

CLINCHING PRESS SERIES

AZIMUTH MACHINERY

Punch presses manufacturer since 1975

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Warning

This instruction manual is issued for Azimuth's Clinching press servo series. If you have any others types of press, please call Azimuth Machinery technical support for more information.

Do not operate this machine until you read and understand the following safety precautions. Not complying with these precautions may result in death or serious injuries.

-  Never operate this machine until you've read & understood that this machine is dangerous. Placing your hands or any part of your body in this machine could result in the loss of finger, limbs or even death.**
-  Never operate this machine without the use of a guard or safety device that will always protect you from injuries.**
-  Never work on this machine unless power is off and lock.**

Warranty plan on GEN III clinching presses models

Years servo, drive & Gear-head, PLC & electrical components warranty

5

Azimuth machinery warrants to the original purchaser, to repair or, at AZIMUTH MACHINERY'S sole option, replace any major servo failure, servo drive & gear head & ALL Electrical components (greaser, oiler, motor, main controller, sensors or buttons) after examination by AZIMUTH MACHINERY's properly authorized representative, to be defective in material or workmanship under normal use within five (5) years or, if sooner, **5,000,000 strokes** after the original date of shipment from the AZIMUTH MACHINERY plant.

Does not include labor¹ or diagnostic work. The original purchaser will be responsible for travel costs and expenses.

Years mechanical parts warranty (Frame, mechanical components)

3

Azimuth machinery warrants to the original purchaser, to repair or, at AZIMUTH MACHINERY'S sole option, replace any parts that are found defective (Ball-screw, pitman(s), crankshaft(s), slide, GIBS, RAM, after examination by AZIMUTH MACHINERY's properly authorized representative, to be defective in material or workmanship under normal use within three years or, if sooner, **3,000,000 strokes** after the original date of shipment from the AZIMUTH MACHINERY plant.

Does not include labor² or diagnostic work. The original purchaser will be responsible for travel costs and expenses.

Lifetime support over phone & online videos

∞

Azimuth machinery offers lifetime support to all its end-users. This means free support over phone & access to online videos for technical support & maintenance tips on new machine.

¹ 150\$/hour + traveling expense.

Clinching press

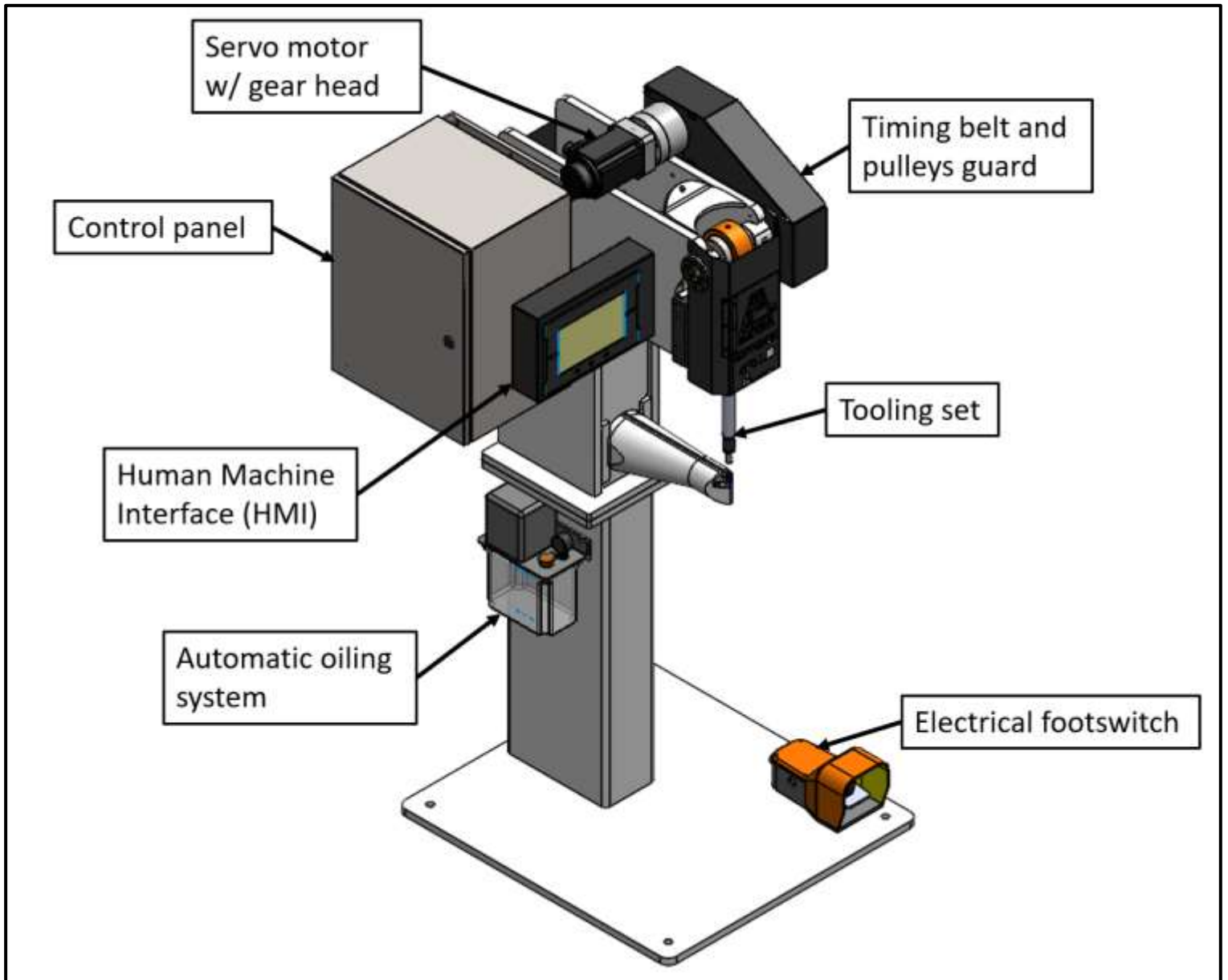


Figure 1 - Overall components of the H612 GEN III

Start-up

Prior using the machine, make sure the shut height is properly adjusted to your material thickness.

This machine is rated for 208V/60Hz in star configuration. Or a 240V two lines configuration. Make sure to [verify electrical schematic](#) prior start-up.

Prior to using the machine with material, try to cycle it 5 times to make sure nothing has been damaged during transport (guarding system, pitman enclosure, etc.).

******This machine is equipped with intelligent safety stroke make sure you understand and read [safety torque adjustment](#)******

Main Menu

You can always access the **main menu** by pressing the Azimuth symbol. You can **login as admin** (see the [section for login](#) information) by pressing the login button, you can then access the **maintenance settings** by pressing the maintenance button. You can also access the **alarms menu** by pressing on the alarms button. You can also find the chart for **punch adjustment**.

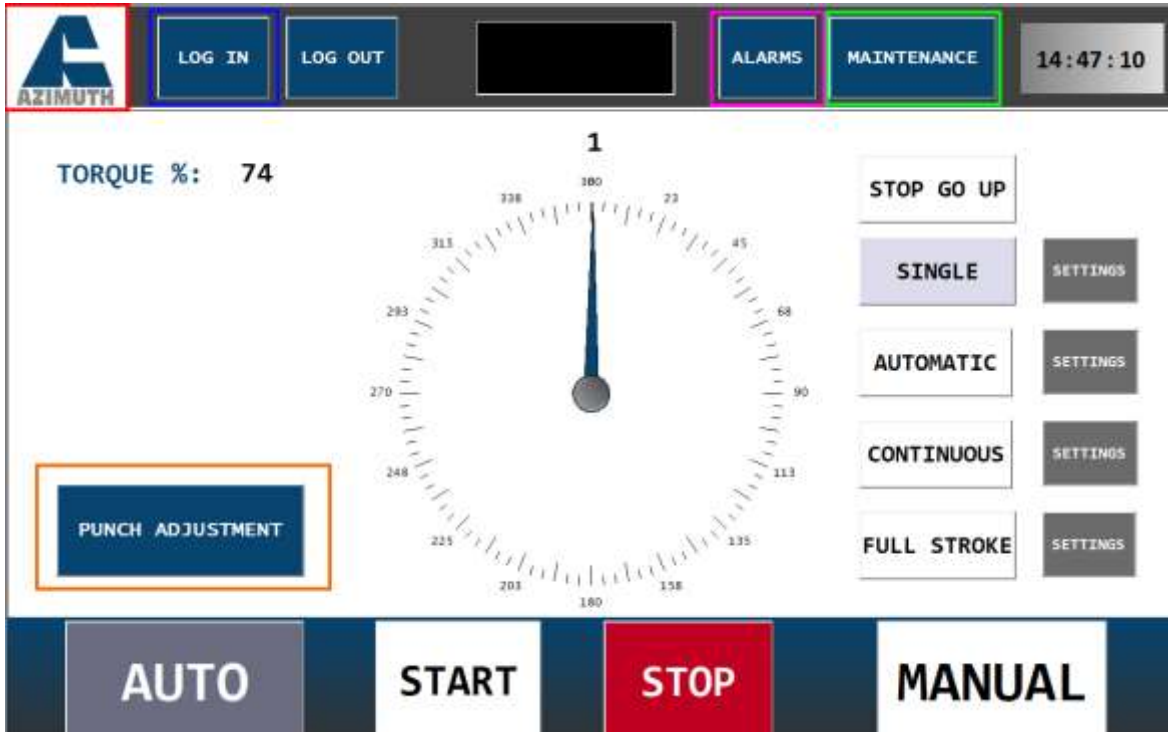


Figure 2 - Main menu

Re-adjusting machine for new thickness

When changing the material thickness, make sure to adjust the machine button diameter on your Azimuth's clinching press. The Table 1 - Button diameter vs material thickness show the different button diameter in relation with the material thickness.

Table 1 - Button diameter vs material thickness

Thickness of 1 part	Button diameter
0.012"	0.240" \pm 0.005"
0.015"	0.250" \pm 0.003"
0.018"	0.260" \pm 0.003"
0.021"	0.270" \pm 0.003"
0.027"	0.275" \pm 0.003"
0.034"	0.285" \pm 0.003"
0.040"	0.285" \pm 0.003"
0.052"	0.290" \pm 0.003"
0.063"	0.295" \pm 0.003"

The button diameter represents the measure of the bottom part of the two metal sheets you are clinching (*die side*).

Joint quality (*strength*) is monitored by measurement of the button diameter. Button diameter is controlled by adjusting the ball screw on your Azimuth's clinching press. See below how to adjust the ball screw on the ram. The **Figure 3 - How to measure button diameter w/ a caliper** shows how to measure the button diameter.

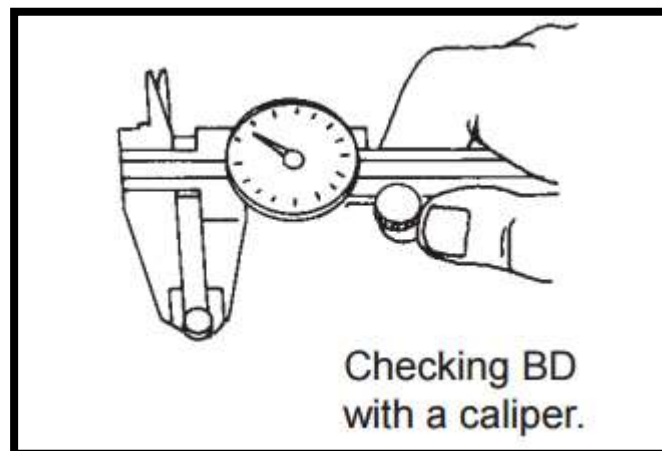


Figure 3 - How to measure button diameter w/ a caliper

Minimum distance requirement with Azimuth's tooling

The figure below shows the important dimensions to follow when clinching two parts together, Table 1 - Button diameter vs material thickness gives the values related to the figure. The dimension shown are for reference to get a proper joint size with the Azimuth's Clinching press.

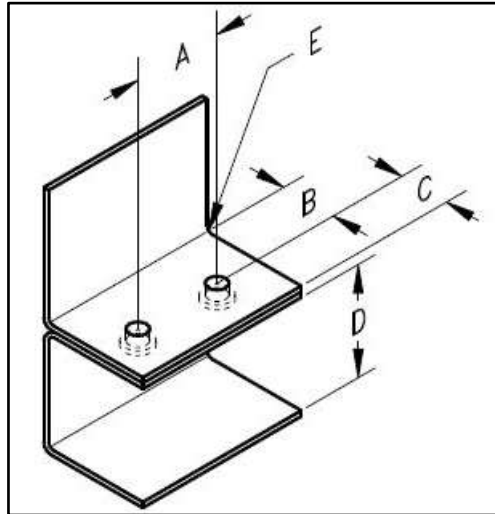


Figure 4 - Important dimensions of a clinching joint

Table 2 - Important values of a clinching joint

A	B	C	D	E
0.580'' (14.73mm)	0.320'' (8.1mm)	0.180'' (4.6mm)	Depends of the machine	0.03'' (0.8mm)

Shut height adjustment

The figure below shows how to raise or descend the punch (adjust the shut height of the machine).

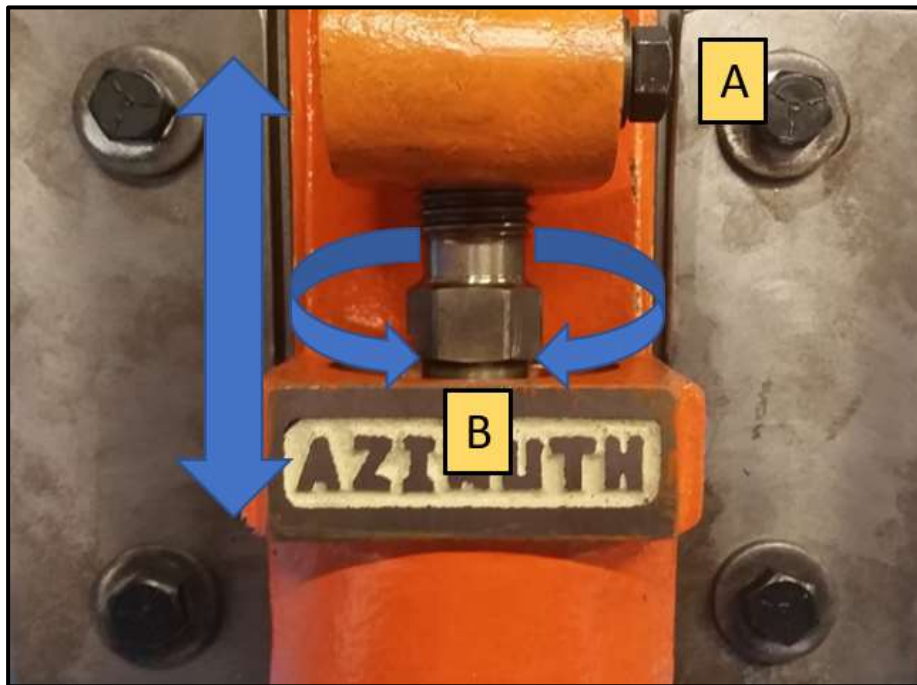


Figure 5 - Adjustment of the shut height

Raising the punch (turning the screw left to right) will result in a ***smaller button diameter*** while descending (turning the screw right to left) the punch will result in a ***bigger button diameter***.

1. Press on the E-Stop or preferably lockout the power to the machine.
2. Raise the front guard by loosening the two screws, one on each side.
3. Loosen bolt **A** (see figure above), not need to remove it entirely, just until it's loose.
4. Rotate the ball screw **B** with a $\frac{1}{4}$ turn or less in the desired direction.
5. Tighten the locking bolt **A** on the side of the pitman.
6. Put the power back on, or reset the securities, and test by using two pieces of material.
7. Verify that button diameter (***die side***) matches the recommended dimension.
8. Continue the procedure lines 1 to 6 until you have the right button diameter.

***** ALWAYS BRING THE BALL SCREW TO THE HIGHEST POSITION WHEN YOU ARE CHANGING THICKNESSES OR INSTALLING A NEW PUNCH *****

Mode of operation

Start in AUTO modes

You can start the machine in one of the [four auto modes](#) found on the main screen by **selecting the mode you wish you use**. The Stop Go Up function allows you to open up the press while returning to the previous mode afterwards. You then **press the auto button** and afterwards, **the start button**, after that you can begin operating the machine using the foot pedal. The first press of the foot pedal will make the machine go up, then go to its initial position and afterwards, the next press will execute a punch.



Figure 6 - Starting the machine

Whenever you change modes, or select one for the first time since power up, you need to press the pedal once so the press goes to the top position and then again so the press moves to first position of the angle selected in the mode settings.

Figure 7- Changing parameters



Each mode has settings and these can be modified by pressing the **settings button** besides it's respective mode button. Keep in mind you **cannot change modes** unless the machine is in its **stop state**.

SAFETY Mode

Single Stroke is a mode where the operator presses on the pedal for each punch.

Speed in %:	<input type="text" value="50"/>
Position of max punch opening after a stroke in degrees - lesser value of angle:	<input type="text" value="136"/>
Position of max punch opening after a stroke in degrees - greater value of angle:	<input type="text" value="224"/>
First sequence after which the machine goes up and it's value:	<input checked="" type="checkbox"/> <input type="text" value="1"/>
Second sequence after which the machine goes up and it's value:	<input checked="" type="checkbox"/> <input type="text" value="3"/>
Third sequence after which the machine goes up and it's value:	<input type="checkbox"/> <input type="text"/>

In standard safety mode the machine does one punch every time you press the pedal. You can also **enable sequences** which allows you to have the machine automatically open up after a **set number of punches**. Once you have enabled one sequence you can **enable another also**. The sequence displayed in the figure above, for example, would result in one punch then the machine opens up, and then after three punches the machine would open up again. Afterwards the sequence would repeat with one punch then three.

Position one and two represent the two positions, from and to, that the machine will execute it's movement in. They can be modified for easier material insertion and extraction. If the angle they form overlaps with the safety torque angles, an alarm will occur and you will need to adjust the position.

Keep in mind you cannot change modes unless the machine is at STOP.

SAFETY AUTO

In safety auto mode the machine keeps punching for as long as the pedal is pressed.

Position one and two represent the two positions, from and to, that the machine will execute it's movement in. They can be modified for easier material insertion and extraction. If the angle they form overlaps with the safety torque angles, an alarm will occur and you will need to adjust the position. The timer allows you to increase the amount of time between each punch.

Keep in mind you cannot change modes unless the machine is at STOP.

SAFETY AUTO CONT

In continuous auto mode, the machine will start punching with a press of the pedal and keep punching until the punch count is reached.

Position one and two represent the two positions, from and to, that the machine will execute it's movement in. They can be modified for easier material insertion and extraction. If the angle they form overlaps with the safety torque angles then an alarm will occur and you will need to adjust the position. The counter allows you to program a set number of punches the machine will do before it stops. The timer allows you to increase the amount of time between each punch.

Keep in mind you cannot change modes unless the machine is at STOP.

Full Stroke

In Full Stroke mode the machine will do it's entire 360 degrees rotation every time the pedal is pressed. In this mode the machine is **UNSAFE** and will cause injuries if a finger or hand is put in the press.

Keep in mind you cannot change modes unless the machine is at STOP.

***Be aware that full stroke doesn't use the safety torque features.
Use proper point of operation guarding system, if needed.***

Mode manual

Manual Mode allows you to **jog the press forwards** up to 360 degrees **and backwards** down to 0 degrees, but **you will not be able to go above 360 or below 0**. You can also set it to a particular position by **entering the position and pressing go**.



Figure 8 - Manual mode

*Keep in mind you **cannot change modes** unless the machine is at STOP.*

Oiling system

Azimuth presses are equipped with an automatic lubrication centralized system for main bearing, bushing & gibs. The table below gives the important information relative to the oiling system.

Table 3 - Automatic Oiling parameter

Idling time	800 minutes
Running time	At start-up, 5sec & after idling time
Oil type	SHELL TELLUS S2 M68 or EQUIVALENT

To change the oiling parameter:

- Press & hold the *Set* key
- Running time will appear, in **seconds**
 - Change with the arrow if needed
- Press & hold the *Set* key
- Idle time will appear, in **minutes**
 - Change with the arrow, if needed
- To run the oiling system manually, simply press the *Set* key once.

Oiling pressure while running

To verify the oiling system is working properly, simply press the *Set* key once & make sure the pressure gauge is within green & yellow range. The figure below shows a well-adjusted oiling system.



Figure 9 - Properly adjusted oiling system

Maintenance

The maintenance counter is a built-in counter within the controller to remind you to verify basic points on the machine. Once the counter reaches 300,000 an alarm will trigger to remind you to do maintenance.

You can reset the alarm using the reset button on the alarm page but the alarm will come back after 45 minutes. To remove the alarm entirely, [complete the procedure](#) from the maintenance menu.

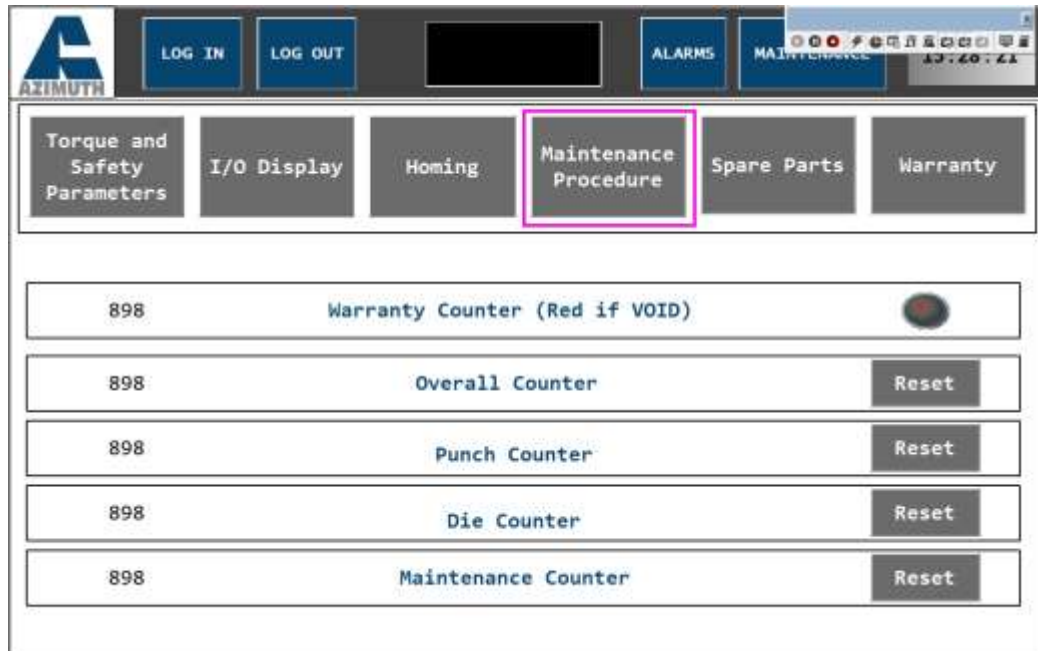


Figure 10 - Maintenance Procedure

Ordering spare parts

Make sure to have tonnage & serial number of the press before ordering spare parts.

First digit represents tonnage of the machine, followed by part's number. (Ex: 6-633, standard servo crankshaft for 6 tons press).

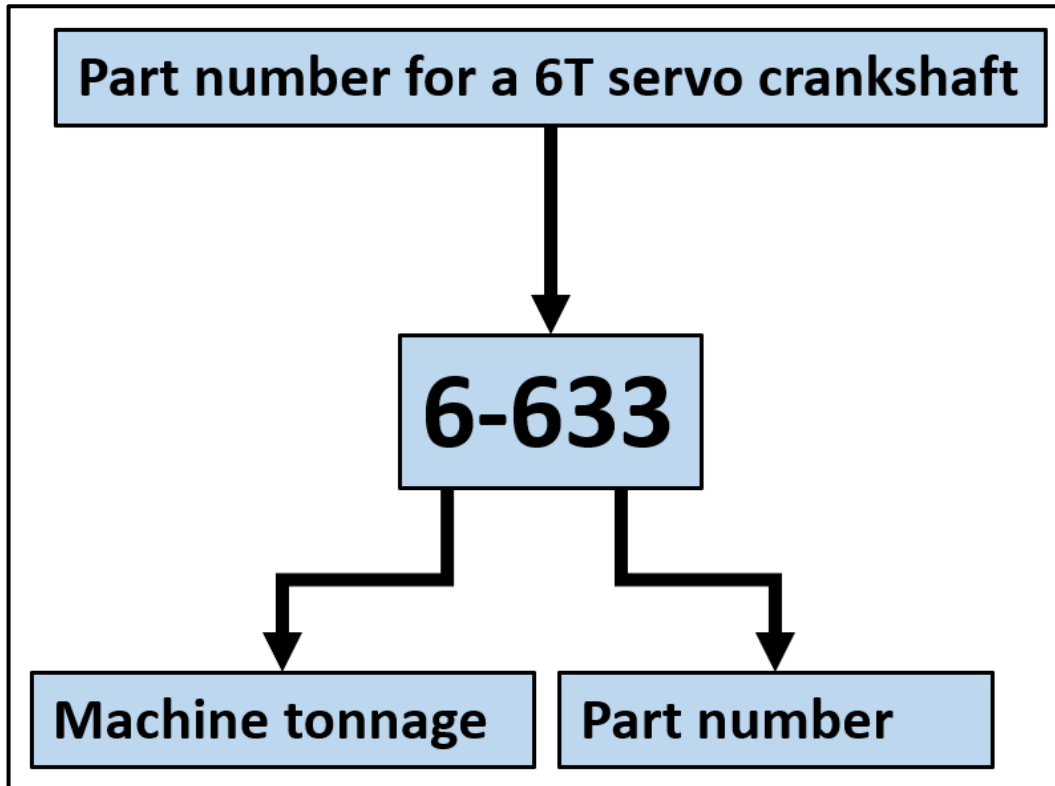


Figure 11 - How to order spare parts

Changing punch & die

Punch & die are rated for approximately 300,000 cycles under good condition. When a maintenance counter is reached, machine's owner should start thinking changing the punch & die for a proper joint quality.

Please note that punch & die might need to be changed before 300,000 cycles.

Safety torque adjustment

An obstruction, like a finger, would cause the machine to force, or torque, more than is expected when going down and therefore cause an alarm which makes the machine go back up immediately.

This safety feature is only active in certain angles, (for example, 80-120 clockwise and 240-280 counter clockwise) . For each of these angles there is a safety torque value.

Clockwise is active when the machine goes down from 0 degrees.

Counter clockwise is active when the machine goes down from 360 degrees.

The safety torque values may need to be modified every so often, particularly in the beginning. For testing purposes please use the provided plastic finger with the machine.

You can access the safety torque settings by going into the [maintenance menu](#). Then you can select [Torque & Safety Parameters](#).

The screenshot shows the Azimuth maintenance menu. At the top, there is a header with the Azimuth logo, 'LOG IN', 'LOG OUT', a black box, 'ALARMS', 'MAINTENANCE' (highlighted with a yellow border), and a clock showing '15:40:31'. Below the header, there are several menu items: 'Torque and Safety Parameters' (highlighted with a red border), 'I/O Display', 'Homing', 'Maintenance Procedure', 'Spare Parts', and 'Warranty'. Below these items, there is a list of counters:

898	Warranty Counter (Red if VOID)	
898	Overall Counter	Reset
898	Punch Counter	Reset
898	Die Counter	Reset
898	Maintenance Counter	Reset

From here you can modify the [safety torque settings](#). By decreasing them the machine may give a safety torque alarm unnecessarily, by increasing them too much the machine may become unsafe. Safety torque [can also be disabled](#), but this is not recommended for safe operation of the machine.

The screenshot shows the Azimuth safety torque settings page. At the top, there is a header with the Azimuth logo, 'LOG IN', 'LOG OUT', a black box, 'ALARMS', 'MAINTENANCE', and a clock showing '15:42:43'. Below the header, there are two main sections:

Left Section: "Those are the angles between which safety torque is active." It contains five input fields with values: 80 (Clockwise Angle - Start), 135 (Clockwise Angle - Stop), 280 (Clockwise Angle - Start), 225 (Counter Clockwise Angle - Stop), and 250 (Speed going into Angle). Below this is a warning: "WARNING: Safety torque settings will no longer apply if disabled. This will remove the finger safety feature." At the bottom, there are three buttons: 'Enable' (green), a green indicator light, and 'Disable' (red).

Right Section: "Those are the safety torque values. These should be set at the lowest setting which still allows for proper functioning of the machine. See instruction manual." It contains three input fields with values: 18.0 (Clockwise Safety Torque), 19.0 (Counterclockwise Angle Torque), and 240 (Max Torque). Below this is another input field with value 60 (Minimum Torque Warning).

To adjust the safety torque, please adjust the values so low that the machine always triggers the alarm and then progressively increase them until there is no more alarm. Afterwards test with the plastic finger by placing it below the punch, the alarm should trip before it reaches the safety angle stop positions.

Keep in mind that there are two safety torque values, one for each direction when going down. Clockwise is when the machine goes from zero to a greater position, counter clockwise is when the machine starts at 360 and goes to a lesser value. If you find that the machine too often needs readjustment then you can try to adjust it with something, like a pencil, that offers more resistance than a plastic finger.

Admin Account

When the machine demands an account and password then you can provide it with the following information to access the administrator sections.

Table 4 - User login

USER	ADMIN
Password	12345678

The machine will automatically log you out after five minutes in order to prevent unauthorized personnel from accessing advanced settings. You can also log out by using the button in the navigation bar at the top of the screen.

Troubleshooting

*****ALWAYS REMOVE EVERY ENERGY SOURCE WHEN TROUBLE-SHOOTING THE MACHINE*****

You can access the alarm screen by **pressing on the button** at the top of the screen. You can reset alarms **by pressing on the reset button**. Be advised that some alarms, such as oil and maintenance will come back if the root cause isn't addressed, former being lack of oil and the latter being the maintenance procedure not completed. The **admin reset** allows you to reset the max torque alarm, since that alarm indicates something very wrong has happened therefore only the admin can reset it.



Alarms

Table 5 - Troubleshooting

Alarms	Possible Problems	Solution
Oil level alarm	The oil level is too low.	Fill with oil.
	The float switch is malfunctioning.	Check the input five from the PLC, if it's lit and the oil level is correct then open the oil reservoir to verify the float.
Over torque alarm	Incorrect punch adjustment	Refer to punch adjustment procedure .
	Incorrect material or thickness of material.	Choose the proper material as per the chart on the machine.
	Ram is loose, adjust the guides.	Contact manufacturer
Finger Safety torque alarm	Something, like a finger, obstructed the machine while it was going into its safety angle.	Remove obstruction and reset the alarm.
	Safety torque is due to be readjusted.	Complete safety torque adjustment procedure .
Servo drive fault alarm	An error has occurred with the servomotor.	Check with the documentation of the servo's manufacturer.
Maintenance due alarm	Maintenance is due to be performed.	Complete the maintenance procedure. Although this error can be reset using the alarm screen, it will come shortly afterwards until the maintenance procedure screen is completed.
Safety angle overlapping alarm	One of the positions in the mode settings is overlapping with the safety torque angles set in the torque menu.	Readjust the positions in the mode settings, modify the safety angles or disable safety torque.
E-stop alarm	The E-stop was activated.	Pull on the E-Stop and reset the alarm.
Torque is below operational level WARNING	Incorrect material thickness or no material present	Use correct materials as per punch adjustment page on the main screen.
	Punch is broken	Change punch
	Improper clinching	See the clinching joint section

Press won't stroke

The clinching press won't stroke if:

Table 6 - Press won't stroke if

Possible Problems	Solution
Defective pedal	Verify NO and NC contact inside foot pedal.
Press not in auto mode	Press on the auto button and press start again.
No mode selected	Select a mode from the menu
Active alarm	Remove the cause of the alarm and reset
Broken belt	Verify belt of the servo motor. A broken belt would cause the motor to turn, but not rotating the main shaft.

Improper clinching joint

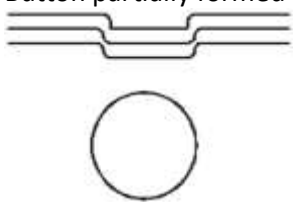
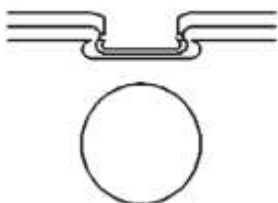
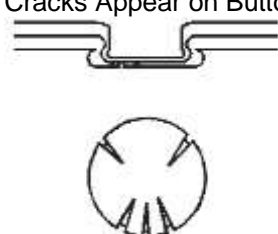
Depending on your material thickness, there is a small adjustment require on the RAM. The table below shows a problem relative to the button diameter.

Table 7 - Button diameter problem

Possible Problems	Solution
Lower/Higher of the button's Diameter	Change your die assembly to the proper die Readjust the ram when you change thicknesses (bring the RAM higher for thicker material, lower for thinner material).

The table below shows different problems related to the button of the joint. The symbol at left represents a properly formed clinching joint, viewed from the button (die) side and in section. Clinching tools can commonly produce more than 200,000 good joints. Problems can however occur. The illustrations below represent possible problem variations of the joint.

Table 8 - Trouble-shooting guide to a bad joint quality

Problem	Cause	Solution
Button partially formed 	Metal not of specified thickness	Use Specified Metals or Change to Appropriate Tooling
	Die Elastomer or Die Spring Broken	Replace Elastomer or Spring
	Incorrect Tooling for Metals	Verify Joint Data / Change Tooling if Necessary
	Incorrect Shut Height	Adjust Shut Height for Correct BD
Piercing or cracking of Punch Side Sheet Metal 	Metals Not of Specified Thickness regarding shut height	Re-adjust the shut height
	Incorrect Tooling for Metals	Verify the tooling matches the specified thickness.
	Weak or Broken Stripper Springs	Verify stripper spring inside the tooling assembly
	Punch and Die Not Concentric	Re-adjust the concentricity of the punch & die.
Cracks Appear on Button 	Metals Not of Specified Thickness or Hardness	Verify the punch & die matches the specify thickness.
	BD Too Large, Tooling Over Adjusted	Raise machine shut height
	Incorrect Tooling for Metals	Change tooling
	Punch and Die Not Concentric	Verify concentricity of punch & die

Procedures

SEE OUR CHANNEL ONLINE FOR MORE DETAILED VIDEOS OF MAINTENANCE & TIPS.

YOUTUBE CHANNEL: AZIMUTH MACHINERY

See procedure in the HMI

Adjustment of the timing belt

This procedure will help you tighten the timing belt at the right pressure. The figure below illustrates how to check the tension in the belt. To verify the belt tension, you will need to:

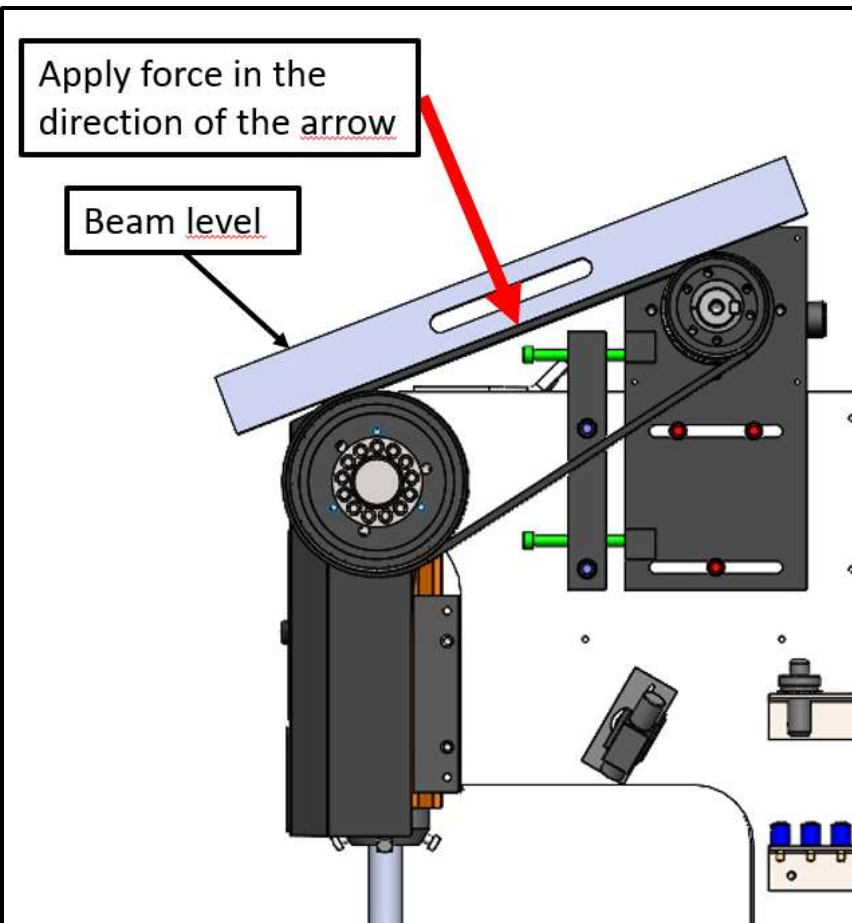


Figure 12 - Adjusting belt tension

1. Remove the timing belt and pulleys guard
2. Put a beam level on the belt and timing pulleys
3. Apply a downward force on the belt
4. Measure the distance between the level and the lowest point of the belt
 - a. If you measure less than a $\frac{1}{4}$ " you do not need to adjust the belt tension
 - b. If you measure more than a $\frac{1}{4}$ " you need to adjust the belt tension

If you have measure a deflexion of a $\frac{1}{4}$ " or more, this is what you need to do :

1. Loosen the 3 red machine screws
2. Tighten the 2 green machine screws
3. Tighten the 3 red machine screws
4. Check the belt tension as explained earlier
5. Repeat until you have a deflexion of less than a $\frac{1}{4}$ "
6. Put back the belt and pulleys guard on the machine

Re-adjusting material thickness (WITHOUT THICKNESS DIGITAL READOUT) - hmi

The figure below shows how to raise or descend the punch (adjust the shut height of the machine).

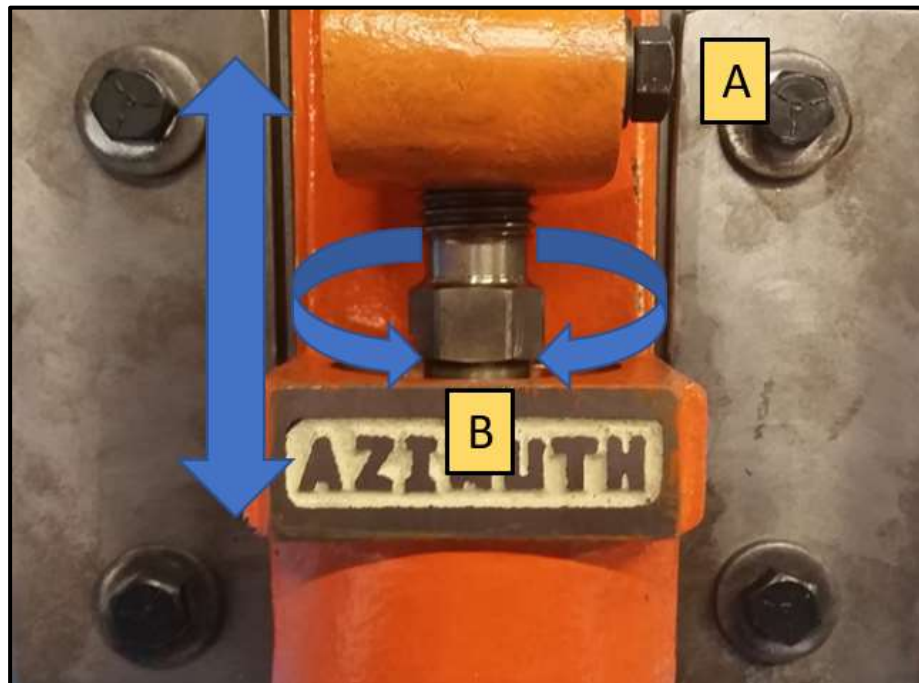


Figure 13 – Adjusting material thickness

Raising the punch (rotating the ball screw counter-clockwise) will result in a **smaller button diameter** while descending (rotating the ball screw clockwise) the punch will result in a **bigger button diameter**.

1. Turn the motor OFF and wait until the inertia wheel has completely stopped.
2. Remove the front guard enclosure of the machine.
3. Loosen bolt (A) on the side of the pitman (see figure above).
4. Rotate the ball screw (B) with a ¼ turn or less (clockwise for a bigger diameter, counter-clockwise for a smaller diameter)
5. Tighten the locking bolt (A) on the side of the pitman.
6. Turn the motor ON & clinch two parts of material together.
7. Verify that button diameter (**die side**) matches the dimension recommended.
8. Continue the procedure lines 1 to 6 until you have the right button diameter.

***** ALWAYS BRING THE BALL SCREW TO THE HIGHEST POSITION WHEN YOU ARE CHANGING THICKNESSES OR INSTALLING A NEW PUNCH *****

Verifying cup-ball adjustments

The cup-ball adjustment might get loose after several cycle.

Simply verify the cup-ball adjustment by pushing the RAM up. There should **NOT** be any loose. If there is some loose, see procedure online to readjust the cup-ball adjustment. The figure below illustrates how to verify the cup-ball. There shouldn't be more than 0.002" of loose within the ball-cup & the ball screw.

*****Please note that you might need to readjust the machine thickness after readjusting the cup-ball adjustment*****

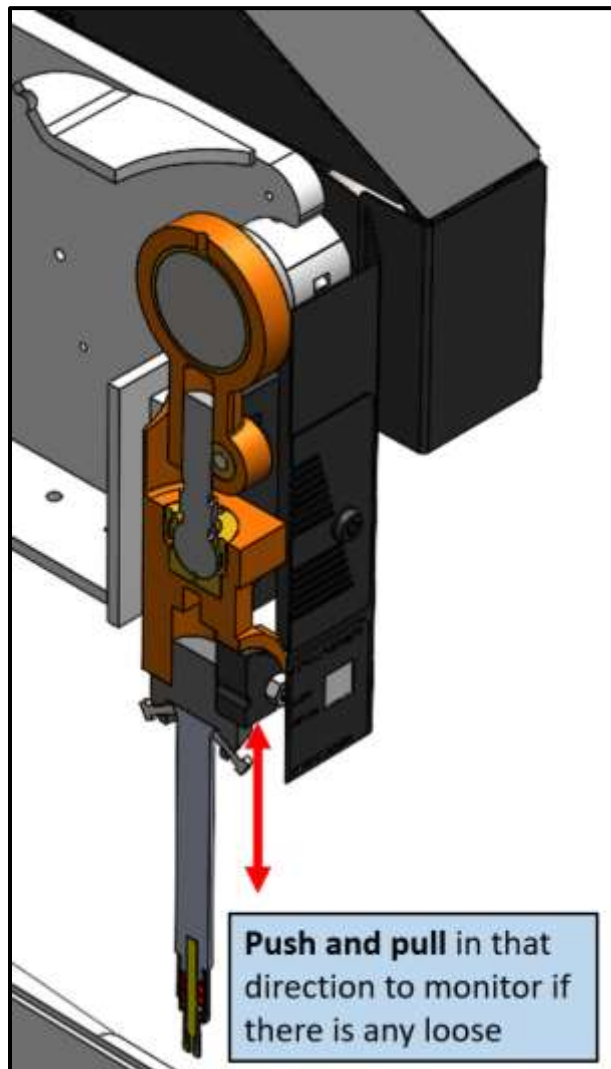


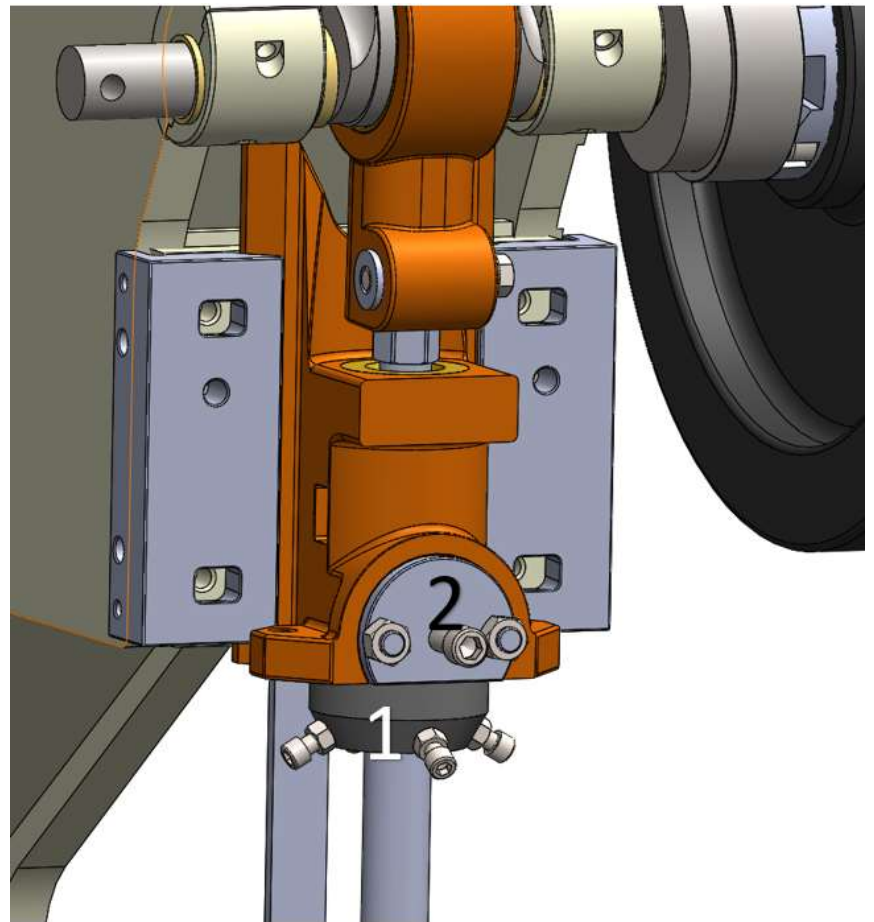
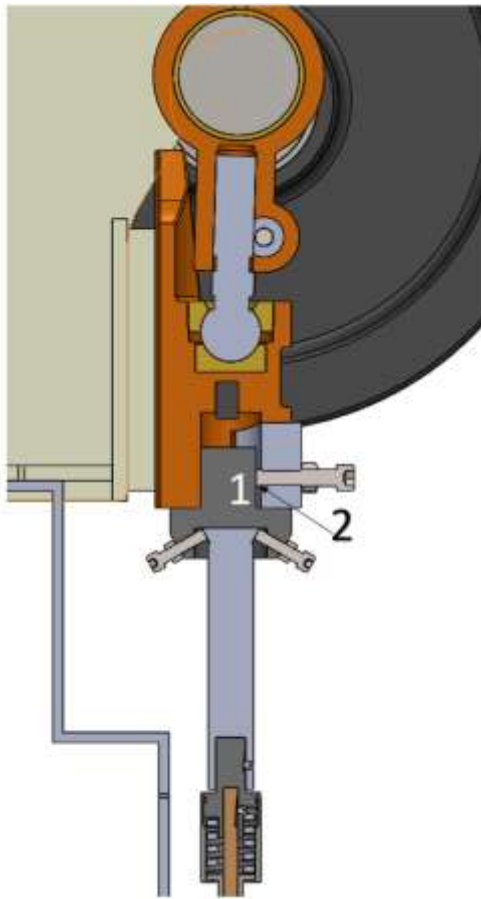
Figure 14 - Cup-ball verification

Installing Rectangular tooling on existing machine

Remove every source of power (electricity, air) going to the machine before starting installing the tooling.

Step 1 - Install tooling adapter (1) inside the shank

Make sure that the set-screw is properly aligned with the flat on the tooling adapter. Tighten the screw so the tooling adapter won't move.



Step 2 – Install Lance-N-Loc Die-Block.

Install the Lance-N-Loc die block (1) with the lance-n-loc die body
It is important to verify that the punch is properly parallel with the die body.



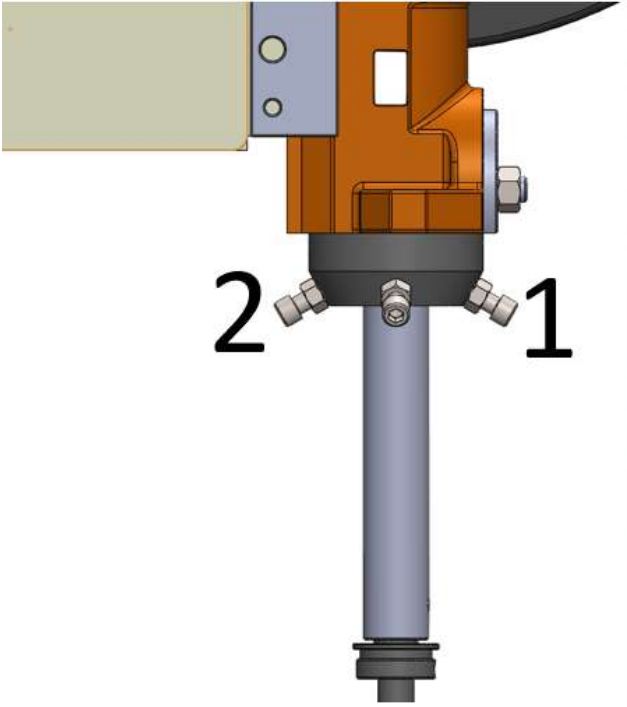
Step 3 – Verify punch alignment & adjustment

Verify that the punch is properly aligned with the die-body. Side #1 & Side #2 must be parallel with the respective face of the die-body.

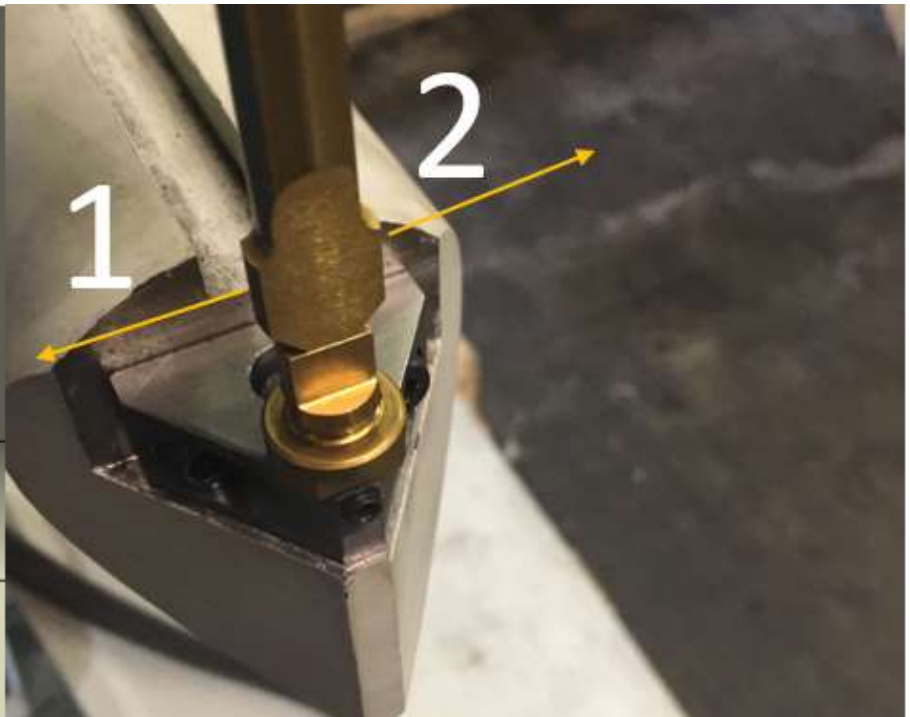
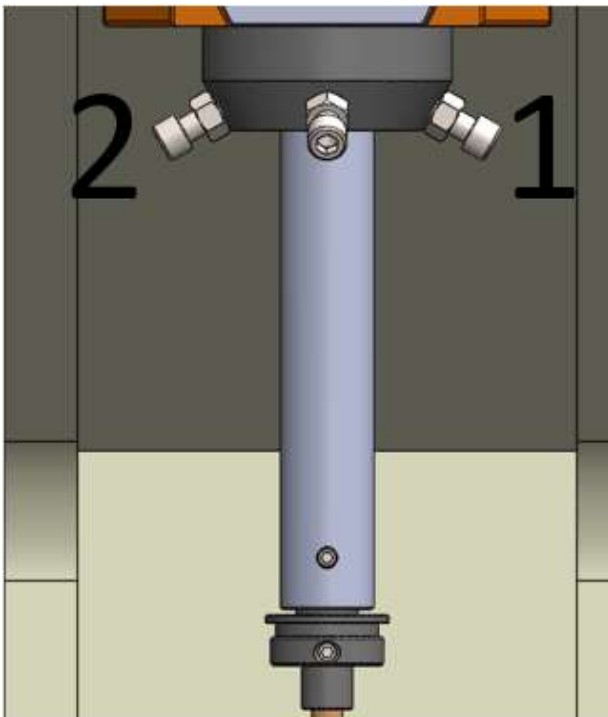
If those faces are not parallel, verify “Step 1 – Install tooling adapter (1) inside the shank”.

If the punch is not properly set (front to back – Left to right) go to step 4.

Step 4 - Punch alignment Front to back - Left to right



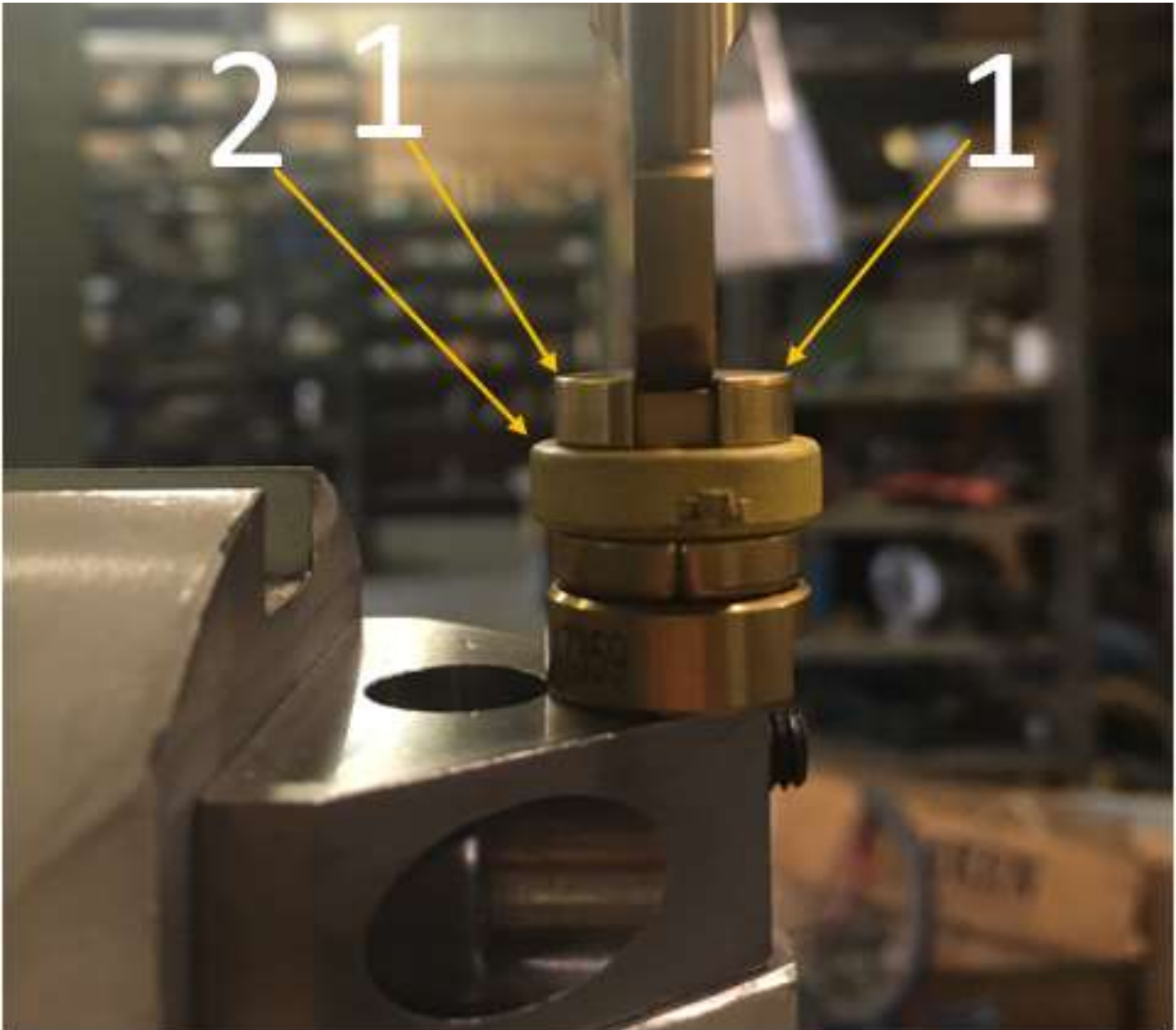
To align the punch perfectly with the Die-body, please refer to the picture above & below. Tightening the screw #1 will move the punch in direction #1 while tightening screw #2 will move the punch in direction #2.



Step 5 - Install the Clinching Blades

Once the punch is properly aligned with the die body, install the clinching blades (2) with the elastomer (1) on the die body & verify that the installation is done properly.

Manually engaged the clutch on the side of the machine & bring the punch down. Verify that the punch does not hit the blades & goes freely inside the anvil depth of the Lance-N-Loc die assembly.



Step 6 – Bring shut height to its highest position & install the spring, stripper & stripper can.

Bring the shut height of the machine to its highest position to install the Stripper (2), spring (inside the stripper can) & Stripper can (1).

SEE OUR CHANNEL ONLINE FOR MORE DETAILED VIDEOS OF MAINTENANCE & TIPS.

YOUTUBE CHANNEL: AZIMUTH MACHINERY

See procedure in the HMI

Adjustment of the timing belt

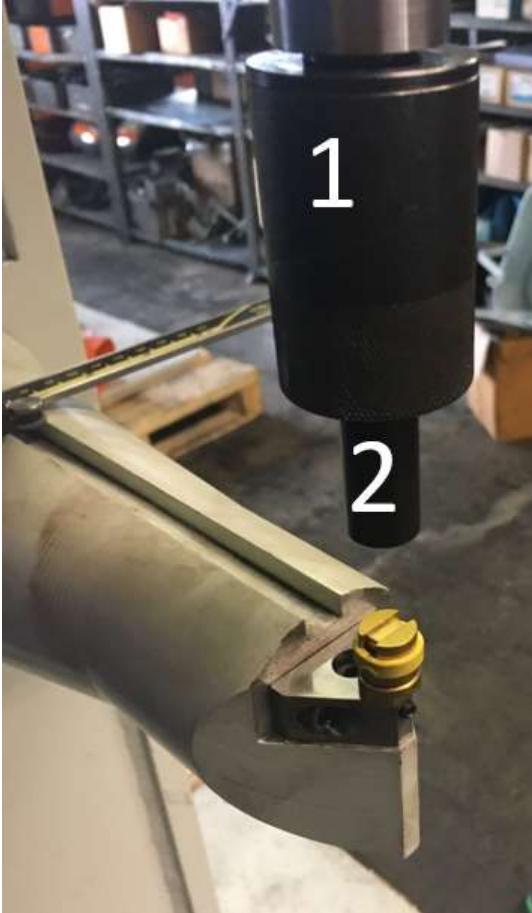
This procedure will help you tighten the timing belt at the right pressure. The figure below illustrates how to check the tension in the belt. To verify the belt tension, you will need to:

5. Remove the timing belt and pulleys guard
6. Put a beam level on the belt and timing pulleys
7. Apply a downward force on the belt
8. Measure the distance between the level and the lowest point of the belt
 - a. If you measure less than a $\frac{1}{4}$ " you do not need to adjust the belt tension
 - b. If you measure more than a $\frac{1}{4}$ " you need to adjust the belt tension

If you have measure a deflexion of a $\frac{1}{4}$ " or more, this is what you need to do :

7. Loosen the 3 red machine screws
8. Tighten the 2 green machine screws
9. Tighten the 3 red machine screws
10. Check the belt tension as explained earlier
11. Repeat until you have a deflexion of less than a $\frac{1}{4}$ "
12. Put back the belt and pulleys guard on the machine

Re-adjusting material thickness to raise the shut height to its highest position.



Visually verify stripper alignment with the punch.



Step 7 - Adjusting the button dimension

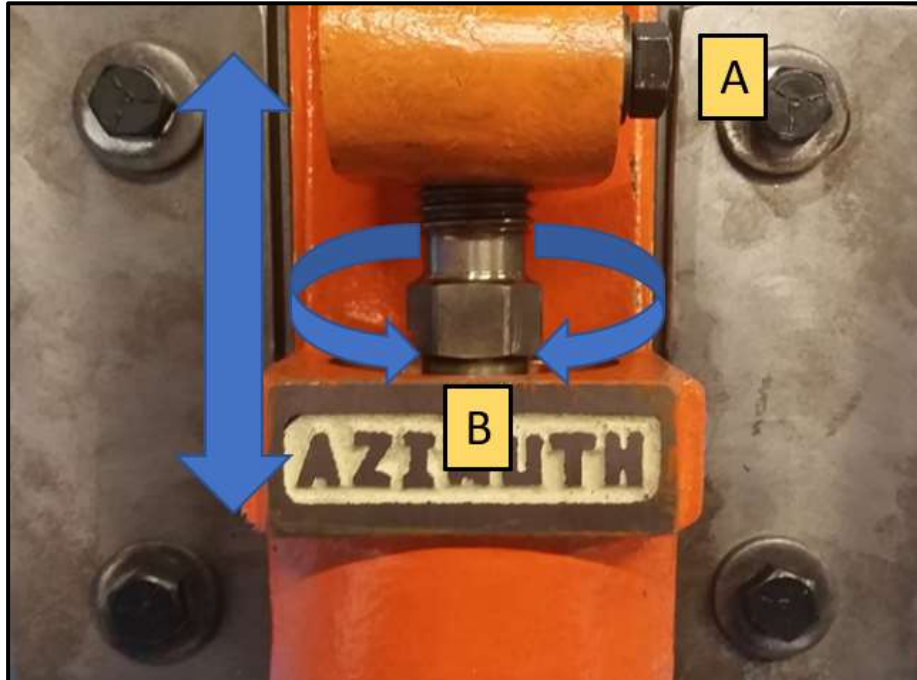


Figure 15 - Adjustment of the button dimension

Raising the punch (rotating the ball screw counter-clockwise) will result in a **smaller button diameter** while descending (rotating the ball screw clockwise) the punch will result in a **bigger button diameter**.

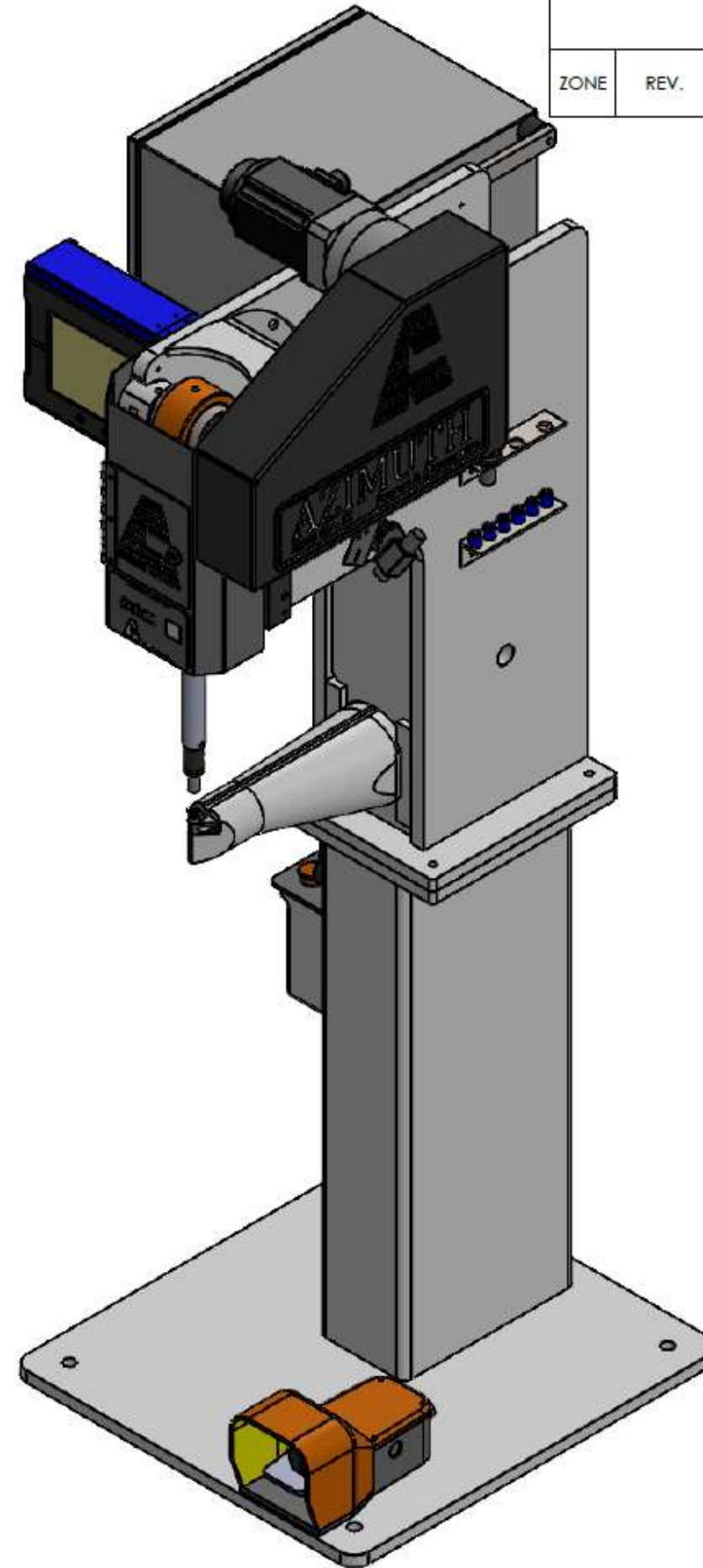
1. Turn the motor OFF and wait until the inertia wheel has completely stopped.
2. Remove the front guard enclosure of the machine.
3. Loosen bolt (A) on the side of the pitman (see figure above).
4. Rotate the ball screw (B) with a $\frac{1}{4}$ turn or less (clockwise for a bigger diameter, counter-clockwise for a smaller diameter)
5. Tighten the locking bolt (A) on the side of the pitman.
6. Turn the motor ON & clinch two parts of material together.
7. Verify that button diameter (***die side***) matches the recommended dimension.
8. Continue the procedure lines 1 to 6 until you have the right button diameter.

***** ALWAYS BRING THE BALL SCREW TO THE HIGHEST POSITION WHEN YOU ARE CHANGING THICKNESSES OR INSTALLING A NEW PUNCH *****

ANNEXE A – Part list

Product No.	Description	Quantity
H612-S	H612 Clinching machine GEN III	1
H612-001	Frame	1
6-023AS	Ram Assembly	1
6-022	Gib, LEFT	1
6-306	DIE BLOCK	1
6-326AS	FRONT GUARD ASSEMBLY	1
6-012AS	Automatic lubrication Oiling system 4-15 tons	1
6-302.1AS	NARROW PUNCH HOLDER ASSEMBLY	1
6-669AS	MOTOR ASSEMBLY	1
6-633AS	CRANKSHAFT ASSEMBLY	1
6-500AS	CONTROL PANNEL ASSEMBLY - SERVO	1
6-625AS	BELT & PULLEY GUARD	1
6-624	MOTOR BELT H 1.5"X39"	1
1005-025	Electric foot pedal 2 POS. NO/NC	1
6-669.2	TENSIONNER	1
6-610AS	SIDE LOGO SERVO	1
6-022.1	Gib, Right	1
6-311	PUNCH MOUNTING BRACKET	1
6-311.1	DIE MOUNTING BRACKET	1
6-315AS	LASER ALIGNEMENT TOOL	1
6-633.1	CRANKSHAFT POSITION DIAL	1
6-633.2	CRANKSHAFT POSITION INDICATOR	1
6-505.1AS	HMI ENCLOSURE 7"	1

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	H612-001	FRAME	1
2	6-023AS	RAM ASSEMBLY	1
3	6-022	GIB, LEFT	1
4	6-306	DIE BLOCK	1
5	20032AS	DIE ASSEMBLY	1
6	6-311	PUNCH MOUNTING BRACKET	1
7	6-311.1	DIE MOUNTING BRACKET	1
8	6-326AS	FRONT GUARD ASSEMBLY	1
9	6-012AS	AUTOMATIC OILER	1
10	6-315AS	LASER ALIGNMENT TOOL	1
11	6-302.1AS	NARROW PUNCH ASSEMBLY	1
12	6-410.9	QR CODE VIDEOS	1
13	6-669AS	MOTOR ASSEMBLY	1
14	6-633AS	CRANK SHAFT ASSEMBLY	1
15	6-500AS	CONTROL PANEL ASSEMBLY-SERVO	1
16	6-625AS	BELT & PULLEY GUARD	1
17	6-633.2	CRANKSHAFT POSITION DIAL	1
18	6-633.1	CRANKSHAFT POSITION INDICATOR	1
19	6-624	MOTOR BELT H 1.5"X39.5"	1
20	1005-025	ELECTRIC FOOT PEDAL	1
21	6-411AS	HMI BOX ASSEMBLY 9"	1
22	6-669.2	TENSIONER	1
23	6-410	H612 GEN III SIDE LOGO	1
24	6-022.1	GIB, RIGHT	1



REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED



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QC, Canada, J5C 1B6

DESCRIPTION
H612 GEN III CLINCHING PRESS

PART NO
H612-S

DRAWN BY FRANCIS DURAND SCALE 1:8

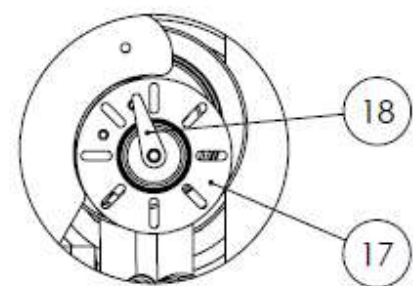
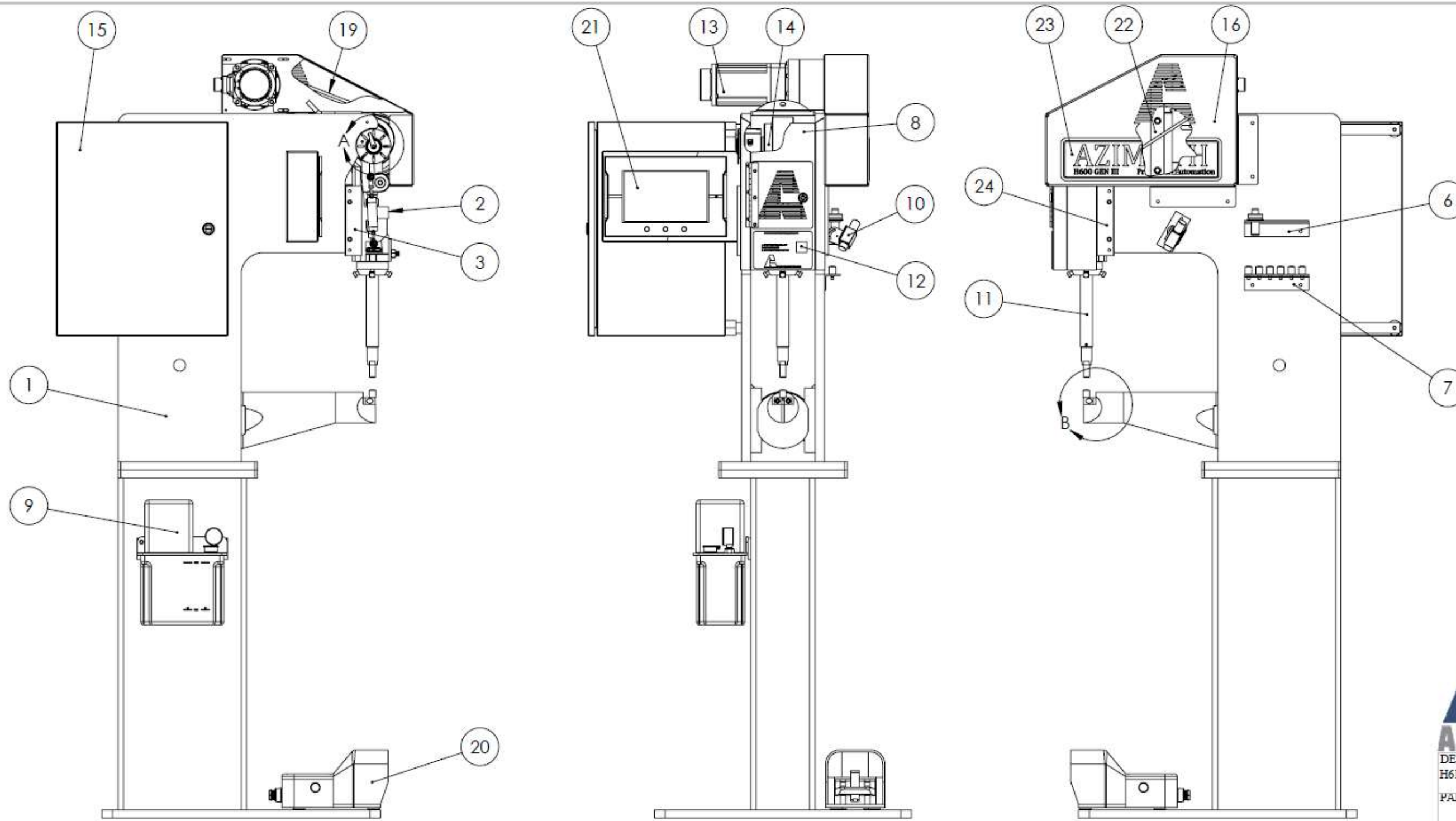
DRAWING # H612-S-AS MATERIAL

COMMENTS :

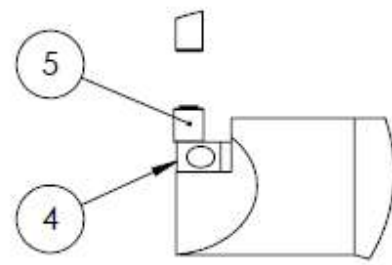
UNLESS OTHERWISE SPECIFIED

DIMENSIONS ARE IN INCHES
TOLERANCES :
FRACTIONAL ±1/64
TWO PLACE DECIMAL ±.01
THREE PLACE DECIMAL ±.005

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DÉTAIL A
ECHELLE 1 : 4



DÉTAIL B
ECHELLE 1 : 4

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DESCRIPTION
 H612 GEN III CLINCHING PRESS

PART NO
 H612-S

DRAWN BY FRANCIS DURAND	SCALE 1:10
----------------------------	---------------

DRAWING # H612-S-AS	MATERIAL
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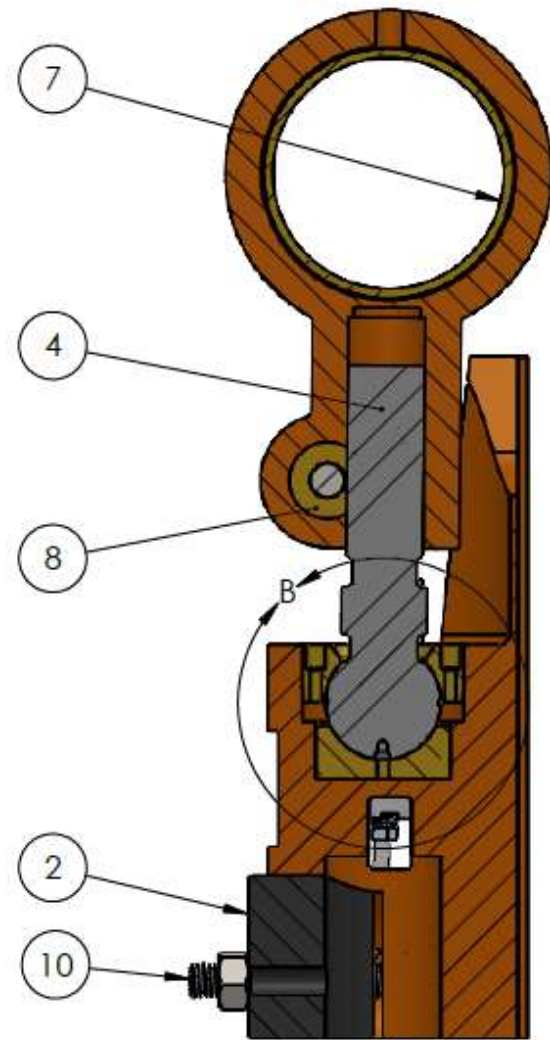
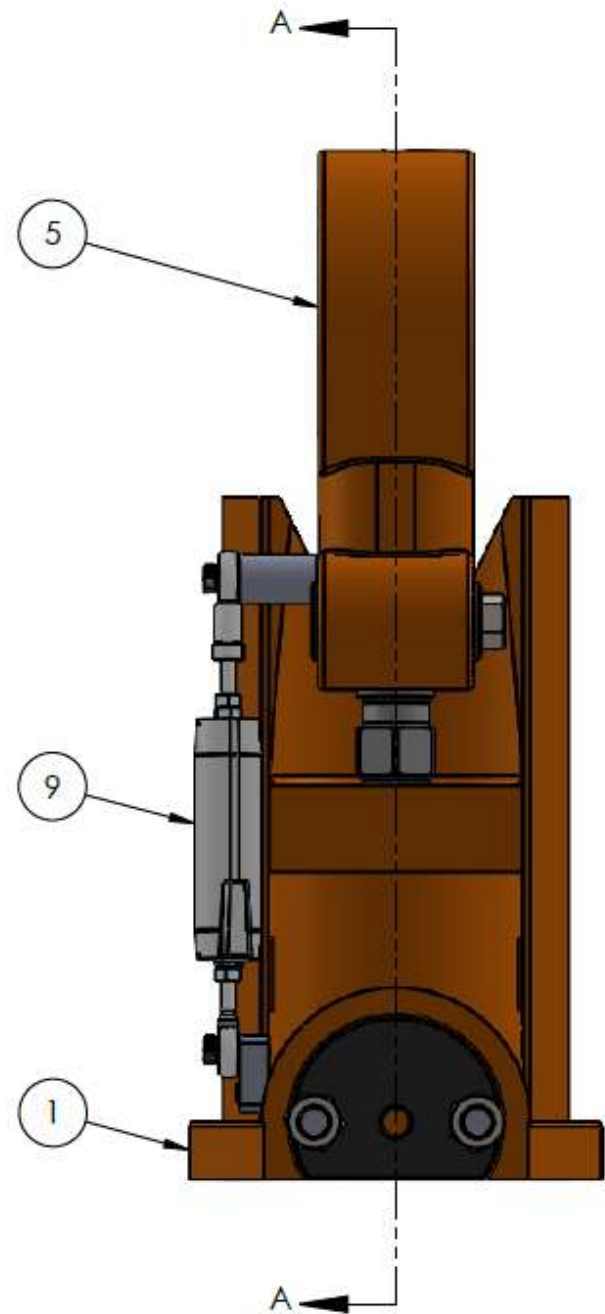
COMMENTS :

UNLESS OTHERWISE SPECIFIED
 DIMENSIONS ARE IN INCHES
 TOLERANCES :
 FRACTIONAL ±1/64
 TWO PLACE DECIMAL ±.01
 THREE PLACE DECIMAL ±.005

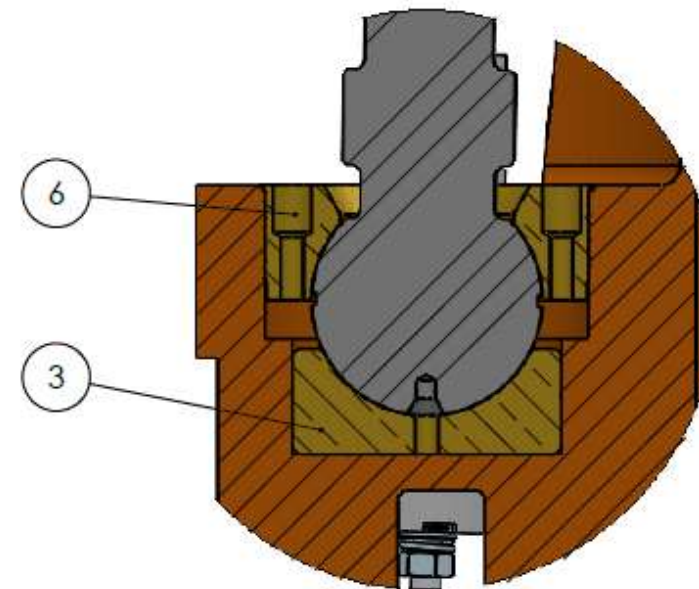
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ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	6-023	RAM	1
2	6-024	CLAMP BLOCK, RAM	1
3	6-025	BALL SEAT, RAM	1
4	6-027	BALL SCREW, PITMAN	1
5	6-029	PITMAN (CON, ROD)	1
6	6-026	CUP, BALL ADJUSTMENT	1
7	6-136	BRONZE BUSHING PITMAN	1
8	6-028	CLAMP BLOCK, PITMAN	1
9	6-403AS	SHUT HEIGHT INDICATOR 0-1" ASSEMBLY	1
10	6-090	STUD, CLAMP BLOCK, 7/16-14 x 3.25 LG.	2

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED



COUPE A-A
ECHELLE 2 : 5



DÉTAIL B
ECHELLE 4 : 5



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Ste-Catherine, QC, CAN

DESCRIPTION
RAM ASSEMBLY
MODEL NO
6-023AS

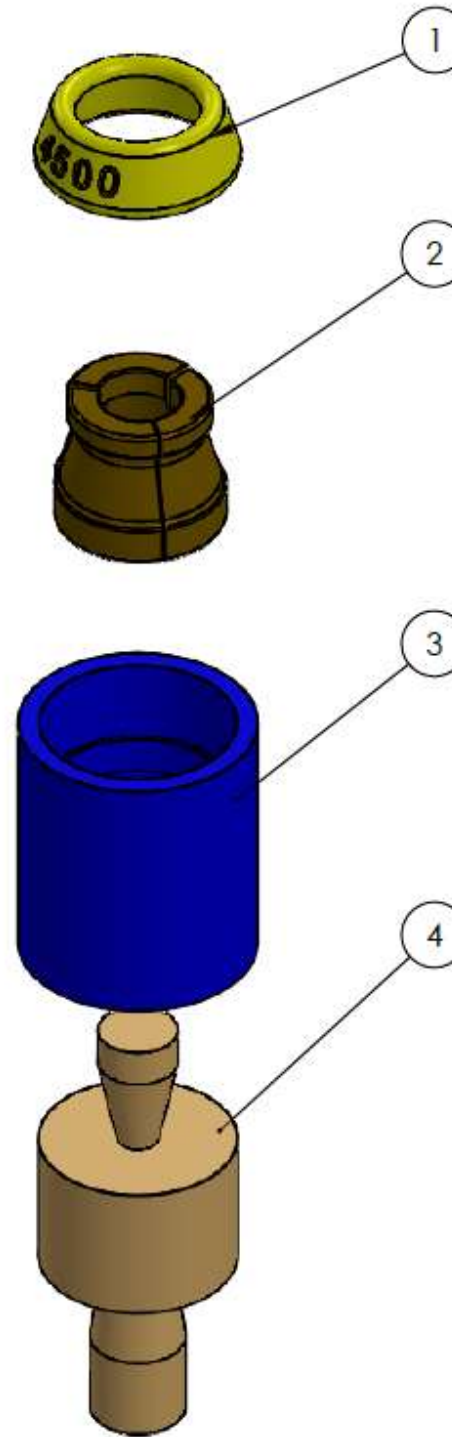
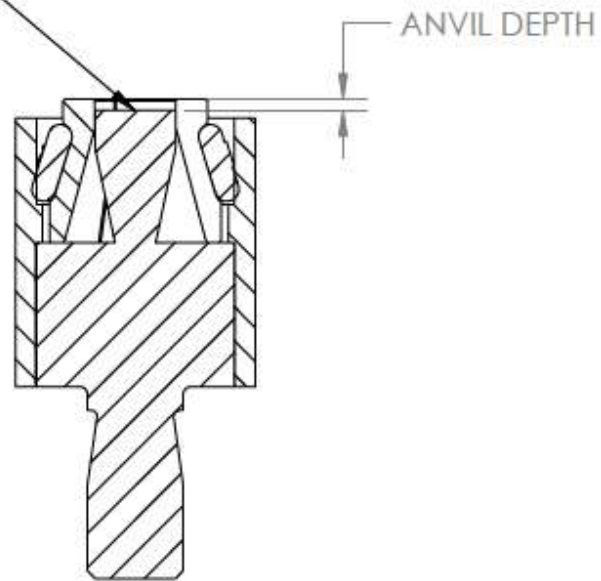
DRAWN BY FRANCIS DURAND SCALE 1:3
DRAWING # REV

COMMENTS :

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NO	PartNo	DESCRIPTION	QTE
1	20262	ELASTOMER MEDIUM	1
2	20254	BLADES	3
3	6-304.1	BLUE Sleeve	1
4	20032	Clinching die body 0.180, 24-29G	1

PLEASE REFER TO COMPLETE CHART
FOR DIFFERENT ANVIL DEPTH & SLEEVE COLOR



DESCRIPTION
DIE ASSEMBLY

DESCRIPTION
STANDARD PARTS

DRAWN BY JOEY TRUDEAU	DATE 2019-04-15
ISSUED FOR CUSTOMER APPROVAL	DWG.# 20032AS

COMMENTS :

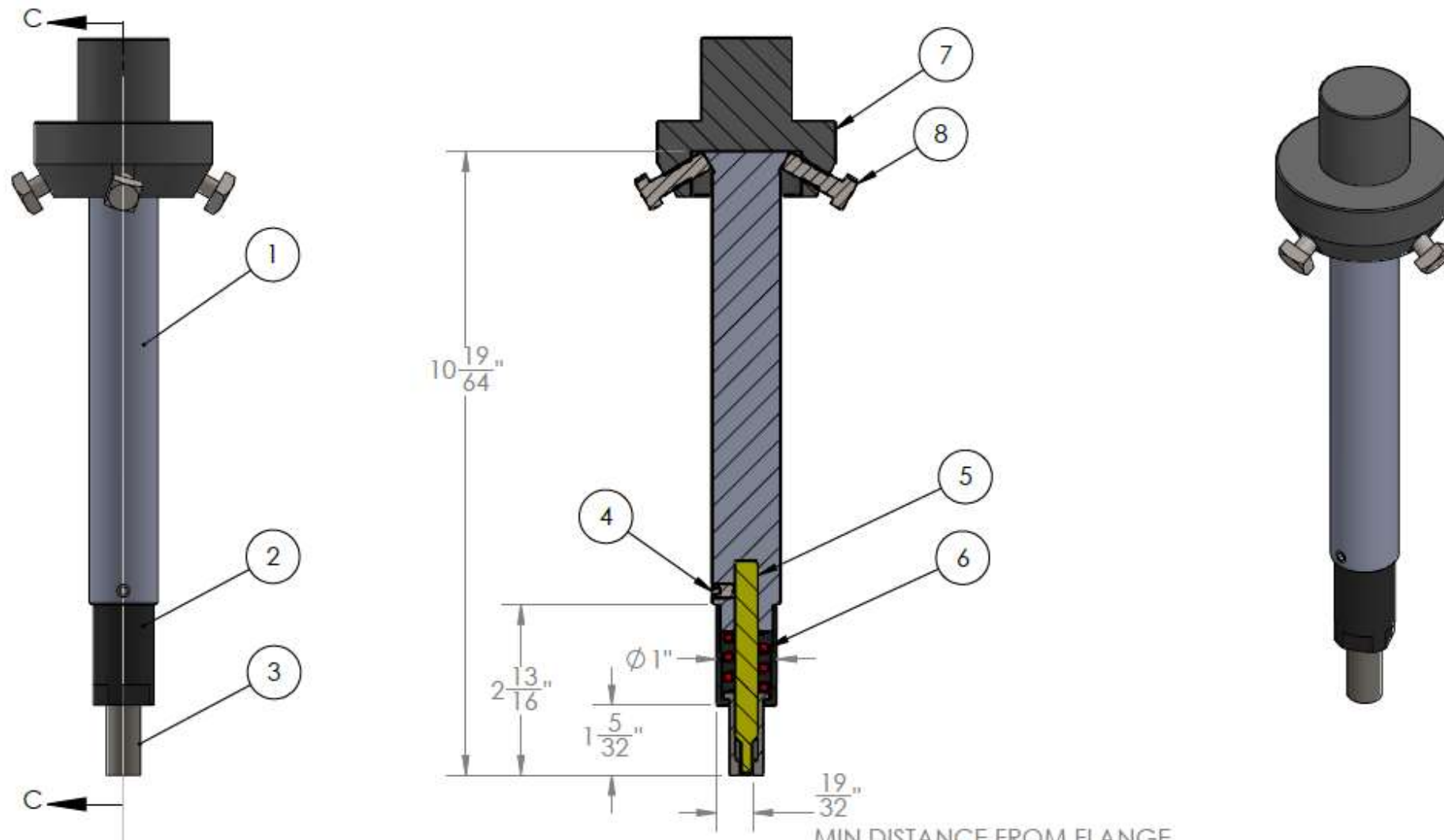
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ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	6-302.1	Shank (H612) Taloc	1
2	6-310.1	Spring holder	1
3	6-305.1	Stripper, Narrow punch holder	1
4	4000-007	Setscrew, 1/4-28, 0.375" LG.	1
5	20618	Clinching punch 3.5" 22G	1
6	Refer to shart	Spring	1

NOT INCLUDED IN THIS ASSEMBLY

ITEM NO.	PART NO.	DESCRIPTION	QTY.
7	6-301	H600 Tooling adapter	1
8	22052	Square head bolt, 5/16-18 x 1" LG.	4

GAUGE	SPRING COLOR	PART NO
14	GREEN	22064
15	GREEN	22064
16	GREEN	22064
17	GREEN	22064
18	GREEN	22064
19	GREEN	22064
20	GOLD	22068
21	GOLD	22068
22	GOLD	22068
23	GOLD	22068
24	GOLD	22068
25	GOLD	22068



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TOLERANCES :

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DESCRIPTION
NARROW PUNCH HOLDER ASSEMBLY

PART NO
6-302.1AS

DRAWN BY
JOEY TRUDEAU

SCALE
2:1

DRAWING #

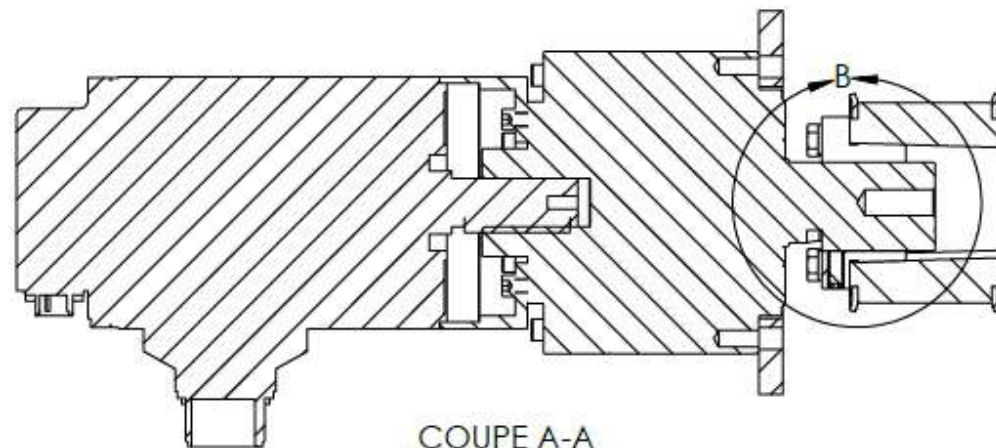
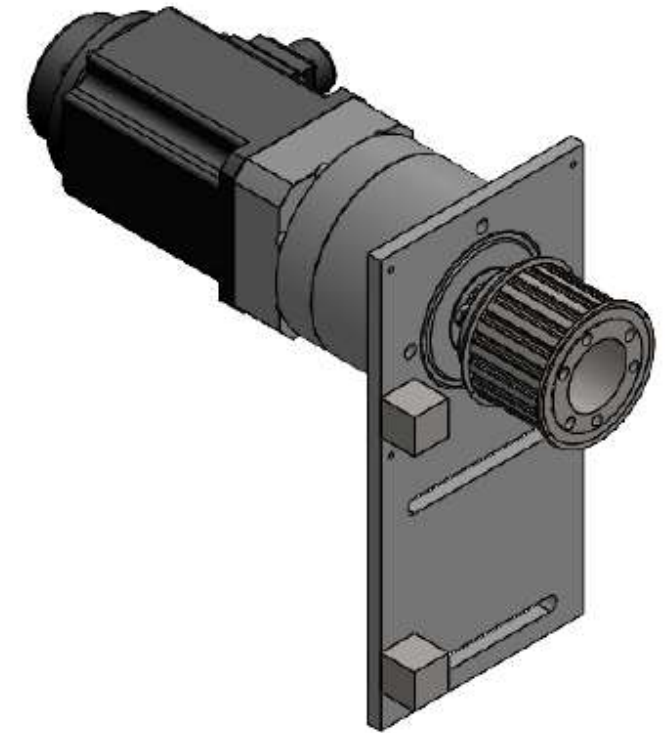
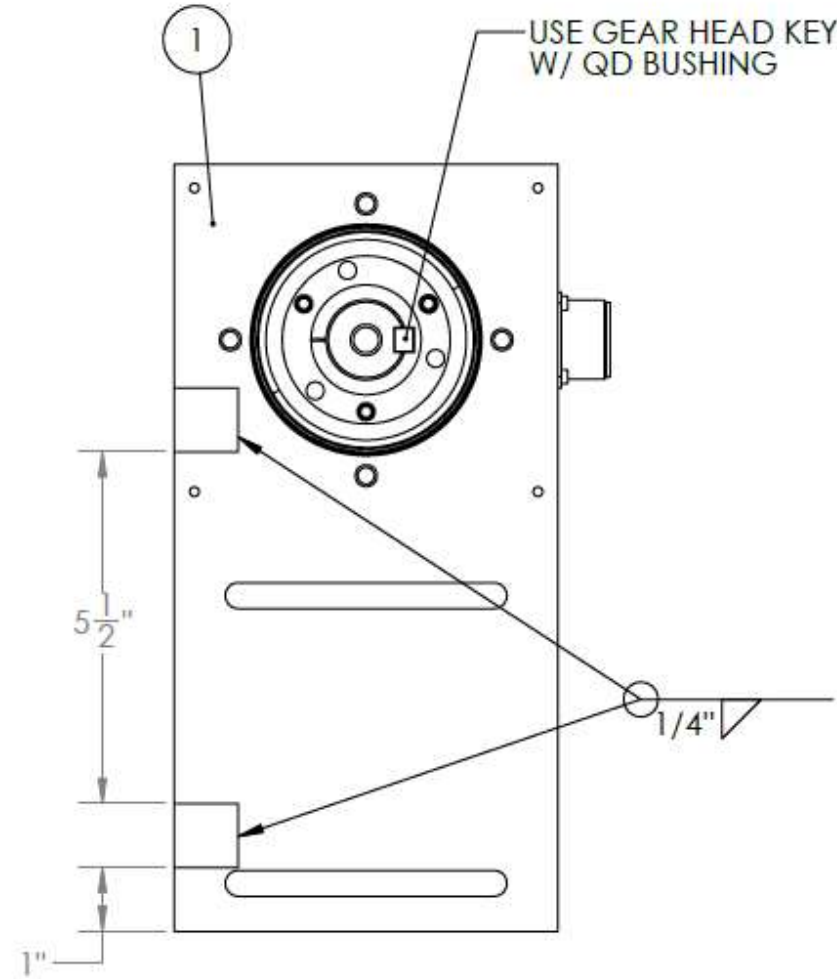
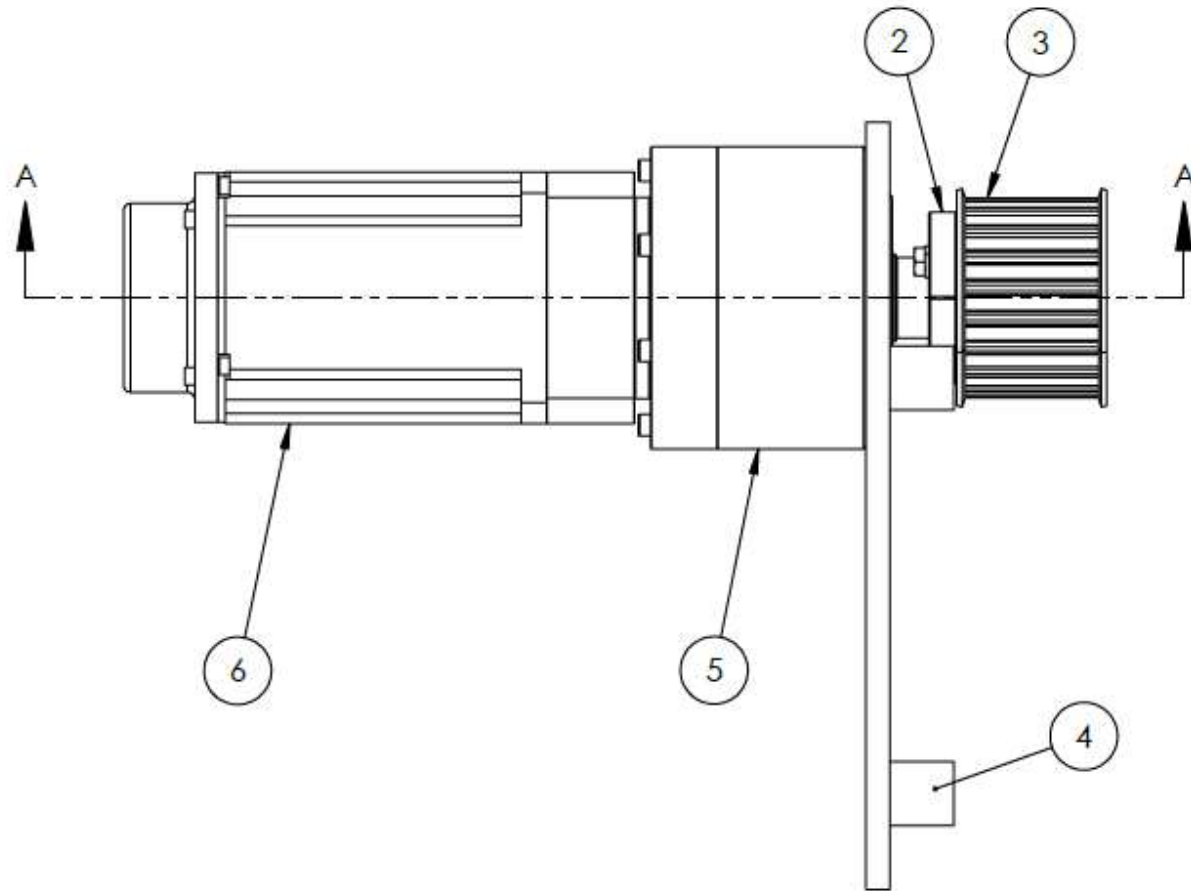
COMMENTS :
TO BE USED WITH PUNCH 018274

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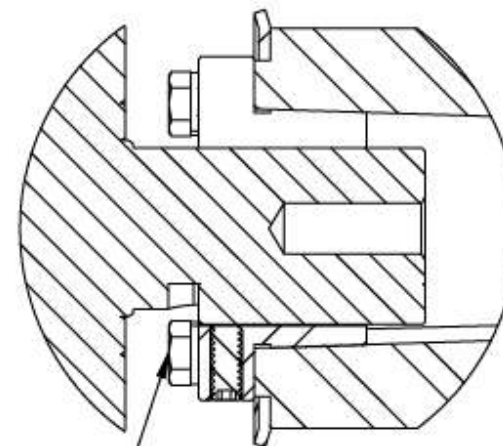
THE INFORMATION CONTAINED BY THIS DRAWING IS THE

TEM NO.	PART NO.	DESCRIPTION	QTY.
1	6-669	MOTOR BRACKET	1
2	6-623	SH BUSHING 32MM BORE	1
3	6-623.1	PULLEY 2" H BELT 20T	1
4	6-669.1	PUSHER BLOCK	2
5	6-630	INLINE GEAR HEAD 10:1	1
6	6-626	MOTOR 1.5kW-3000RPM-240V	1

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED



COUPE A-A
ECHELLE 1 : 3



PLACE QD BUSHING
SCREWS ON THE INSIDE

DÉTAIL B
ECHELLE 2 : 3



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DESCRIPTION
MOTOR ASSEMBLY

PART NO
6-669AS

DRAWN BY JOEY TRUDEAU	SCALE 1:2
DRAWING #	MATERIAL

COMMENTS :

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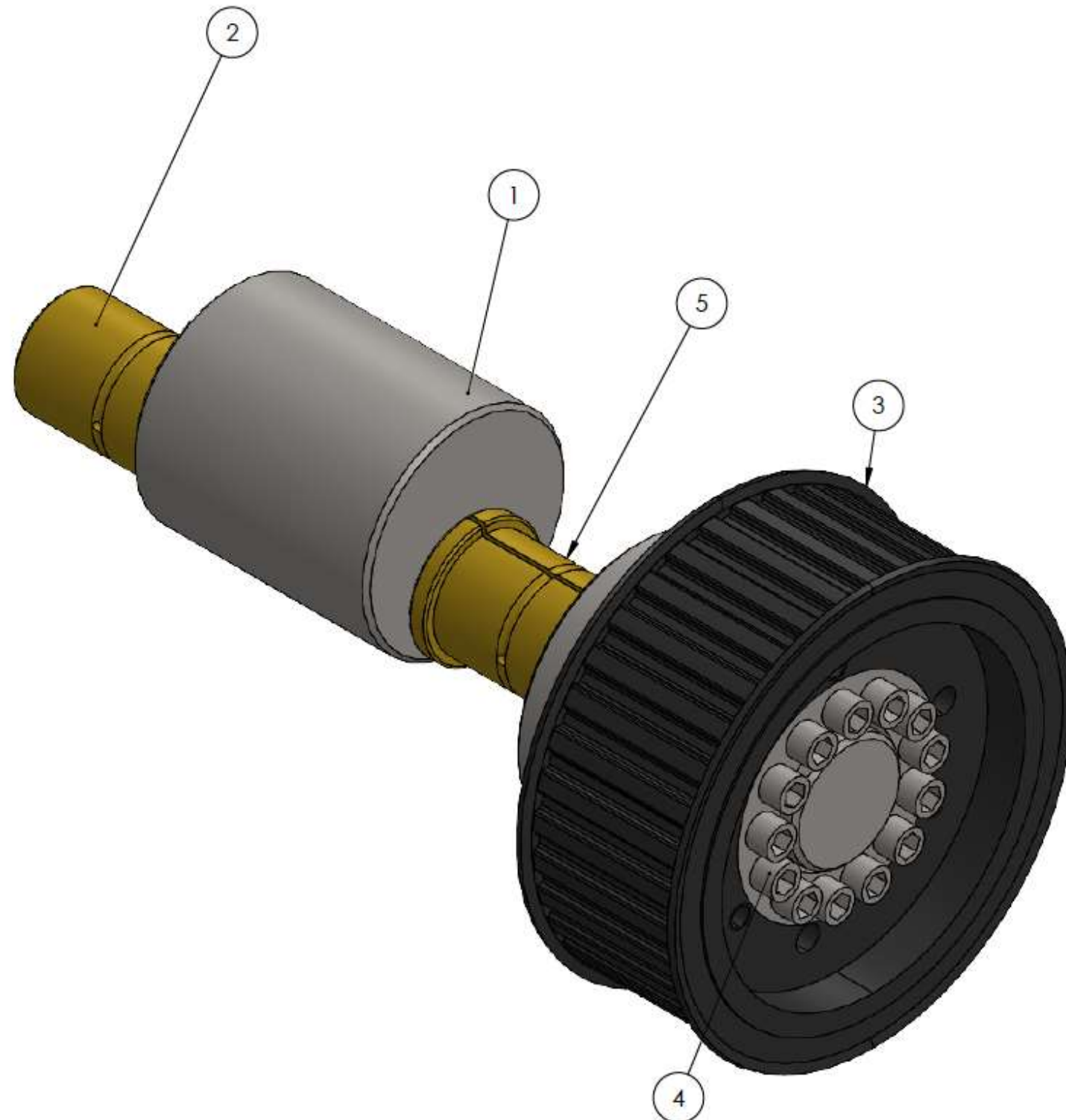
DIMENSIONS ARE IN INCHES
TOLERANCES :
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TWO PLACE DECIMAL ±.01
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ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	6-633	CRANKSHAFT, 1.25" STROKE	1
2	6-034SO	BRONZE BUSHING, SOLID	1
3	6-623.2	PULLEY 2" H BELT 36T	1
4	6-601	LOCKING DONUT PULLEY & CRANK	1
5	6-034SP	BRONZE BUSHING, SPLIT	1

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED



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DESCRIPTION
CRANK SHAFT ASSEMBLY

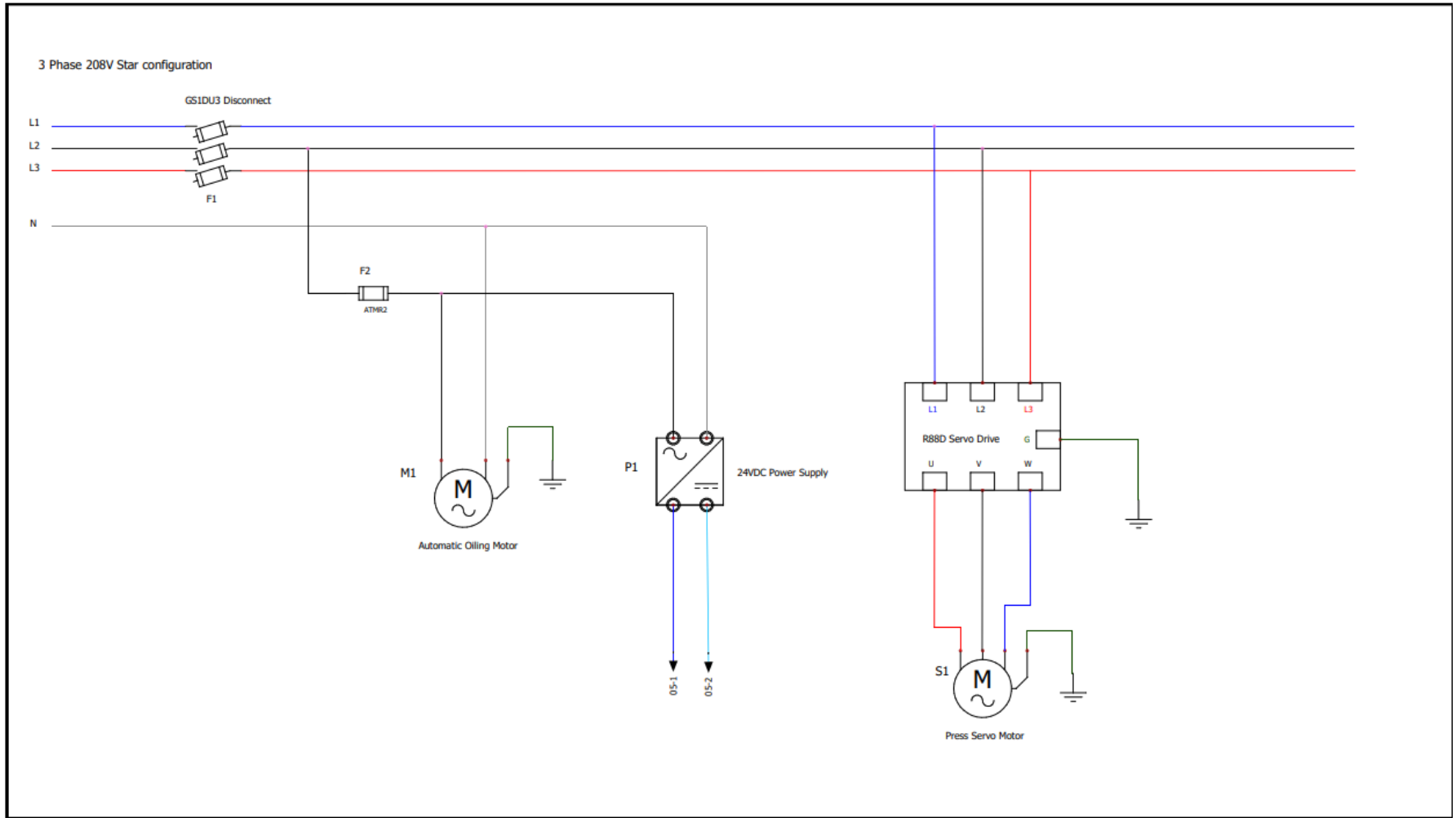
PART NO
6-633AS

DRAWN BY FRANCIS DURAND	SCALE 1:2
DRAWING #	MATERIAL

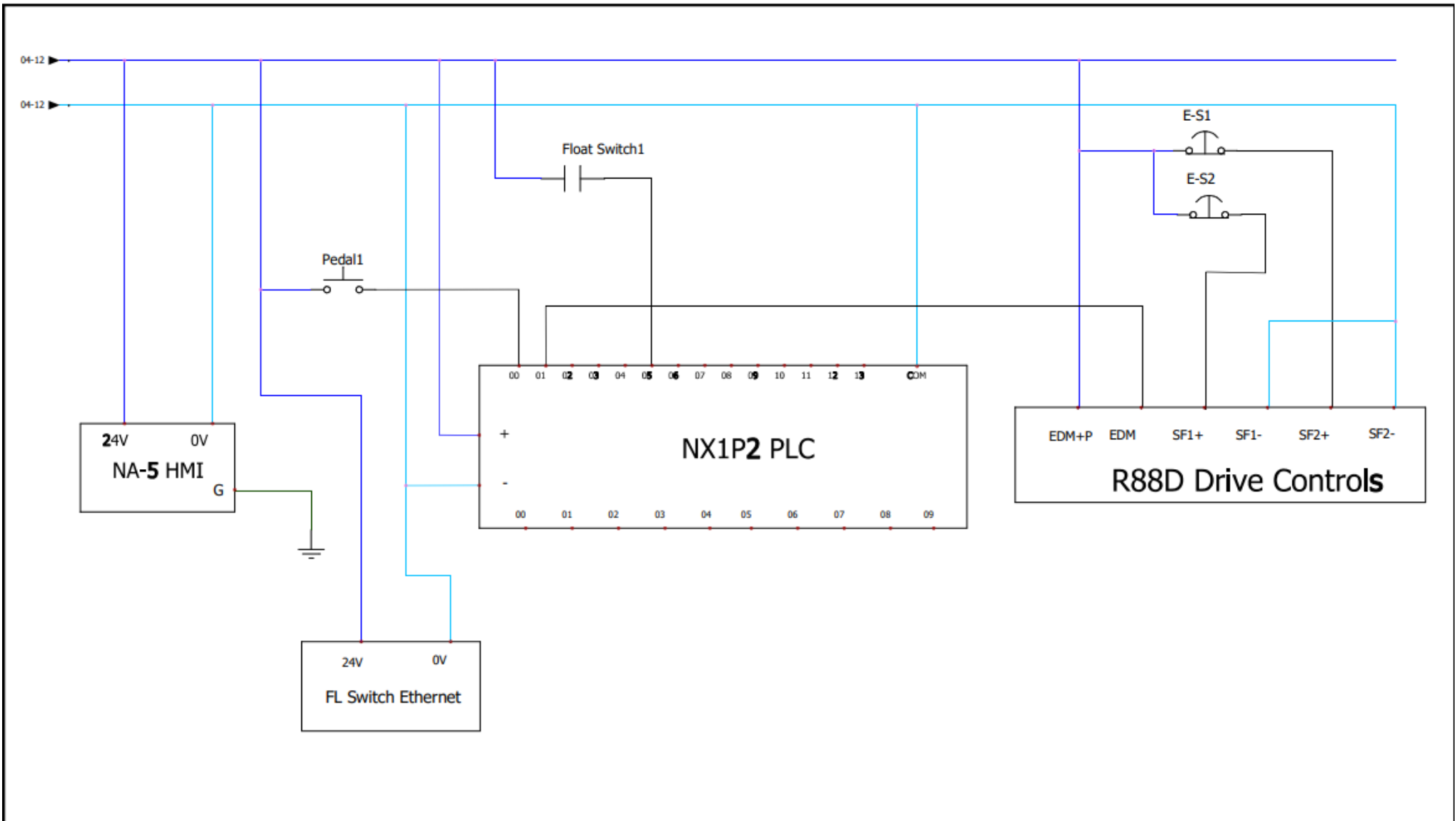
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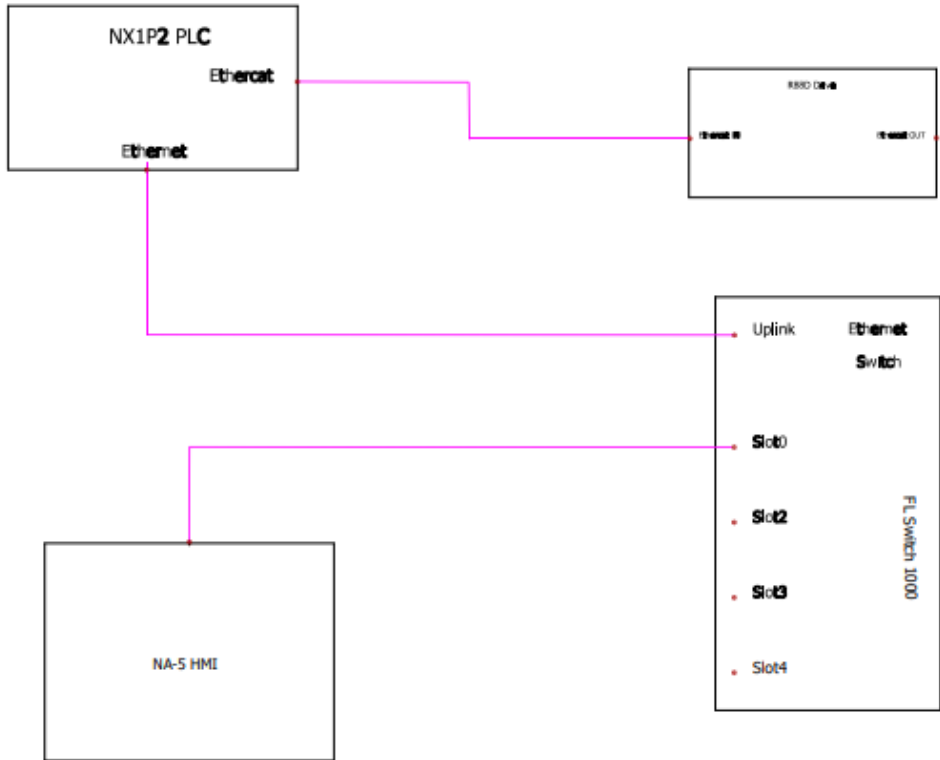
ANNEXE B – Electrical schematic



CONTRACT:	LOCATION: L1	Power						REVISION
		Main electrical closet	0	2021-11-02	joeyt			SCHEME
		User data 1	User data 2				04	



CONTRACT:		LOCATION: L1		Main electrical closet		Control		REVISION
						0	2021-11-02	joeyt
User data 1		User data 2		REV.	DATE	NAME	CHANGES	SCHEME
								05



Ethernet

				REVISION
				0
0	2021-11-08	joeyt		SCHEME
REV.	DATE	NAME	CHANGES	06
User data 1			User data 2	

CONTRACT:

LOCATION: L1

Main electrical closet