
20	WMP-1126	2	WOBBLE PLATE ARMS
21	WMP-1132	1	WOBBLE PLATE UNION MOUNT
22	WMP-1534	1	CYLINDER SUPPORT BRACE
23	WMP-1535	1	WOBBLE PLATE SWITCH MOUNT
24	WMP-1538	2	WOBBLE PLATE HINGE
25	WMP-1540	1	PLUNGER CYLINDER MOUNT
26	WMP-1541A	2	WOBBLE PLATE MOTOR MOUNT
27	WMP-1542	1	UNION JOINT
28	WMP-1546	1	ROTATE ARM
29	WMP-1573A	1	BALLNUT MOUNT
30	WMP-1578	1	BALLSCREW
31	FAS-B03	2	#4-40 X 5/8" LG. RHMS
32	FAS-B02	4	#4-40 X 1" LG. SHCS
33	FAS-B08	1	#5-40 X 1/4" LG. SHSS
34	FAS-D09	4	#8-32 X 1/2" LG. SHCS
35	FAS-E16	2	#10-24 X 1/2" LG. SHCS
36	FAS-E18	6	#10-24 X 3/4" LG. SHCS
37	FAS-E26	4	#10-24 X 1" LG. SHCS
38	FAS-E30	2	#10 FLAT WASHER
39	FAS-E27	4	#10-24 X 1/4" LG. SHSS
40	FAS-F16	1	1/4-20 X 1/4" LG. SHSS
41	FAS-F17	1	1/4-20 X 1/2" LG. SHSS
42	FAS-F24	2	1/4-20 X 3/4" LG. SHCS
43	FAS-F25	10	1/4-20 X 1" LG. SHCS
44	FAS-F26	4	1/4-20 X 1-1/4" LG. SHCS
45	FAS-F47	2	1/4-20 X 1-3/4" LG. SHCS
46	FAS-F29	6	1/4-20 NYLOCK NUT
47	FAS-F38	2	Ø 1/4" FLAT WASHER
48	FAS-F45	2	Ø 1/4 X 1/4" LG. SHOULDER SCREW
49	FAS-SHIM#6	2	SHIM #6 Ø .173 X Ø .250 X .015
50	SWT-0024	1	FROG PROX SWITCH
51	FAS-C06	1	#6-32 X 1/2" LG. RSLMS
52	EPP-0321	23"	HELI TUBE
53	EPP-0154	6	8 CABLE TIE (TY242M TY-RAP)
54	EPP-0239	2	TIE WRAP MOUNT 1"
55	EPP-0277	1	TIE WRAP MOUNTING PLATE
56	EPP-0303	1	FORK TERMINAL 22-18

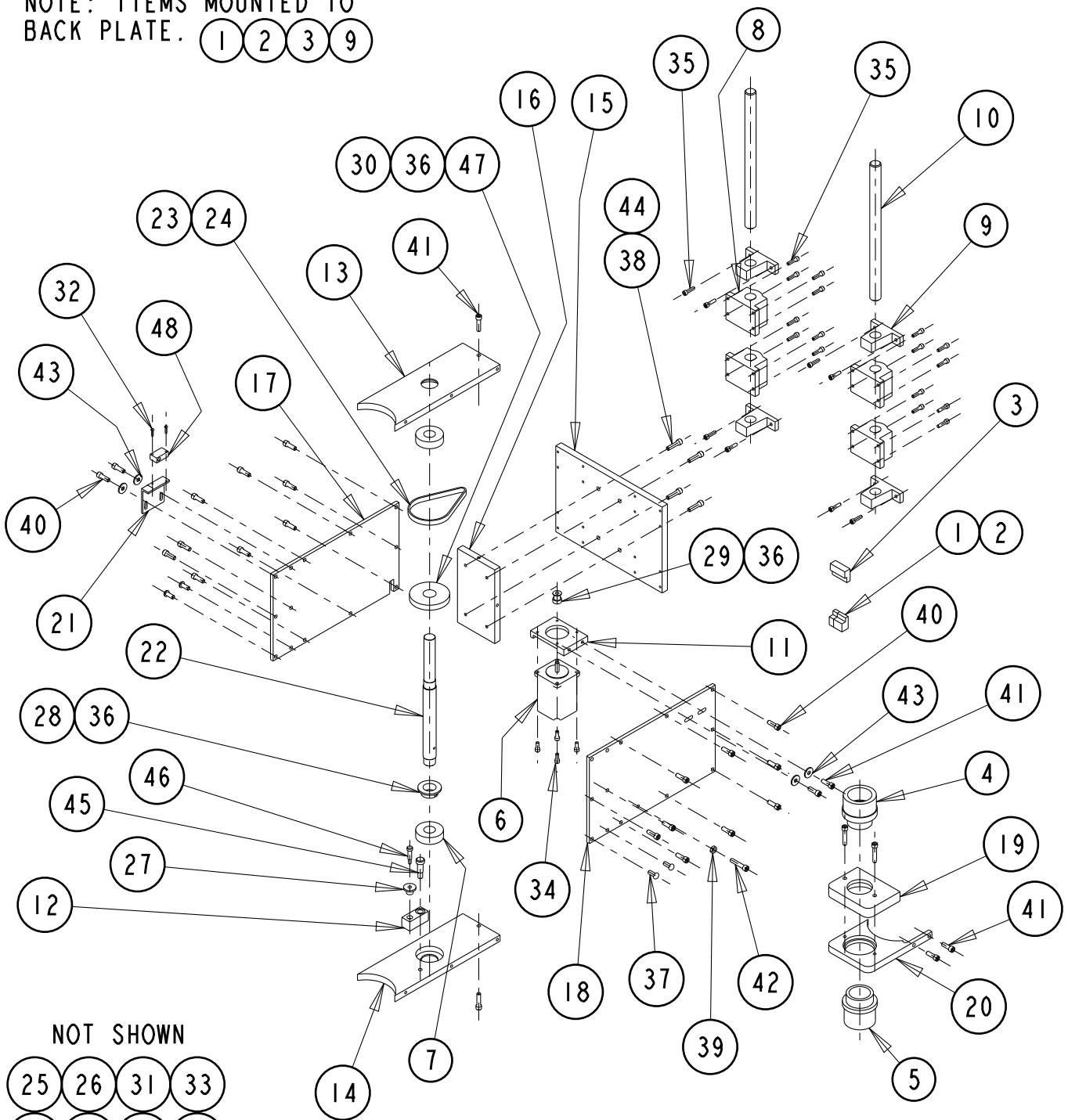
REVISION "A" - 9/12/13 UPDATED B.O.M. & ADDED ITEMS #51 THRU #56.

REVISION "B" -7/9/15 CHANGED ITEM #45 FROM 20 FAS-F27 TO 20-FAS-F47.

WAS-RFUPPER/WEAVE BOM

Sheet #43

NOTE: ITEMS MOUNTED TO
BACK PLATE. (1) (2) (3) (9)



NOT SHOWN
(25) (26) (31) (33)
(49) (50) (51) (52)

REVISION "C" 12/3/12
REVISION "D" 9/11/13
SEE B.O.M. SHEET

RISE & FALL LOWER ASSEMBLY



North Alabama Pipe
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Innovators Of Pipe Fabrication Equipment

WAS-RFLOWER
Sheet #44

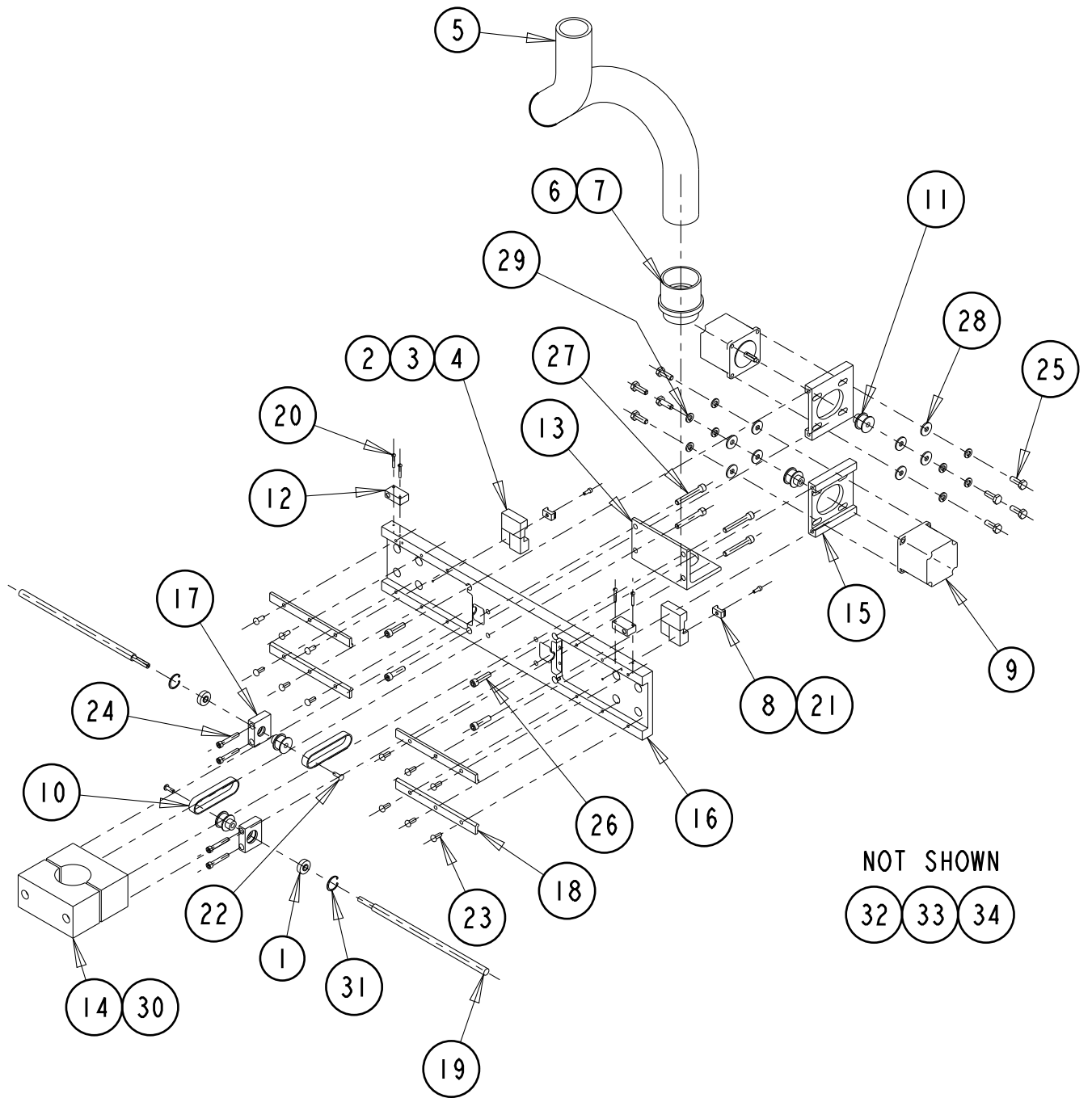
RISE & FALL LOWER ASSEMBLY PARTS LIST

ITEM	PART NUMBER	QTY	DESCRIPTION
1	EPP-0166	1	2 PIN MALE N/LOCK
2	EPP-0168	1	4 PIN MALE N/LOCK
3	EPP-0170	1	6 PIN FEMALE N/LOCK
4	EPP-0189	1	FLEX HOSE CONNECTOR
5	EPP-0206	1	OLDFLEX SWIVEL CONNECTOR
6	MTR-117	1	STEPPER MOTOR
7	BRG-909	2	BEARING 6204
8	BRG-917	4	PILLOW BLOCK
9	BRG-927	4	SUPPORT BLOCK
10	BRG-947	2	3/4" QUICK SHAFT X 11" LG.
11	WMP-1063	1	MOTOR MOUNT
12	WMP-1076B	1	IDLER MOUNT BLOCK
13	WMP-1103	1	TOP BEARING PLATE
14	WMP-1104	1	BOTTOM BEARING PLATE
15	WMP-1106	1	BOX MOUNT PLATE
16	WMP-1127	1	BACK PLATE
17	WMP-1130	1	LEFT SIDE PLATE
18	WMP-1131	1	RIGHT SIDE PLATE
19	WMP-1177A	1	UPPER CONDUIT MOUNT
20	WMP-1177	1	LOWER CONDUIT MOUNT
21	WMP-1536	1	ROTATION SWITCH MOUNT
22	WMP-1537	1	ROTATION SHAFT
23	PLY-310	1	#25 CHAIN X 13" LG.
24	PLY-311	1	#25 MASTERLINK
25	PLY-513	1	#35 CHAIN X 19" LG.
26	PLY-514	1	#35 CHAIN MASTERLINK
27	PLY-516	1	ROTATION DRIVE SPROCKET #35B9
28	PLY-517	1	ROTATION SPROCKET #35B12
29	PLY-519	1	IDLER SPROCKET #25B10
30	PLY-520	1	ROTATION SPROCKET #25B40
31	PLY-522	1	#35 HALF LINK CONNECTOR
32	FAS-B03	2	#4-40 X 5/8" LG. RSLMS
33	FAS-E02	1	#10-24 X 1/2" LG. BHSCS
34	FAS-E16	4	#10-24 X 1/2" LG. SHCS
35	FAS-E18	24	#10-24 X 3/4" LG. SHCS
36	FAS-E27	6	#10-24 X 1/4" LG. SHSS
37	FAS-F2	4	1/4-20 X 3/4" LG. BHSCS
38	FAS-F12	4	1/4-20 X 1" HHCS
39	FAS-F18	1	1/4-20 HEX. NUT
40	FAS-F24	33	1/4-20 X 3/4" LG. SHCS
41	FAS-F25	6	1/4-20 X 1" LG. SHCS
42	FAS-F26	3	1/4-20 X 1-1/4" LG. SHCS
43	FAS-F38	4	Ø 1/4" FLAT WASHER
44	FAS-F40	4	Ø 1/4" LOCK WASHER
45	FAS-H5	1	Ø 3/8 X 3/4" LG. SHOULDER SCREW
46	FAS-H30	1	Ø 3/8" X 1" LG. SHSB
47	FAS-RPIN #2	1	Ø 1/8" X 1" LG. ROLL PIN
48	SWT-0024	1	FROG PROX SWITCH
49	EPP-0321	10"	HELI TUBE
50	EPP-0154	3	8 CABLE TIE (TY242M TY-RAP)
51	EPP-0156	3	TIE WRAP MOUNT
52	EPP-0207	1	OLDFLEX LOCKNUT

REVISION "C" 12/3/12 - REVISED AND UPDATED B.O.M.

REVISION "D" 9/11/13 - ADDED ITEMS #49 - #52.

WAS-RFLOWER
Sheet #45



REVISION "A"
SEE BOM SHEET.

WELDER ARM ASSEMBLY



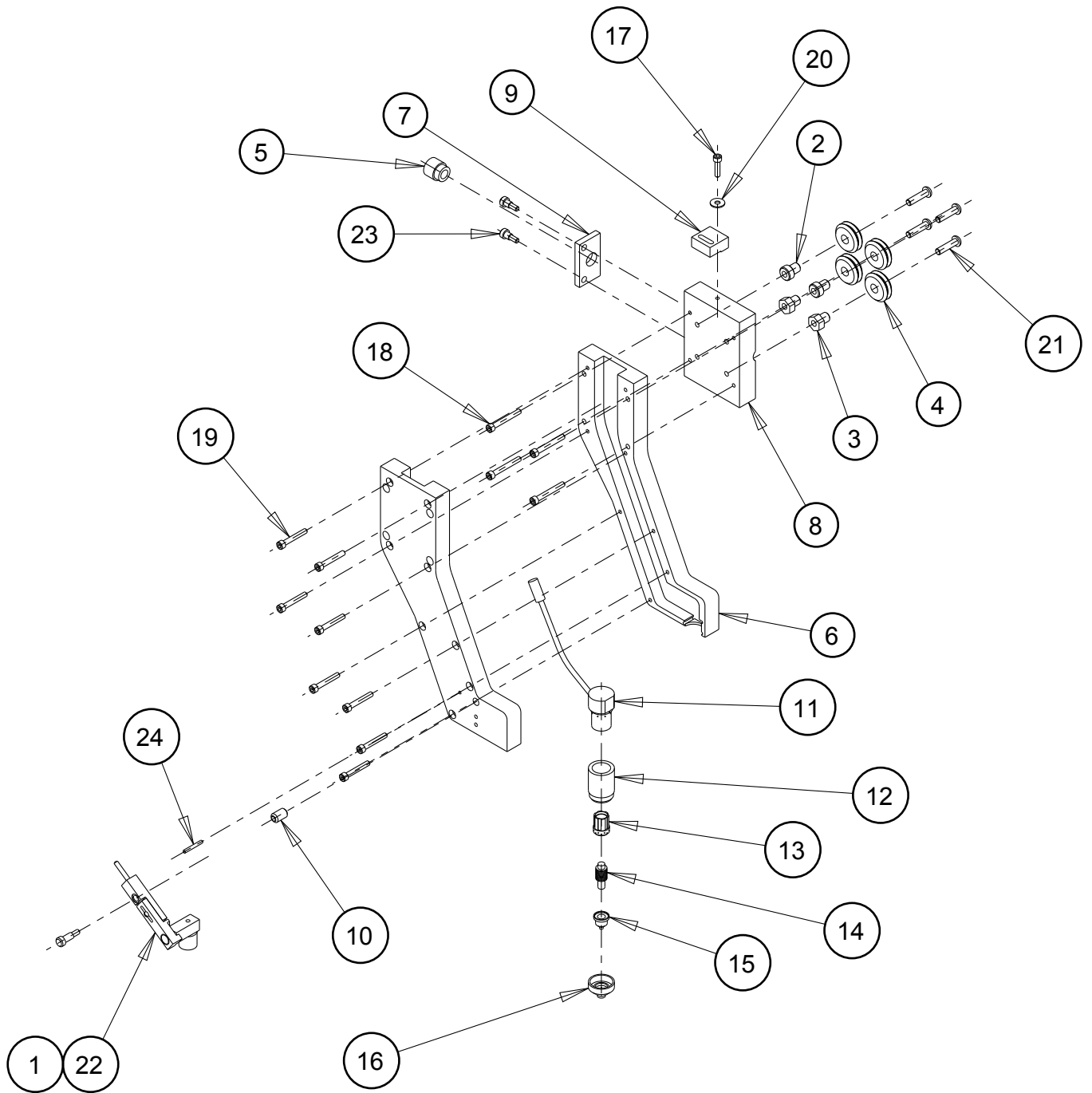
North Alabama Pipe
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WAS-ARM
Sheet #46

WELDER ARM ASSEMBLY PARTS LIST

ITEM	PART NUMBER	QTY	DESCRIPTION
1	BRG-902	2	BEARING KP4A
2	EPP-0166	2	2 PIN MALE N/LOCKING
3	EPP-0168	2	4 PIN MALE N/LOCKING
4	EPP-0170	2	6 PIN FEMALE N/LOCKING
5	EPP-0205	23"	OLFLEX CONDUIT
6	EPP-0206	1	OLFLEX SWIVEL CONNECTOR
7	EPP-0207	1	OLFLEX LOCKNUT
8	EPP-0277	2	TIE WRAP MOUNTING PLATE
9	MTR-120	2	STEPPER MOTOR
10	PLY-305	2	TIMING BELT
11	PLY-315	4	TIMING PULLEY
12	SWT-0024	2	FROG PROX SWITCH
13	WMP-1093	1	FLEX CONNECTOR MOUNT
14	WMP-1113	1	ARM MOUNT
15	WMP-1120	2	MOTOR MOUNT
16	WMP-1134	1	WELDER ARM
17	WMP-1552	2	BEARING BLOCK
18	WMP-1560	4	T-2 TRACK
19	WMP-1570	2	LEAD SCREW
20	FAS-B03	4	#4-40 X 5/8" LG. RSLMS
21	FAS-C06	4	#6-32 X 3/8" LG. FHSCS
22	FAS-D22	2	#8-32 X 1/2" LG. BHSCS
23	FAS-E02	12	#10-24 X 1/2" LG. BHSCS
24	FAS-E29	4	#10-24 X 1-1/4" LG. SHCS
25	FAS-F09	8	1/4-20 X 3/4" LG. HHCS
26	FAS-F25	4	1/4-20 X 1" LG. SHCS
27	FAS-F27	4	1/4-20 X 1-1/2" LG. SHCS
28	FAS-F38	8	1/4" FLAT WASHER
29	FAS-F40	12	1/4" LOCK WASHER
30	FAS-H13	2	3/8-16 X 2" LG. SHCS
31	FAS-SPRING #3	2	INTERNAL SNAP RING
32	EPP-0154	14	8 CABLE TIE (TY2423M TY-RAP)
33	EPP-0156	2	TIE WRAP MOUNT .75
34	EPP-0321	18"	1/4" HELI-TUBE

REVISION "A" 9/24/13 - REVISED BOM ADDED ITEMS #32, #33 & #34.



REVISION "A" 9/25/13
 REVISION "B" 7/9/15
 SEE BOM SHEET.

ARM ASSEMBLY (PLASMA SIDE)



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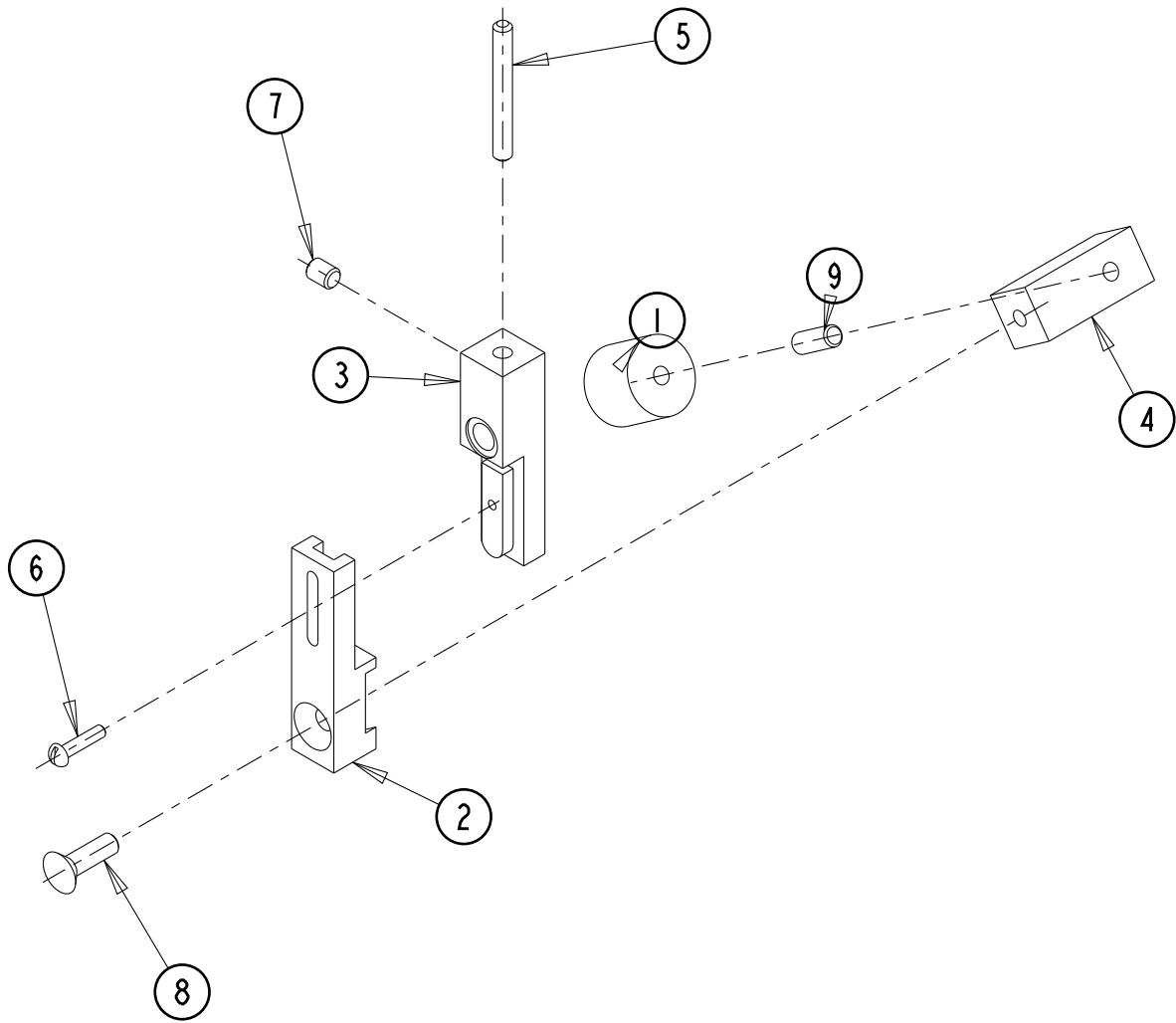
WAS-ARMPLAZ
 Sheet #48

ARM ASSEMBLY (PLASMA SIDE) PARTS LIST

ITEM	PART NUMBER	QTY	DESCRIPTION
1	WAS-COUPON ASY	1	COUPON COLLECTOR ASSEMBLY
2	BRG-928	2	V WHEEL BUSHING
3	BRG-929	2	ECCENTRIC V WHEEL BUSHING
4	BRG-934	4	V WHEEL
5	BRG-939A	1	BRASS LEAD NUT
6	WMP-1002A	1	PLASMA TORCH HOUSING
7	WMP-1174	1	LEAD SCREW PLATE
8	WMP-1175	1	PLASMA TORCH PLATE
9	WMP-1553	1	HOME ADJUSTMENT BLOCK
10	MSC-501	1	BALL DETENT
11	TCH-228346	REF.	TORCH BODY
12	TCH-220713	REF.	RETAINING CAP
13	TCH-220670	REF.	SWIRL RING
14	TCH-220669	REF.	ELECTRODE
15	TCH-220718	1	NOZZLE
16	TCH-220717	1	DEFLECTOR SHIELD PMX 45
17	FAS-E18	1	#10-24 X 3/4" LG. SHCS
18	FAS-E20	4	#10-24 X 1-1/2" LG. SHCS
19	FAS-E26	8	#10-24 X 1" LG. SHCS
20	FAS-E30	1	#10 FLAT WASHER
21	FAS-F03	4	1/4-20 X 1" LG. BHSCS
22	FAS-F20	1	1/4" X 1/2" LG. SHSB
23	FAS-F45	2	1/4" X 1/4" LG. SHOULDER BOLT
24	FAS-RPIN #2	1	1/8" X 1" LG. ROLL PIN

REVISION "A" - 9/25/13 - UPDATED B.O.M.

REVISION "B" - 7/9/15 - ITEM #5 WAS BRG-939 RED PLASTIC LEAD NUT,
NOW BRG-939A BRASS LEAD NUT.



REVISION "A" 9/26/13
 SEE B.O.M. SHEET.

COUPON COLLECTOR ASSEMBLY



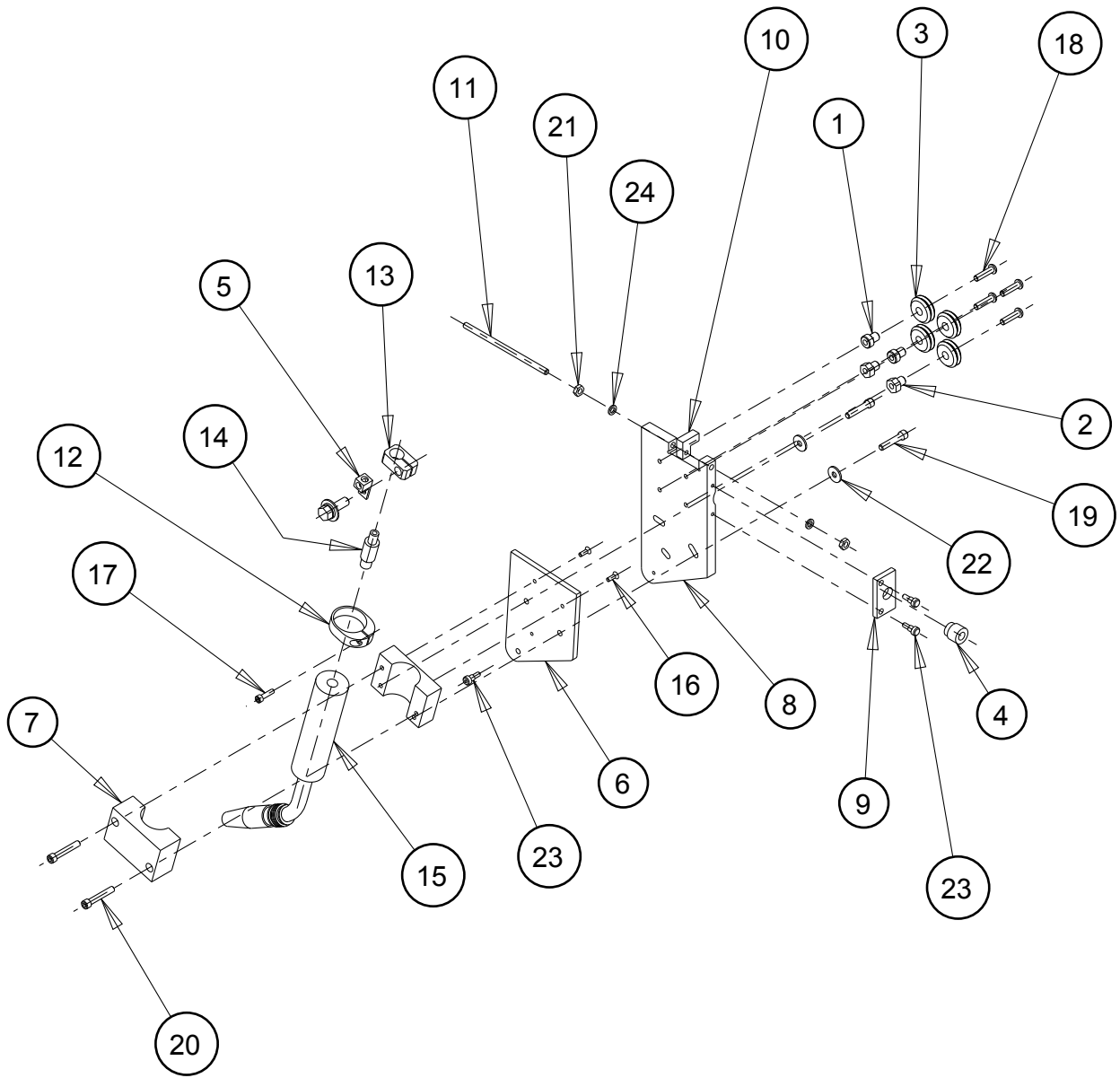
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WAS-COUPON ASY
 Sheet #50

COUPON COLLECTOR ASSEMBLY PARTS LIST

ITEM	PART NUMBER	QTY	DESCRIPTION
1	MSC-507	1	MAGNET
2	WMP-1170A	1	COUPON COLLECTION LOWER ARM
3	WMP-1170B	1	COUPON COLLECTION UPPER ARM
4	WMP-1170C	1	MAGNET MOUNT
5	WMP-1170D	1	LINER SPRING 2" LG.
6	FAS-B01	1	#4-40 X 1/2" LG. RSLMS
7	FAS-D14	1	#8-23 X 1/4" SHSS
8	FAS-E07	1	#10-24 X 5/8" LG. FHSCS
9	FAS-E34	1	#10-32 X 1/2" LG. SHSS

REVISION "A" 9/26/13 - UPDATED B.O.M.



ITEMS NOT SHOWN

25 26

REVISION "A" 9/12/13
 REVISION "B" 9/26/13
 REVISION "C" 7/9/15
 SEE BOM SHEET.

ARM ASSEMBLY (WELD SIDE)



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WAS-ARMWELD
 Sheet #52

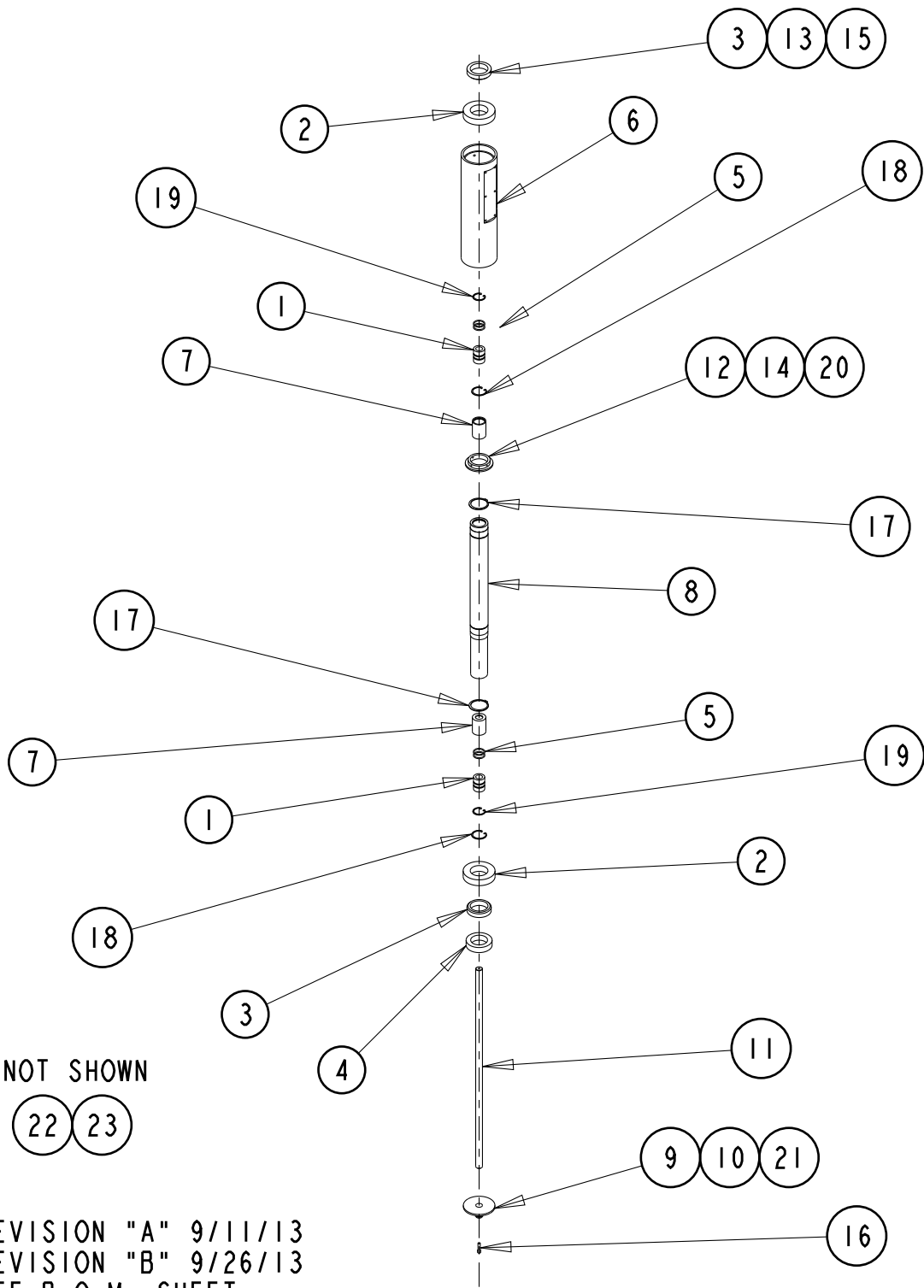
ARM ASSEMBLY (WELD SIDE) PARTS LIST

ITEM	PART NUMBER	QTY	DESCRIPTION
1	BRG-928	2	V WHEEL BUSHING
2	BRG-929	2	ECCENTRIC V WHEEL BUSHING
3	BRG-934	4	V WHEEL
4	BRG-939A	1	BRASS LEAD NUT
5	EPP-0164	1	CABLE LUG
6	WMP-1051	1	WELD TORCH MOUNT PLATE
7	WMP-1083	1	TORCH CLAMP BLOCK
8	WMP-1091	1	WELD TORCH PLATE
9	WMP-1174	1	LEAD SCREW PLATE
10	WMP-1571	1	HOME ADJUSTMENT BLOCK
11	WMP-1577	1	1/4-20 X 4-3/4" LG. ALLTHREAD
12	WMP-1803	1	TORCH ADJUSTMENT COLLAR
13	TCH-501-0280	1	POWER CABLE CLAMP
14	TCH-501-9037	1	ADAPTOR PLUG
15	TCH-918-9040	1	WELD TORCH
16	FAS-D01	2	#8-32 X 1/2" LG. FHSCS
17	FAS-E18	1	#10-24 X 3/4" LG. SHCS
18	FAS-F03	4	1/4-20 X 1" LG. BHSCS
19	FAS-F26	2	1/4-20 X 1-1/4" LG. SHCS
20	FAS-F27	REF	1/4-20 X 1-1/2" LG. SHCS
21	FAS-F29	2	1/4-20 NYLOCK HEX. NUT
22	FAS-F38	2	∅ 1/4" FLAT WASHER
23	FAS-F45	3	∅ 1/4" X 1/4" LG. SHSB
24	FAS-F52	2	1/4" WAVY WASHER .010 THK.
25	AIR-434	1	1/8 COUPLING
26	AIR-534	2	1/8 X 1/8 HOSE BARB

REVISION "A" 9/12/13 - ADDED ITEMS #25 & #26.

REVISION "B" 9/26/13 - ITEM #17 WAS #20-FAS-E39, ITEM #20 QTY NOW REF,
UPDATED ITEM #24.

REVISION "C" 7/9/15 - ITEM #4 WAS BRG-939 RED PLASTIC LEAD NUT,
NOW BRG-939A BRASS LEAD NUT.



NOT SHOWN
 (22) (23)

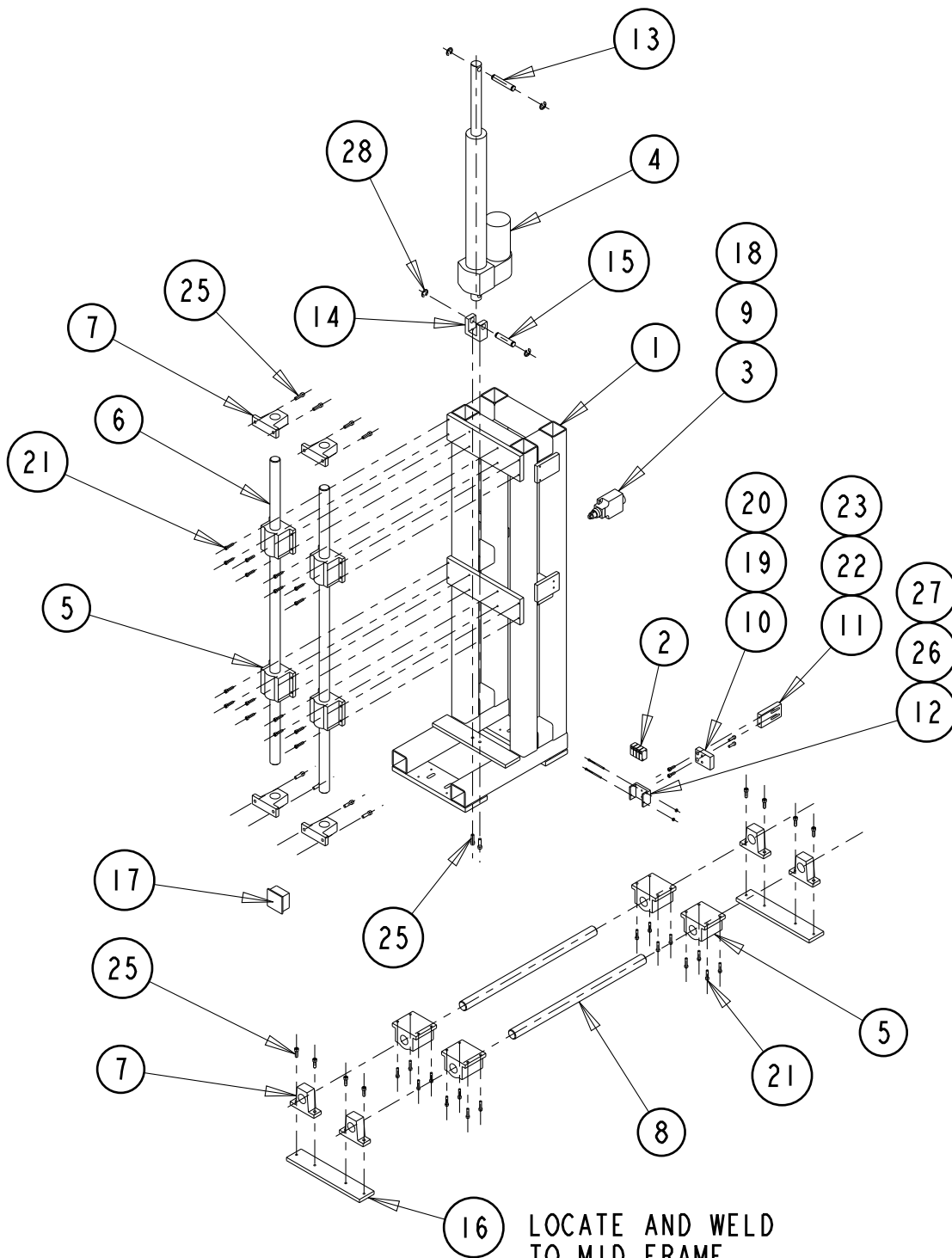
REVISION "A" 9/11/13
 REVISION "B" 9/26/13
 SEE B.O.M. SHEET.

ROTATION ASSEMBLY

ROTATION ASSEMBLY PARTS LIST

ITEM	PART NUMBER	QTY	DESCRIPTION
1	BRG-908	2	INSERT
2	BRG-912	2	BEARING 6210
3	BRG-920	2	BEARING NUT
4	BRG-921	1	SHAFT COLLAR
5	BRG-922	4	O'RING
6	WMP-1088	1	ARM SHAFT HOUSING
7	WMP-1547	2	INSERT HOUSING
8	WMP-1548	1	ARM SHAFT
9	WMP-1558	1	GROOVED OUTLET PLUNGER
10	WMP-1559	1	THREADED OUTLET PLUNGER
11	WMP-1561	1	PLUNGER SHAFT
12	PLY-518	1	ROLLER CHAIN SPROCKET D35B24H
13	FAS-C06	1	#6-32 X 1/2" LG. RSLMS
14	FAS-E27	2	#10-24 X 1/4" LG. SHSS
15	20-FAS-D16	1	#8 FLAT WASHER
16	20-FAS-F25	1	1/4-20 X 1" LG. SHCS
17	FAS-SPRING #1	2	SNAP RING #1
18	FAS-SPRING #2	2	SNAP RING #2
19	FAS-SPRING #5	2	SNAP RING #5
20	FAS-RPIN #2	1	Ø 1/8" X 1" ROLL PIN
21	WMP-1828	1	4" PLUNGER
22	FAS-C05	1	#6-32 X 1/4" LG. RSLMS
23	FAS-F01	1	1/4-20 X 5/8" LG. BHSCS

REVISION "A" 9/11/13 - ITEM #13 WAS 20-FAS-C5, ITEM #15 WAS 20-FAS-E30.
 REVISION "B" 9/26/13 - UPDATED B.O.M.



NOTE: REVISION "A" 9/26/13
FOR REVISION SEE BOM SHEET

BACK STAND ASSEMBLY



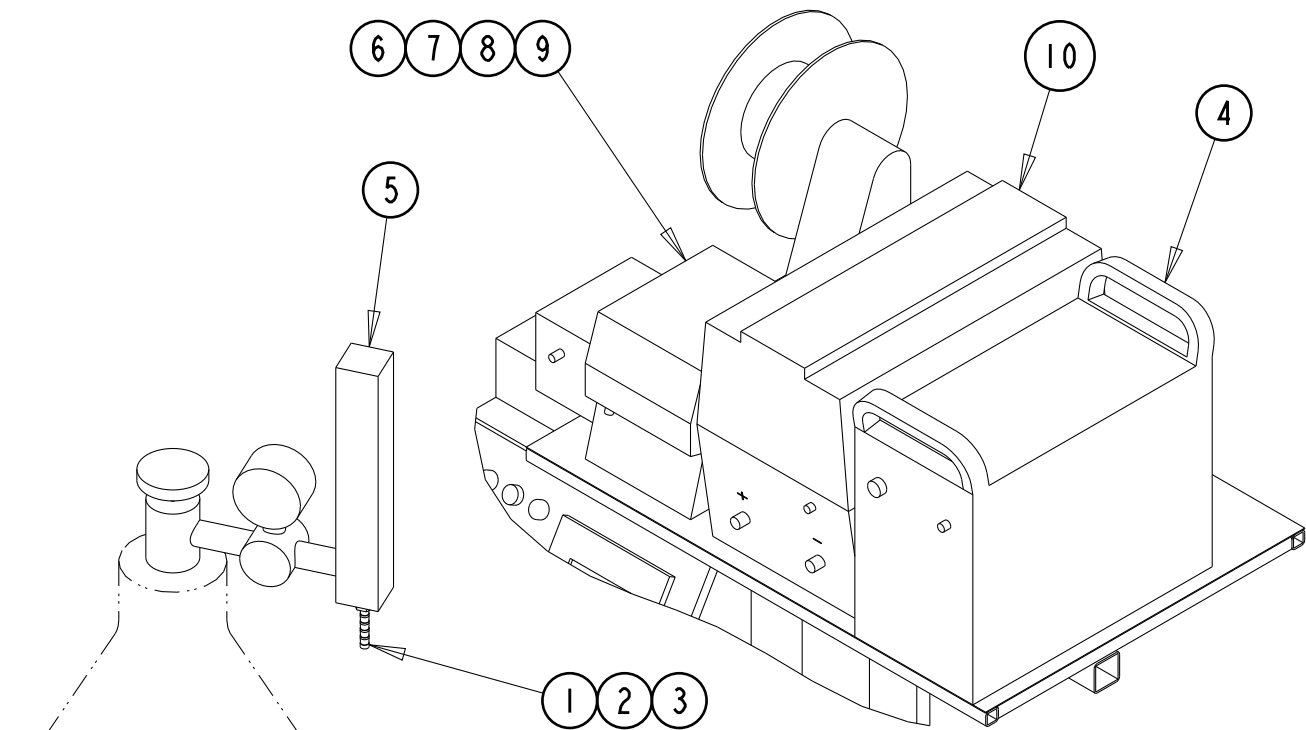
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WAS-BACKSTAND
Sheet #56

BACK STAND ASSEMBLY PARTS LIST

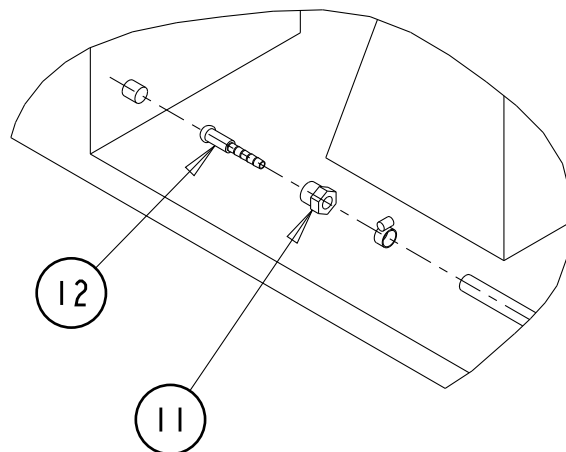
ITEM	PART NUMBER	QTY	DESCRIPTION
1	LWA-010201	1	BACK STAND WELDMENT
2	SWT-0024	4	FROG SWITCH
3	SWT-0025	1	LIMIT SWITCH
4	MTR-112	1	LINEAR ACTUATOR
5	BRG-916	8	PILLOW BLOCK BEARING
6	BRG-923	2	Ø 1" SHAFT X 36" LG.
7	BRG-926	8	SHAFT SUPPORT
8	BRG-946	2	Ø 1" SHAFTING X 18" LG.
9	EPP-0135	1	SMALL STRAIN RELIEF
10	WMP-1053	1	MOUNTING PLATE
11	WMP-1054	1	ADJUSTMENT PLATE
12	WMP-1110	1	SWITCH MOUNT
13	WMP-1518	1	UPPER ACTUATOR PIN
14	WMP-1521	1	LOWER ACTUATOR MOUNT
15	WMP-1522	1	LOWER ACTUATOR PIN
16	WMP-1532	REF.	BACK STAND MOUNTING PLATE
17	MSC-525	8	2 X 2 PLASTIC INSERT
18	FAS-E02	2	#10-24 X 1/2" LG. BHSCS
19	FAS-E16	2	#10-24 X 1/2" LG. SHCS
20	FAS-E17	2	#10-24 X 5/8" LG. SHCS
21	FAS-E18	32	#10-24 X 3/4" LG. SHCS
22	FAS-E26	2	#10-24 X 1" LG. SHCS
23	FAS-E30	2	#10 FLAT WASHER
24			
25	FAS-F24	18	1/4-20 X 3/4" LG. SHCS
26	FAS-P01	2	M3 0.5 X 50mm LG. SHCS
27	FAS-P02	2	M3 HEX. NUT
28	FAS-ECLIP #2	4	1/2" EXTERNAL ROTOR CLIP
29	EPP-0154	9	8 CABLE TIE (TY242M TY-RAP)
30	EPP-0277	5	TIE WRAP MOUNTNG PLATE

REVISION "A" 9/26/13 - REMOVED ITEM #24, ADDED ITEMS #29 & #30.




GAS BOTTLE
BY CUSTOMER

ITEMS NOT SHOWN



REV. "A" 9/28/11
 REV. "B" 9/12/13
 SEE DRAWING
 #20-WAS-UNIVERSAL POWER BOM.

UNIVERSAL WELDER WIRE FEEDER WELDER POWER AND PLASMA UNIT ASSEMBLY

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WAS-UNIVERSAL POWER ASY
 Sheet #58

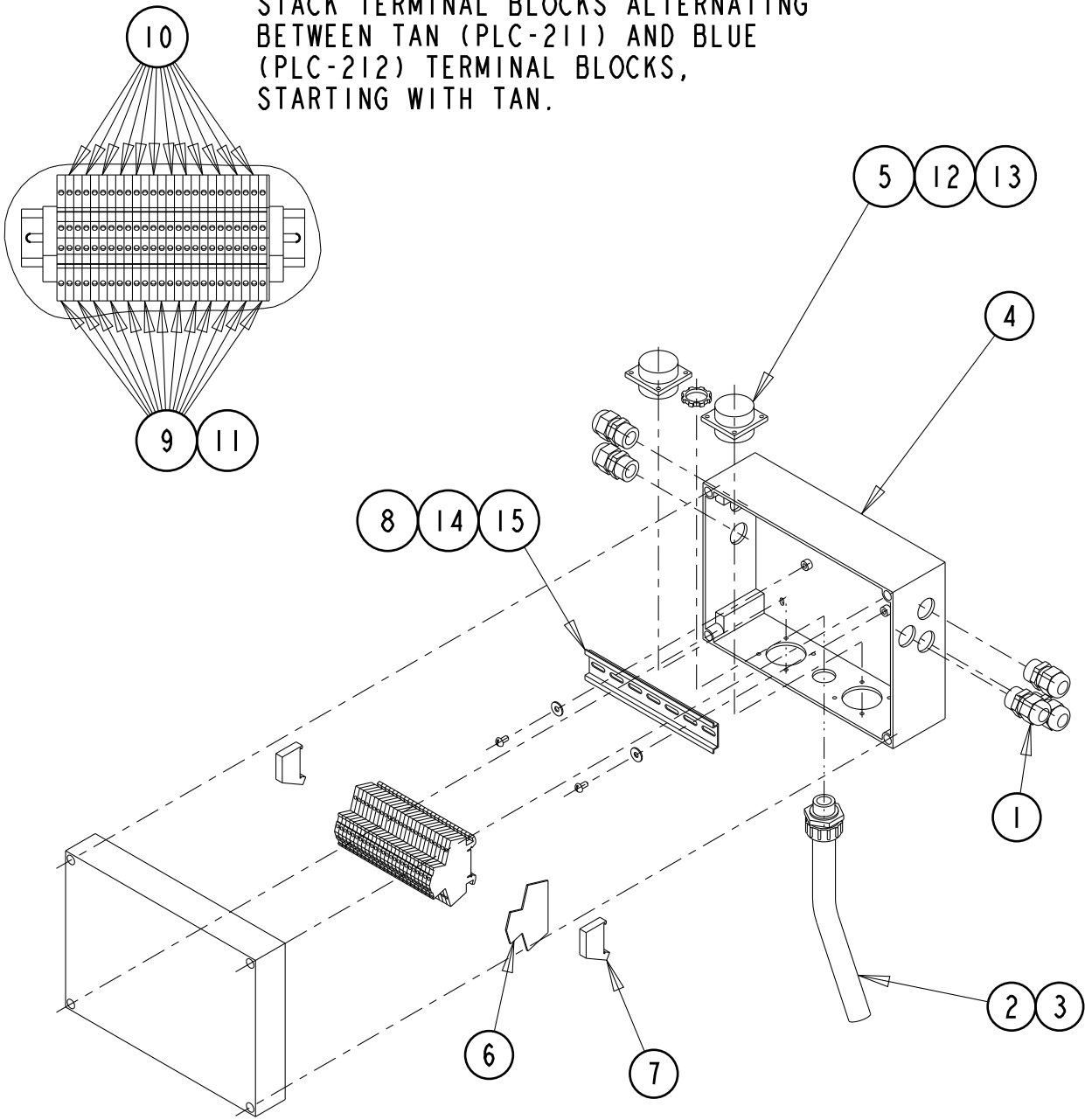
UNIVERSAL WELDER WIRE FEEDER WELDER
POWER AND PLASMA UNIT ASSEMBLY PARTS LIST

ITEM	PART NUMBER	QTY	DESCRIPTION
1	AIR-401	1	1/4" BARB X 1/4" NPT HOSE BARB
2	AIR-402	7 Ft	1/4" RED HOSE
3	AIR-430	2	9/16" HOSE CLAMP
4	TCH-088016	1	PMX 45 HAND 208/240
5	TCH-706	1	REGULATOR
6	WPP-141-580	1	WIRE STRAIGHTENER
7	WPP-151-026	1	DRIVE KIT WITH ROLLERS
8	WPP-195-059	1	S-74DX WIRE FEED
9	WPP-515-039	1	WIRE GUIDE
10	WPP-903-471	1	XMT-304 POWER UNIT
11	WPP-647226	1	AW-14A INERT GAS NUT
12	WPP-647409	1	AW-17 INERT GAS NIPPLE
13	AIR-414	1	1/4 X 1/8 CONNECTOR
14	AIR-434	1	1/8 COUPLING
15	AIR-535	1	1/8 X 3/16 HOSE BARB

REV. "A" 9/28/11 - TCH-88016 PMX 45 WAS TCH-086031 PMX 600.


REV. "B" 9/12/13 - ADDED ITEMS #13 THRU #15.

NOTE:
 STACK TERMINAL BLOCKS ALTERNATING
 BETWEEN TAN (PLC-211) AND BLUE
 (PLC-212) TERMINAL BLOCKS,
 STARTING WITH TAN.



REVISION "A" 9/24/13
 SEE BOM SHEET.

JUNCTION BOX ASSEMBLY

 **North Alabama Pipe**
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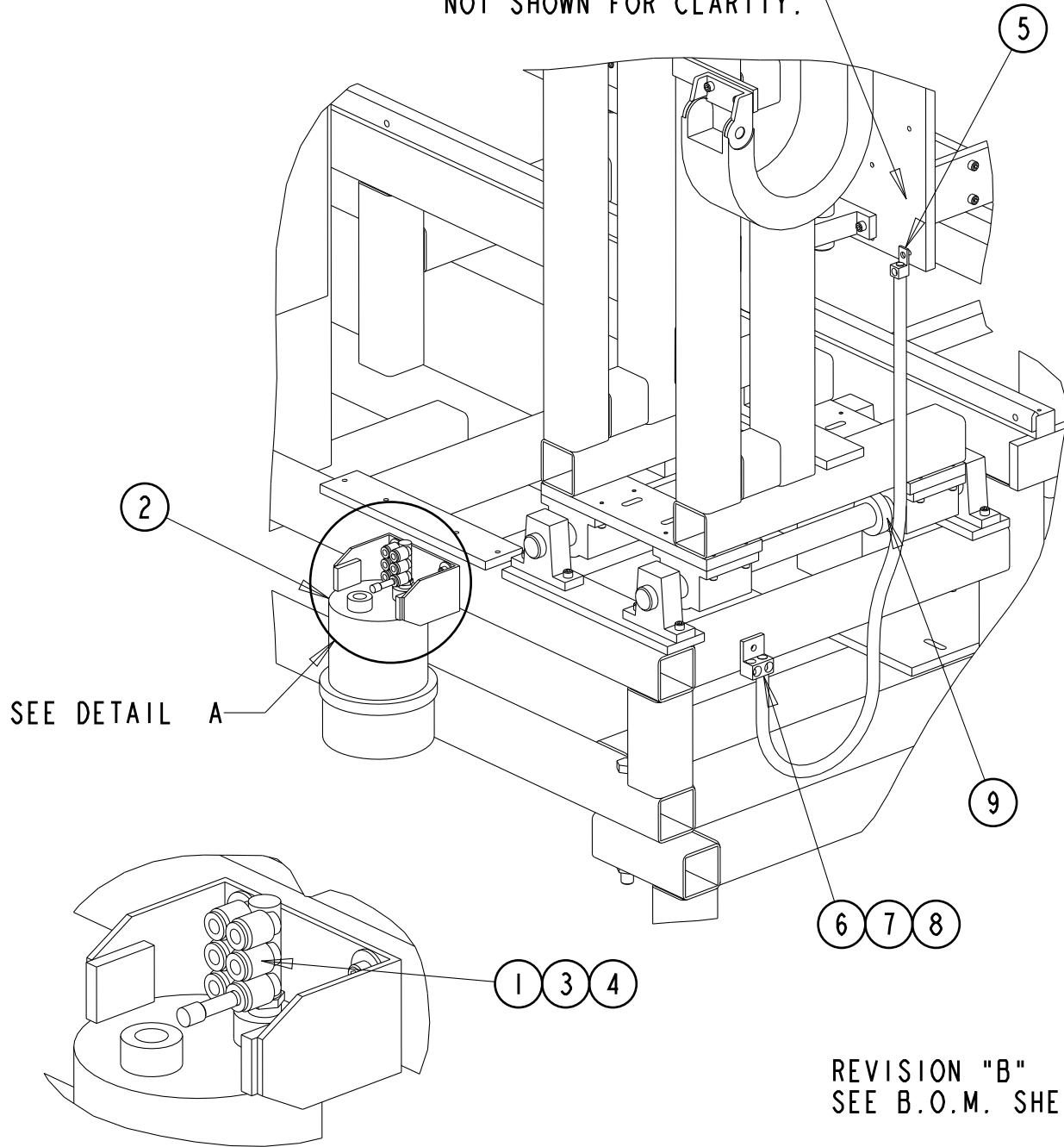
WAS-JUNCTION BOX
 Sheet #60

JUNCTION BOX ASSEMBLY PARTS LIST

ITEM	PART NUMBER	QTY	DESCRIPTION
1	EPP-0133	5	LARGE STRAIN RELIEF
2	EPP-0149	52"	1/2" PVC CONDUIT
3	EPP-0150	1	1/2" PVC STRAIGHT FITTING
4	EPP-0187	1	BOX
5	EPP-0192	REF.	BOX LINK CABLE SET
6	PLC-208	1	SIDE PLATE
7	PLC-209	2	ENDS
8	PLC-210	6-3/4"	DIN RAIL
9	PLC-211	13	TAN TERMINAL BLOCK
10	PLC-212	12	BLUE TERMINAL BLOCK
11	PLC-213	1	TERMINAL BLOCK LABEL NUMBERS
12	FAS-B01	8	#4-40 X 1/2" LG. RSLMS
13	FAS-B04	8	#4-40 HEX NUT
14	FAS-E11	4	#10-24 X 1/2" LG. RHMS
15	FAS-E30	6	#10 FLAT WASHER

REVISION "A" 9/24/13 - ITEM #2 WAS 48" LG. NOW 52" LG.

SIDE STIFFENER ANGLE
NOT SHOWN FOR CLARITY.



BACK PLATE GROUNDING CABLE AND AIR FILTER



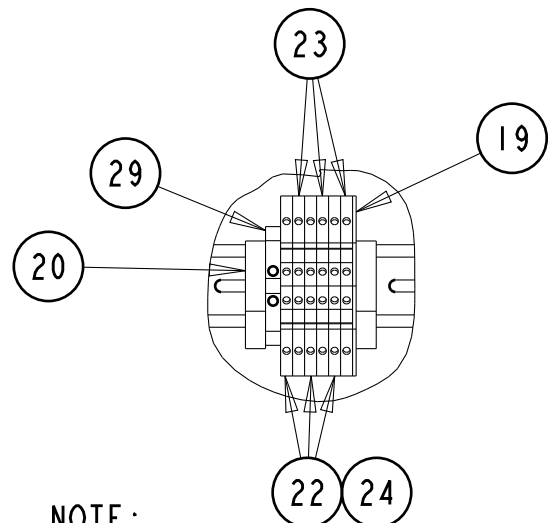
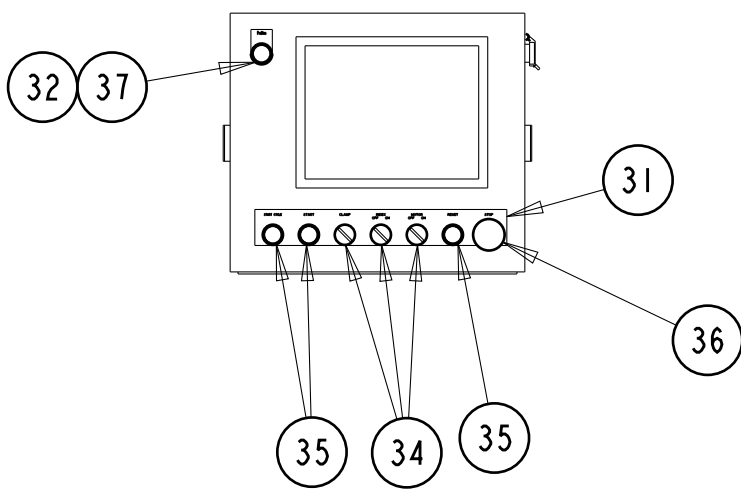
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WAS-UNIVERSAL BACKPLATE GRNDASY
Sheet #62

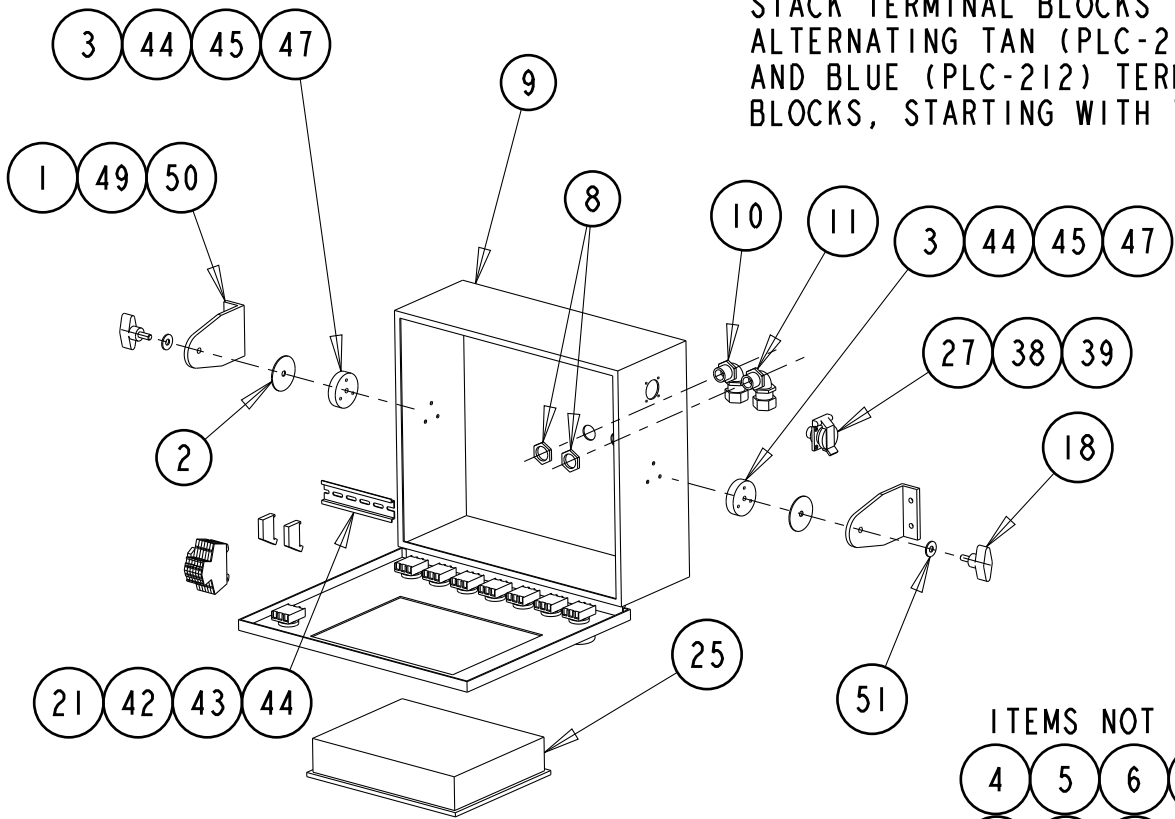
BACK PLATE GROUNDING CABLE AND AIR FILTER ASSEMBLY PARTS LIST

ITEM	PART NUMBER	QTY	DESCRIPTION
1	AIR-403	100 FT.	Ø 1/4" AIR LINE
2	AIR-427	1	M-26 AIR FILTER
3	AIR-544	1	1/4" SWIVEL MULTI CONNECTOR
4	AIR-545	1	1/4" PLUG
5	EPP-0164	1	CABLE LUG
6	EPP-0165	1	DOUBLE CABLE LUG
7	WIR-801	3 FT.	#2 WELD CABLE BLACK
8	FAS-F23	1	1/4-20 X 1/2" LG. SHCS
9	BRG-988	2	Ø 1" 2 PC. SHAFT COLLAR

REVISION "A" 12/5/12 - REMOVED Ø 1/8" AIR LINE, ADDED ITEMS 3 & 4.
 REVISION "B" 12/12/13 - ADDED ITEM #9.



NOTE:
 STACK TERMINAL BLOCKS
 ALTERNATING TAN (PLC-211)
 AND BLUE (PLC-212) TERMINAL
 BLOCKS, STARTING WITH TAN.



ITEMS NOT SHOWN

4	5	6	7	12
13	14	15	16	17
26	28	30	33	40
41	46	48	52	53

REVISION "B" SEE BOM SHEET

TOUCH PANEL ASSEMBLY



North Alabama Pipe
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WAS-TOUCHPANEL
 Sheet #64

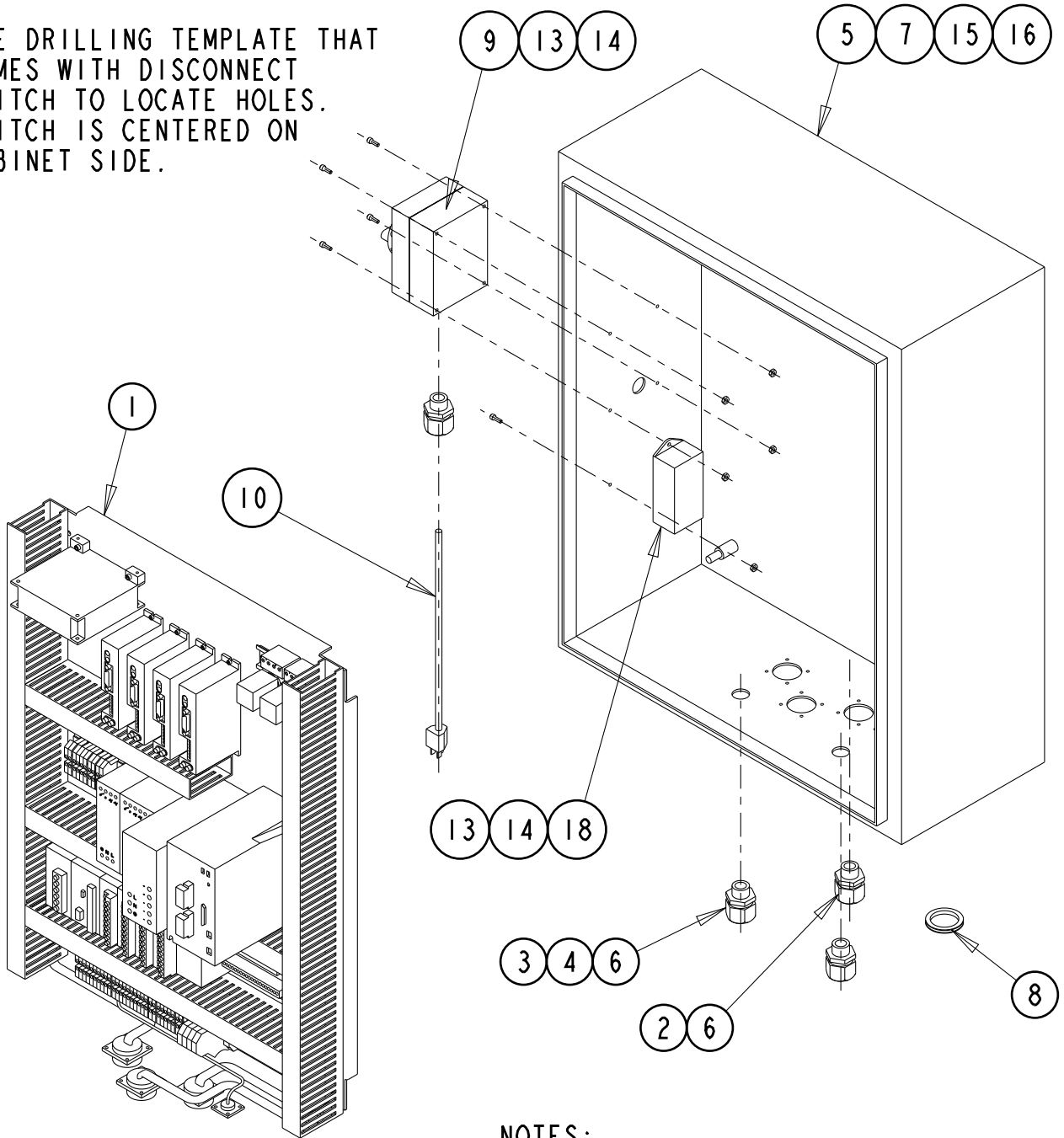
TOUCH PANEL ASSEMBLY PARTS LIST

ITEM	PART NUMBER	QTY	DESCRIPTION
1	WMP-1818	2	PUSHBUTTON BOX PIVOT ANGLE
2	WMP-1819	2	FRICTION WASHER
3	WMP-1820	2	PUSHBUTTON BOX MOUNT PAD
4	EPP-0153	18	3-3/4" LG. WIRE TIE
5	EPP-0154	8	TY242M TY-RAP
6	EPP-0156	7	3/4" LG. TIE WRAP MOUNT
7	EPP-0239	25	1" TIE WRAP MOUNT
8	EPP-0256	2	CONDUIT LOCKNUT 1/2"
9	EPP-0306	1	ENCLOSURE FOR UW
10	EPP-0315	1	CONNECTOR #4961
11	EPP-0316	1	CONNECTOR #4960
12	EPP-0321	14"	1/4" HELI-TUBE
13	EPP-0330	1	37 PIN AMP CON SHELL
14	EPP-0344	12	AMP CPC PIN 66103-3
15	EPP-0346	1	STRAIN RELIEF FOR 37 PIN AMP C
16	EPP-0352	2	RING TERMINAL
17	MSC-607	12"	SAFETY CHAIN
18	MSC-612	2	HAND KNOB
19	PLC-208	1	WEI END BLOCK TRACK
20	PLC-209	2	WEI END SECTION
21	PLC-210	5"	DIN RAIL
22	PLC-211	3	TAN TERMINAL BLOCK
23	PLC-212	3	BLUE TERMINAL BLOCK
24	PLC-213	1	TERMINAL BLOCK LABEL NUMBERS
25	PLC-243	1	4501 TOUCH PANEL
26	PLC-249	1	SUBCON 9/F-SH
27	PLC-251	1	USB PANEL RECEPTACLE
28	PLC-252	1	USB CABLE
29	PLC-255	1	GROUND TERMINAL BLOCK
30	PLC-266	1	9 PIN MALE D-SUB COVER
31	SWT-0010	1	SWITCH LABEL PANEL STRIP
32	SWT-0010L	1	TABLE - PROBLEM
33	SWT-0021	1	CONTACT BLOCK 1 N.C.
34	SWT-0027	3	2 POSITION SWITCH
35	SWT-0029	3	BLK PUSH BUTTON SWITCH
36	SWT-0030A	1	BLACK PUSH BUTTON SWITCH
37	SWT-0033	1	PILOT LIGHT RED
38	FAS-B01	4	#4-40 X 1/2" LG. RSLMS
39	FAS-B04	4	#4-40 MS NUT
40	FAS-C06	1	#6-32 1/2" LG. RSLMS
41	FAS-C12	1	#6-32 MS NUT
42	FAS-D16	2	#8 FLAT WASHER
43	FAS-E10	1	#10-24 X 1/4" SHCS
44	FAS-E16	6	#10-24 X 1/2" LG. SHCS
45	FAS-E23	2	#10-24 MS NUT
46	FAS-E24	3	#10 STAR WASHER
47	FAS-E26	1	#10-24 X 1" LG. SHCS
48	FAS-E31	2	#10-32 MS NUT
49	FAS-F24	4	1/4-20 X 3/4" LG. SHCS
50	FAS-F38	4	Ø 1/4" FLAT WASHER
51	FAS-G21	2	Ø 5/16" FLAT WASHER
52	WIR-864	5ft.	12 CONDUCTOR HI-FLEX CABLE
53	WIR-869	7ft.	SHIELDED 3 CONDUCTOR 22 Ga.

REVISION "A" - 12/5/12 - LKG - UPDATED BOM.

REVISION "B" - 9/12/13 - LKG - UPDATED PER ASSEMBLY CHANGE ORDER.

USE DRILLING TEMPLATE THAT COMES WITH DISCONNECT SWITCH TO LOCATE HOLES. SWITCH IS CENTERED ON CABINET SIDE.



ITEMS NOT SHOWN

- 11
- 12
- 19
- 20
- 21
- 22
- 23
- 24
- 25
- 26
- 27
- 28

- NOTES:
- 1. DOOR NOT SHOWN FOR CLARITY.
 - 2. USE CABINET DRILLING TEMPLATE WAS-CNTRL CABINET-0101 TO LOCATE HOLES IN BOTTOM OF CABINET.

17

UNIVERSAL WELDER CONTROL CABINET



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REVISION "B"
 SEE BOM SHEET.

WAS-CNTRL CABINET
 Sheet #66

UNIVERSAL WELDER CONTROL CABINET PARTS LIST

ITEM	PART NUMBER	QTY	DESCRIPTION
1	WAS-ELE PANEL 1H	1	ELECTRICAL PANEL ASSY 1H2
2	EPP-0135	3	SMALL STRAIN RELIEF
3	EPP-0149	15Ft.	1/2" PVC TUBING
4	EPP-0150	1	1/2" PVC STRAIGHT FITTING
5	EPP-0176	1	30X24X10 BRAIN BOX
6	EPP-0256	3	CONDUIT LOCKNUT 1/2"
7	EPP-0258	1	ELECT. HAZ. LABEL LARGE
8	EPP-0279	1	PANDUIT GROMMET EDGING #GEE99F-C X 4-3/4" LG.
9	SWT-0061	1	ENCLOSED DISCONNECT SWITCH
10	WIR-823	1	PLUG CORD
11	FAS-B01	8	#4-40 X 1/2" LG. RSLMS
12	FAS-B04	8	#4-40 MSNUT
13	FAS-D09	5	#8-32 X 1/2" LG. SHCS
14	FAS-D15	5	#8-32 NUT
15	FAS-H01	4	3/8-16 X 1" LG. HHCS GR8
16	FAS-H22	4	3/8 FLAT WASHER
17	WAS-CNTRL CABINET-0101	1	CONTROL CABINET DRILLING TEMPLATE
18	PLC-271	1	NOISE FILTER
19	EPP-0109	4	AMP 7-67504-0 CONTACT
20	EPP-0113	1	9 PIN AMP PLUG
21	EPP-0115	2	CABLE CLAMP
22	EPP-0154	35	TY242M TY-RAP
23	EPP-0219	1	CONNECTOR/WIREFEED START CABLE
24	EPP-0239	20	TIE WRAP MOUNT 1"
25	EPP-0332	1	AMP CONN PLUG 14 PIN 206044-1
26	EPP-0333	1	AMP CABLE CLAMP 206070-8
27	EPP-0334	4	AMP CPC PIN 66103-3
28	WIR-817	12'	#18 2 CONDUCTOR CABLE

NOTE:

ITEMS #19, 20, 21, 23, 25, 26, 27, & 28
ARE USED TO MAKE REMOTE CABLE FROM
CONTROL CABINET TO WIRE FEEDER AND
PLASMA UNIT.

REVISION "A" - 1/28/13 ADDED ITEM # 17.

REVISION "B" - 8/27/13 ADDED ITEMS #18 THRU #28.



NOT SHOWN

5

REV. "C" SEE DRAWING
WAS-ELEC PANEL 1H2

UNIVERSAL WELDER CONTROL CABINET BACK PLATE ASSEMBLY



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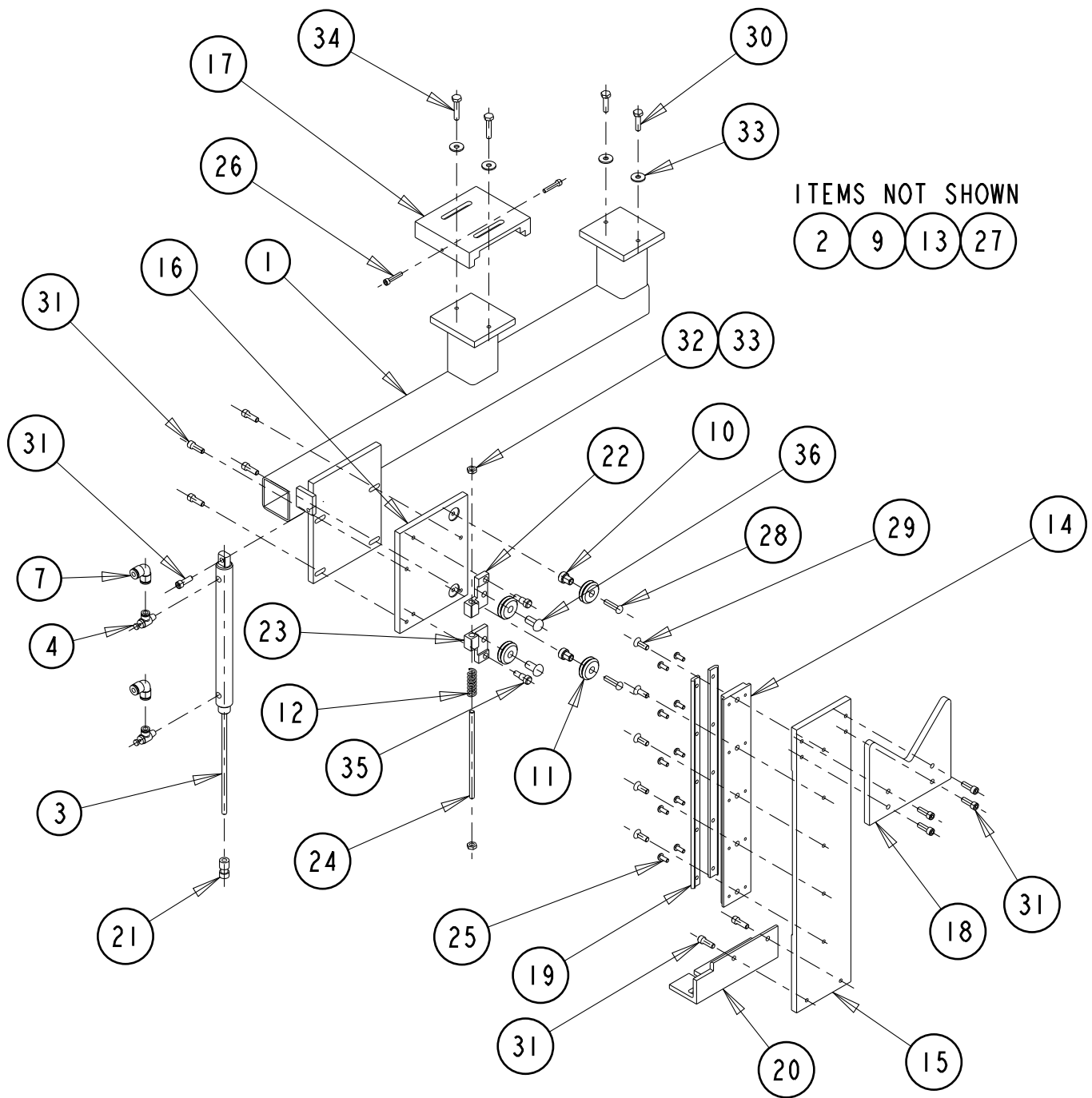
WAS-ELEC PANEL 1H2
Sheet #68

UNIVERSAL WELDER CONTROL CABINET BACK PLATE PARTS LIST

ITEM	PART NUMBER	QTY	DESCRIPTION
1	WMP-1805	2	FAN MOUNT
2	DRV-183	1	OMRON APC SERVO DRIVER
3	DRV-185	4	ORIENTAL MOTOR DRIVE
4	EPP-0114	1	9 PIN AMP RECPT #512-1107
5	EPP-0153	12	3-3/4" CABLE TIE
6	EPP-0177	1	30 X 24 BACK PLATE SAGINAM 30P24
7	EPP-0192	1	BOX LINKAGE CABLES (PIG-TAILS ONLY)
8	EPP-0218	1	4" COOLING FAN DC #592-0970
9	EPP-0262	4	DIODE #568-0273
10	EPP-0311	1	CABLE TRAY X 9-1/4" LG.
11	EPP-0311	2	CABLE TRAY X 18" LG.
12	EPP-0311	2	CABLE TRAY X 27" LG.
13	EPP-0312	1	CABLE TRAY COVER X 9-1/4" LG.
14	EPP-0312	2	CABLE TRAY COVER X 18" LG.
15	EPP-0312	2	CABLE TRAY COVER X 27" LG.
16	EPP-0327	1	MECHATROLINK CABLE
17	PLC-209	4	WEI END SECTION
18	PLC-210	1	DIN RAIL 4-1/2" LG.
19	PLC-210	1	DIN RAIL 12" LG.
20	PLC-210	2	DIN RAIL 18" LG.
21	PLC-216	4	3 AMP FUSE
22	PLC-220	1	POWER SUPPLY CJIWPA202
23	PLC-221	1	CPU CJIMCPU22
24	PLC-222	2	INPUT MODULE CJIWID211
25	PLC-223	1	INPUT MODULE CJIWOC211
26	PLC-224	1	INPUT MODULE CJIWOC201
27	PLC-226	1	POWER SUPPLY 24VDC
28	PLC-227	1	PLC BREAK-OUT BOARD OMRON
29	PLC-228	1	PLC BREAK-OUT BOARD CABLE OMRON
30	PLC-230	40	TERMINAL BLOCKS PHOENIX 3004362
31	PLC-231	8	TERMINAL BLOCK END CAPS
32	PLC-236	4	250 VAC FUSE TERMINAL BLOCK
33	PLC-255	1	GROUND TERMINAL BLOCK
34	PLC-261	1	APA 2 AXIS POSITIONING CONTROLLER
35	PLC-264	1	48 VDC - 10 AMP POWER SUPPLY
36	PLC-265	1	24 VDC - 5 AMP POWER SUPPLY
37	SWT-0016	2	8 PIN RELAY BASE PF083A-E
38	SWT-0051	2	RELAY
39	FAS-B01	16	#4-40 X 1/2" LG. RSLMS
40	FAS-B04	16	#4-40 HEX NUT
41	FAS-C09	8	#6-32 X 1/2" LG. SHCS
42	FAS-D09	4	#8-32 X 1/2" LG. SHCS
43	FAS-E16	13	#10-24 X 1/2" LG. SHCS
44	FAS-E30	11	#10 FLAT WASHER

REVISION "C" 12/10/12 UPDATED PER NEW MOTORS

WAS-ELEC PANEL IH2 BOM
Sheet #69



CENTER LIFT ASSEMBLY

SEE BOM SHEET FOR REVISION
REVISION "A" 11/22/13



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Innovators Of Pipe Fabrication Equipment

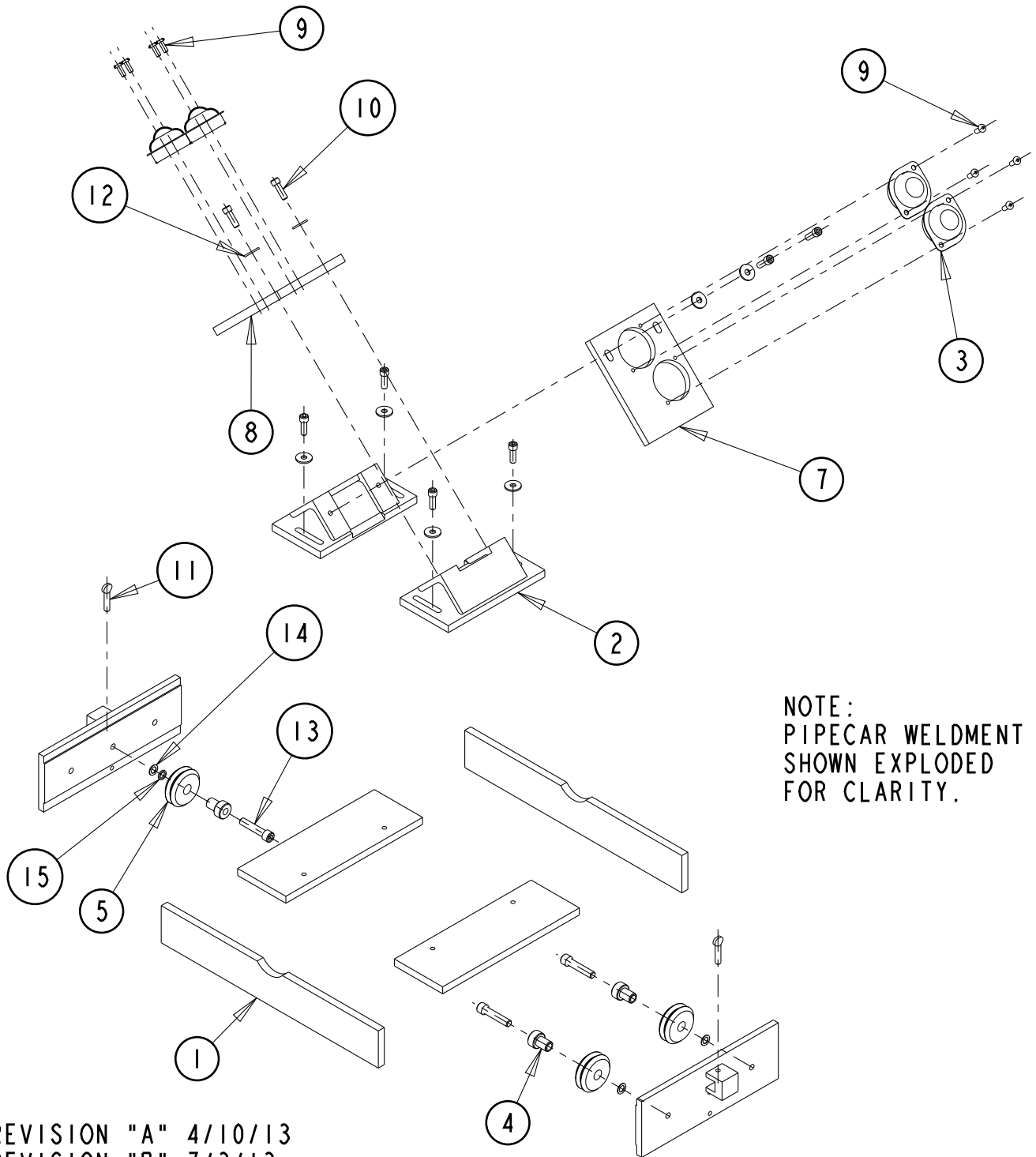
WAS-CENTERLIFT
Sheet #70

CENTER LIFT ASSEMBLY PARTS LIST

ITEM	PART NUMBER	QTY	DESCRIPTION
1	WAS-CENTERLIFT-01	1	CENTER LIFT ARM WELDMENT
2	AIR-403	10ft.	Ø 1/4" AIR LINE
3	AIR-411	1	AIR CYLINDER 3/4 X 6
4	AIR-412	2	FLOW CONTROL VALVE
7	AIR-424	2	1/4 UNION ELBOW
9	BLK-621	1	CENTER DEVICE GUARD
10	BRG-928	2	V WHEEL BUSHING
11	BRG-934	4	V WHEEL
12	MSC-540	1	SPRING
13	MSC-549	11"	NEOPRENE BELTING
14	WMP-1004	1	TRACK PLATE
15	WMP-1005	1	LIFT PLATE
16	WMP-1006	1	WHEEL PLATE
17	WMP-1094	1	CENTER ADJUSTMENT PLATE
18	WMP-1099	1	CENTERING V PLATE
19	WMP-1138	2	T-2 TRACK 13.125 LG.
20	WMP-1500A	1	ANGLE MOUNT (STD MACH)
	WMP-1500B	1	ANGLE MOUNT (REV MACH)
21	WMP-1501	1	CYLINDER ROD ADAPTOR
22	WMP-1575A	1	UPPER PIVOT ARM
23	WMP-1575B	1	LOWER PIVOT ARM
24	WMP-1576	1	ADJUSTMENT ROD 1/4-20 X 5" LG.
25	FAS-E02	10	#10-24 X 1/2" LG. BHSCS
26	FAS-E26	2	#10-24 X 1" LG. SHCS
27	FAS-F01	2	1/4-20 X 5/8" LG. BHSCS
28	FAS-F03	2	1/4-20 X 1" LG. BHSCS
29	FAS-F05	5	1/4-20 X 3/4" LG. FHSCS
30	FAS-F12	2	1/4-20 X 1" LG. HHCS
31	FAS-F24	11	1/4-20 X 3/4" LG. SHCS
32	FAS-F29	2	1/4-20 LOCK NUT
33	FAS-F38	7	Ø 1/4" FLAT WASHER
34	FAS-F43	2	1/4-20 X 1-1/4" LG. HHCS
35	FAS-G28	2	Ø 5/16 X 3/8" LG. SHSB
36	FAS-H28	2	3/8-24 X 3/4" LG. BHSCS

REVISION "A" 1/22/13 - REMOVED ITEMS 5, 6, & 8.

WAS-CENTERLIFT BOM
Sheet #71



NOTE:
 PIPECAR WELDMENT IS
 SHOWN EXPLODED
 FOR CLARITY.

REVISION "A" 4/10/13
 REVISION "B" 7/3/13
 REVISION "C" 9/26/13
 REVISION "D" 10/17/13
 SEE BOM SHEET.

PIPE CAR ASSEMBLY



North Alabama Pipe
 A Division of Anvil International
 Innovators Of Pipe Fabrication Equipment

WAS-PIPECAR
 Sheet #72

PIPE CAR ASSEMBLY PARTS LIST

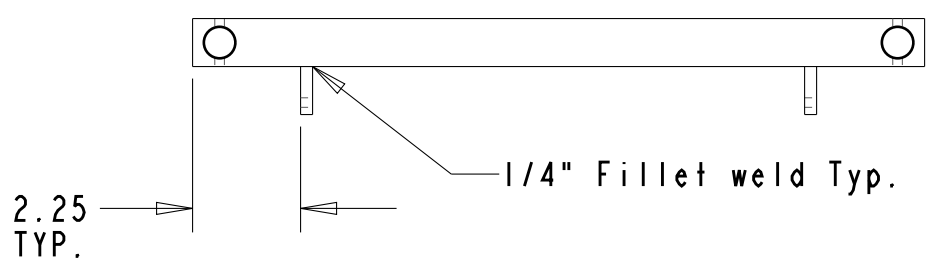
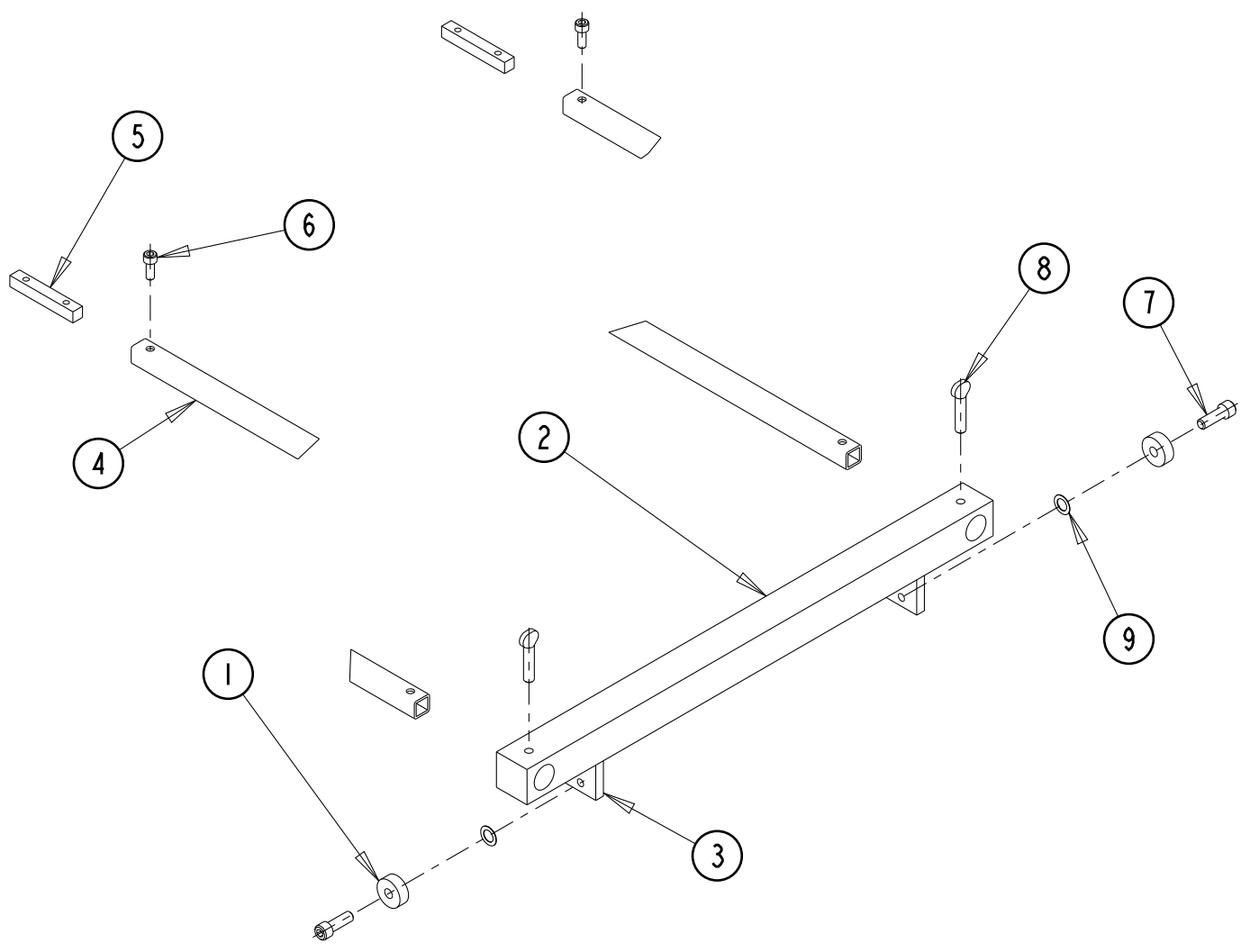
ITEM	PART NUMBER	QTY	DESCRIPTION
1	WAS-PIPECAR-01	1	PIPE CAR WELDMENT
2	WAS-PIPECAR-02	2	ANGLE MOUNT WELDMENT
3	BRG-918-A	4	BALL TRANSFER
4	BRG-930	3	BISHOP-WISE CARVER V WHEEL BUSHING #B3SS
5	BRG-935	3	BISHOP-WISE CARVER V WHEEL #W3X
7	WMP-1159-A	1	SHORT BALL TRANSFER PLATE
8	WMP-1160-A	1	LONG BALL TRANSFER PLATE
9	FAS-E2	8	#10-24 C 1/2" LG. BHSCS
10	FAS-F24	11	1/4-20 X 3/4" LG. SOCKET HEAD CAP SCREW
11	FAS-F30	2	1/4-20 X 1" LG. THUMB SCREW
12	FAS-F38	8	Ø 1/4" FLAT WASHER
13	FAS-G14	3	5/16-24 X 1-1/2" LG. SOCKET HEAD CAP SCREW
14	FAS-SHIM #2	3	Ø 5/16" X Ø 1/2" X .03125 SHIM
15	FAS-SHIM #5	1	Ø .312 X Ø .437 X .063 SHIM

REVISION "A" 4/10/13, LKG PIPE CAR CONVERTED TO WELDMENT WAS-PIPECAR-01.


REVISION "B" 7/3/13, LKG REVISED PER NEW BALL TRANSFER (ITEM #2).

REVISION "C" 9/26/13, LKG REVISED B.O.M. PER ITEM #2 ANGLE MOUNT WELDMENT.

REVISION "D" 10/17/13, LKG REMOVED ITEM #6.



PIPE CAR END RAIL ASSEMBLY


North Alabama Pipe
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WAS-PIPE END RAIL
 Sheet #74

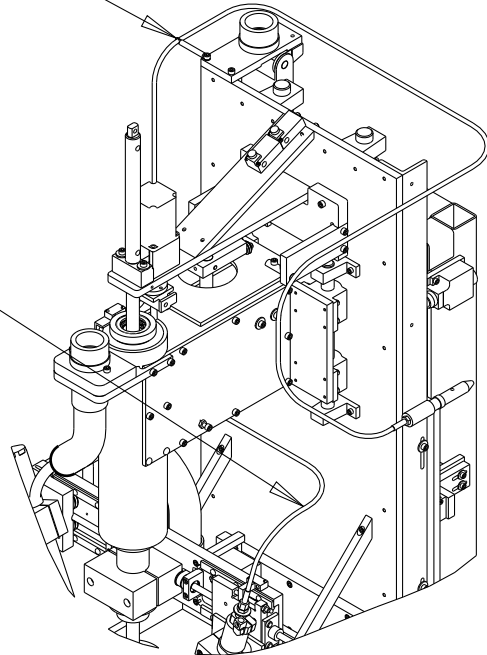
PIPE CAR END RAIL ASSEMBLY PARTS LIST

ITEM	PART NUMBER	QTY	DESCRIPTION
1	BRG-903	2	BEARING
2	WMP-1505	1	RAIL END
3	WMP-1506	2	BEARING MOUNT
4	WMP-1600	8	PIPE CAR RAIL
5	WMP-1601	6	PIPE CAR RAIL JOINT
6	FAS-E16	12	#10-24 X 1/2" LG. SHCS
7	FAS-F24	2	1/4-20 X 3/4" LG. SHCS
8	FAS-F30	2	1/4-20 X 1" LG. THUMB SCREW
9	FAS-SHIM #1	2	1/4" ID X .020 SHIM

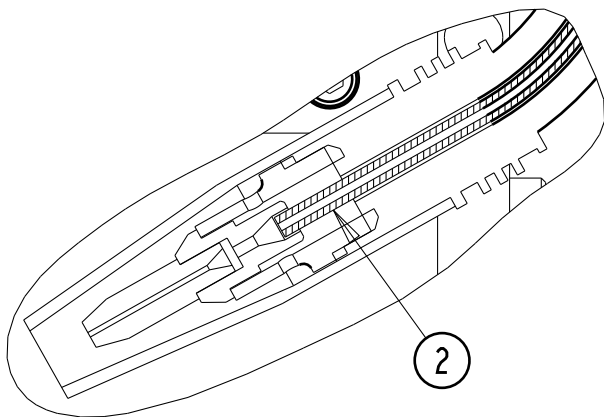
ATTACH SPRING AS SHOWN TO HOLD LINER CONDUIT IN PLACE.

1

ROUTE LINER CONDUIT AROUND AND BEHIND WELD ARM ASSEMBLY AS SHOWN. LINER COUDUIT SHOULD NOT KINK OR BIND AS WELD HEAD ROTATES.

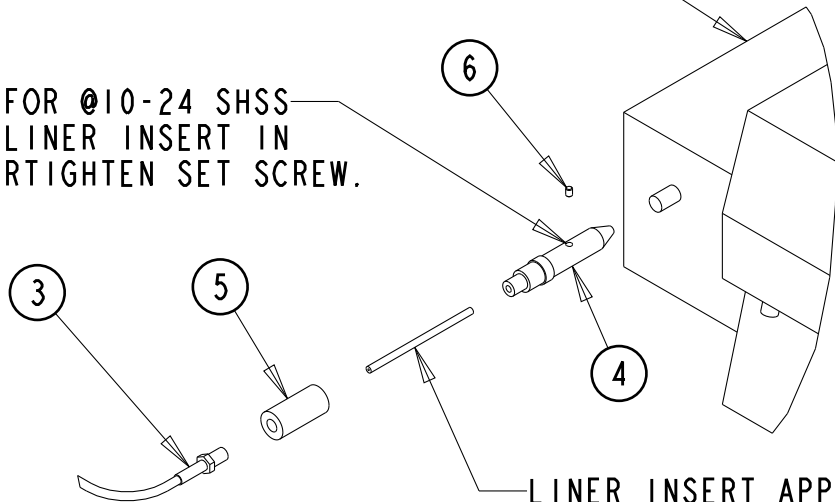


SOME COMPONENTS NOT SHOWN FOR CLARITY



WIRE FEEDER UNIT.

LOCATE, DRILL & TAP FOR #10-24 SHSS AT ASSEMBLY TO HOLD LINER INSERT IN POSITION. DO NOT OVERTIGHTEN SET SCREW.



LINER INSERT APPROX. 4.02 LG. SEAL WITH HEAT SHRINK TUBING.

WELD WIRE CONDUIT AND LINER



North Alabama Pipe

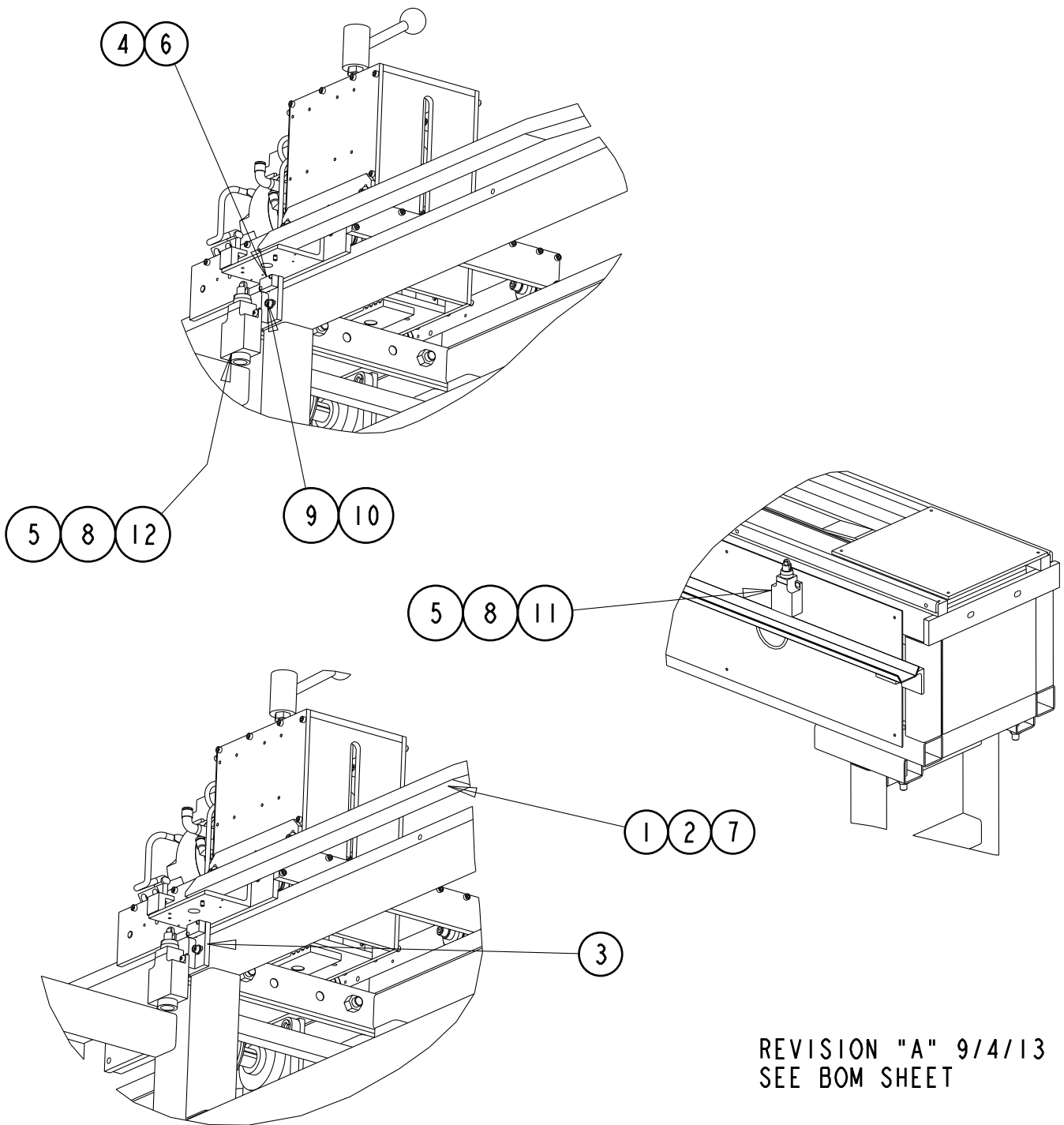
A Division of Anvil International

Innovators Of Pipe Fabrication Equipment

WAS-WELDWIRE ASSY
Sheet #76

WELD WIRE CONDUIT AND LINER PARTS LIST

ITEM	PART NUMBER	QTY	DESCRIPTION
1	MSC-531	1	EXTENSION SPRING
2	TCH-124-9042	1	LINER
3	TCH-156-0040	1	10' CONDUIT
4	TCH-501-9705	1	ADAPTER PLUG
5	TCH-501-9155	1	BLOCK ADAPTER
6	FAS-E27	1	#10-24 X 1/4" LG. SHSS



REVISION "A" 9/4/13
SEE BOM SHEET

UNIVERSAL WELDER HOME SWITCH



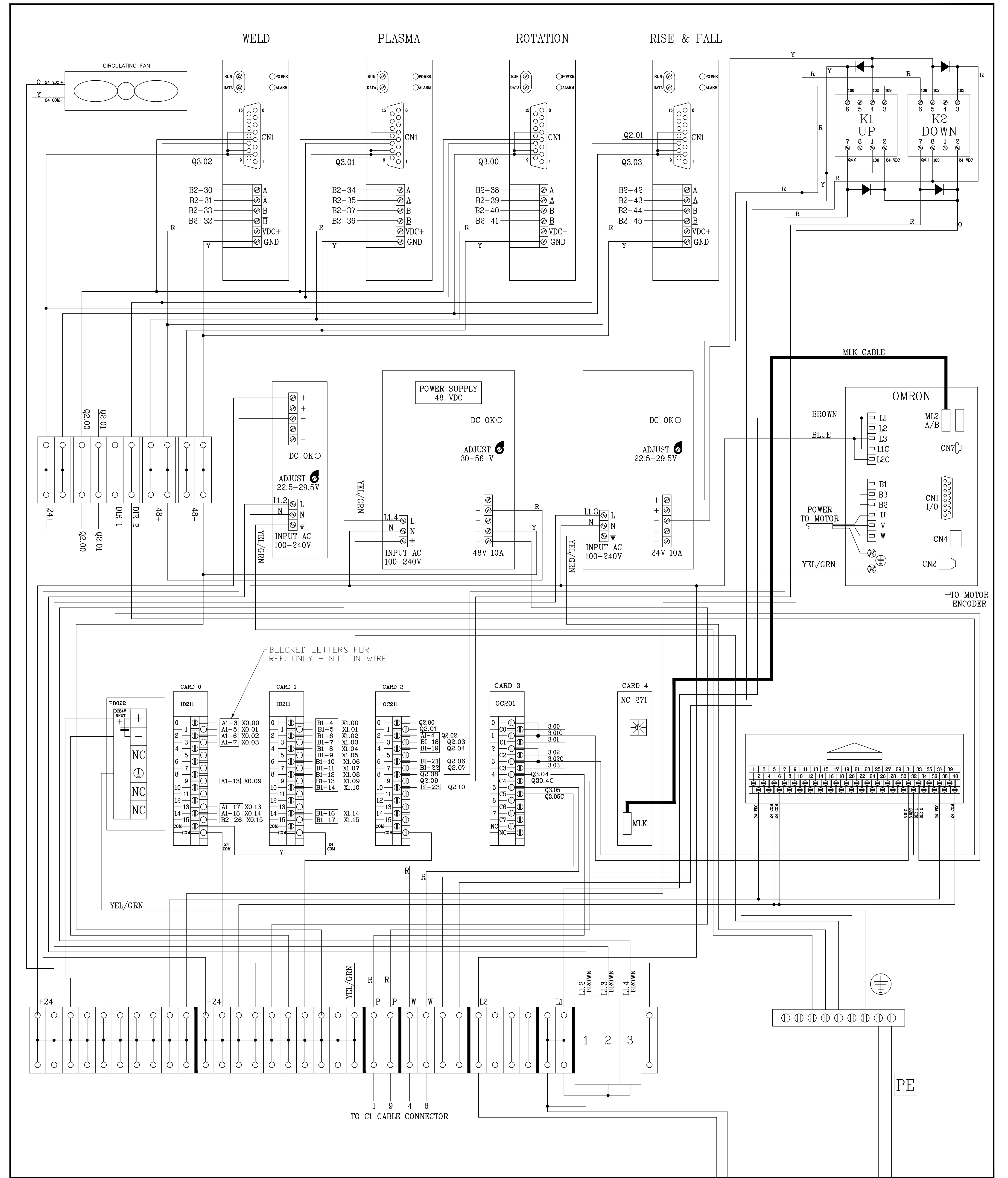
North Alabama Pipe
A Division of Anvil International
Innovators Of Pipe Fabrication Equipment

WAS-HOMESWITCH ASSY
Sheet #78

UNIVERSAL WELDER HOME SWITCH PARTS LIST

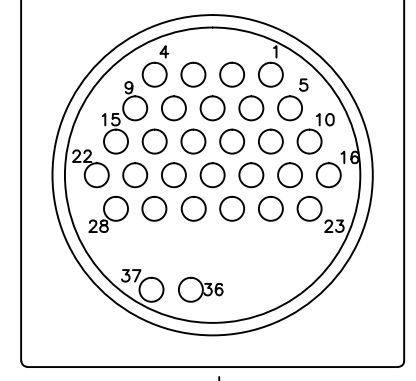
ITEM	PART NUMBER	QTY	DESCRIPTION
1	EPP-0196	177"	SMALL TRACK
2	EPP-0197	1 SET	TRACK BRACKETS
3	WMP-1172	1	SWITCH MOUNT PLATE
4	SWT-0024	1	FROG PROX SWITCH
5	SWT-0025	2	LIMIT SWITCH
6	FAS-B01	2	#4-40 X 1/2" LG. RSLMS
7	FAS-E02	4	#10-24 X 1/2" LG. BHSCS
8	FAS-E03	4	#10-24 X 5/8" LG. BHSCS
9	FAS-F24	2	1/4-20 X 3/4" LG. SHSC
10	FAS-F40	2	Ø 1/4' LOCK WASHER
11	WIR-817	40 Ft.	#18 2 CONDUCTOR CABLE
12	WIR-845	3 Ft.	3/4 TINNED BRAID

REVISION "A" 9/4/13 LKG ITEM #1 WAS 158" LG. NOW 177" LG.
 ITEM #7 WAS 1/4-20 BSHSCS NOW #10-24 BSHSCS
 ITEM #8 WAS 20-FAS-F1 NOW 20-FAS-E3



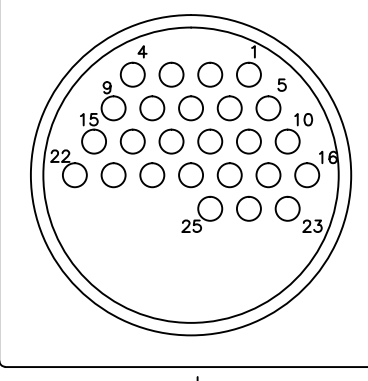
CABLE CONNECTORS
LOCATED IN CABINET BOTTOM

A1 CONTROL PANEL TERMINAL



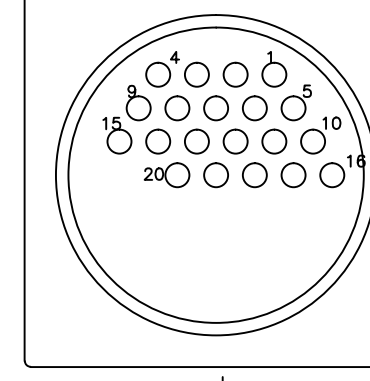
PIN #	WIRE#
PIN #1	A1-1
PIN #2	A1-2
PIN #3	A1-3
PIN #4	A1-4
PIN #5	A1-5
PIN #6	A1-6
PIN #7	NO CONNECTION
PIN #8	NO CONNECTION
PIN #9	NO CONNECTION
PIN #10	NO CONNECTION
PIN #11	NO CONNECTION
PIN #12	NO CONNECTION
PIN #13	A1-13
PIN #14	NO CONNECTION
PIN #15	NO CONNECTION
PIN #16	NO CONNECTION
PIN #17	A1-17
PIN #18	NO CONNECTION
PIN #19	NO CONNECTION
PIN #20	NO CONNECTION
PIN #21	NO CONNECTION
PIN #22	NO CONNECTION
PIN #23	NO CONNECTION
PIN #24	NO CONNECTION
PIN #25	NO CONNECTION
PIN #26	NO CONNECTION
PIN #27	NO CONNECTION
PIN #28	NO CONNECTION
PIN #29	SPARE
PIN #30	NO CONNECTION

B1 JUNCTION BOX



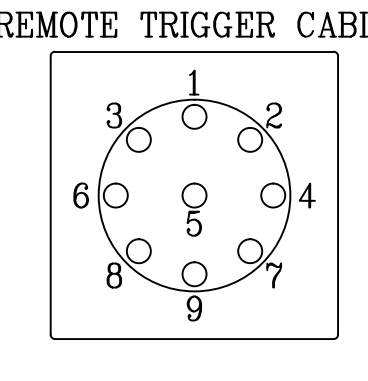
PIN #	WIRE#
PIN #1	B1-1
PIN #2	B1-2
PIN #3	NO CONNECTION
PIN #4	B1-4
PIN #5	B1-5
PIN #6	B1-6
PIN #7	B1-7
PIN #8	B1-8
PIN #9	B1-9
PIN #10	B1-10
PIN #11	B1-11
PIN #12	B1-12
PIN #13	B1-13
PIN #14	B1-14
PIN #15	NO CONNECTION
PIN #16	B1-16
PIN #17	B1-17
PIN #18	B1-18
PIN #19	B1-19
PIN #20	NO CONNECTION
PIN #21	B1-21
PIN #22	B1-22
PIN #23	B1-23
PIN #24	B1-24
PIN #25	NO CONNECTION

B2 JUNCTION BOX

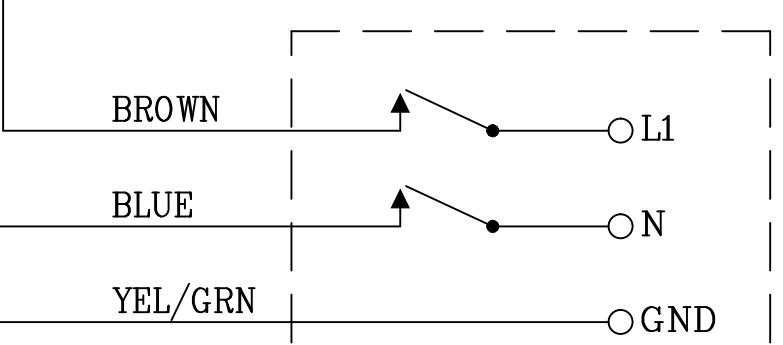


PIN #	WIRE#
PIN #1	B2-26
PIN #2	B2-27
PIN #3	NO CONNECTION
PIN #4	NO CONNECTION
PIN #5	B2-30
PIN #6	B2-31
PIN #7	B2-32
PIN #8	B2-33
PIN #9	B2-34
PIN #10	B2-35
PIN #11	B2-36
PIN #12	B2-37
PIN #13	B2-38
PIN #14	B2-39
PIN #15	B2-40
PIN #16	B2-41
PIN #17	B2-42
PIN #18	B2-43
PIN #19	B2-44
PIN #20	B2-45

C1 WIRE FEEDER AND PLASMA REMOTE TRIGGER CABLE



NOISE FILTER

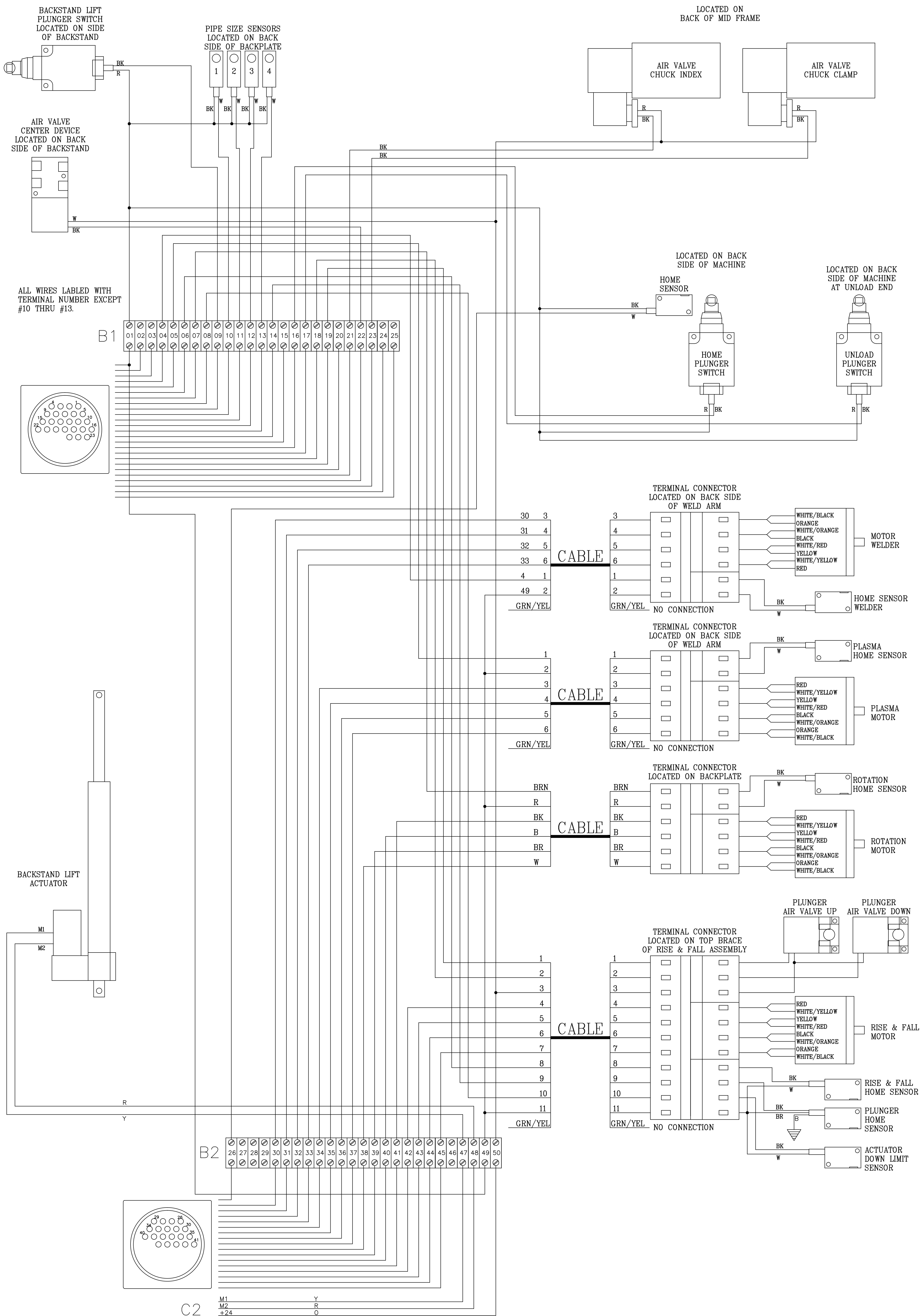


POWER
220, VAC

MOUNTED ON WELDER FRAME

WIRE COLOR LEGEND	
R	- RED
Y	- YELLOW
GY	- GRAY
GR	- GREEN
B	- BLUE
W	- WHITE
BK	- BLACK
O	- ORANGE
BR	- BROWN
V	- VIOLET

APPROVED FOR RELEASE
 DATE: 10/5/11
 SCALE: N/A
 SHEET 2 OF 3
 UNIVERSAL WELDER
 ELECTRICAL SCHEMATIC
 North Alabama Pipe Corporation
 FOR S/N _____



ALL WIRES LABELED WITH TERMINAL NUMBER EXCEPT #10 THRU #13.

B1 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25

30 3
31 4
32 5
33 6
4 1
49 2
GRN/YEL

1
2
3
4
5
6
GRN/YEL

BRN
R
BK
B
BR
W

1
2
3
4
5
6
7
8
9
10
11
GRN/YEL

B2 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50

C2 M1 M2 +24 Y R O

WIRE COLOR LEGEND	
R	- RED
Y	- YELLOW
GY	- GRAY
GR	- GREEN
B	- BLUE
W	- WHITE
BK	- BLACK
O	- ORANGE
BR	- BROWN
GRN/YEL	- GREEN/YELLOW

DRAWN BY: L.K.G.
 CHECKED BY: N/A
 DATE: 10/5/11
 SHEET: 3 OF 3

North Alabama Pipe Corporation
 UNIVERSAL WELDER
 ELECTRICAL SCHEMATIC

FOR S/N: _____

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