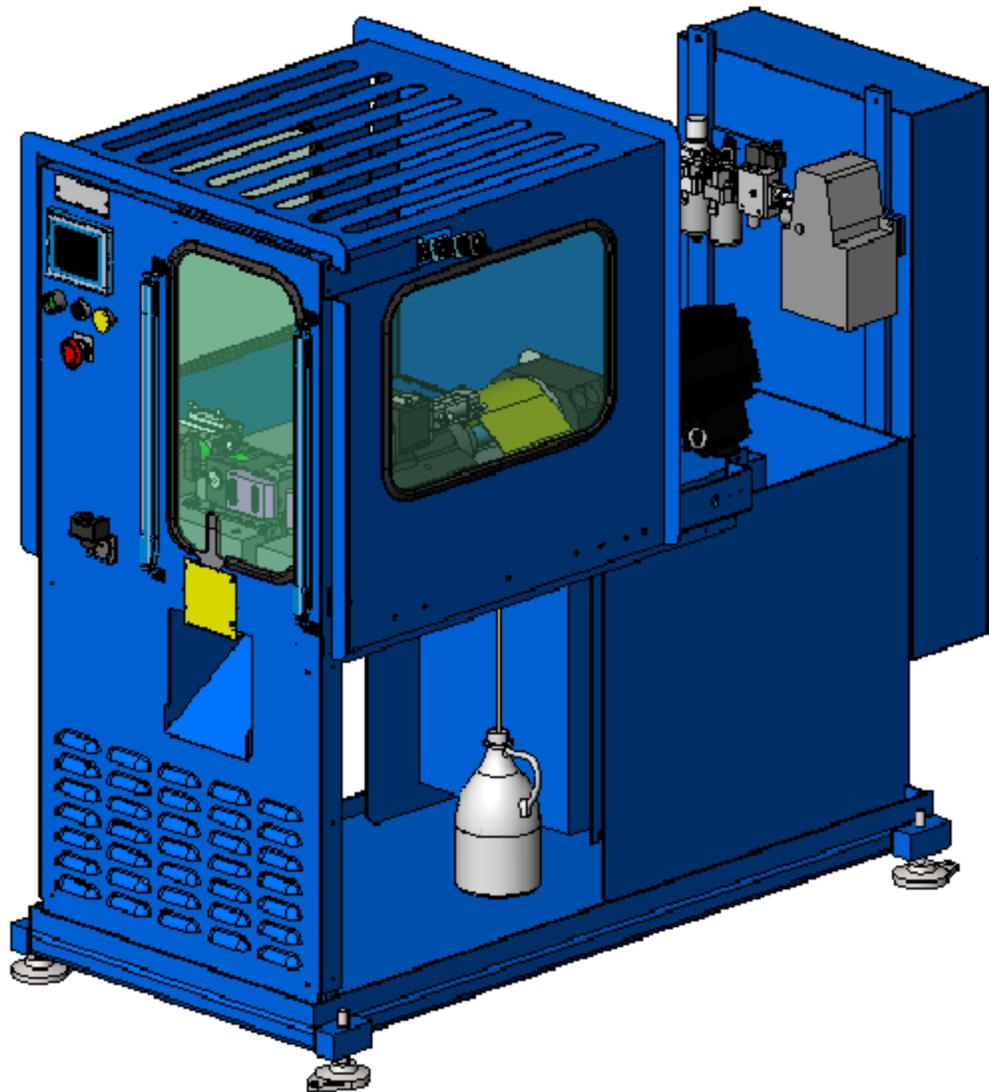


MACHINE MANUAL FOR 1004 ELECTRIC ENDFORMER



DESIGNED AND MANUFACTURED IN THE U.S.A. BY



WAUSEON MACHINE
AND MANUFACTURING

SERIAL # B71025-06

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WAUSEON, OHIO 43567
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WAUSEON MACHINE #1004

LIFTING & INSTALLATION INSTRUCTIONS

Lifting the machine

The machine is tow motor accessible from the front and both sides, between the legs of the frame. If the machine is equipped with a floor pan, there are fork pockets on all four sides of the pan for lifting.

Installation

- 1) Place the machine on a rigid, flat surface.
- 2) Connect the proper voltage (labeled on the electrical enclosure door) to the disconnect switch in the electrical enclosure.

WAUSEON MACHINE AND MANUFACTURING, INC.

MACHINE MODEL: 1004 (4 HIT ENDFORMER) *(for up to 1"OD X .049 wall tube)*

SPECIFICATIONS:

Ram Force	Programmable 5 tons at 11.5"/sec ram velocity 8.5 tons at 5"/sec ram velocity
Clamp Cylinder (Air)	9 Tons Maximum, 8 Tons Nominal
Shuttle Cylinder (Air)	2 ½" Bore
Ram Actuation	Electromechanical, programmable stroke adjustment on ram extend and retract, independent from hit to hit
Maximum Jaw Opening	1.50"
Electrical Requirements	460 Volts 3 Phase 50/60 Hz 45 Amps
Weight	1750 LBS

STANDARD EQUIPMENT:

Full manual machine controls ran through PLC
Servo Positioning Control on the Ram extend and retract.
Endformer uses most readily available 15/16" diameter punches. The 1003S Endformer can be modified to accept larger or unique tooling upon request.
Endformer accepts 4" long x 1.5 wide x 2.75 high clamp blocks.
Wauseon Machine standard blue color

MODEL 1004 ELECTRIC ENDFORMER

Contents

Operations Procedures	2
➤ Machine Controls Definitions	2
➤ Power Up Procedure	2
➤ Automatic Mode	2
➤ Manual Mode.....	2
➤ Trouble Isolation Procedures	2
➤ 3-Point Lube System Operations Procedures (<i>If so equipped</i>)	2
Tool Change Procedure.....	3
➤ Changing the Clamp Dies	3
➤ Changing the Punches.....	3
Preventative Maintenance.....	4
Electrical Data	5
➤ Electrical Schematics.....	5
➤ Electrical Component Information.....	5
Suggested Spare Parts.....	6
Assembly Prints.....	7
Bill of Materials	8
Purchased Component Information	9

MODEL 1004 ELECTRIC ENDFORMER

Operations Procedures

- **Machine Controls Definitions**
- **Power Up Procedure**
- **Automatic Mode**
- **Manual Mode**
- **Trouble Isolation Procedures**
- **3-Point Lube System Operations Procedures (*If so equipped*)**

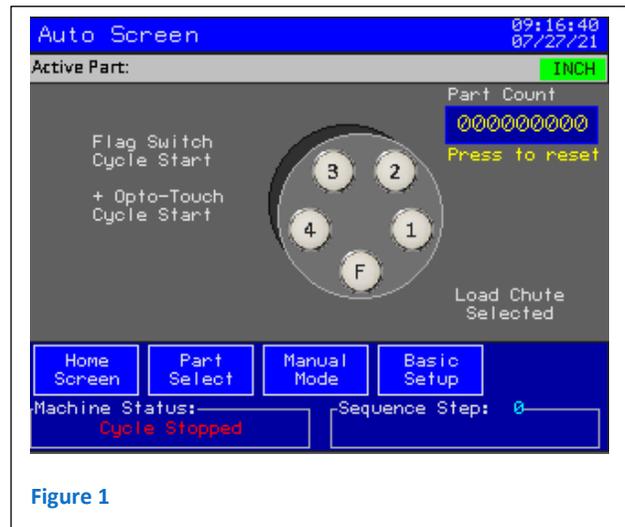
MODEL 1004EL ELECTRIC ENDFORMER

Basic Operation:

1. Screen Conventions:

Each screen can be broken down into 3 parts.

1. The **Header**, which displays the active screen title, the date and time, the active part, and general settings.
2. The **Footer** which displays machine status and contains screen navigation buttons.
3. The **Body** which contains the screens controls and indications.



When an alarm occurs the title bar will flash red, pressing the red bar will navigate to the alarm screen which will display all active alarms.

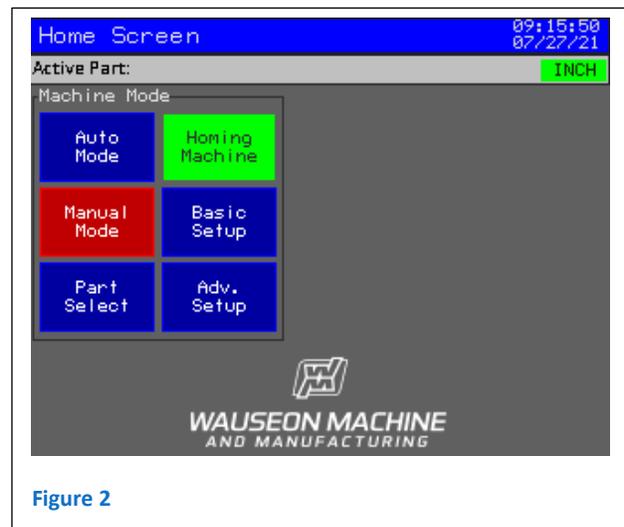
When a button is greyed out, conditions to operate this button have not been met, so it is unavailable to use.

2. Startup:

Initial Conditions:

1. Power has been supplied to the machine and the main disconnect is turned on.
2. Air supply has been attached and is providing ~80psi.
3. The way lube reservoir has sufficient fluid.
4. All guarding is in place and all safety switches are active.

Press the power on button located below the touch screen, the power on light will illuminate and stay illuminated when the button is released.



Press the reset button opposite the control power on button to clear any active alarms, once all alarms are cleared pressing the reset button again should send the machine to the home position. In the event that the reset does not clear the alarms press the red bar in the header of the touch screen to navigate to the alarm screen for further instruction.

MODEL 1004EL ELECTRIC ENDFORMER

If the Home Machine button is blue pressing it will send the machine to the home position. The home position is defined as: the wedge down, the clamp open, the turret at the flag position and extended.

3. Manual Mode:

The manual control screen provides the ability to manually position the machine for setup and maintenance. The buttons are interlocked to prevent operation that could be detrimental to the machine.

The ram position indication will say extended/retracted when the move is complete and Ext/Ret Jog Mode when moving. Moving the ram requires a direction selected and then the physical Jog button below the screen must be pressed.

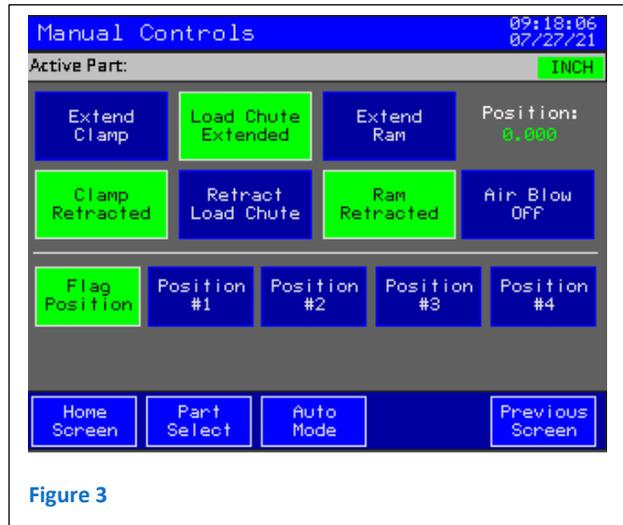


Figure 3

4. Basic Setup Screen:

The basic setup screen displays what turret position, lube selection, tube stop position, ram retract position, and dwell timers. The Opto-Touch start method, and Load Chute Select can be turned On and Off from this screen. Please note that if the Opto-Touch is not selected for the start method, then the flag will be used to start the machine's sequence.

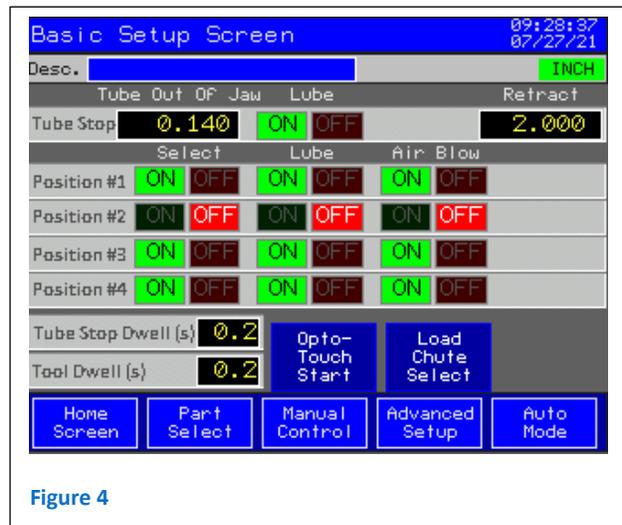


Figure 4

MODEL 1004EL ELECTRIC ENDFORMER

5. Advanced Setup Screen 1:

The advanced setup screen 1 displays the active data stored in the PLC for turret position selection, lube selection and ram extend/retract positions. Values are displayed in whatever units are selected from the machine setup screen. If lubrication option is installed the prime buttons will allow lube system to eject lube onto the parts or tooling. The measure tools button can be used to assist with building a new part.

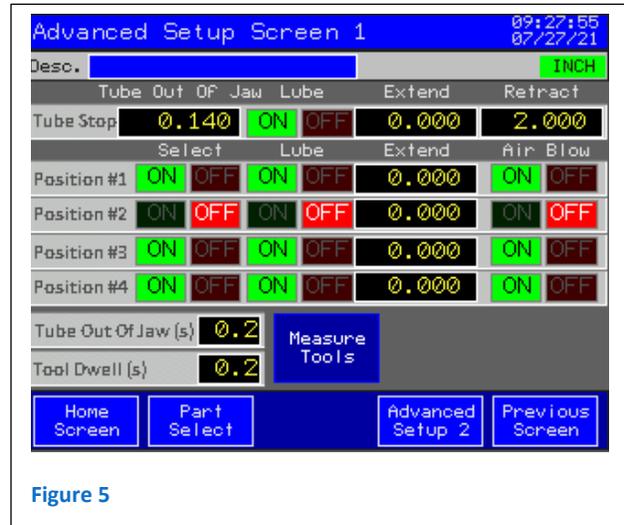


Figure 5

There are three ways to build a new part:

Method 1: Automatic Setup Control

Step 1: Install tooling in machine.

Step 2: Turn on control power reset and home the machine.

Step 3: In advanced setup screen 1 select positions where tooling has been installed. Set all ram positions to 0. Type in a name for the part in the description field of the header.

Step 4: Press the Measure Tools button. At this point the machine should cycle in Setup Mode recording the extend positions for each turret position selected. Once the cycle is complete press reset to return to manual mode.

Step 5: Calculate the flag position using the formula $\text{Flag Position} = 11.5'' (292.1\text{mm}) - \text{Clamp Block Length} - \text{Distance from face of turret to the end of the flag (compressed)} - \text{the amount of material required from the front of the clamp block}$.

Step 6: On the advanced setup screen 1 enter the value calculated in step 5 into the tube stop extend position. Check that all selected turret position ram extend positions have valid values.

Step 7: Press Part Select. In the list on the left select one of the positions to store the new part file and touch it to highlight it. Next, press the save part button; the part name entered in step 3 should replace the highlighted selection.

Method 2: Manual Torque Control:

Step 1: Install tooling in machine.

Step 2: In ABS reset select Torque Mode.

Step 3: In advanced setup screen 1 select positions where tooling has been installed. Set all ram positions to 0. Type in a name for the part in the description field of the header.

Step 4: Turn on control power reset and home the machine.

Step 5: In manual close the clamp and retract the flag stop.

Step 6: Index the turret to the first position with a tool. Select Ram Extend and press and hold the Jog pushbutton located below the touch screen. When the ram has stopped moving and is in

MODEL 1004EL ELECTRIC ENDFORMER

contact with the clamp block, release the jog pushbutton. Select ram retract and once again press and hold the jog button until the ram is retracted. Repeat this step for each tool.

Step 7: Calculate the flag position using the formula $\text{Flag Position} = 11.5'' (292.1\text{mm}) - \text{Clamp Block Length} - \text{Distance from face of turret to the end of the flag (compressed)} - \text{the amount of material required from the front of the clamp block}$.

Step 8: Press Part Select. In the list on the left select one of the positions to store the new part file and touch it to highlight it. Next, press the save part button; the part name entered in step 3 should replace the highlighted selection.

Step 9: On the recipe build screen enter the value calculated in step 6 into the tube stop extend position. Check that all selected turret position ram extend positions have valid values.

Step 10: In ABS reset select Position Mode.

Method 3: Direct Entry

Step 1: In advanced setup screen 1 select positions where tooling has been installed. Type in a name for the part in the description field of the header.

Step 2: Calculate the flag position using the formula $\text{Flag Position} = 11.5'' (292.1\text{mm}) - \text{Clamp Block Length} - \text{Distance from face of turret to the end of the flag (compressed)} - \text{the amount of material required from the front of the clamp block}$.

Step 3: Calculate the ram extend positions using the formula $\text{Extend Position} = 11.5'' (292.1\text{mm}) - \text{Clamp Block Length} - \text{Distance from face of turret to the end of the tool (not including pins)}$.

Step 4: Set the ram retract positions to where the punches will clear the tooling.

Step 5: Press part select. In the list on the left select one of the positions to store the new part file and touch it to high light it. Next press the save part button, the part name entered in step 3 should replace the highlighted selection.

6. Advanced Setup Screen 2:

The machine setup screen allows the operator to change the units (mm/inch) the machine uses for setting part data. This setting can be changed at any time.

To operate the machine a control method must be selected. There are two control methods that can be selected from this screen.

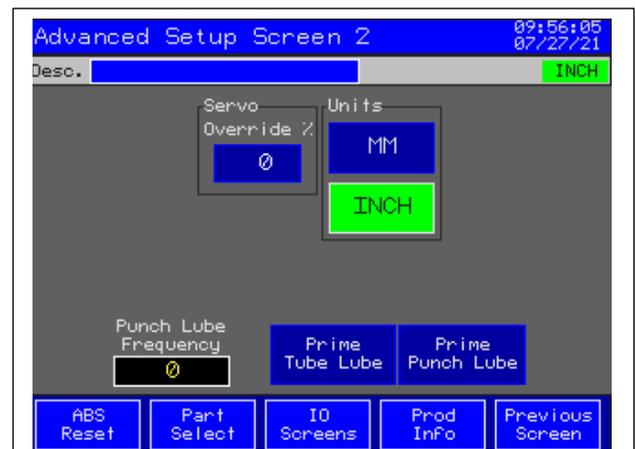


Figure 6

MODEL 1004EL ELECTRIC ENDFORMER

7. Automatic Mode:

To operate the machine in production:

Step 1: supply power and air to the machine.

Step 2: ensure all lubrication reservoirs have sufficient fluid.

Step 3: in part select, highlight the part to be ran and press load part button.

Step 4: turn on control power and hydraulics, clear all faults.

Step 5: if the header shows the machine is in torque mode proceed to the ABS reset screen and set to Position Mode.

Step 6: on the Home screen select auto mode.

Step 7: press the opti touch or insert tube until it contacts the flag stop.

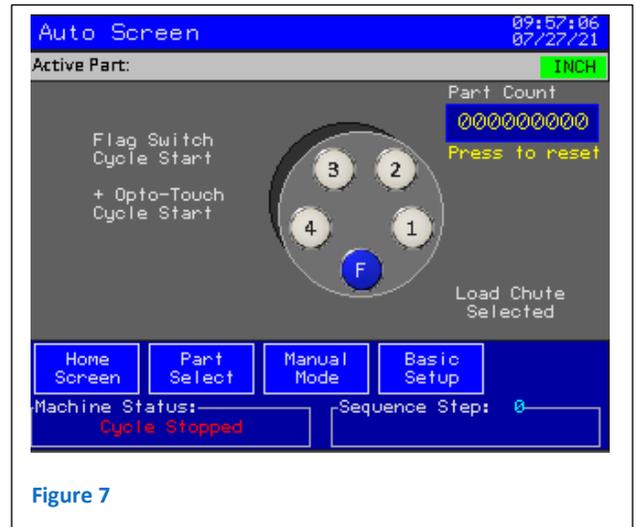


Figure 7

8. IO Screens

To navigate between the plc and slot I/O screens, press the respective navigation button. Once the I/O screen opens up it will display all of the I/O points for the selected I/O.

A red indicator means the I/O is off, a green indicator means the I/O is on.



Figure 8

MODEL 1004EL ELECTRIC ENDFORMER

9. Ram and Turret Homing

In the Machine Setup screen, press the ABS Reset button to navigate to the Ram And Turret ABS Fault Reset page.

Password is 0940

Torque Mode – in this mode when extending the ram with the clamps closed the ram will not stop its forward progress until the torque % value or the software over travel is reached. If the turret is in the Flag Position and the clamp is open the ram extend will stop at the programmed extend position. In this mode whenever the ram reaches torque in the extend direction the programmed extend position for that tool is automatically updated.

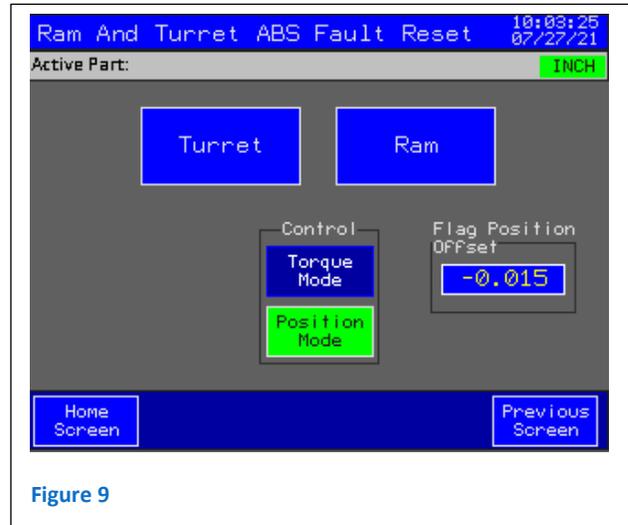


Figure 9

Position Mode – in this mode when extending and retracting the ram the speed of motion is controlled by the override % setting and the ram will stop extending at the programmed position for whatever position the turret is currently in. When retracting the ram it will pause for 1 second at the programmed retract position and then can be further retracted to the 0 position.

Servo override% can be set 0 to 100, although a setting of 0 will not allow movement. This setting applies to manual and automatic operations.

Flag Position Offset – the ram flag position requires an offset value to compensate for machine compression, which occurs when the ram flag position was measured. This position is a retrained value and should only have to be set once.

A negative offset value set the flag position further away from the clamp blocks. A positive position will move the flag closer to the clamp blocks. In most cases a value of -0.015" (-0.381mm) will make the flag position value in the recipe true to where the actual flag is in relation to the clamp blocks.

To set a new Flag Position Offset:

Step 1: Set the current Flag Position Offset to a value of 0

Step 2: Home the endformer

Step 3: Go to Advanced Setup Screen 1, and select Measure Tools

Step 4: Set the flag extended position to 1" (25.4mm)

Step 5: Home the endformer

Step 6: Measure the distance between the compressed flag to the clamp blocks

Step 7: Calculate Flag Position Offset value. (Measured distance – 1 = Flag Position Offset)

Step 8: Enter the new value into the Flag Position Offset field.

Step 9: Home the Machine and verify the flag extend position is at 1" (25.4mm)

MODEL 1004EL ELECTRIC ENDFORMER

10. Turret Homing

The turret homing screen allows the turret home position to be redefined via the HMI in the event that the motor has to be replaced.

To enable this function, press the manual operation button and retract the turret pin.

Once the turret pin is retracted the jog buttons will become available. Pressing and holding either jog button will move the turret in the respective position. Positive is CW, negative is CCW.

Once the turret is lined up with the turret pin and in the flag position (Hit F down), press the set home position button to redefine the home position.

Press the reset button and set ram position, if needed. Machine will be ready to run in manual/automatic.



Figure 10

11. Ram Homing

The ram homing screen allows the ram home position to be redefined via the HMI in the event that the motor has to be replaced. This screen also allows an E40 alarm to be cleared when first powering up after installing a new motor.

Pressing either extend or retract button will put the ram in the respective mode. Press the jog pushbutton to begin movement.

Once the ram is far enough back, the homing tool can be inserted. Then extend the ram until the homing tool is touching the face of the turret. Press the Set Home Position button to redefine home. If the homing tool is not available, measure the distance between the back of the right side clamp die keeper and the face of the turret. The distance should be 11.5".

Press the reset button and set turret position, if needed. Machine will be ready to run in manual/automatic.



Figure 11

MODEL 1004EL ELECTRIC ENDFORMER

12. Production Data

The Production Data screen keeps track of the parts ran for the last hour. The value is updated at the top of the hour. The upper value of the Y axis is the peak number of parts ran in the last 24 hours and the lower value of the Y axis is the minimal number of parts ran in the last 24 hours.

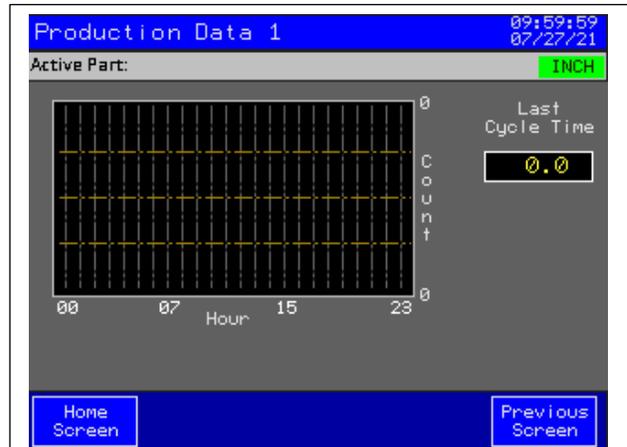


Figure 12

13. Replacing the Battery

When looking at the inside the machine, the Motor is on the left (the bigger object circled in red) and the battery is on the right and higher than the motor (the smaller object circled in red).

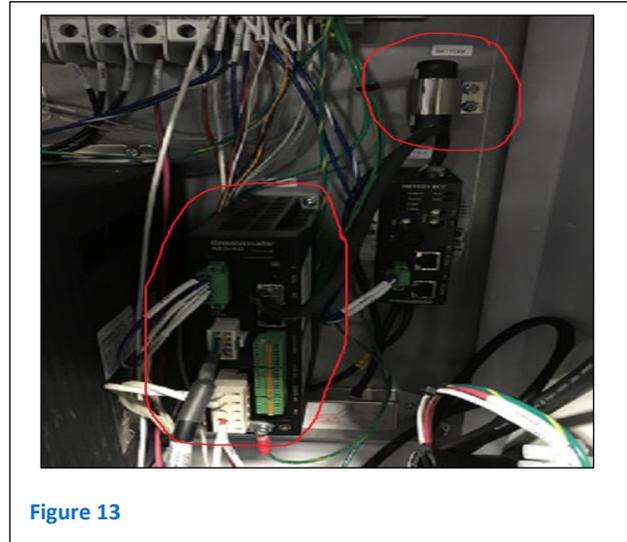


Figure 13

Unscrew the old battery from the bracket and replace it with a new one.

Disconnect the end of the old wire which is plugged into the bottom of the Motor (the only wire on the bottom of the Motor).

MODEL 1004EL ELECTRIC ENDFORMER

Plug in the new battery in the same spot as the old. The red wire is on the left and the blue wire is on the right.



Figure 14



Figure 15

MODEL 1004 ELECTRIC.ENDFORMER

3 POINT LUBE SYSTEM (If so equipped)

The pumps can be primed and adjusted for the amount of lubricant dispensed as follows:

To prime the pump:

Depress the manual override button (labeled on the system frame as shown in the picture below) for the appropriate lubrication point pump. Continue depressing the manual override button until constant flow of lube is dispensed to the required lubrication point. The pneumatic feed line may need to be disconnected to prime the pump.



MODEL 1004 ELECTRIC.ENDFORMER

3 POINT LUBE SYSTEM (If so equipped)

To adjust the pump:

The lubrication pumps can be found on the inside of the lube system frame. They are accessible by unlatching the door cover on the front of the frame. The adjustment knobs are indicated with an arrow in the picture below. Turn the appropriate adjustment knob in the clockwise direction to reduce the lubrication flow to the required lubrication point. Likewise, turn the adjustment knob in the counter-clockwise direction to increase the lubrication flow to the required lubrication point.



MODEL 1004 ELECTRIC ENDFORMER

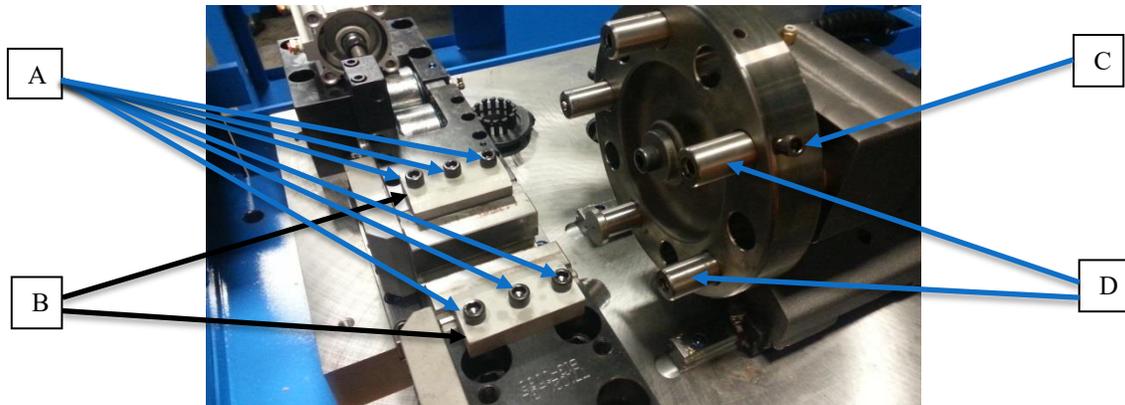
Tool Change Procedure

- **Changing the Clamp Dies**
- **Changing the Punches**

MODEL 1004ELECTRIC ENDFORMER

I. Changing the clamp dies

1. Press the “POWER OFF” button.
2. Lockout all power.
3. Loosen and remove the three SHCS (A) on top of each of the clamp die hold down plates (B).
4. Remove the clamp die hold down plates (B).
5. Lift the clamp dies out of their nests (no clamp dies shown in photo).
6. Wipe off any oil or debris that has accumulated on the clamp die nests.
7. Wipe off the new clamp dies and place them into their respective nests.
8. Place the clamp die hold down plates (B) on top of the clamp dies.
9. Insert the three SHCS (A) on top of each of the clamp die hold down plates (B).
10. Tighten the three bolts (A) on top of each of the clamp die hold down plates (B) middle, back, and then front.
NOTE: Re-Tighten the hold down bolts after five complete machine cycles and every hour thereafter.



II. Changing the end forming punches

1. Press the “POWER OFF” button and lockout all power.
2. Loosen the SHCS (C) on the punch holders (D).
3. Slide the punches (D) out of the turret.
4. Slide the replacement punches (D) into the turret.
5. Tighten the socket head cap screws (C) that hold the punches.

NOTE: Re-Tighten the hold down bolts after five complete machine cycles, and every hour thereafter.

ENDFORMER SETUP SHEET

Date: _____ SO #: _____ Part #: _____ Part Name: _____

Development personnel: _____
Developed in machine: _____

Material used for development: _____

Tube end preparation/cutoff type: _____

Lubrication used: Yes / No
Type: _____
Mixture: _____
How applied: _____

Tooling Required

Clamp dies: _____
1st hit punch: _____
2nd hit punch: _____
3rd hit punch: _____
4th hit punch: _____

Flag stop setting: _____
Ram stop setting: _____
Insert gap: _____

Special notes: _____

Note to the developer: All endform development requires a sectioning of the endform to determine wall thinning. Report the results below.

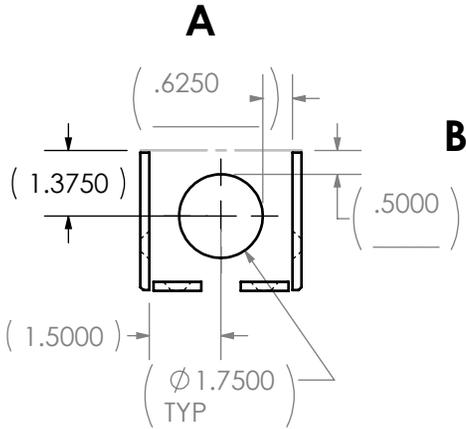
SETUP

- I) Place the clamp dies in the endformer and tighten down the SHCS to secure the clamp dies in place.
- II) Place the punches in their respective punch holders and tighten down the SHSS to hold the punches in place.
- III) Set the flag stop distance according to the setting above. This distance is measured from the face of the tube locator plate to the back face of the clamp dies
- IV) Enter the appropriate information into the "AUTO SETUP" screen per the operator instructions and run the hit setup
- V) Check the part dimensionally per the layout drawing.
- VI) Adjust the flag stop as necessary to bring the part within specifications

NAME: _____
 SHOP ORDER: _____
 DATE: _____

NOTE: REFERENCE THE WORK INSTRUCTION (SA007270)
 FOR SETTING THE CENTERLINE PROPERLY

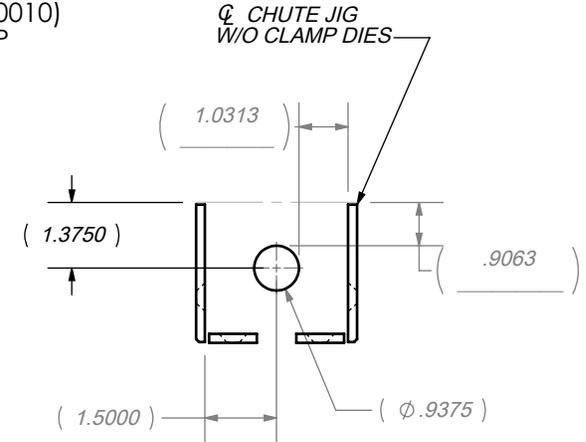
1) SET REGULATOR @ 80PSI _____



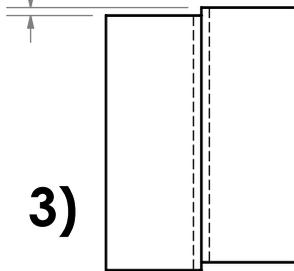
2) SET OVERSTROKE (SEE NOTE)
 WHEN SETTING OVERSTROKE NEEDED FOR THE LOCKUP

OVERSTROKE: _____ (A)
 (.030 MIN-.875 MAX)

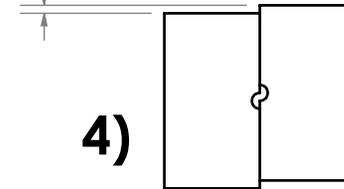
WEAR PLATE THICKNESS:
 LEFT SIDE: _____
 LEFT BOTTOM: _____
 RIGHT BOTTOM: _____
 RIGHT SIDE: _____



BLOCK LENGTH DIFFERENCE:
 (.001 MAX FRONT TO BACK)



BLOCK HEIGHT DIFFERENCE:
 (TOP TO BOTTOM ±.001 MAX)



REV	BY	DATE	DESCRIPTION	APP BY	APP DATE
01	AMM	08-30-2017	ADDED MAX OVERSTROKE		
REL	SER	10-05-2015	INITIAL RELEASE		

	"A" MEASUREMENT (0.6250")	"B" MEASUREMENT (0.5000")
HIT #1		
HIT #2		
HIT #3:		
HIT #4		

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DESIGNED BY: *RWY*
 DRAWN BY: *SER*
 CHECKED BY: *AMM*
 DRAWN ON: 10-05-2015

**1004 ENDFORMER
CENTERLINE SHEET**

TIGHTEN ALL BOLTS TO STANDARD SPEC UNLESS OTHERWISE NOTED

LABEL ALL AIR LINES AND FITTINGS

ASSEMBLY TYPE: _____

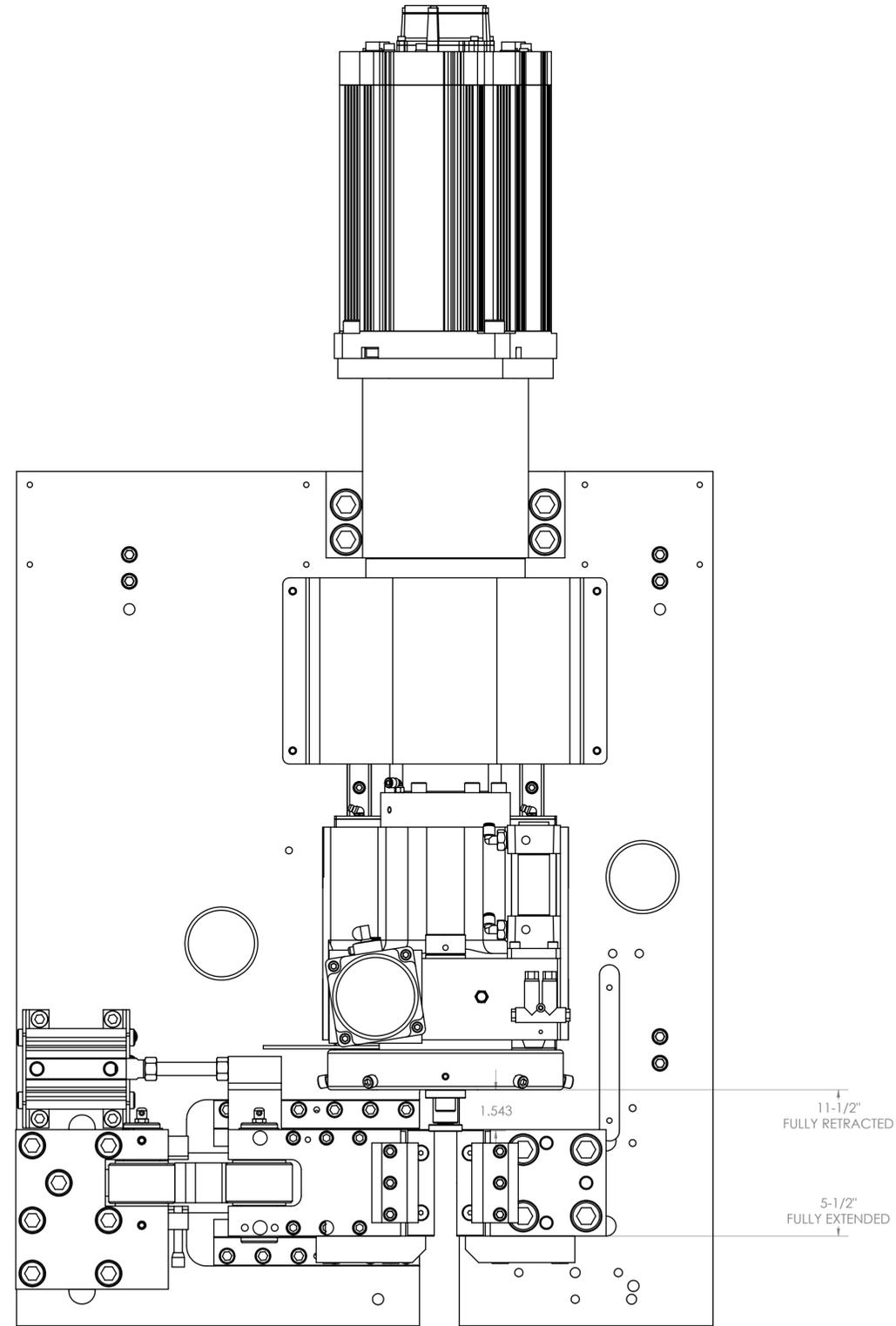
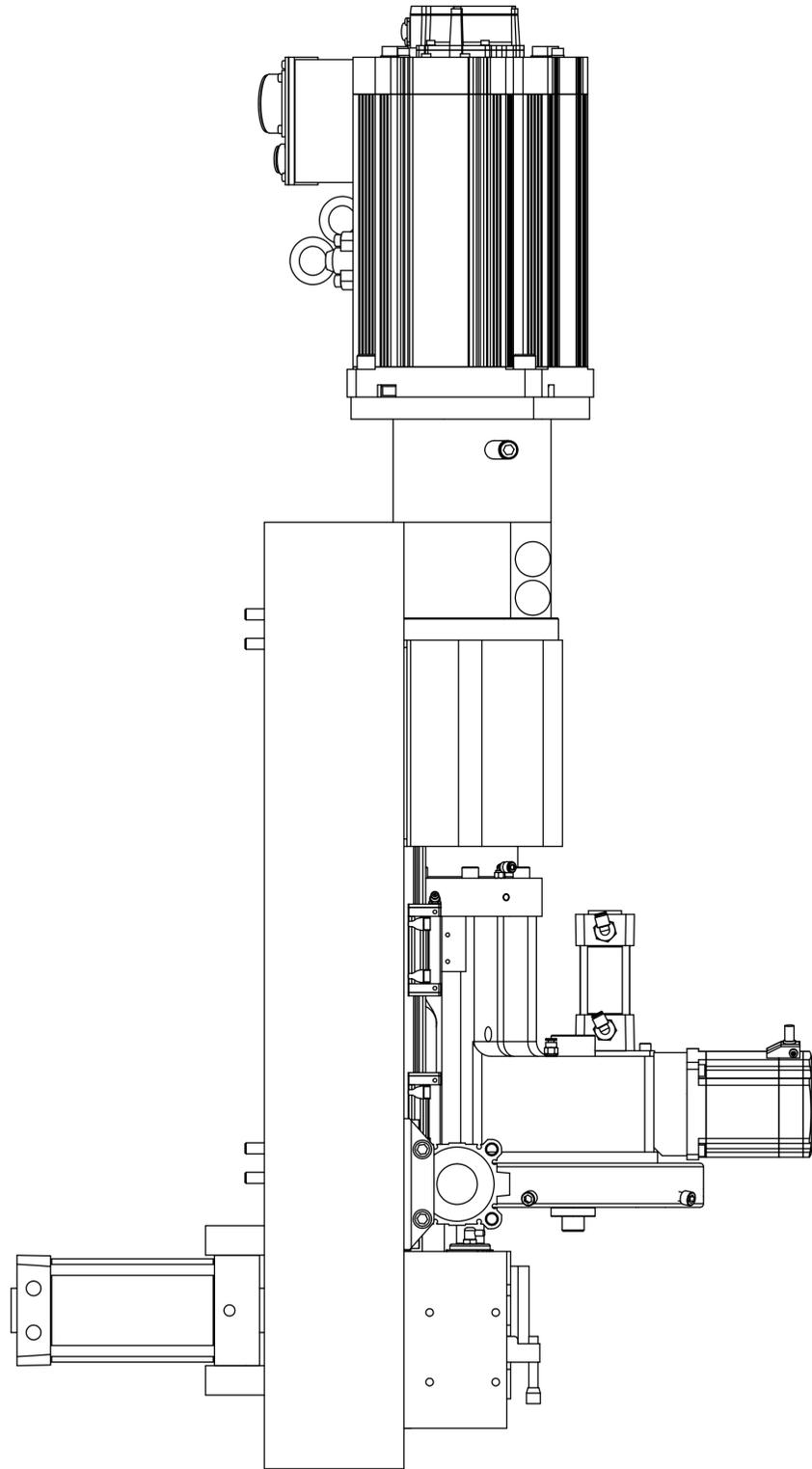
SPECIAL INSTRUCTIONS: _____

SCALE: 1:3 SHEET: 1 OF 1

SIZE: **A** REVISION: **01**

ASSEMBLY NUMBER:
1004 CENTERLINE

Drawing File Name: 1004 Centerline



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DESIGNED BY: *KJH*
 DRAWN BY: *KJH*
 CHECKED BY:
 DRAWN ON: *01-04-2018*

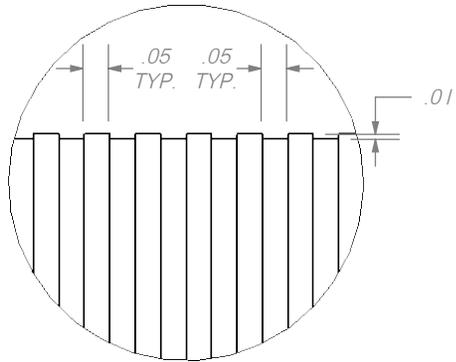
SCALE: 1:2 SHEET 2 OF 3
 SIZE: D REVISION: REL
 ASSEMBLY TYPE: STANDARD MACHINE
 SPECIAL INSTRUCTIONS:

TIGHTEN ALL BOLTS TO STANDARD SPEC UNLESS OTHERWISE NOTED
 LABEL ALL AIR LINES AND FITTINGS

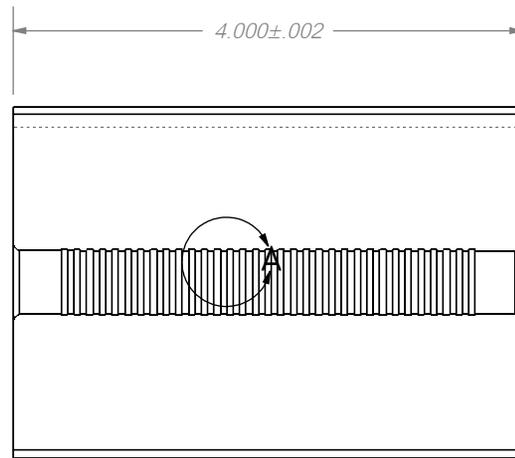
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Drawing File Name: SA006717

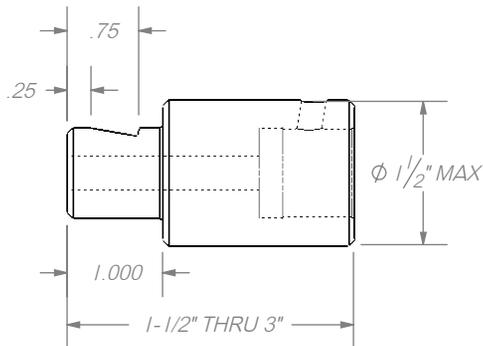
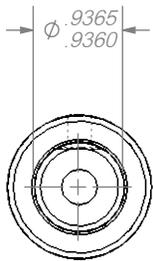
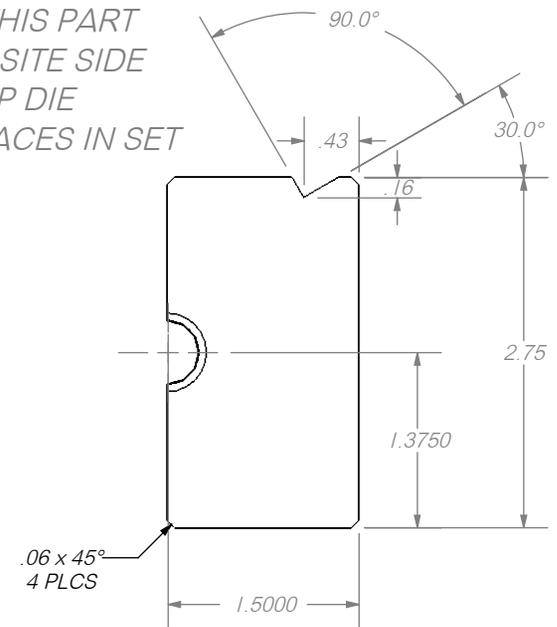
REV	BY	DATE	DESCRIPTION	APP BY	APP DATE
REL	+	08-07-2017			



DETAIL A
SCALE 8 : 3



MIRROR THIS PART
FOR OPPOSITE SIDE
CLAMP DIE
GRIND SURFACES IN SET



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**WAUSEON
MACHINE & MFG.**

995 ENTERPRISE AVE.
P.O. BOX 280
WAUSEON, OHIO 43567
419.337.0940
www.wauseonmachine.com

DESIGNED BY: SER
DETAILED BY: SER
CHECKED BY:
DETAILED ON: 08-07-2017

TOLERANCES UNLESS OTHERWISE SPECIFIED
ANGULAR = XX ± 1°
FRACTIONAL = 1/XX ± 1/32"
2 PL DEC = X.XX ± .010"
3 PL DEC = X.XXX ± .005"
4 PL DEC = X.XXXX ± .001"
BREAK ALL EDGES .02 MAX

1000 SERIES TOOLING
PARAMETERS

MATERIAL:
STOCK SIZE:
HEAT TREAT:
REF. OF:
FINISH:

SCALE: 1:1
SHEET: 1 OF 1
SIZE: A
REVISION: REL
PART NUMBER: 1000

MODEL 1004 ELECTRIC ENDFORMER

Preventative Maintenance

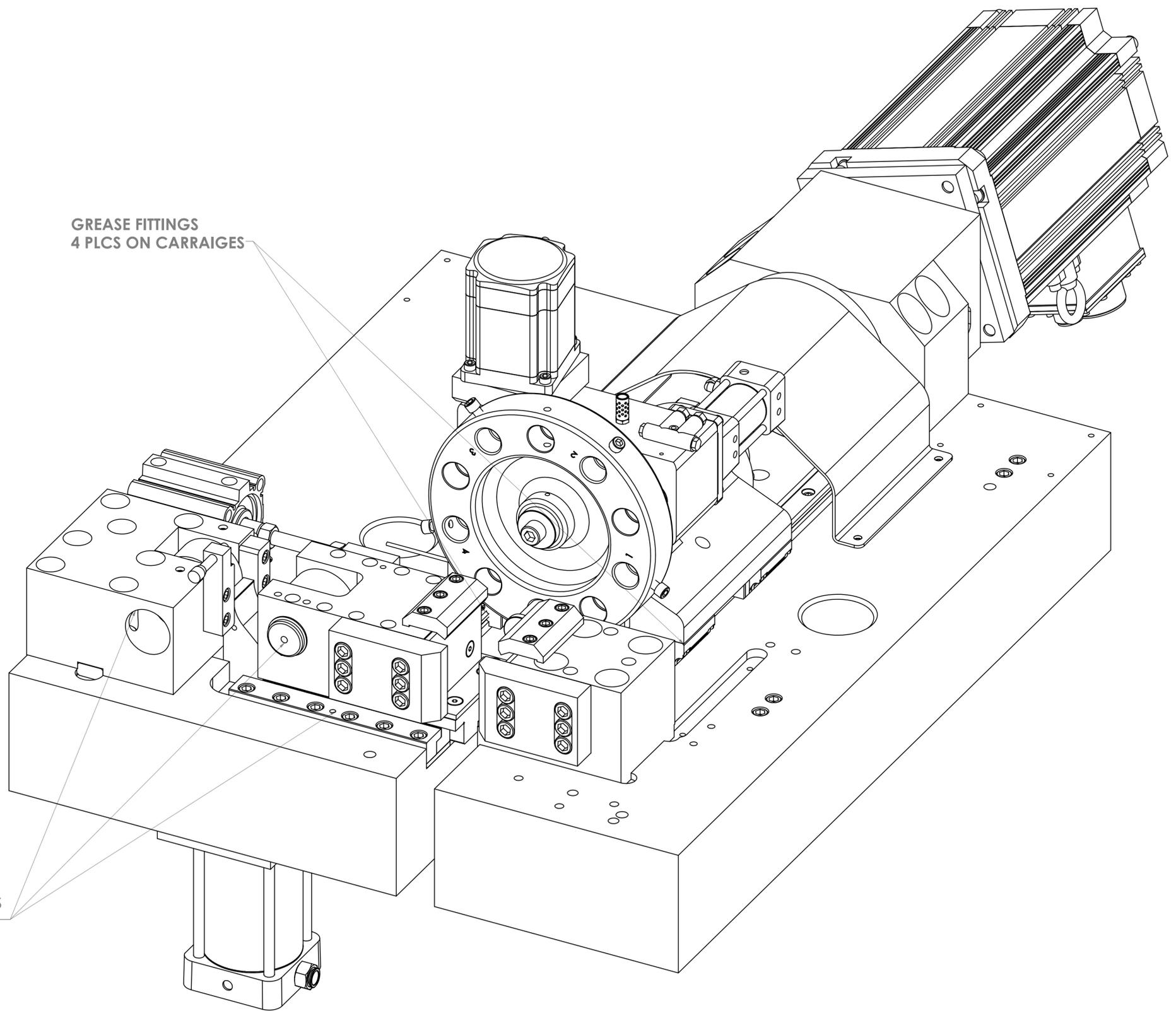


PREVENTIVE MAINTENANCE INSTRUCTIONS AND LUBE SPECIFICATIONS

Maintenance Area	Maintenance Instructions	Interval
Part Touching Details and Tooling	Verify all tooling and retaining bolts are tight	ONCE PER SHIFT
Tooling	Check for excessive wear	
Main air regulator set at 80 psi	Adjust if necessary	DAILY
Air Lubricator (see below)	Fill to upper level with Parker F442P or equivalent	
Air Dryer	Drain Condensation	
Part Lube System	Fill to upper level	
Way Lube System	Fill to upper level (Vactra #2)	
Line Matched Bolts	Make sure nothing has become loose	
Linear Guides	1-2 shots of grease from a hand gun	WEEKLY
Part Nests	Check for wear	
Air Lines	check for leaks	
Sensor Cables	Check for broken or fraying cables	
Cylinders, Grippers, and Sensors	Verify correct actuation direction	
Pneumatics	Check all air lines and valves for proper operation and leaks	MONTHLY
Electrical	Check wires, controllers, and other components for proper operation	
Cooling Fans	Clean any intake filters on robot controllers and electrical enclosures	
<small>NOTE: FILL OILER WITH PARKER F442P OIL OR AN EQUIVALENT PETROLEUM BASED OIL OF 100-200 SSU VISCOCITY AT 100°F AND AN ANILINE POINT GREATER THAN 200°F (DO NOT USE OILS WITH ADDITIVES, COMPOUND OILS CONTAINING SOLVENTS, GRAPHITE, DETERGENTS, OR SYNTHETIC OILS. ADJUST THE AIR LUBRICATOR TO APPROXIMATELY ONE DRIP EVERY 20-25 CYCLES</small>		

GREASE FITTINGS
4 PLCS ON CARRAIGES

GREASE FITTINGS
2 PLCS ON GIBBS
2 PLCS ON PINS



 WAUSEON MACHINE & MFG.	995 ENTERPRISE AVE. P.O. BOX 280 WAUSEON, OHIO 43567 419.337.0940 www.wauseonmachine.com	DESIGNED BY: <i>K/JH</i> DRAWN BY: <i>K/JH</i> CHECKED BY: DRAWN ON: <i>01-04-2018</i>
	TIGHTEN ALL BOLTS TO STANDARD SPEC UNLESS OTHERWISE NOTED LABEL ALL AIR LINES AND FITTINGS	1004 LUBE LOCATIONS ASSEMBLY TYPE: <i>STANDARD MACHINE</i> SPECIAL INSTRUCTIONS:

MODEL 1004 ELECTRIC ENDFORMER

Electrical Data

- **Electrical Schematics**
- **Electrical Component Information**

DRAWING #	SHEET #	DESCRIPTION
B71026-06-E000	00	TITLE PAGE
B71026-06-E001	01	DRAWING LIST
B71026-06-E002	02	MACHINE LAYOUT (TOP VIEW)
B71026-06-E010	10	480VAC CIRCUITRY
B71026-06-E051	51	120VAC CIRCUITRY
B71026-06-E110	110	24VDC CIRCUITRY
B71026-06-E111	111	ORIENTAL MOTOR CIRCUIT
B71026-06-E210	210	SAFETY CIRCUITRY
B71026-06-E220	220	LIGHT CURTAIN CIRCUITRY
B71026-06-E310	310	PLC INPUT CIRCUIT
B71026-06-E350	350	PLC OUTPUT CIRCUIT
B71026-06-E510	510	MAIN PANEL LAYOUT
B71026-06-E511	511	MAIN ENCLOSURE CUTOUTS
B71026-06-E520	520	AUX ENCLOSURE PANEL
B71026-06-E521	521	AUX ENCLOSURE CUTOUT
B71026-06-E610	610	ETHERNET NETWORK
B71026-06-E800	800	BILL OF MATERIALS
B71026-06-E801	801	BILL OF MATERIALS

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NO.	DATE	REVISION	BY

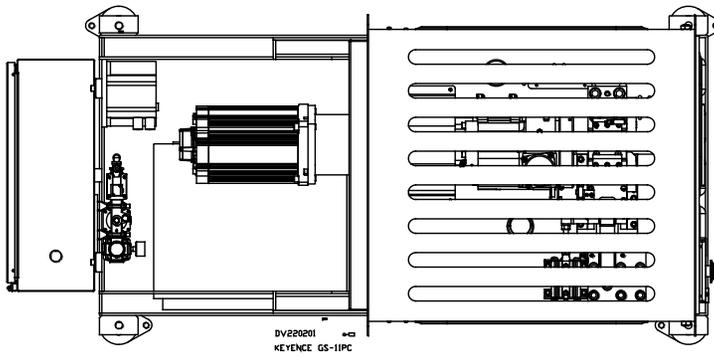


01030
01030
BRASSGRAPH
10048L ENDPORNRN
DRAWING LIST

DATE	BY	CHECKED BY
06/10/2010	JAC	
06/10/2010		
06/10/2010		

B71026-06-E001
 01

DS10001 666
SCHNEIDER GS2GV20N



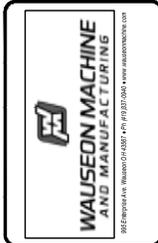
PBE10101
AB 8001-FXJT645

LAYOUT SYMBOL KEY

PREFIX	SYMBOL	DESCRIPTION
AH		ALARM HORN
CP		CONTROL PANEL
HM		HM / PC ENCLOSURE
CS		CONTROL STATION (1 BUTTON)
CS		CONTROL STATION (2 BUTTONS)
CS		CONTROL STATION (3 BUTTONS)
CS		CONTROL STATION (4 BUTTONS)
CS		CONTROL STATION (4 BUTTON SQUARE)
CS		CONTROL STATION (PEDESTAL)
PhS		DC POWER SUPPLY
FS		FOOT SWITCH
CR		INTERLOCK INPUT
CR		INTERLOCK OUTPUT
LS		LIMIT SWITCH
MTR		MOTOR
PWS		POWER SUPPLY (MDR)
MDR		MOTOR DRIVEN ROLLER (MDR)
LT		BEACON LIGHT
PE		PHOTOEYE (RETRO-REFLECTIVE)
PE		PHOTOEYE (PROXIMITY)
PE		PHOTOEYE (SEND / RECV)
PS		PRESSURE SWITCH (AIR)
REG		REGULATOR (AIR)
MSV		SHUTOFF VALVE (AIR)
PX		PROXIMITY (INDUCTIVE) SWITCH
PC		PULLCORD SWITCH (UNIDIRECTIONAL)
PC		PULLCORD SWITCH (BIDIRECTIONAL)
PC		PULLCORD CABLE END ANCHOR
PC		PULLCORD DEFLECTOR PULLEY
LC		LIGHT CURTAIN TRANSMIT
LC		LIGHT CURTAIN RECEIVE
REC		I20 VAC RECEPTACLE
SCN		SCANNER (LINE)
CAM		CAMERA
SV		SOLENOID VALVE
VFD		VARIABLE FREQ. DRIVE
ESPB		EMERGENCY STOP PUSHBUTTON
DS		DISCONNECT
XF		TRANSFORMER
WLT		WORKLIGHT

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NO.	DATE	REVISION	BY



02
B71026-06-8002

MODEL 1004 ELECTRIC ENDFORMER

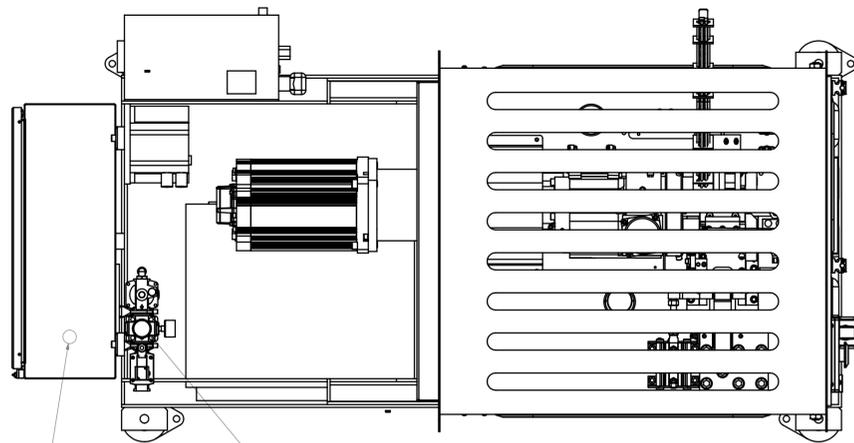
Suggested Spare Parts

Main Bill of Materials

<i>ITEM NUMBER</i>	<i>QTY\ MACH</i>	<i>PART NUMBER</i>	<i>DESCRIPTION</i>	<i>LEAD TIME</i>
1	1	700HN121	RELAY BASE	1 WEEK
2	1	700-SKON2Z25	RELAY	1 WEEK
3	4	7202BEA	NSK 15MM ID 35MM OD ANGULAR CONTACT BEARING	1 WEEK
4	4	7213 BEA	NSK BEARING	1 WEEK
5	3	871FM-M1NP5-AP3	ALLEN BRADLEY SQUARE PROX	1 WEEK
6	1	872C-D3NP8-D4	AB PROXIMITY SWITCH	1 WEEK
7	1	889D-F4AC-10	MICRO CORDSET, 10M	1 WEEK
8	1	889D-F4AC-5	MICRO CORDSET, 5M	1 WEEK
9	6	889D-M3DC-H	FIELD WIREABLE CONNECTOR	1 WEEK
10	3	889P-F3AB-5	5 METER PICO CORDSET	1 WEEK
11	4	91590A249	1 3/8 SNAP RING	1 WEEK
12	1	AR911AAD-3	MOTOR AND DRIVER	3 WEEKS
13	1	BAT01B	BATTERY SET	3 WEEKS
14	3	BLM-13	WHITTET HIGGINS M65 BEARING LOCK NUT	1 WEEK
15	2	BMF00A2	CYLINDER SWITCH (LOCK-UP)	1 WEEK
16	1	BMF00C9	V TWIN SERIES PROX SET (FOR TURRET PIN)	1 WEEK
17	52	CNB-112-6	3/16Ø x 1 1/2" LONG NEEDLE BEARING (MINIMUM ORDER QTY OF 52)	1 WEEK
18	2	CRW1---29525	SKF SHAFT SEAL	1 WEEK
19	1	ETP-E42	ZERO MAX SERVO COUPLER	1 WEEK
20	1	FAZ-C10-1-SP	1 Pole, 10A, C Curve Supp Protector (24VDC Main)	1 WEEK
21	1	FAZ-C20-3-NA	3 Pole, 20A, C Curve Breaker (Ram Servo)	1 WEEK
22	1	FAZ-C2-1-SP	1 Pole, 2A, C Curve Supp Protector (Work Light)	1 WEEK
23	1	FAZ-C4-1-SP	1 Pole, 4A, C Curve Supp Protector	1 WEEK
24	1	FAZ-C5-1-SP	1 Pole, 5A, C Curve Supp Protector	1 WEEK
25	1	FAZ-D8-2-NA	2 Pole, 8A, D Curve Breaker (Xfmr)	1 WEEK
26	1	G7SA-5A1B	Force Guided Relay (2 Control & 1 Safe Torque)	2 WEEKS
27	3	LPJ-45SP	BUSSMAN 45 AMP FUSES	1 WEEK
28	1	NCDA1U325-0400H	SMC PNEUMATIC CYLINDER	4 WEEKS
29	1	NCDA1F150-0100N	SMC PNEUMATIC CYLINDER	3 WEEKS
30	1	NCDQ2L63-50DZ	SMC ACTUATOR	3 WEEKS
31	1	NETC01-ECT	ETHERCAT DRIVER	3 WEEKS
32	1	P7SA-14F-ND	RELAY BASE	2 WEEKS
33	2	R1605-204-31-410-25-25	25 SERIES LINEAR BEARING RAIL	1 WEEK

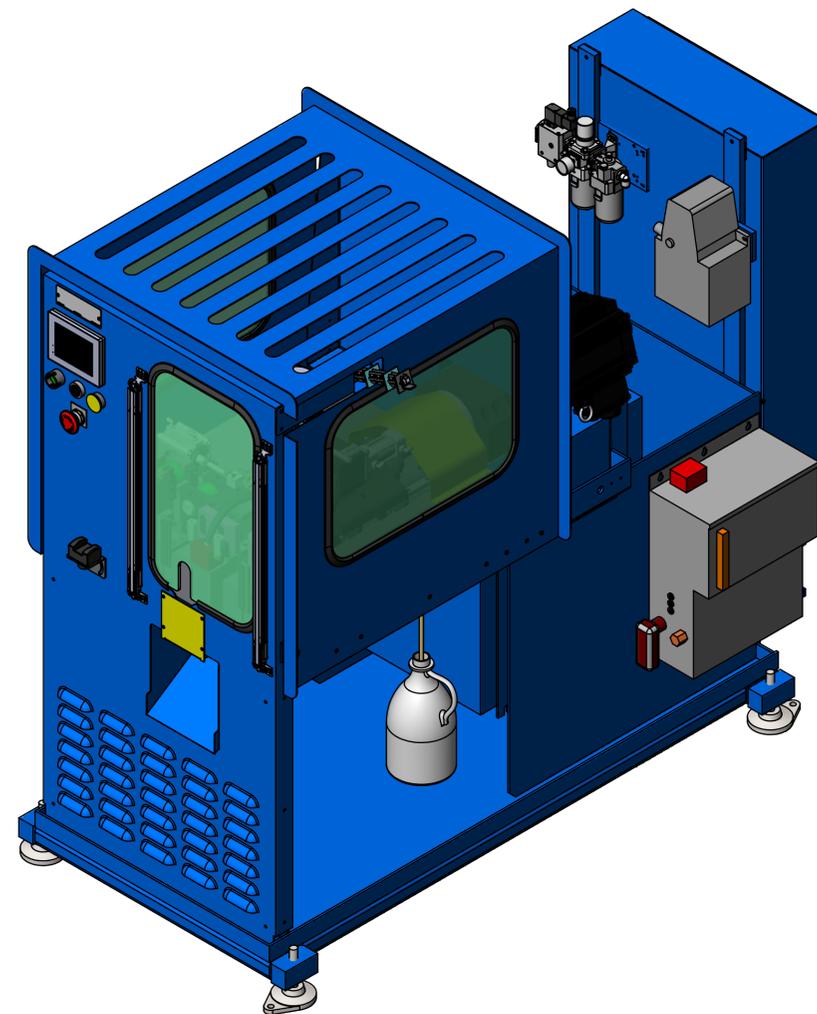
MODEL 1004 ELECTRIC ENDFORMER

Assembly Prints

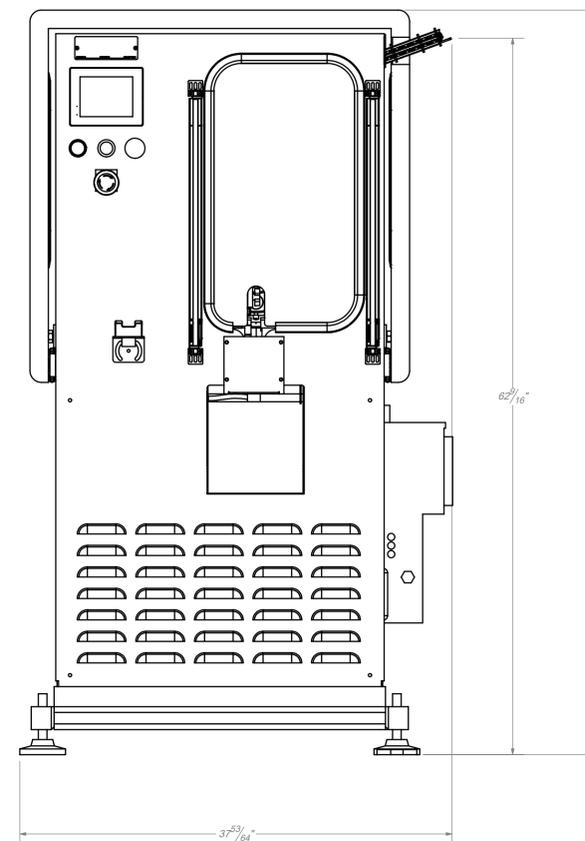
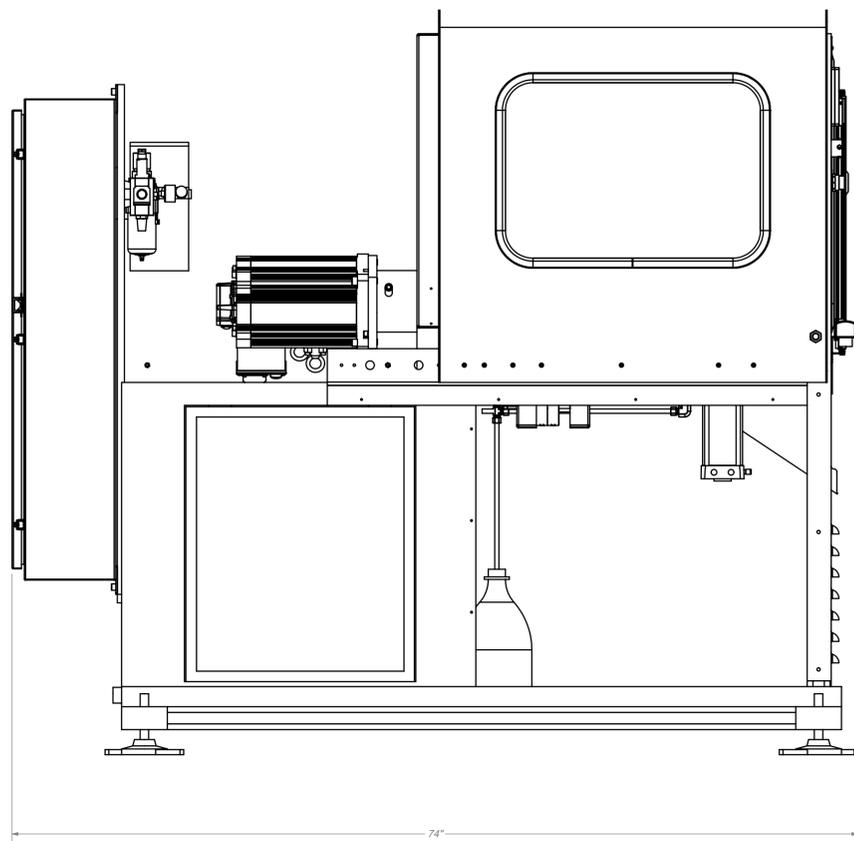


80 PSI
2 CFM

480 VOLTS 3 PHASE 50/60 Hz
45 AMPS



ITEM NO.	QTY	PART NUMBER	DESCRIPTION	MANUFACTURER
1	1	SA011312	1004 FRAME ASSEMBLY	ASSEMBLY
2	1	SA004581	WELDMENT	
3	1	SA008706	1004 ELECTRIC TOP PLATE ASSY	ASSEMBLY
4	1	SA004641	SMC 1/2" FRL ASSEMBLY	SMC
5	1	SA010050	PNEUMATIC MANIFOLD ASSEMBLY	ASSEMBLY
6	1	SF2BNAC	BUJUR LUBE PUMP 110 VAC	
7	1	D007791	GUARD	
8	1	50915K155	3/8" COMPRESSION TEE	McMASTER CARR
9	1	50915K325	1/2" NPT X 3/8" COMPRESSION FITTING	McMASTER CARR
10	1	50915K725	1/2" NPT X 3/8" COMPRESSION ELBOW	McMASTER CARR
11	2	50915K195	PLASTIC SLEEVE FOR 3/8" COMPRESSION FITTING	McMASTER CARR
12	2	8850K582	3/8" OD X .032" WALL BRASS TUBING	McMASTER CARR
13	1	PLASTIC JUG #4266T61	Semi-Clear Plastic Jug	McMASTER CARR
14	1	SA011296	LOAD CHUTE	ASSEMBLY
15	1	D025190	GUARD	WMM
16	1	SA011315	LOAD CHUTE	ASSEMBLY
17	-	OPTO TOUCH	OPTO TOUCH BUTTON (REF)	
18	-	SMB30MM	SWIVEL BRACKET	BANNER
19	2	SLPP14-550P88		BANNER
20	1	SA011337	LOAD CHUTE	ASSEMBLY
21	1	SA011354	LOAD CHUTE	ASSEMBLY
22	2	FU-A100	Beam Sensor	KEYENCE
23	1	PS417BP	REGULATOR BRACKET	
24	1	14R015FC	PARKER PNEUMATIC REGULATOR	
25	2	SA3-0007	STD LUBE NOZZLE ASSY	
26	1	SA1-0043	AIR BLOW ASSEMBLY	
27	1	SA002109	1004 ID LUBE	
28	1	SA011282	PUNCH ASSEMBLY	ASSEMBLY
29	1	SA011281	PUNCH ASSEMBLY	ASSEMBLY
30	1	SA011283	PUNCH ASSEMBLY	ASSEMBLY
31	2	SA011589	MOUNT	ASSEMBLY



B71026-05 & 06 OPTIONS TO INCLUDE:

- 4 - HAND LOAD NUT CHUTES
- 20" BANNER LIGHT CURTAINS
- OPTI-TOUCH CYLCE START
- SHIPPING CRATE

APPROX. MACHINE WEIGHT : 1750 LBS.

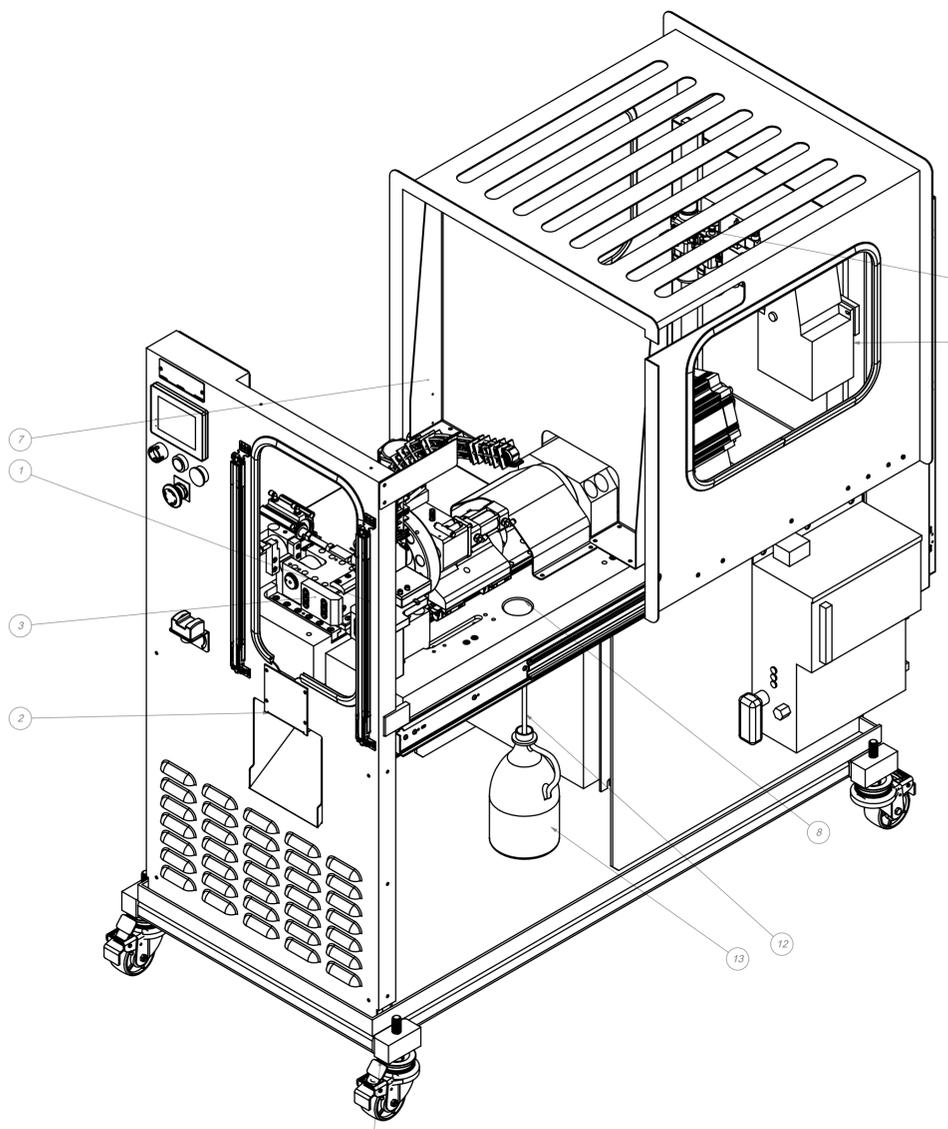
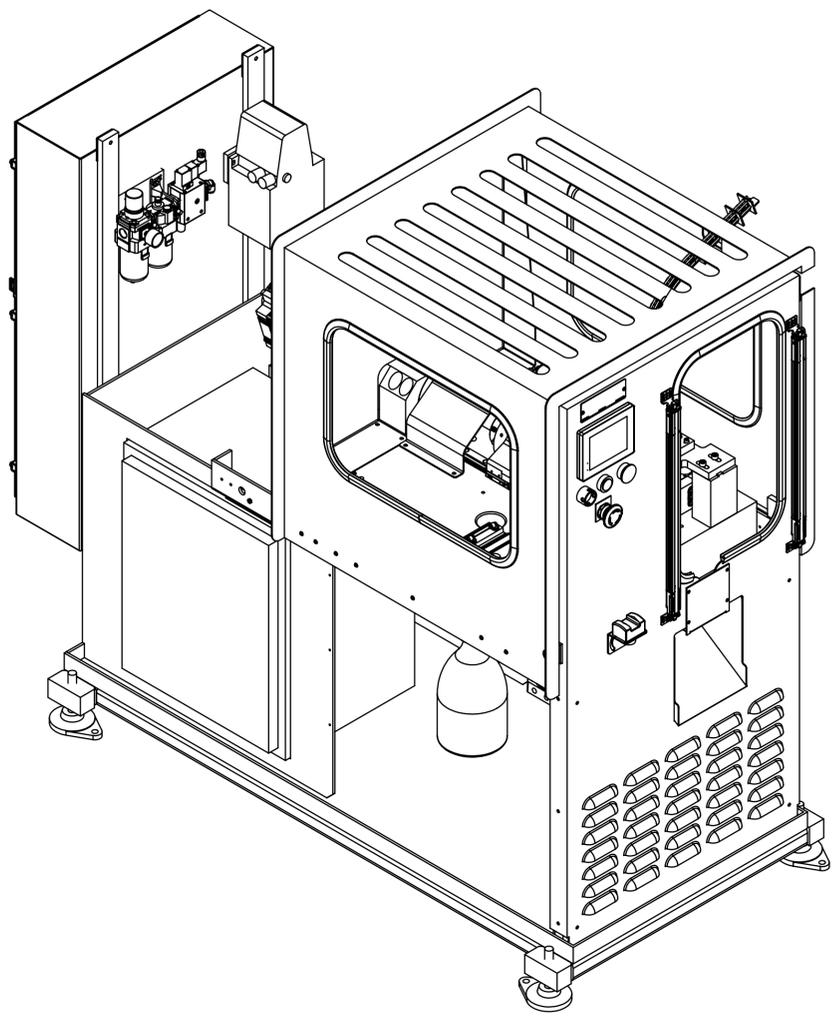
- APPROVED TO PROCEED WITH BUILD
- APPROVED TO PROCEED WITH BUILD AS NOTED
- NON APPROVED - REVISE & RESUBMIT

SIGNED BY: _____

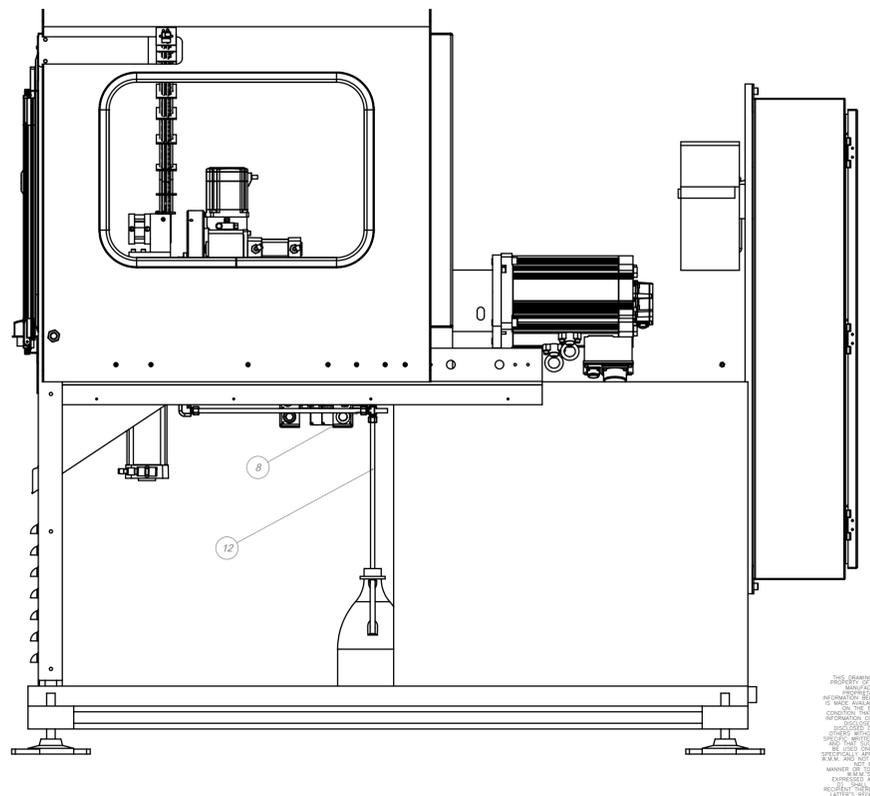
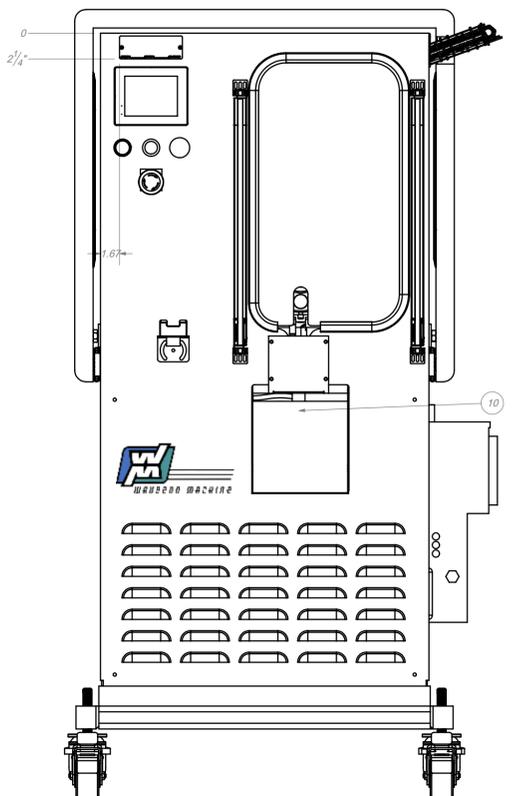
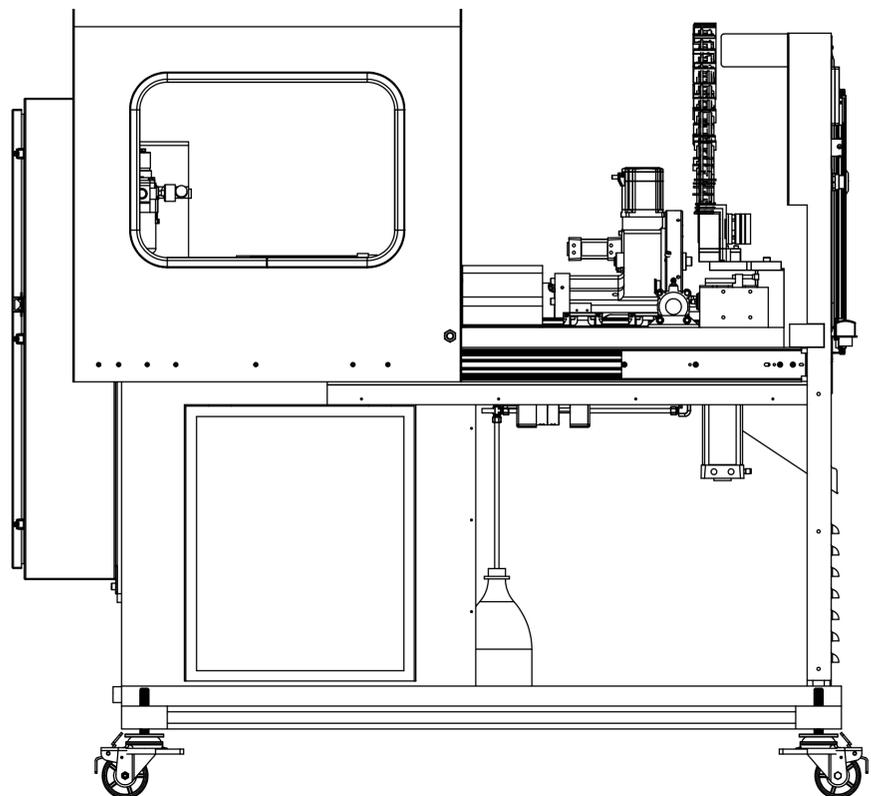
DATE APPROVED: _____

APPROVAL OF THIS DRAWING CONSTITUTES PERMISSION TO BUILD AS DRAWN. CHANGES MAY RESULT IN DELAYS TO SCHEDULE AS WELL AS QUOTATIONS

<p>WAUSEON MACHINE & MFG.</p> <p>995 ENTERPRISE AVE. P.O. BOX 280 WAUSEON, OHIO 43367 419.337.0940 www.wauseonmachine.com</p>	DESIGNED BY: Adam Meyer
	DRAWN BY: AMM
	CHECKED BY:
	DRAWN ON: 05/11/2021
SCALE: 1:8	SHEET: 2 OF 2
SIZE: D	REVISION: A
<p>1004 EL ENDFORMER BRASSCRAFT / B71026-05 & 06</p> <p>ASSEMBLY TYPE: MAIN ASSEMBLY SPECIAL INSTRUCTIONS:</p>	
<p>TIGHTEN ALL BOLTS TO STANDARD SPEC UNLESS OTHERWISE NOTED LABEL ALL AIR LINES AND FITTINGS</p>	
<p>ASSEMBLY NUMBER: MA-B71026-05&06</p>	



ITEM NO.	EXTENDED QTY.	PART NUMBER	DESCRIPTION	VENDOR
1	1	SA011312	1004 FRAME ASSEMBLY	ASSEMBLY
2	1	SA004581	WELDMENT	WELDING
3	1	SA008706	1004 ELECTRIC TOP PLATE ASSY	ASSEMBLY
4	1	SA004641	SMC 1/2" FRL ASSEMBLY	OTP
5	1	SA010050	PNEUMATIC MANIFOLD ASSEMBLY	ASSEMBLY
6	1	SF2BNAC	BUUR LUBE PUMP 110 VAC	PRESS AUTOMATION
7	1	D007791	GUARD	GILSON
8	1	50915K155	3/8" COMPRESSION TEE	McMASTER CARR
9	1	50915K325	1/2" NPT TO 3/8" COMPRESSION FITTING	McMASTER CARR
10	1	50915K725	1/2" NPT X 3/8" COMPRESSION ELBOW	McMASTER CARR
11	2	50915K195	PLASTIC SLEEVE FOR 3/8" COMPRESSION FITTING	McMASTER CARR
12	2	8950K582	3/8" OD X .032" WALL BRASS TUBING	McMASTER CARR
13	1	PLASTIC JUG #4296T61	Semi-Clear Plastic Jug	McMASTER CARR
14	2	SLPP14-550P88	GUARD	H. H. BARNUM
15	1	D025190	GUARD	WMM
16	1	SA011296	LOAD CHUTE	ASSEMBLY
17	1	SA011315	LOAD CHUTE	ASSEMBLY
18	1	SA011337	LOAD CHUTE	ASSEMBLY
19	1	SA011354	LOAD CHUTE	ASSEMBLY



REV	BY	DATE	DESCRIPTION	APP BY	APP DATE
REL			INITIAL RELEASE	KJH	05/24/2021

Wauseon Machine & Mfg.
 995 ENTERPRISE AVE.
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 WAUSEON, OHIO 43087
 419.337.0940
 www.wauseonmachine.com

DESIGNED BY: Adam Meyer
 DRAWN BY: AMM
 CHECKED BY:
 DRAWN ON: 05/11/2021
 SCALE: 1:2 SHEET 1 OF 2
 SIZE: 1/8" REVISION:
D REL
 ASSEMBLY NUMBER:
MA-B71026-05&06

Batch of 40 1000 Series BRASS End Fitters 05 & 06

TIGHTEN ALL BOLTS TO STANDARD SPEC UNLESS OTHERWISE NOTED
 LABEL ALL AIR LINES AND FITTINGS
 SPECIAL INSTRUCTIONS:

Drawing File Name: MA-B71026-05&06

**BEARLOK PRECISION RETAINING DEVICES
INSTALLATION INSTRUCTIONS FOR 4 SCREW BEARLOKS**

Ideal Tools:

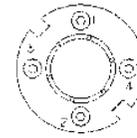
- Hex wrench
- Torque screwdriver or torque wrench with hex driver
- BLAS Assembly Socket or Whittet-Higgins PAS Spanner Wrench for preloading bearing

Assembly Instructions:

- 1) Check the BEARLOK adjustable retaining device. Make sure the BEARLOK ring is squarely seated on the BEARLOK nut. If not, loosen the cap screws, seat the ring with light finger pressure, and retighten the cap screws into the ring until resistance occurs.
- 2) Assemble the BEARLOK onto the shaft threads so the BEARLOK threads are fully engaged for its full length. **FAILURE TO DO THIS WILL DISTORT THE BEARLOK DURING TIGHTENING AND PREVENT PROPER ASSEMBLY.** Do not bring the BEARLOK against the bearing components as it must be able to rotate on the shaft threads.
- 3) Centralize the BEARLOK retaining device relative to the shaft thread by tightening each cap screw 1/6 turn (one flat) with the hex wrench in an alternating sequence (see figure 1). Initially the #3 and #4 screws may become loose because of the pressure load placed on the #1 and #2 screws. Rotate the BEARLOK back and forth on the external thread through about 45 degrees to check for a slight drag. If no drag is felt, repeat this process (beginning again with the #1 screw) until the BEARLOK rotates with a drag. Note that this process will have to be repeated more than once depending on shaft pitch diameter and thread size.
- 4) Now the centralized and best balanced BEARLOK adjustable retaining device can be adjusted and/or preloaded against the adjoining retained components. This is done with a Whittet-Higgins BEARLOK Assembly Socket or your design of tool. For accurate and effective assembly, assure that the tool engages the slots in the BEARLOK body section and not just the ring slots.
- 5) After the assembled components are correctly adjusted in position, secure the BEARLOK by tightening the cap screws using a torque screwdriver or torque wrench. Follow the same procedure as in sequence 3 above, tightening the screws 1/6 turn (one flat of the wrench) at a time in alternating sequence. You will not reach the maximum torque the first time. Repeat the tightening sequence until the torque on screw #1 is up to or slightly less than the maximum cap screw torque (from table 1). Finish torquing screws #2-#4 and repeat the tightening sequence twice more. Do not overtighten any one screw for it may distort the balance.

- Be sure the torque screwdriver or wrench is properly calibrated and set to the tightening torque listed in Table 1 below.
- Be careful that the hex driver of the torque tool is fully engaged straight in the screw socket before applying torque.
- o) **Double check** the torque reading on each cap screw. If accurate, a proper and effective assembly is now completed.

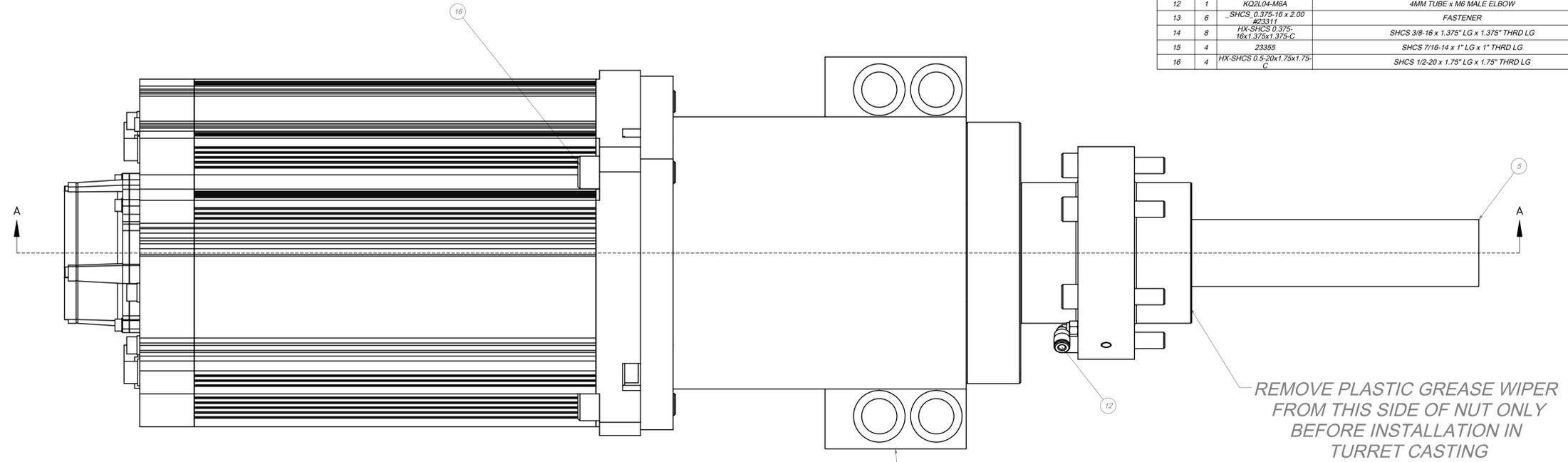
FIGURE 1
(Tighten in sequence shown)



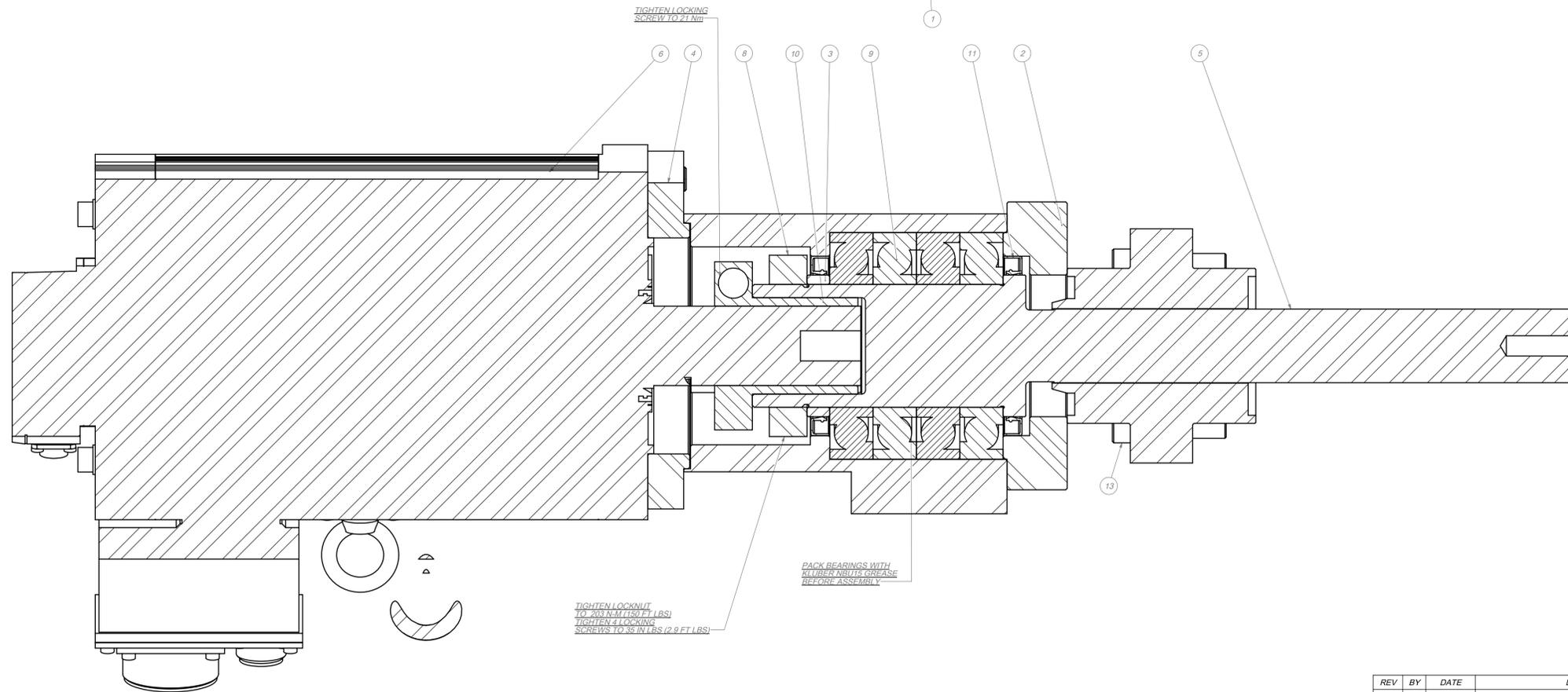
BEARLOK SIZE	CAP SCREW	TORQUE in lb.
BL02-BL03	M3	17
BL04-BL08	M4	24
BL09-BL13	M5	35
BL14	M6	70

Whittet-Higgins Company Central Falls, RI 02863 Telephone 401-728-0700 Fax 401-728-0703

ITEM NO.	Defaul I/QTY	PART NUMBER	DESCRIPTION	VENDOR
1	1	D000326	BEARING HOUSING	WMM
2	1	D000805	STOP	WMM
3	1	D000850	SPACER	WMM
4	1	D001223	ADAPTER	WMM
5	1	D001503	MOD PURCH COMP	SKF/OTPIROLLVIS
6	1	R88M-K7K515C-S2	OMRON SERVO MOTOR 7.KW. KEYED AND TAPPED SHAFT	LAKEWOOD
7	1	RV171 38.5 RS 608568 1	NUT	ROLLVIS
8	1	BLM-13	WHITTET HIGGINS M6S BEARING LOCK NUT	OTP
9	4	7213 BEA	NSK BEARING	OTP
10	1	ETP-E42	ZERO MAX SERVO COUPLER	MOTION
11	2	CRW1-29525	SKF SHAFT SEAL	MOTION
12	1	K02L04-M6A	4MM TUBE x M6 MALE ELBOW	OTP
13	6	SHCS 0.375-16 x 2.00 #23311	FASTENER	STOCK
14	8	HX-SHCS 0.375-16 x 1.375 LG x 1.375" THRD LG	SHCS 3/8-16 x 1.375" LG x 1.375" THRD LG	FASTENAL
15	4	23355	SHCS 7/16-14 x 1" LG x 1" THRD LG	STOCK
16	4	HX-SHCS 0.5-20x1.75x1.75-C	SHCS 1/2-20 x 1.75" LG x 1.75" THRD LG	FASTENAL



REMOVE PLASTIC GREASE WIPER FROM THIS SIDE OF NUT ONLY BEFORE INSTALLATION IN TURRET CASTING



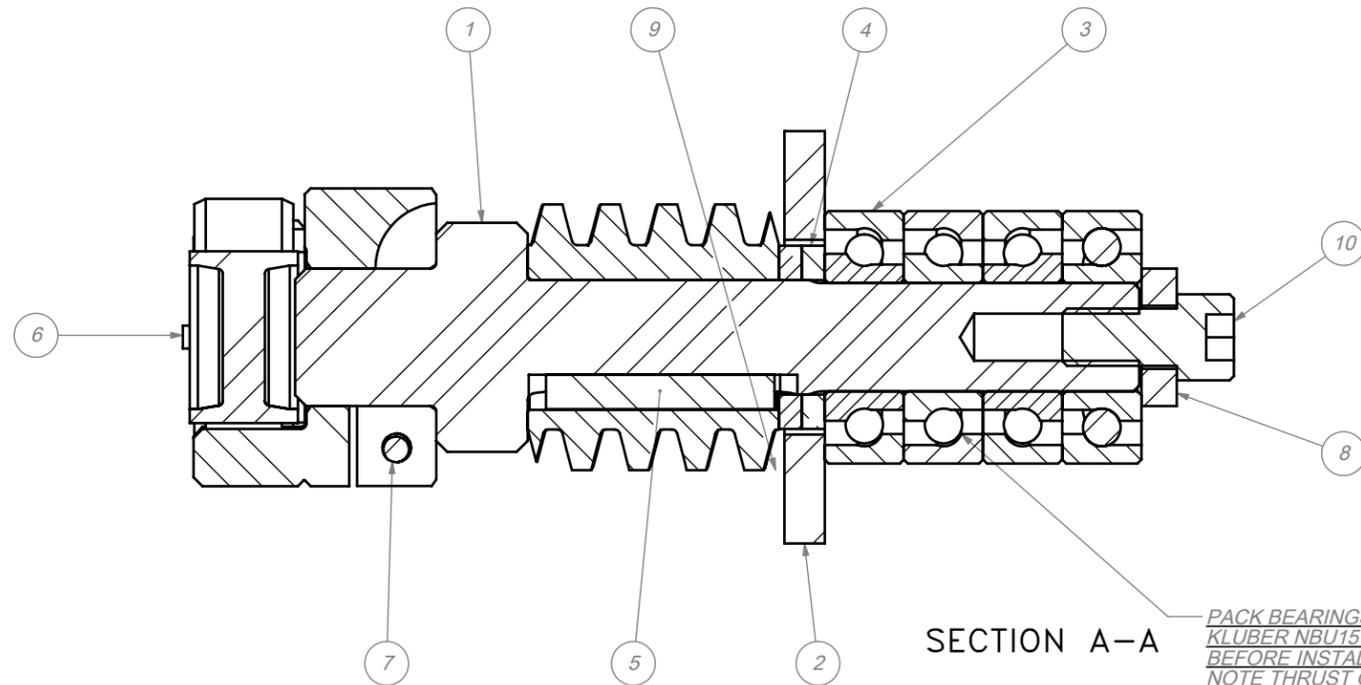
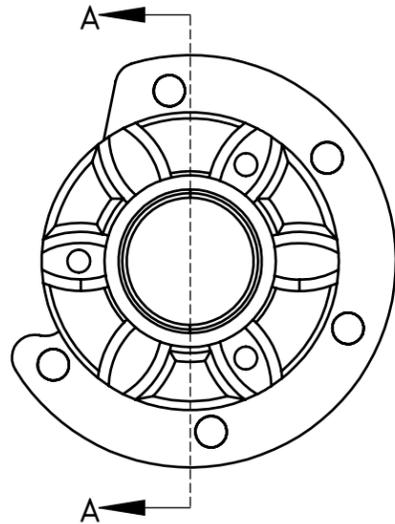
SECTION A-A

REV	BY	DATE	DESCRIPTION	APP BY	APP DATE
E	SER	11/9/2017	21 Nm ON THE LOCKING SCREW WAS 5 Nm	KJH	11-09-2017
E	SER	8/1/2016	ADDED GREASE WIPER REMOVAL NOTE	KJH	8/1/2016
D	SER	11/30/2015	REMOVED BRAKE FROM PART NUMBER AND DESCRIPTION ON SERVO MOTOR	KJH	11/30/2015

DESIGNED BY: KJH	995 ENTERPRISE AVE. P.O. BOX 280 WAUSEON, OHIO 43357 419.337.0940 www.wauseonmachine.com
DRAWN BY: KJH	
CHECKED BY:	
DRAWN ON: 02-18-2015	
SCALE: 1:1.5	SHEET: 1 OF 1
ASSEMBLY TYPE: EL RAM ASSEMBLY	REVISION: E
ASSEMBLY NUMBER: SA000085	

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ITEM NO.	QTY.	PART NUMBER	DESCRIPTION	VENDOR	MANUFACTURER
1	1	D000892	HARDENED SHAFT	WMM	
2	1	D000906	KEEPER PLATE	WMM	
3	4	7202BEA	NSK 15mm ID 35mm OD ANGULAR CONTACT BEARING	OTP	
4	2	3750K12	THRUST BEARING 5/8" ID x 1" OD x 1/8" THK	McMASTER CARR	McMASTER CARR
5	1	98870A355	3/16 x 1 1/4 KEY	McMASTER CARR	McMASTER CARR
6	1	9845T21	Ø1-5/8" COUPLING SPIDER	McMASTER CARR	McMASTER CARR
7	1	9845T4-.75	3/4" SHAFT COUPLING	McMASTER CARR	McMASTER CARR
8	1	98099A030	5/16 HEAVY HARDENED WASHER	McMASTER CARR	McMASTER CARR
9	1	W10_	10 PITCH WORM	MARTIN, MOTION, BDI	MARTIN SPROCKET
10	1	_SHCS_ 0.313-18 x 0.63 #23252	FASTENER	STOCK	FASTENAL



SECTION A-A
PACK BEARINGS WITH KLUBER NBU15 GREASE BEFORE INSTALLATION
NOTE THRUST ORIENTATION
2 BEARINGS OPPOSING

REV	BY	DATE	DESCRIPTION	APP BY	APP DATE
A	AMM	7/7/2015	REVERSED BEARING THRUST DIRECTION	KJH	07-07-2015
REL	KJH	2/18/2015	INITIAL RELEASE	KJH	2/19/2015

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DESIGNED BY: *KJH*
 DRAWN BY: *KJH*
 CHECKED BY:
 DRAWN ON: *02-18-2015*

WORM GEAR BEARING ASSEMBLY

ASSEMBLY TYPE: *STANDARD MACHINE*

SPECIAL INSTRUCTIONS:

TIGHTEN ALL BOLTS TO STANDARD SPEC UNLESS OTHERWISE NOTED

LABEL ALL AIR LINES AND FITTINGS

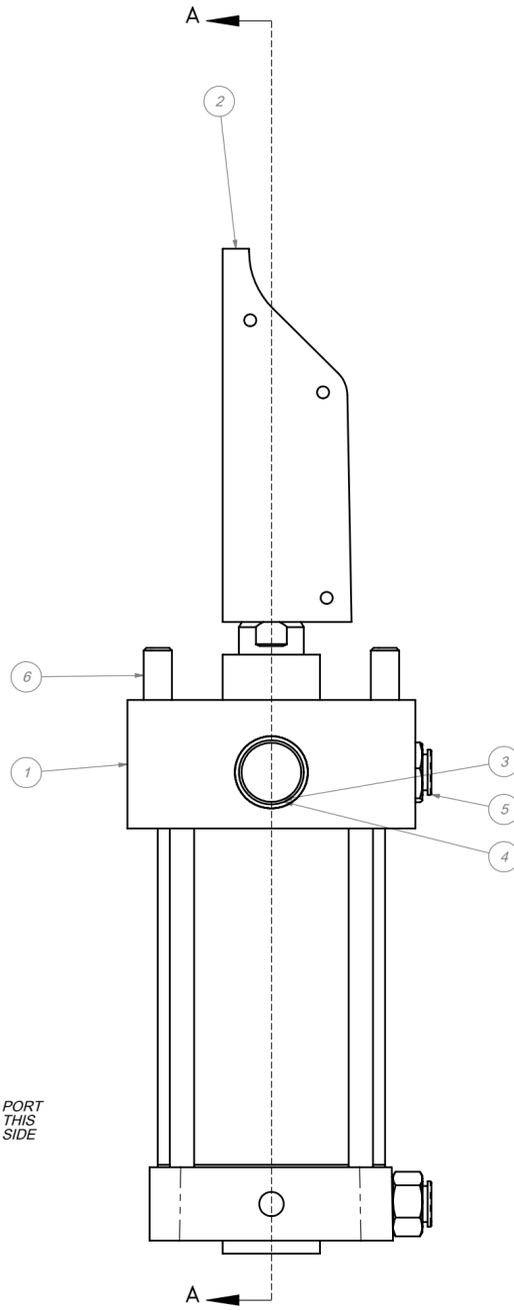
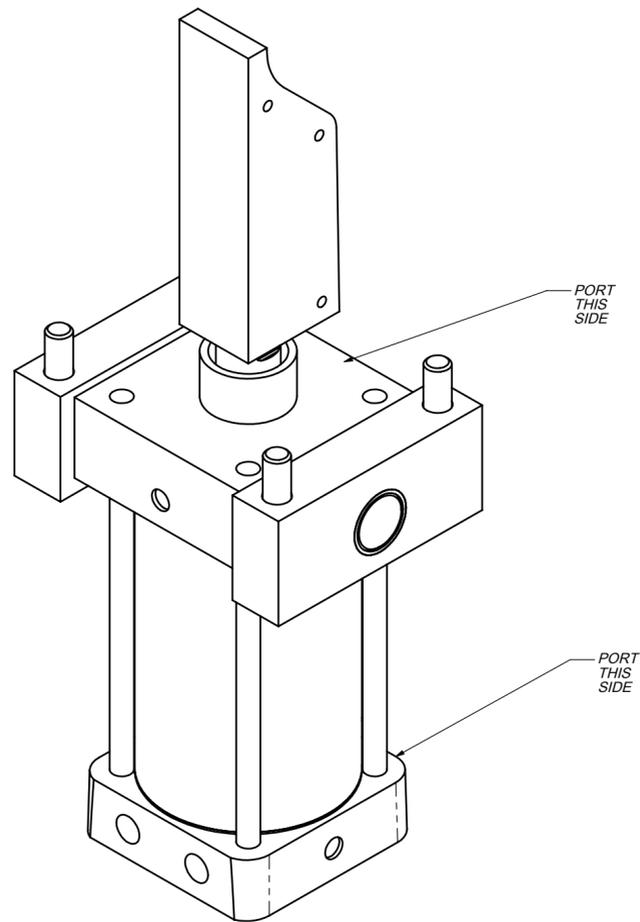
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SIZE: **B** REVISION: **A**

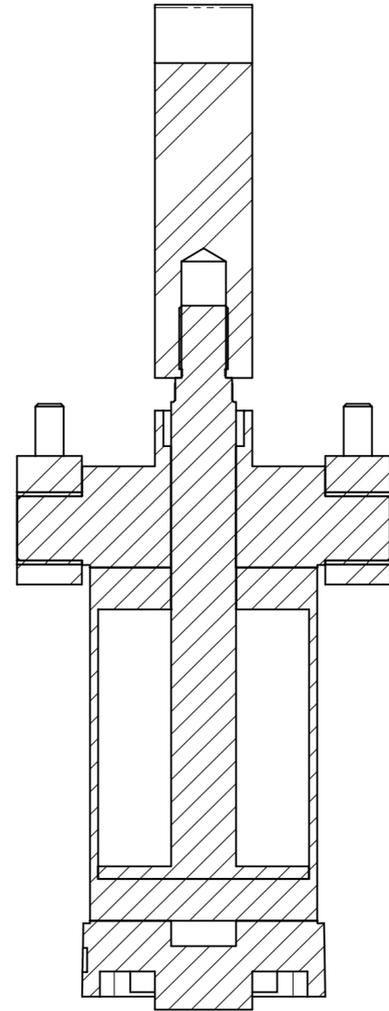
ASSEMBLY NUMBER:
SA000516

Torque Values for Tightening Fasteners

Size	Torque Value with Loc-tite	Torque Value Dry
1/4-20	107 in-lbs	143 in-lbs
1/4-28	120 in-lbs	163 in-lbs
5/16-18	220 in-lbs	305 in-lbs
5/16-24	245 in-lbs	325 in-lbs
3/8-16	32.5 ft-lbs	44 ft-lbs
3/8-24	37 ft-lbs	50 ft-lbs
7/16-14	53 ft-lbs	70 ft-lbs
7/16-20	59 ft-lbs	78 ft-lbs
1/2-13	80 ft-lbs	107 ft-lbs
1/2-20	90 ft-lbs	120 ft-lbs
9/16-12	115 ft-lbs	154 ft-lbs
9/16-18	129 ft-lbs	172 ft-lbs
5/8-11	159 ft-lbs	211 ft-lbs
5/8-18	180 ft-lbs	240 ft-lbs
3/4-10	282 ft-lbs	376 ft-lbs
3/4-16	315 ft-lbs	420 ft-lbs
7/8-9	454 ft-lbs	606 ft-lbs
7/8-14	500 ft-lbs	668 ft-lbs
1-8	680 ft-lbs	900 ft-lbs
1-12	745 ft-lbs	995 ft-lbs
3mm	1.65 N-m	2.20 N-m
3.5mm	2.59 N-m	3.45 N-m
4mm	3.83 N-m	5.11 N-m
5mm	7.75 N-m	10.3 N-m
6mm	13.2 N-m	17.6 N-m
7mm	22.1 N-m	29.4 N-m
8mm	32.0 N-m	42.6 N-m
10mm	63.3 N-m	84.4 N-m
12mm	110 N-m	147 N-m
14mm	175 N-m	234 N-m
16mm	274 N-m	365 N-m
18mm	377 N-m	503 N-m
20mm	535 N-m	713 N-m
22mm	727 N-m	970 N-m
24mm	925 N-m	1233 N-m
27mm	1352 N-m	1803 N-m
30mm	1837 N-m	2450 N-m
33mm	2500 N-m	3332 N-m
36mm	3210 N-m	4279 N-m



ITEM NO.	QTY.	PART NUMBER	DESCRIPTION	VENDOR
1	2	G02-0066	GUSSET	WMM
2	1	D004772	CAM	WMM
3	1	NCDA1U325-0400H	Ø3.25" BORE x 4" STROKE TIE-ROD CYLINDER	OTP
4	2	EP1618-16	BUNTING BUSHING	MOTION
5	2	KQ2H13-37AS	1/2" TUBE DIA x 1/2 NPT HALF UNION	OTP
6	4	_SHCS_0.438-14 x 1.75 #23360	FASTENER	STOCK



SECTION A-A

NOTE: USE REMOVABLE LOCK TITE AND TIGHTEN WEDGE DIRECTLY TO CYL ROD

NOTE: INSPECT THE FOLLOWING DIMENSIONS ON THE WEDGE BEFORE INSTALLING
 1) OVERALL LENGTH
 2) ANGLE
 3) ANGLE LOCATION

WEDGE/LOCKUP SETUP PROCEDURE (TO BE COMPLETED AFTER CENTERLINE IS SET)
 1) CLOSE LOCKUP AND EXTEND WEDGE WITH NO CLAMP DIES IN LOCKUP
 2) MEASURE HEIGHT OF WEDGE FROM TOP OF STATIONARY CAMROLLER BLOCK
 3) LOWER WEDGE AND OPEN LOCKUP
 4) CLOSE LOCKUP AND EXTEND WEDGE WITH CLAMP DIES IN LOCKUP
 5) MEASURE HEIGHT OF WEDGE FROM TOP OF STATIONARY CAMROLLER BLOCK THIS MEASUREMENT SHOULD BE A MINIMUM OF .030" LESS THAN PREVIOUS MEASUREMENT, IF NOT ADD .010 SHIM BEHIND MOVING LOCKUP WEAR PLATE AND REPEAT FROM STEP 4)

REV	BY	DATE	DESCRIPTION	APP BY	APP DATE
B	SER	1/30/2019	CORRECTED BUSHING PART NUMBER	K/JH	02-01-2019
A	K/JH	12/27/2016	REDESIGNED FOR THICKER TOP PLATE AND TRUNION CYLINDER	K/JH	12/27/2016
REL	+	3/2/2016	INITIAL RELEASE	K/JH	3/7/2016

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DESIGNED BY: **K/JH**
 DRAWN BY: **K/JH**
 CHECKED BY:
 DRAWN ON: **03-02-2016**
 SCALE: **1:2** SHEET: **1 OF 1**
 SIZE: **C** REVISION: **B**
 ASSEMBLY NUMBER: **SA002866**

LOCKUP LINEAR CAM ASSY

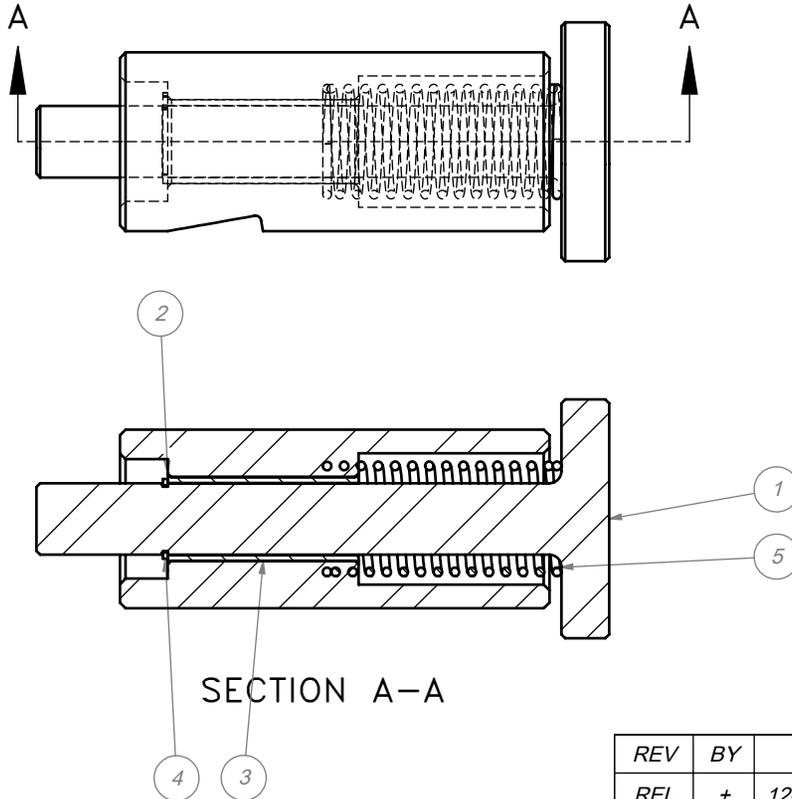
ASSEMBLY TYPE: **STANDARD MACHINE**

SPECIAL INSTRUCTIONS:

TIGHTEN ALL BOLTS TO STANDARD SPEC UNLESS OTHERWISE NOTED

LABEL ALL AIR LINES AND FITTINGS

ITEM NO.	QTY.	PART NUMBER	DESCRIPTION	VENDOR
1	1	P11-0071	LOCATOR	WMM
2	1	P11-0072	PART STOP	WMM
3	1	EP060716 (P37-8) Bronze Bushing	BRONZE BUSHING	MOTION
4	1	91590A117	EXTERNAL RETAINING RING FOR 3/8" OD	McMASTER CARR
5	1	9657K338	Ø0.6" OD X 1.25" LG COMPRESSION SPRING, 8 LBS/IN	McMASTER CARR



REV	BY	DATE	DESCRIPTION	APP BY	APP DATE
REL	+	12-28-2016	INITIAL RELEASE	KJH	12-28-2016



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CHECKED BY:
DRAWN ON: 12-28-2016

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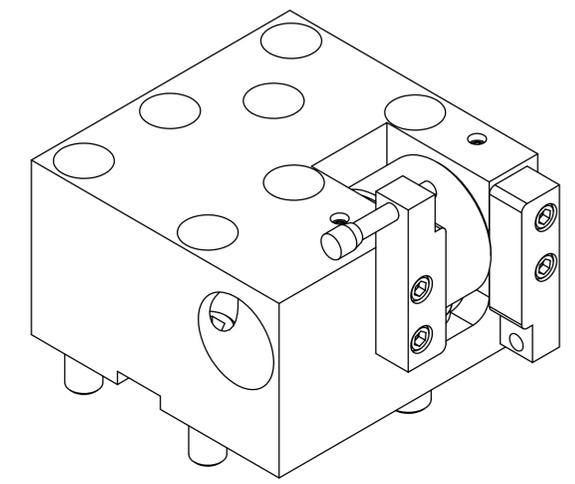
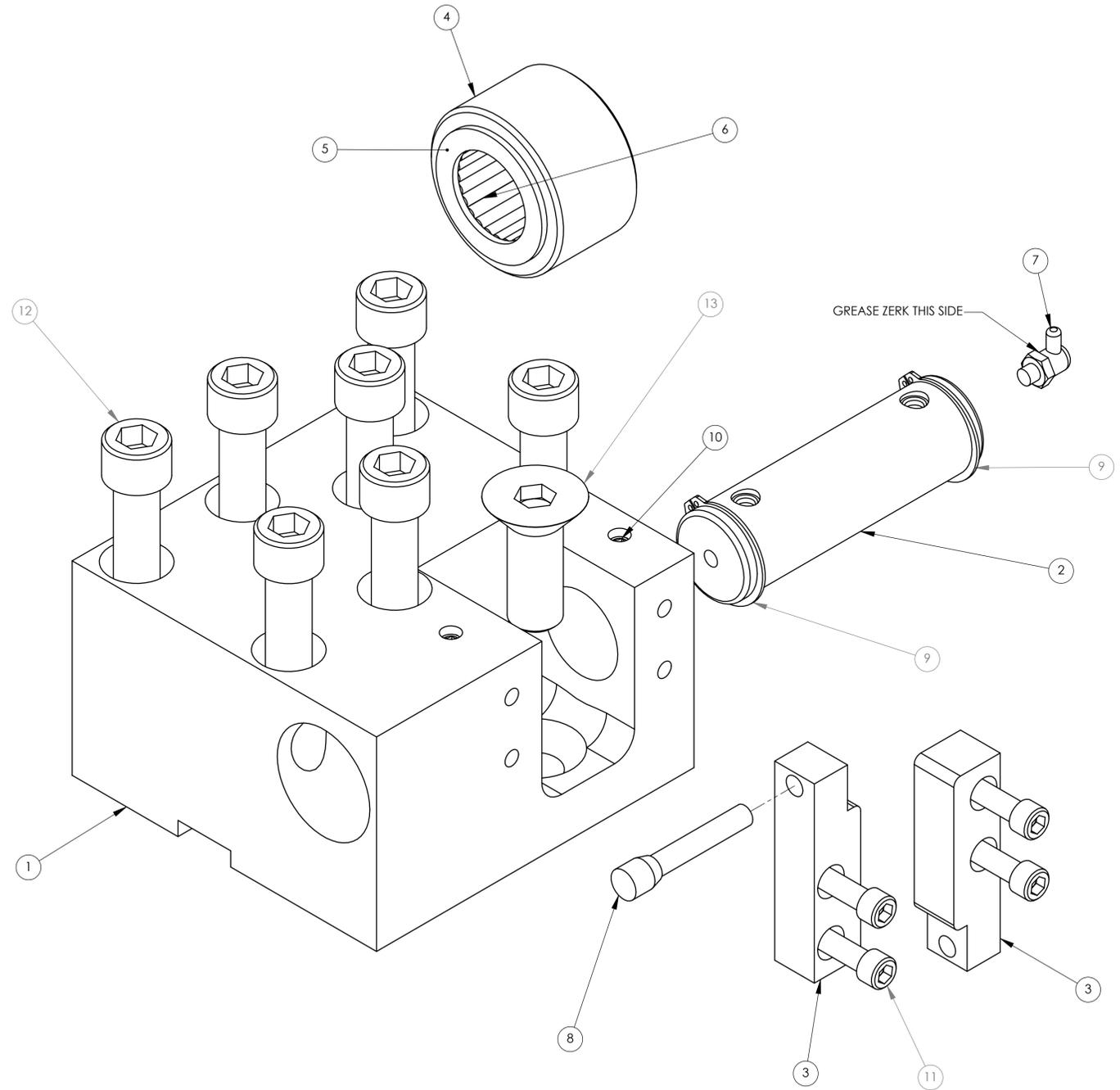

TIGHTEN ALL BOLTS TO STANDARD SPEC UNLESS OTHERWISE NOTED
LABEL ALL AIR LINES AND FITTINGS

**1004 TUBE LOCATOR
ASSEMBLY**
ASSEMBLY TYPE: *STANDARD MACHINE*
SPECIAL INSTRUCTIONS:

SCALE: 1:1 SHEET: 1 OF 1
SIZE: **A** REVISION: **REL**
ASSEMBLY NUMBER:
SA004455

Drawing File Name: SA004455

ITEM NO.	QTY.	PART NUMBER	DESCRIPTION	VENDOR
1	1	B10-0132	BLOCK	WMM
2	1	D000444	FIN	WMM
3	2	GM4-0030	GUIDE	WMM
4	1	R02-0007	ROLLER	WMM
5	2	S10-0071	SPACER	WMM
6	26	CNB-112-6	3/160 x 1 1/2" LONG NEEDLE BEARING	MOTION
7	1	58812	GREASE FITTING	FASTENAL
8	1	872C-03NP8-D4	AB PROXIMITY SWITCH	MCKAY
9	2	91590A249	1 3/8 EXTERNAL SNAP RING	McMASTER CARR
10	2	95235A553	3/8-16 x 5/8 DOG POINT SET SCREW	McMASTER CARR
11	4	23254	5/16-18 x 7/8" LG SHCS	STOCK
12	7	SHCS 0.825-11 x 2.00	FASTENER	STOCK
13	1	SHCS 3/4-10 x 2" LG x 2" THRD LG	FASTENAL	FASTENAL



Size	Torque Value with Loc-tite	Torque Value Dry
1/4-20	107 in-lbs	143 in-lbs
1/4-28	120 in-lbs	163 in-lbs
5/16-18	220 in-lbs	305 in-lbs
5/16-24	245 in-lbs	325 in-lbs
3/8-16	32.5 ft-lbs	44 ft-lbs
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7/16-20	59 ft-lbs	78 ft-lbs
1/2-13	80 ft-lbs	107 ft-lbs
1/2-20	90 ft-lbs	120 ft-lbs
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7/8-14	500 ft-lbs	668 ft-lbs
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1-12	745 ft-lbs	995 ft-lbs
3mm	1.65 N-m	2.20 N-m
3.5mm	2.59 N-m	3.45 N-m
4mm	3.83 N-m	5.11 N-m
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18mm	377 N-m	503 N-m
20mm	535 N-m	713 N-m
22mm	727 N-m	970 N-m
24mm	925 N-m	1233 N-m
27mm	1352 N-m	1803 N-m
30mm	1837 N-m	2450 N-m
33mm	2500 N-m	3332 N-m
36mm	3210 N-m	4279 N-m

REV	BY	DATE	DESCRIPTION	APP BY	APP DATE
REL	+	06-06-2017	INITIAL RELEASE	KJH	07-10-2017

WAUSEON MACHINE & MFG. <small>995 ENTERPRISE AVE. P.O. BOX 280 WAUSEON, OHIO 43357 419.337.0940 www.wauseonmachine.com</small>	DESIGNED BY: KJH
	DRAWN BY: KM
	CHECKED BY:
	DRAWN ON: 06-06-2017
	SCALE: 1:1
	SHEET: 1 OF 1
	REVISION:
	D REL
	ASSEMBLY NUMBER: SA005646

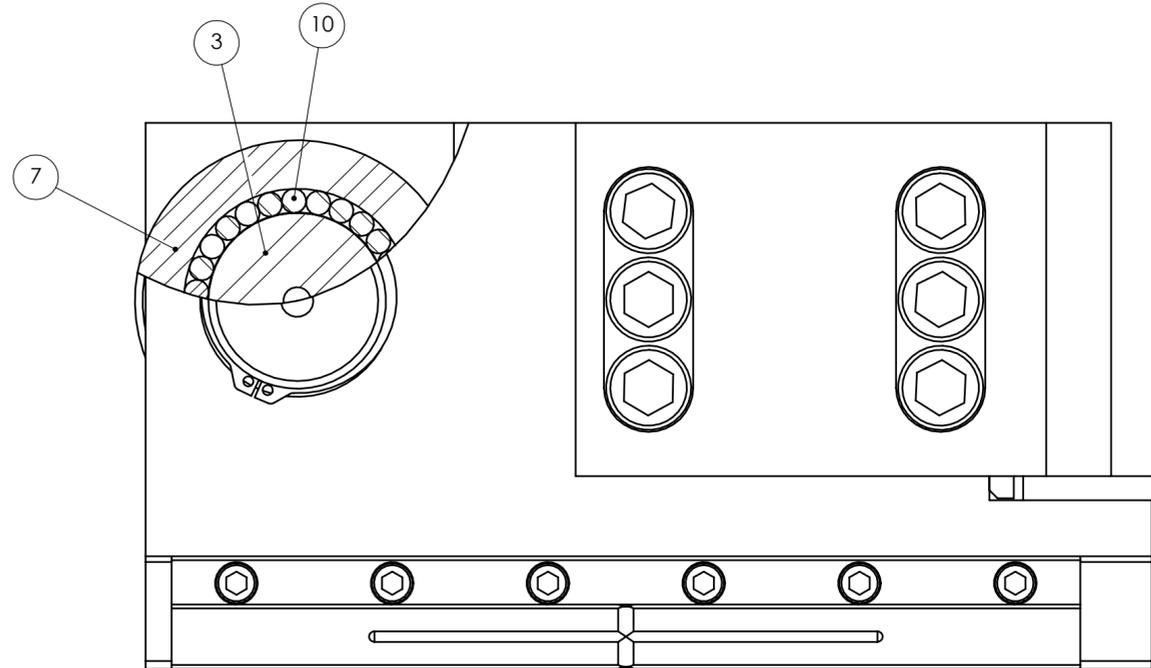
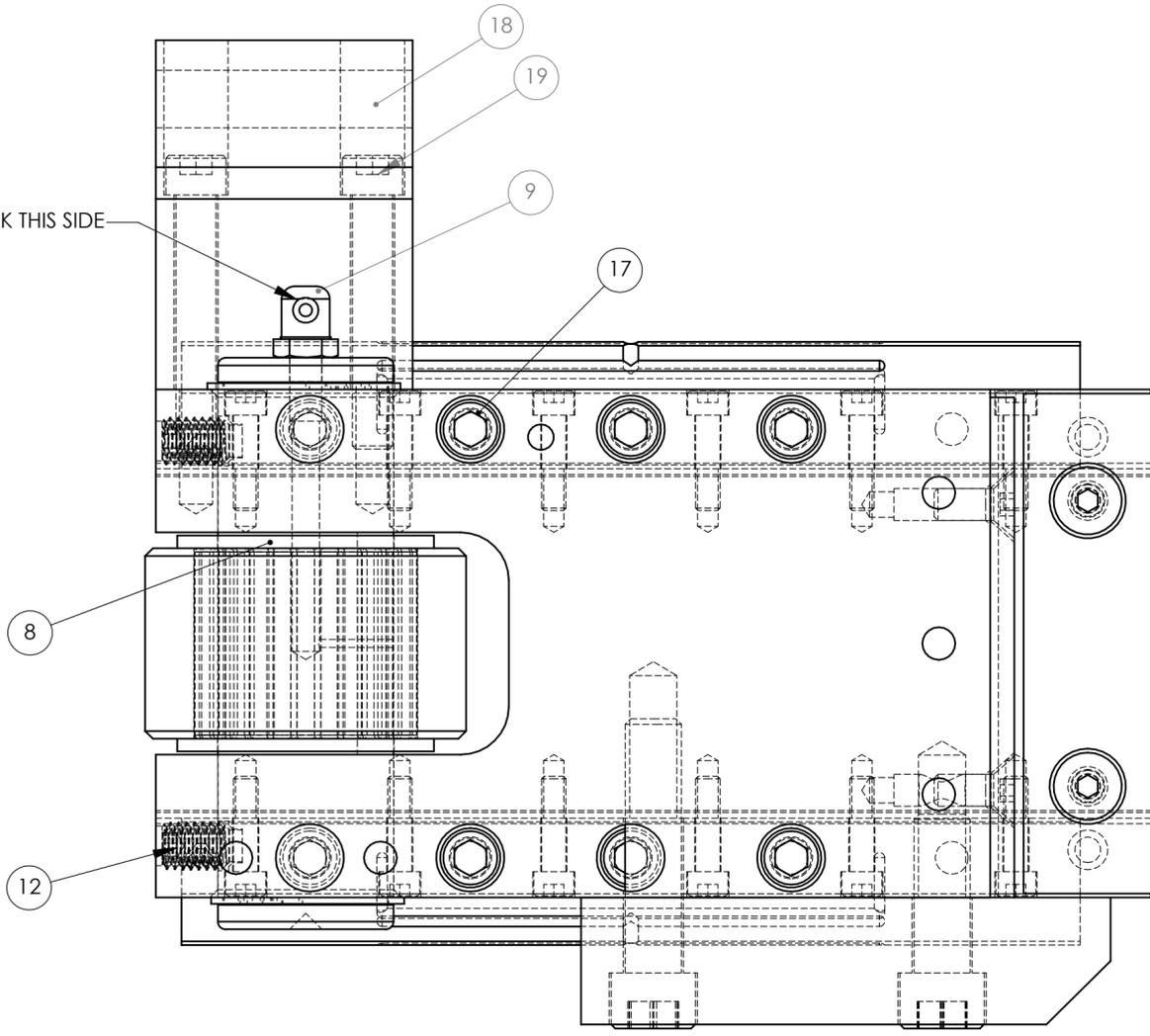
WEDGE ROLLER BLOCK ASSY

TIGHTEN ALL BOLTS TO STANDARD SPEC UNLESS OTHERWISE NOTED
 LABEL ALL AIR LINES AND FITTINGS
 ASSEMBLY TYPE: STANDARD MACHINE
 SPECIAL INSTRUCTIONS:

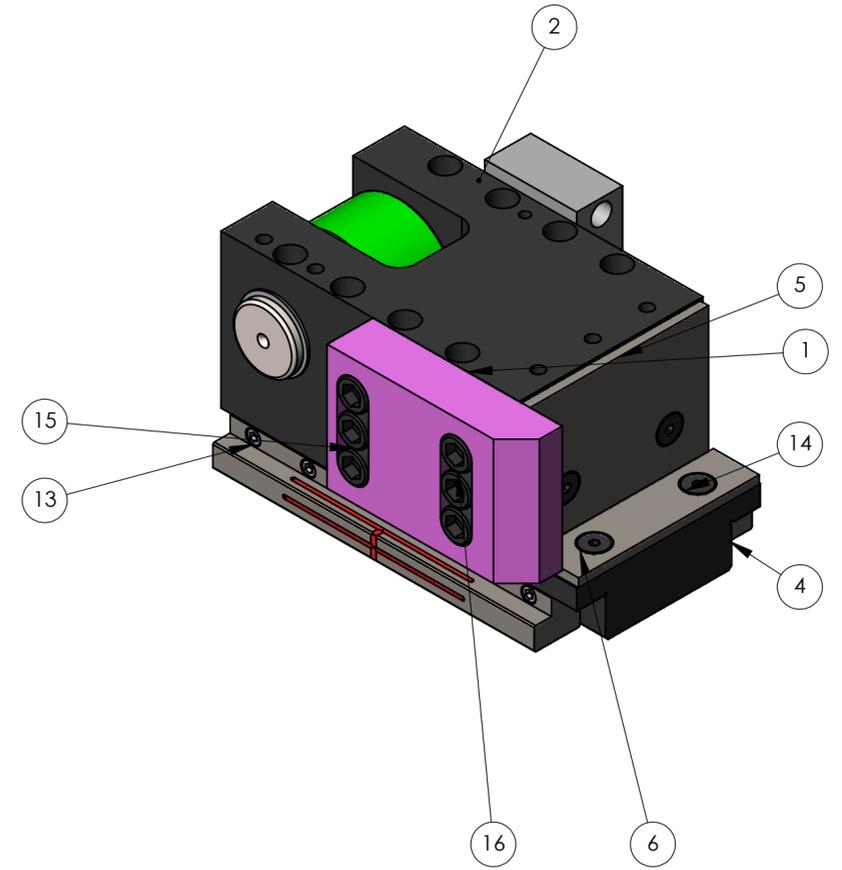
Torque Values for Tightening Fasteners

Size	Torque Value with Loc-tite	Torque Value Dry
1/4-20	107 in-lbs	143 in-lbs
1/4-28	120 in-lbs	163 in-lbs
5/16-18	220 in-lbs	305 in-lbs
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3/8-16	32.5 ft-lbs	44 ft-lbs
3/8-24	37 ft-lbs	50 ft-lbs
7/16-14	53 ft-lbs	70 ft-lbs
7/16-20	59 ft-lbs	78 ft-lbs
1/2-13	80 ft-lbs	107 ft-lbs
1/2-20	90 ft-lbs	120 ft-lbs
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7/8-9	454 ft-lbs	606 ft-lbs
7/8-14	500 ft-lbs	668 ft-lbs
1-8	680 ft-lbs	900 ft-lbs
1-12	745 ft-lbs	995 ft-lbs
3mm	1.65 N-m	2.20 N-m
3.5mm	2.59 N-m	3.45 N-m
4mm	3.83 N-m	5.11 N-m
5mm	7.75 N-m	10.3 N-m
6mm	13.2 N-m	17.6 N-m
7mm	22.1 N-m	29.4 N-m
8mm	32.0 N-m	42.6 N-m
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14mm	175 N-m	234 N-m
16mm	274 N-m	365 N-m
18mm	377 N-m	503 N-m
20mm	535 N-m	713 N-m
22mm	727 N-m	970 N-m
24mm	925 N-m	1233 N-m
27mm	1352 N-m	1803 N-m
30mm	1837 N-m	2450 N-m
33mm	2500 N-m	3332 N-m
36mm	3210 N-m	4279 N-m

GREASE ZERK THIS SIDE



ITEM NO.	QTY.	PART NUMBER	DESCRIPTION	VENDOR
1	1	B08-0195	BACKUP	WMM
2	1	D004796	BLOCK	WMM
3	1	D000444	PIN	WMM
4	2	G01-0031	GIBB	WMM
5	1	P41-0067	WEAR PLATE	WMM
6	1	P41-0068	WEAR PLATE	WMM
7	1	R02-0007	ROLLER	WMM
8	2	S10-0071	SPACER	WMM
9	1	58812	GREASE FITTING	FASTENAL
10	26	CNB-112-6	3/16" x 1 1/2" LONG NEEDLE BEARING	MOTION
11	2	91590A249	1 3/8" EXTERNAL SNAP RING	McMASTER CARR
12	2	95235A553	3/8-16 x 5/8 DOG POINT SET SCREW	McMASTER CARR
13	12	_SHCS_10-32 x 0.75 #23166	FASTENER	STOCK
14	4	_FHCS_0.250-20 x 0.63 #24223	FASTENER	STOCK
15	3	_SHCS_0.438-14 x 2.00 #23361	FASTENER	STOCK
16	3	_SHCS_0.438-14 x 1.25 #23357	FASTENER	STOCK
17	8	_SHCS_0.313-18 x 1.25 #23257	FASTENER	STOCK
18	1	D009469	CYLINDER BRACKET	WMM
19	2	_SHCS_0.313-18 x 2.00 #23261	FASTENER	STOCK



REV	BY	DATE	DESCRIPTION	APP BY	APP DATE
REL	+	01-04-2018	INITIAL RELEASE	KJH	01-04-2018

W **WAUSEON MACHINE & MFG.**

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DESIGNED BY: **KJH**

DRAWN BY: **KJH**

CHECKED BY:

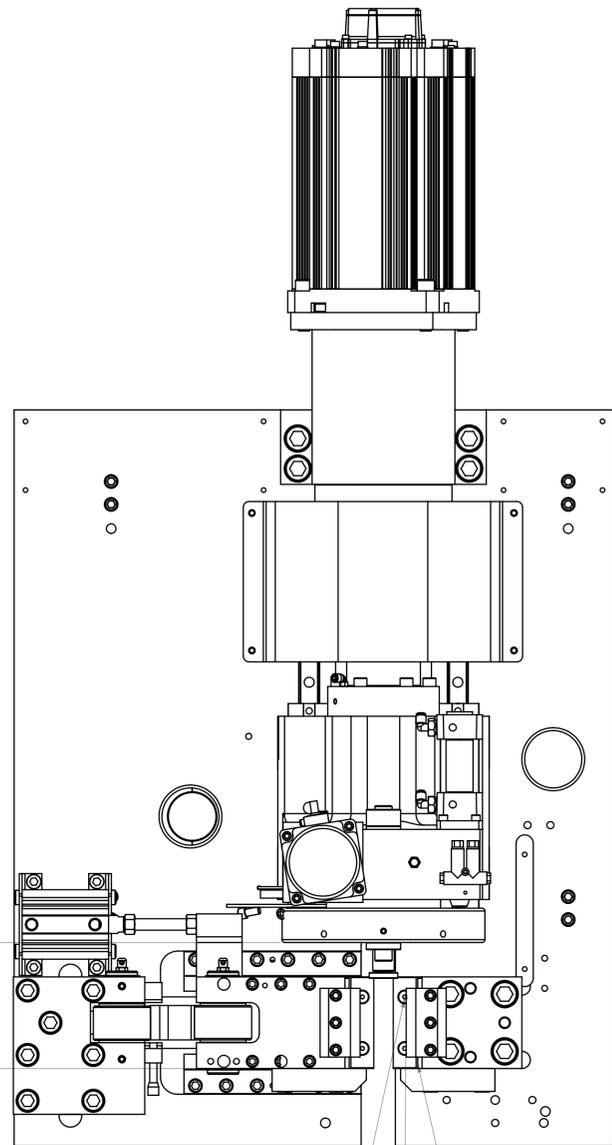
DRAWN ON: **01-04-2018**

SCALE: **1:1** SHEET: **1 OF 1**

REVISION: **REL**

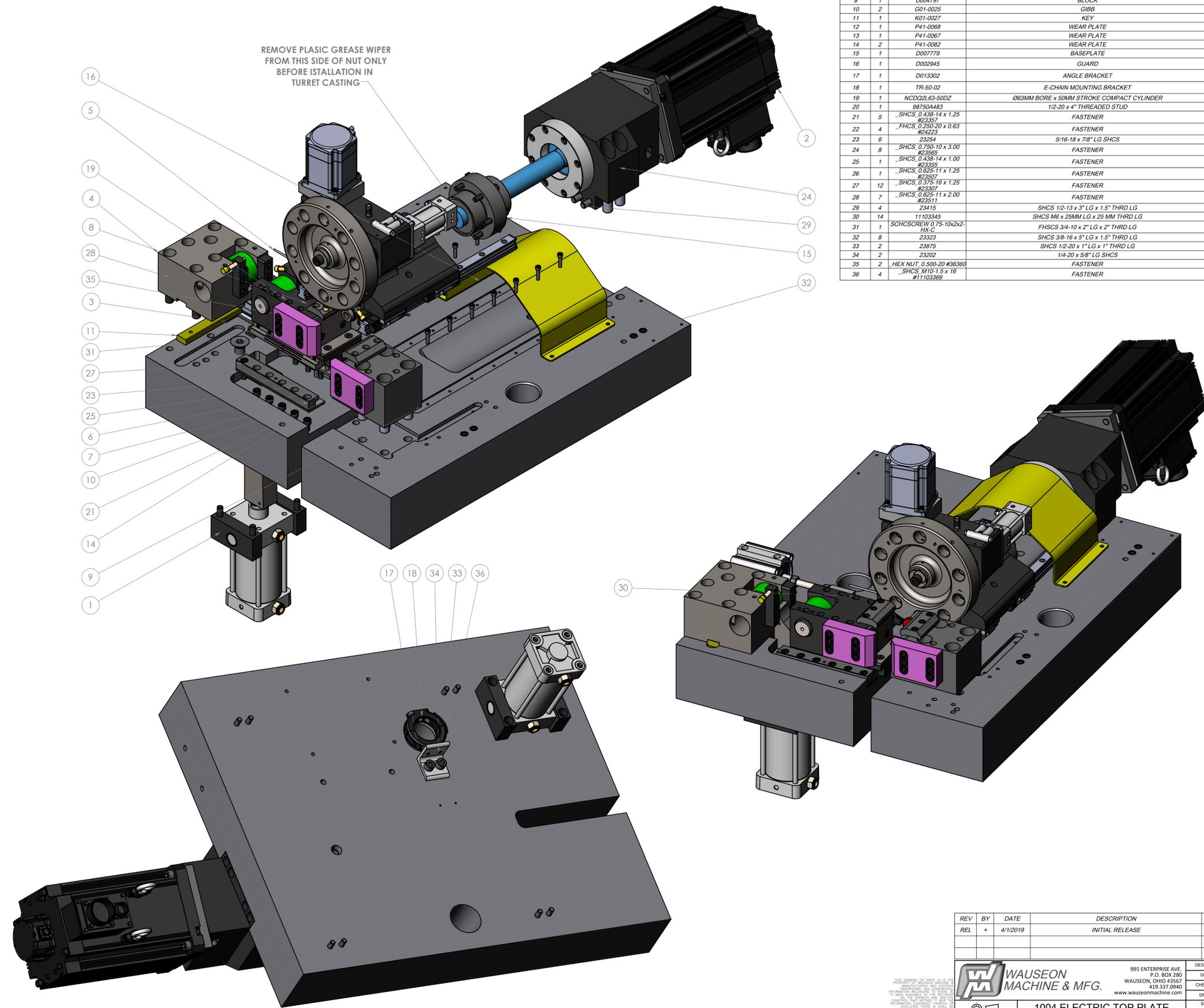
ASSEMBLY NUMBER: **SA006718**

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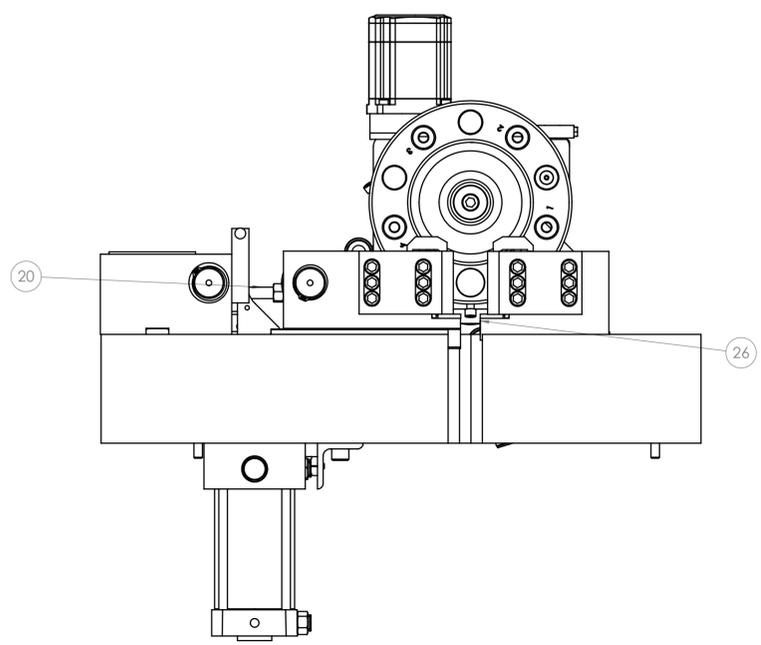


5.251
5.250
ZERO ZERVO
AT THIS
DIMENSION

REMOVE PLASIC GREASE WIPER
FROM THIS SIDE OF NUT ONLY
BEFORE INSTALLATION IN
TURRET CASTING



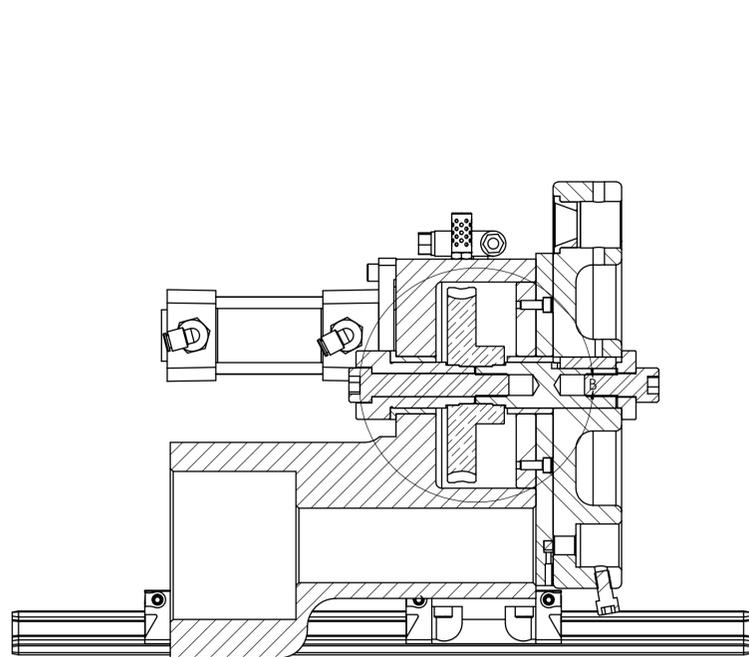
ITEM NO.	QTY.	PART NUMBER	DESCRIPTION	VENDOR
1	1	SA002866	LOCKUP LINEAR CAM ASSY	ASSEMBLY
2	1	SA000085	EL RAM ASSEMBLY	ASSEMBLY
3	1	SA006718	MOVING LOCKUP ASSY	ASSEMBLY
4	1	SA005646	WEDGE ROLLER BLOCK ASSY	WMM
5	1	SA008707	TURRET ASSEMBLY	ASSEMBLY
6	1	SA004455	1004 TUBE LOCATOR ASSEMBLY	ASSEMBLY
7	1	B08-0195	BACKUP	WMM
8	2	D004795	HOLD DOWN	WMM
9	1	D004797	BLOCK	WMM
10	2	G01-0025	GIBB	WMM
11	1	K01-0027	KEY	WMM
12	1	P41-0068	WEAR PLATE	WMM
13	1	P41-0067	WEAR PLATE	WMM
14	2	P41-0082	WEAR PLATE	WMM
15	1	D007779	BASEPLATE	WMM
16	1	D002945	GUARD	GILSON
17	1	D013302	ANGLE BRACKET	WMM
18	1	TR-50-02	E-CHAIN MOUNTING BRACKET	IGUS
19	1	NCDQZL63-50DZ	Ø6MM BORE x 50MM STROKE COMPACT CYLINDER	OTP
20	1	98750A483	1/2-20 x 4" THREADED STUD	McMASTER CARR
21	5	_SHCS_ 0.438-14 x 1.25 #23357	FASTENER	STOCK
22	4	_FHCS_ 0.250-20 x 0.63 #24223	FASTENER	STOCK
23	6	23254	5/16-18 x 7/8" LG SHCS	STOCK
24	8	_SHCS_ 0.750-10 x 3.00 #23565	FASTENER	STOCK
25	1	_SHCS_ 0.438-14 x 1.00 #23507	FASTENER	STOCK
26	1	_SHCS_ 0.625-11 x 1.25 #23307	FASTENER	STOCK
27	12	_SHCS_ 0.375-16 x 1.25 #23307	FASTENER	STOCK
28	7	_SHCS_ 0.625-11 x 2.00 #23511	FASTENER	STOCK
29	4	23415	SHCS 1/2-13 x 3" LG x 1.5" THRD LG	STOCK
30	14	11103345	SHCS M6 x 25MM LG x 25 MM THRD LG	STOCK
31	1	SCHSCREW 1/2-10x2-1/2-HX-C	FHCS 3/4-10 x 2" LG x 2" THRD LG	FASTENAL
32	8	23323	SHCS 3/8-16 x 5" LG x 1.5" THRD LG	FASTENAL
33	2	23875	SHCS 1/2-20 x 1" LG x 1" THRD LG	STOCK
34	2	23202	1/4-20 x 5/8" LG SHCS	STOCK
35	2	HEX NUT_ 0.500-20 #36360	FASTENER	STOCK
36	4	_SHCS_ 1/10-1.5 x 16 #11103369	FASTENER	STOCK



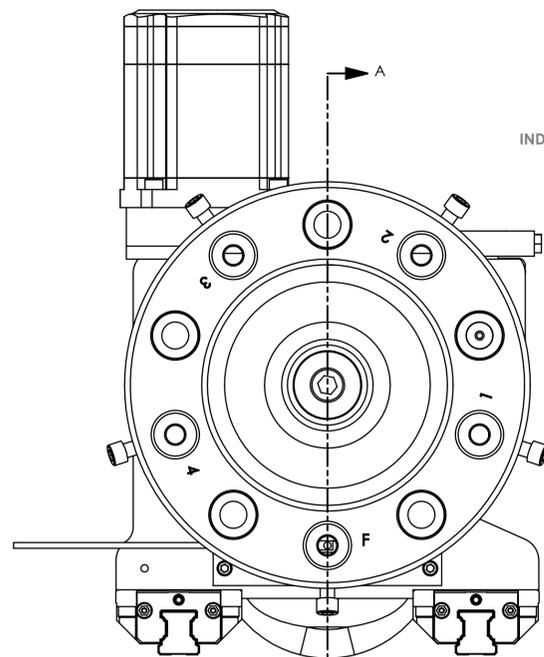
REV	BY	DATE	DESCRIPTION	APP BY	APP DATE
REL	+	4/1/2019	INITIAL RELEASE	KJH	04-10-2019

		995 ENTERPRISE AVE. P.O. BOX 280 WAUSEON, OHIO 43567 419.337.0940 www.wauseonmachine.com	DESIGNED BY: KJH DRAWN BY: KJH CHECKED BY: DRAWN ON: 04-01-2019 SCALE: 1:1 SHEET 7 OF 3 SIZE: D REVISION: REL ASSEMBLY NUMBER: SA008706
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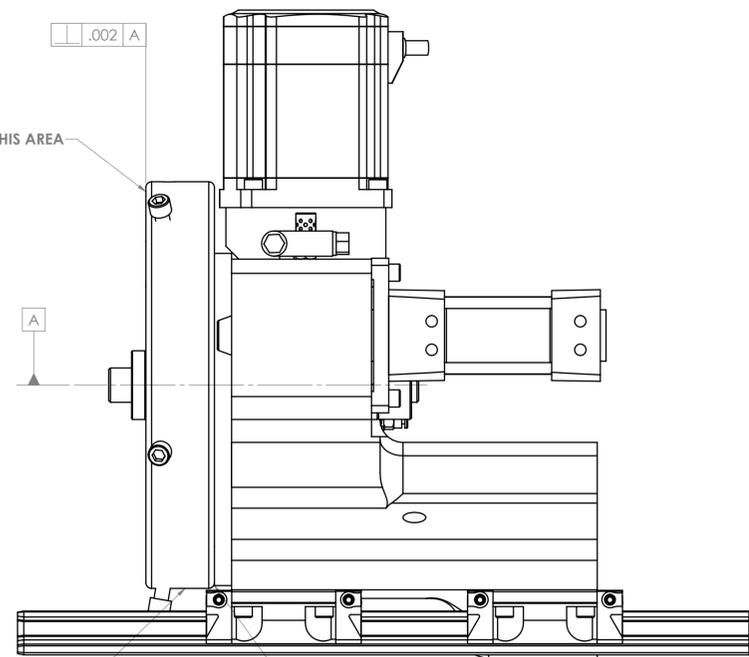
TIGHTEN ALL BOLTS TO
STANDARD SPEC UNLESS
OTHERWISE NOTED
SPECIAL INSTRUCTIONS:
LABEL ALL AIR LINES AND
FITTINGS



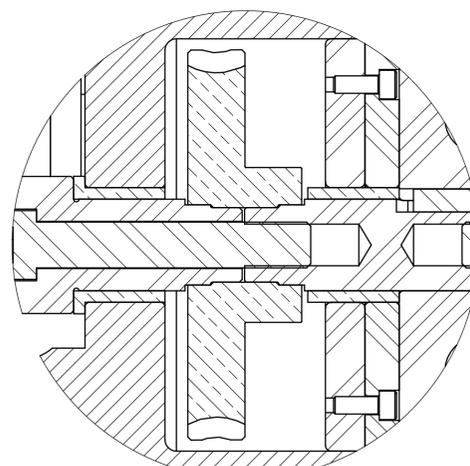
SECTION A-A



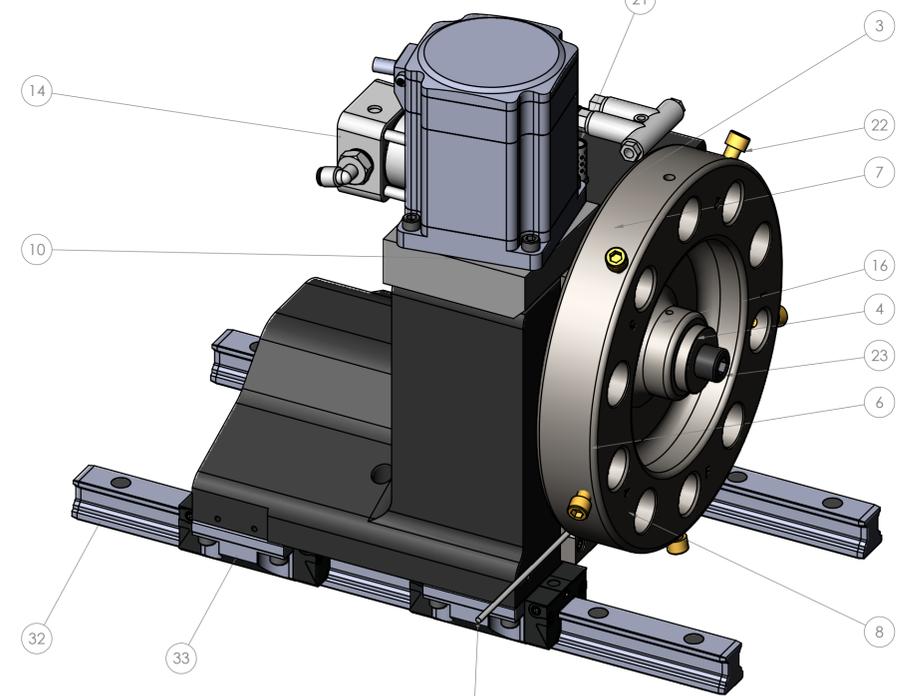
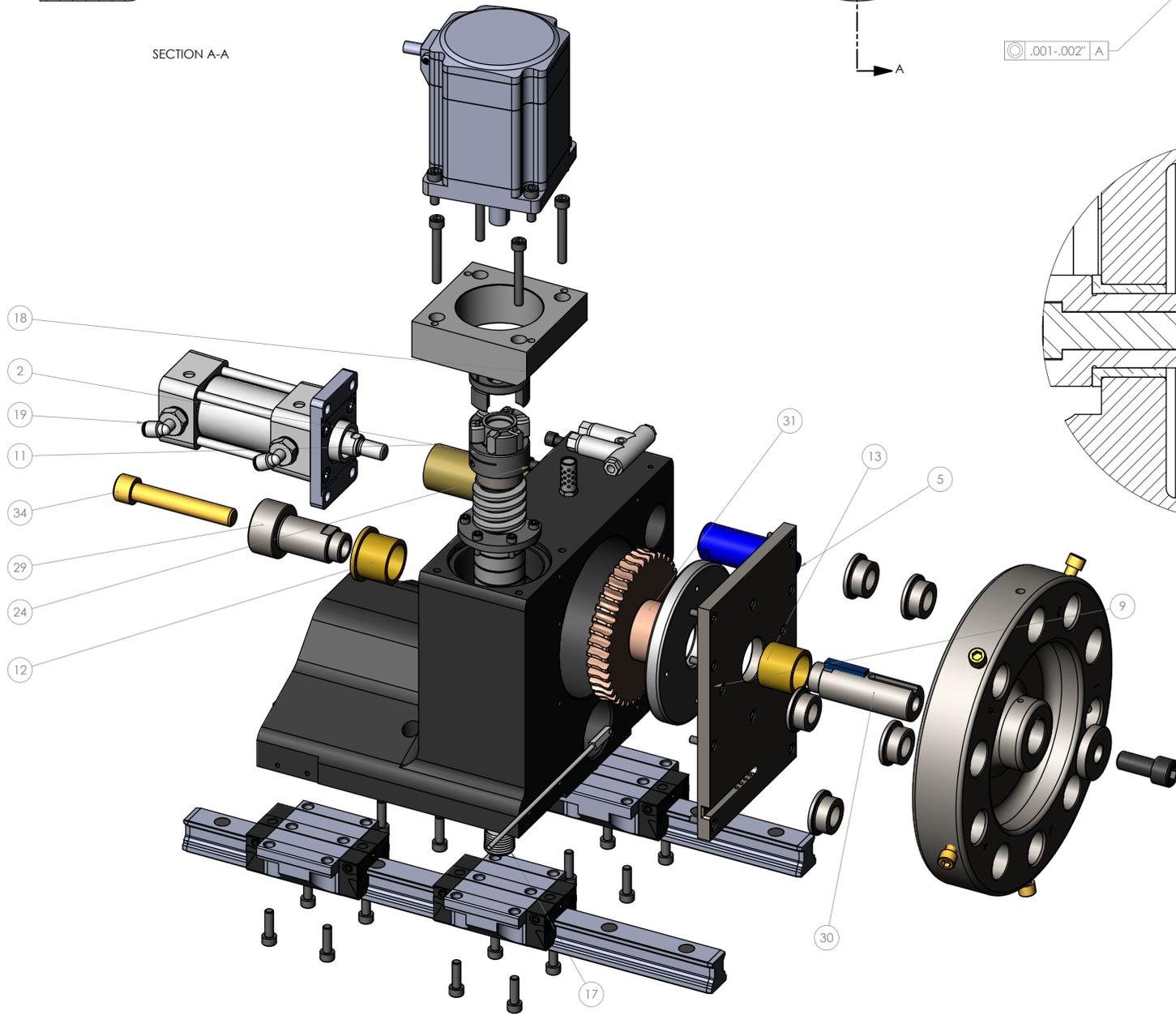
INDICATE THIS AREA



CLEARANCE BETWEEN TURRET & WEAR PLATE:
.001-.002" CLEARANCE WHEN TURRET ROTATES
.000-.001" CLEARANCE WHEN PRESSURE IS APPLIED TO TURRET FACE



DETAIL B
SCALE 1 : 1



BEFORE ASSEMBLING THE GEAR MOTOR:

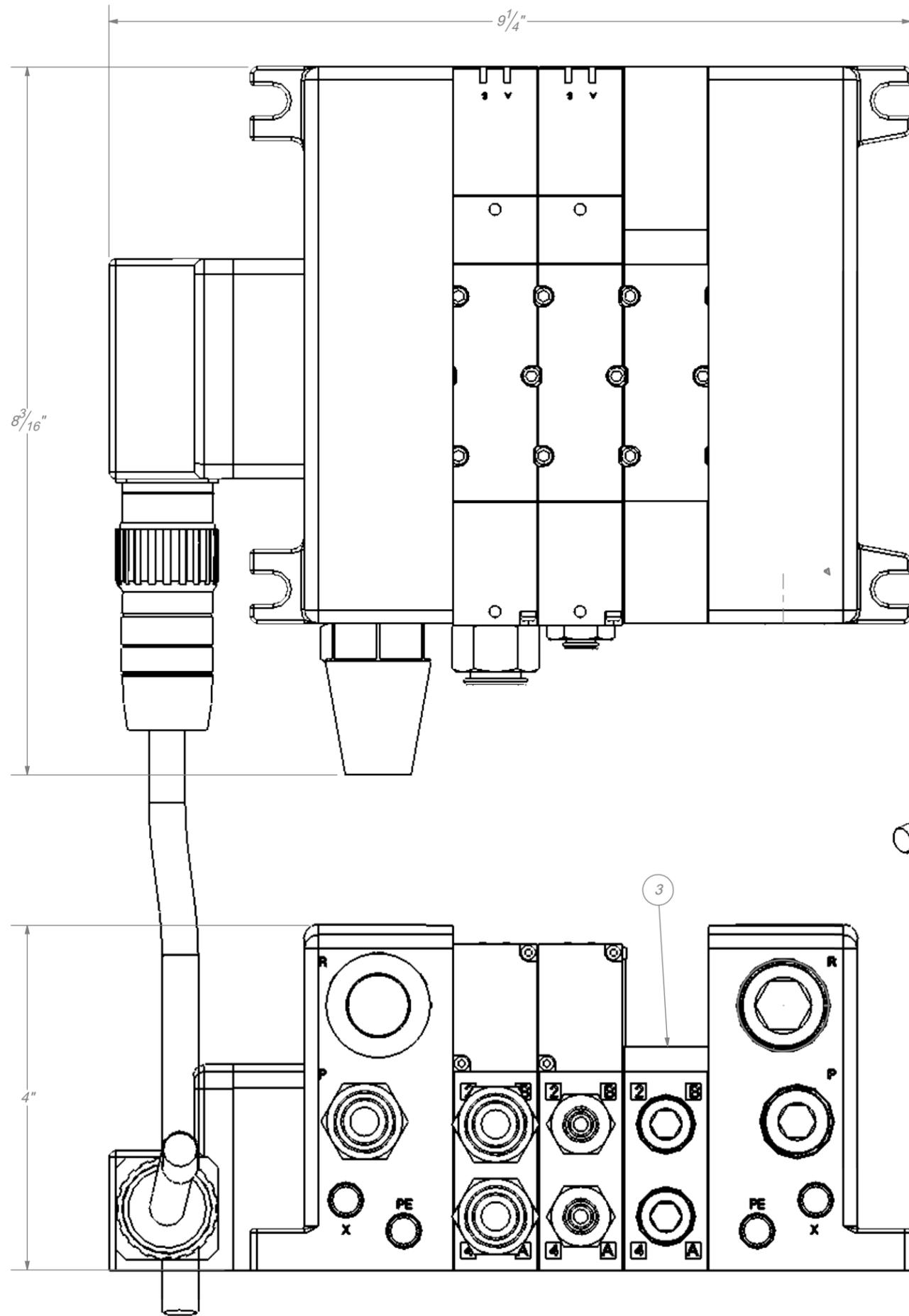
1. PRESS TAPERED LOCATING BUSHINGS INTO TURRET
2. INSTALL TURRET ON TURRET SHAFT
3. ESTABLISH .001+/- .0005" GAP BETWEEN TURRET AND WEAR PLATE BY GRINDING THE STEP ON THE CAP
4. APPLY PRESSURE TO TURRET FACE AND MAKE SURE GAP DOES NOT EXCEED .001"
5. PLACE AN INDICATOR ON THE AREA SHOWN
6. ROTATE THE TURRET AND MAKE SURE THE INDICATOR READING DOES NOT EXCEED .002" TIR
7. LOCATE INDICATOR ON OD OF TURRET
8. ROTATE THE TURRET TO MAKE SURE CONCENTRICITY DOES NOT EXCEED .001-.002"

ITEM NO.	Detail	U/QTY	PART NUMBER	DESCRIPTION	VENDOR	MANUFACTURER
1	1	1	SA1-0711	#1003 TURRET FL-KIT	FLUIDLINE SYSTEMS	
2	1	1	SA000516	WORM GEAR BEARING ASSEMBLY	WMM	
3	5	5	B05-0004	BUSHING	WMM	
4	1	1	C20-0120	CAP	WMM	
5	1	1	P20-0514	PIN	WMM	
6	1	1	D000765	TURRET	WMM	
7	1	1	D000882	CASTING	WMM	
8	1	1	D000888	WEAR PLATE	WMM	
9	1	1	D000890	SPACER	WMM	
10	1	1	D006069	ADAPTER	WMM	
11	1	1	AA1212-14	BUNTING BUSHING	MOTION	
12	1	1	BBEF162016	ALLOY FLANGED BEARING	MOTION	McMASTER CARR
13	1	1	BBEP162016	ALLOY FLANGED BEARING	MOTION	McMASTER CARR
14	1	1	NCD41F150-0100N	Ø1.5" BORE x 1" STROKE TIE-ROD CYLINDER	OTP	SMC
15	1	1	871FM-M1NP5-AP3	SQUARE PROX	McNAUGHTON McKay	ALLEN BRADLEY
16	1	1	98870A405	1/4 x 1/4 x 1/4 KEY	McMASTER CARR	McMASTER CARR
17	1	1	4638K514	1/2" NPT ZINC PLATED PLUG	McMASTER CARR	McMASTER CARR
18	1	1	9845T4-14mm	Ø14MM SHAFT COUPLER	McMASTER CARR	McMASTER CARR
19	2	2	KQ2L07-U03A	1/4" TUBE DIA x 3/8"UNI MALE ELBOW	OTP	SMC
20	1	1	KQ2H04-U01	4MM TUBE DIA x 1/8"UNI MALE CONNECTOR	OTP	SMC
21	1	1	9835K41	1/8 NPT MUFFLER	McMASTER CARR	McMASTER CARR
22	5	5	_SHCS_0.313-24 x 0.63 #2381	FASTENER	FASTENAL	FASTENAL
23	1	1	_SHCS_0.500-20 x 1.13 #2375B	FASTENER	FASTENAL	FASTENAL
24	4	4	_SHCS_0.250-20 x 0.88 #23204	FASTENER	STOCK	FASTENAL
25	20	20	11103343	SHCS M6 x 20MM LG x 20 MM THRD LG	STOCK	
26	12	12	23164	SHCS #10-32 x 0.5" LG x 0.5" THRD LG	STOCK	FASTENAL
27	4	4	B18.3.1M - 8 x 1.0 x .45 Hex SHCS - 24CHX	SHCS M6 x 45MM LG x 24 MM THRD LG	FASTENAL	FASTENAL
28	5	5	23114	#8-32 x 1/2" LG SHCS	STOCK	FASTENAL
29	1	1	D016900	HARDENED SHAFT	WMM	WMM
30	1	1	D016901	HARDENED SHAFT	WMM	WMM
31	1	1	D016902	MOD PURCH COMP	WMM	MARTIN SPROCKET
32	2	2	R1605-204-31-410-25-25	25 SERIES LINEAR BEARING RAIL	MORRELL	REXROTH
33	4	4	R1651-214-20	25 SERIES BEARING BLOCK	MORRELL	REXROTH
34	1	1	_SHCS_0.500-20 x 3.00 #23863	FASTENER	STOCK	FASTENAL

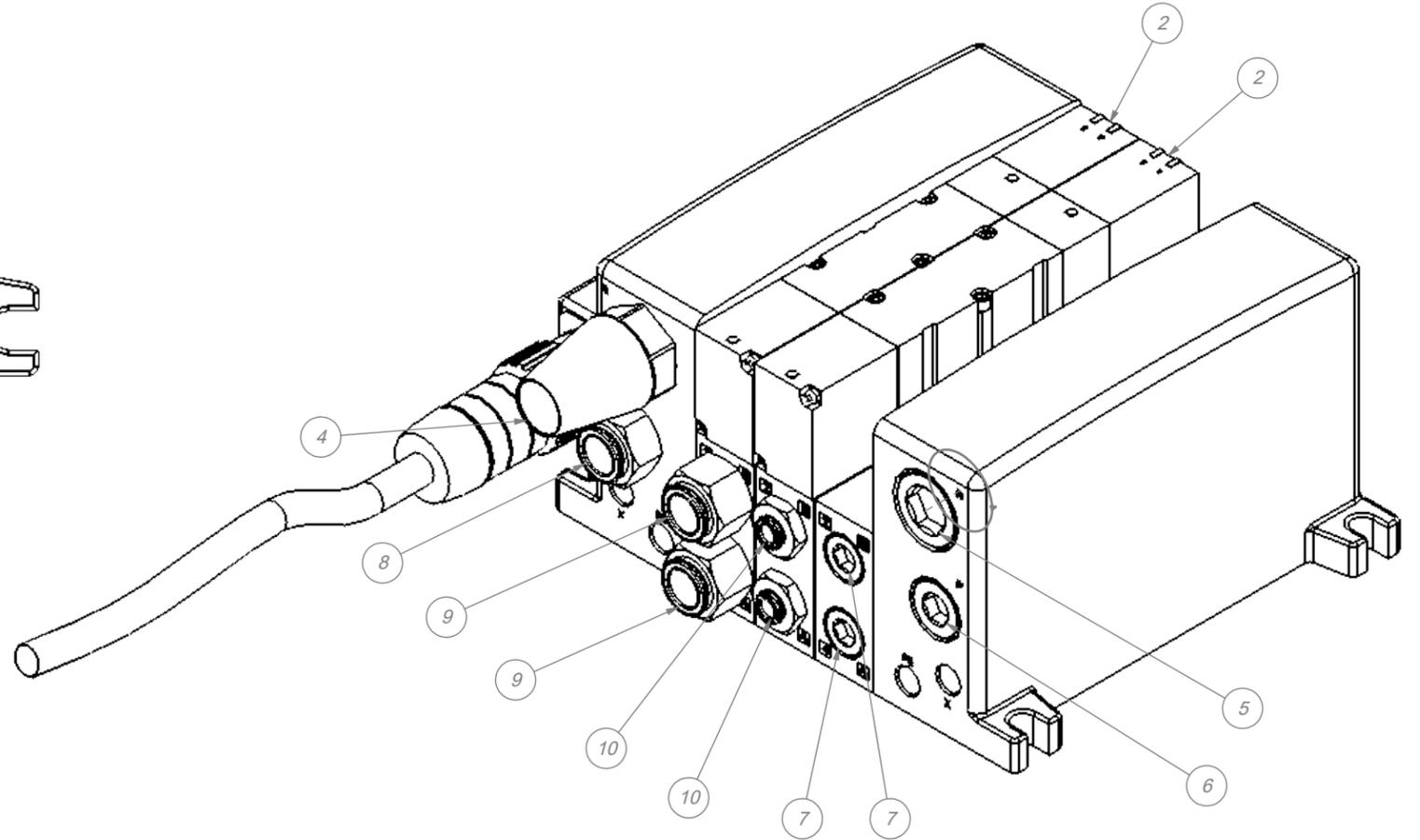
REV	BY	DATE	DESCRIPTION	APP BY	APP DATE
REL	+	04-01-2019	INITIAL RELEASE	KJH	04-10-2019

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DESIGNED BY: KJH
 DRAWN BY: KJH
 CHECKED BY:
 DRAWN ON: 04-01-2019
 SCALE: 1:2
 SHEET: 7 OF 7
TURRET ASSEMBLY
 ASSEMBLY TYPE: STANDARD MACHINE
 SPECIAL INSTRUCTIONS:
 TIGHTEN ALL BOLTS TO STANDARD SPEC UNLESS OTHERWISE NOTED
 LABEL ALL AIR LINES AND FITTINGS
 ASSEMBLY NUMBER:
SA008707



ITEM NO.	QTY.	PART NUMBER	DESCRIPTION	VENDOR	MANUFACTURER
1	1	VV5QC41-0303TMD3	PNEUMATIC MANIFOLD	OTP	SMC
2	2	VQC4301-5	5 PORT VALVE	OTP	SMC
3	1	VVQ4000-10A-1	BLANK PLATE	OTP	SMC
4	1	4450K5			
5	1	4464K365	3/4" NPT 304SS PLUG	McMASTER CARR	---
6	1	4464K564	1/2" PIPE PLUG	McMASTER CARR	McMASTER CARR
7	2	4464K563	3/8" NPT PIPE PLUG	McMASTER CARR	McMASTER CARR
8	1	KQ2H13-37AS	1/2" TUBE DIA x 1/2 NPT HALF UNION	OTP	SMC
9	2	KQ2H13-36AS	1/2" TUBE DIA x 3/8 NPT HALF UNION	OTP	SMC
10	2	KQ2H07-36AS	1/4" TUBE DIA x 3/8" NPT HALF UNION	OTP	SMC



REV	BY	DATE	DESCRIPTION	APP BY	APP DATE
REL	CMH	01-21-2020	INITIAL RELEASE	KJH	01-21-2020

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DRAWN BY: SER
CHECKED BY:
DRAWN ON: 01-21-2020
SCALE: 2:3
SHEET: 1 OF 1

TIGHTEN ALL BOLTS TO STANDARD SPEC UNLESS OTHERWISE NOTED
LABEL ALL AIR LINES AND FITTINGS

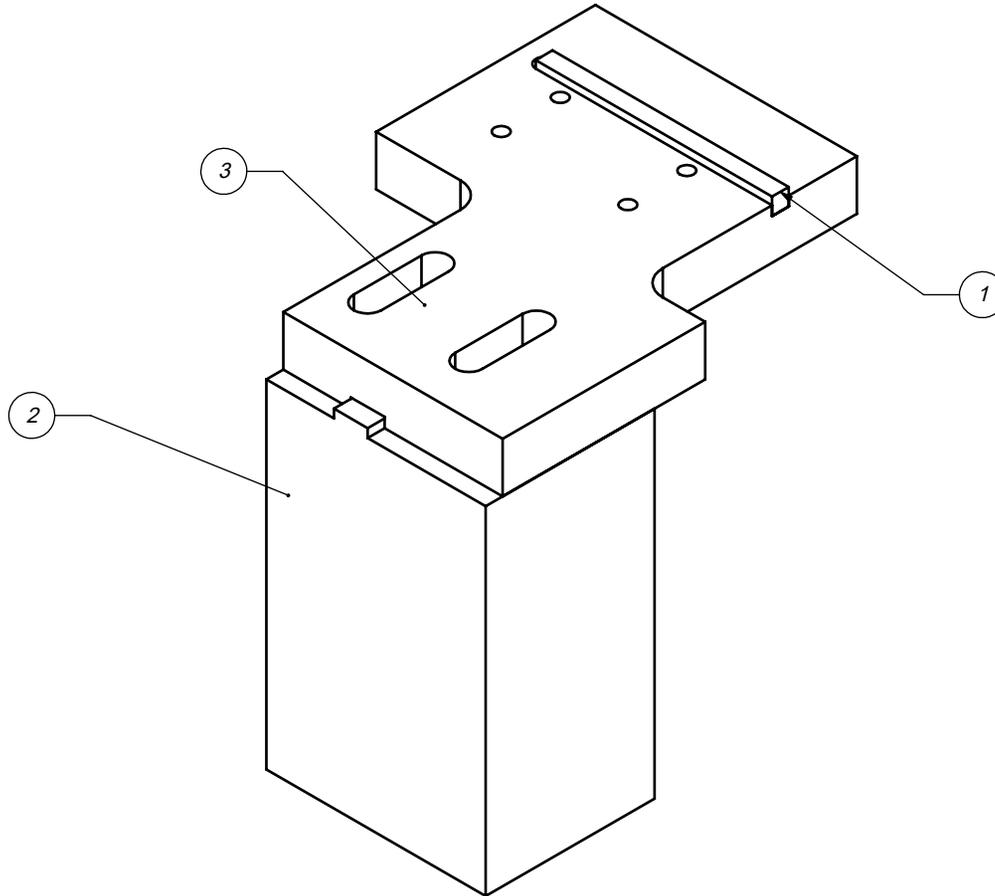
PNEUMATIC MANIFOLD ASSEMBLY
ASSEMBLY TYPE: STANDARD MACHINE
SPECIAL INSTRUCTIONS:

REVISION: **B**
REL
ASSEMBLY NUMBER: **SA010050**

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Drawing File Name: SA010050

ITEM NO.	QTY.	PART NUMBER	DESCRIPTION	VENDOR
1	1	D022179	KEY	WMM
2	1	D022178	MOUNTING BLOCK	WMM
3	1	D022180	MOUNTING PLATE	WMM



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DESIGNED BY: *TB*

DRAWN BY: *TB*

CHECKED BY:

DRAWN ON: *09/15/2020*

SCALE:
1:2

SHEET:
1 OF 1

SIZE:
A

REVISION:
REL

MACHINE MOUNT ASSEMBLY
1004EL LOAD CHUTE MOUNT



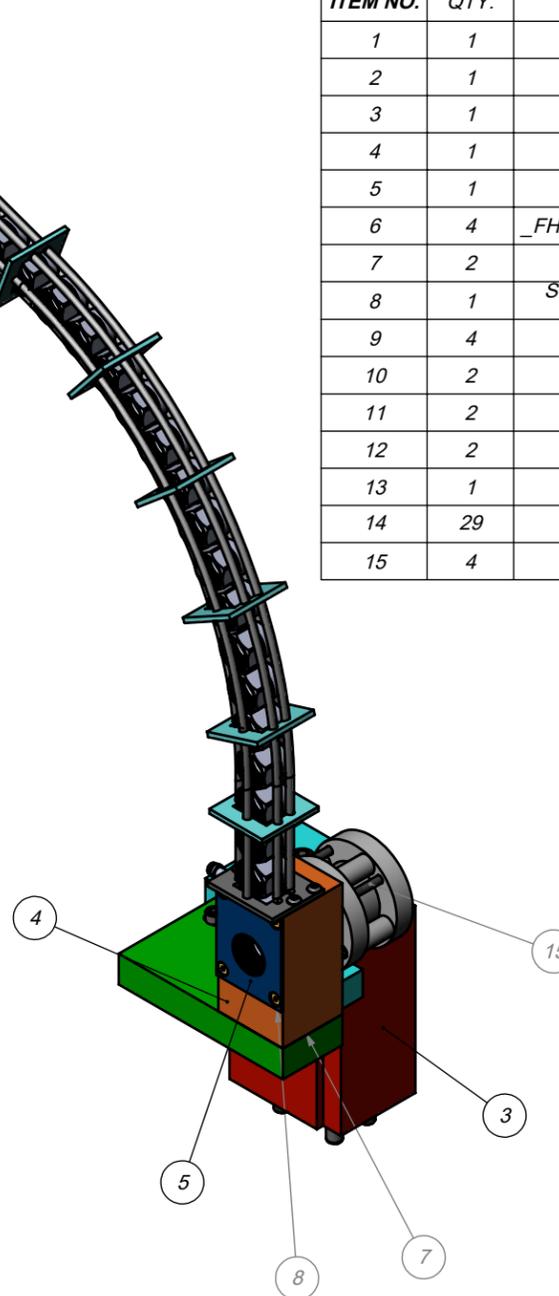
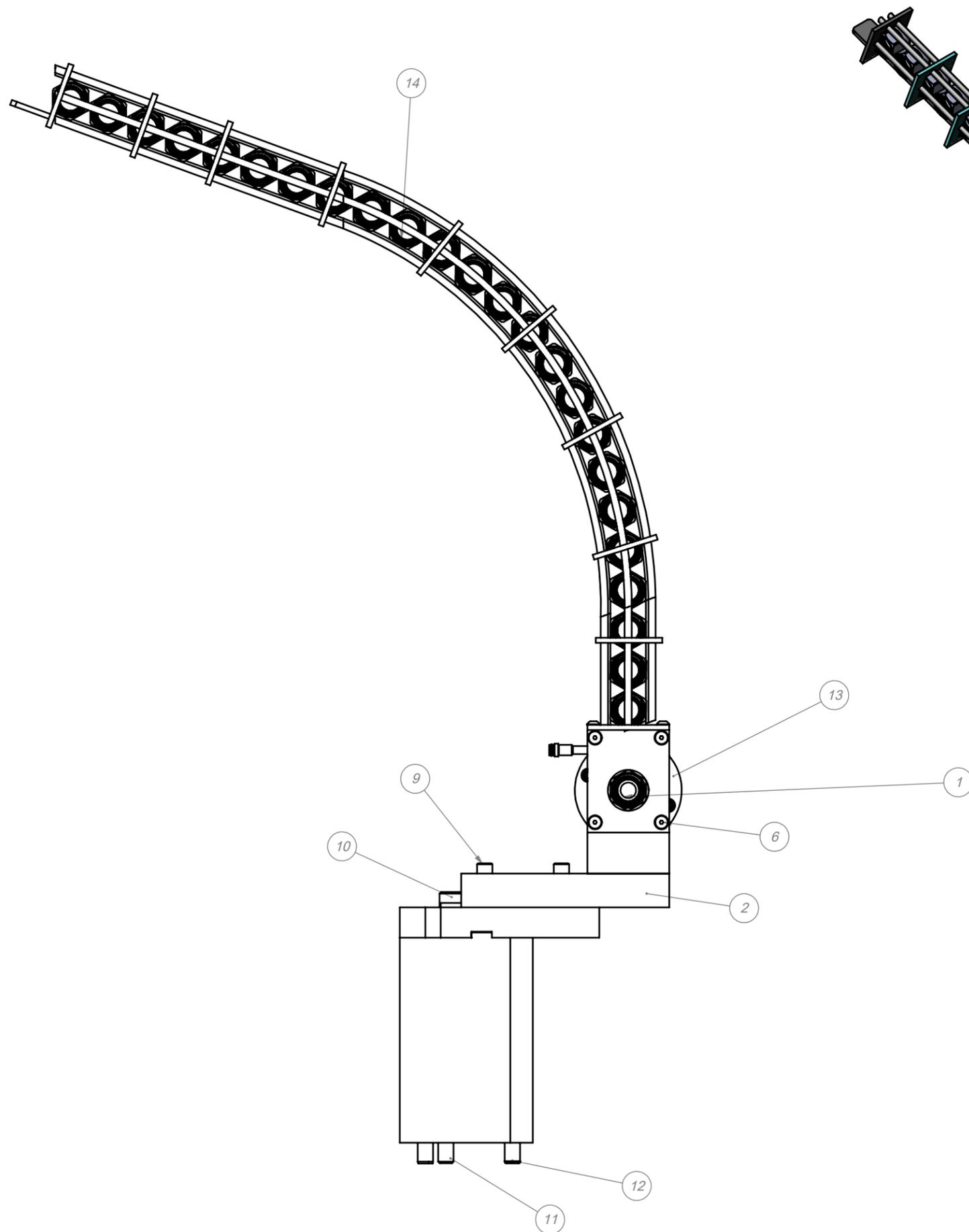
TIGHTEN ALL BOLTS TO
STANDARD SPEC UNLESS
OTHERWISE NOTED

LABEL ALL AIR LINES AND
FITTINGS

ASSEMBLY TYPE: *FIXTURE*

SPECIAL INSTRUCTIONS:

ASSEMBLY NUMBER:
SA010734



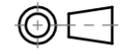
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1	1	D025168	MANDREL	WMM
2	1	D025175	MOUNTING PLATE	WMM
3	1	SA010734	MACHINE MOUNT ASSEMBLY	ASSEMBLY
4	1	SA011297	WIRE CHUTE WELDMENT	ASSEMBLY
5	1	D025166	PANEL	WMM
6	4	_FHCS_6-32 x 0.25 #24177	FASTENER	STOCK
7	2	26751	0.250 x 0.75 LG DOWEL PIN	STOCK
8	1	SCHCSCREW 0.3125-18x1x1-HX-C	FHCS 5/16-18 x 1" LG x 1" THRD LG	STOCK
9	4	23207	SHCS 1/4-20 x 1.25" LG x 1.25" THRD LG	STOCK
10	2	23309	SHCS 3/8-16 x 1.5" LG x 1.5" THRD LG	STOCK
11	2	23319	SHCS 3/8-16 x 4" LG x 1.5" THRD LG	STOCK
12	2	DPM 0.375x1.25	3/8" X 1.25" DOWELPIN	STOCK
13	1	FO-171		MOTION
14	29	GPN0304K	Fitting	
15	4	23172	SHCS #10-32 x 2" LG x 1.125" THRD LG	STOCK

REV	BY	DATE	DESCRIPTION	APP BY	APP DATE
REL	+	05/10/2021	INITIAL RELEASE	TK	05/19/2021


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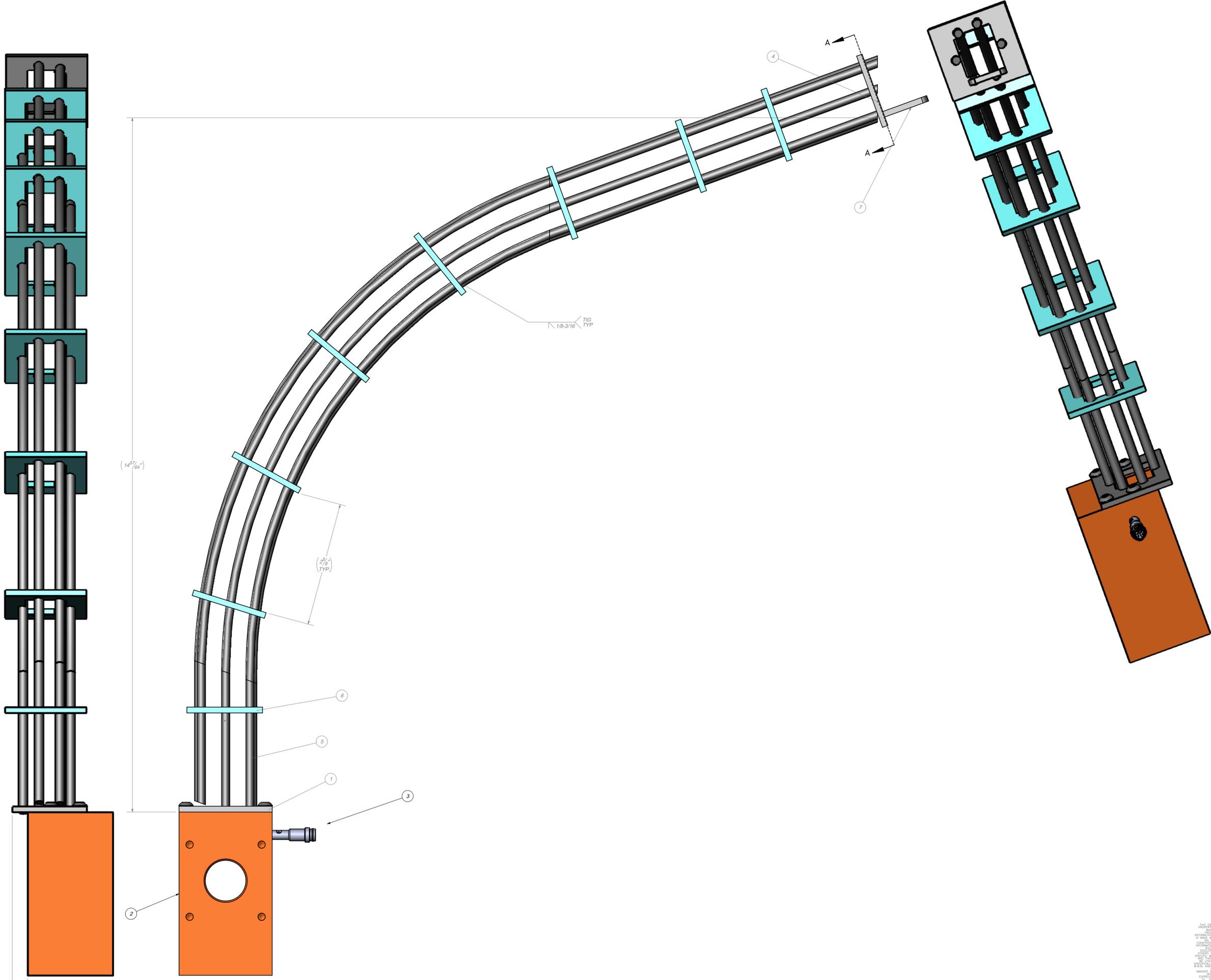
DESIGNED BY: <i>AMM</i>	
DRAWN BY: <i>AMM</i>	
CHECKED BY:	
DRAWN ON: 05/10/2021	
SCALE: 1:3	SHEET: 1 OF 1
SIZE: B	REVISION: REL
ASSEMBLY NUMBER: SA011296	

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 TIGHTEN ALL BOLTS TO STANDARD SPEC UNLESS OTHERWISE NOTED
 LABEL ALL AIR LINES AND FITTINGS

LOAD CHUTE
BRASSCRAFT - CSSD
 ASSEMBLY TYPE: *FIXTURE*
 SPECIAL INSTRUCTIONS:

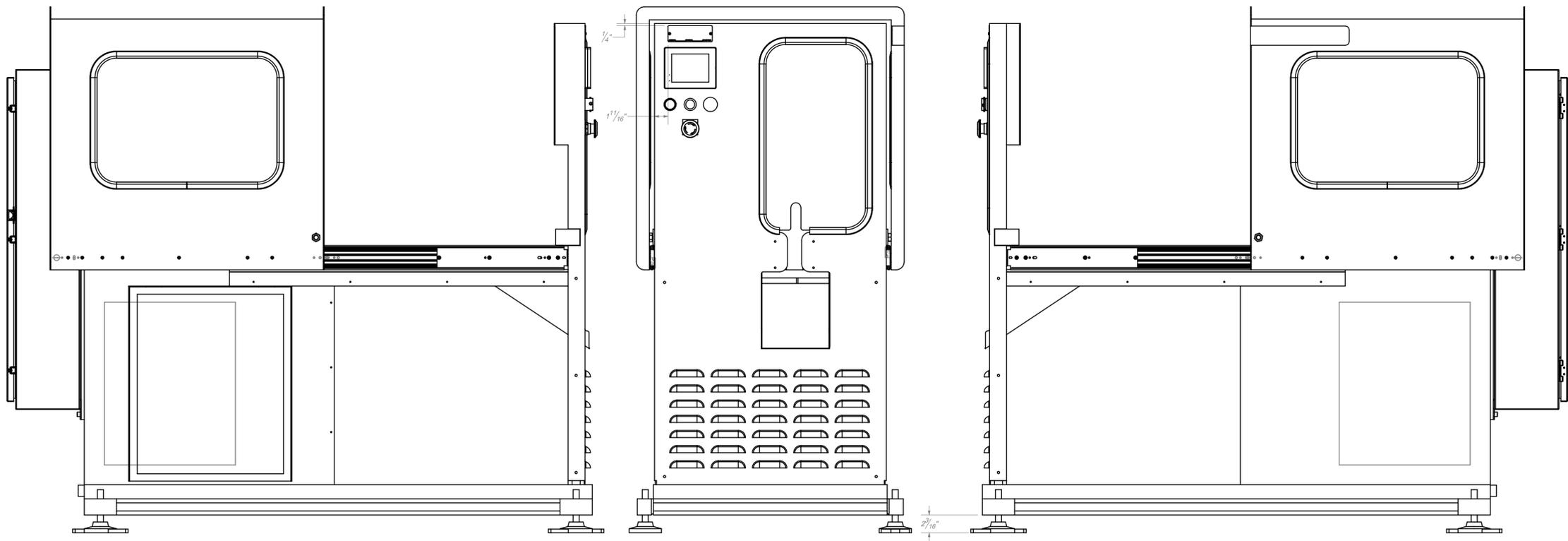
ITEM NO.	QTY	PART NUMBER	DESCRIPTION	VENDOR	MANUFACTURE R
1	1	D025159	CHUTE COVER	WMM	WMM
2	1	D025164	HOUSING	WMM	WMM
3	1	DW-AS-503-MS-4		AUTOMATION DIRECT	AUTOMATION DIRECT
4	1	D025160	LOCATOR PLATE	WMM	WMM
5	1	D025161	BRACE	WMM	WMM
6	8	D025163	CHUTE COVER	WMM	WMM
7	1	D025186	LOCATOR PLATE	WMM	WMM
8	4	SBHCSCREW 0.164-32x0.4375- HX-C	BHCS #8-32 x 0.4375"	FASTENAL	FASTENAL



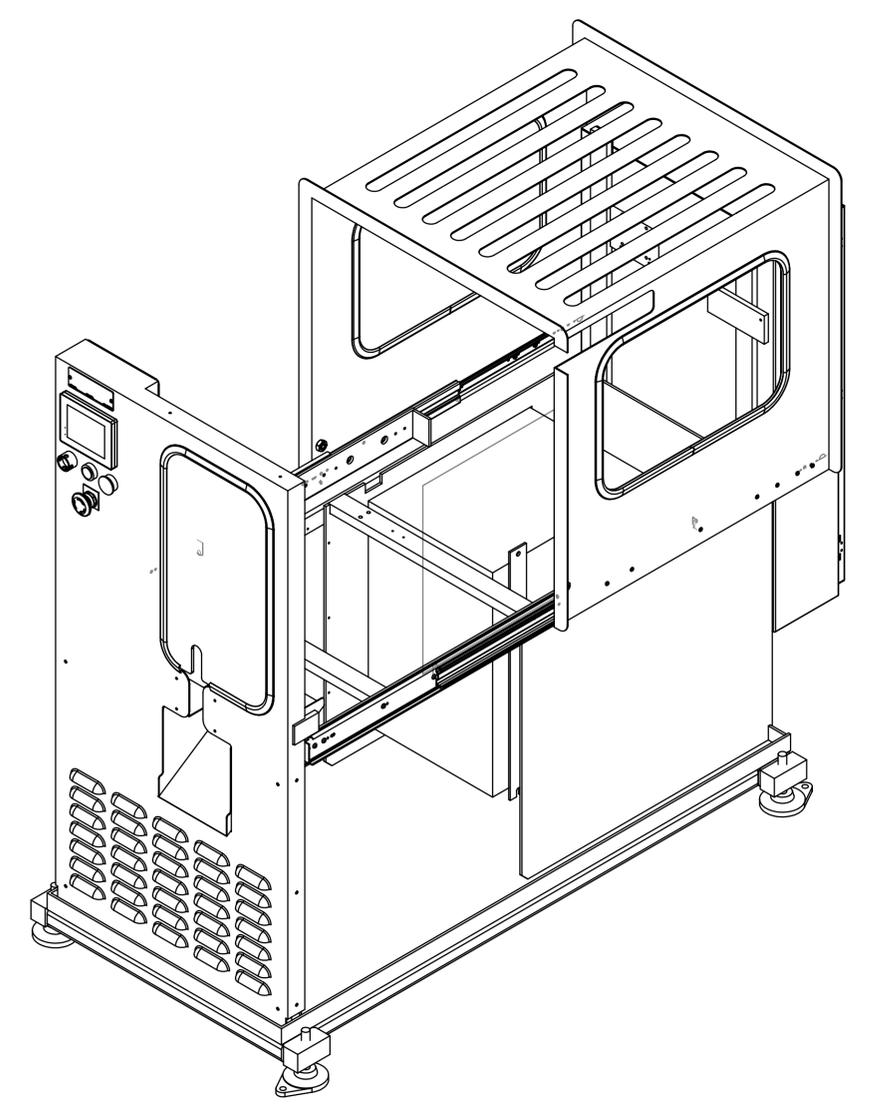
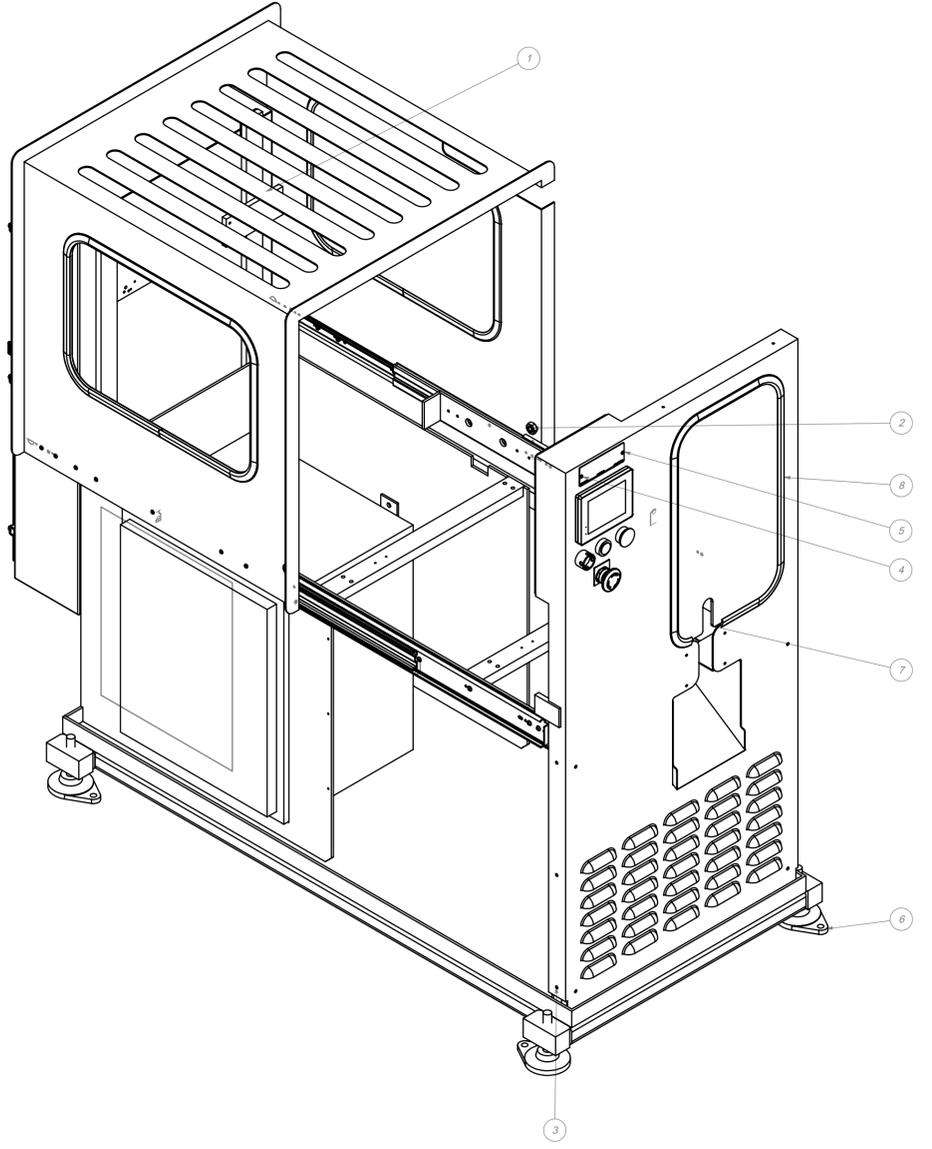
REV	BY	DATE	DESCRIPTION	APP BY	APP DATE
REL	AMM	05/10/2021	INITIAL RELEASE	TK	05/19/2021

		995 ENTERPRISE AVE. P.O. BOX 280 WAUSEON, OHIO 43357 419.337.0940 www.wauseonmachine.com	DESIGNED BY: AMM DRAWN BY: AMM CHECKED BY: DRAWN ON: 05/10/2021 SCALE: 1:1 SHEET: 1 OF 1
WIRE CHUTE WELDMENT BRASSCRAFT - CSSD LOAD CHUTE			ASSEMBLY TYPE: SPECIAL INSTRUCTIONS:
TIGHTEN ALL BOLTS TO STANDARD SPEC UNLESS OTHERWISE NOTED LABEL ALL AIR LINES AND FITTINGS			REVISION: D REL ASSEMBLY NUMBER: SA011297

Drawing File Name: SA011297



ITEM NO.	DOOR OPENING:	PART NUMBER	DESCRIPTION	VENDOR
1		D000736	WELDMENT	WELDING
2		SA011313	GUARD DOOR ASSEMBLY	ASSEMBLY
3		D006740	WELDMENT	WMM WELDING
4		_BHCS 8-32 x 0.38 #73721	FASTENER	FASTENAL
5		F30-0047	PLATE	WMM STOCK
6		6144K17	3/4-10 LEVELING FOOT-BOLT DOWN, 7,500 LB CAPACITY	McMASTER CARR
7		D000740	LEXAN PANEL	ALRO PLASTICS
8		ELH-600 x 69 INCHES	REID GASKET	REID
9		D009392	COVER PLATE	GILSON



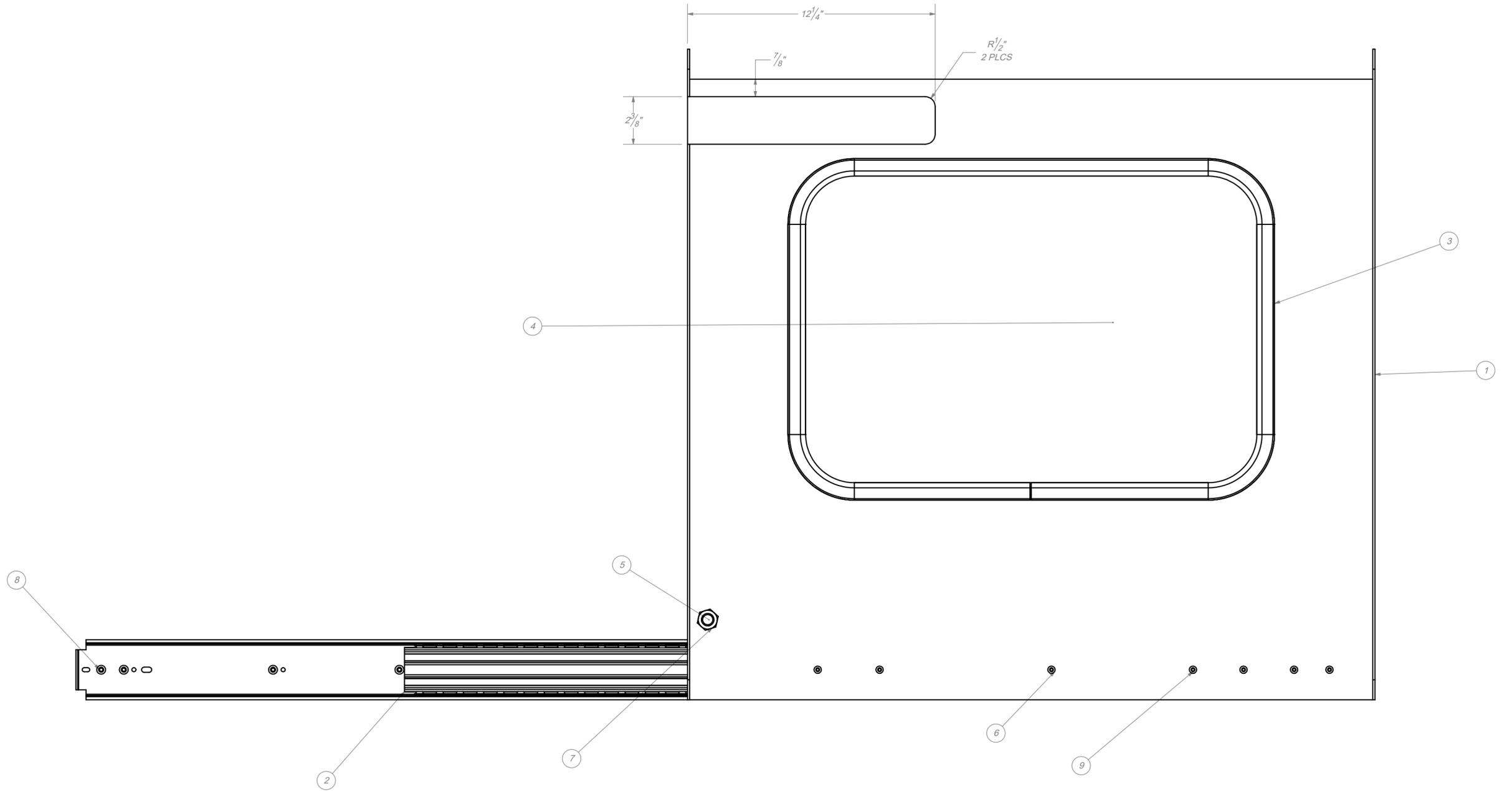
REV	BY	DATE	DESCRIPTION	APP BY	APP DATE
REL	+	05/11/2021	INITIAL RELEASE	K/JH	05/24/2021

	WAUSEON MACHINE & MFG. 995 ENTERPRISE AVE. P.O. BOX 280 WAUSEON, OHIO 43087 419.337.0940 www.wauseonmachine.com	DESIGNED BY: AMM DRAWN BY: AMM CHECKED BY: DRAWN ON: 05/11/2021
	1004 FRAME ASSEMBLY ASSEMBLY TYPE: STANDARD MACHINE SPECIAL INSTRUCTIONS:	SCALE: 1:2 SHEET: 7 OF 7 SIZE: D REVISION: REL ASSEMBLY NUMBER: SA011312

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Drawing File Name: SA011312

ITEM NO.	QTY.	PART NUMBER	DESCRIPTION	VENDOR	MANUFACTURER
1	1	D000834	DOOR	GILSON	
2	2	9301-E32	32" BASE-MOUNT DRAWER SLIDE	BISCO	ACCURIDE
3	2	ELH-600 x 80 INCHES	REID GASKET	REID	
4	2	P52-0034	LEXAN PANEL	ALRO PLASTICS	
5	2	3408A58 BALL PLUNGER	5/8"-11 BALL PLUNGER	McMASTER CARR	McMASTER CARR
6	14	_HEX NUT_10-32 #36030	FASTENER	STOCK	FASTENAL
7	4	HJNUT 0.6250-11-D-C	5/8"-11 HEX JAM NUT	FASTENAL	FASTENAL
8	14	_BHCS_0.250-28 x 0.38 #73766	FASTENER	STOCK	FASTENAL
9	14	_BHCS_10-32 x 0.375 (SS) #73742	FASTENER	FASTENAL	FASTENAL

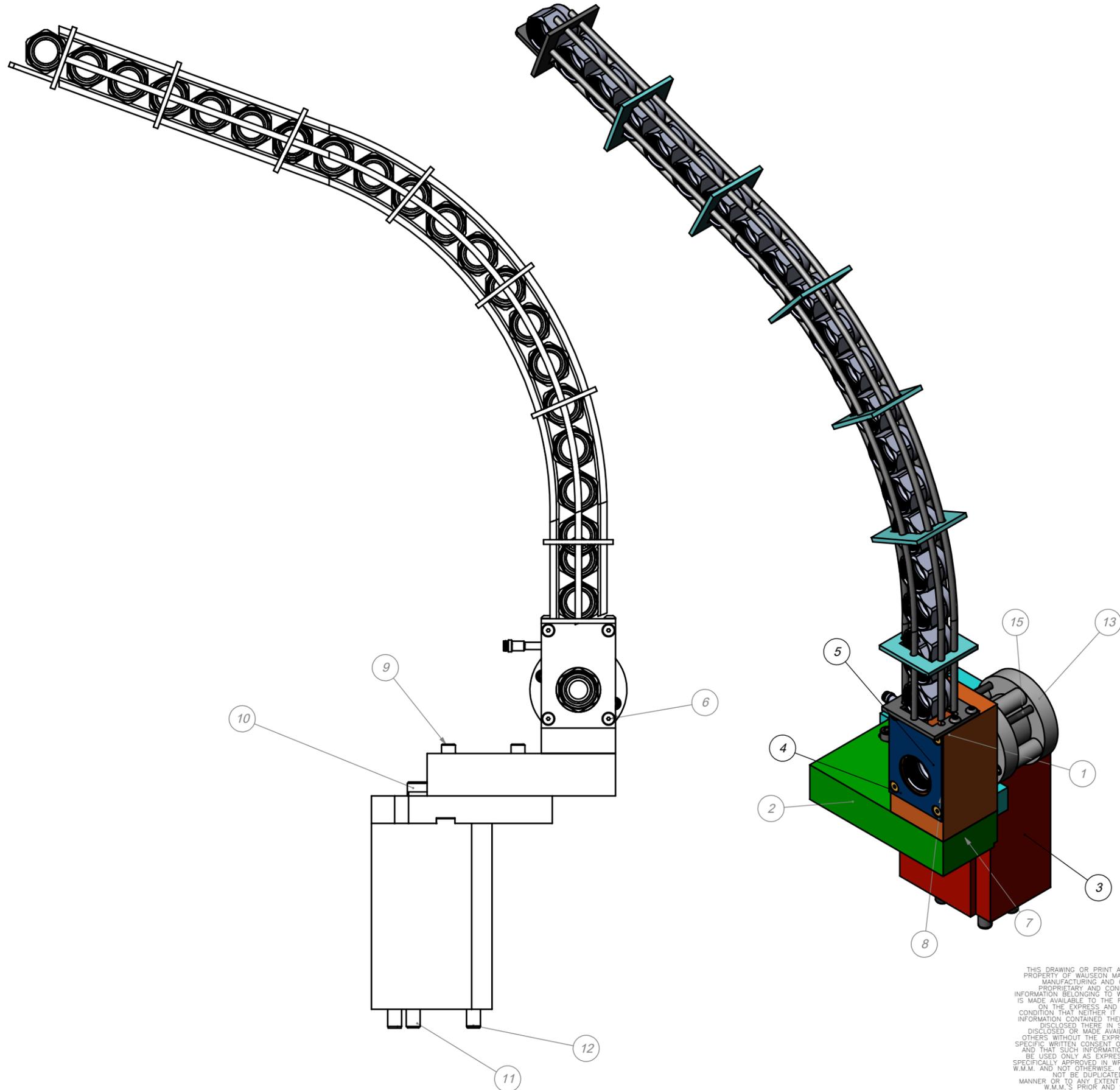


REV	BY	DATE	DESCRIPTION	APP BY	APP DATE
REL	+	05/11/2021	INITIAL RELEASE	KJH	05/24/2021
		6/20/2019			6/20/2019

WAUSEON MACHINE & MFG. 995 ENTERPRISE AVE. P.O. BOX 280 WAUSEON, OHIO 43567 419.337.0940 www.wauseonmachine.com	DESIGNED BY: AMM
	DRAWN BY: AMM
	CHECKED BY:
	DRAWN ON: 05/11/2021
	SCALE: 1:4
	SHEET: 1 OF 1
	REVISION: REL
	ASSEMBLY NUMBER: SA011313

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Drawing File Name: SA011313



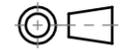
ITEM NO.	QTY.	PART NUMBER	DESCRIPTION	VENDOR
1	1	D025204	MANDREL	WMM
2	1	D025205	MOUNTING PLATE	WMM
3	1	SA010734	MACHINE MOUNT ASSEMBLY	ASSEMBLY
4	1	SA011316	WIRE CHUTE WELDMENT	ASSEMBLY
5	1	D025203	PANEL	WMM
6	4	_FHCS_6-32 x 0.25 #24177	FASTENER	STOCK
7	2	26751	0.250 x 0.75 LG DOWEL PIN	STOCK
8	1	SCHSCREW 0.3125-18x1.75x1.75-HX-C	FHSCS 5/16-18 x 1.75" LG x 1.75" THRD LG	FASTENAL
9	4	23285	SHCS 1/4-20 x 1.625" LG x 1.125" THRD LG	STOCK
10	2	23309	SHCS 3/8-16 x 1.5" LG x 1.5" THRD LG	STOCK
11	2	23319	SHCS 3/8-16 x 4" LG x 1.5" THRD LG	STOCK
12	2	DPM 0.375x1.25	3/8" X 1.25" DOWELPIN	STOCK
13	1	FO-171.125		MOTION
14	23	GPN0306H	Fitting	
15	4	23172	SHCS #10-32 x 2" LG x 1.125" THRD LG	STOCK

REV	BY	DATE	DESCRIPTION	APP BY	APP DATE
REL	AMM	05/11/2021	INITIAL RELEASE	TK	05/19/2021


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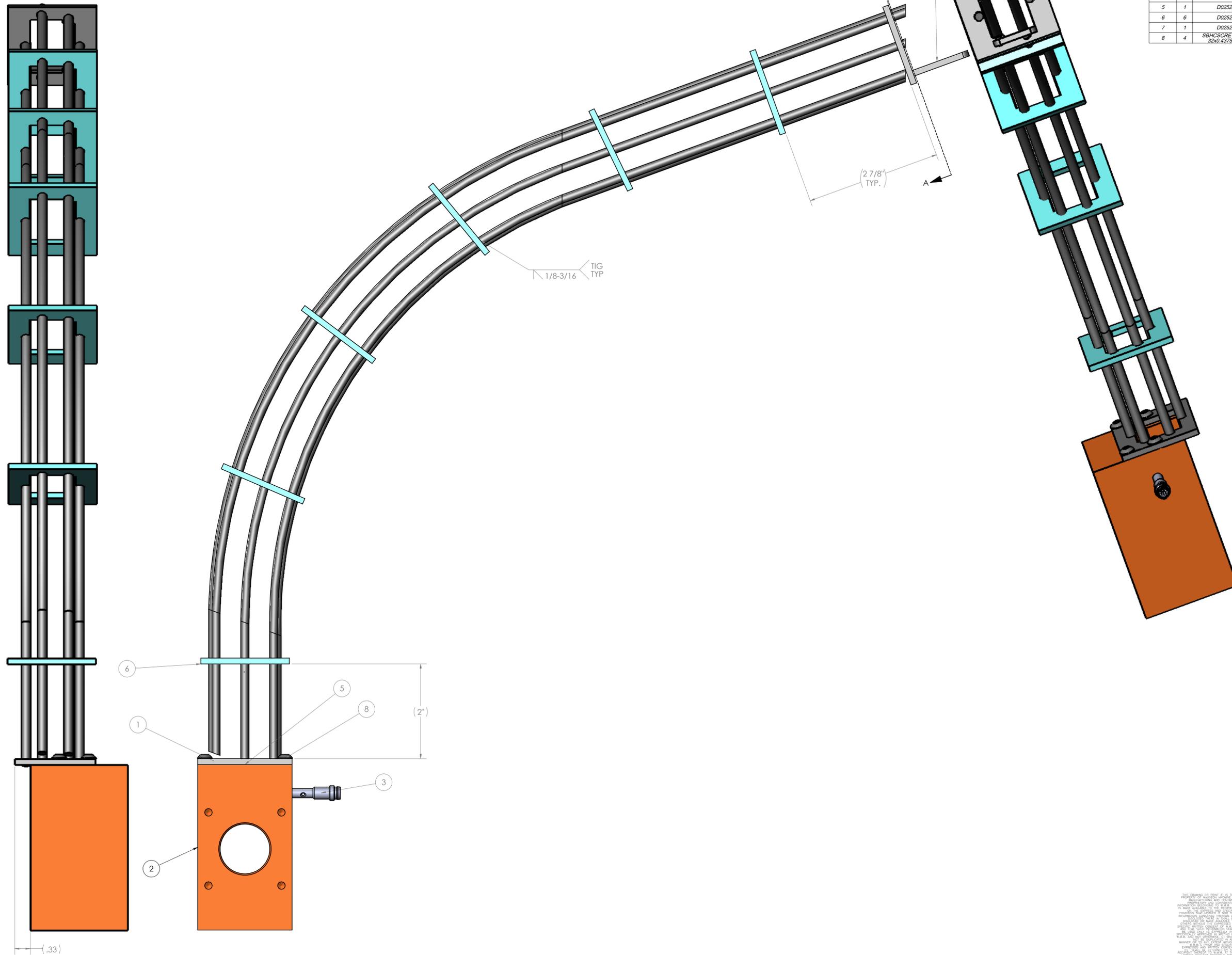
DESIGNED BY: AMM	
DRAWN BY: AMM	
CHECKED BY:	
DRAWN ON: 05/11/2021	
SCALE: 1:3	SHEET: 1 OF 1
SIZE: B	REVISION: REL
ASSEMBLY NUMBER: SA011315	

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 TIGHTEN ALL BOLTS TO STANDARD SPEC UNLESS OTHERWISE NOTED
 LABEL ALL AIR LINES AND FITTINGS

LOAD CHUTE BRASSCRAFT - CSSC
 ASSEMBLY TYPE: **FIXTURE**
 SPECIAL INSTRUCTIONS:

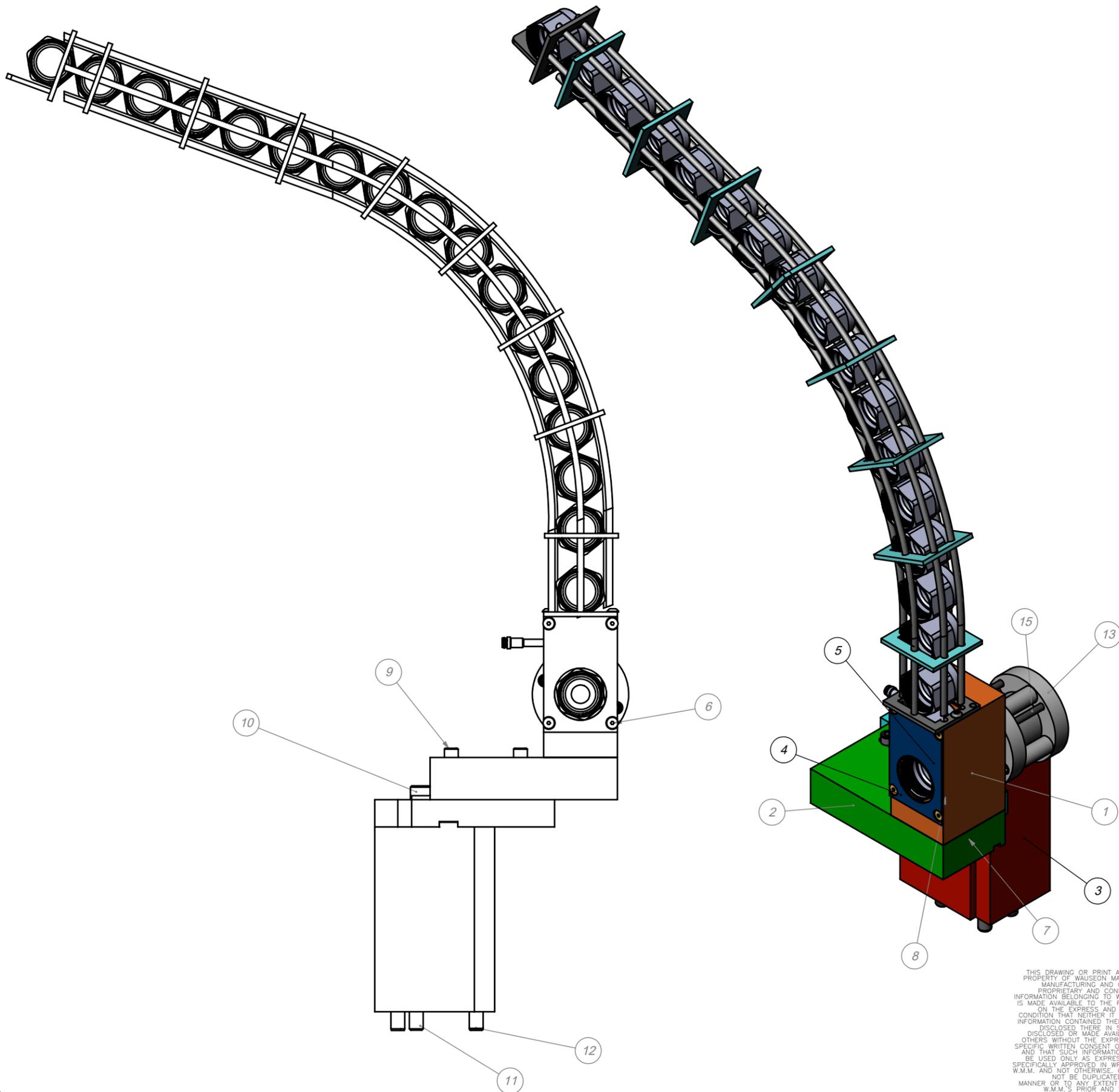
ITEM NO.	QTY.	PART NUMBER	DESCRIPTION	VENDOR	MANUFACTURER
1	1	D025206	CHUTE COVER	WMM	WMM
2	1	D025210	HOUSING	WMM	WMM
3	1	DW-AS-503-M5-4		AUTOMATION DIRECT	AUTOMATION DIRECT
4	1	D025207	LOCATOR PLATE	WMM	WMM
5	1	D025208	BRACE	WMM	WMM
6	6	D025209	CHUTE COVER	WMM	WMM
7	1	D025211	LOCATOR PLATE	WMM	WMM
8	4	SBHCSCREW 0.164-32x0.4375-HX-C	BHCS #8-32 x 0.4375"	FASTENAL	FASTENAL



REV	BY	DATE	DESCRIPTION	APP BY	APP DATE
REL	AMM	05/11/2021	INITIAL RELEASE	TK	05/19/2021

		995 ENTERPRISE AVE. P.O. BOX 280 WAUSEON, OHIO 43357 419.337.0940 www.wauseonmachine.com	DESIGNED BY: AMM DRAWN BY: AMM CHECKED BY: DRAWN ON: 05/11/2021
WIRE CHUTE WELDMENT BRASSCRAFT - CSSC LOAD CHUTE		SCALE: 1:1 SHEET: 1 OF 1	ASSEMBLY TYPE: FIXTURE SPECIAL INSTRUCTIONS:
TIGHTEN ALL BOLTS TO STANDARD SPEC UNLESS OTHERWISE NOTED LABEL ALL AIR LINES AND FITTINGS		ASSEMBLY NUMBER:	REVISION: D REL ASSEMBLY NUMBER: SA011316

Drawing File Name: SA011316



ITEM NO.	QTY.	PART NUMBER	DESCRIPTION	VENDOR
1	1	D025305	MANDREL	WMM
2	1	D025306	MOUNTING PLATE	WMM
3	1	SA010734	MACHINE MOUNT ASSEMBLY	ASSEMBLY
4	1	SA011338	WIRE CHUTE WELDMENT	ASSEMBLY
5	1	D025304	PANEL	WMM
6	4	_FHCS_6-32 x 0.25 #24177	FASTENER	STOCK
7	2	26751	0.250 x 0.75 LG DOWEL PIN	STOCK
8	1	SCHSCREW 0.3125-18x1.75x1.75-HX-C	FHSCS 5/16-18 x 1.75" LG x 1.75" THRD LG	FASTENAL
9	4	23285	SHCS 1/4-20 x 1.625" LG x 1.125" THRD LG	STOCK
10	2	23309	SHCS 3/8-16 x 1.5" LG x 1.5" THRD LG	STOCK
11	2	23319	SHCS 3/8-16 x 4" LG x 1.5" THRD LG	STOCK
12	2	DPM 0.375x1.25	3/8" X 1.25" DOWELPIN	STOCK
13	1	FO-171.25		MOTION
14	20	GPN0309	CSSB Nut	
15	4	HX-SHCS 0.19-32x2.25x0.875-C	SHCS #10-32 x 2.25" LG x 0.875" THRD LG	FASTENAL

REV	BY	DATE	DESCRIPTION	APP BY	APP DATE
REL			INITIAL RELEASE	KJH	05/20/2021

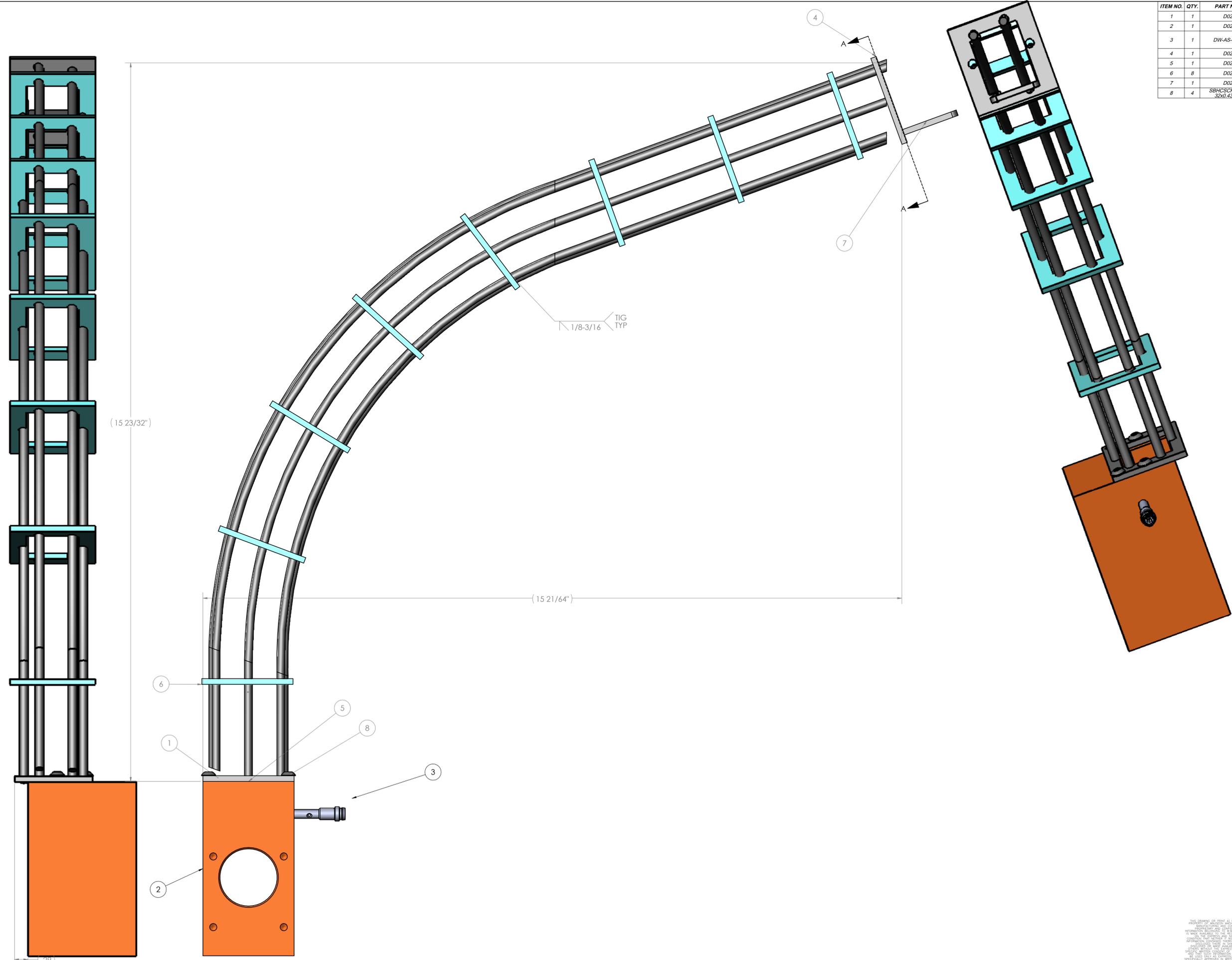
WAUSEON MACHINE AND MANUFACTURING 995 ENTERPRISE AVE. P.O. BOX 280 WAUSEON, OHIO 43567 419.337.0940 www.wauseonmachine.com	DESIGNED BY: Adam Meyer
	DRAWN BY: AMM
	CHECKED BY:
	DRAWN ON: 05/18/2021
	SCALE: 1:3
	SHEET: 1 OF 1
	REVISION:
	B REL
	ASSEMBLY NUMBER: SA011337

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TIGHTEN ALL BOLTS TO STANDARD SPEC UNLESS OTHERWISE NOTED
 LABEL ALL AIR LINES AND FITTINGS

Drawing File Name: SA011337

ITEM NO.	QTY.	PART NUMBER	DESCRIPTION	VENDOR	MANUFACTURER
1	1	D025307	CHUTE COVER	WMM	WMM
2	1	D025311	HOUSING	WMM	WMM
3	1	DW-AS-503-M5-4		AUTOMATION DIRECT	AUTOMATION DIRECT
4	1	D025308	LOCATOR PLATE	WMM	WMM
5	1	D025309	BRACE	WMM	WMM
6	8	D025310	CHUTE COVER	WMM	WMM
7	1	D025312	LOCATOR PLATE	WMM	WMM
8	4	SBHCSCREW 0.164-32x0.4375-HX-C	BHCS #8-32 x 0.4375"	FASTENAL	FASTENAL



REV	BY	DATE	DESCRIPTION	APP BY	APP DATE
REL	AMM	05/18/2021	INITIAL RELEASE	KJH	05/20/2021

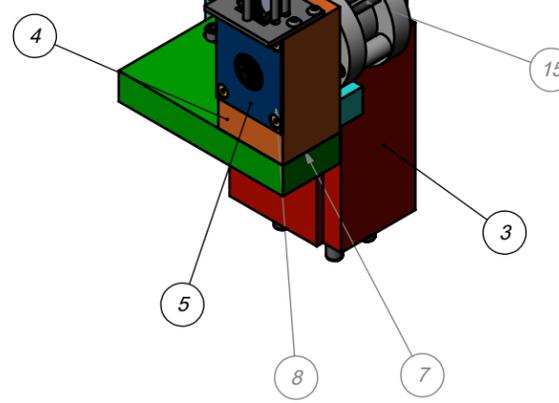
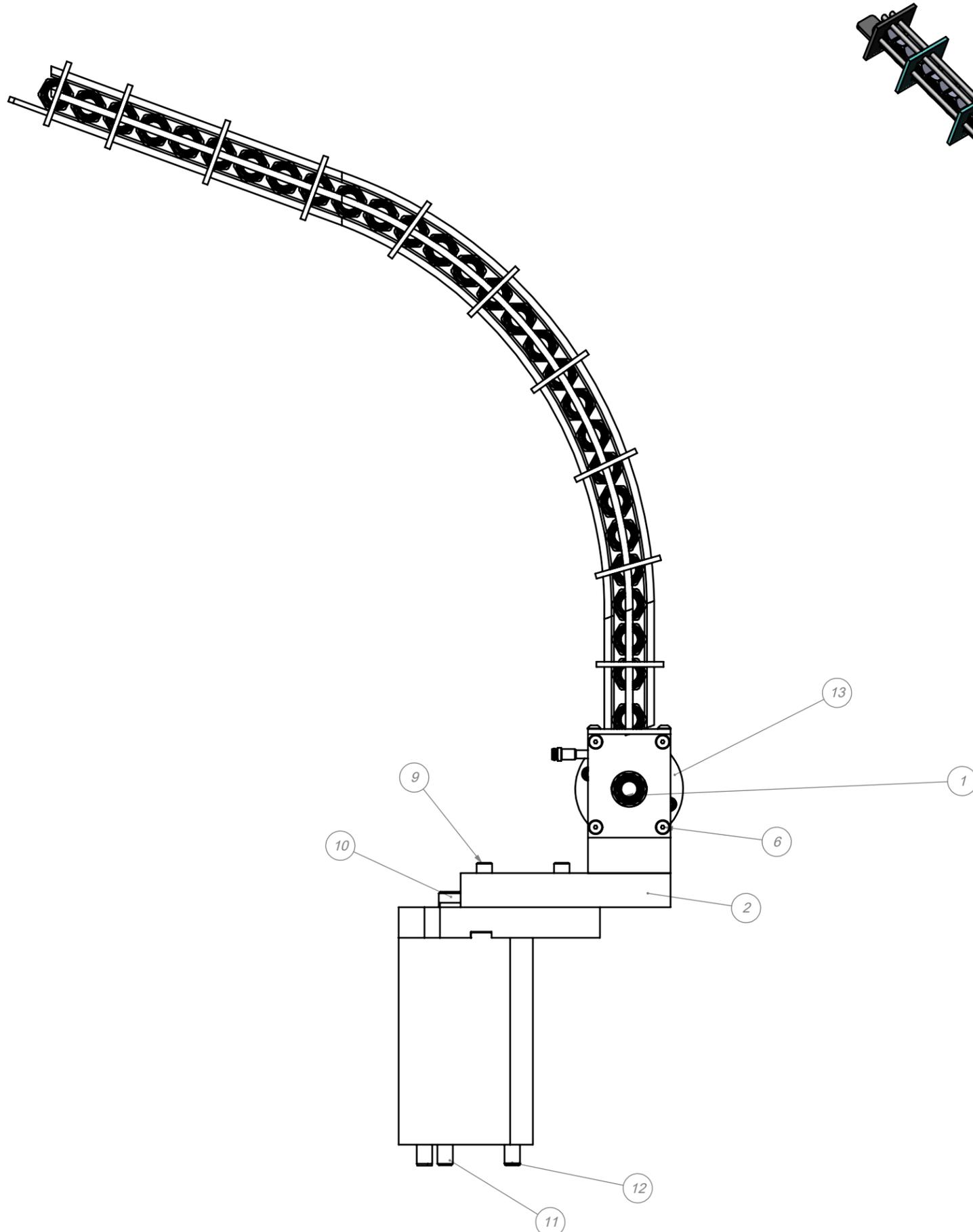
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 DRAWN BY: AMM
 CHECKED BY:
 DRAWN ON: 05/18/2021
 SCALE: 1:1
 SHEET: 7 OF 7
 SIZE: D
 REVISION: REL
 ASSEMBLY NUMBER: SA011338

WIRE CHUTE WELDMENT
BRASSCRAFT - CSSB LOAD CHUTE
 ASSEMBLY TYPE: FIXTURE
 SPECIAL INSTRUCTIONS:

TIGHTEN ALL BOLTS TO STANDARD SPEC UNLESS OTHERWISE NOTED
 LABEL ALL AIR LINES AND FITTINGS

Drawing File Name: SA011338



ITEM NO.	QTY.	PART NUMBER	DESCRIPTION	VENDOR
1	1	D025359	MANDREL	WMM
2	1	D025360	MOUNTING PLATE	WMM
3	1	SA010734	MACHINE MOUNT ASSEMBLY	ASSEMBLY
4	1	SA011355	WIRE CHUTE WELDMENT	ASSEMBLY
5	1	D025358	PANEL	WMM
6	4	_FHCS_6-32 x 0.25 #24177	FASTENER	STOCK
7	2	26751	0.250 x 0.75 LG DOWEL PIN	STOCK
8	1	SCHCSCREW 0.3125-18x1.5x1.5-HX-C	FHCS 5/16-18 x 1.5" LG x 1.5" THRD LG	STOCK
9	4	23207	SHCS 1/4-20 x 1.25" LG x 1.25" THRD LG	STOCK
10	2	23309	SHCS 3/8-16 x 1.5" LG x 1.5" THRD LG	STOCK
11	2	23319	SHCS 3/8-16 x 4" LG x 1.5" THRD LG	STOCK
12	2	DPM 0.375x1.25	3/8" X 1.25" DOWELPIN	STOCK
13	1	FO-171		MOTION
14	32	GPN0305	CSSL Nut	
15	4	23172	SHCS #10-32 x 2" LG x 1.125" THRD LG	STOCK

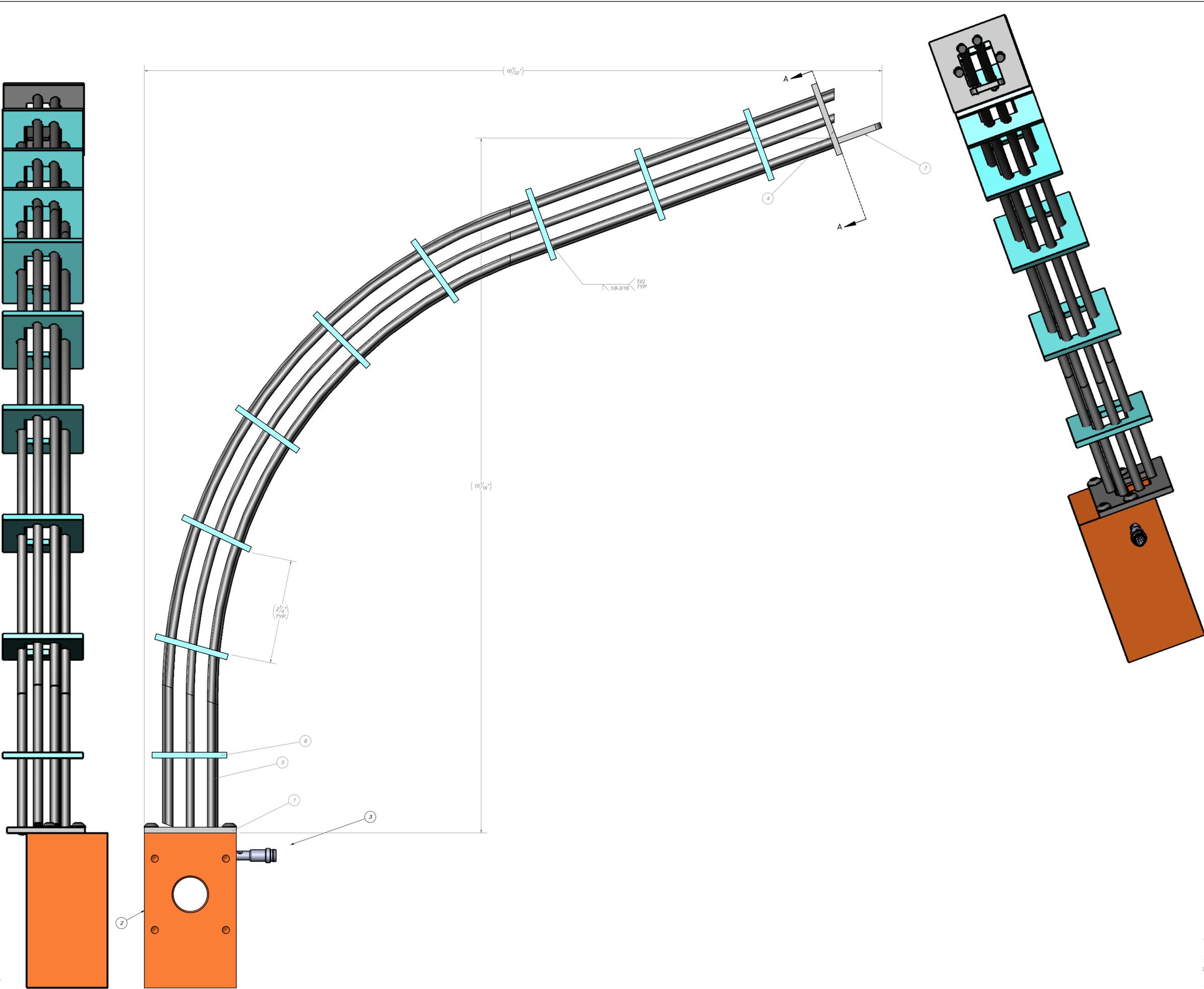
REV	BY	DATE	DESCRIPTION	APP BY	APP DATE
REL			INITIAL RELEASE	EHP	05/20/2021

WAUSEON MACHINE AND MANUFACTURING 995 ENTERPRISE AVE. P.O. BOX 280 WAUSEON, OHIO 43567 419.337.0940 www.wauseonmachine.com	DESIGNED BY: Adam Meyer
	DRAWN BY: AMM
	CHECKED BY:
	DRAWN ON: 05/20/2021
	SCALE: 1:3
	SHEET: 1 OF 1
	REVISION: B
	REL
	ASSEMBLY NUMBER: SA011354

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TIGHTEN ALL BOLTS TO STANDARD SPEC UNLESS OTHERWISE NOTED
 LABEL ALL AIR LINES AND FITTINGS

ITEM NO.	QTY	PART NUMBER	DESCRIPTION	VENDOR	MANUFACTURE R
1	1	D025361	CHUTE COVER	WMM	WMM
2	1	D025365	HOUSING	WMM	WMM
3	1	DW-AS-503-MS-4		AUTOMATION DIRECT	AUTOMATION DIRECT
4	1	D025362	LOCATOR PLATE	WMM	WMM
5	1	D025363	BRACE	WMM	WMM
6	9	D025364	CHUTE COVER	WMM	WMM
7	1	D025366	LOCATOR PLATE	WMM	WMM
8	4	SBHSCREW 0.164-32x0.4375-HX-C	BHCS #8-32 x 0.4375"	FASTENAL	FASTENAL

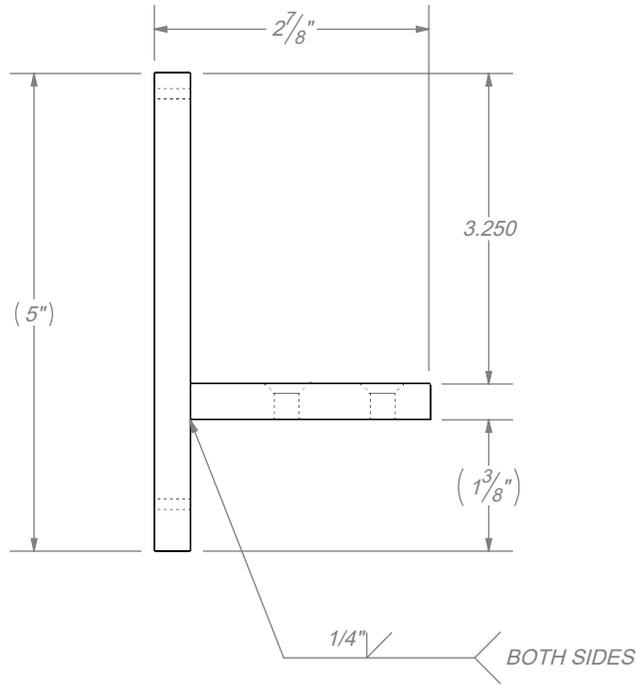


REV	BY	DATE	DESCRIPTION	APP BY	APP DATE
REL	AMM	05/20/2021	INITIAL RELEASE	EHP	05/20/2021

WAUSEON MACHINE AND MANUFACTURING <small>995 ENTERPRISE AVE. P.O. BOX 280 WAUSEON, OHIO 43357 419.337.0940 www.wauseonmachine.com</small>	DESIGNED BY: AMM
	DRAWN BY: AMM
	CHECKED BY:
DRAWN ON: 05/20/2021	SCALE: 1:1
SIZE: 11.0	SHEET: 1 OF 1
ASSEMBLY TYPE: WIRE CHUTE WELDMENT	REVISION: REL
SPECIAL INSTRUCTIONS: TIGHTEN ALL BOLTS TO STANDARD SPEC UNLESS OTHERWISE NOTED. LABEL ALL AIR LINES AND FITTINGS.	ASSEMBLY NUMBER: SA011355

Drawing File Name: SA011355

ITEM NO.	QTY	PART NUMBER	DESCRIPTION	VENDOR	MANUFACTURER
1	1	D026155	SPACER	WMM	WMM
2	1	D026160	SPACER	WMM	WMM



REV	BY	DATE	DESCRIPTION	APP BY	APP DATE
REL	+	07/16/2021	INITIAL RELEASE	KJH	07/19/2021



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DESIGNED BY: *AMM*

DRAWN BY: *AMM*

CHECKED BY:

DRAWN ON: 07/16/2021

SCALE:
1:2

SHEET:
1 OF 1

SIZE:

REVISION:

A

REL

ASSEMBLY NUMBER:

SA011589



TIGHTEN ALL BOLTS TO
STANDARD SPEC UNLESS
OTHERWISE NOTED

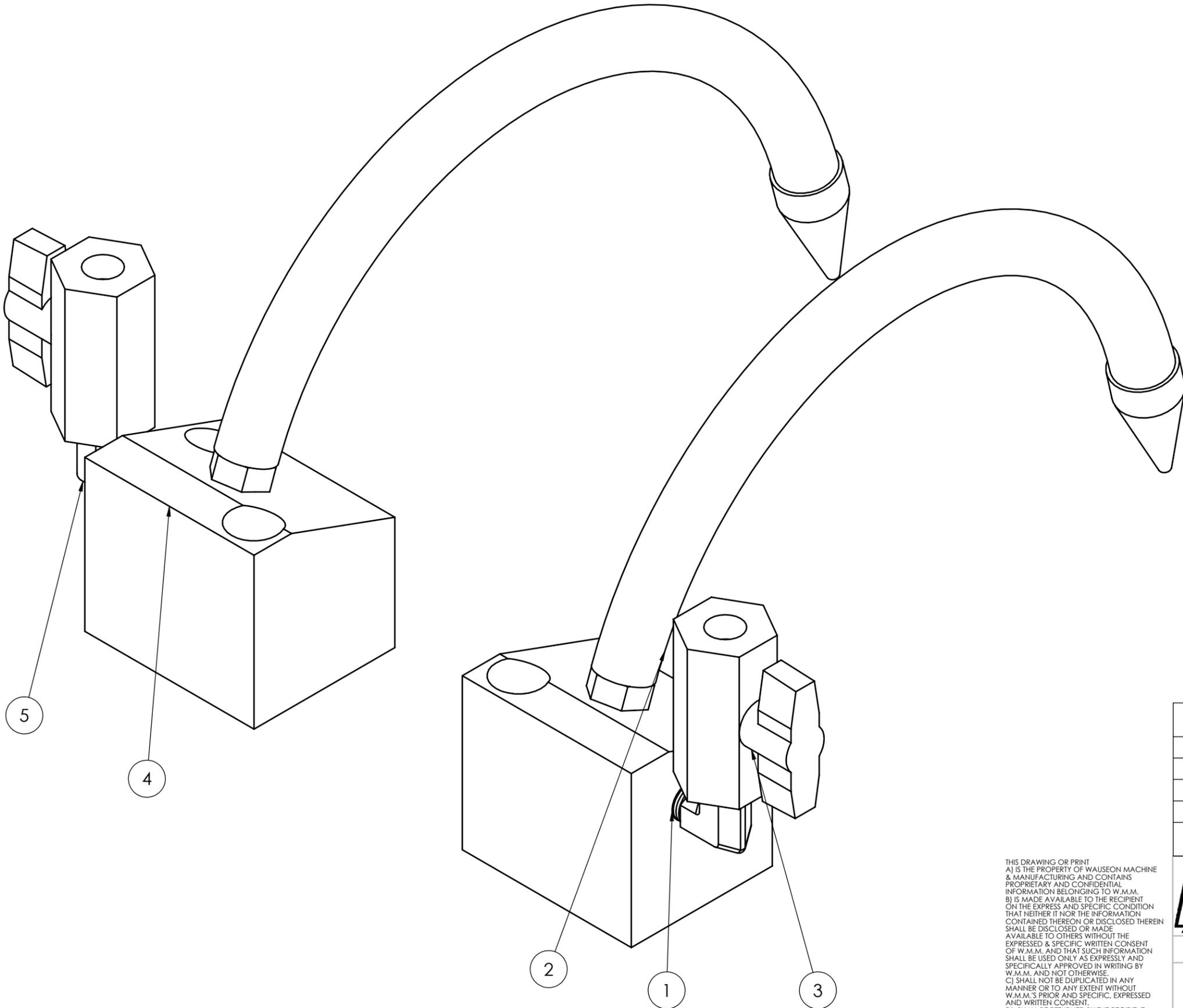
LABEL ALL AIR LINES AND
FITTINGS

MOUNT

ASSEMBLY TYPE: *WELDMENT*

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 AND WRITTEN CONSENT.
 D) SHALL BE RETURNED BY THE RECIPIENT
 THEREOF TO W.M.M. AT THE LATTER'S
 REQUEST PROMPTLY AFTER SUCH REQUEST IS
 MADE

ITEM NO.	BOM DISPLAY/QTY.	PART NUMBER	DESCRIPTION
1	1	M03-0046	MANIFOLD
2	2	8451K41	AIR NOZZLE
3	2	4912K76	BALL VALVE
4	1	M03-0046 MIRROR	MANIFOLD
5	2	1204P-2 .125 PIPE ELBOW	MALE ELBOW

 W M AUSEON MACHINE & MFG.	995 ENTERPRISE P.O. BOX 280 WAUSEON, OHIO 43567 (419) 337/0940	DES BY: RLS DRWN BY: RLS APP BY: DATE: 10/26/10 SCALE: 1:1 SIZE: B SO NUMBER REF: B6279 PART NO.: SA1-0043
	TOLERANCES UNLESS OTHERWISE SPECIFIED ANGULAR = XX ± 1° FRACTIONAL = 1/XX ± 1/32" 2 PL DEC = X.XX ± .010" 3 PL DEC = X.XXX ± .005" 4 PL DEC = X.XXXX ± .001" BREAK ALL EDGES .02 MAX	DESCRIPTION: AIR BLOW ASSEMBLY
COPY OF P.N.		

MODEL 1004 ELECTRIC ENDFORMER

Bill of Materials

Main Bill of Materials

<i>ITEM NUMBER</i>	<i>QTY\ MACH</i>	<i>PART NUMBER</i>	<i>DESCRIPTION</i>	<i>VENDOR</i>
	I	B71026-05&06-MA	MAIN ASSEMBLY	WMM
1	1	SA011312	1004 FRAME ASSEMBLY	ASSEMBLY
2	1	SA004581	WELDMENT	
3	1	SA008706	1004 ELECTRIC TOP PLATE ASSY	ASSEMBLY
4	1	SA004641	SMC 1/2" FRL ASSEMBLY	SMC
5	1	SA010050	PNEUMATIC MANIFOLD ASSEMBLY	ASSEMBLY
6	1	SF2BNAC	BIJUR LUBE PUMP 110 VAC	
7	1	D007791	GUARD	
8	1	50915K155	3/8" COMPRESSION TEE	McMASTER CARR
9	1	50915K325	1/2" NPT TO 3/8" COMPRESSION FITTING	McMASTER CARR
10	1	50915K725	1/2" NPT X 3/8" COMPRESSION ELBOW	McMASTER CARR
11	2	50915K195	PLASTIC SLEEVE FOR 3/8" COMPRESSION FITTING	McMASTER CARR
12	2	8950K582	3/8" OD X .032" WALL BRASS TUBING	McMASTER CARR
13	1	PLASTIC JUG #4266T61	Semi-Clear Plastic Jug	McMASTER CARR
14	1	SA011296	LOAD CHUTE	ASSEMBLY
15	1	D025190	GUARD	WMM
16	1	SA011315	LOAD CHUTE	ASSEMBLY
17	-	OPTO TOUCH	OPTO TOUCH BUTTON (REF)	
18	-	SMB30MM	SWIVEL BRACKET	BANNER
19	2	SLPP14-550P88		BANNER
20	1	SA011337	LOAD CHUTE	ASSEMBLY
21	1	SA011354	LOAD CHUTE	ASSEMBLY
	I	SA000085	RAM ASSEMBLY	WMM
1	1	D000326	BEARING HOUSING	WMM
2	1	D000805	STOP	WMM
3	1	D000850	SPACER	WMM
4	1	D001223	ADAPTER	WMM
5	1	D001503	MOD PURCH COMP	SKF/OTP/ROLLVIS
6	1	R88M-K7K515C-S2	OMRON SERVO MOTOR 7.KW	KEYED AND TAPPED SHAFT
7	1	RV171 39.5.R5.609568 1 NUT	ROLLVIS NUT ASSEMBLY (REFERENCE)	ROLLVIS
8	1	BLM-13	WHITTET HIGGINS M65 BEARING LOCK NUT	OTP
9	4	7213 BEA	NSK BEARING	OTP

Main Bill of Materials

<i>ITEM NUMBER</i>	<i>QTY\ MACH</i>	<i>PART NUMBER</i>	<i>DESCRIPTION</i>	<i>VENDOR</i>
10	1	ETP-E42	ZERO MAX SERVO COUPLER	MOTION
11	2	CRW1---29525	SKF SHAFT SEAL	MOTION
12	1	KQ2L04-M6A	4MM TUBE x M6 MALE ELBOW	OTP
13	6	_SHCS_0.375-16 x 2.00 #23311	FASTENER	STOCK
14	8	HX-SHCS 0.375-16x1.375x1.375-C	SHCS 3/8-16 x 1.375" LG x 1.375" THRD LG	FASTENAL
15	4	23355	SHCS 7/16-14 x 1" LG x 1" THRD LG	STOCK
16	4	HX-SHCS 0.5-20x1.75x1.75-C	SHCS 1/2-20 x 1.75" LG x 1.75" THRD LG	FASTENAL
	1	SA011313	HOOD ASSEMBLY	WMM
1	1	D000834	DOOR	GILSON
2	2	9301-E32	32" BASE-MOUNT DRAWER SLIDE	BISCO
3	2	ELH-600 x 80 INCHES	REID GASKET	REID
4	2	P52-0034	LEXAN PANEL	ALRO PLASTICS
5	2	3408A58 BALL PLUNGER	5/8"-11 BALL PLUNGER	McMASTER CARR
6	14	_HEX NUT_10-32 #36030	FASTENER	STOCK
7	4	HJNUT 0.6250-11-D-C	5/8"-11 HEX JAM NUT	FASTENAL
8	14	_BHCS_0.250-28 x 0.38 #73766	FASTENER	STOCK
9	14	_BHCS_10-32 x 0.375 (SS) #73742	FASTENER	FASTENAL
	1	SA000516	WORM GEAR ASSMEBLY	WMM
1	1	D000892	HARDENED SHAFT	WMM
2	1	D000906	KEEPER PLATE	WMM
3	4	7202BEA	NSK 15mm ID 35mm OD ANGULAR CONTACT BEARING	OTP
4	2	3750K12	THRUST BEARING 5/8" ID x 1" OD x 1/8" THK	McMASTER CARR
5	1	98870A355	3/16 x 1 1/4 KEY	McMASTER CARR
6	1	9845T21	Ø1-5/8" COUPLING SPIDER	McMASTER CARR
7	1	9845T4-.75	3/4" SHAFT COUPLING	McMASTER CARR
8	1	98099A030	5/16 HEAVY HARDENED WASHER	McMASTER CARR
9	1	W10_	10 PITCH WORM	MARTIN
10	1	_SHCS_0.313-18 x 0.63 #23252	FASTENER	STOCK
	1	SA004455	FLAG	WMM
1	1	P11-0071	LOCATOR	WMM

Main Bill of Materials

<i>ITEM NUMBER</i>	<i>QTY\ MACH</i>	<i>PART NUMBER</i>	<i>DESCRIPTION</i>	<i>VENDOR</i>
2	1	P11-0072	PART STOP	WMM
3	1	EP060716 (P37-8) Bronze Bushing	BRONZE BUSHING	MOTION
4	1	91590A117	EXTERNAL RETAINING RING FOR 3/8" OD	McMASTER CARR
5	1	9657K338	Ø0.6" OD X 1.25" LG COMPRESSION SPRING	8 LBS/IN
	1	SA008707	TURRET ASSEMBLY	WMM
1	1	SA1-0711	#1003 TURRET FL-KIT	FLUIDLINE SYSTEMS
2	1	SA000516	WORM GEAR BEARING ASSEMBLY	WMM
3	5	B05-0004	BUSHING	WMM
4	1	C20-0120	CAP	WMM
5	1	P20-0514	PIN	WMM
6	1	D000765	TURRET	WMM
7	1	D000882	CASTING	WMM
8	1	D000888	WEAR PLATE	WMM
9	1	D000890	SPACER	WMM
10	1	D006069	ADAPTER	WMM
11	1	AA1212-14	BUNTING BUSHING	MOTION
12	1	BBEF162016	ALLOY FLANGED BEARING	MOTION
13	1	BBEP162016	ALLOY FLANGED BEARING	MOTION
14	1	NCDA1F150-0100N	Ø1.5" BORE x 1" STROKE TIE-ROD CYLINDER	OTP
15	1	871FM-M1NP5-AP3	SQUARE PROX	McNAUGHTON McKAY
16	1	98870A405	1/4 x 1/4 x 1 1/4 KEY	McMASTER CARR
17	1	4638K514	1/2" NPT ZINC PLATED PLUG	McMASTER CARR
18	1	9845T4-14mm	Ø14MM SHAFT COUPLER	McMASTER CARR
19	2	KQ2L07-U03A	1/4" TUBE DIA x 3/8"UNI MALE ELBOW	OTP
20	1	KQ2H04-U01	4MM TUBE DIA x 1/8"UNI MALE CONNECTOR	OTP
21	1	9835K41	1/8 NPT MUFFLER	McMASTER CARR
22	5	_SHCS_0.313-24 x 0.63 #23817	FASTENER	FASTENAL
23	1	_SHCS_0.500-20 x 1.13 #23758	FASTENER	FASTENAL
24	4	_SHCS_0.250-20 x 0.88 #23204	FASTENER	STOCK
25	20	11103343	SHCS M6 x 20MM LG x 20 MM THRD LG	STOCK
26	12	23164	SHCS #10-32 x 0.5" LG x 0.5" THRD LG	STOCK
27	4	24CHX	SHCS M6 x 45MM LG x 24 MM THRD LG	FASTENAL

Main Bill of Materials

<i>ITEM NUMBER</i>	<i>QTY\ MACH</i>	<i>PART NUMBER</i>	<i>DESCRIPTION</i>	<i>VENDOR</i>
28	5	23114	#8-32 x 1/2" LG SHCS	STOCK
29	1	D016900	HARDENED SHAFT	WMM
30	1	D016901	HARDENED SHAFT	WMM
31	<i>1</i>	D016902	MOD PURCH COMP	WMM
32	2	R1605-204-31-410-25-25	25 SERIES LINEAR BEARING RAIL	MORRELL
33	4	R1651-214-20	25 SERIES BEARING BLOCK	MORRELL
34	1	_SHCS_0.500-20 x 3.00 #23883	FASTENER	STOCK
	<i>1</i>	<i>SA005646</i>	<i>WEDGE ROLLER BLOCK ASSEMBLY</i>	<i>WMM</i>
1	1	B10-0132	BLOCK	WMM
2	1	D000444	PIN	WMM
3	2	G04-0030	GUIDE	WMM
4	1	R02-0007	ROLLER	WMM
5	2	S10-0071	SPACER	WMM
6	26	CNB-112-6	3/16Ø x 1 1/2" LONG NEEDLE BEARING	MOTION
7	1	58812	GREASE FITTING	FASTENAL
8	1	872C-D3NP8-D4	AB PROXIMITY SWITCH	McNAUGHTON McKAY
9	2	91590A249	1 3/8 EXTERNAL SNAP RING	McMASTER CARR
10	2	95235A553	3/8-16 x 5/8 DOG POINT SET SCREW	McMASTER CARR
11	4	23254	5/16-18 x 7/8" LG SHCS	STOCK
12	7	_SHCS_0.625-11 x 2.00 #23511	FASTENER	STOCK
13	1	SCHCSREW 0.75-10x2x2-HX-C	FHSCS 3/4-10 x 2" LG x 2" THRD LG	FASTENAL
	<i>1</i>	<i>SA011312</i>	<i>FRAME ASSEMBLY</i>	<i>WMM</i>
1	1	D000736	WELDMENT	WELDING
2	1	SA011313	GUARD DOOR ASSEMBLY	ASSEMBLY
3	1	D006740	WELDMENT	WMM WELDING
4	2	_BHCS_8-32 x 0.38 #73721	FASTENER	FASTENAL
5	1	P30-0047	PLATE	WMM STOCK
6	4	6144K17	3/4-10 LEVELING FOOT-BOLT DOWN	7
7	1	D000740	LEXAN PANEL	ALRO PLASTICS
8	1	ELH-600 x 69 INCHES	REID GASKET	REID
9	1	D009392	COVER PLATE	GILSON

Main Bill of Materials

<i>ITEM NUMBER</i>	<i>QTY\ MACH</i>	<i>PART NUMBER</i>	<i>DESCRIPTION</i>	<i>VENDOR</i>
	<i>1</i>	<i>SA008706</i>	<i>TOP PLATE</i>	<i>WMM</i>
1	1	SA002866	LOCKUP LINEAR CAM ASSY	ASSEMBLY
2	1	SA000085	EL RAM ASSEMBLY	ASSEMBLY
3	1	SA006718	MOVING LOCKUP ASSY	ASSEMBLY
4	1	SA005646	WEDGE ROLLER BLOCK ASSY	WMM
5	1	SA008707	TURRET ASSEMBLY	ASSEMBLY
6	1	SA004455	1004 TUBE LOCATOR ASSEMBLY	ASSEMBLY
7	1	B08-0195	BACKUP	WMM
8	2	D004795	HOLD DOWN	WMM
9	1	D004797	BLOCK	WMM
10	2	G01-0025	GIBB	WMM
11	1	K01-0027	KEY	WMM
12	1	P41-0068	WEAR PLATE	WMM
13	1	P41-0067	WEAR PLATE	WMM
14	2	P41-0082	WEAR PLATE	WMM
15	1	D007779	BASEPLATE	WMM
16	1	D002945	GUARD	GILSON
17	1	D013302	ANGLE BRACKET	WMM
18	1	TR-50-02	E-CHAIN MOUNTING BRACKET	IGUS
19	1	NCDQ2L63-50DZ	Ø63MM BORE x 50MM STROKE COMPACT CYLINDER	OTP
20	1	98750A483	1/2-20 x 4" THREADED STUD	McMASTER CARR
21	5	_SHCS_0.438-14 x 1.25 #23357	FASTENER	STOCK
22	4	_FHCS_0.250-20 x 0.63 #24223	FASTENER	STOCK
23	6	23254	5/16-18 x 7/8" LG SHCS	STOCK
24	8	_SHCS_0.750-10 x 3.00 #23565	FASTENER	STOCK
25	1	_SHCS_0.438-14 x 1.00 #23355	FASTENER	STOCK
26	1	_SHCS_0.625-11 x 1.25 #23507	FASTENER	STOCK
27	12	_SHCS_0.375-16 x 1.25 #23307	FASTENER	STOCK
28	7	_SHCS_0.625-11 x 2.00 #23511	FASTENER	STOCK
29	4	23415	SHCS 1/2-13 x 3" LG x 1.5" THRD LG	STOCK
30	14	11103345	SHCS M6 x 25MM LG x 25 MM THRD LG	STOCK
31	1	SCHCSCREW 0.75-10x2x2-HX-C	FHSCS 3/4-10 x 2" LG x 2" THRD LG	FASTENAL

Main Bill of Materials

<i>ITEM NUMBER</i>	<i>QTY\ MACH</i>	<i>PART NUMBER</i>	<i>DESCRIPTION</i>	<i>VENDOR</i>
32	8	23323	SHCS 3/8-16 x 5" LG x 1.5" THRD LG	FASTENAL
33	2	23875	SHCS 1/2-20 x 1" LG x 1" THRD LG	STOCK
34	2	23202	1/4-20 x 5/8" LG SHCS	STOCK
35	2	_HEX NUT_0.500-20 #36360	FASTENER	STOCK
36	4	_SHCS_M10-1.5 x 16 #11103369	FASTENER	STOCK
	1	SA006718	MOAVEABLE LOCK-UP ASSEMBLY	WMM
1	1	B08-0195	BACKUP	WMM
2	1	D004796	BLOCK	WMM
3	1	D000444	PIN	WMM
4	2	G01-0031	GIBB	WMM
5	1	P41-0067	WEAR PLATE	WMM
6	1	P41-0068	WEAR PLATE	WMM
7	1	R02-0007	ROLLER	WMM
8	2	S10-0071	SPACER	WMM
9	1	58812	GREASE FITTING	FASTENAL
10	26	CNB-112-6	3/16Ø x 1 1/2" LONG NEEDLE BEARING	MOTION
11	2	91590A249	1 3/8 EXTERNAL SNAP RING	McMASTER CARR
12	2	95235A553	3/8-16 x 5/8 DOG POINT SET SCREW	McMASTER CARR
13	12	_SHCS_10-32 x 0.75 #23166	FASTENER	STOCK
14	4	_FHCS_0.250-20 x 0.63 #24223	FASTENER	STOCK
15	3	_SHCS_0.438-14 x 2.00 #23361	FASTENER	STOCK
16	3	_SHCS_0.438-14 x 1.25 #23357	FASTENER	STOCK
17	8	_SHCS_0.313-18 x 1.25 #23257	FASTENER	STOCK
18	1	D009469	CYLINDER BRACKET	WMM
19	2	_SHCS_0.313-18 x 2.00 #23261	FASTENER	STOCK
	1	SA002866	WEDGE CYLINDER ASSEMBLY	WMM
1	2	G02-0066	GUSSET	WMM
2	1	D004772	CAM	WMM
3	1	NCDA1U325-0400H	Ø3.25" BORE x 4" STROKE TIE-ROD CYLINDER	OTP
4	2	EP1618-16	BUNTING BUSHING	MOTION
5	2	KQ2H13-37AS	1/2" TUBE DIA x 1/2 NPT HALF UNION	OTP

Main Bill of Materials

<i>ITEM NUMBER</i>	<i>QTY\ MACH</i>	<i>PART NUMBER</i>	<i>DESCRIPTION</i>	<i>VENDOR</i>
6	4	_SHCS_0.438-14 x 1.75 #23360	FASTENER	STOCK
	1	SA000516	WORM GEAR ASSEMBLY	WMM
1	1	D000892	HARDENED SHAFT	WMM
2	1	D000906	KEEPER PLATE	WMM
3	4	7202BEA	NSK 15mm ID 35mm OD ANGULAR CONTACT BEARING	OTP
4	2	3750K12	THRUST BEARING 5/8" ID x 1" OD x 1/8" THK	McMASTER CARR
5	1	98870A355	3/16 x 1 1/4 KEY	McMASTER CARR
6	1	9845T21	Ø1-5/8" COUPLING SPIDER	McMASTER CARR
7	1	9845T4-.75	3/4" SHAFT COUPLING	McMASTER CARR
8	1	98099A030	5/16 HEAVY HARDENED WASHER	McMASTER CARR
9	1	W10_	10 PITCH WORM	MARTIN
10	1	_SHCS_0.313-18 x 0.63 #23252	FASTENER	STOCK
	1	SA010050	PNEUMATIC VALVE BANK	WMM
1	1	VV5QC41-0303TMD3	PNEUMATIC MANIFOLD	OTP
2	2	VQC4301-5	5 PORT VALVE	OTP
3	1	VVQ4000-10A-1	BLANK PLATE	OTP
4	1	4450k5		
5	1	4464K365	3/4" NPT 304SS PLUG	McMASTER CARR
6	1	4464K564	1/2" PIPE PLUG	McMASTER CARR
7	2	4464K563	3/8" NPT PIPE PLUG	McMASTER CARR
8	1	KQ2H13-37AS	1/2" TUBE DIA x 1/2 NPT HALF UNION	OTP
9	2	KQ2H13-36AS	1/2" TUBE DIA x 3/8 NPT HALF UNION	OTP
10	2	KQ2H07-36AS	1/4" TUBE DIA x 3/8"NPT HALF UNION	OTP
	1	SA010734	LOAD CHUTE MOUNT	WMM
1	1	D022179	KEY	WMM
2	1	D022178	MOUNTING BLOCK	WMM
3	1	D022180	MOUNTING PLATE	WMM
	1	SA011296	LOAD CHUTE MOUNT	WMM
1	1	D025168	MANDREL	WMM

Main Bill of Materials

<i>ITEM NUMBER</i>	<i>QTY\ MACH</i>	<i>PART NUMBER</i>	<i>DESCRIPTION</i>	<i>VENDOR</i>
2	1	D025175	MOUNTING PLATE	WMM
3	1	SA010734	MACHINE MOUNT ASSEMBLY	ASSEMBLY
4	1	SA011297	WIRE CHUTE WELDMENT	ASSEMBLY
5	1	D025166	PANEL	WMM
6	4	_FHCS_6-32 x 0.25 #24177	FASTENER	STOCK
7	2	26751	0.250 x 0.75 LG DOWEL PIN	STOCK
8	1	SCHCSCREW 0.3125-18x1x1-HX-C	FHCS 5/16-18 x 1" LG x 1" THRD LG	STOCK
9	4	23207	SHCS 1/4-20 x 1.25" LG x 1.25" THRD LG	STOCK
10	2	23309	SHCS 3/8-16 x 1.5" LG x 1.5" THRD LG	STOCK
11	2	23319	SHCS 3/8-16 x 4" LG x 1.5" THRD LG	STOCK
12	2	DPM 0.375x1.25	3/8" X 1.25" DOWELPIN	STOCK
13	1	FO-171		MOTION
14	29	GPN0304K	Fitting	
15	4	23172	SHCS #10-32 x 2" LG x 1.125" THRD LG	STOCK
	1	SA011297	LOAD CHUTE MOUNT	WMM
1	1	D025159	CHUTE COVER	WMM
2	1	D025164	HOUSING	WMM
3	1	DW-AS-503-M5-4		AUTOMATION DIRECT
4	1	D025160	LOCATOR PLATE	WMM
5	1	D025161	BRACE	WMM
6	8	D025163	CHUTE COVER	WMM
7	1	D025186	LOCATOR PLATE	WMM
8	4	SBHCSCREW 0.164-32x0.4375-HX-C	BHCS #8-32 x 0.4375"	FASTENAL
	1	SA011315	LOAD CHUTE MOUNT	WMM
1	1	D025204	MANDREL	WMM
2	1	D025205	MOUNTING PLATE	WMM
3	1	SA010734	MACHINE MOUNT ASSEMBLY	ASSEMBLY
4	1	SA011316	WIRE CHUTE WELDMENT	ASSEMBLY
5	1	D025203	PANEL	WMM
6	4	_FHCS_6-32 x 0.25 #24177	FASTENER	STOCK
7	2	26751	0.250 x 0.75 LG DOWEL PIN	STOCK

Main Bill of Materials

<i>ITEM NUMBER</i>	<i>QTY\ MACH</i>	<i>PART NUMBER</i>	<i>DESCRIPTION</i>	<i>VENDOR</i>
8	1	SCHCSCREW 0.3125-18x1.75x1.75-HX-C	FHSCS 5/16-18 x 1.75" LG x 1.75" THRD LG	FASTENAL
9	4	23285	SHCS 1/4-20 x 1.625" LG x 1.125" THRD LG	STOCK
10	2	23309	SHCS 3/8-16 x 1.5" LG x 1.5" THRD LG	STOCK
11	2	23319	SHCS 3/8-16 x 4" LG x 1.5" THRD LG	STOCK
12	2	DPM 0.375x1.25	3/8" X 1.25" DOWELPIN	STOCK
13	1	FO-171.125		MOTION
14	23	GPN0306H	Fitting	
15	4	23172	SHCS #10-32 x 2" LG x 1.125" THRD LG	STOCK
	I	SA011316	LOAD CHUTE MOUNT	WMM
1	1	D025206	CHUTE COVER	WMM
2	1	D025210	HOUSING	WMM
3	1	DW-AS-503-M5-4		AUTOMATION DIRECT
4	1	D025207	LOCATOR PLATE	WMM
5	1	D025208	BRACE	WMM
6	6	D025209	CHUTE COVER	WMM
7	1	D025211	LOCATOR PLATE	WMM
8	4	SBHCSCREW 0.164-32x0.4375-HX-C	BHCS #8-32 x 0.4375"	FASTENAL
	I	SA011337	LOAD CHUTE MOUNT	WMM
1	1	D025305	MANDREL	WMM
2	1	D025306	MOUNTING PLATE	WMM
3	1	SA010734	MACHINE MOUNT ASSEMBLY	ASSEMBLY
4	1	SA011338	WIRE CHUTE WELDMENT	ASSEMBLY
5	1	D025304	PANEL	WMM
6	4	_FHCS_ 6-32 x 0.25 #24177	FASTENER	STOCK
7	2	26751	0.250 x 0.75 LG DOWEL PIN	STOCK
8	1	SCHCSCREW 0.3125-18x1.75x1.75-HX-C	FHSCS 5/16-18 x 1.75" LG x 1.75" THRD LG	FASTENAL
9	4	23285	SHCS 1/4-20 x 1.625" LG x 1.125" THRD LG	STOCK
10	2	23309	SHCS 3/8-16 x 1.5" LG x 1.5" THRD LG	STOCK
11	2	23319	SHCS 3/8-16 x 4" LG x 1.5" THRD LG	STOCK
12	2	DPM 0.375x1.25	3/8" X 1.25" DOWELPIN	STOCK
13	1	FO-171.25		MOTION

Main Bill of Materials

<i>ITEM NUMBER</i>	<i>QTY\ MACH</i>	<i>PART NUMBER</i>	<i>DESCRIPTION</i>	<i>VENDOR</i>
14	20	GPN0309	CSSB Nut	
15	4	HX-SHCS 0.19-32x2.25x0.875-C	SHCS #10-32 x 2.25" LG x 0.875" THRD LG	FASTENAL
	I	SA011338	LOAD CHUTE MOUNT	WMM
1	1	D025307	CHUTE COVER	WMM
2	1	D025311	HOUSING	WMM
3	1	DW-AS-503-M5-4		AUTOMATION DIRECT
4	1	D025308	LOCATOR PLATE	WMM
5	1	D025309	BRACE	WMM
6	8	D025310	CHUTE COVER	WMM
7	1	D025312	LOCATOR PLATE	WMM
8	4	SBHCSCREW 0.164-32x0.4375-HX-C	BHCS #8-32 x 0.4375"	FASTENAL
	I	SA011354	LOAD CHUTE MOUNT	WMM
1	1	D025359	MANDREL	WMM
2	1	D025360	MOUNTING PLATE	WMM
3	1	SA010734	MACHINE MOUNT ASSEMBLY	ASSEMBLY
4	1	SA011355	WIRE CHUTE WELDMENT	ASSEMBLY
5	1	D025358	PANEL	WMM
6	4	_FHCS_6-32 x 0.25 #24177	FASTENER	STOCK
7	2	26751	0.250 x 0.75 LG DOWEL PIN	STOCK
8	1	SCHCSCREW 0.3125-18x1.5x1.5-HX-C	FHCS 5/16-18 x 1.5" LG x 1.5" THRD LG	STOCK
9	4	23207	SHCS 1/4-20 x 1.25" LG x 1.25" THRD LG	STOCK
10	2	23309	SHCS 3/8-16 x 1.5" LG x 1.5" THRD LG	STOCK
11	2	23319	SHCS 3/8-16 x 4" LG x 1.5" THRD LG	STOCK
12	2	DPM 0.375x1.25	3/8" X 1.25" DOWELPIN	STOCK
13	1	FO-171		MOTION
14	32	GPN0305	CSSL Nut	
15	4	23172	SHCS #10-32 x 2" LG x 1.125" THRD LG	STOCK
	I	SA011355	LOAD CHUTE MOUNT	WMM
1	1	D025361	CHUTE COVER	WMM
2	1	D025365	HOUSING	WMM

MODEL 1004 ELECTRIC ENDFORMER

Purchased Component Information

Vendor List

Saginaw Enclosures = www.saginawcontrol.com

Turck Components = www.turck-usa.com

Numatics Valve Products = www.numatics.com

Fanuc Parts = www.fanucamerica.com

Cables For Less = www.cablesforless.com

Banner Sensors = www.bannerengineering.com

Omron Electrical Components = www.ia.omron.com

Panduit Products = www.panduit.com

Hoffman Enclosures and Components = www.hoffmanonline.com

Bussmann Components = www.cooperindustries.com

Allen Bradley Components = www.ab.rockwellautomation.com

Schunk Products = www.us.schunk.com

Ferraz-Shawmut = www.ferrazshawmutsales.com

Burndy Products = www.burndy.com

Weidmuller Products = www.weidmuller.com

IAI Robot Products = www.intelligentactuator.com

SMC Components = www.smcusa.com

PAX Lubrication Systems = www.paxproducts.com

Sola Transformers = www.solahevidutysales.com

Exlar Products = www.exlar.com

Dorner Products = www.dornerconveyors.com

Fastenal Components= www.fastenal.com

Mcmaster-Carr Components= www.mcmaster.com

Southco Components= www.southco.com

E&E Specialty Products= eesp.co

Misumi Components= www.misumi-ec.com

ATI Components= www.ati-ia.com

Unistrut Components= www.unistrut.com

Syndevco Components= www.syndevco.com

Reid or Essentra Components= us.essentracomponents.com

Jet Set Components= <http://www.fluidlinesystems.net>

Schunk Components= us.schunk.com

Parker Products= <http://www.parker.com>

Pro-Face HMI = www.profaceamerica.com

ROLLVIS= <http://rollvis.com>

Press Automation= <http://www.pressautomation.com/index.html>

Bijur= <http://www.bijurlubrication.com/>