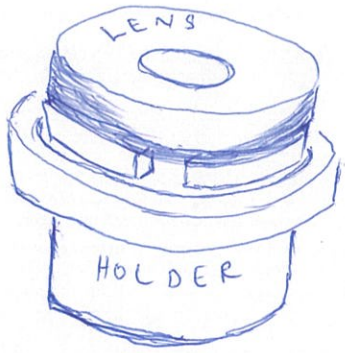
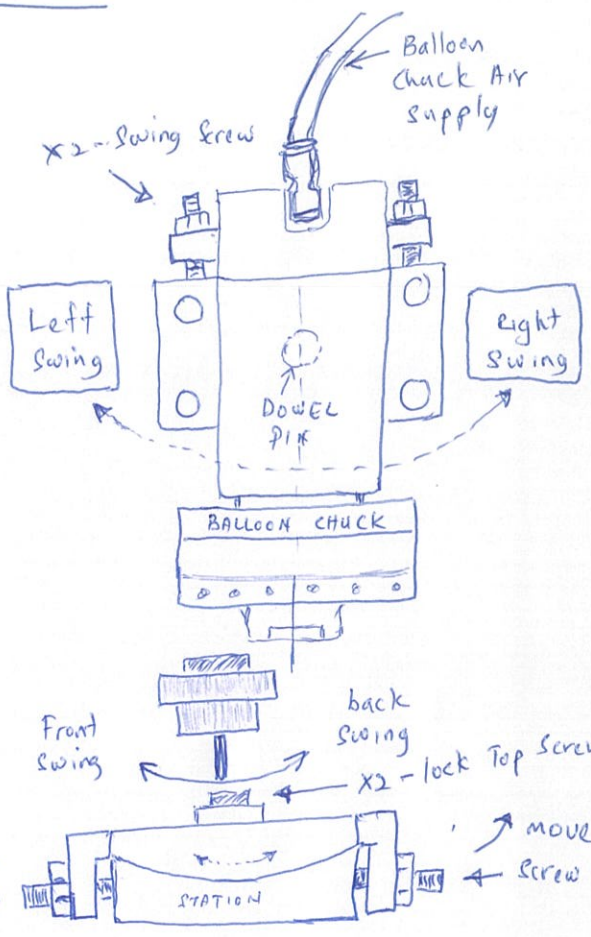
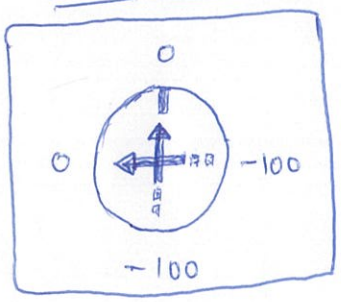
BLOCKING WAX //ISM & CENTERING





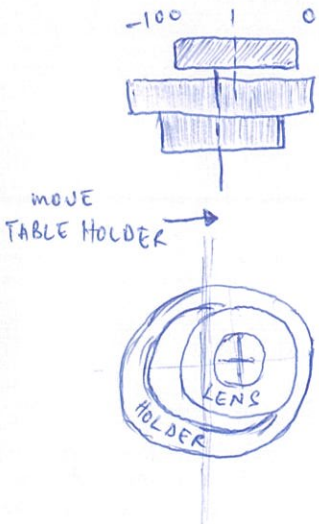
BASIC ADJUSTMENT



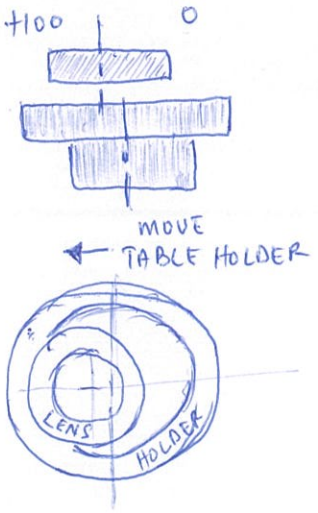
CENTERING SPECIFICATION

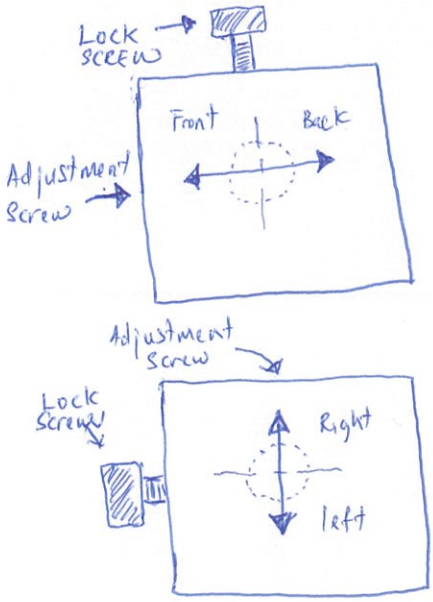
0.02 MAX!

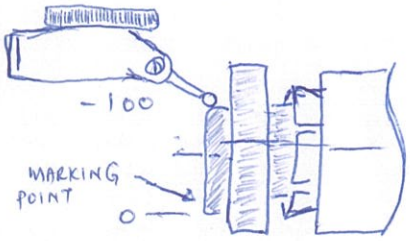
EXAMPLE 0 ~ -100



0 ~ +100







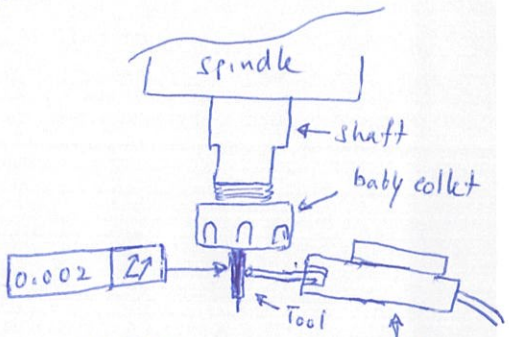
DIAL INDICATOR CHECKING POSITION.

1 Cycle Blocking Progm

1. home position
2. Cycle continuos 'OFF'
3. Auto Mode. / OFF Line
4. Place lens to lens Chuck.
5. Heat-up Alu holder
6. Start for 1 cycle.

MILLING BITE SETTING

GEOMETRY	USAGE PROGM	Z # OFFSET NO.	
G55	PRODN O8000	NO. 1	Get from G57 OFFSET NO. 5 manual input
G55	WARM-UP O0300	NO. 2	⇒ Auto Update.
G56	TOOL WASHING O0055	NO. 3	⇒ Auto Update.
G57	BITE SETTING O0006	NO. 5	Manual Input



Procedure :-

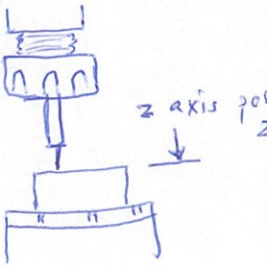
① Take-out old tool from the baby collet.
↳ Clean baby collet and chuck free from chips

② Insert new tool bite and Insert fully in b/4 tightening

③ Use Dial Indicator Analog (Electrical type) and check bite run-out (2μm) Max.
↳ If run-out more than 2μm, take out and clean again.
↳ Repeat steps until run-out is achieve 2μm. (No short cut)

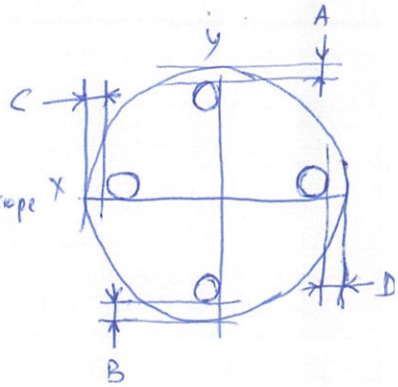
④ Place Test-Piece for bite Setting to chuck.

⑤ Move Bite axis X/Y/Z to the top of the test piece and record the Z axis reading X & Y axis
↳ Input Z-axis machine position to offset No. 5
↳ b. Move bite to center of the test-piece and roughly take the reading and input inside Geometry (No. G57)



⑥ Select Progm O0006 and Dry Run slowly.
(Eliminate Duster from moving up.) bracket (M-code)

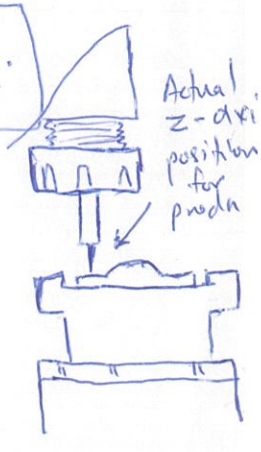
⑦ After complete drilling 4 holes, measure hole distance at tool maker Scope
↳ Adjust 4 holes with Arrow front to suit X & Y axis perpendicularly
↳ Compare Value A = B
↳ Compare Value C = D
⇒ Greater Value minus Smaller Value Divided by 2 and move m/c axis to greater value.



Specification max 0.005μm. Difference

⑧ After Achieve Part Center input (X & Y) for G57 to G55 respectively.

⑨ Set Lens holder with lens to ~~cut~~ chuck and set tool bite tip to top of lens. Record Reading and input inside offset (NO. 1)
⇒ Offset No. 2 and 3 will be automatically update by progm running



① 6mthly Maintenance of Grinding wheel, Dressing of stone, Balancing of wheel.

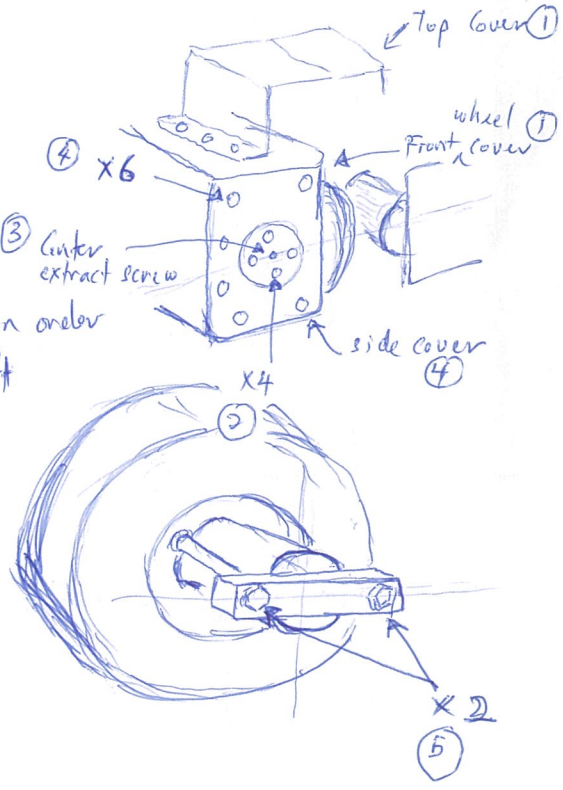
STEPS OF ITEMS

① Dismantling of Grinding Wheel
⑤ Wheel balancing ⇒ Smooth Rotation ⇒ No reversing
③ Dressing of stone wheel ⇒ Clean Cut Surface ⇒ 0.05mm.
④ Servicing of any rusty contact surface. ⇒ Movable on all axis movement.
⑤ Alignment of Grinding Wheel: ⇒ 0.002 mm = 2μm.
⑥ Test Cut piece. ⇒ ϕ13.0 ±0.1

Procedure :-

* Dismantling of Grinding wheel

① Take out Top cover, Front wheel Cover,
② Dismantle 4 screw cover for support bearing holder
③ Insert Aluminium support to the screw holes and Insert screw at center of support bearing holder in order to extract holder and support bearing on wheel shaft
Tighten screw so as to extract holder out.
④ Remove x6 M12 screw to remove side cover
⑤ Use Jig and 2 screw to extract Grinding wheel out from main shaft. refer drawing
- Carry wheel approximately about 10 kg to a safe place
⑥ Clearing all surface inside and wheel shaft and other surface before need to install back.

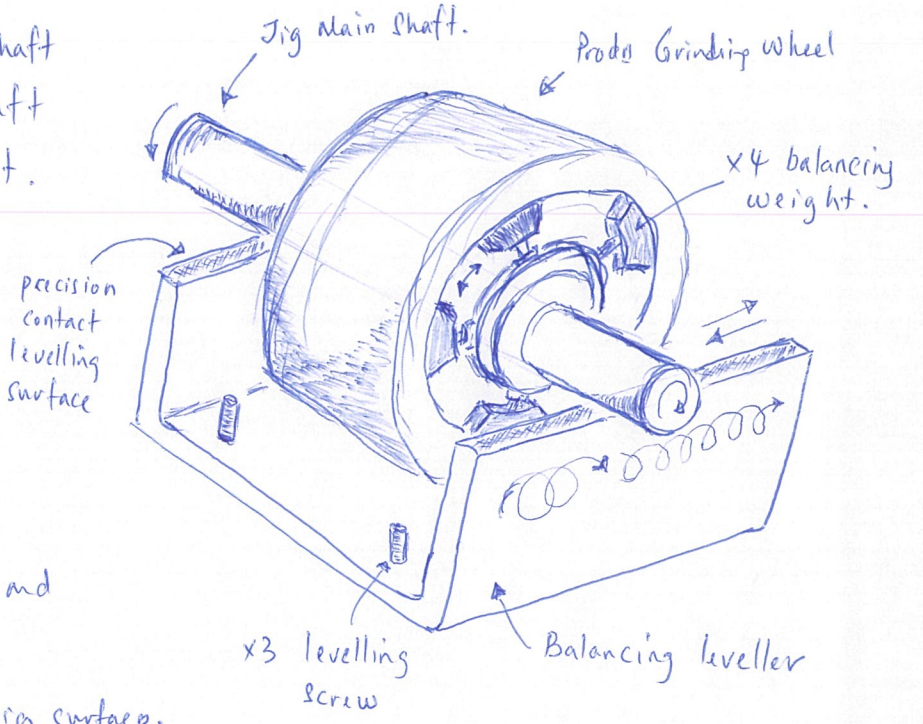


* Wheel / Grinding Stone Balancing

STEPS

① Insert Balancing Jig Main Shaft into Grinding Wheel. Clean shaft Inserting surface first b/4 Insert.

② Levelling Balancing leveller x & y position to level so not to tilte surface and have in accurate balancing Use Water levelling Unit.



③ Place Grinding Wheel stone and shaft to levelling Jig.
* Note: Clean both shaft and Jig surface.

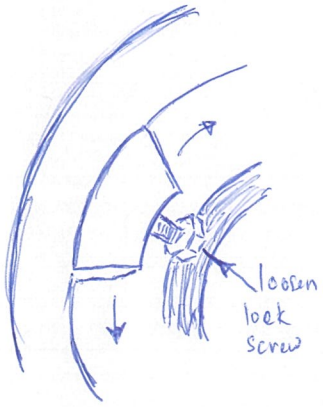
④ Slowly Roll the wheel forward and backward and observe the rolling momentum. It should not stop rolling till end of surface. in slow moving roll.

← Behaviour of wheel

ⓐ Wheel stop halfway and reverse rolling direction and vice versa
- Means wheel is heavier at one point.

ⓑ A Good Balancing Means Wheel Roll slowly till end forward & Backward.

ⓒ Adjust x4 Balancing weight as to where the heavier part is situated. It can be shifted when the locking screw is loosen



ⓓ Remove Jig Main Shaft and clean-up and Ready to Install.

* Dressing of Stone

STEPS

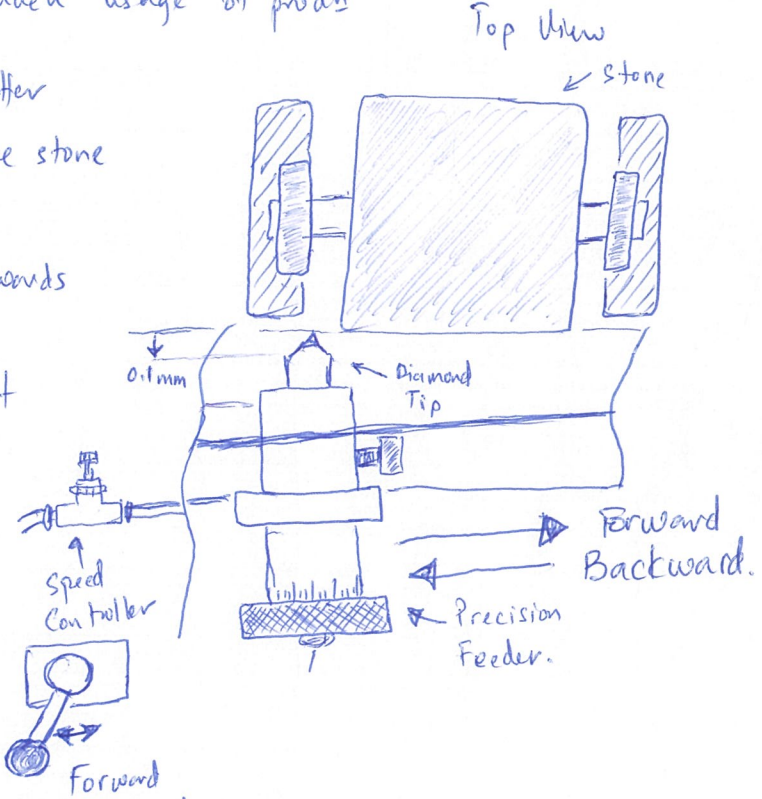
① After Completed Installing Grinding Stone to its position Now it is time to cut a layer of un even surface of the Grinding stone after much usage of prodn

② Feed the diamond tip Dresser Cutter to touch the stone. by moving the stone wheel slowly.

③ Retract the Diamond Tip backwards about 0.1 mm.

④ Turn ON ALL 4 switches start button. ① Power ② Feeder Wheel ③ Stone ④ Water Coolant.

⑤ When All is in Grinding position. Move Forward/Backward lever to Forward and Adjust the speed to suit Cutting requirement.
0.05 mm/min. (Feedrate)



⑥ Note that the Diamond tip will start to cut the Stone by checking the surface different of the stone. If the surface is not cut. feed 0.02 mm Forward of Diamond Tip in every cycle until it is cut.

⑦ After the stone surface started to Cut. Feed about 0.02 forward 0.02 backward and 0.01 forward and lastly 0.00 backwards to finish the dressing surface.

DRESSING COMPLETED

* INSTALLATION OF GRINDING WHEEL

STEPS

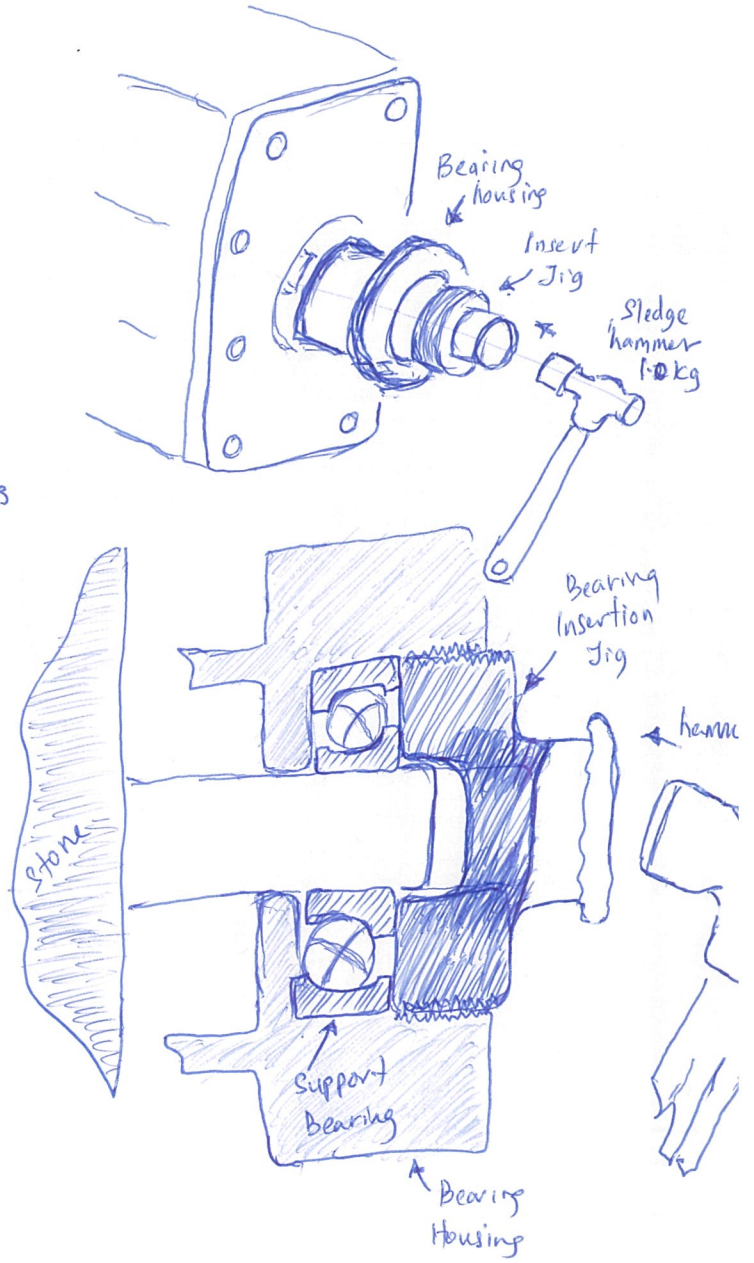
① Uninstall Center bearing housing and Insert ~~and~~ an Insertion Jig

* This is to protect the bearing when it is inserted to the shaft.

② Insert Bearing housing the the Main Shaft Perpendicularly by observing the slant area.

③ Slowly knock the Insertion Jig with Sledge hammer 1.0 kg until bearing hit mounting surface wall.

④ Tighten 4 screw and 1 center screw.



* Alignment of shaft

steps

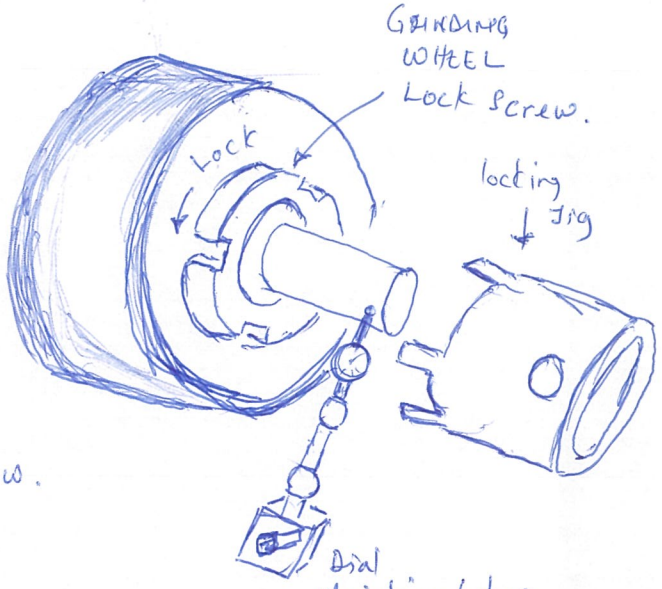
① Insert and Mount the Grinding Wheel to the Rotating Main Shaft.

* Take not of the Main shaft key-way

② Insert lock-Screw for the Grinding Wheel

③ Before Tightening check the run-out at the main shaft end. Must maintain 10/2 µm below. after completed tighten.

* Note - This Lock nut is "Locking" by Turning Anti-Clockwise direction.



* TEST CUT Piece.

STEPS.

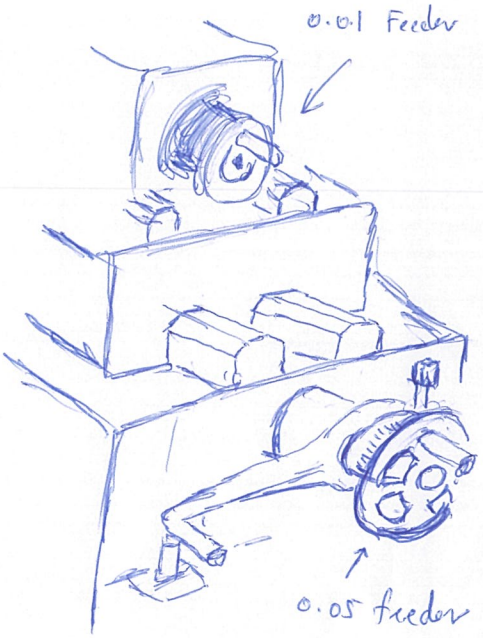
① Place Button Rod to the Centerless Grinding Stone In between. Move Feeder Roller Axis Forward and feel the contact between the Button Rod and the wheel.

③ Start the Grinding m/c. and feed the Button Rod.

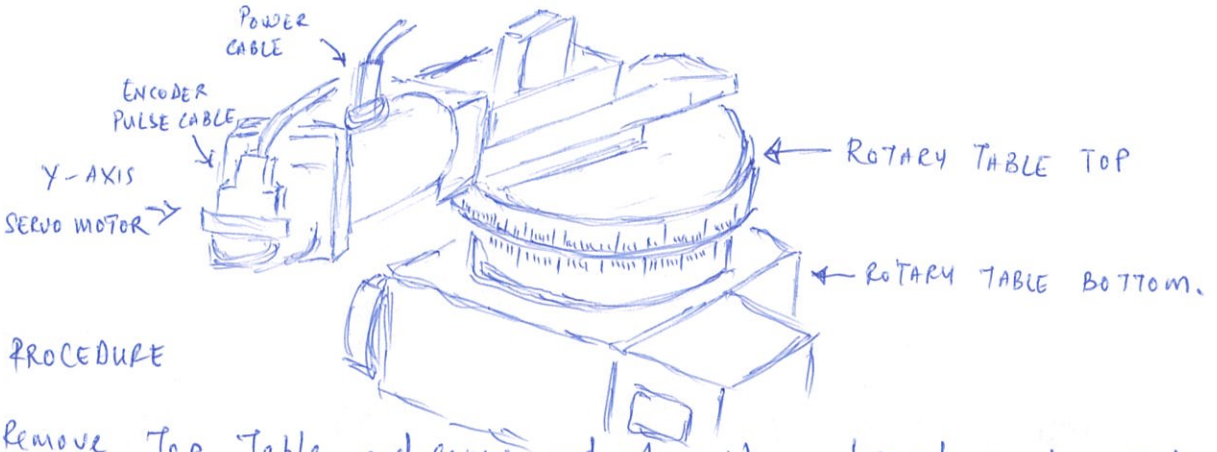
④ Specification is 13.0 mm ±0.1

⑤ 3/4 Grinding, Button Rod Dimension is 14.0 ±0.2

⑥ Grinding Cycle is 4 times and every feeding of Feeder Wheel is about 0.25 mm / Cycle.



CHANGING OF ROTARY TABLE



PROCEDURE

1) Remove Top Table and screw and place it on top of Loader slide.
2) Remove Power Cable and Signal cable of Rotary Servo Motor.
3) Remove / Unlock ~~to~~ Rotary Coupling screw and Servo Motor 4x screw
4) Remove Rotary Servo Motor out.
5) Remove Servo Motor Adapter by x4 screw.
6) Remove x3 Sensor holder for Zero-Return Sensor and 2 over travel sensor
* Indicate marking on the Sensor holder. Do not remove sensor height.
7) Remove Sensor Rectangular bracket and remove 3 sensor cable
8) Unlock x4 screw for Rotary Table mounting screw.
9) Carry Out Rotary Table and place in a safe and secure place
* Table bottom surface must handle with care to avoid dented.
10) Clean Rotary Table Mounting surface with IPA and ~~e~~ make sure clean.
11) Check Rotary Table mounting surface with Oil stone to confirm there's no dent and free from rusty surface.
12) Chek then new Rotary Table bottom surface is free from dent and foreign object.
13) Mount Rotary Table to Machine Mounting surface. and tighten x4.0 Screw

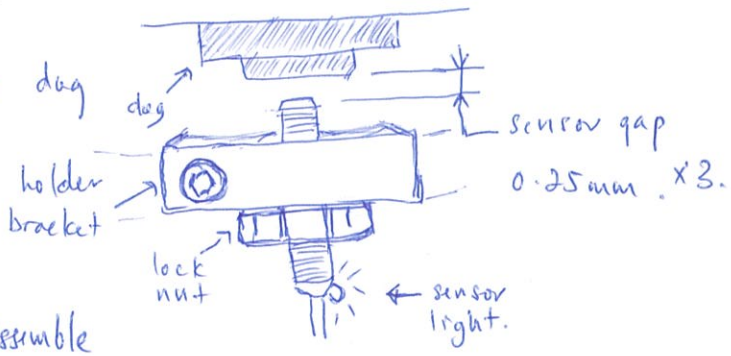
Note: It is better to align Rotary Table X-axis linearity.

14) Mount Rotatory Table - Table Top to Rotary Table x4.0 mounting Screw

CHANGING OF ROTARY TABLE

(15) Fixed back 3 sensor (2x overtravel and 1x Zero-Return)

* Sensor gap should be 0.25mm to dog



(16) Fixed back Y-axis Servo Motor x4 screws. And Power Cable & Signal cable

(17) Switch ON Power NC if all Part Completed Assemble

(18) Move Rotary Table - and + to confirm 3 sensors ON & OFF function.

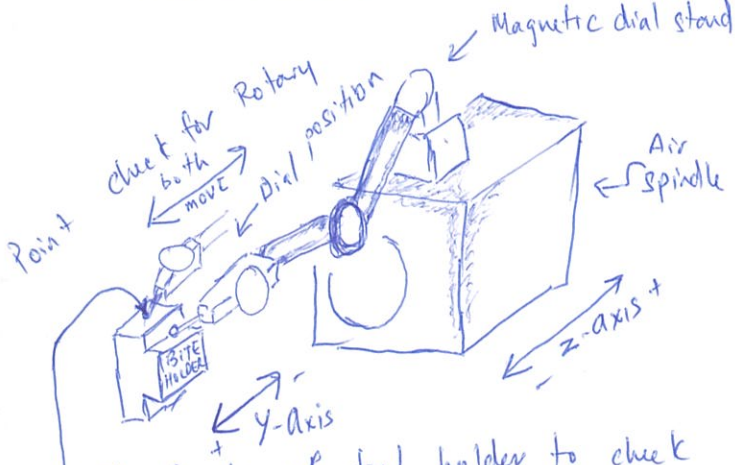
(19) Set bite Position "X-position" and bite height. Offset and adjust if necessary.

(20) Idle Rotary for about 1hr and Top-up with m/c oil if necessary

(21) Test-Run and Test-Cut.

Chuck for Rotary Table linearity

Program O0005



Top Position of tool holder to chuck for height perpendicularity

O0005 Program function:-

* Z-axis and Y-axis will move together forward and backwards 50mm
* Set Y-axis Forward 50mm towards Z-axis first b/4 performing this action.

Procedure:-

(1) Press start button to move O0005 Program forward and backwards

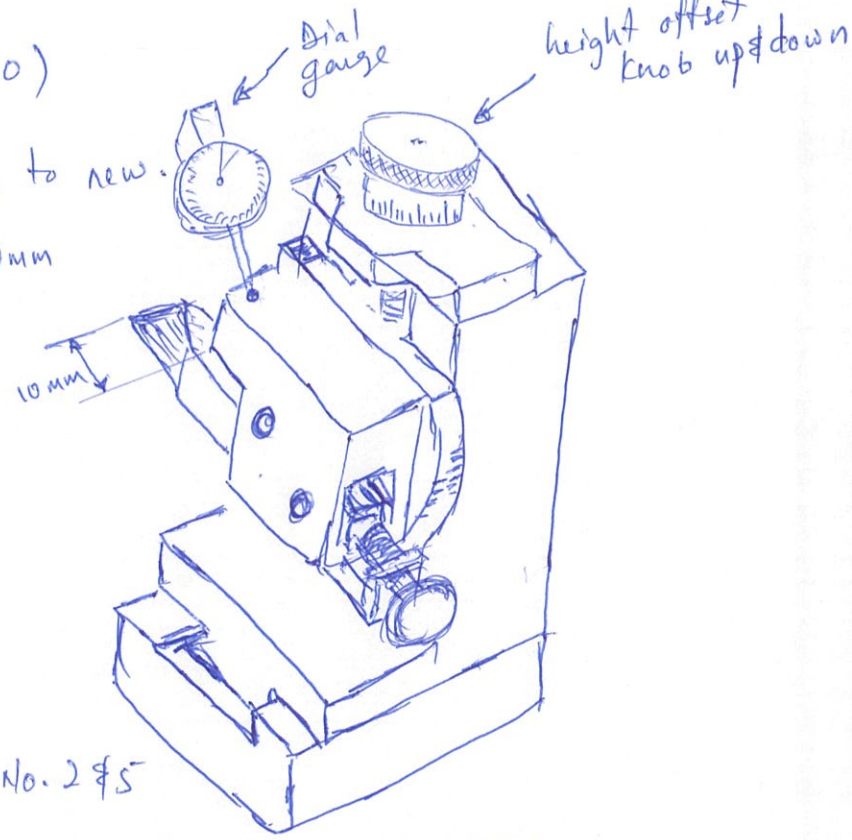
(2) Adjust A-axis accordingly.

(3) Key-in Value of A-Axis in to G54, G55/G58, G59 and change the Geometrical Value.

(4) This process/procedure is to align A=0 when program commands and Geometrical Value compensation.

BCR Bite Change Procedure.

Ø501 (Center height & ϕ 5.0)



① After taken out bite and change to new.

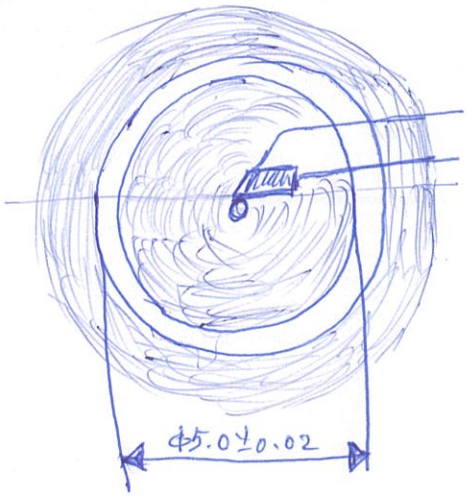
② Measure New bite length about 10mm from tool holder by Ruler.

③ Select Progm Ø501 and Test Run by controlling the feedrate.

④ Offset Wear No: 2 & 5
If bite touch or no touch Test Piece. Z-axis

⑤ ϕ5.0 offset by Offset Wear No. 2 & 5
X-axis

⑥ Center dot offset by using dial stand & dial gauge



· Specification

[X] ϕ5.0 ± 0.02

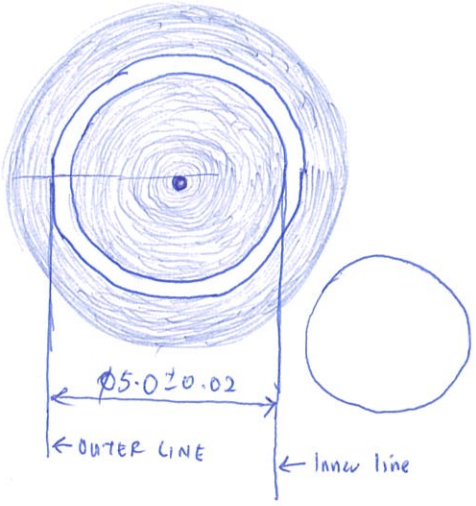
[Z] Center Dot ±0.002

FC & BC BITE CHANGE PROCEDURE IOL

PROCEDURE :-

* CRITERIA OF TOOL LIFE OVER AND BITE CHANGING DEPEND ON FEW CAUSES BEFORE A BITE IS/ARE NEED TO CHANGE.

① TOOL LIFE OVER =>
② LENS SURFACE UNEVEN OR CHATTERING MARK.
③ BURR ON LENS EDGES



ITEM TO TAKE NOTE WHEN CHANGING BITE

① CENTER HEIGHT (CENTER NIPPLE)
② X-CENTER (45.0) ±0.02
③ Y-AXIS (R15.0 ±0.003)
④ CENTER SURFACE ROUGHNESS PROFILE RU≥300 MAX.
EITHER CONVEX OR CONCAVE

- Minus offset + Plus offset

Note * ONLY PLUS OR MINUS 1 or 2 MICRON.

⑤ CENTER HEIGHT SURFACE CUTTING Õ501 PROGM. } GEOMETRY
⑥ RADIUS R15 CUTTING PROGM Õ502 PROGM. } G58 X & Y AXIS USED
⑦ PROD^N CUTTING PROGM Õ8000 PROGM } GEOMETRY G55
⑧ WARM UP PROGM Õ3000 PROGM

SE-125
IOL = 60 ml
lenscase = 30 ml

IOL & Weekly Maint of lens case Washing.

(1) 'ON' Power
(5) MODE TO MANUAL
(3) Select Page and bring all tank Pump to 'OFF' ← (12 units)
⇐ bring up tank no. 6 up
press reset skali
and bring up again
(4) Open tank ~~5~~, 4, 3, 2, 1 to drain out. (open value) ↖ close main supply water
(5) Open Value 432 tank ~~and~~ to drain out
(6) Standbghose to outlet Sump tank 1 and a pail ready.
(7) Select to manual and press pump no. 1 to drain out.
↳ Alarm 'on' and press silence.
(8) Drain out manual bottom valve to open and drain out left over.
(9) Clean Inside of sump tank No. 1 with ethanol, make sure its clean.
(10) ~~2~~. Fill sump tank ~~supp~~ No. 1 to Max level and drain out again and wash it 3X.
Manual drainage as step 6.
(11) After Completed drainage of sump tank 1. Clean all 5 tank 1 → 5 with ethanol and Clean cloth.
⇒ Clean the Carrier and the top tank surface.
(12) Clean the 5 filter No. 1 ~ 5. Take out filter and wash. with spray pressure di's water. & Clean filter housing.
Install back All filters, make sure seal is not damage.
(13) 12 Top up tank Sump No 1 first to max level and before top make sure to add additive SE 125 at low level beaker indicator and close value tank no. 1 and water will flow to the 5 tank and adjust water flow to center flow level.
(14) Select mode to Manual and bring all pump to 'ON' like step (3). and press reset for temp. to rise to setting level.
(15) Once the temp. level up to setting Value. ⇒ Press Auto to start to start the process. and press cycle stop to stop 1 cycle.
(16) Off the Main Di Water supply and Off machine.

Note :- When IOL is running, check for leakage.

01/02/16

LENS REMOVING ULTRASONIC CLEANER (MAINTENANCE)

1) Di WATER TANK

(a) Drain and Clean the Tank 1 & 2 (Weekly)

=> Press stop and start Immediately.
=> Close the Di water supply Valve. (Wait until the water is drained out)
=> close 4 drain out valve. below tank
=> Use Clean Cloth and Ethanol to clean the Inside tank surface. especially the side wall. (then wipe clean)
=> Cleaning is completed.

(b) Clean Strainer. (weekly)

=> Used small container to prevent water splashing.
=> Unscrew strainer and remove out. (x 2)
=> Brush clean the strainer by using pressure di water and air gun.
=> Lock back strainer to its position (x2)

(c) Clean and Check filter Element. (Weekly)

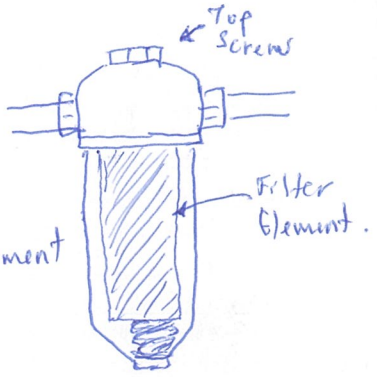
=> Use small container to prevent water splashing
=> Unscrew Top Screw of filter and dismantle.
=> Take out filter housing and clean Inside of housing with Di Water spray gun
=> Di Wash filter Element with water spray. & Install back

(d) ~~Float~~ Float sw is free to move. (Weekly)

=> Di spray gun floater sw and make sure it's free to move. up & down.

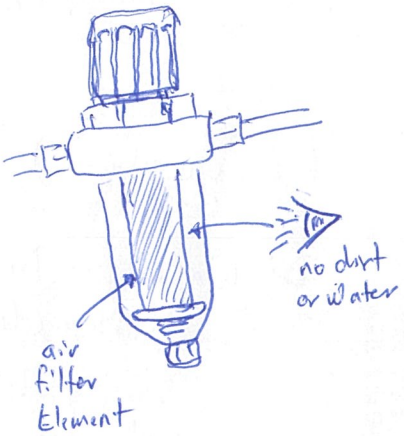
(e) Replace Filter Element. (Monthly)

=> Use small container to prevent water splashing
=> Unscrew Top Screw of filter and dismantle
=> Take out Housing and clean Inside housing and replace filter Element
=> Install back with new Filter Element.



LENS REMOVING ULTRASONIC CLEANER (MAINTENANCE)

COMPRESSED AIR UNIT



3. (a) No Dirt Or Water

⇒ Dismantle the Filter Regulator and make sure there is no water visible with Naked EYE

* Air Valve closed

(b) Regular Cleaning

⇒ Dismantle the Filter Regulator and remove the filter Element

* Air Valve must closed.

⇒ Spray with Air Gun without water. dry spray.

⇒ After clean ~~re~~ install back.

ULTRASONIC CLEANER

(a) No Choking of Filter

⇒

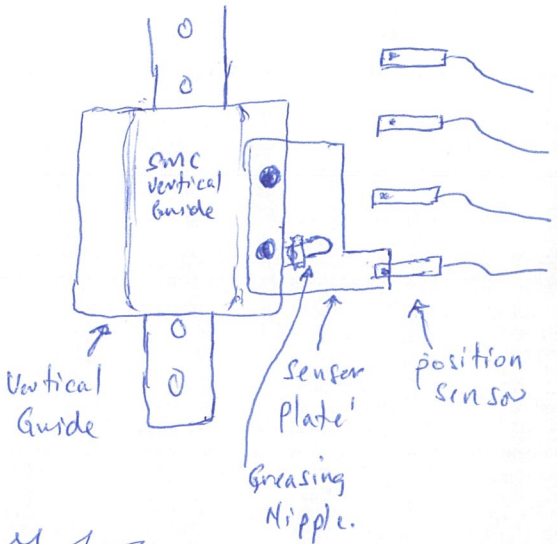
(b) No Liquid leakage.

⇒

LENS REMOVING ULTRASONIC CLEANER (MAINTENANCE)

5 **VERTICAL GUIDE (U/D)** (6 month)

⇒ Move Vertical Guide Unit Downwards.
⇒ Remove SENSOR Plate
⇒ Remove Old Grease at Guide Rail
⇒ Pump AFF grease into Nipple.
⇒ Move Up & Down for 30 cycle
(when moving need to ~~tak~~ install sensor plate)
⇒ Wipe off grease again
⇒ Pump AFF grease again
⇒ Install back all cover.

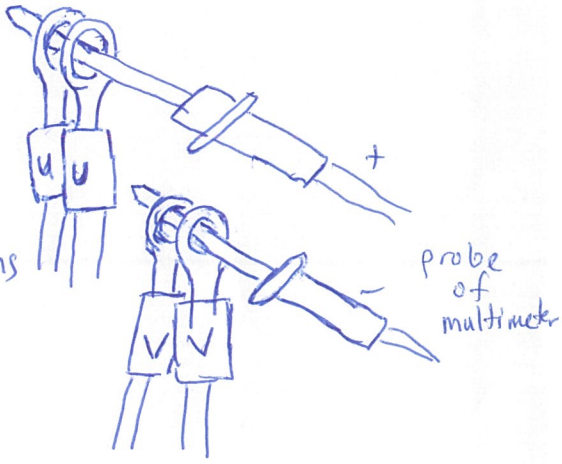


Note: When Moving up/down need to install back sensor plate! Important!

6 **HEATER TANK INSULATION** 10MΩ
7

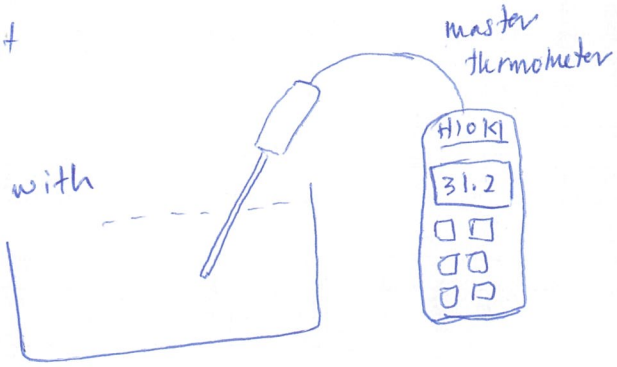
⇒ Dismantle U V W (11 & 12)
Heater 1 & HEATER 2

⇒ Measure X2 U & X2 V
X2 V & X2 W
X2 U & X2 W
All Reading Must Not Exceed 10 mega Ohms



8 **DIGITAL TEMPERATURE GAUGE**

⇒ After start the m/c and is stable at 31°C at the m/c meter Indicator
⇒ Confirm the Water tank temperature with Master thermometer.
Δ differential Value should not more than +/- 2 °celcius



9 **EMERGENCY SWITCH**

⇒ Activate E-switch and make sure it's working

TUMBLE MACHINE POLISHING (MAINTENANCE)

(a) Take out side cover and mic cover

⇒ Dismantle/unplug Power supply and Socket from controller to motor.

⇒ Clean all rusty Rubber from drive & pulley and belt.

⇒ Check tension if too loose & adjust

⇒ Clean Inside Area of cover

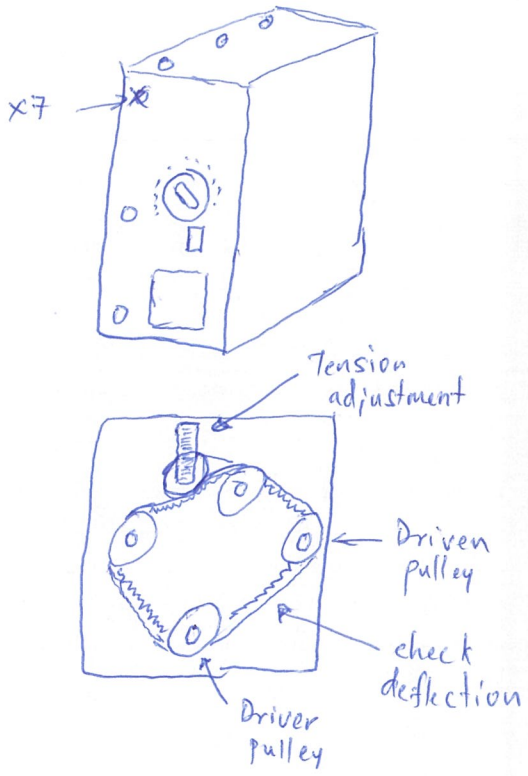
⇒ Chek Magnetic Contacter and Cleaning

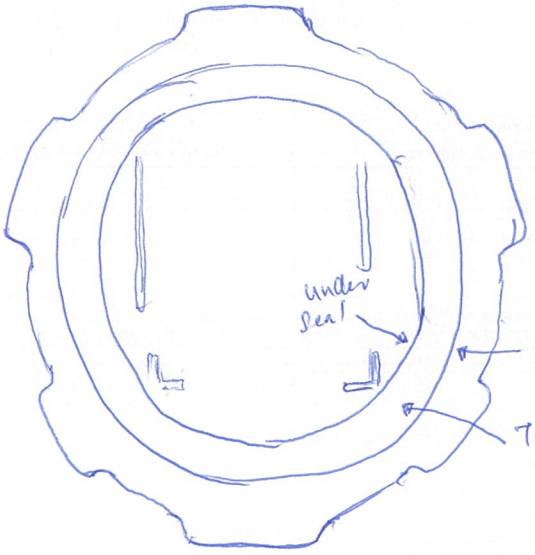
⇒ Clean All area

⇒ Check Motor rotation whether is there any vibration or sound from the belt.

⇒ If O.K, Install all cover back.

⇒ Completed.

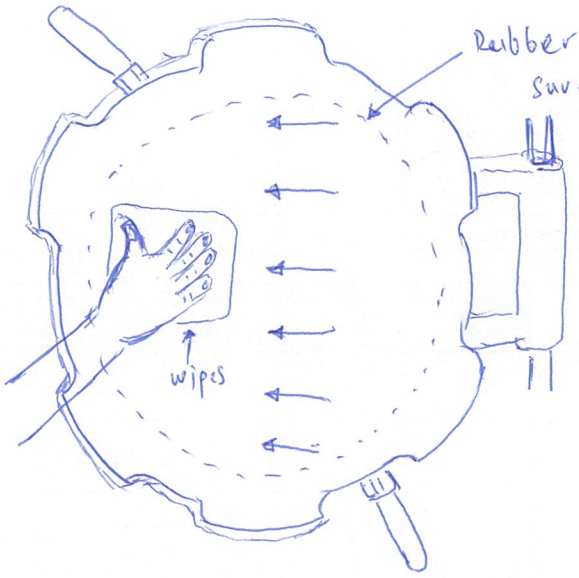




MAIN DOOR WHITE RUBBER SEAL CLEANING

① Use Ethanol to clean Top Rubber surface, Under seal In & Out.

Warning -* Do not use Acetone to clean White Rubber due to it is not Rubber proof/Friendly.



Main Door Inside surface.

Main Door Face Cleaning

① Clean Door at Rubber Seal surface.

② Check for any dent or protruding dirt. and Clean it.

③ Wipe away dirty particles with wipes cloth and Acetone. on a ~~to~~ one way motion

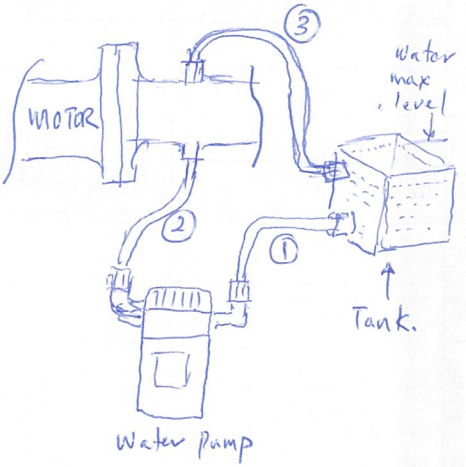
PRESSURIZED OVEN 6 MTHLY MAINTENANCE

MAINTENANCE ITEM

1. ~~A~~ WATER COOLING SYSTEM
2. N2 FILTER
3. MAIN DOOR LUBRICATION.
4. MAIN DOOR WHITE RUBBER SEAL Cleaning
5. MAIN DOOR FACE CLEANING.

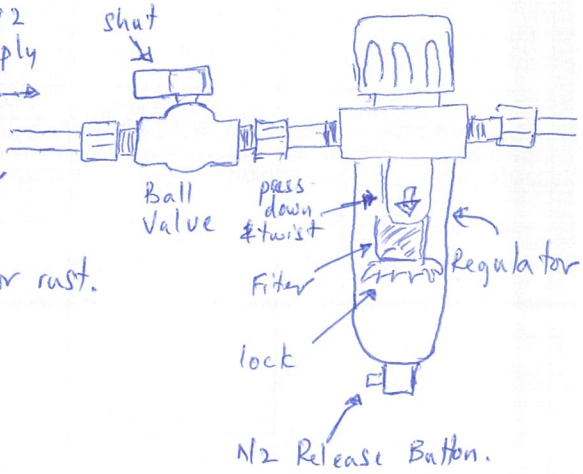
WATER COOLING SYSTEM

1. DRAIN out Existing Water in a Waste flask Container
   ↳ Clean the tank Inside with ethanol Spray
5. Take out 3 water hose piping and clean the inside of piping
3. Fixed back ~~R~~ Water hose piping and tighten.
4. Top up Water until max.

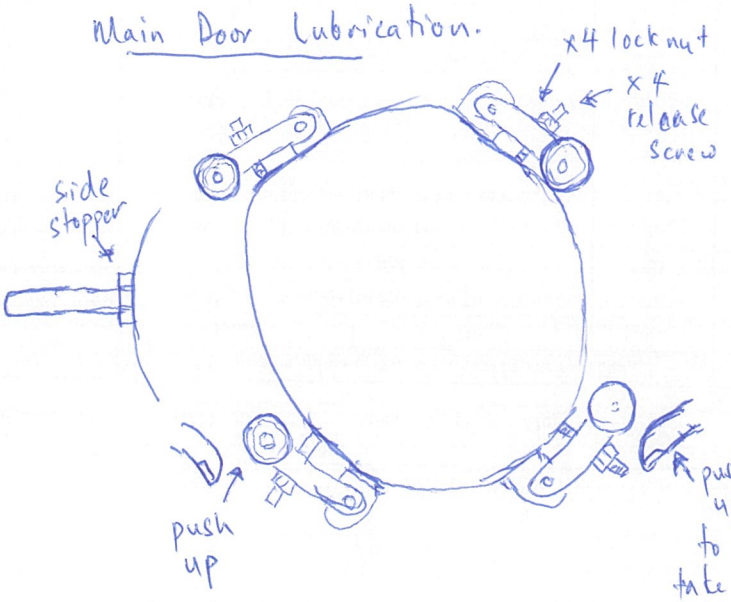


N2 FILTER

1. Shut N2 Valve to close inside
5. Release Pressure Valve at Front of M/C
3. Release Pressure at N2 at Filter housing/Regulator
4. ~~Ret~~ Dismantle housing and Filter by twisting.
5. Check for any abnormalities such as Water or dirty or rust.
6. Clean blow with Air Gun.
7. Install back

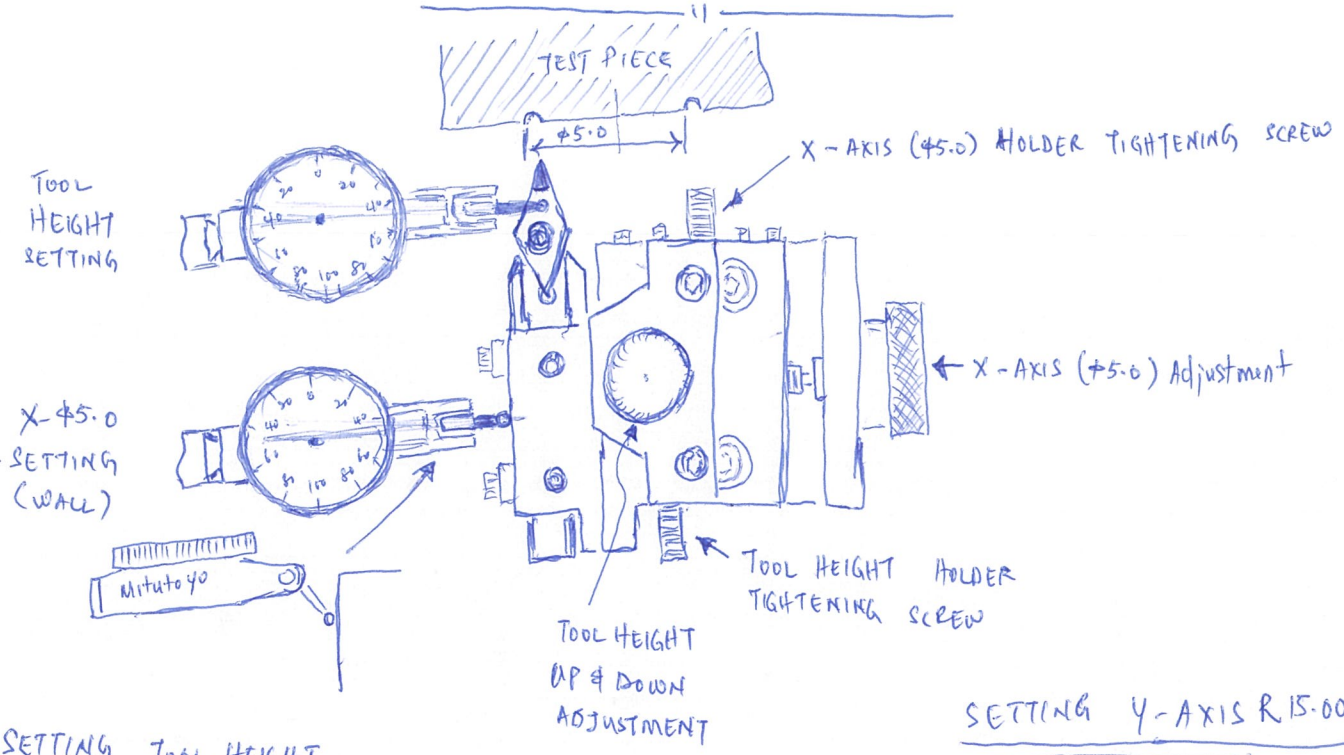


Main Door Lubrication.



1. Release x4. Locknut and Screw
2. Release x1 side stopper and take out
3. Push up Roll bearing in order to Dismantle main door.
4. After dismantling clean Old Grease on all Hexagonal contact Point and Apply white Grease.
5. Install back main door and re-align door bearing.

FC & BC BITE CHANGE PROCEDURE IOL



SETTING TOOL HEIGHT

① Test Cut 1pc and check at Toolmaker scope.

② Measure Nipple diameter. and observe Center line from left to right and is it above nipple or below.

③ If above, Move tool downwards according to diameter divided by 2 eg φ0.05/2 = 0.025. Move tool downwards 0.025 only.

④ Vice Versa for upwards.

SETTING φ5.0 X-Value offset.

① Test Cut 1pc and check at Toolmaker scope.

② Measure diameter. Set zero at Outer line diameter and move scope line to Inner line of the other side.

∴ If φ5.050. means φ is big. Move tool Right side.

③ Unlock locking screw as figure shown, Place a dial as figure shown. Turn adjustment knob as figure shown. Adjust until diameter reach φ5.0 ±0.02.

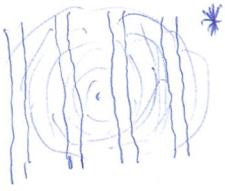
SETTING Y-AXIS R 15.000 ±0.003

* Image must be equal as figure shows

① SET ZERO AFTER GETTING THIS IMAGE

② Move Table upwards and focus another Image

③ Image must be a straight line as below.



* almost straight line Image

④ Check Value and offset

If Value 14.995

G58 Y value add + 0.005

If Value 15.005

G58 Y value minus −0.005

ASETTING ROUGHNESS CENTER

① Press Measure at Computer, and Formation of surface Roughness will appear.

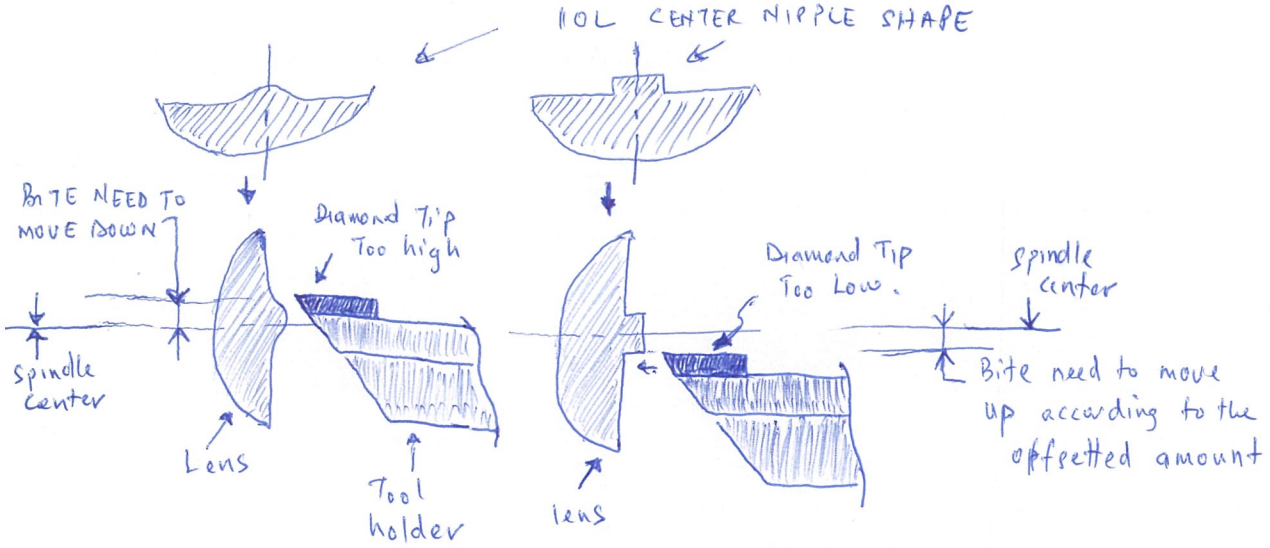
② Depend on surface formation, if ~~CONVEX~~ CONCAVE minus offset, If convex plus offset

③ Offset G58 X value 1 or 2 mm

IOL FC FINISHING CENTER NIPPLE ABNORMAL

NORMALY CASE

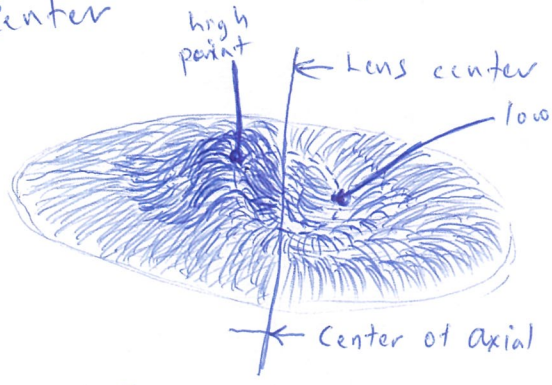
1) When CENTER OF BITE IS NOT CENTER IOL CENTER WILL CREATE NIPPLE (2 CONDITION:)



.REMEDY

Adjust tool height up or down according to above.

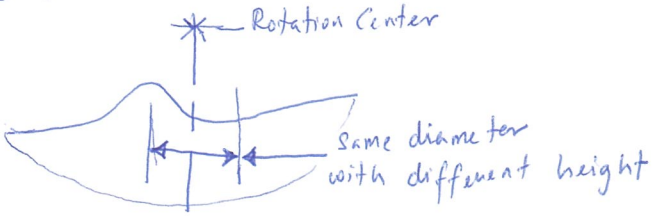
However there is a case when the center Nipple is abnormal in shape. The Nipple is still there although Tool height already set to center. This anomally is call spindle humming when the bite is cutting thru center



* Spindle chuck with lens humming when the bite is cutting causes high and low point in the same evolution.

* These high point and low point of the lens revolve/rotate in the same revolution/axial

* Therefore:- The remedy of this anomally is to balance the spindle chuck.



CAPACITY = 5 UNITS

OD & ID TURNING PROCESS (Material Produ)

1) OBJECTIVES:-

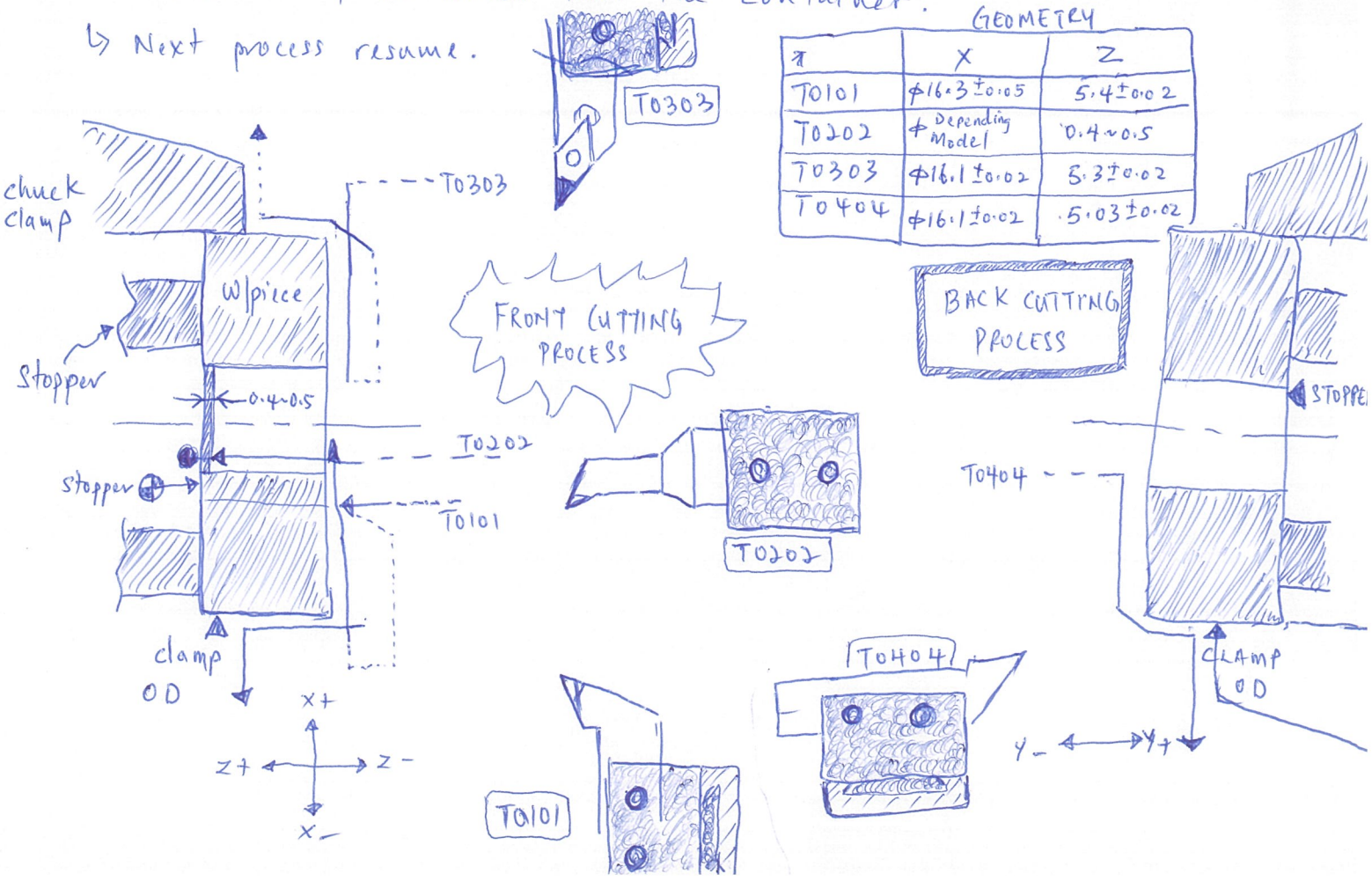
- From Button Piece went thru by loading parts to cnc Turning chuck and turn raw parts to specific OD and ID turning.

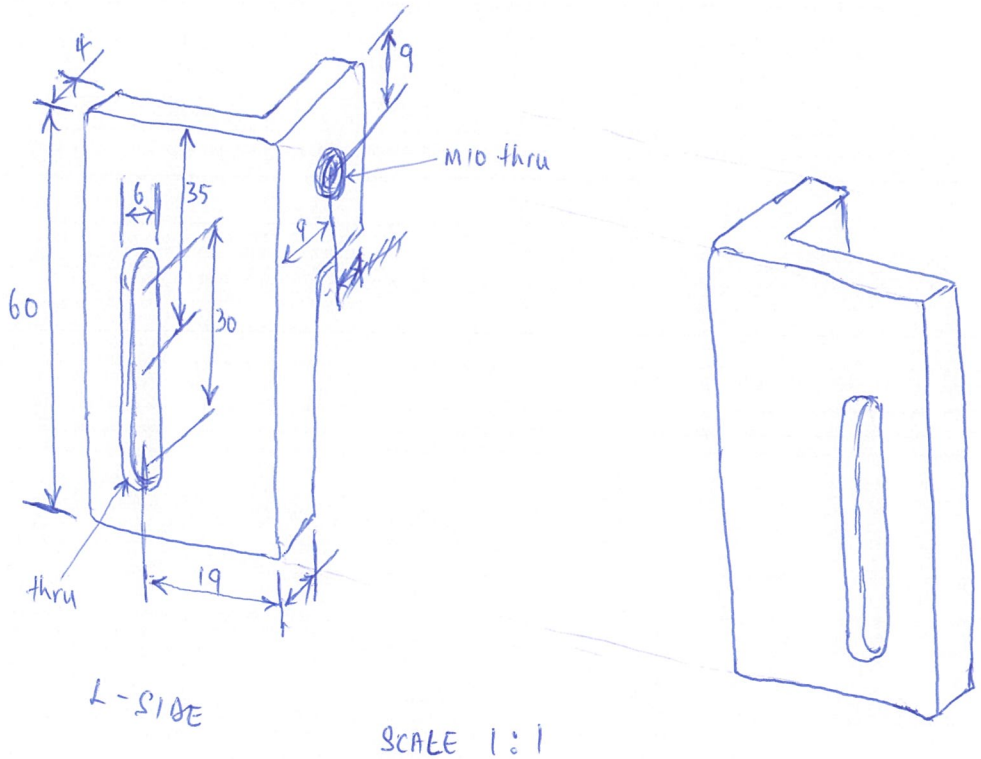
↳ Process

↳ load button batch/Lot into Vibration bowl.
↳ Vibration bowl will transfer parts thru correct side into the chutter.
↳ Loading Arm will unload parts from chutter.
↳ clamp parts and waiting for command from NC.
↳ when Command M-code receive while communicating loader will start proceeding to 1st NC chuck.
↳ Loader will align to 1st NC chuck and unload piece to and pushed to NC chuck
↳ NC chuck will receive parts and clamp.
↳ Nc 1st will start to turn piece to required dimension "According to Model".
↳ After 1st Nc completed Turning, it will then transfer piece to 2nd NC by communicating thru M-code command, 1st NC and 2nd Nc will meet up and transfer piece. 2nd NC will clamp parts and proceed Turning back parts.
↳ After Completed Back Turn, Unloading suction holder will receive part and ~~suct~~ suck piece direct thru the container.
↳ Next process resume.

GEOMETRY

T	X	Z
T0101	ϕ16.3 ±0.05	5.4 ±0.02
T0202	ϕ Depending Model	0.4 ±0.5
T0303	ϕ16.1 ±0.02	5.3 ±0.02
T0404	ϕ16.1 ±0.02	5.03 ±0.02





L-SIDE

SCALE 1:1

R-SIDE

SHRINK WRAP
BRACKET FOR
BRIDGE ROLLER

SETTING Z-AXIS SERVO MOTOR AND ITS POSITION.

B/C FINISHING

① Switch ON Power Supply.
Z-axis "Need ZRN" will appear.

② Move Z-axis forward and OFF Power.

③ Switch ON Power again for 2nd time.

④ Set Mode to Ref zero return mode.
press + button to return Z-axis until Z-axis light 'ON'

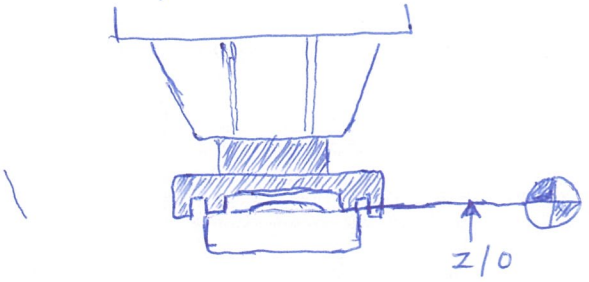
⑤ Run O0020 (Marposs Prgm) on dry-run mode.

⑥ check MACRO VARIABLE #508 (MARPOSS) should read 0.2900 when Marposs probe is checking. If not, need to offset G56 Z-axis 0.2 mm each time Marposs probe is checking on to w/p.

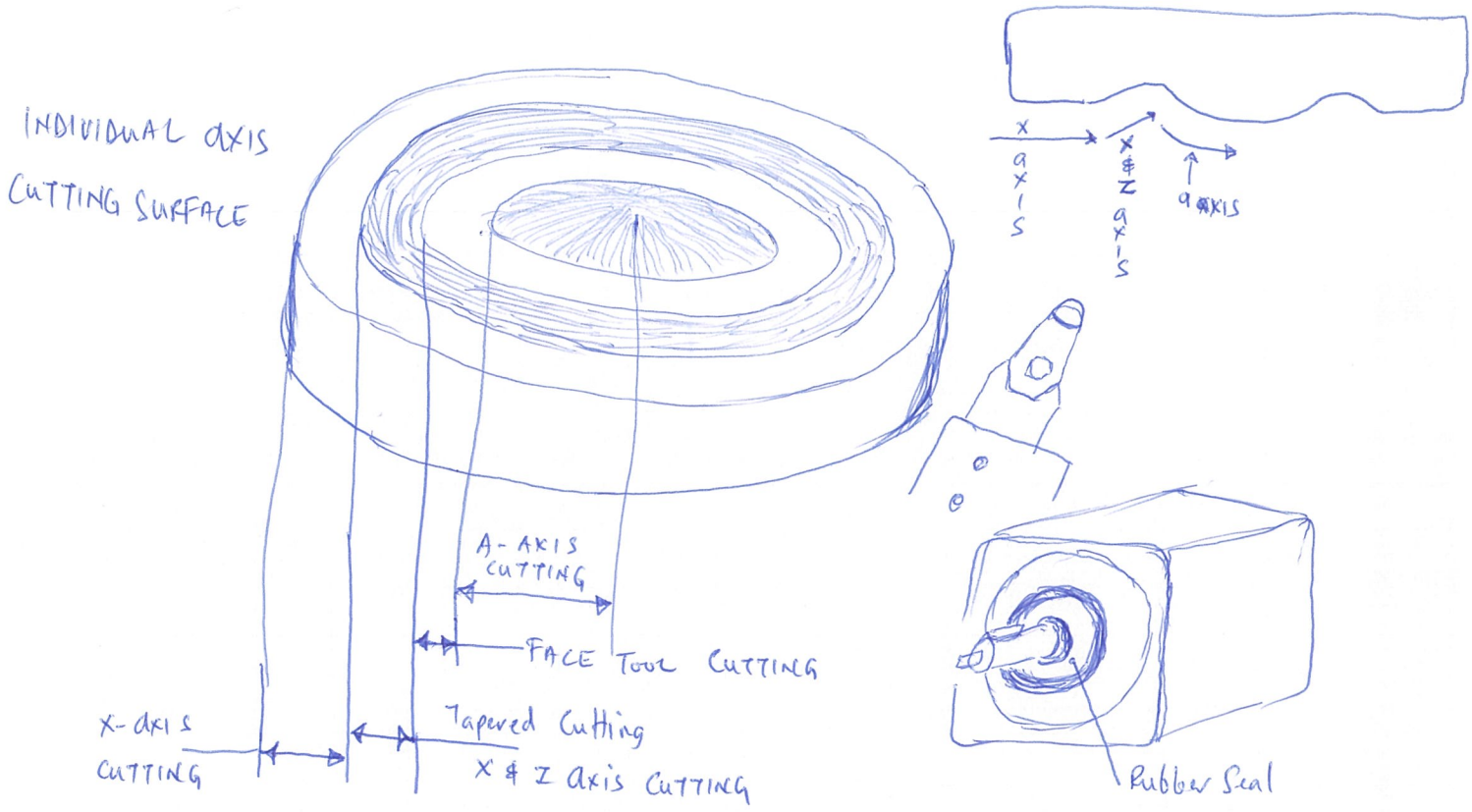
⑦ Note the value offsetted to G56 because it need to offset to G54 ⇒ G55 ⇒ G58 ⇒ G59.
e.g Total offset to G56 0.8 mm ⇒ then 0.8mm need to offset to all G54, G55, G58, G59 Geometry. (G56 is already Marposs pos.)

⑧ MACRO VARIABLES #509 is the offsetted setting value of 0.3 range.

Important! only do offsetting to all Geometry
Not change the Z-axis value to follow G56.



IOL PROBN CIRCULAR MARK ON HAPTIC SURFACE



* When IOL PROBN, there is certain area which the mlc use to cut the lens.

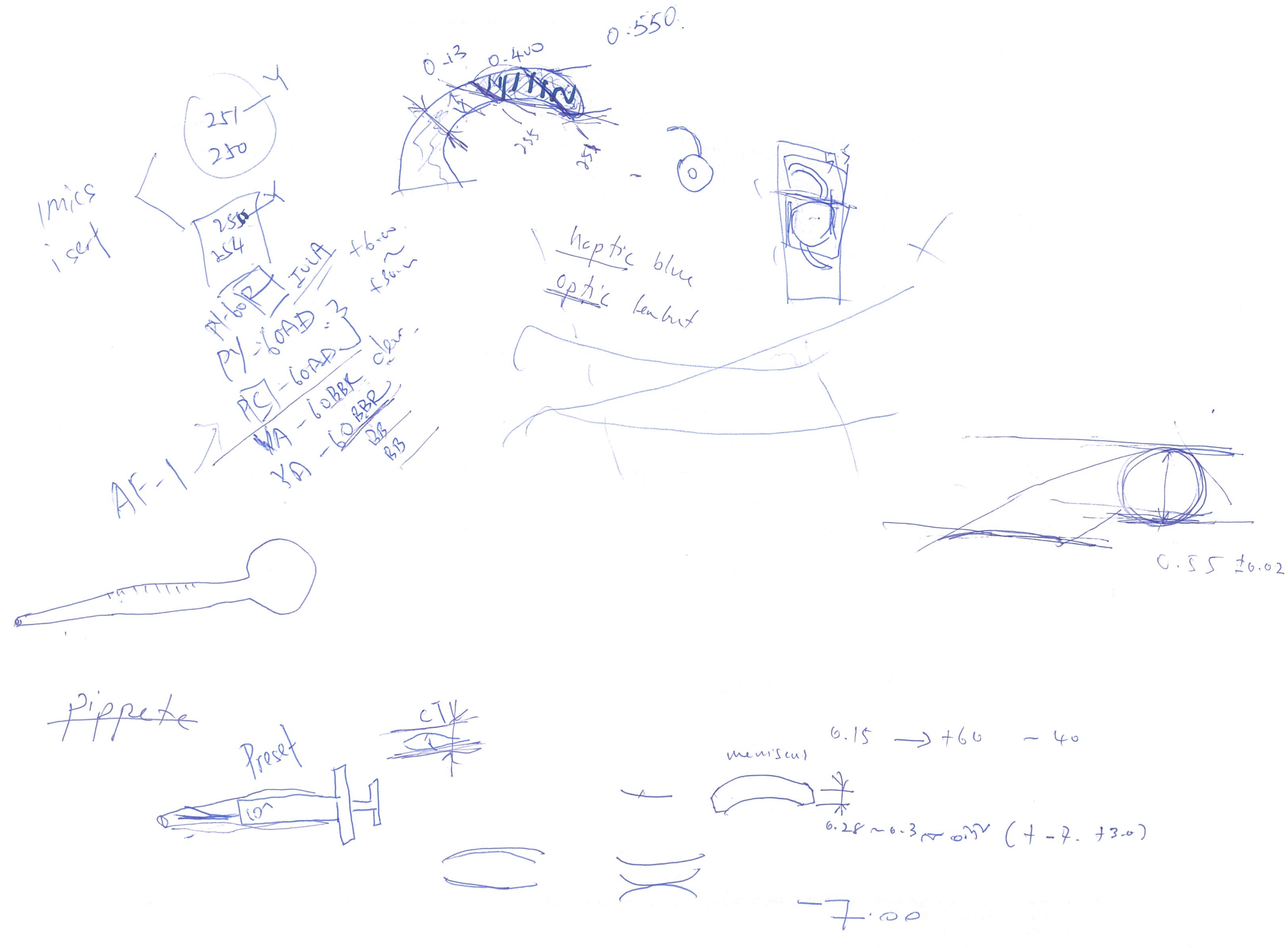
(a) X-axis cutting
(b) X & Z axis cutting
(c) Facing tool cutting
(d) A-axis Cutting
(e) Y & A axis Cutting.

Therefore, Circular Mark, means a very rough lines will appear on each surface due to Servo Motor Rubber Seals FAULTY

* It Can be feel when turning the shaft gently. High sensitivity needed to feel it.

CHANGE Z-Axis Servo Motor Rubber Seals.

① Take Out Flexible Servo Motor Cover x3 screw
② Take Out Coupling Screw
③ Dismantle Power Cable and Signal Cable.
④ Take out x4 M6
⑤ Take out servo motor.
⑥ Take out coupling
⑦ Take out Center Screw by using Jig & box spanner
⑧ Take out Rubberseal and install new seal grease and press fit using Jig and Drilling M/C pressure
⑨ Install Servo Motor back to its position after fixed back the coupling. Retighten all screw vice-versa as dismantling standard.



0.550.
0.13
0.400
251
250
Y
Imics
isert
255
254
PY-60R
IULA
+6.00
~
+30.0
PY-60AD
PC-60AD
clear.
WA-60BBK
YA-60BBR
BB
BB
AF-1
heptic blue
optic lenbrt
0.55 ±0.02
Pippete
Preset
CT
meniscus
0.15 → +60 ~ 40
0.28 ~ 0.3
(+-7. +30.0)
-7.00

Power

I-Misc
I-Sert
Line 1,4,5,6

251 - Yellow - +6.0 ~ +30.0 - haptic small
250 - clear

255 - Yellow - +6.0 ~ +30.0 - haptic long.
254 - Clear

AF-1
Line 2 & 3

PY-60AD - AD Power 5.5 to 6.0 + small & Medium Edge cutter
bigger power +24 and ϕ6.5 no more Edge Cutter

10LA
haptic ID
Yellow
preset

Line 2 & 3

PC-60AD - edge cutter small/medium
big no edge cutter
P 5.5~6.0

70AD no more edge.

Dia haptic
10LA
clear
preset

Line 2 & 3

clear → VA-60BBR - ~~+6.0~~ -7.0 ~ ~~+40~~ +40. haptic straight

VA-60BBR - 7.0 ~ +40 haptic straight

Yellow

Line 2 & 3

VA-60BB - haptic taper

haptic taper upward

clear

VAM-60BB → Power -7.0 ~ +3.0 haptic taper

clear

meniscus (minus power)

Line 3 only

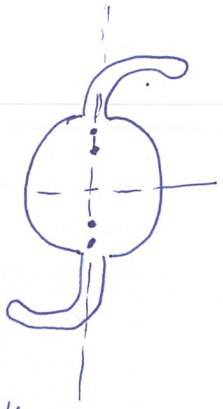
Line 6

~~SP2~~ Toric & Imisc/I-sert.

Manual line

SP2 Toric

LINE 6 SP2 TORIC MILLING ALIGNMENT.

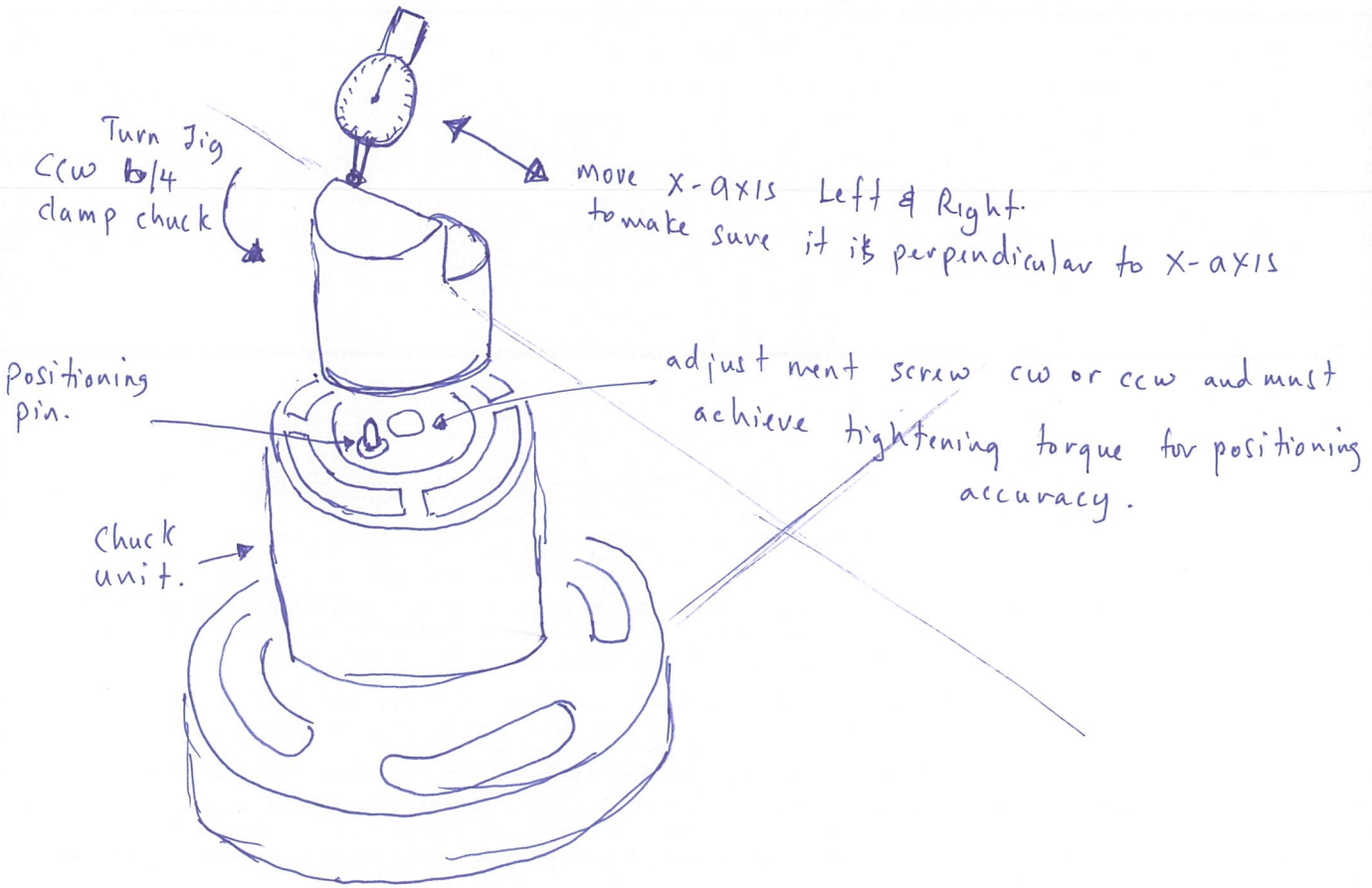


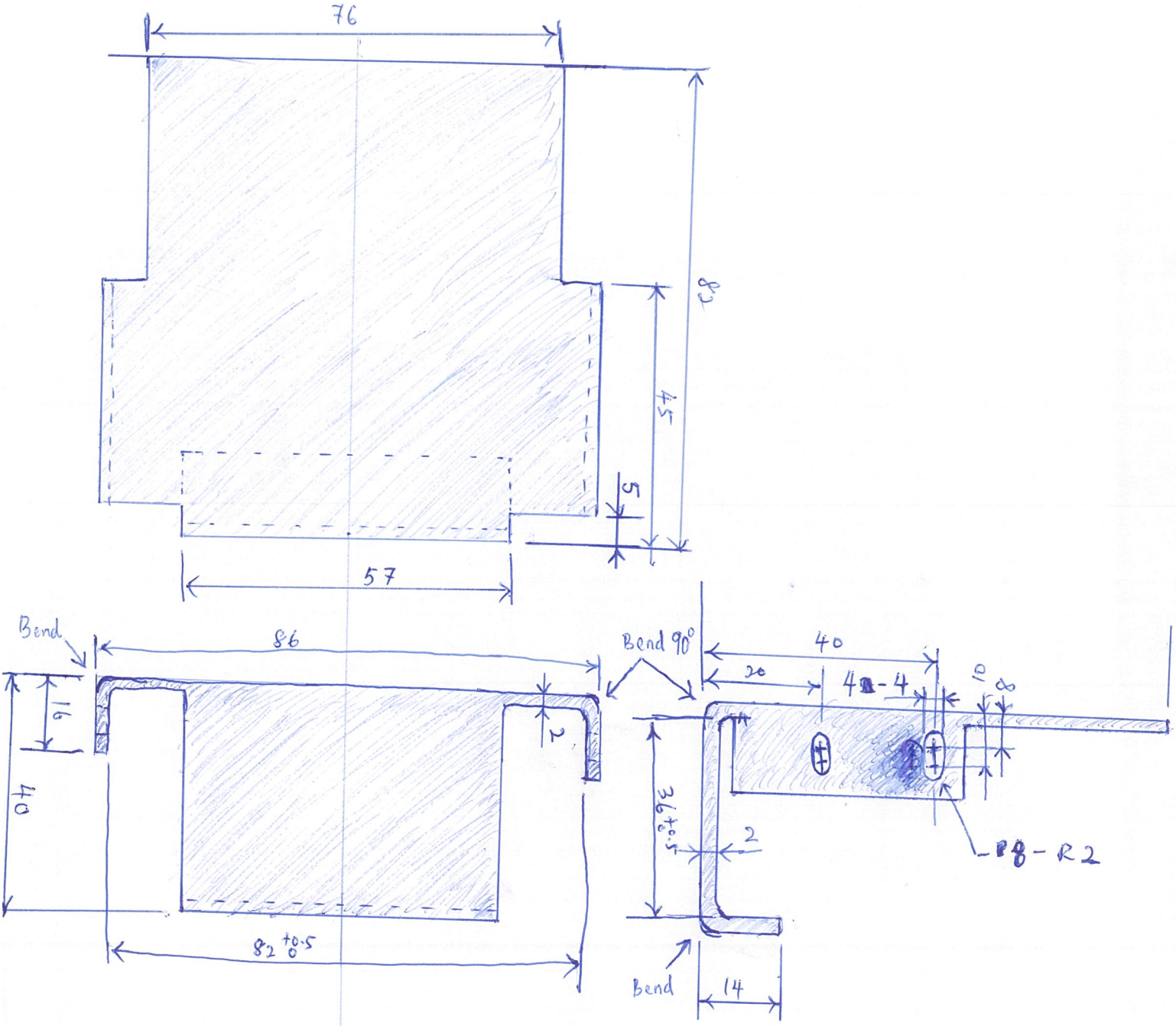
NOTE :- * SP2 TORIC Lens have marking as shown here →

* This marking have to be Perpend to lens neck. 0° +/- 5°.

* Marking is done on BCR Toric Process to determine the lens diffrent shape and mark 4 dot to the lens surface, while the haptice milling when mill off the neck have to be in-line with the dot mark.

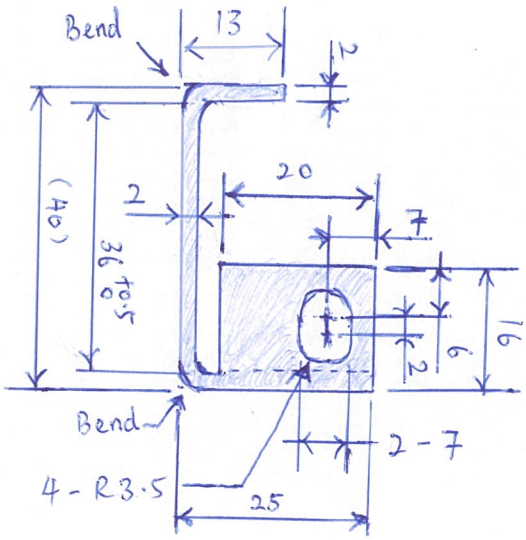
* hence :- when doing Milling positioning have to use the half surface cut jig to square the pin. to 90°. when doing chuck servicing or Positioning adjustment.

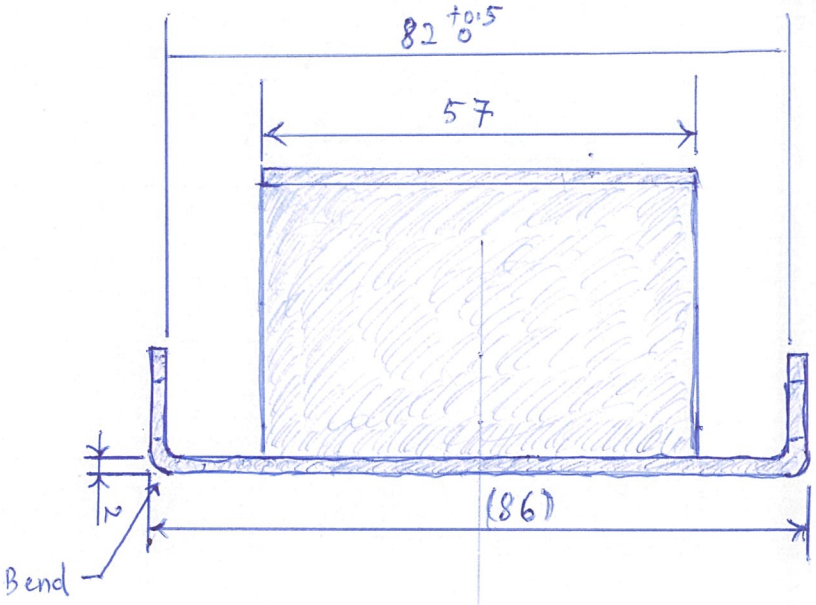




PART NAME : IOL CONVEYOR COVER A

NOTE :- Thickness 1mm
- General Tolerance ±0.5 unless specified
- No sharp edges.
- Radius R 0.5

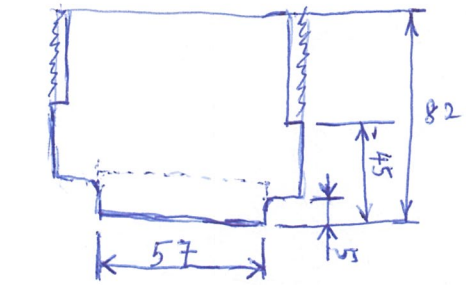


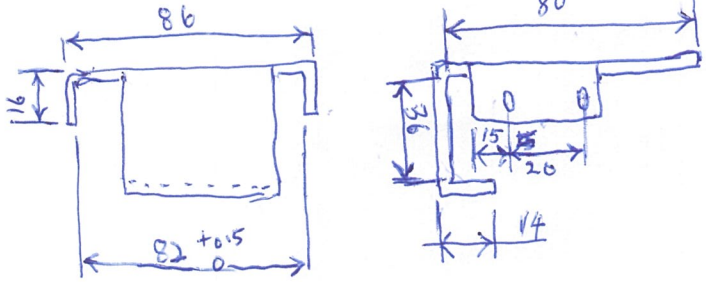


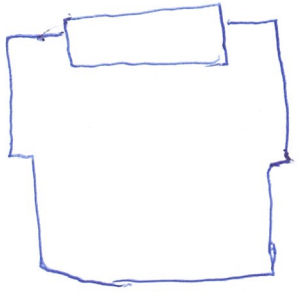
PART NAME : OIL CONVEYOR COVER B

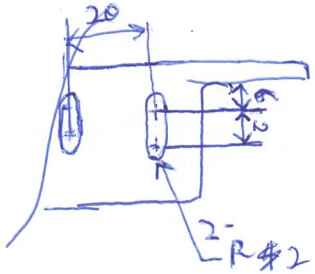
NOTE : - All Thickness 2mm
- RADIUS 0.5
- GENERAL Tolerance ±0.5 unless specified
- No sharp edges.
- All bend at 90°

TYPE 1 common









1

Line 1 = 3

2

3

4

5

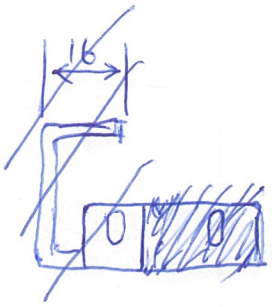
6

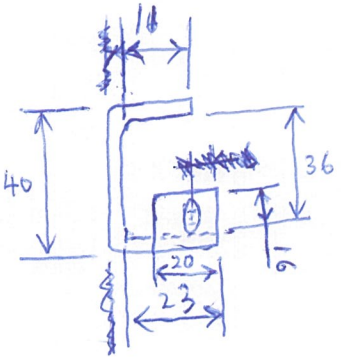
7

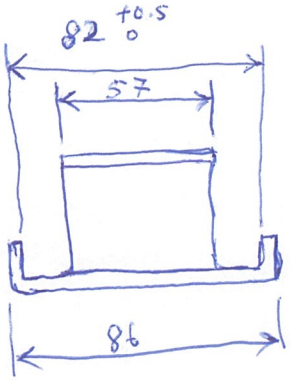
8

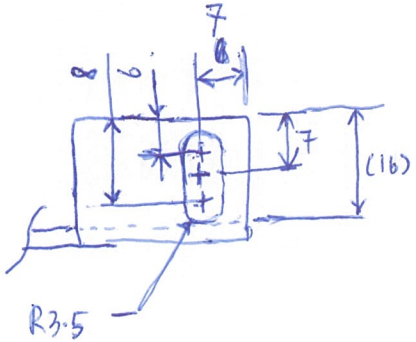
		A	B
Line	1	11	11
	2	11	11
	3	11	11
	4	11	11
	5	11	11
	6	X	X
	7	X	X

TYPE 2









Line 1 = 5+2

	B
Line / way masking =	2
Line 4	2
Line 5	2
Line 6	2

1ST PROCESS SP2

1. SPINDLE
2. BLOW
3. LOADER BLOW
4.
5.
6. CHUCK

LOADER

1. UP/DOWN - MXS20L-50A (SMC)
2. TURN - Normal Prodn use ( )
3. PUSH - MXS6L-20A (SMC)
4. VCM/AIR - ? ✱ ( )
5. CLAMP - BSA2-006C (CKD)
6. ON/OFF - ? ✱ ( )

UNLOADER

1. L/R - MXS20-150B (SMC)
2. TURN - MSQA7A ~~(SMC)~~ ( )
3. ON/OFF - ? ✱ ( )

UNLOADER

1. PUSH - MXS6L-20A (SMC)
2. VCM/AIR - ? ✱ ( )
3. ON/OFF - ? ✱ ( )

TRAY

1. PICK-UP - MRBS10X450 / -KL2-MS2-ZE102B2 (KOGANEI)
2. CLAMP - MXS8-10AS (SMC)
3. IN-POS - MXS6-20AT (SMC)

2ND PROCESS SP2 CYLINDER / PART NO.

(1) SPINDLE
(2) BLOW
(3) LOADER BLOW
(4) STRAIGHT FEEDER
(5)
(6) CHUCK

Robo CYLINDER

X - LOADER

MODEL - RCS2 - SS8R - A - 100 - 20 - 900
- T2 - M - G2 - MR
MADE IN JAPAN

Y - LOADER

MODEL - RCS2 - SA6R - A - 30 - 6 - 500
- T2 - M - G2 - MR
MADE IN JAPAN

REVERSE

(1) F/R - ?
(2) UP/DOWN - MSQB10A
(3) TURN - MSQA7A
(4) CLAMP - ?

LOADER

(1) L/R - MXS20L - 150B - SMC
(2) NA
✓ (3) TURN - MSQA7A - SMC
✓ (4) PUSH - MXS6L - 20A
(5) ~~EE~~VCM / AIR
(6) CLAMP - ?

FEEDER ESCAPE

(1) ON/OFF -

DISTANCE CHECK

GT - H10L (KEYENCE) (PROBE)
GT - 71A (KEYENCE) (DISPLAY AMP.)

IN - POS

(1) ROLL - ?
(2) CLAMP - MHF2 - 12DR

2ND PROCESS SP2

TRAY OUT LOADER

① F/R — MRBS 16 X 350 / -KL2-MS2-ZE102B2 (KOGANEI)

② UP/DOWN — MXS 12-50 ASR (smc)

③ CLAMP — MHF 2-12D

UNLOADER

① UP/DOWN — MXS 20-50 A (smc)

② TURN — ~~MSQA7A~~ - ~~smc~~ Normal Prod. use

③ PUSH — MXS 6L-20A

④ VCM / AIR - ?

⑤ CLAMP - BSA2-006C (CKD)

TRAY

① PICK-UP — MRBS10X450 / KL2-MS2-ZE102B2

② PICK-UP S —

③ IN POS — MXS6-20AT

④ IN POS S - Cannot see

⑤ CLAMP — ~~MXS6-20AT~~ MXS8-10AS

STOCKER

① ~~SHUT~~ LOCK 1/2/3 — CDQSB 25-15D-A93L

② ~~LOCK~~ SHUT 1/2/3 — CDQSG 20-10DM-A93L

③ CONVEYOR

SAWING PROCESS

CAPACITY : 1 UNIT.

OBJECTIVE :- To saw or cut completed material After Annealing Process To Approximately 430 mm. This machine Cut front and back of the haptic in order to have a standard length b/4 Grinding Centerless process.

Process :- Follow step by step according to Work Instruction.

Maintenance Point :-

1) CARBON BRUSH
- check for carbon brush thickness & replace when necessary.

2) Saw wheel
- Check for wheel sharpness by checking ~~cut~~ Produ cutting part surface, chek parts for any abnormal burrs. at the end and front of bar.

Notes : do not use this machine to cut any other materials other than production materials.

HEAT PRESSING PROCESS

CAPACITY : 4 Units.

OBJECTIVES :- To Press block shaped material and by using controlled Pressure and controlled Heat, It is pressed / flatened by the shape of Top and bottom housing to Form Button shape. The Pressure of top pressing cylinder Pusher is maintained at 0.63 MPa. = 6.3 bar, Heat is maintained at 133°C ~ 137°C for 7 hrs 30 mins flat. This Heat Pressing is a programmed machine standardized for all time.

Process :- Follow step by step according to Work Instruction.

Maintenance Point :-

1) 1 unit of lead screw for pressing and pulling up and down the pusher together with solenoid lifter.
   Greasing every 6 mth. (White Grease)

2) 2 Lifter carrier both end of lifter there is a linear bearing.
   Regrease 6 mthly. (Yellow Grease)

3)

CENTER-LESS GRINDING PROCES.

CAPACITY : 2 UNIT OF M/C

OBJECTIVE :- To GRIND DOWN BAR MATERIAL sizing From ~~ϕ14.0 to~~ ϕ14.2 ⇒ ϕ 13.0±0.1

NEED 4X or 4 cycle to achieve ϕ 13.0±0.1

1st GRIND ⇒ ϕ 14.0 ±0.05
2nd GRIND ⇒ ϕ13.7 ±0.05
3RD GRIND ⇒ ϕ 13.35 ±0.05
4TH GRIND ⇒ ϕ 13.0±0.1

PROCESS : Follow step by step as stated in WORK INSTRUCTION.

MAINTENANCE POINT:-

1) GRINDING WHEEL DIAMETER more than >500mm
   ↳ CHANGE WHEEL IF LESS than < 500mm.
2) CHECK FOR MOTOR & CONVEYOR FOR ANY ABNORMALITIES.
   ↳ Change belt or Motor.
3) Check for Water Reservoir if any sludge or stale Smell.
   ↳ Change Water and Clean tank and filter.
   ↳ Water and Coolant Ratio 30 : 1 mixture.
4) Check wheel Condition. Wheel surface must be smooth & flat.
   ↳ Perform Grinding stone surface dressing.

OIL/CHEMICAL USED

1) SUPER MULPUS DX32 – TABLE AXIS SLIDE OIL
2) SUPER MULPUS DX 10 –
3) Yushiroken SC23 – Water additives – 30 : water
   1 : Additives.

PROCESS

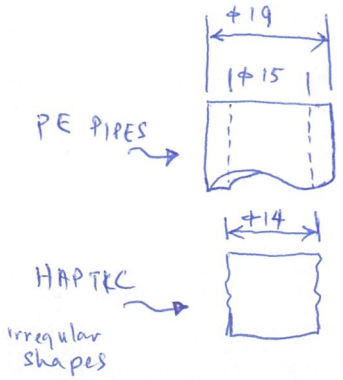
1) POLYMERIZATION – AKA WATER BATH PROCESS.
↳ LIQUID CHEMICAL is MIXED and injected in to PE pipes. It is then cooled down aka water bath process to harden the liquid inside the PE Pipes

2) AIR OVEN CURING ANNEALING – AKA ANNEALLING PROCESS.
↳ After water bath, the product is sent to HOT air ovening to remove water from parts for 3 hrs. and also to anneal the product. hardening.

3) SAWING – After Annealed for 3 hrs, the part is then cut both sides to remove unwanted ended edges or cut to 430mm ~~side~~ sizing

4) AIR OVEN CURING ANNEALING Straightening – After Sawing of parts sizing, the part is then went thru again for CURING ANNEALING OVENING for 3 days. It is clamp mounted with Top and Bottom Perpendicular Jig and clamp both side. This process enable the parts Achieve its perpendicularity better b/4 Centerless Grinding.

5) CENTERLESS GRINDING – After went thru Annealing process for better perpendicularity, the product is prepare to go for centerless. Grinding. This process will Ground Part to ϕ size 4 times until Reach ϕ13.0 ±0.1. B/4 ~~Grou~~ Grind size is ϕ14.0 ±0.1 After Grind size ϕ13. ±0.1

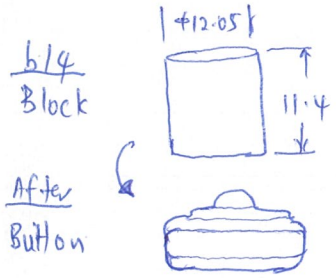


PROCESS

6) CNC LATHE (BLOCK)

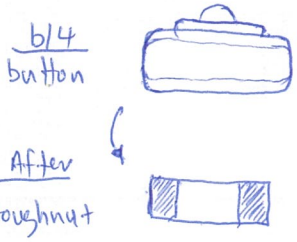
- After went thru Centerless Grinding Process, Parts goes thru Bar Turning machine for lathe Turning sizing ϕ12.05±0.02 with height 11.4 ± 0.02. This part is precisionly Turn in order to have a perfect shaping of button when go to heat press process.

7) HEAT PRESSING



- After Turning to block, it is arrange by Haptic Arrangement m/c to place to center for every block and Top and Bottom housing in order to press by heating that will resulted in button form. This Heat Pressing process takes about 6 hrs to complete press.

8) #3 WP BORING



- After went thru Heat Pressing Process, It is then Turn to a doughnut shape after cutting front and back Turning. Button part is poured into a Vibration bowl and carried away to in chutter. Pick-up by loader and place to chuck. It is then bored and turn front and back and suck out to a container. There is a Various types of Doughnut depending on it's ID ϕ6.0 ~ ϕ11.5. Outer Dia is the same.

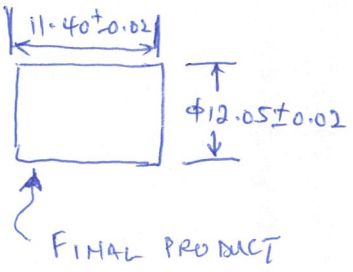
CNC LATHE TURNING PROCESS (MATERIAL PROGM)

CAPACITY :- 3 UNITS OF TURNING CNC (BAR FEEDING TYPE)

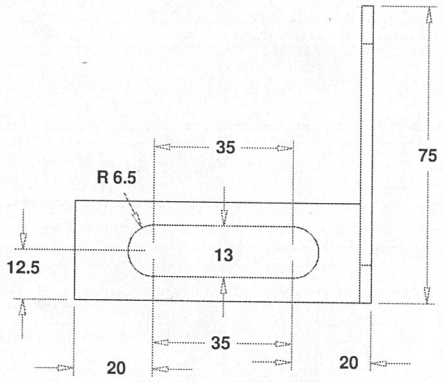
OBJECTIVE PROCESS: TO TURN BAR 'HAPTIC' to bullet dimension for next PROCESS of HEAT PRESSING. (BUTTON PROCESS)

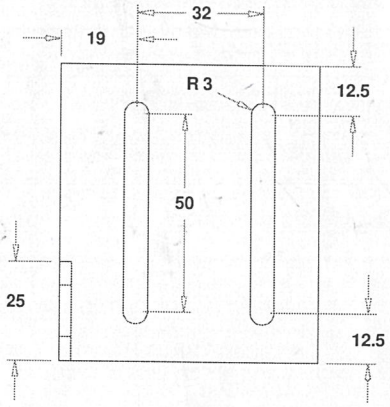
PROCESS :-

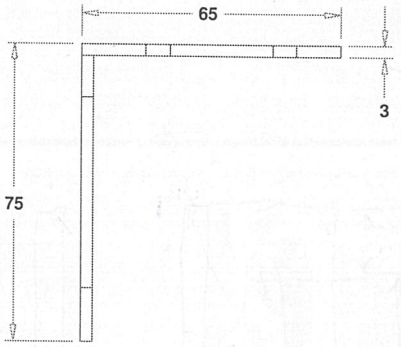
① Load Raw Material Supply from Centerless Grinding Process CONTROLLED DIMENSION.
↳ Dimension Controlled @ ϕ13.00 ±0.10 / Length = 430mm. approximately



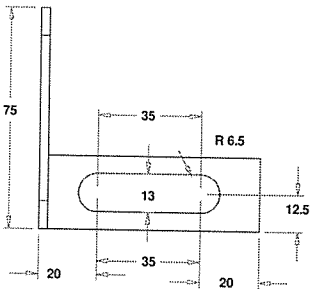
② Clear or take out Clamp sample from chuck 1 & 2
③ Brush away material chips from chuck using toothbrush and Alcohol.
④ Switch Feedrate Override to 0.
⑤ Check Progm No. Ø8000 and cursor should blink on top of the Progm start.
⑥ Start the mlc while left hand at stand by stop button and Right hand Increase Feedrate Override to 100% slowly.
⑦ If everything is at normal running and mlc will stop for 1 cycle.
⑧ Check part after process at Container bin and Confirm the dimension specification.
⑨ If dimension is o.k. Press start button and On the cycle continuous button. up.
⑩ Process will continue for about 5 hrs.

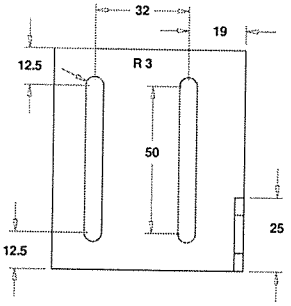


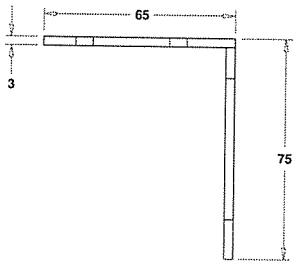




File Name Seal mc_Bracket.fm	Title Bracket
Date/Time Thursday, October 15, 2015 16:16:24	
Note 1 L-Bracket	Author Yeo T.H
Note 2 Material = SUS304	Page 1 of 1 (Graphics - Setup1)







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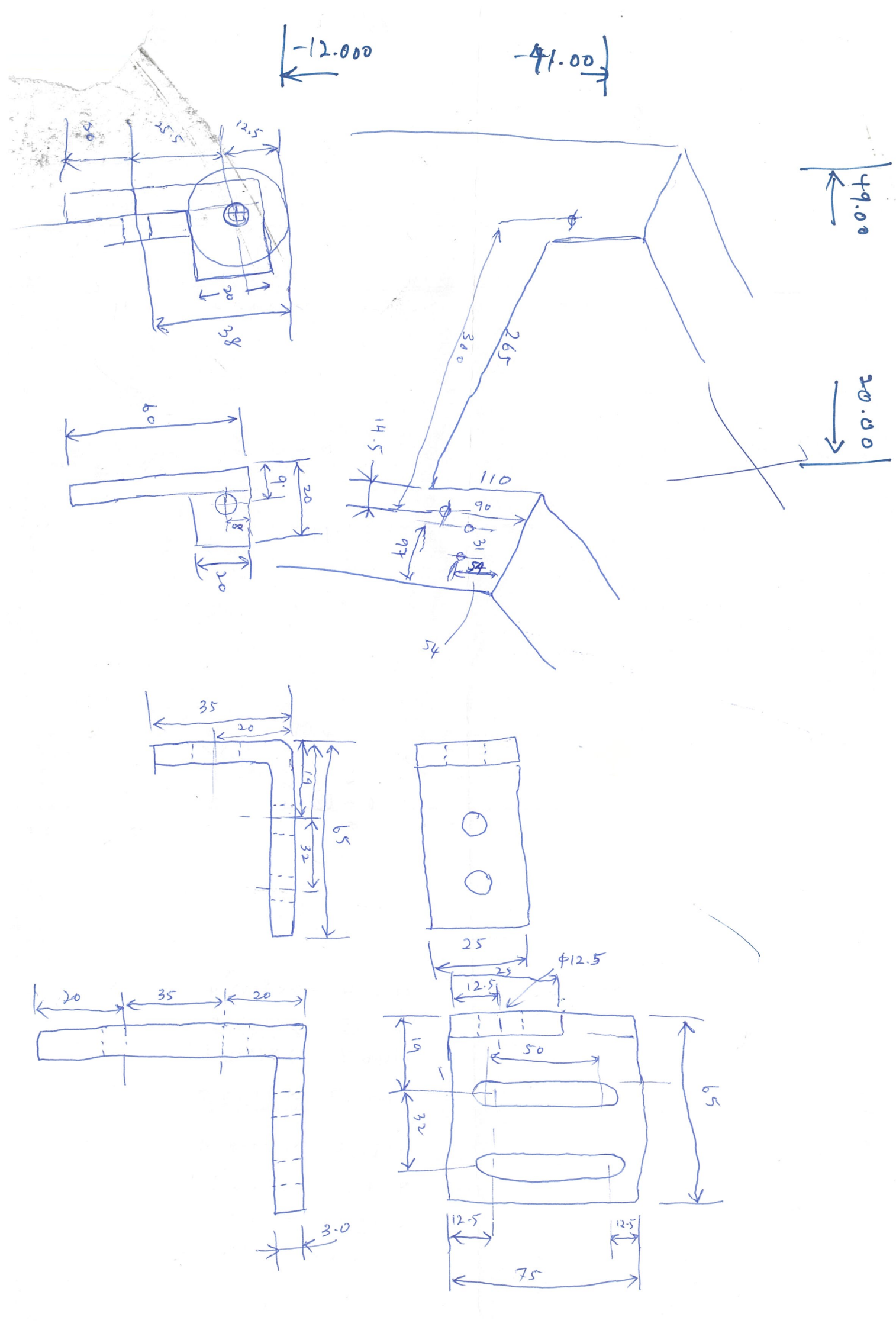
Note 1 L-Bracket - Left side	Author Yeo T.H
Note 2 Material = SUS304	Page 1 of 1 (Graphics - Setup1)


-12.000
-41.00
49.00
20.00
35.5
13.5
8
38
60
20
10
8
20
300
265
5.41
110
90
31
54
46
54
35
20
19
32
65
25
φ12.5
25
12.5
20
35
20
3.0
50
19
32
65
12.5
12.5
75

MILLING PROCESS

IN C/V

① STOPPER 1 – CDJP2D16-15D
② STOPPER 2 – MGPM16-10Z (SMC)

OUT C/V

① STOP 1 – CDJP2D16-15D
② STOP 2 – MGPM16-10Z (SMC)

TRAY LOADER

① CLAMP – MHF2-12D
② UP/DOWN – MXS12-50BSR

✓ LOADER

✓ ① UP/DOWN – MXS6-50AS (SMC)
✓ ② VCM/AIR – X

✓ IN TRAY SHIFT

① F/R – MRBS10X500 (KOGANEI)
② UP/DOWN – MXS8L-20AS (SMC)

✓ OUT TRAY SHIFT

① F/R – MRBS10X500 (KOGANEI)
② UP/DOWN – MXS8L-20AS (SMC)

✓ UNLOADER

✓ ① UP/DOWN – MXS6L-50AS (SMC)
✓ ② CLAMP – MHF2-8D (SMC)

✓ WORK IN POS

① ON/OFF CLAMP – MHF2-12D (SMC)

WORK CONTROL

① ON/OFF – MXS8-20 (SMC)

WORK SEND 1

① H/R – MXS16-30AS
② UP/DOWN – MXS16L-75

WORK SEND 2

① L/R – MXS12L-30AS
② UP/DOWN – cannot see

TRAY

① L/R – CY3R20-250-A93L (SMC)
② IN POS – MXS6L-10AT (SMC)

✓ REMOVE CARRY

① F/R – MRBS10X100 (KOGANEI)
(-KL2-MS2-ZE102B2)
② UP/DOWN – MXS8L-10AT (SMC)
③ TURN – CISU
④ CLAMP – MHF2-8D (SMC)

✓ REMOVE

① L/R – CDQSB16-100DC
② UP/DOWN – MXS12L-30AT (SMC)
③ CLAMP – MHF2-12D (SMC)

✓ REVERSE

① F/R – MRBS10X100 (KOGANEI)
② UP/DOWN – MXS8-20A (SMC)
③ TURN – CTRS-GTI-TH (F series) New Era
④ CLAMP – MHF2-8D (SMC)

TRAY CHANGE 180° TURN

(1) TURN — CDQSB25 - 100 DCM (SMC)

(2) L/R — MRBS16X500 / -KL2-MS2-ZE102B2 (KOGANEI)

(3) U/DOWN — MXS12-50ASR (SMC)

(4) CLAMP — MHF2-12D (SMC)

(5) STOPPER — MGPM16-10Z (SMC)

Change Y-axis Servo Motor (IOL)

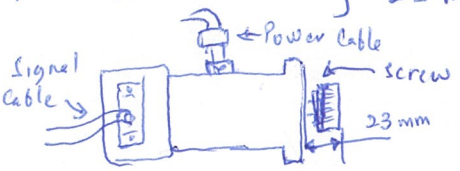
① OFF Power

② Dismantle X4 Servo Motor Screw

③ Disconnect Servo Motor Power Cable & Signal Cable.

④ Dismount Servo Motor Out Slowly.

⑤ Marking Gear Position e.g 23 mm from Servo Motor base



⑥ Unscrew Gear Coupling

⑦ Prepare New Servo Motor & Fix the Gear Coupling transmission (23 mm)

⑧ Mount Servo motor and be carefull of the Gear engagement.

⑨ Screw X4 Servo Motor Main Screw./Power Cable and Signal Cable.

⑩ Switch ON Main Power and 2 alarm will activate.

a) Battery Zero Down
b) APC Y-axis need Zero Rtn. } Means O.K.

⑪ OFF Power Again and ON Back after 10 seconds.

⑫ Alarm APC Y-axis zero Rtn appear.

⑬ Move Y-axis Forwaud about max. 30 ~ 40 mm.

⑭ OFF Power Again and ON Back after 10 seconds.

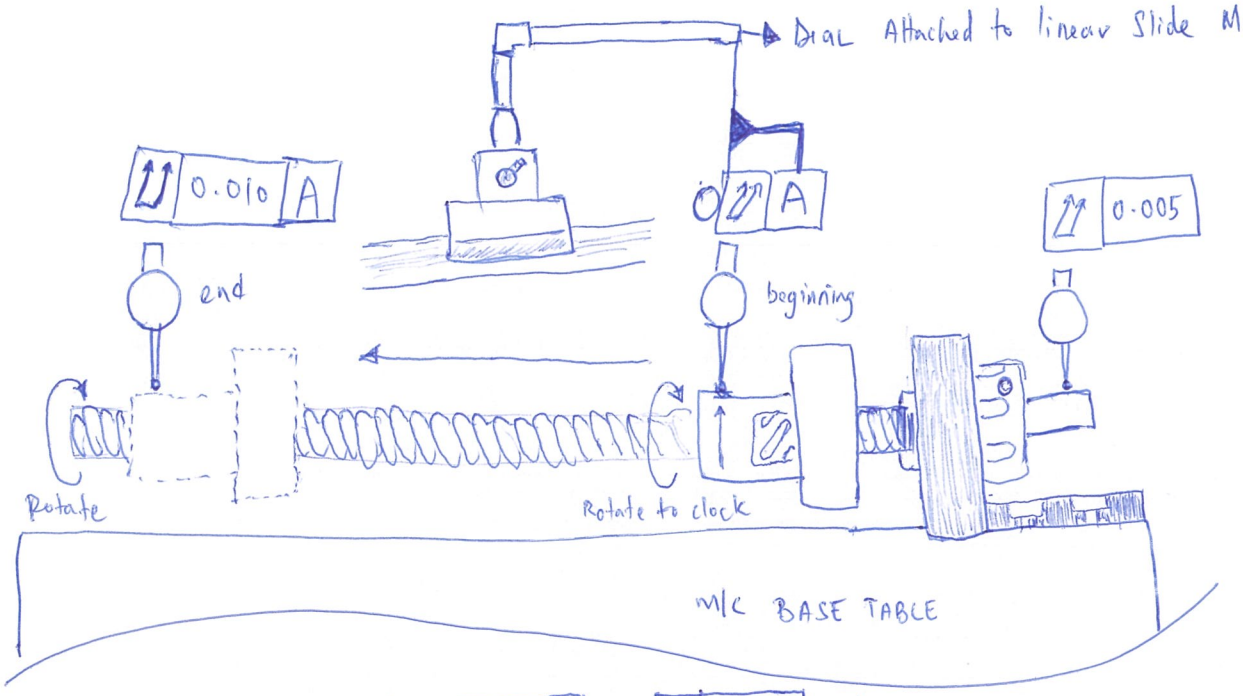
⑮ Select Zero Return Mode and 100% Override. and Y-axis selection.

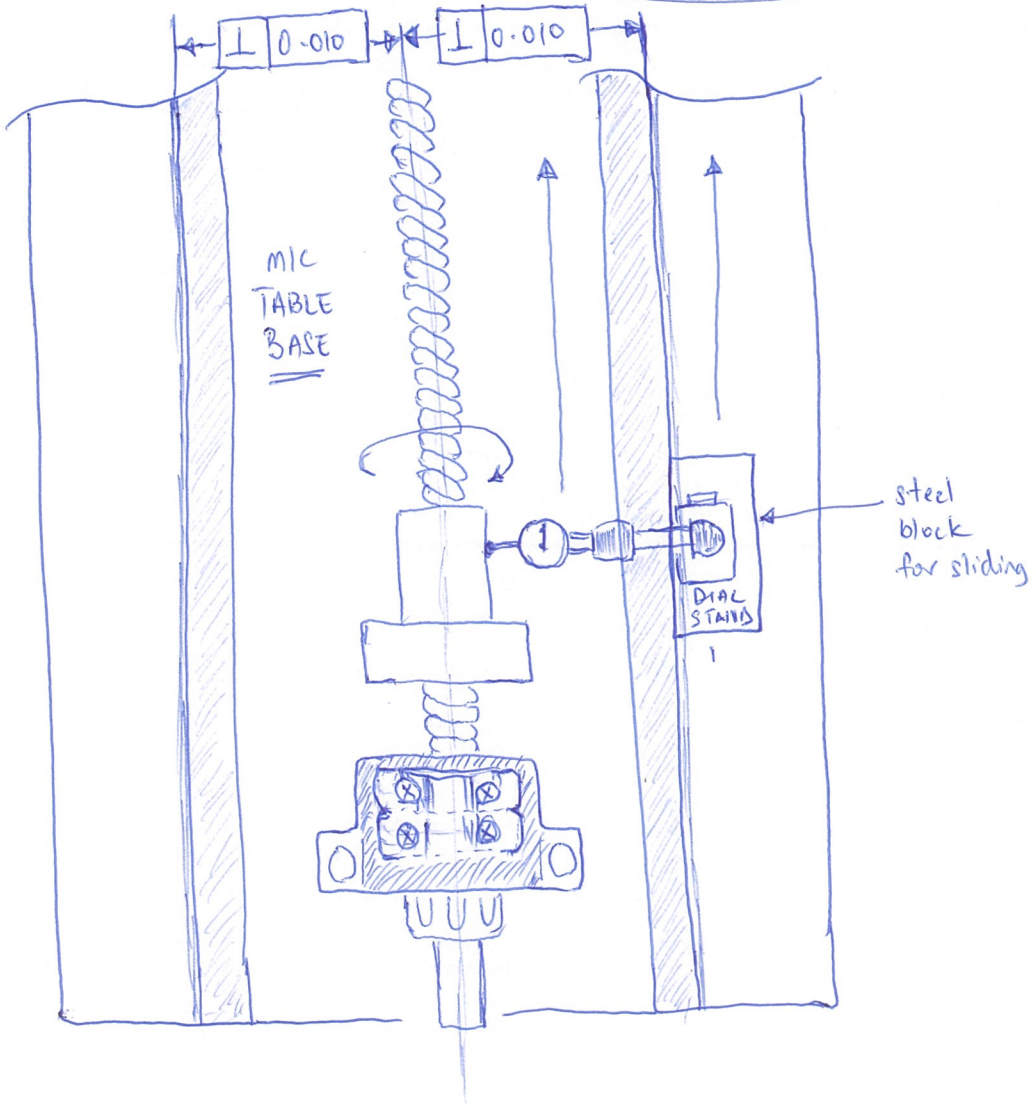
⑯ Press + axis button to perform Zero-Return. (Y-axis light will turn ON)

⑰ Completed Setting up of servo motor for Y-Axis.

⑱ Need to perform bite setting 6/4 start Prodn
(R 15.0 and bite center height)

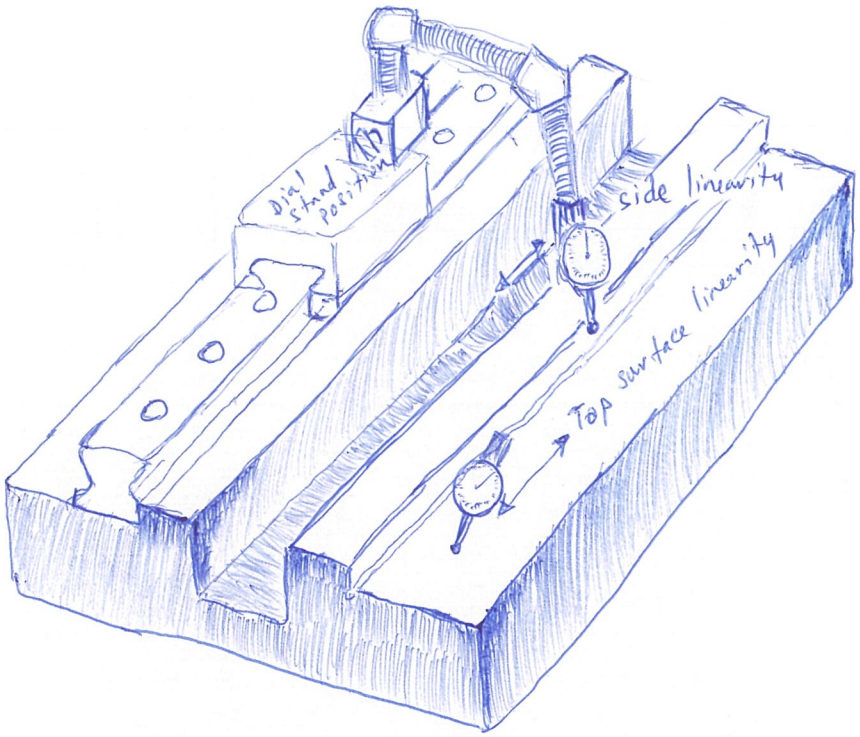
3WP - Autolathe.





3WP - AUTO LATHE

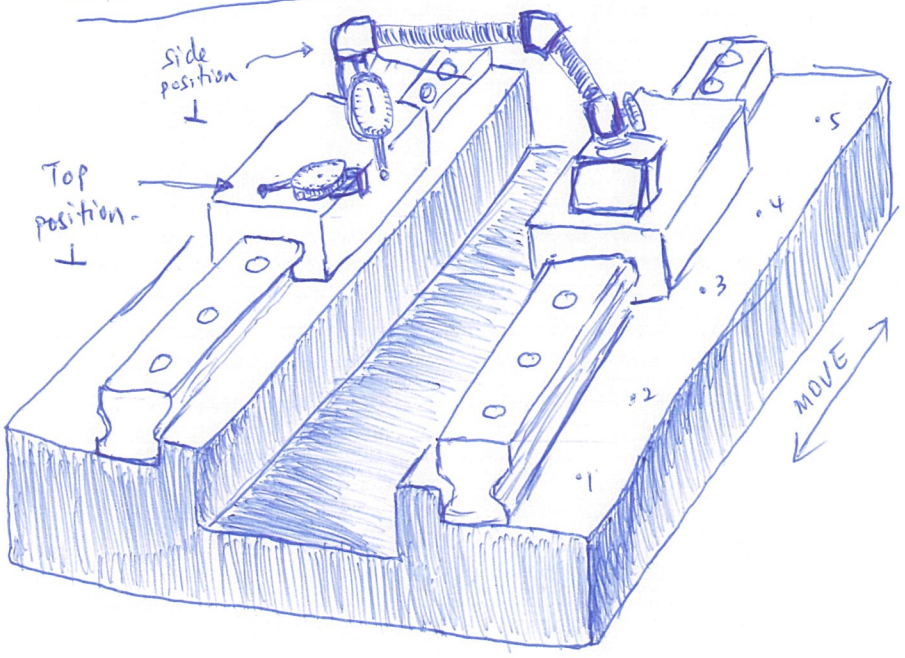
ONE SIDE LINEAR GUIDE ~~SEE~~ SLIDE INSTALLATION.



*5 point check from start to end (5 point division)

Linearity check. Linear slide Installation and Alignment.

OTHER SIDE LINEAR GUIDE SLIDE INSTALLATION



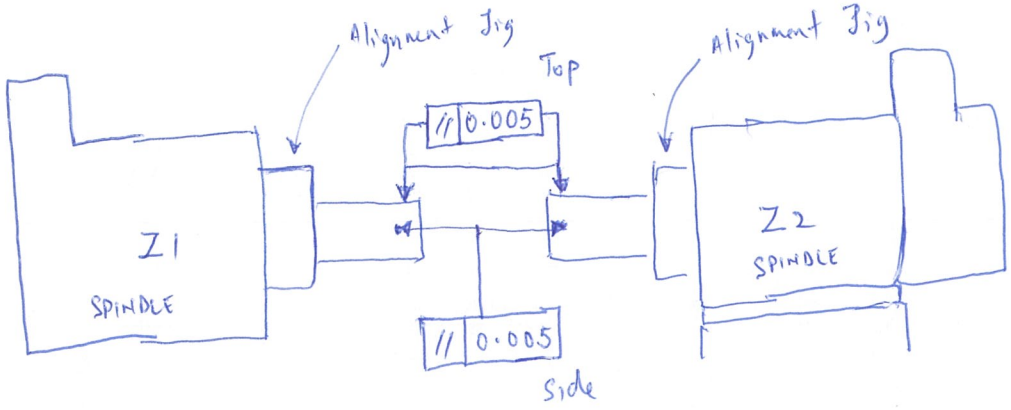
*5 point check from start end to end.

specification

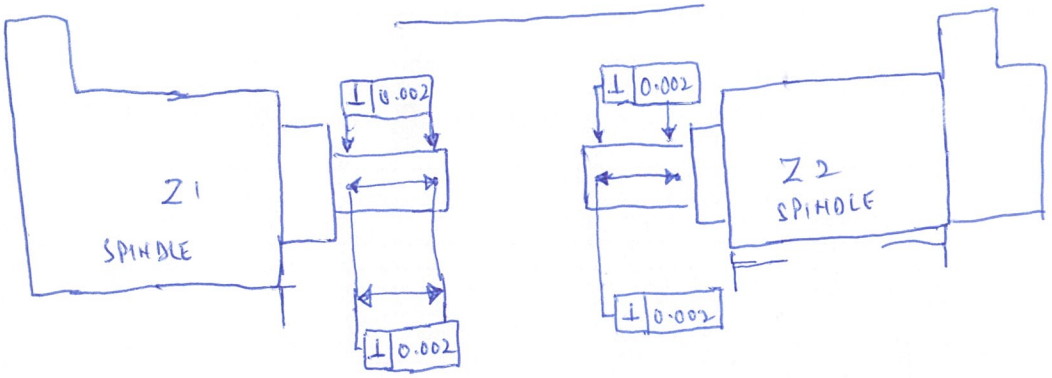
≤5 μm.

atheist

3WP - Auto lathe



Z1 and Z2 Matching



perpendicular Side ⊥ = 0.002
perpendicular Top ⊥ = 0.002

Adjustment Procedure:-

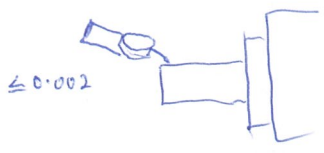
① Align Z1 Top Perpendicular with Z2 perpendicular. Add shim gauge at lower point.

② Align Z1 Side Perpendicular. Adjust bottom base screw.

③ Align Z2 Peep Side perpendicular

④ Regard Z1 as a Datum Base. Adjust Z2 to match Z1 Top and bottom

Note: * Need Alignment Jig to mount on Both Spindle face.
* Alignment Jig need to centering and lock. ≤ 0.002 specification at the end pt.



Changing Of A-Axis Circular Table.

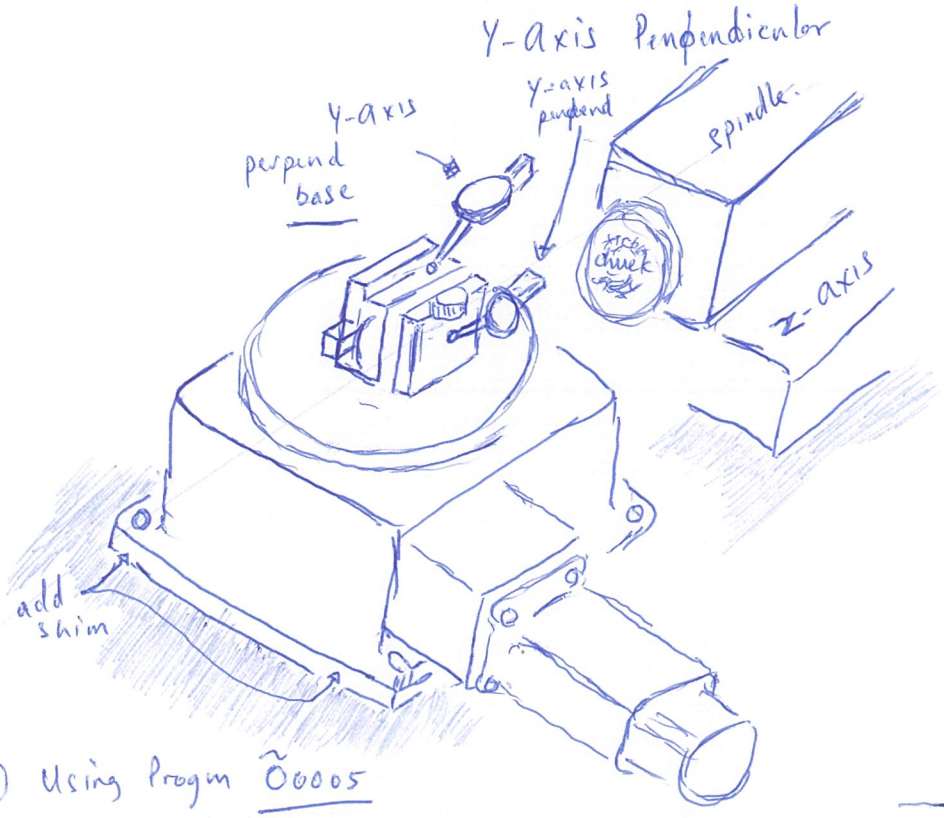
Procedure :-

① Take Out Top Table and bottom Table
· Note : Circular Table Overtravel & Zero Return Sensor.

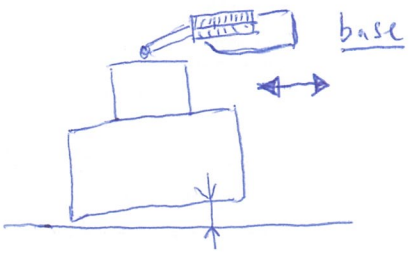
② Install new A-Axis Circular Table.

Alignment.

① The Circular Table need to be Alignment to the Z-axis Guide.
a) In-line & perpendicular to Z-axis
b) In-line & base perpendicular to Z-axis
c) Axis of A need to be zero & by the Y-axis

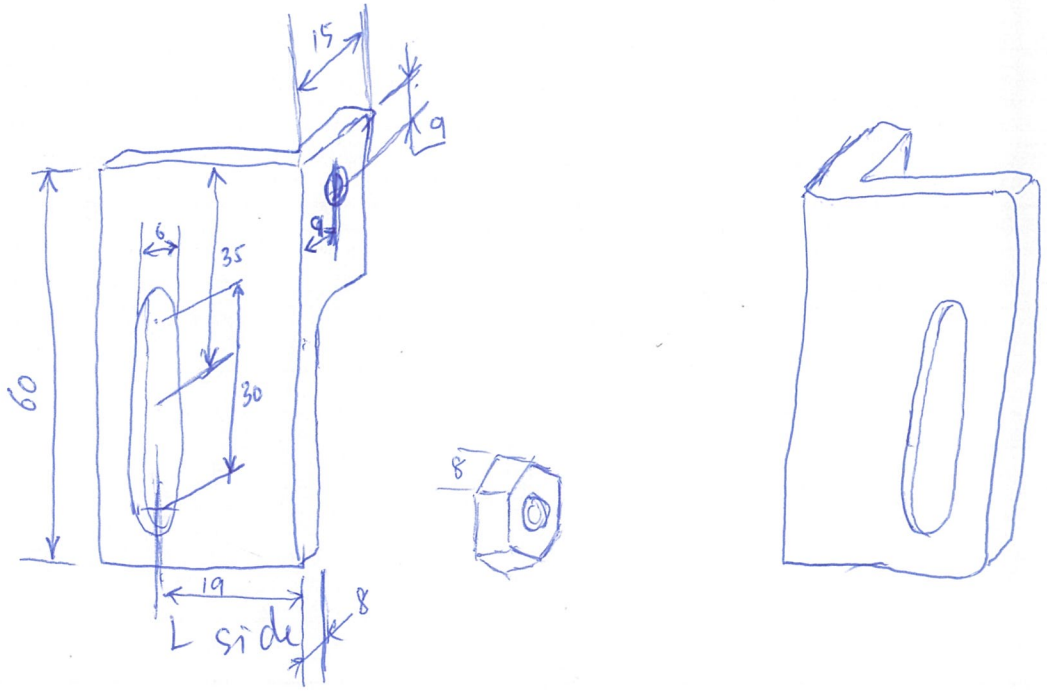


Note : There are 2 types of Circular table.
big & small
when Changing small to big parameter need to change
big | small
6 -> 2 motor ratio
111 -> -111 rotation



② Using Progm O0005 to move Y-axis and Z-axis Synchronisely.

③ Add Shim if Y axis / Circular table base is not perpend to Z-axis


15
9
9
6
35
30
60
8
19
8
L side

A-AXIS Alignment

MDI = T0505 X0 Z0 A0

– move Z to near to A-axis

Set dial to tool holder. & set zero

& use Progm O0005 and start

Progm will synchronize Z & Y to

check perpendicularity of Z & Y

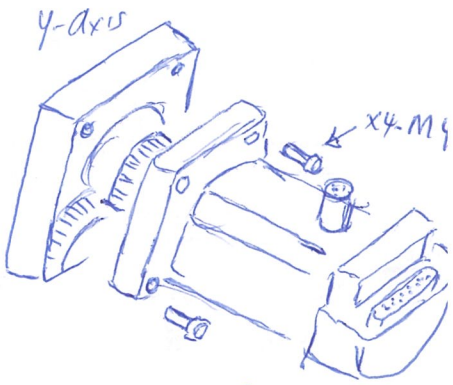
Specification 0.002 max.

Check Overtravel Sensor for Y-axis

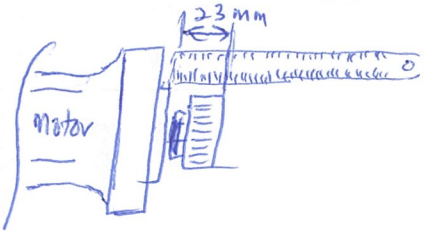
Parameter No. 1321 } for +/- soft limit
or No. 5221 } setting

Change Y-axis Motor

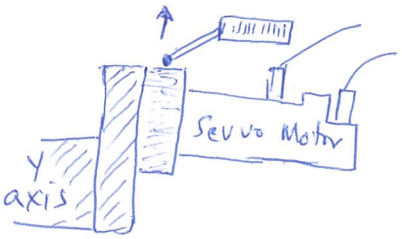
Reason :- Lens Mark. (Circular)



1) OFF MAIN POWER.
2) Dismantle Y-axis Power Cable & Signal Cable.
3) Unlock x4 m4 screw for the Servo Motor.
4) Dismount Servo motor out slowly.
5) Measure Gear Position e.g (23mm) before removing Gear out.

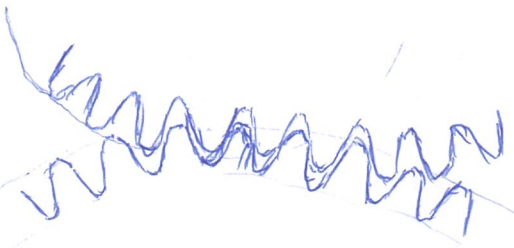


6) Fixed Gear Unit to new Servo motor.
7) Cleaning of the gear with clean bud without Fibre.
8) Clean Y-axis Unit Gear with clean bud.
9) Apply Grease as necessary for lubrication. to both Gears. (Servo Motor Gear & Y-axis Unit Gear.)
10) Assemble Servo Motor to Y-axis Unit. Carefully.
11) Lock the X4-M4 Screw. and tighten diagonally.
12) Fixed back Power Cable and Signal Cable.
13) ON main power and confirm 3 alarms
14) OFF Main power again. and ON back and confirm 2 alarms.
15) Move Y-axis's unit to max 30mm Outward (-)
16) OFF Main power again and ON back.
17) Select Ref return Mode and struck/press (+) button for servo Return Y-axis. Change complete.
18) Must Test Cut Ø501 & Ø502 for bite setting



Y-axis Gear Alignment.

When Y-axis servo motor vibrates, need to re-align Gear engagement

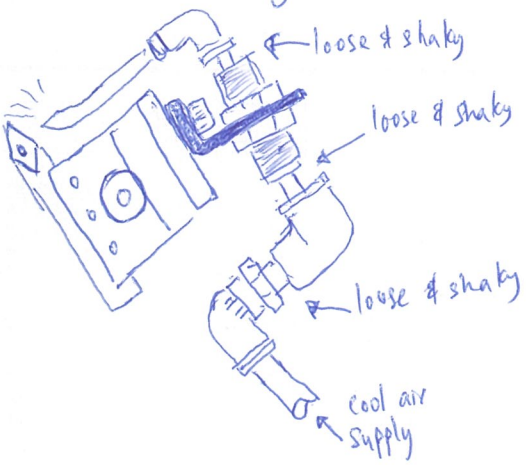


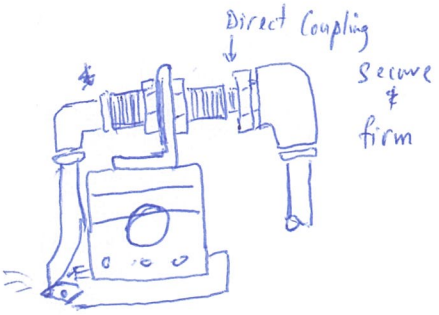
Note!- If backlash big, motor creates noise.
- Must adjust tight fit and slowly move up or reduce tension by 10μm by 10μm.

14 Jan 2016
Line 5 FC
Jaimf

IOL LENS MARK. CIRCULAR & DEEP LINE 5 FC

Suspected Cause	Action	Result.
(9) A-axis Top circular Table.	change Top of A-axis Circular Table	=> N. G.
(10) A-axis Bottom Circular Table	Change NEW BOTTOM A-axis Circular Table	=> N. G.
(11) Chuck Adapter Housing Not Good	Change Chuck Adapter Housing	=> N. G
(12) Z-axis Motor Rubber Seal	Change New Rubber Seal	=> N. G.
(13) ~~Re-construct~~ Cool Air blow loose and shaky.	Re-Construct Cool air blow from old Coupling to new coupling securely & firmly	=> STILL N.G But Mr Ong request to run.





IOL LENS MARK. CIRCULAR & DEEP LINE F5 FC

Suspected Cause	Action	Result.
① Bite Wear	=> Change bite	=> still N.G. 1 pce / 20 pcs.
② Y-axis Gear Engagement dirty	=> Service Gear & Cleaning Apply new Grease (white) ISOFLEX	=> still N.G 1 pce / 5 pcs.
③ Y-axis Motor Seal jerking	=> Change New Seal of Rubber	=> N.G 1 pce / 5 pcs
④ Y-axis Motor Vibration.	=> Change to New Repair 2nd hand used Motor	=> N.G
⑤ Gear Engagement faulty/no good backlash big causes Vibration.	=> Adjust Gear Engagement and Reduce backlash	=> Very Good but suddenly still n.g 10 pcs straight & 100 pcs / 10 pcs.
⑥ Y-axis linear Guide bearing & lead Screw Greasing	=> Grease linear Guide bearing & lead Screw after thorough Cleaning and Clean A-axis Inner Table.	=> still n.g 1 pce / 5 pcs.
⑦ A-axis Rubber Seal	Change A-axis Rubber Seal	=> still n.g
⑧ Y-axis Motor change	Change New Y-axis Motor	=> still n.g

70 AD IOL POWER UNSTABLE

LINE 2

POSSIBLE CAUSE (SUSPECTED)

ACTION.

(5) CLAMPING FORCE FOR FC FINAL ORIGINAL PRODN 50 cN·m and Reloose Y-axis Power Cable & Signal Cable

=> (5) Adjusted 50 cN-m ~ 70 cN-m.

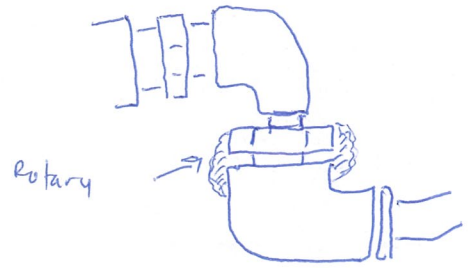
60AD Test 5 pcs => 50 cN-m
① 67.0 ② 69.75 ③ 70.25 ④ 69.25 ⑤ 66.75

70AD Test 10 pcs => ~~70~~ 70 cN-M
① 55.75 ② 51.75 ③ 55.25 ④ 51.5 ⑤ 55.25
⑥ 55.5 ⑦ 55.25 ⑧ 52.0 ⑨ 55.25 ⑩ 52.75

70-AD TEST - 10 pcs => ~~70~~ 50 cN-M
① 55.0 , 54.75 , 55.25 , 52.0 , 51.5
② 52.25 , 52.0 , 55.25 , 55.25 , 51.25

Remarks
50-70AD No ↑ alarm w/p drop from chuck

(6) Cooll Air Rotary Fitting hardened due to Ice Formed.



=> Air blow Rotary Fitting 6/4 run prodn to eliminate pressure and tension while mlc cutting

Test Cut 15 pcs

A-70AD Power +19.00

1 55.25	11. 55.25
2 54.75	12. 54.75
3 55.25	13. 51.25 *
4 55.25	14. 55.50
5 55.25	15. 55.25
6 55.25	
7 55.25	
8 55.25	
9 55.50	
10 55.50	

TO AD

IOL POWER UNSTABLE.

LINE 2

CURRENT RESULT. SPEC. 54.5 ± 0.75 (MIN 53.75 ~ MAX 55.25)

+ TEST 10 pcs result min and max.

① 56.25 / 3 ④ 52.25 / 4 ⑦ 55.25 / 3 ⑩ 55.25 / 3.
⑤ 55.25 / 3 ⑤ 55.0 / 3 ⑧ 55.25 / 3
⑤ 55.25 / 3 ⑥ 55.25 / 3 ⑨ 52.25 / 3

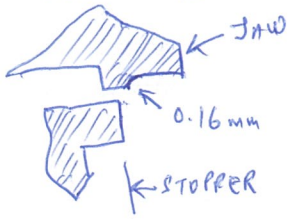
11

POSSIBLE CAUSE FOUND.

① BLOCKING STN HOLDER CARRIER UP/DOWN SLOW & ABNORMAL CAUSING WAXING AND LENS NOT SITTING PROPERLY.

② BLOCKING STN LENS CHUCK ABNORMAL CLAMPING FORCE STRONG & JAW ABNORMAL same as ITEM (3)

③ FC FINAL CUT CHUCK JAW ABNORMAL COULD CAUSE CLAMPING UNSTABILITY



④ FC FINAL M/C & BC FINAL M/C CONNECTOR ~~BE~~ HOSE MODIFICATION DONE (STRESS)

ACTION

⇒ ① Adjust UP/DOWN MOVEMENT DUE TO PREVIOUS DOWN SETTING PRESSURE IS 0 kgf. Adjust to 0.2 kgf.
CHECK MOVEMENT O.K.
RESULT ⇒ STILL UNSTABLE

⇒ ② CHANGE LENS CHUCK AND DO BLOCKING ALIGNMENT.
RESULT ⇒ STILL UNSTABLE

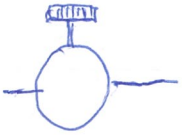
⇒ ③ CHANGE FC FINAL CHUCK AND RE-ALIGNMENT.
RESULT ⇒ STILL UNSTABLE

⇒ ④ UN-Install THE ABNORMALITIES TO NORMAL BACK. REDUCE STRESS

RESULT STILL UNSTABLE MORE

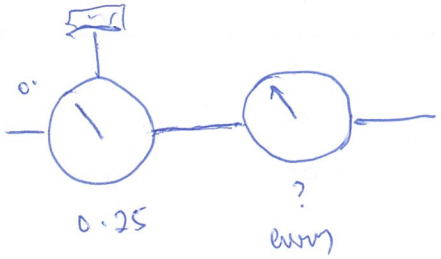
Difference L1 & L4

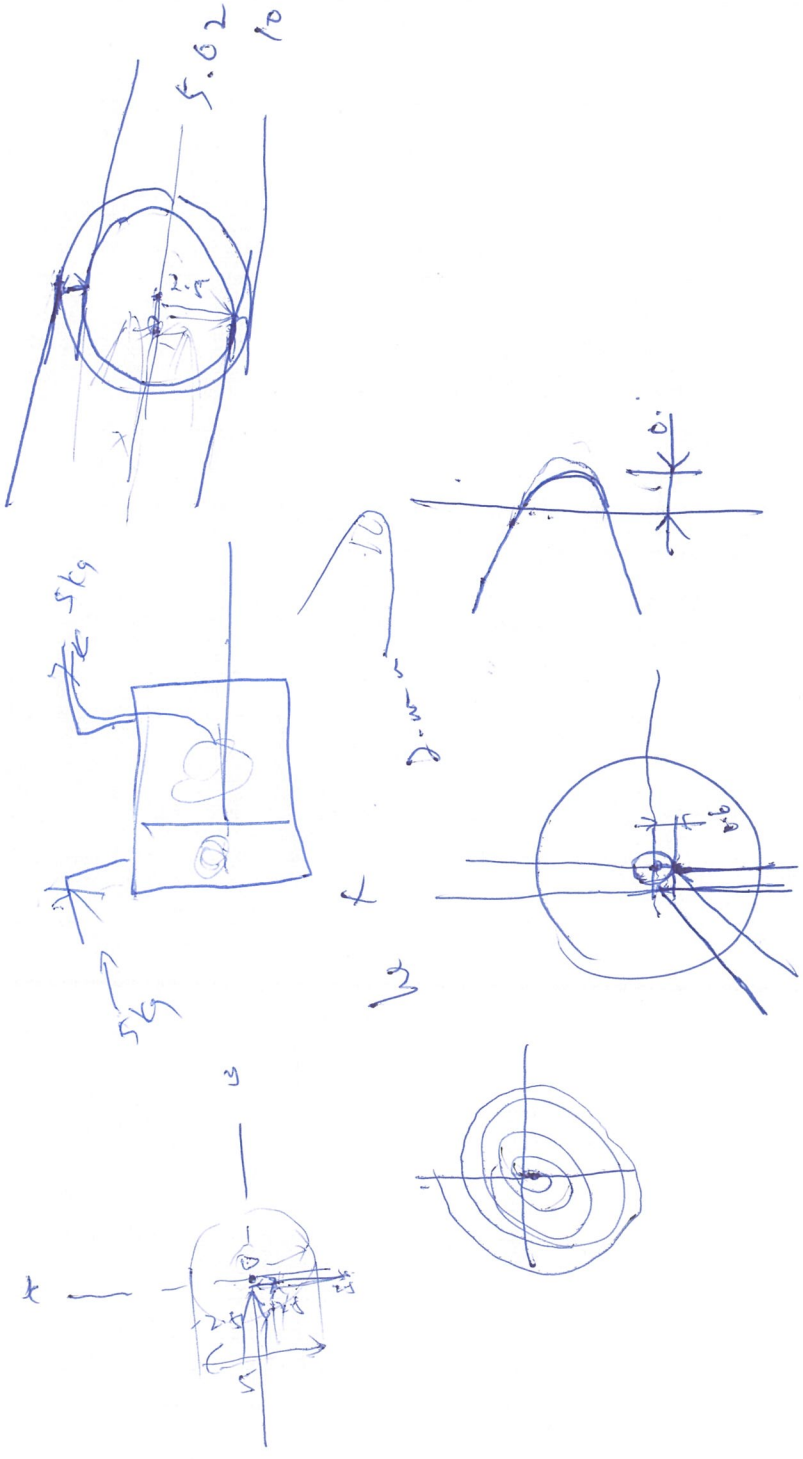
		L1 LOAD	L2 LOAD	L4 MISC
REP CUT	Vacuum Pressure	~~0~~		-50 ~ -70 kpa
	Spindle Pressure	~~0.5~~		0.5
	loader Pressure			0.45
	chuck Pressure			0.13 mpa
	Air Cooling			-5°C / strong
	Air booster			0.8 mPa
	spindle Air			choked
FC R/C	Vacuum Pressure			-50 ~ -65 kpa
	Spindle Pressure			0.55
	Loader Pressure			0.5 (moving)
	Chuck Pressure			0.13 M pa
	Air Cool / Spressure			-10 / strong
	Air booster			0.83 mpa
	spinde Air			choked.
FC FINAL	Vacuum Pressure			-50 ~ -80
	Spinde Pressure			0.5
	Loader Pressure			0.5
	Chuck Pressure.			0.15
	Air Cool / pressure			-5°C
	Air booster pressure			0.6 mPa
	Spindle Air.			Good
BC R/C	Vacuum Pressure			-45 ~ -70
	Spindle Pressure			0.55
	loader Pressure			0.5
	Air Cool / Pressure			-15 / strong
	Spinde Air			choked
BC FINAL	Vacuum Pressure			-40 ~ -80
	Spindle Pressure			0.53
	loader Pressure			0.45
	Air Cool / Pressure			-5 / strong
	Spindle Air			small



0300 Warm up
2. 0520
2. 2. 0800 Cutting

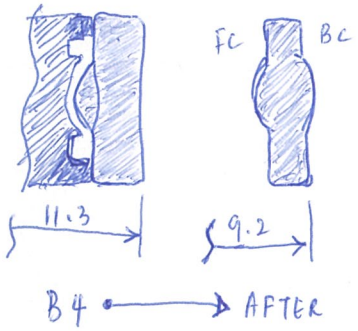
check less power Δ down
check more power Δ up.





x=2.5

⑥ BC - Rough-Cut –

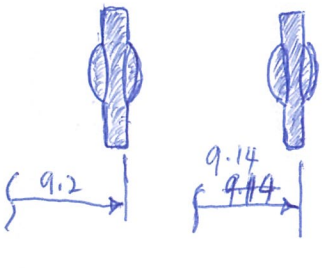


~~After~~ 6th BC Roughcut. (54 sec)

After wax blocking - Attachment between Optic and Alu holder by hot wax and cool down.

BC Roughcut will turn down back surface of a standard non adjustable Radius. BC surface.

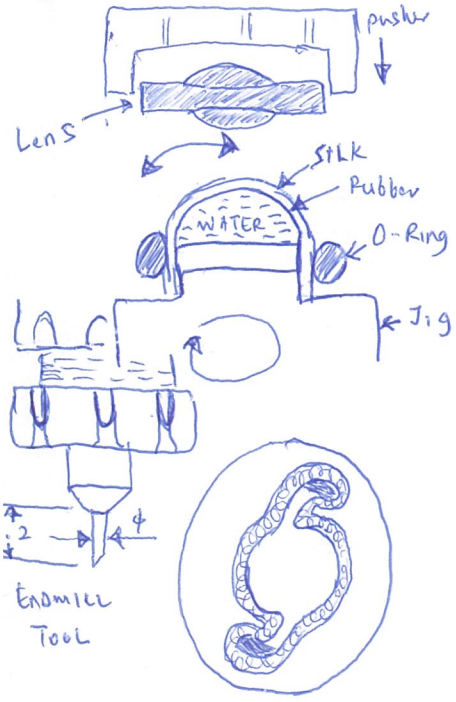
⑦ BC - Final Cut –



7th BC Final Process (64 sec)

After BC Roughcut, it will be finished turning BC surface to fine cutting surface. It will cut about 50 ~ 60 micron. from 9.2 to 9.14. Ilism must maintained about 10μm or less

⑧ Final Polishing –



8th Final Polishing Process. (48 sec)

After final cutting of BC surface. It will go thru a final polishing process. feed and turn by a rubber ball of water and a polishing media and covered by silk cloth.

9th Process WAXING (45 sec)

After Final Polish, parts will go thru layer of Waxing - to prevent Endmill chips scratching over lens final surface.

10th Endmill Process (93 sec) 2 unit = 47 sec.

After Waxing of a layer top part, it will go thru Endmill process to cut away unwanted outside area and finishing shape of the IOL optic finished part.

Machining process is completed.

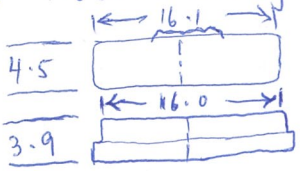
IOL CNC PROCESS. (I MISC) model

Objective

To Turn Radius and Polish Optic lens as a final Product.

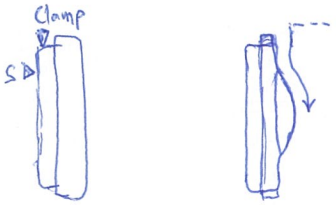
Process

① Pre-cut Turning - 1st Turning Process. (50 sec)



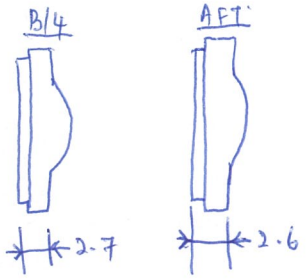
To Turn down Button Thickness from ht 4.5mm to 3.9 and ϕ16.0 from ϕ16.1

② FC - Rough Cut - 2nd Turning Process. (55 sec)



To Turn down Optic with Rough Radius from Ht 3.9 to ht 2.7mm ~~and from ϕ16.1 to 16.0.~~

③ FC - FINAL CUT - 3R Turning Process (61 sec)

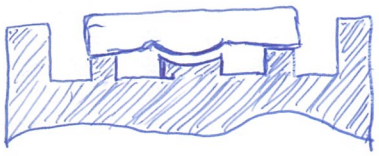


To Turn down FC Radius to achieve Fine Finishing surface. Turn down from Ht 2.7mm to 2.6mm.

④ POLISHING M/C - 4th Polishing Process (73 sec)

To polish Final cutting surface to eliminate fine cutting/Turning line Method use:- water pump to rubber and Silk cloth to a design jig.

⑤ WAXING - 5th Wax Blocking Process (62 sec)



After Fc Polished. Lens is turn opp-side and centering with ALuminium jig with waxing.

Material Produ Process.

PMMA LIQUD MIXING

↓

INSERT / INJECT "HAPTIC" LIQUID INSIDE PE HOUSING PIPES

↓

WATER BATH INJECTED "HAPTIC" LIQUID FOR 3 DAYS.

↓

OVEN HOT AIR FOR ~~1.5HR~~ 3 HR

↓

SAW / CUT BOTH SIDE

↓

OVEN HOT AIR FOR 3 DAYS

↓

CENTERLESS GRINDING

↓

CNC LATHE (BLOCK)

↓

HEAT PRESS (FIRMED BUTTON)

↓

CNC TURN (3UP BORING)

~~DOUGHNUT SETTING~~

↓

Doughnut Setting

↓

OPTIC LIQUID INSERT

↑

Polymerization

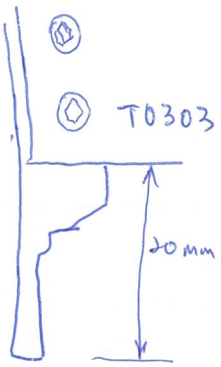
↑

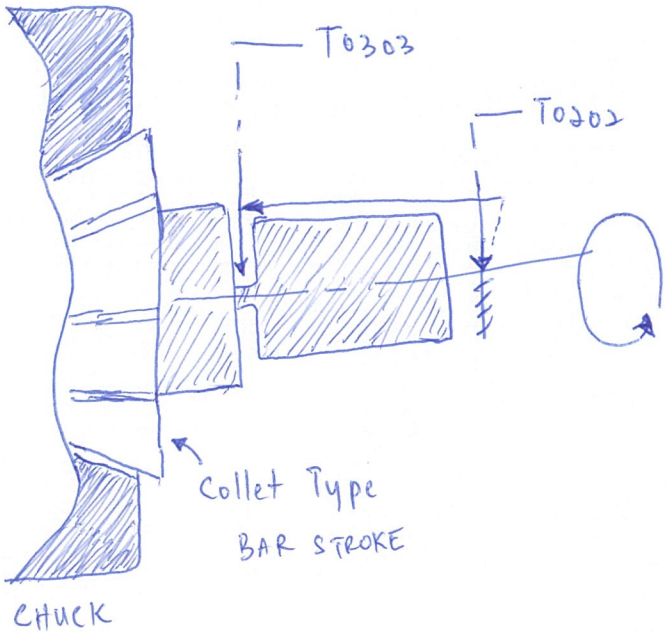
Annealing

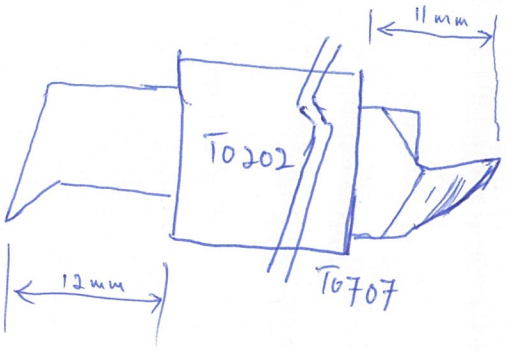
↑

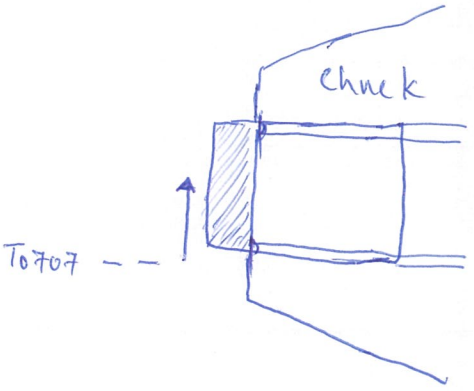
END FACE

CNC LATHE TURNING PROCESS TOOL LAYOUT (Material Prodn)









2ND PROCESS

CONTROL

T0202 - Top Facing and ϕ 12.05 ± 0.02

T0303 - Height ~~11.50 ± 0.01~~ 11.50 ± 0.02

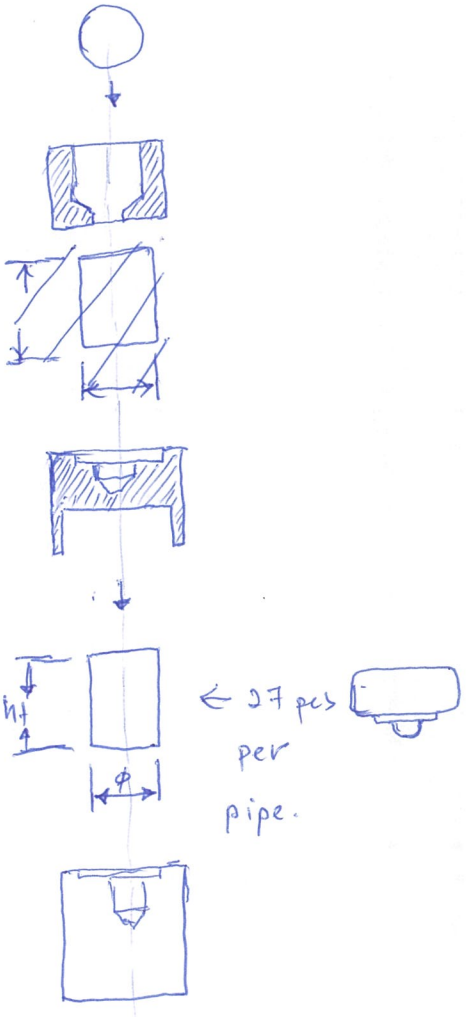
T0707 - Height 11.40 ± 0.02 (No nipple allowed)

HAPTIC ARRANGEMENT M/C. (Material Produ)

CAPACITY
2 unit Available (M/C 1 & 2)

OBJECTIVE :- To load haptic bullet into Pipe ID and arrangement of Top and Bottom press housing.

:- To unload haptic after press parts aka 'button' and arrange back housing to pipe



Operation – ① Load bullet/batch in the Vibration bowl

② Arrange Pipes into standby housing.

③ Check Pipe individually for standard height level to ensure there is perfectly housing size in the pipe

④ Clear any parts that is available at m/c.

⑤ Set to Manual mode and Ret. Ref. button.
↳ Button light will blink and stop after all position home.

⑥ Press Auto button and start the loading process.

Note :- when m/c loading, bullet after the bar machine turning should be perfectly align with the press housing centering diameter ~~was~~ in order to have a perfect pressing button. FAIL to do so will result in button N.G or deformation.

⑦ After loading completed, Need to check height of the complete parts.
↳ Secure the loaded pipe with a ID shaft and lock to ensure no movement of the bullets.
↳ After tightened all pipes then release the clamp and ready to go for next process ⇒ HEAT PRESSING PROCESS.

PMMA MIXING & FILLING.

FILLING M/C CAPACITY : 1 unit.

OBJECTIVE :- To INJECT IN PMMA Liquid into PE Pipes Precisely

PROCESS : FOLLOW STEP BY STEP MIXING & FILLING PROCESS according to Work Instruction.

MAINTENANCE POINT :-

i) Linear lead screw for FILLING M/C Need Greasing 6 mthly.

Process ① Liquid is measure and mix according to mixing Formula.
② It is then Filled into Pressure Tank and closed.
③ Tank is Transfer next Filling room for filling.
④ Preparation for PE Pipes.
↳ Bottom end is enclosed with Pipes knob and sealed with plastic elastic.
↳ Arranged bottom part of each pipes in to loading truck full Quantity.
⑤ Tank of PMMA Liquid is Filtered thru a micron filter and then plug an air pressure of 0.3 mpa. Air will pump liquid that already went thru filtered and at filling m/c nozzles.
⑥ Truck of Pipes is then load at Loading position and Test liquid level 6/4 full Filling Prodn.